LB579A USB PowerSensor+™
Data Sheet

Key PowerSensor+™ Specifications

10 MHz to 18 GHz

-55 dBm to +20 dBm

1.95% Total Error*

1.20:1 VSWR

 * Measuring a well matched DUT (-20 dBm @ 1 GHz)

Key PowerSensor+™ Capability

General purpose power and scalar measurements

Test Setup for One Sensor Measurements

General Description

The LB579A is an easy to use high performance general purpose power meter and power sensor in one. It features high speed measurements and temperature compensated accuracy with superior in-class performance. The standard product can measure signals below -55 dBm.
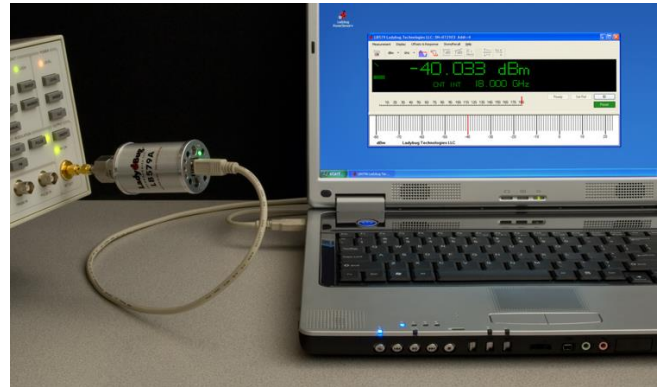
Get up and running quickly with the supplied power meter panels. Use the supplied drivers and programming examples for ATE applications. Easily integrate the power sensors into Lab View, C, VB and other programming environments.

Integration and usability are further simplified because calibration and zeroing are not required before use and, you have the flexibility of selecting from a variety of connector types including SMA, N, and TNC (male or female).
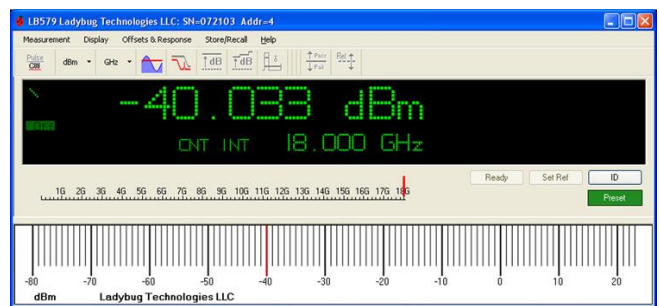
Order option 003 for triggering on the RF input level and general TTL triggering. Order option 001 recorder out when a slow moving (<3 Hz) analog output is required.

Features

- Best in-class price
- Superior in-class performance
- Compact - 1/10 the volume of competitive sensors
- Ruggedized USB connector - does not fatigue or break like some sensors
- Trigger on the RF input level
- Fully calibrated over temperature
- Unlimited signal bandwidth measurements
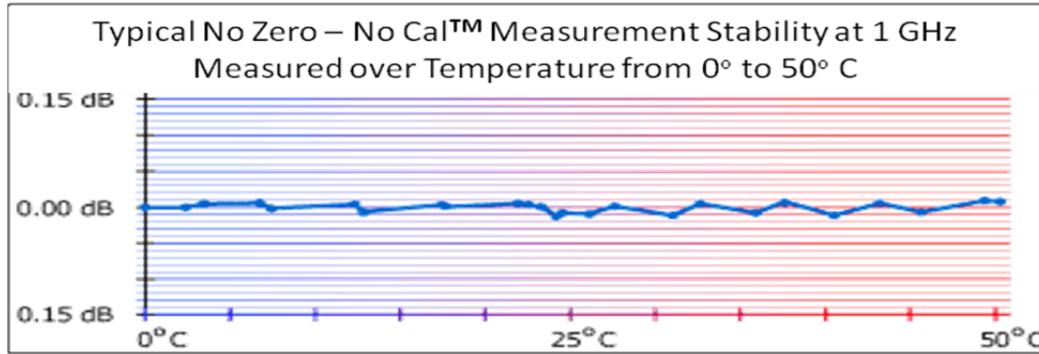- Offered with 30-day return policy

Applications

- General purpose scalar measurements
- General average RF and microwave power measurements requiring leading edge accuracy:
  - CW & pulsed signals
  - Narrow and wide band signals: CDMA, W-CDMA, QAM, OFDM, GSM, TDMA, QPSK, FSK, AM, FM, etc.
  - Recorders, power monitoring and ALC loops

- Research & development and manufacturing
- Maintenance, repair, installation and service
- Communications
- Radar, wireless, satellite, radio links, etc.

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**Typical No Zero – No Cal™ Measurement Stability at 1 GHz
Measured over Temperature from 0° to 50° C**

LB579A PowerSensor+™ Specifications

Parameter	LB579A
Frequency Range	10 MHz to18 GHz
Dynamic Range	
Standard	-55 dBm to +20 dBm
Accuracy	Total Error (RSS) = $\sqrt{(Mm^2 + CF^2 + L^2 + N^2 + T^2 + Z^2)}$ *Note 1*
Calibration Factor	NIST traceable
(Type N)	
10 MHz to 1 GHz	1.8%
1 GHz to 10 GHz	1.7%
10 GHz to 18 GHz	1.9%
(SMA)	
10 MHz to 1 GHz	2.5%
1 GHz to 10 GHz	2.4%
10 GHz to 18 GHz	2.7%
(3.5 mm)	
10 MHz to 1 GHz	2.5%
1 GHz to 10 GHz	2.4%
10 GHz to 18 GHz	2.7%
Linearity *Note 3*	
+15 to +20 dBm	3.0%
-15 to +15 dBm	2.5%
-55 to -15 dBm	2.0%
Noise	5 second integration
-30 to +20 dBm	0.10%
-40 to -30 dBm	0.25%
-50 to -40 dBm	0.50%
-55 to -50 dBm	1.00%
Zero Offset *Note 3*	{[(3.0 nW @ 25ºC) + |ΔT| x (0.075 nW / ºC)] ± 0.01 nW / month} *Note 2*

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LB579A PowerSensor+™ Specifications (continued)

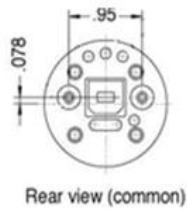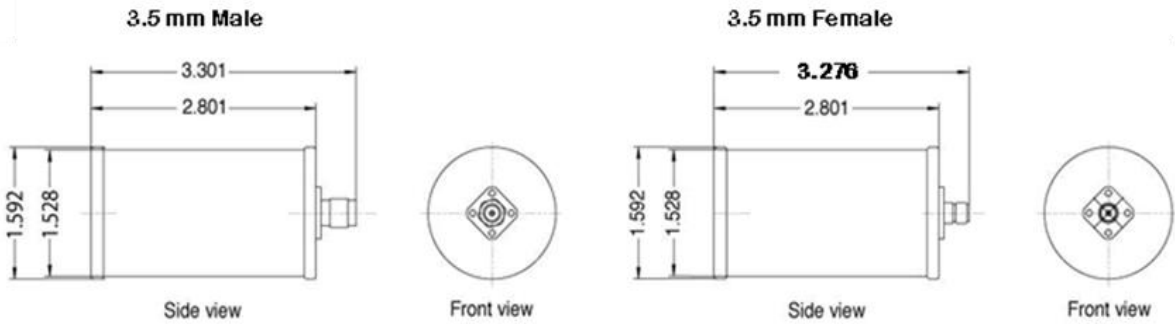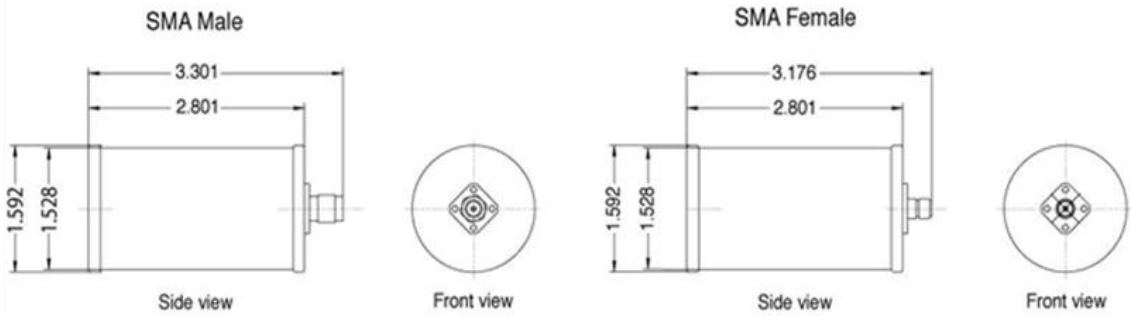| Parameter	LB579A
Accuracy (continued)	
Match	
(Type N)	
10 MHz to 1 GHz	1.20:1 VSWR (21 dB Return Loss)
1 GHz to 10 GHz	1.20:1 VSWR (21 dB Return Loss)
10 GHz to 18 GHz	1.29:1 VSWR (18 dB Return Loss)
(SMA)	
10 MHz to 1 GHz	1.20:1 VSWR (21 dB Return Loss)
1 GHz to 10 GHz	1.20:1 VSWR (21 dB Return Loss)
10 GHz to 18 GHz	1.29:1 VSWR (18 dB Return Loss)
(3.5 mm)	
10 MHz to 1 GHz	1.20:1 VSWR (21 dB Return Loss)
1 GHz to 10 GHz	1.20:1 VSWR (21 dB Return Loss)
10 GHz to 18 GHz	1.29:1 VSWR (18 dB Return Loss)
Temperature (ºC)	
40 - 50	2.00%
30 - 40	0.75%
20 - 30	0.00%
10 - 20	0.75%
0 - 10	2.00%
Maximum Average Power	+20 dBm (100 mW)
Damage Level	+23 dBm (200 mW)
Maximum Pulse Power	+20 dBm (100 mW)
Damage Level	+23 dBm (200 mW)
Video Bandwidth	
Standard	100 Hz
Time Base	±50 ppm
Measurements	2000/second (100 settled measurements per second typical)
Recommended Calibration Cycle	1 year

LB579A PowerSensor+™ Specifications (continued)
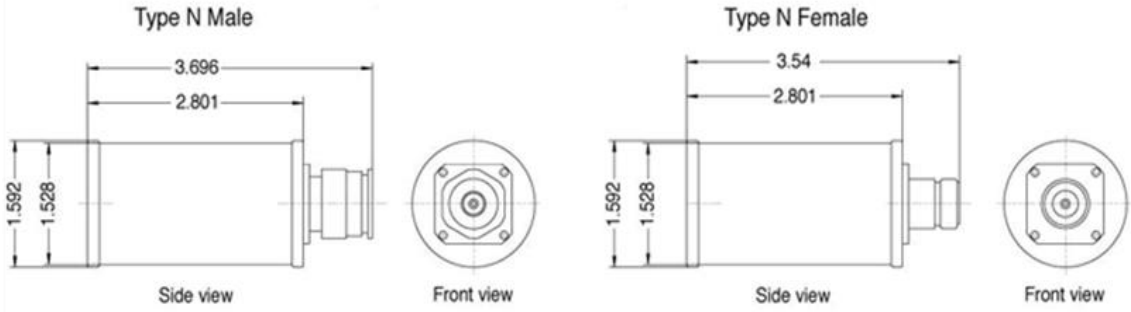
Parameter	LB579A
Average Power Measurements	Average Power, Duty Cycle-Computed Pulse Power, Data Logging
Display & Data Processing Capability	Multiple sensors, displays, and traces
Scaling	Linear, dB
Memory	Unlimited
Trigger	Option 003
Resolution	2 us
Modes (GUI)	Single, Continuous
Source	External
Input	TTL compatible, rising or falling edge
V_{IH} , minimum high-level input	2.0 V at +/- 10 uA
V_{IL}, maximum low-level input	0.8 V at +/- 10 uA
Connector type	SMB male (shared with recorder output)
Absolute maximum levels	5.5 V maximum, -0.5 V minimum
Output	TTL compatible, rising or falling edge
V_{OH} , minimum high-level output	4.6 V at 1 mA
V_{OL}, maximum low-level output	0.8 V at -1 mA
Connector type	SMB male
Absolute maximum levels	5.5 V maximum, -0.5 V minimum
Recorder Out	Option 001
Range	
Operating	0 to 1 V typical
Maximum output	5 V, if in trigger mode (option 003)
Output impedance	1 K ohm typical
Sensitivity	
Scale	Linear or dB, factory default to Linear
Full Scale Value	User settable, factory default to Linear
Connector	SMB male (shared with trigger input)
Environment, operating	
Temperature	0 ºC to 55 ºC
Humidity	15% - 95% non-condensing
Altitude	10,000 feet (3,000 meters)
Environment, storage	
Temperature	-25 ºC to 85 ºC
Humidity	15% to 95% non-condensing
Altitude	50,000 feet (15,000 meters)
Physical	
Weight	4.4 oz (125 g), plus connector weight
Size	1.6" (40 mm) diameter by 2.8" (71 mm) long plus connector length

[1] Error term definitions: Mm (Mismatch); CF (Cal Factor); N (Noise); L (Linearity); T (Temperature); Z (Zero Offset). All error terms are converted to percentages for RSS calculation.

[2] Use the following formula to determine Zero Offset error (%): Z = (Zero Offset Power / Measured Power)100.

[3] Linearity and Zero Offset are measured as a combined specification as LadyBug sensors require no meter zeroing or reference calibration before use.

Lady Bug
TECHNOLOGIES LLC

LB5XXA PowerSensor+ Outline Drawings
(dimensions are inches +/- 0.01)

Type N Male

3.696
2.801
1.592
1.528

Side view   Front view

Type N Female

3.54
2.801
1.592
1.528

Side view   Front view

SMA Male

3.301
2.801
1.592
1.528

Side view   Front view

SMA Female

3.176
2.801
1.592
1.528

Side view   Front view

3.5 mm Male

3.301
2.801
1.592
1.528

Side view   Front view

3.5 mm Female

3.276
2.801
1.592
1.528

Side view   Front view

.95
.078

Rear view (common)

Revisions to data sheet by date:

03/19/09:
1. Accuracy updates: linearity, noise; add zero offset.
2. Delete effective sample rate.
3. Add revision page.
4. Add mechanical outline drawings.

06/01/12
1. Add 3.5 mm connector
2. Add temperature sensitivity graph

10/11/2018
Update specifications