

# 1625A Precision AC/DC Current Shunt



## Product Description

The BLI 1625A is a multiranging, high accuracy, active current shunt, for use in making NIST traceable measurements of currents from 10 microamperes to 100 Amperes. Very high measurement stability has been achieved in our shunt design by using special alloys, compensated by a proprietary Ballantine process to minimize temperature coefficient effects.

## Product Features

- Improved linearity and reduced Temperature Coefficients
- Full scale ranges from 200 $\mu$ A to 100A
- NIST Traceable Performance.
- Basic Accuracy  $\pm 0.01\%$  DC;  $0.1\%$  AC.
- Bandwidth DC to over 10kHz.
- Fast Settling Time.
- Off line operation with internal NiCad battery.
- Voltage and Frequency Ranges

## Product Specifications

### 1625 Shunt Specifications

Range	Normal Shunt Value	DC Accuracy	AC Accuracy 1kHz	AC Accuracy 10kHz	Max. Input (DC+AC rms)
100A $\Omega$	0.001 $\Omega$	$\pm 0.015\%$	$\pm 0.1\%$	—	100 A
20 A	0.01 $\Omega$	$\pm 0.01\%$	$\pm 0.1\%$	$\pm 0.5\%$ (5 kHz)	20A
2 A	0.1 $\Omega$	$\pm 0.1\%$	$\pm 0.1\%$	$\pm 0.15\%$	2 A
200 mA	1 $\Omega$	$\pm 0.1\%$	$\pm 0.1\%$	$\pm 0.1\%$	200 mA
20 mA	10 $\Omega$	$\pm 0.1\%$	$\pm 0.1\%$	$\pm 0.1\%$	20 mA
2 mA	100 $\Omega$	$\pm 0.1\%$	$\pm 0.1\%$	$\pm 0.1\%$	2 mA
0.2 mA	1000 $\Omega$	$\pm 0.1\%$	$\pm 0.1\%$	$\pm 0.15\%$	200 $\mu$ A

\* Add  $\pm 10$   $\mu$ V for 0.2mA to 2A, and  $\pm 30$   $\mu$ V for 20A to 100 A, to all percentage limits.

## Shunts

All shunts are four terminal networks with calibration adjustments for each network. Table 1-1 gives specifications for each shunt and shunt range.

## Accuracy

Stated for 1 year at 23°C  $\pm 2^\circ$ C. Expressed accuracy of volts output to current input of the reading, add  $\pm 10$   $\mu$ V for 0.2 mA to 2 A, and  $\pm 30$   $\mu$ V for 20 A to 100A, to all percentage limits.

## Output Voltage

200 mV full scale on all ranges, except 100 mV full scale on the 100 A range.

## Output Loading

1 Megohm shunted by less than 100 pF.

## Amplifier

Gain: 10.000 to 1  
 Accuracy:  $\pm 50$  ppm  $\pm 10$   $\mu$ V at dc. Adjustable with rear panel accessible control.  
 Offset Voltage: Less than 10  $\mu$ V. Adjustable to ZERO with rear panel accessible control.

## Frequency Response

$\pm 0.01\%$  to 1 kHz  
 $\pm 0.025\%$  to 10 kHz

**Input Resistance:** 10 Megohms across input binding posts. Differential, balanced to output common.

**Input Overvoltage Protection:** 300 V rms (440 V ac peak) applied continuously.

**Output Resistance:** Less than 0.01 Ohms when using sense leads.

**Output Voltage (rms):** 2 V rms or  $\pm 4$  V peak.

**Maximum Output Current:**  $\pm 75$  mA (dc or ac peak). Protected against damage with continuous short circuits.

**Load Resistance:** 20 ohms or greater for full rms output.

**Common Mode Rejection:** 90 dB (dc to 60 Hz).

**Common Mode Voltage:**  $\pm 10$  Volts max.

**Distortion and Noise:**  $> 70$  dB below full scale rms output over a bandwidth of dc to 10 kHz.



### **Amplifier Output**

Four wire output through 5 pin female DIN connector. Uses Model 16251A and wire sense cable accessory with 874 output connector.

### **Input/Output Terminals**

Gold plated universal binding posts on all ranges, except 100A range which uses high current female terminals.

### **Environmental Characteristics**

Temperature Oper.: 0 to 50°C, Stor. With NI-CAD batteries: -40 to +65°C.

Humidity: (No condensation): 95% R.H. to 40°C, 90% R.H. top 50°C.

Altitude: Oper.: 3 km (10,000 ft), Stor.: 15 km (15,000 ft)

Shock and Vibration: Complies with MIL-T-28800, Class 5

Ventilation: Forced air (fan) cooled

Off Ground Operation:  $\pm 50$  Volts (dc or ac peak)

### **Power**

A fused power selector safety switch and receptacle on the rear panel selects one of the four ac operating voltage ranges.

90 to 110V (100V) 48 to 420 Hz

108 to 132V (120V) 48 to 420 Hz

198 to 242V (220V) 48 to 420 Hz

216 to 264V (240V) 48 to 420 Hz

Input Power: 10VA maximum

Internal: rechargeable NI-CAD batteries

Running Time: "off line" for 8 hours

Rechargeable Time: 14 hours with mains OFF.

### **General**

Height: (Case) 133 mm (5.25")

(Overall) 147 mm (5.8")

Width: (Case) 211 mm (8.3")

(Overall) 220 mm (8.66")

Depth: (Case) 280 mm (11")

(Overall) 305 mm (12")

Weight: 4 kg (9.5 lbs.) Net, 6 kg (15 lbs.) Shipping