

About the 4MOD

The unit is a 4 channel pulse/status logger for use with Elcomponent MeterRing systems. The unit has no operator serviceable parts and is therefore maintenance free.

⚠ Safety Precautions

The 4MOD is designed for use on supply voltages of 240VAC or 110VAC nominal. To ensure safe operation the unit must be connected to the correct supply voltage. The instructions contained in this manual and the safety markings on the product must be complied with.

Before connecting the unit ensure the supply voltage is within the range specified for the product.

Operation of the instrument with the case removed or damaged may expose live parts and could be dangerous. Before carrying out service or repair the unit must be disconnected from all voltage and current sources.

The capacitors inside the unit may be charged even if the instrument is disconnected.

The instrument must be connected via a fuse, of the rating and type specified.

Specification

Channels: 4
Isolation: 4kV (external supply)
External Supply Rating: 8-24VDC
Internal Supply Rating: 12VDC, 20mA nominal current loop

Output

MODBUS RS485 Baud half duplex
Bus isolation 1680 Vrms (1 minute)

Power Supply

230VAC (+/- 15%)
110VAC (=/- 15%) set via internal link

Memory:

Type: E²PROM
Data Retention: 10 Years
Memory Capacity: 5 years at max pulse rate
Maximum Data Loss
At power Down: 60 seconds

General:

Operating Temp: 0°C to 40°C
Humidity: 80% Max
IP Rating: Front Panel IP40
Housing: Self extinguishable plastic
Dims: 6 module DIN
105mm W x 90mm H x 57.5 D

The unit is of the DIN rail mounting type and conforms to DIN 43370 dimensions (6 modules). 35mm 'top hat' profile DIN rail should be utilised for attachment of the unit to a suitable surface.

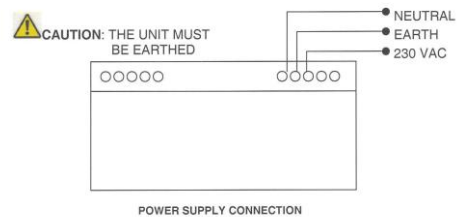
Electrical Connections

Power Supply:

⚠ CAUTION: The units is suitable for connection to a 240/110 VAC supply. Ensure that the correct supply is available before connecting, and is the same as the voltage marked on the product.

⚠ CAUTION: The unit is fitted with an internal fuse. However it is recommended that an external fuse is fitted to the power supply.

Fuse Type: 2A, 250VAC Type T. H BC

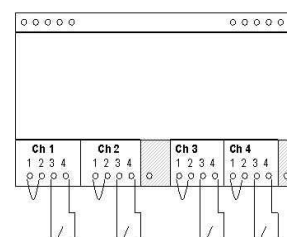


PULSE/STATUS CHANNELS:

The unit is designed for connection to up to 4 external pulse/status output devices. Provision is made for powering the detection current loop directly from the unit or from the external power supply. For maximum isolation of the status circuits, an external power supply is recommended.

⚠ CAUTION: The 4MOD is designed for use with VOLT FREE pulse or status contacts. Do not connect the input channels to a voltage other than that specified for external power of the current loop (max 24 VDC).

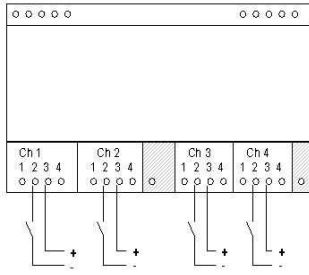
CHANNEL CONNECTION (Internal Power Supply)



Terminals 1& 2 on each channel are looped as shown. Volt free contacts are connected to terminals 3&4.

CHANNEL CONNECTION (External Power Supply)

CAUTION:
DO NOT EXCEED
24 VDC



External DC power supply is connected between + and – as shown, in series with the output contacts.

RS485 CONNECTION

The RS485 output should be connected to the network via suitable screened twisted pair cabling. The polarity A&B must be maintained on all network connections. The S (Shield) terminal is not connected under normal circumstances. Refer to Appendix A for further details on network installation.

SET UP AND OPERATION

When the unit is connected to the power supply as detailed above it will power up and the green ‘power’ led will illuminate.

- i) Internal Power Supply Connection:
Link terminals 3&4 of each channel
- ii) External Power Supply Connection:
Link terminals 2&3 of each channel.

This will cause the relevant channel led to illuminate.

Once the unit is in operation the led status will be as follows:

- 1) Green ‘Power’ led:
ON. Flashes ‘off’ every 5 seconds to indicate correct operation of the microprocessor.
- 2) Red ‘Pulse Channel’ leds:
OFF. Contact open.
ON. Contact closed.

Note: The unit is capable of counting pulses of extremely short duration. this can result in the led ‘flash’ being also of very short duration.

APPENDIX A:

The 4MOD is designed for connection to a two wire RS485 bus as defined by the EIA (Electronics Industry Association) as part of an Elcomponent ‘MeterRing’ system).

It is imperative that the correct cable is used for the network, and connected in **daisy chain** fashion.

REFER TO ELCOMPONENT FOR ADDITIONAL NETWORK CONNECTION INSTRUCTIONS.

NETWORK CONNECTIONS:

- 1) Suitable cable must be used.

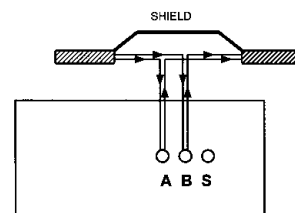
Recommended cable:

Belden 8451 Equivalent – Networking / Daisy Chain / Pulse (single pair)

Belden 8723 Equivalent – Networking / Daisy Chain / Pulse (2 pair)

Failure to comply with cable type and cable connection instructions will seriously affect the operation of the system.

- 2) Correct connection of the data network is vital for reliable operation. Each unit has a clearly marked terminal block consisting of 3 terminals A,B&S. These are connected to the cable pair in a line in / line out daisy chain basis. **Do not use ‘T’ connections at any point on the network.** The S (shield) connection is not connected except on the final instrument network. The length of unshielded conductor exposed at each connection point should be kept to a minimum, and shield continuity should be maintained over the entire length of the network.



Polarity must be respected. Data cables should be crimped together into a single ferrule before clamping into the terminal block.

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