

# Model RDM207

## DIGITAL RF RECEIVER (PCI)



### KEY FEATURES

- Form Factor
  - PCI Single Slot
- Diversity Combiner\*: Pre-D & Post D\*
- Noise Figure
  - < 10 dB
- Wide Dynamic Range
  - > 80 dB
- RF/IF Frequencies
  - 2185 MHz to 2485 MHz
  - 1700 MHz to 1850 MHz
  - 1427 MHz to 1545 MHz
  - 100 MHz to 1100 MHz\*
  - 1KHz to 180MHz\*
  - 4400 MHz to 5500 MHz\*
  - Other Frequencies Available
- 4 Selectable IF Bandwidths
- Multi-Waveform Demodulation
  - BPSK, QPSK, OQPSK
  - UQPSK\*, AQPSK\*
  - SOQPSK
  - Analog FM & PCM/FM
  - GMSK\*
  - ARTM\* Tier 0,1 & 2\*
- 3 Demodulators
  - PCM / PSK\*
  - 1 RF, 2 SCs\* (Per Channel)
- 2 Bit Synchronizers
  - 50 bps to 10 Mbps PCM/FM (20 Mbps\*)
  - 50 bps to 10 Mbps BPSK (20 Mbps\*)
  - 50 bps to 20 Mbps QPSK (40 Mbps\*)
  - 100 bps to 20 Mbps QPSK (40 Mbps\*)
  - 2 Viterbi Decoders\*
    - R=1/2, 1/3\*, 2/3\*, 3/4\*, 5/6\*, 7/8\*
  - Reed-Solomon\*
  - LDPC\*
  - HDLC / AX.25 (e.g. CUBSAT)\*
- 3 Frame Sync's per Channel \*(Pattern Detectors)
- Byte Aligned Ethernet Data Output\*
- Best Source Selector Compatible Output\*
- Chapter 10 Output\*
- Chapter 7 Decoding\*
- Tracking Antenna Control Support
  - Envelope / Coherent AM\*
  - SNR\*
- IRIG-B\*
  - Input (Time Tag Ethernet Data Out)
- Remote Control
  - PCI Bus, Ethernet\*

\* OPTIONAL Features

### 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.

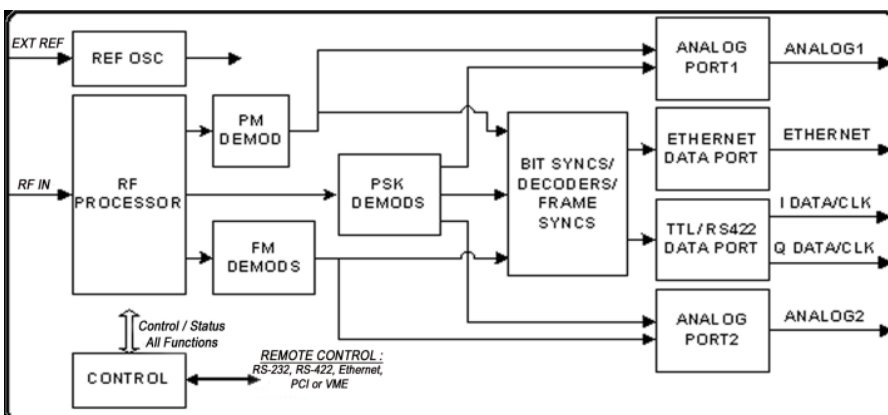
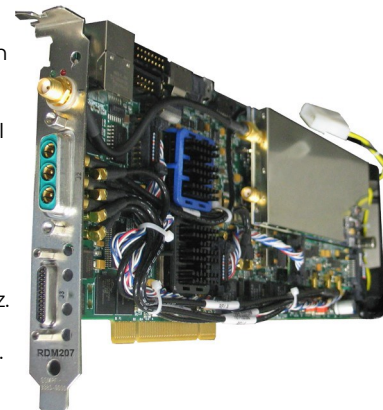
A variety of optional FEC decoders are available and two fully programmable frame synchronizers (pattern detection) are provided with the bit synchronizer option.

The Bit Synchronizer data is output via TTL and RS-422 outputs.

The unit supports an optional Ethernet output interface by which frame synchronized byte aligned data can be transported. UDP/IP transport is provided for raw data. IRIG-106 Chapter 10 compatible output is also available.

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

your favorite Analysis package or our Acroamatics Decoms or MD3500 Network recorder simultaneously. IRIG 218 can also be accommodated directly. UDP/



Typical Channel (CH 1, CH 2 & Combined\*)

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### GENERAL SPECIFICATIONS

#### Inputs

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 Selectable filter bandwidths (Standard set provided)

Dynamic Range 4 selectable filter bandwidths

Dynamic Range > 80 dB

Input Impedance 50 ohms

VSWR < 2:1

#### Demodulation

IF Acquisition / Tracking Range  $\pm 255$  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\*

Locking Threshold 6 dB Eb/No

PCM/FM Demodulator

• Data Rate 1 kHz to 10Mbps (20+ Mbps \*)

#### Bit Synchronizer(s)

Bit Rate 50 bps to 10 Mbps PCM/FM & BPSK (20 Mbps \*)

100 bps to 20 Mbps QPSK/SOQPSK (40 Mbps \*)

NRZ-L,M,S; RNRZ-L, BIF-L,M,S

NRZ-L,M,S, RNRZ-L

Viterbi Decoder 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 218, IRIG-106 Ch-10\*, HDLC/AX.25\*)

Encapsulated 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 85°C Storage

#### Status Output

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

## ORDERING INFORMATION

RDM207-00 Basic Unit (XX-02=VME; 20=PCI)

OPRDM207-01 Bus Control

OPRDM207-02 Viterbi (R=1/2)

OPRDM207-03 FM Demodulation

OPRDM207-04 Viterbi (R 3/4)

OPRDM207-05 SOQPSK

OPRDM207-07 PM/PSK

OPRDM207-08 GMSK

OPRDM207-09 A/UQPSK w / Ambiguity Resolution

OPRDM207-30 AM/AGC Antenna Tracking

OPRDM207-41 Extended Bit Rate (20 Mbps BPSK, 40 Mbps QPSK)

OPRDM207-45 Ethernet Data Output (Byte Aligned)

OPRDM207-61 IRIG B Time Input

OPRDM207-65 Ethernet Chapter 10 Output

OPRDM207-8X Special Frequency Bands

OPRDM207-93 Reed Solomon

OPRDM207-2XX LDPC

OPRDM207-VI Remote Control VI Software

## WHY GDP

Recognizing that no standard product can meet all the needs of all users, GDP stands ready to provide units tailored to unique applications. Over fifty years of experience, far-ranging expertise, excellent products, and outstanding support make GDP not just a telemetry system supplier, but a partner you can rely on to meet your needs.

[Inquire today to learn more .](#)

