



- HIGHLIGHTS**
- **Compact, rugged die-cast aluminum housing allows outdoor strand, wall or pedestal mounting**
 - **Up to four high-level outputs enables cost-effective network design**
 - **Separate RF slope and level control provide maximum flexibility in network design**
 - **Segmentable forward path allows deeper network segmentation to support expanding interactive services**
 - **Four-way segmentable return path allows for increasing the return bandwidth in the future**
 - **Optional factory-installed return mute switch offers troubleshooting return ingress, either manual or remotely controllable via EMS**
 - **Optional status transponder allows remote monitoring to ensure network reliability**

The POWERBlazer™ II HLN 3142C addresses the need for a compact, cost-effective node with forward and return path flexibility. Redundancy and segmentation options, offered in both forward and return paths, enable the HLN 3142C to economically deliver today's broadcast services as well as to support additional narrowcast services such as VOD, data or telephony.

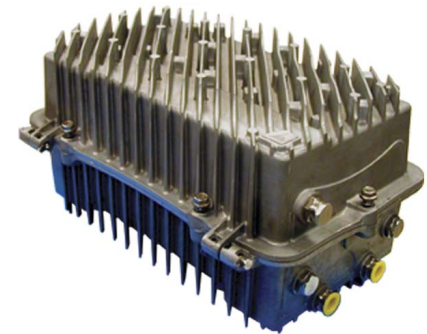
This easy-to-configure node includes an ergonomic, rugged, die-cast aluminum housing. The housing supports an easy-to-use fiber management system, easily replaceable power supply, RF output module and motherboard. The RF module supports four bridger-level outputs. Each port has full return and power-passing capability.

Each RF return path signal can be individually muted by a return mute switch which allows the system operator to remotely isolate the source of ingress. The return mute switches may be either manually or remotely controlled by an optional transponder.

The HLN 3142C comes standard with one NRM 3111A optical receiver module. The optical board provides for mounting of an additional forward receiver module, which allows selection of fiber route redundancy (via A/B switching), delivery of narrowcast services, or even forward segmentation, allowing deeper network segmentation to support expanding interactive services.

The return paths from the output ports can be combined into a single return transmitter, or split between two return transmitters, or fully four-way segmented with the NDT314x Digital Return Transmitter.

The change from single forward receiver to dual receivers, and from single to dual return transmitters can be made easily in the field in a matter of minutes. This allows increased system up-time and scaling of the bandwidth as traffic demands increase.



The HLN 3142C uses the same return transmitters as Harmonic's PWRBlazer Scaleable Node (HLN 3144). A full range of transmitters, using various laser technologies, is available, allowing for the initial installation of a low-cost return transmitter with the availability to upgrade in the future.

The HLN 3142C is ideal for fiber-deep architectures and distribution applications.

Models

Model	Operating Band (MHz)	
	Return	Forward
NRF 3142x-30	5-30	46-1003
NRF 3142x-42	5-42	54-1003
NRF 3142x-50	5-50	70-1003
NRF 3142x-65	5-65	85-1003

Node RF module available with manual mute control switches (NRF 3142Q) or transponder-controlled mute switches (NRF 3142QA)

Optical Input

Nominal Optical Input	0 dBm
Optical Input Range	Up to +3 dBm
Wavelength Range	1310 ± 20 nm and 1550 ± 20 nm
Optical Return Loss	> 45 dB
Detector Noise	< 7 pA/√Hz
Detector Responsivity	0.85 A/W @ 1310 nm 0.95 A/W @ 1550 nm

RF Output

Housing Bandwidth	1003 MHz
Output Level	46 dBmV/ch minimum on each port at an optical input of 0 dBm with 3.7% modulation index per channel with 0 dB pads and jumpers in place of equalizers
C/CSO	74 dB1
C/CTB	70 dB1
Output Port Impedance	75 Ω
Return Loss	16 dB over operating band
Frequency Response ²	± 1.0 dB over the operating band
Slope (1003/46MHz)	0 to +3 dB
Group Delay	< 10 nsec/MHz
Carrier-to-Hum Modulation	60 dBc3
Output Stability	± 1 dB over the operating temperature range
Forward to Forward Isolation	≥ 70 dB in 50 - 550 MHz band ≥ 65 dB in 550 - 870 MHz band ≥ 60 dB in 870 - 1003 MHz band Left (L1/L2) and right (R1/R2) segmented

Return Path

Frequency Response	± 1 dB
Maximum loss from each port to input of return transmitter with 0 dB pads installed	10 dB
Isolation between the node RF output and input to return transmitter	(5 - 200 MHz) 75 dB
Return Input Port Impedance	75 Ω
Group Delay	< 15 nsec/MHz

Power

Consumption	≤ 100 W
15 A pass current on all RF ports	
Operating Input Voltage Range	40 - 95 VRMS, 47 - 70 Hz Quasi-Square Wave
Operating Peak Input Voltage	115 V Sum (Sine + Square)
Start-up Input Voltage	35 - 40 VRMS
Turn off Input Voltage Low End	33 - 38 VRMS (2 VRMS below start-up input voltage)
High End	> 95 VRMS
Input Frequency Range	47 - 70 Hz
Input Voltage Protection	Bellcore GR-1089-CORE
Surges and Transients	ANSI/IEEE C62.41-1991

Notes:

1. Typical for 78 NTSC CW carrier with nominal output of 46 dBmV (at 750 MHz) with 10 dB linear slope, not including optical link, 3.7% modulation index per channel.
2. After correcting for slope.
3. 15 A through the node.

Accessories

Pads	NPD 38xx
Equalizers	NLE 3xyy, NCE 3xyy, NCS 3xyy, and NLS 3xyy
Forward Optical Receiver	NRM 3111A
Optical Amplifier	NOA 7014-GF
Return Transmitters	
NTM 3244E (FP, 0dBm)	
NTM 3245 (uncooled DFB, 3 dBm, 1310 nm)	
NMT 3247 (uncooled DFB, 3dBm, CWDM)	
NTM 3248 (uncooled DFB, 3 dBm, 1550 nm)	
NTM 3248L (uncooled DFB, 0 dBm, 1550 nm)	
NTM 3249 (uncooled DFB, 8 dBm, DWDM)	
NDT 3049A (dual channel, digital, DWDM, double-width)	
NDT 314x (dual channel, digital, CWDM, single-width module)	
Configuration Modules	
NCM 3800 (forward jumper)	
NCM 3802 (forward A/B switch)	
NCM 3804 (forward diplex filter)	
NCM 3806 (filter combiner)	
NCM 3808 (filter combiner)	
NCM 3814 (segment/desegment)	
NCM 3200 (return jumper)	
NCM 3201 (return combiner)	
Service Cable	Optional
Status Transponder	NMT 5242

User Interface

Red LED indicates received optical power	< -6 dBm
Green LED indicates power ON	
Test point indicates received optical power as 1 V/mW at 1310 nm	
AC input voltage test point	
DC supply voltage test point	
Ground test point	
RF test points as indicated on block diagram. All RF test points on RF tray are -20 ±1 dB directionally-coupled; GSK connectors. Forward test point for each port is accessible from outside the housing.	
Jumper to pass/block power for each port.	

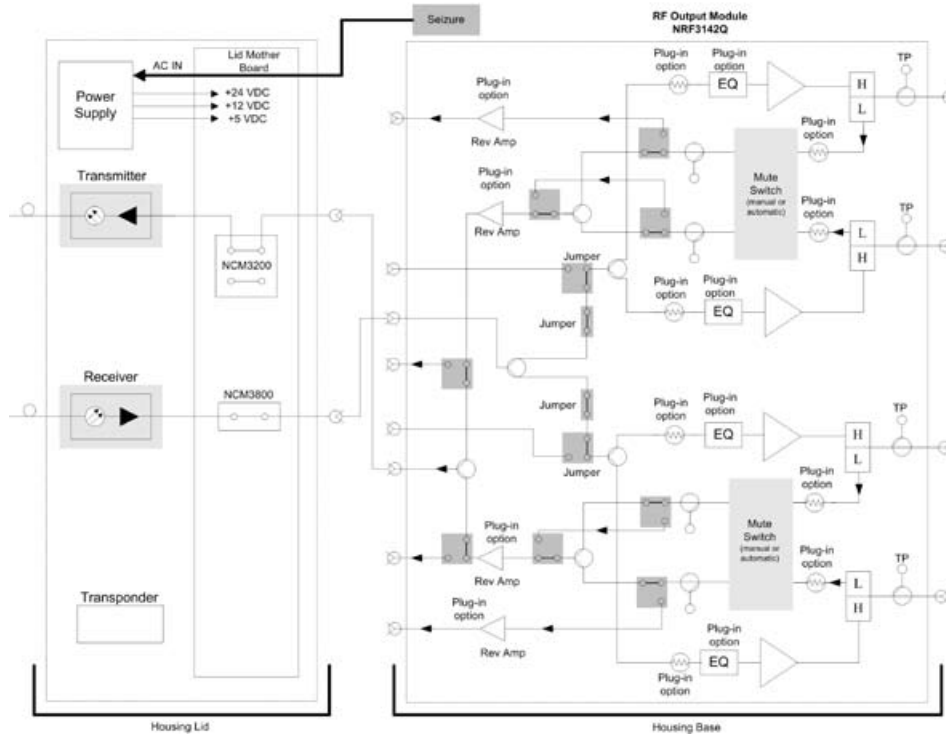
Physical

Dimensions (WxHxD)	16.625" x 10.275" x 8.5" 42.2 cm x 26.1 cm x 21.6 cm
Weight	17 lbs. / 7.7 kg
Mounting	Strand, wall, or pedestal

Environmental

Operating Temperature Range	-40 to 60° C -40 to 140° F
Relative Humidity	0 to 100%

Block Diagram for the Single Forward Path and Single Return Path Configuration



Block Diagram for the Two Forward Path and Four Return Path Configuration

