# Optical Node Series (NC)

NC4000SG
1 GHz Fiber Node Platform with Scalable OA4444SG RF Amplifier for PAL HFC Applications (5–65/85–1002)

FEATURES

- Four RF outputs, two auxiliary ports for power or video, and two fiber ports
- 4x4 segmentable (forward and return)
- High output level of 53 dBmV at 1002 MHz
- Optical capabilities:
  – Forward: 1310 to 1600 nm
  – Return: 1310 nm, 1550 nm, DWDM, or CWDM
- Accommodates up to 6 optical transport or Ethernet modules
- Broadcast/narrowcast receiver option
- EDFA and optical switching options available
- Forward optical or RF redundancy switching, and return redundancy options
- Return ingress switch options
- A family of advanced digital return modules
- Fast Ethernet add/drop capability for commercial business applications
- Redundant power supply option
- Pedestal or strand mounting
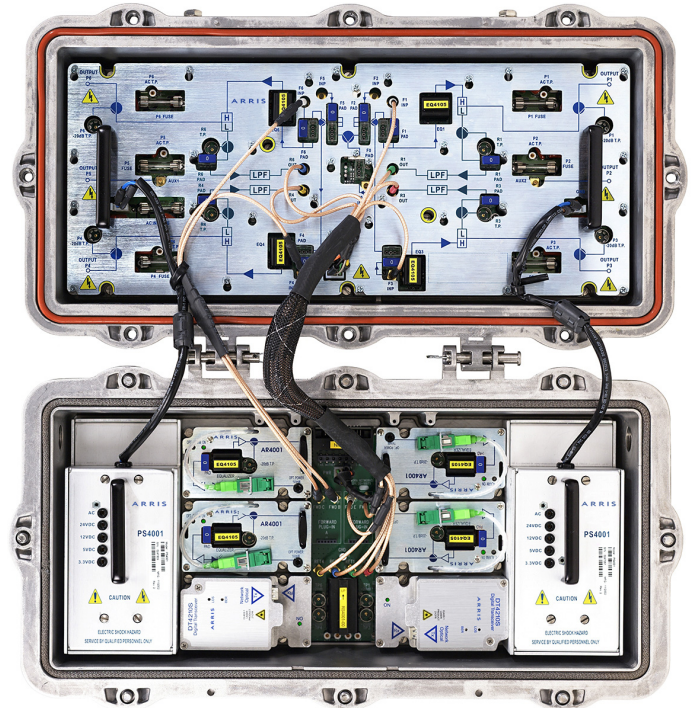
PRODUCT OVERVIEW

The ARRIS NC4000SG series optical outdoor platform is designed to support a wide range of advanced architectures and is ideal for traditional HFC applications including PAL (Phase Alternating Line systems).

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Nodes-NC4000SG

Fiber-Deep   **DOCSIS® 3.1**   **Node Segmentation**   **HPON™/RFoG**   **FTTx**

With an output level of up to 53 dBmV (at 1002 MHz) available on the four RF output ports of the OA4444SG RF Output Amplifier, the NC4000SG can be used to extend the reach of the coax distribution network. Furthermore, this flexible and rugged platform has the capability of segmenting four downstream paths (each with its own receiver) and four upstream paths using ARRIS's patented digital return solutions, including ITU CWDM and DWDM (on the 100 GHz-spaced ITU Grid), further expanding the deployment of advanced "bandwidth-hungry" services (including 100 Mbps Ethernet for commercial services) in fiber poor areas while reducing real estate requirements in the field.

The NC4000SG supports deployment of field-hardened EDFAs to cost effectively extend fiber reach into new service areas. For optimal performance and reliability in a wide range of applications, ARRIS offers EDFAs at various power levels, and optical switches are available for different routing applications.

Status monitoring capability is provided via an integrated network management plug-in, eliminating the need for added-cost status monitoring transponders. An optional narrowcast receiver is available for split-band applications.

SPECIFICATIONS

Characteristics	Specification
Physical	
Dimensions	20" L x 9.5" W x 10.75" H (50.8 x 24.1 x 27.3 cm)
Weight	38 lbs (17.1 kg)
Housing Ports	6 AC/RF ports and 2 fiber ports
Environmental	
Operating Temperature Range	–40° to +60°C (–40° to 140°F)
Storage Temperature Range	–40° to +85°C (–40° to 185°F)
Humidity	5% to 95% non-condensing
General	
RF Test Points (Fwd and Rtn)	–20 dB
Flatness	± 1 dB
Output return loss (at the node output)	> 16 dB
Power Requirements	
Operating Input voltage range	44 to 95 V_{RMS} (47–70 Hz Quasi-Square Wave)
Power passing	15 A_{RMS}
Power supply start-up input voltage	40–44 V_{RMS}
Power supply turn off input voltage	34–38 V_{RMS}
Power supply efficiency	73% typical
DC power consumption	• 57 W (standard configuration of 4 RF outputs and 1 optical Rx) • 11 W (second Optical Receiver, AR4201G) • 6 W (Digital Transponder, DX4515) • 6 W (Return Transceiver, DT4x30 with TR4000 SFP) • 9 W (Node EDFA, single-width FA4500 series)

RF Performance (See Note 1)

|	Application			
	High Level	HFC	Typical Level	HFC
System standard	B/G	D/K	B/G	D/K
Forward passband (MHz)	85–1002	85–1002	85–1002	85–1002
Channel loading				
Up to 600 MHz	64	60	64	60
600-1002 MHz	256 QAM at -6 dBc	256 QAM at -6 dBc	256 QAM at -6 dBc	256 QAM at -6 dBc
Optical input level at Node Receiver (dBm)	0	0	0	0
Nominal slope, linear (dB)				
85–1002 MHz	13.5	13.5	13.5	13.5
Nominal output level (per port, dBmV)				
at 1002 MHz	53	53	49	49
at 85 MHz	39.5	39.5	35.5	35.5
Output return loss at the Node output (dB)	> 16	> 16	> 16	> 16
Link performance (see Note 2)				
CNR (dB)	50	50	50	50
CSO (dB)	62	62	63	63
CTB (dB)	65.5	65	67.5	67

NOTES:
1. Performance with input to node's Optical Receiver from a Normal grade Model ATxxG-N-1-AS 1310 nm Transmitter
2. Link performance, including transmitter (with CW channel loading to 600 MHz and 256 QAM loading above 600 MHz at -6 dBc)

Fiber-Deep   **DOCSIS® 3.1**   **Node Segmentation**   **HPON™/RFoG**   **FTTx**

ORDERING INFORMATION

A typical configuration of the NC4000SG series optical node includes the NH4000-H housing with external test ports, one PS4001 power supply, one 85–1002 MHz optical receiver module (AR4403G) with SC/APC connectors, the OA4444SG 4-port RF amplifier module, and standard equalizers and pads. A backup PS4001 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, DT4032 and DT4232 series Digital Return Transceivers, DX4515 series Digital Return Transponders (ITU Grid), 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.

RELATED PRODUCTS

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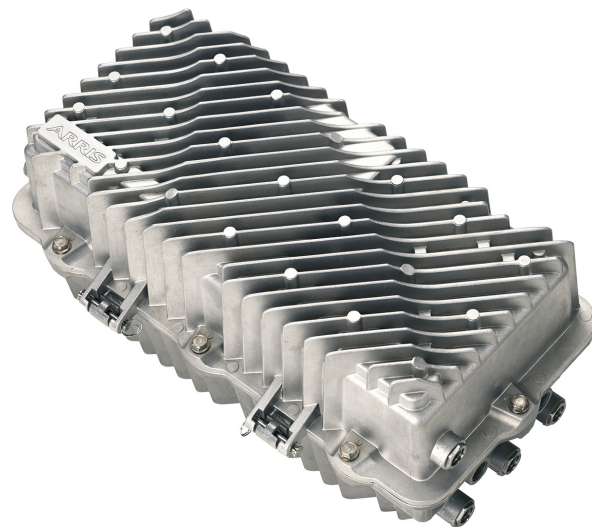
Customer Care

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.