M160 Precision DC Calibrator

- **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**
- **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

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 meter accuracy

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

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
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 (M160i)
Option 160-70 - R/frequency adapter (M160)

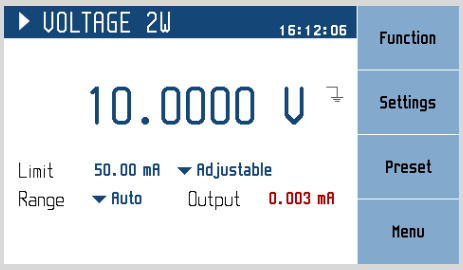
Extra ordered

Option 91 - external RJ for thermocouples

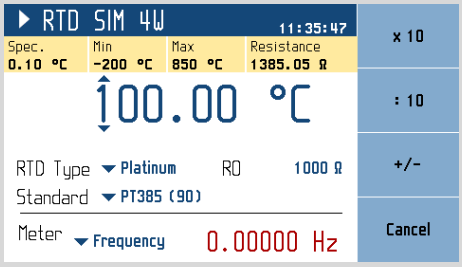
Ordering information – options

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

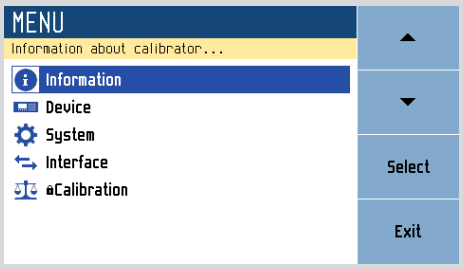
Voltage



Temperature



Menu



Recalibration