# Table of contents

1 Quick Guide ........................................................................................................ 11

1.1 Introduction ........................................................................................................ 11

1.1.1 Read this first ................................................................................................... 11

1.1.2 Terminal operation and Ctrl modes .............................................................. 12

1.2 System access .................................................................................................... 13

1.2.1 Open system access ...................................................................................... 13

1.2.2 DCS functions and auxiliary function ......................................................... 14

1.2.3 Close system access ...................................................................................... 14

1.3 Address entries ................................................................................................. 15

1.3.1 Technical addresses ...................................................................................... 15

1.3.2 User addresses ............................................................................................. 16

1.4 Working in Ctrl-P mode (DCS dialogue) ......................................................... 17

1.5 Working in Ctrl-D mode .................................................................................... 21

1.6 Working in Ctrl-V mode .................................................................................... 25

2 Functions ............................................................................................................. 29

2.1 ACKN  Alarm Acknowledgement ..................................................................... 29

2.1.1 Initial Access and Handling .......................................................................... 29

2.1.2 Alarm Handling ............................................................................................ 30

2.1.3 Dialogue Questions ...................................................................................... 30

2.2 BCKP  Shadow Backup .................................................................................... 33

2.2.1 Initial Access and Handling .......................................................................... 33

2.2.2 Procedure ..................................................................................................... 33

2.3 BOOT  System BOOT .................................................................................... 37

2.3.1 Initial Access and Handling .......................................................................... 37

2.4 BYE  Exit from Terminal .................................................................................. 39

2.4.1 Initial Access and Handling .......................................................................... 39

2.5 CAL  Calendar Operations ............................................................................... 41

2.5.1 Initial Access and Handling .......................................................................... 41

2.5.2 Special Day Calendar, SCAL ........................................................................ 41

2.5.3 Principle of Special Day Distribution ............................................................ 43

2.5.4 Operations ................................................................................................... 44

2.5.5 Link System .................................................................................................. 48

2.5.6 SUWI, Summer & Winter Time Start ............................................................ 48
2.6 CB Central COLBAS Tasks ................................................................. 51
2.6.1 Initial Access to Function CB ......................................................... 51
2.6.2 Exit from Function CB ................................................................. 51
2.6.3 Edit and Control Commands ......................................................... 52
2.6.4 VISONIK Server COLBAS .......................................................... 55
2.6.5 COLBAS Access to Point Parameters ........................................... 63
2.6.6 COLBAS Access to Statistics ......................................................... 65
2.6.7 Error Handling with COLBAS ....................................................... 66
2.7 CMB Circular Message Buffer ....................................................... 69
2.7.1 Initial Access and Handling ......................................................... 69
2.7.2 LIST, Print Message Buffer .......................................................... 69
2.7.3 LDAT, Review of Messages by Date ............................................... 75
2.7.4 LFCO, Fault Condition Summary ................................................ 76
2.7.5 LIRO, List Messages in Reverse Order .......................................... 76
2.7.6 LOCT, List Message Buffer in Octal .............................................. 78
2.7.7 DEL, Cancel Outstanding Messages ............................................ 79
2.8 COS Dialogue for VISONIK Insight ............................................... 81
2.8.1 Summary .................................................................................... 81
2.8.2 Procedure .................................................................................. 81
2.8.3 Initial Access and Handling ......................................................... 81
2.8.4 UTIL, Picture Management .......................................................... 82
2.8.5 ACT, Active Channel Dialogue ................................................... 85
2.8.6 PICT, Allocation of Pictures to Address Ranges ......................... 95
2.9 DATE Set Date and Time ............................................................... 99
2.9.1 Influence of MCPS and BKPS on System Time ......................... 99
2.9.2 Initial Access and Handling ......................................................... 100
2.9.3 Change Date and Time ............................................................... 101
2.10 DPC Data Processing Communication ........................................ 103
2.10.1 Initial Entry and Handling ........................................................... 103
2.10.2 GEN, Generate Value Log .......................................................... 103
2.10.3 DEL, Delete Value Log ............................................................... 103
2.10.4 DIR, List Generated Value Logs ................................................ 103
2.10.5 EXP, Export Value Log .............................................................. 103
<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.11</td>
<td>DPO  Data Processing Operations</td>
<td>105</td>
</tr>
<tr>
<td>2.11.1</td>
<td>Initial Entry and Handling</td>
<td>105</td>
</tr>
<tr>
<td>2.11.2</td>
<td>GEN, Generate Value Log</td>
<td>106</td>
</tr>
<tr>
<td>2.11.3</td>
<td>DEL, Delete Value Log</td>
<td>110</td>
</tr>
<tr>
<td>2.11.4</td>
<td>DIR, Directory of Generated Addresses</td>
<td>111</td>
</tr>
<tr>
<td>2.11.5</td>
<td>LI, List Values Numerically</td>
<td>113</td>
</tr>
<tr>
<td>2.11.6</td>
<td>MOD, Modify Data</td>
<td>117</td>
</tr>
<tr>
<td>2.11.7</td>
<td>SERV, Select Service Function</td>
<td>119</td>
</tr>
<tr>
<td>2.11.8</td>
<td>FREE, Free Space in Memory</td>
<td>119</td>
</tr>
<tr>
<td>2.11.9</td>
<td>Validity Marker</td>
<td>120</td>
</tr>
<tr>
<td>2.12</td>
<td>DPP  Data Processing Presentation</td>
<td>123</td>
</tr>
<tr>
<td>2.12.1</td>
<td>Initial Access and Handling</td>
<td>123</td>
</tr>
<tr>
<td>2.12.2</td>
<td>General</td>
<td>124</td>
</tr>
<tr>
<td>2.12.3</td>
<td>LDAT, List Data Numerically</td>
<td>125</td>
</tr>
<tr>
<td>2.12.4</td>
<td>Validity Marker</td>
<td>129</td>
</tr>
<tr>
<td>2.12.5</td>
<td>ADIR, Directory of Generated Addresses</td>
<td>132</td>
</tr>
<tr>
<td>2.12.6</td>
<td>GDIR, Contents of Graphic Layout</td>
<td>133</td>
</tr>
<tr>
<td>2.12.7</td>
<td>GCH, Change Graphic Layout</td>
<td>134</td>
</tr>
<tr>
<td>2.12.8</td>
<td>GLI, List Graphic Layout</td>
<td>147</td>
</tr>
<tr>
<td>2.12.9</td>
<td>GDEL, Delete Graphic Layout</td>
<td>149</td>
</tr>
<tr>
<td>2.12.10</td>
<td>COPY, Copy Graphic Layout</td>
<td>151</td>
</tr>
<tr>
<td>2.12.11</td>
<td>PLOT, Output Graph</td>
<td>151</td>
</tr>
<tr>
<td>2.12.12</td>
<td>Output Terminal Configuration</td>
<td>155</td>
</tr>
<tr>
<td>2.13</td>
<td>DRR  Date/Time Reaction Register</td>
<td>157</td>
</tr>
<tr>
<td>2.13.1</td>
<td>Initial Access and Handling</td>
<td>157</td>
</tr>
<tr>
<td>2.13.2</td>
<td>CH, Enter/Change Data</td>
<td>159</td>
</tr>
<tr>
<td>2.13.3</td>
<td>LI, List Data Registers</td>
<td>164</td>
</tr>
<tr>
<td>2.13.4</td>
<td>DEL, Delete Register Entry(ies)</td>
<td>166</td>
</tr>
<tr>
<td>2.13.5</td>
<td>LSTA, List Reaction Register State</td>
<td>167</td>
</tr>
<tr>
<td>2.13.6</td>
<td>LOCT, List Reaction Entries in Octal</td>
<td>167</td>
</tr>
<tr>
<td>2.13.7</td>
<td>Special Features</td>
<td>168</td>
</tr>
<tr>
<td>2.14</td>
<td>DSS  Dialogue with Process Station</td>
<td>169</td>
</tr>
<tr>
<td>2.14.1</td>
<td>Initial Access and Handling</td>
<td>169</td>
</tr>
<tr>
<td>2.14.2</td>
<td>List/Print Files</td>
<td>171</td>
</tr>
<tr>
<td>2.14.3</td>
<td>Terminal Device Assignment</td>
<td>172</td>
</tr>
<tr>
<td>Section</td>
<td>Description</td>
<td>Page</td>
</tr>
<tr>
<td>---------</td>
<td>--------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>2.15</td>
<td>EDI Edit COLBAS Program Files</td>
<td>173</td>
</tr>
<tr>
<td>2.15.1</td>
<td>Full Screen Editor</td>
<td>173</td>
</tr>
<tr>
<td>2.15.2</td>
<td>Initial Access and Handling</td>
<td>173</td>
</tr>
<tr>
<td>2.15.3</td>
<td>Call up of Editor from Function CB</td>
<td>177</td>
</tr>
<tr>
<td>2.15.4</td>
<td>Key Functions</td>
<td>178</td>
</tr>
<tr>
<td>2.15.5</td>
<td>Line Editor (also referred to as COLBAS Editor)</td>
<td>180</td>
</tr>
<tr>
<td>2.15.6</td>
<td>Tasks and Files</td>
<td>183</td>
</tr>
<tr>
<td>2.16</td>
<td>GRR Group Reaction Register</td>
<td>185</td>
</tr>
<tr>
<td>2.16.1</td>
<td>Initial Access and Handling</td>
<td>185</td>
</tr>
<tr>
<td>2.16.2</td>
<td>CH, Enter/Change Data</td>
<td>187</td>
</tr>
<tr>
<td>2.16.3</td>
<td>LI, List Data Registers</td>
<td>191</td>
</tr>
<tr>
<td>2.16.4</td>
<td>DEL, Delete Register Entry(ies)</td>
<td>193</td>
</tr>
<tr>
<td>2.16.5</td>
<td>LSTA, List Reaction Register State</td>
<td>194</td>
</tr>
<tr>
<td>2.16.6</td>
<td>LOCT, List Reaction Entries in Octal</td>
<td>194</td>
</tr>
<tr>
<td>2.16.7</td>
<td>Special Features</td>
<td>195</td>
</tr>
<tr>
<td>2.17</td>
<td>KER KERMIT Protocol</td>
<td>197</td>
</tr>
<tr>
<td>2.17.1</td>
<td>Start PC &quot;KERMIT&quot; Program</td>
<td>197</td>
</tr>
<tr>
<td>2.17.2</td>
<td>Establish Transparent Mode with VISONIK DCS</td>
<td>198</td>
</tr>
<tr>
<td>2.17.3</td>
<td>Start VISONIK DCS &quot;KERMIT&quot; Program (SERVER)</td>
<td>198</td>
</tr>
<tr>
<td>2.17.4</td>
<td>Terminate Transparent Mode with VISONIK DCS</td>
<td>199</td>
</tr>
<tr>
<td>2.17.5</td>
<td>Stop KERMIT Programs</td>
<td>199</td>
</tr>
<tr>
<td>2.18</td>
<td>KEY Operator Key &amp; Password Entries</td>
<td>201</td>
</tr>
<tr>
<td>2.18.1</td>
<td>&quot;KEY&quot; Function Entry and Handling</td>
<td>202</td>
</tr>
<tr>
<td>2.18.2</td>
<td>CH, Change Data Entry</td>
<td>202</td>
</tr>
<tr>
<td>2.18.3</td>
<td>LI, List Data Registers</td>
<td>208</td>
</tr>
<tr>
<td>2.18.4</td>
<td>Delete Register Entry(ies)</td>
<td>209</td>
</tr>
<tr>
<td>2.19</td>
<td>MEMO Message to Terminals</td>
<td>211</td>
</tr>
<tr>
<td>2.19.1</td>
<td>Initial Access and Handling</td>
<td>211</td>
</tr>
<tr>
<td>2.19.2</td>
<td>Acknowledgment of Successful Message Transfer</td>
<td>212</td>
</tr>
<tr>
<td>2.20</td>
<td>MRR Maintenance Reaction Register</td>
<td>213</td>
</tr>
<tr>
<td>2.20.1</td>
<td>Initial Access and Handling</td>
<td>213</td>
</tr>
<tr>
<td>2.20.2</td>
<td>CH, Enter/Change Data</td>
<td>214</td>
</tr>
<tr>
<td>2.20.3</td>
<td>LI, List Data Registers</td>
<td>219</td>
</tr>
<tr>
<td>2.20.4</td>
<td>DEL, Delete Register Entry(ies)</td>
<td>221</td>
</tr>
<tr>
<td>2.20.5</td>
<td>LSTA, List Reaction Register State</td>
<td>222</td>
</tr>
<tr>
<td>2.20.6</td>
<td>LOCT, List Reaction Entries in Octal</td>
<td>222</td>
</tr>
<tr>
<td>2.20.7</td>
<td>Special Features</td>
<td>223</td>
</tr>
</tbody>
</table>
Table of Contents

2.21 MXD  Maximum Demand Register Entries .................................................. 225
  2.21.1 Maximum demand program in VISONIK .............................................. 225
  2.21.2 Initial Access and Handling ................................................................. 226
  2.21.3 CH, Enter Sheddable Loads or Generators .......................................... 227
  2.21.4 LI, List Entries .................................................................................. 232
  2.21.5 L8, List Entries in Octal ...................................................................... 233
  2.21.6 VE, Remove Faulty Blocks .................................................................. 234
  2.21.7 DEL, Delete Entry ............................................................................... 235
  2.22 PG  Point Generation ............................................................................... 237
  2.22.1 Initial Access and Handling .................................................................. 237
  2.22.2 PPG, Generate Point by Point ............................................................... 238
  2.22.3 PGX, Generate a number of similar points .......................................... 248
  2.22.4 LI, List Points from a PS ....................................................................... 248
  2.22.5 DEL, Delete Points in a PS .................................................................... 251
  2.22.6 COPY, Copy Generated Point ............................................................... 252
  2.23 PMD  Post Mortem Dump ......................................................................... 253
  2.23.1 Initial Access and Handling ................................................................. 254
  2.24 PNT  Change/List Point Parameters ......................................................... 257
  2.24.1 Initial Access and Handling .................................................................. 257
  2.24.2 Parameter selection ............................................................................. 258
  2.24.3 Listing parameters ............................................................................... 258
  2.24.4 Modifying parameters ......................................................................... 261
  2.25 PNX  Change/List Multiple Point Parameters .......................................... 263
  2.25.1 Initial Access and Handling .................................................................. 263
  2.25.2 Parameter Change/List Operating Mode .............................................. 266
  2.26 PRR  Process Reaction Register ............................................................... 269
  2.26.1 Initial Access and Handling .................................................................. 269
  2.26.2 CH, Enter/Change Data ....................................................................... 271
  2.26.3 LI, List Data Registers .......................................................................... 276
  2.26.4 DEL, Delete Register Entry(ies) ............................................................ 278
  2.26.5 LSTA, List Reaction Register State ....................................................... 279
  2.26.6 LOCT, List Reaction Entries in Octal .................................................... 280
  2.27 Reactions ............................................................................................... 281
  2.27.1 Reaction Programs in General ............................................................... 281
  2.27.2 Special Features of Digital Output Points ............................................ 284
<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.28</td>
<td>RPT Reports</td>
</tr>
<tr>
<td>2.28.1</td>
<td>Initial Access and Handling</td>
</tr>
<tr>
<td>2.28.2</td>
<td>Entering the Address Range</td>
</tr>
<tr>
<td>2.28.3</td>
<td>Standard Dialogue</td>
</tr>
<tr>
<td>2.28.4</td>
<td>Simultaneous Output of Several Reports</td>
</tr>
<tr>
<td>2.28.5</td>
<td>Graphical presentation of reports</td>
</tr>
<tr>
<td>2.28.6</td>
<td>FRPT, Fault Report</td>
</tr>
<tr>
<td>2.28.7</td>
<td>SRPT, Status Report</td>
</tr>
<tr>
<td>2.28.8</td>
<td>MRPT, Maintenance Report</td>
</tr>
<tr>
<td>2.28.9</td>
<td>TRPT, Trend Report</td>
</tr>
<tr>
<td>2.28.10</td>
<td>ERPT, Extended Point Report</td>
</tr>
<tr>
<td>2.28.11</td>
<td>SCR, Short Configuration Report</td>
</tr>
<tr>
<td>2.28.12</td>
<td>LCR, Long Configuration Report</td>
</tr>
<tr>
<td>2.28.13</td>
<td>SYSR, System Project Info. Report</td>
</tr>
<tr>
<td>2.28.14</td>
<td>UTAR, User to Technical Address Report</td>
</tr>
<tr>
<td>2.28.15</td>
<td>MDR, Maximum Demand Load Report</td>
</tr>
<tr>
<td>2.28.16</td>
<td>OSR, Optimum Start/Stop Report</td>
</tr>
<tr>
<td>2.28.17</td>
<td>DPR, Data Processing Tables/Graphs</td>
</tr>
<tr>
<td>2.28.18</td>
<td>PLOT, Output Graph</td>
</tr>
<tr>
<td>2.28.19</td>
<td>PNX, Programmable Report</td>
</tr>
<tr>
<td>2.28.20</td>
<td>STOP, Stop Report Listing</td>
</tr>
<tr>
<td>2.28.21</td>
<td>DRPT, Dialogue Report</td>
</tr>
<tr>
<td>2.28.22</td>
<td>PMD, Post Mortem Dump</td>
</tr>
<tr>
<td>2.28.23</td>
<td>ARPT, Alarm Report</td>
</tr>
<tr>
<td>2.28.24</td>
<td>STA, Statistic Register Report</td>
</tr>
<tr>
<td>2.28.25</td>
<td>CMB, Message Buffer Report</td>
</tr>
<tr>
<td>2.28.26</td>
<td>RRPT, Room Report</td>
</tr>
<tr>
<td>2.29</td>
<td>SRR Step Reaction Register</td>
</tr>
<tr>
<td>2.29.1</td>
<td>Initial Access and Handling</td>
</tr>
<tr>
<td>2.29.2</td>
<td>CH, Enter/Change Data</td>
</tr>
<tr>
<td>2.29.3</td>
<td>LI, List Data Registers</td>
</tr>
<tr>
<td>2.29.4</td>
<td>DEL, Delete Register Entry(ies)</td>
</tr>
<tr>
<td>2.29.5</td>
<td>LSTA, List Reaction Register State</td>
</tr>
<tr>
<td>2.29.6</td>
<td>LOCT, List Reaction Entries in Octal</td>
</tr>
</tbody>
</table>
2.30  STAT  Statistic Register .................................................................341
2.30.1 Initial Access and Handling .........................................................341
2.30.2 LIST, List Statistic Entries ..........................................................342
2.30.3 LDAT, Review of Messages by Date .............................................347
2.30.4 LFCO, Review of Fault Condition Messages ...........................348
2.30.5 LIRO, List Messages in Reverse Order .......................................349
2.30.6 LOCT, List Message Buffer in Octal ..........................................350
2.30.7 DEL, Cancel Outstanding Messages ...........................................351
2.31  TRND  Trend Plot Dialogue ............................................................353
2.31.1 Initial Access and Handling .........................................................353
2.31.2 CH, Change Data Entry ...............................................................354
2.31.3 LI, List Data Registers ...............................................................357
2.31.4 DEL, Delete Register Entry(ies) ..................................................358
2.31.5 Start/Stop Trend Plot .................................................................358
2.32  TRR  Time Reaction Register ..........................................................363
2.32.1 Initial Access and Handling .........................................................363
2.32.2 CH, Enter/Change Data ...............................................................365
2.32.3 LI, List Data Registers ...............................................................368
2.32.4 DEL, Delete Register Entry(ies) ..................................................370
2.32.5 LSTA, List Reaction Register State .............................................371
2.32.6 LOCT, List Reaction Entries in Octal .........................................371
2.32.7 LDAY, List Daily Entries ...........................................................372
2.32.8 Special Features .........................................................................372
2.33  TXCM  Macro and Cleartext Register ...........................................375
2.33.1 Introduction to the Text Registers ................................................375
2.33.2 Initial Access and Handling .........................................................377
2.33.3 Selection or Searching for Specific Text .......................................378
2.33.4 CH, Change in Active Language ................................................379
2.33.5 TXCM, Various Sub-Functions ....................................................380
2.34  TXIU  Status & Point Text Registers .............................................381
2.34.1 Introduction to the Text Registers ................................................381
2.34.2 Initial Access and Handling .........................................................385
2.34.3 Select or Search for a Specific Text ...............................................386
2.34.4 Structure of Status Text Register ................................................387
2.34.5 CH, Change in Active Language ................................................388
2.34.6 AL, Change in All Languages ....................................................391
2.34.7 LC, List Changed Text Entries ....................................................391
2.34.8 LD, List Language Discrepancies ...............................................392
2.34.9 MOVE, Copy or Move a Text Block ............................................392
2.34.10 LABC, List Entries Alphabetically ............................................394
2.34.11 LI, List Text ..............................................................................394
<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.35</td>
<td>VE Verification of Data Files</td>
<td>395</td>
</tr>
<tr>
<td>2.35.1</td>
<td>Initial Access and Handling</td>
<td>395</td>
</tr>
<tr>
<td>2.36</td>
<td>XX Change Active Language</td>
<td>397</td>
</tr>
<tr>
<td>2.36.1</td>
<td>Initial Access and Handling</td>
<td>397</td>
</tr>
<tr>
<td>3</td>
<td>System Messages</td>
<td>399</td>
</tr>
<tr>
<td>3.1</td>
<td>General Notes</td>
<td>399</td>
</tr>
<tr>
<td>3.2</td>
<td>Event Messages</td>
<td>401</td>
</tr>
<tr>
<td>3.2.1</td>
<td>Structure of a report line</td>
<td>401</td>
</tr>
<tr>
<td>3.2.2</td>
<td>Point type dependent information fields</td>
<td>402</td>
</tr>
<tr>
<td>3.3</td>
<td>Parameter Change Messages</td>
<td>407</td>
</tr>
<tr>
<td>3.3.1</td>
<td>Causes for parameter change reports and terminal assignment</td>
<td>408</td>
</tr>
<tr>
<td>3.4</td>
<td>Sequence and Classification</td>
<td>411</td>
</tr>
<tr>
<td>3.4.1</td>
<td>Format A: Messages with STAP</td>
<td>412</td>
</tr>
<tr>
<td>3.4.2</td>
<td>Format B: Messages with Program Names</td>
<td>413</td>
</tr>
<tr>
<td>3.4.3</td>
<td>Format C: Messages with Short Text</td>
<td>414</td>
</tr>
<tr>
<td>3.4.4</td>
<td>Format D: Messages with Long Text</td>
<td>414</td>
</tr>
<tr>
<td>3.5</td>
<td>DCS Messages (in alphabetical order)</td>
<td>415</td>
</tr>
</tbody>
</table>
1 Quick Guide

1.1 Introduction

These short instructions are for users who are not very familiar with the VISONIK systems.
In the following chapters, addressing of data points, terminal operation and working with the Ctrl-P, Ctrl-D and Ctrl-V modes are described briefly.
The 'Introduction' chapter provides information on this quick guide.
For system knowledge and technical notes, the related documents are referenced.

Where do I find what?

This quick guide contains the following chapters and topics:

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Topic</th>
</tr>
</thead>
</table>
| 1       | Introduction (this chapter):
|         | • General information
|         | • Start-up information
|         | • Text simplifiers
|         | • Reference documentation |
| 2       | System access via terminal operation:
|         | • Establishing communications, system to terminal
|         | • How to open and close system access
|         | • How to start the help function |
| 32      | Address entries and working with terminal operation:
|         | • How to enter data point addresses |
| 4       | Working in Ctrl-P mode with examples |
| 5       | Working in Ctrl-D mode with examples |
| 6       | Working in Ctrl-V mode with examples |

1.1.1 Read this first

The following sections provide basic information that is vital for understanding this quick guide.

Terminal operation: for which units?

Terminal operation may be conducted on the following units:
• Terminal (VTxxx)
• PC with terminal emulation (Reflection, New VISOTOOL Editor, VISOTERM, etc.)
• PC with VISONIK Insight (without Ctrl-D and Ctrl-V modes)
• PC with DESIGO Insight (without Ctrl-D and Ctrl-V modes)

Note

For unit combinations with mouse: Mouse operation is not possible!
This quick guide uses the following simplifiers:

<table>
<thead>
<tr>
<th>Simplifier</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENTER, CTRL, ...</td>
<td>Actuate the respective key</td>
</tr>
<tr>
<td>CTRL+P</td>
<td>Actuate the CTRL and P-key simultaneously</td>
</tr>
<tr>
<td>Confirm</td>
<td>Confirm entries or close entries, messages or details (by actuating the ENTER or . keys).</td>
</tr>
<tr>
<td>pro</td>
<td>Text entries are generally indicated in bold print. Ex.: Enter function PRO (reports).</td>
</tr>
</tbody>
</table>

Example: Examples for entries within procedures are generally printed in Courier font.

Reference documentation: The following L&S documents contain basics, technical information and support for project handling of ViSONIK systems:

- VISONIK, Point types and Parameters, VVS 20
  Basic documentation
  Order number: CM2Z8568en
- VISONIK Insight, Version 8
  Operating Instructions
  Order number: CM2B8570en
- VISONIK COLBAS VVS 20
  Language Description
  Order number: CM28387en

1.1.2 Terminal operation and Ctrl modes

For terminal operation, no special programming knowledge is required: every command is entered by means of clear text or digits.

There are three Ctrl-modes:
- Ctrl-P mode is used to select data points and change parameter values. Ctrl-P mode, also called DCS dialogue, allows for accessing the various DCS functions.
- The Ctrl-D and Ctrl-V modes are used to monitor point states and diagnose faults.
1.2 System access

Establishing communications

In order to work with the system (e.g. change parameter values and list reports), a connection must have been established between the VISONIK system and the terminal.

Establishment of a connection is indicated as follows on-screen:

```
T7    v18.01.001      VISONIK PC050        09.02.1999/Tu            12:13
____________________________
V I S O N I K
Version 18
Building Management and Supervisory System - Landis & Staefa
```

Ctrl/P = Function        Ctrl/V = Point View Mode

1.2.1 Open system access

How do I proceed?

If terminal operation has not yet been started, proceed as follows (after establishing communications) to access the system:

<table>
<thead>
<tr>
<th>Step</th>
<th>Procedure</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CTRL+P</td>
<td>Open system access (Login)</td>
</tr>
<tr>
<td>2</td>
<td>Enter and confirm user code</td>
<td>Case-sensitive entry!</td>
</tr>
<tr>
<td>3</td>
<td>Enter and confirm password</td>
<td>Case-sensitive entry! (Password entry is suppressed)</td>
</tr>
</tbody>
</table>

The system access is displayed as follows on-screen:

```
User Code: AG
Password: Welcome Alfred Gisler
:T7    17:51:08 Function=PNT:
Ctrl/E = Exit Function        Ctrl/V = Point View Mode
```

What is next?

You can now select data points and change their parameters, open Ctrl-D or Ctrl-V mode or any DCS function.
### 1.2.2 DCS functions and auxiliary function

Which DCS functions are available?

Proceed as follows if you want to see the available DCS functions (depending on access level):

<table>
<thead>
<tr>
<th>Step</th>
<th>Procedure</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CTRL+P</td>
<td>Open DCS dialogue</td>
</tr>
<tr>
<td>2</td>
<td>? enter and confirm</td>
<td>Start auxiliary function</td>
</tr>
</tbody>
</table>

A list of all available functions is displayed. Refer to the overall documentation (VISONIK Functions and System Messages, V18) for further information on functions. Example for the terminal (excerpt) in the DCS dialogue:

```
:T7  17:52:42 Function=PNT: ?
4/4  **''''***"*** Alfred Gisler /AG
0 0 BYE Exit from Terminal
0 0 MEMO Messages to Terminals
1 1 XX Change Working Language
2 2 RPT Reports
3 3 TXCM Macro & Clear text Register
3 3 PNT Change/List Point Parameters
3 3 PRR Process Reaction Register
3 3 TRR Time Reaction Register

------- Level for write access
------- Level for read access
```

Note: CTRL+S can be used to temporarily display a list; ESC and Ctrl+Q are used to release the function.

### 1.2.3 Close system access

How do I proceed?

System access can only be closed from within the DCS dialogue. Proceed as follows:

<table>
<thead>
<tr>
<th>Step</th>
<th>Procedure</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CTRL+P</td>
<td>Open DCS dialogue</td>
</tr>
<tr>
<td>2</td>
<td>Enter and confirm bye</td>
<td>Close system access (Logout)</td>
</tr>
</tbody>
</table>

This is displayed as follows on-screen:

```
:T7  17:58:21 Function=PNT: bye    Goodbye Alfred Gisler
```

Note: After ‘bye’, the connection between the VISONIK system and the terminal still exists. However, system access becomes possible only after renewed login.
1.3 Address entries

VISONIK uses:
- technical addresses (octal or decimal addressing) and
- user addresses.

This chapter briefly explains the meaning of technical addresses and user addresses. Additionally, the manner in which address ranges are entered for both addresses is also explained. Refer to the overall documentation (VISONIK Point Types and Parameters, V18) for further information on addresses.

1.3.1 Technical addresses

Data points and hardware connection

The technical address of a data point is derived from the process station number and the number of a data point, whereby the data point number is derived from the I/O module address.

The technical address is a reflection of the data point's connection on the hardware side in the system plant. These data points are directly related to the process.

Note

In this chapter, we assume that the system uses decimal addressing for technical addresses.

How to enter technical addresses?

In order to enter data point 020 of process station 52, use the following address without spaces:

$52’020

|$ Sign for technical address

52’ Process station address with separator between process station address and data point

020 Number of the data point

Data points without hardware connection

There are data points for system-internal values without direct connection to the system in terms of hardware.

The following applies:

- In order to enter a data point in the DCS, use the following address without spaces:

  $FL7

- In order to enter a data point in the process station, use the following address without spaces:

  $52’PLT4

Addresses with group part

In link points and VIPs, the group part is supported in the technical address. Thus, the complete point address for these point types is as follows:

$52’ai3’20

|$ Sign for technical address

52’ Process station address with separator between process station address and data point

ai Link points (AI, AO, DI, DO, CI) or VIP

3 Group part (0...255 with 0 = no group)

20 Element part (1...255)
If you want to include all existing data points of the DCS, enter the following:
$*

If you want to include all data points of process station 52 from address range 020 to 030, enter the following:
$52'020..$52'030

If you want to include all data points of process station 52, beginning at point 010 to process station 54, ending at point 030, enter the following:
$52'010..$52'030

Specify a filter function for the following entry (three periods '...' for range), but only for data points 010 to 030 of each process station. (the points 001 to 007 and from 030 are dropped):
$52'010...$52'027

### 1.3.2 User addresses

Each data point can be assigned a user address. In an optimum structure, a user address contains a unique description of the associated information data point - for example location, plant type, plant number, function, etc.

**Note**
The DCS dialogue shows the previously defined user address structure that is expected for address entry:

<table>
<thead>
<tr>
<th>Address</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>$52'030</td>
<td>?</td>
</tr>
</tbody>
</table>

**User Address range = *'**'******"*****
**UA** : A'AA'AAAA"dddd
**TA** : $eee'mop, $S, $Tn; eee=d32, o40; mop=070, M29p1, VIP8, PS, ...
**+** : Next UA/TA
**-** : Previous UA/TA

**Address=$52’030 :**

User addresses consist of any combination of digits, letters, delimiters (#), and dummy delimiters ("), max. 26 characters; e.g.:

```
a'bb'cccc"dddd
```

- **a** Building (e.g.)
- **b** Delimiter for optical and structural subdivision of the respective address
- **c** Floor (e.g.)
- **c** Delimiter
- **c** Plant type, plant number (e.g.)
- **"** A dummy delimiter to separate the redundant dummy address extension
- **ddd** Any descriptive text

**How to enter a user address**

In order to select data point '08' in building 'C', floor '03', 'ventilation plant', thus C03Lu08, enter the following user address:

```
c‘03’lu08
```

**How to enter an address range**

Enter the address range of user addresses as follows:

```
b‘00’he01..e‘03’lu35
```
1.4 Working in Ctrl-P mode (DCS dialogue)

Important entries:

Note the following important keyboard entries:

**CTRL+P**

Entering CTRL+P opens function PNT (change and list point parameters). It is the main function of the DCS dialogue and allows for checking and changing individual parameter values.

**CTRL+H**

By entering CTRL+H, the next higher entry hierarchy is opened.

**CTRL+E**

When Ctrl-P mode (DCS dialogue) is active, CTRL+E enables the terminal so that messages can be displayed on-screen.

?  

Via the auxiliary function, the various entry options such as limit values, address ranges, etc. can be displayed for each hierarchy.

+ or -  

By entering + or – on address entry, the selected data point address can be increased or decreased by one.

**Recommendation**

In order to execute the following examples, we recommend to write down the existing parameter values and reset them to their original values after completing the instructions.

**Note**

CTRL+P always returns you to the beginning of the DCS dialogue!

**Example 1**

**Changing two parameters of a data point**

For example, the upper and lower warning limits of a temperature measured value are used, i.e., change parameters HIWL (=High Warn Limit) and LOWL (=Low Warn Limit).

**How do I proceed?**

Proceed as follows to change parameters (HIWL and LOWL):

<table>
<thead>
<tr>
<th>Step</th>
<th>Procedure</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CTRL+P</td>
<td>Open DCS dialogue</td>
</tr>
<tr>
<td>2</td>
<td>Enter and confirm $52'020</td>
<td>Select data point address</td>
</tr>
<tr>
<td>3</td>
<td>Enter and confirm HIWL</td>
<td>Select parameter</td>
</tr>
<tr>
<td>4</td>
<td>? enter and confirm</td>
<td>Indicate permissible entry and value range</td>
</tr>
<tr>
<td>5</td>
<td>Enter and confirm 30</td>
<td>Enter new value</td>
</tr>
<tr>
<td>6</td>
<td>CTRL+H</td>
<td>Return to next higher hierarchy</td>
</tr>
<tr>
<td>7</td>
<td>For parameter LOWL, repeat steps 3 to 5</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>CTRL+E</td>
<td>Enable screen for messages</td>
</tr>
</tbody>
</table>

**Note on step 3:**  
Instead of directly entering HIWL, ENTER can be used to select the parameter list line by line and also arrive at parameter HIWL.
### Note:
On line-by-line selection in the parameter list, only changeable parameters are displayed.

For advanced users:
If you know which function, address and parameter you want to change, you can use the direct entry option.

Direct entry for $hiwl$ (steps 1, 2, 3, 5, i.e. without 4):
CTRL+P $52'020,hiwl,30$

Direct entry for $LOWL$ (step 6 and then steps 3 and 5):
CTRL+H $lowl,10$

### Note:
The system is not case-sensitive with regard to parameter name entry!

#### Example 2
Request report for a selected address range
You can request various report types via the report function; refer to the “VISONIK Functions and System Messages” manual for further information on report types.

How do I proceed?
Proceed as follows to request a status report on address range $52'000$ to $52'020$:

<table>
<thead>
<tr>
<th>Step</th>
<th>Procedure</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CTRL+P</td>
<td>Open DCS dialogue</td>
</tr>
<tr>
<td>2</td>
<td>enter and confirm rep</td>
<td>Select function ‘Reports’</td>
</tr>
<tr>
<td>3</td>
<td>? enter and confirm</td>
<td>Display all possible report types</td>
</tr>
<tr>
<td>4</td>
<td>enter and confirm zpr</td>
<td>Select report type ‘zpr’</td>
</tr>
<tr>
<td>5</td>
<td>Enter and confirm $52'000..52'337$</td>
<td>Specify address range</td>
</tr>
<tr>
<td>6</td>
<td>. confirm</td>
<td>Accept system proposal “No parameter condition necessary”</td>
</tr>
<tr>
<td>7</td>
<td>$tt$ confirm</td>
<td>Accept system proposal “Own Terminal” ($tt$)</td>
</tr>
<tr>
<td>8</td>
<td>. confirm</td>
<td>Page up is not relevant for screen display</td>
</tr>
<tr>
<td>9</td>
<td>CTRL+S</td>
<td>Stop report</td>
</tr>
<tr>
<td>10</td>
<td>CTRL+Q</td>
<td>Continue report</td>
</tr>
</tbody>
</table>
For advanced users:

If you know which function and address range you want to report or edit, you can use the direct entry option.

Direct entry to request a status report for data points $52'000..$52'337:
CTRL+P pro,zpr,$52'000..$52'337,,,,

Direct entry with parameter setting OSV=Yes
CTRL+P pro,zpr,$52'000..$52'337,osv,yes,,,,

Cancel report printout

Proceed as follows to cancel a report printout:

<table>
<thead>
<tr>
<th>Step</th>
<th>Procedure</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CTRL+P</td>
<td>Beginning of dialogue</td>
</tr>
<tr>
<td>2</td>
<td>Enter and confirm rep, stop</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Confirm all of the following settings</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>CTRL+E</td>
<td>Enable screen</td>
</tr>
</tbody>
</table>

Direct entry to cancel a report:
CTRL+P pro,stop,,,,,

Special entries:

Additionally to the entries described above the following entries are possible on parameter level:

\ one parameter backward: FMT ---> EVE
> show indexed parameters: PMA(1) ---> PMA(2) ---> PMA(3) ....
< do not show indexed parameters: PMA(1) ---> PSL(1)
* show all parameters
*T show all parameters ending with ...T
T* show all parameters beginning with T...
** show additionally all indexed parameters
par(3..5) show indexed parameters from 3 to 5: PMA(3),PMA(4),PMA(5)
par(*) show all indexed parameters: PMA(1),PMA(2),PMA(3),....
** show all parameters with all attributes
**.* as above, but additionally for all indexed parameters
*.or show attribute OR of all parameters
**.or as above, but additionally for all indexed parameters
1.5 Working in Ctrl-D mode

Ctrl-D mode displays several parameters of the selected points as a summary. All points of a link system can be selected.

How do I proceed?

Proceed as follows to start the Ctrl-D mode:

<table>
<thead>
<tr>
<th>Step</th>
<th>Procedure</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CTRL+D</td>
<td>Start Ctrl-D mode</td>
</tr>
<tr>
<td>2</td>
<td>Enter and confirm data point address</td>
<td>Technical or user address permitted. Delete individual characters using the backspace key or delete the entire address through direct entry.</td>
</tr>
<tr>
<td>3</td>
<td>Type in &gt; and the parameter name and confirm</td>
<td>This step is necessary only if the respective parameter is not displayed following step 2</td>
</tr>
</tbody>
</table>

In Ctrl-D mode, the screen display is split. The upper half of the screen contains the selected data point with its parameters, the lower half is used for the DCS dialogue.

After step 2 terminal operation is displayed as follows:

```
8568o01en

The main parameters and a point type-dependent selection for the most commonly used parameters appears.
```
### Commands and functions

- **PageDown, PageUp**
  Use these keys to move up or down in the displayed parameters. You can change the respectively highlighted parameter.

- **+ or -**
  Use these keys to increase or reduce the data point address by one when entering the address (not available for third-party system points).
  Caution: Make sure NumLock is active!

- **CTRL+P**
  Entering CTRL+P starts the DCS dialogue parallel to Ctrl-D mode in the bottom half of the screen.

- **CTRL+H**
  Entering CTRL+H allows for moving to the next higher entry hierarchy.

- **CTRL+K**
  Entering CTRL+K closes Ctrl-D mode and provides the entire screen to the DCS dialogue.

### Possible input in the entry line at the top of the screen

<table>
<thead>
<tr>
<th>Parameter value ENTER</th>
<th>Enters a new parameter value</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; ENTER</td>
<td>Moves forward in the parameter list (= PageDown)</td>
</tr>
<tr>
<td>&gt; Parameter name ENTER *</td>
<td>Jumps to the entered parameters in the parameter list</td>
</tr>
<tr>
<td>&gt; main (or &gt; m) ENTER *</td>
<td>Jumps to the beginning of the main parameters in the parameter list</td>
</tr>
<tr>
<td>&gt; oper (or &gt; o) ENTER *</td>
<td>Jumps to the beginning of the operating parameters in the parameter list</td>
</tr>
<tr>
<td>&gt; serv (or &gt; s) ENTER *</td>
<td>Jumps to the beginning of the configuration parameters in the parameter list</td>
</tr>
<tr>
<td>&gt; conf (or &gt; c) ENTER *</td>
<td>Jumps to the beginning of the service parameters in the parameter list</td>
</tr>
<tr>
<td>&gt; trr ENTER *</td>
<td>Jumps to the timeswitch catalogue</td>
</tr>
</tbody>
</table>
| CTRL H                 | Jumps to the "Parameter name" function. You can now skip the " > " character for the entries *.

### Example

**Change warning limits of a measured value and observe data point**

Parameter HIWL indicates the upper and LOWL the lower warning limit. If one of these two limits is violated, a message appears on the terminal.

Proceed as follows to change the upper warning limit HIWL:

<table>
<thead>
<tr>
<th>Step</th>
<th>Procedure</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CTRL+D</td>
<td>Start Ctrl-D mode</td>
</tr>
<tr>
<td>2</td>
<td>Enter and confirm $52'020</td>
<td>Select address</td>
</tr>
<tr>
<td>3</td>
<td>Enter and confirm HIWL</td>
<td>Select parameter</td>
</tr>
<tr>
<td>4</td>
<td>Enter and confirm 25 (e.g.)</td>
<td>Enter parameter value that is lower than the current actual temperature value</td>
</tr>
</tbody>
</table>
On screen, the values (for an actual temperature of e.g. 26.7 deg. C) are displayed as follows:

<table>
<thead>
<tr>
<th>Main Computer</th>
</tr>
</thead>
<tbody>
<tr>
<td>- AI (Analogue Input)</td>
</tr>
<tr>
<td>- Alarm Status</td>
</tr>
<tr>
<td>HIWL</td>
</tr>
</tbody>
</table>

Note

The actual temperature thus has violated the upper warning limit which is indicated on-screen by "HIWL".
1.6 Working in Ctrl-V mode

The Ctrl-V mode displays several parameters for the selected point and contains more detailed information on the parameters than Ctrl-D mode. Additionally, all data points of the link system can be displayed.

How do I proceed?

Proceed as follows to start the Ctrl-V mode:

<table>
<thead>
<tr>
<th>Step</th>
<th>Procedure</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CTRL+V</td>
<td>Start Ctrl-V mode</td>
</tr>
<tr>
<td>2</td>
<td>Enter and confirm data point address</td>
<td>Technical or user address permitted. Delete individual characters using the backspace key or delete the entire address through direct entry.</td>
</tr>
<tr>
<td>3</td>
<td>Type in &gt; and the parameter name and confirm</td>
<td>This step is necessary only if the respective parameter is not displayed following step 2</td>
</tr>
</tbody>
</table>

In Ctrl-V mode, the screen display is split. The upper half of the screen contains the selected data point with the parameter list, the lower half is used for the DCS dialogue. After step 2 terminal operation is as follows:

The main parameters and a point type-dependent selection for the most commonly used parameters appears.
Commands and functions

PageDown, PageUp
These two keys help you move up or down the parameter list one page at a time.

Use these keys to move up or down the highlighted section in the currently displayed parameters. The respectively highlighted parameter appears on the first line where it can also be changed, provided it is a writeable parameter.

+ or -
Use these keys to increase or decrease the data point address by one on entering the address (not available for third-party system points).
Caution: NumLock must be active

CTRL+P
Entering CTRL+P starts the DCS dialogue parallel to Ctrl-V mode in the bottom half of the screen.

CTRL+K
Entering CTRL+K closes Ctrl-V mode and provides the entire screen to the DCS dialogue.

Possible input in the entry line at the top of the screen

<table>
<thead>
<tr>
<th>Parameter value ENTER</th>
<th>Enters a new parameter value</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; ENTER</td>
<td>Moves forward in the parameter list (= PageDown)</td>
</tr>
<tr>
<td>&gt; Parameter name ENTER *</td>
<td>Jumps to the entered parameters in the parameter list</td>
</tr>
<tr>
<td>&gt; main (or &gt; m) ENTER *</td>
<td>Jumps to the beginning of the main parameters in the parameter list</td>
</tr>
<tr>
<td>&gt; oper (or &gt; o) ENTER *</td>
<td>Jumps to the beginning of the operating parameters in the parameter list</td>
</tr>
<tr>
<td>&gt; conf (or &gt; c) ENTER *</td>
<td>Jumps to the beginning of the configuration parameters in the parameter list</td>
</tr>
<tr>
<td>&gt; serv (or &gt; s) ENTER *</td>
<td>Jumps to the beginning of the service parameters in the parameter list</td>
</tr>
<tr>
<td>&gt; trr ENTER *</td>
<td>Jumps to the timeswitch catalogue</td>
</tr>
<tr>
<td>CTRL H</td>
<td>Jumps to the &quot;Parameter name&quot; function. You can now skip the &quot; &gt; &quot; character for the entries *.</td>
</tr>
</tbody>
</table>

Example 1

Change and observe warning limits of a measured value
Parameter HIWL indicates the upper and LOWL the lower warning limit. If one of these two limits is violated, a message appears on the terminal.
Proceed as follows to change the upper warning limit:

<table>
<thead>
<tr>
<th>Step</th>
<th>Procedure</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CTRL+V</td>
<td>Start Ctrl-V mode</td>
</tr>
<tr>
<td>2</td>
<td>Enter and confirm $52 ' 020</td>
<td>Select address</td>
</tr>
<tr>
<td>3</td>
<td>Enter and confirm &gt; HIWL</td>
<td>Select parameter</td>
</tr>
<tr>
<td>4</td>
<td>Enter and confirm 25 (e.g.)</td>
<td>Enter parameter value that is lower than the current actual temperature value</td>
</tr>
</tbody>
</table>
On screen, the values (for an actual temperature of e.g. 26.7 deg. C and with HIWL=25) are displayed as follows:

```
On screen, the values (for an actual temperature of e.g. 26.7 deg. C and with HIWL=25) are displayed as follows:

<table>
<thead>
<tr>
<th>Step</th>
<th>Procedure</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Enter and confirm data point address</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Enter and confirm &gt;trr</td>
<td>Note: If the selected data point address does not exist in the time reaction catalogue, a corresponding message is displayed.</td>
</tr>
<tr>
<td>3</td>
<td>Enter and confirm the new time</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Enter and confirm CTRL+K (e.g.)</td>
<td>Quit Ctrl-V mode (e.g.)</td>
</tr>
</tbody>
</table>
```

Note

The actual temperature thus has violated the upper warning limit which is indicated on-screen by ">HIWL".

Example 2

**Edit time reaction catalogue (only in Ctrl-V mode)**

At this location, no new entries can be made and no parameter values can be changed; only existing times (entered via DCS function TRR) can be changed.

Information on the time reaction catalogue: refer to "VISONIK Functions and System Messages".

How do I proceed?

Proceed as follows to work with the time reaction catalogue:
Commands and functions

Use these keys to move the selection up and down in the presently displayed lines. The time for the respectively highlighted lines appears in the first screen line where it can be changed.

PageDown, PageUp

Use these keys to move up or down one page at a time in the TRR entries list.

CTRL P

Entering CTRL+P starts the DCS dialogue parallel to Ctrl-V mode in the bottom half of the screen.

CTRL K

Entering CTRL+K closes Ctrl-V mode and provides the entire screen to the DCS dialogue.

Possible input in the entry line at the top of the screen

<table>
<thead>
<tr>
<th>Input</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>New time ENTER</td>
<td>Enters a new time for the highlighted entry</td>
</tr>
<tr>
<td>&gt; ENTER</td>
<td>Moves forward in the parameter list (= PageDown)</td>
</tr>
<tr>
<td>&gt; Parameter name ENTER *</td>
<td>Jumps to the entered parameters in the parameter list</td>
</tr>
<tr>
<td>&gt; main (or &gt; m) ENTER *</td>
<td>Jumps to the beginning of the main parameters in the parameter list</td>
</tr>
<tr>
<td>&gt; oper (or &gt; o) ENTER *</td>
<td>Jumps to the beginning of the operating parameters in the parameter list</td>
</tr>
<tr>
<td>&gt; conf (or &gt; c) ENTER *</td>
<td>Jumps to the beginning of the configuration parameters in the parameter list</td>
</tr>
<tr>
<td>&gt; serv (or &gt; s) ENTER *</td>
<td>Jumps to the beginning of the service parameters in the parameter list</td>
</tr>
<tr>
<td>CTRL H</td>
<td>Jumps to the &quot;Parameter name&quot; function. You can now skip the &quot; &gt; &quot; character for the entries *.</td>
</tr>
</tbody>
</table>
2 Functions

2.1 ACKN Alarm Acknowledgement

2.1.1 Initial Access and Handling

Function call-up
CTRL/P ACKN

General
Function ACKN provides the following facilities:
- Individual or general acknowledgement of alarms.
- Individual alarm acknowledgement with an associated message or additional clear text.
- Listing of the last three status change messages associated with the displayed point.

Conditions
Function QUIT display only those points where parameter ALconf has on of the following values:
ALconf=1 (Basic alarm) or
ALconf=3 (Enhanced alarm; for PLT points only)

Display
Operations related to ACKN are displayed on the upper half of the screen similar to Ctrl/V and Ctrl/D modes. The actual data display is a "snapshot" of the selected alarm point - there is no further automatic updating.
If <ENTER> is keyed at the "Acknowledge" dialogue step, the "Alarm point" displayed in the table will be overwritten by the next one.

Acknowledge message
The related acknowledge message will be output on those terminals as defined in parameter DEVLOG ($SY).

Navigate
It is always possible to action Ctrl/V mode from Function ACKN where the current address in ACKN will be displayed in Ctrl/V mode.

FLN point
For FLN alarm point processing, VISONIK uses the mechanism of group alarms. The FLN.DSTA(n) parameter is used not only for logging alarms, but also for acknowledging them.
2.1.2 Alarm Handling

The following drawing shows which parameters are set upon appearance and acknowledgement of a basic alarm (ALconf=1).

**Required**: ALconf = 1

**Alarm appears**: ERSTA > 0
- ALbeg = actual time
- ALwhen = actual time

**Alarm disappears**: ERSTA = 0
- ALend = actual time
- ALdist = 0
- ALwhen = actual time
- ALsta = Alarm acknowledged

**Alarm**: User code
- ALack = actual time
- ALwhen = actual time

**Alarm unacknowledged**
- ERSTA = 0
- ALend = default
- ALdist = 0
- ALwhen = actual time

**Alarm acknowledged**
- ERSTA = 0
- ALend = default
- ALdist = 0
- ALwhen = actual time

**Normal acknowledged**
- ERSTA = 0
- ALend = default
- ALdist = 0
- ALwhen = actual time

**Normal unacknowledged**
- ERSTA = 0
- ALend = default
- ALdist = 0
- ALwhen = actual time

**Alarm unacknowledged**
- ERSTA = 0
- ALend = default
- ALdist = 0
- ALwhen = actual time

2.1.3 Dialogue Questions

<table>
<thead>
<tr>
<th>T8</th>
<th>15:08:43 Function=PNT : ACKN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td>=$Ty8: $100.000</td>
</tr>
<tr>
<td>Selected Alarm Status</td>
<td>=UAA&amp;UAIA: ?</td>
</tr>
<tr>
<td>0 UAA</td>
<td>Unacknowledged Alarms</td>
</tr>
<tr>
<td>1 AA</td>
<td>Acknowledged Alarms</td>
</tr>
<tr>
<td>2 UAIA</td>
<td>Unacknowledged Inactive Alarms</td>
</tr>
<tr>
<td>3 AIA</td>
<td>Acknowledged Inactive Alarms</td>
</tr>
<tr>
<td>Selected Alarm Status</td>
<td>=UAA&amp;UAIA: *</td>
</tr>
<tr>
<td>Selected Priority (MSGp)</td>
<td>=1&amp;2&amp;3: ?</td>
</tr>
<tr>
<td>Selected Priority (MSGp)</td>
<td>=(&amp;,..*,+=,-=,0,1,2,3), ^K: *</td>
</tr>
<tr>
<td>STAP</td>
<td>NAME</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>... rt'z</td>
<td>PSST=Normal</td>
</tr>
<tr>
<td>Training Department</td>
<td>13:08:12</td>
</tr>
<tr>
<td>Acknowledge</td>
<td>=Next_No : ?</td>
</tr>
<tr>
<td>0 Next_No</td>
<td>=No, Go to Next Point</td>
</tr>
<tr>
<td>1 Prev_No</td>
<td>=No, Go to Previous Point</td>
</tr>
<tr>
<td>2 Yes</td>
<td>=Acknowledge, Go to Next Point</td>
</tr>
<tr>
<td>3 All</td>
<td>=Ackn. All others without asking</td>
</tr>
<tr>
<td>4 History</td>
<td>=Show History of this Alarm</td>
</tr>
<tr>
<td>Acknowledge</td>
<td>=Next_No : Yes</td>
</tr>
</tbody>
</table>

**Selected**: 8 Points
**Acknow'ged**: 1 Points

T8 | 15:12:28 Function=PNT :
Input of User/Technical address or an address range. Only addresses from its own DC Server can be selected.

Select Alarm Status

There is a choice of alarm states, as follows:
- UAA: Point faulty, alarm unacknowledged.
- AA: Faulty, alarm acknowledged.
- UAIA: Point normal, alarm unacknowledged.
- AIA: Point normal, alarm acknowledged.

Select Priority

Selection according to the alarm point's message priority, MSGP.

Table:

| PST NAME, TXI | Alarm point's Peripheral status, address and information text. |
| MV / ERSTA   | Alarm point's main value or fault condition. |

<table>
<thead>
<tr>
<th>Status</th>
<th>Displayed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>MV</td>
</tr>
<tr>
<td>Fault</td>
<td>ERSTA</td>
</tr>
</tbody>
</table>

ALbeg
Date and time at start of fault.

ALend
Date and time at end of the last fault.

ALack
Date and time at the last alarm acknowledgement.

Acknowledged fault indications are assigned the following WCON states:

- ### --> (MSGP=3)
- ## --> (MSGP=2)
- #  --> (MSGP=1)
- None --> (MSGP=0)

Higher order WCON indicators (?HW, ?SW, etc.) always have priority.

ALvis
Code of user who made the acknowledgement plus the number of alarms (FCCH) which have been received since the last acknowledgement.

Acknowledge

Next_No: No acknowledge, display next point.
Prev_No: No acknowledge, display previous point.
Yes: Individual acknowledge
All: General acknowledge
Hist: List the last three status change messages for the displayed point.

After handling the last alarm message the numbers of "selected" and "acknowledged points" are displayed.

"Selected:" --> Total number of alarm points.
"Acknow.:" --> Number of acknowledged points.

See RPT,ARPT for detailed alarm statistics.
Display of acknowledged alarms in Function ACKN.

<table>
<thead>
<tr>
<th>STAP NAME,TXI</th>
<th>MV/ERSTA</th>
<th>ALbeg</th>
<th>ALend</th>
<th>ALack</th>
<th>ALvi</th>
</tr>
</thead>
<tbody>
<tr>
<td>... rt'z</td>
<td>PSST=Normal</td>
<td></td>
<td>02.08.1996</td>
<td>Ron</td>
<td></td>
</tr>
<tr>
<td>Training Department</td>
<td></td>
<td>13:08:12</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

Acknowledge =Next_No : ?
- 0  Next_No =No, Go to Next Point
- 1  Prev_No =No, Go to Previous Point
- 2  Yes =Acknowledge, Go to Next Point
- 3  All =Ackn. All others without asking
- 4  History =Show History of this Alarm

Acknowledge =Next_No : Yes

Selected  : 1 Points
Acknow'ged : 1 Points

Example with HIST:

Acknowledge =Next_No : Yes

*** DI'MO'TEST"02 ERSTA=1=Off 30.07.199612.08.1996 | -
Training Department | 15:02:43 | 09:59:51 | 3

Acknowledge =Next_No :

Selected  : 3 Points
Acknow'ged : 1 Points
T8 15:22:46 Function=PNT :
2.2 BCKP Shadow Backup

2.2.1 Initial Access and Handling

Function call-up

CTRL/P BCKP

<table>
<thead>
<tr>
<th>T8</th>
<th>15:42:37 Function=PNT : BCKP</th>
</tr>
</thead>
<tbody>
<tr>
<td>To</td>
<td>DU1:</td>
</tr>
<tr>
<td></td>
<td>SY0:, SY1:, DU0:, DU1:, DU2:, DU3:, DU4:, DU5:, DU6:, DU7:DM0:, DM1:, DM2:, MM0:</td>
</tr>
</tbody>
</table>

General

Function BCKP allows on-line copying of a 'Shadow' version to a backup device which may be a tape unit or a VISONIK structured disk.

Permitted backup devices

When a backup device is specified various plausibility tests are carried out and where necessary an error message given:

"These disk-selection is not allowed"

The help information on permissible devices is formulated in very general terms. ONLY the following devices are permitted for backups:

Logical names for various devices

DU2: Device Unit '2'

DU7: Device Unit '7'

Logical names for tape drives

MM0: Tape '0'

MM1: Tape '1' (if present)

2.2.2 Procedure

Prerequisite:

Define the Shadow at the VISONIK DCS (SYS,DISK).

Actions of BCKP:

Prior to the actual backup the function automatically initiates the creation of a Shadow.

This is identical to the parameter change

$SY,SHAD=OnOf.

The actual copy operation is then started.

1. The Shadow version is restructured if it is older than 1 hour. This restructuring is signalled by "Please wait!".

2a Backup on tape:

On every backup the tape is re-initialised for the actual version's size. The Shadow version is then copied to tape after which a comparison is made between the two Shadow versions.

2b Backup on Diskettes:

dialogue. The number of diskettes required is then prompted. Each diskette is initialised before copying starts.

3. After backup is finished a comparison between the original Shadow and backup versions is made. Any discrepancies are listed showing the exact block number and checksum.

Important

Since the above described sequence takes place in a dialogue process it must not be interrupted through any actions from the associated terminal (e.g. with Ctrl/P!!). Otherwise the backup procedure is aborted and must be restarted.
Example of a Shadow Backup on Tape

MAN:T5  08:35:14  Function=PNT : BCKP
To=MM0:  
please wait!
..  SY Bsy  School hall Zug  A:Master 100000: Shadow Updating
  08:35:40  Shadow Updating 0: ---> 100000: 1440 / 47760  
  08:36:00  Shadow Updating 0: ---> 100000: 4570 / 47760  
  08:36:20  Shadow Updating 0: ---> 100000: 7650 / 47760  
  08:36:40  Shadow Updating 0: ---> 100000: 12760 / 47760  
  08:37:00  Shadow Updating 0: ---> 100000: 21060 / 47760  
  08:37:20  Shadow Updating 0: ---> 100000: 32340 / 47760  
  08:38:00  Shadow Updating 0: ---> 100000: 24210 / 47760  
  08:38:20  Shadow Updating 0: ---> 100000: 35420 / 47760  
  08:38:40  Shadow Updating 0: ---> 100000: 46670 / 47760  
  08:39:00  Shadow Updating 0: ---> 100000: 40460 / 47760  
  08:39:20  Shadow Updating 0: ---> 100000: 43530 / 47760  
  08:39:40  Shadow Updating 0: ---> 100000: 46670 / 47760  
..  SY Bsy  TEST PLANT SY-SEM  A:Master 100000: Shadow off

MM0:  
Initialisation  
  08:40:00  Copy TAPE.HDR to MM0: okay!  
  08:40:44  Copy DILO.SYS to MM0:08:35 okay!  
MM0:  
  08:41:02  Initialisation okay!  
MM0:  
  08:41:03  Cmd-file-specifier: MMSAVE.COM  
;***  Save code from disc to magnetic tape  V002  4-mar-87  ***  
  ;
  TAP,MM0:,RWD okay!  
  TAP,MM0:,SFF,16 okay!  
DTD,SY1:, ,MM0:, ,47760
  08:41:21  SY1: 0 ---> MM0: 0, 10000/ 47760  kkkkkkk
  08:41:44  SY1: 10000 ---> MM0: 10000, 10000/ 37760  kkkkkkk
  08:42:05  SY1: 20000 ---> MM0: 20000, 10000/ 27760  kkkkkkk
  08:42:27  SY1: 30000 ---> MM0: 30000, 10000/ 17760  kkkkkkk
  08:42:49  SY1: 40000 ---> MM0: 40000, 7760/ 7760   kkkkkkk okay!
  TAP,MM0:,WTM okay!  
  TAP,MM0:,WTM okay!  
  TAP,MM0:,RWD
MM0:  
  08:45:28  Please wait until tape stops  
  08:44:44  Please wait until tape stops  
  08:45:00  Please wait until tape stops okay!
MM0:  
  08:45:01  Cmd-file-specifier: MMCMPL.COM  
;***  Compare code from magnetic tape to disc  V002  4-mar-87  ***  
  TAP,MM0:,RWD okay!  
  TAP,MM0:,SFF,16 okay!  
CMP,SY1:, ,MM0:, ,47760
  08:48:17  SY1: 0 ---> MM0: 0, 10000/ 47760  kkkkkkk
  08:48:43  SY1: 10000 ---> MM0: 10000, 10000/ 37760  kkkkkkk
  08:49:10  SY1: 20000 ---> MM0: 20000, 10000/ 27760  kkkkkkk
  08:49:37  SY1: 30000 ---> MM0: 30000, 10000/ 17760  kkkkkkk
  08:50:03  SY1: 40000 ---> MM0: 40000, 7760/ 7760   kkkkkkk okay!
  TAP,MM0:,RWD
MM0:  
  08:55:45  Please wait until tape stops  
  08:56:01  Please wait until tape stops  
  08:56:17  Please wait until tape stops okay!
MAN:T5  08:57:18  Function=BCKP:
The Shadow version is re-structured, since the old one is more than one hour old

**MM0: Initialiseation**

Tape is initialised.

**MM0: 08:35:03 Cmd-file-specifier: MMSAVE.COM**

;*** Save code from disc to magnetic tape V002 4-Jan-96 ***

The tape is first re-spooled then the Shadow version is copied.

Meaning of messages:

**SY1: 0 --- MM0:**

The contents of system disk SY1, starting at block 0, will be copied to tape unit MM0:

0, 10000/ 47760  "KKKKKKK"

| | | +-- every 1000 copied blocks are
| | +------- acknowledged with a "k".
| +----------- blocks still to be copied.
+---------------- copied blocks
+---------------------- start block

**MM0: 08:45:01 Cmd-file-specifier: MMCMP.COM**

;*** Compare code from magnetic tape to disc V002 4-Jan-96 ***

This shows a comparison ("compare") is made between the system's and tape's Shadow versions.

**MM0: 08:56:17 Please wait until tape stops okay!**

This message appears after re-spooling the tape and indicates a successful Shadow backup.
2.3 BOOT System BOOT

Function "BOOT" is an abbreviation for "Bootstrap" to describe the operation of pulling up (starting up) a system from scratch.

"BOOT" is a small program held in non-volatile memory, protected against power failure.

2.3.1 Initial Access and Handling

Function BOOT is opened through Ctrl/P followed by input of the name "BOOT". After "BOOT" a separating comma must be entered followed by a specifier for the type of 'Boot' (if necessary).

Function BOOT is reserved for System Managers only.

2.3.1.1 BOOT Types

Specifying a Boot type in Function BOOT will call up utility programs or certain system information together with a normal system start.

| ctrl/P | T1 14:32:12 Function =PNT : BOOT,x |

"x" in the example stands for Boot type

The following Boot types are incorporated in the system:

(no Help mode!).

<table>
<thead>
<tr>
<th>BOOT</th>
<th>Blank</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Halt the system then automatically makes an immediate restart.</td>
</tr>
<tr>
<td></td>
<td>For this operation the user must enter BOOT followed by &lt;CR&gt;. The syntax is: BOOT &lt;CR&gt;.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BOOT,D</th>
<th>Halt VISONIK DCS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>After BOOT,D the DC Server is in DILO which is a sub-function in off-line mode and means &quot;Disk LOad&quot;.</td>
</tr>
<tr>
<td></td>
<td>In DILO the DC Server can be started as follows: x &lt;CR&gt; (Exit to Main) b &lt;CR&gt; (Boot) &lt;CR&gt; (no boot parameter)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BOOT,V</th>
<th>Verify Catalogues</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Causes a system halt and automatic restart.</td>
</tr>
<tr>
<td></td>
<td>Before going &quot;on line&quot; important data files on disk are given a plausibility check and errors corrected (if possible). Besides this, certain switch command outputs are updated depending on conditions, and are brought to the same status as the peripheral plant. (see at point type DO).</td>
</tr>
<tr>
<td></td>
<td>BOOT,V is mainly required for backup of &quot;old&quot; versions.</td>
</tr>
<tr>
<td></td>
<td>The verifications that were additionally made in earlier versions with BOOT,W, have now been integrated in BOOT,V.</td>
</tr>
<tr>
<td></td>
<td>This boot type must be selected after each new program take-over!</td>
</tr>
</tbody>
</table>
2.3.1.2 System Halt

All process data from VISONIK are continuously written on hard disk. This means that loss of data is kept to a minimum if there is a power supply failure.

However, data traffic with hard disk is not possible in byte units, rather in packets of 1000 bytes (octal). This method of packet transfer has the disadvantage that it must not be interrupted.

For this reason a VISONIK system must **NOT** be stopped with the computer console's HALT keyswitch or through switching off power. In such cases a data transfer could be interrupted which can lead to corrupted data.

Recommendation: If the power must be switched off e.g. for fitting new hardware, the computer must **always** be first shut down with Function BOOT,D. Only then can the power be switched off.

2.3.1.3 System Start-up

Start-up of VISONIK depends on how it was previously halted.

For example
- In commissioning
- Restart after program take-over, e.g. BOOT,W

If a system has already been in operation then both Operating System software and VISONIK software exist on hard disk. This means the system can "boot" automatically from disk DU0:

**The following sequence takes place**

When "booted", the Operating System software is loaded to main memory and the start phase is initiated.

In this phase all important system sub-units such as Rings, Substations, Printers, and Terminals are initialised and reported if faulty.

At the finish of Ring initialisation (=SDLC Controller Test and connection of EKLs to their Rings!) a so-called general acquisition (poll) of EKLs is actioned.

This is a request from the Server computer for the current status of all EKLs. The returned information is compared with that stored on disk before the system was halted and if necessary processed (for example, printout of messages, initiate Reactions, etc.).

Switch and position commands are reset by 'remote loading' if the system detects any differences between "Actual (real)" and "Setpoint" values.

**Exception:** If a switch command has its parameter FBX=NO (= No Output!) then accordingly, no new command is issued.
2.4  **BYE Exit from Terminal**

Entry into dialogue with the VISONIK DCS is through a personal 'User Code' and a 'Password'. The 'Password' and "Extra Device(s)" (for dialogue) are defined with Function KEY.

To exit from the system requires no password, simply the Function BYE. With this action an exit is made from all those "Extra Device(s)" at which log-in took place using the same respective password. Any further access is blocked until a user again logs-in with his 'User Code' and 'Password'.

2.4.1  **Initial Access and Handling**

Call-up is made through "Ctrl/P" and by entering the abbreviation, BYE. VISONIK then responds with the acknowledgment "Goodbye".

<table>
<thead>
<tr>
<th>T1</th>
<th>08:05:14 Function =PNT : BYE Goodbye</th>
</tr>
</thead>
</table>

Log-in and log-out messages are output to those terminals as defined in parameter DevLog, in the form:

<table>
<thead>
<tr>
<th>Login/Logout</th>
<th>08:05:14</th>
<th>5/5 John Brown</th>
<th>01-Sep-95/Fr</th>
<th>T1</th>
</tr>
</thead>
</table>

If a system user does not log-out and no inputs are given, a timer is started which allows further access only for a specific period. This period is defined in parameter ATMO (Operator Timeout) for the relative terminal and automatically logs-out the user concerned after timeout.
2.5 CAL Calendar Operations

2.5.1 Initial Access and Handling

Function call-up

CTRL/P CAL

<table>
<thead>
<tr>
<th>T8</th>
<th>15:25:11 Function=PNT : CAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mode=SCAL : ?</td>
<td></td>
</tr>
<tr>
<td>0 SCAL = Special Day Calendar</td>
<td></td>
</tr>
<tr>
<td>1 SUWI = Summer &amp; Winter Time Start</td>
<td></td>
</tr>
<tr>
<td>Mode=SCAL :</td>
<td></td>
</tr>
<tr>
<td>Operation=LIST : ?</td>
<td></td>
</tr>
<tr>
<td>0 CHNG = Enter/Change Data</td>
<td></td>
</tr>
<tr>
<td>1 LIST = List Selected Data</td>
<td></td>
</tr>
<tr>
<td>2 LALL = List All Data</td>
<td></td>
</tr>
<tr>
<td>3 DEL = Delete Data</td>
<td></td>
</tr>
<tr>
<td>4 SEND = Send Data / Load into PS</td>
<td></td>
</tr>
<tr>
<td>5 INFO = Information</td>
<td></td>
</tr>
<tr>
<td>Operation=LIST :</td>
<td></td>
</tr>
</tbody>
</table>

**General**

Using the CAL function, up to seven standard calendars can be programmed when defining special days. Which of the seven calendars is associated with the relevant process station (PS) is specified in the PS parameter SDGP. In addition, an individual calendar can be programmed for each process station. Using this calendar, the PS can be assigned spontaneous exceptions.

**Note:**

One normally operates with the seven standard calendars. However, in large VISONIK systems, where special days can vary on a regional basis, individual PS can be assigned one of the six alternative standard calendars.

**Distributing the calendar data**

All special day calendars are managed by the DCS. The DCS distributes this data to the process stations under the following conditions:

- Through manual operator order using the CAL SEND function
- Upon a year changeover in the system time.

2.5.2 Special Day Calendar, SCAL

For special day entries, there is a special day calendar in the VISONIK DCS with 7 standard calendars or special day groups. The contents of a standard register (special day group) can be distributed to any PS or partner DCS.

Other standard or individual calendars (per PS) are only required for special system configurations, where programs independent of times and sites are to run.
A company's schedule for 1st May is as follows:
Administration: Normal working day
Production: Holiday ==> special day schedule

Example with two standard calendars

Example with two std. and two individual calendars

Individual special day programs are scheduled in the two substations connected via modems.
2.5.2.1 Special Days

What is a special day?

There are some days on which a timeswitch program associated with another day of the week should run instead of that for the particular day. If, for example, a holiday falls on a Thursday and the DCS should automatically execute time reactions as if it were a Sunday, then the user can declare the date of this holiday as a special day in the special day register, i.e. in the above example entered as "Sunday".

The specific day defined in the special day register will be listed in brackets in the DCS next to the actual day in every related output dated header line.

| T1   | 11:39:27 VISONIK 12000 V10.01.100 GRAFENAU 23-04-93/Fr (Su) |

On change of date at midnight or after a new special day entry the DCS automatically updates any declared special day for the current date.

Important: All entered special days act only on time reactions (TRR), i.e. for a time reaction the DCS considers the entered special day as the time reaction's 'Reason'.

2.5.3 Principle of Special Day Distribution

Prerequisite: The PS parameters SDGP and FILE must be correctly configured as the following example will show.

In cases of conflict, the data of the standard calendar will be overwritten by the data of the PS-specific calendar.

Procedure: Using the CAL,SCAL;SEND function, the standard and the PS-specific special day calendar part of the BPS is extracted from the DCS calendar. The OPLS=LoSD loading function is automatically set and the distribution of this data started.

2.5.3.1 Configuration example

**Example with standard calendar**

Destination PSs: $2'PS, $4'PS

Special day calendar: 2

Configuration:

- $2,SDGP=2
- $2,FILE=0
- $4,SDGP=2
- $4,FILE=0

**Example with individual calendar**

Destination PS: $33'PS

Configuration:

- $33,SDGP=
- FILE=0
2.5.4 Operations

2.5.4.1 CH, Enter/Change Data

The user can enter or change individual special days, where the following cases may exist:

1. No entry found  -> New entry
2. Entry found  -> New entry
3. Entry found  -> Change entry
1st case: No entry found --> New entry

T8  15:29:42 Function=PNT : CAL
Mode=SCAL : Operation=LIST : CHNG
Calendar/PS=. : ?
   Individual Group 1..7 (e.g. 1, 2, 5, etc.)
   Group combination 1..7 (e.g. 2&3&5, -5&6, *, etc.)
   Technical Station Address (e.g. $23'PS) or User Address
      (Combination of Groups and Station Addresses not possible!)
Calendar/PS=. : 1
Date=24.07.1996 : ?
   Date (e.g. 21-Dec-93)
   Date Range (e.g. 21-Dec-93..31-Dec-93)
   Holidays (e.g. Easter)
   Holiday + No.of Days (e.g. Easter+1 =Easter Monday)
   Holiday - No.of Days (e.g. Whitsun-10 =Ascension
Date=24.07.1996 : 31.12.96
Special Day =31.12.1996/Tu=Su:
Repetition=No : ?
   Repetition=(No,Yes) :
      1 31.12.1996/Tu                 =Su
Calendar/PS=1  :

Calendar/PS #
Input of a calendar or PS address possible:
   Calendar: Special days are assigned to one of the seven available standard
            register (groups 1..7).
   PS address: Special days are assigned to the register available for each PS.

Date
At this point the user may enter the required date, date range with day, month and year,
or one of the following standard holidays:
   - Good Friday
   - Easter
   - Ascension Day
   - Whitsun

Other possible inputs:
   Whitsun +1, Christmas day +3, etc.
   Holidays, in the sense of this Function, are special days whose dates can be uniquely
   calculated for each year.

Special Day
At this point the user can allocate the previously defined calendar entry to a particular
day of the week or one of the "Sd1..Sd7" special day types. "Sd1..Sd7" special days are
defined in the time reaction register (TRR) program.

Repetition
If a special day repeats every year on the same day this entry can be confirmed.
Otherwise the special day definition will be cleared once it has been executed.

Note
This dialogue question does not appear for pre-calculated holidays such as Easter,
Whitsun, etc.
Elapsed special days without repetition (=NO) are cleared.
### 2nd case: Entry found --> New entry

<table>
<thead>
<tr>
<th>No.</th>
<th>Calendar/PS</th>
<th>Date</th>
<th>Special Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>24.07.1996/We</td>
<td>=Sd1</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>01.05.1996/We</td>
<td>=Sd2</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>01.08.1996/Th</td>
<td>=Su</td>
</tr>
</tbody>
</table>

In this case a printout is given showing the found entry plus an entry number. If a date range is involved several entries may be found with consecutive entry numbers as illustrated above.

### 3rd case: Entry found --> Change entry

#### Case 2 continued

<table>
<thead>
<tr>
<th>Number=.</th>
<th>Date=01.08.1996</th>
<th>Special Day =01.08.1996/Th=Su: Su</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>01.08.1996/Th</td>
<td>=Su</td>
</tr>
</tbody>
</table>

In this case entry number "3" is given a new date and a new special day.

#### Note

Group or PS address cannot be changed.

### 2.5.4.2 LIST, List Selected Data

Using operation LIST, you can selectively list entries of the required standard register (groups 1..7) or of the PS's own register.

<table>
<thead>
<tr>
<th>T8</th>
<th>16:01:41 Function=PNT : CAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mode=SCAL</td>
<td>:</td>
</tr>
<tr>
<td>Operation=LIST</td>
<td>:</td>
</tr>
<tr>
<td>Calendar/PS=.</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Calendar/PS</th>
<th>Date</th>
<th>Special Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>01.05.1996/We</td>
<td>=Sd2</td>
</tr>
<tr>
<td>2</td>
<td>22.09.1996/Su</td>
<td>=Sd1</td>
</tr>
</tbody>
</table>

Other possible inputs for "Calendar/PS #=.":

- 2&3&1: Set of calendars
- $33'PS: PS address
2.5.4.3 LALL, List All Data

Operation LALL lists all existing entries.

<table>
<thead>
<tr>
<th>Calendar/PS</th>
<th>Date</th>
<th>Special Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>24.07.1996/We</td>
<td>=Sd1</td>
</tr>
<tr>
<td>1</td>
<td>27.07.1996/Sa</td>
<td>=Sd3</td>
</tr>
<tr>
<td>1</td>
<td>26.12.1996/Th</td>
<td>=Su</td>
</tr>
<tr>
<td>1</td>
<td>31.12.1996/Tu</td>
<td>=Su</td>
</tr>
<tr>
<td>2</td>
<td>01.05.1996/We</td>
<td>=Sd2</td>
</tr>
<tr>
<td>2</td>
<td>22.09.1996/Su</td>
<td>=Sd1</td>
</tr>
<tr>
<td>3</td>
<td>01.08.1996/Th</td>
<td>=Su</td>
</tr>
</tbody>
</table>

2.5.4.4 DEL, Delete Data

With Operation DEL entries of the selected calendar (calendar number or PS address) can be selectively deleted.

<table>
<thead>
<tr>
<th>Calendar/PS</th>
<th>Date</th>
<th>Special Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>24.07.1996/We</td>
<td>=Sd1</td>
</tr>
<tr>
<td>1</td>
<td>27.07.1996/Sa</td>
<td>=Sd3</td>
</tr>
</tbody>
</table>

2.5.4.5 SEND, Send Data/Load into PS

Using the CAL,SEND function, the standard and the PS-specific special day calendar part of the BPS is extracted from the DCS calendar. The OPLS=LoSD loading function is then automatically set and the distribution started.

Note

The PS parameters SDGP and FILE must be correctly configurated as the following example will show. In cases of conflict, the data of the standard calendar will be overwritten by the entries of the PS-specific calendar.

<table>
<thead>
<tr>
<th>Calendar/PS-# .</th>
<th>1 &amp; 2 o.k.</th>
</tr>
</thead>
</table>
2.5.4.6 INFO, Information

This section provides the following information for existing Standard Calendars:
- current signature value
- date and time of the last change
- associated user password
- date and time of last distribution

2.5.5 Link System

The special day group, SDGP, of the DC Server is entered in its system point $SY$. The special day group of a partner DCS is entered in the corresponding PS point.

All partner DCS stations in a 'Link System' have the same special day calendars, SCAL (i.e. all 7 standard calendars but no individual calendars). This means every DCS in a Link System is 'master'. Changed calendars are automatically distributed to all partner DCS stations after giving a 'Send' command.

2.5.6 SUWI, Summer & Winter Time Start

<table>
<thead>
<tr>
<th>T8</th>
<th>16:12:32</th>
<th>Function=PNT : CAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mode=SCAL</td>
<td>:   SUWI</td>
<td>Operation=LIST</td>
</tr>
<tr>
<td>Operation=LIST</td>
<td>:    ?</td>
<td>0 CHNG = Enter/Change Data</td>
</tr>
<tr>
<td></td>
<td>1 LIST  = List Selected Data</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 DEL   = Delete Data</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4 SEND  = Send Data / Load into PS</td>
<td></td>
</tr>
</tbody>
</table>

Operation=LIST :

There are countries where SUMMERTIME begins in spring and WINTERTIME begins in autumn.

In mode SUWI the beginning of summer and winter times are entered in the special day calendar by specifying a day, month and year.

Winter --> summer

At changeover from winter to summer time the DCS automatically advances the time at 02.00 hours to 03.00 hours.

This means 1 hour is "lost" but is "regained" at the start of winter time.

Summer --> winter

Conversely on changeover from summer to winter time the DCS automatically passes twice through the hour between 02.00 hours and 03.00.

The system's internal update logic makes sure that Date and Time Reactions (DRR and TRR) are automatically updated accordingly.

There is the choice of leaving the summer/winter changeover times as they are programmed in the DCS or to turn this facility off.

The preset changeover times are programmed in the DCS according to EEC standards and are calculated as follows:
- Start of summer time = last Sunday in March
- Start of winter time = last Sunday in September

With automatic changeover the new summer and winter changeover times are defined at the beginning of a new year.

But, manually set dates remain unchanged and must be manually updated every year.
2.5.6.1 CH, Change Entry

Using operation CH the summer and winter start times can be newly entered or changed.

- **Changeover 2 EC Norm = active**
  - Calculation of changeover dates according to the CET standards applicable since 1996 in Europe:
    - Daylight saving time (summer time) on the last Sunday in March at 02:00 hours
    - Standard time (winter time) on the last Sunday in October at 03:00 hours.

- **Changeover 1 On man. = active**
  - Changeover occurs for the first time on the manually entered date, whereby the times cannot be changed.
  - Based on these manual entries, VISONIK will automatically calculate the respective changeover Sundays for the following years (e.g. daylight saving time on the first Sunday in April)

2.5.6.2 LIST, List Summer / Winter Time Start

With Operation LIST, the DCS lists the summer/winter changeover (SUWI) entries at the operator terminal.
2.5.6.3 DEL, Delete Summer / Winter Time Entry

Using operation DEL an existing entry can be cleared. The DCS acknowledges successful delete operations.

<table>
<thead>
<tr>
<th>ctrl/p</th>
<th>16:18:59 Function=PNT : CAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>T8</td>
<td>Mode=SCAL : SUWI</td>
</tr>
<tr>
<td></td>
<td>Operation=LIST : DEL</td>
</tr>
<tr>
<td></td>
<td>Changeover : EC Norm = Active, Date set automatically</td>
</tr>
<tr>
<td></td>
<td>Start of Summer : 31.03.1996/Su 02:00</td>
</tr>
<tr>
<td></td>
<td>Start of Winter : 27.10.1996/Su 03:00</td>
</tr>
<tr>
<td></td>
<td>ENTRY ERASED * * &gt;&gt;o.k.!</td>
</tr>
<tr>
<td>Operation=LIST :</td>
<td></td>
</tr>
</tbody>
</table>

2.5.6.4 SEND, Send Summer / Winter Time

The DCS sends the "Summer / Winter Time" to all process stations under the following conditions:

- Through manual operator order using the CAL,SOWI,SEND function
- Always automatically at midnight if the entry has changed and was not manually passed to the PS.

<table>
<thead>
<tr>
<th>T8</th>
<th>16:20:27 Function=PNT : CAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mode=SCAL : SUWI</td>
<td></td>
</tr>
<tr>
<td>Operation=LIST : SEND &gt;&gt;o.k.!</td>
<td></td>
</tr>
<tr>
<td>Operation=LIST :</td>
<td></td>
</tr>
</tbody>
</table>
2.6 CB Central COLBAS Tasks

Depending on specific project disk structuring there is a pre-defined number of up to 40 VISONIK COLBAS Tasks (TSK1 to TSK40) in the Server.

The individual Tasks (called TASK or TSK in the following text) can be called up through Function CB.

- VISONIK Tasks (TSK1 to TSK40) and PRV/BPS/EKL COLBAS Tasks (TSK1 to TSK199) can be programmed by the user.
- Some VISONIK Tasks are used by LANDIS & Staefa COLBAS programs, depending on the relative VISONIK system configuration. Such Tasks should not be re-programmed by the user.
- VISONIK Server and substation Tasks are completely independent from each other.

2.6.1 Initial Access to Function CB

In Function CB the system responds first with Monitor Task, TSK0. This is a special Task in that it occupies no memory space. Therefore, no programs can be written in TSK0.

All other Tasks (TSK1 to TSK40) can be called up through TSK0. For example, if a Task is to be edited, it is selected as follows:

```
ctrl/P
T2 08:03:44 Function =PNT : CB
TSK0 : Monitor
TSK0 : TSK11
TSK11 : Editor
```

The called Task responds with its prompt and waits in Editor mode for further instructions.

Only "inactive" Tasks may be called up, i.e. the relative TSK1 to TSK40 must be stopped before selection.

2.6.2 Exit from Function CB

Exit from Function CB or from a Task in Editor mode is made by input of either Ctrl/P or Ctrl/E. Both these commands terminate the Function CB.

If command EXIT is used to leave a Task which is in Editor mode the system returns to Monitor Task TSK0.
## 2.6.3 Edit and Control Commands

### 2.6.3.1 Description of the Commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>?</td>
<td>HELP = Printout of all COLBAS language elements.</td>
</tr>
</tbody>
</table>
| ACT m,n  | Lists status of all opened Tasks.  
- Task running (active).  
- Task stopped (inactive).  
- Task waiting (e.g. until timeout of a delay).  
- Task is currently printing a message.  
- Task is being edited.  
ACT may be input with or without Task numbers m,n:  
ACT = Lists status of all opened Tasks.  
ACT m = Lists status of Task 'm' only.  
ACT m, = Lists status of all Tasks from Task 'm' onwards.  
ACT ,n = Lists status of all Tasks up to Task 'n'.  
ACT m,n = Lists status of all Tasks between Tasks 'm' and 'n'.  
ACT , = Identical to ACT. |
| CLEAR    | Set all variable values to 'undefined' |
| COPY     | Copies Task 'm' TO Task 'n' where Task 'n' must be in Editor mode. |
| DEL m,n  | Deletes program lines 'm' and 'n' from the selected Task.  
For syntax refer to ACT and the following Chapters.  
Exception: For data security reasons DEL on its own is not permitted! |
| DEL VAR  | Deletes the complete Variable table of the selected Task. |
| DEL varname | Deletes Variable specified by 'varname' from the selected Task. |
| DIR or DIR * | Directory of all Tasks |
| DIR m,n  | Directory of Tasks m to n. For syntax refer to ACT and the following chapters.  
DIR lists the memory occupied by each Task (e.g. 3840 bytes), then the memory space for program code and Variable table plus free memory. If the first line in a Task consists of comment this is also listed. |
| DIR VAR  | Lists variable table of selected Task, together with Variable names, variable values and reference line numbers. |
| EDIT     | Calls up the Text Editor in the selected Task. |
| EXIT     | Exits from current Task and returns to TSK0. The programmed COLBAS lines are saved. |
| LIST m,n | Lists the relative program lines from the selected Task. For syntax refer to ACT and the following chapters. |
| LIST VAR | Refer to DIR VAR. |
| LIST PVAR n | Lists Pool variables of Task 'n'. |
| LIST POOL | Lists all Pool variables. |
| LIST [m],[n] | Lists Tasks m to n. |
| LIST *   | Lists all Tasks. |
LOAD

Loads a Task from Dump File to the currently selected Task. After LOAD and <CR> the System requests (if the File is not yet defined) the file number and Task number, i.e. the Task to be loaded from the Dump file to a selected Task is then specified.

The "old" lines in the selected Task are overwritten. Lines with errors (from Dump File) are printed out and tagged, but are otherwise ignored. Afterwards, such lines must be manually entered!

Note: If LOAD 10,30 is entered then lines 10 to 30 from the Task (specified by File# and Task#) are loaded to the destination Task. (LOAD 10,30 does not mean: Load Task#30 from File#10).

SAVE m,n

Saves the current Task in a Server disk file. Task variables such as TSKTAB, TSKTTY etc., pointers and variables pool are not saved. After input of SAVE, the system requests (if the file has not yet been defined) the file number or file in which the selected Task is to be saved.

Note: The memory space for a file is limited. Either the whole Task or only a part is added to a file depending on how much free memory is available!

SCR

Deletes the selected Task and variable table. SCR m can be used to delete Task m when in TSK0 mode.

TSK m

Selects a Task when in TSK0 or changes the selected Task to Task m.

<CTRL> E

CB verlassen

<CTRL> P

CB verlassen und Dialog öffnen

<CTRL> Q

Mit <CTRL> S unterbrochene Ausgabe fortsetzen

<CTRL> S

Ausgabe unterbrechen

<CTRL> X

Eingabevorgang bei Eingabe-Statement abbrechen

2.6.3.2 Syntax Rules for Editor and Control Commands

Generally, commands are structured such that all details are entered in the following order:
FILE-# , TASK-#, LINE-#

However, not all commands need have a "File-#" term whilst others have no "Line-#" definition.

Syntax for FILE-#

All of the following commands (effective in TSK1 to TSK40) require a file designator:
EDIT #file ---> e.g. EDIT #35
LOAD #file
SAVE #file

Ranges are not permitted for "File". File number is identical to the corresponding ASCII Dump File on the Server's disk.
In the following commands a Task designator may be entered, where commands EDIT, LOAD, SAVE are only effective in TSK1 to TSK40.

**DIR**

DIR [task] ---> e.g. DIR [33] or DIR TSK33

DIR VAR [task]

EDIT #file,[task] ---> e.g. EDIT #35,[33]

LIST [task]

LOAD #file,[task]

SAVE #file,[task]

SCR task ---> e.g. SCR 35 or SCR35

TSK task

Input of ranges is permitted as illustrated in the following examples:

- [1..3] Task 1 to Task 3
- [.6] From the first Task to Task 6
- [4..] From Task 4 up to the last Task
- [*] All Tasks
- [...] [] Identical to [*]
- TSK12..25 Task 12 to Task 25
- TSK22,33 Task 22 to Task 33
- TSK* All Tasks

LIST [4..8] or LIST TSK4..8 or LIST TSK4,8

**Syntax for LINE-#**

Instead of range, characters "." a comma "," is also accepted!

Line numbers are specified without any special marking. In the following commands, line numbers may (for DEL must) be entered:

DEL line

LIST [task] line

LOAD #file,[task] line

SAVE #file,[task] line

LOAD #35,[17]100 Load,

| | +--> Line 100 of,
| +--------> Task 17 in,

+----------> File 35 to the selected TSK.

LOAD 40,90 ------> Lines 40 to 90 from the subsequently specified File, and Task, are loaded.

Line numbers may also be specified as ranges where the same syntax rules as for Task numbers apply.
2.6.3.3 Examples of Edit and Control Commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSK1 : TSK4</td>
<td>Change Task 1 to Task 4</td>
</tr>
<tr>
<td>TSK4 :</td>
<td>Response of new Task</td>
</tr>
<tr>
<td>TSK1 : DEL ,</td>
<td>Delete all lines in Task 1</td>
</tr>
<tr>
<td>TSK1 : LIST ,20</td>
<td>Print all lines from start, up to and including line 20</td>
</tr>
<tr>
<td>TSK1 : ACT 4,10</td>
<td>Print status of Tasks 4..1</td>
</tr>
<tr>
<td>TSK5 : SAVE</td>
<td>Save Task 5</td>
</tr>
<tr>
<td>File#=1: 2</td>
<td>Number of an available File.</td>
</tr>
</tbody>
</table>

End of SAVE in file!

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSK6 : LOAD</td>
<td>Load file to Task 6.</td>
</tr>
<tr>
<td>File#=1: 2</td>
<td>Number of desired File.</td>
</tr>
<tr>
<td>Task#=6: 6</td>
<td>Number of desire Task.</td>
</tr>
</tbody>
</table>

End of LOAD from File!

SAVE illustrates how a VISONIK COLBAS Task can be deposited in a Dump File or how, with LOAD a Task can be loaded from a Dump File into a Task.

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSK10 : ?</td>
<td>Input of '?' lists all the COLBAS elements.</td>
</tr>
<tr>
<td>TSK1 : &lt;CR&gt;</td>
<td>Corresponds to DIR of current (own) Task</td>
</tr>
</tbody>
</table>

A printout is given which is formatted as follows:

```
TSK1 : Size: 3840 byte (Code: 50 / Var'table: 0 / free = 3790)  
Title: -- DEMO 11-03-88/ZRN
```

Recommendation

To label a Task, the first program line should always contain the following data:

-- TITLE DATE of Generation / NAME of Author

2.6.4 VISONIK Server COLBAS

The following description is that of COLBAS as it is designed for VISONIK Servers. There are some differences between Server and EKL COLBAS (refer to "COLBAS Description").

COLBAS is the abbreviation for:

Control Oriented Language for Building Automation Systems
and denotes a program language which is integrated in VISONIK systems. It is based on program language BASIC but contains various extensions suited for Building Automation requirements. In particular, it permits access to all data point and process parameters (read/write) in the system.
Every line in a COLBAS Task begins with a line number followed by one or more statements:

```
TSK11 : 300 C=A+B; PRINT C
```

Line numbers must lie in the range 1..32767.

After terminating a line entry with <CR> an analysis of the syntax begins. A line containing errors must be re-entered. Syntax error-free COLBAS statements are deposited in the relative Task according to line numbers in ascending order.

Such program lines are executed only after the Task is started with RUN or RESTART instructions. This manner of Task execution is known as DEFERRED MODE.

If line numbers are omitted certain statements can be executed immediately. They are not written into a Task. This is known as IMMEDIATE MODE operation since the statements are executed "immediately".

Monitor Task TSK0 can only operate in Immediate Mode.

### 2.6.4.1 COLBAS Terminology and Rules

<table>
<thead>
<tr>
<th><strong>Notation</strong></th>
<th><strong>Explanation</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Statement</td>
<td>Instruction for COLBAS to execute a certain action. e.g.: RUN, PRINT, GOTO, etc.</td>
</tr>
<tr>
<td>Function</td>
<td>Predefined sub-program where the function's name indicates the result of a calculated operation on input values e.g.: SIN(x), MOD(x,y), EXP(x), etc</td>
</tr>
<tr>
<td>Constant</td>
<td>Element comprising a name and a constant value. Constants cannot be altered. e.g.: A &quot;read-only&quot; point parameter.</td>
</tr>
<tr>
<td>Variable</td>
<td>Element comprising a name and a variable value. The name can have a maximum of two characters (letters/numbers) but must begin with a letter. e.g.: A, B1, XY, T5, C, etc</td>
</tr>
<tr>
<td>Note</td>
<td>There are COLBAS key words which must not be used as variables, e.g. TO, days MO, TU, WE, TH, FR, SA, SU and PI (=3,14159).</td>
</tr>
<tr>
<td>Task Variable</td>
<td>Variables with reserved names related to TSK, e.g. TSKTAB, TSKTTY, etc.</td>
</tr>
<tr>
<td>System</td>
<td>Variables with reserved names related to the system, e.g. SYSSYS, SYSTTY, etc.</td>
</tr>
<tr>
<td>Operator</td>
<td>Arithmetic and mathematical comparison signs. e.g.: +, -, /, *, &lt;, = and AND, OR, etc.</td>
</tr>
<tr>
<td>Expression</td>
<td>Arithmetic or Boolean expression. e.g.: A&lt;B, (5/2)+(7<em>2), A</em>LOG(3.57), etc.</td>
</tr>
<tr>
<td>Term</td>
<td>Part of an Expression. May consist of numerical quantities, variables and/or addresses with parameters. e.g.: A, 34.5, @$1’000.FCON, 17:00 etc.</td>
</tr>
<tr>
<td>Numerical</td>
<td>Values in various formats. e.g.: 3.34, 7:45, 3-DEC-80, -23E+2 etc.</td>
</tr>
</tbody>
</table>
**Format**

Numerical quantities can have the following formats:
- Integer: 1, 2, 12, -345 etc
- Real: 0.345, -45.4, 12E+5, etc.
- Date: 1-FEB-88, 1.2.88, 1.2.1988, 01-02-88 etc.
- Time: 12:00, 8:01:30 etc.

**Text/String**

All characters which are enclosed in double apostrophes ("") are interpreted as clear text. e.g.: "A=5", "Comment", "How are you?" etc.

**Rules for COLBAS**

- COLBAS syntax does not depend on [BLANK] and [TAB] as long as the input is unambiguous.
- Pay attention to arithmetic expressions!
  - Brackets should be used "()" to avoid ambiguous expressions:
    "-5+8" is not the same as "-(5+8)"!!!
- Program lines may be entered in upper or lower case letters.
- Several statements can be defined in the same line provided they are separated with ";":

```
100 A:=18 ; B:=200/5 ; PRINT "Result of A*B=",A*B ; STOP
```

**Attention**

This way of entering statements is not suitable for programming loops where each statement must appear in a new line.

**2.6.4.2 COLBAS Language Elements**

The COLBAS language elements for VISONIK Server and EKL are contained in document "COLBAS Description".

**2.6.4.3 Review of all STATEMENTS**

<table>
<thead>
<tr>
<th>Name of statement</th>
<th>execution</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEGIN_INKEY</td>
<td>no</td>
<td>Immediate Initiate INKEY mode</td>
</tr>
<tr>
<td>CHAIN</td>
<td>no</td>
<td>Link together various Tasks</td>
</tr>
<tr>
<td>CLEAR</td>
<td>no</td>
<td>Task's variable table</td>
</tr>
<tr>
<td>CLEAR SIGNAL</td>
<td>yes</td>
<td>Clear signal</td>
</tr>
<tr>
<td>CLIV24</td>
<td>yes</td>
<td>Clear V.24 buffer</td>
</tr>
<tr>
<td>CLOSE</td>
<td>no</td>
<td>Close file</td>
</tr>
<tr>
<td>DIM</td>
<td>yes</td>
<td>Reserve memory array</td>
</tr>
<tr>
<td>DATA</td>
<td>no</td>
<td>Define a data table</td>
</tr>
<tr>
<td>END</td>
<td>yes</td>
<td>Stop Task without STOP message</td>
</tr>
<tr>
<td>END_INKEY</td>
<td>no</td>
<td>End INKEY-Mode</td>
</tr>
<tr>
<td>ERROR</td>
<td>no</td>
<td>Simulate a certain error to check &quot;ON ERROR GOTO&quot; routines</td>
</tr>
<tr>
<td>FOR</td>
<td>no</td>
<td>Start of program loop</td>
</tr>
<tr>
<td>GOSUB</td>
<td>no</td>
<td>Jump to a subroutine</td>
</tr>
<tr>
<td>GOTO</td>
<td>no</td>
<td>Jump to the beginning of a line</td>
</tr>
</tbody>
</table>
2.6.4.4 Review of all FUNCTIONS

<table>
<thead>
<tr>
<th>Name of Function</th>
<th>Type</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABS</td>
<td>n</td>
<td>Absolute argument value</td>
</tr>
<tr>
<td>ASC</td>
<td>n</td>
<td>Arctan</td>
</tr>
<tr>
<td>ATAN</td>
<td>n</td>
<td>Numerical value of a character</td>
</tr>
<tr>
<td>CHR$</td>
<td>s</td>
<td>ASCII character of argument</td>
</tr>
<tr>
<td>COS</td>
<td>n</td>
<td>Cosine</td>
</tr>
<tr>
<td>CRC$</td>
<td>s</td>
<td>Checksum of argument</td>
</tr>
<tr>
<td>DATE</td>
<td>n</td>
<td>Actual date (dd-mm-yy)</td>
</tr>
<tr>
<td>DATES$</td>
<td>s</td>
<td>Date as a string</td>
</tr>
<tr>
<td>DAY</td>
<td>n</td>
<td>Day of week</td>
</tr>
<tr>
<td>Function Code</td>
<td>Function Description</td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td>----------------------</td>
<td></td>
</tr>
<tr>
<td>DAY$</td>
<td>Day as a string</td>
<td></td>
</tr>
<tr>
<td>DDAY</td>
<td>Day of month for a given date</td>
<td></td>
</tr>
<tr>
<td>DFN</td>
<td>Test for definition of variables/points</td>
<td></td>
</tr>
<tr>
<td>EOF</td>
<td>Test for EOF (= End Of File)</td>
<td></td>
</tr>
<tr>
<td>EXP</td>
<td>Exponential function</td>
<td></td>
</tr>
<tr>
<td>FIX</td>
<td>Round-off an argument</td>
<td></td>
</tr>
<tr>
<td>FLT</td>
<td>Format conversion ASCII-&gt;Binary</td>
<td></td>
</tr>
<tr>
<td>FLTS$</td>
<td>Format conversion Binary-&gt;ASCII</td>
<td></td>
</tr>
<tr>
<td>FREE</td>
<td>Remaining memory space in a Task</td>
<td></td>
</tr>
<tr>
<td>HYS</td>
<td>Hysteresis function</td>
<td></td>
</tr>
<tr>
<td>INSTR</td>
<td>String search</td>
<td></td>
</tr>
<tr>
<td>INT</td>
<td>Round up to whole number</td>
<td></td>
</tr>
<tr>
<td>LCASE$</td>
<td>Change all upper case to lower case letters</td>
<td></td>
</tr>
<tr>
<td>LEN</td>
<td>Gives the length of string</td>
<td></td>
</tr>
<tr>
<td>LOC</td>
<td>Gives the number of bytes used in a</td>
<td></td>
</tr>
<tr>
<td>LOG</td>
<td>file Natural logarithm</td>
<td></td>
</tr>
<tr>
<td>MAX</td>
<td>Maximum of all arguments</td>
<td></td>
</tr>
<tr>
<td>MIN</td>
<td>Minimum of all arguments</td>
<td></td>
</tr>
<tr>
<td>MOD</td>
<td>Modulo division</td>
<td></td>
</tr>
<tr>
<td>MONTH</td>
<td>Month of a given date</td>
<td></td>
</tr>
<tr>
<td>PI</td>
<td>3.14159...</td>
<td></td>
</tr>
<tr>
<td>POS</td>
<td>Position an argument</td>
<td></td>
</tr>
<tr>
<td>RND</td>
<td>Random number generation</td>
<td></td>
</tr>
<tr>
<td>SEARCH</td>
<td>Search for values in an array</td>
<td></td>
</tr>
<tr>
<td>SGN</td>
<td>Argument sign</td>
<td></td>
</tr>
<tr>
<td>SIN</td>
<td>Sine</td>
<td></td>
</tr>
<tr>
<td>SQR</td>
<td>Square root</td>
<td></td>
</tr>
<tr>
<td>STATUS</td>
<td>Task status (active/inactive)</td>
<td></td>
</tr>
<tr>
<td>STR$</td>
<td>Argument as a string</td>
<td></td>
</tr>
<tr>
<td>TAB</td>
<td>Set tabulator</td>
<td></td>
</tr>
<tr>
<td>TIME</td>
<td>Actual time (HH:MM:SS)</td>
<td></td>
</tr>
<tr>
<td>TIMES$</td>
<td>Time as a string</td>
<td></td>
</tr>
<tr>
<td>TRUNC</td>
<td>Truncate decimal places Function</td>
<td></td>
</tr>
<tr>
<td>UCASE$</td>
<td>Change all lower case to upper case letters</td>
<td></td>
</tr>
<tr>
<td>VAL</td>
<td>Evaluate a string</td>
<td></td>
</tr>
<tr>
<td>WEEK</td>
<td>Week of a given date</td>
<td></td>
</tr>
<tr>
<td>YDAY</td>
<td>Day of year for a given date</td>
<td></td>
</tr>
<tr>
<td>YEAR</td>
<td>Year of a given date</td>
<td></td>
</tr>
</tbody>
</table>
2.6.4.5  Review of all OPERATORS

The operators are listed according to increasing priority, i.e. in a calculation "+" has greater priority than "-".

Operator  Action
+        Add
-        Subtract
*        Multiply
/        Divide
**       Raise to power of
<=       Less than and equal to
<>       Not equal to
>=       Greater than and equal to
>        Greater than
=        Equal to
<        Less than
EXOR      Exclusive OR operator
OR        Inclusive OR operator
AND       AND operator
NOT       Negation

Note

- Expressions with highest priority are enclosed in round brackets.
  \[ 3 \times 5 + 1 = 16 \]
  \[ 3 \times (5+1) = 18 \]

- Signs "+" and "-" are accepted but have the same priorities as addition and subtraction.
- Multiplication must always be indicated by the sign "*".
- A power exponent is described with "**".
- A negative number with a fractional power exponent (e.g. \((-2)^{0.5}\)), gives a result which cannot be recognised by COLBAS. Therefore an error message is given.
- If the power exponent is a whole number then negative base numbers are accepted.

Examples

\((-2)^{0.5}\)  not accepted
\((-2)^{3}\)  accepted

- "Comparison Operations" result in value 1 if the comparison is "True" and "0" if the comparison is "False". These results can be used for other calculations.

Examples

\(3 > 1\)  is "true" or 1
\(3 = 8\)  is "false" or 0

- The result of a logical Boolean expression (AND, OR, EXOR) is either "true" with value 1 or "false" with value 0.
### 2.6.4.6 Review of all TASK Variables

<table>
<thead>
<tr>
<th>Name of TASK Variable</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSKKEKL</td>
<td>EKL number for 'short' addresses @mmp or @$mmp</td>
</tr>
<tr>
<td>TSKERL$</td>
<td>Error Task and line number</td>
</tr>
<tr>
<td>TSKERR</td>
<td>Error number</td>
</tr>
<tr>
<td>TSKFRMS$</td>
<td>Task format</td>
</tr>
<tr>
<td>TSKPROJO</td>
<td>Defines Task priority</td>
</tr>
<tr>
<td>TSKPRP</td>
<td>Control of PROMPT printout</td>
</tr>
<tr>
<td>TSKRLV</td>
<td>Access level (0..7) for read access</td>
</tr>
<tr>
<td>TSKSYS</td>
<td>Link System for PRINT statement</td>
</tr>
<tr>
<td>TSKTAB</td>
<td>Control of tabulator length</td>
</tr>
<tr>
<td>TSKTMO</td>
<td>Defines 'timeout' for INPUT</td>
</tr>
<tr>
<td>TSKTRC</td>
<td>COLBAS trace on/off control</td>
</tr>
<tr>
<td>TSKTTY</td>
<td>Defines the relative output terminal for Task</td>
</tr>
<tr>
<td>TSKUS</td>
<td>Defines a PS (and VISONIK system with 192)</td>
</tr>
<tr>
<td>TSKWLV</td>
<td>Access level (0..7) for write access</td>
</tr>
<tr>
<td>CIRCUIT.xxx</td>
<td>Set/Clear V.24 signal xxx</td>
</tr>
<tr>
<td>GFLx</td>
<td>Global flags</td>
</tr>
<tr>
<td>LFLx</td>
<td>Local flags</td>
</tr>
<tr>
<td>RX_ERR</td>
<td>Error bits</td>
</tr>
<tr>
<td>STA</td>
<td>The previous attributes of the new parameter names were updated in version 14: STA.ADR --&gt; STA.NAME</td>
</tr>
<tr>
<td></td>
<td>STA.PTYP --&gt; STA.TYP</td>
</tr>
<tr>
<td></td>
<td>STA.HW --&gt; STA.MV</td>
</tr>
<tr>
<td></td>
<td>STA.PERS --&gt; STA.STAP</td>
</tr>
<tr>
<td></td>
<td>STA.PNATS --&gt; STA.ERSTA</td>
</tr>
<tr>
<td></td>
<td>NEW --&gt; STA.OPSTA</td>
</tr>
</tbody>
</table>

Task variables are pre-defined variables with fixed names and are designed for specific Task control actions for inputs (INPUT) and outputs (PRINT, PLOT).

- **TSKPRP**: controls the presentation of Task prompt
- **TSKTAB**: defines the tabulator field length of an output line.
- **TSKTTY**: defines a Task's input/output terminal

Task variables can be used as normal variables in Statements, Functions or Expressions.

The only exception is in FOR statements. Task variables CANNOT be declared as control variables in FOR/NEXT loops.

**TSKTTY**: Task Terminal Device

With this variable a Task can be assigned to a specific terminal for inputs and outputs. Allocation is made through the terminal's number. (Example: TSKTTY:=2). TSKTTY has a default value of 1, i.e. terminal TT1 is used as the Task terminal.

This variable can only be assigned to an existing and functional terminal unit in the VISONIK system. Should a terminal unit be in a non-functional state, automatic changeover to the specified terminal's back-up unit is made.
Assume a system has three terminals - T1, T2 and T3. TSKTTY has been set to 2, i.e. T2 is the relative Task's terminal. T3 has been declared as the backup terminal (see point type MC, parameter BCTY). This means that when T2 is faulty all actions are directed to T3. Terminal changeover is reversed as soon as the original Task device is resumed.

If the backup terminal is also faulty a backup to the backup is temporarily used. However, if in this sequence there is no functioning terminal then as a last resort all INPUT, PRINT and PLOT actions are directed to T1.

If all terminals are faulty then the Task messages are lost!

If TSKTTY is assigned a "non-existing" terminal an error message is given.

When editing a Task through Function CB, then:
- Dialogue terminal unit = Task terminal unit

Note that TSKTTY only tags the relative input/output terminal for the currently running Task.

"Own Terminal Unit"

The Task terminal may also be conditionally assigned by setting Task Variable TSKTTY to -1. In this case the unit which becomes the Task terminal is that one from which the Task was started with RUN or RESTART (RESTART only if the Task is still inactive!).

Important

In the above case (as different to a "normal" Task terminal), any current dialogue on such an "own" terminal is interrupted after a Task start to allow action of INPUT, PRINT and PLOT statements to take place without hindrance!

Rules:
- Manual Task start --> The relative dialogue terminal is entered in TSKTTY.
- Task start from "outsider" Task --> TSKTTY from "outsider" Task is transferred to TSKTTY of started Task.
- Task start from a reaction --> The first terminal declared in the Reaction entry's device mask is assigned to variable TSKTTY in the started Task. If no terminal exists in the device mask, TSKTTY takes on a value of 1.

Such a conditionally selected terminal remains valid as the Task terminal until either TSKTTY value is set to a fixed terminal, or the Task is started from another terminal!

### 2.6.4.7 Review of all SYSTEM Variables

<table>
<thead>
<tr>
<th>Name of SYSTEM Variable</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYSDAFO</td>
<td>Change date format</td>
</tr>
<tr>
<td>SYSDIAG</td>
<td>On/off control for DIAG messages</td>
</tr>
<tr>
<td>SYSNR</td>
<td>PS number, same as SYSNUS (&quot;read only&quot;)</td>
</tr>
<tr>
<td>SYSNSYS</td>
<td>System number</td>
</tr>
<tr>
<td>SYSUS</td>
<td>PS number</td>
</tr>
<tr>
<td>SYSVER</td>
<td>Version number</td>
</tr>
</tbody>
</table>
2.6.4.8 Review of all FORMATS

<table>
<thead>
<tr>
<th>Format</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>:S:x</td>
<td>Standard format</td>
</tr>
<tr>
<td>:D:x</td>
<td>Decimal presentation</td>
</tr>
<tr>
<td>:E:x</td>
<td>Exponential presentation</td>
</tr>
<tr>
<td>:F:x,y</td>
<td>Floating point presentation</td>
</tr>
<tr>
<td>:O:x</td>
<td>Octal presentation</td>
</tr>
<tr>
<td>:TXA:ch,x</td>
<td>Directly addressing a text, whereby \text{ch}=text register type=C, lp,</td>
</tr>
<tr>
<td></td>
<td>Im, Ig, Up, Um Ug</td>
</tr>
<tr>
<td>:TXA</td>
<td>Indirect addressing for parameters that have a text ID: e.g., PRINT $110PS.TXI:(TXA)</td>
</tr>
<tr>
<td></td>
<td>This command results in an automatic printout of the text</td>
</tr>
<tr>
<td></td>
<td>whose text number is stored in the TXI parameter (e.g., #p2)</td>
</tr>
<tr>
<td>:ADR</td>
<td>Address presentation (technical address)</td>
</tr>
<tr>
<td>:DATE</td>
<td>Date presentation (dd-mm-yy)</td>
</tr>
<tr>
<td>:DAY</td>
<td>Day presentation (Mo,Tu...)</td>
</tr>
<tr>
<td>:TIME</td>
<td>Time presentation (hh:mm:ss)</td>
</tr>
</tbody>
</table>

2.6.5 COLBAS Access to Point Parameters

Each data point has a Technical Address (TA). Any point can also be given a User Address (UA).

Fully defined point data may therefore be obtained by specifying
- the respective point's address and
- the abbreviated parameter name.

There is a similarity between COLBAS variables and point parameters. In fact, COLBAS variables and parameters are handled in similar ways.

<table>
<thead>
<tr>
<th>COLBAS Variables</th>
<th>Point parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Elements consist of a name and a variable value.</td>
</tr>
<tr>
<td>Denotation</td>
<td>Name having a max. of 2 characters.</td>
</tr>
<tr>
<td>Location</td>
<td>In a Task’s Variable table or Pool.</td>
</tr>
<tr>
<td>Access</td>
<td>Read/write.</td>
</tr>
<tr>
<td>Application</td>
<td>Any</td>
</tr>
</tbody>
</table>

Point parameter access in COLBAS is programmed using the general syntax:

@ADDRESS.PARAMETER

This method allows direct or indirect parameter access.

**Direct Addressing**

"Direct" in this case means that the relative point address follows after the "@" address designator. Technical Address (with "$") or User Address may be used.
Assume a measurement point with address $1'000 or C7K8'01"ME. The following lines illustrate how the measurement's parameters can be changed or read through DIRECT addressing in COLBAS:

```
100 PRINT @$1'000.ME ;-- Print measured value
200 @$1'000.LL:=10.3 ;-- Set lower limit
300 IF @C7K8'01"ME.DISL>3 THEN PRINT "ok!"
400 OS:=@C7K8'01"ME.OSV ;-- Read OSV and assign to OS
```

If no parameter is specified...

If no parameter is defined during the addressing, then COLBAS always inserts the relevant main parameter:

```plaintext
@$1'000.ADR is identical to @$1'000
```

**Indirect Addressing**

"Indirect" means that the "@" address designator is followed by a Variable which contains the Point address.

Therefore, in order to differentiate between a User Address and a variable, a parameter MUST always be specified in this type of addressing especially when the parameter "ADR" is involved.

Examples

Assume a measurement point with address $1'000 or C7K8'01"ME. The following lines illustrate how the measurement's parameters may be changed or read through INDIRECT addressing in COLBAS:

```
100 AD:=@$1'000.ADR ;-- AD contains ADR.
200 PRINT @AD.ME ;-- Print measured value
300 @AD.LL:=−5.2 ;-- Set lower limit
400 OS:=@AD.OSV ;-- Read OSV and assign to OS
```

**Indexed parameters**

The index may also be taken from an expression for indexed parameters:

```
100 ...
200 FOR I=1 to 10; PRINT @AD.CFGPNT(I+2); NEXT I
300 ...
```
2.6.6  COLBAS Access to Statistics

Each statistics message is made up of various elements. A part of these elements is always present in every message (e.g. actual time or point address) the rest depends mainly on the point or message type.

A COLBAS Task can access the Statistics Register through pre-defined variable, STA.

This variable has some specific attributes. The attributes which are available to read various message elements from Statistics Register, are:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADR</td>
<td>Point address</td>
</tr>
<tr>
<td>DATE</td>
<td>Statistic message date</td>
</tr>
<tr>
<td>TIME</td>
<td>Statistic message time</td>
</tr>
<tr>
<td>HW</td>
<td>Main value</td>
</tr>
<tr>
<td>PTYP</td>
<td>Point type corresponds to parameter TYP</td>
</tr>
<tr>
<td>MTYP</td>
<td>Message type. Here, the following definitions apply</td>
</tr>
<tr>
<td></td>
<td>0: Normal Point message</td>
</tr>
<tr>
<td></td>
<td>1: Parameter change message</td>
</tr>
<tr>
<td></td>
<td>2: Statistic Slave message (see &quot;Reactions&quot;)</td>
</tr>
<tr>
<td></td>
<td>3: Maximum Demand program message</td>
</tr>
<tr>
<td>CAUS</td>
<td>Reason, if STA.MTYP=1</td>
</tr>
<tr>
<td>PAR</td>
<td>Parameter, if STA.MTYP=1</td>
</tr>
<tr>
<td>PERS</td>
<td>Peripheral state, if STA.MTYP&lt;&gt;1</td>
</tr>
<tr>
<td>PNTS</td>
<td>Point status, if STA.MTYP&lt;&gt;1</td>
</tr>
<tr>
<td></td>
<td>(corresponds to parameter WCON)</td>
</tr>
<tr>
<td>V1</td>
<td>New value, if STA.MTYP=1</td>
</tr>
<tr>
<td>V2</td>
<td>Old value, if STA.MTYP=1 or Auxiliary value, if STA.MTYP=0 and value exists (e.g. limit value in measurement message)</td>
</tr>
</tbody>
</table>

Message elements which cannot be read using parameters (e.g. point text TXI) must be read from the process image.

```plaintext
100 AD:=STA.ADR ;-- Read Point address
110 PRINT @AD.TXI ;-- Print parameter TXI
```

The Statistics Register is a circular buffer and is arranged according to message date. If a specific message is to be read from the buffer then the required date range for variable STA must be set by a FOR/NEXT loop.

In programming variable STA the following must be observed:
- Special variable STA M U S T be programmed as a control variable in a FOR/NEXT loop as illustrated in the example below.
- The start and end values for variable STA in the FOR/NEXT loop are interpreted as "Date" when executed. (Refer to COLBAS Function "DATE" for date format).
Example for programming with Variable STA

```
1 -- Connection STA <=> COLBAS  07-11-88/Landis&Staefa
100  FOR STA:=DATE-2 TO DATE
200    IF (STA.MTYP=0) AND (STA.ADR=$177'020) THEN GOSUB 1000
300  NEXT STA
400  END
1000  PRINT STA.DATE!!STA.TIME,STA.ADR,STA.V1,STA.V2; RETURN
```

Explanation: The above program searches the Statistics Register STA for point messages (defined by MTYP=0) related to address $177'020, covering the last two days and prints the various messages found.

Remarks: Variable STA together with an attribute is to be regarded as a "normal" variable. However, it cannot be used in an INPUT statement but can only be read or printed with a PRINT statement.

### 2.6.7 Error Handling with COLBAS

It is perhaps unavoidable that at some stage during the input or execution of a COLBAS Task certain errors may occur. COLBAS has the capability of indicating errors more or less in clear text so that location and correction of errors are possible.

Errors may be split into two groups:
1) Input errors and
2) Programming errors

**INPUT ERRORS** are indicated immediately after terminating an input line.

Lines with errors are not saved. The relative Task reports with a repeat of the Task prompt.

COLBAS marks any input error position with a "^--" character.

```
TSK1 :   100  XY:=(2+A1)/(5+SIN(PI/4) <CR>
        ^-- ")" expected
```

**PROGRAMMING ERRORS** are first reported at the time of Task execution.

Errors of this kind are marked and handled differently in IMMEDIATE MODE to those in DEFERRED MODE.

In the first case error text is printed out after an arrow "-->", then the relative Task reports with a repeat of its Task prompt.

In the second case a "proper" error message is given on Task terminal TSKTTY and the Task involved is stopped.
Immediate mode

```
TSK0  :  SCR 500 <CR>
   --> Error 6 = Illegal Task

TSK0 :
```

Deferred mode

```
TSK35 : 100 RUN 500
   RUN ok!

TSK35 08:15:22 Error 6 = Illegal Task at line 100
```

Aid to Error Finding ("debugging")

If the contents of an error message is insufficient for finding an error it is advisable to insert "break points" at critical points in the relative program in order to check variables of interest.

This is done by writing a STOP statement at a suitable point in the Task. Whenever STOP is reached the program will halt.

Now, in IMMEDIATE MODE any current variable value can be listed with instruction LIST VAR or other operations can be started.

If at that point everything is in order the STOP statement is removed and another one inserted at the next suspected Task line. The program is then continued with RESTART, n (n=line number).

Another possibility is the incorporation of PRINT commands at critical program points to print out certain important data. This enables, in a relatively refined way, the tracing of how a program runs.

COLBAS Trace

Using Trace the running of a COLBAS Task can be checked out.

COLBAS Trace is enabled through Task variable TSKTRC by setting it to a value between 1..15. This value corresponds to the output terminal on which the relative listing should be made.

To disable Trace TSKTRC must be reset to 0.

When Trace is enabled the following information is listed after execution of every COLBAS statement:

1. Task number, time and "trace",
2. Current line number
3. The relative executed instruction and
4. The variables whose values are changed by this instruction.

```
1 -- Example with Task 24
100 TSKTTY=1; TSKTRC=TSKTTY ;-- Trace on with TSKTRC=1
110 TSKPRP=2
120 DIM XY(10),YZ(10)
130 FOR I=1 TO 10; XY(I)=0; YZ(I)=0; NEXT I
   ...
  ...
```
The following listing appears on output terminal T1 as defined by TSKTTY=1 in Task 24:

<table>
<thead>
<tr>
<th>Task</th>
<th>Time</th>
<th>Type</th>
<th>Line</th>
<th>Command</th>
<th>Argument</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSK24</td>
<td>10:00:00</td>
<td>trace</td>
<td>110</td>
<td>LET</td>
<td>TSKPRP=2</td>
</tr>
<tr>
<td>TSK24</td>
<td>10:00:00</td>
<td>trace</td>
<td>120</td>
<td>DIM</td>
<td>XY(10,1)</td>
</tr>
<tr>
<td>TSK24</td>
<td>10:00:00</td>
<td>trace</td>
<td>120</td>
<td>DIM</td>
<td>YZ(10,1)</td>
</tr>
<tr>
<td>TSK24</td>
<td>10:00:01</td>
<td>trace</td>
<td>130</td>
<td>FOR</td>
<td>I=1</td>
</tr>
<tr>
<td>TSK24</td>
<td>10:00:01</td>
<td>trace</td>
<td>130</td>
<td>LET</td>
<td>XY(1,1)=0</td>
</tr>
<tr>
<td>TSK24</td>
<td>10:00:02</td>
<td>trace</td>
<td>130</td>
<td>LET</td>
<td>YZ(1,1)=0</td>
</tr>
<tr>
<td>TSK24</td>
<td>10:00:02</td>
<td>trace</td>
<td>130</td>
<td>NEXT</td>
<td>I=2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>...</td>
</tr>
</tbody>
</table>
2.7 CMB Circular Message Buffer

2.7.1 Initial Access and Handling

Function call-up

CTRL/P CMB

General

The circular message buffer is a reserved hard disk memory area of the VISONIK DCS.

As opposed to the Statistic Register, ALL SPONTANEOUS MESSAGES from the VISONIK system are fed to the CMB before they are processed internally (e.g. output to a printer, deposited in Statistic Register, etc.).

Post Box

The circular message buffer can be compared to a post box. The post carrier (the VISONIK DCS) places different important (message priorities) mailings (message orders) there. These are then distributed to the addressed parties (message channels) or, if without address, are not distributed ("other" message orders).

Capacity

"Circular Buffer" means that new messages to a full buffer will overwrite the oldest messages (first-in, first out buffer or "FIFO").

The buffer's capacity is large enough to cope with messages which arise during the most recent hours up to the last few days, depending on how active the VISONIK DCS has been.

An operator has access to the CMB at any time, and almost the same "Message Categories" conditions apply as in Function STA. Such a dialogue can be broken off at any time with Ctrl/E.

Main menu

The following operations are now available for handling this function:

<table>
<thead>
<tr>
<th>T8</th>
<th>09:06:04 Function=PNT : CMB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation=LIST</td>
<td>?</td>
</tr>
<tr>
<td>0</td>
<td>LIST = List Buffer</td>
</tr>
<tr>
<td>1</td>
<td>LDAT = Review Messages by Date</td>
</tr>
<tr>
<td>2</td>
<td>LFCO = List Number of &quot;ERSTA&quot; Messages</td>
</tr>
<tr>
<td>3</td>
<td>LIRO = List Messages in Reverse Order</td>
</tr>
<tr>
<td>4</td>
<td>LOCT = List Buffer in Octal Code</td>
</tr>
<tr>
<td>5</td>
<td>DEL = Delete Outstanding Messages</td>
</tr>
<tr>
<td>Operation=LIST</td>
<td>:</td>
</tr>
</tbody>
</table>

2.7.2 LIST, Print Message Buffer

Note:

Call up this function with:

PRO,CMB

Operation LIST outputs a listing of messages held in the CMB to the operator's terminal or printer. All messages are arranged according to date.

Should the system date be set back (with Function DATE) all new buffer messages which overlap other existing entries because of this set back in time, are tagged in the listing with "Retrospective", placed next to the date.

Recorded Date : 05-10-96/Th Retrospective
Messages may be selected from the CMB using the following conditions:
- Time interval
- Message category

<table>
<thead>
<tr>
<th>T8</th>
<th>09:07:55</th>
<th>Function=PNT</th>
<th>CMB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation=LIST</td>
<td>from 09.08.1996/Fr 02:13: -1Mon</td>
<td>upto 12.08.1996/Mo 09:11: ?</td>
<td></td>
</tr>
<tr>
<td>12.08.1996/Mo 09:11=(dd.mm.yyyy) (hh:mm), (hh:mm), (dd.mm.yyyy), +=</td>
<td>(-100..100) (Min.,Hour,Day,Mnth), -=(100..100) (Min.,Hour,Day,Mnth), (-100..100) (Min.,Hour,Day,Mnth), (-100..100), -(Mo, Tu, We, Th, Fr, Sa, Su), (Mo, Tu, We, Th, Fr, Sa, Su), -*, *, . : 12:05</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.08.1996/Mo 12:05</td>
<td>Message Category=ADDR: ?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 * = All Messages</td>
<td>1 . = Messages without Point Addresses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 ADDR = Messages with Point Addresses</td>
<td>3 L&amp;S = Messages with L&amp;S Level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 MSG = Messages with defined number</td>
<td>5 SYSM = Messages from other systems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Message Category=ADDR:</td>
<td>Address=$d100'041 : $100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Message Type=PNT&PCH&Ackn&SLV&REST: ?

0  PNT  = Point Messages
1  PCH  = Param. Changes
2  Ackn = ACKN Messages
3  SLV  = Statistic Slaves
4  CB   = COLBAS Messages
5  REST = All other Mess.

Message Type=PNT&PCH&Ackn&SLV&REST:
CMB 09:51:10 Start of DATA LIST 12.08.1996/Mo

from: 09.08.1996/Fr 03:44
upto: 12.08.1996/Mo 09:50

Message Category = Messages with Point Addresses
Selected Address Range = $d100'PS
Message Type = PNT&PCH&Ackn&SLV&REST

(Oldest Entry : 09.08.1996/Fr 03:45)

| . PS rt'z          | Training Departement |
+-------------------+-----------------------+
KEYB 12.08.1996 09:43:23 EMAX=3----> 1                   L&S T8
KEYB 12.08.1996 09:43:32 MSGP=3----> 1                   L&S T8
KEYB 12.08.1996 09:43:53 OPMO=1=DS----> 11=DSPS          L&S T8
OPMO 12.08.1996 09:43:53 EPR2 /Ev Prior, Secondary PI=0----> 2
KEYB 12.08.1996 09:44:25 OSV=No ----> Yes           L&S T8
!OSV 12.08.1996 09:44:25
Outserv (OSV=yes) OPSTA=OSV Ri1-BPS v13
KEYB 12.08.1996 09:44:47 RRS=0=No ----> 1=Yes          L&S T8
KEYB 12.08.1996 09:46:20 OSV=Yes ----> No               L&S T8
. 12.08.1996 09:46:33
Normal-b (ComReset) Ri1-BPS v13
KEYB 12.08.1996 09:46:34 RRS=0=No ----> 1=Yes          L&S T8
CMB 09:51:24 End of DATA LIST 12.08.1996/Mo

Note: If you only request a single address of an address range, the data list will have another format.

### 2.7.2.1 Time Interval

A user may specify a time range for retrieving messages from the buffer. The maximum time range goes from the oldest buffered message up to the actual present time. VISONIK always outputs the day of recording the oldest message at 00:00 hours as a first prompt followed by the actual time as a second prompt.

The desired interval start and end times for data output can be specified as follows:

(dd-mm-yy) (hh:mm) Date with time.
(hh: mm) Time only
(dd-mm-yy) Date only
(-100..100), Positive or negative number of minutes, hours, days, months:
(Min.,Hour,Day ,Mnth) The system calculates the hour, day or month forwards or backwards (-) from the actual time.
Days:
The related point in time will be fixed at the specified day at 23:59 hours of the next
week or 00:00 hours of the previous (-) week.

(-100..100)
If a positive or negative (-) number is entered without units the system then
automatically calculates in days.

() Present time
(*) Time interval ending at the maximum possible time of 31-Dec-2027 22:53.
(‘) Time interval starting from the past possible time of 01-Jan-00/Su at 00:00

Examples
Input: ) Hour,
O Day or 0 Mnth

Input of 0 Hour, 0 Day, or 0 Mnth.

If a zero is entered together with a unit (e.g. 0Hour, 0Day, 0Mnth) the time interval start
goes back to the beginning of the current hour, day or month respectively and ends
automatically at the present time.

Input without units

In the above example the VISONIK DCS searches the CMB for messages from
11.08.96 00:00 hours up to the actual present time (12.08.1996 09:56 hours).

Input of a retrospective
time range
By entering a full stop "." against the start prompt 'from' and then <CR> at the stop time
'upto' the whole register will be listed backwards. This means the latest message
appears first and so on. Refer to Operation LIRO.

In the above example the VISONIK DCS searches the CMB for messages from
11.08.96 00:00 hours up to the actual present time (12.08.1996 09:56 hours).

Input of a retrospective
time range
By entering a full stop "." against the start prompt 'from' and then <CR> at the stop time
'upto' the whole register will be listed backwards. This means the latest message
appears first and so on. Refer to Operation LIRO.
2.7.2.2 Message Category

With "Message Category" a further condition for selection of buffer messages may be specified. The system lists messages according to the following categories:

**Message Category=ADDR:**

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 *</td>
<td>All Messages</td>
</tr>
<tr>
<td>1 .</td>
<td>Messages without Point Addresses</td>
</tr>
<tr>
<td>2 ADDR</td>
<td>Messages with Point Addresses</td>
</tr>
<tr>
<td>3 L&amp;S</td>
<td>Messages with L&amp;S Level</td>
</tr>
<tr>
<td>4 MSG</td>
<td>Messages with defined number</td>
</tr>
<tr>
<td>5 SYSM</td>
<td>Messages from other systems</td>
</tr>
</tbody>
</table>

**Message Category=ADDR:**

**ADDR**

- All buffered messages
- ' Messages without addresses or ID numbers.

Address mask and message type must be declared in the following dialogue steps.

**Address Mask**

The address mask defines a range of addresses from which the buffer messages are required.

**L&S**

Messages concerning manual (keyboard) parameter changes at L&S Level (8/8 L&S Systems Manager).

**MSG**

Only messages with certain MSG numbers.

All system messages have an internal octal number, called the MSG (Message) number. If known to the operator a MSG number may be used to select a message from the circular buffer. (Refer to System Messages for MSG number).
SYSM

Messages from other systems:
If two or more VISONIK systems are linked together (by Ring, Telephone or V.24), messages can be exchanged between the systems. Such messages are transferred to partners in the language of the sending message channel and buffered accordingly in the destination’s CMB. By using search text, messages with specific contents can be called.

"Txt.Search="" lists messages from partner systems.
"Txt.Search=H"" lists messages from partner ‘H’.

The relative search text can be a word segment together with "wild cards" (%/%). Refer to TXIZ/TXCM descriptions.

2.7.2.4 Message Type

This provides the possibility of selecting buffer messages not only by address but also by type, such as:

<table>
<thead>
<tr>
<th>Message Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 PNT = Pnt</td>
<td>Point Messages</td>
</tr>
<tr>
<td>1 PCH = Pch</td>
<td>Param. Changes</td>
</tr>
<tr>
<td>2 Ackn = Ackn</td>
<td>ACKN Messages</td>
</tr>
<tr>
<td>3 SLV = SLV</td>
<td>Statistic Slaves</td>
</tr>
<tr>
<td>4 CB = CB</td>
<td>COLBAS Messages</td>
</tr>
<tr>
<td>5 REST = REST</td>
<td>All other Mess.</td>
</tr>
</tbody>
</table>

PNT

Messages concerning normal point status changes

PCH

Messages concerning all kinds of parameter changes

ACPT

Messages concerning points acknowledged through Function ACPT. Note that Function ACPT is no longer supported.

SLV

Main value messages which have been “dedicated” to any device mask due to a Reaction program (Slave Messages).

CB

Messages which have arisen from COLBAS Tasks in EKL-X/P substations. By using a search text, messages with specific contents can be called.

The search text can be a word segment together with "wild cards" (%/%). Refer to TXIZ/TXCM descriptions.

REST

All “Other” message types
2.7.3 LDAT, Review of Messages by Date

Operation LDAT provides a review of the number of messages in the circular buffer. The subtotals are arranged according to date and a grand total is given at the end of the summary.

Special Features:
The CMB can also store data blocks specific to output devices and programs. Such entries cannot be directly accessed by a user but are summarised at the end of a "LDAT" listing. The entries are divided into four types:

- Reaction Macros
- All Macro statements concerning Reaction programs.
- Empty CMB Buffers
  A counter shows how many buffer locations are free. Once the CMB is full, the pointer always indicates zero. Then, because it is a circular buffer, there cannot be any free locations left.

As in Operation LIST, messages may also be selected according to the following criteria:
- Time Interval
- Message Category

---

T8  10:14:47 Function=PNT : CMB
Operation=LIST : LDAT
from  09.08.1996/Fr  04:12:
  09.08.1996/Fr  04:12
upto  12.08.1996/Mo  10:15:
  12.08.1996/Mo  10:15
Message Category=ADDR:
Address=RO'OM'TEMP'01: $100
Message Type=PNT&PCH&Ackn&SLV&REST:

CMB 10:15:14 Start of DATA - LIST 12.08.1996/Mo
T8
from: 09.08.1996/Fr 04:12
upto: 12.08.1996/Mo 10:15
Message Category = Messages with Point Addresses
Selected Address Range = $d100'PS
Message Type = PNT&PCH&Ackn&SLV&REST
( Oldest Entry : 09.08.1996/Fr 04:13 )
Recorded Date : 12.08.1996/Mo Number : 10.
Total : 10.

CMB 10:15:27 End of DATA - LIST 12.08.1996/Mo
T8
2.7.4 LFCO, Fault Condition Summary

Operation LFCO provides a listing on the user's terminal or printer which gives a review of 'fault condition' messages held in the CMB. These messages are tabulated together with the current warning condition (WCON) state marker, related address (ADDR, TA) and the number of related fault condition states (Normal: FCON=0, Fault: FCON=1) during the specified interval, listed in a table.

Contrary to Operation LIST, messages can be selected according to the following criteria:
- Statistics time interval
- Messages with addresses

```
T8  10:17:44  Function=PNT : CMB
Operation=LIST  : LFCO
from  09.08.1996/Fr  04:15: -1
      11.08.1996/Su  00:00
upto  12.08.1996/Mo  10:18:
      12.08.1996/Mo  10:18
Address=$RI1  : $100*

CMB 10:18:07  Start of  D A T A  -  L I S T  12.08.1996/Mo
T8
from: 11.08.1996/Su  00:00
upto: 12.08.1996/Mo  10:18
Message Category  = Messages with Point Addresses
Selected Address Range  = $d100'000...$d100'377

ERSTA :  0  1  2  3  4  5  6  7
----------------------------------------------------------
.  PS rt'z  2 . . . . . .
.  AI RO‘OM’TEMP"01 . . . . . .
.  AI OU‘TS’TEMP"01 . . . . . .  1
.  DI DI’MO’TEST"02 1 1 . . . . . .
.  DI TE’ST’DIGI"01 1 . . . . . .
CMB 10:19:08  End of  D A T A  -  L I S T  12.08.1996/Mo
T8

Operation=LIST  :
```

2.7.5 LIRO, List Messages in Reverse Order

Operation LIRO lists the requested number of messages in reverse order, i.e. the most recent message appears at the beginning and the oldest at the end.

CTRL/H

See Operation LIST for selection of message types. Function LIRO normally works with 'Criterion=ADR'. If a different criterion is desired, enter CTRL/H after the question 'Adress'.

Example

The 10 most recent messages shall be listed in groups of five messages in reverse order.

Note:
Pressing <CR> each time at "Number=5:" gives the required number of five messages per group.
T8        10:58:23 Function=PNT : CMB
Operation=LIST      : LIRO
Address=RO'OM'TEMP"01: ctrl/h
Message Type=PNT&PCH&Ackn&SLV&REST: ?
  0 PNT  = Point Messages
  1 PCH  = Parameter Changes
  2 Ackn = ACKN Messages
  3 SLV  = Statistic Slaves
  4 CB   = COLBAS Messages
  5 REST = All Other Messages
Message Category=ADDR: 
Address=RO'OM'TEMP"01: *
Message Type=PNT&PCH&Ackn&SLV&REST: 
Recorded Date   :  12.08.1996/Mo
+   AI  10:56:21 RO'OM'TEMP"01 Training Departement
    ALsta=Alarm
12.08.1996/Mo / Number=5:
?HW DO 07'TE'STMA"XD Training Departement
    RDO=Off   ERSTA=?HW
OPMO=5=PS
***  DI . DI'MO'TEST"02 Training Departement
    Off        ERSTA=EST
OPMO=5=PS
=   AI  OU'TS'TEMP"01 Training Departement
    254.7 Deg. C ERSTA= >HIL=100
OPMO=1=DS
+   AI  RO'OM'TEMP"01 Training Departement
    254.7 Deg. C ERSTA= >HIL=25.0
OPMO=1=DS
?HW ROOM TE'C1'ROOM"01 Training Departement
    0°C           ERSTA=?HW
OPMO=11=DSPS
!MAC ROOM TE'C2'ROOM"02 Training Departement
    Red_Comf -1°C ERSTA=no_TEC OPMO=11=DSPS
12.08.1996/Mo / Number=5:
### 2.7.6 LOCT, List Message Buffer in Octal

Operation LOCT provides an octal code listing of messages held in the CMB.

As in Operation LIST messages may also be selected according to Time Interval or Message Category.

Operation LOCT is mainly for diagnostic purposes.

```
<table>
<thead>
<tr>
<th>T8</th>
<th>11:43:23 Function=PNT : CMB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation=LIST : LOCT</td>
<td></td>
</tr>
<tr>
<td>from 09.08.1996/Fr 06:17: -1</td>
<td></td>
</tr>
<tr>
<td>11.08.1996/Su 00:00</td>
<td></td>
</tr>
<tr>
<td>upto 12.08.1996/Mo 11:43:</td>
<td></td>
</tr>
<tr>
<td>12.08.1996/Mo 11:43</td>
<td></td>
</tr>
<tr>
<td>Message Category=ADDR:</td>
<td></td>
</tr>
<tr>
<td>Address=RO'OM'TEMP&quot;01: $100</td>
<td></td>
</tr>
<tr>
<td>Message Type=PNT&amp;PCH&amp;Ackn&amp;SLV&amp;REST:</td>
<td></td>
</tr>
</tbody>
</table>

CMB 11:43:52 Start of DATA - LIST 12.08.1996/Mo

T8

| from: 11.08.1996/Su 00:00 |
| upto: 12.08.1996/Mo 11:43 |
| Message Category | Messages with Point Addresses |
| Selected Address Range | $d100'PS |
| Message Type | PNT&PCH&Ackn&SLV&REST |

+----------------------------------------+--------------------------+
| PS rt'z | Training Department |
+----------------------------------------+--------------------------+

KEYB 12.08.1996 09:43:23 EMAX=3---> 1 L&S T8

<table>
<thead>
<tr>
<th>Seg#</th>
<th>63 Blk#</th>
<th>27</th>
</tr>
</thead>
<tbody>
<tr>
<td>7246/</td>
<td>0 0 60000 140414 25427 411 1 20007</td>
<td></td>
</tr>
<tr>
<td>7266/</td>
<td>3 0 3 11075 10000 1 62030</td>
<td></td>
</tr>
<tr>
<td>7306/</td>
<td>4 3 140000 72001 3 0 1</td>
<td></td>
</tr>
<tr>
<td>7326/</td>
<td>0 15 310 177776 31016 52664 1</td>
<td></td>
</tr>
<tr>
<td>7346/</td>
<td>0 0 0 0 0 0 20000 20040</td>
<td></td>
</tr>
<tr>
<td>7366/</td>
<td>20040 20040 20040 23572 71164 0 0 0</td>
<td></td>
</tr>
<tr>
<td>7406/</td>
<td>0 0 0 0 0 0 0 0</td>
<td></td>
</tr>
<tr>
<td>7426/</td>
<td>0 0 0 0 0 0 0 0</td>
<td></td>
</tr>
<tr>
<td>7446/</td>
<td>0 0 0 0 0 0 0 0</td>
<td></td>
</tr>
<tr>
<td>7466/</td>
<td>0 0 0 0 0 0 0 0</td>
<td></td>
</tr>
<tr>
<td>7506/</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>
```
2.7.7 **DEL, Cancel Outstanding Messages**

Messages which cannot be output for some reason (e.g. terminal "Out of Service") are simply queued in the CMB. Often they can cause a flood of message outputs whenever such an output terminal is brought back on line.

Operation DEL can cancel such a flood of messages without actually deleting messages held in the CMB. They are simply not printed out.

There are various cancel operations which may be separately specified, according to,

- Message Channels (M1..M15)
- Message priority (MSGP=0..3)

The system also stops the output of messages whose Message Priority MSGP is equal to, or less than that specified by the user. VISONIK deletes messages in 'Others' category irrespective of the entered Message Priority (MSGP).

The following example illustrates that for Message Channel 1, there are,

- 123 messages with MSGP=0
- No messages with MSGP=1
- 45 messages with MSGP=2
- 32 messages with MSGP=3
- 1 "Other" message

By specifying "Message Channel=1" and "MSGP=3" a message flood to terminal T1 is stopped.

```
T8  11:48:43 Function=PNT : CMB
Operation=LIST : DEL
Message Channel=8 : ?
Message Channel=(1..15): 1
?TY MC $MC1 Training Departement
  T1 XX=0 BCTY=. METN=0

(Oldest Entry : 12.08.1996/Mo 10:23)
MSGP : 0 1 2 3 Other(s)
Number : 102 5 MSGP=0: ?
  MSGP=(0..3), * , : 3
  107 ** ENTRY ERASED **

(Oldest Entry : 12.08.1996/Mo 10:23)
MSGP : 0 1 2 3 Other(s)
Number : . . . . .
Message Channel=1 : ctrl/E
```
2.8 COS Dialogue for VISONIK Insight

2.8.1 Summary

This chapter contains information on:

- Picture management in the DCS.
- Management of dynamic channels in the DCS
- Assignment of pictures to address ranges

The "VISONIK Insight" describes the entire functionality of the PC software.

2.8.2 Procedure

"VISONIK Insight" is a PC software package. A PC running with 'Insight' is incorporated as a peripheral unit to a VISONIK Communication Server.

Creating pictures
A picture can be created directly with VISONIK Insight in two steps.

**First step**
The first step involves drawing the picture. This is covered in the VISONIK documentation.

The pictures are stored under a specific picture number. This picture number is a common reference between VISONIK Insight and the DCS.

**Second step**
Through a Server dialogue (COS,ACT) the pictures are given their dynamic capabilities, i.e. by defining dynamic active channels, a "real-time" updated relationship is established between a colour picture and a displayed process point monitored by the system.

Picture Selection
Besides direct picture selection at Insight or COS units, active pictures may be called up through any DCS Reaction program.

Hard copies of actively updated pictures may also be printed out on colour or black/white graphic printers.

2.8.3 Initial Access and Handling

Function call-up
CTRL/P COS

All Insight/COS pictures and symbol libraries are stored on the VISONIK system hard disk, which means the following COS functions can therefore only actioned through the VISONIK Server.

<table>
<thead>
<tr>
<th>Time</th>
<th>Function Call</th>
</tr>
</thead>
<tbody>
<tr>
<td>T8</td>
<td>13:48:42 Function=PNT : COS</td>
</tr>
<tr>
<td>Dialogue Range=UTIL : ?</td>
<td></td>
</tr>
<tr>
<td>0 UTIL = COS Pict. Directory &amp; Utilities</td>
<td></td>
</tr>
<tr>
<td>1 ACT = Active Channel Dialogue</td>
<td></td>
</tr>
<tr>
<td>2 PICT = PICT Register Dialogue</td>
<td></td>
</tr>
</tbody>
</table>

Dialogue Range=UTIL :
2.8.4 UTIL, Picture Management

This provides the means for management and documentation of pictures.

<table>
<thead>
<tr>
<th>T8</th>
<th>13:51:10 Function=PNT : COS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dialogue Range=UTIL :</td>
<td></td>
</tr>
<tr>
<td>Operation=DIR : ?</td>
<td></td>
</tr>
<tr>
<td>0 DIR = List COS Picture Directory</td>
<td></td>
</tr>
<tr>
<td>1 EDI = Edit COS Picture Directory</td>
<td></td>
</tr>
<tr>
<td>2 COPY = Copy one COS Picture to another</td>
<td></td>
</tr>
<tr>
<td>3 DEL = Delete COS Picture</td>
<td></td>
</tr>
<tr>
<td>4 VE = Verify COS Pictures</td>
<td></td>
</tr>
</tbody>
</table>

Operation=DIR :

Operation VE is identical to Function VE,COS.

2.8.4.1 UTIL,DIR, List Picture Directory

Apart from giving titles, this operation provides information on dynamic channel allocations, memory space state, and the level of picture revision. Typical accessed data such as time and date of the last picture revision plus the person responsible are also stored. All address references, defined in Operation "COS,PICT" are also listed. Further information is also available to facilitate diagnostics and assist in restoring a faulty picture.

**Pict No.**

[*,(1..max)]
Picture numbers whose directory contents are to be listed.

**Condition Status**

[*,(0..255)]
Revision status numbers for picture selection.

**Empty Pictures**

[NO/YES]
Criteria for selecting a listing of blank pictures.

<table>
<thead>
<tr>
<th>Pict.No. = 20</th>
<th>This is the title of picture number 20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filename= FS0024</td>
<td>Disk Blk= 140230</td>
</tr>
<tr>
<td>B.Length= 76 bytes</td>
<td>Free = 2842 bytes</td>
</tr>
<tr>
<td>Version = 75/A</td>
<td>Level = 0</td>
</tr>
<tr>
<td>Entry = 24.09.1998</td>
<td>EntrTime= 11:33</td>
</tr>
<tr>
<td>Filename= FD0024</td>
<td>Disk Blk= 157730</td>
</tr>
<tr>
<td>Channels= . (Ob)</td>
<td>K.Max. = 30</td>
</tr>
<tr>
<td>Entry = 02.12.1998</td>
<td>EntrTime= 13:51</td>
</tr>
</tbody>
</table>

**Filename**

Internal picture file name.
This information is for diagnostics and is not important for normal users.

**Disk Blk**

Start disk block address of the relative picture.
This information is for diagnostics and is not important for normal users.

**DSW**

Data Status Word = Internal identifier.
This information is for diagnostics and is not important for normal users.
<table>
<thead>
<tr>
<th>Channels</th>
<th>This picture involves 4 dynamic channels. These 4 channels require a total 112 bytes of disk memory.</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.Length</td>
<td>Net length (bytes) required for picture program code not including channel entries.</td>
</tr>
<tr>
<td>Free</td>
<td>Memory space available for picture extension or further channel entries. Memory demands for a picture compete with those for channel entries.</td>
</tr>
<tr>
<td>Version</td>
<td>Picture version number. This number indicates the status of the internal picture revision and is used for diagnostic purposes.</td>
</tr>
<tr>
<td>Level</td>
<td>See OPERATION EDI</td>
</tr>
<tr>
<td>Status</td>
<td>See OPERATION EDI</td>
</tr>
<tr>
<td>Entry</td>
<td>Date of last change.</td>
</tr>
<tr>
<td>EntrTime</td>
<td>Time of last picture change.</td>
</tr>
<tr>
<td>Operator</td>
<td>Name of operator who made the last change. Picture changes include not only those made through an Insight/COS unit but also any picture or channel manipulations made using the Server Function COS.</td>
</tr>
<tr>
<td>Address</td>
<td>Address references defined with Operation&quot;COS,PICT&quot;.</td>
</tr>
</tbody>
</table>

### 2.8.4.2 UTIL,EDI, Edit Picture Information

This is for editing picture titles, picture access levels and defining a picture’s revision status number.
This EDI operation must not be confused with the COS instruction MCR>EDI.

**Pict.No.**

[A picture number in the range (1..max)]

This results in the display of a contents list of the selected picture.
Refer also to Operation DIR example.

**Status**

[0..255.]
This is a freely definable revision number for each picture and can be used for specifying picture selection in operation DIR.

**Level**

[0..7]
An access level [0..7] can be given to every picture to protect against illegal actions. The effect is the same as a Function’s access level, i.e. if some kind of change is to be made in a picture, should it be either through Server Function COS or MCR>EDI instructions of the COS, the operator's authority level is compared with the picture level and access is accepted or refused accordingly.

**Title**

Each picture can be given a title having up to 60 characters. This title appears as heading picture information in Operation DIR and also appears with Operation COS,PICT,LPIC.
2.8.4.3 UTIL,COPY, Copy Picture

This enables copying of pictures within the system disk, i.e. duplication or saving. Only one picture may be copied per operation. Any defined dynamic channels are also copied.

**from Pict.No**

[a picture number in the range (1..max)]

specifies the picture to be saved.

**to Pict.No.**

[a picture number in the range (1..max)]

destination picture number.

**Overwrite All / Range?**

[NO/YES]

This safety measure is only asked if a picture already exists in the specified destination number.

A successful copy is acknowledged with "okay!".

2.8.4.4 UTIL,DEL, Delete Picture

This allows deletion of a single or a block of pictures. Any associated defined dynamic channels are also deleted.

**Pict.No.**

[*,(1..max)]

Range of pictures or single picture.

**Accept Every Entry?**

[NO/YES]

This question is asked only when a block of pictures has been chosen.

YES Prints out the directory of every current picture and then asks the additional safety question "Delete".

NO Deletes the complete selected picture range at once.

**Delete All / Range?**

[NO/YES]

NO The current picture is skipped.

YES Successful deletion is acknowledged with "Cleared!" followed by a message which shows how many pictures have actually been cleared.

2.8.4.5 UTIL,VE, Picture Verification

This operation is identical to Function ^P VE,GGD.

VE checks the symbol library and all pictures for completed structure. If a structural error is detected the relative picture or symbol number together with its associated disk block is printed out.

Illegal dynamic updating entries are logged and then deleted. Generally, pictures and symbol libraries with defects can in general be corrected.
2.8.5 ACT, Active Channel Dialogue

By defining active channels a "live" up-to-date relationship between an Insight or COS picture and VISONIK system data points or process is established.

<table>
<thead>
<tr>
<th>T8</th>
<th>14:17:02 Function=PNT : COS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dialogue Range=UTIL : ACT</td>
<td></td>
</tr>
<tr>
<td>Operation=CH : ?</td>
<td></td>
</tr>
<tr>
<td>0 CH = Change Data Entry</td>
<td></td>
</tr>
<tr>
<td>1 LI = List Data Registers</td>
<td></td>
</tr>
<tr>
<td>2 DEL = Delete Register Entry(ies)</td>
<td></td>
</tr>
<tr>
<td>Operation=CH :</td>
<td></td>
</tr>
</tbody>
</table>

2.8.5.1 ACT,CH, Enter or Change Active Channels.

The extensive dialogue COS,ACT,CH can be split into three sections. The first and third sections are used for all active point types whereas the second section depends very much on the selected active point type.

The dialogue must not be followed through from beginning to end, in particular when changing an entry where the dialogue can be terminated after a relative modified entry. (But, at the earliest, after entry of each channel type)

For new entries the dialogue takes default values from the previous entry. This means the dialogue work is reduced for similar successive entries.

Note: Changes to existing active channels of pictures currently being displayed somewhere will be updated after a short time.

To display newly entered channels, however, the affected picture must be newly called-up.

First Dialogue Section: Initial Prompts

Pict.No. [A picture number in the range (1..max)]

Calls up that picture to which the subsequent entries relate.

Chan.No. [A channel number in the range (1..max)]

Calls up the channel (defined at Insight/COS picture generation) to be actively updated.

ChanType [Fix I/O..Fix Outp]

Active channel type

The channel type denotes if the associated actively updated parameter in a picture can be cursor selected for "Action from Picture" operation or not.

In addition, in special pictures, the value of a parameter can be displayed in a defined window (with scroll).

Fix I/O Fixed channel position with input and output:
The parameter allocated to such a channel can be cursor selected. Accordingly, an input may also be given to such a channel.

Fix Outp Fixed channel position with output only:
Such a channel can only display an output value and cannot be cursor selected.
**Act.Type**

<Point..OperName> Active Point Type.

This explains what should be updated and how.

Through Insight/COS units it is possible to actively update various values or to take various actions, such as:
- Update point parameters, (Point)
- Update Pool variables (CBPool)
- Call up following picture (FollPict)
- Execute macros (Macro)
- Start/stop COLBAS Tasks (CB Task)
- Show language-dependent text (Text)
- Show operator’s name (OperName)

**Second Dialog Section**

The subsequent second dialogue section depends very much on the selected active point type. Therefore each selectable ‘Active Point Type’ (Act. Type) will be described in the following dedicated sub-chapter.

**Second Dialogue Section, Act.Type “FollPict - Display Following Pictures”**

This allows an exit from a picture, call for Help or jump to another picture by using the cursor.

[nextPict..RI Pict] Display Following Pictures

NextPict Display Next Picture.

System address [Name of the partner system on which the picture is located or (octal) number of the link process station]

Pict.No. [a picture number in the range (1..max)]

PrevPict Display Previous Picture.

The previously selected picture is displayed. For each Insight/COS unit, VISONIK can store a picture sequence of up to 7 pictures. These pictures can be paged backwards using ‘Previous Picture’.

(only works within the pictures of one DCS)

HomePict. Recall Initial Picture.

If such a channel is activated by the cursor then the initial picture, i.e. that picture which was originally called up, is displayed.

(only works within the pictures of one DCS)

**Colour**

[Black..LightGrey, No Change, Transparent]

This allows colour selection, from the 18 possibilities, for the object which the active channel represents.

No change: The object colour(s) from the Insight Picture Editor are adopted.

Transparent: The object is invisible.

**Flashing**

[Yes, No]

Defines if the object represented by the related active channel shall blink or not.
Second Dialogue Section: Active Point Type "Macro - Start Macrotexts (TXCM)"
This allows for running any macro from the macro library 'TXCM' of the DCS.

Text No.
[0..340]
Input any required legal macro number.

Colour
[Black..LghtGrey, No Change, Transparent]
This allows colour selection, from the 18 possibilities, for the object which the active channel represents.
No change: The object colour(s) from the Insight Picture Editor are accepted.
Transparent: The object is invisible.

Flashing
[Yes, No]
Defines if the object represented by the related active channel shall blink or not.

Second Dialogue Section: Active Point Type "Text - Specific Language Text Active"
Activates project language text.
This enables display of any text from the Server's text registers.

Type of Text
[P, S, N, Q, L, V, Up, Ip, M, C, Hp, Ug, Ig, Hg, Um, Im]
Select required text register.

Text No.
[0..max.]
Input any required legal text number.

Colour
[Black..LghtGrey, No Change, Transparent]
This allows colour selection, from the 18 possibilities, for the object which the active channel represents.
No change: The object colour(s) from the Insight Picture Editor are accepted.
Transparent: Not meaningful for text.

Flashing
[Yes, No]
Defines if the displayed text shall blink or not.

Second Dialogue Section: Active Point Type "CB Task - Start/Stop Central COLBAS Tasks"
This enables Server COLBAS Tasks to be started or stopped.

Task No.
[1..40]
Input any required legal Task number.

Task commands
[RUN, STOP, RESTART, END]
Input one of the four possible commands:
RUN Initialise and start COLBAS Task.
STOP Stop COLBAS Task (with message).
RESTART Start COLBAS Task (without init.).
END End COLBAS Task (without message).

Colour
[Black..LghtGrey, No Change, Transparent]
This allows colour selection, from the 18 possibilities, for the object which the active channel represents.
No change: The object colour(s) from the Insight Picture Editor are accepted.
Transparent: The object is invisible.

Flashing
[Yes, No]
Defines if the object represented by the related active channel shall blink or not.
Second Dialogue Section: Active Point Type "OperName - Name and Level of Operators"
Show operator’s name.
This enable the currently logged on operator’s name together with access level for
Functions and parameters to be displayed.

Colour
[Black..LightGrey, No Change, Transparent]
This allows colour selection, from the 18 possibilities, for the object which the active
channel represents.
No change: The object colour(s) from the Insight Picture Editor are accepted.
Transparent: Not meaningful for OperName.

Flashing
[Yes, No]
Defines if the operator’s name shall blink or not.

Second Dialogue Section: Active Point Types "Point - Active Information Point"
and"
Second Dialogue Section: Active Point Types "CB Pool - Active COLBAS Pool
Variable"

Point
Display Information Point
This allows the display and, if necessary a change to any point
selected from VISONIK's process image.

CB Pool
Display COLBAS Pool Variable.
This allows the display of any Pool variable selected from VISONIK's
Pool. Pool variables can be only changed through a COLBAS Task.

POOL (for CB Pool only)
[1..999424]
Input any required Pool variable number.

Address (for 'Point' only)
A generated point address whose main parameter is to be actively updated.
User and Technical addresses accepted.

Par.Name (for 'Point' only)
Any valid parameter of the specified address whose value is to be actively displayed.

Extd.Par (for 'Point' only)
[NO/YES]
Extended parameter information.

There are parameters which, apart from their normal values, also provide further
information, for example:

<table>
<thead>
<tr>
<th>IDC / HW Module Type</th>
<th>=12=EKX</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAP/ Status of the point</td>
<td>=?RI=Ring break</td>
</tr>
</tbody>
</table>

The extended parameter information in the above example are:
=EKX
=Ring break.

With STAP
(for 'Point' only)
[YES/NO]
YES means that the relative warning condition shall be displayed next to the actively
updated parameter.
STAP has no influence on 'TxtLength' in the third dialogue section.

Example: 1 LOL / Lower Limit = 16 Deg.C
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour</td>
<td>Display value in colour.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Foreground colour for active text, - Fore and/or background for Object (Insight)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Background for rectangles (COS)</td>
<td></td>
</tr>
<tr>
<td>Symbol</td>
<td>(For ‘Point’ only).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Display value with symbols.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The actively updated value corresponds to a symbol from the symbol library. The symbol sequence relating to various parameter states is defined at the time of picture generation.</td>
<td></td>
</tr>
<tr>
<td>Bar</td>
<td>Display value in bar form.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Background actively updated corresponding to a parameter value.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Except for &quot;Setbit&quot; types all parameters can be actively updated in BAR form.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Type, magnitude and colour of a bar's static section are defined at the time of picture generation.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The attributes which must be defined for ‘Bar’ form are the start and end values of the relative Bar chart.</td>
<td></td>
</tr>
<tr>
<td>Val.Only</td>
<td>Only the parameter's value will be dynamically updated, not the graphic attribute.</td>
<td></td>
</tr>
</tbody>
</table>

**Other dialogue prompts which apply only to ‘Active Channel Mode’: “Bar”**

<table>
<thead>
<tr>
<th>Start of Bar (for ‘Bar’ only) Value</th>
<th>The parameter value which determines the Bar's start (e.g. Low limit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>End of Bar (for ‘Bar’ only) Value</td>
<td>That parameter value which determines the Bar's end (e.g. High Limit).</td>
</tr>
</tbody>
</table>

**Colour (for ‘Bar only)**

[Black..LghtGrey, No Change, Transparent]

This allows colour selection, from the 18 possibilities, for the object which the active channel represents.

No change: The object colour(s) from the Insight Picture Editor are accepted.

Transparent: Not meaningful for bars.

**Flashing**

[Yes, No]

Defines if the Bar shall blink or not.

**Other dialogue prompts which do not apply to ‘Active Channel Mode’: “Bar”**

**Start Range (not for ‘Bar’)**

[Lowest..Highest Val.] of parameter.

Input required legal parameter value.

**Colour (not for ‘Bar’)**

[Black..LghtGrey, No Change, Transparent]

This allows colour selection, from the 18 possibilities, for the object which the active channel represents.

No change: The object colour(s) from the Insight Picture Editor are accepted.

Transparent: The object is invisible.

**Flashing**

[Yes, No]

Defines if the displayed value range shall blink or not.

The prompts in ‘Act.Form' for attributes "Colour", "Symbol" or "Val.Only", i.e.

- Start range
- Colour
- Flashing

can appear up to a maximum of five times in succession, depending on parameter type and on preceding answers to the attribute prompts (see next page for explanation).
One COS.ACT entry has space for a maximum of 5 possible parameter states. But, certain parameters can have up to 20 discrete states (values).

Therefore, an entered parameter value is taken as the START of a parameter value range. This range then includes the following sequential possible parameter values up to the next specified "Start Range", or to the last value which the relative parameter can have.

All parameter values within a range take the attributes of their respective start value. If an attribute is not specified (i.e. the first parameter value has not been assigned any attributes) the next highest start value's attributes apply instead.

Parameters with analogue values (e.g. ME, PS) are handled as parameters with a single discrete value. There is, therefore, only one single range and the prompt for "Colour" is displayed immediately.

**Example dialogue**

(Action Type = Point, Point type = PLT, Par.name = PSTA
Act.Form = Colour, Symbol or Val.Only.)

<table>
<thead>
<tr>
<th>Act.Form=Colour :</th>
<th>PSTA=0=OFF: ?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>= (OFF, STEP 1, STEP 2, STEP 3)</td>
</tr>
<tr>
<td></td>
<td>+= Range Forwards</td>
</tr>
<tr>
<td></td>
<td>-= Range Backward</td>
</tr>
<tr>
<td></td>
<td>^K= Range -Delete Entry</td>
</tr>
<tr>
<td></td>
<td>*= All Other Ranges Similar</td>
</tr>
</tbody>
</table>

- PSTA 0=OFF Colour = Red Flashing= No
- PSTA 3=STEP 3 Colour = Yellow Flashing= Yes

<table>
<thead>
<tr>
<th>Start Range PSTA=0=OFF: 11:03STEP 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSTA 1=STEP 1 Colour=Black : RED</td>
</tr>
<tr>
<td>PSTA 1=STEP 1 Flashing=No : YES</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Start Range PSTA=3=STEP 3: STEP 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSTA 2=STEP 2 Colour=Red : YELLOW</td>
</tr>
<tr>
<td>PSTA 2=STEP 2 Flashing=Yes : YES</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Start Range PSTA=3=STEP 3: 11:04</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSTA 3=STEP 3 Colour=Yellow : GREEN</td>
</tr>
<tr>
<td>PSTA 3=STEP 3 Flashing=Yes : NO</td>
</tr>
</tbody>
</table>

Textinths=0:

A listing shows the following entry:

(partial listing)

<table>
<thead>
<tr>
<th>PSTA 0=OFF Colour = Red Flashing= No</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSTA 1=STEP 1 Colour = Red Flashing= Yes</td>
</tr>
<tr>
<td>PSTA 2=STEP 2 Colour = Yellow Flashing= Yes</td>
</tr>
<tr>
<td>PSTA 3=STEP 3 Colour = Green Flashing= No</td>
</tr>
</tbody>
</table>

**Remarks:**

- STEP2: Yellow/flashing (since the first range starts at STEP3 the preceding parameter value take on these attributes).
- Purge: Green/no flashing (the attributes of the second range apply).
- Fire extract: Blue/flashing (by entering * at the fourth range this parameter value and all following ones take the attributes of the fourth range).
**Input possibilities**

+ Move forwards to next parameter value or to the next start range.
  
  ‘+’ at the fifth range or at the last parameter value causes a jump to the prompt for "Textlnth".

- Move backwards to previous parameter value or to the previous start range.
  
  ‘-’ at the first range or first parameter value causes a jump to the prompt for "Textlnth".

^K Clear start range entry. (To make place for another start range). The deleted entry is acknowledged with "Cleared".

* From this start range onwards all further parameter values are given the same attributes.

OutsFrst Selection of an explicit parameter value or start range. In this way a value can also be accessed which lies outside the 5 possible entries.

---

**Third Dialogue Section: Text Prompts**

**Textlnth**

[0..80]

Total length of updated parameter value/text.

Accepted texts are:

- Operator's name
- Access level
- Parameter name
- Parameter value
- Units
- Extra text

The value specified in 'TextLnth' limits the length of the parameter value/text, which is to be updated.

Analogue values and text which exceed the specified 'TextLnth' are simply truncated (right justified) irrespective if they are whole or fractional numbers. (See 'Text').

Should the parameter to be updated have a physical unit, e.g. DEG.C then this text is appended to the updated value. However, the limitation placed by 'TextLnth' can also truncate this text should it, together with the parameter value have insufficient place in the specified length.

The same applies to any extra text, (See 'Texttype')

**Text Type**

[Par.Text...Par+Extr]

Text selection.

Par.Text Only one "parameter text" is displayed (see below).

ExtrText The dynamic text is a language-dependent additional text. Such text can provide helpful additional information, in particular for dynamic active channels not related to data points, e.g., sequential pictures, CB Tasks, etc.

Extra text must be calculated within the limits specified by "TextLnth".

Par+Extr The dynamic text includes specific parameter text plus any appended language-dependent additional text.

Extra text extends the number of characters and must be taken into account when defining length of text with "TextLnth".
Example:

with parameter text:

ME=21.3 Deg.C

Example with extra text:

21.3 Deg.C Outside temperature

Text

[RightMar., Left Mar.]

Display of actively updated text.

RightMar.

Arrange text - right justified.
The units of a parameter and/or any extra text are written at the right hand margin of 'TextLnth'.

Right justified displays are suitable for displaying tables.

WCON|<----- TextLnth ---->|

| *** | FAULT |
| ST= FAULT |
| ME= 1000  DEG. C | EXTRA TEXT |
| cut off. |
| ME= 1209.25  DEG. C |
| +++ | ME= 1.00025 E+2  DEG. C cut off. |

Left Mar

Justify text to the left.
The units of a parameter and/or any extra text are appended directly after the parameter value.

Left justified displays are used mainly for plant pictures.

WCON|<------ TextLnth ------>|

| *** | FAULT |
| ST= FAULT EXTRA TEXT |
| ME= 100  DEG. C |
| ME= 1209.25  DEG. C |
| +++ | ME= 1.00025 E+2  DEG. C |

Remark:

If UNIT or EXTRA TEXT do not have sufficient space as defined by "TextLnth" they are omitted completely.

with Name

[NO/YES]

Name of actively updated parameter.

If this question is answered with YES, then the parameter's name is displayed in front of its updated value. This extends the number of characters used for the parameter and must be taken into account when defining 'TextLnth'.

Examples with names:

ME=16.4 Deg.C
PS=45 percent
TASK=10
POOL=440

Same examples without names:

16.4 Deg.C
45 percent
10
440

If "withName" is answered with 'NO' the following prompts are omitted.
**Long Name**

[NO/YES]
This prompt only appears if "withName" has been answered with 'YES'.
The actively updated parameter's name shall be displayed in long format together with the associated parameter value.
This extends the number of characters required for the parameter to be updated and must be taken into account when defining 'TextLnth'.

The same examples as above with long names:

- 0 - ME/Measurement value= 16.4 Deg.C
- 0 3 PS/Position command= 45 percent
- - TASK/COLBAS Task No.= 10
- - POOL/COLBAS Pool No.=440

**Type of Text**

[P,S,N,Q,L,V],[P,L,M,C,Hp,Ug,Ig,Hg,Um,Im]
This prompt only appears if "TextType", "ExtrText" or "Par+Extr" have been selected.

Selection of text register.

**Text No.**

[1...max.]
Display of a point parameter with actively updated text can be very flexibly arranged using the above facilities.

The following examples will illustrate the possibilities once again:

With name, long name and extra text:

- 0 3 SC/SC RVAL=ON  Supply air valve
- 0 - ME/Measurement value=20.5 Deg.C Outside temp.
- - PICT/COS ACT PICT TYPE=20 North building

With name and long name only:

- 0 3 SC/SC RVAL=ON
- 0 - ME/Measurement value=20.5 Deg.C
- - PICT/COS ACT PICT TYPE=20

With name only:

- SC=ON
- ME=20.5 Deg.C
- PIC=20

Without name and no extra text:

- ON
- 20.5 Deg.C
- 20

With extra text only:

- ON Supply air valve
- 20.5 Deg.C
- 20 North building

2.8.5.2 ACT,LIST, List Defined Dynamic Channels

**Pict.No.**

[*,(1..max)]  Picture number or range.

**Chan.No.**

[*,(1..max)]  Channel number or range.

All responses to OPERATION CH are printed out, per picture, in ascending channel order:
2.8.5.3 ACT, DEL, Delete Dynamic Channels

This allows clearing of single or a range of channels from a selected picture.

Pict.No.  [a picture number in the range (1..max)]

Chan.No.  [*,(1..max)] Channel number or range.

Accept Every Entry?  [NO/YES]
This question is asked only if a channel range has been selected.
NO  clears the whole selected range at once.

Delete Entry?  [NO/YES]
NO  The current picture is skipped.
YES  Successful deletion is acknowledged with "C l e a r e d!" after which a
      printout is given showing how many pictures were actually deleted.
2.8.6  PICT, Allocation of Pictures to Address Ranges

A picture register is necessary whenever the following functions are used:
- Ctrl/D (for COS)
- Picture select - Address in Insight,

Such a register forms the link between partial addresses of a building, area or plant and the associated picture, i.e. the picture register contains all picture numbers together with their reference addresses or reference address masks.

Through COS Operation PICT a user can,
- assign a specific address or address mask to a defined picture, or
- assign a specific picture number to defined addresses of address masks,

or delete entries.

Initial Entry and Handling of Function COS,PICT

PICT belongs to the COS Function and is opened with Ctrl/P followed by "COS,PICT".

The following Operations are available for handling this Function:

<table>
<thead>
<tr>
<th>T8</th>
<th>14:50:21 Function=PNT : COS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dialogue Range=UTIL : 2</td>
<td></td>
</tr>
<tr>
<td>Operation=CH : ?</td>
<td></td>
</tr>
<tr>
<td>0 CH  = Change Picture Entries</td>
<td></td>
</tr>
<tr>
<td>1 LADR = List Address to Picture Number</td>
<td></td>
</tr>
<tr>
<td>2 LPIC = List Picture Number to Address</td>
<td></td>
</tr>
<tr>
<td>3 DEL = Delete Picture Entries</td>
<td></td>
</tr>
</tbody>
</table>

2.8.6.1  PICT,CH, Change Picture Entries

Operation CH allows a user to allocate a new picture number to an address/address mask or to change an already assigned picture number.

Allocate New Picture Number

To allocate a new picture number to an address/address mask the respective picture address or mask is entered against “Address=:” and against “Pict.No.=” the associated COS picture number.

<table>
<thead>
<tr>
<th>T8</th>
<th>14:55:45 Function=PNT : COS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dialogue Range=UTIL : 2</td>
<td></td>
</tr>
<tr>
<td>Operation =CH :</td>
<td></td>
</tr>
<tr>
<td>Address=$d100’001 : ?</td>
<td></td>
</tr>
<tr>
<td>Address=(UA, TA,...,..,*)</td>
<td></td>
</tr>
<tr>
<td>UA   = AA’AA’A11”dd</td>
<td></td>
</tr>
<tr>
<td>TA   = $SSS’MM’P, $ss’CTYPn, $CTYPn, $ssMxxPy</td>
<td></td>
</tr>
<tr>
<td>... = digitwise range</td>
<td></td>
</tr>
<tr>
<td>.. = range</td>
<td></td>
</tr>
<tr>
<td>*    = all points with UA, f*=all points</td>
<td></td>
</tr>
<tr>
<td>Pict.No.=1 : 1 ok!</td>
<td></td>
</tr>
<tr>
<td>Address=$d100’001</td>
<td></td>
</tr>
</tbody>
</table>

A successful entry in the picture register is acknowledged with "ok!"
Change Picture Number

VISONIK accepts only one picture number per address/address mask.

Picture numbers can be changed by entering the address or address mask involved. The system now gives a response showing the picture number associated with the entered address or address mask. This picture number can now be changed:

A successful entry in the picture register is confirmed with “ok!”.

2.8.6.2 PICT,LADR, List Address to Picture Number

This provides a listing of the complete picture register arranged according to addresses.

<table>
<thead>
<tr>
<th>Operation=CH</th>
<th>LADR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pict.No.= 31</td>
<td>Address = a01’12’ “****</td>
</tr>
<tr>
<td>Pict.No.= 33</td>
<td>Address = a01’13’ “****</td>
</tr>
</tbody>
</table>

2.8.6.3 PICT,LPIC, List Picture Number to Address

This Operation provides a listing of a desired picture register section which can be defined against “Pict.No.=*:” The listing is arranged according to picture numbers.

<table>
<thead>
<tr>
<th>Operation=CH</th>
<th>LPIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Picht.No.=*</td>
<td>?</td>
</tr>
<tr>
<td>Picht.No.=*, (1..160): 40..42</td>
<td></td>
</tr>
</tbody>
</table>

Building B

| Pict.No.= 40 | Address = b ? ? “**** |

VISOGYR 02 Unit

| Picht.No.= 41 | Address = b01’ "**** |

Heating Unit

| Picht.No.= 42 | Address = b0 "**** |

Heating Unit

| Picht.No.= 42 | Address = b02’ “**** |

Operation=LPIC:_

Picture titles are edited in COS pictures with Function COS,UTIL,EDI
2.8.6.4  PICT,DEL, delete Picture Entries

This allows picture entries to be deleted either according to address or picture number.

<table>
<thead>
<tr>
<th>Operation=CH: DEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delete Mode=Address : ?</td>
</tr>
<tr>
<td>0 Address =Search Criterion is an Address</td>
</tr>
<tr>
<td>1 Pict.No. =Search Criterion is a Pict.No.</td>
</tr>
<tr>
<td>Delete Mode=Address:</td>
</tr>
</tbody>
</table>

**Explanation**

- **Delete Mode=Address**
  - Pictures are deleted according to address.
  - After entering an address the system outputs a listing of the associated picture number together with address/address mask and then prompt if the listed entry should be deleted or not with "Delete Entry=No" (Yes ,No).
  - If "YES", successful deletion is confirmed with:
    
    ```
    * * E N T R Y  E R A S E D* *
    ```

- **Delete Mode=Pict.No.**
  - This allows picture entries to be deleted according to individual picture number or in a group.
  - It is recommended to answer the prompt “Accept Every Entry=” with ‘Yes’. This means every entry to be deleted will be separately and completely listed before the delete action is confirmed. This method provides extra security and also means entries may be skipped in the delete process.
  - If the above recommendation is not followed thy system automatically deletes all defined entries immediately without first giving a listing.
  - If necessary the automatic delete process can be stopped with either Ctrl/P or Ctrl/E.
  - When deletion is completed the system gives the total number of entries deleted.
2.9 DATE Set Date and Time

For various Functions (e.g. TRR, DRR, MXD, etc.) to work correctly, VISONIK requires to know the actual time, date and day.

If the system time is undefined then anywhere throughout the whole VISONIK system where time is displayed (outputs), two question marks are given in place of hours (e.g.: ??:34:27). But the printed minutes and hours do not agree with the correct time.

Function DATE is used to manually set up the date, time and day through a VISONIK system. It therefore defines the new Server time which is also automatically transferred to all process stations.

Date and time are automatically transferred after being set. Different numbers of days in months, leap years, summer/winter time changeover and special day programming are taken into account. Date and time are synchronised from the VISONIK Server.

**Time Synchronisation**

In principle, all time-dependent (PS, partner systems in a LINK System, ECUs) receive the time (so-called 'System time') from the Server, as follows:
- Every minute the Server transmits via SDLC Rings a synchronising impulse to all its partners. Each partner compares this impulse with its own clocked minute. If a certain tolerance is exceeded the respective partner's clock is corrected.
- Every 8 minutes the Server transmits a time message with date, day and time to all partners. Such a time message may also include summer/winter time data.

Note: One exception to time synchronisation is the case where an optional MASTER clock process station is involved.

**MOTHER Clock Function**

System time may also be synchronised to an external (Mother) clock, in which case only minute impulses can be accepted by the system and not the absolute time.

**2.9.1 Influence of MCPS and BKPS on System Time**

**BKPS=Yes/No**

The BKPS parameter allows determining whether the time upon the start of the DCS should be taken from a process station or not.

**MCPS=n**

The value of the MCPS parameter identifies the process station from which the time in the DC Server is specified or monitored.

When MCPS=0 and BKPS=No then the following holds in general for the determination of system time and date:
- On start-up the Server takes the last saved time from its hard disk as the system time. This time is not clocked during the time of certain operational interruptions (e.g. power failure). All system partners are then set to this system time.

Note: The actual time must be set correctly by the operator using Function DATE. Manual setting of time can be made through any terminal, i.e. also through a partner system's terminal. The corrected actual time will then be transmitted to all partners via the Master system.
BACKUP Function
A VISONIK DCS has no clock battery buffer which means the clock stops during certain interruptions (e.g. system BOOT, power failure). However, process station (Controller) clocks are battery buffered and continue to run.
- If, now, the BACKUP Function (VISONIK parameter BKPS>0) is actioned and after an interruption, the Server takes the first valid time from any suitable process station, or in a LINK System any suitable system partner. The Server re-transmits this time to all partners.

Parameter BKPS
Parameter BKPS acts as a "switch", i.e.:
BKPS=No On start-up, the Server takes the last time saved on its hard disk as the system time.
BKPS=Yes The Server takes the first valid time from any suitable system partner. (It does not take the time from any defined process station, e.g. BKPS=6 means the time from PS $6). Master Clock Function
MASTER clock function means the system time is synchronised to the clock of a process station (declared as MASTER clock PS, see parameter MCPS).
- The Server transmits a synchronising impulse on every full minute. Should this change of minute disagree with that of the MASTER clock PS this process station re-transmits a time correction back to the Server (+/- a number of seconds).
- If there is a large time deviation the MASTER clock PS re-transmits a time message which includes date, day and time. This time message can also include summer/winter time data if there has been a change in time due to summer/winter changeover.

Parameter MCPS
If MCPS>0 the Server, on start-up, first takes its time from any suitable system partner. After 8 minutes at the latest, i.e. after the Server has received its valid time message from the system partner (MASTER clock PS) as defined under parameter MCPS, it re-transmits the master clock's time message to all partners.

- A manual time setting through Function DATE from any terminal in a LINK System is re-transmitted to all system partners including the MCPS station. This means the time in a MASTER clock PS can also be set manually through Function DATE.
- If a MCPS station give an invalid time the Server takes its time from any suitable partner having a valid time.

2.9.2 Initial Access and Handling

Function call-up
CTRL/P DATE
2.9.3 Change Date and Time

To change Date and/or Time the operator must follow the prompts through to the end. Only then are any new values transferred to the Server. The DATE Function's prompt default values are either confirmed or are overwritten by a new entry.

<table>
<thead>
<tr>
<th>T4</th>
<th>16:49:37 Function =PNT : DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCPS/ Master Time PS =$33'US</td>
<td></td>
</tr>
<tr>
<td>Date =3-1-96/Tu:  ?</td>
<td></td>
</tr>
<tr>
<td>Date = (dd-mm-yy):</td>
<td></td>
</tr>
<tr>
<td>Update Time &amp; Date Reactions =No : ?</td>
<td></td>
</tr>
<tr>
<td>Update Time &amp; Date Reactions = (No ,Yes ):</td>
<td></td>
</tr>
<tr>
<td>Time =16:49:50: ?</td>
<td></td>
</tr>
<tr>
<td>Time = (hh:mm:ss): 17:00:00 o.k.!</td>
<td></td>
</tr>
<tr>
<td>SY 17:00:00 AA1'SY KEYB</td>
<td></td>
</tr>
<tr>
<td>System offline: 3-1-96/Tu 16:49:50 --&gt; 17:00:00</td>
<td></td>
</tr>
</tbody>
</table>

Date

On entering a new date the Server will accept various formats provided the input is unambiguous.

The associated day is automatically set by the Server after this answer is terminated with <CR>.

Date =3-1-96/We: 3-Jan
    =3-1-96
    =3-1-96
    =3-1-96
    =3-Jan
    =3-Jan-1996
    =3-1
    =3
    =1
    =etc

If the year is omitted the VISONIK DCS automatically assumes that year given in the prompt:

Date =20-11-95: The prompted year is 1995
New entry : 20-11 ----> The year remains at 1995

The format of DATE OUTPUT can be specified with parameter DAFO in point type SY.

Update time

Update date & Time Reactions =NO

If a user answers "YES" and the time is advanced (for example reset after a Server halt), all those Time and Date Reactions which should have taken place during the skipped period are updated. To avoid multiple unnecessary switching actions the Reactions are only updated to the point until there is again agreement between the actual updated Reaction entries and the plant's set status.

Reset time

In the DRR register the time is newly adjusted at the next call-up.
In the TRR register a time reset has no effect.
Any units of time not specified are set to zero.

**Time**

\[
\begin{align*}
\text{Time} &= 16:48:10: \quad 17: \quad \longrightarrow \quad 17:00:00 \\
&\quad 12:30 \quad \longrightarrow \quad 12:30:00 \\
&\text{etc.}
\end{align*}
\]

After changing Date and/or Time the internal Server's clock starts at the new time.

The current weekday is calculated automatically from the entered date and is reset taking into consideration any entries in the Special Day Register (SDR). The resultant day together with the time determines the execution of Time Reaction in TRR.

Date/Time changes are acknowledged on all DevIINI set terminals with a message in the following form:

\[
\begin{array}{|c|c|c|}
\hline
\text{HAND} & 17:00:01 & \text{Time changed from 19-10-95/Th 16:48:10} \\
& & \text{to 19-10-95/Th 17:00:01} \\
\hline
\end{array}
\]

The new date and time will also be output on all output terminals. If the new date has been programmed as a special day the weekday (Special Day) as defined in the SDR entry is printed in brackets next to the actual date.

\[
\begin{array}{|c|c|c|c|c|}
\hline
\text{T1} & 17:00:03 & \text{VISONIK 4000} & \text{V08.08.032} & 3-1-96/WE (So) \\
\hline
\end{array}
\]
2.10 DPC Data Processing Communication

The name DATA PROCESSING refers to a VISONIK software package which allows the following functions:

- Data collection and storing
- Data presentation (using tables and graphs)

There are three main Functions associated with DATA PROCESSING:

- **DPO** Data Processing Operations
- **DPC** Data Processing Communication
- **DPP** Data Processing Presentation

These main functions display to some degree the same fundamental structure. The DAP function is advantageously suitable for configurations, while DPP is suitable as a user-oriented function for presentation.

2.10.1 Initial Entry and Handling

Function call-up

CTRL/P DPC

<table>
<thead>
<tr>
<th>Function call-up</th>
<th>CTRL/P DPC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main menu</td>
<td>15:26:09 Function=PNT : DPC</td>
</tr>
<tr>
<td>Operation=EXP</td>
<td>?</td>
</tr>
<tr>
<td>0 GEN =</td>
<td>Generate Value Log</td>
</tr>
<tr>
<td>1 DEL =</td>
<td>Delete Value Log</td>
</tr>
<tr>
<td>2 DIR =</td>
<td>Contents of Value Log</td>
</tr>
<tr>
<td>3 EXP =</td>
<td>Export Value Log</td>
</tr>
<tr>
<td>Operation=EXP</td>
<td>:</td>
</tr>
</tbody>
</table>

2.10.2 GEN, Generate Value Log

Generation of a DP Value Log in Function DPC is identical to that in Function DP.

2.10.3 DEL, Delete Value Log

Deletion of a DP Value Log in Function DPC is identical to that in Function DP.

2.10.4 DIR, List Generated Value Logs

Listing of generated DP Value Logs in Function DPC is identical to that in Functions DP and DPP.

2.10.5 EXP, Export Value Log

ADDP protocol

Assuming the VISONIK DCS is connected with a prepared partner, the data processing data can be exchanged using an ADDP protocol (Asynchronous Duplex Datalink Protocol).

The data exported from the DCS can be displayed on a terminal using the DPC,EXP function.
The two export formats, ASCII1 and ASCII2 differ only in the size of the transferred data block.

ASCII2 is thus preferred on efficiency grounds.

**Example for ASCII1**

```plaintext
$V4.0 $d100'041,RDO,INST,I05m,LIN,19.07.96 10:00 .. 21.07.96 18:05 Ok :=Yes : Yes
```

```plaintext
$/d100'041,$d100'041,RDO,INST,I05m,LIN
```

```plaintext
>19.07.96 10:00
0,40;0,40;0,40;0,40;0,40;0,40;0,40;0,40;0,40;0,0;0,10;0,10;0,10;0
10;0,10;0,0;
0,10;0,10;0,10;0,10;0,10;0,10;0,10;0,10;0,10;0,10;0,10;0,10;0
10;0,10;0,10;
0,10;0,10;0,10;0,10;0,0;0,10;0,10;0,10;0,10;0,10;0,10;0,10;0,10;
0,10;0,10;0,10;
>21.07.96 18:10 n=674
```

```plaintext
Operation=EXP
```

```
$V4.0
```

```
>ASCII2 V4.0
```

```
$4100'041, $d100 '041, RDO , INST, I05m, LIN
```

```
19.07.96 10:00
```

```
VF $d100'041
```

```
19.07.96 10:00
```

```
>21.07.96 18:10 n=674
```

```
Operation=EXP
```

```
$V4.0
```

```
>ASCII2 V4.0
```

```
$4100'041, $d100 '041, RDO , INST, I05m, LIN
```

```
19.07.96 10:00
```

```
VF $d100'041
```

```
19.07.96 10:00
```

```
>21.07.96 18:10 n=674
```

```
Operation=EXP
```
2.11 DPO Data Processing Operations

The name DATA PROCESSING refers to a VISONIK DCS software package which allows the following functions:

- Data collection and storing
- Data transfer (e.g. to PCs)
- Data presentation (using tables and graphs)

There are three main Functions associated with DATA PROCESSING:

- **DPO** Data Processing Operations
- **DPC** Data Processing Communication
- **DPP** Data Processing Presentation

These main functions have, to a large extent, the same basic structure. Function DPO is particularly suited for configuration, while DPP is a more a user Function for adapting the presentation of data.

2.11.1 Initial Entry and Handling

Function call-up

CTRL/P DPO

Main Menu

<table>
<thead>
<tr>
<th>T8</th>
<th>08:26:32 Function=PNT : DPO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation=LI : ?</td>
<td></td>
</tr>
<tr>
<td>0 GEN = Generate Value Log</td>
<td></td>
</tr>
<tr>
<td>1 DEL = Delete Value Log</td>
<td></td>
</tr>
<tr>
<td>2 DIR = Contents of Value Log</td>
<td></td>
</tr>
<tr>
<td>3 LI = List Values numerically</td>
<td></td>
</tr>
<tr>
<td>4 MOD = Modify Values</td>
<td></td>
</tr>
<tr>
<td>5 SERV = Select Service Functions</td>
<td></td>
</tr>
<tr>
<td>6 FRAM = Free space in Value Log</td>
<td></td>
</tr>
</tbody>
</table>

Application of DPO

With Function DPO any parameter values related to real and fictitious points, (which are practical for DATA PROCESSING purposes), can be logged over a defined time interval and stored on a VISONIK DCS hard disk.

Values that can be stored

Either digital or analogue values may be logged. A preliminary condition however, is that any such points must exist in the process image (generated). Up to one million instantaneous values can be stored depending on system and hard disk structuring.

Validity Marker

Each stored value is automatically complemented with a ‘Validity Marker’ which provides an indication of the relative stored value’s plausibility. Validity markers appear in listings of values (Operation LI). For example, the status of parameter OSV (Out of Service) can be seen using such tagging. A marker is also printed which shows if a measurement point has generated an Event during the logged interval. Refer to Operation LI (List Values numerically).
2.11.2 GEN, Generate Value Log

Operation GEN is used to generate a DP Value Log. A Value Log can only be generated if the related point exists in the process image. A DP Value Log is dimensioned automatically by VISONIK DCS based on the responses as requested in the dialogue procedure.

**Starting and stopping data logging**

VISONIK DCS automatically starts to record data immediately after a Value Log has been generated. **No** special start or stop instructions are necessary for the processing of data.

**Value Log structure**

The drawing below shows the structure of a DP Value Log. A Value Log's size depends on:

- Recording type,
- Beginning and end of logging period,
- Logging interval,

Values with different ‘Record Specifiers’ cannot be mixed in the same DP Value Log, i.e. separate Value Logs are required.

**Example**

If simultaneous recording of instantaneous and mean values from the same ME point is required then two separated DP Value Logs must be generated, which means Operation DPO,GEN must be called up twice.
Example for Generating a DP Value Log

Before starting generation make sure that the involved point’s parameter OPMO is not set to either PSe or PSfe.

ctrl/P
T8 19:18:45 Function=PNT : DPO
Operation=LI : GEN
Memory: total / free 148 / 148 Value Segments
99900 MOM 27232 eMIT
Address=$d100'PS : $100'040
Recording Type=INST : INST
Parameter Name=RDO : RDO
Interval=I60m : I05
Buffer Type=CIRC : CIRD
Flag=. : 
How long ..=56Hour : 70Hour
19:20:03 Generation running ... Please wait!
19:20:03 ... successfully generated! >>o.k.!

Address Flag PAR TYP INT ORG from upto
--------------------------------------------------------------
$e100'040 INST I05m LIN 17.07.1996 112 Hour
$e100'040 RDO 19:00
Address=$d100'040 :

This example illustrates how the main parameter value RDO of a switching command having a technical address of TA $100'040 will be logged at 5 minute intervals over a period of 70 hours. The values are deposited as instantaneous values.

2.11.2.1 Address

Address=$d100'PS : ?
Address=(UA,TA,SY)
UA = AA'AA'A111"dd
TA = $sss'mm'p, $sss'CTYPn, $CTYPn, $sssMxxPyy
SY = remote address
,(UA,TA,SY,.....,)*
UA = AA'AA'A111"dd
TA = $sss'mm'p, $sss'CTYPn, $CTYPn, $sssMxxPyy
SY = remote address
... = digitwise range
.. = range
* = all points with UA, $*=all points

For DP Value Log generation, only individual addresses are allowed. No address masks are permitted.
2.11.2.2 Recording Type

<table>
<thead>
<tr>
<th>Recording Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>INST: ?</td>
<td>All (for LI, DEL operations only)</td>
</tr>
<tr>
<td>INST: 1</td>
<td>Instantaneous Value (all parameters)</td>
</tr>
<tr>
<td>MEAN: 2</td>
<td>Mean Value (Main parameter only)</td>
</tr>
<tr>
<td>MMM: 3</td>
<td>Mean Value with Maximum/Minimum</td>
</tr>
</tbody>
</table>

Values can be recorded in different ways according the following selections:

**INST**

**Instantaneous Value Log**
In DATA PROCESSING the required parameter values of generated points are copied from an intermediate buffer to their relative DP Value Logs at specified intervals (1 Min..24 Hrs).

**MEAN**

**Mean Value Log**
Mean values (analogue or digital) are calculated from a series of instantaneous analogue or digital values which are saved in an intermediate buffer every minute. The respective calculated mean value is deposited in its DP Value Log at 1 hour or 24 hour intervals. The smallest interval over which a mean value can be calculated is 1 hour, the largest interval is 24 hours (1 day).

**MMM**

**Mean Value Log with Minimum and Maximum**
Apart from recording a particular mean value the associated smallest (minimum) and largest (maximum) instantaneous values which occurred in the related interval are also stored. Should more than one equal-valued minima or maxima occur in the last hour or 24 hours, only the most recent maximum or minimum value is logged together with time of occurrence.

2.11.2.3 Parameter Name

**Parameter Name=ME : ?**

**Instantaneous Values**
Recording of instantaneous values for all parameter names is permitted with the exception of very special parameters.

These special parameters are:
- Parameters for which logging in DATA PROCESSING makes no sense.
- Parameters in time format (e.g. FCTI, MVTI).

**Mean Values**
Only mean values of main parameters ME, CG, PS, VP, CP, MD are allowed.

**MEAN and MMM**
The only permitted logging internals are one hour and 24 hours.
2.11.2.4 Logging Interval

Any logging interval is accepted for instantaneous values, but only intervals of 1 hour and 24 hours are permitted for mean values.

<table>
<thead>
<tr>
<th>Interval=I01m:</th>
<th>?</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 *</td>
<td>All (LI and DEL only)</td>
</tr>
<tr>
<td>1 I01m</td>
<td>1 min Interval</td>
</tr>
<tr>
<td>2 I05m</td>
<td>5 min Interval</td>
</tr>
<tr>
<td>3 I10m</td>
<td>10 min Interval</td>
</tr>
<tr>
<td>4 I30m</td>
<td>30 min Interval</td>
</tr>
<tr>
<td>5 I60m</td>
<td>1 hr Interval</td>
</tr>
<tr>
<td>6 I24h</td>
<td>24 hr Interval</td>
</tr>
</tbody>
</table>

Interval=I01m: *

2.11.2.5 Memory Type

Values are logged in circular buffers (CIRC):
The oldest value is automatically overwritten whenever the last memory location is reached.

![Circular memory diagram]

2.11.2.6 Flag

Flag=. : ?
Flag=(UA,TA),.
  UA = AA'AA'A1ll"dd
  TA = $sss'mm'b, $sss'CTYPn, $CTYPn, $sssMxxPyy

This is where the address of the existing flag point is entered. All values recorded in this DAP buffer are marked with flag value (0,1,2 or 3).
This flag value appears in the quality attribute (see end of this chapter) on listing LIST of value buffers.

Note
A flag is used only for marking purposes!
A flag cannot lock value acquisition with DATAPROCESSING!
Example for a flag value as a quality attribute on listing the values:

\[
\text{25.6}, \text{NEV)} 1 \\
\text{----> flag value 1}
\]

Application:
- For flagging a room temperature value during occupancy times.
- For flagging a flow temperature measurement while the circulating pump is running.

2.11.2.7 Acquisition time

This is where the acquisition time is entered in hours, days, or months.

How long ..=53Hrs : ?
How long ..=(1..255)(Hrs,Day,Mon) : 50Std

2.11.3 DEL, Delete Value Log

Operation DEL is used for deleting DP Value Logs.

Example for Deleting the DP Value Logs

```
T8 11:16:40 Function=PNT : DPO
Operation=LI : DEL
Address Mask=$d100'040: $*
   $d2'000...$d254'377
Recording Type=* : ?
  0 * = All (only for LI,DEL operations)
  1 INST = Instantaneous Value (all Params)
  2 MEAN = Mean Value (only Main Param.)
  3 MMM = Mean Value with Maximum/Minimum
Recording Type=* : *
Parameter Name=* : 
Interval=* : ?
  0 * = All (LDAT,DEL)
  1 I01m = 1 min Interval
  2 I05m = 5 min Interval
  3 I10m = 10 min Interval
  4 I30m = 30 min Interval
  5 I60m = 1 hr Interval
  6 I24h = 24 hr Interval
Interval=* : *
Buffer Type=* : ?
  0 * = All (DEL,LDAT)
  2 CIRC = Rollover (Circ.)
Buffer Type=* : *
Accept Every Entry=Yes : Yes
$d100'040 (m17p1) RDO INST I05m LIN Delete=No : Yes
   *** ENTRY ERASED *** >>o.k.!
Address Mask=$d100'040:
```

Address masks may be specified in Operation DEL as opposed to the GEN operation.
In the preceding example, inputs of Address mask "$*" and a "*" operator against the following dialogue prompts:
- All Generated DP Value Logs
- All Recording types
- All Values with parameter name ME
- All Logging intervals
- All buffer types (since version 16, only the buffer type ZIRK can be generated!),
will delete all entries for ME Points $4'020.

For deleting addresses, VISONIK DCS prompts for "Address mask=..:" which may be answered as follows:

"$*" ---> deletes all addresses

"***" ---> deletes all User addresses

"Accept Every Entry=YES"

In this case it is recommended to set "Accept Every Entry=YES" so that every DP Value Log to be deleted is listed separately on the operating terminal. This allows selective deletion of the individual DP Value Logs as an extra safety measure.

At the end of each DEL operation the system confirms this with

```
* * E N T R Y  E R A S E D * *
```

"Accept Every Entry=NO"

If "Accept Every Entry=NO" is chosen, the system automatically deletes all DP Value Logs under the specified "Address mask" without any echo of the addresses to be deleted.

At the end of this DEL operation the system confirms this with

```
* * E N T R Y  E R A S E D * *
* * E N T R Y  E R A S E D * *
* * E N T R Y  E R A S E D * *
```

This shows "* * E N T R Y  E R A S E D * *" three times as confirmation of three DP Value Logs deleted.

Important:

Only users with equal or higher access rights or the person who generated the Value Logs can delete DP Value Logs.

2.11.4 DIR, Directory of Generated Addresses

Operation DIR is used to provide a listing of information held in DP Value Log by specifying an address or address mask.

The directory output for Function DPO is identical to that of Function DPP.
Operation DIR accepts address masks.

To list all addresses there are two possible user inputs to the VISONIK DCS prompt for "Address Mask=..", as follows:

"$*"  --->  List all DP Value Logs for all addresses
"**"  --->  List all DP Value Logs for all User Addresses

**Explanation of the columns**

The following are displayed upon listing the DIR contents:

- entry numbers with associated addresses (TA,UA)
- Flag address (if generated)
- Parameter (PAR)
- Recording type (TYP)
- Logging interval (INT)
- Buffer Type (ORGanization)
  
  Note: since V16, only ZIRK buffers can be generated.
- Acquisition time

**Units**

Added at the end of the listing available free space is displayed at the operator's terminal.
2.11.5 LI, List Values Numerically

Operation LI provides the facility for listing values, logged during a specific time span. These values may be listed in tabular or long format as required. The output listing of logged values in Function DPO is identical to that of Function DPP.

**Changeover from standard to daylight saving time:**
At two o'clock in the morning, the clocks are advanced to three o'clock. This day thus only has 23 hours.

For the hour missing between 02:00 to 02:59 hours, the data processing reinserts the values from 01:00 to 01:59 hours (standard time) and flags them with the quality attribute "NoE" (No Event).

**Changeover from daylight saving to standard time:**
At three o'clock in the morning, the clocks are reset to two o'clock. This day thus has 25 hours.

The data processing overwrites the values between 02:00 to 03:00 hours (daylight saving time) by the values of 02:00 to 03:00 hours standard time.

---

### Tabular Format (TFRM)

<table>
<thead>
<tr>
<th>Time</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**START of DATA-LIST**

- $4^020$
- $4^021$
- ..
- ..

**Validity Marker**

- 30-Aug-90

**END of DATA-LIST**

---

### Long Format (LFRM)

| Time  | 1st Series
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>08:00</td>
<td></td>
</tr>
</tbody>
</table>

**START of DATA-LIST**

<table>
<thead>
<tr>
<th>$4^020$</th>
<th>INST</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>INST</td>
</tr>
<tr>
<td>..</td>
<td>..</td>
</tr>
<tr>
<td>..</td>
<td>..</td>
</tr>
</tbody>
</table>

**Validity Marker**

- 30-Aug-90

**END of DATA-LIST**

---

Logged parameter value
2.11.5.1 **TFRM, Tabular Format**

**Example of a TFRM Tabular Format Listing**

<table>
<thead>
<tr>
<th>T8</th>
<th>12:24:10</th>
<th>Function=PNT : DPO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation=LI</td>
<td>:</td>
<td>LI</td>
</tr>
<tr>
<td>Display Format=TFRM</td>
<td>:</td>
<td>?</td>
</tr>
<tr>
<td>0 TFRM = List Data in Tabular Format</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 LFRM = List Data in Long Format</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Display Format=TFRM : TFRM**

1. **Series**

———

<table>
<thead>
<tr>
<th>Address=</th>
<th>. :</th>
<th>$100'041</th>
</tr>
</thead>
<tbody>
<tr>
<td># Address Flag PAR TYP INT ORG from upto</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 $d100'041 INST I60m CIRC 20.06.1996 28 Day</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$d100'041 RDO 12:00 &gt;&gt;o.k.!</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. **Series**

———

| Address= | . : |

No "Address mask" can be entered for a TFRM, tabular format. All prompts must be correctly answered during the dialogue, otherwise prompts may be repeated continuously. It is therefore useful to check the DP Value Log type involved with DIR directory before making a LI listing.

**Series**

The term 'Series' refers to a column of listed values from an individual DP Value Log (see Function DPO,GEN).

**Max. 5 instantaneous value series**

In a tabular listing (TFRM) it is possible to print a maximum of 5 different series of instantaneous values next to each other. If only one or two series of values are required, a full stop ("." ) is entered as response to the prompt for the succeeding 2nd or 3rd Series "Address=:" respectively.

**Displaying the validity marker**

In listings containing up to three series columns, 'Validity Markers' are included (see section on 'Validity Marker'). If there are more than three series columns only the logged values are listed.

**Displaying MMM**

An extended Mean/Min/Max value (MMM) can only be listed singly in the form of three series columns.
### 2.11.5.2 LFRM Long Format

#### Example Listing in Long Format, LFRM

<table>
<thead>
<tr>
<th>T8</th>
<th>12:39:30 Function=PNT : DPO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation=LI</td>
<td>LI</td>
</tr>
<tr>
<td>Display Format=TFRM</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>0 TFRM = List Data in Tabular Format</td>
</tr>
<tr>
<td></td>
<td>1 LFRM = List Data in Long Format</td>
</tr>
<tr>
<td>Display Format=TFRM</td>
<td>LFRM</td>
</tr>
<tr>
<td>Address Mask=$d100'041: $100'040</td>
<td></td>
</tr>
</tbody>
</table>

```
$100'040  # Address  Flag  PAR  TYP  INT  ORG  from        upto
---------------------------------------------------------------------
1  $d100'040  INST I05m ZIRK  17.07.1996  53 Hour
   $d100'040  RDO  19:00  >>o.k.!  
Rounding Setting for Par.Values=-1: ?
Rounding Setting for Par.Values=(-4..7):
from  17.07.1996/We  19:00:
   17.07.1996/We  19:00
upto  18.07.1996/Th  12:45:
   18.07.1996/Th  12:45
Output Device =$TT:

DPR 12:41:38 Start of DATA LIST 18.07.1996/Th T8

<table>
<thead>
<tr>
<th>Address   Flag</th>
<th>PAR</th>
<th>TYP</th>
<th>INT</th>
<th>ORG</th>
<th>from        upto</th>
</tr>
</thead>
<tbody>
<tr>
<td>$d100'040</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>17.07.1996 53 Hour</td>
</tr>
<tr>
<td>$d100'040</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>19:00</td>
</tr>
</tbody>
</table>

Training Department

17.07.1996  |
19:00       | 0 (NoV)
19:05       | 0 (NoV)
19:10       | 0 (NoV)
19:15       | 0 (NoV)
19:20       | 0 (NoV)
17.07.1996  |
19:25       | 0 (NoV)
19:30       | 0 (NoV)
19:35       | 0 (NoV)
18.07.1996  |
12:40       | 0 (. )"  |
12:45       | 0 (. )"  |

DPR 12:45:50 End of DATA LIST 18.07.1996/Th T8

| Operation=LI | |

**Address mask**

Unlike TFRM format, address masks and "*" operator entries are accepted in Long Format, LFRM.
This allows listing of logged values from specific, or all, DP Value Logs covering a certain time span.
Under the address (TA, UA) the information text as entered in point parameter TXI or TXI2 is printed.

Rounding off parameter values: 4..7

This allows fixing the decimal point by entering the number of digits before or after the point i.e. the value is rounded up or down to the number of decimal places defined.

- A negative entry determines the number of places after the point
- A positive entry defines the number of places before the point.

However, for DATA PROCESSING specifying only the number of decimal places (-4..0) after the point is of importance.

Example

<table>
<thead>
<tr>
<th>Decimal point</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>-4</td>
<td>4 decimal places 20.4367</td>
</tr>
<tr>
<td>0</td>
<td>Whole number 20</td>
</tr>
</tbody>
</table>

2.11.5.3 LI Start and Stop Times

Start and stop time "from" LI

| from 20.06.1996/Th 14:00: ? | 20.06.1996/Th 14:00=(dd.mm.yyyy) (hh:mm), (hh:mm), (dd.mm.yyyy), += (-100..100) (Min.,Hour,Day,Mnth), -= (100..100) (Min.,Hour,Day,Mnth), (-100..100) (Min.,Hour,Day,Mnth), (-100..100), (-Mo,Tu,We,Th,Fr,Sa,Su), (Mo,Tu,We,Th,Fr,Sa,Su), -* , * , . : 20.06.1996/Th 14:00 |
| 18.07.1996/Th 14:00: ? | 18.07.1996/Th 14:00=(dd.mm.yyyy) (hh:mm), (hh:mm), (dd.mm.yyyy), += (-100..100) (Min.,Hour,Day,Mnth), -= (100..100) (Min.,Hour,Day,Mnth), (-100..100) (Min.,Hour,Day,Mnth), (-100..100), (Mo,Tu,We,Th,Fr,Sa,Su), (Mo,Tu,We,Th,Fr,Sa,Su), -* , * , . : |

The start time definition is set to the acquisition start of the generated DP value buffer.

If several 'Series' are output in tabular format the start time of the last specified DP Value Log is taken as the default time.

Start time may be entered in different ways:

- Input of date and time.
- "Today's" date is the default value, only the time is changed.
- The date is changed and time automatically set to "00:00" hours.
- Number of hours, days or months preceded by a minus sign.

Example: Input of "-24 Hour" means, list the relative logged values from the previous 24 hours up to the present time.
2.11.6 MOD, Modify Data

Application:

In recording values for statistics it may be that certain individual scattered values lie well outside tolerance levels (caused by external influences, for example, by sensors). These can completely distort the relative statistics (e.g. in a daily log).

Using Operation MOD it is possible to align such values to the other recorded values.

Important

A modified value is flagged in the validity marker with "Hnd". However, this label does not specify who did the manual entry.

In extended mean values (MMM), the mean value can be modified, but not the minimum and maximum values.

In each case, values can only be modified up to the last full hour (in the following example, to 13.59).

Example for Modifying a Logged Value

<table>
<thead>
<tr>
<th>T8</th>
<th>14:05:51 Function=PNT : DPO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation=LI : MOD</td>
<td></td>
</tr>
<tr>
<td>Address=$d100'040 :</td>
<td></td>
</tr>
<tr>
<td>#  Address     Flag      PAR  TYP  INT  ORG    from        upto</td>
<td></td>
</tr>
<tr>
<td>------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>1    $d100'040                INST I60m CIRC   20.06.1996  28 Day</td>
<td></td>
</tr>
<tr>
<td>$d100'040           RDO                   15:00  &gt;&gt;o.k.!</td>
<td></td>
</tr>
<tr>
<td>from 20.06.1996 15:00  upto 18.07.1996 15:00</td>
<td></td>
</tr>
<tr>
<td>from 20.06.1996/Th 15:00: 16:25</td>
<td></td>
</tr>
<tr>
<td>20.06.1996/Th 16:25</td>
<td></td>
</tr>
<tr>
<td>20.06.1996 17:00!  Old Value = (NoV)          0: 1</td>
<td></td>
</tr>
<tr>
<td>20.06.1996 18:00!  Old Value = (NoV)          0:</td>
<td></td>
</tr>
<tr>
<td>20.06.1996 19:00!  Old Value = (NoV)          0:</td>
<td></td>
</tr>
</tbody>
</table>
After modifying a value, the value can be listed with Operation LI.

FZ
T8  14:47:11 Function=FNT : DPO
Operation=LI : LI
Dis10
play Format=TFRM : 1
Address Mask=$d100'040:
$d100'040
#  Address     Flag      PAR  TYP  INT  ORG    from        upto
------------------------------------------------------------------
1    $d100'040                INST I60m CIRC   20.06.1996  28 Day
    $d100'040           RDO                   15:00  >>o.k.!
Rounding Setting for Par.Values=-1:
from 20.06.1996/Th 15:00:
    20.06.1996/Th 15:00
upto 18.07.1996/Th 15:00:
    18.07.1996/Th 15:00
Output Device       =$TT:
DPR    14:56:23    Start of  D A T A  -  L I S T
18.07.1996/Th  T8

    from 20.06.1996 15:00  upto 18.07.1996 15:00

Address    Flag      PAR  TYP  INT  ORG    from        upto
------------------------------------------------------------------
$d100'040                 INST I60m CIRC   20.06.1996  28 Day
$d100'040            RDO                   15:00
Training Department
20.06.1996
15:00 |        0 (NoV)
16:00 |        0 (NoV)
17:00 |        1 (Hnd)       <--- Changed manually
18:00 |        0 (NoV)
19:00 |        0 (NoV)
20:00 |        0 (NoV)
21:00 |        0 (NoV)
22:00 |        0 (NoV)
23:00 |        0 (NoV)
21.06.1996 |
2.11.7  SERV, Select Service Function

This information is for internal use only; for analysis, more system information is needed.

Short profile summary

<table>
<thead>
<tr>
<th>Time</th>
<th>Function</th>
<th>Operation</th>
<th>Address Mask</th>
</tr>
</thead>
<tbody>
<tr>
<td>T8</td>
<td>15:11:10</td>
<td>LI</td>
<td>$d100'040</td>
</tr>
<tr>
<td></td>
<td>Function=SDIR</td>
<td>0</td>
<td>SDIR = Short Layout Summary</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>LDIR = Long Layout Summary</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>RACT = Reactivate Value Log</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>TRC1 = Enable Profile Trace</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>TRC0 = Disable Profile Trace</td>
</tr>
</tbody>
</table>

DM-SEGMENT 0004

0032/ $d100'040 RDO INST CIRC I60m 20.06.1996 16:00:00 28 Day

Long profile summary

<table>
<thead>
<tr>
<th>Time</th>
<th>Function</th>
<th>Operation</th>
<th>Address Mask</th>
</tr>
</thead>
<tbody>
<tr>
<td>T8</td>
<td>15:14:46</td>
<td>LI</td>
<td>$d100'040</td>
</tr>
<tr>
<td></td>
<td>Function=SDIR</td>
<td>LDIR</td>
<td>SDIR = LDIR</td>
</tr>
</tbody>
</table>

DM-SEGMENT 0004

0032/ $d100'040 RDO INST CIRC I60m 20.06.1996 16:00:00 28 Day

DM.hm: 15:00 DM.fg: 0 DM.sfm: 0 DM.cid: 3
DM.pzu: 1 DM.rp: 3 DM.inc: 6 DM.lev: 7
DM.val: 0 DM.wp: 65535. DM.xpo: 327 DM.sgl: 2
DM.mvh: 0.0 DM.wp: 0 DM.xpq: 1.377 DM.ngs: 1
DM.mvd: 0.0 DM.nva: 675. DM.ivt: 60. DM.nvs: 675
DM.evc: 0.0 DM.ec24: 0. profile created: 18.07.1996 13:47:57

Function=SDIR : RACT

2.11.8  FREE, Free Space in Memory

<table>
<thead>
<tr>
<th>Time</th>
<th>Function</th>
<th>Operation</th>
<th>Memory: total / free</th>
<th>Value Segments</th>
</tr>
</thead>
<tbody>
<tr>
<td>T8</td>
<td>15:22:49</td>
<td>FREE</td>
<td>148 / 146</td>
<td>98550 MOM 26864 eMIT</td>
</tr>
</tbody>
</table>

A value segment corresponds to 4K memory.
2.11.9 Validity Marker

Every stored value is complemented with a 'Validity Marker'. Upon listing in tabular format, Validity Markers are shown as hexadecimal numbers enclosed in brackets and in long format as an abbreviation with three letters.

<table>
<thead>
<tr>
<th>Tabular Format</th>
<th>Long Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.8 (94)</td>
<td>! 22.8 (?HW) 0</td>
</tr>
</tbody>
</table>

Validity Marker Structure

Validity Markers are dimensioned with 8 bits (1 Byte).

<table>
<thead>
<tr>
<th>B7</th>
<th>B6</th>
<th>B5</th>
<th>B4</th>
<th>B3</th>
<th>B2</th>
<th>B1</th>
<th>B0</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>Hnd</td>
<td>1/0</td>
<td>1/0</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1/0</td>
<td>1/0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

Legend

Faults are marked by logical 1

| B7 : HW trouble        | Log. 1 (! (?HW)) |
| B6 : No value          | Log. 1 (^ (NoV)) |
| B5 : OSV (out of service) | Log. 1 (OSV) |
| B4 : No Event          | Log. 1 (NEv) |
| B3 : Limit under/overflow | Log. 1 (Lim) |
| B2 : Hand input        | Log. 1 (Hnd) |
| B1 : Flag value        | Log. 1 (1/0) |
| B0 : Flag value        | Log. 1 (1/0) |

Hexadecimal

---
Validity Marker Description

B0+B1 (Flag status)
Two bits signal the Flag status which means four different Flag values 0, 1, 2, 3 can be set for a Flag Point (e.g. $F2). If no Flag address has been defined in Function DPO,GEN then Flag value 0 is given for each logged value.

Note
Only one Flag address can be defined in Operation GEN. The Flag value must be set in the associated Flag Point.

B2 --> Hnd
(Hand input)
This "Hnd" marker is set if a manual entry has been made through Operation MOD.

B3 --> Lim
(Limit under/overflow)
This "Lim" marker is set if, for example, a ME point violates its HIL or LOL limits.

B4 --> Evt
(No Event)
If a parameter status change occurs (Event) within a logging interval, the 'Validity Marker' is recalculated. The relative NEv marker for No Event is reset to "0" and the message "Evt" is output.

B4 --> NEv
If there is no event in the respective interval the marker remains at "1" and message "NEv" is given.

B5 --> OSV
(OSV Out of Service)
This marker appears if parameter OSV for the related point has been set to YES.

B6 --> NoV
(No value)
This "NoV" marker mainly appears if some time manipulations have been made. Events having delays of more than one hour with respect to the system time result in loss of data which is indicated in the System by message "Statistics Data lost!". As an example, if the system time must be redefined after a power failure of more than one hour, measurements are missed out because of this time shift. "NoV" is also marked for a recorded point, when:
- ISU: (the point is suppressed)
- OPMO=PSe or PSfe: (OPMO is set to no Events)
- ?EO: (No Events because EPRI=0)

B7 --> HW
(HW Trouble)
This fault is related to
- PS DOWN
- MODULE DOWN
- Usable Range exceeded.

Note:
Only the worst condition is displayed for Validity Marker texts, i.e., in the B7 --> B2 sequence.

Example:
If the following Validity-Marker error message appears, B0, B4 , B7, assigned flag value = 2.
then the Validity Marker appears as follows when listed:

<table>
<thead>
<tr>
<th>Tabular Format</th>
<th>Long Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.8 (91)</td>
<td>2</td>
</tr>
<tr>
<td>(1+10+80)</td>
<td>Flag value</td>
</tr>
<tr>
<td></td>
<td>is set in Flag Point</td>
</tr>
<tr>
<td></td>
<td>(see section GEN)</td>
</tr>
</tbody>
</table>
2.11.9.1 Validity Marker for Instantaneous Values

Logging Intervals 1, 5, 10, 30 and 60 Minutes
1. If a parameter status change occurs (Event) inside one of these logging intervals, the 'Validity Marker' is recalculated every time, that is, \( \text{Validity Marker} = \text{Evt} \)
2. If no event occurs in the interval, the marker remains and \( \text{Validity Marker} = \text{NEv} \)
3. If a fault or limit violation occurs within a logging interval then this fault together with its specific Validity Marker are copied into subsequent values until a new Validity Marker is calculated on the next Event.

Example of instantaneous Value (Interval = 1 Minute)

<table>
<thead>
<tr>
<th>TIME: 16-Feb-90</th>
<th>-1-</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:00</td>
<td>22.8 ( 11)</td>
</tr>
<tr>
<td>08:01</td>
<td>22.8 ( 11)</td>
</tr>
<tr>
<td>08:02</td>
<td>22.8 ( 11)</td>
</tr>
<tr>
<td>08:03</td>
<td>23.0 ( 0)</td>
</tr>
<tr>
<td>08:04</td>
<td>23.0 ( 11)</td>
</tr>
<tr>
<td>08:05</td>
<td>23.0 ( 11)</td>
</tr>
<tr>
<td>08:06</td>
<td>23.0 ( 11)</td>
</tr>
<tr>
<td>08:07</td>
<td>23.2 ( 0)</td>
</tr>
</tbody>
</table>

If more than one Event occurs within a 1 minute interval only the Validity Marker associated with the last Event is stored.

Logging Interval of 24 Hours
Unlike intervals of 1.. 60 minutes, no new Validity Marker is calculated for a parameter value change within a 24 hour interval. The relative Validity Marker is explicitly stored together with the logged value.

2.11.9.2 Validity Marker for Mean Values

In calculating the Validity Marker for a mean value entry only the following markers are output in the selected interval (1 or 24 hours):
\[
\begin{align*}
B7 : & \quad \text{HW Trouble} \\
B4 : & \quad \text{No Event} \\
B1 : & \quad \text{Flag value} \\
B0 : & \quad \text{Flag value}
\end{align*}
\]

If an Event occurs within the selected interval, "NEv" is replaced by "Evt".
For Minimum/Maximum calculation the Validity Marker which is current for the given time is saved.
2.12 DPP Data Processing Presentation

The name DATA PROCESSING refers to a VISONIK DCS software package which allows the following functions:

- Data collection and storing
- Data transfer (e.g. to PCs)
- Data presentation (using tables and graphs)

There are three main Functions associated with DATA PROCESSING:

- **DPO** – Data Processing Operations
- **DPC** – Data Processing Communication
- **DPP** – Data Processing Presentation

These main functions have, to a large extent, the same basic structure. Function DPO is particularly suited for configuration, while DPP is a more a user Function for adapting the presentation of data.

**Application**

With Function DPP any logged value, as defined in Function DPO, can be presented in tabular or graphic forms. The tabular form output is practically identical to that of Function DPO,LI.

### 2.12.1 Initial Access and Handling

**Function call-up**

```
CTRL/P DPPPRR
```

<table>
<thead>
<tr>
<th>Main menu</th>
<th>15:42:31 Function=PNT : DPP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation=</td>
<td>GCH : ?</td>
</tr>
<tr>
<td>0 LDAT</td>
<td>List Values numerically</td>
</tr>
<tr>
<td>1 ADIR</td>
<td>Contents of Value Log</td>
</tr>
<tr>
<td>2 GDIR</td>
<td>Contents of Graphic Layout</td>
</tr>
<tr>
<td>3 GCH</td>
<td>Change Graphic Layout</td>
</tr>
<tr>
<td>4 GLI</td>
<td>List Graphic Layout</td>
</tr>
<tr>
<td>5 GDEL</td>
<td>Delete Graphic Layout</td>
</tr>
<tr>
<td>6 COPY</td>
<td>Copy Graphic Layout</td>
</tr>
<tr>
<td>7 PLOT</td>
<td>Output Graph</td>
</tr>
<tr>
<td>8 JOBS</td>
<td>Initialise Bitmap</td>
</tr>
<tr>
<td>Operation=GCH :</td>
<td></td>
</tr>
</tbody>
</table>
2.12.2 General

Graph

In Function DPP the following terms are used when referring to graphic presentation:
"Graph" refers to a scaled co-ordinate system (with titles) together with the plotted values. In one graph up to 10 values can be plotted as functions of time.

Graphic Layout

"Layout" refers to a scaled co-ordinate system (with titles) but without any plotted values.

To have access to DP Value Logs, (generated in Function DPO), it is necessary to define data channels similar to Trend Plot channels. All parameters required for setting a graph's layout (scales and title, etc.) are defined in dialogue DPP.

Coordinate system

In graphic output form, any logged value can be plotted with X/Y co-ordinates, where in DATA PROCESSING, the X-axis is always a time scale. The co-ordinate system can be scaled by the user as desired.

Max. 6 colours

The software involved provides six-colour graphs. One graph printout takes up the space of an A4 page.

Simultaneous graphs

Simultaneous output of several graphs to different terminals in a VISONIK Server is not possible. They are automatically queued in VISONIK and output in a called sequence.

Processing time

The processing time for a graph is approx. 30 seconds to 5 minutes.
2.12.3  LDAT, List Data Numerically

Operation LDAT provides the facility for listing values, logged during a specific time span. These values may be listed in tabular or long format as required.

Output of values from the the DPP,LDAT function is identical with the output for the DPO,LI function.

Changeover from standard to daylight saving time:
At two o’clock in the morning, the clocks are advanced to three o’clock. This day thus only has 23 hours.

For the hour missing between 02:00 to 02:59 hours, the data processing reinserts the values from 01:00 to 01:59 hours (standard time) and flags them with the quality attribute “NoE” (No Event).

Changeover from daylight saving to standard time:
At three o’clock in the morning, the clocks are reset to two o’clock. This day thus has 25 hours.

The data processing overwrites the values between 02:00 to 03:00 hours (daylight saving time) by the values of 02:00 to 03:00 hours standard time.

Tabular format

<table>
<thead>
<tr>
<th>Time</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-Aug-90 08:00</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1st Series</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Long format

<table>
<thead>
<tr>
<th>Time</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-Aug-90 08:00</td>
<td>-</td>
<td>(,,NEV,,0)</td>
<td>-</td>
<td>(,,)</td>
<td>(,,)</td>
</tr>
<tr>
<td>1st Series</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2.12.3.1 TFRM, Tabular Format

Example of listing in the TAB tabular format

```
T8     15:48:32 Function=PNT : DPP
Operation=LDAT :
Display Format=TFRM : ?
  0 TFRM = List Data in Tabular Format
  1 LFRM = List Data in Long Format
Display Format=TFRM :

1. Series
----------
Address=. : $100'040
#  Address  Flag  PAR  TYP  INT  ORG  from        upto
-----------------------------------------------
1  $d100'040  INST  I60m  CIRC  20.06.1996  28 Day
   $d100'040  RDO                   16:00  >>o.k.!

2. Series
----------
Address=. : $100'041
#  Address  Flag  PAR  TYP  INT  ORG  from        upto
-----------------------------------------------
1  $d100'041  INST  I60m  CIRC  20.06.1996  28 Day
   $d100'041  RDO                   16:00  >>o.k.!

3. Series
----------
Address=. :
```

No "Address mask" can be entered for a TAB. tabular format. All prompts must be correctly answered during the dialogue, otherwise prompts may be repeated continuously. It is therefore useful to check the DP Value Log type involved with DIR directory before making an LDAT listing.

**Series**

The term "Series" refers to a column of listed values from an individual DP Value Log (see Function DPO,GEN).

**Max. 5 instantaneous series**

In a tabular listing (TFRM) it is possible to print a maximum of 5 different series of instantaneous values next to each other. If only one or two value series are required, a period "." must be entered as a response to the subsequent prompt (Address=.).  

**Display of Validity Marker**  

In listings containing up to three series columns, 'Validity Markers' are included (see section on 'Validity Marker'). If there are more than three series columns only the logged values are listed.

**Display of MMM**

An extended "Mean, Min., Max." value (MMM) can only be listed singly in the form of three series columns:
### 2.12.3.2 LFRM Long Format

Example for listing in long format SFRM

```
T8 08:19:26 Function=PNT : DPP
Operation=GCH       : LDAT
Display Format=TFRM : ?
  0 TFRM = List Data in Tabular Format
  1 LFRM = List Data in Long Format
Display Format=TFRM : LFRM
Address=$d100'041 :
#    Address   Flag      PAR  TYP  INT  ORG    from        upto
------------------------------------------------------------------
1    $d100'041                INST I60m CIRC   21.06.1996  28 Day
    $d100'041           RDO                   09:00  >>o.k.!
Rounding Setting for Par.Values=-1: ?
Rounding Setting for Par.Values=(-4..7):
  from 21.06.1996/Fr 09:00:
  21.06.1996/Fr 09:00
  upto 19.07.1996/Fr 09:00:
  19.07.1996/Fr 09:00
Output Device       =$TT:

DPR 08:21:19 Start of DATA - LIST
19.07.1996/Fr T8

from 21.06.1996 09:00 upto 19.07.1996 09:00

Address   Flag      PAR  TYP  INT  ORG    from        upto
------------------------------------------------------------------
    $d100'041                INST I60m CIRC   21.06.1996  28 Day
    $d100'041           RDO                   09:00
Training Department

21.06.1996 |
  09:00 | 0 (NoV)
  10:00 | 0 (NoV)
  11:00 | 0 (NoV)
  12:00 | 0 (NoV)
  13:00 | 0 (NoV)

25.06.1996 |
  00:00 | 0 (NoV)
  01:00 | 0 (NoV)
  02:00 | 0 (NoV)

19.07.1996 :
  08:00 | 0 (. )
  09:00 | 0 (. )

DPR 08:21:55 End of DATA - LIST 19.07.1996/Fr T8

Operation=LDAT :
```
Unlike TAB format, address masks and "*" operator entries are accepted in Long Format, LFRM. This allows listing of logged values from specific, or all, DP Value Logs covering a certain time span.

INFO text

Under the address (TA, UA) the information text as entered in point parameter TXI or TXI2 appears.

Rounding off parameter values: 4..7

This allows fixing the decimal point by entering the number of digits before or after the point i.e. the value is rounded up or down to the number of decimal places defined.

- A negative entry determines the number of places after the point
- A positive entry defines the number of places before the point

However, for DATA PROCESSING specifying only the number of decimal places (4..0) after the point is of importance.

Example

<table>
<thead>
<tr>
<th>Decimal point</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>-4</td>
<td>4 decimal places 20.4367</td>
</tr>
<tr>
<td>0</td>
<td>Whole number 20</td>
</tr>
</tbody>
</table>

2.12.3.3 LDAT Start and Stop Times

Start and Stop Time "from" LDAT

```
from 21.06.1996/Fr 11:00: ?

21.06.1996/Fr 11:00=(dd.mm.yyyy) (hh:mm), (hh:mm), (dd.mm.yyyy), +=
(-100..100) (Min.,Hour,Day,Mnth), -==
100..100) (Min.,Hour,Day,Mnth), (-100..100)
(Min.,Hour,Day,Mnth), (-100..100), -(Mo, Tu, We, Th, Fr, Sa, Su),
(Mo, Tu, We, Th, Fr, Sa, Su), -* , * , := = 21.06.1996/Fr 11:00
```

The initial start of recording a DP Value Log is taken as the default time. If several 'Series' are output in tabular format the start time of the last specified DP Value Log is taken as the default time.

Start times may be changed in different ways:

(dd-mmm-yy) hh:mm:ss):
- Input of date and time.

(hh:mm:ss):
- "Today’s" date is the default value, only the time is changed.

(dd-mmm-yy):
- The date is changed and time automatically set to "00:00" hours.

(-100..0) Hour,Day,Mnth:
- Number of hours, days or months preceded by a minus sign.

Example: Input of "-24 Hrs" means, list the relative logged values from the previous 24 hours up to the present time.
2.12.4 Validity Marker

Every stored value is complemented with a 'Validity Marker'. Upon listing in tabular format, Validity Markers are shown as hexadecimal numbers enclosed in brackets and in a long format listing as an abbreviation with three letters. In long format only the worst condition is shown in each case.

<table>
<thead>
<tr>
<th>Tabular Format</th>
<th>Long Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.8 (94)</td>
<td>22.8 (?HW) 0</td>
</tr>
</tbody>
</table>

Validity Marker Structure

Validity Markers are dimensioned with 8 bits (1 Byte).

<table>
<thead>
<tr>
<th>B7</th>
<th>B6</th>
<th>B5</th>
<th>B4</th>
<th>B3</th>
<th>B2</th>
<th>B1</th>
<th>B0</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>LI</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TFRM</td>
<td>LFRM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Legend

Faults are marked by logical 1 | Ex. of fault messages in |
--------------------------------|---------------------------|
B7 : HW trouble --> log. 1 | ! (?HW) |
B6 : No value --> log. 1 | ^ (NoV) |
B5 : OSV (out of service) --> log. 1 | (OSV) |
B4 : No Event --> log. 1 | (NEv) |
B3 : Limit under/overflow --> log. 1 | (Lim) |
B2 : Hand input --> log. 1 | (Hnd) |
B1 : Flag value --> (1/0) | 1.3 |
B0 : Flag value --> (1/0) | 1.3 |

Hexadecimal
Validity Marker Description

B0+B1 (Flag status) Two bits signal the Flag status which means four different Flag values 0, 1, 2, 3 can be set for a Flag Point (e.g. $F2). If no Flag address has been defined in Function DPO,GEN then Flag value 0 is given for each logged value.

Note: Only one Flag address can be defined in Operation GEN. The Flag value must be set in the associated Flag Point.

B2 \(\rightarrow\) Hnd (Hand input) This “Hnd” marker is set if a manual entry has been made through Operation MOD.

B3 \(\rightarrow\) Lim (Limit under/overflow) This “Lim” marker is set if, for example, a ME point violates its HIL or LOL limits.

B4 \(\rightarrow\) Evt (No Event) If a parameter status change occurs (Event) within a logging interval, the “Validity Marker” is recalculated. The relative NEv marker for No Event is reset to “0” and the message “Evt” is output.

B4 \(\rightarrow\) NEv If there is no event in the respective interval the marker remains at “1” and message “NEv” is given.

B5 \(\rightarrow\) OSV (OSV Out of Service) This marker appears if parameter OSV for the related point has been set to YES.

B6 \(\rightarrow\) NoV (No value) This “NoV” marker mainly appears if some time manipulations have been made. Events having delays of more than one hour with respect to the system time result in loss of data which is indicated in the System by message “Statistics Data lost!”.

As an example, if the system time must be redefined after a power failure of more than one hour, measurements are missed out because of this time shift.

“NoV” is also marked for a recorded point, when:
- !SU: (the point is suppressed)
- OPMO=PSE or PSfe: (OPMO is set to no Events)
- ?EO: (No Events because EPRI=0)

B7 \(\rightarrow\) HW (HW Trouble) This fault is related to
- PS DOWN
- RING DOWN
- MODULE DOWN
- Usable Range exceeded.

Note: Only the worst condition is displayed for Validity Marker texts, i.e., in the B7 \(\rightarrow\) B2 sequence.

Example: If the following Validity-Marker error message appears,

\[ B0, B4, B7, \text{ assigned flag value } = 2. \]

then the Validity Marker appears as follows when listed:

<table>
<thead>
<tr>
<th>Tabular Format</th>
<th>Long Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.8 (91)</td>
<td>! 22.8 (?HW) 2</td>
</tr>
<tr>
<td>(1+10+80)</td>
<td>Flag value is set in Flag Point (see section GEN)</td>
</tr>
</tbody>
</table>

Note:

- \( B0 + B1 \) (Flag status)
- \( B2 \) (Hand input)
- \( B3 \) (Limit)
- \( B4 \) (No Event)
- \( B4 \) (NEv)
- \( B5 \) (OSV)
- \( B6 \) (NoV)
- \( B7 \) (HW Trouble)
2.12.4.1 Validity Marker for Instantaneous Values

Logging Intervals 1, 5, 10, 30 and 60 Minutes
1. If a parameter status change occurs (Event) inside one of these logging intervals, the 'Validity Marker' is recalculated every time, that is,
   \[ \text{Validity Marker} = \text{Evt} \]
2. If no event occurs in the interval, the marker remains and
   \[ \text{Validity Marker} = \text{NEv} \]
3. If a fault or limit violation occurs within a logging interval then this fault together with its specific Validity Marker are copied into subsequent values until a new Validity Marker is calculated on the next Event.

Example of Instantaneous Value (Interval = 1 Minute)

<table>
<thead>
<tr>
<th>TIME:</th>
<th>-1-</th>
</tr>
</thead>
<tbody>
<tr>
<td>21-Feb-90</td>
<td>-----------------</td>
</tr>
<tr>
<td>10:00</td>
<td>21.7 (10)</td>
</tr>
<tr>
<td>10:01</td>
<td>21.8 (0)</td>
</tr>
<tr>
<td>10:02</td>
<td>21.8 (10)</td>
</tr>
<tr>
<td>10:03</td>
<td>21.8 (10)</td>
</tr>
<tr>
<td>10:04</td>
<td>21.7 (0)</td>
</tr>
<tr>
<td>10:05</td>
<td>21.8 (0)</td>
</tr>
<tr>
<td>10:06</td>
<td>21.8 (10)</td>
</tr>
<tr>
<td>10:07</td>
<td>21.8 (10)</td>
</tr>
<tr>
<td>10:08</td>
<td>21.8 (10)</td>
</tr>
<tr>
<td>10:09</td>
<td>21.8 (10)</td>
</tr>
<tr>
<td>10:10</td>
<td>21.8 (10)</td>
</tr>
</tbody>
</table>

If more than one Event occurs within a 1 minute interval only the Validity Marker associated with the last Event is stored.

Logged Interval of 24 Hours
Unlike intervals of 1.. 60 minutes, no new Validity Marker is calculated for a parameter value change within a 24 hour interval. The relative Validity Marker is explicitly stored together with the logged value.

2.12.4.2 Validity Marker for Mean Values

In calculating the Validity Marker for a mean value entry, only the following markers are output in the selected interval (1 or 24 hours):
- B7 : HW Trouble
- B4 : No Event
- B1 : Flag value
- B0 : Flag value

If an Event occurs within the selected interval, the tag "NEv" is replaced by "Evt". For Minimum/Maximum calculation the Validity Marker which is current for the given time is stored.
2.12.5 ADIR, Directory of Generated Addresses

Operation ADIR provides a listing of information held in DP Value Logs by specifying a relative address or address mask.

The directory output for Function DPO is identical to that of Function DPP.

<table>
<thead>
<tr>
<th>#</th>
<th>Address</th>
<th>Flag</th>
<th>PAR</th>
<th>TYP</th>
<th>INT</th>
<th>ORG</th>
<th>from</th>
<th>upto</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$o33'020</td>
<td>$FLI</td>
<td>ME</td>
<td>INST I05m CIRC</td>
<td>12-May-92</td>
<td>15 Hour</td>
<td>12-May-92</td>
<td>17:00</td>
</tr>
<tr>
<td></td>
<td>AA1'ME</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>$o33'020</td>
<td></td>
<td>ME</td>
<td>INST I30m CIRC</td>
<td>12-May-92</td>
<td>24 Hour</td>
<td>12-May-92</td>
<td>08:00</td>
</tr>
<tr>
<td></td>
<td>AA1'ME</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>$o33'020</td>
<td>$FLI</td>
<td>ME</td>
<td>MEAN I60m CIRC</td>
<td>12-Apr-92</td>
<td>30 Day</td>
<td>12-Apr-92</td>
<td>16:00</td>
</tr>
<tr>
<td></td>
<td>AA1'ME</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>approx. 54918 Units</td>
</tr>
</tbody>
</table>

Operation=GCH:

Address mask

Operation ADIR accepts address masks.

To list all addresses there are two possible user inputs to the VISONIK prompt for "Address Mask=.:") as follows:

"$" ---> Lists all DP Value Logs for all addresses

"***" ---> Lists all DP Value Logs for all User Addresses

Explanation of the columns

The following are displayed upon listing the DIR contents:

- entry numbers with associated addresses (TA,UA)
- Flag address (if generated)
- Parameter (PAR)
- Recording type (TYP)
- Logging interval (INT)
- Buffer type (ORG)
- Length of start time.

Units

Added at the end of the listing available free space is displayed at the operator's terminal.

A value segment corresponds to 4KByte memory
### 2.12.6 GDIR, Contents of Graphic Layout

Operation GDIR provides the facility for listing a directory of all generated graphic layouts.

<table>
<thead>
<tr>
<th>Entry Date</th>
<th>Operator</th>
<th>Title</th>
<th>Free</th>
<th>Graph Number=</th>
<th>*</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.07.1996</td>
<td>Ron</td>
<td>Bab Al-Omra West</td>
<td>647</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>22.07.1996</td>
<td>Ron</td>
<td>Bab Al-Omra East</td>
<td>727</td>
<td>*(2..10)</td>
<td></td>
</tr>
<tr>
<td>23.07.1996</td>
<td>Ron</td>
<td>Bab Al-Omra North</td>
<td>681</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>22.07.1996</td>
<td>Ron</td>
<td>Bab Al-Fateh</td>
<td>727</td>
<td>*</td>
<td></td>
</tr>
</tbody>
</table>

**Graph number=*** Lists all generated graphic layouts.

**Graph number=(2..10)** Lists as an example graphic layouts from 2 to 10 inclusive.
2.12.7 GCH, Change Graphic Layout

Operation GCH enables changes to be made to existing graphic layouts or to generate new ones.

Graphic layout information consists of several parts:
- Co-ordinate system in paper units [mm]
- Axes scaling in user units
- DP channels (static information for graph plotting of data from DATA PROCESSING)
- Text

To change or generate a graphic layout either the whole layout or just a section may be selected as follows:

```
GCH

Graph No.(1..128)

GRAF AXES CHAN TEXT
```

```
T5 09:20:00 Function=PNT : DPP
Operation=GCH  : GCH
Range=Graph    : ?
  0 GRAF = Change Complete Graph
  1 AXES = Change Axis System
  2 CHAN = Change DP Channels
  3 TEXT = Change Texts
```
### 2.12.7.1 GRAF, Change Whole Graphic Layout

First, the required graphic number is selected (No. 1..128). On selecting GRAF, a pass is made through all layout sections (AXES, CHAN and TEXT). The individual layout sections are explained at the end of the next example.

#### Example for Generating a New Graphic Layout

```
T8  11:00:24 Function=PNT : DPP
Operation=GCH       :
Graph Number=1      : 1
Range=GRAF          : GRAF

--- Co-ordinate System ---

Co-ordinate System=Default : ?
Co-ordinate System=(Default,Slct'ble): SLCT'BLE

--- Scaling of the Axes ---

#### X-Axis

<table>
<thead>
<tr>
<th>Minimum</th>
<th>Units per cm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>19.07.1996</td>
<td>10</td>
</tr>
</tbody>
</table>

#### Y-Axis

<table>
<thead>
<tr>
<th>Minimum</th>
<th>Units per cm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>10</td>
</tr>
</tbody>
</table>

--- Title ---

<table>
<thead>
<tr>
<th>Title</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bab Al-Omra West</td>
<td>Centred</td>
</tr>
</tbody>
</table>

--- Text for Axes ---

<table>
<thead>
<tr>
<th>X-Axis</th>
<th>Y-Axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>Valve Position</td>
</tr>
</tbody>
</table>
```
Channel (Data Processing)

---

Chan. No. = 1

Address = $d100'040 : $100'041

# Address Flag PAR TYP INT ORG from upto

<table>
<thead>
<tr>
<th>#</th>
<th>Address</th>
<th>Flag</th>
<th>PAR</th>
<th>TYP</th>
<th>INT</th>
<th>ORG</th>
<th>from</th>
<th>upto</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$d100'041</td>
<td>INST</td>
<td>I05m</td>
<td>CIRC</td>
<td>19.07.1996</td>
<td>56 Hour</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>$d100'041</td>
<td>RDO</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>$d100'041</td>
<td>INST</td>
<td>I60m</td>
<td>CIRC</td>
<td>21.06.1996</td>
<td>28 Day</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>$d100'041</td>
<td>RDO</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Entry = 1 : >>o.k.!

Chan. No. = 1.

Format = Even
Symbol =
Address = $d100'041
Par. Name = RDO
Log Type = INST
Interval = I05m
Buffer = CIRC
Colour = Black
Pattern = 0

(................)
Multiplication = 1
Offset = 0
Format = Even:
Colour = Black
Symbol = CYAN
Dot Pattern = 0
Multiplication = 1
Offset = 0
Text:

Entry in Graph 1

---

2.12.7.2 AXES, Change Axes System

Axes system definition takes place in two steps:
- Co-ordinate system in paper units [mm].
- Axes scaling in user units.

Co-ordinate System in Paper Units [mm].
First of all, the position and dimension of the co-ordinate system is entered using paper units, which always refers to a printer terminal.
The co-ordinate system position is defined by its origin (meeting point of horizontal and vertical axes).

---

Co-ordinate System

---------
Co-ordinate System = Slct'ble:
Length of X-Axis [mm] = 150:
Length of Y-Axis [mm] = 100:
X Co-ordinate for Origin [mm] = 35:
Y Co-ordinate for Origin [mm] = 25:
Restriction
For A4 printers the maximum size of the x-axis is 150 mm. For VISONIK Insight, the maximum size is 240 mm.

Choice
If "Choice" is specified the dimensions and origin of the co-ordinate system can be defined by the user.

Default
If "Default" is specified the above default values are automatically taken for dimensions and origin.

If “Choice” is specified the dimensions and origin of the co-ordinate system can be defined by the user.

If “Default” is specified the above default values are automatically taken for dimensions and origin.

Axes Scaling in User Units
A temperature measurement (in the "Y" axis) can be represented in an X,Y co-ordinate system as a function of time ("X" axis).
Several measurements made at distinct time intervals and entered in the co-ordinate system will produce a temperature curve.

Example
In the following dialogue the co-ordinate system is scaled and lettered in user units.

The essential details for scaling both axes are entered in two steps.
• minimum value of axis (value at origin)
• the number of physical units per centimetre.
Meaning of the above information

For x and y axes each having a length of 100 mm, the above entries have the following meaning:

- Primary lettering at the minimum: 12:29
- Secondary lettering at the minimum: 04-Apr-96
- Primary lettering at the second calibration mark: 12:49

The lettering of the axes with physical units is only lettered every two centimetres for space reasons.

- The entire time span extends from '04-Apr-96' 12:29 to '04-Apr-96 14:09'
- The scale lettering on the y axis begins after the first 'cm mark' with 12.5.

Thus:

\[
\text{Range} = \text{Length of axis (cm)} \times \text{Units per cm}
\]

For the 'Units per cm' input, the desired range and the length of the axis must be taken into account.

Relative time units

At the prompt "Minimum" it is possible to set either absolute or relative time units not only for the x axis, but also for the y-axis.

For relative time units, an absolute point in time is calculated upon the output of the graphic (GRAF,PLOT) that is taken relative to the current time.

---

X-Axis

Minimum=19.07.1996 14:36: ?

(-100..-1) (Min.,Hour,Day) : relative time units (e.g., -3hours)
(dd.mm.yyyy) (hh:mm) : absolute date with abs. time
(dd.mm.yyyy) : absolute date
(hh:mm) : absolute time
(-1E+30..1E+30) : counter value
Units per cm.=10 : ?
(1..100) (Min.,Hour,Day) : relative time units?
(.001..1E+30) : counter values

Scaling the x-axis

Scaling of the Axes

X-Axis

Units per cm.=10 : 12

In the above example, the minimum (origin) of the x axis of "13:06" is the primary lettering and "23.4.96" is secondary lettering.

Minimum

(origin)

12 mins/cm


26.7.89 . . .

X axis

Time Markers

Date Markers
The X-direction is taken as a time axis in many cases. Therefore, X-axis scaling involves defining a time span over which the desired parameter is to be plotted.

**Lettering**

For lettering a time axis, a format is automatically chosen which corresponds to the range at hand. The lettering consists of primary lettering directly at the axis and secondary lettering 5 mm below the primary lettering.

**Time span < 2 days**

Covers time spans of less than 48 hours. The axes are then lettered in **time format** (hh:mm) (primary lettering).

For the minimum and at date changes, the date is shown 5 mm below the time as a secondary lettering in the (dd.mm.yy) format.

**Time span > 2 days**

If the range is larger than two days, then the axes are automatically lettered in **days format** (dd) and the unit per cm set to 1 day.

For the minimum and at date changes, the date is shown 5 mm below the time as a secondary lettering in the (dd.mm.yy) format.

Month and year (mm.yy) are shown as secondary lettering below the day for minimum and at a change in the month.

**Scaling the y-axis**

The Y-axis is scaled to suit the relative measured value's magnitude. The user must define a minimum value for the graph's origin using the given measurement value's range.

At the prompt for "Minimum" it is possible to set either absolute or relative units for both the x and y axes.
2.12.7.3 CHAN, Change DP Channels

What is a channel?

A DP channel contains the characteristic data for displaying a dynamic point from central DATA PROCESSING (DP).

A channel has a fixed configuration but may be changed or deleted at any time.

Max. 10 channels per graph

Ten DP channels can be allocated per graph.

A DP channel consists of two parts is very similar to a TREND channel in structure. Elements in the dialogue are taken from the Trend dialogue:

- Specific parameters (DP parameters) from DATA PROCESSING such as Address, Parameter name, Type of Log, Interval, Memory type.
- Graphics parameters such as Format, Colour, Pattern, Symbol.

If an entry already exists having the same channel number as the one in the current dialogue, a short report is output with details on the existing channel:

<table>
<thead>
<tr>
<th>DP Channel (Data Processing)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chan.No.=.:         3</td>
</tr>
<tr>
<td>Chan.No. = 3.       OUTSIDE TEMP Format = Even   Symbol =</td>
</tr>
<tr>
<td>Address = AAL'ME    Par.Name = ME</td>
</tr>
<tr>
<td>Log Type = INST     Interval = I05m Buffer  = CIRC</td>
</tr>
<tr>
<td>Colour = Black     Pattern  = 0 = (.................)</td>
</tr>
<tr>
<td>Mult. Factor = 1    Offset  = 0</td>
</tr>
<tr>
<td>Option=CHCH:       ?</td>
</tr>
<tr>
<td>0  DECH =    Delete Complete Channel</td>
</tr>
<tr>
<td>1  CHCH =    Change Complete Channel</td>
</tr>
<tr>
<td>2  DEVPCH =    Change DP Parameter only</td>
</tr>
<tr>
<td>3  GPCH =    Change Graphic Parameter only</td>
</tr>
</tbody>
</table>

By entering a period = full stop (".") at Channel No.=.: instead of a channel number the dialogue restarts at Operation=GCH.

In the above example, DP channel number 3 already exists. After its short report is complete, the selected channel can be:

- Completely deleted with Option DECH,
- Changed with Option CHCH. Here, the DP parameters (Address, Parameter name, Type of Log, Interval, Memory type) and the graphics parameters (Format, Colour, Symbol, Mult factor, Offset, Text) can be changed.
- Changed with Option DEVPCH. Here, only the DP parameters are changed.
- Changed with Option GPCH. Here, only the graphics parameters are changed.
Options CHCH and DEVPCH

Address = ?$*

If a user does not know which addresses exist in Function DPO a listing can be called by entering "? Address mask" in Options CHCH or DEVPCH.

Example

By entering "?$*" (address mask), all addresses in the relative address range, which have been generated in Function DPO, are listed in short form.

<table>
<thead>
<tr>
<th>Address = A01'H1'MW&quot;0401: ?$*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generated Addresses in DP2 ($'000...'$376'377)</td>
</tr>
<tr>
<td>$4'000    A01'L0'DI&quot;0400</td>
</tr>
<tr>
<td>$4'010    A01'K0'DO&quot;0401</td>
</tr>
<tr>
<td>$4'020    A01'H0'MW&quot;0400</td>
</tr>
<tr>
<td>$4'021    A01'H1'MW&quot;0401</td>
</tr>
</tbody>
</table>

On specifying an existing address (e.g. $4'020), all associated DP Value Log types are listed.

<table>
<thead>
<tr>
<th>Address = AA1'****: AA2'ME</th>
</tr>
</thead>
<tbody>
<tr>
<td># Address</td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td>1  $o33'021</td>
</tr>
<tr>
<td>2  $o33'021</td>
</tr>
<tr>
<td>3  $o33'021</td>
</tr>
<tr>
<td>AA2'ME</td>
</tr>
<tr>
<td>Total Entries = 3</td>
</tr>
<tr>
<td>Entry = 1: 1</td>
</tr>
</tbody>
</table>

Enter entry number

At this point a prompt for an "Entry number" appears. By entering the required number all the DP parameters specific to that entry are fetched and then, when in dialogue DEVPCH, are saved in the relative graph entry. In option CHCH saving of the complete channel in the graph entry is only made after entering the graphics parameters.

As a check, the entry related to the specified number is listed once again.

| Chan.No. = 1. OUTSIDE TEMP       | Format = Even | Symbol = |
| Address = AA2'ME                | Par.Name = ME |
| Log Type = INST                 | Interval = I05m |
| Buffer = CIRC                   | Pattern = 0 = (.................) |
| Colour = Black                  | Multiplication = 1 |
| Offset = 0                      | Format = Even |

Example

Enter entry number
Log types INST, MEAN and MMM

Log types INST and MEAN have only one value associated with them but an extended Mean/Min/Max value (MMM) log has three values (Minimum, Maximum and Mean value).

<table>
<thead>
<tr>
<th>Chan.No. = 1.</th>
<th>OUTSIDE TEMP</th>
<th>Format = Even</th>
<th>Symbol =</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address = AA2'ME</td>
<td>Par.Name = ME</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Log Type = MMM</td>
<td>Interval = I60m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Colour = Black</td>
<td>Pattern = 0 = (.................)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multiplication = 1</td>
<td>Offset = 0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Val. = Mean:

Log types MMM

If the entry is an extended MMM value the system responds with:

<table>
<thead>
<tr>
<th>Val. = Mean:</th>
<th>?</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 Mean = Mean Value</td>
<td></td>
</tr>
<tr>
<td>1 Min = Minimum</td>
<td></td>
</tr>
<tr>
<td>2 Max = Maximum</td>
<td></td>
</tr>
</tbody>
</table>

Val. = Mean: 0

Format = Even:

Only one value can be output per DP channel. Should it be necessary to record all three values in a graph then separate DP channels must be allocated for each value.

Option GPCH

On selecting Option GPCH the graphics parameters are listed. They are now explained in detail.

Graphics parameters

Format = Straight

Format defines the manner in which a graphics curve is printed, i.e. how a channel’s data is presented.

In order to be able to distinguish between multiple curves in the same co-ordinate system it is practical to identify the individual channels with various characteristics.

<table>
<thead>
<tr>
<th>Format = Even :</th>
<th>?</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 Symbol = Value Indicated with Symbol</td>
<td></td>
</tr>
<tr>
<td>1 Stepped = Interpolation with Step Function</td>
<td></td>
</tr>
<tr>
<td>2 Even = Interpolation with Straight Line</td>
<td></td>
</tr>
<tr>
<td>3 Bar = Value Indicated with Bar</td>
<td></td>
</tr>
<tr>
<td>4 Pos.Sawt = Positive Sawtooth</td>
<td></td>
</tr>
<tr>
<td>5 Neg.Sawt = Negative Sawtooth</td>
<td></td>
</tr>
</tbody>
</table>

Format = Even:

Colours = Black:

?
Colour=Black

There are sixteen different colours which may be specified:

<table>
<thead>
<tr>
<th>Colour=Black</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Black</td>
<td>Red</td>
<td>Green</td>
<td>Yellow</td>
<td>Blue</td>
<td>Magenta</td>
<td>Cyan</td>
<td>White</td>
<td>Dark Grey</td>
<td>Dark Red</td>
<td>Dark Green</td>
<td>Brown</td>
<td>Dark Blue</td>
<td>Dark Magenta</td>
<td>Dark Cyan</td>
<td>Light Grey</td>
</tr>
</tbody>
</table>

Symbol=*:

The variety of symbols is the same as for Trend Plot dialogue (Help).

Symbol=*:

<table>
<thead>
<tr>
<th>Character</th>
<th>SPACE</th>
<th>!</th>
<th>$</th>
<th>%</th>
<th>&amp;</th>
<th>(</th>
<th>)</th>
<th>*</th>
<th>+</th>
<th>-</th>
<th>.</th>
<th>/</th>
<th>@</th>
<th>;</th>
<th>&lt;</th>
<th>=</th>
<th>&gt;</th>
</tr>
</thead>
</table>

| Numbers         | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
Dot pattern=0

The list of dot patterns is the same as for Trend Plot:

<table>
<thead>
<tr>
<th>Dot Pattern</th>
<th>Pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>(................)</td>
</tr>
<tr>
<td>1</td>
<td>(. . . . . . .)</td>
</tr>
<tr>
<td>2</td>
<td>(..........)</td>
</tr>
<tr>
<td>3</td>
<td>(.... ....)</td>
</tr>
<tr>
<td>4</td>
<td>(. . . . . . .)</td>
</tr>
<tr>
<td>5</td>
<td>(. .. .. ..)</td>
</tr>
<tr>
<td>6</td>
<td>(...... ......)</td>
</tr>
<tr>
<td>7</td>
<td>(. . .. ..)</td>
</tr>
<tr>
<td>8</td>
<td>(.. .. .)</td>
</tr>
</tbody>
</table>

Dot Pattern=0:

Mult.Factor=1

In any format the curves can be amplified or reduced in magnitude (Y-axis) by applying a multiplication factor.

Mul. Factor=1: ?
Mul. Factor=(-1000..1000): 1

Offset

The displayed curve will be offset in the Y direction by the value given in "Offset"

Offset=0: ?
Offset=(-1E+30..1E+30): 0

Text

Text (up to 16 characters) can be assigned to any curve. This then appears on output of a DP Channel.

Text:
Test : Kitchen
Entry in graph : 1

Area pattern=0

The following ‘Area patterns’ can be chosen for Bar charts:

<table>
<thead>
<tr>
<th>Shading Pattern</th>
<th>Pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Light Shading</td>
</tr>
<tr>
<td>1</td>
<td>Mid-tone Shading</td>
</tr>
<tr>
<td>2</td>
<td>Dark Shading</td>
</tr>
<tr>
<td>3</td>
<td>Horizontal Stripes</td>
</tr>
<tr>
<td>4</td>
<td>Vertical Stripes</td>
</tr>
<tr>
<td>5</td>
<td>Stripes with Pos. Gradient</td>
</tr>
<tr>
<td>6</td>
<td>Stripes with Neg. Gradient</td>
</tr>
<tr>
<td>7</td>
<td>Horizont. Herringbone</td>
</tr>
<tr>
<td>8</td>
<td>Vert. Herringbone</td>
</tr>
</tbody>
</table>

Shading Pattern=0:
The finalised entry in a graph is acknowledged with:
"Entry in Graph : n"

Continuation of the dialogue
("n" = Graph number). The dialogue is then continued at "Channel No.=.:" level. By entering a channel number (1..10) another channel can be generated or changed. By entering a full stop at "Channel No.=.:" instead of a number the dialogue continues at "Text; Number=.:" level.

2.12.7.4 TEXT, Change Text

In this section the following texts are defined:

<table>
<thead>
<tr>
<th>Option=</th>
<th>TICH</th>
<th>AXCH</th>
<th>ATCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>TICH = Change Title</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>AXCH = Change Axis Text</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>ATCH = Change Addit. Text</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Option=TICH:
Option=TICH
The title can be centred or left justified.
- For the selection (Position=centre) the title appears centred over the co-ordinate system
- For (Position=left jus.)the title appears left justified over the co-ordinate system.

There is a maximum of 32 characters per text.

<table>
<thead>
<tr>
<th>Option=TICH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
</tr>
<tr>
<td>-----</td>
</tr>
<tr>
<td>Title : WEST WING OFFICES</td>
</tr>
<tr>
<td>Position=Centred : ?</td>
</tr>
<tr>
<td>Position=(Centred,L.Justfd):</td>
</tr>
<tr>
<td>Size=Double :</td>
</tr>
<tr>
<td>Entry in Graph : 5</td>
</tr>
</tbody>
</table>

Option=AXCH
Axes text is printed approximately 20 mm away from an axis and may contain information, e.g. about the related logged point's engineering units.

<p>| Option=TICH | 1 |
|-------------|</p>
<table>
<thead>
<tr>
<th>Text for Axes</th>
</tr>
</thead>
<tbody>
<tr>
<td>X-Axis : ?</td>
</tr>
<tr>
<td>X-Axis : Time</td>
</tr>
<tr>
<td>Entry in Graph : 3</td>
</tr>
<tr>
<td>Y-Axis : Valve Position</td>
</tr>
<tr>
<td>Entry in Graph : 3</td>
</tr>
<tr>
<td>Operation=GCH :</td>
</tr>
</tbody>
</table>
The finalised entry in a graph is acknowledged with:

"Entry in Graph : n"

("n" = Graph number).

The dialogue is then continued at "Number=." level. By entering a number (1..10) a new text may be entered or an existing one changed.

By entering a full stop at "Number=." instead of a number the dialogue continues at "Operation=GCH" level.

2.12.8 GLI, List Graphic Layout

Operation GLI provides a listing of all generated graphic layouts in three different ways. A choice of listing can be made from the following:

LONG

For a user a LONG listing is most important. This provides all information on any graphic layout which has been generated with Operation GCH.

SHORT

A listing in SHORT mode provides a summary of any graphic layout which has been generated with Operation GCH.

OCT

A listing in OCT mode gives a graphic layout's generation data in coded form but is mainly meant for diagnostics.
Example Listing in LONG Mode

T5 10:11:17 Function=PNT : DPP
Operation=GCH : GLI
List Mode=LONG:
Graph Number=1:

Title : WEST WING OFFICES

Co-ordinate System

Length of X-Axis [mm] = 150 Length of Y-Axis [mm] = 100
X Co-ordinate for Origin [mm] = 35 Y Co-ordinate for Origin [mm] = 35

Scaling of the Axes

X-Axis : Minimum = -15 Hour Units per cm. = 1 Hour
Y-Axis : Minimum = -10 Units per cm. = 5

DP Channel (Data Processing)

Chan.No. = 1. OUTSIDE TEMP Format = Even Symbol =
Address = AA2'ME Par.Name = ME
Log Type = MMM Interval = I60m Buffer = CIRC Val. = Mean
Colour = Black Pattern = 0 = (...............)
Multiplication = 1 Offset = 0

Chan.No. = 2. ROOM TEMPERATURE Format = Even Symbol =
Address = AA2'ME Par.Name = ME
Log Type = INST Interval = I05m Buffer = CIRC
Colour = Black Pattern = 0 = (...............)
Multiplication = 1 Offset = 0

Title

Title : WEST WING OFFICES (17 char.)
Position = Centred Size = Double

Text for Axes

X-Axis : TIME (HOUR, MIN) (16 char.)
Position = Centred

Y-Axis : ROOM/OUTSIDE TEMPERATURE (24 char.)
Position = Centred

Text

1. Text : ROOM TEMPERATURE (15 char.)
XY-Coord = 100/100 mm Directn. = Horiz. Position = Centred

Operation=GLI :
2.12.9  GDEL, Delete Graphic Layout

Under Operation GDEL the following actions are open to the User:

```
T8 15:18:56 Function=PNT : DPP
Operation=GCH : GDEL
Range=GRAF : ?
  0 GRAF = Delete Complete Graph
  1 CHAN = Delete DP Channels
  2 TEXT = Delete Text
Range=GRAF :
```

**Example for Deleting a Complete Graph**

```
T8 15:10:33 Function=PNT : DPP
Operation=GCH : GDEL
Range=GRAF : ?
  0 GRAF = Delete Complete Graph
  1 CHAN = Delete DP Channels
  2 TEXT = Delete Text
Range=GRAF :
Graph Number=* : 4
Accept Every Entry=Yes : Y
  Title : ?
Delete Entry=No : Y * * E N T R Y   E R A S E D *
1 Entries Cleared
Operation=GDEL :
```

In 'Range'=GRAF (Delete complete graph) either a single number, a range of numbers or an "*" (all) may be entered.
If required, each entry can be individually acknowledged before deletion. The entry to be deleted is then printed out with its directory header line.
In graphics sections CHAN and TEXT only a specific graph number can be selected.
Example for Deleting a DP Channel

<table>
<thead>
<tr>
<th>Time</th>
<th>Function</th>
<th>Operation</th>
<th>Range</th>
<th>Graph Number</th>
<th>Chan.No.</th>
<th>Channel No.</th>
<th>Raumtemperatur</th>
<th>Format</th>
<th>Symbol</th>
<th>Address</th>
<th>Par.Name</th>
<th>Log Type</th>
<th>Interval</th>
<th>Buffer</th>
<th>Colour</th>
<th>Pattern</th>
<th>Multiplication</th>
<th>Offset</th>
<th>Delete Entry</th>
<th>Chan.No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>T5</td>
<td>10:14:45</td>
<td>PNT : DPP</td>
<td>GDEL</td>
<td>GRAF: ?</td>
<td></td>
<td>1</td>
<td>$o33'022</td>
<td>Even</td>
<td></td>
<td>true</td>
<td></td>
<td>INST</td>
<td>I05m</td>
<td>CIRC</td>
<td>Black</td>
<td>(.........)</td>
<td>1</td>
<td>yes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

After entering a graph number a specific DP channel may be selected or exit from dialogue with (".").
If a specific DP channel is chosen it is first printed out then the system requests acknowledgment of "Delete Entry" before deletion.

The same procedure applies to section TEXT.

Example for Deleting an Axis Text Entry

<table>
<thead>
<tr>
<th>Range</th>
<th>Graph Number</th>
<th>Option</th>
<th>X-Axis</th>
<th>Position</th>
<th>Delete Entry</th>
<th>Y-Axis</th>
<th>Position</th>
<th>Delete Entry</th>
<th>Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRAF</td>
<td>5</td>
<td>TICH</td>
<td>TIME</td>
<td>Centred</td>
<td>yes</td>
<td>Room/Outside Temperature</td>
<td>Centred</td>
<td>yes</td>
<td>GDEL</td>
</tr>
</tbody>
</table>
2.12.10 COPY, Copy Graphic Layout

Operation COPY provides the facility for making single or multiple copies of individual generated graphic layouts on the system's own disk.

<table>
<thead>
<tr>
<th>Time</th>
<th>Function</th>
<th>Operation</th>
<th>From Graph Number</th>
<th>To Graph Number</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>14:06:31</td>
<td>PNT : DPP</td>
<td>GCH : COPY</td>
<td>10: ?</td>
<td>1..150 : 20</td>
<td>o.k.!</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1..64 : 21</td>
<td></td>
</tr>
</tbody>
</table>

In the above example all layout data for graph number 20 is copied to graph number 21.
Successful copy is confirmed with "o.K.!".

2.12.11 PLOT, Output Graph

A graph output instruction can be given in two ways:
- In Function DPP by entering DPP,PLOT
- In Function RPT by entering RPT,DPR

In both cases a report is started showing the report name DPR and is enclosed in the typical "Report Start" and "Report End" lines.

Data processing

Daylight saving time/standard time changeover and data processing

Changeover from standard to daylight saving time:
At two o'clock in the morning, the clocks are advanced to three o'clock. This day thus only has 23 hours.
For the hour missing between 02:00 to 02:59 hours, the data processing reinserts the values from 01:00 to 01:59 hours (standard time) and flags them with the quality attribute "NoE" (No Event).

Changeover from daylight saving to standard time:
At three o'clock in the morning, the clocks are reset to two o'clock. This day thus has 25 hours.
The data processing overwrites the values between 02:00 to 03:00 hours (daylight saving time) by the values of 02:00 to 03:00 hours standard time.

Parameter LPP
If page formatting is active (parameter LPP of the relative terminal not set to 0) the report starts on the next page.

Terminal in graphics mode
After printing a graph the terminal remains in Graphics Mode until it is reset with <CR>, <^P> or <^E>. If, after 5 minutes, no input has been given, the terminal automatically returns to normal operation.

Output of several graphs simultaneously
When two or more graphs are simultaneously requested on different terminals using DPP,PLOT or RPT,DPR,GRAF a delayed graph output is given the message "Bitmap busy! Please wait"
The delayed graphs are transferred to a queue (see DPP,JOBS).

Example of a Graph Output on an Operating Terminal

The above example illustrates a graph of room and outside temperatures covering the last 15 hours.
After the report start line a line is printed showing the relative graph number, date and time.
A table then follows containing the DP channels which have been plotted in the graph.

<table>
<thead>
<tr>
<th>NAME</th>
<th>PAR</th>
<th>TYPE</th>
<th>INT</th>
<th>*</th>
<th>Format</th>
<th>SY</th>
<th>Dot</th>
</tr>
</thead>
<tbody>
<tr>
<td>A01'H1'MW&quot;0401</td>
<td>ME</td>
<td>INST</td>
<td>I30m</td>
<td>1</td>
<td>Even</td>
<td>*</td>
<td>0</td>
</tr>
<tr>
<td>A01'H1'MW&quot;0401</td>
<td>ME</td>
<td>INST</td>
<td>I05m</td>
<td>1</td>
<td>Symbol</td>
<td>.</td>
<td>0</td>
</tr>
</tbody>
</table>

Graphic Presentation of Mean Values

Mean values are formed at the end of a time interval but are valid for the whole interval. Graphic presentation of a mean value depends on the output format (Even, Stepped).

**Even:** The mean value is shown in the middle of the time interval.

**Stepped:** The mean value is shown as a horizontal line above the respective time interval.

Example

The mean value at 08:00 is valid for the whole time interval (07:00..08:00). In a graph with format "Even" the mean value is shown at 07:30.

With format "Stepped" the mean value is shown as a horizontal line covering the period 07:00 to 08:00.
2.12.11.1 JOBS, Initialise Bitmap

When a graphic DP report is requested with RPT,DPR,GRAF or DPP,PLOT the entry is placed in a queue with up to five "Jobs".

<table>
<thead>
<tr>
<th>Tn</th>
<th>Output device</th>
<th>US</th>
<th>Output device's PS number</th>
<th>GRAF</th>
<th>Graph number</th>
<th>Entry</th>
<th>Operator</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>T1</td>
<td>301</td>
<td>1</td>
<td>12-Mail-96</td>
<td>17:45:38</td>
<td>L&amp;S</td>
<td>Free</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>T5</td>
<td>305</td>
<td>1</td>
<td>13-Mail-96</td>
<td>08:27:49</td>
<td>Od</td>
<td>Free</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>T1</td>
<td>301</td>
<td>1</td>
<td>13-Mail-96</td>
<td>10:18:04</td>
<td>L&amp;S</td>
<td>Working</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>T5</td>
<td>305</td>
<td>10</td>
<td>13-Mail-96</td>
<td>10:18:20</td>
<td>Od</td>
<td>Waiting</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>T5</td>
<td>305</td>
<td>1</td>
<td>12-Mail-96</td>
<td>16:57:51</td>
<td>Od</td>
<td>Free</td>
<td></td>
</tr>
</tbody>
</table>

Option=DEL :

Bitmap status

<table>
<thead>
<tr>
<th>Bitmap Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Busy</td>
<td>A graph is currently being handled.</td>
</tr>
<tr>
<td>Free</td>
<td>No graph is currently being handled.</td>
</tr>
</tbody>
</table>

Working on Job

Job number which is currently being handled.

Last Job

Job number which was last handled, or active 'Job'.

Next Job

Job number of the next free Job in queue.

A 'Job' entry consists of the following details:

- # Job number
- Tn Output device
- US Output device's PS number
- GRAF Graph number
- Entry Date and time of graph request
- Operator Logged on operator
- Status Free: Entered 'Job' is not being handled
Working: Job is currently being handled.
Waiting: Job is on the queue
2.12.11.2 ‘Job’ Cancellation or Queue Initialisation

<table>
<thead>
<tr>
<th>Option=DEL :</th>
<th>?</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 DEL =</td>
<td>Cancel a Job</td>
</tr>
<tr>
<td>1 INIT =</td>
<td>Initialise the Queue</td>
</tr>
</tbody>
</table>

Option=DEL :

DEL
With option DEL, Jobs (0..4) may be cancelled individually. In this case "Tn" is set to a full stop ".", US and GRAF are set to zero "0" and the entry set to the actual time.

3 . 0 0 24-Jan-96 10:20:55 Free

INIT
Option INIT works in the same way as DEL but all 'Jobs' are automatically cancelled.

2.12.12 Output Terminal Configuration

The terminal involved must have full graphics capability. This covers printers, video terminals or PCs with 'Terminal emulation'.

In VISONIK Teletype Point $Tn ('n' = terminal number) the following parameters are most important:

TYX / Extra Options
DTYP / Device Type
LPP / Lines per Page
VPIT / Lines per Inch
GRMO / Graphic Mode

Parameters TYX, DTYP, LPP and VPIT

TYX
If the terminal can be declared as intelligent ($Tn, TYX=XoXf&ITER) parameter $Tn, DTYP is set automatically.
The colour option must be activated with TYX+=COL.

DTYP
If the terminal C A N N O T be declared as intelligent ($Tn, TYX=XoXf) parameter $Tn, DTYP must be manually set accordingly.

LPP and VPIT

Parameter GRMO

Various terminals (e.g. VISUAL 603, VT240, etc.) support several graphic modes. It is therefore necessary to specify precisely the mode for output of graphs.
This is defined in point parameter $Tn, GRMO (Graphic Mode).

DPP supports the graphic modes:

GRMO=SIXEL,R4,R16,T401x,E8 and E24.
The following list shows the currently supported terminals and the possible (and recommended) graphic modes:

<table>
<thead>
<tr>
<th>Device</th>
<th>Graphic-Mode(s)</th>
<th>GRMO recommended</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>LA12</td>
<td>SIXEL</td>
<td>SIXEL</td>
<td></td>
</tr>
<tr>
<td>LA50</td>
<td>SIXEL</td>
<td>SIXEL</td>
<td></td>
</tr>
<tr>
<td>LA75</td>
<td>SIXEL</td>
<td>SIXEL</td>
<td></td>
</tr>
<tr>
<td>LA100</td>
<td>SIXEL</td>
<td>SIXEL</td>
<td></td>
</tr>
<tr>
<td>Visual 603</td>
<td>SIXEL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VT240 b/w</td>
<td>REGIS</td>
<td></td>
<td>4 grey levels</td>
</tr>
<tr>
<td>VT241 col</td>
<td>REGIS</td>
<td></td>
<td>4 colours</td>
</tr>
<tr>
<td>VT340 col</td>
<td>REGIS</td>
<td></td>
<td>16 colours</td>
</tr>
<tr>
<td>DPL24</td>
<td>E8 E24 E24Q</td>
<td>E8 * E24</td>
<td>24 dot printer Epson Emul. b/w</td>
</tr>
<tr>
<td>DX2100</td>
<td>E8 E24</td>
<td>E8</td>
<td>8 dot printer Epson Emul. colour option</td>
</tr>
<tr>
<td>DL1100</td>
<td>E8 E24 E24Q</td>
<td>E8 * E24</td>
<td>24 dot printer Epson Emul. colour option</td>
</tr>
<tr>
<td>Visotool Editor</td>
<td>REGIS (R16)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* E8 is also recommended for 24-dot printers since, in this mode, the Server is not so heavily loaded.
8-dot printers can also be operated with E24, but results in a longer printout time and more loading on the Server.

This list does not include PC VTxxx Emulators (e.g. REFLECTION, SMARTERM 240, ZSTEM 240/340 etc.), which support DEC-REGIS standard graphics. Basically it can be assumed that any terminal (or Emulator) with DEC-REGIS may be used.

All DEC printers with SIXEL graphics are supported.
8-PIN printers with ESC/P (Epson Standard Code for Printers) are also supported.
2.13 DRR Date/Time Reaction Register

2.13.1 Initial Access and Handling

Function call-up
CTRL/P DRR

General
A general introduction to the subject of VISONIK reactions can be found under "Reactions in General" in section R of this manual. The process reaction DRR is one of six reaction types provided by the VISONIK DCS. The reaction types are named after the "reason" that is to activate the reaction in each case.

Each reaction entry consists of the following three parts:
- "reason" that activates the reaction
- Blocking flag that can disable a reaction
- Reaction to be executed

What can the DRR do?
The process reaction function can execute a reaction
- within a defined time period
- with a specified or unspecified number of periodic repeats
See the following description of the three "variations".

DRR reasons
- Reaching a certain start date
- Expiry of a time period within the established time period

DRR reactions
- Change a point parameter
- Print a clear text message
- Execute macro commands
- Print slave messages
- Start or stop COLBAS tasks
- Automatic picture selection in VISONIK Insight

Main menu
When the date/time reaction register function is selected, the VISONIK DCS offers the user the following possibilities:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Change Data Entry</td>
</tr>
<tr>
<td>1</td>
<td>List Data Registers</td>
</tr>
<tr>
<td>2</td>
<td>Delete Register Entry(ies)</td>
</tr>
<tr>
<td>3</td>
<td>List Reaction Register State</td>
</tr>
<tr>
<td>4</td>
<td>List Reaction Entries in Octal</td>
</tr>
</tbody>
</table>

Operation =CH : ?
### Example: Date/Time Reaction Register entry

<table>
<thead>
<tr>
<th>T8</th>
<th>09:54:55 Function=PNT : DRR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start Date</td>
<td>=24.07.1996: ?</td>
</tr>
<tr>
<td>Start Date</td>
<td>= (dd.mm.yyyy):</td>
</tr>
<tr>
<td>Entry</td>
<td>= 1: ?</td>
</tr>
<tr>
<td>Entry</td>
<td>= (1..255): 1</td>
</tr>
<tr>
<td>Start Time</td>
<td>= 09:55 : 10:00</td>
</tr>
<tr>
<td>End Date</td>
<td>= 24.07.1996: 25.07.1996</td>
</tr>
<tr>
<td>End Time</td>
<td>= 23:59 : 23:58</td>
</tr>
<tr>
<td>Period</td>
<td>= 1Hour : ?</td>
</tr>
<tr>
<td>Period</td>
<td>= (1..255) (Min., Hour, Day, Mnth), (1..255): 3</td>
</tr>
<tr>
<td>Blocking Flag</td>
<td>= 3Hour</td>
</tr>
<tr>
<td>Reaction</td>
<td>= (UA, TA): ?</td>
</tr>
<tr>
<td>Parameter</td>
<td>= = DO :</td>
</tr>
<tr>
<td>Set Digital Output: Priority=0 = Off : ?</td>
<td></td>
</tr>
<tr>
<td>Set Digital Output: Priority=0 = (Off, On), (LSPV, SAME, INV, .): On</td>
<td></td>
</tr>
<tr>
<td>1. Further Address</td>
<td>= .</td>
</tr>
<tr>
<td>Message Mask</td>
<td>= MSGDEV : ?</td>
</tr>
</tbody>
</table>

#### UA/TA = Change Point Parameter

- CT = Printout Cleartext
- MC = Issue MACRO Command
- SLVM = Output Slave Message
- CB = Start/Stop COLBAS Task
- . = No Reaction (for MRR & GRR)
- PICT = Auto Picture/Point Selection

#### Reaction

- (UA, TA): $100'040
- DO : 

#### Message Mask

- MSGDEV: M1
- MM00: M1&M2
- MM01: M1&M2
- : MM15: M1&M2

#### Message Mask

- Period = 3 Hour
- Next DRR = 24.07.1996 - 10:00
- Reaction = PACH________Change Point Parameter
- Address = DO $d100'040
- Parameter = DO________Set Digital Output: Priority=0
- Value = 1=On
- Reporting = MSGDEV M1
2.13.2 CH, Enter/Change Data

2.13.2.1 Changing an existing DRR entry

In order to change data in a reaction entry it must first be selected via its "reason" and entry number. If the entry exists, it is listed completely for checking at the operating terminal.

The edit mode then becomes active, so that the user can modify or confirm each part of the reaction entry step by step.

Important:

A reaction entry is not changed (and re-saved) in the system until every step of this dialogue has been completed, i.e. after the last prompt for "Message Mask" has been answered. In all other cases, e.g. if the dialogue is exited with Ctrl/P or Ctrl/E, any changed data will be lost.

2.13.2.2 Creating a new date/time reaction register entry

Depending on the type of reaction program, the following prompts must be answered in order to create a new date/time reaction entry:

**Definition of the "reason"**

Depending on the answers to the following prompts,

- Start and stop date / time
- How often
- Period

the DRR function can be controlled in accordance with the three variations described below.

**Variation 1**

The reaction should be executed:

- within a specified time period
- with a specified periodicity.

This requires the following entries:

- **Start date / time**
  - Beginning of the time period

- **Stop date / time**
  - End of the time period

- **Period**
  - Time period between repeats.

Example:

<table>
<thead>
<tr>
<th>T8</th>
<th>10:02:25 Function=PNT : DRR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation</td>
<td>CH</td>
</tr>
<tr>
<td>Start Date</td>
<td>=24.07.1996 : 3.8.1996</td>
</tr>
<tr>
<td>Entry</td>
<td>=1</td>
</tr>
<tr>
<td>Start Time</td>
<td>=10:03 : 08:00</td>
</tr>
<tr>
<td>End Date</td>
<td>=03.08.1996 : 15.8.1996</td>
</tr>
<tr>
<td>End Time</td>
<td>=23:59 : 17:30</td>
</tr>
<tr>
<td>Period</td>
<td>=1Hour : 1Hour</td>
</tr>
</tbody>
</table>

In this example the reaction is executed on a daily basis between 3.8.96 and 15.8.96.
Time span, in which the Reactions should take place

Start of DRR  End of DRR

Start date, start time  End date, end time

1st. period  Last period

First DRR  Second DRR  Last DRR

Delete message only appears if the entry is manually deleted

Variation 2

The reaction should be executed:
- starting from a specific date
- over a specified period
- with a specified number of repetitions.

This requires the following entries:

- **Start date / time**: Beginning of the first reaction
- **Stop date**: "." (full stop)
- **How often**: Number of repeats
- **Period**: Time period between repeats

**Example:**

T8  10:06:08 Function=PNT  :  DRR
Operation  =CH  :
Start Date  =24.07.1996 : 3.8.1996
Entry  =1  :
Start Time  =10:07 : 08:00
End Date  =03.08.1996 : .
How Often  =* : 31
Period  =1Hour : 1Hour

In this example, the first reaction takes place on 3.8.96 at 08:00 hours. It is repeated a total of 31 times with a period of one day.
Variation 3

The reaction should be executed:
• starting from a specific date
• over a specified period, repeatable as desired.

The last reaction is undefined (How often = endlessly). The reaction is executed until it
is manually stopped.

This requires the following entries:

Start date / time  Beginning of the first reaction
Stop date  "." (full stop)
How often  *** (Asterisk-corresponds to endless)
Period  Time period between repeats

Example:

<table>
<thead>
<tr>
<th>T8</th>
<th>10:11:14 Function=PNT : DRR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation</td>
<td>=CH</td>
</tr>
<tr>
<td>Start Date</td>
<td>=24.07.1996: 3.8.1996</td>
</tr>
<tr>
<td>Entry</td>
<td>=1</td>
</tr>
<tr>
<td>Start Time</td>
<td>=10:11 : 08:00</td>
</tr>
<tr>
<td>End Date</td>
<td>=03.08.1996: .</td>
</tr>
<tr>
<td>HowOften</td>
<td>=*</td>
</tr>
<tr>
<td>Period</td>
<td>=1Hour : 1Hour</td>
</tr>
</tbody>
</table>

In this example, the reaction starts on 3.8.96 and will be executed from then on, on a
daily basis, until manually stopped.

Definition of additional conditions (blocking flag)

A flag point with address and value(s) can be assigned to each reaction entry.
This blocking flag constitutes an additional condition that must be fulfilled before the
reaction is executed.

A reaction entry is said to be blocked if the current value of the flag does not
correspond to a value belonging to the entry.

<table>
<thead>
<tr>
<th>Blocking Flag=</th>
<th>$F10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flag Value =Off</td>
<td>?</td>
</tr>
<tr>
<td>Flag Value =($, ,*,-,+,=-,Off, Step 1, Step 2, Step 3):</td>
<td></td>
</tr>
</tbody>
</table>

Flag value
A specific value or a combination of several values can be entered for the flag value.
In the above example, the reaction entry is executed only if the "reason" is fulfilled and flag $F10 has the value 1,Step or 2,Step at that time.

In all other cases the reaction entry is blocked, and the reaction is not executed.

**Definition of the reaction to be executed**

The following reactions can be triggered via a date / time reaction register entry:

<table>
<thead>
<tr>
<th>Reaction</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>UA/TA</td>
<td>Change Point Parameter</td>
</tr>
<tr>
<td>CT</td>
<td>Printout Cleartext</td>
</tr>
<tr>
<td>MC</td>
<td>Issue MACRO Command</td>
</tr>
<tr>
<td>SLVM</td>
<td>Output Slave Message</td>
</tr>
<tr>
<td>CB</td>
<td>Start/Stop COLBAS Task</td>
</tr>
<tr>
<td>.</td>
<td>No Reaction (for MRR &amp; GRR)</td>
</tr>
<tr>
<td>PICT</td>
<td>Auto Picture/Point Selection</td>
</tr>
</tbody>
</table>

**Reaction UA/TA**

Address of the data point on which the reaction is to act. The following inputs are permissible:

- Technical address or $* masks
- User address or $* masks
- All addresses, including CT to PICT, by entering '..' (???)

**Parameter value**

Specify the parameter to be modified.

In the example "Set Digital Output: Priority=0 :"

The following possibilities are available for entering the parameter value:

- A fixed value is assigned to the selected parameter.
- A priority is assigned to the resultant output values RDO of switch command points DO.

The following variants can be entered for switch commands in the DRR:

- Modification of the parameter DO1 or DO2 with its respective bit influence DO1ACT or DO2ACT.
- Selective setting of a single bit influence in DO1ACT or DO2ACT.
- Selective setting of all bit influences in DO1ACT or DO2ACT.

The above statements apply analogously to flag points.

- **RVAL**: The resultant setpoint of a switch command RDO or of a flag point RFL is set to the last effective value, e.g. after a power failure.
- **SAME**: When the reaction is triggered, the parameter value of the reaction address is set to the SAME as the main value of a selectable data point. The data point can be specified at the "FNT /Address" (???) prompt.
- **INV**: When the reaction is triggered, the parameter value of the reaction address is set to the INVERSE of the main value of a selectable data point. The respective values are interpreted as Boolean variables.

The data point can be specified at the "FNT /Address" (???) prompt.

**Note on additional information sources:**

- More detailed information and appropriate examples can be found in the chapter "Reactions" in tab "R" of this manual.
- Information on the subject of "bit influence" can be found in the descriptions of the parameters RDO,DO,DO1,DO2 and RFL,FL,FLI1,FLI2.

**Reaction CT**

When the reaction is triggered, the VISONIK DCS prints a specific clear text message in the defined message mask; the message appears in the language that is defined for the respective device with the parameter XX.

**Number**

Number of the clear text message in the text register TXCM,C.???
When the reaction is triggered, the VISONIK-DCS executes a specific macro command from the macro text register (TXCM,M) ??? of the selected language at ONE defined device. ???

Macrotext number
Number of the macro text.

Language
Language of the macro text register.

Output device
Output device (STA, M1..M15) at which the text is to be printed.

Print slave messages.
The VISONIK DCS normally only prints spontaneous messages if the status of a point changes in the peripheral equipment (???). An SLVM reaction is required in order to force point messages (e.g. cyclic polling of a temperature using a date reaction).

When the reaction is triggered, the VISONIK DCS reports the main value of the point in the defined message mask, without the point status having changed.

Slave messages have an exclamation mark before the timestamp in the message line.

The VISONIK DCS starts/stops one of the available DCS COLBAS tasks.

Number of the COLBAS task whose operation mode is to be modified.

Requested operation modes:
- RUN Stops the COLBAS task if it is active, and starts it at the line number entered.
- RESTART Starts a COLBAS task only if it is inactive. If the task is active, the instruction is ignored.
- STOP Stops the task and prints a STOP message.
- END Stops the task without a message.

Line number at which the task is to be started by a RUN or RESTART instruction.

This option is only implemented for group reactions and maintenance reactions.

Group reactions (GRR) and maintenance reactions (MRR) include additional mechanisms that do not require a special reaction section:
- Group reactions include a device changeover mechanism for alternative or auxiliary devices.
- Maintenance reactions include an operating hours counter.

If reaction programs are used for such cases, the reaction entry should be set to "Reaction=".

Automatic picture/point selection
When the reaction PICT is triggered, the VISONIK DCS automatically displays the selected picture in VISONIK-Insight.

The picture is only displayed if VISONIK Insight is free. Otherwise, it is saved until it is opened manually.

Specification of the picture to be displayed.

In the case of reaction programs whose "reason" is a point change (PRR/SRR), the user can enter an "F" in the reaction entry instead of a fixed picture number. With this entry the picture that has been assigned to the respective "reason" address using the function COS,PICT (???) or the function PICT will be automatically displayed.

The PICT parameter contains the number of the picture on which a given point is displayed.

VISONIK Insight, Output device number (T1..T15)
If a printer channel is selected as graphic device, the encoded picture number will be printed only.
1. further address

The VISONIK DCS executes the same reaction with the further addresses as with the address defined under “Reaction =”. This feature allows for reaction entries to be economised.

n. further address

The user can assign up to four different further addresses to each reaction entry, provided the reaction is one that modifies point parameters (Reaction =UA/TA) or prints slave messages (Reaction =SLV).

Message mask

For each reaction entry, the user can use the message mask to define which output devices of the VISONIK DCS are to register the reaction:

```
Message Mask   =MSGDEV : ?
  MSGDEV: M1
  MM00:  M1&M2
  MM15:  M1&M2
```

Message Mask =MSGDEV means that the reaction will be registered on the message devices that are listed according to message priority in the parameters DSM0..DSM3 (point type SY) of the point specified under "Reaction=".
The MSGDEV mask also takes device allocations with group reactions (alternative or auxiliary devices) into account.

2.13.3 LI, List Data Registers

The LI operation can be used to selectively list the reaction entries. The contents of the list can be filtered according to the following criteria:
- by start date
- by entry numbers
- by reactions

If the reaction type CT, MC or CB is entered at the prompt "Reaction=?:", the user can make a finer selection according to text or task number.
The list of reaction entries can contain so-called "questionable status markers", which have the following meanings:

**?FL**

The blocking flag's value in the reaction entry does not correspond to the flag's current value, i.e. the entry is currently blocked.

**Example for ?FL**

```
24.07.1996 / 1  10:00       to  25.07.1996 - 23:58
   Period       3 Hour
   Next DRR     24.07.1996 - 13:00
   Reaction     PACH________Change Point Parameter
   Address      DO  $d100'040
   Parameter    DO__________Set Digital Output:
   Priority=0
   Value        1=On
   Reporting    MSGDEV      M1
```

**Questionable status markers**

The blocking flag's value in the reaction entry does not correspond to the flag's current value, i.e. the entry is currently blocked.
2.13.4 **DEL, Delete Register Entry(ies)**

The DEL operation can be used to selectively delete reaction entries. The entries to be deleted can be filtered according to the following criteria:

- by start date
- by entry numbers
- by reactions

If the reaction type CT, MC or CB is entered at the prompt "Reaction=?:", the user can make a finer selection according to text or task number.

---

**Recommendation:**

It is recommended that the option “Accept Every Entry =YES” should be set. With this setting each reaction entry to be deleted is listed completely at the operator terminal, and the user must acknowledge the deletion of each one manually in order to prevent inadvertent deletion.

If the option is not set, the VISONIK DCS automatically deletes all specified entries. The entries to be deleted are listed with their "reasons" and entry numbers at the operator terminal. The automatic deletion procedure can be aborted with Ctrl/P or Ctrl/E, if necessary.
2.13.5  LSTA, List Reaction Register State

This provides an overview of all Reaction Registers.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Total Entries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Register</td>
<td>---------------</td>
</tr>
<tr>
<td>Group Reactions</td>
<td>GRR 1</td>
</tr>
<tr>
<td>Process Reactions</td>
<td>PRR 1</td>
</tr>
<tr>
<td>Maintenance Reactions</td>
<td>MRR 1</td>
</tr>
<tr>
<td>Time Reactions</td>
<td>TRR 1</td>
</tr>
<tr>
<td>Date Reactions</td>
<td>DRR 1</td>
</tr>
<tr>
<td>Total</td>
<td>5</td>
</tr>
</tbody>
</table>

2.13.6  LOCT, List Reaction Entries in Octal

The LOCT operation can be used to selectively list the reaction entries according to the same criteria as the LI operation. The normal list is followed by a printout of the same data in octal code.

The list may be required by Landis & Staefa for diagnostic purposes.
### 2.13.7 Special Features

#### Next Date Reaction

After every Date Reaction, VISONIK automatically calculates the time of the next Reaction based on the period as defined in the relative Reaction entry and updates the Reaction Register. Such a calculation can be seen in any listing of a Date Reaction entry where it is printed in brackets alongside the specified data, i.e. when the next Date Reaction will take place or how often the Reaction will be executed.

#### System Time Reset

If for some reason the system time is reset then the time of the next execution is applied to the DRR entries.

#### Update Logic

If the system date/time is put forward (e.g. after a system HALT and advancing the time), VISONIK updates all those Date Reactions which should have been executed during this skipped time. To avoid unnecessary switching, the plant equipment is brought to positions which agree with the set status in the DRR entries. An updated Date Reaction is marked by an exclamation sign in the relative message line:

| DRR SC 16:40:09 a01'b2'SC  SC =OFF---->ON | RVAL=ON(1) |

To calculate the next Reaction the period as defined in the Reaction Register is still valid. If a period is longer than the skipped interval it is reduced, but the Reaction will always be carried out at the time calculated.

The update logic does not work in the following circumstances:

- On system start with BOO,Z
- On generating/changing the system time/date (in Function DATE), and the user has set "Update Date & Time Reactions =NO".
- In Macro Reactions (MC) if there has been a break in system time of more than 2 hours.

#### Summer/Wintertime Changeover

On changeover from summertime to wintertime VISONIK automatically makes a double pass through the hours between 02:00 a.m. and 03:00 a.m. All Date Reactions which fall within this time span are carried out during the first pass. A Date Reaction whose interval is less than 1 hour will only be executed a second time if the interval is a whole fraction of 60 minutes (1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30 minutes).

#### Changeover Winter/Summertime

On changeover from wintertime to summertime VISONIK automatically advances the time from 02:00 a.m. to 03:00 a.m. All Date Reactions which should have taken place in this skipped time will be executed, once only, at 03:00 a.m. (corresponds to putting forward the system Time/Date).
2.14 DSS Dialogue with Process Station

Function DSS allows direct dialogue between centralised VISONIK terminals and remote PRV/BPS/EKL Controllers in the process stations. DSS means "Dialogue with Process Station".

Process stations in a VISONIK DCS system which are fitted with PRV/BPS and EKL-X Controllers can be contacted through function DSS as though the dialogue terminal were connected through the local PRV/BPS/EKL interface.

Note

- Function DSS can only be called from VISONIK Server terminals or Insights which are connected to the DCS through V.24 interfaces.

2.14.1 Initial Access and Handling

For an operator, initial access to a process station with function DSS is the same irrespective of whether the process stations have PRV, BPS or DKL-X controllers.

How to call up a process station (e.g. $177) with the DSS function:
Entry of a technical address at PRV/BPS/EKL-X:

T6  09:58:18 Function =PNT : DSS  
Partner address (UA/TA) =$177:  
$177> (PS=127, SYS=0) : OK  
$177>

The process station address can be entered as a technical address with "$o" in octal or with "$d" in decimal format. Also see the TAFO parameter.

T6  09:59:15 Function =PNT : DSS  
Partner address (UA/TA) = $o306:  127  --->  PS decimal address

Upon entry of a user address, the DC Server prints out the TA parameter of the point as acknowledgement.

T6  09:59:16 Function =PNT : DPS  
Partner address (UA/TA) = $177:  G01'04'L5  
TA=$o12'032 okay  
$12> (PS=10, SYS=0) : OK  
$12>

If DSS is used to call a PRV/BPS/EKL which is busy, the following message is given:

09:59:32 DSS aborted to $177  PS busy
2.14.1.1 Connection with a Process Station

When the connection to a chosen process station is established, a prompt is output on the Server's operating terminal. This prompt shows the relative process station's Technical Address (e.g. $177).

This EKL can now be operated as though the terminal were connected directly to the EKL through its local V.24 interface.

For an EKL-X, as different to EKL-P, the following inputs are accepted in addition to Editor commands (see Function CB):

Input of Ctrl/P:

- SYR: Starts a system report (see example below)
- ALR: Starts an alarm report
- TSC: Opens the "Time Switch Catalogue" dialogue.

```
$177> ctrl/P
$177> FUN=(SYR,ALR,TSC):SYR

****************** SYR   BEGIN AT TH, 22-FEB-96, 13:26:38 ******************

$000.DI                     DI=0                  AST=0
$001.DI                     DI=0                  AST=0
........                  ....                  .....
........                  ....                  .....
........                  ....                  .....

****************** SYR   END   AT TH, 22-FEB-96, 13:27:06 ******************

$177>
```

CONF opens the EKL's internal CONFiguration dialogue. With CONF, Points, Point parameters and Catalogues can be generated or edited (see EKL-X Handbook).

```
$177> CONF
$177> CAT=(PNT,PLT,RGB,CVP,TXT,UNT,ZON,VIP,ZRC):
```

If a process station is selected which cannot respond (e.g., ring break, power fail or faulty telephone line) the following message is given:

```
T6      10:13:01 Function =PNT : DSS
Partner address (UA/TA)=$306: $177   Failure
!DLA PS $177'PS        Trial operation
                  USCU=wHEA INR=Net. exec.  R1l
-KL v5480
```

The example above shows how the DC Server behaves when there is a process station power failure shortly before it was called with DSS.
2.14.1.2 Ctrl/E - Terminate Connection

The connection to a process station (PRV/BPS/EKL-X) may be broken off with Ctrl/E. This also makes an exit from function DSS.

With input of Ctrl/E an exit is also made from the EKL's own dialogue. If Ctrl/E is entered during CONF dialogue or in TSK Editor an exit from the operation and a return to 'Immediate Mode' is made.

Only then can Function DSS be interrupted by a second Ctrl/E.

- The following message is given after a DSS connection is ended with Ctrl/E:

<table>
<thead>
<tr>
<th>$177&gt;: ctrl/E</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:19:26 DSS ended to $177</td>
</tr>
</tbody>
</table>

If no active dialogue takes place in DSS after 30 seconds, a 'Timeout' is triggered, which allows any queued messages to be output on the operating terminal. There is a 'hard' timeout which, if triggered, automatically breaks off the DSS dialogue:

- For a PRV/BPS/EKL-X there is a hard timeout after 4.5 minutes.

The following message appears:

<table>
<thead>
<tr>
<th>10:18:46 dialog-timeout!</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:18:46 DSS ended to $177</td>
</tr>
</tbody>
</table>

2.14.2 List/Print Files

Files which have been saved in the VISONIK Server can be listed on terminals or printed.

Once in Function DSS listing a file is made with COPY.

The COPY instruction syntax for listing files from a VISONIK Server on a display or printer terminal looks as follows:

```
$xxx> COPY DK:"Name" TO TTx:
where
$xxx> PS address prompt
COPY copy instruction
DK: Source declaration (DK = Server disk)
"Name" File name (has no effect since the file is addressed by the PS point parameter FILE).
TO copy to
TTx: Report terminal
```
The following example illustrates how a file (whose File No. has been defined by PS point parameter FILE) is listed on VISONIK terminal T6:

```
T6   12:57:04 Function =PNT : DSS
Partner address  (UA/TA)=$306: $177
$177> COPY DK:"" TO TT6:

12:58:11    S T A R T   O F   C O P Y

.TSK1
10 PRINT DATE, TIME
20 ... 
30 ...

.TSK2
10 -- TEST/ZA
20 ... 
30 ...

.TSK12
10 -- Measurement Acquisition/GI
20 ... 
30 ...
EXIT
```

```
12:58:13    E N D   O F   C O P Y          (189. Characters)
```

COLBAS Tasks may also be listed on a VISONIK terminal directly from an EKL without first making a backup on VISONIK Server disk.

The syntax is:
- COPY EKL: TO TT6:
  or in general COPY syntax:
- COPY EKL: TO TTx:

Note
- VISONIK with its Function EDI provides for listing a file from VISONIK Server disk in a quick and easy manner, with: Ctrl/P <CR> followed by EDI, LIST, File No.

**2.14.3 Terminal Device Assignment**

Output commands LIST, PRINT, PLOT and INPUT are no longer terminal oriented but are assigned to message channels, which then on their side, point to terminal devices.

The following applies to PRV/BPS/EKL-X
- Terminal assignment in COLBAS Task with TERM(m)=n, where:
  - m = Task no.
  - n = 1..max. possible number of message channels
2.15 EDI Edit COLBAS Program Files

2.15.1 Full Screen Editor

The Function "EDI", as described in the following text, works only with Visual Display Units such as VT100, VT220, VT320, GDT, Visual V603, etc.

Operating terminals without screens (e.g. printers with keyboards) are supported only by a Line Editor.

VISONIK Server files can be efficiently processed using this Full Screen Editor. The Editor is a utility program contained in VISONIK software and can be called up directly from function CB.

Operation is relatively easy and requires no special knowledge. Any character in a file can be selected using the terminal's keypad function and cursor shift keys.

**COLBAS Files**

With "EDI", COLBAS Tasks which are deposited in Server files can be written, changed and even checked for correct syntax, off-line. This applies to both VISONIK Server or EKL substation COLBAS Tasks which may be held in Server files.

Files in which COLBAS Tasks are deposited are also known as COLBAS Dump Files or COLBAS Backup Files.

**Data Files**

Server files may also be used for saving other data such as system descriptions, documentation, etc. "EDI" is exceptionally suited for generating and managing such data.

2.15.2 Initial Access and Handling

Function call-up

CTRL/P EDI

Main menu

<table>
<thead>
<tr>
<th>T8</th>
<th>11:53:37</th>
<th>Function=PNT : EDI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation=CH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 CH</td>
<td>Change File</td>
<td></td>
</tr>
<tr>
<td>1 LI</td>
<td>List File</td>
<td></td>
</tr>
<tr>
<td>2 TRCL</td>
<td>List File for Trace</td>
<td></td>
</tr>
<tr>
<td>3 DEL</td>
<td>Delete Whole File</td>
<td></td>
</tr>
<tr>
<td>4 DIR</td>
<td>Directory of all Files</td>
<td></td>
</tr>
<tr>
<td>5 COPY</td>
<td>Copy File</td>
<td></td>
</tr>
<tr>
<td>6 APP</td>
<td>Append File Contents</td>
<td></td>
</tr>
<tr>
<td>7 LINK</td>
<td>Join adjacent files</td>
<td></td>
</tr>
<tr>
<td>8 UNLK</td>
<td>Separate joined files</td>
<td></td>
</tr>
</tbody>
</table>

Files can now be managed by selecting the relative operation. The system accepts selection of an operation either through the relative text (e.g. LIST) or its corresponding number (e.g. 1 for LIST).
2.15.2.1 CH, Change File

A new file can be opened or an existing file can be edited with operation CH.

ctrl/P
T4 09:50:37 Function =PNT : EDI
Operation =CH :
File Number = (1..40): 13 <CR>

If an empty file is selected, after the system's header line the "End of File" (EOF) message and file information. is displayed.

[EOF

Segment number 24520 File Number 13 0 bytes (20356 free)

If the selected file has been previously edited the first 20 lines are listed (or less if the file is shorter).

2.15.2.2 LIST, List File

Operation LIST is called to display a complete file listing in which text has been written (edited) or in which, for example, EKL COLBAS programs have been saved as backup.

ctrl/P
T4 09:52:10 Function =PNT : EDI
Operation =CH : LI
File Number = (1..40): 13

............ ---> The complete File is listed,
............ i.e. to <EOF> marker.
............

<EOF>
Operation =CH :

Abbreviation <EOF> means "End of File" or indication of the last file line.

2.15.2.3 LTRC, List File for Trace

Operation LTRC lists a "Trace File". If a "Trace" has been made (with parameter TR**) and its related information deposited in a file, LTRC can provide a listing of such a file.

A "Trace" can be started with parameters TRBI, TRDV, TRFI, TRFM, TRPT, TRRI, TRSS (see parameter description).
A text file, i.e. a file in which only text has been edited may also be listed with LTRC. There is no difference in listing text files by either LIST or LTRC.

**Note**

Operation LTRC is only practical if parameter TRBI is set to 20 (octal) (see parameter description).

### 2.15.2.4 DEL, Delete Whole File

Only one file can be deleted in each call-up of operation DEL.

**Note**

After input of “File Number” and <CR> the relative file is cleared without asking the question “Delete: YES/NO”.

### 2.15.2.5 DIR, Directory of all Files

In Operation DIR the first five lines of all files are listed.

<table>
<thead>
<tr>
<th>Time</th>
<th>Function</th>
<th>File Number</th>
<th>File Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:57:00</td>
<td>EDI,DIR</td>
<td>1..250</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>### File 1 ist reserviert fuer Tim Walsh ###</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>&lt;EOF&gt;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>File 2: 08.07.1996 15:08</td>
</tr>
</tbody>
</table>
|        |          |             | ;######################################################
|        |          |             | ;###### VISONIK V12/V14.04 .. V12/V14.04.XXX #######
|        |          |             | ;######################################################
|        |          |             | File 2 Patchlist 1 ##########################
|        |          |             | ;######################################################
|        |          |             | ;### VISONIK V13.03.016 ... V13.03.XXX #######
|        |          |             | ;######################################################
|        |          |             | File 3 Patchlist 2 ##########################
|        |          |             | ;######################################################
|        |          |             | Operation=CH | : |

### 2.15.2.6 COPY, Copy File

In the above example file 7 is copied to file 13. COPY leaves the source file (= File 31) unchanged. Another example:
EDI,COPY,7,SYS.30
File 7 is copied to File 30 of system SYS.

### 2.15.2.7 APP, Append file contents

The contents of File 7 are appended to File 21.
2.15.2.8 LINK, Join Adjacent Files

With Operation LINK only adjacent files can be linked together.

```
T8        13:42:46 Function=PNT : EDI, LINK
File Number=1:  5
Anzahl=0 : 3   >>okay!
```

Files 5, 6, 7 and 8 are now linked together, i.e. file 5's length has been extended by that of files 6, 7 and 8.

Remark:
Linked files (in the above example, 6, 7 and 8) cannot be listed with LI. When copying such linked files the required memory area must be taken into account, e.g. do not copy three full linked files to a standard file.

Directory
If the prompt for "Number" is answered with "0" (Number = 0), then information about those linked files following is displayed in addition to the selected file number.

```
T8        13:45:26 Function=PNT : EDI, LINK
File Number=1:
Number=0 : 0
File 5 linked to 3 following file(s) !
File Number=1:
```

2.15.2.9 UNLK, Separate Joined Files

With UNLK any linked files must be separated from lower to higher numbered files.

Example
Files 8, 9 and 10 have been joined to file 7.
Unlinking the four files:
EDIT, UNLK, 7

2.15.3 Call up of Editor from Function CB

Before the Editor can be called up from Function CB a COLBAS Task must first be selected:

```
T2      15:56:45 Function =PNT : CB --> Entry into CB dialogue
TSK0   : Monitor
TSK0   : TSK14          --> Task 14 selected
TSK14  : Editor
TSK14  : EDI            --> Call-up of Editor
File number = (1..250): 33          --> File 33 selected
```

The Editor now sets its "cursor" to the file start after which the file can be handled with the Full Screen Editor.

Note
The above described Operations which are selected after opening the Function EDI cannot be called from Function CB.
2.15.4 Key Functions

For file text handling, the cursor shift (arrow) keys and keypad function keys are used.

Arrow Keys

The cursor is positioned to the required text location using the four arrow keys.

On terminals similar to VT200 keys 'Previous screen' and 'Next screen' can also be used.

Keypad keys on VTxxx

To provide a user with a comfortable method of working with the Full Screen Editor all keypad keys are fully supported.

Each key is reserved for one (or two) defined commands.

Keypad keys on PC

Note:
NumLock must be switched off!
Before pressing an additional key, <F12> must be pressed and then released.

<table>
<thead>
<tr>
<th>VTxxx Keyboard</th>
<th>PC Keyboard</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;PF1&gt;</td>
<td>&lt;F12&gt;</td>
</tr>
<tr>
<td>&lt;PF2&gt;</td>
<td>&lt; / &gt;</td>
</tr>
<tr>
<td>&lt;PF3&gt;</td>
<td>&lt; * &gt;</td>
</tr>
<tr>
<td>&lt;PF4&gt;</td>
<td>&lt; - &gt;</td>
</tr>
<tr>
<td>&lt; ' &gt;</td>
<td>&lt; + &gt;</td>
</tr>
</tbody>
</table>
The most important key is <PF2> (HELP) key. After call up of the Editor (either through EDI or CB) pressing <PF2> brings up a display which explains the functions of the keypad.

The table below lists the key allocations:

<table>
<thead>
<tr>
<th>Command</th>
<th>Key(s)</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gold</td>
<td>&lt;PF1&gt;</td>
<td>Shift to lower operation in function column.</td>
</tr>
<tr>
<td>Help</td>
<td>&lt;PF2&gt;</td>
<td>Overview of all keypad function keys.</td>
</tr>
<tr>
<td>Find</td>
<td>&lt;PF3&gt;</td>
<td>Find Text (specified with Search).</td>
</tr>
<tr>
<td>Search</td>
<td>&lt;PF1&gt;++&lt;PF3&gt;</td>
<td>Find any character sequence in file (forwards/backwards).</td>
</tr>
<tr>
<td>Del L</td>
<td>&lt;PF4&gt;</td>
<td>Delete complete line.</td>
</tr>
<tr>
<td>and L</td>
<td>&lt;PF1&gt;++&lt;PF4&gt;</td>
<td>Re-insert the last deleted line.</td>
</tr>
<tr>
<td>Save</td>
<td>&lt;7&gt;</td>
<td>Save selected lines.</td>
</tr>
<tr>
<td>Command</td>
<td>&lt;PF1&gt;++&lt;7&gt;</td>
<td>Execute old line Editor commands (Help with '?').</td>
</tr>
<tr>
<td>Sect</td>
<td>&lt;8&gt;</td>
<td>Move cursor 13 lines forwards or backwards.</td>
</tr>
<tr>
<td>CLA</td>
<td>&lt;9&gt;</td>
<td>Analyses a COLBAS Task line by line (including error messages).</td>
</tr>
<tr>
<td>COLBAS</td>
<td>&lt;PF1&gt;++&lt;9&gt;</td>
<td>Analyses a complete Task in the file (including error messages).</td>
</tr>
<tr>
<td>Del W</td>
<td>&lt;--&gt;</td>
<td>Delete a word (forwards).</td>
</tr>
<tr>
<td>and W</td>
<td>&lt;PF1&gt;++&lt;--&gt;</td>
<td>Replaces the last deleted word.</td>
</tr>
<tr>
<td>Advance</td>
<td>&lt;4&gt;</td>
<td>Advance cursor.</td>
</tr>
<tr>
<td>Bottom</td>
<td>&lt;PF1&gt;++&lt;4&gt;</td>
<td>Advance cursor to end of file.</td>
</tr>
<tr>
<td>Backup</td>
<td>&lt;PF1&gt;++&lt;5&gt;</td>
<td>Move cursor backwards.</td>
</tr>
<tr>
<td>Top</td>
<td>&lt;PF1&gt;++&lt;5&gt;</td>
<td>Move cursor to start of file.</td>
</tr>
<tr>
<td>' )</td>
<td>&lt;PF1&gt;++&lt;'&gt;</td>
<td>Delete character.</td>
</tr>
<tr>
<td>Sa+Ki</td>
<td>&lt;6&gt;</td>
<td>Save and delete selected block of lines.</td>
</tr>
<tr>
<td>Unssave</td>
<td>&lt;PF1&gt;++&lt;6&gt;</td>
<td>Replace the saved block.</td>
</tr>
<tr>
<td>Del C</td>
<td>&lt;1&gt;</td>
<td>Delete character.</td>
</tr>
<tr>
<td>and C</td>
<td>&lt;PF1&gt;++&lt;1&gt;</td>
<td>Replace last deleted character.</td>
</tr>
<tr>
<td>Word</td>
<td>&lt;1&gt;</td>
<td>Move cursor one word.</td>
</tr>
</tbody>
</table>
### 2.15.5 Line Editor (also referred to as COLBAS Editor)

Originally, this mode was used to edit a file on a keyboard printer (Teletype). This printer worked without arrow keys and Num lock. The mode is selected automatically when a file is edited in a different system (via DUS). It can be called up on the screen editor via Ctrl-Z.

#### Call-up from EDI

Call up of Line Editor from Function EDI using a printer:

```
T2  16:48:14 Function =PNT : EDI --> Entry into Function
Operation =CH : <CR>
File Number =(1..40): 39 <CR> Block#=26660   Free bytes=15691
<BOF>  -- > <BOF> begin of buffer
--;### TITLE  -- > "-" corresponds to position in File
;100J <CR>  -- > Editor command for jump 100 characters towards File end
50 GOSUB 300
^
|<-- New position in File after 100 character jump
```

#### Call-up from CB

Call up of Line Editor from Function CB using a printer:

```
T2  16:48:14 Function =PNT : CB --> Entry into Function
TSK0 : ..................................................................................Monitor
TSK0 : TSK14
TSK14 : Editor
TSK14 : EDI  --> Call-up of Line Editor
File Number =(1..40): 39 <CR> Block#=26660   Free bytes=15691
<BOF>  -- ><BOF> begin of buffer
--;### TITLE
```
After input of "File Number" the Block No. and number of free bytes plus the first line in the relative File are listed.

Editor command format

The ‘Line Editor’ instructions are now effective. Such instructions are made up of four parts:

\[+/\text{-} \text{nnn} \ \text{Xz...z} \]

\[\wedge \wedge \wedge \wedge \wedge \wedge \wedge \]

1 2 3 4

The individual parts have the following meanings:

1. "+/\text{-}" indicates the direction in which the associated command will operate. This is always with reference to the actual cursor position. "+" means towards the end of text, "\(-" towards start of text. If no direction character is specified for the command, the direction is always "+".

2. "\text{nnn}" is the number of times the instruction should be carried out. If "\text{nnn}" is not specified the relative command is executed once only.

3. "\text{X}" is the instruction code and consists of only one letter.

4. "z...z" indicates any character sequence which, together with the associated instruction can be searched for or newly inserted.

Note that all commands need not have all four component parts. How the individual instructions operate and their effects are shown in the following table.

The actual position where one is working in a File is marked in the relative printout with an underline ("\_").

Summary of all Line Editor Commands

-\text{-> Commands for Text Manipulation:}

<table>
<thead>
<tr>
<th>Command Code</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>\text{?}</td>
<td>Help Menue</td>
</tr>
<tr>
<td>\text{L}</td>
<td>\text{L(List)} = List lines: Line by line text print out from the chosen line until end of file. &quot;_&quot; position remains unchanged.</td>
</tr>
<tr>
<td>7\text{L}</td>
<td>Prints 7 lines starting from the selected line.</td>
</tr>
<tr>
<td>\text{V}</td>
<td>\text{V(verify)} = Verify actual &quot;_&quot; position: Print that line where the &quot;_&quot; is actually positioned.</td>
</tr>
<tr>
<td>\text{B}</td>
<td>Set &quot;_&quot; to end of the COLBAS file.</td>
</tr>
<tr>
<td>\text{J}</td>
<td>Shift &quot;_&quot; one character forwards.</td>
</tr>
<tr>
<td>-\text{J}</td>
<td>As above but backwards.</td>
</tr>
<tr>
<td>8\text{J}</td>
<td>Skip the next 8 characters.</td>
</tr>
<tr>
<td>-8\text{J}</td>
<td>As above but backwards. \text{P(osition)} = Underline &quot;_&quot; positioning: Searches for character sequence zzz from current position to end of file. If found, the &quot;_&quot; jumps to the location BEFORE the sequence. If not found it goes to end of file.</td>
</tr>
<tr>
<td>\text{Pzzzz}</td>
<td>\text{P(osition)} = Underline &quot;_&quot; positioning: Searches for character sequence zzz from current position to end of file. If found, the &quot;_&quot; jumps to the location BEFORE the sequence. If not found it goes to end of file.</td>
</tr>
<tr>
<td>-\text{Pzzzz}</td>
<td>As above but backwards.</td>
</tr>
<tr>
<td>\text{P}</td>
<td>Makes a further search for character sequence zzz as previously declared together with P.</td>
</tr>
<tr>
<td>-\text{P}</td>
<td>As above but backwards.</td>
</tr>
<tr>
<td>Command</td>
<td>Description</td>
</tr>
<tr>
<td>----------</td>
<td>-------------</td>
</tr>
<tr>
<td>3Pzzz</td>
<td>Searches three times for character sequence zzz. The &quot;_&quot; waits at the third zzz sequence</td>
</tr>
<tr>
<td>-3Pzzz</td>
<td>As above but backwards.</td>
</tr>
<tr>
<td>T</td>
<td>Sets (&quot;_&quot;)) at start of COLBAS file.</td>
</tr>
<tr>
<td>&lt;CR&gt;</td>
<td>Sets (&quot;<em>&quot;) at start of next line. The &quot;</em>&quot; mark is not printed.</td>
</tr>
<tr>
<td>\</td>
<td>Sets (&quot;<em>&quot;) to start of previous line. The &quot;</em>&quot; mark is not printed.</td>
</tr>
<tr>
<td>Czzz</td>
<td>C(hange) = Replace character in the current line: Replaces a character after the (&quot;_&quot;) with zzz.</td>
</tr>
<tr>
<td>-Czzz</td>
<td>As above but backwards.</td>
</tr>
<tr>
<td>C</td>
<td>Replaces a character after the (&quot;_&quot;) by sequence zzz as previously declared with C.</td>
</tr>
<tr>
<td>-C</td>
<td>As above but backwards.</td>
</tr>
<tr>
<td>4Czzz</td>
<td>Replaces 4 characters after the (&quot;_&quot;) with zzz.</td>
</tr>
<tr>
<td>D</td>
<td>D(elete) = Delete characters in the current line: Deletes a character after the (&quot;_&quot;).</td>
</tr>
<tr>
<td>-D</td>
<td>As above but backwards.</td>
</tr>
<tr>
<td>5D</td>
<td>Deletes 5 characters after the (&quot;_&quot;).</td>
</tr>
<tr>
<td>-5D</td>
<td>As above but backwards.</td>
</tr>
<tr>
<td>izzz</td>
<td>I(nsert) = Insert new line: Inserts a new line containing zzz before (&quot;_&quot;).</td>
</tr>
<tr>
<td>K</td>
<td>Deletes the complete current line (Kill) irrespective of (&quot;_&quot;) position in the line.</td>
</tr>
<tr>
<td>5K</td>
<td>Deletes 5 lines starting at the one selected.</td>
</tr>
<tr>
<td>Qzzz</td>
<td>(Quick) Inserts sequence zzz before (&quot;_&quot;).</td>
</tr>
<tr>
<td>Q</td>
<td>Inserts the sequence zzz as previously declared with Q or C.</td>
</tr>
<tr>
<td>S</td>
<td>Saves the complete current line in a special SAVE buffer and at the same time deletes it from the file.</td>
</tr>
<tr>
<td>U</td>
<td>Re-inserts, before (&quot;_&quot;), that line saved previously with S. The SAVE buffer is not affected.</td>
</tr>
<tr>
<td>6U</td>
<td>Inserts the line in SAVE buffer six times before the (&quot;_&quot;).</td>
</tr>
<tr>
<td>X/oo/nn/</td>
<td>Exchanges 'oo' (old) with 'nn' (new). (&quot;_&quot;) waits in front of the newly inserted sequence.</td>
</tr>
</tbody>
</table>
2.15.6 Tasks and Files

One should note the difference between Tasks and Files or Dump File:
- A Task is a fully operable COLBAS program written and saved in machine code.
- The Editor cannot interpret this form of program coding. Therefore, the relative Task must be translated to text format (ASCII) and deposited in a file before the COLBAS program can be handled by the Editor.
- After editing necessary program text the file must be again saved as a Task.

As a summary the general difference between a Task and a file lies only in the format in which the data is deposited.
2.16 GRR Group Reaction Register

2.16.1 Initial Access and Handling

Function call-up
CTRL/P GRR

General
A general introduction to the subject of VISONIK reactions can be found under "Reactions in General" in section R of this manual. The group reaction register GRR is one of six reaction types provided by the VISONIK DCS. The reaction types are named after the "reason" that is to activate the reaction in each case.

Each reaction entry consists of the following three parts:
- "reason" that activates the reaction
- Blocking flag that can disable a reaction
- Reaction to be executed

What can the GRR do?
The group reaction function can
- execute reactions
- define either alternative or extra devices.

GRR reasons
Change of the error state (ERSTA), operating state (OPSTA) or alarm state (ALSTA) of a single point or a point within an address range from
- 0 ----> >0 (ERSTA,OPSTA)
  3 ----> <>3 (ALSTA) or
- >0 ----> 0 (ERSTA,OPSTA)
  <>3 ----> 3 (ALSTA) or
- >0 <----> 0 (ERSTA,OPSTA)
  <>3 <----> 3 (ALSTA)

GRR reactions
- Change a point parameter
- Print a clear text message
- Execute macro commands
- Print slave messages
- Start or stop COLBAS tasks
- Automatic picture selection in VISONIK Insight and especially with GRR
- No reaction

Main menu
When the group reaction function is selected, the VISONIK DCS offers the user the following possibilities:

<table>
<thead>
<tr>
<th>T8</th>
<th>10:34:40</th>
<th>Function=PNT : GRR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation</td>
<td>=CH</td>
<td>?</td>
</tr>
<tr>
<td>0 CH</td>
<td>Change Data Entry</td>
<td></td>
</tr>
<tr>
<td>1 LI</td>
<td>List Data Registers</td>
<td></td>
</tr>
<tr>
<td>2 DEL</td>
<td>Delete Register Entry(ies)</td>
<td></td>
</tr>
<tr>
<td>3 LSTA</td>
<td>List Reaction Register State</td>
<td></td>
</tr>
<tr>
<td>4 LOCT</td>
<td>List Reaction Entries in Octal</td>
<td></td>
</tr>
<tr>
<td>Operation</td>
<td>=CH</td>
<td>:</td>
</tr>
</tbody>
</table>
### Example: Group reaction entry

<table>
<thead>
<tr>
<th>T8</th>
<th>10:34:40 Function=PNT : GRR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation</td>
<td>=CH : ?</td>
</tr>
<tr>
<td>0 CH</td>
<td>Change Data Entry</td>
</tr>
<tr>
<td>1 LI</td>
<td>List Data Registers</td>
</tr>
<tr>
<td>2 DEL</td>
<td>Delete Register Entry(ies)</td>
</tr>
<tr>
<td>3 LSTA</td>
<td>List Reaction Register State</td>
</tr>
<tr>
<td>4 LOCT</td>
<td>List Reaction Entries in Octal</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>T8</th>
<th>10:36:20 Function=PNT : GRR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation</td>
<td>=CH :</td>
</tr>
</tbody>
</table>

#### Address Mask

- , (UA, TA, ..., *, )
- UA = AA'AA'A111"dd
- TA = $sss'mm'p, $sss'CTYPn, $CTYPn, $sssMxxPyy
- ... = digitwise range
- .. = range
- * = all points with UA, $*=all points

<table>
<thead>
<tr>
<th>Entry</th>
<th>=2 : 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edge</td>
<td>=0&amp;1 : 1</td>
</tr>
<tr>
<td>Alternative Dev.</td>
<td>= .</td>
</tr>
<tr>
<td>Extra Device(s)</td>
<td>= . : ?</td>
</tr>
<tr>
<td>=(&amp;, , *, +, =, =, STAT, M1, M2, M3, M4, M5, M6, M7, M8, M9, M10, M11,</td>
<td></td>
</tr>
<tr>
<td>Blocking Flag</td>
<td>= .</td>
</tr>
<tr>
<td>Reaction</td>
<td>=(UA, TA) : ?</td>
</tr>
<tr>
<td>UA/TA</td>
<td>= Change Point Parameter</td>
</tr>
<tr>
<td>CT</td>
<td>= Printout Cleartext</td>
</tr>
<tr>
<td>MC</td>
<td>= Issue MACRO Command</td>
</tr>
<tr>
<td>SLVM</td>
<td>= Output Slave Message</td>
</tr>
<tr>
<td>CB</td>
<td>= Start/Stop COLBAS Task</td>
</tr>
<tr>
<td>.</td>
<td>= No Reaction (for MRR &amp; GRR)</td>
</tr>
<tr>
<td>PICT</td>
<td>= Auto Picture/Point Selection</td>
</tr>
</tbody>
</table>

| Reaction | =$d100'001 / 3 |
| Edge | 1 |

No Reaction (for MRR & GRR)
2.16.2 CH, Enter/Change Data

2.16.2.1 Changing an existing GRR entry

In order to change data in a reaction entry it must first be selected via its "reason" and entry number. If the entry exists, it is listed completely for checking at the operating terminal.

The edit mode then becomes active, so that the user can modify or confirm each part of the reaction entry step by step.

Important:

A reaction entry is not changed (and re-saved) in the system until every step of this dialogue has been completed, i.e. after the last prompt for "Message Mask" has been answered. In all other cases, e.g. if the dialogue is exited with Ctrl/P or Ctrl/E, any changed data will be lost.

2.16.2.2 Creating a new group reaction entry

Depending on the type of reaction program, the following prompts must be answered in order to create a new reaction entry:

**Address mask**
Reason for the group reaction can be given as a single address or an address range.

**Entry**
Number of the reaction entry. GRR entries are not sorted by addresses, rather by address masks.

**Message priority**
This prompt only appears if the address mask is specified. Only Data points with the relevant message priority (MSGP parameter) are accepted.

. has the same meaning as *

**Edge**
The group reaction is activated by one of the following changes of a single point or a point within the above-defined address range:

<table>
<thead>
<tr>
<th>Edge</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>ER0: ERSTA&gt;0 ---&gt; ERSTA=0</td>
</tr>
<tr>
<td>1</td>
<td>ER1: ERSTA=0 ---&gt; ERSTA&gt;0</td>
</tr>
<tr>
<td>2</td>
<td>OP0: OPSTA&gt;0 ---&gt; OPSTA=0</td>
</tr>
<tr>
<td>3</td>
<td>OP1: OPSTA=0 ---&gt; OPSTA&gt;0</td>
</tr>
<tr>
<td>4</td>
<td>AL0: ALSTA&lt;&gt;3 ---&gt; ALSTA=3</td>
</tr>
<tr>
<td>5</td>
<td>AL1: ALSTA=3 ---&gt; ALSTA&lt;&gt;3</td>
</tr>
</tbody>
</table>

. see the section below, Special Features

**Combinations:**
- All combinations of ERx and OPx are possible, e.g.:
  - 0&1  1&3  1&2&3
- The combination of AL0 with AL1 is possible:
  - 4&5
- Combinations of ALx with ERx or of ALx with OPx are not possible, e.g.
  - 2&4  0&1&5
Definition of additional conditions (blocking flag)

A flag point with address and value(s) can be assigned to each reaction entry. This blocking flag constitutes an additional condition that must be fulfilled before the reaction is executed. A reaction entry is said to be blocked if the current value of the flag does not correspond to a value belonging to the entry.

<table>
<thead>
<tr>
<th>Blocking Flag=</th>
<th>$F10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flag Value</td>
<td>Off</td>
</tr>
<tr>
<td>Flag Value</td>
<td>(&amp;,.,*,-,+=,-=,Off,Step 1,Step 2,Step</td>
</tr>
</tbody>
</table>

Flag value

A specific value or a combination of several values can be entered for the flag value. In the above example, the reaction entry is executed only if the "reason" is fulfilled and flag $F10 has the value 1,Step or 2,Step at that time. In all other cases the reaction entry is blocked, and the reaction is not executed.

Definition of the reaction to be executed

The following reactions can be triggered via a group reaction entry:

<table>
<thead>
<tr>
<th>Reaction</th>
<th>=(UA,TA):</th>
</tr>
</thead>
<tbody>
<tr>
<td>UA/TA</td>
<td>Change Point Parameter</td>
</tr>
<tr>
<td>CT</td>
<td>Printout Cleartext</td>
</tr>
<tr>
<td>MC</td>
<td>Issue MACRO Command</td>
</tr>
<tr>
<td>SLVM</td>
<td>Output Slave Message</td>
</tr>
<tr>
<td>CB</td>
<td>Start/Stop COLBAS Task</td>
</tr>
<tr>
<td>.</td>
<td>No Reaction (for MRR &amp; GRR)</td>
</tr>
<tr>
<td>PICT</td>
<td>Auto Picture/Point Selection</td>
</tr>
</tbody>
</table>

Reaction UA/TA

Address of the data point on which the reaction is to act. The following inputs are permissible:

- Technical address or $* masks
- User address or $* masks
- All addresses, including CT to PICT, by entering '.' (???)

Parameter

Specify the parameter to be modified.
Example: “Set Digital Output: Priority=0 :”

The following possibilities are available for entering the parameter value:

- A fixed value is assigned to the selected parameter.
- A priority is assigned to the resultant output values RDO of switch command points DO.

The following variants can be entered for switch commands in the GRR:

- Modification of the parameter DO1 or DO2 with its respective bit influence DO1ACT or DO2ACT.
- Selective setting of a single bit influence in DO1ACT or DO2ACT.
- Selective setting of all bit influences in DO1ACT or DO2ACT.

The above statements apply analogously to flag points.

- **RVAL**: The resultant setpoint of a switch command RDO or of a flag point RFL is set to the last effective value, e.g. after a power failure.
- **SAME**: When the reaction is triggered, the parameter value of the reaction address is set the SAME as the main value of a selectable data point. The data point can be specified at the “FNT /Address” (???) prompt.
- **INV**: When the reaction is triggered, the parameter value of the reaction address is set to the INVERSE of the main value of a selectable data point. The respective values are interpreted as Boolean variables. The data point can be specified at the “FNT /Address” (???) prompt.

**Note on additional information sources:**

- More detailed information and appropriate examples can be found in the chapter “Reactions” in tab “R” of this manual.
- Information on the subject of "bit influence" can be found in the descriptions of the parameters RDO,DO,DO1,DO2 and RFL,FL,FLI1,FLI2.

**Reaction CT**

When the reaction is triggered, the VISONIK DCS prints a specific clear text message in the defined message mask; the message appears in the language that is defined for the respective device with the parameter XX.

**Number**

Number of the clear text message in the text register TXCM,C.???

**Reaction MC**

When the reaction is triggered, the VISONIK-DCS executes a specific macro command from the macro text register (TXCM,M) ??? of the selected language at ONE defined device. ???

**Macrotex number**

Number of the macro text.

**Language**

Language of the macro text register.

**Output device**

Output device (STA, M1..M15) at which the text is to be printed.

**Reaction SLVM**

Print slave messages.

The VISONIK DCS normally only prints spontaneous messages if the status of a point changes in the peripheral equipment (???). An SLVM reaction is required in order to force point messages (e.g. cyclic polling of a temperature using a date reaction).

When the reaction is triggered, the VISONIK DCS reports the main value of the point in the defined message mask, without the point status having changed.

Slave messages have an exclamation mark before the timestamp in the message line.
The VISONIK DCS starts/stops one of the available DCS COLBAS tasks.

**CB Task**
Number of the COLBAS task whose operation mode is to be modified.

**Mode**
Requested operation modes:
- **RUN** Stops the COLBAS task if it is active, and starts it at the line number entered.
- **RESTART** Starts a COLBAS task only if it is inactive. If the task is active, the instruction is ignored.
- **STOP** Stops the task and prints a STOP message.
- **END** Stops the task without a message.

**COLBAS Line No.**
Line number at which the task is to be started by a RUN or RESTART instruction.

---

**Reaction CB**

**Reaction .**
No Reaction *(see the section below, Special Features)*
This option is only implemented for group reactions and maintenance reactions.
Group reactions (GRR) and maintenance reactions (MRR) include additional mechanisms that do not require a special reaction section:
- Group reactions include a device changeover mechanism for alternative or auxiliary devices.
- Maintenance reactions include an operating hours counter.
If reaction programs are used for such cases, the reaction entry should be set to "Reaction=.".

**Reaction PICT**
Automatic picture/point selection
When the reaction PICT is triggered, the VISONIK DCS automatically displays the selected picture in VISONIK-Insight.
The picture is only displayed if VISONIK Insight is free. Otherwise, it is saved until it is opened manually.

**Picture number**
Specification of the picture to be displayed.
In the case of reaction programs whose "reason" is a point change (GRR/SRR), the user can enter an "F" in the reaction entry instead of a fixed picture number. With this entry the picture that has been assigned to the respective "reason" address using the function COS,PICT (???) or the function PICT will be automatically displayed.
The PICT parameter contains the number of the picture on which a given point is displayed.

**Graphic devices**
VISONIK Insight, Output device number (T1..T15)
If a printer channel is selected as graphic device, the encoded picture number will be printed only.

1. **further address**
The VISONIK DCS executes the same reaction with the further addresses as with the address defined under "Reaction =". This feature allows for reaction entries to be economised.

n. **further address**
The user can assign up to four different further addresses to each reaction entry, provided the reaction is one that modifies point parameters (Reaction =UA/TA) or prints slave messages (Reaction =SLV).
Message mask

For each reaction entry, the user can use the message mask to define which output devices of the VISONIK DCS are to register the reaction:

<table>
<thead>
<tr>
<th>Message Mask</th>
<th>MSGDEV : ?</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSGDEV: M1</td>
<td></td>
</tr>
<tr>
<td>MM00: M1&amp;M2</td>
<td></td>
</tr>
<tr>
<td>MM15: M1&amp;M2</td>
<td></td>
</tr>
</tbody>
</table>

Message Mask = MSGDEV means that the reaction will be registered on the message devices that are listed according to message priority in the parameters DSM0..DSM3 (point type SY) of the point specified under "Reaction=".
The MSGDEV mask also takes device allocations with group reactions (alternative or auxiliary devices) into account.

2.16.3 LI, List Data Registers

The LI operation can be used to selectively list the reaction entries. The contents of the list can be filtered according to the following criteria:

• by address mask
• by entry numbers
• by reactions

If the reaction type CT, MC or CB is entered at the prompt "Reaction=?:", the user can make a finer selection according to text or task number.
The list of reaction entries can contain so-called "questionable status markers", which have the following meanings:

**?FL**

The blocking flag's value in the reaction entry does not correspond to the flag's current value, i.e. the entry is currently blocked.
Example for ?FL

$\text{d100'000...d100'377} / 7

\begin{tabular}{ll}
MSGP & 1 (=Message Priority) \\
Edge & 1 \\
Blocking Flag & BL'OC'KING"01 \\
\end{tabular}

\textbf{?FL\_\_\_GRR Blocked!\_\_\_\_}\hspace{1cm}(BL'OC'KING"01.RFL=Step 1)

\begin{tabular}{ll}
Reaction & PACH\_\_Change Point Parameter \\
Address & DO $\text{d100'041}$ \\
Parameter & DO\_\_Set Digital Output: Priority=0 \\
Value & 0=Off \\
Reporting & MSGDEV M1 \\
\end{tabular}

2.16.4 DEL, Delete Register Entry(ies)

The DEL operation can be used to selectively delete reaction entries. The entries to be deleted can be filtered according to the following criteria:

- by address mask
- by entry numbers
- by reactions

If the reaction type CT, MC or CB is entered at the prompt "Reaction=?:", the user can make a finer selection according to text or task number.

T8 08:25:12 Function=PNT : GRR

\begin{tabular}{ll}
Operation & =CH : DEL \\
Address Mask & =* : $\text{100*}$ \\
Enter & =* : * \\
Reaction & =. : $\text{100'041}$ \\
Accept Every Entry=Yes & =Yes \\
$\text{d100'040} / 4$
\end{tabular}

\begin{tabular}{ll}
Edge & 061 \\
Blocking Flag & BL'OC'KING"01 \\
Response & Off \\
Address & DO $\text{d100'041}$ \\
Parameter & DO\_\_Set Digital Output: Priority=0 \\
Value & 0=Off \\
Reporting & MSGDEV M1 \\
Delete & =No : Yes \\
\end{tabular}

\text{* * ENTRY ERASED * * >>o.k.!}

Recommendation: It is recommended that the option "Accept Every Entry =YES" should be set. With this setting each reaction entry to be deleted is listed completely at the operator terminal, and the user must acknowledge the deletion of each one manually in order to prevent inadvertent deletion.

If the option is not set, the VISONIK DCS automatically deletes all specified entries. The entries to be deleted are listed with their "reasons" and entry numbers at the operator terminal. The automatic deletion procedure can be aborted with Ctrl/P or Ctrl/E, if necessary.
### 2.16.5 LSTA, List Reaction Register State

This provides an overview of all Reaction Registers.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Register</th>
<th>Total Entries</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH</td>
<td>LSTA</td>
<td></td>
</tr>
</tbody>
</table>

#### Group Reactions
- GRR 1

#### Process Reactions
- PRR 7

#### Maintenance Reactions
- MRR 1

#### Time Reactions
- TRR 1

#### Step Reactions
- SRR 1

#### Date Reactions
- DRR 1

**Total** 12

### 2.16.6 LOCT, List Reaction Entries in Octal

The LOCT operation can be used to selectively list the reaction entries according to the same criteria as the LI operation. The normal list is followed by a printout of the same data in octal code.

#### Data List

<table>
<thead>
<tr>
<th>Edge</th>
<th>Reaction</th>
<th>Address</th>
<th>Parameter</th>
<th>Value</th>
<th>Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PACH___Change Point Parameter</td>
<td>DO  $d100'041</td>
<td>DO_____Set Digital Output: Priority=0</td>
<td>0=Off</td>
<td>MSGDEV M1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DSW/Offset</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>0/ 100</td>
<td>76</td>
</tr>
<tr>
<td>20/ 0</td>
<td>0</td>
</tr>
<tr>
<td>40/ 41</td>
<td>62052</td>
</tr>
<tr>
<td>60/ 0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Total**

**The list may be required by Landis & Staefa for diagnostic purposes.**
2.16.7 Special Features

**Edge**

The "Edge" here refers to the change in direction of FCON for any point within the related Address mask. A change of any fault condition from FCON=0 (normal) to FCON=1 (fault) corresponds to "Edge=1, and vice versa.

"Edge=." has a special significance. If option "Enable SRK (GRR) by every Event" has been incorporated by Landis & Staefa through Function SYS,PROJ then every relevant Event (=main value change) coming from points which have their "Edge=." declared as "Reason" in a GRR entry will trigger a message.

Such messages are necessary to inform coupled non-VISONIK (third party) systems about point changes in the VISONIK system.

**Alternative Device(s)**

According to their Message Priority, point status messages in general are output to the relative device mask as defined in parameters DevP0...DevP3.

Such messages can be diverted automatically to alternative terminals by using a Group Reaction Register (GRR). A the name suggests this is an alternative to all other output devices.

The user must set the prompt "Alternative Device(s) =" to the desired output terminal(s). If changeover to other device(s) is required once only "Reaction=." (No Reaction) must be set.

**Extra Device(s)**

According to their Message Priority, point status messages in general are output to the relative device mask as defined in parameters DevP0...DevP3.

Such messages can be output automatically to other extra devices by using a Group Reaction Register (GRR) entry. Unlike "Alternative Device(s)", outputs to "Extra Device(s)" are in addition to the normal devices.

The user must first set "Alternative Device(s) =." then define the required 'Extra' output terminal(s) and set "Reaction=." (No Reaction).

**Restrictions**

Please observe the following restrictions:

- Only either "Alternative devices" or "Extra devices" may be entered per Group Reaction entry.
- If a point address appears in more than one GRR entry, VISONIK DCS looks at the masks of ALL those entries containing that point address and accordingly outputs messages to the defined "Extra Device(s)".
2.17 KER KERMIT Protocol

To transfer ASCII files between two computer systems a standard transmission protocol is necessary. This means that the computers involved must be able to communicate in a standard understandable "language". This is not always easy because of different Operating Systems.

For this reason KERMIT was developed for American universities to meet the requirements of the most widely-used Operating Systems. This program provides a uniform transmission protocol between different computer systems and is known as "KERMIT Protocol".

If a PC is connected to VISONIK DCS through a V.24 interface as a partner system and it is required to transfer user files in ASCII format between these two systems, then KERMIT must be installed in both systems.

In VISONIK DCS this is the "KER" function and is only used in conjunction with other partner computer systems (e.g. PC).

The KERMIT program has a SERVER mode which "serves" the relative partner system only when it receives concrete instructions from the partner's KERMIT program.

The KER function in VISONIK DCS has only two SERVER modes i.e. files may be transferred to or from the host VISONIK DCS under control from the partner PC only.

For such transfers the following procedure must be carried out at the PC:
1. Start PC "KERMIT" program.
2. Establish Transparent Mode with VISONIK DCS.
3. Start VISONIK DCS "KERMIT" program (SERVER).
4. Terminate Transparent Mode with VISONIK DCS
5. Transfer files
6. Stop both KERMIT programs

2.17.1 Start PC "KERMIT" Program

KERMIT is started at the PC using an instruction set specific to the PC type involved and a Set-up defined to match the partner VISONIK DCS System (Baud rate, Port, etc.).

A Help menu can be called up by entering a question mark "?" after the KERMIT prompt. All instructions for running KERMIT on the particular PC are then displayed.

```
C:\ >KERMIT\KERMIT
IBM-PC Kermit-MS V2.28
Type ? for help
Kermit-MS>?
```

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BYE</td>
<td>CLEAR</td>
</tr>
<tr>
<td>CWD</td>
<td>DEFINE</td>
</tr>
<tr>
<td>DO</td>
<td>EXIT</td>
</tr>
<tr>
<td>HELP</td>
<td>LOCAL</td>
</tr>
<tr>
<td>PUSH</td>
<td>QUIT</td>
</tr>
<tr>
<td>RUN</td>
<td>SEND</td>
</tr>
<tr>
<td>SHOW</td>
<td>SPACE</td>
</tr>
<tr>
<td>TYPE</td>
<td>VERSION</td>
</tr>
<tr>
<td></td>
<td>CONNECT</td>
</tr>
<tr>
<td></td>
<td>DELETE</td>
</tr>
<tr>
<td></td>
<td>FINISH</td>
</tr>
<tr>
<td></td>
<td>GET</td>
</tr>
<tr>
<td></td>
<td>LOG</td>
</tr>
<tr>
<td></td>
<td>LOGOUT</td>
</tr>
<tr>
<td></td>
<td>RECEIVE</td>
</tr>
<tr>
<td></td>
<td>REMOTE</td>
</tr>
<tr>
<td></td>
<td>SERVER</td>
</tr>
<tr>
<td></td>
<td>SET</td>
</tr>
<tr>
<td></td>
<td>STATUS</td>
</tr>
<tr>
<td></td>
<td>TAKE</td>
</tr>
</tbody>
</table>

```
Kermit-MS>_
```
“EXIT” from the KERMIT program is the next step for an automatic return to the PC operating system.

Kermit-MS>EXIT
C:\>_

2.17.2 Establish Transparent Mode with VISONIK DCS

After starting KERMIT at the PC, a "Transparent Mode" must be established with the partner VISONIK DCS. This means that, from the operator point-of-view, the PC looks as if it is a directly connected VISONIK DCS terminal from which the system can be operated.

This mode is established by input of "CON" (abbreviation for "Connect") at the PC.

KERMIT acknowledges the action of this software link to VISONIK DCS, as follows:

Kermit-MS>CON

[Connecting to host, type Control-] C to return to PC]

- 

Esc chr: ^], Port: 2, Speed: 2400, Parity:None, Echo: Rem, Type ^}? for Help

"Connecting to host" means here that VISONIK DCS is the host system.

If necessary, return to the PC's KERMIT program by breaking off Transparent Mode with the VISONIK DCS.

2.17.3 Start VISONIK DCS "KERMIT" Program (SERVER)

After setting up Transparent Mode with VISONIK DCS it is now possible to carry out a dialogue as if the PC were a normal operating terminal.

Initial access to Function KER is opened through input of Crtl/P and by entering the abbreviation "KER". After terminating this input with <CR>, KERMIT now runs in VISONIK DCS, the SERVER comes into operation and is acknowledged by:

ctrl/P

T6 12:34:56 Function =PNT : KER
Kermit server running on VISONIK host
# N3

Esc chr: ^], Port: 2, Speed: 2400, Parity:None, Echo: Rem, Type ^}? for Help

If the dialogue is not immediately continued by terminating Transparent Mode, the PC displays character sequence "# N3" at the screen's left side after 75 seconds. This has no immediate effect on KERMIT operation. Only after a timeout of 1 minute in VISONIK is KERMIT stopped. This can be restarted again with Ctrl/P as described above.
2.17.4 Terminate Transparent Mode with VISONIK DCS

After starting KERMIT in VISONIK DCS, transparent mode must be terminated from the PC. This means that further action to transfer EKP files is carried out from the PC.

Re-entry into KERMIT operation at the PC is by simultaneously pressing "Ctrl" "]" followed by "Ctrl C".

This is acknowledged by the PC "KERMIT" prompt:

Kermit-MS>_

2.17.5 Stop KERMIT Programs

After finishing a file transfer, either further files may be transferred or the KERMIT programs stopped.

Instruction "BYE" through PC "KERMIT" stops both it own and VISONIK DCS "KERMIT" programs.

Kermit-MS>BYE

The PC returns to its Operating System.

Note

Instruction "EXIT" does not stop the VISONIK DCS "KERMIT" program, so "BYE" must always be used.
2.18 KEY Operator Key & Password Entries

To have access to a VISONIK system a user requires certain authorisation. Among other conditions, this right of access is related mainly to the "reading" (list only) or "writing" (list and/or change) parameters via "Functions".

This access authorisation may be compared to the ABILITY of clearing a hurdle of a certain height (Access Level) in order to reach a defined goal (Read, Write). The hurdle's HEIGHT is set by Landis & Gyr and is designated for parameters and Functions of a VISONIK DCS system by "Read level" or "Write level".

Authority of access is granted through an "Access Level". If this access level is equal to or greater than that of a certain "Read/Write" level then access is given.

With Function KEY a Landis & Gyr Systems Manager or a person who has responsibility for a VISONIK DCS project can make entries in the "Operator Key & Password" register to allocate a "Key Entry" to another User.

A user's identifiers are coded in such a "KEY" function and consist of the following:

- User Code
- User Name
- Expiry date
- Delete key after expiry
- Address range
- Flag
- Function level
  - Access rights to functions
- Parameter level
  - Access rights to parameters
- Operating Range
  - Access rights to a VISONIK DCS system either "locally" only or to a number of linked VISONIK DCS Systems, "global".
- Acknowledgment mark
  - Authority to acknowledge messages.
- Working Language
- Extra Device(s)
  - Authorisation for simultaneous "log-in/log-out" at several different operating terminals.
- Password

<table>
<thead>
<tr>
<th>Time</th>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>10:03:30</td>
<td>Function =PNT : ?</td>
</tr>
<tr>
<td>5/3</td>
<td>a01'b**&quot;****</td>
<td>John Brown /JB</td>
</tr>
<tr>
<td>0 0</td>
<td>BYE</td>
<td>Exit from Terminal</td>
</tr>
<tr>
<td>0 0</td>
<td>BCKP</td>
<td>Backup of Shadow</td>
</tr>
<tr>
<td>0 0</td>
<td>MEMO</td>
<td>Messages to Terminals</td>
</tr>
<tr>
<td>1 1</td>
<td>XX</td>
<td>Change Working Language</td>
</tr>
<tr>
<td>2 2</td>
<td>PNT</td>
<td>Change/List Point Parameters</td>
</tr>
<tr>
<td>3 5</td>
<td>TRR</td>
<td>Time Reaction register</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>10:03:39</td>
<td>Function =PNT : _</td>
</tr>
</tbody>
</table>
The above example shows a help listing of Functions (Function =PNT : ?) which concern the currently "logged-in" User.

The first listed line shows, from left to right:

- **Function level**, e.g. 5/
- **Parameter level**, e.g. /3
- **Address Range**, e.g. a01'b********
- **User’s name** with code, e.g. John Brown /JB

Following this, the listing continues showing those functions to which the user (John Brown) has access. These levels are numbers placed in front of the relative abbreviated Function’s name. The left and right hand numbers refer to the "read/write" levels respectively.

To each entry in the "KEY" register (see operation LI), VISONIK DCS automatically adds the following data:
- The terminals at which the user is logged in.
- Date of entry
- The second last/last date of access to the system.

### 2.18.1 "KEY" Function Entry and Handling

**Function call-up**

CTRL/P KEY

**Main menu**

VISONIK DCS offers the following possibilities (Operations) for handling access rights in the "KEY" register:

<table>
<thead>
<tr>
<th>ctrl/P</th>
<th>T4</th>
<th>00:13:40</th>
<th>Function =PNT : KEY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation =CH : ?</td>
<td>0  CH = Change Data Entry</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1  LI = List Data Registers</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2  DEL = Delete Register Entry(ies)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operation =CH : _</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 2.18.2 CH, Change Data Entry

Operation CH is used to change "KEY" entries or to make new ones.
### 2.18.2.1 New Entry

To make a new "KEY" entry an authorised user has to specify the following conditions:

<table>
<thead>
<tr>
<th>Operation</th>
<th>User Code: JB</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Entry:</td>
<td>--------------</td>
</tr>
<tr>
<td>User Name:</td>
<td>John Brown</td>
</tr>
<tr>
<td>User Code:</td>
<td>JB</td>
</tr>
<tr>
<td>Expiry Date:</td>
<td>31-Dec-99</td>
</tr>
<tr>
<td>Delete Key after expiry:</td>
<td>YES</td>
</tr>
<tr>
<td>Address Range:</td>
<td>(UA, TA, EKL, ...)</td>
</tr>
<tr>
<td>Address Range:</td>
<td>A00'A1'22&quot;AAAA</td>
</tr>
<tr>
<td>Address Range:</td>
<td>$eee</td>
</tr>
<tr>
<td>Address Range:</td>
<td>...=special range</td>
</tr>
<tr>
<td>Address Range:</td>
<td>*=all</td>
</tr>
<tr>
<td>Address Range:</td>
<td>: a01'b*</td>
</tr>
<tr>
<td>Flag:</td>
<td>$0'000:</td>
</tr>
<tr>
<td>Flag:</td>
<td>(UA, TA)</td>
</tr>
<tr>
<td>Function Level:</td>
<td>4</td>
</tr>
<tr>
<td>Parameter Level:</td>
<td>3</td>
</tr>
<tr>
<td>Operating Range:</td>
<td>Local</td>
</tr>
<tr>
<td>Operating Range:</td>
<td>(Local, Global): Local</td>
</tr>
<tr>
<td>Working Language:</td>
<td>1</td>
</tr>
<tr>
<td>Working Language:</td>
<td>(0..2):</td>
</tr>
<tr>
<td>Extra Device(s):</td>
<td>T3&amp;T4</td>
</tr>
<tr>
<td>New Password:</td>
<td>min. 3 characters!</td>
</tr>
<tr>
<td>Check Password:</td>
<td>ok!</td>
</tr>
</tbody>
</table>

#### Explanation of Entries

**User Code**

A User Code uniquely addresses a KEY entry. For the user code, 2,3 or 4 characters are accepted.

**Caution:**

DCS and VISONIK Insight both are case-sensitive. **This, however, is not true for DESIGO INSIGHT!**

We thus recommend to enter the user code in either just small letters or just capital letters to avoid conflicts in DESIGO INSIGHT.

**User Name**

Up to 21 characters can be used for name.
Expiry Date

The relative user's access expires on the specified date. In a KEY register listing this is noted by "Access Expired!"

If an attempt is made to log in after an expiry date the message "Access Expired!" is given together with the actual time and terminal number.

Delete Key after expiry

The answer (NO/YES) says whether or not the System shall automatically delete the "KEY" entry after expiry. The text "Delete Key after expiry" always appears in the listing until deletion.

Even if "Delete Key after expiry =NO", user access is no longer valid after the specified expiry date.

Address Range

Address mask/range for which the access is valid.

If access to addresses is restricted by a "User Address" mask rather than a "Technical Address" mask the relative user has no access to points having Technical Addresses only.

Flag

The Flag point defined here changes its main value to
- FL=1 upon user log-in, and to
- FL=0 upon log-out.

(Used in Reaction programs PRR and SRR or as a Blocking Flag).

Function Level=(0..7), ??

This is where the person who is generating a new key can specify the named user's "read/write level" of Functions.

Function levels 0..5 are available for VISONIK DCS system users.

A system user cannot generate a new key with higher access levels than his own. Input of "??" calls up a listing of all permissible Functions together with their associated read/write levels.

Function Level=0: ?
Function Level=(0..7), ??: ??

0 0 BYE   Exit from Terminal
0 0 BCKP  Backup of Shadow
0 0 MEMO  Messages to Terminals
1 1 XX    Change Working Language
2 2 PNT   Change/List Point Parameters
3 5 TRR   Time Reaction Register

Unauthorised access is reported automatically and shows the user's (too low) level and the level required for the relative Function.

Ctrl/P

T1 00:32:31 Function =PNT : PAT
   00:32:34 ?Function Access not permitted  5<7  T1
T4 00:32:34 Function =PAT : _
This is where the person who is generating a new key can specify the named user’s read/write level; of parameters. Parameter levels (0..5) are available for VISONIK DCS operators.

A system user cannot generate a new key with higher parameter access levels than his own. Input of “??” calls up a listing of all permissible parameters together with their associated read/write levels.

### Parameter Level=0: ?

<table>
<thead>
<tr>
<th>Parameter Level=(0..7), ??: ??</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 1 FL Flag Position</td>
</tr>
<tr>
<td>1 1 FLI1 FL Influence 1</td>
</tr>
<tr>
<td>1 1 RVAL Resultant Value</td>
</tr>
<tr>
<td>1 1 XX Message Language</td>
</tr>
<tr>
<td>2 2 PAGE Page Number</td>
</tr>
<tr>
<td>2 2 TY Terminal Status</td>
</tr>
</tbody>
</table>

VISONIK DCS automatically reports any illegal parameter access.

```
ctrl/P
T1  00:42:46 Function =PNT : a01'b2'ST
    ST  a01'b2'ST Status OFF
Parameter =ST :
10:56:29 No Parameter Access!
3 3 TERS /Term. Suppressed =NO _
```

### Operating Range

This defines whether the new key can operate on one (Local) VISONIK DCS system or if access is allowed to several linked (Global) VISONIK DCS systems. Only a user with a global operating range can give global access to another key.

### Working Language

A VISONIK DCS system can be operated in more than one language. At this point one of the configured languages can be specified for the named user. At "log-in" the VISONIK DCS system will automatically switch over to the user's specified language.

- Language=0: German
- Language=1: First additional language
- Language=2: Second additional language

Irrespective of which language is specified in the "KEY" function, once a user is logged in, changeover to another configured language is possible at any time through Function XX or with Parameter XX. A language selected in this way remains active even after the current user logs out.
Extra Device(s)  
When the specified named user logs in or out at a VISONIK DCS system a record is made on the "Extra Device(s)" specified, under the following conditions:
- A log-out record at an "Extra" terminal can only be made if that terminal is not occupied by another user.
- A log-in record at an "Extra" terminal can only made if it is not in dialogue mode and its operator timeout parameter ATMO<>0. Parameter ATMO has priority, i.e. if a log-in is recorded at an "Extra" terminal and its relative ATMO expires, log-out occurs automatically.

If an "Extra" terminal's parameter ATMO=0 (unlimited access time) a user must log-out directly at such a terminal with "BYE".

Selecting "Extra" Device(s) makes sense if there are several operating terminals in the same room and saves a user entering his password at each terminal separately in order to operate the VISONIK DCS system.

New Password  
At this point the operator who is generating the new key can enter a password for the named user.
A password must contain
between 3 and 7 characters
and is terminated
with <CR>. There is no echo to a password entry.

RECOMMENDATION  
At any time a user can change his own password without using Function KEY. This is carried out by entering a question mark "?" directly after logging on with the current password. This question mark is terminated with <CR> and a new password may be specified (without echo).

<table>
<thead>
<tr>
<th>User Code:</th>
<th>JB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Password:</td>
<td>Alpha?</td>
</tr>
<tr>
<td>New Password:</td>
<td>BeTa</td>
</tr>
<tr>
<td>Check Password:</td>
<td>BeTa</td>
</tr>
</tbody>
</table>

If a password does not meet the system conditions then the text "Illegal Password defined" appears in the listing of "KEY" entries.

Check Password  
This is for checking the above mentioned new password by repeating it and terminating with <CR>. If the repeated "Check Password" is not the same, VISONIK DCS requests a new password. If the repetition is in order the system responds with "ok!".
2.18.2.2 Change Data Entry

The authorised user may change any "KEY" entry whose Function level is equal to, or less than, his own Function level.

To change a "KEY" entry the user must enter the relative User Code. For checking purposes, VISONIK DCS outputs a complete listing of this KEY entry. The user is in a change mode in which the entry can be either deleted or each entry section may be changed, or confirmed, in steps.

A "KEY" entry is then changed whenever any one of these steps is terminated by <CR>. The operator need not continue to the entry end but can conclude the dialogue with Ctrl/E.

```
Operation=CH  :
User Code:          JB
John Brown /JB
  Function Level   = 4
  Parameter Level  = 3
  Operating Range  = Local
  Working Language = 1
  Address Range    = a01'b*'**
  Flag Address     = $FL77
  Active Devices   = .
  Extra Device(s)  = T3&T4
  Created by       = L&G System Manager
  Date of Entry    = 05-Dec-95
  Last Access      = 12-Dec-95 / 15-Dec-95
  Expiry Date      = 31-Dec-99

Delete Key after expiry
```

The access authority of a user who is currently operating on the system cannot be changed and on listing the associated entry the following message is output. Only the specified language, the “Extra Device(s)” and password can be redefined:

```
13:49:12 ?Operator using System                              T1
```

Such a changed entry is only valid after the related active user is logged out from the System (either with Function BYE or timeout of ATMO).
To change other entries the related named user must be logged out from the operating terminal. If this is not possible, for example, if the terminal is faulty the terminal must be set to Out of Service with OSV=YES.
2.18.3 LI, List Data Registers

Operation LI allows a User to list all "KEY" entries. By specifying one of the (*/%) masks against "User Name (*/%):" a selective listing of "KEY" entries can be obtained.

<table>
<thead>
<tr>
<th>Operation=LI :</th>
<th>User Name (<em>/%): Jo</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>John Brown /JB</td>
<td></td>
</tr>
</tbody>
</table>

Function Level  = 4  
Parameter Level  = 3  
Operating Range  = Local  
Working Language = 1  
Address Range    = a01'b*'**  
Flag Address     = $FL77  
Active Devices   = .  
Extra Device(s)  = T3&T4  
Created by       = L&G System Manager  
Date of Entry    = 05-Dec-95  
Last Access      = 12-Dec-95 / 15-Dec-95  
Expiry Date      = 31-Dec-99

Delete Key after expiry

Input of "J*" provides a listing of all KEY entries which begin with "J".  
The form of such a listing is the same as "KEY,CH".
2.18.4 Delete Register Entry(ies)

An authorised user may delete any "KEY" entry whose Function level is equal to, or less than, his own Function level.

To delete a "KEY" entry the operator must enter the relative 'User Code'
(his own code is not accepted - "Operator using System").
For checking purposes, VISONIK DCS outputs a complete listing of this entry on the operating terminal. On answering the prompt "Delete Entry" with YES the entry is deleted.

| Operation=LI : | DEL |
| User Code:     | JB  |
| John Brown /JB |
| Function Level = 4 |
| Parameter Level = 3 |
| Operating Range = Local |
| Working Language = 1 |
| Address Range = a01'b** |
| Flag Address = $FL77 |
| Active Devices = . |
| Extra Device(s) = T3&T4 |
| Created by = L&G System Manager |
| Date of Entry = 05-Dec-95 |
| Last Access = 12-Dec-95 / 15-Dec-95 |
| Expiry Date = 31-Dec-99 |

Delete Key after expiry
Delete Entry=No : YES

* * E N T R Y E R A S E D * *

The 'KEY' entry of an active user cannot be deleted. If selected the system responds with:

13:49:12 ?Operator using System T1
2.19 MEMO Message to Terminals

Using the MEMO function,
- any kind of text, or
- a specific clear text from the (TXCM,C) text register
may be directed to one or several message channels.

Output device
Depending on what is connected to the specific message channel, the text will either be
output as a composite message directly on an output terminal (printer, display terminal,
etc.) or the messages may be transmitted onward to other VISONIK systems (in
VISONIK Link System).
This type of "memo" message is handled internally in the same way as a normal
message, i.e. the text is first deposited in a circular message buffer (CMB) before it is
output to the specified message channel.

2.19.1 Initial Access and Handling

<table>
<thead>
<tr>
<th>Function call-up</th>
<th>CTRL/P MEMO</th>
</tr>
</thead>
<tbody>
<tr>
<td>ctrl/P T4 10:58:27 Function =PNT : MEMO</td>
<td></td>
</tr>
<tr>
<td>Message Channel=M4: M1</td>
<td></td>
</tr>
<tr>
<td>Message: Please call maintenance department! okay</td>
<td></td>
</tr>
</tbody>
</table>

Description:
An entry is now made which defines the message channel(s) to carry the "memo".
One or more message channels may be selected (M1..M15).
Message channels are logical identifiers for data interfaces to the outside world.

Message channel
The allocation of physical devices (printer, display terminal, etc.) takes
place through the message channel point parameter MEPS (Point
Type 'MC') in the process image.

Message
The following two variations are valid as entries:
- any text
The text may not begin with a "#" character and may not exceed one line length
(maximum 60 characters)
or
- a clear text register number
Clear text numbers must begin with a "#" character followed by a text number from
the register.

The following examples illustrate how a message is sent from terminal T4 to a printer
T1, connected to message channel M1.

Transmitting freely chosen text
| ctrl/P T4 10:58:27 Function =PNT : MEMO |
| Message Channel=M4: M1 |
| Message: Please call maintenance department! okay |
Message at printer T1:

MEMO 13:21:04 Message from T4 to T1
Please call maintenance department!

Transmitting Text from Clear Text Register:

<table>
<thead>
<tr>
<th>ctrl/P</th>
</tr>
</thead>
<tbody>
<tr>
<td>T4 10:58:27 Function =PNT : MEMO</td>
</tr>
<tr>
<td>Message Channel=M4: M1</td>
</tr>
<tr>
<td>Message: #244 okay</td>
</tr>
</tbody>
</table>

#244 is the line number in the clear text register

Message at printer T1:

MEMO 13:21:04 Message from T4 to T1
Please call maintenance department!
Tel. No. 042 / 33 45 45

This example involves a multiple line message which has been entered in the Clear Text Register under line number 244 and 245.

2.19.2 Acknowledgment of Successful Message Transfer

**OK Message**

At the finish of 'MEMO' dialogue and after the message text has been successfully deposited in the CMB (message buffer) an acknowledgment of 'ok' is output on the sending terminal. Depending on the related message channel's current status the message will either be forwarded immediately or will remain in the CMB until the message channel state is 'normal'.

**Acknowledgment**

A message is output on the receiving terminal together with details about the sender.

- **PIPS=0..3**  
  Upon receipt of a message, an acoustic signal sounds periodically. the operator must acknowledge it by pressing any key on the keyboard.

- **PIPT=4**  
  There is no acoustic signal.
2.20 MRR Maintenance Reaction Register

2.20.1 Initial Access and Handling

Function call-up

CTRL/P MRR

General

A general introduction to the subject of VISONIK reactions can be found under "Reactions in General" in section R of this manual.
The maintenance reaction register MRR is one of six reaction types provided by the VISONIK DCS. The reaction types are named after the "reason" that is to activate the reaction in each case.

Each reaction entry consists of the following three parts:
- "reason" that activates the reaction
- Blocking flag that can disable a reaction
- Reaction to be executed

What can the MRR do?
The maintenance reaction function:
- execute reactions, or
- count operating hours.

MRR reasons
- Expiry of a specific hourly count
- Specific date reached.

MRR reactions
- Change a point parameter
- Print a clear text message
- Execute macro commands
- Print slave messages
- Start or stop COLBAS tasks
- Automatic picture selection in VISONIK Insight and especially for MRR
- No reaction, rather operational status count

Main menu
When the maintenance reaction function is selected, the VISONIK DCS offers the user the following possibilities:

<table>
<thead>
<tr>
<th>T8</th>
<th>11:48:12</th>
<th>Function=PNT : MRR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation</td>
<td>=CH</td>
<td>?</td>
</tr>
<tr>
<td>0 CH</td>
<td>Change Data Entry</td>
<td></td>
</tr>
<tr>
<td>1 LI</td>
<td>List Data Registers</td>
<td></td>
</tr>
<tr>
<td>2 DEL</td>
<td>Delete Register Entry(ies)</td>
<td></td>
</tr>
<tr>
<td>3 LSTA</td>
<td>List Reaction Register State</td>
<td></td>
</tr>
<tr>
<td>4 LOCT</td>
<td>List Reaction Entries in Octal</td>
<td></td>
</tr>
</tbody>
</table>

Operation =CH :
Example: Maintenance reaction entry

<table>
<thead>
<tr>
<th>T8</th>
<th>11:48:12 Function=PNT : MRR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation</td>
<td>=CH :</td>
</tr>
<tr>
<td>Reason</td>
<td>=(UA, TA): $100'041</td>
</tr>
<tr>
<td>Entry</td>
<td>=(1) 4 :</td>
</tr>
<tr>
<td>Status</td>
<td>:</td>
</tr>
<tr>
<td>Accumulated Tot.</td>
<td>=0 :</td>
</tr>
<tr>
<td>Maint. Hours</td>
<td>=. : 1000</td>
</tr>
<tr>
<td>Maint. Date</td>
<td>=. : .</td>
</tr>
<tr>
<td>Automatic Reset</td>
<td>=No : Yes</td>
</tr>
<tr>
<td>Blocking Flag</td>
<td>=No :</td>
</tr>
<tr>
<td>Blocking Flag</td>
<td>=:</td>
</tr>
<tr>
<td>Flag Value</td>
<td>=Off : ?</td>
</tr>
<tr>
<td>Flag Value</td>
<td>=(&amp;$,.,*,+,-,=-,Off,Step 1,Step 2,Step 3) :</td>
</tr>
<tr>
<td>Reaction</td>
<td>=(UA, TA): ?</td>
</tr>
<tr>
<td>UA/TA = Change Point Parameter</td>
<td></td>
</tr>
<tr>
<td>CT = Printout Cleartext</td>
<td></td>
</tr>
<tr>
<td>MC = Issue MACRO Command</td>
<td></td>
</tr>
<tr>
<td>SLVM = Output Slave Message</td>
<td></td>
</tr>
<tr>
<td>CB = Start/Stop COLBAS Task</td>
<td></td>
</tr>
<tr>
<td>. = No Reaction (for MRR &amp; GRR)</td>
<td></td>
</tr>
<tr>
<td>PICT = Auto Picture/Point Selection</td>
<td></td>
</tr>
<tr>
<td>Reaction</td>
<td>=(UA, TA): $100'040</td>
</tr>
<tr>
<td>Parameter</td>
<td>=DO :</td>
</tr>
<tr>
<td>Set Digital Output: Priority=0 =Off :</td>
<td></td>
</tr>
<tr>
<td>1.Further Address</td>
<td>=. :</td>
</tr>
<tr>
<td>Message Mask</td>
<td>=MSGDEV : ?</td>
</tr>
<tr>
<td>MSGDEV:</td>
<td>M1</td>
</tr>
<tr>
<td>MM00:</td>
<td>M1&amp;M2</td>
</tr>
<tr>
<td>MM01:</td>
<td>M1&amp;M2</td>
</tr>
<tr>
<td>MM15:</td>
<td>M1&amp;M2</td>
</tr>
<tr>
<td>Message Mask</td>
<td>=MSGDEV :</td>
</tr>
</tbody>
</table>

2.20.2 CH, Enter/Change Data

2.20.2.1 Changing an existing MRR entry

In order to change data in a reaction entry it must first be selected via its "reason" and entry number. If the entry exists, it is listed completely for checking at the operating terminal. The edit mode then becomes active, so that the user can modify or confirm each part of the reaction entry step by step.

Important:

A reaction entry is not changed (and re-saved) in the system until every step of this dialogue has been completed, i.e. after the last prompt for "Message Mask" has been answered. In all other cases, e.g. if the dialogue is exited with Ctrl/P or Ctrl/E, any changed data will be lost.
2.20.2.2 Creating a new maintenance reaction entry

For a new maintenance entry, the following prompts must be answered:

**Definition of the “reason”**
User or technical address of the point triggering the reaction.
Points of all types may be used as “reasons”.

**Entry**
The VISONIK DCS sorts the reaction entries according to their "reasons" and automatically allocates a number to each entry per "reason".
A reaction entry can only be identified unambiguously with its entry number.

**Status**
Information about the point involved that has to be taken into account for hour counts.
A point is "in maintenance" when:
- it is in one or more specific states (ERSTA parameter) for a specified number of hours, or
- a specified maintenance date has been reached.

**Current counter**
The maintenance counter is now updated in the following cases:
- System crash
- Ring outage or process station defect
- Module missing or defective
- Point is out of service or suppressed.

**Maintenance / hours**
If a point either reaches the hours specified in the maintenance reaction register ("Maintenance/Hours =") or reaches the date entered there ("Maintenance/Date="), then the point is in "maintenance". From this point in time it is shown in the maintenance report (RPR,MRPT function).

**Automatic reset**
Information about whether the hours counter should be automatically reset to 0 upon reaching the "in maintenance" state.

**Cyclic message**
Information about whether the maintenance message should be repeated each midnight for still-running hours counters.

**Cyclic reaction**
Information about whether the maintenance reaction should be reinitiated each midnight for still-running hours counters.

**Definition of additional conditions (blocking flag)**
A flag point with address and value(s) can be assigned to each reaction entry.
This blocking flag constitutes an additional condition that must be fulfilled before the reaction is executed.

A reaction entry is said to be **blocked** if the current value of the flag does not correspond to a value belonging to the entry.

<table>
<thead>
<tr>
<th>Blocking Flag</th>
<th>Flag Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blocking Flag</td>
<td>= $F10</td>
</tr>
<tr>
<td>Flag Value</td>
<td>= Off</td>
</tr>
<tr>
<td>Flag Value</td>
<td>= (&amp;,.,*,−,+≡,−≡,Off,Step 1,Step 2,Step)</td>
</tr>
</tbody>
</table>

**Flag value**
A specific value or a combination of several values can be entered for the flag value.
In the above example, the reaction entry is executed only if the "reason" is fulfilled and flag $F10 has the value 1,Step or 2,Step at that time.
In all other cases the reaction entry is blocked, and the reaction is not executed.
Definition of the reaction to be executed
The following reactions can be triggered via a maintenance reaction entry:

<table>
<thead>
<tr>
<th>Reaction</th>
<th>UA/TA: ?</th>
</tr>
</thead>
<tbody>
<tr>
<td>UA/TA</td>
<td>Change Point Parameter</td>
</tr>
<tr>
<td>CT</td>
<td>Printout Cleartext</td>
</tr>
<tr>
<td>MC</td>
<td>Issue MACRO Command</td>
</tr>
<tr>
<td>SLVM</td>
<td>Output Slave Message</td>
</tr>
<tr>
<td>CB</td>
<td>Start/Stop COLBAS Task</td>
</tr>
<tr>
<td>.</td>
<td>No Reaction (for MRR &amp; GRR)</td>
</tr>
<tr>
<td>PICT</td>
<td>Auto Picture/Point Selection</td>
</tr>
</tbody>
</table>

**Reaction UA/TA**
Address of the data point on which the reaction is to act. The following inputs are permissible:
- Technical address or $* masks
- User address or $* masks
- All addresses, including CT to PICT, by entering "." ()

**Parameter**
Specify the parameter to be modified.

**Parameter value**
In the example "Set Digital Output: Priority=0 :" The following possibilities are available for entering the parameter value:
- A fixed value is assigned to the selected parameter.
- A priority is assigned to the resultant output values RDO of switch command points DO.
  - Modification of the parameter DO1 or DO2 with its respective bit influence DO1ACT or DO2ACT.
  - Selective setting of a single bit influence in DO1ACT or DO2ACT.
  - Selective setting of all bit influences in DO1ACT or DO2ACT.
The above statements apply analogously to flag points.
- **RVAL**: The resultant setpoint of a switch command RDO or of a flag point RFL is set to the last effective value, e.g. after a power failure.
- **SAME**: When the reaction is triggered, the parameter value of the reaction address is set the SAME as the main value of a selectable data point.
The data point can be specified at the "FNT /Address" () prompt.
- **INV**: When the reaction is triggered, the parameter value of the reaction address is set to the INVERSE of the main value of a selectable data point. The respective values are interpreted as Boolean variables.
The data point can be specified at the "FNT /Address" () prompt.

**Note on additional information sources:**
- More detailed information and appropriate examples can be found in the chapter "Reactions" in tab "R" of this manual.
- Information on the subject of "bit influence" can be found in the descriptions of the parameters RDO,DO,DO1,DO2 and RFL,FL,FL1,FL2.

**Reaction CT**
When the reaction is triggered, the VISONIK DCS prints a specific clear text message in the defined message mask; the message appears in the language that is defined for the respective device with the parameter XX.

**Number**
Number of the clear text message in the text register TXCM,C.
### Reaction MC

<table>
<thead>
<tr>
<th>Macrotext number</th>
<th>Language</th>
<th>Output device</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of the macro text.</td>
<td>Language of the macro text register.</td>
<td>Output device (STA, M1..M15) at which the text is to be printed.</td>
</tr>
</tbody>
</table>

### Reaction SLVM

Print slave messages.

The VISONIK DCS normally only prints spontaneous messages if the status of a point changes in the peripheral equipment (\(\mathcal{P}\)).

An SLVM reaction is required in order to force point messages (e.g. cyclic polling of a temperature using a date reaction).

When the reaction is triggered, the VISONIK DCS reports the main value of the point in the defined message mask, without the point status having changed.

Slave messages have an exclamation mark before the timestamp in the message line.

### Reaction CB

<table>
<thead>
<tr>
<th>CB Task</th>
<th>Mode</th>
<th>COLBAS Line No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The VISONIK DCS starts/stops one of the available DCS COLBAS tasks.</td>
<td>Number of the COLBAS task whose operation mode is to be modified.</td>
<td>Line number at which the task is to be started by a RUN or RESTART instruction.</td>
</tr>
</tbody>
</table>

#### Mode

- **RUN** Stops the COLBAS task if it is active, and starts it at the line number entered.
- **RESTART** Starts a COLBAS task only if it is inactive. If the task is active, the instruction is ignored.
- **STOP** Stops the task and prints a STOP message.
- **END** Stops the task without a message.

### Reaction .

No Reaction (MRR/GRR)

This option is only implemented for group reactions and maintenance reactions.

Group reactions (GRR) and maintenance reactions (MRR) include additional mechanisms that do not require a special reaction section:

- Group reactions include a device changeover mechanism for alternative or auxiliary devices.
- Maintenance reactions include an operating hours counter.

If reaction programs are used for such cases, the reaction entry should be set to "Reaction=.”.

### Reaction PICT

Automatic picture/point selection

When the reaction PICT is triggered, the VISONIK DCS automatically displays the selected picture in VISONIK-Insight.

The picture is only displayed if VISONIK Insight is free. Otherwise, it is saved until it is opened manually.

#### Picture number

Specification of the picture to be displayed.

In the case of reaction programs whose "reason" is a point change (MRR/SRR), the user can enter an "F" in the reaction entry instead of a fixed picture number. With this entry the picture that has been assigned to the respective "reason" address using the function COS,PICT () or the function PICT will be automatically displayed.

The PICT parameter contains the number of the picture on which a given point is displayed.

#### Graphic devices

VISONIK Insight, Output device number (T1..T15)

If a printer channel is selected as graphic device, the encoded picture number will be printed only.
The VISONIK DCS executes the same reaction with the further addresses as with the address defined under "Reaction =". This feature allows for reaction entries to be economised.

The user can assign up to four different further addresses to each reaction entry, provided the reaction is one that modifies point parameters (Reaction =UA/TA) or prints slave messages (Reaction =SLV).

For each reaction entry, the user can use the message mask to define which output devices of the VISONIK DCS are to register the reaction:

<table>
<thead>
<tr>
<th>Message Mask</th>
<th>MSGDEV : ?</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSGDEV: M1</td>
<td></td>
</tr>
<tr>
<td>MM0: M1&amp;M2</td>
<td></td>
</tr>
<tr>
<td>MM15: M1&amp;M2</td>
<td></td>
</tr>
</tbody>
</table>

Message Mask =MSGDEV means that the reaction will be registered on the message devices that are listed according to message priority in the parameters DSM0..DSM3 (point type SY) of the point specified under "Reaction=".

The MSGDEV mask also takes device allocations with group reactions (alternative or auxiliary devices) into account.
2.20.3 LI, List Data Registers

The LI operation can be used to selectively list the reaction entries. The contents of the list can be filtered according to the following criteria:

- by reason address
- by entry numbers
- by reactions

If the reaction type CT, MC or CB is entered at the prompt "Reaction=?:", the user can make a finer selection according to text or task number.

---

FZT8 11:31:16 Function=PNT : MRR
Operation =CH : LI
Reason =.. : ..
Entry =* : *
Reaction =.. :..

MRR 11:31:29 Start of DATA - LIST 14.08.1996/We

DO $d100'040 / 2
  Status On
  Maintenance 34h
  Accumulated Tot. 16h35
  Automatic Reset No
  Report Cycle No
  Reaction Cycle No
  Reaction PACH_Change Point Parameter
  Address AI $d100'100
  Parameter OPMO_Operating Mode
  Value 6=PSe
  Reporting MSGDEV M1

DO $d100'040 / 4
  Status On
  Maintenance 46h
  Accumulated Tot. 0h00
  Automatic Reset No
  Report Cycle No
  Reaction Cycle No
  Blocking Flag BL'OC'KING"01
  Off

?FL_____MRR Blocked!________(BL'OC'KING"01.RFL=Step 1)
  Reaction PACH_Change Point Parameter
  Address DO $d100'041
  Parameter DO___Set Digital Output: Priority=0
  Value 0=Off
  Reporting MSGDEV M1

MRR 11:31:31 End of DATA - LIST 14.08.1996/We
The list of reaction entries can contain so-called "questionable status markers", which have the following meanings:

?FL

The blocking flag's value in the reaction entry does not correspond to the flag's current value, i.e. the entry is currently blocked.

?REAR

This system-internal tag ("Reason for Reaction") denotes that the "reason" for a process or maintenance reaction has not been set although a reaction entry exists.

The VISONIK DCS manages this "REAR" tag in the reaction programs, ensuring optimum and fast reaction access. If this tag is not present, no process reactions will be executed as a result of this "reason". Errors of this kind are corrected automatically when the register is printed or when the function VE (verify data file) is executed.

Example for ?FL

```
DO $d100'040 / 4
   Status          On
   Maintenance     46h
   Accumulated Tot. 0h00
   Automatic Reset No
   Report Cycle    No
   Reaction Cycle  No
   Blocking Flag   BL'O'C'KING"01 Off

?FL_____MRR Blocked!________(BL'O'C'KING"01.RFL=Step 1)
   Reaction       PACH_Change Point Parameter
   Address        DO $d100'041
   Parameter      DO___Set Digital Output: Priority=0
   Value          0=Off
   Reporting      MSGDEV M1

MRR 11:31:31 End of DATA - LIST 14.08.1996/We
```
2.20.4 DEL, Delete Register Entry(ies)

The DEL operation can be used to selectively delete reaction entries. The entries to be deleted can be filtered according to the following criteria:

- by reason address
- by entry numbers
- by reactions

If the reaction type CT, MC or CB is entered at the prompt “Reaction=?;”, the user can make a finer selection according to text or task number.

```
T8 08:52:45 Function=PNT : MRR
Operation =CH : DEL
Reason =.. : $100'041
Entry =* : 3
Reaction =.. : ..
Accept Every Entry=Yes : Yes
DO $d100'041 / 3

Status On
Maintenance 46h
Accumulated Tot. 0h00
Automatic Reset No
Report Cycle No
Reaction Cycle No
Reaction PACH_Change Point Parameter
Address AI $d100'100
Parameter OPMO_Operating Mode
Value 6=PSe
Reporting MSGDEV M1
Delete =No : Yes

  * * E N T R Y   E R A S E D * *   >>o.k.!
```

Recommendation: It is recommended that the option “Accept Every Entry =YES” should be set. With this setting each reaction entry to be deleted is listed completely at the operator terminal, and the user must acknowledge the deletion of each one manually in order to prevent inadvertent deletion.

If the option is not set, the VISONIK DCS automatically deletes all specified entries. The entries to be deleted are listed with their “reasons” and entry numbers at the operator terminal. The automatic deletion procedure can be aborted with Ctrl/P or Ctrl/E, if necessary.


## 2.20.5 LSTA, List Reaction Register State

This provides an overview of all Reaction Registers.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Register</th>
<th>Total Entries</th>
</tr>
</thead>
<tbody>
<tr>
<td>=CH</td>
<td>LSTA</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group Reactions</td>
<td>GRR 5</td>
<td></td>
</tr>
<tr>
<td>Process Reactions</td>
<td>PRR 6</td>
<td></td>
</tr>
<tr>
<td>Maintenance Reactions</td>
<td>MRR 1</td>
<td></td>
</tr>
<tr>
<td>Time Reactions</td>
<td>TRR 1</td>
<td></td>
</tr>
<tr>
<td>Step Reactions</td>
<td>SRR 1</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>14</td>
<td></td>
</tr>
</tbody>
</table>

## 2.20.6 LOCT, List Reaction Entries in Octal

The LOCT operation can be used to selectively list the reaction entries according to the same criteria as the LI operation. The normal list is followed by a printout of the same data in octal code.

```text
T8 08:55:48 Function=PNT : MRR
Operation =CH : LSTA
Register | Total Entries
-----------|---------------|
Group Reactions | GRR 5 |
Process Reactions | PRR 6 |
Maintenance Reactions | MRR 1 |
Time Reactions | TRR 1 |
Step Reactions | SRR 1 |
Total | 14
```

The list may be required by Landis & Gyr for diagnostic purposes.
2.20.7 Special Features

Reaction "="

If no reaction ("Reaction=") is defined in a maintenance reaction register, then this entry is
• taken as a pure operating-hours counter automatically supplemented by:
  – an error counter
  – a daily counter
  – if required, a reference to the COLBAS Pool.

Error Counter

During a system breakdown the Maintenance Reaction program cannot clock the time. This leads to a false operating-hours count when the system is restored. Therefore, after every system restart VISONIK automatically accumulates the down-time in an error counter. However, the error counter is only increased if the down-time lasts for more than 30 minutes. This error count value is rounded off at the next full hour and appears in brackets immediately after the actual accumulated total (ACCU) in the respective Reaction entry listing.

Note

The error counter is merely a tolerance factor for the actual measured hours run. In certain circumstances and from case to case, a decision must be made whether or not to add the error count to the actual hours run. If, through dialogue, the MRR accumulator (ACCU) is corrected the System automatically resets the error counter to zero.

Daily Counter

The daily counter holds the current day’s ("today:") and the previous day’s ("yesterday:") operated-hours counts associated with the Reason address. At midnight the system automatically copies "today's" count to "yesterday's" counter and resets "today's" counter to zero.

A question mark in front of an accumulated daily count means the error counter registered a system breakdown on that day. In such a case the figure shown under actual measured hours run is not accurate.
If a COLBAS Pool number is given in a Maintenance Reaction entry the respective measured operating hours are added to the specified Pool value approximately every 5 minutes. There, the accumulated total is always available to any COLBAS program for further processing (Statement: \( \text{DIM } \#k= v(x,y) \), where \( k= \text{COLBAS Pool number as per the Maintenance Reaction entry} \).

**Note**

Manual changes to the accumulated count do NOT influence the COLBAS Pool variable value! If necessary the COLBAS Pool variable can be changed to another value through a COLBAS program.

---

### VISONIK Server Operating Hours Counting

A VISONIK Server can only measure the number of hours a point is in operation if every change of the related point's status is reported to the Server. This can only be carried out in DC Server mode OPMO=C,Cf,CfR. When OPMO=DSb,DSbe, the hours counted as held in parameters OH1, OH2, OH3, OS1, OS2, OS3 as well as configuration parameter OPS are taken from the respective process station.

In process stations (PS) fitted with EKL-X/S Controllers, points can be operated (under parameter OPMO = Operating Mode) such that only error states are reported to the DC Server (but no operating hours) which therefore makes counting of operating hours impossible.

However, EKL-X/S controllers can measure operating hours locally (parameters OPS/OHx/OHR).

The locally measured operating hours are then automatically used in a central Maintenance Reaction Register under the following conditions:

- process station is of the EKL-X/S-Controller type.
- The related point must be type SC (=Switch command) or ST (=Status).
- Parameter OPMO for the point involved must be set to "Local".
- The local point status to be registered (OPS) must agree with that in the relative MRR entry.

Now, when the occasion arises, but at least once per day the local EKL measured difference in operating hours will be transmitted to the Server and added to the operating hours counter in the respective MRR entry.

**IMPORTANT**

If the above conditions are not fulfilled the Server's MRR entry has no function!

Local (EKL) operating hours counting is indicated in a MRR listing by the abbreviation "(PS)" printed in front of the "ACCU" hours counter.
2.21 MXD Maximum Demand Register Entries

2.21.1 Maximum demand program in VISONIK

The maximum demand program in VISONIK (short MXD) controls the maximum energy consumption within a specified time period and thus the mean consumption. The measuring method corresponds to the tariff calculation of European electrical companies. This procedure is based on a fixed measuring period defined via an external synchronisation pulse. Energy consumption is also measured from within the measuring period which then corresponds to the integral of consumption.

The number determining the energy price is the 'maximum average consumption'. Some electrical companies also use the average of several maximum demands as the basis for price calculation. This type of calculation can also be applied to non-electrical energy. In such cases, the respective measuring units are especially important (see the following examples).

<table>
<thead>
<tr>
<th>Energy consumption</th>
<th>Switchable loads</th>
</tr>
</thead>
<tbody>
<tr>
<td>kWh (kilowatt-hour)</td>
<td>kW (kilowatt)</td>
</tr>
<tr>
<td>MWh (megawatt-hours)</td>
<td>MW (megawatt)</td>
</tr>
<tr>
<td>m³ (cubic meter)</td>
<td>m³/h (cubic meter per hour)</td>
</tr>
<tr>
<td></td>
<td>e.g. for gas</td>
</tr>
</tbody>
</table>

2.21.1.1 Maximum demand program for single systems

The maximum demand program for single systems (also called 'local MXD') has been an integral part of VISONIK since 1984. This maximum demand program uses an MD point which is coupled to a ZW point.

- Per default, the maximum demand program for single systems with point type MD (CTYP=52) is still valid in VVS20. This document refers to it by 'MXD old'.
- The following elements are a part of the 'MXD old' maximum demand program:
  - Maximum demand point $MD1..$MD7
  - The maximum demand register (see the MXD function description below)
  - The maximum demand program in the background

2.21.1.2 Maximum demand program for link systems

The new maximum demand program with enhanced functionality is valid from VVS20. This maximum demand program uses three new point types LSC, LST, LSI and point type ZW for meter value acquisition.

- The new maximum demand program can be used for both single and link systems. This document refers to it by 'MXD new'.
- The new, enhanced maximum demand program for link systems must be enabled as an option under SYS,PROJ,Password.
- The following elements are a part of the 'MXD new' maximum demand program:
  - The "MXD Controller" for MXD load groups (point type LSC)
  - The "LST cards" for MXD part tariffs (point type LST)
  - The "LSI Information" for link systems (point type LSI)
  - The maximum demand register (see the MXD function description below)
  - The maximum demand program in the background

Important notes
2.21.1.3 Function of the maximum demand program

The maximum demand program MXD in the background controls the effectively consumed energy in parameter MD (MXD old) or LsCEP (MXD new). If consumption is outside of the tolerance range, the maximum demand program calculates the following:

- The amount of load that must be shedded or
- The amount of load that can be added

This is done to ensure that the effective energy consumption at the end of the measuring period is smaller or the same (maximum) to parameter EMAX (MXD old) or TARGe (MXD new).

The output of the corresponding switching commands for adding or shedding load(s) via the DC Server is executed as per the entered priorities in the maximum demand register.

See also topic

Maximum Demand Program MXD
in document "VISONIK System Basics VVS20"

2.21.2 Initial Access and Handling

Function call-up

CTRL/P MXD

The MXD function exclusively processes the maximum demand register addressed above.

The following possibilities are available to the user:

<table>
<thead>
<tr>
<th>T8</th>
<th>11:06:03</th>
<th>Function=PNT : MXD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation=CH</td>
<td>: ?</td>
<td></td>
</tr>
<tr>
<td>0 CH</td>
<td>Enter Sheddable Loads</td>
<td></td>
</tr>
<tr>
<td>1 LI</td>
<td>List Load Shedding Entries</td>
<td></td>
</tr>
<tr>
<td>2 L8</td>
<td>List Entries in Octal</td>
<td></td>
</tr>
<tr>
<td>3 VE</td>
<td>Remove Faulty Blocks</td>
<td></td>
</tr>
<tr>
<td>4 DEL</td>
<td>Delete Entries</td>
<td></td>
</tr>
<tr>
<td>Operation=CH</td>
<td>:</td>
<td></td>
</tr>
</tbody>
</table>
2.21.3 CH, Enter Sheddable Loads or Generators

For:

- each sheddable load (positive load), or for
- each connectable generator (negative load)

the user has to enter in the maximum demand register the required data such as, for example, their priorities.

Each load (positive or negative) must be assigned to a tariff or meter group (MXD old) or to a tariff or load group (MXD new).

```
T8 11:18:39 Function=PNT : MXD
Operation=CH       : ?
    0 CH   = Enter Sheddable Loads
    1 LI   = List Load Shedding Entries
    2 L8   = List Entries in Octal
    3 VE   = Remove Faulty Blocks
    4 DEL  = Delete Entries
Operation=CH       : CH
Address=..         : $100'041
Entry=l            : ?
Entry=(1..200)     :
Tariff/Load Grp=1  : ?

Tariff/Load Grp=(0..7), * : 3
Priority=1          : ?
Priority=(1..100), * : 17
Threshold Value,DO=1=On : ?
Threshold Value,DO=(Off,On): On
Shedded Setting,DO=0=Off : Off
Blocking Flag=.     : ?
Blocking Flag=(UA,TA),.
    UA = AA'AA'AA111"dd
    TA = $sss'mm'p, $sss'CTYPn, $CTYPn, $sssMxxPyy
         :
Min. Thresh.Time=  : 30
Max. Thresh.Time=  :
Min. Time Shed=    : 20
Max. Time Shed=    : 70
DO $d100'041 (m17p2) Training Department
RDO=Off
OPMO=5=PS
Tariff/Load Grp=3 Priority=17 System Value=0=Off 0/0
Flag =.
Threshold Value =1=On Min =30 0
Shedded Setting =0=Off Min =20 Max =70 0
>>o.k.!
Address=$d100'041  :
```
Explanation

**Address = $7'032**

This means User or Technical Address for the switch command related to shedding or reconnecting the load.

If an address is entered which already exists in another entry this will be listed.

**Entry = 1**

Several entries may be made for each address in the MXD register. Application:

The same load can, for example, be assigned to both a high tariff group and to a low tariff group. If a number is entered which is already used, the DC-Server lists the contents of the entry and returns to CHange mode.

**Tariff / Load group**

From VVS 20, the attribute 'Tariff/Load group' is used in the MXD register instead of 'Tariff/Meter group'. This attribute can be assigned (as previously) 1..7 tariff groups or (new) 1..7 load groups. A total of 150 switching command points can be assigned to the maximum seven groups. For this, any assignment is possible (e.g. also all 150 switching commands in a group).

**MXD old**

The term Tariff/Count group belongs to the maximum demand program 'MXD old'. See also point type MD, parameter TGRP (Tariff/Meter group). For 'MXD old', the functionality does not change even with the new attribute.

**Tariff / Load group = 1**

All loads subject to the same tariff are grouped in a tariff group. Each tariff group represents an energy acquisition location (one MD point) and is independent of the other tariff groups.

The use must assign each load (energy consumer = positive load, and energy generator = negative load) to at least one tariff group. The tariff group corresponds to parameter TRGP of the MD point.

**Tariff group 0**

**No** loads can be assigned to tariff group 0. Tariff group 0 means that the maximum demand program for this tariff group is not active. All MXD reactions are suppressed for this MD point. This is very advantageous for example on high/low tariff switchover of the same loads.

See also 'Maximum Demand Program' in document 'VISONIK System Basics VVS20'.

**MXD new**

The term load group as defined below is part of the maximum demand program 'MXD new'. All loads of the same energy source (e.g. electricity, gas, or oil) form one load group. In the MXD register, each load is assigned to that tariff/load group (1...7) from which it derives its energy (see point type MDT).
**Priority = 1**

Each load must have a switching priority of 1..100. This priority determines the order of the switching actions.

Switching on and off of loads is controlled by inclusion of the assigned priorities and by considering the min./max. switch-on/switch-off times. The maximum demand program:

- first switches off and last switches on loads with low priority (low number),
- first switches on and last switches off loads with high priority (low number).

Loads of same priority are switched by applying the round-robin procedure, i.e., the switching command with the oldest change by the MXD is switched first.

**Threshold**

The **threshold** value is that value of switched step from which loads (positive loads) are shed, or from which generators (negative loads) are reconnected.

After being switched, both types of positive and negative loads are in the 'Shedded Value' states (=reduced load).

**Example**

<table>
<thead>
<tr>
<th>Threshold value (high load)</th>
<th>Positive loads</th>
<th>Shedded value (reduced load)</th>
</tr>
</thead>
<tbody>
<tr>
<td>From step 3</td>
<td></td>
<td>to step 2</td>
</tr>
<tr>
<td>From step 2</td>
<td></td>
<td>to step OFF</td>
</tr>
<tr>
<td>From step ON</td>
<td></td>
<td>to step OFF</td>
</tr>
</tbody>
</table>

- **Negative loads (generators)**

| From step OFF | to step ON |
The **shedded value** is that value of switched step from which loads (positive loads) are connected, or generators (negative loads) are disconnected. After being switched both positive and negative type loads are in then in a state equal to the 'threshold value' (= larger load).

### Example

| 
| **Shedded Value (reduced)** | **Threshold Value (high load)** |
| From step OFF | Positive loads | to step ON |
| From step OFF | to step 2 |
| From step 2 | to step 3 |

#### Negative loads (generators)

| 
| From step ON | to step OFF |

Both threshold and shedded values may also act on stepped loads (0-1-2-3-2-1-0) provided the **System value** (see next page) permits such switching.

### Blocking flag

All DO entries can be blocked by appropriate setting of the relative 'Blocking flag'. Blocking flags must be given "$" addresses (i.e. $FLn, n=1..510).

#### Flag value

The flag value defines that flag value at which the entry will be blocked. The prompt for 'Flag value' will only be asked if a "Blocking flag" has already been declared.

- When a flag becomes active, the related DO point currently in a shedded state will be switched to its threshold value.
  - In this case, the MXD program has no more influence on such a point; it is blocked for this point
- If a time is active under "Min/Max Time Shed" for such a point, it will only be blocked after any declared time has elapsed.

#### Min Thresh. Time =

#### Max Thresh. Time =

Minimum and maximum on/off times can be specified to protect plant equipment. Times are in minutes.

Such times are taken into account for any MXD program DO point commands which will only be executed after these set times have elapsed.

In spite of these defined times other programs (TRR, DRR, etc.) can still change such DO points at any time.

The maximum times are monitored through the 'Duty cycling program (DUCY), not by the MXD program.

#### Example

A fan which should run for a minimum of 20 minutes is therefore set to:

Min Thresh. Time : = 20  (provided Threshold Value = ON)

A generator which should be connected for a minimum of 30 minutes is therefore set to:

Min Shed Time : = 30  (provided Shedded Setting = ON)

An air conditioning unit which must not be switched off for more than 60 minutes is therefore set to:

Max Thresh. Time : = 60  (provided Threshold Value = OFF)

#### Note

The MXD entry is only changed when the dialogue is executed step-by-step. The DC-Server acknowledges a properly-entered input or change by printing out the entire entry followed by OK.
**System value**

The system value does not appear in the dialog sequence "Operation=CH". However, it is listed at the end of the entry.

The switching step which was set by the DC Server via reactions TRR, DRR, PRR or manual intervention, etc. via switching command DO is copied automatically to the system value.

The system value cannot be changed by MXD. However, it provides to the MXD the status of the switching command DO (via ZRK, DRK, PRK or Manual, etc.) and if MXD can change the "DO Actual".

**Example for positive load**

System value: OFF

- The MXD cannot change the "DO Actual", i.e., it will not conduct a connection!

System value: Step 2

- At an excessive energy consumption, the MXD can switch down to step 1 or 0, provided there are corresponding entries in the MXD. The MXD cannot switch to step 3, even if a small energy consumption were to allow for it.

**Note:**

A load entered in the MXD register (DO point) can always be switched to any step via reactions (PRK, ZRK, etc.) or manually. This load can then directly be switched off by the MXD if energy consumption is too high. However, if energy consumption is too low, the MXD at a maximum can switch to the step entered in the system value.

**Note:**

- If the Shedded value is equal to or less than the System value, the MXD program can switch loads.
- If the Threshold value is larger than the System value, the MXD program will not execute the command.

**MXD Requirements**

The MXD program is, however, only active under the following conditions:

- An entry for the related load must exist in the MD register.
- Parameters DO1ACT/FL1ACT and DO1ACT/FL2ACT must not be active.
- Parameter RDO must result from parameter DO and not from the DO1 or DO2 parameters.
- Any set blocking flag must not be active.
- Any times set under "Min/Max Time Shed" must have elapsed.

**Priorities MXD**

All other programs, including operator manual actions, have higher priorities than MXD. If a load has been switched through another reaction (i.e., TRR, PRR, etc.) or manually, the MXD program, in accordance with its shedded value, cannot override this action. (see example on System value).

**Size of the switchable load**

Each command step (0 to 3) of a programmed DO point is assigned to a corresponding load through parameters PN1 to PN3 (positive for real loads, negative for generators).

On entering a nominal consumption (also referred to as nominal load), note that negative loads are entered by writing a minus symbol (e.g. PN1= -300).
2.21.4 LI, List Entries

Operation LI provides a listing of MXD Registers. The listing can be restricted to the following criteria:
- Address
- Tariff/Load Group
- Priority (Switching priority 1..100)

The content and format of the list is identical to the RPT,MXD MD report.

| T8 | 14:02:49 Function=PNT : MXD
Operation=CH    : ?
  0 CH = Enter Sheddable Loads
  1 LI = List Load Shedding Entries
  2 L8 = List Entries in Octal
  3 VE = Remove Faulty Blocks
  4 DEL = Delete Entries
Address=TE'ST'MAXD"01: ..
Tariff/Load Grp=* : ?
Tariff/Load Grp=(0..7), * : 1
Priority=*      : ?
Priority=(1..100), * : *
| !MD DO $d100'040 (m17p1) Training Departement
RDO=Off        OPMO=5=PS
  Tariff/Load Grp=1 Priority=1 System Value=1=On 0/0
  Flag = MXD active 142 Sec.
  Threshold Value =1=On !DLA Min =20!DLA Max =45 0
  Shedded Setting =0=Off!DLA Min =30!DLA Max =79 0
| . DO $d100'041 (m17p2) Training Department
RDO=Off        OPMO=5=PS
  Tariff/Load Grp=1 Priority=1 System Value=0=Off 0/0
  Flag =
  Threshold Value =1=On Min =30 . 0
  Shedded Setting =0=Off Min =20 Max =70 0
| . DO $d100'041 (m17p2) Training Departement
RDO=Off        OPMO=5=PS
  Tariff/Load Grp=1 Priority=1 System Value=0=Off 0/0
  Flag =
  Threshold Value =1=On Min =15 Max =55 0
  Shedded Setting =0=Off Min =35 Max =65 0
| ?HW DO TE'ST'MAXD"01 Training Departement
RDO=Off        ERSTA=?HW OPMO=5=PS
  Tariff/Load Grp=1 Priority=1 System Value=0=Off 0/0
  Flag =
  Threshold Value =1=On Min =27 Max =77 0
  Shedded Setting =0=Off Min =28 Max =58 0
Operation=LI  :
## 2.21.5 L8, List Entries in Octal

This provides a listing of MXD Registers in octal code and can be restricted by the following criteria:

- Address

With exception of the octal information, the contents and format of the list are identical to the RPT,MXD MD report.

<table>
<thead>
<tr>
<th>T8</th>
<th>11:28:35 Function=PNT : MXD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation=CH</td>
<td>CH</td>
</tr>
<tr>
<td>0</td>
<td>CH = Enter Sheddable Loads</td>
</tr>
<tr>
<td>1</td>
<td>LI = List Load Shedding Entries</td>
</tr>
<tr>
<td>2</td>
<td>L8 = List Entries in Octal</td>
</tr>
<tr>
<td>3</td>
<td>VE = Remove Faulty Blocks</td>
</tr>
<tr>
<td>4</td>
<td>DEL = Delete Entries</td>
</tr>
<tr>
<td>Operation=CH</td>
<td>L8</td>
</tr>
<tr>
<td>Address=$d100'041</td>
<td></td>
</tr>
<tr>
<td>Entry</td>
<td>1</td>
</tr>
<tr>
<td>.</td>
<td>DO $d100'041 (m17p2) Training Departement</td>
</tr>
<tr>
<td>.</td>
<td>RDO=Off OPMO=5=PS</td>
</tr>
<tr>
<td>.</td>
<td>Tariff/Load Grp=3 Priority=17 System Value=0=Off 0/0</td>
</tr>
<tr>
<td>.</td>
<td>Flag .</td>
</tr>
<tr>
<td>.</td>
<td>Threshold Value =1=On Min =30 0</td>
</tr>
<tr>
<td>.</td>
<td>Shedded Setting =0=Off Min =20 Max =70 0</td>
</tr>
<tr>
<td>32/</td>
<td>1421 0 62041 400 0 43024 36 0</td>
</tr>
<tr>
<td>52/</td>
<td>5 0 0 0</td>
</tr>
</tbody>
</table>

Such a listing is used by Landis & Staefa for diagnostic purposes.
2.21.6 VE, Remove Faulty Blocks

If a functional problem occurs a verification should be made. This checks all entries in the MXD Registers according to the following criterion:

- do the DO points exist?
- are all references DO point --> MXD entry made?

If an entry is incomplete or cannot be corrected, it is deleted automatically.

<table>
<thead>
<tr>
<th>T8 11:32:37 Function=PNT : MXD</th>
<th>Operation=CH : ?</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 CH = Enter Sheddable Loads</td>
<td>1 LI = List Load Shedding Entries</td>
</tr>
<tr>
<td>2 L8 = List Entries in Octal</td>
<td>3 VE = Remove Faulty Blocks</td>
</tr>
<tr>
<td>4 DEL = Delete Entries</td>
<td>Operation=CH : VE</td>
</tr>
</tbody>
</table>

***** Start of Verification *****
***** End of Verification *****

Operation=VE :

"VE" corresponds to Operation "VE,MXD" (Verification of Maximum Demand File)

Note

Supporting Actions

If the sheddable loads entered in the MXD Register are insufficient to maintain the energy maximum TARGe (EMAX), this will be reported by the program (error condition k.o.).

<table>
<thead>
<tr>
<th>$000'000</th>
<th>Automatic shed insufficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>$000'000</td>
<td>Additional manual shedding - (..) KW</td>
</tr>
<tr>
<td>$000'000</td>
<td>MD program demand per 15 min.</td>
</tr>
<tr>
<td>MD= (..) kWh</td>
<td>FCON= k.o.</td>
</tr>
</tbody>
</table>

There is the possibility of manually shedding a required load at a certain time in order to avoid exceeding the maximum demand for the current integrating period.
2.21.7 DEL, Delete Entry

An entry can be deleted with the delete entry operation. After address selection the

- associated existing entry is listed and
- prompted with the question "Delete=No:"

If "Yes" is entered against this prompt, then after <RETURN> the entry will be cleared
and confirmed with "ENTRY ERASED" and o.k.!

Delete several entries

If an address is selected which has multiple entries, all these entries, irrespective of
priority or tariff/load group, will be listed and marked with an entry number
(consecutively numbered according to priority). The highest entry number (i.e. the last
one) is then prompted for deletion.

However, if an entry not having the highest entry number is to be deleted (i.e. not the
last one associated with the respective address), the required entry number must be
specified before it can be cleared as described above.

Note that, in this case, after deleting an entry, the consecutive entry numbers
associated with the specified address will be restructured.
<table>
<thead>
<tr>
<th>Old structure</th>
<th>New structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entry : 1</td>
<td>Entry : 1</td>
</tr>
<tr>
<td>Priority: 11</td>
<td>Priority: 11</td>
</tr>
<tr>
<td>Entry : 2</td>
<td>---&gt; deleted</td>
</tr>
<tr>
<td>Priority: 12</td>
<td></td>
</tr>
<tr>
<td>Entry : 3</td>
<td>Entry : 2 !!</td>
</tr>
<tr>
<td>Priority: 13</td>
<td>Priority: 13</td>
</tr>
<tr>
<td>Entry : 4</td>
<td>Entry : 3 !!</td>
</tr>
<tr>
<td>Priority: 14</td>
<td>Priority: 14</td>
</tr>
</tbody>
</table>

New consecutive numbering of the entry numbers
2.22 PG  Point Generation

What does PG do?
On point generation, a memory area is reserved in the DCS for the point that is to be generated.
This memory area, whose structure depends on the respective point type (CTYP), is called the Process Image.
The process image determines the appropriate parameter set for each point that is generated.
The process image is the software prerequisite for point operation via the DCS.

When a new data point is generated, the following must generally be defined:
- Technical address (TA)
- Configuration data type (CTYP)
- User address (NAME), if known.

2.22.1 Initial Access and Handling

Function call-up
CTRL/P, PG

The function PG offers the user the following possibilities:

<table>
<thead>
<tr>
<th>T8</th>
<th>16:16:55 Function=PNT : PG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation=PPG : ?</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>PPG = Generate Point by Point</td>
</tr>
<tr>
<td>1</td>
<td>PGX = Generate more of the same Points</td>
</tr>
<tr>
<td>2</td>
<td>LI = List Points from a PS</td>
</tr>
<tr>
<td>3</td>
<td>DEL = Delete Points in a PS</td>
</tr>
<tr>
<td>4</td>
<td>COPY = Copy Generated Points</td>
</tr>
</tbody>
</table>

2.22.1.1 General Information on Point Generation

Automatic point generation in the system partner
The following principle applies to all point types that are common to the VISONIK DCS and the process station:

- If a point is generated in the VISONIK DCS, the corresponding process image is also automatically generated in the process station unless it is already present.
- If a point is generated in the process station, the corresponding process image is NOT automatically generated in the VISONIK DCS.

This means that the function PG must be used to generate every point that is to be visible in the VISONIK DCS or INSIGHT, even if the point has already been generated in the process station. Exceptions to this rule are noted in the tables in the following.

Configuration work
As soon as a point has been generated both in the PS and in the DCS, the configuration data are automatically exchanged between the two.
Therefore, this data needs only be entered once, either at the DCS or at the PS.
As a general rule, the following points can be generated in the DCS within the allowable PS address range:
- modules per process station, with
- points per module.

Therefore, depending on the type of process station connected, the address range of the DCS goes beyond the physically connected hardware.

Points that are generated in the DCS but are outside the address range of the connected hardware can be operated in the DCS with OPMO=DSf (fictitious in DCS). Points are outside the hardware address range when:
- a corresponding process station or module is not present.
- a module address greater than 20 is assigned to a PRV1 or EKL.
- the number of points per module is out of range.

Most data points must be generated using the function PG as described here. However, there are specific exceptions, which are referenced in this documentation. Example: The VISONIK DCS automatically generates the process image of a PS as soon as the PS is detected on the ring.

An automatic backup of process station data is only possible in the case of points that have been generated in the DCS first. Regardless of the above statement, COLBAS programs can be saved in files in the DCS.

### 2.22.2 PPG, Generate Point by Point

The user can generate individual points with the operation PPG.

All parameters of a generated point (except CTYP and NAME) are initially set to their default values by the VISONIK DCS.

**Example: generation of a Status Point (ML)**

```
T8  16:28:01  Function=PNT : PG
Operation=PPG       :
TA   / Technical Address=$d100'011: $100'010
Point Type=.        : ML
NAME / User Address = AA'AA'A111"dd: DI'MO'TEST"02  >>o.k.!
TA   / Technical Address=$d100'011:
```

**Inputs**

As the shown in the above example, the following variables must be defined when a point is generated with PG, PPG:
- TA / technical address
- Point type
- NAME / user address

These three inputs are explained in detail in the following.
Technical address, permissible address range

Each data point can be generated within the permissible address range only.

Process Stations

$PS_{mm}^p$

A DCS's process image is basically dimensioned for 255 (377 octal) process stations. Certain PS addresses, however, are reserved internally in VISONIK systems and must never be allocated to process stations.

To provide uniform system addressing it is recommended to use the following address range sectors:

<table>
<thead>
<tr>
<th>Decimal</th>
<th>Octal</th>
<th>Used as</th>
</tr>
</thead>
<tbody>
<tr>
<td>$001</td>
<td>$002 \ldots $127</td>
<td>Reserved</td>
</tr>
<tr>
<td>$128 \ldots $144</td>
<td>$200 \ldots $220</td>
<td>Partner systems, but only even numbers are to be used ($202, $204..)</td>
</tr>
<tr>
<td>$145 \ldots $167</td>
<td>$221 \ldots $247</td>
<td>PS on a ring or telephone</td>
</tr>
<tr>
<td>$168 \ldots $183</td>
<td>$250 \ldots $267</td>
<td>Teleprinter</td>
</tr>
<tr>
<td>$184 \ldots $191</td>
<td>$270 \ldots $277</td>
<td>Reserved</td>
</tr>
<tr>
<td>$192</td>
<td>$300</td>
<td>Own VISONIK DCS ($SY)</td>
</tr>
<tr>
<td>$193 \ldots $224</td>
<td>$301 \ldots $340</td>
<td>Reserved for special system points (terminals, flags, rings, OSTP in DCS and message channels)</td>
</tr>
<tr>
<td>$225 \ldots $247</td>
<td>$341 \ldots $367</td>
<td>Teleterminals</td>
</tr>
<tr>
<td>$249 \ldots $254</td>
<td>$371 \ldots $376</td>
<td>A/B coupling. One PS for each ring</td>
</tr>
</tbody>
</table>

The decimal address range for PS sections of technical addresses is limited.

Consequence: By considering the above recommendation, 149 process stations can be generated. Using additional reports allows for increasing this number to a maximum of 200. To do this, further addresses from $d002 \ldots d183$ and $d225 \ldots d254$ must be used.

EKL Bus and P-Bus modules

$PS_{mm}^p$

Process images of DCS, BPS, PRV1 and EKL are dimensioned for the following numbers of modules:

<table>
<thead>
<tr>
<th>Range (octal)</th>
<th>No. modules</th>
<th>In process image of …</th>
</tr>
</thead>
<tbody>
<tr>
<td>00 \ldots 33</td>
<td>28</td>
<td>Data Communication Server</td>
</tr>
<tr>
<td>00 \ldots 33</td>
<td>28</td>
<td>BPS</td>
</tr>
<tr>
<td>00 \ldots 23</td>
<td>20</td>
<td>PRV1, EKL</td>
</tr>
</tbody>
</table>

DCS generated points which lie outside the address range of the PS type can be operated in the DCS with OPMO=DSf (fictitious in DCS).
EKL Bus and P-Bus module points

A DCS process image supports a maximum of 8 points per module of a BPS, PRV1 or EKL.
The actual maximum possible number of points per module depends on the PS type and also the respective module type.

<table>
<thead>
<tr>
<th>Point type</th>
<th>EKL address range</th>
<th>PRV1 address range</th>
<th>BPS address range</th>
</tr>
</thead>
<tbody>
<tr>
<td>ML</td>
<td>0..7</td>
<td>0..7</td>
<td>0..7</td>
</tr>
<tr>
<td>MW</td>
<td>0..3</td>
<td>0..3</td>
<td>0..7</td>
</tr>
<tr>
<td>SB1</td>
<td>0..3</td>
<td>0..3</td>
<td>0..7</td>
</tr>
<tr>
<td>SBR1</td>
<td>0..1</td>
<td>0..1</td>
<td>0..3</td>
</tr>
<tr>
<td>SBR2</td>
<td>---</td>
<td>---</td>
<td>0..1</td>
</tr>
<tr>
<td>SBR3</td>
<td>0</td>
<td>0</td>
<td>0..1</td>
</tr>
<tr>
<td>STP</td>
<td>0..1</td>
<td>0..5</td>
<td>0..3</td>
</tr>
<tr>
<td>ST3P</td>
<td>0..5</td>
<td>0..3</td>
<td>0..3</td>
</tr>
<tr>
<td>STU</td>
<td>0..5</td>
<td>0..5</td>
<td>0..7</td>
</tr>
<tr>
<td>ZW</td>
<td>0..1</td>
<td>0..1</td>
<td>0..3</td>
</tr>
</tbody>
</table>

P-Bus modules and module points

<table>
<thead>
<tr>
<th>Type</th>
<th>Mod. addr. range</th>
<th>Point addr. range</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRV</td>
<td>001..080</td>
<td>1..max. 4</td>
</tr>
<tr>
<td>BPS</td>
<td>001..112</td>
<td>1..max. 4</td>
</tr>
</tbody>
</table>
### Example for BPS = $50, in alphabetical order.

<table>
<thead>
<tr>
<th>Pnt type</th>
<th>Addr. ranges</th>
<th>Remarks / limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>AI</td>
<td>$50'AI1 . . 255</td>
<td>The following applies to AI, AO, CI, DI and DO</td>
</tr>
<tr>
<td>AO</td>
<td>$50'AO1 . . 255</td>
<td></td>
</tr>
<tr>
<td>BLN</td>
<td>$50'BLN</td>
<td></td>
</tr>
<tr>
<td>CI</td>
<td>$50'CI1 . . 255</td>
<td></td>
</tr>
<tr>
<td>CVP</td>
<td>$50'CVP1 . . 255</td>
<td></td>
</tr>
<tr>
<td>DI</td>
<td>$50'DI1 . . 255</td>
<td></td>
</tr>
<tr>
<td>DO</td>
<td>$50'DO1 . . 255</td>
<td></td>
</tr>
<tr>
<td>FLN</td>
<td>$50'FLN</td>
<td></td>
</tr>
<tr>
<td>MBUS</td>
<td>$50'MBUS</td>
<td></td>
</tr>
<tr>
<td>MGG</td>
<td>$50'MGG1 . . 255</td>
<td>Example for a MONOGYR BPS Group in PS=$50</td>
</tr>
<tr>
<td>MGR</td>
<td>$50'MGR1 . . 255</td>
<td>Example for a MONOGYR BPS Room in PS=$50</td>
</tr>
<tr>
<td>MX</td>
<td>$50'000 . . 337</td>
<td>The referenced PS address ($50'000 in the example) must be fitted with a status input module. This applies to EKL and P-Bus modules.</td>
</tr>
<tr>
<td>OS</td>
<td>$50'OS</td>
<td></td>
</tr>
<tr>
<td>PBN</td>
<td>$50'PBN1 . . 2</td>
<td>PBN1: Profibus trunk connected via COM1. PBN2: Profibus trunk connected via COM2.</td>
</tr>
<tr>
<td>PBUS</td>
<td>$50'PBUS</td>
<td></td>
</tr>
<tr>
<td>PHON</td>
<td>$50'PHON</td>
<td></td>
</tr>
<tr>
<td>PLT</td>
<td>$50'PLT1 . . 255</td>
<td>For PRV1 and EKL: number of VIP+RGB+PLT+ZON &lt; 64 per PS.</td>
</tr>
<tr>
<td>PS</td>
<td>$50'PS</td>
<td>See “Technical Address, permissible address range”</td>
</tr>
<tr>
<td>RGB</td>
<td>$50'RGB1 . . 255</td>
<td>For PRV1 and EKL: number of VIP+RGB+PLT+ZON &lt; 64 per PS.</td>
</tr>
<tr>
<td>RING</td>
<td>$50'RING</td>
<td>This point type exists only in BPS and DCS, not PRV1 or EKL.</td>
</tr>
<tr>
<td>RWI</td>
<td>$50'RWI33..126</td>
<td>Example for an RWI controller in PS=$50. RWI addresses and TEC addresses are mutually exclusive.</td>
</tr>
<tr>
<td>SEZ</td>
<td>$50'SEZ1 . . 240</td>
<td>Example for a MONOGYR BPS switch unit in PS=$50</td>
</tr>
<tr>
<td>TCG</td>
<td>$50'TCG1 . . 255</td>
<td>Example for a TEC group in PS=$50</td>
</tr>
<tr>
<td>TCR</td>
<td>$50'TCR1 . . 255</td>
<td>Example for a TEC room in PS=$50</td>
</tr>
<tr>
<td>TED</td>
<td>$50'TED1 . . 255</td>
<td>Example for a TEC energy demand point in PS=$50</td>
</tr>
<tr>
<td>TTY</td>
<td>$50'TTY1 . . 3</td>
<td>TTY1, TTY2: V.24 interfaces TTY3 (EKL,PRV1): SDLC Ring TTY3 (BPS): V.28 interfaces</td>
</tr>
<tr>
<td>VIP</td>
<td>$50'VIP1 . . 255</td>
<td>For PRV1 and EKL: number of VIP+RGB+PLT+ZON &lt; 64 per PS.</td>
</tr>
<tr>
<td>ZON</td>
<td>$50'ZON1 . . 255</td>
<td>For PRV1 and EKL: number of VIP+RGB+PLT+ZON &lt; 64 per PS.</td>
</tr>
</tbody>
</table>

Point types not addressed through EKL Bus or P-Bus
### $STYPn

#### in alphabetical order

<table>
<thead>
<tr>
<th>Pnt type</th>
<th>Addr.ranges</th>
<th>Remarks / limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>FL</td>
<td>$FL1 .. 510</td>
<td></td>
</tr>
<tr>
<td>MD</td>
<td>$LS1 .. 7</td>
<td>The referenced PS address ($50'000 in example) must be fitted with a counter module. This applies to EKL and P-Bus modules. When a tariff group is allocated to an MD point via parameter TGRP (TGRP=1..7), the MD point can be addressed through $MD1 .. 7.</td>
</tr>
<tr>
<td>MC</td>
<td>$MC1 .. 15</td>
<td></td>
</tr>
<tr>
<td>OZ</td>
<td>$OZ1 .. 127</td>
<td></td>
</tr>
<tr>
<td>RI</td>
<td>$RI1 .. 6</td>
<td></td>
</tr>
<tr>
<td>SY</td>
<td>$SY</td>
<td></td>
</tr>
<tr>
<td>TY</td>
<td>$TY1 .. 18</td>
<td>Terminals with fixed connections to DCS identical to $d193'TY .. $d211'TY identical to $o301'TY .. $o323'TY</td>
</tr>
<tr>
<td></td>
<td>$d225'TY</td>
<td>Teleterminals</td>
</tr>
<tr>
<td></td>
<td>.. $d247'TY</td>
<td>identical to $o341'TY .. $o367'TY</td>
</tr>
<tr>
<td></td>
<td>$d168'TY</td>
<td>Teleprinter</td>
</tr>
<tr>
<td></td>
<td>.. $d183'TY</td>
<td>identical to $o250'TY .. $o267'TY</td>
</tr>
</tbody>
</table>

### TA input format

The input format of the PS part of a technical address is selected either through the address input or through parameter TAFO (default: TAFO=decimal).

I/O points of a PRV can be called up using either their P-Bus label or the EKL Bus module label.

The same data point is called up using any of the following inputs:

<table>
<thead>
<tr>
<th>Module/point addresses</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>$o40'067</td>
<td>octal (o) (explicit entry)</td>
</tr>
<tr>
<td>$d32'067</td>
<td>decimal (d) (explicit entry)</td>
</tr>
<tr>
<td>$o40 M28 p2</td>
<td>P-Bus module 28, P-Bus point 2</td>
</tr>
<tr>
<td>$d32 M28 p2</td>
<td>P-Bus module 28, P-Bus point 2</td>
</tr>
<tr>
<td>$40'067</td>
<td>with $SY,TAFO=octal</td>
</tr>
<tr>
<td>$40 M28 p2</td>
<td>with $SY,TAFO=decimal</td>
</tr>
<tr>
<td>$32'067</td>
<td></td>
</tr>
<tr>
<td>$32 M28 p2</td>
<td></td>
</tr>
</tbody>
</table>
Point type
Most data points must be generated using the function PG as described here. There are, however, certain exceptions.

The following table is sorted by point types. It shows whether and how each point type can be generated.

<table>
<thead>
<tr>
<th>Pnt type</th>
<th>CTYP</th>
<th>Text</th>
<th>Notes on generation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ML</td>
<td>0</td>
<td>Status input</td>
<td>Generate with PG.</td>
</tr>
<tr>
<td>MW</td>
<td>1</td>
<td>Measurement input</td>
<td>Generate with PG.</td>
</tr>
<tr>
<td>ZW</td>
<td>2</td>
<td>Counter value</td>
<td>Generate with PG.</td>
</tr>
<tr>
<td>SB1</td>
<td>3</td>
<td>Switch command 1-step</td>
<td>Generate with PG.</td>
</tr>
<tr>
<td>SBR1</td>
<td>4</td>
<td>Switch command 1-step with feedback</td>
<td>Generate with PG.</td>
</tr>
<tr>
<td>SBR2</td>
<td>5</td>
<td>Switch command 2-step with feedback</td>
<td>Generate with PG.</td>
</tr>
<tr>
<td>SBR3</td>
<td>6</td>
<td>Switch command 3-step with feedback</td>
<td>Generate with PG.</td>
</tr>
<tr>
<td>STP</td>
<td>7</td>
<td>Position command (pneumatic module)</td>
<td>Generate with PG.</td>
</tr>
<tr>
<td>STU</td>
<td>8</td>
<td>Position command (voltage/current o/p)</td>
<td>Generate with PG.</td>
</tr>
<tr>
<td>ST3P</td>
<td>9</td>
<td>Position command (3-point output)</td>
<td>Generate with PG.</td>
</tr>
<tr>
<td>DI</td>
<td>12</td>
<td>Digital Input</td>
<td>Generate with PG.</td>
</tr>
<tr>
<td>AI</td>
<td>13</td>
<td>Analogue Input</td>
<td>Generate with PG.</td>
</tr>
<tr>
<td>CI</td>
<td>14</td>
<td>Counter Input</td>
<td>Generate with PG.</td>
</tr>
<tr>
<td>DO</td>
<td>15</td>
<td>Digital Output</td>
<td>Generate with PG.</td>
</tr>
<tr>
<td>AO</td>
<td>16</td>
<td>Analogue Output</td>
<td>Generate with PG.</td>
</tr>
<tr>
<td>BLN</td>
<td>22</td>
<td>Building Level Network</td>
<td>Generate with PG. When a PS is generated, the corresponding point types are also generated automatically in the PS — BLN: communication between PS &lt;-&gt; DCS, and — OS: COLBAS supervision.</td>
</tr>
<tr>
<td>OS</td>
<td>23</td>
<td>Operating System</td>
<td>Generate with PG. When a PS is generated, the corresponding point types are also generated automatically in the PS — BLN: communication between PS &lt;-&gt; DCS, and — OS: COLBAS supervision.</td>
</tr>
<tr>
<td>PS</td>
<td>24</td>
<td>Building Process Station</td>
<td>The process image of a PS is generated automatically by the VISONIK DCS as soon as: — the PS is detected on the ring, or — a point is generated in the PS. At the same time the corresponding point types are also generated automatically in the PS — BLN: communication between — PS &lt;-&gt; DCS, and — OS: COLBAS supervision.</td>
</tr>
<tr>
<td>RGB</td>
<td>25</td>
<td>Regulator block</td>
<td>Generate with PG.</td>
</tr>
<tr>
<td>------</td>
<td>----</td>
<td>----------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>CVP</td>
<td>26</td>
<td>Conversion parameter set</td>
<td>Generate with PG.</td>
</tr>
<tr>
<td>VIP</td>
<td>27</td>
<td>Virtual point</td>
<td>Generate with PG.</td>
</tr>
<tr>
<td>ZON</td>
<td>28</td>
<td>Process station OSTP zone</td>
<td>Generate with PG.</td>
</tr>
<tr>
<td>PLT</td>
<td>29</td>
<td>Plant point</td>
<td>Generate with PG.</td>
</tr>
<tr>
<td>PBUS</td>
<td>30</td>
<td>Process bus</td>
<td>The process image of a PBUS is automatically generated by the VISONIK DCS as soon as the first data point of the</td>
</tr>
<tr>
<td>FLN</td>
<td>31</td>
<td>Floor Level Network</td>
<td>P-Bus is generated. The process image of an FLN is automatically generated by the VISONIK DCS as soon as a card of type PVC2.1F is installed at COM2 in the BPS and is detected by the DCS. Important: FLN and MBUS points are mutually exclusive because of the BPS card.</td>
</tr>
<tr>
<td>MBUS</td>
<td>32</td>
<td>MONOGYR bus</td>
<td>The process image of an MBUS is automatically generated by the VISONIK DCS as soon as a card of type PVC2.2M is installed at COM2 in the BPS and is detected by the DCS. Important: FLN and MBUS points are mutually exclusive because of the BPS card.</td>
</tr>
<tr>
<td>SEZ</td>
<td>34</td>
<td>MONOGYR BPS switch unit</td>
<td>SEZ switch units can be either configured as individual points, or up to 10 SEZs can be integrated in a MONOGYR room. The SEZ points integrated in a MONOGYR room must not be generated. They have no technical addresses or user addresses of their own.</td>
</tr>
<tr>
<td>MGR</td>
<td>35</td>
<td>MONOGYR BPS room</td>
<td>Generate with PG. Important: MGR and TCR points are mutually exclusive because of the BPS card.</td>
</tr>
<tr>
<td>MGG</td>
<td>36</td>
<td>MONOGYR BPS group</td>
<td>Generate with PG. Important: MGG and TCG points are mutually exclusive because of the BPS card.</td>
</tr>
<tr>
<td>EMDAYT</td>
<td>37</td>
<td>EMDAYT energy demand</td>
<td>Generate with PG.</td>
</tr>
<tr>
<td>TTY</td>
<td>38</td>
<td>BPS V.24/V.28 interface</td>
<td>TTY points are generated automatically as soon as they are generated in the BPS and detected by the DCS. TTY3 is always generated automatically in the BPS. TTY1 and TTY2 are generated automatically as soon as a COM1 card with V.24/V.28 functionality is installed.</td>
</tr>
<tr>
<td>PBN</td>
<td>39</td>
<td>BPS PROFIBUS network</td>
<td>The PBN point is generated automatically as soon as it is generated in the BPS and detected by the DCS. The PBN point is generated automatically in the BPS as soon as a COM2 card with Profibus functionality is installed.</td>
</tr>
<tr>
<td>Code</td>
<td>Point</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>-------</td>
<td>-------------</td>
<td></td>
</tr>
<tr>
<td>RING 40</td>
<td>BPS SDLC ring</td>
<td>The RING point is generated automatically in the BPS as soon as a COM1 card with SDLC functionality is installed.</td>
<td></td>
</tr>
<tr>
<td>PHON 41</td>
<td>BPS MODEM Interface</td>
<td>The PHON point is generated automatically as soon as it is generated in the BPS and detected by the DCS.</td>
<td></td>
</tr>
<tr>
<td>TCR 48</td>
<td>TEC room</td>
<td>Generate with PG. Important: TCR and MGR points are mutually exclusive because of the BPS card.</td>
<td></td>
</tr>
<tr>
<td>TCG 49</td>
<td>TEC group</td>
<td>Generate with PG. Important: TCG and MGG points are mutually exclusive because of the BPS card.</td>
<td></td>
</tr>
<tr>
<td>RWI 50</td>
<td>RWI Controller</td>
<td>Generate with PG</td>
<td></td>
</tr>
<tr>
<td>MX 51</td>
<td>Multiple status input</td>
<td>The MX point is generated in the VISONIK DCS using the function PG in the same way as for an DI point. However, the type MX must be entered at the ‘Point Type’ prompt, instead of DI.</td>
<td></td>
</tr>
<tr>
<td>MD 52</td>
<td>Maximum demand point</td>
<td>The MD point is generated in the VISONIK DCS using the function PG in the same way as for a ZW point. However, the type MD must be entered at the ‘Point Type’ prompt, instead of ZW. The MD point can be addressed via $LS1 .. 7 as soon as a tariff group is assigned to it with the parameter TGRP (TGRP=1..7)</td>
<td></td>
</tr>
<tr>
<td>MC 53</td>
<td>Message channel</td>
<td>The process image for all message channels is generated automatically when the VISONIK DCS is booted for the first time.</td>
<td></td>
</tr>
<tr>
<td>SY 54</td>
<td>Data Communication Server</td>
<td>$SY is generated automatically at the first system boot.</td>
<td></td>
</tr>
<tr>
<td>FL 55</td>
<td>Flag point</td>
<td>Generate with PG. Configuration: When a suppression class is defined, the suppression class numbers must correspond to the respective flag numbers.</td>
<td></td>
</tr>
<tr>
<td>RI 57</td>
<td>DCS ring</td>
<td>$RI1 .. $RI6 are generated automatically at the first system boot.</td>
<td></td>
</tr>
<tr>
<td>TY 58</td>
<td>DCS TTY interface</td>
<td>$TY1..$TY3 are generated automatically at the first system boot. The remaining $TYn must be generated manually with the PG dialogue. Important: Generation is password protected.</td>
<td></td>
</tr>
<tr>
<td>OZ 59</td>
<td>DCS OSTP zone</td>
<td>Generate with PG.</td>
<td></td>
</tr>
</tbody>
</table>
Notes on the point types AI, AO, DI, DO and CI
Parallel to the existing module points types (MOPs), five new, related types were introduced with the integration of the BPS in the VISONIK DCS.

The five former point types
ME, PS, ST, SC, CG
can only be used for addressing I/O points on the EKL Bus and P-Bus.

Using the new, related point types
AI, AO, DI, DO, CI
all I/O points can be addressed, regardless which communication bus they are located on (see parameter SIDEMV).

Consequences for point generation
The correct CTYP must be entered at point generation.

If the I/O point to be generated is located on the EKL Bus or P-Bus, the appropriate CTYP for ME, PS, ST, SC or CG must be selected. The appropriate CTYP for AI, AO, DI, DO or CI must be entered in all other cases.

Notes on TEC room configuration
After point generation, up to 10 TEC controllers can be allocated to a TEC room via the parameters TEC(1)…TEC(10).

Control characters
The following procedure is mandatory for the allocation of controller numbers:
• Select the desired TEC room.
• Select the parameter TEC(1).
• Enter the control character ‘>’.
  Indexed parameter operation is activated.
• The DCS opens the parameter TEC(1) again.
• Enter the desired controller number (33..126).
  The DCS then opens the parameter TEC(2), TEC(3) etc. successively.
• Non-indexed parameter operation can be reactivated when required by entering the control character ‘<’.

<table>
<thead>
<tr>
<th>T8</th>
<th>10:25:43 Function=PNT : $100'TCR1</th>
</tr>
</thead>
<tbody>
<tr>
<td>...</td>
<td>ROOM TE'Cl'ROOM&quot;01 Training Department</td>
</tr>
<tr>
<td>-1°C</td>
<td>ASPH/ASPC=20/26°C</td>
</tr>
<tr>
<td>Parameter=SOPST : TEC(1)</td>
<td></td>
</tr>
<tr>
<td>TEC(1)</td>
<td>Allocated TEC Units =34:</td>
</tr>
<tr>
<td>TEC(2)</td>
<td>Allocated TEC Units =36:</td>
</tr>
<tr>
<td>TEC(3)</td>
<td>Allocated TEC Units =0:</td>
</tr>
<tr>
<td>TEC(4)</td>
<td>Allocated TEC Units =0: 35</td>
</tr>
<tr>
<td>TEC(5)</td>
<td>Allocated TEC Units =35</td>
</tr>
<tr>
<td>TEC(6)</td>
<td>Allocated TEC Units =0:</td>
</tr>
<tr>
<td>ALconf</td>
<td>Configured as Alarm Point =0=No : No</td>
</tr>
</tbody>
</table>
**User address**

Every data point that can be accessed using a technical address can have a user address assigned to it. Each user address can only be assigned once in the same VISONIK DCS.

The VISONIK DCS prompts with the basic structure for entering user addresses. Example: "A000'22"AAAA". This basic structure is specified at the project start using the function 'SYS,ADR'. It can be subsequently modified using the function UAX, although this should be done ONLY IF ABSOLUTELY NECESSARY. If the user does not wish to specify a user address at the time of point generation, he can accept the basic structure proposed by the system by pressing <CR>.

**User Address structure**

In an optimum structure, a User Address contains a unique description of the associated data point - for example location, plant type, plant number, function, etc.

A User Address is made up of any user-related combinations of

- **Active characters** (digits 0-9, letters A-Z, a-z; up to a maximum of 26 characters).
- **Delimiters** for optical and structural subdivision of the address (apostrophe).
- **A dummy delimiter** to separate the redundant dummy address extension (double apostrophe).

**Note**

All permissible characters (active, delimiter, dummy delimiter characters) can be displayed/listed via the function UAX,LCHR. Delimiters and dummy delimiters can always be specified, although they are only mandatory when required for unambiguous interpretation of an address input.

**Additional information**

Further information about the following aspects of User Addresses can be found in the parameter description NAME and NAMEd

- Use of user addresses
- Rules for analysis of address inputs
- Use of address masks
- Entry of address ranges
- Addressing in a link system
2.22.3 PGX, Generate a number of similar points

VISONIK automatically generates a succession of similar points, if the following inputs are given:
- Start address
- Number of points per module and number of modules
- (for real hardware point types)
- Number of points
- (for virtual, i.e software, point types)

```
ctrl/P
T4   15:11:42 Function =PNT : PG
Operation =PPG :    PGX

Start Address =$77'000: $66'000
Module Type =. :    ST
No.Points/Module=8: ?
No.Points/Module, Number of Points=(1..255): 8
No. of Modules =1: ?
No. of Modules =(1..20): 1          Generation started

Start Address =$66'010: Ctrl/E
```

2.22.4 LI, List Points from a PS

VISONIK DCS prints a list of all generated points.
A distinction is made between real (hardware) and virtual (software) point types.
The three reports shown in the following are explained in detail under the function RPT, SYSR.

Example with EKL process station:

```
ctrl/P
T4   15:14:03 Function =PNT : PG
Operation =PPG :    LI

TA   / Technical Addr. =$66'PS: ?
TA   / Technical Addr. =(EKL)
    $eee ,$dee ,$eee
    :     $77'PS

$77'US Version = 472 EKX  SDLC / RING ．
    0 1 2 3 4 5 6 7 10 11 12 13 14 15 16 17 20 21 22 23  PNT /INB=YES
    ---------------------------------------------------------------
    SW:ST ． ． ST MX ME CG SC PS CP ． ． ． ． ． ． ． ． ． ． 46 / 36
    HW: ． ． 10 10 38 14 20 39 ． ． ． ． ． ． ． ． ． ． ． ． ．
    RGB VIP PLT ZON
    Centre : 1 1 1 0
    Partner: 0 0 0 0

TA   / Technical Addr. =$77'US: _
```
Example with PRV process station:

**Example with PRV process station:**

<table>
<thead>
<tr>
<th>T8</th>
<th>16:36:10 Function=PNT : PG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation=PPG</td>
<td>LI</td>
</tr>
</tbody>
</table>

**TA / Technical Address=$d100'PS :**

|$d100 = $o144________BPS_________________.__________________|

**Version**

v13.50

**NAME**

rt'z

**RITA**

$RI1

**Cards**

TMBD/VMBD=PRV2.128 TEMEM/VMEM=PVC1.1S /1

TCM1/VCM1=PVC1.1ST/1 TCM2/VCM2=---

TPSP=128

**Points/STAC=.**

18 / 0

<table>
<thead>
<tr>
<th>$ADR_CTYP_IDC_______</th>
<th><em>PBUS@: Modul typ</em>_______</th>
</tr>
</thead>
<tbody>
<tr>
<td>$00 MW 56=MW</td>
<td>1:2R1K 2:2R1K 3:--- 4:</td>
</tr>
<tr>
<td>$01 ML 16=ML1</td>
<td>5:2D20 6:2D20 7:4D20-R 8:</td>
</tr>
<tr>
<td>$02 ST:Upv 38=SBR1</td>
<td>9:2Y10 10:2Y10 11:--- 12:</td>
</tr>
<tr>
<td>$03 SBR1 26=SB1</td>
<td>13:2QD 14:2QD 15:--- 16:---</td>
</tr>
<tr>
<td>$04 SBR1 59=ST:Uprv</td>
<td>17:2Q250 18:--- 19:--- 20:---</td>
</tr>
<tr>
<td>$05 SBR1 60=ST:3P</td>
<td>21:2Y250T-M 22:--- 23:--- 24:---</td>
</tr>
<tr>
<td>$06 SBR1 56=MW</td>
<td>25:2U10 26:2U10 27:--- 28:---</td>
</tr>
<tr>
<td>$07 SBR1 20=ZW</td>
<td>29:2C 30:2D20 31:--- 32:---</td>
</tr>
<tr>
<td>$10 SBR1 39=SBR1:E</td>
<td>33:2QD 34:--- 35:2D20 36:2D250</td>
</tr>
<tr>
<td>$11 SBR1 42=SBR3</td>
<td>37:3Q-M3 38:4D20 39:--- 40:---</td>
</tr>
<tr>
<td>$25 SBR1 56=MW</td>
<td>85:2P100 86:--- 87:--- 88:---</td>
</tr>
<tr>
<td>$27 SBR1 56=MW</td>
<td>93:2P1K 94:--- 95:--- 96:---</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CTYP</th>
<th>DCS PS</th>
<th>DCS Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>PBUS</td>
<td>1 1</td>
<td>1</td>
</tr>
<tr>
<td>TTY</td>
<td>3 3</td>
<td>1..3</td>
</tr>
<tr>
<td>RING</td>
<td>1 1</td>
<td>1</td>
</tr>
<tr>
<td>PHON</td>
<td>1 1</td>
<td>1</td>
</tr>
</tbody>
</table>
Example with BPS process station:

T8  16:36:10 Function=PNT : PG
Operation=PPG       : LI

```
TA / Technical Address=$d100'PS :
$d100 = $o144____________________BPS____________________.

Version          v13.50
NAME             rt'z
RITA             $RI1
Cards            TMBD/VMBD=PRV2.128  TMEM/VMEM=PVC1.1S /1
                 TCM1/VCM1=PVC1.1ST/1  TCM2/VCM2=--
TPSP=128
Points/STAC=.  18 / 0

$ADR_CTYP_IDC_____|_PBUS@: Modul typ_

$00  MW  56=MW   | 1:2R1K  2: 2R1K  3:---  4 :  
$01  ML  16=ML1  | 5:2D20  6: 2D20  7:4D20-R 8 :  
$02  ST:Uprv     | 9:2Y10  10: 2Y10  11:---  12:  
$03  SBR1        |13:2QD   14: 2QD  15:--  16: --  
$04  SB1         |17:2Q250 18: --  19:--  20: --  
$06  MW  56=MW   |25:2U10  26: 2U10  27:---  28: --  
$07  ZW          |29:2C    30: 2D20S 31: --  32: --  
$10  SBR1:E      |33:2QD   34: ---  35:2D20 36:2D250 
$11  SBR3        |37:3Q-M3  38: 4D20 39:---  40: --  
$25  MW  56=MW   |85:2P100 86: ---  87:---  88: --  
$27  MW  56=MW   |93:2P1K   94: ---  95:---  96: --  

CTYP________|_DCS__PS___|_DCS Number_
PBUS     |   1     | 1     
TTY      |   3     | 3     | 1..3
RING     |   1     | 1     
PHON     |   1     | 1     

TA / Technical Address=$d100'PS :
```
2.22.5 DEL, Delete Points in a PS

Points in a process station can be deleted by defining them at the "Address Mask=" prompt.

```
ctrl/P
T4       15:15:37 Function =PNT : PG
Operation =PPG :    DEL
Address Mask =+$66'US: ?
Address Mask =+, -, (UA, TA, EKL, .., ,*)
A00'Al'22"AAAA
  $eee'mm'p, $eee'PLTn, $eee'RGBn, $eee'VIPn, $eee'ZONn, $eeeMxxyy
  $eee , $deee , $oeee
  ..=range
  ...=special range
*=all
  :       $66'000..$66'007
Accept Every Entry =Yes : ?
Accept Every Entry = (No ,Yes ) : YES
ST $66'000 Delete =No  : YES
  * * E N T R Y   E R A S E D * *
ST $66'001 Delete =No  : YES
  * * E N T R Y   E R A S E D * *
ST $66'002 Delete =No  : YES
  * * E N T R Y   E R A S E D * *
ST $66'003 Delete =No  : YES
  * * E N T R Y   E R A S E D * *
ST $66'004 Delete =No  : YES
  * * E N T R Y   E R A S E D * *
ST $66'005 Delete =No  : YES
  * * E N T R Y   E R A S E D * *
ST $66'006 Delete =No  : YES
  * * E N T R Y   E R A S E D * *
ST $66'007 Delete =No  : YES
  * * E N T R Y   E R A S E D * *
Operation =DEL
```

It is recommended to set "Accept Every Entry=YES" since this causes each data point for deletion to be listed separately. The user can then delete each entry individually, which provides extra safety against unintentional clearing of entries.

Otherwise, the VISONIK DCS automatically clears all entries under the specified address mask, without individual messages.

After each single keyboard "delete operation; is finished the system responds with;

```
* * E N T R Y   E R A S E D * *
```

and when a complete address mask is cleared ("Accept Every Entry=NO" in the above example)

```
8 Entries * * E N T R Y   E R A S E D * *
```

An automatic delete operation can be aborted with input of CTRL/P or CTRL/E.

**Note**

On deleting any one of the three point types PS, OS, or BLN, the system automatically clears the other two related point types.
2.22.6 COPY, Copy Generated Point

Operation COPY can be used to copy a generated point, with all its current parameter values, into a free, new location and then to assign a new user address to this location, as follows:

```
ctrl/P
T4  15:17:47 Function =PNT : PG
Operation =PPG : COPY
from=$0'000:     ?
    from=(TA)
        $eee'mm'p, $eee'PLTn, $eee'RGBn, $eee'VIPn, $eee'ZONn, $eeeMxxpyy
        : $66'000
    to =$66'PS:     ?
    to =(TA)
        $eee'mm'p, $eee'PLTn, $eee'RGBn, $eee'VIPn, $eee'ZONn, $eeeMxxpyy
        : $66'040
ADDR / User Address = A00'A1'22"AAAA: ?
ADDR / User Address=(UA, TA, EKL).
    A00'A1'22"AAAA
        $eee:mm'p, $eee'VPn, $eee'RGn, $eee'PLn
        $eee
        :
from=$66'000: __
```
2.23 PMD Post Mortem Dump

The PMD report is used for system diagnostics. The report's contents can be analysed by L&G specialists only.

Related functions

The PMD report can be accessed in two different ways:
- via the function PMD
- via RPT, PMD

This makes it possible to define a special access level for the PMD report. The reports produced are identical in both cases.

Principle

When a major system error occurs, causing a system restart, the VISONIK DCS automatically saves all memory contents to the hard disk first. These data can provide information on the cause of the system error.

Following the system restart, which is executed automatically by the VISONIK DCS, a so-called 'diagnostic dump' is output on terminal T1.

Example:

<table>
<thead>
<tr>
<th>344</th>
<th>PC = 104340 = SERV + 4340</th>
</tr>
</thead>
<tbody>
<tr>
<td>R0</td>
<td>4336</td>
</tr>
<tr>
<td>R1</td>
<td>11111 = DISC + 4111</td>
</tr>
<tr>
<td>R2</td>
<td>22222 = PRNC + 1222</td>
</tr>
<tr>
<td>R3</td>
<td>45620 = RDAT + 2420</td>
</tr>
<tr>
<td>R4</td>
<td>40324 = TDAT + 4124</td>
</tr>
<tr>
<td>R5</td>
<td>60040 = CL04 + 40</td>
</tr>
<tr>
<td>SP</td>
<td>57</td>
</tr>
</tbody>
</table>

STACK:

| 1074/ 100100 = SERV + 100 |
| 1076/ 21262 = PRNC + 262  |

Actual_Process:

34326/ 100000 0 2004 1 0 31 42434 56122 57740 SER

Memory is stored for function PMD.

The memory contents having been saved on the hard disk when the error occurred, the most recent diagnostic dump can be repeated at any time up to the next diagnostic dump using the function PMD or RPT, PMD.

Whilst the spontaneous printout shows the most crucial register contents and memory locations, the PMD printout shows all relevant operating system and process data in extended form.

Important

Whenever a diagnostic dump is output on terminal T1 it is important to generate a PMD report via PMD or RPT, PMD as soon as possible after the restart of the DCS!

The error that occurred can only be properly analysed using this listing. Appropriate corrective measures can then be recommended or actioned.
### 2.23.1 Initial Access and Handling

Function call-up | CTRL/P PMD

As the following example shows, the content of the report can only be analysed by L&G specialists.

<table>
<thead>
<tr>
<th>T8</th>
<th>15:43:35 Function=PNT : PMD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output Device</td>
<td>=$TT:</td>
</tr>
</tbody>
</table>

342 = Trap 250: MM-Abort  v14.04.012
23.07.1996/Tu 12:17:12
Bclock=30764.141310 SECnt=16320
CPU: 11M70

**Interruptlevel:** 0

**Projectname Language 0:**
**Projectname Language 1:** Training Departement

- **PC** = 100460 = BGD1 + 460 (33072. = 201|060)
- **PSW** = 000005 Priority = 0 Flags: T=0 N=0 Z=1 V=0 C=1
- **R0** = 160012 (57354. = 340|012)
- **R1** = 147401 = FD0001 + 7401 (52993. = 317|001)
- **R2** = 140032 = FD0001 + 32 (49178. = 300|032)
- **R3** = 130001 = FD0012 + 10001 (45057. = 260|001)
- **R4** = 120032 = FD0012 + 32 (40986. = 240|032)
- **R5** = 61040 = CSL004 + 40 (25120. = 142|040)
- **SP** = 60712

**User-Stack:**
60716/100132 = BGD1 + 132 (32858. = 200|132)
60720/ 40164 = YPRNC + 164 =CSXret (16500. = 100|164)

**Failure Area:**
100430/ 103420 BCS/BLO A100472
100432/  4 $jsr ->4441=AABG+40
100436/ 103415 BCS/BLO A100472
100440/ 13702 MOV @#A22706,R2
100444/ 16201 MOV 177764(R2),R1
100450/ 20162 CMP R1,177772(R2)
100454/ 103002 BHIS/BCC A100462
100456/ 112123 MOVB (R1)+,(R3)+ <===== Fail

**Instruction**
100460/  773 BR A100450
100462/ 104411 TRAP 11,->7602=AA24+202
100466/ 104405 TRAP 5,->111060=DIL2+60

**-Stack:**

**FUNC <------ (CSC#=240 BL=22)**

R2 = 0 ( 0. = 000|000)
R3 = 12150= YRDAT + 2150 ( 5224. = 024|150)
R4 = 17426= YRDAT + 7426=T9DAT ( 7958. = 037|026)

**Stack:**
60756/101560 = FUNC + 1560 (33648. = 203|160)
60760/101056 = FUNC + 1056 (33326. = 202|056)

**MEM1 <------ (CSC#=261 BL=20)**

R2 = 0 ( 0. = 000|000)
R3 = 12150 = YRDAT + 2150  (5224. = 024|150)
R4 = 17426 = YRDAT + 7426 = T9DAT  (7958. = 037|026)

Stack:
60736/100576 = MEM1 + 576  (33150. = 201|176)
BGD1 <----- (CSC#=206 BL=0)

CSL-Data
--------
csbu= 10
C.ta=$d100'041
CxAD=60000,0,0,2400,402,0,2163,41,62052,4
C.ad=$d2'000...$d254'377
P.ul=$d0'000
C.xpn=0/0.
C.mst=0
C.act=0
C.sld=17426

COMMON-Data
----------
DPblkp=41,3000,22040,0,10000,25200,0,0,0

Current Process (LTMP):
-----------------------
DLG = Dialog  Status=100000=ACT

LPROC: (Process List)

BB-Chain Longform:
------------------

BBLIST:
-------
<table>
<thead>
<tr>
<th>Time</th>
<th>Function</th>
<th>Messages</th>
</tr>
</thead>
<tbody>
<tr>
<td>36152/0 0 0 344 0 0 0 0 0 0 0 0 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>36532/0 0 0 344 0 0 0 0 0 0 0 0 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>37112/0 0 0 344 0 0 0 0 0 0 0 0 0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Remark:

If the hard disk contains no usable data, whether this is because no major error has occurred to date or because the memory dump to the hard disk was not executed correctly, the following message will be printed when a PMD report is called:

*** Sorry, inconsistent data ***
2.24 PNT Change/List Point Parameters

A current copy of the data associated with all information points is stored on the mass storage media of the VISONIK DCS in the form of parameters in the process image.

By calling the function PNT and entering the respective point address (technical or user address) a user can read or change any associated parameter values (depending on proper access authority and parameter type).

The function PNT is, therefore, the most frequently used and the most powerful function of the VISONIK DCS.

Acknowledgement of parameter changes

Every parameter change is output in the form of a message line to that message channel defined in parameter DEVPCH.

<table>
<thead>
<tr>
<th>KEYB ME 16:23:12 A01'B2'U34</th>
<th>LOLO =10----&gt;5.1</th>
<th>L&amp;G T1</th>
</tr>
</thead>
<tbody>
<tr>
<td>^ ^ ^ ^ ^ ^ ^ ^</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a  b  c  d  e  f  g</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Explanation:

a) Source of parameter change:
   Parameter manually changed in this example.

b) Point type

c) Exact time of parameter change

d) User address (point address)

e) Changed parameter (abbreviation) with: old value ---> new value

f) Code of user who is currently logged in at the terminal.
   (In the above example this person is from LANDIS & GYR an has the user code "L&G").

g) Operating terminal through which the parameter change was made.

2.24.1 Initial Access and Handling

Function call-up

CTRL/P, PNT

Selecting the point address

The VISONIK DCS accepts the user address or technical address of a point as input.

T8  16:58:01 Function=PNT : $100'001
    AI      RO'OM'TEMP"01 Training Department
    64.5 Deg. C       OPMO=5=PS
Parameter=AI

Possible address inputs

The following inputs are permitted at address level:

T8  16:58:51 Function=PNT :
Address=RO'OM'TEMP"01:

Operator's Address Range = **"**"****"**

UA : AA'AA'A111"dd
TA : $eee' mop, $Rn, $S, $Tn; eee=d32, o40; mop=070, M29p1, VIP8,
    PS, ...
+ : Next       UA/TA
- : Previous   UA/TA

Address=RO'OM'TEMP"01:
Legend:
This represents a range of addresses to which the current operator has access.

Operator's Address
Range = "01"**"**"****

UA
A00'A1'22"AAAA
Point selection through User Address. On input of "***", the first address in the system is prompted according to alphabetical structure.

TA
$eee'mop, $Rn, $S, $Tn, ...
Technical Address selection.

+ 
Next UA/TA
By entering a "+" the next User or Technical Address can be called up in ascending alphabetical order.

- 
Previous UA/TA
By entering a "-" the previous User or Technical address can be called up in descending alphabetical order.

2.24.2 Parameter selection

Parameter
A particular parameter can be selected at the parameter prompt, provided the user's read or write privilege is sufficient.
The VISONIK DCS then opens the parameter, allowing the user read or write access to it.
All parameters can be displayed one at a time in alphabetical order by pressing the <Enter> key, and each can be modified as appropriate.

Control character <
In the case of indexed parameters, non-indexed parameter operation can be reactivated by entering '<'.

2.24.3 Listing parameters

When a point address has been selected, the VISONIK DCS outputs a full message line which contains the point's current status and gives a prompt for selection of the point's main value.
In order to obtain an overview of the respective parameters, the possibilities described in the following are available at this stage.

Parameter listing with "?"
When "?" is entered, the VISONIK DCS produces a complete list of the abbreviated parameter names in alphabetical order and sorted according to the four parameter categories:
- MAIN parameters
- OPERATING parameters
- CONFIGURATION parameters
- SERVICE parameters
An operator may call up a full listing of parameters which lie under his access authority by input of an asterisk ("*"). The list not only shows the parameters involved but also their current values. The listing is in alphabetical order and arranged in the four categories - MAIN, OPERATING, CONFIGURATION and SERVICE parameters.

In the case of indexed parameters (MSGT in the example), the parameter with index '1' is displayed.
The display is basically the same as above. If two asterisks "**" are entered, however, the complete range of indexed parameters is listed (MSGT in the example).

Important: Such lists can be very long.

<table>
<thead>
<tr>
<th>Parameter=AI</th>
<th>**</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAIN Parameter</td>
<td></td>
</tr>
<tr>
<td>- AI</td>
<td></td>
</tr>
<tr>
<td>Analogue Input (Measurement)</td>
<td>65.3 Deg. C</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>CONFIGURATION Parameters</td>
<td></td>
</tr>
<tr>
<td>MSGT (1)</td>
<td></td>
</tr>
<tr>
<td>Message Type</td>
<td>0.</td>
</tr>
<tr>
<td>MSGT (2)</td>
<td></td>
</tr>
<tr>
<td>Message Type</td>
<td>0.</td>
</tr>
</tbody>
</table>

Some parameters have additional attributes. The additional attributes of these parameters can be displayed by entering "**.*". All parameters are listed in expanded form.

With the exception of the attribute display, the output is basically the same as the listing with "**". Important: Such lists can be very long.

<table>
<thead>
<tr>
<th>Parameter=SOPST</th>
<th>ARHUMS.*</th>
</tr>
</thead>
<tbody>
<tr>
<td>- ARHUMS.OK</td>
<td>Valid for Tx</td>
</tr>
<tr>
<td>- ARHUMS.UNDEF</td>
<td>Device Error</td>
</tr>
<tr>
<td>- ARHUMS.WERR</td>
<td>Write Error</td>
</tr>
<tr>
<td>- ARHUMS.EVE</td>
<td>Event enable</td>
</tr>
<tr>
<td>- ARHUMS.UNACK</td>
<td>Unacknowledge</td>
</tr>
<tr>
<td>- ARHUMS.DIST</td>
<td>Disturbed</td>
</tr>
<tr>
<td>- ARHUMS.OR</td>
<td>Overridden</td>
</tr>
<tr>
<td>- ARHUMS.OSV</td>
<td>Out of service</td>
</tr>
</tbody>
</table>

In the case of indexed parameters, only the parameter with index ‘1’ is displayed if "**" is used to produce a parameter list. In order to display the whole range of the indexed parameter, its index must be set to "".*"".
2.24.4 Modifying parameters

By entering a parameter's abbreviated name, the user has direct access to the corresponding parameter value, which can be modified within its range, depending on the user's write privileges.

Data types
Every parameter is associated with a particular data type. The VISONIK DCS supports the following data types:
- Numerical parameters
- Text parameters
- Bitset parameters
- Other data types

Numerical parameters
Example for CHPL: [ 80..132 ]
In this example, the DCS accepts numerical inputs in the range 80 to 132.

Text parameters
The DCS accepts both the text entries as shown above and the corresponding numerical values described in the following.
These numerical values (ascending values starting from zero) correspond to the location of the text within the defined range.

The following numerical values apply for the above example:
- Off corresponds to the numerical value 0
- On corresponds to the numerical value 1
- Auto corresponds to the numerical value 2
- Heating corresponds to the numerical value 3
- Comfort corresponds to the numerical value 5
- Night-V corresponds to the numerical value 9
- Fire-0 corresponds to the numerical value 15

Important: Unoccupied list positions (commas) must also be counted in order to determine the corresponding numerical value of a text parameter (note the jump in values between Comfort and Night-V in the above example).

PS and DCS COLBAS
PS and DCS COLBAS accept numerical values only.
The process station and COLBAS in the DCS do not accept text entries; the corresponding numerical value must be entered in each case.
### Bitset Parameters (with texts)

Example for DYBE: \[ \&, \,, \*, \-, \+, -=, \, \, \&\, Mo, \, Tu, \, Th, \, Fr, \, Sa, \, Su \, \] 

With bitset parameters any desired combination of options can be specified from a defined selection.

Bitset parameters are recognizable by the permissible operators, which are always displayed \[ \&, \,, \*, \-, \+, -=, \, \, \].

The possible operations are explained in the following, based on the above example of the weekdays (DYBE):

- **&**: Example: DYBE = Mo&Th&Fr
  - Grouping mark between a number of options that are to be set.
  - Existing options are deleted beforehand.

- **.**: Example: DYBE = .
  - Delete all set option

- *****: Example: DYBE = *
  - Set all options

- **-**: Example: DYBE = -We, or = -We&Sa
  - Set all options apart from those specified.

- **+=**: Example: DYBE += Tu, or += Tu&We
  - The specified options are to be set in addition to the currently applicable option set.

- **-=**: Example: DYBE -= Sa, or -= Sa&Mo
  - The specified options are to be deleted from the currently applicable option set.

In the case of bitset parameters, the DCS only accepts text entries from the defined range.

### PS and DCS COLBAS

The process station and COLBAS in the DCS do not accept text entries; the corresponding numerical value must be entered in each case.

This numerical value (exponent with base 2) can be determined from the position of the text within the defined range.

The following numerical values apply for the above example:

<table>
<thead>
<tr>
<th>Text</th>
<th>Numerical Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mo</td>
<td>2^0 = 1</td>
</tr>
<tr>
<td>Tu</td>
<td>2^1 = 2</td>
</tr>
<tr>
<td>We</td>
<td>2^2 = 4</td>
</tr>
<tr>
<td>Th</td>
<td>2^3 = 8</td>
</tr>
<tr>
<td>Fr</td>
<td>2^4 = 16</td>
</tr>
<tr>
<td>Sa</td>
<td>2^5 = 32</td>
</tr>
<tr>
<td>Su</td>
<td>2^6 = 64</td>
</tr>
</tbody>
</table>

**Important:**

In order to express a combination of weekdays, their individual numerical values must be added together (We&Sa --> 36).

**Unoccupied list positions** (commas) must also be counted in determining the corresponding numerical values.

### Other data types

The following data types are also used in the VISONIK DCS:

- **for date**: dd:mmm:yy
- **for time**: hh:mm:ss
- **for tech. addresses**: TA
2.25 PNX Change/List Multiple Point Parameters

What does PNX do?
The function PNX provides the user with highly flexible means to
• change parameters
  and/or
• list parameters
of a large number of points in great detail and according to complex constraints.
The function PNX is a useful extension to the functions PG, PNT and RPT.
It is related to RPT, PNX, except that it allows parameters to be changed.

2.25.1 Initial Access and Handling

Function call-up
CRTL/P, PNX

Selection criteria
Before the desired parameter changes can be made, the set of points, i.e. the address
range and the constraints, as well as the operating mode must be specified:
The function PNX allows the following sets of points to be selected:
1. up to 7 address ranges or individual addresses
2. up to 8 masking parameters (parameter name with respective value)
3. up to 10 freely definable parameters to be changed or printed.
Note:
The above maximum selectable values cannot all be specified at the same time.

Options
The user is free to select any of the following options or any combination of them:
• Selection of the parameters to be changed according to the above criteria
• Status report for all selected parameters
• Statistics on the number of points found

Example of the function PNX

<table>
<thead>
<tr>
<th>T8</th>
<th>15:20:10 Function=PNT : PNX</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Address Mask=$d100'000...$d100'377: $100*</td>
<td></td>
</tr>
<tr>
<td>2. Address Mask= . :</td>
<td></td>
</tr>
<tr>
<td>1. Masking Param.= . : ?</td>
<td></td>
</tr>
<tr>
<td>PAR  = &quot;AND&quot; Parameter</td>
<td></td>
</tr>
<tr>
<td>!PAR  = &quot;OR&quot; Parameter</td>
<td></td>
</tr>
<tr>
<td>.  = -----</td>
<td></td>
</tr>
<tr>
<td>1. Masking Param.= . : OSV</td>
<td></td>
</tr>
<tr>
<td>Parameter Value = 0: ?</td>
<td></td>
</tr>
<tr>
<td>General: Operation and Value or Only Value</td>
<td></td>
</tr>
<tr>
<td>Operations for Numerical Values (x,y):</td>
<td></td>
</tr>
<tr>
<td>x(..y) Equals x or within x..y (default)</td>
<td></td>
</tr>
<tr>
<td>&lt;x(..y) Does not equal x or outside x..y</td>
<td></td>
</tr>
<tr>
<td>&gt;x, &gt;=x Greater than x, Greater than or equal to x</td>
<td></td>
</tr>
<tr>
<td>&lt;x, &lt;=x Less than x, Less than or equal to x</td>
<td></td>
</tr>
<tr>
<td>Operations for Bitset Values (x,y):</td>
<td></td>
</tr>
<tr>
<td>x&amp;y Equal - Only Bit x,y set (default)</td>
<td></td>
</tr>
<tr>
<td>&lt;&gt; x&amp;y Unequal - Only Bit x,y not set</td>
<td></td>
</tr>
<tr>
<td>and x&amp;y AND Expression - Bit x and y set</td>
<td></td>
</tr>
<tr>
<td>or x&amp;y OR Expression - Bit x or y set</td>
<td></td>
</tr>
<tr>
<td>not x&amp;y Inversion - Bit x,y not set</td>
<td></td>
</tr>
<tr>
<td>Parameter Value = 0:</td>
<td></td>
</tr>
</tbody>
</table>
Explanation of the previous example

1. Address Mask
   Input of the first address range (user or technical address) to be referenced by the function PNX. An individual address may be entered.

n. Address Mask
   Up to 7 further addresses or address ranges can be defined at this level.

1. Masking Param.
   Masking parameters represent the boundary conditions that must be met by the points and point ranges defined above in order for the desired parameters to be changed. Masking parameters may be linked as required with AND statements or OR statements.

Parameter Value
   Permissible values for the parameter specified above. In the example: OSV=0. Instead of a fixed parameter value, range definitions and comparison operators as per the following table are permissible:

<table>
<thead>
<tr>
<th>General: Operation and Value</th>
<th>Only Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operations for Numerical Values (x,y):</td>
<td></td>
</tr>
<tr>
<td>x(..y) Equals x or within x..y (default)</td>
<td></td>
</tr>
<tr>
<td>&lt;&gt;x(..y) Does not equal x or outside x..y</td>
<td></td>
</tr>
<tr>
<td>&gt;x, &gt;=x Greater than x, Greater than or equal to x</td>
<td></td>
</tr>
<tr>
<td>&lt;x, &lt;=x Less than x, Less than or equal to x</td>
<td></td>
</tr>
<tr>
<td>Operations for Bitset Values (x,y):</td>
<td></td>
</tr>
<tr>
<td>x&amp;y Equal - Only Bit x,y set (default)</td>
<td></td>
</tr>
<tr>
<td>&lt;&gt; x&amp;y Unequal - Only Bit x,y not set</td>
<td></td>
</tr>
<tr>
<td>and x&amp;y AND Expression - Bit x and y set</td>
<td></td>
</tr>
<tr>
<td>or x&amp;y OR Expression - Bit x or y set</td>
<td></td>
</tr>
<tr>
<td>not x&amp;y Inversion - Bit x,y not set</td>
<td></td>
</tr>
</tbody>
</table>

n. Masking Param.
   A total of up to 8 masking parameters can be defined at this level.

1. Operating Param.
   Definition of parameter to be changed or reported.
**n. Parameter**

Up to 10 operating parameters can be specified at this level for change or reporting.

**Operating Mode**

Selection of the change or list mode.

Any combination of the following possibilities can be selected. Example: CHP&INS, etc.

- LIST: List Parameter
- CHA: Change Parameter (Fixed Value)
- CHP: Change Parameter (Point by Point)
- INSP: Inspect before Parameter Change
- RPDV: Parameter Change Messages (MSGDEV)
- RPCH: Parameter Change Messages (DEVPCH)
- LICR: CRLF before Listing Parameter
- LISE: Printout with Separator

**with Status Rpt. = No**

Is a status report required, "Yes/No".

**with Statistics = Yes**

Is a statistics report required, "Yes/No".

**Linking a number of Masking Parameters (AND/OR)**

**AND**

For an AND operation, enter the parameter name at the "Masking Param. = " prompt. This condition is OBLIGATORY for all of the selected points.

**OR with !**

For an OR operation, enter an exclamation mark "!" before the parameter name. This condition is NOT OBLIGATORY for all of the selected points.

---

**T8 10:01:18 Function=PNT : RPT,PNX**

```
  " "
  " "
1. Masking Param. = : RSUP
   Parameter Value = No:

2. Masking Param. = : !OSV
   Parameter Value = 0: Yes

3. Masking Param. = : 
   " 
   "
```

**Explanation**

The exclamation mark (!) before the parameter OSV indicates that this is an "OR" operation between two or more masking parameters, i.e. one OR the other limiting condition must apply (RSUP=No OR OSV=Yes).

If there were no exclamation mark, it would be an "AND" operation, i.e. ALL limiting conditions must apply (RSUP=No AND OSV=Yes).

In the above example the VISONIK DCS will process all of the points whose parameter RSUP=No or whose parameter OSV=Yes.

**Note**

In the case of parameters with numerical values it is recommended that small ranges should be entered for the parameter value in order to take internal rounding differences into account.

e.g. AI = 19.5 .. 20.5 instead of 20
2.25.2 Parameter Change/List Operating Mode

<table>
<thead>
<tr>
<th>Automatic or manual parameter change</th>
<th>The function PNX allows parameters to be changed in two different ways:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Allow the VISONIK DCS to automatically change the complete selected point set to a specified value.</td>
</tr>
<tr>
<td></td>
<td>- Manually change each value, point by point, to a new, freely selectable value.</td>
</tr>
<tr>
<td>No parameter change with &quot;=&quot;</td>
<td>The system carries out each parameter change in the sequence of entered operating parameters. Any parameter that does not apply to a point in the specified point range is skipped (e.g. HIL for a switch command point).</td>
</tr>
<tr>
<td>Operating mode</td>
<td>With &quot;Operating Param. ==&quot; the respective parameter is not changed, and the points in the selected address ranges are only listed when a status report is requested by the user.</td>
</tr>
<tr>
<td>LIST</td>
<td>The VISONIK DCS lists the selected parameters for each point address.</td>
</tr>
<tr>
<td>CHA</td>
<td>The VISONIK DCS automatically changes all selected parameters to the specified value. Important: A list is not automatically printed with CHA. In order to produce a list, the options CHA and LIST must be combined, i.e. CHA&amp;LIST.</td>
</tr>
<tr>
<td>CHP</td>
<td>The selected parameters can be set manually to individual values, point by point. Important: A list is not automatically printed with CHP. In order to produce a list, the options CHP and LIST must be combined, i.e. CHP&amp;LIST. Possible application: assigning user addresses after point generation with the function PG.</td>
</tr>
<tr>
<td>INSPEX</td>
<td>Inspect before Parameter Change</td>
</tr>
<tr>
<td></td>
<td>This option allows the user to verify each parameter change before it is made, and then confirm or cancel it with &quot;Change = (NO, YES)&quot;). The INSPEX option can be deselected at any time by entering &quot;Change ==&quot;. The VISONIK DCS then continues the process in the selected operation mode without inspection.</td>
</tr>
<tr>
<td>RPDV</td>
<td>Parameter Change Messages (MSGDEV)</td>
</tr>
<tr>
<td></td>
<td>All parameter change messages are registered at the terminals specified in the parameter MSGDEV (message channel mask).</td>
</tr>
</tbody>
</table>
**RPCH**

**Parameter Change Messages (DEVPCH)**
All parameter change messages are registered at the terminals specified in the parameter DEVPCH (message channels: manual parameter change)

**LICR**

**CRLF before Listing Parameters**
The VISONIK DCS lists the specified parameters for each point address.
In contrast to the LIST option, each parameter is listed on a new line.

**LISE**

**Printout with Separator**
The VISONIK DCS lists the specified parameters for each point address.
In contrast to the LIST option, a separator ";" is inserted between each element. This option is especially intended for use with loader programs.

**With Status Report**
The user can choose for the VISONIK DCS to produce a status report at the operator terminal for all points complying with the specified address range and masking parameters.
In combination with the LIST option, the status report contains not only the unchanged parameters but also the changed parameters.

**With Point Statistics**
The user can choose for the VISONIK DCS to list the following statistics at the operator terminal for the specified address range when the change/list operation is completed:
- Total number of points
- Number of points complying with the masking parameter conditions.
- With the option LIST&CHA, the number of parameters changed.
2.26 PRR Process Reaction Register

2.26.1 Initial Access and Handling

Function call-up
CTRL/P PRR

General
A general introduction to the subject of VISONIK reactions can be found under "Reactions in General" in section R of this manual.
The process reaction PRR is one of six reaction types provided by the VISONIK DCS.
The reaction types are named after the "reason" that is to activate the reaction in each case.

Each reaction entry consists of the following three parts:
- "Reason" that activates the reaction
- Blocking flag that can disable a reaction
- Reaction to be executed

What can the PRR do?
The process reaction function can execute a reaction based on the change of state of a VISONIK data point.

PRR reasons
- Changes of the main value
- Value goes out of limits
- Changes of alarm status
- Changes of operating state

PRR reactions
- Change a point parameter
- Print a clear text message
- Execute macro commands
- Print slave messages
- Start or stop COLBAS tasks
- Automatic picture selection in VISONIK Insight

Main menu
When the process reaction function is selected, the VISONIK DCS offers the user the following possibilities:

<table>
<thead>
<tr>
<th>T8</th>
<th>16:24:28 Function=PNT : PRR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation</td>
<td>=CH</td>
</tr>
<tr>
<td>0 CH</td>
<td>Change Data Entry</td>
</tr>
<tr>
<td>1 LI</td>
<td>List Data Registers</td>
</tr>
<tr>
<td>2 DEL</td>
<td>Delete Register Entry(ies)</td>
</tr>
<tr>
<td>3 LSTA</td>
<td>List Reaction Register State</td>
</tr>
<tr>
<td>4 LOCT</td>
<td>List Reaction Entries in Octal</td>
</tr>
<tr>
<td>Operation</td>
<td>=CH</td>
</tr>
</tbody>
</table>
Example: Process reaction entry

<table>
<thead>
<tr>
<th>T8</th>
<th>16:53:04 Function=PNT: PRR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation</td>
<td>=CH :</td>
</tr>
<tr>
<td>Reason</td>
<td>=(UA, TA): $100'001</td>
</tr>
<tr>
<td>Entry</td>
<td>=1 : 2</td>
</tr>
<tr>
<td>Positive Edge</td>
<td>=. : ?</td>
</tr>
<tr>
<td>Negative Edge</td>
<td>=. : ?</td>
</tr>
<tr>
<td>Positive Edge</td>
<td>=. : ?</td>
</tr>
<tr>
<td>Negative Edge</td>
<td>=. : ?</td>
</tr>
</tbody>
</table>

No Reaction

0: <LOL  ---> Normal
1: Normal  ---> >HIL
11: ...  ---> OPSTA
12: ...  ---> ERSTA
13: ...  ---> Main Value
14: For Every Event

Positive Edge =. : 1
Negative Edge =. : 2

Lower Limit =. : 15

WARNING : OPMO!! OPMO! Limit without Function

High Limit =. : 25

WARNING : OPMO!! OPMO! Limit without Function

Blocking Flag =. : $F10

Flag Value =Off : ?
Flag Value =(&,.,*,+,-,=,-=,Off,Step 1,Step 2,Step 3):

Reaction = (UA, TA): ?

UA/TA = Change Point Parameter
CT = Printout Cleartext
MC = Issue MACRO Command
SLVM = Output Slave Message
CB = Start/Stop COLBAS Task
. = No Reaction (for MRR & GRR)
PICT = Auto Picture/Point Selection

Reaction = (UA, TA): $100'041

Parameter =DO :

Set Digital Output: Priority=0 =Off : ?
Set Digital Output: Priority=0 = (Off, On), (LSPV, SAME, INV, .) : Off
1. Further Address =. :

Message Mask =MSGDEV : ?

MSGDEV: M1
MM00: M1&2
MM15: M1&2

Message Mask =MSGDEV : ?
Acknowledgement of the above reaction entry

<table>
<thead>
<tr>
<th>FL $FL77 = 0&quot;OC'ESSR&quot;01 / 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive Edge 1: FL=0 ----&gt; FL=1</td>
</tr>
<tr>
<td>Negative Edge 2: FL=3 ----&gt; FL=2</td>
</tr>
<tr>
<td>Blocking Flag BL'OC'KING&quot;01</td>
</tr>
<tr>
<td>Off</td>
</tr>
<tr>
<td>?FL_____PRR Blocked!________</td>
</tr>
<tr>
<td>Reaction PACH_Change Point Parameter</td>
</tr>
<tr>
<td>Address DO $d100 '041</td>
</tr>
<tr>
<td>Parameter DO___Set Digital Output: Priority=0</td>
</tr>
<tr>
<td>Value 0=Off</td>
</tr>
<tr>
<td>Reporting MSGDEV M1</td>
</tr>
</tbody>
</table>

2.26.2 CH, Enter/Change Data

2.26.2.1 Changing an existing PRR entry

In order to change data in a reaction entry it must first be selected via its "reason" and entry number. If the entry exists, it is listed completely for checking at the operating terminal.

The edit mode then becomes active, so that the user can modify or confirm each part of the reaction entry step by step.

Important:

A reaction entry is not changed (and re-saved) in the system until every step of this dialogue has been completed, i.e. after the last prompt for "Message Mask" has been answered. In all other cases, e.g. if the dialogue is exited with CTRL/P or CTRL/E, any changed data will be lost.

2.26.2.2 Creating a new process reaction entry

Depending on the type of reaction program, the following prompts must be answered in order to create a new reaction entry:

Definition of the "reason"

Reason
User or technical address of the point triggering the reaction.
All point types excepting CVP, PBN, PHON, TTY and RING are permissible triggers.

Entry
The VISONIK DCS sorts the reaction entries according to their "reasons" and automatically allocates a number to each entry per "reason". A reaction entry can only be identified unambiguously with its entry number.

Positive Edge
As reason for the triggering points, different positive and negative edges can be defined. A positive edge is:
- Changes from normal to faulty
- Changes from < LOL to Alarm
- Changes from normal to > HIL
- Changes from FL=1 to FL=2
- Changes to “Frost IT” (OZ, ZON)
- Changes to "Watchdog" (OS)
- Changes to an OPSTA or ERSTA value to be defined
- Change to a main value to be defined
- Occurrence of any Event
The permissible "edge" types differ according to point type, and they are not listed completely in this document.

During programming, therefore, it is advisable to display the possibilities that are permissible in each case using the Help '?' function.

### Positive Edge

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.: No Reaction</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>rDO=0</td>
<td>rDO=1</td>
</tr>
<tr>
<td>2</td>
<td>rDO=1</td>
<td>rDO=2</td>
</tr>
<tr>
<td>3</td>
<td>rDO=2</td>
<td>rDO=3</td>
</tr>
<tr>
<td>5</td>
<td>Auto</td>
<td>Hand</td>
</tr>
<tr>
<td>14</td>
<td>...</td>
<td>FBV&lt;&gt;rDO</td>
</tr>
</tbody>
</table>

Explanation using edge 12; also basically applies to edges 11 and 13.

.... ---> ERSTA

Triggering of a response, if the error status ERSTA changes from any value to a predefined value.

The previously mentioned, predefined value (OPSTA, ERSTA, Main value) must be entered upon the next prompt.

Some points do not have negative edges. Logically, the point for "no response" cannot be selected for the positive edge.

Combination of a number of "edges"

A number of different "edge" values can be combined using the '&' operator. An internal plausibility check ensures that only meaningful inputs are accepted.

In the case of sequential process reactions for which more than one "edge" value is defined per "edge", ensure that ALL entries can be processed individually in sequence with their respective "edge" values.

In order to avoid difficulties, the following is recommended:

- Use only one unambiguous "edge" per entry.
- Do not use combinations of "edge" values.
- Pay attention to the sequence of the entries in the process reaction register.

As shown in the above example, the displayed selection is supplemented by additional, historically significant "edge" numbers. These "edges" are listed in table form in the appendix to this chapter.

### Negative edge

As reason for the triggering points, different positive and negative edges can be defined. A negative edge is:

- Change from faulty to normal
- Change from normal to < LOL
- Change from > HIL to normal
- Change from FL=2 zu FL=1
- Change from an OPSTA or ERSTA value to be defined to any other value
- Change from a main value to be defined to any other value

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.: No Reaction</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>&gt;HIL</td>
<td>Normal</td>
</tr>
<tr>
<td>2</td>
<td>Normal</td>
<td>&lt;LOL</td>
</tr>
<tr>
<td>11</td>
<td>OPSTA</td>
<td>...</td>
</tr>
<tr>
<td>12</td>
<td>ERSTA</td>
<td>...</td>
</tr>
</tbody>
</table>
The explanations for ‘Positive Edge’ equally apply. The line with edge 12 thus stands for:

\[ \text{ERSTA} \rightarrow \ldots \text{ERSTA} \]

Triggering of a response, if the error status ERSTA changes from any value to a predefined value.

The previously mentioned predefined value (OPSTA, ERSTA, Main value) must be entered upon a prompt.

**Note**

Positive and negative edges must be combined following rules:
- When choosing positive edge 13 (\( \rightarrow \text{Main value} \)), no negative edge is available.
- When choosing positive edge 11 (\( \rightarrow \text{OPSTA} \)), the selection for a negative edge is restricted to (no response) or 11 (OPSTA \( \rightarrow \) )
- The same applies to choosing positive edge 12 (\( \rightarrow \text{ERSTA} \))

**Lower limit**

Depending on the selection of the positive and negative edge, the respective values are requested here. Examples:
- Lower / upper limit
- Alarm status
- Operating state
- Main value

**OPMO must be set correctly!**

If the operating mode OPMO of the data point triggering the reaction is set such that the reaction is not executed, the following message will be displayed:

| WARNING | OPMO!! | OPMO! Limit without Function |

**Limit pair independent of LOL and HIL**

If the points types AI, VIP, CI and AO are used as "reasons", customized pairs of limits, which the VISONIK DCS treats with higher priority than the lower/upper limits set in the parameters LOL/HIL, can be defined in the reaction entry.

This allows any desired limits for any reactions to be assigned to a point of this kind. If the value goes out of limits, a process reaction corresponding to the "edge" is executed. If the limits are not specified in the reaction entry, the values of the point parameters LOL/HIL apply.

**Upper limit**

The statements made under "lower limit" in the above apply analogously.

**Definition of additional conditions (blocking flag)**

**Blocking flag**

A flag point with address and value(s) can be assigned to each reaction entry.

This blocking flag constitutes an additional condition that must be fulfilled before the reaction is executed.

A reaction entry is said to be blocked if the current value of the flag does not correspond to a value belonging to the entry.

<table>
<thead>
<tr>
<th>Blocking Flag=</th>
<th>$F10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flag Value</td>
<td>Off</td>
</tr>
<tr>
<td>Flag Value</td>
<td>${&amp;,\ldots,*,-,+-,=-,\text{Off},\text{Step 1},\text{Step 2},\text{Step}}</td>
</tr>
</tbody>
</table>

**Flag value**

A specific value or a combination of several values can be entered for the flag value.

In the above example, the reaction entry is executed only if the "reason" is fulfilled and flag $F10$ has the value 1,Step or 2,Step at that time.

In all other cases the reaction entry is blocked, and the reaction is not executed.

**Definition of the reaction to be executed**

The following reactions can be triggered via a process reaction entry:
Reaction  =\((UA, TA)\) : ?

- **UA/TA** = Change Point Parameter
- **CT** = Printout Cleartext
- **MC** = Issue MACRO Command
- **SLVM** = Output Slave Message
- **CB** = Start/Stop COLBAS Task
- **.** = No Reaction (for MRR & GRR)
- **PICT** = Auto Picture/Point Selection

### Reaction UA/TA

Address of the data point on which the reaction is to act. The following inputs are permissible:
- Technical address or $* masks
- User address or $* masks
- All addresses, including CT to PICT, by entering "."

### Parameter

Specify the parameter to be modified.

### Parameter value

In the example "Set Digital Output: Priority=0 :"

The following possibilities are available for entering the parameter value:
- A fixed value is assigned to the selected parameter.
- A priority is assigned to the resultant output values RDO of switch command points DO.

The following variants can be entered for switch commands in the PRR:
- Modification of the parameter DO1 or DO2 with its respective bit influence DO1ACT or DO2ACT.
- Selective setting of a single bit influence in DO1ACT or DO2ACT.
- Selective setting of all bit influences in DO1ACT or DO2ACT.

The above statements apply analogously to flag points.

- **RVAL**: The resultant setpoint of a switch command RDO or of a flag point RFL is set to the last effective value, e.g. after a power failure.
- **SAME**: When the reaction is triggered, the parameter value of the reaction address is set the SAME as the main value of a selectable data point. The data point can be specified at the "FNT/Address" prompt.
- **INV**: When the reaction is triggered, the parameter value of the reaction address is set to the INVERSE of the main value of a selectable data point. The respective values are interpreted as Boolean variables. The data point can be specified at the "FNT/Address" prompt.

### Note on additional information sources:

- More detailed information and appropriate examples can be found in the chapter "Reactions" in tab "R" of this manual.
- Information on the subject of "bit influence" can be found in the descriptions of the parameters RDO,DO,DO1,DO2 and RFL,FL,FL1,FL2.

### Reaction CT

When the reaction is triggered, the VISONIK DCS prints a specific clear text message in the defined message mask; the message appears in the language that is defined for the respective device with the parameter XX.

### Number

Number of the clear text message in the text register TXCM,C.
**Reaction MC**

When the reaction is triggered, the VISONIK-DCS executes a specific macro command from the macro text register (TXCM,M) of the selected language at ONE defined device.

**Macrotex number**

Number of the macro text.

**Language**

Language of the macro text register.

**Output device**

Output device (STA, M1..M15) at which the text is to be printed.

**Reaction SLVM**

Print slave messages.

The VISONIK DCS normally only prints spontaneous messages if the status of a point changes in the peripheral equipment.

An SLVM reaction is required in order to force point messages (e.g. cyclic polling of a temperature using a date reaction).

When the reaction is triggered, the VISONIK DCS reports the main value of the point in the defined message mask, without the point status having changed.

Slave messages have an exclamation mark before the timestamp in the message line.

**Reaction CB**

The VISONIK DCS starts/stops one of the available DCS COLBAS tasks.

**DB Task**

Number of the COLBAS task whose operation mode is to be modified.

**Mode**

Requested operation modes:

- **RUN**
  - Stops the COLBAS task if it is active, and starts it at the line number entered.
- **RESTART**
  - Starts a COLBAS task only if it is inactive. If the task is active, the instruction is ignored.
- **STOP**
  - Stops the task and prints a STOP message.
- **END**
  - Stops the task without a message.

**COLBAS Line No.**

Line number at which the task is to be started by a RUN or RESTART instruction.

**Reaction .**

No Reaction (MRR/GRR)

This option is only implemented for group reactions and maintenance reactions. Group reactions (GRR) and maintenance reactions (MRR) include additional mechanisms that do not require a special reaction section:

- Group reactions include a device changeover mechanism for alternative or auxiliary devices.
- Maintenance reactions include an operating hours counter.

If reaction programs are used for such cases, the reaction entry should be set to "Reaction=.".

**Reaction PICT**

Automatic picture/point selection

When the reaction PICT is triggered, the VISONIK DCS automatically displays the selected picture in VISONIK-Insight.

The picture is only displayed if VISONIK Insight is free. Otherwise, it is saved until it is opened manually.

**Picture number**

Specification of the picture to be displayed.

In the case of reaction programs whose "reason" is a point change (PRR/SRR), the user can enter an "F" in the reaction entry instead of a fixed picture number. With this entry the picture that has been assigned to the respective "reason" address using the function COS,PICT or the function PICT will be automatically displayed.

The PICT parameter contains the number of the picture on which a given point is displayed.

**Graphic devices**

VISONIK Insight, Output device number (T1..T15)

If a printer channel is selected as graphic device, the encoded picture number will be printed only.
1. further address
The VISONIK DCS executes the same reaction with the further addresses as with the address defined under “Reaction =”. This feature allows for reaction entries to be economized.

n. further address
The user can assign up to four different further addresses to each reaction entry, provided the reaction is one that modifies point parameters (Reaction =UA/TA) or prints slave messages (Reaction =SLV).

Message mask
For each reaction entry, the user can use the message mask to define which output devices of the VISONIK DCS are to register the reaction:

<table>
<thead>
<tr>
<th>Message Mask</th>
<th>MSGDEV : ?</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSGDEV: M1</td>
<td></td>
</tr>
<tr>
<td>MM00: M1&amp;M2</td>
<td></td>
</tr>
<tr>
<td>MM15: M1&amp;M2</td>
<td></td>
</tr>
</tbody>
</table>

Message Mask =MSGDEV means that the reaction will be registered on the message devices that are listed according to message priority in the parameters DSM0..DSM3 (point type SY) of the point specified under "Reaction=". The MSGDEV mask also takes device allocations with group reactions (alternative or auxiliary devices) into account.

2.26.3 LI, List Data Registers
The LI operation can be used to selectively list the reaction entries. The contents of the list can be filtered according to the following criteria:
- by "reasons"
- by entry numbers
- by reactions

If the reaction type CT, MC or CB is entered at the prompt “Reaction=?:”, the user can make a finer selection according to text or task number.

T8       10:39:28 Function=FNT : PRR
Operation  =CH  : LI
Reason     =..  : ?
Reason     = (UA, TA, ..., *,)
UA  = AA'AA'All"dd
TA  = $sss'mm'p, $sss'CTYPn, $CTYPn, $sssMxxPyy
... = digitwise range
.. = range
* = all points with UA, $*=all points
  .. : $*
Entry      =*  : *
Reaction    =..  : ?
UA/TA = Change Point Parameter
CT = Printout Cleartext
MC = Issue MACRO Command
SLVM = Output Slave Message
CB = Start/Stop COLBAS Task
. = No Reaction (for MRR & GRR)
PICT = Auto Picture/Point Selection
Reaction    =..  :
Questionable status markers

The list of reaction entries can contain so-called “questionable status markers”, which have the following meanings:

?FL

The blocking flag's value in the reaction entry does not correspond to the flag's current value, i.e. the entry is currently blocked.

?RSUP

The parameter RESU (Reaction Suppressed) of a process reaction point is set to “YES”.

?REAR

This system-internal tag (“Reason for Reaction”) denotes that the “reason” for a process or maintenance reaction has not been set although a reaction entry exists.

The VISONIK DCS manages this "REAR" tag in the reaction programs, ensuring optimum and fast reaction access. If this tag is not present, no process reactions will be executed as a result of this "reason". Errors of this kind are corrected automatically when the register is printed or when the function VE (verify data file) is executed.

Example for ?FL

<table>
<thead>
<tr>
<th>PRR 12:03:38 Start of DATA - LIST 30.07.1996/Tu</th>
</tr>
</thead>
<tbody>
<tr>
<td>T8</td>
</tr>
<tr>
<td>AI    $d100'001 = RO'OM'TEMP''01 / 4</td>
</tr>
<tr>
<td>Positive Edge  1: Normal    ---&gt; &gt;HIL=22.0</td>
</tr>
<tr>
<td>Blocking Flag $FL10 Off</td>
</tr>
<tr>
<td>?FL_____PRR Blocked!________($FL10.RFL=Off)</td>
</tr>
<tr>
<td>Reaction    PACH___Change Point Parameter</td>
</tr>
<tr>
<td>Address     DO $d100'041</td>
</tr>
<tr>
<td>Parameter   DO__________Set Digital Output:</td>
</tr>
<tr>
<td>Priority=0</td>
</tr>
<tr>
<td>Value      0=Off</td>
</tr>
<tr>
<td>Reporting  MSGDEV     M1</td>
</tr>
</tbody>
</table>
2.26.4 DEL, Delete Register Entry(ies)

The DEL operation can be used to selectively delete reaction entries. The entries to be deleted can be filtered according to the following criteria:

- by "reasons"
- by entry numbers
- by reactions

If the reaction type CT, MC or CB is entered at the prompt "Reaction=?:", the user can make a finer selection according to text or task number.

<table>
<thead>
<tr>
<th>T8</th>
<th>12:36:31 Function=PNT : PRR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation</td>
<td>=CH : DEL</td>
</tr>
<tr>
<td>Reason</td>
<td>=.. : ?</td>
</tr>
<tr>
<td>Reason</td>
<td>=(UA, TA, ..., *)</td>
</tr>
<tr>
<td>UA</td>
<td>= AA'AA'Al11&quot;dd</td>
</tr>
<tr>
<td>TA</td>
<td>= $sss'nm'm, $sss'CTYPn, $CTYPn, $sssMxxPyy</td>
</tr>
<tr>
<td>. .</td>
<td>= digitwise range</td>
</tr>
<tr>
<td>. .</td>
<td>= range</td>
</tr>
<tr>
<td>*</td>
<td>= all points with UA, $*=all points</td>
</tr>
<tr>
<td>Entry</td>
<td>=* : ?</td>
</tr>
<tr>
<td>Entry</td>
<td>=*, (1..255): *</td>
</tr>
<tr>
<td>Reaction</td>
<td>=.. : ?</td>
</tr>
<tr>
<td>UA/TA</td>
<td>= Change Point Parameter</td>
</tr>
<tr>
<td>CT</td>
<td>= Printout Cleartext</td>
</tr>
<tr>
<td>MC</td>
<td>= Issue MACRO Command</td>
</tr>
<tr>
<td>SLVM</td>
<td>= Output Slave Message</td>
</tr>
<tr>
<td>CB</td>
<td>= Start/Stop COLBAS Task</td>
</tr>
<tr>
<td>. .</td>
<td>= No Reaction (for MRR &amp; GRR)</td>
</tr>
<tr>
<td>PICT</td>
<td>= Auto Picture/Point Selection</td>
</tr>
<tr>
<td>Reaction</td>
<td>=.. : ?</td>
</tr>
<tr>
<td>Accept Every Entry=Yes</td>
<td>: ?</td>
</tr>
<tr>
<td>Accept Every Entry=(No,Yes): Yes</td>
<td></td>
</tr>
<tr>
<td>AI RO'OM'TEMP&quot;01 / 5</td>
<td></td>
</tr>
<tr>
<td>Positive Edge</td>
<td>1: Normal ----&gt;</td>
</tr>
<tr>
<td>Reaction</td>
<td>CT__Printout Cleartext</td>
</tr>
<tr>
<td>Number</td>
<td>TXC 50</td>
</tr>
<tr>
<td>Reporting</td>
<td>MM08, M1&amp;M2</td>
</tr>
<tr>
<td>Delete</td>
<td>=No : Yes</td>
</tr>
</tbody>
</table>

Recommendation: It is recommended that the option "Accept Every Entry =YES" should be set. With this setting each reaction entry to be deleted is listed completely at the operator terminal, and the user must acknowledge the deletion of each one manually in order to prevent inadvertent deletion.

If the option is not set, the VISONIK DCS automatically deletes all specified entries. The entries to be deleted are listed with their "reasons" and entry numbers at the operator terminal. The automatic deletion procedure can be aborted with CTRL/P or CTRL/E, if necessary.
### 2.26.5 LSTA, List Reaction Register State

This provides an overview of all Reaction Registers.

<table>
<thead>
<tr>
<th>Operation</th>
<th>=CH</th>
<th>LSTA</th>
</tr>
</thead>
<tbody>
<tr>
<td>T8</td>
<td>12:13:36 Function=PNT : PRR</td>
<td></td>
</tr>
<tr>
<td>Register</td>
<td>Total Entries</td>
<td></td>
</tr>
<tr>
<td>Group Reactions</td>
<td>GRR</td>
<td>1</td>
</tr>
<tr>
<td>Process Reactions</td>
<td>PRR</td>
<td>7</td>
</tr>
<tr>
<td>Maintenance Reactions</td>
<td>MRR</td>
<td>1</td>
</tr>
<tr>
<td>Time Reactions</td>
<td>TRR</td>
<td>1</td>
</tr>
<tr>
<td>Step Reactions</td>
<td>SRR</td>
<td>1</td>
</tr>
<tr>
<td>Date Reactions</td>
<td>DRR</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>
2.26.6 LOCT, List Reaction Entries in Octal

The LOCT operation can be used to selectively list the reaction entries according to the same criteria as the LI operation. The normal list is followed by a printout of the same data in octal code.

<table>
<thead>
<tr>
<th>T8</th>
<th>12:17:08 Function=PNT : PRR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation</td>
<td>=CH : LOCT</td>
</tr>
<tr>
<td>Reason</td>
<td>.. : ?</td>
</tr>
<tr>
<td>Reason</td>
<td>=(UA, TA, .., .., *)</td>
</tr>
<tr>
<td>UA</td>
<td>= AA'AA'A111&quot;dd</td>
</tr>
<tr>
<td>TA</td>
<td>= $sss'nm'p, $ss$'CTYPn, $CTYPn, $sssMmxxPyy</td>
</tr>
<tr>
<td>...</td>
<td>= digitwise range</td>
</tr>
<tr>
<td>..</td>
<td>= range</td>
</tr>
<tr>
<td>*</td>
<td>= all points with UA, $*=all points</td>
</tr>
<tr>
<td>Entry</td>
<td>=* : ?</td>
</tr>
<tr>
<td>Entry</td>
<td>=* , (1..255): *</td>
</tr>
<tr>
<td>Reaction</td>
<td>.. : ?</td>
</tr>
</tbody>
</table>

UA/TA = Change Point Parameter
CT = Printout Cleartext
MC = Issue MACRO Command
SLVM = Output Slave Message
CB = Start/Stop COLBAS Task
. = No Reaction (for MRR & GRR)
PICT = Auto Picture/Point Selection

The list may be required by Landis & Staefa for diagnostic purposes.
2.27 Reactions

2.27.1 Reaction Programs in General

Reaction programs are programmed operations that can be initiated through particular conditions (known as 'reasons'). If a defined condition arises during plant operation, all of the associated commands are executed in sequence. Reaction programs are named after the type of 'reason' with which they are associated (e.g. process reaction, time reaction, maintenance reaction, etc.).

2.27.1.1 Reaction Program Applications

Reaction programs can be used to create meaningful links with events registered by the VISONIK DCS according to plant-specific needs, or to trigger such events at specific times.

This makes it possible, for example, to substitute conventional wiring in building services systems with logical connections in the computer.

Examples

- When a "fan belt broken" alarm occurs, the respective plant is to be shut down.
- It should not be possible to put a plant back into service until all faults have been eliminated.
- The general lighting in a large building should be switched on and off depending on various conditions.

2.27.1.2 Reaction Register

A reaction program is defined by making entries in the appropriate reaction register. The entries remain valid until deleted by the user.

An expiry date can be assigned to entries in the date reaction register only. The entries are automatically deleted from the register when this individually defined date is reached.

The user can change, delete or specify new reaction program entries at any time while the DCS is on-line. No programming experience is necessary to make reaction register entries.

Reaction entries are filed in reaction registers according to their 'reason' and entry number.

Each reaction entry consists of three parts

- 'Reason'
- Blocking flag (supplementary condition)
- Reaction
2.27.1.3 Change Resultant Setpoint (RDO/RFL) according to Priority

The RVAL output values (parameter RDO/RFL) of digital points DO and FL are prioritized. A reaction can be used in conjunction with the parameters DO1ACT/FL1ACT and DO2ACT/FL2ACT to determine which of the following parameter values is output as the setpoint for the respective point:

- **DO/FL** (Prio=0, DO1ACT/FL1ACT =. and DO2ACT/FL2ACT =.)
- or
- **DO1/FL1** (Prio=1, DO1ACT/FL1ACT <=. and DO2ACT/FL2ACT =.)
- or
- **DO2/FL2** (Prio=2, DO2ACT/FL2ACT <.)

The lowest priority 0 requires no bit influence (DO1ACT/FL1ACT/DO2ACT/FL2ACT) and is, therefore, always active provided no higher priority (1..2 corresponding to DO1ACT/FL1ACT and DO2ACT/FL2ACT) determines the point's RVAL.

The bit influence consists of a 9-part bit mask (influence bit number 0..8) each of which may have the values 0 or 1.

The VISONIK DCS provides three alternative methods for changing a point's RVAL via a reaction:
When the reaction is triggered, both the main value (DO1 or DO2) and the respective bit influence (DO1ACT or DO2ACT) are modified according to the reaction entry.

In order to achieve this, parameter DO1 or DO2 is set to the appropriate value. The respective influence bit number is set to either 0 or 1 as required.

The above statement applies analogously to flag points.

**METHOD 1**

<table>
<thead>
<tr>
<th>Reaction</th>
<th>= (UA, TA): $100'040</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parameter</td>
<td>= DO : DO1</td>
</tr>
<tr>
<td>Set Digital Output:</td>
<td>Priority =1</td>
</tr>
<tr>
<td>Influence Bit No</td>
<td>= 0 : ?</td>
</tr>
<tr>
<td>Influence Bit No</td>
<td>= ., (0..8): 1</td>
</tr>
<tr>
<td>Value</td>
<td>= 0 : ?</td>
</tr>
<tr>
<td>Value</td>
<td>= (0..1): 1</td>
</tr>
<tr>
<td>1.Further Address</td>
<td>= . :</td>
</tr>
<tr>
<td>Message Mask</td>
<td>= MSGDEV : 2</td>
</tr>
</tbody>
</table>

When the reaction is triggered, both the main value (DO1 or DO2) and the respective bit influence (DO1ACT or DO2ACT) are modified according to the reaction entry.

In order to achieve this, parameter DO1 or DO2 is set to the appropriate value. The respective influence bit number is set to either 0 or 1 as required.

The above statement applies analogously to flag points.

**METHOD 2**

<table>
<thead>
<tr>
<th>Reaction</th>
<th>= (UA, TA): $100'041</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parameter</td>
<td>= DO : DO1</td>
</tr>
<tr>
<td>Set Digital Output:</td>
<td>Priority =1</td>
</tr>
<tr>
<td>Influence Bit No</td>
<td>= 0 : ?</td>
</tr>
<tr>
<td>Influence Bit No</td>
<td>= ., (0..8): 1</td>
</tr>
<tr>
<td>Value</td>
<td>= 0 : ?</td>
</tr>
<tr>
<td>Value</td>
<td>= (0..1): 1</td>
</tr>
<tr>
<td>1.Further Address</td>
<td>= . :</td>
</tr>
<tr>
<td>Message Mask</td>
<td>= MSGDEV : 2</td>
</tr>
</tbody>
</table>

When the reaction is triggered, a single, defined bit influence is selectively modified in either DO1ACT or in DO2ACT.

In order to achieve this, parameter DO1 or DO2 is set to ".". The respective influence bit number is set to either 0 or 1 as required.

The above statement applies analogously to flag points.

**METHOD 3**

<table>
<thead>
<tr>
<th>Reaction</th>
<th>= $d100'041:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parameter</td>
<td>= DO : DO1ACT</td>
</tr>
<tr>
<td>Bit Influence Prio. 1 for DO = . : ?</td>
<td></td>
</tr>
<tr>
<td>Bit Influence Prio. 1 for DO = (*,*,+,=,=,0,1,2,3,4,5,6,7,8), (LSPV,SAME,INV,.1</td>
<td></td>
</tr>
</tbody>
</table>
### 2.27.2 Special Features of Digital Output Points

#### 2.27.2.1 Change Setpoint to the Last Valid Value

When the reaction is triggered, the most recently valid setpoint (RDO/RFL) of a switch command point is restored (e.g. after a power failure). The parameter FBX of the DO point must at least have the value NO.

This type of reaction is especially efficient when it is used in a step reaction chain. This results in:
- Faster execution
- Special message indicating the current set state, the SRR flag and the SRR entry number, which allows the user to monitor the progression of the reaction chain via the report.
- No waiting on programmed SRR delays when no DO output is needed (FB=DO RVAL).
- Any active plant suppression on the reaction address is lifted immediately after the reaction.

### Procedure:

<table>
<thead>
<tr>
<th>Reaction</th>
<th>= (UA, TA): $100'041</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parameter</td>
<td>=DO</td>
</tr>
<tr>
<td>Set Digital Output:</td>
<td>Priority=0 =Off = ?</td>
</tr>
<tr>
<td>Set Digital Output:</td>
<td>Priority=0 =(Off, On), (LSPV, SAME, INV, .): LSPV</td>
</tr>
<tr>
<td>1. Further Address</td>
<td>=. :</td>
</tr>
<tr>
<td>Message Mask</td>
<td>=MSGDEV : 2</td>
</tr>
</tbody>
</table>

#### 2.27.2.2 Change of Parameter to the SAME as any Main Value

When the reaction is triggered, the parameter value of the reaction address is set the SAME as the main value of any chosen point (so-called function address “FNT/Address =”).

### Procedure:

<table>
<thead>
<tr>
<th>Reaction</th>
<th>= (UA, TA): $100'041</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parameter</td>
<td>=DO</td>
</tr>
<tr>
<td>Set Digital Output:</td>
<td>Priority=0 =Off = ?</td>
</tr>
<tr>
<td>Set Digital Output:</td>
<td>Priority=0 =(Off, On), (LSPV, SAME, INV, .): SAME</td>
</tr>
<tr>
<td>FNT /Address</td>
<td>=$d100'040: $F10</td>
</tr>
<tr>
<td>1. Further Address</td>
<td>=. :</td>
</tr>
<tr>
<td>Message Mask</td>
<td>=MSGDEV : 2</td>
</tr>
</tbody>
</table>

The following must be noted:
- The parameter values of both the reaction address and the function address must have the same format.
- If the parameter of a function address is an analogue value (e.g. AI) it is first rounded to an integer before it is assigned to a digital parameter value of a reaction address (e.g. DO, MSGP, etc.).
The VISONIK DCS sets a switch command to the SAME as a measurement of AI=1.64 Deg.C, i.e. DO=1.64 resulting in DO=2.

- If the parameter value of the function address is outside the limits of the reaction address's parameter value, the VISONIK DCS automatically sets the parameter of the reaction address to its upper or lower limit as appropriate.

A 3-step switch command should be switched to coincide (SAME) with an analogue value:

<table>
<thead>
<tr>
<th>Function Address Parameter</th>
<th>Reaction Address Parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>AI = 21.4 Deg.C</td>
<td>DO = 21 ---&gt; DO = 3</td>
</tr>
<tr>
<td>AI = -9.1 Deg.C</td>
<td>DO = -9 ---&gt; DO = 0</td>
</tr>
</tbody>
</table>

### 2.27.2.3 Change of Parameter to the INVERSE of any Main Value

When the reaction is triggered, the parameter value of the reaction address is set to the INVERSE of the main value of any chosen point (so-called function address).

<table>
<thead>
<tr>
<th>Reaction Parameter</th>
<th>Function Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>DO</td>
<td>AI = 21.4 Deg.C</td>
</tr>
<tr>
<td>Set Digital Output: Priority=0</td>
<td>SAME: ?</td>
</tr>
<tr>
<td>Set Digital Output: Priority=0</td>
<td>(Off,On), (LSPV,SAME,INV,.): INV</td>
</tr>
<tr>
<td>FNT /Address</td>
<td>=$d100'040: $F10</td>
</tr>
<tr>
<td>1.Further Address</td>
<td>=.</td>
</tr>
<tr>
<td>Message Mask</td>
<td>MSGDEV : 2</td>
</tr>
</tbody>
</table>

The following must be noted:
- The parameter values of both the reaction address and the function address must have the same format.
- The parameter of a reaction address can only take on the value 0 or 1 in an INVERSE reaction.
- All function address parameters that are less than or equal to 0 are interpreted as 0 by the VISONIK DCS. The INVERSE value, i.e. 1, is set at the reaction address.
- All function address parameters that are greater than 0 are interpreted as 1 by the VISONIK DCS. The INVERSE value, i.e. 0, is set at the reaction address.
- Function address parameter values are inverted without rounding.

A 3-step switch command should be switched according to the INVERSE of a measurement:

<table>
<thead>
<tr>
<th>Function Address Parameter</th>
<th>Reaction Address Parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>AI = 21.4 Deg.C</td>
<td>DO = 21.4 ---&gt; DO = 0</td>
</tr>
<tr>
<td>AI = -9.1 Deg.C</td>
<td>DO = -9.1 ---&gt; DO = 1</td>
</tr>
</tbody>
</table>
2.28 RPT Reports

A report contains information on individual data points, groups of points (external plant) or the complete DCS.

Starting a report

A report can be started manually by an operator, or automatically by reaction programs using macro commands.

2.28.1 Initial Access and Handling

Function Call-up

CTRL/P RPT

The VISONIK DCS opens a list of possible report options, as follows:

<table>
<thead>
<tr>
<th>Rpt.Type=SRPT</th>
<th>0</th>
<th>FRPT = Fault Report</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>SRPT = Status Report</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>MRPT = Maintenance Report</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>TRPT = Trend Report</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>ERPT = Extended Point Report</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>SCR = Short Configuration Report</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>LCR = Long Configuration Report</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>SYSR = System &amp; Project Info. Report</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>U TAR = User to Technical Address Report</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>MDR = Maximum Demand Load Report</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>OSR = Optimum Start/Stop Report</td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>DPR = Data Processing Tables/Graphs</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>PNX = Programmable Report</td>
</tr>
<tr>
<td></td>
<td>13</td>
<td>STOP = Stop Report Listing</td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>DRPT = Dialogue Report</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>PMD = Post Mortem Dump</td>
</tr>
<tr>
<td></td>
<td>17</td>
<td>ARPT = Alarm Report</td>
</tr>
<tr>
<td></td>
<td>18</td>
<td>STAT = Statistic Buffer</td>
</tr>
<tr>
<td></td>
<td>19</td>
<td>CMB = Message Buffer</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>RRPT = Room Report</td>
</tr>
</tbody>
</table>

2.28.2 Entering the Address Range

When a report is started, the addresses to be reported on can be specified by entering one of the following:

- single address
- address mask
- address range

The possibilities that can be exploited by using address masks and address ranges are presented in the following two sections.
Entering an address mask
The following rules apply to the analysis of the address input in address masks:

- The characters that are entered are inserted in the address sections from left to right.
- Missing characters are normally substituted with asterisks "*". However, if the input is terminated with a space, the missing characters are substituted with spaces.
- Exception:
  If an address section begins with an asterisk "*", and no further asterisks occur before the next delimiter, the characters following the asterisk are moved to the right up to the delimiter.
This exception does not apply to the dummy address section.
- The above rules apply both to the address section and the dummy address section.

Examples
Spaces are represented by underscores "_" in the example.

<table>
<thead>
<tr>
<th>Entered Address</th>
<th>--&gt;</th>
<th>Resultant Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>ab</td>
<td>----&gt;</td>
<td>ab**'<em><strong>'</strong><strong>'</strong></em><strong>'</strong>*********</td>
</tr>
<tr>
<td>*</td>
<td>----&gt;</td>
<td><strong><strong>'</strong><em>'</em></strong><em>'<em><strong><strong>'</strong></strong></em></em>*****</td>
</tr>
<tr>
<td>a'**'c</td>
<td>----&gt;</td>
<td>a***'*<strong>'c</strong>**'***********</td>
</tr>
<tr>
<td>a'b'c''d</td>
<td>----&gt;</td>
<td>a***'b''c''d''*******</td>
</tr>
<tr>
<td>a%</td>
<td>----&gt;</td>
<td>a%<em><strong>'</strong></em>'****'***********</td>
</tr>
<tr>
<td>a%*%</td>
<td>----&gt;</td>
<td>a%<em>%</em><strong>%****'</strong>*********</td>
</tr>
<tr>
<td>a_''c_''d_</td>
<td>----&gt;</td>
<td>a___'b___'c___'d_______</td>
</tr>
<tr>
<td>a_'b_</td>
<td>----&gt;</td>
<td>a***'___'b***'***********</td>
</tr>
<tr>
<td>''c</td>
<td>----&gt;</td>
<td><strong><strong>'</strong><em>'c</em></strong>'***********</td>
</tr>
<tr>
<td>'*b'*c'<em>d</em></td>
<td>----&gt;</td>
<td><em>a</em>'b'<em>c'<em>d</em>'</em>**********</td>
</tr>
<tr>
<td>*a'*b'*c'<em>d</em></td>
<td>----&gt;</td>
<td><em>a</em>'b'<em>c'<em>d</em>'</em>**********</td>
</tr>
</tbody>
</table>

Note
The function SER,UA contains a test program that allows the above logic to be checked.

Wildcard *
An asterisk "*" in an address mask has the function of a wildcard that can represent any active character at the respective location.

Wildcard %
A percent sign "%" in an address mask has the function of a wildcard that can represent any active character except for a space at the respective location.

Entering Address Ranges
The desired address range for reports can be specified with range limits.
The two addresses are separated either by "." or by "...".

.. Range
The address range defined in this way includes all addresses between the specified limits.

C7A1 .. U9K8 ----> All user addresses between these two limits
With this method of range definition each character of the first address limit is compared with the corresponding character of the second. The resultant address range includes every address that fulfils all conditions.

C7A1 ... U9K8  -->  All user addresses whose first character is between C and U
AND  All user addresses whose second character is between 7 and 9
AND  All user addresses whose third character is between A and K
AND  All user addresses whose fourth character is between 1 and 8

2.28.3 Standard Dialogue

When the function is called up, the sequence of prompts and answers is identical for most report types.

The following dialogue is used for report types FRPT, SRPT, ERPT, SCR, LCR, UTAR and OSR:

<table>
<thead>
<tr>
<th>T8</th>
<th>14:23:14 Function=PNT : RPT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rpt.Type=SRPT</td>
<td>: FRPT</td>
</tr>
<tr>
<td>Address=$Ty10</td>
<td>: $TY*</td>
</tr>
<tr>
<td>Masking Param.</td>
<td>= : OSV</td>
</tr>
<tr>
<td>Par.Val.= 0</td>
<td>: Yes</td>
</tr>
<tr>
<td>Output Device</td>
<td>=$TT:</td>
</tr>
<tr>
<td>Insert Form Feed</td>
<td>= :</td>
</tr>
</tbody>
</table>

Explanation

Rpt.Type

Permissible inputs:
- desired report type, or
- STOP, to abort an active report.

Address

Permissible inputs:
- All individual addresses, address masks and address ranges described in the previous chapter.
- The user's access level also limits the address range, i.e. the report will only contain those addresses which,
  - lie within the specified address mask.
  - correspond to the address mask of the user's access privilege.

Any limitations are indicated immediately below the initial line of a report.

The following information is displayed:
- User Address Range, e.g. : $1'000 - $2'177
- Selected Address Range, e.g. : OSV = YES
- Defined Parameter, e.g. : ****E**** T1

These lines are suppressed by the VISONIK DCS if the user has not specified any restrictions.

Masking Param.

Permissible input:
The name of a parameter that occurs in the points of the defined address range and that in intended to limit the number of points. Input is optional.
Permissible input:
Value of the masking parameter specified above.
The system only prompts for "Par.Val:" if an entry has been made for the preceding
"Masking Param:".

Result:
The report contains only those data points for which the specified parameter has the
value "Par.Val."

Output Device
Specifies the report output terminal.
Any terminal device configured in the DCS (T1..T18) can be entered.
Instead of a device name, either the current terminal's technical address ($TT) or the
letter "P" may be entered.

Meaning:
Tn Output device belonging to the local system
"P" P means "Printer" and refers to the device defined under parameter
"PRT".
"$TT" refers to the terminal from which the current report was started. This
input is especially important for macro key programming.

Insert Form Feed
If a printer is used as output device, the user can specify whether a form feed is
required, and if it should be inserted before and/or after the printout.

Examples:
Insert Form Feed: before&after
means that a form feed will be inserted before and after the report printout.
Insert Form Feed: .
means that no form feed is wanted, neither before nor after the report printout.

Note
Exceptions to the above dialogue
The other report types have there own special dialogues, but "Address", "Output
Device" and "Insert Form Feed" are handled in the same manner!

Masking parameters
A range (e.g. 1..3) or a comparison operator (e.g. <=2) may be entered at the Par.Val.
prompt.

Operators for numerical
values (x,y)
The operators described below apply only to numerical values
(e.g. MSGP<>2, AI<10, etc.).

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>x, x..y</td>
<td>equal to x, within x..y (default)</td>
</tr>
<tr>
<td>&lt;&gt;x, &lt;&gt;x..y</td>
<td>not equal to x, outside x..y</td>
</tr>
<tr>
<td>&gt;x, &gt;=x</td>
<td>greater than x, greater than/equal to x</td>
</tr>
<tr>
<td>&lt;x, &lt;=x</td>
<td>less than x, less than/equal to x</td>
</tr>
</tbody>
</table>

Operators for 'Bitset'
values (x,y)
The operators described below apply only to bitset values,
(e.g. <>ITER=+XoXf, or CB+=TLOS, etc.).

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>x&amp;y</td>
<td>are equal or only bits x,y set</td>
</tr>
<tr>
<td>&lt;&gt;x&amp;y</td>
<td>are unequal or only bits x,y not set</td>
</tr>
<tr>
<td>and x&amp;y</td>
<td>logic AND or bits x AND y set</td>
</tr>
<tr>
<td>or x&amp;y</td>
<td>logic OR or bit x OR y set</td>
</tr>
<tr>
<td>not x&amp;y</td>
<td>inversion or bits x,y not set</td>
</tr>
</tbody>
</table>
This input limits the report to the "DI" point type.

This input limits the report to data points with message priority = 2.

This input limits the report to data points with message priority < 2.

This input limits the report to data points whose bits ITER and XoXf in parameter TYX are NOT set.

2.28.4 Simultaneous Output of Several Reports

Only one report can be active at the same time on any output device.

Report output at a printer
A number of different reports can be started simultaneously at the same printer. The reports are then executed in succession.

Report output at a terminal
At a display terminal, however, the active report will be aborted as soon as a new report is started from the same terminal! A report which is displayed on a screen shows only one page at a time. The next page is called by pressing the "arrow down" key. If the upper half of the screen simultaneously contains a Ctrl/D or a Ctrl/V dialog, continued output of reports must be activated via “Left arrow” key.

Timeout
Whenever a report is active, messages for the respective terminal are held in a queue. For this reason reports on a display terminal are monitored and are automatically aborted if the next page is not called up within a certain time (about 10 minutes). The following line is displayed: Timeout: hh:mm:ss REPORT STOPPED

Report call-up with macro instructions
Reports can not only be started manually but also automatically as a result of entries in reaction registers using macro instructions.

RPT,STOP,Tx
All reports that are started by reaction macros can be aborted with "RPT,STOP,Tx" (x = 3 if a report at terminal T3 is to be aborted).
2.28.5 Graphical presentation of reports

Report Start and End Lines

<table>
<thead>
<tr>
<th>FRPT</th>
<th>14:42:10</th>
<th>REPORT - START</th>
<th>30.07.1996/Tu (T1) T4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selected Address Range</td>
<td>=$Ty1...$Ty18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Defined Parameter</td>
<td>OSVL =&quot;Yes&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FRPT</td>
<td>14:42:11</td>
<td>REPORT - END</td>
<td>30.07.1996/Tu (T1) T4</td>
</tr>
</tbody>
</table>

**Explanation:**

a) Report type  
b) Time of report start (or end).  
c) Date and day of report printout.  
d) Terminal from which the report was started.  
e) Report output terminal.

**Report line format**

With the exception of a number of configuration reports and special reports, the data point information is displayed in either one or two standardised report lines. Messages can optionally be printed on devices with 80 characters per line (A4 portrait) or with 132 characters per line (A4 landscape).

**- 132 characters per line**

The complete information is displayed on a single line.
- characters maximum
- left-justified

**- 80 characters per line**

The complete information is displayed on two lines.
Line breaks occur following the TXI1, TXI2 information.
- characters per line maximum
- first line, left-justified
- second line, right-justified

**Report line structure**

All report lines have the same structure. With the exception of the event time, the following summary also applies to point messages.

**Scale**

0....1....2....3....4....5....6....7....8....9

**Presentation**

PPPP_TTTTU_NNNNNNNNNNNNNNNNNNNNNNNNNNNNNN_DDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDD
______________________________MMMMMMMMMMMMMMMMMMMMMMMM_SSSSSSSSSSSSSSSSSSSS_IIIIIIIIII

**Example**

+++__AI____C7'K8'F13_Temperature Main Building 1st Floor
________________________AI=24.2_DEG.C_________OPSTA=3=_>HIL=24_____OPMO=6=PSe

292/552
Siemens Building Technologies VISONIK DCS Functions and System Messages CM2U8568en
Landis & Staefa Division Functions – RPT Reports 24.05.2000
### Information Fields

<table>
<thead>
<tr>
<th>P  (4)</th>
<th>STAP</th>
<th>The peripheral state STAP is displayed according to the message priority.</th>
</tr>
</thead>
<tbody>
<tr>
<td>T  (4)</td>
<td>TYPE</td>
<td>Point type.</td>
</tr>
<tr>
<td>U   (1)</td>
<td>Tag</td>
<td>A space is normally displayed at this location. A dash &quot;-&quot; means that the point's spontaneous event messages are suppressed (parameter MSGSUP=&gt;$&gt;) and are, therefore, not printed.</td>
</tr>
<tr>
<td>N  (26)</td>
<td>NAME</td>
<td>User/technical address.</td>
</tr>
<tr>
<td>D  (32)</td>
<td>TXI+TXI2</td>
<td>Point name as per parameters TXI and TXI2 (with no space).</td>
</tr>
<tr>
<td>M  (24)</td>
<td>Pt type dependent</td>
<td>Main value of the point</td>
</tr>
<tr>
<td>S  (20)</td>
<td>Pt type dependent</td>
<td>State or error status of the data point</td>
</tr>
<tr>
<td>I  (10)</td>
<td>Pt type dependent</td>
<td>Additional information</td>
</tr>
</tbody>
</table>

**Point type dependent information 'M', 'S' and 'I'**

The tables in the following show which parameters are displayed in these fields according to point type.

With message suppression $SY,MSGu+=PaNa the report line can be supplemented with the respective parameter names at these locations.

With $SY,MSGu-=PaNa the parameter names are not displayed in the report line.

**Point type dependent information fields**

The following rules apply in the tables below:

**Optional information**

- Information items shown in braces {} are displayed as required.

**Displayed Parameters**

- The names of the parameters whose values will be displayed in the report are shown in the respective information fields.

**Example:**

The "main value" field of an AO point is defined as AO TXU. This means that the values of the parameters AO and TXU will appear at this location in the actual message printout (e.g. 60%).

**Fixed texts**

- Fixed characters or remarks contained in information fields are written in quotation marks "", e.g. "Ri-

**Other information**

- Information without direct parameter reference (e.g. active priority of DO or FL setpoints) are shown in italics.

**Mutually exclusive information**

- Mutually exclusive information items are shown in parentheses () and separated by a vertical bar "|

**Example:**

The "status" field has been defined by

\[(ERSTA<>0 | OPSTA<>0)\]

This means that the value of ERSTA will be displayed at this location in the actual report provided ERSTA<>0.

If ERSTA=0 at the time of the report, then the value of OPSTA will be displayed instead, provided OPSTA<>0.

If OPSTA is also equal to zero, the field will be left empty.

**Texts**

- Displayed texts are defined as follows:

  \[AI=(TXU): \text{Array beginning with } \text{UnitText with the number from parameter TXU}\]
### I/O points

<table>
<thead>
<tr>
<th>Point type</th>
<th>'M' Main value</th>
<th>'S' Status</th>
<th>'I' Additional information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analogue Input</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For TYPE=AI:</td>
<td>AI TXU</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0)</td>
</tr>
<tr>
<td>Analogue Output</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For TYPE=AO:</td>
<td>AO TXU</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0)</td>
</tr>
<tr>
<td>Counter Input</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For TYPE=CI:</td>
<td>CI TXU</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0)</td>
</tr>
<tr>
<td>Digital Input</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For TYPE=DI:</td>
<td>D=(TXU)</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0)</td>
</tr>
<tr>
<td>Digital Output</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For TYPE=DO:</td>
<td>DO=(TXU) &quot;(&quot;Prio&quot;)&quot;</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0)</td>
</tr>
<tr>
<td>or:</td>
<td>FBV=(TXU) &quot;(&quot;Prio&quot;)&quot;</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0)</td>
</tr>
</tbody>
</table>

### Function points

<table>
<thead>
<tr>
<th>Point type</th>
<th>'M' Main value</th>
<th>'S' Status</th>
<th>'I' Additional information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virtual point</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For TYPE=VIP:</td>
<td>VIP TXU</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0)</td>
</tr>
<tr>
<td>Plant point</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For TYPE=PLT:</td>
<td>PSTA=(TXU) WHY CPRI</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0)</td>
</tr>
<tr>
<td>Regulator block</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For TYPE=RGB:</td>
<td>PRV TXU</td>
<td></td>
<td>(OPMO)</td>
</tr>
<tr>
<td>OSTP Zone (BPS)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For CTYP=ZON:</td>
<td>ZOSTA {TI &quot;°C&quot;}</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0)</td>
</tr>
<tr>
<td>Conversion param. Set</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For TYPE=CVP:</td>
<td>&quot;CS=&quot;CS &quot;COF=&quot;COF &quot;CNL=&quot;CNL</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0)</td>
</tr>
</tbody>
</table>

### System points

<table>
<thead>
<tr>
<th>Point type</th>
<th>'M' Main value</th>
<th>'S' Status</th>
<th>'I' Additional information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process Station</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For TYPE=PS: VERS</td>
<td>PSST {&quot;INR/ABO &quot;)}</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0)</td>
</tr>
<tr>
<td>or:</td>
<td>&quot;</td>
<td></td>
<td>&quot;T&quot;&quot;TY# &quot;.&quot;IDC</td>
</tr>
<tr>
<td>VERS 1)</td>
<td>&quot;</td>
<td></td>
<td>&quot;K&quot;&quot;MC# &quot;/&quot; 2)</td>
</tr>
<tr>
<td>Operating System</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For TYPE=OS:</td>
<td>CB</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0)</td>
</tr>
<tr>
<td>Buildg Level Network</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For TYPE=BLN:</td>
<td>INR</td>
<td>AWAY</td>
<td>(NOIS)</td>
</tr>
<tr>
<td>Process Bus</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For TYPE=PBUS:</td>
<td>PBDIAG</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0)</td>
</tr>
<tr>
<td>Profibus Network</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For TYPE=PBN:</td>
<td>NSTA</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0)</td>
</tr>
</tbody>
</table>

**Remarks:**

1) TY# originates from the parameter LPS of the respective BLN point.
2) MC# originates from the parameter MCAT of the respective BLN point.
### MONOGYR Points

<table>
<thead>
<tr>
<th>Point type</th>
<th>'M' Main value</th>
<th>'S' Status</th>
<th>'I' Additional information</th>
</tr>
</thead>
<tbody>
<tr>
<td>MONOGYR Bus</td>
<td>MBDIAG</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0)</td>
</tr>
<tr>
<td>For TYPE=MBUS:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MONOGYR Group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For CTYP=MGG:</td>
<td>(SOPST</td>
<td>MOPST) 3) AVRT &quot;°C&quot;</td>
<td>(ERSTA&lt;&gt;0</td>
</tr>
<tr>
<td>or:</td>
<td>(SOPST</td>
<td>MOPST) AVRT &quot;°C&quot;</td>
<td>(SPCC SPCH)</td>
</tr>
<tr>
<td>additionally:</td>
<td>&quot;MGR*MGR(i)&lt;&lt;0&quot;:&quot;</td>
<td>AOPST=(TXU) ARTP &quot;°C&quot;</td>
<td></td>
</tr>
<tr>
<td>MONOGYR Room</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For CTYP=MGR:</td>
<td>AOPST(1)=(TXU) ARTP &quot;°C&quot;</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0)</td>
</tr>
<tr>
<td>or:</td>
<td>AOPST(1)=(TXU) ARTP &quot;°C&quot;</td>
<td>[ASPH ASPC]</td>
<td></td>
</tr>
<tr>
<td>additionally:</td>
<td>&quot;SEZ*SEZ(i)&lt;&lt;0&quot;:&quot;</td>
<td>ADOsez ADlsez</td>
<td></td>
</tr>
<tr>
<td>MONOGYR Switch unit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For TYPE=SEZ:</td>
<td>ADOsez ADlsez</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0)</td>
</tr>
</tbody>
</table>

**Remarks:**

3) Independent of MACT.

### DCS Points

<table>
<thead>
<tr>
<th>Point type</th>
<th>'M' Main value</th>
<th>'S' Status</th>
<th>'I' Additional information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple status input</td>
<td>MX [MX2] [MX3]</td>
<td></td>
<td>(OPMO)</td>
</tr>
<tr>
<td>For TYPE=MX:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flag Point</td>
<td>FL=(TXU) (&quot;FL1act&quot;)</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0)</td>
</tr>
<tr>
<td>or:</td>
<td>FL=(TXU) (&quot;FL2act&quot;)</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0)</td>
</tr>
<tr>
<td>OSTP Zone</td>
<td>OZ TI &quot;°C&quot;</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0)</td>
</tr>
<tr>
<td>For CTYP=OZ:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TTY Interface</td>
<td>TY</td>
<td>DTYP MC</td>
<td>&quot;noise/Rx'ed=&quot; m/n</td>
</tr>
<tr>
<td>or:</td>
<td>TY</td>
<td>&quot;K'MCAT (&quot;?&quot;</td>
<td>&quot;O&quot;</td>
</tr>
<tr>
<td>Data Comm. Server</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| For TYPE=TY: | {
| or: | {
| Message Channel | | | |
| For TYPE=MC: | " - : - " " - - " | | |
| or: | "XX=" "BCTY=" "METN=" | | |
| or: | "PS=" | | |
| Maximum Demand Point | | | |
| For TYPE=MD: | | | |
TEC and RWI Points

<table>
<thead>
<tr>
<th>Point type</th>
<th>'M' Main value information</th>
<th>'S' Status</th>
<th>'I' Additional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual Room Control For TYPE=ROOM:</td>
<td>AOPST(1) ARTP_TXU</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0)</td>
</tr>
<tr>
<td>or:</td>
<td>AOPST(1) ARTP_TXU</td>
<td>ASPH_TXU ASPC_TXU</td>
<td>{OPMO}</td>
</tr>
<tr>
<td>TEC Group For TYPE=GRP:</td>
<td>ROPST RTAV_TXU</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0)</td>
</tr>
<tr>
<td>or:</td>
<td>ROPST RTAV_TXU</td>
<td>AVOCC_&quot;%&quot;</td>
<td>{OPMO}</td>
</tr>
<tr>
<td>RWI For CTYP=RWI:</td>
<td>AOPST TPR</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0)</td>
</tr>
<tr>
<td>or:</td>
<td>AOPST TPR_TXU</td>
<td>ASPH_TXU ASPC_TXU</td>
<td>{OPMO}</td>
</tr>
</tbody>
</table>

FLN and PBN Points

<table>
<thead>
<tr>
<th>Point type</th>
<th>'M' Main value</th>
<th>'S' Status</th>
<th>'I' Additional</th>
</tr>
</thead>
<tbody>
<tr>
<td>For TYPE=FLN:</td>
<td>INR</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0)</td>
</tr>
<tr>
<td>For TYPE=PBN:</td>
<td>BD&quot;Bd&quot;NSTA</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2.28.6 FRPT, Fault Report

Generally only points that fulfil the specified address, parameter name and parameter value conditions are reported.
The parameter name and parameter value can be optionally specified as constraints.

An FRPT lists all points that are in a fault state. "fault" in this case means that:
- the error status is ERSTA<>0.
- the message priority is MSGP>0.
- the point is neither suppressed (parameter PNTSUP, PLSUP, PLSUPs) nor 'out of service' (parameter OSV).

T8 16:52:29 Function=PNT : RPT
Rpt.Type=SRPT : FRPT
Address=$d101'BLN : $*
Masking Param. =.: CTYP
Par.Val.= 42= : DI
Output Device =.$TT:
Insert Form Feed =.: >>o.k.!

FRPT 16:53:40 REPORT - START 12.08.1996/Mo  T8
Selected Address Range = $2'000...$254'377
Defined Parameter : CTYP =12=DI

*** DI . DI'MO'TEST"02 Training Department
   Off ERSTA=EST OPMO=5=PS

* DI TE'ST'DIGI"01 Training Department
   Off ERSTA=EST OPMO=6=PSe

FRPT 16:53:41 REPORT - END 12.08.1996/Mo  T8
2.28.7 SRPT, Status Report

In the SRPT the current status of all points that fulfil the specified address, parameter name and parameter value conditions is reported.

```
T8 15:58:18 Function=PNT : RPT,SRPT
Address=$Ty10       : $100'000..$100'012
Masking Param.     =:.
Output Device       =$TT:
Insert Form Feed    =:. >>o.k.!
Selected Address Range = $100’000..$100’012
+  AI   RO"OM'TEMP"01 Training Department
   64.8 Deg. C         ERSTA= >HIL=25.0 OPMO=8=PSfe
?rz AI   OU"TS'TEMP"01 Training Department
   -15.5 Deg. C         ERSTA=?SST OPMO=5=PS
*** DI   . DI'MO'TEST"02 Training Department
   Off                  ERSTA=EST OPMO=5=PS
   . DI   TE'ST'DIGI"01 Training Department
   On                   OPMO=6=PSe
SRPT 15:59:45 R E P O R T - E N D      30.07.1996/Tu  T8
```

2.28.8 MRPT, Maintenance Report

Overdue maintenance entries

Selection of this report type provides a listing of all overdue entries in the maintenance reaction register (see function "MRR").

Pending maintenance entries

By entering a due-date range, the user can also list entries that will soon reach their specified running time limit.

This range can be defined in two ways.
- By specifying a NUMBER OF RUNNING HOURS within which the end of a maintenance interval could be reached
- By specifying a WEEKDAY by when an entry could become due.

Example with due date

Today is Tuesday, and it is to be determined which points could reach their running time limit by Friday.
If "Due Date=FR" is set, all entries that will become due by 24:00 next Friday, assuming continuous operation, will be printed out alongside the maintenance entries that are already overdue.
Explanations:

a) Current point status.
b) MRR entry number, date of last counter reset, measured state, current counter value.
c) Date and/or running hours when the point will reach the maintenance status.
d) If a clear text message is associated with the entry as a reaction, the message is printed here.
e) Same as b), but with an additional error hours counter. The error hours counter counts the possible deviation (in hours) due to the VISONIK computer being offline, e.g. for maintenance. In the above example this deviation is (+9h), i.e. 9 additional running hours are anticipated.
f) If no reaction (e.g. clear text reaction) has been defined the daily counter’s reading is printed here (hours and minutes).

2.28.9 TRPT, Trend Report

The trend plot configurations defined in TRND dialogue can be printed out with TRPT report.

In the VISONIK DCS
- a maximum of 16 different trend plot configurations can be defined.
- each configuration can contain a maximum of 10 different trend channels.

Set

Trend plot configuration
An individual set, a range of sets (x..y) or all sets (*) can be selected.

Trend Channel

Each point that is to be displayed occupies one channel.
An individual channel, a range of channels (x..y) or all channels (*) can be selected.
T8  16:32:54 Function=PNT : RPT, TRPT
Set=*               : 1
Trend Channel=*    : 1
Output Device      =$TT:
Insert Form Feed   =.:   >>o.k.!

TRPT 16:33:14 REPORT START 30.07.1996/Tu  T8

Set = 1

======

1. Trend Point      = RO'OM'TEMP'01b
   Parameter        = AI   Symbol   = A
   Value - Left Mar = 0   Deg. C Colour = Red
   Value- Right Mar = 100 Deg. C Pattern = 0 = (..)

Total Entries      = 1
TRPT 16:33:15 REPORT END 30.07.1996/Tu  T8

Explanations:

a) Set = 1: number of the reported trend plot configuration
b) Trend channel number with the respective point address.
c) Name of the parameter whose value is displayed on the trend plot.
   Symbol: Character (e.g. A, *, 1 etc.) that will be used to overlay the trend curve for
   clarity.
d) Lower limit that will be displayed on the left margin of the trend plot.
   Colour: Colour of the trend curve (with DX2100 Colour Option only).
e) Upper limit that will be displayed on the right margin of the trend plot.
   The scale of the plot is defined by "Value left/right margin".
   Pattern: dot pattern with which the curve will be traced (dot patterns 0..8).
2.28.10 ERPT, Extended Point Report

The following information is displayed in the extended point report ERPT:
- The current status of the selected point.
- All parameters of the point with their respective values.
- A reference table that indicates in which reaction registers the point is referenced (including COLBAS).

These are one process reaction and one maintenance reaction in the following example.

<table>
<thead>
<tr>
<th>T8</th>
<th>16:37:57 Function=PNT : RPT, ERPT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address=RO'OM'TEMP&quot;01: $100'040</td>
<td></td>
</tr>
<tr>
<td>Masking Param.  =.:</td>
<td></td>
</tr>
<tr>
<td>Output Device    =$TT:</td>
<td></td>
</tr>
<tr>
<td>Insert Form Feed =.:</td>
<td></td>
</tr>
</tbody>
</table>

ERPT 16:38:29 REPORT START 30.07.1996/Tu T8

Selected Address Range          = $100'040

DO $100'040 (ml7p1) Training Department

RDO=Off  OPMO=5=PS

MAIN Parameter:
ALsta =3=Normal DO =0=Off DO1 =Off DO2 =Off
RDO =Off

OPERATING Parameters:
Alack =30.07.1996 16:12:09  ALbeg =dd.mm.yyyy hh:mm:ss
ALcnt =0 ALend =dd.mm.yyyy hh:mm:ss ALvis =Ron
DO1ACT= .  DO2ACT= .  ERSTA =0.O.k.  MACT =0=No
OH0 =0  OH1 =0  OPSTA =0=Ok.  PICT =2

SSTA=$100'PS QEVE =.  TELE =0=No  TEVE =.
WHEN2 =0  exQEVE= .  exTEVE= .  $100'

Process Reactions PRR:

<table>
<thead>
<tr>
<th>DO $100'040 / 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive Edge 1:  rDO=0  ---&gt;  rDO=1</td>
</tr>
<tr>
<td>Negative Edge 2:  rDO=3  ---&gt;  rDO=2</td>
</tr>
</tbody>
</table>

Reaction CT___Printout Cleartext
Number TXC 50
Reporting MM08  M1&M2

Maintenance Reactions MRR:

<table>
<thead>
<tr>
<th>DO $100'040 / 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status On</td>
</tr>
<tr>
<td>Accumulated Tot. 0h00</td>
</tr>
<tr>
<td>Automatic Reset No</td>
</tr>
<tr>
<td>Report Cycle No</td>
</tr>
<tr>
<td>Reaction Cycle No</td>
</tr>
</tbody>
</table>

Reaction PACH___Change Point Parameter
Address AI $100'100
Parameter OPMO___Operating Mode
Va

ERPT 16:38:46 REPORT END 30.07.1996/Tu T8
2.28.11 SCR, Short Configuration Report

In the short configuration report SCR all configured parameters of a point are displayed, i.e. those parameters whose value does **not correspond to the default value** of the DCS.

```
FZT8  09:12:04  Function=PNT : RPT, SCR
Address=$d100'041  : $*
Masking Param.  =.:  Out10
put Device $TT:
Insert Form Feed  =.:  >>o.k.!!

SCR 09:12:05  R E P O R T – S T A R T  31.07.1996/We  T8
Selected Address Range  = $2'000...$254'377
$100'BLN BLN Training Department
  CON1 =1=Yes CON2 =1=Yes CTYP =22=BLN OPMO =11=DSPS
  SEMV =1=Yes
$100'OS OS Training Department
  CON1 =1=Yes CON2 =1=Yes CTYP =23=OS OPMO =11=DSPS
  SBDE =01.01.1970 SEMV =1=Yes TIZO=-1 TIZOCM=0
  WBDT =01.01.1970
$100'PS PS Training Department
  CFGPNT(1)=8 CON1 =1=Yes CON2 =1=Yes CTYP =24=PS
  GCBC =255 GCC =255 NAME =rt'z OPMO =11=DSPS
  SEMV =1=Yes TCM1 =1=PVC1.1ST TMDB =PRV2.128 TMEM =?7
  TPSP =128 VCM1 =1 VMEM =1
$100'PBUS PBUS Training Department
  CON1 =1=Yes CON2 =1=Yes CTYP =30=PBUS OPMO=11=DSPS
  SEMV =1=Yes

$100'001 (m1p2) AI  Training Department  g130=(Deg. C)
  CON1 =1=Yes CON2 =1=Yes CTYP =1=MW FICT =Yes
  HIL =25.0 Deg. C LOL =15.0 Deg. C
  MVSID=$100'm1p2 NAME =RO'OM'TEMP"01 OPMO =8=PSfe
  SIDEMV=$100'm1p2
$100'002 (m2p1) AI  Training Department  g130=(Deg. C)
  CON1 =1=Yes CON2 =1=Yes CPNR=1 CTYP =1=MW
  DEL10=1 HIL =100 Deg. C HIWL =120.0 Deg. C
  LOL =20.0 Deg. C LOWL =25.0 Deg. C
  MSG =2 MVSID=$100'm2p1 NAME =OU'TS'TEMP"01
  OPMO =5=PS SEMV =1=Yes SIDEMV=$100'm2p1

SCR 09:13:31  R E P O R T – E N D  31.07.1996/We  T8
```
2.28.12 LCR, Long Configuration Report

In the long configuration report LCR all parameters of a point are displayed. In contrast to the SCR report all parameters of the selected point are printed out, regardless of whether the value corresponds to the default of the DCS or not. This means that the LCR corresponds almost exactly to the extended point report ERPT, except that it contains no reference list.

```
T8  09:38:12 Function=PNT : RPT,LCR
Address=$Ty1        : $*
    Masking Param.      =.:
Output Device       =$TT:
    Insert Form Feed    =.:   >>o.k.!

LCR  09:38:37 R E P O R T - S T A R T 31.07.1996/We  T8
    Selected Address Range = $2'000...$254'377
$100'BLN BLN Training Department
    AWAY =SDLC CER2 =InitRemt&ClearCnt PPS(1) =0
    WHEN =29.07.1996 03:45:27 WHY =DCS CON1 =1=Yes
    CON2 =1=Yes CTYP =22=BLN OPMO=11=DSPS SEMV =1=Yes
    ARC =3   ARCM =24 Ev/h BCNPS =192 DCSLA =32
    EMV =SDLC IDC =67=BLN MV =SDLC PCPA =WHEN
    PCWHEN=29.07.1996 03:45:49 PCWHY =TimeProg PPACT =0
    PStyp =8=BPS RITA=$RI1 RxTim =31.07.1996 09:33:29
    TYP =17=BLN TA =$100'BLN

$100'OS OS Training Department
    OP =.     INR =17=Start_CB
    WHEN =12.07.1996 10:58:03 WHY =DCS CON1 =1=Yes
    CON2 =1=Yes CTYP =23=OS OPMO=11=DSPS SBDT=01.01.1970
    SEMV =1=Yes TIZO =-1    TIZOCM =0  WBDT =01.01.1970
    ARCM =27 Ev/h CBCOM =.  IDC =68=OS MSGDEV=M1
    PCPA =WHEN PCWHEN=29.07.1996 03:45:49 PCWHY=TimeProg
    PStyp =8=BPS RITA=$RI1    RxTim =29.07.1996 03:45:49
    TYP =21=OS TA =$100'OS

LCR  09:40:19 R E P O R T - E N D  31.07.1996/We  T8
```

2.28.13 SYSR, System Project Info. Report

The system project information report SYSR contains all important project information.

Information on the following items is printed out in the SYSR:

- Installed hardware and software
- Shadow mode information
- System loading
- Reaction registers
- Teletypes
- Ring configuration
- Process station description
The printout of a SYSR report can be flexibly controlled depending on the way in which
the system prompt "ADDRESS" is answered.

<table>
<thead>
<tr>
<th>Address selection:</th>
<th>*</th>
<th>$x$</th>
<th>$Rx$</th>
<th>$Tx$</th>
<th>$SY$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardware, software</td>
<td>yes</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>yes</td>
</tr>
<tr>
<td>Shadow information</td>
<td>yes</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>yes</td>
</tr>
<tr>
<td>System loading</td>
<td>yes</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>yes</td>
</tr>
<tr>
<td>Reaction Registers</td>
<td>yes</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>yes</td>
</tr>
<tr>
<td>Teletypes</td>
<td>all</td>
<td>--</td>
<td>all</td>
<td>all</td>
<td>--</td>
</tr>
<tr>
<td>Ring configuration</td>
<td>all</td>
<td>x</td>
<td>--</td>
<td>--</td>
<td>all</td>
</tr>
<tr>
<td>Process stn descr.</td>
<td>all</td>
<td>x</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

Description of the individual report sections

Hardware, Software Equipment

In this section the major data about the VISONIK computer (hardware) and the active programs (software) are printed out:

<table>
<thead>
<tr>
<th>Hardware-, Software Equipment:</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU: i86-32bit PLDx.50 VisoExe: v09.30.001</td>
</tr>
<tr>
<td>VI multilicences : 4</td>
</tr>
<tr>
<td>Max. supported Insight Version: v8.xx</td>
</tr>
<tr>
<td>VISONIK SW-Typ and Version : PC050 v19.17.013</td>
</tr>
<tr>
<td>Project Name : Main Computer</td>
</tr>
</tbody>
</table>

Explanations:

CPU: 11M70
Computer type (CPU) of the VISONIK DCS.

Memory: 1024 k mapped
Main memory size.
In the example the size of the main memory is 1024 kbytes. The computer has a memory management unit (mapped).

@177546 Line clock, Frequency=50 Hz
@177546 is the hardware address of the line clock.
The line clock is the clock generator for the time on the DCS. The clock pulse depends on the mains frequency.
At "BOO,I" the current mains frequency is determined to the nearest 0,1 Hz based on the speed of the hard disk.

@172152 DU
Address and disk type (DU). This information describes the disk controller used. One controller can control up to 4 disk drives.

@172520 MM
Hardware address of the memory management unit. This special logic extends the maximum addressable range of the memory of PDP11 computers from 128 kbytes up to 4 Mbytes.

VISONIK: PC050 v14.04.012
Type and version of VISONIK software.

Project: Training Department
Project specific name of the DCS.
SHADOW Information

This information gives an overview of any shadow function in the system. It shows whether the shadow function is on or off, on which disk the shadow is saved, when the last shadow was saved (with date and time) and how many data blocks are occupied on the disk (octal).

SHADOW Informations:

====================

Shadow on Unit 1, Offset (octal): 0
Shadow is OFF. Last update: 25.09.1995 09:15
Last used block on SY0: (octal): 247770

Note

Shadow functions are set using the function "SYS,DISK".

System loading .INDEX

Event Statistics

This information block gives an overview of event loading in relation to time of day.

The following information is shown:
- number of event messages from the peripheral devices (event/h).
- number of parameter changes (PC/h).
- degree of "idleness" of the VISONIK computer (idle%)
- prepared columns for L&S specific load measurements (sec and x), which can be activated at a later date as required.

System Loading - 24 Hour Summary:

=================================

<table>
<thead>
<tr>
<th>hour</th>
<th>Event/h</th>
<th>PC/h</th>
<th>idle %</th>
<th>sec</th>
<th>x</th>
</tr>
</thead>
<tbody>
<tr>
<td>0..1</td>
<td>103</td>
<td>0</td>
<td>85</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1..2</td>
<td>43</td>
<td>8</td>
<td>84</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2..3</td>
<td>39</td>
<td>0</td>
<td>76</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>. . .</td>
<td>. . .</td>
<td>. .</td>
<td>. .</td>
<td>.</td>
<td>.</td>
</tr>
<tr>
<td>20..21</td>
<td>3</td>
<td>24</td>
<td>85</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>21..22</td>
<td>151b</td>
<td>8b</td>
<td>87</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>22..23</td>
<td>25?</td>
<td>5?</td>
<td>91</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>23..24</td>
<td>5</td>
<td>0</td>
<td>97</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Meaning of "b":
A boot occurred in this hour.

Meaning of "?":
The value is not reliable (time shift)

The table is sorted in ascending order of time of day. Therefore, the information displayed refers partly to the present day, partly to the previous day. The current time of day line is updated at the end of the hour.

Remark:
If the DCS system is stopped the counters for the current hour also stop, so they do not display genuine values.

On restart these counters are reset, and only the events up to the end of the hour are counted. The affected numbers are identified by a ">" symbol.
Overview of the free entries and occupied entries in the various reaction registers.

### Reaction registers

<table>
<thead>
<tr>
<th>Register</th>
<th>Total Entries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group Reactions</td>
<td>GRR 1</td>
</tr>
<tr>
<td>Process Reactions</td>
<td>PRR 5</td>
</tr>
<tr>
<td>Maintenance Reactions</td>
<td>MRR 2</td>
</tr>
<tr>
<td>Time Reactions</td>
<td>TRR 1</td>
</tr>
<tr>
<td>Step Reactions</td>
<td>SRR 1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>10</strong></td>
</tr>
</tbody>
</table>

Key Entry Total = 6 Free= 129
Picture/Address Entry Total = 4
COS Project Picture Total = 0 Free= 150

### Terminals

Presentation of all connected devices (printers and display terminals) with their specific data.

<table>
<thead>
<tr>
<th>SIDTY</th>
<th>TYPE</th>
<th>TY</th>
<th>BD</th>
<th>COMP</th>
<th>TYX</th>
<th>DVRS</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>0=COM</td>
<td>VT2xx</td>
<td>Fault</td>
<td>9600</td>
<td>Terminal</td>
<td>ITER&amp;XoXf</td>
</tr>
<tr>
<td>T5</td>
<td>0=COM</td>
<td>VT100</td>
<td>Fault</td>
<td>9600</td>
<td>Terminal</td>
<td>ITER&amp;XoXf</td>
</tr>
<tr>
<td>T7</td>
<td>0=COM</td>
<td>VT2xx</td>
<td>Fault</td>
<td>9600</td>
<td>Terminal</td>
<td>ITER&amp;XoXf</td>
</tr>
<tr>
<td>T8</td>
<td>0=COM</td>
<td>VT3xx</td>
<td>Normal</td>
<td>9600</td>
<td>Terminal</td>
<td>XoXf</td>
</tr>
<tr>
<td>T9</td>
<td>0=COM</td>
<td>VT2xx</td>
<td>Fault</td>
<td>9600</td>
<td>Terminal</td>
<td>ITER&amp;XoXf</td>
</tr>
<tr>
<td>T10</td>
<td>0=COM</td>
<td>Type=?</td>
<td>Fault</td>
<td>9600</td>
<td>Terminal</td>
<td>ITER&amp;XoXf</td>
</tr>
</tbody>
</table>

**Explanations:**

- **SIDTY**: Communication channel (see parameters SIDTY).
- **TYPE**: Printer or display type. So-called "dumb" terminals which cannot identify themselves are marked with TYPE=??.
- **TY**: Device operating status (see parameter TY).
- **BAUD**: Terminal transmission speed (see parameter BD).
- **COMP**: Communication protocol (see parameter COMP).
- **TYX**: Additional function for operator terminals (see parameter TYX).
- **DVRS**: Device version (see parameter DVRS).
Ring Details

<table>
<thead>
<tr>
<th>HW.Addr</th>
<th>TA</th>
<th>RIST</th>
<th>BD</th>
<th>/PS Sequence:</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1 171000</td>
<td>DOCU:$RI1 normal</td>
<td>4800</td>
<td>100.</td>
<td></td>
</tr>
<tr>
<td>R2 171040</td>
<td>DOCU:$RI2 out of service</td>
<td>4800</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R3 171100</td>
<td>DOCU:$RI3 out of service</td>
<td>4800</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R4 171140</td>
<td>DOCU:$RI4 out of service</td>
<td>4800</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R5 171200</td>
<td>DOCU:$RI5 out of service</td>
<td>4800</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R6 171240</td>
<td>DOCU:$RI6 out of service</td>
<td>4800</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R7 171300</td>
<td>DOCU:$RI7 normal</td>
<td>9600</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Explanations:
- **HW.Addr**: Every SDLC ring connected to the VISONIK DCS is identified by a ring number (Rn) and a ring controller hardware address (HW.Addr).
- **TA**: Technical address (TA) of the ring.
- **RIST**: Current ring status (see parameter RIST).
- **BD**: Ring transmission speed.
- **PS Sequence**: The electrical connection sequence of all process stations is displayed in the second line.
- **Status display**: The process station numbers include an additional status display ("." in example). This status display gives a brief indication (1 character) of the operational status of the process station (parameter PSST). A detailed explanation of the characters and their meaning can be found under the heading "Hardware information / Header" in the following.
### PS Description

The report contains different information depending on process station type.

The following example refers to a PRV process station.

<table>
<thead>
<tr>
<th>PS Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>===============</td>
</tr>
</tbody>
</table>

\[
\text{\$d100 =} \\
\text{\$o144________BPS___________________________} \\
\text{\$00 MW 56=MW | 1: 2R1K 2: 2R1K 3: --- 4:} \\
\text{\$01 ML 16=ML1 | 5: 2D20 6: 2D20 7: 4D20-R 8:} \\
\text{\$02 59=ST:Uprv | 9: 2Y10 10: 2Y10 11: 12:} \\
\text{\$03 38=SBR1 | 13: 2QD 14: 2D20 15: 16:} \\
\text{\$04 SB1 26=SBR1 | 17: 2Q25018: 19: 20:} \\
\text{\$05 60=ST:3P | 21: 2Y250T-M 22: 23:24:} \\
\text{\$06 56=MW | 25: 2U10 26: 2U10 27: 28:} \\
\text{\$07 20=ZW | 29: 2C 30: 2D20S 31: 32:} \\
\text{\$10 MW 39=SBR1:E | 33: 2QD 34: 35:2D20 36:2D250} \\
\text{\$11 42=SBR3 | 37: 3Q-M338: 4D20 39: 40:} \\
\text{\$25 MW 56=MW | 85: 2P10086:- 87: 88:} \\
\text{\$27 56=MW | 93: 2P1K 94:- 95: 96:} \\
\]

\[
\text{\$d192 = \$o300________Z4K________________________} \\
\text{\$00 MW 56=MW | 1: 2R1K 2: 2R1K 3: --- 4:} \\
\text{\$01 ML 16=ML1 | 5: 2D20 6: 2D20 7: 4D20-R 8:} \\
\text{\$02 59=ST:Uprv | 9: 2Y10 10: 2Y10 11: 12:} \\
\text{\$03 38=SBR1 | 13: 2QD 14: 2D20 15: 16:} \\
\text{\$04 SB1 26=SBR1 | 17: 2Q25018: 19: 20:} \\
\text{\$05 60=ST:3P | 21: 2Y250T-M 22: 23:24:} \\
\text{\$06 56=MW | 25: 2U10 26: 2U10 27: 28:} \\
\text{\$07 20=ZW | 29: 2C 30: 2D20S 31: 32:} \\
\text{\$10 MW 39=SBR1:E | 33: 2QD 34: 35:2D20 36:2D250} \\
\text{\$11 42=SBR3 | 37: 3Q-M338: 4D20 39: 40:} \\
\text{\$25 MW 56=MW | 85: 2P10086:- 87: 88:} \\
\text{\$27 56=MW | 93: 2P1K 94:- 95: 96:} \\
\]

### Statistics Selection

\[
\text{\$2'PS..\$254'PS} \\
\text{Total PS 2} \\
\text{Total Points 48} \\
\text{STAC=. 0} \\
\]
The five principal sections of the PS description are:

- Hardware information
- Configured I/O module points
- Configured data points without I/O modules
- Variable section, depending on the displayed process station type
- Statistics

### Hardware information

**Header**

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version</td>
<td>v13.50</td>
</tr>
<tr>
<td>NAME</td>
<td>rt'z</td>
</tr>
<tr>
<td>RITA</td>
<td>$RI1</td>
</tr>
</tbody>
</table>

- Technical address of the PS in decimal or octal
- Process station type:
  - BPS = Building Process Station (PRV2)
  - PRV = UNIGYR Process Unit VISONIK
  - EKX = EKL-X Controller (X=extended)
  - FBS = VISONIK Insight
  - ECU = Enhanced Communication Unit
  - Z4K = VISONIK4000/400/400s System
- Status (in the example shown "." in the header).
  The operational status of the process station (parameter PSST) is displayed in short form by a single character.

  Meaning of the status characters (see function SER, UKONF):
  
  - . = The PS is in the normal state.
  - ? = The DCS has declared the PS defective.
  - - = The PS is not connected to a ring.
  - # = The PS has been manually put out of service.
  - : = No connection was established; the PS is disconnected.
  - D = An ECU or partner system cannot be disconnected yet because a PS still has data to transfer.
  - H = Wait state during establishment of connection.
  - T = The transport connection is active.
  - U = Point suppression is active in the PS.
  - > = 'Load parameter' state is active.
  - v = A version interrogation is active.
  - x = Only in a link system. The data of a general interrogation are being transferred to the partner station.
  - i = A general interrogation is active.
  - q = Transient state (corresponds to PSST=rqHUS).
  - e = The PS is not sending events to the DCS (remote operation).
  - z = Disconnect is pending.
  - r = Reset is pending.

- Version: Version number of the PS.
- NAME: User address or technical address of the PS
- RITA: Depending on the type of connection, one of the following information items is given here:
  - technical address of the SDLC Ring (RITA)
  - link PS (or LPS) in case of connection via TTY1 interface
  - modem category (MCAT) for the link-PS (LPS) in case of connection via telephone network.
### Cards

<table>
<thead>
<tr>
<th>Cards</th>
<th>TMBD/VMBD=PRV2.128</th>
<th>TMEM/VMEM=PVC1.1S /1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TCM1/VCM1=PVC1.1ST/1</td>
<td>TCM2/VCM2=---</td>
</tr>
<tr>
<td></td>
<td>TPSP=128</td>
<td></td>
</tr>
</tbody>
</table>

| Points/STAC   | 20 / 0              |

- **TMBD/VMBD**: Motherboard type and version
- **TMEM/VMEM**: Program card type and version
- **TCM1/VCM1**: COM1 card type and version
- **TCM2/VCM2**: COM2 card type and version
- **TPSP**: Power supply type

### Punkte/STAC

- Number of generated data points, and
- number of points that have been commissioned

### Configured I/O module points

This section gives an overview of all configured I/O data points.

<table>
<thead>
<tr>
<th>$ADR_CTYP_IDC________</th>
<th><em>PBUS@: Module Typ</em>_______</th>
</tr>
</thead>
<tbody>
<tr>
<td>$00 MW 56=MW</td>
<td>1: 2R1K 2: 2R1K 3: --- 4: ---</td>
</tr>
<tr>
<td>$01 ML 16=ML1</td>
<td>5: 2D20 6: 2D20 7: 4D20-R 8:</td>
</tr>
<tr>
<td>$02 59=ST:Up</td>
<td>9: 2Y10 10: 2Y10 11: ---12: ---</td>
</tr>
<tr>
<td>$03 38=SBR1</td>
<td>13: 2QD 14: 2D20 15: ---16: ---</td>
</tr>
<tr>
<td>$04 SB1 26=SBR1</td>
<td>17: 2Q250 18: 19: --- 20: ---</td>
</tr>
<tr>
<td>$06 56=MSW</td>
<td>25: 2U10 26: 2U10 27: ---28: ---</td>
</tr>
<tr>
<td>$07 20=ZW</td>
<td>29: 2C 30: 2D20S 31: ---32: ---</td>
</tr>
<tr>
<td>$H$10 MW 39=SBR1E</td>
<td>33: 2QD 34: 35: 2D20 36: 2D250</td>
</tr>
<tr>
<td>$11 42=SBR3</td>
<td>37: 3Q-M3 38: 4D20 39: 40: ---</td>
</tr>
<tr>
<td>$25 MW 56=MW</td>
<td>85: 2P100 86: --- 87: ---88: ---</td>
</tr>
<tr>
<td>$27 56=MW</td>
<td>93: 2P1K 94: --- 95: ---96: ---</td>
</tr>
</tbody>
</table>

#### Left-hand side of report

- **Status display**
  - In case of HW or SW problems, the status of the respective module is displayed at the left margin of the report. Meanings:
    - ?S The HW and SW types do not correspond (e.g. counter module CI at measured value module position with HW ID code=38)
    - ?T The respective module is reported to have "module trouble", i.e. the module is not functioning correctly (e.g blown fuse).
    - ?I An unknown HW ID code has been received from the respective module.
    - !f Fictitious points have been generated on this module in the PS.
    - General principle: A status with a "?" indicates a hardware problem; a status with an "!" indicates a special configured feature.
- List of configured modules with their technical addresses, configured types CTYP and ID codes IDC.

#### Right-hand side of report

- List of modules by module address and type, which are connected and identified by the SW.
  - "---" indicates not connected or not configured.
This section gives an overview of all configured data points that are not associated with the I/O modules.

<table>
<thead>
<tr>
<th>CTYP</th>
<th>DCS</th>
<th>PS</th>
<th>DCS-Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>PBUS</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>TTY</td>
<td>3</td>
<td>3</td>
<td>1..3</td>
</tr>
<tr>
<td>RING</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>PHON</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>MC</td>
<td>15</td>
<td>.</td>
<td>1..15</td>
</tr>
<tr>
<td>SY</td>
<td>1</td>
<td>.</td>
<td>1</td>
</tr>
<tr>
<td>FL</td>
<td>6</td>
<td>.</td>
<td>10, 70, 74..77</td>
</tr>
<tr>
<td>RI</td>
<td>6</td>
<td>.</td>
<td>1..6</td>
</tr>
</tbody>
</table>

- Point type
- Number of configured data points in the DCS
- Number of configured data points in the PS
- Technical addresses of the data points configured in the DCS
  - as individual addresses, e.g., PLT13
  - as lists, e.g., AO3, AI27
  - as ranges, e.g., CVP1..CVP7

Variable section

The information displayed in this section depends on the type of process station for which the report is generated. This section partly supersedes other sections that are described in the above.

MONOGYR

This section is only displayed if a MONOGYR bus is configured.

<table>
<thead>
<tr>
<th>MONOGYR</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MBUS: MBDIAG</td>
<td>0=Error Free Transmission</td>
</tr>
<tr>
<td>MBINF : 23 RCE 2 SEZ</td>
<td></td>
</tr>
<tr>
<td>MBSTA : 3 : ???: No Answer</td>
<td></td>
</tr>
<tr>
<td>: 17 : RCE: Multiple Addresses Found</td>
<td></td>
</tr>
<tr>
<td>: 200 : ??? : No Answer</td>
<td></td>
</tr>
<tr>
<td>: 210 : ??? : No Answer</td>
<td></td>
</tr>
<tr>
<td>MGG1 : MGR# : 210 30 200 11 22 77 103 105 106 107</td>
<td></td>
</tr>
<tr>
<td>: 130 140 240</td>
<td></td>
</tr>
<tr>
<td>MGR210: RCE# : 210 30 200 11 22 77 103 105 106 107</td>
<td></td>
</tr>
<tr>
<td>: 12 28 33</td>
<td></td>
</tr>
</tbody>
</table>

- MBDIAG: Diagnostic information regarding the MONOGYR bus; see also parameter MBDIAG.
- MBINF: Total number of MONOGYR controllers and switch units connected to the MONOGYR bus; see also parameter MBINF.
  This line appears only if MBDIAG=0.
- MBSTA: The address, type and clear text status (MBSTA) of a MONOGYR bus device are shown on each line.
  This line only appears if MBDIAG=0.
- MGR#: List of all rooms that are allocated to a particular MONOGYR group.
- RCE#: List of all controllers that are allocated to a particular MONOGYR room.
- SEZ#: List of all switch units that are allocated to a particular MONOGYR room.

ECU

This section is only displayed if an ECU is configured.

<table>
<thead>
<tr>
<th>PS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ECU</td>
<td>31 43 44 48 51 52</td>
</tr>
</tbody>
</table>
• LPS: List of all process stations belonging to this ECU that are configured in the DCS.
• ECU: List of all process stations actually detected on the ECU ring.

The two lines should normally agree. If, however, process stations are configured in the DCS that are not reported by the ECU, these process stations are automatically tagged as OSV=True in the DCS.

Statistics

In this final section of the SYSR, the number of process stations and the data points that have been configured and commissioned in them are summarized once again.

<table>
<thead>
<tr>
<th>Statistics</th>
<th>Selection</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$2'PS..$254'PS</td>
</tr>
<tr>
<td>Total PS</td>
<td>2</td>
</tr>
<tr>
<td>Total Points</td>
<td>48</td>
</tr>
<tr>
<td>STAC=.</td>
<td>0</td>
</tr>
</tbody>
</table>

2.28.14 UTAR, User to Technical Address Report

This report shows the allocation of user addresses to the corresponding technical addresses of the selected points or point group. In addition, the message priority, module type, point texts (TXI) and status texts (TXZ) are indicated.

Listing is made in ascending order of user or technical addresses depending on which type is specified.

Example: Excerpt from a UTAR report.

<table>
<thead>
<tr>
<th>T8</th>
<th>14:22:07 Function=PNT : RPT,UTAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address=$Ty10 : $*</td>
<td></td>
</tr>
<tr>
<td>Masking Param. = .:</td>
<td></td>
</tr>
<tr>
<td>Output Device =$TT:</td>
<td></td>
</tr>
<tr>
<td>Insert Form Feed = .: &gt;&gt;o.k.!</td>
<td></td>
</tr>
</tbody>
</table>

UTAR 14:22:33 REPORT - START 31.07.1996/We T8

Selected Address Range = $2'000...$254'377

1 BLN $100'BLN Training Department $100'BLN
1 OS $100'OS Training Department $100'OS
1 PS rt'z Training Department $100'PS
1 PBUS $100'PBUS Training Department $100'PBUS
1 TY $100'TTY1 Training Department $100'TTY1
1 TY $100'TTY2 Training Department $100'TTY2
1 TY $100'TTY3 Training Department $100'TTY3
1 RI $100'RING Training Department $100'RING

UTAR 14:22:39 REPORT - END 31.07.1996/We T8

Line content, from left to right:
• Message priority
• Module type
• User address
• Point texts (TXI/TXI2); texts that are too long are truncated and identified by '..'.
• Status texts (TXZ)
• Technical address
2.28.15 MDR, Maximum Demand Load Report

The maximum demand load report (MDR) gives the user an overview of:

- the major parameters of the respective maximum demand point
- all sheddable loads and all connectable energy generators that are assigned to the maximum demand point via the tariff group.

Important: All data displayed are instantaneous values (current values at the time of printing, NOT at the report start time).

Report selection

When the report is started, the address of one or more maximum demand points must be entered.
### Explanation
Each entry in the maximum demand program register for the selected tariff group (maximum demand point) is printed out on five lines in the report.

#### Status indication
Each switch command point is displayed as follows:
- **Address and system text,** possibly suffixed by a status indication. !MD indicates that the corresponding RDO is determined by the maximum demand program.
- **Parameter RDO:** resultant switching command
- **Parameter ERSTA** (if <> .), e.g. ERSTA = OSV
- **Parameter OPMO:** operation mode

#### TGRP
All loads that are subject to the same tariff are combined in a tariff group. Each tariff or meter group represents a single energy measurement location (maximum demand point) that is completely independent of other tariff groups.
- **Marker:** !MD indicates that the maximum demand program has changed this switch command from its threshold value to its shed value.

#### Priority
Up to 100 separate switching priorities can be assigned within each tariff or meter group.
The maximum demand program switches:
- loads with low priority (low number) OFF first and ON last.
- loads with high priority (higher number) OFF last and ON first.
- loads of equal priority according to the "round-robin" procedure, i.e. the switch command that has remained unchanged by the maximum demand program for the longest time is changed first.

#### System value
(set by the system!)
The system value is the value of the switch command in the maximum demand register which is set by the DCS via TRR, DRR, PRR, manual intervention etc. (NOT maximum demand program). The system value cannot be changed by the maximum demand program nor can it be directly manipulated. However, it informs the MD program of the state that the switch command (DO) should be in if the parameter RDO (resultant switch command) is not modified by the MD program.

#### Demand / Load
Out of the total available load in this MD register entry, the indicated switched load has been reduced by the MD program; see also Parameters PN1 to PN3. The power than can be switched ON and OFF for each switch value is defined by these parameters.

#### Blocking flag
All DO entries can be blocked for switching operations of the MD program at any time using a flag. A blocking flag must have a "$ address" ($FLn) assigned to it.
- **Marker:** $FL indicates that this MD entry is blocked by a flag.
Elapsed time in [Sec] or [Min] since the resultant switch command RDO of the DO point last changed as a result of this MD program entry. It can be seen from this indication:
- how long it will take until the minimum or maximum threshold time and shed time elapse, or
- which of several entries with the same priority will be switched next.
When an MD program is first started (e.g. when the value of the parameter TGRP is set from 0 to 1 in the MD point) these counters are started from zero.

### 4th line

**Threshold value**
The threshold value is the switch value starting from which (positive) loads are taken offline or energy generators (negative loads) are brought on-line. Both kinds of loads then have the status shed value (= reduced load).

**Min.Time Threshold=**
Explanation: see below.
- Marker:
  !DA indicates that the minimum threshold time has not yet elapsed.

**Max.Time Threshold=**
Explanation: see below.
- Marker:
  !DA indicates that the maximum threshold time has not yet elapsed.

**Load**
Load that corresponds to the threshold value.

### 5th line

**Shed value**
The shed value is the switch value starting from which (positive) loads are brought online or energy generators (negative loads) are taken offline. Both kinds of loads then have an operating state that corresponds to the threshold value (= increased load).

**Min.Time Shed=**
Explanation: see below.
- Marker:
  !DA indicates that the minimum shed time has not yet elapsed.

**Max.Time Shed=**
Explanation: see below.
- Marker:
  !DA indicates that the maximum shed time has not yet elapsed.

**Load**
Load that corresponds to the shed value.

### Report end line

The sum of all switched loads belonging to the respective tariff group is indicated in this line.

**Min.Time Threshold=**
**Max.Time Threshold=**
**Min.Time Shed=**
**Max.Time Shed=**

In order to protect the plant, minimum and maximum or online times in minutes can be specified. All switching operations of the DO point required by the MD program take these times into account and are not executed until the set time has elapsed in each case. Other programs (TRR, DRR, etc.) can modify the values of such DO points at any time, regardless of the min./max. times set here.
2.28.16  OSR, Optimum Start/Stop Report

This report includes all major data of an air-conditioning zone under OSTP control. The data reported by the VISONIK DCS are instantaneous values. During OSTP operation the data is always updated at the start of a heating/cooling phase. The VISONIK DCS indicates old data by an "!".

### Explanation:

**Line a)**
The information given in this line includes;
- Message priority (MPR)
- Point's short name (OZ)
- User or technical address
- Point text (TXI and TXI2)
- Current status and associated status text (TXZ)

**Line b)**
This line includes the occupancy interval in;
- Hours, minutes and day of the week.
- Zone operating mode "OPT" or "FIX" (see parameter MODE in parameter description).

**Line c)**
This line includes;
- The heating plant's effective start time (calculated by the VISONIK DCS).
- Actual room temperature at start time.
- Actual outside temperature at start time.
This line includes;
- Time when "Comfort" level was reached.
- Effective room temperature.
- Room setpoint temperature.

This line includes;
- Stop time at which the heating plant was switched off.
- Room temperature at stop time.
- Outside temperature at stop time.

### 2.28.17 DPR, Data Processing Tables/Graphs

Report type DPR provides an operator with a listing of values logged (recorded) in DATA PROCESSING (DPO,GEN) in either tabular or graphic form. The output in Function RPT,DPR is exactly the same as in function DPO.

The function, RPT, DPR provides the following possibilities:

<table>
<thead>
<tr>
<th>Time</th>
<th>Function=PTN : RPT</th>
<th>Rpt.Type=SRPT : DPR</th>
<th>Format=GRAF : ?</th>
</tr>
</thead>
<tbody>
<tr>
<td>15:52:14</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### 2.28.18 PLOT, Output Graph

A graph output instruction can be given in two ways:
- In Function DPP by entering DPP,PLOT
- In Function RPT by entering RPT,DPR

In both cases a report is started showing the report name DPR and is enclosed in the typical "Report Start" and "Report End" lines.

**Daylight saving time/standard time changeover and data processing**

**Changeover from standard to daylight saving time:**
At two o'clock in the morning, the clocks are advanced to three o'clock. This day thus only has 23 hours.

For the hour missing between 02:00 to 02:59 hours, the data processing reinserts the values from 01:00 to 01:59 hours (standard time) and flags them with the quality attribute "NoE" (No Event).

**Changeover from daylight saving to standard time:**
At three o'clock in the morning, the clocks are reset to two o'clock. This day thus has 25 hours.

The data processing overwrites the values between 02:00 to 03:00 hours (daylight saving time) by the values of 02:00 to 03:00 hours standard time.

**Parameter LPP**
If page formatting is active (parameter LPP of the relative terminal not set to 0) the report starts on the next page.
Terminal in graphics mode

After printing a graph the terminal remains in Graphics Mode until it is reset with <CR>, <^P> or <^E>. If, after 5 minutes, no input has been given, the terminal automatically returns to normal operation.

Output of several graphs simultaneously

When two or more graphs are simultaneously requested on different terminals using DPP, PLOT or RPT, DPR, GRAP a delayed graph output is given the message "Bitmap busy! Please wait"

```
T5  10:17:04  Function=PNT : DPP
Operation=GCH :    PL
Graph Number=10:
Output Device=$TT:

  Bitmap busy! Please wait.
```

The delayed graphs are transferred to a queue (see DPP, JOBS).

**Example of a Graph Output on an Operating Terminal**

```
DPR  10:32:04  REPORT - START  01-Mar-90/Th (T1) T5
  10: 01-Mar-90  10:32

# ADDR  PAR  TYPE  INT  *  Format  SY  Dot
1  A01'H1'MW'0401  ME  INST  130m  1  Even  *   0
2  A01'H0'MW'0400  ME  INST  105m  1  Symbol  .  0

WEST WING OFFICES

```

The above example illustrates a graph of room and outside temperatures covering the last 15 hours.
Notes on Associated Report

After the report start line a line is printed showing the relative graph number, date and time.
A table then follows containing the DP channels which have been plotted in the graph.

<table>
<thead>
<tr>
<th>NAME</th>
<th>PAR</th>
<th>TYPE</th>
<th>INT</th>
<th>*</th>
<th>Format</th>
<th>SY</th>
<th>Dot</th>
</tr>
</thead>
<tbody>
<tr>
<td>A01'H1'MW&quot;0401</td>
<td>ME</td>
<td>INST</td>
<td>I30m</td>
<td>1</td>
<td>Even</td>
<td>*</td>
<td>0</td>
</tr>
<tr>
<td>A01'H1'MW&quot;0401</td>
<td>ME</td>
<td>INST</td>
<td>I05m</td>
<td>1</td>
<td>Symbol</td>
<td>.</td>
<td>0</td>
</tr>
</tbody>
</table>

Graphic Presentation of Mean Values
Mean values are formed at the end of a time interval but are valid for the whole interval.
Graphic presentation of a mean value depends on the output format (Even, Stepped).

| Even: | The mean value is shown in the middle of the time interval. |
| Stepped: | The mean value is shown as a horizontal line above the respective time interval. |

Example
The mean value at 08:00 is valid for the whole time interval (07:00..08:00).
In a graph with format "Even" the mean value is shown at 07:30.
With format "Stepped" the mean value is shown as a horizontal line covering the period 07:00 to 08:00.

Temp.
Mean; I 60 m

- Stepped
- Linearised

![Temperature Graph]
### 2.28.1 TAB, Display table

Example of Table Output on an Operating Terminal

<table>
<thead>
<tr>
<th>T8</th>
<th>14:55:54 Function=PNT : RPT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rpt.Type=SRPT</td>
<td>: DPR</td>
</tr>
<tr>
<td>Format=GRAF</td>
<td>: ?</td>
</tr>
<tr>
<td>0 GRAF = Graph</td>
<td></td>
</tr>
<tr>
<td>1 TAB = Table</td>
<td></td>
</tr>
<tr>
<td>Format=GRAF</td>
<td>: TAB</td>
</tr>
<tr>
<td>Graph Number=1</td>
<td></td>
</tr>
</tbody>
</table>

Rounding Setting for Par.Values=-1:

- from 01.01.1980/Tu 00:00:
  - 01.01.1980/Tu 00:00
- upto 14.08.1996/We 14:56:
  - 14.08.1996/We 14:56

Output Device =STT:

- Insert Form Feed =.: >>o.k.!

DPR 14:57:30 REPORT START 14-Aug-96/We T8

| 17:15 | | |
| 17:20 | | |
| 17:25 | | |
| 23.07.1996 | |
| 18:00 | | |
| 18:05 | | |
| 18:10 | | |
| 23.07.1996 | |
| 20:00 | | |
| 20:05 | | |

DPR 14:59:30 REPORT END 14-Aug-96/We T8

**Rounding off parameter values: 4..7**

This allows fixing the decimal point by entering the number of digits before or after the point i.e. the value is rounded up or down to the number of decimal places defined.

- A negative entry determines the number of places *after* the point
- A positive entry defines the number of places *before* the point.

However, for DATA PROCESSING specifying only the number of decimal places (-4..0) after the point is of importance.

<table>
<thead>
<tr>
<th>Decimal point</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>-4</td>
<td>4 decimal places 20.4367</td>
</tr>
<tr>
<td>0</td>
<td>Whole number 20</td>
</tr>
</tbody>
</table>
Start and Stop Times

| From | 20.06.1996/Th 14:00: ? | 20.06.1996/Th 14:00=(dd.mm.yyyy) (hh:mm), (hh:mm), (dd.mm.yyyy), +=
|      |                    | (-100..100) (Min.,Hour,Day,Mnth), -= (100..100) (Min.,Hour,Day,Mnth), (-100..100) (Min.,Hour,Day,Mnth), (-100..100), -(Mo,Tu,We,Th,Fr,Sa,Su), (Mo,Tu,We,Th,Fr,Sa,Su), -* , * , . |
|      |                    | : 20.06.1996/Th 14:00

Upto 18.07.1996/Th 14:00: ? 18.07.1996/Th 14:00=(dd.mm.yyyy) (hh:mm), (hh:mm), (dd.mm.yyyy), +=(-100..100) (Min.,Hour,Day,Mnth), -=(-100..100) (Min.,Hour,Day,Mnth), (-100..100) (Min.,Hour,Day,Mnth), (-100..100), -(Mo,Tu,We,Th,Fr,Sa,Su), (Mo,Tu,We,Th,Fr,Sa,Su), -* , * , . : _

Start time may be entered in different ways:
- Input of date and time.
- "Today's" date is the default value, only the time is changed.
- The date is changed and time automatically set to "00:00" hours.
- Number of hours, days or months preceded by a minus sign.

Example: Input of "-24 Hour" means, list the relative logged values from the previous 24 hours up to the present time.

### 2.28.19 PNX, Programmable Report

This report type enables the user to create highly detailed, user-specific reports on a large number of points, taking a large number of boundary conditions into consideration.

**Selection criteria**

The following **maximum** selection can be made in "RPT,PNX":
- **Up to 4** address ranges or individual addresses.
- **Up to 8** masking parameters (parameter names with respective values).
- **Up to 10** freely selectable parameters that are to be included in the report.

It should be noted however that the maximum selectable values shown above cannot all be specified at the same time.

**Flexible report content**

The user can control the report output as follows:
- Point address and all specified parameters.
- Status report with all specified parameters.
- Point statistics summary on the number of points found.

Report type PNX is almost identical to Function "PNX". In contrast to the function "PNX", however, parameters cannot be changed with RPT,PNX but only listed.

**Example:**

PNX report with
- two address ranges
- two masking parameters as selection criteria
- three parameters to printed out
- print-out without status report
T8 09:09:07 Function=PNT : RPT, PNX

1. Address Mask = $100'000..$100'177

2. Address Mask = $100'200..$100'377

3. Address Mask =
   1. Masking Param. = CTYP
      Parameter Value = 42 = MW
   2. Masking Param. = ERSTA
      Parameter Value = 0 = O.k.

1. Operating Param. = NAME
2. Operating Param. = ERSTA
3. Operating Param. = OSV
4. Operating Param. =
   with Status Rpt. = No :
   with Statistics = Yes :
Output Device = $TT:
Insert Form Feed = >> o.k.!

PNX 09:12:43 REPORT - START 02.08.1996/Fr T8

1. Selected Address Range = $100'000..$100'177

AI $100'100 NAME = $100'100 ERSTA = 0 = O.k. OSVL = 0
AI $100'101 NAME = $100'101 ERSTA = 0 = O.k. OSVL = 0

PNX Summary for Address Mask No. 1:
-----------------------------------
$100'000..$100'177 --> 10 Points
1. Masking Param. : CTYP = 1 = MW --> 4 Points
2. Masking Param. : ERSTA = 0 = O.k. --> 2 Points

2. Selected Address Range = $100'200..$100'377

PNX Summary for Address Mask No. 2:
-----------------------------------
$100'200..$100'377 --> 1 Points
1. Masking Param. : CTYP = 1 = MW --> 1 Points
2. Masking Param. : ERSTA = 0 = O.k. --> 0 Points

PNX 09:12:45 REPORT - END 02.08.1996/Fr T8

--- Explanation of previous example
Input of the first address range (user or technical address) to be referenced by the PNX report. An individual address may be entered.

n. Address Mask

Up to 4 further addresses or address ranges can be defined at this level.
Masking parameters represent the boundary conditions that must be met by the points and point ranges defined above for them to appear in the report.

Masking parameters may be linked in any way in an AND/OR statement.

A full explanation is given after the example in the following.

**Parameter Value**

Permissible values for the parameter specified immediately above. In the example:

CTYP=MW

Instead of a fixed parameter value, range definitions and comparison operators as per the following table are permissible:

<table>
<thead>
<tr>
<th>General:</th>
<th>Operation and Value</th>
<th>Only Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operations for Numerical Values (x,y):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>x(.)y</td>
<td>Equals x or within x..y</td>
<td>(default)</td>
</tr>
<tr>
<td>&lt;&gt;x(.)y</td>
<td>Does not equal x or outside x..y</td>
<td></td>
</tr>
<tr>
<td>&gt;x, &gt;=x</td>
<td>Greater than x, Greater than or equal to x</td>
<td></td>
</tr>
<tr>
<td>&lt;x, &lt;=x</td>
<td>Less than x, Less than or equal to x</td>
<td></td>
</tr>
<tr>
<td>Operations for Bitset Values (x,y):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>x&amp;y</td>
<td>Equal - Only Bit x,y set</td>
<td>(default)</td>
</tr>
<tr>
<td>&lt;&gt; x&amp;y</td>
<td>Unequal - Only Bit x,y not set</td>
<td></td>
</tr>
<tr>
<td>and x&amp;y</td>
<td>AND Expression - Bit x and y set</td>
<td></td>
</tr>
<tr>
<td>or x&amp;y</td>
<td>OR Expression - Bit x or y set</td>
<td></td>
</tr>
<tr>
<td>not x&amp;y</td>
<td>Inversion - Bit x,y not set</td>
<td></td>
</tr>
</tbody>
</table>

A total of up to 8 masking parameters can be defined at this level.

1. Masking Param.

Definition of parameter to be reported with its value.

n. Parameter

Up to 10 operating parameters can be specified at this level for reporting.

with Status Rpt.=No

Is a status report required, "Yes/No".
with Statistics = Yes

Is a statistics report required, "Yes/No".

In the following example a PNX report is requested which will include a status report on the selected Point addresses (with Status Rpt.=Yes).

The status indication is displayed at the beginning of the line each case (***, .. etc.).

Linking a number of Masking Parameters (AND/OR)

AND

For an AND operation, enter the parameter name at the "Masking Param. = " prompt.

This condition is OBLIGATORY for all of the selected points.
For an OR operation, enter an exclamation mark "!" before the parameter name. This condition is NOT OBLIGATORY for all of the selected points.

### Explanation

The exclamation mark (!) before the parameter OSV indicates that this is an "OR" operation between two or more masking parameters, i.e. one OR the other limiting condition must apply (RSUP=No OR OSV=Yes).

If there were no exclamation mark, it would be an "AND" operation, i.e. ALL limiting conditions must apply (RSUP=No AND OSV=Yes).

In the above example the VISONIK DCS will process all of the points whose parameter RSUP=No or whose parameter OSV=Yes.

**Note**

In the case of parameters with numerical values it is recommended that small ranges should be entered for the parameter value in order to take internal rounding differences into account.

*e.g.* $AI = 19.5 .. 20.5$ instead of just 20

### Example

An active UTAR on printer T1 is to be stopped:

```plaintext
1 ROOM $100'MGR3 $Master V12.02 TXU=(Economy,C?) $100'MGR3
    ctrl/P
1 GRP $100'MGG3 $Master V12.02 TXU=(Economy,C?) $100'MGG3
$100'OS OS Training Department
    ctrl/P
T8 10:40:44 Function=PNT : RPT,STOP
Output Device =$TT: >>o.k.!
STOP 10:40:57 REPORT - STOPPED 02.08.1996/Fr T8
```

**Remark**

The user specified the output device where the report is to be stopped.
2.28.21 DRPT, Dialogue Report

This report type is used internally by the system but is not available to the user.

2.28.22 PMD, Post Mortem Dump

The PMD report is used for system diagnostics. The report's contents can be analysed by L&S specialists only.

Related functions

The PMD report can be accessed in two different ways:
- via the function PMD
- via RPT, PMD

This makes it possible to define a special access level for the PMD report. The reports produced are identical in both cases.

Principle

When a major system error occurs, causing a system restart, the VISONIK DCS automatically saves all memory contents to the hard disk first. These data can provide information on the cause of the system error.

Following the system restart, which is executed automatically by the VISONIK DCS, a so-called ‘diagnostic dump’ is output on terminal T1.

Example:

```
344  PC = 104340= SERV + 4340  06.01.023
    R0 = 4336
    R1 = 11111 = DISC + 4111
    R2 = 22222 = PRNC + 1222
    R3 = 45620 = RDAT + 2420
    R4 = 40324 = TDAT + 4124
    R5 = 60040 = CL04 + 40
    SP = 57

STACK:
       1074/100100 = SERV + 100
       1076/21262 = PRNC + 262

Actual_Process:
   34326/100000   0 2004 1 0 31 42434 56122 57740 SER
```

Memory is stored for function PMD.

The memory contents having been saved on the hard disk when the error occurred, the most recent diagnostic dump can be repeated at any time up to the next diagnostic dump using the function PMD or RPT, PMD.

Whilst the spontaneous printout shows the most crucial register contents and memory locations, the PMD printout shows all relevant operating system and process data in extended form.

Important

Whenever a diagnostic dump is output on terminal T1 it is important to generate a PMD report via PMD or RPT, PMD as soon as possible after the restart of the DCS!

The error that occurred can only be properly analysed using this listing. Appropriate corrective measures can then be recommended or actioned.
2.28.22.1  Initial Access and Handling

Function call-up  
CTRL/P RPT, PMD

As the following example shows, the content of the report can only be analysed by L&S specialists.

Excerpt from a report printout; see function PMD for a complete listing.

<table>
<thead>
<tr>
<th>T8</th>
<th>10:49:06 Function=PNT: RPT, PMD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output Device</td>
<td>=$TT:</td>
</tr>
<tr>
<td>Insert Form Feed</td>
<td>= .: &gt;&gt;o.k.!</td>
</tr>
</tbody>
</table>

**PMD 10:49:28 REPORT - START 02.08.1996/Fr T8**

344 = Trap 4: odd/non-existent address-reference v14.04.012  
01.08.1996/Th 12:44:51  
Bclock=31000.123303  SECCnt=202  
CPU: 11M70  Interruptlevel: 0  
Projectname Language 0:  
Projectname Language 1: Training Department  
Trap_4_Info: 60="I/O-Bus-Timeout"!"Nonexistent_Memory"

| PC = 52370 = YPRNC + 12370 | (21752. = 124|370) |
| PSW= 000000  Priority = 0  Flags: T=0 N=0 Z=0 V=0 C=0 |

| R0 = 11774 = YRDAT + 1774 | ( 5116. = 023|374) |
| R1 = 11774 = YRDAT + 1774 | ( 5116. = 023|374) |
| R2 = 0 | ( 0. = 000|000) |
| R3 = 0 | ( 0. = 000|000) |
| R4 = 17006 = YRDAT + 7006 =T5DAT | ( 7686. = 036|006) |
| R5 = 27472 = YRDAT + 17472 | (12090. = 057|072) |
| SP = 10642 |

**Interrupt-Stack:**

10646/103274 = AA24 + 3274  (34492. = 206|274)  
10650/103204 = AA24 + 3204  (34436. = 206|204)  
10652/ 44402 = YPRNC + 4402 =$jsr  (18690. = 111|002)  
10654/ 37406  
10656/ 2700  
10660/100742 = AAA7 + 742  (33250. = 201|342)  
10662/100060 = AAA7 + 60  (32816. = 200|060)  
10664/ 55762 = YPRNC + 15762 =SAVrPC  (23538. = 133|362)  
10666/ 12030  
10670/ 14240  
10672/ 21526  
10674/ 11774  
10676/100220 = AAA7 + 220  (32912. = 200|220)

**Remark:**

If the hard disk contains no usable data, whether this is because no major error has occurred to date or because the memory dump to the hard disk was not executed correctly, the following message will be printed when a PMD report is called:

*** Sorry, inconsistent data ***
2.28.23 ARPT, Alarm Report

In an alarm report, all selected points whose parameter ALconf=Yes are listed in a table.

The layout of the table depends on the following parameters:
- DAFO (in $SY)
- MSGS (in $SY; value PaNa must not be set)
- CHPL (in $Tn; n=number of output terminal)

---

<table>
<thead>
<tr>
<th>STAP NAME,TXI MV/ERSTA</th>
<th>ALbeg</th>
<th>ALend</th>
<th>ALack</th>
<th>ALvi</th>
</tr>
</thead>
<tbody>
<tr>
<td>*** DI'MO'TEST''02 ERSTA=1=Off</td>
<td>30.07.1996</td>
<td></td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Training Department</td>
<td>15:02:43</td>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

---

Alarm Statistics

<table>
<thead>
<tr>
<th>MSGP=1</th>
<th>MSGP=2</th>
<th>MSGP=3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unacknowledged Alarms</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Acknowledged Alarms</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Unacknowledged Inactive Alarms</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Acknowledged Inactive Alarms</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

Total | 3 | 0 | 4 --|-- 7 |

---

Explanations regarding the dialogue

**Selected alarm status**

The alarm points can have four different states. One or more of these states can be used here as selection criteria.

- Unacknowledged Point in alarm, alarm unacknowledged
- Acknowledged Point in alarm, alarm acknowledged
- Acknowledged, inactive Point normal, alarm acknowledged
- Unacknowledged, inactive Point normal, alarm unacknowledged
Selected priority  Specification of the selection criterion "message priority", see parameter MSGp.

Masking param.  A single parameter with its respective value or range of values can be specified as an additional selection criterion.

The same rules apply as for the PNX report.

<table>
<thead>
<tr>
<th>General:</th>
<th>Operation and Value</th>
<th>or</th>
<th>Only Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operations for Numerical Values (x,y):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>x(..y)</td>
<td>Equals x or within x..y</td>
<td>(default)</td>
<td></td>
</tr>
<tr>
<td>&lt;&gt;x(..y)</td>
<td>Does not equal x or outside x..y</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;x, &gt;=x</td>
<td>Greater than x, Greater than or equal to x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;x, &lt;=x</td>
<td>Less than x, Less than or equal to x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operations for Bitset Values (x,y):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>x&amp;y</td>
<td>Equal - Only Bit x,y set</td>
<td>(default)</td>
<td></td>
</tr>
<tr>
<td>&lt;&gt; x&amp;y</td>
<td>Unequal - Only Bit x,y not set</td>
<td></td>
<td></td>
</tr>
<tr>
<td>and x&amp;y</td>
<td>AND Expression - Bit x and y set</td>
<td></td>
<td></td>
</tr>
<tr>
<td>or x&amp;y</td>
<td>OR Expression - Bit x or y set</td>
<td></td>
<td></td>
</tr>
<tr>
<td>not x&amp;y</td>
<td>Inversion - Bit x,y not set</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Explanations regarding the report content

**STAP**  Current point state
- Point in alarm: *, **, ***
- Point in normal state: .., ..., ...
- Point in acknowledged state: =, ==, ===

**ALBeg**  Time and date of alarm start.

**ALend**  Time and date when last alarm ended.

**ALack**  Time and date of last alarm acknowledgement.

Acknowledged alarm messages have the following STAP markers:

- === --> (MSGP=3)
- == --> (MSGP=2)
- = --> (MSGP=1)
- blank --> (MSGP=0)

Other higher priority STAPs (?HW, ?SW, etc.) are not overwritten when acknowledged.

**ALvis and ALcnt**  Code of user who made the acknowledgement plus the number of alarms (ALcnt) that have been received since the last acknowledgement.

### 2.28.24 STA, Statistic Register Report

Refer to function STA,LIST

**Advantages over STA function**

- Output to any terminal (display, printer terminals).
- Output to Vtxx terminal with form feed.
- Simultaneous STA outputs from several DCS servers.
2.28.25 CMB, Message Buffer Report

Advantages over CMB function

- Refer to function CMB, LIST
- Output to any terminal (display, printer terminals).
- Output to Vxx terminal with form feed.
- Simultaneous STA outputs from several DCS servers.
2.28.26 RRPT, Room Report

The room report RRPT covers all TEC rooms, together with the respective TEC devices, which comply with the defined conditions regarding address, parameter name and parameter value.

The following information is displayed for each TEC room:
- Parameters that are valid for the whole room are displayed in the upper section.
- TEC-specific parameters are displayed in the lower section.

```
T8    11:27:41 Function=PNT : RPT, RRPT
Address=TE'C2'ROOM"02: $*
Masking Param. = :.
Output Device = : $TT: 
Insert Form Feed = : >> o.k.!

RRPT 11:28:00 REPORT - START 02.08.1996/Fr T8
Selected Address Range = $2'000...$254'377

+---------------------------+------------------------------+
|.. ROOM TE'C1'ROOM"01 | Training Department | |
+---------------------------+------------------------------+
AOPST = ?255 | ARTP = -1 °C | APRST = 0=Not occupied
SOPST = 2=Economy | ASPH = 20 °C | ASTH = 0=No
SOMOD = 0=Local | ASPC = 26 °C | ASTC = 0=No
MACT = 0=No | VSPA = 0 m3/h | VEXA = 0 m3/h
MOPST = 1=Red_Comf | RRSC = 0 K | RWINO = 0=Closed

<table>
<thead>
<tr>
<th>TEC</th>
<th>ARTP</th>
<th>OHWA</th>
<th>OCWA</th>
<th>OXWA</th>
<th>OHAIR</th>
<th>OCAIR</th>
<th>OEAIR</th>
<th>AIRVS1</th>
<th>AIRVE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>°C</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>m3/h</td>
<td>m3/h</td>
</tr>
<tr>
<td>-----+------+------</td>
<td>------</td>
<td>------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1: 34</td>
<td>-1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>2: 36</td>
<td>-1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>4: 35</td>
<td>-1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>
+-------------------+------------------------------+

+---------------------------+------------------------------+
|!MAC ROOM TE'C2'ROOM"02 | Training Department | |
+---------------------------+------------------------------+
AOPST = 1=Red_Comf | ARTP = -1 °C | APRST = 0=Not occupied
SOPST = 2=Economy | ASPH = 20 °C | ASTH = 0=No
SOMOD = 0=Local | ASPC = 26 °C | ASTC = 0=No
MACT = 1=Yes | VSPA = 0 m3/h | VEXA = 0 m3/h
MOPST = 1=Red_Comf | RRSC = 0 K | RWINO = 0=Closed
RRPT 11:28:04 REPORT - END 02.08.1996/Fr T8
```
2.29 SRR Step Reaction Register

2.29.1 Initial Access and Handling

Function call-up
CTRL/P SRR

General
A general introduction to the subject of VISONIK reactions can be found under "Reactions in General" in section R of this manual.
The step reaction register function (SRR) is one of six reaction types provided by the VISONIK DCS. The reaction types are named after the reason (cause) that activates the reaction in each case.

Each reaction entry consists of the following three parts:
- "reason" that activates the reaction
- Blocking flag that can disable a reaction
- Reaction to be executed

What can the SRR do?
Dependent on the status change in a flag, the step reaction register function can execute a sequence of mutually linked reactions.

SRR reasons
- Status change of the relevant step reaction flag addr.

SRR reactions
- Change a point parameter
- Print a clear text message
- Execute macro commands
- Print slave messages
- Start or stop COLBAS tasks
- Automatic picture selection in VISONIK Insight

Main menu
When the step reaction register function is selected, the VISONIK DCS offers the user the following possibilities:

```
T8 16:41:36 Function=PNT : SRR
Operation   =CH     : ?
    0  CH =  Change Data Entry
    1  LI =  List Data Registers
    2  DEL =  Delete Register Entry(ies)
    3  LSTA = List Reaction Register State
    4  LOCT = List Reaction Entries in Octal
Operation   =CH     :
```
Example: Step reaction register entry

```
T8        08:50:46 Function=PNT : SRR
Operation  =CH     :

Step Flag Addr.  =(UA,TA): $F70
Entry           =1      :
Entry           =(1..255):
Delays after SRR =.    :
Delays after SRR  =(1..65000),,.: 30
Blocking Flag=   : $F10
Flag Value      =Off    :
Flag Value      =(&,.,*,--,+=,+-=,Off,Step 1,Step 2,Step 3): Off
Reaction        =(UA,TA): ?
    UA/TA = Change Point Parameter
    CT  = Printout Cleartext
    MC  = Issue MACRO Command
    SLVM = Output Slave Message
    CB  = Start/Stop COLBAS Task
    PICT = Auto Picture/Point Selection
Reaction        =(UA,TA): $100'040
Parameter       =DO     :
Set Digital Output: Priority=0 =On    :
Set Digital Output: Priority=0 = (Off,On), (LSPV, SAME, INV, .): On
1. Further Address  =.    :
Message Mask    =MSGDEV : ?
    MSGDEV: M1
    MM00:  M1&M2
    MM01:  M1&M2
    MM15:  M1&M2
Message Mask    =MSGDEV :
```

### 2.29.2 CH, Enter/Change Data

#### 2.29.2.1 Changing an existing SRR entry

In order to change data in a reaction entry it must first be selected via its "reason" and entry number. If the entry exists, it is listed completely for checking at the operating terminal.

The edit mode then becomes active, so that the user can modify or confirm each part of the reaction entry step by step.

**Important:**

A reaction entry is not changed (and re-saved) in the system until every step of this dialogue has been completed, i.e. after the last prompt for "Message Mask" has been answered. In all other cases, e.g. if the dialogue is quit with Ctrl/P or Ctrl/E, any changed data will be lost.
2.29.2.2 Creating a new step reaction register entry

Depending on the type of reaction program, the following prompts must be answered in order to create a new reaction register entry:

**Definition of the "reason"**

Step flag addr.
The reason for a step reaction is the Step Flag Addr. All SRR entries having this flag as a reason form steps that will be processed one after another.

The step reaction register function is triggered when
- there is a change in the "resultant flag value" (RFL parameter) value defined in the "SRR Start Values" (STVR parameter).
- the flag value is changed from one value back to that same value.

Entry
The sequence of reactions within the step sequence is established by the entry number.

Delays after SRR
In the reaction entry, the "Delays after SRR" reasons a corresponding delay time in seconds before the next reaction is executed.

Starting conditions
The start of a step reaction is dependent in particular on the OSV parameter (out of service) of the Step Flag Addr.:
- A running step reaction can be interrupted anytime using "OSV" = Yes.
- If "OSV" = Yes, the step reaction cannot be started even if all starting conditions are fulfilled.
- If a running step reaction is triggered, it will be interrupted and newly restarted.

**Definition of additional conditions (blocking flag)**

A flag point with address and value(s) can be assigned to each reaction entry. This blocking flag constitutes an additional condition that must be fulfilled before the reaction is executed.

A reaction entry is said to be blocked if the current value of the flag does not correspond to a value belonging to the entry.

<table>
<thead>
<tr>
<th>Blocking Flag</th>
<th>: $F10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flag Value</td>
<td>=Off</td>
</tr>
<tr>
<td>Flag Value</td>
<td>=$,.,<em>,</em>,+=,-=,Off,Step 1,Step 2,Step 3:</td>
</tr>
</tbody>
</table>

**Flag value**
A specific value or a combination of several values can be entered for the flag value. In the above example, the reaction entry is executed only if the "reason" is fulfilled and flag $F10 has the value 1,Step or 2,Step at that time.

In all other cases the reaction entry is blocked, and the reaction is not executed.

**Definition of the reaction to be executed**
The following step reactions can be triggered via a step reaction entry:

<table>
<thead>
<tr>
<th>Reaction</th>
<th>= (UA,TA): ?</th>
</tr>
</thead>
<tbody>
<tr>
<td>UA/TA</td>
<td>Change Point Parameter</td>
</tr>
<tr>
<td>CT</td>
<td>Printout Cleartext</td>
</tr>
<tr>
<td>MC</td>
<td>Issue MACRO Command</td>
</tr>
<tr>
<td>SLVM</td>
<td>Output Slave Message</td>
</tr>
<tr>
<td>CB</td>
<td>Start/Stop COLBAS Task</td>
</tr>
<tr>
<td>.</td>
<td>No Reaction (for MRR &amp; GRR)</td>
</tr>
<tr>
<td>PICT</td>
<td>Auto Picture/Point Selection</td>
</tr>
<tr>
<td>Reaction</td>
<td>= (UA,TA):</td>
</tr>
</tbody>
</table>
Address of the data point on which the reaction is to act. The following inputs are permissible:
- Technical address or $* masks
- User address or $* masks
- All addresses, including CT to PICT, by entering ‘.’ (???)

Specify the parameter to be modified.

In the example “Set Digital Output: Priority=0 :”
The following possibilities are available for entering the parameter value:
- A fixed value is assigned to the selected parameter.
- A priority is assigned to the resultant output values RDO of switch command points DO.

The following variants can be entered for switch commands in the SRR:
- Modification of the parameter DO1 or DO2 with its respective bit influence DO1ACT or DO2ACT.
- Selective setting of a single bit influence in DO1ACT or DO2ACT.
- Selective setting of all bit influences in DO1ACT or DO2ACT.

The above statements apply analogously to flag points.

- RVAL: The resultant setpoint of a switch command RDO or of a flag point RFL is set to the last effective value, e.g. after a power failure.
- SAME: When the reaction is triggered, the parameter value of the reaction address is set the SAME as the main value of a selectable data point. The data point can be specified at the “FNT /Address” (???) prompt.
- INV: When the reaction is triggered, the parameter value of the reaction address is set to the INVERSE of the main value of a selectable data point. The respective values are interpreted as Boolean variables. The data point can be specified at the “FNT /Address” (???) prompt.

More detailed information and appropriate examples can be found in the chapter “Reactions” in tab “R” of this manual.

Information on the subject of “bit influence” can be found in the descriptions of the parameters RDO, DO, DO1, DO2 and RFL, FL, FL1, FL2.

When the reaction is triggered, the VISONIK DCS prints a specific clear text message in the defined message mask; the message appears in the language that is defined for the respective device with the parameter XX.

Number of the clear text message in the text register TXCM,C.???

When the reaction is triggered, the VISONIK-DCS executes a specific macro command from the macro text register (TXCM,M) ??? of the selected language at ONE defined device. ???

Number of the macro text.
Language of the macro text register.
Output device (STA, M1..M15) at which the text is to be printed.

Print slave messages.
The VISONIK DCS normally only prints spontaneous messages if the status of a point changes in the peripheral equipment (???).
An SLVM reaction is required in order to force point messages (e.g. cyclic polling of a temperature using a date reaction).
When the reaction is triggered, the VISONIK DCS reports the main value of the point in the defined message mask, without the point status having changed.
Slave messages have an exclamation mark before the timestamp in the message line.
The VISONIK DCS starts/stops one of the available DCS COLBAS tasks.

CB Task
Number of the COLBAS task whose operation mode is to be modified.

Mode
Requested operation modes:
- **RUN**: Stops the COLBAS task if it is active, and starts it at the line number entered.
- **RESTART**: Starts a COLBAS task only if it is inactive. If the task is active, the instruction is ignored.
- **STOP**: Stops the task and prints a STOP message.
- **END**: Stops the task without a message.

COLBAS Line No.
Line number at which the task is to be started by a RUN or RESTART instruction.

Reaction .
No Reaction (MRR/GRR)
This option is only implemented for group reactions and maintenance reactions. Group reactions (GRR) and maintenance reactions (MRR) include additional mechanisms that do not require a special reaction section:
- Group reactions include a device changeover mechanism for alternative or auxiliary devices.
- Maintenance reactions include an operating hours counter.

If reaction programs are used for such cases, the reaction entry should be set to "Reaction=".

Reaction PICT
Automatic picture/point selection
When the reaction PICT is triggered, the VISONIK DCS automatically displays the selected picture in VISONIK-Insight.

The picture is only displayed if VISONIK Insight is free. Otherwise, it is saved until it is opened manually.

Picture number
Specification of the picture to be displayed.
In the case of reaction programs whose "reason" is a point change (SRR/SRR), the user can enter an "F" in the reaction entry instead of a fixed picture number. With this entry the picture that has been assigned to the respective "reason" address using the function COS,PICT (???) or the function PICT will be automatically displayed.
The PICT parameter contains the number of the picture on which a given point is displayed.

Graphic devices
VISONIK Insight, Output device number (T1..T15)
If a printer channel is selected as graphic device, the encoded picture number will be printed only.

1. further address
The VISONIK DCS executes the same reaction with the further addresses as with the address defined under "Reaction =". This feature allows for reaction entries to be economized.

n. further address
The user can assign up to four different further addresses to each reaction entry, provided the reaction is one that modifies point parameters (Reaction =UA/TA) or prints slave messages (Reaction =SLV).
For each reaction entry, the user can use the message mask to define which output devices of the VISONIK DCS are to register the reaction:

```
Message Mask = MSGDEV : ?
  MSGDEV: M1
  MM00: M1&M2
    
  MM15: M1&M2
```

Message Mask = MSGDEV means that the reaction will be registered on the message devices that are listed according to message priority in the parameters DevP0...DevP3 (point type SY) of the point specified under "Reaction=". The MSGDEV mask also takes device allocations with group reactions (alternative or auxiliary devices) into account.

### 2.29.3 LI, List Data Registers

The LI operation can be used to selectively list the reaction entries. The contents of the list can be filtered according to the following criteria:
- by Step Flag Addr.
- by entry numbers
- by reactions

If the reaction type CT, MC or CB is entered at the prompt "Reaction=?:", the user can make a finer selection according to text or task number.

```
T8  10:26:59 Function=PNT : SRR
Operation = CH : LI
Step Flag Addr. = .. : $F70
Entry = * : *
Reaction = .. : ?

UA/TA = Change Point Parameter
CT = Printout Cleartext
MC = Issue MACRO Command
SLVM = Output Slave Message
CB = Start/Stop COLBAS Task
. = No Reaction (for MRR & GRR)
PICT = Auto Picture/Point Selection

Reaction = .. :

SRR 10:26:59 Start of DATA - LIST 25.07.1996/Th

T8

FL $FL70 = ST'EMPER'FLAG"01 / 2
Delays after SRR 30s
Blocking Flag $FLI10
  Off
Reaction PACH________Change Point Parameter
Address DO $d100'041
Parameter DO__________Set Digital Output:
Priority=0
  Value 0=Off
Reporting MSGDEV M1

SRR 10:27:00 End of DATA - LIST 25.07.1996/Th T8 Operation
= LI : _
```
The list of reaction entries can contain so-called “questionable status markers”, which have the following meanings:

?FL

The blocking flag’s value in the reaction entry does not correspond to the flag’s current value, i.e. the entry is currently blocked.

?OSV

In the Step Flag Addr.(which is responsible for the reaction reason), the OSV parameter is set to “Yes” (out of service).

2.29.3.1 Example for ?FL

```
| FL | $FLI10 = BL'OC'KING"01 / 3 |
| Delays after SRR | 0s |
| Blocking Flag | BL'OC'KING"01 |
| Off |
| ?FL____SRR Blocked!_______(BL'OC'KING"01.RFL=Step 1) |
| Reaction | PACH_Change Point Parameter |
| Address | DO $d100’041 |
| Parameter | DO___Set Digital Output: Priority=0 |
| Value | 0=Off |
| Reporting | MSGDEV | M1 |

SRR 14:15:53 End of DATA LIST 14.08.1996/We T8
```
2.29.4 DEL, Delete Register Entry(ies)

The DEL operation can be used to selectively delete reaction entries. The entries to be deleted can be filtered according to the following criteria:

- by Step Flag Addr.
- by entry numbers
- by reactions

If the reaction type CT, MC or CB is entered at the prompt "Reaction=?:", the user can make a finer selection according to text or task number.

Recommendation:

It is recommended that the option "Accept Every Entry =YES" should be set. With this setting each reaction entry to be deleted is listed completely at the operator terminal, and the user must acknowledge the deletion of each one manually in order to prevent inadvertent deletion.

If the option is not set, the VISONIK DCS automatically deletes all specified entries. The entries to be deleted are listed with their "reasons" and entry numbers at the operator terminal. The automatic deletion procedure can be aborted with Ctrl/P or Ctrl/E, if necessary.
### 2.29.5 LSTA, List Reaction Register State

This provides an overview of all Reaction Registers.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Register</th>
<th>Total Entries</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH</td>
<td>LSTA</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group Reactions</td>
<td>GRR</td>
<td>1</td>
</tr>
<tr>
<td>Step Reactions</td>
<td>SRR</td>
<td>7</td>
</tr>
<tr>
<td>Maintenance Reactions</td>
<td>MRR</td>
<td>1</td>
</tr>
<tr>
<td>Time Reactions</td>
<td>TRR</td>
<td>1</td>
</tr>
<tr>
<td>Step Reactions</td>
<td>SRR</td>
<td>1</td>
</tr>
<tr>
<td>Date Reactions</td>
<td>DRR</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

### 2.29.6 LOCT, List Reaction Entries in Octal

The LOCT operation can be used to selectively list the reaction entries according to the same criteria as the LI operation. The normal list is followed by a printout of the same data in octal code.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Reason</th>
<th>Entry</th>
<th>Reaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH</td>
<td>..</td>
<td>..</td>
<td></td>
</tr>
<tr>
<td>LOCT</td>
<td>(UA, TA, ..., *, *)</td>
<td>* , (1..255): *</td>
<td></td>
</tr>
</tbody>
</table>

UA/TA = Change Point Parameter
CT = Printout Cleartext
MC = Issue MACRO Command
SLVM = Output Slave Message
CB = Start/Stop COLBAS Task
. = No Reaction (for MRR & GRR)
PICT = Auto Picture/Point Selection

Reaction

SRR 12:17:52 Start of DATA LIST 30.07.1996/Tu

AI $100'001 = RO'OM'TEMP"01 / 4
Positive Edge 1: Normal ---> HIL=22.0
Blocking Flag $FLI10

?FL____SRR Blocked!________($FLI10.RFL=Off)
Reaction PACH.Change Point Parameter
<table>
<thead>
<tr>
<th>Address</th>
<th>DO $d100'041</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parameter</td>
<td>DO__________Set Digital Output:</td>
</tr>
<tr>
<td>Priority=0</td>
<td>Value 0=Off</td>
</tr>
<tr>
<td>Reporting</td>
<td>MSGDEV M1</td>
</tr>
<tr>
<td>DSW/Offset = REA.</td>
<td>0/ 7332</td>
</tr>
<tr>
<td>0/ 100 76 404 25000 10144 4 12 2</td>
<td></td>
</tr>
<tr>
<td>20/ 4 41160 41260 41601 131463 0 1400 100000</td>
<td></td>
</tr>
<tr>
<td>40/ 41 62052 1622 0 0 0 0</td>
<td></td>
</tr>
<tr>
<td>60/ 0 0 0 0 0 0 0 0 0</td>
<td></td>
</tr>
</tbody>
</table>


The list may be required by Landis & Staefa for diagnostic purposes.
2.30 STAT Statistic Register

The Statistic Register is a reserved area in disk memory for depositing any messages from the VISONIK system. This Register's capacity is variable and is sufficient to store specified events, either from the external plant equipment or from VISONIK itself, for a relatively long period.

The system is advised in advance which events are to be kept for statistics. From this moment on, access to statistics data can be made at any time and the dialogue terminated with Ctrl/E as required.

A condition for the optimum utilization of Register capacity is a suitable choice of terminal device masks. The Statistic Register is handled in a similar way to an output terminal. Message types, which can be directed to specified output terminals and similarly to the Statistics Register, are defined using the parameters shown below.

For each message type which should be deposited in the Statistic Register the associated parameter in system point $SY$ should be extended with option "+=STAT":

- **DEVINI** for initial $SY$ message after system BOOT or for error messages
- **DEVPCH** for messages on manual (keyboard) parameter changes using Function PNT or PNX.
- **DEVLOG** for acceptance messages.
- **DMMx** (DEVPX..DMM3) for point messages including their message priorities MSGP=0..3.
- **MMxx** (MM00..MM15) for Reaction messages

### 2.30.1 Initial Access and Handling

**Function call-up**

**CTRL/P STAT**

Function STAT is opened with Ctrl/P followed by input of the abbreviation "STAT" (or STA).

The following operations are now available for handling the Statistic Register:

```
ctrl/P
T1  10:49:08 Function =PNT : STA
Operation =LIST : ?
  0 LIST = List Buffer
  1 LDAT = Review Messages by Date
  2 LFCO = List Number of "FCON" Messages
  3 LIRO = List Messages in Reverse Order
  4 LOCT = List Buffer in Octal Code
  5 DEL = Delete Outstanding Messages
```

```
Operation =LIST : _
```

2.30.2 LIST, List Statistic Entries

Operation LIST outputs a listing of messages held in the 'Statistics Register' to the operator's terminal or printer. All messages are arranged according to date.

Should the system date be set back (with Function DATE) all new buffer messages which overlap other existing entries, because of this set back in time are tagged in the listing with "Retrospective!", placed next to the date.

Messages may be selected from the Statistic Register using the following conditions:
- Statistic time interval
- Message category

```
T5   14:47:22 Function=PNT : STA
Operation=LIST: ?
from  31-10-95/Tu  00:00: ?
     31-10-95/Tu  00:00=(dd-mmm-yy) (hh:mm), (hh:mm), (dd-mmm-yy),
     (-100..100) (Min.,Hour,Day ,Mnth), (-100..100), -(Mo,Tu,We,Th,Fr,Sa,Su),
     (Mo,Tu,We,Fr,Sa,Su), -*, *, .: -1Day
from  30-10-95/Mo  00:00
upto  31-10-95/Tu  14:47: ?
     31-10-95/Tu  14:47=(dd-mmm-yy) (hh:mm), (hh:mm), (dd-mmm-yy),
     (-100..100) (Min.,Hour,Day ,Mnth), (-100..100), -(Mo,Tu,We,Fr,Sa,Su),
     (Mo,Tu,We,Fr,Sa,Su), -*, *, .: 31-10-95/Tu  14:47

Message Category=ADDR: ?
   0  *    =    All Messages
   1  .    =    Messages without Addr. or ID No.
   2  ADDR =    Messages with Point Addresses

Message Category=ADDR:
Address Mask =$0'000 : ?
Address Mask=(UA, TA, EKL, . . . , *)
   A00 'A1 '22''AAAA
      $eee 'mm'p, $eee 'PLTn, $eee 'RGBn, $eee 'VIPn, $eee 'ZONn, $eee'Mxxparyy
      $eee , $dee $dee $e $e $e $e
    . = range
    . . = special range
   * = all
   : *
```
Message Type =PNT&PCH&ACPT&SLV&REST: ?

PNT = Point Messages
PCH = Param. Changes
ACPT= ACPT Messages
SLV = Statistic Slaves
CB  = COLBAS Message
REST= All other Mess.

Message Type =PNT&PCH&ACPT&SLV&REST:

STA 13:42:43 REPORT - START 06-11-95/Mo T1
from: 05-11-95/Su 00:00
upto: 06-11-95/Mo 13:41

(Oldest Entry : 31-10-95/Th 05:56)

Recorded Date : 05-11-95/Tu
.. ST 06:09:03 A02'B5'02'MXD Group 3 lighting
.. TY 08:26:55 &Ty4 Terminal 4 Normal
HAND ST 08:34:24 a01'h2'ST MSGP =0 ----> 2 100 T4

Recorded Date : 06-11-95/Mo
MRR SC 00:08:08 A01'EG'L0"20 Fan B: from 02-05-95 1995h In Serv.
SRR SC 12:18:11 a01'b2'SC SC =---> RVAL=(1)
... ME 13:41:57 $12'003 Extract temp. 25.9Deg.C

STA 13:42:55 REPORT - END 06-11-95/Mo T1
Operation =LIST : _

2.30.2.1 Statistic Time Interval

A user may specify a time range for retrieving messages from the Register. The maximum time range covers from the oldest stored message up to the actual present time. In the STAT dialogue, the system always prompts the day of recording the oldest message with 00:00 hours followed by the actual time as a second prompt.

The desired interval start and end times for data output can be specified as follows:

(dd-mm-yy) (hh:mm) Date with time
(hh:mm) Time only
(dd-mm-yy) Date only
(-100..100), Positive or negative number of minutes, hours, days or months:
(Min, Hour,Day .Mnth) The system calculates the hour, day or month forwards or backwards (-) from the actual time.
(Mo.,Su), -(Mo.,Su) Days:
The related point in time will be fixed at the specified day at 23:59 hours of the next week or 00:00 hours of the previous (-) week.
(-100..100) If a positive or negative (-) number is entered without units the system then automatically calculates in days.
(.) Present time
(‘) Time interval ending at the maximum possible time of 31-Dec-2027 22:53.
(‘+) Time interval starting from the past possible time of 01-Jan-00/Su at 00:00
Examples

Entry: 0 Hour, 0 Day or 0 Mnth

Input of 0 Hour, 0 Day, or 0 Mnth.

If a zero is entered together with a unit (e.g. 0Hour, 0Day, 0Mnth) the time interval start goes back to the beginning of the current hour, day or month respectively and ends automatically at the present time.

Entry without units

Operation =LIST :
from 31-10-95/Tu 00:00 : ?
31-10-95/Tu 00:00 = (dd-mm-yy) (hh:mm), (hh:mm), (dd-mm-yy), (-100..100)
(Min., Hour ,Day ,Mnth), (-100..100), -(Mo,Tu,We,Th,Fr,Sa,Su), (Mo,Tu,We,Th,Fr,Sa,Su, -*, *, *, *, *, *, *, -, -)
from 30-10-95/Mo 00:00
upto 31-10-95/Tu 13:41 :

In the above example the system searches the Statistic Register for messages from 30.10.95, 00:00 hours up to the actual present time (31.10.95, 13:41 hours).

The relative listing also indicates the oldest existing entry together with date and exact time:

STAT 13:41:43 REPORT - START 28-10-95/Sa T1
from 21-10-95/Sa 00:00
upto 22-10-95/Su 13:41
(Oldest Entry : 29-09-95/Fr 21:56)

STAT 13:42:55 REPORT - END 28-10-95/Sa T1
Operation =LIST :

Input of a retrospective time range

By entering a full stop '.' against the start prompt 'from' and then <CR> at the stop time 'upto' the whole register will be listed backwards. This means the latest message appears first and so on. Refer Operation LIRO.

MAN:T5 11:05:39 Function=PNT : STA
Operation=LIST:
from 20-01-95/Mo 02:01 : .
07-02-95/Fr 11:07
upto 20-01-95/Mo 02:01 :
20-01-95/Mo 02:01
Message Category=ADDR:
Message Type=PNT&PCH&ACPT&SLV&REST:

STAT 11-07-44 REPORT - START 07-02-95/Fr MAN:T5
from : 07-02-95/Fr 11:07
upto : 20-01-95/Mo 02:01
Recorded Date : 30-01-95/Th
HAND MD 11:14:20 E02'El1'00"MxD CV =47.619-----> 0.000 MAN:T18
HAND MD 11:14:08 E02'El1'00"MxD EC15=Ni-----> No MAN:T18
HAND MD 11:13:42 E02'El1'00"MxD CV =47.619-----> 0.000 MAN:T18
HAND MD 11:12:46 E02'El1'00"MxD OSV=Yes -----> No MAN:T18

STA 11-07-52 REPORT - END 07-02-95/Fr MAN:T5
### 2.30.2.2 Message Category

With "Message Category" a further condition for selection of statistic messages may be specified. The system lists messages according to the following categories:

<table>
<thead>
<tr>
<th>Message Category=ADDR: ?</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 * = All Messages</td>
</tr>
<tr>
<td>1 . = Messages without Addr. or ID No.</td>
</tr>
<tr>
<td>2 ADDR = Messages with Addresses</td>
</tr>
</tbody>
</table>

### Description of Message Categories

- **All messages in Statistic Register.**
- **'Messages without addresses or ID numbers**
- **NAME**
  - Only those messages in the chosen address mask and from specified message type. Address mask and message type must be declared in the following dialogue steps.

### Address Mask

The address mask defines a range of addresses from which the statistic messages are required.

**Address Mask =**

- $4 '013: ?
- Address Mask = (UA, TA, EKL,...,*):
  - A00 'A1 '22 "AAAA"
  - $eee 'mm 'p, $eee 'PLTn, $eee 'RGBn, $eee 'VIPn, $eee 'ZONn, $eee Mx xpyy
  - $eee , $dee e , $ speeding
  - ... =special range
  - *=all

### Message Type

This provides the possibility of selecting statistic messages not only by address but also by type, such as:

**Message Type =**

- PNT & PCH & ACPT & SLV & REST: ?
- PNT = Point Messages
- PCH = Param. Changes
- ACPT = ACPT Messages
- SLV = Statistic Slaves
- CB = COLBAS Message
- REST = All other Mess.

### Description of Message Types

- **PNT**
  - Messages concerning normal point status changes
- **PCH**
  - Messages concerning all kinds of parameter changes
- **ACPT**
  - Messages concerning point acknowledgment through Function ACPT. Note that Function ACPT is no longer supported.
- **SLV**
  - Main value messages which have been 'dedicated' to the Statistic Register due to a Reaction program (Statistic Slave Messages).
- **CB**
  - Messages which have arisen from COLBAS Tasks in an EKL-X/P substation. By using a search text messages with specific contents can be called.
- **REST**
  - All other message types
Example with CB

<table>
<thead>
<tr>
<th>Message Category=NAME:</th>
<th>MSG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Message =*:</td>
<td>?</td>
</tr>
<tr>
<td>Message =*, (0..177777):</td>
<td>_</td>
</tr>
</tbody>
</table>

The search text can be a word segment together with "wild cards" (*/%). Refer to TXIZ/TXCM descriptions.

**L&S**
Messages concerning manual (keyboard) parameter changes at L&S Level (8/8 L&S Systems Manager).

**MSG**
Only messages with certain MSG numbers.
All system messages have an internal octal number, called MSG (Message) number. These internal numbers are always printed in their related System Messages. If known to the operator these MSG numbers may be used to choose messages from the Statistic Register.

**SYSM**
Messages from other systems
If two or more systems are linked together (by Ring, Telephone or V.24) messages can be exchanged between these systems. Such messages are transferred to partner systems in the language of the sending message channel and filed accordingly in the destination's statistics register.

By using search text, messages with specific contents can be called.

"Txt.Search=""
"Txt.Search=H""
This lists messages from partner systems.
This lists messages from partner system 'H'.
The search text can be a word segment together with "wild cards" (*/%). Refer to TXIZ/TXCM descriptions.
2.30.3 LDAT, Review of Messages by Date

Operation LDAT provides a review of the number of messages in the Statistic Register. The subtotals are arranged according to date and a grand total is given at the summary end.

As in Operation LIST messages may also be selected according to the following conditions:
- Statistic time interval
- Message Category

```
ctrl/P
T4       11:00:10 Function =PNT : STAT
Operation =LI :   LD
from 28-04-95/Th  00:00 :
upto 05-12-95/Mo  11:00 :
Message Category=NAME:
Address Mask =A02'B2'** : A02B2
Message Type =PNT&PCH&ACPT&SLV&REST:

STAT  11:00:37    R E P O R T - S T A R T           05-12-95/Mo  T4
from: 28-04-95/Th 00:00
upto: 05-12-95/Mo 11:00
( Oldest Entry    : 28-04-95/Th 06:58)
Recorded Date  : 18-05-95/Mo     Number :     271.
Recorded Date  : 20-05-95/We     Number :     126.
Recorded Date  : 18-05-95/Fr     Number :       8.
Recorded Date  : 21-05-95/Th     Number :       9.
Recorded Date  : 19-05-95/Tu     Number :     219.

Total :     633.

STAT  11:00:53    R E P O R T - E N D               05-12-95/Mo  T4
Operation =LI :   _
```
2.30.4 LFCO, Review of Fault Condition Messages

Operation LFCO provides a listing on the user's terminal or printer which gives a review of 'fault condition' messages held in the statistics register. These messages are tabulated together with the current warning condition (WCON) state marker, related address (ADDR, TA) and the number of related fault condition states (Normal: FCON=0, Fault: FCON=1) during the specified interval, listed in a table.

Contrary to Operation LIST, messages can be selected according to the following criteria:
- Statistic time interval
- Messages with addresses

```
ctrl/P
T4    11:01:45 Function =PNT : STAT
Operation =LI : LF
from 28-04-95/Th 00:00 :
upto 05-12-95/Mo 11:01 :
Message Category=NAME:
Address Mask =A02'B2'** :

STAT    11:02:19    R E P O R T - S T A R T           05-12-95/Mo   T4
from: 28-04-95/Th 00:00
upto: 05-12-95/Mo 11:01
FCON: 0 1 2 3 4 5 6 7
-------------------------------------------------------------------------
. ME a01'b2'MW                   10   1    .    2    8    .    .    .
*** PS a01'b2'US                   112  19   .    .    .    .    .    .
.. SY a01'b2'SY                   30   .    .    .    .    .    .    .
... RI a01'b2'RI                   11   11   .    .    .    .    .    .

STAT    11:12:00    R E P O R T - E N D               05-12-95/Mo   T4
```
2.30.5 LIRO, List Messages in Reverse Order

Operation LIRO lists the requested number of messages in reverse order, i.e. the most recent message appears at the beginning and the oldest at the end. See Operation LIST for selection of message types.

Example

The 15 most recent messages shall be listed in groups of five messages in reverse order.

Note:
Pressing <CR> each time at "Number=5:" gives the required number of five messages per group.

```
Example

T5  15:19:16 Function=PNT : STA
Operation=LIST:     LIRO
Address Mask=AAl'**'***'***: 15:20
Message Type=PNT&PCH&ACPT&SLV&REST:

Recorded Date   :  21-May-95/Th
?OS  SC 00:00:04 AAl'SC  Switch Command
     RVAL=STEP 1  FCON=OSV
Number=5:
!DA  PS 14:03:42 AAl'PS  P-Bus Module M9 2RIK Operational
  SY 14:03:15 AAl'SY  $033'US MC
  System offline:  21-May-95/Th 14:00:20 --> 14:03:15
  CO 14:00:19 AAl'CO  COE1..3=RxCa/./.
  NOIS= 0
  TY 14:00:05 AAl'TY  Teletype/Device
     TY=Normal  VT2xx MCHA1
  ME 12:50:37 AAl'ME  Measurement
     ME=20.0 DEG.C
Number=5:
  SY 11:40:07 AAl'SY  TIX 29 seconds sleeping!!
  SY 04:00:03 AAl'SY  shadow too old: 12-May-95
                     today: 21-May-95
  TRR SC 00:00:04 AAl'SC  SC =STEP 1----> STEP 1
     RVAL=STEP 1
  MRR SC 00:00:03 AAl'SC  Switch Command from 19-May-95 12020h In Serv.

Recorded Date   :  20-May-95/We
GRR SC 20:28:39 AAl'SC  SC =STEP 1----> STEP 1
     RVAL=STEP 1
Number=5:
  ME 20:28:38 AAl'ME  Measurement
     ME=19.8 DEG.C  <LOL=20.0
  TY 17:08:18 AAl'TY  Teletype/Device
     TY=Fault  VT2xx MCHA1
  CO 17:07:09 AAl'CO  COE1..3=RxCa/./.
  NOIS= 0
  TY 16:52:03 AAl'TY  2/1001 noise NOLI= 1
  ME 16:26:06 AAl'ME  Measurement
     ME=20.3 DEG.C
Number=5:
```
2.30.6 LOCT, List Message Buffer in Octal

Operation LOCT provides an octal code listing of messages held in the statistics register.

As in Operation LIST messages may also be selected according to Time Interval or Category.

Operation LOCT is mainly for diagnostic purposes.

```
ctrl/P
T4   13:02:23 Function =PNT : STA
Operation =LIST : L8
from 18-05-95 00:00 : -1H
from 05-12-95 12:02
up to 05-12-95 13:02 :
Message Category=NAME:
Address Mask =a02'b2'SC : A01'B2'SC
Message Type =PNT&PCH&ACPT&SLV&REST:

STA   13:03:29 REPORT - START 05-12-95/Mo T4
from: 05-12-95 12:02
upto: 05-12-95 13:02
(Oldest Entry : 18-05-95/We 08:42)

Recorded Date Date : 05-10-95/Mi
  SC 16:42:01 a01'b2'SC Switch Command ON
  Seg# = 34 Blk# = 30
  3630/  40 130505 53721 20010 1 0 140102 37470
  3650/  41027 63421 0 1000 170 41006 150000 0
  3670/ 0 0 0 25001 20 1 0 0
  3710/ 61062 30447 60460 3 0 0 0 0
  3730/ 61062 30447 60460 3 0 0 0 0

STA   13:03:34 REPORT - END 05-12-95/Mo T4
```
2.30.7 DEL, Cancel Outstanding Messages

Messages which cannot be output for some reason (e.g. terminal "Out of Service") are simply queued in the statistics register. Often they can cause a flood of message outputs whenever such an output terminal is brought back on line.

Operation DEL can cancel such a flood of messages without actually deleting messages held in the register. They are simply not printed out.

There are various cancel operations which may be separately specified, according to,
- Message Channels (M1..M15)
- Message priority (MSGP=0..3)

The system also stops the output of messages whose Message Priority MSGP is equal to, or less than that specified by the user. VISONIK deletes messages in 'Others' category irrespective of the entered Message Priority (MSGP).

The following example illustrates that for Message Channel 1, there are,
- 123 messages with MSGP=0
- 45 messages with MSGP=2
- 32 messages with MSGP=3
- 1 "Other" message

By specifying "Message Channel=1" and "MSGP=3" a message flood to terminal T1 is stopped.

```
Operation =LIST : DEL
Message Channel =4: 1
Message Channel =(1..15): 1
(Oldest entry: 19-Feb-95/We 07:41
MSGP : 0 1 2 3 Other(s)
Number : 123 . 45 32 1
MSGP =0 ?
MSGP =(0..3): 3

* * ENTRY ERASED * *
```

```
Operation =LI : DE
Message Channel =4: 1
MSGP : 0 1 2 3 Other(s)
Number : . . . . .
MSGP =0 Ctrl/E
```
2.31 TRND Trend Plot Dialogue

2.31.1 Initial Access and Handling

Function call-up

CTRL/P, TRND

Function TRND allows parameter values to be graphically plotted as a function of time. The relative parameters are polled and plotted on-line. Parameter values are plotted on the horizontal axis, time is the vertical axis.

Scale

On colour printers the plot width is always 100 mm. Plot scaling is according to defined values for the left and right margins.

TICM

At the left hand side of a plot, time markers are printed every centimetre showing actual “hh:mm”. The time difference between two successive time markers corresponds to the value given to parameter TICM (Time per Centimetre). At every centimetre a fine horizontal line is drawn.

16 Trend Plot sets

A 'Trendplot Set', consisting of a maximum of 10 trend channels, can be assigned to a trend recorder. A maximum of 16 Trend Sets can be defined.

Starting and Stopping

Trend Plot start and stop commands are handled as follows:

<table>
<thead>
<tr>
<th>Start Trend Plot:</th>
<th>Operating parameter Time field.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$Tn.TICM=1..60</td>
</tr>
<tr>
<td>Stop Trend Plot:</td>
<td>$Tn.TICM=0</td>
</tr>
</tbody>
</table>

Main Menu

The system is now ready to accept the following handling Operations:

```
ctrl/P
T4  15:02:14 Function =PNT : TRND
Operation =CH : ?
  0  CH = Change Data Entry
  1  LI = List Data Registers
  2  DEL = Delete Register Entry(ies)
Operation =CH : 
```
### 2.31.2 CH, Change Data Entry

Operation CH allows new entries to be made or existing ones may be changed.

#### 2.31.2.1 To Specify a New Trend Entry

To enter new data the required plot channel is first called up and the relative data specified.

```plaintext
T8 09:01:38 Function=PNT : TRND
Operation=CH        : ?
  0  CH   =    Change Data Entry
  1  LI   =    List Data Registers
  2  DEL  =    Delete Register Entry(ies)
Operation=CH        :
Set=1               : ?
Set=(1..16)         : 2
Trend Channel=1     : ?
Trend Channel=(1..10): 1
Address=$d7'OS      : $100'001
Parameter=AI        :
Value - Left Mar=-1E+30: ?
Value - Left Mar=(-1E+30..1E+30): 15
Value- Right Mar=1E+30 : ?
Value- Right Mar=(-1E+30..1E+30): 30
Dot Pattern=0       : ?
  0     =       (................)
  1     =       (. . . . . . . .)
  2     =       (............)
  3     =       (.....    ....)
  4     =       (. . . . . . .)
  5     =       (..       ..)
  6     =       (.......    .).
  7     =       (.. .    .... .)
  8     =       (.   .   ..   .)
Dot Pattern=0       : 4
Colour=Black        : ?
  0     =       Black
  1     =       Red
  2     =       Green
  3     =       Blue
  4     =       Magenta
Colour=Black        : 2
Symbol=*            : ?
  Character:
    SPACE ! " # $ % & ' ( ) * + , - . / @ : ; < = >
  Capital Letters:
    A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
  Numbers:
    0 1 2 3 4 5 6 7 8 9
Symbol=             : +
  >>o.k.!
Trend Channel=2     :
```

2.31.2.2 Explanation

Set=1: 2
A user can define up to 16 Trendplot Sets. With parameter $Tn.TSET the required 'Set' is output to the recorder. Sets can be freely exchanged whilst a recorder is active.

Trend Channel=1 : 1
Up to 10 channels can be defined per Trendplot Set.

Address= $1'04'01:
E01'L2'11
At this point, VISONIK prompts for an address.
Any point address in the system can be declared as a "Trend point".
This prompt is answered by entering either a User (UA) or Technical Address (TA).
The system can plot either analogue or digital points.

Parameter =SC : ME
The required parameter's short name is entered.

Value - Left Mar= -20: 15
These are left and right margin values which define the plot's scale.
Value- Right Mar= 50: 30
Both positive or negative numbers for either margin may be entered to give the required scale range.
The plot is then limited to the values set for left and right margins.
The left margin's scale value must be less than that of the right margin!

Example
Valve position range 0...100%
Desired Trend range 25...35%
Plot 25% at left margin, 35% at right margin.
Entry Value - Left Mar = 25
Value - Right Mar = 35

Example
Step range of a switch Steps OFF, 1, 2, 3.
Desired Trend range Steps OFF, 1, 2, 3.
Plot Step OFF to be at mid-scale.
Each step = 0.5 cm.
Entry Value - Left Mar = -10
Value - Right Mar = 10
Example

To plot 3 room temperatures.

Desired Trend ranges  15..40, 15..30, 10..30.

Plot
Channel 1 = 2.5 Deg.C/Cm.
Channel 2 = 1.5 Deg.C/Cm.
Channel 3 = 2.0 Deg.C/Cm.

Entry
Channel 1  Value - Left Mar = 15
            Value- Right Mar = 40

Channel 2  Value - Left Mar = 15
            Value- Right Mar = 30

Channel 3  Value - Left Mar = 10
            Value - Right Mar = 30

Dot Pattern =0

This concerns the type of pattern with which the relative plot can be recorded. There are nine different patterns available (0..8):

<table>
<thead>
<tr>
<th>Dot Pattern</th>
<th>Pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>(................)</td>
</tr>
<tr>
<td>1</td>
<td>(................)</td>
</tr>
<tr>
<td>2</td>
<td>(........       )</td>
</tr>
<tr>
<td>3</td>
<td>(....    ....    )</td>
</tr>
<tr>
<td>4</td>
<td>(..  ..  ..  ..  )</td>
</tr>
<tr>
<td>5</td>
<td>(..      ..      )</td>
</tr>
<tr>
<td>6</td>
<td>(.... .. .... .. )</td>
</tr>
<tr>
<td>7</td>
<td>(..  .   ..  .   )</td>
</tr>
<tr>
<td>8</td>
<td>(.   .   .   .   )</td>
</tr>
</tbody>
</table>

The above patterns are shown in 'close-up'.

Selecting different "Dot Patterns" for values on the same plot helps to ease the reading of related curves.
There are five colours to choose from for plotting parameters:

<table>
<thead>
<tr>
<th>Colour</th>
<th>Number</th>
<th>Colour Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>0</td>
<td>Black</td>
</tr>
<tr>
<td>Red</td>
<td>1</td>
<td>Red</td>
</tr>
<tr>
<td>Green</td>
<td>2</td>
<td>Green</td>
</tr>
<tr>
<td>Blue</td>
<td>3</td>
<td>Blue</td>
</tr>
<tr>
<td>Magenta</td>
<td>4</td>
<td>Magenta</td>
</tr>
</tbody>
</table>

A "Dot Pattern" can be overlaid with a symbol. This adds to the clarity in showing and distinguishing between various plotted parameters and overlapping curves. All characters which exist on the terminal keyboard are accepted as plot symbols (numbers, letters, etc.).

### 2.31.2.3 Change Data Entry

To change a Trend entry the same procedure is used as for a new entry. If an entry already exists under the declared "Set and Channel" numbers the system responds with a report on the relative channel.

```
ctrl/P
T4 15:13:38 Function =PNT : TRND
Operation =CH : Set=1: 1 Trend Channel =1: 1

Set # | SY | Dot | Colour | Left | Right | Unit | PAR | NAME
      |----|-----|--------|------|-------|------|-----|------|
  1    | 1  | *   | Red    | -20  | 50    | Deg.C| ME  | E01'L2'MW3

Address=E01'L2'MW3 :
```

This indicates that an entry has already be made under this "Set" and "Trend Channel". After this listing it is now possible either to continue with the same entry or to change it.

### 2.31.3 LI, List Data Registers

Operation LI provides a listing of all existing Trend entries.

```
ctrl/P
T4 15:18:25 Function =PNT : TRND
Operation =CH : LI Set=: Trend Channel=:*

Set # | SY | Dot | Colour | Left | Right | Unit | PAR | NAME
      |----|-----|--------|------|-------|------|-----|------|
  1    | 1  | *   | Red    | 15   | 30    | Deg.C| ME  | E01'L2'MW3
  1    | 2  | A   | Black  | 10   | 100   | ST   | E01'L2'12
  1    | 3  | S   | Blue   | 50   | 70    | Deg.C| ME  | E01'L2'13

Total Entries = 3
```
2.31.4 DEL, Delete Register Entry(ies)

Operation DEL allows entries to be cleared as follows:

```
ctrl/P
T4     15:20:17 Function =PNT : TRND
Operation =CH : DEL
Set=1:  2
Trend Channel =1:  2
Accept Every Entry =Yes :

Set # SY Dot Colour Left Right Unit PAR NAME
--------------------------------------------------------------------
1  2  A  1 Black  10  100 Deg.C ME E01'L2'12
Delete Entry =No : YES
** ENTRY ERASED **
1 Entries Cleared                            Total Entries = 2
```

Description: For data safety reasons the system asks:
Delete Entry =NO:
If this is answered with "YES" the delete operation is terminated with the following message:
** ENTRY ERASED **

2.31.5 Start/Stop Trend Plot

Start Trend Plot: Operating parameter Time/cm.
$Tn.TICM=1..60

Stop Trend Plot: $Tn.TICM=0

Example

Start Trend Plot

```
ctrl/P
T4     15:33:09 Function =PNT : $T4
..   TY $Ty4           Trend plot - Printer
Parameter =TY : TICM
  7 7 TICM /Time/cm. =0 MIN: 10
  7 7 TICM /Time/cm. =10 MIN
ctrl/P
```

Explanation
Address input for relative “Trend device” (here, $T4).
The system confirms the availability and operating status of the Trend Device.
Here, parameter TICM is specified. Parameter TICM defines the time scaling of the vertical axis.
Time scale definition with which the Trend Device shall make the plot. The number of minutes correspond to one centimetre on the paper. This time scale (in minutes) is different according to type of printer (see following remarks).

System confirmation of declared time scale.

Remark:
With the colour option of full graphic printer Fujitsu DX-2100 there is a restricted limit to parameter TICM. The minimum value is 10 minutes per centimetre (to meet terminal conditions).

For printer type Fujitsu DPL-24 this minimum value for parameter TICM is 1 minute per centimetre.

<table>
<thead>
<tr>
<th>Printer</th>
<th>Time scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fujitsu DX-2100</td>
<td>10..60 minutes</td>
</tr>
<tr>
<td>Fujitsu DPL-24</td>
<td>1..60 minutes</td>
</tr>
</tbody>
</table>

General:
After starting a plot the left margin's vertical axis is marked at every centimetre with the actual time. The first mark after plot start, however, is given at the first multiple of TICM then afterwards every interval according to the number of minutes defined in parameter TICM.

Stop Trend Plot

ctrl/P
T4   15:34:12 Function =PNT : $T4
.. TY $Ty4 Trend Plotter
Parameter =TY : TICM
  7 7 TICM /Time/cm. =10 MIN: 0
  7 7 TICM /Time/cm. =0 MIN
ctrl/P

Explanation
Set parameter TICM to zero (0) and the plot stops.

The system confirms the defined entry.
2.31.5.1 Trend Plot Labelling

<table>
<thead>
<tr>
<th>Set</th>
<th>#</th>
<th>SY</th>
<th>Dot</th>
<th>Colour</th>
<th>Left</th>
<th>Right</th>
<th>Unit</th>
<th>PAR</th>
<th>ADDR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>0</td>
<td>Blue</td>
<td>15</td>
<td>40</td>
<td>DEG.C</td>
<td>ME</td>
<td>A01/L3/05</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>0</td>
<td>Black</td>
<td>15</td>
<td>30</td>
<td>DEG.C</td>
<td>ME</td>
<td>A01/L3/05</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>0</td>
<td>Red</td>
<td>10</td>
<td>30</td>
<td>DEG.C</td>
<td>ME</td>
<td>A01/L3/05</td>
<td></td>
</tr>
</tbody>
</table>

Total Entries = 3

A Trendplot page has 24 lines and is headed with date at the right margin. Then follows, scaling ("Val - Left Mar." and "Val - Right Mar.") once per channel and per page in the relative colour.

Then at intervals of one centimetre, the respective symbol and the actual parameter value are plotted cyclicly.
### 2.31.5.2 Generate Trend Device

The following parameters must be checked

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYX /Extra Options</td>
<td>=XoXf + ITER:</td>
</tr>
<tr>
<td>LPP /Lines per Page</td>
<td>=0 : (no page division)</td>
</tr>
<tr>
<td>DTYP /Device Type</td>
<td>=DX2100</td>
</tr>
<tr>
<td>GRMO /Graphic Mode</td>
<td>=E8Q (Epson standard)</td>
</tr>
<tr>
<td>TY /Terminal Status</td>
<td>=NORMAL:</td>
</tr>
</tbody>
</table>

If the relative terminal is declared as intelligent ($Tn,TYX=XoXf&ITER) then parameter $Tn,DTYP is set automatically (e.g. Fujitsu DX-2100). For a full graphic, coloured trend plot a terminal may be used which is not automatically identified by VISONIK (e.g. Epson EX 800). In this case ($Tn,TYX=XoXf) parameter $Tn,DTYP must be set manually to the corresponding terminal type.

In each case parameter $Tn,GRMO must be entered. Full graphic, colour trend plot is supported in terminals with Epson Standard Graphics ($Tn,GRMO=E8, E24 or E24Q).

**Terminal Devices**

- Full graphic plotter: DX 2100, DPL-24 (DX 2100 with colour option)
- Pseudo-graphic plotters: LA12/50/100, VT100, VT220
- Trend plot with: FUJITSU DL1100
  - GRMO = E8; epson 8-pin
  - GRMO = E24; Epson 24-pin
  - GRMO = . , non-graphic

**Remarks:**
- After a power interruption any active Trend Plot on a full graphic terminal must be restarted by setting its parameter $Tn.TICM=0 and again to $Tn.TICM>0.
- A full graphic plotter must be restarted because on "power up" at such a terminal a RESET is generated and the graphic mode is cleared. In which case the related full graphic points are printed out as non-graphic characters.
- An active plot on terminals with keyboards (VT200, LA 100 etc.) can be interrupted Ctrl/P and enabled again with Ctrl/E.
2.32 TRR Time Reaction Register

2.32.1 Initial Access and Handling

Function call-up

CTRL/P TRR

General

A general introduction to the subject of VISONIK reactions can be found under "Reactions in General" in section R of this manual.

The time reaction TRR is one of six reaction types provided by the VISONIK DCS. The reaction types are named after the "reason" that activates the reaction in each case.

Each reaction entry consists of the following three parts:

• "reason" that activates the reaction
• Blocking flag that can disable a reaction
• Reaction to be executed

What can the TRR do?

The time reaction function can execute a reaction on a time dependent basis.

TRR reason

• A pre-defined time given by weekday and time of day.

TRR reactions

• Change a point parameter
• Print a clear text message
• Execute macro commands
• Print slave messages
• Start or stop COLBAS tasks
• Automatic picture selection in VISONIK Insight

Main menu

When the time reaction function is selected, the VISONIK DCS offers the user the following possibilities:

```
T8  11:55:17 Function=PNT : TRR
Operation =CH     : ?
  0  CH = Change Data Entry
  1  LI = List Data Registers
  2  DEL = Delete Register Entry(ies)
  3  LSTA = List Reaction Register State
  4  LOCT = List Reaction Entries in Octal
  5  LDAY = List Daily Entries
Operation =CH     :
```
Example: Time reaction entry

<table>
<thead>
<tr>
<th>T8</th>
<th>11:55:17</th>
<th>Function=PNT : TRR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation</td>
<td>=CH : ?</td>
<td></td>
</tr>
<tr>
<td>0 CH</td>
<td>Change Data Entry</td>
<td></td>
</tr>
<tr>
<td>1 LI</td>
<td>List Data Registers</td>
<td></td>
</tr>
<tr>
<td>2 DEL</td>
<td>Delete Register Entry(ies)</td>
<td></td>
</tr>
<tr>
<td>3 LSTA</td>
<td>List Reaction Register State</td>
<td></td>
</tr>
<tr>
<td>4 LOCT</td>
<td>List Reaction Entries in Octal</td>
<td></td>
</tr>
<tr>
<td>5 LDAY</td>
<td>List Daily Entries</td>
<td></td>
</tr>
<tr>
<td>Operation</td>
<td>=CH :</td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>=00:00 : ?</td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>=(hh:mm), .: 11:29</td>
<td></td>
</tr>
<tr>
<td>Entry</td>
<td>=1</td>
<td></td>
</tr>
<tr>
<td>Entry</td>
<td>=(1..255): 1</td>
<td></td>
</tr>
<tr>
<td>Day(s) of Week</td>
<td>=-Sa&amp;Su : ?</td>
<td></td>
</tr>
<tr>
<td>Day(s) of Week</td>
<td>=(&amp;,,*,−,+=,−,Mo,Tu,We,Fr,Fr,Sa,Su): -Sa&amp;Su</td>
<td></td>
</tr>
<tr>
<td>Special Day</td>
<td>=.</td>
<td></td>
</tr>
<tr>
<td>Special Day</td>
<td>=(&amp;,,*,−,+=,−,Sa1,Sa2,Sa3,Sa4,Sa5,Sa6,Sa7): .</td>
<td></td>
</tr>
<tr>
<td>Blocking Flag=</td>
<td>=Off : $F10</td>
<td></td>
</tr>
<tr>
<td>Flag Value</td>
<td>=(&amp;,,*,−,+=,−,Off,Step 1,Step 2,Step 3): Step 1</td>
<td></td>
</tr>
<tr>
<td>Reaction</td>
<td>=(UA,TA): ?</td>
<td></td>
</tr>
<tr>
<td>UA/TA</td>
<td>= Change Point Parameter</td>
<td></td>
</tr>
<tr>
<td>CT</td>
<td>= Printout Cleartext</td>
<td></td>
</tr>
<tr>
<td>MC</td>
<td>= Issue MACRO Command</td>
<td></td>
</tr>
<tr>
<td>SLVM</td>
<td>= Output Slave Message</td>
<td></td>
</tr>
<tr>
<td>CB</td>
<td>= Start/Stop COLBAS Task</td>
<td></td>
</tr>
<tr>
<td>.</td>
<td>= No Reaction (for MRR &amp; GRR)</td>
<td></td>
</tr>
<tr>
<td>PICT</td>
<td>= Auto Picture/Point Selection</td>
<td></td>
</tr>
<tr>
<td>Reaction</td>
<td>=(UA,TA): $100'041</td>
<td></td>
</tr>
<tr>
<td>Parameter</td>
<td>=DO :</td>
<td></td>
</tr>
<tr>
<td>Set Digital Output: Priority=0</td>
<td>=Off : ?</td>
<td></td>
</tr>
<tr>
<td>Set Digital Output: Priority=0</td>
<td>=(Off,On), (LSPV,SAME,INV,.): On</td>
<td></td>
</tr>
<tr>
<td>1.Further Address</td>
<td>.</td>
<td></td>
</tr>
<tr>
<td>Message Mask</td>
<td>=MSGDEV : ?</td>
<td></td>
</tr>
<tr>
<td>MSGDEV:</td>
<td>M1</td>
<td></td>
</tr>
<tr>
<td>MM00:</td>
<td>M1&amp;M2</td>
<td></td>
</tr>
<tr>
<td>MM01:</td>
<td>M1&amp;M2</td>
<td></td>
</tr>
<tr>
<td>MM15:</td>
<td>M1&amp;M2</td>
<td></td>
</tr>
<tr>
<td>Message Mask</td>
<td>=MSGDEV :</td>
<td></td>
</tr>
</tbody>
</table>
2.32.2 CH, Enter/Change Data

2.32.2.1 Changing an existing TRR entry

In order to change data in a reaction entry it must first be selected via its "reason" and entry number. If the entry exists, it is listed completely for checking at the operating terminal. The edit mode then becomes active, so that the user can modify or confirm each part of the reaction entry step by step.

Important:

A reaction entry is not changed (and re-saved) in the system until every step of this dialogue has been completed, i.e. after the last prompt for "Message Mask" has been answered. In all other cases, e.g. if the dialogue is exited with Ctrl/P or Ctrl/E, any changed data will be lost.

2.32.2.2 Creating a new time reaction entry

Depending on the type of reaction program, the following prompts must be answered in order to create a new time reaction entry:

Definition of the "reason"

**Time**

Two different entries can be made in TRR for the "Time=" question:

- Time of day when the reaction should be executed
- A full stop "."

The TRR entry has no time as yet. This can be added later. If the reaction is a point address, e.g., "Reaction=a01b2SB", then the time can be added in Ctrl/V mode.

**Entry**

The VISONIK DCS sorts the reaction entries according to their "reasons" and automatically allocates a number to each entry per "reason". A reaction entry can only be identified unambiguously with its entry number.

**Weekday**

The day of the week that the reaction should be executed.

&: Example: = Mo&Th&Fr
Connecting character among several weekdays. Weekdays already set are first deleted.

.: Example: =.
Deletes all weekdays

*: Example: =*
Sets all weekdays

Example: = -We, or = -We&Sa
Sets all weekdays except We, or We and Sa.

+: Example: += Tu, or += Tu&We
Tu, or Tu and We should be set in addition to those weekdays currently set.

Example: = Sa, or -=Sa&Mo
Sa, or Sa and Mo should be deleted from the currently valid set of weekdays.
Special day

On of the seven special days (Sd1 to Sd7) can be specified instead of a weekday. See also the “CAL” calendar function.

Definition of additional conditions (blocking flag)

Blocking flag

A flag point with address and value(s) can be assigned to each reaction entry. This blocking flag constitutes an additional condition that must be fulfilled before the reaction is executed.

A reaction entry is said to be blocked if the current value of the flag does not correspond to a value belonging to the entry.

| Blocking Flag=. | : $F10  |
| Flag Value     | =Off   : ? |
| Flag Value     | =(&,.,*,+-,+=,-=,Off,Step 1,Step 2,Step |

Flag value

A specific value or a combination of several values can be entered for the flag value. In the above example, the reaction entry is executed only if the "reason" is fulfilled and flag $F10 has the value 1,Step or 2,Step at that time.

In all other cases the reaction entry is blocked, and the reaction is not executed.

Definition of the reaction to be executed

The following reactions can be triggered via a time reaction entry:

| Reaction | = (UA, TA): ? |
| UA/TA    | = Change Point Parameter |
| CT       | = Printout Cleartext |
| MC       | = Issue MACRO Command |
| SLVM     | = Output Slave Message |
| CB       | = Start/Stop COLBAS Task |
| .        | = No Reaction (for MRR & GRR) |
| PICT     | = Auto Picture/Point Selection |

Parameter

Address of the data point on which the reaction is to act. The following inputs are permissible:
- Technical address or $* masks
- User address or $* masks
- All addresses, including CT to PICT, by entering '..' (???)

Specify the parameter to be modified.

Parameter value

In the example "Set Digital Output: Priority=0 ":

The following possibilities are available for entering the parameter value:
- A fixed value is assigned to the selected parameter.
- A priority is assigned to the resultant output values RDO of switch command points DO.

The following variants can be entered for switch commands in the TRR:
- Modification of the parameter DO1 or DO2 with its respective bit influence DO1ACT or DO2ACT.
- Selective setting of a single bit influence in DO1ACT or DO2ACT.
- Selective setting of all bit influences in DO1ACT or DO2ACT.

The above statements apply analogously to flag points.
• **RVAL**: The resultant setpoint of a switch command RDO or of a flag point RFL is set to the last effective value, e.g. after a power failure.

• **SAME**: When the reaction is triggered, the parameter value of the reaction address is set the SAME as the main value of a selectable data point. The data point can be specified at the "FNT /Address" (?) prompt.

• **INV**: When the reaction is triggered, the parameter value of the reaction address is set to the INVERSE of the main value of a selectable data point. The respective values are interpreted as Boolean variables. The data point can be specified at the "FNT /Address" (?) prompt.

Note on additional information sources:

• More detailed information and appropriate examples can be found in the chapter "Reactions" in tab "R" of this manual.

• Information on the subject of "bit influence" can be found in the descriptions of the parameters RDO,DO,DO1,DO2 and RFL,FL,FLI1,FLI2.

### Reaction CT

When the reaction is triggered, the VISONIK DCS prints a specific clear text message in the defined message mask; the message appears in the language that is defined for the respective device with the parameter XX.

**Number**

Number of the clear text message in the text register TXCM,C.???

### Reaction MC

When the reaction is triggered, the VISONIK-DCS executes a specific macro command from the macro text register (TXCM,M) ?? of the selected language at ONE defined device. ??

**Macrotext number**

Number of the macro text.

**Language**

Language of the macro text register.

**Output device**

Output device (STA, M1..M15) at which the text is to be printed.

### Reaction SLVM

Print slave messages.

The VISONIK DCS normally only prints spontaneous messages if the status of a point changes in the peripheral equipment (???). An SLVM reaction is required in order to force point messages (e.g. cyclic polling of a temperature using a date reaction).

When the reaction is triggered, the VISONIK DCS reports the main value of the point in the defined message mask, without the point status having changed.

Slave messages have an exclamation mark before the timestamp in the message line.

### Reaction CB

The VISONIK DCS starts/stops one of the available DCS COLBAS tasks.

**CB Task**

Number of the COLBAS task whose operation mode is to be modified.

**Mode**

Requested operation modes:

- **RUN**: Stops the COLBAS task if it is active, and starts it at the line number entered.
- **RESTART**: Starts a COLBAS task only if it is inactive. If the task is active, the instruction is ignored.
- **STOP**: Stops the task and prints a STOP message.
- **END**: Stops the task without a message.

**COLBAS Line No.**

Line number at which the task is to be started by a RUN or RESTART instruction.

### Reaction .

No Reaction (MRR/GRR)

This option is only implemented for group reactions and maintenance reactions.

Group reactions (GRR) and maintenance reactions (MRR) include additional mechanisms that do not require a special reaction section:

- Group reactions include a device changeover mechanism for alternative or auxiliary devices.
- Maintenance reactions include an operating hours counter.

If reaction programs are used for such cases, the reaction entry should be set to "Reaction=.".
Automatic picture/point selection
When the reaction PICT is triggered, the VISONIK DCS automatically displays the selected picture in VISONIK-Insight.
The picture is only displayed if VISONIK Insight is free. Otherwise, it is saved until it is opened manually.

Specification of the picture to be displayed.
In the case of reaction programs whose "reason" is a point change (TRR/SRR), the user can enter an "F" in the reaction entry instead of a fixed picture number. With this entry the picture that has been assigned to the respective "reason" address using the function COS,PICT (???) or the function PICT will be automatically displayed.
The PICT parameter contains the number of the picture on which a given point is displayed.

Graphic devices
VISONIK Insight, Output device number (T1..T15)
If a printer channel is selected as graphic device, the encoded picture number will be printed only.

1. further address
The VISONIK DCS executes the same reaction with the further addresses as with the address defined under "Reaction =". This feature allows for reaction entries to be economised.

n. further address
The user can assign up to four different further addresses to each reaction entry, provided the reaction is one that modifies point parameters (Reaction =UA/TA) or prints slave messages (Reaction =SLV).

Message mask
For each reaction entry, the user can use the message mask to define which output devices of the VISONIK DCS are to register the reaction:

```
Message Mask =MSGDEV : ?
  MSGDEV: M1
  MM00: M1&M2
  : 
  MM15: M1&M2
```

Message Mask =MSGDEV means that the reaction will be registered on the message devices that are listed according to message priority in the parameters DSM0..DSM3 (point type SY) of the point specified under "Reaction=".
The MSGDEV mask also takes device allocations with group reactions (alternative or auxiliary devices) into account.

2.32.3 LI, List Data Registers
The LI operation can be used to selectively list the reaction entries. The contents of the list can be filtered according to the following criteria:
- by a specific time
- by a specific time period
- by entry numbers
- by reactions

If the reaction type CT, MC or CB is entered at the prompt "Reaction=?:", the user can make a finer selection according to text or task number.
**Questionable status markers**

The list of reaction entries can contain so-called “questionable status markers”, which have the following meaning:

**?FL**

The blocking flag's value in the reaction entry does not correspond to the flag's current value, i.e. the entry is currently blocked.

**Example for ?FL**

```
11:00 / 1 Mo / Sd1
  Reaction                  PACH_Change Point Parameter
  Address                  DO $d100'041
  Parameter                DO___Set Digital Output: Priority=0
  Value                    0=Off
  Reporting                MSGDEV M1

15:00 / 4 * / .
  Blocking Flag            BL'OC'KING"01 Off
?FL_______TRR Blocked!______(BL'OC'KING"01.RFL=Step 1)
  Reaction                  PACH_Change Point Parameter
  Address                  DO $d100'040
  Parameter                DO___Set Digital Output: Priority=0
  Value                    1=On
  Reporting                MSGDEV M1

TRR 11:34:43 End of DATA - LIST 14.08.1996/We
```
2.32.4 DEL, Delete Register Entry(ies)

The DEL operation can be used to selectively delete reaction entries. The entries to be deleted can be filtered according to the following criteria:

- by a specific time
- by a specific time period
- by entry numbers
- by reactions

If the reaction type CT, MC or CB is entered at the prompt "Reaction=?:", the user can make a finer selection according to text or task number.

Recommendation:

It is recommended that the option "Accept Every Entry =YES" should be set. With this setting each reaction entry to be deleted is listed completely at the operator terminal, and the user must acknowledge the deletion of each one manually in order to prevent inadvertent deletion.

If the option is not set, the VISONIK DCS automatically deletes all specified entries. The entries to be deleted are listed with their "reasons" and entry numbers at the operator terminal. The automatic deletion procedure can be aborted with Ctrl/P or Ctrl/E, if necessary.
2.32.5 LSTA, List Reaction Register State

This provides an overview of all Reaction Registers.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Register</th>
<th>Total Entries</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH : LSTA</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>GRR</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>PRR</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>MRR</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>TRR</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>SRR</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>DRR</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>12</td>
</tr>
</tbody>
</table>

2.32.6 LOCT, List Reaction Entries in Octal

The LOCT operation can be used to selectively list the reaction entries according to the same criteria as the LI operation. The normal list is followed by a printout of the same data in octal code.

T8 14:42:17 Function=PNT : TRR

Operation =CH : LOCT

Time =* : *
Entry =* : *
Reaction =.. : ..

TRR 14:42:35 Start of DATA - LIST 12.08.1996/Mo

11:00 / 1 Mo / Sd1
Reaction PACH_Change Point Parameter
Address DO $d100'041
Parameter DO___Set Digital Output: Priority=0
Value 0=Off
Reporting MSGDEV M1

DSW/Offset = REA. 3 / 1432
0/ 100 76 1 5400 14000 4 0 201
20/ 0 0 0 0 0 0 0 100000
40/ 41 62052 1622 0 0 0 0 0
60/ 0 0 0 0 0 0 0 0

TRR 14:42:37 End of DATA - LIST 12.08.1996/Mo

The list may be required by Landis & Staefa for diagnostic purposes.
2.32.7 LDAY, List Daily Entries

This provides a listing of Reaction entries referenced to a defined day of the week:

<table>
<thead>
<tr>
<th>T8</th>
<th>14:43:26 Function=PNT : TRR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation</td>
<td>=CH   : LTAG</td>
</tr>
<tr>
<td>Operation</td>
<td>= (CH, LI, DEL, LSTA, LOCT, LDAY) : LDAY</td>
</tr>
<tr>
<td>Day(s) of Week</td>
<td>= Mo : ?</td>
</tr>
<tr>
<td>Day(s) of Week</td>
<td>= (&amp;, *, +, =, Mo, Tu, We, Th, Fr, Sa, Su, Sd1, Sd2, Sd3, Sd4, Sd5)</td>
</tr>
</tbody>
</table>

TRR 14:44:01 Start of DATA - LIST 12.08.1996/Mo

T8

11:00 / 1

Mo / Sd1

Reaction PACH Change Point Parameter
Address DO $d100'041
Parameter DO__Set Digital Output: Priority=0
Value 0=Off
Reporting MSGDEV M1

15:00 / 4

* / .

Blocking Flag BL'OC'KING''01
Off

Reaction PACH Change Point Parameter
Address DO $d100'040
Parameter DO__Set Digital Output: Priority=0
Value 1=On
Reporting MSGDEV M1

TRR 14:44:02 End of DATA - LIST 12.08.1996/Mo

T8

2.32.8 Special Features

Update Logic

If the system time is put forward (e.g. after a system HALT and advancing the time), VISONIK updates all those Time Reactions which should have been executed during this skipped time.

Exceptions:
- On system start with BOO.Z
- On generating/changing the system time/date (in Function DATE), and the user has set "Update Date & Time Reactions = NO".
- In Macro Reactions (MC) if there has been a break in system time of more than 2 hours. Only a message is given to say that VISONIK has suppressed the Macro command.

This rapid updating of time reactions can, under certain conditions, lead to uncontrolled switching of various plant equipment, particularly if many time reactions should be updated.

To avoid such circumstances all command outputs (switch and position commands) related to Time Reactions are inhibited during updating! Once updating is finished only the resulting setpoint is output so that the peripheral plant state agrees with the actual set state.
An updated Time Reaction is marked in a listing by an exclamation mark ("!"). The time given in this message is the actual time and not the time at which the Reaction should have taken place:

| !TRR SC 16:40:09 a01'b2'SC | SC =OFF---->ON | RVAL=ON(1) |

Summertime/Wintertime Changeover
On changeover from summertime to wintertime a double pass is made through the hour between 02:00 a.m. and 03:00 a.m. In this case Time Reactions are only executed during the first pass and suppressed during the second pass.

Wintertime/Summertime Changeover
On changeover from wintertime to summertime VISONIK automatically advances the time from 02:00 a.m. to 03:00 a.m. All Time Reactions which should have taken place in this skipped time will be executed, once only as described in the above Update Logic to bring plant and TRR entries into agreement.

Day(s) of the Week/ Special Day
Every date is assigned a unique day of the week. For example, 25-Jan-1996 is a Thursday. Therefore on this date all TRR entries which are specified to be activated on a Thursday, will be carried out at the proper time.

But, if for some reason 25-Jan-1996 should be operated using a Tuesday switching schedule then it must be declared as such in the Special Day Register.
Such an altered “Day of the Week” only has an effect on the scheduling of Time Reactions. All other date/time dependent programs (e.g. Date Reactions, DRR) are not influenced.

It may happen that all time-conditioned control situations cannot be clearly solved with seven daily programs (e.g. special Reaction programs to account for days off and holidays).
To cover this situation a further seven imaginary "Weekdays" have been incorporated.
These days can also be allocated to defined dates using the Special Day Register.
Only those Reactions as assigned to the corresponding 'Special Day' will be actioned.
2.33 TXCM Macro and Cleartext Register

2.33.1 Introduction to the Text Registers

Texts are used, for example, in VISONIK-DCS for point indications, system messages, for reports or for operator dialogues.
All texts can be configured and can thus be optimally modified to the requirements of a specific project.
The texts are stored in the VISONIK-DCS in 16 different text registers
Each of these text registers is available in three different languages.

2.33.1.1 Text Register Subdivisions

The 16 different text registers are subdivided in accordance with the following two criteria:

1st Criteria
Type of text
• System text: These are established by system development
• Point text; abbreviation for data points
• Physical units
• Help texts
• Clear text
• Macro text

2nd Criteria
Text register responsibility
• Additional country and project specific texts can be defined for the "Point Texts", "Units" and partially for the "Help Texts"
• This subdivision reveals a clear area of responsibility for the maintenance of each text register.
• Depending on responsibility, the text registers are subordinate to the TX, TXIU or TXCM functions. To protect against undesired or unauthorised modification of the text registers, these three functions can be assigned different access rights.
The following table specifies:
- which text registers are available
- who is responsible for the maintenance of the associated text register or authorised to make changes.

### Text catalogue responsibilities

<table>
<thead>
<tr>
<th>Text class</th>
<th>L &amp; G, Zug</th>
<th>L &amp; G, GC</th>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>System text</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P: Par. short text</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S: Sys. short text</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N: Sys. normal text</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>O: Par. long text</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L: Sys. long text</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V: Very long text</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Point text</strong></td>
<td>TXI, TXI2, TXI3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TX, Ig</td>
<td>g1 .. g2031</td>
<td>32 Characters</td>
<td></td>
</tr>
<tr>
<td>TX, Im</td>
<td>m1 .. m4063</td>
<td>32 Characters</td>
<td></td>
</tr>
<tr>
<td>TXIU, Ip</td>
<td>p1 .. p4064</td>
<td>32 Characters</td>
<td></td>
</tr>
<tr>
<td><strong>Units</strong></td>
<td>TXU, TXU2, TXU3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TX, Ug</td>
<td>g1 .. g2031</td>
<td>8 Characters</td>
<td></td>
</tr>
<tr>
<td>TX, Um</td>
<td>m1 .. m4063</td>
<td>8 Characters</td>
<td></td>
</tr>
<tr>
<td>TXIU, Up</td>
<td>p1 .. p4064</td>
<td>8 Characters</td>
<td></td>
</tr>
<tr>
<td><strong>Help text</strong></td>
<td>TX, Hg</td>
<td>g1 .. g799</td>
<td>80 Characters</td>
</tr>
<tr>
<td>TXCM, Hp</td>
<td>p1 .. p1999</td>
<td>80 Characters</td>
<td></td>
</tr>
<tr>
<td><strong>Clear text</strong></td>
<td>TXCM, C</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4094</td>
<td>60 Characters</td>
</tr>
<tr>
<td><strong>Macro-text</strong></td>
<td>TXCM, M</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 .. 4094</td>
<td>64 Characters</td>
</tr>
</tbody>
</table>
2.33.1.2 Relationship between Text Entries and Parameters

The following example of a VISONIK data point indicates which parameters are responsible for the text of the status display.

```
TX
P S N Q L V
System text

Defined with parameter
NAME

+ + ME 14:33:21 B2'E1'MW

TXI TXI2
TXIU, Ip
TXI
TXIU, Up
TX,Um
TX
PSN Q LV
TXU TXC
NAME
TXCM,C
TXI2 ME
B2'E1'MW14:33:21
TXJg
Point text
TX,Ug
Units
Clear text
Clear text
Reactions and/or parameters TXCR
TXC

26.3 Deg. C >25
Temp. too high
Call service dept. immediately; Tel. 3311

Parameters for generating VISONIK message text

TXC, TXCR

It is useful to have additional information printed out for alarm messages. With parameter TXC, text can be selected from the Clear Text Register (TXCM,C). This text, which will appear immediately after the respective point message, is output according to the fault state change (Reason) as defined in parameter TXCR (Clear Text Reason).

Additional information

Information on the following themes can be found under the TXIU function:
- Identifying the text registers
- Backup and download the text register.

2.33.2 Initial Access and Handling

Function call-up

CTRL/P TXCM

The two following text registers are then available to the user:

```
T8 11:41:14 Function=PNT : TXCM
Type of Text=C : ?
8 M = Macro Texts (64 characters)
9 C = Clear Texts (60 characters)
10 Hp = Help Texts (80 characters)
Type of Text=C :?
```
# Characteristics and Use of the Text Registers

No text 'in the normal sense' is entered or edited in the Macro Text Register. TXM entries represent macro instructions. The DC Server can store a complete set of instructions in one macro text line. It is practical to write long and complicated, but often used command sequences as macro instructions in the ‘Macro Text Register’ (e.g. call-up of reports).

A macro instruction can be called up as follows:
- An operator makes the following keyboard entry: 
  `[^][M]` and the relative instruction's text register entry number.
- Indirect call-up (sequential macro)
  At the end of a macro text another macro call-up may be incorporated by writing `^Mxx`.
- By selecting a key of the numeric keypad the related pre-programmed macro text can be activated (see parameter TYX).

Any user-called macro can only be executed by VISONIK DCS if the operator’s access level is high enough to permit its use.

To continue a dialogue (e.g. terminate dialogue, stop report, etc.) which has been called up through a macro instruction the user reverts to normal system operation.

## 2.33.3 Selection or Searching for Specific Text

The basic rules for the TXCM register also hold for the TXIU register. Please take the relevant information for the
- **Text Entry Number** and
- **Search for text in register (*/%)**
from the description of the TXIU function.
2.33.4 CH, Change in Active Language

Operation CH allows new text to be entered and other text to be changed or deleted.

**Last text change in the clear text register:**
The last change in the clear text register is marked with a time stamp, which corresponds to the parameters WhenC and WhyC of system point $Sy$.

2.33.4.1 Enter New Text

To enter new text the required text number is first selected and the desired text entered.

**Example for a New Macrotext Entry**

```
ctrl/P
T4  10:08:32 Function =PNT : TXCM
Type of Text =C: M
Operation =CH :
Number =0: 25
M 0025: '^PRPT,MXD,E02'B5'00,,,'M30
    = '^PRPT,MXD,E02'B5'00,,,'M30
M 0026: _
```

**Simulation of Ctrl/P**

```
M 0025: '^PRPT,MXD,E02'B5'00,,,'M30
     | | | | | | | | |
     a b c d e f g
```

**Explanation:**

a) ^P  Simulation of Ctrl/P

b) RPT  Report function

c) ,  Inputs, which in normal equivalent dialogue, are terminated with <CR> must be separated in macro text by a comma (",").

d) MXD  Maximum Demand report

e) E02'B5'00  MD point address

f) ,,,  Inputs, which in the normal equivalent dialogue, are to be left at their default values are defined by a ",," without any value data.

**Note:**
This type of input is not recommended since takeover of such macro entries to a new software version can lead to problems because of compatibility.

g) ^M30  Call for a sequential macro (if required).
The following key combinations can be entered while entering text:

- **<CTRL><G>:**
  If this entry is made at the end of a text, the next time the text is called up (e.g., call-up of a plant point by a process reaction), a tone will be heard.
- **<TAB>:**
  Tabs are set if the <Tab> key is pressed whereby the value of the tab is fixed at TAB = 8.

**Note:** When using <Ctrl><G> and <Tab>, the line editor cannot be used.

**Example for a Cleartext Entry**

```
ctrl/P
T4     10:08:32 Function =PNT : TXCM
Type of Text =C:
Last Text Change : 18.01.1999 17:15:43 Alfred Gisler
Operation =CH :
Number =0:          25
C 0025: *** CHANGE FAN BELT ***
    = *** CHANGE FAN BELT ***
C 0026: Call LANDIS & Staefa Service Engineer=
    = Call LANDIS & Staefa Service Engineer=
C 0027: Tel. No. 042/33'33'33
    = Tel. No. 042/33'33'33
C 0028: _
```

**Explanation:**

**Single line cleartext**

C 0030: *** CHANGE FAN BELT ***
In this example a single line text has been defined in Cleartext Register entry number "C 0025".

**Clear text with following lines**

C 0031: Call LANDIS & Staefa Service Engineer-
C 0032: Tel. No. 041/733'33'33
This illustrates that a two-line clear text has been defined in register entry numbers "C 0031" and "C 0032".
The hyphen at the end of a line indicates that it is linked to the next line. Series lines must always occupy adjacent entry numbers.

### 2.33.5 TXCM, Various Sub-Functions

The basic rules for the TXCM register also hold for the TXIU register.

Please take the relevant information for the
- CH, Change Text
- CH, Delete Text
- ALAN, Change in All Languages
- LCTX, List Changed Text Entries
- LDIF, List Language Discrepancies
- COPY, Copy or Move a Textblock
- LABC, List Entries Alphabetically
- LIST, List Text
from the description of the TXIU function.
2.34 TXIU Status & Point Text Registers

2.34.1 Introduction to the Text Registers

Texts are used, for example, in VISONIK-DCS for point indications, system messages, for reports or for operator dialogues.

All texts can be configured and can thus be optimally modified to the requirements of a specific project.

The texts are stored in the VISONIK-DCS in 16 different text registers. Each of these text registers is available in three different languages.

2.34.1.1 Text Register Subdivisions

The 16 different text registers are subdivided in accordance with the following two criteria:

<table>
<thead>
<tr>
<th>1st Criteria</th>
<th>2nd Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type of text</strong></td>
<td><strong>Text register responsibility</strong></td>
</tr>
<tr>
<td>- System text: These are established by system development</td>
<td>- Additional country and project specific texts can be defined for the &quot;Point Texts&quot;, &quot;Units&quot; and partially for the &quot;Help Texts&quot;</td>
</tr>
<tr>
<td>- Point text; abbreviation for data points</td>
<td>- This subdivision reveals a clear area of responsibility for the maintenance of each text register.</td>
</tr>
<tr>
<td>- Physical units</td>
<td>- Depending on responsibility, the text registers are subordinate to the TX, TXIU or TXCM functions. To protect against undesired or unauthorised modification of the text registers, these three functions can be assigned different access rights.</td>
</tr>
<tr>
<td>- Help texts</td>
<td></td>
</tr>
<tr>
<td>- Clear text</td>
<td></td>
</tr>
<tr>
<td>- Macro text</td>
<td></td>
</tr>
</tbody>
</table>
The following table specifies:
- which text registers are available
- who is responsible for the maintenance of the associated text register or authorised to make changes.

### Text catalogue responsibilities

<table>
<thead>
<tr>
<th>Text class</th>
<th>L &amp; G, Zug</th>
<th>L &amp; G, GC</th>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>System text</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P : Par. short text</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S : Sys. short text</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N : Sys. normal text</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q : Par. long text</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L : Sys. long text</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V : Very long text</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Points text</td>
<td>TXI, TXI2, TXI3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Units</td>
<td>TXU, TXU2, TXU3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Help text</td>
<td>TX, Hg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clear text</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Macro-text</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### System text

- V : 1 .. 1777 : 32 Characters
- L : 1 .. 1777 : 16 Characters
- Q : 0 .. 2031 : 32 Characters
- N : 1 .. 1523 : 8 Characters
- S : 1 .. 2031 : 4 Characters
- P : 0 .. 2030 : 6 Characters

#### Points text

- TX, Ig
  - g1 .. g2031 : 32 Characters

#### Units

- TX, Ug
  - g1 .. g2031 : 8 Characters

#### Help text

- TX, Hg
  - g1 .. g799 : 80 Characters

#### Clear text

- TXCM, C
  - 1 .. 4094 : 60 Characters

- TXCM, M
  - 1 .. 4094 : 64 Characters

- TXCM, Hp
  - p1 .. p1999 : 80 Characters

- TXCM, Up
  - p1 .. p4094 : 8 Characters

- TXIU, Up
  - p1 .. p4094 : 8 Characters

- TXIU, Ip
  - p1 .. p4094 : 32 Characters

- TXIU, Ig
  - TXIU, Im
  - TXIU, Ip
2.34.1.2 Identifying the Text Registers

In order to be able to unambiguously identify the relation to a specific version or to a specific project, the following rules hold:

- Texts 1 to 9 in the TX,lg TX,lm and TXIU,lp are reserved for the identification of the associated text register.
- The identification in TX,lg also holds for TX,Ug
- TX,Im also holds for TX,Um
- TXIU,Ip also holds for TXIU,Up and TXCM,C
- The text number “0” (g0, m0, p0) does not exist.
  Entering a text number = 0 is interpreted as "No text" for some parameters

**Identification part of the text file**

<table>
<thead>
<tr>
<th>TX,lg</th>
<th>TX,lm</th>
<th>TXIU,lp</th>
</tr>
</thead>
<tbody>
<tr>
<td>g1</td>
<td>m1</td>
<td>p1</td>
</tr>
<tr>
<td>g2</td>
<td>m2</td>
<td>p2</td>
</tr>
<tr>
<td>g3</td>
<td>m3</td>
<td>p3</td>
</tr>
<tr>
<td>g4</td>
<td>m4</td>
<td>p4</td>
</tr>
<tr>
<td>g5</td>
<td>m5</td>
<td>p5</td>
</tr>
<tr>
<td>g6</td>
<td>m6</td>
<td>p6</td>
</tr>
<tr>
<td>g7</td>
<td>m7</td>
<td>p7</td>
</tr>
<tr>
<td>g8</td>
<td>m8</td>
<td>p8</td>
</tr>
<tr>
<td>g9</td>
<td>m9</td>
<td>p9</td>
</tr>
<tr>
<td>g10</td>
<td>m10</td>
<td>p10</td>
</tr>
</tbody>
</table>

**Explanation:**

- **Version:** "Language, version, creation date, location
  - **Example:** "D, V2.0, 10-Jan-95, Zug
- **Market area:** Example: University Hospital
- **Project name:** Final code of the identification part.

2.34.1.3 Backup and Download the Text Register

Using the OPLS parameter as described below, text register entries can be:

- backed up from the BPSs to the DCS and
- downloaded from the DCS to the BPSs.

**Backup: BPS --> DCS**

In a DCS backup of a BPS the Process Station's text is copied to the corresponding DCS text catalogue.

Text entries which have been altered in the Process Station overwrite the corresponding ones in the DCS when either 'SaTx' or 'SaFi' is used. The reverse is also true.

If there is different text under the same text number in different Process Stations the DCS text catalogue will be overwritten.

**Download: DCS --> BPS**

Loading of all BPS text can be enabled or inhibited with Process Station parameter TXLA.

- **TXLA=No** is the normal setting and write-protects all Process Station text catalogues.
  - With parameters TXIPB, TXIPE, TXUPB, TXUPE, TXCB and TXCE particular individual project-related text ranges can be enabled.
- **TXLA=Yes** (during a loading procedure) enables all Process Station text catalogues for overwriting and changes.
  - TXLA (Text Loading Active) is managed automatically in the DCS by functions 'LoFi', 'LoTx' or 'LoTi'.

Load text enable with TXLA
If Process Station parameter OS.XX=7 is set the DCS **cannot** load text to the BPS.

Before executing 'LoTx' the associated language should be checked in parameter OS.XX to avoid inadvertently loading text in the wrong language.

The following text elements are copied when downloading from a DCS to a BPS:
- All TXI and TXI2 texts which are referenced by the associated BPS.
- All TXI3 text arrays which are referenced by the associated BPS.
- All TXU and TXU2 text arrays which are referenced by the associated BPS.
- All TXC texts which are referenced by the associated BPS.
- All text defined in array OS.TXIN(). (Locally used COLBAS text).
- A defined set of global text is fundamentally loaded to each BPS.

### 2.34.1.4 Relationship between Text Entries and Parameters

The following example of a VISONIK data point indicates which parameters are responsible for the text of the status display.

**TX text register:**
The TX system text register includes all text for the operator guidance as well as internal system and fault messages. Access to this register is possible only by the Landis & Staefa software group because incorrect entries can lead to serious consequences.

**Text registers:**
- TX,lg: L&S Zug is responsible for the TX,lg text entries and the market areas are responsible for the TX,lm and TX,Um text entries.
- TX,Ug: Thus for new entries of project-specific text, only the TXIU,lp and TXIU,Up text registers may be used.
- The p1 to p9 entries are reserved and are not to be used.

**Parameters for VISONIK messages text**
Every data point can be given a point label made up of two parts of text.
- **TXI** contains the first part's text number.
- **TXI2** contains the second part's text number.
Both these texts are printed out by the DC Server in all messages as well as in status and fault reports.
The following is defined in parameter TXI3:
- the first text number of the associated TXI catalogue's **text value** set which relates to the respective main parameters of point classes VIP, AI and AO (FMT=I-array) 
or
- the first text number of the associated TXI catalogue's **application-related parameter long text** set for PAR1..PAR8 of point type PLT.

Depending on point type parameter TXU defines:
- the text number of the TXU catalogue's entry containing the desired text for a related **physical (engineering) unit** (e.g. kWh).
  or
- the first text number of the TXU catalogue's block of entries containing the desired text for a point's states (e.g. Off).

Parameter TXU2 defines:
- for point type MX, the first text number in the TXU catalogue containing the desired texts for the **point states** of parameter SX2 (e.g. Off) 
or
- for point type PLT, the first text number in the TXU catalogue containing the desired texts for **physical (engineering) units** (e.g. kWh) associated with parameters PAR1..PAR8.

Parameter TXU3 defines, for point type MX, the first text number in the TXU catalogue containing the desired texts for the **point states** of parameter SX3 (e.g. Off).

It is useful to have additional information printed out for alarm messages. With parameter TXC, text can be selected from the Clear Text Register (TXCM,C). This text, which will appear immediately after the respective point message, is output according to the fault state change (Reason) as defined in parameter TXCR (Clear Text Reason).

Parameter TXUaer is used to assign text to the possible states of parameters AERSTA (see below for a short description of AERSTA). Similarly, to output format FMT=U-array for main values of AI, AO, VP and MX points, the individual states are displayed with text instead of numerical values.

Units text associated with the input and relay output contact states of an SEZ unit which has been assigned to MONOGYR Room MGRn are defined in parameter TXUSEZ(n).

### 2.34.2 Initial Access and Handling

**Function call-up**

CTRL/P TXIU

The two following text registers are then available to the user:

| T8 09:07:21 Function=PNT : TXIU |
|---|---|
| Type of Text=Ip : ? |
| 6 Up = Status/Unit Texts (8 characters) |
| 7 Ip = Point Texts (up to 32 characters) |

Siemens Building Technologies
ViSONIK DCS Functions and System Messages
Landis & Staefa Division
Functions – TXIU Status & Point Text Registers

385/552

CM2U8568en
24.05.2000
Operations

| Type of Text=Ip     : |
| Last Text Change    : 19.01.1999 15:38:34 Alfred Gisler |
| Operation=CHNG      : ? |
| 0  CHNG = Change in Active Language |
| 1  ALAN = Change in all Languages |
| 2  LCTX = List Changed Text Entries |
| 3  LDIF = List Language Discrepancies |
| 4  COPY = Copy or Move a Textblock |
| 5  LABC = List Entries Alphabetically |
| 6  LIST = List Text |
| Operation=CHNG      : |

2.34.3 Select or Search for a Specific Text

2.34.3.1 Text Entry Number (Number=1:)

Entries lp1 to 9 of the TXIU text register are reserved for identifying the three registers TXIU,lp and TXIU,Up and TXIU,C and are not to be used. However, the entries 1 to 9 of registers TXIU,Up and TXIU,C may be used.

Depending on the application, VISONIK DCS can accept one or more of the following inputs:

- A single number (for CH, AL, LI).
- Range of numbers (e.g. 20..30) (for CH, LABC, LI).
  In Operation CH an input of a range of numbers provides a listing of the specified range.
- """" character for all text lines (for CH, LABC, LI).
  In Operation CH an input of """" provides a listing of the complete text register.
- Question mark "?" for search (for CH, AL, LI).
- The character "T"
  This operation allows bypassing dialogue questions and directly entering text.
  Example: TXIU,Up,CH,T,100,:Text"
  This function is especially used by VISONIK tool.

If a number is specified which is unknown to the system a "Help" text is output showing the valid range of inputs for the relative register.

2.34.3.2 Search for Text in Register (Txt.Search (*%/)=:)

Before making a text entry it is useful for an operator to know if such text is already available in the register.

"Txt.Search" is a VISONIK DCS program to search for text when using Operations "CH", "AL" and "LI".

Searching is limited to the selected Text Register and is made only in the related operating terminal's active language.
Enable with "?"

Text search in the Text Register is enabled if a question mark "?" is input against the prompt "Number =1:".

It may only necessary to specify a text fragment for searching. The System searches the register for any text which contains the specified text fragment.

No difference is made between large or small characters during a search.

However, it is necessary to complement unspecified text with either an asterisk ("*") or percent sign ("%") for the undefined characters as follows:

* An asterisk ("*") can mean any number of unspecified characters at that place in the text

% A percent sign ("%") in the search text means any single text character.

Example showing text from the TX,Ig register

<table>
<thead>
<tr>
<th>T8</th>
<th>10:58:32 Function=PNT : TXSY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of Text=P</td>
<td>IG</td>
</tr>
<tr>
<td>Operation=CHNG</td>
<td></td>
</tr>
<tr>
<td>Number=1</td>
<td>?</td>
</tr>
<tr>
<td>Txt.Search (*/%)=</td>
<td>A*</td>
</tr>
<tr>
<td>Ig0202= Auto</td>
<td></td>
</tr>
<tr>
<td>Ig0204= Actual Status:</td>
<td></td>
</tr>
<tr>
<td>Ig0215= Alarm Report ALR</td>
<td></td>
</tr>
<tr>
<td>Ig0244= All Messages</td>
<td></td>
</tr>
<tr>
<td>Ig0251= Are you sure (y/n)...</td>
<td></td>
</tr>
<tr>
<td>Ig0258= Activation</td>
<td></td>
</tr>
<tr>
<td>Ig0280= Address ($/@)</td>
<td></td>
</tr>
<tr>
<td>Txt.Search (*/%)=</td>
<td>A%T*</td>
</tr>
<tr>
<td>Ig0202= Auto</td>
<td></td>
</tr>
<tr>
<td>Ig0204= Actual Status:</td>
<td></td>
</tr>
<tr>
<td>Ig0258= Activation</td>
<td></td>
</tr>
<tr>
<td>Txt.Search (*/%)=</td>
<td></td>
</tr>
</tbody>
</table>

2.34.4 Structure of Status Text Register

Text which refers to either the physical units of a point (Deg.C) or to different point states (OFF/ON) is entered in the Status Register. Before entering new text it is recommended to first check the relevant "p", "m" and "g" text registers to ensure that the text is not already available.

Entering units

| Number=1 | 156                  |
| Up0156:  |                     |
| Up0157:  |                     |

Engineering units (e.g. Deg.C) can be freely entered in the Status Text Register, that is, without a separating "########" line at any text number.
Text entries which indicate various possible states of one point are entered as follows: Such texts which describe the different status of a point must be entered immediately after the other in ascending number order.

A group of related status text belonging to a point must be terminated by 

entered at the next text number following the text sequence.

Such marking is required by the VISONIK DCS to recognise the end of a text sequence.

The relative text is referenced by the first text number in the sequence and, depending on the related point’s status, is output accordingly.

2.34.5 CH, Change in Active Language

Operation CH allows text to be entered, changed or deleted.

Last Text Change in the status and point text register:
The last change in the status and point text register is marked with a time stamp, which corresponds to parameters WhenUp and WhyUp or WhenIp and WhyIp of system point $Sy.

2.34.5.1 Enter New Text

To enter new text the relative text number is first selected and the desired text then entered.

Audible tone

The following key combinations can be entered while entering text:

- <CTRL><G>:
  If this entry is made at the end of a text, the next time the text is called up (e.g., call-up of a plant point by a process reaction), a tone will be heard.

- <TAB>:
  Tabs are set if the <Tab> key is pressed whereby the value of the tab is fixed at TAB = 8.

Note: When using <Ctrl><G> and <Tab>, the line editor cannot be used.
2.34.5.2 Change Text

There are two possibilities for changing an existing text:

a) Change the complete text entry.
b) Change a text using "Line Editor".

Change the Complete Text Entry

<table>
<thead>
<tr>
<th>T8</th>
<th>11:03:22 Function=PNT : TXIU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of Text=Ip</td>
<td>UP</td>
</tr>
<tr>
<td>Last Text Change</td>
<td>19.01.1999 15:38:34 Alfred Gisler</td>
</tr>
<tr>
<td>Operation=CHNG</td>
<td></td>
</tr>
<tr>
<td>Number=1</td>
<td>156</td>
</tr>
<tr>
<td>Up0156:</td>
<td></td>
</tr>
<tr>
<td>Up0157:</td>
<td></td>
</tr>
</tbody>
</table>

Explanation

Up0156 = kWh: After selecting the status text number 156, VISONIK DCS outputs the text associated with this number.

Up0156 = kWh:mA The new text is entered here.

= mA After pressing <CR>, the DC Server acknowledges the entry.

Change Text with Line Editor

A simple 'Line Editor' has now been implemented for VT100 similar terminals. The use of a 'Line Editor' is practical when only small changes have to be made in existing lengthy text.

The Editor can be used in operations CH and AL.

Note

The Editor only supports visible characters. This means must not contain any control or special characters (e.g. characters entered by pressing <TAB>, <CTRL><G>, <BELL>).

Example for an Information (I) Text Entry

```
I 0001= COLD WATER PUMP SWITCH:  
I 0001: Ctrl/B                      <--- Activate 'Editor'
     HOT WATER PUMP SWITCH          <--- Edit window
= HOT WATER PUMP SWITCH:           <--- Acknowledged after <CR>
I 0002: _                          <--- Return to input mode
```
### Edit Commands

<table>
<thead>
<tr>
<th>Key / Combination</th>
<th>Reaction on Pressing Key(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ctrl/B</td>
<td>Call up Editor</td>
</tr>
<tr>
<td>Arrow right</td>
<td>Shift 1 character right</td>
</tr>
<tr>
<td>Arrow left</td>
<td>Shift 1 character left</td>
</tr>
<tr>
<td>Arrow up</td>
<td>Shift 1 word right</td>
</tr>
<tr>
<td>Arrow down</td>
<td>Shift 1 word left</td>
</tr>
<tr>
<td>Delete key &lt;X</td>
<td>Delete character under the cursor</td>
</tr>
<tr>
<td>Back space</td>
<td>Delete character left of cursor</td>
</tr>
<tr>
<td>Ctrl/U</td>
<td>Delete whole line</td>
</tr>
<tr>
<td>CR</td>
<td>Accepts edited text</td>
</tr>
<tr>
<td>Ctrl/P, Ctrl/E, Ctrl/D</td>
<td>Exit from dialogue</td>
</tr>
<tr>
<td>Ctrl/V</td>
<td>(text remains unchanged)</td>
</tr>
</tbody>
</table>

Other control characters are not permitted!

### 2.34.5.3 Delete Text

To delete text the associated text number is selected

Text can be deleted in the following ways:
- Through input of a full stop "." then <CR>
- Through input of Ctrl/K

```
T8  11:11:55  Function=PNT : TXIU
Type of Text=Ip     : UP
Last Text Change    : 19.01.1999 15:38:34 Alfred Gisler
Operation=CHNG      : 
Number=1            : 156
Up0156: ctrl/K      
    =
Up0157: ctrl/K      
    =
Up0158: 
```

After clearing an entry the system responds with the next higher text number.
2.34.6 AL, Change in All Languages

Operation AL allows text in all languages incorporated in the system to be changed in one single step. Here, the 'Line Editor' can be used as explained in chapter "Change Text".

Operation AL simplifies generating the text of a several-language DC Server.

In the following example a status text is entered in language 0 (German fixed language, XX=0), in additional language 1 (XX=1, English) and in additional language 2 (XX=2, French).

```
T8  11:17:09  Function=PNT : TXIU
Type of Text=Ip     : UP
Last Text Change   : 19.01.1999 15:38:34  Alfred Gisler
Operation=CHNG      : ALAN
Number=1            : 200
Up0200: = On        : On
                   : On
Up0201: = Off       : Off
                   = Off
```

2.34.7 LC, List Changed Text Entries

Operation LC makes a comparison between active language entries within the selected Text Register and entries in the other generated languages. If a difference is detected in a certain entry number between these language registers, the entry is printed out. In such a case a comparison is only made letter for letter, i.e. Light<>LIGHT.

Operation LC should only be used by System Managers.

**Important:**

Comparison of text in two different languages makes no practical sense.

**Application example:**

This Operation can, for example, be used in a dual language system in the following manner:

- Language 0: Contains Status and Point text of the most recent version.
- Language 1: Contains Status and Point text of the pre-version.

Now, with Operation LC a comparison can be made of any text changes and a listing given of any such changes. This can be very useful since text changes in the other languages can then be easily updated.

**Example from the TX,lg register:**

```
T8  11:21:57  Function=PNT : TXSY
Type of Text=P      : Ig
Operation=CHNG      : LCTX
Ig0020= BPS Punkt-Konfiguration  : <--- Language 0
  = BPS Point Configuration       <--- Language 1
  =                               <--- Language 2
Ig0021= BPS Timeswitching Configuration:
  = BPS Timeswitching Configuration
```
2.34.8 LD, List Language Discrepancies

This Operation enables comparisons to be made between entries in language 0 and those in languages 1 and 2 (if existing). The DC Server merely makes a comparison to see if text actually exists or not. The system makes comparisons to see if, under an entry number (n) in language 0, entries are also filed in 1 and 2. If an empty line is found in an entry number (irrespective of language) the whole entry in all languages are printed out.

```plaintext
ctrl/P
T4 09:58:00 Function =PNT : TXSY
Type of Text =I: Z
Operation =CH : LD

Ig0023= Verlangter Bereich:        <---- Language 0
    = Selected range            <---- Language 1
    =                            <---- Language 2
Ig0024= Nicht angeschlossen
    = Not connected
    =
    and so on.
```

2.34.9 MOVE, Copy or Move a Text Block

Operation COPY allows copying of text between any Text Register and language. This Operation has hidden dangers and should only be used by System Managers (e.g. Landis & Staefa System Managers).

**Important:**

A wrong action can cause complete Text Registers in the various languages to be overwritten.

An attempt to copy to a language which has not been enabled for a Project, results in an error message. During input of a copy statement the system outputs a "WARNING" after the prompt "Language to =".

At this point it is possible to jump back one or several steps, with either Ctrl/H or BACKSPACE if it is required to alter or even abort the "COPY" procedure.
ctrl/P
1:T4      15:54:31 Function=PNT:
Type of Text=Ip   :
Last Text change  : dd.mm.yyyy hh:mm:ss
Operation=CHNG   : copy
from Language=0   :
from Type of Text=P : ?
   0 P = Parameter Names   (6 characters)
   1 S = System Texts      (4 characters)
   2 N = System Texts      (8 characters)
   3 Q = Parameter Names   (32 characters)
   4 L = System Texts      (16 characters)
   5 V = System Texts      (32 characters)
   6 Up = Status/Unit Texts (8 characters)
   7 Ip = Point Texts (up to 32 characters
   8 M = Macro Texts       (64 characters)
   9 C = Clear Texts       (60 characters)
  10 Hp = Help Texts       (80 characters)
  11 Ug = Global Units     (8 characters)
  12 Ig = Global Point Texts (32 chars.)
  13 Hg = Global Help Texts (80 chars.)
  14 Um = GC Units         (8 characters)
  15 Im = GC Point Texts   (32 chars.)
from Type of Text=P : um
from Text No.=0     : 100
to Language=0       : 1
to Type of Text=?0  : ?
   6 Up = Status/Unit Texts (8 characters)
   7 Ip = Point Texts (up to 32 characters

to Type of Text=?0  : up
to Text No.=0       : 40
Number of texts = 1 : 15

Explanation
- When selecting the TXIU function, the only allowable target registers are the two text registers TXIU,lp and TXIU,Up.
- When selecting the TXCM function, the only allowable target registers are the three text registers TXCM,M and TXCM,C and TXCM,Hp.
- If a wrong input is given, the DC Server responds with:
  No Success - Blocked Option
- On copying from a lengthy text register to a short register (e.g. from Clear text to Status text) the text is simply truncated since Clear text (60 characters) is too long for the Status text Register (8 characters). Conversely, remaining characters are overwritten with ASCII characters "ETX" (End of Text).
2.34.10  LABC, List Entries Alphabetically

VISONIK DCS lists the selected text register according to the ASCII alphabetic arrangement (numbers first, then capital letters and finally small letters). Blank entries are suppressed.

Example from the TX,Ig register:

<table>
<thead>
<tr>
<th>T8</th>
<th>11:35:40 Function=PNT : TXSY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of Text=P</td>
<td>Ig</td>
</tr>
<tr>
<td>Operation=CHNG</td>
<td>LABC</td>
</tr>
<tr>
<td>Ig0019=</td>
<td>SPECIAL DAY CATALOGUE SDC</td>
</tr>
<tr>
<td>Ig0258=</td>
<td>Activation</td>
</tr>
<tr>
<td>Ig0280=</td>
<td>Address ($/@)</td>
</tr>
<tr>
<td>Ig0215=</td>
<td>Alarm Report ALR</td>
</tr>
</tbody>
</table>

2.34.11  LI, List Text

This gives a user the following possibilities:

- Search for text as in Operations CH and AL (see chapter Select/Search for Text).
- List all text existing in the selected registers.
- List single text or text blocks (e.g. numbers 202 to 205).

Example from the TX,Ig register

<table>
<thead>
<tr>
<th>T8</th>
<th>11:40:23 Function=PNT : TXSY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of Text=P</td>
<td>Ig</td>
</tr>
<tr>
<td>Operation=CHNG</td>
<td>LIST</td>
</tr>
<tr>
<td>Number=1</td>
<td>202..205</td>
</tr>
<tr>
<td>Ig0202=</td>
<td>Auto</td>
</tr>
<tr>
<td>Ig0203=</td>
<td>Manual</td>
</tr>
<tr>
<td>Ig0204=</td>
<td>Actual Status:</td>
</tr>
<tr>
<td>Ig0205=</td>
<td>Set Status:</td>
</tr>
<tr>
<td>Number=206</td>
<td></td>
</tr>
</tbody>
</table>

Comment

"Number=*" lists all entered text in the "I" text Register.
2.35 VE Verification of Data Files

It is practically unavoidable that, at some stage during the operation of a VISONIK System, inconsistent data will occur in the process image and in various program Registers or in the internal memory.

The causes of 'corrupted' data can be:
- Faulty hardware
- Software errors
- Unexpected or illegal events of any kind.

Inconsistent data as a result of event handling is ignored by the system and, in most cases, can be reconstructed by repetition. Such situations are part of the normal daily running of a system and do not present any great danger.

Problems can arise when, for some reason, wrong data is deposited in the system's data registers or existing data is incorrectly modified.

Normal running of programs can be disturbed through such stored "faults".

Function VE can be used to check all, or even selected data registers in VISONIK, for correct organisation, consistency, completeness and optimum access through the associated programs.

As far as possible any detected errors are corrected and the relative index lists updated to the latest state. Data sets which cannot be repaired are printed out and finally removed from the associated register.

Function VE is used to check data sets for the above mentioned criteria after takeover from old to new software versions or to other projects.

### 2.35.1 Initial Access and Handling

Initial access is through input of Ctrl/P and then by specifying the abbreviation "VE".

Further operations may then be carried out as listed below:

```
ctrl/P
T1  15:22:16 Function =PNT : VE
Verification of Data *=: ?
  0 *= All Data Files
  1 FSG= Colour Pictures
  2 IM= Point Information
  3 UAL= User Addr. List
  4 UML= U.Addr. Mask List
  5 REA= Reac. Registers
  6 SPL= Maximum Demand
  7 PAR= Point Parameters
  8 DM = Data Processing
  9 TTW= Term. Work Area
Verification of Data *=: _
```

When 'Verification' is running absolutely NO inputs can be given, such as Ctrl/P, etc.!!!
Legend
This is identical to Function COS,UTIL,VE (Verify COS pictures).
The system verifies COS pictures and Macro libraries for their structural completeness.
If an error in structure is found a printout is given containing the relative picture or
Macro number and the associated disk block. Wherever possible faulty pictures/Macro
libraries are corrected.
Finally, illegal entries are reported and cleared.

IM
The process image, configuration and service data sets for each information point are
checked for correct arrangement within the whole file and for completeness plus proper
structure. The index list is also regenerated to provide fast access to data for programs
and dialogues.

UAL
The User Addresses for all points are deposited in alphabetic order in this file. This
order is checked, multiple addresses are deleted and wrong references to point data
are corrected.

UML
As different to UAL, this file contains all address masks which have been referenced in
other Registers (e.g. Group Reaction Register). The alphabetic order, multiple
addressing and references to other Registers are checked.

REA
The system primarily verifies all Reaction entries for their order in the files and each
one's validity.
Incorrectly arranged entries are brought in order and all entries with wrong data are
listed and then deleted.

SPL
The system verifies all Maximum Demand entries for correctness but does not
automatically correct errors. Incorrect errors are listed and then deleted (as in ZKL).

PAR
No data is checked in parameter list verification. The system only checks and
rearranges the alphabetic order where necessary.

DM
The data structure is checked for correctness, compressed and corrected and a new
index list is structured.

TTW
Certain Functions (e.g. TRND) require an auxiliary file for their outputs.
On verification these files are initialised.
2.36 XX Change Active Language

In VISONIK there are two meanings for "Language".
- Message language
- Working language

Parameter XX
The "Message Language" is defined individually for each 'message channel'.
All spontaneous messages (e.g. Events, limit violations, etc.) are output to such terminals in the relative message language, irrespective if a user is logged-in or not.

Function KEY
"Working Language" is defined for each operator in their related Function "KEY" entries.
In multi-language projects, when a user logs in, VISONIK DCS automatically switches to that language (0..2) as specified in "KEY". A user can operate all dialogues in his selected language.

Function XX
At any time an operator can temporarily change over to another language. Such a changeover remains active until the language is changed again with "XX" or the user logs off from the system.

2.36.1 Initial Access and Handling

Function call-up
CTRL/P XX

Working language
VISONIK DCS offers a maximum of three working languages:
Initial access is opened through Ctrl/P and input of abbreviation "XX".
0: German is the system's primary language.
1: First additional language (e.g., English)
2: Second additional language (e.g., French)

Ctrl/P
T8 09:04:03 Function=PNT : XX
Working Language=1 : ?
Working Language=(0..2): 1

After terminated "Working Language = 1" with <CR> the system automatically switches to the first additional language (e.g. English).

This is confirmed with the message:
  --> English
at the left-hand corner of the screen.
3 System Messages

3.1 General Notes

Each computer system generates SYSTEM MESSAGES which may be generally categorised as follows:
1. Messages concerning the plant’s relative operational state, that is messages from the external process.
2. Messages from the Data Communication Server (DCS) about the computer hardware and software, connected peripherals, and other VISONIK components (rings, controllers, modules).

Messages in the first category:
Process-related messages can be classified as follows:
- Event messages
  Initiated by changes in plant process values and states.
- Parameter change messages
  Initiated manually by the operator or by process-dependent actions on the plant, such as, for example, process reactions, date reactions, maintenance reactions, etc.

Messages in the second category:
- This category includes all error messages, comments on operating errors and other warning or diagnostic indications.

Note
- Each SYSTEM MESSAGE is written only once per output terminal.
- Labels for process station numbers (PS#): “on”, “dn” refer to:
  o=octal
d=decimal
n=PS#
o or d depend on parameter TAFO (Technical Address Format) in the system point $S.$
3.2 Event Messages

3.2.1 Structure of a report line

All report lines are formatted following the same concept. With the exception of the event time, all the following compilations hold for the point messages also.

Scale
0....!....1....!....2....!....3....!....4....!....5....!....6....!....7....!

Format
PPPP_TTTTUhh:mm:ss_NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN
________________________MMMM________________________M_SSSSSSSSSSSSSSSSSS
____________________IIIIIIII

Example
+++__AI___13:15:30_C7'K8'F13_Temperatur Hauptgebäude 1. Stock
________________________AI=24.2_GradC________________OPSTA=3=_>HIL=24____OPMO=6=PSe

Info field

P (4) STAP The peripheral state STAP is shown as dependent on the message priority.

T (4) TYP Point type.

U (1) Marking Message symbols:
"Space": No special symbol
"-" Spontaneous event messages of the point are suppressed (MSGSUP<> parameter) and, as a result, are not printed.
"." Fast runner: With this point the EPR1=3 parameter becomes an event with priority relative to EPR1=2 and EPR1=1. The time sequence for the reports can be modified.
"!" Slave message: This message indicates the status of a point upon occurrence of a "Master Event."
Example:
Upon a plant malfunction (master event) all point status of the plant are reported (slave messages).
Note: It is not the point status change that initiates the message(s), rather the master event (also refer to the reaction types).

"t" Point in "trace": This point is within the address limits determined by the TALO, HITA parameters. A message marked with "t" is thus not necessarily a point status change. Each change in the value of a measurement (in the TALO to HITA) address range is reported with "t".

N (26) NAME User or technical address.

D (32) TXI+TXI2 Point label corresponding to the TXI and TXI2 parameters (without spacing). If the maximum field length is not used for NAME (N) and TXI+TXI2 (D), the rest of the report information will be added to the same line.

M (24) dependent Pt type Main value of the data point.

S (20) dependent Pt type Status or fault status of the data point

I (10) dependent Pt type Additional information
The following table specifies, dependent on the point type, which parameters are displayed in these fields. Using message suppression $SY,MSGS+=PaNa$, the report lines at these positions can be supplemented with the associated parameter names. Using $SY,MSGS-=PaNa$ the parameter names can be hidden from the report lines.

### 3.2.2 Point type dependent information fields

**Optional info**

Information in braces {} appear as needed.

**Parameters displayed**

The parameter names, whose values are to be displayed in the message, are displayed in the relevant information fields.

**Example:** The "main value" field of an AO point is defined with AO TXU, that is, upon an actual printout of the message here, the values of the AO and TXU parameters are displayed, e.g., 60 %

**Permanent text**

Permanent characters or commentary text within information fields are written using quotation marks (""), e.g., "Ri-

**Other info**

Information without a parameter reference (e.g., active priority for DO or FL setpoints) are written in italics.

**Mutually exclusive information**

Mutually exclusive information is set in parentheses () and separated using "|"; the presentation priority is specified from left to right.

**Example:** The 'Status' field is to be defined with:

(ERSTA<>0 | OPSTA<>0),
that is, upon actual printout of the message at this position, the ERSTA value is given, insofar that ERSTA<>0.
If ERSTA=0 at this time, then the OPSTA value is displayed at this position insofar that OPSTA<>0.
If OPSTA is also 0, then the field remains blank.

**Text**

Displayed text has the following format:

AI=(TXU): Array begins with UnitText with the no. from the TXU parameter.
3.2.2.1 I/O points

<table>
<thead>
<tr>
<th>Point type</th>
<th>'M' Main value</th>
<th>'S' Status</th>
<th>'I' Add'l</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analog input</td>
<td></td>
<td>ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0</td>
</tr>
<tr>
<td>For TYP=AI:</td>
<td>AI TXU</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0</td>
</tr>
<tr>
<td>For TYP=AO:</td>
<td>AO TXU</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0</td>
</tr>
<tr>
<td>For TYP=CI:</td>
<td>CI TXU</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0</td>
</tr>
<tr>
<td>Digital input</td>
<td></td>
<td>ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0</td>
</tr>
<tr>
<td>For TYP=DI:</td>
<td>DI=(TXU)</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0</td>
</tr>
<tr>
<td>For TYP=DO:</td>
<td>DO=(TXU) <em>(&quot;Prio&quot;)</em></td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0</td>
</tr>
<tr>
<td>or:</td>
<td>FBV=(TXU) <em>(&quot;Prio&quot;)</em></td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0</td>
</tr>
</tbody>
</table>

3.2.2.2 Function points

<table>
<thead>
<tr>
<th>Point type</th>
<th>'M' Main value</th>
<th>'S' Status</th>
<th>'I' Add'l info</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virtual point</td>
<td>VIP TXU</td>
<td>ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0</td>
</tr>
<tr>
<td>For TYP=VIP:</td>
<td></td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0</td>
</tr>
<tr>
<td>Plant point</td>
<td>PSTA=(TXU) WHY CPRI</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0</td>
</tr>
<tr>
<td>For TYP=PLT:</td>
<td></td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0</td>
</tr>
<tr>
<td>Regulator block</td>
<td>PRV TXU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>For TYP=RGB:</td>
<td></td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0</td>
</tr>
<tr>
<td>OSTP zone (BPS)</td>
<td>ZOSTA (TI &quot;°C&quot;)</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0</td>
</tr>
<tr>
<td>For CTYP=ZON:</td>
<td></td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0</td>
</tr>
<tr>
<td>Set conversion parm:</td>
<td>'CS= &quot;CS &quot;COF=&quot;COF</td>
<td>[OPMO]</td>
<td></td>
</tr>
<tr>
<td>For TYP=CVP:</td>
<td></td>
<td>*CNL=&quot;CNL</td>
<td></td>
</tr>
</tbody>
</table>
### 3.2.2.3 System points

<table>
<thead>
<tr>
<th>Point type</th>
<th>'M' Main value</th>
<th>'S' Status</th>
<th>'I' Add'l info</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process Station</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For TYP=PS:</td>
<td>USZU (&quot;INR/ABO&quot;)</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0)</td>
</tr>
<tr>
<td>or:</td>
<td>&quot; &quot;</td>
<td>&quot; &quot;</td>
<td>&quot;T&quot;TY# &quot;:&quot;IDC VERS 1)</td>
</tr>
<tr>
<td>or:</td>
<td>&quot; &quot;</td>
<td>&quot; &quot;</td>
<td>&quot;(MK#)&quot; 2)</td>
</tr>
<tr>
<td>Operating system</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For TYP=OS:</td>
<td>CB</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0)</td>
</tr>
<tr>
<td>Build. Level Network</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For TYP=BLN:</td>
<td>INR</td>
<td>AWAY</td>
<td></td>
</tr>
<tr>
<td>Process bus</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For TYP=PBUS:</td>
<td>PBDIAG</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0)</td>
</tr>
<tr>
<td>Profibus Network</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For TYP=PBN:</td>
<td>NSTA</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0)</td>
</tr>
</tbody>
</table>

**Comments:**

1) TY# is specified by the LPS parameter of the associated BLN point.
2) MK# is specified by the MCAT parameter of the associated BLN point.

### 3.2.2.4 MONOGYR points

<table>
<thead>
<tr>
<th>Point type</th>
<th>'M' Main value</th>
<th>'S' Status</th>
<th>'I' Add'l info</th>
</tr>
</thead>
<tbody>
<tr>
<td>MONOGYR Bus</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For TYP=MBUS:</td>
<td>MBDIAG</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0)</td>
</tr>
<tr>
<td>MONOGYR Group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For CTYP=MGG:</td>
<td>(SOPST</td>
<td>MOPST) 3) AVRT &quot;°C&quot;</td>
<td>(ERSTA&lt;&gt;0</td>
</tr>
<tr>
<td>or:</td>
<td>(SOPST</td>
<td>MOPST)  AVRT &quot;°C&quot;</td>
<td>(SPCC SPCH)</td>
</tr>
<tr>
<td>additionally:</td>
<td>&quot;MGR&quot;MGR(i)&lt;0&quot;:&quot;</td>
<td>AOPST=(TXU) ARTP &quot;°C&quot;</td>
<td></td>
</tr>
<tr>
<td>MONOGYR room</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For CTYP=MGR:</td>
<td>AOPST(1)=(TXU) ARTP &quot;°C&quot;</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0)</td>
</tr>
<tr>
<td>or:</td>
<td>AOPST(1)=(TXU) ARTP &quot;°C&quot;</td>
<td>(SPCC ASPH)</td>
<td></td>
</tr>
<tr>
<td>&quot;SEZ&quot;SEZ(i)&lt;0:&quot;</td>
<td>ADOsez ADIsez</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MONOGYR switching unit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For TYP=SEZ:</td>
<td>ADOsez ADIsez</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0)</td>
</tr>
</tbody>
</table>

**Comment**

3) Dependent on MACT
### 3.2.2.5 DCS points

<table>
<thead>
<tr>
<th>Point type</th>
<th>'M' Main value</th>
<th>'S' Status</th>
<th>'I' Add'l info</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-level message For TYP=MX:</td>
<td>MX {MX2} {MX3}</td>
<td></td>
<td>(OPMO)</td>
</tr>
<tr>
<td>Flag point For TYP=FL:</td>
<td>FL=(TXU) {&quot;FL1act&quot;}</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0)</td>
</tr>
<tr>
<td>or:</td>
<td>FL=(TXU) {&quot;FL2act&quot;}</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0)</td>
</tr>
<tr>
<td>OSTP zone For CTYP=OZ:</td>
<td>OZ T1 &quot;°C&quot;</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0)</td>
</tr>
<tr>
<td>TERM-interface For TYP=TY:</td>
<td>TY &quot;K&quot;MCAT (&quot;?&quot;</td>
<td>&quot;O&quot;</td>
<td>&quot;X&quot;</td>
</tr>
<tr>
<td>or:</td>
<td>{}(ABO)</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0)</td>
</tr>
<tr>
<td>Data Comm. Server For TYP=SY:</td>
<td>{&quot;A:&quot;</td>
<td>&quot;B:&quot;} SY</td>
<td>&quot;SY&quot;(&quot;0&quot;</td>
</tr>
<tr>
<td>or:</td>
<td>{&quot;A:&quot;</td>
<td>&quot;B:&quot;} SY</td>
<td>&quot;SY&quot;(&quot;0&quot;</td>
</tr>
<tr>
<td>Message channel For TYP=MK:</td>
<td>&quot; - : - &quot;</td>
<td>{XX=&quot;XX *MGEK=&quot;MGEK &quot;MGTK=&quot;MGTK}</td>
<td></td>
</tr>
<tr>
<td>or:</td>
<td>TERM#</td>
<td>&quot;&quot;</td>
<td></td>
</tr>
<tr>
<td>or:</td>
<td>PS#</td>
<td>&quot;</td>
<td></td>
</tr>
<tr>
<td>or:</td>
<td>SYS *MM# &quot;MM&quot;</td>
<td>&quot;</td>
<td></td>
</tr>
<tr>
<td>Peak demand point For TYP=LS:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 3.2.2.6 TEC and RWI points

<table>
<thead>
<tr>
<th>Point type</th>
<th>'M' Main value</th>
<th>'S' Status</th>
<th>'I' Add'l info</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single room regulation For TYP=ROOM:</td>
<td>AOPST(1) ARTP_TXU</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0)</td>
</tr>
<tr>
<td>or:</td>
<td>AOPST(1) ARTP_TXU</td>
<td>ASPH_TXU ASPC_TXU</td>
<td>(OPMO)</td>
</tr>
<tr>
<td>TEC group For TYP=GRP:</td>
<td>ROPST RTAV_TXU</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0)</td>
</tr>
<tr>
<td>or:</td>
<td>ROPST RTAV_TXU</td>
<td>AVOCC_&quot;%&quot;</td>
<td>(OPMO)</td>
</tr>
<tr>
<td>RWI For CTYP=RWI:</td>
<td>AOPST TPR</td>
<td>(ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0)</td>
</tr>
<tr>
<td>or:</td>
<td>AOPST TPR_TXU</td>
<td>ASPH_TXU ASPC_TXU</td>
<td>(OPMO)</td>
</tr>
</tbody>
</table>
### 3.2.2.7 FLN and PBN points

<table>
<thead>
<tr>
<th>Point type</th>
<th>'M' Main value</th>
<th>'S' Status</th>
<th>'I' Add'l info</th>
</tr>
</thead>
<tbody>
<tr>
<td>For TYP=FLN:</td>
<td>INR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>For TYP=PBN:</td>
<td>BD&quot;Bd&quot;NSTA (ERSTA&lt;&gt;0</td>
<td>OPSTA&lt;&gt;0)</td>
<td>(OPMO)</td>
</tr>
</tbody>
</table>
3.3 Parameter Change Messages

Point parameter changes are always reported along with information about the cause of the change.

Elements of parameter change messages:

```
HAND ML 10:23:04 C7K8’F13 OSV =JA -->NEIN        L&S A.T2
PRK  SC 10:23:04 C7K8’B01 SC  =AUS -->EIN1       RDO=EIN2(1)
                        |   |   |       |      |     |      |      |     |  |   |  | |
                        v   v     v       v      v     v      v      v     v  v   v  v v
A   B     C       D      E     F      G      H     I  J   K  L M
```

where

Parameter changes caused by COLBAS do not generate any change messages.

A

Cause of the change: all possible causes for changes are given in the following section.

B

Point type (parameter TYP) of the changed point.

C

Time at which a change occurred.

D

Address: If a User Address is generated, it will always be in the report, otherwise the Technical Address is reported.

E

Abbreviation of the changed parameter.

F

Old value: i.e., value before the change.

G

New value; i.e., value after the change.

H

Level of the RDO/RFL values (for switch commands and flags only): on changes of parameters SC, SCI1, SCI2, DO1ACT, DO2ACT, as well as FL, FLI1, FLI2, FL1ACT, FL2ACT. The new RDO/RFL value and the active priority level will be included in parenthesis, e.g., (1).

I

Resultant RDO/RFL value of the point (for switch commands and flags only): refer to "H" and the RDO/RFL parameter.

J

For priority level determined by RDO/RFL: refer to "H" and the SC, SCI1, SCI2, DO1ACT, DO2ACT parameters as well as FL, FLI1, FLI2, FL1ACT, FL2ACT.

K

User code: for the operator responsible for the parameter change. Is only reported for "HAND" and "PNX" changes.

L

System designation: For "HAND", "PNX" causes only. Designation of the VISONIK computers (e.g., A or B computer) for dual computer Data Communication (DC) Servers.

M

Operator terminal: The terminal where the parameter change was issued. Occurs only in "HAND" and "PNX" reports.
### 3.3.1 Causes for parameter change reports and terminal assignment

| HAND | Hand: Operator change using a terminal (refer to $S, parameter DEVPCH). |
| PRK | Process reaction: Programmable device mask (refer to $S, parameters MM00..MM15 or MSGDEV), or also no message for reaction initiation. |
| DRK | Date reaction: Identical to PRK. |
| !DRK | Date reaction to "updating": Identical to PRK. |
| KRK | Chain reaction: Identical to PRK. |
| SRK | Collective reaction: Identical to PRK. |
| WRK | Maintenance reaction: Identical to PRK. |
| ZRK | Time reaction: Identical to PRK. |
| !ZRK | "Upgrading" time reaction: Identical to PRK. |
| LSP | Peak demand limiting: Messages are written into the device mask that is defined in the LSP point of the DEVLS parameter. |
| ZYKS | Cyclic switching: Messages are written into the device mask that is defined in the LSP point of the DEVLS parameter. |
| AZ | Sequential time reaction of the suppression (via classes): Messages to MSGDEV terminals (such as event messages). |
| PNX | Multiple-point parameter changes: Messages to MSGDEV terminals (such as event messages). |
| BPS | Parameter change in the VISONIK DCS system because of a local change in a configuration parameter in a PS partner station. Messages are output on terminals of the $Sy.DEVINI parameter. (Messages are suppressed when the $Sy,MSGS parameter is sent to PaX.) |
| VERS | Reason for a change in other parameters after altering the VERS/SW version parameter. Messages are output on MSGDEV terminals (as for event messages). (Messages are suppressed if the $Sy,MSGS parameter is sent to PaX.) |
OPMO
Reason for other parameter changes after a change in the parameter OPMO/Operating Modes DS/PS. Messages are output on MSGDEV terminals (such as event messages). (Messages are suppressed when the $Sy,MSGS parameter is sent to PaX.)

FICT
Reason for a change in other parameters after a change in the FICT/Fiktiv parameter. Messages are output on MSGDEV terminals (as for event messages). (Messages are suppressed when the $Sy,MSGS parameter is sent to PaX.)

CNC
This means a new, general interrogation of a process station (PS) has been started automatically via telephone when the CNC bit (= central not connected) of the PS = 0. CNC=0 means that the telephone connection was broken during a previous data interrogation before the interrogation was complete. Messages are output on MSGDEV terminals (as for event messages). (Messages are suppressed when the $Sy,MSGS parameter is sent to PaX.)

M8
Reason for additional changes in other parameters because of a change in the value of parameter M8/ML as a number for fictitious ML/MX points. Messages are output on MSGDEV terminals (as for event messages). (Messages are suppressed when the $Sy,MSGS parameter is sent to PaX.)

INV
Reason for further parameter adjustments after a change in the INV parameter (hardware status inverted). Messages are output on MSGDEV terminals (as for event messages). (Messages are suppressed when the $Sy,MSGS parameter is sent to PaX.)

ARC
Reason for automatically initiated parameter changes if the value of the ARC (Data packet counter) parameter has gone beyond the limit set in the ARCL parameter. ARCL is a limit for the number of data packets per point/hour applicable throughout the entire system. Messages are output on MSGDEV terminals (as for event messages). (Messages are suppressed when the $Sy,MSGS parameter is sent to PaX.)
3.4 Sequence and Classification

| Note: | The messages described in this handbook are arranged in alphabetical order of the clear text. |

Generally, messages are split into four format groups. The first five characters of a message line (including spaces) determine the format or group.

**Format A --->** Line start corresponds to the STAP parameter value (noted generally in the following chapters as STAP)

**Format B --->** Line start contains a program name (noted generally in the following chapters as PNAM)

**Format C --->** Line start consists of a short text (noted generally in the following chapters as KTXT)

**Format D --->** Lines having various long texts (as can be directly seen in the associated description)

Following each message, parameters are displayed (e.g., MSGDEV, DEVINI), which define the terminals responsible for the message output.

The message terminals specified under "->MSGDEV" can be viewed in the MSGDEV parameter of the associated NAME point address.

For all other parameters (e.g., "->DEVINI") the message terminals are defined under $S$.

With "->Tn" the associated message is output on terminal "n" (n=1..15), or on the currently active operating terminal.

The message name (e.g., M.IDF) is printed in parenthesis on the same line as the message terminals.

This is for L&S use only and acts as a reference for error routines and thus has no meaning for customers.

**Note**

The statistics buffer is handled like a "normal" terminal in the VISONIK DC Server. This buffer has the terminal "device" designation STA. Therefore, STA can be allocated through system parameters DSMx, DEVINI, DEVPCH, DEVLOG just like any other message channel (M1, M2, M3 etc.).
3.4.1 Format A: Messages with STAP

Format A messages begin with the peripheral warning condition, STAP. (Refer to STAP in the parameter description.) Format A messages have the following structure:

```
... SSt00:00:00 PS'120' 16"A  [Bld 16]  [Floor A]  257 events per hour
                   v  v  v   v         v             v         v                v
                   A  B  C   D         E             F         G                H
```

A  Dots "..." indicate the STAP peripheral warning condition.
B  The point type of the message point.
C  Message marker.
D  Time of message (not printout time).
E  Technical or user address
F  Point text TXI [optional]
G  Point text TXI2 [optional]
H  Actual message.

There are some messages where a variable value (number or text) may be printed at position "H".

Please note the following for all Format A messages:
- The messages in this document are in alphabetical order according to the message text.
- The notations of "STAP" and "TYP" as well as "NAME" are symbolic placeholders. This means, for example, for STAP the current value of the STAP parameter is displayed; for TYPE, the point type of the address NAME.
- The second line in the individual message descriptions, for example, "->MSGDEV (M.MAB)", does not appear in the actual system printout. This information serves as a reference to error routines for L&S personnel and has no significance for customers.
3.4.2 Format B : Messages with Program Names

Format B messages begin the message lines with a program name consisting of two to five characters (abbreviated program names).

The general structure of format B messages appears as follows:

\[
\begin{array}{|c|c|c|c|c|c|}
\hline
\text{PNAM} & \text{PTYP} & \text{00:00:00} & \text{[NAME]} & \text{EKL\_SYSIVN=xxx} \\
\hline
A & B & C & D & E \\
\hline
\end{array}
\]

A PNAM program name
B Point type [optional]
C Time
D User or technical address [optional]
E Actual message.

The PTYP parameter and the NAME address [in brackets] exist in certain messages only. The actual message text is printed at position E.

There are a few messages having a variable output (value or text) at position E.

All Format B messages are explained below. Please take note of the following:
- The messages in this document are in alphabetical order according to the message text.
- The notations of "PNAM" and "PTYP" as well as "NAME" are symbolic placeholders. This means, for example: For PNAM, the program name is displayed; for PTYP, it is the point type of the address NAME.
- The second line in the individual message descriptions, for example, "->DEVINI (M.PR01)" does not appear in an actual system printout. This information serves as a reference to error routines for L&S personnel and has no significance for customers.
3.4.3 Format C: Messages with Short Text

Format C messages begin with a short text consisting of 2 to 5 characters. The general structure of the format C messages is as follows:

```
sTXT [PTYP][t]00:00:00 [NAME] [TXI] [TXI2] .. def, keine ..
```

A Short text, dependent on the actual message (possible short texts in place of STXT are e.g., PRK, ZRK, DRK etc.).
B Point type [optional]
C Message marker [optional]
D Time
E Technical or user address [optional]
F Point text TXI [optional]
G Point text TXI2 [optional]
H Actual message.

The PTYP, TXI and TXI2 parameters [in brackets] and the NAME address exist in certain messages only. The actual message text is printed at position H.

There are a few messages which have a variable output (value or text) at position H.

All format C messages are explained below. Please take note of the following:
- The messages in this document are in alphabetical order according to the message text.
- The notations of “STXT”, “PTYP”, “NAME”, “TXI” and “TXI2” are symbolic placeholders. This means, for example, for STXT the short name is displayed; for PTYP, the point type of the address NAME, and for TXI and TXI2 information text.
- The second line in the individual message descriptions, for example, “->DFAT (M.WFE)” does not appear in an actual system printout. This information serves as a reference to error routines for L&S personnel and has no significance for customers.

3.4.4 Format D: Messages with Long Text

Format D messages consist only of long text without time and point parameters.

The general structure of format D messages appears as follows:

```
PRK Illegal Module type
-------+
|       |
|       |
M       
```

M Actual message.
3.5 DCS Messages

ADDP-checksum-error! OVC=xxx RFC=yyy

**STAP TYP 00:00:00 NAME**  ADDP-checksum-error! OVC=xxx RFC=yyy
->DEVINI (M.TTAD)

**Explanation**
One of the two system components connected on an ADDP basis (e.g., DCS<-->Insight, DCS<-->Telephony PS, DCS<-->DCS, etc.) breaks off because the transferred data package has not been correctly received. 'xxx' and 'yyy' are counters for correctly (RFC) and incorrectly received data packages (OVC).

**Action**
The message indicates an unstable data connection and at the very least should be sent to Landis & Staefa FS&PM.
ADDP-framing-error! OVC=xxx RFC=yyy

**STAP TYP  00:00:00 NAME**     **ADDP-framing-error! OVC=xxx RFC=yyy**

->DEVINI     (M.TTAD)

**Explanation**

One of the two system components connected on an ADDP basis (e.g., DCS<--
>Insight, DCS<-->Telephony PS, DCS<-->DCS, etc.) breaks off because the
transferred data package has not been correctly received. 'xxx' and 'yyy' are counters
for correctly (RFC) and incorrectly received data packages (OVC).

**Action**

The message indicates an unstable data connection and at the very least should be
sent to Landis & Staefa FS&PM.
**ARC=xxx To many Events! (ARCL=yyy/h)**

**STAP TYP 00:00:00 NAME  ARC=xxx To many Events! (ARCL=yyy/h)**

->DEVINI  (M.ARCL)

**Explanation**

The meaning of this message is dependent on the TYPE:

For TYPE=LS,DI,AL,MX,OX,PLT,RGB,DO,AO,VIP,CI this message means that, since the last hour change, a larger number of data packages than specified in $S,ARCL=yyy have been received from the process station, namely xxx. Because there is a danger that the VISONIK server could be overloaded, the system automatically sets OSV=YES and also tags the point with STAP=?OA, which means: "OSV due to ARC".

When TYPE=PS,BLN,OS, the message has the same meaning as above, but the effect is less drastic: The point is only tagged with STAP=!AC.

When TYPE=TY, the message means that, since the last hour change, a greater number of terminal initialisations have taken place than the number specified in $S,ARCL.

When TYPE=SY, the message means that, since the last hour change, SHST has changed a greater number of times than that specified in $S,ARCL and indicates problems with shadow operation.

When TYPE=RI, the message means that, since the last hour change, the RIST parameter has changed a greater number of times than that specified in $S,ARCL. This message indicates a ring problem, e.g., ongoing changes between "Normal" and "Normal with noise" states.

**Action**

The cause must be rectified. Additionally, OSV must be manually set to "NO" for TYPE=LS,DI,AL,MX,OX,PLT,RGB,DO,AO,VIP,CI.
**Autogen xxx not yet generated**

STAP TYP 00:00:00 NAME Autogen xxx not yet generated

->DEVINI (M.AUTOG1)

**Explanation**

During the ‘SaPa’ backup operation, points that are not yet stored in the point database of the DC Server are automatically generated. It is possible that the automatic generation of a point is unsuccessful, e.g., because the database is full. In such cases the message appears and with ‘xxx’ indicates the point that could not be correctly generated.

**Action**

Check the space available in the point database. Possibly enlarge the database and repeat the operation.
autogeneration!

PNAM TYP  00:00:00 TA    autogeneration!
->DEVINI      (M. UGEN)

Explanation
Points have signalled from a PS that have not yet been generated in the DCS point database. Certain points, however, are automatically generated by the DCS and acknowledged with this message.

Action
None.
Backup switch abnormal

**Explanation**

The test for automatic back-up changeover (initiated through the SHAD=mABA parameter in system point $S$) has been interrupted because of a changeover failure.

**Action**

Check the front control panel switch and ensure it is in the "Automatic" position.
Bad Application Sequence by xxx

00:00:00 NAME Bad Application Sequence by xxx (Err= y.zzz) (By= bb rxF= rr txF= tt)

->DEVINI (M.APER)

Explanation

There is a special transfer tool available for exchanging data between a VISONIK DC Server and process stations and partly between partner DC Servers (link systems). This message should assist in localising application errors in this transport tool. As a rule, an application related message is also generated, which shows the behaviour of the error.

Message coding:
- NAME TA of the communicating partner
- xxx Indicates the data transfer user
- (Example: Dacq, SaFi, etc.)
- y Transfer level (ASN1 operation #)
- zzz Error number (faulty event)
- bb Net number of bytes transferred up to the point where the error occurred.
- rr Number of ASN telegrams received up to the point where the error occurred.
- tt Number of transmitted ASN telegrams until the error occurred.

Action

This message is a diagnostic tool and is meant for analysis by specialists. It can only be output when system parameter TRBI= 200 (severe diagnostic) is set. It is thus practical to initiate severe diagnostics when problems appear in the following functions:
- Dacq Data acquisition
- Macq Message acquisition
- SaFi Save EKL backup in its VISONIK DCS file.
- LoFi Load EKL backup from its VISONIK DCS file.
- SaTi Save Timeswitch catalogue
- LoTi Load Timeswitch catalogue
- Pro... Report on partner systems (Link system)
- Edi,Copy Copy VISONIK DCS files to/from DC Server partner (link system).
- Dap,Gen Generate data record locations from partner DC Servers (DP3, link system)
- Dapp,... Graphical presentations of data from partner DC Servers (DP3, link system)

Such application errors can occur with:
- Incompatible VISONIK DCS versions.
- Errors in EKL COLBAS programs (Dacq, Macq).
bad DISC transfer on unit xx and by block yyy

**Explanation**

A disk operation (read or write) cannot be carried out. "xx" indicates the disk unit (0 = system disk, 1 = shadow disk) and "yyy" indicates the corrupted disk block (in octal).

**Action**

Upon repeated occurrence of this error, the disk must be reformatted or even exchanged.

**Note:**

VISONIK programs require a fault-free hard drive. This means if a fault (bad block) occurs while a VISONIK program is running, then the system can crash or, in the best case, issue an error message (e.g., disk error, bad disk transfer). In such cases the hard drive must be newly formatted.
CBIF/CER1=vv/xx Beacon PS=yy  NOIS=zz

STAP TYP 00:00:00 NAME CBIF/CER1=vv/xx Beacon PS=yy  NOIS=zz
--> MSGDEV    (M.COC)

Explanation
A PRV/BPS/EKL-X controller has the capability of detecting and counting "noise". All noisy data frames originating on the ring BEFORE the location of this process station causes its noise counter to increment.

Should an EKL receive "Beacon" signals from the process station preceding it on the ring, it can store the number of this process station. This allows Beacon recognition by the EKL. In the VISONIK DC Server, the address NAME corresponds to the communications point CO (for example, $002.CO).

The above message is only printed out under the severe diagnostics ($S,TRBI=200).

CBIF(vv)/CER1(xx) information:
CBIF:   (EKL parameter $340.CBIF)
DcM : Disconnect by master
DcL : Disconnect local
SnC : Sees no carrier (Ring break before PS)
Bcl : Beacon initiate (Receives no Beacon)
BcR : Beacon repeater (Repeats other Beacons)
FT : Flagstream timeout (Receives only flags)
IT : Idle timeout (Receives only idle)
SoB : Sees own Beacon (Receives own Beacon)

CER1:   (EKL Parameter $340.CER1)
Ear : Listen only (not yet connected) [Spy on the line]
RnR : Receiver not ready
RRL : Request for driver code (not implemented)
SeD : Severe diagnostic set

Action
None: If need be, look for a ring break BEFORE this EKL.
CB Task xx status AT LINE yy

STXT  00:00:00

--MSGDEV (M.RXCB)

Explaination

This message is generated by that reaction program printed at message position KTXT. The message shows that COLBAS Task “xx” has either been started or stopped (indicated by “status” by the associated reason).

When the task is started, the relevant line number is printed at position “yy”.

Action

None. This is a normal task message.
**Change of Port A: x--> y**

**STAP TYP 00:00:00 NAME** Change of Port A: x--> y

**-->MSGDEV (M.RPOA)**

**Explanation**
The status of SDLC Ring Controller's port A has changed. This is normal during the phase of connecting an EKL process station to the ring after a system start or, more generally, after initialising a ring.
The message appears only in severe diagnostics mode ($S,TRBl=200).

**Action**
None. However, should the message appear frequently, then the ring must be checked.
Chip loop at xxx, contact L & S

STAP TYP 00:00:00 NAME Chip loop at xxx, contact L & S

->MSGDEV (M.RDCL)

**Explanation**

Data exchange with the SDLC chip of ring NAME cannot be terminated within the maximum allowed number of attempts. (100 attempts is approximately equal to 2 msec depending on computer type.)

The chip is reset automatically and a functional check on the SKLC ring controller is carried out.

If the controller is defective, the associated status change of ring NAME is reported.

If the fault is apparent only for a short time, normal operation will be resumed immediately.

Therefore, this message only appears in very severe diagnostic mode ($S,TRBI=1000).

The xxx address points to the location in the program where the missing data is expected to be found.

**Action**

Ignore if the message appears only occasionally. If it appears quite often, please contact the Landis & Staefa Service Department.

Possible causes are either a faulty SDLC chip or an incorrect bus configuration.
Communication Error while xxx

DIAG  00:00:00 NAME Communication Error while xxx  (Err= 
->DEVINI  (M.COER) (By= bb rxF= rr txF= tt)

Explanation
A special transfer tool is available for exchanging data between a VISONIK server and process stations and partly between partner systems (link system).
This message should assist in localising communications problems between partners. As a rule, a related message is simultaneously generated which shows the behaviour of the error.

Message coding:
- NAME TA of the communicating partner.
- xxx Names the data transfer user (Example: Dacq, SaFi, etc.)
- y Transfer level (ASN1 operation)
- zzz Error number (faulty event)
- bb Net number of bytes transferred before an error occurred.
- rr Number of ASN telegrams received before an error occurred.
- tt Number of ASN telegrams transmitted before an error occurred.

Action
This message is a diagnostic aid and is meant for analysis by specialists and is only output under severe diagnostic conditions ($SY,TRBI=200).
It is thus practical to initiate severe diagnostics when problems appear in the following backup functions:
- Dacq Data acquisition
- Macq Message acquisition
- SaFi Load PS data from PS to DCS.
- LoFi Load PS data from DCS to PS.
- SaTi Load TSP data from PS to DCS.
- LoTi Load TSP data from DCS to PS.
- SaSD Load SDC catalogue from PS to DCS.
- LoSD Load SDC catalogue from DCS to PS.
- SaTX Load PS text from PS to DCS.
- LoTX Load PS text from DCS to PS.
- Pro... Report on partner systems (link system).
- Edi,Copy Copy VISONIK DCS Files to/from partner DC Servers (link system)
- Dap,Gen Generation of data record locations from partner DC Servers (DP3, link system)
- Dapp... Graphical presentation of data from partner DC Servers (DP3, link system).
CONTAINS 2 MASTERS, A/C=xxx

STAP TYP 00:00:00 NAME CONTAINS 2 MASTERS, A/C=xxx

->MSGDEV (M.RD2M)

Explanation

Ring NAME is in "Master" mode and has received a control telegram xxx to all process stations which was not previously sent by this master. Control telegrams can only be sent by master stations. Thus the above message is an indication that there must be another master somewhere on the same ring.

Action

If Ring NAME forms a coupling ring between a VISONIK DCS and its backup system, then check configuration parameter RISLPS.

Whenever DC Servers are coupled with each other, the associated ring parameters have to be correctly set.
content destroyed: xxx/yyy zzz

Message example
*** Content destroyed 352/347 163400 < Bad content
*** Content destroyed 3400/4767 12372 < Bad content
*** Content destroyed 12700/13737 341 < Bad content

Explanation
A part of the VISONIK DC Server, the PRINCESS Operating System, is main memory resident and cyclically checked.
This message indicates that the memory location at address xxx with contents yyy has been overwritten with a new, but incorrect, value of zzz.

The cause for such a message may be either a software error or a hardware malfunction. The message appears only after a "diagnostic dump". If messages are continuously output, you can assume there is a memory malfunction.

Action
Please collect the applicable printouts together with the associated "Diagnostic Dumps" and PMDs and send them to L & S Zug FS&PM.
Controller bad IR result=xx

**STAP TYP 00:00:00 NAME Controller bad IR result=xx**

->MSGDEV (M.RDUI)

**Explanation**

The SDLC chip of the ring NAME has generated an interrupt on the receive side, but this type of interrupt "xx" is unknown or totally inappropriate at the moment.

Another possible cause may be that there are two SDLC controllers with the same hardware address in the computer. This message is also output if the bus is incorrectly structured, e.g., with the expansion box (xx=16=DMA underrun).

No other causes are known including messages specifying xx unequal to 5 or 16.

**Action**

If the messages appear occasionally, collect the printouts and send them to Landis & Staefa FS&PM.
Otherwise replace the suspect SDLC Chip or the entire controller as necessary.
CTR.TEST: RL/Offset=xxx RDO/RFL=yyy IT=zzz

STAP TYP 00:00:00 NAME CTR.TEST: RL/Offset=xxx RDO/RFL=yyy
     ->MSGDEV   (M.RDLB) IT=zzz

Explanation

A ring controller test consists of first transmitting a telegram. Then before the test
telegram is transmitted, the output of the controller is looped back to its input. This
means that the transmitted data will be again received by the controller. This looping
takes place within the SDLC chip itself.

Because of the looping, the associated modems and rings are not involved in the test:
A check is only made on the SDLC chip, DMA transfer and VISONIK DC Server
software.
Such a test is automatically carried out whenever any irregularity in data traffic on the
ring is detected.

If there is agreement between the transmitted and received data (test OK), the modems
and rings are reconnected and the entire test is repeated with a BEACON telegram.

If there is a telegram discrepancy (received and transmitted telegrams unequal), the
above message is output where NAME flags the ring, xxx is the position (in bytes) of
the first corrupted telegram content, yyy is what was transmitted (and expected to be
received) and zzz is the data actually received.
(This only applies if xxx <> 0.)

Note that this message only appears under severe diagnostics ($S,TRBI=200).
Independently of this, the ring takes on a "controller faulty" status.
Sources for such a message can be the SDLC controller or the SDLC chip itself.

Action

Replace the SDLC controller.
CTYP=ctype ---> Wrong Point Type

Explanation
The point with NAME (or rather, where available, the point with a TA) transmits an event to the system. If, in the DC Server, a point with another type is generated at this address, a message occurs. If, as yet, no point has been generated in the DC Server at this address, then this message is output if the $S,TRBI=200 diagnostic is switched on.
Such messages can also occur as a result of defects in connectors or modules (incorrect addresses and IDCs).

Action
Locate the malfunction and eliminate it.
CTYP/PAR: ComReset started

PKG TYP 00:00:00 NAME CTYP/PAR: ComReset started
->DEVINI (M.PSRS)

Explanation
After loading a new point configuration in a BPS, especially points having interface definitions like, e.g., FLN point, CO point, TERM point, etc., you have to possibly carry out a station RESET in order to actively set the configuration. After the relevant points (PKG) have been generated or upon changing certain parameters (PACH), the DC Server automatically transmits the RESET command to the BPS and initiates the operation.

Action
None.
CTYP/PAR: ComReset started

PACH TYP 00:00:00 NAME CTYP/PAR: ComReset started
-->DEVINI (M.PSRS)

Explanation
After loading a new point configuration in a BPS, especially points having interface
definitions like, e.g., FLN point, CO point, TERM point, etc., you have to possibly carry
out a station RESET in order to actively set the configuration. After the relevant points
(PKG) have been generated or upon changing certain parameters (PACH), the DC
Server automatically transmits the RESET command to the BPS and initiates the
operation.

Action
None.
Points have signalled from a PS that have not yet been generated in the DCS point database. Certain points, however, are automatically generated by the DCS and acknowledged with this message.

None.
CYX: SP guard raised the alarm  SP=.. SP+2=.. SP+4=..

ERR TYP 00:00:00 NAME CYX: SP guard raised the alarm  SP=.. SP+2=.. SP+4=..
-->MSGDEV (M.SP GA)

Explanation Stack overflow.

Action Please send a copy of the message to Landis & Staefa FS&PM.
CYX  xxx  seconds sleeping!!

TIX  00:00:00  CYX  xxx  seconds sleeping!!
->DEVINI  (M.CYX)

Explanation
The program CYX (CYclic eXecutive), which controls and checks all cyclic actions has stopped for more than xxx seconds or is running in a never-ending program loop.

Action
If this occurs repeatedly, please contact Landis & Staefa Service.

Notes for L & S:
- Print the status of all procedures with SER, LPROC.
- On output terminal ($SY,TRDV) a printout provides approximately 10 lines of additional information having the following format:
  46 CYX xxxxxx yyyyyy
  46 CYX xxxxxx yyyyyy

This information helps in locating the suspect program section.

Comment:
If this message appears in different projects having similar applications, please inform Landis & Staefa FS&PM.
Defective 'Set OS' Sequence

STAP TYP 00:00:00 NAME Defective 'Set OS' Sequence
->MSGDEV (M.SQER)

Explanation
The main parameter OS in a VISONIK DC Server can be changed from PRV/BPS/EKL X, in that a command string is written to TSKTTY=255. The syntax of the string must correspond to that used in Ctrl/V mode.

Example
O=Gacq&Eacq

The VISONIK DC Server analyses this command string. If a syntax error is found, the above error message is output.

Action
Check the command string in the EKL. As soon as more than only 'Eacq' is to be initiated, the command must begin with 'O ='.


Diag xx = yy [at line zz]

**Explanation**

[Diag xx = yy] does not always appear.

An active COLBAS task has made an illegal process image access (e.g., due to incorrect programming).

Illegal process image accesses could be:
- Access to unknown (e.g., not generated) points
- Access to an unknown parameter.

If the system variable SYSDIAG=1, a diagnostic message is output where TSLx is the COLBAS task no., xx is the error number and yy is the associated clear text. If SYSDIAG=0 then the message is suppressed.

The running task is not stopped if it attempts an illegal process image access. The program simply continues to the next COLBAS statement.

The task skips over illegal write accesses to the process image.

Illegal write accesses to the process image generate the value 0. For example, an attempt to read an unknown parameter and then assign it to a variable generates a variable value of 0.

**Action**

Correct the relevant COLBAS task.
DMA@:WRITE/READ dismatch xx yy zz aa

STAP TYP 00:00:00 NAME DMA@:WRITE/READ dismatch xx yy zz aa
-->MSGDEV (M.RDMA)

Explanation
If there are any irregularities in data traffic with an SDLC ring controller, its DMA register is checked by writing the value xx to the register and then reading value yy from the register. If xx and yy are not the same, the DMA chip is faulty.

Action
Replace the SDLC ring controller even if the message only appears intermittently.

Meaning:
- xx = hardware address
- yy = value written in register
- zz = value read from register
- aa = re-read value.
Ennn=vvvv! uuuu.xxxx, box@=zzzz

Explanation

uuuu represents one of the following file names:

- uuuu=IM Process image
- uuuu=DM Data processing
- uuuu=REA Reaction register

nnn is an error number.

vvvv is one of the error number's related texts.

xxxx specifies the segment number of the uuuu file in which the error occurred.

zzzz specifies the relative offset in the segment xxxx where the error has been detected.

All programs which have access to the process image IM, the data processing files DM or the reaction register REA can initiate the above message if these files contain some inconsistencies or errors.

The following errors can occur:

<table>
<thead>
<tr>
<th>Error number</th>
<th>Error text</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RP too small! (RP lower than *M@)</td>
<td>A</td>
</tr>
<tr>
<td>2</td>
<td>RP too large! (RP higher than WP)</td>
<td>A</td>
</tr>
<tr>
<td>3</td>
<td>First backlink not zero</td>
<td>A</td>
</tr>
<tr>
<td>4</td>
<td>Forward/Backwardlink wrong</td>
<td>A</td>
</tr>
<tr>
<td>5</td>
<td>WP not at the end of last record</td>
<td>A</td>
</tr>
<tr>
<td>6</td>
<td>Forward record link behind EP</td>
<td>A</td>
</tr>
<tr>
<td>7</td>
<td>odd record link</td>
<td>A</td>
</tr>
<tr>
<td>8</td>
<td>BOX and record length not corresponding</td>
<td>A</td>
</tr>
<tr>
<td>9</td>
<td>TA order wrong</td>
<td>A</td>
</tr>
<tr>
<td>10</td>
<td>insert queue clutch failure</td>
<td>A</td>
</tr>
<tr>
<td>11</td>
<td>index map clutch failure</td>
<td>A</td>
</tr>
<tr>
<td>12</td>
<td>2 equal TA in sequence</td>
<td>A</td>
</tr>
<tr>
<td>20</td>
<td>Illegal Seg# given by B$BSG</td>
<td>C</td>
</tr>
<tr>
<td>21</td>
<td>Dataset full, generation not completed</td>
<td>B</td>
</tr>
<tr>
<td>22</td>
<td>Dataset full, generation not completed</td>
<td>B</td>
</tr>
<tr>
<td>23</td>
<td>Queue TA already in xM, Queue TA deleted</td>
<td>BC</td>
</tr>
<tr>
<td>30</td>
<td>Delete BOX: BOX not found</td>
<td>C</td>
</tr>
<tr>
<td>100</td>
<td>AP wrong, corrected</td>
<td>A</td>
</tr>
<tr>
<td>101</td>
<td>RP wrong, corrected</td>
<td>A</td>
</tr>
<tr>
<td>102</td>
<td>1st backlink unequal zero, corrected</td>
<td>A</td>
</tr>
<tr>
<td>110</td>
<td>WP out of limits, segment cleared</td>
<td>A</td>
</tr>
<tr>
<td>111</td>
<td>Negative link, segment partially cleared</td>
<td>A</td>
</tr>
<tr>
<td>112</td>
<td>too large link, segment partially cleared</td>
<td>A</td>
</tr>
<tr>
<td>113</td>
<td>link/backlink unequal, segment partially cleared</td>
<td>A</td>
</tr>
<tr>
<td>120</td>
<td>WP not at end of chain, corrected</td>
<td>A</td>
</tr>
<tr>
<td>130</td>
<td>Record twice in dataset, 2nd one deleted</td>
<td>BC</td>
</tr>
<tr>
<td>131</td>
<td>Order of records wrong, segment partially cleared</td>
<td>BC</td>
</tr>
</tbody>
</table>

Group A

All these errors indicate some serious DC Server problem (disk, memory fault, power supplies, etc.). These errors are corrected automatically, but sometimes the corrections cause a loss of data. This is noted in the associated message. Data are only lost from segments whose numbers appear in the respective messages.
In other cases the system attempts to rectify an error through an automatic boot. Since the above listed messages very often have a delayed printout after the boot, there is, in this special case, an additional printout given BEFORE the automatic boot: "uuuuxxxx corrupted, AAA2:VIMS$ Error (octal) = nnnn"

**Action**

In all cases contact Landis & Staefa FS&PM, providing as much information as possible about the system behaviour during the ten minutes before this error message appeared.

If this error repeats, try VE,IM or VE,REA or VE,DM.

**Group B**

These messages appear whenever the reserved disk space has been fully used up by the process image, and further data points still have to be generated. This message can also be falsely printed if the DC Server is heavily overloaded. Please send these messages to Landis & Staefa FS&PM.

**Action**

Restructure the disk using SYS,DISK,AEND and BOO,N.

**Group C**

This error can occur after a power failure or other system malfunction.

**Action**

This is a warning indicating the range where data points could be faulty; their configuration should be checked.
Entry Date/Entry: xxx > yyy End reached - Entry Erased

DRK 00:00:00

Entry Date/Entry: xxx > yyy End reached - Entry Erased

Explanation

Date reaction (DRK) entries can be limited in time either by specifying a definite end time (yyy) or by the number of times (zzz) the associated entry is to be executed. On reaching such an end time, the entry is automatically deleted. The message appears as a note and indicates the DRK entry with "DATE/ENTRY".

Action

None. This a normal informative message.
Date reaction (DRK) entries can be limited in time either by specifying a definite end time (yyy) or by the number of times (zzz) the associated entry is to be executed. On reaching such an end time, the entry is automatically deleted. The message appears as a note and indicates the DRK entry with "DATE/ENTRY".

**Action**

None. This a normal informative message.
This message can have two sources, namely:

- Incorrectly formatted message
- Printout of old statistic entries that are no longer supported by the VISONIK DCS Software.

To be rectified by Landis & Staefa Central Systems.

Note for L & S:

Error  1   : $PAR: overflow of C.TSQ Area
Error  2   : $SPRA: illegal # of language
Error  3   : illegal CSL Offset (too large!)
Error  4   : missing $INPUT
Error  5   : TERM Msg Specifier: corrupted link in TERM
Error  6   : TERM Msg Specifier: undefined (=0) -> link error?
Error  7   : TERM Msg Specifier: TERM Segment out of range
Error  10  : TERM Msg Specifier: TERM Offset out of range
Error  11  : TERM Msg Specifier: too big msg in TERM Segment
Error  12  : $CDlin: illegal position
Error  13  :
Error  14  :
Error  15  : NXCD: illegal R4
Error  16  : NXCD: illegal command#
Error  17  : NXCD: illegal command#
If the EKL X/PRV/BPS receives faulty data from the VISONIK DC server, it can inform the Server of this by sending the above message with a specific text yyy (cause of the error).

If the severe diagnostics is run at the DC Server ($S,TRBI=200 or 1000), the following messages are output to terminals as specified in the DEVINI mask.

0: Attribute Error 0
Cause ---
Action Should never occur. If it does, please notify Landis & Staefa FS&PM. Note: in the following, <> means "unequal".

1: Unknown type
Cause PS configuration <> DC Server.
Action Ignore if this occurs during generation. In normal operation compare DC Server and PS IDCs and modify configuration accordingly.

2: Wrong point address
Cause PS <> DC Server configuration.
Action See number 1

3: Wrong length
Cause PS <> DC Server configuration.
Action See number 1

4: Incompatible version.
Cause PS <> DC Server communication level.
Action The DC Server adjusts itself to the PS. The message may thus only appear once per PS.

5: No regulation space
Cause No more space in the PS to generate a point.
Action Make some space available in the PS.

6: No such point
Cause PS <> DC Server configuration.
Action See number 1

7: No access from central
Cause DC Server writes to points with PSM=PSma.
Action Ignore, because the system occasionally also sends data to points with PSM=PSma.

8: Counter value jump
from Date xxh (+yyh) in Serv.

**Explanation**

An entry in the Service Reaction Catalogue WRK either has reached the previously entered date or the previously entered number of operating hours of the point 'NAME'.

From now on, the message is always repeated after a date change (midnight) insofar that the counter is not reset, and indicates with 'xx' the operating hours since 'DATE'. If the error counter is activated in WRK, then the error hours 'yy' are also displayed in parenthesis.

**Action**

Reset the hours counter or enter a new date in the associated WRK entry.
**FSG data overflow: space= xxx length= yyy**

<table>
<thead>
<tr>
<th>STAP TYP 00:00:00 NAME</th>
<th>FSG data overflow: space= xxx length=</th>
</tr>
</thead>
<tbody>
<tr>
<td>-&gt;DEVINI (M.FSX1)</td>
<td>yyy</td>
</tr>
</tbody>
</table>

**Explanation**

The picture (or MACRO library) edited with VISONIK Insight cannot be saved to the DC Server, because it, along with possibly defined dynamic channels, is too large.

"SPACE" indicates the available memory, while "LENGTH" is the file length to be saved.

Using the FSG,FSG operation "DIR", the space required by all pictures can be printed out. The same occurs for the MACRO library using the FSG,MAC operation "LIST.

**Action**

Reduce the amount of data in the topical pictures (e.g., fewer MACROs, fewer dynamic channels, fewer picture elements), until you can save the data.
FSG sequence or link error: PIC/MAC # xxx list ..... 

**STAP TYP 00:00:00**

**NAME** FSG sequence or link error: PIC/MAC #

->DEVINI (M.FSX2) xxx list #= yyy block #= zzz

**Explanation**

The data sequence of a picture transferred from Insight to VISONIK has been interrupted; the system cannot save the picture.

xxx indicates the picture/macro number, yyy the list number and zzz the block number.

**Action**

Save the picture again.

If unsuccessful, consult the Landis & Staefa project manager or Service.
GRAF: xxx  [Error Text]

STAP TYP 00:00:00 NAME GRAF: xxx  [Error Text]
->MSGDEV (M.FSX3)

Explanation
This error message appears with a different error text if an error occurs during the output of a DPP graph (xxx) on a display terminal with the address NAME or upon accessing a DPP graph.

Possible error messages [Error Text]

[1] Terminal defect or no hardware
Cause
An attempt has been made to output a graph on a faulty or non-existing terminal.
On starting a graphic output, the terminal's status is checked. Depending on the function involved, the time between starting a graphic display and its actual output can take from 5 seconds up to 5 minutes.
A further check is made immediately before the output of the graph (see under [3]).
Action
Check the terminal.

[2] Terminal not supported
Cause
An attempt has been made to output a graph on a terminal which does not support the graphics program.
Action
Select another terminal.

[3] Terminal output error
Cause
Shortly before a graphic output, the terminal reported a fault which had not been detected upon actually starting the graph output.
Action
Check terminal.

Cause
A maximum of 1000 values per DAPRO channel can be logged. The number of values to be logged is determined from the x-axis time range and the recording interval. This range has been exceeded in the current graph.
Action
Select a smaller time range.

[5] Axis system missing
Cause
The co-ordinate system is missing from the current graph. Such a graph is not processed.
Action
Enter the appropriate co-ordinate system.

Cause
There is only one bit map available per system, i.e., only one graph can be processed per system.
Action
Stop other graphic outputs or wait until the bit map is free.
After about 3 minutes the bit map will be automatically enabled.

[7] Graph full
Cause
On entering additional text a graph may exceed the available memory space.
Action
Remove additional text.

[8] Unknown graph entry number
Cause
An illegal graph number has been detected upon the change or output of a graph
Action
Inform L & S Projects Dept. giving all details.
[9] Graph defective. Please delete

**Cause**
The internal structure of the graph is faulty.

**Action**
If this only occurs once, then delete the graph and regenerate it. Otherwise, contact the L & S Projects Dept.

[10] Sys.: DAP entry not OK

**Cause**
(DC Server link) The DAPRO channel with a third-party address is not defined in the third-party system.

**Action**
Check DAPRO channel and adapt accordingly.


**Cause**
(DC Server link) The x-axis time range defined for the current graph is questionable for the DAPRO channel in the third-party system.

**Action**
Adjust time range accordingly.

[12] Sys.: DAP access defective

**Cause**
(DC Server link) An error has occurred while accessing a data record in a third-party system.

**Action**
Check the data record of the third party system.

[13] Sys.: Connection defective

**Cause**
(DC Server link) The connection to a third party system is faulty or the data transport is not correct.

**Action**
Check the connection to the third party system.
IDC = vvv --> xx => zz

Explanation
Module change detected at the PS. The old module (IDC=vv) was replaced by the new module (IDC=xx).

The following holds for 'zz':
0: In operation
1: No hardware
2: No module
3: SW change
4: Module error
5: HW IDC = ??

Action
Plug in the correct module type or delete the old module points and then generate the appropriate new module type.

Note
Ensure the wiring is correct.
After a module change, check the parameters of the point involved.
(IDC=xx) not allowed PS as MCUS!

ERR TYP 00:00:00 NAME (IDC=xx) not allowed PS as MCUS!
->DEVINI    (M.MACL)

**Explanation**

A process station (PS) can be identified as a “Master Clock” in the $Sy system point using the MCPS parameter. This PS is then checks and, if necessary, corrects the clock of the VISONIK DC Servers and thus the system time via its internal quartz clock.

Only those PS types that have their own clocks and are loaded with the relevant program for time control and time correction can be defined as master clocks. This message can appear if MCPS is assigned a PS number with an inadmissible EKL type, where xx indicates the faulty IDC or PS type, e.g., FBS or ECU.

Legal PS types, that can take over time control, are those PS having an EKL X controller or PRV/BPSs. In link systems (several VISONIK systems coupled together) the PS number of a partner DC Server can be declared as MCPS.

**Action**

Assign a correct PS number to the MCPS parameter of the $Sy system point. If MCPS=0 is set, then clock correction no longer takes place via a PS. The VISONIK DC Server itself becomes master of the clock time.
Illegal frame, RO=xxx DL,... = y01 y02 y03 y04 .......

PNAM PTYP 00:00:00 NAME Illegal frame, RO=xxx DL,... = y01 y02 y03 y04 y05 y06 y07 y08 y09 y10
->DEVINI (M.IFMT)

Explanation
A telegram has been received by the VISONIK DC Server via a ring or V.24 that cannot be processed and is therefore ignored.

The cause of such telegrams may be classified according to the RO value xxx:
RO=100..177 Problems with link system or FBS
RO=200..277 Illegal addresses
RO=300..377 Problems with v300 data
RO=400..477 Problems with v400 data

The appropriate actions and the significance of the other data also depend on the RO value.

In the following examples a link system is used having three partner systems connected via V.24 links.

System $216          System $224          System $232
-----------          -----------          -----------
T6 <-----------------> T4
T7 <-------------> T7
$224'CO, LPS=307      $216'CO, LPS=307      $224'CO, LPS=304
$232'CO, LPS=224      $232'CO, LPS=306      $216'CO, LPS=224

RO=104
The link system's partner temporarily cannot be contacted. The error message depends on the type of telegram that should be transmitted.

If, for example, DC Server $216 cannot be contacted for some reason, and an attempt is made to make contact from $232 via DUS, then the following message is printed out at $224:
... PS hh:mm:ss $232'PS Illegal frame, RO=104
DL,... = 14 205 300 216 300 232 0 4 1 4

As the example shows the message is printed under the address of the sender. The intended receiver can be found in the y01..y10 data.

The following holds:
When y02 lies in the range of 201 to 207, then y04 contains the PS number of the receiver. When y02 lies in the range of 220 to 223, then y07 contains the PS number of the receiver. In the above example, y02=205 i.e., the desired receiver is $216.

Always first clarify to whom the telegram was addressed with such a message. In most cases the fault lies in a suspect V.24 communications link.

RO=105
Configuration error. A telegram has been received which cannot be redirected. The error message also includes the sender's address, while the receiver is determined from the data as for RO=104. Using our example, this situation would arise if an attempt was made to contact system $200 from $232 via $224 and system $200 is not even configured.
For certain flawed configurations, the following message may appear instead of the above:
"TRC3 hh:mm:ss AATY: malformed frame"

**RO=200**

Incorrect receiver address. This can occur, for example if a process station reports with address $377. This case can arise if an EKL's address matrix card is incorrectly programmed.

It should be noted that for all the messages described, additional diagnostics data will be printed out if severe diagnostic is enabled with $S,TRBI=200/1000.

In the example where RO=104, the following additional diagnostics data would be printed out:

TCR3 hh:mm:ss ER31: illegal frame Actual SECCNT=
14713
BB.FG BB.FG2 BB.BL BB.NX BB.SEC Rg/Pnr C / PS
46500/ 22 2 32 46324 147103 200/300 10 232
rx bb!BB..TR
PS=232 Nr=0 Ns=0 14 ASX TUS=216$300 FUS=232$300 D=0 S=4 P=0 DLG
FIN 0
... PS $232 Baarer matte USZU=Normal INR=Partner T6 Z4K
v5008
icnt=0 auca=300 stpc=0 by . csco=0 R$ussl=0
USDA: 43202/ 20306 0 377 $RO LPS=306 dly=377

**Action**

If the error message appears with RO values other than those given in these examples, severe diagnostics must be enabled (TRBI=200). Send the associated printout to Landis & Staefa FS&PM for further clarification.
Illegal LIST /PIC # xxx/yyy

STAP TYP 00:00:00 NAME illegal LIST /PIC # xxx/yyy
->DEVINI (M.FSX4)

Explanation
A picture request from VISONIK Insight to the system does not function. The VISONIK DC Server cannot form a picture number from the list number received. xxx indicates the list number, and yyy the picture number.

Action
Restart Insight
Should this fault occur repeatedly, please consult the Landis & Staefa Service Department.
Illegal RESET of the SDLC chip, DMA=xx

**STAP TYP 00:00:00 NAME Illegal RESET of the SDLC chip, DMA=xx
→MSGDEV (M.RDRS)**

**Explanation**

Although no SDLC chip reset has been received from NAME Ring, the "Request to send" signal no longer exists. This would indicate a reset produced by faulty hardware. The message is quite normal after a computer changeover from A -> B. It appears only under severe diagnostics ($S,TRBI=1000).

**Action**

None, provided the NAME Ring has not produced other abnormal messages at the same time. In this case, the SDLC controller may have to be exchanged.
Invalid MXD Entry! Start “VE”

PNAM TYP 00:00:00 NAME Invalid MXD Entry! Start “VE”
-->DEVINI (M.ILSP)

Explanation
As a result of some manipulation on the DC Server, e.g., deleting a data point, an entry in the LSP (peak demand limiting) catalogue was rendered "incorrect" or meaningless.

Action
The "VE.LSP" operation verifies all entries in the LSP catalogue and automatically removes any "incorrect" blocks.
LoTx working with Language xx=n

**STAP TYP 00:00:00 NAME LoTx working with Language xx=n**

->DEVINI (M.ACXX)

**Explanation**

When the backup operation is started, LoTx is notified in which language 'n' the text was loaded. On a PS basis, the language can be configured in the relevant OS point via the XX parameter. This message only appears if the PS diagnostic (parameter DIAG in the PS point) is switched on.

**Action**

None.
Explanation

The messages appear at the terminals that are defined in the DEVLS parameter of the LS point.

This (calculation) message is a diagnostic message and allows monitoring the peak demand program for a specified time at the end of each period.

The messages only appear if the parameter LSCM <> 0 (i.e., is unequal to zero) in the LS Point NAME. The LSCM time applies to the end of the period only. During this time (programmed in LSCM in minutes) this message is printed (normally every minute), providing a check on the momentary demand.

- **vv** = Parameter LS of the LS point
- **xx/yy** = Parameter ONLM or OFLM of the LS point
- **zz** = Correction value

If **vv** is not within the **xx..yy** interval, then the peak demand program must correct the course of the demand by switching it.

**zz** is an internally used value that is used to fix the load to be switched. It is dependent on how far **vv** lies outside the **xx..yy** interval, and from this, how long the current period will last.

**Action**

None. Diagnostic message for monitoring the peak demand program.
The messages appear on the terminals that are defined in the DEVLS parameter of the LS point.

This concluding message is printed following conclusion of a period of the peak demand program.

If the message ends with ?SYN, then this event is absent and, after a delay, the peak demand program has simulated the missing synchronisation event.
If the message begins with STAP=!AF, then the former period was inactive.

vv = Consumption during the former period
(= Parameter LS).

xx = Consumption during the former period as if it were one hour.
Corresponds to the value vv*60./ZPER.

yy = Current load switched by the peak demand program (total).

zz = Parameter EMAX of the LS point.
(If the peak demand program is functioning properly, then it should always be true that vv<zz.

Units for vv, xx, yy and zz:
Determined by the TXU or TXLSU parameters.

None. The message serves for your information only, allowing you to monitor the functioning of the LS program.
*Macq* Mtxx: DATE TIME  text

STAP TYP 00:00:00 NAME *Macq* Mtxx: DATE TIME  text
→>MSGDEV (M.Mtxx)

**Explanation**

Messages in the message buffer of a PS can be transferred to the DCS and stored in the ZMS cyclic message memory using the MACQ backup operation (= message acquisition).

(For more detailed information about the PS message buffer, see the "System Handbook EKL X and PRV" or "System Handbook BPS").

The time point of message acquisition is indicated in the PS with 'DATUM UHRZEIT' (date-time).

Depending on message type, 'Mtxx' can appear instead of 'text':

- Mt00: PS message with the information ERR, ER1, ACCU and AUT
- Mt01: Standard point message with MV and ERSTA
- Mt02: OST Zone message with ZOSTA, ASPH, ASPC and TI
- Mt03: Operating hours message with SCC, OHx and OHL
- Mt04: 3 temperatures (in degrees Celsius)
- Mt05: 3 values
- Mt06: 2 energy values (in kWh)
- Mt07: 2 counter values
- Mt08: 2 values
- Mt09: Free message with text (max. 10 characters) and a value
- Mt10: Text message (max. 14 characters)

**Action**

None.
MODEM "Clear To Send" missing

STAP TYP 00:00:00 NAME MODEM "Clear To Send" missing
->MSGDEV (M.RDCS)

Explanation
In Ring NAME the "Clear to send" signal is missing in the modem section of the SDLC controller. We distinguish between two different types of Ring controllers:
FSK Here the cause may be a fault in the Ring controller's transmitter section, or a short circuit at the controller's transmit output line.
V.24 Here the cause may be either that the modem is not providing the signal, or that the jumper for connecting the signal to the Ring Connection Unit is not in place. (V.24 Rings with version C are rare.)

Action
Check and correctly set the jumper on the Ring Connection Unit (V.24). Otherwise, replace the controller.
MODEM "Data Set Ready" missing

STAP TYP  00:00:00  NAME MODEM "Data Set Ready" missing
->MSGDEV  (M.RDMD)

Explanation
In Ring NAME there is no "Data set ready" signal from the modem to the controller (this is a V.24 signal only).
Either the modem is really busy or the associated jumper on the Connection Unit is missing.

Action
Check and correctly set the jumper on the Ring Connection Unit. Otherwise, replace the controller.
Modemklasse $xx'PS activ for more than .......

DIAG TYP 00:00:00 NAME Modemklasse $xx'PS activ for more than 
y Min R0=z

Explanation
This warning message appears cyclically if a connection exceeds a certain time. 'y' indicates the time of the connection in minutes, while the number 'z' indicates the reason for making the connection.

Action
If a status is desired, none. Otherwise abort the connection using the $x.O = DISC command.
multiple PS# xx

STAP TYP 00:00:00 NAME multiple PS# xx
->MSGDEV (M.RWUD)

**Explanation**

The "RING" program has received two successive telegrams from Ring NAME containing the same process station number. This means that either a PS has illegally sent two successive telegrams (PS fault), or two process stations are transmitting with the same number xx. (Incorrect coding or bad contacts in the relative address matrix card.)

**Action**

If this occurs only occasionally in a DC Server link, ignore it. Otherwise check the process station numbering using the GPR report. Finally check and replace the address matrix card in the associated PS.
No Access to File No. #xxx

**Explanation**

The 'SaFi', 'LoFi', 'SaTi', 'LoTi', etc. backup operations need a backup file. This backup file (i.e., the file number) is entered with the FILE parameter (FILE parameter in point type PS).

This message appears if nothing can be accessed from the file xxx.

**Action**

Enter file number or check.
noise after PS x and before PS y

**Explanation**

Transmissions on the NAME Ring have interference. The interference source can lie between PS x and y, i.e., the fault either lies with the transmitter of PS x, along the intermediate communications path or with the receiver of PS y.

"Master" appears instead of PS x or PS y if the system includes the master section.

**Action**

Switch off (OSV=YES "Out of service") or exchange PS x and y to exclude the faulty PS, or investigate the Ring path for interference.
noise after master and before master

STAP TYP 00:00:00 NAME  noise after master and before master
->MSGDEV  (M.RNOI)

Explanation  Transmissions on the NAME Ring have interference. The interference source can lie between PS x and y, i.e., the fault either lies with the transmitter of PS x, along the intermediate communications path or with the receiver of PS y.

"Master" appears instead of PS x or PS y if the system includes the master section.

Action  Switch off (OSV=YES "Out of service") or exchange PS x and y to exclude the faulty PS, or investigate the Ring path for interference.
no more dataprocessing point!

DP3 TYP 00:00:00 NAME no more dataprocessing point!
->DEVINI (M.DPEND)

Explanation
The memory location of the 'NAME' point was deleted and, as a result, data logging automatically deleted the internal identification within the point. This action is reported.

Action
None.
NOT EXISTENT!  R1=xx  R2=yy

PNAM  00:00:00 NAME  NOT EXISTENT!  R1=xx  R2=yy
->DEVINI  (M.TAF)

Explanation
On accessing the process image, the given program cannot find the ADDR point. Further possible details can be found by checking the contents of registers R1 and R2.

Depending on the program (PNAM), the following two causes are possibilities:
- An event has occurred at a remote point which has not yet been generated in the DC Server.
- A point address has been entered in a catalogue (e.g., Reaction) although the point itself has not been generated.

Action
Generate the relevant point or delete it from the catalogue.
It is not always possible to unambiguously find the catalogue where the point has been entered. In this case we recommend the following procedure:
1) Generate the given point NAME e.g., as Typ=DI (using function PKG).
2) Using the reference table of the extended report EPR, you can find all the locations where the point address has been incorrectly entered.
Normal telegrams that are transmitted between the DC Server and each process station on the ring are provided with two sequence number, Ns and Nr. These numbers are the main components of telegram acknowledgement between "receiver" and "sender". Due to these numbers a distinction can be made between real repetition in cases of corrupted data and simply duplicated data.

Both frame numbers must always lie within strict limits. If this is not the case, there is an error somewhere and the numbers or sequence counters must be reset to zero at both communicating partners. Because of data integrity, this leads to a re-initialisation of the associated process station NAME.

The reasons for such a discrepancy between the two frame counters, apart from very improbable transmission errors, are either in the software of the process station or the DC Server.

Usually such an error occurs upon initialisation of the communications link because one of the partners has not cleared its frame counter. The printed information helps localise the software error.

If a substation detects such an error it requests re-initialisation giving the reason "?SEQUENCE ERROR" or "SequErr".

If this message occurs on odd occasions, please collect the printouts and send them to Landis & Staefa FS&PM. If the error appears regularly with the same PS address, then replace the NAME controller.
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operator NAME  Patch# xx Disk Device: ......

PAT  00:00:00  operator NAME  Patch# xx Disk Device:  
->DEVLG+STA! (M.PACO)  file NAME/disc block: yy Corr.  ->
checksum  SYSA#

Explanation
This message shows when, where and who made a "patch" using the PAT function.

- **operator** name is the name of the person who made the patch
- **yy** is the number of changed values
- **SYSA** is the terminal address from where the patch was made (e.g., S1:B.T1)

Action
None. For information only.
**OSTP: exp. period to OCC xx>=yyh**

**Explanation**

The pre-heating or pre-cooling time calculated by OSTP for the NAME zone, displayed in xx hours, exceeds yy hours.

Such an excessive action time is interpreted by OSTP as "impossible", i.e., it must have occurred as a result of either a defect in the plant or in the measured values (see possible reasons below). The heating and cooling zone constants are constantly being optimised. Nevertheless, they can be reset to programmed initial values when plant defects are assumed to have corrupted them. Such corruptions could, of course, negatively influence adaptation to the inertial characteristics of the building, resulting in improper pre-heating or pre-cooling.

Reasons for this message could be
- Incorrect measurement values (defective sensors, etc.)
- Windows inadvertently left open in the building.
- Frost protection limit set too low.
  - The heating or cooling plant is not able to reach the setpoint within zz hours.
- A poor heating/cooling sequence on the previous day, which improperly adjusted the building zone constants.

**Action**

Check measured values. Possibly increase the frost protection limit (SPHD parameter). The building zone constants are automatically set back to their initial values following the message.
Overflow in File No. #xx  yyy

**STAP TYP  00:00:00 NAME   Overflow in File No. #xx  yyy**
->DEVINI  (M.DXEF)

**Explanation**
While saving PS data during a 'SaFi', 'SaTi', etc. backup operation, it was determined that the backup file 'xx' of the PS 'NAME' was too small. Additional diagnostic data are possibly added with 'yyy' (By, rxF, txF).

**Action**
Link file 'xx' with the xxx+1 file (EDI, LINK,...) and restart the backup operation.
PAR MOM/WITH/eMIT LIN/ZIRK Interval text

DP3 TYP 00:00:00 NAME PAR MOM/WITH/eMIT LIN/ZIRK Interval text
->DEVINI (M.DPER)

**Explanation**

This message appears upon time jumps of the system time and warns of possible data loss in the data memory. Reading 'text' provides a more detailed explanation of the causes. Depending on the size of the time jump, the following texts can appear:

Forward/Backward time jump:
Small time jumps (< 2 hours) are marked with this 'text'. The consequences can be logging gaps or loss of already logged data.

Circular Shift over 2 hours:
This warning appears for larger time jumps (> 2 hours) in circular buffers. Logging gaps appear here also.

All Layout Values deleted:
For very large time jumps, the entire data memory of a specific logging layout is deleted.

**Action**

None.
PBus Modul : mxx text

STAP TYP 00:00:00 NAME PBus Modul : mxx text
->DEVINI (M.PBER)

Explanation
The PS 'NAME' reports an error on the PBus module 'xx'. The cause of the error is described with 'text':

No module
Hardware error
Address error

No module in place is handled like an error.

Action
Check the associated module (contacts, address-key, etc.), and replace if necessary.
**PBus Module : mxx yyy Operational**

**STAP TYP 00:00:00 NAME** PBus Module : mxx yyy Operational

-->DEVINI (M.PBOK)

**Explanation**
The PS 'NAME' reports which 'yyy' module is inserted and operational at address 'xx'.

**Action**
None
PHONE: partner couldn't reach me: NAME

STAP TYP 00:00:00 NAME PHONE: partner couldn't reach me: NAME
->MSGDEV (M.LOCK)

Explanation
The given Tele PS has attempted to call the system without success.

Action
Check the modem link with a test call (Tele PS to DC Server).
**PSER1..3=vv/ww/xx  INR=y.Ori=z**

**STAP TYP 00:00:00 NAME** PSER1..3=vv/ww/xx  INR=y.Ori=z  

--> MSGDEV  (M.USE)

**Explanation**
This message is normal under severe diagnostics ($SY,TRBI=...$) and intended for L & S use.
For questionable PS status change messages, this auxiliary message allows deciding whether an error exists at the DC Server or at the PS.

**Action**
None. Message is normal under severe diagnostics.
The system identifies the length of received telegrams using three sources:

1) The number of bytes that were transferred by DMA (yyy).
2) The number of bytes that were received by the SDLC chip (zzz).
3) Through the first byte transmitted www. (Only meaningful if yyy and zzz are greater than zero.)

This message appears if the system receives a telegram where the check sum is correct, but the lengths from the three sources are unequal.

If such messages (with yyy=zzz) always originate from the same process station, then the cause should be searched for there (very probably a fault on the RAM card). On the other hand, if yyy and zzz are unequal, then the cause surely lies with the VISONIK DC Server.

Depending on which of the three numbers agree with each other, search for the source of the fault at the DMA logic, the SDLC chip or the VISONIK DCS software.

If defective telegrams with correct check sums are actually received, then this additional long test ensures that the telegram is rejected.

For repeated occurrences, depending on the condition described, either replace the EKL/PRV/BPS controller of the process station or the SDLC controller in the DC Server.

If the new controller does not function as desired, then please contact service at Landis & Staefa FS&PM.
These messages are generated by the COM driver. The error text is taken from the V0900 array.

a) "Receiver Buffer Overflowed"
   — An escape sequence could no longer be received because the receive buffer was full.
   --> The receive buffer contents were deleted. With "TYX+=Diag" the entire receive buffer is first printed out.

b) "Illegal Escape Sequence"
   — Can happen for V.24 interfaces and too high a baud rate.

c) "Interrupt Missed (ODT active?)"
   — Should only occur if the Online Debugger ODT is active (Online Debugging Tool).

d) "Rx Cascade (Line too long?)"
   — Every time 16000 characters are received (with a full receive buffer), one buffer is printed out.
   — Possibly check with "low level trace" line.

e) "Defective Characters Received:"  
   — appears only with "TYX+=Diag"  
   — characters+ interface error recognition  
     40000: overrun error  
     20000: framing error  
     10000: parity error  
   This message almost always means an incorrect baud rate or too long a line.

f) "Unknown Identification"
   See the "Unknown Identification" error message.

Action

a) Check the data lines. If messages do not disappear, set TYX+=Diag and send printouts to Landis & Staefa FS&PM.
b) Check baud rate
c) Use PAT,,ODT,R to switch off ODT
d) Check line length
e) Check baud rate and line length
f) See the "Unknown identification" error message.
REAK=xxx -> RDO/RFL=yyy (z) $FLn/c

**Explanation**

These messages appear during execution of switch-on sequences when mains power returns.

The sequences are programmed as KRK chain reactions and mainly hold switching commands needed to reinstate drop outs resulting from a mains failure. Upon return of the mains, orderly switch-ons have to be carried out, perhaps with delays in order to avoid undesirable peaks in demand.

The message shows the "old" value xxx of the switching command NAME, the new setpoint value yyy again and the priority level z, which determines the setpoint value (0=SC, 1=SCI1/DO1ACT/FL1ACT, 2=SCI2/DO2ACT/FL2ACT).

Also displayed are the address of the chain flag $FLn and the KRK entry number c.

Using this message allows checking the switch-on sequence following return of the mains voltage.

**Action**

None. Normal message for the power return program.
**Reason/Entry: xxx/yyy  zzz**

Initiated by:
All reaction programs, that is:
SRK, PRK, ZRK, DRK, KRK, WRK,

**Explanation**

Through some action the reaction entries have been rendered meaningless (e.g., points which are causes of PRKs have been deleted, but the associated reaction entries still exist, etc.)

Such reactions can no longer be executed. They are thus signalled at the specified time of execution in the reaction program and automatically suppressed by deleting the entry number. However, they still occupy space in the associated catalogue.

- xxx Holds the cause of the reaction with the following variations:
  - xxx for SRK with address
  - "." for SRK without address
  - "Time" for ZRK
  - "Date" for DRK
  - "Address" for PRK, KRK, WRK

- yyy Holds the entry number

- zzz May contain the following variations:
  - [. Address] Address/Point type non-existent.
  - [Address, parameter name] Parameter incorrect.
  - Entry incorrect; marked for deletion.

**Action**

With function VE (= file verification) verify all REA files.
This removes all "faulty" entries from the reaction catalogues.
receiver carrier disappeared

STAP TYP 00:00:00 NAME receiver carrier disappeared
->MSGDEV (M.RDRC)

Explanation

The receiver of the NAME ring suddenly no longer receives a carrier signal.

Possible causes are:

– Sudden Ring break between the last process station and the DC Server.
– Loose contact along the link (e.g., EKL base terminals).
– Faulty Ring relay in the last process station (contact problem).
– Faulty address key (hardware) in the last process station on the ring or contact problem.
– Loose address key (hardware) at the first process station on the ring, interrupting the Ring's return line.
– Reset of the last substation either through:
  • Hand reset
  • Power failure or low voltage, triggering the process station's watchdog.
– Wrong function of the last process station e.g., because of defective RAM, a CPU halt or a CPU boot.
– Boot of the VISONIK DCS CPU, (particularly upon computer changeover).
– Cross-talk or bad insulation between outgoing and return Ring lines somewhere between the last Ring process station and the DC Server.

This situation is also noted at the process station and reported with the additional information "IRxTraegr".

Action

None. If, however, the message appears frequently, the faulty section must be localised by checks e.g., with the Ring test plug and repaired.

Note

The "last process station" physically on the ring need not necessarily be the same as last process station with regard to signal flow (with regard to GPR report) because the outgoing and return lines of the Ring are always wired together.
receiver DMA overrun

**Explanation**
The data received from the SDLC controller of the Ring NAME has not been fetched fast enough from the DMA chip.

**Action**
If this situation occurs repeatedly, either the DMA chip or the entire SDLC controller must be replaced.
receiver interrupt overrun

STAP TYP 00:00:00 NAME receiver interrupt overrun
->MSGDEV (M.RIOV)

Explanation
Before the VISONIK CPU can process an existing interrupt, a new interrupt from the
Ring Controller NAME has appeared.
This message is normal if using the ODT (Online Debugging Trace) utility program.

The analogue situation in a substation is reported with the additional information "Rx
slow".

Action
If this occurs repeatedly, please send the printout to Landis & Staefa FS&PM.
RING# a-->b ;$vvv-->$xxx-->$nnn

STAP TYP 00:00:00 NAME   RING# a-->b ;$vvv-->$xxx-->$nnn
   -->DEVINI (M.RNER)   –

Explanation
The system "sees" a process station xxx, which is not defined in any Ring (see Pro,GPR). The "a" stands for "old Ring" (usually 0), while "b" is the "new Ring" (usually >0). After the semicolon there follows an extract from the Ring sequence. vvv is the PS BEFORE xxx, and nnn is the PS AFTER xxx.

Process stations having the illegal numbers 0 or 377 are shown with number 377.

The VISONIK DC Server is referred to as "master".

If many process stations are newly seen at the same time, the message will be printed out for only a few stations.

Action
None.
Rx DMA overflow after xxx bytes, DL= yyy

STAP TYP 00:00:00 NAME Rx DMA overflow after xxx bytes, DL=
->MSGDEV  (M.ROFL) yyy

Explanation
The Ring NAME has received a telegram of length xxx. This length, however, exceeds the available memory space yyy.
The telegram sender, in this case a process station, cannot, however, be determined.

Action
Ignore if this occurs only occasionally. If it appears continuously, the data from a Ring Trace must be examined by L & S Project Management Service. Otherwise the transmitting process station must be localised by testing, e.g., with a Ring test plug, and replaced.
Rx Interrupt missed, xx yy zz

**STAP TYP 00:00:00 NAME** Rx Interrupt missed, xx yy zz

->MSGDEV (M.RWIT)

**Explanation**
The controller of the Ring NAME has not generated an expected interrupt within the permissible time limit.
Values xx, yy and zz can be used (by L & S) to determine the Ring state at the time.
This a normal message for a Ring break and is printed out under severe diagnostics ($SY,TRBI=...).

**Action**
No action if the Ring is disturbed. Otherwise this message must be analysed in conjunction with other messages.
$x \ Rx: y \ z$

**STAP TYP  00:00:00 NAME   $x \ Rx: y \ z**

-->MSGDEV   (M.TYMA)

**Explanation**

This message appears if the given modem NAME cannot immediately make a connection to the Tele PS=x. Here, y contains the received character sequence and z the value of the signal in accordance with the description of the DHV11 or DHQ11 or CQ1620 card.

**Action**

If this message appears often, the modem should be checked.
**Explanation**

During execution of the ‘SaTx’ backup operation, an unknown text identifier ‘xx’ was received. The text was not saved.

**Action**

Locate the unknown text identifier in the point image (TXSY* parameter) and correct. Then restart the operation.
SDC Distribution still running

STAP TYP 00:00:00 NAME SDC Distribution still running
-->DEVINI (M.ASDC)

Explanation
A restarted load operation of a special day calendar SDC for the PS 'NAME' has been ignored because a previously started identical operation is still in progress.

Action
Wait until the current operation is completely over. Then restart the operation.
SDLC-Controller Reset incomplete, R1=xxx

Explanation
A reset was carried out on the SDLC chip of the Ring controller NAME. The then occurring functional check of the Ring controller determined that a register contained a value unequal to zero.

For registers it can be either the SDLC status register (if xxx=177777) or the PORT B register (if xxx<>17777).
A possible cause could be failure of the SDLC controller clock to start, e.g., after a power failure.

Action
If the situation repeats, replace the SDLC controller.
SECCNT(TIX)=xxx  SECCNT(SYSL)=yyy

PNAM 00:00:00  SECCNT (TIX) =xxx  SECCNT (SYSL) =yyy

->DEVINI (M.SECC)

Explanation
SECCNT = Seconds counter
This message can only appear with a system boot.
The content of the TIX seconds counter is compared with the contents of the SYSL
seconds counter. If the deviation is too large, the message is given. The message
mainly appears when starting old backups.

Action
If the message appears frequently, please inform Landis & Staefa FS&PM.
shadow too old: (old date/ today: new date)

STAP TYP 00:00:00 NAME ->MSGDEV (M.SHOF)

shadow too old: (old date/ today: new date)

Explanation

A shadow's age is tested once per day. In this case the last shadow is too old (older than one day), which can endanger the functional capabilities of the DC Server. This can occur because the system has attempted to transfer bad disk blocks from the shadow (even when shadow mode is switched off), in order to keep the system running as long as possible with a bad disk situation.

Action

For DC Servers having two disk units, switch on shadow operation (in $S set parameter SHAD=EIN).

For DC Servers having only one disk, set cyclic shadow structuring ($SY,SHAD=ZEA).
SYSIVN=xxx Centrale_IVN=yyy ==> OSV

ET41 PS 00:00:00 NAME SYSIVN=xxx Centrale_IVN=yyy ==> OSV
->DEVINI  (M.IVN)

**Explanation**

During manufacturing, L & S provides each process station PS (PRV/BPS/EKL X) with an individual number. This number is accessible via the system variable SYSIVN and is also marked on the housing of the PS.

When the PS is connected to a VISONIK DC Server for the first time, the system takes this number and saves it under the PS parameter IVN.

From now on the IVN is continually checked by the DC Server during data exchanges with the PS. If another IVN is received under this station address, then a controller replacement or loss of the IVN is assumed, for example, from a long power outage.

If this happens in normal operation, (VISONIK Parameter IVN <>0), the PS is taken out of service (OSV=YES) and tagged accordingly in the INR parameter: INR="?IVN".

**IVN in a link system:**

Since a partner station in a link system is also regarded as a process station, the IVN logic is also active.

**Action**

- In PS: Set SYSIVN
  See above
- The following holds for the VISONIK DC Server:
  If a data backup is available in a FILE in the DC Server, load it into the PS using the LOFI backup operation.
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IVN in a link system:
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**Action**
- In PS: Set SYSIVN
  - See above
- The following holds for the VISONIK DC Server:
  If a data backup is available in a FILE in the DC Server, load it into the PS using the LOFI backup operation.
System Updated! (xx Reaction(S) carried out!)

KTXT  00:00:00  System Updated! (xx Reaction(S) carried out!)

->MSGDEV  (M.RXE)

Explanation
If, for some reason, the system time is changed (either manually through the DA function or through transferring an EKL time after a system outage), the programs for handling the ZRK and DRK entries are started automatically. Any reactions that should have been executed in the "skipped" time will be updated.

The message appears after each jump in time if one of the two programs has to update a reaction. 'xx' indicates how many reactions have been executed.

Action
None. This message is for information purposes or acts as check on the updated reactions.
**TA :CTYP=ctyp Please Generate**

**Explanation**
The point with NAME (or rather, where available, the point with a TA) transmits an event to the system. If, in the DC Server, a point with another type is generated at this address, a message occurs. If, as yet, no point has been generated in the DC Server at this address, then this message is output if the $S,TRBI=200 diagnostic is switched on. Such messages can also occur as a result of defects in connectors or modules (incorrect addresses and IDCs).

**Action**
Locate the malfunction and eliminate it.
The point with NAME (or rather, where available, the point with a TA) transmits an event to the system. If, in the DC Server, a point with another type is generated at this address, a message occurs. If, as yet, no point has been generated in the DC Server at this address, then this message is output if the $S,TRBl=200 diagnostic is switched on. Such messages can also occur as a result of defects in connectors or modules (incorrect addresses and IDCs).

Locate the malfunction and eliminate it.
**TA :TYP=typ Please Generate**

**Explanation**

The point with NAME (or rather, where available, the point with a TA) transmits an event to the system. If, in the DC Server, a point with another type is generated at this address, a message occurs. If, as yet, no point has been generated in the DC Server at this address, then this message is output if the $S,TRBI=200 diagnostic is switched on. Such messages can also occur as a result of defects in connectors or modules (incorrect addresses and IDCs).

**Action**

Locate the malfunction and eliminate it.
temperature > 65 GradC (ventilator down?)

**Explanation**

A VISONIK computer's Q BUS SDLC controller has an integrated temperature detector that is checked every minute by the VISONIK DCS operating system.

The temperature warning can be due to the following:

- Room temperature too high
- Faulty fan in VISONIK computer
- Faulty temperature sensor on the Q Bus SDLC controller
- Faulty SDLC controller
- Data bus fault in the computer.

**Action**

Check that all boards in the backplane are properly plugged in and that the fan is working properly.

If there is a faulty sensor or controller then the SDLC controller has to be replaced.

Check the room temperature (computer location)

<table>
<thead>
<tr>
<th>Normal</th>
<th>18..24 deg C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short term</td>
<td>15..32 deg C</td>
</tr>
</tbody>
</table>
TERM bad: process xxx aborted!

**Explanation**
A process xxx (function, dialogue, report, update) has been aborted by the operating system because the related I/O terminal was reported as “faulty”.

This message is purely informative and appears only under severe diagnostics $SY,TRBI=...$.

**Action**
None. Possibly switch the terminal involved off and then on again (--> initialisation).
This message signals problems with the data channel 'xx' when loading locally logged data in a remote PS using operation 'DACQ'. 'text' details the circumstances of the problem:

Faulty data channel syntax:
The data of the logging profile (e.g., technical address, parameter, interval, etc.) received from the DC Server cannot be interpreted.

Point in DCS not generated:
The point (address) of the received logging profile has not been generated in the point database of the DC Server.

No data box generated:
No boxes corresponding to the logging profile have been generated in the data memory of the DC Server.

Faulty data:
The PS values cannot be interpreted.

All cases point to a configuration problem that must be corrected at the relevant location (PS or DC Server).
text \hspace{1cm} (CH\# = yy)

**Explanation**

This message signals problems when loading locally logged data in a remote PS using the DACQ backup operation. 
'text' details the circumstances of the problem:

The following holds:

'text'= faulty data channel syntax:
The data of the logging profile (point address, parameter, etc.) received from the DCS cannot be interpreted.

'text'= point not generated in the DCS:
The point (address) of the received logging profile has not been generated in the point database of the DCS.

'text'= No data boxes generated:
No boxes corresponding to the logging profile have been generated in the data memory of the DCS.

'text'= Faulty data:
The values of the PS cannot be interpreted.

'yy'= Faulty channel number (PS)

**Action:**

All cases point to a configuration problem that must be corrected at the relevant location (DCS or PS).
- Use the 'Severe Diagnostic'($S,TRBI=200) as an aid in localising the faulty position within the data flow path.
Text transfer switched off (OS.XX=7)

STAP TYP 00:00:00 NAME Text transfer switched off (OS.XX=7)
->DEVINI (M.NOXX)

Explanation
The LoTX or SaTX backup operations cannot be started because the BPS language is not defined (parameter XX of the OS point).

Action
Define the language and restart the operation.
**TIX xxxxxx seconds sleeping!!**

**CYX 00:00:00 TIX xxxxxx seconds sleeping!!**

-->DEVINI (M.TIX)

**Explanation**

The TIX (=TIme eXecutive) program, which controls all time-dependent actions such as feedback supervision for switch commands or delays for status points, has stopped for xxxxx seconds or is running in an endless program loop.

**Action**

If this message occurs frequently, please inform the Landis & Staefa Service department immediately.

**Note for L & S:**

– Use SER, LPROC to print out the status of all processes (DEVINI Terminal).
– Approximately 10 lines of additional information will be printed on the "DEVINI" terminals in the following format:

```
27 TIX xxxxx yyyyy
27 TIX xxxxx yyyyy
```

This information aids in the search for the faulty program section.

**Note**

If such messages appear in different projects in similar applications, then please notify Landis & Staefa FS&PM.
too many PS, ignored PS=xx

**Explanation**
In interrogating the substation sequence in Ring NAME, too many process stations PS have reported. All excess PS, including PS xx are ignored.

**Action**
Keep to the maximum permissible number of PS per Ring. In exceptional circumstances the limit may be increased using the L & S System Manager Function SYS, PROJ.
transport failure:  NW@=NAME ........
PNAM  00:00:00
->MSGDEV (M.TPER)
transport failure:  NW@=NAME DC rsn=v
usta=w  tsap=x  cmd=y  totc=z

Explanation
This type of message appears, for example, when malfunctions and interruptions occur
in the network (e.g., break in a telephone line).

NW@:  Network Address of transport partner
DC rsn:  disconnect reason
  DR.nrm=200  ;normal disconnect initiated by session control
  DR.ncf=201  ;no connection free
  DR.cnf=202  ;connection negotiation failed
  DR.dcd=203  ;duplicate connection detected
  DR.ref=204  ;mismatched references
  DR.per=205  ;protocol error
  DR.nts=206  ;dest. session entity not attached
to TASP specified
  DR.rov=207  ;reference overflow
  DR.lus=210  ;bad LPS (broken network)
  DR.uto=300  ;user timeout
  DR.ina=301  ;inactivity timeout
  DR.ack=302  ;error in RX$AK
  DR.bcc=303  ;bad CC
  DR.bac=304  ;bad cmd
  DR.dt1=305  ;TXSY$DT error
  DR.rf1=306  ;src reference=0
  DR.cr2=307  ;bad T connect response
  DR.syn=310  ;synch problem TP CB
  DR.ena=370  ;erroneous network address
  DR.abo=371  ;abort
  DR.tab=372  ;task aborted
  DR.est=373  ;erroneous state of TCD
  DR.crt=374  ;connection request timeout or too many CR tries
  DR.rto=375  ;repeat timeout (no ack rx'ed)
  DR.nrj=376  ;reject not implemented
  DR.unk=377  ;reason unknown
usta:  user status (state of application using transport layer)
  1=waiting for buffer
  2=waiting for input
  3=waiting for connection
  4=waiting for timer
tsap:  transport session access point = 21
cmd : actual transport command + flags
  140=AK  (Data Ack)
  200=DR  (disconnect request)
  300=DC  (disconnect confirm)
  320=CC  (connection confirm)
  340=CR  (connection request)
  360=DT  (during data transfer)
  100000=tx request
  40000  =AK request
  20000  =bad LPS
totc:  total number of rx'ed and tx'ed frames

Action
If this occurs repeatedly, collect the messages and send them to L & S Zug Central Systems.
"Partner does not answer" tus=partner@ axl=ASX level

- ASX levels: MSG (remote message)
  DLG (remote dialogue)
  REP (remote report)
  SER (remote service)

- This message almost always indicates a break in the connections. The associated transfer is aborted immediately. A repetition is not possible for ASX because the transport layer is missing.

Action

Check the connection. If the message repeatedly appears, collect them and send to Landis & Staefa FS&PM.
Each change in the ALSTA alarm status generates this message. Additionally, the alarm status "acknowledged" is supplied with the signature of the operator who acknowledged the alarm.

Action

None.
**Explanation**

The controller of Ring NAME generated no interrupt after transmitting a telegram. Values xx, yy and zz indicate in which status the Ring was and, in particular, if a transmit or receive interrupt was expected.

The message is normal for Ring breaks. It appears only under severe diagnostics ($S,TRBI=1000).

**Action**

If the message occurs frequently, then replace the associated SDLC chip or SDLC controller.
**TYP=xxx , IDC=yyy => Operational**

**STAP TYP 00:00:00 NAME**

->DEVINI (M.INB1)

**Explanation**

If the identification (IDC) changes and with it the TYP of a point, then this change is reported. This message is normal for the first switch-on of modules or a PS.

**Action**

None.
UA lost, reference cleared!

PNAM 00:00:00 NAME UA lost, reference cleared!
-->DEVINI (M.UASF)

Explanation
User addresses of points are not stored in the process image, but in an auxiliary list called UAL (UAL=User Address List). The IPSU search program has optimum access to the UAL through a reference.

The message is a result of some unclear malfunction (e.g., defective disk, power loss at an inopportune moment, etc.) which has caused the loss of a user address of point NAME from the UAL. The associated reference to the process image, although still existing at the time, is now cleared.

Action
With VE,UAL or UAX,VE verification or by restarting the DC Servers with BOO,W, the UAL and the process image will be cleaned up. Afterwards the point with its user address must again be added (which restructures the reference).
unexpected timeout! step=xxx=text

Explanation
During the multi-step initialisation phase of a PS, the PS no longer answers. After expiration of a specified time (timeout), the message appears. The initialisation step in progress is aborted. The initialisation, among other things, continues on with the next step.

Action
Repeat the aborted initialisation step.
unit switch abnormal

In backup DC Servers with a disk changeover unit, the automatic function can be checked. The procedure is, however, not always a smooth one: Changeover takes place with associated initialisation (system boot).

The procedure is started on computer A at point $SY$ with parameter $SHAD=mABA$.

If the automatic function fails, the above message appears.

Possible causes include:
- Rotary switch not in the “Automatic” position.
- Disk changeover switch not in position “N”.
- DC Server B not OK, i.e., inactive, although the shadow is switched on, (SHAD=ON in $S$).
- Wiring mistake.

Action
Check and rectify.
Unit=xx; yy/zz  Bad Disk transfers .......

Explanation

During transfers to and from the disk unit xx, yy of zz (zz=1000) data transfers have to be repeated. With an active severe Ring diagnostic ($S,TRBI=200), the error rate is reported as yy/10000.

The causes for bad data traffic with a disk include the following:
- Disk having bad sectors.
- Contact problems between disk unit and controller.
- Faulty disk controller if both disk drives exhibit the same conditions.
- Strong interference on the mains.

Note

There is no data loss when this message appears since bad data block transfers are repeated up to eight times.

If the error rate of the message begins to increase, it is a warning that increasing difficulties can be expected with the disk.

Action

- Check the connecting cable for breaks and pinched insulation.
- Replace the disk controller
- Reformat the disk drive.
Unknown Identification: xxx

**Explanation**
Terminal NAME has reported an unknown self identification. xxx represents the unknown identification sequence without the preceding <ESC>\ (octal).

This message is caused by connecting a terminal that is not yet supported by the VISONIK DC Server.

**Action**
Check the identification with trace. If unknown, then please inform Landis & Staefa FS&PM.
If the terminal is a display unit, parameter TYX=. can be set. This switches the terminal to NORMAL and inhibits the identification.
user NAME. twice in UAL, verify with .......

PNAM 00:00:00 NAME user NAME. twice in UAL, verify with UAX, VE or BOO, V

Explanation
As a result of some malfunction (e.g., faulty disk, power failure at an inopportune moment, etc.), a user address has been entered twice in the UAL (User Address List). This user address causes the message to appear upon later access to the associated point.

Action
The UAL is automatically corrected by verifying the UAL list using UAX, VE or by starting the DC Server with "BOO, V".
uuu,vvv www : xxx,yyy error=zzz TA=....

PNAM 00:00:00 uuu,vvv www : xxx,yyy error=zzz

TA=... R0=aa R1=bb R2=cc

Explanation

uuu=PC program counter
vvv=Stack@
www=Program name (Typ) see below

Type AAA2 messages

error=1 R0=TA, R1=C.xpn=par#

Explanation
G.ptm: TA not found
SW Error (Application)

Action
Please collect these messages and forward them to Landis & Staefa FS&PM.

error=2 R0=TA

Explanation
GIM$: illegal IM seg from IM index
VE,IM can help.

Action
Please collect these messages and forward them to Landis & Staefa FS&PM.

error=3 R0=TA, R1=bad DSW

Explanation
Optimised-access trouble
SW Error (AAA2)

Action
Please collect these messages and forward them to Landis & Staefa FS&PM.

error=4 R0=TA

Explanation
TA not in IM seg given by IM index
VE,IM can help.

Action
Please collect these messages and forward them to Landis & Staefa FS&PM.

Type AAAD messages

error=1 R0=DSW

Explanation
(UAL/UML/ZKL) index error

Action
Please collect these messages and forward them to Landis & Staefa FS&PM.

error=2

Explanation
Illegal WP detected (UAL,UML,ZKL), SW Error

Action
Please collect these messages and forward them to Landis & Staefa FS&PM.

Type FACC messages

error=1 R0=DSW, R1=file#

Explanation
#bad file# or bad DSW

Action
VE,UAL
VE,UML
### Type IOX4 messages

**error=1 R0=x**

**Explanation**

#$Tx: ADDP channel, Partner PS missing (SL.lus)

**Action**

Check the software configuration of the connecting channel.

---

**error=2 R0=x**

**Explanation**

#$Tx: ADDP channel, rx buffer too small.

**Action**

Check the software configuration of the connecting channel.

---

**error=3**

**Explanation**

#same as error=1, detected in AD$IDO

**Action**

Check the software configuration of the connecting channel.

---

**error=5 R0=x, R1=Parter PS**

**Explanation**

#$Tx: Modem, G$DL11 with Carry set

**Action**

Please collect these messages and forward to Landis & Staefa FS&PM.

---

**error=13 R0=x, R1=Parter PS**

**Explanation**

#$Tx: Tele Terminal busy, please wait.

**Action**

Please collect these messages and forward to Landis & Staefa FS&PM.

---

**error=14** same as error=5, but detected in DIAG

---

### Type IPSU messages

**error=2**

**Explanation**

#TA$ual: illegal UAL reference

--- big search through UAL

**Action**

Occurs often if there are many UA entries or changes.

Start VE,UAL with a lower system loading (can take several hours). If unsuccessful, collect such messages and forward them to Landis & Staefa FS&PM.

---

**error=3 R0=TA**

**Explanation**

#TA$ual:

UA found with big search

**Action**

Occurs often if there are many UA entries or changes.

Start VE,UAL with a lower system loading (can take several hours). If unsuccessful, collect such messages and forward them to Landis & Staefa FS&PM.

---

**error=4 R0=TA**

**Explanation**

#TA$ual: TA no longer exists

**Action**

Occurs often if there are many UA entries or changes.

Start VE,UAL with a lower system loading (can take several hours). If unsuccessful, collect such messages and forward them to Landis & Staefa FS&PM.

---

### Type SYN1 messages

**error=1**

**Explanation**

text segment with illegal BL detected

**Action**

Please collect these messages and forward them to Landis & Staefa FS&PM.
Type TIX messages

**error=1**  R0=PS
Explanation
#X$PS fails to start application
--> pending loop
Action
Please collect these messages and forward them to Landis & Staefa FS&PM.

**error=2**  R0=PS
Explanation
#mr timeout detected!
Action
Please collect these messages and forward them to Landis & Staefa FS&PM.

**error=3**  R0=fail PS, R1=delta time [sec]
Explanation
#Background Poll Timeout between 2 PS
Action
Please collect these messages and forward them to Landis & Staefa FS&PM.

**error=4**
Explanation
#Background Poll Timeout over all PS
(> 20 minutes)
Action
Please collect these messages and forward them to Landis & Staefa FS&PM.

Type TYPO messages

**error=1**  R0=bad Link PS
Action
Please collect these messages and forward them to Landis & Staefa FS&PM.

Type USI1 messages

**error=1**  R0=PS step, R1=PS Number
Explanation
#ZA timeout for illegal step
Action
Please collect these messages and forward them to Landis & Staefa FS&PM.
value=xxx  par#=zz

**Explanation**

Data of a trace message in conjunction with data processing. This trace message can be activated via the HITA,TALO (in $S) parameter. It is used for diagnostics and shows the events that write data in the DM FILE.

**Action**

This message can be activated or deactivated using $S,TALO and HITA.
vv[TXU]; OFLM: xx[TXU];  

vv[TXU]; OFLM: xx[TXU];  

yy NAME  

Automatically switching Insufficient  

Additional Switch-off by Hand zz[TXLSU]  

Example  

LSP LS 00:00:00 $1'000 131 kWh; OFLM: 129 kWh; k.o. 

$1'000 Automatic switching Insufficient 

Additional switch-off by Hand 31 kWh  

Explanation  

The peak demand program has difficulties. 

vv = Parameter LS (with units)  

xx = Currently valid switch-off limit  

yy = ERSTA (as text: 'k.o.' for 'knocked out')  

zz = Load (with units), that still has to be shed by the LS program so that the demand peak remains within the allowed range.  

Action  

The messages appear on terminals that are defined in the DEVLS parameter of the LS point.  

When this message appears it means that the peak demand program has shed all the load available to it in accordance with the LSP catalogue. It, however, must shed an additional zz amount of load in order to reach the desired level.  

Short term action:  

The plant operator can manually reduce or switch off some plant so that the demand sinks below the value required by the LSP catalogue. The operator alone is responsible for reconnecting such loads.  

If the operator takes no action, there is no guarantee that the LSP program target will be met. 

Long term action:  

The peak demand program moves to the 'k.o. situation' because it has to shed more load than is allowed by the peak demand catalogue. If the message occurs frequently, the operator should try to adapt to the situation by making additional entries in the peak demand catalogue. 

The LS parameter LSL can be used to suppress 'k.o. situations or the above message provided z < LSL.
This message only appears if \$SY,TRBI=20000. It documents the data packet zzz which is currently being transferred in 'SaFi' or 'LoFi' (vvv) file transfer mode.

The following data packets are transferred by 'SaFi' and 'LoFi' and stored in or fetched from file xxx:

zzz stands for the following texts:

- TSK1..199  ->  all user tasks 1 to 199
- TSK252..254  ->  the 3 reaction tasks 252 to 254
- Proc  ->  All procedures
- Sysvar  ->  System variables
- Phon  ->  Telephone parameters
- TERM  ->  Parameters of interfaces 1 to 3
- Txt  ->  Clear text catalogue
- Unt  ->  Units catalogue
- CVP  ->  Conversion parameter sets
- Zon  ->  Optimised zones
- PLT15..  ->  System points >7
- WDC..SDC  ->  Weekday catalogue
  Override catalogue
  Special day catalogue

Also see the description of the O parameter.

Action: None.
WRK: BAD TIMING!! SECCNT=xx ........

Explanation
Measuring all operating hours in all maintenance reaction entries is derived from an internal seconds counter. Because of some malfunction, the seconds counter is out of synchronism with the clock.

Note that this can occur once upon startup following installation of a new software version or upon uploading a backup version of the message (perhaps also after a normal boot).

SECCNT = System seconds counter
WSECC = General WRK seconds counter
WSBLK = Seconds counter of the WRK entry.

Action
If this message occurs repeatedly, please contact Landis & Staefa FS&PM, otherwise ignore.
**Xxx Aborted**

**STAP TYP 00:00:00 NAME xxx Aborted**

-->DEVINI (M.DXAB)

**Explanation**

No transport connection to the PS ‘NAME’ can be made for carrying out the “xxx” backup operation, e.g., because the PS is busy with another user or the data line (telephone) being used is poor. After five attempts the operation is considered as failed and is aborted. The message only appears with switched on diagnostics (DIAG parameter in the PS point).

**Action**

Check the data connection to the PS or check the PS itself. Then restart the operation.
**Xxx  Bad Application Sequence by**

**STAP TYP** 00:00:00 **NAME**  xxx Bad Application Sequence by
---DEVINI (M.DXEE)

*Explanation*

The data of the 'xxx' backup operation were not received in the correct sequence.

*Action*

Check configuration and possibly notify Landis & Staefa FS&PM.
The 'xxx' backup operation cannot be set at the 'NAME'PS.

Action
Check configuration. Possibly send a copy of the message to Landis & Staefa FS&PM.
Xxx ended

STAP TYP 00:00:00 NAME xxx ended
->DEVINI (M.DXED)

Explanation
This message only appears if $SY.TRBI=20000. It is output if one of the following data transfer programs xxx (which are managed through the O or OPLS parameters) has completed processing:
- Macq  -> Message Acquisition
- Dacq  -> Data Acquisition
- SaFi  -> Save PS Configuration in its backup file
- LoFi  -> Load PS Configuration from its Backup File

Action
None.
Xxx breaks down because RAM is full

**Explanation**
The currently running 'xxx' backup operation cannot load further because the RAM of the 'NAME' PS has become full.

**Action**
Reduce data quantity and restart the operation.
**Xxx Events per hour**

**STAP TYP 00:00:00 NAME [TXI] [TXI2] xxx Events per hour**

->MSGDEV (M.EVOV)

**Explanation**

A event limit of 5000 events per hour is set in the process stations.

If this event limit is exceeded by a process station, then it will be indicated with this message, where NAME specifies the process station and xxx the number of events.

The limit can be changed by Landis & Staefa only.

**Action**

Use ARC,ARCM to help determine the cause of the event overflow and eliminate.

**Example**

```
... PS 16:00:45 Z'B06'S04'K01"EKX Heating Central North Wing 5123 Events per hour
```

**See also**

Parameter EVTO

**Example**

```
... PS 16:00:45 Z'B06'S04'K01"EKX Heating Central North Wing 5123 Events per hour
```

**See also**

Parameter EVTO
xxx fff, eee at zz

PNAM 00:00:00
-->DEVINI (M.FPMP)

Initiated by:
This message is part of the FPMP Mathematics Package and can be started by programs that carry out calculations, such as, e.g., LSP, OSTP, COLBAS etc.

Explanation

When calculating expressions, illegal results were obtained or computer operations could not be executed. The zz value of the PC (program counter) indicates the relevant location within the program that is running.

If a COLBAS task initiated the message, then the PC is not specified, rather the task number (tt) and line number (nn) directly.

xxx can appear as follows:
- "Unknown statement"
  (Floating opcode error)
- "Real division by zero"
  (Floating divide by 0)
- >I:Real too large"
  (Floating to integer conversion error)
- "Exponent too large"
  (Floating overflow)
- "Exponent too small"
  (Floating underflow)
- "Undefined variable"
  (Floating undefined variable)

fff, eee are the two FPMP operands.

Action

If a COLBAS program is the cause of the FPMP error, then the program must be corrected. In all other cases Landis & Staefa must rectify the fault.
Initiated by:
This message is part of the FPMP Mathematics Package and can be started by programs that carry out calculations, such as, e.g., LSP, OSTP, COLBAS etc.

**Explanation**
When calculating expressions, illegal results were obtained or computer operations could not be executed. The zz value of the PC (program counter) indicates the relevant location within the program that is running.

If a COLBAS task initiated the message, then the PC is not specified, rather the task number (tt) and line number (nn) directly.

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  (Floating to integer conversion error)
- "Exponent too large"
  (Floating overflow)
- "Exponent too small"
  (Floating underflow)
- "Undefined variable"
  (Floating undefined variable)

fff, eee are the two FPMP operands.

**Action**
If a COLBAS program is the cause of the FPMP error, then the program must be corrected. In all other cases Landis & Staefa must rectify the fault.
xxx Jumped over 'yyy'

**STAP TYP  00:00:00 NAME   xxx Jumped over 'yyy'
                               (M.SKIP)**

**Explanation**

Depending on the type of PS (EKL X, PRV1 or BPS), the 'xxx' backup operation jumps over specific commands 'yyy' or command areas 'yyy zzz'. This happens because, while the control table for loading holds all commands, not all PS types need all data. The message appears only for activated diagnostics (parameter DIAG in the PS point).

**Action**

None.
xxx Out of Order

STAP TYP 00:00:00 NAME [TXI] [TXI2] xxx Out of Order
->MSGDEV (M.OST1)

**Explanation**

Measurements from address NAME, which is assigned as an input reference value of an OSTP zone (parameter SIDTO), are wrong. As a result, OSTP cannot smoothly follow the inside or outside temperature.

Nevertheless, in order to run the zone involved in a seemingly functional way, the following rules apply:

- Incorrect inside temperature values are ignored and replaced by the zone setpoint value.
- Zone switches to OFF or COMFORT depending on the phase used.

Incorrect outside temperature values are ignored and taken to be 4 degrees C.

- Zone switches to OFF or COMFORT depending on the phase used.

The message appears once per faulty measurement point. As soon as the fault is eliminated, the correct values are again logged. No further messages then appear.

**Action**

Localise fault and eliminate.
**xxx started**

**STAP TYP 00:00:00 NAME xxx started**

->DEVINI (M.DXBE)

**Explanation**

This message only appears if $SY,TRBI=20000. It is output when one of the following data transfer programs xxx, as managed by parameter O or OPLS, has started its transfer:

- **Macq**  --> Message acquisition
- **Dacq**  --> Data acquisition
- **SaFi**  --> Save PS configuration in its backup file
- **LoFi**  --> Load PS configuration from its backup file

**Action**

None.
Invalid!

```
STAP TYP 00:00:00 NAME [TXI] [TXI2] XXX Invalid!
->DSMn (M.OIMW)
```

**Explanation**
Parameters XXX (SIDTO) of the OSTP Zone NAME have no legal point address. Either the point, which provides the inside or outside temperature, is not configured or it is an illegal type of point (e.g., switch command).

The message is printed out upon every OSTP program pass as a warning.

**Action**
Assign legal addresses to the SIDTO parameters.
xxx Jumped over 'yyy zzz'

STAP TYP 00:00:00 NAME     xxx Jumped over 'yyy zzz'
->DEVINI (M.SKIP)

Explanation
Depending on the type of PS (EKL X, PRV1 or BPS), the 'xxx' backup operation jumps over specific commands 'yyy' or command areas 'yyy zzz'. This happens because, while the control table for loading holds all commands, not all PS types need all data. The message appears only for activated diagnostics (parameter DIAG in the PS point).

Action
None.
**Xxx will be repeated due Error No. #yyy**

**STAP TYP** 00:00:00 **NAME** xxx will be repeated due Error No. #yyy

**Explanation**
A backup operation 'xxx' cannot be executed because no connection can be made to the PS (e.g., modem busy with a telephone connection). The message can also appear during execution of the 'xxx' backup operation if a 'yyy' error occurs.

**Action**
None. The 'xxx' operation is automatically repeated.
xxx will be repeated because BPS Busy

STAP TYP 00:00:00 NAME xxx will be repeated because BPS Busy
        ->DEVINI (M.REPT)

Explanation
A backup operation 'xxx' cannot be executed because no connection can be made to
the PS (e.g., modem busy with a telephone connection). The message can also appear
during execution of the 'xxx' backup operation if a 'yyy' error occurs.

Action
None. The 'xxx' operation is automatically repeated.
xxx/yyy noise   NOLI = zzz

STAP TYP 00:00:00 NAME   xxx/yyy noise   NOLI = zzz
->MSGDEV   (M.RPER)

**Explanation**

More than xxx/yyy telegrams have been corrupted on the Ring NAME, i.e.,
- The CRC sum of a telegram is incorrect.
- The telegram length was shorter than 32 bits.
- A telegram has been received whose length was not a multiple of 8 bits.
- An interrupted telegram was received (telegram contains an abort character).

A "Noise" message appears only if the threshold 'zzz' has been exceeded (NOLI in point $Rx). It is independent of the diagnostic level ($S,TRBI) set. The threshold is normally one per thousand, but can be individually increased for each Ring up to a maximum of 20 per thousand using parameter NOLI.

When this threshold is violated, two noise detection methods are automatically switched on. Both these methods can almost certainly localise the noise source. If there are several noise sources, localisation may prove difficult.

One method reports with the following text: "probably near PS yyy", indicating that the noise source is not exactly localised, but lies either before or after yyy. The other method reports with "immediately after PS yyy", which localises the noise source relatively accurately.

Using both methods of localisation allows locating the noise source without any special instruments.

The message "immediately..." can certainly occur before at least 1000 telegrams have been received (e.g., 21/580).

Note also that "distorted telegrams" is not the same as "loss of information". Distorted telegrams are automatically repeated until they are received correctly. Thus a noisy Ring loads the system more because the same information must be sent/received a number of times.

Possible causes of Ring noise include:
- Incorrect Ring wiring (reversed polarity).
- Ring cable not having twisted pairs or twisted quad cores.
- Pinched wiring insulation.
- Faulty process station which is distorting the telegrams.
- Incorrect PS baud rate.
- EKL P, EKL C or V24/FSK converter operating at a baud rate of 4800 (only possible if they are suitably modified).
- Loose contact.
- Modem link.
- Crosstalk between outgoing and return lines.

**Action**

Noise sources are (almost) always found in the hardware or along the transmission path.

If the fault is not in obvious wiring errors or incorrect settings, it must be localised by Landis & Staefa Service.
xx(yy) No Output possible after zz

STAP TYP 00:00:00 NAME   xx(yy) No Output possible after zz
       -->MSGDEV (M.FSX9)

Explanation
System yy of a link system attempts to make an output (e.g., reaction picture) using function xx (e.g., FSG) to the terminal. The terminal is not accessible, but the system has not (yet) recognised it as defective.

Action
Switch on/check the terminal. It may have happened that the terminal was switched off without cleanly quitting the application. In this case it is sufficient that the terminal be switched on so that the DC Server again can see the terminal and bring the running, faulty update to a halt.
xx=yy  Suppressed !

Initiated by:
Reaction programs ZRK and DRK

Explanation
During a system time jump forwards, reactions ZRK and DRK, that were to be executed
during the time jumped over, are belatedly updated (the so-called catch-up logic).

For catch-ups of macro commands in reaction entries, the length of the time jump is
additionally checked. If the time jump exceeds two hours, then the execution of the
macro command is suppressed.

The macro command that is (currently) being suppressed is specified in this message:
xx is the macro text number and yy the text itself.

Action
None.
If need be, initiate the desired macro manually.
**yyy with unauthorized Backup Version**

**STAP TYP** 00:00:00 **NAME** yyy with unauthorized Backup Version

->DEVINI (M.BILV)

**Explanation**
During the 'yyy' backup operation it was determined that the version of the data backup in the file of the PS 'NAME' was not compatible with the version of the associated PS. A data backup of an EKL X, e.g., cannot be loaded in a BPS.

**Action**
Delete the backup file (function EDI,DEL). Then newly create the data backup of the PS 'NAME' using the 'SaFi'operation.
z: a,b    x:c,d R0..R4:    e,f,g,h,i

PNAM  00:00:00  
  -->DEVINI  (M.FAT3)

Initiated by:
Any program can initiate this message.
z:  -->  Program name
a,b  -->  Offset
x:  -->  Additional information to the
  c,d  -->  program names
R0..R4  -->  Register
e,f,g,h,i  -->  Register contents

Explanation
This message is "a dogsbody". It indicates the occurrence of an unexpected, but not serious condition within a program.
The format of this message depends on $SY,TRBI:
TRBI=2000   The message is stored, as shown here, in the ZMS, but printed on the
  DEVINI device as a diagnostic dump (100 Pe=...). During the boot phase such messages always appear as 100s
  diagnostic dumps.

Action
Collect the messages and send to Landis & Staefa FS&PM for clarification.

Messages also appear at the VISONIK DC Server that are not marked with a program name. The majority of these message types should be interpreted as warnings.
Feedback form

Please give us your opinion of this document and help us improve it. Thank you!

Evaluation:  $\square$ 1 = always true,  $\square$ 2 = partially true,  $\square$ 3 = not true
Please cross as applicable.

Please tell us who you are:
Last name: ....................................... Address: ........................................................................
First name: ....................................... Country: ......................................................................
Company: ........................................ Department: ........................................
Function: ........................................ E-mail: ..............................................................

1. I am familiar with the product described:  $\square$ 1  $\square$ 2  $\square$ 3

2. I use this manual for:
   $\square$ Operation  $\square$ Engineering
   $\square$ Reference  $\square$ Assembly
   $\square$ Introduction  $\square$ Installation
   $\square$ Basics  $\square$ Commissioning
   $\square$ Problem solving  $\square$ Service
   $\square$ New functions  $\square$ ..........................................................

3. How do you locate information in this manual?
   Table of contents  $\square$ Paging
   Index  $\square$ ..........................................................
   I could not find: ........................................................................................................

4. I use the following from this manual:
   Workflows  $\square$ Function descriptions
   Background information  $\square$ Technical data
   Detailed information  $\square$ Safety notes
   Tips and tricks  $\square$ Troubleshooting
   The following is missing: ..........................................................................................

5. The level of technical detail meets my requirements:  $\square$ 1  $\square$ 2  $\square$ 3
   Example (page....): ..........................................................

6. I find the information I need within an appropriate time:  $\square$ 1  $\square$ 2  $\square$ 3
   Example (page....): ..........................................................

7. Text/graphics/tables are easy to understand:  $\square$ 1  $\square$ 2  $\square$ 3
   Example (page....): ..........................................................
   Error (page....): ..........................................................

8. I particularly like: ........................................................................................................
   ............................................................................................................................... ............

9. I particularly dislike: ..................................................................................................
   ............................................................................................................................... ........

10. The overall impression (structure, layout) is attractive:  $\square$ 1  $\square$ 2  $\square$ 3

11. May we contact you directly?  $\square$ Yes  $\square$ No
Please return the completed form to the following address:

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