



# CS-Series Precision Current Shunts Operating Instructions

## General:

Ohm-Labs CS-Series precision shunts are used for accurate measurement of current. The stated resistance is measured in 4-wire mode.

CS-Series shunts up to 300 amperes are bifilar for low inductance and close ac/dc conformance. The finned aluminum extrusion dissipates heat at higher currents while providing a rugged housing. All shunts can operate up to full rated current without degradation. Careful internal design minimizes connection errors. The resistance alloy is the same material used in resistance standards for low temperature coefficients and high stability.

## Precautions:

Connect shunt in series with the load, on the 'ground' or 'low' side of the line, especially if hazardous voltages may be in use. Insure that all connections are secure before applying current.

## Connections:

Current shunts must always be used as four-terminal resistors.

Connect current to the larger binding posts; measure voltage across the smaller binding posts. Passing current through the potential terminals can damage or destroy the shunt. The current path extends into the shunt beyond the binding posts to minimize current connection errors. **Do not over-tighten connections; excessive torque on the binding posts will not improve performance.** Finger tight plus 1/4 turn is adequate. The current and voltage terminals are electrically isolated from the case; the case may be grounded via the green binding post.

## Maintenance:

Other than occasional cleaning with a mild detergent solution, no maintenance is required. The CS shunts contain no user serviceable parts. If repair is required, return to the manufacturer.

## Specifications:

Model	Rated Amps	Output Volts	Resistance	Accuracy*	Case
CS-0.1	0.1 A	1 V	10 $\Omega$	0.005 %	CS 10
CS-1	1	1	1	0.005 %	
CS-5	5	1	0.2	0.01 %	
CS-10	10	1	0.1	0.01 %	
CS-20	20	1	0.05	0.01 %	CS 50
CS-50	50	0.5	0.01	0.01 %	
CS-100	100	0.1	0.001	0.01 %	CS 300
CS-200	200	0.2	0.001	0.02 %	
CS-300	300	0.03	0.000 1	0.03 %	
Case	Dimensions cm (inch)		Weight kg (pounds)		
CS 10	127 x 165 x 57 (5" x 6.5" x 2.25")		1 kg (2 #)		
CS 50	152 x 251 x 51 (6" x 9.875" x 2")		2 kg (4 #)		
CS 300	305 x 251 x 76 (12" x 9.875" x 3")		3 kg (6 #)		
* Stated accuracy is through full current range, 18-30 °C, 12 months Temperature coefficient of resistance (TCR) for CS-0.1 through CS-200: <5 ppm / °C; CS-300 <20 Connection errors have been minimized by internal bus structures Ac/dc conformance: CS-0.1 to CS-50 <0.02 % to 1 kHz; CS-100 to CS-300 <0.1 % to 1 kHz Special ranges and values are available upon request.					

## Calibration:

Periodic re-calibration through full rated current is recommended. Compare with a calibrated resistance standard using a current comparator bridge with range extender. See our website for additional technical information on shunt calibration.

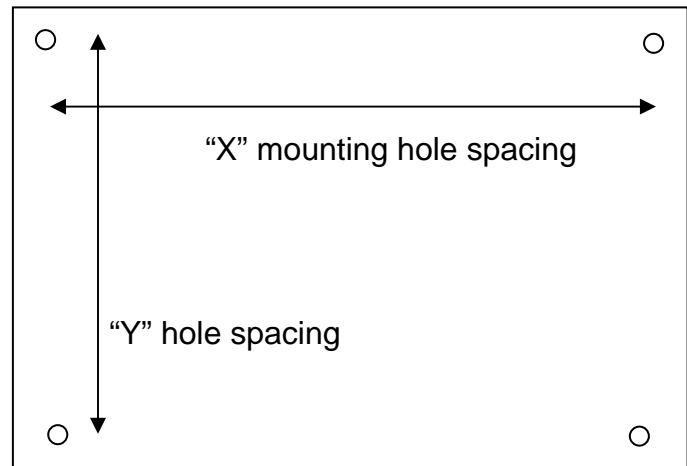
## Warranty:

The CS-series current shunts are warranted against defects in manufacture for two years from the date of shipment.

Note: Shunts are supplied with feet. Feet may be removed and shunts may be drilled and/or tapped through at the location of the feet for panel mounting. We recommended 10-32 or M5 size 18-8 stainless steel mounting hardware. Metric or inch drilling / tapping can be supplied by special request. Shunts may be mounted in any orientation.

#### CS-10 Type Mounting Dimensions:

CS-0.1 through CS-10 models  
Overall: 6.5" x 5" x 2" including posts  
12.7 x 16.5 x 5.7 cm  
"X" = 139.7 mm / 5.5"  
"Y" = 101.6 mm / 4"  
Weight: 1 kg / 2.2 lbs



#### CS-50 Type Mounting Dimensions:

CS-20 & CS-50 models  
Overall: 5.75" x 9.875" x 2" including posts  
25 x 15 x 5 cm  
"X" = 225.4 mm / 8.875"  
"Y" = 107 mm / 4.75"  
Weight: 2 kg / 4.5 lbs.

#### CS-100 Type Mounting Dimensions:

CS-100, CS-200 & CS-300 models  
Overall: 9.875" x 11.875" x 3" including posts  
30.5 x 25.1 x 7.6 cm  
"X" = 263.5 mm / 10.375"  
"Y" = 231.8 mm / 9.125"  
Weight: 5 kg / 11 lbs

Note: Due to the CS-100 type weight, additional support should be provided if installing vertically