

M 160

Precision DC Calibrator



HIGHLIGHTS

- 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.

MAIN DISPLAY

Voltage		Calibration	
▶ VOLTAGE 2V 09:05:35		▶ CALIBRATION 16:29:11 01.09.2016	
Spec. 30.0 ppm	Range 30.0 V	Voltage Full range +	Previous
Limit 50.00 mA	Range Auto	Range 300 mV 3 / 4	Next
Output 0.00 mA	Output 0.00 mA	Nominal value 285 mV	History
		Requested accuracy 5.00 μV	Close
		Last calibrated 01.15.2015	
		+83.6896 %	

SPECIFICATION

DC Voltage source accuracy

Range/Resolution	Accuracy	Max. load
0.0000–300.0000 mV	20 ppm + 3 μ V	50 mA
0.000000–3.000000 V	20 ppm + 20 μ V	50 mA
0.00000–30.00000 V	20 ppm + 200 μ V	50 mA
0.0000–100.0000 V	20 ppm + 1 mV	25 mA

DC Current source accuracy

Range/Resolution	Accuracy	Max. load
0.0000–25.0000 mA	50 ppm + 1 μ A	100 V
0.0000–50.0000 mA	50 ppm + 1 μ A	30 V

Frequency source accuracy

Range/Resolution	Accuracy
10.0000–200.0000 mHz	50 ppm
200.001–2000.000 mHz	50 ppm
2.00001–20.00000 Hz	50 ppm
20.0001–200.0000 Hz	50 ppm
200.01–2000.00 Hz	50 ppm
2.0001–4.0000 kHz	100 ppm
4.001–10.000 kHz	600 ppm
10.01–15.00 kHz	1500 ppm

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

Frequency meter accuracy

Summary range:	10 mHz to 100 kHz
Frequency resolution:	5½ 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)

RTD Simulation (option)

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

Real Resistance Decade (option)

Resistance range:	10 Ω –300 k Ω
Resolution:	from 0.0001 Ω
Accuracy:	0.02 %

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 Vac, 50/60 Hz, 60 W 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