

# USB Smart Power Sensor

## PWR-2.5GHS-75

75Ω -30 dBm to +20 dBm, 100 kHz to 2500 MHz

### The Big Deal

- 75Ω Impedance
- Low cost
- USB HID device compatible with 32/64 Bit operating systems
- Includes “Measurement Application” GUI (Graphical User Interface) software with an API-DLL com object
- High speed measurement capability



CASE STYLE: JL1337



### Product Overview

The Mini-Circuits PWR-2.5GHS-75 Smart Power Sensor is a 75Ω pocket-sized, 4.89” x 1.74” x 0.95”, precision test USB HID device (no driver installation required) that turns a Windows® or Linux® PC into a power meter. All specifications provided in the data sheet apply to continuous wave (CW) signals. Each unit is shipped with a quick-locking USB cable for reliable connectivity. Native software and detailed user guides are provided on the included CD, or can be downloaded from [minicircuits.com](http://minicircuits.com) anywhere an internet connection is available , providing a full range of data analysis options.

### Key Features

| Feature   | Advantages  |
|---|---|
| USB HID (Human Interface Device)                  | Plug-and-Play (no need to install driver for the device).   |
| GUI Measurement Application Software built-in     | Enables the user to perform measurements on RF components such as Couplers, Filters, Amplifiers etc. and displays numerical data and graphs . |
| 32/64 Bit operating systems                       | Compatible with Windows® and Linux® operating systems.  |
| No calibration required before taking measurement | The PWR-2.5GHS-75 does not require any reference signal for calibration.  |



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Wide Dynamic Range

# USB Smart Power Sensor PWR-2.5GHS-75

75Ω 100 kHz to 2500 MHz

## Product Features

- Wide bandwidth, 100 kHz to 2500 MHz
- 50 dB Dynamic Range, -30 to +20 dBm
- Good VSWR, 1.03:1 typ.
- Fast measurement speed, 30 msec typ.
- Automatic frequency calibration & temperature compensation
- Multi-sensor capability (up to 24)
- Built in Application Measurement Software
- Remote operation via internet
- Effective, easy-to-use Windows® GUI
- Linux® support
- Compatible with 32/64-bit Windows® or Linux® operating systems
- ActiveX com object and .Net class library for use with other software: C++, C#, CVI®, Delphi®, LabVIEW® 8 or newer, MATLAB® 7 or newer, Python, Agilent VEE®, Visual Basic®, Visual Studio® 6 or newer, and more<sup>1</sup>



Installation CD

Case Style: JL1337

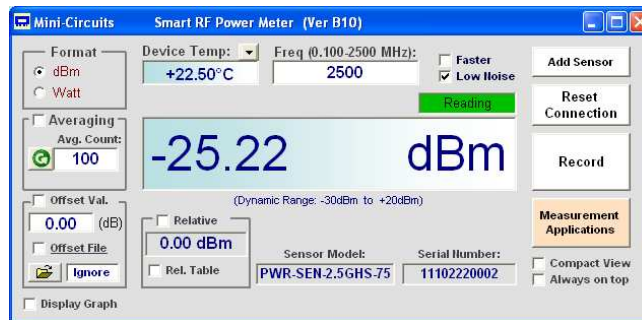
| Model No.                   | Description                       | Price        | Qty.  |
|-----------------------------|-----------------------------------|--------------|-------|
| <b>PWR-2.5GHS-75</b>        | <b>USB smart Power Sensor</b>     | \$795.00 ea. | (1-4) |
| <b>Included Accessories</b> |                                   |              |       |
| PWRSN-2.5GHS-75             | Power Sensor Head                 |              |       |
| USB-CBL+                    | 6 ft data cable (USB Type-A Plug) |              | 1     |
| PWR-SEN-CD                  | Installation CD                   |              | 1     |

## Typical Applications

- Turn almost any Windows or Linux PC into a Power Meter
- Pocket-sized portability for benchtop testing anywhere
- Remote location monitoring
- Automatic, scheduled data collection
- Evaluate high-power, multi-port devices with built-in virtual couplers/attenuators & other software tools

**RoHS Compliant**  
See our web site for RoHS Compliance methodologies and qualifications

## Mini-Circuits Power Meter Program for Smart USB Power Sensor



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Rev. B  
M139558  
EDR-10368  
PWR-2.5GHS-75  
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## Electrical Specifications (CW) <sup>2</sup>, -30 dBm to +20 dBm, 100 kHz to 2500 MHz

| Parameter                                      | Freq. Range (MHz) | Min.        | Typ.  | Max.   | Units  |      |
|--|-------------------|-------------|-------|--------|--------|------|
| Dynamic Range                                  | 0.1 - 2500        | -30         | -     | +20    | dBm    |      |
| VSWR   | 0.1 - 2500        | -           | 1.03  | 1.20   | :1     |      |
| Uncertainty of Power Measurement @ 25°C        | @ -30 to +5 dBm   | 0.1 - 1000  | -     | ± 0.10 | ± 0.30 | dB   |
|  |                   | 1000 - 2500 | -     | ± 0.05 | ± 0.30 | dB   |
|  | @ +5 to +12 dBm   | 0.1 - 1000  | -     | ± 0.05 | ± 0.25 | dB   |
|  |                   | 1000 - 2500 | -     | ± 0.05 | ± 0.20 | dB   |
|  | @ +12 to +20 dBm  | 0.1 - 1000  | -     | ± 0.10 | ± 0.30 | dB   |
|  |                   | 1000 - 2500 | -     | ± 0.15 | ± 0.40 | dB   |
| Uncertainty of Power Measurement @ 0°C to 50°C | @ -30 to +5 dBm   | 0.1 - 1000  | -     | ± 0.10 | -      | dB   |
|  |                   | 1000 - 2500 | -     | ± 0.10 | -      | dB   |
|  | @ +5 to +12 dBm   | 0.1 - 1000  | -     | ± 0.10 | -      | dB   |
|  |                   | 1000 - 2500 | -     | ± 0.10 | -      | dB   |
|  | @ +12 to +20 dBm  | 0.1 - 1000  | -     | ± 0.10 | -      | dB   |
|  |                   | 1000 - 2500 | -     | ± 0.15 | -      | dB   |
| Linearity @ 25°C                               | 0.1 - 2500        | -           | ± 2.3 | -      | %      |      |
| Measurement Resolution                         | 0.1 - 2500        | 0.01        | -     | -      | dB     |      |
| Averaging Range                                | 0.1 - 2500        | 1           | -     | 999    | -      |      |
| Measurement Speed                              | @ Low Noise Mode  | 0.1 - 2500  | -     | 100    | -      | mSec |
|  | @ Faster Mode     |             | -     | 30     | -      |      |
| Current (via host USB)                         | 0.1 - 2500        | -           | 40    | 70     | mA     |      |

## Minimum System Requirements

| Parameter             | Requirements   |
|-----------------------|--|
| Interface             | USB HID  |
| Host operating system | 32 Bit operating system: Windows 98®, Windows XP®, Windows Vista®, Windows 7®<br>64 Bit operating system: Windows Vista®, Windows 7®<br>Linux® support: 32/64 Bit operating system |
| Hardware              | Pentium® II or higher, RAM 256 Mb, USB port  |
| USB cable (supplied)  | Power sensor to be used with the supplied USB cable only   |

**Note 2:** All specifications apply to continuous wave (CW) signals.

## Absolute Maximum Ratings

| Parameter             | Ratings       |
|-----------------------|---------------|
| Operating Temperature | 0°C to 50°C   |
| Storage Temperature   | -30°C to 70°C |
| DC Voltage at RF port | 4V            |
| CW Power              | +25dBm        |

Permanent damage may occur if any of these limits are exceeded.



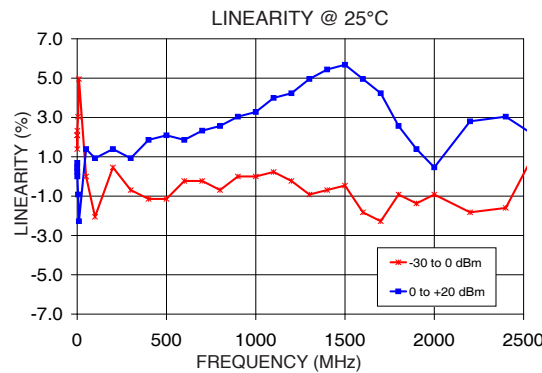
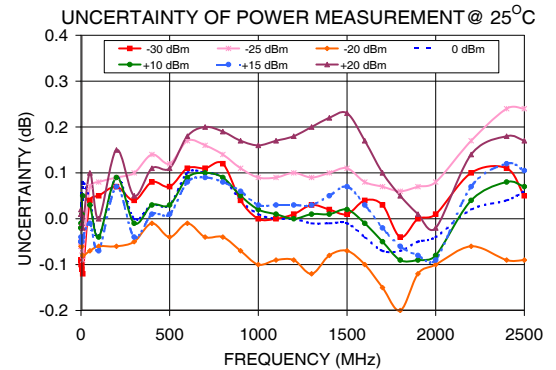
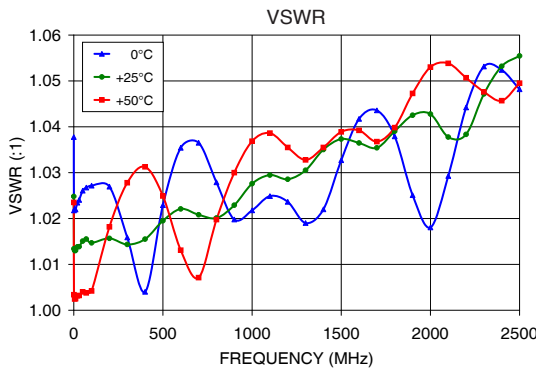
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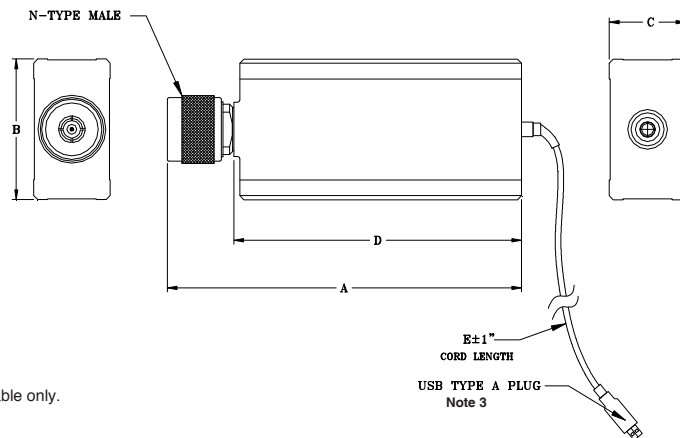
IF/RF MICROWAVE COMPONENTS

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## Typical Performance Curves



## Outline Drawing (JL1337)



**Note 3:** Power sensor to be used with the supplied USB cable only.

## Outline Dimensions (inch/mm)

| A     | B    | C    | D    | E    | WT. GRAMS |
|-------|------|------|------|------|-----------|
| 4.39  | 1.74 | 0.95 | 3.50 | 72.0 | 200       |
| 111.5 | 44.2 | 24.1 | 88.9 | 1829 |           |



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RF/MICROWAVE COMPONENTS

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## Warranty

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## Ordering, Pricing & Availability Information see our web site

| Model         | Description            |
|---------------|------------------------|
| PWR-2.5GHS-75 | USB Smart Power Sensor |

| Included Accessories  | Description                                    |
|-----------------------|--|
| PWRSN-2.5GHS-75       | Power Sensor Head                              |
| USB-CBL+ <sup>4</sup> | 6 ft data cable with USB Type-A plug connector |
| PWR-SEN-CD            | Installation CD                                |

**Note 4:** Power sensor to be used with the supplied USB cable only.

## Calibration

| Model           | Description         |
|-----------------|---------------------|
| CALSN-2.5GHS-75 | Calibration Service |



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