ASCENT
Communication Technology

AH1000 F3CT Optical Transmitter

Quick Reference Guide

Revision C

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ACT Document Number: ACT AH1000 F3CT Optical Transmitter

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This document is produced to assist professional and properly trained personnel with installation and maintenance issues for the product. The capabilities, system requirements and/or compatibility with third-party products described herein are subject to change without notice.

For more information, contact ACT: support@ascentcomtec.com

Revision History

Revision	Date	Reason for Change
A	12/11/2015	Initial release
B	07/16/2017	Minor updates
C	02/09/2022	Updated specifications

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1 Optical Transmitter Module

1.1 Device Description

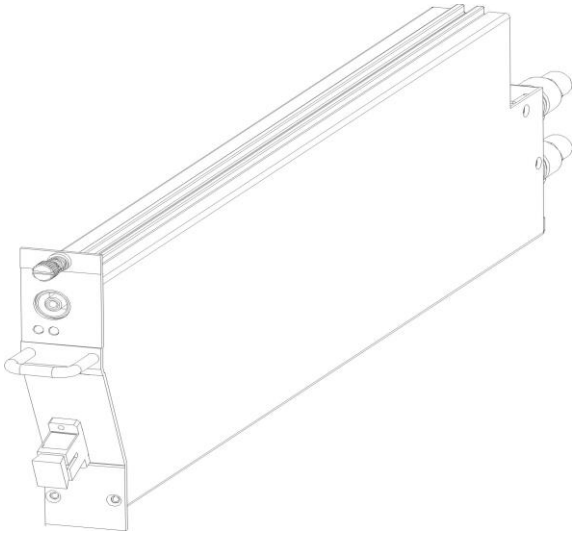


Fig. 1 Optical transmitter module

AH10-F3CT-xx-S modular optical transmitter is mainly used for remote optical fiber transmission of television image signal, digital television signal, telephone voice signal and data (or compressed data) signal. Adopt imported high-performance DFB laser as optical source. The RF drive part adopts advanced all-GaAs technology, RF power digital automatic processing technology (independently developed by ourselves) and advanced RF pre-distortion circuit, built-in perfect microcomputer automatic monitoring system, ensures the excellent performance indicators.

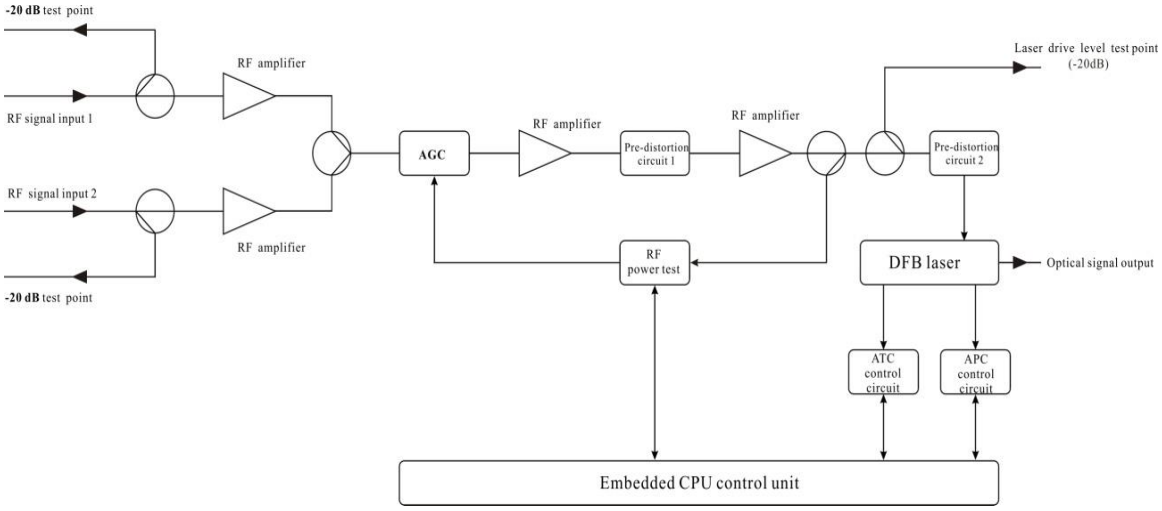
Structure

Its housing is made of metal sheet. This unit can be mounted or pull out from the rack front.

Internal circuit

Each optical transmitter module includes pre-variable attenuator, which is used to adjust the laser RF drive level (automatically or manually). RF signal——amplify——pre-distortion——modulate the DFB laser. The internal control circuit accurately maintains the laser output power and temperature. This module keeps data exchange with CMM status control and display unit by A/D sampling, switching circuit and status communication interface circuit.

1.2 Block Diagram



1.3 Performance Parameters

Item	Description	
Optical		
Output Optical Wavelength	1310 nm ± 20 nm	
Output Optical Power	4 mW to 31 mW	
Laser Type	DFB laser	
Optical Modulation Mode	Direct optical intensity modulation	
Optical Connector Type	SC/APC or FC/APC	
Optical Return Loss	>45 dB	
RF		
Frequency Range	47 MHz to 1218 MHz (F3ST 1002MHz)	
Flatness In Band	± 0.75 dB	
RF Input Impedance	75 Ω	
Input Test Port	-20 dB ± 1 dB	
Laser Drive Level Test Port	-20 dB ± 1 dB	
Input Return Loss	≥16 dB	
Input Port Isolation	≥50 dB	
C/N	≥52 dB	550 MHz 59 CH analog signal 77 dBμV/CH
C/CTB	≥67 dB	550 MHz to 870 MHz 40 CH digital signal 67 dBμV/CH
C/CSO	≥62 dB	-1 dBm optical receiving power, 0 km fiber
RF Input Level	77 dBμV ± 5 dBμV	
Adjusting Range Under AGC Mode	± 5 dB	
MGC Attenuation Range	0 dB to 20 dB	
Environment		
Operating Temperature	-5 °C to +55 °C	
Storage Temperature	-30 °C to + 70 °C	
Maximum Power Consumption	≤10 W	
Weight	1 kg	

1.4 Instruction & Connection

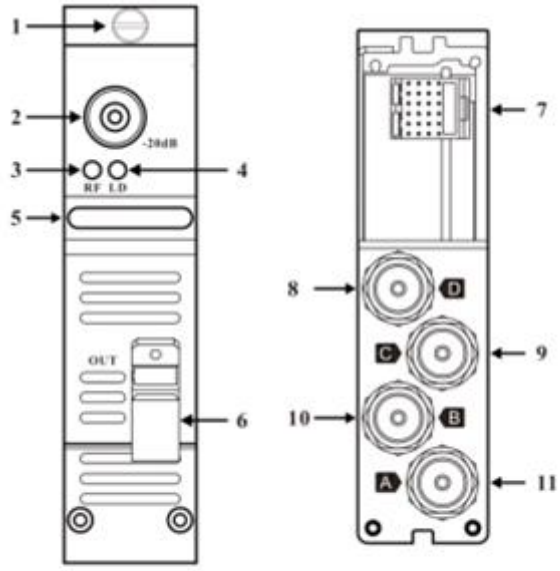


Fig. 2 The front panel and rear panel of optical transmitter module

1	Module fixing screw	
2	Laser drive level test port	-20dB
3	Laser drive level indicator	Green: 60 dBμV to 120dBμV Red: Outside the operating range
4	Laser operating indicator	Green: laser on Red: laser off
5	Module handle	
6	Optical power output	
7	Module socket	
8	RF input 2 test port	-20dB
9	RF input 1 test port	-20dB
10	RF signal input 2	-20dB
11	RF signal input 1	-20dB

1.5 Installation

Note

All assembly work should be done by qualified operators.

Memorize the following precautions before installation:

- Try to avoid collision the previously installed application module in the rack, especially the connected optical fiber.
- Avoid bending, twisting, twitching and squeezing the optical fiber.

Warning

When this module is working, there is invisible laser beam. Even when the device is turn off, the optical fiber from external optical source will also radiate laser beam. These laser beam will cause permanent harm to human body and eye, so should avoid observing or contacting the fiber end face and make sure the optical source is turn off before clean the optical connector

1.6 Mount the module into the rack

Steps are shown in Fig.3:

1. Push the module into the application module slot;
2. When it is in the proper place you will hear a “click”.
3. Then tighten the fixing screw.

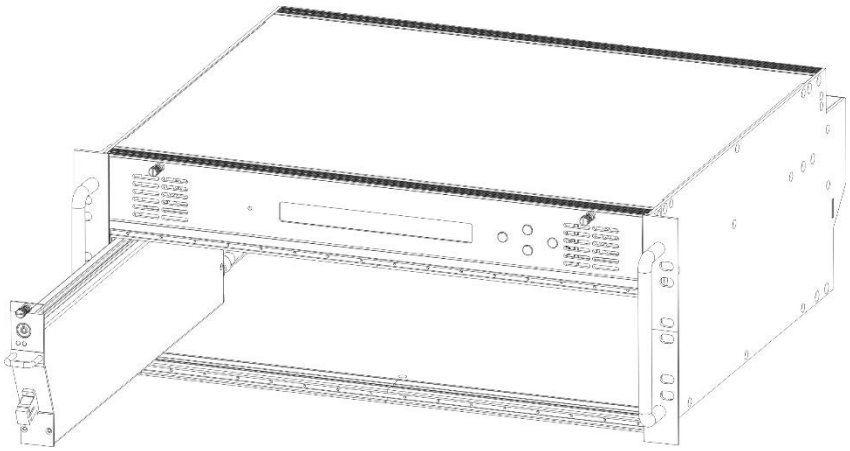


Fig.3 Mount the optical transmitter module into the rack

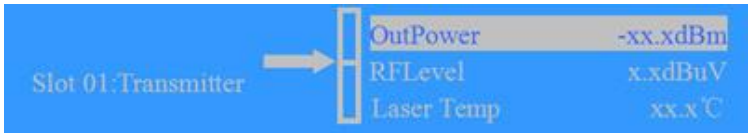
1.7 Check the Status Display

- After insert module, the corresponding slot will show “ ”, as follows:

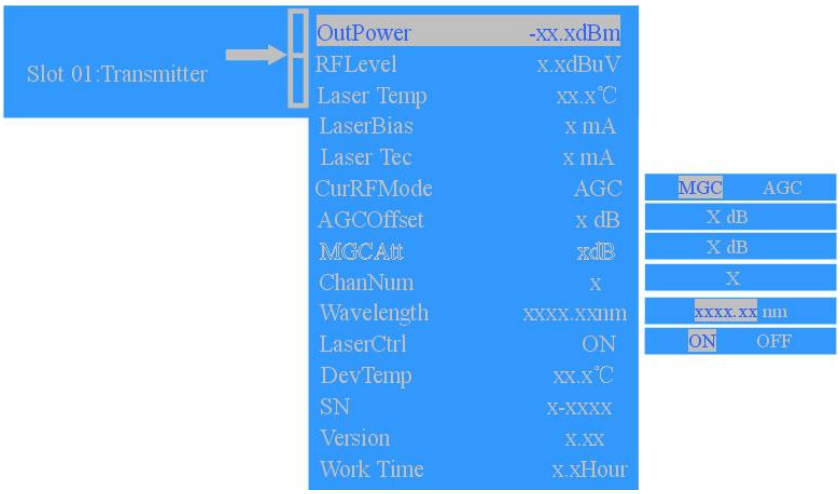
- Press “Enter” button to open the status display interface of current module, and then press up/down to select the parameters page.

1.8 Menu settings

Press the “Enter” button to show the status display interface of optical transmitter module, as follows:



- Press up/down button to select the menu item, the drop-down menu content shown as below:



Item	Description
OutPower	Optical output power
RFLevel	Output level
Laser Temp	Laser temperature
LaserBias	Laser bias current
Laser Tec	Laser cooling current
CurRFMode	RF gain control mode, “AGC” —Automatic gain control mode, “MGC” —Manual gain control mode
AGCOffset	AGC offset range ±5 dB (in AGC mode)
MGCAtt	RF ATT range 0 dB to 15 dB (in MGC mode)
ChanNum	Channel number, range 0 to 100
Wavelength	Operating wavelength
LaserCtrl	Laser working status, “ON” —turn on, “OFF” —turn off
DevTemp	Module temperature
SN	Serial number
Version	Version number
Work Time	Working hours

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