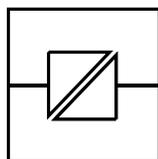


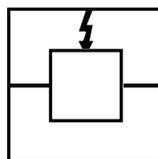
MA-42 AC
MA-42 DC

INSTALLATIONSANVISNING INSTALLATION MANUAL INSTALLATIONS ANLEITUNG

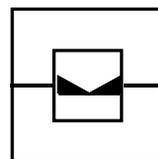
6042-2002



Galvanic
Isolation



Transient
Protection



Balanced
Transmission



CE
Approved



**Omvandlare RS-232 – RS-422/485
Converter RS-232 – RS-422/485
RS-232 – RS-422/485 Wandler**

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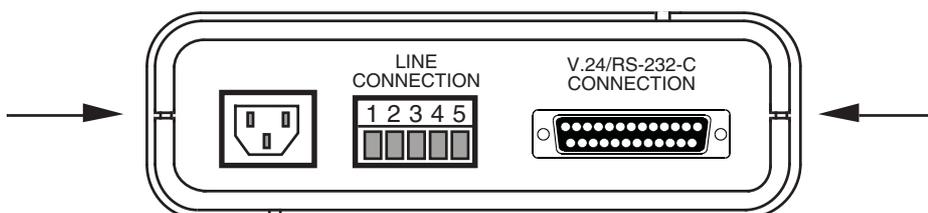
Specifications

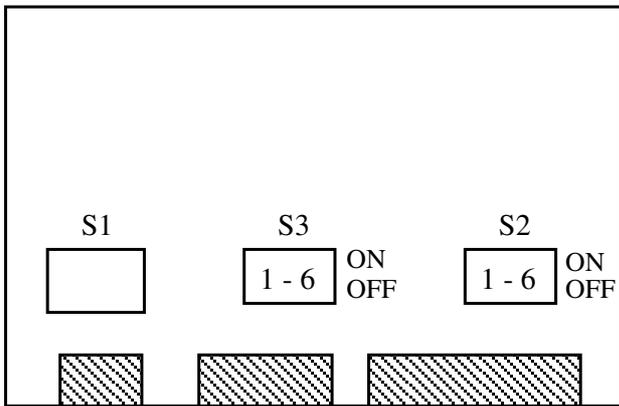
| | |
|-------------------------------|---|
| Transmission | Asynchronous, full/half duplex or simplex |
| Interface 1 | EIA RS-232-C/RS-423-A CCITT V.24/V.10 25-position D-sub female, DCE |
| Interface 2 | EIA RS-422/RS-485/CCITT V.11 |
| Data rate | Up to 115,2 kbit/s |
| Indicators | Power, RD, DCD, CTS, RTS, TD |
| Insulation | Galvanic insulation with opto-coupler (data transmission) and transformer (supply) |
| Insulation voltage | 1500V |
| Overvoltage protection | Mains: Breakdown voltage 440V at 230V AC and 220V at 115V AC Interface 2: Breakdown voltage transmitter and receiver 7V Surge capacity 0.6 kW for 1ms |
| Power supply | Switchable 115/230V +15/-10% 48-62Hz |
| Fuse | 100 mA fast 5x20mm |
| Power consumption | Max 25 mA at 230V AC |
| Temperature range | 5-50°C, ambient temperature |
| Humidity | 0-95% RH, non-condensing |
| Dimensions | 161x53x139 mm (WxHxD) |
| Weight | 0.5 kg |
| Mounting | With rubber pads or screws. Screws: Remove the two "keyholes" on the bottom of the case. |

Switch settings

The MA-42 can through different switch settings be adapted to a variety of running conditions. To set the switches, open the plastic case by placing and turning a screw-driver between top and bottom at the rear of the case.

DANGER! DO NOT OPEN CONNECTED UNIT

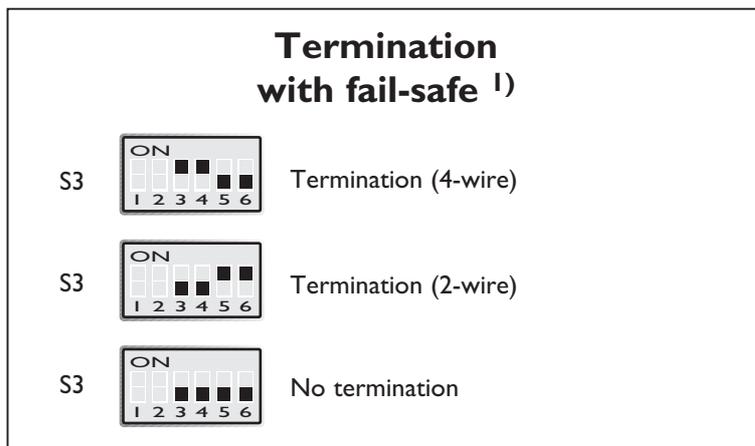
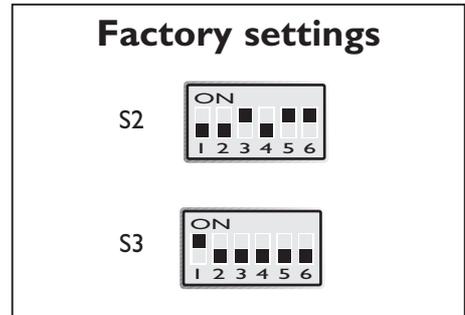
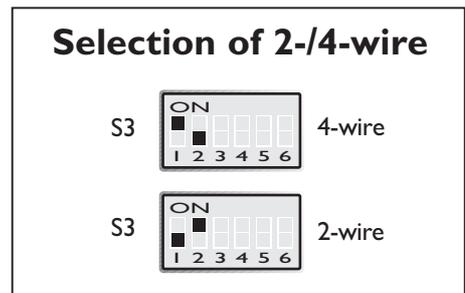
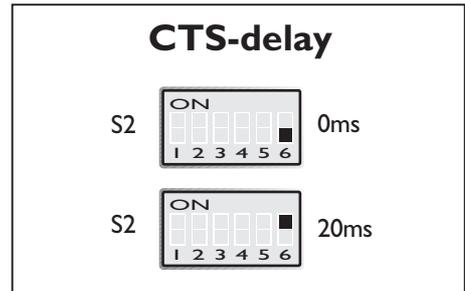




- S1 Selection of power supply | 15V/230V AC
- S2 Selection of signal activating the transmitter
Selection of signal controlling DCD
Selection of CTS delay
- S3 Selection of termination with fail-safe 1)
Selection of 2- or 4-wire communication

Transmitter

| | Transmitter activated by | CTS Controlled by | DCD Controlled by |
|----|--------------------------|-------------------|-------------------|
| S2 | | RTS | RTS |
| S2 | | RTS | Always high |
| S2 | | DTR | DTR |
| S2 | | DTR | Always high |
| S2 | | Always active | Always high |
| S2 | | Always active | Always high |



1) The fail-safe function forces the signal state of the receiver to OFF when the connected transmitter is in tri-state (transmitter inactive). The receiver located furthest away shall be terminated.

Connections

Line connection

(5-position screw-terminal)

| Direction | No. | CCITT V.11 Description |
|-------------|-----|---------------------------|
| Receiver | 1 | A' R+ |
| Receiver | 2 | B' R- |
| Transmitter | 3 | A T+ |
| Transmitter | 4 | B T- |
| | 5 | Shield |

The definitions R+/R-, T+/T- can be various between different manufactures.

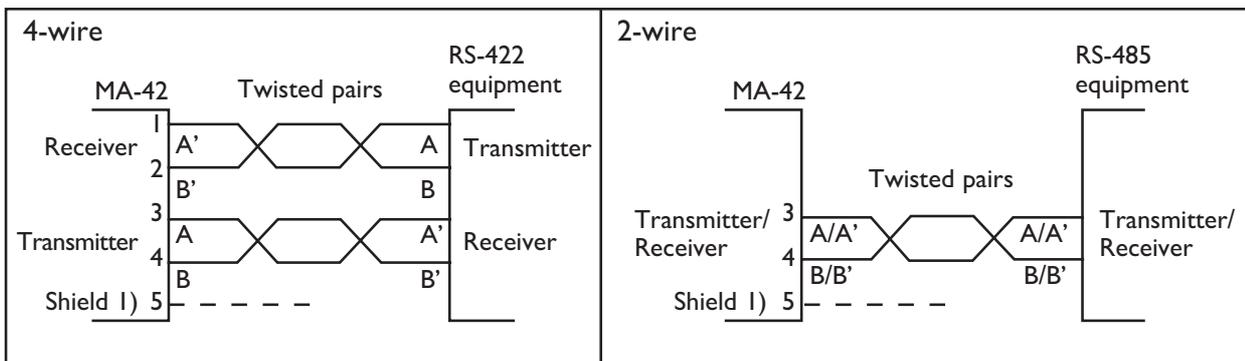
Terminal connection (DCE)

(RS-232-C/V.24, 25-Position D-sub, female)

| Direction I) | Pin no. | CCITT V.24 Circuit number | Description |
|--------------|---------|------------------------------|-------------------------|
| I | 2 | 103 | TD/Transmitted Data |
| O | 3 | 104 | RD/Received Data |
| I | 4 | 105 | RTS/Request To Send |
| O | 5 | 106 | CTS/Clear To Send |
| O | 6 | 107 | DSR/Data Set Ready |
| - | 7 | 102 | SG/Signal Ground |
| O | 8 | 109 | DCD/Data Carrier Detect |
| I | 20 | 108/2 | DTR/Data Terminal Ready |

I = Input O = Output on MA-42.

Line connection



1) If shielded cable is used, connect the shield only at one end to avoid ground currents.

Transmission range (interface 2)

Use twisted pair cable. Max transmission range 1200m.

(cable specifications 0.3mm² and capacitance 42pF/m).

The transmission range will increase if a cable with lower capacitance and larger diameter is used.

Use shielded cable in heavy industrial environments.

MA-42 DC

Specifications

Power supply 12–36V DC
Power consumption: Max 2W
Insulation: 1000V
Fuse FI: 1.6A fast 5x20 mm
All other specifications according to MA-42 AC

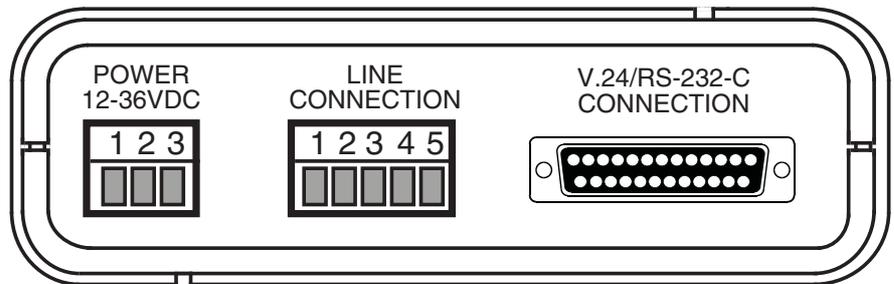
Switch settings

According to MA-42 AC

Connections

According to MA-42 AC, except power supply

| Connection no. | Power Supply |
|----------------|--------------|
| 1 | + Voltage |
| 2 | – Voltage |
| 3 | |



Hints

The MA-42 uses the RS-422/485 interface.

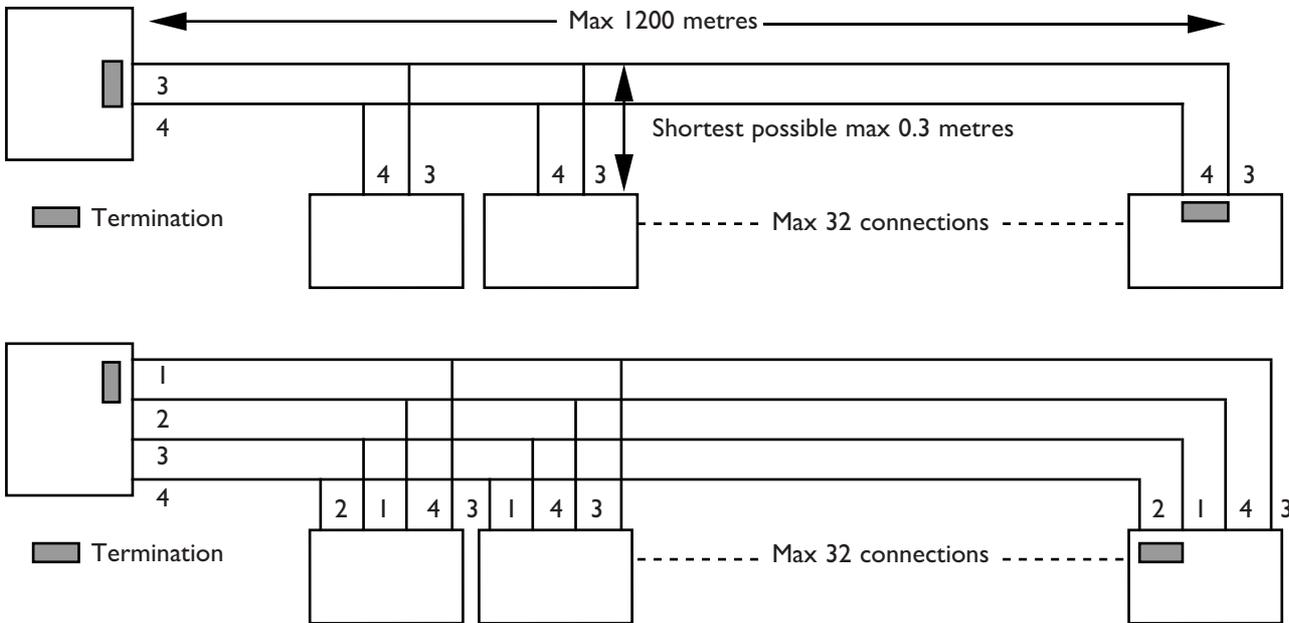
RS-422/485 was designed for multidrop applications. When a system is installed it should form a bus structure (see diagrams). Star shaped networks should never be created, there are other Westermo products designed to work in star net applications. For correct installation an RS-422/485 network should be terminated at the correct points. The recommendation is to terminate the receivers at both end of network.

See diagrams for details of how this is done with RS-485 (2 wire) and RS-422 (4 wire).

On 4 wire systems when the MA-42 is working as a slave, the transmitter is linked to the same bus as all the other slaves transmitter. A status signal (RTS or DTR) is used to control the MA-42's transmitter, to ensure that only one slave is active on the bus at the same time. The status signal is also used to control direction for RS-485 (2 wire) transmission.

If any problems do occur on set up of the MA-42, the LED's will be helpful.

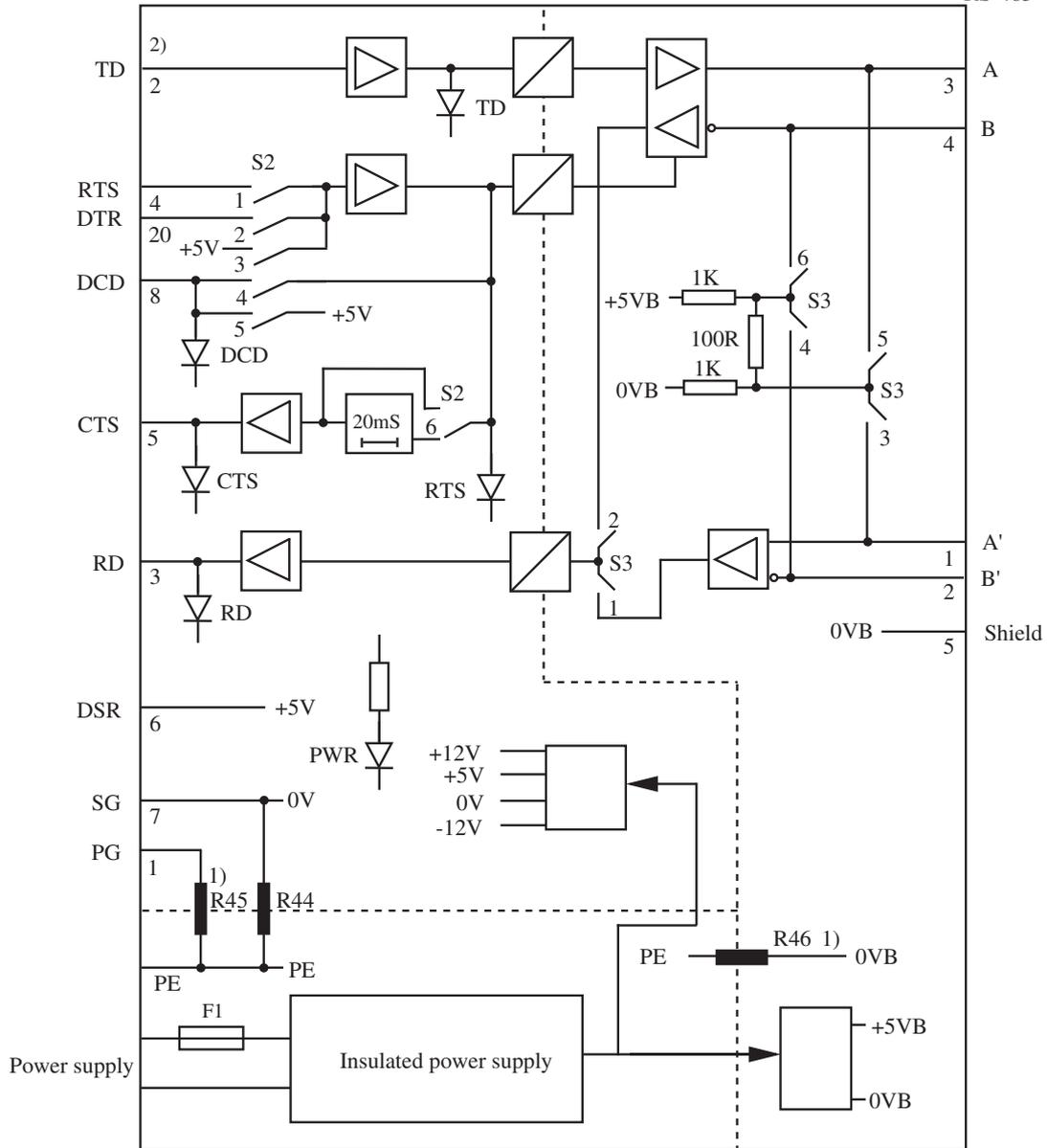
- PWR: The unit has power.
- RD: Data received on the RS-422/485 interface.
- DCD: Simulated carrier due to the setting of S2.
- CTS: Follows RTS.
- RTS: Indicates that the RS-422/485 transmitter is activated.
- TD: Data received on the RS-232 interface.



Block diagram

V.24/RS-232

V.11/RS-422
RS-485



- 1) 0 Ω resistors R45 and R46 are normally not mounted.
- 2) Metal housing on D-sub is connected to PE.

Westermo Teleindustri AB have distributors in several countries, contact us for further information.



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