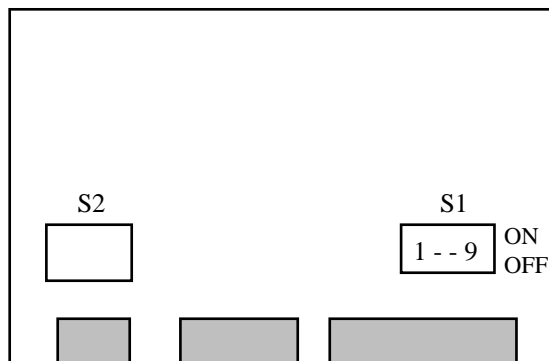
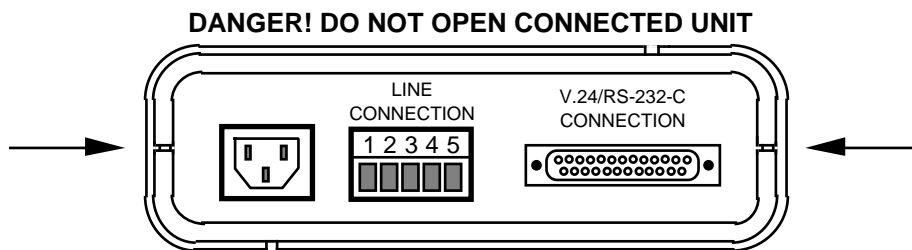


## MA-12 specifications

Transmission:	Asynchronous, full/half duplex or simplex	Overvoltage protection:	Mains: Breakdown voltage 440V at 230V AC and 220V at 115V AC
Interface 1:	EIA RS-232-C/CCITT V.24/V.28 25-position D-sub female, DCE		Interface 2: Breakdown voltage transmitter 15V and receiver 5.8V
Interface 2:	±10mA tri-state balanced current loop		Surge capacity 0.6kW for 1 ms
Data rate:	0-38400bit/s	Power supply:	Switchable 115/230V +15/-10% 48-62Hz
Indicators:	Power, RD, DCD, RTS, TD	Fuse:	100mA fast 5x20mm
Insulation:	Galvanic insulation with opto-coupler (data transmission) and transformer (supply)	Power consumption:	Max 4VA at 230V
Insulation voltage:	1500V	Temperature range:	5-50° C, ambient temperature
		Humidity:	0-95% RH, non-condensing
		Dimensions:	161x139x53mm
		Weight:	0.5kg
		Mounting:	With rubber pads or screws.
			Screws: Remove the two "keyholes" on the bottom of the case

## Switch settings

The MA-12 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.



S1 Selection of signal activating transmitter (carrier)  
Selection of signal controlling CTS

S2 Selection of power supply 115/230V AC

S1						Transmitter (carrier) activated by
1	2	3	4	5	6	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Always active
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AUX
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SRS
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	RFR
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	RTS
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DTR
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DTR and AUX
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DTR and SRS
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	DTR and RFR
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	DTR and RTS

S1			CTS Controlled by
7	8	9	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RTS
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Always high
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	DCD

☒ = Switch ON  
☐ = Switch OFF  
☒ = Factory settings

## Connections

Line connection  
(5-Position screw-terminal)

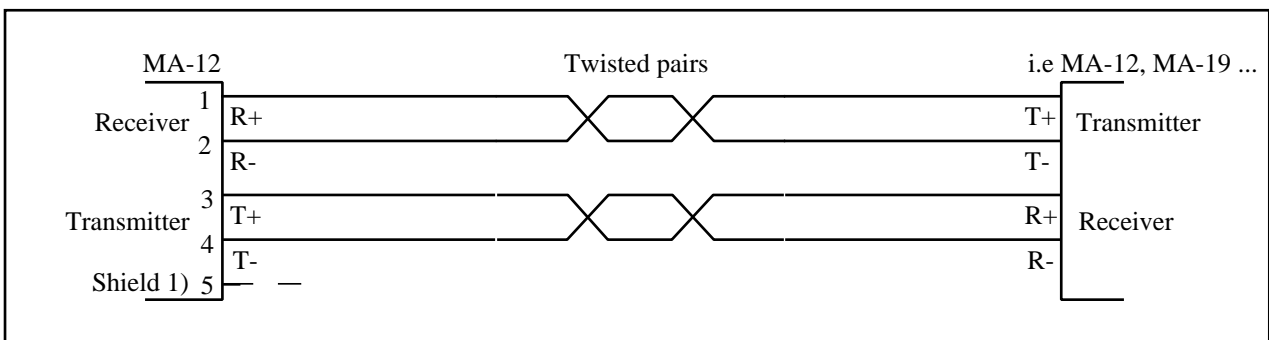
Direction	No.	Description
Receiver	1	R+
Receiver	2	R-
Transmitter	3	T+
Transmitter	4	T-
	5	Shield

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

Direction 1)	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	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

1) I=Input O=Output on MA-12

## 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						
	600	1200	2400	4800	9600	19200	38400
42pF/m 0.3mm <sup>2</sup>	18000m	12000m	8000m	5000m	2500m	1000m	500m

## MA-12 DC

### Specifications

Power supply: 12-36V DC  
Power consumption: Max 3W  
Insulation: 1000V  
Fuse F1: 1.6A fast 5x20mm  
All other specifications according to MA-12 AC

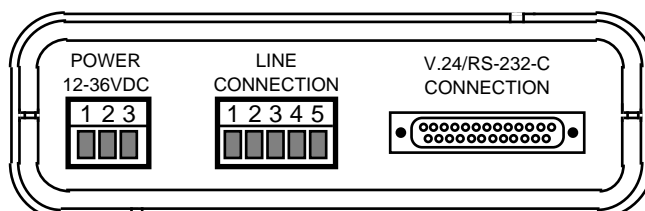
### Switch settings

According to MA-12 AC

## Connections

According to MA-12 AC, except power supply

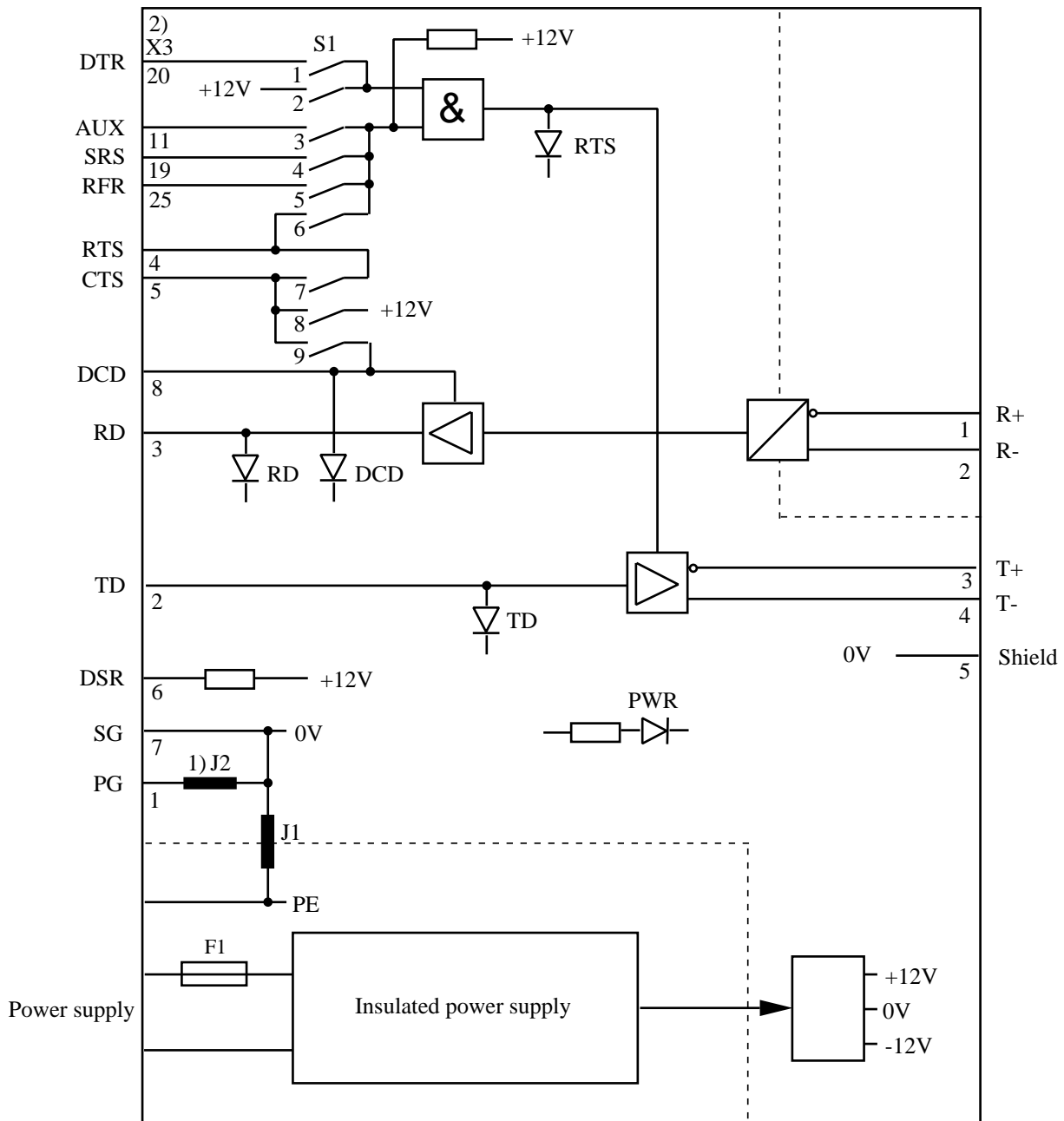
Connection no	Power Supply
1	+Voltage
2	- Voltage
3	



## Block diagram

V.24/RS-232

Line



1) 0  $\Omega$  resistor J2 is normally not mounted.

2) Metal housing on D-sub is connected to 0V

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**Westermo Teleindustri AB, S-640 40 Stora Sundby, Sweden, Phone +46 16 612 00, Fax +46 16 611 80**