



- 1  $\Omega$  to 1 M $\Omega$
- 0.01% Accuracy
- 1 Ohm resolution
- IEEE/GPIB/IEC/HPIB
- Remote and local operation



The **9811** is a programmable resistance/potential divider, with facilities for full manual control. This is a particularly useful feature at the system design stage, and during checking and maintenance periods. The resistance is continuously shown on a 6 digit LCD display and is set locally by thumbwheel switches. The resistance is tapped to enable the 9811 to be used as a potential divider if required.

Construction is standard 19" Euroframe with plug-in modules which allow easy access and improved servicing and maintenance. It can be rack mounted or housed in a free standing case.

### Programming

To set a resistance, the required value in Ohms is transmitted over the IEEE bus, followed by a carriage return. When used as a ratio-divider, programming should be in hexadecimal format in order to obtain the full range of division ratios. Hexadecimal programming allows each resistance bank to be set to a maximum of 15. The numbers 10 to 15 being represented by the letters A to F respectively.

All commands require a carriage return or line-feed as a terminator.

The unit can be sent into the local (manual) mode from the IEEE bus. In this mode, the setting of the front panel switches can be read back. The read back terminator can be programmed to cope with different types of IEEE controller.

The 9811 can be programmed to execute commands on receipt of IEEE Group Execute Trigger (G.E.T.)

### Commands

- R : enter remote mode
- L : enter local mode
- T : transmit local setting
- GI : except G.E.T. commands

## 9811 Technical Specifications

### INTERFACE

**Interface Type:** IEEE488/GPIB/IEC/HPIB  
**Device Address:** rear panel switch 0 - 31  
**Bus Connection:** standard 24 pin IEEE488  
**Bus Isolation:** outputs are isolated from the bus up to 350V AC/DC

### RESISTANCE SPECIFICATIONS

**Range:** 0 to 1 M $\Omega$   
**Output:** 12 rear panel terminals dividing the total resistance into 6 sections –  
     0 – 9 $\Omega$            in       1 $\Omega$  steps  
     0 – 90 $\Omega$          in       10 $\Omega$  steps  
     0 – 900 $\Omega$         in       100 $\Omega$  steps  
     0 – 9K $\Omega$          in       1K $\Omega$  steps  
     0 – 90K  $\Omega$        in       10K  $\Omega$  steps  
     0 – 900K $\Omega$      in       100K $\Omega$  steps  
**Resolution:** 1 $\Omega$   
**Residual Resistance:** 5 m $\Omega$  per decade  
**Accuracy:** 1 $\Omega$  decade  $\pm$  0.5%; 10 $\Omega$  decade  $\pm$  0.05%; all other decades  $\pm$  0.01%  
**Temp Coefficient:** less than 50 ppm per  $^{\circ}$ C  
**Power Rating:** 0.3 Watt per resistor  
**Maximum Current:** 1 Amp subject to resistor power limitations  
**Maximum Voltage:** 250 V  
**Operation Time:** < 5ms  
**Thermal EMF's:** less than 2 microvolts. Internal EMF's have been kept to a minimum using special techniques.  
**Contacts:** Special attention has been given to the problem of reliability, hence double pole gold contacts have been used throughout.

### General Specification

**Power:** 110 V/220 V/240 V AC 50/60 Hz. 30 watt consumption  
**Operating Temperature:** 0-45  $^{\circ}$ C  
**Dimensions:** 480 x 240 x 130 mm Rack Mount Version  
                   494 x 374 x 154 mm Bench Version  
**Weight:** 5.5 kg Rack Mount Version       10 kg Bench Version  
**Optional Extras:** Bench Case  
                       N.P.L. Traceable Calibration Certificate  
                       UKAS Calibration Certificate

### Ordering Information

Code	Description
9811	Programmable Resistance (1 $\Omega$ – 1M $\Omega$ )
9047	Bench Case
9163	N.P.L. Traceable Calibration Certificate
9120	UKAS Calibration Certificate

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

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