MD-62 AC
MD-62 DC

# INSTALLATIONSANVISNING
# INSTALLATION MANUAL
# INSTALLATIONS ANLEITUNG

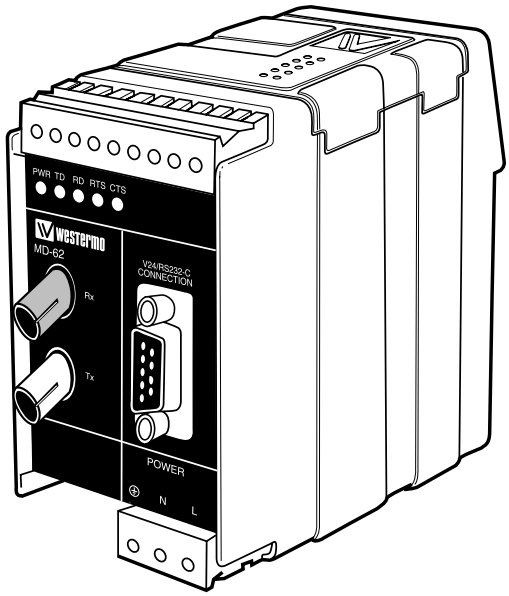
**6070-2001**

Galvanic Isolation

Transient Protection

CE Approved






***Omvandlare, optisk fiber – RS-232/V.24***
***Converter, fibre-optic – RS-232/V.24***
***Glasfaser Wandler – RS-232/V.24***

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# Specifications MD-62

| | |
|---|---|
| **Transmission** | Asynchronous, full/half duplex or simplex |
| **Interface 1** | EIA RS-232/CCITT V.24 9-position D-sub connector female or 9-position detachable screw-terminal |
| **Interface 2** | ST-connectors, see table of power budget |
| **Data rate** | Up to 115.2 kbit/s |
| **Indicators** | Power, TD, RD, RTS, CTS |
| **Temperature range** | 5-50°C ambient temperature |
| **Humidity** | 0-95% RH without condensation |
| **Dimension** | 55x100x128 mm ( WxHxD) |
| **Weight** | 0.4 kg AC / 0.25 kg DC |
| **Mounting** | On 35 mm DIN-rail |

**Power supply alternatives**

| Model description | MD-62 AC | MD-62 115V AC | MD-62 DC | MD-62 36–55V DC |
|---|---|---|---|---|
| Power supply | 230V AC +15/–10% | 115V AC +15/–10% | 24V DC +50/–50% | 48V DC +15/–25% |
| Frequency | 48–62Hz | 48–62Hz | – | – |
| Fuse, F2 | 100mA S 5x20 mm Littelfuse | 100mA S 5x20 mm Littelfuse | 1.6A S 5x20 mm Littelfuse | 1.6A S 5x20 mm Littelfuse |
| Power consumption | 5VA | 5VA | 3W | 3W |
| Overvoltage protection | 430V | 220V | – | – |
| Isolation RMS | 1 500V | 1 500V | 500V | 500V |

# Functional description MD-62

MD-62 is developed for RS-232 point to point communication via fibre optic cables. Transmission rates up to 115.2 kbit/s and transmission distances up to 25 km is possible. The MD-62 consists of one F/O channel with separate transmitter and receiver, Tx and Rx. On the front of the unit there are also three LED's indicating the data transmission on the channel. The fibre optical cable is completely immune to external interference, which makes it ideal for harsh environments.

# Power budget

**Min. budget**

| Unit | | | |
|---|---|---|---|
| **Fibre** | **820 nm** | **1300 nm** | **single mode** |
| 50/125 | 10.7 dB | 8.1 dB | |
| 62.5/125 | 14.5 dB | 11.6 dB | |
| 100/140 | 20.6 dB | | |
| 9/125 | | | 6.3 dB |

**Typ. budget**

| Unit | | | |
|---|---|---|---|
| **Fibre** | **820 nm** | **1300 nm** | **single mode** |
| 50/125 | 16.6 dB | 14.6 dB | |
| 62.5/125 | 18.6 dB | 15.1 dB | |
| 100/140 | 25.9 dB | | |
| 9/125 | | | 12.3 dB |

”Min. budget” states the minimum guaranteed power budget. Experience shows however that the typical value is in the range of the indicated ”Typ. budget”.

# Attenuation in fibre cable

The values below can differ depending on quality and manufacturer of the fibre-optic cable.

| Fibre | Attenuation at 820 nm | Attenuation at 1300 nm | Attenuation at single mode (1300 nm) |
|---|---|---|---|
| 50/125 µm | 3.0 dB/km | 1.0 dB/km | |
| 62.5/125 µm | 3.5 dB/km | 1.2 dB/km | |
| 100/140 µm | 4.0 dB/km | | |
| 9/125 µm | | | 0.5 dB/km |

# Attenuation in connectors

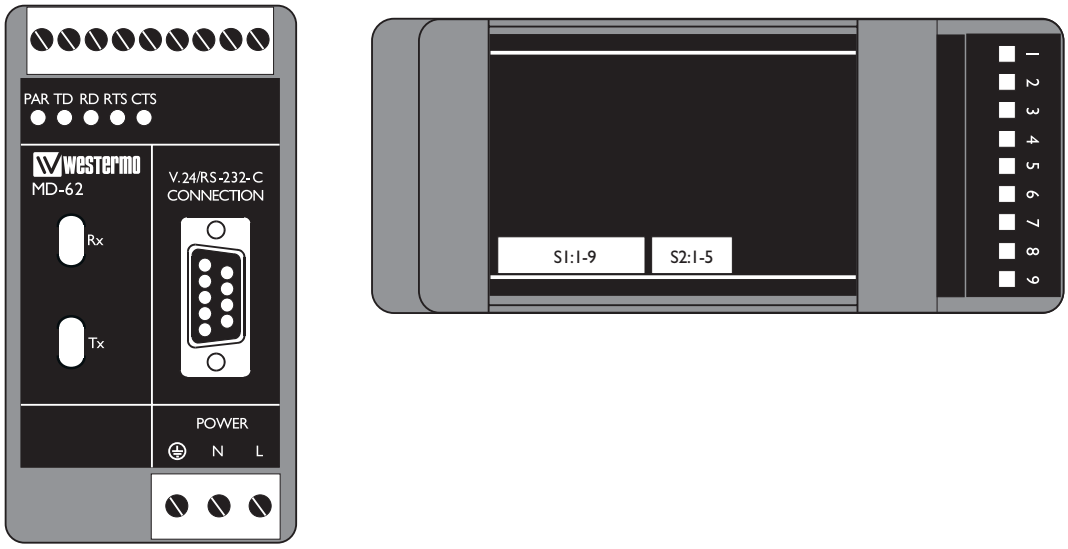
0.2–0.4 dB

# Attenuation in splice

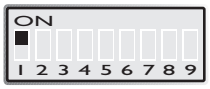
| | |
|---|---|
| Fusion | 0.1 dB |
| Mecanical | 0.2 dB |

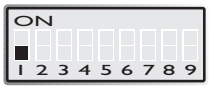
# Switch settings MD-62

The MD-62 can, through switch settings, be set in to several modes. To set the switches, open the plastic case by removing the top cover.



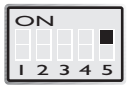

## Status signal

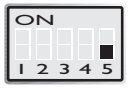
S1  Enabled

S1  Disabled

*Switch S1: 2–9 not used*

## Transmitted power

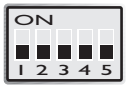
S2  Low

S2  High

*Switch S2: 1–4 not used*

## Factory settings

S1 

S2 

# Connections MD-62

## Terminal connection (DCE)

(RS-232-C/V.24, 9-position female D-sub connector or 9-position screw-terminal)

| Direction | Pin no. | Screw no. | CCITT V.24 Circuit no. | Description |
|---|---|---|---|---|
| **I** | 3 | 8 | 103 | TD/Transmitted Data |
| **O** | 2 | 7 | 104 | RD/Received Data |
| **I** | 7 | 6 | 105 | RTS/Request To Send |
| **O** | 8 | 5 | 106 | CTS/Clear To Send |
| **–** | 5 | 1 & 9 | 102 | SG/Signal Ground |

**I** = Input **O** = Output on MD-62

## Power connection MD-62 AC

(3-position screw-terminal)

| Screw no. | Power supply |
|---|---|
| L<br>N | 115*/230V<br>AC power |
| ⏚ | PE/Protective Earth |

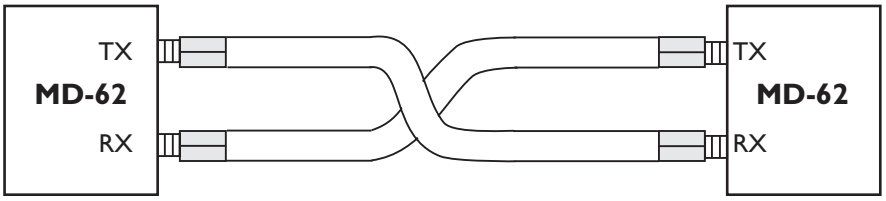
* MD-62 115V

## Power connection MD-62 DC

(2-position screw-terminal)

| Connection no. | Power Supply |
|---|---|
| 1<br>2 | – Voltage<br>+ Voltage |

## Fibre optic connection



# Hints

*If any problems occur upon set-up of the MD-62, the following notes may be helpful.*

1. Power up the MD-62 and check that the PWR LED is lit.
2. Check the cable between your RS-232 interface and the RS-232 connection on the MD-62. The RS-232 interface on the MD-62 is configured as DCE (Data Communication Equipment). Most printers, PCs and terminals are set as DTE (Data Terminal Equipment).
   See 3 suggestions of cable configurations on the next side.

*How to check whether the equipment is DTE or DCE:*

- Power up the unknown equipment and ensure that nothing is plugged into the RS-232 interface. Using a multi-meter, first measure the voltage on pin 2 of the connector (male or female) with reference to ground on pin 7 (25 pole connector) or on pin 5 (9 pole connector, PC standard). Then measure the voltage on pin 3 in the same way. The pin with the most negative voltage will be the output pin and will identify the device as DCE or DTE.

**25 pole connector RS-232-C**

- If the most negative voltage is on pin 2: the device is DTE.
- If the most negative voltage is on pin 3: the device is DCE.

**9 pole connector,PC standard**

- If the most negative voltage is on pin 3: the device is DTE.
- If the most negative voltage is on pin 2: the device is DCE.

3. The RS-232 cable is correct but it still does not work. The LEDs may be helpful.

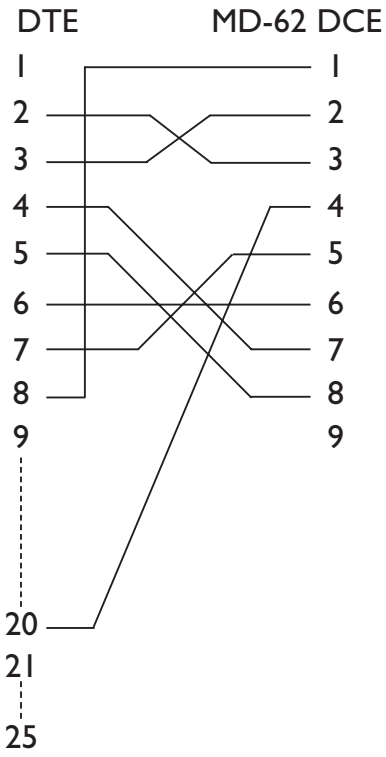
- PWR: The unit has power
- RD: Data received from fibre interface
- TD: Data received from RS-232 interface
- RTS: RTS from RS-232 side
- CTS: Indicates RTS from RS-232 side on oppsite modem.

4. Test each individual modem. All switches in OFF state. Make sure that the mains-power socket is disconnected when the modem lid is off.

A. Equipment required: a terminal or a PC with terminal program, an RS-232 cable according to point 2, and a fibre cable.
B. Connect a cable between the modem and terminal, or PC with a terminal program. Connect the fibre cable between RX and TX.
C. Press any key on the keyboard. During keystrokes, the TD and RD LED's should flash on the modem, simultaneously, the characters will be echoed on the monitor.
D. If the fibre cable is removed from one port only, the TD LED will flash when a key is pressed, but no characters will appear on the screen.
   Repeat the same test with the second modem.

5. Testing the modems together.

A. Leave the last tested modem in place, connected to the terminal or the PC (modem A).
B. Connect two fibre cables between the modems RX (modem A) – TX (modem B) and vice versa.
C. Connect pins 2 and 3 of the RS-232 interface on modem B (top screw terminal 7, 8).
D. Continue according to point 4.C.


DTE
MD-62 DCE
1
2
3
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5
6
7
8
9
20
21
25
1
2
3
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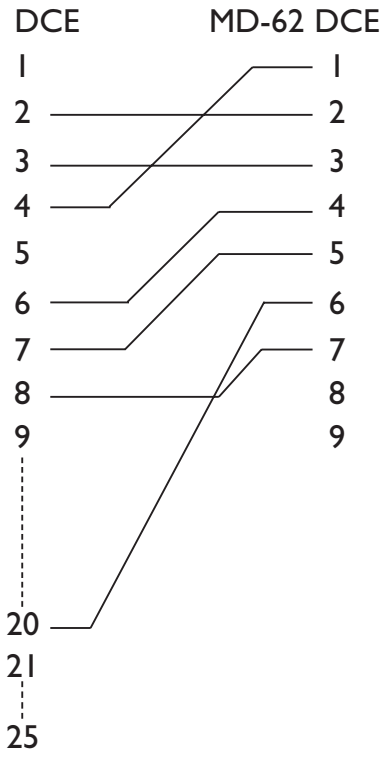
7
8
9


DCE
MD-62 DCE
1
2
3
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9
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21
25
1
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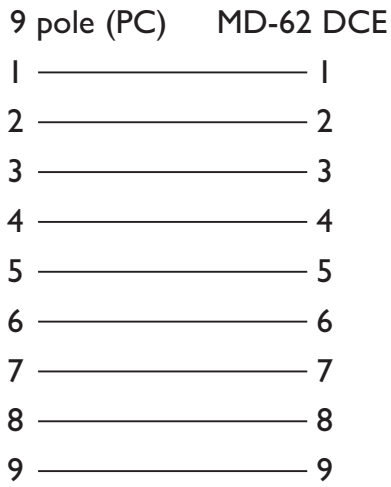
9


9 pole (PC)
MD-62 DCE
1
2
3
4
5
6
7
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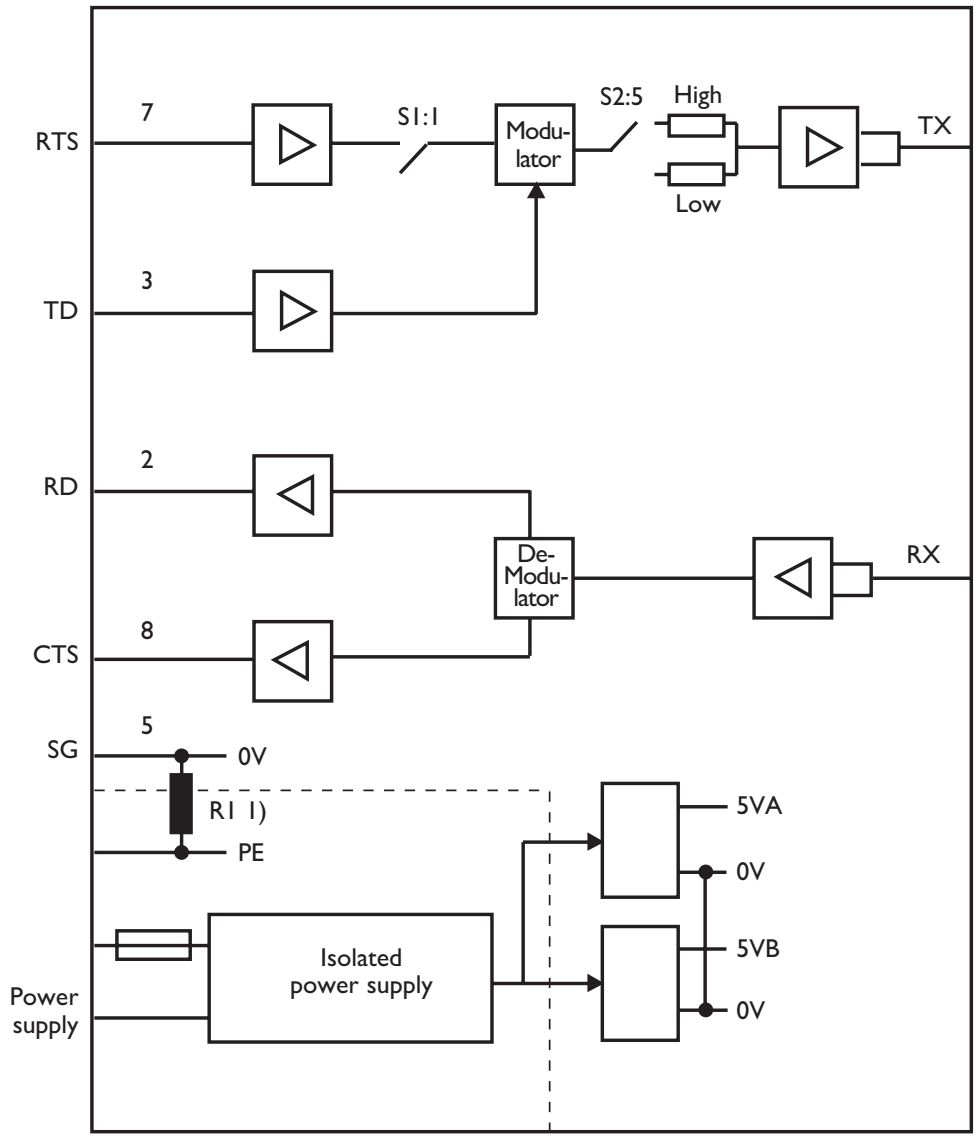
9
1
2
3
4
5
6
7
8
9

# Block diagram

**RS-232-C/V.24**




1) Jumper R1 normally not mounted

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