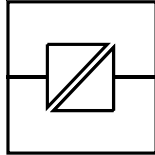


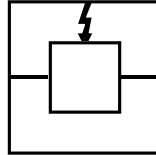
MA-19

# INSTALLATIONSANVISNING INSTALLATION MANUAL INSTALLATIONS ANLEITUNG

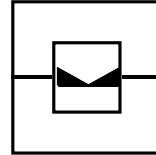
6019-2001



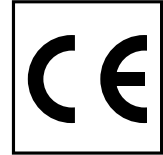
Galvanic  
Isolation



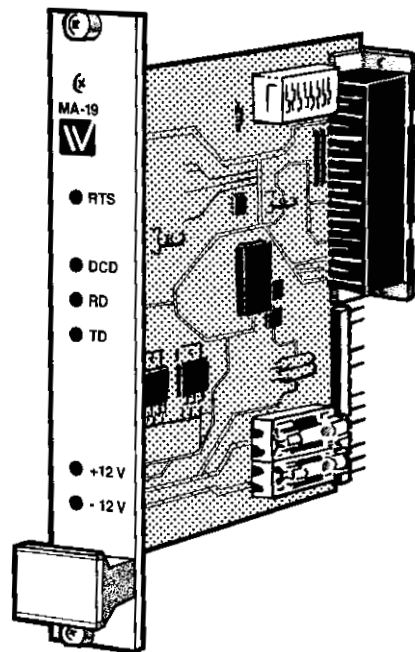
Transient  
Protection



Balanced  
Transmission



CE  
Approved



*Korthållsmodem  
Short Haul Modem  
Kurzstreckenmodem*

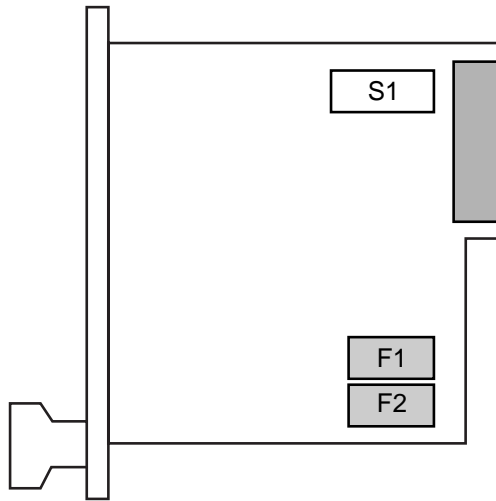
 **westermo**<sup>®</sup>  
[www.westermo.se](http://www.westermo.se)

## Specifications

<b>Transmission</b>	Asynchronous Full/half duplex or simplex
<b>Interface 1</b>	EIA RS-232-C/CCITT V.24, V.28 25-pin D-sub, female DCE
<b>Interface 2</b>	10 mA tri-state balanced current loop 5-position detachable screw-terminal mounted on the rack's back board
<b>Transmission rate</b>	0-38,4 kbit/s
<b>Indicators</b>	Power, TD, RD, RTS, DCD
<b>Isolation</b>	Complete galvanic insulation with opto-coupler (data) and transformer (supply)
<b>Isolation voltage</b>	1500 V
<b>Power supply</b>	External through PS-02 mounted in rack (RV-01) $\pm 20$ V DC $\pm 20\%$
<b>Power consumption</b>	+20V 60 mA, -20V 40 mA
<b>Temperature range</b>	5-50°C
<b>Humidity</b>	0-95% RH, non-condensing
<b>Dimension</b>	100x100 mm
<b>Weight</b>	0.1 kg
<b>Mounting</b>	In rack, takes one card-slot in RV-01

# Switch settings

The MA-19 can through different switch settings be adapted to a variety of operating conditions. The switches are located on the circuit board and have the following functions:



- SI 1-6 Selection of signal activating transmitter (carrier)
- SI 7-9 Selection of signal controlling CTS
- F1/F2 Fuse 100mA Fast

### Transmitter (carrier) activated by

SI		Always active
SI		AUX
SI		SRS
SI		RFR
SI		RTS
SI		DTR
SI		DTR and AUX
SI		DTR and SRS
SI		DTR and RFR
SI		DTR and RTS

### CTS controlled by

SI		RTS
SI		Always high
SI		DCD

### Factory settings

SI		RTS
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# Connections

## Line connection

(5-Position screw-terminal)

Direction	No.	Description
Transmitter	1	R+
Transmitter	2	R-
Receiver	3	T+
Receiver	4	T-
	5	Shield

## Terminal connection (DCE)

(RS-232-C/V.24/V.28, 25-Position D-sub, female)

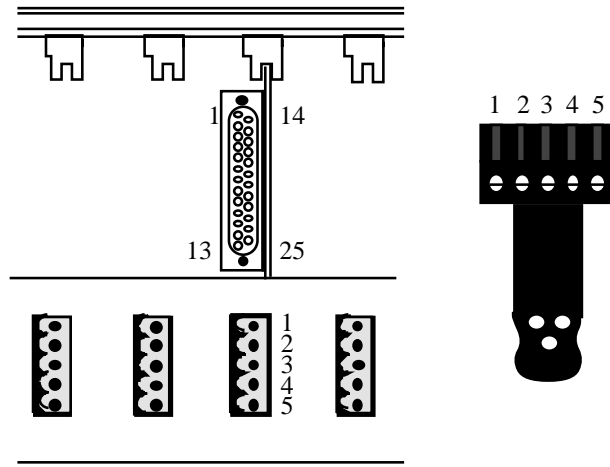
Direction I)	Pin no.	CCITT V.24 Circuit no.	Description
I	2	103	TD/Transmitted Data
O	3	104	RD/Received Data
I	4	105	RTS/Request To Send
O	5	106	CTS/Clear To Send
O	6	107	DSR/Data Set Ready
-	7	102	SG/Signal Ground
O	8	109	DCD/Data Carrier Detect
I	11	-	AUX/Auxiliary
I	19	120	SRS/Secondary Request to Send
I	20	108/2	DTR/Data Terminal Ready
I	25	133	RFR/Ready For Receiving

I=Input O=Output on MA-19

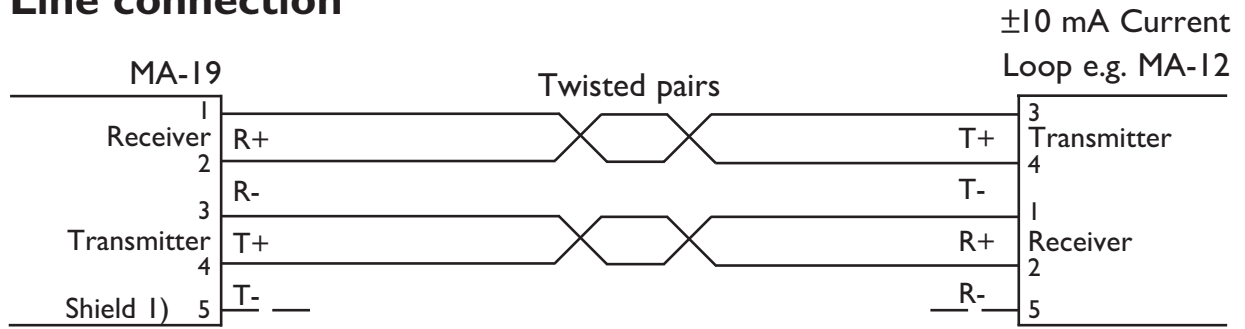
Section of rack RV-01 with one MA-19 mounted.

Terminal connection to a 25-position D-sub (female) connector on MA-19.

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



# Line connection



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

## Transmission range (interface 2)

Cable	Transmission rate bit/s						
	42pF/m 0.3mm <sup>2</sup>	600	1200	2400	4800	9600	19200
18000m		12000m	8000m	5000m	2500m	1000m	500m

# Hints

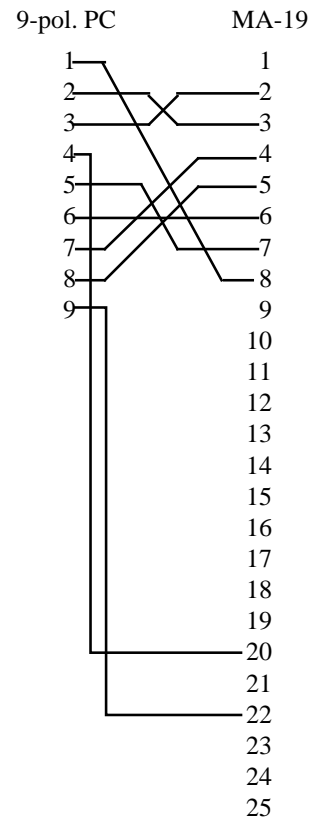
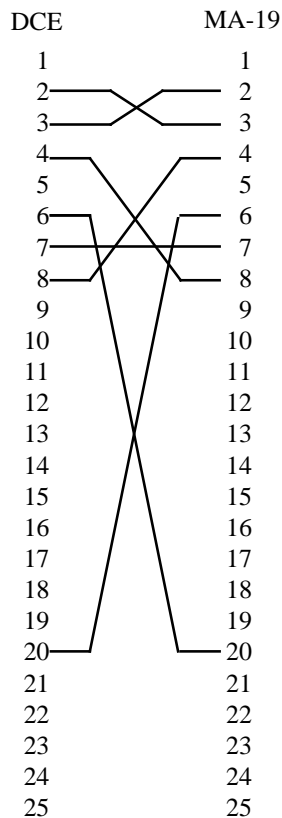
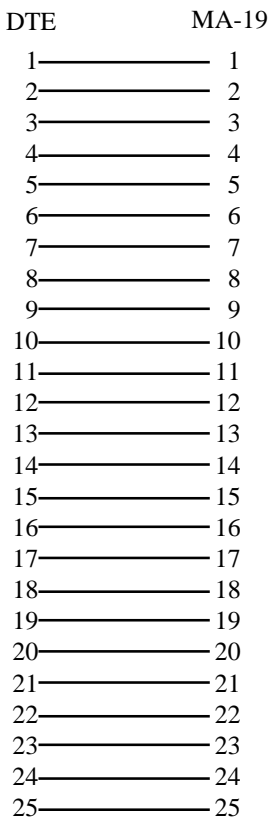
The MA-19 has the same line interface as many of Westermo's systems MA-12, MA-14, MA-17, MA-18, MM-13, MM-14, LA-01, LD-01 and LD-02 are hence compatible.

The RS-232 interface on the MA-19 is configured as DCE (Data Communication Equipment). Most printers, PC's and terminals are set as DTE (Data Terminal Equipment). Some recommendation of cable configurations are given below.

If any problems do occur on set up of the MA-19, the LED's will be helpful.

- PWR: The unit has power.
- RD: Data received on line interface.
- TD: Data received on RS-232 interface.
- DCD: Carrier indication, must be on for transmission.
- RTS: Indicates the carrier control status.

A good way to check the MA-12 is to carry out a loop back test. Connect T+ to R+ and T- to R-. Connect the RS-232 port to a terminal. When keys are pressed on the terminal you should receive the echo on screen. The TD & RD lights will both flicker simultaneously as you press the keys.



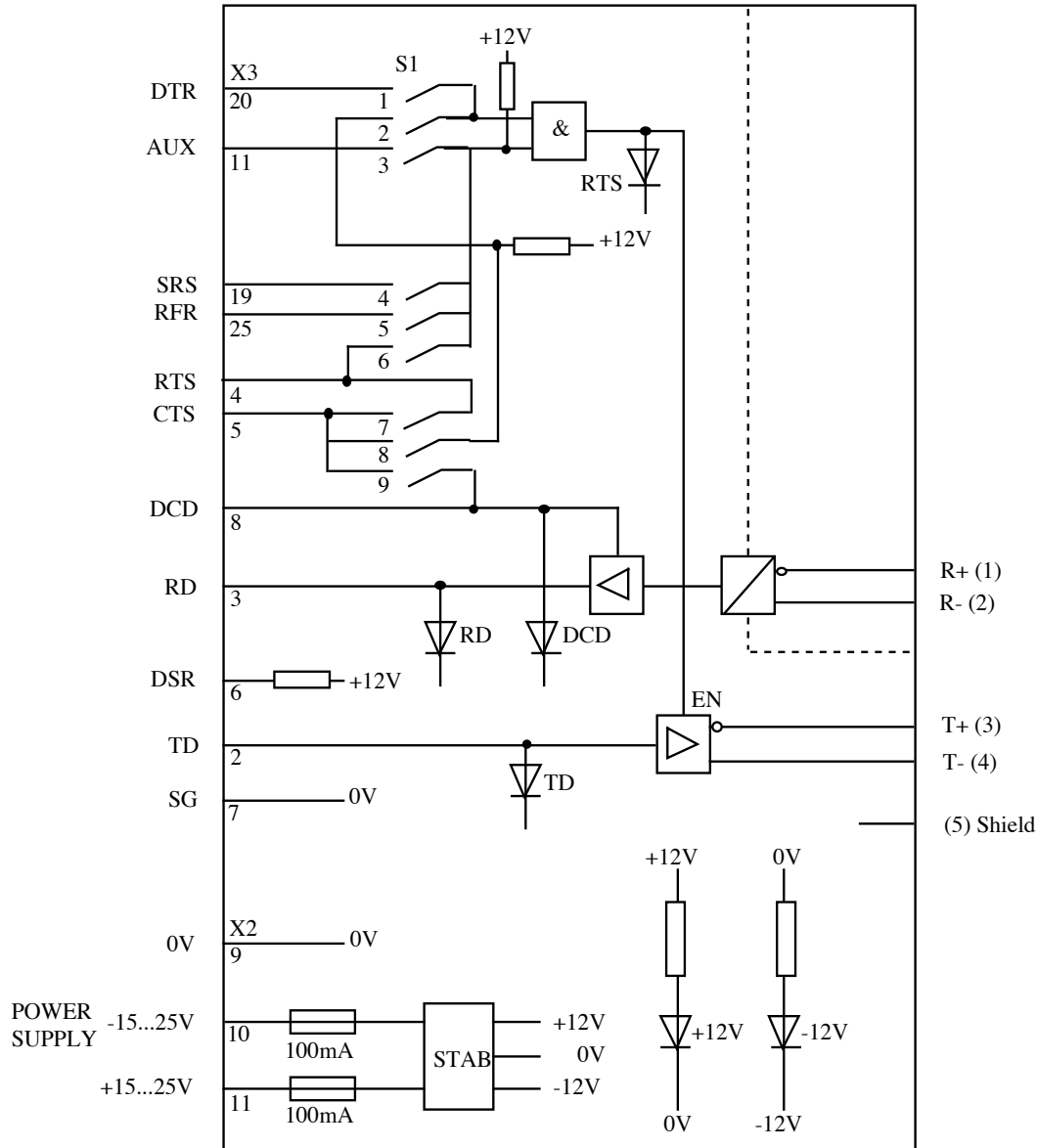
# OWN COMMENTS

Dotted lines for writing.

# Block diagram

RS-232-C/V.24

LINE 1)



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