

Digital RF Receiver (3U)

MODEL 4455



KEY FEATURES

Dual-Channel 4th Gen Receiver with Diversity Combiner

3U Rack-Mountable Chassis, with Extended I/O Configuration & New Modern Browser Based GUI with Touchscreen display

Wide RF Frequency Coverage Including Lower L, Upper L, S, C & CIF (P) Bands

Multi-Waveform Demodulation Including: PCM/FM, SOQPSK, ARTM Tier 0, 1 and optional *ARTM Tier 2, *STC, *BPSK, *QPSK & *OQPSK

Advanced Noise Mitigation & FEC Including: Viterbi, *LDPC Coding, *Reed Solomon, Adaptive Equalization, and Advanced Diversity Combining Functions (AGC & DQ)

Ethernet Outputs Including IRIG 218-10 & 20, IRIG-106 Chapter 10/11*, Chapter 7 Support*

Encapsulated Data Output for Best Source Selection Including RCC DQE/DQM & GDP* DQE

Antenna Tracking & Control Support (AM/AGC/DQ)

* Optional

GENERAL DESCRIPTION

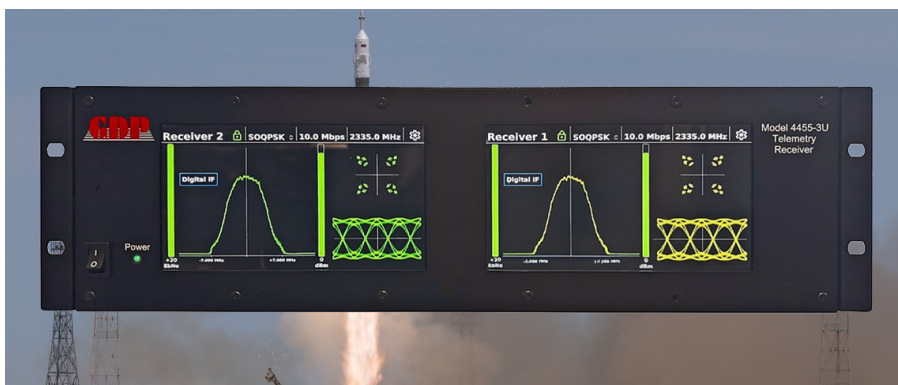
The GDP Model 4455 Digital RF Receiver is a state-of-the-art solution for communications link scenarios, offering a compact, cost-effective 3U rackmount chassis with dual-channel support and diversity combining. Each independent channel can acquire on four RF bands: S Band, L Band, C or P (CIF) Band coverage. Additional multi-band options are available.

Demodulation and baseband bit synchronization are fully digital. The system scans the IF range for carrier and subcarrier signal acquisition. After lock, the receiver maintains synchronization through continuous signal tracking and lock validation.

To enhance performance in noisy and/or congested environments, the 4455 supports Adaptive Equalization (AEQ) to combat multipath, and advanced diversity combining using AGC and Data Quality for optimal link clarity as well as Forward Error Correction (FEC) capability. The 4455 supports a variety of different FEC formats that include Viterbi and optionally LDPC* & Reed Solomon*

Each channel's bit synchronizer includes a programmable frame synchronizer supporting pattern detection. Data & quality outputs are also included compatible with GDP Best Source Selector systems. Both GDP DQE, and RCC DQE/DQM BSS formats are supported.

In addition to data clock outputs the unit also supports direct Ethernet Output modes that include IRIG 218- 2010 & 20020 (TMOIP) as well as optional IRIG Chapter 10/11* Ethernet output formats. Digital PRN pattern generation and received PRN error checking are also supported as well as an IF (70Mhz) modulated simulator output for IF loopback testing.



RELATED PRODUCTS

Antenna	RF Recorder	Gateway	Best Source Selector

Digital RF Receiver

MODEL 4455

TECHNICAL SPECIFICATIONS

Channel Specs

Input:

RF Frequency: LL, UL, LS, US, and C Bands - see features on page

- S-Band 2185 MHz to 2485 MHz (Std)
- UL-Band 1675 MHz to 1850 MHz (Std)
- LL-Band 1427 MHz to 1545 MHz (Std)
- C-Band 4400 MHz to 5250 MHz (Std)
- C/F (P)-Band 100 MHz 1150MHz (Std)

Noise Figure: < 8 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, 1 SC *

Modulation Waveforms: SOQPSK (ARTM Tier 1)-(Std); BPSK*, QPSK*, OQPSK*, AUQPSK *, Locking Threshold: 6 dB Eb/No

PCM/FM Demodulator (ARTM Tier 0): Data Rate: 10 bps to 20 Mbps- Standard

Multi-h CPM (ARTM Tier 2)*: 100Kbps to 40 Mbps

Space Time Code (STC)*: 100Kbps to 40 Mbps

Bit Synchronizer(s):

Bit Rate: 50 bps to 20 Mbps PCM/FM & BPSK

100 bps to 40 Mbps QPSK/SOQPSK

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, 3/4*; 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

Ethernet Data Output (IRIG 218-10 & 20, IRIG-106 Ch-10*, IRIG Chapter 7 Support*)

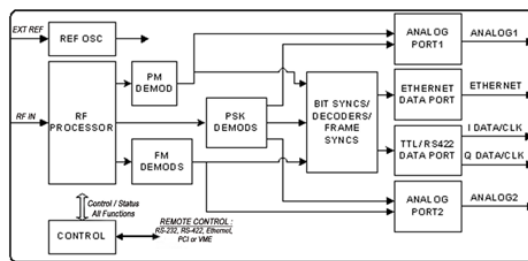
Encapsulated Data & Data Quality that supports GDP* & IRIG (RCC DQE/DQM) Best Source Selector*

Control Interface:

Ethernet (Standard)

Environment:

Temperature 10°C to 50°C Operational; -40°C to 70°C Storage



Typical Channel (CH1, CH 2 & Combined*)

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.