

Single Ch Portable Digital RF/IF Receiver

MODEL 4460



KEY FEATURES

- Form Factor: 10.75 x 14 x 1.75 inch chassis (1U) Tabletop Unit
- Single Channel Compact Unit
- Powered from Laptop power supply or laptop external battery
- Wide RF Frequency Coverage Including Lower L, Upper L, S, C & CIF Bands
- Wide Dynamic Range: > 90dB with <4 dB noise figure
- Multi-Waveform Demodulation Including: PCM/FM, SOQPSK, BPSK, QPSK, OQPSK, & ARTM Tier 0, 1
- Advanced Noise Mitigation & FEC Including: Viterbi & *LDPC Coding
- Ethernet Outputs Including IRIG 218-10 & 20, IRIG-106 Chapter 10/11*, Chapter 7*
- Encapsulated Data Output for Best Source Selection Including RCC DQE/DQM & GDP DQE
- Separate independent Bit Sync Input

GENERAL DESCRIPTION

The Single Channel Portable Digital RF/IF Receiver is a compact, lightweight solution, housed in a 10.75 x 12 x 1.75-inch chassis. It's powered by a standard laptop power supply or an external battery, making it highly portable. This integrated unit includes an RF Signal Processor, two Demodulators, two Bit Synchronizers, and two Frame Synchronizers, all on a single 6U VME card, offering a cost-effective and flexible solution for diverse communication link scenarios.

The receiver processes 3 RF Bands: S Band (2185 MHz to 2485 MHz), Upper L Band (1700 MHz to 1850 MHz), and Lower L Band (1427 MHz to 1545 MHz), with other frequencies available. It features a fully digital demodulation and bit synchronization process, ensuring precise signal acquisition and tracking.

The unit supports various FEC decoders and includes two programmable frame synchronizers for pattern detection. Data output options include Byte-aligned Ethernet (optional), TTL, or RS422 ports, with support for UDP/IP transport, HDLC/AX.25 data, and IRIG-106 Chapter 10 compatibility. An encapsulated data and data-quality output is available to interface with GDP Best Source Selector products.



* Optional

RELATED PRODUCTS

Receiver	Receiver	RF Recorder	Gateway

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TECHNICAL SPECIFICATIONS

Channel Specs

Input:

RF Frequency:	LL, UL, LS, US, and C Bands - see features on page
Noise Figure:	< 6 dB Max, 4 dB typ.
IF Filters:	Selectable filter bandwidths (Standard set provided)
Dynamic Range:	> 90 dB
Input Impedance:	50 Ohms VSWR < 2:1

Demodulation:

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 20 MHz
Modulation Index:	0.5 to >100%
Deemphasis:	NTSC/PAL

PSK Demodulators:

Types:	1 IF, 2 SC *
Modulation Waveforms:	BPSK, QPSK, OQPSK, AUQPSK *, SOQOSK (ARTM Tier 1)
Locking Threshold:	6 dB Eb/No

PCM/FM Demodulator (ARTM Tier 0):

Data Rate:	10 bps to 10 Mbps– Standard (20 Mbps *)
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Bit Synchronizer(s):

Bit Rate:	50 bps to 10 Mbps PCM/FM & BPSK (20 Mbps *) 100 bps to 20 Mbps QPSK/SOQPSK (40 Mbps *)
Input Codes:	NRZ-L/M/S; Bi0-L/M/S, RNRZ (Other codes available as needed)*
Output Codes:	NRZ-L/M/S; Bi0-L/M/S, RNRZ (Other codes available as needed)*
Decoders*:	Viterbi Rate 1/2, 2/3*, 3/4*, 7/8* ; Reed Solomon*, Concatenated*, LDPC* 1/2, 2/3, 4/5, 7/8
Derandomizer/Descrambler:	IRIG/CCSDS/V.35 / V.36 (CCITT/ Intelsat)

Data Output:

Analog	TTL, RS422 (Standard)
Ethernet Data Output (IRIG 218-10 & 20, IRIG-106 Ch-10*, IRIG Chapter 7 Support*)	
Encapsulated Data & Data Quality that supports GDP* & IRIG (RCC DQE/DQM) Best Source Selector *	

Control Interface:

Ethernet (Standard)	
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Environment:

Temperature:	10°C to 40°C Operational -40°C to 70°C Storage (Extended Temperature Ranges available)
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Dimensions:

10.75 x 14 x 1.75 inch chassis (1U) Tabletop unit

Weight:

~30 Lbs

Status Output:

Signal Level, Freq Offset, BS Lock, BS Eb/No, FEC Lock, FS Lock, Phase Deviation, Composite Lock, AGC, Carrier Lock, Demod Lock, EQ Cntrl, ERO MDO, Code Word Count, Corrected Count, Decode Fail Count

Recognizing that no standard product fits every mission, Delta Telemetry Systems is ready to deliver tailored solutions for your unique application requirements.

Specifications subject to change without notice.

