

**Air-conditioner Network System**

# **Centralized Controller**

## **Model: AG-150A**

*Instruction Book*

*(Web browser for optional functions)*

### **Contents**

1 Introduction .....	1
1-1 Terms Used in This Manual .....	1
1-2 Computer Requirements .....	1
1-3 Notes on using AG-150A with the integrated centralized control software (TG-2000A).....	1
2 Setting the Operating Environment .....	2
2-1 Setting the PC IP Address.....	2
2-2 Setting the Web Browser.....	4
3 Performing Operations .....	6
3-1 Opening the Option Setting screen .....	6
3-2 Enabling the function that measures the electric power by the outdoor unit .....	10
3-3 Checking the electric power measured by the outdoor units	12

**Before using the controller, please read this Instruction Book carefully to ensure correct operation. Retain this manual for future reference.**

# 1 Introduction

Special features of Mitsubishi Electric Corporation's "Centralized Controller AG-150A" is that a PC connected to a LAN can be used to monitor the operation condition of air conditioners, perform air conditioner operations, and make initial settings.

The document explains the procedures for making optional settings for the Centralized Controller AG-150A using the web browser.

Hereinafter, "Centralized controller AG-150A", unless otherwise specified, will be called "AG-150A".

Note: License of "Web Monitor" or "Basic License Pack" is necessary to use the web browser and update program. Register the license key on the AG-150A LCD screen.

A one-day license key can be registered on the LCD screen that allows the user to use the "Web Monitor" only on the day of the registration. Use this license key to update the program or to use the initial setting browser, or in any other situations when a temporary license key is necessary.

Note: The use of the function of the outdoor units that measures the electric power will require the "Energy Management License Pack."

Note: Use a security device such as a VPN router when connecting the AG-150A to the Internet to prevent unauthorized access.

Note: "Booster unit" and "Water HEX unit" are referred to as "Air to water".

## 1-1 Terms Used in This Manual

"Click" refers to the action of positioning the mouse cursor on the object (such as button or folder) and pressing down and releasing the left mouse button once.

- Unless otherwise specified, the example screen images used in this manual are Windows XP<sup>®</sup> and Internet Explorer 6.0 screen images.

Note: Windows is a registered trademark or trademark of Microsoft Corporation USA in the United States and other countries.

## 1-2 Computer Requirements

To monitor and operate air conditioners by web browser, computer must include the following requirements.

Table 1-1 Computer Requirements

Item	Requirement
CPU	Pentium 300MHz or faster
Memory	64M Bytes or more (128M Bytes or more recommended)
Screen resolution	1024 x 768 or higher recommended
Compatible browser	Microsoft <sup>®</sup> Internet Explorer 6.0 or later Note: You must have a Java <sup>®</sup> execution environment (Sun Microsystems <sup>®</sup> Java Plug-in Ver.1.6.0 .02 or later). Note: You can check the Sun Microsystems Java Plug-in version in "Java" in a control panel.
On-board LAN port or LAN card	One connector (100BASE-T)
Other	Pointing device such as a mouse

Note: Microsoft is a registered trademark or trademark of Microsoft Corporation USA in the United States and other countries.

Sun Microsystems and Java are trademarks or registered trademarks of Sun Microsystems Inc. in the United States and/or other countries.

## 1-3 Notes on using AG-150A with the integrated centralized control software (TG-2000A)

If the system is connected to the integrated centralized control software (referred to as TG-2000A hereafter), make all settings and changes from the TG-2000A so that the data in TG-2000A and AG-150A will match.

## 2 Setting the Operating Environment

PC settings and web browser settings that are required for using a web browser to monitor air conditioner units and perform operations are explained in the following pages.

### 2-1 Setting the PC IP Address

Set an IP address on the PC that enables AG-150A to connect via a web browser. For instance, if the AG-150A IP address is [192.168.1.1], the PC IP address will need to belong to the same system [192.168.1.101].

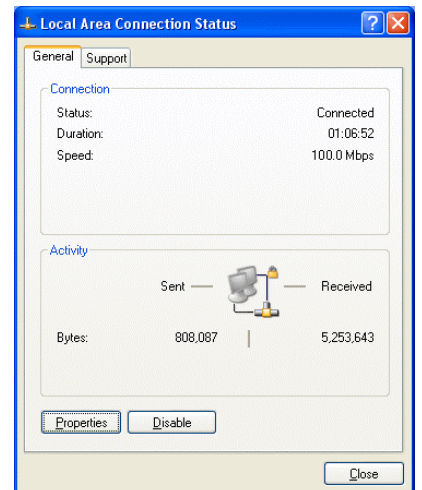
If the AG-150A is connected to an existing LAN, ask the LAN administrator to decide what PC IP address to use.

Note: When using a AG-150A dedicated LAN, it is recommended that the AG-150A main unit be given an IP address within the range [192.168.1.1] - [192.168.1.40] and the PCs that will be connected to the AG-150A be given an IP address within the range [192.168.1.101] - [192.168.1.150]

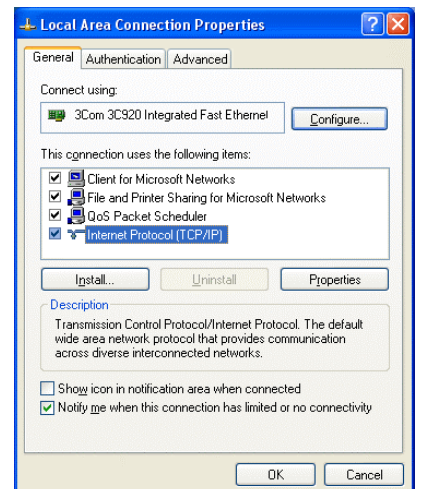
(1) Click on [Control Panel] under [Start] to open the Control Panel.



(2) In the Control Panel window, double click [Network and Dial-up Connections] and the Network and Dial-up Connections window will open. Double click on [Local Area Setting] and the [Local Area Connection Status] dialog will open. Click [Properties].



(3) In the [Local Area Connection Properties] dialog, click [Internet Protocol] to select it and click the [Properties] button.

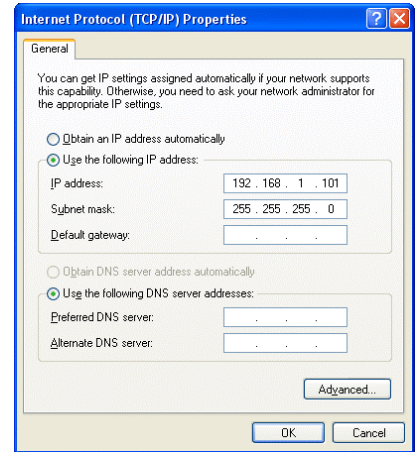


(4) In the [Internet Protocol (TCP/IP) Properties] dialog, click [Use the following IP address] and enter the IP address (for example, “192.168.1.101”) that you want to set in the IP address field.

You normally set [255.255.255.0] as the subnet mask.

Note: Ask your LAN administrator to provide the IP addresses and subnet mask.

(5) Click the [OK] button to close this dialog, and then close the other open dialogs to complete the network setting.



## 2-2 Setting the Web Browser

**Use a security device such as a VPN router when connecting the AG-150A to the Internet to prevent unauthorized access.**

If no security devices are installed, the operation settings may be changed by an unauthorized person without the knowledge of the user.

Necessary web browser settings must be performed to enable the web browser to connect to the AG-150A.

Note: The settings and screen images used as examples in this manual are based on Internet Explorer 6.0.

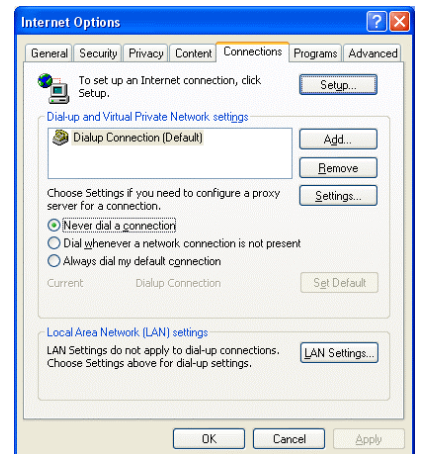
### 2-2-1 No Internet Connection

Follow the instructions below to make the web browser environment settings when using the PC with no Internet connection for monitoring and operating the air conditioners.

- (1) Click the web browser menu item [Tools] and then click [Internet Options...]



- (2) In the [Internet Options] tabbed dialog, click the [Connections] tab to display.



- (3) Select [Never dial a connection] in the Dial-up settings section and click the [OK] button to close the dialog.

### 2-2-2 Connecting to the Internet Using a Dial-up

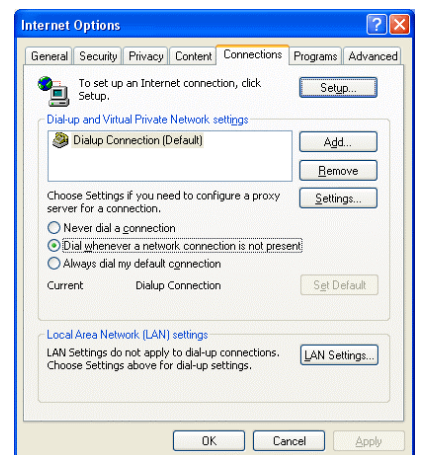
If the PC you use for monitoring air conditioners and performing operations is going to connect to the Internet via a dial-up connection, use the procedure given below to set the web browser environment settings.

By performing these settings, a message will appear asking whether or not to use a dial-up connection when an Internet connection is necessary. When connecting to the Internet, follow the directions below.

- (1) Click the web browser menu item [Tools] and then click [Internet Options...]



- (2) In the [Internet Options] tabbed dialog, click the [Connections] tab to display.



- (3) Select [Dial whenever a network connection is not present] in the Dial-up settings section and click the [OK] button to close the dialog.

## 2-2-3 Connecting to the Internet using a proxy server (Using an existing LAN)

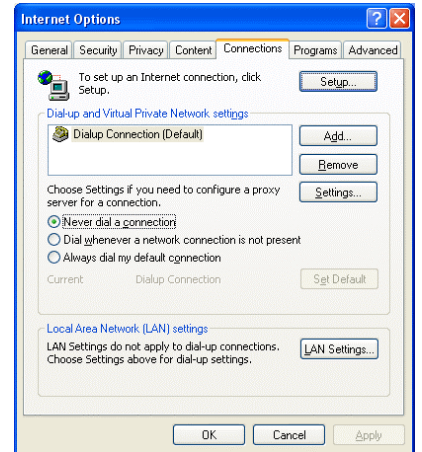
If the PC you use for monitoring air conditioners and performing operations is going to access the Internet via proxy server by connecting to an existing LAN such as a LAN within your company, use the procedure given below to set the web browser environment settings.

By performing these settings, your PC will connect to a proxy server only when connecting to the Internet.

- (1) Click the web browser menu item [Tools] and then click [Internet Options...] to select.



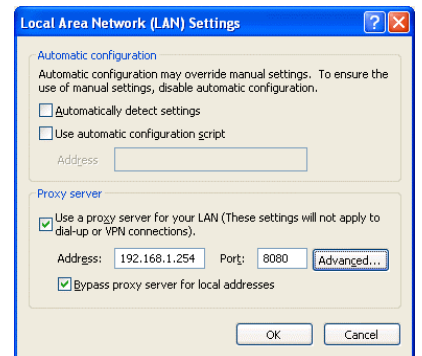
- (2) In the [Internet Options] tabbed dialog, click the [Connections] tab to display.



- (3) Select [Never dial a connection] in the Dial-up setting section.

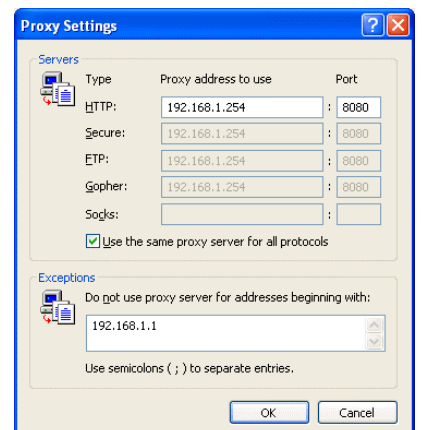
- (4) Click the [LAN Setting . . .] button in the Local Area Network (LAN) settings section to display the Local Area Network (LAN) Settings dialog.

- (5) In the Local Area Network (LAN) Settings dialog, check [Bypass proxy server for local addresses] and click the [Advanced...] button.



- (6) Enter the IP address for the AG-150A (e.g. 192.168.1.1) in the Exceptions field of the Proxy Setting dialog and click the [OK] button to close the dialog and then close the other open dialogs to complete the setting.

Note: If connecting to more than one AG-150A, you can specify multiple IP addresses like [192.168.1.1; 192.168.1.2], however, it is also possible to use the asterisk (\*) and specify [192.168.1\*].



# 3 Performing Operations

Text below explains how to connect to the AG-150A and how to make various settings for the AG-150A.

Note: If the AG-150A is restarted due to a power interruption etc., wait until the screen on the AG-150A main unit displays the normal operation screen (it takes several minutes before the normal operation screen is displayed) before using a web browser to access the AG-150A. If access is attempted while the AG-150A is still starting up, the most recent data might not be displayed or communication errors could occur.

Note: Default IP address of AG-150A is "192.168.1.1". (Factory setting)

## 3-1 Opening the Option Setting screen

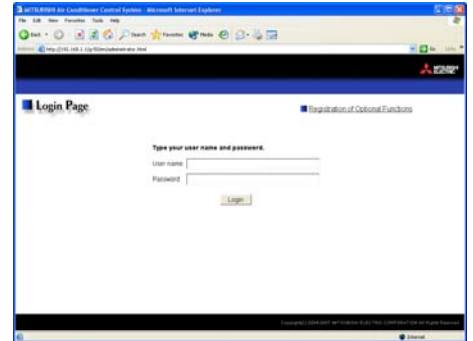
### 3-1-1 Opening the Option Setting screen

- (1) Enter the web page address in the address field of the web browser as follows:

**http:// [IP address of the AG-150A]/g-50  
/administrator.html**

Press the [Enter] key on the keyboard. A screen appears for login.

Note: For example, type "http://192.168.1.1/g-50/administrator.html" if the AG-150A IP address is [192.168.1.1].



- (2) Enter the user name and the password in the login screen, and click the [Login] button. A screen will appear in which various settings are made. Procedures for making proper settings on each screen will be explained in the following pages.

The user name and password is same as the maintenance user of the Web for initial setting.

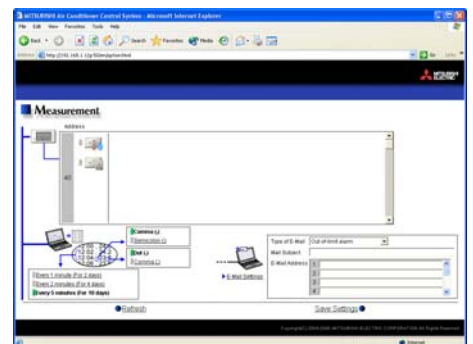
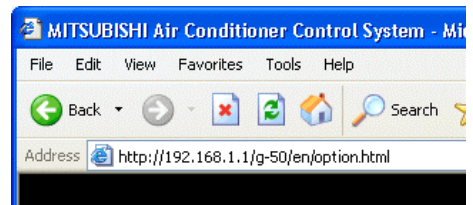
Note: The Web page is displayed in the same language as the computer uses and it is also possible to display the Web page in other languages by entering the following Web page addresses.

English	:http://[The IP address of the AG-150A]/g-50/en/administrator.html
German	:http://[The IP address of the AG-150A]/g-50/de/administrator.html
French	:http://[The IP address of the AG-150A]/g-50/fr/administrator.html
Spanish	:http://[The IP address of the AG-150A]/g-50/es/administrator.html
Italian	:http://[The IP address of the AG-150A]/g-50/it/administrator.html
Russian	:http://[The IP address of the AG-150A]/g-50/ru/administrator.html
Chinese	:http://[The IP address of the AG-150A]/g-50/zh/administrator.html
Portuguese	:http://[The IP address of the AG-150A]/g-50/pt/administrator.html
Japanese	:http://[The IP address of the AG-150A]/g-50/ja/administrator.html

- (3) Enter the web page address in the address field of the web browser as follows and press the [Enter] key on the keyboard. A screen appears for optional (measurement) settings.

**http://[IP address of the AG-150A]/g-50/option.html**

Note: For example, type "http://192.168.1.1/g-50/option.html" if the AG-150A IP address is [192.168.1.1].



### 3-1-2 Encrypting the communication data and opening the Option Settings screen

AG-150A can encrypt communication data using HTTPS (SSL).

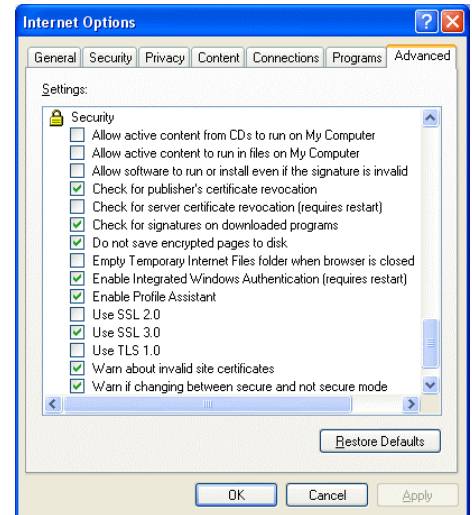
When connecting the AG-150A to the LAN that can be accessed by the general public, it is recommended that the following settings be made so that the units are monitored and controlled on the encrypted Web page.

Note: Depending on the operating system or the version of Java, HTTPS encrypted messages may not be handled correctly. If this happens, use a HTTP connection to monitor and control the units as noted in the section above.

- (1) Go to [Tools]->[Internet Options]->[Advanced], and make the following settings.

Item	Checkbox setting
Use SSL 2.0	Uncheck the box.
Use SSL 3.0	Check the box.
Use TLS 1.0	Uncheck the box.
Do not save encrypted pages to disk	Check the box.

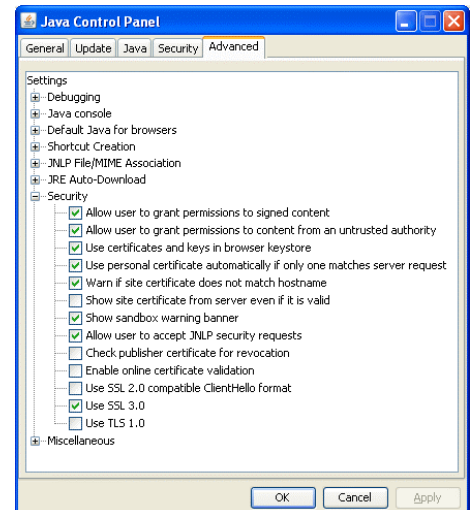
Note: Some of the settings may have different names depending on the Web browser version.



- (2) Click on [Java] in the Control Panel, and make the settings for the items under [Security] in the [Advanced] tab.

Item	Checkbox setting
Use SSL 2.0 compatible Client Hello format	Uncheck the box.
Use SSL 3.0	Check the box.
Use TLS 1.0	Uncheck the box.

Note: Some of the settings may have different names depending on the Java version.



- (3) Prefix the Web address with [https], enter the address, and hit the [Enter] (Return) key on the keyboard.

**https://[IP Address of the AG-150A]/g-50  
/administrator.html**

Note: For example, type "https://192.168.1.1/g-50/administrator.html" if the AG-150A IP address is [192.168.1.1].

If the security alert is disabled as described in the note in the following and the subsequent sections, encrypted data communication will begin, and the Login screen will appear. If the security alert has not been disabled, take the following procedures.





- (4) If the security alert has not been disabled, after entering the web address and hitting the Enter (Return) key, a security alert message will alert asking if you want to proceed. This is because the AG-150A uses the self-authentication system. Click [Yes] and proceed.

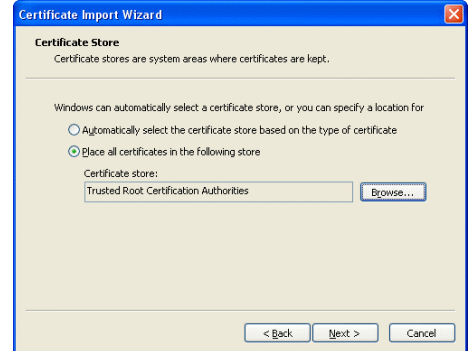
Note: To disable the security alert that appears every time the browser is opened, take the following two steps:

- 1) Register the security certificate and
- 2) Change the Web browser's option settings

To register the security certificate, click the [View Certificate] button on the security alert window to display the certificate, click on the [Install Certificate] button, and add the certificate to the Trusted Root Certification Authorities store. Just follow the prompts of the Import Wizard.

Go to [Tools]->[Internet Options]->[Advanced], and make the following settings for the Web browser.

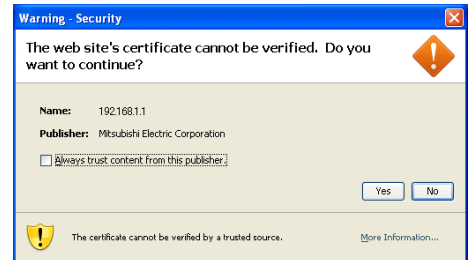
Item	Checkbox setting
Warn about invalid site certificates	Uncheck the box.



- (5) A Java security alert message will appear after you click [Yes] in step (4) above, click [Yes] again to proceed.

Note: To disable the security alert message that appears every time the browser is opened, check the check box next to [Always trust content from this publisher], and click [Yes]. The browser may need to be restarted to reflect the change.

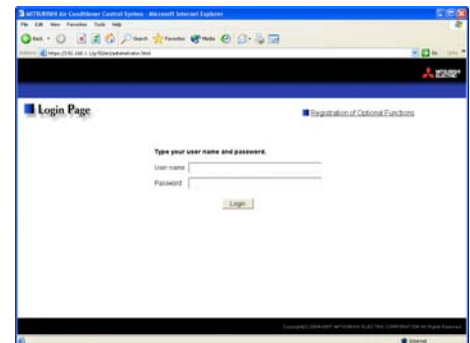
Note: If the window shown on the right does not appear and connection fails, the certificate needs to be added to the Java certificate list. Click the [View Certificate] button on the screen in step (4) to display the certificate, click on the [Copy to File] on the [Details] page, and save the certificate in any desired location in the DER format. Open [Java] in the Control Panel, click on the [Certificates] button on the [Security] page to bring up the certificate registration screen. On the screen, select [Secure Site], click on the [Import] button, change the File of type to [All Files], and select the saved certificate. Now the certificate has been added to the Java certificate list.



- (6) If a connection is successfully made, the login window will appear. All communication with the AG-150A will be encrypted.

Enter the user name and the password in the login screen, and click the [Login] button. A screen will appear in which various settings are made. Procedures for making proper settings on each screen will be explained in the following pages.

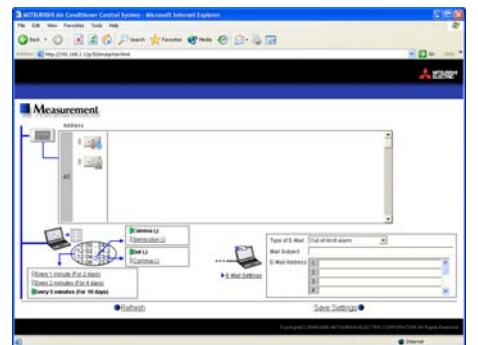
The user name and password is same as the maintenance user of the Web for initial setting.



(7) Enter the web page address in the address field of the web browser as follows and press the [Enter] key on the keyboard. A screen appears for optional (measurement) settings.

**https://[IP address of the AG-150A]/g-50/option.html**

Note: For example, type "https://192.168.1.1/g-50/option.html" if the AG-150A IP address is [192.168.1.1].



## 3-2 Enabling the function that measures the electric power by the outdoor unit

On the Measurement Settings screen that appears when the above-mentioned address is entered, the settings for the measurement of the electric power by the outdoor units as well as the settings for the temperature, humidity, power measurement for the AI controller (PAC-YG63MCA) and PI controller (PAC-YG60MCA).

After the settings are made, click [Save Settings] to send setting data to AG-150A.

Note: If PAC-YG50ECA expansion controllers are connected, expansion controller system selection buttons will appear. Select the desired expansion system controller (EC1, EC2, or EC3), and make the settings for each system. Make the settings with the expansion controllers properly connected.

Note: License of "Web Monitor" or "Basic License Pack" is necessary to use the web browser and update program. Register the license key on the AG-150A LCD screen.

A one-day license key can be registered on the LCD screen that allows the user to use the "Web Monitor" only on the day of the registration. Use this license key to update the program or to use the initial setting browser, or in any other situations when a temporary license key is necessary.

Note: The use of the function of the outdoor units that measures the electric power will require the "Energy Management License Pack."

Note: All connected outdoor units will appear on the screen. The setting for the electric power measurement function of the outdoor units that do not have that function will be fixed to [Not Available] and cannot be changed to [Available].

**Address**  
Unit address will be displayed here.

**Expansion controller system selection buttons**  
Click to select the system to be set.

**Selection of separator character**  
Select the separator character for CSV file.

**Selection of decimal point character**  
Select the decimal point character.

**Refresh**  
Read setting data from AG-150A.

**Name of outdoor unit**  
Set the name of outdoor unit.

**Outdoor unit measurement function**  
Switch between [Available] and [Not Available] for the electric power measurement function.

**Scroll bar**  
Switch the address.

**Save Settings**  
Send setting data to AG-150A.

### 3-2-1 Entering the outdoor unit names

Click on the scroll bar to scroll down to the outdoor unit to be selected as the electric power measurement target, and enter its name.

Name :

### 3-2-2 Switch between [Available] and [Not Available]

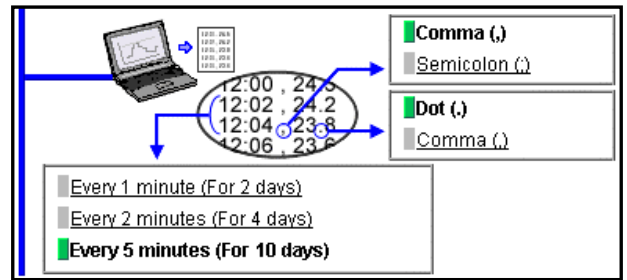
If [Available] is selected for the "Outdoor unit measurement function," outdoor units will begin measuring the electric power.

Outdoor unit measurement function :  Available  Not Available

### 3-2-3 Setting the trend data format

The data format to be used when the trend graph data of the measured value is downloaded can be set.

- (1) Select the separator character between [Comma ( , )] and [Semicolon ( ; )].
- (2) Select the decimal point character between [Period ( . )] and [Comma ( , )].



Note: Regardless of the settings on the screen above, the data collection intervals and data storage duration for the function of the outdoor units that measure the electric power will be fixed for each data type.

Electric Energy (kWh) is the cumulative amount for each successive 30-minute period, Electric Power (kW) shows the maximum value in each successive 5-minute period, and Efficiency shows the average efficiency values that are taken at 5-minute intervals. These data are retained for up to 62 days.

### 3-3 Checking the electric power measured by the outdoor units

The amount of electric power measured by the outdoor units can be checked on the [Measurement List] screen that can be accessed via a Web browser for system maintenance engineers.

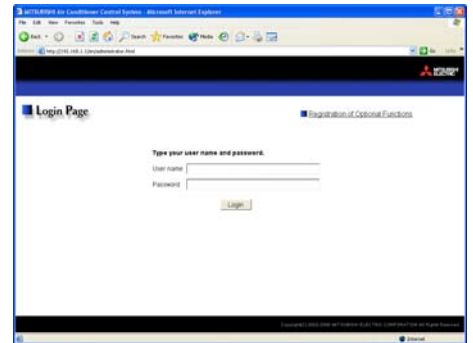
#### 3-3-1 Logging in on the Web browser for system maintenance engineers

Enter the web page address in the address field of the web browser as follows and press the [Enter] key on the keyboard. A screen appears for login.

**http://[IP address of the AG-150A]/administrator.html**

Note: For example, type "http://192.168.1.1/administrator.html" if the AG-150A IP address is [192.168.1.1].

Note: To encrypt data, change [http] to [https].



#### 3-3-2 Using a measurement list

Click [Monitor/Operation] in the menu, and click [Measurement List] in the sub menu to display a list of the measurement condition.

On this screen, the amount of electric power measured by the outdoor units can be checked.

Note: Only the measurement results of those units whose "Outdoor unit measurement function" setting was set to [Available] can be obtained.

Note: If an AI controller (PAC-YG63MCA) or a PI controller (PAC-YG60MCA) is connected, temperature, humidity, and the reading of the watt-hour meter will also appear.

**Update to most recent condition**  
Click to update the screen so that the most recent operation condition is shown.

**Measurement value**  
The measurement value is displayed here.

**Trend graph**  
Click to display the trend graph for each measurement value.

Item	Description
Trend graph	Switches to the screen where the measurement value can be checked by graph.
Update to most recent condition	Click [Update] to ensure the displayed items reflect the most recent operation condition. When [Auto] is selected, information is updated automatically every minute to reflect the latest information.
Measurement value	Displays the current readings of the Electric Energy (kWh), Electric Power (kW), and Efficiency. Note: Electric Energy (kWh) is the cumulative values since measurement began. Note: The value for Efficiency will read "0" when the compressor on the outdoor unit is not operating. Note: The measurement data are collected from outdoor units at 1-minute intervals. So the displayed data are refreshed at 1-minute intervals.

### 3-3-3 Using a graph

Click [Trend Graph] on the measurement condition list screen, and select the measured item to be displayed. The measured value can be checked by graph. The graph can also be downloaded as a CSV file.

**Update to most recent condition**  
Click to update the screen so that the most recent operation condition is shown.

**Selection of measured item**  
Select the measured item to be displayed.

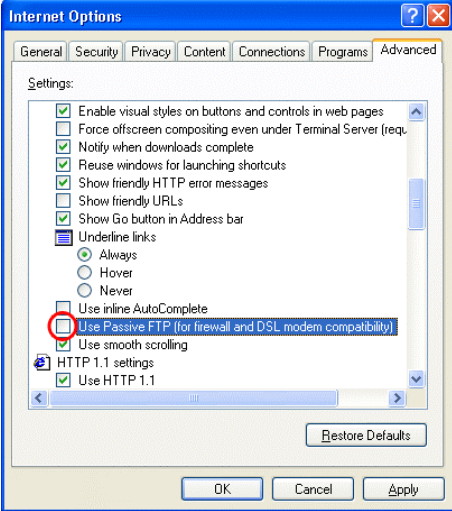
**Measurement value**  
The measured value is displayed as a graph.

**Download**  
Click to download the graph being displayed.

**Overview display**  
Click to display the measurement value as a list.

**Measurement date**  
Select the date when the value to be displayed is measured.

Item		Description
Overview		Switches to the screen where the measurement value can be checked as a list.
Update to most recent condition		Click [Update] to ensure the displayed items reflect the most recent operation condition.
Selection of measured item		Click the [Selection of measured item], and select the measured item to be displayed from the list.
Measurement date		Select the date when the value to be displayed is measured. Note: Up to 62 days of the measurement data collected by the outdoor units can be stored and displayed.
Outdoor unit	Electric Energy (kWh)	Electric energy (kWh) is shown as a bar graph in 30-minute increments.
	Electric Power (kW)	Electric power (kW) is shown as a line graph in 5-minute increments. Note: The largest value of the values measured at 1-minute intervals in each 5 minutes will be displayed..
	Efficiency	Efficiency is shown as a line graph in 5-minute increments. Note: The average value of the values measured at 1-minute intervals in each 5 minutes will be displayed. Note: The value for Efficiency will read "0" when the compressor on the outdoor unit remains stopped for 5 minutes.

Item	Description												
Download	<p>Click [Download] to download the graph being displayed. The data format of the downloaded data is as follows.</p>												
	<table border="1"> <thead> <tr> <th data-bbox="512 264 635 297">Item</th> <th data-bbox="635 264 794 297">Format</th> </tr> </thead> <tbody> <tr> <td data-bbox="512 297 635 331">First line</td> <td data-bbox="635 297 1415 331">File type 124: Outdoor unit data</td> </tr> <tr> <td data-bbox="512 331 635 387">Second line</td> <td data-bbox="635 331 1415 387">Date yyyy/mm/dd Note: The date format set on Initial Setting Web.will be applied.</td> </tr> <tr> <td data-bbox="512 387 635 488">Third line</td> <td data-bbox="635 387 1415 488">Trend target Temperature: "Address" + M-NET address Note: If an expansion controller is connected, the third line will appear in the "Address"+[Expansion controller No.]-[M-NET address] format.</td> </tr> <tr> <td data-bbox="512 488 635 521">Fourth line</td> <td data-bbox="635 488 1415 521">Measured item " Time,Electric energy (kWh),Electric power (kW),Efficiency"</td> </tr> <tr> <td data-bbox="512 521 635 577">Fifth line or later</td> <td data-bbox="635 521 1415 577">Data hh:MM, Electric energy, Electric power, Efficiency Note: Electric energy (kWh) is shown in 5-minute increments.</td> </tr> </tbody> </table>	Item	Format	First line	File type 124: Outdoor unit data	Second line	Date yyyy/mm/dd Note: The date format set on Initial Setting Web.will be applied.	Third line	Trend target Temperature: "Address" + M-NET address Note: If an expansion controller is connected, the third line will appear in the "Address"+[Expansion controller No.]-[M-NET address] format.	Fourth line	Measured item " Time,Electric energy (kWh),Electric power (kW),Efficiency"	Fifth line or later	Data hh:MM, Electric energy, Electric power, Efficiency Note: Electric energy (kWh) is shown in 5-minute increments.
	Item	Format											
	First line	File type 124: Outdoor unit data											
	Second line	Date yyyy/mm/dd Note: The date format set on Initial Setting Web.will be applied.											
Third line	Trend target Temperature: "Address" + M-NET address Note: If an expansion controller is connected, the third line will appear in the "Address"+[Expansion controller No.]-[M-NET address] format.												
Fourth line	Measured item " Time,Electric energy (kWh),Electric power (kW),Efficiency"												
Fifth line or later	Data hh:MM, Electric energy, Electric power, Efficiency Note: Electric energy (kWh) is shown in 5-minute increments.												
	<p style="text-align: center;">Example of csv data</p>												
	<pre> 124 15/03/2008 Address 53 Time,Electric energy (kWh),Electric power (kW),Efficiency 00:00,15.24,32.23,2.33 00:05,14.20,29.57,2.41 00:10,12.25,26.00,2.50 : 23:55,11.60,25.27,2.31 </pre>												
	<p>Note: When the data cannot be downloaded properly, uncheck the "Use Passive FTP (for firewall and DSL modem compatibility)" checkbox. (Refer to the image on the right.)</p>												
													

---

This product is designed and intended for use in the residential,  
commercial and light-industrial environment.

The product at hand is based on the following EU regulations:

- Low Voltage Directive 2006/95/EC
- Electromagnetic Compatibility Directive, 2004/108/EC

Please be sure to put the contact address/telephone number on  
this manual before handing it to the customer.

 **MITSUBISHI ELECTRIC CORPORATION**

HEAD OFFICE: TOKYO BLDG. , 2-7-3, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN

WT05493X03  
Printed in Japan  
Recycled Paper