



Digital IF Receiver

MODEL 4423

Features

- ◆ Form Factor
 - 2U Rack Mount Chassis
- ◆ 2 Input Ports
- ◆ Tunable Center Frequency Bands
 - 1 kHz to 180 MHz
- ◆ Wide Dynamic Range
 - > 90 dB
- ◆ 4 Selectable Input Bandwidths
- ◆ Programmable Acquisition & Tracking Range
- ◆ Multi-Waveform Demodulation
 - Analog / Digital PM
 - PCM/FM
 - BPSK
 - QPSK
 - SQPSK
 - UQPSK
 - AQPSK
 - SOQPSK (ARTM Tier 1)*
 - Analog FM *
- ◆ 3 Demodulators
 - PCM / FM
 - PM / PSK *
 - 1 IF, 2 SCs *
- ◆ 2 Bit Synchronizers
 - 50 bps to 20Mbps BPSK
 - 50 bps to 40Mbps QPSK
 - Viterbi Decoders *
 - Reed-Solomon *
- ◆ 2 Frame Syncs
- ◆ Ethernet Data Output *
- ◆ Encapsulated Data & Quality Output *
- ◆ Control
 - RS-232
 - RS-485 *, Ethernet *

General Description



The model 4423 Digital IF Receiver is an integrated solution consisting of an IF Signal Processor, 3 Demodulators, 2 Bit Synchronizers and 2 Frame Synchronizers contained in a single 2U rack mountable chassis. This state-of-the art receiver provides a compact, cost competitive, flexible solution to a wide variety of communications link scenarios.

The model 4423 is user programmed to select one of two inputs for processing. The input frequencies within the factory-configured Tunable Center Frequency Band are demodulated. Depending upon specific user requirements, a choice of up to 4 input band-pass filters are available.

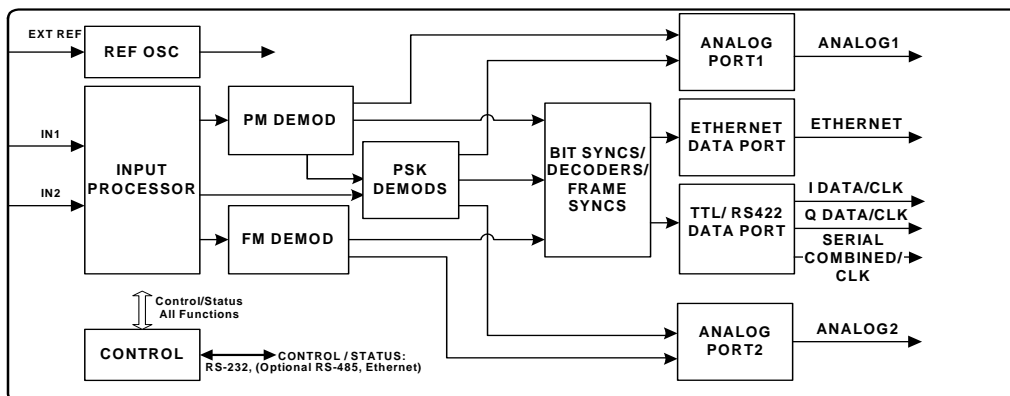
The demodulation process as well as baseband bit synchronization process is totally performed in the digital domain. Signal acquisition is performed by scanning the IF within the programmed acquisition band centered about the selected Carrier frequency. PM / PSK waveforms are additionally scanned for acquisition at the subcarrier frequencies. Once signal acquisition is complete, synchronized signal tracking is performed whereby continuous validation of the lock state is maintained.

A variety of FEC decoders are available and two fully programmable frame synchronizers are included.

In addition to the Analog output, data may be output via Ethernet, TTL, RS-422 data port.

An Encapsulated data and data quality output may be included that supports the GDP Best Source Selector products.

* OPTIONS





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SPECIFICATIONS

Input:

Input Ports	2
Center Frequency	1 kHz to 180 MHz or 550 MHz to 1100 MHz
Input Filters	4 selectable filter bandwidths
Dynamic Range	> 90 dB
Input Impedance	50 ohms
VSWR	< 1.5:1

Demodulator(s):

IF Acquisition / Tracking Range	± 255 kHz
Loop Bandwidth	0.01% to 1% of Bit Rate (Analog PM 2 Hz to 20 KHz)
PM Demodulator	
Frequency Response	100 Hz to 15 MHz
Modulation Index	0 to 2.8 Radians
PSK Demodulators	
Types	1 IF, 2 SC (optional)
Modulation Waveforms	BPSK, QPSK, OQPSK, UQPSK, AQPSK, SOQOSK ARTM Tier 1 (Optional)
Locking Threshold	6 dB Eb/No
PCM/FM Demodulator	
Data Rate	50 bps to 30 Mbps

Bit Synchronizer(s): (Option)

Bit Rate	50 bps to 20 Mbps BPSK 100 bps to 40 Mbps QPSK
Input Codes	NRZ-L,M,S; BI Φ -L,M,S
Output Codes	NRZ-L
Viterbi Decoder (optional)	Rate 1/2 (3/4, 7/8, 1/3 options)
Decrambler	V.35 / V.36 (CCITT/ Intelsat)
Frame Pattern Detector: (Option)	64-bit FSP w/ full Mask and Strategy

Data Outputs:

Analog	
TTL, RS422 (Standard) I, Q, COMBINED	
Ethernet Data Output(Option)	
Encapsulated Data & Quality Output that supports GDP Best Source Selector (Option)	

Control Interface:

RS-232 or IEEE-485 (Standard)	
Ethernet (Option)	

Environment:

Temperature	10°C to 50°C Operational; -40°C to 85°C Storage
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Status Outputs:

Signal Present, Carrier Lock, Bit Synchronization Lock, Viterbi Lock, Frame Lock, Doppler

Ordering Information

091106

4423-00	Basic Unit	OP4423-08	QPSK & OQPSK
OP4423-01	VME Control	OP4423-09	A/UQPSK w/Ambiguity Resolution
OP4423-02	Viterbi (R=1/2, K=7)	OP4423-10	RS-485 Remote Control
OP4423-03	FM Demodulation	OP4423-22	Ethernet Remote Control
OP4423-04	Viterbi (R 3/4, K=7)	OP4423-40	Bit Syncs
OP4423-05	SOQPSK	OP4423-7X	Filters (Selectable BW Filters)
OP4423-07	PM/PSK		

Recognizing that no standard product can meet all the needs of all users, GDP stands ready to provide units tailored to unique applications.

The statements in this data sheet are not intended to create any warranty, expressed or implied. Equipment specifications are subject to change without notice.

300 Welsh Road · Building 3 · Horsham, PA 19044-2294
Phone: 215-657-5270 Fax: 215-657-5273

URL: <http://www.gdp.space.com>
E-mail: gdpinfo@gdp.space.com