1045 Combined Voltage & Current Calpot

Time Electronics
Calibration, Test & Measurement

- **0 – 1V in 3 ranges**
- **0 – 100mA in 3 ranges**
- **0.02% Accuracy**
- **Portable**
- **Battery operation**

The **1045** meets a requirement for a combined voltage and current DC Calibrator with the additional facility for null balance measurement.

Comprising a combination of the well proven Time Electronics 1007 millivolt pot-source and 1021 current source with null. The voltage and current sections are operated independently.

The 1045 is powered from rechargeable batteries which give several months typical use without recharging, the battery condition is monitored by indicators on the end of the unit.

High reliability and good long term stability is assured by using bandgap zener reference diodes and the use of precision, low temperature coefficient components. The outputs are short circuit proof and protected against overload.

The sensitive electronic null balance meters enable the unit to be used for potentiometric voltage and current measurement in addition to its function as a calibrator. Null zero and sensitivity are adjustable via front panel controls. Maximum sensitivity is 3µV for voltage measurement and 1µA for current measurement.

Null Balance Display
A front panel meter is used for null balance measurements with zero and sensitivity controls provided. Ranges -

Voltage
Maximum sensitivity: ± 20µV f.s.d. (2µV/div)
Minimum sensitivity: 200mV f.s.d.
LED scale: 7-0-7 (15 points)
Input resistance : greater than 1 Mohm at balance.

Current
Maximum sensitivity: ± 20µA f.s.d.
Minimum sensitivity: ± 20mA f.s.d.
Maximum Resolution: 1µA.

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1045 Technical Specifications

VOLTAGE OUTPUT		CURRENT OUTPUT	
Output:	0 – 1000mV in 3 ranges 0 – 999.9mV in 0.1mV steps 0 – 99.99mV in 10µV steps 0 – 9.999mV in 1µV steps	**Output:**	0 – 100mA in 3 ranges 0 – 99.99mA in 10µA steps 0 – 9.999mA in 1µA steps 0 – 999.9µA in 0.1µA steps
Accuracy:	± 0.02% of setting + ± 0.02% of range + ± 1uV	**Accuracy:**	± 0.02% of setting ± 0.02% of range ± 0.02uA
Output Resistance:	<0.1 Ohm on 1V & 100mV ranges. 1 Ohm on 10mV range.	**Voltage Capability:**	Adjustable between 14V and 40V.
Output Current:	Up to 20mA on 1V & 100mV ranges 10mV range up to short circuit. Loads in excess of 1kOhm will give greater than 0.1% error.	**Voltage Limit:**	A front panel LED warns of insufficient drive voltage.
Output Stability:	< 60ppm/°C. < 100ppm/3 months Non cumulative.	**Output Stability:**	<60ppm/°C (-10°C to +50°C) <25ppm/hr (at constant temp.)
Output Noise:	<30ppm of full scale.	**Output Noise:**	<15ppm of Full Scale
		Load Regulation:	<20ppm/volt change in output.

Reference Source:	Precision zener diode selected for stability and low T/C.
Output Polarity:	Positive or Negative switch selected. Centre position is off.
Power Supply:	6 – AA NiCad Cells. Standard 220V – 240V A.C. charger supplied, 110V-120V A.C. version should be specified on ordering.
Operation Temp:	-10°C to +60°C

General Specification

Dimensions:	200 x 107 x 160mm
Weight:	2.5 kg
Optional Extras:	Calibration Certificates – traceable to N.P.L. and UKAS

Ordering Information

Code	Description
1045	Calpot (Combined Voltage & Current Calibrator – Potentiometer)
9157	N.P.L. Traceable Calibration Certificate
9111	UKAS Calibration Certificate

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

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