DATA SHEET

Optical Node Series (NC)

NC2000

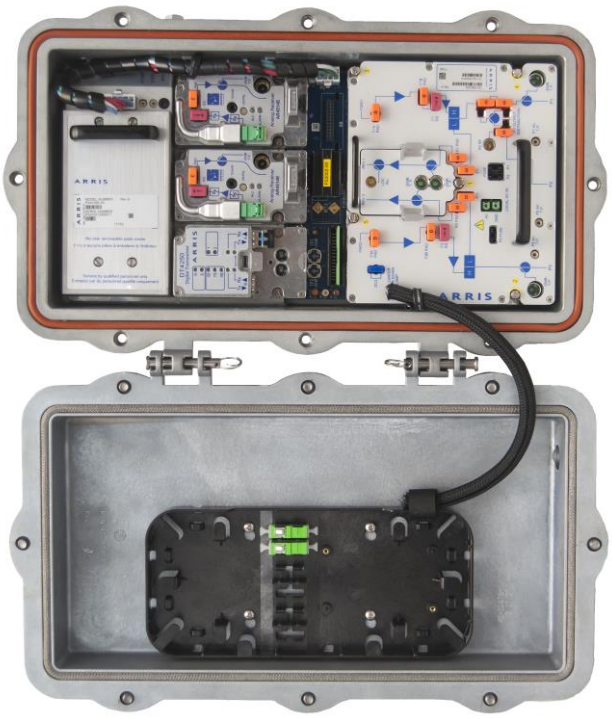
1.2 GHz Scalable Node Platform for HFC and Fiber Deep Applications

FEATURES

- +60 dBmV output at 1.2 GHz featuring bottom entry ports for cabinet, pedestal, and wall mount applications
- Multiple bandsplit options: 5–42 MHz, 5–65 MHz, 5–85 MHz, or 5–204 MHz
- Multiple powering options:
  44–95 V 50/60 Hz quasi-square wave
  30–60 V 50/60 Hz quasi-square wave
  100–240 V, 50/60 Hz – AC Mains
- 1x1, 1x2, and 2x2 configurations
- Analog and digital return transmitter options
- Remote PHY option
- Return ingress switch option
- Forward path redundancy with RF switching in applications with 1x2 configuration
- Based on the proven CommScope NC4000® and NC2000 platforms, utilizing common modules and accessories

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 DT4250 or DT4600 universal digital transceiver or RT4000 analog return transmitter, with the third slot commonly used for forward path redundancy or segmentation. The node can also be populated with other single-slot CommScope 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 DT4250 and DT4600 digital return path transceivers support multiple user-selectable modes of operation: a single return (“1-fer”) or dual independent returns (“2-fer”). The DT4250 supports bandsplits of 5–42 MHz, 5–65 MHz, and 5–85 MHz. The DT4600 supports bandsplits of 5–85 MHz and is required for 5–204 MHz return.

The multi-mode functionality of the digital return transmitter provides operators all the benefits of digital return and facilitates the transition to higher return bandwidths in the future without replacing transmitters.

RT4000 analog return transmitters facilitate multiwavelength operation of up to 204 MHz over a single fiber. These transmitters are available in multiple wavelengths and support a variety of HFC and Fiber Deep wavelength plans and network configurations with 8 DWDM and 9 CWDM wavelengths available.

The 1.2 GHz NC2000 nodes modular design gives a simple bandwidth upgrade path with field replaceable plug-ins enabling network upgrades in the field. 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 CommScope’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 30–60 VAC, both 47–63 Hz				
• PS4103 (from AC Mains plug-in)	100–240 VAC (47–63 Hz)				
Max Current for RF and AC IN Ports	10 A, per port 15 A max combined				
DC 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[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[2] (Per Port)					
At 1218 MHz	60 dBmV virtual (120 dBµV)		54 dBmV actual (114 dBµV)		
At 102 MHz	39 dBmV actual		33 dBmV actual		
At 51 MHz	38 dBmV actual		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 Transmitters	DT4250N-50	DT4250N-75	DT4250N-75	DT4250N-50 DT4250N-75 DT4250E-99 DT4600	DT4600
For return performance please refer to the DT4250 Digital Transceiver Data Sheet.					

NOTES:

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.
2. All QAM levels are shown as actual output levels.

ORDERING INFORMATION

Model Name	Description
NC2000	A typical configuration of the NC2000 series optical node includes the NH2000 housing, one PSxxxx power supply, one optical receiver module (AR4x14E) with SC/APC connectors, an OA2224 series 3-port RF amplifier module, either a DT4250, DT4600, or RT4000 transceiver and standard equalizers and pads. Also available are additional optional plug-in modules that are described on separate data sheets.

RELATED PRODUCTS

Digital Return Transmitter	RT4000
SFPs	Optical Passives
AR4214E	Installation Services

Contact Technical Services for product support:

- United States: +1-888-944-4357
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Note: Specifications are subject to change without notice.

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