



7005 Loop Calibrator

- **Loop Source - Current or Voltage**
- **Loop Measure - Current or Voltage**
- **Loop Current Sink**
- **Accuracy 0.01%**
- **Resolution 1uA or 1mV**
- **Programmable Ranges**
- **Manual Step, Auto-Step and Ramp**
- **Square Root Functions for Flow**
- **20mA drive capability into 1100 ohms**



The 7005 is a micro-processor based instrument for the calibration and simulation of voltage and current loops. It can operate in three modes

- a) Loop current/voltage Source (simulating a transmitter and the loop supply)
- b) Sink of loop current (simulating a transmitter)
- c) Measurement of loop current/voltage (simulating a loop indicator).

Manual step of the output is available at five calibration points, 0%, 25%, 50%, 75% and 100% of span. Automatic stepping of the output is also available both up and down with programmable dwell times.

Continuous up/down ramping is also available with user programmable ramp rates and dwell time (top and bottom).

In source mode the range can be user programmed to any value between 0mA and 50mA, or 0V and 21V. For example a low point of 10mA and a high point of 50mA could be set giving a span of 40mA

Measure mode provides both voltage and current measuring capability with 5 digit resolution. Ranges are 0 to $\pm 5V$ and ± 5 to $\pm 25V$, 0 to $\pm 25mA$ and ± 25 to $\pm 125mA$. Alternatively the signal can be measured as a % of span for the following ranges, 4 to 20mA, 0 to 20mA, square root 4 to 20mA, square root 0 to 20mA. For all measurements a Min/Max recording function is available on demand.

An internal NiCad battery can power the unit for typically 9 hours and an external mains charger is supplied as standard. An automatic power-down feature is incorporated to conserve battery life.

Technical Data

Measurement

DC CURRENT 0 to $\pm 125\text{mA}$, Auto-ranging

Accuracy (0 to 25mA)	$\pm 0.01\%$ of reading $\pm 2\mu\text{A}$
Resolution	1 μA
Accuracy (25 to 125mA)	$\pm 0.01\%$ of reading $\pm 20\mu\text{A}$
Resolution	10 μA
Measure load	24.5 Ohms on all ranges

DC VOLTS 0 to $\pm 25\text{V}$, Auto-ranging

Accuracy (0 to 5V)	$\pm 0.01\%$ of reading $\pm 0.4\text{mV}$
Resolution	0.1mV
Accuracy (5 to 25V)	$\pm 0.01\%$ of reading $\pm 2\text{mV}$
Resolution	1mV
Measure load	10M Ohm on all ranges

Source

DC CURRENT 0 to 50mA

Accuracy	$\pm 0.01\%$ of setting $\pm 2\mu\text{A}$
Resolution	1 μA
Max drive	22V
Loop Resistance	1100 Ohm @ 20mA max

DC VOLTS 0 to 21V @ 50mA

Accuracy	$\pm 0.01\%$ of setting $\pm 4\text{mV}$
Resolution	1mV
Output resistance	< 1 Ohm

DC CURRENT SINK 0 to 50mA

Accuracy	$\pm 0.01\%$ of setting $\pm 2\mu\text{A}$
Resolution	1 μA
Min external drive	4V
Max external drive	40V

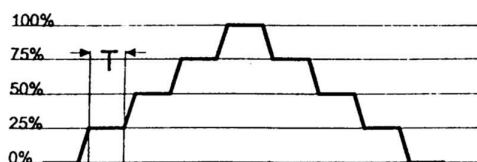
SUMMARY OF FUNCTIONS

SOURCE MODE

- User programmable ranges - any values between 0 and 50mA or 0 and 21V.
- Fixed ranges are available: 4 to 20mA, 0 to 20mA, sqrt 4 to 20mA, sqrt 0 to 20mA.
- Fine adjustment (inching) is available for precise deviation from the calibration point.
- Manual step output - five calibration points 0%, 25%, 50%, 75% and 100%
- Automatic step output (up/down) - five cal points with programmable dwell period.
- Ramp output - programmable ramp rate (0 to 20mA/Sec or 0 to 20V/Sec) programmable dwell period (0 to 1000 seconds)

MEASURE MODE

This mode provides both voltage and current measuring capability with 5 digit resolution. Ranges are 0 to $\pm 5\text{V}$ and ± 5 to $\pm 25\text{V}$, 0 to $\pm 25\text{mA}$ and ± 25 to $\pm 125\text{mA}$. Alternatively the signal can be measured as a % of span for the following ranges, 4 to 20mA, 0 to 20mA, square root 4 to 20mA, square root 0 to 20mA. For all measurements a Min/Max recording function is available on demand.



GENERAL

- Battery life typically >9 hours
- Internal NiCad battery
- External battery charger supplied
- Auto power-down
- Case Impact resistant ABS
- Size 17 x 9 x 5 cm
- Weight 0.42kg
- Supplied complete with lead set



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