Features

- Single integrated node module supports all essential features
- Segmentation options for 1x1 (1 forward and 1 return) and 1x2 (1 forward and 2 returns)
- Four ultra high level RF outputs (57 dBmV at 1GHz)
- Upgrade options support subscriber growth and deployment of new services
- 6 RF-port housing with 2 optical ports and 4 test ports
- Optical capabilities:
  - 1310 nm (fwd and rtn)
  - 1550 nm (fwd and rtn)
  - DWDM (fwd)
  - LcWDM™ (fwd)
  - CWDM (fwd and rtn)
- Aurora's patented advanced digital return technology, supporting daisy-chaining or "2-fer" technology
- Fully integrated network management
- 60/90 VAC operation
- Redundant power supply option
- 15 Ampere power passing at each RF output port
- Pedestal or strand mounting

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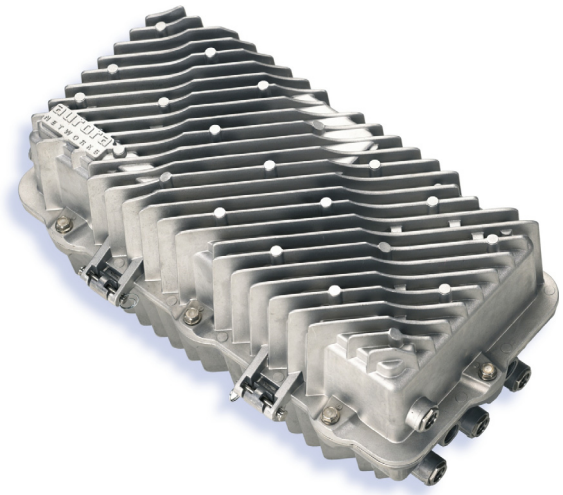
Essential Features
Fiber Deep Node Platform



Advance Notice

Aurora's NC4000EG series "second generation" fiber deep node platform has been optimized to provide all of the essential features required by today's state-of-the-art Fiber Deep (HFC Node+0) architectures that typically serve 50 to 200 homes passed per node. This node platform is based on our extensive experience in system design and customer support for tens of thousands of miles of high bandwidth per homes passed deployments.

These "Essential Features" nodes enable fiber deep architectures to be cost-effective (equal or less than traditional HFC) and extremely reliable (~75% less actives and requiring minimal maintenance). The platform maintains the industry's highest RF output capability with its 4-output design, one forward and one or two return segmentation capability, status monitoring and control, and digital return technology with daisy-chain capability – all designed to complement Aurora's premium featured "Fiber Deep" nodes.

NC4000EG series Fiber Deep Nodes utilize the time tested NC4000H housing as its 1.5 GHz foundation to house a collection of all new modules. All essential node functions have been maintained and designed into a single integrated node module, the NM4114EG-*xx*, that includes a forward optical receiver, RF amplification for four ultra high level RF outputs, and one return segment digital transceiver. (A second basic module configuration is available to support two return segments using Aurora's patented "2-fer" technology.) Return path transmission is supported with pluggable transceivers (TR or TS series, depending on the required transmission rate), and must be ordered separately. Three return/forward pass-band versions are enabled using plug-in filter designs for frequency splits of 5–45 MHz / 54–1002 MHz, 5–60 MHz / 72–1002 MHz, and 5–65 MHz / 85–1002 MHz. The NC4000EG also supports injection of a local channel for security monitoring, event announcements, and advertising for applications such as gated communities, MDUs, *etc*.

Integrated status monitoring capability is provided with Aurora's patented advanced digital return technology that improves monitoring reliability and eliminates the need for added-cost status monitoring transponders and forward and return bandwidth allocation requirements of the transponders communicating frequencies.

NC4000EG Product Specifications

Physical:

- Dimensions:
  20" L x 10" D x 11.7" H (51 cm x 25.5 cm x 30 cm)
- Weight: 38 lbs (17.1 kg)
- Housing Ports: 4 AC/RF ports, 2 RF ports, and 2 fiber ports

Environmental:

- Operating temperature range:
  –40º to +65ºC (–40º to 149ºF)
- Storage temperature range:
  –40º to +85ºC (–40º to 185ºF)
- Humidity: 5% to 95% non–condensing

General:

- Passband:
  Reverse: 5–45 MHz
  Forward: 54–1002 MHz
- Return loss (at the node output, across passband):
  5–45 MHz: > 18 dB
  54–1002 MHz: > 18 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: 85% typical
- DC power consumption for node configured with:
  Single return segment (SFP included): 75 W
  Two return segments (SFPs included): 77 W

RF Performance

(Note 1: Performance with input to node's Optical Receiver from an Enhanced grade Model AT33xxG-A-E-AS Analog 1310nm Transmitter)

Forward Specifications

- Channel loading:
  Up to 552 MHz — Analog NTSC
  552-1002 MHz — 256QAM at -6 dBc
- Nominal forward output level (per port, *see Note 2*):
  at 1002 MHz — 57 dBmV
  at 54 MHz — 39 dBmV
- Nominal slope:
  54 / 1002 — 18 dB linear
- Forward link performance (*see Note 3*)
  CNR (*see Note 2*) — 49 dB
  CSO — 58 dB
  CTB — 56.5 dB

Note 2: Performance with input level to optical receiver of -3 dBm for Fiber Deep application
Note 3: Link performance, including transmitter (with CW channel loading to 552 MHz and 256QAM loading above 552 MHz at -6 dBc)

Return Specifications

- Required minimum input level: –62 dBmV/Hz (*at housing input*)
- Recommended input level: –56 dBmV/Hz (*for increased ingress protection*)
- Level stability: ± 0.5 dB
- Loading, nominal: 5–45 MHz
  (QPSK carriers or equivalent Gaussian noise)

	1 RF Return Segment	2 RF Return Segments
• Peak NPR:	53 dB	47 dB
• NPR with 11 dB dynamic range:	47 dB	40 dB

- Optical: *The optical port facility can be populated with a variety of 2.125 Gbps SFP (plug-in) transceivers depending on the network application. Please refer to the appropriate data sheets for the selected transceivers for detailed specifications, including 1310nm models for links up to 10 km and 1310nm, 1550nm, and CWDM models for links up to 40 km.*

LED Indicators (for SFP optical ports)**:**

- TX: Green ON = OK; OFF = bad SFP or unit not powered
- RX: Green ON = signal good; OFF = LOS asserted; Blinking = high BER (excessive bit error rate)

Ordering Information

A typical configuration of the NC4000EG series optical node includes the NH4001-H housing with external test ports, one PS4002 power supply, one NM41EEG-00-45-00 integrated node module (comprised of a forward optical receiver, RF amplifier for 4 output ports, and one segment return transmitter), and standard equalizers and pads. A backup PS4002 power supply may be separately ordered. For a two return segment application, replace the NM41EEG-00-45-00 module with an NM41LEG-00-45-00 integrated node module. Please contact your Aurora Networks sales representative for information regarding specific equipment configuration options to meet your particular requirements.

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