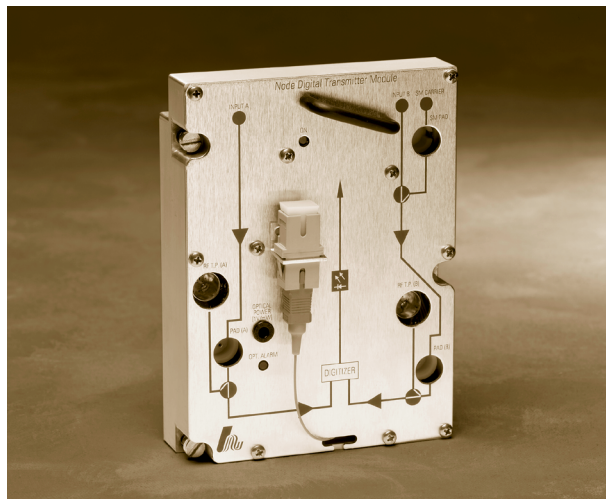


Digital Return Path Transmitter



Product Description

Harmonic's NDT3049 digital return path transmitter allows operators to build complete, two-way communications systems based on a Hybrid Fiber/Coaxial (HFC) CATV network. The NDT3049 transmits two 5-48 MHz analog streams from any of several of Harmonic's PWRBlazer optical nodes to either a headend or a hub location. The transmitter uses two, 12 bit analog to digital (A/D) converters to digitize the two analog inputs. These two data streams are multiplexed together into a single, 2.125 Gbps data stream and are transmitted via a digital, cooled, isolated Distributed Feedback laser that is available at eight wavelengths on the ITU wavelength grid.

The NDT3049 is used in conjunction with the Harmonic RDR family of digital receivers. The RF input frequency range of 5-48 MHz is DOCSIS-compliant.

NDT3049:

- 1550-nm DWDM laser transmitter at one of 8 wavelengths [200-GHz (1.6-nm) spacing]
- Two analog input channels, 5-48 MHz each
- +3 dBm average optical output from the laser
- 2.125 Gbps line rate at the fiber output
- RF test point for setting the correct plug-in pad (one for each input)
- Plug-in pad for setting the correct drive level to the Analog-to-Digital converter
- Status monitoring of laser current, laser power, and laser temperature

Advantages

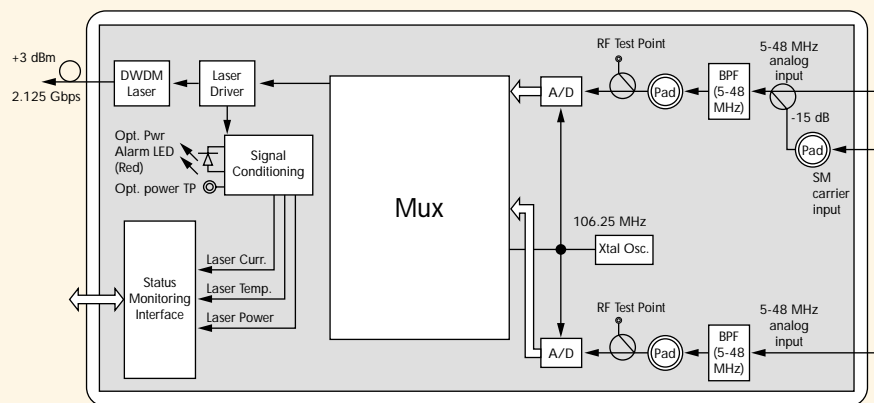
The use of digital return path in a network offers the operator several advantages for expanding network services and increasing system reliability:

- The performance of a digital return transmission system is independent of link loss over the operating range of the receiver. This allows digital links to have outstanding performance over very long links.
- Offers increased system reliability and reduced operation costs from increased network segmentation

Applications

- High-speed internet communications
- Pay-per-view
- Video-on-demand
- Telephony
- Security
- Alternative access
- Local origination
- Direct customer feeds

Standard Configuration



Laser Type

NDT3049: Isolated, cooled DFB

Optical Output

Output Power: $+3 \pm 0.25$ dBm

Wavelength:

NDT 3049-W01: 1549.32 nm

NDT 3049-W02: 1550.92 nm

NDT 3049-W03: 1552.52 nm

NDT 3049-W04: 1554.13 nm

NDT 3049-W05: 1555.75 nm

NDT 3049-W06: 1557.36 nm

NDT 3049-W07: 1558.98 nm

NDT 3049-W08: 1560.61 nm

Connector Type:

NDT3049-W0x-AS: SC/APC

NDT3049-W0x-US: SC/UPC

RF Input

Number of analog input channels: 2

Passband: 5-48 MHz

Minimum input return loss: ≥ 16 dB

Nominal input RF level to achieve 38-dB NPR
(noise power ratio)¹: ≥ -65 dBmV/Hz

Dynamic range for 38-dB NPR (noise power ratio): 11 dB

A/D Performance

Number of A/D bits per input channel: 12 bits

Line data rate at laser output: 2.125 Gbps

User Interface

RF test point connectors: GSK male

Optical level test point: 1 V/mW

DC power: Green LED

Optical power alarm: Red LED

Element Monitoring System - NETWatch™/HEM

Laser Current – monitor

Optical Output – monitor

Laser Temperature – monitor

Power Requirements

Maximum power: ≤ 24.5 W

Environmental

Operating temperature range: -40° to $+85^{\circ}\text{C}$

Physical

Dimensions: 5.5"L x 4.0"W x 1.93"H

Weight: 1.4 lbs.

Mounting: "Two-wide" module that fits into several of Harmonic's
PWRBlazer nodes

Notes:

1. With the plug-in pad set to 0dB (i.e. at full gain); A/D operated at 38-dB NPR.