PSP Series

Power Sensor-Pulse

- PSP001-PSP005
- 50MHz–40GHz

Features

The PSP Series Wideband USB pulse power sensors turn your PC or laptop, using a standard USB 2.0 port, into a pulse power analyzer without the need for any other instrument. Power measurements from the PSP Series can be displayed on the PC or can be integrated into a test system with a set of user-defined software functions. A Status LED on the sensor provides indication of the operational state for diagnostic purposes.

The PSP Series power sensors include 6, 18 and 40 GHz models for measurement of wideband modulated signals over a frequency range of 50 MHz to 40 GHz.

With broad band measurements having rise times from 3 ns, 100ps time resolution and video bandwidths of 195 MHz, the PSP Series enables rapid pulse integrity determinations with effective sampling rates up to 100x faster than conventional power meters.

The PSP Series power sensors have exceptional trigger stability of less than 100 ps trigger jitter providing greater waveform detail. Using external hardware trigger input rather than software-based triggering allows precise timestamping of relative trigger-to-sample delay. This precision permits the use of random interleaved sampling (RIS) for repetitive waveforms with resulting effective sampling rate of 10 GS/s which permits accurate, direct measurement of fast timing events without requiring interpolation between samples.

Processing in real time provides greater power integrity measurements because every pulse is analyzed and none are discarded. Trace acquisition, averaging and envelope times are drastically reduced resulting in simultaneous analysis of average, maximum and minimum Power.

The PSP Series Wideband USB pulse power sensors are supported by both AR's emcware® software and PulsewARe. PulsewARe is a Windows-based software package that provides control and readout of the sensors. It provides both time and statistical domain views of power waveforms with variable peak hold and persistence views. Power measurements are supported using automated pulse and statistical measurements, power level and timing markers. The GUI application is easily configured with dockable or floating windows and measurement tables that can be edited to show only the measurements of interest.

The PSP Series sensors are ideal for manufacturing, design, research, and service in commercial and military applications such as telecommunications, avionics, RADAR, and medical systems. They provide fast, accurate and reliable RF power measurements, suitable for product development, compliance testing, and site monitoring applications.

AR RF/Microwave Instrumentation
160 School House Rd
Souderton, PA 18964
215-723-8181

For an applications engineer call:800.933.8181

www.arworld.us

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General Specifications

Sampling Techniques: Real-time/Equivalent Time/Statistical Sampling

Continuous sample rate: 100 MHz

Effective sample rate: 10 GHz

Time Resolution: 100 ps

Statistical Analysis: Continuous or gated CCDF

Statistical Speed: 100M points/sec

Trigger Sources: Internal or External TTL

External Trigger in/out: TTL in (slave) or out (master), SMB connector

Minimum Trigger Width: 10 ns

Maximum Trigger Frequency: 50 MHz

Trigger Jitter: 0.1 ns rms

Trace Acquisition Speed: 100K sweeps/second

Measurement Speed:
100K meas/sec (buffered mode)
over USB 800 meas/sec (continuous)

Trigger Modes: Auto, Normal, Single, Free run

Trigger Arming: Continuous, Trigger Holdoff, Frame (gap) Holdoff

Remote Connectivity: USB 2.0, type B connector

Command Protocol: IVI-C and IVI-Com

Maximum Input Power: 200mW avg, 1W for 1us peak

Size (LxWxH): 145 x 43 x 43 mm (5.7 x 1.7 x 1.7 in)

Weight: 363 grams/0.8 lbs.

Power Consumption: 2.5W max (USB high power device)

Operating Temperature: 0 to 55°C

Storage Temperature: -40 to 70°C

Export Classification: EAR99

Included Accessories:

USB Cable: A-B Locking, 1.8m (6 ft)

External Trigger Multi I/O Cable: SMB-BNC

Trigger Sync Cable: SMB-SMB

Model Configurations

Specifications	PSP001	PSP002	PSP003	PSP004	PSP005
RF Frequency Range	50 MHz to 6 GHz	50 MHz to 18 GHz	50 MHz to 40 GHz	50 MHz to 18 GHz	50 MHz to 40 GHz
Average Dynamic Range	-60 to+20 dBm	-34 to +20 dBm	-34 to +20 dBm	-50 to +20 dBm	-50 to +20 dBm
Pulse Dynamic Range	-50 to +20 dBm	-24 to +20 dBm	-24 to +20 dBm	-40 to +20 dBm	-40 to +20 dBm
Internal Trigger Range	-38 to +20 dBm	-10 to +20 dBm	-10 to +20 dBm	-27 to +20 dBm	-27 to +20 dBm
Risetime (fast/slow)	3 ns/<10 µs	5 ns/<10 µs	5 ns/<10 µs	<100 ns/<10 µs	<100 ns/<10 µs
Video Bandwidth	195 MHz/350 kHz	70 MHz/350kHz	70 MHz/350 kHz	6 MHz/350 kHz	6 MHz/350 kHz
Single-shot Bandwidth	35 MHz	35 MHz	35 MHz	6 MHz	6 MHz
RF Input	Type N, 50 ohm	Type N, 50 ohm	2.92 mm, 50 ohm	Type N, 50 ohm	2.92 mm, 50 ohm
VSWR	1.25 (0.05-6 GHz)	1.15 (.05-2.0 GHz) 1.28 (2.0-16 GHz) 1.34 (16-18 GHz)	1.25 (.05-4.0 GHz) 1.65 (4-38 GHz) 2.00 (38-40 GHz)	1.15 (.5-2.0 GHz) 1.20 (2.0-6.0 GHz) 1.28 (6.0-16 GHz) 1.34 (16-18 GHz)	1.15 (.05-2.0 GHz) 1.65 (4.0-38 GHz) 2.00 (38-40 GHz)