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.

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.

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
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.

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.
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
**HT3300H SPECIFICATIONS**

### Physical
- **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.

### Environmental
- **Operating**: 0° to +50°C (32° to 122°F)
- **Storage**: -40° to +85°C (‐40° to +185°F)
- **Humidity**: 5% to 95% non-condensing

### RF and Optical Interface
- **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)

### Power Requirements
- **Input voltage**: 12 VDC
- **Power consumption**: 10 W (per transmitter) including controller and back plate cooling fan

### Electrical
- **Pass band**: 45–1218 MHz
- **Frequency response (including slope)**:
  - ± 1.0 dB (BC input @ 25°C)
  - –6 ±1.0 dB (NC input relative to BC input)

### Nominal RF input levels (dBmV/ch)

<table>
<thead>
<tr>
<th>Mode</th>
<th>AGC</th>
<th>Manual</th>
</tr>
</thead>
<tbody>
<tr>
<td>NTSC 54–552 MHz:</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>QAM 552–1002 MHz:</td>
<td>15</td>
<td>15</td>
</tr>
</tbody>
</table>

* 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**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Link Loss (dB)</th>
<th>Output Power (dBm)</th>
<th>Fiber Loss (min) (dB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>2.75 - 3.75</td>
<td>5.75 - 6.75</td>
<td>2.5</td>
</tr>
<tr>
<td>6</td>
<td>7.5 - 9.25</td>
<td>10.5 - 12.75</td>
<td>8.5</td>
</tr>
<tr>
<td>9</td>
<td>8.5 - 10.5</td>
<td>11.5 - 13.75</td>
<td>9.5</td>
</tr>
<tr>
<td>10</td>
<td>9.75 - 11.75</td>
<td>12.75 - 15.75</td>
<td>10.5</td>
</tr>
<tr>
<td>11</td>
<td>10.75 - 12.75</td>
<td>13.75 - 16.75</td>
<td>11.5</td>
</tr>
<tr>
<td>12</td>
<td>11.75 - 13.75</td>
<td>14.75 - 17.75</td>
<td>11.5</td>
</tr>
<tr>
<td>13</td>
<td>12.75 - 14.75</td>
<td>15.75 - 18.75</td>
<td>11.5</td>
</tr>
<tr>
<td>14</td>
<td>13.75 - 15.75</td>
<td>16.75 - 19.75</td>
<td>11.5</td>
</tr>
<tr>
<td>15</td>
<td>14.75 - 16.75</td>
<td>17.75 - 20.75</td>
<td>11.5</td>
</tr>
</tbody>
</table>

1 Guaranteed over full operating temperature range
2 1 dB less for transmitters with 13, 14, or 15 dBm output power. CNR measurements with 4 MHz noise bandwidth for NTSC channels.

**256-QAM BER**

< 10⁻⁶ (pre-FEC, ITU-C)

**MER**

> 37 dB to 50°C; > 36 dB to 65°C

Ask us about the complete Access Technologies Solutions portfolio:

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

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical</strong></td>
<td></td>
</tr>
<tr>
<td>Dimensions</td>
<td>7.2&quot; D x 5.2&quot; H x 2.0&quot; W* (18.2 x 13.2 x 5.1 cm)</td>
</tr>
<tr>
<td>Weight</td>
<td>2.0 lb (0.91 kg)</td>
</tr>
<tr>
<td><strong>Environmental</strong></td>
<td></td>
</tr>
<tr>
<td>Operating</td>
<td>-20° to +65°C (−4°F to 149°F)</td>
</tr>
<tr>
<td>Storage</td>
<td>-40° to +85°C (−40°F to +185°F)</td>
</tr>
<tr>
<td>Humidity</td>
<td>5% to 95% non-condensing</td>
</tr>
<tr>
<td><strong>Power Requirements</strong></td>
<td></td>
</tr>
<tr>
<td>Input voltage</td>
<td>12 Vdc</td>
</tr>
<tr>
<td>Power consumption</td>
<td>5 W max (2.5 W Typ), including the replaceable cooling fan</td>
</tr>
<tr>
<td><strong>Optical</strong></td>
<td></td>
</tr>
<tr>
<td>Through 4 SC/APC connectors, the BD31A4-100 provides optical pass-through from the HT3300H transmitter.</td>
<td></td>
</tr>
<tr>
<td>Optical Insertion Loss</td>
<td>0.2 dB Typ; 0.4 dB Max</td>
</tr>
<tr>
<td><strong>RF Interface</strong></td>
<td></td>
</tr>
<tr>
<td>Through 8 (eight) F-type RF connectors, the BD31A4-100 provides RF pass-through to the HT3300H transmitter:</td>
<td></td>
</tr>
<tr>
<td>• 4 BC and 4 NC (1 BC/NC pair per transmitter)</td>
<td></td>
</tr>
</tbody>
</table>

---

BD31A4-100-H12F-0-AS Back Plate

CA3008 Module Carrier
ORDERING INFORMATION

**HT3300H Transmitter**

Double Density, 1310 nm Transmitter (1.2 GHz)

- **03** = 3 dB Link 1 GHz Transmitter
- **06** = 6 dB Link 1 GHz Transmitter
- **09** = 9 dB Link 1 GHz Transmitter
- **10** = 10 dB Link 1 GHz Transmitter
- **11** = 11 dB Link 1 GHz Transmitter
- **12** = 12 dB Link 1 GHz Transmitter
- **13** = 13 dB Link 1 GHz Transmitter
- **14** = 14 dB Link 1 GHz Transmitter
- **15** = 15 dB Link 1 GHz Transmitter

Connector Type: SC/APC

**Back Plates**

Double Density Back plate for 4 HT3xxx Full Spectrum Transmitters with SC/APC Connector

- **2** = 4 separate BC inputs and 4 separate NC RF inputs for 4 transmitters
- **0** = 1 common BC input and 4 separate NC RF inputs for 4 transmitters

Connector Type: SC/APC

**System Accessories**

- **Communications Control Module**
  - **CC3008**

- **Module Carrier**
  - **CA3008**

- **Filler Module for Double-Density Slots**
  - **HT3FILD**
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.

Copyright Statement: ©ARRIS Enterprises, LLC, 2017. All rights reserved. No part of this publication may be reproduced in any form or by any means or used to make any derivative work (such as translation, transformation, or adaptation) without written permission from ARRIS Enterprises, LLC ("ARRIS"). ARRIS reserves the right to revise this publication and to make changes in content from time to time without obligation on the part of ARRIS to provide notification of such revision or change. ARRIS and the ARRIS logo are registered trademarks of ARRIS Enterprises, LLC. Other trademarks and trade names may be used in this document to refer to either the entities claiming the marks or the names of their products. ARRIS disclaims proprietary interest in the marks and names of others. The capabilities, system requirements and/or compatibility with third-party products described herein are subject to change without notice.