

MODEL 200 ONE OHM STANDARD

- REFERENCE RESISTANCE STANDARD
- < 0.1 PPM TEMPERATURE COEFFICIENT
- < 0.1 PPM ANNUAL STABILITY TYPICAL
- IMMUNE FROM BAROMETRIC PRESSURE
- RUGGED AND TRANSPORTABLE

Based on the most recent research in materials and processing, Ohm-Labs' Model 200 One Ohm standard is wound from a single length of carefully annealed and heat treated Evanohm wire to produce a state of the art resistance standard.

For years, the L&N 4210-B Thomas type one ohm standard has proven itself to be an excellent reference standard. However, these resistors have a relatively high temperature coefficient, a significant pressure coefficient, and often require weeks to stabilize after transport.

Based on research performed at national laboratories in the USA (NIST) and Australia (NMIA), the Model 200 One Ohm Standard is designed to overcome these problems.

The temperature coefficient of resistance is specified to be less than $0.1 \mu\Omega/\Omega/^\circ\text{C}$, referenced to 25.0°C . Most resistors will be below this value.

Oil-filled and hermetically sealed in a heavy-walled enclosure, these standards have shown high immunity from changes in barometric pressure and relative humidity.

Stability data on initial production runs of these resistors over 18 months shows an initial drift of 0.1 ppm or less over 12 months.

The recommended measurement current is 100 mA, but the Model 200 will not be harmed by application of continuous current up to 1 amp, nor by intermittent current (< 1 minute) up to 3 amps. Due to the extremely low temperature coefficient, the Model 200 may be used as a most accurate one amp current shunt. A modified version, model 2000, is offered, optimized for use at 1 A applied current.

Notes:

Tolerance is accuracy at time of manufacture

Temperature coefficient is at nominal $25^\circ\text{C} \pm 5^\circ\text{C}$.

Physical:

127 mm dia. x 165 mm high (5" x 6.5"); 4.5 kg (10 #)



The Model 200 One Ohm Standard's rugged construction allows it to be used as a transport standard. Laboratories using Thomas type one ohm standards can now preserve these resistors in the laboratory and use the Model 200 as a transfer standard to a national laboratory or other reference lab.

Repeated shipment by ground commercial carrier, packed in regular bubble wrap and a cardboard box, has shown the Model 200 to be largely immune from instability due to transport.

The Model 200 is supplied with ISO17025 accredited calibration, including temperature coefficient data.

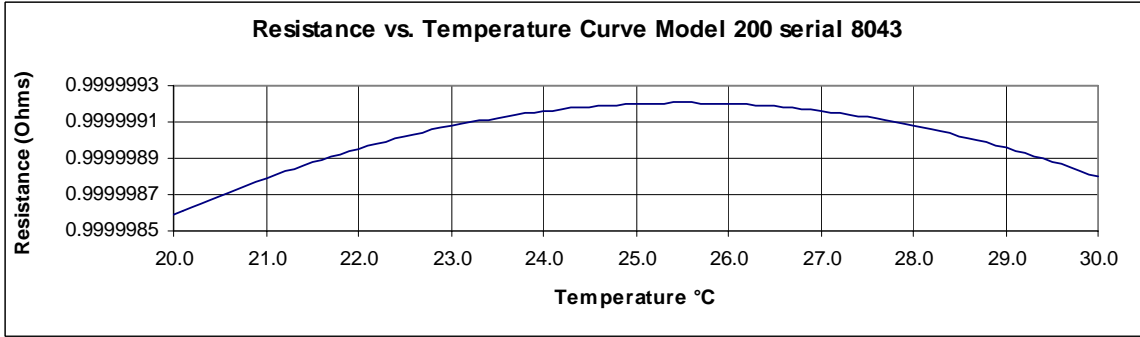
Ohm-Labs uses the basic design of the Model 200 One Ohm Standard for a series of resistance standards, including $-T$ values for thermometry, and $-Q$ values for use with a Quantum Hall System.

Please see the below flyer for additional information.

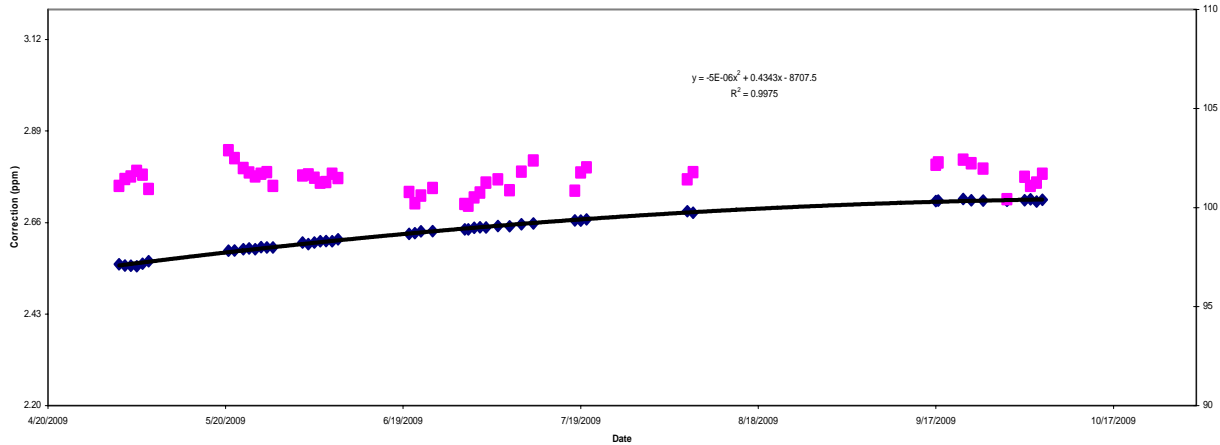


OHM-LABS RESISTANCE STANDARDS

Typical temperature coefficient curve for Model 200 One Ohm Standard.



Typical initial stability data for newly manufactured Model 200 One Ohm Standard, showing settling. Note immunity from barometric changes (pressure data is above trend line).



Condensed Specifications – 200 series standards					
Model Number	Nominal Resistance	Tolerance in ppm	Rated Current	Typical Coefficients	Initial 12 mo. Stability
2005	0.000 01	<100	300 A	$\alpha < 20 \text{ ppm} / ^\circ\text{C}$ $\beta < 1 \text{ ppm} / ^\circ\text{C}$	< 10 ppm
2004	0.000 1	<50	100 A		< 10
2003	0.001	<20	30 A	$\alpha < 1 \text{ ppm} / ^\circ\text{C}$ $\beta < 0.1 \text{ ppm} / ^\circ\text{C}$	< 5
2002	0.01	<15	10 A		< 3
2001	0.1	<5	3 A	Temperature: $\alpha < 1 \text{ ppm} / ^\circ\text{C}$ $\beta < 0.1 \text{ ppm} / ^\circ\text{C}$ Voltage $< 0.1 \text{ ppm} / \text{V}$ Pressure $< 0.1 \text{ ppm} / \text{kPa}$	< 3
2000	1	<5	1 A		< 3
200	1	<3	100 mA		< 1
201	10	<5	30 mA		< 3
201-T	25	<5	25		< 3
202	100	<3	10		< 3
203	1 K	<5	3		< 3
203-Q	6.4 K	< 10	1.25		< 5
204	10 K	<3	1		< 2
204-Q	12.9 K	< 10	1		< 5
205	100 K	<5	0.3	< 3	
206	1 Meg	<5	0.1	< 3	
207	10 Meg	<10	0.03	< 5	
Physical: 2004 – 207: 127 mm dia. x 165 mm H (5" x 6.5"), 4.5 kg (10 lbs) 2005: 305 mm dia x 250 mm H (12" x 10"), 8 kg (15 lbs)					