



## Standard Reference Resistors

- High Stability
- 0.1  $\Omega$  to 10 M $\Omega$
- Operating Range 18 °C to 28 °C
- Custom Values Available
- Metal Foil Technology
- Ultra Low Temperature Coefficient

## Model 9331R



## Model 9331R Standard Reference Resistor

Through years of technological experience developing the most accurate and stable resistance standards available, Measurements International has developed the Model 9331R Reference Series of Precision Standard Air Resistors.

This 9331R series air resistor was developed to close the gap between high accuracy and high stability oil resistors with the air resistor market. By releasing the 9331R series of air resistors, customers now have an alternative to using oil resistors and still achieve superior measurement results.

The 9331R employs multiple oil-filled resistive elements housed in a sealed enclosure.

The resistance standards require no temperature controlled oil or air baths to achieve their specifications.

However, for optimal performance as a primary set of resistors, it is recommended that the resistors be placed in the Measurements International's Model 9300A Air bath.

Connections to the 9331R are made using Gold Plated Tellurium Copper binding posts. A separate ground is included for grounding the case.

Interconnecting cable may also be ordered with the 9331R Resistance Standards. The interconnecting wire comes in either two or four conductor configurations. The wire may be ordered in lengths with screens already attached or in 100-meter rolls. No. 18 gauge solid copper, silver-plated, screened Teflon cable is recommended.

Each 9331R comes with a calibration report including the assigned value and temperature coefficient data.



## Model 9331R Standard Reference Resistor

### Specifications: Rev 2

| Model      | Nominal Value (Ohms) | Tolerance ± ppm* | First Year Drift (ppm) | Stability 12 Month (ppm) | Max Current (A) | TC at 23°C ± 1°C (ppm/°C) | Maximum Voltage (V) |
|------------|----------------------|------------------|------------------------|--------------------------|-----------------|---------------------------|---------------------|
| 9331R/0.1  | 0.1                  | 2                | 2.5                    | 1                        | 1               | 0.1                       | 0.1                 |
| 9331R/1    | 1                    | 2                | 2.5                    | 1                        | 0.316           | 0.1                       | 0.32                |
| 9331R/10   | 10                   | 2                | 2.5                    | 1                        | 0.1             | 0.1                       | 1.0                 |
| 9331R/25   | 25                   | 2                | 2.5                    | 1                        | 0.063           | 0.1                       | 1.58                |
| 9331R/100  | 100                  | 2                | 2.5                    | 1                        | 0.031           | 0.1                       | 3.16                |
| 9331R/1k   | 1 k                  | 2                | 2.5                    | 1                        | 0.01            | 0.1                       | 10.00               |
| 9331R/10k  | 10 k                 | 2                | 2.5                    | 1                        | 0.003           | 0.1                       | 31.62               |
| 9331R/100k | 100 k                | 2                | 2.5                    | 1                        | 0.001           | 0.1                       | 100.0               |
| 9331R/1M   | 1 M                  | 2                | 2.5                    | 1                        | 0.0003          | 0.2                       | 300.0               |
| 9331R/10M  | 10 M                 | 5                | 2.5                    | 1                        | 0.0001          | 5                         | 1000.0              |

\*Tolerance – Defined as the potential variance from the nominal resistance value at the time of manufacture. Due to the natural aging process, it is recommended that the resistance value be monitored closely for the first year of ownership.

#### Dimensions: (L x W x H)

200 x 100 x 81 (mm)

#### Weight:

1 Kg

#### Shipping Weight:

Provide with Quote

#### Main Power:

N/A

#### Corporate Headquarters

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