This data sheet provides the following information:

- Overview of unit types, connections, and accessories for the VISONIK Building Process Station (hereafter referred to as VISONIK BPS)
- Technical data on bus systems as well as wiring the BPS on the Building Level Network (SDLC-Ring)
- Engineering notes and overview of functions to generate application programs.

## Use

### Field of application

The VISONIK BPS is used in Commercial Buildings for sophisticated HVAC and related tasks as follows:

- as an independent unit within a building automation system or as a separate unit via remote operation
- together with other process stations on a Building Level Network (BLN) with or without a Master VISONIK station
- as Master to integrate individual room controllers or standard process units via the Floor Level Network (FLN)

### VISONIK system family

The Building Process Stations can be used in VISONIK systems starting from version V12 and they are downward compatible.

## Functions

The VISONIK BPS primarily serves to perform the following functions:

- controlling, regulating, and supervising tasks (DDC-applications)
- exchanging process-related data via:
  - Process bus (P-bus) to the I/O-modules
  - Floor Level Network (FLN) to the Terminal Equipment Controllers (TEC) as well as the AEROGYR RWI ventilation controllers
  - MONOGYR bus (M-bus) to MONOGYR units.
- displaying process values at the BPS and executing issued commands in accordance with the active POP Card (Personal Operation Process Card)
- communicating with directly connected peripheral devices for operation (PC, Terminal) or printing (printer)
- data communication between partner stations on the Building Level Network (peer-to-peer) or via modem (remote operation)
- exchanging data with the higher VISONIK Data and Communication Server and the graphical display VISONIK Insight via BLN or modem.
## Type summary

### Basic unit PRV2.00
- **PRV2.00** for CFE-applications and as an FLN-communication master (P-bus I/O-modules cannot be connected to the basic unit PRV2.00)
- **PRV2.32** for P-bus I/O-modules and max. 32 LU *)
- **PRV2.64** for P-bus I/O-modules and max. 64 LU
- **PRV2.128** for P-bus I/O-modules and max. 128 LU

*) LU = Load unit, 1 LU = 12.5 mA. The PRV2.32, 64, and 128 all contain power supplies allowing to connect I/O-modules up to a total load of 32 LU, 64 LU, or 128 LU.

### Note
Please refer to data sheet N8411 for supplemental data on the basic unit.

### Cards
- **COM1 Card** for Building Level Network (SDLC) and TTY1 and TTY2
- **COM2 Card** for Floor Level Network (FLN) and M-bus
- **Program card** with system software

*) The version indication /Vxx is part of the ASN-number and must be indicated when ordering; e.g., PVA3.01/V14 (/Vxx corresponding to the current version).

### Note
Required cards as well as all other accessories must be separately ordered and will be delivered accordingly.

A VISONIK BPS requires at least one PVA3... program card.

### Accessories
- **Terminal block II** for FLN and M-Bus (10 blocks) and TTY1 and TTY2 (4 blocks)
- **Baseplate for wall mounting** (10 pieces)
- **SDLC-Ring terminator** (10 terminators)
- **Address keys** 1...16 for I/O-modules
- **Address keys** 1...32
- **Address keys** 33...64
- **Address keys** 65...96
- **Address keys** 97...112
- **Modem cable with D-plug 25-pin f/m, RXD/TXD straight**
- **Tool cable for V24/V28 and BLN/FLN on ISDN-plug**
- **Adapter with RJ45 connection socket on TTY3 tool interface**
- **Adapter with D-plug 25-pin f connection to TTY3 tool interface**

### Service cards
- **POP-Card BPS operation in German**
- **POP-Card BPS operation in English**
- **POP Card pre-printed project cards, paper** (250 sheets)
- **POP Card pre-printed project cards, plastic** (100 sheets)
- **Card holder** (100 pieces)
## Technical data of the bus systems

### Building Level Network (SDLC-Ring)

Connection to card COM1, types PVC1.1S or PVC1.1ST

<table>
<thead>
<tr>
<th>Transmission speed</th>
<th>2400, 4800 bps</th>
</tr>
</thead>
<tbody>
<tr>
<td>canned in BPS</td>
<td>4800 bps</td>
</tr>
<tr>
<td>Ring cable connection</td>
<td>to terminal block III</td>
</tr>
<tr>
<td>Ring cable</td>
<td>screened, 4-core twisted</td>
</tr>
<tr>
<td>min. 0.6 mm 2, 1 x 4 or 2 x 2</td>
<td>8-core or 6-core twisted</td>
</tr>
<tr>
<td>Ring cable with field phone</td>
<td>120 Ohm at 100 kHz</td>
</tr>
<tr>
<td>min. 0.6 mm 2, 2 x 4 or 3 x 2</td>
<td></td>
</tr>
<tr>
<td>Ring cable impedance</td>
<td>for each individual BPS</td>
</tr>
<tr>
<td>SDLC-signal amplification</td>
<td>max. 1000 m</td>
</tr>
<tr>
<td>distance between two stations</td>
<td>max. 2000 m</td>
</tr>
<tr>
<td>ring length without signal amplification</td>
<td>to terminal block III</td>
</tr>
<tr>
<td>Field phone connection</td>
<td>see Mounting and Installation Handbook M8017</td>
</tr>
<tr>
<td>Topology: ring</td>
<td></td>
</tr>
</tbody>
</table>

### Process bus (P-bus)

Connection to basic unit, terminal block I

| Transmission speed | 62500 bps (fixed) |
| Read/write cycle for all I/O-points | 0.5 sec |
| Connection for bus lines | to terminal block I |
| Line length: | unscreened |
| For wiring with 3-pin round cable | max. 50 m |
| length of all sections, 1.5 mm² | max. 30 m |
| length of all sections, 1.0 mm² |
| For wiring with 1-pin coaxial cable | cable type RG-62 A/U |
| (1 cable each for data PD and Clock PC, both screenings for reference voltage PU) | max. 200 m |
| length of all sections for max. 50 I/O-modules | see data sheet 8022 |
| Topology: line, star, tree configurations |

### Floor Level Network

Connection to COM2 card, type PVC2.1F

| Physical Layer | fully compatible with Profibus |
| Transmission speed | 19200 bps (fixed) |
| Transmission level to | RS485 |
| Round cable connection | to terminal block II |
| Round cable 2-pin, polarity dependent | screened |
| length of bus segment | max. 1200 m, spur lines inclusive |
| length of all spur lines | max. 500 m |
| length of one spur line | max. 250 m |
| Multiple bus length | max. 3 repeaters in series |
| Total length between 2 FLN-devices | max. 4800m (4 bus segments) |
| Network topology | see data sheet 8026 |

### MONOGYR bus

Connection at COM2 card, type PVC2.2M

| Transmission speed | 1024 bps (fixed) |
| Round cable connection | to terminal block II |
| Round cable 2-pin | unscreened |
| line length at 1.5 mm² | max. 1500 m |
| line length at 1.0 mm² | max. 1000 m |
| Topology: line, star, tree configurations | see data sheet 8277 |
Engineering notes

Selecting the station type

Use the table below to select the station type:

<table>
<thead>
<tr>
<th>Station type</th>
<th>Use</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRV2.32</td>
<td>Building Process Station with P-bus and I/O-modules</td>
<td>The sum total of the load units LU for all connected I/O-modules determines the station type; refer to section &quot;Type summary&quot; ¹</td>
</tr>
<tr>
<td>PRV2.64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRV2.128</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRV2.00</td>
<td>FLN or MONOGYR-Master CFE-applications without connecting I/O-modules</td>
<td>If a supplemental P-bus with I/O-modules is connected, use the station types PRV2.32, 64, 128 ²</td>
</tr>
</tbody>
</table>

Note

¹ If you dimension VISONIK-System using the PC software package European Tool Set (ETS), the tool proposes the appropriate station type.

² We recommend using separate stations.

Program card

Data sheet 8317 provides information on selecting the program card PVA3....

I/O-module points

Number: Up to 224 I/O-module points can be generated in the BPS

Addressing: Using the address keys 1 through 112

Note: I/O-modules and address keys must be ordered separately

Application programs

Generating

Application programs are generated using the software packages VISOTOOL AUTOGEN or European Tool Set by combining pre-defined and tested function blocks derived from program libraries. Free programming using COLBAS *) is also possible resulting in customer-specific, special applications.

*) COLBAS = Control Oriented Language for Building Automation Systems

DDC-Standard functions

The Building Process Station provides all basic functions to control, regulate and supervise HVAC plants.

Supplemental functions

In addition to the DDC standard functions the following functions are available:

- Plant control via plant point
- DISPATCH-Function (selecting and distributing values)
- SEQ-Function (sequence and cascade regulators)
- STR-Function (Self Tuning Regulator)
- Hours run meter
- Network restoration program
- Optimum Start/Stop Program OSTP
- Time switch programs with weekday, exception day, and special day catalogues
- Daylight Saving Time/Wintertime changeover programmable or as per EU standards
- Definition of time zones with link systems
- Event-oriented response programs (event handling)
- Message buffer, statistics, and data processing
- Remote operation via telephone
- Connections to third party systems
- Report listings
- Fault and alarm messages to local printer, to the host system level, or to tele-printers (remote alarm)

POP Cards

The POP Cards which serve to locally operate the VISONIK BPS are created using the PC-Software package VISOTOOL Pop Card Editor.
The connection diagrams below illustrate principal wiring of a VISONIK BPS on the SDLC-Ring without field phone connection. More detailed instructions are provided in the Mounting and Installation Handbook M8017E.

Connection diagrams for the SDLC-Ring

Connection of a VISONIK BPS on the SDLC-Ring

W1 Cable type 4-core twisted 4 x 1, star-4
W2 Cable type twisted pair 2x 2
1A IN A (SDLC-Ring)
2B IN B
3A OUT A
4B OUT B
7 Screened SDLC-Ring cable and earth conductor *)
III Terminal block III on the BPS (communication card PVC1....)
11A IN A (SDLC-Ring)
12B IN B
13A OUT A (amplified signals)
14B OUT B (amplified signals)
17 Screened SDLC-Ring cable and earth conductor *)

*) The terminals 7 and 17 must be used only to earth the SDLC-Ring cable’s screening. Both connections are internally connected via terminal block III. As a result, only one of them must be earthed. Connection G0 of the BPS power supply is not connected to these terminals.

Basic SDLC-Ring wiring

Wiring without ring signal amplification on return: Only for short ring lines!

Wiring with ring signal amplification on return.

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