

>368,688789 12437,23 2933 977 56-203 55549<  
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>458,11142 83417,73 2337 876 56-203 83339<  
>145,523286 64486,22 2889 966 56-203 88849<  
>368,688789 12437,23 2933 977 56-203 55549<

## DATA SHEET

### MODEL 4311



### Temperature Stabilized Resistance Standard

- Temperature Controlled
- 9 Elements
- Custom Values
- 1 to 100M $\Omega$

### MODEL INFORMATION

The Model 4311, a nine-element resistance standard is the latest development from Measurements Internationals' series of DC resistors and shunts. After many years of research in resistance materials, the Model 4311 insures that you get the best performance on the market today. Combined with MI's experience in automated resistance measurements the 4311 is used as a temperature controlled 9-element working resistance reference.

The nine-resistance elements cover the range from 1 $\Omega$  to 100M $\Omega$ . The resistance elements feature

excellent stability and extremely low temperature and power coefficients. Each resistance element is accessible from the back panel with four terminal binding posts (C1, P1, P2, and C2) suitable for banana plug, spade lugs or wires. All resistors are aged precision resistors. The resistor elements are maintained in an oven at 73  $\pm$  6°F, with an operating environment temperature range extending from 65 to 80°F, 20 to 50% relative humidity. The resistor elements are housed in a single enclosure which is rack mountable or can be used on the bench.



**Specifications:**

Nomina l Resista nce (ohms)	Nominal Resistan ce tolerance (+/- ppm)	24 Hour Stabilit y (+/- ppm)	180 day Stability (+/- ppm)	12 Month Stabilit y (+/- ppm)	Temperatu re Coefficient (+/- ppm/°C)	Max. Volutag e (Volts)	Calibratio n Uncertain y K = 2	Power Coeffici ent ±PPM/ mW
100 MΩ	<50	<0.5	<7.5	<15	0.1	1000	10	0.5
10 MΩ	<25	<0.2	<2.5	<5	0.1	1000	5	0.2
1 MΩ	<25	<0.2	<2.5	<5	0.1	320	2	0.1
100 kΩ	<15	<0.2	<2.5	<5	0.1	100	1	0.02
10 kΩ	<15	<0.2	<2.5	<5	0.1	32	1	0.02
1k Ω	<15	<0.2	<2.5	<5	0.1	10	1	0.02
100 Ω	<15	<0.2	<2.5	<5	0.1	3.2	1	0.02
10 Ω	<15	<0.2	<2.5	<5	0.1	1	1	0.02
1 Ω	<15	<0.2	<2.5	<5	0.1	0.32	1	0.02
Oven Temperature					73 ± 6°F Temperature			
Stability of Oven					100 mK			
Operating Temperature					65 to 80°F			
Relative Humidity					20 to 50%			
Product Details								
Dimensions (H x W x D)					133 x 450 x 305 mm			
Weight					9 kg max			
Shipping Weight					13 kg.			
Operating Power					85 TO 264V – 47 To 440 Hz			

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