

Signal Hound®

PCR4200 Phase Coherent Receiver



Signal Hound designs and builds powerful, affordable spectrum analyzers and signal generators for engineers, operators and RF professionals around the globe.

THE PCR4200 IS A HIGH-PERFORMANCE, 100 kHz - 20 GHz, 4-CHANNEL PHASE COHERENT RECEIVER, STREAMING I/Q DATA OVER A VITA 49 INTERFACE.

Each channel on the PCR4200 may be configured as a phase coherent channel using the high-performance shared local oscillator (LO), or independently tuned using that channel's dedicated LO. Additionally, any single channel may be configured to provide swept spectrum data at up to 160 GHz/s. Other features include a built-in 30 MHz - 20 GHz vector signal generator to simplify system alignment and calibration, and an internal GPS to provide precise time, frequency, and location.

FEATURES

- Frequency Range 100 kHz to 20 GHz
- Streams 40 MHz Bandwidth per Channel over 10 GbE SFP+
- Built-in Sub-Octave Preselectors from 45 MHz to 20 GHz
- Built-in Vector Signal Generator
- Noise Figure: 9 dB Typical for X band
- Calibrated I/Q Data
- Ultra-Low Phase Noise: -136 dBc/Hz 10 kHz Offset from 1 GHz Center Frequency
- Internal GPS
- 110 dB Dynamic Range
- Each channel may be configured as:
 - A Phase Coherent I/Q Channel
 - An Independently Tuned I/Q Channel
 - Up To 160 GHz/s Sweep Speed
 - Up To 16 Phase Coherent Channels

APPLICATIONS

- Emitter Detection and Geolocation
- Multi-Channel Transmitter Testing
- Simultaneous Multi-Band Spectrum Monitoring
- SIGINT/COMINT/ELINT
- Drone Detection
- MIMO Channel Testing
- **SIZE: 12" x 11.5" x 3" • WEIGHT: 16.2 lbs**



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PCR4200 Four-Channel Phase Coherent Receiver

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Preliminary Specifications

Frequency Range	100 kHz to 20 GHz			
Streaming Bandwidth	Up to 40 MHz per channel			
Sweep Speed (typ)	Speed	RBW		
	• 160 GHz/sec	10 kHz		
	• 18 GHz/sec	1 kHz		
Timebase Accuracy	• $\pm 5 \times 10^{-10}$ when locked to GPS • Holdover of $\pm 5 \times 10^{-9}$ /day for aging ($\pm 2 \times 10^{-8}$ first day typ) • Holdover of $\pm 1 \times 10^{-8}$ for temperature over -40°C to 65°C (typ)			
I/Q Acquisition Modes	Calibrated Streaming I/Q: Independent or Phase Coherent			
System Noise Figure (typ)	• 7-9 dB from 50 MHz to 2.7 GHz • 9-11 dB from 2.7 GHz to 5.6 GHz		• 7-9 dB from 5.6 GHz to 12 GHz • 9-13 dB from 12 GHz to 20 GHz	
Linearity	IP ₂ • 50 MHz to 7 GHz • 7 GHz to 9 GHz • 9 GHz to 20 GHz	+75 dBm +65 dBm +70 dBm	IP ₃ • 100 kHz to 3 GHz • 3 GHz to 9 GHz • 9 GHz to 20 GHz	+28 dBm +18 dBm +23 dBm
Amplitude Accuracy	100 kHz to 6 GHz • ± 2.0 dB	6 GHz to 20 GHz • ± 3.0 dB	RBW filter shape • Flat-Top windowing	
Residual Responses REF LEVEL ≤ -20 dBm	• 100 kHz to 20 GHz		< -108 dBm	
SSB Phase Noise at 1 GHz Center Frequency	Offset Frequency	dBc/Hz		
	• 10 Hz	-75		
	• 100 Hz	-105		
	• 1 kHz	-128		
	• 10 kHz	-136		
	• 100 kHz	-138		
	• 1 MHz	-138		
Spurious Mixer Responses (typ)	• 100 kHz to 2.5 GHz • 2.5 GHz to 5.5 GHz • 5.5 GHz to 8.2 GHz • 8.2 GHz to 20 GHz	-57 dBc -60 dBc -50 dBc -60 dBc		
Sub-Octave Preselector Filters	45 MHz to 20 GHz			
Synchronization	Ext trig, GPS (+/- 40 ns), Up to 4 Units 16 Channels			
Typical Phase Coherence at 1 GHz	Repeatability at fixed temperature: < 0.015 degrees Phase drift over 10°C change: 4 channels < 0.5 degrees, >4 channels < 1.5 degrees			
VSG Frequency Range	• 30 MHz to 20 GHz			
VSG Output Power Range (typ)	• -20 dBm to +3 dBm			
VSG I/Q Buffer and Sample Rate	• ≤ 4096 repeating I/Q samples at 125 MS/s			
Operating Temperature	Standard 32°F to 122°F (0°C to +50°C)			
Size and Weight	• 12" x 11.5" x 3" (30.4m x 29.2cm x 7.6cm) • 16.2 lbs. (7.34 kg)			
Power Consumption	• 9 to 16 VDC • 45-50 Watt Maximum (25°C)			
Interface	10GbE SFP+ Port			
System Requirements	Windows or Linux Operating System, x64_86 architecture			

Ordering Options

Standard, Temperature Range 32°F to 122°F (0°C to +50°C)

Option 1, Temperature Range -22°F to 140°F (-30°C to 60°C)