



HIOKI

INSTRUCTION MANUAL

9768

SMART SITE UTILITY PRO

HIOKI E. E. CORPORATION

Contents

User's License Agreement	1
Introduction	1
Operating Precautions	2
1 Operating Environment and Installation	3
1.1 Operating Environment	3
1.2 Installation	4
2 Overview	5
2.1 Main Functions	5
2.2 System Configuration Diagram	6
3 Operation (Basics)	9
3.1 Initial Setup	9
3.1.1 Starting MAP Editor	10
3.1.2 LAN MODULE Connection Settings	12
3.1.3 WIRE MODULE Connection Settings	17
3.1.4 AIR MODULE Connection Settings	22
3.1.5 Auto Recognition of Measurement Modules	29
3.2 Monitoring Measurement Values	31
3.2.1 Starting and Stopping the Monitor Function	32
3.2.2 Changing the Monitor Items	34
3.2.3 Displaying a Trend Graph	35
3.2.4 Changing the Background Image	37
3.2.5 Saving/Switching/Deleting a Layout	38
3.3 Setting the Measurement Parameters	40
3.3.1 Common Steps	40
3.3.2 Setting Measurement Parameters for 2301 to 2305	41
3.3.3 Setting Measurement Parameters for 2331	44
3.3.4 Setting Measurement Parameters for 2332	47

3.3.5	Setting Measurement Parameters for 2341	51
3.3.6	Setting Measurement Parameters for 2342	53
3.3.7	Setting Measurement Parameters for 2343	60
3.4	Recording and Acquiring Data	66
3.4.1	Starting Data Recording	67
3.4.2	Acquiring Recorded Data	71
3.4.3	Stopping Data Recording	74
3.5	Viewing Recorded Data	76
3.5.1	Procedure for Viewing Recorded Data	76
3.5.2	Main Functions of "Table"	78
3.5.3	Main Functions of "Graph"	79
3.5.4	Recording File Combination Function	84

4 Operation (Advanced) 85

4.1	Report Creating Function	85
4.1.1	Creating a Format File	86
4.1.2	Performing an Output Test to Check the Format File	94
4.1.3	Auto Report Output	96
4.1.4	Precautions for Report Creation	104
4.2	Initial Setup (Including Measurement Modules)	110
4.2.1	Setting Measurement Module Configuration and Measurement Parameters	111
4.2.2	Sending the Measurement Module Settings	112
4.2.3	Checking the Communication Status	113
4.3	Creating Multiple Module Lists	114
4.4	Other Functions	115
4.4.1	Displaying the Communication Status	115
4.4.2	Collecting All Data in Memory	116

5 Usage 119

5.1	How to Use the Alarm Output (for All Modules)	119
-----	--	-----

5.2	Example for Using the Alarm Output of the 2342 OUTPUT MODULE	121
5.2.1	Filter Function	121
5.2.2	Alarm Priority Channel Function	122
5.2.3	Usage Examples and Initial Settings	124
6	Specifications	127
<hr/>		
	Appendix	129
<hr/>		
Appendix 1	Smart Site Utility Settings Folder Configuration	129
Appendix 2	Wireless Transmission Stages	130
Appendix 3	2351 AIR MODULE Wireless Frequencies	131



User's License Agreement

Important Please read the following agreement carefully. This user's license agreement (hereafter referred to as Agreement) is a legal contract between the software user (individual or institution) and HIOKI E. E. CORPORATION (hereafter referred to as HIOKI). The term "software" includes any related electronic documentation and computer software and media, as well as any printed matter (such as the Instruction Manual).
By installing, reproducing, or using the software, you, the Licensee, agree to accept the license terms set forth in this Agreement.

This software is protected by copyright laws, international copyright agreements, as well as non-corporate laws. The software is a licensed product, and is not sold to the user.

1. License

This Agreement grants you, the Licensee, a license to install a single copy of the software on a specified computer system.

2. Explanation of other rights and restrictions

- 1. Restrictions on reverse engineering, decompiling, and disassembling:
You may not reverse engineer, decompile, or disassemble the software.
 - 2. Separation of components:
This software is licensed for use as a single product. You may not separate the components for use on multiple computer systems.
 - 3. Loaning:
You may not loan or lease the software.
 - 4. Transfer of software:
You may transfer full rights in accordance with this Agreement. However, if you do so, you may not retain any copy of the software, but must transfer the software in its entirety (all components, media, related documentation such as the Instruction Manual, and this Agreement), and must ensure that the receiver of the software agrees with the terms set forth in this Agreement.
 - 5. Cancellation:
In the event that the terms and conditions set forth in this Agreement are violated, HIOKI retains the right to cancel this Agreement without compromise of any of its other rights. In this event, you must destroy all copies of the software and its components.
-

3. Copyright

The title and copyright rights concerning the software's related documentation, such as the Instruction Manual and copies of the software, are the property of HIOKI and other licensors, and are protected by copyright laws and international agreement regulations. Accordingly, you must treat the software as you would any other copyrighted document. However, you are permitted to make copies as indicated in (A) and (B) below provided such copies are not intended for use other than back-up purposes.

(1) You may make a single copy of the software.

(2) You may install this software on a single computer. However, you may not reproduce the documentation supplied with the software, such as the Instruction Manual.

4. Dual media software

You may receive the same software on more than one type of media. However, regardless of the type and size of media provided, you may only use one media type and only on a single computer. You must not use or install the other media on any other computer. Furthermore, except when transferring the software as stipulated above, you may not loan, lease, or transfer the other media to any other user.

5. Warranty

- 1. HIOKI reserves the right to make changes to the software specifications without any prior warning. If HIOKI releases a new version of the software, it will provide registered users with information about the revised software.
 - 2. If the software does not operate in accordance with the supplied Instruction Manual, or the software media or Instruction Manual are damaged in any way, you have one year from the date of purchase to apply for either an exchange or repair at HIOKI's discretion.
 - 3. In no event will HIOKI be liable for any damages resulting from fire, earthquake, or actions of a third party under the conditions stated in item number 2 above, or for any damage caused as a result of your using the software incorrectly or under unusual circumstances. Further, the warranty is invalid if the following occurs:
 - (1) Damage incurred through transport, moving, droppage, or any other kind of impact after you purchased the software.
 - (2) Damage incurred through any form of alteration, unwarranted servicing, or any other type of mistreatment.
 - 4. In the event that the software is exchanged or repaired, the period of warranty expires on the latest occurring date out of the day stated in the original warranty, and exactly 6 months from the day the exchanged/repaired software is returned to you.
 - 5. Regardless of the grounds for making a legal claim, HIOKI and its licensors will not be liable for any damage incurred (including, but not limited to: lost profits, suspension of business, loss of data or lost savings) unstated in the warranty terms for the use of this software. This is true even if HIOKI is notified of the possibility of such damages. In any event, HIOKI's liability shall be limited only to replacing defective software with software that is not defective.
-

Introduction

Thank you for purchasing the HIOKI “Model 9768 SMART SITE UTILITY PRO.” To obtain maximum performance from the product, please read this manual first, and keep it handy for future reference.

Verifying Package Contents

When you receive the product, inspect it carefully to ensure that no damage occurred during shipping. If damage is evident, or if it fails to operate according to the specifications, contact your dealer or Hioki representative.

- 9768 SMART SITE UTILITY PRO(CD-R) 1
- Instruction manual 1

Safety Symbols

The following symbols in this manual indicate the relative importance of cautions and warnings.



Indicates that incorrect operation presents a possibility of injury to the user or damage to the product.

Other Symbols



Indicates references.

Notation

- Unless otherwise specified, “Windows” represents Windows 2000, or Windows XP.
- Dialog box represents a Windows dialog box.
- Menus, commands, dialogs, buttons in a dialog, and other names on the screen and the keys are indicated in brackets.
- Windows and Excel are the registered trademark of Microsoft Corporation in the United States and/or other countries.
- Pentium is a registered trademark of Intel Corporation.
- In this manual, the model number is indicated as follows:
Example: 2351-20 → 2351 (the number following the “-” is omitted.)

Mouse Operation

Click	Press and quickly release the left button of the mouse.
Right-click	Press and quickly release the right button of the mouse.
Double click	Quickly click the left button of the mouse twice.
Drag	While holding down the left button of the mouse, move the mouse and then release the left button to deposit the chosen item in the desired position.
Activate	Click on a window on the screen to activate that window.

Operating Precautions

Follow these precautions to ensure safe operation and to obtain the full benefits of the various functions.

CAUTION

- Always hold the disc by the edges, so as not to make fingerprints on the disc or scratch the printing.
- Never touch the recorded side of the disc. Do not place the disc directly on anything hard.
- Do not wet the disc with volatile alcohol or water, as there is a possibility of the label printing disappearing.
- To write on the disc label surface, use a spirit-based felt pen. Do not use a ball-point pen or hard-tipped pen, because there is a danger of scratching the surface and corrupting the data. Do not use adhesive labels.
- Do not expose the disc directly to the sun's rays, or keep it in conditions of high temperature or humidity, as there is a danger of warping, with consequent loss of data.
- To remove dirt, dust, or fingerprints from the disc, wipe with a dry cloth, or use a CD cleaner. Always wipe radially from the inside to the outside, and do not wipe with circular movements. Never use abrasives or solvent cleaners.
- Hioki shall not be held liable for any problems with a computer system that arises from the use of this CD-R, or for any problem related to the purchase of a Hioki product.

Operating Environment and Installation

1

1.1 Operating Environment

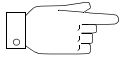
Computer environment requirements

Hardware	CPU: Pentium 500 MHz or higher OS: Windows 2000/XP
Memory	128 MB or more
Display	Resolution 1024 x 768 dots, 65536 colors or more
Hard disk	At least 30 MB of free space (for software installation), plus space for stored data (at least 500 MB recommended)
Interfaces	COM port, LAN

1.2 Installation

Procedure

1. Uninstall any previous versions of Smart Site Utility.



This is necessary only if Smart Site Utility has already been installed.
From **[Control Panel]** - **[Add/Remove Programs]**, select the old version of Smart Site Utility to uninstall.

2. Execute "setup.exe" from the CD-ROM to start the installation process



To install the program under Windows 2000/XP, you must be logged in with Administrator privileges.

Overview

2

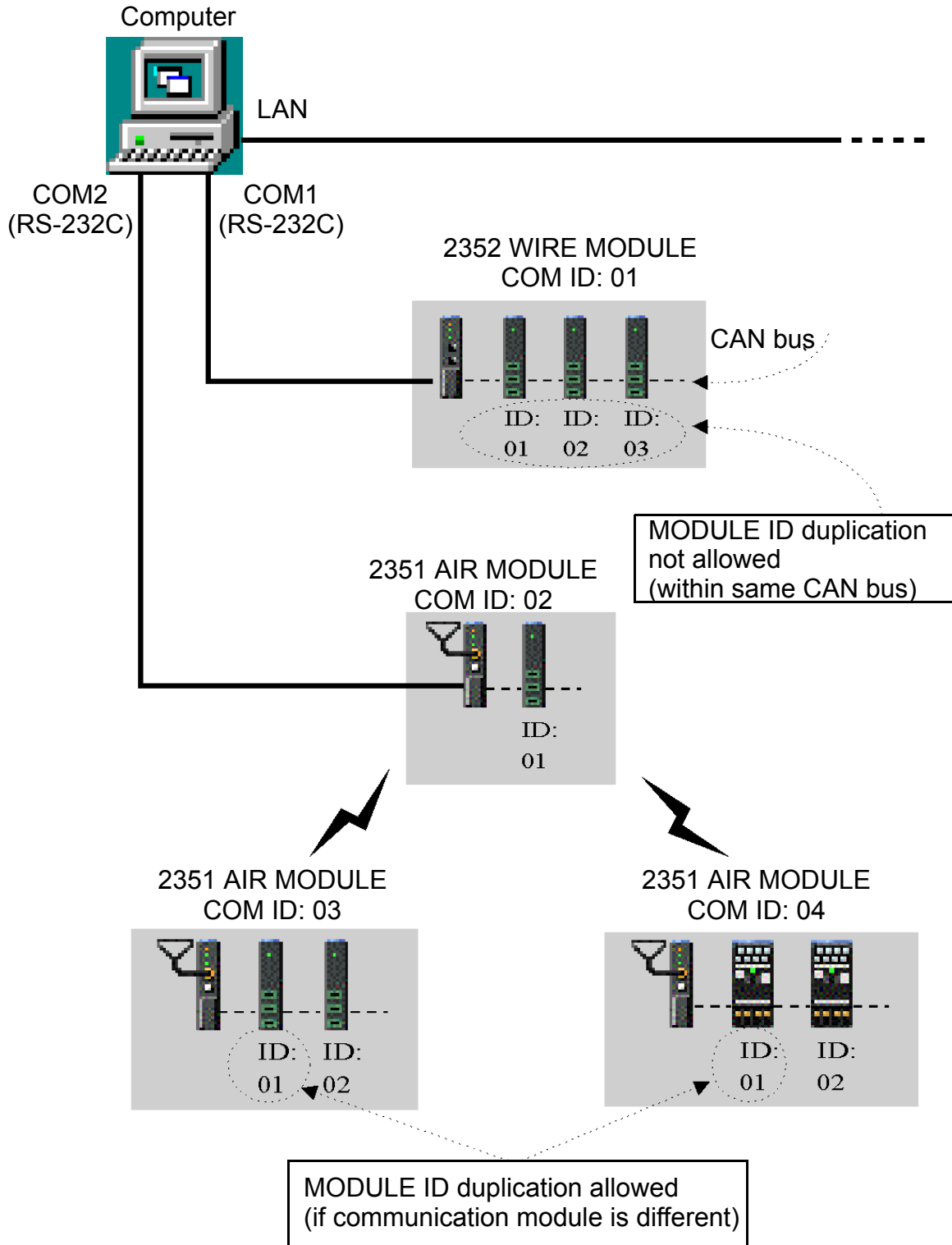
2.1 Main Functions

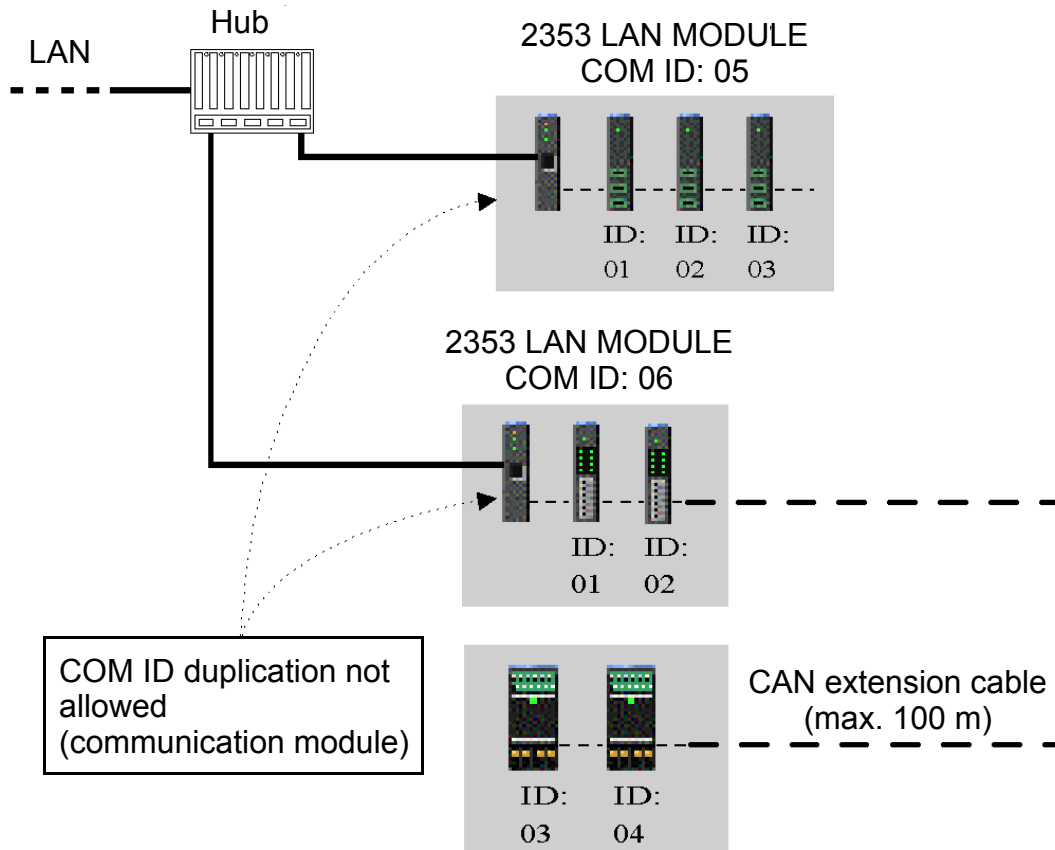
The Smart Site Utility has the following functions.

- ◆ **Make communication settings for communication modules and measurement parameter settings for measurement modules**
- ◆ **Measurement value monitoring**
Monitor windows placed on the background screen allow monitoring close to the actual image.
- ◆ **Trend graph display**
Monitor values can be represented as a trend graph.
- ◆ **Data recording and acquisition**
The utility can control the recording function of measurement modules, for periodic acquisition of data at specified intervals.
- ◆ **View recorded data (Smart Site Viewer)**
Acquired data can be viewed in a table or as a graph. The graph can also be printed. The table data can be exported to Microsoft Excel or saved as a CSV file.
- ◆ **Create report (Smart Site Viewer)**
Using Microsoft Excel, daily and monthly reports can be created, using a format file as a template.

2.2 System Configuration Diagram

System example





◆ **COM ID of communication module^{*1}**

- Set within the range 01 to 89.
- Make sure that there are no duplicate COM ID settings.

◆ **MODULE ID of measurement module^{*2}**

- Set within the range 01 to 63.
- Make sure that there are no duplicate MODULE ID settings within the same CAN bus.
- If the communication module is different, duplicate MODULE ID settings are allowed.

*1 Communication module: Collective name for 2351 AIR MODULE, 2352 WIRE MODULE, 2353 LAN MODULE

*2 Measurement module : Collective name for 2301 HUMIDITY MODULE to 2305 INSTRUMENTATION MODULE, 2331 POWER METER MODULE, 2332 POWER METER MODULE, 2341 INPUT MODULE, 2342 OUTPUT MODULE, 2343 RS LINK MODULE

- Make the ID setting with the rotary switches on the rear of the module.
- When the POWER LED of a module flashes in red, MODULE ID duplication has been detected within the CAN bus. Change the settings so that all MODULE IDs in the same CAN bus are unique.

Operation (Basics)

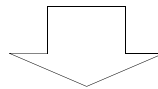
3

3.1 Initial Setup

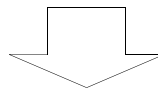
This section describes the procedure for making only the settings that are required for communication, and using auto recognition for the measurement modules*¹.

General procedure

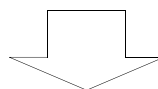
1. Start the MAP editor. ❖ 3.1.1 (page 10)



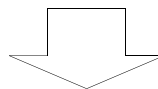
2. Edit the settings in MAP editor to fit the communication module*². ❖ 3.1.2 (page 12) to 3.1.4 (page 22)



3. Send the settings to the communication module so that the settings on the computer and the actual module settings are linked. ❖ 3.1.2 (page 12) to 3.1.4 (page 22)



4. Install the module in the actual measurement location.



5. Establish communication and perform auto recognition of the connected measurement modules. ❖ 3.1.5 (page 29)

*1 Measurement module : Collective name for 2301 HUMIDITY MODULE to 2305 INSTRUMENTATION MODULE, 2331 POWER METER MODULE, 2332 POWER METER MODULE, 2341 INPUT MODULE, 2342 OUTPUT MODULE, 2343 RS LINK MODULE

*2 Communication module: Collective name for 2351 AIR MODULE, 2352 WIRE MODULE, 2353 LAN MODULE

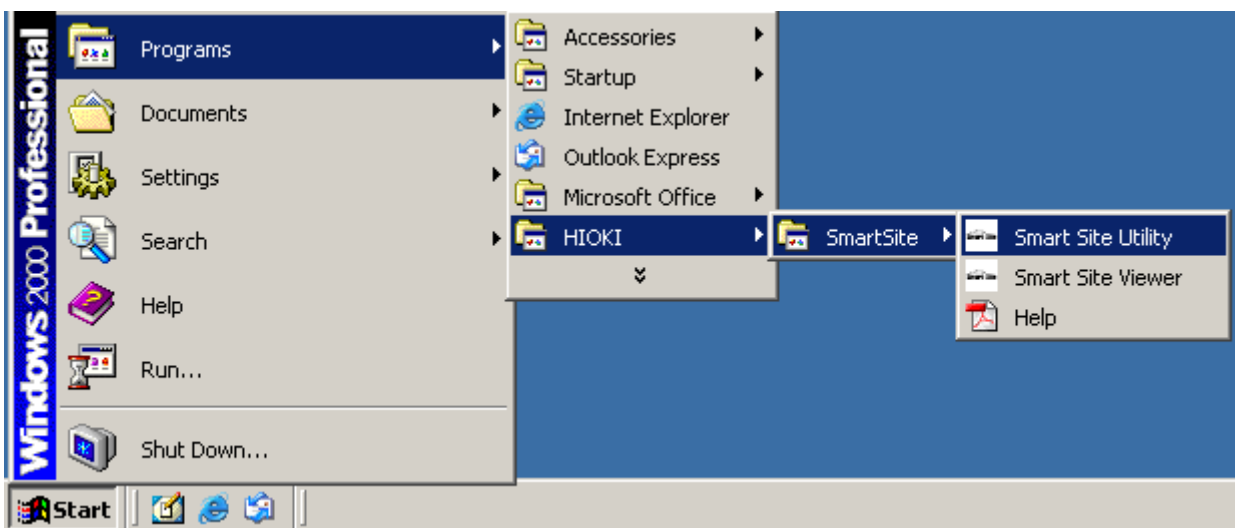
3.1.1 Starting MAP Editor

This section describes how to enter the intended module configuration into the computer. To do this, the MAP editor of the Smart Site Utility must first be started up.

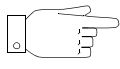
- In the MAP editor, you can build the entire module configuration including measurement modules.
- For a simple procedure such as in this example, you enter the intended module configuration into the computer by making settings only for the communication module and using auto recognition for the other modules.

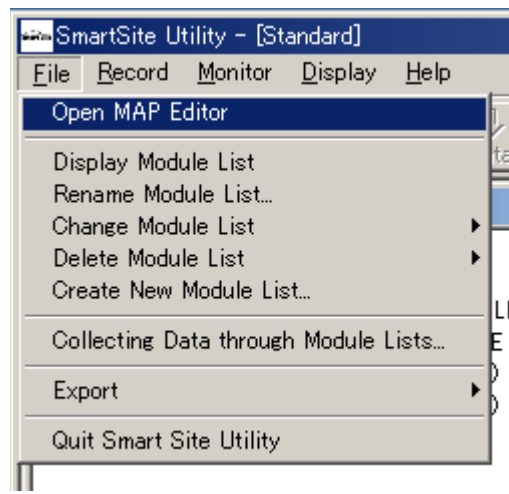
Procedure

1. Start the Smart Site Utility.
Select [Start] - [Programs] - [HIOKI] - [SmartSite] - [Smart Site Utility]. The illustration below shows an example for starting the Smart Site Utility in Windows 2000.

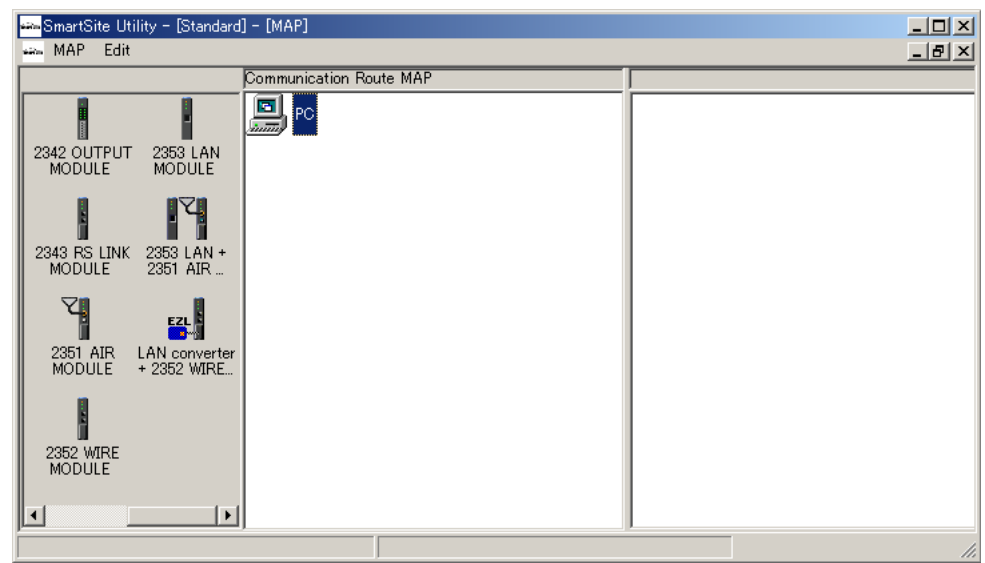
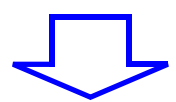
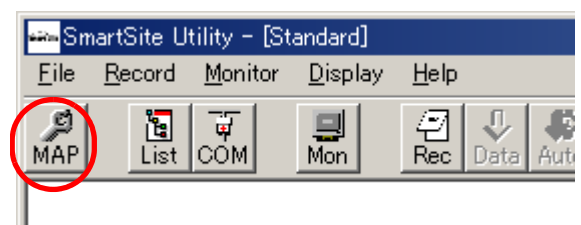


2. From the menu bar, select [File] - [Open MAP Editor] to open the MAP editor.

 You can also open the MAP editor by selecting [MAP] from the tool-bar.



or

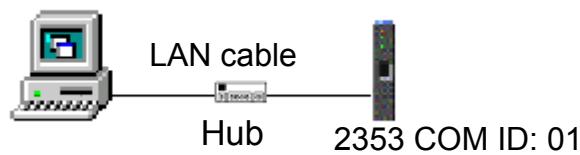


3.1.2 LAN MODULE Connection Settings

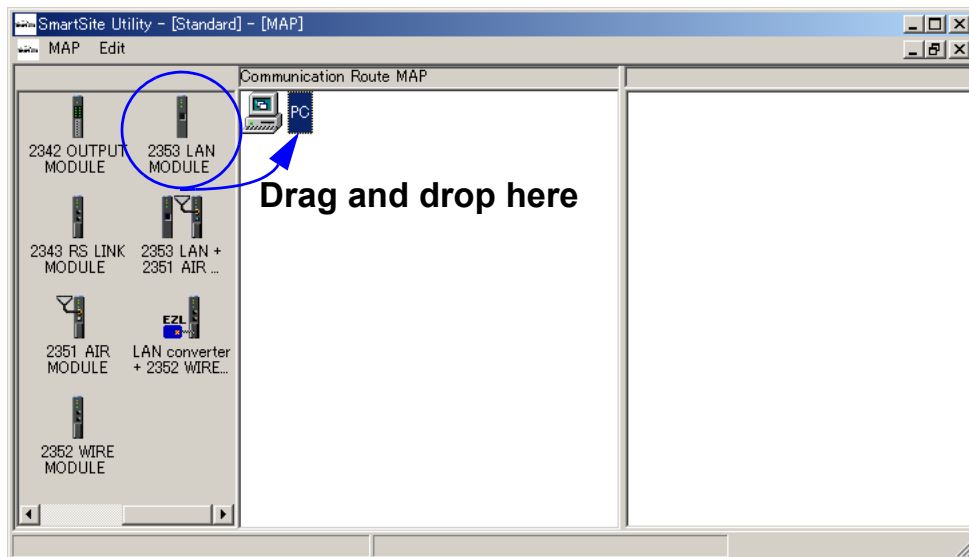
Procedure

1. Select the communication method between the computer and the 2353 LAN MODULE, and connect.

The connection is as shown below.

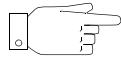


- (1) Drag [2353 LAN MODULE] from the module icon section on the left side of the screen and drop it onto the [PC] icon in the center.



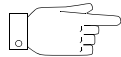
(2) The [**Communication module settings**] dialog box appears.

(3) Verify that [**COM ID**] is set to [**1**].



An empty ID is automatically assigned to the COM ID field.

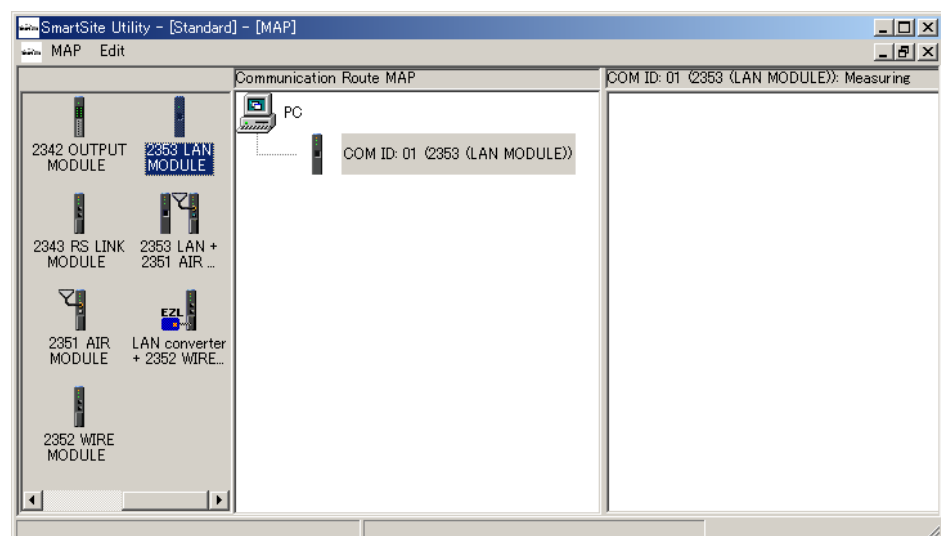
- (4) The [**Model Comment**] field serves for identifying the communication module to distinguish it from other modules. Enter a comment string here that is meaningful and easy to understand.
- (5) In the [**LAN (Ethernet) setting**] fields, enter the IP address, subnet mask, and default gateway.



- For information on how to set these items, consult the network administrator.
- When no default gateway is used, this field may be left blank.

(6) Click [**OK**].

(7) The computer and [**2353 LAN MODULE**] are now connected.



2. Make preparations for sending the settings to [COM ID: 01 (2353 LAN MODULE)].

To be able to send the settings, the following components are required near the computer.

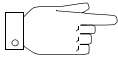
2353 LAN MODULE

Module base*1

Power supply module*2

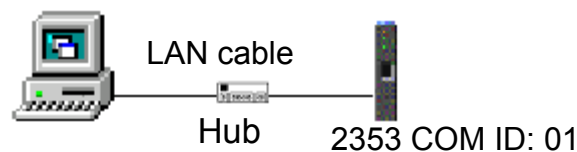
*1: 2391 MODULE BASE series, 2392 MODULE BASE series

*2: 2361 AC POWER MODULE, 2362 DC POWER MODULE



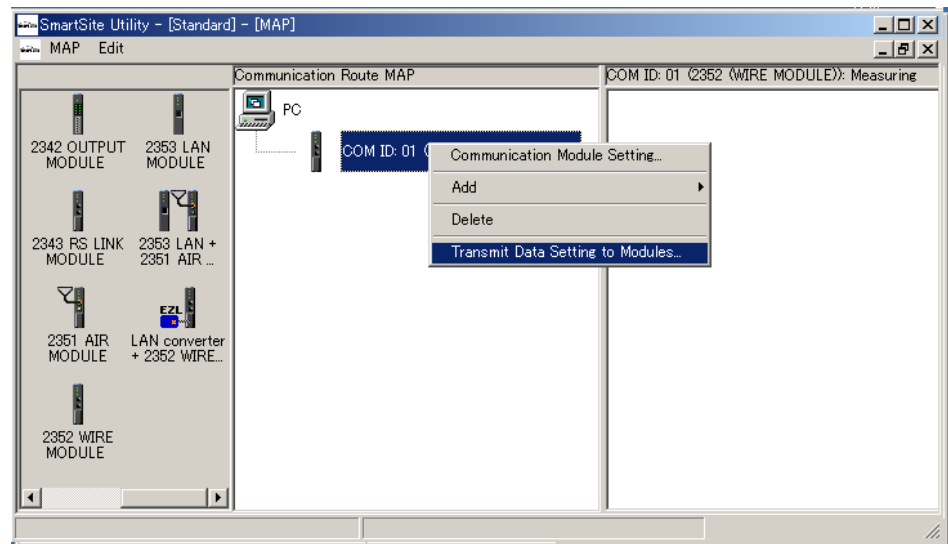
In this example, a measurement module is not required.

- (1) Set the two rotary switches on the rear of the 2353 LAN MODULE to [0] [1], starting from the left.
- (2) Connect the power supply module and 2353 LAN MODULE to the module base, and turn power on.
- (3) Use LAN cable as shown in the illustration below to connect the 2353 LAN MODULE to the computer. The settings will be sent via the hub on the LAN.

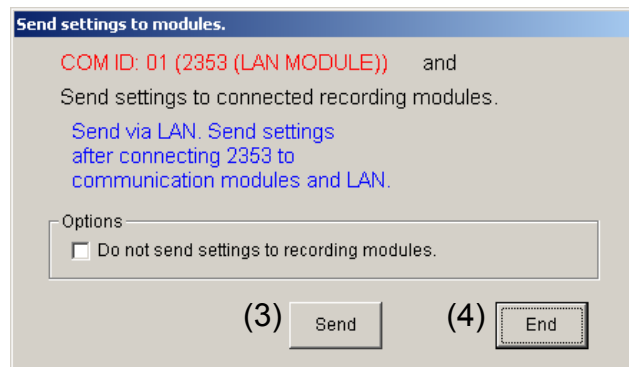


3. Send the settings to [COM ID: 01 (2353 LAN MODULE)].

- (1) In the MAP editor, select [COM ID: 01 (2353 LAN MODULE)] and right-click to access the popup menu. Then select [Transmit Data Setting to Modules].



- (2) The following dialog box appears.



- (3) Click the [Send] button to initiate the transmission.
- (4) When the settings have been sent, the message [Settings sent.] appears. Verify that the procedure was successful, and click the [End] button to close the dialog box.

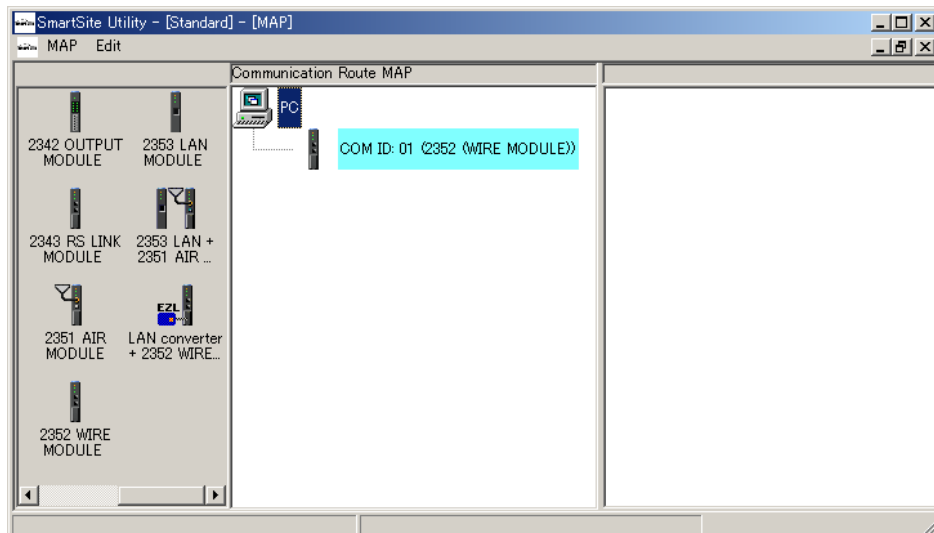
- On the network, the LAN MODULE and computer must be set up in a one-to-one relationship
If there are several LAN MODULES and the settings were sent to the wrong COM ID, malfunction will occur. When there are several LAN MODULES, take care not to make a mistake when making the COM ID setting.
- In this example, measurement module setup is not performed. Therefore the check/uncheck status of [Options] has no effect.
- When the settings are sent, the internal clock of the module will be set to the same time as the clock of the computer.

If an error occurs

Check the following items.

- **Is the COM ID of the 2353 LAN MODULE correct?** ❖ (3) (page 13)
- **Was the sending process attempted while the 2353 LAN MODULE was still in the initialization phase (about 10 seconds after power-on)?**
Please send settings after initialization.

4. When you return to the MAP editor, modules for which settings have been sent will be shown with a blue background. This lets you check whether the sending procedure was successful.



The sending procedure is now complete.

From the menu bar, select [MAP] - [End] to return to the main screen of the Smart Site Utility.

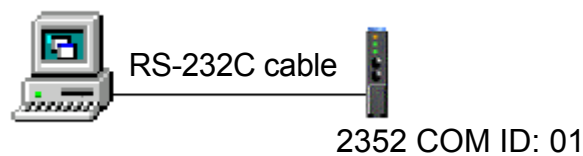
Next, proceed to section 3.1.5 "Auto Recognition of Measurement Modules" (page 29).

3.1.3 WIRE MODULE Connection Settings

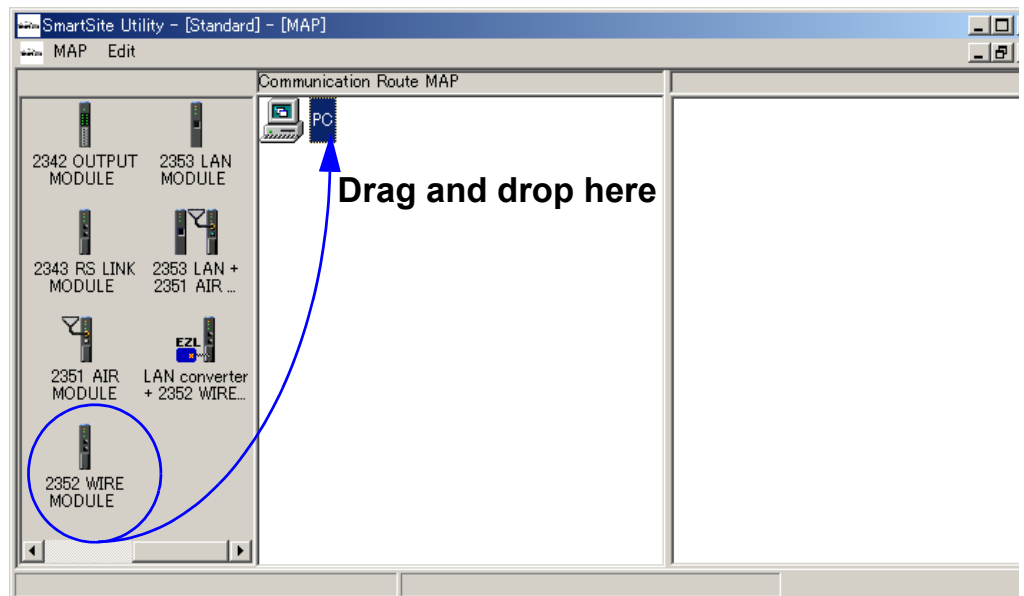
Procedure

1. Select the communication method between the computer and the 2352 WIRE MODULE, and connect.

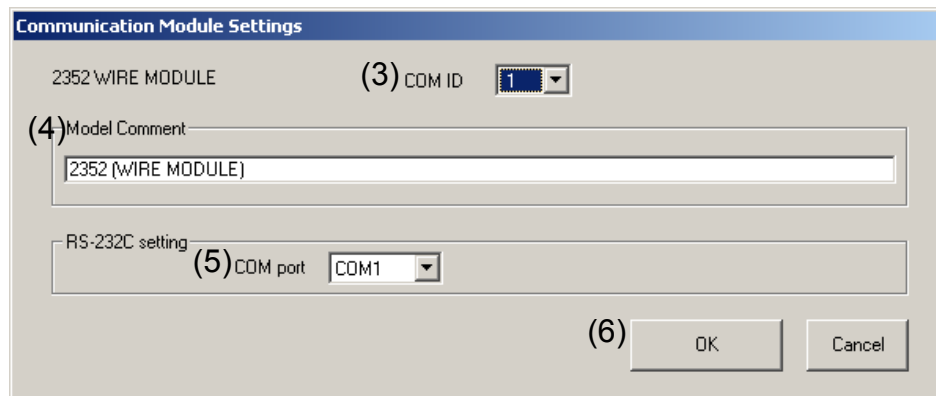
The connection is as shown below.



- (1) Drag [2352 WIRE MODULE] from the module icon section on the left side of the screen and drop it onto the [PC] icon in the center.



(2) The **[Communication Module Settings]** dialog box appears.



(3) Verify that **[COM ID]** is set to [1].



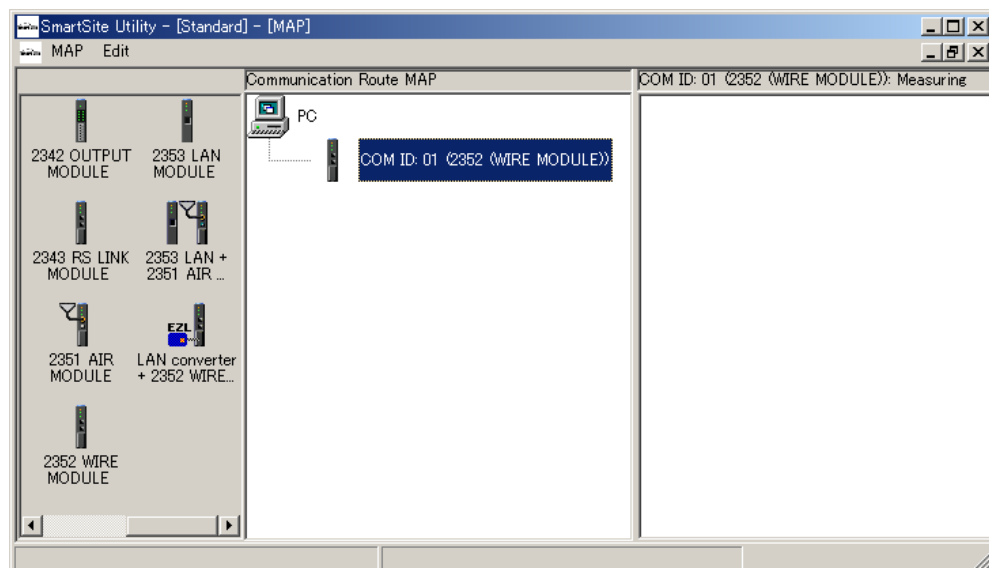
An empty ID is automatically assigned to the COM ID field.

(4) The **[Model Comment]** field serves for identifying the communication module to distinguish it from other modules. Enter a comment string here that is meaningful and easy to understand.

(5) In the **[RS-232C setting]** - **[COM port]** field, select the COM port to be used for RS-232C communication.

(6) Click **[OK]**.

(7) The computer and **[COM ID: 01 (2352 WIRE MODULE)]** are now connected.



2. Make preparations for sending the settings to [COM ID: 01 (2352 WIRE MODULE)].

To be able to send the settings, the following components are required near the computer.

2352 WIRE MODULE
Module base^{*1}
Power supply module^{*2}

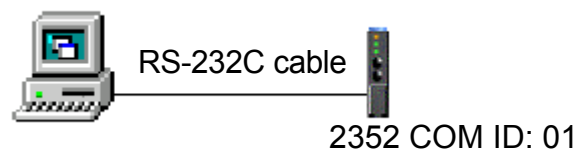
*1: 2391 MODULE BASE series, 2392 MODULE BASE series

*2: 2361 AC POWER MODULE, 2362 DC POWER MODULE



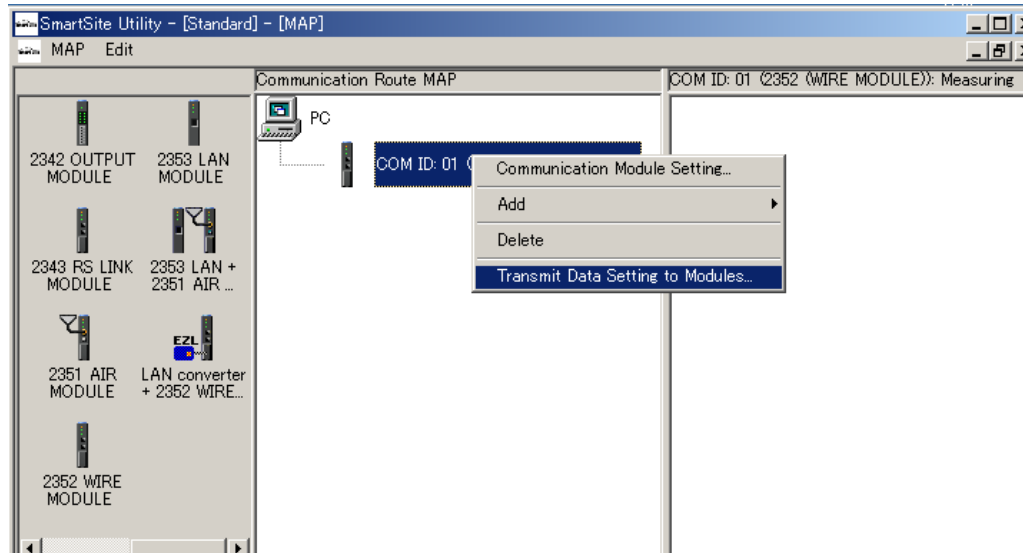
In this example, a measurement module is not required.

- (1) Set the two rotary switches on the rear of the 2352 WIRE MODULE to [0] [1], starting from the left.
- (2) Connect the power supply module and 2352 WIRE MODULE to the module base, and turn power on.
- (3) Use a cross-wired (null-modem) RS-232C cable as shown in the illustration below to connect the 2352 WIRE MODULE to the computer.

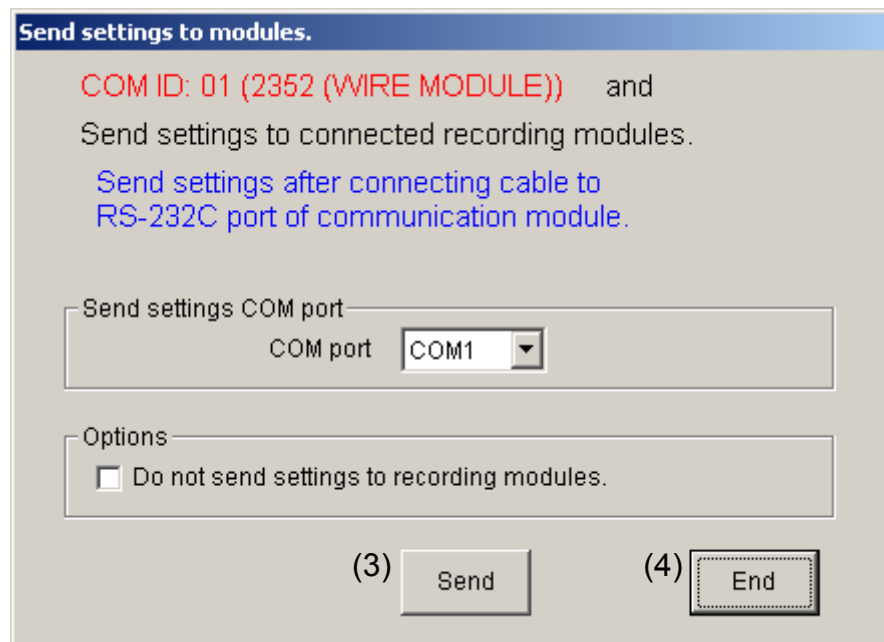


3. Send the settings to [COM ID: 01 (2352 WIRE MODULE)].

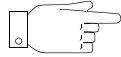
- (1) In the MAP editor, select [COM ID: 01 (2352 WIRE MODULE)] and right-click to access the popup menu. Then select [Transmit Data Setting to Modules].



- (2) The following dialog box appears.



- (3) Click the [Send] button to initiate the transmission.
- (4) When the settings have been sent, the message [Settings sent.] appears. Verify that the procedure was successful, and click the [End] button to close the dialog box.



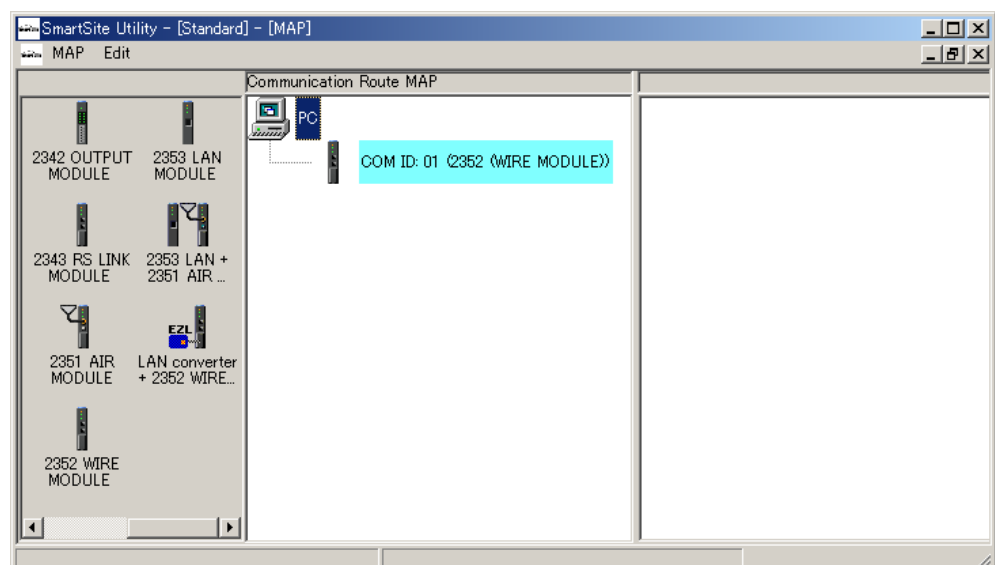
- In this example, measurement module setup is not performed. Therefore the check/uncheck status of **[Options]** has no effect.
- When the settings are sent, the internal clock of the module will be set to the same time as the clock of the computer.

If an error occurs

Check the following items.

- **Is the COM ID of the 2352 WIRE MODULE correct?** ❖ (3) (page 18)
- **Is a cross-wired (null-modem) RS-232C cable being used?**
- **Does the [COM port used to send settings] setting match the actual COM port to which the cable is connected?** ❖ (2) (page 20)
- **Was the sending process attempted while the 2352 WIRE MODULE was still in the initialization phase (about 10 seconds after power-on)? Please send settings after initialization.**

4. When you return to the MAP editor, modules for which settings have been sent will be shown with a blue background. This lets you check whether the sending procedure was successful.



The sending procedure is now complete.

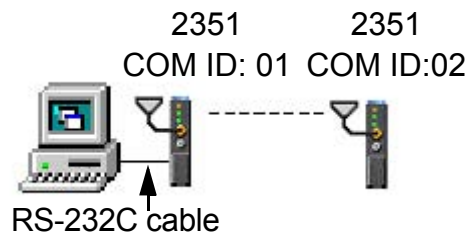
From the menu bar, select **[MAP] - [End]** to return to the main screen of the Smart Site Utility.

Next, proceed to section 3.1.5 "Auto Recognition of Measurement Modules" (page 29).

3.1.4 AIR MODULE Connection Settings

Select the communication method between the computer and the 2351 AIR MODULE, and connect.
Alternatively, set the frequency for wireless communication.

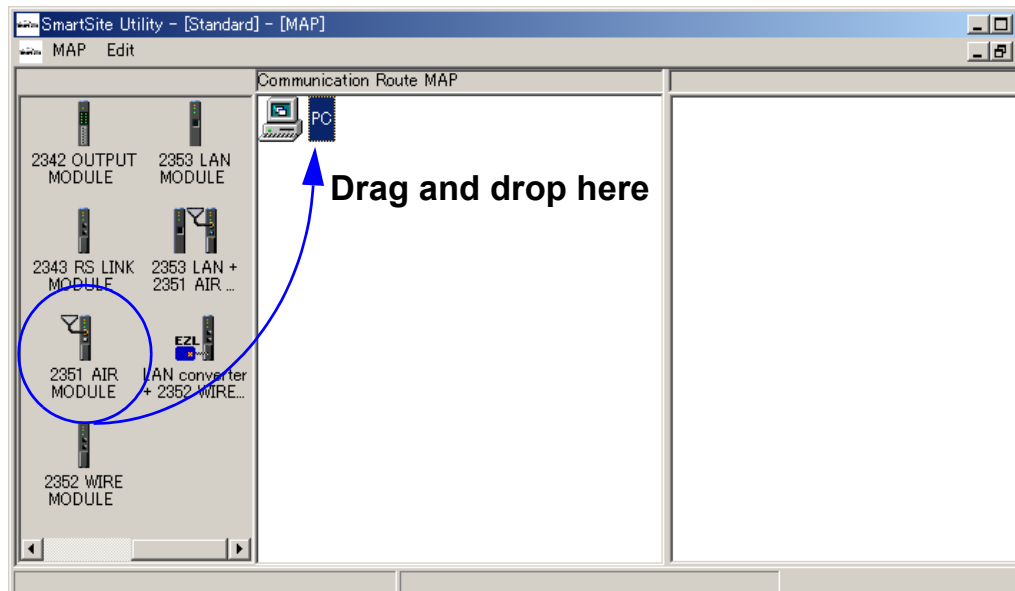
The connection is as shown below.



Procedure

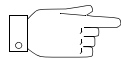
1. First, connect the computer and [COM: ID 01 (2351 AIR MODULE)].

- (1) Drag [2351 AIR MODULE] from the module icon section on the left side of the screen and drop it onto the [PC] icon in the center.



(2) The **[Communication Module Settings]** dialog box appears.

(3) Verify that **[COM ID]** is set to **[1]**.



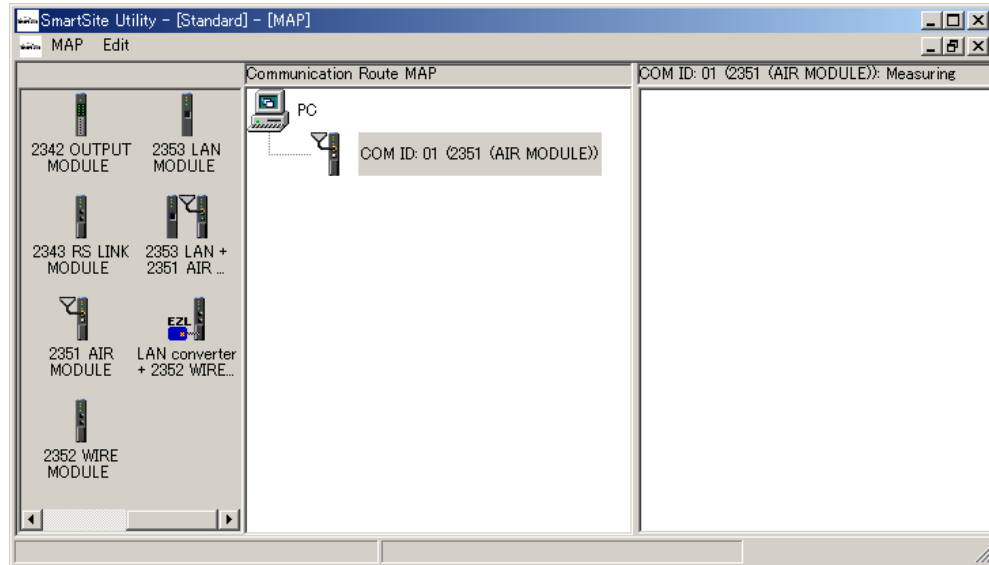
An empty ID is automatically assigned to the COM ID field.

- (4) The **[Model Comment]** field serves for identifying the communication module to distinguish it from other modules. Enter a comment string here that is meaningful and easy to understand.
- (5) In the **[Wireless communication settings]** section, select the frequency band, frequency channel, and ID code. You may initially want to leave these settings in the default condition.
- (6) In the **[Antenna settings]** section, select the **[Use both A and B antennae]** button only when two antennas are used.
- (7) In the **[RS-232C setting]** - **[COM port]** field, select the COM port to be used for RS-232C communication.
- (8) Click **[OK]**.

About wireless communication

- The **[Frequency band]** and **[Channel]** settings determine the frequency that will be used for wireless communication.
- Even if the wireless frequency matches, no communication is possible between two devices if the **[ID code]** setting is not matched, or the frequency is occupied. Verify the **[ID code]**, or change the wireless frequency.

- (9) The computer and [COM ID: 01 (2351 AIR MODULE)] are now connected.

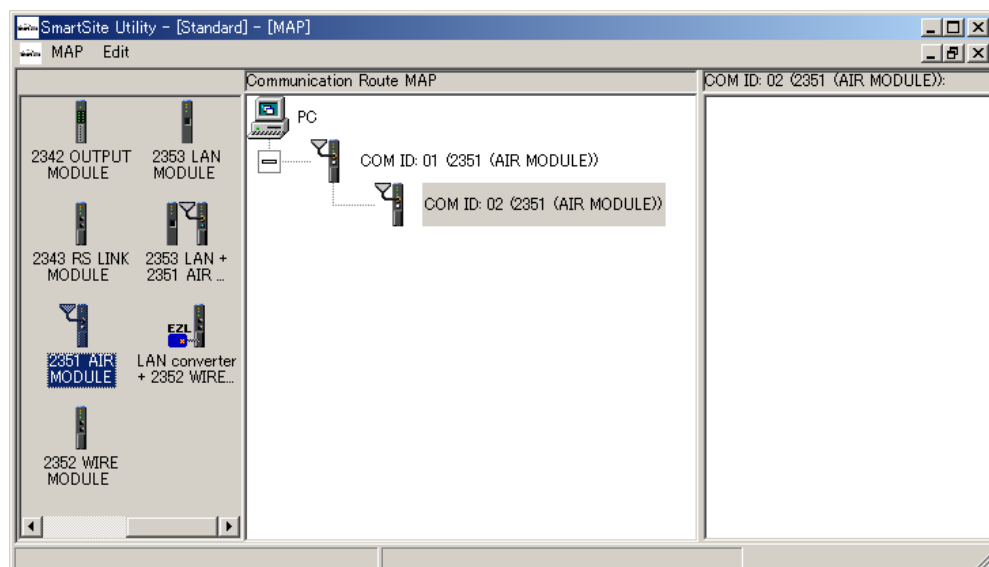


2. Next, connect to the [COM ID: 01 (2351 AIR MODULE)]. Use the same procedure as described for step 1.



- The drop target icon is [COM ID 01 (2351 AIR MODULE)] (because wireless communication occurs via the [COM ID 01 (2351 AIR MODULE)]).
- [COM ID] of [Communication Module Setting] should be set to [2].

The computer and the [COM ID: 01 (2351 AIR MODULE)] and [COM ID: 02 (2351 AIR MODULE)] are connected.



3. Make preparations for sending the settings to [COM ID: 01 (2351 AIR MODULE)].

To be able to send the settings, the following components are required near the computer.

2351 AIR MODULE
Module base^{*1}
Power supply module^{*2}

*1: 2391 MODULE BASE series, 2392 MODULE BASE series

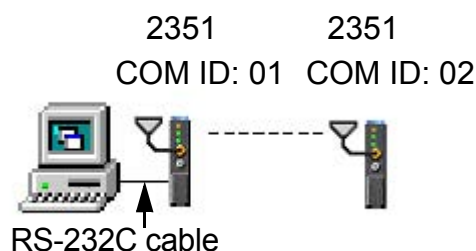
*2: 2361 AC POWER MODULE, 2362 DC POWER MODULE



In this example, a measurement module is not required.

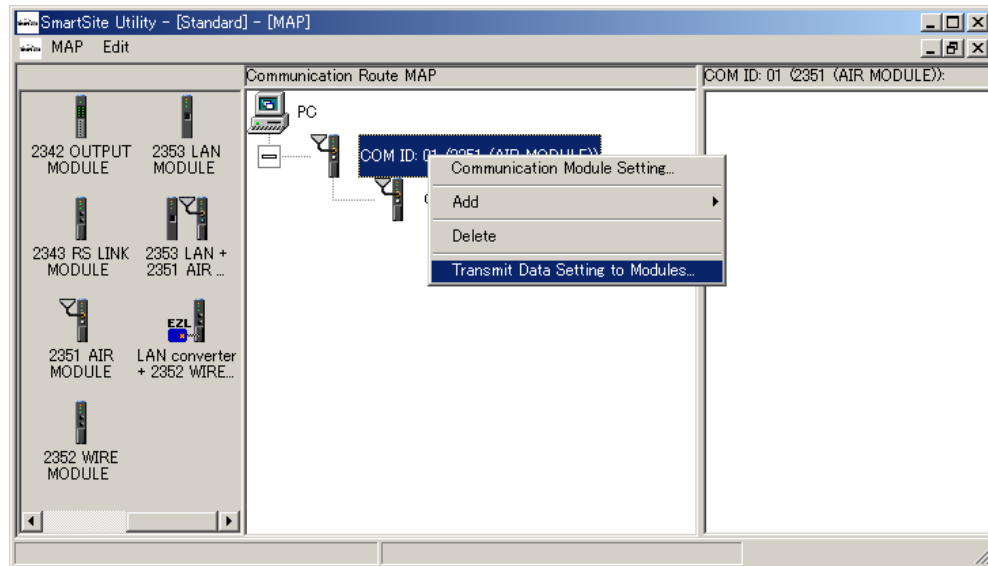
- (1) Set the two rotary switches on the rear of the 2351 AIR MODULE to [0] [1], starting from the left.
- (2) Connect the power supply module and 2351 AIR MODULE to the module base, and turn power on.
- (3) Use a cross-wired (null-modem) RS-232C cable as shown in the illustration below to connect the 2351 AIR MODULE to the computer.

To send settings, the module must be connected via the RS-232C port. Sending settings via a wireless link is not possible.

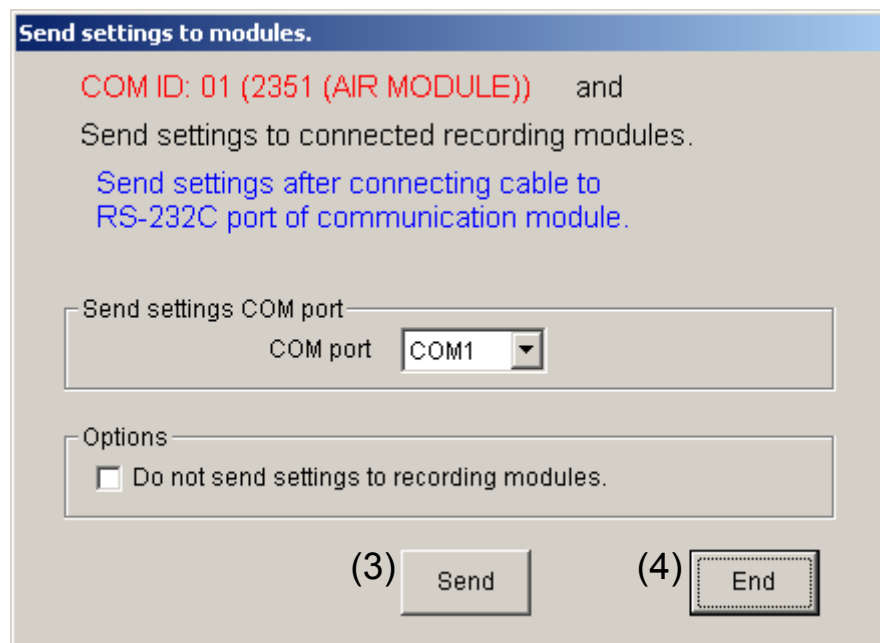


4. Send the settings to [COM ID: 01 (2351 AIR MODULE)].

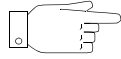
- (1) In the MAP editor, select [COM ID 01 (2351 AIR MODULE)] and right-click to access the popup menu. Then select [Transmit Data Setting to Modules].



- (2) The following dialog box appears.



- (3) Click the [Send] button to initiate the transmission.
- (4) When the settings have been sent, the message [Settings sent.] appears. Verify that the procedure was successful, and click the [End] button to close the dialog box.



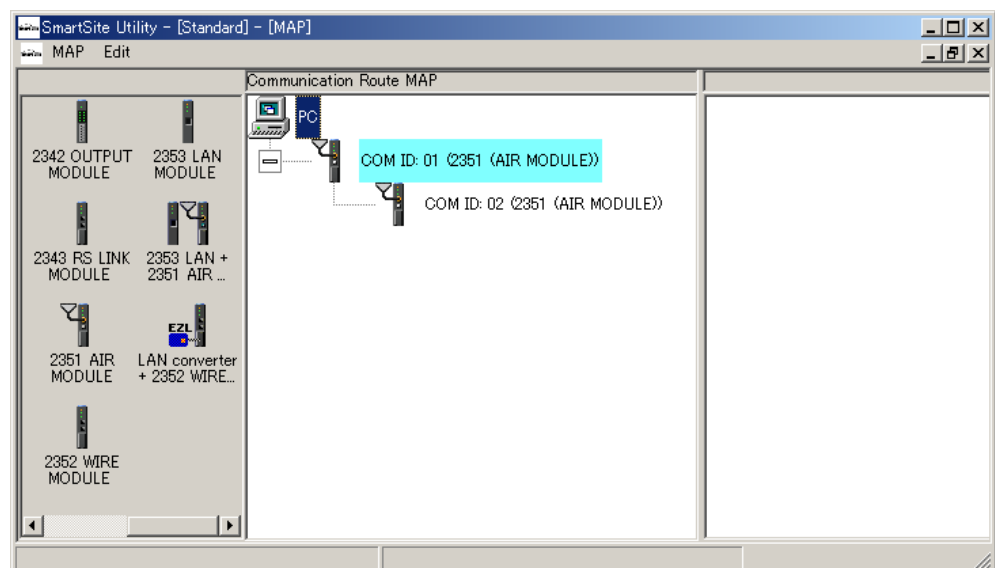
- In this example, measurement module setup is not performed. Therefore the check/uncheck status of [Options] has no effect.
- When the settings are sent, the internal clock of the module will be set to the same time as the clock of the computer.

If an error occurs

Check the following items.

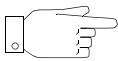
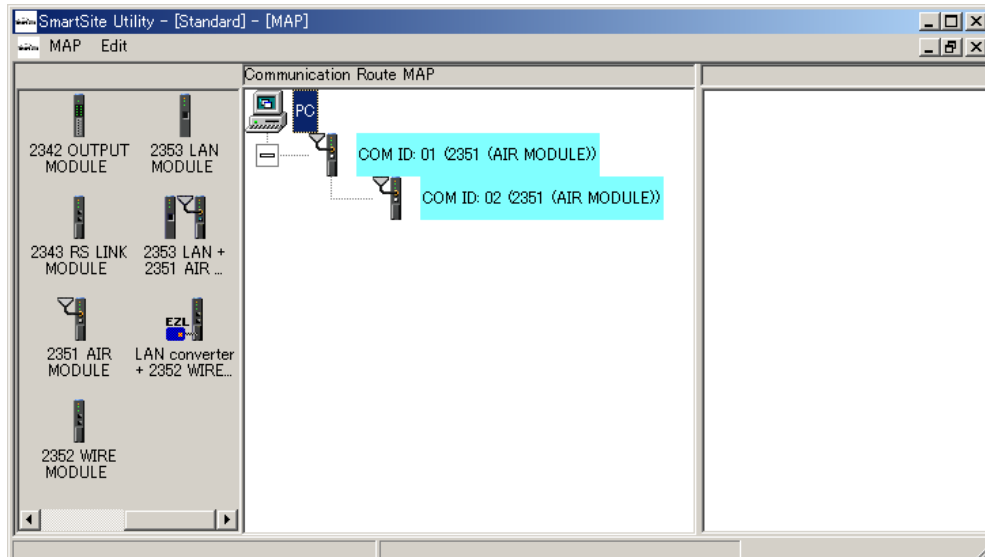
- **Is the COM ID of the 2351 AIR MODULE correct?** ❖ (3) (page 23)
- **Does the [COM port used to send settings] setting match the actual COM port to which the cable is connected?** ❖ Procedure (2) (page 26)
- **Is a cross-wired (null-modem) RS-232C cable being used?**
- **Was the sending process attempted while the 2351 AIR MODULE was still in the initialization phase (about 10 seconds after power-on)? Please send settings after initialization.**
- **Is another application currently using the COM port?** Terminate that application and restart Smart Site Utility.

5. When you return to the MAP editor, modules for which settings have been sent will be shown with a blue background. This lets you check whether the sending procedure was successful.



6. In the same way, send the settings also to the [COM ID 02(2351 AIR MODULE)].

Reconnect the RS-232C cable to the [COM ID 02(2351 AIR MODULE)] and repeat steps 4 and 5 of the procedure.



Before sending the settings, make sure that the RS-232C cable is connected correctly.

The sending procedure is now complete. From the menu bar, select [MAP] - [End] to return to the main screen of the Smart Site Utility.

Reconnect the RS-232C cable to the communication module that is being used as the main unit.

Next, proceed to section 3.1.5 "Auto Recognition of Measurement Modules" (page 29).

3.1.5 Auto Recognition of Measurement Modules

- Install the communication modules and measurement modules in the actual measurement locations, and turn power on.
- The communication module connection method is as follows.

For 2351 AIR MODULE

1. Connect the COM ID: 01 module to the computer with RS-232C cable.
2. Connect to the COM ID: 02 module via wireless communication.

For 2352 WIRE MODULE

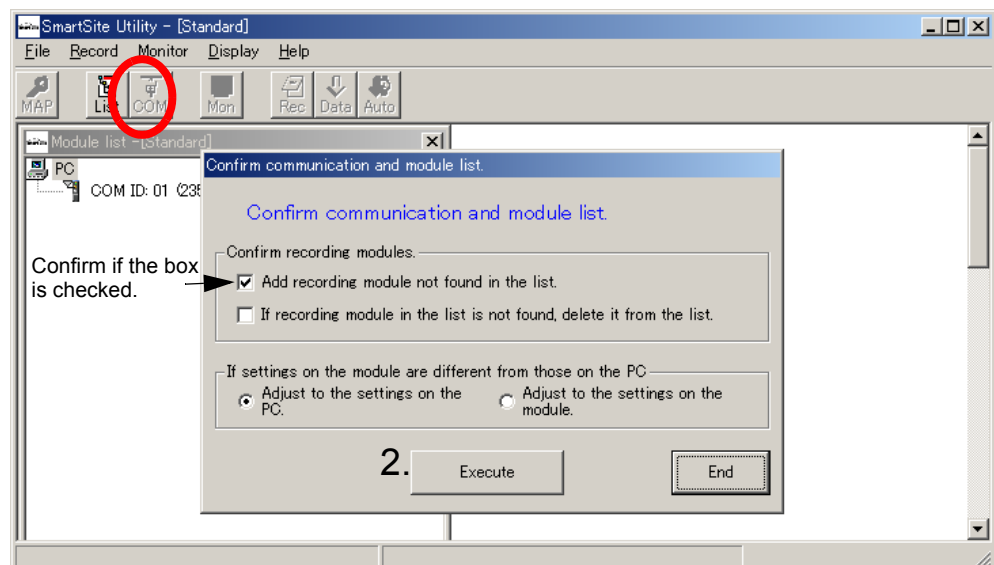
Connect the COM ID: 01 module to the computer with RS-232C cable.

For 2353 LAN MODULE

Connect the COM ID: 01 module to the computer via a hub and LAN cable.

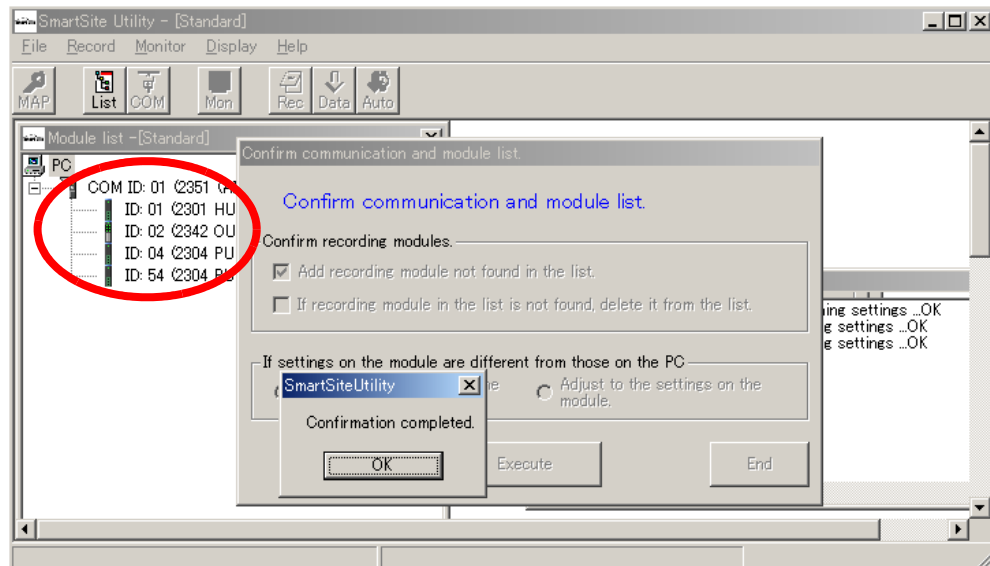
Procedure

1. On the menu bar, click the [COM] button.
The [Confirm communication and module list] dialog box appears.



2. Verify that the [Add recording module not found in the list] check box is selected, and then click [Execute].

3. When the check is complete, recognized modules will be added to the **[Module list]** as circled in the illustration below.

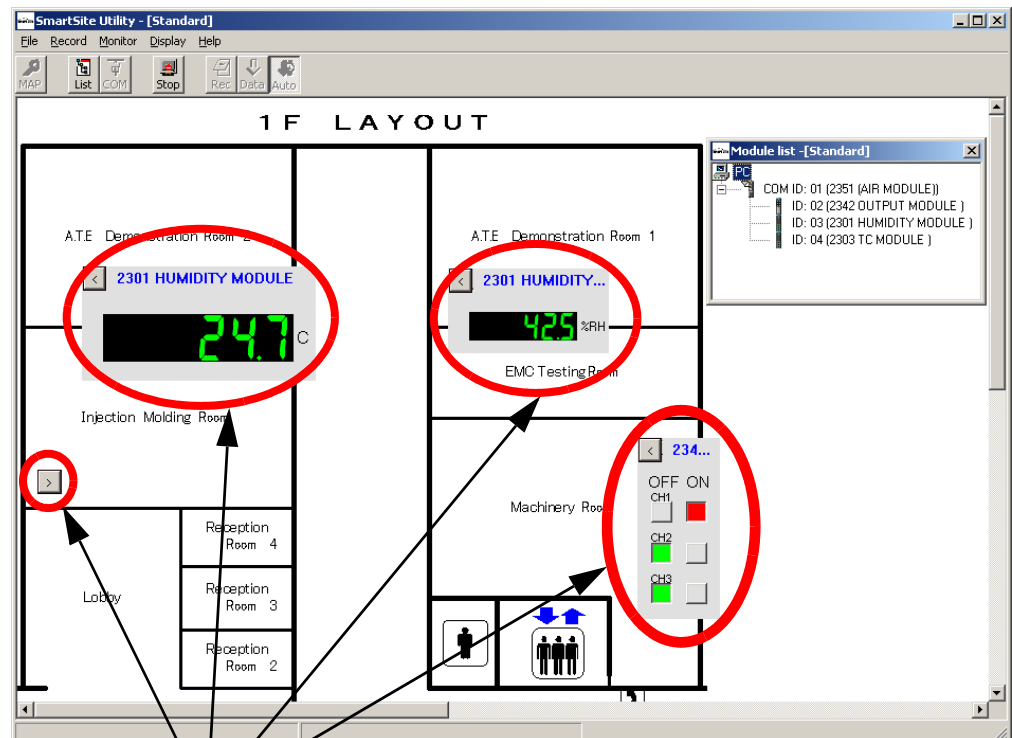


In this example, measurement module setup is not performed. Therefore the status of the check boxes for **[If recording module in the list is not found, delete it from the list]** and **[If settings on the module are different from those on the PC]** has no effect.

The above completes the initial setup of the measurement system. Most functions described below in this instruction manual are performed for a specific measurement module, after selecting that module from the **[Module list]**.

3.2 Monitoring Measurement Values

You can open a window for each measurement module and use the display to monitor measurement values. The illustration below shows a layout example for three monitor windows, with altered background image.

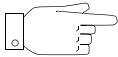


You can drag an open window to any desired position.
 Display size can be selected in five steps: [L](large)/[M](Midium)/
 [S](Small)/[SS](Label)/[Button].

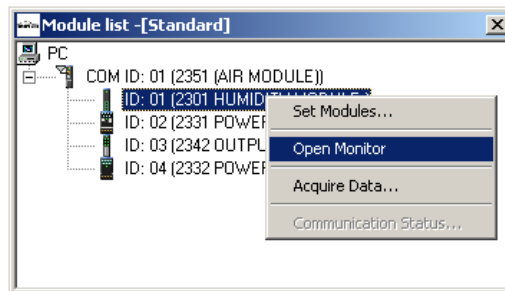
3.2.1 Starting and Stopping the Monitor Function

Procedure

1. Select the measurement module from the [Module list].
2. Right-click to access the popup menu. Then select [Open Monitor].



The same effect can be achieved by double-clicking on the measurement module in step 1.



3. To start the monitor function, click the [Mon] button on the toolbar. You can open a maximum of 20 monitor windows.
4. To stop the monitor function, click the [Stop] button on the toolbar.

Note

The monitor function serves only to check the measurement values. Measurement data obtained in this way cannot be stored.

Reference:

By right-clicking on the monitor window, you can bring up a popup menu for changing the monitor settings.

Popup menu setting items

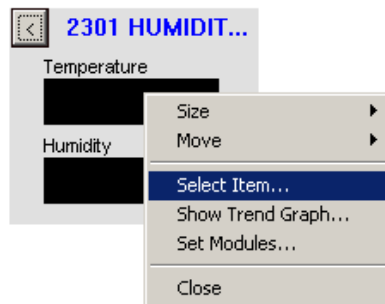
Size	Allows setting the monitor window size in five steps: [L], [M], [S], [SS] [Button]. *
Move	Enables or disables window movement by the user.
Select Item	Selects which items are shown in the monitor window.
Show Trend Graph	Selects the items for trend graph display and enables the trend graph.
Set Modules	Allows changing the module setting parameters ❖ 3.3 "Setting the Measurement Parameters" (page 40)
Close	Closes the monitor window.

* For the 2332 POWER METER MODULE, [L] cannot be selected. For the 2341 INPUT MODULE and 2342 OUTPUT MODULE, [L] or [M] can not be selected.

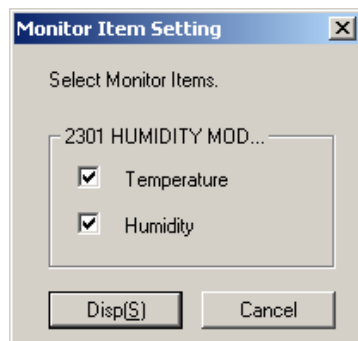
3.2.2 Changing the Monitor Items

Procedure

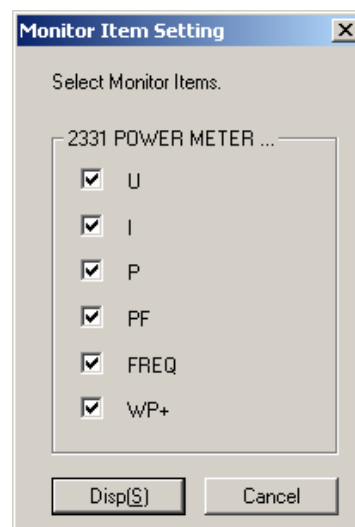
1. Right-click on the monitor window and click menu, [**Select item**] to bring up the [**Monitor Item Setting**] dialog box.



2. In the [**Monitor Item Setting**] dialog box, select the check boxes for the items that you want to display.



Example:
2301 HUMIDITY MODULE



Example:
2331 POWER METER MODULE

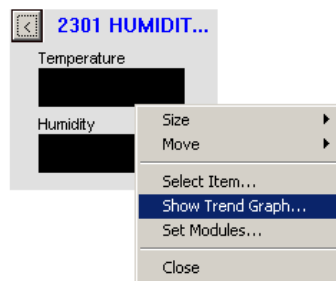
3. Click [**Disp**] to terminate the display item selection procedure.

3.2.3 Displaying a Trend Graph

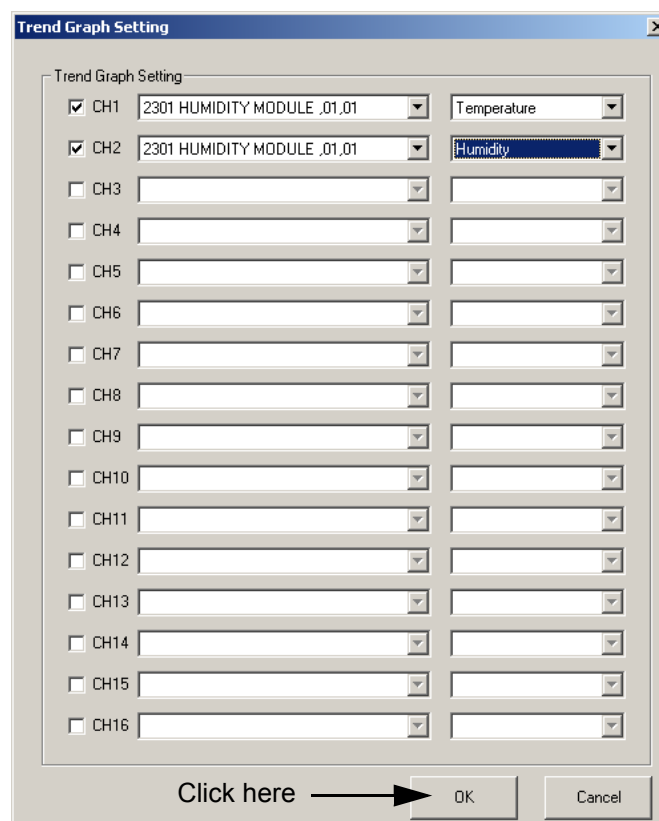
The monitor window normally shows instantaneous values in numeric format. Sometimes it may be desirable to use measurement values from a short preceding interval and display the results in graphical form. This can be achieved by using the trend graph function. (The longest interval that can be covered by the trend graph is one hour.)

Procedure

1. Right-click on the monitor window and click menu, [**Show Trend Graph**] to bring up the [**Trend Graph Settings**] dialog box.

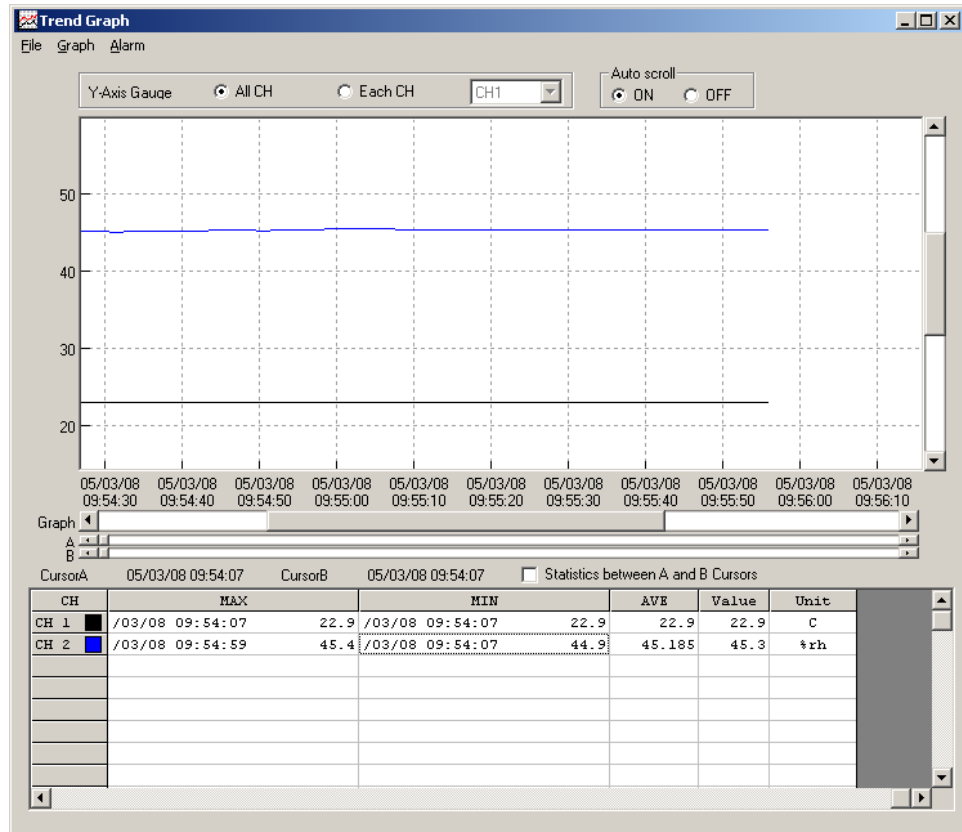


2. Select the check boxes of items for which you want to display a trend graph (maximum 16). Then click [**OK**]. Monitoring starts automatically, and the trend graph window opens.



3. The trend graph menu items are the same as on the [Graph] window of Smart Site Viewer.

❖ 3.5.3 "Main Functions of "Graph"" (page 79)



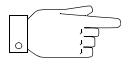
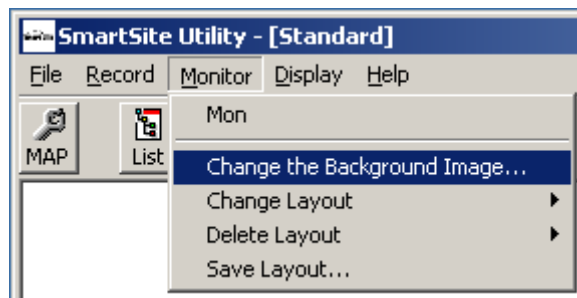
Note

- The trend graph is updated every second, using the monitor data. If wireless connection conditions are poor, the measurement values may not be displayed properly.
- The trend graph can show up to 16 channels and up to one hour's worth of data. When one hour is exceeded, old data will progressively disappear from view. (If you record the data with the Smart Site Utility, you can review such data later.)
- Graph settings will not be stored.

3.2.4 Changing the Background Image

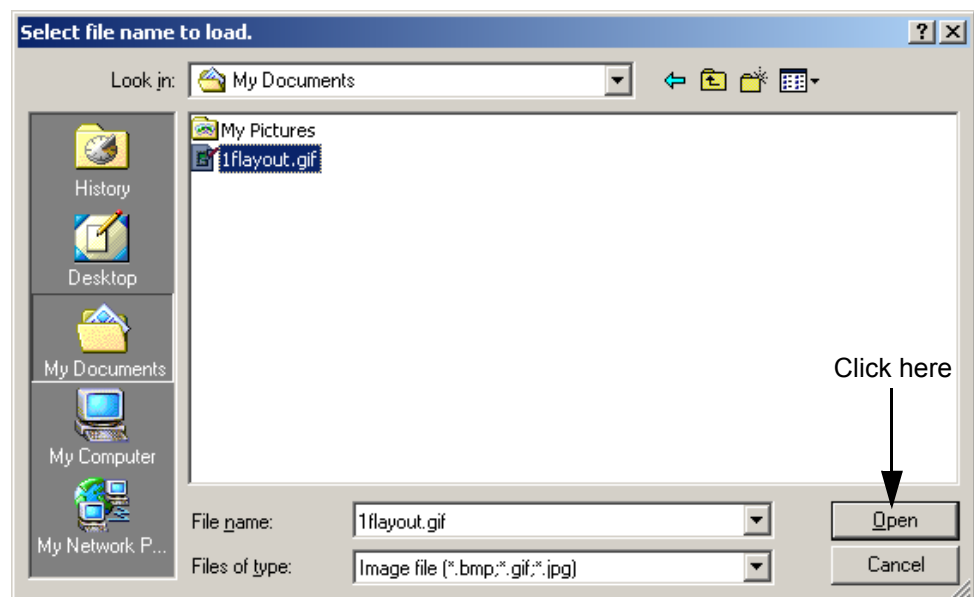
Procedure

1. From the menu bar, select [Monitor] - [Change the Background Image]. The [Select file name to load] dialog box appears.



Use separate graphics software to prepare the image you want. Smart Site Utility can import BMP, JPG, and GIF image files.

2. Click on the file to load, and click the [Open] button.



3.2.5 Saving/Switching/Deleting a Layout

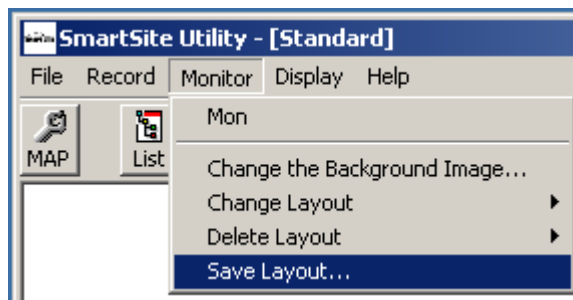
You can assign a name to a layout and save it. In that way, you can create any number of different layouts. The contents stored when you save a layout are as follows.

<p>Monitor position and size</p> <p>Monitor display items</p> <p>Background image</p>

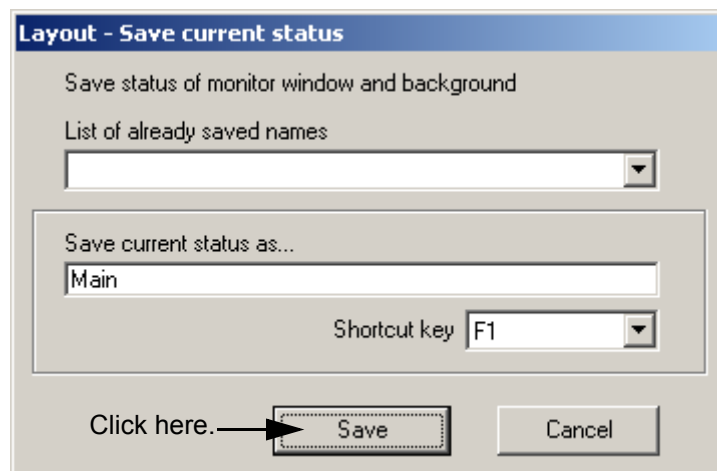
◆ Saving a layout

Procedure

1. From the menu bar, select [**Monitor**] - [**Save Layout**]. The [**Layout - Save current status**] dialog box appears.



2. Enter the desired name in the [**Save current status as**] field, and click the [**Save**] button.

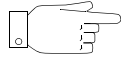


You can also assign a shortcut key to a saved layout.

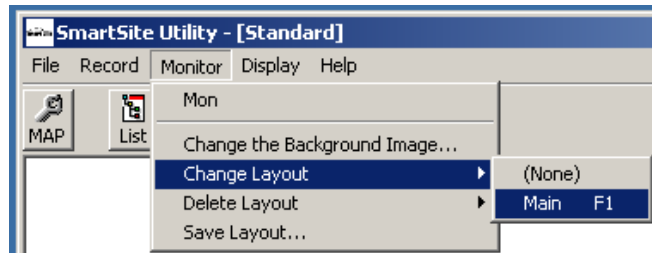
◆ Changing the layout

Procedure

From the menu bar, select [Monitor] - [Change Layout].



If you have assigned a shortcut key, you can use that to recall the layout.

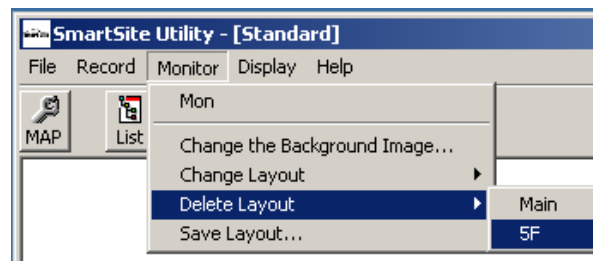


Click on the layout you want to use for monitoring

◆ Deleting a layout

Procedure

From the menu bar, select [Monitor] - [Delete Layout].



Click on the layout you want to delete.

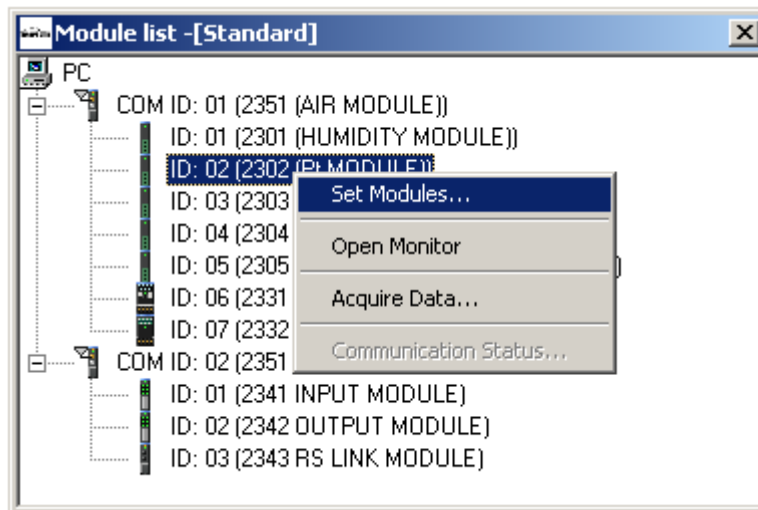
3.3 Setting the Measurement Parameters

3.3.1 Common Steps

To set the operation parameters for a measurement module, you should first bring up the [Module settings] dialog box.

Procedure

1. Select the measurement module from the [Module list].
2. Right-click to access the popup menu. Then select [Set Modules].



3.3.2 Setting Measurement Parameters for 2301 to 2305

Procedure

1. Bring up the [Module settings] dialog box.
 - ❖ 3.3.1 "Common Steps" (page 40)

2. Make settings under the [Measuring Method] tab.

The illustration shows an example for the 2302.

Except for the section enclosed by a frame in the illustration (8 to 11: individual measurement module settings), the items under the [Measuring Method] tab are the same for the 2301 to 2305.

Module settings

2302 Pt MODULE 1 MODULE ID 2

2 Model Comment
2302 (Pt MODULE)

Measuring Method | Recording Method

3 CH1 Yes No

4 CH comment
CH1

5 Scaling
 OFF ON

6 Alarm
 OFF ON

Pt Pt100

7 Alarm output control Never

8 to 11 Specific measurement module settings

CH2 Yes No

CH comment
CH2

Scaling
 OFF ON

$y = A * x + B$
A 3 B 0 Exp. [v]
Unit [v]

Alarm
 OFF ON

Upper 300
Lower 200

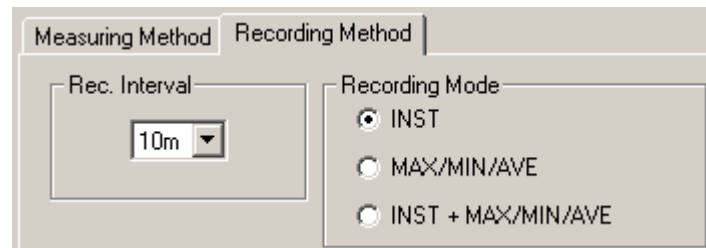
Pt Pt100

Send Close

Setting item		Description
1	MODULE ID	<ul style="list-style-type: none"> • ID number of the measurement module • Cannot be changed from the main screen. • Can only be changed during the initial setup of the MAP editor.
2	Model Comment	<ul style="list-style-type: none"> • The string entered here serves for identifying the module to distinguish it from other modules. • This string is used in the measurement value monitor and Smart Site Viewer when displaying recorded data. Enter a comment string here that is meaningful and easy to understand (up to 40 characters).
3	CH 1, CH2 Yes/No	<ul style="list-style-type: none"> • For channels that are not to be used, select the [No] check box. The data recording, alarm output, and measurement error check functions for that channel are turned off. • This is convenient to prevent spurious alarm output or LED flashing.
4	CH comment	<ul style="list-style-type: none"> • The string entered here serves to identify the channel. • This string is used in the measurement value monitor and Smart Site Viewer when displaying recorded data. Enter a comment string here that is meaningful and easy to understand (up to 40 characters).
5	Scaling	<p>When this is set to [ON], scaling processing is performed for the measurement value, using the equation $Y = A \times \text{measurement value} + B$ [Exp. (exponent) & Unit].</p> <p>Example: A = 200, B = 100, Exp. = k, Unit = W</p> <p>For 2305, the measurement value will be displayed as 1 [V] when [OFF] and 300 [kW] when [ON].</p>
6	Alarm	<ul style="list-style-type: none"> • When this is set to [ON], alarm evaluation is carried out for the measurement value each second. • Enter the lower and upper alarm threshold values. (When left blank, lower/upper evaluation is not carried out.) • When the evaluation result is out of range, the alarm output of the unit is activated, according to the [Alarm output control] setting.
7	Alarm output control (common for CH1 and CH2)	<ul style="list-style-type: none"> • [Never] : No output is supplied. • [Continuous]: Once the range is exceeded, the output remains on until cleared *. • [Refresh at every sampling]: Output the evaluation result for each second. <p>* <u>To clear the alarm, the [ALARM RESET] switch on the communication module must be pressed for at least 1 second.</u></p>
8	2302 (specific setting) Pt	<ul style="list-style-type: none"> • Sets the Pt type. <p>[Pt100 / JPt100]</p>
9	2303 (specific setting) Thermocouple	<ul style="list-style-type: none"> • Sets the thermocouple type. <p>[K / E / J / T]</p>
10	2304 (specific setting) Filter	<ul style="list-style-type: none"> • Controls the filter setting. <p>[OFF / ON]</p>
11	2305 (specific setting) Range	<ul style="list-style-type: none"> • Sets the voltage or current range. <p>[50 mV / 500 mV / 5 V / 50 V / Current]</p>

3. Make settings under the [Recording Method] tab. These settings are used for the data recording function.

You can set the [Rec. Interval] and [Recording Mode].



The screenshot shows a dialog box with two tabs: 'Measuring Method' and 'Recording Method'. The 'Recording Method' tab is active. It contains two sections: 'Rec. Interval' with a dropdown menu set to '10m', and 'Recording Mode' with three radio button options: 'INST' (selected), 'MAX/MIN/AVE', and 'INST + MAX/MIN/AVE'.

Hints

- When wishing to use the same recording settings for all measurement modules, you can make the setting at the start of recording and do not need to do it here.
- When wishing to use different settings for individual measurement modules, you should make the settings beforehand on this screen.

4. When the settings are complete, click the [Send] button to send the settings to the measurement module.

3.3.3 Setting Measurement Parameters for 2331

Procedure

1. Bring up the [**Module settings**] dialog box.
 - ❖ 3.3.1 "Common Steps" (page 40)
2. Make settings under the [**Measuring Method**] tab.

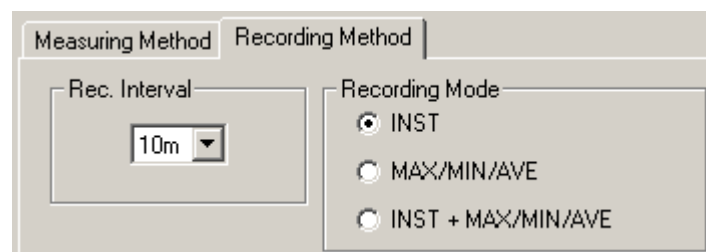
Setting item	Description
1 MODULE ID	<ul style="list-style-type: none"> • ID number of the measurement module • Cannot be changed from the main screen. • Can only be changed during the initial setup of the MAP editor.
2 Model Comment	<ul style="list-style-type: none"> • The string entered here serves for identifying the module to distinguish it from other modules. • This string is used in the measurement value monitor and Smart Site Viewer when displaying recorded data. Enter a comment string here that is meaningful and easy to understand (up to 40 characters).
3 Measuring line	<ul style="list-style-type: none"> • Serves to select the type of measurement line. • Make the setting so that it matches the actual measurement connection. ❖ Regarding the connection method, refer to the instruction manual of the 2331. <p>[1P2W / 1P3W / 3P3W / 3P4W]</p>

3.3 Setting the Measurement Parameters

Setting item		Description
4	Voltage range [Main unit]	<ul style="list-style-type: none"> Check the voltage range. The actual setting must be made with the switch on the unit. The setting cannot be changed here.
5	Clamp-on sensor Current range	Select according to the type of clamp sensor being used.
6	Scaling VT (PT) ratio	<ul style="list-style-type: none"> Sets the VT (PT) ratio. (Voltage value shown on measurement screen = actually measured voltage x VT (PT) ratio) Used when a transformer is used in the voltage measurement line.
7	Scaling CT ratio	<ul style="list-style-type: none"> Sets the CT ratio. (Current value shown on measurement screen = actually measured current x CT ratio) Used when a current transformer is used in the current measurement line.
8	Alarm	<ul style="list-style-type: none"> When this is set to [ON], alarm evaluation is carried out for the measurement value each second. If integral power has been selected as evaluation parameter, evaluation is carried out for the lower threshold value at each interval. When the evaluation result is out of range, the alarm output of the unit is activated, according to the [Alarm output control] setting.
9	Parameter	<ul style="list-style-type: none"> Enter the lower and upper alarm threshold values. (When left blank, lower/upper evaluation is not carried out.)
10	Upper Lower	<ul style="list-style-type: none"> Enter the lower and upper alarm threshold values. (When left blank, lower/upper evaluation is not carried out.) Do not set the lower threshold to a higher value than the upper threshold.
11	Alarm output control	<ul style="list-style-type: none"> [Never] : No output is supplied. [Continuous]: Once the range is exceeded, the output remains on until cleared *. [Refresh at every sampling]: Output the evaluation result for each second. <p>* <u>To clear the alarm, the [ALARM RESET] switch on the communication must be pressed for at least 1 second.</u></p>

3. Make settings under the [Recording Method] tab.
- These settings are used for the data recording function.

You can set the [Rec. Interval] and [Recording Mode].



Hints

- When wishing to use the same recording settings for all measurement modules, you can make the setting at the start of recording and do not need to do it here.
- When wishing to use different settings for individual measurement modules, you should make the settings beforehand on this screen.

4. When the settings are complete, click the **[Send]** button to send the settings to the 2331 POWER METER MODULE.

3.3.4 Setting Measurement Parameters for 2332

Procedure

1. Bring up the [**Module settings**] dialog box.
 - ❖ 3.3.1 "Common Steps" (page 40)
2. Make settings under the [**Measuring Method**] tab.

Setting item	Description
1 MODULE ID	<ul style="list-style-type: none"> • ID number of the measurement module • Cannot be changed from the main screen. • Can only be changed during the initial setup of the MAP editor.
2 Model Comment	<ul style="list-style-type: none"> • The string entered here serves for identifying the module to distinguish it from other modules. • This string is used in the measurement value monitor and Smart Site Viewer when displaying recorded data. Enter a comment string here that is meaningful and easy to understand (up to 40 characters).
3 Measuring line	<ul style="list-style-type: none"> • Serves to select the type of measurement line. • Make the setting so that it matches the actual measurement connection. ❖ Regarding the connection method, refer to the instruction manual of the 2332 POWER METER MODULE. <p>[1P2W / 1P3W / 3P3W]</p>

Setting item	Description
4 Max circuit	<ul style="list-style-type: none"> • Sets the number of circuits to be measured. • The data for the number of circuits selected here will be recorded as measurement values. Data for other circuits will not be recorded. • For common voltages, [1P2W] can be set to 1 to 6, and [1P3W] and [3P3W] can be set to 1 to 3.
5 Clamp-on sensor Current range	<ul style="list-style-type: none"> • Select according to the type of clamp sensor being used. • Can be set for each of the two channels [(I1/I2)], [(I3/I4)], and [(I5/I6)].
6 Scaling VT (PT) ratio	<ul style="list-style-type: none"> • Sets the VT (PT) ratio. (Voltage value shown on measurement screen = actually measured voltage x VT (PT) ratio) • Used when a transformer is used in the voltage measurement line.
7 Scaling CT ratio	<ul style="list-style-type: none"> • Sets the CT ratio. (Current value shown on measurement screen = actually measured current x CT ratio) • Used when a current transformer is used in the current measurement line. • Can be set for each of the two channels [(I1/I2)], [(I3/I4)], and [(I5/I6)].
8 Scaling x1,x1/10,x1/100	<ul style="list-style-type: none"> • Serves to set the CT ratio to a fraction. • [x1/10]:CT ratio is 0.1. • [x1/100]:CT ratio is 0.01. • The setting applies globally to [(I1/I2)], [(I3/I4)], and [(I5/I6)].
9 Alarm	<ul style="list-style-type: none"> • When this is set to [ON], alarm evaluation is carried out for the measurement value each second. • If integral power has been selected as evaluation parameter, evaluation is carried out for the lower threshold value at each interval. • When the evaluation result is out of range, the LED alarm output is activated, according to the [Alarm LED display] setting.
10 Parameter	<ul style="list-style-type: none"> • Select the parameter to use for alarm evaluation. • If evaluation shows an out of range condition for any of the circuits determined by the [Max circuit] setting, the LED alarm output is activated (OR evaluation).
11 Upper Lower	<ul style="list-style-type: none"> • Enter the lower and upper alarm threshold values. (When left blank, lower/upper evaluation is not carried out.) • Do not set the lower threshold to a higher value than the upper threshold.
12 Alarm LED display	<ul style="list-style-type: none"> • [Never] : LED does indicate alarm output. • [Continuous]: Once the range is exceeded, LED indicates alarm output until cleared *. • [Refresh at every sampling] : LED indicates alarm output using the evaluation result for each second. <p>* <u>To clear the alarm, the [ALARM RESET] switch on the communication must be pressed for at least 1 second.</u></p>
13 LED Monitor	Can no be worked at present. (Available in next version.)

3. Make settings under the [Recording Method] tab.
- These settings are used for the data recording function.
- You can set the [Rec. Interval] and [Recording Mode].

Setting item	Description
1 Rec. Interval	<ul style="list-style-type: none"> • Sets the interval in which measurement values are recorded in the internal memory. ❖ "When using the same recording settings for all measurement modules, the recording interval and recording mode can be set together at the start of recording, but only the recording interval setting will be valid. The recording mode setting will be as set on this screen. Therefore you should be sure to make this setting beforehand." (page 50)
2 Recording Mode	<ul style="list-style-type: none"> • Select the type of measurement value to save in the internal memory. • Select all required items from the available choices: instantaneous value, [AVE] (average value), [MAX] (maximum value), [MIN] (minimum value). • Common recording mode settings (instantaneous value, MAX, MIN, AVE, instantaneous value +MAX, MIN, AVE) do not apply to this module. Be sure to make the settings from this screen, regardless of the common settings.
3 Recording item	<ul style="list-style-type: none"> • Select the measurement item (parameter) to save in the internal memory. • Select all required items from the available choices: [U] (Voltage), [I] (Current), [P] (Effective power), [Q] (Reactive power), [PF] (Power factor), [FREQ] (Frequency), [WP+] (Effective power within interval time). Be sure to select at least one item.

-
4. When the settings are complete, click the [**Send**] button to send the settings to the 2332 POWER METER MODULE.

Important

When using the same recording settings for all measurement modules, the recording interval and recording mode can be set together at the start of recording, but only the recording interval setting will be valid.

The recording mode setting will be as set on this screen.

Therefore you should be sure to make this setting beforehand.

❖ [3.4.1 "Starting Data Recording" \(page 67\)](#)

3.3.5 Setting Measurement Parameters for 2341

Procedure

1. Bring up the **[Module settings]** dialog box
 - ❖ 3.3.1 "Common Steps" (page 40)

2. Make settings for the various items.

Setting item	Description
1 MODULE ID	<ul style="list-style-type: none"> • ID number of the 2341 INPUT MODULE • Cannot be changed from the main screen. • Can only be changed during the initial setup of the MAP editor.
2 Model Comment	<ul style="list-style-type: none"> • The string entered here serves for identifying the module to distinguish it from other modules. • This string is used in the measurement value monitor and Smart Site Viewer when displaying recorded data. Enter a comment string here that is meaningful and easy to understand (up to 40 characters).
3 CH	<ul style="list-style-type: none"> • Selects the channel to use. Select the [Use] check box. For channels that are not selected, the internal alarm (evaluation result) of the 2341 will not be triggered, even if the specified logical input occurs.

Setting item	Description
4 CH logic	<ul style="list-style-type: none">• Select [Active Hi] or [Active Lo]. Example: [Active Lo] is selected When a contact short or similar (Lo level) input is detected, the internal alarm (evaluation result) becomes ON. <ul style="list-style-type: none">• The INPUT LED lights up in green when a Lo level input occurs (regardless of the logic setting).
5 Comment	<ul style="list-style-type: none">• The string entered here serves to identify the channel.• This string is used in the measurement value monitor and Smart Site Viewer when displaying recorded data. Enter a comment string here that is meaningful and easy to understand (up to 40 characters).

Important

The 2341 records data when there was a change in the internal alarm (evaluation result) status.

Unlike for other modules, there is no need to make recording settings.

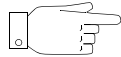
3. When the settings are complete, click the [**Send**] button to send the settings to the 2341 INPUT MODULE.

3.3.6 Setting Measurement Parameters for 2342

Procedure

1. Bring up the [**Module settings**] dialog box.
 - ❖ 3.3.1 "Common Steps" (page 40)
2. Make settings for the various items.
 - There are two modes. Select the appropriate mode with the [**Watch Settings**] item.

PC Control Mode	The alarm output of the 2342 is controlled from the computer.
Alarm Mode	The 2342 monitors and evaluates the data from measurement modules on the same CAN bus and activates alarm output as necessary.



- The tab contents change, depending on the selected mode.
- When [**Alarm Mode**] is selected, the tab settings also change depending on which module is being monitored.

Using PC control mode

For [**Watch Settings**], select [**PC Control Mode**].

Module settings

2342 OUTPUT MODULE 1 MODULE ID: 2

2 Model Comment: 2342 OUTPUT MODULE

CH1 | CH2 | CH3 | CH4 | CH5 | CH6 | CH7 | CH8

3 Use 4 Logic: Active Hi Active Lo

5 Comment: CH8

6 PC Control Mode 9 Output Value: OFF ON

Alarm Mode

7 Output Settings: Disable ALARM RESET button.

8 Alarm Priority CH: CH1 CH2 CH3 CH4 CH5 CH6 CH7

Send Close

Required setting items (common to [PC Control Mode] and [Alarm Mode])

Setting item	Description
1	<p>MODULE ID</p> <ul style="list-style-type: none"> ID number of the 2342 OUTPUT MODULE Cannot be changed from the main screen. Can only be changed during the initial setup of the [MAP editor].
2	<p>Model Comment</p> <ul style="list-style-type: none"> The string entered here serves for identifying the module to distinguish it from other modules. This string is used in the measurement value monitor and Smart Site Viewer when displaying recorded data. Enter a comment string here that is meaningful and easy to understand (up to 40 characters).
3	<p>Use</p> <ul style="list-style-type: none"> Selects the channel to use. Select the check box. For channels that are not selected, the output transistors are fixed to OFF.
4	<p>Logic</p> <ul style="list-style-type: none"> Select [Active Hi] or [Active Lo]. When the alarm evaluation result for the specified channel becomes ON (alarm output), the selected signal is output. Example: [Active Hi] is selected When the internal alarm (evaluation result) changes from OFF to ON, the output transistors change from ON to OFF (alarm signal = output transistors OFF). The OUTPUT LED lights up in green when the output transistors go ON (regardless of the logic setting).
5	<p>Comment</p> <ul style="list-style-type: none"> The string entered here serves to identify the channel. This string is used in the measurement value monitor and Smart Site Viewer when displaying recorded data. Enter a comment string here that is meaningful and easy to understand (up to 40 characters).
6	<p>Watch Settings</p> <ul style="list-style-type: none"> Select one of the following modes, depending on the intended purpose. [PC Control Mode]: The alarm output of the 2342 is controlled from the computer. [Alarm Mode] : The 2342 monitors and evaluates the data from measurement modules on the same CAN bus and from the input module. It is also possible to monitor the data from a power meter module or similar connected to the 2343. Data are compared to threshold settings for evaluation, and the alarm output is activated according to the result.
7	<p>Output settings</p> <ul style="list-style-type: none"> [Disable ALARM RESET button] This function is intended to prevent inadvertent resetting of the 2342 output if the [ALARM RESET] switch is pushed by mistake
8	<p>Alarm Priority CH</p> <ul style="list-style-type: none"> This function is intended to disable the alarm when a channel with high priority has activated the alarm. Select the channel which has highest output priority. If the function is not required, select nothing here.

Setting item when [PC Control Mode] is selected

Setting item	Description
9	<p>Output Value</p> <ul style="list-style-type: none"> When [ON] is selected, the alarm signal is output according to the logic evaluation result. When [OFF] is selected, the alarm signal is disabled. To switch the output signal, click the [ON] or [OFF] button, and then click the [Send] button.

Using alarm mode

For [Watch Settings], select [Alarm Mode].
First, set the required items.

- ❖ "Required setting items (common to [PC Control Mode] and [Alarm Mode])" (page 54)

The screenshot shows the 'Module settings' window for a '2342 OUTPUT MODULE'. The 'MODULE ID' is set to 2. The 'Model Comment' is '2342 OUTPUT MODULE'. The 'CH8' tab is selected. Under 'Use', 'Active Lo' is chosen. The 'Watch Settings' section has 'Alarm Mode' selected, with 'MODULE ID' set to 5 and 'Module Type' set to '2301 (HUMIDITY MODULE)'. The 'Alarm Settings' section has 'CH select' set to 'CH1', 'Upper' limit at 50, 'Lower' limit at 30, and 'Filter Time' set to 'OFF'. The 'Output Settings' section has 'Alarm output control' set to 'Refresh at every sampling'. There are 'Send' and 'Close' buttons at the bottom.

Example: Watched module is 2301

1 to 4: Common settings for all modules

5, 6 : Setting items when watching 2301 to 2305

Setting item	Description
1 MODULE ID	• ID of the watched module
2 Module Type	• Name (Model comment) of watched module.
3 Alarm output control	<ul style="list-style-type: none"> • Select the output method from the following two choices. <ul style="list-style-type: none"> [Refresh at every sampling] : The result of the comparison and evaluation process that occurs each second is reflected in the state of the output. [Continuous] : Once the alarm signal output has been activated, it stays on regardless of the subsequent evaluation result. • To clear the alarm, the [ALARM RESET] switch on the communication must be pressed for at least 1 second.

3.3 Setting the Measurement Parameters

1 to 4: Common settings for all modules

5, 6 : Setting items when watching 2301 to 2305

Setting item	Description
4 Filter Time	<ul style="list-style-type: none"> This function serves to suppress spurious alarm signal output that may be caused when the watched module indicates an abnormal measurement value due to transient noise or another cause. If the internal alarm (evaluation result) exists for the same duration as the specified filter time, the output state changes. When [OFF] is selected, the evaluation result for each second is reflected in the output. <p>Example: Filter time set to 5 seconds Internal alarm OFF → ON change: When ON condition persists 5 times in succession, the alarm signal is output. Internal alarm ON → OFF change: When OFF condition persists 5 times in succession, the alarm signal is output.</p>
5 CH select	<ul style="list-style-type: none"> Select the channel whose measurement value is to be watched.
6 Upper Lower	<ul style="list-style-type: none"> Enter the lower and upper alarm threshold values

Example: Watched module is 2331

Setting items when watching modules 2331 and 2332

Setting item	Description
1 Measuring line	<ul style="list-style-type: none"> Serves to select the type of measurement line of the power meter module.
2 Parameter	<ul style="list-style-type: none"> Select the measurement value to watch.
3 Upper Lower	<ul style="list-style-type: none"> Enter the lower and upper alarm threshold values.

3.3 Setting the Measurement Parameters

Module settings

2342 OUTPUT MODULE MODULE ID: 2

Model Comment: 2342 OUTPUT MODULE

CH1 | CH2 | CH3 | CH4 | CH5 | CH6 | CH7 | CH8

Use Logic: Active Hi Active Lo

Comment: CH8

Watch Settings:

PC Control Mode MODULE ID: 1

Alarm Mode Module Type: 2341 INPUT MODULE

Alarm Settings:

1 CH select:

CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2 Alarm CH:

OR AND

Filter Time: OFF sec

Output Settings:

Alarm output control: Refresh at every sampling

Disable ALARM RESET button.

Alarm Priority CH:

CH1	CH2	CH3	CH4	CH5	CH6	CH7
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Send Close

Example: Watched module is 2341

Setting items when watching module 2341

Setting item	Description
1 CH select	• Select the channels of the 2341 to watch.
2 Alarm CH	• Select [OR] or [AND] Example: Channels CH1, CH5, and CH8 have been selected for watching, and OR is selected When the internal alarm (evaluation result) for one of channels CH1, CH5, and CH8 of the 2341 becomes ON, the alarm output of the 2342 is activated.

Module settings

2342 OUTPUT MODULE MODULE ID

Model Comment

CH1 | CH2 | CH3 | CH4 | CH5 | CH6 | CH7 | CH8

Use Logic Active Hi Active Lo

Comment

Watch Settings

PC Control Mode MODULE ID

Alarm Mode Module Type

Alarm Settings

1 Data Order **2** Upper

Lower

Filter Time sec

Output Settings

Alarm output control

Disable ALARM RESET button.

Alarm Priority CH

CH1 CH2 CH3 CH4 CH5 CH6 CH7

Example: Watched module is 2343

Setting items when watching module 2343

Setting item	Description
1 Data Order	• Serves to select the data number to watch. The relationship between data number and parameter differs, depending on what kind of equipment is connected to the 2343 and what type of wiring is used. Refer to the table below and select the data number that corresponds to the desired parameter.*
2 Upper Lower	• Enter the lower and upper threshold values for alarm evaluation.

*A Hioki power meter (3331, 3332, 3168) can be connected to the 2343.

3.3 Setting the Measurement Parameters

Relationship between data number and parameters

Equipment connected to 2343	Data number	Parameter to watch
3332, 316 (single-phase 2-wire)	1	Voltage U1
	2	Current I1
	3	Effective power P
	4	Power factor PF
	5*	Frequency FREQ
	6	Power WP+
3331, 3168 (single-phase 3-wire, three-phase 3 wire)	1	Voltage U1
	2	Voltage U2
	3	Current I1
	4	Current I2
	5	Effective power P
	6	Power factor PF
	7*	Frequency FREQ
	8	Power WP+

*The 3168 does not have a frequency measurement function. When using the 3168, select this number.

Important

The 2342 records data when there was a change in the internal alarm (evaluation result) status. Unlike with other modules, there is no need to make recording settings.

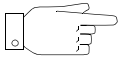
3. When the settings are complete, click the [Send] button to send the settings to the 2342 OUTPUT MODULE.

3.3.7 Setting Measurement Parameters for 2343

Procedure

1. Bring up the [**Module settings**] dialog box.
 - ❖ 3.3.1 "Common Steps" (page 40)

2. Make settings under the [**Measuring Method**] tab.



The settings to be made under this tab depend on the connected equipment.

Connection to 3331

Set [**Connection Model**] to 3331.

Module settings

2343 RS LINK MODULE 1 MODULE ID 3 2 Connection Model 3331

3 Model Comment
2343 RS LINK MODULE

Measuring Method | Recording Method | Communication method

4 Measuring line
3P3W

Measuring range

5 Voltage range AUTO

6 Current range AUTO

7 Frequency AUTO 8 Source U ch1

Scaling

9 VT(PT) ratio 1.0 10 CT ratio 1.0

Details

11 Average 1

12 Response AUTO

13 Rectifier RMS

Send Close

Example: Connected model is 3331

3.3 Setting the Measurement Parameters

Required setting items (common to 3168, 3331, 3332)

Setting item	Description
1	MODULE ID <ul style="list-style-type: none"> ID number of the RS LINK MODULE Cannot be changed from the main screen. Can only be changed during the initial setup of the [MAP editor].
2	Connection Model <ul style="list-style-type: none"> Select either 3331, 3332, or 3168
3	Model Comment <ul style="list-style-type: none"> The string entered here serves for identifying the module. This string is used in the measurement value monitor and Smart Site Viewer when displaying recorded data. Enter a comment string here that is meaningful and easy to understand (up to 40 characters).

When 3331 is connected

Setting item	Description
4	Measuring line <ul style="list-style-type: none"> Serves to select the type of measurement line (1P3W, 3P3W).
5	Voltage range <ul style="list-style-type: none"> Sets the voltage range. When [AUTO] is selected, the most suitable range for the current input condition will be set automatically. When integration starts, the AUTO range setting is canceled and the range is fixed to the setting that was active at that point.
6	Current range <ul style="list-style-type: none"> Sets the current range. When [AUTO] is selected, the most suitable range for the current input condition will be set automatically. When integration starts, the AUTO range setting is canceled and the range is fixed to the setting that was active at that point.
7	Frequency <ul style="list-style-type: none"> Sets the frequency range. When [AUTO] is selected, the most suitable range for the current input condition will be set automatically.
8	Source <ul style="list-style-type: none"> Sets the item for which the frequency is to be measured.
9	VT (PT) ratio <ul style="list-style-type: none"> Sets the VT (PT) ratio. (Voltage value shown on measurement screen = actually measured voltage x VT (PT) ratio) Used when a transformer is used in the voltage measurement line. The setting range is 0.001 to 9999.
10	CT ratio <ul style="list-style-type: none"> Sets the CT ratio. (Current value shown on measurement screen = actually measured current x CT ratio) Used when a current transformer is used in the current measurement line. The setting range is 0.001 to 9999.
11	Average <ul style="list-style-type: none"> Sets the number of averaging iterations
12	Response <ul style="list-style-type: none"> Sets the response rate. When [AUTO] is selected, the most suitable range for the current input condition will be set automatically.
13	Rectifier <ul style="list-style-type: none"> Sets the rectification method

Connection to 3332

Set [**Connection Model**] to 3332.

First, set the required items.

❖ "Required setting items (common to 3168, 3331, 3332)" (page 61)

Example: Connected model is 3332

When 3332 is connected

Setting item	Description
1 Voltage range	<ul style="list-style-type: none"> • Sets the voltage range. • When [AUTO] is selected, the most suitable range for the current input condition will be set automatically. • When integration starts, the AUTO range setting is canceled and the range is fixed to the setting that was active at that point.
2 Current range	<ul style="list-style-type: none"> • Sets the current range. • When [AUTO] is selected, the most suitable range for the current input condition will be set automatically. • When integration starts, the AUTO range setting is canceled and the range is fixed to the setting that was active at that point.
3 Voltage Range Current Range	<ul style="list-style-type: none"> • Selects the range to use for voltage range and current range. • Select at least 2 ranges.
4 Frequency	<ul style="list-style-type: none"> • Sets the frequency range. • When [AUTO] is selected, the most suitable range for the current input condition will be set automatically.
5 Source	<ul style="list-style-type: none"> • Sets the item for which the frequency is to be measured.
6 VT (PT) ratio	<ul style="list-style-type: none"> • Sets the VT (PT) ratio. (Voltage value shown on measurement screen = actually measured voltage x VT (PT) ratio) • Used when a transformer is used in the voltage measurement line. • The setting range is 0.001 to 9999.

3.3 Setting the Measurement Parameters

When 3332 is connected

Setting item	Description
7	CT ratio <ul style="list-style-type: none">• Sets the CT ratio. (Current value shown on measurement screen = actually measured current x CT ratio)• Used when a current transformer is used in the current measurement line.• The setting range is 0.001 to 9999.
8	Scaling <ul style="list-style-type: none">• Allows multiplication of the power value, such as for conversion into another physical quantity.• The setting range is 0.001 to 9999.
9	Average <ul style="list-style-type: none">• Sets the number of averaging iterations.• The setting range is 1 to 300.
10	Response <ul style="list-style-type: none">• Sets the response rate.• When [AUTO] is selected, the most suitable range for the current input condition will be set automatically.
11	Rectifier <ul style="list-style-type: none">• Sets the rectification method

Connection to 3168

Set [**Connection Model**] to 3168.

First, set the required items.

❖ "Required setting items (common to 3168, 3331, 3332)" (page 61)

The screenshot shows the 'Module settings' window for a '2343 RS LINK MODULE'. The 'MODULE ID' is set to 3. The 'Connection Model' dropdown is set to 3168, highlighted with a red dashed circle. Below this, the 'Model Comment' field contains '2343 RS LINK MODULE'. There are three tabs: 'Measuring Method', 'Recording Method', and 'Communication method'. Under 'Measuring Method', there are four numbered settings: 1. 'Measuring line' set to '1P2W'; 2. 'Measuring range' with 'Current range' set to '5A'; 3. 'Scaling' with 'VT(PT) ratio' set to '1'; 4. 'CT ratio' set to '1'. At the bottom are 'Send' and 'Close' buttons.

Example: Connected model is 3168.

When 3168 is connected

Setting item	Description
1 Measuring line	• Serves to select the type of measurement line. [1P2W / 1P3W / 3P3W]
2 Measuring range	• Sets the measurement range. [5 A / 10 A / 50 A / 100 A / 500 A]
3 VT (PT) ratio	• Sets the VT (PT) ratio. (Voltage value shown on measurement screen = actually measured voltage x VT (PT) ratio) • Used when a transformer is used in the voltage measurement line. • The setting range is 1 to 10000.
4 CT ratio	• Sets the CT ratio. (Current value shown on measurement screen = actually measured current x CT ratio) • Used when a current transformer is used in the current measurement line. • The setting range is 1 to 10000.

3. Make settings under the [Recording Method] tab.
- These settings are used for the data recording function.
- You can set the [Rec. Interval] and [Recording Mode].

The screenshot shows a software window with two tabs: 'Measuring Method' and 'Recording Method'. The 'Recording Method' tab is active. It contains two main sections: 'Rec. Interval' and 'Recording Mode'. The 'Rec. Interval' section has a dropdown menu currently showing '10m'. The 'Recording Mode' section has three radio button options: 'INST' (which is selected), 'MAX/MIN/AVE', and 'INST + MAX/MIN/AVE'.

Hints

- When wishing to use the same recording settings for all measurement modules, you can make the setting at the start of recording and do not need to do it here.
- When wishing to use different settings for individual measurement modules, you should make the settings beforehand on this screen.

4. Check the [Communication method] tab.
- The communication settings for the 3331, 3332, and 3168 are the same, except for the communication timeout setting.
 - In the factory default condition, the 3331, 3332, and 3168 are already set up for communication with the 2343.

The settings are as follows.

Baud Rate	9600bps
Parity	None
Data Length	8 bit
Stop Bit	1 bit
Send Delimiter	CR+LF
Receive Delimiter	CR+LF
Time Out	300 msec (3331, 3332), 500 msec((3168))
Receive Interval	50 msec

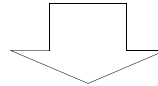
5. When the settings are complete, click the [Send] button to send the settings to the measurement module.

3.4 Recording and Acquiring Data

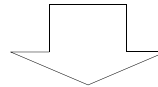
- When a recording start command is received by a measurement module, the module starts to save measurement data at regular intervals in its internal memory.
- The recorded data can be collected by the computer and saved in a file.
- Files created in this way can be viewed with Smart Site Viewer (this is also possible while data recording is still in progress).

General procedure

1. Set the recording parameters and start data recording. ❖ [3.4.1 \(page 67\)](#)



2. Acquire data at regular intervals, either automatically or manually. ❖ [3.4.2 \(page 71\)](#)

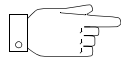


3. When all necessary data have been acquired, stop recording. ❖ [3.4.3 \(page 74\)](#)

3.4.1 Starting Data Recording

Procedure

1. Click the [Rec] button on the toolbar to open the [Start and stop recording] dialog box. This dialog box lets you set the recording parameters and start recording.



You can also select [Record] - [Start/Stop Recording] from the menu bar.

Start and stop recording

1 File name .hrp

2 Save directory Ref...

3 Recording method

Use common settings

Rec. interval:

Recording mode:

INST MAX/MIN/AVE

INST + MAX/MIN/AVE

4 Operation at memory full

Continue recording (overwrite) Stop recording

5 Start recording method

Start recording immediately. Start recording at set time.

Time to start recording

2005 y 3 m 9 d 10 h 1 m

6 Stop recording method

Set recording stop time

Time to stop recording

2005 y 3 m 9 d 10 h 1 m

Start Close

Setting item		Description
1	File name	• Specifies the file name for recorded data.
2	Save directory	• To change the directory, click the [Ref] button.
3	Recording method	<ul style="list-style-type: none"> • To use the same settings for all modules, select the [Use common settings] check box, and make settings for [Rec. interval] and [Recording mode]. • When the [Use common settings] check box is not selected, individual settings will be used for each module. ❖ See the section on making settings for the [Recording Method] tab of each module 3.3 "Setting the Measurement Parameters" (page 40)
4	Operation at memory full	<ul style="list-style-type: none"> • Determines the operation when the internal memory of a module has become full. [Continue recording [overwrite]]: Old data will be successively overwritten by new data as recording continues. [Stop recording] : Recording will stop.
5	Start recording method	<ul style="list-style-type: none"> • Determines whether recording starts immediately or at a specified time. • Actual recording start will occur at a suitable transition point.
6	Stop recording method	• Set this option if you want the recording to stop at a specified time.

Important note 1

- Internally, a measurement module will start recording at a suitable transition point in time (a time that can be divided by the interval time).

Example:

Interval setting: 60 minutes

Specified recording start time (or time at which immediate recording start is activated): 9:01:00

Actual recording start: 10:00:00

Important note 2

- For [MAX/MIN/AVE] and [INST+MAX/MIN/AVE], the first recording data are generated after the interval has elapsed. If one of these modes is selected in the example of "Important note 2", the first recording data will be generated at 11:00:00.

Important note 3

- If the setting for [Operation at memory full] is [Stop recording], the internal memory of the measurement module will be completely cleared before the next recording starts.

3.4 Recording and Acquiring Data

Approximate figures for recording time are given in the table below. Module save data numbers and available recording time (hours/days) until memory full condition *1

Module	2301 to 2305			2331		
Recording mode *2	Instantaneous value	MAX/MIN/AVE	Instantaneous value + MAX/MIN/AVE	Instantaneous value	MAX/MIN/AVE	Instantaneous value + MAX/MIN/AVE
Number of save data	30000	15000	12000	12000	5100	3900
Recording interval *3	Available days with 2301 to 2305 *4			Available days with 2331 (single phase 3-wire/ three-phase 3-wire, 1 circuit) *4,*5,*6		
1 s	8.5 h	4 h	3 h	3 h	1 h	1 h
2 s	17 h	8.5 h	6.5 h	6.5 h	2.5 h	2 h
5 s	1.5 d	21 h	17 h	17 h	7 h	5.5 h
10 s	3.5 d	1.5 d	1.5 d	1 d	14 h	11 h
15 s	5 d	2.5 d	2 d	2 d	21 h	16.5 h
20 s	7 d	3.5 d	2.5 d	2.5 d	1 d	22 h
30 s	10 d	5 d	4 d	4 d	1.5 d	1 d
1 m	21 d	10 d	8 d	8 d	3.5 d	2.5 d
2 m	42 d	21 d	17 d	17 d	7 d	5 d
5 m	106 d	53 d	42 d	42 d	17 d	13 d
10 m	213 d	106 d	85 d	85 d	35 d	27 d
15 m	319 d	159 d	127 d	127 d	53 d	41 d
20 m	426 d	213 d	170 d	170 d	71 d	55 d
30 m	639 d	319 d	255 d	255 d	106 d	82 d
60 m	1279 d	639 d	511 d	511 d	213 d	165 d

*1: This refers to the case when the setting for [Operation at memory full] is [Stop recording]. If the setting is [Continue recording [overwrite]], the available recording time will be about 15% shorter. You should perform data acquisition before this limit is exceeded.

*2: The recording mode for the 2304 is instantaneous value only.

*3: Sampling occurs once per second.

*4: When alarm event recording is set to ON, the available recording time will be progressively shorter the more alarm events there are.

*5: This refers to the case when the measurement line is single-phase 3-wire or three-phase 3-wire.

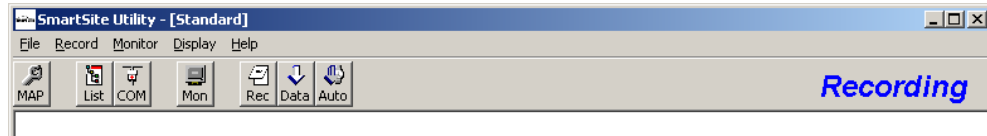
When the measurement line is single-phase 2-wire, the available recording time is longer than indicated in the table.

When the measurement line is three-phase 4-wire, the available recording time is shorter than indicated in the table.

*6: When the 2332 is used, the available recording time changes depending on the number of measurements.

Under the same conditions as when the 2331 is used, the change will be approximately [Recording time in table (hours) x 0.8]/number of measurements.

2. When all settings have been made, click the [Start] button.
 - The recording settings are sent, and recording starts. The indication [Recording] appears on the toolbar.



- The internal clock of the module will be set to the same time as the clock of the computer.

3.4.2 Acquiring Recorded Data

You can acquire (collect) the recorded data in the computer and save them as files.

There are two ways of acquiring data:

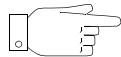
- Manual acquisition
- Periodic (automatic) acquisition

Manual acquisition

You can acquire data manually in two ways.

◆ Data acquisition (for short term data)

- This method assumes that the computer and communication modules are permanently connected.
- Previously uncollected data are acquired one by one.



When the number of uncollected data is less than 400, this method is faster.

◆ Data acquisition (for long term data)

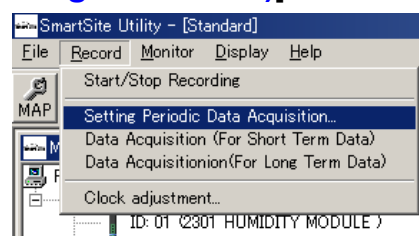
- This method assumes that the computer and modules are not permanently connected. Data from a measurement module installed in the field are acquired before stopping to record.
- The contents of the internal memory of the measurement module are transferred in blocks to the computer. The search for uncollected data is then performed in the computer and files are created.
- There is a certain overhead, but because there is no data search processing in the measurement module itself, the method is suitable for large amounts of data.



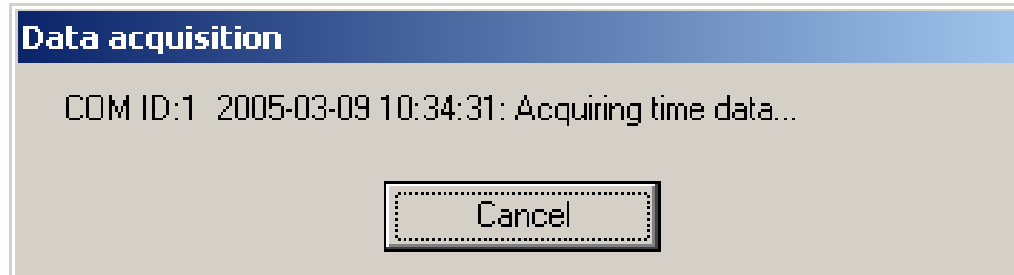
When the number of uncollected data is 400 or more, this method is faster.

Procedure

1. Select [**Record**] on the menu bar, and then select [**Data Acquisition (For Short Term Data)**] or [**Data Acquisition (For Long Term Data)**].



2. When data acquisition starts, a message appears in the bottom right of the screen. (This message will close automatically when the process is finished.)
When wishing to stop data acquisition before the process is finished, click [**Cancel**].



The illustration shows the case when [**Data Acquisition (For Short Term Data)**] was selected.

Periodic acquisition

You can specify an interval and have data acquisition performed automatically. This is similar to performing an automatic mail check at regular intervals using an e-mail program.

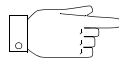
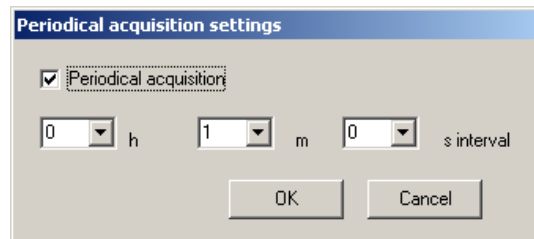
In systems using wireless communication, periodic acquisition is recommended, because bulk acquisition after measurement will take a long time.

Set the interval for periodic acquisition.

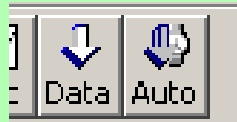
Procedure

1. Select [**Record**] on the menu bar, and then select [**Setting Periodic Data Acquisition**]. The [**Periodic acquisition settings**] dialog box appears.

2. Set the desired interval, and select the [Periodical acquisition] check box.



The above dialog box can also be opened by clicking the [Auto] button on the toolbar. If you click the [Data] button, the procedure for manual acquisition ([Data Acquisition (For Short Term Data)]) is activated.



During periodic acquisition operation, the time until the next acquisition is shown on the status bar at the bottom of the screen.



Hints

The settings for periodic acquisition and the time of uncollected data are retained also when shutting down the Smart Site Utility. This makes the following actions possible.

- Avoiding to start Smart Site Utility during working hours when other operations are to be performed.
- Starting Smart Site Utility outside of working hours to carry out periodic acquisition.

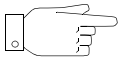
3.4.3 Stopping Data Recording

When you stop recording, the recording file is closed and no more data can be added to it. During automatic report creation, you should not stop recording when a module change is necessary.

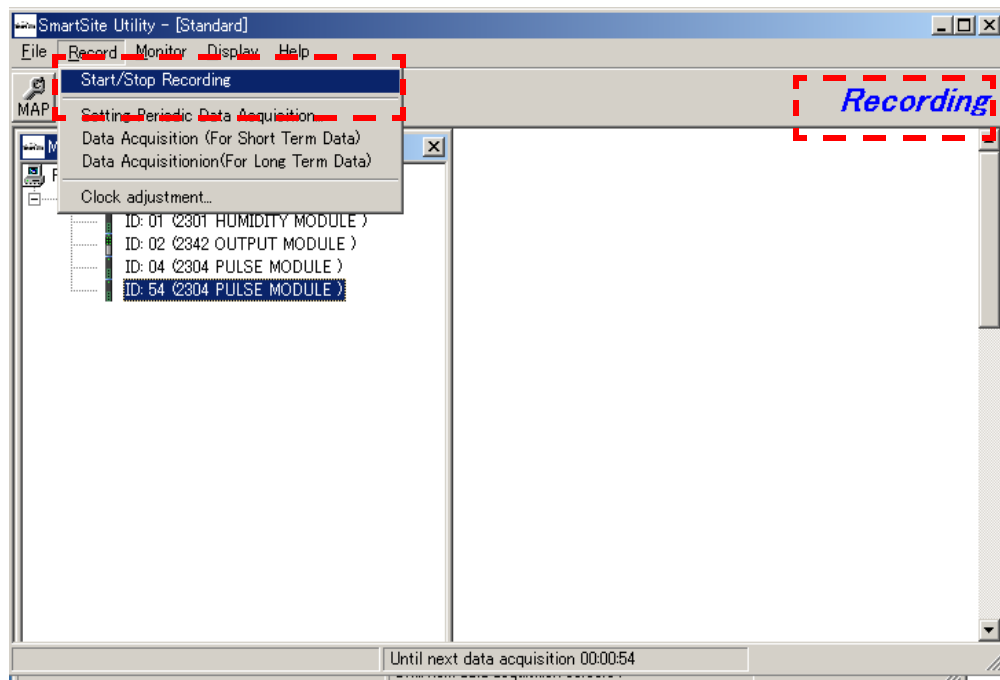
❖ 4.1.3 "Auto Report Output" (page 96)

Procedure

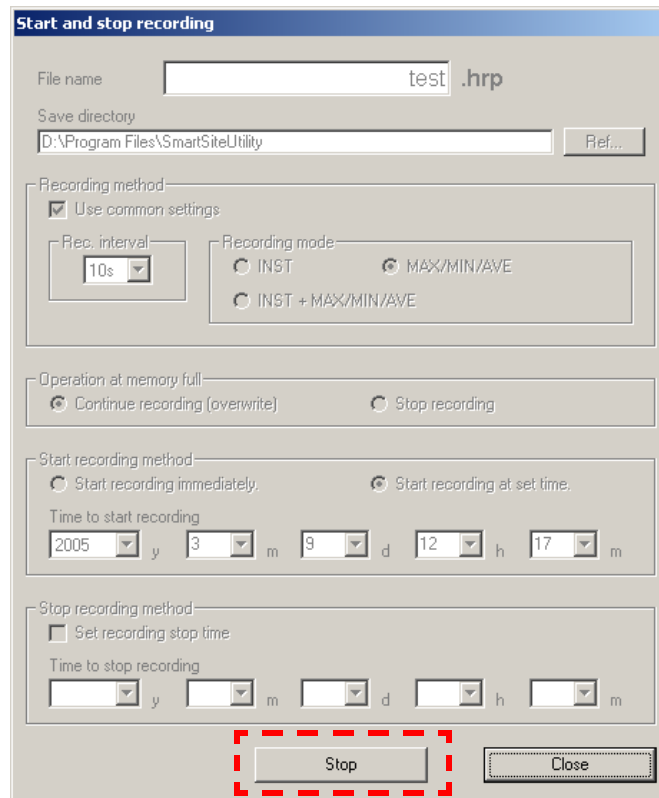
1. Select [**Record**] on the menu bar, and then select [**Start/Stop Recording**].



You can also open the dialog box by clicking [**Rec**] on the toolbar.

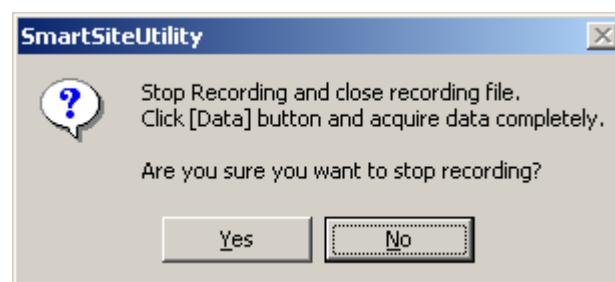


The [Start and Stop recording] dialog box appears.



Click the [Stop] button.

2. A confirmation message about stopping the recording process appears.



Select [Yes] to stop recording.

Important

Collect as many data as possible before clicking [Stop]. After stopping the recording function, you can only acquire data once more. After that, no further data acquisition is possible.

3.5 Viewing Recorded Data

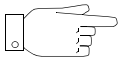
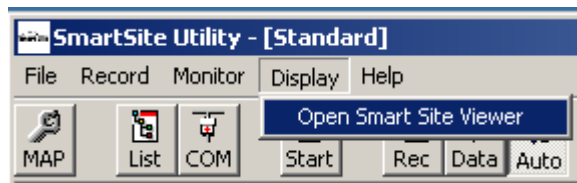
The Smart Site Viewer allows you to view recorded data in tabular and graph form.

- The graph display can also be printed.
- The tabular data can be exported to Microsoft Excel or saved as a CSV file.

3.5.1 Procedure for Viewing Recorded Data

Procedure

1. Start Smart Site Viewer.
Select [**Display**] - [**Open Smart Site Viewer**].



If recording is in progress and there are collected data, a selection window for the current recording file (selection screen in step 2) appears automatically when Smart Site Viewer is started.

The initial screen of Smart Site Viewer allows the following operations.

	Menu item	Content
File	Open File	Open and display a recording file (hrp file).
	Combine Recording Files	Merge and display several recording files (hrp files).

2. From the menu bar of Smart Site Viewer, select [**File**] - [**Open File**] and select the file (*.hrp file) to load.



If settings were loaded previously, these can be loaded again.

The [Load a Recording File] dialog box appears.

Load a Recording File. - [sample_e.hrp]
 Check Sort

Select measurement items for table/graph display and display format.

1 Display Window
 Table and Graph (Max. 16 items) Table only (Max. 300 items)

2 Item List Checked 4 / 18


MemberID	Model	Items	Attri...
<input checked="" type="checkbox"/> 01-01-01	Consumption power: PC	U1 (AVE)	AVE
<input checked="" type="checkbox"/> 01-01-02	Consumption power: PC	I1 (AVE)	AVE
<input type="checkbox"/> 01-01-03	Consumption power: PC	P (AVE)	AVE
<input type="checkbox"/> 01-01-04	Consumption power: PC	PF (AVE)	AVE
<input type="checkbox"/> 01-01-05	Consumption power: PC	FREQ (AVE)	AVE
<input type="checkbox"/> 01-01-06	Consumption power: PC	U1 (MAX)	MAX
<input type="checkbox"/> 01-01-07	Consumption power: PC	I1 (MAX)	MAX
<input checked="" type="checkbox"/> 01-01-08	Consumption power: PC	P (MAX)	MAX
<input type="checkbox"/> 01-01-09	Consumption power: PC	PF (MAX)	MAX
<input type="checkbox"/> 01-01-10	Consumption power: PC	FREQ (MAX)	MAX
<input type="checkbox"/> 01-01-11	Consumption power: PC	U1 (MIN)	MIN
<input type="checkbox"/> 01-01-12	Consumption power: PC	I1 (MIN)	MIN
<input type="checkbox"/> 01-01-13	Consumption power: PC	P (MIN)	MIN

3 Display Format
 Daily Display Display All Data (Max. 86400 data)

Up Down

OK Cancel

3. Make the following three settings and click [OK].

Setting item	Description
1 Display Window	• Select [Table and Graph] or [Table only].
2 Item list	<ul style="list-style-type: none"> • Select the check boxes for measurement items you want to view. • When [Table and Graph] is selected, the maximum number of items is 16. When [Table only] is selected, the maximum number of items is 100. • Click the  button to change the measurement item display order.
3 Display format	<ul style="list-style-type: none"> • Select [Daily Display] or [Display All Data]. • When [Display All Data] is selected, the maximum number of data that can be displayed per measurement item is 86400.

Menu item	Description
Check	You can select the check boxes for [All / INST / INTEG / MAX / MIN / AVE] together.
Sort	You can sort by [Member ID / Model / Items / Attributes]

3.5.2 Main Functions of "Table"

The main functions when "Table" is selected are shown below.

Column number	1	2	3	4
MemberID	01-01-01	01-01-02	1-01-08	01-01-16
Model	Consumption Power	Consumption Power	Consumption Power	Consumption Power
Items	I1 (AVE)	I1 (AVE)	P (MAX)	WP+
Unit	[V]	[A]	[W]	[Wh]
AVE	100.55	0.45032	33.291	1.0842
MAX	100.66	0.47829	46.351	8.567
MIN	100.38	0.44779	32.155	1.0671
INTG				780.64
03/09/02 00:24:00	100.59	0.44832	32.259	1.0686
03/09/02 00:26:00	100.59	0.44882	32.288	1.0702
03/09/02 00:28:00	100.66	0.44841	32.254	1.0694
03/09/02 00:30:00	100.59	0.44839	32.286	1.0688
03/09/02 00:32:00	100.59	0.44848	32.273	1.0691
03/09/02 00:34:00	100.59	0.44843	32.286	1.0687
03/09/02 00:36:00	100.59	0.44881	32.388	1.0698
03/09/02 00:38:00	100.56	0.47248	46.267	1.1377
03/09/02 00:40:00	100.57	0.44898	32.255	1.0701
03/09/02 00:42:00	100.57	0.44889	32.268	1.0699
03/09/02 00:44:00	100.58	0.44887	32.248	1.0695
03/09/02 00:46:00	100.62	0.44824	32.218	1.0686
03/09/02 00:48:00	100.61	0.44786	32.202	1.0675
03/09/02 00:50:00	100.64	0.44801	32.187	1.0682
03/09/02 00:52:00	100.62	0.44823	32.211	1.0687
03/09/02 00:54:00	100.58	0.44885	32.336	1.069
03/09/02 00:56:00	100.6	0.44864	32.292	1.0697
03/09/02 00:58:00	100.59	0.44876	32.441	1.0697
03/09/02 01:00:00	100.57	0.44853	32.283	1.0689
03/09/02 01:02:00	100.57	0.44891	32.272	1.07
03/09/02 01:04:00	100.58	0.44897	32.296	1.0704
03/09/02 01:06:00	100.57	0.44873	32.223	1.0695
03/09/02 01:08:00	100.58	0.44888	46.103	1.1365
03/09/02 01:10:00	100.61	0.44888	32.198	1.0674
03/09/02 01:12:00	100.61	0.44812	32.25	1.0691

The row number, member ID, model, measurement item, unit, as well as average, maximum, minimum, and integrated values for all data are shown here. The integrated value is only shown for integrating type measurement items.

The minimum value is shown in blue and the maximum value in red.

When [Daily Display] is selected, the Date and Move Date buttons are shown. By clicking the [▼] button or directly entering another date, you can display data for another date.

Menu item		Description
File	Paste to Microsoft Excel	Paste the displayed data into Microsoft Excel.
	Output to CSV file	Output the displayed data to a CSV file.
	Auto update	Read recording files at regular intervals and update the table and graph display.
	Reselect item	Serves to reselect a displayed item.
Report	Automatic Output	Automatically create a report at regular intervals or a specified time.
	Manual Output	Specify a date and create a report. Serves to test auto report creation.

3.5.3 Main Functions of "Graph"

The main functions when "Table" is selected are shown below.



Use the scroll bars to shift the graph along the time axis or move the A and B cursors.

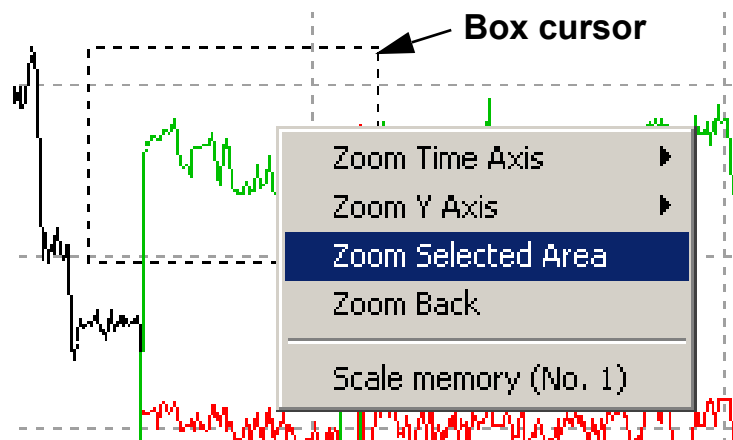
The Y axis scale can be set to **All CH** or **Each CH**. To simultaneously view changes in multiple items with differing scale, such as power and temperature, the **Each CH** setting is suitable. With this setting, the Y axis scale changes depending on the selected channel.

The time for the A/B cursor position, and the measurement item, model, cursor position data, average value, maximum value, integrated value, and unit are shown for each channel. When the **Statistics between A and B Cursors** check box is selected, the maximum value, minimum value, average value, and integrated value between the A and B cursors are calculated. The integrated value is only shown for integrating type measurement items.

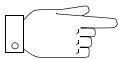
◆ The graph can be zoomed

Procedure

1. Specify the area to zoom by dragging the mouse with the left button depressed. The box cursor encloses the selected area.
2. Right-click to access the popup menu, and select [**Zoom Selected Area**].



3. By clicking [**Scale memory**], you can save the scale setting.



Up to 5 scale settings can be memorized.



You can change the graph line type.

- The graph type can be set to broken-line graph or bar graph for each channel individually.
- The display can also be turned on and off, and the color can be selected.

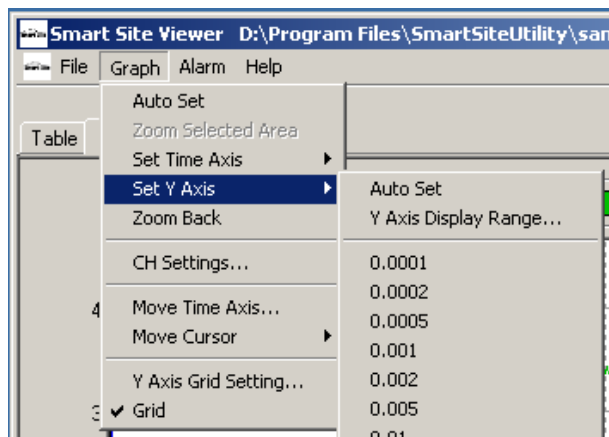
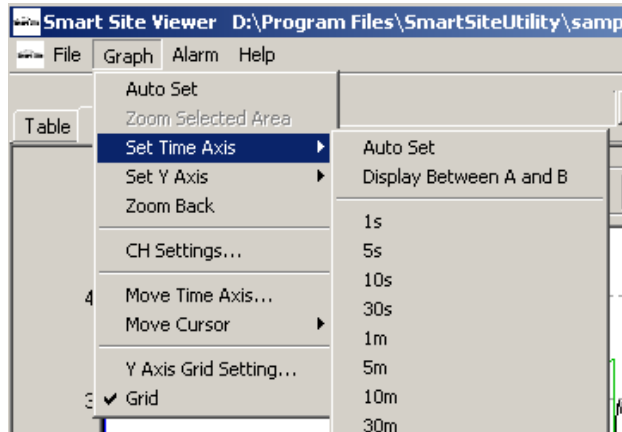
Procedure

From the menu bar, select [**Graph**] - [**CH Settings**]. This brings up the [**CH Settings**] dialog box which lets you make settings for the respective items.

	Display	Color	Bar graph
U1(AVE)	<input checked="" type="checkbox"/>		<input type="checkbox"/>
I1(AVE)	<input type="checkbox"/>		<input type="checkbox"/>
P(MAX)	<input checked="" type="checkbox"/>		<input type="checkbox"/>
WP+	<input checked="" type="checkbox"/>		<input type="checkbox"/>
	<input type="checkbox"/>		<input type="checkbox"/>
	<input type="checkbox"/>		<input type="checkbox"/>
	<input type="checkbox"/>		<input type="checkbox"/>
	<input type="checkbox"/>		<input type="checkbox"/>
	<input type="checkbox"/>		<input type="checkbox"/>
	<input type="checkbox"/>		<input type="checkbox"/>
	<input type="checkbox"/>		<input type="checkbox"/>
	<input type="checkbox"/>		<input type="checkbox"/>
	<input type="checkbox"/>		<input type="checkbox"/>
	<input type="checkbox"/>		<input type="checkbox"/>
	<input type="checkbox"/>		<input type="checkbox"/>

OK Cancel

- ◆ The **[Graph]** menu also gives access to various other operations and settings.



Menu item		Description
Auto Set		Select automatic scale setting for both time axis and Y axis.
Set Time axis	Auto set	Select automatic scale setting only for time axis.
	Display Between A and B	Zoom section between A and B cursors.
	Time list	Set time axis to interval specified in list. [1 s/5 s/10 s/30 s/1 m/5 m/10 m/30 m/...]
Y axis setting	Auto set	Select automatic scale setting only for Y axis.
	Y Axis Display Range	Set display range (upper limit/lower limit) for y axis.
	Numeric list	Set Y axis to interval specified in list. [0.0001/0.0002/0.0005/0.001/0.002/0.005/0.01/...]
Zoom back		Cancel previous operation and return scale to original setting.
CH settings		Change graph on/off, color, and shape settings
Move Time Axis		Move the waveform display position to a specified time, or move A/B cursor position.
Move cursor		Move cursor A or B to specified position.
Y Axis Grid Setting		Set grid resolution for y axis.
Grid *		Show grid if check box is selected.

*Grid: Reference grid

3.5.4 Recording File Combination Function

You can combine (merge) multiple recording files.

Procedure

1. From the menu bar, select [**File**] - [**Combine Recording Files**]. The [**Combine Recording Files**] dialog box appears.
2. Make the required settings in the [**Combine Recording Files**] dialog box.

3. Click the [**Combine**] or [**Combine and Display**] button.

Combine	Combine two or more recording files in a file with a new name.
Combine and Display	Create a file as above and display it in Smart Site Viewer.



The created recording file can be selected and loaded via [**File**] - [**Open File**].

Operation (Advanced)

4

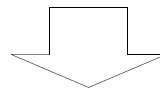
4.1 Report Creating Function

This section explains how to create various reports.

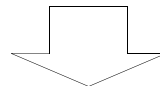
- Data collected with the Smart Site Utility can be used to create daily and monthly reports.
- Daily and monthly reports can be output as Microsoft Excel files in 1-month-units.
- Excel 2000, 2002, and 2003 are supported.
- For creating daily and monthly reports, a format file to be used as a template must first be created in Microsoft Excel.

General procedure

1. Create the format file. [❖ 4.1.1 \(page 86\)](#)



2. Test the output and edit the format file as necessary. [❖ 4.1.2 \(page 94\)](#)



3. Create reports automatically. [❖ 4.1.3 \(page 96\)](#)

4.1.1 Creating a Format File

An example for a format file and a sample output report are shown below. This section explains the procedure for creating the format file, using the examples shown.

❖ See the [Report] folder in the application folder (such as C:\Program Files\SmartSiteUtility or similar).

◆ Sample format file

Excel template example

Comment tag

	<code><<C01-01-01>></code>	<code><<C01-01-02>></code>	<code><<C01-01-16>></code>	<code><<C01-32-01>></code>
Date tag	<code><<Date>></code>	<code><<01-01-01>></code>	<code><<01-01-02>></code>	<code><<01-01-16>></code>
1	<code><<T0:00-1:00>></code>			
2	<code><<T1:00-2:00>></code>			
3	<code><<T2:00-3:00>></code>			
4	<code><<T3:00-4:00>></code>			
5	<code><<T4:00-5:00>></code>			
6	<code><<T5:00-6:00>></code>			
7	<code><<T6:00-7:00>></code>			
8	<code><<T7:00-8:00>></code>			
9	<code><<T8:00-9:00>></code>			
10	<code><<T9:00-10:00>></code>			
11	<code><<T10:00-11:00>></code>			
12	<code><<T11:00-12:00>></code>			
13	<code><<T12:00-13:00>></code>			
14	<code><<T13:00-14:00>></code>			
15	<code><<T14:00-15:00>></code>			
16	<code><<T15:00-16:00>></code>			
17	<code><<T16:00-17:00>></code>			
18	<code><<T17:00-18:00>></code>			
19	<code><<T18:00-19:00>></code>			
20	<code><<T19:00-20:00>></code>			
21	<code><<T20:00-21:00>></code>			
22	<code><<T21:00-22:00>></code>			
23	<code><<T22:00-23:00>></code>			
24	<code><<T23:00-24:00>></code>			
Total	0.0	0.0	0	0.0
Maximum	0.0	0.0	0	0.0
Minimum	0.0	0.0	0	0.0
Average				

This kind of template can also be used.

<code><<date>></code>	Temperature	Humidity
	<code><<01-32-01>></code>	<code><<01-32-02>></code>
<code><<T10:00>></code>		
<code><<T18:00>></code>		
<code><<T21:00>></code>		

Temperature at 16:00	<code><<T16:00,01-32-01>></code>
----------------------	--

Character string is displayed as is.

Create report for temperature at 16:00

Line width and cell format settings are inherited from the template.

Create report for temperature and humidity at 10:00, 18:00, 21:00.

The display can be controlled by setting parameters. (In this example, when the sum is "0", a blank is shown.)

Calculation can be performed using Excel formulas.

[Member ID] determined by system configuration

The data values for member ID [01-01-16], 5:00 - 6:00 period are output to this cell.

Time tag

Date tag

 Sample report

Excel template
example

		Power consumption of PC	Power consumption of PC	Power consumption of PC	Ambient temperature measurement
2003/9/1		U1(AVE)	I1(AVE)	WP+	Ambient temperature
1	01:00	100.6	0.4	32	27.5
2	02:00	100.6	0.4	32	27.5
3	03:00	100.6	0.4	32	27.5
4	04:00	100.6	0.4	32	27.5
5	05:00	100.6	0.4	32	27.5
6	06:00	100.6	0.4	32	27.5
7	07:00	100.6	0.4	32	27.5
8	08:00	100.6	0.4	32	27.5
9	09:00	100.5	0.5	32	26.8
10	10:00	100.2	1.2	90	27.4
11	11:00	100.1	1.4	105	27.5
12	12:00	100.1	1.5	107	27.7
13	13:00	100.3	0.8	59	27.3
14	14:00	100.2	1.2	90	27.6
15	15:00	100.2	1.4	101	27.7
16	16:00	100.1	1.5	108	27.7
17	17:00	100.1	1.5	110	27.5
18	18:00	100.1	1.4	105	27.9
19	19:00	100.1	1.5	109	28.2
20	20:00	100.1	1.3	97	27.7
21	21:00	100.6	0.5	32	27.3
22	22:00	100.6	0.5	32	27.1
23	23:00	100.6	0.5	32	26.9
24	24:00	100.6	0.5	32	27.0
Total		2409.1	20.6	1500	659.3
Maximum		100.6	1.5	110	28.2
Minimum		100.1	0.4	32	26.8
Average		100.4	0.9	62	27.5

This kind of templates can also be used.

2003/9/1	Temperature	Humidity
	Ambient temperature	Pt dummy resistance
10:00	27.4	5.5
18:00	27.9	5.5
21:00	27.3	5.6

Temperature at 16:00
27.7

◆ Tag types

Strings enclosed in "<<" and ">>" (tags) written to the format file allow you to modify the output to an Excel worksheet. The table below lists the available tag types

Tag types and their use in reports

Tag	Example	Output item	Effective direction *	Display format [type]	See
Daily report:					
<<Date>>	<<Date>>	Report output date	Single cell	Date	P.105
<<T time, member ID>>	<<T2:00,01-01-02>>	Setting value		Value	P.106
<<T time>>	<<T1:00>>	Time	Single cell + right	Character string	P.106
<<T time - time>>	<<T1:00-2:00>>	Time			P.106
Monthly report:					
<<MDate>>	<<MDate>>	1st of month	Single cell	Date	P.107
<<D Date>>	<<D3>>	Date	Single cell + right	Value	P.107
<<W>>	<<W>>	Day of week	Single cell + down	Character string	P.107
<<Max member ID>>	<<Max01-01-01>>	Maximum value		Value	P.107
<<Max member ID, interval (minutes)>>	<<Max01-01-01,30>>	Maximum value in specified interval		Value	P.108
<<MaxT member ID>>	<<MaxT01-01-01>>	Time of maximum value		Character string	P.108
<<MaxT member ID, interval (minutes)>>	<<MaxT01-01-01,30>>	Time of maximum value in specified interval		Character string	P.109
<<AT time, member ID>>	<<AT10:00,01-01-01>>	Measurement value at given time		Value	P.109
Daily/Monthly common items:					
<<C member ID>>	<<C01-01-01>>	Comment	Single cell	Character string	P.105
<<Member ID>>	<<01-01-01>>	Measurement value	Single cell + down	Value	P.105

*The effective tag direction has 3 states.

Single cell	Based on the tag information, the value is output only to the cell for which the tag is written.
Single cell + right	In addition to the single cell write, data are also written to the position where right-oriented tags and down-oriented tags intersect. This allows easy creation of tabular data.
Single cell + down	

	Single cell	Single cell + down	
<<Date>>		<<01-01-01>>	
	<<T10.00>>		
	Single cell + right		Measurement value is also written to point where right-oriented and down-oriented tags intersect.

Create the formatting for the report.

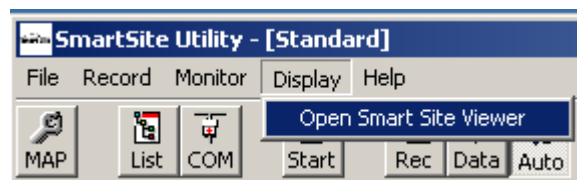
The explanations in this section use Microsoft Excel 2000 as an example. In Excel 2002 and 2003, you can create a format file using similar procedures.

◆ Creating a format file

Procedure

1. Use the Smart Site Utility to acquire the necessary data for creating a report.
 - ◆ 3.4.2 "Acquiring Recorded Data" (page 71)

2. Start the Smart Site Viewer.
 - Select [**D**isplay] - [**O**pen Smart Site Viewer].

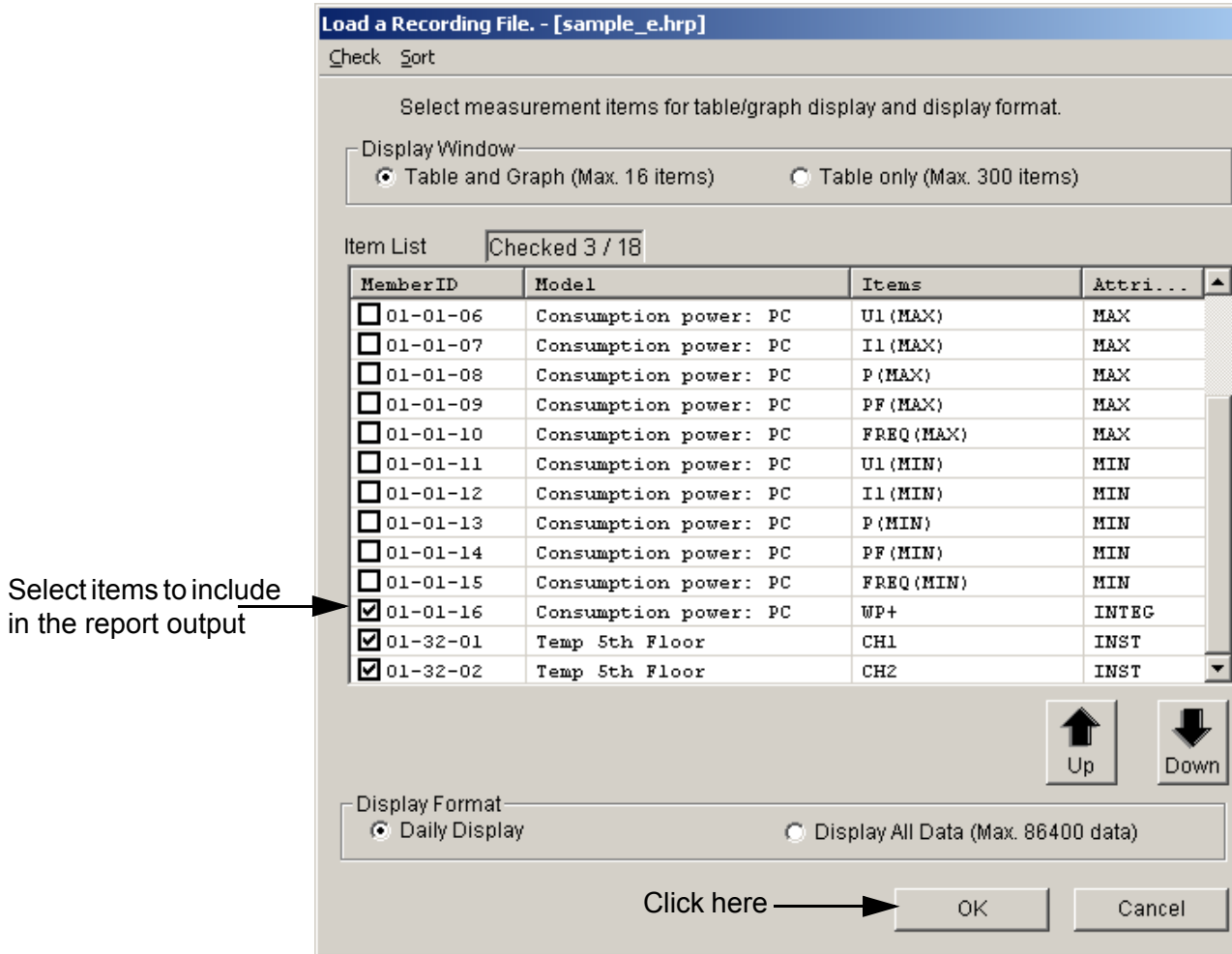


3. From the Smart Site Viewer menu bar, select [**F**ile] - [**O**pen **F**ile] to select the recording file (*.hrp file) to load.



If settings were loaded previously, you can also load these settings.

The [Load a Recording File] dialog box for selecting measurement items appears.



4. Select the items for which you want to output data as a report, and click [OK].

When you click the [Table] tab, the following display appears.

Member ID

Column number

Column number	1	2	3	4
MemberID	01-01-01	01-01-02	01-01-16	01-32-01
Model	Consumption Power	Consumption Power	Consumption Power	Temp 5th Floor
Items	U1 (AVE)	I1 (AVE)	WP+	CH1
Unit	[V]	[A]	[Wh]	[C]
AVE	100.27	0.87212	2.1198	27.515
MAX	100.64	1.5695	3.9048	28.3
MIN	99.874	0.44754	1.0668	27.1
INTG			1526.3	
03/09/03 00:02:00	100.59	0.4481	1.0683	27.3
03/09/03 00:04:00	100.55	0.4484	1.0688	27.3

5. From the [Table] window, you can load member IDs, specify output locations, and write these to an Excel worksheet. Other tags can also be entered.

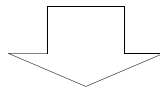
❖ 4.1.1 "Creating a Format File" (page 86)

Example: Create a table using the 1:00, 2:00, and 3:00 measurement values for [U1 (AVE)] and [I1 (AVE)] of [Consumption Power].

Read the member ID from the [Table] window (page 89) and write it to the format file according to the "Image to be output".

Image to be output

	U1 (AVE)	I1 (AVE)
1:00	100.5521	0.4483249
2:00	100.5086	0.4481325
3:00	100.5058	0.4488249

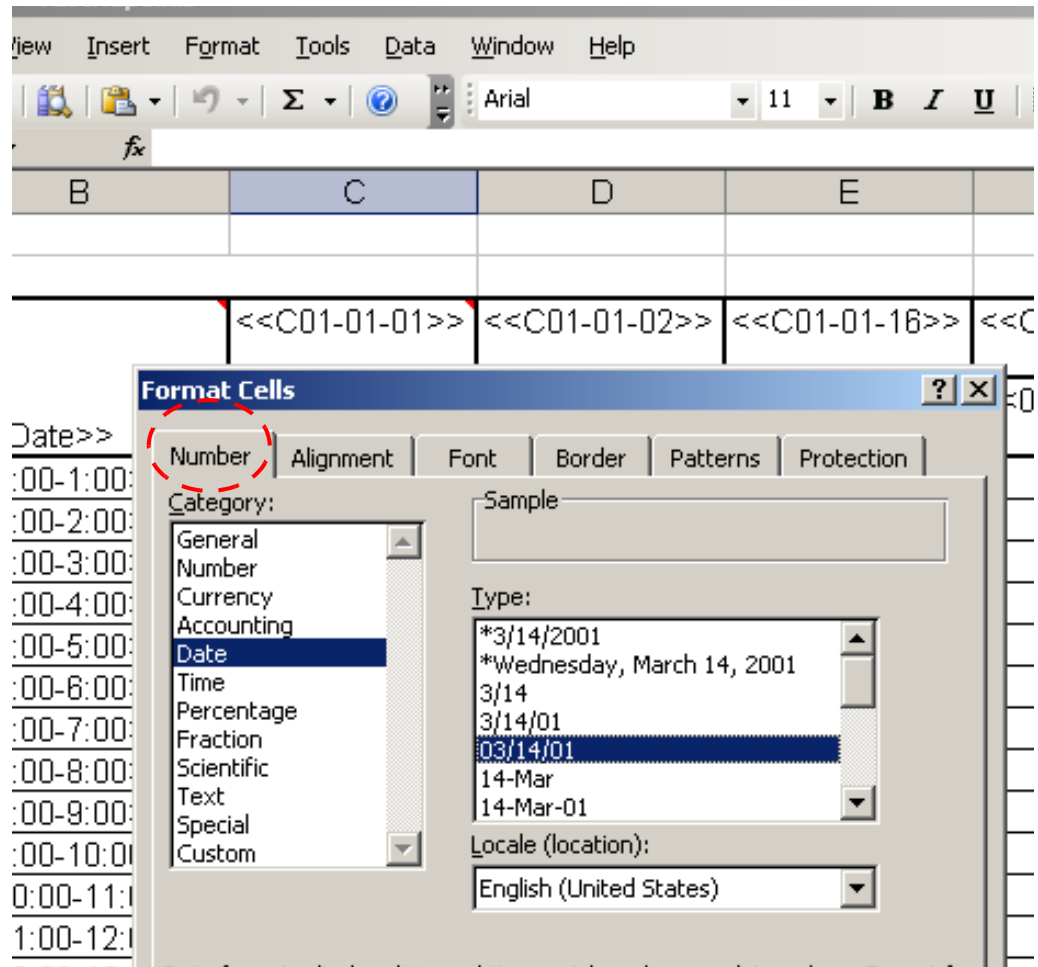


Format

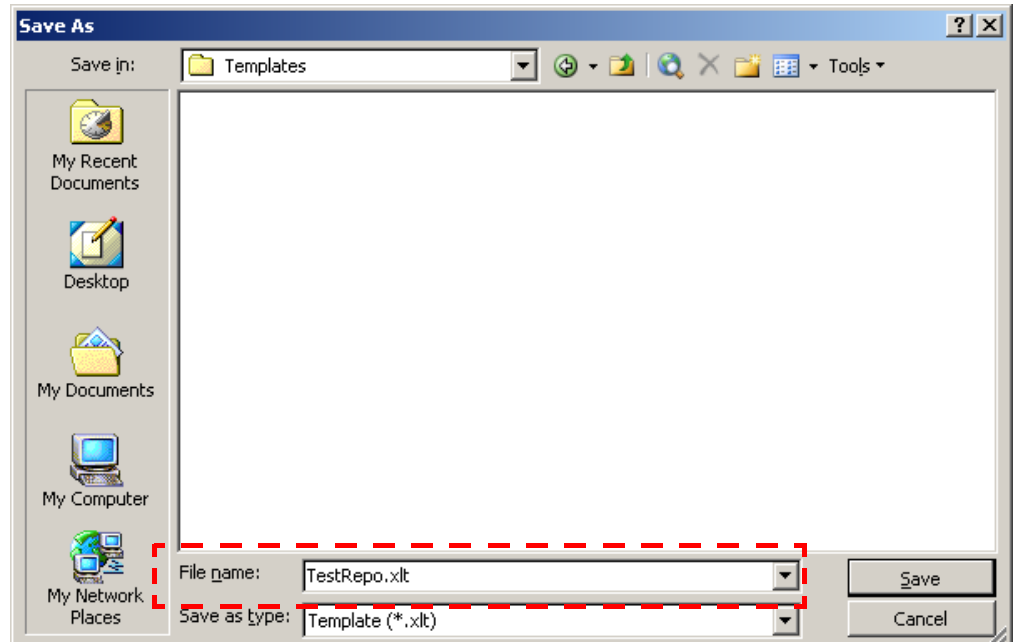
	<<01-01-01>>	<<01-01-02>>
<<T1:00>>		
<<T2:00>>		
<<T3:00>>		

6. Tags listed in "Tag types and their use in reports" (page 88) have a display format. If the display format is not matched properly, values may not be displayed correctly.

Make the setting in Excel under [Format cells] - [Number] - [Category].



7. In Excel, select **[File]** - **[Save]** and bring up the **[Save As]** dialog box.



Select **[Template (*.xlt)]** as **[File name]** to save the file as a format file and close it.

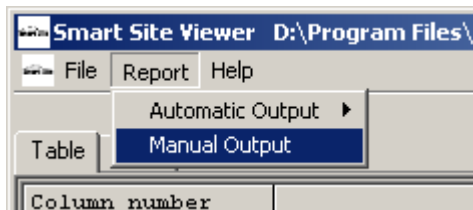
8. If a monthly report is also required, create a format file in the same way.
 - ❖ "Monthly report format" (page 102)

4.1.2 Performing an Output Test to Check the Format File

Procedure

1. Display data, and switch to the [Table] window.
 ❖ Format file creation procedure, 2. (page 89), 3. (page 89), (page 90)

2. From the [Report] menu, select [Manual Output].



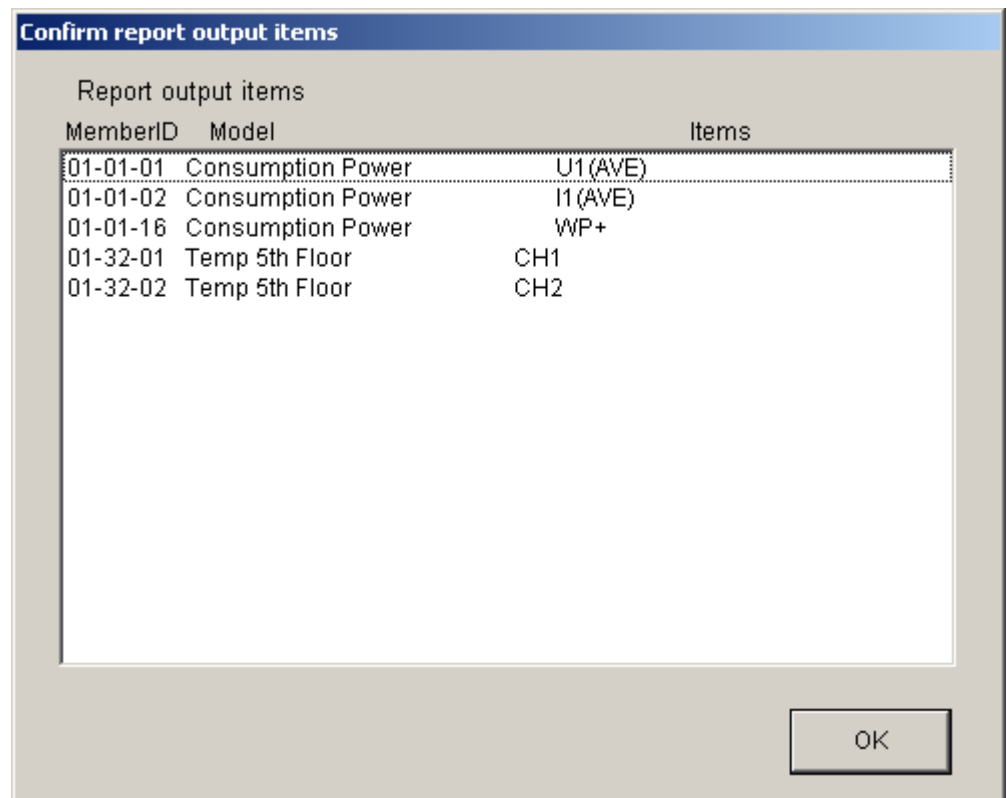
3. Make the following settings.

 A screenshot of the 'Start' dialog box. It contains the following settings:

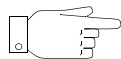
- (1) Start Date: 2003 - 09 - 01, Data-Start Date: 03-09-01
- Stop Date: 2003 - 09 - 05, Data-Stop Date: 03-09-05
- (2) Daily Format File: C:\SmartSite\Report\Day.xlt (Ref... button)
- (5) Number of Sheets used as a Report Format: 1 (dropdown)
- Monthly Format File: C:\SmartSite\Report\Month.XLT (Ref... button)
- Number of Sheets used as a Report Format: 1 (dropdown)
- (3) Save Directory: D:\Program Files\SmartSiteUtility (Ref... button)
- (4) Save File: Test01 Y20xxMxx.xls
- Adjust Cell Width
- (6) Confirm Items button
- (7) Report Output button
- Cancel button

4.1 Report Creating Function

- (1) The report creation dialog box appears. Select the desired output date.
- (2) Click **[Ref]** and select the report format file created as described in 4.1.1 "Creating a Format File" (page 86).
- (3) Click **[Ref]** and specify the save folder.
- (4) Enter only the header section of the file name. Year and month information will be appended automatically.
- (5) Make the setting for **[Number of Sheets Used as a Report Format:]**.
- (6) Click the **[Confirm Items]** button and verify that the report output items are correct. If yes, click **[OK]**.



- (7) Click the **[Report Output]** button to produce a report for checking. The report will be opened automatically.
- (8) Edit the format file as necessary and repeat the test procedure, until the output is as desired.



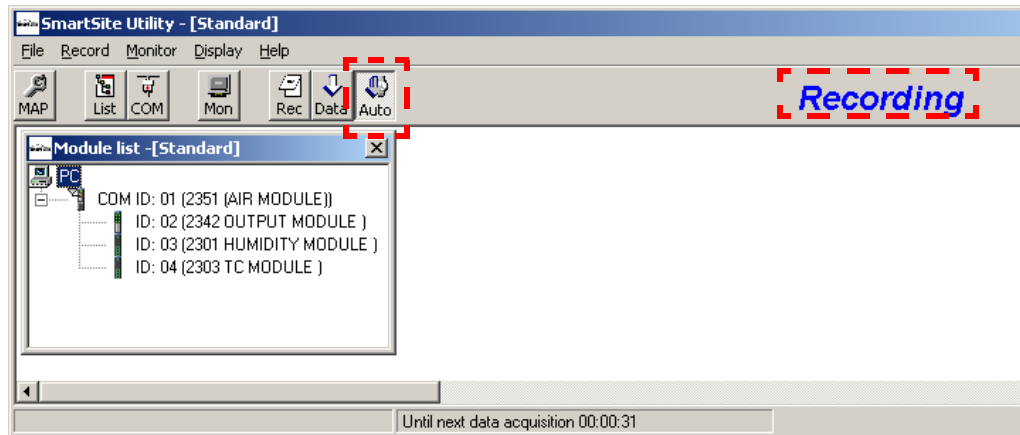
Close the format file before initiating the report output.

4.1.3 Auto Report Output

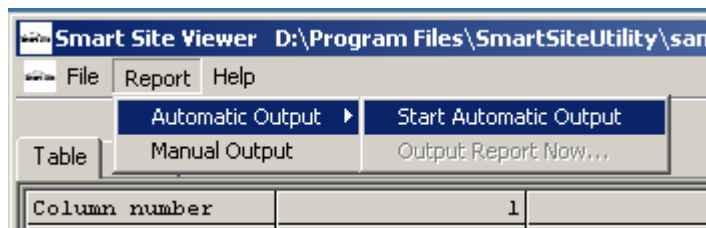
Using the completed report format file, reports can be created automatically as follows.

Procedure

1. Verify that the indication [Recording] is shown for the Smart Site Utility. Also verify that the [Auto] button has been clicked.



2. Select [Report] - [Automatic Output] - [Start Automatic Output].



3. The [Automatic Output Setting] dialog box appears.

Automatic Output Setting

Automatic Output Setting

This outputs latest report automatically.

(1)

Daily Format File: C:\SmartSite\Report\Day.xls Ref...

Number of Sheets used as a Report Format: 1

Monthly Format File: C:\SmartSite\Report\Month.XLT Ref...

Number of Sheets used as a Report Format: 1

Save Directory: D:\Program Files\SmartSiteUtility Ref...

Save File: Y20xxMxx.xls

(2) Output Setting

Interval 0 hours 30 min.

Once a day 0 hour 0 min.

Adjust Cell Width

(3)

Confirm Items Report Output Cancel

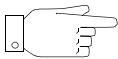
- (1) Make entries for daily format file, number of sheets used as a report format, save directory, and save file, in the same way as for manual report creation.
❖ Procedure, step 3. (page 94)
- (2) For the report creation timing, you can select [Interval] or [Once a day].
- (3) When you click the [Report Output] button, output of the daily/monthly report starts.

4. The hourglass symbol appears, and a report is created automatically. (This process may take several minutes.) When the hourglass symbol disappears, verify that the [Auto Report] indication is shown.

The screenshot shows the 'Smart Site Viewer' application window. The title bar indicates the file path: 'D:\Program Files\SmartSiteUtility\sample_e.hrp - [Table]'. The menu bar includes 'File', 'Report', and 'Help'. Below the menu bar, there are navigation buttons '<<', a date dropdown '2003-9-5', and '>>'. To the right of these buttons, the text '[Auto Report]' is displayed in red, enclosed in a red dashed box. Below this is a table with the following data:

Column number	1	2	3	4	5
MemberID	01-01-01	01-01-02	01-01-16	01-32-01	01-32-02
Model	Consumption Power	Consumption Power	Consumption Power	Temp 5th Floor	Temp 5th Floor
Items	U1(AVE)	I1(AVE)	WP+	CH1	CH2
Unit	[V]	[A]	[Wh]	[C]	[C]
AVE	100.35	0.79166	1.9219	26.901	5.5104
MAX	100.58	1.5488	3.8418	27.7	5.6
MIN	99.938	0.44529	1.0603	26.3	5.5
INTG			1381.9		
03/09/05 00:02:00	100.55	0.44832	1.0691	26.9	5.5
03/09/05 00:04:00	100.51	0.4486	1.0696	26.9	5.5
03/09/05 00:06:00	100.51	0.44873	1.0698	26.9	5.5
03/09/05 00:08:00	100.49	0.46628	1.1202	26.9	5.5
03/09/05 00:10:00	100.51	0.45426	1.0858	26.9	5.5
03/09/05 00:12:00	100.52	0.44887	1.0704	26.9	5.5
03/09/05 00:14:00	100.52	0.44846	1.0693	26.9	5.5
03/09/05 00:16:00	100.51	0.44796	1.0677	26.9	5.5
03/09/05 00:18:00	100.52	0.448	1.068	26.9	5.5

The [Auto Report] indication is normally blue, but when a report is being written using Excel, the indication changes to red.



While the [Auto Report] indication is red, do not start up Excel.

5. To continue creating reports after terminating the application, start Smart Site Utility and Smart Site Viewer. When Smart Site Utility is set to **[Auto]** (see procedure step1. (page 96)) and Smart Site Viewer is set to **[Auto Report]** (see procedure step4. (page 98)), report creation will be resumed automatically.

Important

To continue creating reports, be sure not to stop recording. If recording is stopped, data will no longer be written to the recording file. In that case, you will have to start again from **[Automatic Output Setting]** (Page 97)

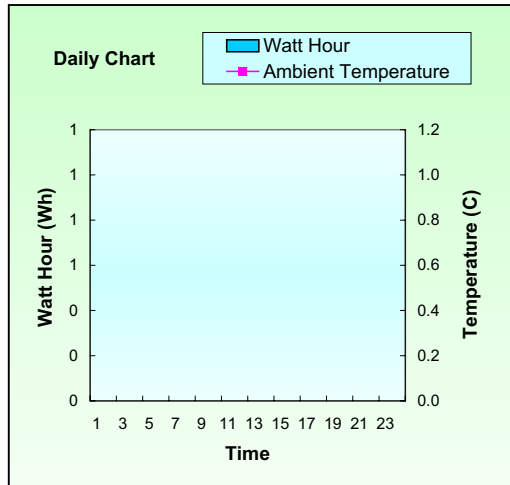
Recording should not be stopped unless the module configuration or module settings need to be changed.

❖ [3.4.3 "Stopping Data Recording" \(page 74\)](#)



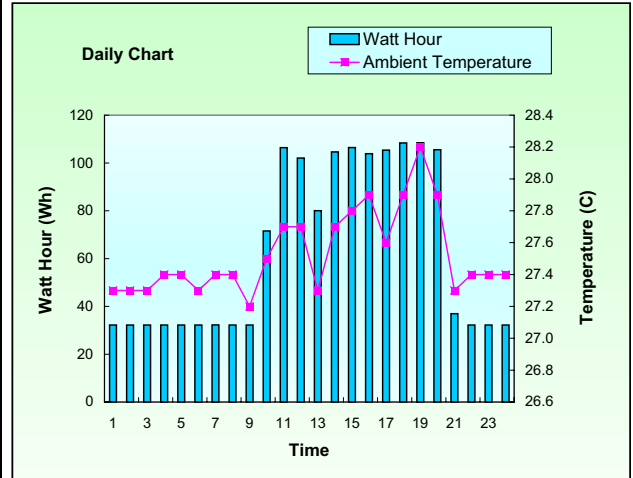
Daily report format: graph format is also available.

	<<C01-01-01>>	<<C01-01-02>>	<<C01-01-16>>	<<C01-32-01>>
<<Date>>	<<01-01-01>>	<<01-01-02>>	<<01-01-16>>	<<01-32-01>>
1 <<T0:00-1:00>>				
2 <<T1:00-2:00>>				
3 <<T2:00-3:00>>				
4 <<T3:00-4:00>>				
5 <<T4:00-5:00>>				
6 <<T5:00-6:00>>				
7 <<T6:00-7:00>>				
8 <<T7:00-8:00>>				
9 <<T8:00-9:00>>				
10 <<T9:00-10:00>>				
11 <<T10:00-11:00>>				
12 <<T11:00-12:00>>				
13 <<T12:00-13:00>>				
14 <<T13:00-14:00>>				
15 <<T14:00-15:00>>				
16 <<T15:00-16:00>>				
17 <<T16:00-17:00>>				
18 <<T17:00-18:00>>				
19 <<T18:00-19:00>>				
20 <<T19:00-20:00>>				
21 <<T20:00-21:00>>				
22 <<T21:00-22:00>>				
23 <<T22:00-23:00>>				
24 <<T23:00-24:00>>				
Total	0.0	0.0	0	0.0
Maximum	0.0	0.0	0	0.0
Minimum	0.0	0.0	0	0.0
Average				



Automatically generated daily report

	Power consumption of PC	Power consumption of PC	Power consumption of PC	Ambient temperature measurement
	U1(AVE)	I1(AVE)	WP+	Ambient temperature
2003/9/3				
1 01:00	100.6	0.4	32	27.3
2 02:00	100.6	0.4	32	27.3
3 03:00	100.6	0.5	32	27.3
4 04:00	100.6	0.4	32	27.4
5 05:00	100.5	0.5	32	27.4
6 06:00	100.6	0.5	32	27.3
7 07:00	100.5	0.5	32	27.4
8 08:00	100.5	0.5	32	27.4
9 09:00	100.3	0.5	32	27.2
10 10:00	100.1	1.0	72	27.5
11 11:00	99.9	1.4	106	27.7
12 12:00	99.9	1.4	102	27.7
13 13:00	100.1	1.1	80	27.3
14 14:00	99.9	1.4	105	27.7
15 15:00	99.9	1.4	106	27.8
16 16:00	100.0	1.4	104	27.9
17 17:00	100.0	1.4	105	27.6
18 18:00	100.0	1.5	108	27.9
19 19:00	99.9	1.5	108	28.2
20 20:00	100.0	1.4	106	27.9
21 21:00	100.4	0.5	37	27.3
22 22:00	100.5	0.5	32	27.4
23 23:00	100.5	0.4	32	27.4
24 24:00	100.5	0.4	32	27.4
Total	2406.4	20.9	1526	660.7
Maximum	100.6	1.5	108	28.2
Minimum	99.9	0.4	32	27.2
Average	100.3	0.9	64	27.5



◆ Monthly report format

Excel template example		Comment tag	Maximum value (every 60 minutes)	Maximum value		
Date tag (for monthly report)	<<C01-01-16>>	Integrated power value	Time	Temperature at 10:00	Temperature of the day	Time
<<MDate>>	<<01-01-16>>	<<max01-01-16,60>>	<<max01-01-16,60>>	<<AT10:00,01-32-01>>	<<max01-32-01>>	<<max01-32-01>>
Date	<<W>>	Time of maximum value (every 60 minutes)	Temperature at 10:00	Time of maximum value		
Day of the week tag	[Member ID]					
<<D1>>						
<<D2>>						
<<D3>>						
<<D4>>						
<<D5>>						
<<D6>>						
<<D7>>						
<<D8>>						
<<D9>>						
<<D10>>						
<<D11>>						
<<D12>>						
<<D13>>						
<<D14>>						
<<D15>>						
<<D16>>						
<<D17>>						
<<D18>>						
<<D19>>						
<<D20>>						
<<D21>>						
<<D22>>						
<<D23>>						
<<D24>>						
<<D25>>						
<<D26>>						
<<D27>>						
<<D28>>						
<<D29>>						
<<D30>>						
<<D31>>						
Total, Maximum		0.0	0.0		0.0	

◆ Output example

Excel template example

Sep 2003		Power consumption of PC	Integrated power value	Time	Temperature at 10:00	Temperature of the day	Time
Date	Week day	WPT	MAX	Time	Ambient temperature	MAX	Time
1	Mon	1499.7	109.5	17:00	27.4	28.5	19:32
2	Tue	773.1	32.2	11:00	27.0	28.0	17:54
3	Wed	1526.3	108.5	19:00	27.5	28.3	14:16
4	Thu	1603.2	108.9	12:00	27.5	27.9	19:02
5	Fri				27.2		
6	Sat						
7	Sun						
8	Mon						
9	Tue						
10	Wed						
11	Thu						
12	Fri						
13	Sat						
14	Sun						
15	Mon						
16	Tue						
17	Wed						
18	Thu						
19	Fri						
20	Sat						
21	Sun						
22	Mon						
23	Tue						
24	Wed						
25	Thu						
26	Fri						
27	Sat						
28	Sun						
29	Mon						
30	Tue						
Total, Maximum		5402.3	109.5			28.5	

4.1.4 Precautions for Report Creation

◆ General precautions

- Report files for one month will become one Excel file.
- Excel sheets are lined up from left in date order, with the monthly report being the rightmost sheet.
- Output file names use the format "**Header + Y20xxMxx.xls**", thereby providing information about the year and month in the file name.
- Report format files employ the Excel template file type (extension .xlt).
- Sheets containing only a graph cannot be output as a report.
- If an error occurs during automatic report creation, the error is not indicated. The next report will be created and the output will include also the data from the time of the error.
- For cells which are not blank except for a tag, the value will be displayed as is.
- Up to 300 lines of tags can be entered in a sheet.
- The auto report setting is saved for each recording file separately. When the recording file was changed, you should make the auto report settings again.

◆ Frequently Asked Questions (FAQ)

Question	Answer	Reference
Do not know member ID	To know the member ID, Smart Site Viewer must be started. First, record some test data and perform data acquisition. Then load the recorded data, and the member ID will be displayed.	❖ 4.1.1 "Creating a Format File" (page 86)
Report is not output	1. Is format file closed? While the format file is being edited, an attempt by the software to write to the Excel file will result in an error, and no report is output. 2. Is the number of Excel worksheets used by the format file correct? When multiple sheets are used as format, the number of Excel worksheets must be set to exactly the correct number.	❖ Procedure Step(5) (page 95)
Values are not output correctly	Is the "Format cell" setting in Excel correct? If the "Format cell" setting is different, a value may be output as another value. Make the setting in Excel under [Format cells] - [Format number] - [Category] .	
Data in auto report do not increase	1. During recording with Smart Site Utility, is [Auto] enabled? The daily and monthly reports are created from the recording files. Make sure that the recording files are periodically acquired. 2. Is the [Auto Report] indication shown in Smart Site Viewer? If this indication is not shown, the report will not be automatically created. Initiate report output as described in 4.1.1 "Creating a Format File" (page 86).	❖ Procedure Step 1. (page 96) ❖ 4.1.1 "Creating a Format File" (page 86)

Question	Answer	Reference
Previous settings for [Save directory] etc. are lost	Was recording stopped? Set the items again and start the auto report function. To prevent losing the settings, do not stop recording unless module settings have to changed.	❖ 4.1.3 "Auto Report Output" (page 96)

◆ Tag details

Tag details are explained below.

- In a tag, the string enclosed in "<<" and ">>" is not case-sensitive. You can use either upper case or lower case characters.
- The format for member ID information is "xx-xx-xx" (where xx is two digits).

Daily/monthly report tags

❖ (Page 86) to (Page 87), (Page 102) to (Page 103)

<<C member ID>>

Tag string	<<C01-01-01>>
Display format	Character string
Effective direction	Single cell
Description	Outputs the comment string for the specified member ID to the cell containing the tag.

<<Member ID>>

Tag string	<<01-01-02>>
Display format	Numeric value
Effective direction	Single cell + down
Description	<ul style="list-style-type: none"> • Outputs the measurement item name to the cell containing the tag, and passes member ID information to cells below. • If the column beneath this cell intersects with a blank cell containing a date tag (<<D3>> etc.) or time tag (<<T10:00>> etc.), the measurement value is output to that cell. • If there is no measurement value, nothing is output to the cell. Make settings for effective numeric values with [Format cells].

Daily report only tags

❖ (Page 86) to (Page 87)

<<Date>>

Tag string	<<Date>>
Display format	Date
Effective direction	Single cell
Description	Specifies the report output date for the cell containing the tag. Make settings for the display format with [Format cells].

<<T time, member ID>>

Tag string	<<T2:00,01-01-02>>
Display format	Numeric value
Effective direction	Single cell
Description	Outputs the measurement value for the specified time and specified member ID to the cell containing the tag.

<<T time>>

Tag string	<<T1:00>>
Display format	Character string/time
Effective direction	Single cell + right
Description	<ul style="list-style-type: none"> • Outputs the specified time to the cell containing the tag, and passes the time information to cells at right. • If the row to the right of this cell intersects with a cell containing a member ID tag, the measurement value for the respective measurement item is output to that cell. • If you select [Format cells] - [Number] - [Time] in Excel, 24:00 is displayed as 0:00.

<<T time - time>>

Tag string	<<T1:00-2:00>>
Display format	Character string/time
Effective direction	Single cell + right
Description	<ul style="list-style-type: none"> • Outputs the second time setting to the cell containing the tag, and passes the second time information to cells at right. • If the row to the right of this cell intersects with a cell containing a member ID tag, the member ID and measurement value for the respective measurement item is output to that cell. • If the measurement value output to the intersecting cell is an instantaneous value, the instantaneous value for the second time is used. If the measurement value is an average, maximum, minimum, or integrated value, the average, maximum, minimum, or integrated value for the interval between the first time and the second time is output. • If there are no data for the intersecting cell, the cell will be blank. <p>Example <<T1:00-2:00>> tag and member ID tag for instantaneous value output intersect: Integrated value for 1-hour period from 1:00 to 2:00 is output. The integrated value for 1:00:00 sharp is not included.</p>

Monthly report only tags

❖ (Page 102) to (Page 103)

<<MDate>>

Tag string	<<MDate>>
Display format	Date
Effective direction	Single cell
Description	Data for the first day of the month are output to the cell containing the tag. To output for example [2004/10], make the setting in Excel with [Format cells] - [Number].

<<D date>>

Tag string	<<D3>>
Display format	Numeric value
Effective direction	Single cell + right
Description	<ul style="list-style-type: none"> • Outputs a numeric value corresponding to the date to the cell containing the tag, and passes the date information to cells at right. • If the row to the right of this cell intersects with a cell having the effective direction [Single cell + down], the measurement value for the cell of that date is output.

<<W>>

Tag string	<<W>>
Display format	Character string
Effective direction	Single cell + down
Description	<ul style="list-style-type: none"> • Outputs the [Day of the week] information to the cell containing the tag, and passes the information to cells below. • For intersecting blank cells with a date tag (<<D3>> etc.), the day of the week for that month is written into the cell, using the format [Mon, Tue, Wed, Thu, Fri, Sat].

<<Max member ID>>

Tag string	<<Max01-01-01>>
Display format	Numeric value
Effective direction	Single cell + down
Description	<ul style="list-style-type: none"> • Outputs the [Maximum value] information to the cell containing the tag, and passes the information to cells below. • For intersecting blank cells with a date tag (<<D3>> etc.), the maximum value for that day and the specified member ID is output. • This is convenient for displaying only maximum values out of the recorded instantaneous values in the report.

<<Max member ID, interval (minutes)>>

Tag string	<<Max01-01-01,30>>
Display format	Numeric value
Effective direction	Single cell+ down
Description	<ul style="list-style-type: none"> • Outputs the [Maximum value] information to the cell containing the tag, and passes the information to cells below. • For intersecting blank cells with a date tag (<<D3>> etc.), the day is divided into a number of intervals, and the measurement value for interval with the highest value is output. • This is convenient for displaying the maximum value of an interval such as using integrated values in the report. • For instantaneous values, the tag operates in the same way as <<Max member ID>>. • For average, maximum, minimum, or integrated values, first the average, maximum, minimum, or integrated value for each interval is determined, and then the maximum value out of these is output. • The interval period includes the end time but not the start time.

<<MaxT member ID>>

Tag string	<<MaxT01-01-01>>
Display format	Character string/time
Effective direction	Single cell + down
Description	<ul style="list-style-type: none"> • Outputs the [Time] information to the cell containing the tag, and passes the information (about the time when maximum value occurred for that day) to cells below. • For intersecting blank cells with a date tag (<<D3>> etc.), the time of the maximum value for that day is output. • If you select [Format cells] - [Number] - [Time] in Excel, 24:00 is displayed as 0:00. • By using this tag next to the <<Max member ID>> tag, the maximum value and the time of occurrence can be displayed side by side.

<<MaxT member ID, interval (minutes)>>

Tag string	<<MaxT01-01-01,30>>
Display format	Character string/time
Effective direction	Single cell + down
Description	<ul style="list-style-type: none"> • Outputs the [Time] information to the cell containing the tag, and passes the information (about the time when maximum value occurred in an interval for that day) to cells below. • For intersecting blank cells with a date tag (<<D3>> etc.), the day is divided into a number of intervals, and the end time of the interval with the highest value is output. • This is convenient for displaying the maximum value of integrated values in the report. • For instantaneous values, the tag operates in the same way as <<MaxT member ID>>. • For average, maximum, minimum, or integrated values, first the average, maximum, minimum, or integrated value for each interval is determined, and then the end time of the interval with the maximum value is output. • The interval period includes the end time but not the start time. • By using this tag next to the <<Max member ID, interval>> tag, the maximum value for an interval and the end time of the interval can be displayed side by side.

<<AT time, member ID>>

Tag string	<<AT10:00,01-01-01>>
Display format	Numeric value
Effective direction	Single cell + down
Description	<ul style="list-style-type: none"> • Outputs the measurement item name to the cell containing the tag, and passes member ID and time information to cells below. • If the column beneath this cell intersects with a blank cell containing a date tag (<<D3>> etc.), the specified time for that day is output to that cell. • For example, this is convenient to include the temperature at exactly 10:00 for the day in a monthly report.

4.2 Initial Setup (Including Measurement Modules)

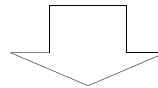
The chapter about initial setup in the "Basic" section of this manual described the setup procedure only for the communication module.

❖ 3.1 "Initial Setup" (page 9)

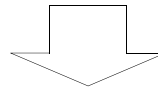
In some instances, measurement modules may also require setup before starting installation.

In this case, the procedure is as follows.

1. Create the measurement module configuration and establish the measurement parameter settings. ❖ 4.2.1 (page 111)



2. When sending the communication settings, send also the measurement module settings. ❖ 3.1.3 (page 17)
❖ 4.2.2 (page 112)



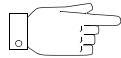
3. Check the communication status. ❖ 3.1.5 (page 29)
❖ 4.2.3 (page 113)

4.2.1 Setting Measurement Module Configuration and Measurement Parameters

Open the [MAP editor] and select the communication module.

Procedure

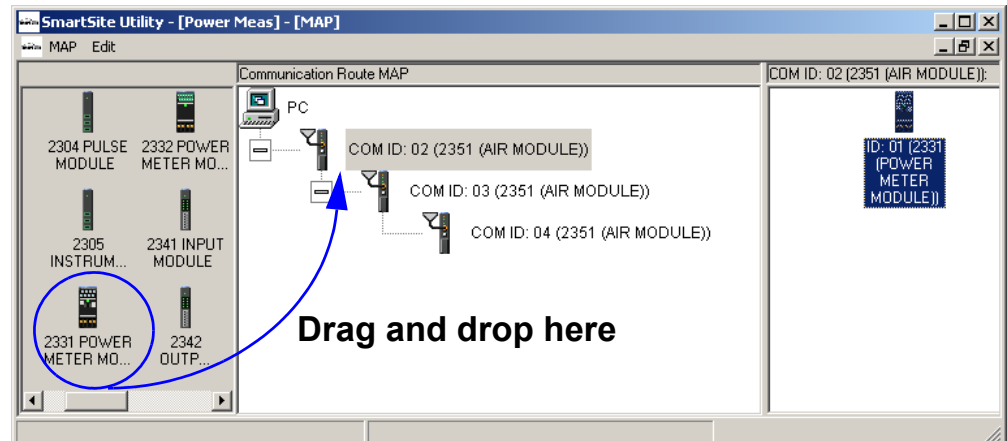
1. Start the Smart Site Utility, and select [File] - [Open MAP Editor] from the menu bar to open the MAP editor.



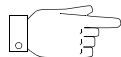
You can also open the MAP editor by selecting [MAP] from the tool-bar.

2. Drag the measurement module from the module icon section on the left side of the screen and drop it onto the icon for the communication module to which you want to connect.

The illustration below shows an example for connecting the 2331 POWER METER MODULE to the "COM ID: 02 communication module".



When you release the mouse button after dragging, the [Module settings] dialog box appears.



The setting procedure is the same as for 3.3 "Setting the Measurement Parameters" (page 40).

4.2.2 Sending the Measurement Module Settings

The measurement module settings are sent at the same time as the communication settings.

❖ 3.1.3 "WIRE MODULE Connection Settings" (page 17)



When the [**Send settings to modules.**] dialog box appears, make sure that the [**Do not send settings to recording modules.**] check box is not selected.

Send settings to modules.

COM ID: 02 (2351 (AIR MODULE)) and
Send settings to connected recording modules.

[Send settings after connecting cable to
RS-232C port of communication module.](#)

Send settings COM port
COM port

Options
 Do not send settings to recording modules.

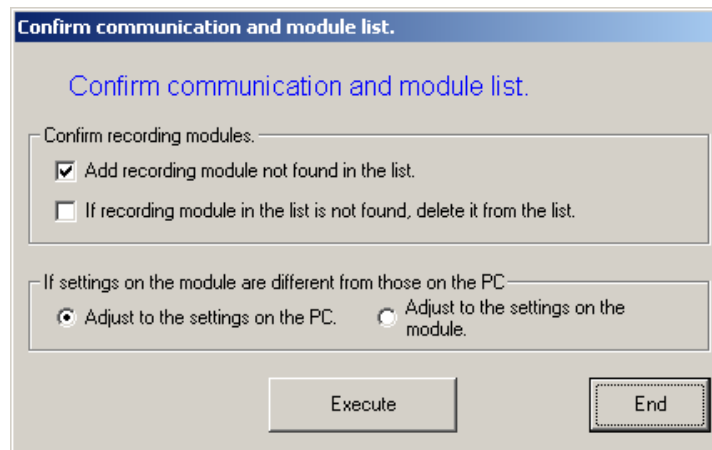
4.2.3 Checking the Communication Status

Install the measurement module in the measurement location, and check the communication status as follows.

❖ 3.1.5 "Auto Recognition of Measurement Modules" (page 29)

Procedure

1. Check whether the measurement module configuration created with the MAP editor and the actual measurement module configuration are matched.
2. In the [**Confirm communication and module list**] dialog box, check the [**Confirm recording modules**] field.



When the [**If recording module in the list is not found, delete it from the list**] check box is selected, a measurement module will be deleted from the list if it has not been installed.

3. Check the condition of the [**If settings on the module are different from those on the PC**] item.

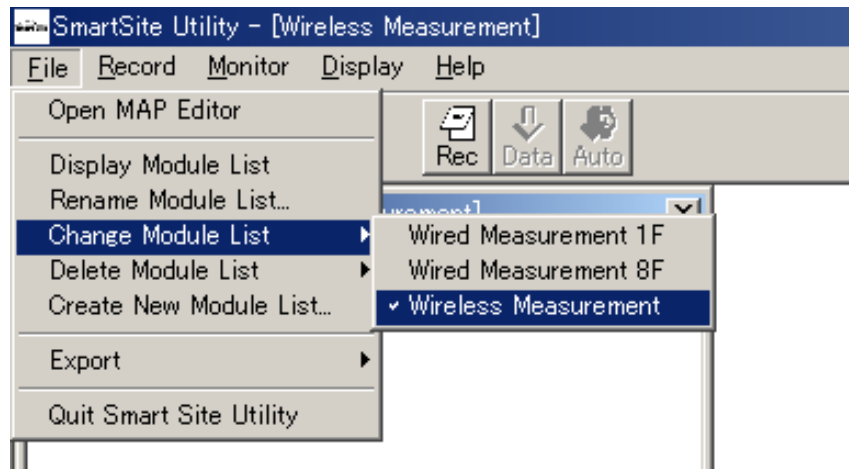
Adjust to the settings on the PC	Normally, this option should be selected.
Adjust to the settings on the module	Select this option if the measurement module configuration was created on the computer but measurement parameters were not set.
	Select this option if the measurement module was used before and the parameter settings established previously should be used again.

4.3 Creating Multiple Module Lists

In situations where one module list is not enough, such as when wishing to use two 2352 WIRE MODULE, you can create separate module lists to manage them.

- ◆ **Module lists can be given a name and saved for later reuse. The following items will be saved.**
 - Module list (module configuration)
 - Module measurement parameters
 - Recording operation condition (recording settings and data acquisition settings)
 - Measurement value monitor layout settings
- ◆ **The [File] menu lets you change module list names, switch lists, delete lists and create new lists.**

In the default condition, the module list is saved under the name [Standard].



In the example shown in the illustration, the following three module lists have been created: [Wired Measurement 1F], [Wired Measurement 8F], [Wireless Measurement].

Note

- The recording files of the data recording function will be created separately for each module list.
- In Smart Site Viewer, only one recording file can be opened at a time. To view the measurement data from two different module lists together, use the function for merging recording files.

◆ 3.5.4 "Recording File Combination Function" (page 84)

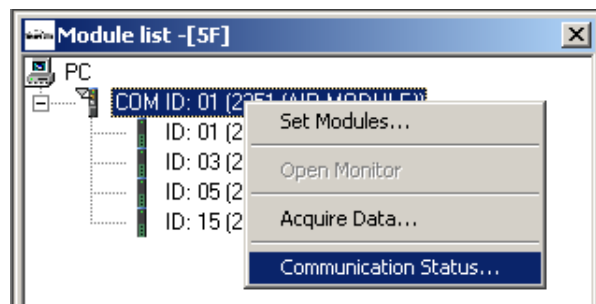
4.4 Other Functions

4.4.1 Displaying the Communication Status

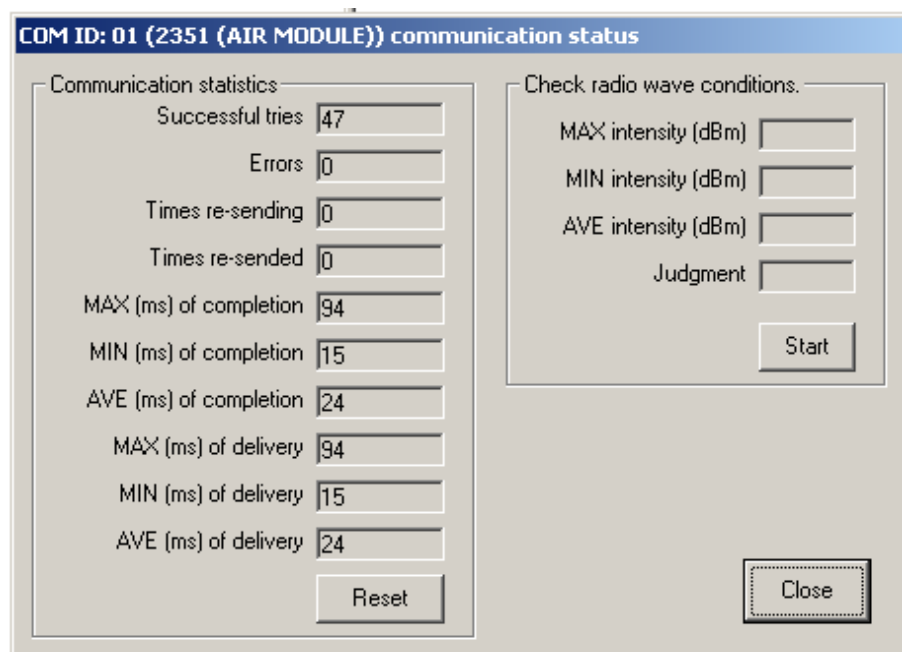
You can check data transmission times and measure the wireless signal reception condition.

Procedure

1. Select the communication module from the [Module list].
2. Right-click to access the popup menu, and select [Communication Status].



The [communication status] dialog box for the selected communication module appears.



Communication statistics	<p>This lets you check retry and error conditions as well as transmission times.</p> <ul style="list-style-type: none"> • The display is automatically updated every 500 ms. While monitoring measurement values (see 3.2 (page 31)), it lets you check the overall communication condition. • [delivery]: Time required for the first received packet to arrive • [completion]: Time required until all packets are received. • (Time of delivery < Time of completion) • During wireless communication, a certain amount of re-sending is normal, but if the [Times re-sending] count is very high (about 40 percent), settings should be revised.
Check radio wave conditions	<p>When you click the [Start] button, the wireless signal strength is measured 10 times, and the result is displayed on a 3-step scale.</p>

4.4.2 Collecting All Data in Memory

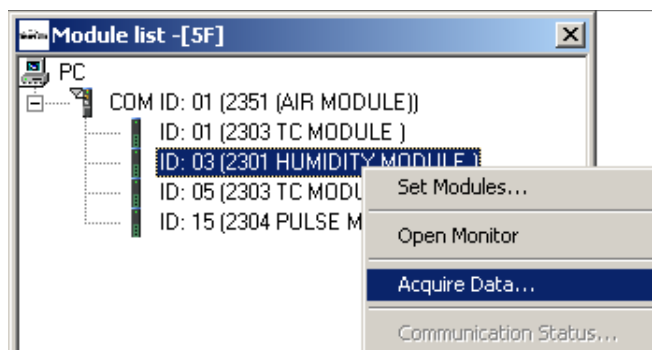
You can collect all data stored in memory and save them as two CSV files (measurement data, alarm log).

Important

- The CSV files saved in this way are entirely separate from the recording files created with the data recording and data acquisition functions (see 3.4 (page 66)).
- These CSV files cannot be viewed with Smart Site Viewer.

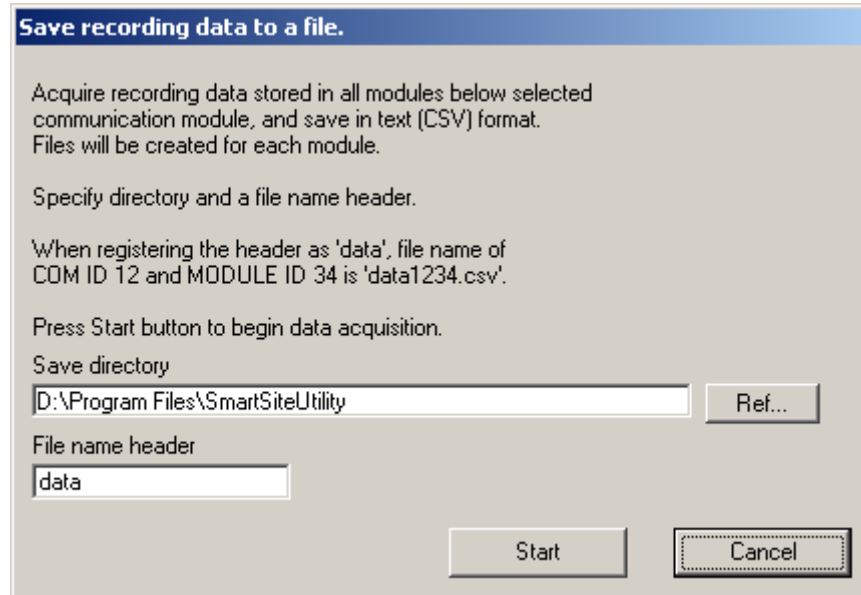
Procedure

1. Select the communication module from the **[Module list]**.
2. Right-click to access the popup menu, and select **[Acquire Data]**.



When measurement module is selected	Data for that module only are acquired.
When communication module is selected	Data for all measurement modules under that communication module are acquired.

3. Specify the [Save directory] and [File name header], and click the [Start] button.



Save recording data to a file.

Acquire recording data stored in all modules below selected communication module, and save in text (CSV) format. Files will be created for each module.

Specify directory and a file name header.

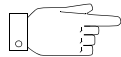
When registering the header as 'data', file name of COM ID 12 and MODULE ID 34 is 'data1234.csv'.

Press Start button to begin data acquisition.

Save directory
D:\Program Files\SmartSiteUtility Ref...

File name header
data

Start Cancel



- When you set the file name for measurement data to "xxxx.csv", the alarm log file name will be "xxxx_alarm.csv".
- To abort the save procedure, click the [Cancel] button.

Usage

5

5.1 How to Use the Alarm Output (for All Modules)

This chapter describes the use of the alarm output terminals. There are three possible settings, as follows.

- ◆ **No output**
 - The output transistors stay OFF.
- ◆ **Continuous output (latch type alarm)**
 - Once the alarm signal has been triggered, it stays on until the [ALARM RESET] switch on the communication module is held down to turn it off.
 - After the alarm signal was turned off by holding down the [ALARM RESET] switch, it will come on again when the internal alarm state (evaluation result) changes from OFF to ON (edge detection).
- ◆ **Update every sampling interval**
 - The state of the alarm output terminals always reflects the comparison/evaluation result that is updated every second.

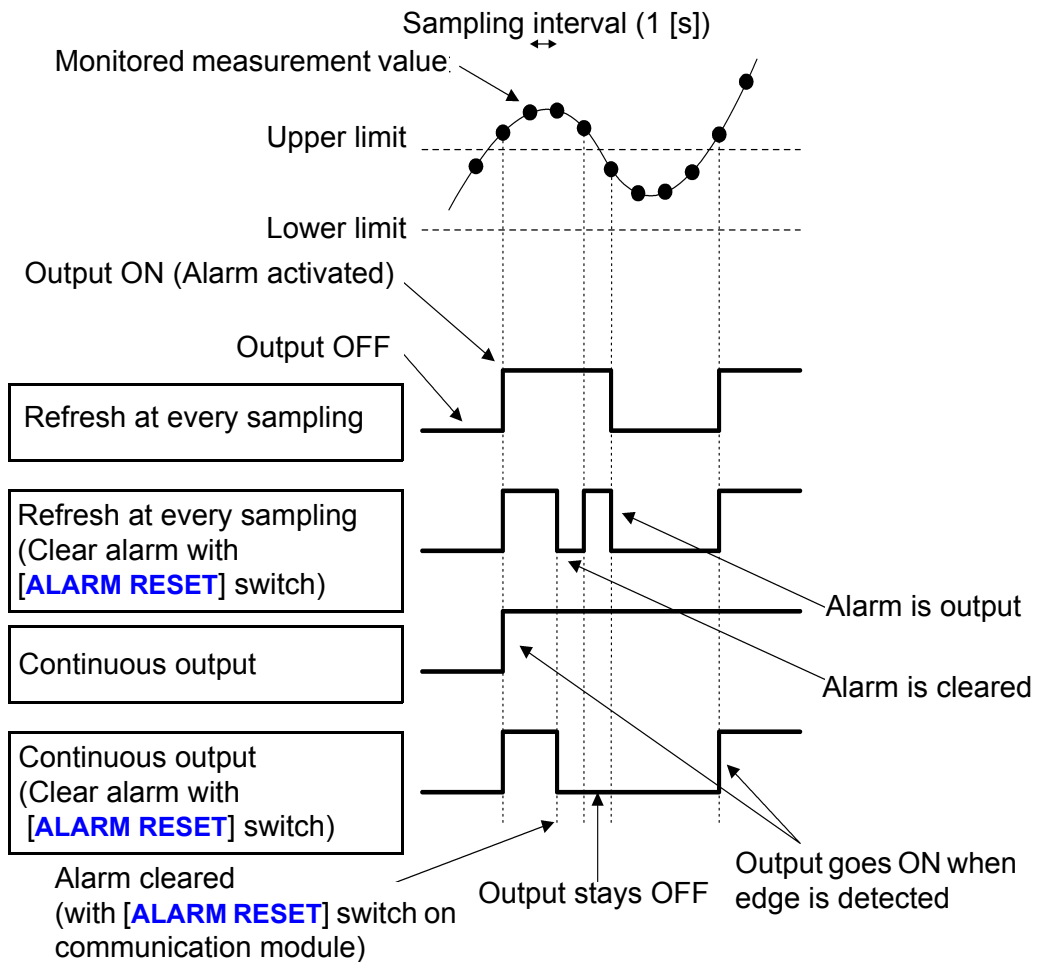
Select the alarm function at the setup screen for each module.

Alarm output method	2301 to 2305, 2331	2342
Never	Select with [Alarm output control] item.	Do not select [Use]
Continuous output		<ul style="list-style-type: none"> • Set with [PC Control Mode]. or • When [Alarm Mode] is used, select with [Alarm output control] item.
Refresh at every sampling		When [Alarm Mode] is used, select with [Alarm output control] item.

The 2332 POWER METER MODULE, 2341 INPUT MODULE, and 2343 RS LINK MODULE do not have alarm output terminals. To perform alarm monitoring with these modules, use them together with a 2342 OUTPUT MODULE.

5.1 How to Use the Alarm Output (for All Modules)

Operation steps for the [Continuous output] and [Refresh at every sampling] condition are shown below. (In this example, the measurement value has exceeded the upper alarm threshold.)



Important

The hardware configuration of the output circuit in the 2342 differs from that in the measurement module. Refer to the documentation for more details. (In the 2342, the transistors are used in a Darlington connection.)

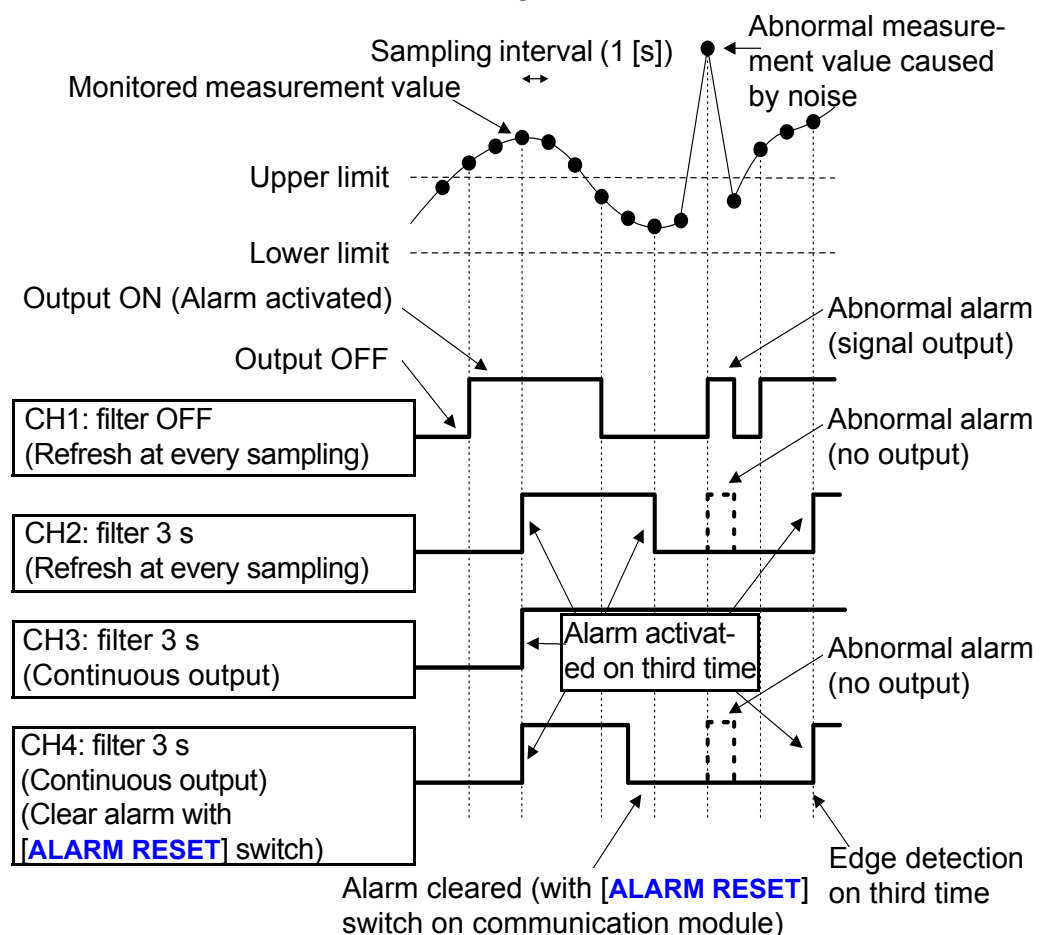
5.2 Example for Using the Alarm Output of the 2342 OUTPUT MODULE

- The 2342 has eight output channels which function independently. The initial setup must be made for each channel separately.
- This chapter explains the special functions of the 2342 (filter and alarm priority function).
- The chapter also shows usage examples for measurement modules and the 2341 INPUT MODULE and the required initial settings.

5.2.1 Filter Function

- This function serves to suppress spurious alarm signal output that may be caused when the watched module indicates an abnormal measurement value due to transient noise or another cause.
- If the internal alarm (evaluation result) exists for the same duration as the specified filter time, the output state changes.
- When **[OFF]** is selected, the evaluation result for each second is reflected at the output.


An operation example is shown below. (In this example, CH1 to CH4 of the 2342 are monitoring the same measurement value.)



5.2.2 Alarm Priority Channel Function

- The [**Alarm Priority CH**] setting allows you to specify channels which have high priority with regard to the alarm. When alarm evaluation in any such channel results in the ON (alarm activated) state, the alarm output of other channels is disabled.
- For example, this can be used when not wanting to have alarm output from CH2 while there is alarm output from CH1^{*1}.
- Do not use this function when wishing to use the alarm output of each channel independently.

As shown in the table below, the default priority setting as CH1 (highest) to channel 8 (lowest).

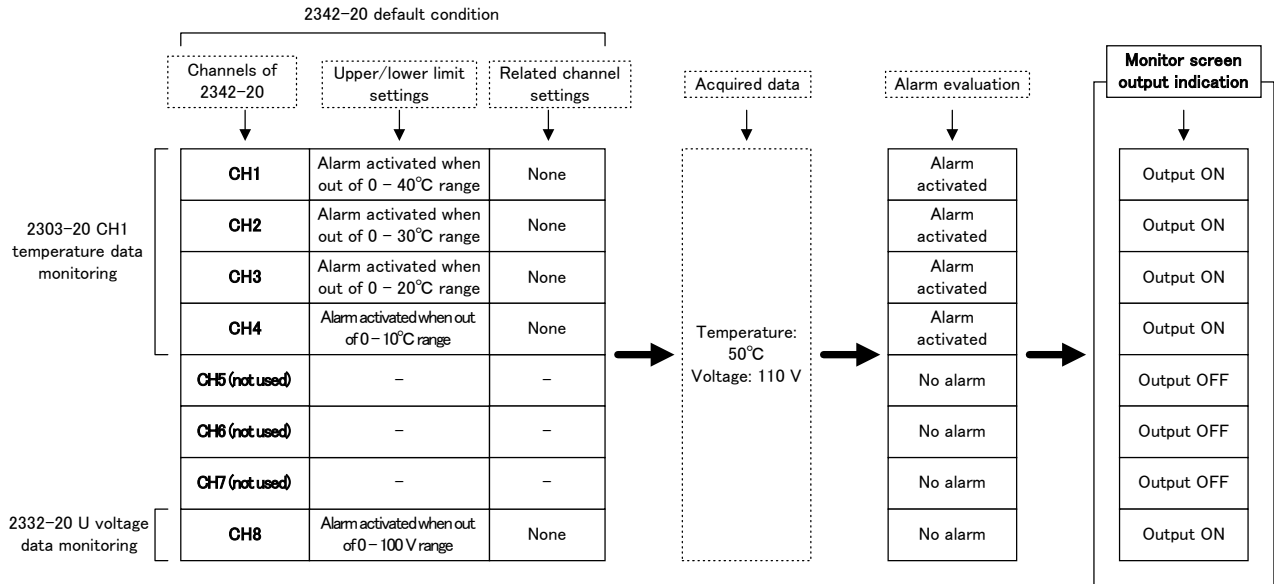
Priority	2342 channel	Selectable channel
Highest  Lowest	CH1	None
	CH2	CH1
	CH3	CH1 to 2 (multiple selection possible)
	CH4	CH1 to 3 (multiple selection possible)
	CH5	CH1 to 4 (multiple selection possible)
	CH6	CH1 to 5 (multiple selection possible)
	CH7	CH1 to 6 (multiple selection possible)
	CH8	CH1 to 7 (multiple selection possible)

*1: In such a case, select CH1 (which has higher priority) as the [**Alarm Priority CH**] setting for CH2.

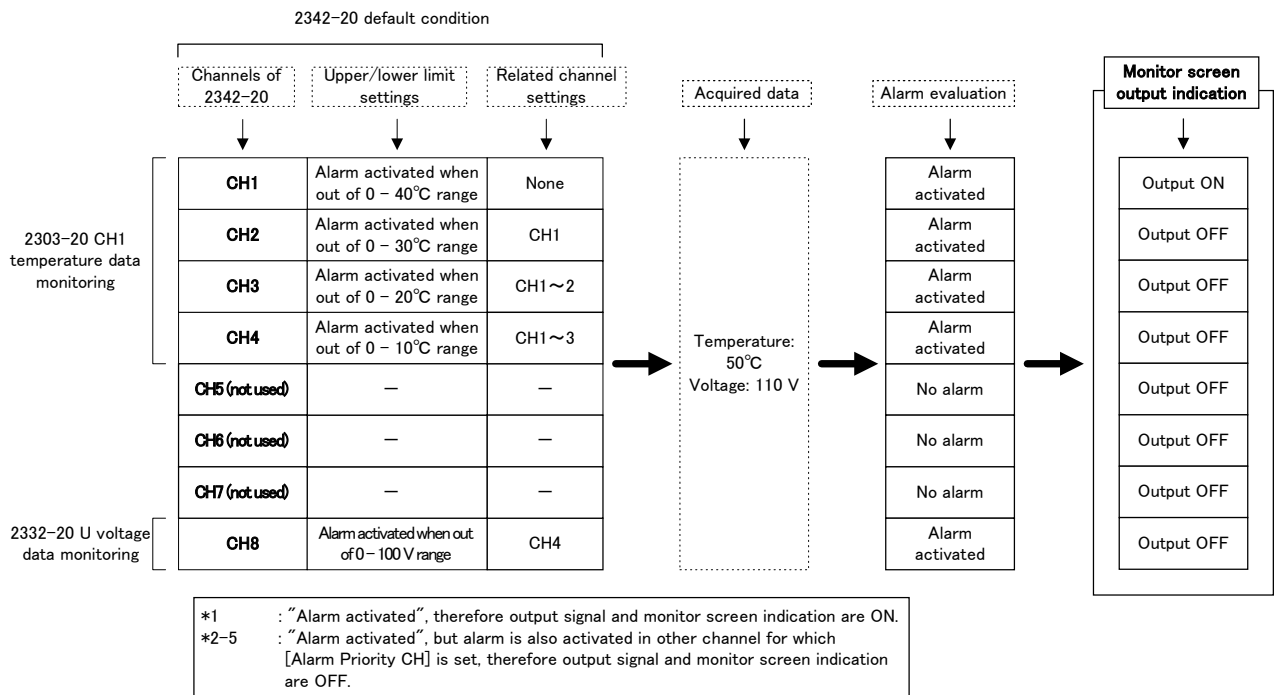
5.2 Example for Using the Alarm Output of the 2342 OUTPUT MODULE

Some operation examples are shown below. (Among CH1 to CH8 of the 2342, this function is used for CH1 to 4 and CH8.)

[Alarm Priority CH] not selected



[Alarm Priority CH] selected



Important
This function is available also in [PC Control Mode].
When the alarm output is to be controlled from the computer, check these settings carefully.

5.2.3 Usage Examples and Initial Settings

Usage example 1

- Using CH1 of the 2341, relay contact status is to be monitored. (Short-circuit monitoring)
When the short-circuit signal is input to the 2341, CH1 of the 2342 should output a Lo active signal each second.
Output reset should be locked.
- Using CH2 of the 2341, relay contact status is to be monitored. (Open-circuit monitoring)
When the open-circuit signal is input to the 2341, CH2 of the 2342 should output a Hi active signal and maintain this signal.

Required initial settings *1

1. Hardware settings
Set the module ID (2341, 2342).
2. Software settings (Smart Site Utility)
Use the setup screen for each module.
[2341]

Setting item	CH1	CH2	CH3 to CH8
Use	Selected	Selected	Not selected
Logic	Active Lo	Active Hi	-

[2342]

Setting item	CH1	CH2	CH3 to CH8
Use	Selected	Selected	Not selected
Logic	Active Lo	Active Hi	-
Watch settings	Alarm Mode	Alarm Mode	-
MODULE ID	2341 ID	2341 ID	-
Module Type	2341	2341	-
Alarm CH	OR or AND	OR or AND	-
CH select	CH1	CH2	-
Filter time	OFF	OFF	-
Alarm output control	Refresh at every sampling	Continuous output	-
Disable ALARM RESET button	Selected	Not selected	-

*1: Refer to the documentation of the respective module for information on cable types and connections and mounting to the module base.

Usage example 2

- Using CH1 of the 2342, the Lo active signal is to be controlled from the computer.
Output reset should be locked.
- Using CH2 of the 2342, CH1 (temperature) of the PT MODULE is to be monitored each second.
When the 0 to 20°C range has been exceeded 3 times in succession, a Hi active signal is to be output.
- Using CH3 of the 2342, CH1 (temperature) of the 2303 TC MODULE is to be monitored each second.
When the 0 to 40°C range is exceeded, a Lo active signal is to be output.
- Using CH4 of the 2342, CH1 (temperature) of the 2303 TC MODULE is to be monitored each second.
When the 0 to 30°C range is exceeded, a Lo active signal is to be output.
However, if the CH3 alarm has been activated, the CH4 signal is to be suppressed.

Required initial settings *1

1. Hardware settings
Set the module ID (2302, 2303, 2342).

2. Software settings (Smart Site Utility)
Use the setup screen for each module.

[2302, 2303]

Setting item	CH1	CH2
Use	Selected	Not selected
Other settings	Optional *2	-

[2342]

Setting item	CH1	CH2	CH3	CH4	CH5 to CH8
Use	Selected	Selected	Selected	Selected	Not selected
Logic	Active Lo	Active Hi	Active Lo	Active Lo	-
Watch settings	PC Control Mode	Alarm Mode	Alarm Mode	Alarm Mode	-
MODULE ID	-	2302 ID	2303 ID	2303 ID	-
Module Type	-	2302	2303	2303	-
CH select	-	CH1	CH1	CH1	-
Upper	-	20	40	30	-
Lower	-	0	0	0	-
Filter time	-	3 s	OFF	OFF	-
Alarm output control	*3	Refresh at every sampling	Refresh at every sampling	Refresh at every sampling	-
Disable ALARM RESET button	Selected	Not selected	Not selected	Not selected	-
Alarm priority CH	-	Not selected	Not selected	CH3 selected	-

*1: Refer to the documentation of the respective module for information on cable types and connections and mounting to the module base.

*2: Setting not related to 2342 control system.

*3: Fixed to [**Continuous output**].

Specifications

6

Basic specifications

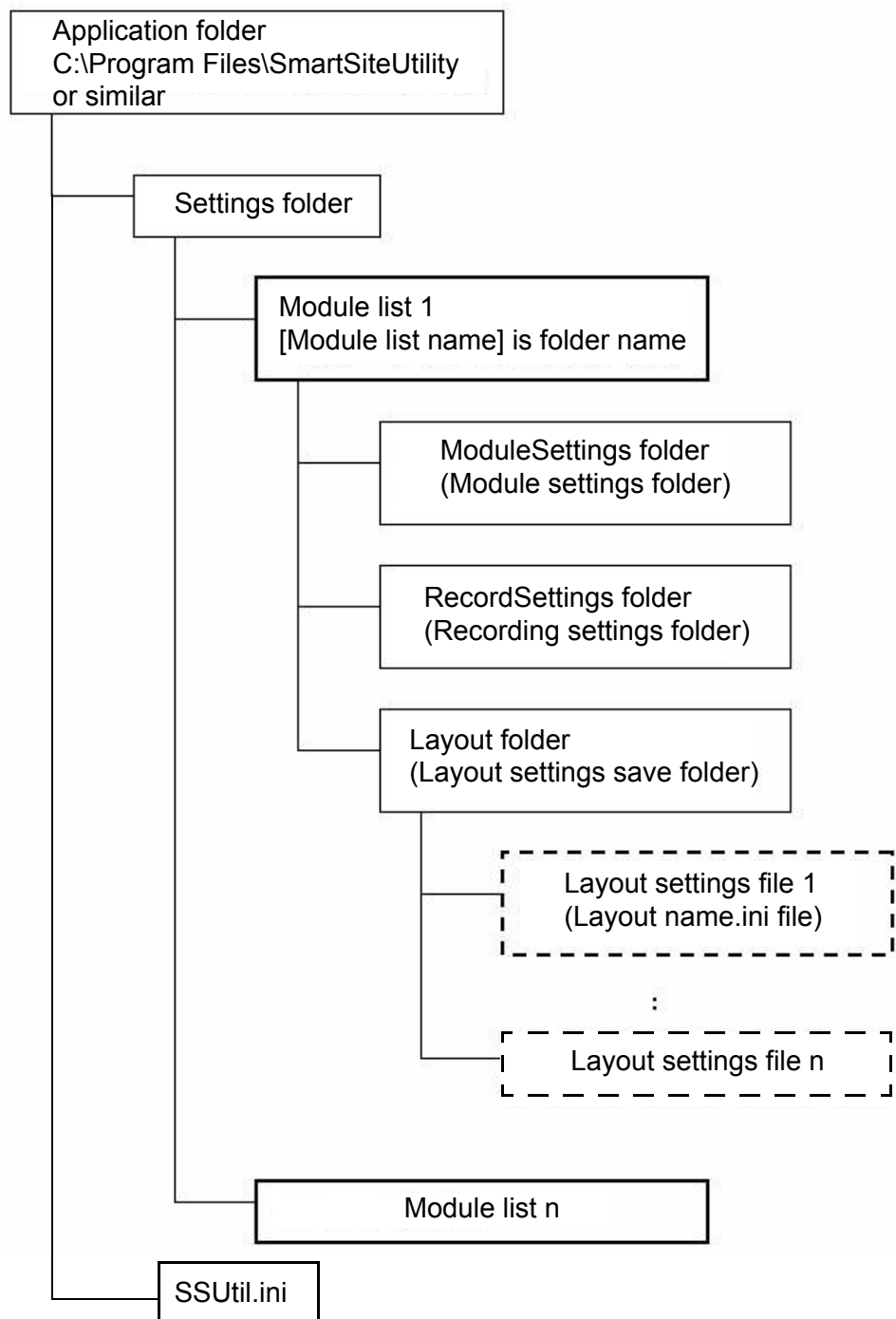
Product medium	CD-R(1)
Supplied accessories	Instruction manual (1)
Hardware	Pentium CPU, 500 MHz or higher
Operating system	Windows 2000/XP
Application	Excel 2000/ 2002/2003
Memory	128 MB or more
Display	Resolution 1024 x 768 dots, 65536 colors or more
Hard disk	At least 30 MB of free space (for software installation), plus space for stored data (at least 500 MB recommended)
Interfaces	COM port, LAN
Module list creation and switching function (Smart Site Utility)	Save communication and measurement module configuration as module list (multiple lists allowed)
Communication module setup functions (Smart Site Utility)	<ol style="list-style-type: none"> 1. Communication module setup (wireless, wired, LAN) 2. Auto recognition of connected measurement modules 3. Measurement and display of wireless signal condition
Monitor functions (Smart Site Utility)	<ol style="list-style-type: none"> 1. Real-time digital monitor (max. 20 windows), selectable display items 2. Real-time trend graph (max. 16 measurement items) 3. Create layout: Save background image and monitor layout settings
Measurement module setup functions (Smart Site Utility)	<p>Set items required for measurement and send settings to measurement module</p> <ol style="list-style-type: none"> 1. 2301 to 2305, 2331, 2332, 2343: Set comment, measurement module ID, measurement method, recording method 2. 2341, 2342: Set comment, measurement module ID, CH settings

<p>Recording/data acquisition functions (Smart Site Utility)</p>	<p>Initiate recording start at measurement modules, collect recorded data from measurement modules, save collected data in computer</p> <ol style="list-style-type: none"> 1. Start/stop recording 2. Manual data acquisition, automatic data acquisition <p>Recording modes : Instantaneous value/MAX,MIN,AVE/Instantaneous value, MAX,MIN,AVE</p> <p>Recording interval settings: 1/2/5/10/15/20/30 s, 1/2/5/10/15/20/30/60 m (Recording mode and interval settings can be made individually for each measurement module.)</p> <p>Recording file : Extension "hrp"</p> <p>Recording folder : Using recording file name without extension Measurement data are stored in year/month numbered folder under recording folder [Year/month folder: Yyyy_Mmm (yyyy: year, fixed to 4 digits, mm: month, fixed to 2 digits)]</p> <p>Measurement data format: CSV format, one file for each module per day Ddd-cc-nn.csv (dd: date, fixed to 2 digits, cc: communication module COM ID, fixed to 2 digits, nn: measurement module ID, fixed to 2 digits)</p>
<p>Data viewing and output functions (Smart Site Utility)</p>	<p>Recorded data can be viewed in "Table" or in "Graph + Table" format.</p> <ol style="list-style-type: none"> 1. Data auto update: Read latest collected data 2. Graph functions : Auto setting, zoom selected range, time axis, Y axis setting, CH setting, grid, cursor interval processing, graph print function (max. 16 measurement items) 3. Table functions : Paste to Excel, output to CSV file, create report (max. 100 measurement items)
<p>Data processing, report output functions (Smart Site Viewer)</p>	<p>Create report in Excel, using Excel format file and collected values. Output is one Excel file for each month. Excel sheets are lined up from left in date order, with the monthly report being the rightmost sheet</p> <ol style="list-style-type: none"> 1. Manual report creation: Create a report only once 2. Auto report creation : Create a report at regular intervals or at specified times during the day <p>Excel file format</p> <ul style="list-style-type: none"> • Format file extension : ".xlt" • Output file extension : ".xls" <p>Output sheet names</p> <ul style="list-style-type: none"> • Daily report : "yy Year mm Month dd Day" (yy: year, fixed to 2 digits, mm: month, fixed to 2 digits, dd: day, fixed to 2 digits). When more than one sheet is created for the same day, the daily report sheets are named "yy Year mm Month dd Day (i)" (i: sheet number) • Monthly report : "yy Year mm Month Monthly Report" (yy: year, fixed to 2 digits, mm: month, fixed to 2 digits). When more than one sheet is created for the same month, the monthly report sheets are named "yy Year mm Month Monthly Report (i)" (i: sheet number)
<p>Other functions (Smart Site Viewer)</p>	<p>Recording file merge function</p>

Appendix

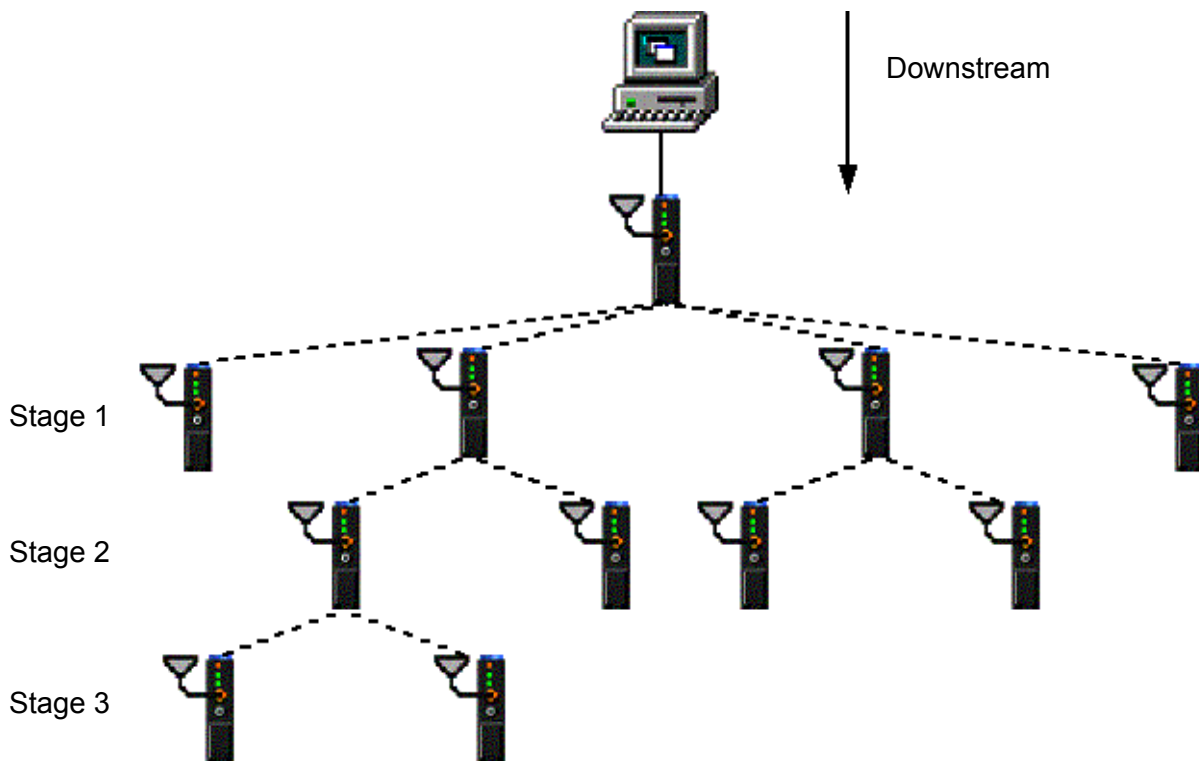
Appendix 1 Smart Site Utility Settings Folder Configuration

- The various settings for the Smart Site Utility are saved in folders with the following configuration.
- To copy the settings, copy the [Settings] folder and [SSUtil.ini].



Appendix 2 Wireless Transmission Stages

- The practical limit for wireless transmission stages is 6. Above this number, response will become too slow for efficient use. (The software allows for a maximum of 20 stages.)
- The maximum number of wireless modules is 89 in total.
- Up to 88 wireless modules can be connected to the first stage.
- Except for one unit connected to the computer via a wired connection, downstream relay with a 2-way split is possible.



Appendix 3 2351 AIR MODULE Wireless Frequencies

1. Frequency Assignments

(1) Frequency Band

The 2351 AIR MODULE has 48 individual frequencies between 2426 MHz and 2473 MHz with 1 MHz separation in each frequency. One band consists of 24 frequencies in the 48 frequencies for select/operate. See the table below for the exact frequency assignments.

(2) Frequency Allocation

24 Frequency are assigned each frequency band (01, and 02) with 1 MHz separation. If 1 MHz adjacent frequency separation is utilized in a same area, the possibility of adjacent channel interference exists because the difference of reception signal level between the desired signal and undesired leakage from the adjacent channel. Therefore, more than 2 MHz separation operation is recommended.

Freq. No.	Freq. (MHz)	
	01 Band	02 Band*
0	2426	2450
1	2427	2451
2	2428	2452
3	2429	2453
4	2430	2454
5	2431	2455
6	2432	2456
7	2433	2457
8	2434	2458
9	2435	2459
10	2436	2460
11	2437	2461
12	2438	2462
13	2439	2463
14	2440	2464
15	2441	2465
16	2442	2466
17	2443	2467
18	2444	2468
19	2445	2469
20	2446	2470
21	2447	2471
22	2448	2472
23	2449	2473

*Both France and Spain are band limited, please use 02 Band for operation.



HIOKI 9768 SMART SITE UTILITY PRO
Instruction Manual

Publication date: March 2005 Edition 1

Edited and published by HIOKI E.E. CORPORATION
Technical Support Section

All inquiries to International Sales and Marketing Department
81 Koizumi, Ueda, Nagano, 386-1192, Japan

TEL: +81-268-28-0562 / FAX: +81-268-28-0568

E-mail: os-com@hioki.co.jp

URL <http://www.hioki.co.jp/>

Printed in Japan 9768A981-00

-
-
- All reasonable care has been taken in the production of this manual, but if you find any points which are unclear or in error, please contact your supplier or the International Sales and Marketing Department at HIOKI headquarters.
 - In the interests of product development, the contents of this manual are subject to revision without prior notice.
 - Unauthorized reproduction or copying of this manual is prohibited.
-
-

HIOKI ---

HIOKI E. E. CORPORATION

HEAD OFFICE

81 Koizumi, Ueda, Nagano 386-1192, Japan

TEL +81-268-28-0562 / FAX +81-268-28-0568

E-mail: os-com@hioki.co.jp / URL <http://www.hioki.co.jp/>

HIOKI USA CORPORATION

6 Corporate Drive, Cranbury, NJ 08512, USA

TEL +1-609-409-9109 / FAX +1-609-409-9108

9768A981-00 05-03H



Printed on recycled paper

T  **USA**
Equipment
.NET™
1-877-742-TEST (8378)