

Portable Milli-Ohmmeter RESISTOMAT®

Model 2319

Code:	2319 E
Manufacturer:	burster
Delivery:	ex stock
Warranty:	12 months
Issue:	1.10.2002



- For mains and NC-battery operation
- 8 ranges from 20 mΩ to 200 kΩ
- High resolution up to 10 μΩ
- Temperature compensation for Cu and Al
- Practical, sturdy and of good value

Applications

For rapid measurements in the field, when independence from the mains and a high degree of immunity against various interference is needed, this ohmmeter is ideally suitable.

Low resistance measurements are performed simply in manufacturing, in testing, in the service as well as in the field using this portable milli-ohmmeter. It is powered either by mains or by built-in NC-batteries. In connection with the simple operation, this practical and robust instrument can be used universally.

The temperature of the test object (i.e. of a cable during manufacturing) may be taken by a Pt 100 temperature probe and considered in the test result. In this case the resistance value related to 20 °C will be displayed.

To show the many applications of the milli-ohmmeter, some typical test objects are mentioned below:

- Transformers, chokes and coils
- Motors, cables and wires
- Switches, relays and contacts
- Transfer, resp. contact resistances and fuses
- Electrical components of various kinds
- Surface connections of mechanical parts, etc.

Description

This milli-ohmmeter operates in the well known ratio mode. It employs the proven 4-wire measurement method by Kelvin to cancel any lead resistance errors inherent in less sophisticated 2-wire systems. The measuring result is displayed directly in mΩ, Ω or kΩ on a 3 1/2 digit LCD-display.

Any of the 8 measuring ranges can be selected by a key. Terminals not connected, as well as a measuring range chosen too small, will result in the display of a „1“ and a decimal point.

When measuring test objects made from copper (Cu) or aluminium (Al), it is possible to verify the so-called VDE-value. This is the resistance of the specimen related to 20 °C. To verify the VDE-value the temperature compensation has to be switched on and an usual Pt 100 probe - which must be exposed to the temperature of the test object - has to be connected. The measuring result then automatically corresponds to the VDE-value.

In addition to the power supply and the NC-batteries, the charging circuit is integrated in the unit. The NC-batteries are protected against high and low charge. In case of low batteries the display shows „LOBAT“. The unit, of course, may be operated from the mains.

The milli-ohmmeter is a rugged instrument designed to perform reliably. It is surrounded by an extremely sturdy and wellshaped case. A carrying handle allows the ohmmeter to be operated portably. It can also be used to position the angle of the instrument.

Technical Data

Measuring range	Display max.	Resolution	Measuring current	Burden max.	Measuring voltage
20 mΩ	19.99	10 μΩ	100 mA	2 Ω	2 mV
200 mΩ	199.9	100 μΩ	10 mA	20 Ω	2 mV
2 Ω	1.999	1 mΩ	10 mA	20 Ω	20 mV
20 Ω	19.99	10 mΩ	10 mA	20 Ω	200 mV
200 Ω	199.9	100 mΩ	1 mA	200 Ω	200 mV
2 kΩ	1.999	1 Ω	100 μA	2 kΩ	200 mV
20 kΩ	19.99	10 Ω	10 μA	20 kΩ	200 mV
200 kΩ	199.9	100 Ω	1 μA	200 kΩ	200 mV

Accuracy: ± 0.2 % reading ± 2 digit
 Temperature coefficient: ± 1 digit/3 K typical
 Measuring voltage: see table, approx. 1 V max. on open terminals (DC)
 Display: 3 1/2-digit 7-segment LCD, 13 mm high
 Range selection: manually by 8 keys
 Rx-connection: 4 terminals (4 mm) for plugging, with low thermo-electric voltage
 0-compensation: Thermo-electric voltages and zero deviations can be manually compensated by means of the "Zero" potentiometer
 Overrange: LCD displays "1" and decimal point
 Temperature compensated: For specimen made from Cu or Al the "Temp.-Comp." may be switched on (a LED lights) and a Pt 100 probe connected to measure the resistance related to 20 °C
 Operating time: Approx. 24 h in the range of 20 mΩ with test object connected
 Charge time approx. 11h
 Charge control with a LED "charge" on the front panel
 NC-battery protection: Automatic protection against over-charge and low-discharge
 NC-battery control: "LOBAT" display
 NC-battery: 6 V/1.8 Ah
 Operating temperature: 5 °C - **23 °C** - 40 °C
 Relative humidity: 75 % max., non-condensing
 Storage temperature: - 20 °C to + 50 °C
 Power: 230 V (115 V) + 6% ... - 10% 50 to 60 Hz
 Power consumption: 10 VA max.
 Case: Table-top case with lockable carrying handle and rubber feet
 Construction: This instrument is designed to SAFETY CLASS in accordance with IEC 348 (VDE 0411)
 Dimensions (width x height x depth): 255 x 81 x 263 [mm] without carrying handle
 Weight (net): approx. 5 kg incl. NC-battery

Order Information

Milli-ohmmeter incl. NC-batteries, plug-in power pack 230 V/50 - 60 Hz, (115 V option) and instruction manual
model 2319-B

Accessories

Pt 100 temperature sensor for measuring the specimen temperature with 2.5 m connection leads
model 2392-V001

Plug-in power pack 230 V/ 50 - 60 Hz (one power pack is part of type 2319-B)
model 4495-V001

DKD Certificate **model 23DKD-2319**
 WKS Certificate **model 23WKS-2319**
 Calibration Set **model 2319-Z010**

Kelvin measuring pliers and probes **see data sheet 2385 E**

Wire holding device for wires up to 1000 mm²
see data sheet 2381 E

Calibrator resistors **see data sheet 1240 E**

Calibration Set

The calibration set type 2319-Z010 consists of 3 calibration resistors series 1240 with the values 10 mΩ, 100 mΩ and 1 Ω, including one DKD Certificate for each resistor. The added adapter model 2394 allows a direct contacting with the RESISTOMAT®. This calibration certificate documents the traceability to national standards.

Device Calibration

On a standard calibration certificate the devices are calibrated in each range with one point in the middle range (8 points).

For DKD (Deutscher Kalibrierdienst) calibrations we use PTB-calibrated standards, for WKS (Werkskalibriersschein) calibrations we use DKD calibrated resistors.

With a calibration set the client can make an easy, software supported recalibration.