RS-232 Serial Server (FE2210/FE2220)

# **User's Manual**

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# **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 you cannot get it work according to User's Manual.

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## **1. Introduction**

The Ethernet Serial Server connects remote RS-232 devices via Ethernet as an operation center between RS-232 serial devices and the Internet. Once your computer connects to the Ethernet Serial 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

- Real COM device driver for Windows
- Standard TCP/IP interface and versatile operation mode
- Convenient Windows utility for configuring multiple device server
- 15KVDC ESD immunity to serial interface
- Configure by web browser or Windows utility
- Wall mount support

#### **Package Content**

Before installing the serial server, please check the package contains the following items:

- Serial Device Server x1
- AC Power Adapter x1
- CD (Driver and User's Manual) x1

#### System Requirement

- IBM Compatible computer or Mac
- Windows<sup>®</sup> 2000, Windows<sup>®</sup> XP, Windows Vista<sup>®</sup> 32/64 bit, Windows<sup>®</sup> 7, Mac OS<sup>®</sup> X v10.x
- Built-in USB port computer
- 64 MB RAM or higher
- Pentium<sup>®</sup> 233 MHz or higher

# 2. Specification

Ports	1x RS-232 (FE2210)
FUILS	2x RS-232 (FE2220)
Connector	Male DB9
FIFO	16 bytes
ESD Protection	15 KV ESD
Serial Communication Speed	1.2K~921.6KBps
Interface	10/100 BaseT Ethernet
Interface Connector	RJ-45
Operating Temperature	$0^{\circ}$ C to $55^{\circ}$ C
Operating Humidity	5 to 95% RH
Dimensions(LxWxH)	100x60x29 mm
Regulatory Approvals	FCC/CE

### 1-Port RS232 Serial Server

■ Hardware Dimension



#### Hardware Introduction



### 2 -Port RS232 Serial Server

■ Hardware Dimension



#### Hardware Introduction



## 3. Installation

Note: Do not connect your devices to computer before driver installation.

#### **Window Driver Installation**

Please insert the provided CD into CD-ROM.

1. Please choose the Setup File of Serial to Ethernet Toolkit and click "Install" button, and the following Windows will appear.





2. Please click "Finish" to complete installation.

Serial to Ethernet Toolkit - I	nstallShield Wizard
	InstallShield Wizard Complete Setup has finished installing Serial to Ethernet Toolkit on your computer.
	< <u>B</u> ack <b>Finish</b> Cancel

#### **Device Server Manager Installation**

1. Please click Device Server Manager (will use DSM throughout this manual) program, and the DSM Main Menu will appear as below.

	Device							
AUTON								
SM Setting	Device Statu	is List	3/4/C A 11	DUCD	ID	Dest	26.4	C
Setting	NO.	Device Name	MAC Address	DHCP	IP	Port	Mode	Status
SM Function								
Search								
<u></u>								
IP Search								
Device Setup								
Restore								
repoot								
				DSM Statu	ıs: Idle			
				Progras	e			

The DSM Main Menu will provide eight functions as below.

- A. DSM setting: To set up Search, Restore, and Reboot period.
- B. Search: To search a server by name.
- C. IP Search: To search a server by assigned IP.
- D. Setup: To manipulate parameters of a selected server
- E. Web Browser: To open the setup page for the selected server parameters.
- F. Restore: To restore default setting.
- G. Reboot: To reboot server.
- H. Upgrade: Upgrade firmware for a selected server.

2. Clicking the "Search" bottom of this page will perform the search function and list the matched servers in a list as you can find in the following picture

Jevice Server Manag	er 2.	y							
	De	evice	N						
SM Setting	Devi	ce Statu	ıs List	1					
Setting		NO.	Device Name	MAC Address	DHCP	IP	Port	Mode	Status
		1	DSM1	00-0E-C6-00-14-3D	Enable	192.168.0.3	5000	Server	Idle
SM Function		2	DSM1	00-0E-C6-00-14-3D	Enable	192.168.0.3	5001	Server	Idle
Search									
IP Search									
Device Setup									
Restore									
Reboot									
					DSM Stat	tus: Idle			

The Device Status List will describe as below:

Item	Description
No.	Serial Server Number
Device Name	Serial Device Server name(16 byte Maximum string)
MAC Address	MAC address of Serial Device Server
DHCP	Enable or Disable
IP	If enable DHCP function, you will get a dynamic IP from
	DHCP server; otherwise, a static ID will be assigned.
Port	-Server Mode: Data packet Port
	-Client Mode: Destination Port
Mode	Client or Server Mode
Status	-Idle: TCP or UDP do not connect on server.
	-Connect: TCP or UDP do connect on server.

 If the status of the server is in "Connected" which means data is still transmitting, DSM will disable setup, reset, reboot and firmware update functions from user end to avoid interrupting date transfer.
 Please click DSM setting and the following dialog box will appear.

Search period	Restore period	OK
10 (100ms)	10 (100ms)	Cancel
Reboot period	1	
15 (sec / u	nit)	

Parameters description:

Item	Description
Search period	To setup the search timeout
	period.
Reset period	To setup the reset timeout
	period.
Reboot period	To setup the reboot timeout
	period.

4. Please click "Search" item on DSM Function column and the searching dialog box will appear.

Searching Setting	G Providence	Search
IP	P	Cancel
225.1.2.3	255.255.255.255	
, TTL	,	
1		

There are two functions at Searching dialog box.

- A. Search: Start to search.
- B. Cancel: Cancel to search.

ltem	Description
Multicast	To start to search through UDP multicast packet.
IP	Multicast IP address
TTL	Time to live
Loopback	Enable/Disable loopback of outgoing multicast packet
Broadcast	To search through UDP broadcast packet
IP	Broadcast IP address

5. Please click IP Search button and the following dialog box will appear. You can search the assigned IP server address through the IP Search function.

Assigned IP Server :

P	
-	Search
192.168.0.1	<b>C</b>

Please key-in the IP address in the IP column and click Search button to start to search.

6. Click "Device Setup" button on DSM Function column and the dialog box will appear.

Device Name	DSM1
MAC Address	02-12-34-56-78-9A
DHCP Server	Enable 💌
Listening IP	192.168.0.3
Data listening port	5000
Destination IP	192.168.0.2
Destination Port	5000
Data Packet Type	Management Packet Type
UDP	🔽 Broadcast 🗖 Multicast
Auto connect after reboot	transfer mode ☐ RS485 ☑ RS422/RS232
Netmask	255.255.255.0
Gateway	192.168.0.1
DNS Server	168.95.1.1
Transmist Timer (ms)	10

Item	Description
Device Name	Device Name
MAC address	Multicast IP address
DHCP	Enable/ Disable DHCP client function
Server	Enable Server Mode
Listening IP	To perform search through UDP broadcast packet
Data Listening	Data Listening Port on Server
Port	
Client	Enable Client Mode
Destination IP	Remote host IP address
Destination Port	Remote host port
ТСР	To transfer serial data packet through TCP
UDP	To transfer serial data packet through UDP

Multicast	To transfer serial data packet through multicast
Broadcast	To transfer serial data packet through broadcast
RS485	RS-485 mode
RS422/RS232	RS-422 mode
Netmask	Subnet mask
Gateway	Gateway IP address
DNS Server	DNS Server IP address
Transmit Timer	Transmit serial data packet period

7. When you click Serial Port Setting, the following dialog box will appear.

Network Setting	Serial Port Setting	
Baud rate	115200	<u>-</u>
Data bits	8	<u>.</u>
Parity	None	•
Stop bits	1	-
Flow Control	None	-

ltem	Description
Baud rate	Data transfer rate per second
Data bits	Data bits
Parity	Parity check
Stop bits	Stop bits
Flow control	Flow control

8. Please click "Restore" button on DSM Function column and the following windows will appear.

Please click "Yes" or "No" to return the device's default setting and reboot.

Device Server Mana	iger 2	9							
	t De MA	evice	N						
DSIVI Setting	Devi	NO	Darrian Mama	MAC Address	DUCP	TD	Part	Mada	Status
Setting		1	Device Name	00.0E C6.00.14.2D	Enable	102 169 0 2	5000	Comun	Idia
	H	2	DSMI	00-0E-C6-00-14-3D	Enable	192.168.0.3	5001	Server	Idle
IP Search Device Setup			i Thisope Do you	ration will return the devi want to proceed ? [ 否	ce's default se (U)	tting and reboot.			
Restore									
Reboot									
					DSM Stat Progre	tus: Idle			

9. Please click "Reboot" button on DSM Function column and the following windows will appear.

Please click "Yes" or "No" to reboot devices.

Conne	ct De	evice							
AUTO	MA	TIC	N						
OSM Setting	Devi	ice Statu	1s List						
Setting		NO.	Device Name	MAC Address	DHCP	IP	Port	Mode	Status
		1	DSM1	00-0E-C6-00-14-3D	Enable	192.168.0.3	5000	Server	Idle
SM Function	Ш	2	DSM1	00-0E-C6-00-14-3D	Enable	192.168.0.3	5001	Server	Idle
1			Reboot						
			i	Do you really want to R	EBOOT devic	e(s) ?			
IP Search			Ú)	Do you really want to R	EBOOT devic	e(s) ?			
IP Search Device Setup			Ú	Do you really want to R	EBOOT devic	e(s) ?			
IP Search Device Setup Restore			¢	Do you really went to R	EBOOT devic	e(s) ?			
IP Search Device Setup Restore Reboot			Ú.	Do you really went to R		e(s) ?			

#### **Virtual Serial Port Manager Installation**

1. Please choose and click Virtual Serial Port Manager program, the following Dialog Box will appear.

Virtual Serial Port	Manager 1.3	1					
Virtual Port			P client P client	Remote H	nost IP addres	se . 0	Remote host port
irtual Port List Port ID Port Ni	ame	Status	Remote	e IP	Remote		

The Main Menu will provide four functions as below.

- 1. Add: To add a virtual port
- 2. Remove: To remove a virtual port.
- 3. Connect: To connect TCP or UDP with server.
- 4. Close: To close connection.
- 2. Please click "Add" button to add a virtual port.

🧮 Virtual Serial F	ort Manager 1.3						
	nect Device	I					
Virtual Port Add Remove	Close Settin	ect C TCF	<sup>&gt;</sup> client P client	Remote P	nost IP addres 168 . 0 ct.when Windi	<b>s</b> . 2 ows Start	Remote host port
Port ID Por 1 CON	tName /10	Status Idle	Remote	IP	Remote		
I Added a ∨irtual	serial port successt	ully					

Item	Description
Port ID	COM port
Port Name	Device Server name, 16 bytes
	maximum string
Status	Server Status
Remote IP	Server IP address
Remote host Port	Server Data Packet Port

3. Please set the IP address of the virtual serial port the same as the DSM server.

🔜 Virtual Seri	ial Port Manag	ger 1.3							
∎ ca AU	onnect De TOMA	evice							
Virtual Por	.t	-Network							
Adr	d	Connect	C TOP	client	Remote h	nost IP addres	. 2	Remote host port	
Remo	ove	Setting		? client	Connect when Windows Start			,	
Virtual Port I	List		1						
Port ID	Port Name	Stat	us	Remote	e IP	Remote			
1 0	COM10	ldle							
Addod a virt	tual corial po	rt euceocofully							
Audeu a viit	.uai senai poi	It successiony							

4. Please click "OK" button when setup complete.

Virtual Serial Port Manager 1.3					
	N				
Virtual Port	rk- Innect C Iose C	TCP client 192 UDP client Cor	e host IP address . 168 . 0 inect when Windo	: . 2 ws Start	Remote host port
Virtual Port List  Port ID Port Name  COM10  COM10	Status Idle	Remote IP	Remote		
Added a virtual serial port succe	essfully				

Virtual Serial Port Mar Connect I AUTOM	nager 1.3 Device — ATION						
Virtual Port	Add     Network     Remote host IP address       Add     Connect        • TCP client        192 . 168 . 0 . 2        Remove     OK        □ Connect when Windows Start						
Port ID Port Name	) Status	s Remot	e IP	Remote			
Added a virtual serial p	port successfully						

5. When the status of serial port switches from Idle to Connected, it means that you has been connected the virtual serial port successfully

Virtual Serial Port Mana	nger 1.3						
	evice						
Add Remove	Add Close Setting		C TCP client		nost IP addres 168 . 0 ectwhen Wind	Remote host port	
Virtual Port List	Statu	9	Bernote		Remote		
1 COM10	Conne	ected	192.168.	0.3	5000		
Connected to remote ho	ost 192.168.0.3@500	00 success	fully				

### **Installation Verification**

To verify your installation, please launch Device Manager as following: Under Windows<sup>®</sup> 2000/ Windows<sup>®</sup> XP Operation System: Right-Click **My Computer** and select **Properties > System > (Hardware) > Device Manager**. Under Windows Vista<sup>®</sup>/ Windows<sup>®</sup> 7 Operation System: Right-Click **My Computer** and select **Properties > Device Manager** The **High-Speed USB Serial Port** should be displayed under the **Ports (COM & LPT)** group.

### 4. Connected Serial Device Server

Now you can connect your remote RS-232 device through Ethernet Network.



## 5. Regulatory Compliance

### **FCC Conditions**

This equipment has been tested and found to comply with Part 15 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 including interference that may cause undesired operation.

#### CE

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

