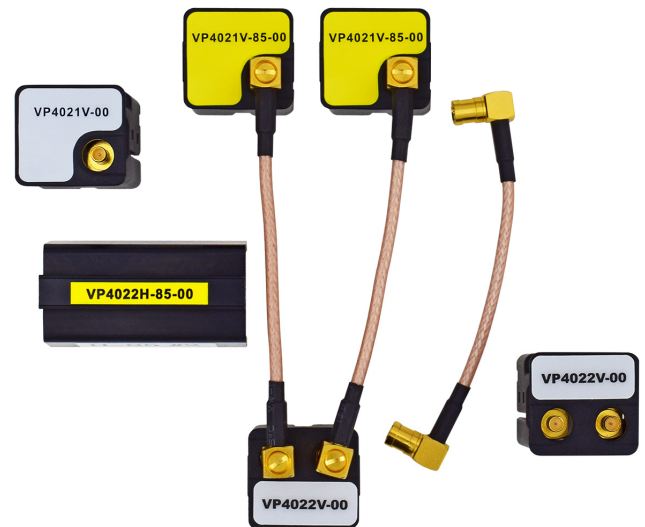


Optical Node Series (NC)

VP4xxxV/H NH4000-UVPx
RF Return Plug-in Combiner/Filter Modules

FEATURES

- Pluggable RF combiner/filter modules provide multiple RF return segmentation and filtering options for the NH4000-UVPx and NH4600-UVPx Universal VHub (UVHub) Platforms
- Bridges RF Returns between the Optical Receiver and the DT/VT4250 Digital Return Transceivers in RFoG applications
- Use in either the Base or Lid of the Universal VHub
- 2x1, 2x2 combining, with and without RF Filtering support a variety of RF Return segmentation strategies
- 5–42 MHz, 5–65 MHz, 5–85 MHz, and straight through “no filter” options offer flexibility for worldwide implementations
- Includes 5.0 dB (V-models) or 10.0 dB per leg (H-models), for RF Return padding purposes
- Small plug-in/plug-out modules enable fast in-field network upgrades and evolutions
- Completely passive, requiring no power



PRODUCT OVERVIEW

Contributing to the “Universal” VHub node concept and solutions, these small pluggable modules provide flexibility for RF Return designs in RFoG applications. Designed to route the RF Returns between the Optical Receiver and the Digital Return Transceiver within the NH4000-UVP1/UVP2 and NH4600-UVP1/UVP2 node platforms, providing RF pass-through, RF combining, and RF filtering to meet the requirements of a myriad of RF Return segmentation strategies. The compact passive “plug-in/plug-out” design means that the modules can be easily exchanged in the field for node upgrades or evolutions.

The VP4xxxV/H family of RF Return plug-in modules provide options offering implementation of many RF Return segmentation and worldwide filtering strategies and applications. Physically, the units include RF “SMB” connectors on the bottom-side, enabling direct plug-in to the NH4000/NH4600-UVPx PC4010 Power Chassis Base PC Board, as well as the LM4010 Lid Motherboard, providing direct PCB RF connectivity between the OR4xxxx Optical Receiver and the VT/DT4250 Digital Return Transceivers. The “H” plug-in modules easily span the connections between the Receiver and the Return Transceiver. For other applications, the “V” plug-in modules include bottom-mounted RF SMB connectors for the PC4010 and the LM4010 boards, as well as one or two top-mounted RF connectors such that the RF routing can be managed to the top-mounted plug-in on the Return Transceiver side. ARRIS supplies a variety of short RF jumper cables for this application (VP4000-xx).

To add to the flexibility, a number of module options are available to support the various application possibilities, such as 2x2 segmentation (two in and two out, with and without filtering), and 2x1 combining (two in and one out, with and without filtering).

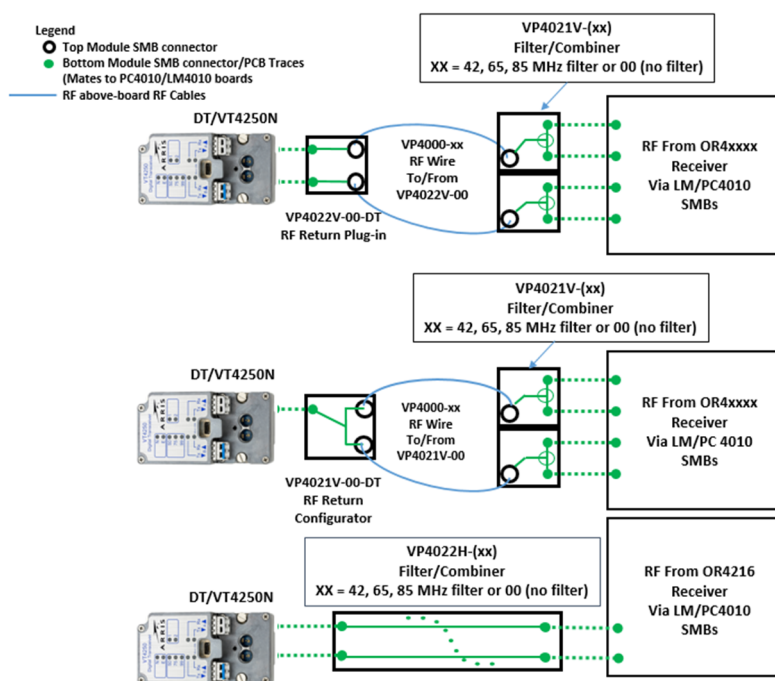
These plug-in RF Return segmentation options align perfectly with the OBI-free Optical Receiver options from ARRIS, such as the OR4216R 2x8 Diplexer/ Receiver, which provides two RF Return segments for two groups of eight access paths.

On the Return Transceiver side, the plug-ins easily support the VT/DT4250 Digital Return Transceiver “1-fer” and “2-fer” digital return implementations, with either a plug-in module with 2 to 1 combining or 2x2 (no combining).

Each plug-in module design provides 5-42 MHz, 5-65 MHz, 5-85 MHz RF Return filtering, or no filtering options, supporting popular worldwide installations.

The VP4000-xx RF Jumpers enable efficient interconnection between the “Vertical” modules.

See the Ordering Information table on Page 3 to view all options and descriptions.



SPECIFICATIONS

Characteristics	Specification
Physical	
Dimensions	H type: 1.875" L x 0.996" W x 1.192" H (4.76 cm x 2.53 cm x 3.03 cm) V type: 1.0" L x 0.94" W x 1.33" H (2.54 cm x 2.39 cm x 3.38 cm)
Weight	< 0.1 lb
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
RF Performance, UVHub Lid and Base Motherboard excluded	
Passbands (MHz)	5-42; 5-65; 5-85; or none (no filtering)
Insertion loss (dB)	
• Vertical (V) models	5.5 Max to 4.5 Min, measured from SMB in to SMB out
• Horizontal (H) models	10.5 Max to 9.5 Min, measured from SMB in to SMB out, each leg
Return loss (dB)	20, input and output, within passband
Isolation/Cross Insertion loss (dB)	
• VP4022V-00	80. Up to 250 MHz; measured between path A input and path B output. Same for B to A.
• VP4022V-xx	70. Within passband plus from Reject frequency up to 250 MHz; measured between path A input and Path B output. Same for B to A. The last 5 MHz of the passband may degrade by 5 dB.

ORDERING INFORMATION

Model Name	Description
VP4021V-42-00	Filter-combiner plug-in, combines 2 return outputs from OR4xxx receiver diplexer modules, provides 1 output, and includes integrated low pass filter for 5-42 MHz return band
VP4021V-65-00	Filter-combiner plug-in, combines 2 return outputs from OR4xxx receiver diplexer modules, provides 1 output, and includes integrated low pass filter for 5-65 MHz return band
VP4021V-85-00	Filter-combiner plug-in, combines 2 return outputs from OR4xxx receiver diplexer modules, provides 1 output, and includes integrated low pass filter for 5-85 MHz return band
VP4021V-00	Combiner plug-in, combines 2 return outputs from OR4xxx receiver diplexer modules, provides 1 output. No filter.
VP4022V-00	Return path plug-in, takes outputs from two VP4021V-xx to provide 2 inputs to VT/DT4250 transceiver or provides 2 outputs from OR4xxx modules. (VT/DT4250 "2-fer" mode)
VP4021V-DT-00	Return path configuration plug-in, takes outputs from 2x VP4021V-xx to provide one combined input into VT/DT4250 transceiver ("1-fer" mode)
VP4022H-00	Combiner horizontal plug-in, takes 2 return outputs from OR4xxx receiver diplexer module to 2 inputs of VT4250 transceiver. No filter. (VT/DT4250 "2-fer" mode)
VP4022H-42-00	Filter-combiner horizontal plug-in, takes 2 return outputs from OR4xxx receiver diplexer module to 2 inputs of VT4250 transceiver with 2x integrated low pass filters for 5-42 MHz return band. (VT/DT4250 "2-fer" mode)
VP4022H-65-00	Filter-combiner horizontal plug-in, takes 2 return outputs from OR4xxx receiver diplexer module to 2 inputs of VT4250 transceiver with 2x integrated low pass filters for 5-65 MHz return band. (VT/DT4250 "2-fer" mode)
VP4022H-85-00	Filter-combiner horizontal plug-in, takes 2 return outputs from OR4xxx receiver diplexer module to 2 inputs of VT4250 transceiver with 2x integrated low pass filters for 5-85 MHz return band. (VT/DT4250 "2-fer" mode)
VP4000-xx	SMB RF jumper cables, where xx defines the length in cm: 09, 12, 30, and 60.

Plug-in modules bottom view, showing SMB connectors



RELATED PRODUCTS

VT/DT4250 Digital Return Transceivers	OR41x8, OR4216R Optical Diplexer/Receivers
VP4000-09, 12, 30, 60 SMB RF Jumper Cables	NH4000/NH4600-UVPx UVHub

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.

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