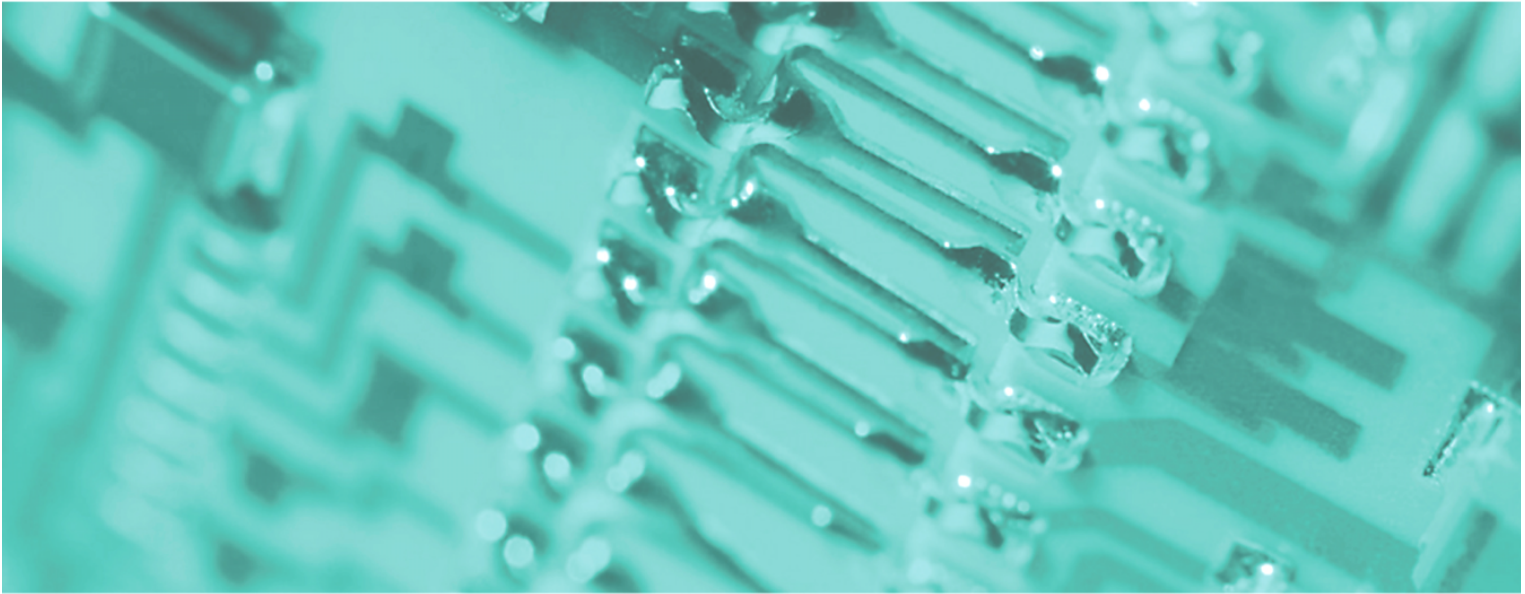




VIPA Accessories



PROFIBUS DP Repeater B1 | 973-1BA00 | Manual

HB152E | Rev. 12/04

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- 2004/108/EC Electromagnetic Compatibility Directive
- 2006/95/EC Low Voltage Directive

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Product	Order number
PROFIBUS DP Repeater B1	VIPA 973-1BA00

The information contained in this manual is supplied without warranties. The information is subject to change without notice.

**Icons
Headings**

Important passages in the text are highlighted by following icons and headings:



Danger!
Immediate or likely danger.
Personal injury is possible.



Attention!
Damages to property is likely if these warnings are not heeded.



Note!
Supplementary information and useful tips.

Contents

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Important Safety Information for users

Handling of electrostatic sensitive modules

VIPA modules make use of highly integrated components in MOS-Technology. These components are extremely sensitive to over-voltages that can occur during electrostatic discharges.

The following symbol is attached to modules that can be destroyed by electrostatic discharges:



Attention!

Personnel and instruments should be grounded when working on electrostatic sensitive modules!

Product description

General

The PROFIBUS DP Repeater B1 described here fulfils the electrical, mechanical and diagnostic requirements for industrial automation.

The advanced 12Mbps core of the B1 is identical to the ProfiHub. It can be cascaded unlimitedly and is equipped an isolated RS485 interface. The data is constantly monitored for glitches which are digitally filtered out. Every channel has on-board switchable termination and can drive 31 devices.

The removable screw terminals of the PROFIBUS interface are pinned-out in a way that reversal mounting does not impact existing wiring. A DB9 connector is provided for maintenance/engineering tools.

The power supply is redundant which makes it suitable for applications in which high availability is required and consumes relatively low power which helps the environment.

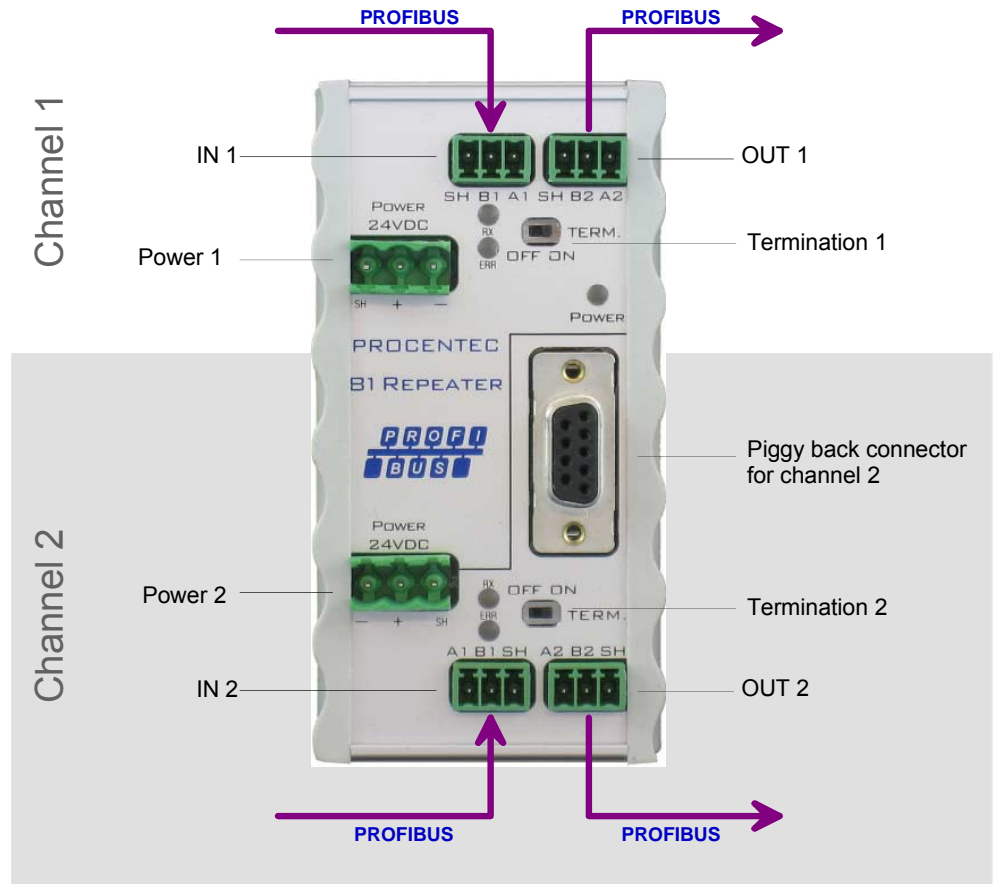


Order data

Type	Order number	Description
PROFIBUS Repeater B1	973-1BA00	PROFIBUS DP Repeater

Structure

Compact PROFIBUS DP Repeater B1

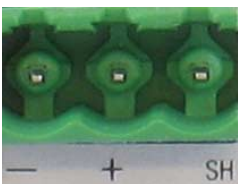


Power supply

Parameters

The power supply has to comply with the following specifications:
 Voltage: DC 19 ... 28V
 Current: min. 65mA

Wiring



The leads of both power connectors have to be wired as follows:

Pin	Wiring
-	0V
+	Positive Voltage
SH	Earth

Redundancy Both power connectors are linked 1-on-1 to the internal power supply of the B1. If 1 power supply would fail, the other takes over without delay time. When redundancy is not required, it is sufficient to use 1 power connector. When the B1 is flipped 180°, the connectors can be used without alteration.

PROFIBUS DP

Connectors Each channel has 2 connectors (IN and OUT). They are both linked 1-on-1 when the termination is OFF. When a channel of the repeater is NOT the last device on the segment, it doesn't matter which connector is utilized.



Note!

When the termination is ON the OUT connector is NOT connected. When the B1 is flipped 180°, the wired connectors can be used without alteration.

Pin layout



Pin	Wiring
Pin A1/2	Green wire
Pin B1/2	Red wire
Pin SH	Cable shielding

Termination Each channel has its own termination which can be switched ON/OFF.

Piggy back connector Each channel has its own termination which can be switched ON/OFF.

Ground Clip

It is recommended to use the supplied ground clip to attach the cable shield to the screw connector, for easier shield connection and better strain relief.

Diagnostic LEDs

LED	Color	Description	
Power	green	○	Power is OFF or an internal failure.
		☼	Power supply not stable or an internal failure.
		●	Power supply OK.
RX	yellow	○	No communication detected (this Channel).
		☼	1 or more devices communicating (this Channel).
		●	1 or more devices communicating (this Channel).
Err	red	○	No problem has been detected.
		☼	Communication problem (this Channel).
		●	Communication problem (this Channel).

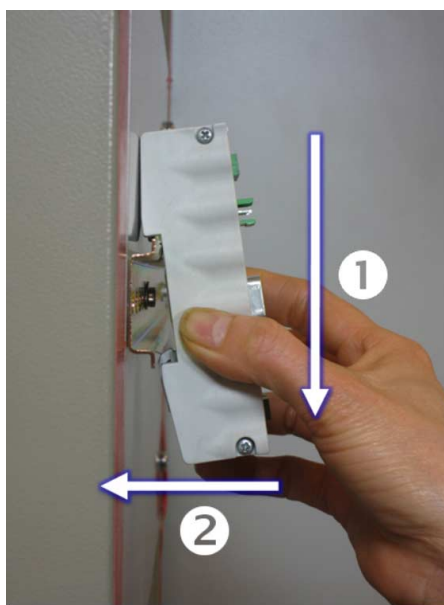
off: ○ blinking: ☼ on: ●

Installation

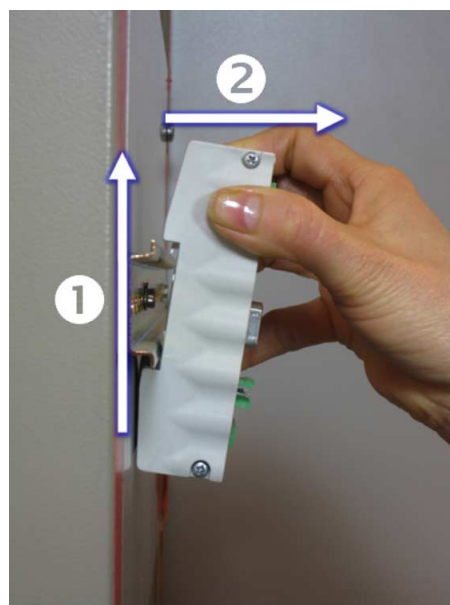
Location The B1 can be installed everywhere in a non-hazardous area that complies with IP 20 (DIN 40 050) and the specified temperature range of -20°C to +60°C.

Position The B1 can be installed in every position, but it is recommended to install it with Channel 2 pointing down. In this position it is easier to read the status display and to perform measurements on the DB9 connector.

Mounting and dismounting The B1 has to be mounted on a 35mm DIN-rail with a minimum width of 60mm. The illustrations bellow illustrate how to mount and dismount the B1 on and from the DIN-rail.



Mounting:
pull-down and push



Dismounting:
push-up and pull

Technical data

Order number	973-1BA00
Type	Compact PROFIBUS DP Repeater B1
Dimension and weight	
Dimensions (LxBxH) in mm	106x55x33 (without plugs) 106x55x55 (with plugs)
Weight	125g
Ambient conditions	
Operating temperature	-20 to +60°C
Isolation class	IP 20 (DIN 40 050)
Protocol specifications	
Supported Protocols	DP-V0, DP-V1, DP-V2, FDL, MPI, FMS, PROFIsafe, PROFIdrive and any other FDL based protocol
Transmission speed	9.6kbps to 12Mbps (including 45.45kbps)
Transmission speed detection	auto detect
Transmission speed detection time	< 10s
Data delay time	1.5Tbit at 9.6kbps to 3Mbps 2.5Tbit at 6Mbps 3.5Tbit at 12Mbps
Delay time jitter	max. 1/4 bit time
PROFIBUS cable specification	
Cable lengths	1200m at 9.6kbps to 93.75kbps 1000m at 187.5kbps 400m at 500kbps 200 at 1.5Mbps 100m at 3Mbps to 12Mbps
Wire diameter	< 2.5mm ²
Wire type	stranded or solid core
Number of devices	max. 31 per channel (including ProfiHubs, OLMs, PCs)
Termination	integrated and switchable Powered according to IEC 61158 (390/220/390Ohm)
Cascading depth	no limits
Power supply specifications	
Nominal supply voltage	DC 19 ... 28V
Current consumption	65mA at DC 24V
Power dissipation	max. 2W
Redundancy	yes (Power 1 or Power 2)
Power LED	Power 1 or Power 2
Reverse polarity protection	yes
Wire diameter	< 2.5mm ²