

Optical Node Series (NC)

FA4514-02, FA4517-02, FA4521-02, FA4523-02
Single Slot Optical Amplifiers

FEATURES

- 14, 17, 21 or 23 (2x20) dBm output power level
- User-selectable Constant Current or Constant Gain mode
- Low noise figure
- Optical path isolation (input and output)
- Remote status monitoring and control
- ASE muting
- Auto-limiting optical output for eye safety
- Hot plug in/out



PRODUCT OVERVIEW

The ARRIS FA4514S-02, FA4517S-02, FA4521S-02 and FA4523S-02 modules are high-output, extremely compact 1550 nm single slot optical amplifiers. These high performance amplifiers enable operators to use 1550 nm and DWDM analog transmitters to deliver high-quality broadcast and digital narrowcast content over significant transmission distances.

These optical amplifiers enhance the deployment of traditional HFC, Fiber Deep and fiber to the home (FTTH) networks. They can be user selected to operate in two modes. Constant current: Delivering fixed optical output power, typically used for single wavelength deployments. Constant gain: For multi wavelength applications where the optical level per wavelength remains constant with varying numbers of wavelengths. They also include automatic ASE muting. Here the EDFA output is muted when the incoming optical signal is lost, with optical power automatically restored when the signal returns. The optical output is auto limited to not exceed 21.7 dBm ensuring optical eye safety limits are maintained at all times.

The units are designed as plug-in modules for ARRIS's NC4000 series Fiber Node Platforms, including the NH4000 "Virtual Hub," and, when used in the latter, provides a practical alternative to OTN-style cabinets.

SPECIFICATIONS	
Characteristics	Specification
Physical	
Dimensions	4.0" L x 2.2" H x 2.3" W (10.2 cm x 5.6 cm x 5.8 cm)
Weight	0.6 lbs (0.3 kg)
Environmental	
Operating Temperature Range	-40° to +85°C (-40° to 185°F)
Storage Temperature Range	-40° to +85°C (-40° to 185°F)
Humidity	5% to 95% non-condensing
General	
Hot plug in/out	
Modes of operation	Constant Current or Constant Gain
Optical Interface	
Optical connectors	SC/APC
Power Requirements	
Input voltage	24 V _{DC}
Power consumption	<ul style="list-style-type: none"> FA4514 and FA4517: 9 W max FA4521: 10 W max FA4523: 18 W max
Status Indicator LEDs	
	CURR MODE = Lighted green when operating in constant current (power) mode
	GAIN MODE = Lighted red when operating in constant gain mode
	EDFA@MAX = Bi-state LED:
	<ul style="list-style-type: none"> Yellow if laser is at maximum current or EDFA is maximum output power Red if ASE muting is activated, or a hardware failure or eye safety limit (21.7 dBm) is reached
Remote Monitoring/Control Parameters	
	Optical input power, laser current, optical output power, laser temperature, operational mode
Optical	
Input signal wavelength	1530 – 1565 nm
Optical signal path isolation, input	<ul style="list-style-type: none"> FA4523-02, FA4521S-02 > 30 dB: all temperatures FA4514S-02, FA4517S-02 > 30 dB: from -20° to 70°C > 20 dB otherwise
Output power stability (all models)	<ul style="list-style-type: none"> Constant Current Mode: ± 0.6 dB Constant Gain Mode: ± 0.7 dB
Performance Parameters	
	Model
	FA4514S FA4517S FA4521S FA4523S
Nominal output power (dBm) (with 0 dBm input)	14 17 21 20 (x2)
Noise figure (dB) (at 0 dBm input, over all wavelengths and temperatures)	6.2 5.8 5.8 5.8 (typ 5.6) (typ 5.2) (typ 5.2) (typ 5.2)
Noise figure, broadcast (1545 – 1563 nm input) (dB)	5.2 5.0 5.0 5.0 (typ 4.7) (typ 4.5) (typ 4.5) (typ 4.5)
Composite input power range (dBm)	
Constant Current Mode	-10 to +11 -6 to +10 -6 to +11 -6 to +11
Constant Gain Mode	
Min	-6 (4 λ at -12 dBm ea) -6 (4 λ at -12 dBm ea) -6 (4 λ at -12 dBm ea) -6 (4 λ at -12 dBm ea)
Max	+10 (20 λ at -2 dBm ea) +10 (20 λ at -2 dBm ea) +10 (20 λ at -2 dBm ea) +10 (20 λ at -2 dBm ea)
Constant Gain Mode range ¹ (dB)	4 – 20 6 – 23 6 – 27 6 – 26

NOTES:

¹ Gain control step = 0.25 dB for all models.

² If Gain = (6-Δ) dB, the minimum composite input power is (-8+Δ) dBm.

³ If Gain = (6-Δ) dB, the minimum composite input power is (-6+Δ) dBm.

ORDERING INFORMATION

Part Number	Description
FA45xxS-02-AS	xx= Nominal output power: (14, 17, 21, 23 dBm)

RELATED PRODUCTS

NC4000 Series Fiber Node Platforms	NH4000 Virtual Hub
------------------------------------	--------------------

OR41x8 RFoG Receiver	CP8xxx RFoG ONU
----------------------	-----------------

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.