

OM 21

Programmable benchtop micro-ohmmeter – High accuracy: 0.03 %

REMPLACE PAR LE NOUVEAU OM37

Le micro-ohmmètre de table programmable OM 21 est destiné à la mesure en 4 fils de résistances de très faibles valeurs jusqu'à 20 kΩ avec une excellente précision maximale de 0,03% et une résolution de 0,1 µΩ seulement. La fiabilité et la précision des mesures est renforcée par le faible coefficient de température (10 ppm/°C), la compensation automatique des forces électromagnétiques avant chaque mesure effectuée, la compensation en température de la nature du métal et la compensation de la température ambiante.

Description

OM 21 benchtop micro-ohmmeter is used for 4-wire measurement of very low resistance values up to 20 kΩ with an accuracy of 0.03% RDG and a 0.1 µΩ resolution. The reliability and accuracy of the measurements is improved by a low temperature coefficient of 10 ppm/°C, automatic removal of EMF parasites before each measurement, metal temperature compensation and compensation of ambient temperature.
With three current waveforms available -continuous, pulse or AC current- from 100 µA to 10 A and high flexibility of trigger and sampling conditions, OM 21 low resistance ohmmeter covers a wide range of applications: Cable resistance and resistivity measurement, inductive resistance measurement (motors and transformers winding resistance), contact resistance measurement (connectors, switches, relays…), test of low power electrical components (fuses…) and heat sensitive devices, metallisation / earth bonding and ground continuity measurement.
OM 21 is fully programmed by the user, either directly through the instrument interface or through LOG OM data management software delivered in option: choice of measuring current, resistance range, measuring unit, metal under test, alarms, triggering conditions, storage of measurement…
Up to 1,000 samples can be stored inside the instrument and be recalled directly on the display or on computer via LOG OM.
Powered from mains or from rechargeable batteries, the electronic calibration of the instrument is performed without any internal adjustment.
For use on test benches, you might want to consider OM 22 micro-ohmmeter instead of OM 21. It has the exact same specifications of OM 21 but is more adapted to repetitive measurement tasks. While OM 21 can be either manually or automatically operated and is fully programmable by the user through the instrument interface, OM 22 has 6 set configurations inside to be selected by the user. More information over OM 22 here.

Specifications

Resistance measurement

Range	Resolution	Accuracy at 90 days (23°C ±1°C)	Measuring current	Voltage drop
2 mΩ	0.1 µΩ	0.05% + 0.3 µΩ	10 A	20 mV
20 mΩ	1 µΩ	0.05% + 2 µΩ	10 A	200 mV
20 mΩ	1 µΩ	0.05% + 3 µΩ	1 A	20 mV
200 mΩ	10 µΩ	0.05% + 10 µΩ	10 A	2 V
200 mΩ	10 µΩ	0.05% + 20 µΩ	1 A	200 mV
200 mΩ	10 µΩ	0.05% + 30 µΩ	100 mA	20 mV
2 Ω	100 µΩ	0.05% + 100 µΩ	1 A	2 V
2 Ω	100 µΩ	0.03% + 200 µΩ	100 mA	200 mV
2 Ω	100 µΩ	0.03% + 300 µΩ	10 mA	20 mV
20 Ω	1 mΩ	0.03% + 1 mΩ	100 mA	2 V
20 Ω	1 mΩ	0.03% + 2 mΩ	10 mA	200 mV
20 Ω	1 mΩ	0.03% + 3 mΩ	1 mA	20 mV
200 Ω	10 mΩ	0.03% + 10 mΩ	10 mA	2 V
200 Ω	10 mΩ	0.03% + 20 mΩ	1 mA	200 mV
200 Ω	10 mΩ	0.03% + 30 mΩ	100 µA	20 mV
2 kΩ	100 mΩ	0.03% + 100 mΩ	1 mA	2 V
2 kΩ	100 mΩ	0.03% + 200 mΩ	100 µA	200 mV
20 kΩ	1 Ω	0.03% + 1 Ω	100 µA	2 V

Automatic or manual selection of measurement range
Accuracy given in % of reading + counts over 90 days at 23 ±1°C
Maximum capacity: 26,000 counts
Max. open circuit voltage: 3 V (can be limited to 20 mV or 50 mV at the terminals of the resistor to be measured)

Further features

Resistance types	• Inductive resistances: Coils, transformers, motor windings... • Non-inductive resistances: Earth bonding, coating, contact resistances...
Measuring current	• Internal or external source • DC current from 100 µA to 10 A

	• Continuous, pulsed or pulsed alternated
Measurement time	< 1 s in direct current mode < 1,5 s in pulse current mode < 2 s in alternate current mode
Measurement trigger conditions	Manual or automatic trigger from 2 measures/s to 1 measure/9h, allowing a single operator to be able to perform measurements
EMFs	Automatic compensation of EMF parasites before each measurement for a greater accuracy
Temperature compensation	Choice of metal temperature coefficient Choice of ambient temperature (programmed or measured with external probe) Temperature compensation at 20°C: Resolution: 0.1°C, accuracy: ±0.5°C (R20 = Resistance compensated at ambient temperature equal to 20°C
Temperature coefficient beyond operating range	< 10% accuracy/°C
Relative measurements	Display L = R-R0 or L = 100 x (R-R0)/R0 in % Where L: read value, R: measured value and R: reference value either recalled from memory or entered by the operator
Coil heating calculation	Coil heating calculation according to ambient temperature, original coil resistance at ambient temperature, coil resistance once heated and coil material
Alarms	2 programmable thresholds with visual and sound signal and relay outputs
Outputs	• Two relays (1 A / 220 VAC) • 1 analogue output 0 – 2.5 V (load >= 2.5 kΩ, resolution: 10 mV, accuracy: ±10 mV)
Calibration	Digital calibration without internal adjustment

General specifications

Size	225 x 88 x 310 mm
Weight	2 to 3 kg depending on options
Display	LCD 26,000 counts, 16 figures lighted, 11.5 mm high
Power supply	115 / 230 V (50 / 60 Hz)
Battery with internal charger(option)	Type: 12 V battery pack Battery life:2 to 8 h according to use Charging time: 14 h
Storage capacity	1,000 measurements with average, minimum and

	maximum value Memory reading directly on the display or through digital and analogue interfaces

Environmental specifications

Reference range	23°C ±1°C (RH: 45 to 75 % w/o condensing)
Operating reference range	0 to 50°C (RH: 20 to 80 % w/o condensing)
Limit operating range	-10°C to +50°C (RH: 10 to 80 % w/o condensing)
Storage temperature limits	-30°C to +55°C (- 15°C to + 50°C for model with battery)
Protection IP	IP40 according to EN60529
Maximum altitude	2,500 m

Safety specifications

Protections	• Electronic protection for ‘voltage’ wires • Fuse protection for ‘current’ wires • Protection against ‘current’ circuit breaking during inductive resistance measurements
Class	In accordance with EN 61010-1 Category III, pollution 2
Rated voltage	50 V
Chocks and vibrations	EN61010-1
EMC conformity	

Models and accessories

Instrument:

OM 21-1	Programmable benchtop micro-ohmmeter
	With RS 232 interface
OM 21-2	Programmable benchtop micro-ohmmeter
	With RS 232 interface and battery + charger
OM 21-3	Programmable benchtop micro-ohmmeter
	With RS 232 interface and IEEE 488
OM 21-4	Programmable benchtop micro-ohmmeter
	With RS 232 interface, IEEE 488 and battery + charger

Clips and probes:

Please note that 2 clips are needed per OM 21.

AN5806-2	Gold plated Kelvin clips, set of 2
	Opening diameter: 12 mm, cable length: 2 m
AN5806C	Kelvin clips, set of 2
	Opening diameter: 12 mm, cable length: 3 m
AMT003	Test probe, per unit
	Cable length: 5 m
AMT004	Kelvin clip, per unit
	Opening diameter: 25 mm, cable length: 3 m

Other accessories:

LOG OM	Configuration & exploitation software for OM 21
	Including RS 232 cable
AN6901	Soft case for benchtop instruments
AMT002	External power supply 3 V – 10 A
AN5883	Bracket mounting for panel installation (T2 box type)
AN5884	Rack mounting kit for rack installation (T2 box type)
AN5875	RS232 9p F cable
AN5836	IEEE 488 cable
	Length: 2 m

AN8009	Set of 10 fuses – 16 A

Certification:

QMA11EN	COFRAC certificate of calibration