

>165.65546 67616.12287 577
 >198.65646 65612.232829 955
 >198.65546 65612.232829 95556
 >152.698016 68818.282399 92356
 >198.643636 78617.732289 783
 >124.634546 78672.237779 683
 >458.11142 83417.732397 876
 >145.523286 64486.222689 986
 >140.77060 32814.077060 328 56-20

MODEL 4310

Temperature Stabilized Resistance Standard



- 10 decade values (0.1Ω to 100MΩ)
- Thermometry values available
- Four terminal connections
- Stability 2×10^{-6}/year
- Temperature coefficient 0.005×10^{-6}/°C
- Temperature Stability $\pm 0.01^\circ\text{C}/\text{year}$
- Eliminates oil/air bath requirement

MODEL INFORMATION

The Model 4310 is a series of ten-element precision resistance standards. Two versions are available with different accuracies. The Model 4310 insures that you get the best performance on the market today. Combined with MI's experience in automated resistance measurements the 4310 is a temperature controlled, 10-element working resistance reference.

The ten-resistance elements cover the range from 0.1Ω to 100MΩ. The resistance elements are housed in a single temperature controlled chamber and feature excellent stability and extremely low temperature coefficients. Each resistance element is accessible from the back panel with four terminal binding posts, suitable for banana plug, spade lugs or wires. Other resistor values other than the decade values shown above are also available.

The resistor elements mounted in the chamber are the same elements that are used in the MI 9331 series of standard air resistors. The temperature coefficient of these resistors is reduced by controlling the temperature of the internal chamber to achieve its excellent long term stability.

The internal chamber of the 4310 is isolated from case and can be grounded or guarded. The temperature of the chamber is monitored using a Thermistor and Bridge Circuit. A variable gain potentiometer on the front panel can be adjusted for reading the temperature shift.

The resistor elements are maintained at 30 degrees Celsius, with an operating environment temperature range extending from 18 to 28 degrees Celsius. Other chamber temperatures are also available.

The Model 4310 can be used as a bench top or can be mounted in any standard 19-inch instrument rack.

A typical drift graph of the 1k element is shown below. These graphs will vary from element to element



Specifications:

Nominal Resistance	Nominal Resistance tolerance (+/- ppm)	24 Hour Stability (+/- ppm)	12 Month Stability (+/- ppm)		Temperature Coefficient (+/- ppm/°C)	Max. Voltage (Volts)
			A	B		
100 MΩ	50	0.4	10	10	0.025	100
10 MΩ	35	0.25	10	10	0.025	100
1 MΩ	25	0.03	2	5	0.02	100
100 kΩ	15	0.02	2	5	0.01	100
10 kΩ	10	0.01	2	5	0.005	32
1 kΩ	10	0.01	2	5	0.005	10
100 Ω	10	0.01	2	5	0.005	3.2
10 Ω	10	0.01	2	5	0.005	1.0
1 Ω	10	0.01	2	5	0.005	0.32
0.1 Ω	100	0.1	10	10	0.025	0.2
Temperature Stability: +/- 0.01°C over a 1 year period			Dimensions: (LxWxH) 465 x 432 x 127 mm			
Ambient Temperature Range: 23°C +/-5°C			Weight & Shipping Weight: 9 kg, 13 kg			
Ambient Humidity Range 20 to 50% RH			Operating Power: 85 to 264V – 47 to 440Hz			
Warranty: Standard 1 year Parts & Labor			Calibration Certificate Included			

How to Order:

Model 4310 – 10 Element Resistance Standard, 0.1Ω to 100MΩ, Accuracy A
 Model 4310 – 10 Element Resistance Standard, 0.1Ω to 100MΩ, Accuracy B
 Model 4310 – 10 Element Resistance Standard, Other Chamber Temp, Accuracy A or Accuracy B
 Model 4310 – 10 Element Resistance Standard, Other Resistance Values, Accuracy A or Accuracy B

Model SPSCW-XX-YY (Cables cut to length and finished)
 Where XX = Length, YY = # of Cables
 Model SPSCW-30-4 (30 meters of four conductor teflon cable)
 Model SPSCW-100-4 (100 meters of four conductor teflon cable)

Disributed By:

Corporate Headquarters

Measurements International
 PO Box 2359, 118 Commerce Drive
 Prescott, Ontario, Canada K0E 1T0
 Phone: (613) 925-5934
 Fax: (613) 925-1195
 Email: sales@mintl.com
 Toll Free: 1-800-324-4988

Worldwide Offices

MI-USA
 Phone: (407) 706-0328
 Fax: (407) 706-0318
 Email: sales@mintl.com
 Toll Free: 1-866-684-6393

MI-China
 Phone: 86-10-64459890
 Fax: 86-10-64459871
 Email: sales@mintl.com

MI-Europe
 Phone: (420) 731-440-663
 Fax: (420) 572-572-358
 Email: sales@mintl.com

