

# Optical Node Series (NC)

## DT4600N

204 MHz Digital RF Return Transceiver,  
Dual RF Inputs, Selectable Bandwidth Ranges

## FEATURES

- Partners with Headend Digital Return Receivers to operate in user selectable RF bandwidth ranges: 5–204 MHz (DR3600N) or 5–100 MHz (DR3600N or DR3450N)
- 10 Gbps transmission speeds when using the DR3600N Quad Receiver
- Single channel “1-fer” or dual channel “2-fer” links, user selectable
- Pluggable SFP optical transceiver options on 1310 nm, 1550 nm, 1 of 15 CWDM wavelengths, or 1 of 40 DWDM wavelengths
- Opti-Trace® Local configuration and remote status monitoring
- Hot plug-in/out
- Compatible with current CH3000 digital return platforms
- Designed for NC2000, NC4000, VHub, and UVHub Platforms



## PRODUCT OVERVIEW

The ARRIS DT4600N Digital Transceiver is ARRIS’s sixth generation Universal Digital Return Platform digitizing either one or two independent RF return path signals from separate inputs. The module’s optical transmit/receive port is implemented with a plug-in transceiver conforming to the Small Form Factor Pluggable (SFP) form factor for ultimate flexibility and affordability. These state-of-the-art SFP 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, 4.250, or 10 Gbps with their selection being dependent upon bandwidth and transceiver configuration.

The DT4600N features user selectable operating modes of 5–204 MHz or 5–100 MHz (5–85 MHz) return bandwidths. A companion DR3600N Digital RF Return Receiver is required in the headend for 5–204 MHz operation and a DR3600N or DR3450N is required for 5–100 MHz operation. Either range can be operated as a single channel return link “1-fer” or a dual channel link “2-fer”.

Mode selection is achieved via a simple front panel push button switch. In “2-fer” mode, two discrete return channels are independently digitized with the two data streams being transmitted on a single wavelength by the SFP optical transceiver.

At the headend or hub the digital DR3xxx RF Return Receiver separates and decodes the two channels. Each channel is routed through a discrete RF return output. This maximizes fiber-efficiency with up to 80 returns on a single fiber. ARRIS digital return products enable existing optical nodes to be fully segmented, with each RF input port treated as a discrete return, maximizing the available bandwidth per user while at the same time conserving the cable operators’ investment in the fiber network.

The DT4600N is designed as a plug-in module for ARRIS NC2000 and NC4000 series Optical Node and VHub/UVHub Platforms. ARRIS supplies DT4600N 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			
<b>Physical</b>				
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			
<b>Environmental</b>				
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			
<b>Power Requirement</b>				
Input Voltage	24 V <sub>DC</sub>			
Module Power Consumption	11.2W (excludes SFP)			
SFP Power Consumption, max	2.8 W (TTD4580)			
<b>General</b>				
	Hot plug-in/out			
Optical Interface Connectors	LC/UPC Duplex on the SFP transceiver			
Optical Transmission Bit Rates	2.125 Gbps, 4.250 Gbps, or 10 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			
<b>RF Path and Distortions (Each Channel)</b>				
Frequency Response	± 0.5 dB (5–100 MHz), ± 1 dB (5–204 MHz)			
Slope	0 ± 0.5 dB with DR3600N, +1 ± 0.5 dB 5–100 MHz into DR3450N			
Input Return Loss, min	16 dB			
Level Stability	± 0.5 dB			
<b>RF Path Loading</b>				
	<b>5–100 MHz<sup>1</sup></b>	<b>5–204 MHz<sup>2</sup></b>		
	“1-fer”	“2-fer”	“1-fer” <sup>3</sup>	“2-fer” <sup>3</sup>
SFP Data Rate (Gbps)	2.125	4.250	10.3125	10.3125
Isolation Between Channels (in dB), (Includes Rx)	NA	> 60	NA	> 45
Input Nominal (dBmV/Hz)	-63	-63	-66	-66
	> 40 dB NPR	> 40 dB NPR	> 40 dB NPR	> 40 dB NPR
Dynamic Range (in dB)	> 13	> 11	> 13	> 11
	@ 40 dB NPR	@ 40 dB NPR	@ 40 dB NPR	@ 40 dB NPR
Peak NPR (in dB)	47	47	43	43
<b>Optical</b>				
	The optical ports facility of the DT4600N-204 can be populated with a variety of SFP (plug-in) transceivers depending on the network application supporting 2.125, 4.250, and 10 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.			
<b>LED Indicators</b>				
Operating Mode	N: Normal			
	99 or 204; Upstream bandwidth 5–100 MHz or 5–204 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)			

### NOTES:

- 5–100 MHz operation requires a DR3600N or DR3450N in the headend.
- 5–204 MHz operation requires a DR3600N in the headend.
- 5–204 MHz operation in “1-fer” or “2-fer” mode always requires a 10 Gbps SFP.

## ORDERING INFORMATION

Model Name	Description
DT4600N-200-00	Universal Digital Transceiver supplied with 5–100 MHz and 5–204 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

DR3600N-00	DR3450N
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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