ASCENT
Communication Technology

AT5000 AFDR2 Rack-Mounted Redundant Forward Receiver

Quick Reference Guide

Revision 2A

ACT AT5000 1RU Redundant Forward Receiver

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ACT Document Number: AT5000 AFDR2 QRG Revision 2A

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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
1A	07/14/2023	Initial release
1B	06/14/2025	Update format
2A	02/20/2025	Add Telnet Instruction Chapter

Table of Contents

1 Precautions

Warning

Exposure to class 1M laser radiation is possible. Access should be restricted to trained personnel only. Do not view exposed fiber or connector ends when handling optical equipment.

- Ensure adequate cooling and ventilation as specified.
- The installation and operation manual should be read and understood before units are put into use.
- Always replace protective caps on optical connectors when not in use.
- The typical connectors fitted are SC/APC 8°. **Note:** 8° angle polished connectors must be used.

Cleaning

Use only a damp cloth for cleaning the front panel. Use a soft dry cloth to clean the top of the unit.

Do not use spray cleaner of any kind.

Overloading

Overloading wall outlets and extension cords can result in a risk of fire or electric shock.

Use approved electrical cords.

Damage requiring service

Unplug unit and refer servicing only to Ascent Communication Technology qualified service personnel.

Servicing

Do not attempt to service this unit yourself. Refer all servicing only to Ascent Communication Technology qualified service personnel.

2 Overview

AT5000 1RU Redundant Dual Inputs Forward Receiver offers a flexible, high performance forward receiver platform for CATV forward path transmission in HFC network. Together with ACT 1RU AT5000 XMOD and EDFA optical amplifiers, the 1RU AFDR dual inputs forward receiver provides an ideal long distance, optical redundant high-quality video transmission solution in traditional HFC network and also high density FTTX networks to bring back the data signal from business and subscriber home premises.

AT5000 dual inputs indoor optical receiver is featured in short switching time and low loss, which is mainly used in ring network or redundant standby network. When the main line fails or is lower than the set threshold value, it will automatically switch to the standby line. When the main line returns to normal, it will automatically return to the main line. When device is in the mode of manual forced switching , it can switch to the main line or the standby line as you like.

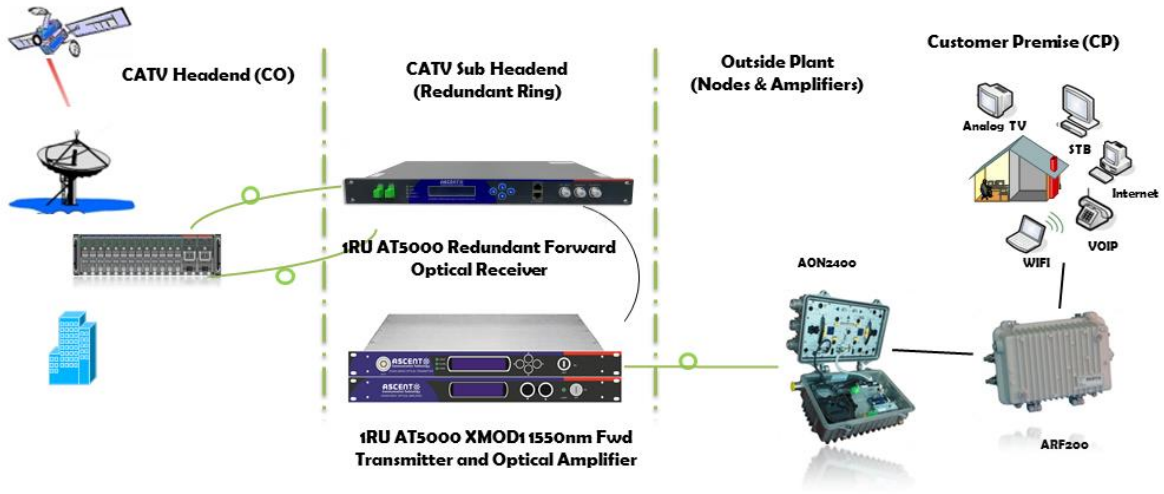
The device adopts high performance and high efficiency O/E converter, the first stage is amplified full GaAs MMIC , and the second stage by gain GaAS power doubler module , which ensure high output level. The whole device is controlled by microcomputer, AGC, ATT and EQ are adjusted by numerical control, which is the best choice for the construction of ring network in large and medium-sized cities.

AT5000 AFDR receiver is equipped with intuitive front panel LCD display to make operator's life easier. The optical receiver is packaged in a self-contained 19" sub-rack of 1 RU with universal mains power supply and SNMP management.

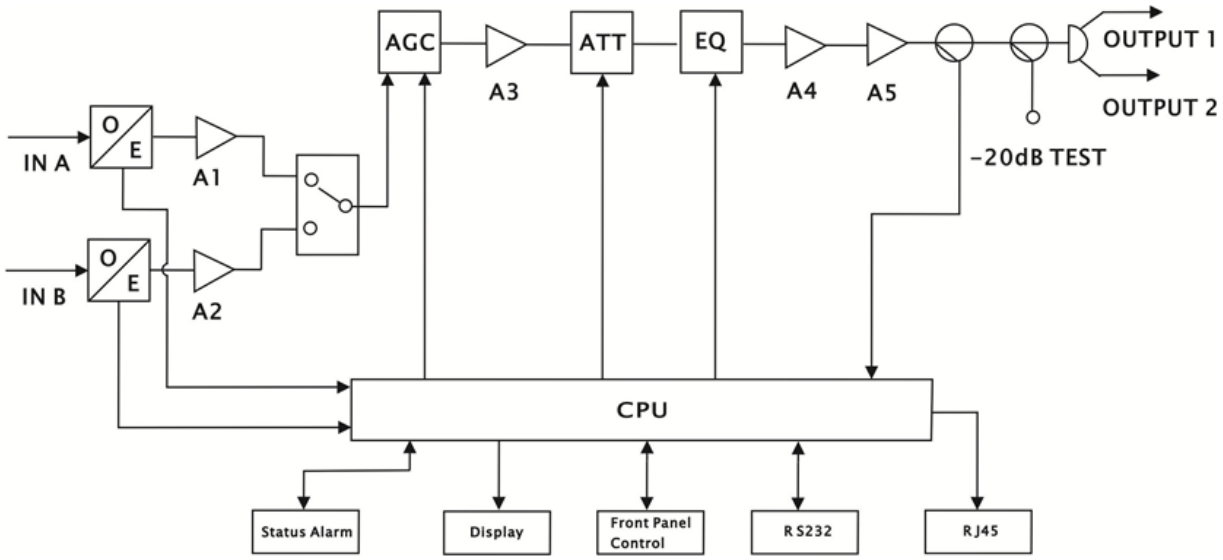
3 Features

- Professional RF switching module, short switching time, low loss, with automatic switching and forced manual switching function.
- It adopts high performance photo-detector, operating wavelength 1200 to 1620nm.
- Optical AGC control, when input is within range -7 to +2dBm, the output level remains unchanged and CTB, COS is measured up to the standard.
- High gain, low distortion.
- Built- in dual power supply, automatically switched and hot plug in/out supported.
- The operating parameters of the whole machine are controlled by microprocessor, and the LCD status display on the front panel has many functions such as laser status monitoring, parameter display, fault alarm, network management, etc.; once the operating parameters of the laser deviate from the allowed range set by the software, the system will alarm promptly.
- Standard RJ45 interface is provided, supporting SNMP and WEB remote network management.

4 Application Diagram



5 Block Diagram



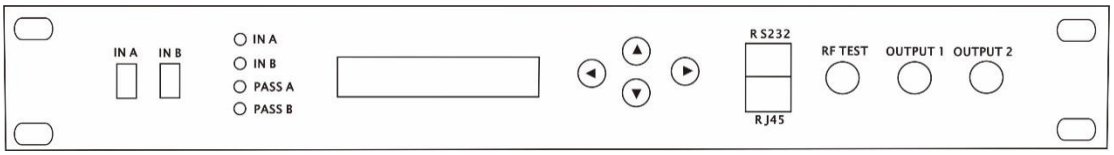
6 Specifications

Category	Items	Unit	Index			Description
			Min.	Typ.	Max.	
Optical Index	Operating Wavelength	nm	1200		1620	
	Optical Power Input Range	dBm	-10		+2	
	Optical AGC Range	dBm	-7		+2	
	No. of Input Ports			2		
	Optical Return Loss	dB	45			
	Fiber Connector		SC/APC			FC/APC, LC/APC
	Operating Bandwidth	MHz	47		1000	
	Output Level	dBμV			114	
	Operating Mode		AGC/MGC switching supported			
	Electronically Controlled ATT Range	dB	0		30	
	Electronically Controlled EQ Range	dB	0		15	
	Single Input On-off Isolation	dB			60	
	Isolation Between Two Inputs	dB			72	
	Inputs Switching Time	ms			8	
	Flatness	dB	-0.75		+0.75	
	No. of Output Port			2		
	No. of Test Point			1		
	Test Port	dB		-20		

Category	Items	Unit	Index			Description
			Min.	Typ.	Max.	
	Return Loss	dB	16			
	Input Impedance	Ω		75		
	RF connector			F Metric/Imperial		Specified by user
Link Index	No. of Test Channels		PAL-D/59CH			
	CNR	dB	51.0			Pin=-2dBm
	CTB	dB	65.0			
	CSO	dB	60.0			
	MER	dB	40.0			
General Index	Network Management Interface		SNMP,WEB Supported			
	Power Supply	V	100		240	AC
			-72		-36	DC
	Power Consumption	W			28	Dual Power Supply, 1+1 Standby
	Operating Temp	℃	-5		+65	
	Storage Temp	℃	-40		+85	
	Operating Relative Humidity	%	5		95	
	Dimension	mm	228×483×44			D, W, H
	Weight	Kg	3.2			

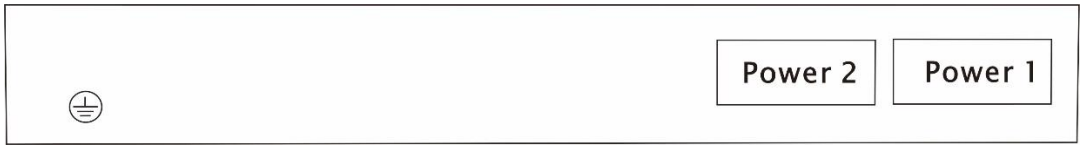
7 Panel Guide

Front Panel



S/N	Identification	Items	Remarks
1	IN A	Fiber Input A	Fiber Input A
2	IN B	Fiber Input B	Fiber Input B
3	LCD	LCD Display	To display the parameters of the device
4	IN A	Status of Input A	LED Green ,Input A within requested range
			LED OFF, input A no input or out of the requested range
5	IN B	Status of Input B	LED Green Input within requested range
			LED OFF, input B no input or out of the requested range
6	PASS A	Status of working channel A	LED Green， working channel A (default)
			LED OFF， input A no input
7	PASS B	Status of working channel B	LED Green， working channel B
			LED OFF ， input B no input
8	◀	Button	Back
9	▶	Button	Confirm
10	▲▼	Button	Start menu page turning and set the device
11	RS232	RS232 Port	Local programming
12	RJ45	RJ45 Port	Remote SNMP and WEB supported
13	RF TEST	RF Test Point	-20dBμV
14	OUTPUT 1	RF 1 Output	RF 1 Output
15	OUTPUT 2	RF 2 Output	RF 2 Output

Rear Panel



S/N	Identification	Items	Remarks
1	⏚	Grounding Port	For Grounding
2	Power1	Power Socket1	
3	Power2	Power Socket 2	

8 Installation

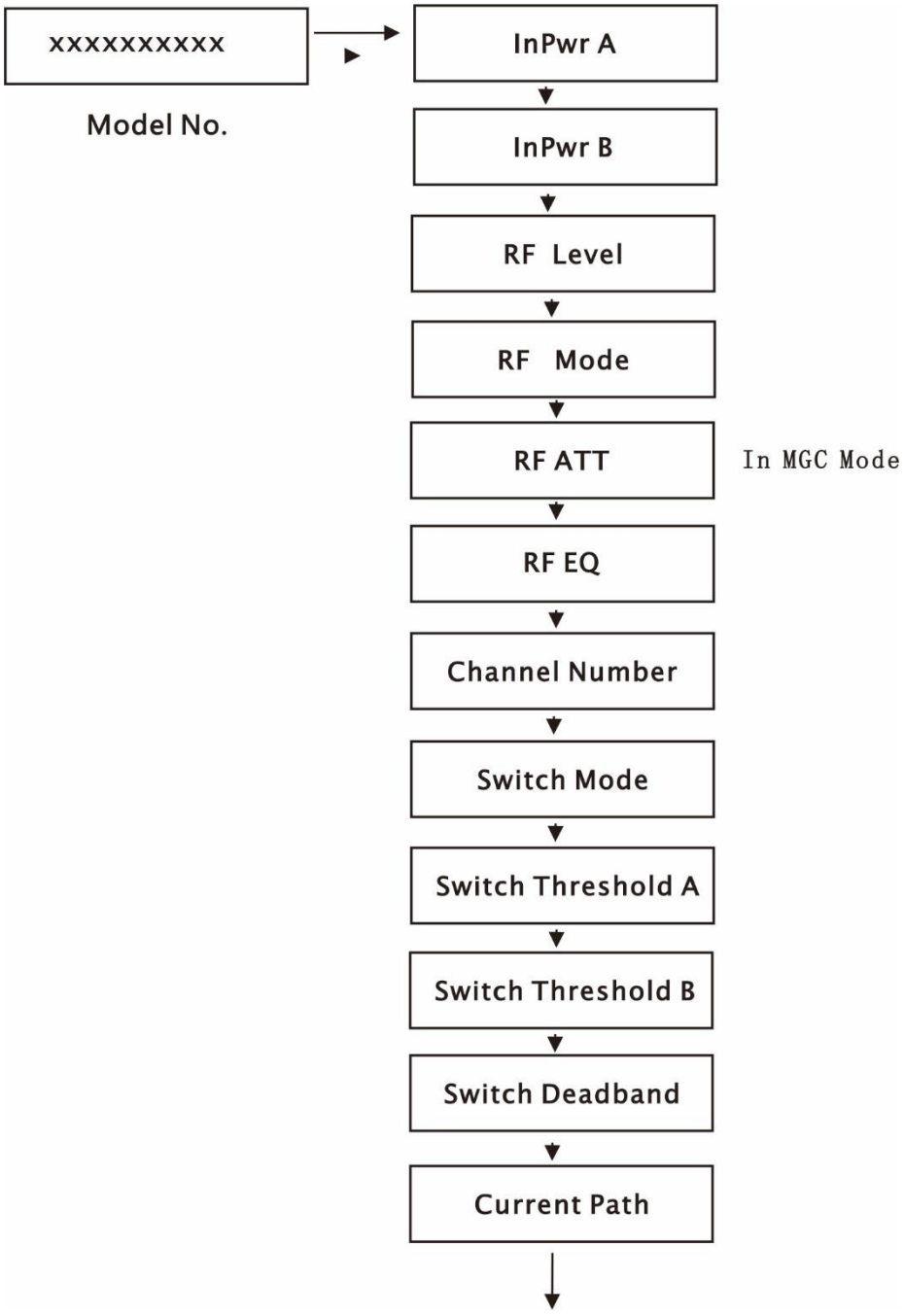
8.1 Preparation before installation

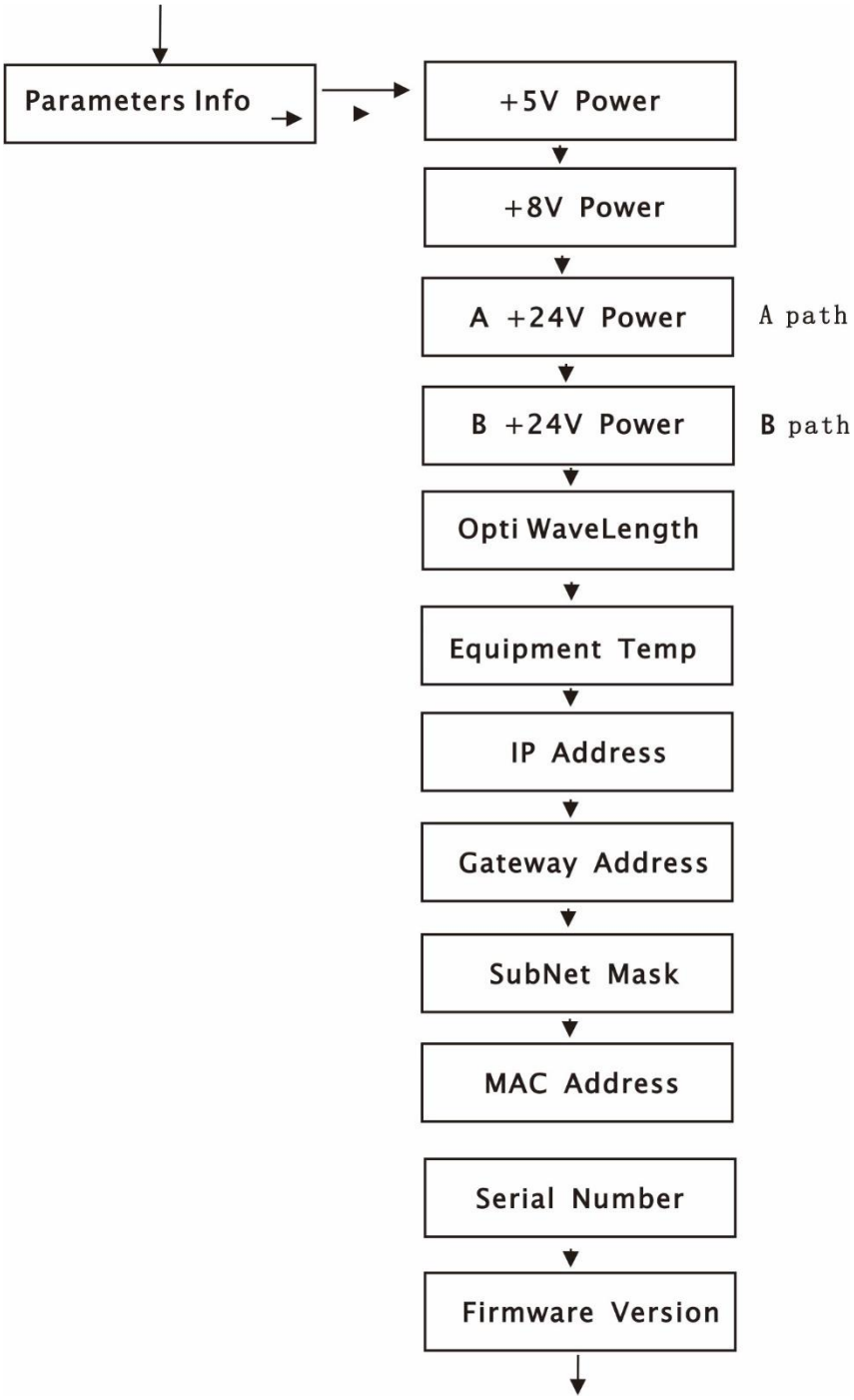
1. Please examine the machine to see if there is distinct.
2. Please examine if the accessories is complete and the quality cards is here. If not, please contact sales or dealer.

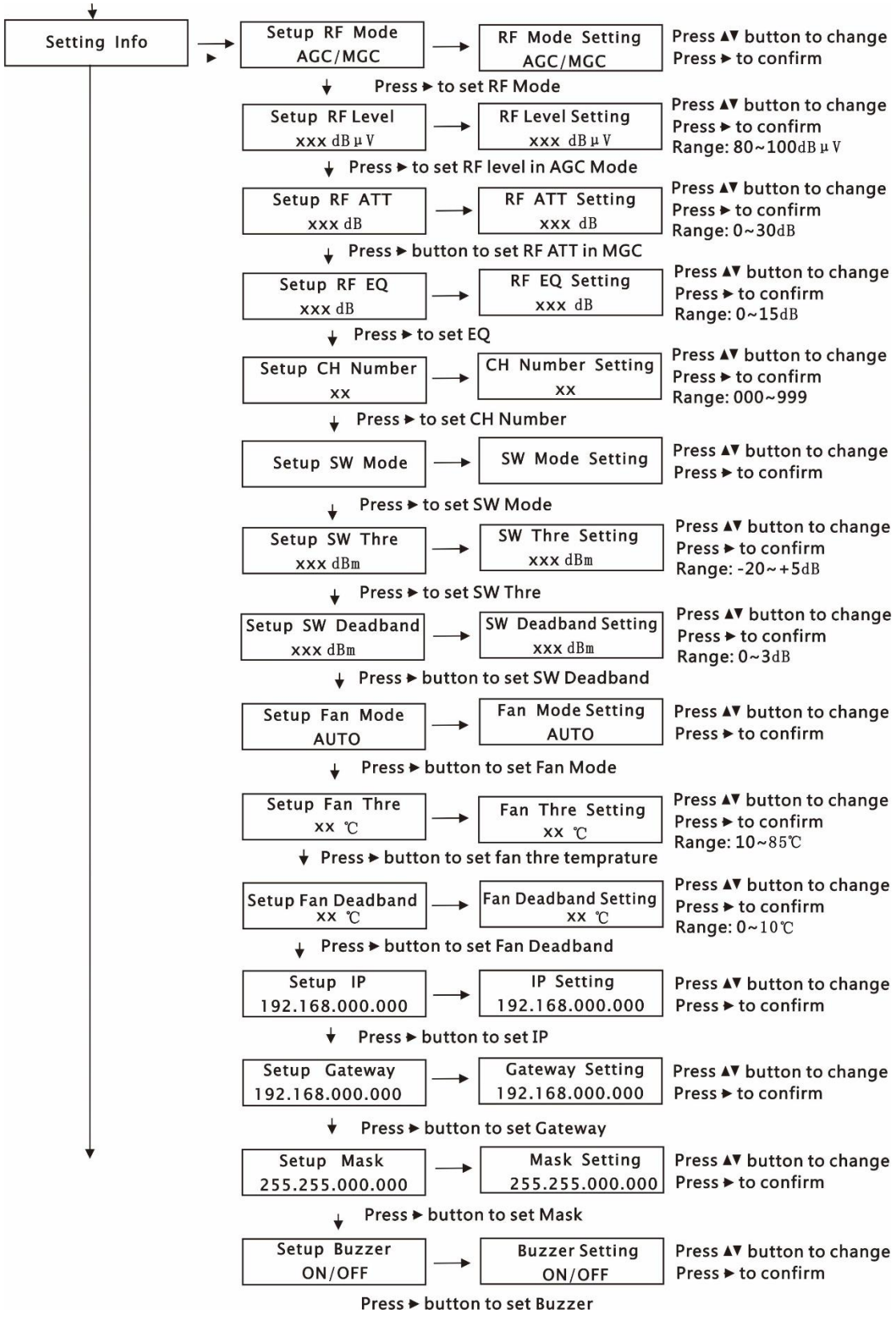
8.2 Installation

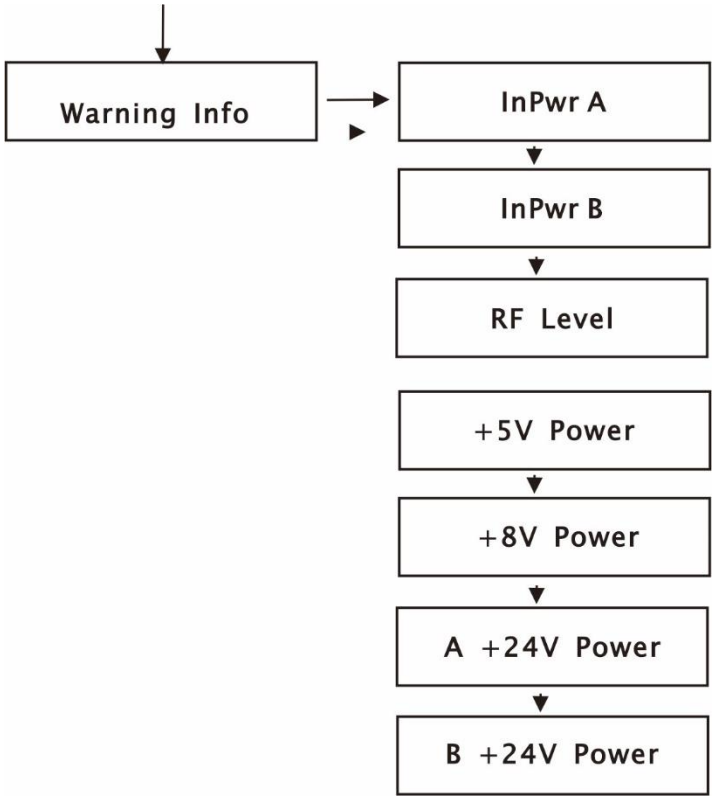
3. Please keep a space about 4.5cm between machines for ventilation.
4. Please make sure: the socket works very well and well grounded; The impedance ≤4Ω; 220V power with three cables, the middle one should connected to the ground. Incorrect grounding may hurt the device or influence the quality of signal.
5. Please make sure the power supply button in the rear panel turn to OFF before the power supply cable connected.
6. Please keep the interface of the fiber clean before connecting the fiber.

9 Front Panel LED Guide




Parameters Info
+5V Power
+8V Power
A +24V Power
A path
B +24V Power
B path
Opti WaveLength
Equipment Temp
IP Address
Gateway Address
SubNet Mask
MAC Address
Serial Number
Firmware Version


Setting Info
Setup RF Mode AGC/MGC
RF Mode Setting AGC/MGC
Press ▲▼ button to change
Press ► to confirm
Press ► to set RF Mode
Setup RF Level xxx dBμV
RF Level Setting xxx dBμV
Press ▲▼ button to change
Press ► to confirm
Range: 80~100dBμV
Press ► to set RF level in AGC Mode
Setup RF ATT xxx dB
RF ATT Setting xxx dB
Press ▲▼ button to change
Press ► to confirm
Range: 0~30dB
Press ► button to set RF ATT in MGC
Setup RF EQ xxx dB
RF EQ Setting xxx dB
Press ▲▼ button to change
Press ► to confirm
Range: 0~15dB
Press ► to set EQ
Setup CH Number xx
CH Number Setting xx
Press ▲▼ button to change
Press ► to confirm
Range: 000~999
Press ► to set CH Number
Setup SW Mode
SW Mode Setting
Press ▲▼ button to change
Press ► to confirm
Press ► to set SW Mode
Setup SW Thre xxx dBm
SW Thre Setting xxx dBm
Press ▲▼ button to change
Press ► to confirm
Range: -20~+5dB
Press ► to set SW Thre
Setup SW Deadband xxx dBm
SW Deadband Setting xxx dBm
Press ▲▼ button to change
Press ► to confirm
Range: 0~3dB
Press ► button to set SW Deadband
Setup Fan Mode AUTO
Fan Mode Setting AUTO
Press ▲▼ button to change
Press ► to confirm
Press ► button to set Fan Mode
Setup Fan Thre xx ℃
Fan Thre Setting xx ℃
Press ▲▼ button to change
Press ► to confirm
Range: 10~85℃
Press ► button to set fan thre temprature
Setup Fan Deadband xx ℃
Fan Deadband Setting xx ℃
Press ▲▼ button to change
Press ► to confirm
Range: 0~10℃
Press ► button to set Fan Deadband
Setup IP 192.168.000.000
IP Setting 192.168.000.000
Press ▲▼ button to change
Press ► to confirm
Press ► button to set IP
Setup Gateway 192.168.000.000
Gateway Setting 192.168.000.000
Press ▲▼ button to change
Press ► to confirm
Press ► button to set Gateway
Setup Mask 255.255.000.000
Mask Setting 255.255.000.000
Press ▲▼ button to change
Press ► to confirm
Press ► button to set Mask
Setup Buzzer ON/OFF
Buzzer Setting ON/OFF
Press ▲▼ button to change
Press ► to confirm
Press ► button to set Buzzer

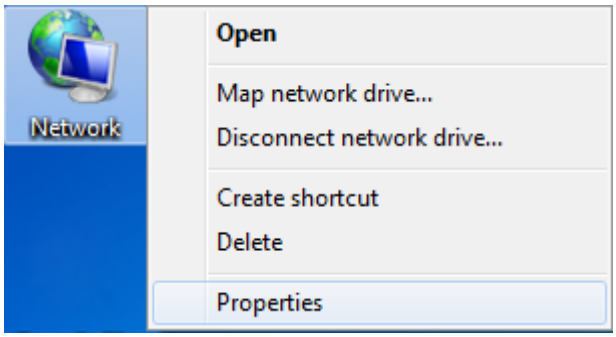

Warning Info
InPwr A
InPwr B
RF Level
+5V Power
+8V Power
A +24V Power
B +24V Power

10 Web GUI Operation Guide

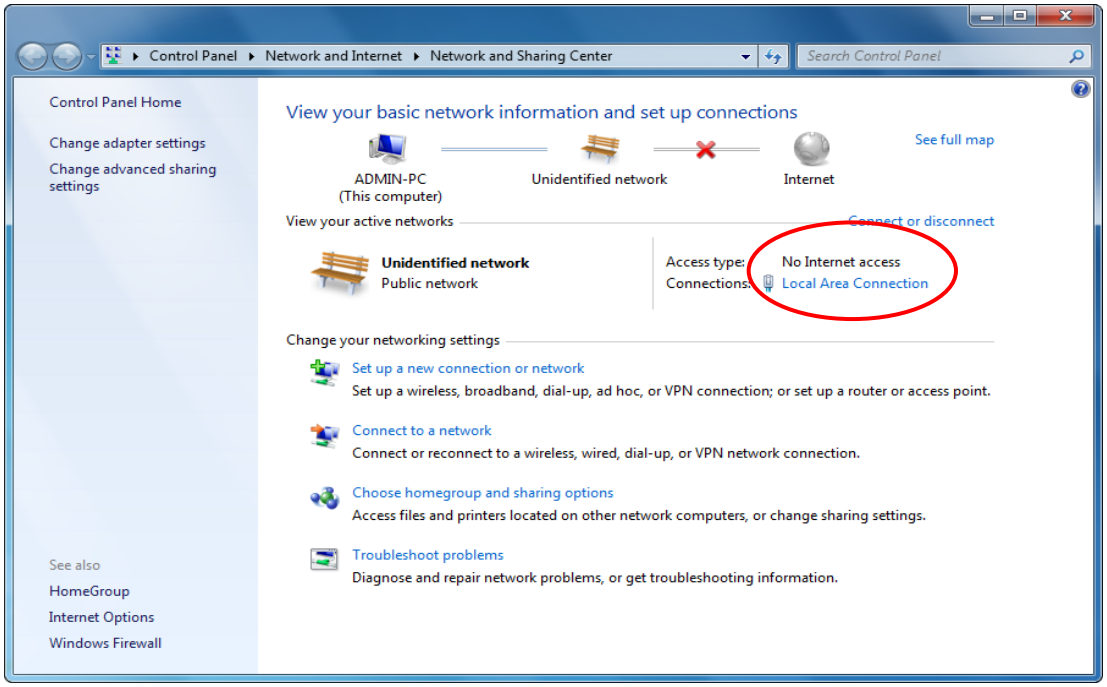
10.1 Web Management

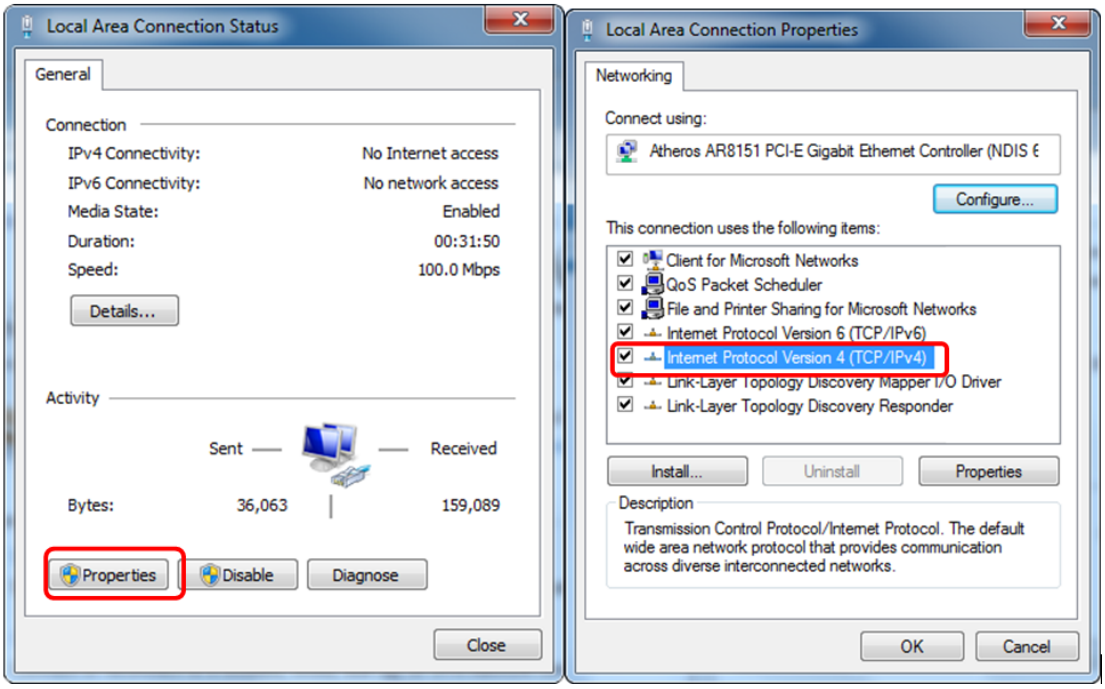
Web server is built in SNMP module. Users can directly view the basic operating parameters and network parameters of the device through the web browser. Popular web browsers include IE of Microsoft, Chrome of Google, Firefox of Mozilla, Opera of software ASA's, etc. The built-in web server of SNMP supports these popular browsers very well. The following diagrams are illustrated by opera browser.

1. First of all, Please find the IP address of the device in the LCD panel menu. The default IP address is 192.168.0.22. Set the IP address of the computer to the same network segment as the device, find the "network" icon on the desktop of windows system, select the icon, right-click the mouse, and select "properties" in the pop-up menu:

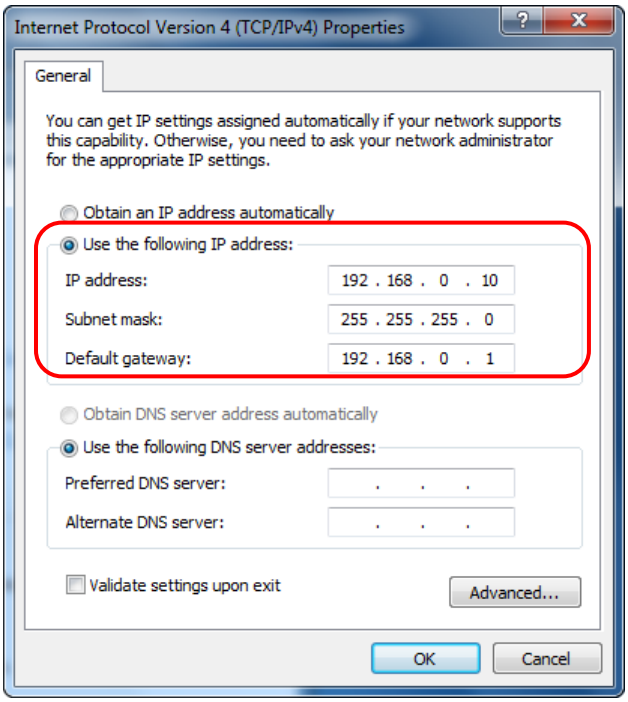


2. Click "Local Area Connection" in the pop-up version.

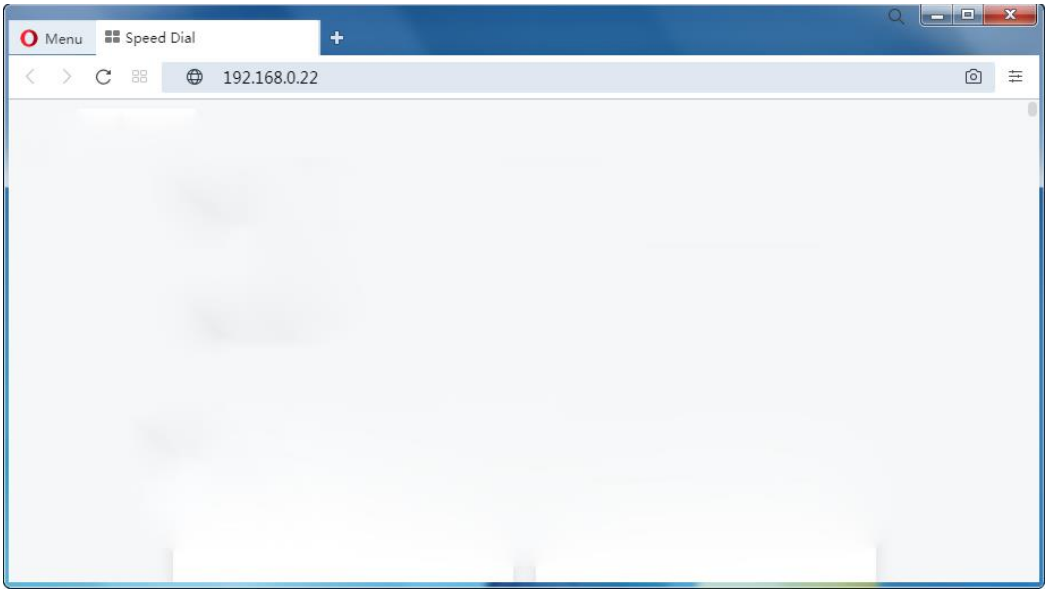




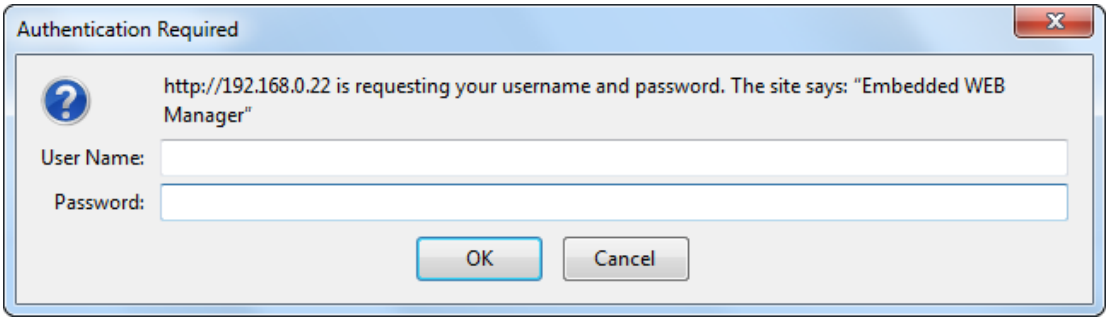
3. Set the IP address to make the IP address and the device in the same network segment, so that the computer can access the device.



4. Open the web browser and enter the IP address of the device in the address bar of the browser, such as 192.168.0.22.



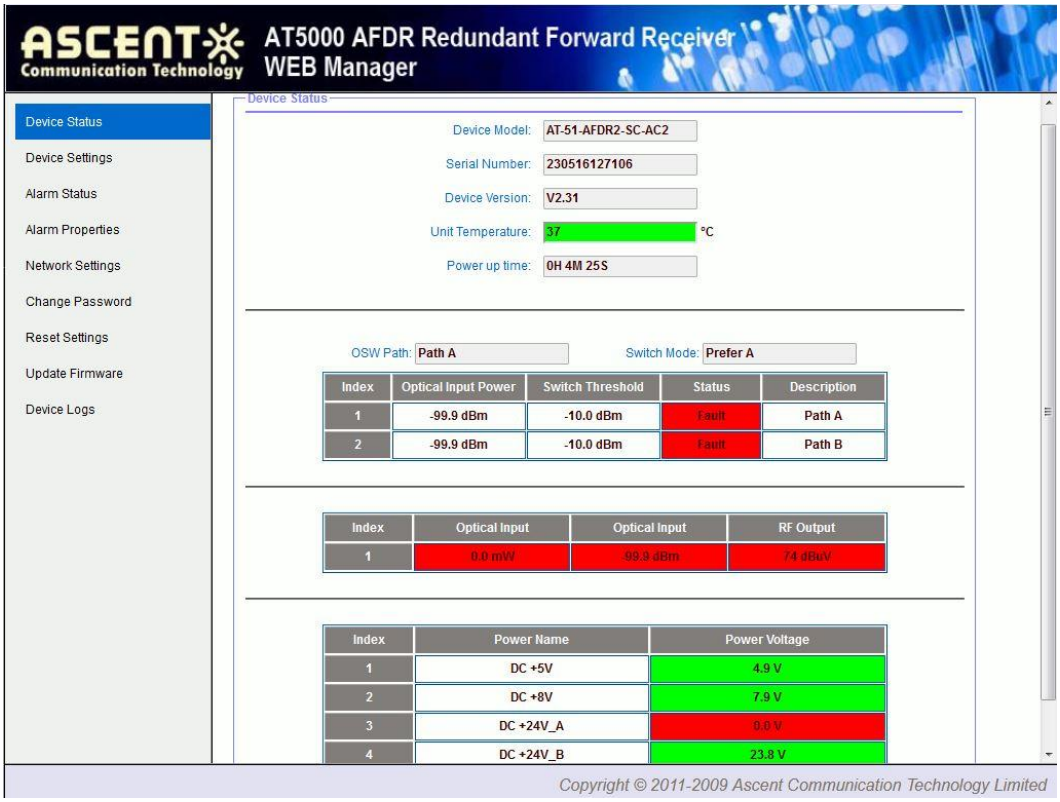
The browser will pop up a login box.



In the pop-up login user name box, enter User Name: "admin" (Note: all lowercase letters), password: "ascent", and then enter.

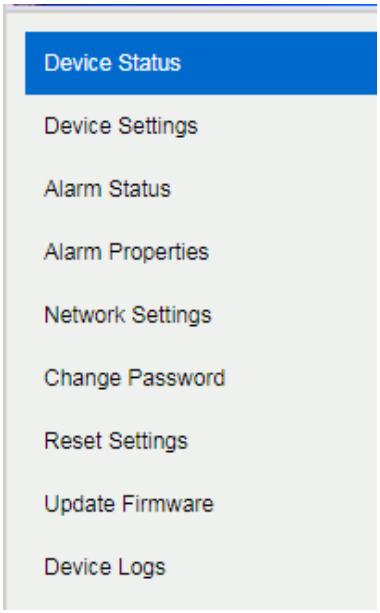
The browser displays the device status page by default.

10.2 Real Time Device Status

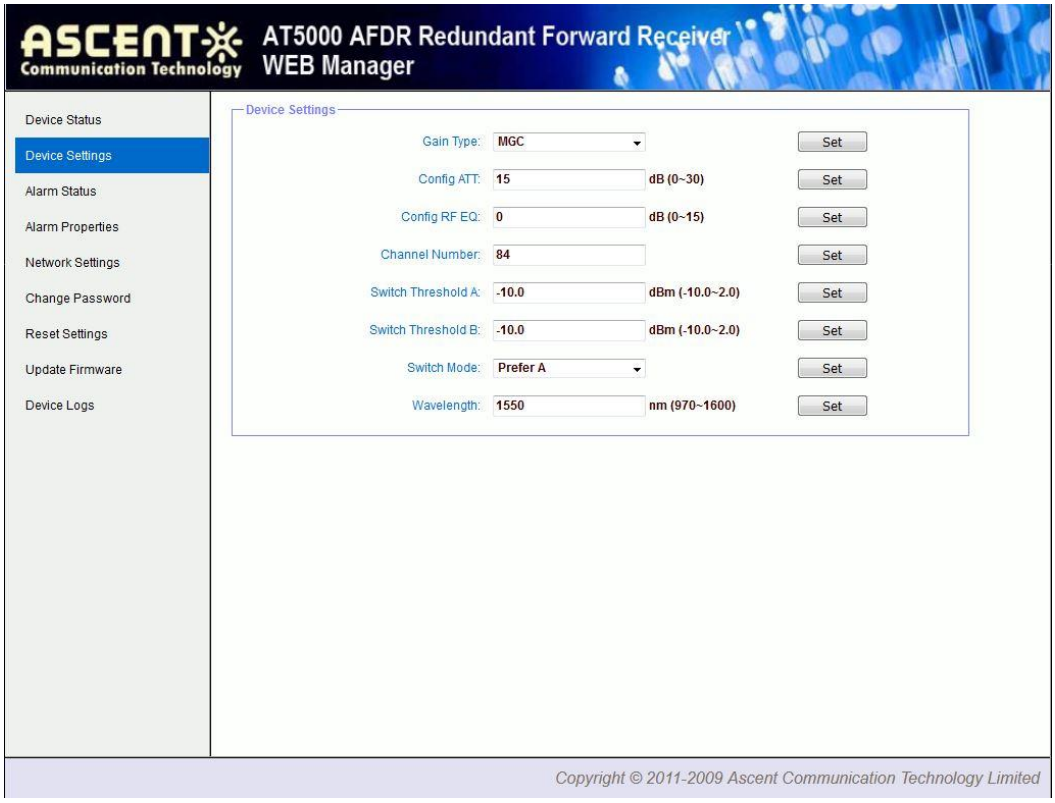


The left side of the page is the menu navigation bar. Click to enter the corresponding menu page.

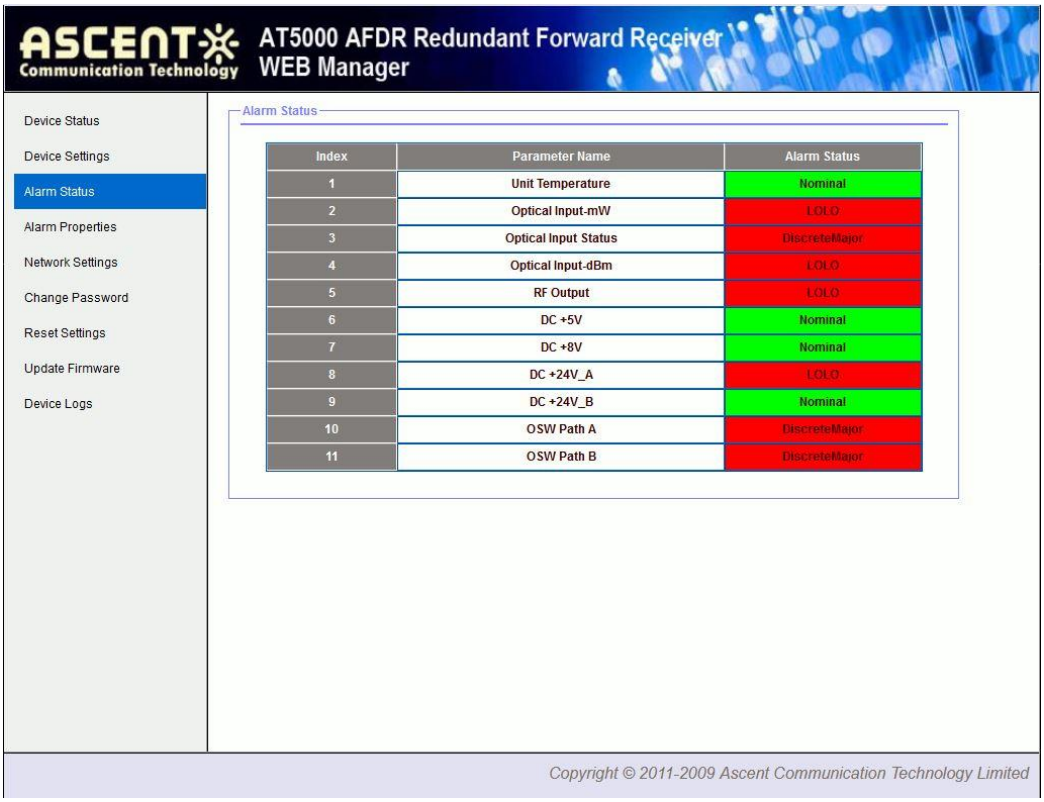
10.3 Page Navigation Bar



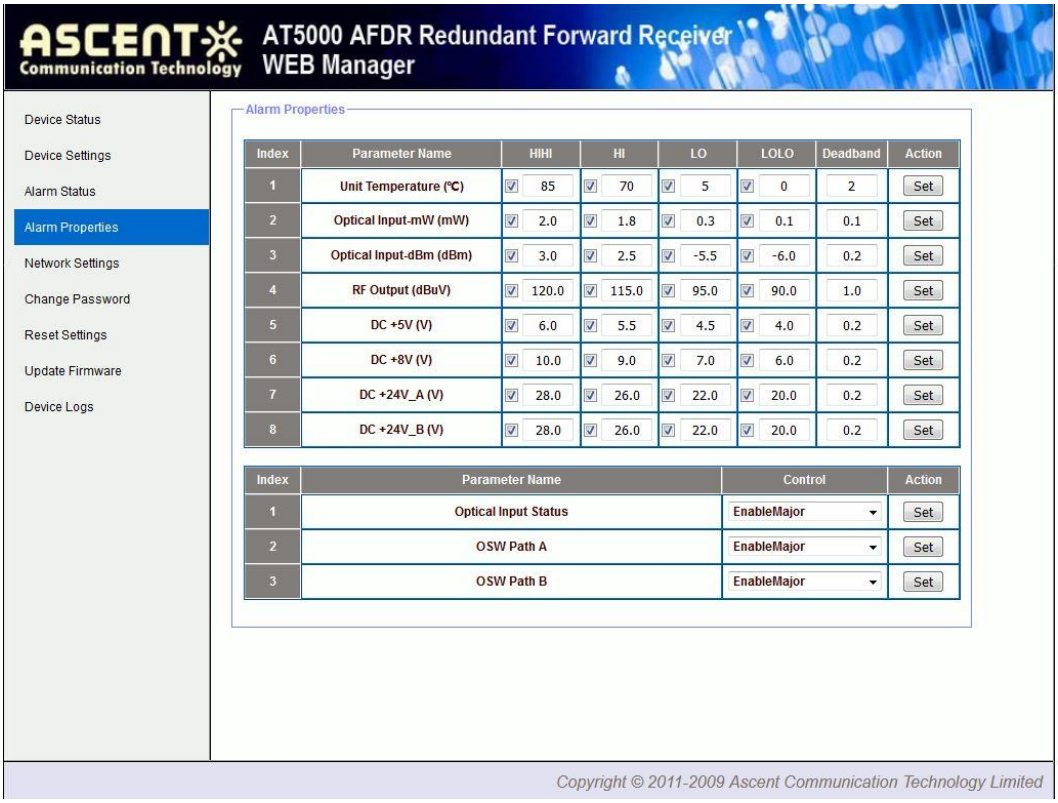
10.4 Device Setting



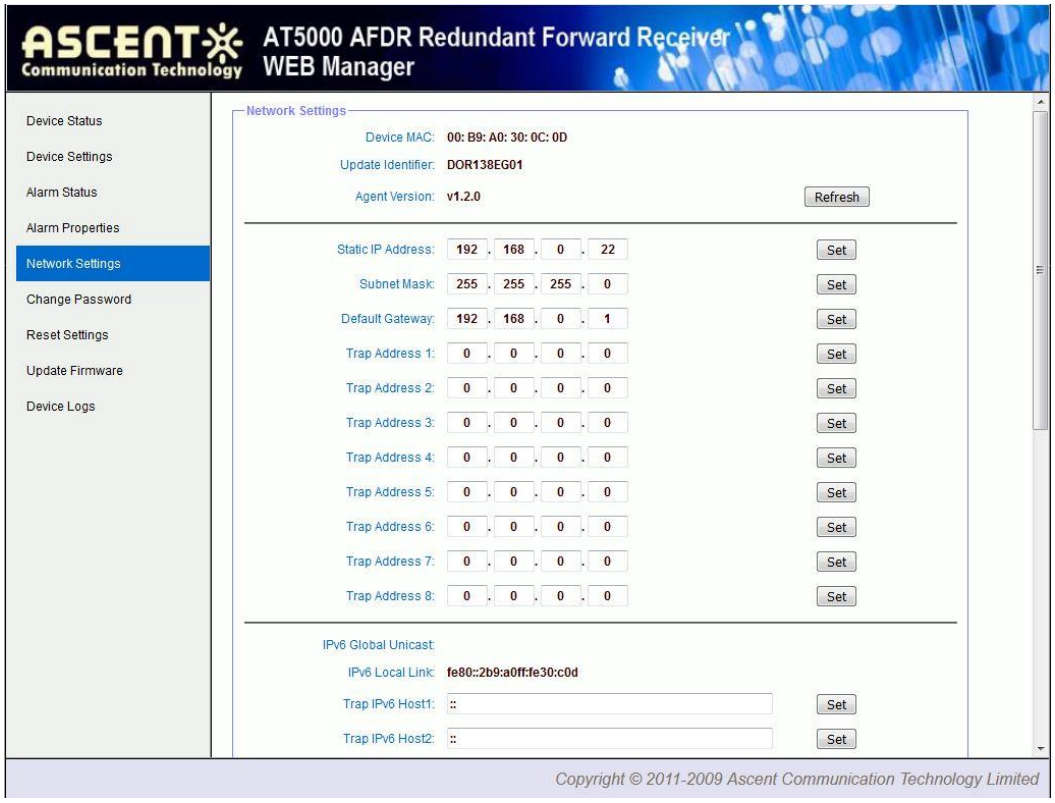
10.5 Alarm Status

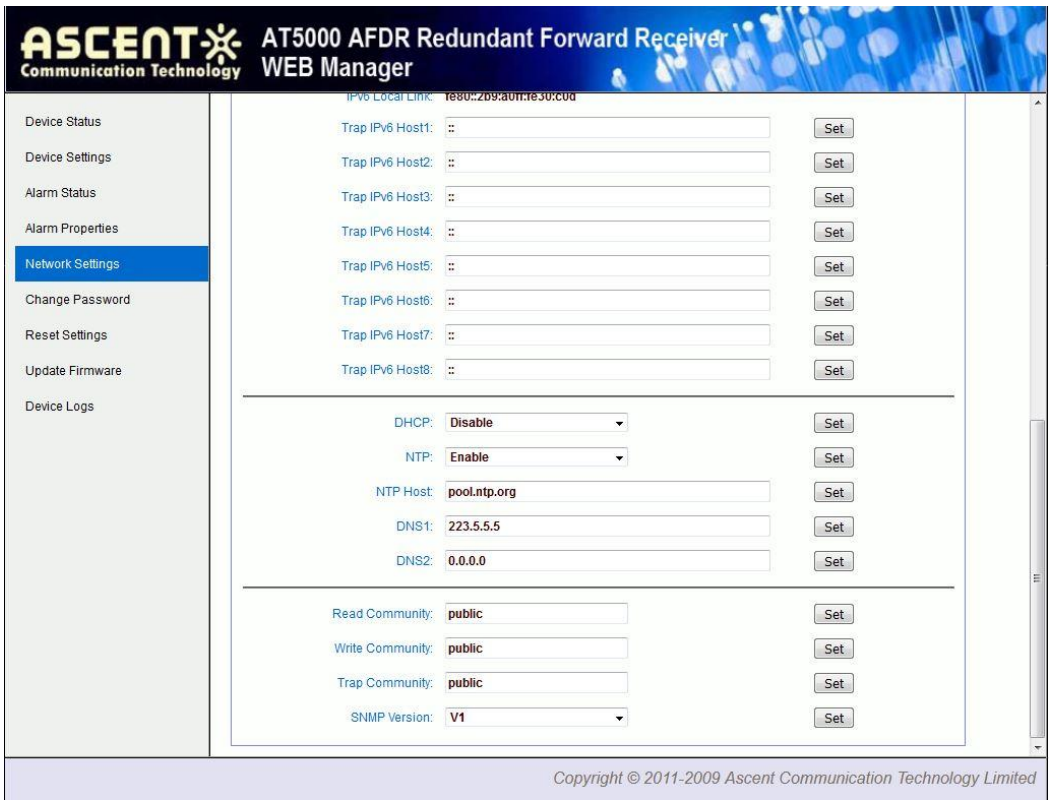


10.6 Alarm Properties Setting

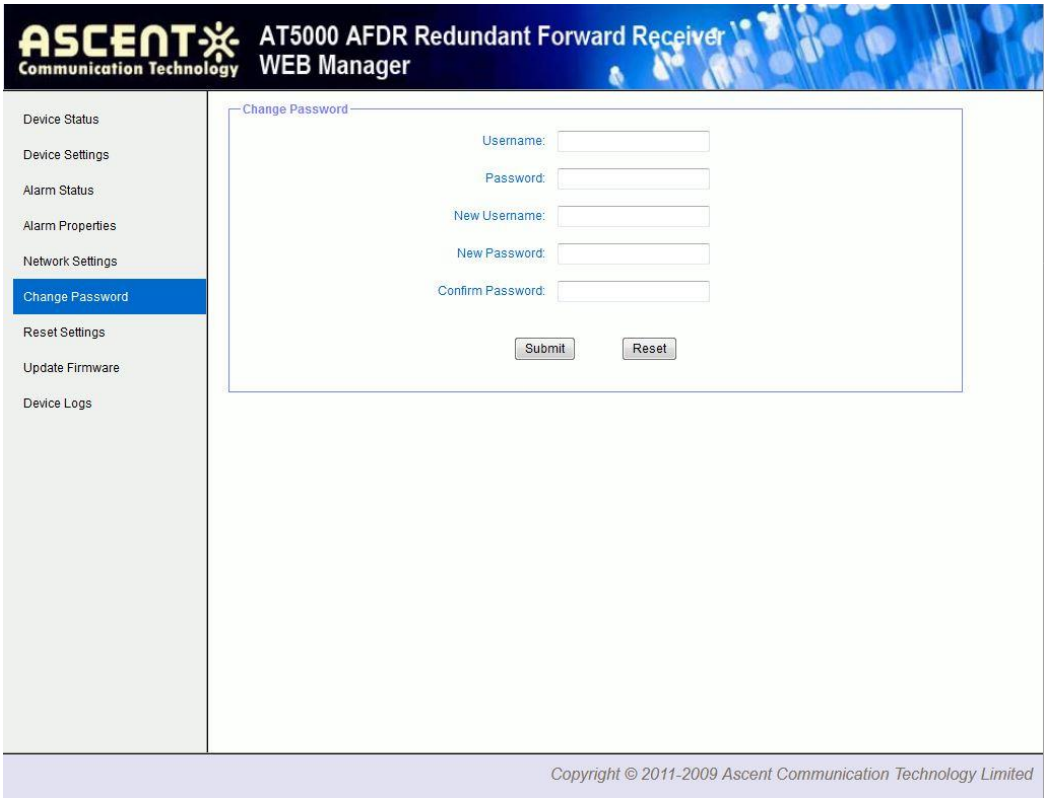


10.7 Network Setting

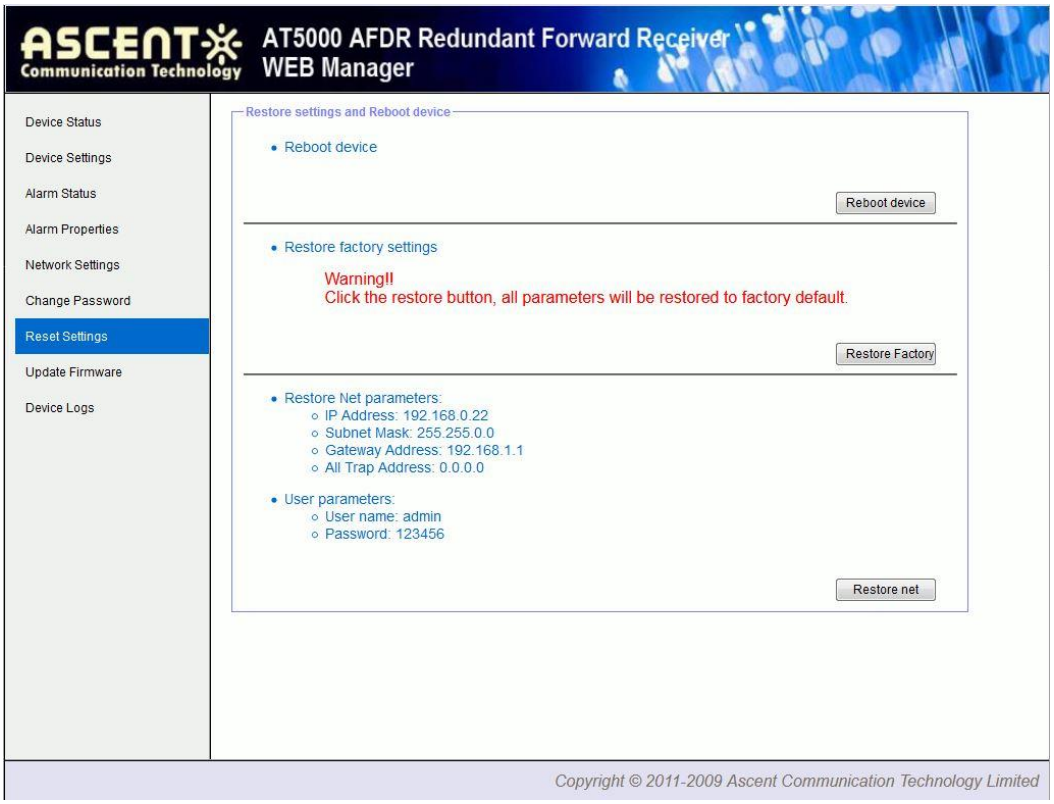




10.8 Change Password

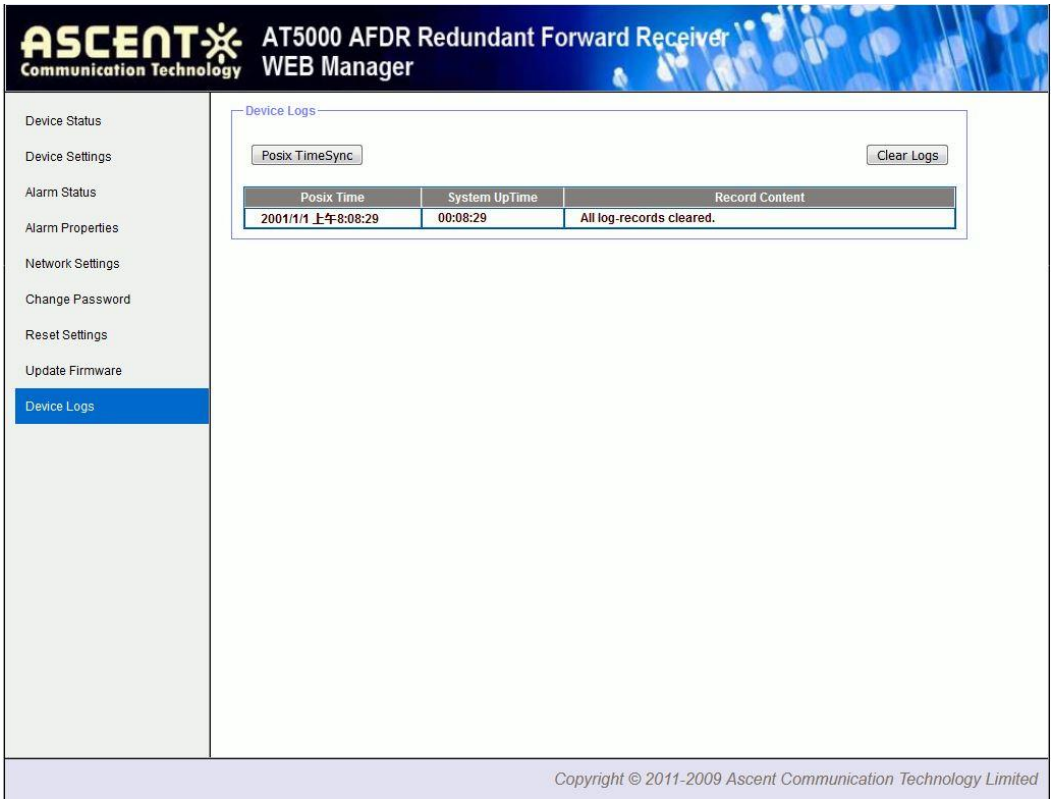


10.9 Restore Settings



10.10 Update Firmware

10.11 Device Logs



11 Telnet Instruction

The account and password are the same as those on the WEB. The default account: admin and default password: ascent.

11.1 Command line and instructions

1. help/ls/?

   “help” command: By entering any of the above three instructions, you can obtain the CLI table and a brief introduction.

2. Ip

   Display and set IP parameters. Inputting an address will take effect immediately. Just entering "IP" will display the current IP information. Using "ip ipv6suffix" can set the IPv6 suffix.

3. Mask

   Display and set the netmask.

4. Gateway

   Display and set the gateway.

5. Ip4

   Display and set the IP address, subnet mask and gateway. It is used to set the IP address, subnet mask and gateway simultaneously. The settings need to be committed with "ip4 commit" to take effect. The subnet mask is represented by "/" + "mask bit number", such as 255.255.255.0 is represented as /24, and 255.255.0.0 is represented as /16. You can view the details by using "help ip4".

6. Ip6

   Display and set the IPv6 parameter.

7. Show

   Display network information.

8. Comnty

   Display and set SNMP community, including readonly | readwrite | trap community.

9. Trap

   Display and set trap address. Example:\> trap index x.x.x.x.

10. Trap6

    Display and set the trap address for IPv6.

    Example:\>trap6 index ipv6address.

11. Snmpv3

    SNMPv3-related parameters.

12. Echo

    Display and set the echo status, Example:\> echo on|off.

13. Passwd

    Set the current account password and the new password.

    Example:\>passwd username newpassword confirmpassword.

14. Cls

Clear screen.

15. Ver

    Display system information.

16. Reset

    Reset the equipment.

17. Exit

    Log out of the current telnet session.

12 Notes

a) Static-sensitive pin diode is applied in the receiver, please note that electrostatic protection should be applied in the storage of the device and it should not be stored with corrosive material, and the storage temperature should be between - 40°C and + 85°C.

b) Please don't block the cooling holes of the device and keep it in good ventilation.

c) Please use anhydrous industrial alcohol instead of medical alcohol to wash the fiber connector if necessary.

13 Warranty Terms

The receivers are covered by limited warranty as specified in standard T&C, which starts from the initial date of your purchase. We provide its customer whole-life technical supports. If warranty is expired, repair service only charges parts (if required).

In the event that a unit must be returned for service, before returning the unit, please be advised:

a) Warranty mark pasted on the housing of unit must be in good conditions.

b) A clear and readable material describes model number, serial number and troubles should be offered.

c) Please pack the unit in its original container. If the original container is no longer available, please pack the unit in at least 3 inches of shock absorbing material.

d) Returned unit(s) must be prepaid and insured. COD and freight collect can not be acceptable.

Note: We do not assume responsibility for damage caused by improper packing of returned unit(s).

The following situation is not covered by warranty:

a) The unit fails to perform because of operators' faults.

b) Warranty mark is modified, damaged and/or removed.

c) Damage caused by Force Majeure.

d) The unit has been unauthorized alteration and/or repaired.

e) Other troubles caused by operators' faults.

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