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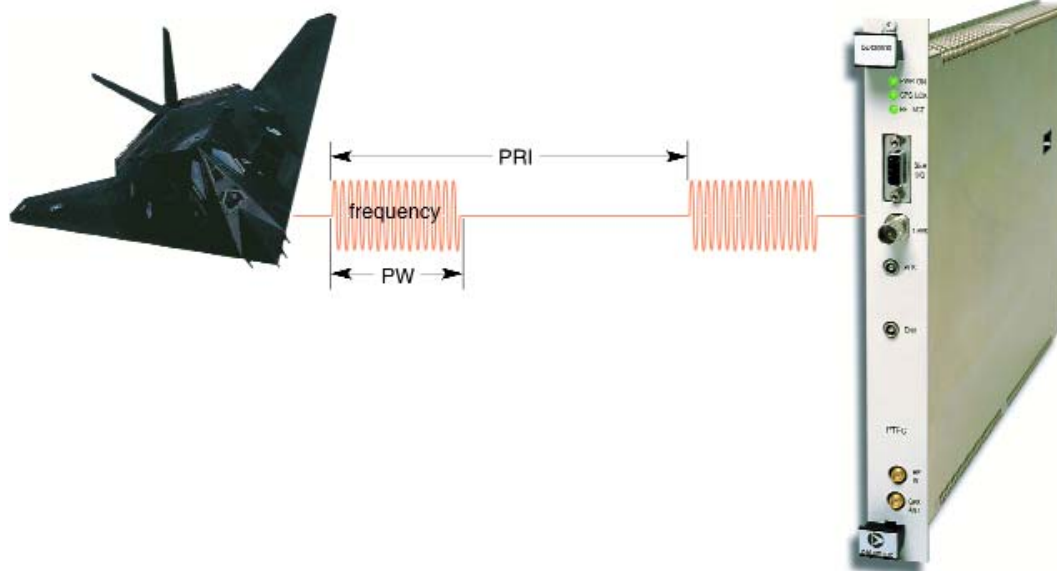
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Features

- GPS Time Tagged Data
 - 50 Nanosecond Resolution
- Pulse Rate Interval Measurement
- Pulse Width Measurement
- Pulse Carrier Frequency Measurement
- VXIbus Form Factor
- Single-Width C-Size Module
- Message-Based Command Interface
- Dual Memory Eliminates Contention and Provides High Sample Rates
- Register-Based Data Interface (Access Time < 200 nanoseconds/byte)
- Optional LabVIEW® Software for Control, Acquisition and Analysis

VXIbus RF Pulse Analyzer



Overview

Datum's new bc420/427VXI RF Pulse Analyzer is a breakthrough product for the high data rate acquisition and analysis of radar and Electronic Intelligence, ELINT, signals in a compact VXI module architecture. The bc420/427VXI measures and records Pulse Width, PW, Pulse Repetition Interval, PRI, and frequency of a pulsed RF input on a pulse-to-pulse basis. The standard bc420VXI uses an external 1 PPS reference input as the timing source. The bc427VXI adds an internal GPS receiver module, providing a timing source that is directly traceable to international time standards. Other RF

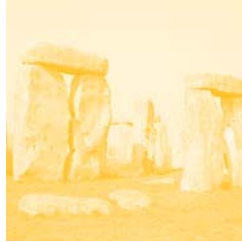
pulse analysis instruments can sample pulse parameters and frequency, but not continuously. The bc420/427VXI, by virtue of its state of the art DSP RF processing technology, offers a unique capability of acquiring PW, PRI, and frequency of all pulses, in real time, continuously. This breakthrough is especially valuable for the analysis of the doppler and agile pulsing characteristics of current generation radar and EW systems, where acquisition and analysis of ALL pulses is needed to completely characterize the test or target system.

The bc420VXI is supported with an optional LabVIEW® control, acquisition and analysis virtual control panel application program. Through this virtual control panel, all bc420VXI functionality can be controlled and RF pulse data can be acquired and stored in the host computer. Statistical data is displayed on screen and output in report form, as well as a near-real-time analysis of the data that indicates PW, PRI, and frequency (the frequency in the pulse).



Timing, Test & Measurement

BUS LEVEL PRODUCTS
VME, VXI, PCI, PC/AT/XT, Sbus, SBX



Model bc420/427VXI

Specifications

Microwave Inputs

Frequency Range	100 MHz to 2 GHz
Input Signal Range	-20 dBm to +20 dBm
Input Return Loss	>15 dBm

Pulse Width Measurements

Minimum PW	1 μ s
Measurement Accuracy	\pm 5 ns
Measurement Resolution	1 ns

Pulse Repetition Interval Measurements

Minimum PRI	100 μ s
Measurement Accuracy	\pm 50 ns
Measurement Resolution	10 ns

Frequency Measurements

Continuous or Pulsed Microwave Signals	
Frequency Range	100 MHz to 2 GHz
Measurement Accuracy	\pm 100 kHz
Measurement Resolution	10 kHz

Data Storage

Pulse Width, PRI, Frequency, and Time Tag for Every Pulse	
Time Tag Resolution	50 nanoseconds
On-Board Memory	128K bytes (>2 sec history at max PRI)

Power Requirements

+5 VDC	@ 2.5 A
-5.2 VDC	@ 1.2 A
-2 VDC	@ 2.0 A
+12 VDC	@ 150 mA
-12 VDC	@ 150 mA

Operating Environment

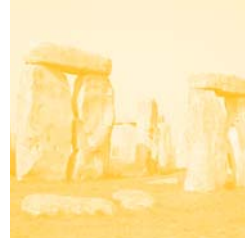
Temperature	0° C to 50° C
Humidity	0 to 95% (non-condensing)

Technical Description

The bc420VXI combines the functions of a frequency counter and a time-interval analyzer in a single-width VXIbus instrument. It processes a continuous or pulsed RF input signal with a frequency ranging from 100 MHz to 2 GHz. A portion of the RF input is processed in an envelope detector and threshold comparator to create a digital pulse-shape waveform. In parallel, the RF input is coupled to a high-speed frequency counter that counts the number of RF cycles within the pulse window. The digital pulsed output is sampled in time-capture circuitry that measures the pulse width and pulse repetition interval, PRI. In order to process data at the rate necessary for real-time measurement and storage, the bc420VXI requires a dedicated Digital Signal Processor, DSP. A Texas Instruments TMS320F240 DSP provides real-time measurements of the pulse width, PRI and frequency of input RF pulses with pulse rates up to 10,000 pulses per second. The DSP also provides adjustable threshold and gain settings, on-line calibration, time tagging, and data storage of the measured data. A phase-locked loop is used to time-correct the on-board crystal oscillator with either an external 1 PPS reference or, in the bc427VXI, the GPS 1 PPS clock. A VXIbus interface chip set is used to interface the bc420VXI to the host computer for functional control, accessing GPS time code data and archiving pulse data. A dual-port RAM is used to temporarily store pulse data that is read by the host computer through the VXIbus.



Specifications subject to change without notice.





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