



ICO-200 Series
Remote Field Controller
User's Manual

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Safety Approvals

- u CE Marking
- u FCC Class A

This equipment has been tested and complies with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. If not installed and used in accordance with proper instructions, this equipment might generate or radiate radio frequency energy and cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

Shielded interface cables must be used in order to comply with emission limits.

Safety Precautions

Before getting started, read the following important cautions.

1. The **ICO-200 Series** does not come equipped with an operating system. An operating system must be loaded first before installing any software into the computer.
2. Be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and place all electronic components in any static-shielded devices. Most electronic components are sensitive to static electrical charge.
3. Disconnect the power cord from the **ICO-200 Series** before making any installation. Be sure both the system and the external devices are turned OFF. Sudden surge of power could ruin sensitive components. Make sure the **ICO-200 Series** is properly grounded.

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Chapter 1

Introduction



This chapter contains general information and detailed specifications about the **ICO-200 Series**. Chapter 1 includes the following sections:

- n **General Description**
- n **Specification**
- n **Dimensions**
- n **I/O Outlets**
- n **Package List**

1.1 General Description

The **ICO-200 Series** is a compact field controller designed for remote management application. Equipped with AMD LX800 processor, the **ICO-200 Series** features high reliability and expansion capability.

This controller has a slim mechanism design and adopts din-rail mounting to fit in any space-limited environment. Besides, the ICO-200 offers the remote management tools of "Remote Monitoring", "Remote Alarm", "Remote Diagnosis" and "Security", to enable easy and efficient management for remote environment anytime, anywhere over a network.

Therefore, the **ICO-200 Series** is ideally suited for use in applications like unmanned room, factory automation, industrial machine and more.

1.2 Specifications

1.2.1 Main CPU board

- I **CPU**
 - n AMD LX800 500MHz
- I **System Chipset**
 - n AMD LX + CS5536AD
- I **BIOS**
 - n Phoenix-Award 4Mbit with RPL/PXE LAN Boot ROM, SmartView and Customer CMOS Backup
- I **System Memory**
 - n One 200-pin DDR SODIMM, maximum up to 1GB

1.2.2 I/O System

- I **Standard I/O**
 - n Two serial ports (1 x RS-232, 1 x RS-232/422/485)
 - n One VGA port
 - n One PS/2 for Keyboard and Mouse Interface
 - n Two USB Ports 2.0 compliant
- I **Ethernet**
 - n Two RTL8139DL Fast Ethernet
- I **Expansion**
 - n One Mini-PCI
- I **CompactFlash Socket**
 - n One CompactFlash Type II Socket

1.2.3 System Specification

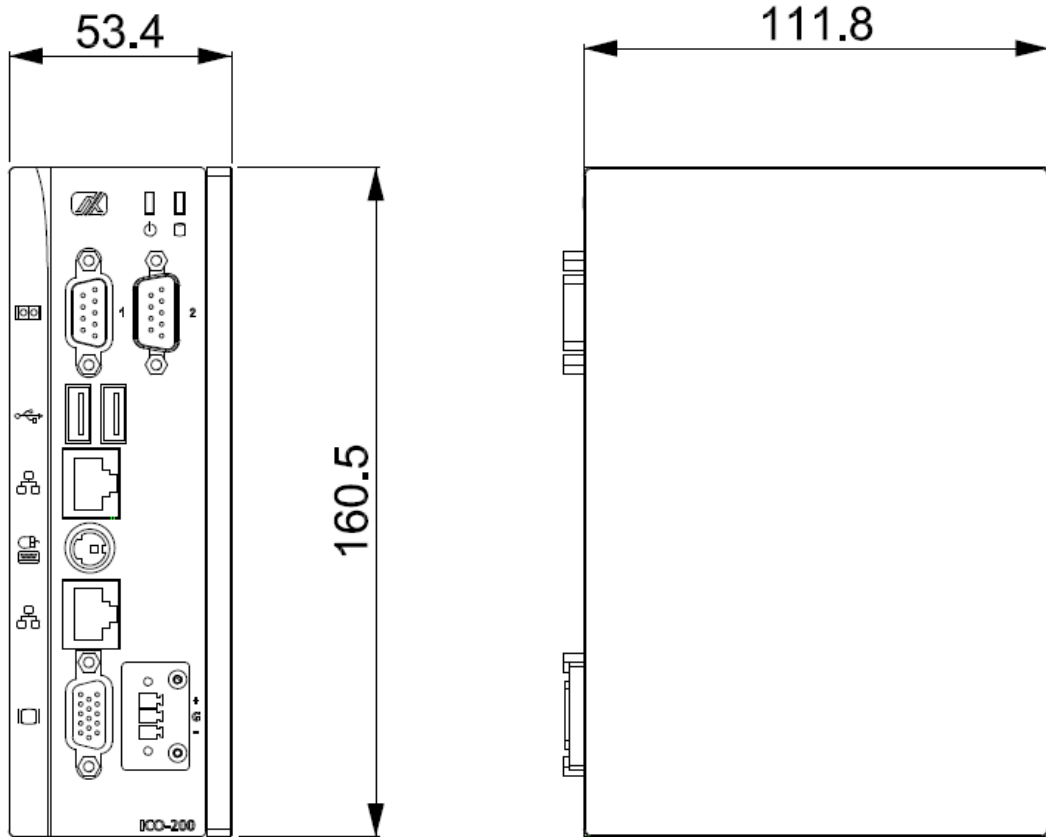
- | **Disk Drive Housing**
 - n One CompactFlash Type II Socket
- | **DC 24V power supply**
- | **Heat dispensing design**
- | **Weight**
 - n 1.2 Kgs
- | **Dimension (main body size)**
 - n 160.5 x 111.8 x 53.35 mm
- | **Operating temperature**
 - n 0° to 45°C ; Relative umidity:50%
- | **Relative humidity**
 - n 10% to 95% @ 40° C, non-condensing
- | **Altitude**
 - n 10,000 ft. (3,000 meters)
- | **Vibration (operating)**
 - n 5 to 500 Hz, 2 G random
- | **Shock (operating)**
 - n 10 G peak acceleration (11 msec. duration)



NOTE *All specifications and images are subject to change without notice.*

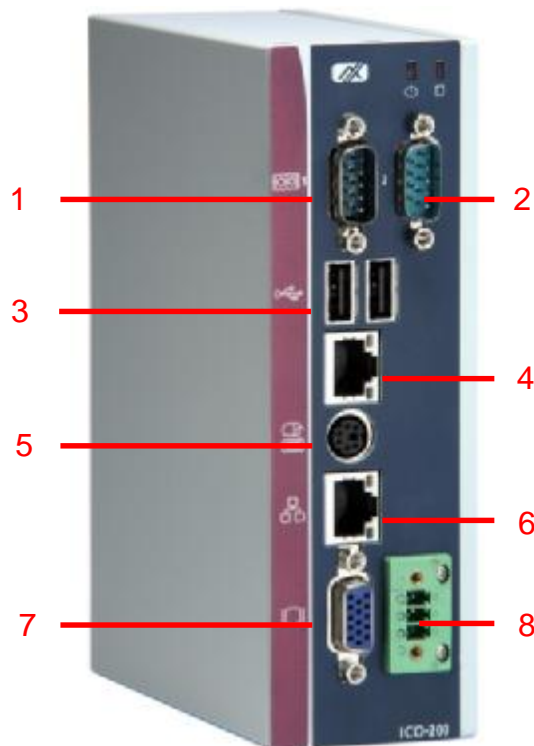
1.3 Dimensions

The ICO-200 Series dimensions and outlines are shown as below:



1.4 I/O Outlets

The following figure helps you locate each I/O connector of the ICO-200 Series.



No.	Connector	No.	Connector
1	COM 1 (RS-232/422/485)	5	PS/2 for Keyboard/Mouse
2	COM 2 (RS-232)	6	Ethernet (RJ45)
3	2 x USB 2.0	7	VGA
4	Ethernet (RJ45)	8	DC power connector

1.5 Package list

Other than the ICO-200 system, the following items should be bundled in the package:

1. ICO-200 x 1
2. DIN rail bracket x 1
3. PS/2 Splitter – Y Cable x 1
4. Driver CD x1

If you can not find this package or any items are missing, please contact AXIOMTEK distributors immediately.

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Chapter 2 Hardware Installation

The ICO-200 provides you with multiple I/O ports and flexible expansions to meet different demands for PCMCIA, WLAN modules, and so on. This chapter will show you how to install the hardware. They are:

- n DRAM
- n CompactFlash Card
- n Serial Port
- n Ethernet
- n Mounting Way
- n Mini-PCI module

2.1 Installing the DRAM and CompactFlash Card

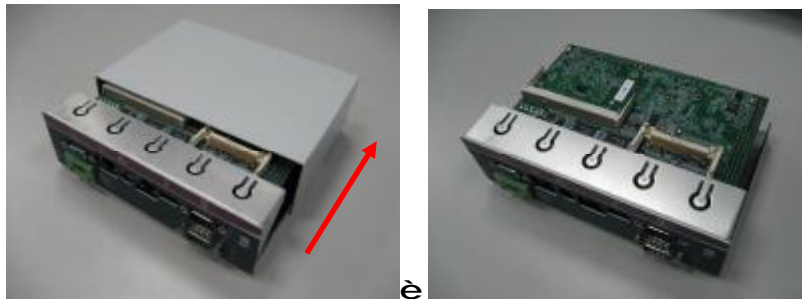
The system offers one 200-pin DDR SODIMM socket, maximum up to 1GB, and one CF slot for users to install CompactFlash card. Please follow these instructions and illustrations to install the DRAM and CompactFlash card:

Step 1 Loosen five screws on the chassis.

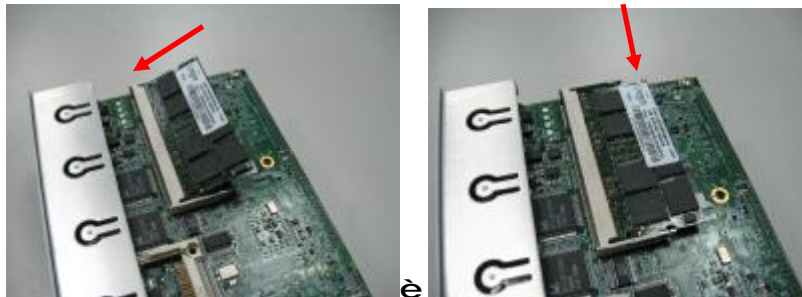




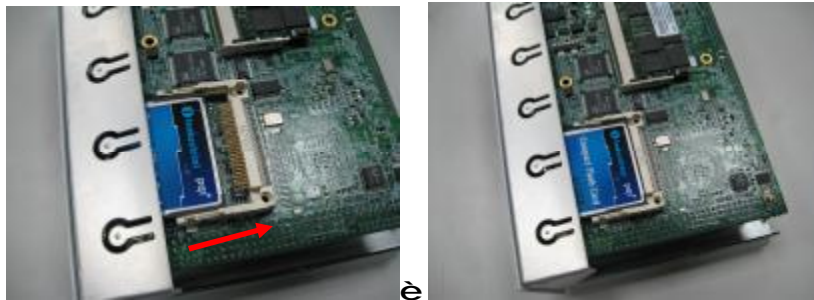
Step 2 Push back the cover to remove it.



Step 3 Insert the DRAM to the socket.



Step 4 Insert the CF card to the CF slot.

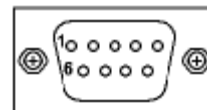


2.2 Serial Port Interface

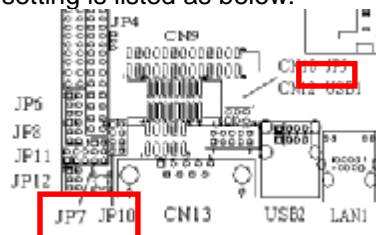
The ICO-200 has two onboard serial ports, COM1 (RS-232/422/485) and COM2 (RS-232).

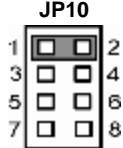
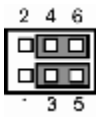

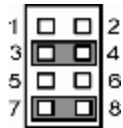
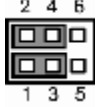

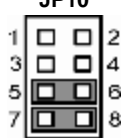
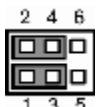

The pin assignments are listed below:

Pin	Description
1	Data Carrier Detect (DCD)
2	Receive Data (RXD)
3	Transmit Data (TXD)
4	Data Terminal Ready (DTR)
5	Ground (GND)
6	Data Set Ready (DSR)
7	Request to Send (RTS)
8	Clear to Send (CTS)
9	Ring Indicator (RI)



In addition, COM1 can be set for RS-232/422/485 by jumper. The jump setting is listed as below:



Description	Function	Jumper Setting
COM1	RS-232 (Default)	  
	RS-422	  
	RS-485	  

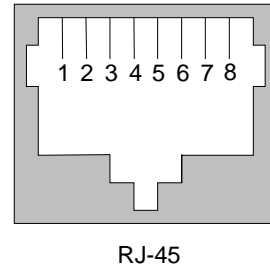
COM1 (CN13) RS-422/485 Pin Assignment Table

Pin #	Signal Name	
	RS-422	RS-485
1	TX-	DATA-
2	TX+	DATA+
3	RX+	No connector
4	RX-	No connector
5	No connector	No connector
6	No connector	No connector
7	No connector	No connector
8	No connector	No connector
9	GND	GND

2.3 Ethernet

The ICO-200 supports the NE2000 compatible Ethernet (RJ-45) interface. For network connection, just plug in one cable end of the ICO-200 10/100 Base-T Hub into the standard RJ-45 connector. The pin assignment of the RJ-45 is listed below:

Pin	Signal
1	TX+ (Data transmission positive)
2	TX- (Data transmission negative)
3	Rx+(Data reception positive)
4	RJ45 termination
5	RJ45 termination
6	Rx- (Data reception negative)
7	RJ45 termination
8	RJ45 termination



2.4 Mounting Way: Din-rail

The ICO-200 is designed for Din-rail application. To mount the ICO-200, the standard set of mounting kit will be bundled with the system packaging.

Step 1 Screw the Din-rail mount kit on the back of the chassis.



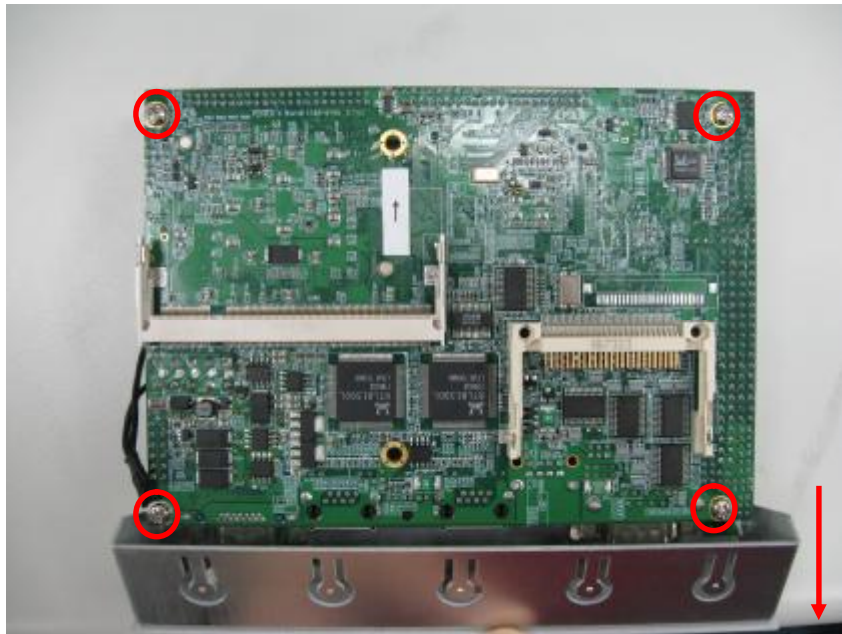
2.5 Mini-PCI Module

ICO-200 offers one mini-PCI slot to install a mini-PCI card. Please refer to the following instructions and illustrations for installation:

Step 1 Take off the cover.



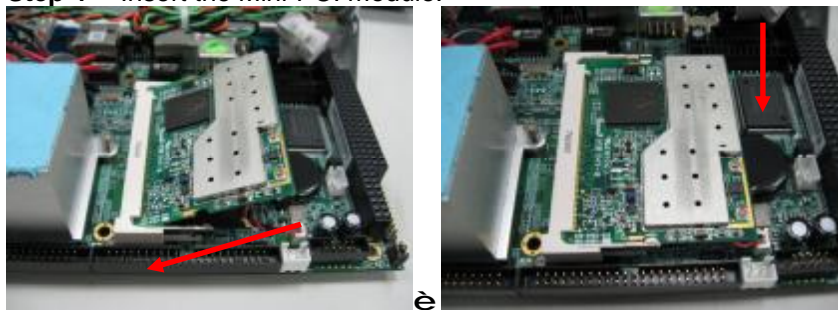
Step 2 Pull down the front cover and loosen four screws on the mainboard.



Step 3 Take off the mainboard and turn it around.



Step 4 Insert the Mini-PCI module.



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Chapter 3 Driver Installation

The **ICO-200 Series** supports Windows XP/2000. To facilitate the installation of system drivers, you need to carefully read the Chapter 3 for detailed instructions before installing.

\\ICO series\ICO-200\Driver



Step 1. AES



Step 2. VGA



Step 3. PCI Bridge



Step 4. Audio



Step 5. WLAN (Optional)



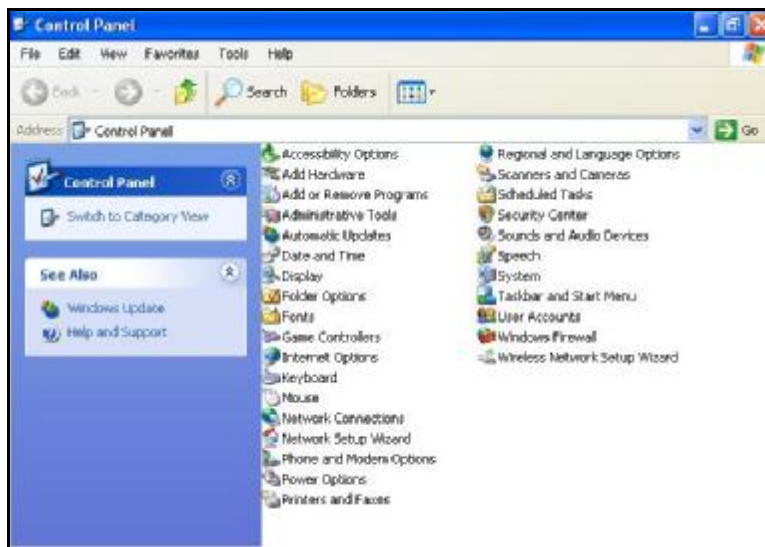
Step 6. R@Tools

3.1 Network Controller

After you start Windows, a message “Found New Hardware – Network Controller” will automatically appear on the screen, and automatic installation will go on.

If it doesn't start the automatic installation, please follow the procedures below to manually intall this new hardware:

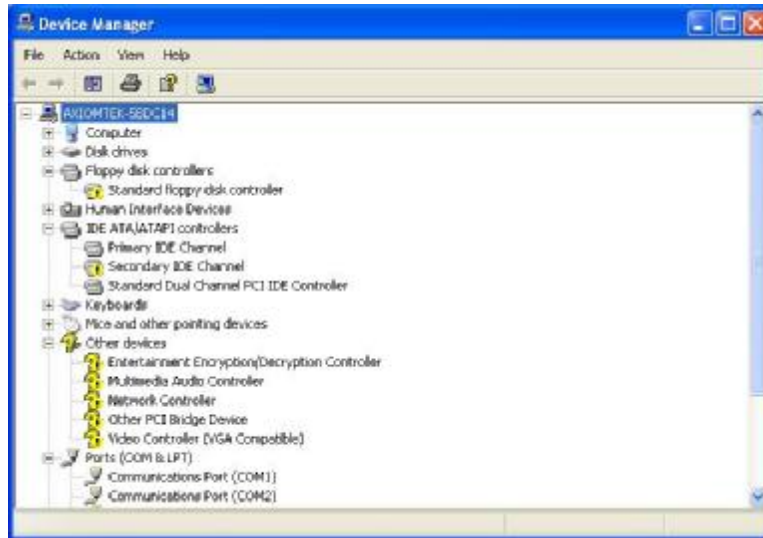
1. Access the “Control Panel”.



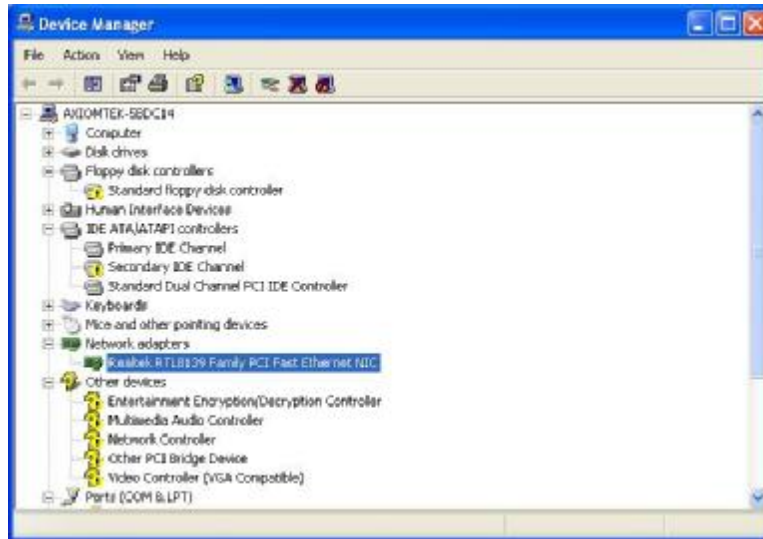
2. Click on the “System” icon, and a “System Properties” tag pops out. Please select the “Hardware” item, and click the “Device Manager” button.



3. The “Device Manager” window pops out. Execute the “Scan” function.



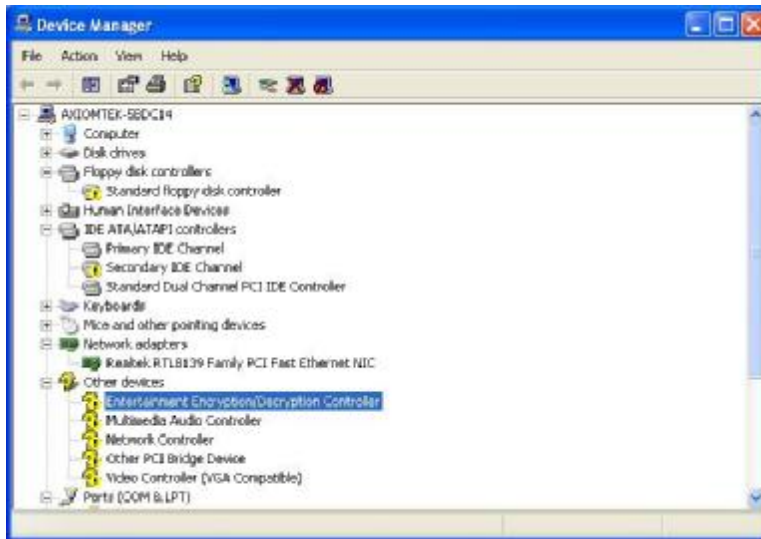
4. This hardware installation is finished.



3.2 AES Driver Installation

You can install a LX processor driver through the “Device Manager” by following these steps:

1. Select the icon “Entertainment Encryption/Decryption Controller”, and click the right mouse button to update the AES driver.



2. A Hardware Update Wizard screen pops out. Make your selection, and click "Next" to continue.



3. Click the item to install the software, and click "Next".



4. Click the "Browse" button and search for the location: "E:\ICO series\ICO-200\Driver\Step 1. AES"



5. Please wait while the wizard is installing the software.



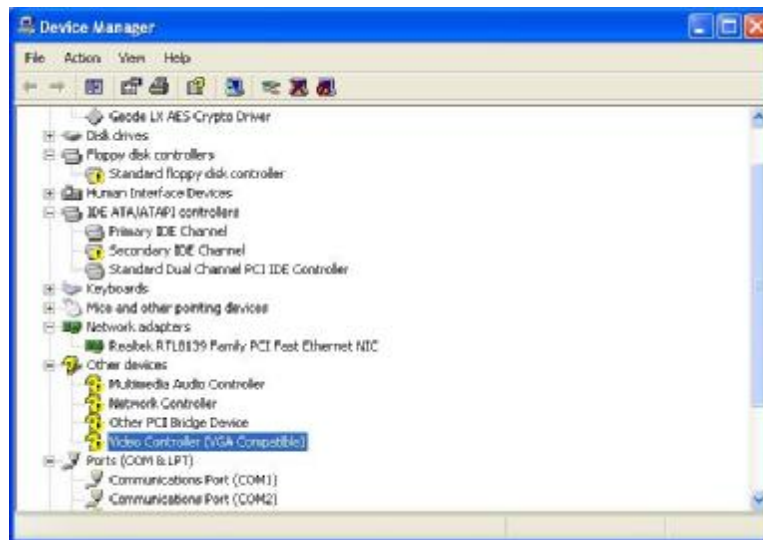
6. Click the “Finish” button to complete this software installation.



3.3 VGA Driver Installation

You can install a Graphic driver through the “Device Manager” by following these steps:

1. Select the icon “Video Controller (VGA Compatible)”, and click the right mouse button to update the VGA driver.



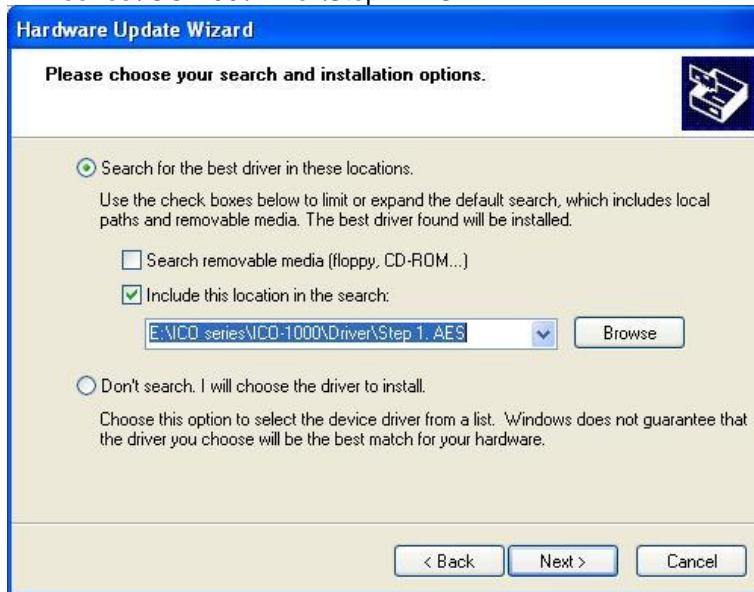
2. A Hardware Update Wizard screen pops out. Make your selection, and click "Next" to continue.



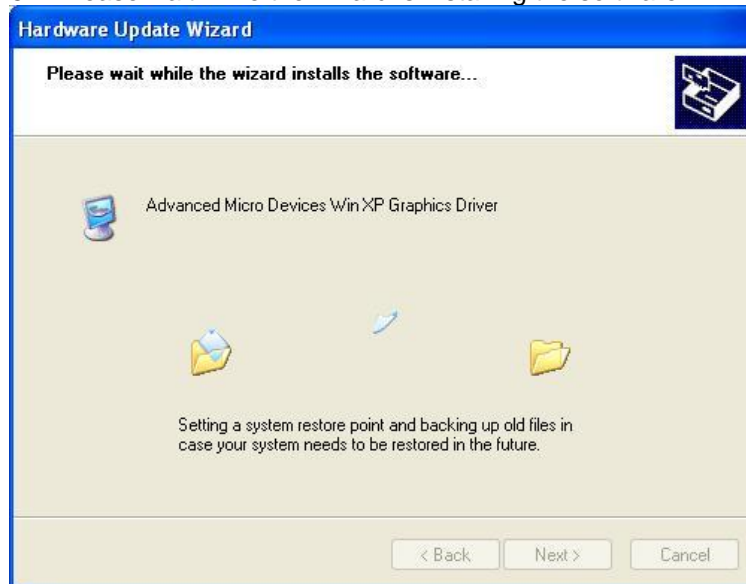
3. Click the item to install the software, and click "Next".



4. Click the "Browse" button and search for the location: "E:\ICO series\ICO-200\Driver\Step 2. VGA"



5. Please wait while the wizard is installing the software.



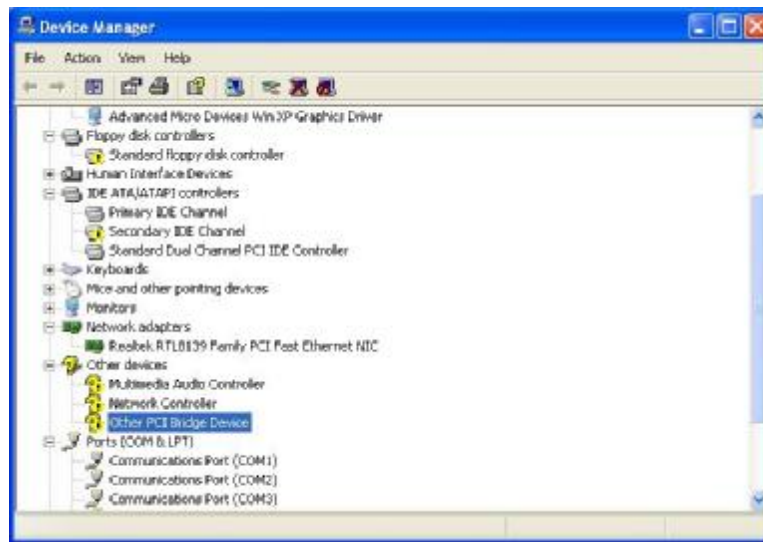
6. Click the "Finish" button to complete this software installation.



3.4 PCI Bridge Driver Installation

You can install a PCI Bridge driver through the “Device Manager” by following these steps:

1. Select the icon “Other PCI Bridge Device”, and click the right mouse button to update the PCI Bridge driver.



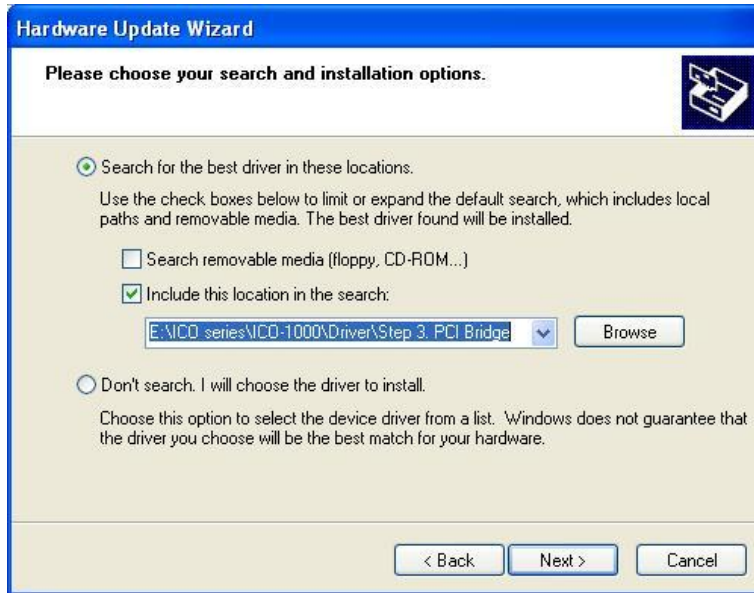
2. A Hardware Update Wizard screen pops out. Make your selection, and click "Next" to continue.



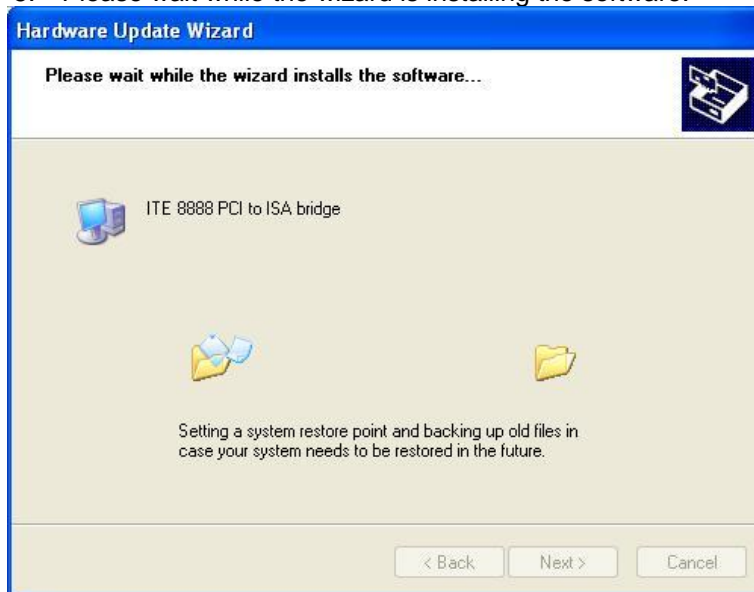
3. Click the item to install the software, and click "Next".



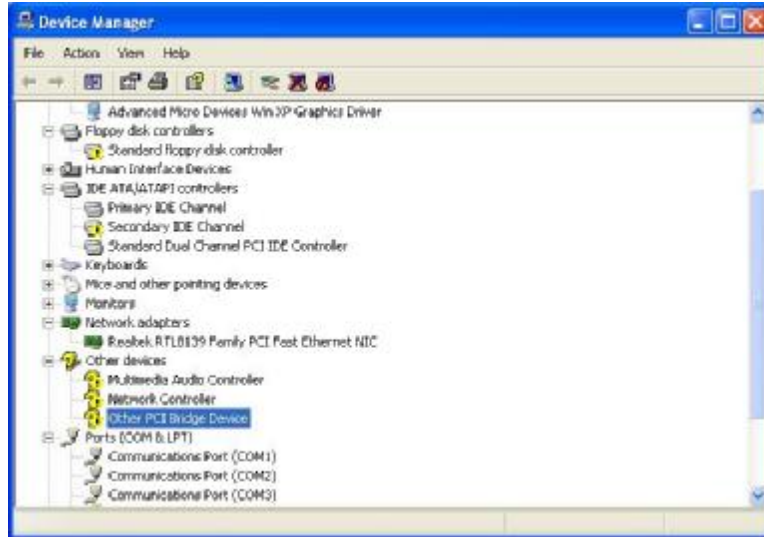
4. Click the "Browse" button and search for the location: "E:\ICO series\ICO-200\Driver\Step 3. PCI Bridge"



5. Please wait while the wizard is installing the software.



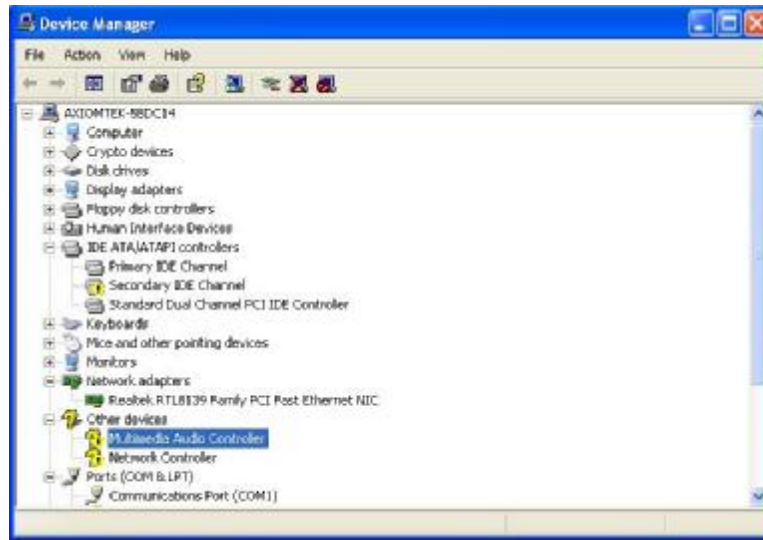
6. This software installation is finished.



3.5 Audio Driver Installation

You can install an Audio driver through the “Device Manager” by following these steps:

1. Select the icon “Multimedia Audio Controller”, and click the right mouse button to update the Audio driver.



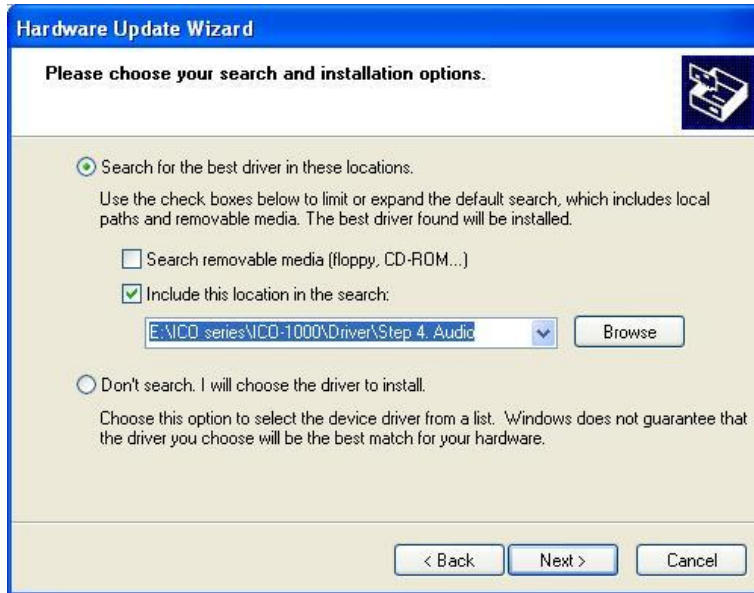
2. A Hardware Update Wizard screen pops out. Make your selection, and click "Next" to continue.



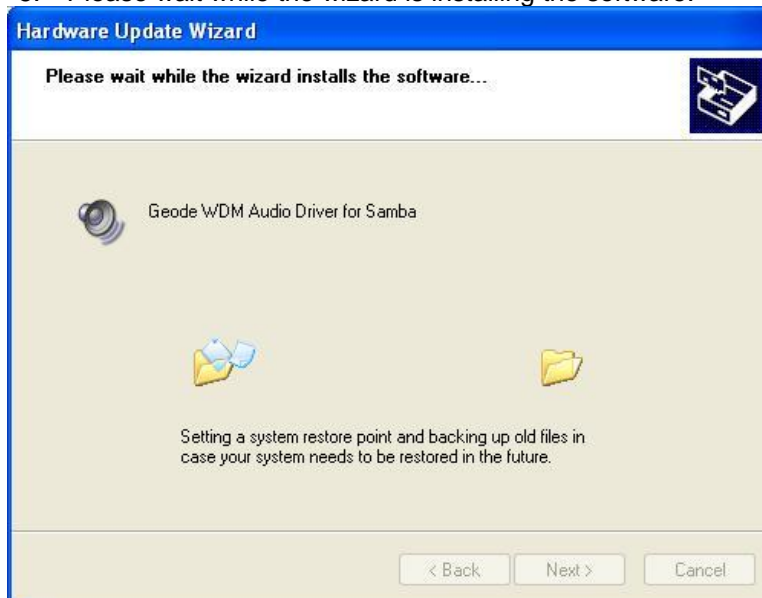
3. Click the item to install the software, and click "Next".



- Click the "Browse" button and search for the location: "E:\ICO series\ICO-200\Driver\Step 4. Audio"



- Please wait while the wizard is installing the software.



6. Click the "Finish" button to complete this software installation.



Chapter 4

Remote Monitoring Tool

The **ICO-200 Series** is equipped with a remote monitoring program, which has these remote functions, monitor, alarm, security, watchdog, and so on. To facilitate these functions, you need to carefully read the Chapter 4 for detailed instructions.

\\ICO series\ICO-200\Driver



Step 1. AES



Step 2. VGA



Step 3. PCI Bridge



Step 4. Audio



Step 5. WLAN (Optional)



Step 6. R@Tools

4.1 Remote Tool Installation

Please follow these procedures for this tool installation:

1. \ICO series\ICO-200\Driver\Step 6. R @Tools



Step 1. AES



Step 2. VGA



Step 3. PCI Bridge



Step 4. Audio



Step 5. WLAN (Optional)



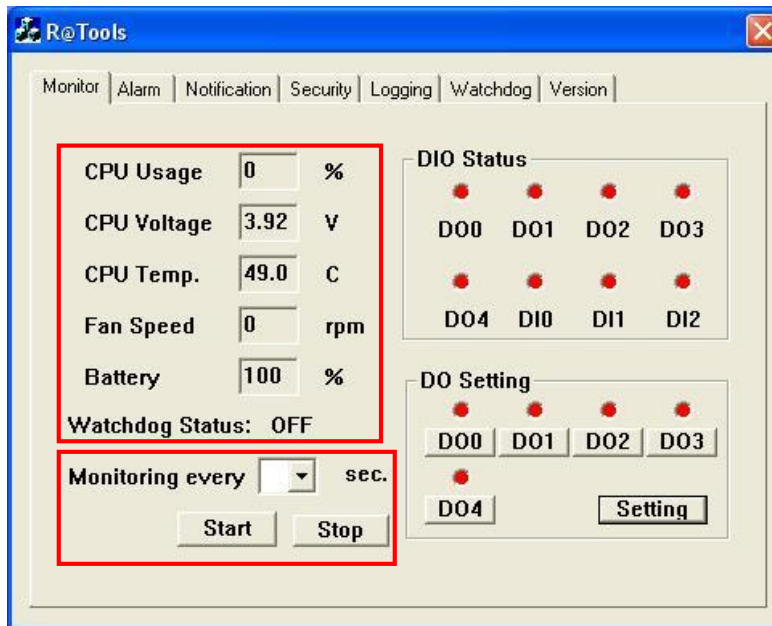
Step 6. R@Tools

2. Execute "R@Tools.exe".



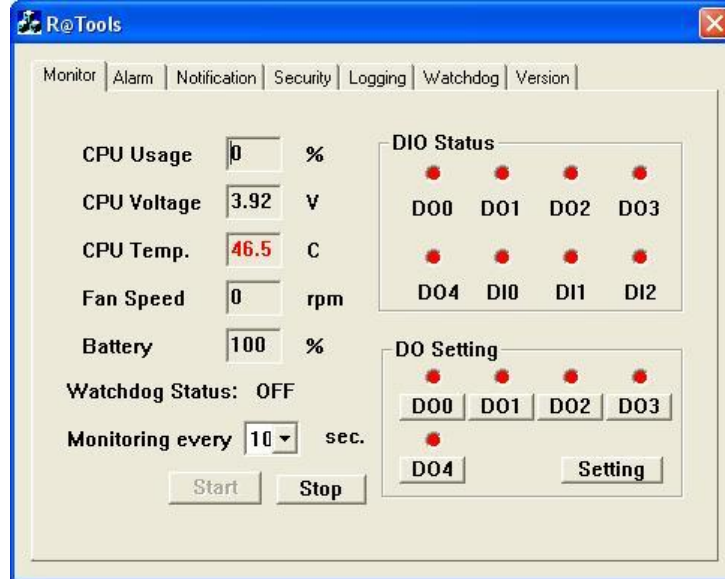
4.2 Monitoring Setting

The remote monitoring contains these functions illustrated as below:

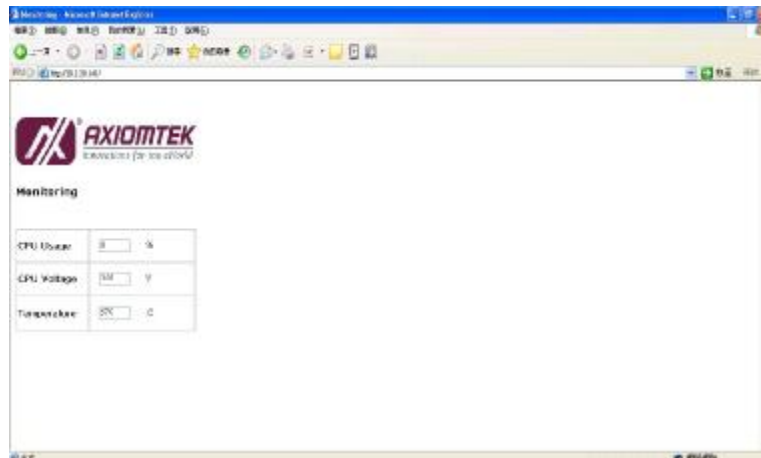


1. Users can obtain BIOS information such as CPU usage, CPU voltage, CPU temperature, fan speed, battery, and Watchdog status.
2. Users can set up how long this tool will retrieve the data from BIOS. Users can also start or stop this function.
3. R @Tool provides users with 3 * DI & 5 * DO to make the connection with the DIO module. Users can set up which DO status will be monitored.

4. The color of word can be changed if the status is abnormal.

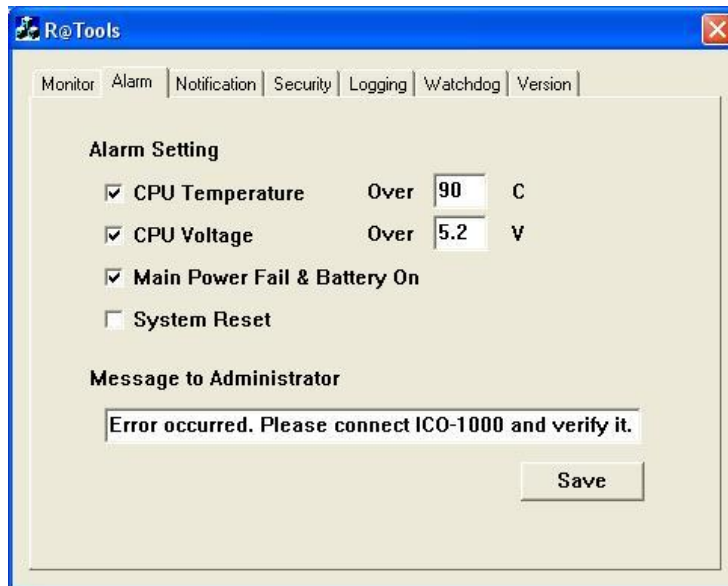


5. After the SMTP setting is done, users can type in the IP address of ICO-200 that can monitor the controller's status:



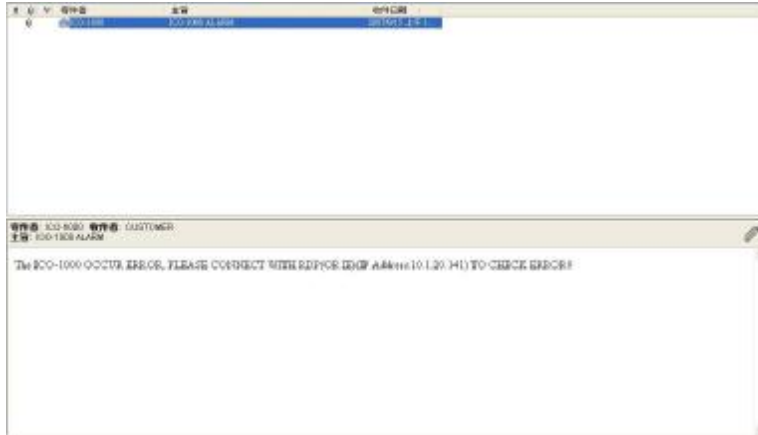
4.3 Alarm Setting

Users can make these settings to work a remote alarm that can identify each necessary situation for warning the operator, such as CPU overheating, CPU over-voltage, main power failure, battery on, system resetting, and so on. If anything abnormal happens, ICO-200 will alarm the operator by e-mail or soft modem.

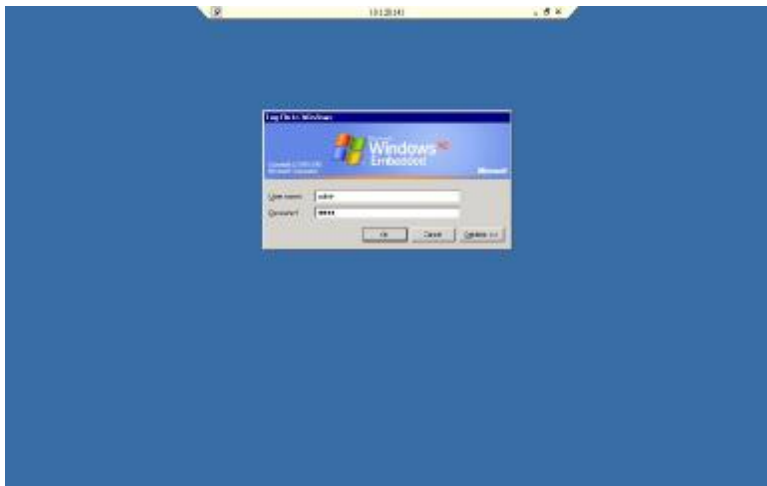


Users need to click the "Save" button to save any setting changes.

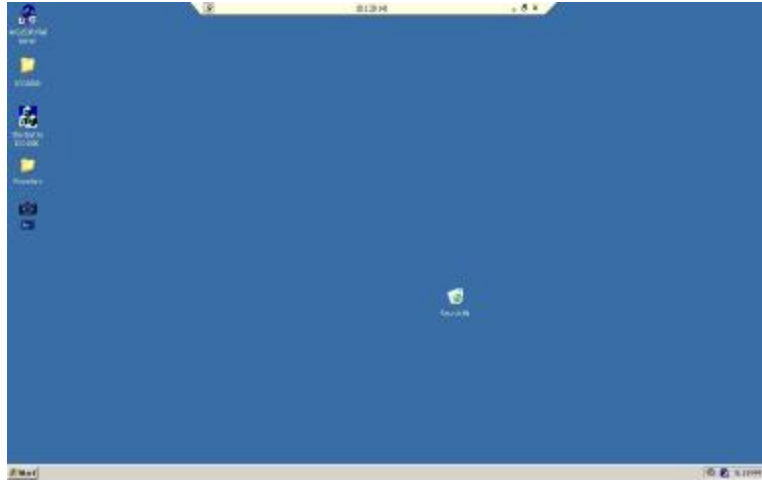
1. After the “Notification setting” is done, the operator will receive the alarming e-mail from ICO-200, if anything abnormal happens:



2. Open the attached file and execute it. The remote window pops out as below:



3. After passing the identity verification, the operator can take over ICO-200 as following.



4.4 Notification Setting

When the alarming occurs, ICO-200 will inform the operator by e-mail. Users need to set up a few of parameters for before initiating the Notification function.

The screenshot shows the 'R@Tools' application window with the 'Notification' tab selected. The 'SMTP Settings' section includes fields for 'SMTP server name' (set to 'NONE'), 'Port' (set to 'NO'), 'Username', and 'Password'. The 'Email List' section contains five 'E-Mail Address' fields (1 through 5), all set to 'NONE'. A 'Save' button is positioned at the bottom right of the 'Email List' section.

1. Users need to set up the parameters for SMTP setting, such as server name, port, username and password.
2. Under the “SMTP setting”, users can decide who will receive the alarming message from ICO-200.
3. Users need to click the “Save” button to save any setting changes.

4.5 Security Setting

Users can go to the tag “Security Setting” to set up who is authorized to access ICO-200. Even authorized users’ IP addresses could be locked up.



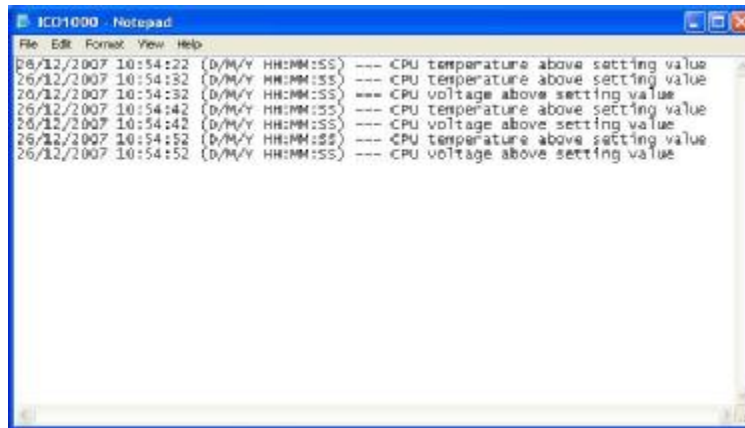
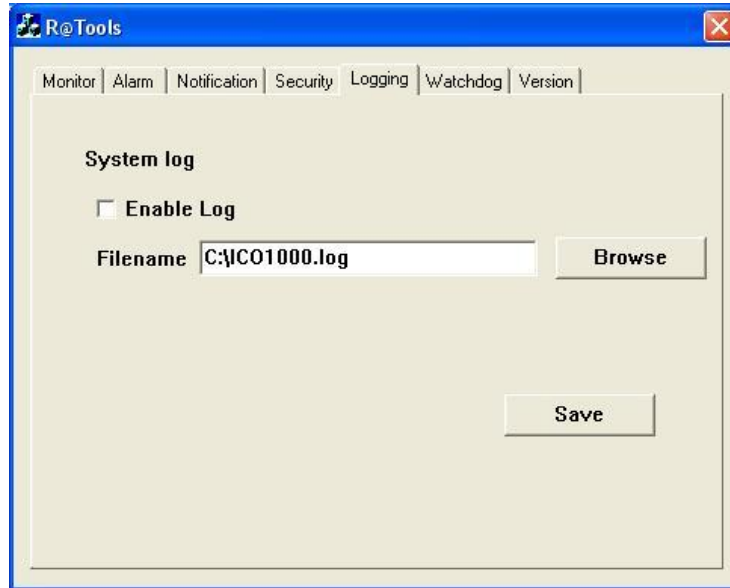
The screenshot shows a window titled "R@Tools" with a menu bar containing "Monitor", "Alarm", "Notification", "Security", "Logging", "Watchdog", and "Version". The "Security" tab is active. Below the menu bar, the title "Authorized Users" is displayed. A table with five rows is shown, each with a number (1-5) in the first column. The second column is labeled "Username" and contains the text "NONE". The third column is labeled "Password" and contains empty text boxes. The fourth column is labeled "IP Address" and contains a checkbox (unchecked) and a text box with the IP address "0 . 0 . 0 . 0". A "Save" button is located at the bottom right of the window.

	Username	Password	<input type="checkbox"/> IP Address
1	NONE		0 . 0 . 0 . 0
2	NONE		0 . 0 . 0 . 0
3	NONE		0 . 0 . 0 . 0
4	NONE		0 . 0 . 0 . 0
5	NONE		0 . 0 . 0 . 0

Users need to click the “Save” button to save any setting changes.

4.6 Logging Setting

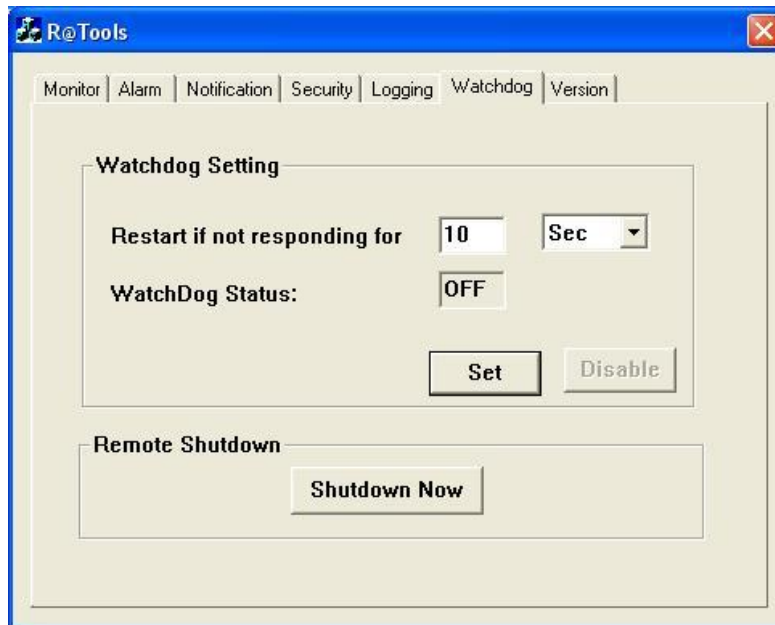
Any abnormal issues of ICO-200 can be recorded. The operator can refer to this tag through the monitoring function.



Users need to click the “Save” button to save any setting changes.

4.7 Watchdog Setting

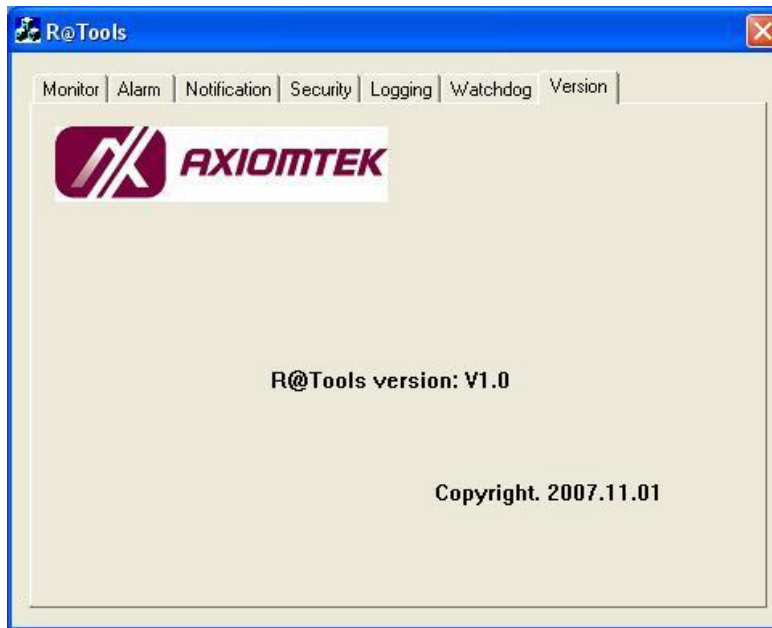
ICO-200 can not execute the alarming function if the system crashed. In order to avoid this problem, ICO-200 has been equipped with the Watchdog Timer. Users are able to shut down ICO-200 remotely.



ICO-200 will be automatically restarted after users have set up the Watchdog Timer.

4.8 Version

If you have any problems about this remote tool, you can have the program version number from this “Version” tag. Please contact us in reference to it.



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