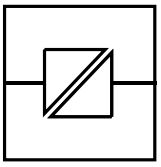
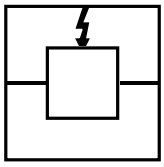
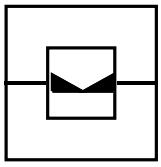
MM-14

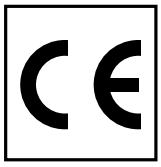
INSTALLATIONSANVISNING
INSTALLATION MANUAL
INSTALLATIONS ANLEITUNG

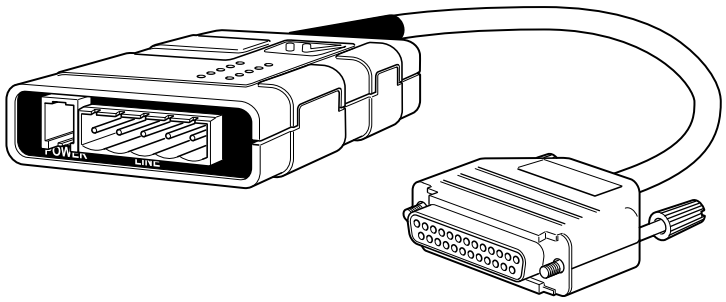
6186-2003


Galvanic Isolation


Transient Protection


Balanced Transmission


CE Approved



Korthållsmodem
Short haul modem
Kurzstreckenmodem

www.westermo.se

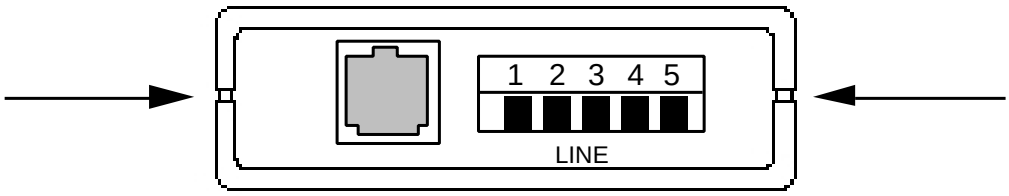
AUDIN - 8, avenue de la malle - 51370 Saint Brice Courcelles
Tel : 03.26.04.20.21 - Fax : 03.26.04.28.20 - Web : http: www.audin.fr - Email : info@audin.fr

Specifikationer

Överföring	Asynkron, full/halv duplex eller simplex
Gränssnitt 1	EIA RS-232-C/ITU-T V.24 8-polig modular jack, RJ-45 eller 9-polig D-sub, stift/hylsa eller 25-polig D-sub, stift/hylsa omkopplingsbar mellan DCE/DTE
Gränssnitt 2	±10 mA balanserad strömslinga Simplex (ett tvinnat par) Full/halv duplex (två tvinnade par) 5-polig skruvplint
Hastighet	Upp till 38 400 bit/s
Isolation	Galvanisk isolation med optokopplare (dataöverföring) resp. nätadapter (matning)
Isolationsspänning	500 V
Överspänningsskydd	**Gränssnitt 2:** inbyggt transientskydd, genombrotts-spänning mottagare 5,8 V, sändare 15 V Avledningsförmåga 0,6 kW under 1 ms.
Strömförsörjning	**Alt. 1:** Från stift 9 och 10 i RS-232, ±12 V DC ±5% relativ signaljord **Alt. 2:** 230 V AC ±10% 48–62 Hz via nätadapter PS-8, alternativt 27–40 V DC, isolerad från gränssnitt 1
Effektförbrukning	**Alt. 1:** +12 V 15mA, –12 V 15 mA **Alt. 2:** Max 1,5 VA
Nätadapter	PS-8, 1,5 m kabel
Temperaturområde	5–50°C, omgivningstemperatur
Fuktighetsområde	0–95% RH, utan kondensation
Mått mm	98x60x22 (BxHxD)
Vikt	0,07 kg

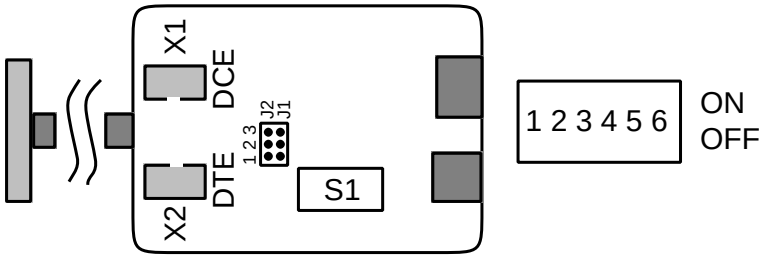
Inställningar

MM-14 kan genom inställningar anpassas till ett flertal olika driftförhållanden. Samtliga omkopplare i MM-14 görs åtkomliga genom att lådans lock avlägsnas. Detta sker lätt med hjälp av t ex en skruvmejsel.



Omkopplarna är placerade och har funktion enligt beskrivning nedan:

Placering på kretskort:



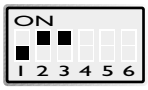
9/25-polig.
D-sub

Funktion:

S1	Val av kontrollsignal för aktivering av sändare (bärvåg) Val av signal för styrning av CTS/DTR
X1/X2	Val av funktion DCE/DTE (Kabeln placeras i önskad kontakt)
J1/J2	Val av intern/extern matning

DCE
Sändare (bärvåg) aktiverad av

S1  Alltid aktiv

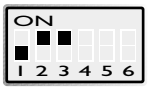
S1  RTS

S1  DTR

S1  DTR och RTS

DTE
Sändare (bärvåg) aktiverad av

S1  Alltid aktiv

S1  DCD

S1  CTS

S1  CTS och DCD

DCE
CTS styrd av

S1  RTS

S1  Alltid hög

S1  DCD

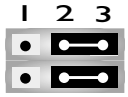
DTE
DTR styrd av

S1  DCD

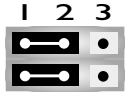
S1  Alltid hög

S1  RTS

Intern/extern matning



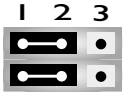
Intern
pin 9 och 10



Extern
PS-8

Fabriksinställning

S1  DCE



Extern
PS-8

Anslutningar

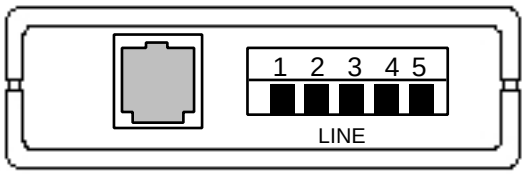
Linjeanslutning
(5-polig skruvplint)

Riktning	Anslutning nr.	Benämning
Mottagare	1	(R+)
Mottagare	2	(R–)
Sändare	3	(T+)
Sändare	4	(T–)
	5	Skärm

Terminalanslutning (DCE)
(RS-232-C/V.24, 25/9-Polig D-sub, hylsdon/stiftdon alt. RJ-45)

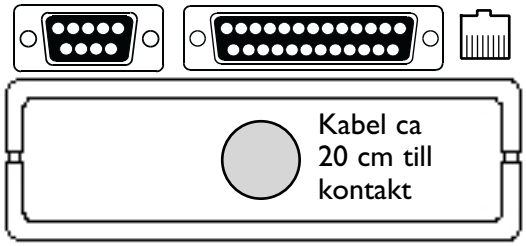
Rikning	Anslutning 9-pol	25-pol	8-pol	ITU-T V.24 Benämning	Signalnamn
I	3	2	6	103	TD/Transmitted data
O	2	3	5	104	RD/Received Data
I	7	4	8	105	RTS/Request To Send
O	8	5	7	106	CTS/Clear To Send
O	6	6	1	107	DSR/Data Set Ready
–	5	7	4	102	SG/Signal Ground
O	1	8	2	109	DCD/Data Carrier Detect
–	–	9	–	–	PWR +12V
–	–	10	–	–	PWR –12V
I	4	20	3	108/2	DTR/Data Terminal Ready

I = Ingång, **O** = Utgång på MM-14



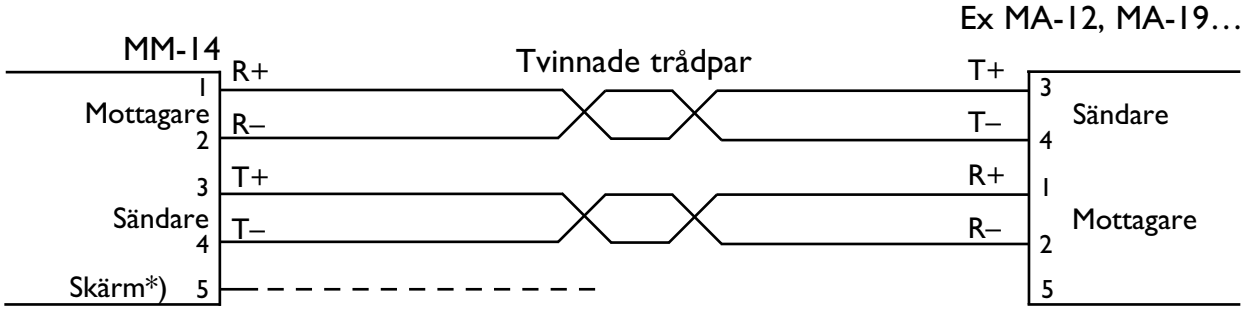
Matnings-anslutning till PS-8

Linjeanslutning 5-polig skruvanslutning



RS-232-C/V.24
9-/25-polig D-sub
stift eller hylskontakt
8-polig modular jack RJ-45

Linjekoppling



* Om skärmad kabel används, anslut skärmen endast i en ände för att undvika jordströmmar.

Överföringsavstånd 10 mA, W1 (gränssnitt 2)

Kabel 42pF/m 0,3 mm²	Överföringshastighet bit/s						
	600	1 200	2 400	4 800	9 600	19 200	38 400
	18 000 m	12 000 m	8 000 m	5 000 m	2 500 m	1 000 m	500 m

Tips

Linjegränssnittet på MM-14 är kompatibelt med Westermo asynkrona modem.

MM-14 kan konfigureras som DCE (Data Communication Equipment), vilket är det vanliga hos kommunikationsutrustning, eller DTE (Data Terminal Equipment) via anslutning i MM-14. Dessa anslutningar gör det möjligt att använda samma kablage i både DCE och DTE applikationer.

Om det uppkommer något problem vid inkoppling av MM-14 kan några enkla felsökningstips vara till värdefull hjälp.

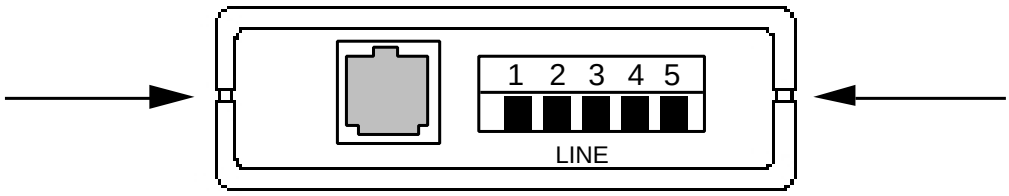
Ett bra sätt att testa modemet är att ansluta den mot en terminal och samtidigt bygla linjen, T+ byglas till R+ och T– till R–. Det tecken som skickas av terminalen skall nu ”ekas” tillbaka. Nästa steg är att koppla in motstående modem och bygla RD (*Receive Data*) och TD (*Transmitted Data*), tecknen skall nu ekas på samma sätt som tidigare om enheterna och linjen är riktiga.

Specifications

Transmission	Asynchronous, full/half duplex or simplex
Interface 1	EIA RS-232-C/ITU-T V.24 8-position modular jack, RJ-45 or 9-position D-sub, male/female or 25-position D-sub, male/female switchable between DCE/DTE
Interface 2	±10 mA balanced current loop Simplex (one twisted pairs) Full/half duplex (two twisted pairs) 5-position screw-terminal
Transmission	Up to 38.4 kbit/s
Isolation	Galvanic isolation with optocoupler (data transmission) and main adapter (supply)
Isolation voltage	500 V
Overvoltage protection	**Interface 2:** Transient protection, Breakdown voltage receiver 5.8 V, transmitter 15 V.
Power supply	Surge capacity 0.6 kW during 1ms. **Alt. 1:** From terminals pin 9 and 10 ±12 V DC ±5% relative signal earth **Alt. 2:** 230 V AC ±10% 48–62 Hz via main adapter PS-8. alternative 27–40 V DC, isolated from interface 1
Power consumption	**Alt. 1:** +12 V 15 mA, –12 V 15 mA **Alt. 2:** Max 1.5 VA
Main adapter	PS-8, 1.5 m cable
Temperature range	5–50°C
Humidity	0–95% RH, non-condensing
Dimension	98x60x22 (WxHxD)
Weight	0.07 kg

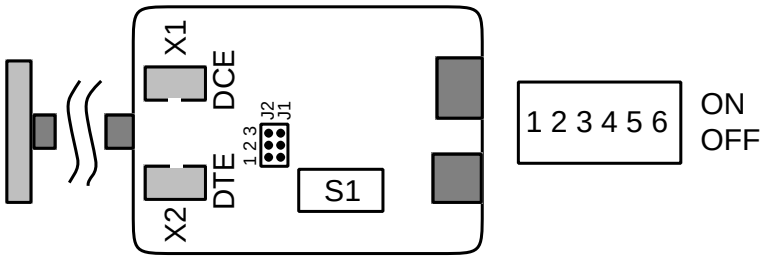
Switch settings

The MM-14 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.



On the circuit board the switches has the following location and functions:

Location on circuit board:



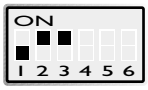
9/25-pos.
D-sub

Function:

S1	Selection of signal activating transmitter (carrier) Selection of signal controlling CTS/DTR
X1/X2	Selection of function DCE/DTE (The cable is placed in required connector)
J1/J2	Selection of internal/ external power supply

DCE
Transmitter (carrier) activateed by

S1  Always active

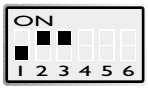
S1  RTS

S1  DTR

S1  DTR and RTS

DTE
Transmitter (carrier) activateed by

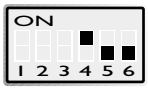
S1  Always active

S1  DCD

S1  CTS

S1  CTS and DCD

DCE
CTS contolled by

S1  RTS

S1  Always high

S1  DCD

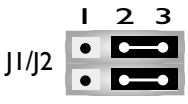
DTE
DTR contolled by

S1  DCD

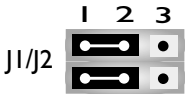
S1  Always high

S1  RTS

Internal/external supply



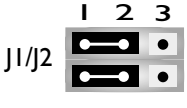
Internal
pin 9 and 10



External
PS-8

Factory settings

S1  DCE



External
PS-8

Connections

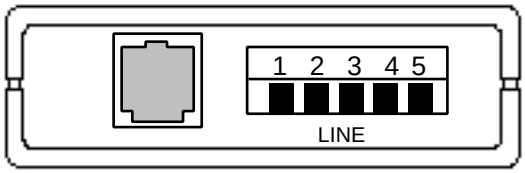
Line connection
(5-position screw-terminal)

Direction	Pin no.	Description
Receiver	1	(R+)
Receiver	2	(R–)
Transmitter	3	(T+)
Transmitter	4	(T–)
	5	Shield

Terminal connection (DCE)
(RS-232-C/V.24, 25/9-pos D-sub, male/female or RJ 45)

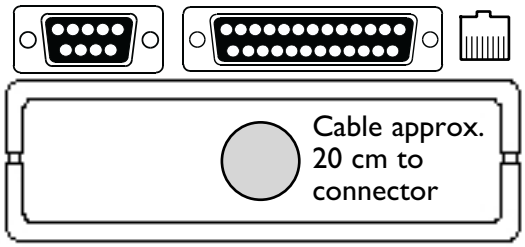
Direction	Connection no. 9-pos	25-pos	8-pos	ITU-T V.24 Description	Description
I	3	2	6	103	TD/Transmitted data
O	2	3	5	104	RD/Received Data
I	7	4	8	105	RTS/Request To Send
O	8	5	7	106	CTS/Clear To Send
O	6	6	1	107	DSR/Data Set Ready
–	5	7	4	102	SG/Signal Ground
O	1	8	2	109	DCD/Data Carrier Detect
–	–	9	–	–	PWR +12V
–	–	10	–	–	PWR –12V
I	4	20	3	108/2	DTR/Data Terminal Ready

I = Input, **O** = Output on MM-14



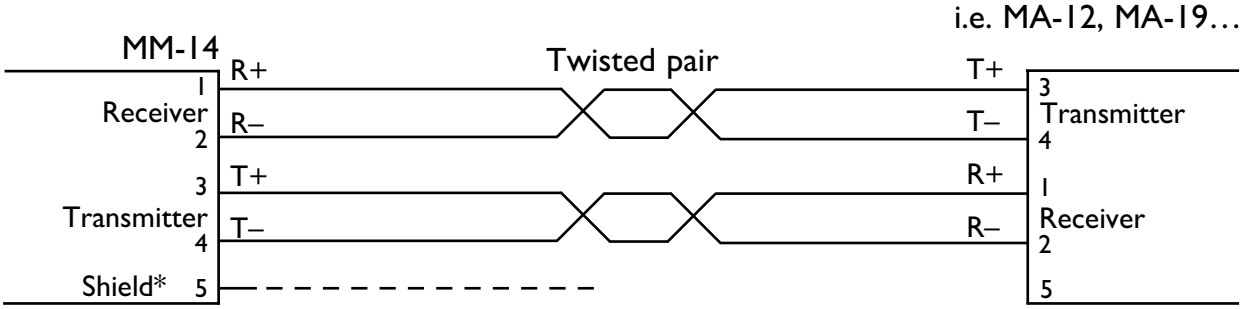
Supply connection to PS-8

Line connection 5-position screw-terminal



RS-232-C/V.24
9-/25-position D-sub
male or female connector
8-position modular jack RJ-45

Line connection



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

Transmission range 10 mA,W1 (interface 2)

Cable	Transmission rate bit/s						
42pF/m 0.3 mm^2	600	1 200	2 400	4 800	9 600	19 200	38 400
	18 000 m	12 000 m	8 000 m	5 000 m	2 500 m	1 000 m	500 m

Hints

The MM-14 has the same line interface as many of Westermo's systems and are hence compatible.

The RS-232/V.24 interface on the MM-14 can be configured as DCE (Data Communication Equipment) or as DTE (Data Terminal Equipment) via connectors inside the MM-14. Those connectors makes it possible to use the same cable in both DCE and DTE applications.

If any problems do occur on set up of the MM-14, some hints will be helpful.

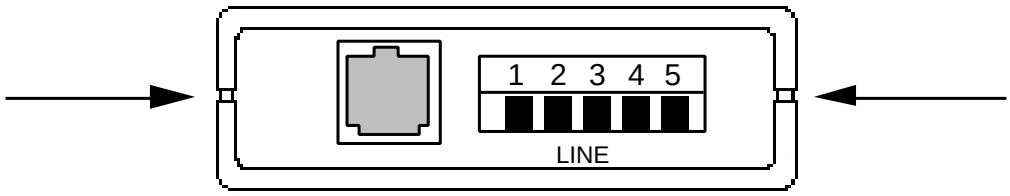
A good way to check the MM-14 is to carry out a loop back test. Connect T+ to R+ and T– to R–. Connect the RS-232/V.24 port to a terminal. When keys are pressed on the terminal you should receive the echo on screen. If this test is ok then connect the remote modem an make a loop between RD (*Received Data*) and TD (*Transmitted Data*), the characters transmitted from the terminal shall be echoed in the same way as before.

Technische Daten

Übertragungsarten	Asynchron, Voll-/Halbduplex oder Simplex
Schnittstelle 1	EIA RS-232-C/ITU-T V.24 8 polige RJ-45 Buchse oder 9 polige Sub-D-Buchse / Stecker oder 25 polige Sub-D-Buchse / Stecker schaltbar DÜE/DEE
Schnittstelle 2	±10mA Symmetrische Stromschleife Simplex (auf 2-Draht) oder Halb- Vollduplex auf 4-Draht 5 polige Schraubklemme
Übertragungsraten	Bis zu 38 400 Bit/s
Isolation	Galvanisch Isoliert mittels Optokoppler (Datenübertragung) und Transformator (Spannungsversorgung)
Isolationsspannung	500 V
Überspannungsschutz	**Schnittstelle 2:** Transienten geschützt, Durchbruchspannung Sender 15V und Empfänger 5,8V
Spannungsversorgung	Stromstosskapazität 0,6 kW/1mS **1.)** Über Terminal Pin 9 & 10 ± 12 V DC ± 5% bezogen auf Signalerde **2.)** 230 V +15/-10% 48-62 Hz über PS-08 Adapter alternativ 27-40V DC, isoliert von Schnittstelle 1
Leistungsaufnahme	**1.)** +12 V 15 mA, –12 V 15 mA **2.)** Max 1,5 VA
Netzadapter	PS-8, 1,5 m Anschlußkabel
Umgebungstemperatur	5–50°C
Luftfeuchtigkeit	0–95%, nicht kondensierend
Abmessungen	98x60x22 mm (BxHxT)
Gewicht	0,07 kg

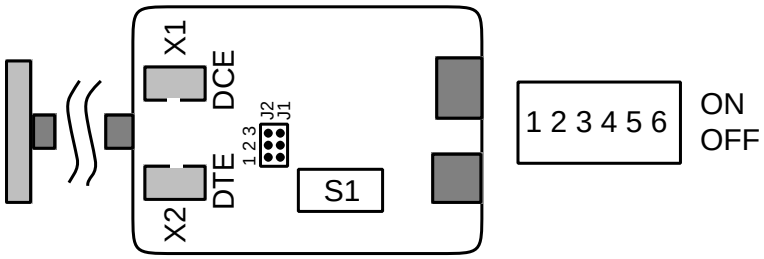
DIP-Schalter Einstellung

Das MM-14 bietet verschiedene Einstellmöglichkeiten zur Abstimmung auf verschiedenste Betriebsverhälnisse. Um die DIP-Schalter einzustellen muß die Gehäuseabdeckung z.B. mit Hilfe eines Schraubendrehers abgenommen werden.



Auf der Platine sind die haben die DIP-Schalter folgende Lage und Funktionen:

Lage auf der Platine:



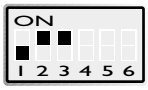
9/25-pol.
SubD

Funktion:

S1	Auswahl des Aktivierungssignal des Senders (Träger) Auswahl des Signals welches CTS/DTR steuert
X1/X2	Auswahl DEE/DÜE
J1/J2	Einstellung interne/ externe Spannungsversorgung

DÜE
Sender (Träger) aktiviert durch

SI  Immer aktiv

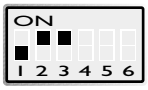
SI  RTS

SI  DTR

SI  DTR und RTS

DEE
Sender (Träger) aktiviert durch

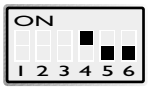
SI  Immer aktiv

SI  DCD

SI  CTS

SI  CTS und DCD

DÜE
CTS gesteuert von

SI  RTS

SI  Immer ein

SI  DCD

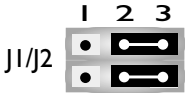
DEE
DTR gesteuert von

SI  DCD

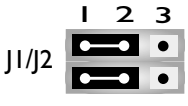
SI  Immer ein

SI  RTS

Interne/externe Versorgung



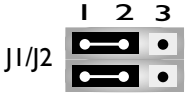
Intern
Pin 9 und 10



Extern
PS-8

Werkseinstellung

SI  DÜE



Extern
PS-8

Leitungsanschluß

(5-polige Schraubklemme)

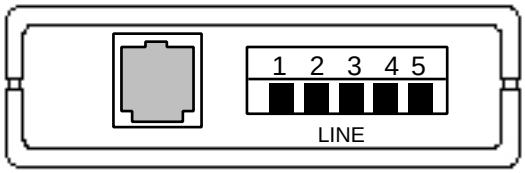
Richtung	Nr.	Beschreibung
Empfänger	1	(R+)
Empfänger	2	(R–)
Sender	3	(T+)
Sender	4	(T–)
	5	Schirmung

Terminalanschluß (DÜE)

(RS-232-C/V.24, 25/9-polige Sub-D Buchse/Stecker oder Rj-45)

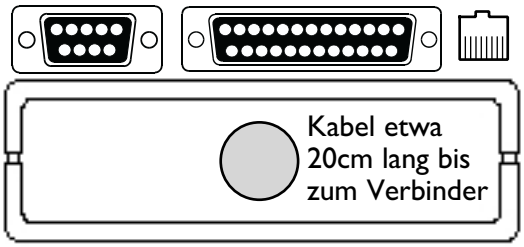
Richtung	Pin Nr 9-pol.	25-pol.	8-pol.	ITU-T V.24 Bezeichnung	Beschreibung
I	3	2	6	103	TD/Transmitted data
O	2	3	5	104	RD/Received Data
I	7	4	8	105	RTS/Request To Send
O	8	5	7	106	CTS/Clear To Send
O	6	6	1	107	DSR/Data Set Ready
–	5	7	4	102	SG/Signal Ground
O	1	8	2	109	DCD/Data Carrier Detect
–	–	9	–	–	PWR +12V
–	–	10	–	–	PWR –12V
I	4	20	3	108/2	DTR/Data Terminal Ready

I = Eingang, **O** = Ausgang des MM-14



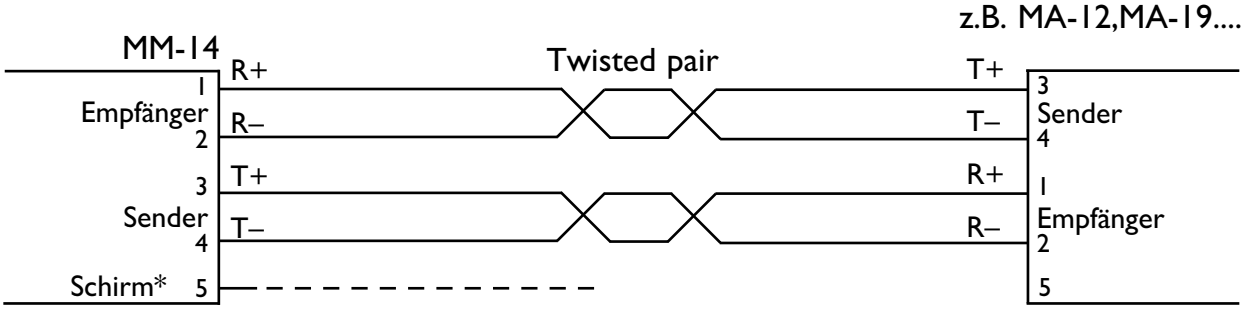
Spannungs-
versorgungs
Anschluß
PS-8

Leitungsanschluß
5polige
Schraubklemme



RS-232-C/V.24
9-/25-poliger D-Sub
Stecker oder Buchse
8-poliger RJ-45 Stecker

Leitungsanschluß



* Bei Verwendung von abgeschirmten Kabeln den Schirm nur auf einer Seite anschließen um Erdströme zu vermeiden

Übertragungsweiten 10 mA, W1 (Schnittstelle 2)

Kabel 42pF/m 0,3 mm²	Übertragungsraten Bit/s						
	600	1 200	2 400	4 800	9 600	19 200	38 400
	18 000 m	12 000 m	8 000 m	5 000 m	2 500 m	1 000 m	500 m

Tips

Das MM-14 besitzt die selbe Leitungsschnittstelle wie alle anderen Westermo Produkte mit der ±10 mA symmetrischen Stromschleife.

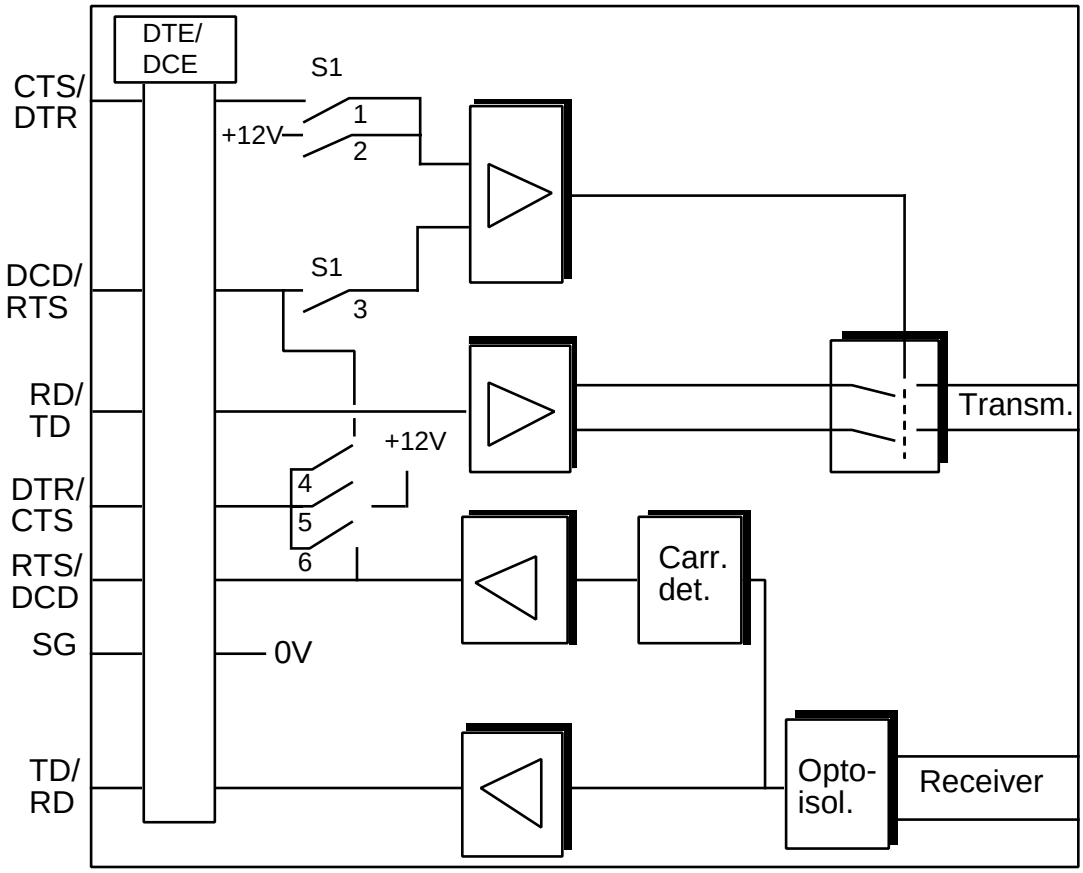
Die RS-232/V.24 Schnittstelle des MM-14 kann als DÜE (Datenübertragungseinheit) oder DEE

(Datenendeinrichtung) über Steckverbinder im inneren des MM-14 konfiguriert werden. Dadurch kann das gleiche Schnittstellenkabel bei DEE und DÜE Anwendungen benutzt werden.

Sollten Probleme bei der Einstellung des MM-14 auftauchen, können folgende Hinweise hilfreiche sein.

Eine gute Testmöglichkeit für das MM-14 ist einen Loop-Back Test durchzuführen. Verbinden sie T+ mit R+ und T– mit R–. Verbinden sie den RS 232/V.24 Anschluß mit einem Terminal somit sollten die abgeschickten Daten am Terminal sichtbar werden. Ist dieser Test erfolgreich, verbinden Sie die zweite Einheit und machen Sie eine Schleife zwischen RD (Received Data) und TD (Transmitted Data), das Ergebnis sollte das gleiche sein.

Block diagram



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