



1048 Current - Voltage - Loop Calibrator

Time Electronics

Calibration, Test & Measurement

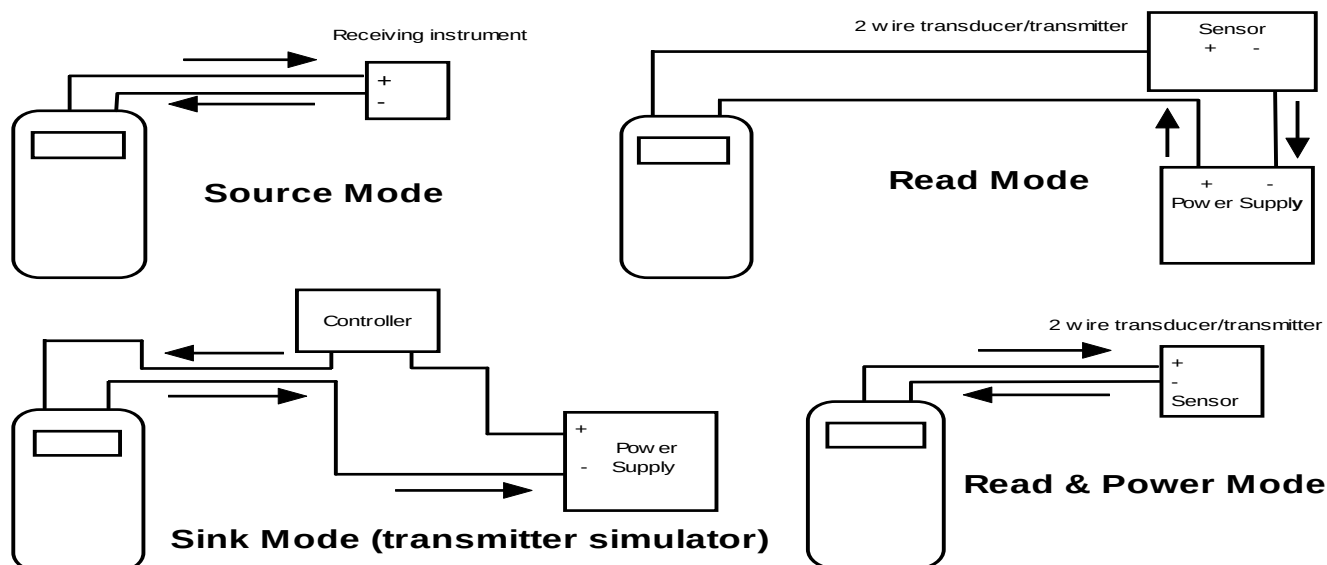
- Source & Measure - Current & Voltage
- 3 Source ranges 0 - 22mA & 0 - 22V
- 3 Measure ranges 0 - 70mA & 0 - 50V
- Transmitter Simulator/Sink
- Output Steps and Ramps
- Fine adjustment (Inching)
- Accuracy 0.02% of span



The **1048** is a current, voltage, and process loop calibrator that covers the needs of an R&D lab and process control engineer. Source and measure in three current and voltage ranges plus a transmitter simulator/sink function. It has 4.5 digit (0.005% of span) resolution.

Output functions include step, ramp and inching. There are no key press menus to learn, just switches and buttons. A multi-turn potentiometer controls the output with up/down incrementing buttons for fine control. The output can be reversed (+/-) and zeroed at the flick of a switch. The front panel features a large easy-to-read 4.5 Digit LCD display which auto-ranges. Manual reset of the ramp function is also provided for quick restore.

1048 Applications



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V1a 01/01/07

1048 Technical Specifications

DC CURRENT - Source and Measure		DC VOLTS - Source and Measure	
Span:	0 - 22mA, over-range to 70mA for measure only	Span:	0 - 22V, over-range to 50V for measure only
Accuracy:	0.02% of span	Accuracy:	0.02% of span
Resolution:	1uA (0-19.999mA), 10uA (above 20mA)	Resolution:	1mV (0-19.999V), 10mV (above 20V)
Span:	0 - 2.2mA	Span:	0 - 2.2V
Accuracy:	0.02% of span	Accuracy:	0.02% of span
Resolution:	0.1uA (0-1.9999mA), 1uA (above 2mA)	Resolution:	100uV (0-1.9999V), 1mV (above 2V)
Span:	0 - 220uA	Span:	0 - 220mV
Accuracy:	0.05% of span	Accuracy:	0.05% of span
Resolution:	10nA (0-199.99uA), 0.1uA (above 200uA)	Resolution:	10uV (0-199.99mV), 0.1mV (above 200mV)
Max source load: 1.1Kohms @ 20mA. Max drive: 22V		Output res: Approx <2 ohms. Max current 50mA	
Measure load: 1K, 110, 16 ohm for 0.22, 2.2, 22mA		Measure load: 1Mohm on all ranges	

SINK (TX SIM)

2 wire transmitter simulation: External excitation voltage, 3V min, 50V max. The current sink levels are adjustable, with accuracies as in the 3 source ranges shown above.

Note: Accuracies in all measure modes are +/-1 digit

OUTPUT STEPS

5 fixed 4mA steps for current output 4, 8, 12, 16 & 20 mA

11 fixed 1V steps for voltage output 0,1,2...10V

21 fixed steps 1V/1mA for V & I output 0,1,2.....20

Stepping can be done manually or automatically (Autostep) Stepping speed is adjustable (1-9 sec/step). Dwell time (top and bottom) is one step period. In step mode the accuracy is limited to 0.05% of span +/-1digit.

OUTPUT RAMP

Current Ramp 4 to 20, or 0 to 20 on all ranges.

Voltage Ramp 0 to 10, or 0 to 20 on all ranges.

Ramp time 7sec. Dwell (top/bottom) 5sec. Manual restart.

Ramp operation is also available in Sink (TX SIM).

OUTPUT ADJUSTMENT

A ten turn potentiometer is provided for quick positioning with fine adjust using up/down incrementing buttons.

Power: A single internal 9V PP3 size battery or an optional external mains power supply. Battery life: Typically about 15hrs use. Continuous operation in current source mode will shorten the battery life. A 15 min inactivity auto-power down feature is also included to conserve the battery.

Operating temperature: -10 to 50 °C (14 to 120 °F)

Storage temperature: -30 to 70 °C (-22 to 160 °F)

Operating humidity: 10-90% non-condensing at 25 °C

General Specification

Dimensions:	142mm (5.6") x 78mm (2.9") x 50mm (2.0")
Weight:	0.28kg (0.6lbs)
Housing:	A pocket sized hard ABS case in a leatherette carry case. Leads can be stored inside of the case.
Optional Extras:	External Power Unit: 230/240V 50/60Hz mains power supply Calibration Certificates – traceable to N.P.L. and UKAS

Ordering Information

Code	Description
1048	V - I - Loop Calibrator 0.02%
7643	230/240V AC 50/60Hz Mains Power Supply
9176	N.P.L. Traceable Calibration Certificate
9138	UKAS Calibration Certificate

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

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