

VISONIK®

Building Process Station

Overview

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

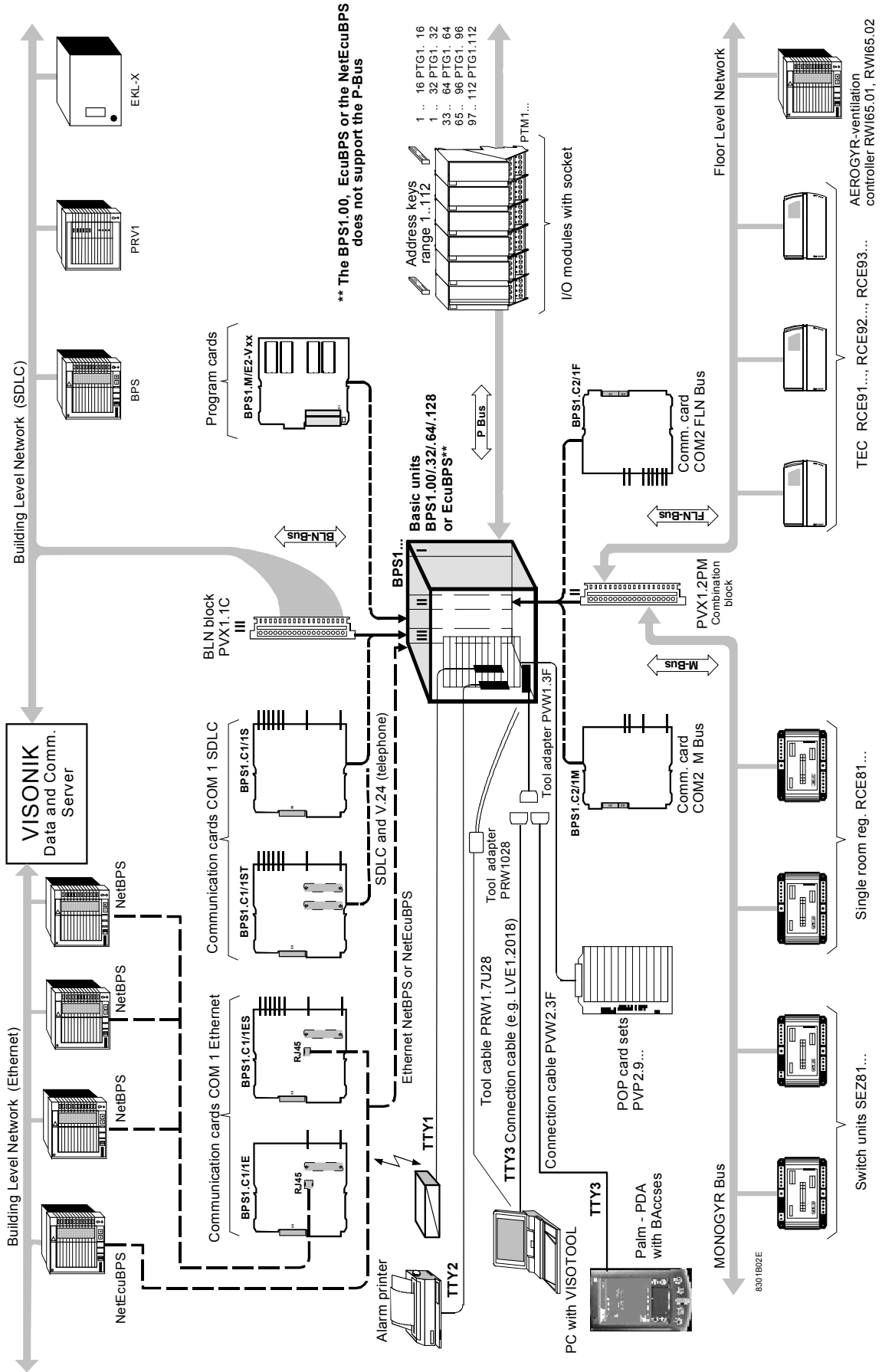
The building process stations can be used in VISONIK systems starting from version V12 and they are downward compatible.

Functions

The VISONIK BPS primarily serves to perform the following functions:

- Control and monitoring tasks (DDC applications).
- Exchange 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.
- Display process values at the BPS and executing issued commands in accordance with the active POP card (Personal Operation Process Card)
- Communicate with directly connected peripheral devices for operation (PC, terminal) or printing (printer)
- Data communication between partner stations on the building level network, Ethernet (peer-to-peer) or via modem (remote operation)

System overview BPS1



Type summary

Basic unit BPS1. ...	BPS1.00	For CFE-applications and as an FLN-communication master (P-bus I/O modules cannot be connected to the basic unit BPS1.00)	
	BPS1.32	For P-bus I/O modules and max. 32 LU *)	
	BPS1.64	For P-bus I/O modules and max. 64 LU	
	BPS1.128	For P-bus I/O modules and max. 128 LU	
	*) LU = Load unit, 1 LU = 12.5 mA. The BPS1.32, 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)	BPS1.C1/1S
	COM1 card	For BLN and V.24 on TTY1 and TTY2	BPS1.C1/1ST
	COM1 card	For building level network (Ethernet)	BPS1.C1/1E
	COM2 card	For floor level network (FLN)	BPS1.C2/1F
	COM2 card	For Monogyr bus (M-bus)	BPS1.C2/2M
	Program card	with system software	BPS1.M/E2-Vxx
	*) The version indication /Vxx is part of the ASN-number and must be indicated when ordering; e.g., BPS1.M/E2-V18 (-/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 program card BPS1.M/E2-Vxx.		
Accessories	Terminal block II for FLN and M-bus	(10 blocks)	PVX1.2PM
	Terminal block III for SDLC and field phone	(4 blocks)	PVX1.1C
	Baseplate for wall mounting	(10 pieces)	PRM1.1W
	SDLC ring terminator	(10 terminators)	PVR1.180
	Address keys 1...16 for I/O modules		PTG1.16
	Address keys 1...32		PTG1.32
	Address keys 33...64		PTG1.64
	Address keys 65...96		PTG1.96
	Address keys 97...112		PTG1.112
	Modem cable with D-plug 25-pin f/m, RXD/TXD straight		LVE1.2009
	Tool cable for V24/V28 and BLN/FLN on ISDN-plug		PRW1.7U28
	Adapter with RJ45 connection socket on TTY3 tool interface		PRW1.0U28
	Adapter with D-plug 25-pin/f connection to TTY3 tool interface		PVW1.3F
Service cards	POP card BPS operation in German		PVP2.9D
	POP card BPS operation in English		PVP2.9E
	POP card preprinted project cards, paper	(250 sheets)	PUP1.1
	POP card preprinted project cards, plastic	(100 sheets)	PUP2.1
Card holder	(100 pieces)	PUP1.2	

Technical data of the bus systems

Building level network (SDLC ring)	Connection to card COM1, types BPS1.C1/1S or BPS1.C1/1ST 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	data sheet 8314 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 Manual M8017
Process bus (P-bus)	Connection to basic unit, terminal block I 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 ² length of all sections, 1.0 mm ² 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	data sheet 8414 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 BPS1.C2/1F 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	data sheet 8315 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 BPS1.C2/2M Transmission speed Round cable connection Round cable 2-pin line length at 1.5 mm ² line length at 1.0 mm ² Topology: line, star, tree configurations	data sheet 8315 1024 bps (fixed) to terminal block II unscreened max. 1500 m max. 1000 m see data sheet 8277

Station type selection

Use the table below to select the station type:

Station type	Use	Notes
BPS1.32 BPS1.64 BPS1.128	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" ¹
BPS1.00	FLN or MONOGR-Master CFE-applications without connecting I/O modules	If a supplemental P-bus with I/O modules is connected, use the station types BPS1.32, 64, 128 ² .

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 8318 provides information on program card BPS1.M/E2-Vxx.

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 program

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 (and control) 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:

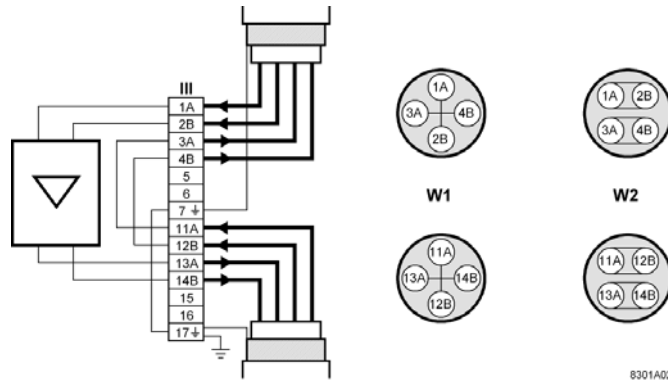
- Plant control via plant point
- DISPATCH-Function (selecting and distributing values)
- SEQ-Function (sequence and cascade regulators)
- STR-Function (Self Tuning Regulator)
- Hours run meter
- Network restoration program
- Optimum Start/Stop Program OSTP
- Time switch programs with weekday, exception 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 teleprinters (remote alarm)

POP cards/BAccess

The POP cards which serve to locally operate the VISONIK BPS are created using the PC software package VISOTOOL Pop Card Editor. BAccess is used to operate technical plants in buildings using a Palm or Palm-compatible organizer, i.e. a PDA.

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 of a VISONIK BPS on the SDLC ring



- | | | | |
|----|---|-----|---|
| 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.

