Signal Hound®

PCR4200 Phase Coherent Receiver

Signal Hound designs and builds premium accessible test and measurement equipment for engineers 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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MADE IN USA

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	• ±5 x 10^{-10} when locked to GPS • Holdover of ±5 x 10^{-9} /day for aging (±2 x 10^{-8} first day typ) • Holdover of ±1 x 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 +75 dBm • 7 GHz to 9 GHz +65 dBm • 9 GHz to 20 GHz +70 dBm IP_3 • 100 kHz to 3 GHz +28 dBm • 3 GHz to 9 GHz +18 dBm • 9 GHz to 20 GHz +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 -57 dBc • 2.5 GHz to 5.5 GHz -60 dBc • 5.5 GHz to 8.2 GHz -50 dBc • 8.2 GHz to 20 GHz -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” (30.4cm 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)