

RS Series

Precision Current Resistor / DC Current Shunts



- **Base Mounted Shunt***
- **Current Rating 5 to 1200 Amps**
- **50mV, 100mV, or Custom Output**
- **Standard Tolerance $\pm 0.25\%$**
- **Manganin Resistive Element**
- **Common Applications:**
Solar Generators, Wind Power, Heavy Industry, Electroplating, Battery Chargers, Mining

*Available without Baseplate

SPECIFICATIONS					
Type	Rated Current (A)	Operating Current (A)	Resistance ($m\Omega$) 50mV Output	Resistance ($m\Omega$) 100mV Output	Drawing
RSA-5	5	3.33	10.00	20.00	RSA
RSA-10	10	6.67	5.00	10.00	
RSA-15	15	10	3.333	6.667	
RSA-20	20	13.3	2.500	5.000	
RSA-30	30	20	1.667	3.333	
RSA-50	50	33.3	1.000	2.000	
RSA-75	75	50	0.667	1.333	
RSA-80	80	53.3	0.625	1.250	
RSA-85	85	56.7	0.588	1.176	
RSA-100	100	66.7	0.500	1.000	
RSA-150	150	100	0.3333	0.6667	
RSB-170	170	113	0.2941	0.5882	RSB
RSB-200	200	133	0.2500	0.5000	
RSB-250	250	166	0.2000	0.4000	
RSB-300	300	200	0.1667	0.3333	
RSB-400	400	267	0.1250	0.2500	
RSB-450	450	300	0.1111	0.2222	
RSB-500	500	333	0.1000	0.2000	
RSB-600	600	400	0.0833	0.1667	
RSC-800	800	533	0.0625	0.1250	RSC
RSC-1000	1000	666	0.0500	0.1000	
RSC-1200	1200	800	0.0417	0.0833	

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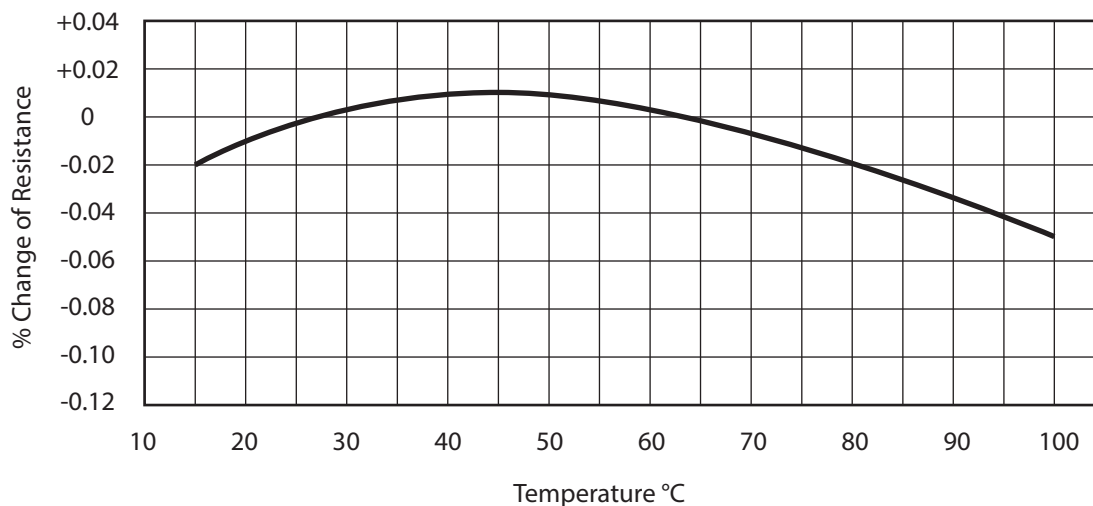
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SPECIFICATIONS

Rated Output	50mV, 100mV, Custom
Voltage Tolerance	±0.25% Standard
Operating Temp.	-40°C to +60°C
Storage Temp.	-55°C to 80°C
Dielectric Strength	750VDC (Terminal Block to Base)
Materials	Resistance Element: Manganin Terminal Block: Brass Hardware: Brass
Military Spec	Built to A-A-55524, Commercial Version of MIL-S-61B Calibrated on Certified N.I.S.T Equipment

Manganin Temperature Coefficient of Resistance ±15 PPM/°C



Ordering Information

Part Description: Part Type - Rated Current - Voltage Output (mV) - NB (no baseplate option)

Example: **RSA-100-50** or **RSA-100-50-NB** without baseplate

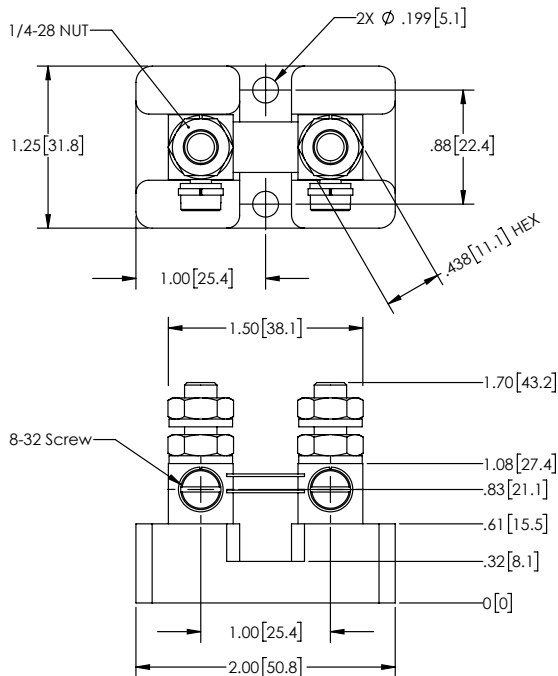
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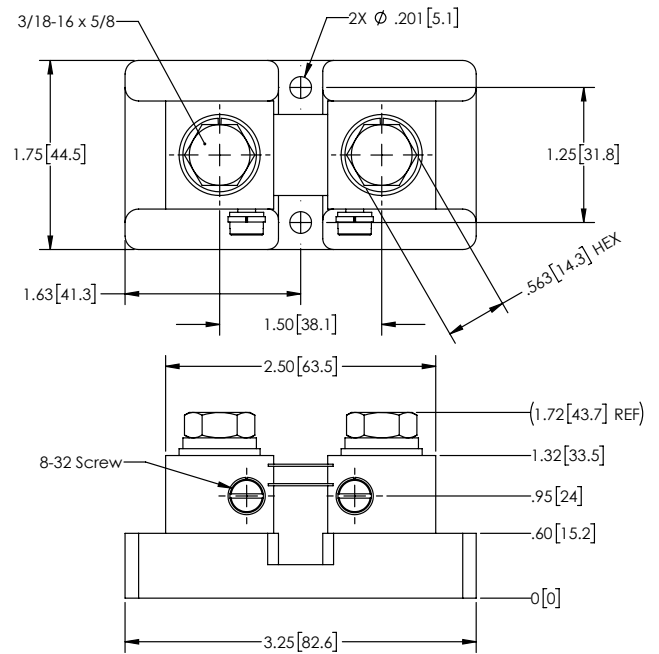


Dimensions

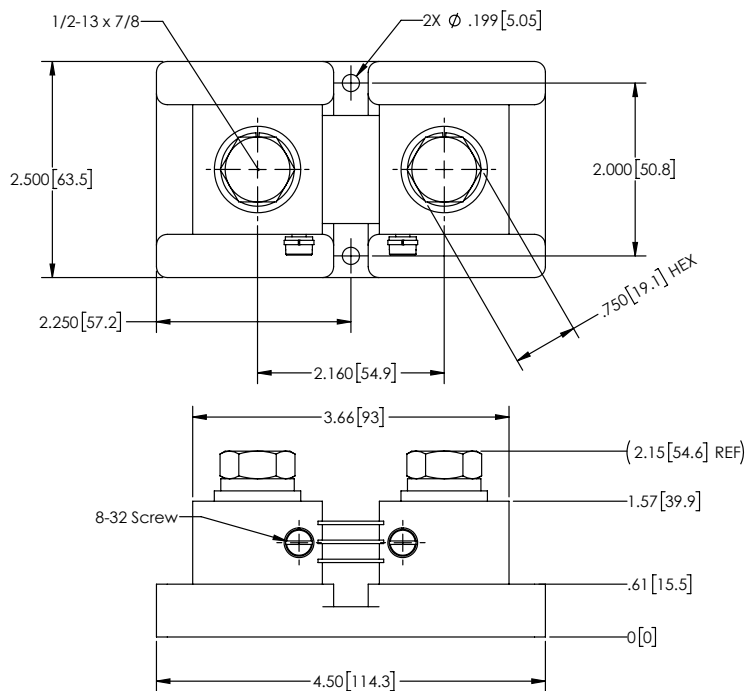
RSA



RSB



RSC



TYPE	Fastener Torque	Weight
RSA	3-3.33 ft-lbs (4.1-4.5 Nm)	0.1 Kg
RSB	14-15 ft-lbs (19-20 Nm)	0.3 Kg
RSC	32-35 ft-lbs (35-48 Nm)	0.9 Kg
8-32 Output	14-15 in-lbs (1.6-1.7 Nm)	

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TECHNICAL NOTES

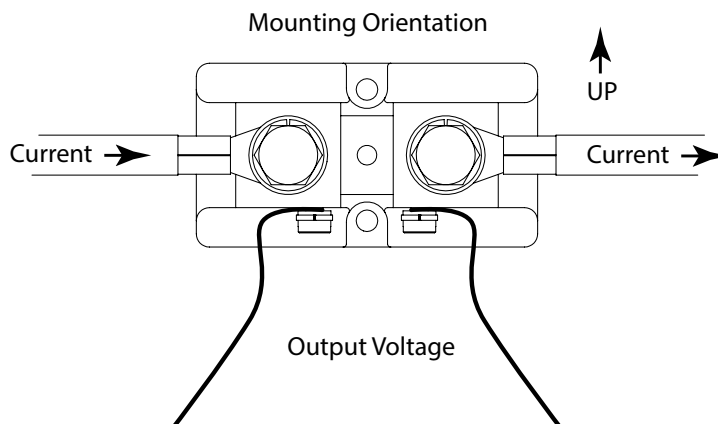
Mounting: Shunts should be mounted with manganin resistive blades in a vertical position in order to promote the free convectional flow of air. If vertical mounting is not practical, forced air cooling or adding heat sinks to the blocks can reduce the operating temperature. The manganin blades must never exceed +145°C, otherwise permanent resistance change may occur.

When current of 100A or greater is passing through the shunt, the major portion of heat generated is dissipated by conduction through the shunt terminal blocks into the connecting buss bar or cable. Therefore it is necessary to insure that good contact is made between the shunt terminal blocks and the conductor terminals and that the conductors have adequate cross section to keep the temperature of the shunt from exceeding 145°C (125°C recommended).

If the shunt is mounted in an enclosure, care must be taken to ensure adequate cooling. If the power density is greater than 1/4 watt per square inch of the enclosure surface for all enclosed devices, additional cooling must be supplied in the form of air vents or fans.

Shunts also must be installed in a way that protects them from thermal expansion forces produced from buss bar or short-circuit forces. Flexible wiring may be required in high pulse current, high vibration, or high temperature applications.

Where possible, all shunts should be mounted on the ground side of the circuit. For circuits above 750VDC, RS shunts **must** be mounted on the ground side due to the dielectric strength of the shunt base.



Operating Current Derating: For continuous operation, it is recommended that shunts are not run at more than two thirds (2/3) the rated current under normal conditions per IEEE standards for DC instrument shunts. At ambient temperatures above 40°C, the current must be further derated to prevent damage.

Pulse Operation: Shunts that do not need continuous operation and are only exposed to intermittent pulses can be operated at levels above their rated current for short periods of times. Pulses are limited to the maximum temperature of the blades not exceeding 145°C (125°C recommended). Many variables such as ambient temperature, cross section of the current carrying conductors, and pulse duration make calculating exact values difficult. Shunt size will need to be validated by customer for pulse current and duty cycle on a case by case basis.