# **M**Boonton

# **RTP5000 and RTP4000 Real-Time Power Sensors**

Built with Boonton's *Real-Time Power Processing Technology*, the RTP5000 and RTP4000 Real-Time Power Sensors deliver ultra-fast 100,000 measurements per second, no gaps in signal acquisition and zero measurement latency. Combining this performance with True Average and Peak capability, multi-channel support and documentation tools make these sensors the ideal instruments for fast, accurate, and reliable RF power measurements.



# **RTP5000 Real-Time Peak Power Sensors**

#### Features:

- Peak Power Sensor
- 6 GHz, 18 GHz and 40 GHz RF Power Sensors
- Up to 195 MHz video bandwidth with 3 ns rise time
- 100,000 measurements per second
- Crest factor, CCDF and statistical measurements

## **Applications:**

- Crest factor and peak-to-average power (PAPR) measurements
- Telecommunication and satellite signals: QAM, OFDM, LTE, LTE-A, LTE-5G
- Wi-Fi signals: 802.11ac and legacy 802.11a/g/n/b
- RF and microwave pulse modulated power measurements: RADAR, MRI, Particle Accelerators
- Scalar measurements such as gain and return loss using modulated, pulsed and CW signals

## **RTP4000 Real-Time True Average Power Sensors**

#### Features:

- True Average Power Sensor
- 4 kHz to 6 GHz frequency range
- -60 dBm to +20 dBm dynamic range
- 100,000 measurements per second
- Pulse, Average, CW and Modulation Modes

#### 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 modulates signals
- Communications Amplifier efficiency, base station monitoring, compression point testing

Real-Time Power Processing<sup>™</sup> (RTPP) technology is a unique parallel processing methodology that performs the multistep 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 real-time power sensors with RTPP capture, display and measure every pulse, glitch and detail with no gaps in data and zero latency. Even the most dynamic and rapidly changing signals are accurately captured, measured and displayed.



## **Power Analyzer Suite**

The Boonton Power Analyzer Suite unlocks the capabilities of the Real-Time Power sensors by prodiving a powerful, flexible user interface and a robust set of remote programming drivers and commands. The user interface provides a signal viewing window with 16 automatic measurements, markers, trigger controls and the ability to view signals from up to 8 sensors simultaneously. The drivers provide the tools necessary to integrate the sensors in to an automated test environment for fast measurement and data readout.

			CH1: 0.2 dB/div
Pulse Def	<b>a</b>		VCent: -21.33 dBm
			CH2: 0.2 dB/div VCent: -5 92 dBm
Parameter	CH1	CH2	1 2
Width	9.9337 µs	10.037 µs	manna -
Rise	4.35 ns	3.57 ns	
Fall	50.3 µs		
Period	50.042 µs	50.071 µs	M. M. Martine and M
PRF	19.983 kHz	19.972 kHz	
Duty	19.851 %	20.046 %	
Offtime	40.108 µs	40.034 µs	
WavAv	-27.898 dBm	-12.752 dBm	
PulsAv	-21.526 dBm	-6.468 dBm	
PulsPk	-20.484 dBm	-5.514 dBm	
OvrSht	0.030 dB	1.630 dB	
Droop	-0.136 dB	-0.159 dB	
Тор	-20.862 dBm	-7.267 dBm	
Bottom	-54.074 dBm	-57.596 dBm	
EdgDly	-84.7 ns	-155.7 ns	
Skew	0.00 ns	71.0 ns	

Specifications	RTP4006	RTP4106	RTP5006	RTP5318	RTP5340	RTP5518	RTP5540
RF Frequency range	10 MHz to 6 GHz	kHz to 6 GHz	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	-60 to +20 dBm	-60 to +20 dBm	-34 to +20 dBm	-34 to +20 dBm	-50 to +20 dBm	-50 to +20 dBm
Pulse Dynamic range	-45 to +20 dBm	-45 to +20 dBm	-50 to +20 dBm	-24 to +20 dBm	-24 to +20 dBm	-40 to +20 dBm	-40 to +20 dBm
Internal Trigger range	-40 to +20 dBm	-40 to +20 dBm	-38 to +20 dBm	-10 to +20 dBm	-10 to +20 dBm	-27 to +20 dBm	-27 to +20 dBm
Rise Time (fast/slow)	2 µs	2 µs	3 ns/<10 µs	5 ns/<10 μs	5 ns/<10 μs	100 ns/<10 µs	100 ns/<10 µs
Video Bandwidth	175 kHz	175 kHz	195 MHz/350kHz	70 MHz/350kHz	70 MHz/350kHz	6 MHz/350kHz	6 MHz/350kHz
Single Shot Bandwidth	-	-	35 MHz	35 MHz	35 MHz	6 MHz	6 MHz
RF Input	Type N, 50 Ω	Type N, 50 Ω	Type N, 50 Ω	Type N, 50 Ω	2.92 mm, 50 Ω	Type N, 50 Ω	2.92 mm, 50 Ω
VSWR	1.15 (0.01 GHz to 2 GHz) 1.20 (2.0 GHz to 6 GHz)	1.15 (0.01 GHz to 2 GHz) 1.20 (2.0 GHz to 6 GHz)	1.25 (0.05 GHz to 6 GHz)	1.15 (0.05 GHz to 2 GHz) 1.28 (2.0 to 16 GHz) 1.34 (16 to 18 GHz)	1.25 (0.05 GHz to 4 GHz) 1.65 (4.0 to 38 GHz) 2.00 (38 to 40 GHz)	1.15 (0.05 GHz to 2 GHz) 1.20 (2.0 to 6 GHz) 1.28 (6 to 16 GHz) 1.34 (16 to 18 GHz)	1.25 (0.05 GHz to 4 GHz) 1.65 (4.0 to 38 GHz) 2.00 (38 to 40 GHz)
Measurement Speed	100k meas/sec (buffered mode)	100k meas/sec (buffered mode)	100k meas/sec (buffered mode)	100k meas/sec (buffered mode)	100k meas/sec (buffered mode)	100k meas/sec (buffered mode)	100k meas/sec (buffered mode)
	1,000 meas/sec (continuous)	1,000 meas/sec (continuous)	800 meas/sec (continuous)	800 meas/sec (continuous)	800 meas/sec (continuous)	800 meas/sec (continuous)	800 meas/sec (continuous)
Remote Connectivity	USB 2.0, type B connector	USB 2.0, type B connector	USB 2.0, type B connector	USB 2.0, type B connector	USB 2.0, type B connector	USB 2.0, type B connector	USB 2.0, type B connector



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