ASCENT Communication Technology

ACT AON1200D Optical Receiver

Quick Reference Guide

Revision A

ACT AON1200D Smart Optical Receiver

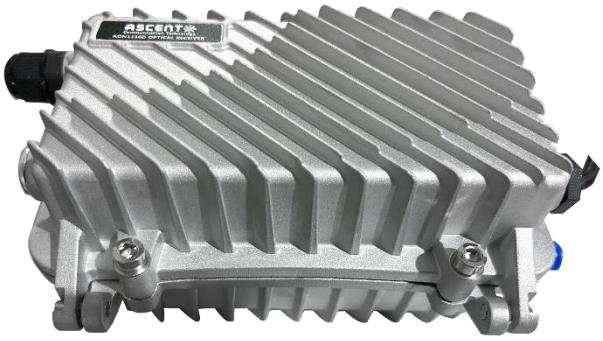
Quick Reference Guide

ACT Document Number: ACT AON1200D Smart Optical Receiver QRG

Quick Reference Guide Revision A

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	11/16/2022	Initial release

Table of Contents

1 Product Summary

Ascent's AON1200D outdoor optical receiver is our latest 1GHz dual-way switch optical receiver. With wide range receiving optical power, high output level, low power consumption. It is the ideal equipment to build the high-performance NGB network.

This product adopt advanced optical AGC control range from +2dBm to -9/-8/-7dBm adjustable. EQ and ATT both use the professional electric contrl circuit, make the control more accurate and operation more convenient.

Built-in the Ethernet transponder, support remote network management (optional)

It is part of ACT Deep Fiber solution, which has been designed to deliver high quality CATV and other advanced services. The cost-effective node platform with compact structure and convenient installation helps operators expand bandwidth of their existing HFC network while minimizing capital investment.

AON1200D node provides the web management interface to support the remote monitoring capability in advanced network management system.

2 Performance Characteristics

- Aluminum waterproof housing
- With optical AGC function
- Electrical control attenuator and equalizer
- Dedicated Ethernet port for management
- Two RF input ports, auto or manual operating mode

3 Safety instructions

Services and repairs should only be carried out by experts

Pay attention to live parts or wires!

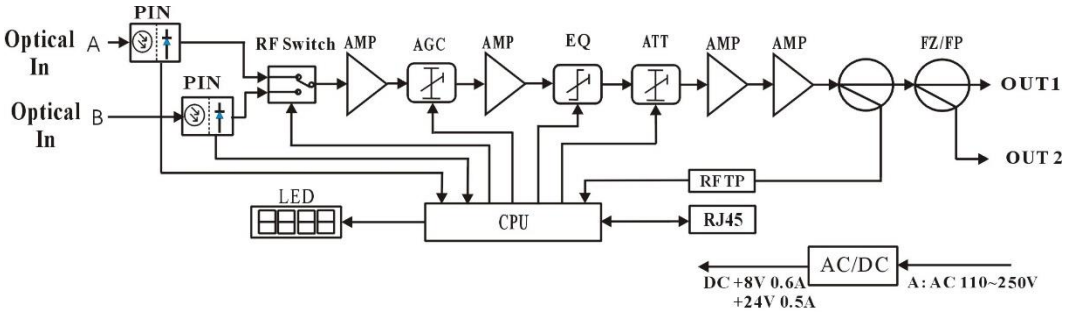
Notice: In case the receiver will be installed outdoor, please provide sufficient weather protection according the local power authorities requirement.

4 Technical Specifications

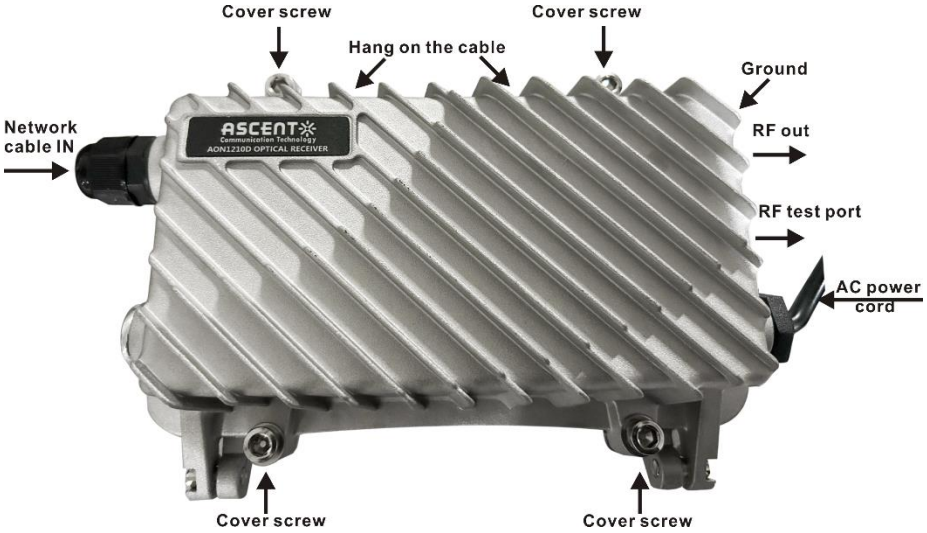
Item	Unit	Technical Parameters	Item
Optical Parameters			
Receiving Optical Power	dBm	-9 to +2	Receiving Optical Power
Optical AGC Control Range	dBm	+2 to -9/-8/-7 (adjustable)	Optical AGC Control Range
Optical Return Loss	dB	>45	Optical Return Loss
Optical Receiving Wavelength			
Optical Connector Type		SC/APC or specified by the user	Optical Connector Type
Fiber Type		Single mode	Fiber Type
Link Parameters			Link Parameters
Output signal level	dBµV	114	42 CENELEC, OMI=3.5%, Optical input power: -3dBm, EQ 9dB, output level 114dBuV @855.25MHz (105dBuV @49.75MHz)
CTB	dBc	60	
CSO	dBc	60	
RF Parameters			**RF Parameters**
Frequency Range			
Flatness In Band	dB	±0.75	Flatness In Band
Rated Output Level	dBµV	≥ 108	Rated Output Level
Max Output Level	dBµV	≥ 112 (-9 to +2dBm Optical power receiving)	Max Output Level
Output Signal Level	dBµV	≥ 116 (-7 to +2dBm Optical power receiving)	42 CENELEC, OMI=3.5%, Optical input power: -3dBm, EQ 9dB, output level 114dBuV @855.25MHz (105dBuV @49.75MHz)
Output Return Loss	dB	≥16	Output Return Loss
Output Impedance	Ω	75	Output Impedance
Electrical Control EQ Range	dB	0 to 15	Electrical Control EQ Range
Electrical Control ATT Range	dB	0 to 15	Electrical Control ATT Range
General Characteristics			**General Characteristics**
Power Voltage	V	A: AC (150 to 265) V B: AC (35 to 90) V	Power Voltage
Operating Temperature	°C	-40 to 60	Operating Temperature
Consumption			
Dimension	mm	235 (L) × 150 (W) × 108 (H)	Dimension

Note: The forward RF indexes above are tested when adopt NEC module. Use other module, the indexes will be a little different.

5 Block Diagram



6 Structure Description



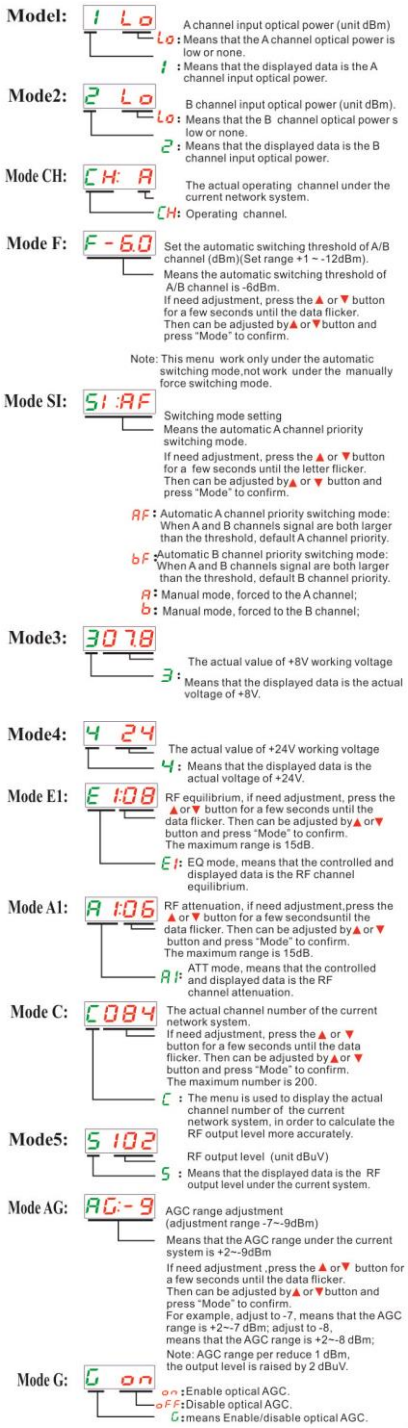
7 Installation

1. Fix the optical receiver and connect the ground wire.
2. Loose the cover screw and open the cover.
3. Make sure the receving power in the proper value.
4. Connect optical fiber, Ethernet cable and RF coaxial cables.
5. Power on, then adjust the receiver with attenuator and equalizer in accordance of the level plan.
6. Close cover and tighten the cover screw.

8 Function Display and Operating Instruction

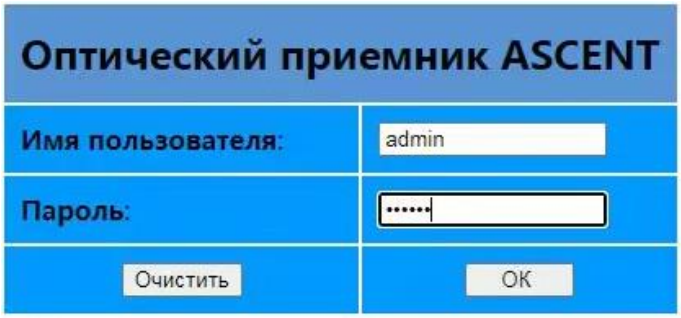
Mode: Mode selection button, total thirteen modes. Press the mode selection button to enter the corresponding status display, thirteen modes to cycle.

The following is the detailed instructions:

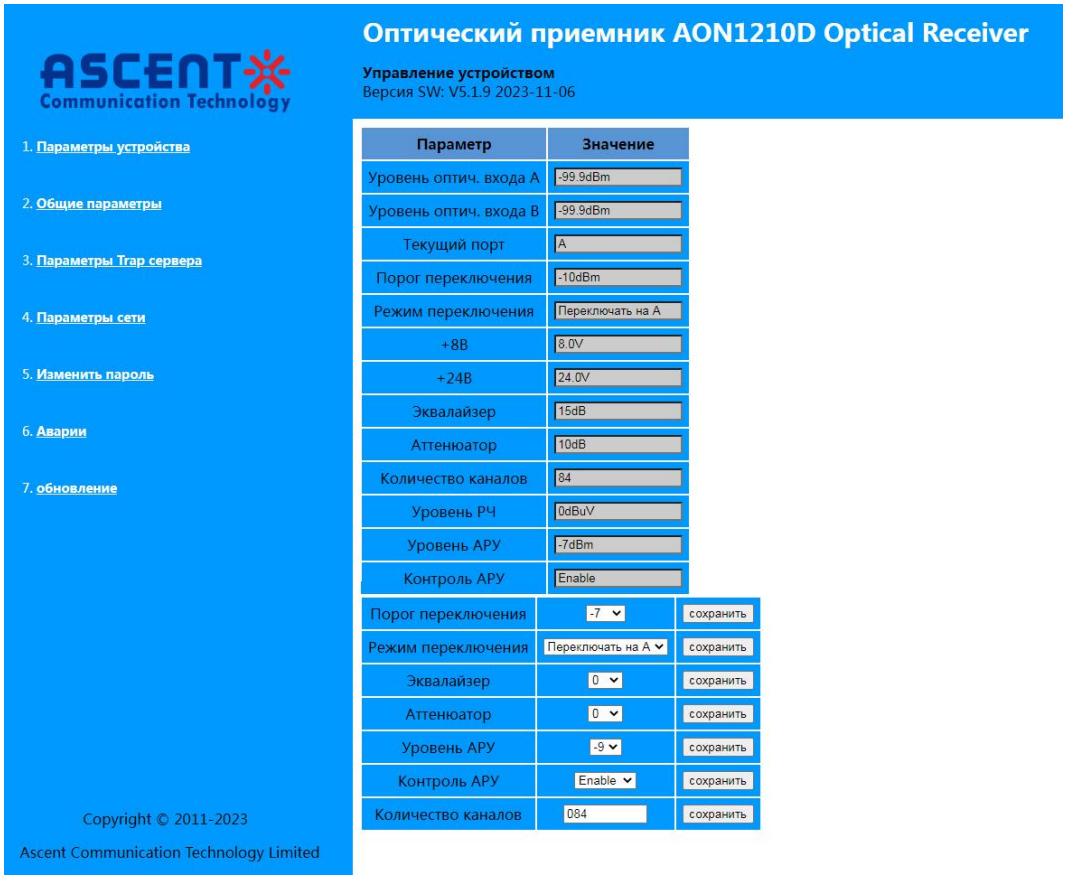


9 WEB Network Management

1. Opening the IE browser and entering the equipment default IP address 192.168.1.168 leads to the following interface:.

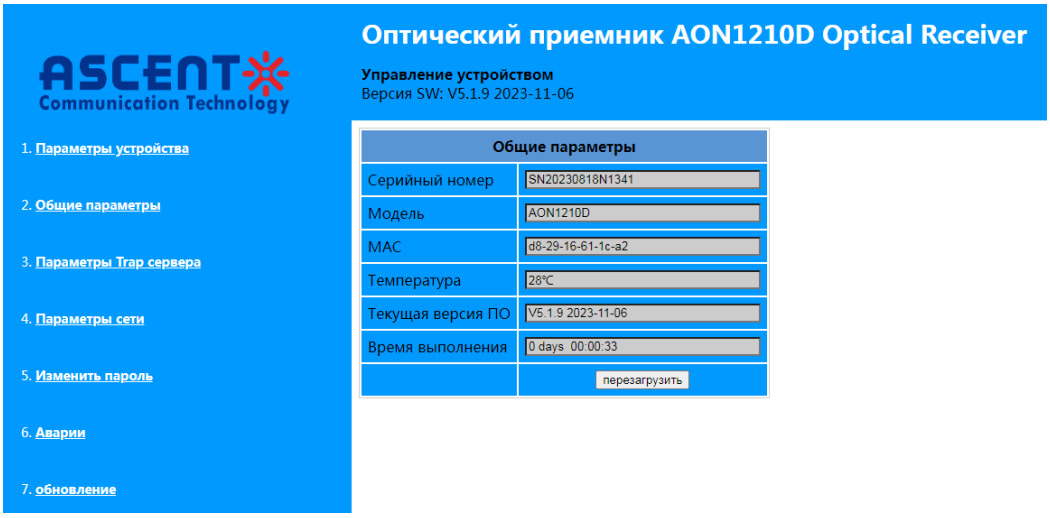


2. Enter the user name **admin** and password **ascent**, to show the following interface:

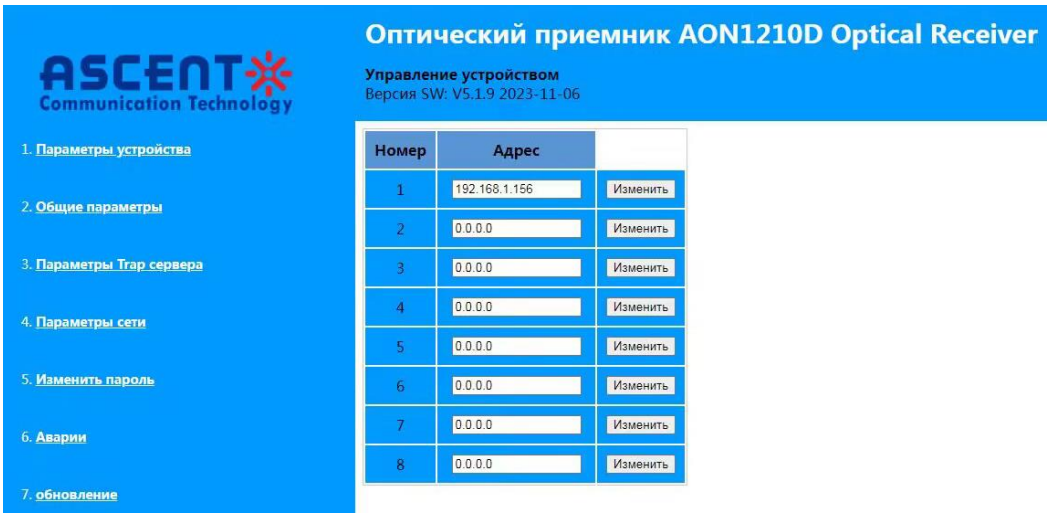


This is the **Device parameters**: Display and configuration menu.

3. Common Parameters: Describes the common parameters such as S/N, model type, MAC address, temperature and so on.

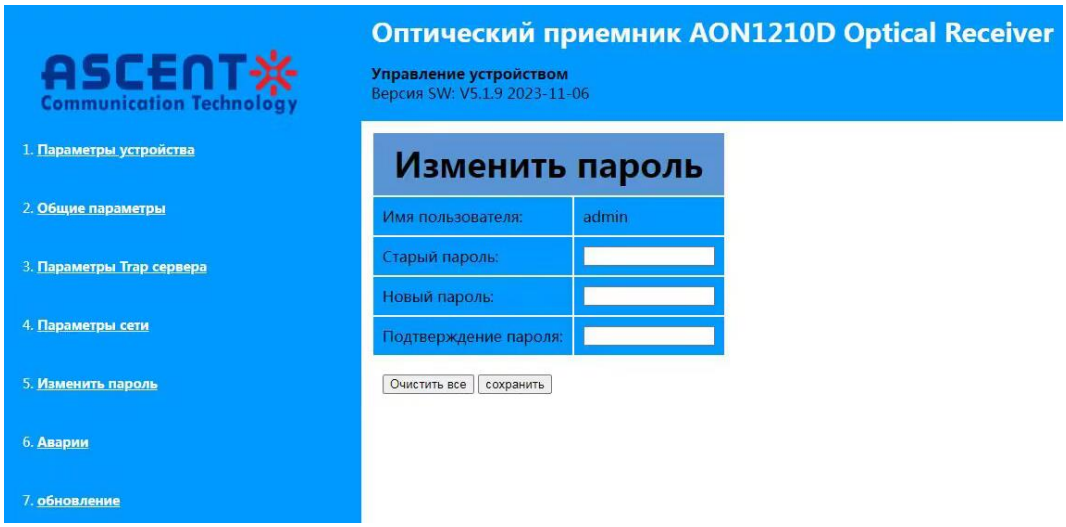


4. Trap parameters interface: Describe the setting of the alarm destination address.

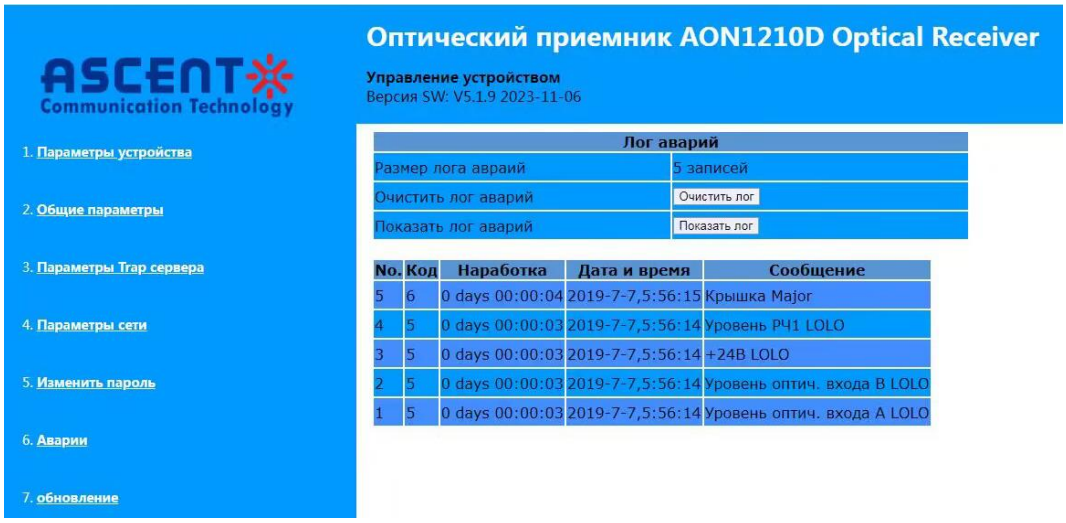


5. Network parameters interface: Describes the IP, gateway and subnet mask parameters and so on.

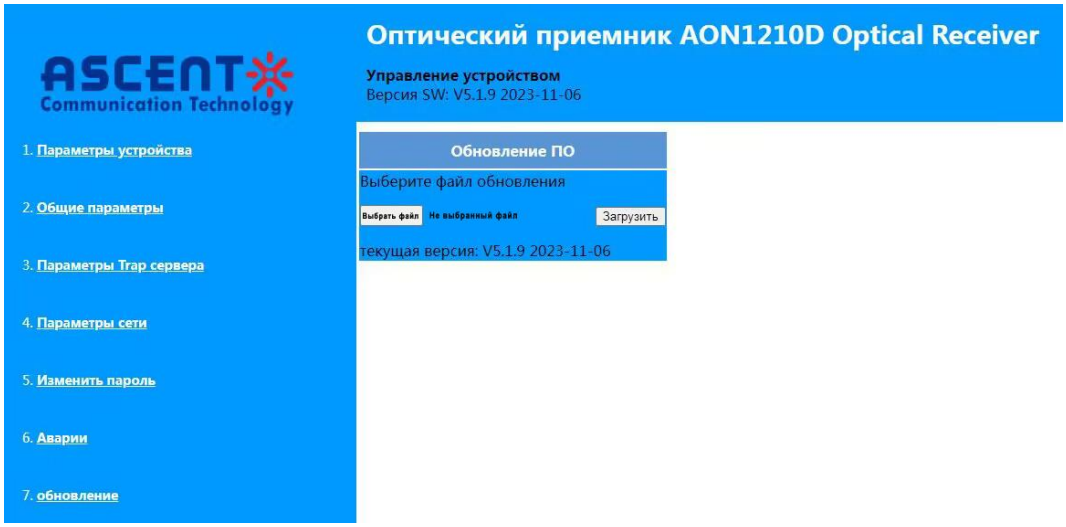
6. Change password interface: Change the login password in this interface.



7. Alarm Logs interface: Display relevant logs in this interface.



8. Update interface: Update the firmware if necessary in this interface.



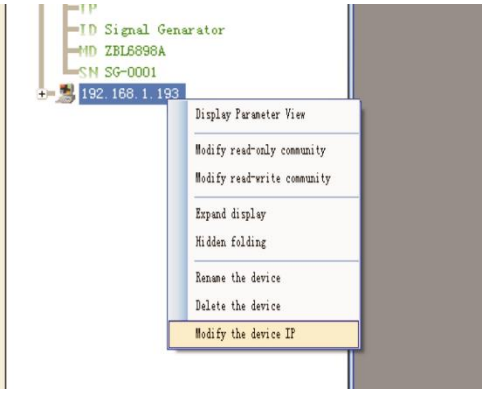
10 NMS Setup Instructions (Optional)

If users configured the network management transponder, need to do the following settings:

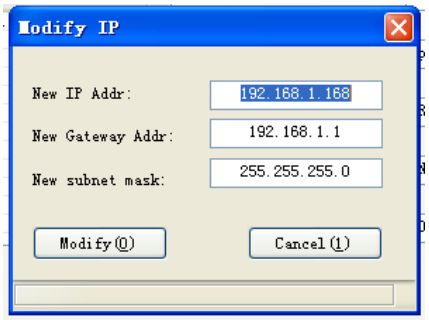
Transponder IP setup instruction:

Network management directly modify:

1. Default IP is 192.168.1.168, default gateway is 192.168.1.1, default subnet mask is 255.255.255.0
2. Connect the computer and transponder (can be direct connected), and change the computer IP to 192.168.1.XXX (XXX is any number from 0 to 255 except 168); start upper computer network management software, then search the device and log in.
3. Right-click device icon and choose modify the device IP.



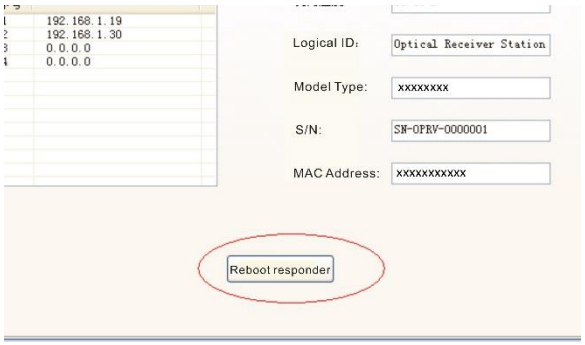
4. Enter new IP address, gateway and subnet mask.



5. Click modify, then exit, it is done. There will show new IP address and gateway on operational logbook.

Log Number	Log Type	Log Contents	Login time
1752	ChangIPAddress	Modify equipment192.168.1.168 IP address: New IP: 192.168.1.167;New gateway:192.168.1.1	2009-9-9 12:39:03

6. Reboot the transponder, the new IP take effect (Click the reboot button in the network management software or power on again)



11 Common Failure Analysis and Troubleshooting

Failure phenomenon	Failure cause	Solution
After connecting the network, the image of the optical contact point has obvious netlike curve or large particles highlights but the image background is clean.	1. The optical input power of the optical receiver is too high, make the output level of the optical receiver module too high and RF signal index deteriorate. 2. The RF signal (input the optical transmitter) index is poor.	1. Check the optical input power and make appropriate adjustments to make it in the specified range; or adjust the attenuation of optical receiver to reduce the output level and improve index. 2. Check the front end machine room optical transmitter RF signal index and make appropriate adjustments.
After connecting the network, the image of the optical contact point has obvious noises.	1. The optical input power of the optical receiver is not high enough, results in the decrease of C/N. 2. The optical fiber connector or adapter of the optical receiver has been polluted. 3. The RF input signal level of the optical transmitter is too low, make the modulation degree of the laser is not enough. 4. The C/N index of system link signal is too low.	1. Check the received optical power of the optical contact point and make appropriate adjustments to make it in the specified range. 2. Improve the optical received power of the optical contact point by cleaning the optical fiber connector or adapter etc methods. Specific operation methods see “Clean and maintenance method of the optical fiber connector”. 3. Check the RF input signal level of the optical transmitter and adjust to the required input range. (When the input channels number less than 15, should be higher than the nominal value.) 4. Use a spectrum analyzer to check the system link C/N and make appropriate adjustments. Make sure the system link signal C/N > 51dB.
After connecting the network, the images of several optical contact points randomly appear obvious noises or bright traces.	The optical contact point has open circuit signal interference or strong interference signal intrusion.	1. Check if there is a strong interference signal source; change the optical contact point location if possible to avoid the influence of the strong interference signal source. 2. Check the cable lines of the optical contact point, if there is shielding net or situation that the RF connector shielding effect is not good. 3. Tightly closed the equipment enclosure to ensure the shielding effect; if possible add shielding cover to the optical contact point and reliable grounding.
After connecting the network, the images of several optical	Power supply AC ripple interference because of the	Check grounding situation of the equipment, make sure that every equipment in the line

contact points appear one or two horizontal bright traces. After connecting the network, the received optical power of the optical contact point is unstable and changes continuously. The output RF signal is also unstable. But the detected optical output power of the optical transmitter is normal.	bad earth of equipment or power supply. The optical fiber connector types do not match, maybe the APC type connect to PC type. The optical fiber connector or adapter may be polluted seriously or the adapter has been damaged.	has been reliably grounding and the grounding resistance must be < 4Ω. 1. Check the type of optical fiber connector and adopt the APC type optical fiber connector to ensure the normal transmission of optical signal. 2. Clean the polluted optical fiber connector or adapter. Specific operation methods see "Clean and maintenance method of the optical fiber connector". 3. Replace the damaged adapter.

12 Optical Fiber Active Connector Cleaning and Maintenance

In many times, we consider the decline of the optical power as the equipment faults, but actually it may be caused by that the optical fiber connector was polluted by dust or dirt. Inspect the fiber connector, component, or bulkhead with a fiberscope. If the connector is dirty, clean it with a cleaning technique following these steps:

1. Turn off the device power supply and carefully pull off the optical fiber connector from the adapter.
2. Wash carefully with good quality lens wiping paper and medical absorbent alcohol cotton. If use the medical absorbent alcohol cotton, still need to wait 1 to 2 minutes after wash, let the connector surface dry in the air.
3. Cleaned optical connector should be connected to optical power meter to measure output optical power to affirm whether it has been cleaned up.
4. When connect the cleaned optical connector back to adapter, should notice to make force appropriate to avoid china tube in the adapter crack.
5. The optical fiber connector should be cleaned in pairs. If optical power is on the low side after clean, the adapter may be polluted, clean it. (Note: Adapter should be carefully operated, so as to avoid hurting inside fiber.
6. Use compressed air or degrease alcohol cotton to wash the adapter carefully. When use compressed air, the muzzle aims at china tube of the adapter, clean the china tube with compressed air. When use degrease alcohol cotton, insert directions need be consistent, otherwise can't reach a good clean effect.

Ascent Communication Technology Ltd

AUSTRALIA
140 William Street, Melbourne
Victoria 3000, AUSTRALIA
Phone: +61-3-8691 2902

HONG KONG SAR
Unit 9, 12th Floor, Wing Tuck Commercial Centre
177 Wing Lok Street, Sheung Wan, HONG KONG
Phone: +852-2851 4722

CHINA
Unit 1907, 600 Luban Road
200023, Shanghai CHINA
Phone: +86-21-60232616

USA
2710 Thomes Ave
Cheyenne, WY 82001, USA
Phone: +1-203 816 5188

EUROPE
Pfarrer-Bensheimer-Strasse 7a
55129 Mainz, GERMANY
Phone: +49 (0) 6136 926 3246

VIETNAM
15 /F TTC Building, Duy Tan Street
Cau Giay Dist., Hanoi, VIETNAM
Phone: +84 243 795 5917

WEB: www.ascentcomtec.com

EMAIL: sales@ascentcomtec.com

Specifications and product availability are subject to change without notice.

Ver. ACT_AON1200D_Optical_Node_QRG_V1a_Oct_2022