

### FEATURES

- High density RFPON tailored solution
  - 1550 nm broadcast support
  - 1610 nm RFoG return
  - Supports GEAPON, GPON, 10GEAPON, or 10GPON, (1490 or 1577 nm downstream, 1310 and 1270 nm PON upstream)
- Dynamic back plate concept allows replacement of EDFA and return receiver without having to disconnect cables on rear of chassis
- Three required modules occupy only two chassis slots
- High output power EDFA provides constant gain and constant current modes
- RFoG Quad Return Receiver supports 5-85 MHz RF passband
- Optical back plate provides completely integrated diplexer for management of forward and return signals

The three modules that comprise CommScope’s High Density RFPON Headend Solution are the FA3524S-01-AS Optical Amplifier, the AR3041H-00-0 RFoG Quad Return Receiver, and the OP3104P-0-00-AL Mux/Demux Back plate with integrated RFPON filters.

This suite of equipment provides an immediate high density Headend solution for both RFoG and RFPON architectures (supporting GEAPON, GPON, 10GEAPON, or 10GPON).



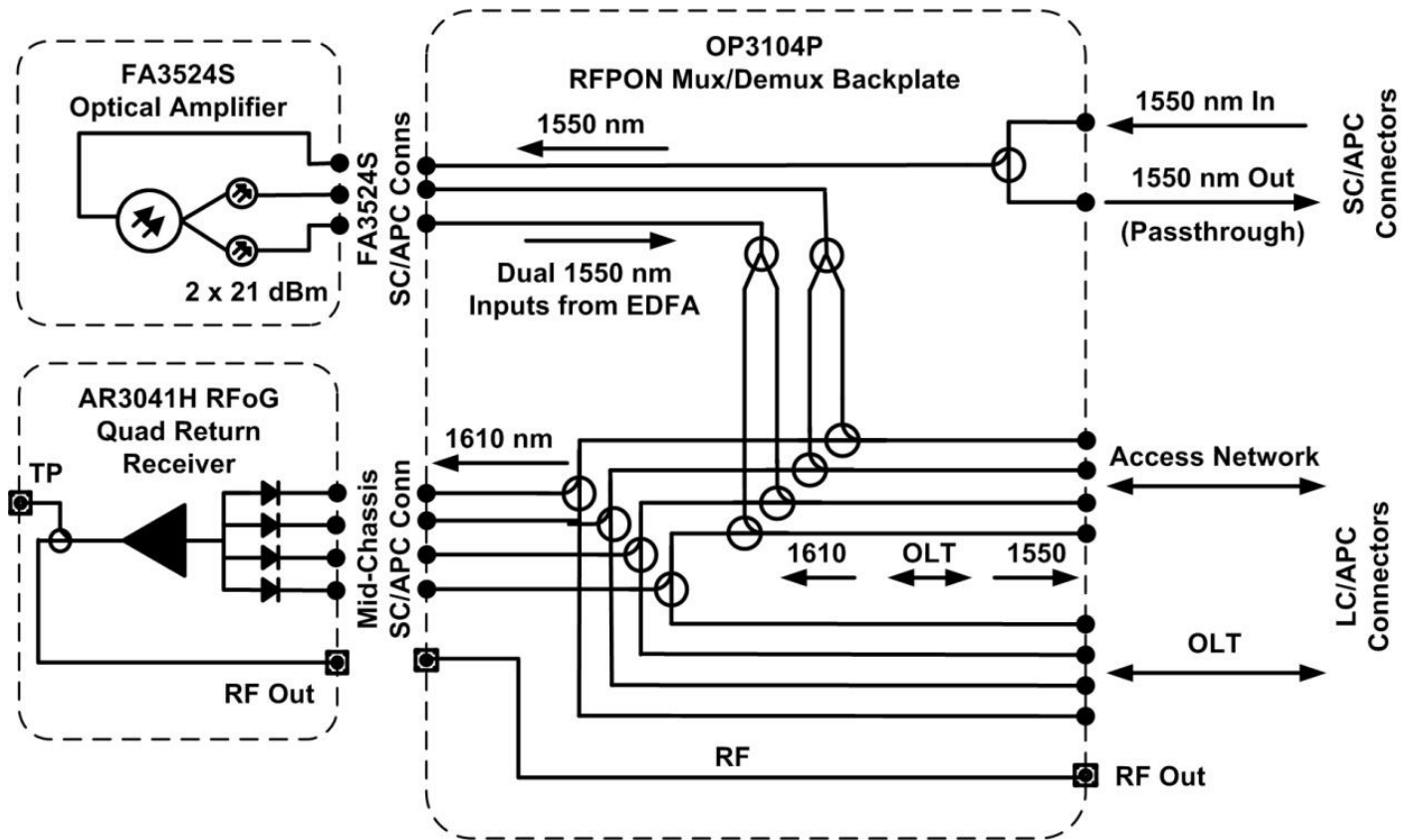
**OP3104P-0-00-AL**  
Mux/Demux Backplate

**FA3524S-01-AS**  
EDFA

**AR3041H-00-0**  
RFoG Quad  
Return Receiver

## Functional Block Diagram of the High Density RFPON Headend Solution

Detailed product specifications and descriptions of the individual modules comprising the solution are included on the following pages.



## FA3524S-01-AS Optical Amplifier

The FA3524S-01-AS Optical Amplifier is a 24 dBm amplifier with two optical output ports, each port providing 21 dBm (nominal) optical output power. When used as a component module of the High Density RFOG Headend Solution, the dual outputs of the FA3524S mate directly, via SC/APC connectors, to the OP3104P Mux/Demux Back Plate.

### Features

- High output power level (dual 21 dBm)
- Low noise figure
- Optical path isolation (input and output)
- Output power alignment
- Constant current and constant gain modes of operation
- Front panel laser On/Off interlock switch
- Hot plug-in/out
- Local and remote status monitoring and control
- Occupies one full-depth slot



### FA3524S-01-AS SPECIFICATIONS

Characteristics	Specification
<b>Physical</b>	
Dimensions	13.0" D x 4.3" H x 1.0" W (33 cm x 10.9 cm x 2.5 cm)
Weight	2.0 lbs (0.9 kg)
<b>Environmental</b>	
Operating	0° to +50°C (32° to 122°F)
Storage	-40° to +85°C (-40° to +185°F)
Humidity	5% to 95% non-condensing
<b>Power Requirements</b>	
Input Voltage	12 V <sub>DC</sub>
Power Consumption, max.	20 W
<b>General</b>	
	Hot plug-in/out
Modes of Operation	Constant Current or Constant Gain
Output Power Alignment	Manual in Constant Current mode, Automatic in Constant Gain mode
Optical Connectors	SC/APC
<b>Optical (Each Fiber Amplifier)</b>	
Output Power, nominal	21 dBm
Output Power Margin	0.3 dB (at 0 dBm input)
Output Power Stability	± 0.1 dB
Output Power Adjustment Range	-3.0 dB (from nominal output power, min)
Noise Figure	4.5 dB Typical, 5.0 dB max.
Input Signal Wavelength	1530–1565 nm
Input Sensor Range	-10 to +10 dBm
Optical Signal Path Isolation	> 30 dB

## AR3041H-00-0 RFoG Quad Return Receiver

The AR3041H-00-0 is the receiver for the High Density RFoG Headend Solution. Supporting a return RF passband of 5–85 MHz, it performs the optical-to-electrical (O/E) conversion of returning 1610 nm wavelength signals from four separate optical input streams, combines the RF outputs, and provides gain control of the combined RF signal with a built-in attenuator.

### Features

- 5–85 MHz RF bandwidth
- RF output gain control with local or remote status monitoring
- Front access -20 dB output test port
- Hot plug-in/out
- No fan on module (no forced air cooling)
- Occupies one half-depth slot



## AR3041H-00-0 SPECIFICATIONS

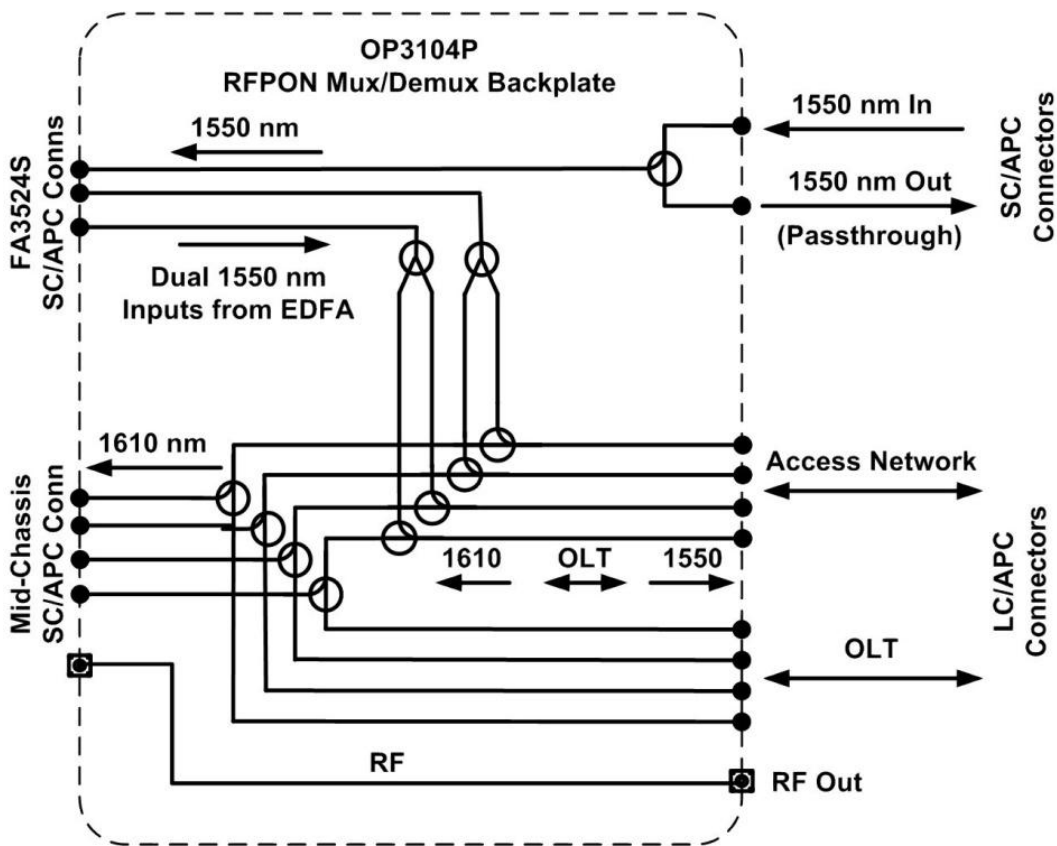
Characteristics	Specification
<b>Physical</b>	
Dimensions	6.6" D x 4.3" H x 1.0" W (16.8 cm x 10.9 cm x 2.5 cm)
Weight	1.5 lbs (0.7 kg)
<b>Environmental</b>	
Operating	-20° to +65°C (-4° to 149°F)
Storage	-40° to +85°C (-40° to +185°F)
Humidity	5% to 95% non-condensing
<b>Power Requirements</b>	
Input Voltage	12 V <sub>DC</sub>
Power Consumption, max.	2 W
<b>General</b>	
Optical Connectors	SC/APC
RF Connector	G-type
<b>Optical</b>	
Input Wavelength, nominal	1610 ± 10 nm
Optical Input Power per Path	-24 to -15 dBm
<b>Electrical, Return RF</b>	
Passband	5–85 MHz
Frequency Response	± 1.0 dB
Optical Input Power per Path	-24 to -15 dBm
Standard Output Level at Full Gain	34 dBmV (with -24 dBm optical input, 26.7% OMI)
Level Stability	± 0.5 dB
Output Return Loss, min.	18 dB
Gain Control Range	0–20 dB
Gain Control Step	0.25 dB

## OP3104P-0-00-AL Mux/Demux Back Plate with Integrated RFPON Filters

The OP3104P-0-00-AL is a passive optical module that functions as a common back plate for both the FA3524S and AR3041H while also serving as a completely integrated diplexer for the forward and return path optical signals used in RFPON applications as shown in the block diagram below.

### Features

- Low optical insertion loss
- Low noise
- Two SC/APC connectors for input of a common 1550 nm broadcast signal (to FA3524S EDFA) and pass-through
- Eight LC/APC connectors provide four 1550 nm forward signal inputs and four network outputs (1550 nm forward and 1610 nm return)
- F-type connector provides RF output signal passed through from AR3041H
- Hot plug-in/out



## OP3104P-0-00-AL SPECIFICATIONS

Characteristics	Specification
<b>Physical</b>	
Dimensions	6.6" D x 4.3" H x 1.0" W (16.8 cm x 10.9 cm x 2.5 cm)
Weight	1.5 lbs (0.7 kg)
<b>Environmental</b>	
Operating	-20° to +65°C (-4° to 149°F)
Storage	-40° to +85°C (-40° to +185°F)
Humidity	5% to 95% non-condensing
<b>Power Requirements</b>	
Input Voltage	12 V <sub>DC</sub>
Power Consumption, max.	2 W
<b>General</b>	
Optical Connectors	SC/APC
RF Connector	G-type
<b>Optical</b>	
Input Wavelength, nominal	1610 ± 10 nm
Optical Input Power per Path	-24 to -15 dBm
<b>Electrical, Return RF</b>	
Passband	5–85 MHz
Frequency Response	± 1.0 dB
Optical Input Power per Path	-24 to -15 dBm
Standard Output Level at Full Gain	34 dBmV (with -24 dBm optical input, 26.7% OMI)
Level Stability	± 0.5 dB
Output Return Loss, min.	18 dB
Gain Control Range	0–20 dB
Gain Control Step	0.25 dB
<b>Optical</b>	
Wavelengths, nominal	Broadcast pass-through: 1550 nm downstream Access Network I/O (upstream/downstream): 1270/1577, 1310/1490, 1610/1550 OLT I/O (upstream/downstream): 1270/1577, 1310/1490
Insertion Losses and Isolation	1550 INP to 1550 OUT (pass-through port) Passband, min: 1530–1565 nm Insertion Loss, max: 3.6 dB
1550 INP to 1550 OUT (to EDFA)	Passband, min: 1530–1565 nm Insertion Loss, max: 3.6 dB
1550 INP 1/INP 2 (from EDFA to Access Network)	Passband, min: 1530–1563.2 nm Insertion Loss, max: 4.2 dB (3.7 dB typ) Isolation, EDFA to OLT, min: 50 dB Isolation, EDFA to 1610 OUT (1,2,3,4), min: 50 dB
OLT to Access Network	Passband, min: 1260–1520 nm, 1567–1587 nm Insertion Loss, max: 1.2 dB (0.8 dB typ) Isolation, OLT to 1610 OUT (1,2,3,4), min: 50 dB
Access Network to 1610 OUT (1,2,3,4)	Passband, min: 1600–1620 nm Insertion Loss, max: 1.8 dB Isolation, Access Network to OLT, min: 15 dB
Access Network to OLT	Passband, min: 1260–1520 nm, 1567–1587 nm Insertion Loss, max: 1.2 dB Isolation, Access Network to 1610 OUT (1,2,3,4), min: 40 dB

## ORDERING INFORMATION

Model Name	Description
FA3524S-01-AS	Optical Amplifier Module, 24 dBm Output Power (2 Outputs at 21 dBm)
AR3041H-00-0	RFOG Quad Return Receiver
OP3104P-0-00-AL	RFPON Mux/Demux Back plate includes 1550 nm forward pass-through port
OP3104P-3-00-AL	RFPON Mux/Demux Back plate does not include the forward pass-through port

## RELATED PRODUCTS

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

Contact Customer Care for product information and sales:

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

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