



ASR2500 and AST2500 SAT-IF CWDM Optical Transmitter and Receiver

Quick Reference Guide

Revision B



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ACT Document Number: ACT ASR2500 and AST2500 SAT-IF CWDM Optical Transmitter and Receiver QRG

Quick Reference Guide Revision B

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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.

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Revision History

Revision	Date	Reason for Change
Α	02/03/2020	Initial release
В	02/16/2020	Minor updates



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Precautions



Invisible laser radiation is emitted from the end of fiber or connector. Avoid direct exposure to beam.

Aerial System Earth Connection

The equipment must be connected to the ground electrode of the antenna installation.

Safety Warnings

The product must be installed by a qualified engineer, according to the local safety standards and regulations.



The equipment works on optical transmission network system in high power non-visible light source. Keep people away from source to avoid burning skin and damage on eyes. Only trained and authorized personnel can open the product. In case of failure, do not try to repair the product.

Installation Warnings

- 1. When installing with transmitter make sure that all power is switched off. Only using the original power cable (adaptor) supplied and installing the products so that the mains plug is easily accessible.
- 2. To fix the product to the wall use suitable expansion bolts and be easy to connect optical cable, coaxial cable and power cable. Keeping sufficient spaces for fiber cable to avoid excessive bending radius of fiber cable, resulting in excessive optical loss.
- 3. The products must not be exposed to dripping or splashing liquids and so must be installed indoors in a dry place. Don't install the product above or close to heat sources.
- 4. Humidity and condensation could damage the products. In case of condensation, wait until the product is dry before using it.
- 5. Put on cap on optical connector when equipment not to be used to avoid physical damage.
- Clean the optical connector with high purity alcohol for the first time and long-time preservation. Waiting for the alcohol to evaporate, otherwise cause pollution of the equipment fiber optic interface, resulting in excessive optical loss.



1. Features

- Designed for Satellite Optical System
- Wide operating frequency range:47-860MHz/950-2150MHz
- Excellent Linearity and flatness
- Single-mode fiber high return loss
- Using GaAs amplifier active devices
- Ultralow noise technology
- Build-in CWDM, Using DFB coaxial small package laser (Transmitter)
- Outputs 13/18V, 0/22KHz to LNB working (Transmitter)
- A LNB mode switch offers the possibility to use either Quattro or
- QUAD LNB (Transmitter)
- Build-in CWDM, Using High linear PD (Receiver)
- Build-in optical AGC function with MCU (Receiver)
- Outputs connected to the 5 IN series satellite multiswitch (Receiver)
- RED-LED for power supply indication
- Smaller size and easier installation

2. Product Description



- 1) SAT-IF signals input
- 2) Terr, signal input
- 3) SAT-IF signals input
- 4) Power supply input
- 5) Power indicator
- 6) Optical output
- 7) Mounting hole
- 8) Earth screw i

SAT-IF CWDM Optical Transmitter and Receiver





20V 2500mA



Product Installation and Testing 3.



Installing and removing the equipment when it stops working.

Note

Pre-installation instructions:

User note: optical fiber, SC/APC adjustors, SC/APC connectors, SC/PC connectors







Picture1

Picture2

Picture3

Picture4

Picture1: optical fiber. Suggested Bending radius bigger than 30mm. (Bending radius: a very small section of the curve with a circular arc that the radius of the circle formed by the arc is the radius of curvature. See as picture 1. Bending radius for Circle 1 bigger than Circle 2)

Picture2: optical fiber adaptor & protective cap

Picture3: optical fiber connector & protective cap

Picture4: Connector in green color for SC/APC, connector in blue color

for SC/PC

Installation instructions:

The transmitter can be wall mounted using the brackets that are incorporated in the product mechanics. The space is provided for connecting the power lead and for correct ventilation of the product.

Keeping sufficient space for fiber cable to avoid excessive bending radius of fiber cable, resulting in excessive optical loss.

Connecting and disconnecting the fiber to transmitter (picture 1-3 below)



Connecting: Remove the protective cap from optical fiber adaptor and optical fiber connector, insert the connector in the adaptor. Disconnecting: Remove the connector from adaptor, put on protective cap to optical fiber adaptor and optical fiber connector.



Testing Installation



Observe the following on testing after transmitter installation to avoid damage to the human body or equipment

The equipment works on optical transmission network system in high power non- visible light source. Keep people away from source to avoid burning skin and damage on eyes.

Clean the optical connector with high purity alcohol, waiting for the alcohol to evaporate, Otherwise cause pollution of the equipment fiber optic interface, resulting in excessive optical loss.

A direct optical connection cannot be made between the optical transmitter and receiver. The connection can only be made using optical attenuators as the overall input power to the optical receiver with the range.

Input 59 CH analog modulation signal 75dBuV/CH or digital modulation signal 68 dB μ V/MHz, according to technical specification

4. Technical Specifications

Optical Transmitter

Item	Description	Note
Customer Interface		
RF Connector	F-female	5 (4SAT+1TERR)
Optical Connector	SC/APC or FC/APC	
Power Supply	F-female	
Optical Parameters		
Optical Output Power	4x3 dBm	2mW
Optical Return Loss	≥45 dB	
Output Wavelength	1510 nm to 1570 nm	CWDM
Optical Fiber Type	Single-mode	
RF Parameters		
Input Impedance	75 Ω	
TERR Frequency Range	47 MHz to 860 MHz	
TERR Flatness	±0.75 dB	
TERR Input Level	75 dBμV/ch ±10 dBμV/ch	59ch
TERR Return Loss	≥12 dB	
CNR	≥52 dB	
CSO	≥60 dB	
СТВ	≥63 dB	
SAT Frequency Range	950 MHz to 2150 MHz	
SAT Flatness	±1.5 dB	
SAT Input Level	68 dBmV/ch ± 10 dBmV/ch	
SAT Return Loss	≥10 dB	

SAT-IF CWDM Optical Transmitter and Receiver



each SAT port

LNB Power Supply	13/18 V _{DC}
LNB Power Supply Current	300 mA max.
22 kHz Accuracy	22 kHz ± 4 kHz
Other Parameters	
Power Supply	20 V _{DC} 2500 mA
Power Consumption	<8 W
Dimensions	195 mm × 135 mm × 45 mm
Housing Material	Tin plate

Optical Receiver

Item	Description	Note
Customer Interface		
RF Connector	F-female	
Optical Connector	SC/APC	
Power Supply	F-female	
Optical Parameter		
Optical Return Loss	≥45 dB	
Output Optical Wavelength	1510 nm	LV-RX
	1530 nm	LH-RX
	1550 nm	HV+TerrRX
	1570 nm	HH-RX
Responsivity	≥0.9 A/W	
Optical Fiber Type	Single-mode fiber	
Terr.+SAT-IF Parameter		
Input Impedance	75 Ω	
Terr. Frequency Range	47 MHz to 860 MHz	
Terr. Flatness	±0.75 dB	
Terr. Output Level	≥80 dBμV	AGC
Terr. Return Loss	≥14 dB	
CNR	≥50 dB	
CSO	≥62 dB	
СТВ	≥65 dB	
SAT-IF Frequency Range	950 MHz to 2150 MHz	
SAT-IF Return Loss	≥10 dB	
SAT-IF Flatness	±1.5 dB	
SAT-IF Output Level	75 dBμV ± 5 dBμV	AGC
AGC Stability	±1 dB	
Other Parameter		
Power Supply	20 V _{DC}	
Power Consumption	<10 W	
Dimensions	195 mm × 128 mm × 40 mm	



5. Package

- 1) A optical transmitter or receiver
- 2) A 20VDC/2500mA DC power adapter
- 3) A user's manual

6. Trouble Shooting

Optical transmitter

1. Output power working normally in the first beginning but it is not working when reconnecting.

Solution: clean the optical connector with alcohol or change optical connector

2. Using optical power meter for testing, output power work normally. But it not working when connect to link.

Solution: checking the type of optical connector if APC. If in PC or UPC, use optical Fiber Patch Cord for connecting Optical Receiver

3. Input with optical signal but no RF signal output-

Solution: Check OPT indicator light, if the light off, the input optical power is lower than working range, if the light in red, the input optical power is higher than working range. Please be sure input optical power is in the working range.

4. RF signal output working normally when testing, but here not have RF signal output when install on designated spot.

Solution: Check if there any pollution on designated spot and clean the optical connector with alcohol. Also it will have same problem relevant to space on designated spot. If fiber cable bending in large, it will lead to excessive loss of fiber. Please install the optical receiver in the right position.



7. Applications

Ku-band SAT-IF distribution system 1 TX into 8 RX



C-band SAT-IF distribution system 1 TX splitter into 8 RX C-band H&V LNB

SAT-IF CWDM Optical Transmitter and Receiver





Broadband Optical Transmitter, input frequency 47-860/950-2150MHz, transmitted digital signal of DVB-S, DVB-T, DVB-C modulation or analog signal of PAL, NTSC modulation.
Broadband Optical Receiver, output frequency 47-860/950-2150MHz, transmitted digital signal of DVB-S, DVB-T, DVB-C modulation or analog signal of PAL, NTSC modulation.
Outputs to 5 IN series multiswtich.

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