

Features

- Form Factor
 - 6U VME Single Slot or
 - PCI Single Slot
 - 2U Rack-Mountable Chassis
- Diversity Combiner*: Pre-D & Post D*
- Noise Figure
 - < 10 dB
- Wide Dynamic Range
 - > 80 dB
- RF Frequencies
 - 2185 MHz to 2485 MHz
 - 1700 MHz to 1850 MHz
 - 1427 MHz to 1545 MHz
 - 180 MHz to 1100 MHz*
 - 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* (Per Channel)
 - 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*
 - HDLC / AX.25 (e.g. CUBSAT)
- 3 Frame Sync's per Channel* (Pattern Detectors)
- Byte Aligned Ethernet Data Output*
- Best Source Selector Compatible Output*
- Tracking Antenna Control Support
 - Envelope / Coherent AM*
 - SNR*
- IRIG-B*
 - Input, Output
- Remote Control
 - VME/PCI Bus*
 - ◆ RS232 or RS485*
 - ◆ Ethernet*

* Optional

General Description

The RDM027 (VME) / RDM207 (PCI) Single Channel Digital RF 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 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 (other frequencies available). Depending upon specific user requirements, a choice of 4 IF filters are 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 FEC decoders are available and two fully programmable frame synchronizers are included for pattern detection.

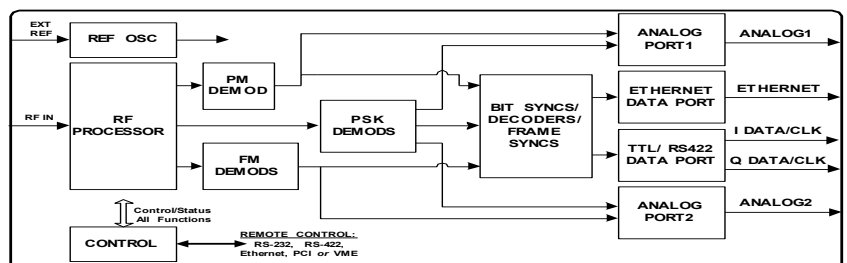
Data is output via Byte aligned Ethernet (optional), TTL or RS422 ports.

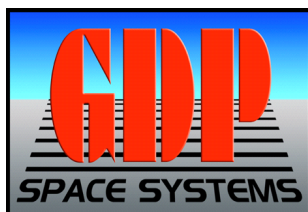


RDM027



RDM207





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	> 80 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 *, GMSK *, SOQSK ARTM Tier 1 (Optional)
	Locking Threshold	6 dB Eb/No
	PCM/FM Demodulator (Opt)	
	Data Rate	1 kHz to 20 Mbps (30 Mbps *)
Bit Synchronizer(s): (Option)	Bit Rate	50 bps to 10 Mbps BPSK (20 Mbps *) 100 bps to 20 Mbps QPSK (40 Mbps *)
	Input Codes	NRZ-L,M,S; BIF-L,M,S
	Output Codes	NRZ-L
	Viterbi Decoder (optional)	Rate 1/2, 1/3, 3/4, 7/8 ...options
	Descrambler	V.35 / V.36 (CCITT/ Intelsat)
Data Output	TTL, RS422 (Standard)	
	Frame Sync'ed Byte Aligned Ethernet Data Output (Option)	
Control Interface:	Ethernet (Standard); RS-232 *; PCI/VME Bus *	
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	

* Optional

Ordering Information

RDMXX7-00	Basic Unit (XX-02=VME; 20=PCI)	OPRDMXX7-40	Bit Syncs w/ Frame Sync (Pattern Detection)
OPRDMXX7-01	Bus Control	OPRDMXX7-41	Extended Bit Rate (20 Mbps BPSK, 40 Mbps QPSK)
OPRDMXX7-02	Viterbi (R=1/2)	OPRDMXX7-45	Ethernet Data Output (Byte Aligned)
OPRDMXX7-03	FM Demodulation	OPRDMXX7-61	IRIG B Time Input
OPRDMXX7-04	Viterbi (R 3/4)	OPRDMXX7-65	Ethernet Chapter 10 Output
OPRDMXX7-05	SOQPSK	OPRDMXX7-7X	Filters (Selectable BW Filters)
OPRDMXX7-07	PM/PSK	OPRDMXX7-8X	Special Frequency Bands
OPRDMXX7-08	GMSK	OPRDMXX7-93	Reed Solomon
OPRDMXX7-09	A/UQPSK w / Ambiguity Resolution	OPRDMXX7-VI	Remote Control VI Software
OPRDMXX7-30	AM/AGC Antenna Tracking		
RDM021-00	Basic VME Unit		
RDM021-00	Basic PCI Unit		
OPRDMxxx-01	VME/PCI Control		

* 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. Specifications are subject to change without notice.