

# Headend Optics Platform (CH3000)

## DR3450N

### Quad Digital Return Receiver with Selectable Bandwidth Range

## FEATURES

- Operates in three RF bandwidth ranges: 5-50 MHz, 5-65 MHz, or 5-100 MHz (firmware selectable)
- High packaging density, four receivers per single width, full-depth module
- Single channel link mode or dual channel “2-fer” link modes, selectable via software user interface
- High RF output: up to 38 dBmV per 6.4 MHz carrier in 50 MHz mode
- Concatenated or point to point applications
- 30+ dB of system RF gain from DT4250 transceiver input to receiver output
- Supports links to Return Transceivers installed in NC2000/NC4000 nodes, VHubs, OM6000/OM41xx/OM27 nodes, HLN nodes, and CH3000 Chassis
- Superior noise performance
- Front access -20 dB RF test point, selectable for each input
- Hot plug-in/out
- Local and remote status monitoring
- Occupies one full-depth chassis slot



## PRODUCT OVERVIEW

The DR3450N Quad Digital Return Receiver utilizes ARRIS’s state-of-the-art digital reverse technology to receive 5–50 MHz, 5–65 MHz, or 5–100 MHz RF signals. 5–100 MHz modes can also be used to carry common mid-band splits such as 5–85 MHz RF return. Its’ capabilities allow deployment of compact and robust high-speed digital broadband systems.

ARRIS's DR3450N receiver interfaces with the BP3400C-AS Optical Receiver Back Plate, enabling up to 16 digital receivers (four DR3450N modules per BP3400C back plate) to be installed in four adjacent module slots of ARRIS's 3RU CH3000 chassis. A total of 48 receivers (12 DR3450N modules) and three associated BP3400C back plates can be installed in a single CH3000 chassis while supported by redundant power supplies.

In single channel mode, each DR3450N receiver module can terminate digital return transmission from four node clusters. The data extracted from each optical link is converted through a high-speed digital-to-analog converter (DAC), resulting in a single RF output signal. Up to four optical links are received per module in this mode providing four RF outputs. The DR3450N also supports concatenation for daisy chaining of node signals in single channel modes.

In dual channel "2-fer" mode, each DR3450N module terminates up to two return path wavelengths. The advanced design provides simultaneous conversion of digital return path traffic from two RF return segments coming from the node on the same optical wavelength. Two wavelengths providing a total of four RF outputs are supported by each DR3450N module operating in "2-fer" mode.

Used in combination with NC2000/NC4000 and VHub based DT4250N Digital Transceivers with CWDM or DWDM SFPs in optical nodes, the "2-fer" mode of the DR3450N allows quick and cost effective doubling of the amount of return bandwidth available from any node in the network, therefore conserving and optimizing the cable operators' investment in the fiber network.

The DR3450N also supports digital RF Return protocols of ARRIS OM6000, OM4100, OM4120, and OM2741 Nodes using the DT7x30N Digital Transmitter, HLN Nodes using the DT6250N, and CH3000 Chassis/Hubs using the DT3550N Digital Transceivers, providing network integration and inter-operation with mixed ARRIS node and hub platforms.

## SPECIFICATIONS

Characteristics	Specification
<b>Physical</b>	
Dimensions	13.0" D x 4.3" H (3RU) x 1.0" (33 cm x 11 cm x 2.5 cm)
Weight	1.6 lbs (0.72 kg)
<b>Environmental</b>	
Operating temperature range	-20° to +65°C (-4° to 149°F)
Storage temperature range	-40° to +85°C (-40° to 185°F)
Humidity	5% to 95% non-condensing
<b>Optical Interface</b>	
Optical connectors	LC/UPC (on the RR40x0 SFP in the BP3400C-00 Back Plate)
<b>Electrical Interface</b>	
Main RF outputs (each channel)	F-type female connector (on BP3400C-00 Back Plate)
RF output test point (selectable for each input port)	G-type female connector (front panel, -20 dB)
<b>Power Requirement</b>	
Input voltage	12 V <sub>DC</sub> (provided via chassis mid-plane connection)
Module power consumption	20 W (includes 1/4 of fully loaded BP3400C-00 with all SFPs)
<b>General</b>	
	Hot plug-in/out
	Manual gain alignment
Optical (BP3400C-00 with RR40x0 SFP receiver)	See the RR40x0-00-PI data sheet for details.

## SPECIFICATIONS CONTINUED

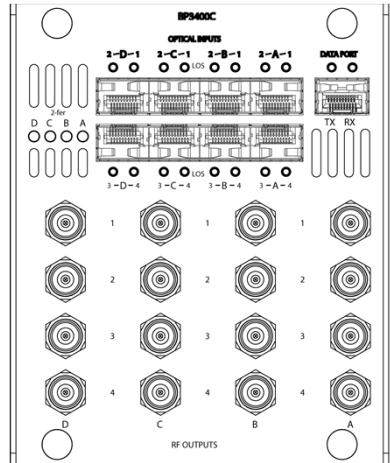
Characteristics	Specification						
<b>Electrical (RF Path—each channel)</b>							
<b>Digital Transmitter Used in the Return Link with DR3450</b>	<b>DT4250</b>		<b>DT4250</b>		<b>DT4250</b>		
<b>Return Bandwidth/Loading</b>	<b>5–50 MHz</b>		<b>5–65 MHz</b>		<b>5–100 MHz</b>		
Operation Mode	1-fer	2-fer	1-fer	2-fer	1-fer	2-fer	
Line Rate (Gbps)	2.125	2.125	2.125	3.1875	4.25	4.25	
Input Level (dBmV/Hz)	-60	-60	-62	-62	-63	-63	
System Min Full Gain (dB)	30	30	30	30	30	30	
Output (dBmV/Hz)	-30	-30	-32	-32	-33	-33	
Output (dBmV/6.4 MHz Channel)	38	38	36	36	35	35	
Dynamic Range (dB)	11	11	11	11	10	11	
NPR at which Dynamic Range is specified (dB)	47	40	40	40	47	40	
Peak NPR (dB)	54	49	49	49	52	48	
<b>Digital Transmitter Used in the Return Link with DR3450</b>	<b>DT7030-85</b>		<b>DT7230-85</b>		<b>DT3550</b>	<b>DT6250</b>	
<b>Return Bandwidth/Loading</b>	<b>5–100 MHz</b>		<b>5–100 MHz</b>		<b>5–100 MHz</b>	<b>5–50 MHz</b>	<b>5–100 MHz</b>
Operation Mode	1-fer Normal Gain <sup>1</sup> Only		2-fer Normal Gain <sup>1</sup>	2-fer High Gain <sup>1</sup>	2-fer	2-fer	2-fer
Line Rate (Gbps)	4.250		4.250	4.250	4.250	2.125	4.250
Input Level (dBmV/Hz)	-60		-60	-60	-61	-69	-71
System Min Full Gain (dB) (with DR3450N Receiver)	26.5		26.5	28.5	27	38	38
Output (dBmV/Hz)	-33.5		-33.5	-31.5	-34	-31	-33
Output (dBmV/6.4 MHz Channel)	34.5		34.5	36.5	34	37	35
Dynamic Range (dB)	17		11	11	11	11	11
NPR at which Dynamic Range is specified (dB)	40		40	40	40	40	40
Peak NPR (dB)	49		49	49	47	47	47
Frequency response	± 0.5 dB						
Output RF level adjustment range	0-26 dB (0.5 dB increments) (-58 dB for diagnostic)						
Output return loss	18 dB minimum						
<b>Optical (BP3400C-00 with RR40x0 SFP receiver)</b>	See the RR40x0-00-PI data sheet for details.						

**NOTE:**

1. Normal/High gain set on DR3450. High Gain mode is intended only for use in DR3450N links connected to DT7230 transmitters in OM6000 nodes where extra gain is necessary to provide higher gain levels occasionally seen in legacy OM6000 to CHP-D2RRX links. High gain mode will consume up to 10% additional power consumption. High gain is not available for DT7030-85 or other listed transmitters.

**ORDERING INFORMATION**

Model Name	Description
DR3450N-50-00	Quad Digital Receiver supplied with 5-50 MHz and 5-100 MHz firmware pre-loaded
DR3450N-75-00	Quad Digital Receiver supplied with 5-65 MHz and 5-100 MHz firmware pre-loaded
BP3400C-00	Module Back Plate (Back plate and RR40x0 SFP Receiver must be ordered separately)



Each back plate accommodates up to four DR3450N receiver modules.

**RELATED PRODUCTS**

CH3000 Chassis	NC2000, NC4000, VHub Platforms
DT3550, DT4250, DT7x30, DT6250 Return Transceivers	OM6000, OM4100, OM4120, OM2741 Node Platforms
Installation Services	

**Customer Care**

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

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