The IET (esi) RS925D is a four-terminal, continuously variable decade resistor for the most exacting calibration and test applications.

**RS925D**

**Features:**
- High accuracy - 20 ppm
- High stability - 5 ppm/yr
- Low temperature coefficient - as low as 3 ppm/°C
- High-performance, solid silver contact switches
- Resistance from 10 mΩ to over 1.21 MΩ
- 20 µΩ resolution rheostat
- Hermetically sealed, low inductance resistors
- Precise fixed minimum resistance

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Resistance per step</th>
<th>Total decade resistance</th>
<th>Max current</th>
<th>Max power (whichever applies first)</th>
<th>Temperature coefficient (±ppm/°C)</th>
<th>Power coefficient (±ppm/mW)</th>
<th>Stability (±ppm/yr)</th>
<th>Decade positions</th>
<th>Resistor type</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 µΩ division</td>
<td>10 mΩ</td>
<td>2 A</td>
<td>NA</td>
<td>20</td>
<td>1</td>
<td>20 ppm+0.5 mΩ</td>
<td>10 positions &quot;1&quot;-&quot;10&quot;</td>
<td>Rheostat</td>
</tr>
<tr>
<td>10 mΩ</td>
<td>100 mΩ</td>
<td>2 A</td>
<td>NA</td>
<td>20</td>
<td>1</td>
<td>11 positions &quot;0&quot;-&quot;10&quot;</td>
<td>Resistance wire</td>
<td></td>
</tr>
<tr>
<td>1 kΩ</td>
<td>10 Ω</td>
<td>1 A</td>
<td>5 W</td>
<td>20</td>
<td>0.4</td>
<td>10 ppm (=5 ppm typical)</td>
<td>Wirewound hermetically sealed low-inductance</td>
<td></td>
</tr>
<tr>
<td>10 kΩ</td>
<td>100 Ω</td>
<td>33 mA</td>
<td>5 W</td>
<td>3</td>
<td>0.1</td>
<td>12 positions &quot;0&quot;-&quot;11&quot;</td>
<td>Wirewound hermetically sealed low-inductance</td>
<td></td>
</tr>
<tr>
<td>100 kΩ</td>
<td>1 MΩ</td>
<td>3 mA</td>
<td>2000 V peak</td>
<td>3</td>
<td>0.1</td>
<td></td>
<td></td>
<td>Wirewound hermetically sealed low-inductance</td>
</tr>
</tbody>
</table>

**Wiring and switch resistance**

- NA
- 50 µΩ/°C
- 0.2 µΩ/W

**Accuracy:**

±(20 ppm+0.5 mΩ)

At 23°C "true ohm" measurement, 30-70% RH, absolute reading, SI traceable

No zero subtraction required

**Minimum resistance:**

10 mΩ ± 0.5 mΩ; determined by the lowest settable position, "1", of the 10 mΩ/step decade

**Resistance repeatability:**

Better than 100 µΩ, short-term, average value

**Leakage Resistance:**

>10 GΩ

**Environmental Conditions:**

- Operating Temperature: 0°C to 55°C
- Storage Temperature: -40°C to 70°C

**Switch Type:**

- Multiple solid silver contacts; dust-tight dialyl-phthalate body.
- To allow continuous rotation, a blank position is added on most decades.

**Terminals:**

Four, 5-way, gold-plated, tellurium-copper binding posts with low thermal emf and low resistance, for four-terminal Kelvin measurements, plus one binding post connected to case for shielding. Rear outputs are available as an option.

**Mechanical Information:**

- Dimensions: 48.3 cm W x 17.8 cm H x 19.7 cm D (19” W x 7” H x 7.8” D)
- Weight: 5.1 kg (11 lb)

**KELVIN BRIDGE MEASUREMENT**

1. Yoke
2. Bridge (yoke side)
3. Bridge (generator side)
4. Generator

**RHEOSTAT**

For high-resolution applications, a 10 mΩ rheostat is used for the lowest step. It is a 20 µΩ resolution "decade". In order to eliminate contact resistance and thermal emf, the RD925D integrates the rheostat as shown. In this way, the wiper is in the low potential circuit, which is the high impedance lead. As a result, voltage and contact resistance effects are removed by being effectively added to the input impedance of the measuring instrument.