1024 DC Current Calibrator

Time Electronics
Calibration, Test & Measurement

- **Up to 100mA output**
- **0.02% accuracy**
- **10 ppm/hr stability**
- **Null facility**
- **Portable**
- **Battery & mains operation**

The **1024** is a solid state battery powered instrument which is easily portable and convenient for laboratory, field, or industrial use. It incorporates many of the well-proven circuit techniques of the Time Electronics Type 1010 DC Voltage Calibrator.

The null balance system enables the 1024 to be used for making accurate current measurement in addition to its basic function as a calibrator. Operation is by backing the current source output against the current to be measured, with the difference being displayed on a sensitive centre zone null meter. At the null point, there is no voltage drop across the 1024.

The 1024 employs a precision aged reference diode as a basic reference source. Excellent zero stability is ensured by the use of a high performance FET chopper amplifier system. Precision metal film resistors with temperature co-efficients of less than 10 ppm per ºC are used to maintain the accuracy and stability of the initial calibration.

Operation is from battery or mains. A front panel indicator that also serves as a supply on-off display monitors the battery supply condition. A minimum line on the indicator shows when the batteries should be recharged. Charging is performed by its own internal charger/power supply. Simply plugging the 1024 into a mains supply will charge the batteries. Operation of the 1024 may be continued when plugged into the mains.

Applications include calibration and testing of current sensitive transducers; calibration and linearity tests on digital and electronic current meters; and semiconductor parameter measurements e.g. diode conduction voltages at specified current levels.

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1024 Technical Specifications

Output:	0 – 100 mA in 5 ranges:	0 – 99.999 mA in 1 µA steps 0 – 9.9999 mA in 100 nA steps 0 – 999.99 µA in 10 nA steps 0 – 99.999 µA in 1 nA steps 0 – 9.9999 µA in 0.1 nA steps
Accuracy:	± 0.02% of setting + ± 0.005% of range + ± 0.2 nA	
Voltage Capacity:	15 V with new batteries or mains power (11 V with minimum allowable battery volts).	
Regulation:	Load: better than 5 ppm per volt. Supply: better than 5 ppm per volt.	
Output Polarity:	Positive or negative switch selected. A centre 'off' position provides an open circuit on the output terminals.	
Out of Limit Warning:	A front panel LED indicator provides warning of insufficient drive voltage.	
Output Stability:	Less than 30 ppm per ºC (0ºC to + 50ºC) Less than 10 ppm per hour at constant temperature. Less than 75 ppm per 6 months.	
Output Noise:	100mA, 10mA and 1mA ranges: less than 5 ppm of full scale. 100uA and 10uA ranges: less than 10 ppm of full scale ± 0.1nA.	
Null Sensitivity:	Adjustable from ± 25 mA to ± 25 µA FSD via front panel control. Maximum resolution is 0.5 µA.	
Power Supply:	Time Electronics power unit type PU2 is housed in the rear of the 1024. The PU2 will power the 1024 direct from the mains or an internal rechargeable battery. The battery is automatically charged when mains power is connected. Access to the power supply is from the back of instrument.	
Battery Level Indicator:	A front panel display provides a continuous indication of the battery state.	

General Specification

Dimensions:	L 220mm x H 160mm x D 200mm
Weight:	3.3 kg (including power unit)
Optional Extras:	Carry Case that houses the 1024 with a leather shoulder strap and leads compartment. The 1024 can be operated without removing it from the case. Calibration Certificates – traceable to NPL and UKAS.

Ordering Information

Code	Description
1024	DC Current Calibrator with null measuring facility
9021	Carrying Case
9154	Factory (NPL Traceable) Calibration Certificate
9106	UKAS Calibration Certificate (ISO 17025)

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

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