ISO 9001 Certified

Programmable Microhmmeter

MGR10

- Measuring from 0.1µΩ to 30kΩ
- Measuring current up to 10 Amp
- Accuracy < 0.03%
- Manual / Auto range
- Memory of 4000 readings
- Battery and mains supply versions
- RS232C, PLC or IEEE488-2 interfaces

Thanks to its very good accuracy and its rugged construction, this microhmmeter can be used in laboratories as well as in industry. Its main applications are measurements on : transformers, chokes, electrical motors, cables, switches, circuit breakers, relays, fuses surface, contact ground or earth and connection resistances.

" Manual or automatic temperature compensation can be done according to copper or aluminium, but also any other kind of metal"

TECHNICAL CHARACTERISTICS

LOW RESISTANCE MEASUREMENT

Resistance
- Measurement ranges: 3mΩ, 30mΩ, 200mΩ, 3Ω, 30Ω, 300Ω, 3kΩ, 30kΩ
- Resistance measurement: from 0.1µΩ to 30kΩ
- Auto or manual range selection with current adjustable by range
- Accuracy: ± 0.03% reading + 0.1% full scale

Current and voltage
- Measurement current From 1µA to 10A according to range and manually adjustable in %
- Accuracy: ± 0.1% (pulsed in battery or mode, pulsed or DC with mains charger)
- Current direction Manual or continued with the selection of the current +VE, -VE, or +VE and – VE with the average calculated, This latter option removes thermal EMF errors from the measurements.
- Voltage in open circuit: 20mV and 50 mV with protection against the inductive charges and the over voltage (415V)

Compensation
- Temperature measurement From 0 to 100°C Displayed in deg C, F, K Compensation according to the resistance materials (copper, aluminium...)
- Length of cable Values can be displayed in Ω, Ω/Km or Km

Signals
- Measurement threshold adjustable with low and high limits
- Visual (red / green leds) and audible signals for results

Data logging
- 4000 measurement memories with measurement results date and time

Connection
- 4 banana plugs 4mm on the front panel
- RS232 interface between PC and MGR10 connection

Display
- 240 x 64 LCD matrix display with backlight
- LCD numerical screen with 30.000 digits resolution

Battery (MGR10A only)
- Operating time: 11 hours or 6000 measurements at 10A

MGR10 & MGR10 - A

Resistance		Current (Precision: ±0.1%)			Measurement accuracy
Range	Resolution	Max Current	Min Current	Resolution	
30 kΩ	1 Ω	100 µA	10 µA	1 µA	0.03% Rdg + 0.02% FS
3 kΩ	100 mΩ	1 mA	100 µA	10 µA	0.03% Rdg + 0.01% FS
300 Ω	10 mΩ	10 mA	1mA	100 µA	0.03% Rdg + 0.01% FS
30 Ω	1 mΩ	100 mA	10mA	1 mA	0.03% Rdg + 0.01% FS
3 Ω	100 µΩ	1 A	100mA	10 mA	0.03% Rdg + 0.01% FS
200 mΩ	10 µΩ	10 A	1A	100 mA	0.03% Rdg + 0.01% FS
30 mΩ	1 µΩ	10 A	1A	100 mA	0.03% Rdg + 0.01% FS
3 mΩ	0,1 µΩ	10 A	1A	100 mA	0.03% Rdg + 0.02% FS

MGR10 – B

Resistance		Current (Precision: ±0.1%)			Measurement accuracy
Range	Resolution	Max Current	Min Current	Resolution	
30 kΩ	1 Ω	100 µA	10 µA	1 µA	0.03% Rdg + 0.02% FS
3 kΩ	100 mΩ	1 mA	100 µA	10 µA	0.03% Rdg + 0.01% FS
300 Ω	10 mΩ	10 mA	1mA	100 µA	0.03% Rdg + 0.01% FS
30 Ω	1 mΩ	100 mA	10mA	1 mA	0.03% Rdg + 0.01% FS
3 Ω	100 µΩ	100 mA	10mA	1 mA	0.05% Rdg + 0.01% FS
200 mΩ	10 µΩ	100 mA	10mA	1 mA	0.05% Rdg + 0.01% FS

MGR10 - C

Resistance		Current (Precision: ±0.1%)			Measurement accuracy
Range	Resolution	Max Current	Min Current	Resolution	
30 kΩ	1 Ω	10 µA	10 µA	NA	0.05% Rdg + 0.02% FS
3 kΩ	100 mΩ	100 µA	100 µA	NA	0.05% Rdg + 0.01% FS
300 Ω	10 mΩ	1mA	1mA	NA	0.05% Rdg + 0.01% FS
30 Ω	1 mΩ	10 mA	10 mA	NA	0.05% Rdg + 0.01% FS
3 Ω	100 µΩ	10 mA	10 mA	NA	0.05% Rdg + 0.01% FS

GENERAL CHARACTERISTICS

MGR10 presentation
- Bench style case
- Metal case

Dimensions
- Height : 131 mm
- Width : 344 mm
- Depth : 332 mm

Weight
- 9.8 kg mains type
- 12 kg battery type (MGR10A)

Power
- 115/230V, 50/60Hz

Operating temperature
- 0°C to +45°C
- Rel. humidity up to 80% none condensing

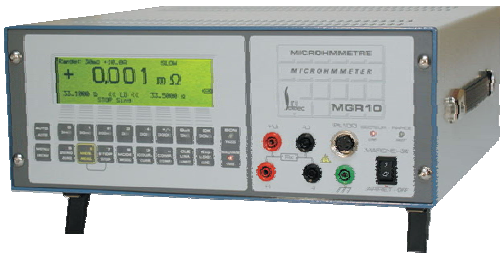
Storage temperature
- -10°C to +60° C

Pollution Degree
- Pollution 2: conducting pollution caused by condensation

Overload category
- CAT II

Safety Class
- Connected to the ground by power cord

International standards
- MGR10-B Complies with NFC 93050



OPTIONS

MGR10 other versions

MGR10A
- Battery and mains supply version

MGR10B
- This version is especially dedicated for measuring contact resistance according to the NFC 93050 standard

MGR10C
- This version is especially dedicated for pyrotechnic environment

Options

MGR10-04
- Pt100 temperature probe

MGR10-05
- Rear panel output

MGR10-09
- Ohm/Km Option

Software

MG98
- Labview Driver – National Instruments

IEEE and RS232 drivers for MG series

MG99
- QBASIC Examples

MG96 – MGR10
- Software MGR10Pro 4.XX working with RS232 or IEEE488-2 Interface under Windows 2000, NT4 and XP.

Interface

MGR10-01
- RS232C interface (talker-listener)

MGR10-02
- PLC Interface
- Cycle start contact
- GOOD and BAD contacts
- END CYCLE contact
- WORKING ERROR contact

MGR10-06
- IEEE488-2 (talker-listener)

Others

A011
- Remote control foot switch

A014
- Interconnection 25 pin box to use simultaneously accessories

CO160
- Red-Green lamp to indicate the HV presence

KRMG-3U
- 19 inch rack mounting adaptation

MK series
- 1 meter linear measurement guide to measure cable - 2 CO183 can be used to connect MK to MGR10.

(Transport case available for each one)

MK1
- Section from 0,1mm² up to 100mm²

MK2
- Section from 1mm² up to 1000mm²

MK2 - SB
- Section from 0,1mm² up to 2500mm²

MK3
- Diameter from 16µm up to 280µm

MK4
- Section from 1mm² up to 1500mm²

With water tank and water pump

CALIBRATION

MG-91-OHM
- Ohmmeter calibration kit

KW
- Low value resistor

To chose from 1mΩ to 10kΩ

AVAILABLE ACCESSORIES

Kelvin Tips

TE81
- Length: 1.80, 5 and 10 meters
- Starting: 2 pins *male* plug
- Ending : cable ending with a probe with a remote control button and green/red leds
- Type : 2 wires lead (this has to be ordered with an other 2 wire leads accessory)
- Most common application : especially made for a manual use to test several bonding points
- Ordering information : MG-02 or MG-07 has to be ordered with TE81 for activation

CO184
- Length: 2 meters
- Starting: 2 pins *male* plug
- Ending: retractable tip probe
- Type: 2 wires lead (this has to be ordered with an other 2 wires lead accessory)
- Most common application especially made for a manual use to test the ground point (for multi point ground continuity, TE81 is better adapted), the retractable tip probe will make a contact with the 2 pins when pushed by the operator hand

Kelvin Clips

CO183
- Length: 1.80, 5 or 10 meters
- Starting: 4 pins *male* plug
- Ending: cable ending with small crocodile clip (the green banana goes into the grey banana, and this goes to the crocodile clip)
- Type: 2 wires lead (this has to be ordered with an other 2 wires lead accessory)
- Most common application: especially made for the return lead (this can be connected to a test box: in the case you test equipment with a mains socket) ; on the other side, a test probe can be connected (for multi point continuity for instance), ...

CO197
- Length: 5 meters
- Starting: 2 pins *male* plug
- Ending: big crocodile Kelvin clip (max opening dimension 30mm)
- Type: 4 wires lead
- Most common application: especially made to made to crimp on big cable sections

CO226
- Length: 5 meters
- Starting: 4 pins *male* plug
- Ending: big crocodile clip (max opening dimension 41mm)
- Type: 2 wires lead (this has to be ordered with an other 2 wires leads accessory)
- Most common application: especially made to crimp on big cable sections

CO64
- Length: 1.80 and 5 meters
- Starting: 4 pins plug
- Ending: small sized Kelvin clip
- Type: 2 wires lead (this has to be ordered with an other 2 wires lead accessory)
- Most common application: especially made to crimp on small connection points

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