Omnistar GX2-RX1000B

Forward Path Receiver

The OmniStar GX2-RX1000B Forward Path Receiver offers a greater operational bandwidth while continuing the OmniStar legacy of superior reliability and performance.

The Omnistar GX2 forward path receiver is designed for headend and hub applications using 1310 or 1550 nm wavelengths. Gain and slope controls are provided to easily accommodate varying link budgets, as well as headend splitting and cabling needs. The GX2-RX1000B provides a high-density solution for high bandwidth downstream optical transport. These receivers introduce a new found intelligence into traditional headend equipment. The hot-swappable modules with unique embedded features, like Quick-Swap Module Configuration, maximize in-service time by eliminating the need for manual configuration. The adjustable features and high RF gain of these receivers, coupled with the full complement of other OmniStar GX2 application modules, provide extreme flexibility for network design and fiber link optimization.

GX2-RX1000B Benefits

- High Module Density — Up to 16 receiver modules in a four rack-unit housing.
- High Performance — An integrated low-noise preamp and high-performance postamp allows a high RF output level and exceptional distortion performance.
- Quick-Swap Capability — Replacement modules are recognized and updated with settings prestored by the Control Module.
- Flexibility — An input range from –9 to +3 dBm and variable gain and slope controls accommodate various system architectures.
- Plug-n-Play — Application modules with blind-mate RF connectors in the rear.
- Energy Efficient — Designed with advanced integrated circuits for low power consumption.

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OmniStar GX2-RX1000B Forward Path Receiver

Product Description

The GX2-RX1000B is a forward path optical receiver module for the OmniStar® GX2 optical broadband transmission platform. It occupies one slot in the GX2-HSG universal shelf. The optical input connector is located on the front of the module for easy cleaning and installation. The standard connector type is SC/APC. An E2000 connector is also available. The dual fans on each module are field-replaceable, and the fan current is monitored to provide operational status.

Both RF gain and slope can be manually adjusted. Gain control allows the user to adjust the RF output level for customized C/N and distortion performance based on channel loading and system requirements. The slope control is designed to compensate for the forward link slope and cable length that might follow the GX2-RX1000B within the headend or hub area. The 0 to +3 dB slope control range can compensate for up to approximately 50 feet of RG59 headend coaxial cable.

Module Features

The front panel RF test point directly monitors the RF output and is convenient for setup and maintenance of the receiver. A blind-mate RF output connector on the rear of the module allows modules to be hot-swapped without disconnecting cables from the back panel of the housing. To provide path and equipment redundancy, the GX2-RX1000B is designed to interface with both the OmniStar GX2 RF Switch and the Optical Switch. Firmware is downloadable and can be upgraded while the module remains in operation. No hardware changes are needed.

Intelligence

Each OmniStar GX2 module utilizes a powerful microprocessor, which allows sophisticated control functions along with high integration; this single-chip design contains flash memory, random access memory, and analog/digital converters. Manufacturing test data and all specific module information (i.e., firmware, bitmaps, menu structure, etc.) are stored in the non-volatile memory.

Communications

Several communication methods are available for real-time system monitoring and control. A tri-colored LED on each module indicates general operating status. The optional shelf door unit with display provides monitoring and control with an alphanumeric display and simple push button navigation. Finally, a PC interface is available through an Ethernet port on the front of the control module. Using a standard Web browser, the graphical user interface provides a point-and-click method of monitoring and controlling the shelf. For higher-level management, the OmniStar GX2 can be easily connected to a remote network management system using the standard Ethernet SNMP interface.

Estimated Receiver Output Levels

Received Optical Input Level Range @ 1310 nm (dBm)	RF Output Level @ 870 MHz (dBmV)
–9	–1.8 – 8.2
–8	0.2 – 10.2
–7	2.2 – 12.2
–6	4.2 – 14.2
–5	6.2 – 16.2
–4	8.2 – 18.2
–3	10.2 – 20.2
–2	12.2 – 22.2
–1	14.2 – 24.2
0	16.2 – 26.2
+1	18.2 – 28.2
+2	20.2 – 30.2
+3	22.2 – 32.2

STO	–85 dBc Max. (47 – 1000 MHz @ 0 dBm Optical Input Level 2 signals @ 20% OMI ea)
SSO	–75 dBc Max. (47 – 870 MHz @ 0 dBm Optical Input Level, 2 signals @ 20% OMI ea))

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Specifications

OPTICAL	
Optical Wavelength	1290 – 1600 nm
Optical Input Power	–9 to +3 dBm
Equivalent Input Noise Current	9 pA/ Hz Max. @ Min. atten. 0 dBm input
Optical Return Loss	40 dB Min.
Optical Connector Types	SC/APC or E2000 with optical safety shutter

RF	
Operational Bandwidth	47 – 1000 MHz
Gain	21 dB Min. (47 – 870 MHz); 20 dB Min. (870 – 1000 MHz) (set for response, referred to standard receiver calibration)
Gain Control Range	10 dB
Slope Control Range	0 to +3 dB
RF Output Level	+26 dBmV per channel, 79 analog channels @ 0 dBm optical input level @ 4% OMI per channel, at full gain
RF Flatness	2.0 dB p-P Max. (47 – 750 MHz); 2.2 dB p-v Max. (47 – 870 MHz); 2.5 dB p-P Max. (47 – 1000 MHz); at 0 dB slope over gain range
RF Output Test Point	-20 +/-0.5 dB Relative to RF Output Port
RF Output Impedance	75 Ohms
RF Output Return Loss	13 dB Min. (47 – 1000 MHz) over gain and slope range
RF Connector Types	
Input	F-type (using G-to-F adaptor on chassis)
Test points	F-type

GENERAL	
Dimensions	1 in W x 5.9 in H x 15 in D (2.5 cm x 15 cm x 38 cm)
Weight	2.0 lbs. (1 kgs)
Mounting	GX2-HSG* Equipment Shelf
Operating Temperature Range	–20° C to 65° C (-4° F to 149° F)
Storage Temperature Range	–40° C to 80° C (-40° F to 176° F)
Power Consumption	15 Watts Max.
Visual Interface	Tri-Colored Module Status LED
Data/Control Interface	Serial Peripheral Interface (SPI) to control module ±0.5 dB

Model Number	Description
GX2-RX1000B	Forward Path Receiver Module, SC/APC optical connector
GX2-RX1000B/E	Forward Path Receiver Module, E2000 optical connector

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