

# Optical Node Series (NC)

## NC4000S4

### 4x4 Fully Segmentable 1.2 GHz Node

## FEATURES

- Output level – 56 dBmV at 1218 MHz
- Drop in upgrade for NC4000SG or NC4000S2 nodes
- 4x4 fully segmentable for HFC applications
- Four RF outputs, two auxiliary ports for power or video, and two fiber ports
- Multiple forward/return frequency split options
- Uses automotive blade fuses and JXP pads and equalizers
- Superior upstream performance via advanced universal digital return modules
- Integrated, all-digital node status monitoring
- Redundant power supply option
- Pedestal or strand mounting



## PRODUCT OVERVIEW

The ARRIS NC4000S4 series optical node platform supports a wide range of advanced architectures and is ideal for traditional HFC applications.

With an output level of up to 48 dBmV (56 dBmV virtual analog) at 1218 MHz on each of the four RF ports of the OA4344EG RF Output Amplifier, the NC4000S4 is designed as a “drop-in” replacement for the NC4000S2 and NC4000SG and can be used to extend the frequency range of the coaxial network in standard HFC architectures. The high gain optical receivers feature automatic level control and support optical inputs between -7 and +2 dBm.

All four downstream and upstream paths can be fully segmented. For the return this is achieved using the DT4250 universal digital return transceiver supporting multiple modes of operation, a single (“1-fer”), dual independent returns (“2-fer”) or enhanced single return with increased performance and the option to cascade returns. Upstream transmission is enabled with plugin SFP modules supporting 1310 nm, 1550 nm, and CWDM or DWDM options.

With a wide selection of customized optical passives, field-hardened EDFAs and optical switches, the node platform can extend the deployment of advanced, high-availability, “bandwidth-hungry” services into fiber-poor areas while reducing real estate and powering requirements in the field. Remote monitoring is provided via an integrated network management plug-in, eliminating the added cost of a third-party status monitoring transponder system.

The NC4000S4 optical node platform also supports next-generation architectures and technologies such as Node PON, ‘Remote PHY’, and more, providing a seamless migration to support tomorrow’s services.



#### RELATED PRODUCTS

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

## SPECIFICATIONS

Characteristics	Specification	
<b>Physical</b>		
Dimensions	20" L x 9.5" W x 10.75" H (50.8 cm x 24.1 cm x 27.3 cm)	
Weight	38 lbs (17.1 kg)	
<b>Environmental</b>		
Operating Temperature Range	-40°C to +65°C (-40°F to +149°F)	
Storage Temperature Range	-40°C to +85°C (-40°F to +185°F)	
Humidity	5% to 95% non-condensing	
<b>General</b>		
Passband options	<b>Reverse</b>	<b>Forward</b>
	5 - 42 MHz	51 - 1218 MHz
	5 - 65 MHz	85 - 1218 MHz
	5 - 85 MHz	102 - 1218 MHz
RF Test Points (Fwd and Rtn)	-20 dB	
Flatness <sup>1</sup>	± 1 dB	
Output return loss (at the node output)	> 16 dB	
<b>Power Requirements</b>		
Operating Input voltage range	44 to 95 V <sub>RMS</sub> (47-70 Hz Quasi-Square Wave)	
Power passing <sup>2</sup>	15 A <sub>RMS</sub>	
Power supply start-up input voltage	40-44 V <sub>RMS</sub>	
Power supply turn off input voltage	34-38 V <sub>RMS</sub>	
Power supply efficiency	83% typical	
DC power consumption	<ul style="list-style-type: none"> <li>• 61 W (standard configuration of 4 RF outputs and 1 optical Rx)</li> <li>• 11.5 W (second Optical Receiver, AR4214e)</li> <li>• 6 W (Return Transceiver, DT4250 with TR4000 SFP)</li> </ul>	
<b>RF Performance for HFC Applications <sup>3</sup></b>		
Channel Loading	<b>Mixed</b>	<b>All Digital</b>
Up to 278 MHz	Analog (30 Channels)	
284-1218 MHz	256 QAM/OFDM at -6 dBc	
Nominal output level (per port)	<b>Analog</b>	<b>QAM/OFDM</b>
at 1218 MHz	56 dBmV	50 dBmV
at 100 MHz	39.7 dBmV	33.7 dBmV
at 51 MHz	39 dBmV	33 dBmV
Nominal slope	17 dB linear	17 dB linear
51 / 1218		
Link performance		
CCN (CNR + CIN)	51 dB	
CSO	62 dB	
CTB	64 dB	
MER	> 40 dB	> 40 dB
BER	< 1x10 <sup>-6</sup>	< 1x10 <sup>-6</sup>

### NOTES:

1. Measured at 25°C
2. Maximum current through any port
3. Performance with 0.0 dBm input to node's Optical Receiver from a 1.2 GHz Model HT33xxH-D-1310-2-AS Analog 1310 nm Transmitter

## ORDERING INFORMATION

A typical configuration of the NC4000S4 series optical node includes the NH4000-H housing with external test ports, one PS4101 power supply, one optical receiver module; AR4x14E with SC/APC connectors, the OA4344EG 4-port RF amplifier module, and standard equalizers and pads. A backup PS4101 power supply may be separately ordered. Also available are additional optional plug-in modules that are described on separate data sheets. These include FA4500 series Optical Amplifiers, DT4250 Universal Digital Return Transceivers, optical or RF redundancy switches, and return ingress switch options. Please contact your ARRIS Sales Representative for information regarding specific equipment configuration options to meet your particular requirements.

**Note:** Specifications are subject to change without notice.

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