

MR 1012 S

For manufacturing control systems, 5 / 10 / 20 measurements per s.

Owing to its high measuring rate, its compact and robust design, its accuracy and long-term stability, the digital ohmmeter MR1012S can be used in applications with high requirements concerning the measuring stability and reliability. This is guaranteed by the integrating measuring method according to the quotient principle, the compensation of all thermo-electric forces and other offset voltages, as well as the suppression of interference voltages in the measuring and data lines induced e.g. by HF.

The sophisticated recognition of contact errors at the holding device itself is one of the most important features, as it enables you to distinguish between such errors and actual defects of the test object. The corresponding error messages, as well as the actual defects of the test object are not only transferred to the control system, but also displayed clearly on the MR 1012S front panel.

The MR1012S features a 20mV limitation which can be connected / disconnected, in order to carry out dry measurements at contacts.

Further an automatic measuring system is provided which is activated in case the value measured is below / above the measuring range.

The instrument is also provided with an input protection against surges, which can occur during the measurement of inductive components, for example.

In this case the user can activate a measurement delay in order to give the measuring current which builds up slowly with an inductance the time required to become stable.

All measuring conditions set are stored internally, and are preserved even when the MR1012S is switched off.

For this reason it is only necessary to program the instrument once via the



RS232C interface, in order to operate the instrument with these parameters at manual measuring setups, with an industrial PLC system or via RS232C.

The MR1012S has a resolution of 18000 steps, so that even in the worst case (i.e. the measured value requires step 18001 and the next higher range must be used) the measuring error is not affected noticeably.

The MR1012S is designed to be used within industrial and manufacturing control systems where high accuracy and remote controlled operation is strongly recommended. Furthermore, the easy to read front panel supports complete manual control making the MR1012S an ideal choice for laboratory use.

The device can fully be remote controlled via a V24 RS232C or an IEEE-488 compliant interface. For manual control a footswitch can be connected (optional).

A lot of 'add-ons' are available, e.g. special software for surface measurements, LCD-Display, AC-measurements. Ask for your specific needs!

High precision
resistance meters

Milli-ohmmeters

Features

- Measuring range from 10 mΩ – 100 kΩ, decadic
- Overrange up to 80 %
- max. resolution of 1 μΩ
- Selectable display, 3 ½ or 4 ½ digits
- Models available with 5, 10 or 20 measurements per second
- Measuring error ± 0,03% of MV ± 0,02 % of EV
- Temperature measurements and conversion to 20 °C or 23 °C
- Limit parameters as well as visual enhancements (ok, too low, too high), including switchable acoustic signal
- RS232C port to get full external control over the instrument
- Centronics printer port

Questions?

phone: +49 (0)3328 / 3179 - 0

fax: +49 (0)3328 / 3179 - 10

email: sales@schuetz-messtechnik.com

Here you will get technical assistance as well as complete information regarding features, prices, shipment and reselling.

www.ohmmeter.de

SCHUETZ MESSTECHNIK GMBH, Rheinstrasse 7a, D-14513 Teltow

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Made in Germany

SCHUETZ
MESSTECHNIK

MR 1012 S

Technical Data

Resistance measurement

Range	10 mΩ – 100.00 kΩ, decadic
Overrange	+80 %, to 18000
Resolution	1 μ@ Range 1 mΩ
Condition for Error Specs	@ 10 Measurements / s ; 20/23°C
Max. Measurement Error	± 0.03 % RDG ± 0.02 % RNG
Additional Temperature Error	± 0.0002 % × (t – 20/23°C) RDG
Long term Stability	± 0.002 % / Year RDG
Measuring Method	integrating dual slope quotient
Object Connection	4-Pole due to Kelvin
Current	100 μA (10 kΩ) to 1 A (1, 10 mΩ)
Max. Lead Resistance	2Ω (tested), 3Ω max. @ 1A
Range Selection	automatically, using keypad, via RS232
Display	LED, 3 ½ or 4 ½ digits, selectable
Speed	5, 10, 20 Measurements per second available

Temperature measurement

Programmable Cycles	every 1 st to 1000 th measurement
Reference	conversion to 20 °C or 23 °C
Temperature Coefficient	- 9.99 to + 9.99 %/K via RS232 or Keypad
Inputs	PT 100 probe, or via keypad or RS232

Error detection

Current Connection Errors	prior to EVERY single measurement
Sense Connection Errors	display: ‚CUR‘, RS232: ‚ECUR‘
Overrange >80%	display: ‚SEN‘, RS232: ‚ESEN‘
Thermoelectric Force Compens.	display: ‚OVL‘, RS232: ‚EOVL‘
	prior to every single cycle, automatically

Limit values

Input	using Keypad, via RS232
Off - Limit Condition	visible by LEDs, via RS232, via PLC

Start of measurement

using Keypad, via RS232 (pot.free)
and IEEE – 488, via PLC (potential free contact),
via Foot Switch (optional)

Interfaces

RS232C (full device control)
PLC (<,,=>,EOC,GO,REM)
Printer (parallel, ANSI standard)
IEEE – 488 (optional)

Environment

Operating: 0° - +50°C, RHD 80% max.
Storage: -20°C ... +70°C, both not condensing
IEC801-2/-3, EN55011

EMC

Dimensions Weight

260 x 80 x 240 mm (WxHxD)
approx. 3 kg

Multiplexer

within the normal dimensions:
This instrument can be expanded to 6/10
measuring channels, 10 with common ground
(electronic switches), 6 all separate with six 4-
pole relays (Options).
For more channels (up to 50) see our MR1012MP.

High precision resistance meters

Milli-ohmmeters

Available enhancements

- **PT 100 1/10 DIN – temperature probe:**
4-pol. MiniDIN connector
cable length 1,5 m
 $F = \pm(0,03^{\circ}\text{C} + 0,0005 \cdot |t|)$
- **Other Temperature Probes:**
Infrared and Thermoelectric device
- **Analog Output:**
for xt-paper recorder; full range = 10 V
- **IEEE-488 / IEC-625 interface:**
control the instrument via GPIB
- **Multiplexer:**
internal multiplexer up to 10 channels
(higher channel count by request)
- **Foot switch:**
to start measurement externally
cable length 3 m
- **Software MR1012 XFER**
sends measurement values to any
Windows® application (e.g. Excel®)
For Windows® 98 / NT / ME / 2000 / XP.

Available accessories

Features:

- **Cable** 4pin, 2 m long, Amphenol & banana plugs (4x, red, yellow, green, blue)
- **Cable** 4pin, 2 m long, Amphenol & various Kelvin clamps
- **DKD – calibration certificate** from the ‚Deutscher Kalibrierdienst‘
- **PT 100 10/10 DIN – temperature probe:**
4-pol. MiniDIN connector
cable length 1,5 m
 $F = \pm(0,03^{\circ}\text{C} + 0,0005 \cdot |t|)$

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