GUILDLINE INSTRUMENTS

Series 7350

Preliminary

AC Current Shunts

Highly Stable Precision AC/DC Current Calibration Standards

Guildline model 7350 four terminal AC Current Shunts are designed as higher accuracy and stability replacements of the successful 7320 series. These patent pending shunts have a non-inductive design. With a ruggedized and shielded enclosure, the 7350 series shunts are constructed with very small values of reactance. They are ideal for use over a wide frequency range from DC to 100 kHz with low uncertainty (high accuracy), low temperature coefficients and excellent stability.

To suit a wide range of customers and applications, model 7350 shunts provide a power dissipation capability of up to 10 W and a max current capability up to 25A. For best performance, the model 73401 Forced Convection Unit is available for forced air-cooling.

The AC Current Shunts can be used for a variety of AC/DC current measurement applications and have a nominal impedance range of 0.01 Ω to 1000 Ω. Applications include the accurate measurement of AC current, calibration of AC current ranges of multi-function calibrators, high accuracy DVM's and Transconductance amplifiers, as well as providing a traceable current signal from a traceable voltage standard from DC to 100 kHz.

The 7350 Series AC Current Shunts offer better stability and much improved frequency response from DC to 100 kHz to replace the Guildline 7320 Shunts .

7350 Features

- *Accuracy to ± 50 ppm*
- *Excellent stability, stability <10 ppm/yr*
- *Shielded enclosure for improved performance*
- *Much improved stability and frequency response compared to the 7320 series*
- *Non-inductive design*
- *Wide bandwidth, DC-100 kHz*
- *Temperature Coefficient (t/c) <2 ppm/^{0}C*
- *6 ranges from 1000 Ω to 0.01 Ω,*
- *Four terminal design*
- *Patent pending*

The lower value shunts (below 10 Ω), may also be used as burdens for current transformers. These shunts are also valuable when making AC power and energy measurements using wattmeters or watthour meters. The very small phase shift of the shunts makes accurate high-frequency power measurements possible to address measurement challenges due to high order harmonics. As a result of the very small phase shift across the shunts, the output voltage of the shunts faithfully reproduces the current waveform even under badly distorted or pulsed current conditions, making the shunts useful for examining complex and distorted current waveforms. Additionally, the shunts are effective in many other classical measurement, standards, or calibration laboratory applications.

UHF Type connectors are provided for currents up to 25 A on the back face of the shunt. The connector on the front face is a BNC type connector for monitoring the voltage readout. The metallic enclosure acts as a shield and is isolated from both the input and output connections. A separate connection is provided for connection to the enclosure of a measuring device.

A special adaptor is available for connecting various shunts in series. Users can easily connect a reference shunt in series with a unit-under-test (UUT) to make a transfer measurement.

7350 AC Current Shunt

7350 Series Specifications

Model	Maximum Input Current[1] (A)	Maximum Output Voltage (V)	Maximum Power (W)	Nominal Value (Ω)	Nominal Initial Tolerance[2] (± ppm)	DC Calibration Uncertainty[3] (± ppm)	DC Stability 12 Months (± ppm)	Temperature Coefficient (± ppm)	Power Coefficient (± ppm)
7350-0.01	25	0.25	6.3	0.01	30	3	10	4	4.5
7350-0.1	10	1	10	0.1	25	3	10	3	4
7350-1	3.2	3.2	10	1	25	2	5	2.5	3.5
7350-10	1	10	10	10	25	2	5	2	3
7350-100	0.32	32	10	100	25	2	4	2	2
7350-1000	0.1	100	10	1000	25	2	4	2	2

Notes:
1 Current shunts may be used at current levels below the specified range but with reduced output voltages
2 Nominal Initial Tolerance is defined as the maximum variation of resistance mean values as initially adjusted at the point of sale.
3 Calibrated in air at the minimum and maximum of the current range in air at 23 °C ± 1 °C at DC and 100 Hz, 1 kHz, 10 kHz and 100 kHz frequencies
Calibration of resistance and AC-DC Difference values are referred to the unit of resistance as maintained by the National Research Council of Canada or the National Institute of Standards and Technology and are expressed as a total uncertainty with a coverage factor of k=2.
4 Power coefficients are specified using the 73401 Forced Convection Unit for currents above 3A.
5 AC-DC Difference is defined as the difference between a sinusoidal alternating current required for a given output emf and the average of both polarities of direct current required for the same EMF, where a positive difference indicates that more alternating current is required to produce the same EMF.

Model	AC-DC Difference Accuracy[5] 23 °C ± 1 °C (ppm)				Length	Diameter	Weight	Input Connector	Output Connector
	100 Hz	1 kHz	10 kHz	100 kHz	Inch/(mm)	Inch/(mm)	Lb/(kg)		
7350-0.01	±50	±50	0 ~ -100	0 ~ -350	2.81/(71.4)	6.63(168.4)	1.8(0.82)	UHF	BNC
7350-0.1	±50	±50	75	0 ~ -200	2.81/(71.4)	6.63(168.4)	1.8(0.82)		
7350-1	±50	±50	75	±150	2.81/(71.4)	6.63(168.4)	1.8(0.82)		
7350-10	±50	±50	75	±150	2.81/(71.4)	6.63(168.4)	1.8(0.82)		
7350-100	±50	±50	150 ~ 0	500 ~ 0	2.81/(71.4)	6.63(168.4)	1.8(0.82)		
7350-1000	±50	±50	250 ~ 0	1000 ~ 0	2.81/(71.4)	6.63(168.4)	1.8(0.82)		

7350 Ordering Information

7350- ohmic value AC Current Shunt
TM7350 Technical Manual (included)
Certificate of Calibration/Report (included)

Accessories:

73401 Forced Convection Unit
73502 Serial connection adaptor
73503 Adaptor kit

General Specifications

Environment
Operating: 18 °C to 28 °C
< 50% RH non-condensing
Storage: Storage -20 °C to 60 °C
15% to 80% RH

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