Measurements International

Metrology is Our Science, Accuracy is Our Business™

TEMPERATURE STABILIZED RESISTANCE STANDARD

MODEL 4310

- 6 to 10 Decade Values
- Resistance Range 0.1 Ω to 100 MΩ
- Other Values Available
- Thermometry Values Available
- Four Terminal Connections
- < 2.5 ppm/Year Stability
- Temperature Coefficient < 0.005 ppm/°C
- Temperature Regulation ± 0.01 °C Per Year

MODEL 4310 TEMPERATURE STABILIZED RESISTANCE STANDARD

The model 4310 is a series of ten-element precision resistance standards. 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 0.1 Ω to 100 MΩ. 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.

Back of 4310

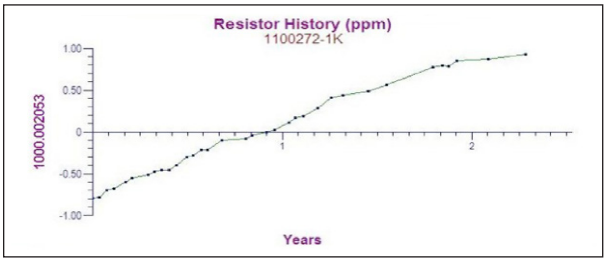
The resistor elements mounted in the chamber are the same elements that are used in the MI 9331 series of standard air resistors. The temperature coefficient of these resistors is reduced by controlling the temperature of the internal chamber to achieve its excellent long term stability.

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 °C, with an operating environment temperature range extending from 18 to 28 °C. 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 1 kΩ element is shown below. These graphs will vary from element to element.



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Specifications: Rev 7

Nominal Resistance (Ohms)	Nominal Resistance Tolerance (± ppm)	24 Hour Stability (± ppm)	12 Month Stability (± ppm)	Temperature Coefficient (± ppm/°C)	Max. Voltage (Volts)
100 MΩ	50	0.4	10	0.025	100
10 MΩ	35	0.25	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	0.025	0.1

Temperature Stability	± 0.01 °C Over a 1 Year Period
Ambient Temperature Range	23 °C ± 5 °C
Ambient Humidity Range	20 to 50 % RH
Warranty	Standard 1 Year Parts & Labour

Dimensions (L × W × H):
445 × 432 × 127 (mm)

Weight:
9 kg

Shipping Weight:
13 kg

Main Power:
85 to 264 V – 47 to 440 Hz

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