

Optical Node Series (NC)

DT4250N

Digital Return Transceiver, Dual RF Inputs,
Three Bandwidth Ranges




FEATURES

- Operates in 3 RF bandwidth ranges: 5-50 MHz, 5-75 MHz, or 5-100 MHz, (firmware selectable)
- Single channel “1-fer” or dual channel “2-fer” links (user selectable, front panel button)
- Optical transmission at 1310 nm, 1550 nm, 1 of 15 CWDM wavelengths, or 1 of 40 DWDM wavelengths
- Concatenated or point to point applications
- Remote status monitoring
- Hot plug-in/out
- Fully compatible with existing digital return platform
- Designed for NC2000, NC4000, and VH-Series VHub Platforms



PRODUCT OVERVIEW

The ARRIS DT4250 Digital Transceiver is a component of ARRIS’s fifth generation Universal Digital Return Platform. It digitizes either one or two discrete legacy RF return path signals from separate inputs. The module’s optical transmit/receive ports are implemented with plug-in transceivers for ultimate flexibility and affordability. Conforming to the Small Form Factor Pluggable (SFP) Multisource Agreement, these state-of-the-art transceivers are available in a variety of transmit/receive wavelengths, including dedicated 1310 nm and 1550 nm, CWDM (15 wavelengths), and DWDM (40 wavelengths). There are three data rate options of 2.125, 3.1875, or 4.250 Gbps with their selection being dependent upon bandwidth and transceiver configuration.

The DT4250 can support 5-45 MHz, 5-65 MHz, 5-85 MHz up to 5-100 MHz return bandwidths, and a simple upgrade enables the operator to convert any module to a higher return bandwidth, driven by their network needs.



The transceiver can operate in single channel (“1-fer”) or in dual channel/dual segment (“2-fer”) mode, via a simple switch that converts between the two operating modes. In “2-fer” mode, two discrete return channels are independently digitized, with the two data streams being transmitted by an SFP optical transceiver on a single wavelength. At the headend or hub the digital return receiver separates and decodes the two channels and each is routed through a discrete RF return output. This maximizes fiber-efficiency with up to 80 returns on a single fiber. ARRIS’s digital return products enable existing optical nodes to be fully segmented, with each RF input port treated as a discrete network, maximizing the available bandwidth per user, while at the same time conserving the cable operators’ investment in the fiber network.

The DT4250 is designed as a plug-in module for ARRIS NC2000 and NC4000 series Optical Node and VHub Platforms. ARRIS supplies DT4250 transceivers either as part of a fully configured and tested node or as modules that can be installed directly in the field.

SPECIFICATIONS

Characteristics	Specification						
Physical							
Dimensions	4.0" L x 1.8" H x 2.3" W (10.2 cm x 4.6 cm x 5.8 cm)						
Weight	0.8 lbs (0.4 kg)						
	Micro USB port for firmware update and local management						
Environmental							
Operating temperature range	-40° to +85°C (-40° to 185°F)						
Storage temperature range	-40° to +85°C (-40° to 185°F)						
Humidity	5% to 95% non-condensing						
Power Requirement							
Input voltage	24 V _{DC}						
Module power consumption	4 W						
SFP power consumption (max)	2 W						
General							
	Hot plug-in/out						
Optical interface connectors	LC/UPC Duplex on the SFP transceiver						
Optical transmission bit rates	2.125 Gbps, 3.1875, or 4.250 Gbps depending on the configuration						
Number of RF channels	1 or 2 (manually selectable on module)						
Mode selection	Via the on-board push-button on the module						
RF Path and Distortions (each channel)							
Frequency response	± 0.5 dB						
Input return loss, min	16 dB						
Level stability	± 0.5 dB						
RF Path Loading							
	5-50 MHz		5-75 MHz		5-100 MHz		
Operation Mode	“1-fer”	“2-fer”	“1-fer”	“2-fer”	“1-fer” ¹	“2-fer”	“1-fer” (E)
SFP Data Rate (Gbps)	2.125	2.125	2.125	4.250 ²	2.125	4.250	4.250
Isolation between channels, (in dB), (Includes RX)	NA	> 60	NA	> 60	> 55	> 55	NA
Input Nominal dBmV/Hz	-60	-60	-62	-62	-63	-63	-63
	> 47 dB NPR	> 40 dB NPR	> 40 dB NPR	> 40 dB NPR	> 40 dB NPR	> 40 dB NPR	> 40 dB NPR
Dynamic range (in dB)	> 11	> 11	> 11	> 11	> 11	> 11	> 10
	@ 47 dB NPR	@ 40 dB NPR	@ 40 dB NPR	@ 40 dB NPR	@ 40 dB NPR	@ 40 dB NPR	@ 47 dB NPR
Peak NPR (in dB)	54	49	49	49	48	48	52
Optical							
	The optical ports facility of the DT4250x-xx can be populated with a variety of SFP (plug-in) transceivers depending on the network application, supporting 2.125 and 4.250 Gbps data rates. The data rates depend on the configuration and specific RF Range selected. Please contact ARRIS Sales to review the available SFP transceivers and obtain the appropriate data sheets for the required application. Use a 4.250 Gbps SFP for the 3.1875 Gbps data rate.						
LED Indicators							
Operating Mode	N: Normal, or E: Enhanced						
	50, 75, or 99; Upstream bandwidth 5-50, 5-75, or 5-100 MHz						
	1 or 2: Single (“1-fer”) or 2 channel (“2-fer”), user selectable						
SFP Status							
	Tx; Green ON = OK, Off = faulty SFP or unit not powered						
	Rx; Green ON = Signal good, Off = LOS						
	Blinking = excessive BER (Bit Error Rates)						

NOTE:

- 100 MHz operation in 1-fer mode supports 2x single returns but requires a second SFP (2.125 Gbps).
- Use a 4.250 Gbps SFP for the 3.1875 Gbps data rate.



ORDERING INFORMATION

Model Name	Description
DT4250N-50-00	Universal Digital Transceivers supplied with 5-50 MHz and 5-100 MHz firmware pre-loaded
DT4250N-75-00	Universal Digital Transceivers supplied with 5-65 MHz and 5-100 MHz firmware pre-loaded
DT4250E-99-00	Universal Digital Transceivers supplied with Normal and Enhanced 5-100 MHz firmware pre-loaded

NOTE:

SFP modules must be ordered separately. Please contact ARRIS Sales to review the available SFP transceivers and obtain the appropriate data sheets for the required application.

RELATED PRODUCTS

NC2000/NC4000 Nodes	Optical Patch Cords
SFPs	Optical Passives
Fiber Service Cable	Installation Services

Customer Care

Contact Customer Care for product information and sales:

- United States: 866-36-ARRIS
- International: +1-678-473-5656

Note: Specifications are subject to change without notice.

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