



Measurements International

Metrology is Our Science, Accuracy is Our Business™

MODEL 9332 STANDARD DC CURRENT SHUNT OR STANDARD RESISTOR APPLICATIONS



Featuring

- ▶ Low Temperature Coefficients
- ▶ Controlled Current Distribution
- ▶ For use in Air
- ▶ Fan Assembly Option for Forced Air
- ▶ Low Power Coefficients

The model 9332 series of four terminal DC Current Shunts for the measurement of precision DC Current levels to 3000A are the latest development from Measurements International. Only after many years of research in low value resistance materials, the model 9332 series of standard DC current shunts ensures the best performance available today. Combined with MI's experience in automated measurements at high current levels, accuracies less than 0.01% can be achieved at full power.

The shunts are constructed from specially selected elements which are soldered into copper ends using a special low thermal solder. The element then goes through a process of annealing which ensures the best performance without introducing self-heating errors with improved temperature coefficients. The shunt, designed to operate in air at full power, is then covered with a decorative perforated cover allowing air to escape during self heating and to protect the elements from physical damage. The copper ends are specially designed to force the current to be evenly distributed through the elements so that the surface area can dissipate the specified power in air.

Special considerations have been given to the process of curing the element and reducing temperature coefficients. The optimum surface area dissipates the maximum specified power. The annealing process gives the shunt excellent long term stability so that these Shunts can be used in air at full current. For increased performance as a standard resistor, they can be placed in the MI model 9300A Air Bath.

Current connections are made at each end of the shunt while low thermal potential connectors are used for measuring the output voltage. Only the current connector will vary depending on the size of the shunt. Special values are also available.

The 9332-Forced Air assembly is also available for all shunts. The number of fans will vary depending on the length of the shunt. The force Air Assembly attaches to the Shunt Guard and air is blown down and away from the shunt. The use of the 9332-Forced Air assembly keeps the power coefficient of the shunt low for all currents.

Feature	Benefit
No fan required	Capable of 100% power without the need for external cooling
Excellent Temperature Co-efficient	Less dependent on ambient air temperatures
Included Temperature Sensor	For calculation of the resistance/temperature curve
Lowest Calibration Uncertainties	Lowest Calibration Uncertainties commercially available
Fast Turn Around	Usually within 1-3 months after order if not in stock



MODEL 9332 STANDARD DC CURRENT SHUNT

Specifications: Rev 11

Model	Current Rating (A) Note 1	Value (Ω) Note 2	Accuracy @		Power Rating (Watts)	Time Constant (Minutes) Note 4	Stability 1 Year (μΩ/Ω) Note 5	Temp Coef (μΩ/Ω/°C) Note 6	Power Coef Watt	
			1 Watt (%) Note 3	Full Power (%)					Air μΩ/Ω	Oil μΩ/Ω
9332/10	10	0.1	< 0.01	± 0.04	10	< 4	10	< 3	< 4	< 1
9332/20	20	0.1	< 0.01	± 0.04	40	< 4	10	< 3	< 4	< 1
9332/30	30	0.0333	< 0.01	± 0.04	30	< 4	10	< 3	< 4	< 1
9332/50	50	0.02	< 0.01	± 0.04	50	< 4	10	< 3	< 4	< 1
9332/100	100	0.01	< 0.01	± 0.04	100	< 4	10	< 3	< 4	< 1
9332/250	250	0.0005	< 0.01	± 0.05	31.25	< 10	10	< 10	< 2	< 1
9332/300	300	0.001	< 0.01	± 0.04	90	< 4	10	< 3	< 4	< 1
9332/300/50 μ	300	0.00005	< 0.01	± 0.04	4.5	< 4	25	< 25	< 4	
9332/300/100 μ	300	0.0001	< 0.01	± 0.04	9	< 4	25	< 25	< 4	
9332/500	500	0.0001	< 0.005	± 0.04	25	< 10	25	< 8	< 10 < 2 in 9300A	< 1
9332/500 FAN	1000			± 0.01	100	< 5			3	
9332/750	750	0.0005	< 0.01	± 0.04	281	< 10	25	< 10	< 10	< 1
9332/1500	1500	0.0001	< 0.01	± 0.05	225	< 30	100	< 10	< 2	< 1
9332/3000	3000	0.00001	< 0.01	± 0.50	90	< 30	100	< 10	< 2	< 1

Note 1: Maximum current for ambient air usage and with 9332FAN option

Note 2: Nominal resistance from 1 μΩ to 100 mΩ in decade values, custom values are also available as special order.

Note 3: When used as a standard resistor. Report of calibration is included with values and uncertainties for 10% and 75% of current included.

Note 4: Time constant is the time for the resistance value to settle within 10 μΩ/Ω of its final value.

Note 5: Stability specifications based on using the shunt as a standard resistor.

Note 6: Temperature and Power Coefficient to be added to base uncertainty for temperatures other than 23 °C

Dimensions (L × W × H):

Provided with Quote

Weight:

Provided with Quote

Shipping Weight:

Provided with Quote

Mains Power:

N/A

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

