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Find the *Lake Shore Cryotronics 110CS* at our website: ***Click HERE***

100 Series Current Sources

Model 100 & Model 101 Features

- Battery powered
- 10 µA factory-preset output current
- Internally programmable from 1 µA to 1 mA
- No AC line noise
- Choice of compliance voltages –
  Model 100: 2.5 V
  Model 101: 5 V

Model 102 Features

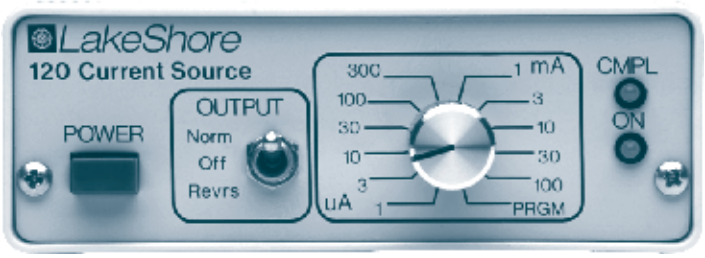
- 10 µA factory-preset output current
- Internally programmable from 1 µA to 1 mA using a fixed program resistor
- Compliance voltage of 8 V

Model 110CS Features

- 10 µA factory-preset output current
- Externally programmable from 1 µA to 10 mA
- Compliance voltage of 11 V

Model 120CS Features

- Switch-selectable output current from 1 µA to 100 mA
- Current reversal switch
- External programming capability
- Compliance voltage of 11 V (to 50 mA)



Model 100 and Model 101
The Models 100 and 101 are battery-powered DC current sources which provide a very stable output current without the noise commonly associated with AC line-powered instruments. They are well-suited for field maintenance and periodic monitoring of sensors, as well as operation in a highly noise-sensitive environment.

The main difference between the 100 and 101 is their compliance voltage: the Model 100, with a 2.5 V compliance voltage, is well suited for silicon diode applications including Lake Shore DT-470 and 670 diodes. The Model 101 has a compliance voltage of 5 V which is required for use with Lake Shore TG-120 GaAlAs diodes, or if the user desires to connect two silicon diode sensors in series. While the output current of both units is factory preset at 10 µA, the user may reprogram the unit to any value between 1 µA and 1 mA by changing the internal programming resistor.

Model 102, Model 110CS, and Model 120CS
The Models 102, 110CS, and 120CS are precision DC current sources suitable for benchtop use. They are capable of higher output currents and compliance voltages than their battery-powered counterparts.

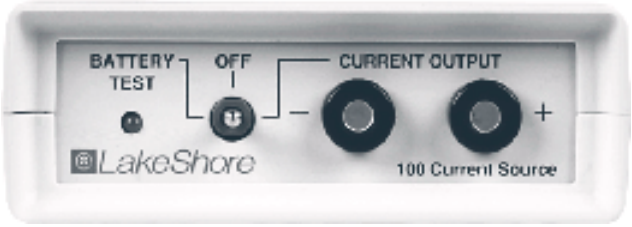
The Model 102 provides excellent performance at low cost. The output current is factory-preset at 10 µA, but the unit may be reprogrammed to any value between 1 µA and 1 mA by changing a programming resistor inside the instrument. Compliance voltage is 8 V. Power is supplied to the unit by an external AC wall-mount supply. The supply type must match the AC line voltage available and must be specified when ordering.

The Model 110CS offers a higher compliance of 11 V. The output current can be externally changed to any value between 1 µA and 10 mA by connecting a programming resistor to the terminal block on the unit's rear panel. AC line voltage is jumper-selected inside the unit. Desired line voltage should be specified when ordering, but the setting can be changed at any time by the user.

On the Model 120CS, output current is selected with a rotary switch on the front panel. Eleven fixed values span the range of 1 µA to 100 mA and a compliance voltage of 11 V. The 1× and 3× switched increments correspond to approximate decade changes in power with a resistive load. For odd current values, a programming resistor may be connected to the terminal block on the unit's rear panel. This source is ideally suited for use with resistance sensors where resistance may vary with temperature by as much as 6 orders of magnitude. The current reversal switch allows compensation for thermal EMF, important when measuring resistors at low voltage. AC line voltage is jumper-selected inside the unit. Desired line voltage should be specified when ordering, but the setting can be changed at any time by the user.

	100	101	102	110CS	120CS
Output					
Output current (10 µA factory preset)	Internally programmable from 1 µA to 1 mA	Internally programmable from 1 µA to 1 mA	Internally programmable from 1 µA to 1 mA	Externally programmable from 1 µA to 10 mA	1 µA, 3 µA, 10 µA, 30 µA, 100 µA, 300 µA, 1 mA, 3 mA, 10 mA, 30 mA, 100 mA switch selectable; externally programmable from 1 µA to 100 mA
Accuracy at 10 µA[1]	0.05% of output	0.05% of output	0.05% of output	0.05% of output	0.05% of output, 0.1% on all other switched ranges
Temperature coefficient (% output/°C ambient)	0.005% of output per °C	0.005% of output per °C	0.005% of output per °C	<0.01% of output per °C	<0.01% of output per °C
Compliance voltage	2.5 V	5 V	8 V	11 V	11 V up to 50 mA, 10 V up to 100 mA
Line regulation	NA	NA	Less than 0.01% change in output for 10% change in line voltages within specified voltage range (see power)	Less than 0.01% change in output for 10% change in line voltages within specified voltage range (see power)	Less than 0.01% change in output for 10% change in line voltages within specified voltage range (see power)
Load regulation	Less than 0.01% change in output current from 1% to 100% compliance voltage	Less than 0.01% change in output current from 1% to 100% compliance voltage	Less than 0.01% change in output current from 1% to 100% compliance voltage	Less than 0.01% change in output current from 1% to 100% compliance voltage	Less than 0.01% change in output current from 1% to 100% compliance voltage
AC current ripple	NA	NA	Less than 0.01% of scale +1 nA (RMS) in a property shielded system	Less than 0.01% of scale +1 nA (RMS) in a property shielded system	Less than 0.01% of scale +40 µV (RMS) in a property shielded system
General					
Ambient temperature range	15 °C to 35 °C	15 °C to 35 °C	15 °C to 35 °C	15 °C to 35 °C	15 °C to 35 °C
Power	4 AA alkaline batteries	One 9 V alkaline battery	12 VAC, 3 VA wall-mount supply selected for AC power required	90 to 125, or 210 to 250 VAC, 50 or 60 Hz, 3 VA	90 to 125, or 210 to 250 VAC, 50 or 60 Hz, 3 VA
Battery life	1 year	6 months	NA	NA	NA
Enclosure type	Plastic, benchtop	Plastic, benchtop	Plastic, benchtop	Benchtop	Benchtop
Size	95 mm W × 33 mm H × × 158 mm D (3.7 in × 1.3 in × 6.2 in)	95 mm W × 33 mm H × × 158 mm D (3.7 in × 1.3 in × 6.2 in)	95 mm W × 33 mm H × × 158 mm D (3.7 in × 1.3 in × 6.2 in)	106 mm W × 41 mm H × × 164 mm D (4.2 in × 1.6 in × 6.5 in)	106 mm W × 41 mm H × × 164 mm D (4.2 in × 1.6 in × 6.5 in)
Weight	0.3 kg (0.7 lb)	0.3 kg (0.7 lb)	0.3 kg (0.7 lb)	0.5 kg (1.1 lb)	0.5 kg (1.1 lb)
CE mark approval	Yes	Yes	No	No	No

[1] *Programming resistor determines accuracy when used*



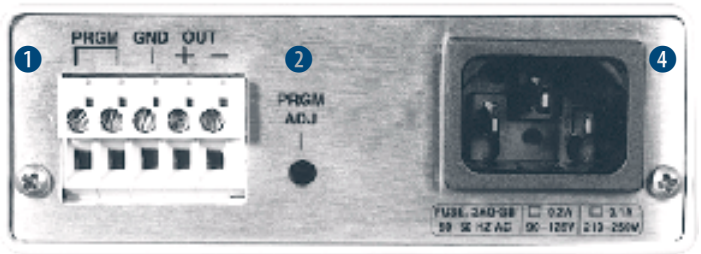
Model 100/101



Model 102



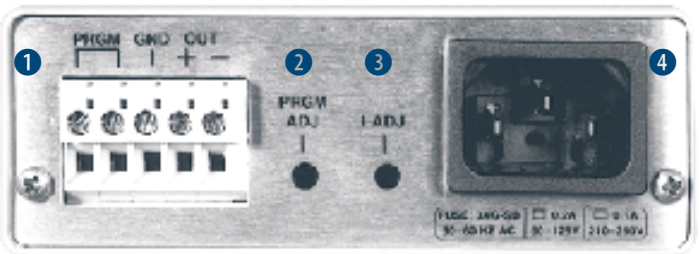
Model 110



Model 110 rear panel



Model 120



Model 120 rear panel

❶ Terminal block
❷ Program adjust
❸ Current (I) adjust
❹ Line input

Ordering Information

Part number	Description
100	Battery powered current source (2.5 V compliance)
101	Battery powered current source (5 V compliance)
102-115	DC current source (8 V compliance), with 90 to 140 VAC wall mount power supply
102-230	DC current source (8 V compliance), with 200 to 250 VAC wall mount power supply
110CS-115	DC current source (11 V compliance) with 90 to 125 VAC line input
110CS-230	DC current source (11 V compliance) with 210 to 250 VAC line input
120CS-115	DC current source (11 V compliance up to 50 mA, 10 V above), with 90 to 125 VAC line input
120CS-230	DC current source (11 V compliance up to 50 mA, 10 V above), with 210 to 250 VAC line input

Accessories included with Model 100 and Model 101

——	Four AA batteries (Model 100 only)
——	One 9 V battery (Model 101 only)
106-009	Double banana plug (Model 102 only)
——	Calibration certificate
MAN-100/101	User manual

Accessories available for Model 100, Model 101, and Model 102

CAL-100-CERT	Model 100 recalibration with certificate
CAL-101-CERT	Model 101 recalibration with certificate
CAL-102-CERT	Model 102 recalibration with certificate

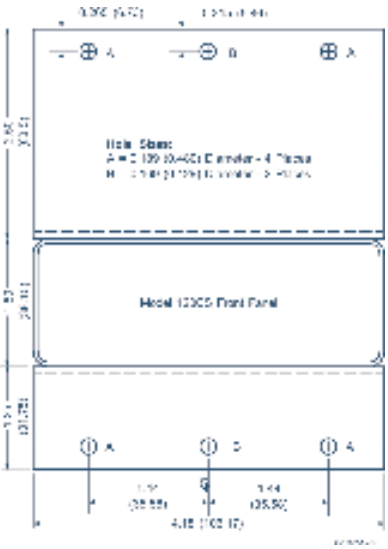
Accessories included with Model 102, Model 110CS, and Model 120CS

106-009	Double banana plug (Model 102 only)
115-006	Detachable 120 VAC line cord (110CS and 120CS only)
——	Instrument recalibration with certificate
MAN-102	Model 102 user manual
MAN-110	Model 110CS user manual
MAN-120	Model 120CS user manual

Accessories available for Model 110CS and Model 120CS

1090	Mounting adapter for four sources in a 483 mm H × 44 mm W (19 in × 1.75 in) rack space
2090	Mounting adapter for ¼ panel EIA installation
CAL-110-CERT	Model 110 recalibration with certificate
CAL-120-CERT	Model 120 recalibration with certificate

USD



Model 2090 Mounting Adapter

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