Serial Device Server Quick Installation Guide

Introduction

The *Serial Device Server* is designed to operate serial ports over 10/100 Mbps Ethernet networks, transmitting via TCP/IP protocol. Control is available via Ethernet, Intranet, and internet.

Features and Benefits

- Data conversion between RS-232/422/485
- Dynamic IP configuration
- Dual LAN speed
- Server/Client dual modes
- Web-based setup
- Built-in security control

System Requirements

- Pentium®or equivalent computer with an available serial port and ethernet port
- Windows®8 (32-/64-bit) / 7 (32-/64-bit) / Vista (32-/64-bit) / XP (32-/64-bit) / Server 2003 & 2008 (32/-64-bit) / Server 2008 R2 / 2000

Serial Number Sticker

For future product return or exchange, this serial number is required. Please keep it for your reference.

Package Contents

- *Serial Device Server*
- Power adapter
- Software CD & quick installation guide

Layout

DC-In (power)

Terminator

Serial Port RS-485 / 422

LAN

Serial Port RS-232

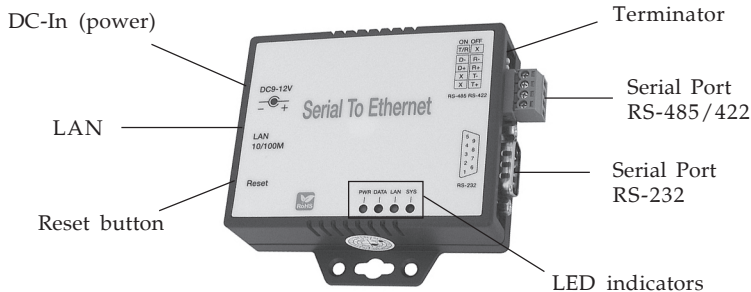Reset button

LED indicators

Figure 1: Serial Device Server

- DC-In: Connect your power adapter here
- Terminator: Default setting is OFF. Switch the two switches up to **ON**, 120 Ohm resistor is connected between the signals

LED Indicators

- Sys (Red): Status indicator. System LED flashes every second when the *Serial Device Server* works normally
- LAN: Network status (when converter links to LAN the LED stays on) Green: 100 Mbps, Red: 10Mbps
- Data (Red): Network activity indicator (when sending and receiving data the LED will blink)
- PWR (Yellow): Power indicator. Steady on when the power adapter is connected

Device Server Configuration

Follow the instructions below to configure your IP, if needed. For more details about the network settings, see **Web Console Configuration**, in the next sub section.

Before you configure the IP of your *Serial Device Server*, make sure the IP of your PC/NB is in the same network domain as the *Serial Device Server*.

The default IP address of the *Serial Device Server* is **192.168.0.10**, assign an IP address **192.168.0.X** if the IP of your PC/NB is not in the same domain as the *Serial Device Server*. See **Figure 2**.
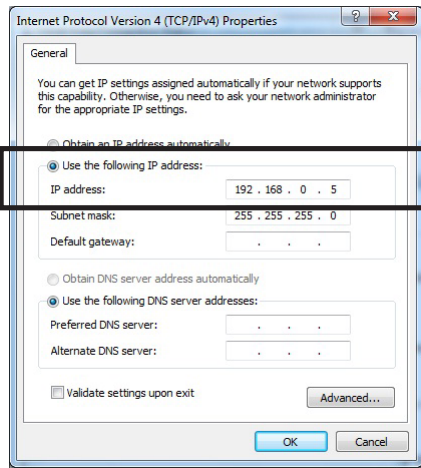

Figure 2

Device Management Utility (ETM)

Device Management Utility, is an executable program in Windows environments. This Setup Tool is used to detect and setup the *Serial Device Server*. It uses UDP broadcast packets to query and configure the device server on the network.

1. Double click the **Etm_3264bit** file under the
    IP_Search_Utility folder in your driver CD to
    activate the tool, it will detect the existence of the
    installed device server and the device server's
    display status, such as IP address, subnet mask,
    MAC address, and device II, see **Figure 3**.

> **NOTE**: Temporarily disable Windows firewall when
> using ETM. You can restart it after completing the
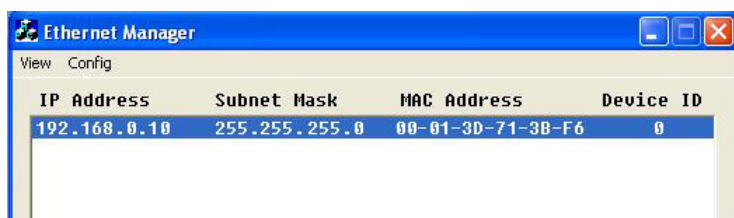> parameter settings.

Figure 3

2. At the main menu, press **Enter** or click **IP Address**,
    a dialog box will show up, see **Figure 4**. Assign an
    IP address with the same subnet mask as your
    computer, click **OK**. Avoid any IP conflict with
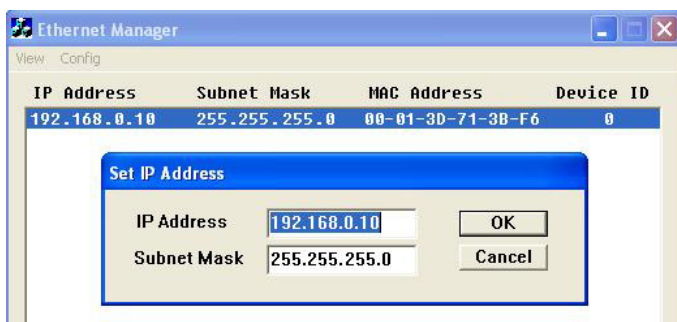   other network devices.

Figure 4

3.   The IP address will be refreshed in 2-3 seconds. Or you can refresh the data by clicking **View**, **Refresh** after you did any changes.
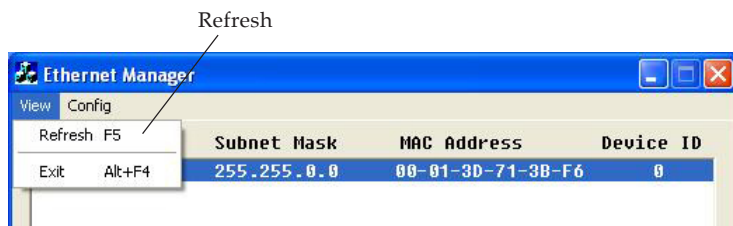

Figure 5

Web Console Configuration

In addition to basic IP address and subnet mask, specific device settings can be set through HTTP protocol with popular browsers, e.g. Internet Explorer, Firefox, etc. Setup is as easy as surfing the web, no special software is required.

Press **[Alt] + [Enter]** or select **[Device Settings]** in the [Config] menu to open a new window in the browser to log into the device. Alternatively, if the IP address of the *Serial Device Server* is already known, you can connect to it directly by typing in it's IP address in the URL field of the browser.

Controller Status

To enter the Controller Status page, follow the steps below. This section will use Internet Explorer as the default internet browser.

1.   Start your browser.
2.   In the browser URL field, type the IP address of the *Serial Device Server* directly and press **Enter** (the IP address is what you set using the Device Management Utility). The Controller Status page will be shown, see **Figure 6**.
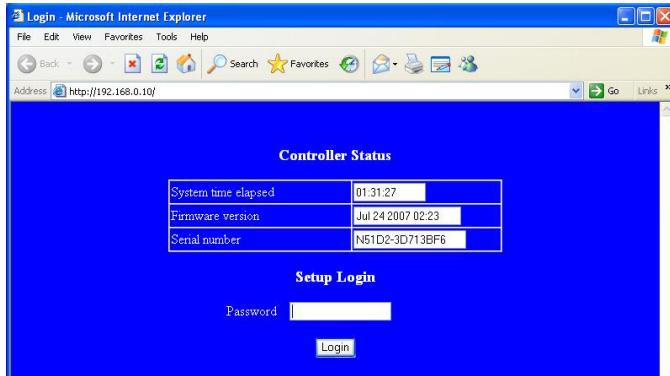
Figure 6

Field Description

- **System time elapsed**: the time elaped since start of this device in [Day:Hour:Minute:Sec] format. This information can be useful in identifying the reliability of the system.

- **Firmware version**: The device server's firmware version is identified by date code. This information will be required in looking for technical support.

- **Serial number**: The first 5 digits is the serial number. The next 8 digits is the unique MAC (Media Access Control) address used for identification by the Ethernet network.

- **Password (Setup Login)**: This field is the administration password for authentication. The factory default setting is blank. However, it is recommended to set a password under normal operation. If you forget the password, the device server can be returned to factory default setting (blank password) by pressing in the reset button while powering on the *Serial Device Server*.

The *Serial Device Server* uses the same password protection mechanism commonly used in Windows NT or UNIX. If there are more than **3 consecutive failures** during login, the login function will be disabled for **15 minutes**. This prevents intruders from finding the password by computer generated programs.

Controller Setup

Type in the password and click Login button, the Controller Setup page will appear similar to **Figure 8**.

Note: If you forget the password or can't login successfully, return the *Serial Device Server* to the factory default setting of blank password. See **Password (Setup Login)** on previous page for more information.

Figure 7

Field Description

- **IP address**: The default setting is 192.168.0.10. Note that the IP address must not conflict with other devices on your network. If DHCP client mode is enabled and there's a DHCP server on the network, the IP address will be assigned by the DHCP server.

- **Destination IP address**: The device server IP address and socket port would be connected in TCP client and UDP mode for a certain server IP address

- **Destination socket port**: The device server socket port would be connected in TCP Client and UDP mode or a certain socket port.

- **TCP socket inactive timeout (minutes)**: Sets inactive timeout period from 1-99 minutes

- **Serial I/O setting (baud rate, parity, data bits, stop bits)**: Baud rate: 300-115200 bps; Parity: None; Even; Odd; Data bits: 7 or 8; Stop bits: 1 or 2

- **Interface of serial I/O**: RS-232: TxD, RxD for data stream, no flow control

- **Packet mode of serial input**: Can be set to enabled or disabled mode. If packet mode is enabled, the data input from the UART will be deferred until the input buffer is full, or the device server detects a 10-character packet gap and no more characters arrive. The block waiting time is extended to avoid the splitting of the complete packet

- **Device ID**: User assigned ID number for the device server. Available IDs: 0-65535

- **Report device ID when connected**: In TCP mode, if this parameter is enabled, every time the socket is connected, the *Serial Device Server* will report it's device ID.

The total length is 8 bytes, where "nnnnn" is a 5-digit device ID assigned by the user; [LF] is decimal 10; [CR] is decimal 13

Serial #1	nnnnnA[LF][CR]
Serial #2	nnnnnB[LF][CR]
Digital I/O	nnnnnC[LF][CR]

- **Setup password**: Administration password used to login to the Controller Setup page. It may be empty or up to 15 characters long.

Device Server Updated

Press **Update** button after you finish the detailed parameter settings. The *Serial Device Server* will save all parameters into internal non-volatile memory and then reboot. It takes about 5 seconds to complete the entire process, and a new login page will be displayed.

> **Note**: If **Controller Updated/Now restarting** doesn't show up after clicking the update button, this means the configuration page was left idling too long and it timed out. No update was performed. The user will be sent back to the login page. You can re-login and check if all the parameters have been saved. If your changes were saved, you can close the browser. **Important**: If the domain of the *Serial Device Server* is different from that of the computer running the browser, the loging page won't appear unless the *Serial Device Server's* gateway address has been correctly set.

- **Subnet mask**: Subnet mask of 255.255.255.0 is usually used for small networks, 255.255.0.0 for larger networks. If your IP address is provided by an ISP or network administrator, please obtain that information and enter it correctly. If DHCP client mode is enabled and there's a DHCP server on the network, this field will be assigned by the DHCP sever automatically.

- **Gateway address**: Gateway or Router IP address. A gateway is a device which connects a local network to an external network. Type in this information carefully. If there is no gateway on the network, leave it as 0.0.0.0. If DHCP client mode is enabled and there is a DHCP server on the network, this field will be assigned by the DHCP server automatically.

- **Network link speed**: Ethernet physical link speed can be set to **Auto** or you can specify 10Mbps or 100Mbps to match the speed of the network.

- **DHCP client**: DHCP client mode can be enabled/disabled. If DHCP is enabled, there should be a DHCP server on the network.

- **Socket port of HTTP setup**: The socket port is used to conduct the browser setup. Normally, HTTP protocol uses port **80** for communication. If the field is changed to **81**, port **80** will be reserved for user's own Web.

  To enter the browser setup page, **http://x.x.x.x:81** should be typed for socket port **81** and **http://x.x.x.x** for socket port **80**, where **x.x.x.x** is the converter's IP address.

- **Socket port of serial I/O**: <u>Port number</u>: A 16-bit number, ranging from 1 to 65535. Because the numbers below 1000 are used for specific purposes **e.g. 80 is for HTTP protocol**, we suggest you use numbers larger than 1000. Generally port number 4660 is used for the serial communication. However you should specify a different port number for each serial port. <u>Socket types</u>: TCP Server - TCP protocol, passive open, to be connected from the TCP clien**t**s. TCP Client - TCP protocol, active open, connect to the TCP server.

    UDP Client: UDP protocol, connectionless
- **Socket port of digital I/O**: Same as **Socket port of serial I/O**.

Factory Default Setting

If you forget the setup password, or have incorrect settings making the *Serial Device Server* inoperable, there are two ways to reset the server to factory default settings.

A)

1. Turn off the *Serial Device Server*.
2. Press and hold down the reset button as you power on the *Serial Device Server*.
3. Wait for 3 seconds, then release the reset button.
4. The password will reset to the factory default (blank - no password).

B)

1. Log into the web page.
2. Press and hold down the reset button of the *Serial Device Server*.
3. Select the update button.
4. Release the reset button when Tx & Rx lights start flashing.

5.   The password will reset to the factory default (blank - no password).

COM Port Setup

Follow the instructions below to add the virtual COM port.

1.   Copy the **VirtualCOM** folder in your driver CD to your computer's hard drive.

2.   Select **VirtualCOM** folder in your CD driver. Based on the type of your system, select **32-bit** or **64-bit** folder, then double click **VSerPortConsole**.

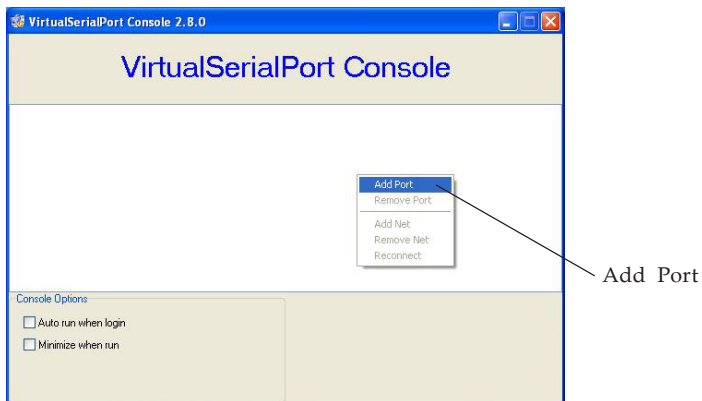3.   After entering into the VSerPortConsole main menu, right click on it and click **Add Port**.

Figure 8

4.   At the prompted Add Port window, check the **Auto Assign** box, then click **OK**.

Auto Assign
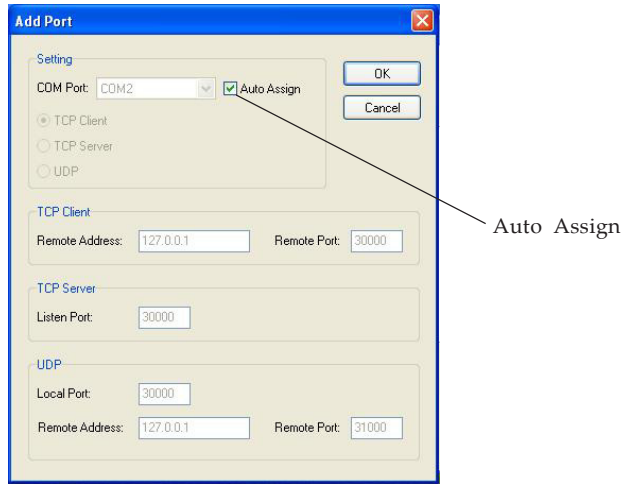
Figure 9

5. Click **Install this driver anyway** or **Continue Anyway**, then a COM port would be assigned. As Figure 10, the *Serial Device Server* is assigned to be COM 3.

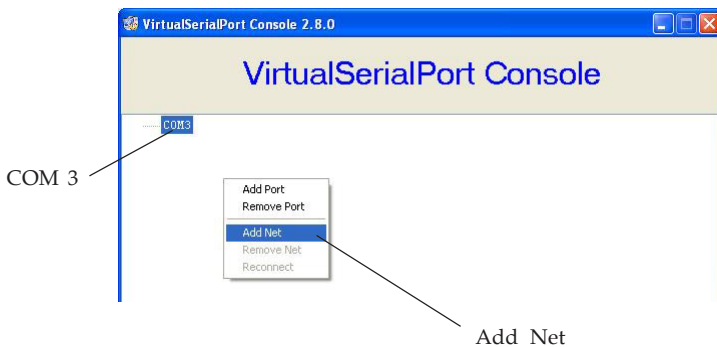6. Once COM port is assigned, right click on the main menu and click **Add Net**.

COM 3

Add Net

Figure 10

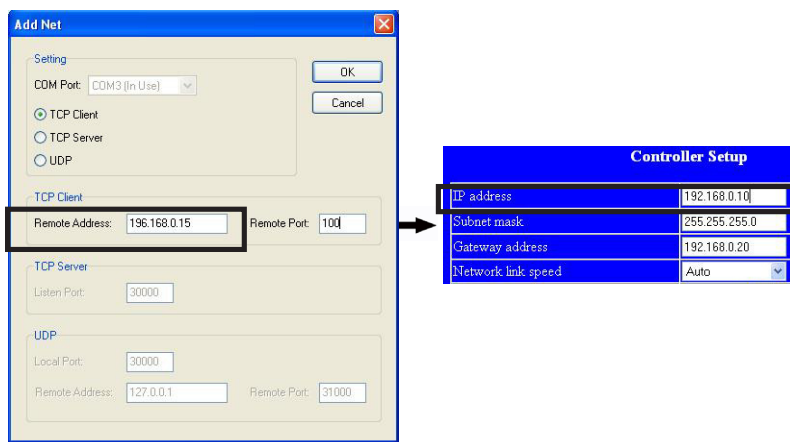7. Change **Remote Address** to be the same with the parameters in Controller Setup.

Figure 11

8. Make sure the parameter in **Remote Port** is **100**. And the parameter in Controller Setup must be 100 too.
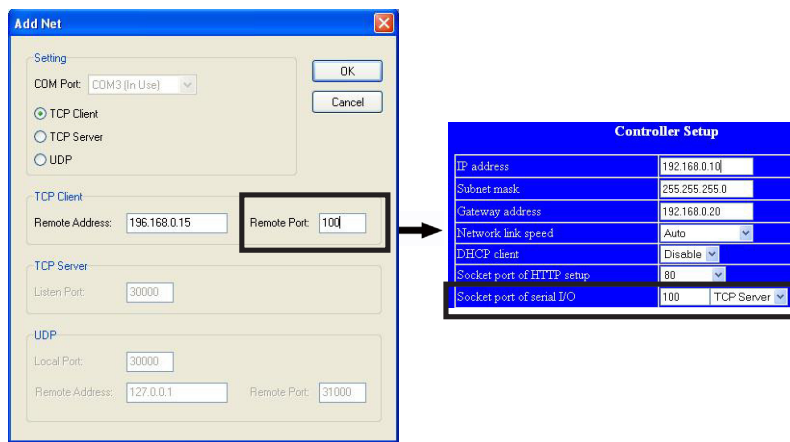

Figure 12

8.   The Virtual COM port will be set up and shows **(Unconnceted) TCP Client...** on Virtualserial Port Console.

Figure 13

9.   Close the **Virtualserial Port Console** and reopen it to make sure the COM port setting is successfully saved.

10. Go to the Self-Testing section below to make sure the device is ready to use.

Self-Testing

After completing the wiring and parameter setting, use this chapter to test the *Serial Device Server*.

Hyper Terminal utility should be installed on your PC see **Figure 14**. It can be found in your Windows installation CD. The wiring architecture is similar to **RS-232 Wiring** on **page 20**, and the serial device is replaced by the PC's COM 1. The same PC also plays the roll of the Remote Host.

Hyper Terminal for TCP/IP WinSock

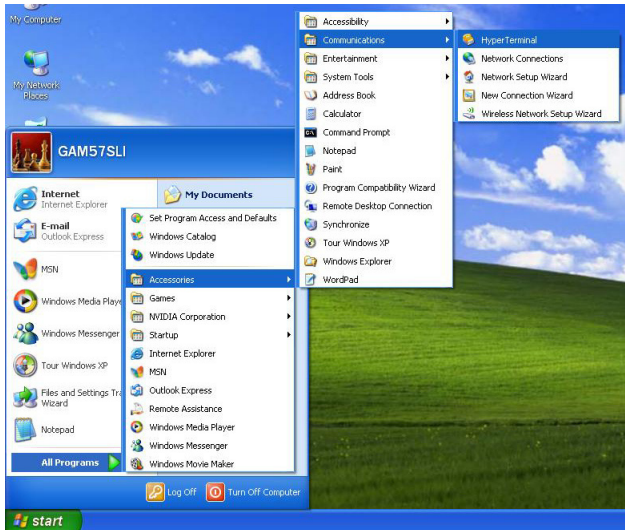Initiate Hyper Terminal from the Start Menu in Windows, see **Figure 14**.

Figure 14

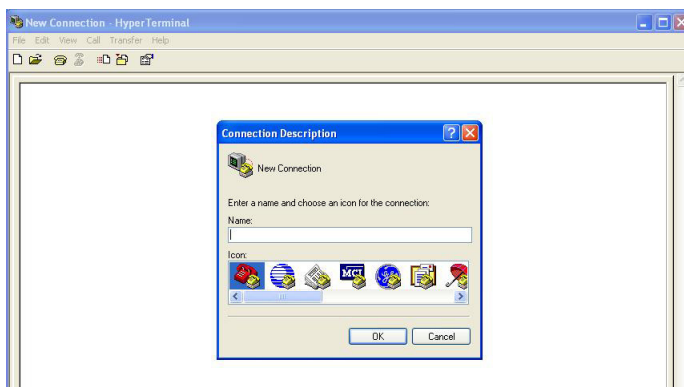Enter a terminal name, choose an icon, and press **OK** button, see **Figure 15**.

Figure 15

Select the COM port at the **Connect using** field, see **Figure 16**. In this example, since the virtual COM port was assigned to be COM 3, so select COM 3.
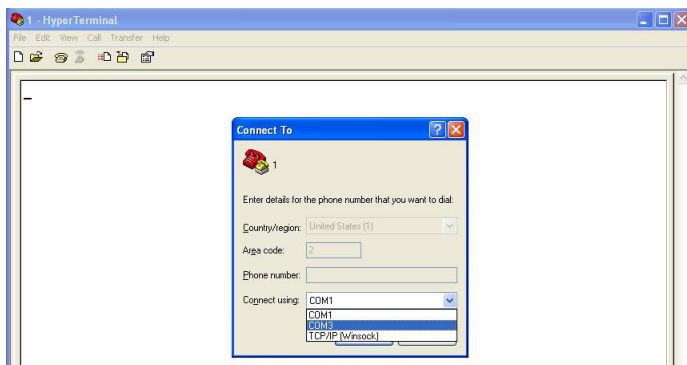

Figure 16

Fill in the parameters in the **COMX Properties**, then click **OK**. Make sure the parameters are the same with the parameters in **Controller Setup**.
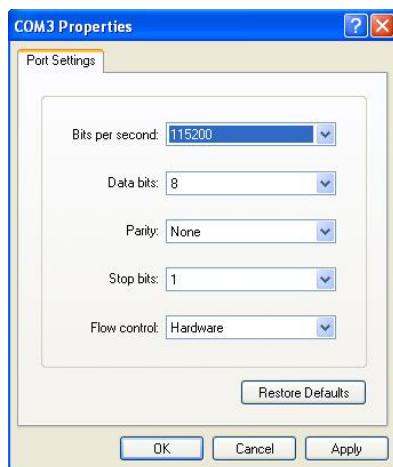

Figure 17

If Hyper Terminal connects with the *Serial Device Server* successfully, the time clock at the lower left corner, **Connected hh:mm:ss**, will start counting, see **Figure 18**.
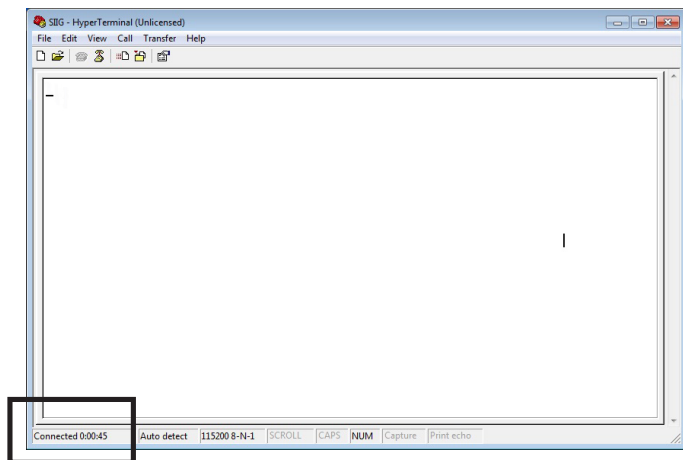

Figure 18

Hyper Terminal for COM Port

Initiate another Hyper Terminal as a COM Port Terminal. Select COM 1 or other COM port. Set the COM port Properties to the same as those set for the serial port of *Serial Device Server*.

Data Transmission

When all steps described above are finished, type any characters on the COM Port Terminal and check if the typed characters are also displayed on the TCP/IP Winsock Terminal. Alternatively, check if the characters typed on the TCP/IP Winsock Terminal are also displayed on the COM Port Terminal. If yes, then all settings are correct and the converter is operating properly.
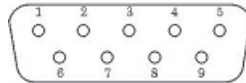
18

Pin out and Cable Wiring

RJ-45 Pin Assignment

Pin	Signal
1	Tx+
2	Tx-
3	Rx+
6	Rx-
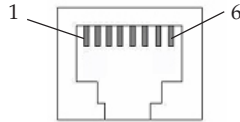
RS-232 Pin Assignment

The pin assignment scheme for a 9-pin male connector on a DTE is given below.

Pin 1: DCD	Pin 4: DTR	Pin 7: RTS
Pin 2: RXD	Pin 5: GND	Pin 8: CTS
Pin 3: TXD	Pin 6: DSR	Pin 9: X

RS-422 Pin Assignment

The pin assignment scheme for a 4-pin RS-422 is given below.
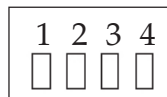
Pin 1: T+   Pin 2: T-   Pin 3: R+   Pin 4: R-

RS-485 Pin Assignment

The pin assignment scheme for a 4-pin RS-485 is given below.
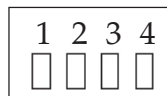
Pin 1: X   Pin 2: X   Pin 3: D+   Pin 4: D-

Wiring Architecture

RS-232 Wiring

Serial Device	Converter
Tx	Rx
Rx	Tx
GND	GND

PC

Ethernet switch hub
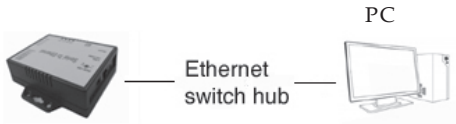
RS-232 (RTS / CTS) Wiring

Serial Device	Converter
Tx	Rx
Rx	Tx
GND————	GND
RTS	CTS
CTS	RTS

PC

Ethernet switch hub
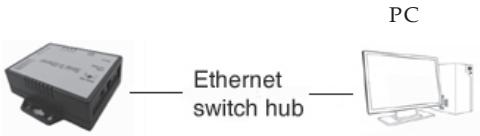
RS-232 (RTS / CTS, DSR / DTR) Wiring

Serial Device	Converter
Tx	Rx
Rx	Tx
GND ————	GND
RTS	CTS
CTS	RTS

PC

Ethernet switch hub
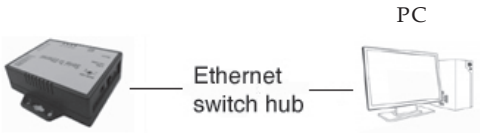
RS-422 Wiring

Serial Device	Converter
T+	R+
T-	R-
R+	T+
R-	T-

PC

Ethernet switch hub
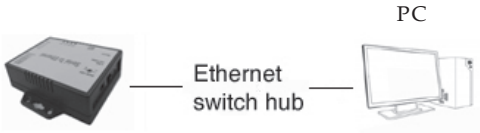
RS-485 Wiring

Serial Device	Converter
D+	D+
D-	D-

PC

Ethernet switch hub
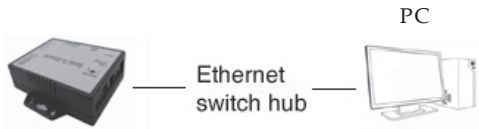
FAQ

Q1. Why can't ETM.exe detect the *Serial Device Server* on the network?

A1. Please check the following:

• Make sure the power adapter is properly plugged.

• Make sure the network cable is properly connected between the *Serial Device Server* and the computer.

• Close the anti-virus program and Firewall utility.

• Make sure the subnet mask of the computer is the same as the *Serial Device Server* (default 255.255.0.0).

Q2. Why can't I use my browser to set up?

A2. Check if the network domain of the PC is the same as the *Serial Device Server*.

Q3. Why the Controller Status on my browser didn't save the changes after I changed the parameters?

A3. Cilck **Tools** on your brower's tools bar, select **Internet option**. Select **Security**, then select **Local intranet**. Add this Controller Status webpage (http://192.168.0.10) to your security zone, then the problem would be solved.

Blank Page

Technical Support and Warranty

QUESTIONS? SIIG's **Online Support** has answers! Simply visit our web site at *www.siig.com* and click **Support**. Our online support database is updated daily with new drivers and solutions. Answers to your questions could be just a few clicks away. You can also submit questions online and a technical support analyst will promptly respond.

SIIG offers a 2-year manufacturer warranty with this product. This warranty covers the original purchaser and guarantees the product to be free of any defects in materials or workmanship for two (2) years from the date of purchase of the product.

SIIG will, at our discretion, repair or replace (with an identical product or product having similar features and functionality) the product if defective in materials or workmanship. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Please see our web site for more warranty details.

If you encounter any problems with this product, please follow the procedures below.

A) If it is within the store's return policy period, please return the product to the store where you purchased it.

B) If your purchase has passed the store's return policy period, please follow these steps to have the product repaired or replaced.

>   **Step 1:** Submit your RMA request. Go to **www.siig.com**, click **Support**, then **Request A Product Replacement** to submit a request to SIIG RMA or fax a request to 510-657-5962. Your RMA request will be processed, if the product is determined to be defective, an RMA number will be issued.

>   **Step 2:** After obtaining an RMA number, ship the product.
>   - Properly pack the product for shipping. All software, cable(s) and any other accessories that came with the original package must be included.
>   - Clearly write your RMA number on the top of the returned package. SIIG will refuse to accept any shipping package, and will not be responsible for a product returned without an RMA number posted on the outside of the shipping carton.
>   - You are responsible for the cost of shipping to SIIG. Ship the product to the following address:

>   **SIIG, Inc.**
>   **6078 Stewart Avenue**
>   **Fremont, CA 94538-3152, USA**
>   **RMA #:** _____

>   - SIIG will ship the repaired or replaced product via Ground in the U.S. and International Economy outside of the U.S. at no cost to the customer.

About SIIG, Inc.

Founded in 1985, SIIG, Inc. is a leading manufacturer of IT connectivity solutions (including Serial ATA and Ultra ATA Controllers, FireWire, USB, and legacy I/O adapters) that bridge the connection between Desktop/Notebook systems and external peripherals. SIIG continues to grow by adding A/V and Digital Signage connectivity solutions to our extensive portfolio. All centered around the distribution and switching of A/V signals over CAT5/6, these products include matrix switches, distribution amplifiers, extenders, converters, splitters, cabling, and more.

SIIG is the premier one-stop source of upgrades and is committed to providing high quality products while keeping economical and competitive prices. High-quality control standards are evident by one of the lowest defective return rates in the industry. Our products offer comprehensive user manuals, user-friendly features, and most products are backed by a lifetime warranty.

SIIG products can be found in many computer retail stores, mail order catalogs, and e-commerce sites in the Americas, as well as through major distributors, system integrators, and VARs.

PRODUCT NAME

Serial Device Server

FCC RULES: TESTED TO COMPLY WITH FCC PART 15, CLASS B OPERATING ENVIRONMENT: FOR HOME OR OFFICE USE

FCC COMPLIANCE STATEMENT:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

THE PARTY RESPONSIBLE FOR PRODUCT COMPLIANCE

SIIG, Inc.
6078 Stewart Avenue
Fremont, CA 94538-3152, USA
Phone: 510-657-8688