Teraohmmeter Picoammeter M1501M

This automatic teraohmmeter-picoammeter microprocessor designed is suited for quality control or incoming inspection departments. The MΩ x km option makes the operation on cables easier.

**Technical Characteristics**

**Output Voltage**
- Voltage adjustable volt by volt from 1VDC to 1500VDC
- Accuracy: ±(0.5% + 0.5V) full scale
- Short circuit current: 20 mA
- Nominal current:
  - 10 mA from 1V to 1000V
  - 5 mA from 1000V to 1500V
- Polarity:
  - Positive pole to HV terminal
  - Negative pole to guard terminal
- Possibility to grounding positive or negative high voltage pole
- Temperature coefficient: 0.001%/°C
- Discharge resistance: 2.2 kΩ
- Voltage drift: microprocessor controlled, audio signal when out of tolerance

**Test Time**
- A temporization circuit allows to adjust the test time from 0 to 999 sec.

**Measurement Speed**
- 3 speeds can be programmed with measurement display:
  - Slow: 1 reading/sec
  - Normal: 3 reading/sec
  - Fast: 10 reading/sec

**Teraohmmeter**
- Measurement range: 100Ω à 2.10¹⁵Ω (2000TΩ)
- Accuracy: ≤ (0.2% of reading + 0.1% of range ± 50/U test %)
- Temperature coefficient: ± 0.1%/°C
- Automatic or manual range selection

<table>
<thead>
<tr>
<th>Ranges</th>
<th>Resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.10⁶</td>
<td>4 kΩ</td>
</tr>
<tr>
<td>2.10⁷</td>
<td>10 kΩ</td>
</tr>
<tr>
<td>2.10⁸</td>
<td>100 kΩ</td>
</tr>
<tr>
<td>2.10⁹</td>
<td>1 MΩ</td>
</tr>
<tr>
<td>2.10¹⁰</td>
<td>10 MΩ</td>
</tr>
<tr>
<td>2.10¹¹</td>
<td>100 MΩ</td>
</tr>
<tr>
<td>2.10¹²</td>
<td>1 GΩ</td>
</tr>
<tr>
<td>2.10¹³</td>
<td>10 GΩ</td>
</tr>
<tr>
<td>2.10¹⁴</td>
<td>100 GΩ</td>
</tr>
<tr>
<td>2.10¹⁵</td>
<td>1 TΩ</td>
</tr>
</tbody>
</table>

Measurement on capacitive circuit
- An internal filter enables measurement on capacitive circuits
- Display indicates that measurement voltage has reached requested values
**LOW RESISTANCE MEASUREMENT**

Program memory
- Up to 10 configurations can be memorized (measurement speed, threshold, test voltage ...)

**PICOAMMETER**
- Measurement range: 0.01 pA to 20 mA
- Accuracy: ≤ (0.2% of reading + 0.1% of range)

Program memory
- 2000 digits LCD display

Threshold
- A measurement value inferior to the predisplayed threshold value brings about an audio signal, a visual signal on the LCD and a contact on the instrument back panel will be available with option 03

<table>
<thead>
<tr>
<th>Ranges</th>
<th>Resolution</th>
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<tbody>
<tr>
<td>20 pA</td>
<td>0.01 pA (0.5 pA minimum)</td>
</tr>
<tr>
<td>200 pA</td>
<td>0.1 pA</td>
</tr>
<tr>
<td>2 nA</td>
<td>1 nA</td>
</tr>
<tr>
<td>20 nA</td>
<td>10 nA</td>
</tr>
<tr>
<td>200 nA</td>
<td>100 nA</td>
</tr>
<tr>
<td>2 µA</td>
<td>1 µA</td>
</tr>
<tr>
<td>20 µA</td>
<td>10 nA</td>
</tr>
<tr>
<td>200 µA</td>
<td>100 nA</td>
</tr>
<tr>
<td>2 mA</td>
<td>1 µA</td>
</tr>
<tr>
<td>20 mA</td>
<td>10 µA</td>
</tr>
</tbody>
</table>

**PROTECTION**
- High voltage is applied only when the safety loop is closed
- Current can be limited to 3 mA for accordance with VDE0104

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**General Characteristics**

**Presentation**
- Table top metal case fitted with retractable feet

**Dimensions**
- Height: 131 mm
- Width: 343 mm
- Depth: 332 mm

**Weight**
- Approx. 10 kg

**Operating temperature**
- 0°C to +50°C

**Storage temperature**
- -20°C to +70°C

**Power**
- 230V or 115V +/-10%, 47/63 Hz
- Consumption: 40 VA

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**Options**

**M1501U-01**
Temperature and humidity measurement
- Range: 0 to 100°C
- Accuracy: 1% ± 1°C
- Range: 0 to 100% HR
- Accuracy: 2% from 5 to 95% HR

**M1501U-02**
0-10V Analog output

**M1501U-03**
Remote control by dry contacts (PLC)

**M1501U-04**
Measurement output on rear panel

**M1501U-05**
MΩ/km measurement display: allows on any length of cable, to display the insulation measure brought back on a 1km length

**M1501U-06**
RS232C Interface

**M1501U-07**
3 mA hardware current limitation
Available accessories

**CO19**
- High voltage test lead
  - Length: 1.25 and 5 meters
  - Starting: BNC connector
  - Ending: cable ending with 4 mm banana plug
  - Type: high voltage shielded cable

**TE17**
- Return probe
  - Length: 1.25, 5 or 10 meters
  - Starting: BNC connector
  - Ending: probe ending with 4 mm banana plug (that can be taken out to connect any other 4 mm cable/accessory type)
  - Type: ground return shielded cable

**KRMRGU**
- 19 inches rack mounting adaptation kit from 3U units

**Calibration**

**REMA 0 to REMA 8**
- Standard resistors of 1MΩ, 10MΩ, 100MΩ, 1GΩ, 10GΩ, 100GΩ, 1TΩ, 10TΩ or 100TΩ

**CO58**
- Connection lead for REMA resistor to Megohmmeter
  - Length: 50 centimeters
  - Starting: 2 BNC connectors
  - Ending: 2 BNC connectors
  - Type: shielded cable for high resistance measurement

**BEM24**
- Calibration box including 23 standard resistors from 5kΩ to 100TΩ (500V max, accuracy 1%) + temperature measurement and humidity indicator

**SRE24**
- Guard ring measurement electrode for surface/volumic measurement
  - Starting: 4 mm connection on the top of the probe
  - Ending: 4 mm connection on the side of the probe
  - Weight: 2.670 g
  - Type: guard ring measuring electrode according to DIN 53482 / VDE 0303 part 3 IEC93 (Methods of test for volume resistivity and surface resistivity of solid electrical insulating materials)