



Time Electronics

7005 Voltage / Current / Loop Calibrator



- **Current measure: 125mA, source: 50mA**
- **Voltage measure: 25V, source: 21V**
- **Loop Current Sink**
- **Resolution 1 μ A or 1mV**
- **Accuracy 0.01%**
- **Transmitter and square root functions**
- **Auto-ranging feature**
- **Programmable steps and ramp**
- **Supplied with battery charger & case**

DESCRIPTION

A precision handheld instrument primarily used for the calibration and simulation of voltage and current loops. The 7005 is a high accuracy calibrator incorporating source and measure capabilities. The compact and lightweight design make it easily portable and ideal for plant operations and field use. Combined with user friendly controls and simple operation the 7005 is an excellent model for both process engineers and calibration technicians.

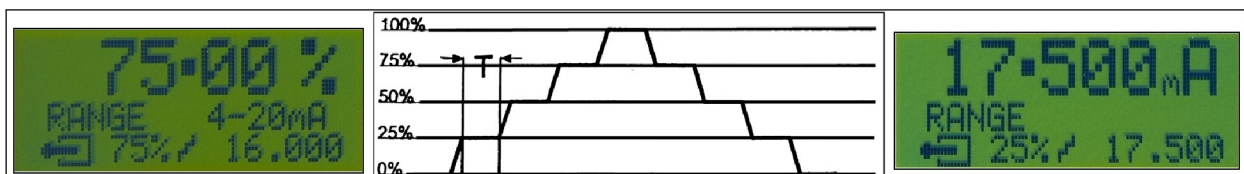
The three operating modes provide a fast and easy solution to process applications; Loop current/voltage source for simulating a transmitter and the loop supply, sink of loop current for simulating a transmitter, and measurement of loop current/voltage for simulating a loop indicator.

Manual step of the output is possible 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 can also be performed, 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 ± 5 V and ± 5 to ± 25 V, 0 to ± 25 mA and ± 25 to ± 125 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, or square root 0 to 20mA. For all measurements a Min/Max recording function is available on demand.



An internal NiMH battery powers the unit for typically 9 hours continuous use and an external mains charger is supplied as standard. An automatic power-down feature is incorporated to conserve battery life, which can easily be disabled if not required. The unit is constructed in an impact resistant ABS case and connections are made via 4 off 4mm binding terminal posts.

7005 Specifications

TECHNICAL SPECIFICATION

Specifications are for 1 year and apply for use in the temperature range of 18°C to 28°C after using the zero

DC VOLTAGE SOURCE

Range	Resolution	Accuracy	Output Current	Output Resistance
0 to 21V	1mV	±0.01% of setting ±4mV	50mA	< 1Ω

DC VOLTAGE MEASURE (0 to ±25V, Auto-ranging)

Range	Resolution	Accuracy	Measure Load
0 to 5V	0.1mV	±0.01% of reading ±0.4mV	10MΩ
5 to 25V	1mV	±0.01% of reading ±2mV	10MΩ

DC CURRENT SOURCE

Range	Resolution	Accuracy	Output Voltage	Loop Resistance
0 to 50mA	1μA	±0.01% of setting ±2μA	22V Max	1100Ω @ 20mA max

DC CURRENT MEASURE (0 to ±125mA, Auto-ranging)

Range	Resolution	Accuracy	Measure Load
0 to 25mA	1μA	±0.01% of reading ±2μA	24.5Ω
25 to 125mA	10μA	±0.01% of reading ±20μA	24.5Ω

DC CURRENT SINK

Range	Resolution	Accuracy	Min external drive	Max external drive
0 to 50mA	1μA	±0.01% of setting ±2μA	4V	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

- Voltage and current measuring capability with 5 digit resolution.
- Ranges: 0 to ±5V and ±5 to ±25V, 0 to ±25mA and ±25 to ±125mA.
- Signal can also be measured as a % of span on 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 SPECIFICATION

Dimensions	H165 x W90 x D45mm
Weight	0.42kg
Operating Temperature	-10 to 50°C. Storage temperature -30 to 70°C.
Operating Humidity	0 to 90% non-condensing at 25°C
Power	Internal rechargeable NiMH battery pack. Battery life typically 9 hours. Auto power-down feature. Full recharge from being exhausted will take approximately 16 hours with the unit switched off.
Optional Extras	Calibration certificates – traceable to NPL and UKAS

ORDERING INFORMATION

7005	Voltage/Current/Loop Calibrator
C184	Factory Calibration Certificate (NPL traceable)
C195	UKAS Calibration Certificate (ISO 17025)

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