

VISONIK®

# Building Process Station

Overview

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**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.**
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## 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.

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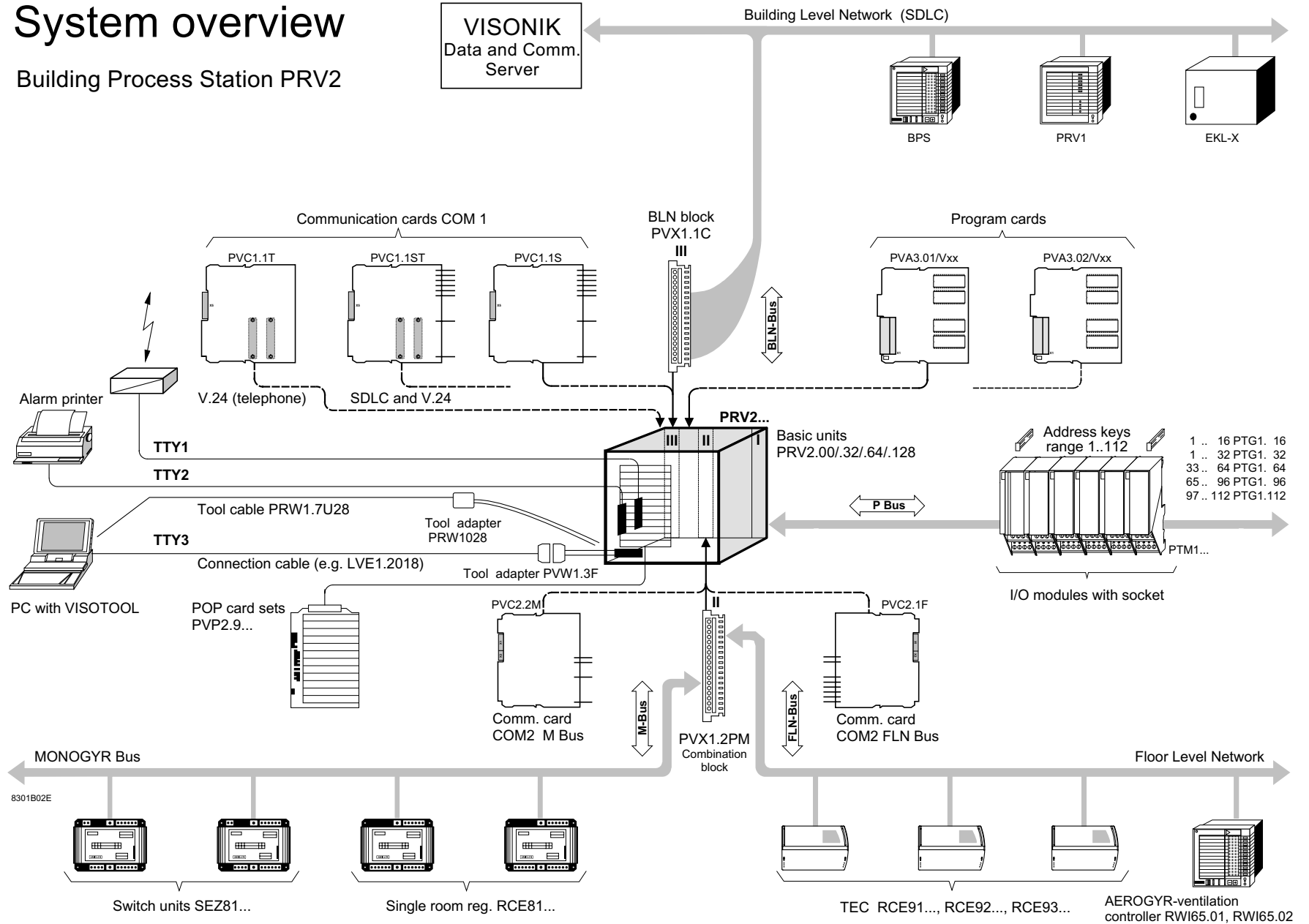
## Functions

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
  - MONOGR bus (M-bus) to MONOGR 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.

# System overview

## Building Process Station PRV2



## Type summary

### Basic unit PRV2. ...

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

<b>COM1 Card</b>	for Building Level Network (SDLC)	<b>PVC1.1S</b>
<b>COM1 Card</b>	for V.24 on TTY1 and TTY2	<b>PVC1.1T</b>
<b>COM1 Card</b>	for BLN and V.24 on TTY1 and TTY2	<b>PVC1.1ST</b>
<b>COM2 Card</b>	for Floor Level Network (FLN)	<b>PVC2.1F</b>
<b>COM2 Card</b>	for Monogyr bus (M-bus)	<b>PVC2.2M</b>
<b>Program card</b>	with system software	<b>PVA3.01/Vxx *)</b>
<b>Program card</b>	with system software	<b>PVA3.02/Vxx *)</b>

\*) 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)	<b>PVX1.2PM</b>
Terminal block III for SDLC and field phone	( 4 blocks)	<b>PVX1.1C</b>
Baseplate for wall mounting	(10 pieces)	<b>PRM1.1W</b>
SDLC-Ring terminator	(10 terminators)	<b>PVR1.180</b>
Address keys 1...16 for I/O-modules		<b>PTG1.16</b>
Address keys 1...32		<b>PTG1.32</b>
Address keys 33...64		<b>PTG1.64</b>
Address keys 65...96		<b>PTG1.96</b>
Address keys 97...112		<b>PTG1.112</b>
Modem cable with D-plug 25-pin f/m, RXD/TXD straight		<b>LVE1.2009</b>
Tool cable for V24/V28 and BLN/FLN on ISDN-plug		<b>PRW1.7U28</b>
Adapter with RJ45 connection socket on TTY3 tool interface		<b>PRW1.0U28</b>
Adapter with D-plug 25-pin/f connection to TTY3 tool interface		<b>PVW1.3F</b>

### Service cards

POP-Card BPS operation in German		<b>PVP2.9D</b>
POP-Card BPS operation in English		<b>PVP2.9E</b>
POP Card pre-printed project cards, paper	(250 sheets)	<b>PUP1.1</b>
POP Card pre-printed project cards, plastic	(100 sheets)	<b>PUP2.1</b>
Card holder	(100 pieces)	<b>PUP1.2</b>

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## Technical data of the bus systems

### Building Level Network (SDLC-Ring)

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

#### Data sheet 8311

Transmission speed  
canned in BPS  
Ring cable connection  
Ring cable min. 0.6 mm Ø, 1 x 4 or 2 x 2  
Ring cable with field phone  
min. 0.6 mm Ø, 2 x 4 or 3 x 2  
Ring cable impedance  
SDLC-signal amplification  
distance between two stations  
ring length without signal amplification  
Field phone connection  
Topology: ring

2400, 4800 bps  
4800 bps  
to terminal block III  
screened, 4-core twisted  
screened,  
8-core or 6-core twisted  
120 Ohm at 100 kHz  
for each individual BPS  
max. 1000 m  
max. 2000 m  
to terminal block III  
see Mounting and Installation Handbook M8017

### Process bus (P-bus)

Connection to basic unit, terminal block I

#### Data sheet 8411

Transmission speed  
Read/write cycle for all I/O-points  
Connection for bus lines  
Line length:  
For wiring with 3-pin round cable  
length of all sections, 1.5 mm<sup>2</sup>  
length of all sections, 1.0 mm<sup>2</sup>  
For wiring with 1-pin coaxial cable  
(1 cable each for data PD and Clock PC,  
both screenings for reference voltage PU)  
length of all sections for max. 50 I/O-modules  
Topology: line, star, tree configurations

62500 bps (fixed)  
0.5 sec  
to terminal block I  
unscreened  
max. 50 m  
max. 30 m  
cable type RG-62 A/U  
max. 200 m  
see data sheet 8022

### Floor Level Network

Connection to COM2 card, type PVC2.1F

#### data sheet 8312

Physical Layer  
Transmission speed  
Transmission level to  
Round cable connection  
Round cable 2-pin, polarity dependent  
length of bus segment  
length of all spur lines  
length of one spur line  
Multiple bus length  
Total length between 2 FLN-devices  
Network topology

fully compatible with Profibus  
19200 bps (fixed)  
RS485  
to terminal block II  
screened  
max. 1200 m, spur lines inclusive  
max. 500 m  
max. 250 m  
max. 3 repeaters in series  
max. 4800m (4 bus segments)  
see data sheet 8026

### MONOGR bus

Connection at COM2 card, type PVC2.2M

#### data sheet 8312

Transmission speed  
Round cable connection  
Round cable 2-pin  
line length at 1.5 mm<sup>2</sup>  
line length at 1.0 mm<sup>2</sup>  
Topology: line, star, tree configurations

1024 bps (fixed)  
to terminal block II  
unscreened  
max. 1500 m  
max. 1000 m  
see data sheet 8277

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## Engineering notes

**Selecting the station type** Use the table below to select the station type:

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

*Note*

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

<sup>2</sup> 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

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## 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)

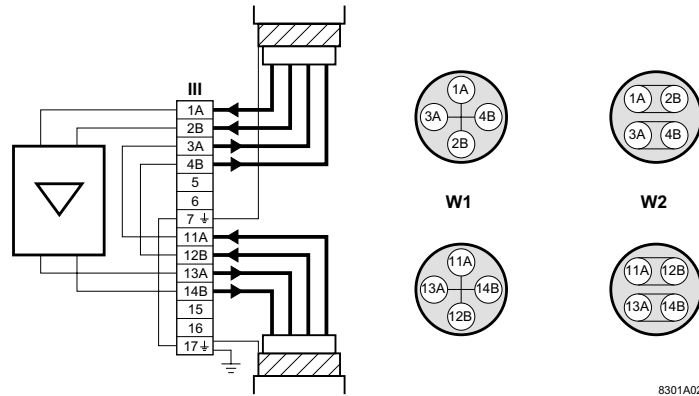
### POP Cards

The POP Cards which serve to locally operate the VISONIK BPS are created using the PC-Software package VISOTOOL Pop Card Editor.

## Connection diagrams for the SDLC-Ring

### Connection of a VISONIK BPS on the SDLC-Ring

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.



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

