

# **HEADEND OPTICS PLATFORM CH3000**

## **HT3300H Series DOUBLE-DENSITY 1310 nm TRANSMITTER SYSTEM**



### **FEATURES**

- Link loss budgets available from +3 to +15 dB
- High rack density: 24 transmitters per 3RU chassis, with redundant power supplies
- 45 - 1218 MHz RF bandwidth
- Dual RF inputs for BC and NC
- Optional Automatic Gain Control (AGC)
- Low power consumption
- Hot plug in/out, individually replaceable transmitter modules
- Front access -20 dB input test point
- Front panel laser On/Off switch
- Local and remote status monitoring features

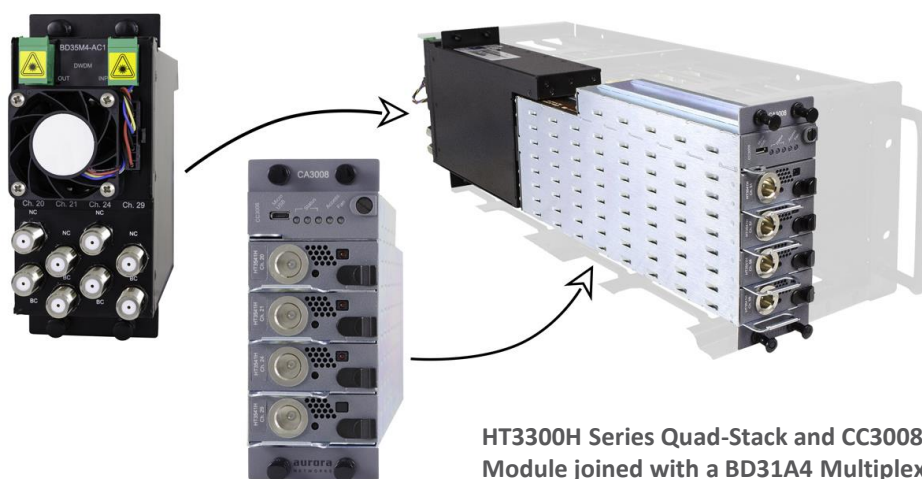


### **SYSTEM OVERVIEW**

The ARRIS HT3300H Series Double-Density 1310 nm Transmitter System provides high performance and a high rack density forward path transmission solution for Cable TV service providers.

The high density packaging design allows up to four (4) HT3300H series 1.2 GHz transmitters plus a CC3008 Communications Control Module to be stacked vertically and contained by the CA3008 module carrier, requiring only two chassis slots of a 3RU chassis. The compact solution supports up to 24 transmitters in a CH3000 chassis, including redundant power supplies.

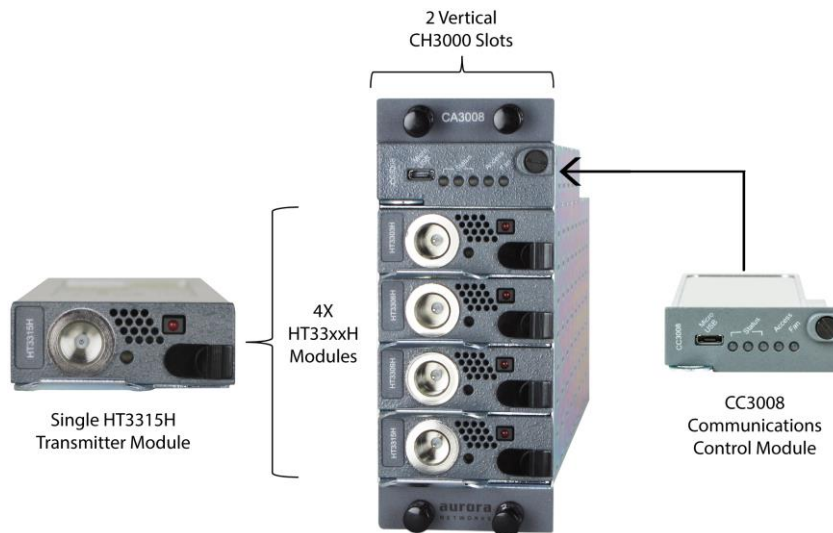
When installed in the chassis, the transmitters interface to a “zero-slot” back plate, providing support for up to four HT3300H series transmitters. The figure below shows a fully loaded carrier mated to the BD31A4 Double-Density back plate.



**HT3300H Series Quad-Stack and CC3008 Communications Module joined with a BD31A4 Multiplexing Back Plate**

The CC3008 Communications Module installed at the top of a HT3300H series transmitter stack provides the communications interface between the transmitters and the CH3000 mid-plane bus, allowing complete configuration and management control of the stack, both local and remote.

## HT3300H Series Double Density 1310 nm Transmitters (1.2 GHz Passband)



ARRIS's HT3300H Series Double-Density 1310 nm Transmitters are a key element of ARRIS' HFC and Fiber Deep architectures. These 1.2 GHz transmitters are the ideal solution for expanding service demands of HDTV, VOD, cable telephony, and high-speed DOCSIS.

The HT3300H series transmitters are available with dual RF inputs for combining separate broadcast and narrowcast inputs within the transmitter. These transmitters are ideal for optical transport with link losses ranging from 3 to 15 dB. They include optional Automatic Gain Control circuitry to compensate for variations in the RF input level to the transmitter to maintain constant transmitter RF drive level to the laser.

The above figure shows a front view of the CA3008 carrier components: a single HT33xxH Double-Density Transmitter (left); a single CC3008 Communications Module (right), and a fully loaded "stack" (center) providing four (4) HT33xxH transmitters, requiring only 2 vertical slots of a CH3000 chassis. A fully loaded CH3000 chassis supports 24 Double-Density 1310 nm transmitters and redundant power supplies.

The compact design minimizes rack space requirements in headends or hubs and enhances deployment of traditional HFC, passive HFC and fiber deep networks.

### Features

- 1310 nm transmitters: +3 to +15 dBm outputs
- High rack density: 24 transmitters per 3RU chassis, with redundant power supplies
- Low power consumption
- Hot plug in/out, individually insertable
- Front access -20 dB input test point
- Front panel laser On/Off interlock switch
- Local and remote status monitoring

**HT3541H SPECIFICATIONS**

Characteristics	Specification															
<b>Physical</b>																
Dimensions	11.5" D x 0.8" H x 2.0" W (29.2 x 2.0 x 5.1 cm)*															
Weight	.75 lbs (.34 kg)															
	* Four (4) transmitter units designed to be vertically stacked, plus a CC3008 Communications Module, and installed inside a CA3008 Module Carrier. The combination occupies two slots in a 3RU CH3000 Chassis.															
<b>Environmental</b>																
Operating	0° to +50°C (32° to 122°F)															
Storage	-40°C to +85°C (-40°F to +185°F)															
Humidity	5% to 95% non-condensing															
<b>RF and Optical Interface</b>																
RF input	F-type male (mates to BD31A4 Back Plates)															
Input RF test point	G-type male (located at front panel, -20 dB)															
Optical connector	SC/APC (mates to BD31A4 Back Plates)															
<b>Power Requirements</b>																
Input voltage	12 V <sub>DC</sub>															
Power consumption	10 W (per transmitter) including controller and back plate cooling fan															
<b>General</b>																
Wavelength	1310 ± 10 nm															
Hot plug-in/out																
Manual gain alignment and AGC																
<b>Electrical</b>																
Pass band	45–1218 MHz															
Frequency response (including slope)	<ul style="list-style-type: none"> <li>± 1.0 dB (BC input @ 25°C)</li> <li>- 6 ± 1.0 dB (NC input relative to BC input)</li> </ul>															
Nominal RF input levels (dBmV/ch)	<table border="0"> <tr> <td></td> <td colspan="2" style="text-align: right;">Mode</td> </tr> <tr> <td></td> <td style="text-align: center;">AGC</td> <td style="text-align: center;">Manual</td> </tr> <tr> <td>• NTSC 54-552 MHz:</td> <td style="text-align: center;">15</td> <td style="text-align: center;">15</td> </tr> <tr> <td>• QAM 552-1002 MHz:</td> <td style="text-align: center;">15</td> <td style="text-align: center;">15</td> </tr> <tr> <td colspan="3">(Level of QAM signals through NC RF input becomes 6 dB less after internal combiner. With AGC enabled, capture range is ±3 dB.)</td> </tr> </table>		Mode			AGC	Manual	• NTSC 54-552 MHz:	15	15	• QAM 552-1002 MHz:	15	15	(Level of QAM signals through NC RF input becomes 6 dB less after internal combiner. With AGC enabled, capture range is ±3 dB.)		
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(Level of QAM signals through NC RF input becomes 6 dB less after internal combiner. With AGC enabled, capture range is ±3 dB.)																
Manual gain control range	0 to -6 dB minimum															
Manual gain control step	0.5 dB															
RF input impedance	75 Ω, nom															
RF input return loss	18 dB, min															
Level stability (typical)	± 0.5 dB (-1 worst case relative to 25°C)															
Fiber-only link performance <sup>1</sup> (with full channel loading of 54–552 MHz analog and 552–1002 MHz QAM)	<ul style="list-style-type: none"> <li>CNR<sup>2</sup>: 52 dB</li> <li>CSO: 65 dB</li> <li>CTB: 70 dB</li> <li>XMOD: 60 dB</li> </ul> <p><sup>1</sup> Guaranteed over full operating temperature range  <sup>2</sup> 1 dB less for transmitters with 13, 14, or 15 dBm output power. CNR measurements with 4 MHz noise bandwidth for NTSC channels.</p>															
256-QAM BER	< 10 <sup>-5</sup> (pre-FEC, ITU-C)															
MER	> 37 dB to 50°C; > 36 dB to 65°C															
<b>Optical Fiber loss and Performance</b>																
	<b>Link Loss (dB)</b>	<b>Output Power (dBm)</b>	<b>Fiber Loss (min) (dB)</b>													
	3	2.75 - 3.75	2.5													
	6	5.75 - 6.75	5.5													
	9	8.75 - 9.75	8.5													
	10	9.75 - 10.75	9.5													
	11	10.75 - 11.75	10.5													
	12	11.75 - 12.75	11.5													
	13	12.75 - 13.75	11.5													
	14	13.75 - 14.75	11.5													
	15	14.75 - 15.75	11.5													

## BD31A4 Double-Density Back Plates

The BD31A4 is a double-density back plate that provides a choice of 4 separate BC and 4 separate NC RF inputs, or 1 common BC and 4 separate NC RF inputs, for four HT3300H series transmitters.

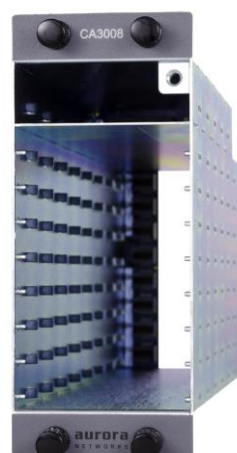
The BD31A4 provides RF input and optical connections to or from the HT3300H transmitters.

BD31A4-100-H12F-0-AS is a double density back plate that provides 4 separate BC inputs and 4 separate NC RF inputs for four HT3300H transmitters. Also supports four separate optical output SC/APC connectors.

BD31A4-100-H10F-0-AS is a double density back plate that provides 1 common BC input and 4 separate NC RF inputs for four HT3300H series transmitters. Also supports four separate optical output SC/APC connectors.



BD31A4-100-H12F-0-AS Back Plate



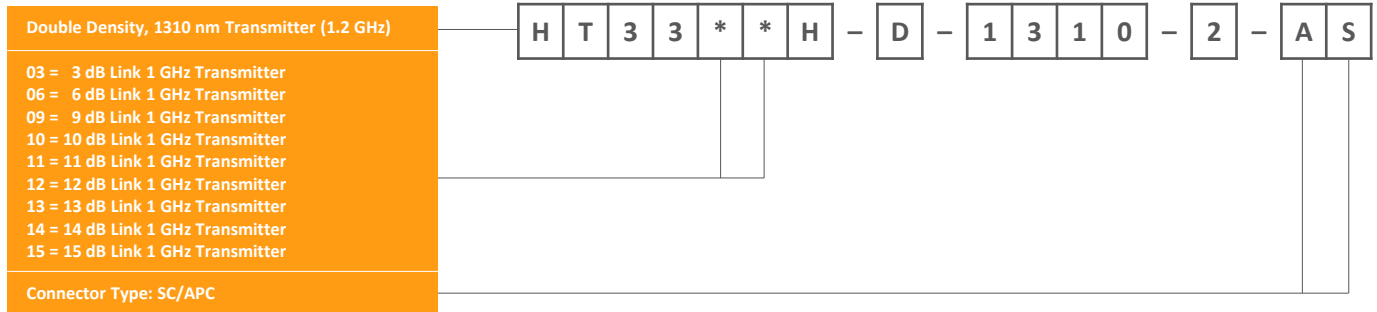
CA3008 Module Carrier

### BD31A4-100 BACK PLATE SPECIFICATIONS

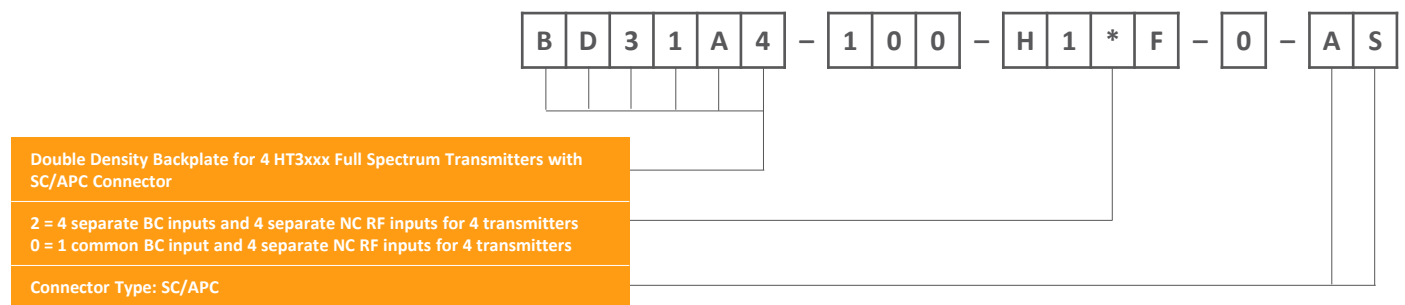
Characteristics	Specification
<b>Physical</b>	
Dimensions	7.2" D x 5.2" H x 2.0" W* (18.2 x 13.2 x 5.1 cm)
Weight	2.0 lb (0.91 kg)
<b>Environmental</b>	
Operating	-20° to +65°C (-4° to 149°F)
Storage	-40°C to +85°C (-40°F to +185°F)
Humidity	5% to 95% non-condensing
<b>Power Requirements</b>	
Input voltage	12 V <sub>DC</sub>
Power consumption	5 W max (2.5 W Typ), including the replaceable cooling fan
<b>Optical</b>	
Through 4 SC/APC connectors, the BD31A4-100 provides optical pass-through from the HT354xH transmitter.	
Optical Insertion Loss	0.2 dB Typ; 0.4 dB Max Refer to the HT3300H product specifications for more information.
<b>RF Interface</b>	
Through 8 (eight) F-type RF connectors, the BD31A4-100 provides RF pass-through to the HT3300H transmitter:	<ul style="list-style-type: none"> <li>4 BC and 4 NC (1 BC/NC pair per transmitter)</li> </ul>

ORDERING INFORMATION

HT354xH Transmitter



Back Plates



System Accessories



RELATED PRODUCTS

CH3000 Chassis	Optical Patch Cords
Optical Transmitters	Optical Passives
Digital Return	Installation Services

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

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