

WS - 125

2 RS232 Ports to Ethernet Converter with Multi-Sockets

User Manual

Version 1.0

Infosystem Technology Corporation, Ltd.

Index

1. Disclaimers	1.
A. Warranty	2.
B. Trademark	2.
2. Product Information	3.
A. Introduction	3.
B. Features	4.
C. Applications	5.
3. Exterior	6.
A. Front View	6.
B. Global View	7.
C. Front Panel	8.
D. Dimension	8.
4. Specification	9
A. Basic Specification.	10.
B. PIN Definition	11.
C. PIN Definition	11.
5. Software Installation	12.
A. Install	12.
- Step 1: Execute the Setup.exe file	12.
- Step 2: Select Destination Location	13.
- Step 3: Select Start Menu Folder	14.
- Step 4: Select Additional Tasks	15.
- Step 5: Processing	16.
B. Uninstall	17.
- Step 1: Uninstall Ethernet Converter	17.

Index

6. Configuration	18.
A. By Browser	18.
- Step 1: Ready to login	18.
- Step 2: Configure your parameters	19.
- Step 3: Finish and reboot	20.
B. By Setup Tools	21.
- Step 1: Searching the devices	21.
- Step 2: Double click the selected item	21.
- Step 3: Configure and update your parameters	22.
C. By Direct Broadcast Commands	23.
- Command List A	23.
- Command List B	24.
- Command List C	25.
7. Parameter Description	26.
8. Application Notes	27.
A. Description	27.
B. Disable Firewall of Windows XP SP2	32.
- Step 1: Execute "Windows Firewall"	32.
- Step 2: Close the Firewall	33.
C. Make Program exception for Firewall	34.
- Step 1: Choose "Exception"	34.
- Step 2: Add on New Program	35.
- Step 3: Allow "Accept any Computer"	36.
- Step 4: Finished	37.
9. Appendix	38.

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Warranty

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The names used for identification only maybe registered trademark of their respective companies.

Product Information

A. Introduction

WS is Web-Server product and it can provide an ideal solution to customized embedded system. By using WS Products into your systems, you can easily achieve any Serial to Ethernet Converting affairs.

WS-125 products use SoC for implementing RS232 to Ethernet functions. It uses the state machine to handle TCP/IP stack and brings the user a lower cost TCP/IP stack with limited functions. Basically it supports most required protocol like ARP, ICMP, TCP, UDP, IP, DHCP-Client and even HTTP. It supports 10/100M speed at Ethernet Port with Auto MDI/MDIX and Multi-Sockets Function. Meanwhile it provides a faster speed on Serial Port than 115.2Kbps.

WS-125 product is small size and low cost solution. It can convert serial port data to Ethernet for data acquisition in IA, Factory Automation, Security or any other low data rate data transmission by using it as the intermediate converter. You can use any browsers to set the parameters, or just use the commands in console mode with setup tools. With no doubt, WS-125 will bring you the easiest management in your applications.

B. Features

- Easy Configuration Setting
 - ✓ *Software Setup Tool for Configuration Setting*
 - ✓ *Use HTTP, IE/Netscape Browser for Setting*

- Good Security Concerned
 - ✓ *Setup and Access Password Protect*
 - ✓ *Support New Version Firmware Upgradeable*

- Low cost and High Reliability
 - ✓ *Cheap and stable*
 - ✓ *Working 24Hours per day*

- Low Power Consumption
 - ✓ *Less than 1W Power Consumption*

- Support Necessary Network Protocols
 - ✓ *ARP, ICMP, TCP, UDP, IP, DHCP Client, HTTP*

- Support Various Interfaces (Universal Set)
 - ✓ *RJ-45 x 1, 10/100M, Auto MDI/MDIX*
 - ✓ *RS-232-1: D-Sub 9 PIN RS-232 x 1*
 - ✧ *Faster than 115.2Kbps*
 - ✧ *RTS/CTS H/W flow control*
 - ✓ *RS-232-2: Terminal Block 3 PIN RS232 x 1*

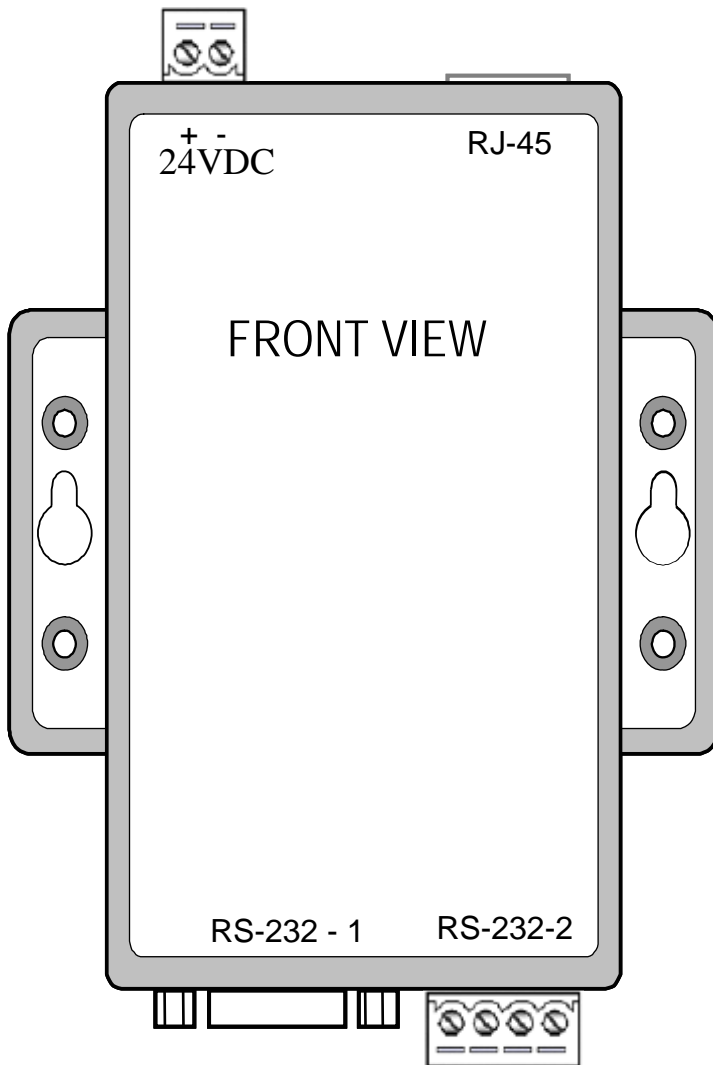
- Independent Multi-Sockets
 - ✓ *Support multiple sockets at Ethernet Port*
 - ✓ *All protocol working independent and concurrently*

C. Applications

- Data collection
- Security Terminals
- Access Control Terminals
- Security Devices
- Time Recorders
- Warehouse Terminals
- Shop floor automation Terminals
- Remote Sensors and Various Meters
- Power monitors
- Power meters
- Environmental monitors
- Temperature monitors
- Data loggers
- Data Acquisitions
- Auto-ID Scanners
- Barcode Scanners
- Magnetic Card Readers

Exterior

A. Front View



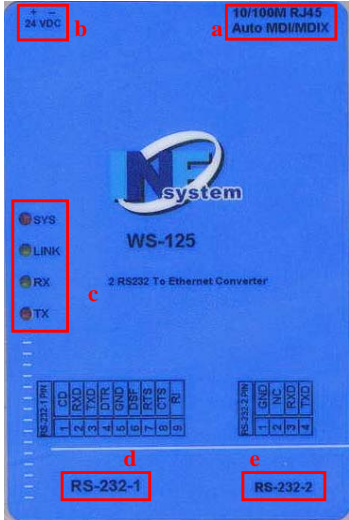
Exterior

B. Global View



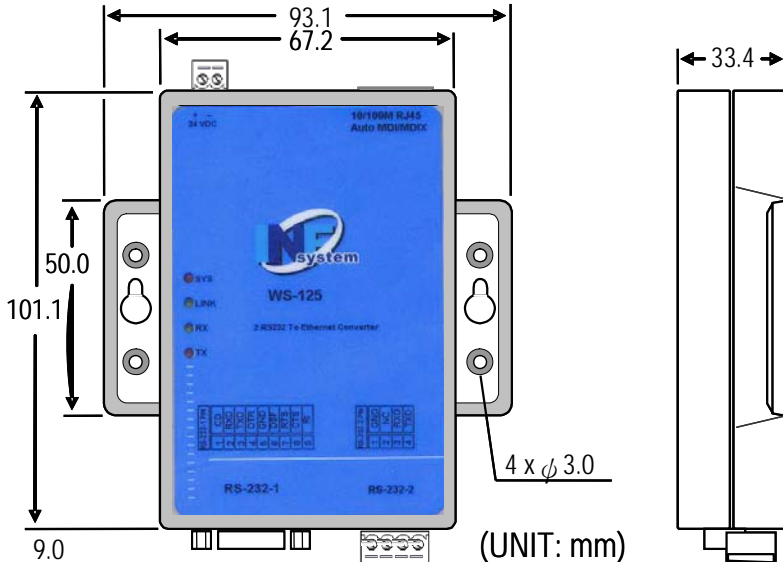
Exterior

C. Front Panel



- a. 10/100M Ethernet Port
- b. 24VDC Power
- c. System LED Indicator
- d. D-Sub RS232 Connector
- e. 3 PIN RS422 Connector

D. Dimension



Specification

A. Basic Specification

- General list -

LED indication:	SYS: Red high bright round LED
	LINK: Green high bright round LED
	RX: Green high bright round LED
	TX: Red high bright round LED

- Power -

Power Supply:	24VDC
---------------	-------

- Environment -

Operating temperature:	0~55 °C, non-condensing
Operating relative humidity:	20~95 %RH
Storage temperature:	-10~70 °C

- Mechanics -

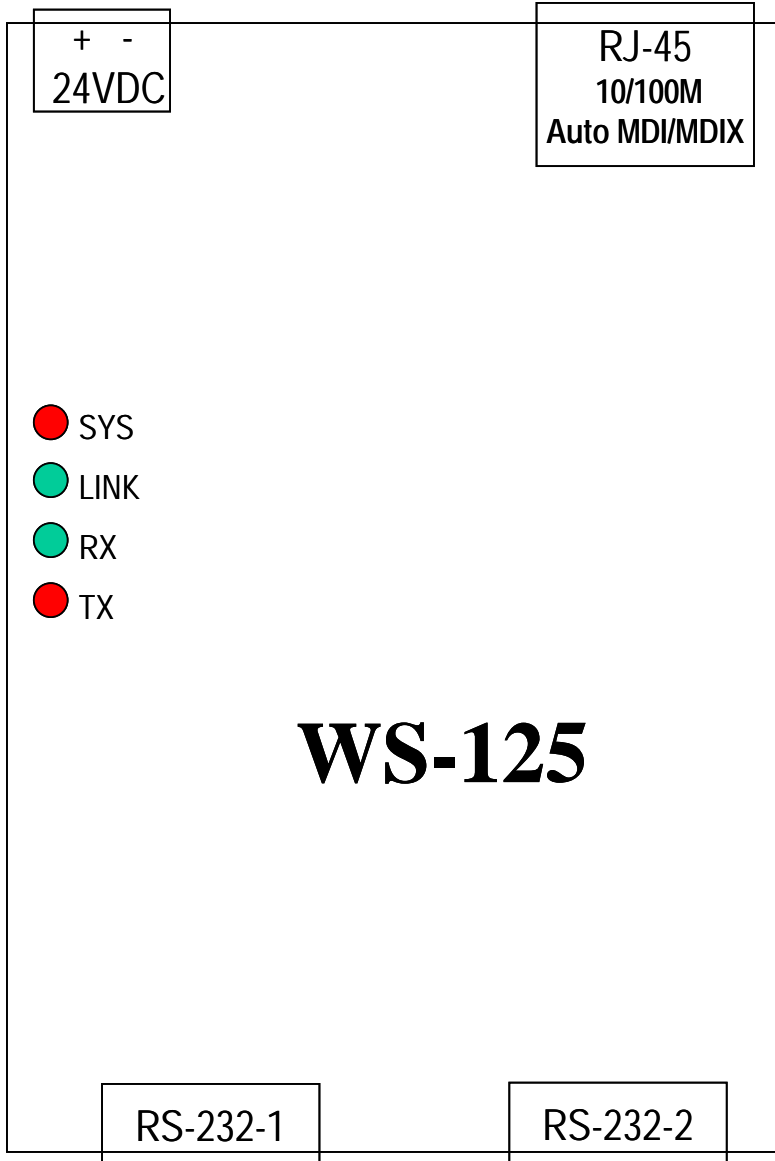
Case Materiel:	ABS fire-protection
Mounting:	Surface mount, wall mount
Terminal block:	Plastic NYLON 66
Weight:	150g

- Multi Sockets -

Socket:	Multiple Sockets Concurrently
---------	-------------------------------

Specification

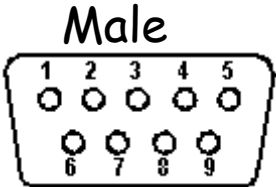
B. PIN Definition



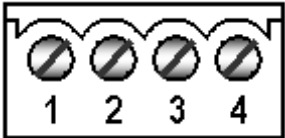
Specification

C. PIN Definition

- D-sub (RS-232-1) -

 <p>Male</p>	PIN	RS-232-1
	1	CD
	2	RXD
	3	TXD
	4	DTR
	5	GND
	6	DSR
	7	RTS
	8	CTS
9	RI	

- Terminal Block (RS-232-2) -

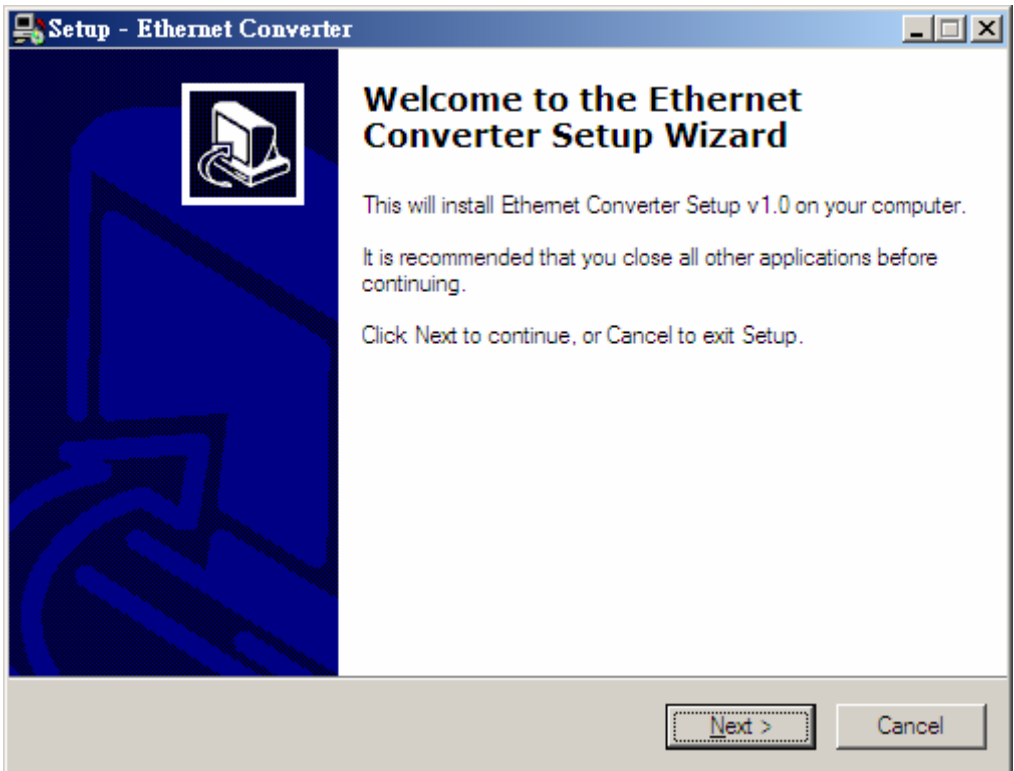
	PIN	RS-232-2
	1	GND
	2	NC
	3	RXD
4	TXD	

Install and Uninstall

A. Install

Step 1: Execute the Setup.exe file

Execute the Setup.exe file and you will get the following screen. Press “Next”.



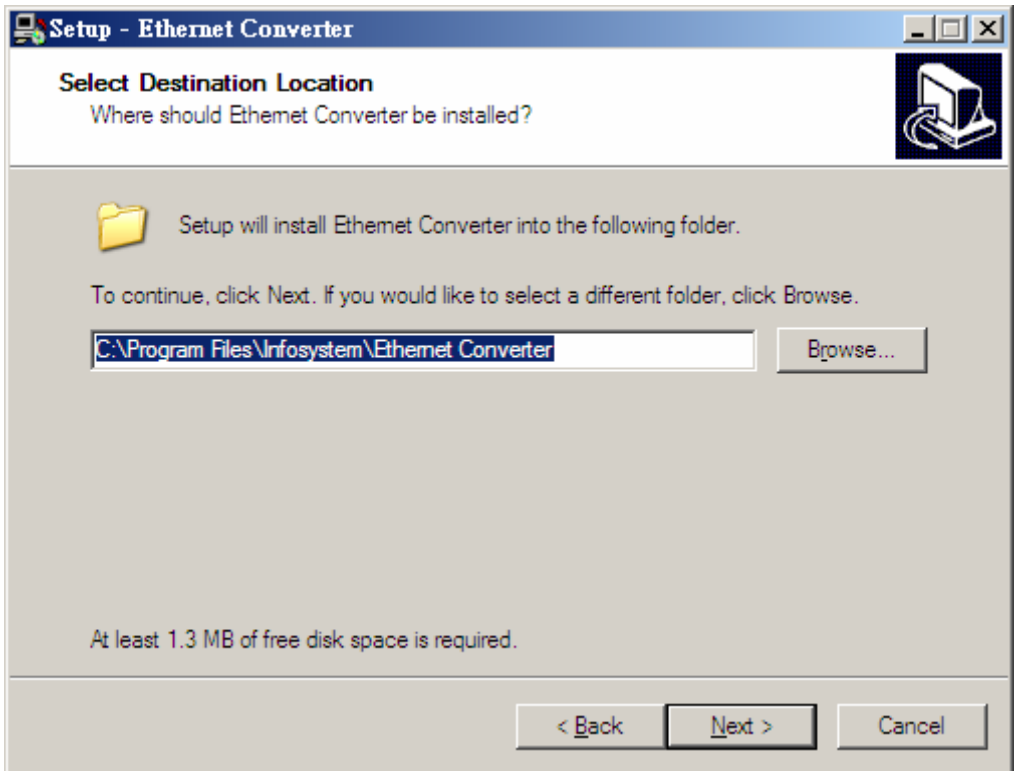
PS: Press “Ethernet Converter Setup Utilities” button while using the installation cd.

Install and Uninstall

A. Install

Step 2: Select Destination Location

Select which directory you want to install the program. Press “Next”.

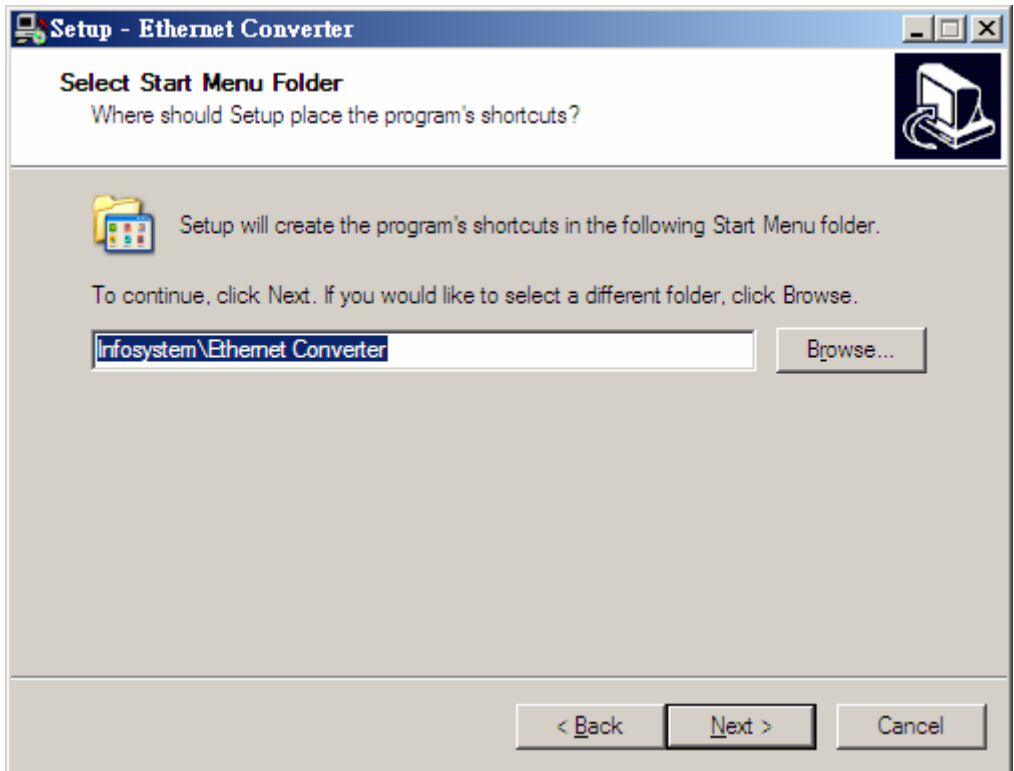


Install and Uninstall

A. Install

Step 3: Select Start Menu Folder

Select which folder you want the program to belong to of Start Menu. Press “Next”.

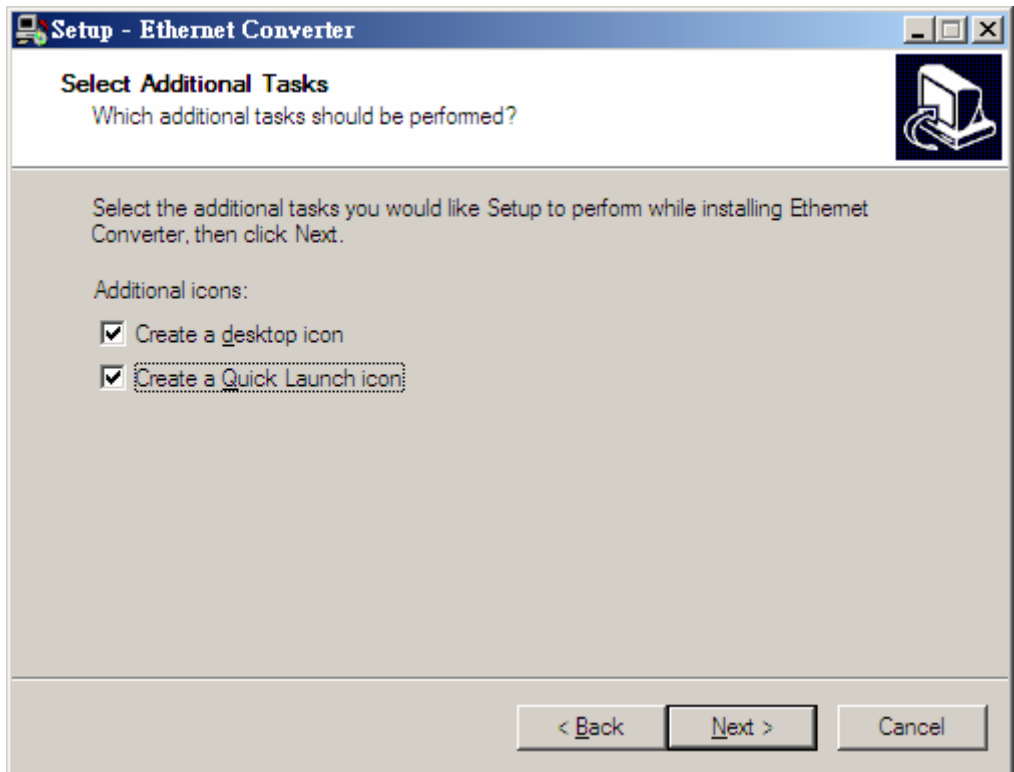


Install and Uninstall

A. Install

Step 4: Select Additional Tasks

Create or not the extra icons. Press “Next”.

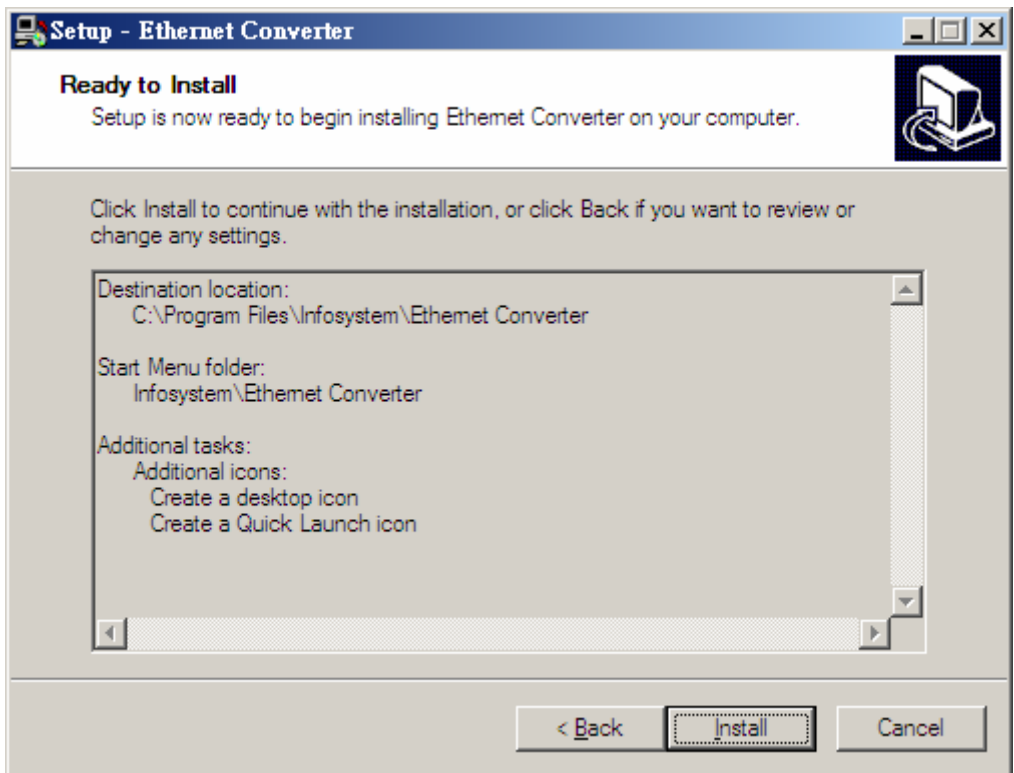


Install and Uninstall

A. Install

Step 5: Processing

To start installation process, press “Install”.

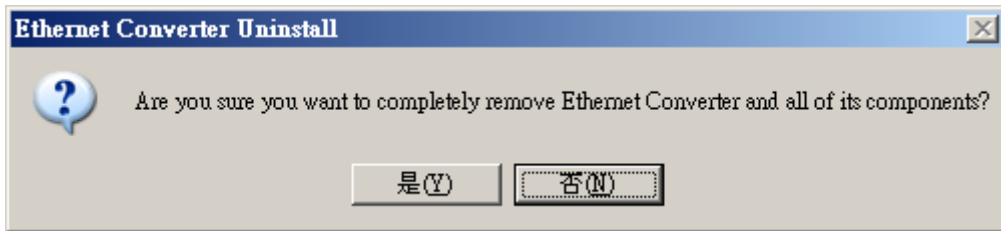


Install and Uninstall

B. Uninstall

Step 1: Uninstall Ethernet Converter

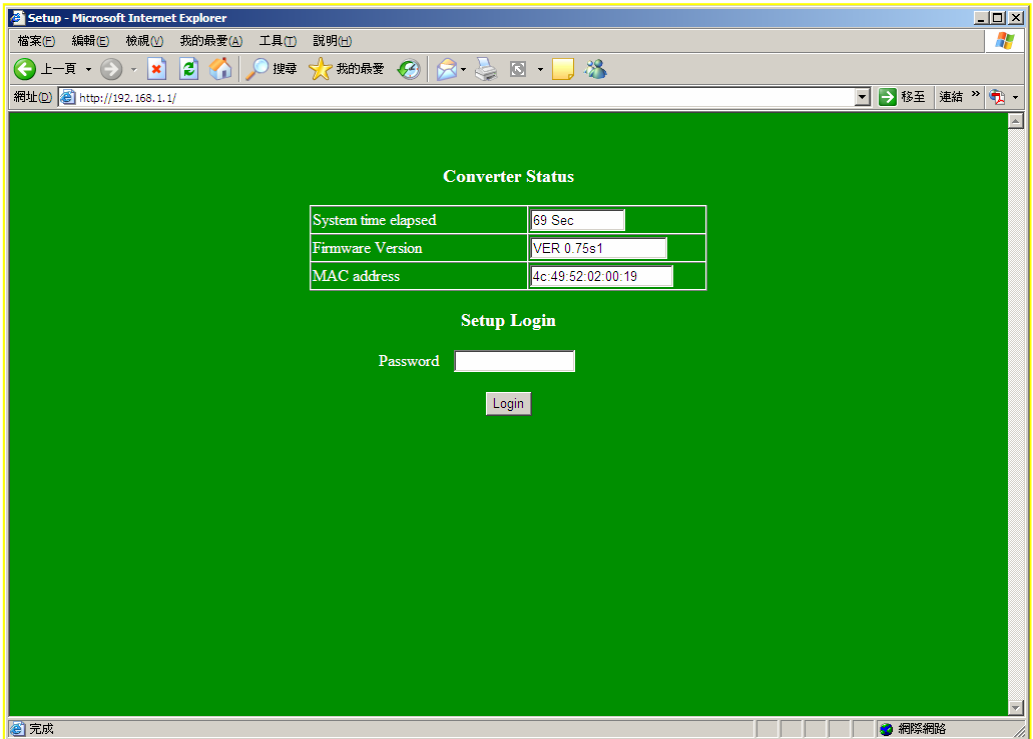
Execute “Uninstall Ethernet Converter” in the folder of where you have installed the program. And then get the message as the following.



Configuration

A.By Browser

Step 1: Ready to login.



Configuration

A. By Browser

Step 2: Configure your parameters.

Converter Setup

General Setting	Local IP	192.168.192.251
	Subnet mask	255.255.255.0
	Gateway IP	192.168.192.254
	DHCP client	Disable
	Device ID	WS-125
	Command Port	65535
	Setup password	
	Access password	
	Multi Connections Support	Disable
	Arbitration Time	100 ms
	Unit Response Timeout	100 ms
	COM1	Remote Host IP
Remote Host port		0
Local SIO Port, Type		1401 TCP Server
SIO BaudRate		19200 E 8 1
SIO Packets Gap		2 ms
MODBUS/TCP		Enable
COM2	Remote Host IP	0.0.0.0
	Remote Host port	0
	Local SIO Port, Type	1402 TCP Server
	SIO BaudRate	38400 N 8 2
	SIO Packets Gap	2 ms
	MODBUS/TCP	Enable

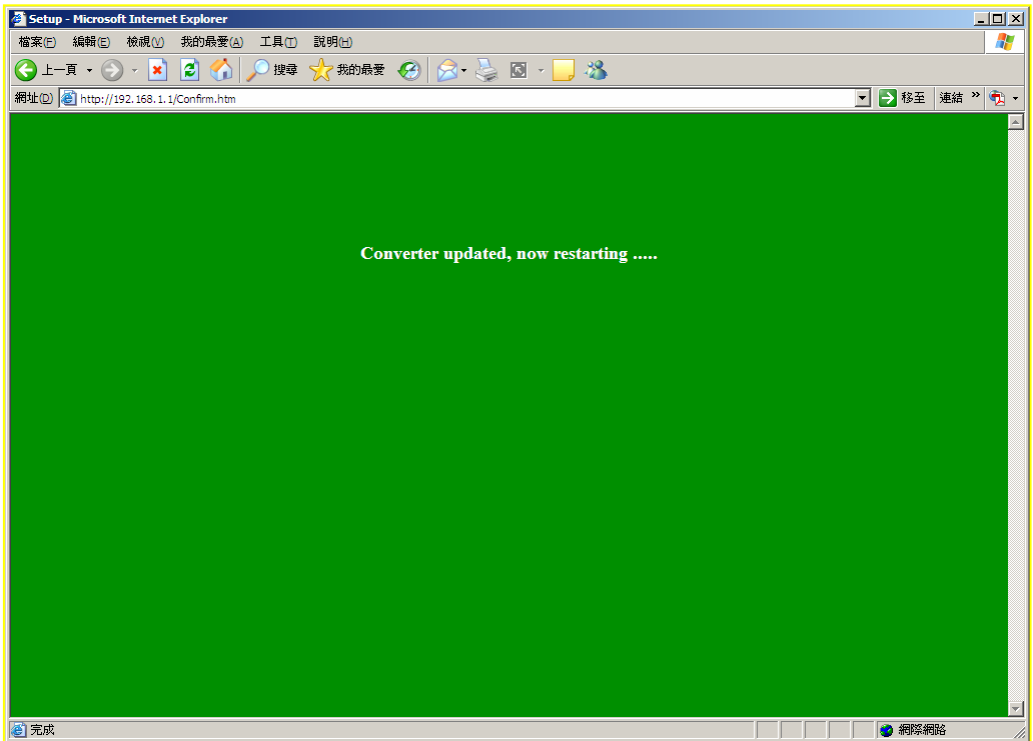
Note: SIO Port 502 is Reserved for the MODBUS-TCP I/O.

Update

Configuration

A. By Browser

Step 3: Finish and reboot.

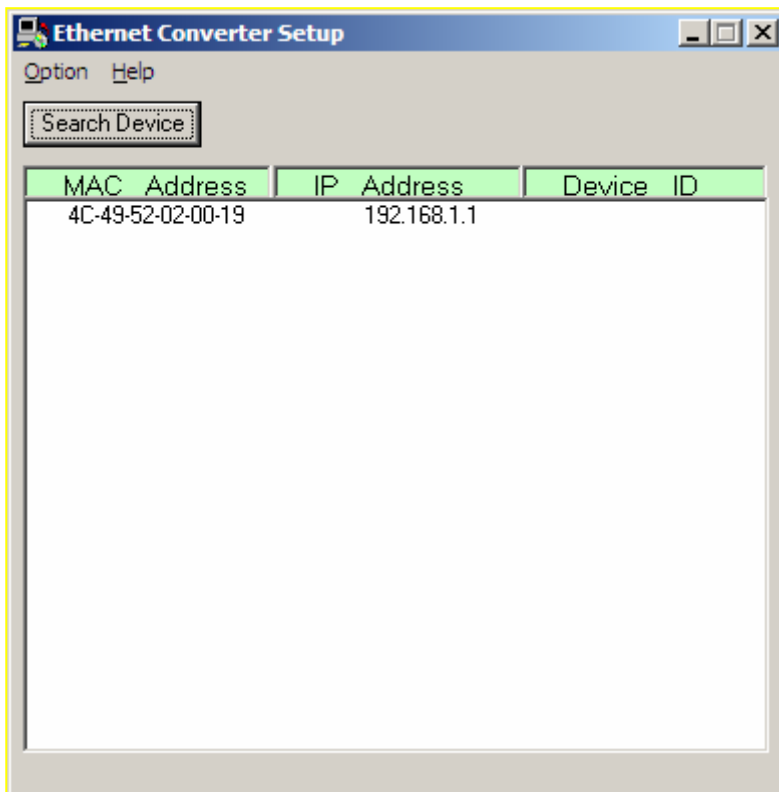


Configuration

B. By Setup Tools

Step 1: Searching the devices.

Step 2: Double click the selected item.



Configuration

B. By Setup Tools

Step 3:

Configure and update your parameters.

2 Port Ethernet Converter Setup (MAC: 00-90-C8-FF-FB-19)			
General Setting	Local IP	192.168.192.251	
	Subnet mask	255.255.255.0	
	Gateway IP	192.168.192.254	
	DHCP client	Disable	
	Device ID	WS-125	
	Command Port	65535	
	Setup password		
	Access password		
	Multi Connection Support	Enable	
	Arbitration Time Period	100	
	UART Response Timeout	100	
	COM1 / COM2	Remote Host IP	0.0.0.0
Remote Host port		0	0
Local TCP Port, Type		1401 TCP Server	1402 TCP Server
SIO BaudRate		19200 E 8 1	57600 N 8 1
SIO Packets Gap		2	2
Modbus TCP		Enable	Enable
SIO Packets Gap		2	2
Modbus TCP		Enable	Enable
		Update	Cancel

Configuration

C. By Direct Broadcast Commands

It needs broadcasting to handle all the configurations and it allows users to code their own application software.

- Command List A – User Level –

Command	Description	Notes	
X or x	Purpose	<i>For Broadcast search</i>	
	Syntax	<i>X <magic code></i>	
	Magic code	<i>99.130.83.99</i>	
	Return	<i>AX <MAC>/<IP>/<Device ID></i>	
	Example	Send	<i>X 99.130.83.99</i>
Back		<i>AX 0.128.200.255.251.242/192.168.1.1/1</i>	
G or g	Purpose	<i>Get all the parameters of the WS-125</i>	
	Syntax	<i>G <MAC>/<IP>/<Setup Password></i>	
	Return	<i>All the parameters of the WS-125</i>	
	Example	Send	<i>G 0.128.200.255.251.242/192.168.1.1/123</i>
		Back	<i>CG for cancel</i>
<i>AG<All Messages></i>			

Configuration

C. By Direct Broadcast Commands

User Level: For General Users

Admin Level: For Factory Default Setting

- Command List B – User Level –

Command	Description	Notes	
S	Purpose	Set the parameters of WS-125	
	Syntax	S <MAC>/<IP>/<Password>/<Parameter>/<Value>	
	Return	A for accept	
		C for cancel	
	Example	Send	S 0.128.200.255.251.242/192.168.1.1/123/IP/192.168.1.2
		Back	A or C
R	Purpose	Reboot WS-125	
	Syntax	R <MAC>/<IP>/<Setup Password>	
	Return	AR for accept	
		CR for cancel	
	Example	Send	R 0.128.200.255.251.242/192.168.1.1/123
		Back	AR or CR

Configuration

C. By Direct Broadcast Commands

User Level: For General Users

Admin Level: For Factory Default Setting

- Command List C – Admin Level –

Command	Description	Notes	
M	Purpose	Set MAC of WS-125 then reboot automatically	
	Syntax	M <Old MAC>/<New MAC>/<Factory Password>	
	Return	AM for accept	
		CM for cancel	
	Example	Send	S 0.128.200.255.251.242/0.128.200.255.251.243/123
Back		'A' or 'C'	
I	Purpose	Set IP for Factory settings	
	Syntax	I <MAC>/<New IP>/<Factory Password>	
	Return	AI for accept	
		CI for cancel	
	Example	Send	I 0.128.200.255.251.242/192.168.1.1/123'
Back		AR or CR	

Parameter Description

Parameter	Description
Local IP	The IP address of the WS-125 converter on the TCP/IP network. The default Local IP address is 192.168.1.250. This address should be unique. Ask your network administrator for assistance, if in doubt.
Subnet Mask	Identifying the network class which the WS-125 converter belongs to. The default Subnet mask is: 255.255.255.0 for Class C IP. Ask your network administrator for assistance, if in doubt.
Gateway IP	The IP address of the router. The default Gateway IP address is: 192.168.1.254, Ask your network administrator for assistance, if in doubt.
DHCP Client	If this option is enabled, that means the IP address, Subnet mask and Gateway IP address of the WS-125 converter are set dynamically by the DHCP Server. If the setting cannot be got from the DHCP server successfully, the WS-125 converter will use the last setup parameters for its configuration. The possible reason of this case is that the DHCP server is shutdown or not available. Ask your network administrator for assistance, if in doubt.

Parameter Description

Parameter	Description
SIO Port, Type	<ul style="list-style-type: none"> ➤ The local port number of the WS-125 converter to be contacted by other devices. The default value is 9925. And users need to choose one communication mode for the WS-125 converter. There are four different communication modes can be selected. They are TCP Server, TCP Client, UDP Server and UDP Client. ➤ TCP Server – The WS-125 converter will operate at the Passive or the TCP listen mode to receive TCP connection requests from the remote client device. ➤ TCP Client – The WS-125 converter will operate at the Active or the TCP Active mode to request establishing a TCP connection with the remote server device.
Socket port of serial I/O, Type	<ul style="list-style-type: none"> ➤ UDP Server – The WS-125 converter will operate at the UDP Server mode to send and receive UDP datagram to/from the remote device. ➤ UDP Client – The WS-125 converter will operate at the UDP Client mode to send and receive UDP datagram to/from the remote device specified in Remote Host IP address and Remote Host Port. ➤ NOTE: SIO port number 502 is reserved for the Modbus/TCP protocol. When user connects the serial Modbus device running in Modbus/RTU Slave mode, the WS-125 converter can receive connection requests from Modbus/TCP Master device. Also when user connects the serial Modbus device running in Modbus/RTU Master mode, the WS-125 converter can connect to Modbus/TCP Slave device.

Parameter Description

Parameter	Description
DIO Port, Type	Reserved
SIO Baud Rate	The serial parameter settings: <ul style="list-style-type: none"> ➤ Baud Rate: 300 bps to 115200 ➤ Parity: None, Even, or odd ➤ Data Bits: 7, or 8 ➤ Stop Bit: 1, or 2
Socket I/O settings(baud rate, parity, data bits, stop bits)	
SIO Type	The serial interface types: <ul style="list-style-type: none"> ➤ RS232 ➤ RS232 with RTS/CTS control ➤ RS232 with RTS/CTS/DSR/DTR control ➤ RS485 half duplex mode ➤ RS422 full duplex mode
Type of serial I/O	
SIO Packets Gap	In some cases, for example, if the Modbus/RTU serial protocol is used, the completion of the message packet in the input buffer is determined by a character-to-character timeout. The SIO Packets Gap of WS-125 defines this timeout period.
SIO Inter-Character Gap	

Parameter Description

Parameter	Description
Remote Host IP	If the WS-125 converter is used in TCP client mode or UDP client mode, the Remote Host IP address must be specified to establish the connection with the designated HOST (server) only.
Remote Host Port	If the WS-125 converter is used in TCP client mode or UDP client mode, the Host Port No. must be specified. This is the port which the Remote Host IP listens for incoming data.
Slave Response Time Out	Expected Time Out for the response of slave machines
Device ID	Just Device ID for WS-125 devices

Parameter Description

Parameter	Description
TCP Link Time Out	When this option is enabled, the TCP communication will be disconnected by the WS-125 converter if there is no further TCP activity within the given timeout value.
Command Port	The WS-125 converter supports the command mode, which user can use to setup the parameters or get the information of the converter with UDP protocol from the remote host. The default Command Port number is 65535. The command port of the WS-125 converter should be set correctly while using the command mode. Please refer to appendix 1 for further

Parameter Description

Parameter	Description
Setup password	This password protects the Setup window of the WS-125 converter from unauthorized entry. To erase an existing password, just leave the Setup password text box blank.
Access password	If this password is configured, the remote host needs to send this access password one second periodically to the Check Status Port of the WS-125 converter; otherwise the data transfer request will not be accepted by the WS-125 converter. To erase an existing password, just leave the Access password text box blank.
Multi Sockets Arbitration Time Period	Arbitration Time period between multi sockets. Default is 0ms for single socket. And 20 ms is suggested when using multi sockets.

Application Notes

A. Description:

Firewall will make the program off normal, so one might choose the following solutions to Firewall program, “Disable” or “Exception”.

B. Disable Firewall of Windows XP SP2.

Step 1: Execute "Windows Firewall"

Execute “Windows Firewall” in Control Panel.

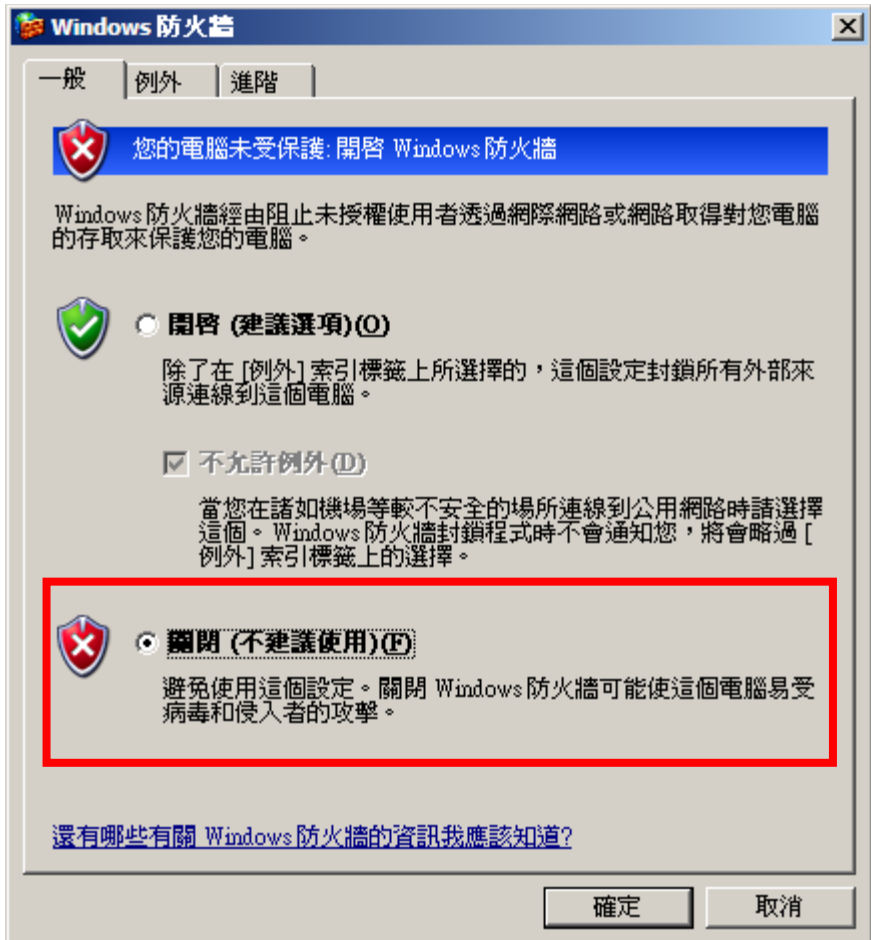


Application Notes

B. Disable Firewall of Windows XP SP2.

Step 2: Close the Firewall

Choose “Close” to close firewall.

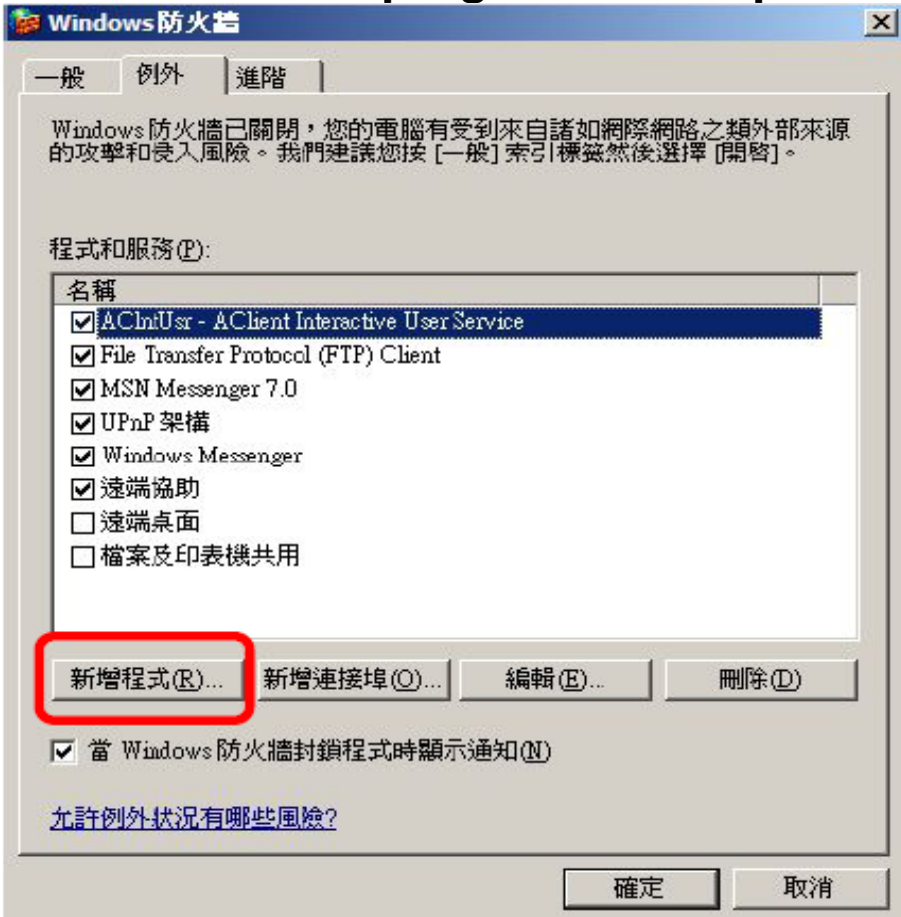


Application Notes

C. Make Program exception for Firewall

Step 1: Choose "Exception"

Choose "Exception" in Firewall Program.
And add on new program of Setup Tools.



Application Notes

C. Make Program exception for Firewall

Step 2: Add on New Program and Selection
Choose “Setup Tools” to make it as an
exception.

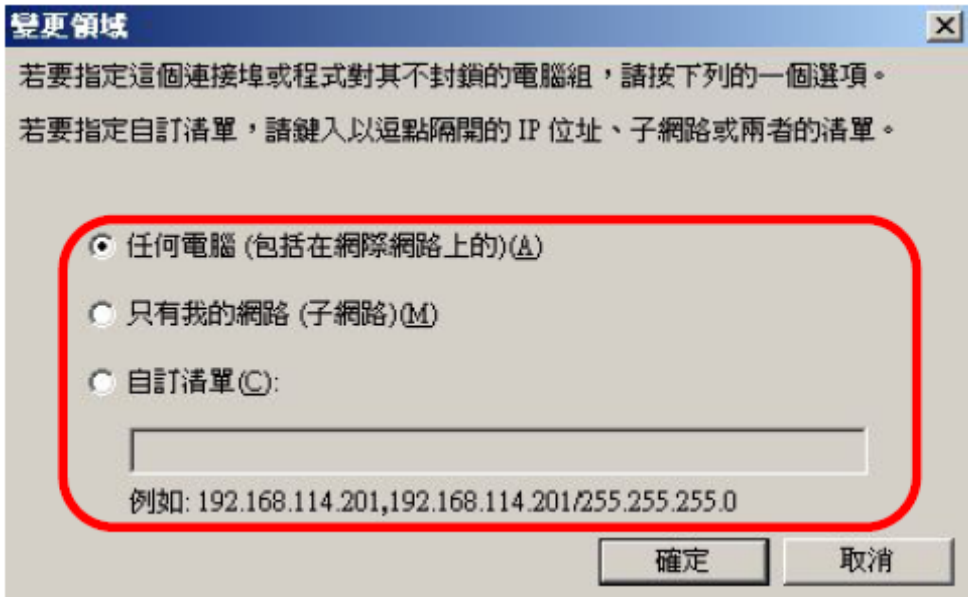


Application Notes

C. Make Program exception for Firewall

Step 3: Allow "Accept Any Computer"

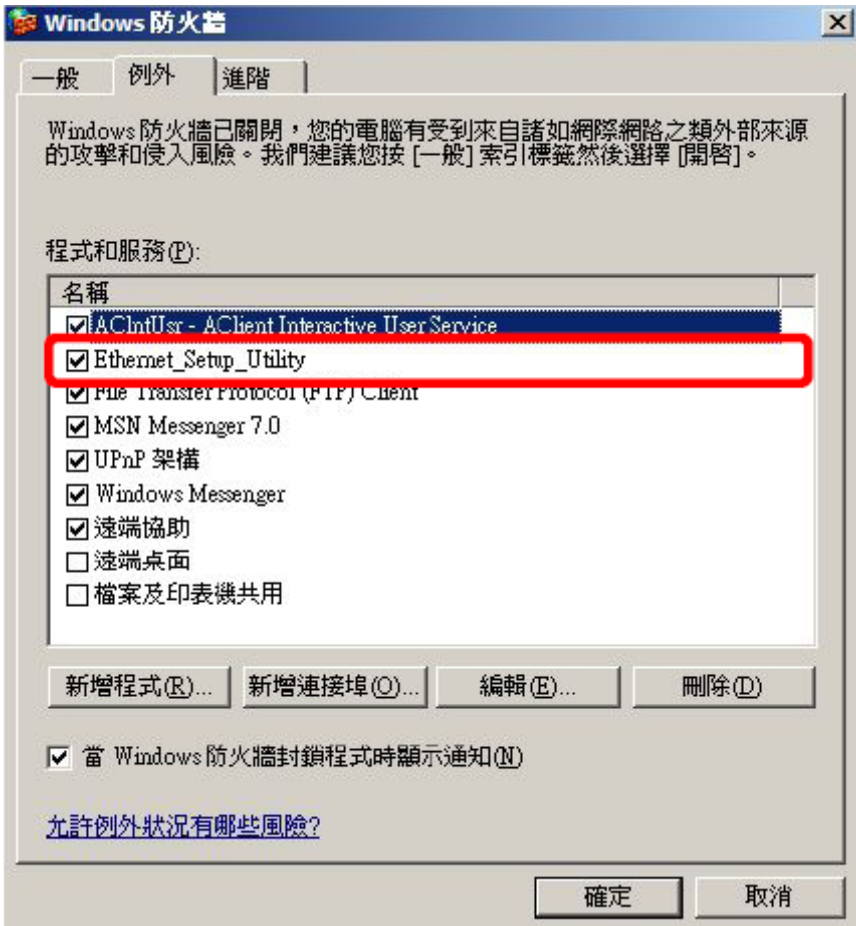
Allow "Accept Any Computer" to finish exception.



Application Notes

C. Make Program exception for Firewall

Step 4: Finished Finish Exception.



The logo for Infosystem, featuring the word "Infosystem" in a white serif font with a registered trademark symbol (®) to its upper right. The text is set against a rectangular background with a vertical gradient from red on the left to orange on the right.

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