

6127B



Product Summary

The BLI 6127B is an accurate and simple way to calibrate a wide variety of oscilloscopes from low frequency units to instruments bandwidths over 1 GHz. The 6127B provides a variety of signals of precise voltage, current, timing and waveshape. The 6127B can be operated manually or automatically using the IEEE-488 interface and Ballantines automated software SCOPE-CAL™. Time saving controls include computation of percent deviation, repeat step increment, self checking and warning of invalid entries.

Ballantine has over 300
procedures for scopes on
the market.



Product Features

Maximum adaptability.

Checks any scope from
general purpose to
advanced 1 GHz units.

Cuts calibration time and
cost. Halves test time.

Speeds throughput to 5
times when programmed.

Easy conversion to SCOPE-
CAL™, Ballantine's

Automated Oscilloscope
Calibration Software

Over 300 free procedures
Manual or IEEE 488 GPIB
operation.

User friendly μ P based
panel computes calibration
errors, self checks, flags
invalid entries.



Volts/Division Mode

Used for calibration of vertical display accuracy and attenuator compensation.

High Impedance Output (into 1 MW)

Range: 40 μ V to 200 V in 1, 2, 5 steps with multiplier

Low Impedance Output (into 50 Low Impedance Output (into 50 Low Impedance Output (into 50 Low Impedance Output (into 50 W) Range

40 μ V to 5 V in 1, 2, 5 steps with multiplier

Multiplier

1, 2, 3, 4, 5, 6, 8, 10 divisions

Amplitude Accuracy

$\pm 0.25\%$ of reading $\pm 1 \mu$ V

Variable Amplitude

 Salantime Laboratories, Inc.



Deviation

Variable Range of $\pm 9.9\%$.

Digital deviation meter provides resolution of 0.1%

Waveforms

Selectable outputs for all output levels. Square wave of 10 Hz, 100 Hz, 1 kHz, and 10 kHz. DC positive polarity. DC negative polarity.

Time/Division Mode

Real Time Markers for calibration of oscilloscope timebase accuracy and checking high frequency triggering.

Output Marker

500 psec to 5 sec in 1, 2, 5 sequence

Marker Amplitude

31 V pk into 50 W, 2 nsec to 5 sec >350 mV pk-to-pk at 1 nsec (1 GHz)

 >100 mV pk-to-pk at 500 psec (2 GHz)



Accuracy

±0.005% of reading ±10 psec (2 nsec to 5 sec),
±0.005% of reading ±20 psec (0.5 nsec to 1 sec)

Variable Time Deviation

Variable deviation range of ±9.9% for marker and trigger period. Digital deviation meter provides resolution of 0.1%.

Timing Reference

Internal Time Base

An internal temperature compensated 10 MHz crystal oscillator provides accuracy of ±0.002% and long term stability to better than 1 part in 10⁻⁵ per month after 72 hours and temperature stability of better than 1 part in 10⁻⁵ from +4°C to +40°C after a one hour warm-up.

External Timing

 Salantime Laboratories, Inc.



Reference

Input 10 MHz, Input
Amplitude: 1 V to 10 V rms.,
Source Impedance: 50 W

Milliamperes/Division

(Current Amplitude Mode)

Used to test current probe
accuracy through front
panel current loop.

Current Ranges

1 mA to 100 mA in 1, 2, 5
steps with multiplier

Multiplier

1, 2, 3, 4, 5, 6, 8, 10 divisions

Accuracy

$\pm 0.25\%$ of reading $\pm 2 \mu\text{A}$

Frequency

$\pm\text{DC}$: Squarewave of 10 Hz,
100 Hz, 1 kHz, and 10 kHz

Calibrator Mode

For use with 61272C
Amplitude Comparator

Head to test accuracy of
oscilloscope's internal
calibrator signal.



Amplitude Range

High Impedance: $\pm 40 \mu\text{V}$ to
 $\pm 200 \text{ V}$ in 1, 2, 5 sequence

50 Low Impedance (50 W)

$\pm 40 \mu\text{V}$ to $\pm 5 \text{ V}$ in 1, 2, 5
sequence

Accuracy (Amplitude)

$\pm 0.25\%$ of reading $\pm 1 \mu\text{V}$

Accuracy of 50 Accuracy of 50 W Impedance Impedance

$\pm 1\%$

Frequency of UUT Calibrator Waveform

DC to $> 2 \text{ MHz}$

Frequency of Calibration Waveform

1 kHz squarewave

Comparison Mode

Compares output of

Volts/Div generator and
calibrator of scope under
test. Comparison is
switched automatically at
100 Hz or alternate on
command.



Low Distortion Pulse Mode

Used to test oscilloscope
attenuator compensation
and input amplifier
response.

Low Edge (Amplitude
Mode) High Edge
(Amplitude Mode)

Range

20 mV to 1 V pk-to-pk in 1, 2,
5 steps 1.2 V to 100 V pk-to-
pk in 1, 2, 5 steps

Multiplier

1, 2, 3, 4, 5, 6, 8, 10 divisions
1, 2, 3, 4, 5, 6, 8, 10 divisions

Risetime

£1.3 nsec from 100 mV to 1
V into 50 W

£16 nsec from 20 mV to 50
mV into 50 W
<100 nsec



Load Resistance

n/a 1 MW load shunted by
less than 18 pF

Polarity

Positive transition from
negative voltage to
ground Positive transition
from negative voltage to
ground

Output Impedance

50 W $\pm 1\%$ n/a

Waveshape Squarewave

with 50% duty
cycle Squarewave with 50%
duty cycle. Leading edge
aberrations within 2% of pk-
to-pk.

Aberrations

$\pm 2\%$ of squarewave
amplitude after first 1.5
nsec $\pm 2\%$ of squarewave
amplitude after first 1.5 nsec

Long Term Flatness

Droop and tilt within
 $\pm 0.5\%$ Droop and tilt within
 $\pm 0.5\%$ after first 500 nsec

Frequency

10 Hz to 1 MHz to 6 decade
steps 10 Hz to 100 kHz in 5
decade steps

Fast Rise Pulse

The Fast Rise Pulse Head
provides a fast rise, low
distortion pulse used for
testing high bandwidth
vertical amplifiers.

Amplitude: 1.1 V pk-to-pk,
 $\pm 5\%$, adjustable $\pm 10\%$ into
50 W

Risetime: < 180 psec into 50
W

Waveshape: Output is
positive squarewave 50%
duty cycle. Leading edge
aberrations are less than
 $\pm 2\%$ of amplitude not
exceeding 4% pk-to-pk.

Frequency: 10 Hz to 1 MHz
in 6 decade steps



Trigger Output

ESD Systems Laboratories, Inc.



Slaved to frequency of selected mode and marker. Time/Division Mode, trigger rate fixed at 100 nsec for marker outputs of 100 nsec and faster.

Modes: OFF, x1, +10, +100

Amplitude: 31 V into 50 W

Bus Address

Selected by switch accessible on rear panel and displayable on front panel.

Power

100/120/220/240 V ac, $\pm 10\%$, 50 to 400 Hz, single phase sinusoidal, ~ 80 W.

Environmental

Meets or exceeds MIL-T-28800, Type III, Class 5 requirements, including Reliability and Maintainability. Satisfies EMI requirements per MIL-STD-461. CE-03, CS01, CS06, RE02, RE03.

Temperature: Operating:
0°C to 50°C, Storage: -55°C
to 75°C

Humidity: Operating: 0 to
95% RH to 40°C, Storage: 0
to 95% RH to 50°C

Altitude: Operating: 3 km
(10,000 ft), Storage: 15 km
(50,000 ft)

Vibration: Operating: 0.015
inches pk-to-pk, 10 Hz to 55
Hz

Shock: Non-Operating: 30
G, 1/2 sine

Size & Weight

133mm (5.22 in) H x 425mm
(16.75 in) W x 484mm (19.1
in) D

Weight: 15.2 kg (33.5 lbs.);

Shipping: 17.7 kg (39 lbs.)

Product Ordering Information

Model Description

6127B Programmable



Oscilloscope Calibrator

with IEEE-488 and 61278

(Requires additional
selection of appropriate
Head)

90-10310-5B6127B Manual,
Volume 1

Heads for 500 MHz Scopes

61252A Fast Rise Pulser

61278 Low Frequency Head

For 1 GHz Scopes

61271C Fast Rise Head

61274A Direct Output Cable

Accessories

10650A Capacitance

Standardizer for

Oscilloscopes

61272C Amplitude

Comparator Head

61277A Kit Containing

12619A, 12621A (2), 12630A

(2), 12680A (2), 12681A,

12682A, 12683A, 12684A,

12685A, 12686A, 12687A,

12688A, 12689A, 12690A,

and 89-11103-1A

89-10753-1A Rack Slide Kit



89-11175-1A Protective Front



Cover. Storage for two

Heads and 61274A

89-11176-1A Protective Rear

Cover. Storage for power

cord

All prices subject to change without notice. All prices listed are for domestic sales only, please call our offices to confirm price.

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