Bus connection module
SPA-ZC 11

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General

The bus connection module SPA-ZC 11 is an interfacing device by means of which one RS 232C bus of a host device, one fibre-optic SPA bus loop and the serial port of one SPACOM device can be interconnected. The module is provided with four connectors: one 25-pin D-type connector for the RS 232 signals, one 9-pin D-type connector for the SPA LOGIC signals and two opto-connectors for the fibre-optic SPA bus.

Application

By means of the bus connection module SPA-ZC11 one or more slave devices can be connected to a host machine, either directly or via modems. The first slave device is provided with the bus connection module SPA-ZC11 and the following slave devices are all provided with the bus connection module SPA-ZC21, which are linked together with a fibre-optic cable to form a closed loop, see Fig. 1.

Operation

The bus connection module SPA-ZC11 converts the RS 232C level signals to SPA LOGIC level signals and vice versa, see Fig.2. The bus connection module SPA-ZC11 is provided with an internal voltage regulator which is powered via the D-type connector of the slave device. The ±12 V dc auxiliary voltage of the modem can be taken from pins 9 and 10 of the 25-pin D-type connector of the bus connection module, provided that the locations W1 and W2 on the PCB of the module are fitted with jumpers. The bus connection module SPA-ZC11 also forwards the handshaking signals RTS, DTR, CTS and DCD between the host device and the slave. In this case the slave device must be capable of handling handshaking signals. If handshaking is to be used the system may include only one slave device because handshaking signals cannot be transferred over the fibre-optic cables, see Fig. 3. If the system includes more than one slave device, the SPA bus connecting the slave devices together is formed by a fibre-optic cable.

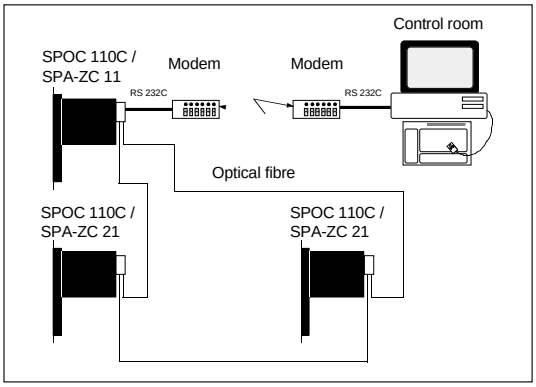

Fig. 1. Communication without handshaking. The modem must be of the full-duplex type

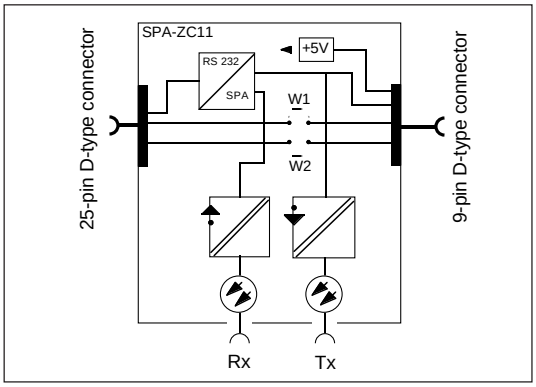

Fig. 2. Block diagram of the bus connection module SPA-ZC 11

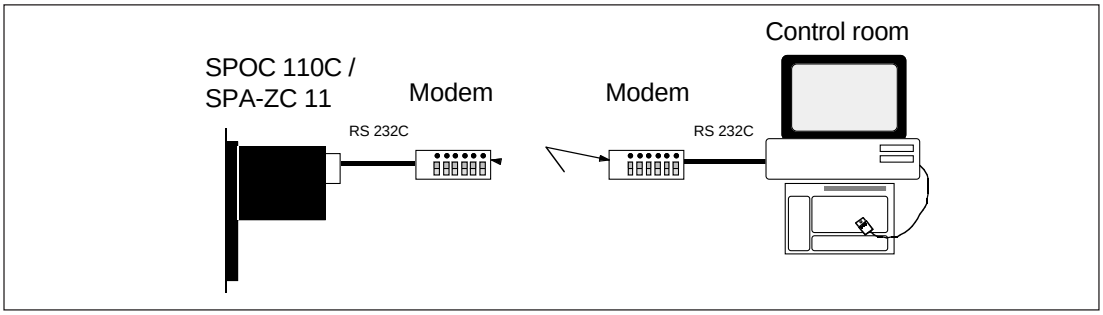

Fig. 3. Communication with handshaking. The modem may be of the half-duplex type

Construction

The bus connection module includes a 53 mm x 44 mm printed circuit board which is housed in a transparent plastic case. The bus connection module is plugged into the 9-pin D-type connector of the slave device and fixed to the panel with three cross slotted screws. The 25-pin D-type connector of the RS 232C bus is attached to the plastic case. The outline dimensions of the bus connection module are given in Fig. 5.

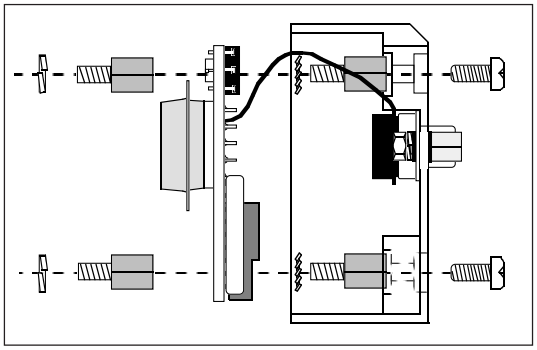

Fig.4. The mechanical construction of the bus connection module SPA-ZC 11

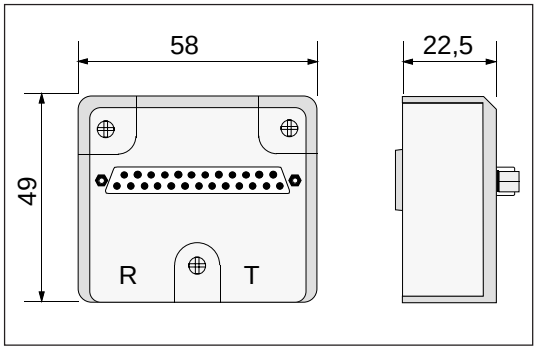

Fig. 5. Dimensional drawing of the bus connection module

Optical/electrical connection

The SPA bus can be based on either plastic core opto-cables, glass fibre opto-cables or a mixed system. Information is transferred to the first slave device in the SPA-LOGIC form and to the other slave devices via the optical fibres. The optical fibres are provided with factory mounted opto-connectors fitting the counter connectors RX and TX of the bus connection module.

The last two letters of the type designation of the bus connection module contain information about the type of optical fibre for which the module is intended.

Type SPA-ZC11BB is intended to be connected to opto-cables based on plastic core cables both on the transmitter and the receiver side.

Type SPA-ZC11MM is intended to be connected to opto-cables based on glass fibre cables both on the transmitter and the receiver side.

From the bus connection module information is transferred to the other slave devices via the opto-transmitter (Tx) and information from the other slave devices is received to the bus connection module via the opto-receiver (Rx).

The signal configuration on the pins of the D-type connectors is illustrated in Fig. 6.

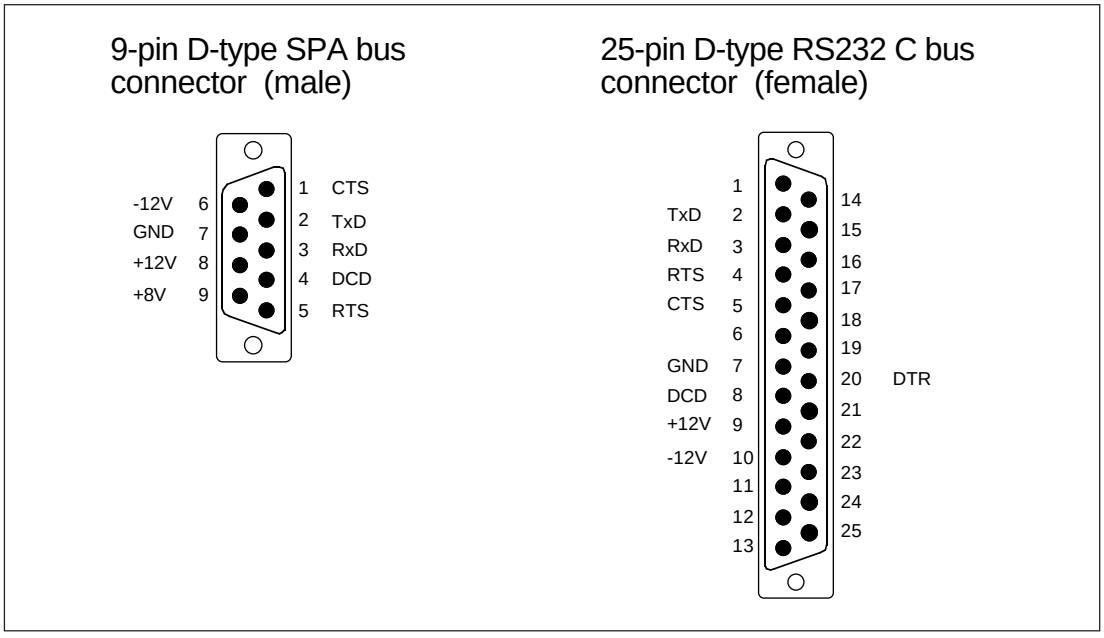

Fig. 6. Pin and signal configuration of the D-type connectors of the bus connection module