KPS310XA&320XA Serial Server user manual

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KYLAND

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1 Product Introduction

1.1 Summary

The KPS310XA&320XA series Serial Server is an industrial Serial Server based on Linux system architecture and ARM 9 processor. It is mainly used for the conversion of communication regulations. Through data acquisition, storage and control operations, it can realize online real-time monitoring and remote control and other functions, and can be used as the terminal equipment of the industrial Internet platform.

This Serial Server supports TCP Client, TCP Server and UDP network modes, supports transparent transmission and Modbus RTU data transmission protocols.

The Serial Server can be divided into RS232 and RS485 two serial communication modes. The RS-485 Serial Server provides a switchable terminal resistance of 120Ω to reduce signal reflection and effectively improve the stability and reliability of RS-485 serial port communication.

1.2 Packing List

KPS310XA&320XA series Serial Server packaging includes the following accessories：

➢ One KPS310XA&320XA Serial Server device

➢ Installation user manual

➢ Qualified certificate

Description: If any of the above items are lost or damaged, please contact the sales representative.

1.3 Product characteristics

➢ Provide 1 or 2 Ethernet interfaces, and 1~8 RS-232/RS-485 serial ports

➢ Support Socket operation mode, include TCP Server, TCP Client and UDP

➢ Support transparent transmission and Modbus RTU data transmission protocol

➢ Support 3KV isolation protection for serial port, and 1.5KV isolation protection for network port.

➢ Air with ±8KV, Contact with ± 6kv electrostatic protection, protection level is level 3, B

➢ Support the alarm and one-click recovery function

➢ IP40 protection level

➢ Metal enclosure, wide temperature -40℃~+75℃

➢ Integrated software configuration tool KyCMT

➢ ……

1.4 **Software function**

Route: support static route

Safety: support SSH, MAC address binding and user classification

Device management: support Web management (HTTP/HTTPS)

Support KyCMT integrated debugging management tool (device search, IP address configuration, etc.)

Support ICMP control message

Support SNMP v2c

Support SNMP Trap

Support ARP、DNS、DHCP Client

Device maintenance: support software upgrade via WEB

Support FTP, TFTP, Syslog

Support SMTP Email alarm

Support device alarm LED

Support breakpoint reconnection

Clock feature: support NTPv3 Client

1.5 **Model number**

➢ KPS3101A-E-1T1D-232-L17   KPS3101A-E-1T1D-485-L17

➢ KPS3102A-E-1T2D-232-L17   KPS3102A-E-1T2D-485-L17

➢ KPS3204A-E-2T4D-232-L17   KPS3204A-E-2T4D-485-L17

➢ KPS3208A-E-2T8D-232-L17   KPS3208A-E-2T8D-485-L17

2 **Electrical characteristics and specification parameters**

2.1 **Connect power supply**

KPS310XA&320XA Serial Server is powered by the power terminal connection to the 12-48V DC power supply.

The device operates immediately when connecting the power, and the power indicator located on the front panel of the device shines. The device has the reverse connection protection, overload protection and power down alarm function.

Power requirement：

Input voltage: 24V DC (12-48VDC)

Terminal block: 2-pin plug-in terminals

power： KPS3101A：1.0W

KPS3102A：1.0W

KPS3204A：1.5W

KPS3208A：1.6W

2.2 **Connect serial device**

The serial port of the KPS310XA&320XA Serial Server device is located on the front panel of the device. If you are trying to connect multiple devices to the serial port, all devices must use the same communication protocol

Pin description of serial port refer to section 2.5: pin definition.

2.2.1 **RS-485 terminal resistance**

When using the RS-485 transmission mode in complex industrial environments, it may need to increase the terminal resistance and reduce the signal interference caused by serial signal reflection. KPS310XA&320XA Serial Server serial port has the default pull-up/drop-down resistance of 1KΩ/150KΩ. For each serial port, the DIP switch on the top panel of the Serial Server device is used to enable/disable the 120Ω terminal resistance of the RS-485.

Set 120Ω terminal resistance on KPS310XA&320XA: Identification n of the DIP switch corresponds to the serial port Sn. When the n DIP is switched to the ON, the terminal resistance of the corresponding Sn serial port is enabled; when the n DIP is switched to the OFF, the terminal resistance of the corresponding Sn serial port is disabled; the terminal resistance is disabled by default on the Serial Server device.

2.2.2 **Network port**

KPS3101A/KPS3102A Serial Server has 1 10/100Mbps network port; KPS3204A/ KPS3208A Serial Server has 2 10/100Mbps network ports, it is located in the front panel of the Serial Server. The Serial Server device can connect to the other host or network through the network port.

When working normally, the Serial Server can be connected to network by the network cable. When initialization and fault detection are required, the Serial Server can be directly connected to PC by the network cable. When the Serial Server is running, the green and yellow LED lamps on the network port will light to indicate whether the Serial Server is connected to the network and the rate of accessing the network.

KPS3101A/KPS3102A Serial Server has one IP and one MAC address; KPS3204A/KPS3208A Serial Server has 2 IP addresses and 2 MAC addresses, the IP address can be changed by user, the MAC address can't be changed;

If you want to connect multiple devices to the network, the external network device must keep

the same network segment as the network port of the Serial Server and no IP, MAC address conflicts.

2.3 **LED Indicator**

The LED indicator of KPS310XA&320XA Serial Server is located on the front panel of device.

Table 1 LED indicator

LED	Description	
Reset	Green	Flash: press Reset Button for more than 3 seconds
		ON: press Reset button for less than 3 seconds
		OFF: Reset button do not press
Power	Green	ON: input power connects and runs normally
		OFF: input power disconnects or runs abnormally.
Run	Green	Flash: system running normal (1Hz frequency)
		OFF: mainboard CPU system is abnormal
Alarm	Green	Flash: The system is dead or abnormal (2Hz frequency)
		OFF: system is normal
RJ45 (Link/ACT)	Green	ON: The port has established a valid network connection
		Flash: Port is active.
		OFF: The port has not established a valid network connection
RJ45 (10/100M)	Yellow	ON: 100M working status (100Base-TX)
		OFF: 10M working status (10Mbase-TX)
Tx-n	Green	Flash: The data is being transferred on the serial port n.
		OFF: No data transmission on the serial port n.
Rx-n	Green	Flash: The data is being received on the serial port n.
		OFF: No data transmission on the serial port n.

Note: The value of n in above table is the serial port ID number, such as Tx1 for serial port 1.
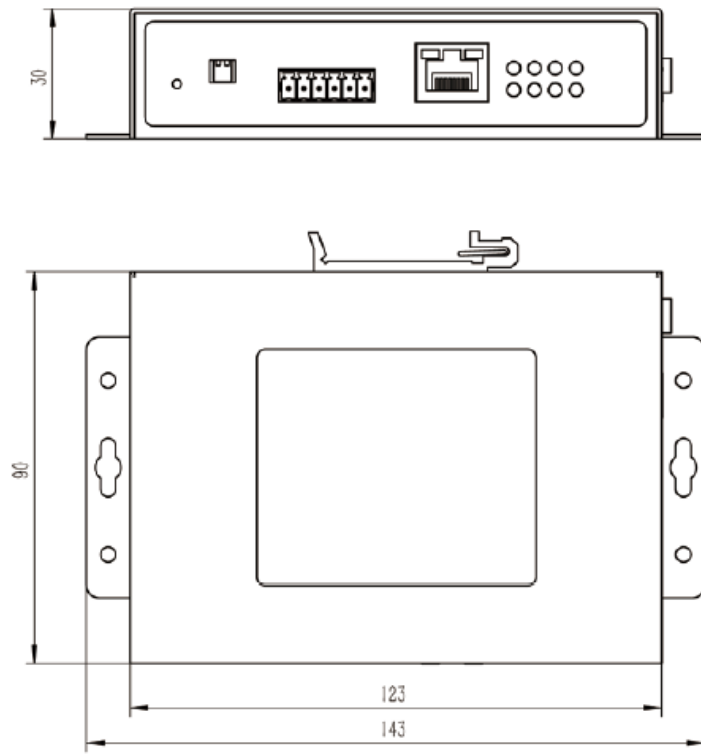
KPS3101A and KPS3102A only has one RJ45 port.

2.4 **Dimensions**

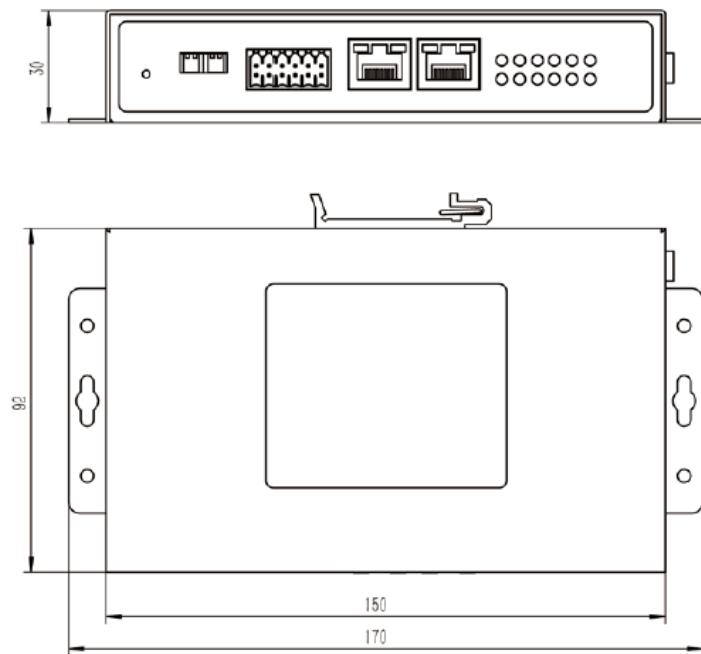Dimension: KPS3101A：123x90x30 mm

KPS3102A：123x90x30 mm

KPS3204A：150x92x30 mm
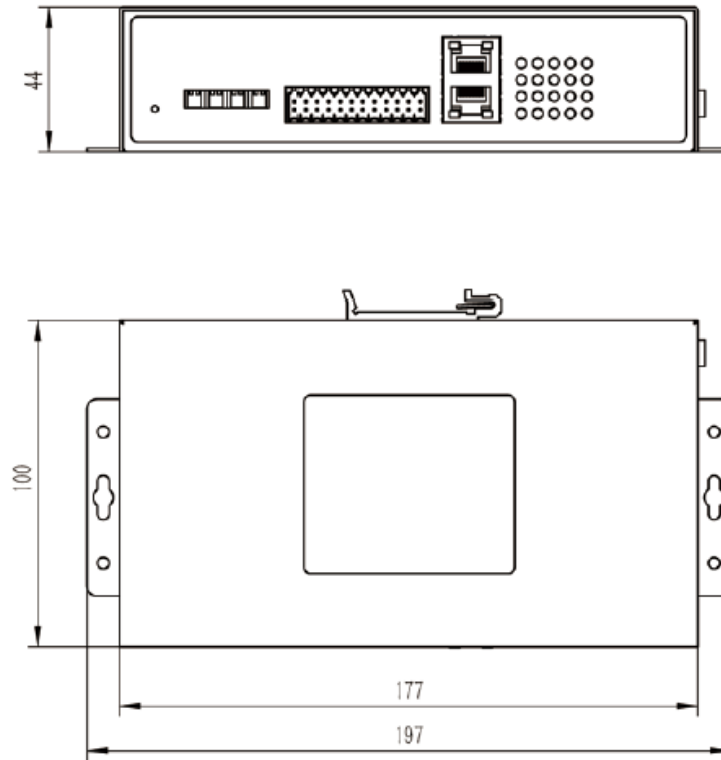
KPS3208A：177x100x44 mm

Unit: mm

Figure 1 KPS3101A/3102A dimension drawing

Unit: mm

Figure 2 KPS3204A dimension drawing
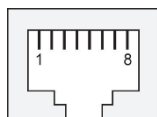
Unit: mm

Figure 3 KPS3208A dimension drawing

2.5 PIN definition

2.5.1 Network interface

Table 2 Network port definition

| Pin	MDI-X signal	MDI signal
1	Rx+	Tx+
2	Rx-	Tx-
3	Tx+	Rx+
6	Tx-	Rx-
4-8	undefinition	undefinitio

2.5.2 Serial interface

KPS310XA&320XA Serial Server serial interface is terminal block, it can be connected to external serial port device through terminal block. Serial port can be RS-232 and RS-485. Each Serial Server only supports one serial port type.
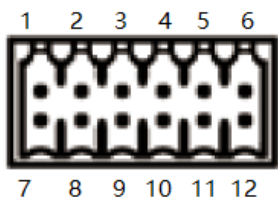
Table 3 KPS3101A terminal definition
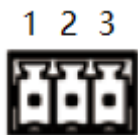
Pin	Port ID	RS-232	RS-485
1		GND	GND
2	S1	RxD	Data-(B)
3		TxD	Data+(A)

Table 4 KPS3102A terminal definition
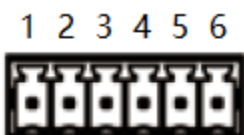
Pin	Port ID	RS-232	RS-485
1		GND	GND
2	S1	RxD	Data-(B)
3		TxD	Data+(A)
4		GND	GND
5	S2	RxD	Data-(B)
6		TxD	Data+(A)

Table 5 KPS3204A terminal definition

Pin	Port ID	RS-232	RS-485
1		GND	GND
2	S1	RxD	Data-(B)
3		TxD	Data+(A)
4		RxD	Data-(B)
5	S3	TxD	Data+(A)
6		GND	GND
7		GND	GND
8	S2	RxD	Data-(B)
9		TxD	Data+(A)
10		RxD	Data-(B)
11	S4	TxD	Data+(A)
12		GND	GND

Table 6 KPS3208A terminal definition

Pin	Port ID	RS-232	RS-485
1		GND	GND
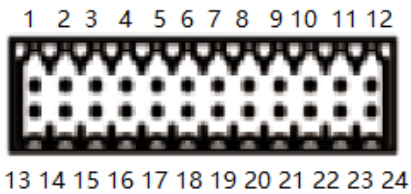
2	S1	RxD	Data-(B)
3		TxD	Data+(A)
4	S3	RxD	Data-(B)
5		TxD	Data+(A)
6		GND	GND
7	S5	GND	GND
8		RxD	Data-(B)
9		TxD	Data+(A)
10	S7	RxD	Data-(B)
11		TxD	Data+(A)
12		GND	GND
13	S2	GND	GND
14		RxD	Data-(B)
15		TxD	Data+(A)
16	S4	RxD	Data-(B)
17		TxD	Data+(A)
18		GND	GND
19	S6	GND	GND
20		RxD	Data-(B)
21		TxD	Data+(A)
22	S8	RxD	Data-(B)
23		TxD	Data+(A)
24		GND	GND

2.5.3 **Power input interface**

KPS310XA&320XA Serial Server uses a 2-pin plug-in terminal block to connect the power supply, the device has reverse connection protection, and the positive and negative of power interface allow reverse connection.

Table 7 Power interface definition

Power	PIN	Description
PWR	V+	connect the positive pole
	V-	connect the negative pole

2.6 **Specification**

2.6.1 **Network interface**

Network interface number: KPS3101A/KPS3102A has 1；KPS3204A/KPS3208A has 2

Rate: 10/100Mbps, Adaptive

Connector: RJ45

Protocol: TCP/UDP

ESD protection: Air ±8KV, Contact ±6KV

Isolation protection: Build-in 1.5 KV

2.6.2 **Serial interface**

Serial interface number: KPS3101A has 1; KPS3102A has 2; KPS3204A has 4; KPS3208A

has 8.

Serial port type: RS-232/RS-485, it is optional according to model number

Connector: terminal block

ESD protection: Air ±8KV, Contact ±6KV

Isolation protection: Build-in 3KV

DIP switch: Enable/disable 120Ω terminal resistance of RS-485

2.6.3 **Serial port communication parameter**

Data bit: 5、6、7、8

Stop bit: 1、2

Check bit: None, Even, Odd

Baud rate: 4800bps～115200bps

2.6.4 **Serial port signal**

RS-232: TxD, RxD, GND

RS-485: Data+, Data-, GND

2.6.5 **LED indicator**

System: Power、Run

Alarm: Alarm

Reset indicator: Reset

Serial port: KPS3101A：T/Rx-1

　　　　　　KPS3102A：T/Rx-1、T/Rx-2

KPS3204A：T/Rx-1、T/Rx-2、T/Rx-3、T/Rx-4

KPS3208A：T/Rx-1、T/Rx-2、T/Rx-3、T/Rx-4、T/Rx-5、T/Rx-6、T/Rx-7、

T/Rx-8

Network: KPS3101A：SPEED，ACT/LINK（RJ45）

KPS3102A：SPEED，ACT/LINK（RJ45）

KPS3204A：SPEED，ACT/LINK（RJ45）

KPS3208A：SPEED，ACT/LINK（RJ45）

2.6.6 **Button**

Reset: press it less than 3 seconds, device restart; press it more than 3 seconds, device recovery factory default.

2.6.7 **Mechanical structure**

Enclosure: SECC Electrolytic galvanized steel plate

Protection level: IP40

Mounting: DIN or wall mount

2.6.8 **Environment condition**

Operating temperature: -40℃～75℃

Storage temperature: -40℃～85℃

Relative humidity: 5～95%, no condensation

Heat dissipation mode: natural cooling, no fan

2.6.9 **Warranty**

Warranty: 5 years

3 **Web page configuration**

KPS310XA&320XA Serial Server supports WEB page configuration, the Web page can be open through the browser such as Firefox browser, IE etc.to set up the Serial Server device.

Description: Take KPS3204A as examples in the following, KPS3101A, KPS3102A and KPS3208A operations like KPS3204A, so no further described in this artic

3.1 **Login**

Connect to KPS3204A Serial Server Web console: Open browser, then enter IP address of Serial Server. The default IP address of Serial Server: Port 1 eth0:192.168.0.249; Port 2 eth1: 192.168.1.249
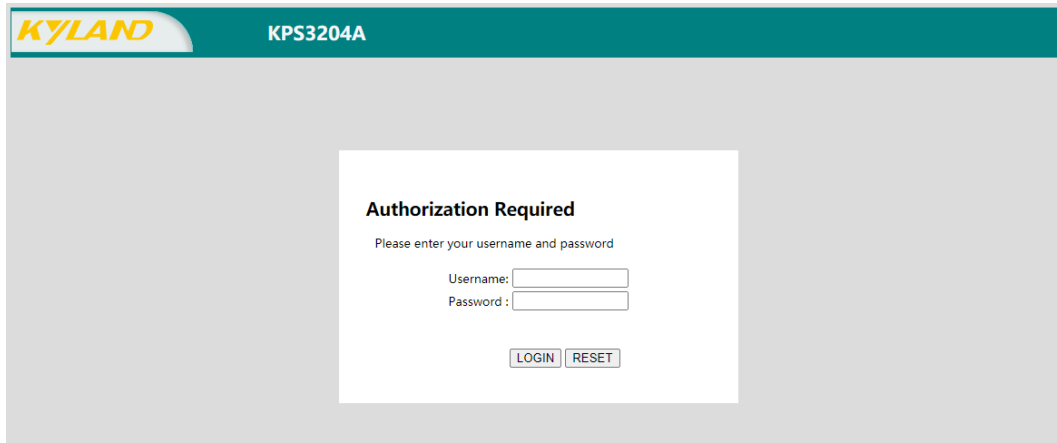

Figure 4 Login page

Default login username: admin, login password: admin. Enter username and password then click "login", then enter into Web console of Serial Server. The language English and Chinese can be selected.

3.2 **Home page**

The home page interface displays the current device information of the KPS3204A Serial Server, mainly including: serial number, hostname, software version, hardware version, and local time etc.
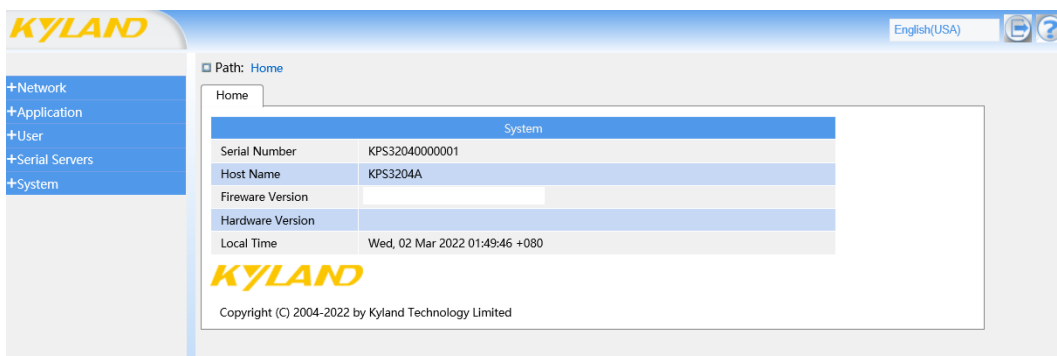

Figure 5 Home page

3.3 **Network**

3.3.1 **Interface**

The network/interface page displays the relevant network parameters of the Serial Server device, including running time, MAC address, number of received/sent packets, IP address, etc.
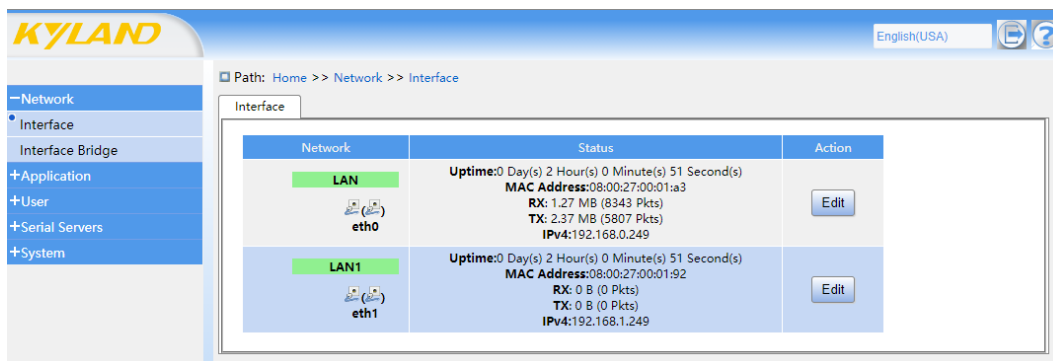
Figure 6 Network page

Click Network-interface menu, network interface page shows "Edit" button. Click "Edit" button and enter into network interface edit page, user can set up IP address, subnet mask, Serial Server and user-defined DNS of port 1-LAN (eth0) and port 2-LAN2 (eth1). After completing the parameter configuration, click "Apply" to make it effective.
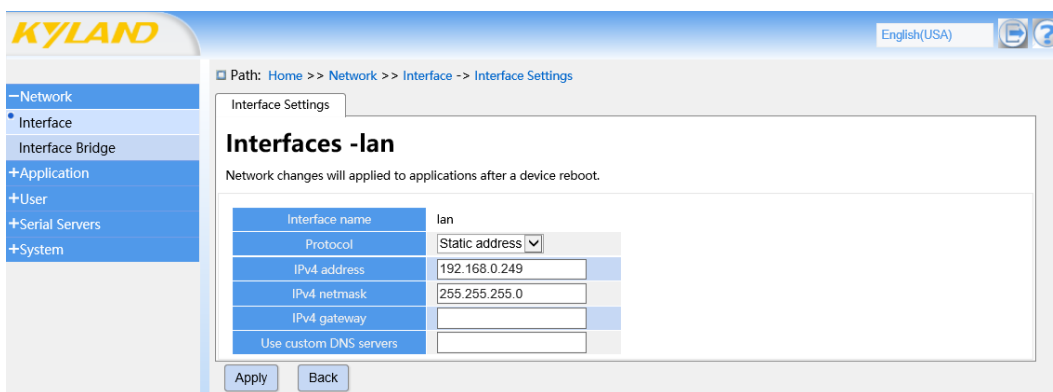

Figure 7 LAN port edit page

Table 8 LAN port edit parameter

Parameter	Value	Description
Protocol	Static address, DHCP client	Select static address or DHCP
IP address	LAN port 1 eth0:192.168.0.249 LAN port 2 eth1:192.168.1.249	IP address
Subnet mask	255.255.255.0	Identify that the server belongs to class A, B, or C network.
Default gateway	0.0.0.0	The IP address of the router that provides network access outside of the LAN of the server.
user-defined DNS	IP address	DNS server

3.3.2 **Interface bridge**

Network-interface bridge page shows relevant network parameters of the interface bridge, including enable bridge, IPv4 address, IPv4 subnet mask, user-defined DNS server, etc.

The interface bridge is divided into two bridge modes: LAN-LAN and LAN-WAN.

LAN-LAN bridge mode. Select enable bridge and "Ethernet Adapter eth1" to enable bridge function, set up IP address and netmask, click "Apply". Bridge function of network port 1-LAN (eth0) and network port 2-LAN (eth1) are enabled successfully, two network ports can access the device or transmit data with the device with the set IPv4 address.
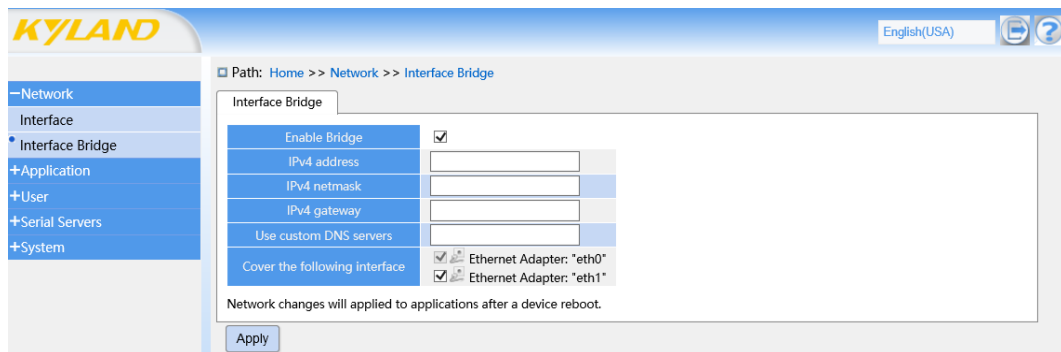

Figure 8 bridge page of the same network segment

Table 9 Bridge parameter of the same network segment

Parameter	Value	Description
IPv4 address	IP address	IP address
IPv4 subnet mask	255.255.255.0	Identify that the server belongs to class A, B, or C network.
User-defined DNS	IP address	DNS server

LAN-WAN bridge mode. Select enable bridge, unselect "Ethernet Adapter eth1", select protocol (WAN) to set up IP address and subnet mask of network port 1-LAN (eth0) and network 2-WAN (eth1), click "Apply". The route function of Serial Server is enabled, the IP of different network segment can be accessed through WAN port of the device.
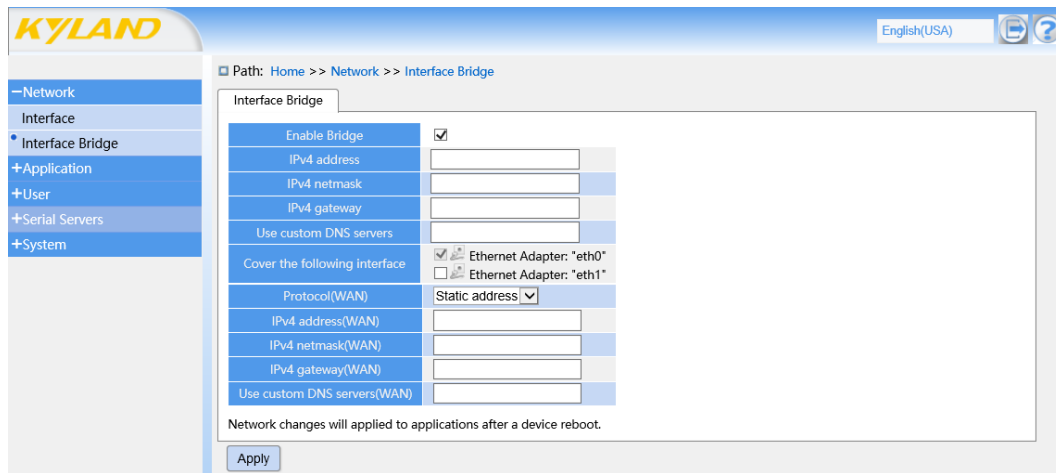
Figure 9 bridge page of the different network segment

Table 10 bridge parameter of the different network segment

Parameter	Value	Description
Protocol	Static address、DHCP client	Select static IP or DHCP
IPv4 address	IP address	IP address
IPv4 subnet mask	255.255.255.0	Identify that the server belongs to class A, B, or C network.
IPv4 gateway	IP address	Default gateway
User-defined DNS	IP address	DNS server

Note: KPS3204A/KPS3208A supports bridge, KPS3101A/KPS3102A does not support bridge.

3.4 Application

3.4.1 Time synchronization

Time synchronization page shows the relevant parameters of the time synchronization, including enable NTP client, time interval, the candidate NTP server.

Enable time synchronization, the device will time to NTP server periodically with time interval as time cycle. When multiple NTP servers are set, when the device is unsuccessful time to the first candidate NTP server, the device will automatically time to the second calibrate NTP, and so on.
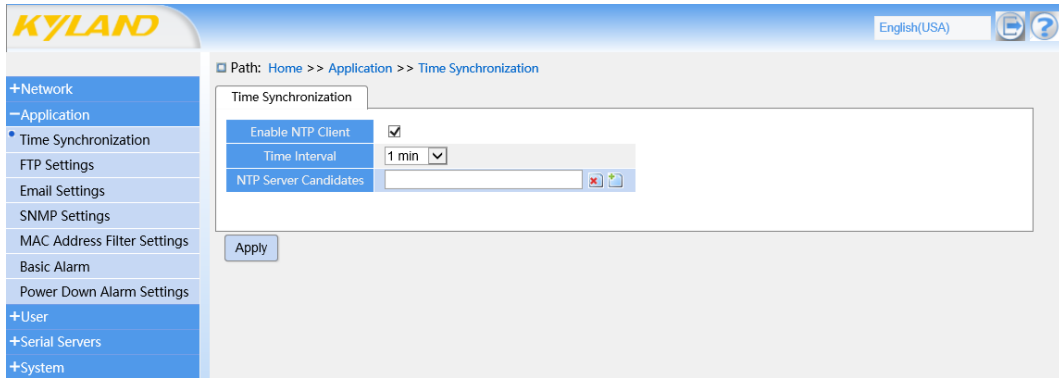
Figure 10 Time synchronization page

Table 11 Time synchronization parameter

Parameter	Value	Description
Time interval	1min, 5min, 20min	Time request interval
Calibrate NTP server	Target NTP server	The device send the time request to NTP server

3.4.2 FTP settings

FTP settings page shows the relevant parameters of the device as FTP server, including enable FTP server, FTP account, FTP password.

Enable FTP server, the Serial Server can be as FTP server to store and download file. The file size is recommended not to exceed 30M, otherwise it may cause the Serial Server memory is abnormal.
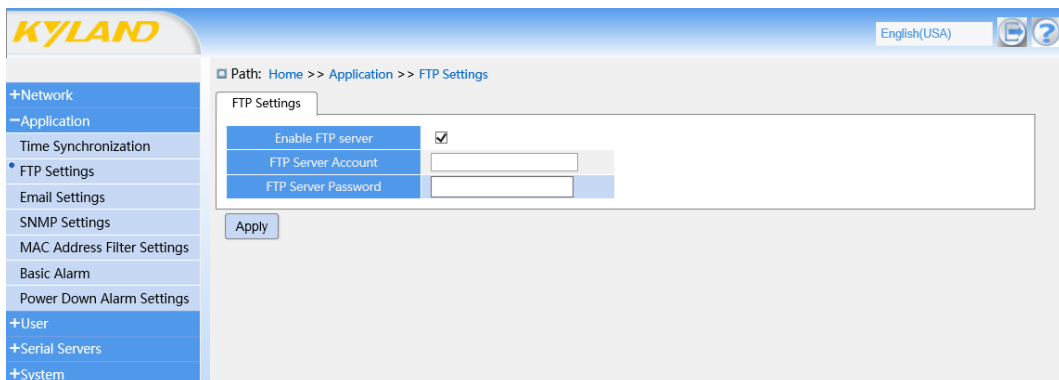

Figure 11 FTP settings page

Table 12 FTP settings parameter

Parameter	Value	Description
FTP account	User-defined (non-root user)	The account for user log in FTP server

FTP password	User-defined	The password for user log in FTP server

3.4.3 Email warning settings

Email warning settings page shows the relevant parameters of email waring settings, including enable email warning settings client, email server address, email account and password etc.

Email warning settings can regularly send waring information to the user specified mailbox, including device IP, CPU and memory information.
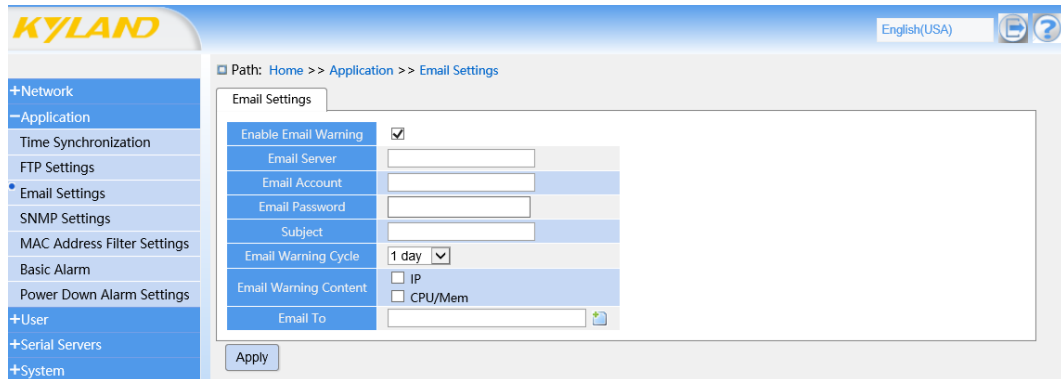

Figure 12 Email warning settings

Table 13 Email warning settings

Parameter	Value	Description
Email server	Server IP address	Email warning server address
Email account	Email account	Email sender login account
Email password	Email password	Email sender login password
Subject	User-defined	Email subject
Email warning cycle	1day, 20hour, 20min, 5min, 1min	interval time of email sending
Email warning content	Check/uncheck	IP, CPU and Mem can be checked
Email to	Email account	Email receiver account

3.4.4 SNMP settings

SNMP settings page shows the relevant parameters of SNMP settings, including enable SNMP, service port, community, Trap IP and Trap port etc.

The device information can be obtained after SNMP settings is successful, including device time, network information, memory information, etc. And the device can regularly upload the device
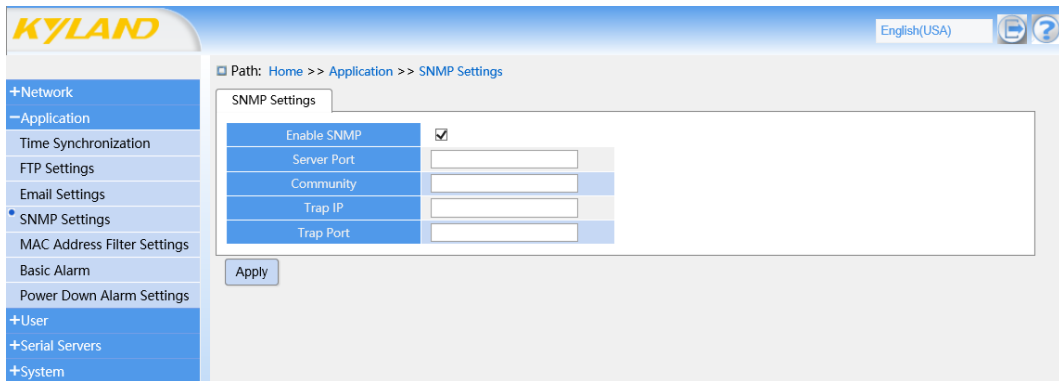
information to the User-specified IP.

Figure 13 SNMP settings

Table 14 SNMP settings

Parameter	Value	Description
Service port	Port ID	UDP port number of SNMP service
Community	User-defined	The community of device and SNMP protocol
Trap IP	IP address	Target IP address of the device to upload the information
Trap port	Port number	Target port number of the device to upload the information

3.4.5 MAC address filter settings

MAC address filter settings page shows the relevant parameters of MAC address filter settings, including enable MAC address filter, MAC address filter mode, MAC address.

MAC address filter settings function is used to set up the firewall of the Serial Server. By setting the white list, only mac addresses added in the whitelist can access the device. By setting the black list, the MAC address added in the blacklist cannot access the device.

Note: Use the black / white list carefully. When the wrong setting of the black / white list cause cannot access the device, long press the Reset button to restore the factory setting to reset the black/white list.
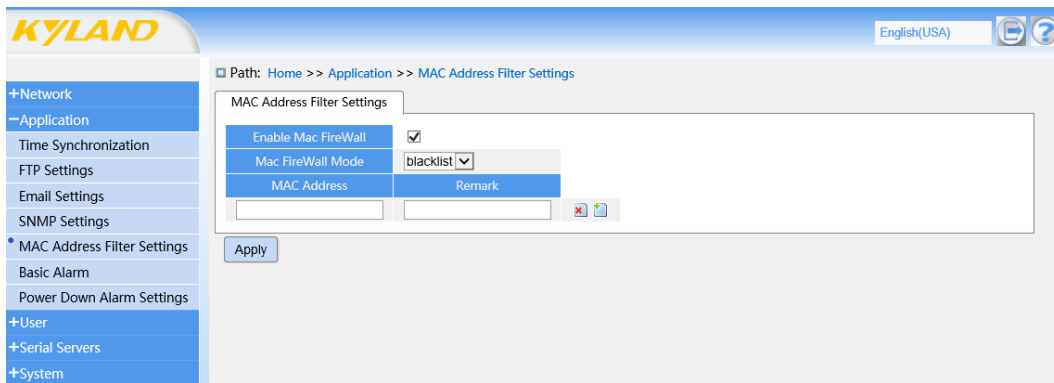
Figure 14 MAC address filter settings page

Table 15 MAC address filter settings parameter

Parameter	Value	Description
Mac address filter mode	White/black list	Select whitelist or blacklist for filter mode
Mac address	MAC address	The MAC address to add to the list

3.4.6 **Basic Alarm**

Basic alarm page shows the relevant parameters of the basic alarm, including enable basic alarm, external alarm server and port, external alarm server protocol, alarm threshold etc.

The basic alarm function is used to manage the device, monitor the device status and set the alarm condition, when the CPU or memory utilization exceeds the user set threshold, the server sends the alarm message to the specified external server.
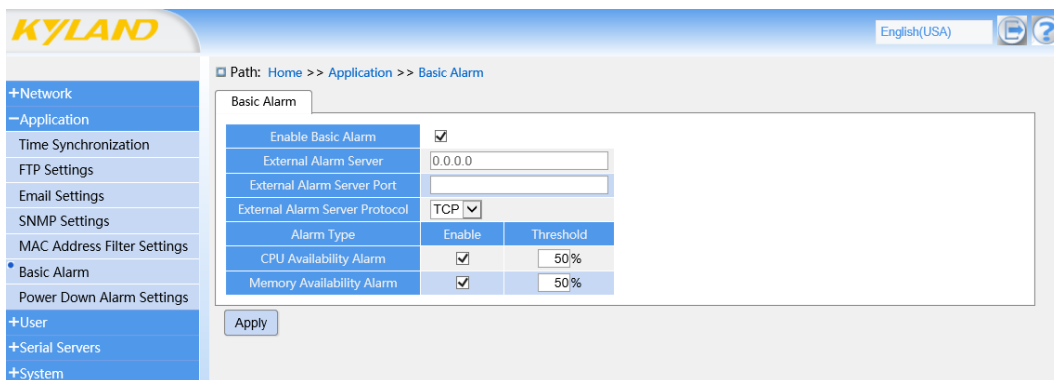

Figure 15 MAC address filter settings page

Table 16 MAC address filter settings parameter

Parameter	Value	Description
External alarm server	IP address	IP address of the external server
External alarm server	Port number	Port number of external address

port		
External alarm server protocol	TCP, UDP	Receiver used protocol TCP, UDP
Alarm type	Check/uncheck	Alarm trigger content and conditions

3.4.7 Power down alarm settings

Power down alarm page shows the relevant parameters of power down alarm, including enable power down alarm, external alarm protocol, external alarm server and port, alarm content

The power down alarm is used to send prompt messages to the specified external server when the device power down.
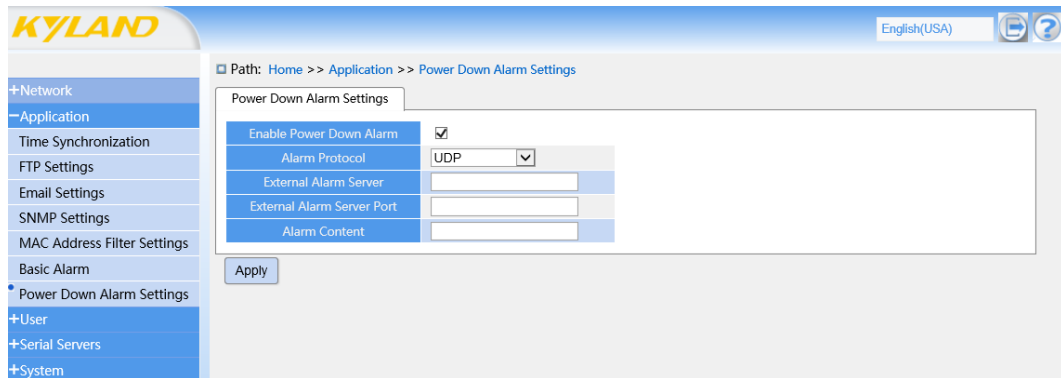

Figure 16 Power down alarm settings

Table 17 Power down alarm settings

Parameter	Value	Description
Alarm protocol	UDP, SNMP	Alarm protocol UDP or SNMP
External alarm server	IP address	IP address of the external server
External alarm server port	Port number	Port number of the external server
Alarm content	User-defined	Alarm information content

3.5 User

3.5.1 User management

User management page shows and manages the relevant parameters of user account, including username, password and user level etc.

Log in the page with user admin, the user can be added or deleted, user password and R/W permissions can be modified in the user management page. Read-only users can only browse the web

page information, cannot modify the device configuration parameters, and cannot manage user. Read and write users can browse and modify the device configuration parameters of the web pages, but cannot manage user.
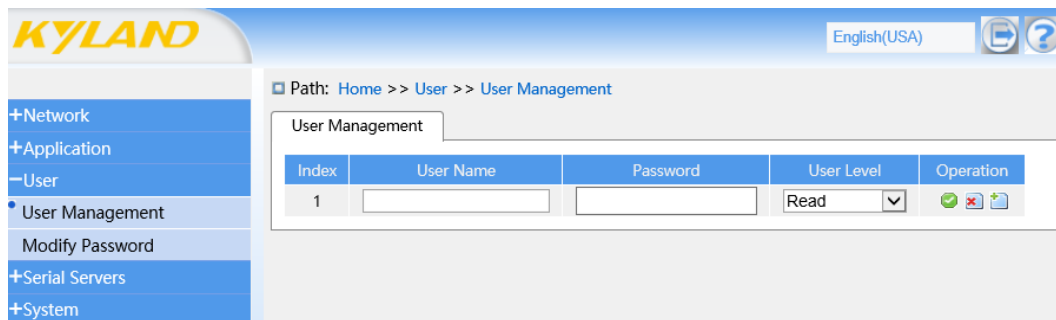

Figure 17 User management page

3.5.2 **Modify password**

User-modify password page shows the relevant parameters of user password, including username, current password, new password etc.

User password can be modified in the User-modify password page, the default user is admin and password is admin.

Modify password: enter the current password, and new password, enter new password again to confirm, click "Apply" to modify password. If forgetting the administrator password, long press the Reset button to restore the factory setting, the original user name admin and password admin can be used to login page.
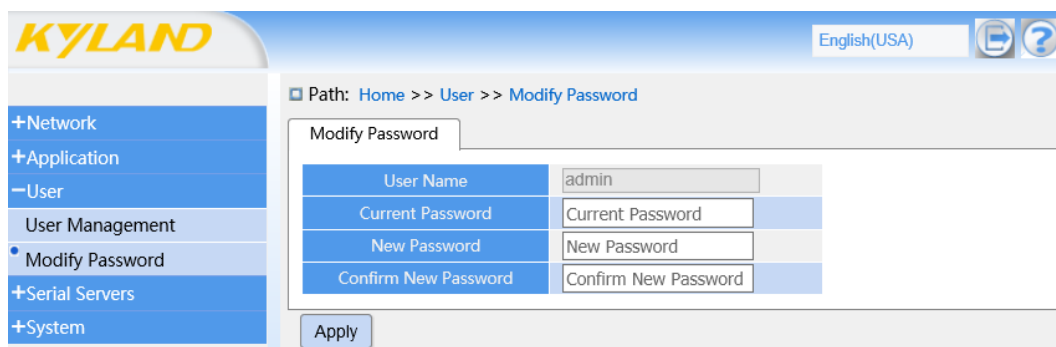

Figure 18 Modify password page

3.6 **Serial server**

3.6.1 **Serial interface settings**

Serial interface settings page sets the relevant parameters of Serial Server serial interface communication, it is used to set band rate, data bit, check bit, stop bit and serial port mode etc.

After completing parameter settings, click "Apple", the parameter takes effect immediately. Serial port communication parameter configuration should be consistent with the lower computer; network mode can be selected as TCP Server, TCP Client, UDP Server and UDP Client. The detailed

configuration method of the serial port parameters may refer to chapter 4.

The local port should be set to above 1024 as far as possible to avoid occupying the system port. the local port number is not filled in the TCP Client and UDP Client mode, the system will automatically allocate the port number. The maximum number of sessions represents the maximum number of limits allowed to connect the Serial Server. Only 8 links are allowed to be established in TCP Server mode, and only keep 8 latest session connections in UDP Server.
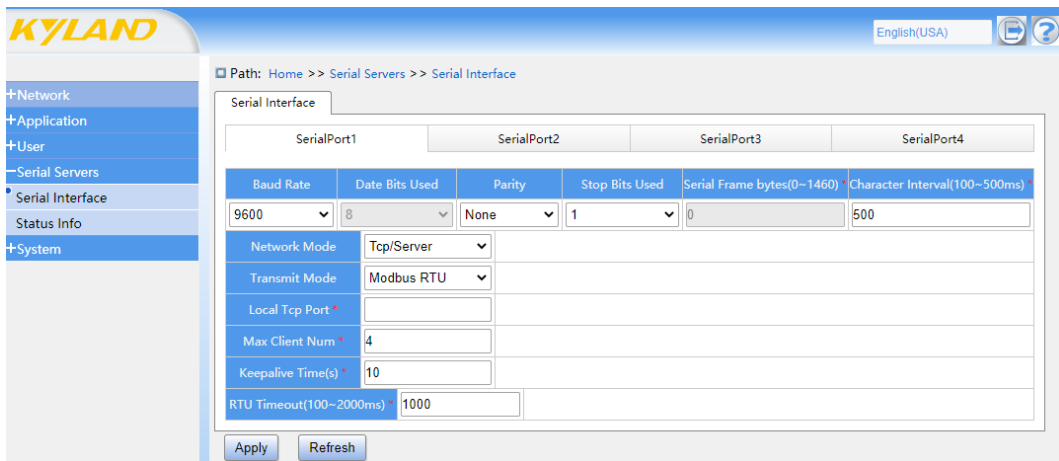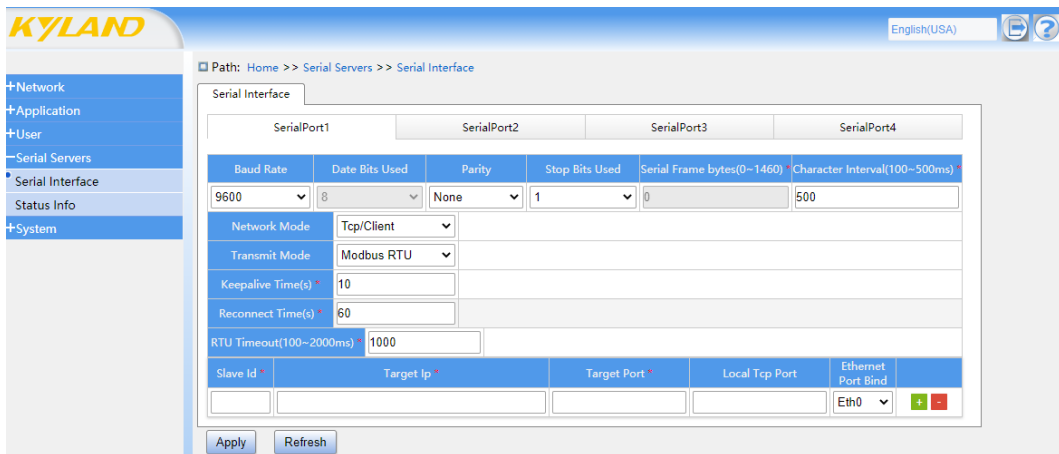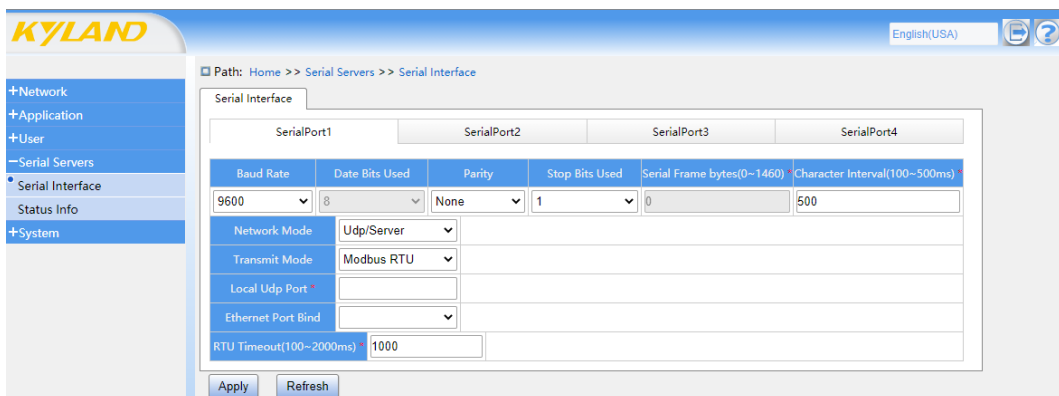

Figure 19 TCP Server mode

Figure 20 TCP Client mode

Figure 21 UDP Server mode
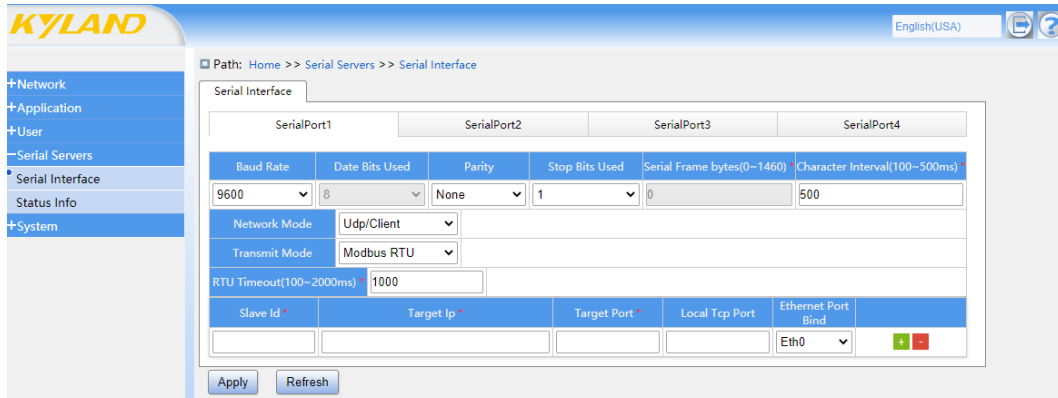
Figure 22 UDP Client mode

Table 18 Serial Server settings parameter

Parameter	Value	Description
Band rate	4800, 9600, 19200, 38400, 57600, 115200	Serial port band rate setting
Data bit	5, 6, 7, 8	Serial port data bit setting
Check bit	None, Odd, Even	Serial port check bit setting
Stop bit	1, 2	Serial port Stop bit setting
Serial frame bytes	Unit is bytes，default is 0 Range: 0-1460 bytes	Only effective in Transparent mode. Disable when set to 0; when the set value is not 0, sub-package is sent when serial data exceeds the set value
Character interval	Unit is ms，default is 500 Range:100-500ms	Only effective in Transparent mode. When the serial data frame is not 0, if the last data frame is less than the serial data frame bit number, the character interval is the maximum waiting time of that frame
Network mode	TCP/Server, TCP/Client, UDP/Server, UDP/Client	Select network mode of serial port
Transmit mode	Transparent/Modbus RTU	Serial port communication mode, Transparent/Modbus RTU mode
Data one-way	Check/uncheck	Only effective in Transparent mode.

transmit		Check: only allow serial port send date to network port Uncheck: Data from the serial ports and network ports can be transmitted in both directions
Serial port heart beat packet	Check/uncheck The information can be user-defined	Only effective in Transparent mode Enables the serial port heartbeat package, which will regularly send the user-defined information content
Serial port heartbeat packet interval	Unit is s，default is 60	Only effective in Transparent mode Time cycle for sending the serial port heartbeat packet
Channel check (optional)	Default disable Information content is empty	Only effective in Transparent mode Before the device communication, the network needs an information check. Establish communication connection when receiving correct check information; disconnect immediately when receiving error check information.
Connection information (optional)	Default is empty IP information or Device information can be selected.	Only effective in Transparent mode After the communication connection is established, the device network end actively sends the device IP address or device name
Local port (optional)	Port number	Local port number of TCP and UDP The system automatically assigns it by default in Client mode
Maximum number of	1~8	Maximum number of sessions as Server mode

sessions		
Keep alive time interval	Unit: s，default is 10 s	When the device has no data communication, the network end regularly sends the Keep Alive information frame until the device determines no data and disconnect
Disconnect without data	Unit: s，default is 200s	Only effective in Transparent mode exceeding the set time, the communication will be actively disconnected when the device has no data communication
reconnect time	Unit: s，default is 60s	In TCP Client mode, the time cycle of the device reconnect can reduce the network connection time of TCP Client. If the channel check is set, the channel check needs to be done again after the reconnection
Target IP	IP address	Target IP address
Target end IP (optional)	IP address	Only effective in Transparent mode In UDP Client mode, the target end IP address of the set target IP segment can be used to send serial port information to multiple consecutive UDP Servers
Target port	Port number	Target port number
Local port (optional)	Port number	When setting the local port, the fixed port number is used for communication; when the port is empty, the system assigns an idle port number for communication
Blinding	eth0, eth1	Select blinding ethernet port (only

ethernet port		effective when 2 ethernet ports are the same network segment and with different IP)
Slave Id	1-255	In Modbus RTU mode，Slave Id of TCP, UDP Client，that is slave IP address
RTU timeout	100-2000ms	In Modbus RTU mode, the upper computer sends the request information, and the lower computer does not reply the information after the set time, and the serial port server will send the timeout message to the upper computer. This value needs less than the timeout time set by the upper-computer.

3.6.2 Status information

The status information page is used to record the operation information of the device serial port, including the serial port transmitting and receiving information, the connection information of the TCP transmission mode, and can be used to observe the serial port connection status of the device.
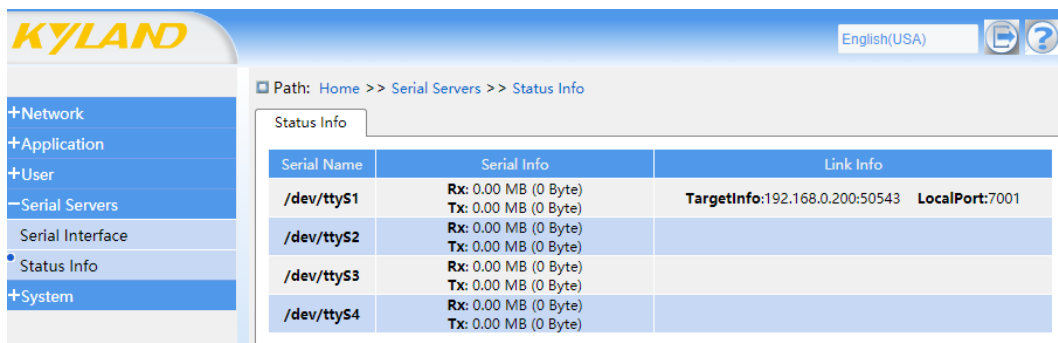
Figure 23 Status information mode

3.7 System

3.7.1 Log

The system log page is used to record the running information of the device, and the log can be downloaded, it is convenient the daily maintenance and fault detection of the device.
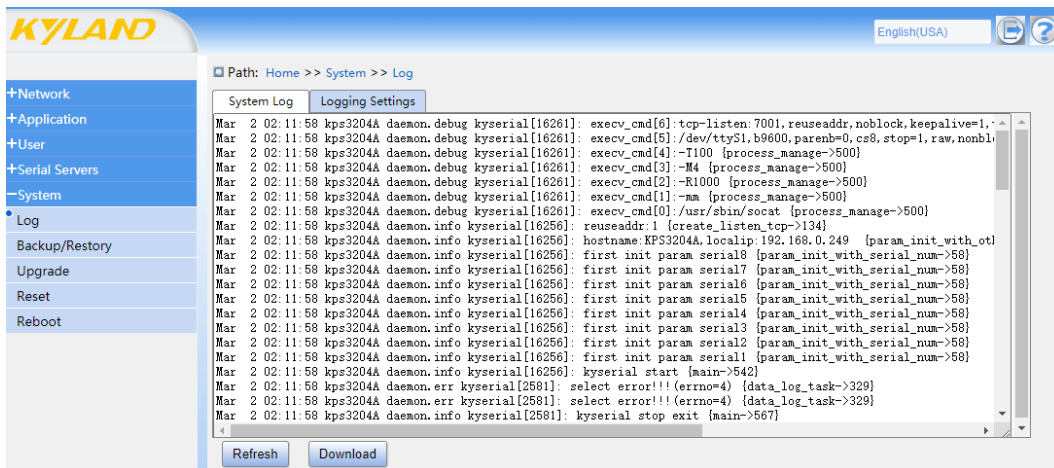
Figure 24 System log

Log settings is used to send log information to a specified external server and can be used to remotely monitor device running information.
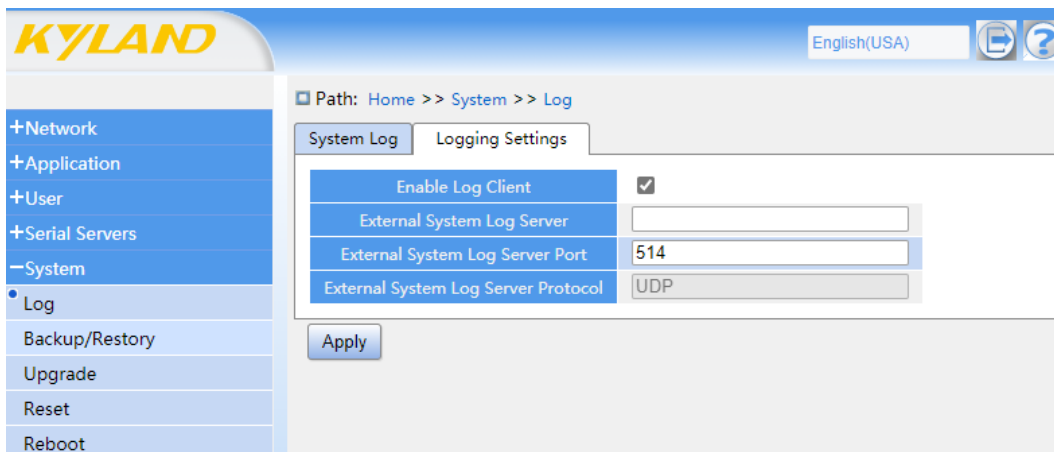

Figure 25 Log settings

Table 19 Log settings

Parameter	Value	Description
External log server	IP address	IP address of external server
External log server port	Port number	Port number of external server
External log server protocol	UDP	Only support UDP

3.7.2 Backup/Restore

The Backup/Restore page is used to backup and upload the profile.

Click "Generate Archive" to download the current profile and backup to the local. Click the "Browse" button, select the local profile path, click "Upload archive" to import the local profile, and use the local profile to restore the device configuration information.
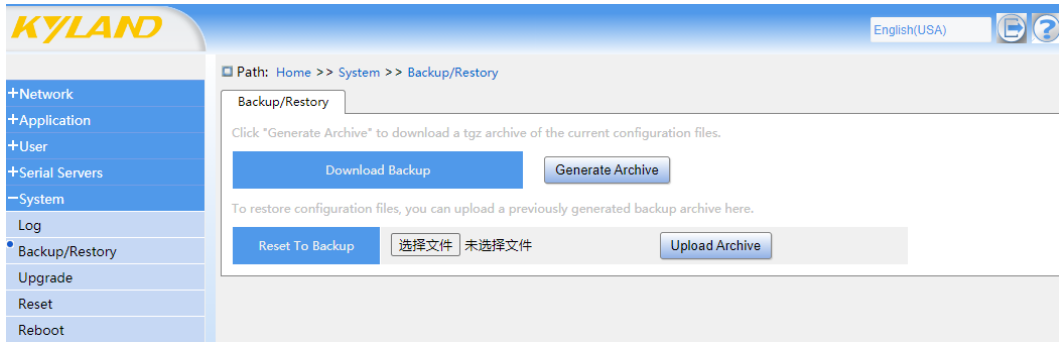
26

Figure 26 Backup/Restore page

3.7.3 **Upgrade**

The upgrade page allows the Serial Server firmware upgrade and update operation.

Click "Select File" button, select the upgrade file path, and then click "Upgrade" button to upgrade firmware. After the upgrade, the Serial Server automatically restart and the system update is successful.

Check the "Keep Settings" button, and the configuration is kept after the upgrade. Uncheck "Keep Settings", the configuration is not kept after upgrade, the configuration information is restored to the factory default configuration status.
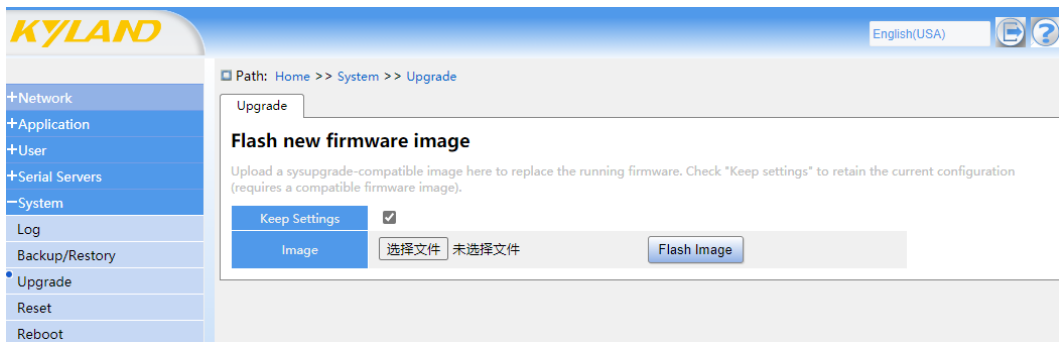
Figure 27 Upgrade page

3.7.4 **System reset**

The system reset page is used to restore the device to the factory default.

When need to clear all settings information on the Serial Server, click the "Perform Reset" button to restore the Serial Server to the factory default settings.
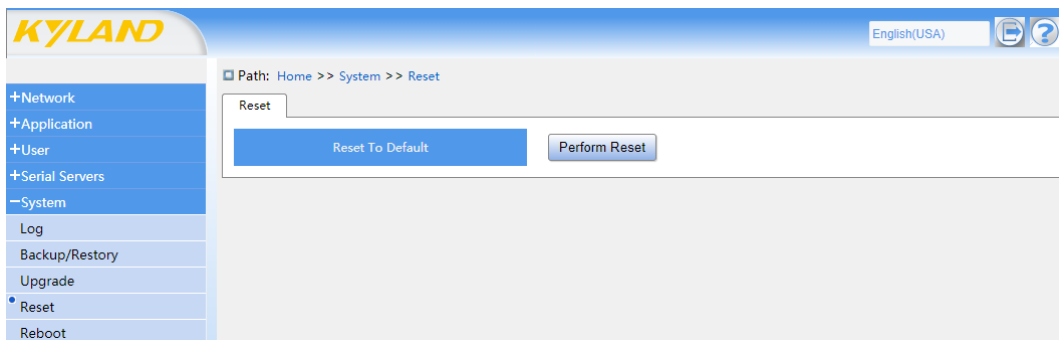

Figure 28 System reset page

Note: Restore factory settings will reset the Serial Server device completely and device configuration parameters restore to factory default configuration. Back up important device configuration information before restoring factory settings.

3.7.5 Reboot

Reboot page is used to reboot the device.

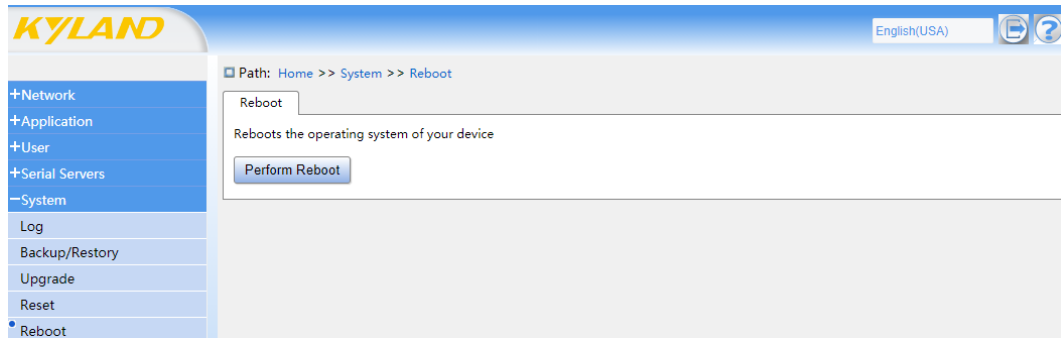When the device needs to reboot, click the "Perform Reboot" button to reboot the device.

Figure 29 Reboot page

3.8 Help

"Help" button in the upper right corner of the web interface. Click "Help" to jump to the official page of Kyland.
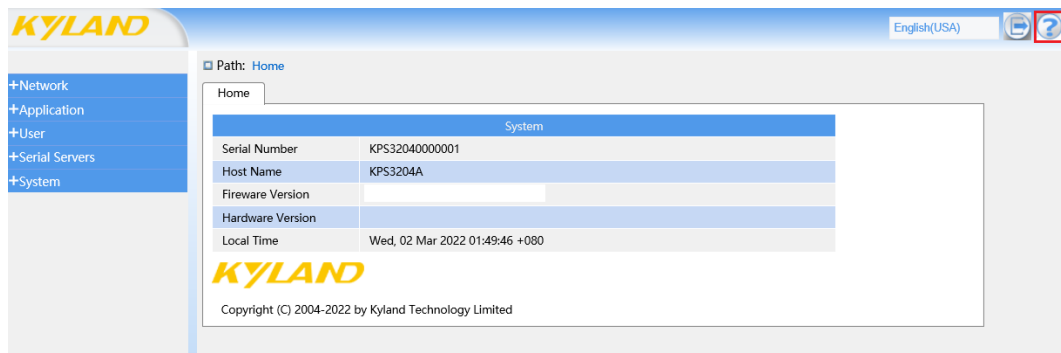

Figure 30 Help page

3.9 Exit

After logging in the web page and completing the page configuration, click the exit button to exit the web login status to prevent the wrong operation. The "Exit" button is located in the upper right corner of the interface.
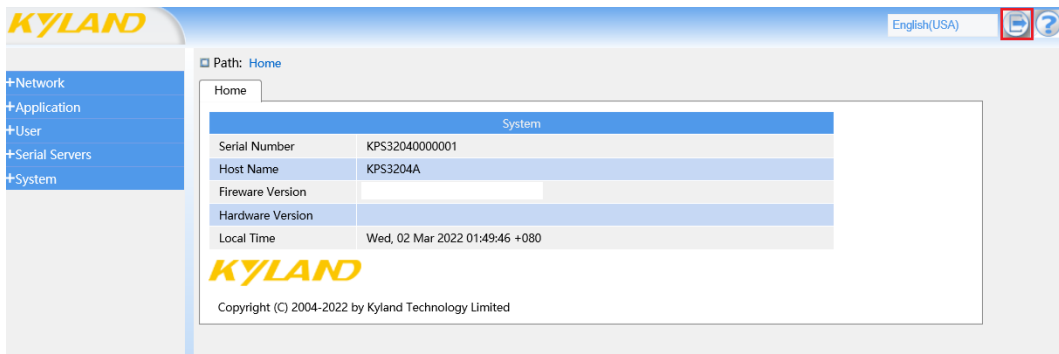
Figure 31 Exit page

4 Operation example

4.1 Ethernet port bridge operation example

When network mode disable bridge, ethernet port 1 and port 2 are in an independent working mode.

When network mode enable bridge, the Serial Server works in LAN-LAN or LAN-WAN mode.

Select LAN-LAN mode when two devices are required to communicate with each other. Check the enabled bridge and "Ethernet adapter eth1", both ports 1 and 2 are LAN ports.

Select the LAN-WAN mode when different network segments are required to access and communicate each other. Check enable bridge, uncheck "Ethernet adapter eth1", Ethernet 1(eth0) is LAN port, ethernet 2 (eth1) is WAN port.

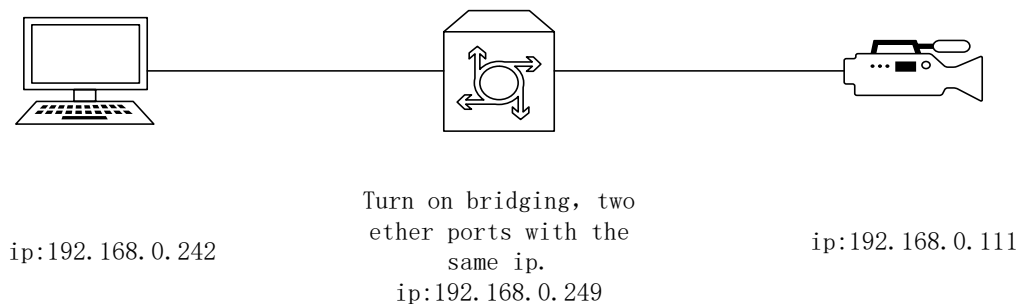**A.Same network segment bridge**

Physical Connection:

Figure 32 Physical connection

Check enable bridge in Web page to enable bridge, check "Ethernet adapter eth1" to set IP address and subnet mask, click "Apply", Two devices in the same network segment can communicate with each other.
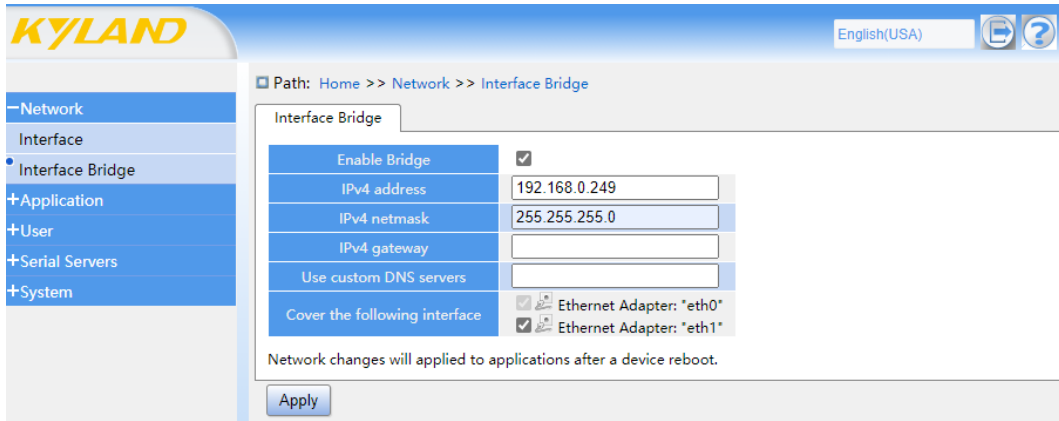
Figure 33 Ethernet port bridge of the same network segment

Ping another device (IP: 192.168.0.111) from PC with IP 192.168.0.242, it can ping.

B．Different network segment bridge

Physical Connection:

ip:10.12.2.233
gateway：10.12.2.249

Turn on briding,
two ether ports with
the different network
segments
ip1:10.12.2.249
ip2:192.168.0.249

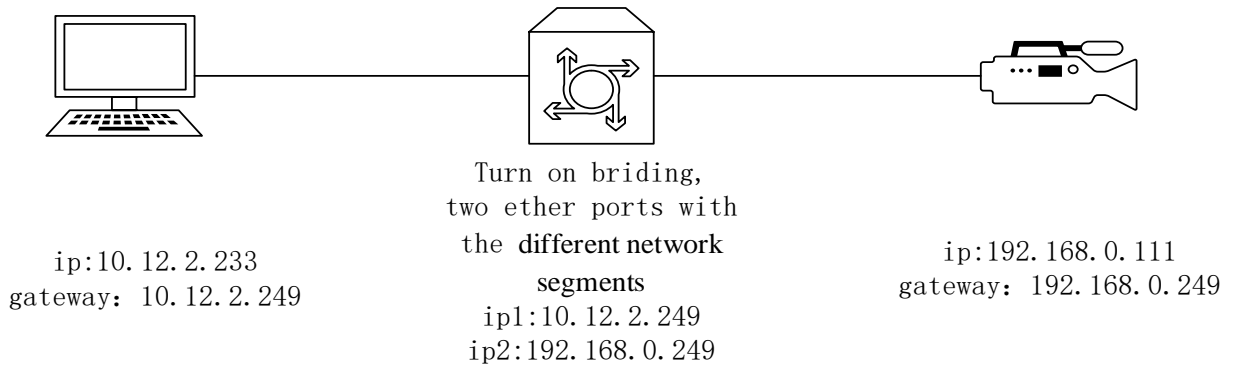ip:192.168.0.111
gateway：192.168.0.249

Figure 34 Physical Connection:

Uncheck "Ethernet adapter eth1" in Web page, select protocol, set IP and subnet mask, click "Apply", two devices in the different network segment can communicate with each other.

Note: The gateway must be configured correctly, otherwise it cannot communicate.
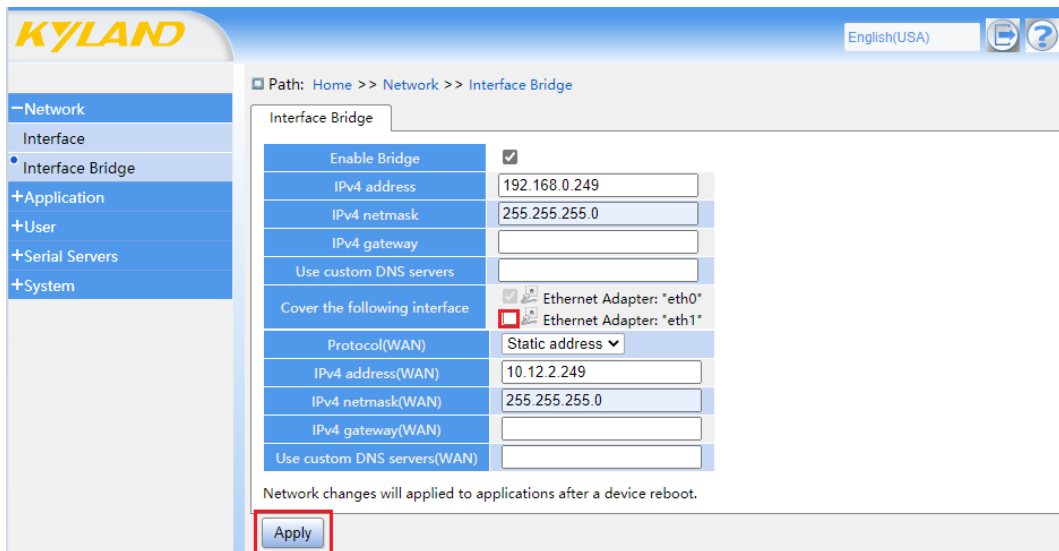
Figure 35 Ethernet port bridge of the different network segment

Ping another device (IP: 192.168.0.111) from PC with IP 10.12.2.233, it can ping.

4.2 **Transparent transmission operation example**

Using a KPS3204A Serial Server and a computer, the serial port interface type is RS-232. The Serial Server as TCP server, the USB terminal of the computer uses USB - RS232 serial port communication line, and the DB9 port of USB-RS232 serial port communication line is connected to the serial port S1 of the device.

Note: This operation example is a communication protocol using transparent transmission at the serial port, RS-232 serial port connection mode, and TCP Server network communication mode for the ethernet port. If the serial port is RS-485 connection line or the network mode is UDP protocol, the configuration item change to the corresponding mode, and the operation method is similar.

A．Set Web console

Start the KPS3204A Serial Server, enter the Serial Server IP address on the browser, and enter the username and password to login to the web page.

Click "Serial Server" - "Serial Interface Settings" in the navigation bar, select serial port 1, serial port mode select TCP Server, local port filled in above 1024, the maximum number of connections is 4, set the serial port band rate, data bit, check bit, stop bit and others, and click "Apply" to save.
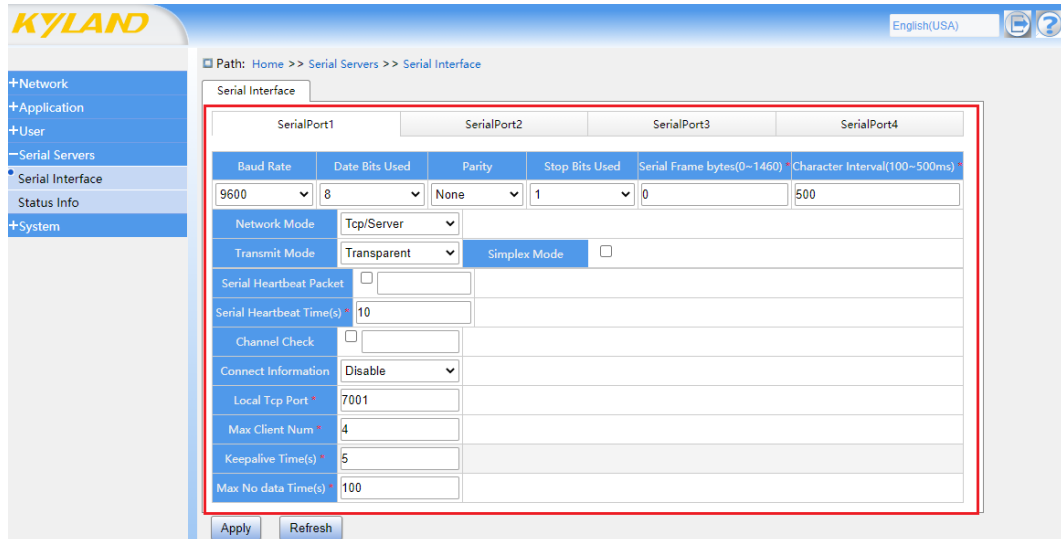
Figure 36 Set Web page

B．Set PC parameter

The PC uses USB- RS232 serial port communication line, and the serial port the serial port communication line connects the terminal block of the Serial Server, connecting the PC and the Serial Server device S1.

Open the integrated debugging management tool " KyCMT ", right-click to create a new debugging assistant in the serial port network debugging assistant bar, select TCP Client, fill in the local host address, fill in the Serial Server IP and port number for the remote address, and click Connect. Right-click again to create a new debugging assistant, communication port selects COM, serial port related parameters are configured as the same parameters with the Serial Server device serial port S1, click open after completing the configuration.

After completing the above operation, input numerical to send in the data sending area of KyCMT, and you can see that the data receiving area of the integrated debugging management tool can receive the corresponding data. The two-way data communication is successful, as shown in the figure below.
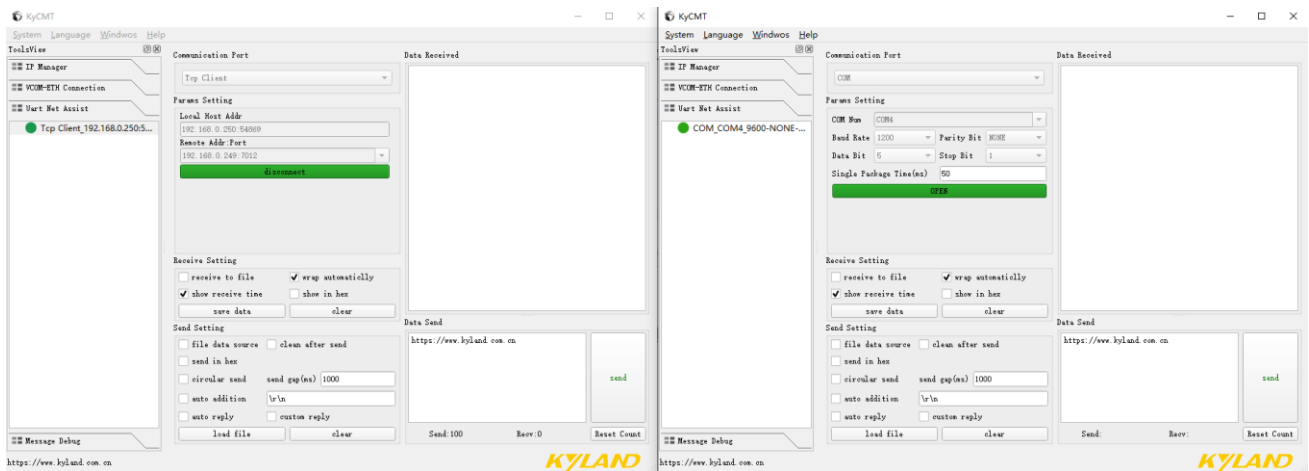
Figure 37 Set the integrated debugging management tool parameters

4.3 **Modbus RTU operation example**

Using a KPS3204A Serial Server and a computer, the serial port interface type is RS-232. The Serial Server as TCP server, the USB terminal of the computer uses USB - RS232 serial port communication line, and the DB9 port of USB-RS232 serial port communication line is connected to the serial port S1 of the device.

Note: This operation example is a communication protocol using transparent transmission at the serial port, RS-232 serial port connection mode, and TCP Server network communication mode for the ethernet port. If the serial port is RS-485 connection line or the network mode is UDP protocol, the configuration item change to the corresponding mode, and the operation method is similar.

A．Set Web console

Start the KPS3204A Serial Server, enter the Serial Server IP address on the browser, and enter the username and password to login to the web page.

Click "Serial Server" - "Serial Interface Settings" in the navigation bar, select serial port 1, serial port mode select TCP Server, local port filled in above 1024, the maximum number of connections is 4, set the serial port band rate, data bit, check bit, stop bit and others, transmit mode select Modbus RTU, and click "Apply" to save.
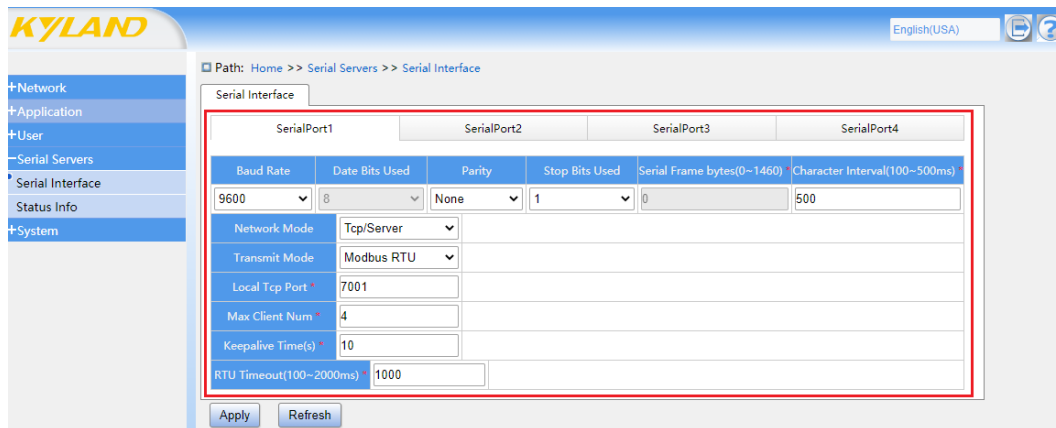
Figure 38 Set Web page

B．Set PC parameter

The PC uses USB- RS232 serial port communication line, and the serial port the serial port communication line connects the terminal block of the Serial Server, connecting the PC and the Serial Server device S1.

Open software "Modbus Slave" to create Mbslave window, click menu bar Connection-Connection Setup, communication port (Connection) selects Serial Port, serial port related parameters are configured as the same parameters with the Serial Server device serial port S1, click OK after completing the configuration.

Then click menu bar Setup-Slave Definition，set up device IP address (Slave ID), function code (Function), start address (Address), Quantity (Quantity).
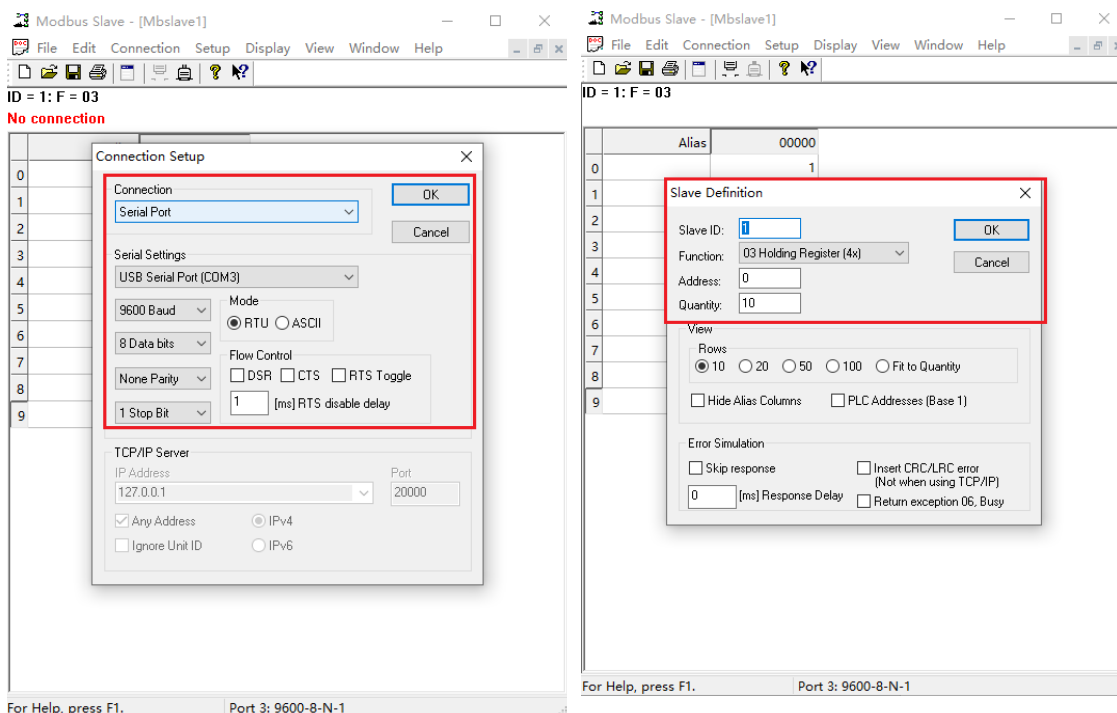

Figure 39 Set Modbus Slave tool parameter

Open software "Modbus Poll" to create Mbpoll window, click menu bar Connection-Connection Setup, communication port (Connection) selects Modbus TCP/IP, fill in the Serial Server IP and port number, the response timeout setting value of the upper computer should be greater than the timeout time set by the web page, click OK.

Then click menu bar Setup-Read/Write Definition，set up device IP address (Slave ID), function code (Function), start address (Address), Quantity (Quantity). The Modbus Poll configuration parameters need to be consistent with the Modbus Slave.
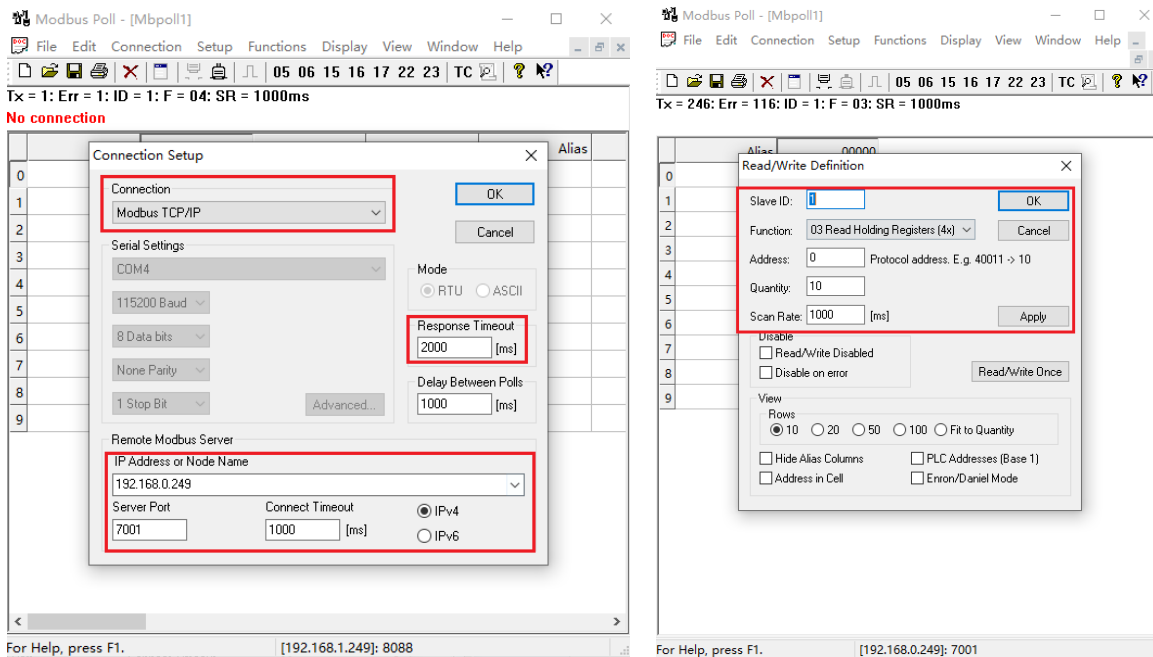

Figure 40 Set Modbus Poll tool parameter

After completing the above operation, input numerical to send in the data sending area of Modbus Slave, and you can see that the data receiving area of Modbus Poll tool can receive the corresponding data. The two-way data communication is successful, as shown in the figure below.
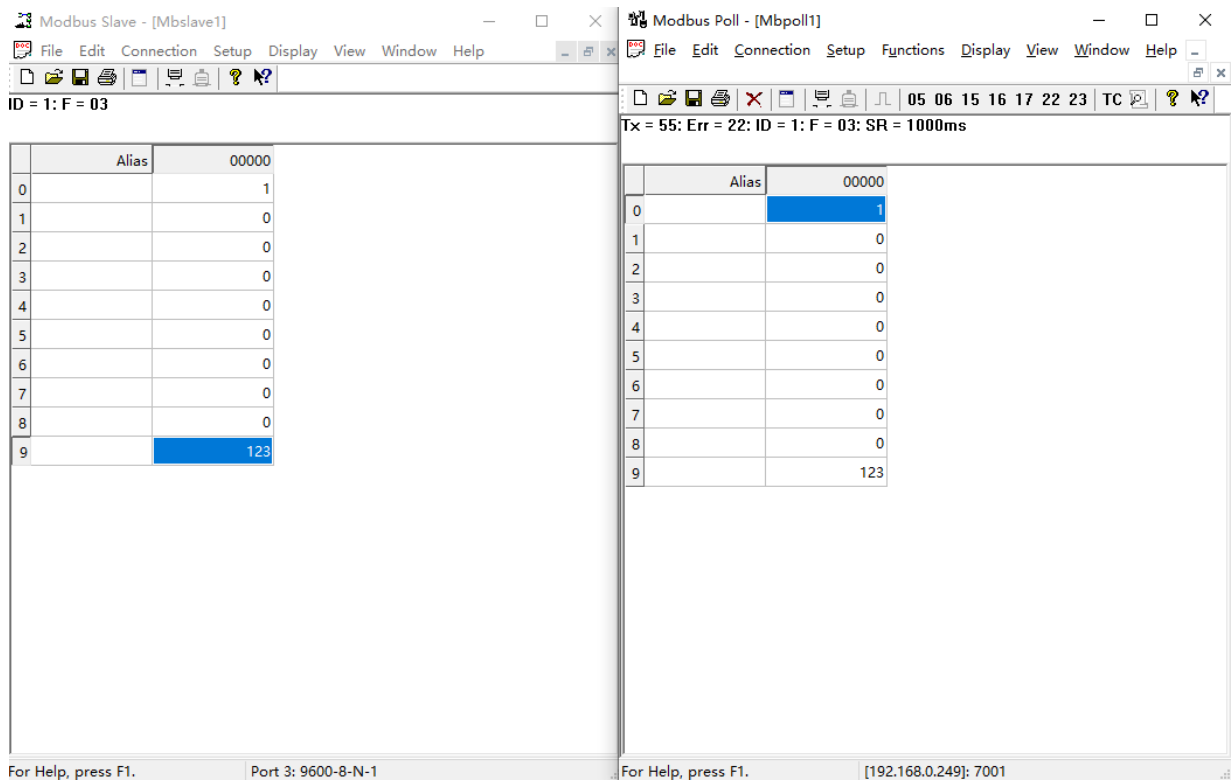
Figure 41 Modbus Slave success in communicating with Modbus Poll