



- Resistance range 100.000 mΩ – 20.0000 MΩ
- Resistance accuracy +/- 200 ppm
- Operating voltage 200 V
- Simulation of RTD temperature sensors
- Simulation accuracy +/- 0.1 °C
- User defined curves (conversion tables)
- RS232 (optionally USB, IEEE488, Ethernet)

Model M642 is a precise resistance decade box with range from 0.1 Ω to 20 MΩ. Basic accuracy is 0.02 %. Best resolution at the lowest range is 1 μΩ. Decade contains stable high load resistors with low temperature coefficient switched by low thermal voltage relays. Built-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.

M642 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.

#### M642 Resistance accuracy

Range / Resolution	Accuracy
100.000 mΩ - 200.000 mΩ	0.05 % + 15 mΩ
200.01 mΩ - 2.00000 Ω	0.05 % + 15 mΩ
2.0001 Ω - 20.0000 Ω	0.05 % + 15 mΩ
20.001 Ω - 200.000 Ω	0.05 % + 15 mΩ
200.01 Ω - 2000.00 Ω	0.02 %
2.0001 kΩ - 20.0000 kΩ	0.02 %
20.001 kΩ - 200.000 kΩ	0.02 %
0.20001 MΩ - 2.00000 MΩ	0.02 %
2.0001 MΩ - 20.0000 MΩ	0.05 %

#### M642 Frequency response

R	Max. AC/DC difference		
	100 Hz	1 kHz	10 kHz
100 mΩ	0.05 %	0.20 %	5.00 %
1 Ω	0.02 %	0.10 %	0.50 %
10 Ω	0.01 %	0.02 %	0.10 %
100 Ω	0.01 %	0.10 %	0.60 %
1 kΩ	0.06 %	0.60 %	6.00 %
10 kΩ	0.60 %	6.00 %	
100 kΩ	6.00 %		

#### M642 Pt simulation accuracy

Temperature range	Pt10-Pt99	Pt100-Pt20000
-200.000...0.000 °C	0.5 °C	0.15 °C
0.001...850.000 °C	1.0 °C	0.2 °C

#### M642 Ni simulation accuracy

Temperature range	Ni10-Ni99	Ni100-Ni20000
-60.000...300.000 °C	0.4 °C	0.1 °C

## General specification

<b>Maximal voltage:</b>	200 V pk
<b>Maximal current:</b>	500 mA
<b>Maximal load:</b>	5 W
<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 ... +26 °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>	4.5 kg

### Content of delivery

M642 Programmable Resistance Decade  
 Cable RS 232  
 Application software  
 User's manual

### Ordering information – options

<i>Bus</i>	M642-V1xxx - RS232 M642-V2xxx - RS232, USB, LAN, GPIB
<i>Housing</i>	M642-Vxx0x - table version M642-Vxx1x - module 19", 3HE

#### Resistance

RESISTANCE		14:33:45	Function
▼ FAST			
<b>100.000 Ω</b>			
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			
<b>100.000 °C</b>			
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	
Last calibrated	07/02/2012	Save
<b>↑ 1.9443810 Ω ↓</b>		Close