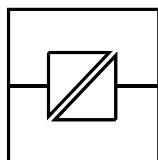


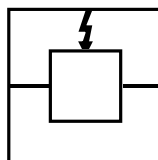
MA-49

INSTALLATIONSANVISNING INSTALLATION MANUAL INSTALLATIONS ANLEITUNG

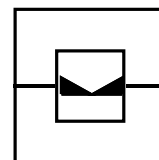
6049-2001



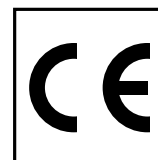
Galvanic
Isolation



Transient
Protection



Balanced
Transmission



CE
Approved



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

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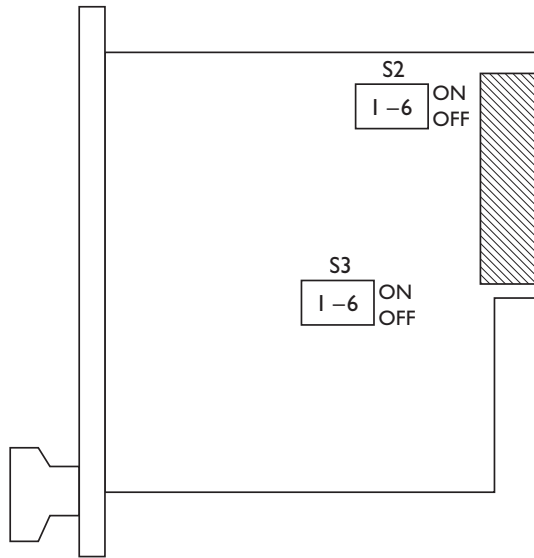
Specifications

Transmission	Asynchronous, full/half duplex or simplex
Interface 1	EIA RS-232-C/RS-423-A ITU-T V.24/V.10 25-position D-sub female, DCE
Interface 2	EIA RS-422/RS-485/ITU-T V.11
Data rate	Up to 100 kbit/s
Indicators	RTS, CTS, DCD, RD, TD +12 V, -12 V
Isolation	Galvanic insulation with opto-coupler (data transmission) and transformer (supply)
Isolation voltage	1 500 V
Overvoltage protection	Breakdown voltage transmitter and receiver 7 V. Surge capacity 0.6 kW for 1ms.
Power supply	External through PS-02 mounted in rack RV-01. ± 20 V DC $\pm 20\%$
Fuse	2x100 mA fast 5x20 mm
Power consumption	+20 V 70 mA, -20 V 80 mA
Temperature range	5–50°C, ambient temperature
Humidity	0–95% RH, non-condensing
Dimensions	100x100 mm
Weight	0.1 kg
Mounting	To be mounted in rack RV-01, takes one card slot.

NOTE! Max 9 MA-49 with one power supply (PS-02) in rack RV-01.

Switch settings

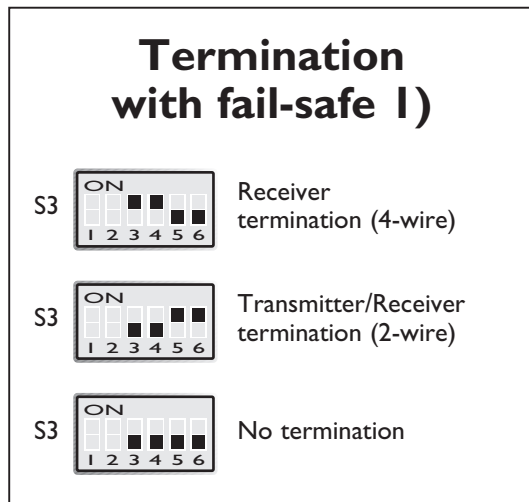
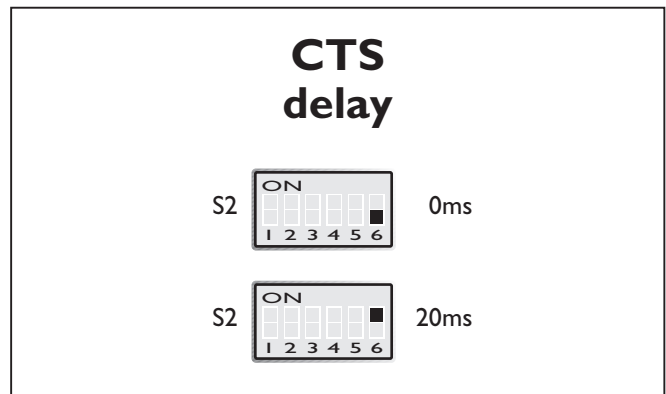
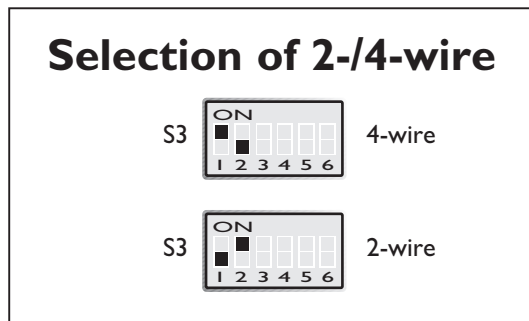
The MA-49 can through different switch settings be adapted to a variety of running conditions.



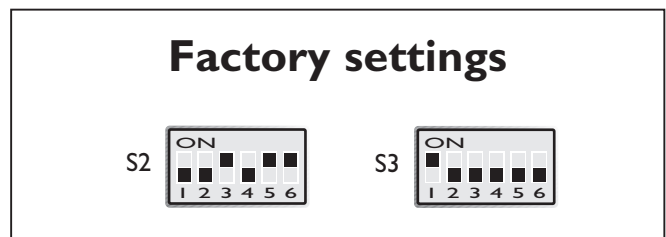
- S2 Selection of signal activating the transmitter
Selection of signal controlling DCD
Selection of CTS delay
- S3 Selection of termination with fail-safe I)
Selection of 2- or 4-wire communication

Selection of signal activating

	Transmitter activated by	CTS controlled by	DCD controlled by
S2	RTS	RTS	RTS
S2	RTS	RTS	Always high
S2	DTR	DTR	DTR
S2	DTR	DTR	Always high
S2	Always active	Always high	Always high
S2	Always active	Always high	Always high



I) 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.



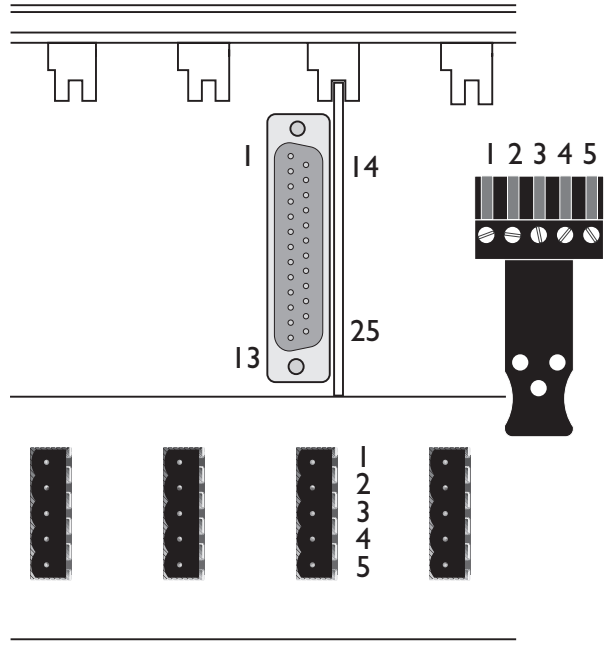
Connections

Line connection

(5-position screw-terminal)

Direction	Pin no.	CCIT V.11 Description
Receiver	1	A' (R+)
Receiver	2	B' (R-)
Transmitter	3	A (T+)
Transmitter	4	B (T-)
		Shield

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



Look right for a section of rack RV-01 with one MA-49 mounted.

Terminal connection to a 25-position D-sub (female) connector on MA-49.

Line connection to a 5-position detachable screw-terminal, which is mounted on the male connector located at the rear of RV-01.

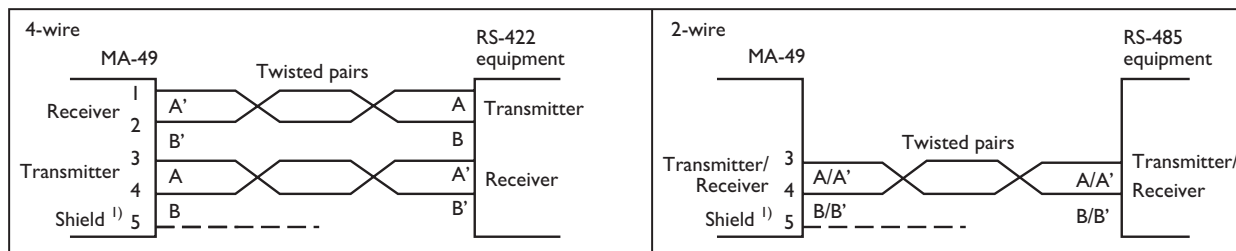
Terminal connection (DCE)

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

Direction	Pin no.	ITU-T V.24 Circuit number	Signal name
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 MA-49

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 | 200 m. (cable specifications 0.3 mm² and capacitance 42 pF/m).

The transmission range will increase if a cable with lower capacitance and larger diameter is used. Use shielded cable in heavy industrial environments.

Hints

The MA-49 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. To correctly install, an RS-422/485 network should be terminated at the correct points.

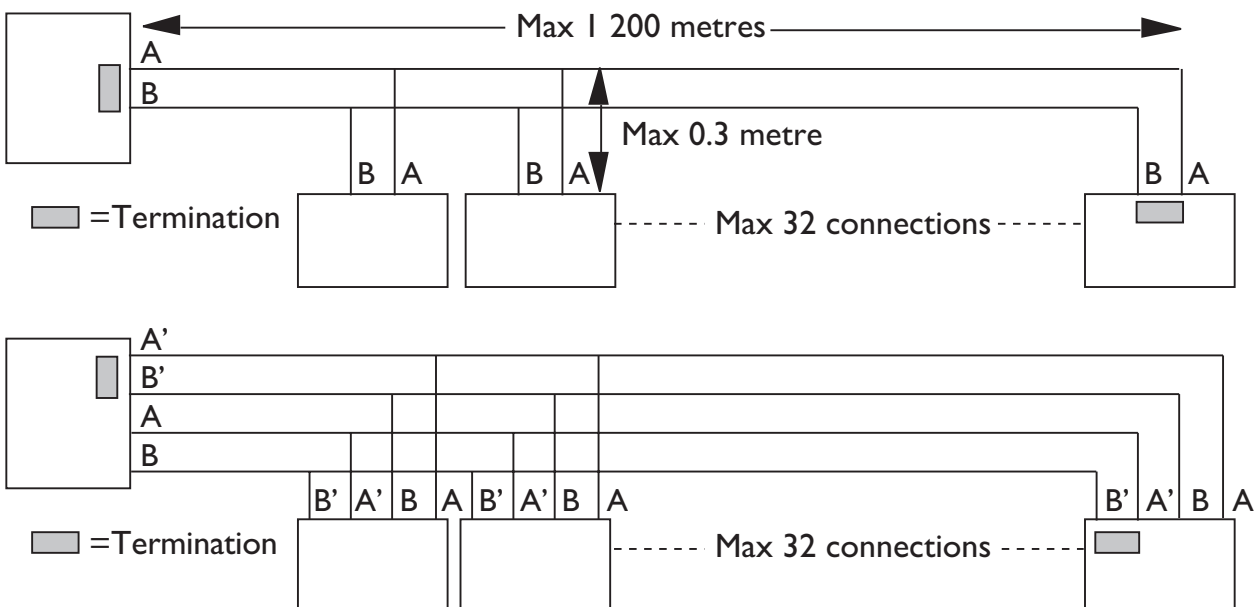
The recommendation is to terminate the receivers at both end of network.

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

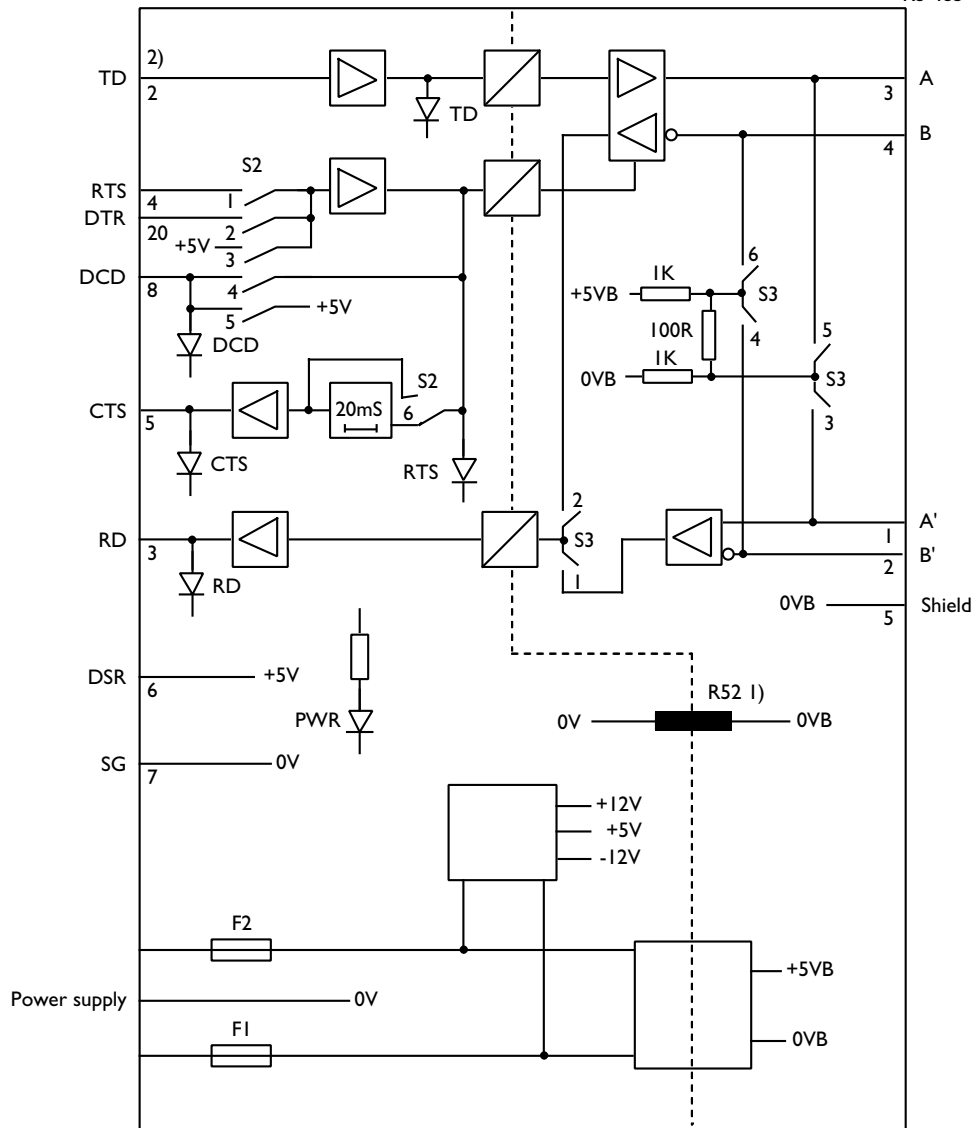
On 4 wire systems when the MA-49 is on a slave system, it's transmitter is linked to the same bus as all the other slave transmitters. A status signal (RTS or DTR) is used to control the MA-49's transmitter, to ensure only one slave is active on the bus at one time. The status signal is also used to control direction for RS-485 (2 wire) transmission.

If any problems do occur on set up of the MA-49, the LED's will be helpful.

- RTS: Indicates that the RS-422/485 transmitter is activated.
- CTS: Follows RTS.
- DCD: Simulated carrier due to the setting of S2.
- RD: Data received on the RS-422/485 interface.
- TD: Data received on the RS-232 interface.
- +12V, -12V: Indicates positive and negative power supply respectively.



N.B. R+/R-, T+/T- definitions are not standard, it can help to shift A and B if the unit not will work.



1) 0 Ω resistors R52 is normally not mounted.



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