



9814 Programmable DC Voltage Calibrator

- * 10mV to 10V D.C.
- * 100V & 1kV ranges optional
- * 0.01% accuracy
- * 30% overrange on all ranges
- * IEEE/GPIB/HPIB/IEC bus compatible



Introduction

The 9814 is a high performance programmable D.C. Voltage Calibrator. By combining the latest microprocessor and linear circuit technology, exceptional long term stability has been achieved. Computer selection of the basic reference device combined with high performance precision resistors ensure a guaranteed 50 ppm per year stability.

Outputs from 0 to 10V may be generated or up to 1.2kV with the optional high voltage board. The high voltage board is fitted internally and gives unit two extra ranges.

Construction is based on the standard Euro card frame. Each main section i.e. Microprocessor Control, IEEE interface, D-A Converter, Reference Amplifier etc. are located on a separate plug in Euro boards. All boards are easily accessible from the instrument rear. The 9814 may be operated in a manual mode with all controls located on the front panel.

Programming

The 9814 output is set by transmitting via the IEEE (GPIB) bus a command that represents the output voltage and polarity.

For example: the command -9.2142 will set the output to -9.2142 volts. The 9814 will automatically select the required range.

If required a particular range can be selected by sending R1, R2, R3, R4, R5 or R6 to select the 10mV, 100mV, 1 V, 10V, 100V or 1kV ranges respectively. The required output is then sent as normal. Pre-selecting the range in this way will improve the output setting time under some circumstances.

Group Execute Trigger Mode

In Group Execute Trigger mode, the required output is stored until receipt of the GET command.



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Specifications

Interface

Type: IEEE 488 (GPIB)
 Connection: 24 pin connector as prescribed in the IEEE 488- 1975 standard
 Addressing: Rear panel switch selects between device no. 0-31
 Isolation: All outputs electrically isolated from IEEE bus. (UP to 350V A.C.)

Output Connection

Front panel output 3 x 4 mm terminals (black, red and green). Rear panel 2 x 4 mm terminals (red and black).

Output Polarity

True Bipolar output is provided, i.e., the 'Lo' output terminal can remain at earth for all output values and polarities. This eliminates common mode errors or the need to reverse input connections when changing polarity.

Overload

if the instrument fails to give the correct output due to internal fault conditions, or output-overloads, the microprocessor resets the output to zero within 10ms and an 'OUTPUT ERROR' message is displayed.

Setting Time

Less than 1 ms between 0 and full scale. Less than 50ms with range change.

RANGE	MAX O/P	ACCURACY		STABILITY – ppm			Resol.	O/P Resistance Ohms	Max. Current O/P	Noise
		SETTING	RANGE	TC/°C	Per Hr	Per Day				
10mV	12mV	0.02%	0.002%	20	<4	<20	50nV	10	S/C	<0.2uV
100mV	120mV	0.02%	0.005%	20	<4	<20	500nV	10	S/C	<1uV
1V	1.2mV	0.01%	0.001%	20	<4	<10	5uV	<0.01	200mA	<5uV
10v	12V	0.01%	0.001%	20	<4	<10	50uV	<0.01	200mA	<50uV
100V	120V	0.05%	0.01%	15	<6	<15	500uV	10	10mA	<5mV
1kV	1.2kV	0.05%	0.01%	20	<6	<20	5mV	10	10mA	<50mV

Note: 100V & 1kV ranges are optional

General Information

Power: 110V/220V/240V AC 50/60 Hz. Power 50 watts.
Dimensions: 245 x 437 x 133 mm
Weight: 5 kg
Optional Extras: **100V/1kV extender board**, internally fitted to 9814 extends the output up to 1.2kV in 2 ranges (with a 0.05% accuracy) can be supplied as an optional extra.
Calibration certificates. Bench Case.

Ordering Information

Description	Order Code
DC Voltage Calibrator	9814
100V/1 kV Extender Board Option	9592
N.P.L. Traceable Calibration Certificate	9163
UKAS Calibration Certificate	9122
Free Standing Bench Case	9047