

METRAHit® 17

Milliohmmeter with Digital Display

3-348-809-03

4/2.99

- Ten measuring ranges from 20 mΩ ... 20 MΩ
Only one meter for many applications
- Four-wire measurement
Suppresses effects of line and contact resistances
- Compact and rugged
For harsh applications in service and laboratory
- Overload protection
Protects the instruments in the case of accidental connection to the line voltage
- Calibration certificate which can be traced back
Reduces operating cost when used in ISO 9000 Quality Systems



Applications

The METRAHit® 17 is a rugged, precise and reliable instrument which is suited for many a task in operation, service at the site, as well as for exact measurements in the laboratory:

- Adjustment of shunts in instrumentation
- Tests of electrical connections on bus bars in open-work mining, in industry and household
- Testing of cable resistance, wiring, shunts of circuit boards and thick-film circuits
- Measurement of the contact resistance of relays, contactors and circuit breakers
- Measurement of the resistance of fuses as well as of the lead resistance in power circuits
- Testing of the winding resistance in transformers, coils, small motors, etc.

General

The milliohmmeter METRAHit® 17 is the modern replacement of the known measuring bridges TH2 (Thomson) and WH2 (Wheatstone) and offers an improved range span, higher measuring accuracy and easier reading. As wide-range resistance measuring instrument, it acquires the resistance value by passing a measuring current through the resistor, conductor or contact. The ratio measurement is used as measuring principle. That is why its measuring accuracy is only defined by the installed precision resistors and the accuracy remains stable over the entire life span of the meter. The measuring current at a time is selected by the position of the range selector switch and is 0.1 A on the two lower ranges.

Convenient Operation

The meter is very easy to operate. It is merely required to connect the device under test by means of the four measuring leads, which are part of the supply, and to select the optimum measuring range. Connection is made easy with Kelvin clips, which are available as accessories.

Offset Balancing

Offset balancing for the lower measuring ranges ($\pm 50 \mu\text{V}$)

Protection Against Incorrect Operation

Protective facilities protect the METRAHit® 17 against accidental connection to a device under test with an incorrect voltage up to 240 V.

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Power Saving Circuit

The meter disconnects automatically about 10 minutes after it has been switched on.

Protective Holster for Rough Duty

The meter is of compact and rugged construction. In addition, a holster of soft rubber with tilt stand protects the meter against damage in the case of shock and drop. The rubber material makes for the meter to stand firmly even on a vibrating surface.

Applicable Regulations and Standards

DIN EN 61010 part 1	Safety requirements for electrical equipment for measurement, control and laboratory use
DIN 43 751	Digital measuring instruments
DIN EN 50081 part 1	EMC: Generic emission standard
DIN EN 50082 part 1	EMC: Generic immunity standard
VDI/VDE 3540	Reliability of measuring and control equipment
DIN VDE 0470 part 1	Test equipment and testing procedures – Degrees of protection provided by enclosures (IP code)

Measuring Ranges, Resolution, Inherent Deviation

Measuring range Ω	Resolution Ω	Measuring current A	Inherent deviation $\pm$ % rdg. + D	Voltage limit
20 m	10 μ	100 m	0.1 % + 3	< 2 mV
200 m	100 μ	100 m	0.1 % + 2	< 20 mV
2	1 m	10 m	0.1 % + 2	< 20 mV
20	10 m	10 m	0.1 % + 2	< 200 mV
200	100 m	1 m	0.1 % + 2	< 200 mV
2 k	1	100 μ	0.1 % + 2	< 200 mV
20 k	10	100 μ	0.1 % + 1	< 2000 mV
200 k	100	10 μ	0.2 % + 1	< 2000 mV
2 M	1 k	1 μ	0.3 % + 1	< 2000 mV
20 M	10 k	100 n	0.5 % + 1	< 2000 mV

Measuring principle

Ratio measurement

A/D conversion

Sampling rate

Dual-slope integration

1 / sec

Display

LCD

Character height

Digits

18 mm

1999

Ambient Conditions

Reference temperature

Storage temperature

Operating temperature

Relative humidity

Elevation

23 °C $\pm$ 2 K

–20 °C ... +60 °C

0 °C ... +50 °C

max. 70%, no condensation

to 2000 m

Power Supply

Battery

Line adapter (option)

2 Mignon IEC LR6

4,2 V/500 mA

Electrical Safety

Nominal insulation voltage

Test voltage

Protection class

50 V

500 V

II according to IEC 1010-1

Electromagnetic Compatibility

Generic emission

Generic immunity

EN 50081-1: 1992

EN 50082-1: 1992

Mechanical Design

Protection

Dimensions

Weight

Housing: IP 40,
Sockets: IP 20
per DIN VDE 0470 part 1/
EN 60529

84 mm x 195 mm x 35 mm

approx. 0.35 kg including batteries,
without protective rubber holster

Standard Equipment

- 1 milliohmmeter METRAHit[®] 17
- 1 protective rubber holster GH18
- 2 pairs of measuring leads (yellow and black)
- 2 pairs of alligator clips (yellow and black)
- 1 calibration certificate
- 2 batteries 1.5 V IEC LR6
- 1 operating instructions

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Accessories

Set of Kelvin Clips KC2 / KC3



This set consists of two clips and is meant for quick, correct connection to low-ohmic devices under test such as, for instance, shunts, cables, contact points, etc. The contacts are grooved and gold-plated and excel by a constantly low contact resistance. The clips are connected to contact-protected banana plugs by 120 cm of connection lead (conductor cross section 1 mm²). KC2 Kelvin clips allow for the connection of larger DUTs, for example screw terminals, busbars, shunts etc. KC3 Kelvin clips are suited for the connection of smaller DUTs such as small components, coil terminals etc.

Line Adapter NA 4/500

Line voltage 230 V $\pm$ 10 %
 Insulation 1000 V (test voltage 5 kV)
 Output 4.2 V/500 mA

Carrying Bag F829



Ever-Ready Case F836



Order Information

Designation	Type	ID Number
Milliohmmeter, digital, including protective rubber holster, lead set and batteries	METRAHit® 17	M217A
Kelvin clips (1 pair) up to 10 mm Ø up to 4 mm Ø	KC2 KC3	Z217A Z217B
Line adapter	NA 4/500	Z218A
Carrying bag	F829	GTZ 3301 000 R0003
Ever-ready case	F836	GTZ 3302 000 R0001
Protective rubber holster and carrying strap	GH18	GTZ 3212 000 R0001

Please refer to our *Measuring Instruments and Testers catalogue* for additional information.

METRA *Hitz*® 17

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