DELTA TELEMETRY SYSTEMS

DATA ACQUISITION

Digital RF Receiver (PCI Card)

MODEL RDM207

KEY FEATURES

- Form Factor: PCI Single Slot
- Single Channel Card
- RF Frequencies:
  S-Band 2185 MHz to 2485 MHz (Std)
  UL-Band 1675 MHz to 1850 MHz (Std)
  LL-Band 1427 MHz to 1545 MHz (Std)
  P-Band (CIF) 100 MHz 1150MHz
  C-Band 4400 MHz to 5250 MHz
  IF 100Hz to 80 MHz*
  Other Frequencies Available*
- Wide Dynamic Range: > 80dB with <8 dB noise figure
- 3 Demodulators: PCM / PSK*, 1 RF, 2 SCs* (Per Channel)
- Multi-Waveform Demodulation Including: PCM/FM, SOQPSK, BPSK, QPSK, OQPSK, & ARTM Tier 0, 1
- Forward Error Correction (FEC)
  2 Viterbi Decoders R=1/2, 2/3*, 3/4*, 7/8*
  LDPC- IRIG/CCSDS* R=1/2, 2/3*, 4/5*, 7/8*
- Encapsulated Data Output for Best Source Selection Including RCC DQE/DQM & GDP DQE
- Antena Tracking Control

* Optional

GENERAL DESCRIPTION

The RDM207 (PCI) Single Channel Digital RF/IF Receiver is an integrated solution consisting of an RF Signal Processor, 2 Demodulators, 2 Bit Synchronizers, and 2 Frame Synchronizers (Pattern Detectors) contained on a single slot PCI card. This state-of-the-art module provides a compact, cost-competitive, flexible solution to a wide variety of communications link scenarios.

The Model 4426 processes 3 RF Bands: S Band, 2185 MHz to 2485 MHz; Upper L Band, 1700 MHz to 1850 MHz; Lower L Band 1427 MHz to 1545 MHz. Additional RF bands are available (i.e., IF 1KHz to 180MHz, P-Band 100 MHz to 1100 MHz, C-Band ...). Multi-band options are also available.

The demodulation process, as well as the 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 optional FEC decoders are available, and two fully programmable frame synchronizers (pattern detection) are provided with the bit synchronizer. Bit Synchronizer data is output via TTL and RS-422 outputs from the card.

RELATED PRODUCTS

Antenna	Receiver	RF Recorder	Gateway
			

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TECHNICAL SPECIFICATIONS

Channel Specs

Input:

RF Frequency:	2185 MHz to 2485 MHz & 1700 MHz to 1850 MHz & 1427 MHz to 1545 MHz or 100 MHz to 1100 MHz* 4400 MHZ to 5250 MHz* (Other Freq's Available)
Noise Figure:	< 10 dB
IF Filters:	4 selectable filter bandwidths
Dynamic Range:	> 80 dB
Input Impedance:	50 Ohms

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 15 MHz Modulation Index: 0 to 2.8 Radians
PSK Demodulators:	
Types	1 IF, 2 SC*
Modulation Waveforms	BPSK, QPSK, OQPSK, UQPSK *, AQPSK *, GMSK *, SOQOSK, ARTM Tier 0/1*
PCM/FM Demodulator:	Data Rate: 10 bps to 10 Mbps – Standard (20 Mbps *)

Bit Synchronizer(s):

Bit Rate:	50 bps to 10 Mbps PCM/FM & BPSK (20 Mbps *) 100 bps to 20 Mbps QPSK (40 Mbps *)
Input Codes:	NRZ-L,M,S; RNRZ-L, BIF-L,M,S
Output Codes:	NRZ-L,M,S, RNRZ-L
Viterbi Decoders:	Rate 1/2, 1/3*, 3/4*, 7/8*
Descrambler:	V.35 /V.36 (CCITT/ Intelsat)

Data Output:

Analog

TTL, RS422 (Standard)

Ethernet Data Output (IRIG-106 Ch-10, HDLC/AX.25)*

Encapsulated Data & Data Quality that supports GDP Best Source Selector*

Control Interface:

PCI Bus (Standard), Ethernet*

Environment:

Card Size:	PCI Single Slot
Temperature:	10°C to 40°C Operational
	-40°C to 70°C Storage (Extended Temperature Ranges available)

Status Output:

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

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.

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