



- Calibration of temperature controllers
- Resistance range 10.0000  $\Omega$  – 300 k $\Omega$
- Simulation accuracy +/- 0.1  $^{\circ}\text{C}$ , resistance accuracy +/- 200 ppm
- Operating voltage 200 V
- Simulation of RTD temperature sensors
- User defined curves (conversion tables)
- RS232 (optionally USB, IEEE488, Ethernet)

Model M641 is a programmable RTD simulator with range from 10  $\Omega$  to 300 k $\Omega$ . Basic accuracy is 0.02 %. Best resolution at the lowest range is 100  $\mu\Omega$ . Decade contains stable foil 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.

M641 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.

#### M641 Resistance accuracy

Range / Resolution	Accuracy
10.0000 $\Omega$ - 20.0000 $\Omega$	0.05 % + 15 m $\Omega$
20.001 $\Omega$ - 200.000 $\Omega$	
200.01 $\Omega$ - 1000.00 $\Omega$	0.02 %
1.0001 k $\Omega$ - 3.0000 k $\Omega$	0.02 %
3.001 k $\Omega$ - 10.000 k $\Omega$	0.02 %
10.01 k $\Omega$ - 30.00 k $\Omega$	0.05 %
30.1 k $\Omega$ - 100.0 k $\Omega$	0.1 %
101 k $\Omega$ - 300 k $\Omega$	0.5 %

#### M641 Pt simulation accuracy

Temperature range	Pt100-Pt1000
-200.00...-0.01 $^{\circ}\text{C}$	0.2 $^{\circ}\text{C}$
0.00...850.00 $^{\circ}\text{C}$	0.2 $^{\circ}\text{C}$

#### M641 Ni simulation accuracy

Temperature range	Ni100-Ni1000
-60.00...-0.01 $^{\circ}\text{C}$	0.2 $^{\circ}\text{C}$
0.01...300.00 $^{\circ}\text{C}$	0.1 $^{\circ}\text{C}$

#### M641 Frequency response

R	Max. AC/DC difference		
	100 Hz	1 kHz	10 kHz
10 $\Omega$	0.01 %	0.01 %	0.05 %
100 $\Omega$	0.01 %	0.01 %	0.02 %
1 k $\Omega$	0.01 %	0.01 %	0.02 %
10 k $\Omega$	0.01 %	0.02 %	0.50 %
100 k $\Omega$	0.01 %	0.10 %	10.0 %

## 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 kg

### Content of delivery

M641 Programmable RTD Simulator  
 Cable RS 232  
 Application software  
 User's manual

### Ordering information – options

<i>Bus</i>	M641-V1xxx - RS232 M641-V2xxx - RS232, USB, LAN, GPIB
<i>Housing</i>	M641-Vxx0x - table version M641-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 <b>RD 100.000 Ω</b>		
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>↑ .9443810 Ω</b>		Close