# Digital Megohmmeter

## Model 24508

| | |
|---|---|
| Code: | 24508 E |
| Manufacturer: | burster |
| Delivery: | ex stock |
| Warranty: | 24 months |
| Issue: | 1.12.2005 |

24508-E


- **Resistance measurement range from 50 x $10^3$ ... 10 x $10^{12}$ Ω**
- **Current measurement range 5 x $10^{-12}$ ... 10 x $10^{-3}$ A**
- **Automatic / Manual switch of measurement range**
- **Test voltage 45V, 100V, 250V, 500V**
- **Setpoint value processing**
- **RS232 interface**

### Application

Based on its specifications, this device can be used in various applications. It is especially suitable for resistance measurement on insulating materials such as e.g. cable insulations, foils, textiles, surfaces, insulating liquids, etc. With a test voltage of 45V, 100V, 250V and 500V the device fulfils most test specifications such as e.g. DIN 51953, 53482 and 54345.
The guard switching allows single resistance measurements in a triangle wiring. This could be e.g. a two line cable with common shield or the measurement of insulating materials on a guardring measurement cell.
The selection of the measurement range is done manually or automatically. Fast subsequent measurements can be realized by the internal set point processing. When the measured value falls below the set lower limit the setpoint value switches and therefore activates a potential-free relay output. The Megohmmeter is the right instrument for use in laboratory as well as industrial applications.
The complete control via RS232 PC-interface enables the setup of fully automatic test stations. So it is possible to integrate the instrument into production process control routines.

### Description

The digital megohmmeter model 24508 is a microprocessor-controlled measurement device for insulation resistances. The device has an easy-to-use structure in a sturdy metal housing. Easy access to the interior components allows an optimal service.
The measurement range stretches from 50 kΩ up to 10 TΩ resp. 5 pA up to 10 mA with a test voltage of 45V, 100V, 250V and 500V. The configuration of the device is done via the two line LCD display with the help of the simple menu structure. It goes without saying that all configurations can also be effected via the RS232 interface. The connections for the potential-free limit output as well as the external measurement start / stop are put on the backside.

## Technical Data

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|---|---|
| Resistance measurement range: | 50 kΩ ... 10 TΩ parted in 8 measurement ranges |
| Measurement accuracy: | 2.5 % of value ±1 digit |
| Current range: | 5 pA ... 10 mA parted in 8 measurement ranges |
| Measurement accuracy: | 2.5 % of value ± 1 digit |
| Measurement voltage: | 45 V, 100 V, 250 V, 500 V (other voltages upon request) |
| Measurement time: | freely selectable up to 999 s |
| Max. current in meas. circuit: | 3.5 mA |
| Measurement range selection: | manual or automatic |
| Measurement connections: | BNC (red) measurement voltage<br>BNC (black) measurement input<br>4 mm ø socket (blue) guard<br>4 mm ø socket (green) ground |
| Display: | Two line LCD display<br>Measurement value 3-digit with unit |
| Limit value signal: | Potential-free relay output (max. 48 V, 1 A) |
| External measurement start: | via potential-free contact |
| Interface: | RS232 with |
| Operating temperature range: | 0 °C ... 45 °C |
| Storage temperature: | - 20 °C ... + 70 °C |
| Supply voltage: | 230 V ± 10 % 50 Hz |
| Device security: | acc. to standard EN 61010-1 |
| Power: | < 10 VA |
| Housing: | Metal housing with handle |
| Dimensions (W x H x D): | 260 x 115 x 260 [mm] |
| Net weight: | 2.1 kg |

## Order Information

**Digital Megohmmeter** **Model 24508**
incl. measurement leads

### Calibration resistances for the device testing Model series 1270

| | | |
|---|---|---|
| Operating voltage: | | 20 V ... 1000 V |
| Temperature coefficient: | typically | ± 0.15 %/K |
| | maximum | ± 0.30 %/K |
| Voltage coefficient: | - 0.0025 %/V | $10^6$ ... $10^8$ Ω |
| | - 0.02 %/V | $10^9$ ... $10^{12}$ Ω |
| | - 0.04 %/V | $10^{13}$ ... $10^{14}$ Ω |
| Construction: | | Metal housing with PVC-cover |
| Dimensions: | | 36 x 30 x 90 [mm] |
| Net weight: | | approx. 70 g |

| Model | Resistance value | Accuracy category |
|---|---|---|
| 1270 | $10^6$ Ω | 1 % |
| 1271 | $10^7$ Ω | 1 % |
| 1272 | $10^8$ Ω | 1 % |
| 1273 | $10^9$ Ω | 1 % |
| 1274 | $10^{10}$ Ω | 1 % |
| 1275 | $10^{11}$ Ω | 1 % |
| 1276 | $10^{12}$ Ω | 5 % |
| 1277 | $10^{13}$ Ω | 5 % |
| 1278 | $10^{14}$ Ω | 10 % |

## DKD Calibration

The calibration resistor model 1270 can be supplied with a DKD certificate (German calibration service). The documented measurement results and tolerances are captured with standards and measurement instruments that are subject to regular comparison to the national standards of the Federal Rep. of Germany. The verification by the appointed state authorities is shown in the certificate itself as well as the calibration sign which is placed on the device.

**Model 12DKD-1270**

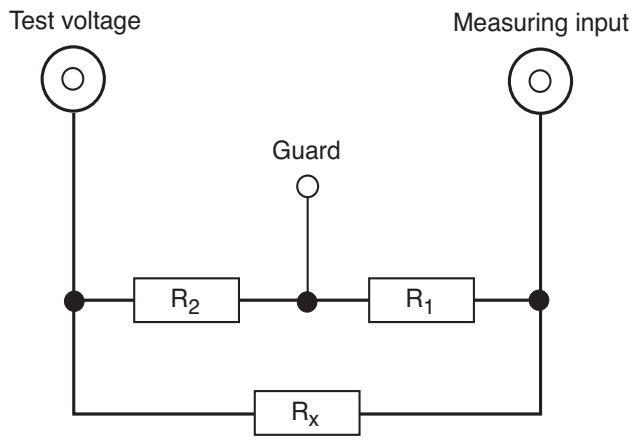
## WKS Calibration

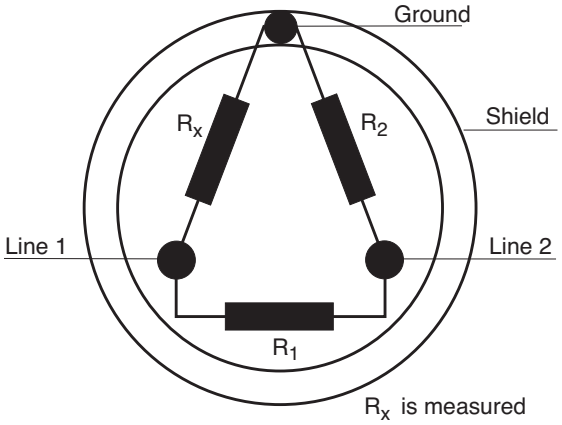
The manufcturer test certificate (WKS)
includes the proof of traceability for national standards as well as protocolling of measurement results and uncertainties.

**Model 12WKS-1270**

## Application Sample

Measurement of an insulation resistance $R_x$ wire shield on a 2 line cable with common shielding while avoiding the erroneous influence of the two parallel insulation resistances $R_1$ and $R_2$. This measurement is done with the help of the guard wiring.




The guard connection is subject to the same potential as the measurement input. As a result, the resistances $R_1$ and $R_2$ do not effect the measurement. In fact, only the resistance $R_x$ (line 1 against shield) is measured.
Since $U_{measurement} - U_{Guard} = 0$ the current on $R_1$ is also 0. The current running through $R_2$ only comes from the voltage source $U_{Ground}$. Therefore, only the $R_x$ value is measured.