



## 9820 Programmable Low Ohm Resistance

*Time Electronics*

Calibration, Test & Measurement

- **0.1 $\Omega$  to 100k $\Omega$**
- **0.01% Basic Accuracy**
- **Platinum Resistance Thermometer Simulation**
- **GPIB/SERIAL interface**
- **Bench Case supplied as standard**



The **9820** has been designed for applications where programmable low value resistance is required such as platinum resistance thermometry.

Each decade is brought out on separate terminals allowing the resistance to be separated into decades and can be used independently if required and precision ratio dividers set up.

The full local control is particularly useful at system design stage and for checking and troubleshooting.

Construction is standard 19" 3U Euro-frame with plug-in modules which allow easy access and improved servicing/maintenance. The unit can be rack mounted or housed in a free standing case.

### Programming

The resistance value is set by sending up to 6 numeric digits via the remote interface, either GPIB or RS232 Serial. The least significant digit sets the lowest decade and the most significant digit sets the highest decade. Less than 6 digits can be sent if it is not required to set all decades.

The unit can be sent into local control mode via the remote interface. The setting of the front panel digits switches can then be read back over the bus. The Group Execute Trigger Command (GET) is also supported.

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## 9820 Technical Specifications

### RESISTANCE SPECIFICATION

<b>Resistance Range:</b>	0.1Ω to 100kΩ												
<b>Resistance Output</b>	Output is on 6 pairs of rear panel 4 mm terminals which divide the resistance into 6 independent decades												
<b>Accuracy:</b>	<table border="0"> <tr> <td>0.1Ω</td> <td>± 5%</td> </tr> <tr> <td>1Ω</td> <td>± 0.5%</td> </tr> <tr> <td>10Ω</td> <td>±0.05%</td> </tr> <tr> <td>100Ω</td> <td>± 0.01%</td> </tr> <tr> <td>1kΩ</td> <td>± 0.01%</td> </tr> <tr> <td>10kΩ</td> <td>± 0.01%</td> </tr> </table>	0.1Ω	± 5%	1Ω	± 0.5%	10Ω	±0.05%	100Ω	± 0.01%	1kΩ	± 0.01%	10kΩ	± 0.01%
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### General Specification

<p><b>Residual Resistance:</b> &lt; 10 mΩ / decade</p> <p><b>Temp. Coefficient:</b> less than 50 ppm/°C</p> <p><b>Power Rating:</b> 1 watt max per decade</p> <p><b>Maximum Current:</b> 1 Amp (1 watt max)</p> <p><b>Maximum Voltage:</b> 100 Volts</p> <p><b>Operation Time:</b> 50 ms</p> <p><b>Operating Life:</b> 30 million operations</p> <p><b>Thermal Emfs:</b> &lt;2uV. The internally generated emfs have been kept to a minimum using special techniques.</p>	<p><b>Relay Contacts:</b> Special attention has been given to the problem of reliability. Double pole gold contacts have been used.</p> <p><b>Remote Interface:</b> GPIB (IEEE488) or RS232</p> <p><b>Device Address:</b> Rear panel switch 0 – 31</p> <p><b>Bus Connection:</b> Standard 24 pin GPIB connector and standard serial 9 pin DIN.</p> <p><b>Power:</b> 110V/120V/220V/240V AC 50/60 Hz</p> <p><b>Operating Temp:</b> 0 – 40 °C</p>
<p><b>Dimensions:</b> 480 x 374 x 154 mm Rack Mount Version 520 x 170 x 315 mm Bench Version</p> <p><b>Weight:</b> 6 kg Rack Mount Version 11 kg Bench Version</p> <p><b>Supplied with:</b> Bench Case (9047)</p> <p><b>Optional Extras:</b> NPL Traceable Calibration Certificate UKAS Calibration Certificate</p>	

### Ordering Information

Code	Description
9820	Low Ohm Resistance 0.1Ω to 100kΩ
9163	Factory (NPL Traceable) Calibration Certificate
9120	UKAS Calibration Certificate (ISO 17025)

Due to continuous development Time Electronics reserves the right to change specifications without prior notice.