M160

Precision DC Calibrator

HIGLIGHTS

- **DC Voltage up to 100.0000 V, 20 ppm**
- **DC Current up to 50.0000 mA, 50 ppm**
- **Reference temperature range 13–33 ˚C**
- **Resistance, frequency, RTD**
- **TC simulation R, S, B, J, T, E, K, N, M, C, D, G2**
- **GPIB, USB, RS-232 and ethernet interface**

DESCRIPTION

Precision DC calibrator M160 is a portable source of industrial process signals including DC voltage, DC current, thermocouple and RTD simulation, resistance and frequency. Unlike most of the other process calibrators, the M160 comes with exceptional 20 ppm accuracy over 20 ˚C -wide reference temperature range. All these features are combined with user friendly interface multi-interface remote control and robust design make this calibrator ideal for both calibration laboratories as well as industry professionals. Main parameters of both generated and measured signals are displayed on large LCD together with function-specific tooltip, providing auxiliary information like range, accuracy or load limit. Instrument can be connected to different ATE systems via RS232, USB, LAN or GPIB interface.

M160 is sophisticated instrument with its own recalibration procedure. The procedure enables to correct any deviation without mechanical adjustment.

Zelezna 3 | 619 00 Brno | Czech Republic | 420 543 250 886 | meatest@meatest.com | www.meatest.com

meatest

SPECIFICATION

Specifications below describe 1-year absolute accuracy including long-term stability, linearity, load and line regulation and reference standard measurement uncertainty as well as ambient conditions within specified limits.

GENERAL DATA

Reference temperature:	+13 °C ... +33 °C
Operating temperature:	+5 °C ... +45 °C
Storage temperature:	-10 °C ... +55 °C
Remote control:	RS232 interface (optionally USB, LAN, IEEE488)
Power supply:	115/230 V (- 13 %, + 10 %), 47-63 Hz, 60 VA max
Dimensions:	W 390 mm, H 128 mm, D 310 mm
Weight:	5,5 kg

Ordering codes

Functions	M160i-Vxxxx – U, I, TC, Frequency M160-Vxxxx v U, I, TC, Frequency, RTD, R
Bus	M160- V1xxx – RS232 M160-V2xxx – RS232, USB, LAN, GPIB
Housing	M160-Vxx0x – table version M160-Vxx1x – module 19", 3HE

DC Voltage

Ranges, resolution, 1 year accuracy [ppm of value + absolute offset]

Range	Autocalibration on	Autocalibration off	Max. load
300.0000 mV	15 + 2.5 µV	20 + 3 µV	50 mA
3.000000 V	15 + 10 µV	20 + 20 µV	50 mA
30.00000 V	15 + 100 µV	20 + 200 µV	50 mA
100.0000 V	15 + 500 µV	20 + 1 mV	25 mA

DC Current

Ranges, resolution, 1 year accuracy [ppm of value + absolute offset]

Range	Autocalibration on	Autocalibration off	Max. load
20.0000 mA	35 + 1 µA	45 + 3 µA	100 V
50.0000 mA	35 + 1 µA	45 + 3 µA	30 V

Resistance 4W

Ranges, resolution, 1 year acc. [% of value + abs. offset]

Range	Accuracy
20.0000 Ω	0.05 + 15 mΩ
200.000 Ω	0.05 + 15 mΩ
1000.00 Ω	0.02
3000.0 Ω	0.02
10000 Ω	0.02
30.00 kΩ	0.05
100.0 kΩ	0.1
300 kΩ	0.5

*Reference temperature range 23 °C ± 2°C

Frequency

Ranges, resolution, 1 year accuracy [ppm of value]

Range	Accuracy
200.0000 mHZ	50
2000.000 mHZ	50
20.00000 Hz	50
200.0000 Hz	50
2000.00 Hz	50
4.0000 kHz	100
10.000 kHz	600
15.00 kHz	1500

Max. load 30V/50mA or internal pull up to +5V

Frequency meter accuracy

Summary range:	10 mHz to 100 kHz
Frequency resolution:	5 ½ digits
Accuracy:	50 ppm

TC Simulation

TC types:	R, S, B, J, T, E, K, N, M, C, D, G2
Resolution:	0.01 °C
Accuracy:	0.1– 0.8 °C, see user's manual for detailed specification
External RJ accuracy:	0.02 °C (option 91)

RTD Simulation (option)

RTD types:	Pt. Ni
Resolution:	0.01 °C
Accuracy:	0.1 – 0.2 °C, see user's manual for detailed specification