

LOWTHERMAL™

Excellence in Standards and Repair



Model 770 Rugged Standard Resistors

Standard Resistors for working environments with laboratory performance

Features

- High performance Standard Resistors designed for use in air
- Rugged, compact and lightweight design
- Low temperature coefficients
- Stabilities down to 2ppm per year
- Broad operational temperature range: 18°C to 28°C standard
- Extended operational temperature range: 10°C to 40°C optional
- Low reactance design useful for DC and AC applications
- Unique damped mounting isolates the resistance element
- Resistances available from 1 Ω to 1 G Ω
- Custom values upon request
- Low thermal EMF, low leakage 5 way binding post connections
- Made in the U.S.A.

Description

The Low Thermal Electronics 770 series of rugged, high accuracy working resistance standards are equally at home in the calibration laboratory, production manufacturing environment or for use in the field as portable transfer standards. Designed with reliability in mind, these standards provide a high level of mechanical performance intended to minimize damage and shifts caused by normal handling and the inadvertent “knocks” or “bumps” seen in working environments.

Utilizing proven hermetically sealed metal foil and resistive film technology, the 770 series has excellent long term stability. The temperature coefficient of resistance is very low and temperature controlled oil or air baths are not necessary.

Model 770 Rugged Resistance Standards

Connections

Custom five-way binding posts are used for all connections to the 770 series Standard Resistors. They feature direct gold plated tellurium copper construction that minimizes thermally induced parasitic voltages and maximizes contact life. The post insulators are manufactured from low leakage nylon. They will not absorb oils and other contaminants over time that degrades measurement performance. The post insulators and knobs are also virtually unbreakable and will not split or shatter.

The standards have four wire connections for values up to 100 k Ω . Two wire configurations are used for values greater than 100 k Ω . An additional post is included on all values to connect to the enclosure shield.

Rugged by Design

In order to minimize the forces exerted on the precision resistance element in the 770 series, great care has been taken designing the element's mechanical mount. Instead of attaching the leads from the element directly to the back of the binding posts, an isolation system was developed that takes the force of vibration or impact off of the element and its electrical connections. It attaches the element by the body of the hermetically sealed metal package in a damped isolation mount. The aluminum enclosure serves as both electrical shielding and thermal lag for the element. It is light weight and small in size to minimize the mechanical inertia it carries that would be transferred to the element.

Specifications

Model	Value	Nominal Tolerance	Temperature Coefficient	Stability	Maximum Voltage
		(+/- ppm @ 23°C)	(+/- ppm/°C) ¹	(12 Month +/-ppm)	
770-1	1 Ω	5	1.5	1	0.33
770-10	10 Ω	5	0.7	1	1
770-25	25 Ω	5	0.7	1	1.6
770-100	100 Ω	5	0.5	1	3.3
770-1K	1 k Ω	5	0.5	1	10
770-10K	10 k Ω	5	0.5	1	33
770-100K	100 k Ω	5	0.5	1	100
770-1M	1 M Ω	5	0.5	1	330
770-10M	10 M Ω	10	3	5	1000
770-100M	100 M Ω	25	5	5	1200
770-1G	1 G Ω	50	25	25	1200

18°C to 28°C operational

0°C to 50°C storage

3.5" 88.9mm tall, 3.25" 82.6mm deep, 120.7mm wide

For other values, the model number is 770-xxx where xxx is the resistance value. 770-25, 770-12.906K, 770-10.1K, etc. are examples of non-standard values

**Preliminary data. Specifications subject to change.*