7340 Series

Precision AC Current Shunts to 100 Amps

High Stability, Wide Range Precision AC/DC Current Calibration Standards

GUILDLINE INSTRUMENTS 7340 SERIES of four-terminal AC Current Shunts feature low uncertainty (high accuracy), low temperature coefficients and excellent stability. These new shunts are designed to be purely resistive with extremely small values of reactance. The 7340 shunts may be used over a wide frequency range from DC to 100 kHz.

The shunts are designed to provide an output voltage in the range of 0.20 to 1 Volt for specified current models from 3 mA to 100 Amp. For the higher current ranges above 3 Amps the model 73401 Forced Convection Unit is to be used to provide air cooling.

The 7340 AC Current Shunts can be used for a variety of AC/DC current measurement applications and have a nominal impedance range of 100 Ω to 0.004 Ω. Applications include the calibration of Precision AC Current Sources, Multi-function Calibrators, Long Scale DMM's and Transconductance Amplifiers, as well as providing a traceable current signal using a traceable voltage standard from DC to 100 kHz.

7340 SERIES FEATURES

- High Current Values to 100 Amps
- Accuracy to ± 35 ppm
- True Non-Inductive Design
- Widest Available Commercial Bandwidth, DC-100 kHz
- Excellent 1-Year Stabilities
- Low Temperature Coefficients <2.5 ppm/^{0}C
- 10 Ranges from 3 mA to 100 A
- Output Voltages from 0.20 to 1.0 V
- Ruggedized Shielded Enclosure
- Designed for Ease of Use and Complete Operational Safety!

The 7340 Series Provides For Precision AC Current Measurement Up To 100 Amps with the Widest Available Frequency Bandwidth Today!

Accurate measurement of AC current up to 100 A at frequencies up to 100 kHz is possible using the 7340 shunts and an accurate AC voltmeter. The lower value shunts (below 10 Ω) may also be used as burdens for current transformers, making the measurement of high currents possible. The shunts can also be placed in ac current circuits where the phase relationships between currents or voltages need to be measured.

These shunts are also valuable when making ac power and energy measurements using watt-meters or watt-hour meters.

The very small phase shift of the 7340 shunts makes accurate high-frequency power measurements possible. 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. This makes the shunts useful when 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 Amps on the back face of the shunt and LC type connectors are provided for current ranges above 25 Amps. The connector on the front face is a BNC type connector for connection to the potential measuring device. The metallic enclosure acts as a shield and is isolated from both the input and output connections. A separate connection is provided on the shunt for connection to the enclosure of a measuring device.

View of Input Connector's

7340 Series of Precision AC Current Shunts

7340 Series Specifications

Model	Current Range (Amps) [1]	Output Voltage Range (V)	Maximum Power (W)	Nominal Value(Ω)	Nominal Initial Tolerance ± ppm [2]	DC Stability 12 Months ± ppm	Temperature Coefficient ± ppm/°C	Power Coefficient [4] ± ppm/watt
7340-100A	50 – 100	0.20 – 0.4	40	0.004	60	18	4.5	6
7340-50A	25 – 50	0.25 – 0.5	25	0.01	50	15	4	5.5
7340-25A	10 – 25	0.3 – 0.75	20	0.03	45	15	4	5
7340-10A	3 – 10	0.3 – 1	10	0.1	35	15	3.5	4.5
7340-3A	1 – 3.3	0.3 – 1	3.3	0.3	25	10	3	4
7340-1A	0.3 – 1	0.3 – 1	1	1	25	10	2.5	3
7340-0.3A	0.1 – 0.33	0.3 – 1	0.33	3	25	10	2.5	3
7340-0.1A	0.03 – 0.1	0.3 – 1	0.1	10	25	10	2.5	3
7340-0.03A	0.01 – 0.033	0.3 – 1	0.033	30	25	10	2.5	3
7340-0.01A	0.003 – 0.01	0.3 – 1	0.01	100	25	10	2.5	3

Model	AC-DC Difference Accuracy [5] In ppm @ 23 °C ± 1 °C				Length		Diameter		Weight		Connector	
	100 Hz	1 kHz	10 kHz	100 kHz	Inch	mm	Inch	mm	lbs	kg	Input	Output
7340-100A	±35	±50	±50	±250	3.8	115	6.63	168.4	2.6	1.2	LC	BNC
7340-50A	±35	±35	±50	±200	3.8	115	6.63	168.4	2.6	1.2	LC	BNC
7340-25A	±35	±35	±50	±175	2.8	71.4	6.63	168.4	1.8	0.82	UHF	BNC
7340-10A	±35	±35	±50	±150	2.8	71.4	6.63	168.4	1.8	0.82	UHF	BNC
7340-3A	±35	±35	±50	±125	2.8	71.4	6.63	168.4	1.8	0.82	UHF	BNC
7340-1A	±35	±35	±50	±125	2.8	71.4	3.5	88.9	0.8	0.35	UHF	BNC
7340-0.3A	±35	±35	±50	±125	2.8	71.4	3.5	88.9	0.8	0.35	UHF	BNC
7340-0.1A	±35	±35	±50	±125	2.8	71.4	3.5	88.9	0.8	0.35	UHF	BNC
7340-0.03A	±35	±40	±50	±175	2.8	71.4	3.5	88.9	0.8	0.35	UHF	BNC
7340-0.01A	±35	±50	±50	±200	2.8	71.4	3.5	88.9	0.8	0.35	UHF	BNC

Note 1 – Current shunts may be used at current levels below the specified range but with reduced output voltages
Note 2 – Nominal Initial Tolerance is defined as the maximum variation of resistance mean values as initially adjusted at the point of sale.
Note 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. Models with currents above 3 A are calibrated with the forced convection unit model 73401. 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.
Note 4 – Power coefficients are specified using the 73401 Forced Convection Unit for currents above 3A.
Note 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.

ENVIRONMENTAL	Temperature	Humidity
Operating	18 °C to 28 °C	< 50% RH non-condensing

	Temperature	Humidity
Storage	-20 °C to 60 °C	15% to 80% RH

ORDERING INFORMATION

7340-Model	DC Current Shunt (List Amperage Value For Model)
/TM7340	Technical Manual included at no charge.
73401	Forced Air Convection Unit (fits all standard models)
73404	AC Buffer Amplifier
73411	Adapter LC Male to N Female
73412	Adapter LC Male to LC Male
73413	Adapter LC TO Cable
73414	Adapter LC Female to N Female
73503	Cable and Adapter Kit
73502-30	Serial Connection Adapter
73502-100	Serial Connection Adapter

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