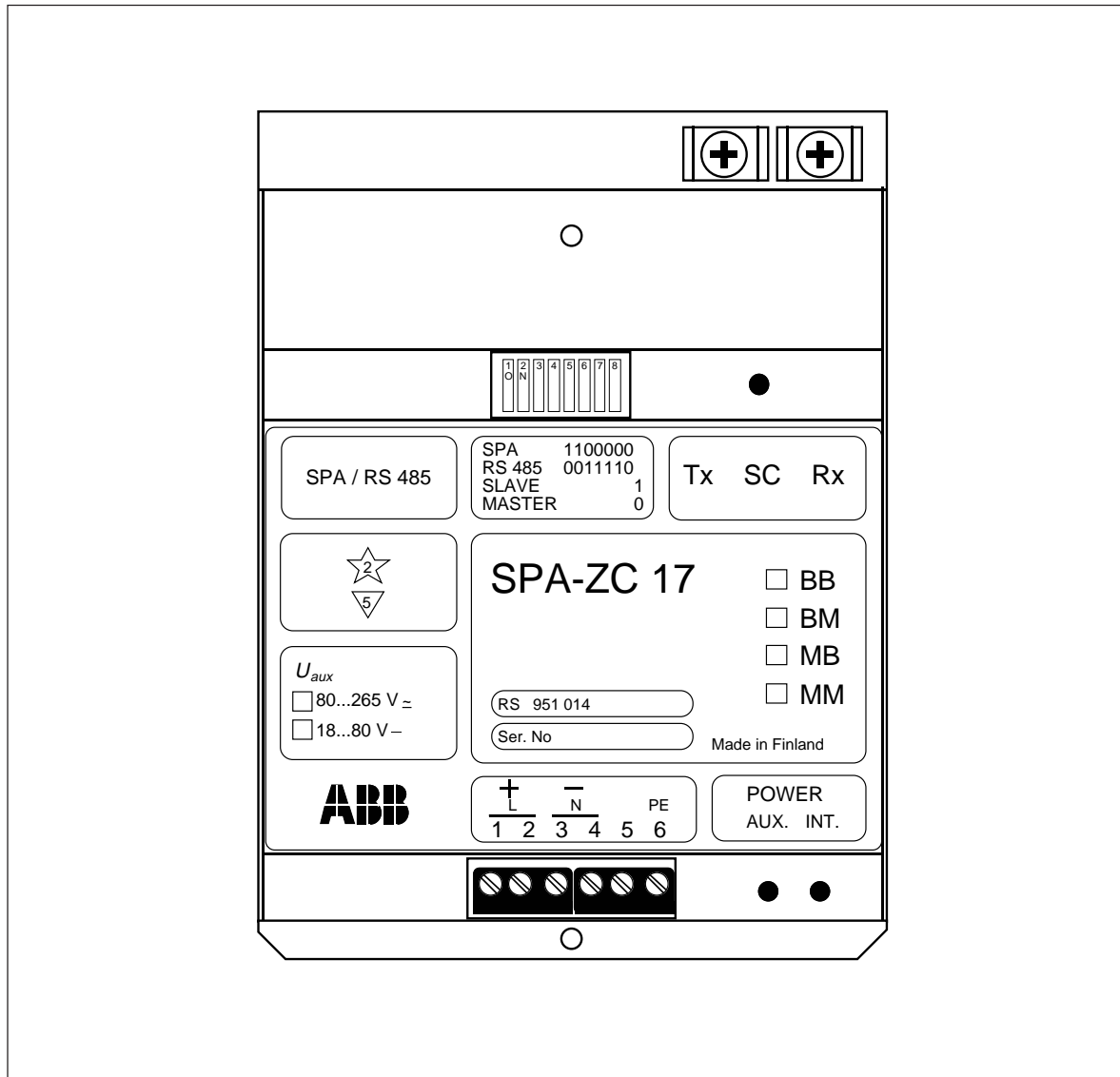


SPA-ZC 17

Bus connection module

User's manual and Technical description



Issued 99-02-16
Version A (replaces 34 SPACOM 7 EN1)
Checked EP
Approved EP

Data subject to change without notice

Contents	General	2
	Operating principle	3
	Construction	4
	Optical/electrical connection	5
	Type designation key	6

General

The different devices of the SPACOM product range are connected to the optical SPA bus via bus connection modules. The bus connection module type SPA-ZC 17 converts the optical signals of the SPA bus to electrical RS 485 or SPA (+5 V) level signals and vice versa (see Fig. 1). The bus connection module is provided with a built-in power unit allowing the SPACOM device to be disconnected from the bus connection module, for instance, for service without interrupting the data communication over the optical loop.

The bus connection module is mounted in a suitable place in the apparatus cabinet and the connection cable of the module is plugged to the D-type subminiature connector on the rear panel of the SPACOM device. The bus connection module type SPA-ZC 17 connects to any SPACOM device provided with a D-type subminiature connector.

Separate mounting accessories are available for mounting the bus connection module to a SACO data communication and reporting system.

Operating principle

The bus connection module SPA-ZC 17 is provided with a built-in power unit which is supplied from an external auxiliary power source. The auxiliary supply is galvanically separated from the electronics. Alternatively, the supply voltage can be obtained exclusively from the SPACOM host device which is to be connected

to the SPA bus or it can be supplied both from an external power source and the host device simultaneously.

The required data communication mode is selected with the DIP switches on the front panel of the bus connection module.

	1	2	3	4	5	6	7	8
SPA communication mode	1	1	0	0	0	0	0	
RS 485	0	0	1	1	1	1	0	
Echoing enabled, slave device							0	1
No echoing, master device							0	0

The switches are in position 1, when the ON marked side of the switch has been pushed down.

Switches 1...6 are used for selection of the mode of communication (SPA or RS 485) to be used. The mode of communication of the protection relays is shown in section "Connections" in the general part of the user's manual.

Switch 7 is always to be in position 0. Echoing of the communication is selected with switch 8. When the bus connection module is connected to a slave unit switch 8 must be in position 1 (echoing enabled). When the bus connection module is connected to a master unit (e.g. type SRIO) switch 8 must be in position 0 (no echoing).

The SPA-ZC 17 module is provided with diagnostic LEDs. The LED marked AUX indicates that the auxiliary voltage is supplied by an external power source and that the power unit is

operating properly. The LED marked INT is lit when the auxiliary voltage is supplied by the host device and the power unit is operating properly. The LED marked SC flashes at the rate of the data communication.

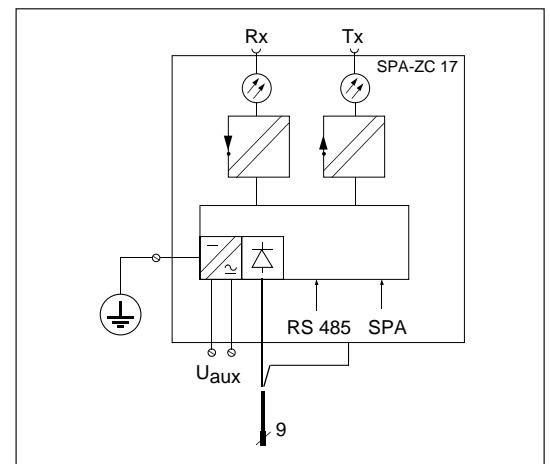


Fig. 1. Block diagram of the bus connection module SPA-ZC 17.

Construction

The bus connection module SPA-ZC 17 is assembled on a 92 mm x 95 mm PC board and housed in a sheet steel case. The module is usually mounted on the wall inside the apparatus cabinet by means of two M4 screws. The optical fibres are anchored to the plastic clip at the upper edge of the bus connection module and connected to the transmitter (Tx) and the receiver (Rx). The specific features of the fibre-optic cables must be noted, when the cables are being handled, mounted and connected. Detailed information is given in the user's manual 34 SPA 13 EN1 A "Plastic-core fibre optic cables. Features and instructions for mounting".

The mechanical design and the dimension drawing are shown in Figs. 3 and 4. The length of the connection cable linking the bus connection module to the host device is 2 m. It is included in the delivery of the bus connection module.

The dimension drawing of the D-connector terminating the cable is shown in Fig. 4.

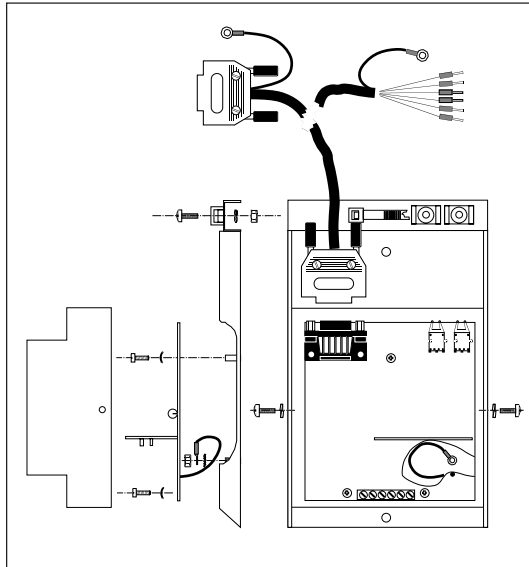


Fig. 2. Mechanical construction

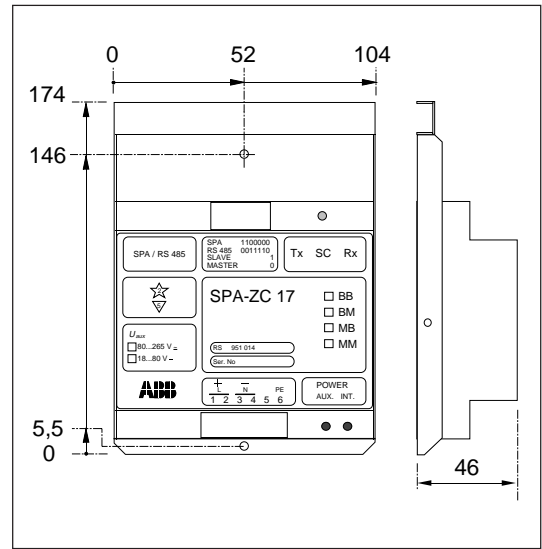


Fig. 3. Dimensional drawing.

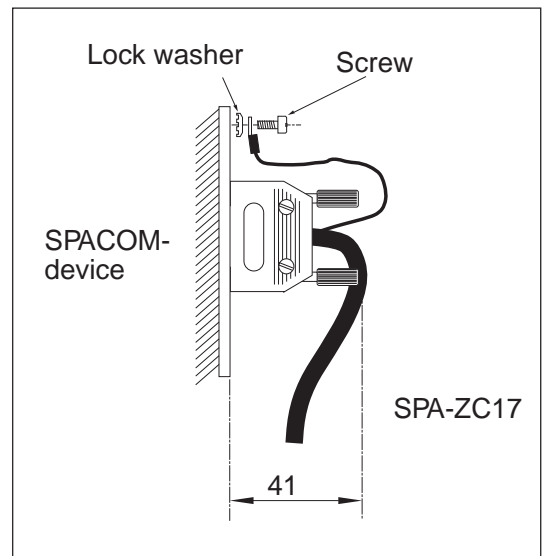


Fig. 4. Earthing of the connection cable.

Optical/electrical connection

The optical connections are based on plastic core or glass fibre cables or on both cable types.

The SPA mode or the RS 485 mode is used in the communication between the SPACOM device and the bus connection module, depending of the SPACOM product. From one bus connection module to the other the information is conveyed via the fibre-optical cables.

The connection cable is provided with 9-pin male D type subminiature connectors in both ends. One end is further provided with an earthing wire, which is connected to the fixing hole close to the D type connector on the rear panel of the SPACOM device using one 6 mm M3 screw, see Fig.4.

The cable delivery set includes a screw, a contact washer and a nut. The nut is not needed if the earthing wire is connected to the earthing hole.

The external supply voltage and the protective earth wire are connected to their screw terminals, see Fig. 5.

The power consumption of the bus connection module is approx. 2,5 W, when the power is supplied from an external source and approx. 0.6 W, when the supply is taken from the host device. The disturbance immunity class of the bus connection module SPA-ZC 17 is 3.

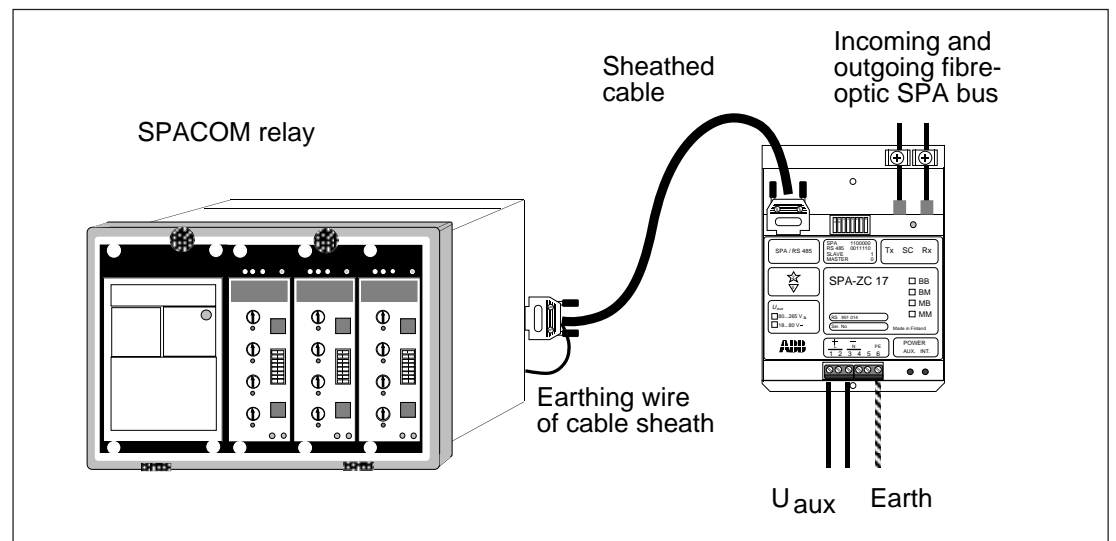
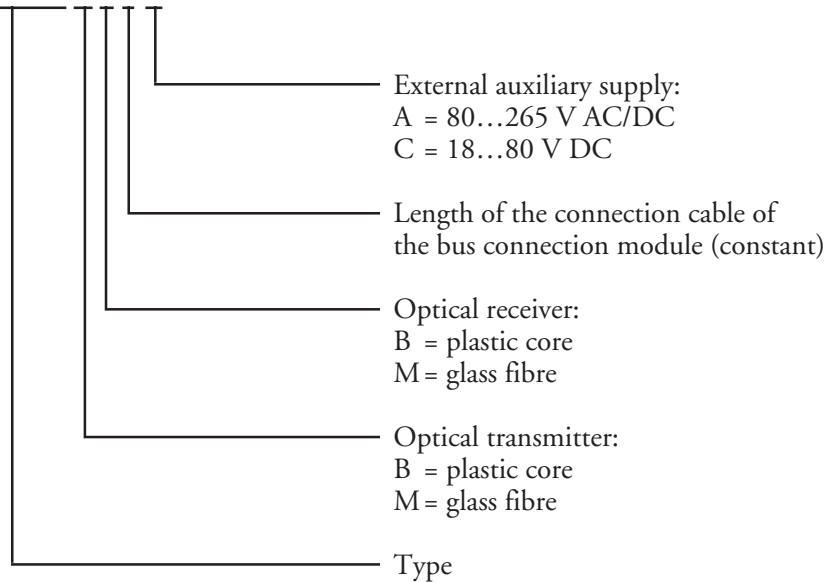


Fig. 5. Mounting of the bus connection module.

Type designation key

SPA-ZC17 MB 2 A



Type designation	Transmitter	Receiver	Auxiliary supply
SPA-ZC 17BB2A	PLASTIC	PLASTIC	80...265 V AC,DC
SPA-ZC 17BM2A	PLASTIC	GLASS	80...265 V AC,DC
SPA-ZC 17MB2A	GLASS	PLASTIC	80...265 V AC,DC
SPA-ZC 17MM2A	GLASS	GLASS	80...265 V AC,DC
SPA-ZC 17BB2C	PLASTIC	PLASTIC	18...80 V DC
SPA-ZC 17BM2C	PLASTIC	GLASS	18...80 V DC
SPA-ZC 17MB2C	GLASS	PLASTIC	18...80 V DC
SPA-ZC 17MM2C	GLASS	GLASS	18...80 V DC

A type designation ending /S, for instance SPA-ZC 17 BB2A/S, implies that the cable delivered with bus connection module connects to a SACO control data communicator.



ABB Substation Automation Oy

P.O.Box 699

FIN-65101 VAASA

Finland

Tel. +358 (0)10 22 4000

Fax.+358 (0)10 22 41094

www.abb.com/substationautomation