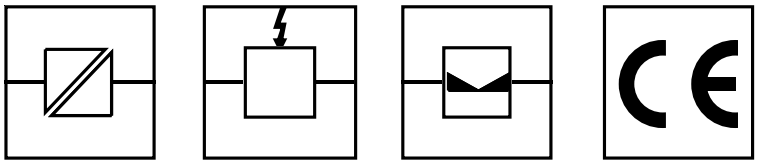
MD-54 AC
MD-54 DC

INSTALLATIONSANVISNING
INSTALLATION MANUAL
INSTALLATIONS ANLEITUNG

6605-2001



Galvanic Isolation | Transient Protection | Balanced Transmission | CE Approved

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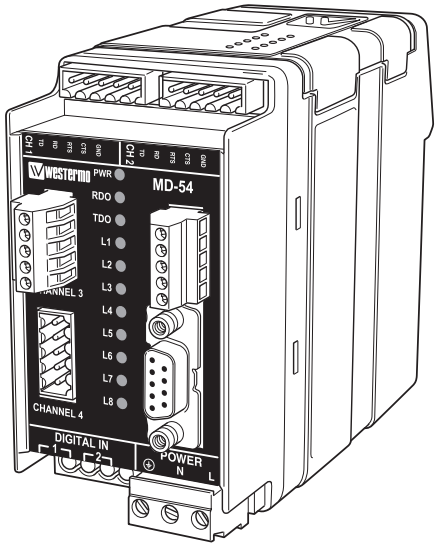

CTS-generator,
Xon/Xoff till CTS-omvandlare

CTS-generator,
Xon/Xoff to CTS converter

CTS-Generator,
Xon/Xoff auf CTS Wandler

westermo®
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Specifications MD-54

Transmission	Asynchronous, full/half duplex or simplex
Interface	**Channel 3:** RS-232/V.24: 5-pin screw terminal **Channel 0:** RS-232/V.24: 9-pin D-sub RS-422/485: 5-pin screw terminal
Transmission rate	**Channel 3:** 300–115 200 bit/s **Channel 0:** RS-232/V.24: 1 200–115 200 bit/s RS-422/485: 1 200–460 800 bit/s
Buffer	**Channel 3:** 16 kb **Channel 0:** 16 kb
Power supply	230V AC +15%/–10% 48–62 Hz, 12–36V DC
Isolation voltage	3000V AC, 1500V DC
Fuse	AC 100mA fast 5x20 mm, DC 1.6A
LED Indicators	PWR, RD0, TD0, L1, L2, L3, L4, L5, L6, L7, L8
Power consumption	AC 30 mA, DC 1.5W
Temperature range	5–50°C, ambient temperature
Humidity	0–95% RH non-condensing
Dimension	55x100x128 mm (WxHxD)
Weight	AC 0.5 kg, DC 0.3 kg
Mounting	35 mm DIN-rail

Description MD-54

The MD-54 is a device that solves serial data incompatibility problems between two devices. For example it can be used as a 'CTS-generator' or a 'XON/XOFF to RTS/CTS-converter'. It can also be used as a parameter and/or speed-converter and data buffer.

The unit is set up using a terminal or PC and settings are stored in non volatile memory.

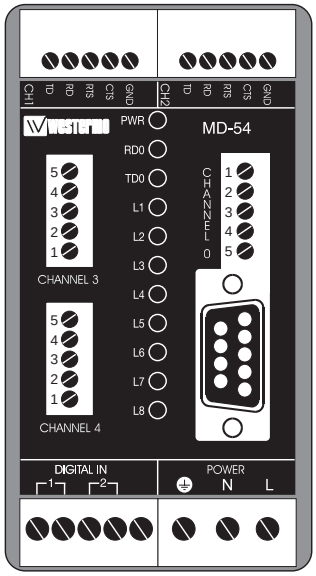
The unit consists of two RS-232/V.24 interfaces and two 16 kb data buffers, one in each direction. There is also a RS-422/485 interface connected in parallel to one of the RS-232/V.24 interfaces. Both RS-232/V.24 interfaces are DCE connections.

The front cover has 11 LED's for status indication.

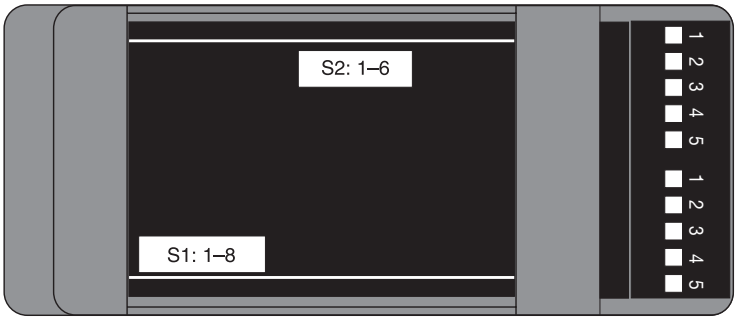
As with other Westermo products the MD-54 provides a high level of galvanic isolation both on power and inputs. Operating modes are set-up via DIP-switches located under the lid on the top of the unit. The MD-54 is available in both AC (230V) and DC (12–36V) supply voltage. The unit is designed for mounting on 35 mm DIN-rail.

Switch settings MD-54

The MD-54 can be set for a range of different operating conditions. Some settings are made via DIP-switches located under the lid on the top of the unit.

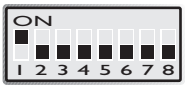


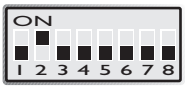
Warning! Do not open connected unit



Function switch 1

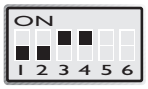
S1 Normal function

S1  New program can be downloaded via channel 0 *

S1  Settings can be made via channel 0 **

Function switch 2

S2 Termination 4-wire (RS-422)

S2  Termination 2-wire (RS-485)

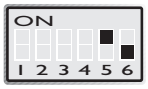
S2 No termination

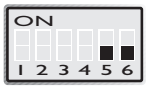
*) *The unit will automatically adapt its communication parameters for channel 0.*
PC based software from Westermo is required to download a new program.

**) *In this setting channel 0 communicates as follow:*

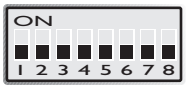
- *9 600 bit/s*
- *8 bits wordlength*
- *no parity*
- *1 stop bit*

Function switch 2

S2  4-wire (RS-422)

S2  2-wire (RS-485)

Factory settings

S1  S2

Connections MD-54

Connection channel 0, RS-232/V.24

Direction DCE	Connection 9-pos D-sub	CCITT V.24 Description	Signal description
O	2	104	RD/Received Data
I	3	103	TD/Transmitted Data
–	5	102	SG/Signal Ground
I	7	105	RTS/Request To Send
O	8	106	CTS/Clear To Send

I = Input MD-54 **O** = Output MD-54

Connection channel 0, RS-422/485

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

Digital In, channel 1, 2 and 4 not used.
The definations R+/R–, T+/T– can be various between different manufactures.

LED's description

Designation	Description
PWR	Power supply OK
RD0	RD signal channel 0
TD0	TD signal channel 0
L1	RTS signal channel 0
L2	–
L3	CTS signal channel 3
L4	–
L5	RD signal channel 3
L6	TD signal channel 3
L7	RTS signal channel 3
L8	–

Connection channel 3, RS-232/V.24

Direction DCE	Connection no.	CCITT V.24 Description	Signal description
I	1	103	TD/Transmitted Data
O	2	104	RD/Received Data
I	3	105	RTS/Request To Send
O	4	106	CTS/Clear To Send
–	5	102	SG/Signal Ground

I = Input MD-54 **O** = Output MD-54

Power connection MD-54 AC

3-position screw-terminal

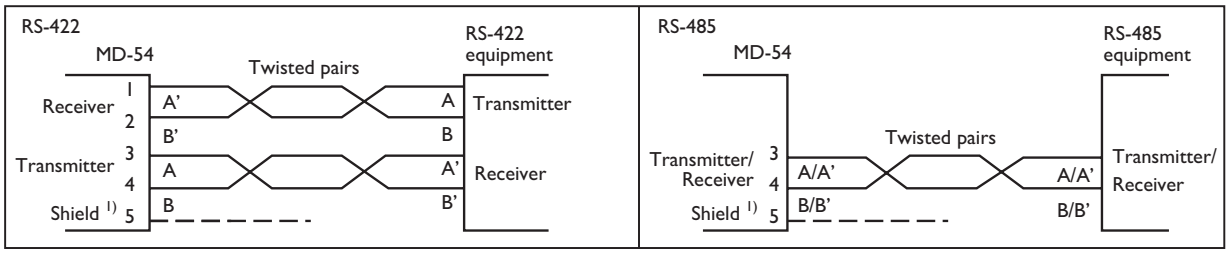
Screw	Power supply
L N	230V AC power
⏚	Earth

Power connection MD-54 DC

2-position screw-terminal

Connection	Power supply
– +	– Voltage + Voltage

Line connection



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

Transmission range (RS-422/485)

Use twisted pair cable. Max transmission range 1200 metre.
(cable specifications 0.3 mm^2 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.

How to make settings through a terminal

1. Make sure the power is off ('PWR' LED off).
2. Connect communication-cable between CH0 (D-sub) and terminal.
3. Set switch 1:2 ON
4. Connect power cable

A menu should appear on the screen. It is now possible to make settings.
After settings have been made:

5. Disconnect power
6. Set switch 1:2 OFF

Note! Remember to save settings before disconnecting power cable.

You will need a modem cable to program the MD-54

MD-54	PC 9-way	PC 25-way
1	1	8
2	2	3
3	3	2
4	4	20
5	5	7
6	6	6
7	7	4
8	8	5
9	9	22

Settings

The following settings can be selected through a terminal:

Interface

RS-232/V.24	
RS-485	(not selectable for channel 3)
RS-422	(not selectable for channel 3)

Parity

None
Odd
Even

Number of stop bits

One
Two

Wordlength

7 bit
8 bit

Baudrate

300 bit/s	(not selectable for channel 0)
600 bit/s	(not selectable for channel 0)
1 200 bit/s	
2 400 bit/s	
4 800 bit/s	
9 600 bit/s	
19 200 bit/s	
38 400 bit/s	
57 600 bit/s	
115 200 bit/s	
230 400 bit/s	(not selectable for RS-232/V.24)
460 800 bit/s	(not selectable for RS-232/V.24)

Transmit condition (not selectable for RS-422/485)

RTS
Time ----------

Time CTS – data out

10 ms
50 ms
150 ms
250 ms
User defined (0–250 ms)

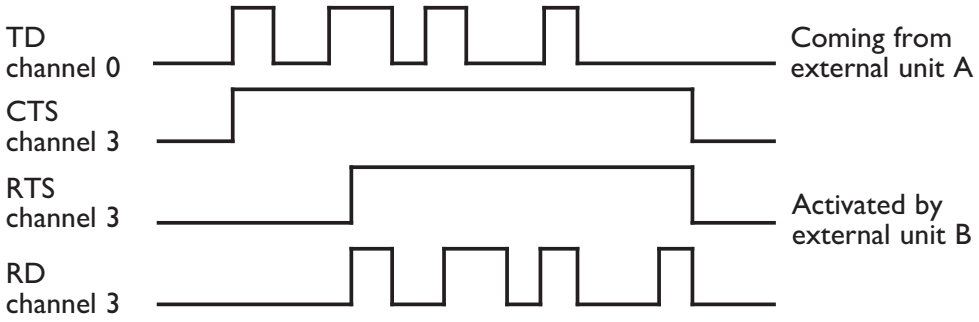
Time CTS passive

0 ms
10 ms
50 ms
100 ms
User defined (0–250 ms)

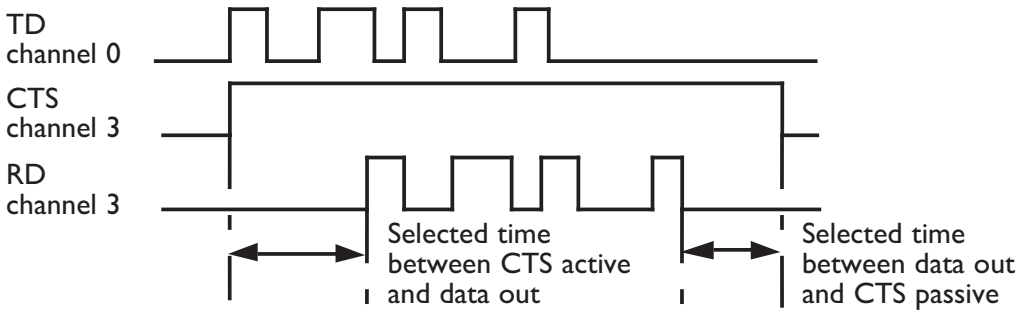
Flow control (not selectable for CTS-generator)

RTS/CTS
XON/XOFF
None

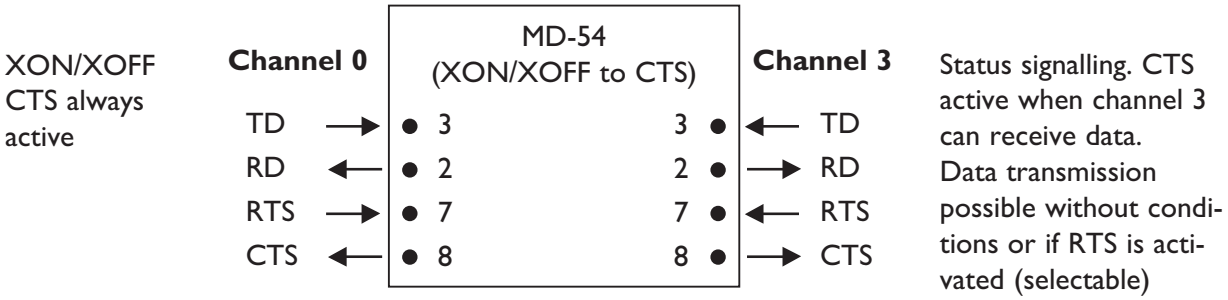
Note! 7 bit, no parity, 1 or 2 stopbits not selectable for channel 0.



An example of a data flow when condition for transmission of data is an active RTS signal.

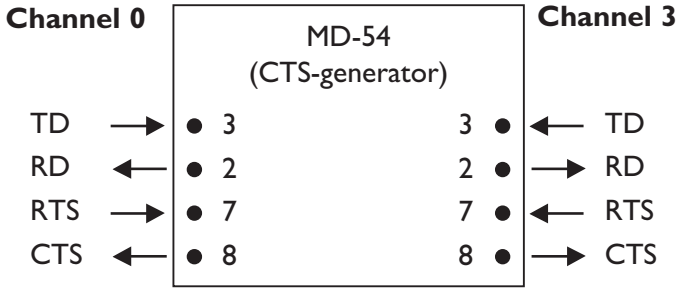


An example of a data flow when condition for data transmission is a selectable time after activating CTS.



MD-54 as 'XON/XOFF to CTS-converter'

The MD-54 is used in this mode if a system that controls its data flow with XON/XOFF is required to communicate with another system which controls data flow by means of CTS. The data flow on channel 0 is controlled using XON/XOFF. Channel 3 indicates to its connected unit that its buffer is full by deactivating CTS. Both RS-232/V.24 interfaces are DCE.

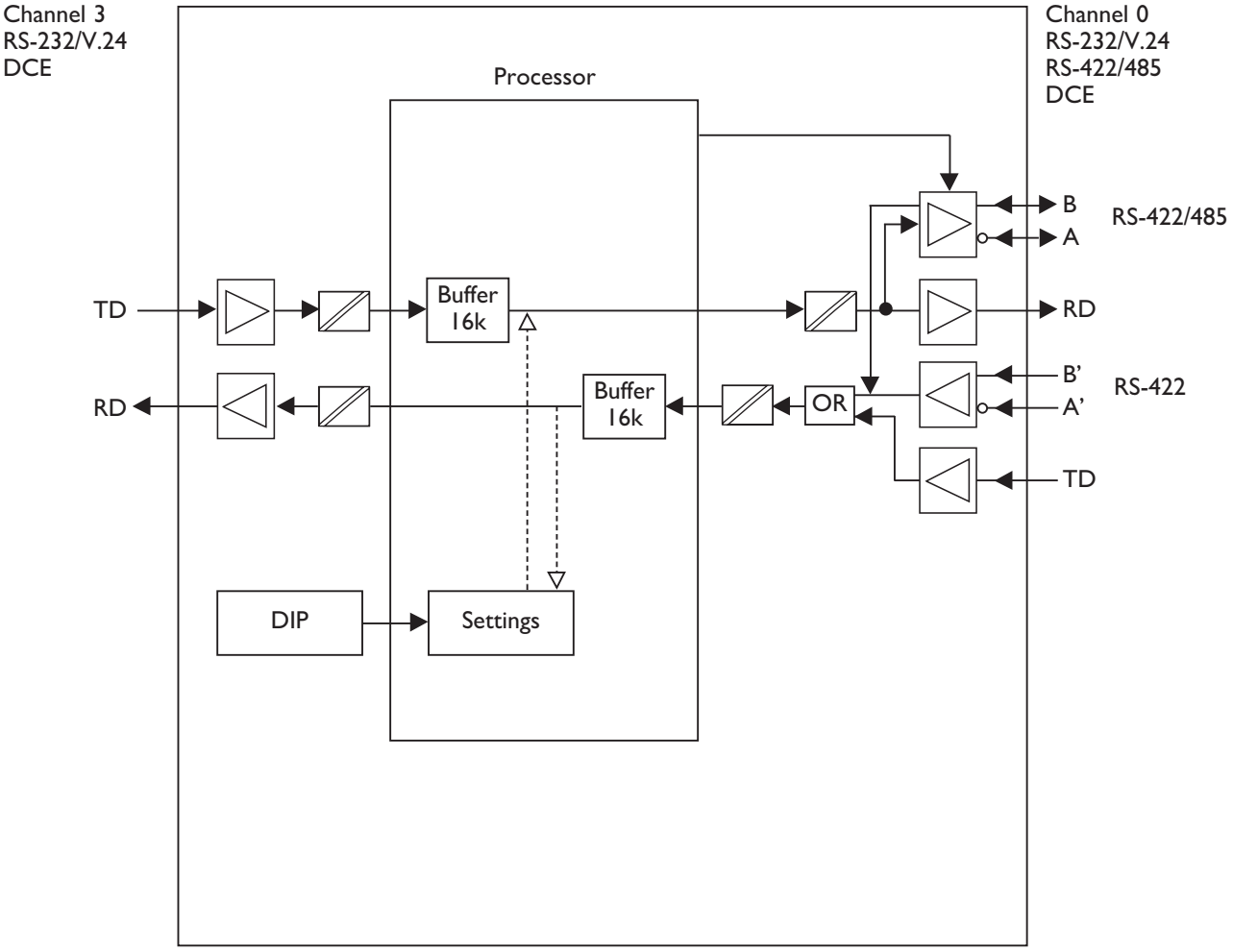


MD-54 as 'CTS-generator'

When a channel has data to send it indicates this by activating CTS. Data may not be sent until an active RTS, or a set time has elapsed since CTS was first activated. The MD-54 will buffer the incoming data until these condition are fulfilled.
Both RS-232/V.24 interfaces are DCE.

OWN COMMENTS

Block diagram



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