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Preface

Version Description

The Manual Version: V1.5

Copyright Statement

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Disclaimer

This manual is written under current knowledge and may be improved or changed in future without further notice. The best work had been done to ensure the manual is accurate and reliable, thus our Company does not responsible for any loss or damage caused by contents missing, inaccuracy or errors.

Abstract

This manual describes installation and use of the two serial ports device server. Please be sure to read all the information carefully and follow the manual instruction to install the product before you first use our device. It may avoid any damages occurred by mis-operation. Thanks for choosing our products.

Environmental Protection

This product meets the design requirements on environmental protection. Any use, storage and disposal of the product shall be conducted under relevant national laws and regulations.

You are most welcome to put forward advices and suggestions for our work and it well be viewed as the greatest support for our company.

Chapter 1 Introduction

1.1 Overview

Two serial ports device server is the serial networking equipment with high performance based on 32-bit ARM CPU, and realizes the transparent transmission between single serial ports to TCP/IP network. It provides the total solution of how the serial port equipment access TCP/IP network, so you can visit any serial equipment through this module by TCP/IP network. Serial server greatly improves the control and management ability for serial equipment.

Two serial ports device server module provides the full function UART serial port and network interface based on Ethernet, and offers a full set of instructions and reserved the expansion of the control signal line. This module makes it easy to integration to engineering system.

Two serial ports device server has advanced features such as powerful function, flexible networking, and modular design. According to user's different network demand you can choose different network transmission protocol.

Two serial ports device server is specifically designed to allow DTE devices to be directly accessible from the network. Legacy devices can thus be transformed into Ethernet devices, which can be monitored and controlled from any network location or even the Internet. Different configurations and features are available for specific applications, such as protocol conversion, Virtual COM drivers, and TCP/UDP operation modes to name a few.

Two serial ports device server can be widely used for

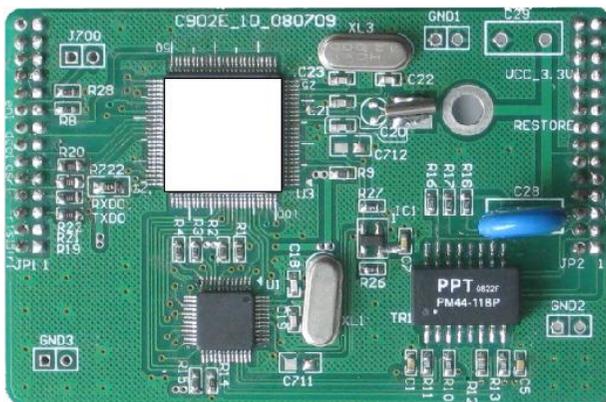
integrated access of serial data acquisition in telecommunication, power, water conservancy, financial, traffic, coal, public security, prison, forces and other departments.

1.2 Features

- Based on 32-bit ARM CPU, High performance and low power consumption;
- Serial port 1 supports TxD/RxD/GND
- Serial port 2 supports TxD/RxD/RTS/CTS/DTR/DSR/DCD/GND
- Serial data bits 5/6/7/8
- Parity: None/Even/Odd/Space/Mark
- Stop Bits: 1, 2
- Serial port 1 only supports software flow control.
- Serial port 2 supports software and hardware flow control.
- Baud rate: 50bps – 460.8Kbps
- Ethernet interface 10M/100M, full/half-duplex adaptability.
- Ethernet interface straight-through and cross-over adaptability.
- Configuration Options: Built-in WEB server
- Software upgrade function
- Operation mode: including TCP Client, TCP Server and UDP
- Support DHCP and Multi-user remote login Telnet.
- User's applications communicate with the device by 1. Socket, 2. Visual serial port
- Input Voltage: 5V

Chapter 2 Function Specification

2.1 Module pin diagram



2.2 Function pins

PINNAME	PIN No.	Type	Description
Power and Ground			
VCC (+3.3V)	Jp2-18, 20, 22, 24, 26, 28	P	DC +3.3 V power supply input pin
GND	Jp2-25, 27, Jp 1-21, 22, 23, 24, 25, 26	P	GND
CGND	Jp2-9	P	housing ground wire
Serial ports			
T_RX0	Jp1-7	I	UART0 Receive data pin
T_TX0	Jp1-5	O	UART0 Transmit data pin
T_DE0	Jp1-17	O	UART0 Data Terminal Ready pin
T_RX1	Jp1-8	I	UART1 Receive data pin
T_TX1	Jp1-6	O	UART1 485 transmit Enable
T-DTR1	Jp1-2	O	UART1 Data Terminal Ready pin

Two serial port device server module user's manual

T-CTS1	Jp1-12	I	UART1 Clear the transmit pin
T-DSR1	Jp1-10	I	UART1 Data Set Ready Pin
T-DCD1	Jp1-14	I	UART1 Data Carrier Detect
T-RTS1	Jp1-4	O	UART1 Request to transmit pin
T_DE1	Jp1-18	O	UART1 485 transmit Enable
Ethernet Interface (PHY address :9)			
E-1	Jp2-1	O	Ethernet Transmit Data+
E-78	Jp2-7,8	NC	Connect the Ethernet physical interface RJ45-pin 7,8
E-45	Jp2-4,5	NC	Connect the Ethernet physical interface RJ45-pin 4,5
E-2 (TX-)	Jp2-2	O	Ethernet Transmit Data-
E-6 (RX-)	Jp2-6	I	Ethernet Receive Data-
E-3 (RX+)	Jp2-3	I	Ethernet Receive Data+
LED-SPD #	Jp2-12	O	Ethernet work : 100M,low 10M ,high
LED-LINK #	Jp2-10	O	Ethernet is valid for the low level of transition data transceiver, Ethernet is invalid high
Miscellaneous Pins			
Reserved 0	Jp2-23	I	Retain control pin
Reserved 1	Jp2-21	I	Retain control pin
Reserved 2	Jp2-19	I	Retain control pin
Restore	Jp2-16	I	Restore the factory default settings, power-low reset
NC	Jp1-1,3,9,11,13,15,16,19,20,	NC	Null

Two serial port device server module user's manual

	27,28;Jp2-11,1 3,14,15,17		
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Remark:

- UART sign、 Ethernet indicator light signals : 3.3V TTL signal,
2. I: Input O: Output P: Power

Chapter 3 Technical Specification

3.1 Operating Environment

The device has a wide range of operating temperature and is able to work normally and stably in highly adverse environment.

- Working Temperature 0°C ~ +50°C
- Storage Temperature -40°C ~ +70°C
- Relative Humidity 10%~95%
- Atmospheric Pressure 70~106 kpa

The environment should be free from corrosive and solvent gases, dust, and magnetic interference.

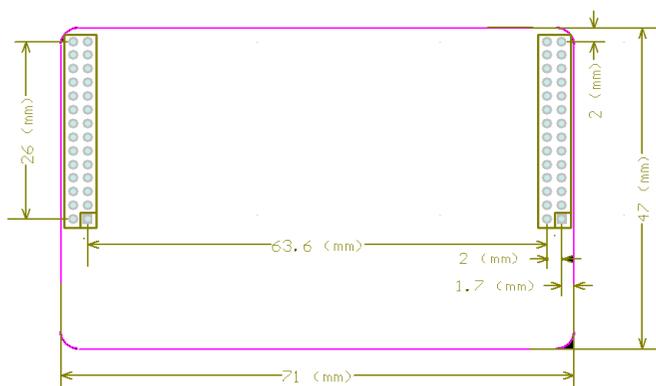
3.2 Power Supply

Using high-quality power adaptor, the device has a wide fluctuation tolerance and strong anti-interference and isolation quality to ensure a stable operation.

Input voltage DC5V

Power consumption <5W

3.3 Mechanical Specifications



3.4 Ethernet Specification

10/100M Auto MDI/MDIX , IEEE 802.3u auto-negotiation

3.5 Serial Parameter

Serial port 1 Signal:

TxD/ RxD /GND

Serial 1 Communication parameter:

Data bit: 5/6/7/8

Parity: None/Even/Odd/Space/Mark

Stop Bit: 1, 2

Flow Control: XON/XOFF

Speed rate: 50bps – 460.8Kbps

Serial port 2 Signal:

TxD/RxD/RTS/CTS/DTR/DSR/DCD/GND

Serial port 2 Communication parameter:

Data bit: 5/6/7/8

Parity: None/Even/Odd/Space/Mark

Stop Bit: 1, 2

Flow Control: Hardware XON/XOFF

Speed rate: 50bps – 460.8Kbps

3.6 Default Factory Setting

Serial port 1 parameters:

9600,n,8,1 no flow control

Min Sent Time: 10

Min Sent Size: 960

Workmode: UDP

Listen Port: 8001

Server IP: 192.168. 0.32

Server Port: 8001

Serial port 2 parameters:

9600,n,8,1 no flow control

Min Sent Time: 10

Min Sent Size: 960

Workmode: UDP

Two serial port device server module user's manual

Listen Port: 8002

Server IP: 192.168. 0.32

Server Port: 8002

IP address: 192.168. 0.168

Submask: 255.255.0.0

Gateway: 192.168. 0.1

Chapter 4 Software instructions

When you use the serial server at first time, you need to set the network and serial parameters according to your requirements. We supply the search software and visual serial port management to provide convenience for configure and manage serial server.

4.1 Setup visual serial port

According to the following steps to install the application on the computer with WINDOWS platform.

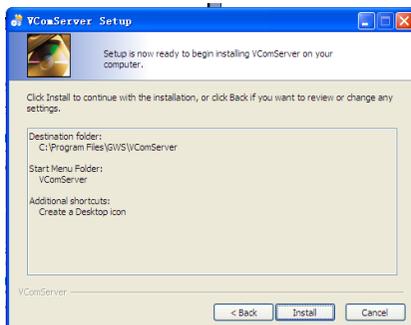
First, double click the "VcomSetup.exe" file to run it.



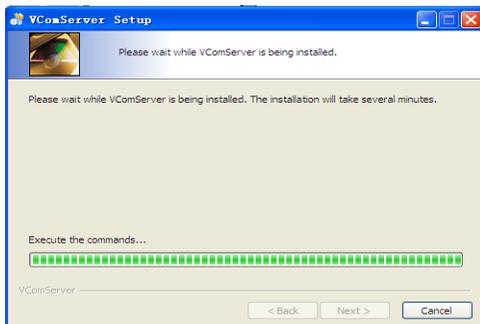
Second, click the "next" on welcome window to continue the install. When appears below interface, you can modify the install folder here.



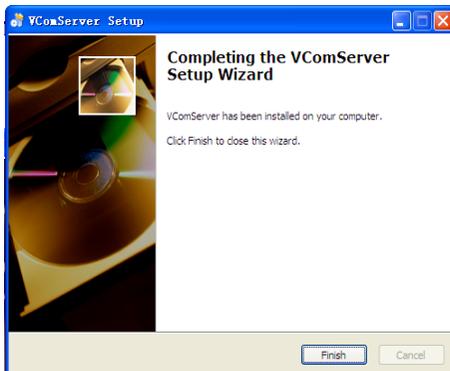
Third, click the "install", the software will start to install.



At this time, there will be the installation process. Installation requires a certain time, please be patient.



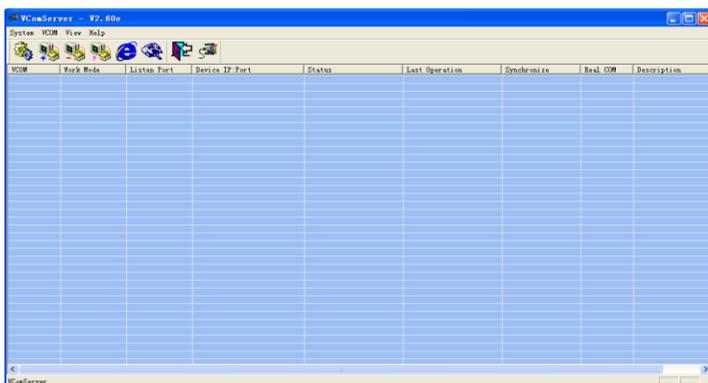
Fourth, click the "finish" to complete installation process.



4.2 Visual serial port instruction

Equipment serial port was virtualized on computer by visual serial port, visual serial port, and management software only have to make communication serial interface point to virtual serial port to realize software communication.

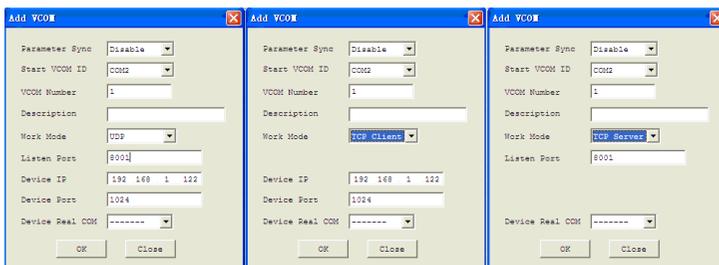
Open the visual serial port in the installation disk, as show in the following picture.



Visual serial port management

Add visual serial port:

Click  to add visual serial port, pop-up adding virtual serial port mapping dialog box. Different mapping mode will appear below three different dialog boxes.



Parameter specification:

Serial parameter Synchronization: No synchronization function.

Start virtual serial port: Choose the name of start virtual serial port, COM2~COM512.

Virtual serial port number: The number of one-time established virtual serial port, maximum number is 8.

Note: Record the information of virtual serial port

Mapping mode: UDP, TCP client and TCP server
UDP mode:

Local port: Set computer local port

Device address: Set corresponding remote serial server IP address

Device port: Set corresponding remote serial server port

TCP client mode:

Device address: Set corresponding remote serial server IP address

Device port: Set corresponding remote serial server port

TCP server mode:

Local port: Set computer local port

Related parameters configuration

<p>Virtual serial port configuration (Assumption IP:IP A Port: Port A)</p>	<p>Device configuration (Assumption IP:IP B Port: Port B)</p>
<p>Mapping mode: TCP server Local port : Port A</p>	<p>Operation mode: TCP client Monitor port : ----- (nonsense)</p>

	Server IP: IP A Server port: Port A
Mapping mode: TCP client Device address: IP B Device port: Port B	Operation mode : TCP server Monitor port: Port B Server IP: -----(nonsense) Server port : ----- (nonsense)
Mapping mode: UDP Local port: Port A Device address: IP B Device port: Port B	Operation mode: UDP Monitor port: Port B Server IP: IP A Server port: Port A

Delete visual serial port:

Select the corresponding visual serial port, and click  to delete.

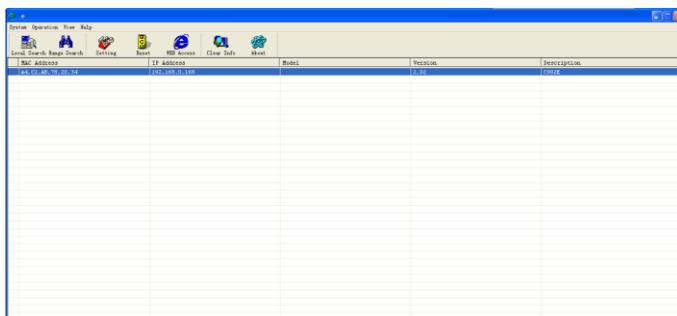
Modify visual serial port:

Select the corresponding visual serial port, and click  to modify.

4.3 Search software instruction

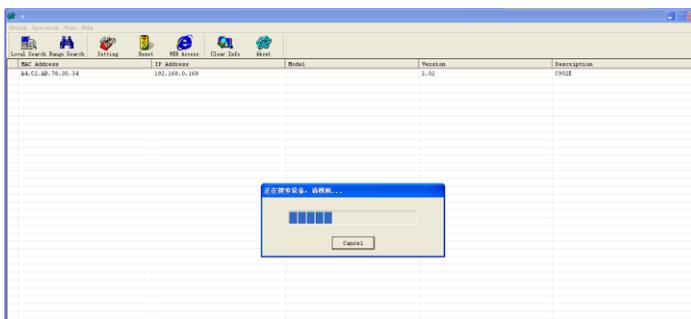
Search software is the WINDOWS GUI, which is easy for you to configure and manage the serial interface server. It can search the all devices in the same network, check and set the network parameter and serial parameter. It also can achieve remote upgrade and reset.

Open the search software “ DeviceManager” at first, select corresponding button or menu to use various practical function.

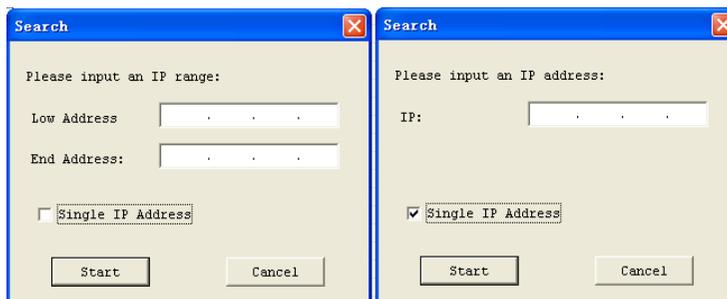


Search for device

Click "local search" to update the converter list in LAN.

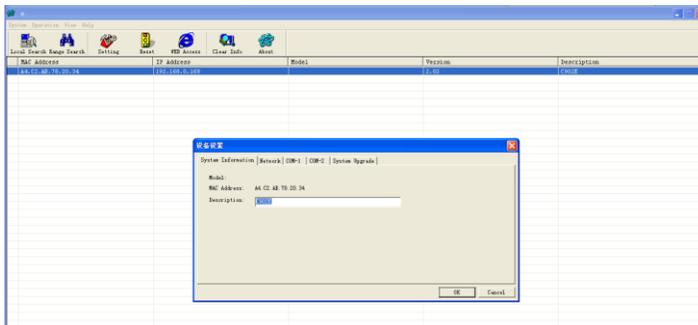


Click "assigned IP search" to search the assigned IP address device, you can search via IP segment or assigned single IP.

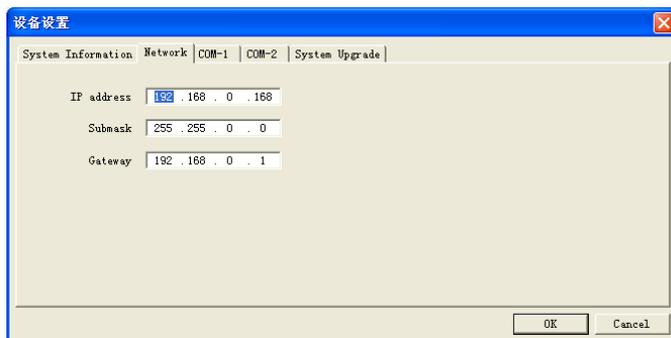


Configuration:

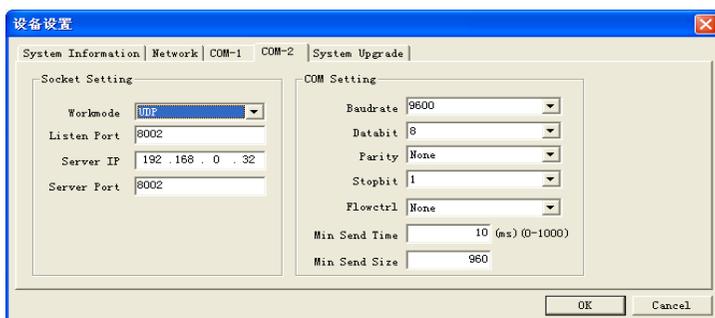
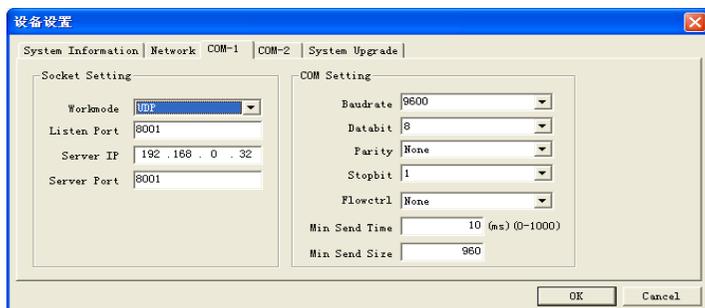
Select the device, and double-click the device list or click “setting” button, the following converter setup dialog box will show up. Click “product information” to view the converter model, MAC address and modify “device Profiles” (most 15 Chinese characters or 31 English letters)



Click “network parameter setting” to designate IP address, net mask and gateway for device.



Click “serial parameter configuration” to set the operation mode, port, baud-rate, data bits, stop bits, parity bits, flow control, transmission time and the length of packet.



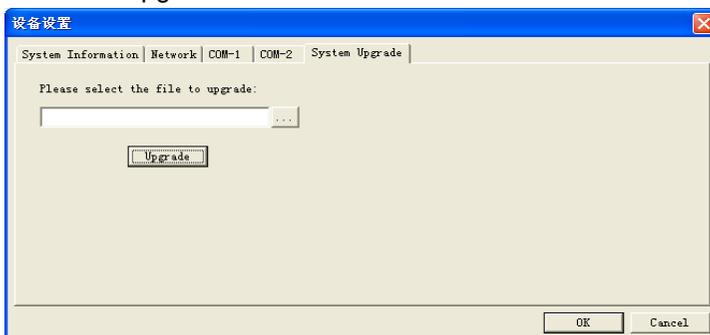
Minimum transmission time: the timer will reset after the converter receives data from the serial port. If converter hasn't received the next data when minimum transmission time overtime, converter will send the next data to the network. If minimum transmission time is 0, you can configure the transmission time according to baud-rate. A device default value is 0ms.

Minimum transmission bytes: when the converter receives the minimum transmission byte data from the serial port, it will send the data to the network. A device default minimum transmission bytes is 960.

Converter will send data to network with any one of the conditions as Minimum transmission time and Minimum transmission bytes.

If the serial port rate is low, cut down the Minimum transmission bytes.

Package Upgrade: select “system upgrade” and open the dialog box to choose firmware, press the” start” to finish upgrade.



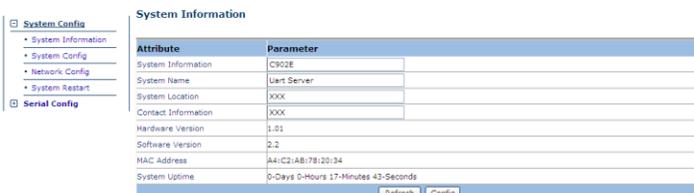
4.4 WEB Management

System Information page, login in default IP address: 192.168.0.168, Default when no password is factory or you restore the factory default settings will not detect the user's access privileges can directly access the pages.

System Information

Set the device description, system name, system location and contact way, at the same time on the current page you can see the version number of the device, MAC address, and system uptime.

Serial to Ethernet server



System Config

It can change WEB password here, also to set device automatic reboot time and no data reboot time and normal reboot.

Serial to Ethernet server

Status	Attribute
No Data Reset Time	0 Hours 30 Minutes
Current No Data Time	1223 s
Automatic reset time of device	24 Hours 0 Minutes

Note:
No Data Reset Time: You can set the maximum 99 hours 59 minutes.
Automatic reset time of device: You can set the maximum 999 hours 59 minutes.

Network Config

Click on the network config, you can view device IP, subnet mask, and can be modified.

Serial to Ethernet server

Attribute	Parameter
IP	192.168.0.168
MASK	255.255.0.0
Gateway	192.168.0.1
MAC	A4:C2:AB:78:20:34

Note:
IP:task format A.B.C.D for example 192.168.1.1
After IP changes, please enter the new IP to access the equipment.

System Restart

Click on the system restart, you can immediately restart the device after the restart to restore the factory configuration.

Serial to Ethernet server

Status	Attribute
System Restart	<input type="button" value="No restart"/> <input type="button" value="Immediately restart"/> <input type="button" value="Restart & Default configuration"/>

Mapping Config

Config the serial port mapping mode and peer IP on this page.

Serial to Ethernet server

- System Config
- Serial Config
 - Mapping Config
 - Serial Parameter
 - Data Statistical

Mapping Config

Serial Port Mode	Listen Port	Peer IP	Peer Port
1	UDP	8001	192.168.0.32 8001
2	UDP	8002	192.168.0.32 8002

Refresh Config

Note:
 Top Server : Only configure Listen Port.
 Top Client or SDP : Need to configure Listen Port, Peer IP, Peer Port.
 The port number (21, 23, 80, 80, 161, 21678) is a reserved port.Cannot be configured to listen port.

Serial Parameter

Click hardware parameter to config serial port parameter which including baud rate, data bit, stop bit and Parity bit.

Serial to Ethernet server

- System Config
- Serial Config
 - Mapping Config
 - Serial Parameter
 - Data Statistical

Serial Parameter

Serial Port	Baudrate	Data Bits	Parity	Stop Bits	Flow Control	MinSendTime	MinSendSize
1	9600	8	None	1	None	10 ms	960
2	9600	8	None	1	None	10 ms	960

Refresh Config

Note:
 MinSendTime: If serial data is not received for the specified amount of time, the data that is currently in the buffer is packed for network transmission.A setting of 0 means that data in the buffer will not be automatically packed when no further data is received from the device.
 MinSendSize: If serial data currently in the buffer reached the MinSendSize, data in the buffervill packed for network transmission. Data in the buffer will packed for network transmission if MinSendTime or MinSendSize satisfied.

Data Statistical

Check statistical of 8 channels serial port's data transmission.

Serial to Ethernet server

- System Config
- Serial Config
 - Mapping Config
 - Serial Parameter
 - Data Statistical

Data Statistical

Serial Port	From Eth	To Serial	From Serial	To Eth
1	0	0	0	0
2	0	0	0	0

Refresh Clear

Chapter 5 Appendix

5.1 Warranty Card

The Company guarantees:

1、 Warranty

- (1) In free warranty period (12 months from the date of purchase), upon Company recognized normal use circumstances, the Company will responsible for replace or repair any component that was damaged under free of charge.
- (2) In charged warranty (out of 12 months free warranty and beyond or less than 36 months), under recognized normal use circumstances, the Company will charge for the replacement component, but shall keep the maintenance services free.

2、 The Warranty does not cover the follows, and the maintenance ices will be charged:

- (1) Over 36 months from the date of purchase.
- (2) User fails to provide certificate of purchase date and the product's serial number indicates the date of manufacture is more than 39 months.
- (3) Including but not limited to damages caused by severe impact, extrusion, drops, liquid immersion and other abnormal conditions.
- (4) The frangibility label is damaged.
- (5) Unauthorized disassembling product behavior.
- (6) Force majeure results in product damage, such as earthquakes, floods, lightning, etc.

3、 After product been repaired, the new replacement parts

will enjoy 12 months free warranty start from the date of replacement.

- 4、 If there is any failure of the product, user may choose to send the product back to the Company or mail the product to service agencies of the Company throughout the country.
- 5、 For any damage caused due to improper operations, the company does not assume any responsibility. If indeed the product itself causes damages, the company only assume responsibilities within the product price range and does not including but not limited to all direct or indirect losses caused by data loss

Product repair and maintenance records

Name : Two serial ports device server module		Device serial number:
Maintenance Date		Service bill number
1		
2		
3		
4		
5		

修改记录:

2012-09-10 Liucf

V1.5.0

修改 WEB 页面及描述;

修改出厂默认参数。

2012-10-16 Liucf

V1.5.1

整理成英文版本