



1048 Current - Voltage - Loop Calibrator

Time Electronics

Calibration, Test & Measurement

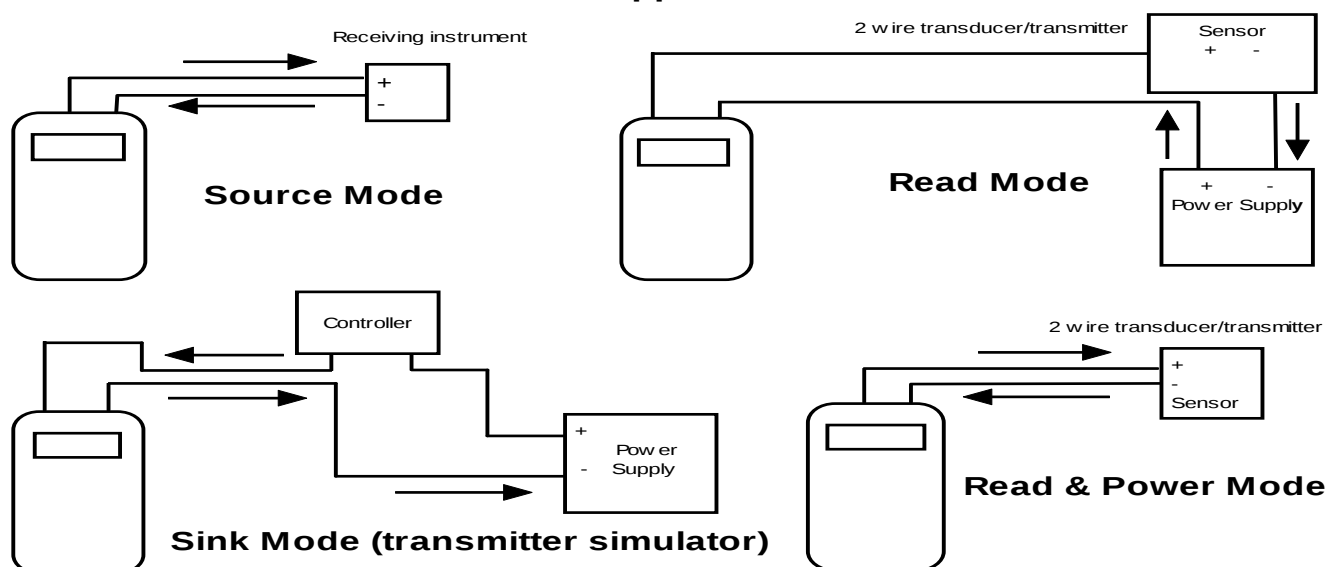
- Source & Measure - Current & Voltage
- 3 Source ranges 0 - 22mA & 0 - 22V
- 3 Measure ranges 0 - 70mA & 0 - 50V
- Transmitter Simulator/Sink
- Output Steps and Ramps
- Fine adjustment (Inching)
- Accuracy 0.02% of span



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



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, 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 +/-1 digit.

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 or 110V 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
7652	110V Mains Power Supply
9176	Factory (NPL Traceable) Calibration Certificate
9138	UKAS Calibration Certificate (ISO 17025)

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