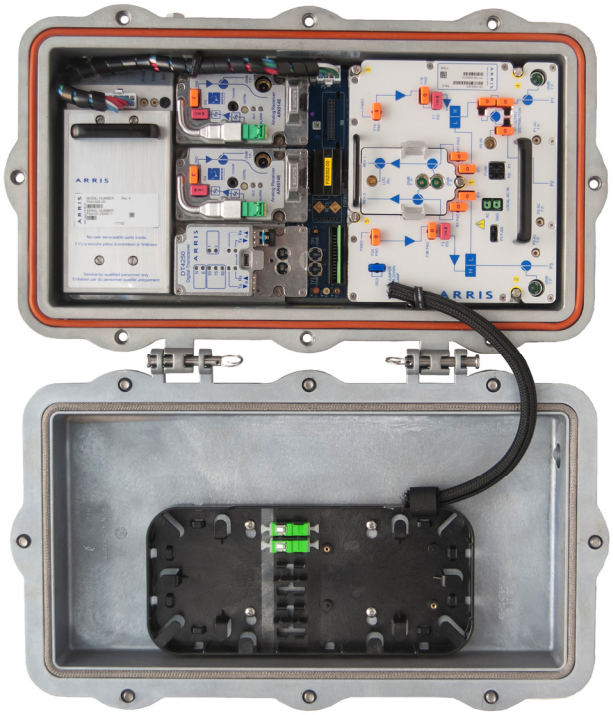
MODEL

OPTICAL NODE SERIES (NC)

NC2000
1.2 GHz SCALABLE NODE PLATFORM FOR HFC & FIBER DEEP APPLICATIONS

FEATURES

- Bottom entry ports for vertical mounting in cabinets
- Multiple powering option: Mains AC 100-240 V, Line power 30-60 or 42-90 V
- High-level outputs: 60 dBmV at 1.2 GHz
- 2x2 Segmentable
- Third RF output port enabled with internal splitter
- Field upgradeable return bandwidth
- Forward path redundancy with RF switching in applications with 1x2 configuration
- Power saving option in 1x1 mode
- Digital return transmitter for optical performance
- Integrated SNMP monitoring and management
- Supports Remote PHY Implementation
- Customer configurable output level and slope
- Expansion slot available for 2nd receiver, optical switch, or EDFA
- Return ingress switch options
- Based on the proven ARRIS NC4000 and NC2000 platforms, utilizing common modules and accessories



PRODUCT OVERVIEW

The 1.2 GHz NC2000 Optical Node Platform is designed to support both HFC and Fiber Deep architectures. The node's modular design features two high RF output levels of up to 60 dBmV at 1.2 GHz and 2x2 segmentation. The bottom entry port enables wall, pedestal, or cabinet mounting as needed.

The NC2000 includes an RF amplifier module and three module slots that can be populated according to network architecture requirements—flexibility being a key feature of this node. Two of these slots are used for a forward receiver and a universal digital return module, with the third slot commonly used for forward path redundancy or segmentation. The node can also be populated with other single-slot ARRIS node modules such as an optical switch or EDFA, optimizing performance and reliability for a wide range of applications. When deployed the Remote Phy module occupies all three available slots, generating the forward signals and providing the return path connectivity for the node.

The platform utilizes the DT4250 universal digital return path transceiver that offers consistently reliable return performance with integrated node monitoring and control. The return bandwidth depends upon the model type, supporting up to 5-50, 5-75, or 5-100 MHz ranges each offering a user selection of a single “1-fer” or dual “2-fer” return modes of operations over a single upstream optical link. The upstream wavelength is determined by plug-in SFP modules offering 1310 nm, 1550 nm, 15x CWDM, or 40x DWDM for ITU 20-59 wavelengths at 2.125, 3.2, or 4.25 Gbps. The data rate required is determined by operating mode.

OPERATION MODE	SFP DATA RATE
5-50 MHz 1-fer 5-50 MHz 2-fer 5-75 MHz 1-fer 5-100 MHz 1-fer	2.125 Gbps
5-75 MHz 2-fer	3.2 Gbps
5-100 MHz 2-fer	4.2 Gbps

The DT4250E-99 offers an E mode with enhanced return performance in 1-fer mode and cascade ability with a 4.125 Gbps SFP.

The 1.2 GHz NC2000 nodes modular design allows simple bandwidth upgrade path, the field replaceable plug-ins enable network upgrades without removing the node.

A reduced power option is introduced, one leg if unused can be de-powered or the node can be supplied with only a single driven output to minimize ongoing operational costs. One output port can be further split through an integrated 50% coupler configured using standard JXP style jumpers to provide up to three outputs.

The NC2000 includes ARRIS’s integrated monitoring and management system eliminating the need for costly status monitoring transponders and the allocation of forward and return bandwidth for the transponder’s communicating frequencies. Optical automatic level control is included with the AR4x14E receiver. The available options include alternate route switching and return ingress switching.

SPECIFICATIONS

Characteristics	Specification				
Physical					
Dimensions	45.9 cm L x 27.9 cm W x 16.0 cm D (18.7" x 11.0" x 6.3")				
Weight	11.5 kg (25.4 lbs)				
Housing ports	1 AC power port, 1 fiber entry port, 3 RF/AC output ports				
RF connectors	5/8" (PG11 adapter optional)				
Protection class	IP67				
Environmental					
Operating Temperature Range	–40° to +60°C (40° to +140°F)				
Storage Temperature Range	–40° to +85°C (–40° to +185°F)				
Relative Humidity	5% to 95% non-condensing				
Powering and Power Passing					
Operating Input voltage					
• PS4102 or PS4102E (from cable powering)	44-95 VAC, PS4102E 30-64 VAC, both 47-63 Hz				
• PS4003 (from AC Mains plug-in)	90-250 VAC (47-63 Hz)				
Max current for RF and AC IN ports	10 A, per port 15 A max combined				
Power consumption, fully loaded					
• Two outputs with single AR and DT	46.9 W				
• One output with single AR and DT	33.7 W				
• AR4x14E	11.5 W				
• DT4250	6 W				
AC test point	TP at AC entry port				
General					
Passband split option	**Return** 5 – 42 MHz 5 – 60 MHz 5 – 65 MHz 5 – 85 MHz 5 – 204 MHz		**Forward** 51 – 1218 MHz 72 – 1218 MHz 85 – 1218 MHz 102 – 1218 MHz 258 – 1218 MHz		
Other Accessories					
RF switch for alternate routing					
RF board for auxiliary input					
Forward Path					
Performance (See Note 1)					
		Mixed Load Analog + QAM/OFDM		**ALL QAM**	
• Channel Loading					
	Up to 278 MHz	Analog			
	284-1218 MHz	256 QAM at -6 dBc		256 QAM at -6 dBc	
• Nominal output level (per port)					
	At 1218 MHz	60 dBmV (120 dBµV)		54 dBmV actual (114 dBµV)	
	At 102 MHz	39 dBmV		33 dBmV actual	
	At 51 MHz	38 dBmV		32 dBmV actual	
• Nominal slope		22 dB linear		22 dB linear	
• Link performance					
	CCN (CNR + CIN)	51 dB			
	CSO	62 dB			
	CTB	64 dB			
	MER	> 38 dB		> 38 dB	
	Pre-FEC BER	< $1x10^{-6}$		< $1x10^{-6}$	
Optical interface	SC/APC connector on optical receiver				
Gain control range	0–22 dB (plug-in attenuators)				
Slope control	5–22 dB in 1 dB steps (plug-in equalizers, typ factory set)				
Flatness	± 1.0 dB				
Return Loss (all ports and test points)	16 dB				
Test points, directional	–20 ± 1 dB				
Return Path					
Passband Supported	5–42 MHz	5–60 MHz	5–65 MHz	5–85 MHz	5–204 MHz
Digital return transmitter	DT4250N-50	DT4250N-75	DT4250N-75	DT4250N-50 DT4250N-75 DT4250E-99	n/a
For return performance please refer to the DT4250 Digital Transceiver Data Sheet.					

NOTE:
1. Performance for HFC application with 0 dBm input to the node's optical receiver from a 1.2 GHz Model AT3312G Analog 1310 nm Transmitter, 27 km fiber.

ORDERING INFORMATION

Order Part Number: NC2000

A typical configuration of the NC2000 series optical node includes the NH2000 housing, one PSxxx power supply, one optical receiver module (AR4x14E) with SC/APC connectors, an OA2224 series 3-port RF amplifier module, and standard equalizers and pads. Also available are additional optional plug-in modules that are described on separate data sheets. These include DT4250N-50 and DT4250N-99 Digital Return Transceivers. For further information please contact your ARRIS sales representative.

RELATED PRODUCTS

Digital Return Transmitter	Optical Patch Cords
SFPs	Optical Passives
Fiber Service Cable	Installation Services

Note: Specifications are subject to change without notice.

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