



**M-11**  
**MULTIPLEXER UNIT**  
**PART OF MDM-11 MUX/DeMUX SYSTEM**  
  
**OPERATION INSTRUCTIONS**

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## 1. GENERAL DESCRIPTION

The M-11 is the multiplexer unit of MDM-11, Mux/deMux system. The M-11 multiplexer receives sixteen, analog 4-20mA current loops .

The multiplexer inputs are scanned in one of three, user selected, rates and transmitted via pair of leads to the DM-11 de-multiplexer unit. The scan rates are selected according to the distance between the M-11 and the DM-11 units.

The transmitter/transducers' currents are input via "I" terminals. Each input is protected by 63mA fuse.

The unit provides 16, current limited (~40mA), voltage supply ("V") outputs. These outputs are derived from the mux's power supply input and are used to feed two-wire transmitters. The current limitation avoids fuse blowing in cases of short-circuit.

**Warning: Never connect a voltage source as an input to the multiplexer. Its internal low dynamic impedance will cause immediate fuse blowing.**

## 2. MOUNTING INSTRUCTIONS

The M-11 is designed for either standard DIN rail mounting or for screw mounting on a wall.

### *2.1 Standard DIN Rail Mounting*

Place the unit on the upper part of the mounting rail with the fastening tab facing down. Loosen the tab slightly, using a suitable flat screwdriver, and attach the unit to the rail. After releasing the tab, make sure that the unit is fastened securely in place.

### *2.2 Screw Mounting*

Four plastic clips are supplied for mounting. These clips go into four slots located at the back of the unit, numbered 1,3,4, and 6. To remove a clip, insert a flat screwdriver between the spring-loaded tab and the bottom of the clip. Turn the screwdriver gently counterclockwise until the clip slips out.

## 3. FUSE REPLACEMENT

In order to replace a blown fuse, the unit has to be disassembled, as follows:

- a) Take off both terminal strips by removing the four screws at the edges.

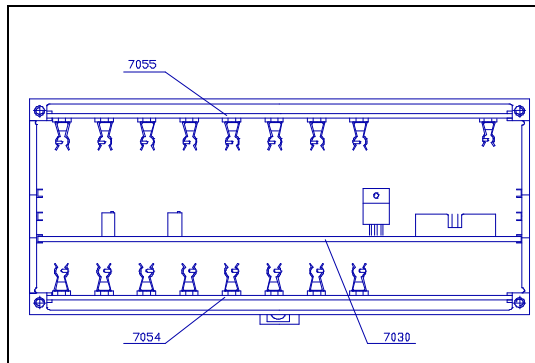
**Note: This does not require disconnecting the cables connected to the strips.**

- b) Remove the front panel using a suitable flat screwdriver. Press down gently on the plastic spring-loaded tabs located in the slots on either side of the unit.
- c) Disconnect the flat connectors which connect the front panel, printed circuit.
- d) Replace the blown fuse.

**Warning:** Never install a channel fuse rated more than 100mA, and main fuse rated more than 800mA.

## 4. ASSEMBLING THE UNIT

The M-11 unit includes three printed circuit cards designated as P.N 7055, P.N 7054 and P.N 7030 printed circuit board. The printed circuit cards should occupy the slots in the enclosure according to fig 1.



**Figure 1**

Connect the flat cables among the printed circuit cards and the front panel.

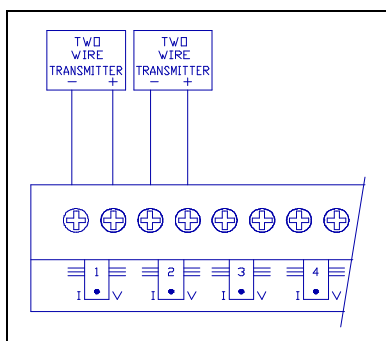
The front panel must be inserted into the grooves on both sides of the case while pressing down until a distinct "click" is heard. Assembly is completed by laying the terminal strips in place.

**Note:** The terminal strips are polarized. They must not be placed backwards

## 5. CONNECTION TRANSMITTERS

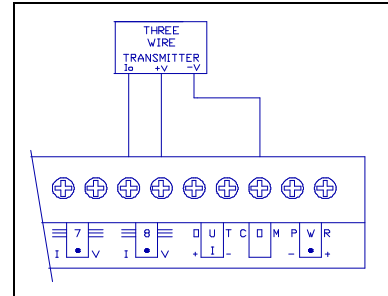
### 5.1 Two-Wire Transmitter

Two-Wire transmitter is connected so that its positive terminal is connected to the "V" terminal, and its negative terminal is connected to the "I" terminal. (see fig 2)



**Figure 2**

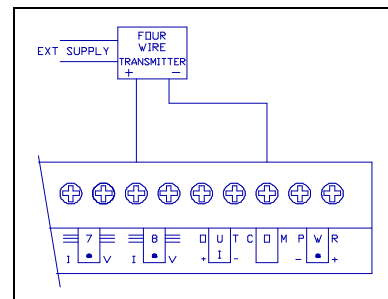
### 5.2 Three-Wire Transmitter



**Figure 3**

Three-Wire transmitter is connected so that its positive terminal "+V" is connected to the multiplexer "V" terminal, its negative terminal "-V" is connected to the multiplexer "COM" terminal and the current output terminal "Io" is connected to the M-11 "I" terminal.(see fig 3).

### 5.3 Four-Wire Transmitter



**Figure 4**

Four-Wire transmitter is connected so that its positive terminal is connected to the "I" terminal, and its negative terminal is connected to the "COM" terminal. (see fig 4).

## 6. DISTANCE SETTING

The M-11 scan rate depends on the distance between the multiplexer and the de-multiplexer. On the printed circuit 7054, there are three jumper switch marked as 500, 1Km, 2Km; put the jumper on the proper distance selector.

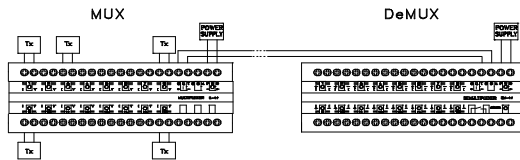
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## 7. CONNECTION OF M-11 TO DM-11

The M-11 is connected to the DM-11 by twisted pair leads. In an hostile environment, shielded cable is recommended.

To avoid ground-loop problems it is recommended to use a floating power supply and to ground, if necessary, the negative terminal of the DM-11 power supply.

### Connection Diagram



## 8. SPECIFICATIONS

### INPUTS

ANALOG INPUTS: 16, 0/4-20mA Current loop

Max Input Current: 25mA

Reverse Polarity Protection: Yes

OUTPUT: Multiplexed Current Loop

Accuracy (Refer to Current Input):

$\pm 0.1\%$  typical, maximum  $\pm 0.25\%$  of span

Transfer rates:

500m: Aprox. 1000 ch/sec.

1Km: Aprox. 500 ch/sec.

2Km: Aprox. 250 ch/sec.

### CURRENT LIMITING

Active Current Limiters: 16

Limitation Current:  $40 \pm 1$ mA

Temperature Shut-down: Above  $80^\circ\text{C}$

### INDICATORS

1 Yellow LED, Power-On indicator

16 Red LED, 4-20mA input activity indicator

### SUPPLY

Supply Voltage: 24 Vdc  $\pm 10\%$  (regulated)

Supply Current Consumption: 20mA

(transmitters not included)

### FUSES

Main Fuse 630mA, Fast Blow

Channel Fuse: 63mA, Fast Blow

### TEMPERATURE

Operating:  $0$  to  $70^\circ\text{C}$  ( $32$  to  $158^\circ\text{F}$ )

Storage:  $-25$  to  $+85^\circ\text{C}$  ( $-13$  to  $185^\circ\text{F}$ )

HUMIDITY: 5 to 95% Relative humidity, non condensing

HOUSING: Plastic Polycarbonate

Box: According to IP50 DIN 40050

Terminals: According to IP20 DIN 40050

WEIGHT: 0.75 Kg. (1.5 lb.)

DIMENSIONS: 73Hx200Wx121mmD  
(2.88"x7.88"x4.76")