

# Digital IF Receiver

## RDM023 / RDM203

### Features

- ◆ Form Factor
  - 6U VME Single Slot or
  - PCI Single Slot
- ◆ 2 Input Ports
- ◆ Tunable Center Frequency Bands
  - 1 kHz to 180 MHz or
  - 200 MHz to 450 MHz or
  - 550 MHz to 1100 MHz
- ◆ Wide Dynamic Range
  - > 90 dB
- ◆ 4 Selectable Input Bandwidths
- ◆ Programmable Acquisition & Tracking Range
- ◆ 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 20Mbps BPSK
  - 50 bps to 40Mbps QPSK
  - Viterbi Decoders
  - Reed-Solomon \*
- ◆ 2 Frame Syncs
- ◆ Byte Aligned Ethernet Data Output
- ◆ Control
  - VME/PCI Bus
  - RS232 or RS485
  - Ethernet

### General Description

The RDM023 (VME) / RDM203 (PCI) Digital IF Receiver is an integrated solution consisting of an IF 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 selects one of two inputs for processing.

The input frequencies within the factory-configured

Tunable Center Frequency Band are demodulated. Depending upon specific user requirements, a choice of 4 input filters are

available. 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 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.

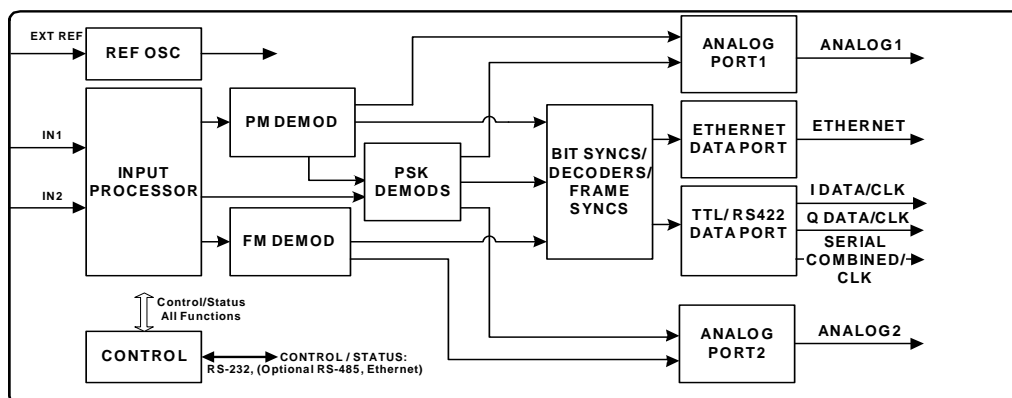
In addition to the Analog outputs, data is output via Byte aligned Ethernet and TTL or RS422 data ports.

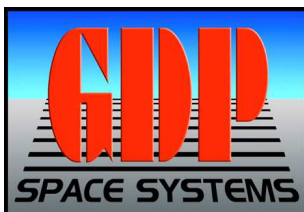


RDM203



RDM023





# Digital IF Receiver

## ***RDM023 / RDM203***

### **SPECIFICATIONS**

#### **Input:**

Input Ports	2
Center Frequency	1 kHz to 180 MHz or 200 MHz to 450 MHz or 550 MHz to 1100 MHz
Input Filters	4 selectable filter bandwidths
Dynamic Range	> 90 dB
Input Impedance	50 ohms
VSWR	< 1.5:1

#### **Demodulator(s):**

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 (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; BI $\Phi$ -L,M,S
Output Codes	NRZ-L
Viterbi Decoder (optional)	Rate 1/3, 1/2, 3/4, 7/8

#### **Data Outputs:**

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 Outputs:**

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

### **Ordering Information**

081006

RDMXX3-00	Basic Unit (XX3= 023VME; 203 PCI	OPRDMXX3-07	PM/PSK
OPRDMXX3-01	VME Control	OPRDMXX3-10	RS-485 Remote Control
OPRDMXX3-02	Viterbi (R=1/2, K=7)	OPRDMXX3-11	Ethernet Control
OPRDMXX3-03	FM Demodulation	OPRDMXX3-40	Bit Syncs w/RS422 Outputs
OPRDMXX3-04	Viterbi (R 3/4, K=7)	OPRDMXX3-41	Bit Syncs w/TTL Outputs
OPRDMXX3-05	SOQPSK	OPRDMXX3-7X	Filters (Selectable Input Filters)
OPRDMXX3-06	Analog PM (Main Carrier)	OPRDMXX3-8X	Frequency Band

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.