

# Headend Optics Platform (CH3000)

## AT3545G Full Spectrum DWDM Transmitter (1 GHz Passband)

### FEATURES

- DWDM transmitter (40 wavelengths on ITU grid)
- AT3545G-xx-1-AS  
AT3545G-xx-2-AS  
Transmitters optimized for full spectrum loading (46-1002 MHz)
  - 1 for analog loading up to 258 MHz plus QAM loading
  - 2 for analog loading up to 552 MHz plus QAM loading
- Selectable RF gain allows lower RF input levels
- Industry's highest rack density (14 transmitters per 3RU chassis)
- Front access –20 dB 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



### PRODUCT OVERVIEW

ARRIS AT3545G series high performance Full Spectrum Transmitters are a key element of ARRIS's HFC and FD architectures in support of the evolution to all QAM transmission and are designed for Dense Wave Division Multiplexing (DWDM) applications for point-to-point forward path transmission of full spectrum broadcast and narrowcast services.



The AT3545-xx-1-AS series transmitters are designed for “light” analog channel loading (from 0 to 30 analog channels up to 258 MHz) plus QAM channel loading up to 1002 MHz, as well as for QAM-only full channel loading for digital services in a full spectrum direct feed transmission system or as part of a BC/NC overlay system.

The AT3545-xx-2-AS series transmitters are designed for “full” analog channel loading (from 0 to 79 analog channels up to 552 MHz) plus QAM channel loading up to 1002 MHz.

All AT3545G transmitters incorporate a user-selective (enable/disable) RF input gain stage to permit its use with lower RF input levels. As network segmentation increases, each source QAM signal must feed a larger number of QAM transmitters, with resulting RF losses due to the required splitting. Moreover, as each transmitter is able to handle greater numbers of QAM channels, the required combining of the (previously split) individual source QAM signals will also result in higher RF losses. The user-selectable RF input gain stage provides compensation for these losses.

These transmitters incorporate advanced dispersion compensation circuitry to enable transmission of full spectrum (analog plus QAM) channel loading over maximum distances.

The unique mid-plane packaging of the AT3545G 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.

**RELATED PRODUCTS**

CH3000 Chassis	Optical Patch Cords
Optical Transmitters	Optical Passives
BP Back plates	Installation Services

**SPECIFICATIONS**

Characteristics	Specification
<b>Physical</b>	
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)
<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>RF and Optical Interface</b>	
RF input	F-type male (mates to BP-A4 or BP35M4x)
Input RF test point	G-type male (located at front panel, -20 dB)
Optical connector	SC/APC (mates to BP-A4 or BP35M4x)
<b>Power Requirements</b>	
Input voltage	12 V <sub>DC</sub>
Power consumption	12 W
<b>General</b>	
	Hot plug-in/out
	Manual gain alignment
Channel loading	<ul style="list-style-type: none"> <li>AT3545G-xx-1-AS: 0-30 analog channels (up to 258 MHz) plus remaining 256-QAM channels (up to 1002 MHz)</li> <li>AT3545G-xx-2-AS: 0-79 analog channels (up to 552 MHz) plus remaining 256-QAM channels (up to 1002 MHz)</li> </ul>
<b>Optical</b>	
Optical output power	10 ± 0.25 dBm
Wavelength	See DWDM ITU Channel Plans description
Fiber length (user-settable, adjustable dispersion compensation)	<ul style="list-style-type: none"> <li>AT3545G-xx-1-AS: 60 km (in 5 km steps)</li> <li>AT3545G-xx-2-AS: 40 km (in 1 km steps)</li> </ul> Additional external dispersion compensation can be supported for some applications.
<b>Electrical</b>	
Pass band	46–1002 MHz
Frequency response (including slope)	± 0.75 dB (46–1002 MHz)
Nominal RF input levels (with input attenuator = 0 dB)	<ul style="list-style-type: none"> <li>For models AT3545G-xx-1-AS: Normal Gain Setting: 16 dBmV for analog channels, 10 dBmV for 256-QAM channels High Gain Setting: 15 dB below Normal Gain Settings</li> <li>For models AT3545G-xx-2-AS: Normal Gain Setting: 15 dBmV for analog channels, 9 dBmV for 256-QAM channels High Gain Setting: 15 dB below Normal Gain Settings</li> </ul>
RF input impedance	75 Ω, nom
RF input return loss	18 dB, min
RF input attenuator range	0 to -6 dB, minimum
RF input attenuator step size	0.5 dB
Level stability	± 0.6 dB (over operating temperature range)
256-QAM BER	< 10 <sup>-5</sup> (pre-FEC, ITU-C)
MER	> 37 dB
Link performance with CW + QAM loading (Refer to channel loading conditions in the first column at left.)	

	Transmitter Models			
	AT3545G-xx-1-AS		AT3545G-xx-2-AS	
	Link Length (km)			
	40	60	30	40
CNR** (dB):	52	50	51	50
CSO (dB):	61	58	60	58
CTB (dB):	65	65	65	65

\*\* CNR values are shown for Normal Gain Setting. CNR for High Gain Setting may vary based on the application. Please contact ARRIS for further information.

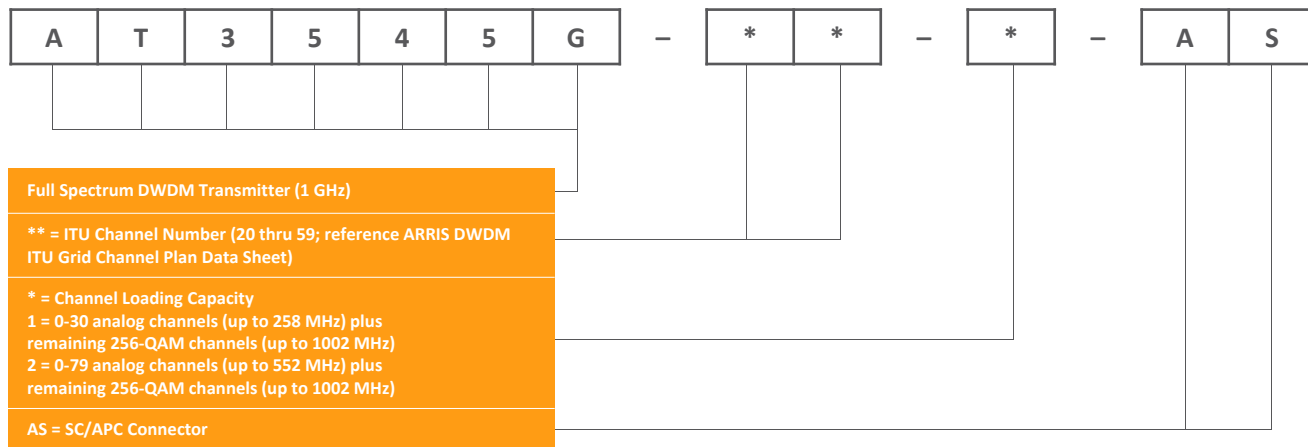
An AT3545G-xx-1-AS transmitter can also be used as a full or partially loaded QAM transmitter. For example, in BC/NC overlay systems, it would have the performance of an AT3535G-xx-1-AS transmitter.

For more information about BC/NC overlay system performance and evolution from low NC 256-QAM channel loading to full spectrum 256-QAM channel loading, or for information about full spectrum multiwavelength applications with up to 16 DWDM wavelengths, please contact your ARRIS representative.

**DWDM ITU Channel Plans**

ARRIS supports DWDM network architectures with a variety of products on the standard DWDM ITU Grid (ITU-T G.694.1). For more complete description, please refer to the ARRIS DWDM ITU Grid Channel Plan data sheet.

**ORDERING INFORMATION**



**Module Back Plates**

AT3545G 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:



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 data sheet for these back plates for further information.



**Customer Care**

Contact Customer Care for product information and sales:

- United States: 866-36-ARRIS
- International: +1-678-473-5656

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