



Digital Receiver

RDM020

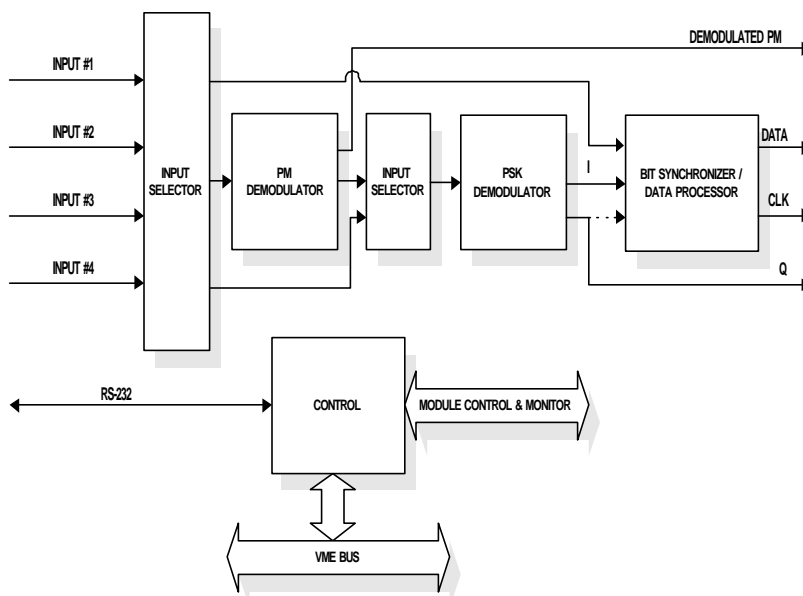
Features

- ◆ VME Format
 - 6U Single Slot
- ◆ 4 Input Ports
 - 90 dB Isolation
 - 65 dB Dynamic Range
- ◆ Selectable IF
 - DC to 160 MHz
- ◆ Programmable Acquisition & Tracking Range
- ◆ Multi-Waveform Demodulation
 - Analog / Digital PM
 - BPSK
 - QPSK
 - SQPSK
 - UQPSK
 - AQPSK
- ◆ Dual Demodulators
 - PM
 - PSK
 - PM / PSK
- ◆ Integrated Bit Synchronizer
- ◆ Remote Control
 - RS232

General Description

The RDM020 Digital Receiver is an integrated solution consisting of an IF Signal Processor, two Demodulators and a Bit Synchronizer contained on a single slot 6U VME card. This state-of-the-art module provides a compact, cost competitive, flexible solution to a wide variety of communications link scenarios.

Up to four IF input signals may be applied to the input selector of the RDM020. The input signal selector multiplexer provides 90 dB of channel isolation thus insuring that only the signal of interest is applied to the IF signal processor. Eight intermediate frequency inputs are program selectable within the range of 1.024 MHz to 75 MHz. Depending upon specific user requirements, a band-pass or low-pass filter may be installed on the module.



The demodulation process as well as baseband bit synchronization process is totally performed in the digital domain. Signal acquisition is performed by scanning the IF within the configured acquisition band (± 500 Hz) centered about the selected IF. PM / PSK waveforms are additionally scanned for acquisition at the subcarrier frequency. Once signal acquisition is complete, synchronized signal tracking is performed whereby continuous validation of the lock state is maintained.



Digital Receiver

RDM020

SPECIFICATIONS

Input:

Input Ports	4
IF Center Frequency	1.024, 1.25, 1.7, 3, 10.7, 36, 70, or 75 MHz (Specify at time of order)
Input Bandwidth (3dB)	8 MHz
Dynamic Range	15 dBm to -20 dBm
Input Impedance	50 ohms
VSWR	< 1.5:1

Demodulation:

IF Acquisition / Tracking Range	± 255 kHz
Symbol Rate	2.0 kbps to 5.0 Mbps
Loop Bandwidth	0.5% of Baseband Waveform Bandwidth
PM Demodulator	
Frequency Response	100 Hz to 6 MHz
Modulation Index	0 to 2 Radians
Locking Threshold	-13 dB CNR
Residual Phase Error	< 3 ⁰ RMS
PSK Demodulator	
Modulation Waveforms	BPSK, QPSK, OQPSK, UQPSK
Locking Threshold	6 dB Eb/No
Subcarrier Frequency	3, 1.7, 1.25, or 1.024 MHz

Bit Synchronizer:

Bit Rate	2.0 kbps to 5.0 Mbps in 100 bps steps
Input Codes	NRZ-L,M,S; BIΦ-L,M,S (Option)
Output Codes	NRZ-L, BIΦ-M (Option)

Status Output:

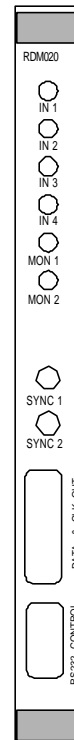
- Self-Test
- Signal Present
- Carrier Lock
- Bit Synchronization Lock

Control Interface:

- RS-232
- VME Bus (Option)

Environment:

Card Size	6U, Single Slot
Temperature	10 ⁰ C to 50 ⁰ C Operational -40 ⁰ C to 70 ⁰ C Storage
Humidity	0 to 90% RH Non Condensing
Altitude	0 to 10,000 Feet



021118

Ordering Information

RDM020-00	Basic Unit	OPRDM020-12	Viterbi Decoder & Descrambling
OPRDM020-01	VME Control	OPRDM020-13	Dual Viterbi Decoder
OPRDM020-11	I/Q Phasing & PCM Decoding		

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 specific actions are subject to change without notice.

300 Welsh Road Building 3 Horsham, PA 19044-2273
Phone: 215-657-5242 Fax: 215-657-5273

URL: <http://www.gdp.space.com>
E-mail: gdpinfo@gdp.space.com