

# M630 / M630A Programmable Decade Box



- Calibration of temperature controllers
- Resistance range 1.00000 Ω – 1.20000 MΩ
- Resistance accuracy +/- 30 ppm
- Temperature coefficient < 1ppm/°C
- Operating voltage 200 V
- Simulation of RTD temperature sensors
- Simulation accuracy +/- 0.01 °C
- User defined curves (conversion tables)
- RS232 (optionally USB, IEEE488)

## Versions

**M630 (16 Ω - 400 kΩ)**  
- suitable for temperature simulation

**M630A (1 Ω - 1.2 MΩ)**  
- general resistance decade for universal use

Model M630 is a precise resistance decade box with range from 1 Ω to 1.2 MΩ. Basic accuracy is 0.003 %. Best resolution on the lowest range is 10 μΩ. Decade contains stable foil resistors with low temperature coefficient switched by low thermal voltage relays. Build-in software contains function of RTD temperature sensor simulation with parameters according to IEC (DIN) or US standards, temperature setting in degree of Celsius or Fahrenheit. Instrument can be controlled via RS232, USB, LAN or GPIB interface.

M630 is sophisticated instrument with its own recalibration procedure. The procedure enables to correct any deviation in resistance without any mechanical adjusting.

Decade box is designed for checking parameters of resistance meters, regulators and process meters that use external resistance sensors for non-electric quantity measuring.

### M630 Resistance accuracy

Range / Resolution	Accuracy
16.000 0 Ω - 20.000 0 Ω	0.002 % + 2 mΩ
20.001 Ω - 200.000 Ω	
200.01 Ω - 1000.00 Ω	0.003 %
1000.1 Ω - 3000.0 Ω	0.005 %
3001 Ω - 10000 Ω	0.015 %
10.01 kΩ - 30.00 kΩ	0.03 %
30.1 kΩ - 100.0 kΩ	0.1 %
101 kΩ - 400 kΩ	0.4 %

### M630A Resistance accuracy

Range / Resolution	Accuracy
1.000 00 Ω - 2.000 00 Ω	0.002 % + 2 mΩ
2.000 1 Ω - 20.000 0 Ω	
20.001 Ω - 200.000 Ω	
200.01 Ω - 2000.00 Ω	0.003 %
2.000 1 kΩ - 20.000 0 kΩ	
20.001 kΩ - 200.000 kΩ	
200.01 kΩ - 1200.00 kΩ	0.005 %

### M630 Pt simulation accuracy

Temperature	Accuracy Pt100 ... Pt500	Accuracy Pt1000
-200.000...0.000 °C	0.01 °C	0.01 °C
0.001...200.000 °C	0.015 °C	0.015 °C
200.001...500.000 °C	0.03 °C	0.05 °C
500.001...850.000 °C	0.04 °C	0.08 °C

### M630A Pt simulation accuracy

Temperature	Accuracy Pt100 ... Pt10000
-200.000...0.000 °C	0.01 °C
0.001...200.000 °C	0.015 °C
200.001...500.000 °C	0.03 °C
500.001...850.000 °C	0.04 °C

## General specification

<b>Maximal voltage:</b>	200 V pk
<b>Total power dissipation:</b>	0.25 W
<b>Temperature coefficient:</b>	M630A < 1 ppm/ °C M630 < 1 ppm/ °C (16 Ω ... 2 kΩ) < 5 ppm/ °C (2 kΩ ... 10 kΩ) < 50 ppm/ °C (10 kΩ ... 400 kΩ)
<b>Reaction time:</b>	6 ms
<b>Switching method:</b>	Fast / Smooth / Via short / Via open
<b>Terminals:</b>	gold plated terminals 4mm
<b>Remote control:</b>	RS232 interface (optionally USB, LAN, IEEE488)
<b>Power supply:</b>	115/230 Vac, 50/60 Hz
<b>Reference temperatures:</b>	+20 °C ... +25 °C
<b>Working temperatures:</b>	+5 °C ... +40 °C
<b>Storage temperatures:</b>	-10 °C ... +50 °C
<b>Dimensions:</b>	W 390 mm, H 128 mm, D 310 mm
<b>Weight:</b>	5.2 kg

### Content of delivery

Programmable Decade Box M630  
Cable RS 232  
Application software  
User's manual

### Ordering information – options

<i>Bus</i>	M630-V1xxx - RS232 M630-V2xxx - RS232, USB, LAN, GPIB
<i>Housing</i>	M630-Vxx0x - table version M630-Vxx1x - module 19", 3HE

#### Resistance

RESISTANCE	14:33:45	Function
▼ FAST		
100.000 Ω		
Output 100.000 Ω		
Specification 0.0040 %		
Max. Voltage 5.00 V		
Max. Current 50.0 mA		Menu

#### Temperature

PLATINUM	10:18:59	Function
▼ PT385 (90)	▼ FAST	
100.000 °C		
Output 138.505 Ω RO 100.000 Ω		
Specification 0.015 °C		
Max. Voltage 5.88 V		
Max. Current 42.5 mA		Menu

#### Recalibration

CALIBRATION	Previous
Resistance 1 / 37	
Nominal resistance 1.95 Ω	Next
Requested accuracy 1 mΩ	Save
Last calibrated 07/02/2012	Close
↑ .9443810 Ω	