Rack-mounted OXC optical switch equipment

catalogue

1 PRODUCT INTRODUCTION 1 3

PRODUCT FEATURES 1 3

3 TECHNICAL PARAMETERS 1 3

4 EQUIPMENT DESCRIPTION 2 4

4.1 STRUCTURAL SCHEMATIC ILLUSTRATION 2 4

4.1.1 Front panel description 2 4

4.1.2 Rear Panel Description 3 5

4.2 OPTICAL PATH DIAGRAM OF THE EQUIPMENT 4 6

5 EQUIPMENT NETWORK MANAGEMENT USAGE INFORMATION 5 7

6 NOTES AND MAINTENANCE 8 10

6.1 NOTES 8 10

6.2 EQUIPMENT MAINTENANCE 8 11

7 TROUBLESHOOTING 9 11

8 FACTORY DEFAULT CONFIGURATION 9 11

1 Product Introduction

An optical switch is a control device that manages and redirects optical pathways, playing a vital role in optical communication applications. It is primarily used in: multi-channel optical monitoring systems, automatic switching of multiple light sources/detectors in LANs, and multi-point dynamic monitoring systems for optical sensing. Additionally, it serves in optical testing systems for fiber optic cables, optical components, network infrastructure, and field engineering projects, as well as in the assembly and calibration of optical devices.

Optical switchgear is characterized by low insertion loss, fast switching speed, and high stability. It features an LCD display and buttons for user-friendly operation. The device supports RJ45 Ethernet communication interfaces and can be controlled by external programs. Management protocols include SNMP, TELNET, and other network protocols.

2 Product features

- Supports power outage maintenance.
- It has the characteristics of small insertion loss and fast switching speed.
- The LCD display provides intuitive data visualization and enables quick channel switching for user convenience.
- The "device address" can be set up to facilitate users to control multiple optical switch instruments with a serial port when the serial port resources are scarce.
- The baud rate of serial port communication can be set according to the actual situation. There are seven baud rates that can be set, including 2400,4800,9600,14400,19200,57600 and 115200.
- Channel switching can be configured through panel buttons or programmed commands, with button operations lockable via programmed commands.
- Support real-time detection of optical power input and output ports.
- Support OTDR test, used for transmitting detection light, and power analysis of the detection signal reflected by the light reflector; the distance of optical cable break can be determined by waveform curve comparison and analysis.
- Supports adjusting the PWM value to control the fan speed.

3 Technical Parameters

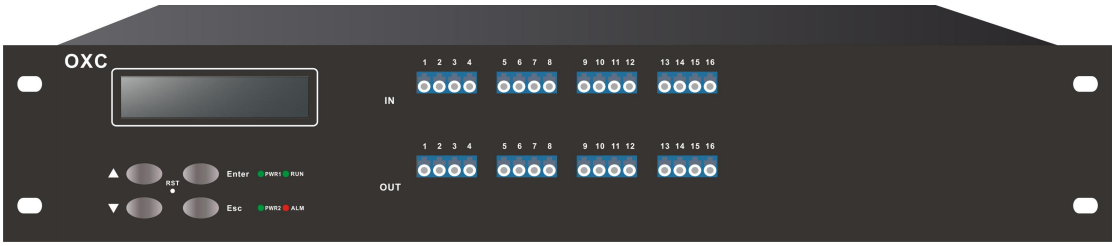
Parameters		Units	Specifications		
			Min	Typ	Max
Working wavelength range		nm	1260~1650 nm		
Crop	16x16	dB			2.5
	32x32				3.0
	48x48				3.5
Loss of return		dB	45		
cross fire		dB	55		
Polarization-related loss		dB		± 0.1	0.25

Wavelength-dependent loss	dB			0.5
Temperature-related loss	dB			0.5
switching period	ms			30
repetitiveness	dB		±0.05	
Power measurement range	dBm	-50		23
Detection accuracy	dB		±0.5	
Switching lifespans	Cycles	109		
working temperature	℃	-5		70
Storage temperature	℃	-40		85
relative humidity	%	5		95
programmable interface		RS232 or RJ45		
Type of connector		LC/UPC or other		
input voltage		AC: 100V~240V or DC: 36~72V dual power supply		
power dissipation	W	<100		
Equipment dimensions (WxDxH)	mm	2U:483x450x88		

4. Device Description

4.1 Structural Diagram

4.1.1 Front Panel Description



16×16 front panel rendering

(1) LCD display: display of device address, current channel and related information.

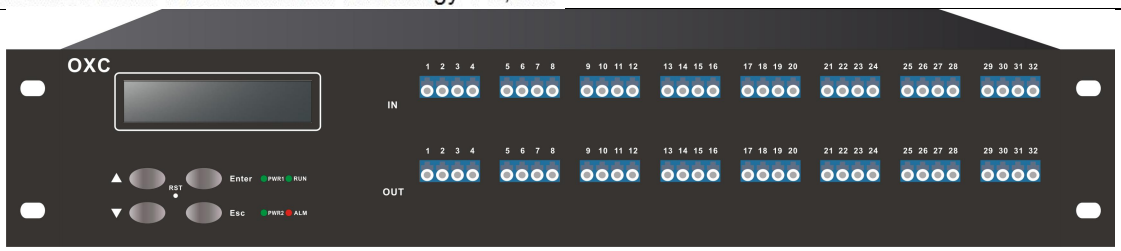
(2) ▲ —— Up arrow; ▼ —— Down arrow; Enter —— OK; Esc —— Cancel.

(3) Power indicator Power1 and Power2: working power indicator.

(4) RUN running indicator light: normally RUN light is on once/s; off, operation fault.

(5) ALM alarm indicator: off, normal equipment; on, equipment fault.

(6) Optical interface description: In1 to In16 on the equipment panel are optical input interfaces, and Out1 to Out16 are optical output interfaces.



32×32 front panel rendering

(1) LCD display: display of device address, current channel and related information.

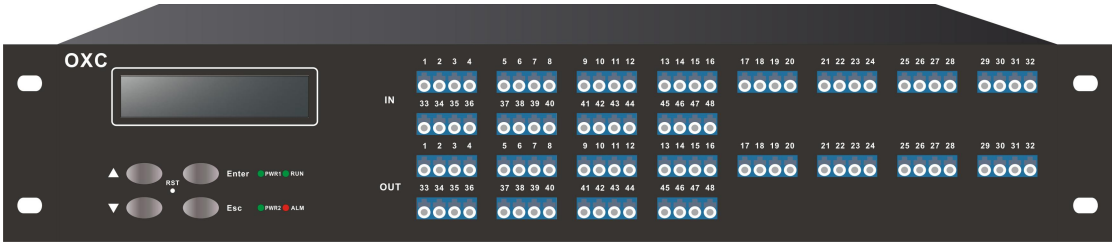
(2) ▲ —— Up arrow; ▼ —— Down arrow; Enter —— OK; Esc —— Cancel.

(3) Power indicator Power1 and Power2: working power indicator.

(4) RUN running indicator light: normally RUN light is on once/s; off, operation fault.

(5) ALM alarm indicator: off, normal equipment; on, equipment fault.

(6) Optical interface description: In1~ In32 on the equipment panel is the optical input interface, and Out1 ~ Out32 is the optical output interface.



48×48 front panel rendering

(1) LCD display: Shows device address, current channel, and related information.

(2) ▲ —— Up arrow; ▼ —— Down arrow; Enter —— OK; Esc —— Cancel.

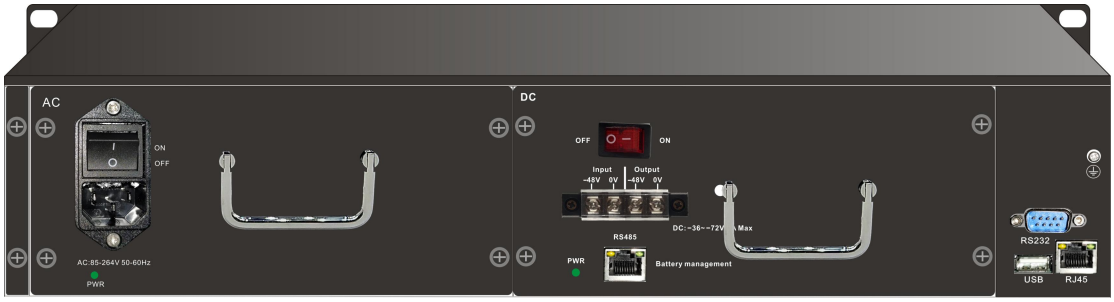
(3) Power indicators Power1 and Power2: indicate the working power supply.

(4) RUN running indicator light: normally RUN light is on once/s; off, operation fault.

(5) ALM alarm indicator light: off, normal equipment; on, equipment fault.

(6) Optical interface description: In1~ In48 on the equipment panel is the optical input interface, and Out1 ~ Out48 is the optical output interface.

4.1.2 Rear Panel Description



Equipment back panel rendering

(1) , RJ45 Ethernet interface, RS-232 serial port: communication interface for equipment monitoring data information.

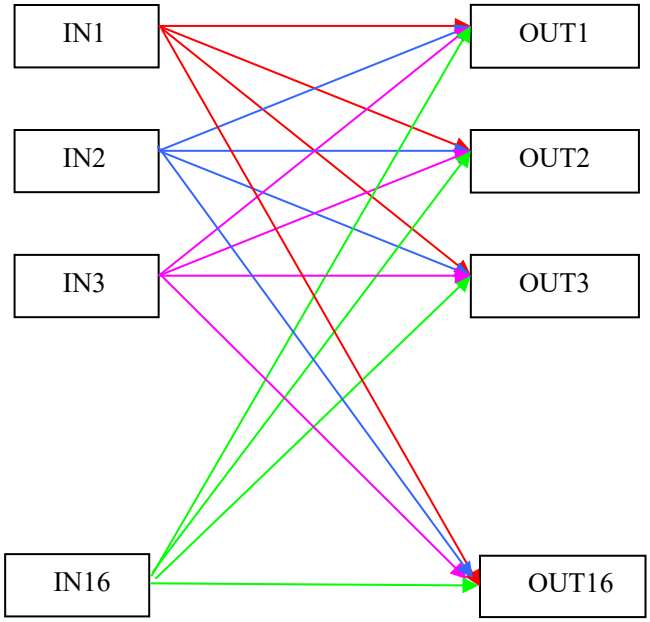
(2) RS485: Monitoring UPS battery power and other information.

(3) Power supply (PIU) slot on the back of the device: AC (APU)/DC (DPU) is optional, and power 1+1 hot

backup.

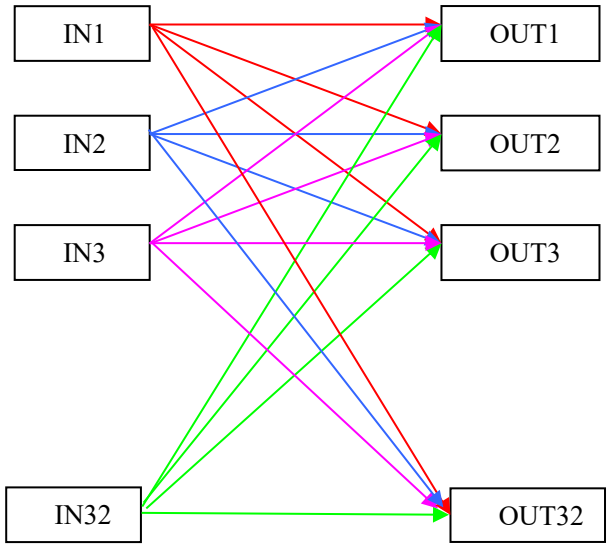
(3) Indicator light: PWR: On: normal power supply; off: no power supply or abnormal.

4.2 Internal optical path diagram of the device



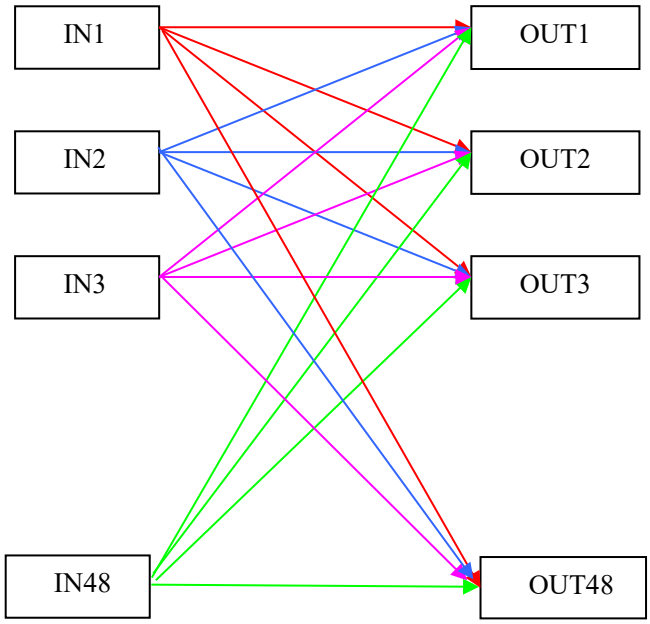
Note: There can be no two input paths simultaneously selecting the same

Schematic diagram of the internal optical path of the 16×16 optical switch



Note: You cannot select the same output for two inputs

Schematic diagram of internal optical path of 32×32 optical switch



Note: You cannot select the same output for two inputs simultaneously.

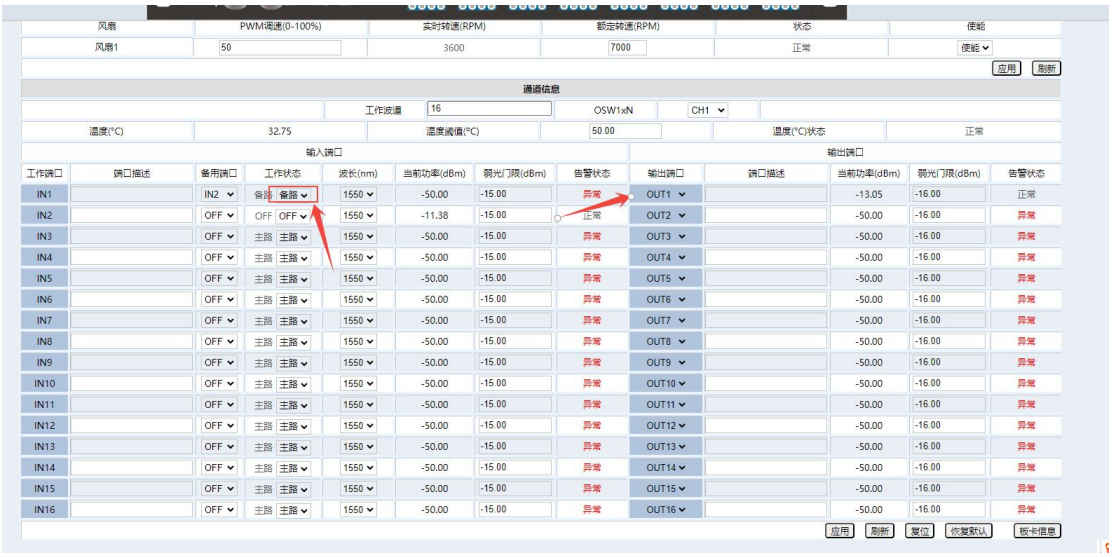
Schematic diagram of the internal optical path of the 48×48 optical switch

5. Network Management Device Usage Information

The browser input device IP address is 192.168.1.188. Access the web interface using the account: admin and password: admin. The web interface configuration and button panel settings are basically identical. Changes made on either the panel or web interface will be synchronized across both platforms.

1、Standby path switching function

As shown in the diagram, when the standby port is turned off, the input and output ports maintain a one-to-one correspondence without any backup options. The system allows users to select any port other than the current active one as the backup. In this configuration, IN2 is designated as the backup for IN1. When the current power level at IN1 exceeds the low-light threshold, OUT1 will automatically switch to serve as IN1's input.



As shown in the figure above, when IN1's current power is below the low-light threshold and its backup port IN2's optical power remains within normal range, OUT1 automatically switches to IN2's input, thereby transferring to the backup path.

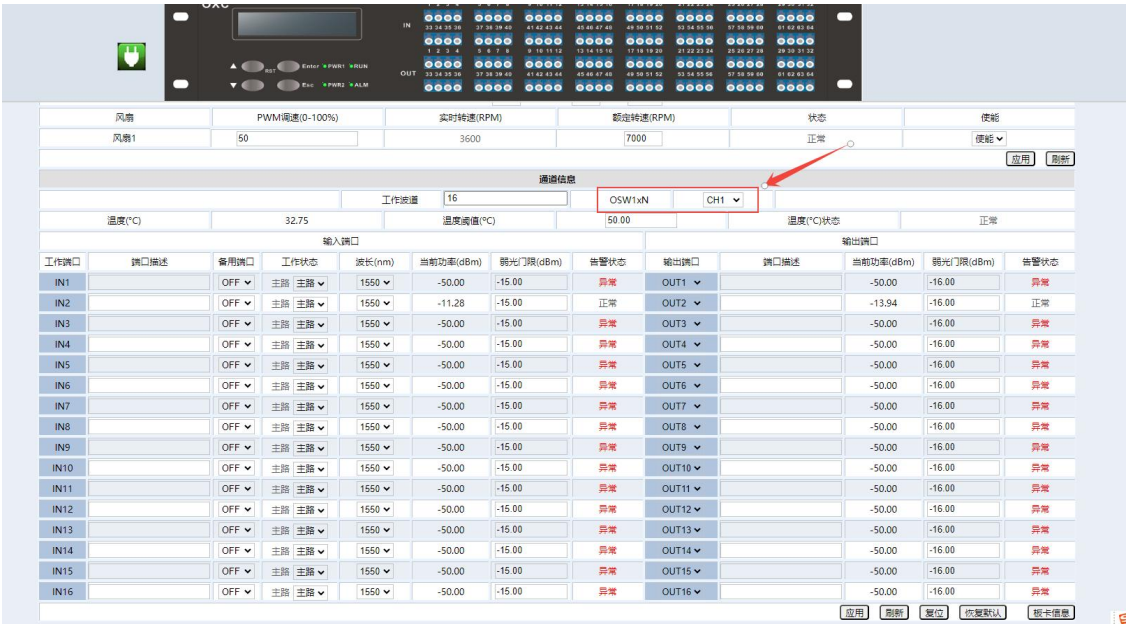
Note 1: When the primary path is out of service but the backup path is operational, the channel will automatically switch to the backup path. If the primary path regains optical power, manual switching is required to restore the channel to the primary path.

Note 2: The standby port is unique and cannot be shared by multiple ports. For example, if the standby port of IN1 is IN2, the standby port of IN3 cannot be set to IN2.

Note 3: The OUT port is unique. You cannot set up more than one OUT port. For example, there can be no

two OUT1 ports.

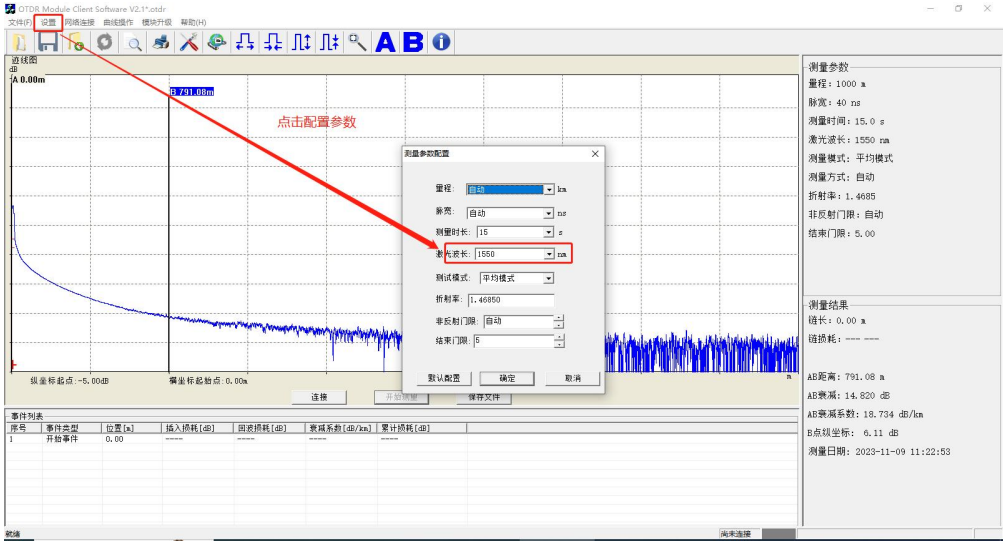
2、OTDR test port Settings



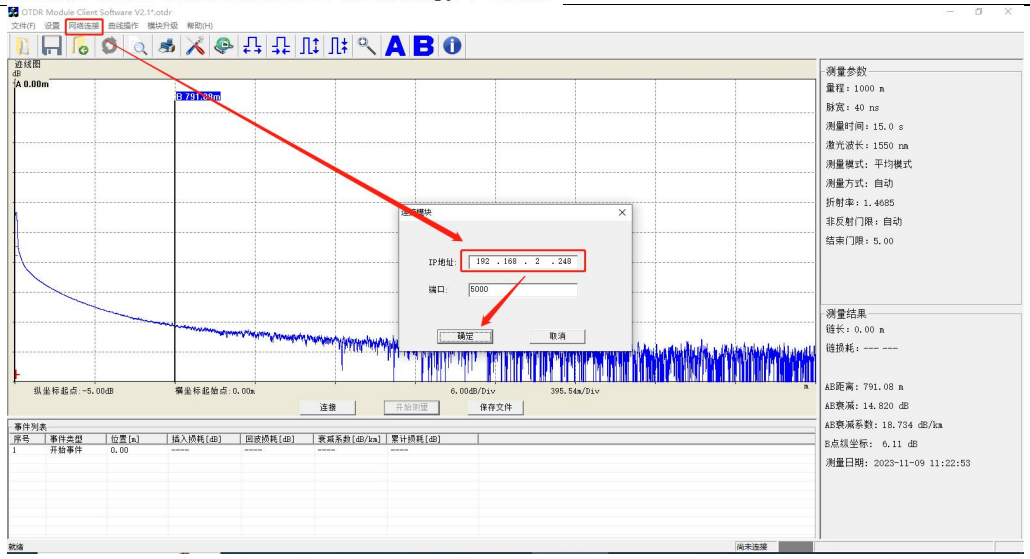
As shown in the arrow above, this is where the OTDR test channel is set. When CH1 is selected, it means that the OTDR test light enters the IN1 port and exits from the OUT1 port connected to the IN1 port.

3、OTDR test

Insert the pan cable into the corresponding output port corresponding to the OTDR test port set on the web end; open the OTDR Module Client Software V2.1 software, configure parameters and modify the wavelength. The operation steps are shown in the figure below.



Click Network Connection and enter the OXC device IP. Connect to the network as shown in the figure below. After successful connection, click Start Test.



4、Fan speed control

As shown in the figure below, the fan speed can be controlled by adjusting the PWM value.

6 Precautions and maintenance

6.1 Precautions

(1) When using this device, you must correctly connect each port according to the optical path connection instructions.

(2) The power supply should be grounded, and the input power voltage should be within the range required by the equipment.

(3) If the host encounters abnormal operation due to sudden interference, shut down the host first before troubleshooting.

(4) The optical input port must be connected well and accurately positioned, otherwise the measurement results and insertion loss may not be correct.

(5) It is normal to have slight vibration or sound when switching the optical path channel.

6.2 Equipment Maintenance

The reasonable use and proper storage of the equipment can maintain good performance indicators for a long time and prolong its service life, so appropriate maintenance is required:

(1) The equipment should avoid strong mechanical vibration, collision, drop and other mechanical damage. During transportation, good packaging, vibration reduction, rain and waterproof measures must be taken;

(2) The equipment should be kept clean regularly, and the working environment should be free of corrosive gases such as acid and alkali. Clean towels dipped in water or soapy water can be used to gently wipe the machine box and panel. It is forbidden to use alcohol or other solvents to wipe.

(3) After removing the optical fiber connector, cover it with a dust cap in time to prevent hard objects, dust or other dirt from touching the optical fiber end.

For any further matters, please contact us. We would be delighted to hear your valuable feedback.

7. Troubleshooting

Failure performance	Possible causes	terms of settlement
No display when turning on	The power supply is not properly connected	Reconnect the power supply and turn on the machine.
Insertion loss is excessive	Connector end face contamination	Clean the end face of the optical connector again and fix the connector. Check whether the end face is damaged.
The panel does not switch the optical path	The panel button is locked	You can set it up as needed in the menu "Channel Lock Settings".
The host computer command is invalid.	The baud rate is not set properly	View the device's baud rate in the menu "Baud Rate Settings" and set it as needed.
	The network cable and serial port cable are not properly connected	Shut down the device, check the network cable and serial port cable, and then turn it on.

8 factory default configuration

List of factory default configurations

project	Default factory settings	remarks
Panel key usage	Allowing use	
Channel lock setting	Allow switching	Channel switching of the initial interface
device address	01	
Baud rate setting	115200	8-bit data, 1-bit stop bit, no parity.
equipment IP	192.168.1.188	Operation mode: TCP Server; operation port: 4001