Programmable Microhmmeter MGR10

▶ Measuring from 0.1µΩ to 30kΩ
▶ Measuring current up to 10 Amp
▶ Accuracy < 0.03%
▶ Manual / Automatic range
▶ Memory of 4000 readings
▶ Battery(MGR10A) and mains supply(MGR10) versions
▶ RS232C, PLC or IEEE488-2 interfaces

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

Technical Characteristics

LOW RESISTANCE MEASUREMENT

Resistance

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

Current and voltage

● Measurement current : From 1µA to 10A according to range and manually adjustable in %
● Accuracy : ±0.1% (pulsed in battery 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

● 240x64 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

sefelec
Test & Measurement

MGR10 & MGR10A

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

MGR10B

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

MGR10C

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 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

sefelec
Test & Measurement

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 deconnectable - through a six points connector - female connector is provided, output cables are provided and built by the user

MGR10-09
- Possibility to display the resistance in ohm / km

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

Interface

MGR10-01
- RS232C interface (talker-listener); provided with RS232 cable

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

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

MK series

1 meter cable & wire measuring device (clamping device) - 2 CO183 can be used to connect MK to MGR10

MK1
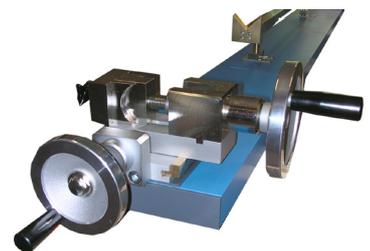- 1 meter linear measurement guide to measure cable sections from 0,1 mm² up to 100 mm²

MK2
- 1 meter linear measurement guide to measure cable sections from 1 mm² up to 1000 mm²

MK2 - SB
- 1 meter linear measurement guide to measure cable sections from 1 mm² up to 2500 mm²

MK4
- 1 meter linear measurement guide to measure cable with section from 1 mm² up to 1000 mm², with water tank and water pump

sefelec
Test & Measurement

MICROHMMETER

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 wires lead accessory)
- Most common application : especially made for a manual use to test several points

C0184

- Length : 1.80 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

C0183

- Length : 1.80, 5 or 10 meters
- Starting : 2 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)...

C0197

- Length : 10 meters
- Starting : 2 pins male plug
- Ending : big crocodile Kelvin clip (max opening dimension 30mm)
- Type : 2 wires lead (this has to be ordered with an other 2 wires lead accessory)
- Most common application : especially made to made to crimp on big cable sections

C0226

- Length : 1.80 meters
- Starting : 2 pins male plug
- Ending : big crocodile clip (max opening dimension 41mm)
- Type : 4 wires lead
- Most common application : especially made to crimp on big cable sections

C064

- Length : 1 and 5 meters
- Starting : 2 pins male plug
- Ending : small sized Kelvin clip
- Type : 4 wires lead
- Most common application : especially made to crimp on small connection points
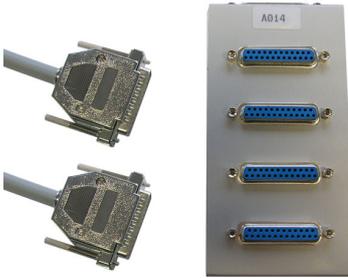
SEFELEC - Parc d'activités du Mandinet - 19, rue des Campanules - F77185 LOGNES - FRANCE
Sales department +33 (0) 1 64 11 83 42 - Fax +33 (0) 1 60 17 35 01 - Service department +33(0) 1 64 11 83 49
w w w . s e f e l e c . c o m

sefelec
Test & Measurement

A011

● Remote control foot switch : 2.5 meters

A014

● Interconnection 25 pin box to use simultaneously accessories

CO160

● Red-Green lamp

KRMG-3U

● 19 inch rack mounting adaptation

Calibration

MG-91-OHM

● calibration kit for the MGR10

KW

● Low value standard resistors, from 1mΩ to 10kΩ

sefelec
Test & Measurement