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AT3510G

## Features

- 10 dBm optical output power
- DWDM transmitter, 40 wavelengths on ITU grid
- Optimized for 16 or 32 channels of 6 MHz 256 QAM per wavelength
- Superior flatness and stability
- Industry's highest rack density (14 transmitters per 3RU chassis)
- Front access –20dB input test point
- Front panel laser On/Off interlock switch
- Hot plug-in/out
- Local and remote status monitoring features
- Occupies one full-depth slot

# Analog 1550 nm Narrowcast Transmitter (1 GHz Passband)


The AT3510G series high performance Analog Narrowcast Transmitters are a key element of Aurora Network's Passive HFC architecture and are designed for Dense Wave Division Multiplexing (DWDM) applications for forward path transmission of narrowcast digital services. Each transmitter's wavelength is specified as one of 40 wavelengths on the 100 GHz DWDM ITU grid (ITU-T G.694.1). AT3510G transmitters incorporate advanced predistortion circuitry to enable transmission of up to 16 or 32 QAM modulated channels per wavelength. Transmitter output power is 10 dBm for maximum network performance and application flexibility.

The unique mid-plane packaging of the AT3510G features both a compact one-module-width design and an integrated "back plate" multiplexer which eliminates the need for a separate platform or shelf for a typically packaged multiplexer.

This high density packaging enables network operators to install up to 14 transmitters per 3RU chassis, all of which can be monitored remotely or locally from the power supply module. The compact design minimizes rack space requirements in headends or hubs and enhances deployment of traditional HFC, passive HFC and fiber to the home (FTTH) networks.

# AT3510G Product Specifications

## Physical:

- Dimensions:
  13.0" D x 4.3" H x 1.0" W (3RU)
  (33 cm x 11 cm x 2.5 cm)
- Weight:
  1.7 lbs (0.77 kg)

## Environmental:

- Operating temperature range: –20º to +65ºC (–4º to 149ºF)
- Storage temperature range: –40º to +85ºC (–40º to 185ºF)
- Humidity: 5% to 95% non-condensing

## RF and Optical Interface:

- RF input:
  F-type (mates to BP-A4 or BP35M4*x*)
- Input RF test point:
  G-type (male connector at front panel, –20 dB)
- Optical connector:
  SC/APC (mates to BP-A4 or BP35M4*x*)

## Power Requirements:

- Input voltage: 12 $V_{DC}$
- Power consumption: 12 W

## General:

- Hot plug-in/out
- Manual gain alignment

## Electrical:

- Pass band: 46–1002 MHz
- Frequency response (including slope):
  ±0.75 dB (46–1002 MHz)
  ±0.50 dB (550–1002 MHz)
- Nominal RF input level:
  22 dBmV/Ch (CW, at full gain)
- Gain control range: 0 to –6 dB, minimum
- Gain control step: 0.5 dB
- Input impedance: 75 Ω
- Input return loss, minimum:
  18 dB (46–550 MHz)
  18 dB (550–1002 MHz)
- Level stability: ±0.6 dB (over operating temperature range)
- Level repeatability: ±0.5 dB
- Channel loading: 16 or 32 QAM

| | 16 QAM[1] | 32 QAM[2] |
|---|---|---|
| • CNR: | 51 dB | 48 dB |
| • CSO: | 60 dB | 56 dB |
| • CTB: | 60 dB | 60 dB |

[1] –8.0 dBm at the receiver input
[2] –6.5 dBm at the receiver input

- 256-QAM BER: $\leq 10^{-5}$ (pre-FEC, ITLL-C)

## Optical:

- Optical output power: 10 ±0.25 dBm
- Fiber length: 60 km
  (user settable in 5-km steps)
- Wavelength: *See DWDM ITU Channel Plans description, below*.

## DWDM ITU Channel Plans:

Aurora Networks supports DWDM network architectures with a variety of products on the standard DWDM ITU Grid (ITU-T G.694.1).

For more complete description of available DWDM ITU Grid channels and Aurora's partitioning into convenient logical channel groups for DWDM mux and demux applications, please refer to the Aurora Networks DWDM ITU Grid Channel Plan data sheet.

When ordering AT3510G transmitters on the ITU grid please note, for network planning purposes, that Aurora's selection of AT3550 series broadcast transmitters operate at either 1545.3 nm ± 0.9 nm (occupying the approximate region of ITU channels 39 through 41) or 1563.0 nm ± 0.9 nm (occupying the approximate region of ITU channels 15 through 17).

## Ordering Information

**AT3510G-******-1-AS**

- **Analog 1550nm Narrowcast Transmitter (1 GHz)**
- **** = ITU Channel Number *(20 thru 59; reference Aurora Networks DWDM ITU Grid Channel Plan Data Sheet)***
- **Channel Types and Connector**
  **1 = 16 or 32 QAM Channels**
  **AS = SC/APC Connector**

### Module Back Plates

AT3510G series transmitters may be connected to one of two different styles of chassis back plates, which must be ordered separately depending on the application. One style provides connections for a single transmitter. This single-width back plate may be ordered as:

**BP-A4**

The second style provides connections for a group of four transmitters installed in adjacent chassis slots. These 4-channel mux back plates (for which outputs can be cascaded from one back plate to another) may be ordered for various channel groups. Please refer to the DWDM ITU Grid Channel Plan data sheet for channel groups and designators.

**BP-35M4*-*-00-AS**

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