RS-422/485 Serial Device Server

User's Manual

Table of contents

Before attempting to connect, operate or adjust this product, please save and read the User's Manual completely. The style of the product shown in this User's Manual may be different from the actual unit due to various models.

Copyright statement

Disclaimer

Information in this document is subject to change without notice. The manufacturer does not make any representations or warranties (implied or otherwise) regarding the accuracy and completeness of this document and shall in no event be liable for any loss of profit or any commercial damage, including but not limited to special, incidental, consequential, or other damage.

Safety instructions

Always read the safety instructions carefully:

■ Keep this User’s Manual for future reference

■ Keep this equipment away from humidity

■ If any of the following situation arises, get the equipment checked by a service technician:

• The equipment has been exposed to moisture.

• The equipment has been dropped and damaged.

• The equipment has obvious sign of breakage.

• The equipment has not been working well or cannot get it to work according to the User’s Manual.

Introduction

The Ethernet Serial Device Server connects remote RS-422/485 devices via Ethernet as an operation center between RS-422/485 serial devices and the Internet. Once your computer connects to the Ethernet Serial Device Server via Ethernet, the virtual ports can provide communication to devices without altering any applications on your computer. It not only provides fine remote communication but remove the restriction for distance. This server is quite suitable for applying remote data accessing, security monitoring, and manufacture automation.

Features

- Compact size design, easy installation
- Versatile operation mode support, include TCP Server,TCP Client and UDP
- 10/100 Mbps Ethernet port for LAN
- Support 2/4 wires RS-422/485, Auto RS-485 flow control
- 15KVDC ESD immunity to serial interface
- Support 5VDC or 9~36 DC wide range power input
- 3KV optical couple isolation
- Wall mount support

System requirement

- IBM Compatible computer
- Windows 2000 ®, Windows XP ® 32/64 bit, Windows Vista ® 32/64 bit, Windows 7 ® 32/64 bit
- 64 MB RAM or higher
- Pentium® 233 MHz or higher

Package contents

- Serial Device Server x1
- DC Power Adapter x1
- 5-pin terminal block x1 (1-port RS422/485 model)
- 5-pin terminal block x2 (2-port RS422/485 model)
- 3-pin terminal block x1
- CD (Driver and User's Manual) x1

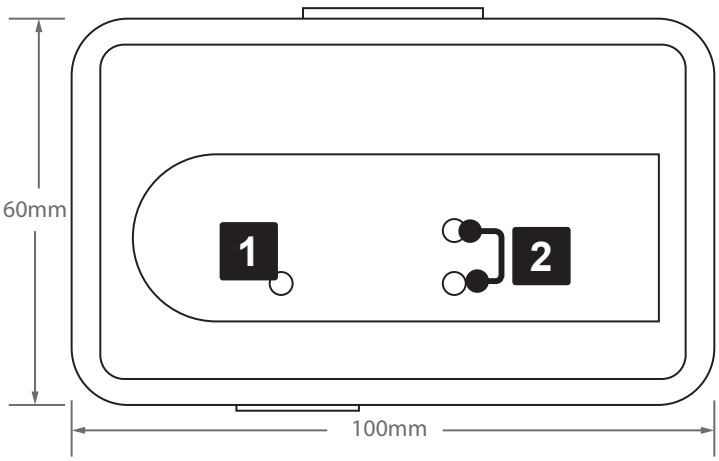
Specifications

Item	Description
Ports	1xRS-422/485
	2xRS-422/485 (2-port RS422/485 model)
Connector	5-pin terminal block
ESD Protection	15 KV ESD, 3KV isolation
Serial Communication Speed	110 bps~230.4 KBps
Interface	10/100 Base T Ethernet
Interface Connector	RJ-45
Power Requirement	5V3A DC, 9~36VDC
Operating Temperature	0°C to 55°C
Operating Humidity	5 to 95% RH
Dimension (LxWxH)	100 x 60 x 29 mm
Regulatory Approvals	FCC/CE

Specification is subject to change without further notice.

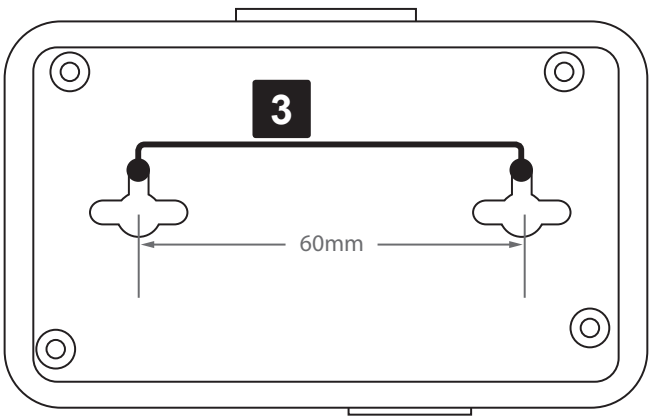
Product overview

1-Port RS-422/485 serial device server

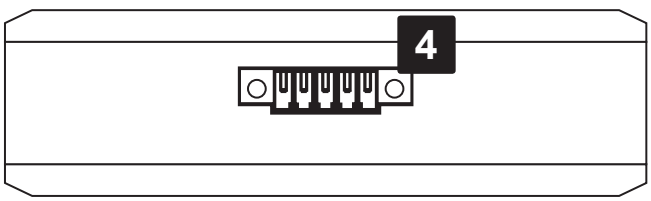


1 Power LED

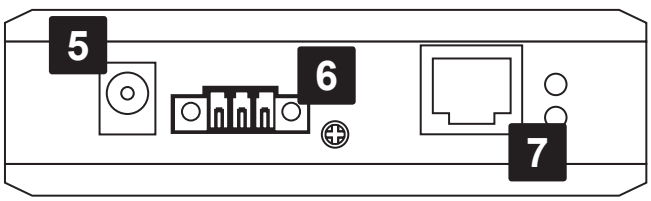
2 Status LED



3 Wall Mount Hole



4 Serial Port
(RS422/485)

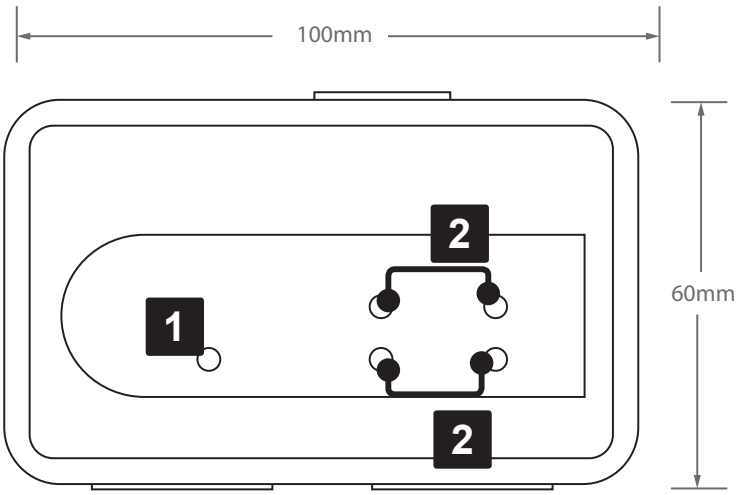


5 DC Power jack

6 DC Power (9~36VDC)

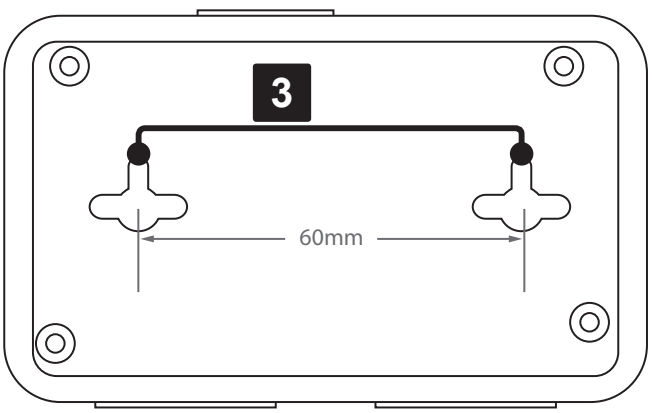
7 Network

2-Port RS-422/485 serial device server

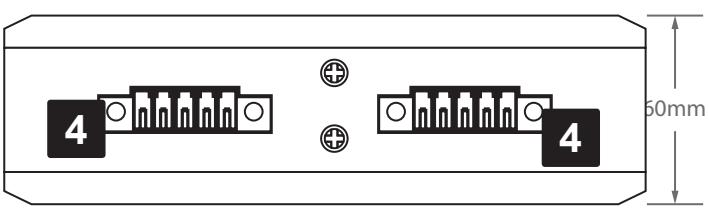


1 Power LED

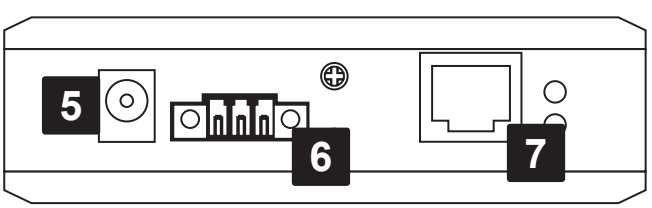
2 Status LED



3 Wall Mount Hole



4 Serial Port
(RS422/485)



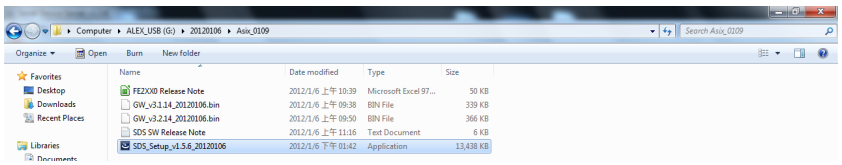
5 DC Power jack

6 DC Power (9~36VDC)

7 Network

Driver installation

1. Double click **SDS_Setup** in order to start installation process.



Note: This driver combines the utilities of **Serial to Ethernet Connector** and **Serial to Ethernet Toolkit**. Both utilities will be installed to the computer after running the installation.

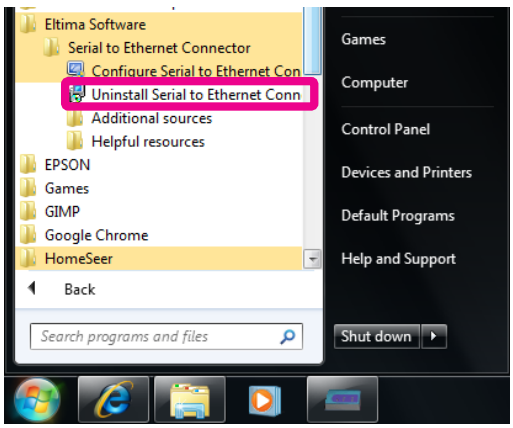
2. Follow the on-screen instructions to complete the installation.
   Once the installation has been completed, two shortcuts ( and ) will appear on the desktop. To launch the utility, double-click the shortcut which created on the desktop. Alternatively, navigate the **Start** menu and locate the launcher in **Programs** submenu.

Note: Please install the utility before connecting the serial server to a computer.

Uninstall the software

Uninstall the Serial to Ethernet Connector

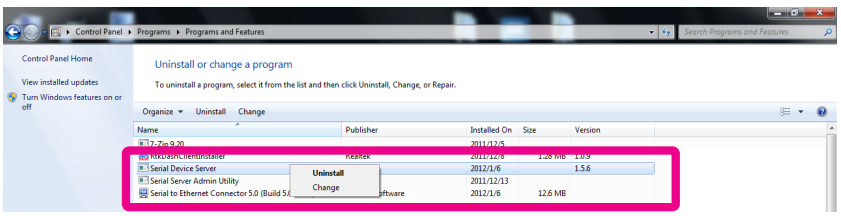
To uninstall the **Uninstall Serial to Ethernet Connector**, click on **Uninstall Serial to Ethernet Connector** under **Ethernet Software** item in **Programs** submenu, and then follow the on-screen instructions.



Uninstall the Serial to Ethernet Toolkit

1. To uninstall the **Serial to Ethernet Toolkit**, click **Control Panel** in **Programs** submenu.

2. Click **Uninstall a program** under **Program** > right click on Select **Serial Device Server** to bring up **Uninstall**.

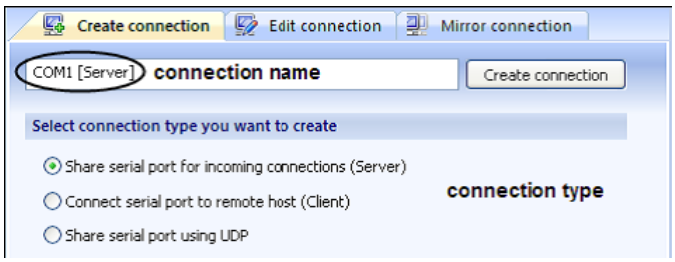


Using SEC (Serial-to-Ethernet Connector)

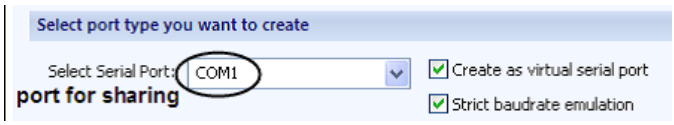
Serial to Ethernet Connector is an advanced software-based solution that allows you to share serial port devices over network and can be accessed from anywhere in the world (via Internet or LAN) as if it is attached directly to the remote PC. When the attached serial port device sends communication data, it is actually transmitted over TCP/IP network and back from the network to your serial device. To start the utility, click **Serial to Ethernet Connector**.

Sharing a local serial port on PC

1. In **Create connection** tab choose the required connection type: Share serial port for incoming connections (Server). Also specify the name to identify this connection, for instance, COM1 [Server]



2. Select local serial port to be shared. For example, COM1



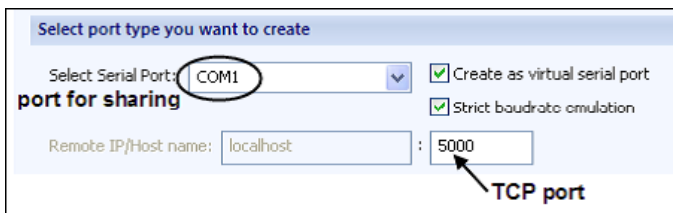
Note: A serial port name must not contain spaces inside.

3. Tick **Create as virtual serial port** checkbox to use a virtual serial port instead of a real one. The advantage of virtual serial ports technology is that you are not limited to the number of physical serial ports in a system, and thus you can free existing serial ports for other applications.

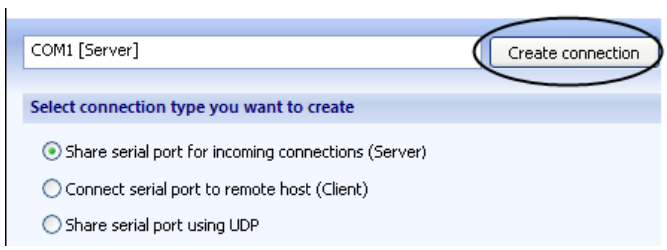
Note: A virtual serial port can have the same name as the existing physical COM port. But in this case it will be accessed instead of physical one.

4. Tick **Strict baud rate emulation** checkbox if you want to enable baud rate emulation, which permits virtual ports to work with the same speed as real ones.

5. Specify TCP port, which will be used in connection. Make sure this port is not blocked by firewall and is not used by other servers in your system (DNS, SMTP, IIS, etc.).



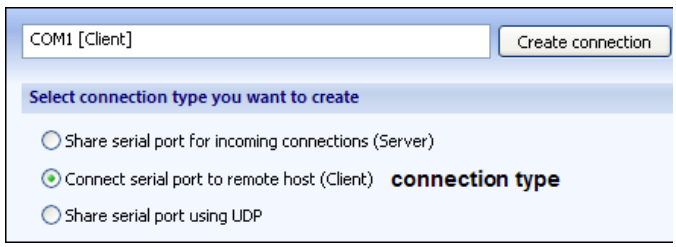
6. Click **Create connection** button.



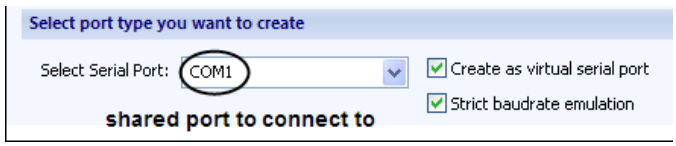
7. Now the shared serial port can be accessed from the Serial Device Server side (next page) with default settings.

Connecting to a shared serial port from the serial device server

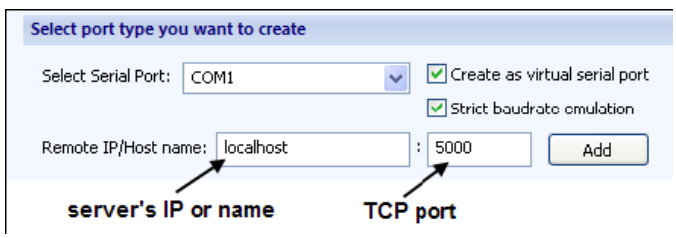
1. In **Create connection** tab choose the required connection type: Connect serial port to Serial Server Device. The name to identify this connection will be set automatically depending on the shared serial port, which participates in connection.



2. Specify the shared serial port number to connect to.



3. Also specify the remote server's IP or name, as well as TCP port, used in connection. Click **Add** button to add IP address to IP's list.



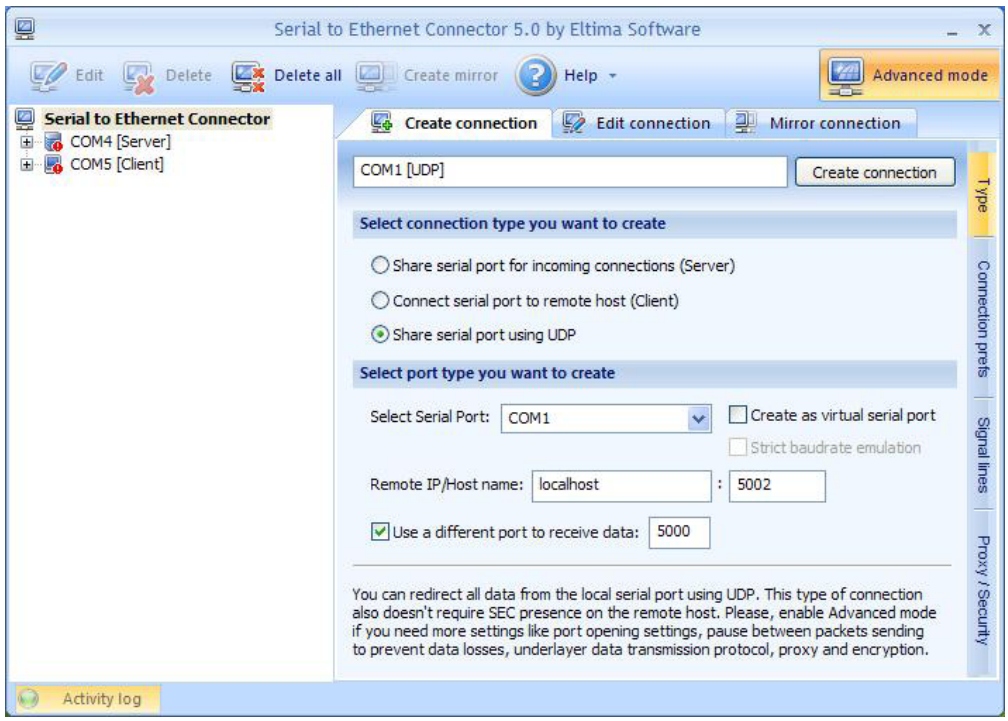
Creating UDP Connecting

Serial to Ethernet Connector lets you establish UDP/IP connection between serial ports. UDP connection may come useful for streaming big chunks of data as well as for Mail, DNS, Finger and other services.

To create a connection, follow these instructions:

1. Switch to **Create connection** tab.

2. Specify connection name to identify this configuration. Default name is based on local serial port number, which participates in connection, and connection type in brackets.



3. Select connection type you want to create. In this case it is **Share serial port using UDP**.

4. In **Select Serial Port** field choose local serial port which will participate in connection: either add it manually, or select one from the drop-down list.

5. Tick **Create as virtual serial port** option if you would like to use virtual serial ports instead of real ones.

6. Tick **Strict baud rate emulation** checkbox if you want to enable baud rate emulation. You can find more details about our virtual serial port and baud rate emulation technologies here.

7. Specify IP address (or network name) of the remote end and port number to connect to. Make sure that the port numbers are the same at both ends and are not blocked by firewall.

8. You can also specify the port to receive the data, regardless of the port the data is sent to. It may be useful if you create UDP connection with several devices that have the same ports.

9. Finally, click **Create connection** button. Once connection is created, you can see it in Connections tree.

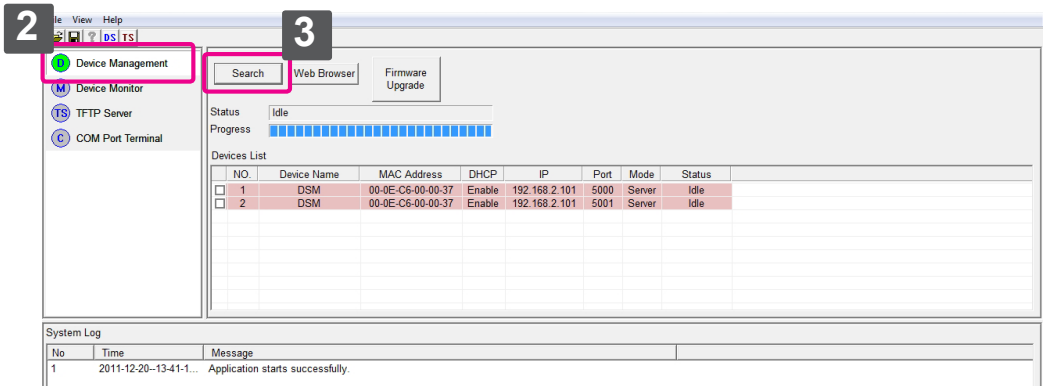
10. Open local serial port. You may use Windows HyperTerminal utility for this purpose. This step is necessary only if you want to verify whether the connection was created successfully.

11. Create UDP connection at the remote end. Repeat steps 1-10 listed above. Make sure that the port numbers are the same at both ends and are not blocked by firewall.

12. Now you are ready to start communication process with default settings. You can refer to Editing UDP connection section if you would like to edit a newly established connection.

Serial to Ethernet Toolkit

Search a serial device



1. Double click the shortcut  on the desktop.

2. Connect a serial device server to the computer and then open the **Serial to Ethernet Toolkit**.

3. Click <**Device Management**> on the left window.

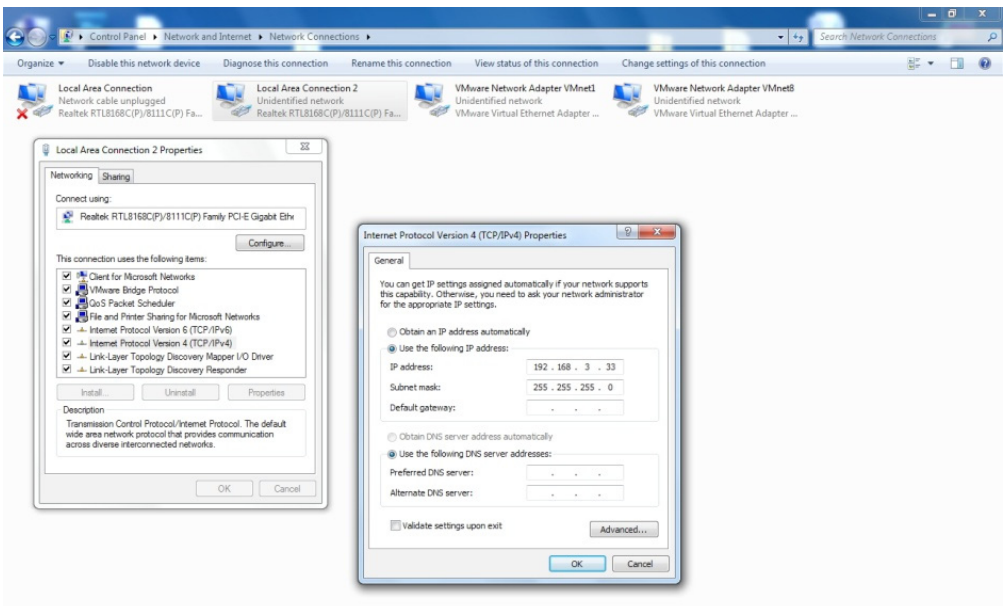
4. Click <**Search**> button on the right window.

5. All the searched devices will be listed on the **Device List** when the search procedure is finished.

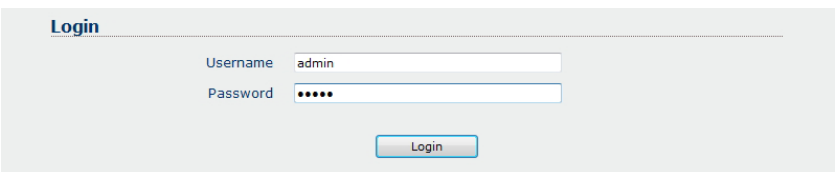
Web console

This Serial server supports the remote configuration using web console on the network. To use the web console, open a web browser (eg., Internet Explorer) and type the IP address which you have set in the **Network and Sharing Center** (string example of Windows 7®, the actual string is depending on your operating system).

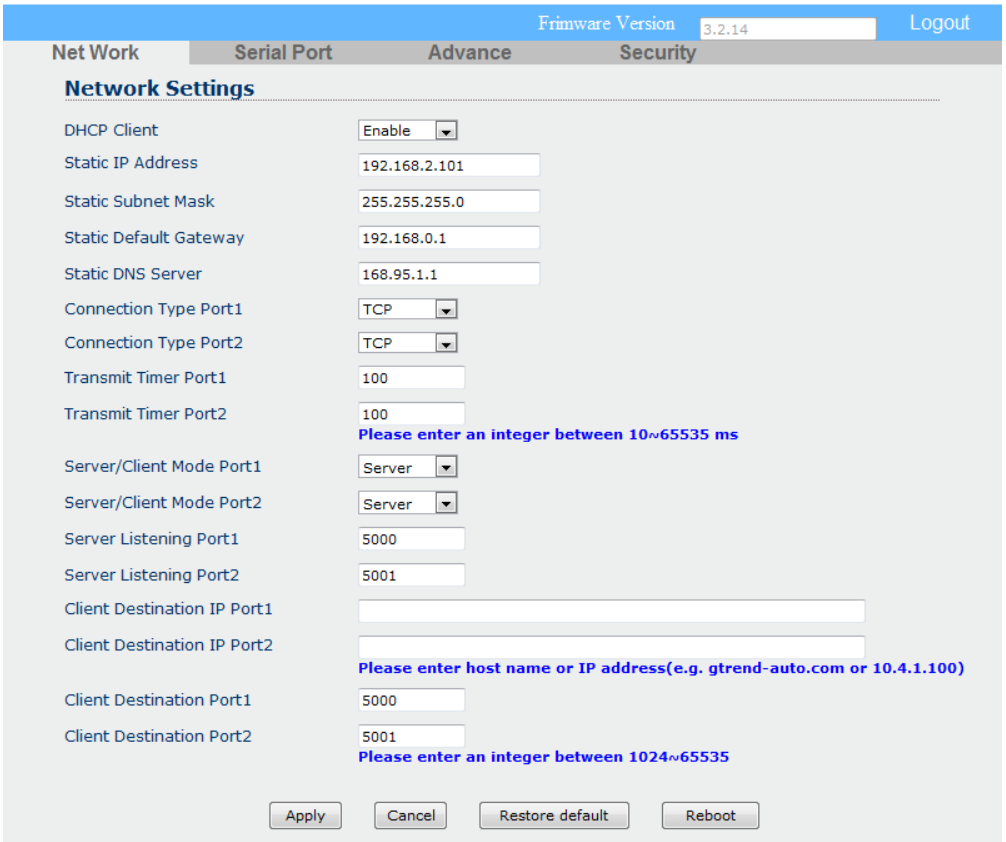
Note: Configure the IP address to 192.168.3.X where the X is between 2 and 254. To set up your computer's IP address, refer to the operating system's instruction manual.



Login the web console, and then click **Submit**. By default, the password is **admin**. To change the **Username** and **Password**, refer to **Security** chapter.



Network settings



DHCP Client: Enable or disable the DHCP client function. To configure the items of IP Address, Subnet Mask, Gateway and DNS Server, please select Disable.

Connection Type: Select a preferred communication protocol.

Transmit Timer: Enter a preferred packet period when transmitting serial data, the parameter is between 10~65536ms

Server/Client Mode: Select the preferred mode for connected serial device.

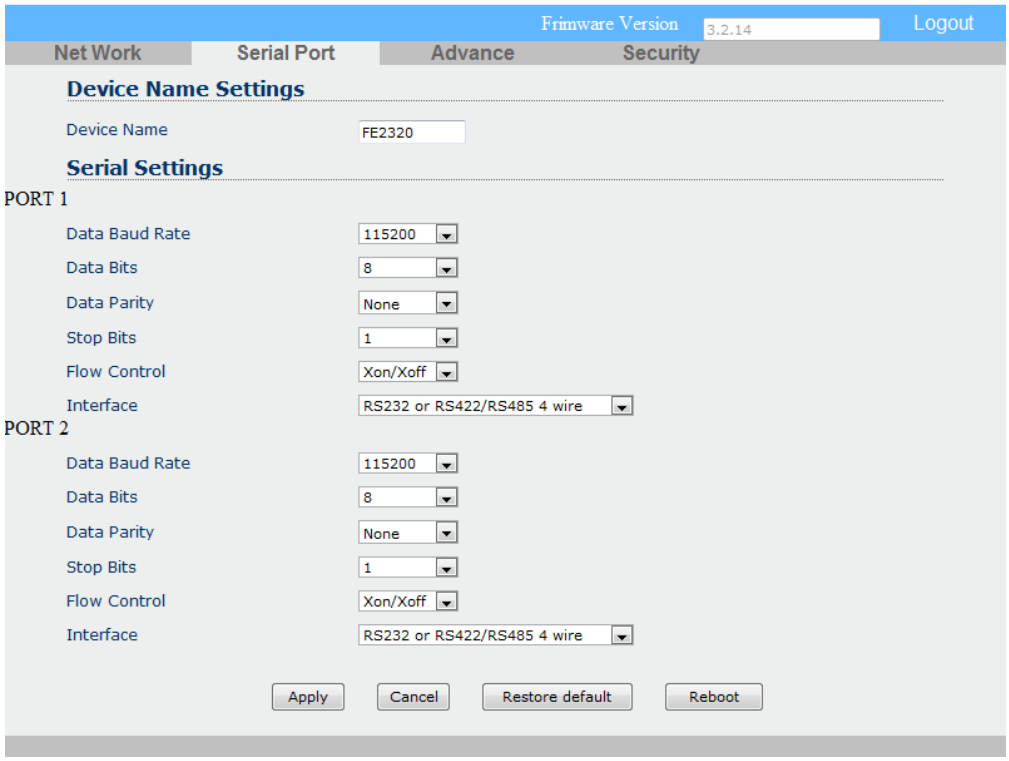
Server Listening: Enter a preferred parameter for listening

Client Destination IP: Enter the host name or IP address

Client Destination Port: Enter a preferred parameter for connected port, the parameter is between 1024~65535.

Once the configuration has been completed, click the <**Apply**> and then click <**Reboot**> button to restart. To restore the factory default, click <**Restore default**> button.

Serial Port



Data Baud Rate: Select the data transfer rate per second.

Data Bits: Select a preferred data bits

Data Parity: Select a preferred data parity.

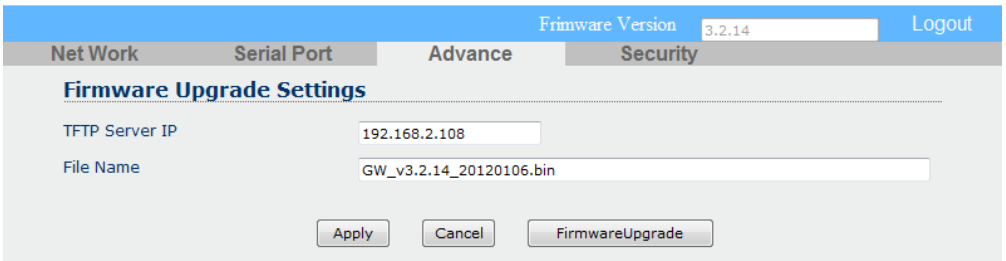
Stop Bits: Select a preferred stop bits

Flow Control: Select a preferred method of flow control

Interface: Select the interface of connected serial device.

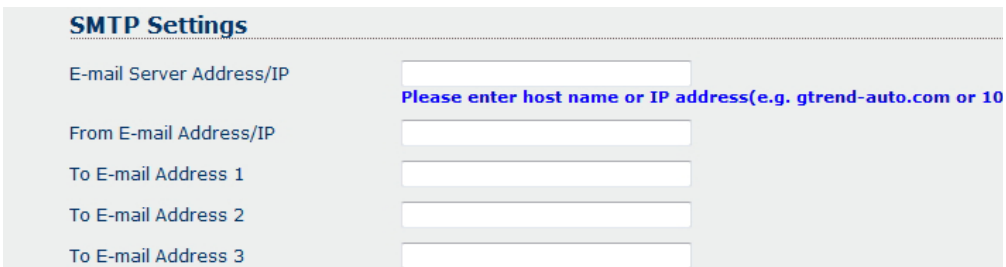
Advance

Firmware upgrade



1. Enter the IP address where the firmware is saved to **TFTP Server IP**.
2. Enter the file name of the firmware. Make sure the file name you entered is matched to the file on the TFTP server.
3. Click <**Apply**>, and then click <**Firmware Upgrade**>.

SMTP setting

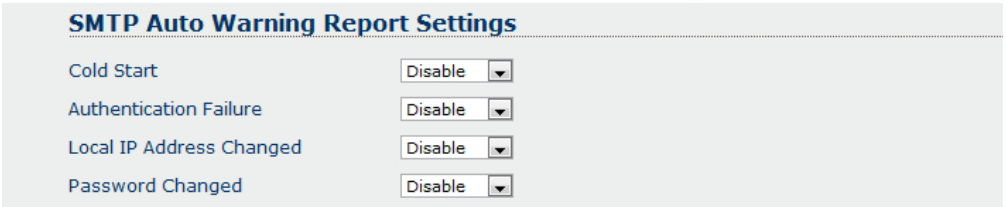


E-mail Server Address/IP: Enter the SMTP host address

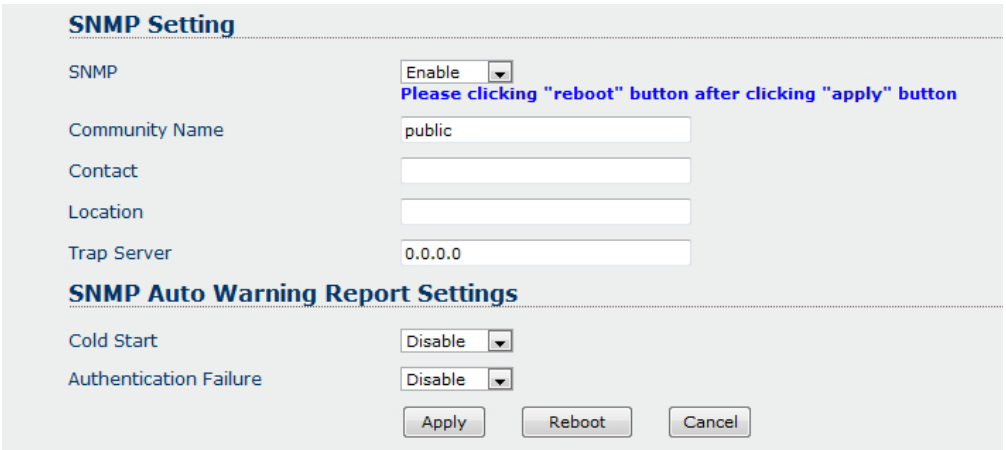
From E-mail Address/IP: Enter the host email address

To E-email Address 1/2/3: Enter the recipient email(s).

SMTP auto warning report settings: Enable or disable the warning options individually. Once the option has been enabled, the warning report will be sent to the email you specified when the status of option is changed.



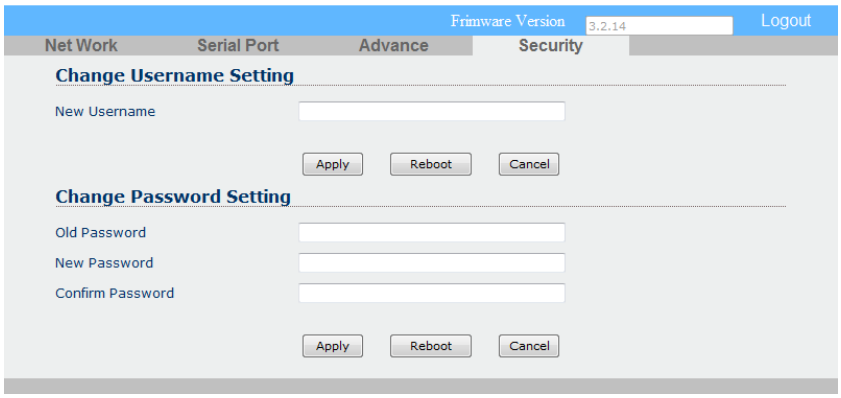
SNMP Settings: Select **Enable** to open or **Disable** to close the SNMP function.



SNMP Auto warning report settings: Enable or disable the SNMP warning options individually. Once the option has been enabled, the warning report will be sent to the email you specified when the status of option is changed.
Note: The option of warning report is only available when the SNMP function is enabled.

Click <**Apply**>, and then click <**Firmware Upgrade**> to confirm.

Security



Change the username

1. Enter the desired username to **New Username**.
2. Click <**Apply**>, and then click <**Reboot**>.

Change the password

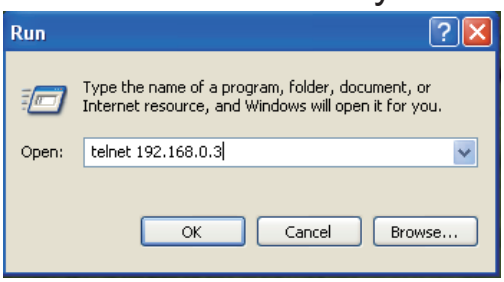
1. Enter the previous password to **Old Password**.
2. Enter the desired password to **New Password**.
2. Click <**Apply**>, and then click <**Reboot**>.

Telnet console configuration

Except the **Device Server Manager** and **Web browser**, telnet is the third way to configure the server. Follow the steps below to access the server. Note that the descriptions below are using Windows Operation System platform. To configure the server through other terminal utilities, refer to instruction manuals of the manufactures.

1. Click **Start**, and then select **Run**.

2. Enter "**telnet 192.168.0.3**" (according to the server's factory default or the IP address you have set) in the text box of **Run**, and then click **OK**.

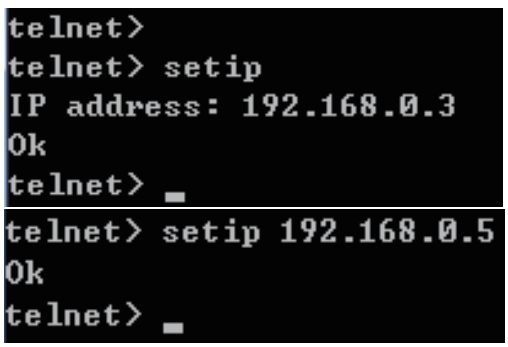


3. The login message appears after opening the telnet. By default, both username and password are "**admin**".

4. The commands shown below are examples for you to configure the server.

   4-1 To view the current IP address, type "**setip**".

   4-2 To change the IP address, type "**setip 192.168.0.5**" (example). Once the command has been modified, type "saveconfig" to save the parameters into flash of server.



Commands reference

The commands below are the references for configure the serial device server. Alternatively, you can also type "**help**" to list the commands in the telnet window.

help
quit
reboot
reset
Usage: passwd
    Old Password:
    New Password:
    Re-enter New Password:
Usage: username <user name>
Usage: ipconfig
Usage: setip <ip addr>
Usage: setmask <netmask>
Usage: setgateway <ip addr>
Usage: setdns <ip addr>
Usage: transmitimer <time>
    <time>: time in ms
Usage: dhcpclient <status>
    <status>: 0: disable 1: enable
Usage: connectype <protocol>
    <protocol>: 0: TCP 1: UDP
Usage: setmode <mode>
    <mode>: 0: SERVER 1: CLIENT
Usage: setsrvport <port>
Usage: setdstport <port>
Usage: setdsthn <Host name/IP>
Usage: connstatus
Usage: fwversion <FW Version:>

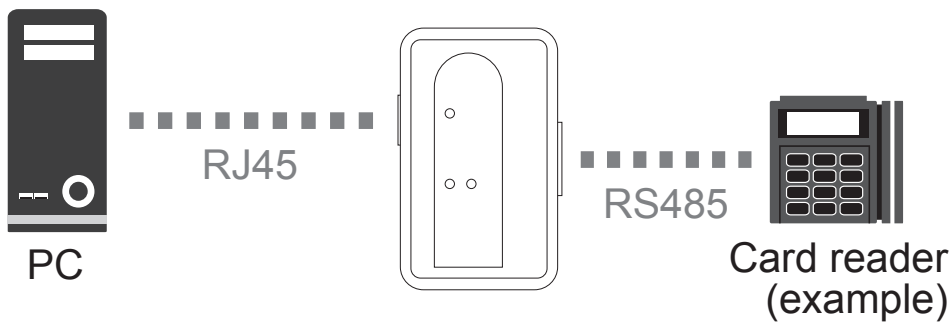
Usage: devicename <device name>
Usage: serialport <baud rate> <data bits> <parity> <stop bits> <flow ctrl>
<baud rate>: 0: 921600 5: 9600
1: 115200 6: 4800
2: 57600 7: 2400
3: 38400 8: 1200
4: 19200
<data bits>: 0: 5 2: 7
1: 6 3: 8
<parity>: 0: Odd 2: None
1: Even
<stop bits>: 0: 1 1: 1.5 2: 2
<flow ctrl>: 0: Xon/Xoff 2: None
1: Hardware
Usage: interface
<mode>: 0: RS232 or RS422/RS485 4 wire
<mode>: 1: RS485 2 wire
Usage: setems <e-mail server address/ip>
Usage: setemf <e-mail address>
Usage: setemt1 <e-mail address>
Usage: setemt2 <e-mail address>
Usage: setemt3 <e-mail address>
Usage: emconfig
Get E-MAIL Configuration
Usage: setsnmp <mode>
<mode> : 0: Disable 1: Enable
Usage: snmpcom <name>
<name> : SNMP Community name
Usage: snmpcont <name>
<name> : SNMP Contact name
Usage: snmploc <name>
<name> : SNMP Location name

Usage: snmpconfig
Get SNMP Configuration
Usage: trapsrvip <ip addr>
<ip addr> : Set Trap server IP
Usage: settrapcoldstart <mode>
<mode> : 0: Disable 1: Enable
Usage: settrapauthfail <mode>
<mode> : 0: Disable 1: Enable
Usage: setaw <Cold Start> <Authentication Failure> <Local IP Address Changed> <Password Changed>
<Cold Start>: 0: Disable 1: Enable
<Authentication Failure>: 0: Disable 1: Enable
<Local IP Address Changed>: 0: Disable 1: Enable
<Password Changed>: 0: Disable 1: Enable
Usage: saveconfig
Usage: filename <file name>
Usage: tftpsrv <ip addr>
Usage: dlfirmware
Usage: seteep <HEX RegStartAddr> <HEX Byte 0> <HEX Byte 1>...<HEX Byte N>
Usage: dbgmsg <mode>
<mode>: 0: Disable 1: Enable

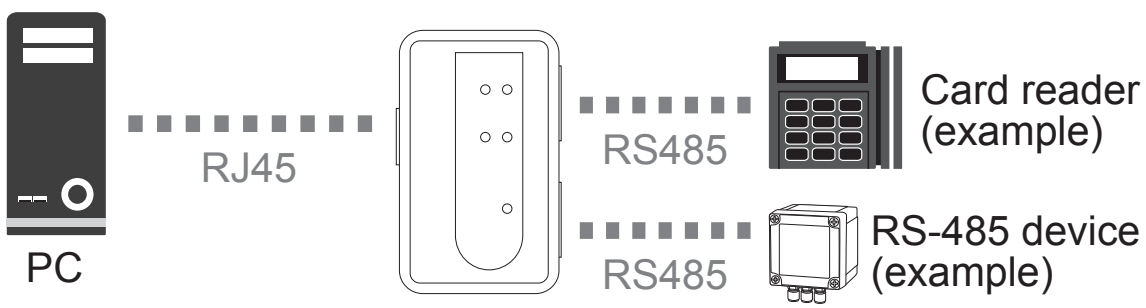
Connection diagram

Once the software setup has been completed, you can connect and operate the RS-422/485 device through Ethernet Network.

1-Port RS-422/485 serial device server



2-Port RS-422/485 serial device server



Regulatory compliance

FCC conditions

This equipment has been tested and found to comply with Part 15 Class B of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference

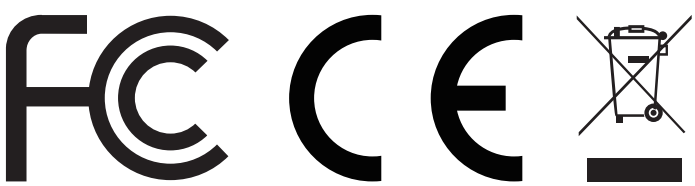
(2) This device must accept any interference received and include interference that may cause undesired operation.

CE

This equipment is in compliance with the requirements of the following regulations: EN 55 022: CLASS B

WEEE Information

For EU (European Union) member users: According to the WEEE (Waste electrical and electronic equipment) Directive, do not dispose of this product as household waste or commercial waste. Waste electrical and electronic equipment should be appropriately collected and recycled as required by practices established for your country. For information on recycling of this product, please contact your local authorities, your household waste disposal service or the shop where you purchased the product.



RS-422/485 Serial Device Server
User's Manual

1230 v1