



Digital RF Receiver

RDM025 / RDM205

Features

- ◆ Form Factor
 - 6U VME Single Slot or
 - PCI Single Slot
- ◆ Noise Figure
 - < 10 dB
- ◆ Wide Dynamic Range
 - > 90 dB
- ◆ RF Frequencies
 - 2185 MHz to 2485 MHz
 - 1700 MHz to 1850 MHz
 - 1427 MHz to 1545 MHz
- ◆ 4 Selectable IF Bandwidths
- ◆ Multi-Waveform Demodulation
 - Analog / Digital PM
 - PCM/FM
 - BPSK
 - QPSK
 - SQPSK
 - UQPSK
 - AQPSK
 - SOQPSK (ARTM Tier 1) *
 - Analog FM *
- ◆ 3 Demodulators
 - PM / PSK *
 - 1 IF, 2 SCs *
- ◆ 2 Bit Synchronizers
 - 50 bps to 20 Mbps BPSK
 - 50 bps to 40 Mbps QPSK
 - Viterbi Decoders *
 - Reed-Solomon *
- ◆ 2 Frame Syncs
- ◆ Byte Aligned Ethernet Data Output
- ◆ Remote Control
 - VME/PCI Bus *
 - RS232 or RS485 *
 - Ethernet *

General Description

The RDM025 (VME) / RDM205 (PCI) Digital RF Receiver is an integrated solution consisting of an RF Signal Processor, 3 Demodulators, 2 Bit Synchronizers and 2 Frame Synchronizers contained on a single slot 6U VME/PCI card. Available in both VME and PCI form factors, this state-of-the-art module provides a compact, cost competitive, flexible solution to a wide variety of communications link scenarios.

The RDM 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. Depending upon specific user requirements, a choice of 4 IF filters are available.



RDM205

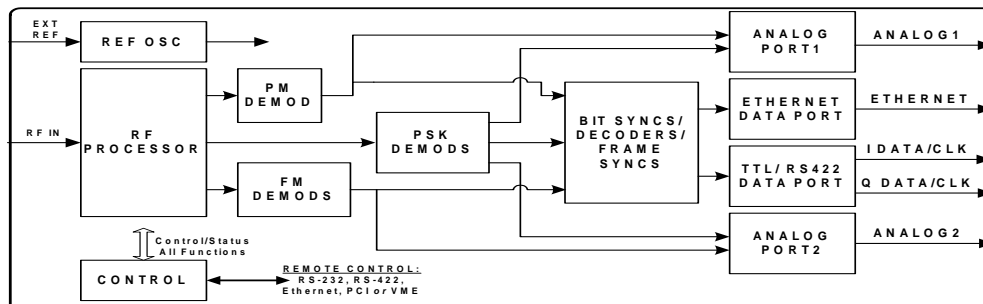


RDM025

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

Data is output via Byte aligned Ethernet, TTL or RS422 ports.





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SPECIFICATIONS

Input:

RF Frequency	2185 MHz to 2485 MHz, 1700 MHz to 1850 MHz, and 1427 MHz to 1545 MHz
Noise Figure	< 10 dB
IF Filters	4 selectable filter bandwidths
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 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	1 kHz 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; BIΦ-L,M,S
Output Codes	NRZ-L
Viterbi Decoder (optional)	Rate 1/3, 1/2, 3/4, 7/8

Data Output

TTL, RS422 (Standard)
Byte Aligned Ethernet (Option)

Control Interface:

RS-232 or IEEE-485 (Standard)
PCI/VME Bus (Option)
Ethernet (Option)

Environment:

Card Size	PCI/VME, Single Slot
Temperature	10°C to 50°C Operational; -40°C to 85°C Storage

Status Output:

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

Ordering Information

060206

RDMXX5-00	Basic Unit (XX—02=VME; 20=PCI)	OPRDMXX5-07	PM/PSK
OPRDMXX5-01	Bus Control	OPRDMXX5-10	RS-485 Remote Control
OPRDMXX5-02	Viterbi (R 1/2)	OPRDMXX5-11	Ethernet Control
OPRDMXX5-03	FM Demodulation	OPRDMXX5-40	Bit Syncs w/RS422 Outputs
OPRDMXX5-04	Viterbi (R 3/4)	OPRDMXX5-41	Bit Syncs w/TTL Outputs
OPRDMXX5-05	SOQPSK	OPRDMXX5-7X	Filters (Selectable IF Filters)
OPRDMXX5-06	Analog PM (Main Carrier)	OPRDMXX5-9X	Consult Factory

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.

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