



- DC Voltage up to 100.0000 V, 20 ppm
- DC Current up to 50.0000 mA, 50 ppm
- Full accuracy in wide temperature range 23 +/- 10°C
- Rapid amplitude changes for dynamic applications
- Frequency up to 15 kHz, 50 ppm
- TC simulation R, S, B, J, T, E, K, N, M, C, D, G2
- Resistance up to 300 kΩ and RTD simulation Pt, Ni (option)
- RS232 (optionally USB, IEEE488, Ethernet)

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.

DC Voltage source accuracy

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

Frequency meter accuracy

Summary range: 10 mHz to 100 kHz
 Frequency resolution: 5½ digits
 Accuracy: 50 ppm

DC Current source accuracy

Range / Resolution	Accuracy	Max. load
0.0000 - 25.0000 mA	50 ppm + 1 μA	100 V
0.0000 - 50.0000 mA	50 ppm + 1 μA	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.

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 kΩ
Resolution: from 0.0001 Ω
Accuracy: 0.02 %

General information

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, 60W max
Dimensions: W 390 mm, H 128 mm, D 310 mm
Weight: 5.5 kg

Content of delivery

M160 Precision DC calibrator
Cable RS 232
User's manual
Option 14 - test lead (black)
Option 15 - test lead (red)
Option 160-60 - frequency adapter
Option 160-70 - resistance adapter (M160)

Ordering information – options

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

Extra ordered

Option 91 - external RJ for thermocouples

The image displays four screenshots of the M160 Precision DC calibrator's graphical user interface (GUI) on a tablet or monitor. The interface is organized into four quadrants:

- Voltage:** Shows a current reading of 10.0000 V. The limit is set to 50.00 mA (adjustable), and the range is set to Auto. The output is 0.003 mA. The screen title is 'VOLTAGE 2W' and the time is 16:12:06.
- Temperature:** Shows a current reading of 100.00 °C. The RTD Type is Platinum with a 1000 Ω RO. The Standard is PT385 (90). The Meter is set to Frequency, showing 0.00000 Hz. The screen title is 'RTD SIM 4W' and the time is 11:35:47.
- Menu:** A navigation menu with options: Information, Device, System, Interface, and Calibration. The screen title is 'MENU' and the time is 16:29:11.
- Recalibration:** Shows calibration details for a voltage range of 300 mV. The nominal value is 285 mV, and the requested accuracy is 5.00 μV. The last calibrated date is 01.15.2015. The screen title is 'CALIBRATION' and the time is 16:29:11.