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Boonton

Data Sheet

RTP4000 Real-Time True Average Power Sensors

RTP4000 true average power sensors provide 80 dB dynamic range and a frequency range down to 4 kHz. Built with Boonton's *Real-Time Power Processing™*, these sensors deliver 100,000 measurements per second, no gaps in signal acquisition and zero measurement latency. Combining this performance with pulse profiling, capture and measure of pulsed, CW and modulated signals, multi-channel capabilities and documentation tools, RTP4000 average power sensors are the ideal instrument for fast, accurate and reliable RF power measurements.



Features

- 4 kHz to 6 GHz and 10 MHz to 6 GHz sensors
- -60 dBm to +20 dBm dynamic range
- 175 kHz video bandwidth for pulse profiling
- *Real-Time Power Processing™* technology for no gaps in signal acquisition and zero measurement latency
- 100,000 measurements per second
- True average measurements with no modulation bandwidth limitations
- Pulse, Average, CW and Modulation modes
- Power Analyzer Suite advanced measurement and analysis software
- 1 GS/s effective, 25 MS/s continuous sample rate
- Synchronized multi-channel measurements

Applications

- EMI/EMC – Return loss measurements, conducted and radiated immunity, antenna efficiency
- Automotive & Transportation – Collision avoidance, WiFi/LTE communications, telemetry
- Scalar measurements, such as gain and return loss, on modulated and CW signals
- Gated average power measurements for modulated signals
- Communications – Amplifier efficiency, base station monitoring, compression point testing

Real-Time Power Processing™

Real-Time Power Processing™ (RTPP) technology is a unique parallel processing methodology that performs the multi-step process of RF power measurement at incredible, unmatched speeds. While conventional power meters and USB sensors perform steps serially, resulting in long re-arm times and missed data, Boonton sensors with *Real-Time Power Processing™* capture, display and measure every pulse, glitch and detail with no gaps in data and zero latency.

Specifications	RTP4006	RTP4106
RF Frequency Range	10 MHz to 6 GHz	4 kHz to 6 GHz
Average Dynamic Range	-60 dBm to +20 dBm	-60 dBm to +20 dBm
Pulse Dynamic Range	-45 dBm to +20 dBm	-45 dBm to +20 dBm
Internal Trigger Range	-40 dBm to +20 dBm	-40 dBm to +20 dBm
Rise time (fast/standard)	2 µs / 1 ms	2 µs / 1 ms
Video Bandwidth (high[1]/std[2])	175 kHz / 350 MHz	175 kHz / 350 Hz
RF Input	Type N, 50 Ω	Type N, 50 Ω
VSWR	1.15 (0.01 GHz to 2 GHz)	1.15 (0.01 GHz to 2 GHz)
	1.20 (2.0 GHz to 6 GHz)	1.20 (2.0 GHz to 6 GHz)

1 In High Sensitivity Mode, the RTP4000 sensors change to Standard Bandwidth Mode automatically - video bandwidth changes to 350 Hz.

2 At frequencies < 1MHz, the RTP4106 changes to High Sensitivity Mode automatically.

Series Specifications

Sampling Techniques	Real-time, Equivalent Time
Continuous sample rate	25 MS/s
Effective sample rate	1 GS/s
Time Resolution	1 ns
Trigger Sources	Internal or External TTL
External Trigger in/out	TTL in (slave) or out (master)
Minimum Trigger Width	4 µs
Maximum Trigger Frequency	120 kHz
Trigger Jitter	1 ns rms 20 ns rms (external)
Trace Acquisition Speed	> 30k sweeps/second
Measurement Speed over USB	100k meas/s (buffered mode) 1,000 meas/s (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	200 mW avg, 1 W for 1 µs peak
Size (LxWxH)	142 x 43 x 43 (mm) 5.6 x 1.7 x 1.7 (inches)
Weight	363 grams/0.8 lbs.
Cable (with locking USB)	1.8 m / 6 ft
Power Consumption	2.0 W max (USB high power device)
Operating Temperature	0 to 55º C
Storage Temperature	-40 to 70º C

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