



- Direct connection up to 690V line voltage for both single or Three phase systems
- Monitoring during both live and standby conditions
- For use in land, marine, offshore, sub-sea and ocean floor Installations
- Complies with IMCA D 045 Code of Practice
- "Megger" - safe to 1.4kVDC when aux power is OFF
- Immune to earth capacitance and voltage surges
- Analogue output proportional to meter reading
- Optional slave indicator

Specifications

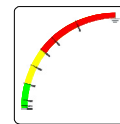
Auxiliary Supply:	100-120, 200-240, 380-415 or 440-460VAC, 40-70Hz (Fuse 0.5A)
Optional Voltage:	12-24, 48 or 110VDC (Fuse 2A)
Supply tolerance:	± 10%
Power rating:	1,5VA
Analogue Output:	Up to 20mA, max 500R Up to 10V, min 100kohm (other on request)
Temperature:	-20 to +70°C
Weight:	0.5kgs
Front protection:	IP21

Application

The digitally controlled MCM161x series monitors insulation level between a non-grounded (IT) AC mains and its protective earth, regardless of whether the mains is live or non-live (standby).

An AC or DC auxiliary voltage is required for the unit, if powered from a separate source the network can also be monitored during standby conditions. Only ONE MCM161x can be connected to each IT-system. The optional slave indicator give at a glance the clear safety message:

- ALARM (red zone)
- WARNING (yellow zone)
- HEALTHY (green zone)



The Ultra-Reliability Concept (Paralleling of Transducers)

To obtain ultimate operational safety multiple MCM161x transducer inputs and outputs can be permanently paralleled.

At any time only ONE transducer should be enabled. The selected transducer is activated by applying auxiliary power to unit. Accidental enabling of more than one transducer will give distorted reading, but will not harm the transducer.

The MCM161x range is designed to comply with specification IMCAD 045 "Code of Practice for the Safe Use of Electricity Under Water" issued by IMCA.

The unit meets IEC60092-504 and the relevant environmental and EMC tests specified in IEC60068/60092 and IEC61000/60533 respectively, to comply with the requirements of the major Classification Societies.

General

IDV MEASURING PRINCIPLE

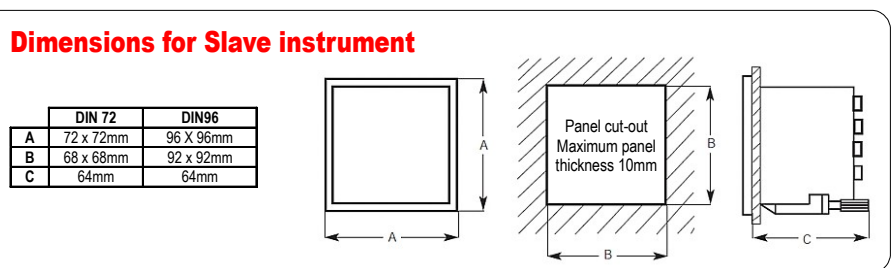
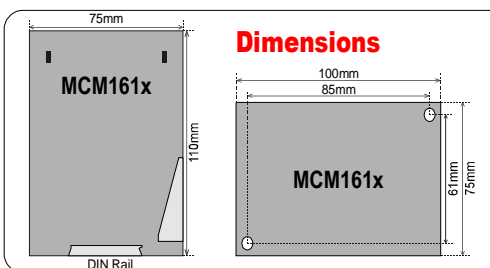
Insulation is measured between the complete galvanically interconnected AC network and its protective earth. The unit injects a DC voltage signal into the monitored system. The signal flows to ground via the path of the insulation fault, the level of flow indicates the insulation resistance. The measuring accuracy is not influenced by any normal kind of load attached to the AC network.

MEGGER SAFE

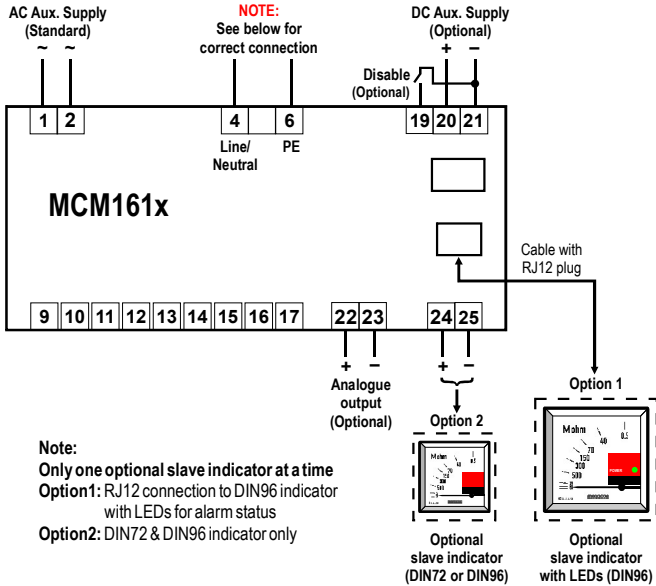
When auxiliary power is OFF the unit input is automatically protected against "megger" test voltages up to 1.4kVDC, and incorrect measurements caused by the unit's input impedance are avoided.

OUTPUTS

The unit is supplied with an isolated analogue output proportional to insulation level. If output is used for remote meter reading, we recommend 0-1mA for the slave indicator.



Connection



Analogue Output

MCM161F have an analogue output proportional to insulation level. (Special outputs are available on request)

Add suffix from table below to type designation to specify output required:

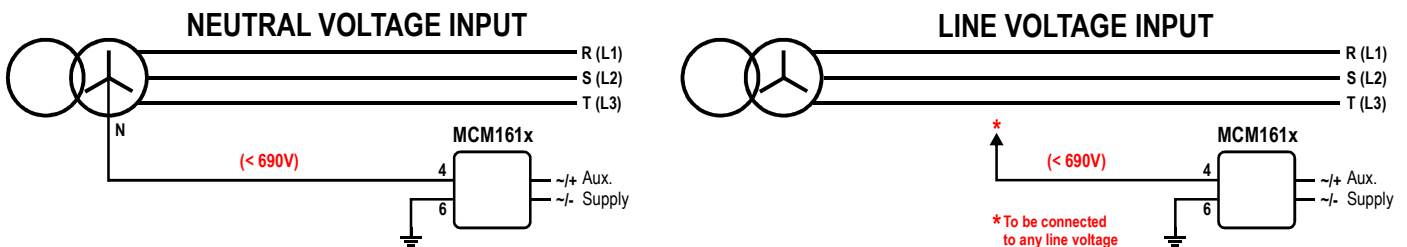
O/P1	0 - 10mA	O/P6	N/A
O/P2	0 - 20mA	O/P7	N/A
O/P3	4 - 20mA	O/P8	0 - 10VDC
O/P4	N/A	O/P9	N/A
O/P5	N/A	O/P10	N/A

Paralleling Disable Function

MCM161F has a built-in disable function (available only when DC Aux. Supply is applied). When connecting two or more IT-networks together **only one unit** can be active, the other(s) must be disabled. When unit is disabled the power led will flash every 2 seconds to indicate that unit is inactive.

Use a potential free contact on terminal 19 and 21 to activate the disable function (after 2 secs). When activated the measuring input terminal 4 will be internally disconnected.

Connection



! The instrument will detect earth fault on all phases independent of which phase is connected to terminal 4.

Description

MCM161F Scale range: 0-1000kΩ - ∞ (>6MΩ)

This unit is used for hospital, industrial, marine and offshore installations. Start of monitoring function is delayed when auxiliary power is switched on (default 5 secs delay).

Direct connection up to 690V line voltage.

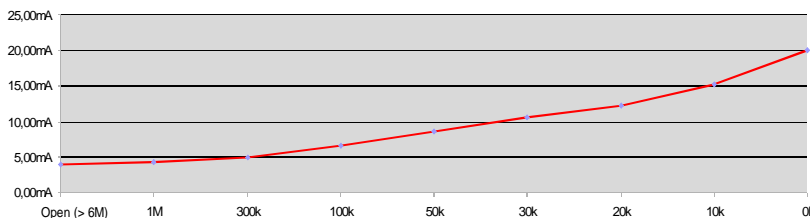
NOTE: Special versions of the MCM161x are available as:

MCM161xM: Insulation Transducer with DC detection function, protected against high-energy DC voltage imposed on the monitored AC supply.

MCM261x: Insulation Transducer with measuring loop continuity monitoring.

Coloured sectors show recommended areas:
 ■ - Indicates alarm zone
 ■ - Indicates warning zone
 ■ - Indicates healthy zone

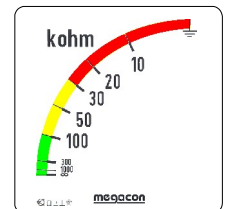
Output diagram



Output table (example for 4-20mA)

Value (scale)	mA output
0kΩ	20.00mA
10kΩ	15.22mA
20kΩ	12.32mA
30kΩ	10.61mA
50kΩ	8.68mA
100kΩ	6.69mA
300kΩ	4.98mA
1MΩ	4.28mA
Open (>6MΩ)	4.00mA

Range (slave indicator)



The MEGAICON policy is one of continuous improvement, consequently equipment supplied may vary in detail from this publication.

ORDERING EXAMPLE:
 Type: MCM161F
 Aux. Supply: 200-240VAC
 Network Voltage: Up to 690VAC
 Analogue O/P: (O/P3) 4-20mA
 Range: 0 - 1000kohm

