

# Optical Node Series (NC)

## NC2000

Scalable Node Platform  
for HFC and Fiber Deep Applications  
(5-42/51-1002 MHz) & (5-45/54-1002 MHz)

## FEATURES

- Bottom entry ports for vertical mounting
- Mains plug-in AC powering option
- High-level outputs: 53 dBmV for HFC 57 dBmV for Fiber Deep
- 2x2 segmentable
- Third RF output port enabled with splitter
- Forward path redundancy with RF switching in applications with 1x2 configuration
- Digital return technology with integrated SNMP monitoring and management
  - Two return segments on a single wavelength
  - Daisy chaining capability for added savings
  - No status monitoring transponders needed
- Multiple options for output level and slope
- Expansion slot available for 2nd receiver, optical switch, or EDFA
- Return ingress switch options
- Based on ARRIS's proven NC4000 platform, utilizing common modules and accessories



## PRODUCT OVERVIEW

The NC2000 Optical Node Platform is designed for various applications in either HFC or Fiber Deep architectures. With its bottom entry fiber port and three coaxial output ports, the node's modular design features high RF output levels and 2x2 segmentation, and can be wall or pedestal mounted as needed. Of particular note is the platform's use of ARRIS's Digital Return technology with integrated SNMP monitoring and management features.



Available options include optical automatic level control, when used with the AR4514 receiver, alternate route switching, third output via plug-in splitter.

The NC2000 includes an RF 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.

The platform utilizes a plug-in universal digital return path transceiver, model DT4250N-50, supporting 5-42 or 5-45 MHz return passbands. Upstream wavelength is set with user-selectable plug-in 2.125 Gbps SFP modules, offering 1310 nm, 1550 nm, CWDM or DWDM ITU 20-59 wavelengths for transmission up to 80 km. The DT4250N-50 transceiver can be used in either "1-fer" mode for a single RF return segment or "2-fer" mode accepting dual RF inputs for two independent returns transmitted on the same wavelength.

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.

## SPECIFICATIONS

Characteristics	Specification		
<b>Physical</b>			
Dimensions	45.9 cm L x 27.9 cm W x 15.0 cm D (18.7" x 11.0" x 5.9")		
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		
<b>Environmental</b>			
Operating Temperature Range	-40° to +65°C (40° to +149°F)		
Storage Temperature Range	-40° to +85°C (-40° to +185°F)		
Relative Humidity	5% to 95% non-condensing		
<b>Powering and Power Passing</b>			
Operating Input voltage			
• to PS4002 (from cable powering)	44-95 VAC (47-63 Hz)		
• to PS4003 (from AC Mains plug-in)	90-250 VAC (47-63 Hz)		
Max current for RF and AC IN ports	10 A, 15 A respectively		
Power consumption, fully loaded	approximately 65 W (with redundant optical receivers and model DT4250 dual input return transmitter)		
AC test point	TP at AC entry port		
<b>General</b>			
Passband split option	<ul style="list-style-type: none"> <li>• 5-42 MHz Reverse, 51-1002 MHz Forward</li> <li>• 5-45 MHz Reverse, 54-1002 MHz Forward</li> </ul>		
<b>Other Accessories</b>			
RF switch for alternate routing			
RF splitter for third port			
Pads, equalizers, and combining boards			
<b>Forward Path</b>			
Performance (see Note 1)			
		<b>HFC Application</b>	<b>Fiber Deep</b>
• Channel Loading			
	Up to 550 MHz	Analog NTSC	Analog NTSC
	550-1002 MHz	256 QAM at -6 dBc	256 QAM at -6 dBc
• Nominal output level (per port)			
	at 1002 MHz	53 dBmV	57 dBmV
	at 51 MHz	39 dBmV	—
	at 54 MHz	—	40 dBmV
• Nominal slope		14 dB linear	18 dB linear
• Link performance			
	CNR	51 dB	48 dB
	CSO	62 dB	58 dB
	CTB	65 dB	56.5 dB
Optical interface	SC/APC connector on optical receiver		
Gain control range	0-18 dB (plug-in attenuators)		
Slope control	0-18 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 ± 0.5 dB		
<b>Return Path</b>			
Passband	5-51 or 5-54 MHz		
Nominal input	-60 dBmV/Hz (at the Digital Transceiver input)		
Built-in node monitoring			
Daisy-chaining capability			
Digital Transceiver model options	DT4250N-50		
Representative link specifications (for model DT4250)			
• Return path system gain	30 dB (from DT input to HE receiver output, with ARRIS's Tx and Rx)		
• For "1-fer" mode			
NPR dynamic range @ 47 CNR	10 dB		
Peak NPR	54 dB		
• For "2-fer" mode			
NPR dynamic range @ 40 CNR	11 dB		
Peak NPR	49 dB		

Please refer to the individual product data sheets for DT4250 Digital Transceivers for additional information.

### NOTE:

- Performance for HFC application with 0 dBm input to the node's optical receiver from a 1 GHz Model AT3312G Analog 1310 nm Transmitter, 27 km fiber. Performance for Fiber Deep application with -3 dBm input to the node's optical receiver from a 1 GHz Model AT3553 Analog 1550 nm Transmitter, 65 km fiber.



**ORDERING INFORMATION**

**Order Part Number: NC2000 (5-42/51-1002 MHz) (5-45/54-1002 MHz)**

A typical configuration of the NC2000 series optical node includes the NH2000 housing with external test ports, one PS4002 power supply, one optical receiver module (AR4503 or AR4514G) with SC/APC connectors, an OA2223 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 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

## 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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