AIMA-RRAG

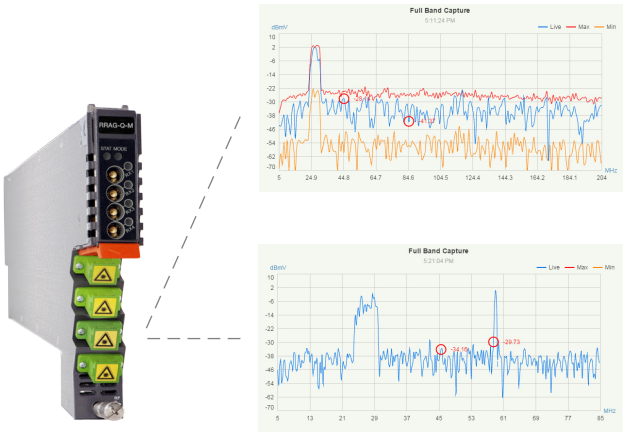
Analog Return Receiver- RFoG

The PBN AIMA3000 RRAG series Analog Return Receiver- RFoG are designed for multi-service operators to increase network return capacity and meet an ever-growing demand for bandwidth, while minimizing physical headend space and increasing power efficiency.

The RRAG is designed to plug into PBN's latest generation Advanced Intelligent Multi-Service Headend Platform (AIMA3000). The RRAG is specially designed to accommodate low power optical input as low as -28 dBm. The RRAG incorporates four independent optical return-path receivers that operate at wavelengths between 1260-1620 nm. The design allows up to 64 independent receivers in 4 RU of space. The user can set each receiver individually for manual gain control (MGC) mode. The unit has a low noise profile and high-performance amplifiers to ensure good signal-to-noise ratio as well as low distortion characteristics. The RRAG is compatible with RFoG ONU (R-ONU) as well as PBN micro nodes DPON. With versatile RF outputs, the RRAG is flexible for various headend configurations.

With the optional embedded Full Band Capture (FBC) module, it enables the operator to capture and monitor the return path spectrum helping the operator to quickly find and locate the upstream noise and the related upstream signal levels.Advanced spectrum analyzing software is available as in a standalone version or as module within PBN's NMSE Software suite. It also can be easily integrated into operators exist network management system.

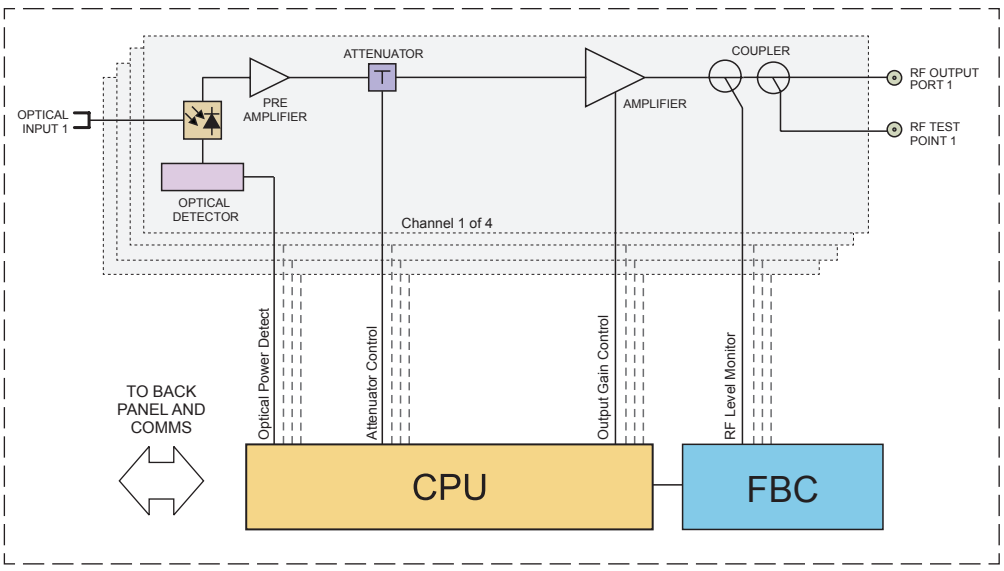
The RRAG can also be conveniently monitored and controlled through a computer connected to one of the Ethernet ports via the ASMM module. All module settings are retained in non-volatile memory to ensure trouble-free operation. Bulk updating is possible using PBN's NMSE web-based management system.



Key Features and Functions

- Upstream bandwidth 5 ~ 204 MHz with EuroDOCSIS and DOCSIS 3.0 support
- RF output 27 dBmV with a -21 dBm optical input and an OMI of 6%
- 1260 ~ 1620 nm operating wavelength, to suit CWDM, DWDM, and RFoG applications
- Wide optical input from -28 dBm to -12 dBm
- Allows up to 64 receivers (4x16 Modules) in only 4 RU of space
- Easy to install due to RF-Paddle board backplane design
- Plug-and-play and hot-swappable
- Dedicated testport per return channel
- Fully FCC, CE, and RCM compliant
- Real-time alarm monitoring
- Full Band Capture offers automated and 7*24 return path/upstream RF and data performance monitoring and analysis
- Help operators preemptively identify and address spectrum variances
- Lower capital expenses by eliminating the need for expensive test equipment
- Web-browser access eliminates the need for a thick client and a mobile APP is available
- An intuitive user interface similar as meter adapt to user's operating habits
- Improve network maintenance efficiency and Increase customer satisfaction
- FBC software which can work independently, in PBN NMSE or be integrated into third-party systems

Block Diagram



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Specifications

Optical Performance

Optical wavelength	1260 nm ~ 1620 nm
Optical inputs	-28 dBm ~ -12 dBm
Optical return loss	> 50 dB
Optical connectors	4 x SC/APC (1), FC/APC, LC/APC, E2000/APC

RF Performance

RF bandwidth	5 MHz ~ 204 MHz
RF output level (2)	27 dBmV (87 dBuV)
RF flatness	± 0.75 dB
Gain range	0 ~ 45 dB (default 30 dB)
RF impedance	75 Ω
RF return loss	> 18 dB
Receiver isolation	> 65 dB
RF test point relative to RF output port	-20 dB ± 1 dB
RF connectors	4 x GSK-type female
RF test points	4 x Mini-SMB
Alarms and status	Front-panel LEDs, SNMP Traps
Equivalent input noise current	1.5 pA/sqr(Hz)

Link Performance

CNR	> 43 dB @ -15 dBm, 6% OMI
IMD2	> 61 dB @ -15 dBm, 6% OMI
NPR@-21 dBm	> 30 dB (dynamic range over 15 dB)

General

Power supply	Powered via AIMA3000 backplane
Power consumption	< 18 W (without FBC) < 24 W (with FBC)
Operating temperature	-5 °C ~ +55 °C
Storage temperature	-40 °C ~ +70 °C
Dimensions (WxDxH)	24.6 x 410 x 152.5 mm
Weight	0.87 kg
Supported network management options	PBN's NMSE or through ASMM's Web Interface

With the FBC module

Frequency capture range	5 ~ 204 MHz
Dynamic range	60 dB
Spectrum lines	3, including live, max hold and min hold
RBW	Up from 30 KHz
VBW	Auto adaptable
Vertical markers	2

Note:

(1) Standard option. Contact a PBN Sales Representative for availability of other options.

(2) Measured in a typical system with a -21 dBm optical input, an OMI of 6%, and gain set to 30 dB (the stated RF output level may differ with other optical input levels). And dBuV= 60 + dBmV.

Order Details

A-RRAG-[W]-[X] -[Y]-[Z] ..... Analog Return Receiver- RFoG

Options:

W Optical ports

- **Q** Quad (4)

X FBC Function (1)

- **M** With FBC management

Y Optical Connector Type

- **S** SC/APC (2)
- **E** E2000/APC
- **F** FC/APC
- **L** LC/APC

Z Bandwidth

- **20** 5 ~ 204 MHz (Standard for RFoG)

Notes:

(1) Option for FBC management configurations only, if not used omit [X] when making an order.

(2) Standard option. Contact a PBN sales representative for availability of other options.

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