AIMA-FT3S

1310 nm Forward Transmitter - Standard

The 1310 nm Forward Transmitter Module - Standard series (FT3S) is designed to plug into PBN's latest generation Advanced Intelligent Multi-services Access platform - the AIMA3000.

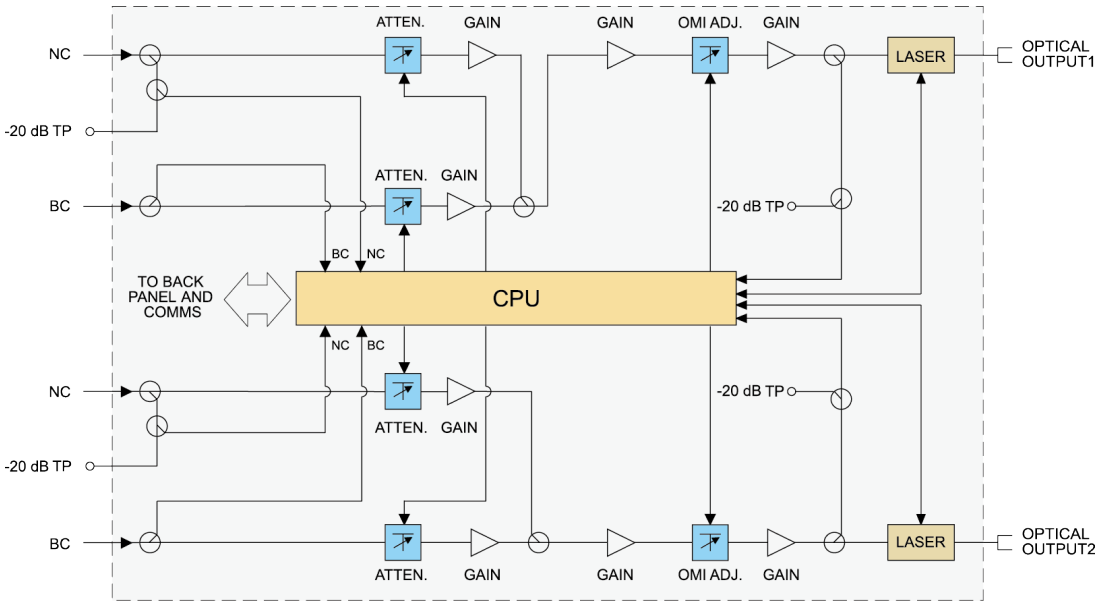
PBN AIMA3000 FT3S series advanced forward transmitter is available in single and dual port configurations. It is designed for multi-services operators (MSOs) to increase network capacity to satisfy an ever-growing subscriber demand for more bandwidth. The FT3S Multi Quantum Well (MQW) Distributed Feedback (DFB) laser transmitter module allows for full-spectrum analog/digital broadcast and narrowcast channels over the entire 1218 MHz space, which provides utmost flexibility for MSOs during the all-digital transition.

The laser transmitter module is available in optical power levels from 2 dBm to 15 dBm (1.6 mW to 31 mW). The module offers a superior frequency response, as well as an extremely low distortion profile and low noise characteristics. The FT3S incorporates specialized circuitry to deliver the best possible CTB and CSO performance of up to 1218 MHz. It employs the latest in broadband linear amplifier technology. In addition, it has a cutting-edge optoelectronic design for the delivery of high-quality transmissions, in both analog and digital formats, over passive fiber-optical networks.

Key Features and Functions

- DOCSIS 3.1 Compatible with operating bandwidth up to 1218 MHz
- Plug-and-play with the AIMA3000 platform
- High-quality 1310 nm, isolated MQW DFB laser with advanced RF driver circuitry
- RF amplifier gain blocks with advanced GaAs technology for better performance
- Supports CENELEC and NTSC standards up to 110 channels (both analog and digital)
- Frequency response of 45 MHz to 1218 MHz for both broadcast and narrowcast applications
- Can be locally managed through an Ethernet port
- Alarm monitoring through PBN's NMSE and ASMM Web Interface
- Automatic gain control (AGC) for a consistent optical modulation index (OMI)
- Automatic thermo-cooler control (ATC) for a consistent laser temperature
- Automatic power control (APC) for a consistent optical output power
- Available in single and dual transmitter configurations
- Up to 64 transmitters in a 4RU chassis
- Remote firmware upgrade and auto upload/download of configuration files through ASMM web interface or using PBN's NMSE
- Fully FCC, CE, and RCM compliant

Block Diagram



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Specifications

Optical Performance

Optical wavelength	1310 nm ± 10 nm
Optical outputs	1 or 2
Output power	2 dBm to 15 dBm
Optical connector	SC/APC, FC/APC, LC/APC, E2000/APC

RF Performance

RF bandwidth	45 MHz to 1218 MHz
RF flatness	± 0.75 dB
RF input return loss	> 16 dB
RF input level, NC nominal [1]	23 dBmV per channel (117ch QAM256)
RF input level, BC nominal [1]	13 dBmV per channel (117ch QAM256)
AGC range	± 3 dB
Isolation of NC and BC	> 50 dB
RF impedance	75 Ω
RF test point relative to RF input port	-20 dB ± 1 dB
Isolation between transmitters	45~1000 MHz: > 65 dB 1001~1218 MHz: > 60 dB
RF input connectors	Single: 2 x GSK-type female (1 for NC, 1 for BC) Dual: 4 x GSK-type female (2 for NC, 2 for BC)
RF test points	Single: 3 x Mini-SMB [2] Dual: 4 x Mini-SMB [3]
Alarms and laser status	Front-panel LEDs, SNMP Traps

Link Performance

	NTSC+QAM [4]
CNR	> 52 dB
CSO	> 63 dB
CTB	> 65 dB
MER	> 39 dB
BER	< 1E-9

General

Power supply	Powered via AIMA3000 backplane
Power consumption	Single: < 8.0 W Dual: < 15.0 W
Operating temperature	-5 °C to +55 °C
Storage temperature	-25°C to +70 °C
Operating humidity	90% (non-condensing)
Storage humidity	90% (non-condensing)
Dimensions (WxDxH)	24.6 x 410 x 152.5 mm
Weight	0.88 kg
Supported network management options	PBN's NMSE or through ASMM's Web Interface

Note:

(1) dBuV=60+dBmV.

(2) Three mini-SMB connectors on front panel: one each for BC and NC inputs and one to measure RF input before the laser.

(3) Four mini-SMB connectors on front panel: Two NC inputs test ports and two to measure RF input before the laser.

(4) CNR, CSO, CTB and MER are loaded with 30NTSC+117ch QAM256. All are measured with PBN reference optical receiver with 10km single-mode optical fiber 0dBm.

Order Details

A-FT3S-[V]-[W]-[*X1X2*]-[Y]-[Z] ····· 1310 nm Forward Transmitter - Standard

Options:

V Number of Optical Ports

S	Single (1)
D	Dual (2)

W Optical Output Power

02	2 dBm (1.6 mW) optical power
04	4 dBm (2.5 mW) optical power
06	6 dBm (4 mW) optical power
08	8 dBm (6.3 mW) optical power
09	9 dBm (8 mW) optical power
10	10 dBm (10 mW) optical power
11	11 dBm (13 mW) optical power
12	12 dBm (16 mW) optical power
13	13 dBm (20 mW) optical power
14	14 dBm (25 mW) optical power
15	15 dBm (31 mW) optical power

X1X2 [1] [2]

First Channel	Last Channel		
CWDM [3]		***OBand WDM*** [4]	
29	*1290 nm*	***A***	*1330.50*
31	*1310 nm*	***B***	*1329.20*
33	*1330 nm*	***C***	*1327.25*
35	*1350 nm*	***D***	*1325.80*
37	*1370 nm*	***E***	*1324.17*
		F	*1323.00*
		G	*1321.30*
		H	*1318.10*

Y Optical Connector Type

S	SC/APC
F	FC/APC
L	LC/APC
E	E2000/APC

Z Bandwidth

1G	45 ~ 1000 MHz [5]
12	45 ~ 1218 MHz

Note:

(1) X1X2 is for CWDM or OBand WDM configurations only. Please omit X1X2 when making an order for non CWDM/OBand application scenarios, and the default optical wavelength is 1310nm±10nm. For example, A-FT3S-S-02-F-1G refers to an order for a 1310 nm Forward Transmitter, one optical port, output power 2dBm, FC/APC connector, bandwidth 45-1218 MHz.

(2) X2 is only used in dual transmitters versions and in this case X1 is the first channel, X2 is the second channel.

Examples:

Single	*X1*	*29*
Dual	*X1X2*	*2931, 2929*

Default spacing of CWDM is 20 nm. For more wavelength configurations, please contact your PBN representatives.

(3) For CWDM configuration the maximum optical output power is 12dBm. It is recommend to be applied to QAM signal transmission. For other applications, please contact your PBN representatives.

(4) Please contact your PBN representatives for the latest lead-time of CWDM and O-band products.

(5) 1G version is only for single port models.

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