M0012027

SANUPS

UPS OPTION

LAN INTERFACE CARD
LAN ADAPTER

User Guide

SANYO DENKI

Preface

Thank you very much for purchasing our LAN interface card, LAN interface card box, or LAN adaptor for **U**ninterruptible **P**ower **S**upply (hereinafter called **UPS**). This user guide describes how to configure and use the LAN interface card, LAN interface card box, and LAN adaptor, and provides cautions. Be sure to read this user guide before using the product. Refer to the respective manual for information on installing the LAN interface card or LAN adaptor.
Also, refer to the UPS manual for information on using the UPS and its functions.

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Contact

Please contact the nearby distributor for any inquiries about the product.

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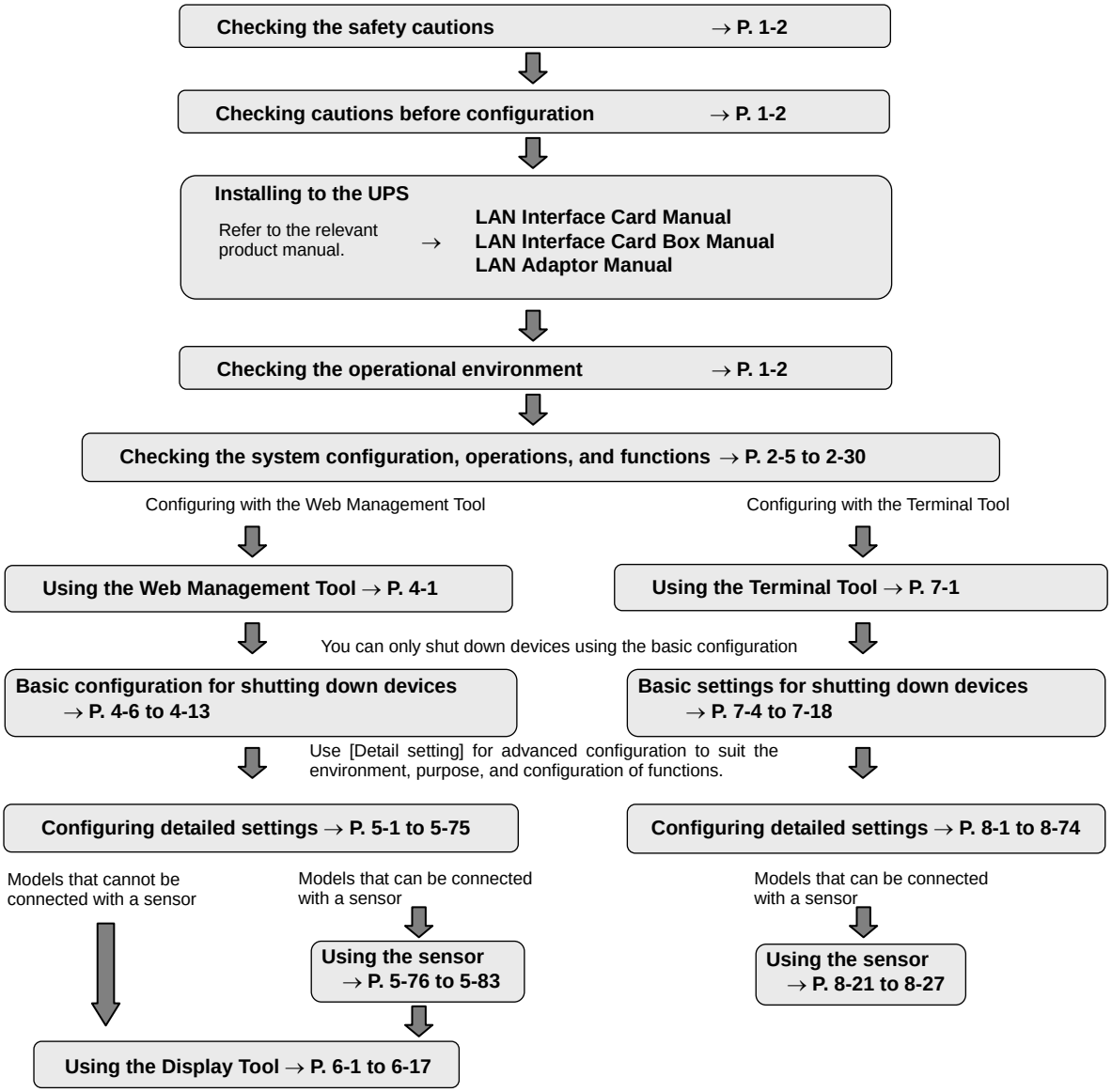
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1. BEFORE USING THE PRODUCT

This chapter describes the procedure to use the LAN interface card and LAN adaptor. Be sure to follow the procedure to use the product correctly and safely.



About the contents of this User Guide

- This User Guide is for the LAN interface card, LAN interface card box, and LAN adaptor; however, examples are described assuming the LAN interface card.
- Functions of the LAN interface card and LAN interface card are the same. They are generally described as the LAN interface card in this document.
- Therefore, some functions described in this User Guide may not be applicable to the LAN adaptor. See "2.2.2 Main functions of the LAN adaptor" for details.
- **UPS** in this guide indicates the UPS installed with the LAN interface card or LAN adaptor.
- **Windows** in this guide indicates Windows NT, 2000, XP, Vista, 7, 8, 10, Server 2003, 2008, or 2012 unless otherwise stated.
- **Browser** and **Web browser** in this guide indicate Internet Explorer.
- **UPS management software** in this guide indicates SANUPS SOFTWARE or SANGUARD IV Lite.
- **PC** in this guide indicates Windows computers and **WS** indicates UNIX and Linux computers. **Computers** are used to indicate both PC and WS.
- **Default** in this guide indicates the initial status where no modification has been made after installing the LAN interface card or LAN adaptor.
- "*" marks in "Default value" columns in tables describing screens and menus of the Web Management Tool and Terminal Tool indicate the factory setting.
- The end of the model name of the LAN interface card varies depending on the type. Therefore in this User Guide, the model names are abbreviated to PRLANIF011B, 012B, 013B or 014B.
- Functions of the LAN interface card and LAN adaptor described in the User Guide may not be available if the installed UPS does not support them.

1.1 Safety Precautions

Safety precautions for the LAN interface card are described in the included manual. Read the manual carefully before using the product and be sure to understand how to use it safely.

1.2 Checklist before Configuration

Check if you have completed the following tasks before configuring the LAN interface card.

(1) Have you installed and connected the LAN interface card correctly in the UPS?
If you are using the sensor, have you correctly connected the sensor?
See the manual supplied with the LAN interface card for instructions on how to install the LAN interface card and how to connect the sensor.

(2) Have you configured the UPS to use the LAN interface card?
You need to configure the UPS to use optional cards such as the LAN interface card. Check if the UPS has been configured. See the UPS manual for details.

1.3 Operating Environment

The following environment is required to use UPS with the LAN interface card.

Required hardware	Description
UPS that supports the LAN interface card	1 LAN interface card can be installed in the UPS.
RS-232C cable (D-sub 9-pin cross)	Connect to the "serial communication cable" 00830882-01 supplied with the LAN interface card when configuring. You can also connect to the serial port on WS to shut it down using terminal login.
Communication cable	The communication cable is supplied with the UPS, or can be purchased separately. You can shut down PCs by contact connection.

You can use the following software to configure the UPS (LAN interface card).

Required software	Description
Java*	It is used when managing the LAN interface card from the web browser. When managing the LAN interface card, used Java Web Start function or Java applet function. Java 7 or later is required.
Web browser*	Web browsers are used when managing the LAN interface card. If you use Internet Explorer, use Internet Explorer 8 or later. When using Java Web Start function, You can also use Web browsers other than Internet Explorer.(For example: Google Chrome, Firefox and Microsoft Edge) When using Java applets function, Internet Explorer is required.
Terminal software	Use this software when configuring with the Terminal Tool by connecting the "serial interface connector" on the LAN interface card and computer with an RS-232C cable (D-sub 9-pin cross). Use HyperTerminal or other free terminal software if you are using a PC.
Telnet client software	Use this software when configuring the UPS with the Terminal Tool via a Telnet connection.
SSH client software	Use this software when configuring the UPS with the Terminal Tool via an SSH connection. Supported SSH version: SSH 2.0

*Notes on using web browsers and Java

- When using web browsers
  If you want to manage the LAN interface card on a web browser, you need to install Java on your computer.
  You can download Java from the following URL.
  https://www.java.com/
  When using Windows, you download a Java of 32-bit version and install it.
- When using the Java applets
  Enable the Java plug-in in the Web browser.
- When using the Java Web Start
  The Java Web Start feature allows you to launch a program for Java applet as an application.
  The Java Web Start feature is available when you installed Oracle's java.
  Java 7 or later is required.
  When you use the Java Web Start feature, Web management tool is displayed on a separate screen from the Web browser.
  Java Web Start and Java applets have no difference in functionality.

1.4 Computers You Can Shut Down

You can shut down the following devices.

You can shut down any other devices if they allow you to log in using Telnet or SSH, or via a serial connection and shut them down.

Shutdown method / Support OS	SANUPS SOFTWARE *1, 2, 8	UPS service *3	Telnet login *4	SSH login *5	Terminal login via a serial connection *7
Windows Server 2016	✓			(See note) *6	
Windows 10	✓			(See note) *6	
Windows Server 2012	✓		✓	(See note) *6	
Windows 8	✓		✓	(See note) *6	
Windows 7	✓		✓	(See note) *6	
Windows Server 2008	✓		✓	(See note) *6	
Windows Vista	✓		✓	(See note) *6	
Windows Server 2003	✓	✓	✓	(See note) *6	
Windows XP	✓	✓	✓	(See note) *6	
Windows 2000		✓	✓	(See note) *6	
Windows NT 4.0		✓			
UNIX	✓		✓	✓	✓
Linux	✓		✓	✓	✓

*1 SANUPS SOFTWARE is optional software that allows you to shut down devices.
Use SANUPS SOFTWARE Version 3.0.0 or later.
If you use the software combined with an older version, operations will be restricted. For older versions, contact your distributor for supported versions.

*2 You can shut down devices via a network or via a contact connection to the "serial interface connector" on the LAN interface card. You need the optional communication cable when making a contact connection between the "serial interface connector" and the serial port on your computer.

*3 "UPS service" indicates the Windows standard UPS service. Only 1 computer can be connected since it uses the "serial interface connector" on the LAN interface card.

*4 Telnet login must be enabled on your computer.
Log in to the computer from the UPS using Telnet and run the shutdown command.

*5 SSH (protocol version 2) login must be enabled on your computer. Log in to the computer from the UPS using SSH and run the shutdown command.
You may need to change settings for SSH server on your computers. See “Configuring SSH authentication”.
For devices that cannot change settings for the SSH server, you may not be able to perform an SSH login from a LAN interface card.
Login operations to any SSH servers are not guaranteed when performing an SSH login from a LAN interface card.

*6 You can shut it down with a functional restriction (password authentication only) if the computer is installed with commercial SSH (with support for protocol version 2).

*7 You need to enable login to a UNIX/Linux computer via the serial port from other computers.
Log in to the computer via the "serial interface connector" on the LAN interface card and run the shutdown command.
The LAN adaptor is not supported.

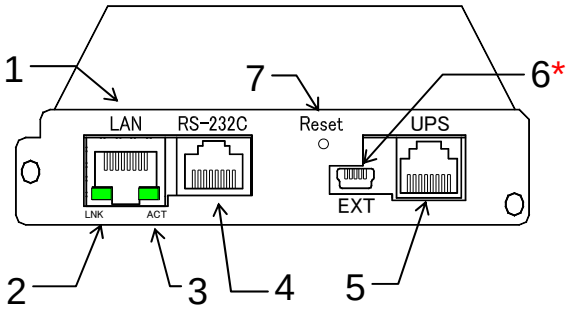
*8 When using an IPv6 address, make sure you specify a fixed address for the LAN interface card, and register the device.
Although you can use a link local address, you need to re-register the SANUPS SOFTWARE when changing the link local address due to LAN interface card replacement.

2. FUNCTIONS

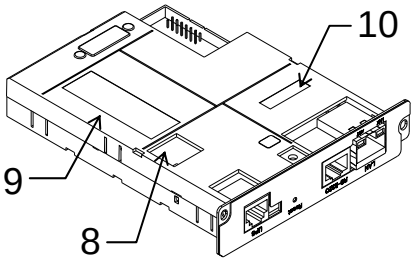
2.1 Functions of the LAN Interface Card

2.1.1 Part names

Front view



Bottom view



The bottom view shown above is PRLANIF013B.

No.	Label	Name	Description
1	LAN	LAN interface connector (RJ45)	A LAN interface modular jack. Use this to connect a network cable. You can automatically detect the transfer speed (100 Mbps/10 Mbps). The transfer method (full duplex/half duplex) is set to auto. Set the port setting for the connected network cable (on the network device) to auto.
2	LNK	Connection status LED	An LED to display the network connection status. The LED is lit in green when connected to the network.
3	ACT	Data LED	An LED to display the data transmission and receipt status. The LED is lit in green when data is being transmitted or received.
4	RS-232C	Serial interface connector (RJ45)	A connector for RS-232C signals. Connect the "serial communication cable" 00830882-01 supplied with the LAN interface card. (1) Use this when configuring the LAN interface card from a serial terminal. (2) Use this when shutting down the computer from the serial port.
5	UPS	UPS communication connector (RJ11)	A connector to communicate with the UPS. Connect the UPS connection cable supplied with this product.
6	EXT	Sensor communication connector (mini-USB)	A connector to communicate with the sensor. Connect the sensor connection cable supplied with this product. * This connector is not present on PRLANIF011B and PRLANIF012B.
7	Reset	Hard reset button	Restarts the program of the LAN interface card. Restarting the program does not affect UPS output. Press the button for at least one second to initiate a reset.
8	—	DIP switches	DIP switches to configure functions and operations of the LAN interface card. DIP switches 1 to 4 are all set to OFF as the factory setting. Refer to "7.2 Checking DIP Switch Settings" in the Instruction manual for details.
9	—	Product label	A label indicating the model and serial number.
10	—	MAC address	A label indicating the MAC address.

2.1.2 Main functions of the LAN interface card

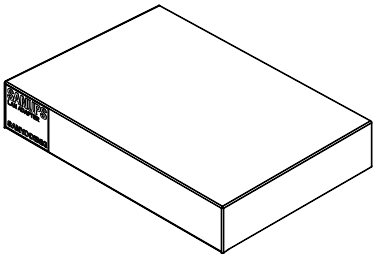
You can use the UPS via a network by installing the LAN interface card into our UPS.
This allows you to shut down computers connected to the same network as the UPS in the event of power supply failure. Also, you can manage the UPS remotely using a web browser and display information collected by the LAN interface card using the display function.

No.	Function	Description
1	Remote management function	You can manage and configure the UPS and check the status from your computer connected to the network using the web browser or Telnet/SSH terminal. Network access to a UPS is authenticated using the **User name** and **Password**. You can prevent illegal access by using SSH to encrypt data transmitted on the network.
2	Automatic computer shutdown function	You can automatically shut down computers safely via the network while they are running on the UPS before the UPS's power output stops. Up to **50** devices can be registered to be shut down. You can also shut down computers via the serial port. (Only One)
3	Mixed OS support	You can use the shutdown function in an environment where Windows, UNIX, and Linux computers co-exist. Shut down WS using a Telnet/SSH connection. Use the UPS management software to shut down PCs. (You can also use the UPS management software for UNIX and Linux.)
4	Scheduled operation function	You can automatically start up and shut down computers by setting a schedule. The schedule information is stored on the UPS.
5	Computer automatic start-up support (Wake-on-LAN support)	You can turn on a computer when the UPS output becomes available after a shutdown if the computer supports the Wake-on-LAN function.
6	Remote control function	You can turn on and off the UPS power output from a remote computer when you need to restart a computer due to an OS malfunction, when you need to make an emergency shutdown, etc.
7	E-mail function	You can notify the administrator via e-mails of power failures, UPS errors, and setting changes. You can also make e-mail queries from your computer or mobile terminal to obtain the UPS states, measurement information, UPS information, and event log.
8	SNMP agent function support	Support for SNMP agent functions (UPS standard MIB: RFC1628, JEMA, and private MIB [exUpsMib]) is provided. This allows you to monitor and control the UPS from an SNMP manager.
9	UPS operation history log	Status events such as power failures and malfunctions, and access to the UPS are logged. You can check this information from a remote computer.
10	Syslog notification	You can send an event log to the syslog server when an event occurs.
11	UPS configuration download and upload	You can download the configuration as a file. This allows you to reuse the same configuration on a new UPS as the previous one when you are replacing it.
12	Time synch using NTP (Network Time Protocol)	You can automatically adjust the time on the UPS using an NTP server.
13	Automatic transmission speed detection	You can automatically detect the transmission speed (100 Mbps/10 Mbps).
14	Automatic battery check function	You can run battery checks automatically if the UPS is equipped with the automatic battery check function. Even if the UPS is not equipped with this function, you can still run periodical battery checks from the LAN interface card in the UPS as long as the battery check is possible on the UPS.
15	Shutdown test function	You can test a shutdown on a specific device registered on the UPS without causing a power failure.
16	Measured value deviation monitoring function	You can monitor the values measured by the UPS (load factor, UPS temperature, and input voltage) and the sensor* (temperature and humidity) and shut down the device when the value deviates from the normal range. * This function is available only on PRLANIF013B and PRLANIF014B.
17	Display function	You can display the data recorded by the UPS as a graph.
18	UPS linkage function	By grouping multiple UPSs (up to five), you can start/stop the UPSs, schedule operations, and perform operations when errors occur. It also supports systems with power redundancy systems.
19	IPv6 support	Currently, it also supports IPv6 as well as the widely supported IPv4. You can use a network environment that uses IPv4 and IPv6 at the same time.

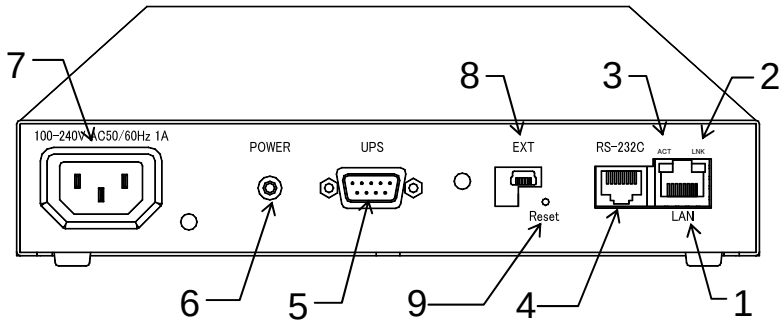
2.2 Functions of the LAN Adaptor

2.2.1 Part names

External view



Rear view



The rear view shown above is PRLANADP012B.

No.	Label	Name	Description
1	LAN	LAN interface connector (RJ45)	An LAN interface modular jack. Use this to connect a network cable. You can automatically detect the transfer speed (100 Mbps/10 Mbps). The transfer method (full duplex/half duplex) is set to auto. Set the port setting for the connected network cable (on the network device) to auto.
2	—	Connection status LED	An LED to display the network connection status. The LED is lit in green when connected to the network.
3	—	Data LED	An LED to display the data transmission and receipt status. The LED is lit in green when data is being transmitted or received.
4	RS-232C	Serial interface connector	A connector for RS-232C signals. Connect the "serial communication cable" 00830882-01 supplied with the LAN adaptor. (1) Use this when configuring the LAN adaptor from a serial terminal. (2) Use this when shutting down the computer from the serial port. (Terminal login via a serial connection is not supported.)
5	UPS	UPS communication connector	A connector to communicate with the UPS.
6	POWER	Power LED	An LED to display the power supply status of the LAN adaptor. The LED is lit when the AC power is supplied.
7	100-240V AC 50/60Hz 1A	Power connector	Connector for the AC power supply. Connect the power cable supplied with this product. Refer to the LAN adaptor manual for information on how to connect it.
8	EXT	Sensor communication connector (mini-USB)	A connector to communicate with the sensor. Connect the sensor connection cable supplied with this product. * This connector is not present on PRLANADP011B.
9	Reset	Hard reset button	Restarts the program of the LAN interface card. Restarting the program does not affect UPS output. Press the button for at least one second to initiate a reset.

2.2.2 Main functions of the LAN adaptor

You can use the UPS via a network by connecting the LAN adaptor to the UPS.
This allows you to shut down computers connected to the same network as the UPS in the event of power supply failure. You can also manage the UPS remotely using a web browser.

No.	Function	Description
1	Remote management function	You can manage and configure the UPS and check the status from your computer connected to the network using the web browser or Telnet/SSH terminal. Network access to a UPS is authenticated using the **User name** and **Password**. You can prevent illegal access by using SSH to encrypt data transmitted on the network.
2	Automatic computer shutdown function	You can automatically shut down computers safely via the network while they are running on the UPS before the UPS's power output stops. Up to **50** devices can be registered to be shut down. You can also shut down computers via the serial port. (Only One)
3	Mixed OS support	You can use the shutdown function in an environment where Windows, UNIX, and Linux computers co-exist. Shut down WS using a Telnet/SSH connection. Use the UPS management software to shut down PCs. (You can also use the UPS management software for UNIX and Linux.)
4	E-mail function	You can notify the administrator via e-mails of power failures and setting changes. You can also make e-mail queries from your computer or mobile terminal to obtain the UPS states, UPS information, and event logs.
5	SNMP agent function support	Support for SNMP agent functions (UPS standard MIB: RFC1628, JEMA, and private MIB [exUpsMib]) is provided. This allows you to monitor and control the UPS from an SNMP manager.
6	UPS operation history log	Status events such as power failures and setting changes to the UPS are logged. You can check this information from a remote computer.
7	Syslog notification	You can send an event log to the syslog server when an event occurs.
8	UPS configuration download and upload	You can download the configuration as a file. This allows you to reuse the same configuration on a new UPS as the previous one when you are replacing it.
9	Time synch using NTP (Network Time Protocol)	You can automatically adjust the time on the UPS using an NTP server.
10	Automatic transmission speed detection	You can automatically detect the transmission speed (100 Mbps/10 Mbps).
11	Shutdown test function	You can test a shutdown on a specific device registered on the UPS without causing a power failure.
12	Measured value deviation monitoring function	By connecting a sensor*, you can monitor values (temperature and humidity) measured by the sensor and shut down devices when any of the values deviate from the normal range. *. This function is available only on PRLANADP012B.
13	UPS linkage function	By grouping multiple UPSs (up to five), you can start/stop the UPSs, schedule operations, and perform operations when errors occur. It also supports systems with power redundancy systems.
14	IPv6 support	Currently, it also supports the new IPv6 as well as the widely supported IPv4. You can use a network environment that uses IPv4 and IPv6 at the same time.

Caution

This User Guide describes how to operate and configure the LAN interface card; however you can operate and configure in the same way for the LAN adaptor.
However, some functions are not available for LAN adaptors. See the above table to check the available functions.

2.3 System Configuration and Operation Sequence

2.3.1 UPS operations and configurations

UPS operations from the time of a power failure until the UPS stops the power output by remote control follow the values configured on the UPS. The following describes the main setting values. The default values in the table are factory settings.

Name	Description	Default value
Power failure confirmation time	The duration to wait for recovery after a power failure. The UPS determines that "the power has not been restored" after this duration and starts to prepare for a power shutdown. (Enters the "Shutdown delaying time")	60 sec.
Shutdown delaying time	The preparation time before the actual power shutdown. The UPS carries out tasks that should be done before starting to shut down. The shutdown process commences after this duration. (Enters the "UPS automatic stopping time")	30 sec.
UPS automatic stopping time	The UPS starts shutting down computers. The UPS power output will stop after this duration if you have set "Automatically stop the UPS at power failure" to Enable. It will start counting the UPS automatic stopping time after completing the shutdown script if you have WS (LAN interface card login connection, Telnet connection, or SSH connection) devices registered.	120 sec.
When power failure occurred, automatically stop the UPS	You can specify whether or not to stop UPS power output after the "UPS automatic stopping time" elapses.	Do not stop
When power failure recovered, automatically start the UPS	You can specify whether or not to start up the UPS output automatically when the power is restored if you have enabled "Automatically stop the UPS at power failure".	Do not start
ON delay time	You can specify the ON delay time for each power outlet if the UPS is capable of power distribution control.	0 sec.
OFF delay time	You can specify the OFF delay time for each power outlet if the UPS is capable of power distribution control.	0 sec.
Start scheduled stop warning	You can specify when to display the warning message for a scheduled shutdown.	600 sec.

Caution

The UPS operates based on the default values in the above table as soon as it is installed with the LAN interface card even if you have not configured it including the IP addresses.
Configure the UPS as soon as possible after connecting a computer to the UPS.

The following table describes the default values for main setting items.

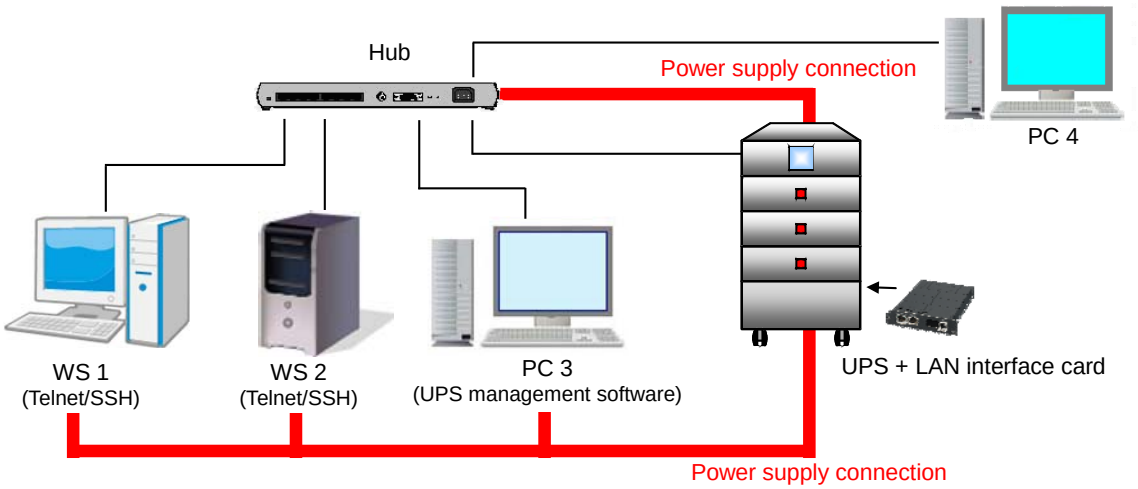
Item	PRLANIF011B, 012B, 013B, and 014B (this product)	PRLANIF001 and 002 (old product)*
Power failure confirmation time	60 sec.	60 sec.
Shutdown delaying time	30 sec. Time is counted even without registered devices	30 sec. Time is not counted if no device is registered
UPS automatic stopping time	120 sec.	120 sec.
When power failure occurred, automatically stop the UPS	Do not stop	Stop
When power failure recovered, automatically start the UPS	Do not start	Start

* Some default values for this product are different from those for the PRLANIF001 and 002. Check carefully if you have been using the PRLANIF001 and 002.
The default values mentioned above are the same for the PRLANIF003, 004, 005, 006, 011, 012, 013, 014 and for this product.

2.3.2 System configuration with a single UPS

This section describes an example of system configurations with 1 UPS.

(1) Power supply to networked devices



Explanation for the above illustration

- The UPS and computers 1 to 4 are connected to the same network.
- The UPS supplies the power to the hub and computers 1 to 3.
- The UPS shuts down WS 1 and 2 by directly logging in via a Telnet/SSH connection without using shutdown software. (The optional UPS management software can also be used to shut them down.*)
- PC 3 is installed with the UPS management software.* Therefore PC 3 can be shut down via the network using the UPS management software.
- PC 4 is used as the UPS management console and it controls the UPS from the web browser or Telnet/SSH terminal. This PC is not subject to shutdown.
- Up to 50 devices can be connected to and managed from the UPS.

* Communication errors may be detected on GUI tools when running multiple instances of the GUI tool included in the UPS management software; however, they cause no operational issues such as shutdown control.

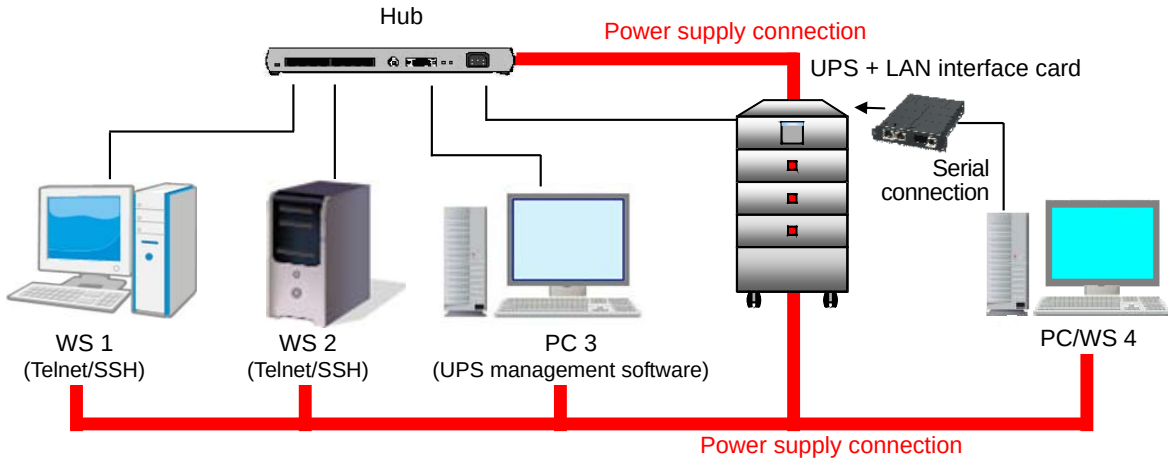
Network environmental conditions, etc.

- Network devices such as routers and hubs should be covered by the UPS. Computers cannot be properly shut down in an environment where network devices are unavailable in power failures.
- Assign a dedicated IP address for the UPS.
- You should be able to log in to WS using a Telnet/SSH terminal to shut it down.
  (When logging in using SSH, you may need to change the configuration file (sshd_config etc.) via the SSH server.)
- Configure the default gateway (router address) appropriately since redirections using ICMP redirect are not supported.
- You cannot use the UPS in an environment where the port numbers are converted by NAT or IP masquerade.
- Network names must be able to be converted to IP addresses by a DNS or other means if you are using network names.

IPv4 address environment:

- The network name must be able to be converted to an IP address as follows if you are assigning an IP address to the UPS using DHCP.
  Register an IP address corresponding to the MAC address of the UPS to the DHCP server, and register the network name corresponding to the IP address to the DNS server, WINS server, or Host file.

(2) Mixed environment with a computer connected via the serial port



Explanation for the above illustration

- The UPS and computers 1 to 3 are connected to the same network.
  The UPS supplies the power to the hub and all computers.
- The UPS shuts down WS 1 and 2 by directly logging in via a Telnet/SSH connection without using shutdown software.
  (The optional UPS management software can also be used to shut them down.*)
- PC 3 is installed with the UPS management software.*
  Therefore PC 3 can be shut down via the network using the UPS management software.
- Computer 4, which cannot be connected to the same network as the UPS, or which cannot be connected to any network, can still be shut down by connecting the "serial interface connector" of the UPS and the serial port of the computer. Only 1 computer can be connected to the "serial interface connector".

  When computer 4 is a PC: Use the Windows standard UPS service or the UPS management software.
  Use the optional communication cable in this case.

  When computer 4 is WS: Configure the serial port of the WS to allow terminal login to shut down, or connect the optional communication cable and use the UPS management software.
- Up to 50 devices can be connected to and managed from the UPS.

* Communication errors may be detected on GUI tools when running multiple instances of the GUI tool included in the UPS management software; however, they cause no operational issues such as shutdown control.

Network environmental conditions, etc.

- Network devices such as routers and hubs should be covered by the UPS. Computers cannot be properly shut down in an environment where network devices are unavailable in power failures.
- Assign a dedicated IP address for the UPS.
- You should be able to log in to WS using a Telnet/SSH terminal to shut it down.
  (When logging in using SSH, you may need to change the configuration file (sshd_config etc.) via the SSH server.)
- You need to configure the serial port of the WS to allow terminal login if you are connecting the WS to the serial port of the UPS.
- Configure the default gateway (router address) appropriately since redirections using ICMP redirect are not supported.
- You cannot use the UPS in an environment where the port numbers are converted by NAT or IP masquerade.
- Network names must be able to be converted to IP addresses by a DNS or other means if you are using network names.

IPv4 address environment:

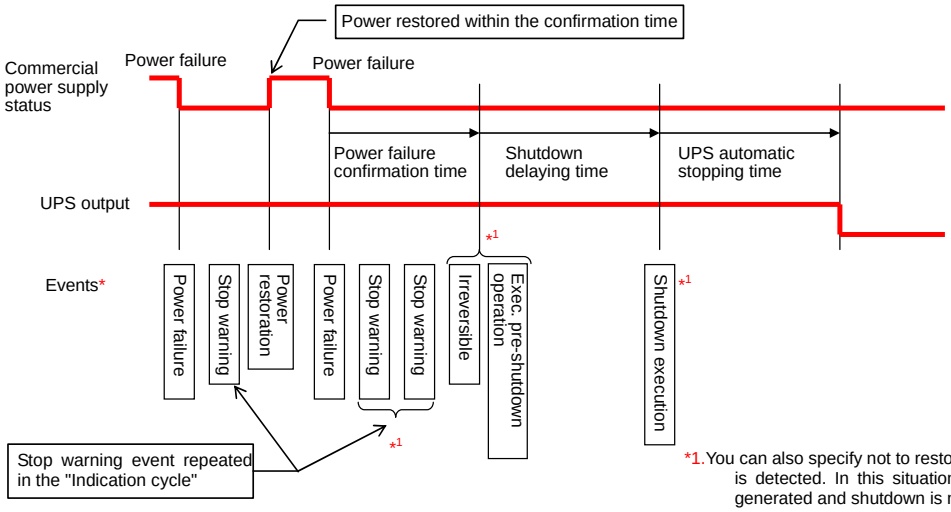
- The network name must be able to be converted to an IP address as follows if you are assigning an IP address to the UPS using DHCP.
  Register an IP address corresponding to the MAC address of the UPS to the DHCP server, and register the network name corresponding to the IP address to the DNS server, WINS server, or Host file.

2.3.3 Operation sequence with a single UPS

This section describes the outline of the operation sequence.

(1) Sequence at a power failure

The following figure indicates the operation sequence when you have enabled "Automatically stop the UPS at power failure".



*1. You can also specify not to restore even if a power failure is detected. In this situation, a stop warning is not generated and shutdown is not performed.

* About events...

"Events" are phenomena such as a power failure, restoration, UPS malfunction, etc.
You can specify to send an e-mail, run the registered script, or record into the event log each time an "event" occurs.

Basic operations

(a) When a power failure occurs, the UPS waits for the restoration for the duration specified in "Power failure confirmation time".
The following processes do not take place if the power is restored within the "Power failure confirmation time".

(b) After the duration specified in "Power failure confirmation time", the UPS determines that the power is not restored, and initiates the pre-shutdown process.
The pre-shutdown process executes processes specified by the user before the shutdown starts.

(c) The shutdown starts when the "Shutdown delaying time" elapses.
The UPS shuts down after the duration specified in "UPS automatic stopping time" if you have specified to automatically stop the UPS.

See "2.3.1 UPS operations and configurations" for information on time settings for UPS operations in the event of a power failure.

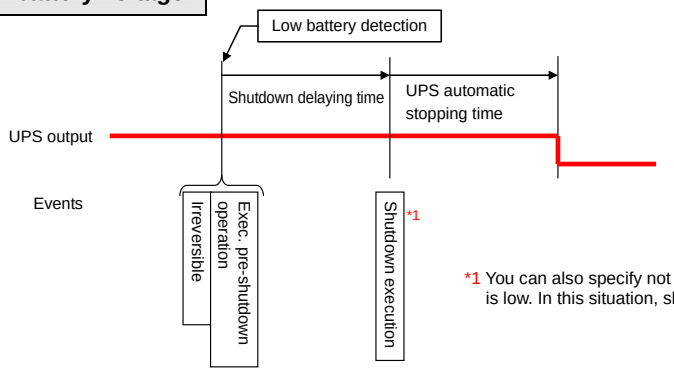
Caution

The shutdown process proceeds even if the power is restored within the "Shutdown delaying time" or "UPS automatic stopping time". Also, the UPS is shut down if you have enabled "Automatically stop the UPS at power failure".

Shutdown operation of stopped devices

"Exec. pre-shutdown operation" and "Shutdown execution" events are not executed when recovery cannot be performed (for some reason or other).
Set terminal command "stopdevsdcond" when you want to execute these events to stopped devices.

(2) Sequence at low battery voltage



*1 You can also specify not to restore even if battery voltage is low. In this situation, shutdown is not performed.

Basic operations

(a) The following processes are automatically executed when the UPS detects "Low battery voltage".

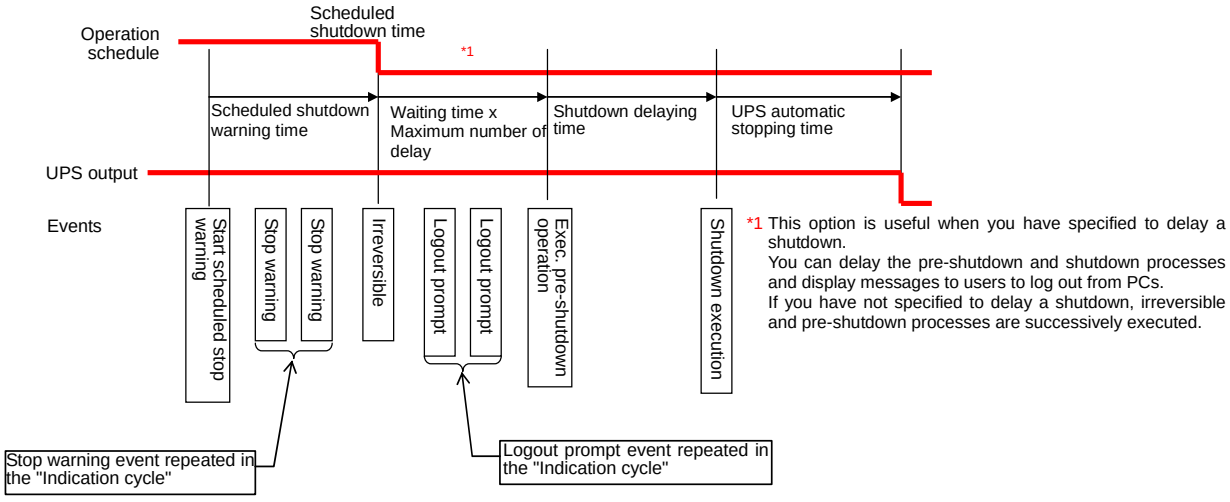
(b) The pre-shutdown process is executed. The pre-shutdown process executes processes specified by the user before the shutdown starts.

(c) The shutdown starts when the "Shutdown delaying time" elapses.
The UPS shuts down after the duration specified in "UPS automatic stopping time" if you have specified to automatically stop the UPS.

Caution

"Low battery voltage" signals occur only in a power failure. They do not occur at normal times. They occur in one of the following conditions.
- When battery voltage is low
- When the backup-time is below the specified value (supported UPS only)

(3) Scheduled shutdown sequence



*1 This option is useful when you have specified to delay a shutdown.
You can delay the pre-shutdown and shutdown processes and display messages to users to log out from PCs.
If you have not specified to delay a shutdown, irreversible and pre-shutdown processes are successively executed.

Basic operations

(a) If you have specified to delay the UPS shutdown, the delay process is executed at the scheduled shutdown time.

(b) Computers are shut down after the "Shutdown delaying time" and the UPS is shut down after the "UPS automatic stopping time".

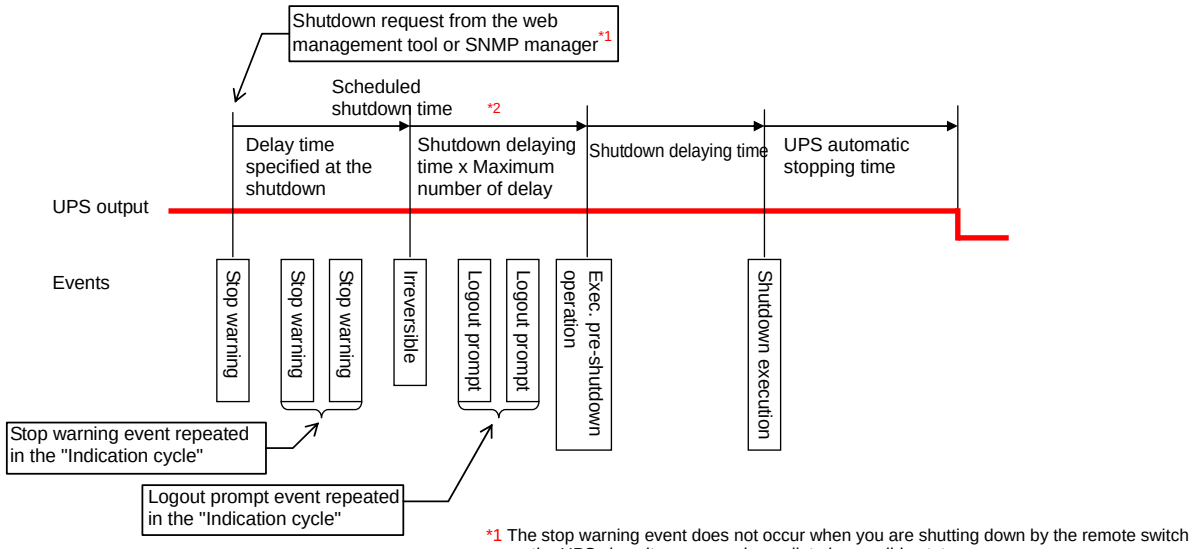
(c) The UPS starts up at the scheduled start-up time. (Computers are turned on when the UPS is started up.)

See "5.4 Configuring Scheduled Operations" for how to schedule UPS operations.

Caution

Connect computers to the UPS if you are using the "scheduled operation" function for automatically starting up or shutting down computers.

(4) Remote shutdown sequence



*1 The stop warning event does not occur when you are shutting down by the remote switch on the UPS since it causes an immediate irreversible status.
*2 This option is useful when you have specified to delay a shutdown.
You can delay the pre-shutdown and shutdown processes and display messages to users to log out from PCs.
If you have not specified to delay a shutdown, irreversible and pre-shutdown processes are successively executed.

Basic operations

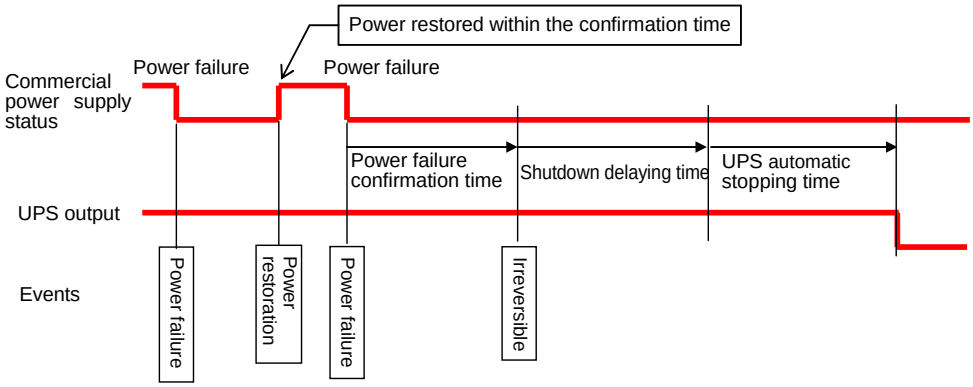
(a) When shutting down the UPS from the web management tool or SNMP manager, you can delay the process by specifying the delay time ("Time before starting the operation").

(b) The delay process is executed if the UPS is configured to delay the shutdown.

(c) Computers are shut down after the "Shutdown delaying time" and the UPS is shut down after the "UPS automatic stopping time".

(d) After the UPS is shut down, you can start it up from the web management tool or SNMP manager.

(5) Shutdown sequence when no computer is connected



Basic operations

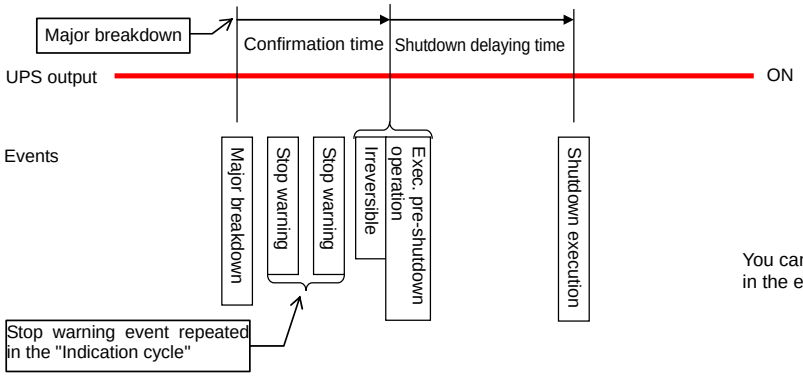
(a) When a power failure occurs, the UPS waits for the restoration for the duration specified in "Power failure confirmation time".

(b) After the duration specified in "Power failure confirmation time", the UPS determines that the power is not restored.

(c) When the "Shutdown delaying time" elapses, the UPS shuts down after the duration specified in "UPS automatic stopping time" if you have specified to automatically stop the UPS.

(6) Shutdown sequence for a major breakdown

When you configure to shut down in the event of a major breakdown.



You can also configure not to shut down in the event of a major breakdown.

Basic operations

(a) When a major breakdown occurs, the UPS waits to recover from the breakdown for the duration specified in "Confirmation time" if you have specified to shut down in the event of a major breakdown.The following processes do not take place if the major breakdown is resolved within the "Confirmation time".

(b) After the duration specified in "Confirmation time", the UPS determines that the breakdown cannot be resolved, and initiates the pre-shutdown process. The pre-shutdown process executes processes specified by the user before the shutdown starts.

(c) The shutdown starts when the "Shutdown delaying time" elapses. The UPS does not shut down even after the "UPS automatic stopping time" elapses.

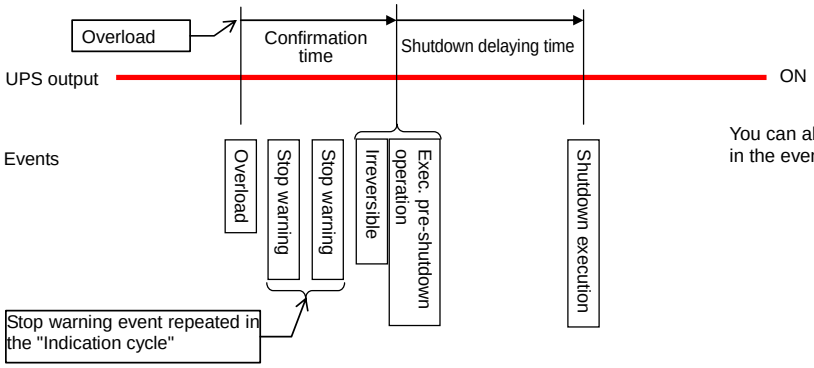
See "4.3.1 Configuring UPS operations" for information on time settings for UPS operations in the event of a major breakdown.

Caution

The shutdown process proceeds even if the breakdown is resolved within the "Shutdown delaying time".

(7) Shutdown sequence for an overload

When you configure to shut down in the event of an overload.



You can also configure not to shut down in the event of an overload.

Basic operations

(a) When an overload occurs, the UPS waits to recover from the overload for the duration specified in "Confirmation time" if you have specified to shut down in the event of an overload. The following processes do not take place if the overload is resolved within the "Confirmation time".

(b) After the duration specified in "Confirmation time", the UPS determines that the overload cannot be resolved, and initiates the pre-shutdown process. The pre-shutdown process executes processes specified by the user before the shutdown starts.

(c) The shutdown starts when the "Shutdown delaying time" elapses. The UPS does not shut down even after the "UPS automatic stopping time" elapses.

See "4.3.1 Configuring UPS operations" for information on time settings for UPS operations in the event of an overload.

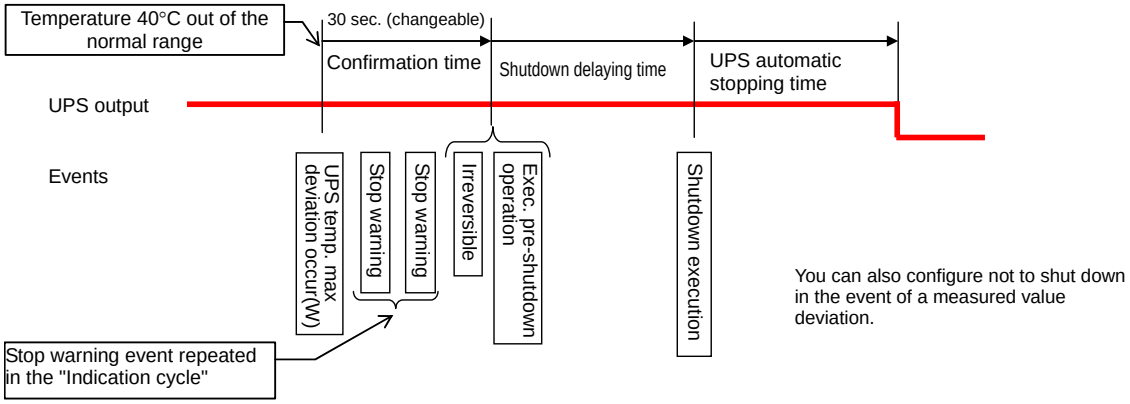
Caution

The shutdown process proceeds even if the overload is resolved within the "Shutdown delaying time".
When "Overload Recovery Operation" is set in the UPS, if the overload continues to occur and is set to recover automatically from bypass operations after a fixed time, shutdown is not performed after the confirmation time has elapsed for overload generation/recovery. When shutting down due to an overload, set so that it does not automatically recover from bypass operation after a specified amount of time.

(8) Shutdown sequence for a measured value deviation

When you configure to shut down in the event of a measured value deviation.

The following diagram indicates the operation sequence for a value deviation when the maximum temperature of the UPS is specified at 40°C in "Monitor Warning Level Deviation".



Basic operations

(a) The UPS waits to recover for the specified "Confirmation time" when the measured value deviates from the specified normal range if you have selected "Shutdown upon deviation" under "Monitor Warning Level Deviation" described in "5.7 Configuring Measured Value Administration Information". The following processes do not take place if the deviation is resolved within the "Confirmation time".

(b) After the duration specified in "Confirmation time", the UPS determines that the deviation cannot be resolved, and initiates the pre-shutdown process. The pre-shutdown process executes processes specified by the user before the shutdown starts.

(c) The shutdown starts when the "Shutdown delaying time" elapses. The UPS shuts down after the "UPS automatic stopping time" elapses.

Caution

The shutdown process continues to the end even if the measured value recovers to the normal range during [Shutdown delaying time] and [UPS automatic stopping time].
After the [UPS automatic stopping time] has expired, the UPS auto stop and deviation recovery for UPS automatic operation settings are made according to the "UPS automatic stop / start operation" settings in "5.7.2 Configuring measurement value deviation monitoring".

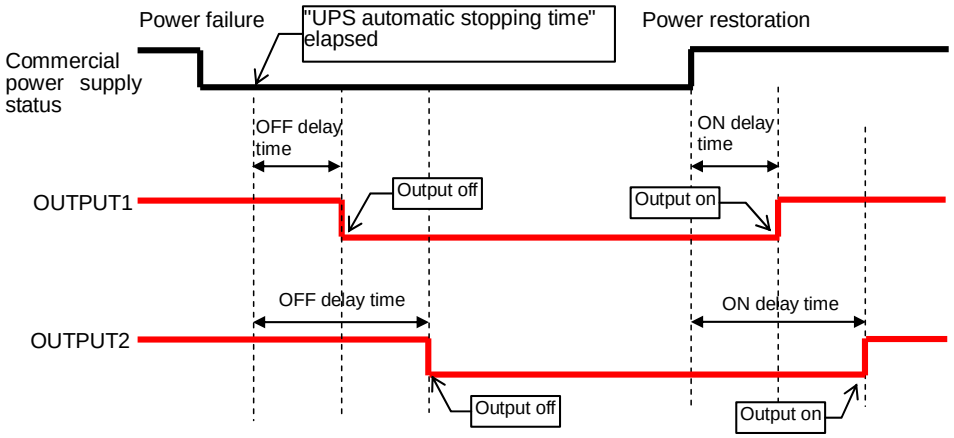
2.3.4 UPS with output distribution control

UPS that are capable of power output distribution control have "OUTPUT0", "OUTPUT1", and "OUTPUT2" outlets. These outlets operate differently as shown below.

Outlet name	Description
OUTPUT0	Depending on the UPS model, you can set "Always ON". When the setting value is "Always ON", you cannot turn off the output at normal times. OUTPUT0 continues to supply the power even when OUTPUT1 and OUTPUT2 are turned off due to an input error. Therefore, this outlet is suitable for network devices such as hubs.
OUTPUT1	This outlet operates according to the UPS operation settings. Connect computers or other devices that require shutdown at a power failure or automatic start-up by the scheduled operation. OUTPUT1 and OUTPUT2 operate independently; therefore, you can configure them with different timings to turn ON and OFF to start up and shut down respective devices.
OUTPUT2	

See "5.2.4 Configuring delay time on UPS power outlets" for information on how to configure the output ON delay time and output OFF delay time for OUTPUT1 and OUTPUT2.

The following indicates the operation sequence when OUTPUT1 and OUTPUT2 are specified with output ON delay time and output OFF delay time.



Caution

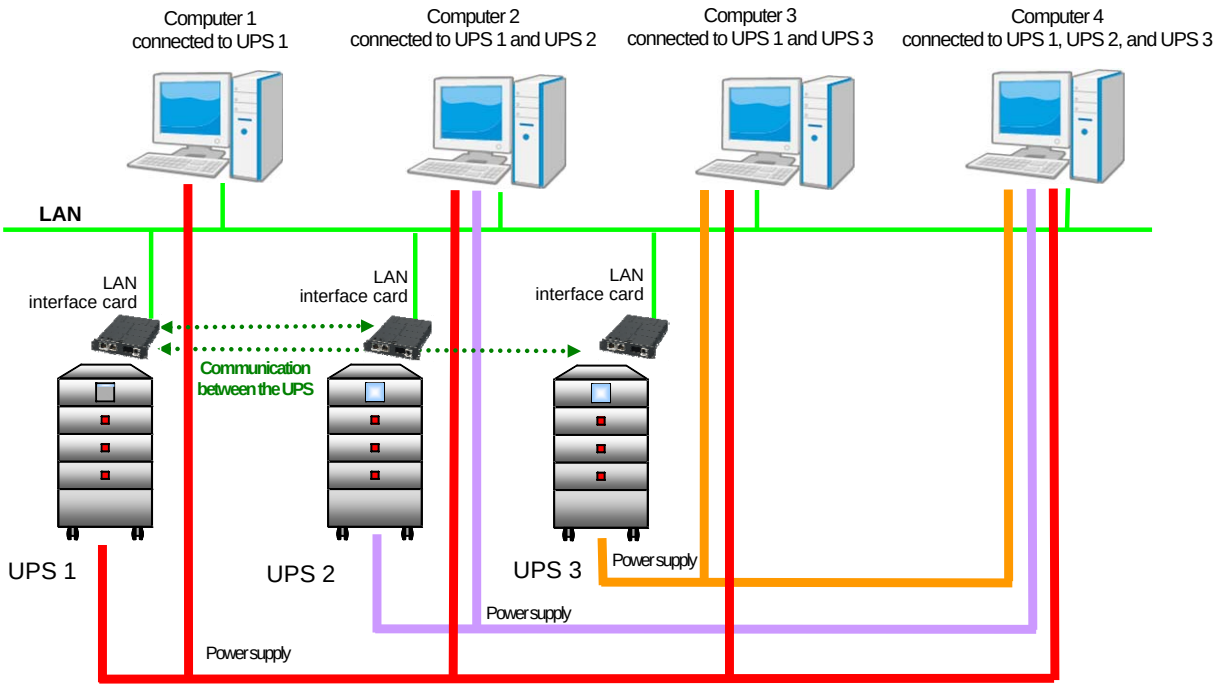
When ON delay time is set in "5.2.4 Configuring delay time on UPS power outlets" and control for Output1 or Output2 is turned on individually, the ON delay time is not counted.

2.3.5 Power redundancy system configuration with multiple UPS

This section describes an example of the power redundancy system where multiple UPS are configured to be linked as a "UPS group"*.

* About UPS groups...

A UPS group indicates multiple UPS on the same network configured to operate as a single system. Each UPS is registered as a member of the UPS group and used as part of the power redundancy system. These UPS coordinate functions such as starting up, shutting down, and scheduled operations.
The following figure indicates a configuration where UPS 1 to 3 form a UPS group. Up to 5 UPS can be configured as a UPS group.



Explanation for the above illustration

- UPS 1 to 3 and computers 1 to 4 are connected to the same network.
- UPS 1 to 3 communicate via LAN interface cards.
- UPS 1 supplies the power to computer 1.
- UPS 1 and UPS 2 supply the power to computer 2.
- UPS 1 and UPS 3 supply the power to computer 3.
- UPS 1, UPS 2, and UPS 3 supply the power to computer 4.

Network environmental conditions, etc.

- Network devices such as routers and hubs should be covered by the UPS. The UPS linkage function does not operate correctly in an environment where network devices are unavailable in power failures.
- Other network environmental conditions are the same as "Network environmental conditions, etc." from "2.3.2 System configuration with a single UPS".

Caution

- UPS will not provide the backup power supply to a computer if the computer's device information is not registered to the UPS even if the computer is connected to multiple UPS in a power redundancy system. Register the device information to all UPS to which the computer is connected.
- The shutdown sequence at a power failure varies depending on the "UPS count" in power redundancy systems using UPS groups. See "2.3.6 Operation sequence of power redundancy systems".
- Devices may not be shut down in a power failure depending on the value of "UPS count" in power redundancy systems. However, the message (as the default) to notify of a shutdown is sent from the UPS where the power failure occurred to the devices.
  See "5.10 Configuring UPS Linkage" or "8.11.2 Configuring UPS count for UPS linkage" for details.
- You cannot form a power-supply redundancy system configuration with a UPS that does not support IPv6 addresses.
  You cannot use in combination with older products (PRLANIF003/004/005/006, PRLANADP001/002, PRLANBOX001/002).

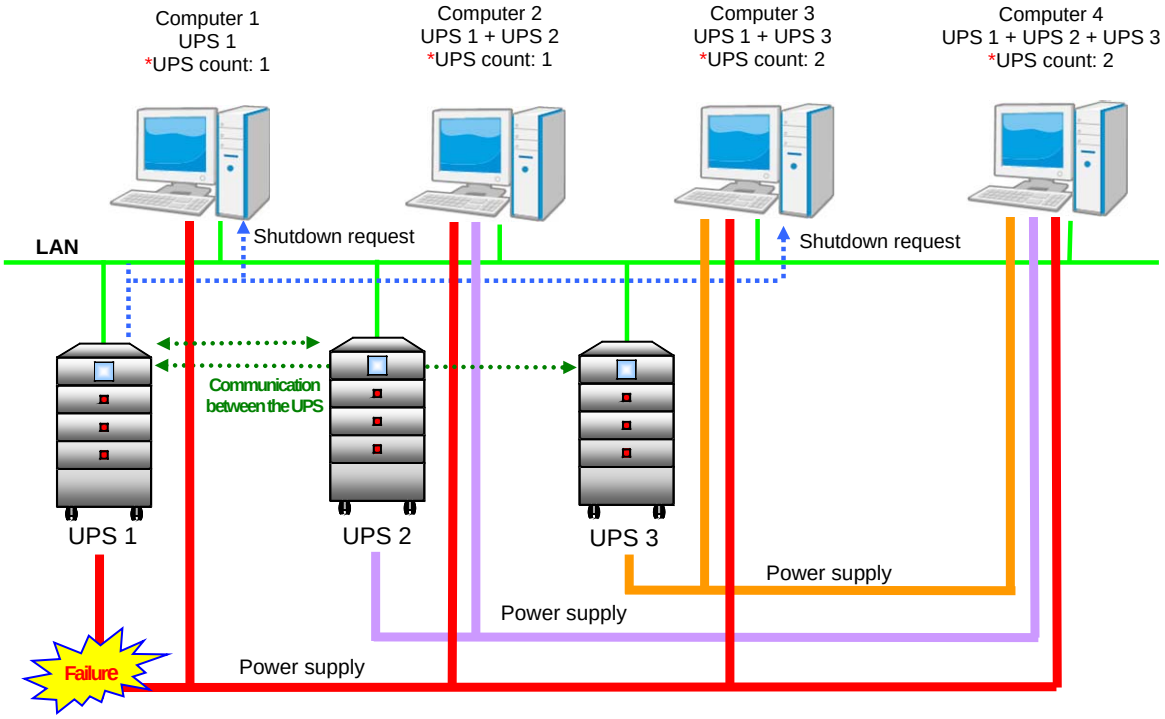
2.3.6 Operation sequence of power redundancy systems

This section describes the outline of the operation sequence in power redundancy systems.
The following figure indicates a power failure at UPS 1 in a system where 3 UPS are grouped.

* About "UPS count"...

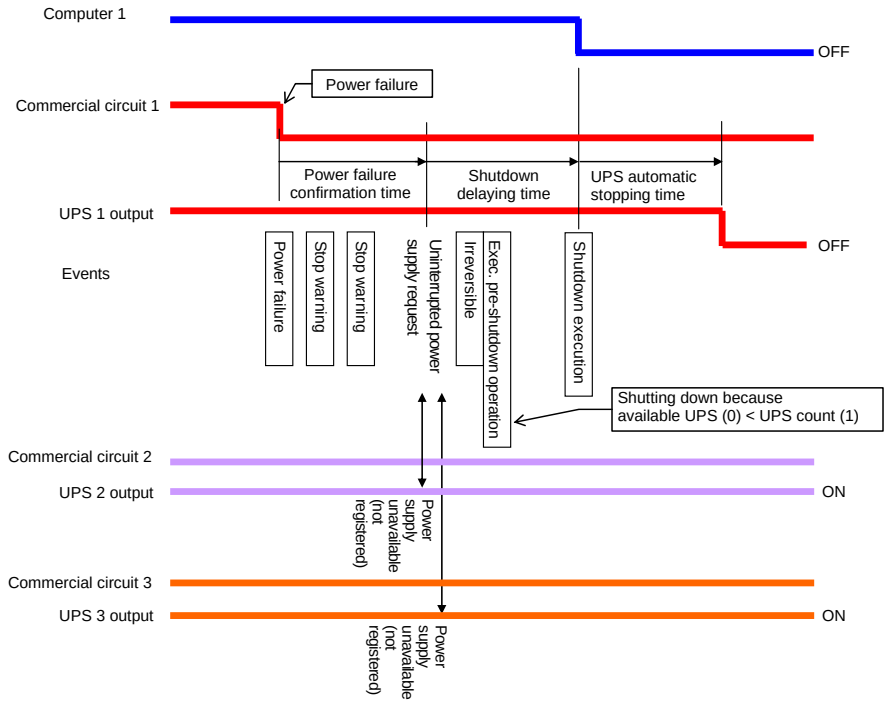
"UPS count" indicates the required number of normally operating UPS to supply the power to computers in the event of a power failure.
Computers are shut down when the number of normally operating UPS is less than the specified number.
Configure "UPS count" on each UPS where computers are registered. You can specify either the same value or a different value on each UPS.
The UPS is not counted as in the normal operation if one of the following applies.

- In the irreversible error status
- Output off or output system off
- In the internal com. trouble status
- In the bypass operation
- In the overloaded status
- In the low battery voltage status
- End of the battery life
- In the major breakdown status



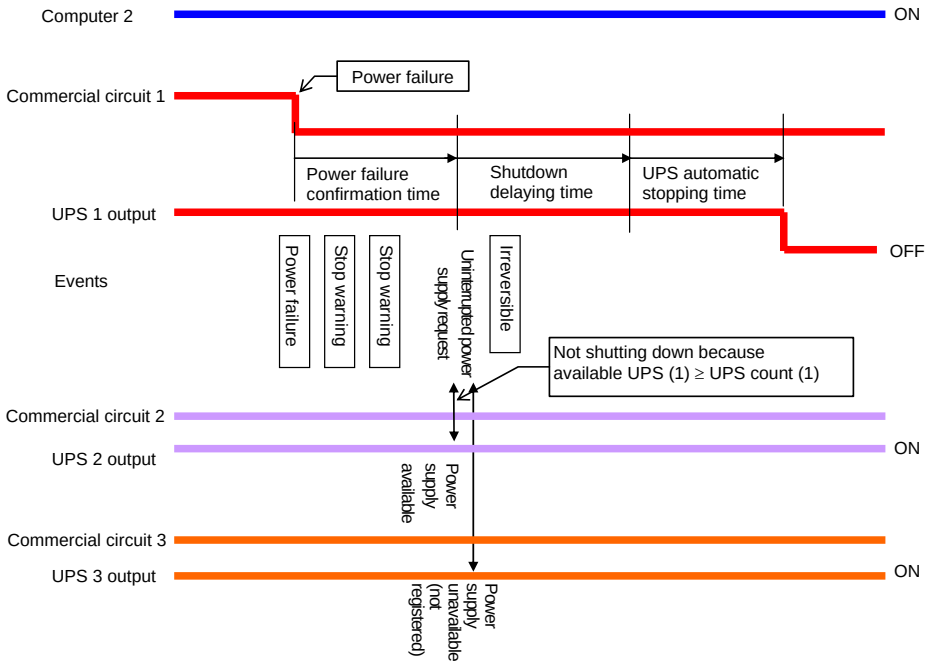
Operation sequence of computer 1

"UPS count : 1"
Computer 1 is shut down by UPS 1.
UPS 2 and UPS 3 do not supply backup power since they are not connected.



Operation sequence of computer 2

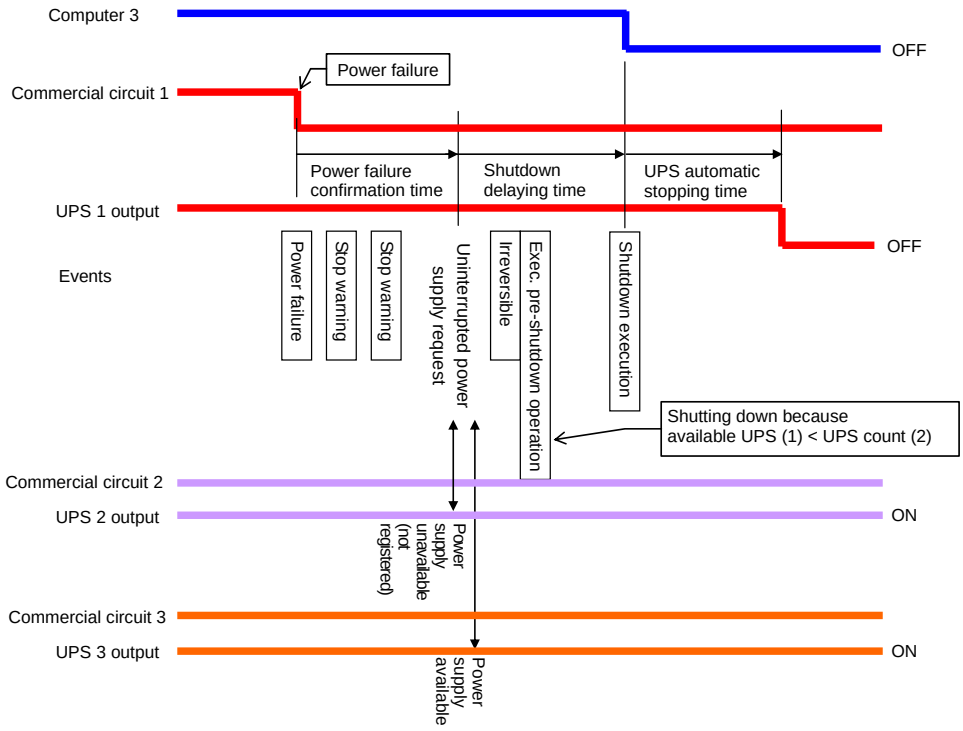
"UPS count : 1"
Although UPS 1 shuts down, computer 2 continues to operate using the power supplied by UPS 2.



Operation sequence of computer 3

"UPS count : 2"

Although computer 3 can operate using the power supplied by UPS 3, computer 3 will be shut down because "UPS count" is set to "2" thus the number of available UPS is less than the specified value.

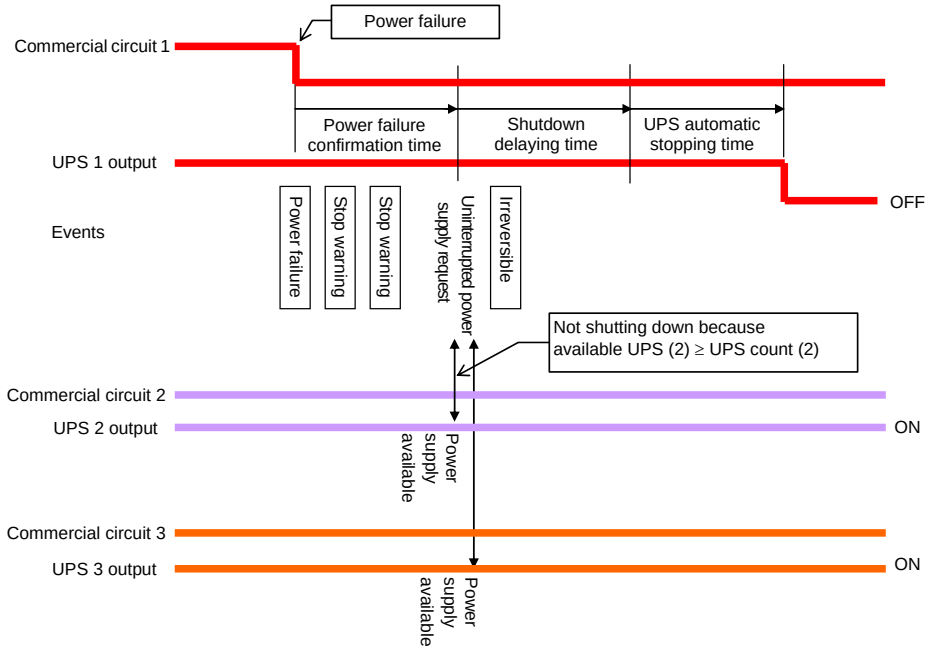


Operation sequence of computer 4

"UPS count : 2"

Although UPS 1 shuts down, computer 4 continues to operate using the power supplied by UPS 2 and UPS 3. Computer 4 is not shut down since it has 2 available UPS and the "UPS count" is "2".

Operations at a power failure

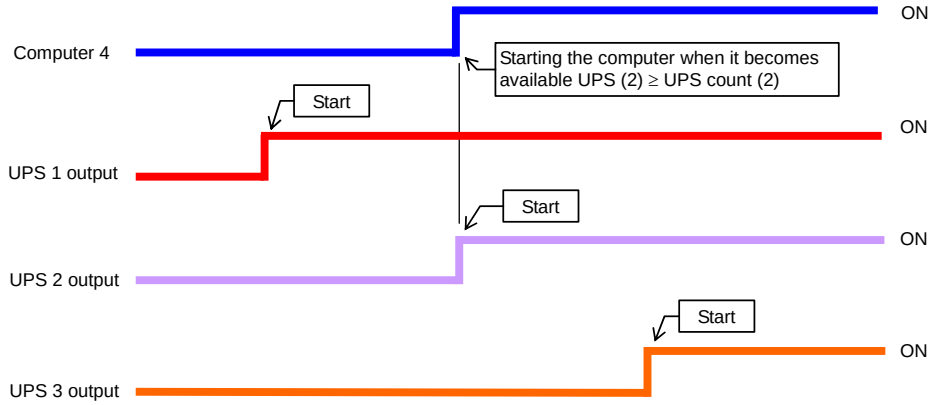


Operations at start-up

The start-up sequence varies depending on the "UPS count" if you have configured computers to start when the UPS start[*1].

"UPS count : 2"

Computer 4 starts when UPS 1 and UPS 2 have started to make 2 available UPS and a "magic packet" is sent because the "UPS count" is set to “2” for computer 4.[*2]



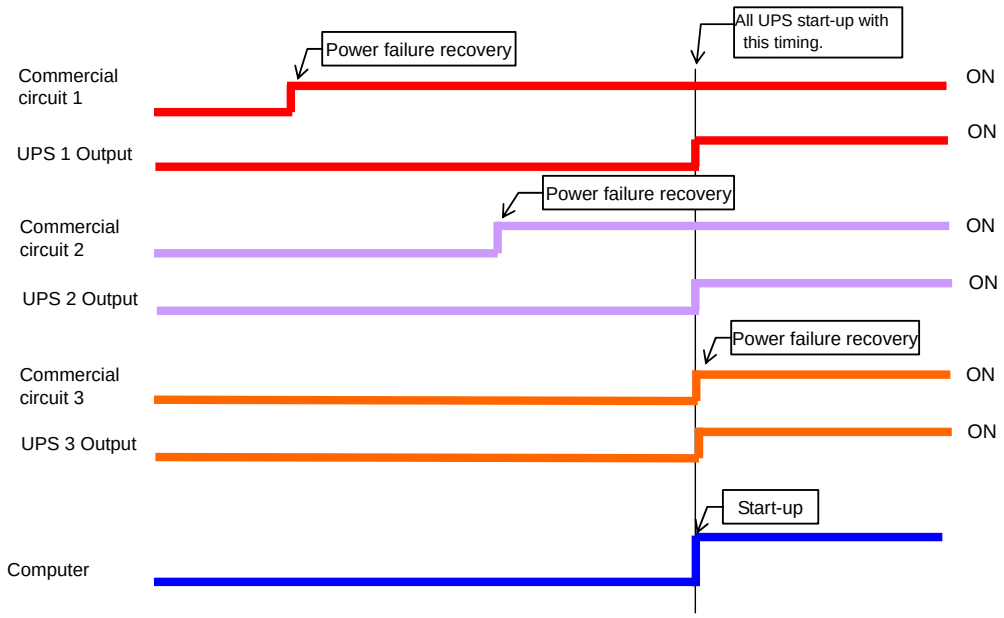
Caution

*1 See "5.1.4 Configuring the Wake On LAN function".
*2 The above figure indicates an example where devices automatically start as UPS 1 to 3 start in succession. Some devices may not automatically start depending on the start or shutdown status of the linked UPS.

After power failure recovery, to be synchronized start-up timing of UPS group members.

If UPS automatic start-up is setting after power failure recovery, UPS group members may not start at one time such as causing time difference at power failure/recovery in each commercial circuits.

If the setting of Terminal tool command "acsyncstart" is ON (default value: OFF), the power is restored, at the time the UPS group members all of the UPS is ready for start-up, do the start-up operation to simultaneously start each UPS.



Caution

After power failure recovery, each UPS confirm start-up time depending from the operation status of UPS group members.
After power failure recovery, in the case of network communication with the other group members' UPS is not established after a lapse of confirmation time (120 seconds), own UPS will start-up without synchronization-start.

2.3.7 UPS linkage operation sequence by "Synchronization setting by causes"

In "Synchronization setting by causes" between UPS group members, you can set the linkage operations for the UPS group when a primary cause occurs.

About “Synchronization setting by causes”

When the following primary events occur in UPSs for UPS group members, you can set start/stop*1 operations for all UPSs in the UPS group.

- UPS control request from the remote
- Scheduled operation
- Irreversible by power failure
- Irreversible by low battery voltage
- Irreversible by major breakdown occurs*2
- Irreversible by overload occurs*2
- Irreversible by load factor deviation
- Irreversible by UPS temp. deviation
- Irreversible by input voltage deviation

*1. From "Synchronization setting by causes", for settings that startup the UPSs when a primary event recovery occurs, and when each of the above mentioned primary events occurs, the UPSs are not started until the primary events have been recovered. However, if the network communication cannot be performed between other UPS group member even when the confirmation-time (120 seconds) has elapsed, the devices start.

*2. The UPS does not shut down during a major breakdown or an overload.

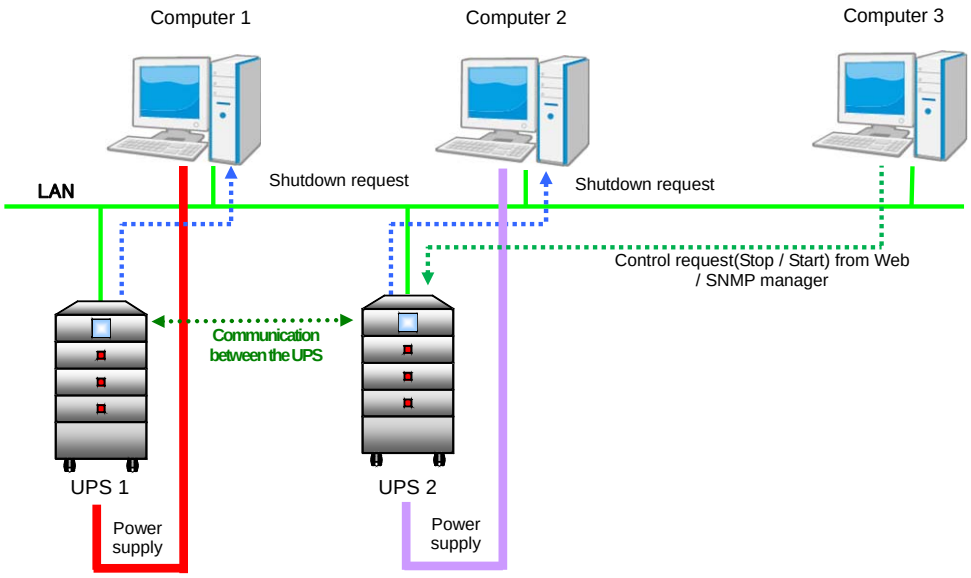
Network environmental conditions, etc.

- Network devices such as routers and hubs should be covered by the UPS. The UPS linkage function does not operate correctly in an environment where network devices are unavailable in power failures.
- Other network environmental conditions are the same as "Network environmental conditions, etc." from "2.3.2 System configuration with a single UPS".

2.3.7.1 Linkage operations for UPS management requirements

You can receive management requirements from web management tools/SNMP managers, and perform startup/shutdown for all UPSs in a UPS group. The following is an example of system configuration.

System configuration

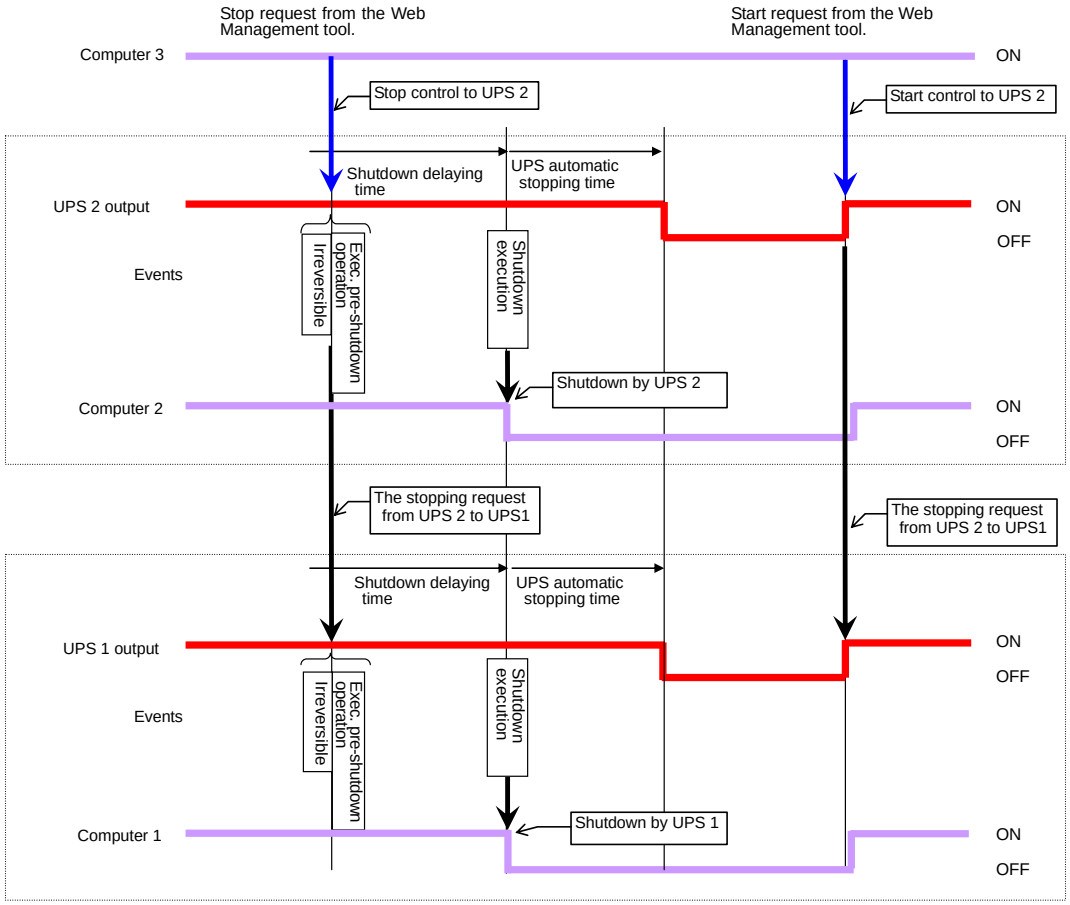


Explanation for the above illustration

- UPS 1 to 2 and computers 1 to 3 are connected to the same network.
- UPS 1 supplies the power to computer 1.
- UPS 2 supplies the power to computer 2.
- UPS 1 and UPS 2 are members of a UPS group.
- Computer 1 is set as the shutdown device in UPS 1.
- Computer 2 is set as the shutdown device in UPS 2.
- "Run in sync at UPS management requirements" is set for "Synchronization setting by causes" in UPS 1 and UPS 2.
- Using the Web or SNMP manager from computer 3, run management requirements for UPS 2.

Starting up and shutting down according to UPS management requirements

For "Synchronization setting by causes", when UPS management requirements are set, control requests can be sent from web management tools/SNMP managers etc. to one UPS, which can in turn perform startup/shutdown for all UPSs in a UPS group.



Basic operation

(a) Shutdown is performed in UPS 2 from the web management tool/SNMP Manager.

(b) A shutdown request is issued to UPS 1 from UPS 2.
Power is not restored for UPS 1 and UPS 2, and the pre-shutdown process is executed.
The pre-shutdown process executes processes specified by the user before the shutdown starts.

(c) For UPS 1 and UPS 2, the shutdown starts when the "Shutdown delaying time" elapses.

(d) UPS 1 and UPS 2 shutdown after the "UPS automatic stopping time" elapses.

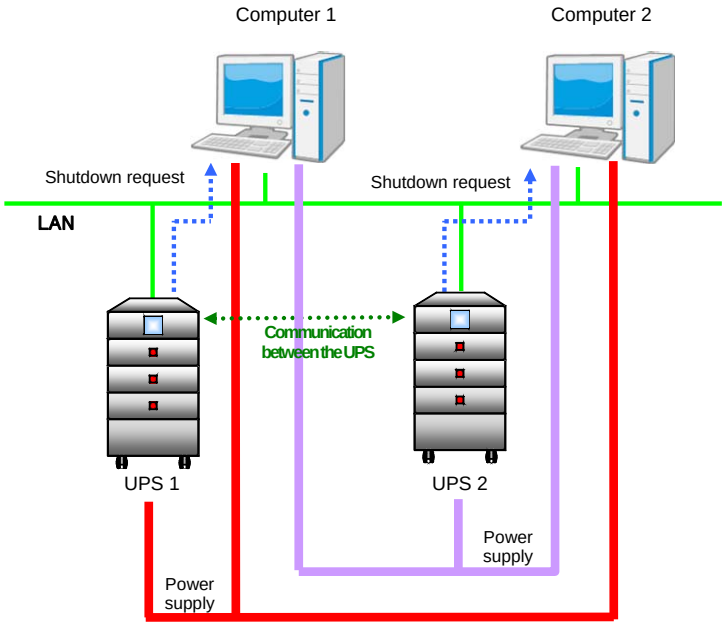
(e) Startup control is performed in UPS 2 from the web management tool/SNMP Manager.

(f) A startup request is issued to UPS 1 from UPS 2.
Operations start for UPS 1 and UPS 2.

2.3.7.2 Linkage operations by schedule management

When scheduling information is set for a UPS within a UPS group, you can startup and shut down all UPS within that group according to the schedule. The following is an example of system configuration.

System configuration

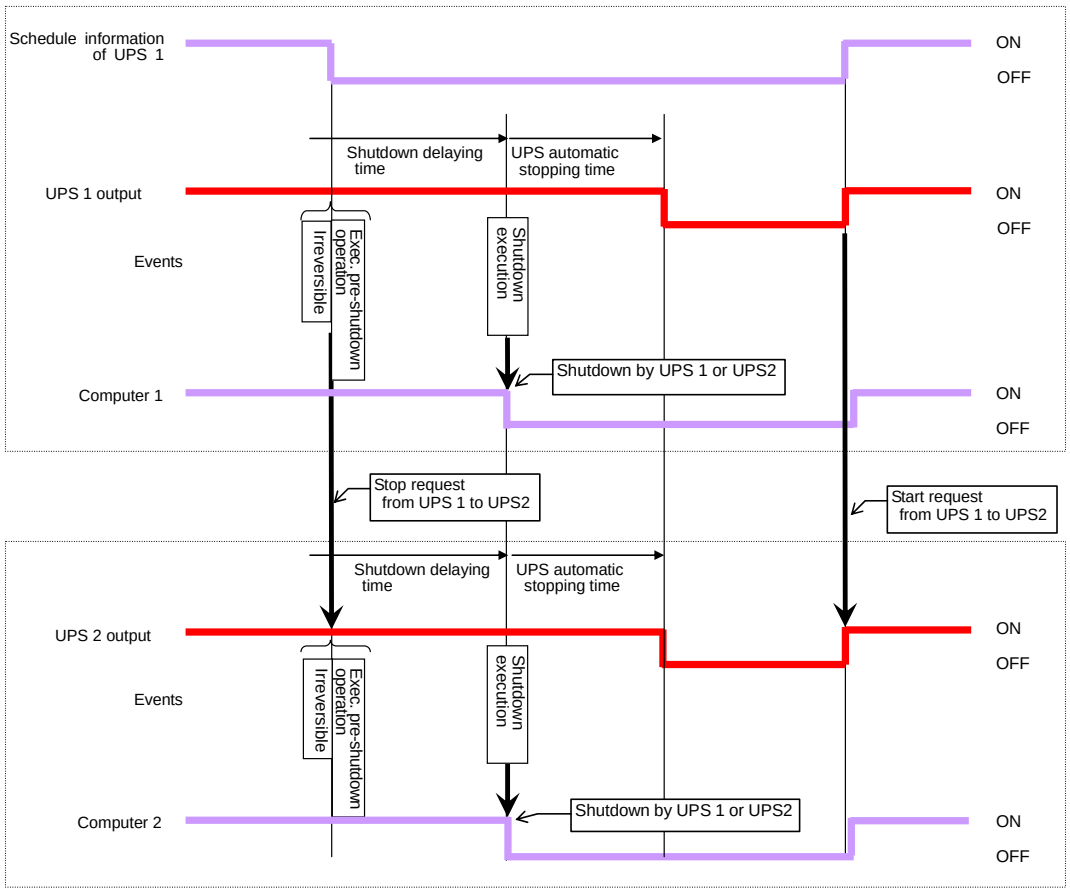


Explanation for the above illustration

- UPS 1 to 2, and computers 1 to 2 are connected to the same network.
- UPS 1 and UPS 2 supply the power to computer 1.
- UPS 2 and UPS 1 supply the power to computer 2.
- UPS 1 to 2 are members of a UPS group.
- Computer 1 as well as computer 2 are set as the shutdown device in UPS 1 and UPS 2.
- "Run in sync at schedule management" is set for "Synchronization setting by causes" in UPS 1 to UPS 2.
- Schedule information for schedule management is set in UPS 1.

Operating startup and shutdown by schedule management

When set so that UPS linkage is performed during schedule management in "Synchronization setting by causes", schedule management is performed for the UPSs for all UPS group members using the scheduling information set in the UPS.



Basic operation

(a) Schedule operation information is set in UPS 1.

(b) A stop request is issued to UPS 2 using the stop schedule in UPS 1.
Power is not restored for UPS 1 and UPS 2, and the pre-shutdown process is executed.
The pre-shutdown process executes processes specified by the user before the shutdown starts.

(c) For UPS 1 and UPS 2, the shutdown starts when the "Shutdown delaying time" elapses.

(d) UPS 1 and UPS 2 shut down after the "UPS automatic stopping time" elapses.

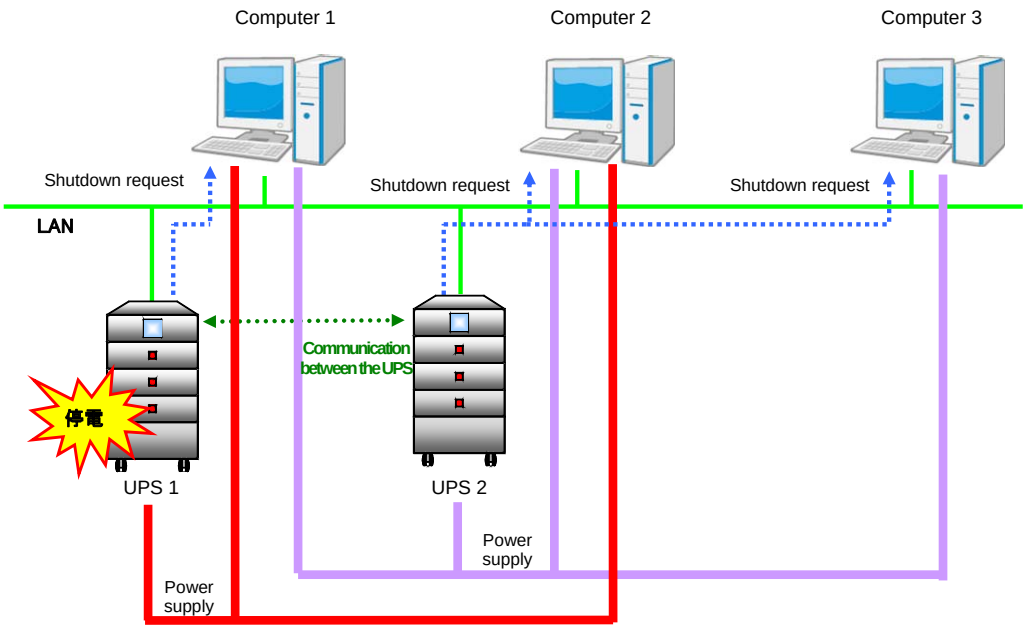
(e) UPS 1 starts up using the start schedule in UPS 1.

(f) A startup request is issued to UPS 2 from UPS 1.
Operations start for UPS 1 and UPS 2.

2.3.7.3 Linkage operations due to error events

When the error events occur in UPSs for UPS group members, such as power failures, malfunctions, deviations in measurement values, and so on, you can shut down all UPSs in the UPS group. You can restart the UPSs by clearing the error event. The following is an example of system configuration.

System configuration

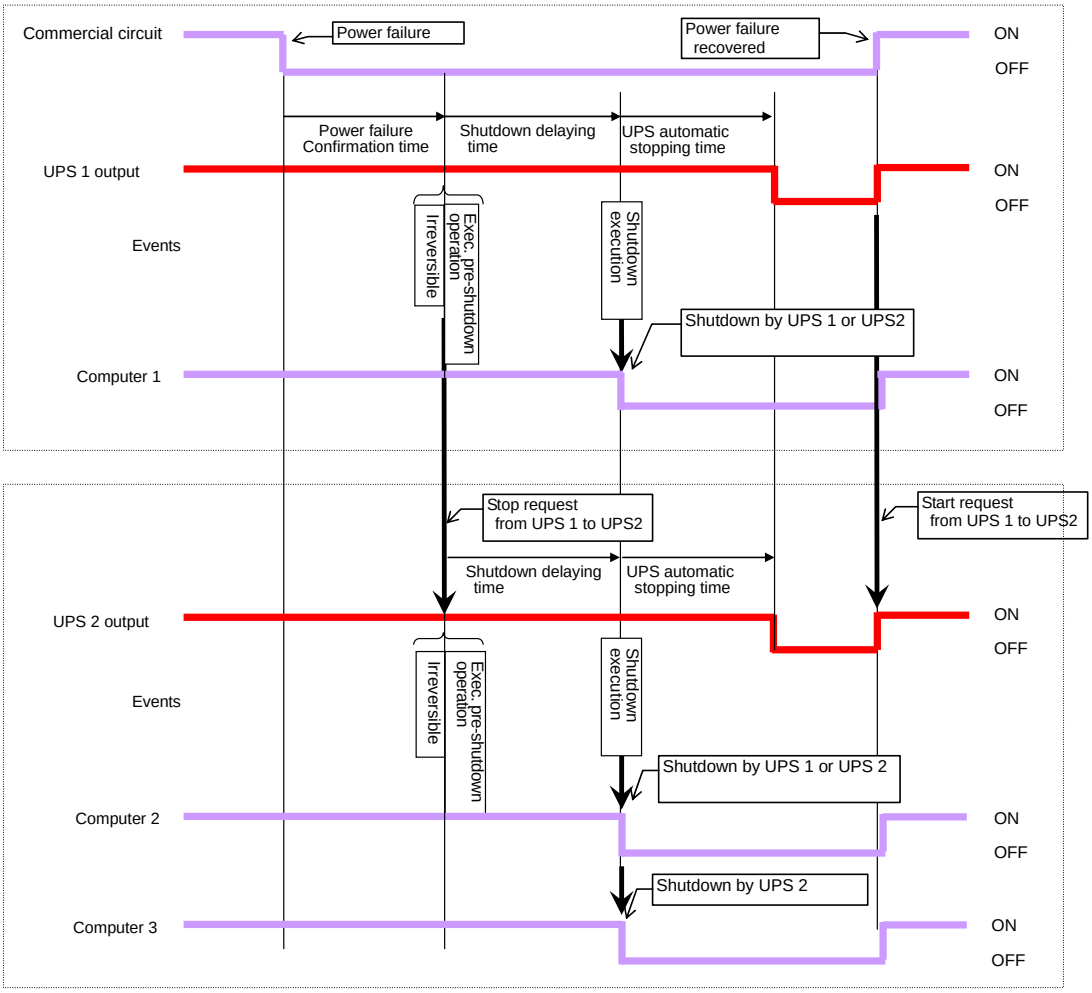


Explanation for the above illustration

- UPS 1 to 2, and computers 1 to 3 are connected to the same network.
- UPS 1 and UPS 2 supply the power to computer 1.
- UPS 2 and UPS 1 supply the power to computer 2.
- UPS 2 supplies the power to computer 3.
- UPS 1 to 2 are members of a UPS group.
- Computer 1 as well as computer 2 are set as the shutdown device in UPS 1 and UPS 2.
- "Synchronization setting by causes" - "Run in sync at a power failure or low battery voltage" is set to "Enable" in UPS 1 to 2.
- "Synchronization setting by causes" - "Power failure occurs, Shutdown execution" is set to "Enable" in UPS 1 to 2.
- "Synchronization setting by causes" - "UPS automatic stop / start operation" is set to "Stop / Start" in UPS 1 to 2.

Starting up and shutting down due to power failure

For "Synchronization setting by causes", when linkage is set if a power failure or low battery voltage occurs, recovery from the power failure cannot be performed for UPSs in the UPS group, and all UPSs in the group are shut down.
When the UPS starts up due to power recovery, all UPS group members startup.



Basic operation

(a) When a power failure occurs, UPS 1 waits for the restoration for the duration specified in "Power failure confirmation time". The following processes do not take place if the power is restored within the "Power failure confirmation time".

(b) After the duration specified in "Power failure confirmation time", UPS 1 determines that the power is not restored, and initiates the pre-shutdown process.
The pre-shutdown process executes processes specified by the user before the shutdown starts.

(c) When power is not restored to UPS 1, it issues a shutdown to UPS 2. Power is not restored for UPS 2, and the pre-shutdown process is executed.

(d) For UPS 1 and UPS 2, the computer shutdown starts when the "Shutdown delaying time" elapses.

(e) UPS 1 and UPS 2 shut down after the "UPS automatic stopping time" elapses.

(f) When UPS 1 recovers from the power failure, it performs startup control.

(g) A startup request is issued to UPS 2 from UPS 1. Operations start for UPS 2.

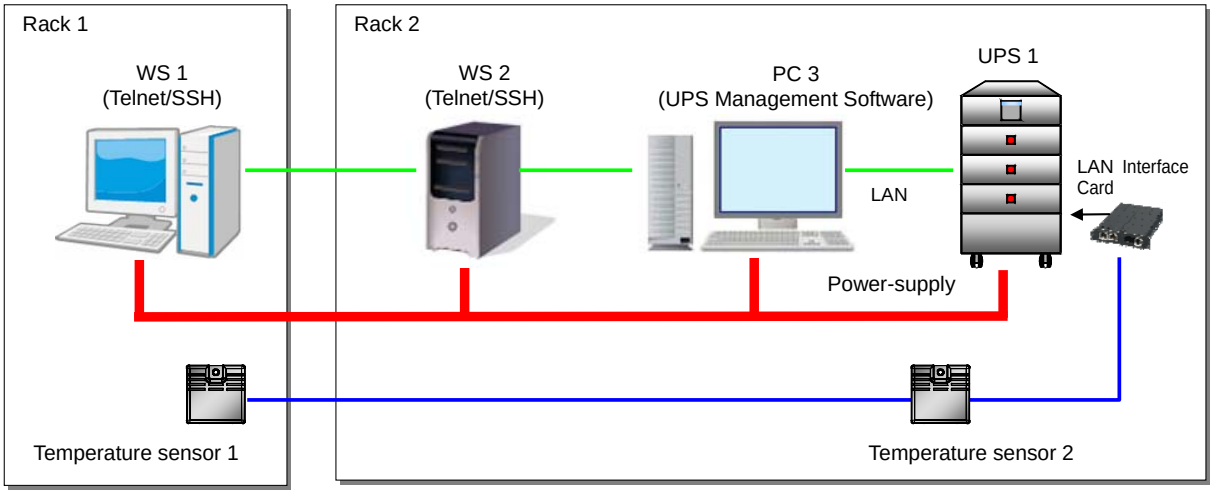
2.3.8 System configuration and operation sequence when connecting a sensor

This section describes examples of system configurations and the operation sequence when a temperature sensor and humidity sensor are connected.

You can connect a sensor if the LAN interface card supports sensors.

2.3.8.1 Configuration with a single UPS

System configuration



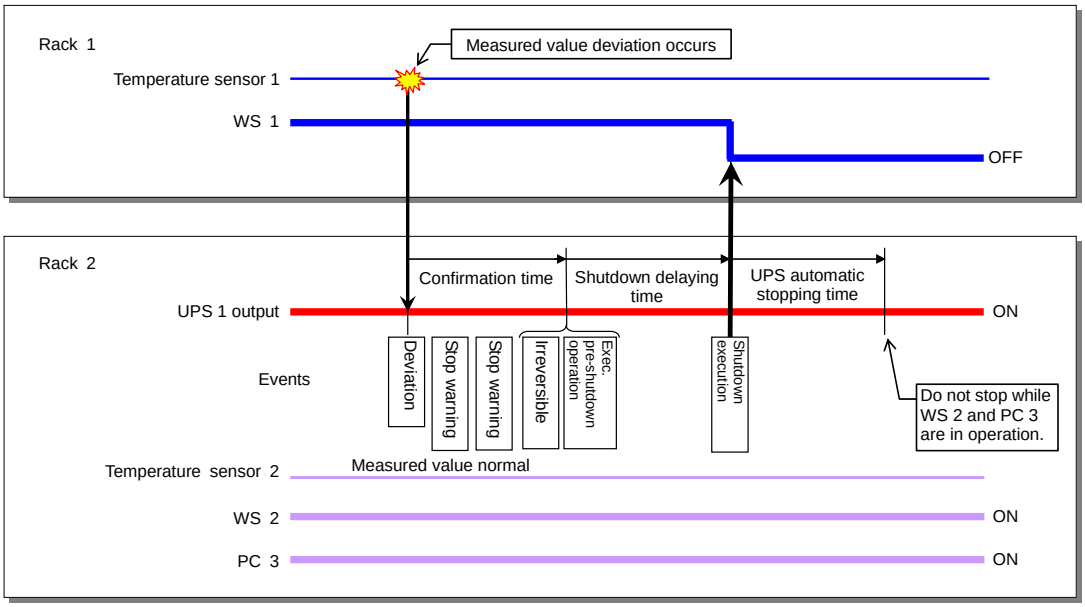
Explanation for the above illustration

- UPS 1 and Computers 1 to 3 are connected to the same network.
- UPS 1 supplies the power to Computers 1 to 3.
- Temperature sensors 1 and 2 are connected to the LAN Interface Card of UPS 1.
- Temperature sensor 1 measures the temperature inside rack 1.
- WS 1 is configured to shut down if the measured values of temperature sensor 1 deviate from the warning level. *1
  When a warning level deviation occurs, WS 1 shuts down.
- Temperature sensor 2 measures the temperature inside rack 2.
- WS 2 and PC 3 are configured to shut down if the measured values of temperature sensor 2 deviate from the warning level. *1
  When a warning level deviation occurs, WS 2 and PC 3 shut down.

*1 Operation settings when a deviation occurs

When you perform sensor deviation monitoring, select "Shutdown upon deviation" from the measured value administration function, and then select the device in "Devices to be shut down" that you want to shutdown when a deviation occurs. If you do not select a device in which a deviation in measurement values occurs, shutdown is not performed.

(1) Operation sequence in the event of temperature sensor 1 measurement value deviation



Basic operations

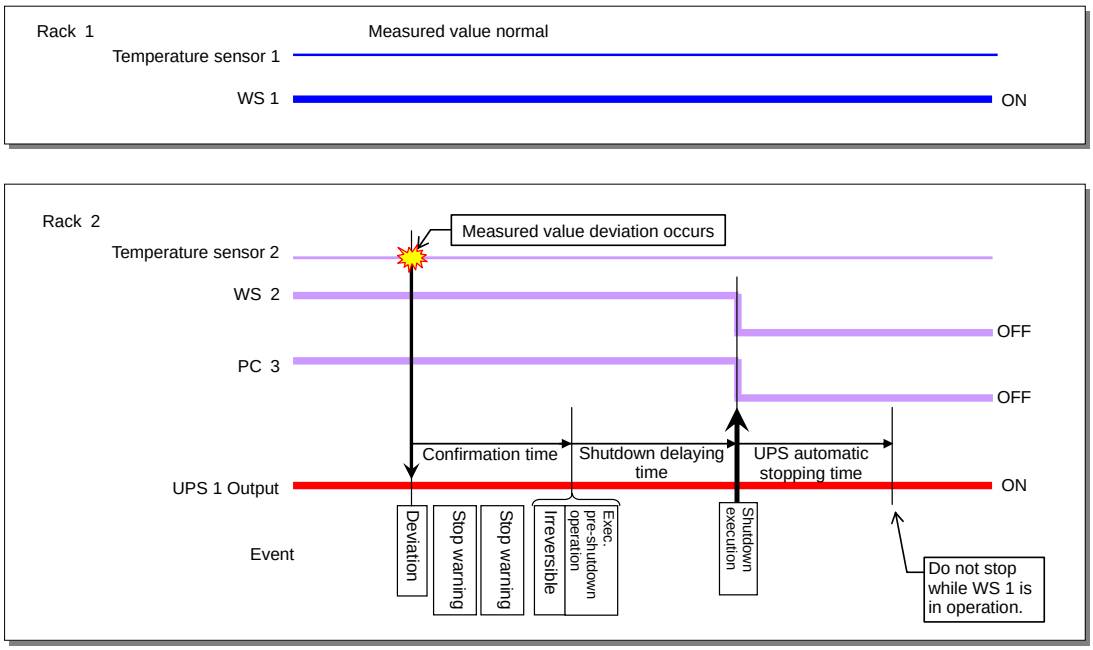
(a) If the measurement value of temperature sensor 1 deviates from the warning level, the UPS waits for the recovery for the designated Confirmation time.

(b) When the Confirmation time elapses, the UPS determines that the power is not restored, and initiates the pre-shutdown process. The pre-shutdown process executes processes specified by the user before the shutdown starts.

(c) Shutdown of WS 1 starts when the Shutdown delaying time elapses.

(d) UPS 1 continues its operations and supplies the power to WS 2 and PC 3.

(2) Operation sequence in the event of temperature sensor 2 measurement value deviation



Basic operations

(a) If the measurement value of temperature sensor 2 deviates from the warning level, the UPS waits for the recovery for the designated Confirmation time.

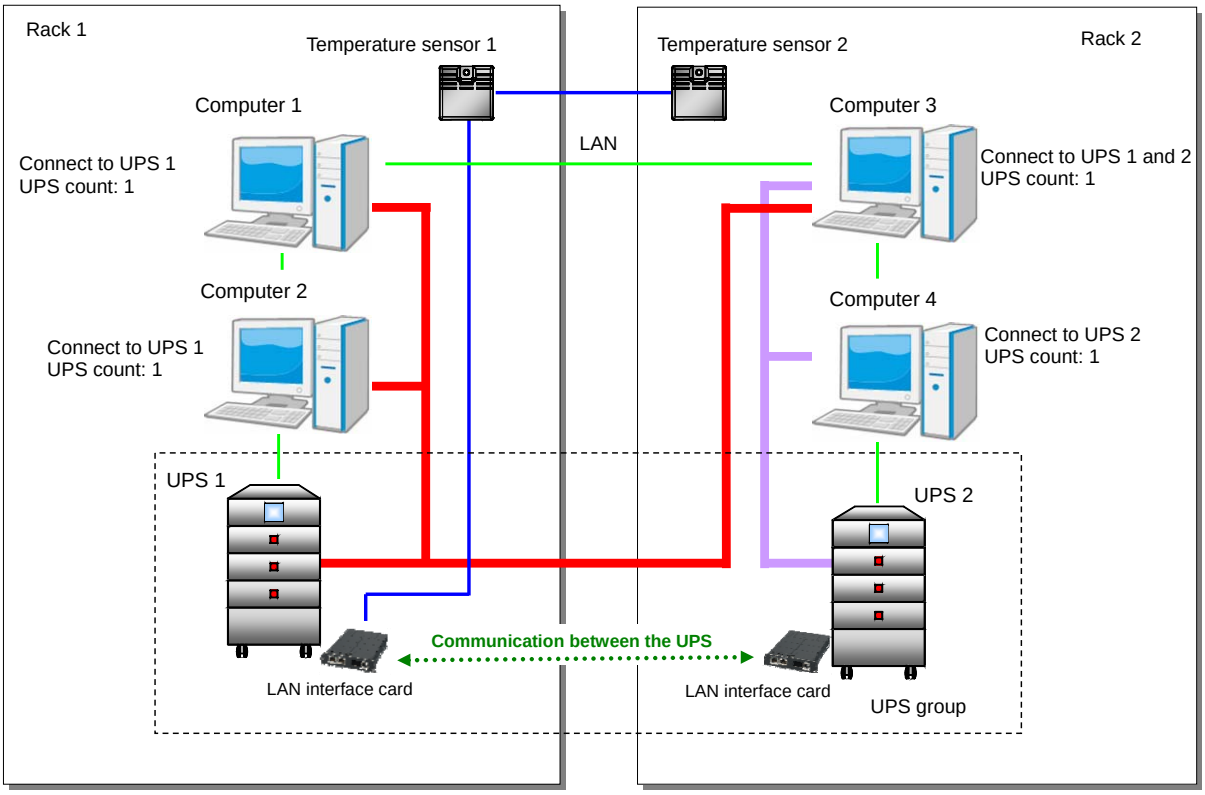
(b) When the Confirmation time elapses, the UPS determines that the power is not restored, and initiates the pre-shutdown process. The pre-shutdown process executes processes specified by the user before the shutdown starts.

(c) Shutdown of WS 2 and PC 3 starts when the Shutdown delaying time elapses.

(d) WS 1 continues its operations by the power supply from UPS 1.

2.3.8.2 Configuration with multiple UPSs

System configuration



Explanation for the above illustration

- UPSs 1 and 2, and Computers 1 to 4 are connected to the same network.
- UPS 1 supplies the power to Computers 1 to 3.
- UPS 2 supplies the power to Computers 3 and 4.
- Temperature sensors 1 and 2 are connected to the LAN Interface Card of UPS 1.
- Temperature sensor 1 measures the temperature inside rack 1.
- Computers 1 and 2 are configured to shut down if the measured values of temperature sensor 1 deviate from the warning level. *[1] When a warning level deviation occurs, computers 1 and 2 shut down.
- Temperature sensor 2 measures the temperature inside rack 2.
- Computers 3 and UPS 2 are configured to shut down if the measured values of temperature sensor 2 deviates from the warning level. *[1] When a warning level deviation occurs, computers 3 and 4(shutdown by UPS 2) and UPS 2 shut down.
- UPSs 1 and 2 are registered as the UPS group members.
- The necessary number of UPS is set to 1 on Computers 1 to 4.
- UPSs 1 and 2 are configured to "Stop/Start" in the event of a deviation.

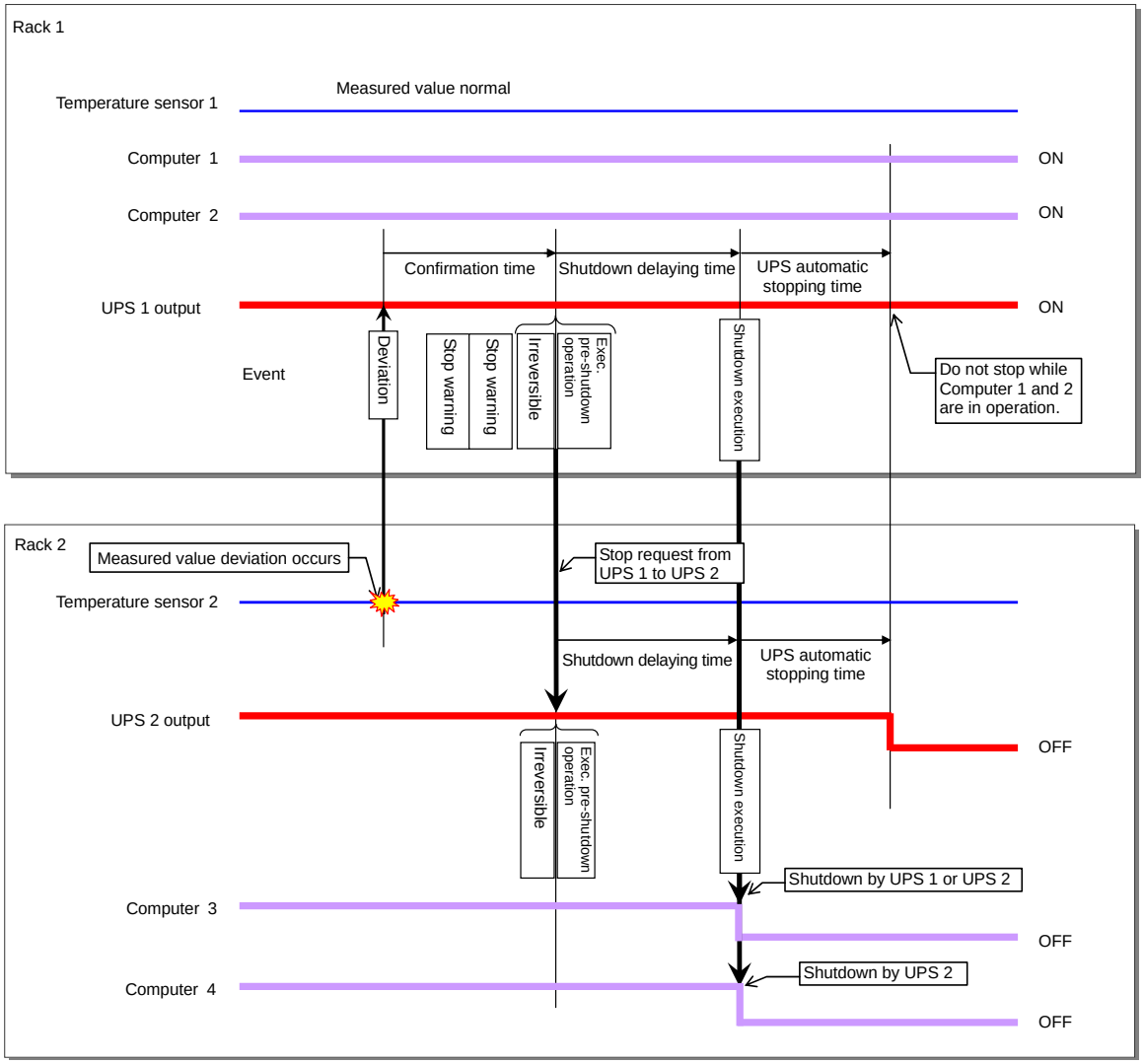
*[1] Operation settings when a deviation occurs

When you perform sensor deviation monitoring, select "Shutdown upon deviation" from the measured value administration function, and then select the device in "Devices to be shut down" that you want to shutdown when a deviation occurs. (When you select UPS, all devices connected to the UPS are shut down.)
If a device that is not selected generates a deviation in measurement values, shutdown is not performed.
Also, "UPS automatic stop / start operation" can be set for each sensor. (This configuration is operation settings for UPS 1.)

Network environmental conditions, etc.

- Network devices such as routers and hubs should be covered by the UPS. The UPS linkage function does not operate correctly in an environment where network devices are unavailable in power failures.
- Other network environmental conditions are the same as "Network environmental conditions, etc." from "2.3.2 System configuration with a single UPS".

Operation sequence in the event of temperature sensor 2 measurement value deviation



Basic operations

(a) If the measurement value of temperature sensor 2 deviates from the warning level, UPS 1 waits for the recovery for the designated Confirmation time.

(b) When the Confirmation time elapses, UPS 1 determines that the power is not restored, initiates the pre-shutdown process, and sends a stop request to UPS 2.
The pre-shutdown process executes processes specified by the user before the shutdown starts.

(c) Shutdown of Computers 3 and 4 starts when the Shutdown delaying time elapses.

(d) UPS 2 shuts down after the UPS automatic stopping time elapses.

(e) Computers 1 and 2 continue their operations.

(f) UPS 1 executes the shutdown processes after the UPS automatic stopping time elapses; however, it continues operations without stopping because Computers 1 and 2 are still running.

Caution

When measured value deviation recovers, if startup request cannot be issued to UPS 1 from UPS 2, UPS 2 remains stopped.

3. PREPARATION

3.1 Checking the UPS

Check and perform the following items.

(1) Have you installed and connected the LAN interface card correctly in the UPS?

Refer to the manual supplied with the LAN interface card for information on how to install the LAN interface card.

(2) Have you configured the interface setting of the UPS to use the LAN interface card?

Configure the interface setting to "W/S mode" when using the LAN interface card. Refer to the UPS manual for details.

⇩

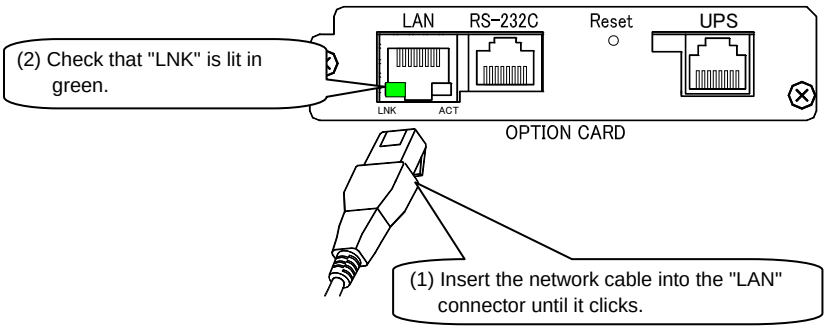
Start up the UPS. Refer to the UPS manual for information on how to start up.

3.2 Connecting the Network Cable

Connect the network cable to the UPS.

(1) Insert the network cable into the "LAN" connector on the LAN interface card in the UPS.

(2) Check that the connection status LED "LNK" is lit in green.



Caution

- Do not force the network cable or the connector, or push them hard when connecting.
- Take care not to catch the cable in the front panel or the front door if you have installed the LAN interface card on the front panel or inside the front door of the UPS.

3.3 Configuring Network Addresses

These tasks are not required if you have already configured IP addresses following the manual supplied with the LAN interface card.

Configure the network addresses to make the UPS one of your networked devices.*1
Specify an IPv4 address or IPv6 address, or both of them, and enable or disable the IP address(es) using the web management tool or terminal tool.

The IP addresses are set as follows when shipped from the factory.
Modify it to an IP address according to your environment. It is recommended to record the IP address in the following table.

IPv4 address: **192.168.1.1**

Fixed IP address		Assigned by DHCP *2	
IP address		Assigned IP address	
Subnet mask			
Default gateway			
DNS server address			

IPv6 address: **Not set**

IP Address *3	
IP address	
Prefix length	
Default gateway	
DNS server address	
Link local address *4	

You can modify IP addresses by one of the following methods. Modify using a method suitable to your environment. *5

1. Use terminal software and modify by connecting to the "LAN interface connector" on the UPS.

⇨ See "12. Configuring Network Addresses" in the instruction manual included in the LAN Interface Card.

2. Use Telnet or a web browser, and modify via the network.

⇨ Go to "3.3.1 Configuring via the network".

Caution

*1. If you have a device whose address is the same as the UPS's default address in your network, configure the address using the "serial interface connector" or connecting the UPS and computer directly with a crossover LAN cable.
*2. If you have specified the IP address to be assigned by DHCP, be sure to check if the IP address has been correctly assigned by the DHCP server after restarting the LAN interface card. You cannot shut down the UPS properly in the event of a power failure if the IP address is not correctly assigned.
*3. IP address assignment from a DHCP server is not supported when using an IPv6 address.
*4. This is assigned automatically based on the MAC address. This cannot be configured by the user.
*5. If you cannot communicate with the UPS via the network, use the "serial interface connector" to configure the address.

3.3.1 Configuring via the network

(1) Check if your PC can communicate with the UPS over TCP/IP to use Telnet or a web browser.

Example) Test if you can communicate with the UPS using a ping command.
C:¥>Windows>ping 192.168.1.1

If you cannot

Go to Step (2) and modify the network environment to enable communication.

If you can

Go to Step (4) and modify the IP address of the UPS.

(2) Run the following command from the Command Prompt on the PC.

route add 192.168.1.1 MASK 255.255.255.255 <IPv4 address of the PC>

Caution

This example assumes a Windows environment. Replace the network commands to respective ones for UNIX/Linux environments.

Example) Assuming the computer's IP address is 172.30.1.10
C:¥>Windows>route add 192.168.1.1 MASK 255.255.255.255 172.30.1.10
C:¥>Windows>

This enables communications with the UPS. Undo the change in Step (5) after modifying the IP address.

(3) Test if you can communicate with the UPS using a ping command.

(4) Modify the IP address of the UPS.

Refer to "12. Configuring Network Addresses" in the manual supplied with the LAN interface card if you are modifying the IP addresses by logging in to the UPS from a Telnet terminal.
See "5.2.1 Configuring the network" if you are modifying using a web browser.

(5) Revert the changes you made in the network environment in Step (2).

Run the following command from the Command Prompt on the PC.

route delete 192.168.1.1

The above changes make the UPS available in your network environment. Configure functions and operations for the UPS using the web management tool or terminal tool.

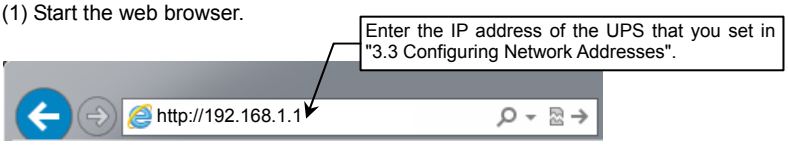
4. BASIC SETTINGS WITH THE WEB MANAGEMENT TOOL

You can configure various functions using the web management tool.

You can configure how to shut down devices connected to the UPS in basic settings. See "5. DETAILED SETTINGS WITH THE WEB MANAGEMENT TOOL" for information on how to configure other functions.

4.1 Starting the Web Management Tool from a Web Browser

(1) Start the web browser.



(2) Enter the IP address of the UPS in the "address bar" of the web browser and press "Enter".

Point

If you use the IPv6 address,
Enter “http://[IPv6 address]”

You can enter the address bar in the form of the following table.

The following table provides an example input address.

Example of a UPS address	About display of Web management tool
http://UPS address	Starting the Java Web Start. Display in a separate screen from the Web browser.※1, ※2, , ※5
http://UPS address/index.html	Starting the Java applet in Web browser. ※3, , ※4
http://UPS address/index.htm	Starting the Java applet in Web browser. ※3, , ※4

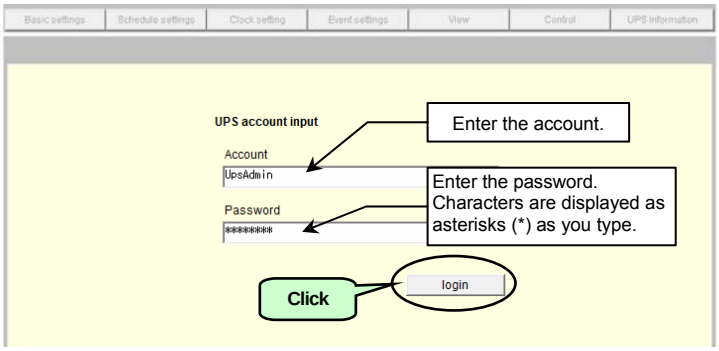
※1About starting the Web Management tool with Java Web start

If you enter the UPS address in the address bar, "Do you want to open or save SyWebTool.jnlp?" message appears.
Select the [Open]. The Web Management tool is started.
(The messages that are displayed depend on your Web browser.)

Start a program using "SyWebTool.jnlp" file

The message appears "Do you want to open or save SyWebTool.jnlp?", and you can save the SyWebTool.jnlp file on your computer. You can also use the SyWebTool.jnlp file on your computer to start the Web Management tool. (By using Explorer etc.)
You can use the SyWebTool.jnlp file by renaming the file.(File extension:jnlp cannot be changed)

When the Web Management tool is started, the screen below is displayed.



(3) Check the characters to be entered in the following table and enter the account and password in single-byte characters using the keyboard.

(4) Click the [OK] button.

You can log in either as the administrator or as a user.

The following table describes the default values for account information.

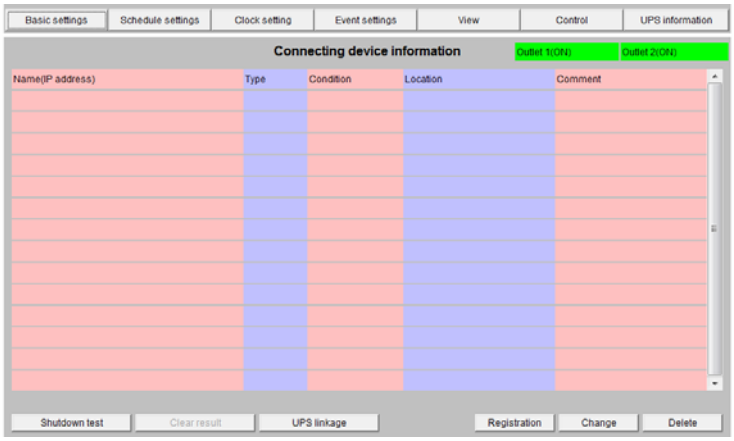
	Administrator	User
Account	UpsAdmin	User
Password	UpsAdmin (case sensitive)	User (case sensitive)
Privileges	Allowed to configure and browse all information.	Allowed to browse UPS information, event logs, and part of the setting information.

Caution

Use the user account when disclosing UPS information to users other than administrators.
You can modify the account information. See "5.2.2 Modifying login accounts on the UPS".

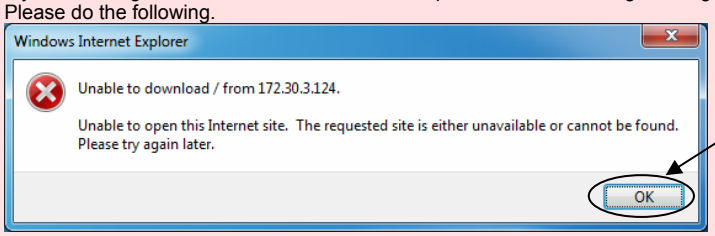
The web management tool "main screen" is displayed if account authentication is successful.

See "4.2 Main Screen and Menu Functions" for details on functions on the "main screen."



※2 When using Internet Explorer, displays message of "Unable to download".

If you are using an older version than Internet Explorer 11, the following message may be displayed on Web browser.
Please do the following.

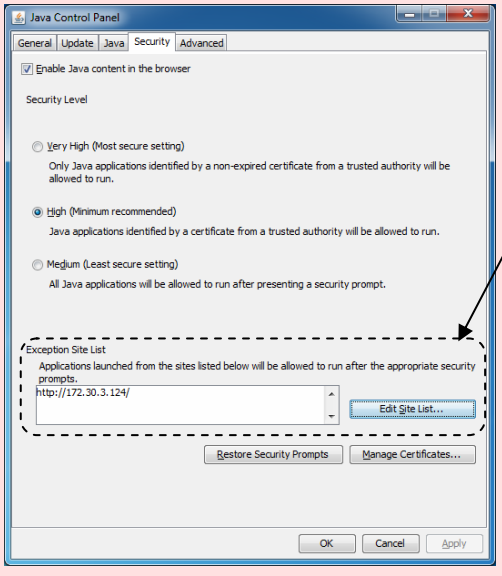


Click [OK] button, close this message.

Next, don't close the Web browser, enter the IP address of the UPS in the "address bar" and press "Enter".

※3 On startup, displays message of “Application Blocked by Security Settings”

Start the [Configure Java] from the Start menu, the following [Java Control Panel] is displayed
Register the UPS address in “Exception Site List” in "Security" tab.

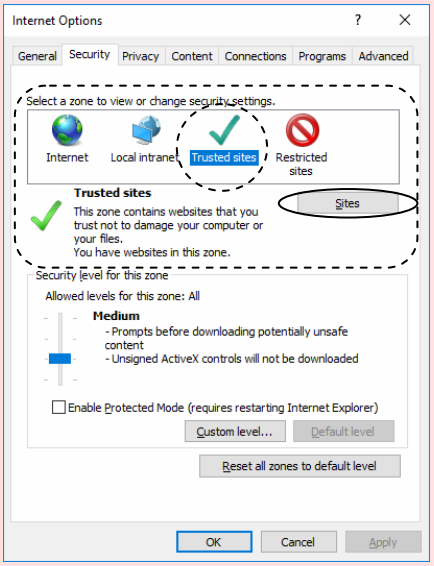


The figure on the left is an example of Java 7's [Java Control Panel]-[Security] screen.
The "Exception Site List" registers the UPS address (172.30.3.124).

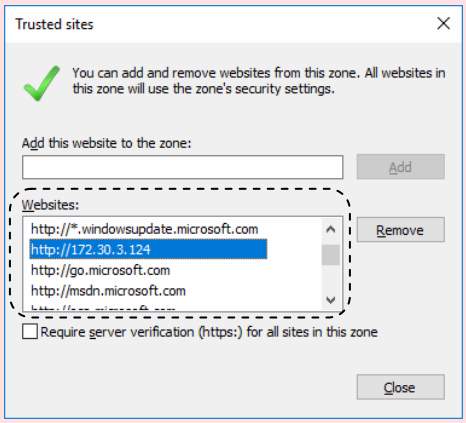
(Note)
Depending on the version of Java, there are differences in the contents of the screen of the Java Control Panel.

※4 On startup, displays message of “An add-on for this website failed to run.”

Open "Internet Options" on the web browser.
Select “Trusted sites” from “Select a zone to view or change security settings.” on the “Security” tab.
Register theUPS address in "Trusted sites".



Click



Register theUPS address.

※5 When you startup from Java Web Start, displayed a security message on your Web browser.

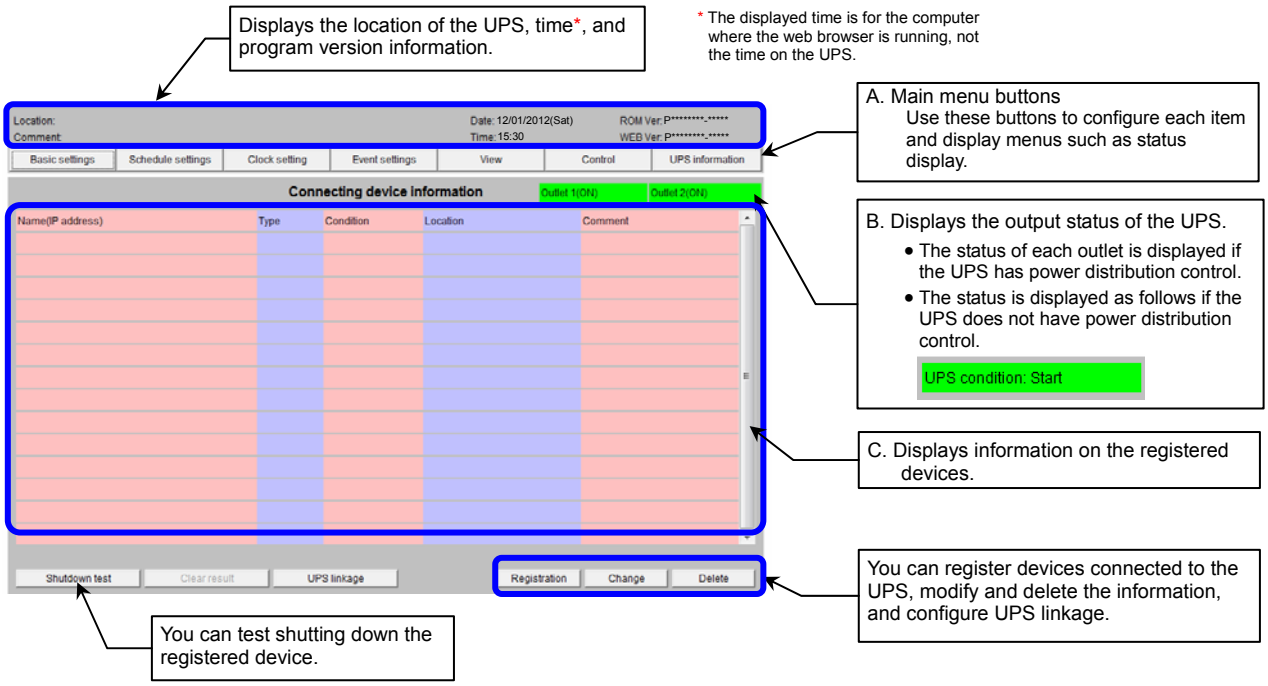
When you start the Web Management Tool by using Java Web Start, the following messages may be displayed.

- Windows cannot access the specified device, path, or file. You may not have the appropriate permission to access the item.
- Your current security settings do not allow this file to be downloaded.

In this case, please refer to the above the *4 " On startup, displays message of “An add-on for this website failed to run.”" and register the address of the UPS.

4.2 Main Screen and Menu Functions

Main screen of the web management tool (assuming a UPS with power distribution control.)



The item in pink is available when the LAN interface card supports sensors and a sensor is connected.

A. Functions of the main menu

The following table describes functions of the main menu.

Menu/button	Function name	Description
Basic settings	Basic settings	You can configure network information for the UPS.
	UPS settings	You can configure time settings for operations such as shutdown, and configure operations at a power failure.
	Output power distribution information	You can specify the delay for turning ON and OFF the power distribution output. This function is available if the UPS is equipped with power distribution control.
	Service settings	You can configure service settings such as SNMP, Telnet, or SSH.
	Account settings	You can modify accounts to log in to the UPS.
	E-mail settings	You can configure the e-mail server.
	Syslog notification	You can configure the conditions to notify the event log to the Syslog server.
	Meas. manage	You can configure the values to be measured by the UPS.
Schedule settings	Operation schedule settings	You can enable or disable scheduled operations.
	Schedule settings for a specified date	You can configure the schedule for a specific date.
	Weekly schedule settings	You can configure weekly schedule settings.
	Scheduled confirmation	You can display the time chart of the configured schedule.
Clock setting	Clock setting	You can set the clock on the UPS.
Event settings	Event-log settings	You can configure event log recording.
	Condition of WS script execution	You can enable or disable WS script execution.
	Edit of WS script	You can edit WS scripts.
	WS script send confirmation	You can confirm that the WS script has been executed.
	SSH authentication settings	You can configure SSH authentication for devices on SSH connection.
	Condition of E-mail sending	You can configure the conditions to send e-mails.
	E-mail address settings	You can configure recipients' addresses.
	E-mail send confirmation	You can confirm transmission of e-mails.
View	UPS real-time view	You can display the UPS status and measurement values
	Event-log view	You can display the event log recorded in the UPS.
	Sensor meas. value	You can display the sensor status and measurement values.
Control	UPS start up	You can turn the UPS ON.
	UPS stop	You can turn the UPS OFF.
	Start battery check	You can start a battery check.
	Stop battery check	You can stop the battery check.
UPS information	UPS information	You can display information for the UPS.

B. UPS output status display

The following information is displayed depending on the type of UPS.

The UPS status is displayed if the UPS is not equipped with power distribution control.

Status display	Description
Start	The UPS output is ON.
Stop	The UPS output is OFF.
Power failure	A power failure is taking place.
Breakdown	The UPS has a fault.
Overload	The UPS has overload.

The status of outlet 1 (OUTPUT1) and outlet 2 (OUTPUT2) is displayed if the UPS has power distribution control.

Status display	Description
Outlet 1 (ON)	Output of outlet 1 (OUTPUT1) is ON
Outlet 2 (ON)	Output of outlet 2 (OUTPUT2) is ON
Outlet 1 (OFF)	Output of outlet 1 (OUTPUT1) is OFF
Outlet 2 (OFF)	Output of outlet 2 (OUTPUT2) is OFF

C. Connecting device information

The following table describes the "types" of registered devices that are displayed in connecting device information.

Type	Device type	Remark
PC	PC (network connection)	UPS management software operating PC
PC (S)	PC (LAN I/F card contact connection)	*1
WS	WS (network connection)	UPS management software operating WS
WS (S)	WS (LAN I/F card Log-in connection)	*1
WS (T)	WS (Telnet)	
WS (SSH)	WS (SSH)	
ETC	Other devices	*1

The following table describes the [Condition] of registered devices that are displayed in [Connecting device information].

Operational status	Description
Operating	The device is started.
Error	The device is started. In case of normal communication of between UPS and UPS management program is not established, or UPS management program is stopped.
Stop	The device is stopped.
Shutting down	The device is being shut down.

Caution

- See "5.1.5 Performing a shutdown test for the registered devices" for the displayed status of devices which are being shut down.
- The start and stop status displayed in [Condition] varies depending on the device types.

*1 PC(S) devices, WS(S) devices and ETC devices
- The UPS output is ON : Start
- The UPS output is OFF: Stop

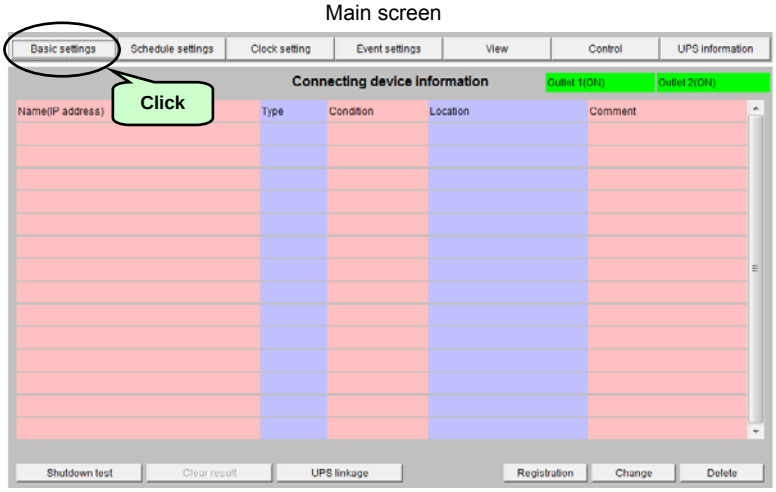
4.3 Basic Settings for Shutting Down Devices

This section describes basic settings for shutting down devices connected to the UPS. Devices can be shut down once these settings are completed.

4.3.1 Configuring UPS operations

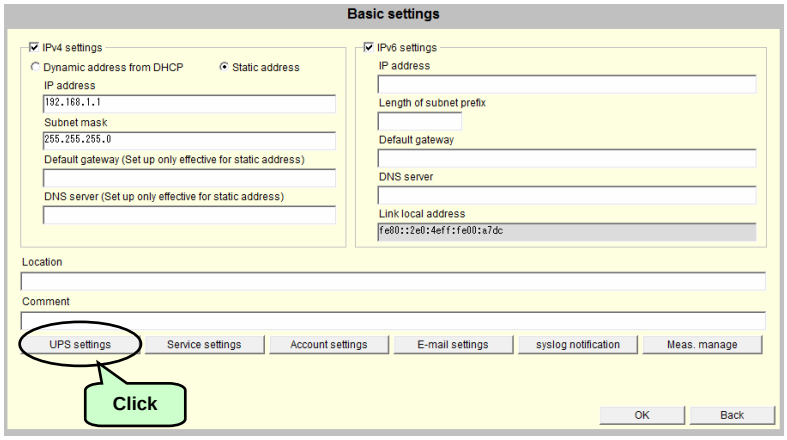
Configure as follows.

Main screen



(1) Click the [Basic settings] button on the main screen.

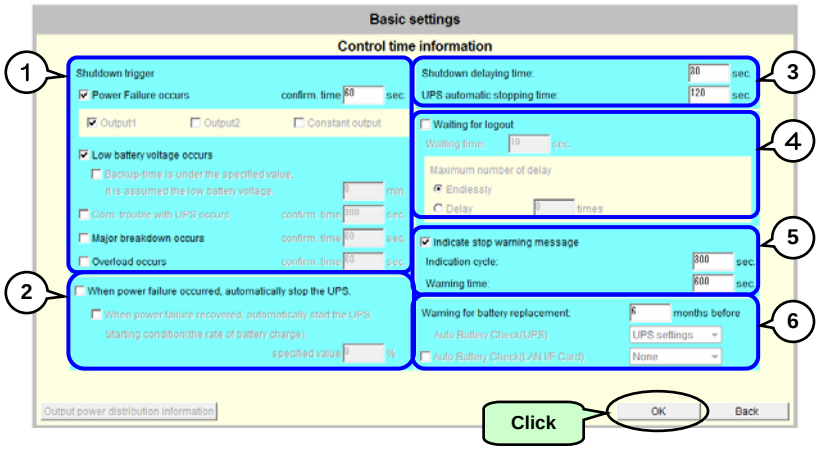
The [Basic settings] screen is displayed.



(2) Click the [UPS settings] button on the basic settings screen.

The [Control time information] screen is displayed.

The following screenshot is for UPS with power distribution control.



Configure the UPS operations from this screen.

(3) Select or enter values into each item. See the table of setting items on the next page for details.

(4) Click the [OK] button.

Setting items for [Control time information]

No.	Displayed item	Description	Default value
1	Shutdown trigger	Specify the condition of a shutdown and the confirmation time. *1	
	Power failure occurs	Select to shut down in the event of a power failure. *4	Selected
		Confirmation time: Settable range from 10 to 65535 (seconds)	60 sec.
	Low battery voltage occurs	Select to shut down in the event of low battery detection. *4	Selected
	Backup-time is under the specified value, it is assumed the low battery voltage *2	Specify the condition to determine low battery.	Not selected
		Confirmation time: Settable range from 2 to 999 (minutes) Zero minutes when low battery voltage occurs.	0 min.
	Com. trouble with UPS occurs	Not supported	—
	Major breakdown occurs	Select to shut down in the event of a major breakdown. *5	Not selected
		Confirmation time: Settable range from 10 to 65535 (seconds)	60 sec.
	Overload occurs	Select to shut down in the event of an overload. *6	Not selected
		Confirmation time: Settable range from 10 to 65535 (seconds)	60 sec.
2	When power failure occurred, automatically stop the UPS.	Specify whether or not to shut down the UPS in the event of a power failure. *1, *7	Not selected
	When power failure recovered, automatically start the UPS.	Specify whether or not to restart UPS output (start up the UPS) when the power is restored. *1, *7	Not selected
	Starting condition (the rate of battery charge).	The UPS output is turned ON when the battery is charged to the specified value if you have specified to "Start" the UPS after the power is restored. (You cannot set this value if the UPS does not support this function) The UPS output is turned ON immediately after the power restoration if you specify 0%. Settable range: 0 to 100 (%)	0%
3	Shutdown delaying time	Specify the duration between entering an irreversible status due to a certain shutdown trigger and starting to shut down. This duration is for the pre-shutdown process. *1 Settable range: 0 to 65535 (seconds)	30 sec.
	UPS automatic stopping time	Specify the delay time after the shutdown delay time has elapsed and started to shut down before shutting down the UPS. Specify enough time to shut down all registered devices. *1 Settable range: 0 to 65535 (seconds)	120 sec.
4	Waiting for logout	Specify whether or not to delay the shutdown process while the users are logging out in the event of a scheduled shutdown or remotely controlled shutdown. This setting value is applied on PCs and WS where the UPS management software is running. (Refer to the User Guide of the UPS management software for details.)	None
	Waiting time	Specify the shutdown delay time if you have enabled the delay. The shutdown process commences after the duration of (Waiting time x Maximum number of delay).	
	Maximum number of delay		
5	Indicate stop warning message	Specify whether or not to display the shutdown warning message in the event a power failure occurs or a scheduled shutdown.	Display
	Indication cycle	Specify the interval to display the shutdown warning message. Settable range: 20 to 65535 (seconds)	300 sec.
	Waiting time	Specify when to display the warning message for a scheduled shutdown. Settable range: 20 to 65535 (seconds)	600 sec.
6	Warning for battery replacement	Specify when to display a warning message indicating the number of months before the battery replacement time.*3 Settable range: 1 to 12 (months)	6 months
	Auto Battery Check(UPS)	Specify whether or not to perform automatic battery checks, and the interval. Specify the interval if the UPS supports automatic battery check. Settable values: Select from 30 days, 90 days, and 180 days	180 days
	Auto Battery Check(LAN I/F Card)	Select if your UPS supports battery check but does not support automatic battery check, and then specify the interval. Settable values: Select from 30 days, 90 days, and 180 days	Not selected

*1 See "2.3.3. Operation sequence with a single UPS" for UPS operations.
*2 This item may not function correctly since the value of the backup time is not accurate if the load factor is low. Do not select this item if the load factor becomes lower than 30%.
*3 The message is displayed on the computer where the UPS management software is running.
The battery replacement notification is a rough indication. The replacement time may come earlier depending on the operating environment.

About setting transmission when using the UPS linkage function

*4. When "Run in sync at a power failure or low battery voltage" is selected in "Synchronization setting by causes" from "5.10.1 Configuring UPS groups", settings are sent to all grouped UPSs, and the settings are replaced. The setting for confirmation time is not sent to the other UPSs. Operates at the value set for each UPS.
*5. When "Run in sync at a major breakdown" is selected in "Synchronization setting by causes" from "5.10.1 Configuring UPS groups", settings are sent to all grouped UPSs, and the settings are replaced. The setting for confirmation time is not sent to the other UPSs. Operates at the value set for each UPS.
*6. When "Run in sync at an overload" is selected in "Synchronization setting by causes" from "5.10.1 Configuring UPS groups", settings are sent to all grouped UPSs, and the settings are replaced. The setting for confirmation time is not sent to the other UPSs. Operates at the value set for each UPS.
*7. When "Run in sync at a power failure or low battery voltage" is selected in "Synchronization setting by causes" from "5.10.1 Configuring UPS groups", settings are sent to all grouped UPSs, and the settings are replaced.
*8. If you change the above *4 to *7, corresponding setting values on "Synchronization setting by causes" screen will also be changed.

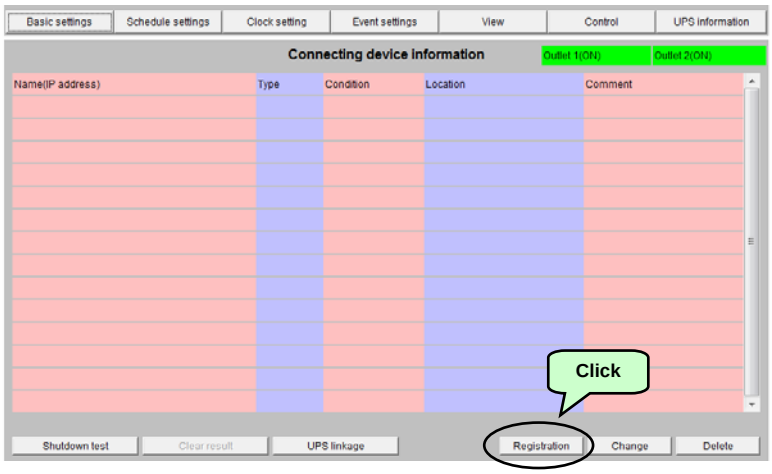
The outlet number to shut down in the event of a power failure.

- You can specify whether or not to shut down **OUTPUT1, OUTPUT2,** and **Constant output** in the event of a power failure separately if your UPS is capable of power distribution control. You can only specify **OUTPUT1** if your UPS does not support power distribution control.
  (You cannot specify OUTPUT2 and Constant output.)
- If you have selected [Power Failure occurs] in [Shutdown trigger], selected outlets wait for the power to be restored for [Power failure confirmation time] in the event of a power failure. If the power is not restored, they will assume the power cannot be recovered and commence the shutdown process. Outlets that are not selected do not determine the power cannot be recovered until the UPS outputs low battery voltage signals. (They do not determine whether the power can be restored based on "Power failure confirmation time".)
  If you want to run the computers as long as possible after a power failure, you can delay the shutdown process by configuring as above.

4.3.2 Registering devices to shut down to the UPS

You can register the information of devices connected to the UPS.
This section assumes WS to which the UPS logs in via Telnet and shuts down.
See "5.1.1 Registering devices on the UPS" for information on how to register devices other than WS.

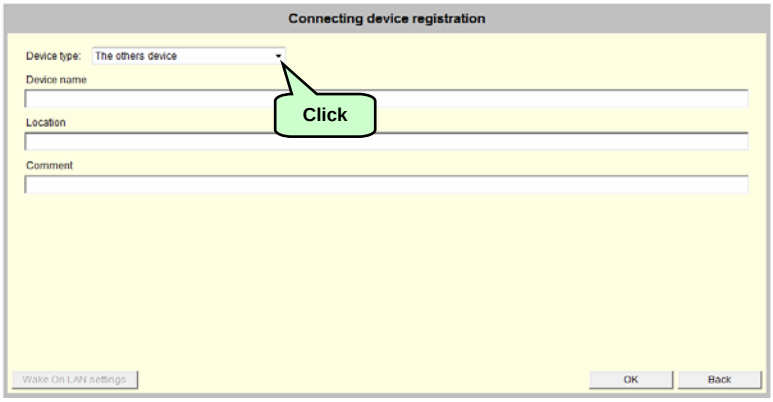
Main screen



(1) Click the [Registration] button on the main screen.

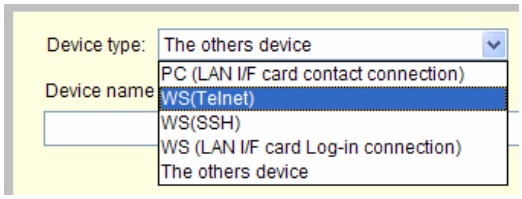
This screenshot is the initial screen before registering any devices.

The [Connecting device registration] screen is displayed.



(2) Click [Device type▼].

A list of devices that can be registered is displayed.



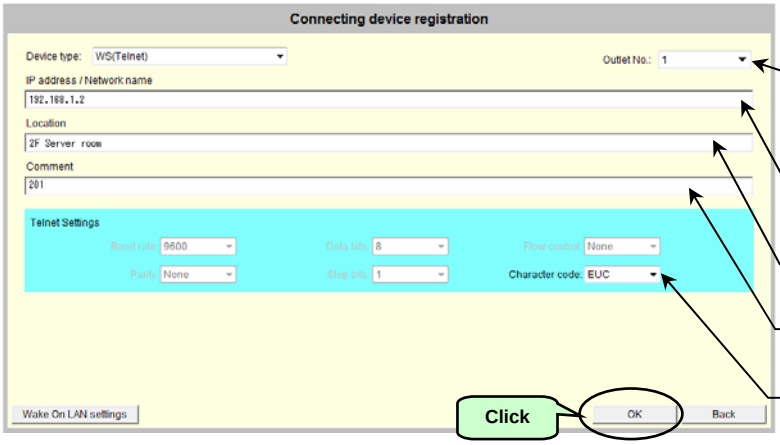
(3) Select [**WS(Telnet)**].

Caution

Select the device that you want to register.

The screen to register WS (Telnet) is displayed.

(4) Enter the WS information



Select outlet No.
This selection is available if the UPS is equipped with power distribution control. Select the outlet number on the UPS to which the device is connected. (Required)

IP address / Network name
Enter the IP address or the network name of the WS you are registering. (Required)

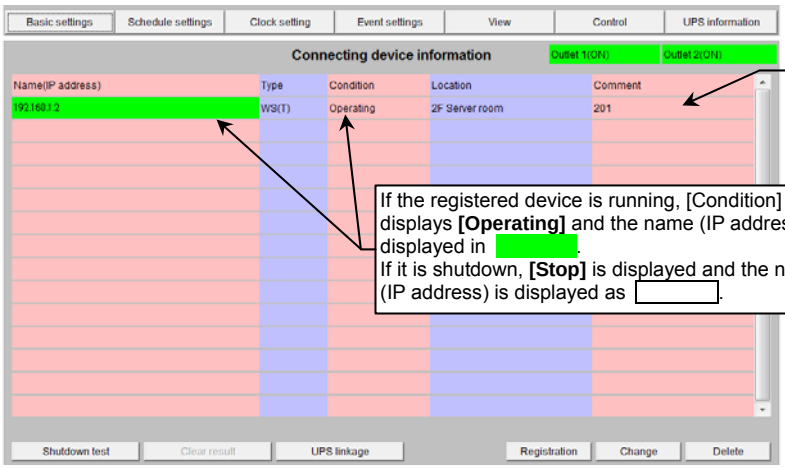
Location
Enter the location of the WS. (Optional)

Comment
Enter a comment about the WS. (Optional)

Character code
Select the character code available on the WS.

(5) Click the [OK] button.

The device is registered and the main screen is displayed again.



The registered device appears on the main screen.
The screenshot shows the following WS.
IP address: 192.168.1.2
Location : 2F Server room
Comment : 201

If the registered device is running, [Condition] displays **[Operating]** and the name (IP address) is displayed in .
If it is shutdown, **[Stop]** is displayed and the name (IP address) is displayed as .

(6) Check the registered details.

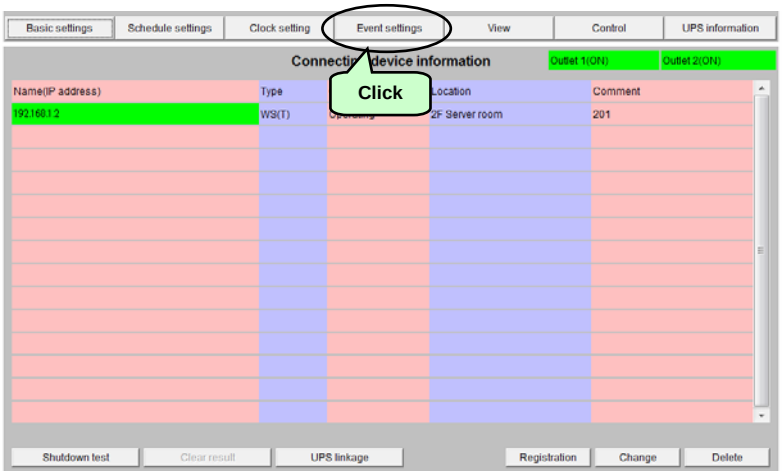
This completes registering a device.

Go to "4.3.3" to configure the Telnet login procedure and shutdown procedure for the registered WS.

4.3.3 Configuring the shutdown procedure for the registered devices

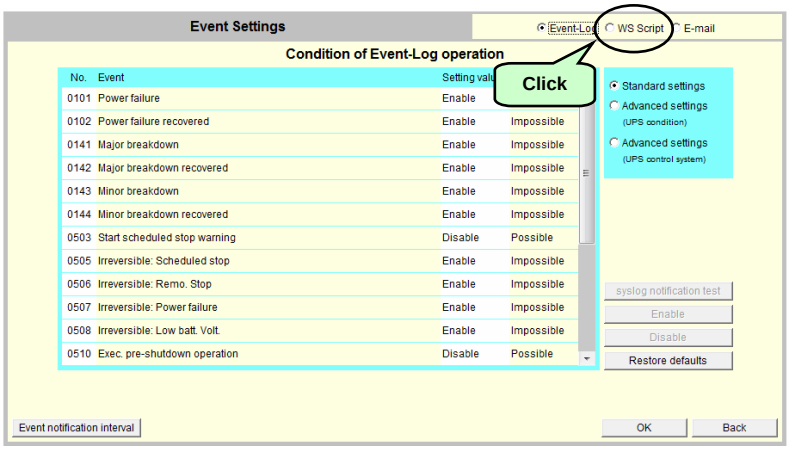
You can configure the shutdown procedure for the registered device to allow the UPS to shut down the device.

Main screen



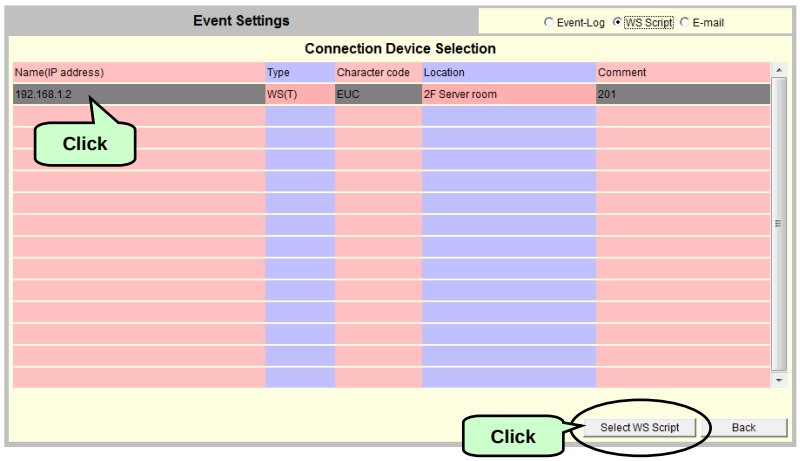
(1) Click the [Event settings] button on the main screen.

The [Event settings] screen is displayed.



(2) Click [WS Script].

The [WS script] screen for event settings is displayed.
All WS that require WS script settings are listed on this screen.
The following screenshot shows that the WS (IP address: 192.168.1.2) is selected to be set with the WS script.

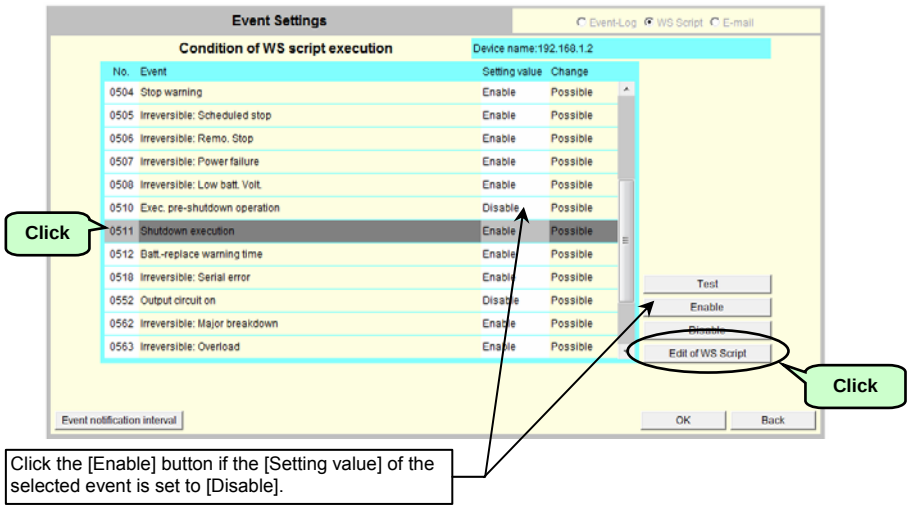


(3) Click the line where for the WS for which you want to set the shutdown procedure.

The line of the selected WS is highlighted in reverse video.
Once a WS is selected, the [Select WS Script] button at the bottom of the screen is enabled.

(4) Click the [Select WS Script] button to configure the shutdown procedure for the selected WS.

The [Condition of WS script execution] screen is displayed.

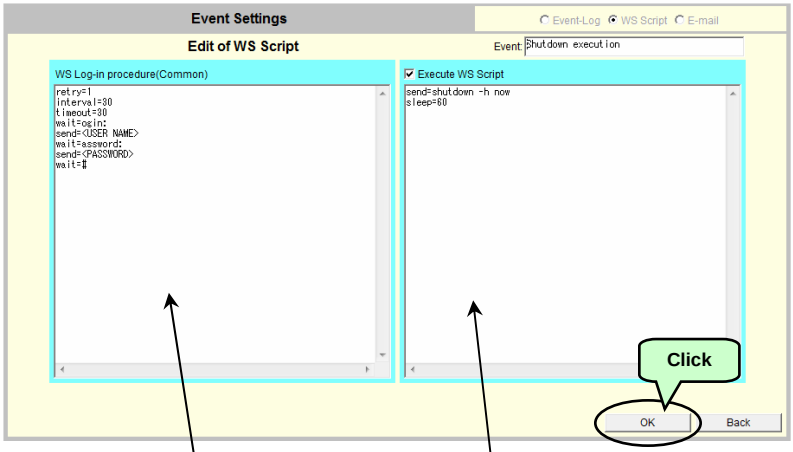


(5) Click [Shutdown execution] in the event list.

The line of the selected event is highlighted in reverse video.

(6) Click the [Edit of WS Script] button.

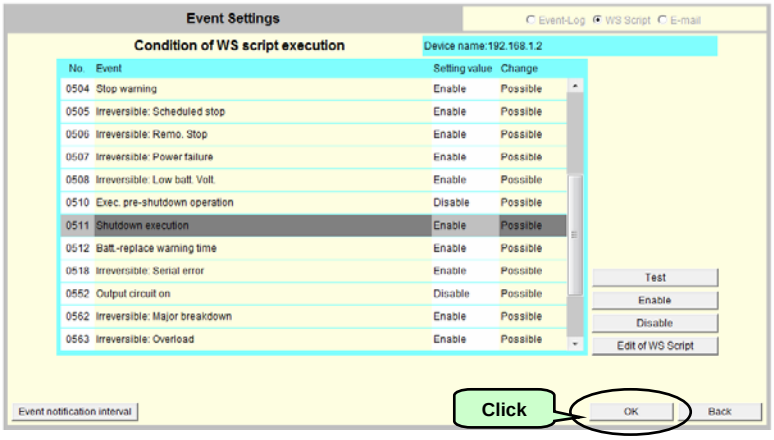
The [Edit of WS Script] screen is displayed.
The following screenshot shows default settings for the "Shutdown execution" event.



(7) Configure the shutdown procedure. See "5.5.3 Writing and editing WS scripts" for details.

(8) Click the [OK] button when you have finished.

The [Condition of WS script execution] screen is displayed.



(9) Click the [OK] button.

Caution

The settings are not applied to the UPS unless you click the [OK] button.

This completes the configuration.

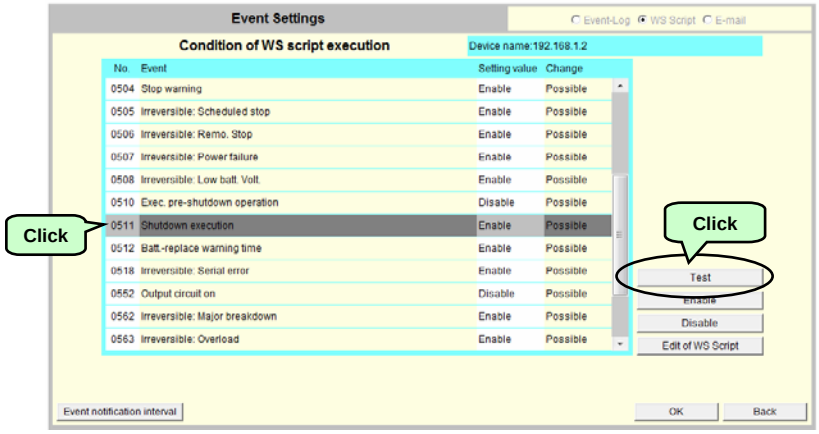
The WS will be shut down in the event of a power failure.

4.3.4 Checking shutdown operations for the registered devices

You can check whether the settings registered in "4.3.3 Configuring the shutdown procedure for the registered devices" operate properly.

You can check the operations of the WS shutdown procedure using the WS script test function without actually causing a power failure. You can also check the operation using the shutdown test function. See "5.1.5 Performing a shutdown test for the registered devices" for the shutdown test function.

[Condition of WS script execution] screen



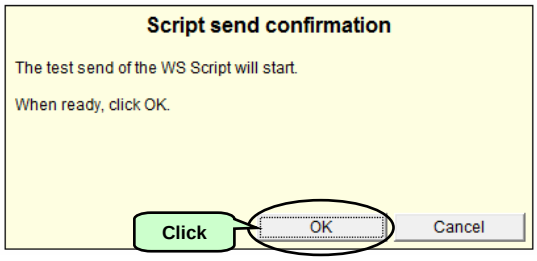
(1) Follow Steps (1) to (4) in "4.3.3 Configuring the shutdown procedure for the registered devices" to display the [Condition of WS script execution] screen.

(2) Click [Shutdown execution] in the event list.

The line of the selected event is highlighted in reverse video.

(3) Click the [Test] button.

The confirmation screen is displayed.



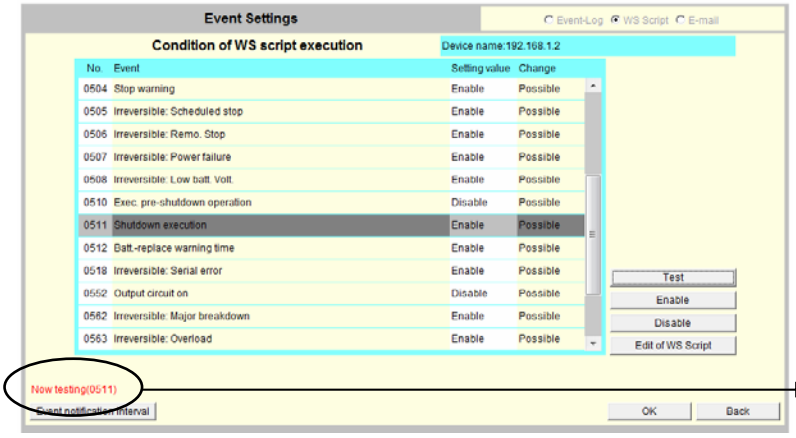
(4) Click the [OK] button.

The shutdown test starts.

Caution

You cannot test a WS script while testing e-mail transmission, another WS script, or a shutdown.

The status is displayed at the bottom of the screen while testing.
The result is displayed when the test is complete.



<Message example>

- While testing

  Now testing(0511)

- Test complete (successful)

  Finished sending Script(0511)

  The WS is shut down at the same time.

- Test complete (failure)

  Failed to send Script(0511) Details:E=0511,L= 8T

  The error message and detailed information are displayed.

Caution

An error message and detailed information are displayed if the shutdown test fails.
See "5.5.5 Testing WS script operations" for details.

4.4 Setting the Time on the UPS

The clock on the LAN interface card is set at the time of shipping. Reset it to suit your environment.
Scheduled operations may not be reliable if the time is not synchronized. Devices may not function at the scheduled time.

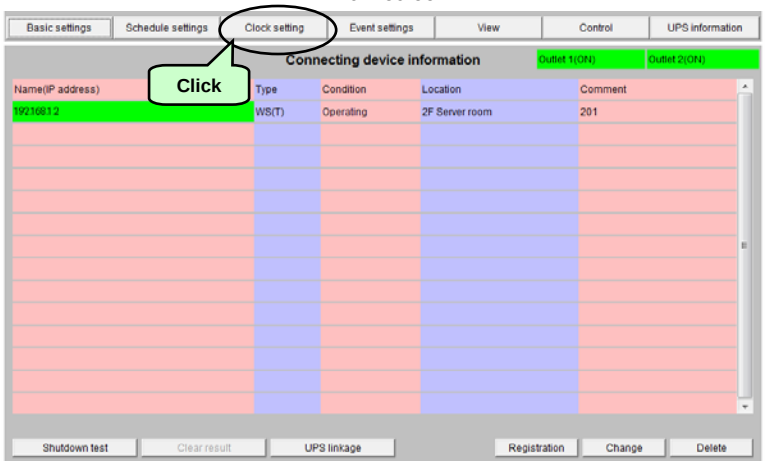
You can adjust the time in one of the following methods.
- Set the time on the computer where the web browser is running to the UPS.
- Obtain the time from the NTP server.

You can set the clock on the UPS as follows.

Caution

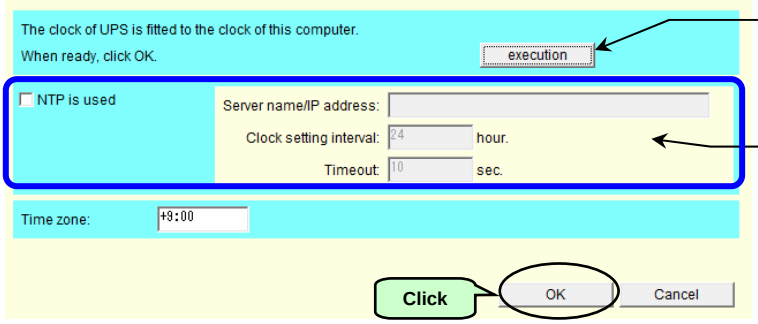
The time displayed on the web management tool is the time on the computer where the web browser is running. It is not the time on the UPS.

Main screen



(1) Click the [Clock setting] button on the main screen.

The [Clock setting] screen is displayed.



Click [execution] to apply the time of the computer on which you are running the web browser to the UPS.

NTP is used
Enter the items in the following table if you have an NTP server in your network.

(2) Select how to adjust the clock.

(3) Click the [OK] button.

Screen item		Description
The clock of UPS is fitted to the clock of this computer. When ready, click [execution].		The time of the computer on which you are running the web browser is applied to the UPS.
NTP is used	Server name/ Server address	Specify the address of the NTP server in your network.
	Clock setting interval	Specify the interval for obtaining the time from the NTP server. The clock is adjusted at the specified intervals. *1 Enter the time in hours.
	Timeout	Specify the waiting time for the response from the NTP server when obtaining the time. If no response is received within this duration, an error is recorded in the event log. *2 Specify a larger value if the error occurs frequently.
Time zone		Specify the time zone.

Result of time adjustment using NTP

*1 Check the result of time adjustment using an NTP server from the main screen - [View] - [Event-Log view].
The "**Clock setting change**" event is recorded when the time is adjusted.
However, the logs are not recorded if you have not enabled the event log condition for "Clock setting change".
*2 The "**Clock Setting failure**" event is recorded if the time is not adjusted.
However, the logs are not recorded if you have not enabled the event log condition for "Clock setting failure".

This completes basic settings to shut down connected devices. See "5. DETAILED SETTINGS WITH THE WEB MANAGEMENT TOOL" for the detailed settings.

5. DETAILED SETTINGS WITH THE WEB MANAGEMENT TOOL

You can configure various functions using the web management tool.
This chapter describes details of items configured in "4.3 Basic Settings for Shutting Down Devices" and how to configure other items and functions.
See "4. BASIC SETTINGS WITH THE WEB MANAGEMENT TOOL" for information on how to start the web management tool and information on the main screen.

5.1 Registering, Modifying, and Deleting Devices on the UPS

5.1.1 Registering devices on the UPS

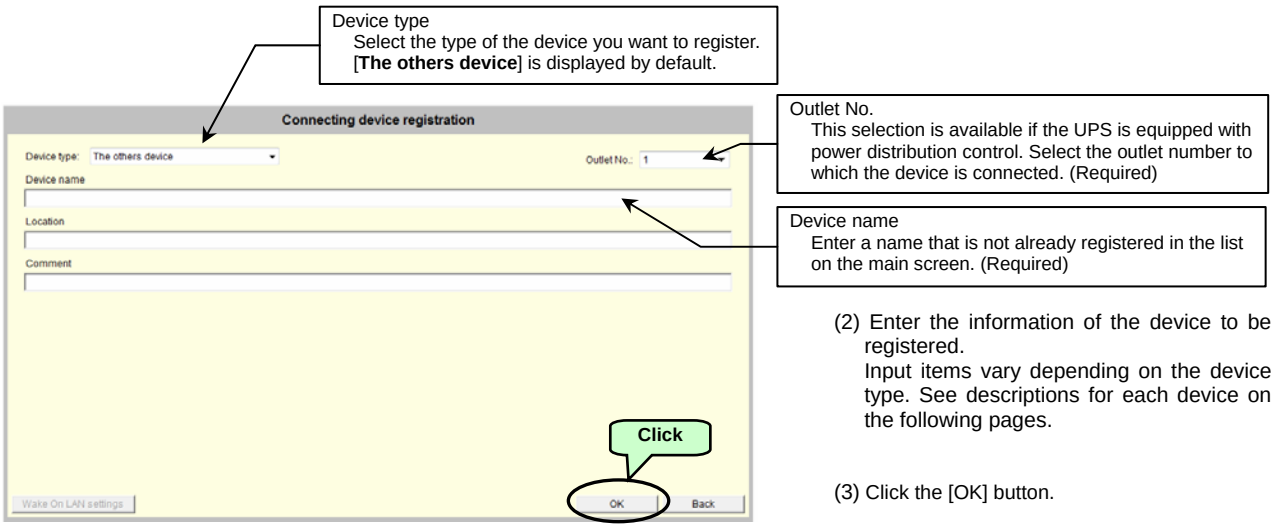
Register computers to the UPS to allow the UPS to shut down the connected computers.
You can register up to 50 computers.

(1) Click the [Registration] button on the main screen.

The [Connecting device registration] screen is displayed.

Caution

You cannot register, modify, or delete PCs or WS from the web management tool if they are running the UPS management software. Use the UPS management software instead.



(2) Enter the information of the device to be registered.
Input items vary depending on the device type. See descriptions for each device on the following pages.

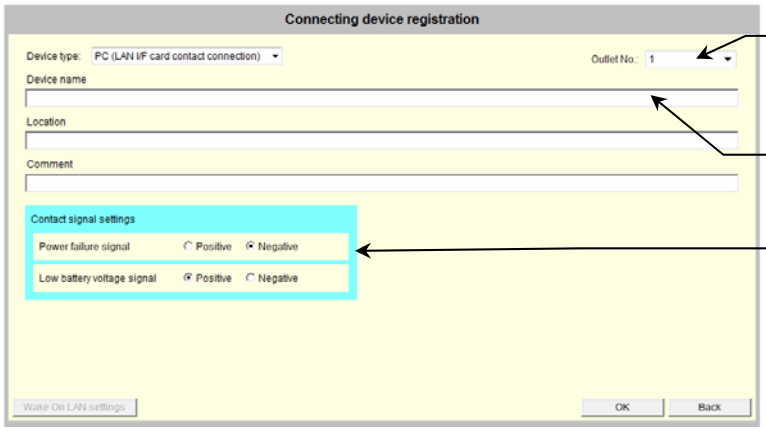
(3) Click the [OK] button.

Screen item	Description	Remark
Device name	Enter the name to be displayed in the list of registered devices in the main screen.	Single-byte characters only. Required
Location	Enter the comment on the location.	(Optional)
Comment	Enter the comment on the device.	(Optional)
Device type	Select the device type.	Required
Outlet No.	Specify the outlet number on the UPS to which the device is connected to.	Available only on the UPS with power distribution control. Required

Select the device you want to register from [Device type].

Device type	Description
PC (LAN I/F card contact connection)	PC that is connected to the "serial interface connector" on the UPS and shut down by the contact signals.
WS (LAN I/F card Log-in connection)	WS that is connected to the "serial interface connector" on the UPS and shut down by terminal login.
WS(Telnet)	WS that is connected via the network and shut down by Telnet login.
WS(SSH)	WS that is connected via the network and shut down by SSH login.
The others device	Devices that do not need shutdown.

Registering PC (LAN I/F card contact connection)



Outlet No.
This selection is available if the UPS is equipped with power distribution control. Select the outlet number to which the device is connected. (Required)

Device name
Enter a name that is not already registered in the list on the main screen. (Required)

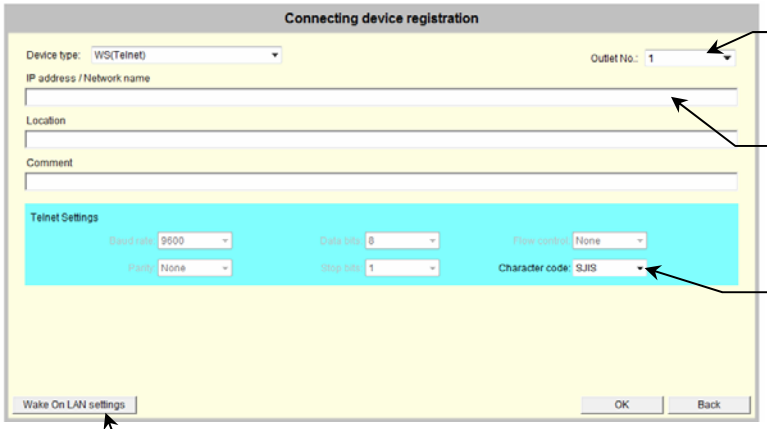
*Specify the polarity of the contact signals for [Power failure signal]*and [Low battery voltage signal].

Match the polarity on the UPS and the UPS service if you are shutting down using the Windows standard UPS service. See "Appendix A. USING THE WINDOWS STANDARD UPS SERVICE" for Windows standard UPS service settings.

*Caution

If you set [Power failure signal] to [Negative], a power failure is detected when the serial communication cable is disconnected, or the LAN interface card is reset and restarted.
In this situation, specify as described in the "Appendix A. USING THE WINDOWS STANDARD UPS SERVICE" to avoid a shutdown.

Registering WS(Telnet) and WS(SSH)



Outlet No.
This selection is available if the UPS is equipped with power distribution control. Select the outlet number to which the device is connected. (Required)

IP address / Network name
Enter the IP address of the WS. You cannot register the IP address that is already registered. (Required)

Character code
Enter the character code of the WS. Select the character code that is supported by the WS if displaying messages in Japanese.

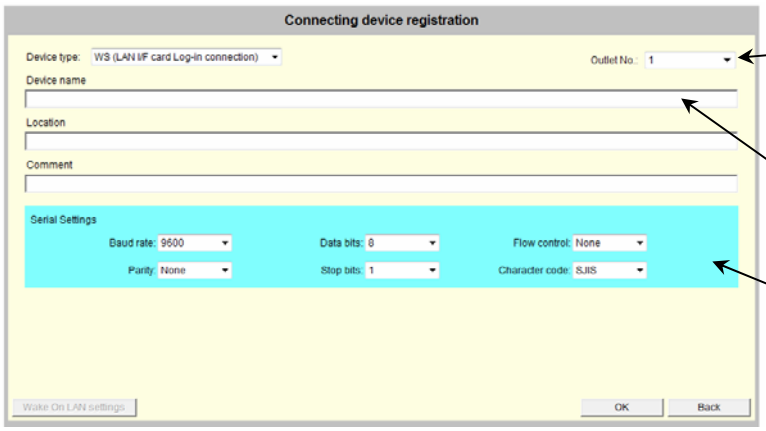
Wake On LAN settings
See "5.1.4 Configuring the Wake On LAN function" for how to configure.

Specify the Telnet login or SSH login procedure for this WS and the procedure to issue the shutdown command using the [Event settings] menu in the main screen. See "4.3.3 Configuring the shutdown procedure for the registered devices" for details. See "5.1.4 Configuring the Wake On LAN function" for information on the "Wake On LAN" function.

Notes on registering WS(SSH) devices

The time required to log in to WS(SSH) varies depending on the SSH authentication method when shutting down a WS(SSH) device. Login takes longer when using host authentication or public key authentication. Test the operation to see if the device can shut down within the time the UPS can sustain the power.

Registering WS (LAN I/F card Log-in connection)



Outlet No.
This selection is available if the UPS is equipped with power distribution control. Select the outlet number to which the device is connected. (Required)

Device name
Enter a name that is not already registered in the list on the main screen. (Required)

Serial Settings
Specify the details of serial communications. See the following table to select the values.

Baud rate	Data bits	Flow control	Parity	Stop bits
1200	**8 ***	**None ***	**None ***	**1 ***
2400	7	Hardware	Even	1.5
4800	6	XON/XOFF	Odd	2
9600 *	5	-	Mark	-
19200	4	-	Space	-

*: Default value, : Not supported

Notes on registering WS (LAN I/F card Log-in connection)

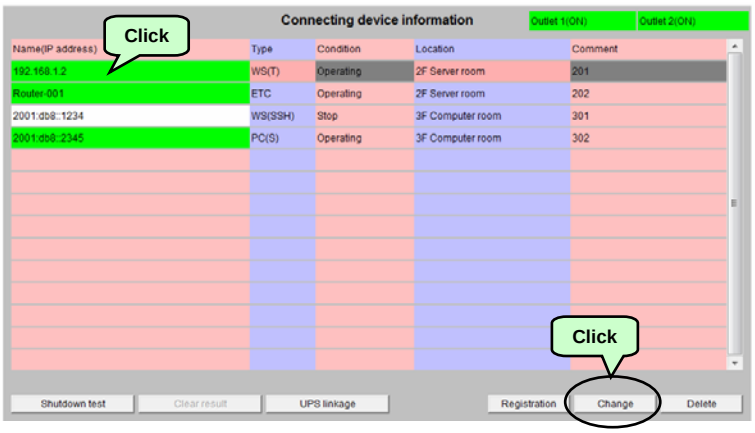
You need to set DIP switch 1 on the LAN interface card to ON to shut down WS (LAN I/F card Log-in connection) devices. Check the event log if the device was not shut down. The "Failed to send Script" (Details: DISPSW OFF) event indicates that DIP switch 1 is OFF. Set it to ON. Refer to "7.2 Checking DIP Switch Settings" in the LAN Interface Card Manual for more details on how to set DIP switches.

Notes on using the LAN Adapter

The LAN Adapter(PRLANADP011B or PRLANADP012B) does not support WS (LAN I/F card login connection) devices.

5.1.2 Modifying devices registered on the UPS

You can modify information of the registered devices.

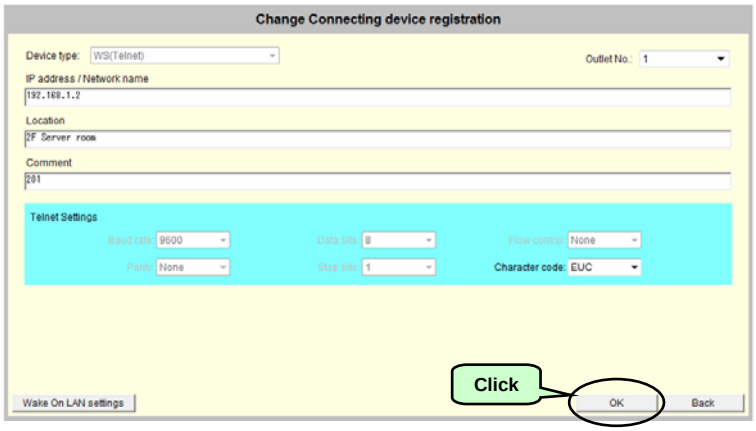


(1) Select the device you want to modify from the list of registered devices on the main screen.

The line of the selected device is highlighted in reverse video.

(2) Click the [Change] button.

The [Change connecting device registration] screen is displayed.



(3) Edit the registered information.
Only items you can modify are enabled.

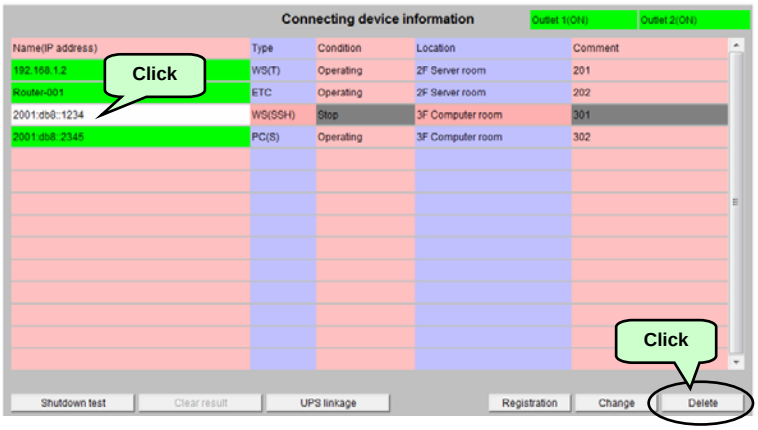
(4) Click the [OK] button.

Caution

- You cannot change the "Device type" of the registered device. Delete the registered information and register again if you want to change the "Device type".
- You cannot modify information on devices that are running the UPS management software. Use the UPS management software to modify.

5.1.3 Deleting devices from the UPS

Delete the registered device information when a device is disconnected from the UPS.
Delete the registered information and register the device again if you want to change the "Device type" of a registered device.

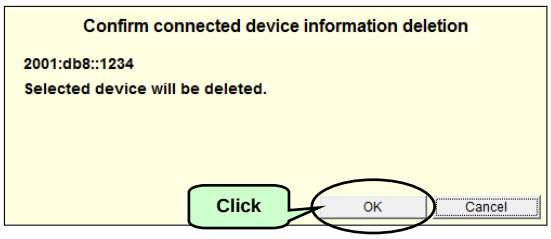


(1) Select the device you want to delete from the list of registered devices on the main screen.

The line of the selected device is highlighted in reverse video.

(2) Click the [Delete] button.

The confirmation screen is displayed.



(3) Check the device you are deleting in the confirmation screen.

(4) Click the [OK] button.

Caution

- You cannot undo the delete operation.
- You cannot delete devices that are running the UPS management software using this function. Use the UPS management software instead.

5.1.4 Configuring the Wake On LAN function

About Wake On LAN...

This function starts up a networked computer from another computer via the network.
The computer starts up when it receives the "magic packet". This must be supported by the computer hardware such as the network card, mother board, and BIOS for this function to be available.

About the Wake On LAN function of the UPS...

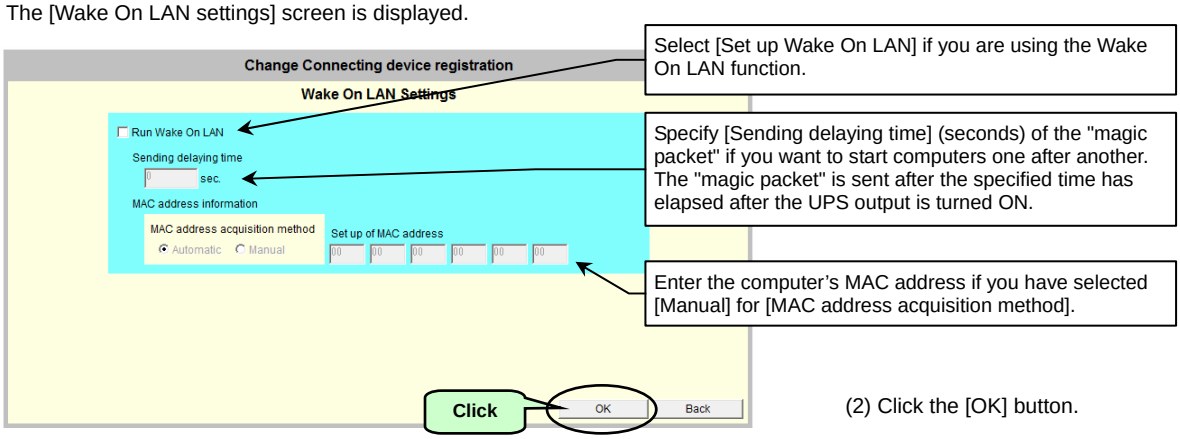
If you select [Set up Wake On LAN] when registering a device connected to the UPS, a "magic packet" is sent to the device when the UPS output is turned ON, or after the delay time if "sending delaying time" is specified.

* Conditions for sending magic packets

Magic packets are sent 7 times at 10 seconds intervals as the default. You can change these settings using the "wol" command.
See "Appendix G. LIST OF TERMINAL TOOL COMMANDS" for details. The updated setting values are applied to all devices specified under [Run Wake On LAN] in the following procedure.

(1) Click the [Wake On LAN settings] button when registering a WS(Telnet) or WS(SSH) device on the [Connecting device registration] screen.

The [Wake On LAN settings] screen is displayed.



(2) Click the [OK] button.

Caution

IPv4 address environment:

The Wake On LAN function may not work on WS(Telnet) and WS(SSH) devices even if you specify [Set up Wake On LAN].
The following conditions apply.

Condition 1	Condition 2	Wake On LAN function
The WS(Telnet) or WS(SSH) is in the same segment as the UPS		✓
The WS(Telnet) or WS(SSH) is not in the same segment as the UPS	The UPS management software installed in the same segment as the WS(Telnet) or WS(SSH) is **registered** to the UPS.	✓
	The UPS management software installed in the same segment as the WS(Telnet) or WS(SSH) is **not registered** to the UPS.	

Specify [Manual] as the [MAC address acquisition method] if the WS(Telnet) or WS(SSH) is on a different segment from the UPS in the network.

IPv6 address environment:

When performing startup using WakeOnLAN for devices specified using an IPv6 address, a magic packet is registered using IPv6 multicast. When starting up using WakeOnLAN for devices beyond the router, it is necessary to set the router so that it automatically sends the following static multicast address.

Multicast address ff05::13f

5.1.5 Performing a shutdown test for the registered devices

You can execute the following three simulation sequences to test a shutdown of registered devices without causing a power failure.

Sequence	Starting position	Ending position
Power failure	Occurrence of a power failure	UPS automatic stopping time has elapsed (The UPS output status is not altered)
Low battery voltage	Occurrence of low battery voltage	
Shutdown	Shutdown execution	

Caution

E-mail notification, SNMP trap notification, and UPS output control are not performed in a shutdown test.

You can perform a shutdown test on the following registered devices either individually or in groups.

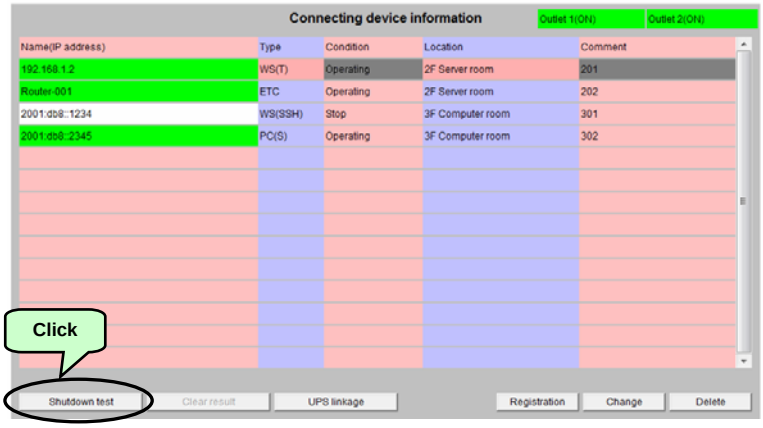
Type	Device type	Remark
PC	PC (network connection)	UPS management software operating PC
PC(S)	PC (LAN I/F card contact connection)	
WS	WS (network connection)	UPS management software operating WS
WS(S)	WS (LAN I/F card Log-in connection)	
WS(T)	WS(Telnet)	
WS(SSH)	WS(SSH)	

Caution

Do not modify UPS configurations and do not turn the UPS ON or OFF during a shutdown test.

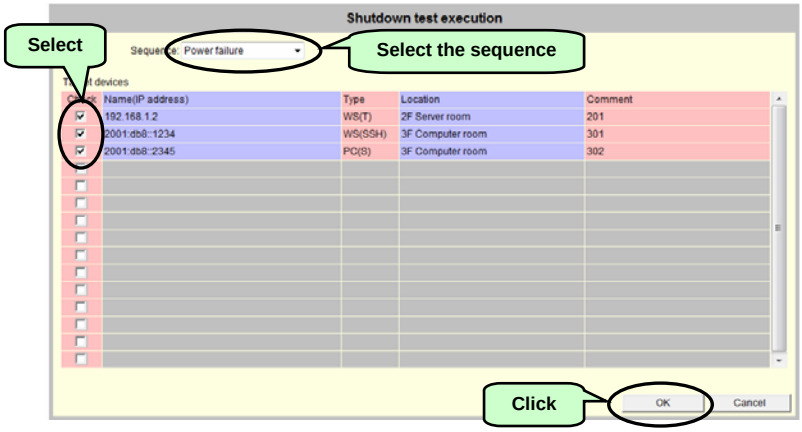
Perform a shutdown test as follows.

Main screen



(1) Click the [Shutdown test] button on the main screen.

The [Shutdown test execution] screen is displayed.



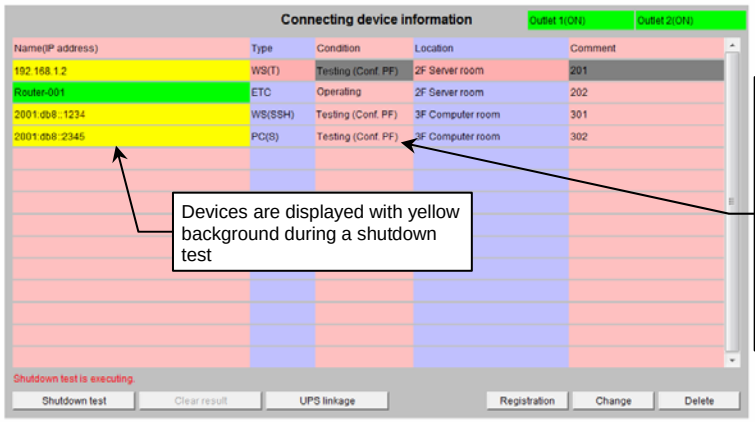
Caution

Devices with the device type "ETC" are not displayed since you cannot shut them down.

(2) Select the sequence and devices to be shut down.

(3) Click the [OK] button.

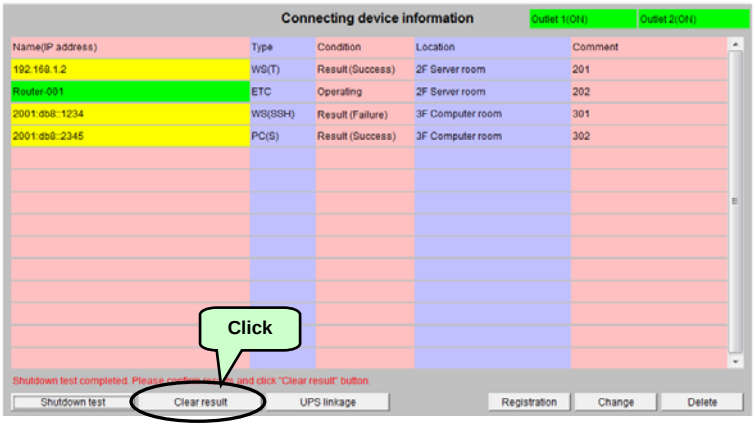
You can check the progress of the shutdown test on the main screen.



The following describes the status of devices during a shutdown test.

View	Meaning
Testing (Conf. PF)	Confirming the power failure
Testing (Wait SD)	Delaying the shutdown
Testing (Exec. SD)	Shutting down
Testing (Conf. SD)	Confirming the shutdown
Result (Success)	Shutdown test successful
Result (Failure)	Shutdown test failed
Result (Cancel)	Shutdown test cancelled

When the shutdown test is complete, the test results are displayed and the [Clear result] button is enabled.

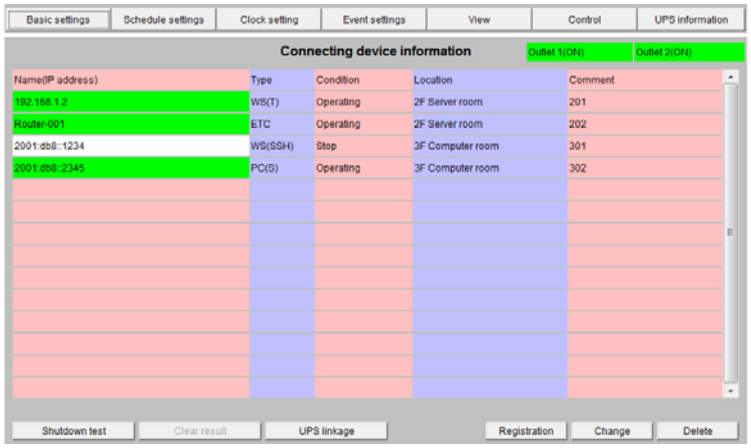


(4) Click the [Clear result] button.

Caution

The test results are displayed until you click the [Clear result] button.

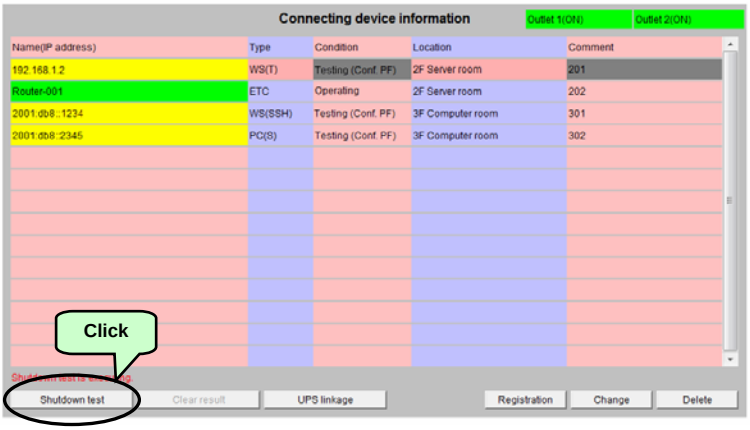
The main screen is displayed again.



If you want to cancel the shutdown test...

Perform the following if you want to cancel the shutdown test while it is being processed.
Click the [Shutdown test] button on the main screen to display the cancel shutdown test screen.

Main screen

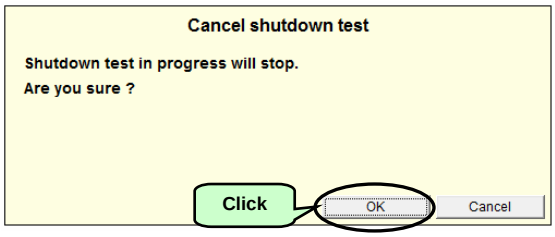


(1) Click the [Shutdown test] button.

Caution

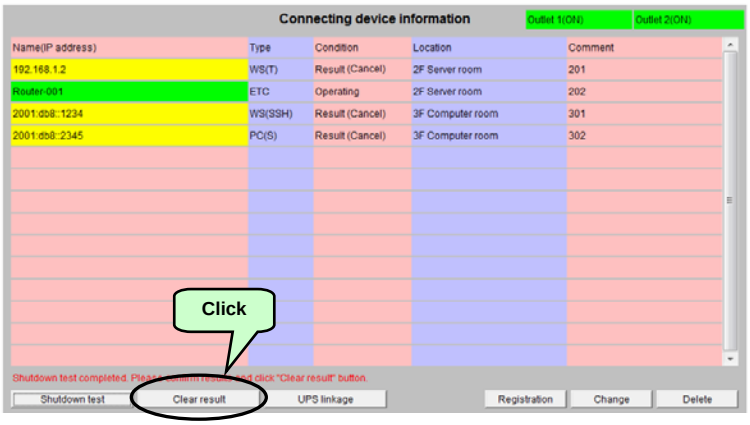
You cannot cancel the shutdown test if the [Shutdown test] button is grayed out.

The cancel shutdown test screen is displayed.



(2) Click the [OK] button.

The test results are displayed and the [Clear result] button is enabled.

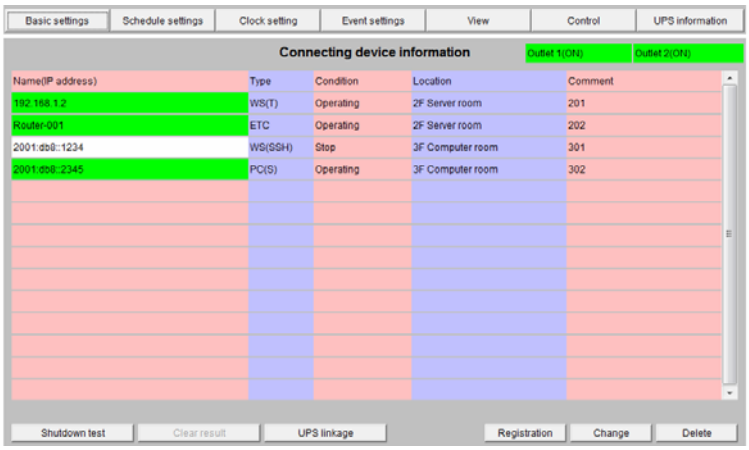


(3) Click the [Clear result] button.

Caution

The test results are displayed until you click the [Clear result] button.

The screen returns to the normal display.



Restrictions in a shutdown test

(1) Shutdown tests may not start depending on the UPS status. In this situation, the message "Failed to start test. (Error code: **)"is displayed. Where the "**" is one of the following error codes.

No.	Error code	Cause
1	20	Performing a shutdown test, e-mail transmission test, or WS script test
2	21	Performing the shutdown sequence due to an irreversible event such as a scheduled shutdown.
3	22	Internal serial communication error
4	23	Power failure
5	25	Major breakdown
6	26	Overload
7	27	There is no available device for the shutdown test because all the selected devices are in one of the following status. • The connected power outlet is OFF • The device is shut down • "Power failure" is selected as the test sequence; however, the device is connected to an outlet that is not specified as the shutdown trigger for a power failure. • "Low battery voltage" is selected as the test sequence; however, "Low battery voltage" is not specified as the shutdown trigger. See "4.3.1 Configuring UPS operations" for information on how to configure the shutdown triggers.

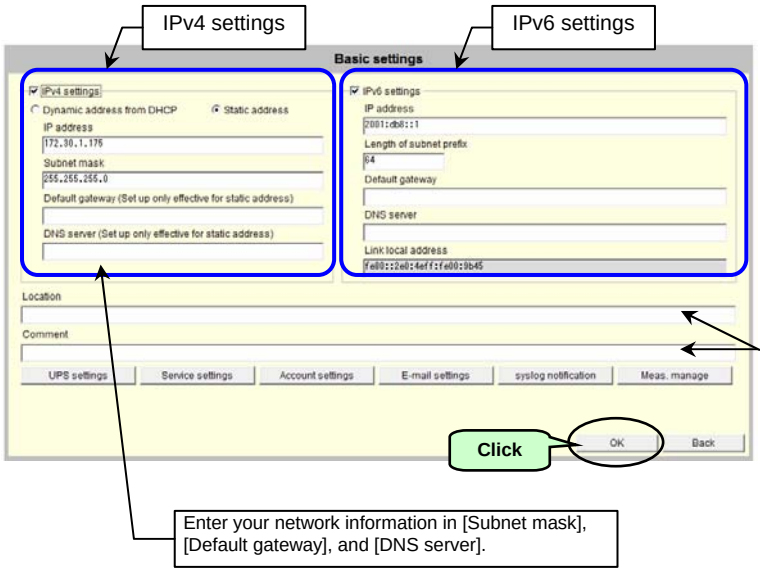
(2) The shutdown test is forcibly cancelled if one of the conditions 2 to 6 listed in (1) occurs during the test.
(3) E-mail notification, SNMP trap notification, and UPS output control are not performed in a shutdown test.
(4) You cannot check whether the device is shut down if the device type is "PC (LAN I/F card contact connection)". Therefore, [Result (Success)] is displayed after sending shutdown signals regardless of the device status. Check whether or not the shutdown has been successful from the actual device or in the event log. See "5.5.8 Checking the UPS event log" for information on how to check the event log.
(5) You cannot check whether the device is shut down if the device type is "PC (LAN I/F card log-in connection)". Therefore, [Result (Success)] is displayed after completing the script process successfully regardless of the device status. Check whether or not the shutdown has been successful from the actual device or in the event log. See "5.5.8 Checking the UPS event log" for information on how to check the event log.

5.2 Configuring Detailed Settings on the UPS

5.2.1 Configuring the network

(1) Click the [Basic settings] button on the main screen.

The [Basic settings] screen is displayed.



(2) Enter the UPS information
Specify network information such as the IP address of the UPS.
You can select either IPv4 or IPv6, or both of them.

The [Location] and [Comment] at the top of the web management tool change as they are modified.

(3) Click the [OK] button.

Item	IPv4	IPv6
IP address	Select [Dynamic address from DHCP] or [Static address].	Enter the address based on "RFC5952".
Subnet mask	Enter your network configuration information.	-
Subnet prefix length	-	Enter your network configuration information. Settable range: 0 to 128
Default gateway	Enter your network configuration information.	
DNS server	Enter your network configuration information.	
Link local address	-	The setting is displayed. This cannot be modified.
Location	Enter the location of the UPS.	
Comment	Enter the comment.	

Notes on modifying the IP address of the UPS

- If you modify the IP address, network address, subnet mask, or default gateway, the LAN interface card restarts automatically approximately 30 seconds after you click the [OK] button. Log in again to continue working with the web management tool as described in "4.1 Starting the Web Management Tool from a Web Browser".
- If you are also using UPS management software, modifying the IP address of the UPS causes a communication error between the UPS and the UPS management software. In this case, delete the computers running the UPS management software from the setting tool of the UPS management software, modify the IP address of the UPS, and then register the connected UPS again from the setting tool of the UPS management software. Refer to the User Guide of the UPS management software for details.

5.2.2 Modifying login accounts on the UPS

The following table describes default values for login accounts.

	Administrator	User	Remark
Account name	UpsAdmin	User	Not case sensitive
Password	UpsAdmin	User	Case sensitive

You can modify the accounts as follows.

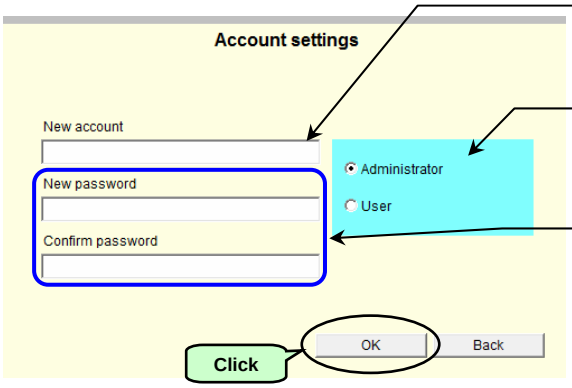
(1) Click the [Basic settings] button on the main screen.

The [Basic settings] screen is displayed.



(2) Click the [Account settings] button.

The [Account settings] screen is displayed.



Enter the new account name.
1 to 20 half-width alphanumerical characters

Select the type of user.
Only administrators can modify users.

Enter the new password, and confirm the password.
1 to 20 single-byte alphanumeric characters
Case sensitive.

(3) Enter the new account and password using the keyboard.

(4) Click the [OK] button.

Caution

- All entry columns are blank when the account setting screen is displayed.
- Characters in the password columns are displayed as asterisks (*) as type.
- Take care not to forget the password after changing it.
- When logging in from an SSH client, the user name can have only up to 16 characters and the password can have only up to 20 characters. When logging in using an SSH client, change to make sure the lengths are below the number of characters mentioned above.
- When you log in via SSH using either the administrator account or the general user account, the account and the password are case sensitive in both cases.

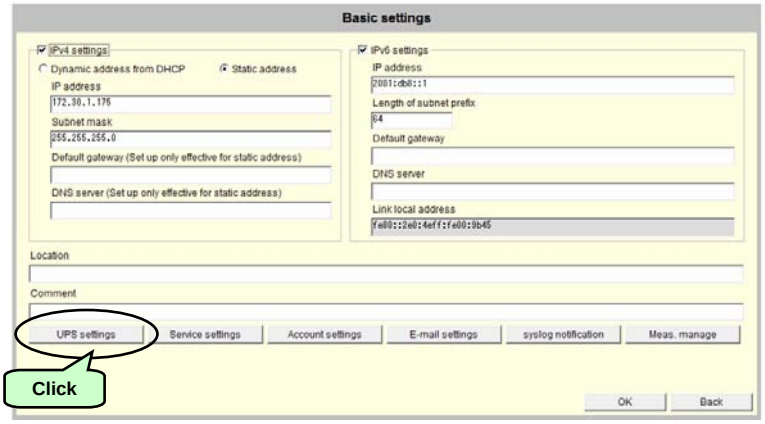
5.2.3 Configuring UPS control

You can configure the following control operations. See "4.3.1 Configuring UPS operations" for details.

- How many seconds after a power failure should the shutdown process begin and shut down the UPS.
- Whether or not to automatically start up the UPS after the power is restored.
- Delay time for the power outlet ON and OFF.
- Shutdown delay time for a scheduled shutdown.
- Interval for shutdown warning message display.
- Message display setting for battery replacement.

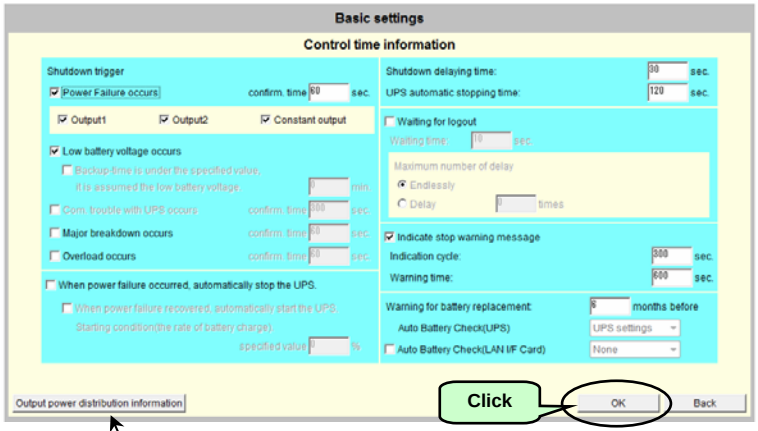
(1) Click the [Basic settings] button on the main screen.

The [Basic settings] screen is displayed.



(2) Click the [UPS settings] button on the basic settings screen.

The [Control time information] screen is displayed.



(3) Specify each item.
See "4.3.1 Configuring UPS operations" for details.

(4) Click the [OK] button.

See "5.2.4 Configuring delay time on UPS power outlets" for information on how to specify output power distribution information.
This button is enabled if the UPS is equipped with power distribution control.

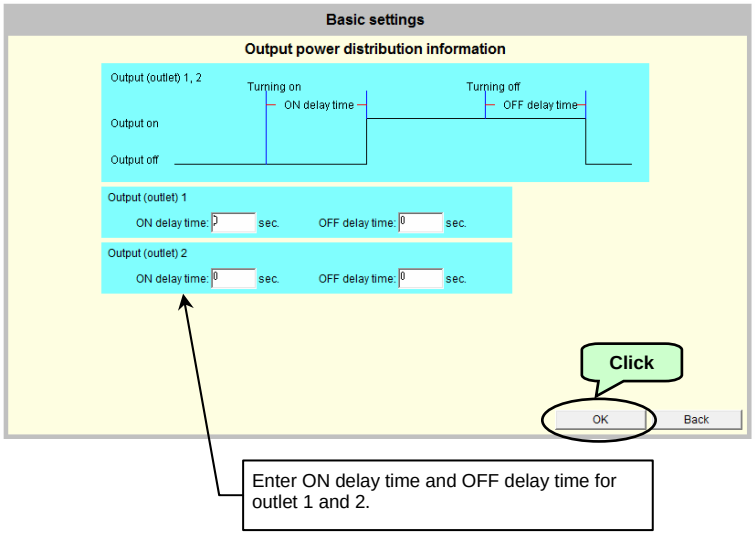
5.2.4 Configuring delay time on UPS power outlets

This function is available if the UPS is equipped with power distribution control.

You can specify the ON and OFF delay time separately on power outlet 1 and 2 if your UPS supports power distribution control.
This allows you to turn outlet 1 ON or OFF before or after outlet 2.
For example, the server is connected to outlet 1 and storage devices to outlet 2.
You can specify a longer delay time on outlet 1 than outlet 2 if you want to start the server after storage devices are started.
UPS output ON → Outlet 2 ON (starting the storage devices) → Outlet 1 ON (starting the server)

(1) Click the [Basic settings] button on the main screen.
(2) Click the [UPS settings] button on the basic settings screen.
(3) Click the [Output power distribution information] button on the control time information screen.

The [Output power distribution information] screen is displayed.



(4) Enter the ON delay time and OFF delay time for outlet 1 and 2.

(5) Click the [OK] button.

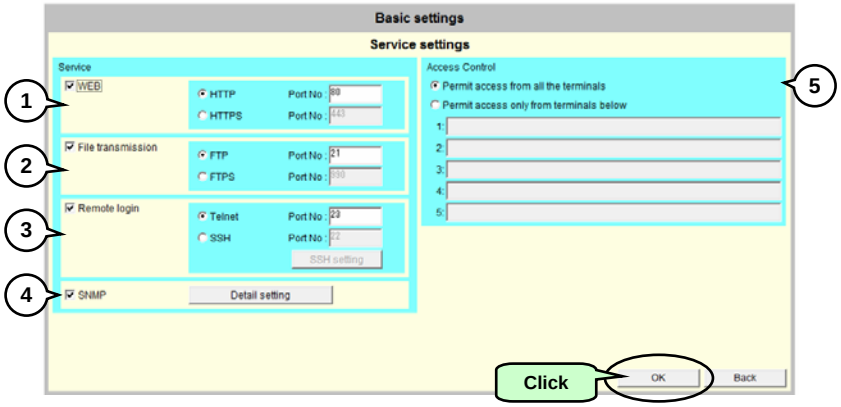
5.3 Configuring Services

5.3.1 Configuring services and access control

This section describes how to configure HTTP, FTP, remote login (Telnet and SSH), and access control, how to enable and disable SNMP, and how to modify port numbers.

(1) Click the [Basic settings] button on the main screen.
(2) Click the [Service settings] button on the basic settings screen.

The [Service settings] screen is displayed.



(3) Specify the items to suit your environment and purposes.

Caution

See the descriptions on the item when configuring items with detailed settings. Anything you specify in detailed setting items and other subordinate items is not applied until you click the [OK] button on this screen.

(4) Click the [OK] button.

No.	Displayed item	Description		Default value
1	Web	Enable or disable access from the web.		Enabled
		HTTP	Select to suit your environment. You can use the port number as it is, or you can change it. If you specify HTTPS, enter "https://(IP address of the UPS)" in the address bar of the web management tool or web display tool. If you use IPv6 address, enter “https://[(IPv6 address of the UPS)]”.	Selected
		HTTPS		
2	File transmission	Enable or disable uploading and downloading setting values and summary data using FTP.		Enabled
		FTP	Select to suit your environment. You can use the port number as it is, or you can change it. FTPS runs in implicit mode.	Selected
		FTPS		
3	Remote login	Enable or disable access by a Telnet or SSH connection.		Enabled
		Telnet	Select to enable access by a Telnet connection.	Selected
		SSH	Select to enable access by an SSH connection. Configure the detailed settings from the [SSH setting] button. See “5.3.2 Configuring SSH authentication”.	
4	SNMP	Enable or disable the SNMP function. Use the [Detail setting] button to configure detailed settings. See "5.3.3 Configuring SNMP".		Enabled
5	Access control	Specify restrictions for accessing services from outside.		Enabled
		Permit access from all the terminals	Select to permit access from all terminals.	Selected
		Permit access only from terminals below*	Select to permit access from the specified terminals and enter network addresses of the permitted terminals. You can specify up to 5 terminals.	

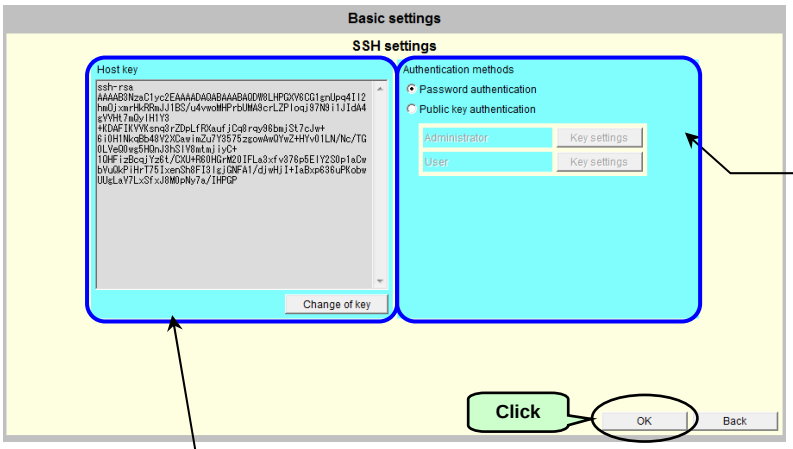
***Caution**

All terminals will be denied access if you have selected "Permit access only from terminals below" and clicked [OK] without entering any network addresses. If this happens, see the items concerning services and access in "8. DETAILED SETTINGS WITH THE TERMINAL TOOL" and modify the configuration.

5.3.2 Configuring SSH authentication

Specify the details when you have selected SSH as the remote login in the service settings screen.

[SSH settings] screen



(1) Click the [SSH setting] button under [Remote login] on the service settings screen.

Specify the user authentication method. See "5.3.2.2 Configuring the public key for user authentication".

(2) Specify the host key and user authentication method.

(3) Click the [OK] button.

The host key of this device is displayed. See "5.3.2.1 Configuring the host key".

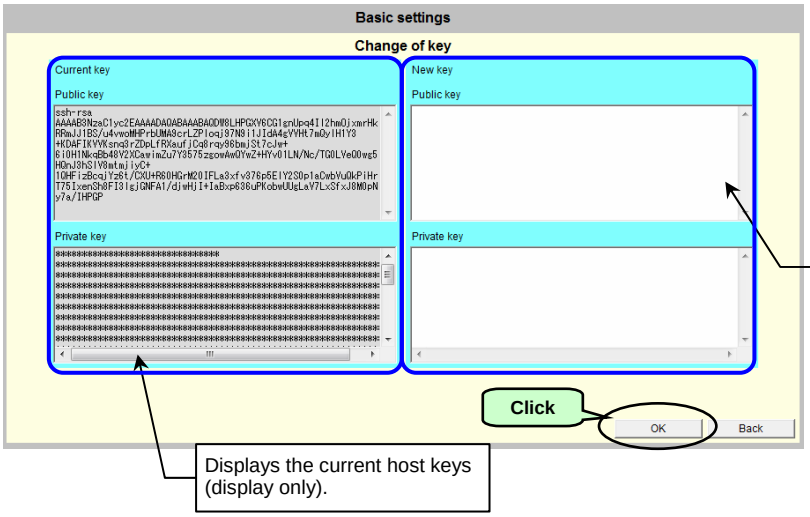
Displayed item	Description		Default value
Host key	Displays the host key.		Factory setting (2048-bit RSA key)
	Change of key	Modify the host authentication key. See "5.3.2.1 Configuring the host key".	
Authentication method	Specify the user authentication method to log in to this device.		
	Password authentication	Specify password authentication as the user authentication method. The account and password are specified in "5.2.2 Modifying login accounts on the UPS".	Enabled
	Public key authentication	Specify public key authentication as the user authentication method to log in to this device. Specify the public key of the authentication key pair generated on the SSH terminal in the change of key screen.	Disabled
		Administrator - Setting the key: Specify the public key for authentication.	
		Use - Setting the key: See "5.3.2.2 Configuring the public key for user authentication".	

Caution

If you click the [OK] button on the SSH settings screen, you are returned to the service settings screen while retaining the items you have specified.
The retained SSH setting items are applied when you click the [OK] button on the service settings screen. Changes are not applied by clicking the [OK] button on the SSH settings screen. Any items specified in the subordinate screens of the SSH authentication settings screen are applied when you click the [OK] button on the service settings screen.

5.3.2.1 Configuring the host key

This section describes how to modify the host key.



(1) Click the [Change of key] button in the host key setting column on the SSH settings screen.

(2) Specify the new public key and private key.

(3) Click the [OK] button.

Displayed item	Description		Default value
Current keys	Displays the current key.		
	Public key	Displays the host key.	Factory setting (2048-bit RSA key)
	Private key	Displays the private key with as asterisks (*) for security reasons.	Factory setting (2048-bit RSA key)
New keys	Paste the new key.		
	Public key	Paste the new public key text (PEM format). See the following table for conditions of supported keys.	Blank
	Private key	Paste the new host private key text (PEM format). See the following table for conditions of supported keys.	Blank

Conditions for keys supported by this device

Supported version	SSH 2.0	SSH 1.0 is not supported
Key type	OpenSSH	Commercial SSH is not supported
Public key encryption algorithm	DSA or RSA	
Passphrase	None	Passphrase key is not supported
Key comments	None	Delete key comments
Length	1024 or 2048 bits	

Notes on changing the key

This device does not generate a new key. Use the ssh-keygen command in OpenSSH or the key generation function in SSH related tools and paste the generated key text (PEM format) into this screen.
See the above table "Conditions on keys supported by this device" for imposed restrictions. Check carefully when generating a new key.

(Tip) The following example shows how to generate a new key in OpenSSH.

ssh-keygen –t rsa –b 1024 –N ""

-t: Key type (rsa or dsa)
-b: Length (1024 or 2048 bits)
-N: Passphrase (none: "")

Tip

The following confirmation message is displayed when you connect this device for the **first*** time using OpenSSH.
(The confirmation message varies depending on the SSH client.)

In case of the fingerprint is displayed by MD5

```
The authenticity of host 'xxxxxxxxxxxxxxxx (yyyyyyyyyyy)' can't be established.
RSA key fingerprint is a4:4f:36:db:1a:f3:62:74:ec:16:ea:05:b6:f3:09:6b
Are you sure you want to continue connecting (yes/no)?
```

In case of the fingerprint is displayed by SHA256

```
The authenticity of host 'xxxxxxxxxxxxxxxx (yyyyyyyyyyy)' can't be established.
RSA key fingerprint is SHA256:dM8ndlcZ7DMARBRoINRlZ2J8uVxCs59speMd+KonGrM
Are you sure you want to continue connecting (yes/no)?
```

This means "Do you want to save the public key sent from this device locally and continue the connection process?".
Normally the displayed fingerprint is verified and the connection process continues.
The following is the factory setting of the host key fingerprint.

```
a4:4f:36:db:1a:f3:62:74:ec:16:ea:05:b6:f3:09:6b          (MD5)
```

```
dM8ndlcZ7DMARBRoINRlZ2J8uVxCs59speMd+KonGrM          (SHA256)
```

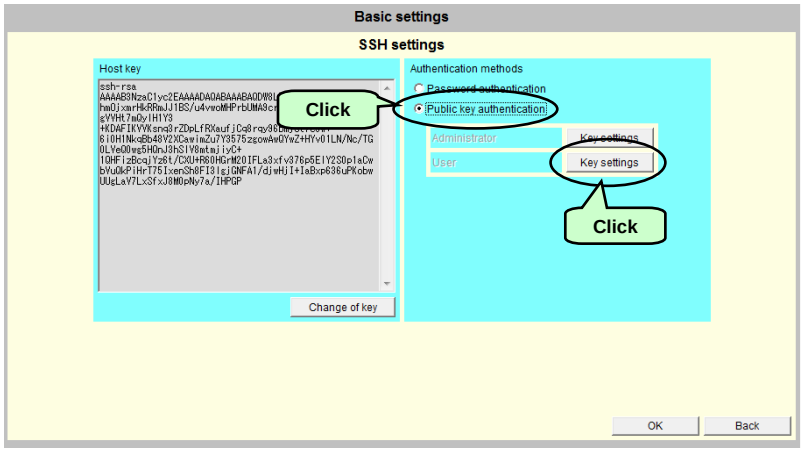
The above message is not displayed from the second time.
It is recommended to record the displayed fingerprint when generating a new host key using the ssh-keygen command or other tools.

Date	Fingerprint

* The message is also displayed when you change the key information, IP address or port number, or if you did not save the host key locally.

5.3.2.2 Configuring the public key for user authentication

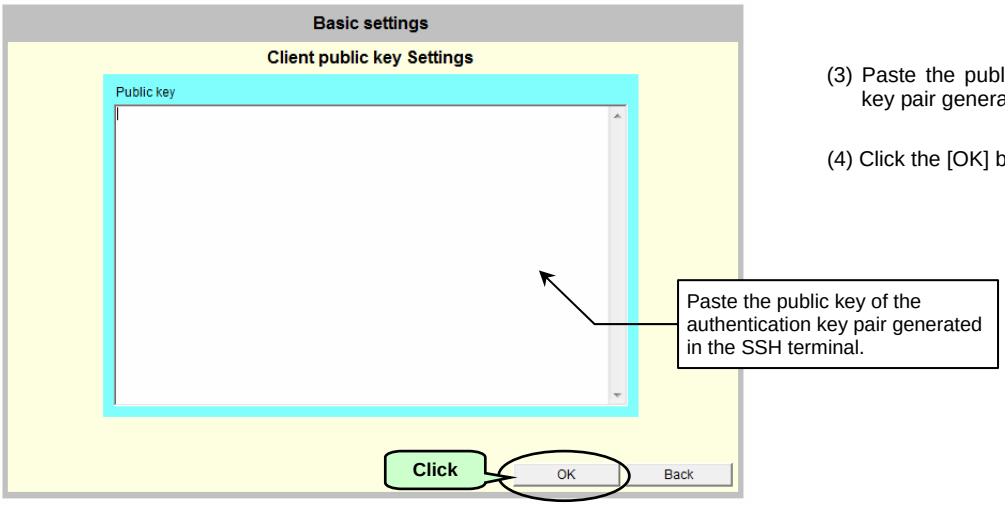
This section describes how to configure the public key for authentication of administrators or users.



(1) Click [Public key authentication] in the authentication method column on the SSH settings screen.

(2) Click the [Key settings] button for [Administrator] or [User].

The public key setting screen is displayed.



(3) Paste the public key of the authentication key pair generated in the SSH terminal.

(4) Click the [OK] button.

Displayed item	Description	Default value
Public key	Paste the new client public key text (PEM format). Conditions of the supported key are the same as those for the host key. Set the text in the following files in general if the SSH terminal is OpenSSH. (1) ~/.ssh/id_dsa.pub (2) ~/.ssh/id_rsa.pub	Blank

Caution

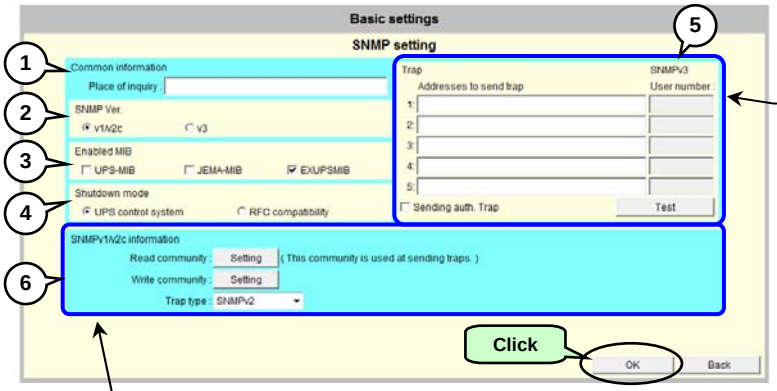
If you have selected public key authentication as the authentication method and did not set a public key for the administrator or user, you will not be able to connect to this device using SSH.

5.3.3 Configuring SNMP

Specify the details when you have enabled SNMP on the service settings screen.

(1) Click the [Detail setting] button on the service settings screen.

The [SNMP settings] screen is displayed.



(2) Specify the items.

Specify the trap transmission.

(3) Click the [OK] button.

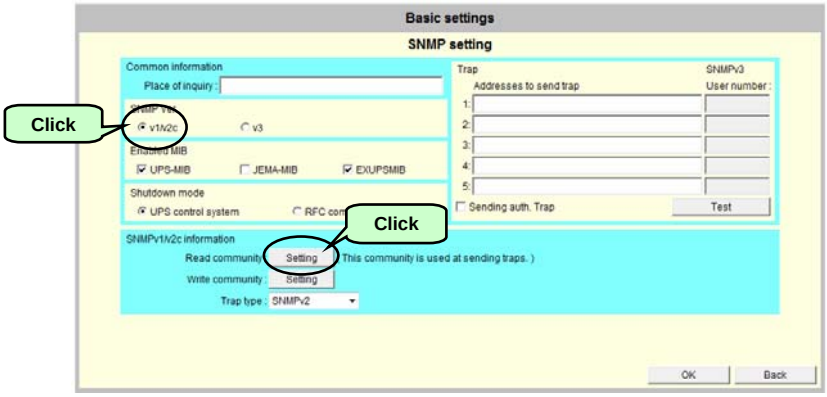
The screen display varies depending on the specified SNMP version.
This screen assumes you have selected [v1/v2].

The screen on page 5-22 is displayed if you have selected [v3].

No.	Screen item	Description			Default value
1	Place of inquiry	Enter the contact for SNMP.			Blank
2	SNMP Ver	Select the SNMP version in your environment.			
		v1/v2c	Specify the details in the screen shown on page 5-21.		Selected
		v3	Specify the details in the screen shown on page 5-22.		
3	Enabled MIB	Select the MIBs you want to use.			
		UPS-MIB	RFC1628UPSMIB	Select to suit your environment.	
		JEMA-MIB	JEMA extended MIB for UPS		
		EXUPSMIB	Private MIB		Selected
4	Shutdown mode	Specify how to shut down when a UPS stop/reset control is sent from the SNMP manager to UPS-MIB. (Target MIB : UPS-MIB / JEMA-MIB / EXUPSMIB)			
		UPS management system	Shuts down the connected computers according to the "shutdown delaying time" and "UPS automatic stopping time", and turns the UPS output OFF.		Selected
		RFC compatibility	Turns the UPS output OFF after 10 seconds regardless of the connected devices. Computers are not shut down in this mode.		
5	Trap	Addresses to send trap	Specify network addresses to send the traps. You can specify up to 5 recipients.		
		SNMPv3 User number	Specify the user number if you have selected [v3] for SNMP Ver.		
		Sending auth. Trap	Select when sending the authentication trap.		
		Test	Test the trap transmission. See "5.3.4 Testing trap transmission".		
6	SNMPv1/v2c information	Specify if you have selected [v1/v2] for SNMP Ver. See page 5-21.			
	SNMPv3 information	Specify if you have selected [v3] for SNMP Ver. See page 5-22.			

Configuring SNMP v1/v2c information

Configure [SNMPv1/v2c information] on the [SNMP settings] screen.



The following table describes default values for Read community and Write community.

Screen item	Default value
Read community	public
Write community	public

There is no need to change the settings when you use it with default setting.

(1) Click the [Read community setting] button.

The [Read community setting] screen is displayed.



(2) Enter the new Read community.

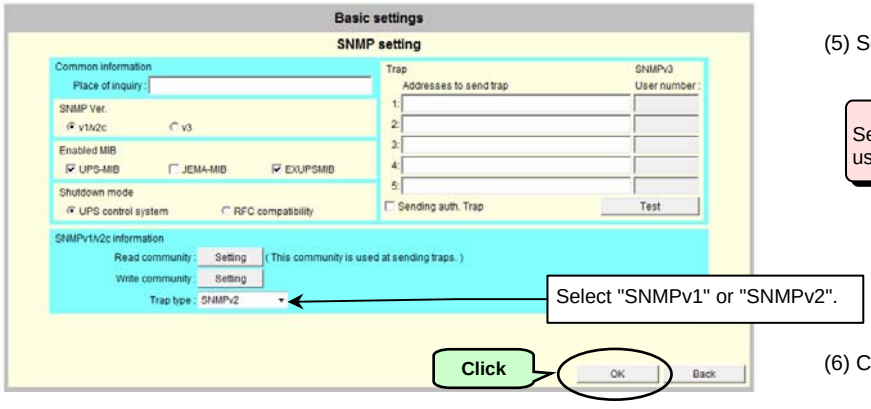
Caution

- Entry columns are blank when the community setting screen is displayed.
- You can enter up to 128 single-byte characters.
- Characters are displayed as asterisks (*) as you type.

(3) Click the [OK] button.

(4) Configure the Write community in the same way.

[SNMP settings] screen



(5) Select the trap type.

Point

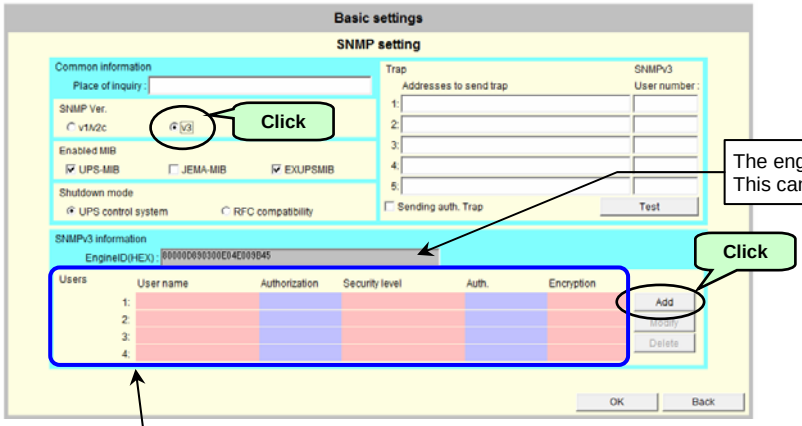
Select "SNMPv1" when monitoring the UPS using SANUPS IT Monitor Manager.

(6) Click the [OK] button.

Configuring SNMP v3 information

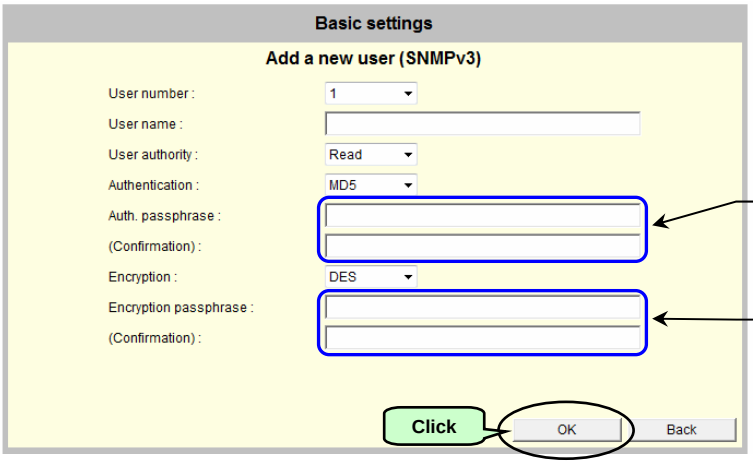
Configure [SNMPv3 information] on the [SNMP settings] screen.

[Adding users]



(1) Click the [Add] button.

The [Add a new user (SNMPv3)] screen is displayed.



(2) Enter the information of the user you want to add.
See the following table for details of the input items.

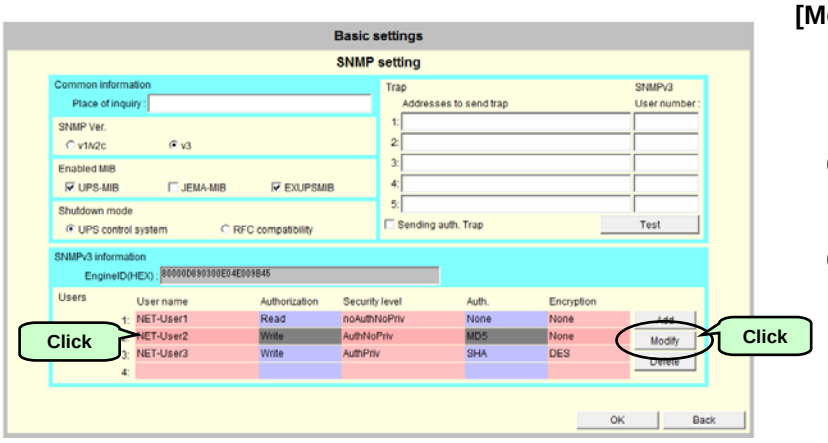
You cannot enter when the field is grayed out.
Entry is enabled depending on the value you select for "Authentication"

You cannot enter when the field is grayed out.
Entry is enabled depending on the value you select for "Encryption"

(3) Click the [OK] button.

Displayed item	Description		Default value
User number	Select the user number to be added.		
User name	Enter the user name. You can enter 8 to 32 single-byte characters. The user name is case sensitive.		
User authority	Select the authorization.		
	Read	Read privilege only	Selected
	Write	Read and write privileges	
Authentication	Select the authentication method.		
	None	"Auth. passphrase" is enabled if you select [MD5] or [SHA]. Select to suit your environment.	Selected
	MD5		
	SHA		
Auth. passphrase :	Enter the passphrase. You can enter 8 to 32 single-byte characters. Characters are displayed as asterisks (*) as you type.		
Encryption	Select the encryption method.		
	None	[Encryption passphrase] is enabled if you select [DES]. Select to suit your environment.	Selected
	DES		
Encryption passphrase	Enter the passphrase. You can enter 8 to 32 single-byte characters. Characters are displayed as asterisks (*) as you type.		

[Modifying registered users]

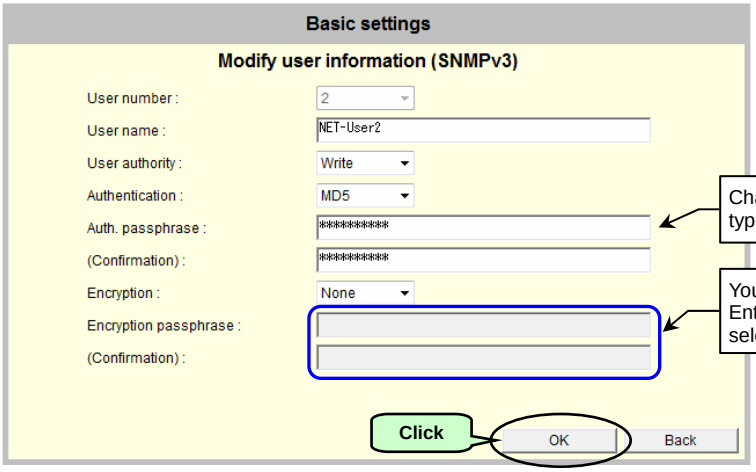


(1) Select the user you want to modify.

The selected line is highlighted in reverse video.

(2) Click the [Modify] button.

The [Modify user information (SNMPv3)] screen is displayed.



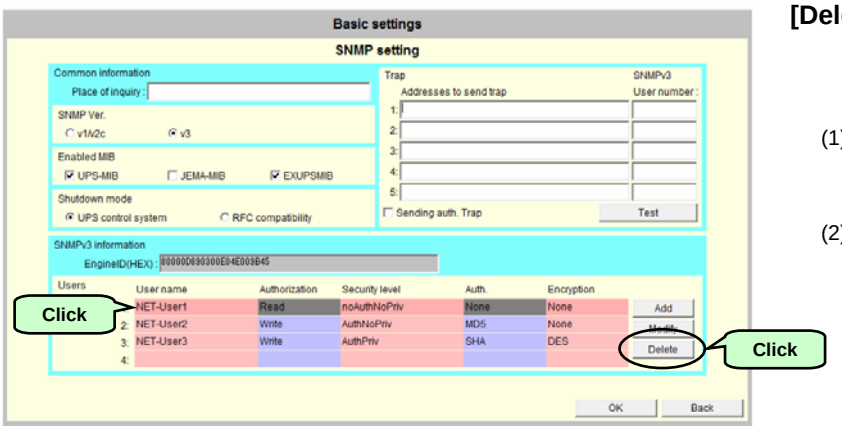
(3) Modify the information as necessary.
See the table on the previous page for details of the input items.

Characters are displayed as asterisks (*) as you type.

You cannot enter when the field is grayed out. Entry is enabled depending on the value you select for "Encryption".

(4) Click the [OK] button.

[Deleting registered users]

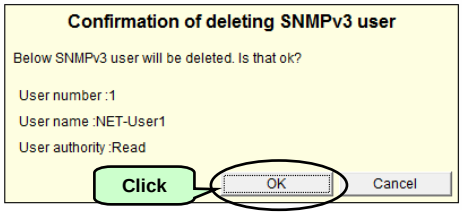


(1) Select the user you want to delete.

The selected line is highlighted in reverse video.

(2) Click the [Delete] button.

The [Confirmation of deleting SNMPv3 user] screen is displayed.



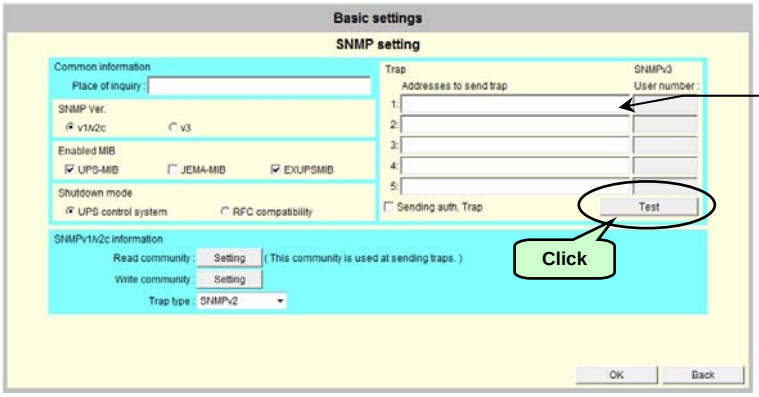
(3) Click the [OK] button.

Caution

You cannot undo the delete operation.

5.3.4 Testing trap transmission

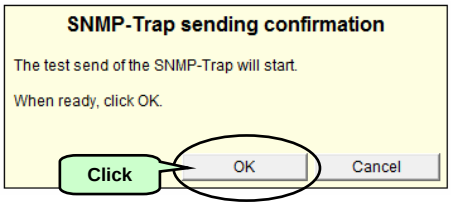
You can test the trap transmission using the [Test] button.



The SNMP trap is sent to the recipients displayed in the recipient address fields.
A "ColdStart" is transmitted from the standard MIB.

(1) Click the [Test] button.

The [SNMP-Trap sending confirmation] screen is displayed.



(2) Click the [OK] button.

About the transmission test result

Check the result of the trap transmission test in the SNMP manager or the event log on the UPS. See "5.5.8 Checking the UPS event log" for information on how to check the event log.
If you are using the event log, check if the event log conditions for "Finished sending SNMP-Trap" and "Failed to send SNMP-Trap" are enabled before testing. Events are not logged if the conditions are disabled. See "5.5.2 Configuring event log recording conditions" for information on how to enable them.

5.4 Configuring Scheduled Operations

5.4.1 About scheduled operations

You can schedule UPS shutdowns and restarts.

This function is useful in the following cases.

- To shut down and start computers at a specified time every day.
- To shut down computers before a bank holiday and restart when the holiday is over.

You can specify 2 types of schedules for the UPS.

Weekly schedule

You can set a common schedule from Sunday to Saturday and repeat it for 365 days.
You can specify the start-up time and shutdown time for each week day.

Schedule for specific dates

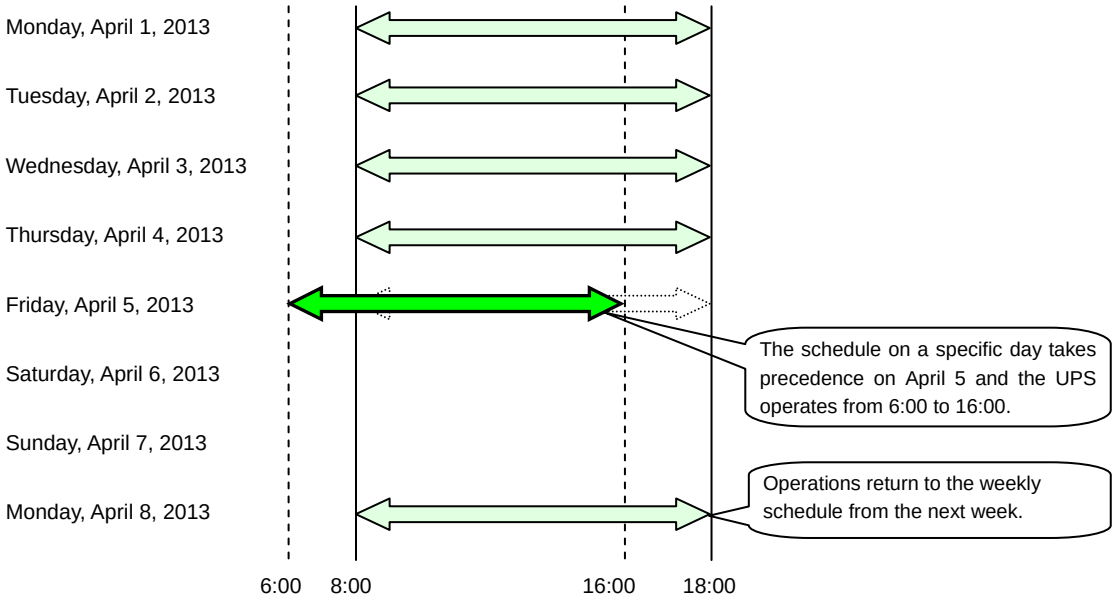
You can schedule a start-up time and shutdown time for specific dates.
For example, you can specify the start-up time at 8:00 and shutdown time at 17:00 on April 1, 2013.

Caution

The schedule for a specific date takes precedence when weekly and specific dates are scheduled.
You can schedule 1 start-up time and 1 shutdown time a day. You cannot start or shut down twice or more in the same day.

The following schedule settings operate as shown in the figure.

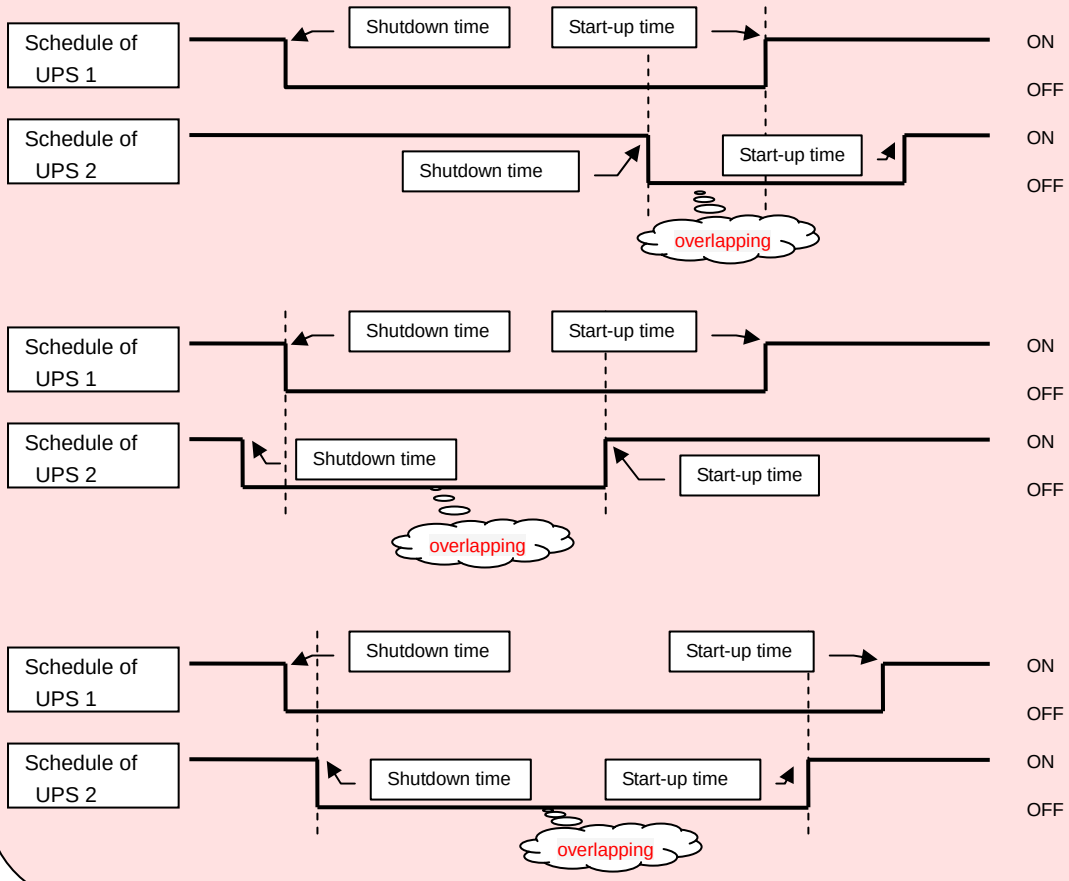
Weekly schedule: Monday to Friday, start at 8:00 and shut down at 18:00
Specific date: April 5, start at 6:00 and shut down at 16:00



Note on Setting of UPS linkage function"Run in sync at schedule management".

If you have enabled "Run in sync at schedule management" in "Synchronization setting by causes" screen of UPS linkage function, do not set overlap the schedule management time to multiple UPS of UPS group member as shown in the figure below.
Also, do not set same schedule management time to multiple UPS.
If schedule management time is overlapped, the UPS may not operate according to the setting.

When setting schedule management to each UPS, disable the setting of "Run in sync at schedule management" in "Synchronization setting by causes" screen.

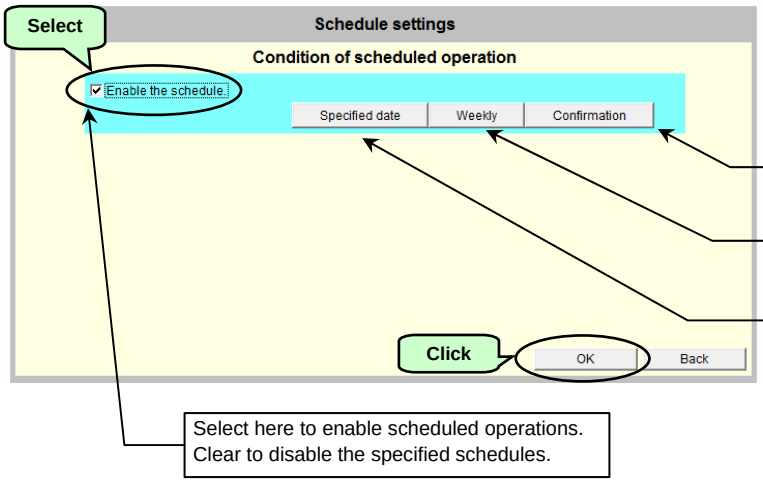


5.4.2 Enabling and disabling scheduled operations

You can enable or disable scheduled operations.
When enabled, the UPS starts up and shuts down as specified in the weekly and specific date schedules.

(1) Click the [Schedule settings] button on the main screen.

The [Schedule settings] screen is displayed.



(2) Select [Enable the schedule] to enable scheduled operations.

Displays the list of specified schedules.

Click here to specify the weekly schedule.
See "5.4.3 Configuring the weekly schedule".

Click here to specify the schedule for a specific date.
See "5.4.4 Configuring the schedule for a specific date".

(3) Click the [OK] button.

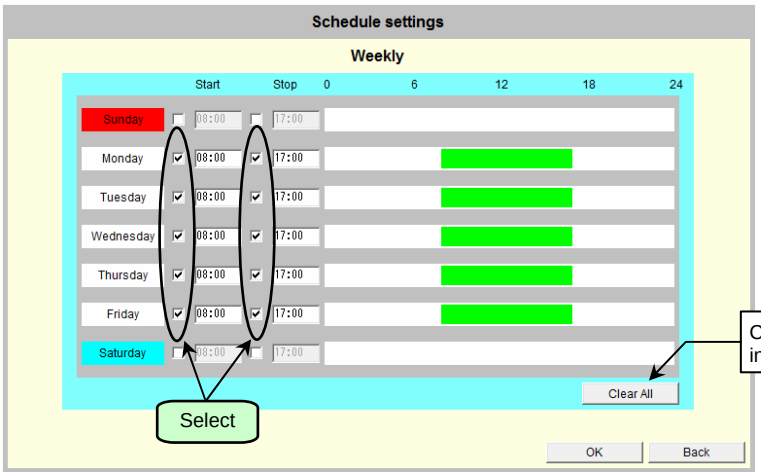
Select here to enable scheduled operations.
Clear to disable the specified schedules.

5.4.3 Configuring the weekly schedule

This section describes how to specify the weekly schedule.

(1) Click the [Weekly] button on the schedule settings screen.

The [Weekly] screen is displayed.



(2) Select the day of the week for which you want to specify the start-up time, and enter the start-up time.

(3) Select the day of the week for which you want to specify the shutdown time, and enter the shutdown time.

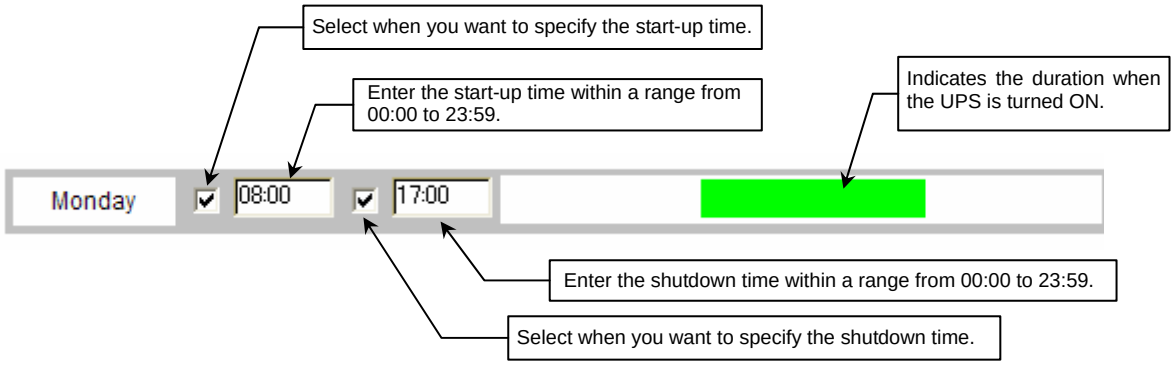
(4) Click the [OK] button.

Click the [Clear All] button to erase all setting information.

Caution

The default values are 8:00 for the start-up time and 17:00 for the shutdown time.
Clicking the [Clear All] button restores these default values.

The above screenshot shows the weekly schedule to start at 8:00 and shut down at 17:00 from Monday to Friday.



5.4.4 Configuring the schedule for a specific date

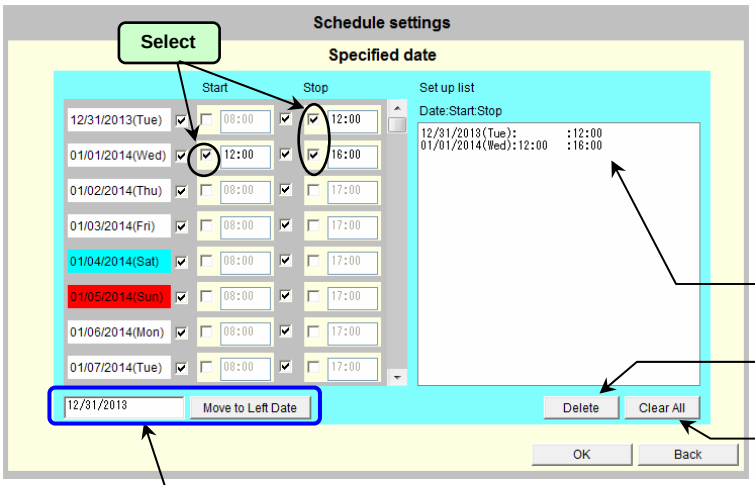
This section describes how to configure the schedule for a specific date.

(1) Click the [Specified date] button on the schedule settings screen.

The [Specified date] screen is displayed.

Point

You can register up to 50 schedules for specific dates.



(2) Select the date for which you want to specify the start-up time, and enter the start-up time.

(3) Select the date for which you want to specify the shutdown time, and enter the shutdown time.

(4) Click the [OK] button.

A list of the specified start-up times and shutdown times is displayed.

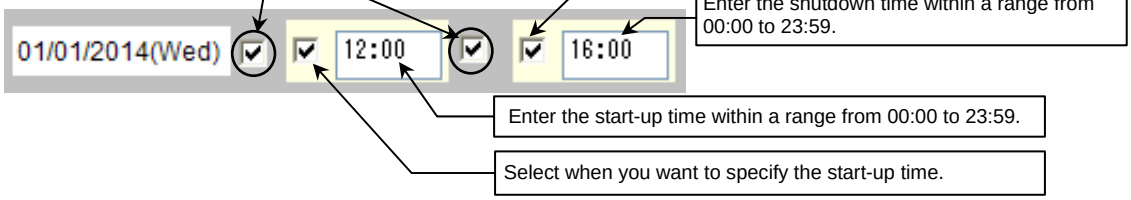
Select a date from the list and click the [Delete] button to delete the schedule for a specific date.

Click the [Clear All] button to delete the schedule for all the dates.

Enter the date you want to schedule and click the [Move to Left Date] button.

The above screenshot shows that the UPS is scheduled to shut down at 12:00 on December 31, start at 12:00 on January 1, and then shut down at 16:00 on the same day.

The UPS starts up or shuts down at the specified time when the checkbox is selected.
If it is not selected, [Restrain]* is displayed in the list and the UPS will not start up or shut down.



Select when you want to specify the shutdown time.

Enter the shutdown time within a range from 00:00 to 23:59.

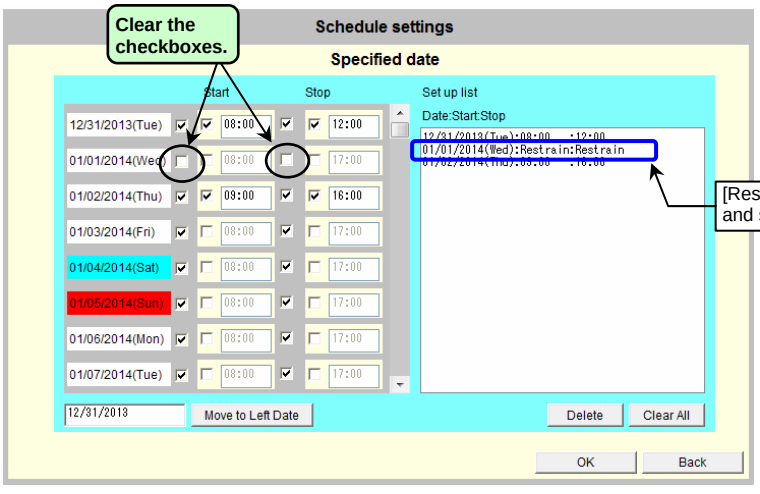
Enter the start-up time within a range from 00:00 to 23:59.

Select when you want to specify the start-up time.

Specify a date to restrain* the scheduled operations.

*Restrained scheduled operations

When you have a weekly schedule to start up and shut down from Monday, there may be bank holidays where the UPS does not need to start up or shut down. In this situation, you can specify to restrain (no start-up and shutdown) the scheduled operations. There is no need to modify the weekly schedule. You can also specify to restrain the scheduled operations even when you have a schedule for the specific date.



[Restrain] is displayed and start-up and shutdown are disabled.

Example: Clear the checkboxes to prevent the UPS from starting up and shutting down on Wednesday, January 1.

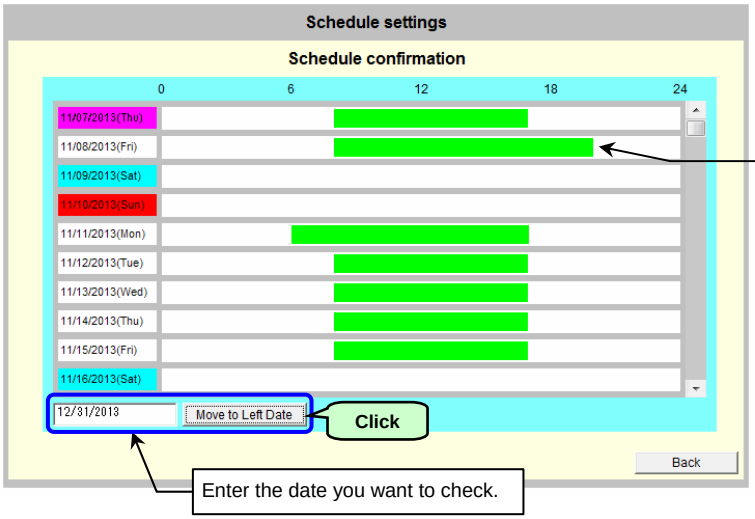
The UPS does not start up or shut down on Wednesday, January 1 because the scheduled operations are restrained, and will start on January 2 instead.

5.4.5 Checking the configured schedule

This section describes how to check the weekly schedule and the schedule for specific dates.

(1) Click the [Confirmation] button on the schedule settings screen.

The [Schedule confirmation] screen is displayed.



(2) Check the operation schedule for the UPS.

ndicates the operating duration of the UPS

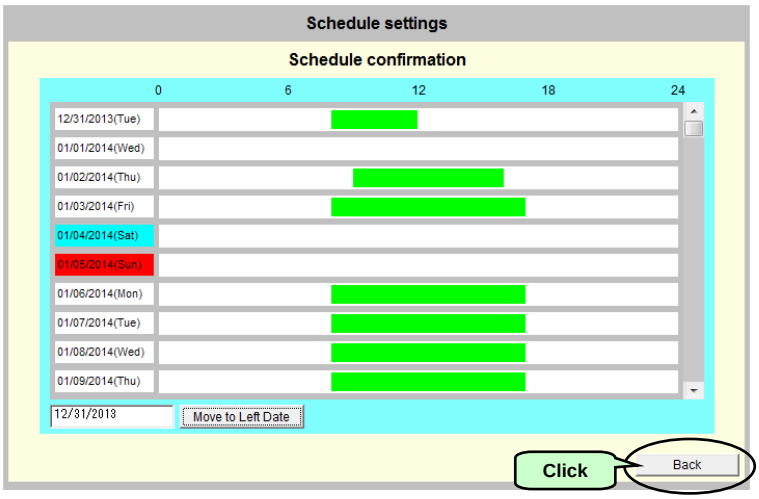
The screenshot is the confirmation screen with the following settings.

Weekly schedule
Monday to Friday, start-up at 8:00, shutdown at 17:00

Schedule for specific dates
November 8, start-up at 8:00, shutdown at 20:00
November 11, start-up at 6:00, shutdown at 17:00

(3) Enter the date you want to check, and click the [Move to Left Date] button.

The schedule for 10 days from the specified date is displayed.



The screenshot is the confirmation screen with the following settings.

Weekly schedule
Monday to Friday, start-up at 8:00, shutdown at 17:00

Schedule for specific dates
December 31, start-up at 8:00, shutdown at 12:00
January 2, start-up at 9:00, shutdown at 16:00

Restrained scheduled operation
January 1

(4) Click the [Back] button.

The condition of scheduled operations screen is displayed again.

Point

You can also check the next shutdown date and time and next start-up date and time on the UPS information screen.
See "5.8.1 Checking UPS device information" for details.

5.5 Configuring Events

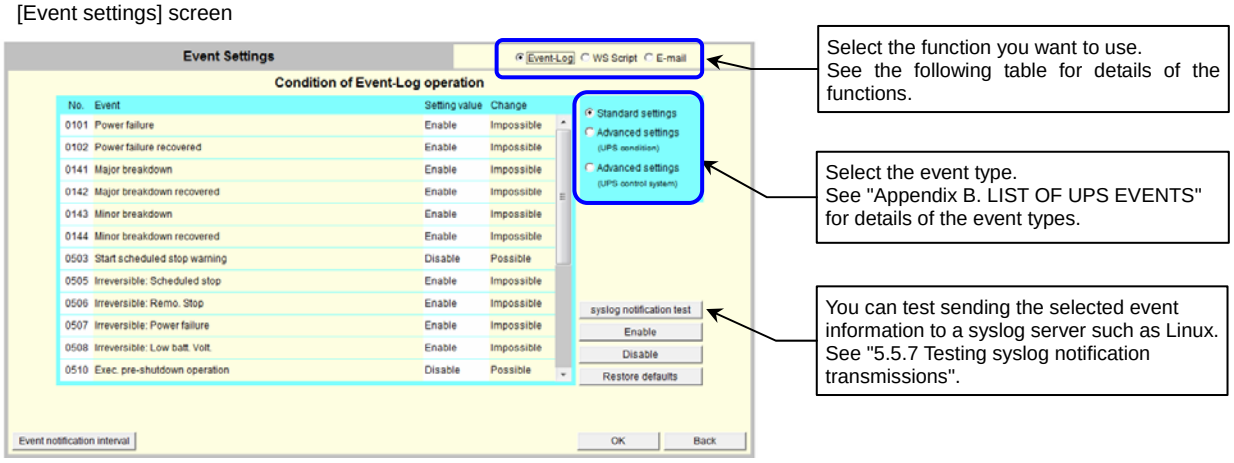
5.5.1 About events

"Events" are phenomena such as a power failure, restoration, UPS status transition, shutdown, etc.

The following 3 functions can be specified for each event on the event settings screen.

- Enable or disable logging events
- Run a script on WS
- Enable or disable e-mail transmissions

[Event settings] screen



Event settings	Description
Event-Log	Enable or disable logging for each event. The following items are saved in the event log. • Status changes such as when the power failure occurred • Which device was shut down • Which device modified UPS configurations See "5.5.2 Configuring event log recording conditions". If the event is logged, you can also specify to send notifications to the syslog server when the given event occurs. See "5.5.6 Configuring syslog notifications".
WS Script	You can specify commands to be executed in the WS script. Specify the commands to be executed for given events on the WS on which the UPS directly logs in using Telnet or SSH to shut down. This function is useful when you need to run a command to terminate the application before shutting down. See "5.5.3 Writing and editing WS scripts".
E-mail	Enable or disable sending e-mails for each event. The e-mail to notify that an event has occurred is sent to the specified e-mail addresses when the given event occurs. See "5.6 Configuring E-mail Functions".

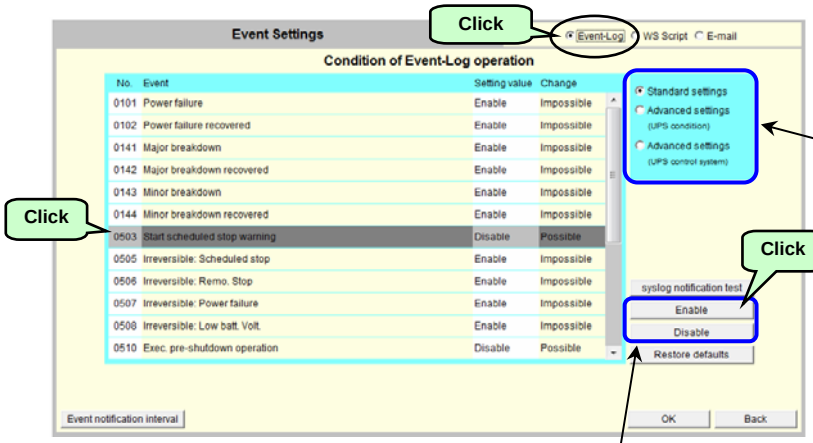
5.5.2 Configuring events

5.5.2.1 Configuring event log recording conditions

You can enable or disable logging for each event.

(1) Click the [Event settings] button on the main screen.

The [Event settings] screen is displayed.



(2) Select [Event-Log].

Switch between event types.
See "Appendix B. LIST OF UPS EVENTS" for the details of event types.

(3) Select the event type.

(4) Select the event to be configured.

The line of the selected event is highlighted in reverse video.

(5) Specify whether to enable or disable.

(6) Click the [OK] button.

Specify whether to enable or disable.

The [Enable] and [Disable] buttons are enabled when you have selected an event where [Possible] is displayed in the [Change] column.
You cannot change the configuration of the event when [Impossible] is displayed in the [Change] column.

Caution

If you select [WS Script] or [E-mail] after modifying the configuration without clicking the [OK] button, the modification is not applied to the UPS. Be sure to click the [OK] button before switching the function.

Event types (See "Appendix B. LIST OF UPS EVENTS" for the details.)

Displayed item	Description
Standard settings	Specify the standard items. You cannot change the configuration of the event when [Impossible] is displayed in the [Change] column.
Advanced settings (UPS condition)	Specify the details of UPS operations such as breakdown details.
Advanced settings (UPS control system)	Specify items concerning UPS management. You cannot change the configuration of the event when [Impossible] is displayed in the [Change] column.

Button name	Description
syslog notification test	You can test sending the event log of the selected event to a syslog server such as Linux. See "5.5.7 Testing syslog notification transmission".
Enable	Switches the setting value from **Disable** to **Enable**. The selected event is **Enable**d for logging.
Disable	Switches the setting value from **Enable** to **Disable**. The selected event is **Disabled** for logging.
Restore defaults	Restore the default value for the selected event item.
OK	Save the modified contents.
Cancel	Return to the main screen. If you have not clicked the [OK] button after modifying configurations, the modifications are not applied.

5.5.2.2 Configuring event notification intervals

You can specify the intervals (days) between event notifications when the following events are occurring repeatedly.

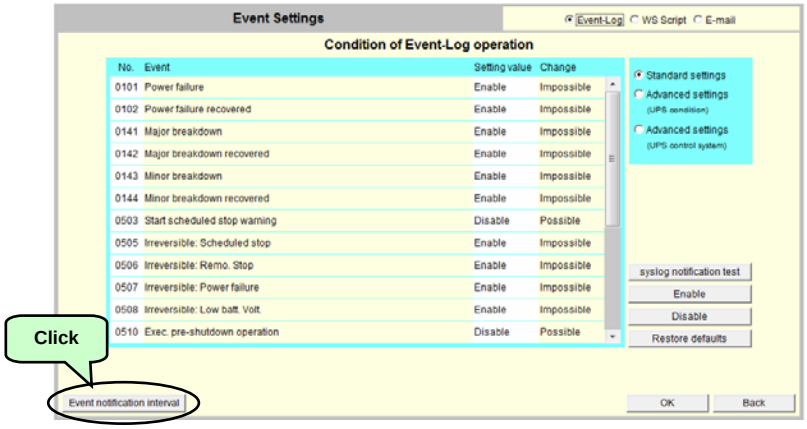
- Battery life
- Major breakdown
- Minor breakdown
- Batt.-replace warning time

Caution

You need to configure as follows to receive event notifications.
- Specify [Enable] for [Condition of Event-Log operation].
- Specify [E-mail] for [Event Settings] receive the events via e-mail. See "5.6 Configuring E-mail Functions".

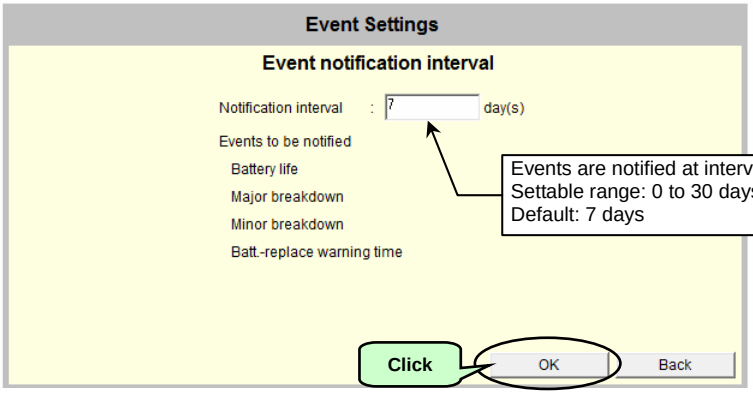
(1) Click the [Event settings] button on the main screen.

The [Event settings] screen is displayed.



(2) Select [Event-Log].

The [Event notification interval] screen is displayed.



(3) Enter a value to [Notification interval].

(4) Click the [OK] button when you have finished.

5.5.3 Writing and editing WS scripts

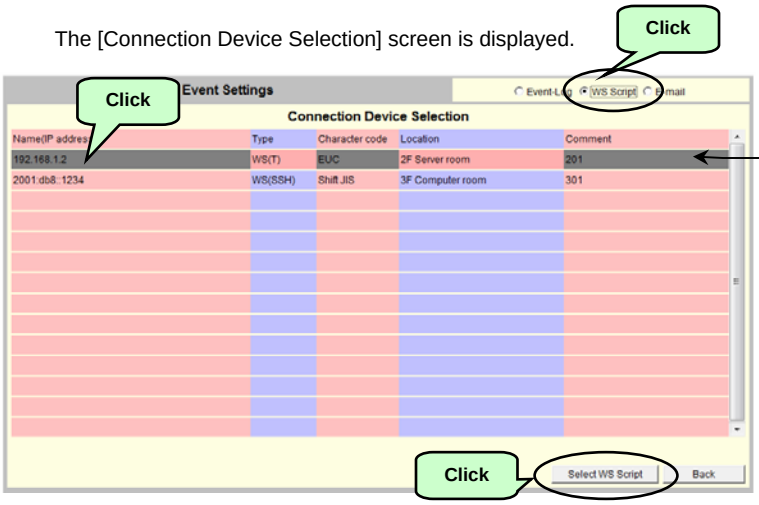
You can specify how to log in to WS and which commands are to be executed when shutting down the WS or executing application commands.

About script...

"Scripts" are descriptions of a series of operations such as transmitting commands to computers. They are different from shell scripts in UNIX.

(1) Click the [Event settings] button on the main screen.
(2) Select [WS Script] on the event settings screen.

The [Connection Device Selection] screen is displayed.



A list of registered WS is displayed.

Caution

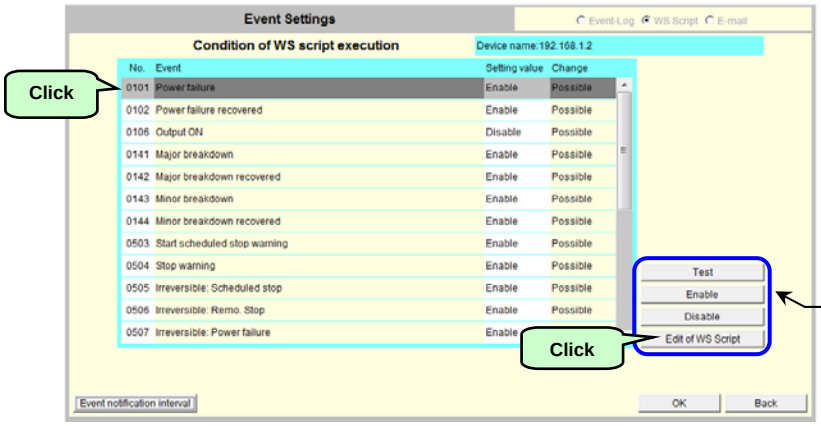
WS with UPS management software are not displayed.

(3) Select the line of the WS for the script you want to modify.

The line of the selected WS is highlighted in reverse video.
Once a WS is selected, the [Select WS Script] button at the bottom of the screen is enabled.

(4) Click the [Select WS Script] button.

The [Condition of WS script execution] screen is displayed.



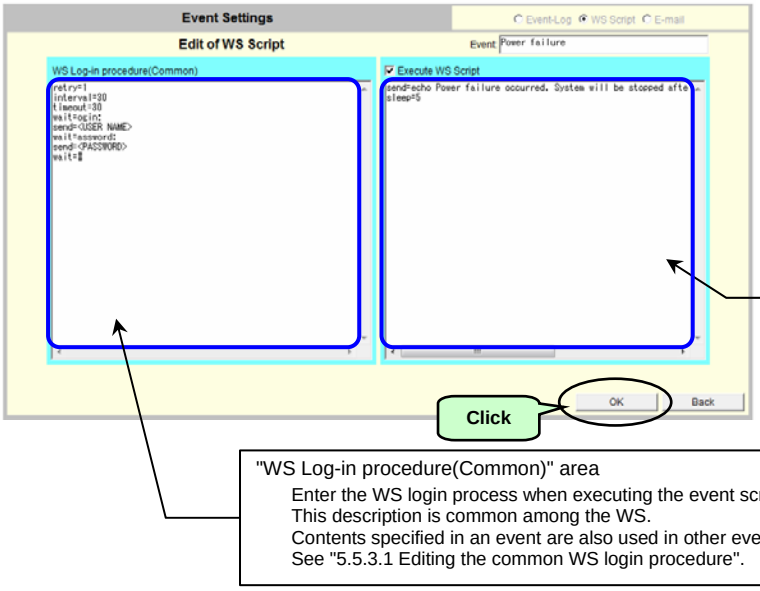
(5) Select the line of the event for the WS script you want to modify.

The selected line is highlighted in reverse video.
Once an event is selected, the buttons in a blue frame in the screenshot on the left are enabled.

Select when enabling or disabling the setting value, or modifying the WS script.

(6) Click the [Edit of WS Script] button.

The [Edit of WS script] screen is displayed.
The following screenshot shows the edit of WS script screen for [Power failure].



(7) Edit the WS script.

(8) Click the [OK] button when you have finished.

"WS script" procedure area
Describe the commands to be executed in the given event.
The UPS logs in remotely to the WS as described in [WS Log-in procedure(Common)] and executes the commands specified for the event.
These settings are event specific.
See "5.5.3.2 Editing WS scripts".

"WS Log-in procedure(Common)" area
Enter the WS login process when executing the event script.
This description is common among the WS.
Contents specified in an event are also used in other events.
See "5.5.3.1 Editing the common WS login procedure".

5.5.3.1 Editing the common WS login procedure

The following table describes the default values of login scripts. Edit to suit your environment.

WS(Telnet) or WS (LAN I/F card Log-in connection)

Line	Login script	Description	
1	retry=1	Specify the number of retries when the script has failed to execute.	Operational configurations of the login script.
2	interval=30	Specify the interval between retries.	
3	timeout=30	Specify the maximum wait time before receiving data in items with "wait=".	
4	wait=ogin:	Specify the wait time for the login name.	Login name entry.
5	send=<USER NAME>	Send the login name.	
6	wait=assword:	Specify the wait time for the password.	Password entry.
7	send=<PASSWORD>	Send the password.	
8	wait=#	Specify the wait time for completing logging in to the WS. (Waiting for the prompt display)	Waiting time for the login process completion. ("#" prompt is displayed when the login is successful)

WS(SSH)

Line	Login script	Description
1	retry=1	Specify the number of retries when the script has failed to execute.
2	interval=30	Specify the interval between retries.
3	timeout=30	Specify the maximum wait time before receiving data in items with "wait=".
4	keep_time=60	Specify the duration of the logged-in status.
5	wait=#	Specify the wait time for completing logging in to the WS. (Waiting for the prompt display)

Point

Account settings are not required in the WS login procedure for WS(SSH) since the account is specified in SSH authentication settings (see "5.5.4 Configuring SSH authentication").

Available commands for WS login procedures

Notes on command entry

Specify within 510 single-byte characters.
Whether or not to enter a space before and after "=" does not affect the process.

Command name	Description	Example
send	Specify the text to send to the WS.	send=shutdown
wait	Specify the text (prompt, etc.) to receive at the UPS.	wait=login
sleep	Specify the standby time without performing any processes. Unit: Seconds	sleep=90
timeout	Specify the wait time for the process to finish after executing a process. Unit: Seconds. Default: 30 seconds	timeout=60
retry	Specify the number of retries when the script has failed to execute. Unit: Times (0 to 10). Default: 1	retry=2
interval	Specify the interval between retries when the script has failed to execute. Unit: Seconds (1 to 60). Default: 30 seconds	interval=10
port	Specify the port number for Telnet or SSH on the WS. Valid range: 0 to 65,535 The following port numbers are used if omitted. WS(Telnet): 23 WS(SSH): 22	port=10023
cr_only	Specify the line feed code to be <CR>. Specify yes or no. The line feed code in any subsequent transmission data becomes <CR> if you specify yes. yes is assumed when omitted. (The line feed code is <CR>.)	cr only=yes cr only=no
binsend	Specify the 8-bit code to send to the WS. Valid range Hexadecimal view: x00 to xff Octal view: 000 to 377	Hexadecimal view binsend=x07 Octal view binsend=004
keep_time	Specify the duration of the logged-in status. The UPS is not logged off for the specified duration after completing the previous WS script. You can execute other WS scripts without logging in to WS. Valid range from 0 to 65,535 The following duration is used if omitted. WS(Telnet): 0 second WS(SSH): 0 second WS (LAN I/F card Log-in connection): 60 seconds	keep_time=120

When you cannot log in with superuser (root) privileges...

You may not be able to log in with superuser (root) privileges in some environments.
In this situation, use a "su" command to execute the command as the root user.

The following table shows an example of login scripts when using the "su" command.
This example assumes the user (user name: guest, password: guest) and root (password: root).

WS(Telnet) / WS (LAN I/F card Log-in connection)

Line	Login script	Description
1	retry=1	Operational configurations of the login script.
2	interval=30	
3	timeout=30	
4	wait=ogin:	Log in as a user "guest".
5	send=guest	Enter the login name "guest".
6	wait=assword:	Enter the password of the user "guest".
7	send=guest	Enter the password "guest".
8	wait=$	Wait for the $ prompt after the login.
9	send=su	Send the "su" command and execute it.
10	wait=assword:	Enter the password of root.
11	send=root	Enter the password "root".
12	wait=#	Wait for the # prompt after logging in as root.

5.5.3.2 Editing WS scripts

You can specify the script process to be executed on the WS for each event in the "WS script" procedure area.

Notes on command entry

Specify within 598 single-byte characters.
Whether or not to enter a space before and after "=" does not affect the process.

Available commands for "WS scripts"

Command name	Description	Example
send	Specify the text to send to the WS.	send=shutdown
wait	Specify the text (prompt) to receive at the UPS.	wait=login
sleep	Specify the standby time without performing any processes. Unit: seconds (s)	sleep=90
timeout	Specify the wait time for the process to finish after executing a process. Unit: Seconds. Default: 30 seconds	timeout=60
retry	Specify the number of retries when the script has failed to execute. Unit: Times (0 to 10). Default: 1	retry=2
interval	Specify the interval between retries when the script has failed to execute. Unit: Seconds (1 to 60). Default: 30 seconds	interval=10
cr_only	Specify the line feed code to be <CR>. Specify yes or no. The line feed code in any subsequent transmission data becomes <CR> if you specify yes. yes is assumed when omitted. (The line feed code is <CR>.)	cr_only=yes cr_only=no
binsend	Specify the 8-bit code to send to the WS. Valid range Hexadecimal view: x00 to xff Octal view: 000 to 377	Hexadecimal view binsend=x07 Octal view binsend=004
delay	Specify the delay time for executing the script. The login script is is executed after the specified delay time and then the event script is executed if "delay" are specified in the event script.	delay=60
keep_time	Specify the duration of the logged-in status. The UPS is not logged off for the specified duration after completing the previous WS script. You can execute other WS scripts without logging in to WS. Valid range: 0 to 65,535 The following duration is used if omitted. WS(Telnet): 0 second WS(SSH): 0 second WS (LAN I/F card Log-in connection): 60 seconds	keep_time=120

5.5.3.3 Available macro characters for scripts

In the case of target events, you can use macro characters in the text you are sending.
Macro characters in the following table are replaced with the corresponding text.

Macro character	Meaning	Target events (Event No.)
%STOP_TIME_M%	Remaining time before entering the irreversible status in minutes	Power failure (101), Start scheduled stop warning (503), Stop warning (504)
%STOP_TIME_S%	Remaining time before entering the irreversible status in seconds	Power failure (101), Start scheduled stop warning (503), Stop warning (504)
%SD_DELAY_TIME%	Shutdown delay time specified on the UPS in seconds	Exec. Pre-shutdown operation (510)
%BAT_CHG_MON%	Remaining months before the battery replacement	Batt.-replace warning time (512)

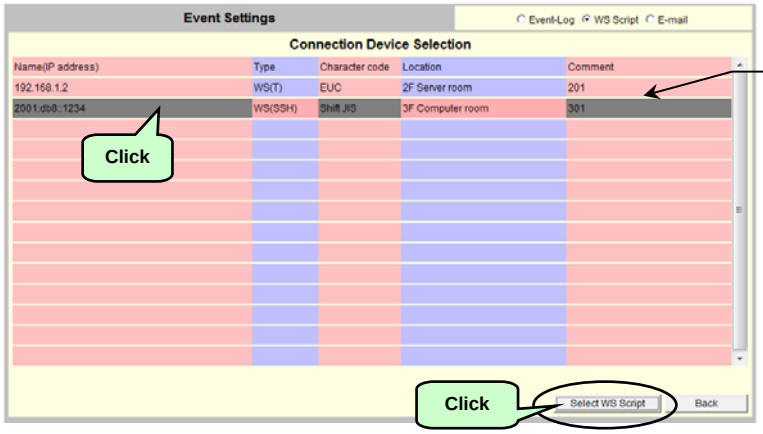
5.5.4 Configuring SSH authentication

This section describes how to specify the SSH authentication method for WS(SSH).

(1) Click the [Event settings] button on the main screen.
(2) Select [WS Script] on the event settings screen.

> **Caution**
> WS with UPS management software are not displayed.

The [Connection Device Selection] screen is displayed.



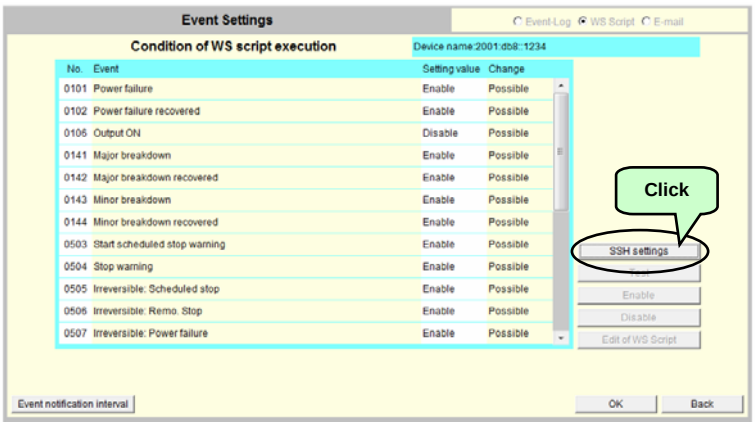
A list of registered WS is displayed.

(3) Select the line of the WS(SSH) for which you want to modify the SSH authentication method.

The line of the selected WS is highlighted in reverse video.
Once a WS is selected, the [Select WS Script] button at the bottom of the screen is enabled.

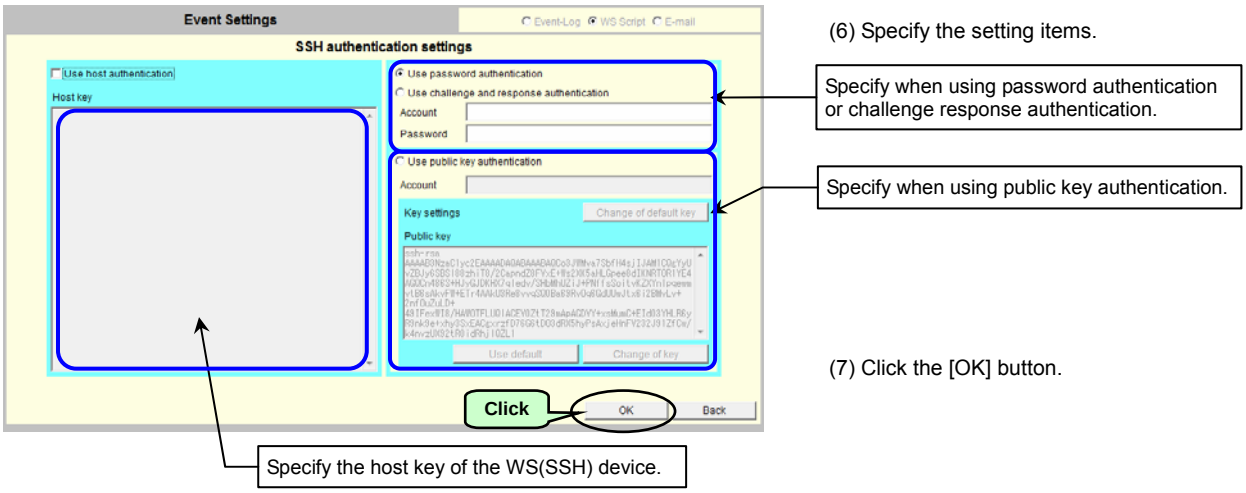
(4) Click the [Select WS Script] button.

The [Condition of WS script execution] screen is displayed.



(5) Click the [SSH settings] button.

The [SSH authentication settings] screen is displayed.



Caution

- If you click the [OK] button in the SSH authentication settings screen, you are returned to the condition of the WS script execution screen while retaining the items you have specified. The retained SSH authentication setting items are applied when you click the [OK] button on this screen. Changes are not applied by clicking the [OK] button on the SSH authentication settings screen. Any items specified on the subordinate screens of the SSH authentication settings screen are applied when you click the [OK] button in the condition of the WS script execution screen.

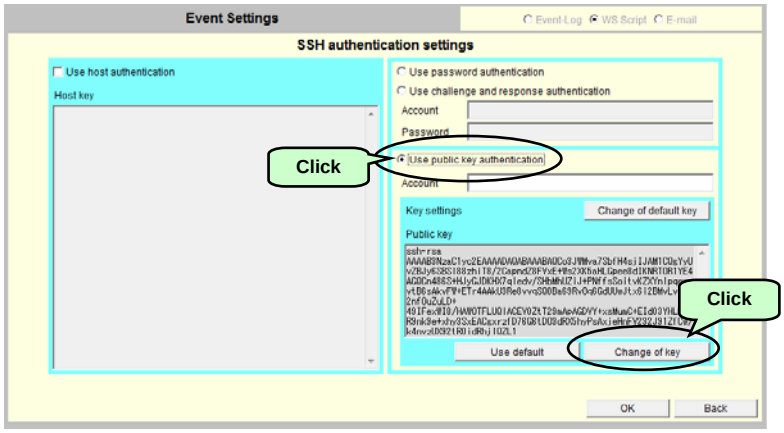
Screen item	Description		Default value
Use host authentication	Select to use host authentication on the WS(SSH).		Not selected
	Host key	Specify the host key of the WS(SSH). See the following table for conditions of supported keys. Set the text in the following files in general if the WS(SSH) device is OpenSSH. (1) /etc/ssh/ssh_host_dsa_key.pub (2) /etc/ssh/ssh_host_rsa_key.pub	Blank
Use password authentication	Specify password authentication as the user authentication method. Permit password authentication in the daemon configuration (sshd_config) on the given WS. The following lists associated keywords. (1) PasswordAuthentication yes (2) PermitRootLogin yes		Selected
	Account	Specify the account to log in to the WS(SSH) using password authentication.	Blank
	Password	Specify the password for the account.	Blank
Use challenge and response authentication	Specify challenge response authentication as the user authentication method. Permit challenge response authentication in the daemon configuration (sshd_config) on the given WS. The following lists associated keywords. (1) ChallengeResponseAuthentication yes (2) UsePAM yes (3) PermitRootLogin yes		Not selected
	Account	Specify the account to log in to the WS(SSH) using challenge response authentication.	Blank
	Password	Specify the password for the account.	Blank
Use public key authentication	Specify public key authentication as the user authentication method.		Not selected
	Account	Specify the account to log in to the WS(SSH) using public key authentication.	Blank
	Public key	Displays the current public key. You need to register this client public key to the client public key storage file (example: ~/.ssh/authorized_keys) on the connection destination SSH server to make an SSH connection to a WS(SSH) device. Contact your server administrator for details.	Factory setting (2048-bit RSA key)
	Change of default key	Modify the client authentication key set as the default when the WS(SSH) device is registered.	
	Use default	Use the default key as the client authentication key for the given WS(SSH).	
	Change of key	Modify the client authentication key.	

Conditions for keys supported by this device

Supported version	SSH 2.0	SSH 1.0 is not supported
Key type	OpenSSH	Commercial SSH is not supported
Public key encryption algorithm	DSA or RSA	
Passphrase	None	Passphrase key is not supported
Key comments	None	Delete key comments
Length	1024 or 2048 bits	

5.5.4.1 Modifying the key for public key authentication

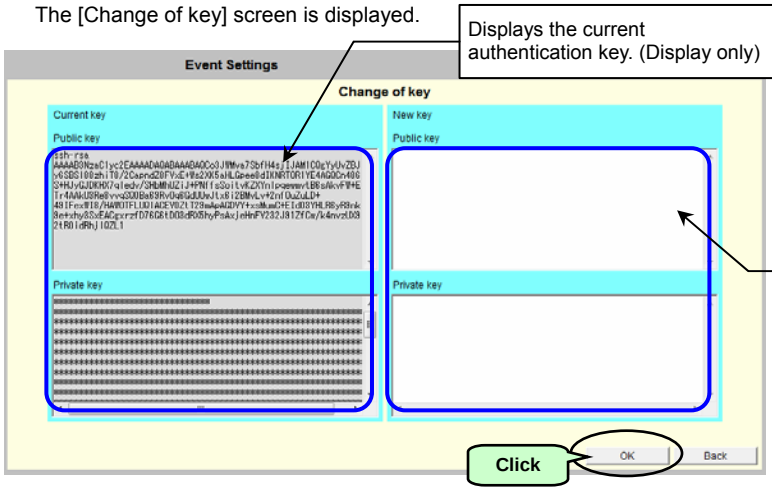
This section describes how to modify the public key for user authentication for WS(SSH) devices.



(1) Click [Use public key authentication] on the SSH authentication settings screen.

(2) Click the [Change of key] button.

The [Change of key] screen is displayed.



(3) Specify the new key.

Paste the new key text in this column.

(4) Click the [OK] button.

Screen item	Description		Default value
Current key	Displays the current keys.		
	Public key	Displays the client public key.	Factory setting (2048-bit RSA key)
	Private key	Displays the private key as asterisks (*) for security reasons.	Factory setting (2048-bit RSA key)
New key	Paste the new keys.		
	Public key	Paste the new client public key text (PEM format). Conditions of the supported key are the same as those for the host key.	Blank
	Private key	Paste the new client private key text (PEM format). Conditions of the supported key are the same as those for the host key.	Blank

Caution

This device does not generate a new key. Use the ssh-keygen command in OpenSSH or the key generation function in SSH related tools and paste the generated key text (PEM format) to this screen.
The following restrictions apply on this device. Check carefully when generating a new key.

Supported version	: SSH 2.0	Passphrase	: None
Key type	: OpenSSH	Key comments	: None
Public key encryption algorithm	: DSA or RSA	Length	: 1024 or 2048 bits

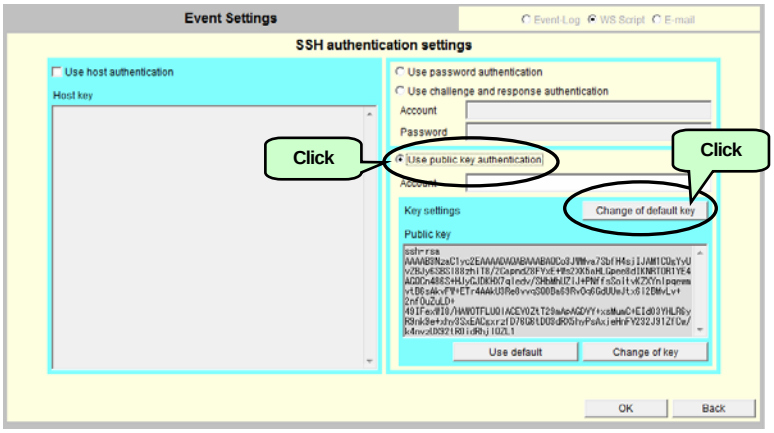
(Example) The following example shows how to generate a new key in OpenSSH.

ssh-keygen –t rsa –b 1024 –N ””

-t: key type (rsa or dsa)
-b: Length (1024 or 2048 bits)
-N: Passphrase (none: "")

5.5.4.2 Modifying the default key

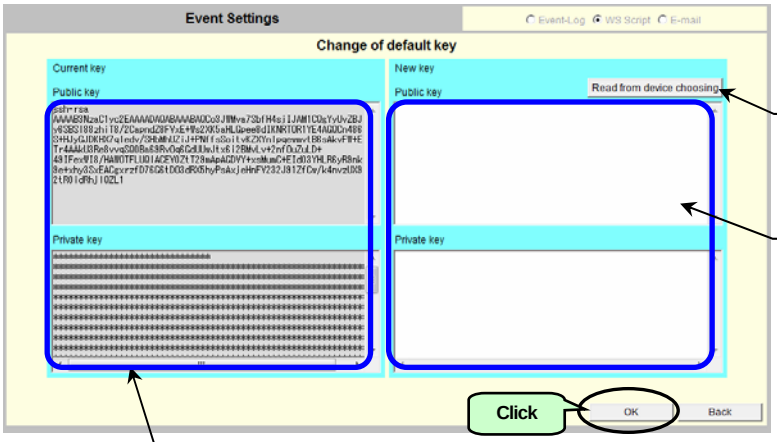
This section describes how to modify the authentication key that is set as the default when the WS(SSH) device is registered.



(1) Click [Use public key authentication] on the SSH authentication settings screen.

(2) Click the [Change of default key] button.

The [Change of default key] screen is displayed.



(3) Specify the new key.

Use the default key as the client authentication key for the displayed WS(SSH) device.

Enter the new key in this column.

(4) Click the [OK] button.

Displays the default keys that are currently set. (Display only)
Displays the private key as asterisks (*) for security reasons.

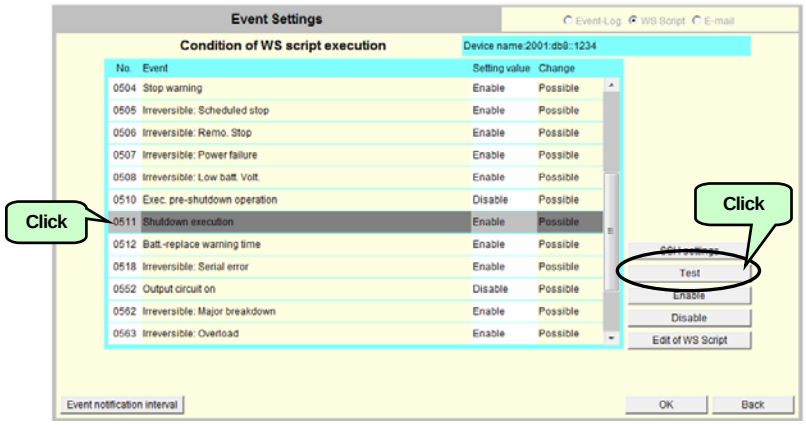
Screen item	Description		Default value
Current key	Displays the default keys that are currently set.		
	Public key	Displays the default public key.	Factory setting (2048-bit RSA key)
	Private key	Displays the default private key as asterisks (*) for security reasons.	Factory setting (2048-bit RSA key)
New key	Paste the new keys.		
	Read from device choosing	Specify the client authentication keys currently set on the WS(SSH) device as the new public and private keys.	Enabled
	Public key	Paste the new default client public key text (PEM format). Conditions of the supported key are the same as those for the host key.	Blank
	Private key	Paste the new default client private key text (PEM format). Conditions of the supported key are the same as those for the host key.	Blank

5.5.5 Testing WS script operations

This section describes how to test the script you have set in "5.5.3 Writing and editing WS scripts".

(1) Select [WS Script] on the event settings screen.
(2) Click the [Select WS Script] button.

The [Condition of WS script execution] screen is displayed.



Caution

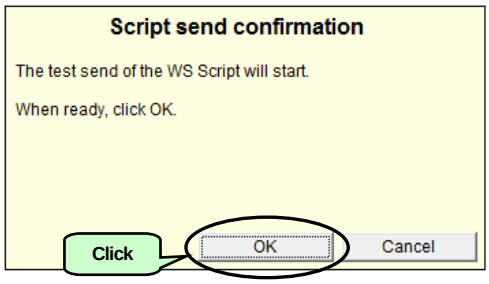
You cannot test a WS script while testing another WS scripts, e-mail transmissions, or a shutdown.

(3) Select the line of the event that you want to test.

The selected line is highlighted in reverse video. Once an event is selected, buttons on the right of the screen are enabled.

(4) Click the [Test] button.

The [Script sends confirmation] screen is displayed.

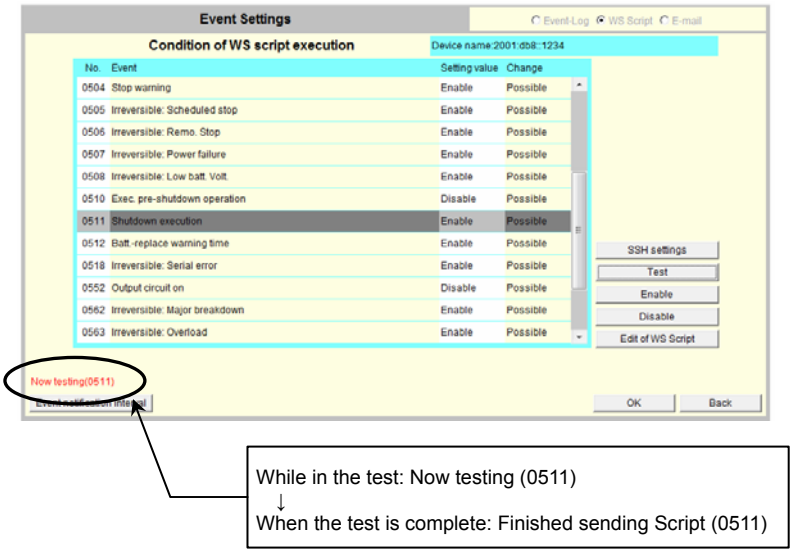


(5) Click the [OK] button.

The test of the selected event starts.

A message is displayed at the bottom of the screen to indicate the test is in progress.

The test result is displayed at the bottom of the screen when the test is complete.



While in the test: Now testing (0511)
↓
When the test is complete: Finished sending Script (0511)

Script test results

The result is displayed when the script test is complete.

Notes on the result display

"Finished sending Script" indicates the processes set in the script are complete, and does not indicate the successful execution of the specified commands.
Therefore, it is possible that the specified command failed on the WS because it contained an incorrect path or incorrect character, or for some other reasons. Check the status of the actual device to see the result of the specified commands.

The following tables show examples of the displayed results.

- Message for successful execution

Display example	Finished sending Script (0511)
Description	The script of event No.0511 (shutdown) was successful.

- Message for failed execution

Display example	Failed to send Script (0511) Details: E=511,L=8T
Description	The script of event No.0511 (shutdown) failed. Details: E = 0511 Indicates the event No. L = 8T Indicates a timeout on the 8th line in the login procedure. Indicates the cause. T: Timeout F: Format error (incorrect script syntax) Indicates the line in a number. (Indicates the 8th line.) Indicates the script type. L: Loin procedure S: WS Script

- Message for failed execution (SSH connection)

Display example	Failed to send Script (0511) Details: ERROR-XXXXX
Description	The script of event No.0511 (shutdown) failed. Details: ERROR-XXXXX Indicates an SSH associated internal error code. See "Appendix D. WS SCRIPT ERROR CODES" for the details of error codes.

- Message while the test in progress

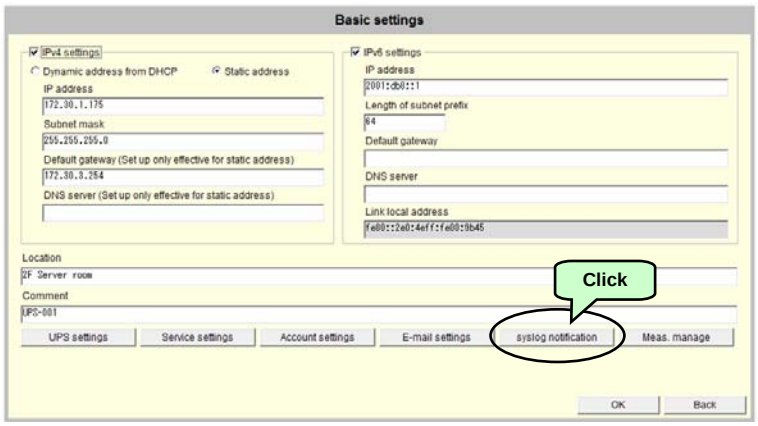
Display example	Now testing (0511)
Description	The script of event No.0511 (shutdown) is being executed.

5.5.6 Configuring syslog notifications

This section describes the conditions for notifying the event log from the UPS to the syslog server when the given event occurs.

(1) Click the [Basic settings] button on the main screen.

The [Basic settings] screen is displayed.

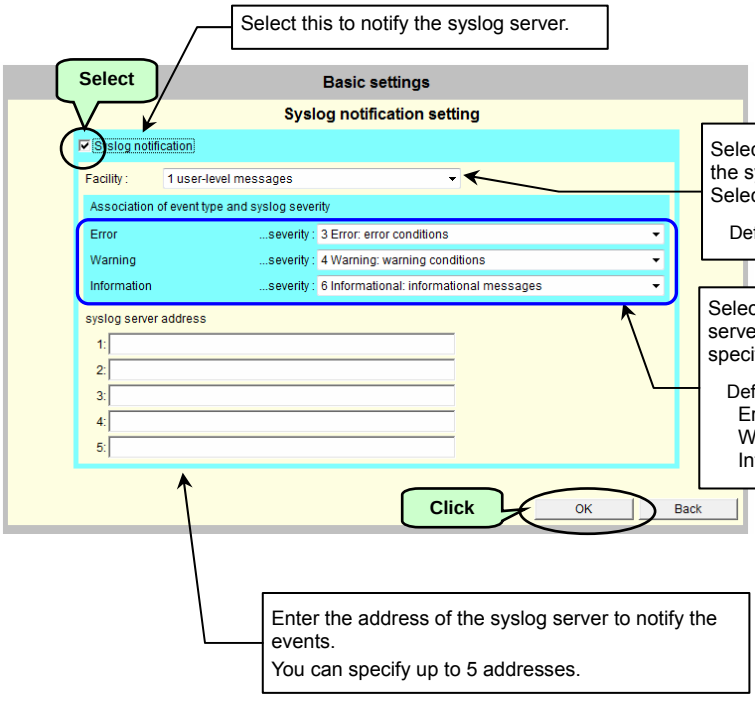


Caution

The event log is sent to the syslog server if you have enabled the event in "5.5.2 Configuring event log recording conditions".
Notification for the event is not sent if it is set to "Disable".

(2) Click the [Syslog notification] button.

The [Syslog notification setting] is displayed.



(3) Select [Syslog notification].
(4) Specify the conditions.

Select the level of the message to send from the UPS to the syslog server. Items are RFC3164 compliant. Select to suit your specifications.

Default value: Facility: 1 user-level messages

Select the type of the event to be notified to the syslog server. Items are RFC3164 compliant. Select to suit your specifications.

Default values:
Error: 3 Error: error conditions
Warning: 4 Warning: warning conditions
Information: 6 Informational: Informational messages

(5) Click the [OK] button.

Enter the address of the syslog server to notify the events.
You can specify up to 5 addresses.

5.5.7 Testing syslog notification transmissions

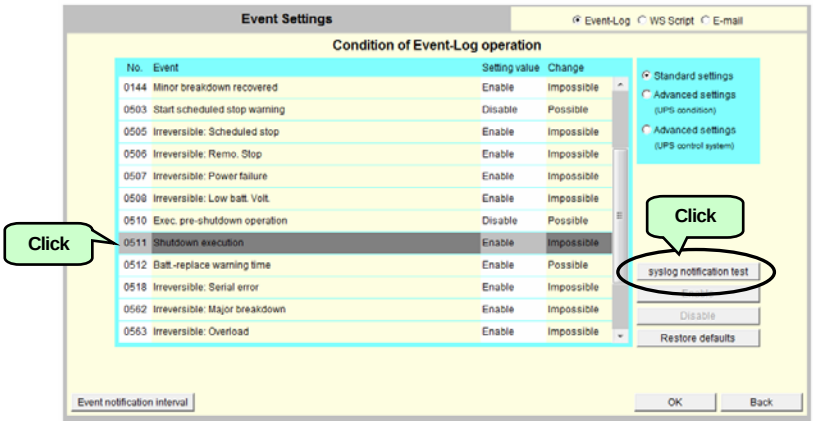
This section describes how to test transmission of event logs to the addresses you specified in "5.5.6 Configuring syslog notifications".

Caution

- You can test transmission of events even if the event is set to "Disable" in "5.5.2 Configuring event log recording conditions". However, these disabled events are not notified when they actually occur.
- You cannot test syslog notification while testing a WS script, e-mail transmission, or a shutdown.

(1) Select [Event-Log] on the event settings screen.

[Condition of Event-Log operation] screen



(2) Select the line of the event for which you want to test the syslog notification.

The selected line is highlighted in reverse video. Once an event is selected, the [syslog notification test] button is enabled.

(3) Click the [syslog notification test] button.

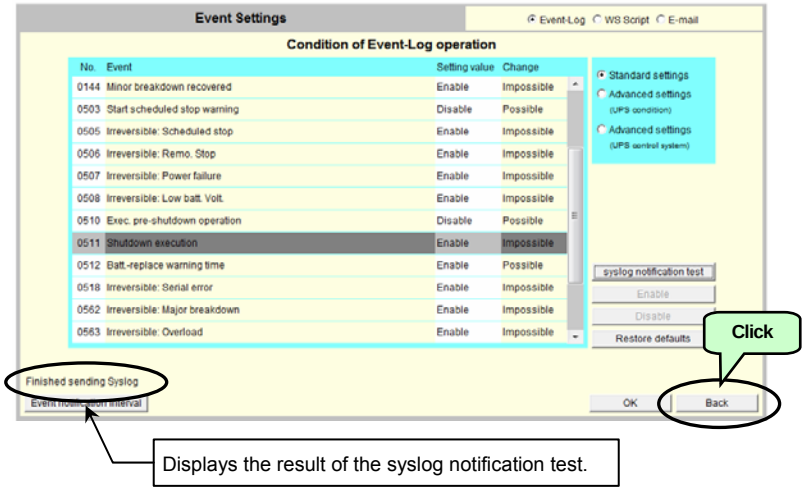
The [Syslog notification sending confirmation] screen is displayed.



(4) Click the [OK] button.

The syslog notification test of the selected event starts.

The test result is displayed at the bottom of the screen when the test is complete.



(5) Click the [Back] button.

The main screen is displayed again.

Notes on the result display

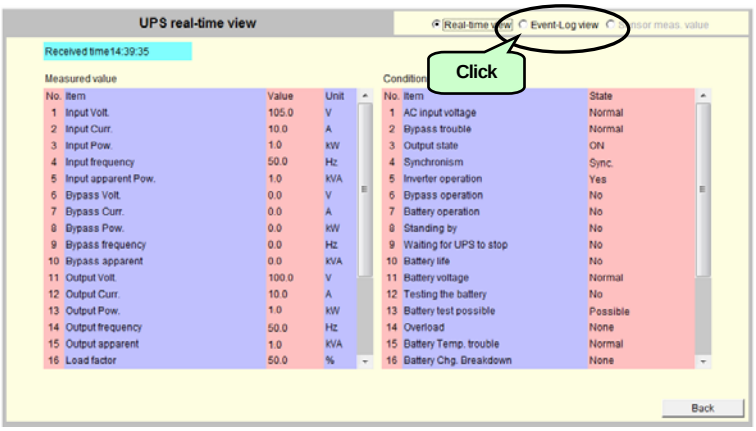
Check the result of the syslog notification test on the system server or the event log on the UPS. See "5.5.8 Checking the UPS event log" for information on how to check the event log.
If you are using the event log, check if the event log condition for "SYSLOG sending success" and "SYSLOG sending failure" are enabled before testing. Events are not logged if the conditions are disabled. See "5.5.2 Configuring event log recording conditions" for information on how to enable them.

5.5.8 Checking the UPS event log

The events which you have enabled in "5.5.2 Configuring event log recording conditions" are logged.
You can check the operational history, operational conditions, and power status of the UPS from the event log for maintenance purposes.

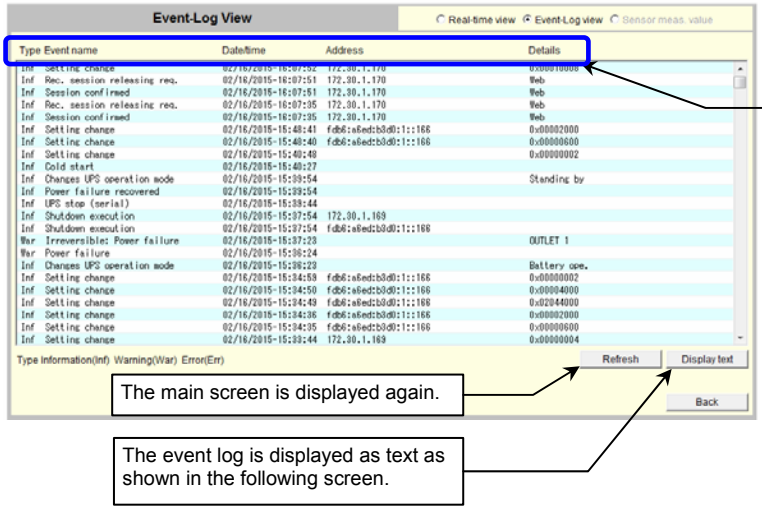
(1) Click the [View] button on the main screen.

The [UPS real-time view] screen is displayed.



(2) Click [Event-Log view] on the UPS real-time view screen.

The event log recorded in the UPS is displayed on the [Event-Log View] screen.



Type : Type of the event
Event name : Name of the event
Date/time : Day and time of the event
Address : The IP address if you are accessing from outside
Details : Details of the event

(3) Click the [Refresh] button to refresh the event log display.

(4) Click the [Display text] button to display the event log as text.

[Display text] screen



Point

You can copy the text from the [Display text] screen.

(5) Click the [Back] button.

The [Event-Log View] screen is displayed again.

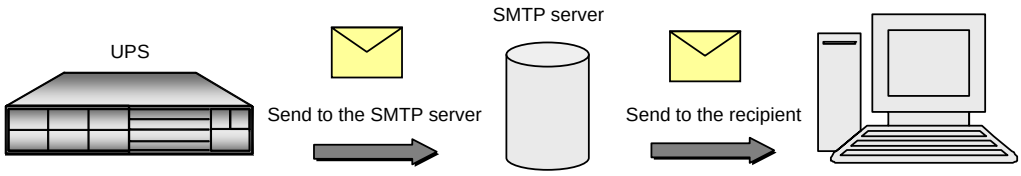
(6) Click the [Back] button in the [Event-Log View] screen.

The main screen is displayed again.

5.6 Configuring E-mail Functions

The e-mail function of the UPS has the following purposes.

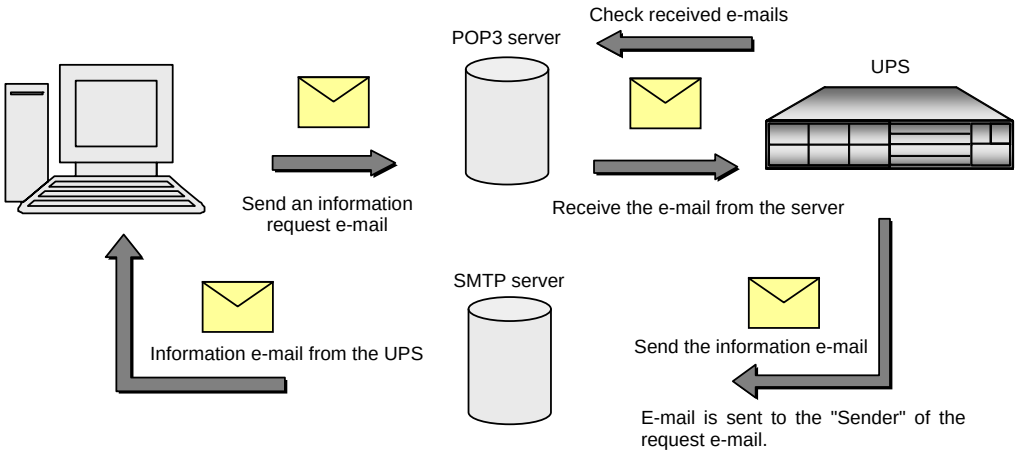
(1) Transmitting e-mails to specified addresses to send notification of errors such as a power failure.
E-mails are sent to mobile terminals, computers, etc. to notify the recipient about the UPS error event.



When an event occurs on the UPS, e-mails are created for recipients (e-mail addresses) specified for the given event and sent to the SMTP server.

(2) Checking the UPS status and measurement information by e-mail.
Information request e-mails are sent to the UPS from the e-mail function on mobile terminals or mailers on computers.
The UPS receives the request e-mail and returns the status and measurement information via e-mail.

See "5.6.5 Sending e-mail to the UPS to obtain status and measurement information" for details of the operational procedure.

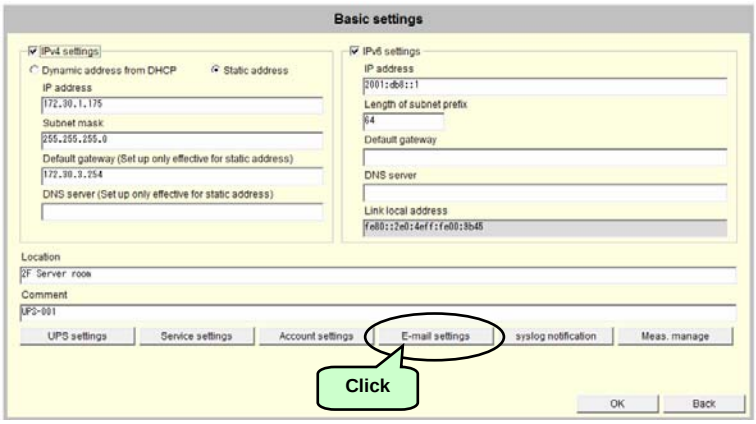


5.6.1 Configuring the e-mail server

You need to configure an e-mail server (SMTP server) to transmit notification e-mails to specified addresses in the event of errors, and an e-mail server (POP3 server) to query the status to the UPS and receive the stats information e-mails.

(1) Click the [Basic settings] button on the main screen.

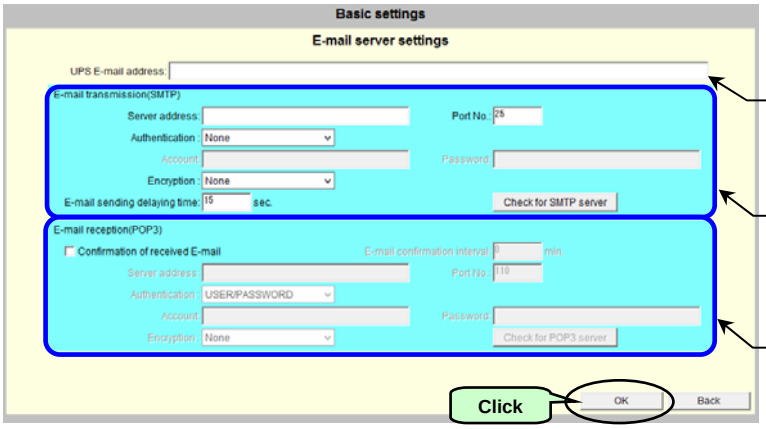
The "Basic settings" screen is displayed.



(2) Click the [E-mail settings] button on the basic settings screen.

The "E-mail server settings" screen is displayed.

(3) Enter the required information.
See the table on the next page, and specify each item.



UPS E-mail address
The sender's address to be added to the e-mail from the UPS.
Enter an e-mail address* including "@".

E-mail transmission(SMTP)
Specify the e-mail server (SMTP server) for sending e-mails from the UPS.

E-mail reception(POP3)
Request e-mails are sent from mailer or other functions to obtain the status and measurement information from the UPS. You need to configure an e-mail server (POP3 server) for the UPS to receive them.

*Caution

This is not the recipient's address for e-mails to notify about events. You can specify the recipient's address as described in "5.6.2 Configuring e-mail recipient addresses".

E-mail transmission(SMTP)

Item name	Description		
Server address	Specify the IP address or network name of the SMTP server.		
Port No.	Specify the port number of the SMTP server. The port number is specified depending on the value you select for [Encryption]. Encryption None: 25 SMTP over SSL/TLS: 465 STARTTLS: 587		
Authentication	Specify the authentication method for e-mail transmission.		
	None	No authentication.	
	POP before SMTP	POP authentication before sending mails. The account and password specified in "E-mail reception (POP3)" are used.	
	SMTP Auth.(Automatic)	SMTP authentication using the authentication method selected automatically by the UPS. (Select "AMTP Auth.(Automatic)" if you do not know which authentication method your SMTP server is supporting.)	
	SMTP Auth.(PLAIN)	SMTP authentication. The authentication method is PLAIN.	
	SMTP Auth.(LOGIN)	SMTP authentication. The authentication method is LOGIN.	
	SMTP Auth.(CRAM-MD5)	SMTP authentication. The authentication method is CRAM-MD5.	
Account	The account name for the SMTP server authentication. (Required for SMTP authentication)		
Password	The password for the SMTP server authentication. (Required for SMTP authentication)		
Encryption	Select when you have selected "SMTP authentication" for [Authentication].		
	None	No encryption.	Select to suit your SNMP server configurations.
	SMTP over SSL/TLS*	Encrypted.	
	STARTTLS	Encrypted.	
E-mail sending delaying time	Specify the delay time for sending e-mails to the SMTP server in seconds.		
Check for SMTP server	Check if E-mail transmission(SMTP) settings are correct.		

*Caution

- The default value, TLS corresponds to version 1.2. The key length is 1024 or 2048 bits.
  (Use version of SSL/TLS can be changed by terminal command “sslver”.)
- SSL encryption is applied to communications; however, an authentication check is not performed on the received SSL server certificate.

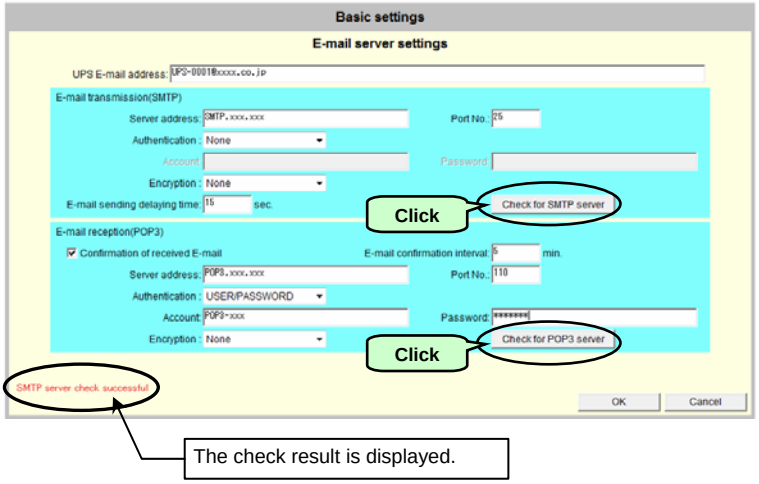
E-mail reception(POP3)

Item name	説明		
Confirmation of received E-mail*1	Specify whether or not to check the incoming e-mails on the POP3 server. If this is cleared, the incoming e-mails on the POP3 server are not checked.		
E-mail confirmation interval	Incoming e-mails on the POP3 server are checked at this interval.		
Server address	Specify the IP address or network name of the POP3 server.		
Port No.	Specify the port number of the POP3 server. The port number is specified depending on the value you select for [Encryption]. Encryption None: 110 POP over SSL/TLS: 995 STLS: 110		
Authentication	USER/PASSWORD	Use USER and PASS commands for POP3 authentication.	Select to suit your POP3 server configuration.
	APOP	Specify whether or not to use the APOP command instead of USER and PASS commands for POP3 authentication. Specify this item when the POP3 server is restricted to APOP only.	
Account	Enter the account name for POP3 server authentication.		
Password	Enter the password for POP3 server authentication.		
Encryption	Specify this item if you have selected [Confirmation of received E-mail] or if you have selected [POP before SMTP] for [Authentication] for the e-mail transmission setting.		
	None	No encryption.	Select to suit your POP3 server configuration.
	POP over SSL/TLS*2	Encrypted.	
	STLS	Encrypted.	
Check for POP3 server	Check if E-mail reception(POP3) settings are correct.		

Caution

*1 E-mails are deleted from the POP3 server as the UPS retrieves them from the POP3 server.
*2 • The default value, TLS corresponds to version 1.2. The key length is 1024 or 2048 bits.
(Use version of SSL/TLS can be changed by terminal command “sslver”.)
• SSL encryption is applied to communications; however, an authentication check is not performed on the received SSL server certificate.

You can check if the e-mail server is configured correctly.



(4) Click the [Check for SMTP server] button to check E-mail transmission(SMTP) settings.

Click the [Check for POP3 server] button to check E-mail reception(POP3) settings.

Messages to describe the error are displayed if the check fails. The following is the notification message sent when a communication error occurs with the mail server.

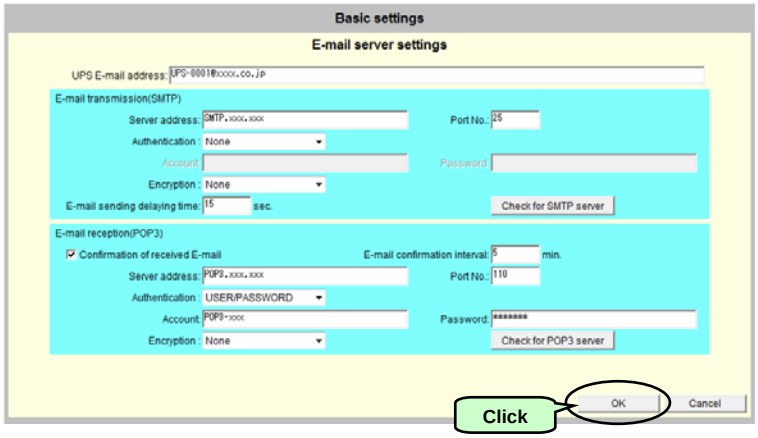
Communication error occurred. Check the settings or contact the administrator.

The following is an example of the error message.

Examples of message	Content
Address conversion failed. Check the settings.	When address conversion fails for the mail server host name etc.
APOP authentication is not supported.	The mail server does not support APOP authentication
Authentication failed. The account or password may be incorrect.	Failed to authenticate using the set email account or password
POP communication failed.	Failed to authenticate POP before SMTP

Caution

Take appropriate measures according to the displayed message.



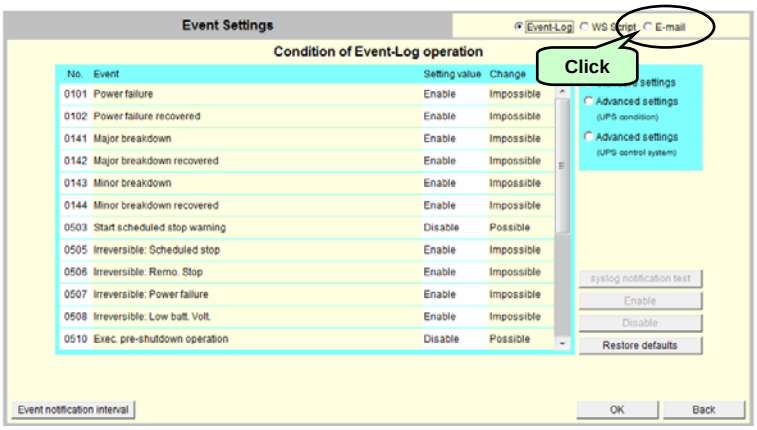
(5) Check the settings and click [OK].

5.6.2 Configuring e-mail recipient addresses

This section describes how to specify the e-mail addresses to which e-mails sending notification about errors are sent.
Specify e-mail addresses of mobile terminals and computers.

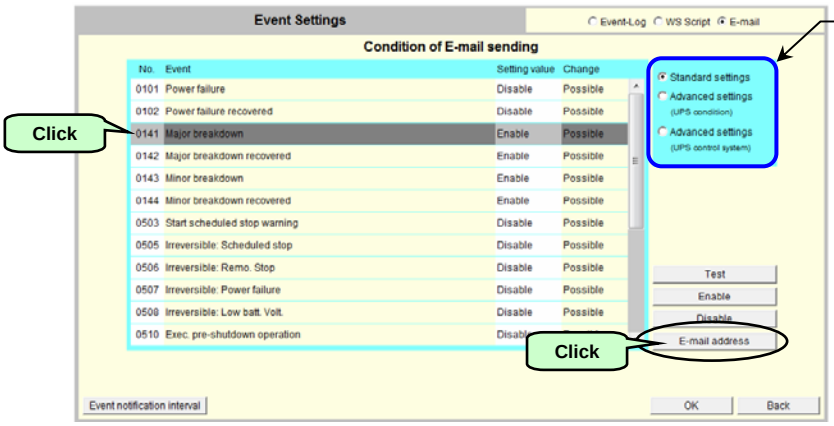
(1) Click the [Event settings] button on the main screen.

The "Condition of Event-Log operation" screen is displayed.



(2) Select [E-mail].

The "Condition of E-mail sending" screen is displayed.



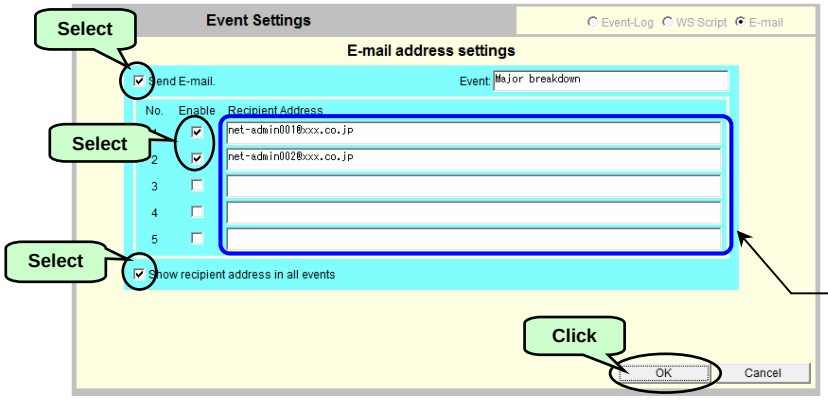
Switch the contents of the event list.
See "Appendix B. LIST OF UPS EVENTS" for the details of event types.

(3) Select the event to set for e-mail recipients from the event list.

The line of the selected event is highlighted in reverse video.
Once an event is selected, the [E-mail address] button is enabled.

(4) Click the [E-mail address] button.

The "E-mail address settings" screen is displayed. The following screenshot is for the "Major breakdown" event.



(5) Enter the recipient address.
You can specify up to 5 addresses.

(6) Click [OK] and check the settings

Recipient addresses you enter for an event are applied to all events.

Select [Enable] to select recipients for each event.

View	Description
Send E-mail.	Select this if you want to send e-mails when the event occurs. When this is selected on this screen, the setting value in "5.6.3 Configuring event notification e-mail transmissions" becomes "Enable". Only the specified events are enabled.
Enable	Select this if you want to send an e-mail to the given address when the selected event occurs. E-mails are not sent to addresses that are not selected.
Recipient Address	Enter the recipient's address. You can register up to 5 recipients. They are applied to all events.
Show recipient address in all events	Select this if you want to apply the enabled recipients you have specified to all events.

5.6.3 Configuring event notification e-mail transmissions

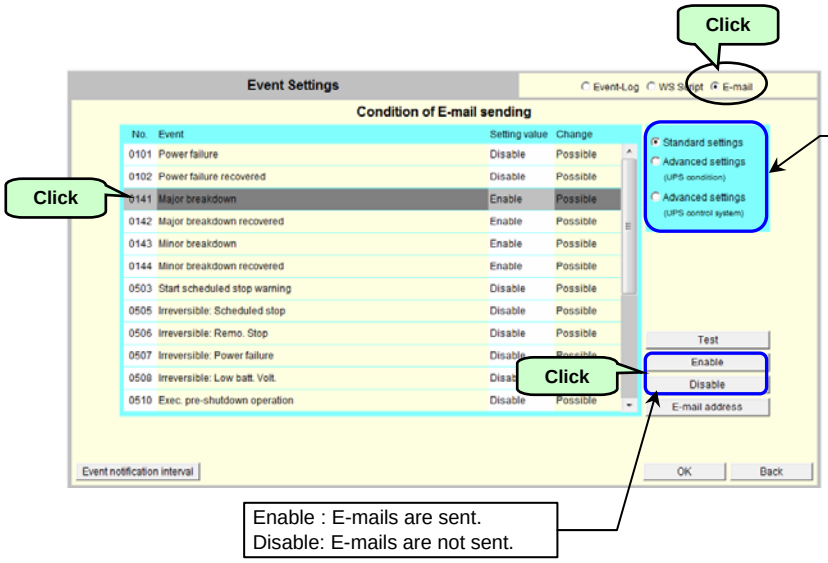
This section describes how to configure e-mail transmission from the UPS to the specified addresses to send notification about errors.

(1) Click the [Event settings] button on the main screen.
(2) Select [E-mail] in the event settings screen.

The "Condition of E-mail sending" screen is displayed.

Point

You can enable or disable e-mail transmission for each event such as a power failure and major breakdown.



Switch the contents of the event list.
See "Appendix B. LIST OF UPS EVENTS" for the details of event types.

(3) Select the event list to be configured.

(4) Select the event to be configured.

The line of the selected event is highlighted in reverse video.
Once an event is selected, the [Enable] and [Disable] buttons are enabled.

Enable : E-mails are sent.
Disable: E-mails are not sent.

(5) Click the [Enable] or [Disable] button.

Event list (type)	Description	
Standard settings	Standard events.	See "Appendix B. LIST OF UPS EVENTS" for the details.
Advanced settings (UPS condition)	Events concerning details of UPS operations such as breakdown details.	
Advanced settings (UPS control system)	Events concerning UPS control.	

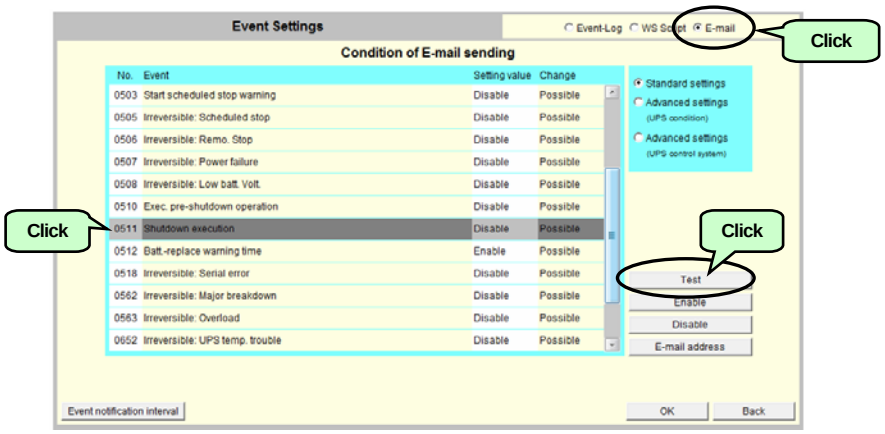
Buttons	Description
Test	Test e-mail transmission to the registered addresses for the selected event. See "5.6.4 Testing e-mail transmission".
Enable	Switches the setting value from **Disable** to **Enable**. The selected event is **Enable** for e-mail transmission. The setting value is "Enable" if you have selected [Send E-mail.] in "5.6.2 Configuring e-mail recipient addresses".
Disable	Switches the setting value from **Enable** to **Disable**. The selected event is **Disable** for e-mail transmission. The setting value is "Disable" if you have cleared [Send E-mail.] in "5.6.2 Configuring e-mail recipient addresses".
E-mail address	Specify the recipients for the selected event. See "5.6.2 Configuring e-mail recipient addresses".
Event notification interval	This function is applicable to the following 4 events. - Battery life, Major breakdown, Minor breakdown, and Batt.-replace warning time Event notifications are generated at the specified intervals (days) and e-mails are sent if you have specified [Enable] for the [Setting value] of the above events and the events are occurring repeatedly. See "5.5.2.2 Configuring event notification intervals" for details.

5.6.4 Testing e-mail transmissions

This section describes how to test e-mail transmission using the specified information.

(1) Select [E-mail] on the event settings screen.

The "Condition of E-mail sending" screen is displayed.



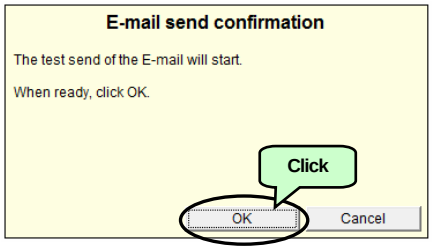
> **Caution**
>
> You cannot test e-mail transmission while testing a WS script or a shutdown.

(2) Select the line of the event that you want to test.

The selected line is highlighted in reverse video. Once an event is selected, buttons are enabled.

(3) Click the [Test] button.

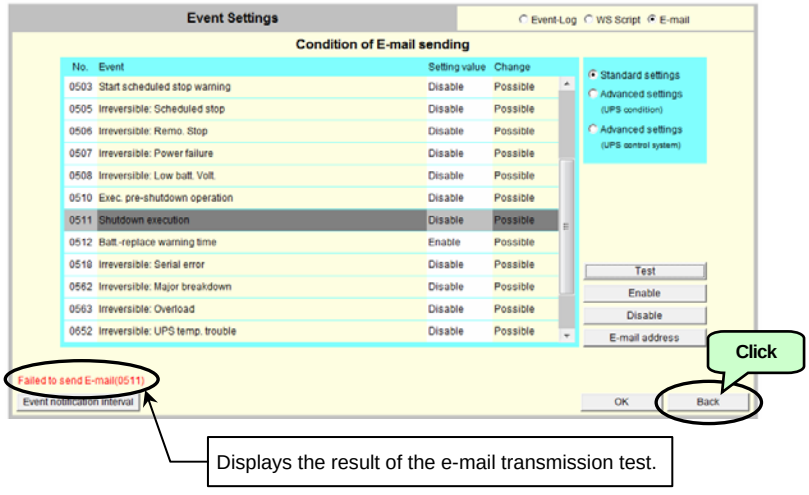
The "E-mail send confirmation" screen is displayed.



(4) Click the [OK] button.

The e-mail transmission test of the selected event starts.

The transmission result is displayed at the bottom of the screen when the test is complete.



(5) Click the [Back] button.

The main screen is displayed again.

> **Notes on the result display**
>
> Check the result of the e-mail transmission by actual receipt of the e-mail or the event log on the UPS. See "5.5.8 Checking the UPS event log" for information on how to check the event log.
> If you are using the event log, check if the event log conditions for "Finished sending E-mail" and "Failed to send E-Mail" are enabled before testing. Events are not logged if the conditions are disabled. See "5.5.2 Configuring event log recording conditions" for information on how to enable them.

5.6.5 Sending e-mail to the UPS to obtain status and measurement information

This section describes how to request the UPS status and measurement information from mailers on mobile terminals or computers.

(1) Enter the following to the recipient address and subject.

- Recipient: E-mail address of the UPS
  Enter the address you specified in [UPS E-mail address] in "5.6.1 Configuring the e-mail server".
- Subject : Select from the following table depending on the requesting item.

Subject[*1]	Description	
UPS Status Request	UPS status measurement information	
UPS Info Request	UPS information	
Setting Request	Device setting information	
Log Request	Event log information (latest 10 records)	
Log Request All	Event log information (all 1000 records)	
Log Request-f	Event log information (latest 10 records)	
Log Request All-f	Event log information (all 1000 records)	
Hour Request All –f filename	Hourly summary data (all)	The summary data is output to a csv file and attached to the response e-mail.[*2]
Hour Request yymmdd –f filename	Hourly summary data (daily)	
Day Request All –f filename	Daily summary data (all)	
Day Request yymm –f filename	Daily summary data (monthly)	
Mon Request All –f filename	Monthly summary data (all)	
Mon Request yy –f filename	Monthly summary data (annual)	
Sensor Status Request	Sensor status measurement information	

- Body: Blank

(2) Send the e-mail.

(3) The response e-mail[*2] is sent from the UPS.
See "Appendix C. LIST OF INCOMING E-MAILS" for the contents of the response e-mails.

Caution

*1 Notes on entering the subject
- Enter the subject line in single-byte characters, and use a single-byte space where necessary. The subject line is not case sensitive.
- yymmdd indicates the year, month, and day. yy: The last 2 digits of the year, mm: Month in 2 digits, dd: Day in 2 digits.
- Specify any file name as the filename. Omit the filename if it does not need to be specified.
  Enter the file name in single-byte alphanumeric characters and keep the length of the subject line within 76 characters including the file name.

*2 Response e-mails
Response e-mails and attached files may not be received depending on the configuration and functions of mobile terminals and computers.

5.7 Configuring Measured Value Administration Information

You can monitor measured values of the UPS and sensor and shut down the UPS when any of the values deviate from the normal range.
You can also create summary data from the measured values and display graphs.
See "6. USING THE WEB DISPLAY TOOL" for how to use the graphs.

Items in pink are available when the LAN interface card supports sensors and a sensor is connected.

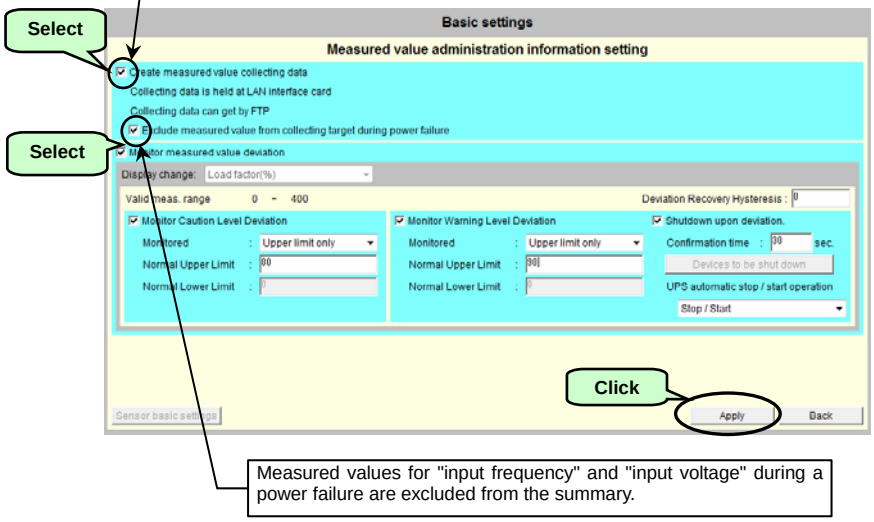
5.7.1 Creating measured value collecting data

(1) Click the [Basic settings] button on the main screen.
(2) Click the [Meas. manage] button on the basic settings screen.

The [Measured value administration information setting] screen is displayed.

Saves summary data of the following measured values. *1

- Input voltage
- Input frequency
- Output voltage
- Output current
- Output power
- Output frequency
- Load factor
- Ambient temperature
- Battery temperature
- Output electric energy
- Temperature sensor
- Humidity sensor



Measured values for "input frequency" and "input voltage" during a power failure are excluded from the summary.

(3) Select [Create measured value collecting data] to create collecting data. *1

(4) Click the [Apply] button. *2

You can configure "measured value deviation monitoring" from this screen to monitor the measured values.
See the next page.

Item name	Description	Default value
Create measured value collecting data	Select this to summarize measured values.	Not selected
Exclude measured value from collecting target during power failure	This item is enabled when you select [Create measured value collecting data]. Select this if you do not want the summary data to include values taken in a power failure. If you do so, measured values for "input frequency" and "input voltage" are excluded from the summary.	Not selected

*Caution

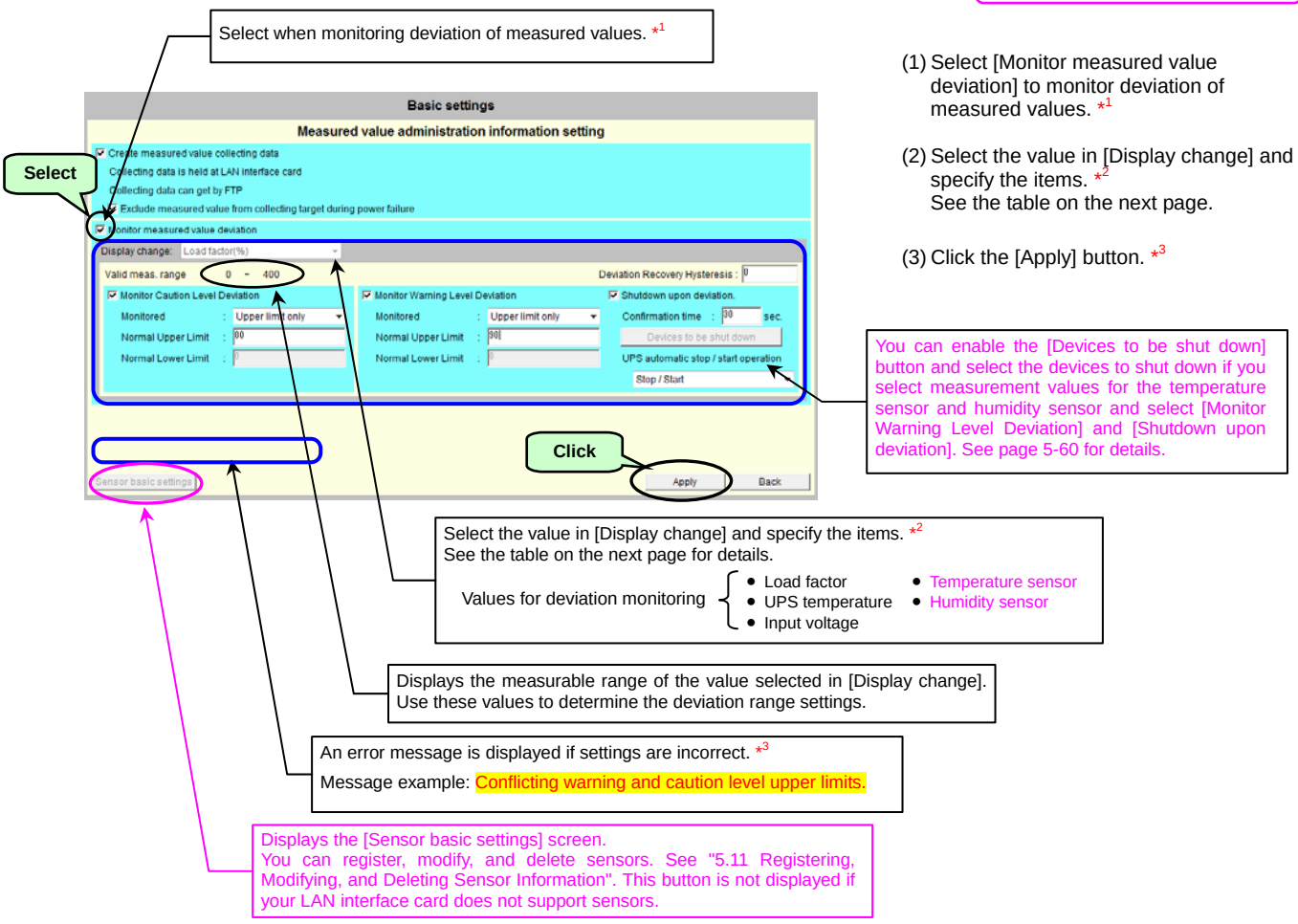
*1. Make sure you select the checkbox in Step (3) if you want to display graphs in "6. USING THE WEB DISPLAY TOOL". Data summaries are not created if this is not selected. Also, the cumulative power in the [System condition] screen of the Web Display Tool is not calculated.
*2. Data summary starts from the point where you select [Create measured value collecting data] and click the [Apply] button. You cannot take summary of the past data.

5.7.2 Configuring measurement value deviation monitoring

5.7.2.1 Configuring measurement value deviation monitoring

You can configure deviation monitoring on each measurement value in the [Measured value administration information setting] screen.

Items in pink are available when the LAN interface card supports sensors and a sensor is connected.



*Caution

*1. UPS that do not support measured value administration information do not monitor deviations even if you set them to monitor.

*2. After selecting a measured value and modifying the setting value, you cannot select another measured value until you click the [Apply] button to accept the new setting. The [Sensor basic settings] button is also disabled. Click the [Apply] button before configuring another measures value or sensor. They will become settable.

*3. An error message is displayed if you have specified an incorrect value in Step (2) and clicked the [Apply] button in Step (5). Check the message and specify the correct value.

*4. Accuracy of the humidity sensor
Accuracy of the humidity sensor changes as follows over the years. Replace the sensor according to the required accuracy.
1 year old: ±5% RH
5 years old: ±8% RH
10 years old: ±10% RH

Item name	Description		Default value
Display change	Select the subject to be monitored.		
	Load factor	The load factor of the devices connected to the UPS.	
	UPS temperature	Battery temperature; when the battery temperature is not measured, this shows the ambient temperature.	
	Input voltage	The input voltage of the UPS. Deviation monitoring is not performed while in a power failure, or when the input voltage is 30V or less.	
	Temperature sensor	The value measured by the connected temperature sensor. You can specify the value for deviation monitoring for each registered sensor. Displays the Meas. name you entered when registering the sensor as described in "5.11.1 Registering sensor information".	
	Humidity sensor	The value measured by the connected humidity sensor. You can specify the value for deviation monitoring for each registered sensor. Displays the Meas. name you entered when registering the sensor as described in "5.11.1 Registering sensor information".	
Valid meas. range	Displays the measurable range of the value selected in [Display change]. Displays numerical values according to the measured item. Use these values to determine the deviation range settings.		
	Load factor	0 to 400 (%)	
	UPS temperature	-25 to 80 (℃)	
	Input voltage	0 to UPS's rated voltage +200 (V)	
	Temperature sensor	-40 to 85 (℃)	
	Humidity sensor	0 to 100 (% RH)	
Deviation Recovery Hysteresis	Specify the value to determine the recovery after the measured value deviated from the specified range. See the next page for details. Setting range: 0 to 999999 (integer)		0
Monitor Caution Level Deviation	Select this to enable selecting monitoring subjects.		Not selected
Monitored	Upper limit only Lower limit only Upper/Lower Limits	Specify the upper limit and lower limit depending on the selected value.	
Normal Upper Limit	Enter the numerical value. Enter a value appropriate for the item you have selected in [Display change]. Setting range: -99999 to 999999 (integer)		0
Normal Lower Limit	Enter the numerical value. Enter a value appropriate for the item you have selected in [Display change]. Setting range: -99999 to 999999 (integer)		0
Monitor Warning Level Deviation	Select this to enable selecting monitoring subjects.		Not selected
Monitored	Upper limit only Lower limit only Upper/Lower Limits	Specify the upper limit and lower limit depending on the selected value.	
Normal Upper Limit	Enter the numerical value. Enter a value appropriate for the item you have selected in [Display change]. Setting range: -99999 to 999999 (integer)		0
Normal Lower Limit	Enter the numerical value. Enter a value appropriate for the item you have selected in [Display change]. Setting range: -99999 to 999999 (integer)		0
Shutdown upon deviation	Select this if you want to shut down devices when the measured value deviated from the specified warning level range. *2 For details on the operation, see "2.3.3" (8).		Not selected
Confirmation time	Specify the confirmation time between the occurrence of the deviation and starting the shutdown process.		30 sec.
Devices to be shut down *1	This option is enabled if you select measurement values for the temperature sensor and humidity sensor and select [Monitor Warning Level Deviation] and [Shutdown upon deviation]. You can select the device to be shut down for each measured value. See "5.7.2.2 Configuring devices to be shut down upon deviation of sensor measurement values" for details.		
UPS automatic stop / start operation	Specify whether or not to shut down the UPS after shutting down devices due to deviation of their measured values from the warning level, and whether or not to restart the UPS when the measured values returned to the specified normal range. *2		
Sensor basic settings	Register, modify, or delete sensor information when connecting a sensor. You cannot manage measured values even if you connect a sensor unless you register the sensor information.		

*1 Caution

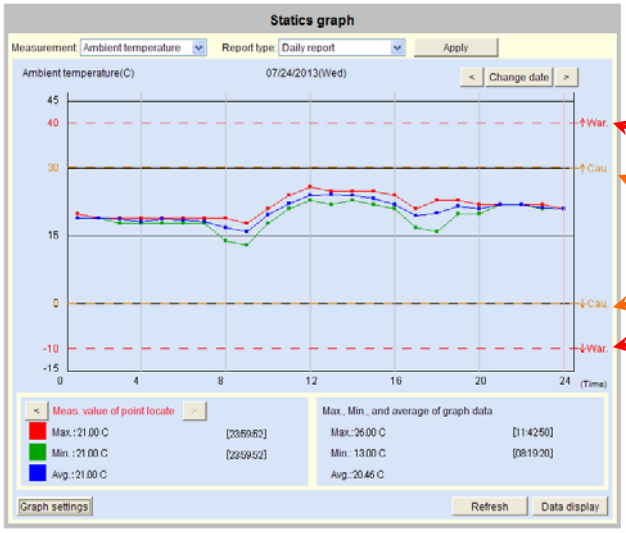
You can select devices to be shut down for [Devices to be shut down] only when you have selected measurement values for the temperature sensor and humidity sensor. All devices are shut down for any other measurement values.

*2 Operations during UPS linkage

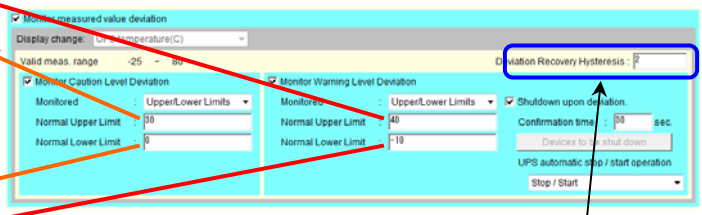
When "Run in sync at deviation of the load factor, UPS temperature, or input voltage" is selected in "Synchronization setting by causes" from "5.10.1 Configuring UPS groups", settings are sent to all grouped UPSs to specify "Shutdown upon deviation" and "UPS automatic stop / start operation", and the settings are replaced.

The following statistical graph can be displayed by the web display tool based on the specified values in measured value administration information. See "6. USING THE WEB DISPLAY TOOL" for information on how to display graphs.

Graph created by the web display tool

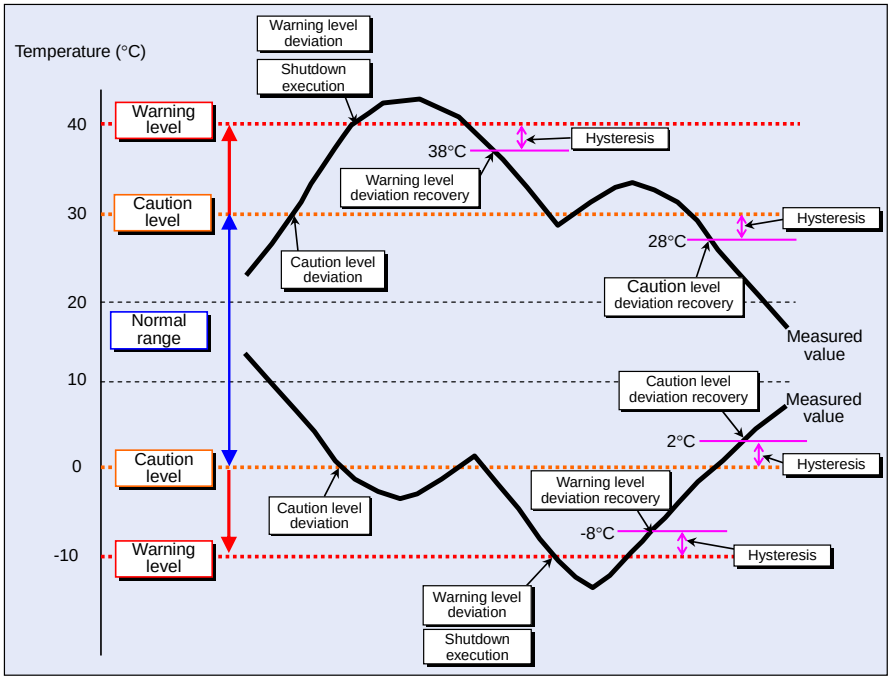


Measured value administration information setting screen



Specify the value to determine the recovery after the measured value deviated from the specified range. See the descriptions below for details.
Enter a value appropriate for the item you have selected in [Display change].

Descriptions on deviation from the specified range and hysteresis.



Example) When you have selected [UPS temperature]

Normal upper limit of the caution level: 30
Normal lower level of the caution level: 0
Hysteresis: 2
After the temperature rose above 30°C and deviated from the range, recovery from the caution level to the normal range is determined when the temperature drops below 28°C.
After the temperature dropped below 0°C and deviated from the range, recovery from the caution level to the normal range is determined when the temperature rises above 2°C.

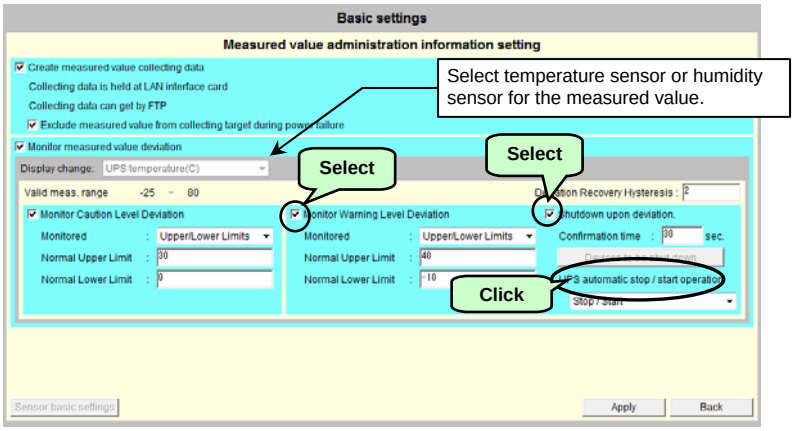
Normal upper limit of the warning level: 40
Normal lower level of the warning level: -10
Hysteresis: 2
After the temperature rose above 40°C and deviated from the range, recovery from the warning level is determined when the temperature drops below 38°C.
After the temperature dropped below -10°C and deviated from the range, recovery from the warning level is determined when the temperature rises above -8°C.
The shutdown process is executed when the value deviates from the warning level.

5.7.2.2 Configuring devices to be shut down upon deviation of sensor measurement values

You can configure devices to be shut down for each sensor if the measured values of the connected sensor deviated from the warning level.
Select the device according to the location of the sensor.
Register the sensor first.
See "5.11.1 Registering sensor information" for how to register the sensor.

These items are settable only when the LAN interface card supports sensors and a sensor is connected and registered.

[Measured value administration information setting] screen

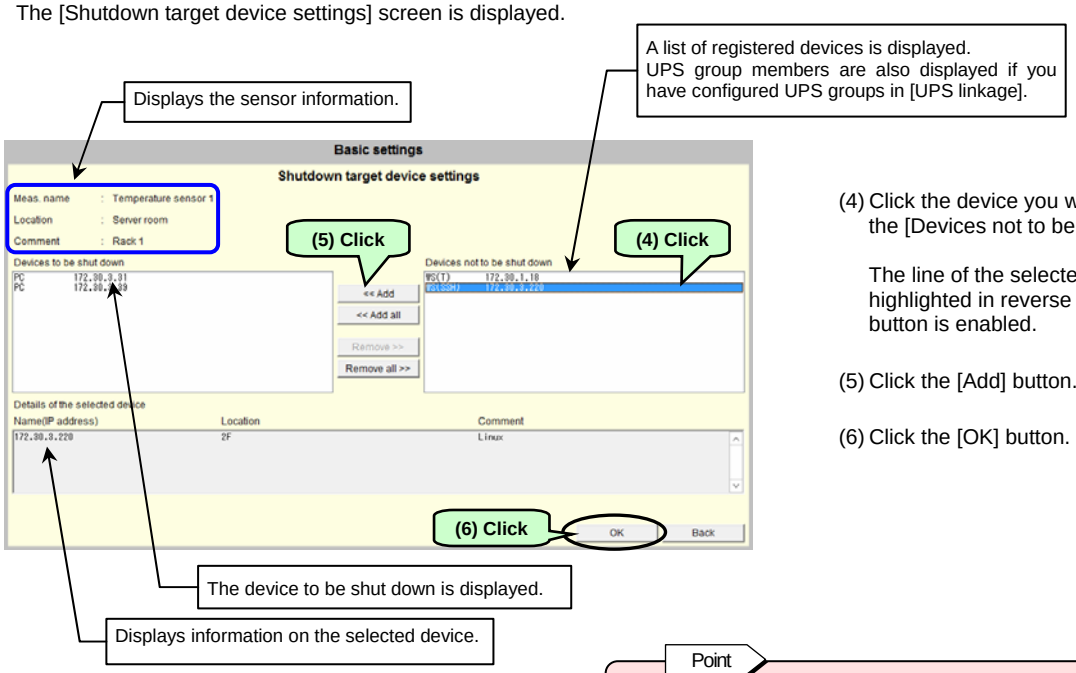


(1) Select [Temperature sensor] or [Humidity sensor] to [Display change] on the [Measured value administration information setting] screen.

(2) Select [Monitor Warning Level Deviation] and [Shutdown upon deviation.].

(3) Click the [Devices to be shut down] button.

The [Shutdown target device settings] screen is displayed.



(4) Click the device you want to shut down in the [Devices not to be shut down] list.

The line of the selected device is highlighted in reverse video and the [Add] button is enabled.

(5) Click the [Add] button.

(6) Click the [OK] button.

Point

You can click the [Add all] button if you want to shut down all devices.
Select the device in the [Devices to be shut down] list and click the [Delete] button if you do not want to shut down the device you have already specified.

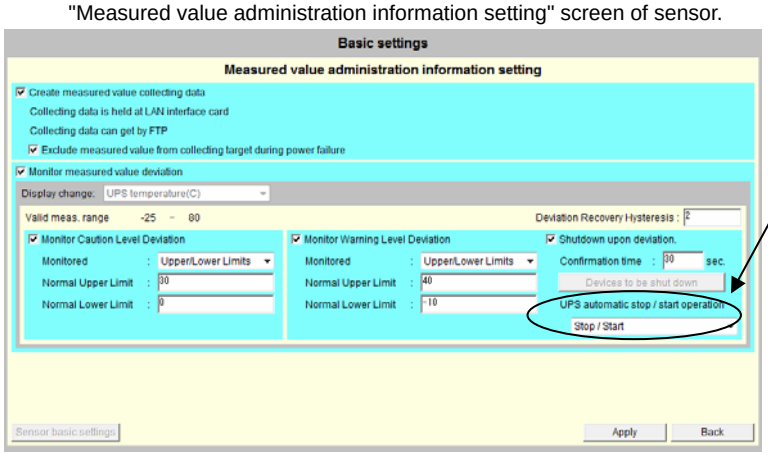
Caution

When you select "Stop" in "UPS automatic stop operation", all devices registered to current UPS are required to add to devices to be shut down.
When the registered device is in "Devices not to be shut down", the UPS stop operation is not performed even if "Stop" is selected in "UPS automatic stop operation".

When set the UPS to "Devices to be shut down"

When including the UPS in "Devices to be shut down" , see "2.3.8.2 Configuration with multiple UPSs" for detail on shutdown operations.
UPS automatic stop / start in "Devices to be shut down" operates based on the setting value of "UPS automatic stop / start operation" in "Measured value administration information setting" screen of the sensor.

"Measured value administration information setting" screen of sensor.



UPS stop / start operation in "Devices to be shut down" is same operation as the setting value of "UPS automatic stop / start operation."

Caution

When the UPS automatic start operation is performed at recovery from measured value deviation of sensor, the UPS set to "Devices to be shut down" may not start automatically in the following state.

- The UPS set to "Devices to be shut down" has stopped completely.
- When LAN interface card cannot perform network communication with the UPS set to "Devices to be shut down" because the network devices have stopped.

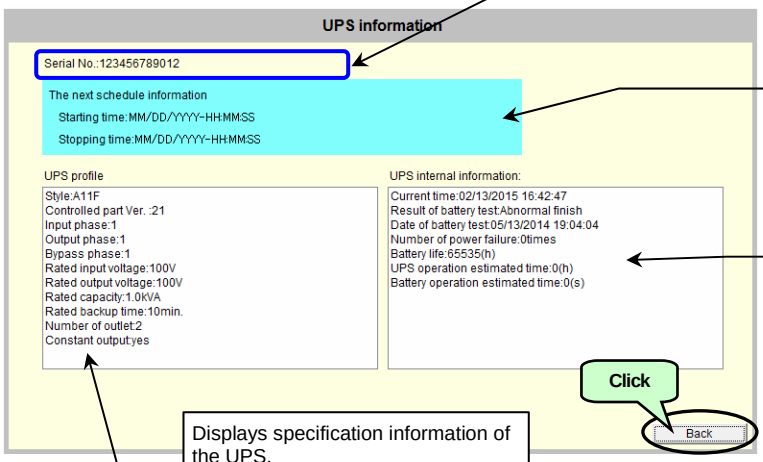
5.8 Checking UPS Information and Status

5.8.1 Checking UPS device information

You can check UPS information such as the specifications and program versions.

(1) Click the [UPS information] button on the main screen.

The [UPS information] screen is displayed.



Displays the serial number of the UPS.

Displays the next shutdown time and start-up time if the scheduled operation is enabled.

Displays operational information of the UPS.
- Battery test result and test date
- Number of power failures
- Cumulative UPS operation time, etc.

Displays an asterisk (*) if the UPS does not support the item.

Displays specification information of the UPS.
- UPS type :
- I/O phase
- Rated voltage

etc.

(2) Click the [Back] button.

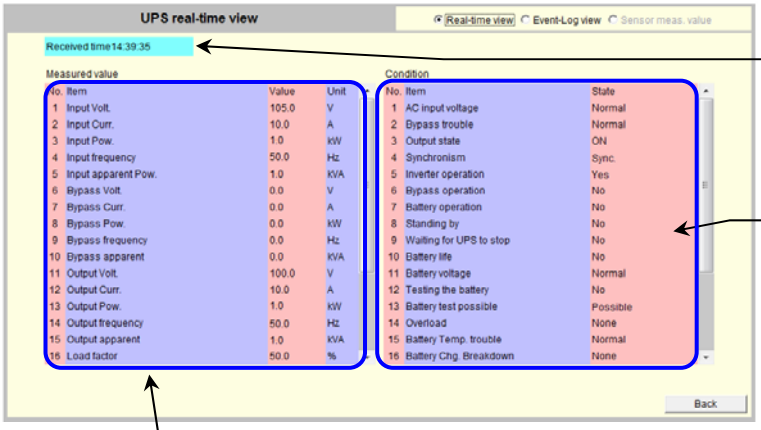
The main screen is displayed again.

5.8.2 Checking the UPS status and measurement values

You can check the current status and UPS measurement values.

(1) Click the [View] button on the main screen.

The [UPS real-time view] screen is displayed.



Received time

Displays the time when the status information was obtained from the UPS.
Status information is obtained at approximately 10-second intervals and the displayed value is refreshed.

Condition

Displays the condition of the UPS.
Displays an asterisk (*) for items without the condition display.

(2) Click the [Back] button.

The main screen is displayed again.

Measured value

Displays measured values of the UPS.
Displays "******" for items without the measured value display.

Caution

Some UPS models are not equipped with the measured value display function. In this case, the values are all displayed as "******".

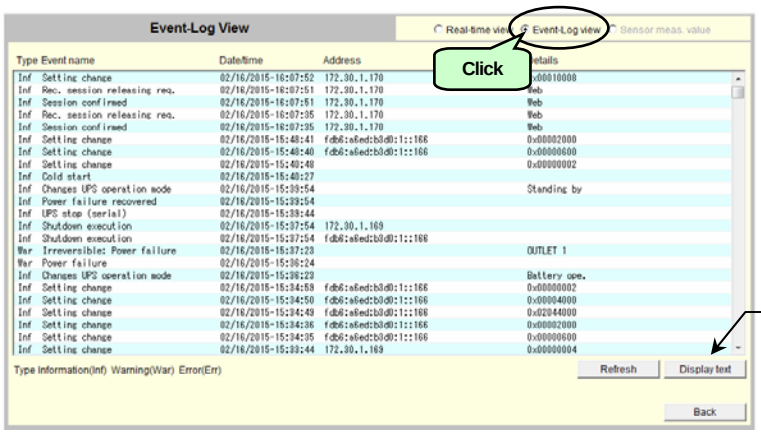
5.8.3 Checking the UPS event log

You can check the UPS status using the event log of the UPS.
See "5.5.8 Checking the UPS event log" for details.

(1) Click the [View] button on the main screen.

(2) Click [Event-Log view] on the UPS real-time view screen.

The event log recorded on the UPS is displayed in the event-log view screen.



Displays the event log as text (CSV format).
You can copy the selected section into a file.

5.8.4 Checking the sensor status and measurement values

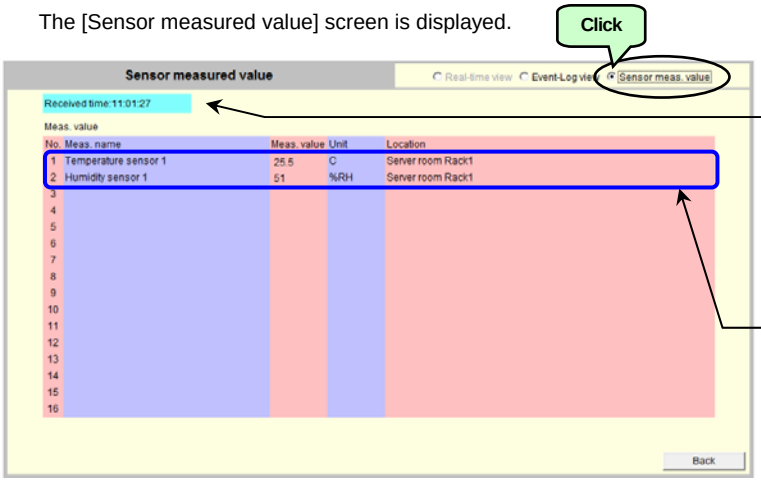
You can check values measured by each sensor.

These items are available only when the LAN interface card supports sensors and a sensor is connected.

(1) Click the [View] button on the main screen.

(2) Click [Sensor meas. value] on the UPS real-time view screen.

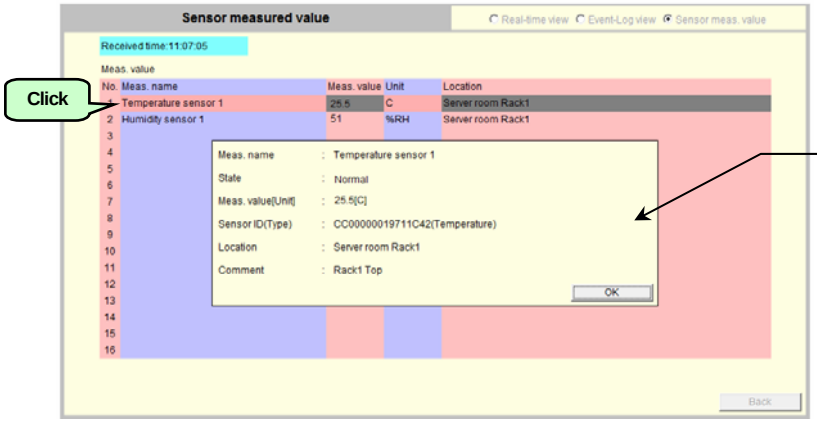
The [Sensor measured value] screen is displayed.



Received time

Displays the time when the status information was obtained.
Status information is obtained at approximately 10-second intervals and the displayed value is refreshed.

Displays a list of measured values and information of all registered sensors.
[Meas. Name] displays the name you entered when registering the sensor as described in "5.11.1 Registering sensor information".



(3) When you select a sensor, the details are displayed.

(4) Click the [OK] button.

The sensor measured value screen is displayed again.

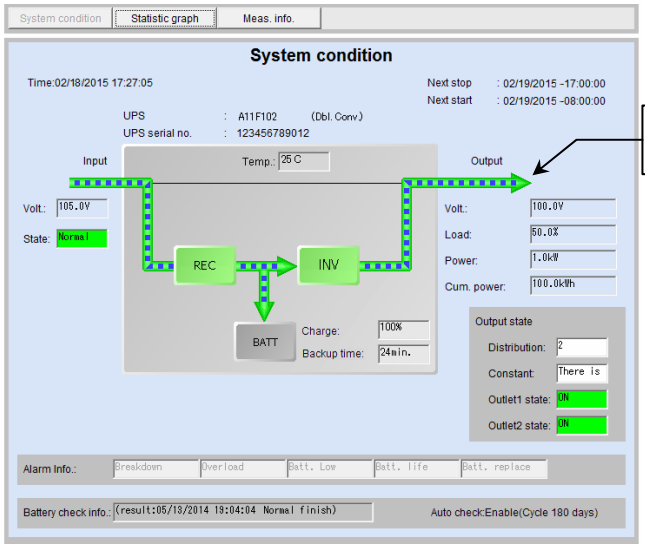
(5) Click the [Back] button.

The main screen is displayed again.

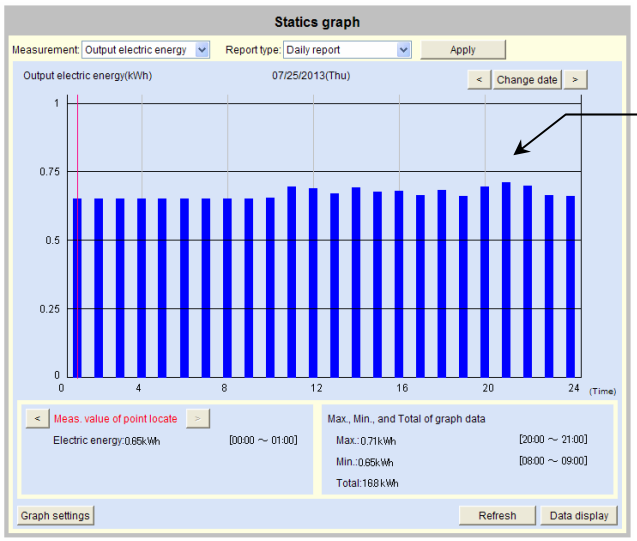
5.8.5 Checking the UPS status using the Web Display Tool

You can check the UPS status using the web display tool. See "6. USING THE WEB DISPLAY TOOL" for details.

[System condition] screen



[Statistical graph] screen



5.9 Controlling the UPS

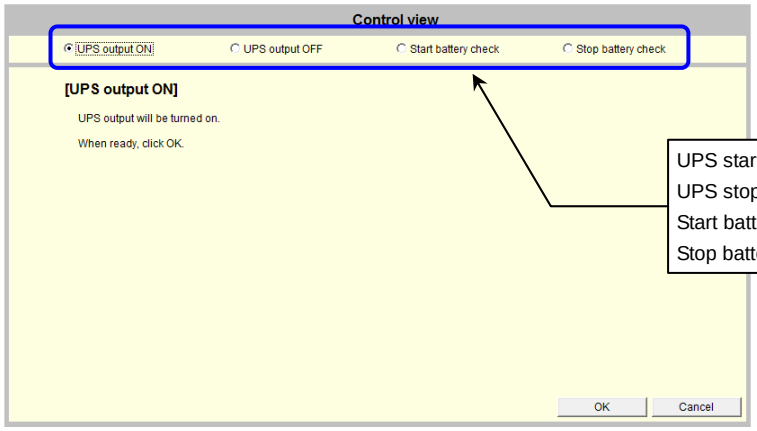
This section describes how to turn the UPS ON and OFF (UPS output ON and OFF) and how to test the battery.
You can perform an emergency shutdown of connected computers and restart devices by turning the UPS ON and OFF (UPS output ON and OFF). Computers are shut down before the UPS output stops.

(1) Click the [Control] button on the main screen.

The [Control view] screen is displayed.

Point

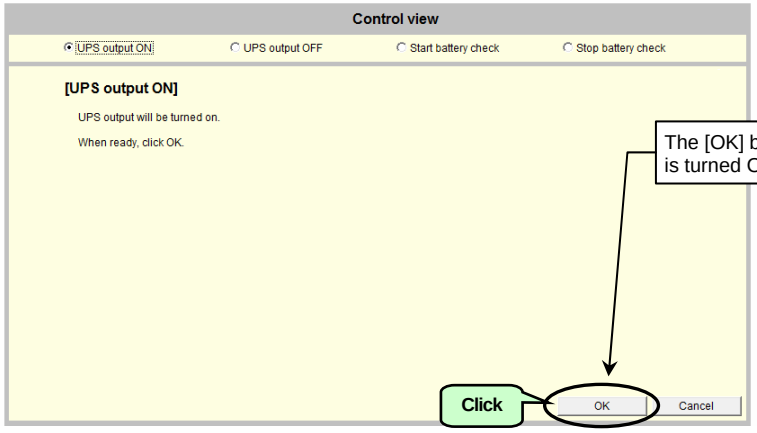
Only [UPS start up] and [UPS stop] are shown if the UPS is not equipped with power distribution control. [UPS output ON] and [UPS output OFF] are shown for the UPS with power distribution control since each outlet can be controlled.



UPS start up: Starts up the UPS.
UPS stop: Shuts down the UPS.
Start battery check: Starts a battery check.
Stop battery check: Cancels the battery check

5.9.1 Starting up the UPS and turning the UPS output on

UPS without output distribution control

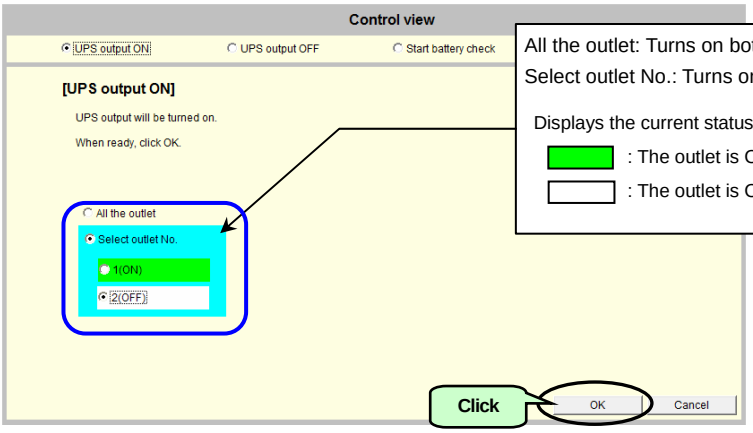


The [OK] button is enabled while the UPS is turned OFF.

(1) Click the [OK] button.

The UPS starts up.

UPS with output distribution control



All the outlet: Turns on both OUTPUT1 and OUTPUT2 at the same time. *
Select outlet No.: Turns on OUTPUT1 and OUTPUT2 separately.

Displays the current status of the outlets.
: The outlet is ON.
: The outlet is OFF.

(1) Select how you want to turn the outlets ON.

(2) Click the [OK] button.

Output from the specified outlets is turned ON.

*Caution

When ON delay time is set in "5.2.4 Configuring delay time on UPS power outlets" and when only controlling "All the outlet", the ON delay time is not counted and control is performed.

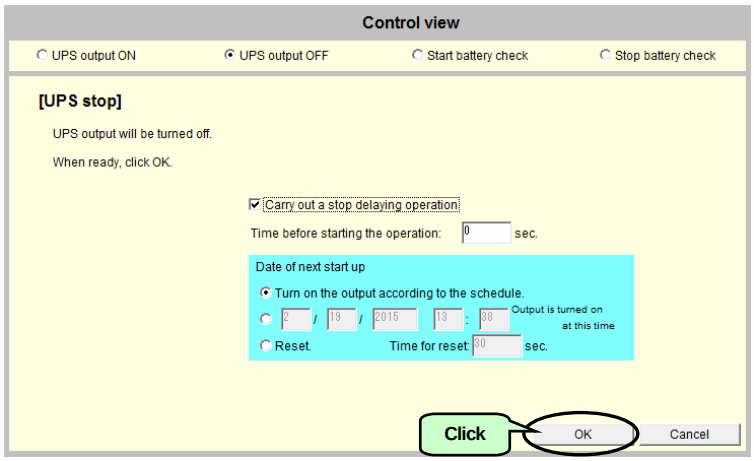
5.9.2 Stopping the UPS and turning the UPS output off

(1) Click the [Control] button on the main screen.

(2) Select [Stop UPS] on the control view screen.

The [UPS stop] screen is displayed.

UPS without output distribution control



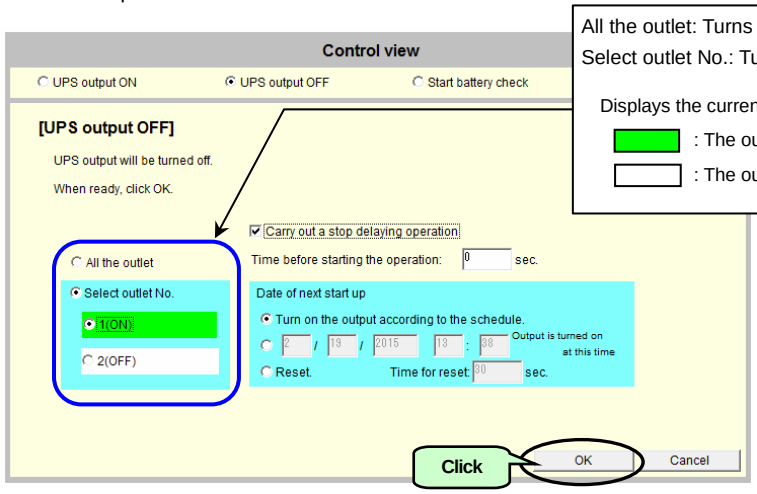
(3) Specify the conditions to shut down the UPS.

(4) Specify the conditions for the next start-up.

(5) Click the [OK] button.

The UPS shuts down.

UPS with output distribution control



All the outlet: Turns off both OUTPUT1 and OUTPUT2 at the same time. *
Select outlet No.: Turns off OUTPUT1 and OUTPUT2 separately.

Displays the current status of the outlets.

: The outlet is ON.

: The outlet is OFF.

(3) Select how you want to turn the outlets OFF.

(4) Specify the conditions for the next start-up.

(5) Click the [OK] button.

Output from the specified outlets is turned OFF.

Screen display	Description
All the outlet	Available for UPS with output distribution control. Turns off both OUTPUT1 and OUTPUT2 at the same time.
Select outlet No.	Available for UPS with output distribution control. Turns off OUTPUT1 and OUTPUT2 separately
1(ON)	Turns off OUTPUT1. Computers connected to OUTPUT1 are shut down before OUTPUT1 is turned OFF.
2(ON)	Turns off OUTPUT2. Computers connected to OUTPUT2 are shut down before OUTPUT2 is turned OFF.
Carry out a stop delaying operation	Performs a shutdown delay process before shutdown delay begins. This item is enabled if [Waiting for logout] is specified in "Configuring UPS control".
Time before starting the operation	Specify the duration before starting the shutdown process in seconds.
Date of next start up	Select from the following start-up methods for the next start-up process.
Turn on the output according to the schedule.	Starts at the scheduled time if you have specified the start-up schedule.
/ / : Output is turned on at this time	Starts at the specified time.
Reset.	Starts after the duration specified in the [Time for reset] after the UPS shutdown.
OK	The UPS is shut down as specified.
Back	Returns to the main screen without shutting down.

*Caution

When OFF delay time is set in "5.2.4 Configuring delay time on UPS power outlets" and when only controlling "All the outlet", the OFF delay time is counted and OFF control is performed.

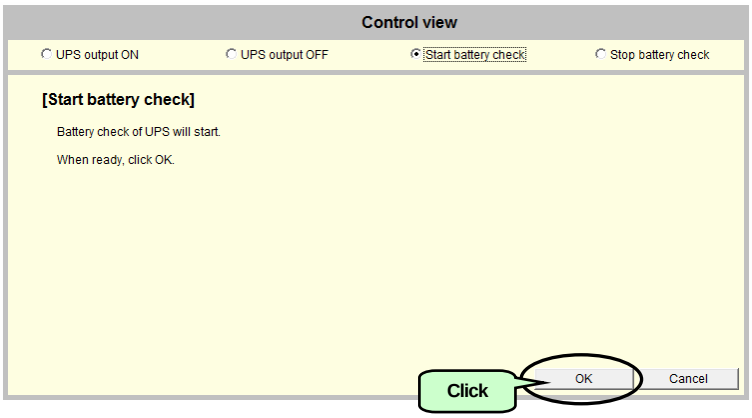
5.9.3 Checking the battery

This section describes how to check the battery.

(1) Click the [Control] button on the main screen.

(2) Select [Start battery check] on the control view screen.

The [Start battery check] screen is displayed.



(3) Click the [OK] button.

The battery check starts.

Caution

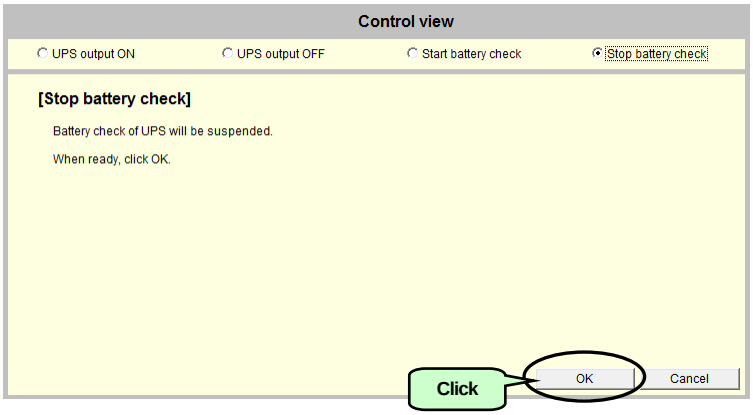
See the UPS manual if the battery check result shows that you need to replace the battery.

Cancelling the battery check.

This section describes how to cancel the battery check.

(1) Click the [Control] button on the main screen.

(2) Select [Stop battery check] on the control view screen.



(3) Click the [OK] button.

The battery check stops.

5.10 Configuring UPS Linkage

This section describes how to group multiple UPS on a network to implement a power redundancy system.
Up to 5 UPS can be configured as a UPS group.
These UPS perform functions in coordination such as starting up, shutting down, and scheduled operations. See "2.3.5 Power redundancy system configuration with multiple UPS" for the configuration details, and "2.3.6 Operation sequence of power redundancy systems" for the operational details.

You can configure UPS linkage as follows.

Configuring UPS groups → **P. 5-70**

↓

Registering the device information stored in the current UPS to other members in the UPS group

The power is supplied to a device from the UPS to which the device is registered.
Register device information to the necessary members in the UPS group to suit your power redundancy system configuration.

Transferring registered device information to UPS group members → **P. 5-74**

When using UPS management software

↓

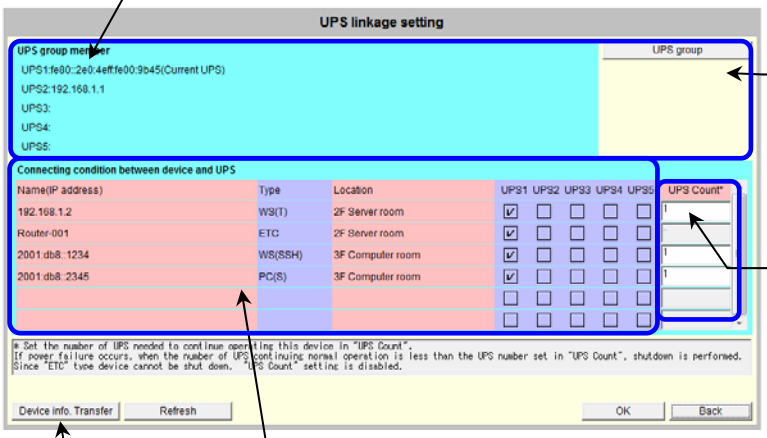
Adding UPS → **UPS management software user guide**

↓

Configuring UPS count → **P. 5-75**

Configure from the following [UPS linkage setting] screen. See the corresponding pages for how to display the UPS linkage setting screen and how to specify each item.

If you have specified the IPv4 and IPv6 address settings in [Basic settings], the address selected in "Current UPS" from "UPS group" is displayed.



Configure the UPS group.
The [UPS group member] column displays IP addresses of the registered UPS.
See "5.10.1 Configuring UPS groups" for details.

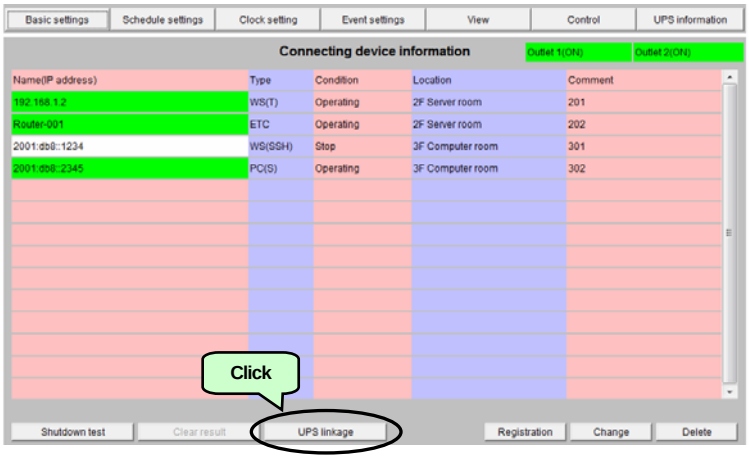
Specify the UPS count.
When a device is connected to multiple UPS in a power redundancy system, the device continues to operate as long as the specified numbers of UPS are operating in a power failure. See "5.10.3 Configuring UPS count" for details.

All devices registered to the UPS called "(Current UPS)" are displayed.
☑ indicates the device information is registered to the ticked UPS.

Use this option to transfer the device information registered to "(Current UPS)" to other UPS in the group. The button is enabled as shown in the screenshot when the group contains 2 or more UPS. This button is not available when only 1 UPS is in the group. See "5.10.2 Transferring registered device information to UPS group members" for details.

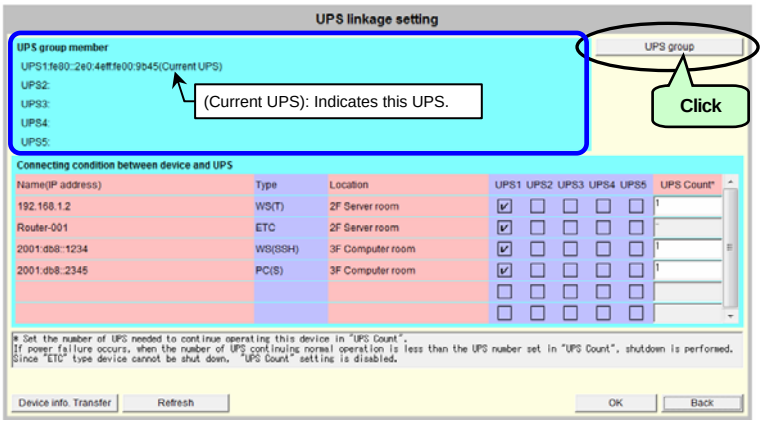
5.10.1 Configuring UPS groups

Main screen



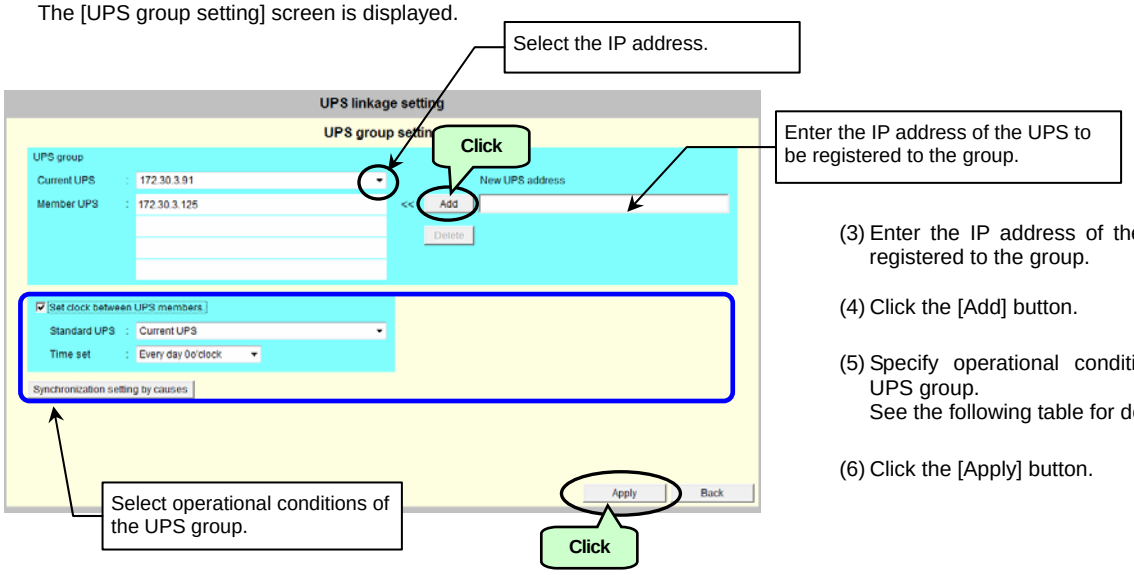
(1) Click the [UPS linkage] button on the main screen.

The [UPS linkage setting] screen is displayed.



(2) Click the [UPS group] button.

The [UPS group setting] screen is displayed.



(3) Enter the IP address of the UPS to be registered to the group.

(4) Click the [Add] button.

(5) Specify operational conditions of the UPS group.
See the following table for details.

(6) Click the [Apply] button.

Screen item			Description	Default value
UPS group			Displays UPS group settings.	
	Current UPS		Displays the IP address of the UPS. You can select the address you want to use from the registered IP addresses.	Link local address
	Member UPS	New UPS address	Enter the IP address of the UPS to be registered to the group.	
		Add	Add the entered UPS to the group.	
		Delete	Select and delete a UPS member from the group.	
Set clock between UPS members			Select when synchronize the time among the group UPS.	Not selected
	Standard UPS		Select the standard UPS for the time synchronization.	Current UPS
	Time set		Select the time to synchronize.	Every day 0 o'clock
Synchronization setting by causes			Specify the synchronization settings for each cause such as a power failure, low battery voltage, major breakdown, measured value deviation. See the next page for details.	

Point

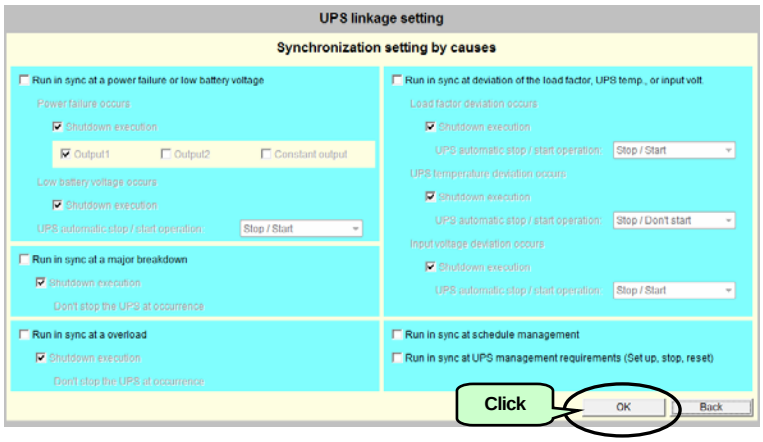
- Even if each UPS has a different "UPS group setting", they are all synchronized when you click the [Apply] button on the UPS group setting screen after configuring the group.
- If you enter an incorrect IP address for the new UPS, a message "Failed to UPS group information delivery." is displayed; however, the UPS is added to the group. If this occurs, click the [Delete] button to delete it from the group.

Caution

The link local address set for the LAN interface card is the address specific to the LAN interface card.
When replacing the LAN interface card due to malfunctions etc., the link local address becomes the new address.
When a link local address is assigned to the UPS address and you replace the LAN interface card, delete the old address information and re-register with a new address.

Specify whether or not to synchronize the operations set for each cause among UPS members in the group.

[Synchronization setting by causes] screen



(1) Specify operations of the UPS group for each cause. See the following table for details.

(2) Click the [OK] button.

Point

The values set on this screen are sent to all UPSs in the UPS group, which allows you to use the same configuration when performing linkage.
However, setting values not on this setting screen (confirmation time etc.) are not sent to the UPSs, and so operations are performed according to the settings for each UPS.
Align values such as confirmation time to all UPSs in the UPS group as necessary.

(1/2)

Screen item	Description	Default value
Run in sync at a power failure or low battery voltage	Select this if you want all UPSs in the UPS group to operate in synch when one UPS in the group is executing the shutdown sequence in the event of a power failure or low battery voltage. *1	Not selected
Power failure occurs Shutdown execution *1, *2	Set to perform a shutdown during linkage operations due to a power failure. The value is the same for the selected shutdown trigger "Power Failure occurs" as on the "Control time information" screen for "4.3.1 Configuring UPS operations".	
Low battery voltage occurs Shutdown execution *1, *2	Set to perform a shutdown during linkage operations due to low battery voltage. The value is the same for the selected shutdown trigger "Low battery voltage occurs" as on the "Control time information" screen for "4.3.1 Configuring UPS operations".	
UPS automatic stop / start operation *1, *2	Set the startup and shutdown conditions for all UPSs in the UPS group in the event of a power failure or low battery voltage.	
Do not stop / Do not start	All UPSs in the UPS group do not shut down in the event of a power failure or low battery voltage. All UPSs in the UPS group do not start up at the recovery from the power failure or low battery voltage.	
Stop / Do not start	All UPSs in the UPS group shut down in the event of a power failure or low battery voltage. All UPSs in the UPS group do not start up at the recovery from the power failure or low battery voltage.	
Stop / Start	All UPSs in the UPS group shut down in the event of a power failure or low battery voltage. All UPSs in the UPS group start up at the recovery from the power failure or low battery voltage.	
Run in sync at a major breakdown	Select this if you want all UPSs in the UPS group to operate in synch when one UPS in the group is executing the shutdown sequence in the event of a major breakdown.	Not selected
Shutdown execution *1, *2	Set to perform a shutdown during linkage operations due to a major breakdown. The value is the same for the selected shutdown trigger "Major breakdown occurs" as on the "Control time information" screen for "4.3.1 Configuring UPS operations".	
Run in sync at an overload	Select this if you want all UPSs in the UPS group to operate in synch when one UPS in the group is executing the shutdown sequence in the event of an overload.	Not selected
Shutdown execution *1, *2	Set to perform a shutdown during linkage operations due to an overload. The value is the same for the selected shutdown trigger "Overload occurs" as on the "Control time information" screen for "4.3.1 Configuring UPS operations".	

Screen item	Description	Default value
Run in sync at deviation of the load factor, UPS temperature, or input voltage	Select this if you want all UPSs in the UPS group to operate in synch when one UPS in the group is executing the shutdown sequence in the event of a deviation of the load factor, UPS temperature, or input voltage. *2	Not selected
Load factor deviation occurs Shutdown execution *3, *4	Set to perform a shutdown during linkage operations due to a measurement value deviation. The value is the same as selected in "Shutdown upon deviation" as the load factor in "5.7.2.1 Configuring measurement value deviation monitoring".	
UPS automatic stop / start operation *3, *4	Set startup and shutdown conditions for all UPSs in the UPS group when a load factor deviation occurs.	
Do not stop / Do not start	All UPSs in the UPS group do not shut down in the event of a load factor deviation.	
Stop / Do not start	All UPSs in the UPS group shut down in the event of a load factor deviation. All UPSs in the UPS group do not start up at the recovery from the load factor deviation.	
Stop / Start	All UPSs in the UPS group shut down in the event of a load factor deviation. All UPSs in the UPS group start up at the recovery from the load factor deviation.	
UPS temperature deviation occurs Shutdown execution *3, *4	Set to perform a shutdown during linkage operations due to a measurement value deviation. The value is the same as selected in "Shutdown upon deviation" as the UPS temperature in "5.7.2.1 Configuring measurement value deviation monitoring".	
UPS automatic stop / start operation *3, *4	Set startup and shutdown conditions for all UPSs in the UPS group when a temperature deviation occurs.	
Do not stop / Do not start	All UPSs in the UPS group do not shut down in the event of a temperature deviation.	
Stop / Do not start	All UPSs in the UPS group shut down in the event of a temperature deviation. All UPSs in the UPS group do not start up at the recovery from the temperature deviation.	
Stop / Start	All UPSs in the UPS group shut down in the event of a temperature deviation. All UPSs in the UPS group start up at the recovery from the temperature deviation.	
Input voltage deviation occurs Shutdown execution *3, *4	Set to perform a shutdown during linkage operations due to a measurement value deviation. The value is the same as selected in "Shutdown upon deviation" as the input voltage in "5.7.2.1 Configuring measurement value deviation monitoring".	
UPS automatic stop / start operation *3, *4	Set startup and shutdown conditions for all UPSs in the UPS group when an input voltage deviation occurs.	
Do not stop / Do not start	All UPSs in the UPS group do not shut down in the event of an input voltage deviation.	
Stop / Do not start	All UPSs in the UPS group shut down in the event of an input voltage deviation. All UPSs in the UPS group do not start up at the recovery from the input voltage deviation.	
Stop / Start	All UPSs in the UPS group shut down in the event of an input voltage deviation. All UPSs in the UPS group start up at the recovery from the input voltage deviation.	
Run in sync at schedule management	Select this if you want all UPS members in the group to operate according to the schedule specified in "5.4 Configuring Scheduled Operations". All UPSs start up and shut down as configured if each UPS is set with a different schedule. *5, *6	Not selected
Run in sync at UPS management requirements(Set up, stop, reset)	Select this if you want all UPS members in the group to operate in sync when you are turning ON or OFF, or resetting UPS using Web Management Tool, Terminal Tool, UPS management software, or SNMP manager.	Not selected

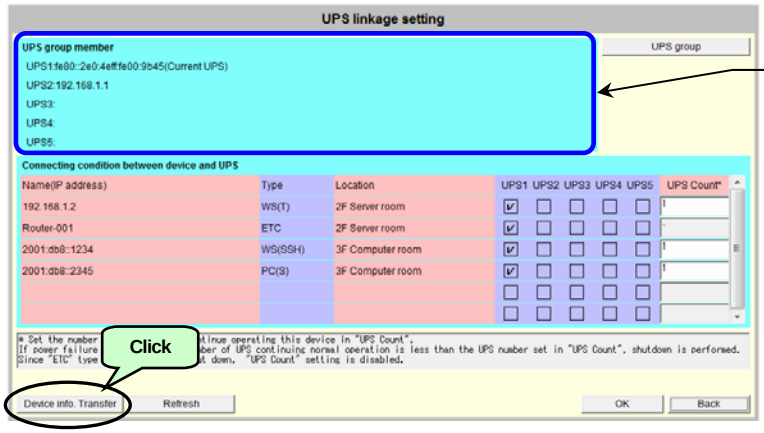
Caution

*1. When settings are changed using this item and you have also specified "Control time information" in "4.3.1 Configuring UPS operations", this item is replaced by the latest value.
*2. The settings are sent to the UPSs for all UPS group members. The settings for "Control time information" in "4.3.1 Configuring UPS operations" for all UPSs are also replaced.
*3. When settings are changed using this item and you have also specified "Shutdown upon deviation" of "UPS automatic stop / start operation" in "5.7.2.1 Configuring measurement value deviation monitoring", this item is replaced by the latest value.
*4. The settings are sent to the UPSs for all UPS group members. The settings for "Shutdown upon deviation" and "UPS automatic stop / start operation" in "5.7.2 Configuring measurement value deviation monitoring" are also replaced for all UPSs.
*5. When performing scheduled operations at the same time between UPS group members, set the schedule for one of the UPS group members.
*6. When setting a different schedule for UPSs that are part of a UPS group, make sure that the respective startup and shutdown times do not overlap.

5.10.2 Transferring registered device information to UPS group members

This section describes how to transfer the device information registered in the current UPS to other UPS in the group.
The WS script in addition to the device information is also transferred if the device is WS (LAN interface card login connection, Telnet connection, or SSH connection).

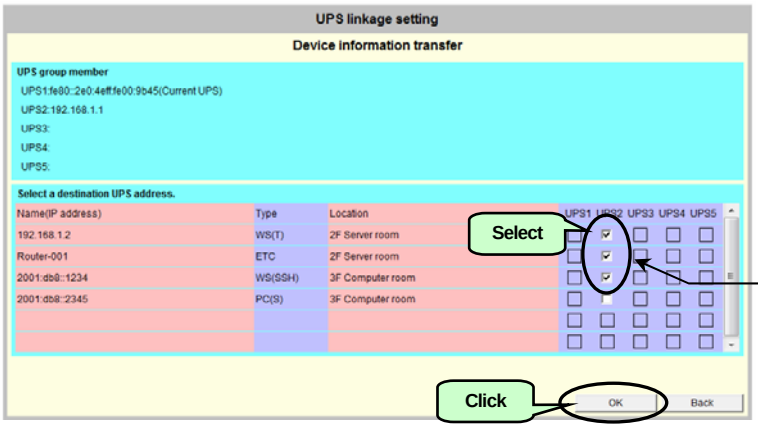
[UPS linkage] screen



Displays the group member UPS

(1) Click the [Device info. Transfer] button on the UPS linkage setting screen.

The [Device information transfer] screen is displayed.



(2) Select the UPS to which you want to transfer the information.

✓ indicates the target UPS to which the device information registered in UPS1 is transferred.

(3) Click the [OK] button.

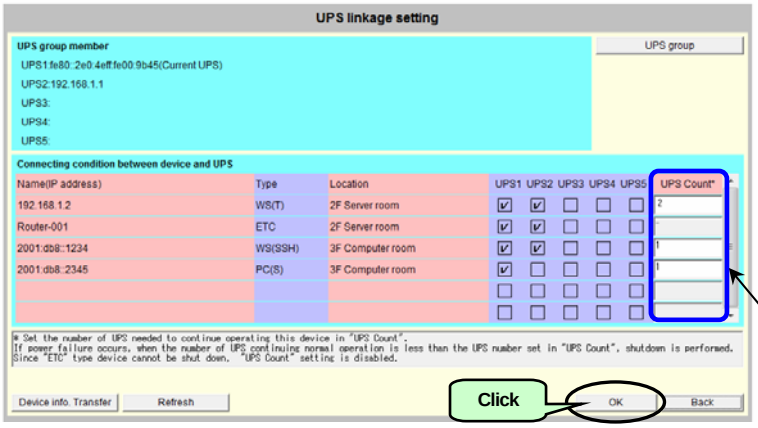
Caution

- The above operation transfers the device information registered in UPS1 to UPS2.
  Perform the same operation if you want to transfer the device information registered in UPS2 to UPS1.
- You cannot transfer as described above if the UPS management software is operating. In that situation, use the UPS management software to transfer.

5.10.3 Configuring UPS count

This section describes how to configure "UPS count" on each registered device. Specify for each member of the UPS group.

The [UPS linkage setting] screen is displayed.



(1) Enter [UPS count].

Enter [UPS count].

When a device is connected to multiple UPS in a power redundancy system, the device continues to operate as long as the specified numbers of UPS are operating in a power failure.

Example: When a device is connected to 3 UPS and "UPS count" is set to "2", the device continues to operate even if 1 UPS shuts down in a power failure.
The device is shut down if the second UPS shuts down.

(2) Click the [OK] button.

Caution

- When the device information is registered to multiple UPS in a group, set a "UPS count" value that is the same or less than the number of UPS the device is connected to.
  Reset "UPS count" when you have deleted device information from UPS and the "UPS count" exceeded the number of UPS to where the device information is registered.
- Even if you perform device information transfer, the "UPS counts" is not transferred to the UPS in the group. Configure "UPS count" on each UPS to where the device information is registered. You can specify either the same values or different values on each UPS. Configure to suit your system configuration.
  However, if you set different "UPS count" value to each UPS, shutdown operation may differ. Set same value to UPS unless you have a special reason.
- The power is supplied to a device from the UPS to which the device information is registered in the event of a power failure. If you want the power supply from all connected UPS, check you have registered the device information to all UPS.
- Devices may not be shut down in a power failure if the device is connected to multiple UPS in a power redundancy system depending on the value of "UPS count" . However, the following message (0504 Stop warning) to notify a shutdown is sent from the UPS where the power failure occurred to WS (S), WS (T), and WS (SSH) devices.

  Message: "Shutdown Process will start after ** sec, and ** min."

  This message is the default setting. It is recommended to modify the message contents to suit your system configuration and purposes in a power redundancy system based on the example below. Create the message by modifying the WS script for "Event No.0504 Stop warning". See "5.5.3.2 Editing WS scripts" for details.

  Example message: "UPS will stop after ** sec, and ** min."
  Edit the WS script: "send=echo UPS will stop after %STOP_TIME_S% sec. and %STOP_TIME_M% min. |wall"

  Refer to the user guide of the UPS management software to modify the message if you are using the UPS management software.

5.11 Registering, Modifying, and Deleting Sensor Information

5.11.1 Registering sensor information

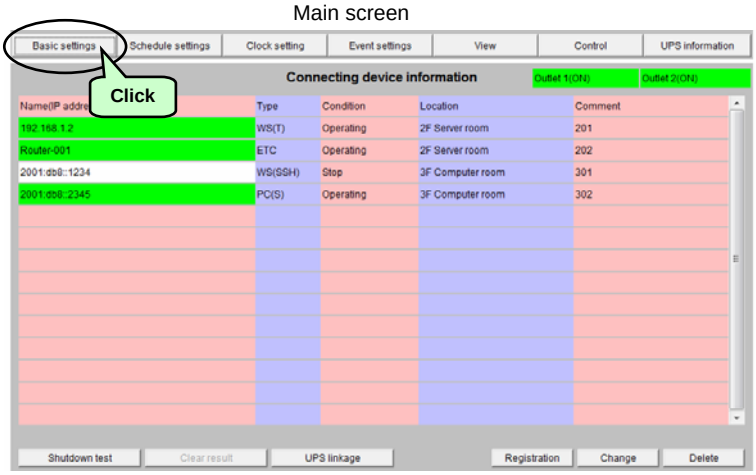
See this section when connecting a sensor to a LAN interface card that supports sensors.

You can register the sensor information when a temperature sensor or humidity sensor is connected to the UPS to measure and manage the temperature and humidity of the surrounding area.
You can register up to 16 sensors.

Caution

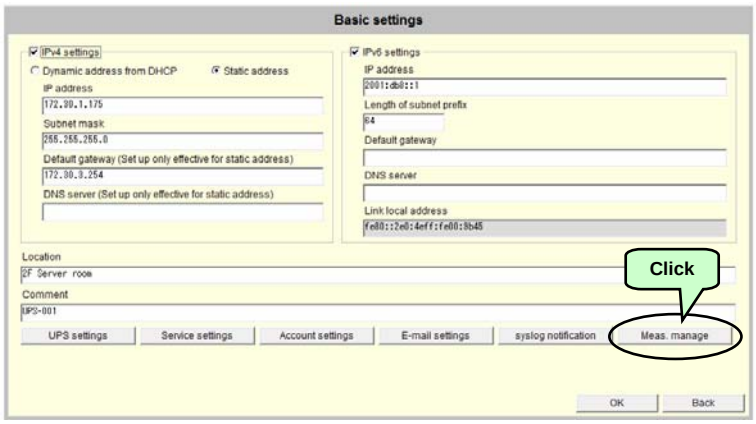
Register the sensor information when you have connected a sensor. You cannot manage measured values even if a sensor is connected unless the information is registered.

Main screen



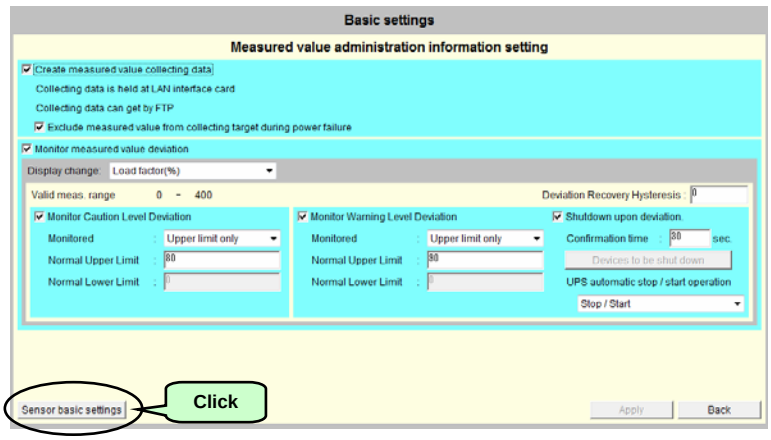
(1) Click the [Basic settings] button on the main screen.

The [Basic settings] screen is displayed.



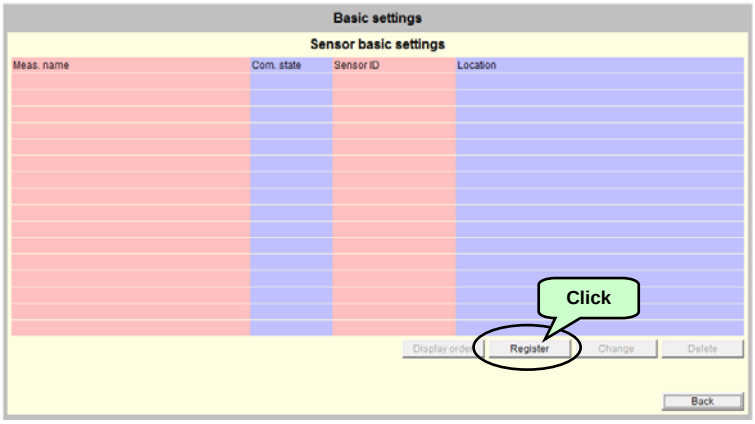
(2) Click the [Meas. manage] button.

The [Measured value administration information setting] screen is displayed.



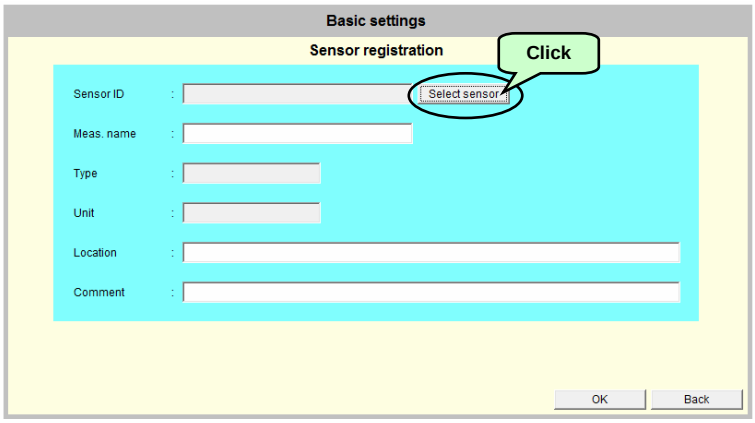
(3) Click the [Sensor basic settings] button.

The [Sensor basic settings] screen is displayed.



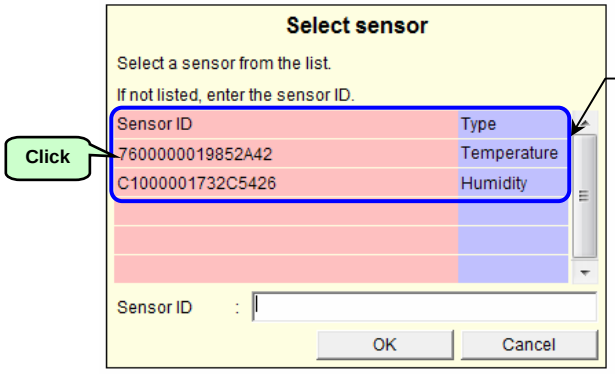
(4) Click the [Registration] button.

The [Sensor registration] screen is displayed.



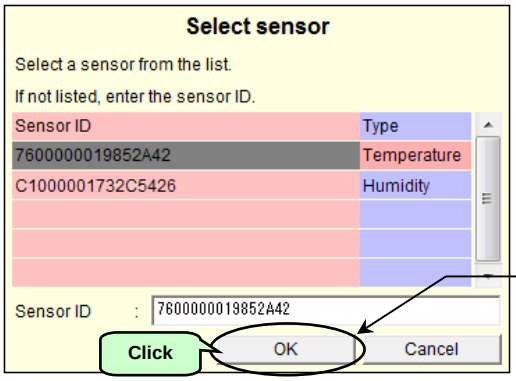
(5) Click the [Select sensor] button.

The [Select sensor] screen is displayed.



If sensors are connected to the UPS, a list of IDs and types of sensors that can be registered is displayed.

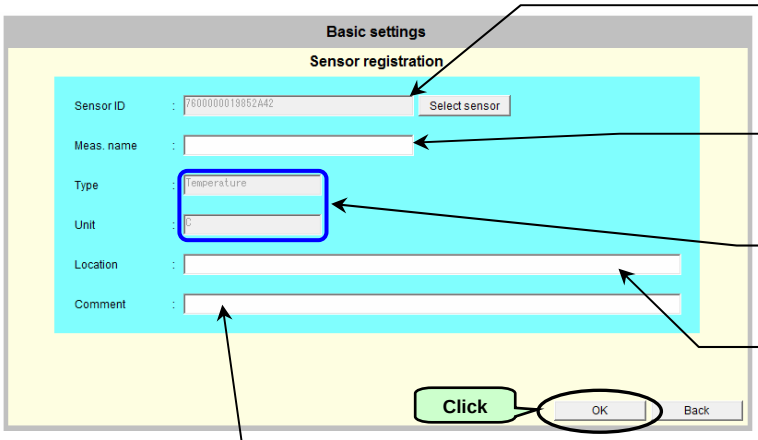
(6) Select the sensor you want to register from the sensor list.



The line of the selected sensor is highlighted in reverse video.

The sensor ID is not listed when a sensor is not connected to the UPS. In this situation, enter the sensor ID written on the front plate on the sensor.

(7) Click the [OK] button.



Sensor ID*
Displays the sensor ID you selected on the select sensor screen.
The sensor type is identified from the sensor ID.

Meas. name
Enter the name to identify the sensor. (Required)
Up to 32 single-byte characters.
You cannot register the same measurement names with other sensors.

Displayed according to the sensor shown in the sensor ID. This cannot be modified. *

Location
Enter the location of the sensor.
If you have recorded it in "Recording the Sensor ID" in the LAN interface card manual, enter the value in the table. (Optional)

Comment
Enter a comment about the sensor. (Optional)

(8) Enter the information of the sensor to be registered.

It is recommended to enter helpful information to the location and comments for measured value management.

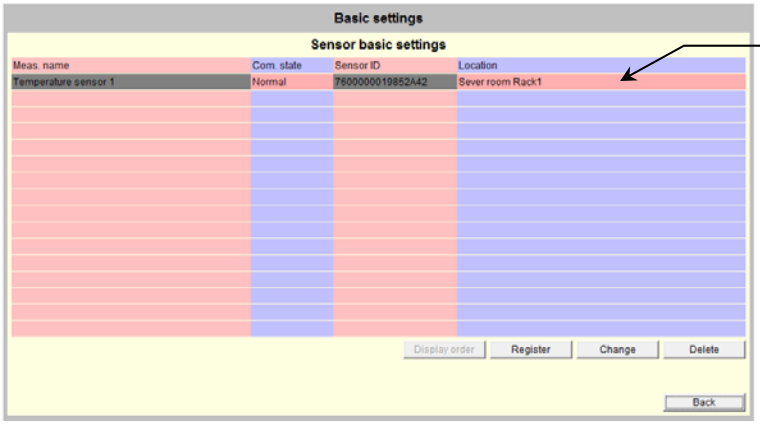
(9) Click the [OK] button.

*Point

The type and unit are specified as the following table depending on the sensor ID.

The last 2 digits of the sensor ID	42	26
Type	Temperature sensor	Humidity sensor
Unit	C	%RH

The [Sensor basic settings] screen is displayed again.



The registered sensor is displayed.

(10) Repeat Steps (4) to (9) to register sensor information if you have connected multiple sensors.

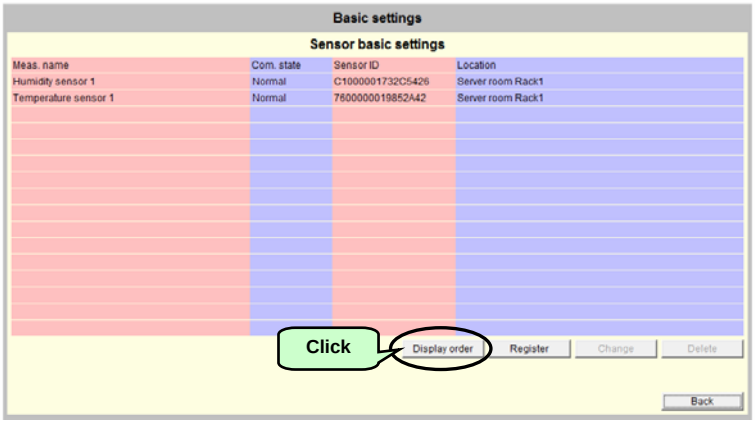
Point

The [Com. state] on the sensor basic settings screen displays [Unknown] immediately after registering the sensor information. However, it changes to [Normal] after several seconds if the UPS and sensor are communicating properly.
If you have registered a sensor which is not connected to the UPS, [Com. error] is displayed after several seconds.
It changes to [Normal] when you connect the sensor and normal communications are established.

5.11.2 Modifying the display order of registered sensor information

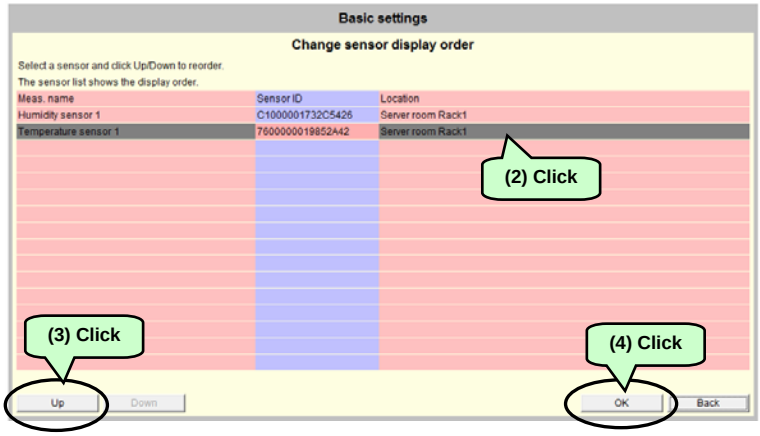
Sensor information is displayed on the sensor information screen in the order you have registered the sensors. You can reorder them in a way that is easier for you to manage.

Sensor basic settings screen



(1) Click the [Display order] button.

The [Change sensor display order] screen is displayed.

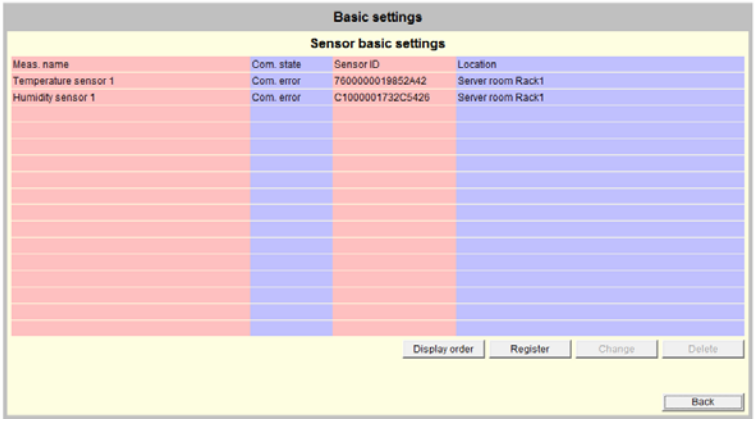


(2) Select the sensor that you want to move up or down.

(3) Move it by clicking the [Up] or [Down] button.

(4) Click the [OK] button.

The sensors are displayed in the specified order.



5.11.3 Modifying registered sensor information

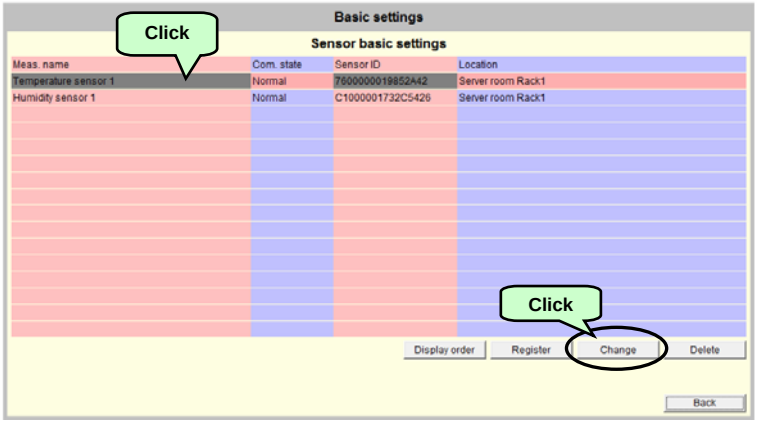
This section describes how to modify registered sensor information.

(1) Click the [Basic settings] button on the main screen.

(2) Click the [Meas. manage] button.

(3) Click the [Sensor basic settings] button.

The [Sensor basic settings] screen is displayed.

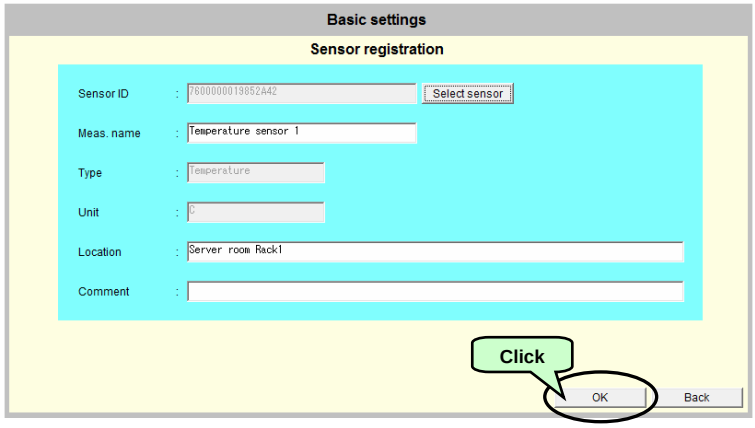


(4) Select the sensor you want to modify from the sensor list on the sensor basic settings screen.

The line of the selected sensor is highlighted in reverse video.

(5) Click the [Change] button.

The [Change sensor] screen is displayed.



(6) Edit the registered information.
Only items you can modify are enabled.

(7) Click the [OK] button.

5.11.4 Replacing connected sensors

Replace the registered sensor ID to the new sensor ID when you have replaced a connected sensor.
The registered information and summary data of the previous sensor can be inherited by the new sensor.

Caution

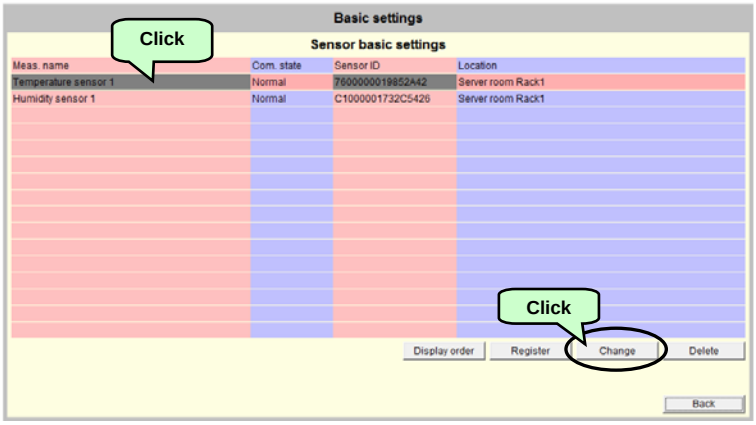
You cannot change the "Type" of the sensor. Delete the registered information and register it as new when you have replaced a humidity sensor with a temperature sensor, or vice versa. The summary data of the sensor is also deleted when the registered information is deleted. Export the data if you want to keep it.
The accuracy of the humidity sensor changes over the years. Replace the sensor according to the required accuracy.

(1) Click the [Basic settings] button on the main screen.

(2) Click the [Meas. manage] button.

(3) Click the [Sensor basic settings] button.

The [Sensor basic settings] screen is displayed.

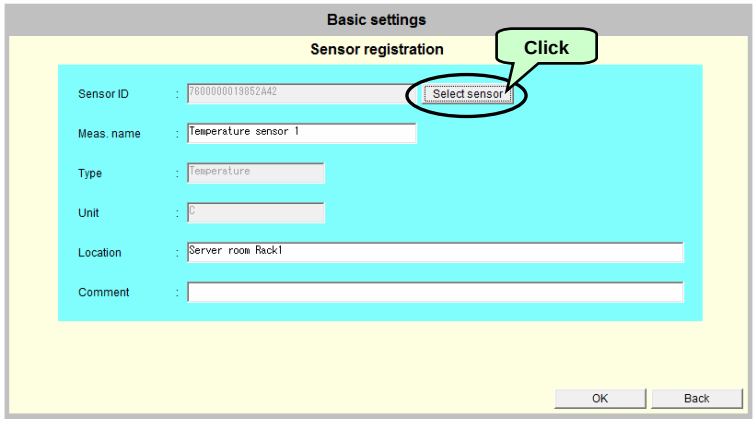


(4) Select the sensor you have replaced from the sensor list on the sensor basic settings screen.

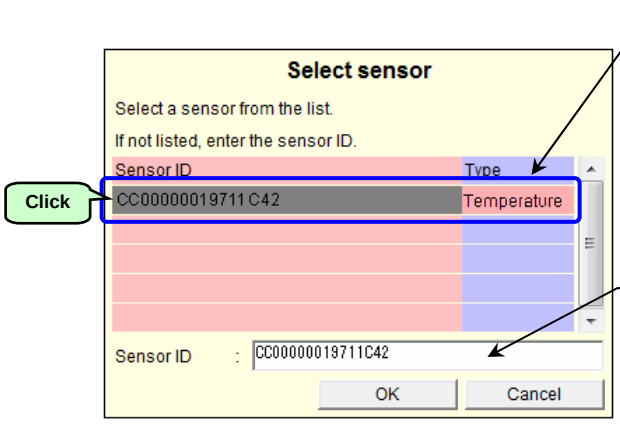
The line of the selected sensor is highlighted in reverse video.

(5) Click the [Change] button.

The [Change sensor] screen is displayed.



(6) Click the [Select sensor] button.

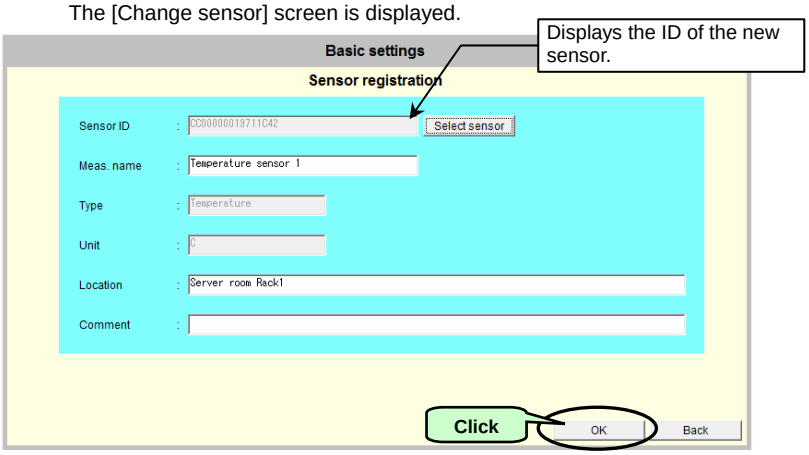


(7) Select the sensor you want to register from the sensor list.

The line of the selected sensor is highlighted in reverse video.

(8) Click the [OK] button.

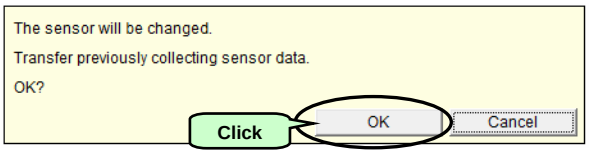
The [Change sensor] screen is displayed.



(9) Check that the sensor ID has been updated.

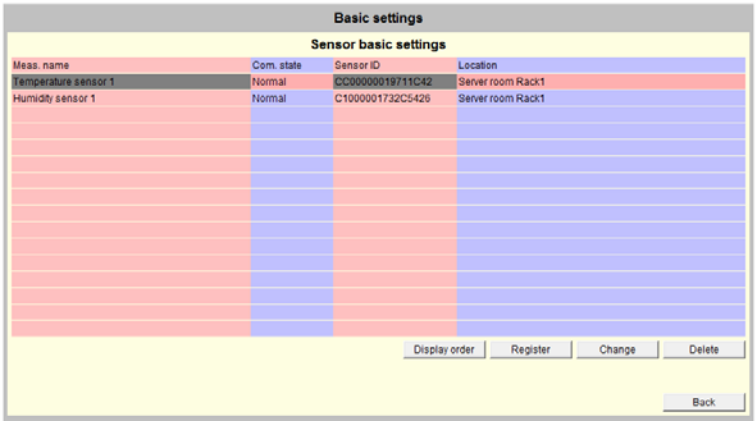
(10) Click the [OK] button.

The confirmation screen is displayed.



(11) Click the [OK] button.

The sensor basic settings screen is displayed again.



5.11.5 Deleting registered sensor information

Delete the registered sensor information when you have removed a sensor.
Delete the registered information and register it as new when you have replaced a humidity sensor with a temperature sensor, or vice versa.

Caution

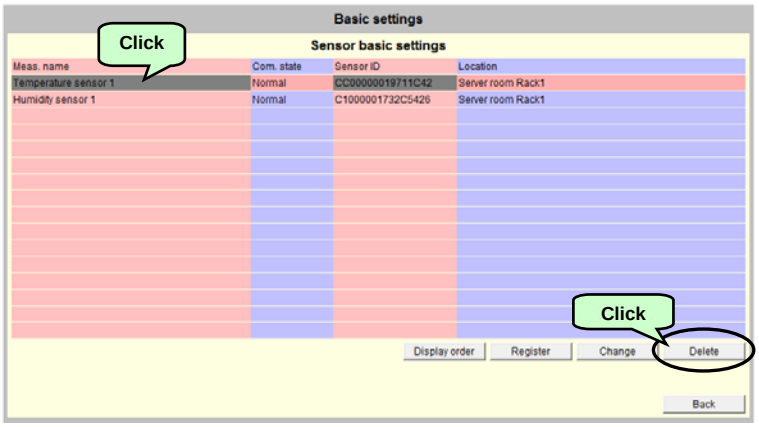
- You cannot undo the delete operation.
- The summary data of the sensor is also deleted when the sensor information is deleted. Output the data if you want to keep it using the FTP command, or the "information request e-mail" function.

(1) Click the [Basic settings] button on the main screen.

(2) Click the [Meas. manage] button.

(3) Click the [Sensor basic settings] button.

The [Sensor basic settings] screen is displayed.

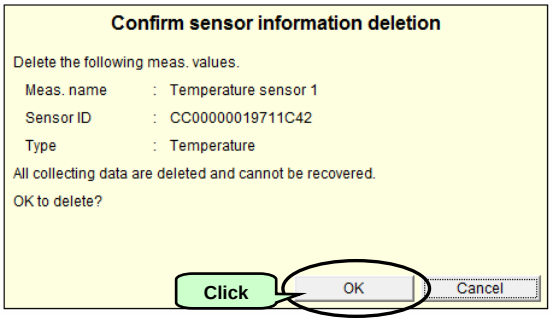


(4) Select the sensor you want to delete from the sensor list on the sensor basic settings screen.

The line of the selected sensor is highlighted in reverse video.

(5) Click the [Delete] button.

The confirmation screen is displayed.



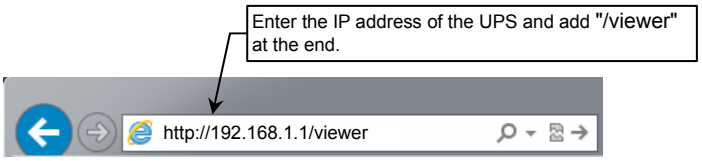
(6) Check the sensor information you are deleting in the confirmation screen.

(7) Click the [OK] button.

6. USING THE WEB DISPLAY TOOL

The Web Display Tool can be used to view various types of data collected by the UPS, and also the UPS condition.

6.1 Starting the Web Display Tool from a Web Browser



Example: If the IP address of the UPS is 192.168.1.1, enter "192.168.1.1/viewer".

(1) Start the Web browser.

(2) In the "Address bar" of the Web browser, enter the IP address of the UPS and then add "/viewer" at the end.

Point

If you use the IPv6 address,
Enter “http://[IPv6 address]/viewer”

You can enter the address bar in the form of the following table.

The following table provides an example input address.

Example of a UPS address	About display of the Web display tool
http://UPS address/viewer	Starting the Java Web Start. Display in a separate screen from the Web browser.※
http://UPS address/viewer.html	Starting the Java applet in Web browser.
http://UPS address/viewer.htm	Starting the Java applet in Web browser.

※About starting the Web Display Tool with Java Web start

If you enter the UPS address in the address bar, "Do you want to open or save SyWebTool.jnlp?" message appears.
Select the [Open]. The Web Display tool is started.
(The messages that are displayed depend on your Web browser.)

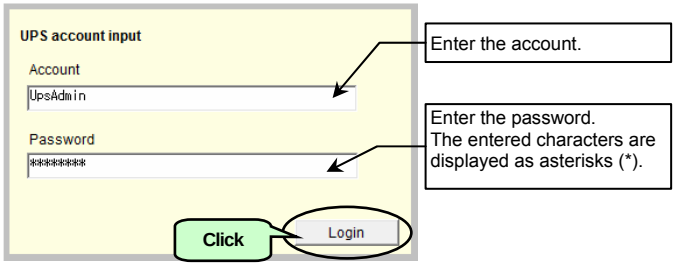
Start a program using "SyWebTool.jnlp" file

The message appears "Do you want to open or save SyWebTool.jnlp?", and you can save the SyWebTool.jnlp file on your computer. You can also use the SyWebTool.jnlp file on your computer to start the Web Display tool. (By using Explorer etc.)
You can use the SyWebTool.jnlp file by renaming the file.(File extension:jnlp cannot be changed)

About the message when started the Web Display Tool

For the message displayed when started the Web display tool, refer to the section "4.1 Starting the Web Management Tool from a Web Browser ".

When the Web Management tool is started, the screen below is displayed.



(3) From the table below, check the characters to be entered, and then enter the account and password in single-byte characters using your keyboard.

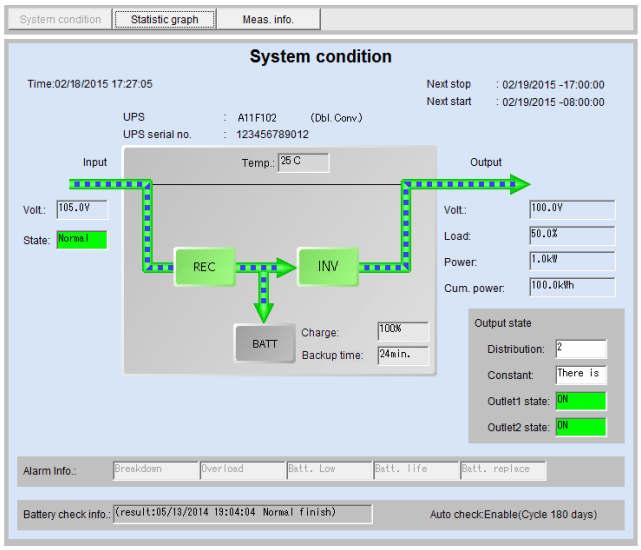
(4) Click the [Login] button.

You can log in as either the administrator or a general user.

The default values of account information are described in the table below.

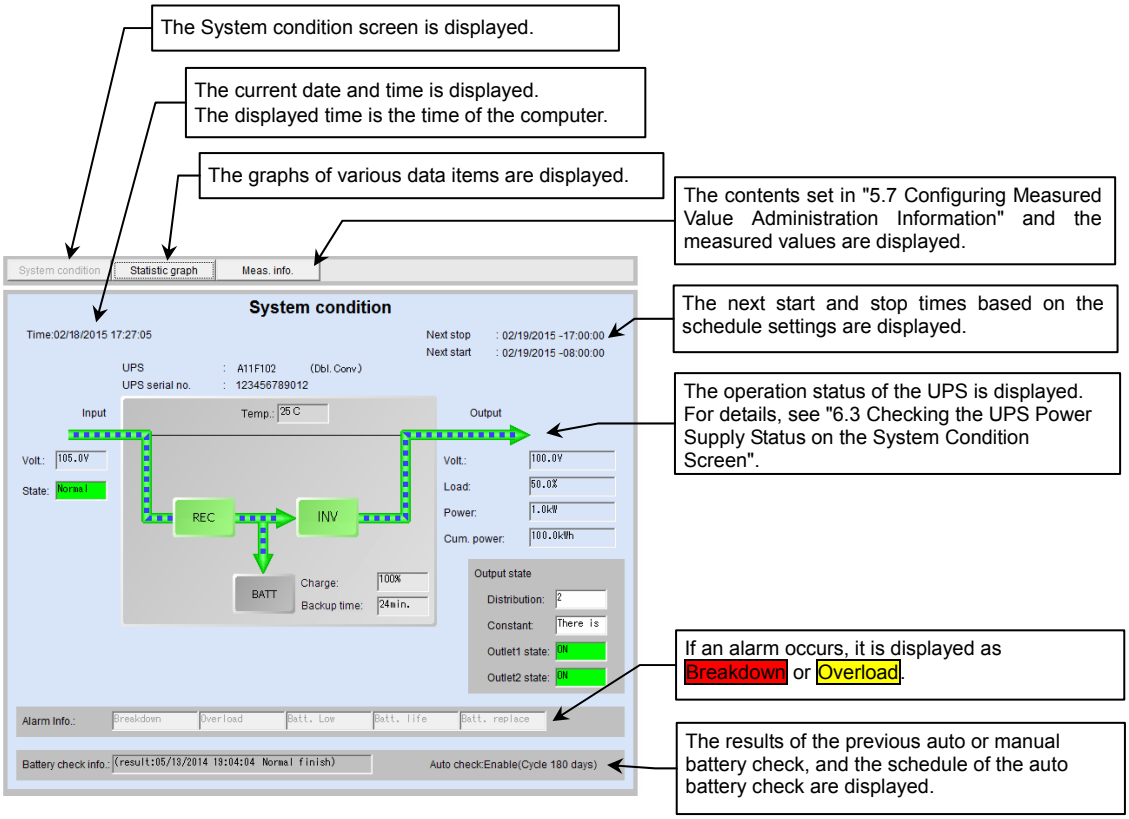
	Administrator	General user
Account	UpsAdmin	User
Password	UpsAdmin (Case sensitive.)	User (Case sensitive.)
Privileges	The entire information can be set or referenced.	Graphs can only be referenced. The display settings of graphs cannot be changed.

The [System condition] screen of the Web Display Tool is displayed.



6.2 System Condition Screen and Menu Functions

Web Management Tool screen (this example shows a case in which a UPS with system control output is connected.)



Items indicated in pink are displayed when the LAN interface card supports sensors and a sensor is connected.

Screen explanation

The functions are described in the table below.

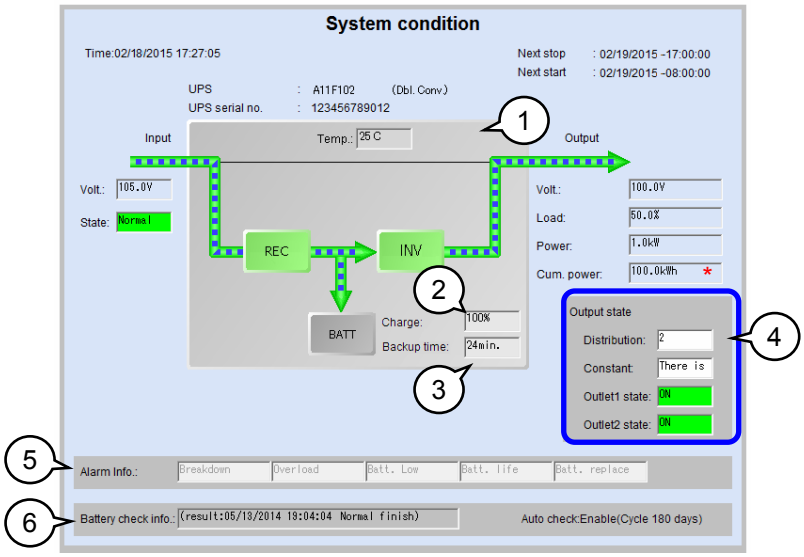
Menu/button	Function name	Overview
System condition	System Condition screen view	If you press this button when the Statistical Graph screen is displayed, the System condition screen is displayed.
Statistic graph	Statistical Graph screen view	The statistical graph of the data described below is displayed. • Input Volt. • Input frequency • Output Volt. • Output Curr. • Output Pow. • Output frequency • Load factor • Ambient Temp. • Battery Temp. • Output electric energy • Temperature sensor* • Humidity sensor* Each data item can be grouped as a daily, monthly, or yearly unit.
Meas. info.	UPS/sensor measurement information view	The contents set in "5.7 Configuring Measured Value Administration Information" and the current measured values are displayed for the following items: • Load factor • UPS Temp. • Input Volt. • Temperature sensor* • Humidity sensor* The caution level, warning level, and current measured values are displayed in a graph.

* The names entered in the measurement names in "5.11.1 Registering sensor information" are displayed.
The accuracy of the humidity sensor varies depending on the number of years of usage. Examine the replacement period according to the desired accuracy.

6.3 Checking the UPS Power Supply Status on the System Condition Screen

The System Condition view screen is used to view the operational status of the system, the power-supply system image, the main measured values, and the alarm information.

The view is updated automatically at an interval of approx. 10 seconds.



No.	View	Description
1	Power-supply system drawing	Schematic diagram of the power-supply status of the UPS. The view of each power-supply status is explained on pages 6-4 and 6-5.
2	Charge	The battery charging rate (%) is displayed. This item is not displayed if the UPS does not have a battery charging rate calculation function.
3	Backup time	The backup time (minutes) during which battery operation is possible under the current load status is displayed. If the backup time is more than 1092 minutes, it is displayed as "1092 minutes." The backup time is only an approximate time and may vary largely depending on the load status. This item is not displayed if the UPS does not have a backup time calculation function.
4	Output status view	If the UPS has several system outputs, the output status is displayed by system.
5	Alarm information	If an alarm such as "Breakdown (minor breakdown or major breakdown)", "Overload", "Low battery voltage", "Battery life", or "Battery replacement time" occurs, the corresponding item is displayed as Breakdown or Overload. "Breakdown" and "Batt. Low" are displayed in red, while the other alarms are displayed in yellow. "Unknown" is displayed for a contact connection.
6	Battery check information	The current battery check status (running/stopped), and the results of the previous auto or manual battery check, and schedule of the auto battery check are displayed. If the battery check results in an abnormal finish, the results column is displayed in red.

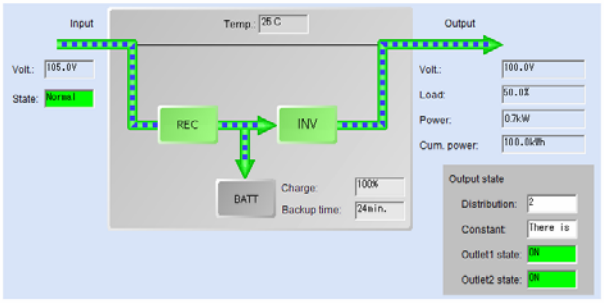
*Caution

If the cumulative power in the [System condition] screen is “0.0 kWh”, check whether [Create measured value collecting data] checkbox is selected or not in the [Measured value administration information setting] screen. If it is not selected, because data summaries are not created, the cumulative power is not displayed. See “6.4.1 Configuring graph displays for the web display tool” for details. Data summary starts from the point where you select [Create measured value collecting data] and click the [Apply] button. You cannot take summary of the past data.

System drawing of each power-supply status of the UPS

<During normal operation>

For other than a hybrid UPS

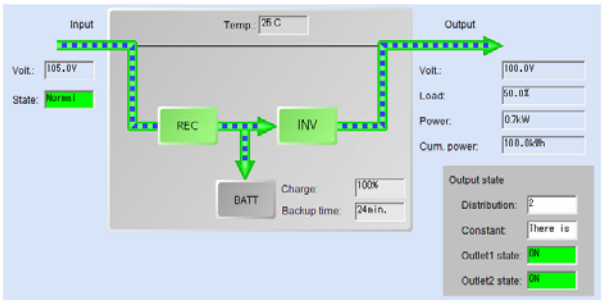


<During normal operation>

For a hybrid UPS

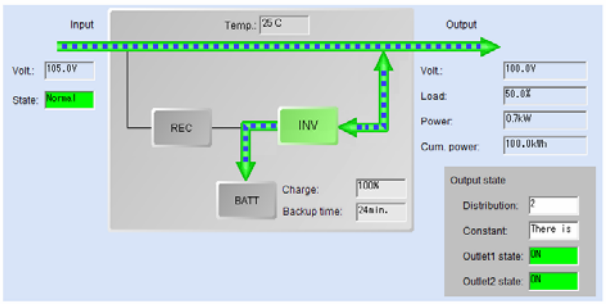
<In the power-supply quality priority mode>

The power-supply quality priority CVCF function and the power factor improvement function are operational.



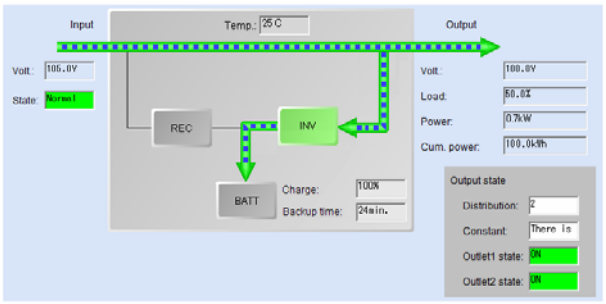
<In the active filter mode>

In the active filter mode, the CVCF function is suppressed and only the power factor improvement function is operational.
This mode is applied automatically when the power-supply quality is relatively good.

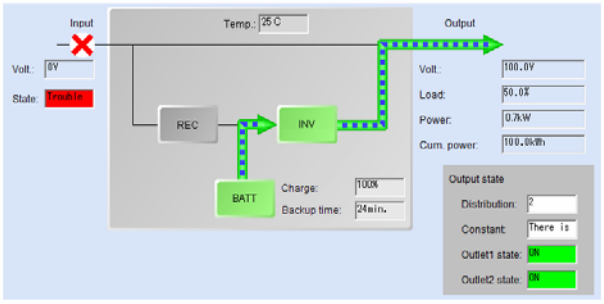


<In the efficiency priority mode>

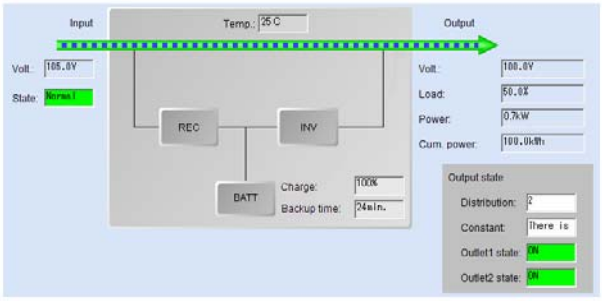
In the efficiency priority mode, the CVCF function and the power factor improvement function are suppressed. This mode is applied automatically when the power-supply quality is extremely good.



<During a power failure>

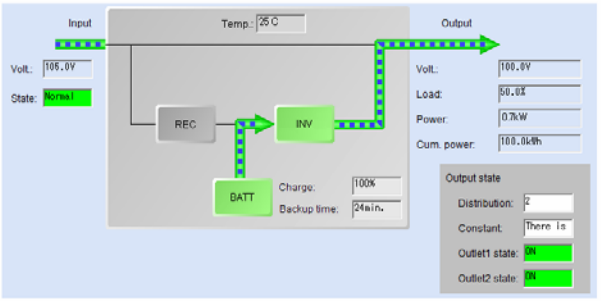


<During bypass operation>

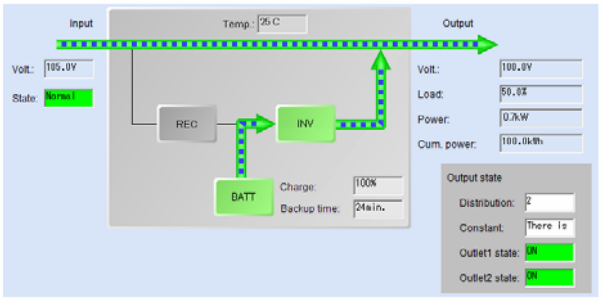


<During battery test>

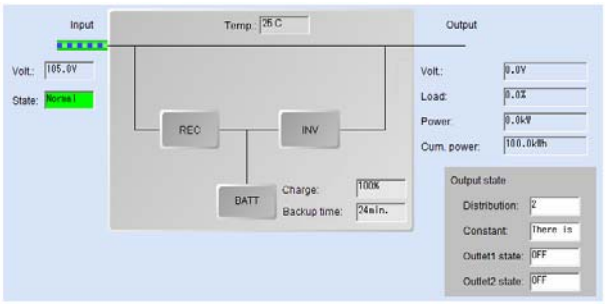
For other than a hybrid UPS
or for a hybrid UPS
<in the power-supply quality priority mode>



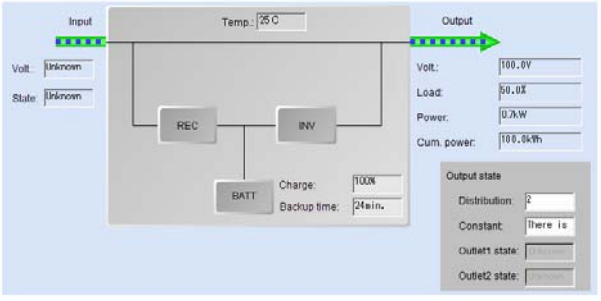
Hybrid UPS
<In the active filter mode
or the efficiency priority mode>



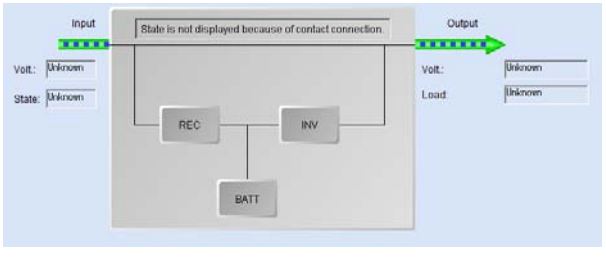
<During standby>



<During a serial communication error>



<During a contact connection>



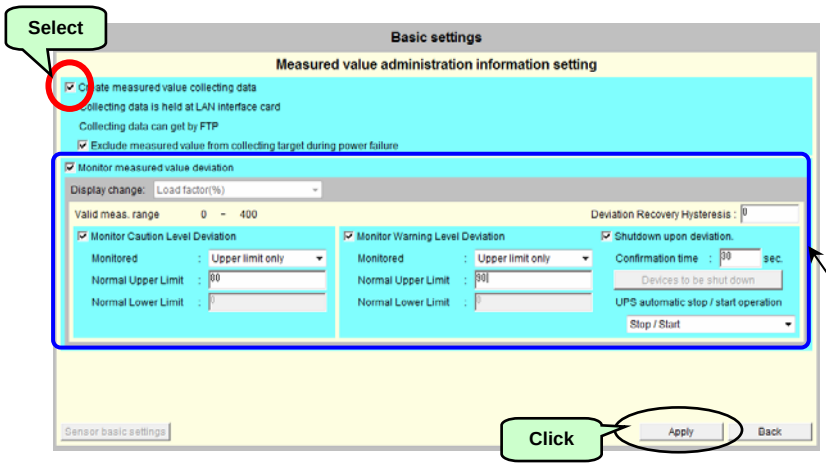
6.4 Using and Configuring Statistical Graphs

6.4.1 Configuring graph displays for the web display tool

To display various types of data as a graph in the Web Display Tool, make the settings described below.

(1) On the Web Management Tool Main Screen, click the [Basic Settings] button.
(2) On the [Basic Settings] screen, click the [Meas. manage] button.

The [Measured value administration information setting] screen is displayed.



(3) To create collecting data, select [Create measured value collecting data].

For details on the settings, see "5.7 Configuring Measured Value Administration Information".

(4) Click the [OK] button.

Caution

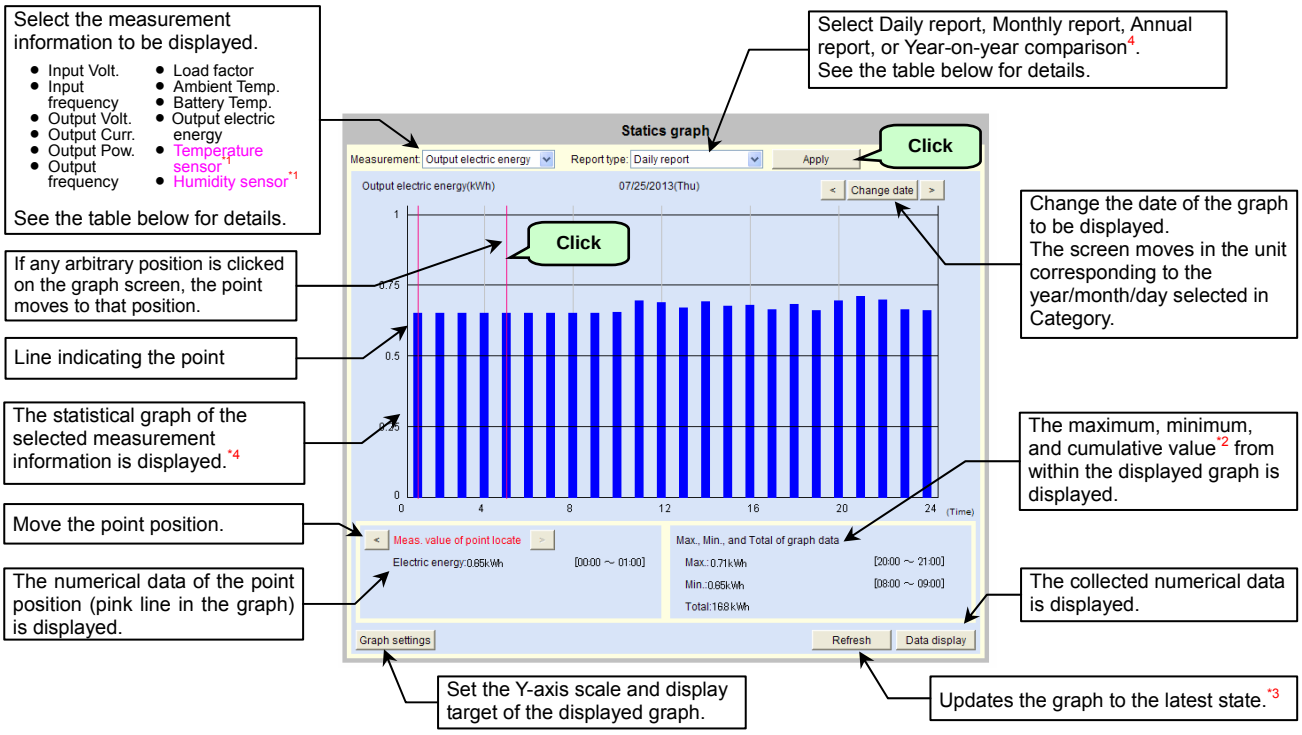
Data aggregation starts after you have made the above settings.
Data is not collected when [Create measured value collecting data] is not selected.
Therefore, data is not displayed even when a graph is displayed in the Web Display Tool.

6.4.2 Statistical graph screen

Items indicated in pink are displayed when the LAN interface card supports sensors and a sensor is connected.

(1) On the System condition screen, click the [Statistic Graph] button.

The [Statistic graph] screen is displayed. The initial screen is the graph for the [Output electric energy] and [Daily report].



The details of the measurement information to be collected are provided in the table below.

Measurement information	Unit	Statistical value			Type of display graph
		Daily report	Monthly report	Annual report	
Input Volt. (r-s)	V	Maximum, minimum, and average value of each hour	Maximum, minimum, and average value of each day (24 hours)	Maximum, minimum, and average value of each month	Line graph
Input Volt. (s-t)	V				
Input Volt. (t-r)	V				
Input frequency	Hz				
Output Volt. (U-V)	V				
Output Volt. (V-W)	V				
Output Volt. (W-U)	V				
Output current (U)	A				
Output current (V)	A				
Output current (W)	A				
Output power	kW				
Output frequency	Hz				
Load factor	%				
Ambient Temp.	℃				
Battery Temp.	℃				
Temperature sensor*1	℃				
Humidity sensor*1	%RH				
Output electric energy*2	kWh	Cumulative value of each hour	Cumulative value of each day (24 hours)	Cumulative value of each month*5	Bar graph
Data retention period		The previous three months and the current month (from the 1st to the current day.) The data for the month from three months ago is deleted on the 1st of the next month.	The previous two years and the current year (from January to the current month.) The data for the year from two years ago is deleted on the 1st of January of the next year.	The previous 10 years and the current year The data of the year from 10 years ago is deleted on the 1st of January of the next year.	—

Caution

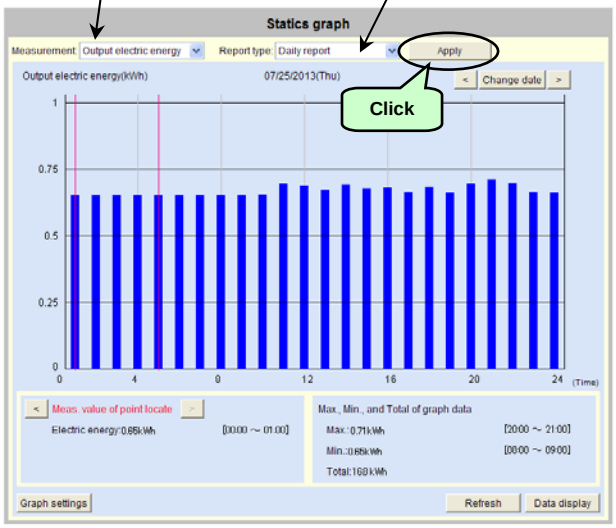
*1 The names entered in the measurement names in "5.11.1 Registering sensor information" are displayed.
The accuracy of the humidity sensor varies depending on the number of years of usage. Examine the replacement period according to the desired accuracy.
*2 The cumulative value is displayed only when the measurement information is "Output electric energy". When the measurement information is other than "Output electrical energy", the "Average value" is displayed.
*3 The data is totaled for each hour. The graph is not updated automatically.
*4 When the statistical graph is not displayed, refer to "6.4.1 Configuring graph displays for the web display tool", and make sure "Create measured value collecting data" is selected. The graph will not be created if this is not selected. The collecting data is created from the time the check box is selected. Therefore, collecting data of the past cannot be created.
*5 In the bar graph of the annual report of output electric energy, the data of the past two years can be displayed on a year-on-year comparison basis. For details, see "6.4.8 Displaying output electric energy comparison with the previous year as a graph".

6.4.3 Changing graph types

Select the measurement information to be displayed.

- Input Volt.
- Input frequency
- Output Volt.
- Output Curr.
- Output Pow.
- Output frequency
- Load factor
- Ambient Temp.
- Battery Temp.
- Output electric energy
- Temperature sensor
- Humidity sensor

Select Daily report, Monthly report, Annual report, and Year-on-year comparison.



(1) Click ▼ next to [Measurement] and select the measurement information to display.

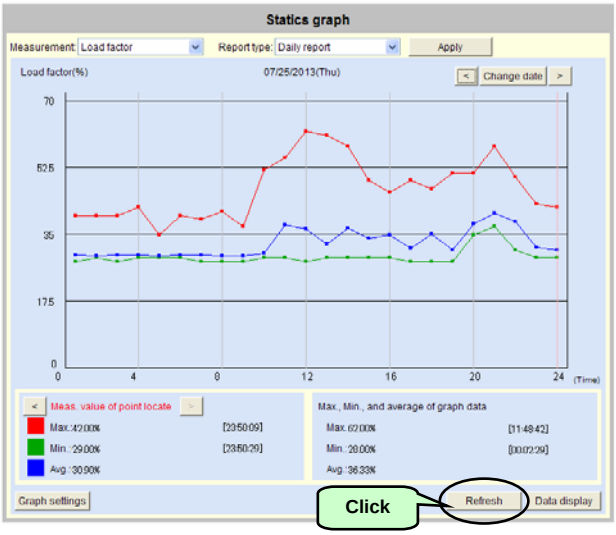
(2) Click ▼ next to [Report type] and select the period for the graph to display.

(3) Click the [Apply] button.

Caution

If you do not click the [Apply] button after selecting "Measurement" and "Report type", the display will not switch to the screen of the selected measurement information.

The graph switches. The figure below shows the graph when [Load factor] is selected in measurement information.



To update the graph to the latest state:

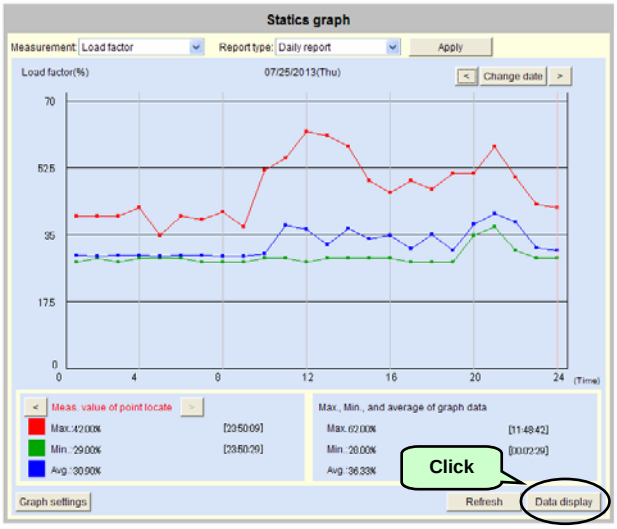
(4) Click the [Refresh] button.

Caution

The "output electric energy" is displayed as a bar graph and the other measurement information is displayed as a line graph. You cannot change the type of graph display.

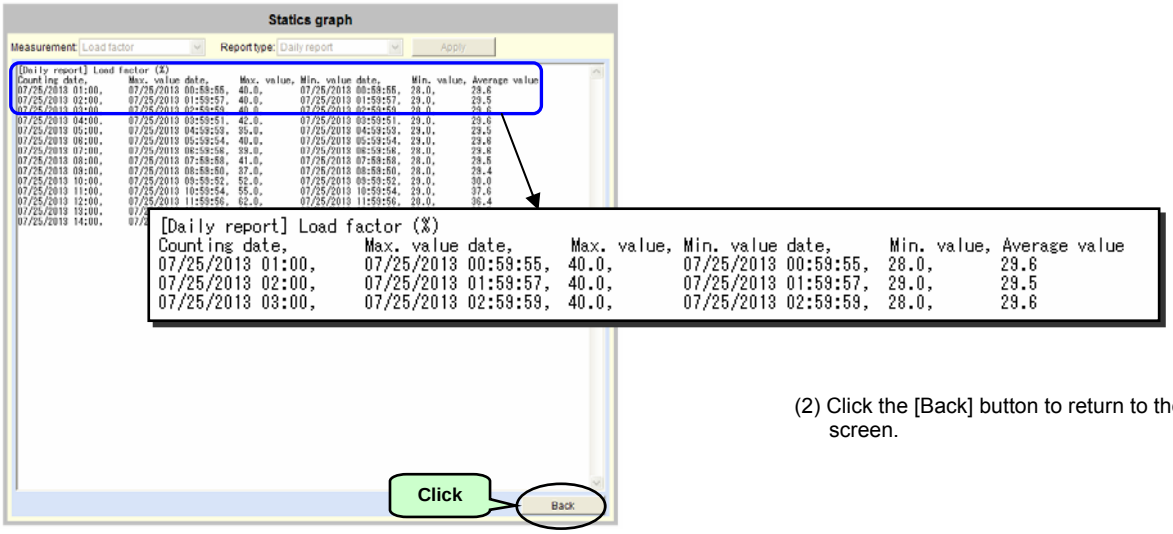
6.4.4 Displaying graph values

To view the numerical data of the displayed graph, perform the operation described below.



(1) Click the [Data display] button.

The numerical data is displayed.



(2) Click the [Back] button to return to the previous screen.

Point

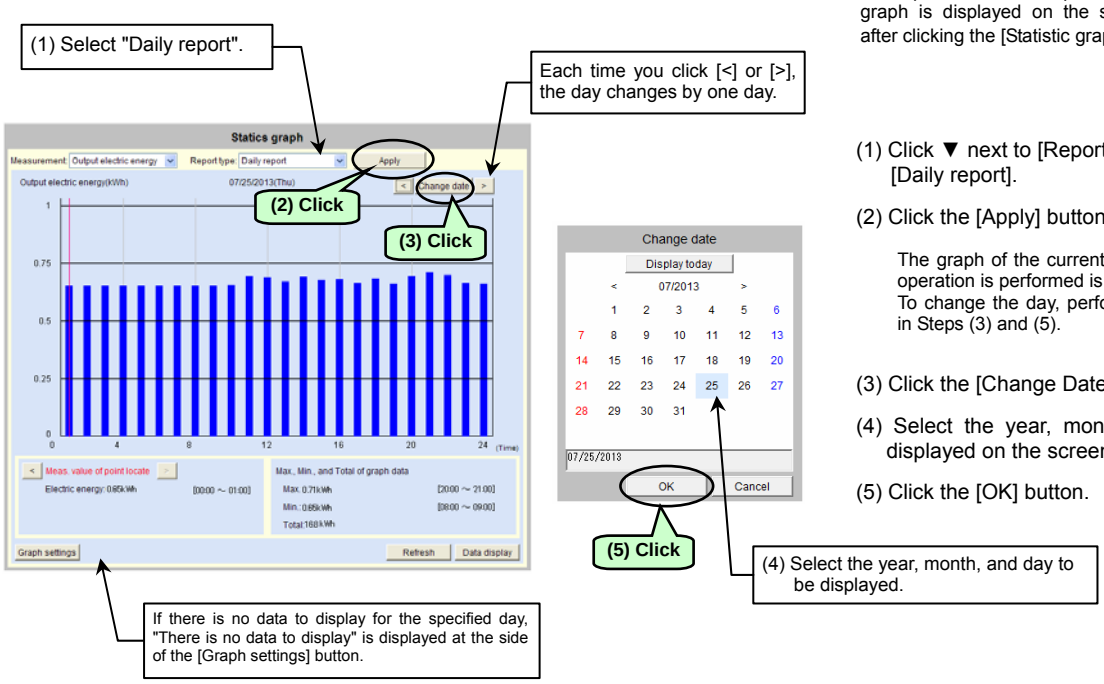
The collected data of daily reports, monthly reports, and annual reports can be output either by FTP commands, or by sending an "Information request E-mail."
For details on FTP commands, see "9.3 Using FTP and FTPS Client."
For details on the "Information request E-mail", see "5.6.5 Sending e-mail to the UPS to obtain status and measurement information" and "Appendix C. LIST OF INCOMING E-MAILS."

6.4.5 Displaying daily report graphs

If you click the [Statistic graph] button on the System condition screen, the [Output electric energy] and [Daily report] of the current day on which the operation is performed is displayed.

To change the view from a monthly report graph or an annual report graph to a daily report graph, or to change the date of the graph to be displayed, perform the operation described below.

To change the report type from monthly report and annual report, perform the operation described in Steps (1) and (2).
This operation is not required if the "Daily report" graph is displayed on the screen that appears after clicking the [Statistic graph] button.



(1) Click ▼ next to [Report type] and select [Daily report].

(2) Click the [Apply] button.

The graph of the current day on which the operation is performed is displayed.
To change the day, perform the operations in Steps (3) and (5).

(3) Click the [Change Date] button.

(4) Select the year, month, and day to be displayed on the screen shown on the left.

(5) Click the [OK] button.

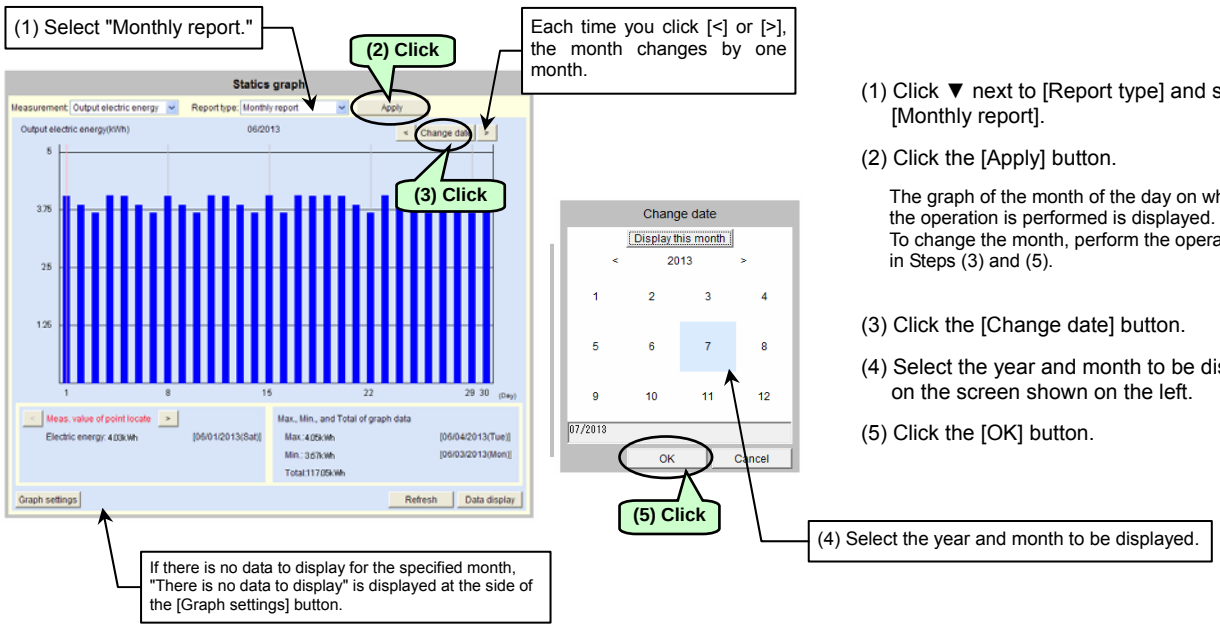
Caution

- If you do not click the [Apply] button after changing "Measurement" and "Report type", the display will not switch to the selected graph.
- Regarding the data retention period
  For daily reports, the data of the past three months and the current month (from 1st to the current day) is saved. Data from three months ago is deleted on the 1st of the next month.

  Example) For the operation day on December 31, 2012, the data is saved from September 01, 2012 to December 31, 2012
  For the operation day on January 01, 2013, the data is saved from October 01, 2012 to January 01, 2013

6.4.6 Displaying monthly report graphs

To view a monthly report graph, or to change the month of the graph to be displayed, perform the operation described below.



(1) Click ▼ next to [Report type] and select [Monthly report].

(2) Click the [Apply] button.

The graph of the month of the day on which the operation is performed is displayed.
To change the month, perform the operations in Steps (3) and (5).

(3) Click the [Change date] button.

(4) Select the year and month to be displayed on the screen shown on the left.

(5) Click the [OK] button.

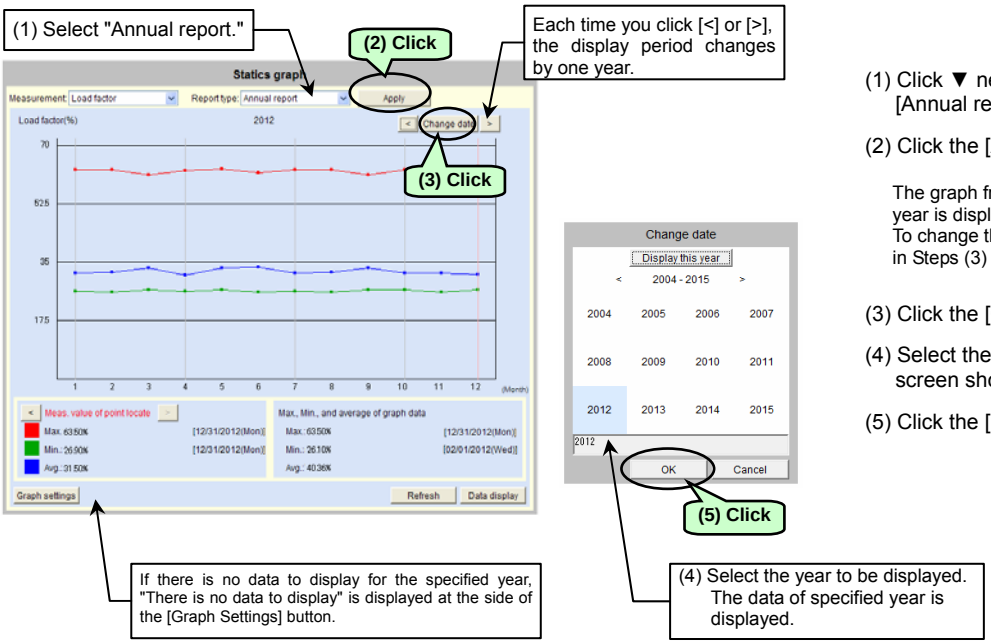
Caution

- If you do not click the [Apply] button after changing "Measurement" and "Report type", the display will not switch to the selected graph.
- Regarding the data retention period
  For monthly reports, the data of the past two years and the current year (from January to the current month) is saved. Data from two years ago is deleted on the 1st of January of the next year.

  Example) For the operation day on December 31, 2012, the data is saved from January 2010 to December 2012
  For the operation day on January 01, 2013, the data is saved from January 2011 to January 2013

6.4.7 Displaying annual report graphs

To view an annual report graph, or to change the period of the graph to be displayed, perform the operation described below.



(1) Click ▼ next to [Report type] and select [Annual report].

(2) Click the [Apply] button.

The graph from January to December of this year is displayed.
To change the period, perform the operations in Steps (3) and (5).

(3) Click the [Change date] button.

(4) Select the year to be displayed on the screen shown on the left.

(5) Click the [OK] button.

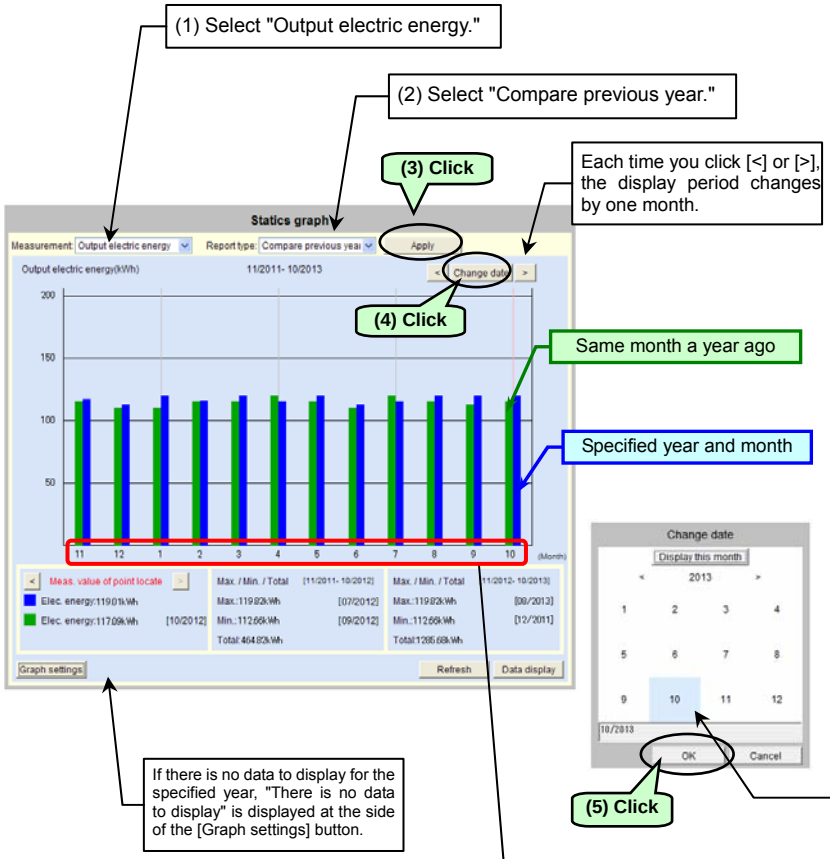
Caution

- If you do not click the [Apply] button after changing "Measurement" and "Report type", the display will not switch to the selected graph.
- Regarding the data retention period
  For annual reports, the data of the past 10 years and the current year (from January to the current month) is saved. Data from 10 years ago is deleted on 1st of January of the next year.

  Example) For the operation day on December 31, 2012, the data is saved from 2002 to 2012
  For the operation day on January 01, 2013, the data is saved from 2003 to January 2013

6.4.8 Displaying output electric energy comparison with the previous year as a graph

The year-on-year comparison graph can be viewed only as an annual report graph of the output electric energy.



	11	12	1	2	3	4	5	6	7	8	9	10
■	11/2012	12/2012	01/2013	02/2013	03/2013	04/2013	05/2013	06/2013	07/2013	08/2013	09/2013	10/2013
■	11/2011	12/2011	01/2012	02/2012	03/2012	04/2012	05/2012	06/2012	07/2012	08/2023	09/2012	10/2012

(1) Click ▼ next to [Measurement] and select [Output electric energy].

(2) Click ▼ next to [Report type] and select [Compare previous year].

(3) Click the [Apply] button.

The graph of the past two years from one month before the day when the operation is performed is displayed in an overlapping state.
To change the period, perform the operations in Steps (4) and (6).

(4) Click the [Change date] button.

(5) Select the year and month to be displayed on the screen shown on the left.

(6) Click the [OK] button.

Caution

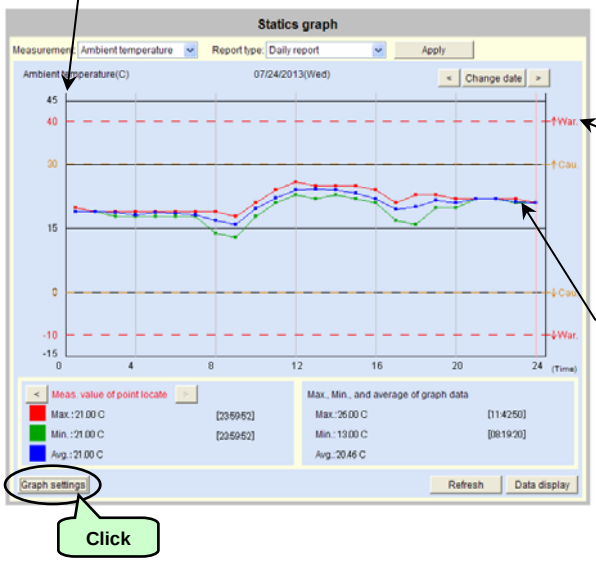
- If you do not click the [Apply] button after changing "Measurement" and "Report type", the display will not switch to the selected graph.
- Regarding the data retention period
  For annual reports, the data of the past 10 years and the current year (from January to the current month) is saved. Data from ten years ago is deleted on 1st of January of the next year.

  Example) For the operation day on December 31, 2012, the data is saved from 2002 to 2012
  For the operation day on January 01, 2013, the data is saved from 2003 to January 2013

6.4.9 Configuring the Y axis scale and display subject

Set the Y-axis scale of the graph, the data to be displayed, and the threshold value display.

On the "Graph Settings" screen shown in the figure below, the state set in "Automatic"/"Manual" is displayed on the Y axis.



(1) Click the [Graph settings] button.

On the "Graph Settings" screen shown in the figure below, if "Displaying threshold value" is selected, the "Caution", "Warning" line is displayed.

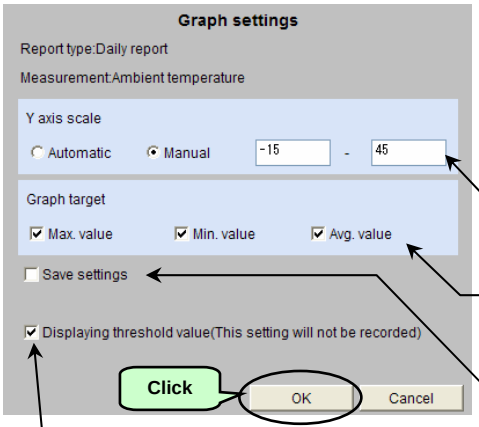
The graph of the value selected in the "Graph Settings" screen shown in the figure below, under the "Graph target" item is displayed.

: Maximum-value graph

: Minimum-value graph

: Average-value graph

The [Graph settings] screen is displayed.



(2) Set each item in the [Graph Settings] screen.

(3) After making the settings, click the [OK] button.

"Automatic"/"Manual": Set the Y axis of the graph.
Automatic: The Y-axis range is displayed automatically from the collecting data.
Manual: Enter the range to be displayed on the Y axis.

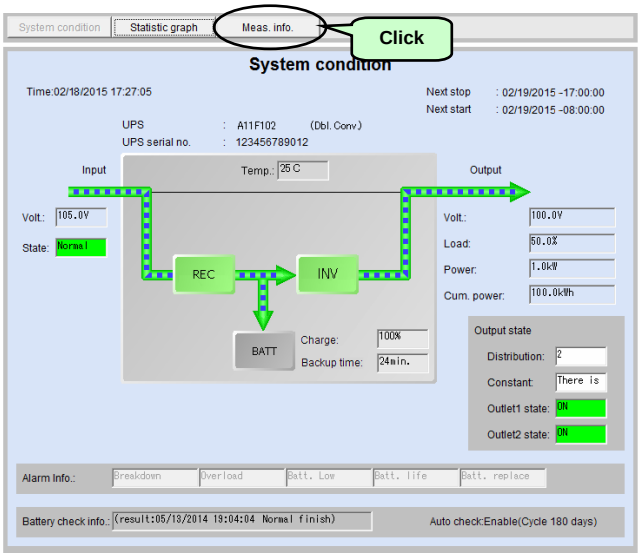
"Graph target": Select the value to be displayed as a graph.

"Save settings"
When this is selected
The settings are saved in the UPS, and graphs set from any terminal on the network, can be viewed.
When this is cleared
The set graph can be viewed only from the operating terminal.

"Displaying threshold value"
Displayed as a selection item when "Monitor measured value deviation" is selected in "5.7 Configuring Measured Value Administration Information", and a threshold value is set as the monitoring target.
If this is selected, the values of caution and warning are displayed on the graph screen.

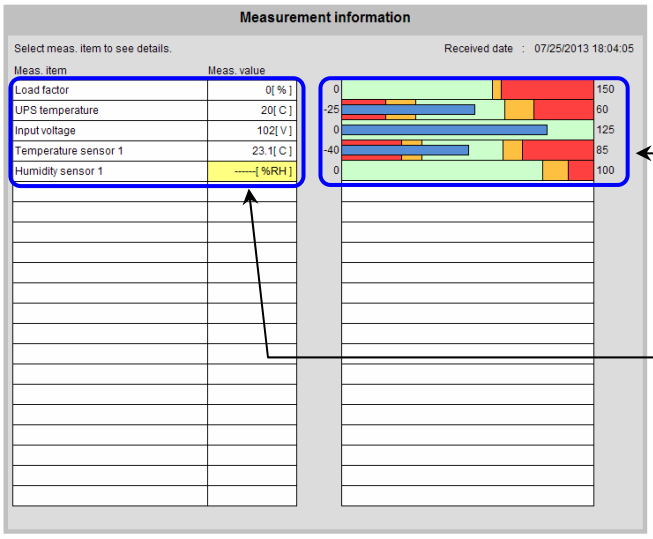
6.5 Displaying Measurement Information

This section describes the procedure for viewing the setup status and measured values of measured value deviation monitoring set in "5.7 Configuring Measured Value Administration Information."



(1) Click the [Meas. Info.] button.

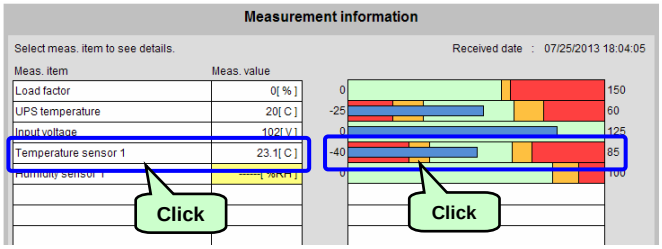
The [Measurement Information] screen is displayed.



The setup state and measured values of measured value deviation monitoring set in "5.7 Setting the Measured Value Administration Information" are displayed as a graph. For details on the graph, see the next page.

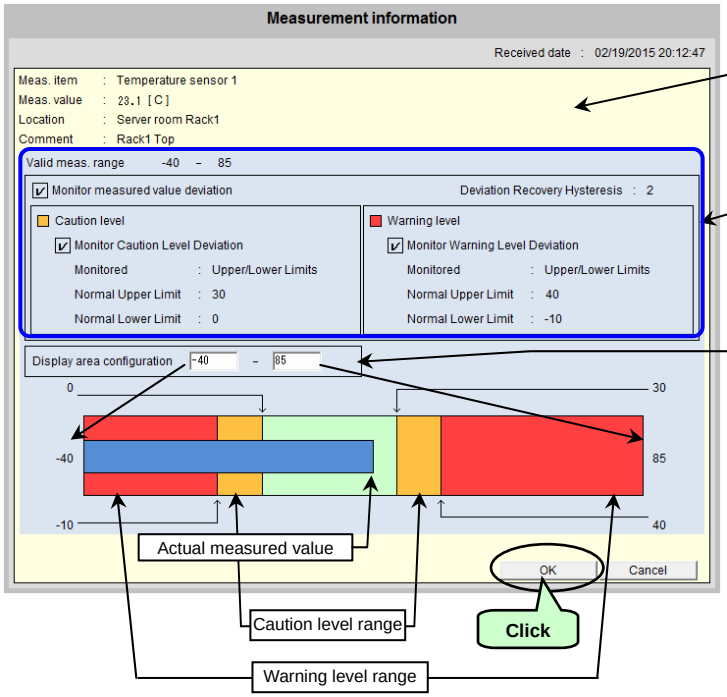
The current measured values are displayed. The values are updated to the most recent numbers at intervals of approx. 10 seconds.

If a measured value is displayed as -----, it indicates an unknown measured value due to a communication error, etc.



(2) To view the details, click any one of the measurement items, measured values, or graphs of the target measured values.

The Measurement information screen is displayed.



The measured value and sensor information is displayed.

The setup values of measured value deviation monitoring that are set in "5.7 Configuring Measured Value Administration Information" are displayed.
To change the setup values, use the Web Management Tool.

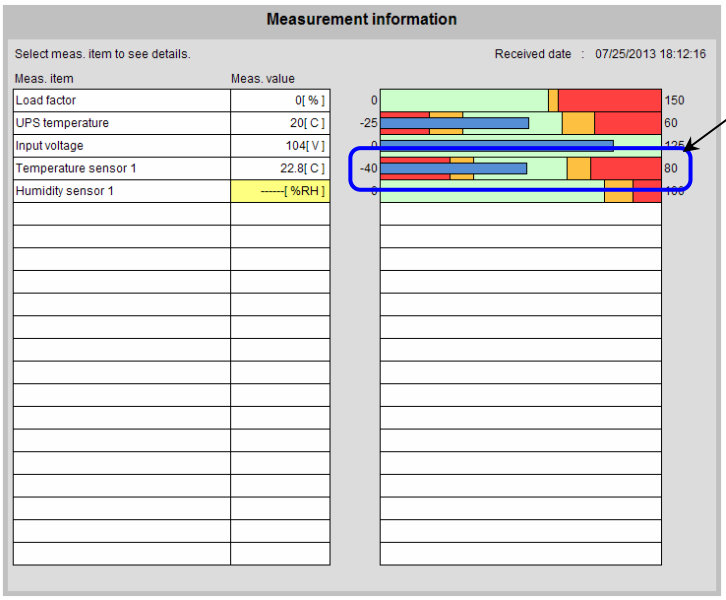
Specify the display range of the graph.
In its default state, the value of "Valid measurement range" is displayed.

(3) To change the display range of the graph, enter the numeric values of the range you want to display in [Display area configuration].

Example: Change the upper limit from 85 to 80.

(4) After making the settings, click [OK] button.

The display returns to the Measurement Information screen.



The graph's display range changes to "-40 to 80".

7. BASIC SETTINGS WITH THE TERMINAL TOOL

The terminal tool is operated by connecting the "RS-232C" connector of the UPS (LAN interface card) and the computer by an RS232C cable, and then using terminal software (for example, Windows HyperTerminal, etc.).
Alternatively, the terminal tool is operated by establishing a connection from the Telnet/SSH terminal to the UPS via a network.

During basic settings, basic settings until the shutdown of devices connected to the UPS are performed. For details on setting the other functions, see "8. DETAILED SETTINGS WITH THE TERMINAL TOOL."

7.1 Starting the Terminal Tool

Refer to the items corresponding to your usage environment, and then start the terminal tool.

Using the terminal tool by establishing a serial connection with the UPS

In cases where it is not possible to communicate with the IP address 192.168.1.1 during shipment due to reasons such as the convenience associated with the network environment, perform the settings using terminal software such as Windows HyperTerminal.

Connect to the UPS with an RS-232C cable (9-pin D-sub cross cable.) For details on how to connect, see the LAN Interface Card Instruction Manual.

(1) Start the terminal software.
(2) Set the communication conditions as described below.

Serial communication

Setup item	Setup value
Baud rate	9600
Data bit	8 bit
Parity	None
Stop bit	1 bit
Flow control	None

Character conversion

During transmission	• A line feed character is not added at the end of a line. • Local echo is not performed.
During reception	• A line feed character is not added in the received data.

Check the displayed screen and perform the operation described on the right side.

```
Welcome to UPS Agent
User name: UpsAdmin
```

(3) Enter "UpsAdmin" in the user name and then press "Enter".

```
Welcome to UPS Agent
User name: UpsAdmin
Password:
```

(4) Enter "UpsAdmin" in the password and then press "Enter".

Caution

- The character string entered in the password is not displayed on the screen.
- The characters are case sensitive.

The Main Menu is displayed.

When using the Telnet terminal software

Start the Telnet client from a computer that can be connected to the UPS via the network, and then perform log in.

Check the displayed screen and perform the operation described on the right side.

```
Welcome to UPS Agent
User name: UpsAdmin
```

(1) Enter "UpsAdmin" in the user name and then press "Enter".

```
Welcome to UPS Agent
User name: UpsAdmin
Password:
```

(2) Enter "UpsAdmin" in the password and then press "Enter".

Caution

- The character string entered in the password is not displayed on the screen.
- The characters are case sensitive.

The Main Menu is displayed.

Using the SSH terminal software

You can not log in via SSH under the default settings. Once you log in via a serial connection, Telnet, or the Web Management Tool, change remote login to a state in which access is possible via an SSH connection.
To change the settings using the Web Management Tool, see "5.3.1 Configuring services and access control" and "5.3.2 Configuring SSH authentication."
To change the settings using the terminal tool, see "8.1.4.1 Configuring services and access control" and "8.6.5 Configuring SSH authentication."
After changing the settings, log in using the set authentication format.
Once the SSH authentication is complete, the Main Menu is displayed.

Caution

- When you log in via SSH using either the administrator account or the general user account, the account and the password are case sensitive in both cases. The account can have only up to 16 characters and the password can have only up to 20 characters. If you have set the administrator account or the general user account to 17 characters or more, change it to 16 characters or less.
- The SSH 2.0 protocol performs re-exchange of the session key at a constant interval. This device does not support the exchange of the session key. Therefore, when the above timing is reached, the login state is disconnected. If the key re-exchange option can be changed in the SSH client settings, the key re-exchange interval can be lengthened.

  (Example) OpenSSH client configuration file (ssh_config)
  RekeyLimit 4G

7.2 Main Menu Functions

When you log in to the terminal tool, the [Main Menu] is displayed.

[Main Menu] screen

```
Main Menu
1.Configuration
2.Schedule
3.Control
4.Display
5.Locale
6.Connection Device
7.Event
8.Outlet
9.Ping
10.Download/Upload
11.Exit
UPS Agent>
```

The functions of the [Main Menu] are described in the table below. For details on the functions and the operation method, see each item.

View	Content	Description
1.Configuration	UPS operation settings	Sets the UPS operation. The network settings, account change, control operation, SNMP, E-mail settings, NTP settings, operation during a power failure, and measured value management are set.
2.Schedule	Schedule operation settings	Sets the schedule operation of the UPS.
3.Control	UPS control	Sets the UPS ON/OFF control from a remote location.
4.Display	UPS information display	Displays the UPS condition and measured value information, as well as the event log.
5.Locale	Time and language settings	Sets the UPS clock and selects a language.
6.Connection Device	Connection device settings	Registers a device on the UPS, changes the registration contents, and deletes the registered devices. Also performs event and script settings, and executes a shutdown test.
7.Event	Event settings	Sets the E-mail sending conditions and the event log recording conditions.
8.Outlet	UPS system output settings	Sets the delay time during ON/OFF for OUTPUT 1 and OUTPUT 2, when a UPS with a system control output is used. This function can only be used when a UPS with a system control output is used.
9.Ping	Communication line status check	Executes a Ping command and checks the status of network communications with the specified device.
10.Download/Upload	Download/upload of UPS setup values	Downloads or uploads the setup values of the UPS.
11.Exit	End	Exits the terminal tool.
UPS Agent>	Number input	Enter the menu number or the number of the setup values.

Caution

If no operation is performed on the Main Menu screen for up to five minutes, [Disconnected!] is displayed and the connection is disconnected. In this situation, log in again to perform the operation.

7.3 Basic Settings for Shutting Down Devices

This section describes how to perform the basic settings for shutting down the devices connected to the UPS. Once the settings described here have been made, shutdown can be executed. For detailed settings of various functions, see "8. DETAILED SETTINGS WITH THE TERMINAL TOOL."

7.3.1 Configuring UPS operations

Point

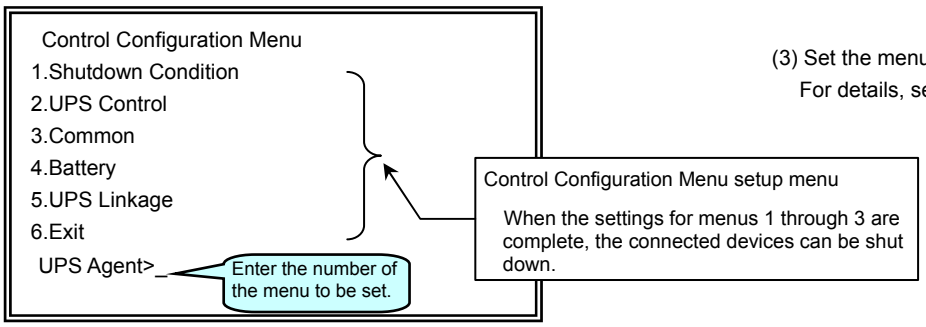
If the numbers described in [ ] are entered in [UPS Agent>_] for each menu to be displayed later from the [Main Menu], an explanatory screen for each page is displayed.

Main Menu 1 > 3

Set the UPS operations according to the procedure described below.

(1) Enter "1" on the [Main Menu] screen, and then press "Enter".
(2) Enter "3" on the [Configuration Menu] screen and then press "Enter".

The [Control Configuration Menu] is displayed.



(3) Set the menus described in 1 through 3.
For details, see the items described below.

The functions of the setup menu in the [Control Configuration Menu] are described in the table below.

Setup menu	Description
1.Shutdown Condition	Set the shutdown triggers. Power failure confirmation time Shutdown during low battery voltage Shutdown due to a serial communication error (not supported) Shutdown due to the occurrence of a major breakdown Shutdown due to the occurrence of an overload
2.UPS Control	Set the UPS control information. Stop the UPS at power failure Automatically start the UPS during power failure recovery Battery charging rate
3.Common	Set the common information. Existence of a delayed operation (waiting for user logoff) Stop delay time (delay repetition interval when the delay operation is enabled) Shutdown delay time UPS auto stop time
4.Battery	Set the battery-related information. Warning for battery replacement Auto battery check (UPS main unit) Auto battery check (LAN interface card)
5.UPS Linkage	Perform the settings for grouping several UPS units into a power-supply redundant system. UPS group member settings Operation between UPS members Synchronization of time between UPS members
6.Exit	Return to the [Configuration Menu].

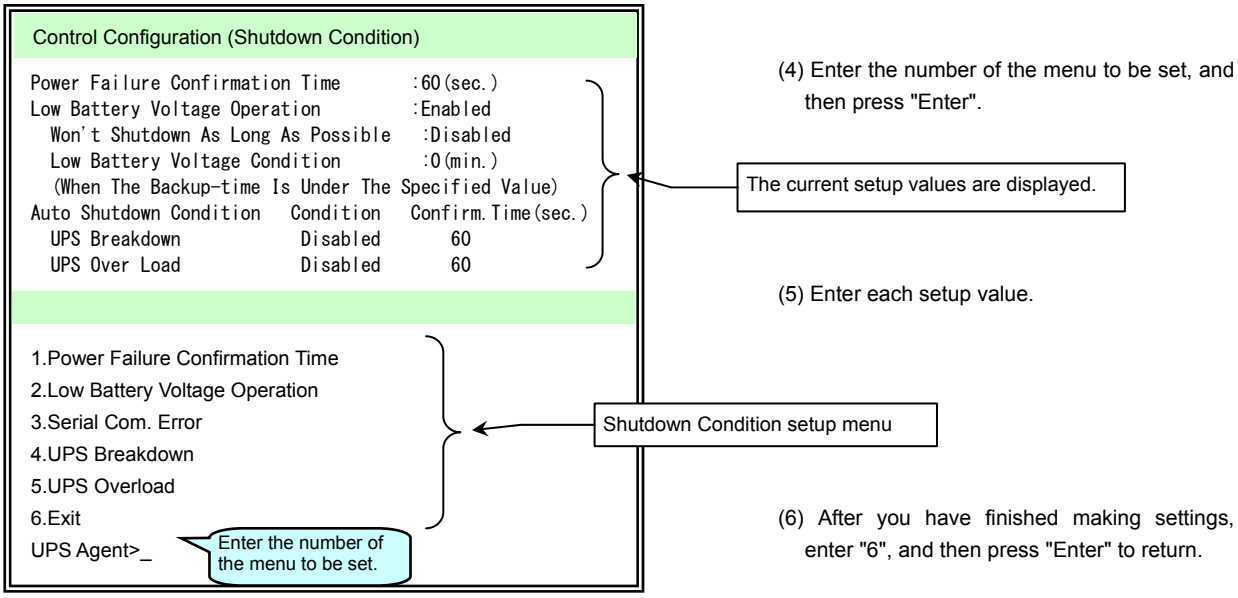
7.3.1.1 Configuring shutdown triggers

Main Menu 1 > 3 > 1

Set the conditions for the UPS to perform a shutdown.

(1) Enter "1" on the [Main Menu] screen, and then press "Enter".
(2) Enter "3" on the [Configuration Menu] screen, and then press "Enter".
(3) Enter "1" on the [Control Configuration Menu] screen, and then press "Enter".

The [Control Configuration (Shutdown Condition)] screen is displayed.



Setup menu	Description		
1.Power Failure Confirmation Time	Set the [Power failure confirmation time] (sec.).		
2.Low Battery Voltage Operation	Set "Shutdown during low battery voltage".*2		
	1. Enabled: Perform a shutdown	When [Enabled] is selected, shutdown is performed.	
		1. Enabled: Use *1	Set whether or not to use [Low Battery Voltage Condition (Backup-time)] (min.).
			Input Time. Set Low Battery Voltage Condition (Backup-time) (min.).
		2. Disabled: Do not use *1	When [Disabled] is selected, the [Low Battery Voltage Condition (Backup-time)] is set to 0 (min.).
	2. Disabled: Do not perform a shutdown	When [Disabled] is selected, shutdown is not performed.	
3.Serial Com. Error	Set [Shutdown during a serial communication error].		
	This function is not supported in this device. Therefore, [Non Support] is displayed, and the settings cannot be made.		
4.UPS Breakdown	Set [Shutdown during the occurrence of a breakdown]. *3		
	1. Enabled: Perform a shutdown	When [Enabled] is selected, the [confirmation time] (sec.) is set.	
	2. Disabled: Do not perform a shutdown	-	
5.UPS Overload	Set [Shutdown during the occurrence of an overload]. *4		
	1. Enabled: Perform a shutdown	When [Enabled] is selected, the [confirmation time] (sec.) is set.	
	2. Disabled: Do not perform a shutdown	-	
6.Exit	Return to the [Control Configuration Menu].		

*1 When the UPS does not support [Low Battery Voltage Condition (Backup-time)], settings cannot be made.

About setting transmission when using the UPS linkage function

*2. When the "1. Power Failure" settings are "Enabled" in "4. Shutdown Operation" from the "8.11.1 Configuring UPS group operations" menu, the settings for "Shutdown when low battery voltage occurs" are sent to all UPSs in the group, and the settings are replaced.

*3. When the "3. Major Breakdown" settings are "Enabled" in "4. Shutdown Operation" from the "8.11.1 Configuring UPS group operations" menu, the settings for performing a shutdown when a major breakdown occurs are sent to all UPSs in the group, and the settings are replaced. The setting for confirmation time is not sent to the other UPSs. Operates at the value set for each UPS.

*4. When the "4. Overload" settings are "Enabled" in "4. Shutdown Operation" from the "8.11.1 Configuring UPS group operations" menu, the settings for performing a shutdown when an overload occurs are sent to all UPSs in the group, and the settings are replaced. The setting for confirmation time is not sent to the other UPSs. Operates at the value set for each UPS.

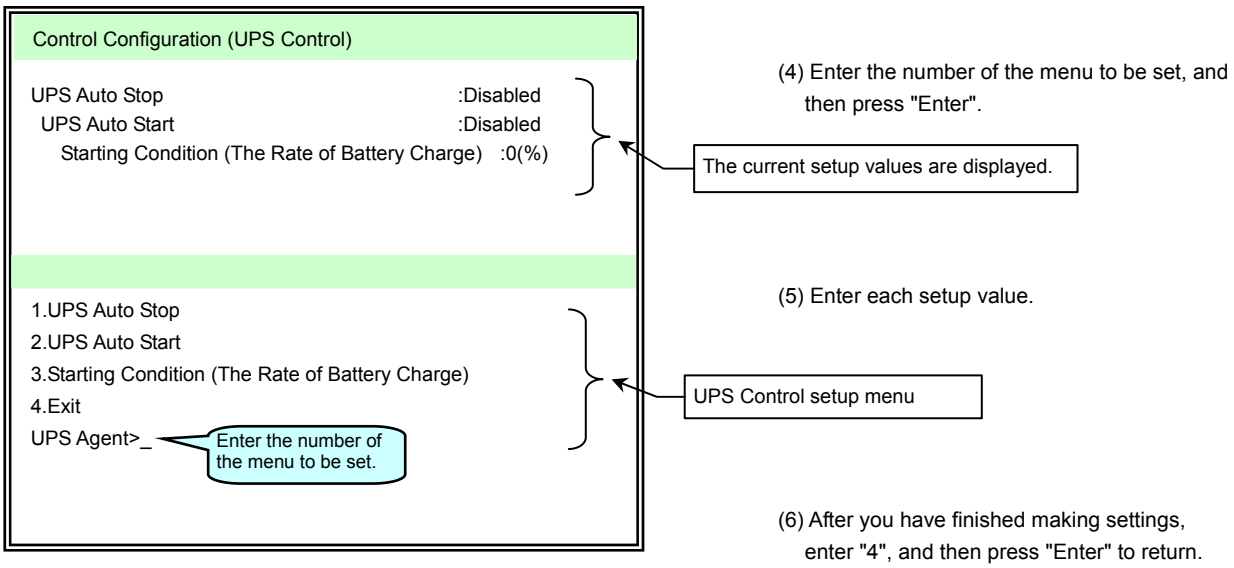
7.3.1.2 Configuring UPS control

Main Menu 1 > 3 > 2

Set the conditions for UPS control (startup/stop.)

(1) Enter "1" on the [Main Menu] screen, and then press "Enter".
(2) Enter "3" on the [Configuration Menu] screen, and then press "Enter".
(3) Enter "2" on the [Control Configuration Menu] screen, and then press "Enter".

The [Control Configuration (UPS Control)] screen is displayed.



Setup menu	Description	
1.UPS Auto Stop	Set the [Automatically stop the UPS at power failure] condition.	
	1. Enabled: Stop	-
	2. Disabled: Do not stop	-
2.UPS Auto Start	Set [Start the UPS during power failure recovery].	
	1. Enabled: Start	-
	2. Disabled: Do not start	-
3.Starting Condition (The Rate of Battery Charge)	Set [Automatic start during power failure recovery (battery charging rate)] (%).	
	When the UPS does not support [Automatic start during power failure recovery (battery charging rate)], [Non Support] is displayed, and settings cannot be made.	
4.Exit	Return to the [Control Configuration Menu].	

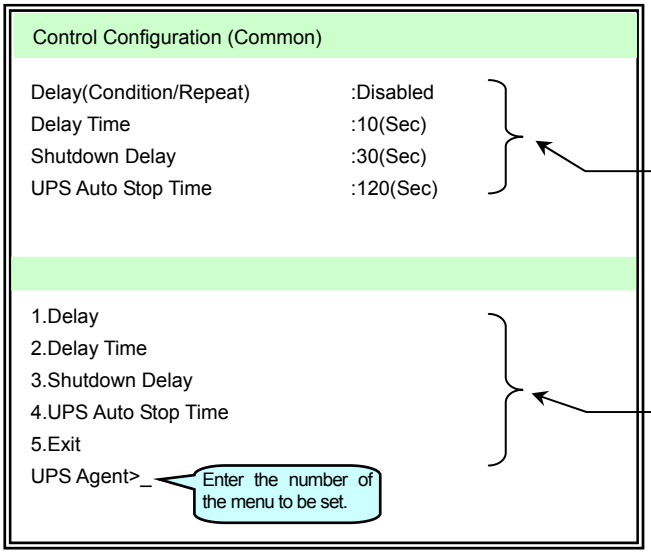
7.3.1.3 Configuring common information

Main Menu 1 > 3 > 3

Set the common information of the UPS.

(1) Enter "1" on the [Main Menu] screen, and then press "Enter".
(2) Enter "3" on the [Configuration Menu] screen, and then press "Enter".
(3) Enter "3" on the [Control Configuration Menu] screen, and then press "Enter".

The [Control Configuration (Common)] screen is displayed.



The current setup values are displayed.

Common setup menu

(4) Enter the number of the menu to be set, and then press "Enter".

(5) Enter each setup value.

(6) After you have finished making settings, enter "5", and then press "Enter" to return.

Setup menu	Description		
1.Delay	Set whether or not to delay (the delay for awaiting logoff by the user) the shutdown operation during schedule stopping and stopping by remote control. This setup value is enabled in the PC or WS on which the UPS management software is operating. (For details, see the user guide of the UPS Management Software.)		
	1. Enabled: Perform the delay operation	When [Enabled] is selected, the [Select Repeat] delay count is set.	
		1. Number of Times	Enter the delay count.
		2. Infinity	Delay is repeated endlessly.
	2. Disabled: Do not perform a delay operation	-	
2.Delay Time	The [Stop Delay Time] (sec.) is set. When [1. Enabled] is set in [1. Delay], the delay is repeated at the interval (seconds) set in this menu.		
3.Shutdown Delay	Set the time (seconds) from the state when recovery becomes impossible due to some shutdown trigger until the start of the shutdown. This is the time period for performing the shutdown pre-processing.*		
4.UPS Auto Stop Time	Set the delay time (seconds) from the start of the shutdown until stopping of the UPS, after the lapse of the shutdown delay time. Set a time with some margin until the shutdown of all registered devices is complete.*		
5.Exit	Return to the [Control Configuration Menu].		

* For details on the UPS operation, see "2.3.2 System configuration with a single UPS."

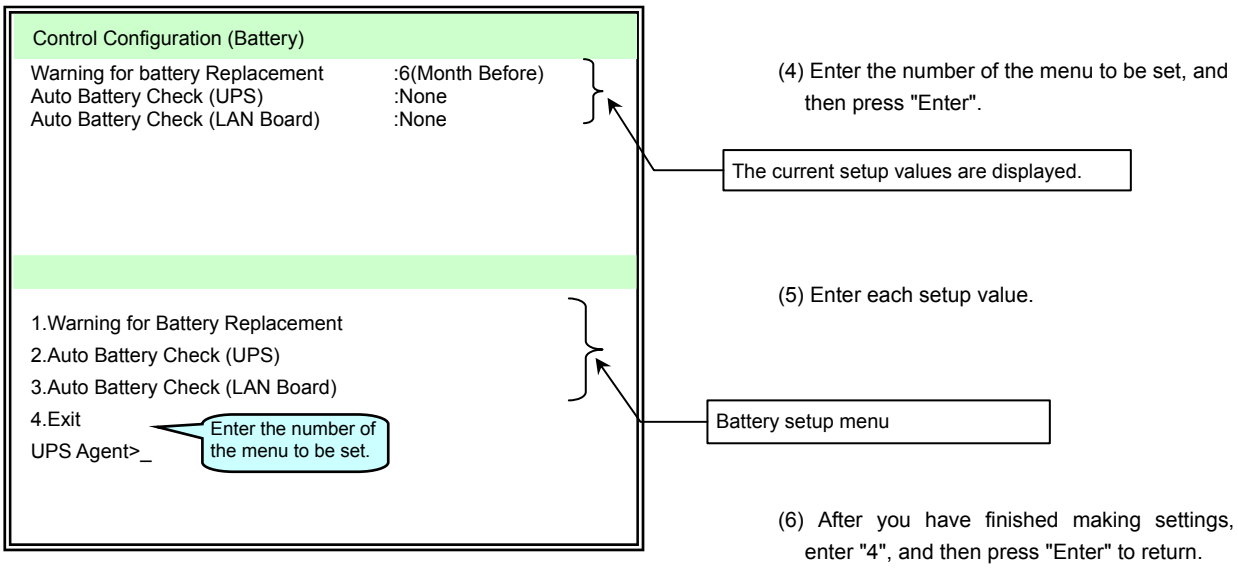
7.3.1.4 Configuring the battery

Main Menu 1 > 3 > 4

Perform settings for the UPS battery.

(1) Enter "1" on the [Main Menu] screen, and then press "Enter".
(2) Enter "3" on the [Configuration Menu] screen, and then press "Enter".
(3) Enter "4" on the [Control Configuration Menu] screen, and then press "Enter".

The [Control Configuration (Battery)] screen is displayed.



Setup menu	Description
1.Warning for Battery Replacement	Set the time (how many months before the replacement period) for the output of the [Warning for battery replacement].
2.Auto Battery Check (UPS)	Set the cycle of the [Auto battery check] (UPS) executed automatically by the UPS. When the UPS does not support an [Auto battery check], [Non Support] is displayed, and settings cannot be made.
3.Auto Battery Check (LAN Board)	Set the [Auto battery check cycle] (LAN interface card). When the UPS does not support a battery check, [Non Support] is displayed, and settings cannot be made.
4.Exit	Return to the [Control Configuration Menu].

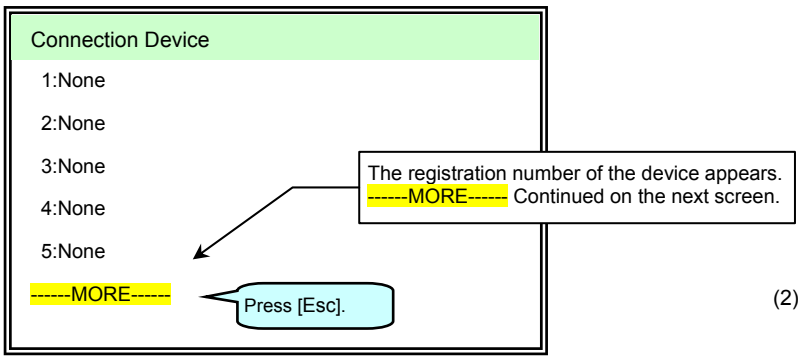
7.3.2 Registering devices to be shut down on the UPS

This example shows a case in which a Telnet login is performed from the UPS and the "Telnet-connected WS" devices are the devices to be shut down.
For details on registering other devices, see "8.5.1 Registering devices on the UPS."

(1) Enter "6" on the [Main Menu] screen, and then press "Enter".

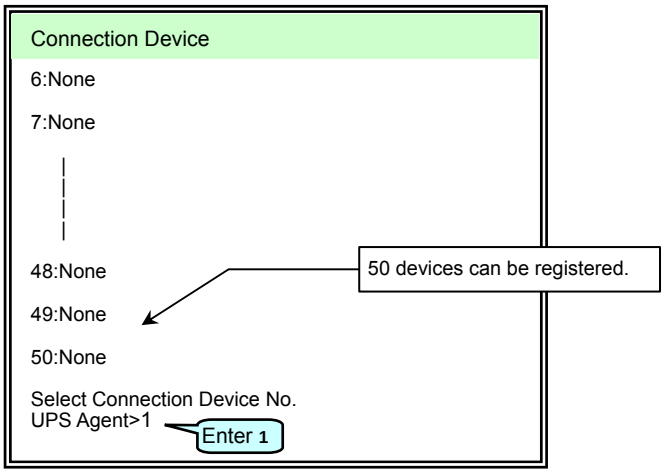
Main Menu 6

The [Connection Device] screen is displayed.



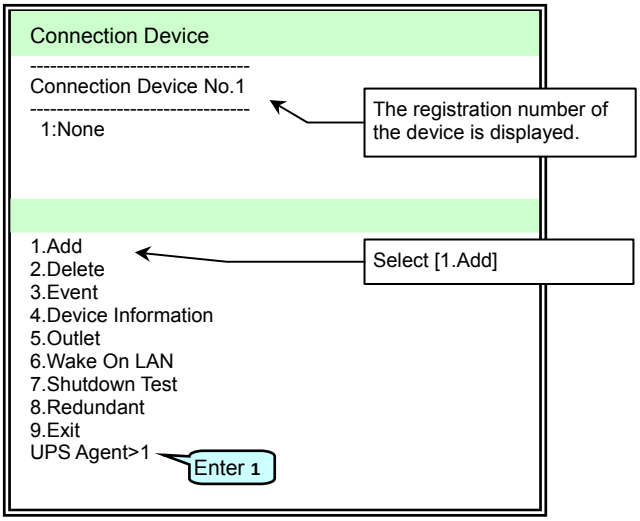
(2) Press "Esc".

If ------MORE------ is displayed, press "Enter" to view the next screen, and press several times to view up to 50 device registration numbers.
If you press "Esc", the device registration number input screen is displayed.

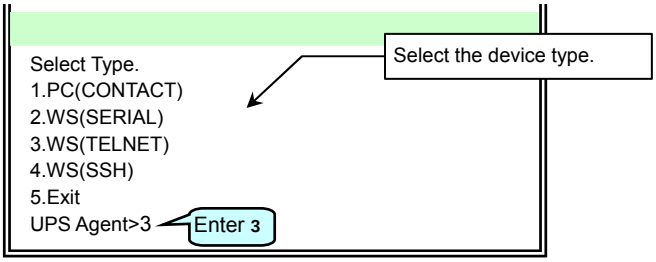


(3) Enter the device registration number, and then press "Enter".

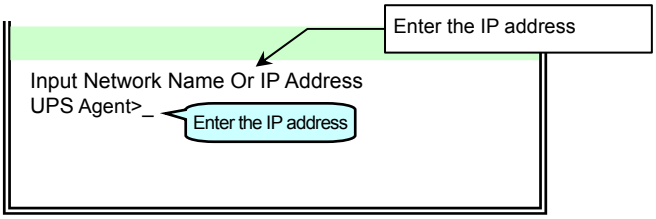
[Connection Device] screen



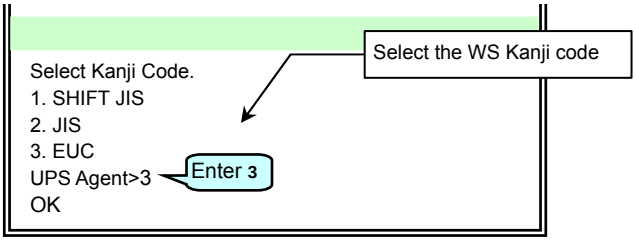
(4) Enter "1", and then press "Enter".



(5) Enter "3", and then press "Enter".

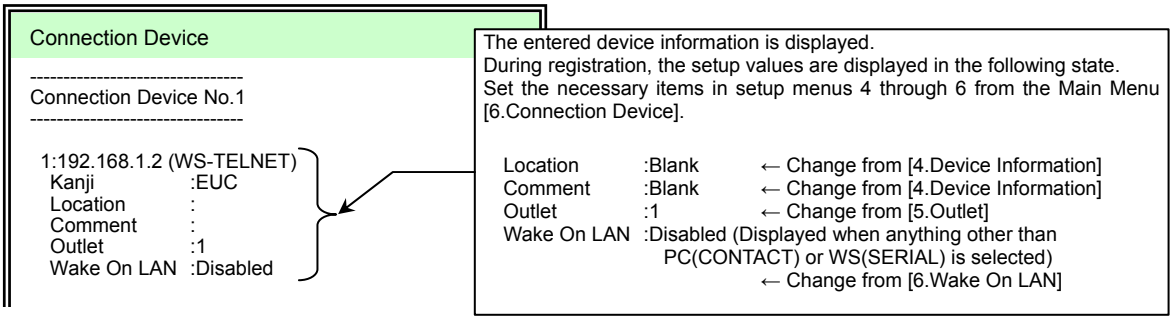


(6) Enter the IP address, and then press "Enter".



(7) Enter the number of the WS Kanji code, and then press "Enter".

After entering these values, the screen shown below is displayed.



(8) If you need to make detailed settings, see "8.5.2 Changing devices registered on the UPS."

7.3.3 Configuring the shutdown procedure for registered devices

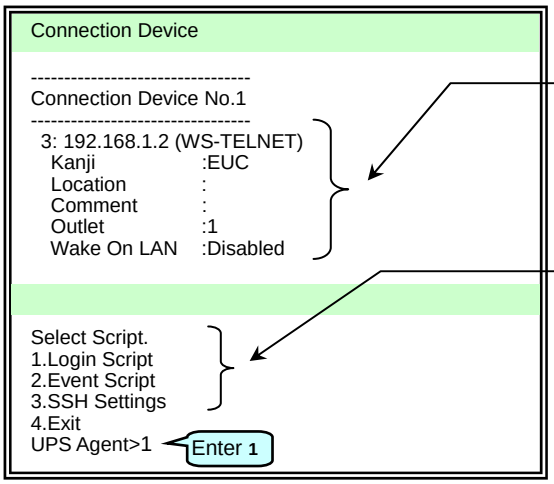
Main Menu 6 > Device No. > 3

Set the login script* and the event script* for executing a shutdown for the registered WS devices.
In this explanation, "Telnet connection WS" is registered in "7.3.2 Registering devices to be shut down on the UPS" as an example.

(1) Enter "6" on the [Main Menu] screen, and then press "Enter".
(2) Press "Esc", enter the number of the device to be set, and then press "Enter".
(3) Enter Event "3", and then press "Enter".

*** About script...**
"Scripts" are descriptions of a series of operations such as transmitting commands to computers.
They are different from shell scripts in UNIX.

The screen for setting the script is displayed.



The information of the device registered in the Connection Device No. entered in Step (2) is displayed. The script is set for this device.

Setting menu *
1.Login Script : Describes the procedure for logging in to WS.
2.Event Script : Describes the operation to be performed when an event occurs.

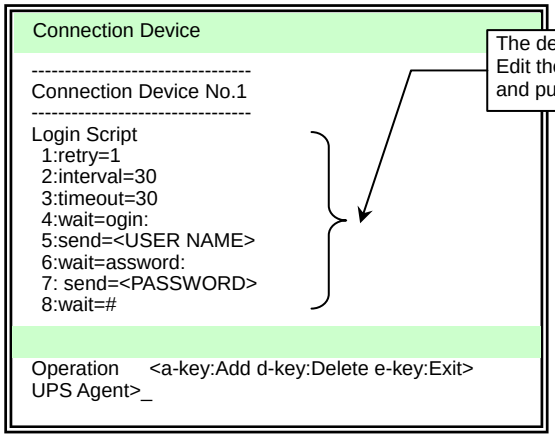
*In the case of SSH connection WS
"3. SSH Settings" is displayed on the setting menu.
Set the SSH authentication method.

(4) Enter "1" to set the login script, and then press "Enter".

7.3.3.1 Configuring login scripts

The screen for setting the script is displayed.
WS(Telnet) / WS (LAN I/F card login connection)

Main Menu 6 > Device No. > 3 > 1



The default setup values are displayed.
Edit the values according to your environment and purpose of use.

Go to Step (1) on page 7-14, and then edit the login script.

If ------MORE------ is displayed,
press "Enter" to view the next screen.

Line	Login script	Description	
1	retry=1	Specify the number of retries when the script has failed to execute.	Operational configurations of the login script.
2	interval=30	Specify the interval between retries.	
3	timeout=30	Specify the maximum wait time before receiving data in items with "wait=".	
4	wait=ogin:	Specify the wait time for the login name.	Login name entry.
5	send=<USER NAME>	Send the login name.	
6	wait=assword:	Specify the wait time for the password.	Password entry.
7	send=<PASSWORD>	Send the password.	
8	wait=#	Specify the wait time for completing logging in to the WS. (Waiting for the prompt display)	Waiting time for the login process completion. ("#" prompt is displayed when the login is successful)

Use the commands described in the "List of available commands" in the table below to describe the login script.

Notes on command entry

Specify within 510 single-byte characters. Whether or not to enter a space before and after "=" does not affect the process.

List of available commands

Command name	Description	Example
send	Specify the text to send to the WS.	send=shutdown
wait	Specify the text (prompt, etc.) to receive at the UPS.	wait=login
sleep	Specify the standby time without performing any processes. Unit: Seconds	sleep=90
timeout	Specify the wait time for the process to finish after executing a process. Unit: Seconds. Default: 30 seconds	timeout=60
retry	Specify the number of retries when the script has failed to execute. Unit: Times (0 to 10). Default: 1	retry=2
interval	Specify the interval between retries when the script has failed to execute. Unit: Seconds (1 to 60). Default: 30 seconds	interval=10
port	Specify the port number for Telnet or SSH on the WS. Valid range: 0 to 65, 535 The following port numbers are used if omitted. WS(Telnet): 23 WS(SSH): 22	port=10023
cr_only	Specify the line feed code to be <CR>. Specify yes or no. The line feed code in any subsequent transmission data becomes <CR> if you specify yes. yes is assumed when omitted. (The line feed code is <CR>.)	cr only=yes cr only=no
binsend	Specify the 8-bit code to send to the WS. Valid range Hexadecimal view: x00 to xff Octal view: 000 to 377	Hexadecimal view binsend=x07 Octal view binsend=004
keep_time	Specify the duration of the logged-in status. The UPS is not logged off for the specified duration after completing the previous WS script. You can execute other WS scripts without logging in to WS. Valid range from 0 to 65, 535 The following duration is used if omitted. WS(Telnet): 0 second WS(SSH): 0 second WS (LAN I/F card Log-in connection): 60 seconds	keep_time=120

When you cannot log in with superuser (root) privileges...

You may not be able to log in with superuser (root) privileges in some environments.
In this situation, use a "su" command to execute the command as the root user.

The following table shows an example of login scripts when using the "su" command.
This example assumes the user (user name: guest, password: guest) and root (password: root).

WS (Telnet connection) / WS (LAN I/F card login connection)

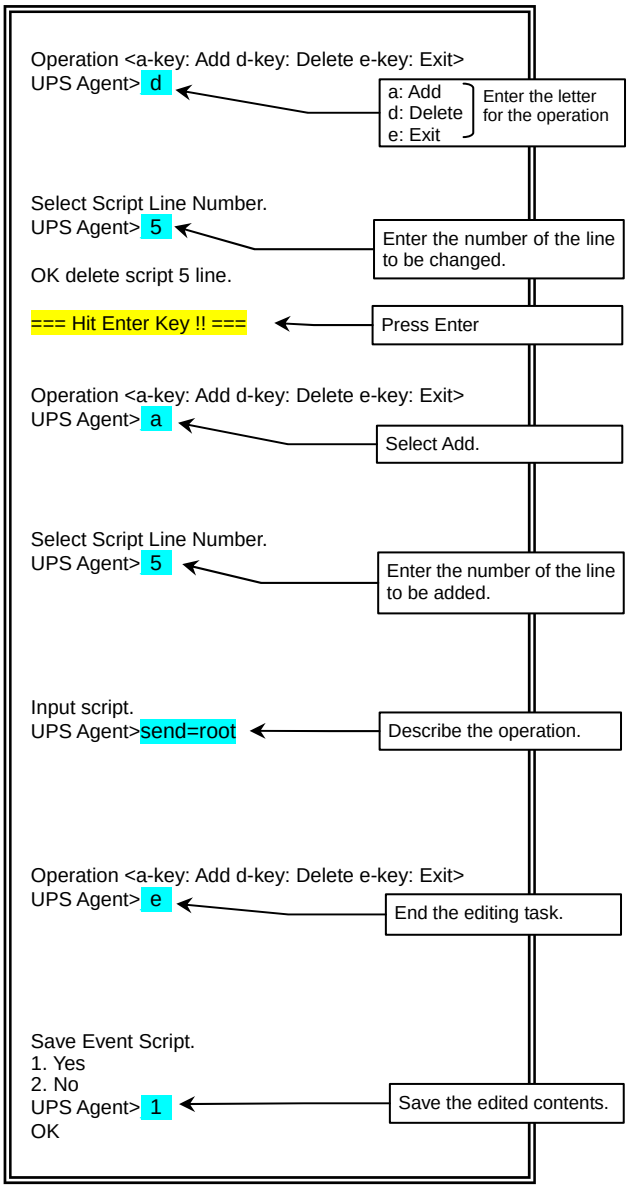
Line	Login script	Description
1	retry=1	Operational configurations of the login script.
2	interval=30	
3	timeout=30	
4	wait=ogin:	Log in as a user "guest".
5	send=guest	Enter the login name "guest".
6	wait=assword:	Enter the password of the user "guest".
7	send=guest	Enter the password "guest".
8	wait=$	Wait for the $ prompt after the login.
9	send=su	Send the "su" command and execute it.
10	wait=assword:	Enter the password of root.
11	send=root	Enter the password "root".
12	wait=#	Wait for the # prompt after logging in as root.

Editing the login script

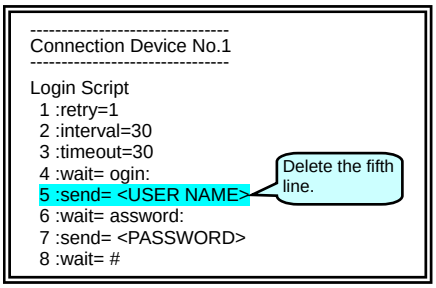
Main Menu 6 > Device No. > 3 > 1

Change the login script.
This example uses a case of changing the coding of the fifth line of the login script of the device with registration No. 1 from send=<USER NAME> to send=root.

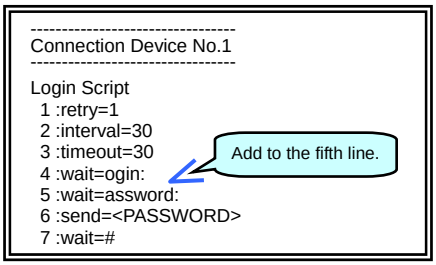
This is a continuation of the state of displaying the screen for setting the script described in Step (4) on page 7-12s.
From here on, the screen display is shortened and explained. Enter the characters displayed in blue.



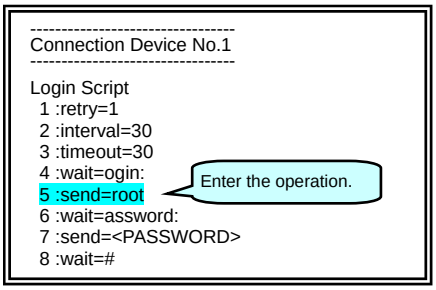
(1) Delete the line to be changed.



(2) Add the line to be changed.

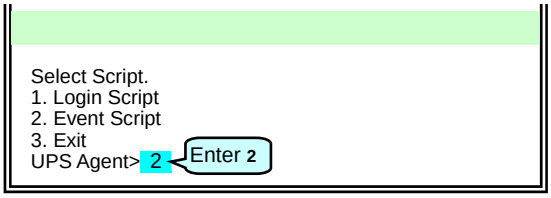


(3) Enter the operation in the added line.



(4) Save the edited contents.

Return to the screen for setting the script.



(5) To set an event script, enter "2", and then press "Enter".

Go to Step (1) on page 7-16, and then edit the event script.

7.3.3.2 Configuring event scripts

Enter the script operation for the shutdown to be executed in WS.
The commands used in an event script are described in the table below.

Notes on command entry

Specify within 598 single-byte characters. Whether or not to enter a space before and after "=" does not affect the process.

Command name	Description	Example
send	Specify the text to send to the WS.	send=shutdown
wait	Specify the text (prompt) to receive at the UPS.	wait=login
sleep	Specify the standby time without performing any processes. Unit: seconds (s)	sleep=90
timeout	Specify the wait time for the process to finish after executing a process. Unit: Seconds. Default: 30 seconds	timeout=60
retry	Specify the number of retries when the script has failed to execute. Unit: Times (0 to 10). Default: 1	retry=2
interval	Specify the interval between retries when the script has failed to execute. Unit: Seconds (1 to 60). Default: 30 seconds	interval=10
cr_only	Specify the line feed code to be <CR>. Specify yes or no. The line feed code in any subsequent transmission data becomes <CR> if you specify yes. yes is assumed when omitted. (The line feed code is <CR>.)	cr_only=yes cr_only=no
binsend	Specify the 8-bit code to send to the WS. Valid range Hexadecimal view: x00 to xff Octal view: 000 to 377	Hexadecimal view binsend=x07 Octal view binsend=004
delay	Specify the delay time for executing the script. The login script is executed after the specified delay time and then the event script are executed if "delay" is specified in the event script.	delay=60
keep_time	Specify the duration of the logged-in status. The UPS is not logged off for the specified duration after completing the previous WS script. You can execute other WS scripts without logging in to WS. Valid range: 0 to 65,535 The following duration is used if omitted. WS(Telnet): 0 second WS(SSH): 0 second WS (LAN I/F card Log-in connection): 60 seconds	keep_time=120

Point

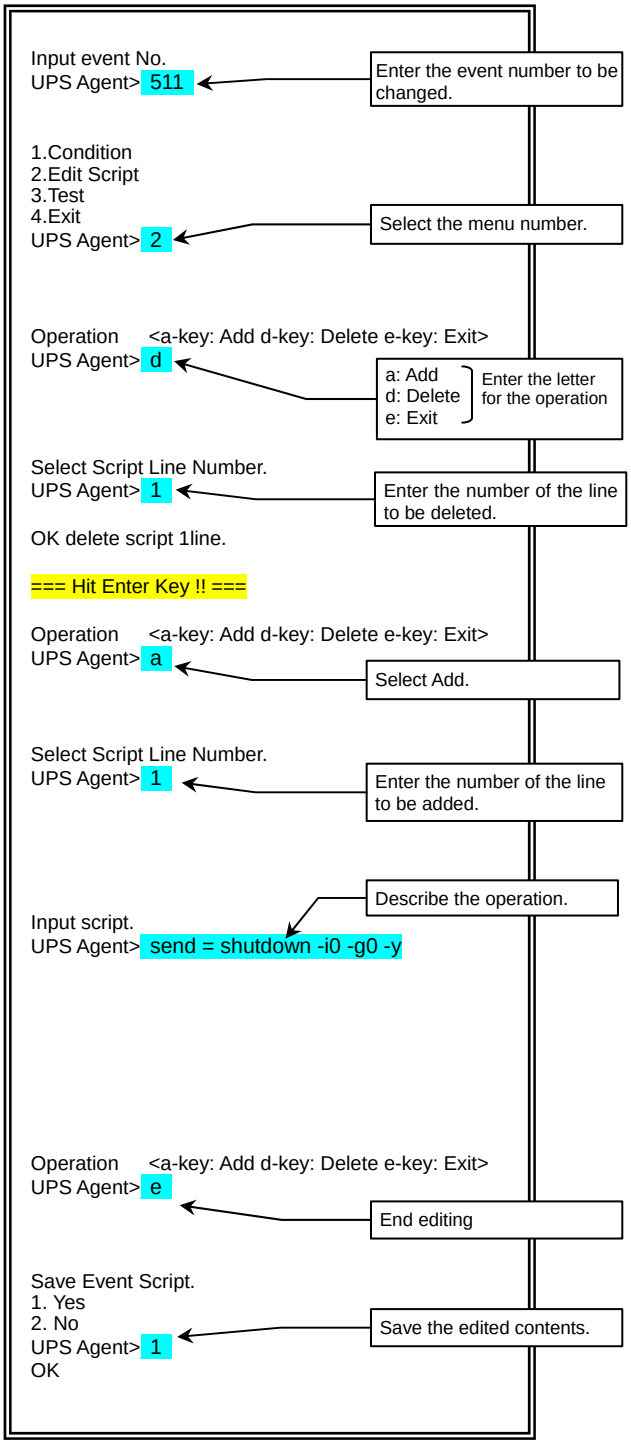
You can use macro characters in the text you are sending. See "5.5.3.3 Available macro characters for scripts" for details.

Editing the event script

Main Menu 6 > Device No. > 3 > 2

Change the event script No. 511 "Shutdown execution".

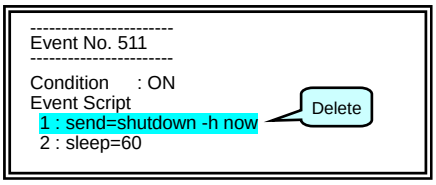
This is the continuation of the state of displaying the screen for setting the event script described in Step (5) on page 7-14.
From here on, the screen display is shortened and explained. Enter the characters displayed in blue.



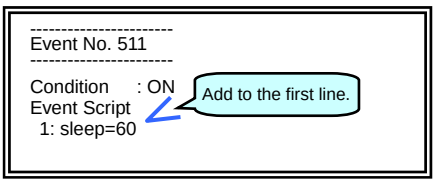
(1) Enter the event number "511" for shutdown execution.

(2) Select the menu to be set.

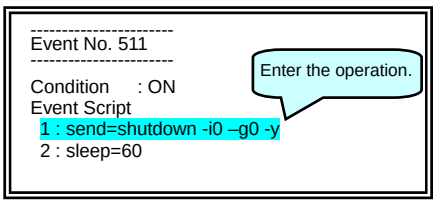
(3) Delete the line to be changed.



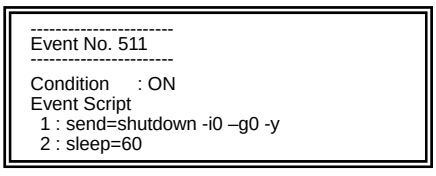
(4) Add the line to be changed.



(5) Enter the operation in the added line.



(6) Save the edited contents.



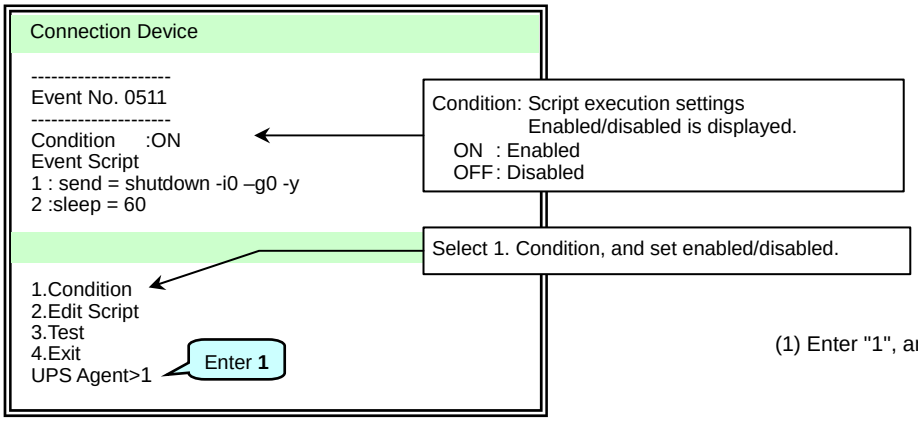
(7) Go to Step (1) of "7.3.4.2 Testing a shutdown ", and then perform a shutdown execution test.

7.3.4 Checking shutdown operations for the registered devices

7.3.4.1 Enabling and disabling scripts

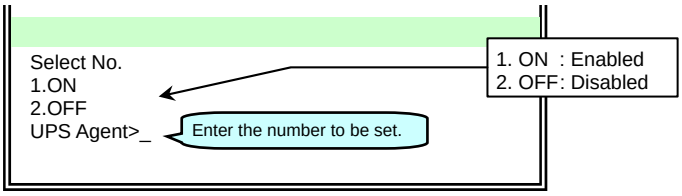
Main Menu 6 > Device No. > 3 > 2 > Event No. > 1

The initial value of the shutdown script execution conditions is set to ON "enabled".
If you have changed the settings to "disabled", set them back to "enabled." Operations are not performed if the value is set to "disabled".



(1) Enter "1", and then press "Enter".

The screen for setting enabled/disabled is displayed.



(2) Enter the number to be set, and then press "Enter".

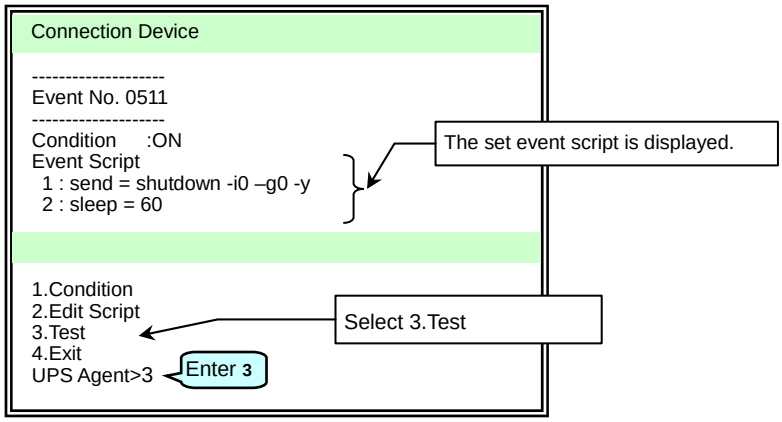
If the set script is not to be executed for the time being, set [2.OFF] disabled.

7.3.4.2 Testing a shutdown

Main Menu 6 > Device No. > 3 > 2 > Event No. > 3

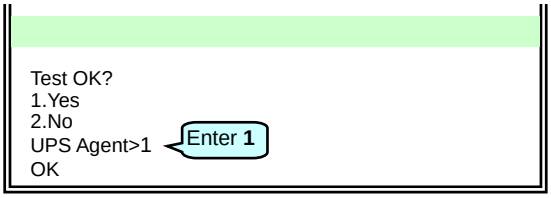
Test if the event script of the set "shutdown execution" event No. 511 is being executed.
The execution results are recorded in an event log.

This is the continuation of the state of completion of editing of the event script described in Step (7) on page 7-16.



(1) Enter "3", and then press "Enter".

The execution of the test is checked.



(2) Enter "1", and then press "Enter".

The test is executed.

(3) From the event log, check if the test has been executed normally.
See "8.4.2 Checking the UPS event log" and check the test results.

About the test results

The test results are recorded in the event log as described below.

When the test is successful : Inf 0405 MM/DD/ YYYY HH:MM:SS 192.168.1.100 EVT = 0511

When the test has failed : Err 0406 MM/DD/ YYYY HH:MM:SS 192.168.1.100 E = 0511, L = 3T

However, unless "Finished sending script (0405)" is set to "Enabled" in the event log recording conditions, the result for successful test execution is not recorded. The default setting is "Disabled". Therefore, see "8.7.1 Configuring event log recording conditions" and set "2. All Enabled".
For details on the displayed contents when the test has failed, see "Script test results" on page 5-44.

A "Successful" test result does not indicate that the set command was successful, but indicates that the operation set in the script is complete in general.
Even if the test is successful, command execution might fail on the WS side due to reasons such as the fact that the path of the set command is not followed or the input characters of the command are wrong. Check the result of the set command execution from the actual condition of the device.

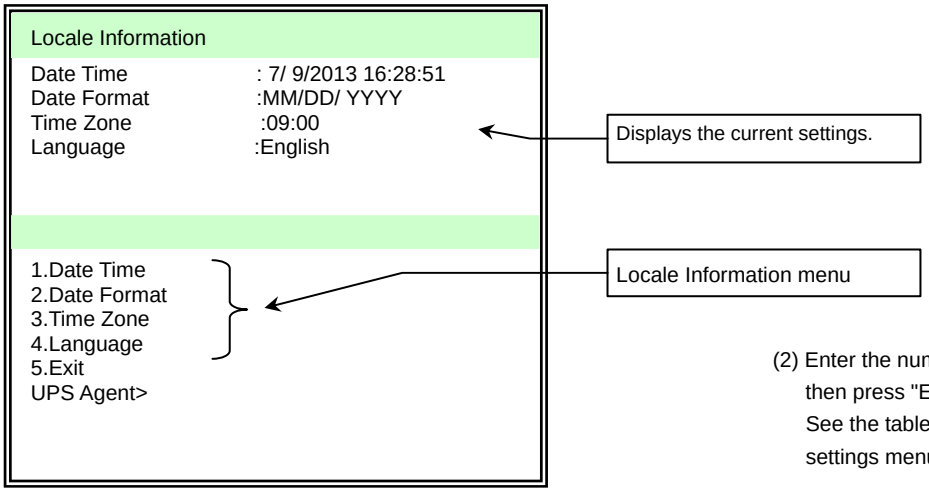
7.4 Setting the Time on the UPS

Main Menu 5

Set the information such as the month, day, and time of the clock provided in the UPS. If the UPS clock is not set accurately, the operation might not be performed correctly during the execution of the scheduled operation. Therefore, set the clock periodically.
If the NTP server is not used to set the clock, the clock can be set from this menu. If you want to set the clock using the NTP server, see "8.1.7 Setting the time with the NTP server."

(1) Enter "5" on the [Main Menu] screen.

The [Locale Information] screen is displayed.



(2) Enter the number of the menu to be set, and then press "Enter".
See the table below to make the respective settings menu.

Setup menu	Description
1.Date Time	Enter the year, month, day, and hour. *
2.Date Format	Select the display format of the year, month, and day. 1. YYYY/MM/DD 2. MM/DD/YYYY 3. DD/MM/YYYY YYYY: Year MM: Month DD: Day
3.Time Zone	Enter the time zone.
4.Language	Select the language. The display of the Web Management Tool and the Web Display Tool changes to the selected language. 1. Japanese 2. English
5.Exit	Return to the [Main Menu].

This completes basic settings for shutting down the connected devices. For detailed settings, see "8. DETAILED SETTINGS WITH THE TERMINAL TOOL."

8. DETAILED SETTINGS WITH THE TERMINAL TOOL

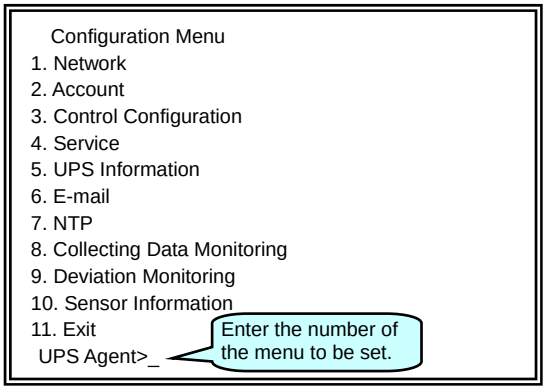
Perform settings for each function using the terminal tool.
This chapter describes the details of the contents set in "7.3 Basic Settings for Shutting Down Devices", as well as how to set other items and functions.
For details on how to start the terminal tool, and the explanation of the main menu, see "7. BASIC SETTINGS WITH THE TERMINAL TOOL".

8.1 Configuring Detailed Settings on the UPS

Set the details of the UPS, such as the network, account, E-mail, and the operation during a power failure from "Configuration".

(1) Enter "1" on the [Main Menu] screen, and then press "Enter".

The [Configuration Menu] is displayed.



The menu items of the [Configuration Menu] are described in the table below.

Setup menu	Description
1. Network	Sets the network information of the UPS.
2. Account	Sets the account at the time of logging on to the UPS.
3. Control Configuration	Sets the operation during a power failure, and the UPS ON/OFF control.
4. Service	Performs service settings for SNMP, Telnet/SSH, etc.
5. UPS Information	Enter the "Location" and "Comment", and make settings.
6. E-mail	Sets the server for sending and receiving E-mails.
7. NTP	Performs the settings for setting the UPS clock in the NTP server.
8. Collecting Data Monitoring	Sets the measured value administration information of the UPS.
9. Deviation Monitoring	Sets normal range deviation monitoring for managing measured values.
10. Sensor Information	Registers, changes, and edits the sensor information when a temperature sensor or humidity sensor is connected to a LAN interface card of model No. PRLANIF013B or PRLANIF014B, and the measured values are to be managed.
11. Exit	Returns to the [Main Menu].

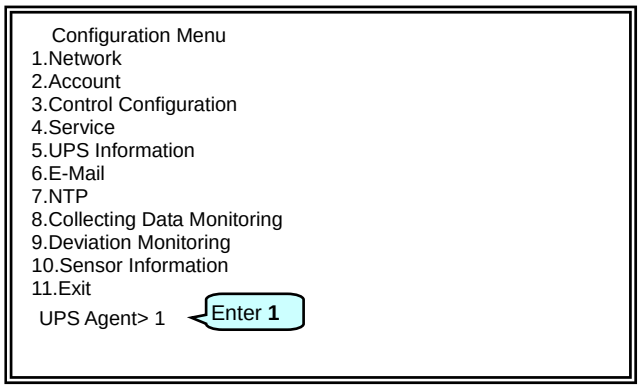
8.1.1 Configuring the network

Main Menu 1 > 1

This section describes how to configure network settings on the UPS.
You can specify both the IPv4 and IPv6 addresses.

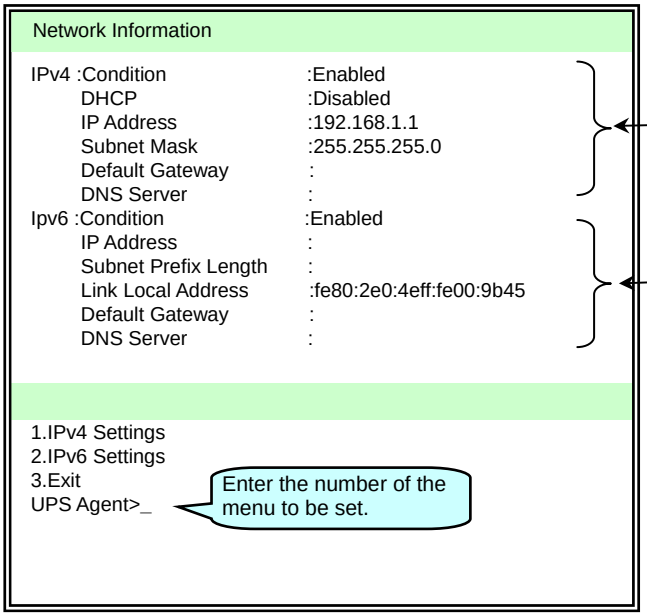
(1) Enter "1" in the [Main Menu] screen and then press "Enter".

The [Configuration Menu] is displayed.



(2) Enter "1" and then press "Enter".

[Network Information] is displayed.



The current setup values for the IPv4 address are displayed.

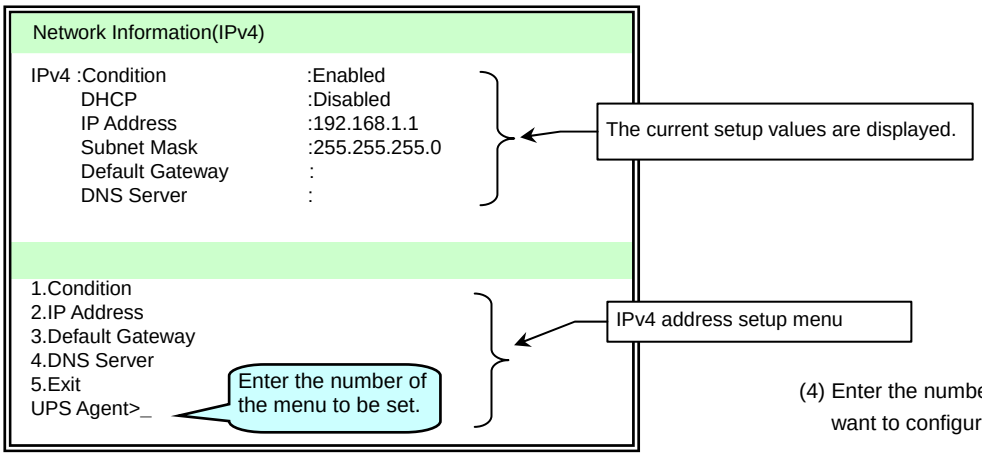
The current setup values for the IPv6 address are displayed.

(3) Enter the number of the menu item you want to configure and then press "Enter".

Setup menu	Description
1.IPv4	Specify the settings for the IPv4 address of the UPS. See "8.1.1.1 Configuring the IPv4 address".
2.IPv6	Specify the settings for the IPv6 address of the UPS. See "8.1.1.2 Configuring the IPv6 address".
3.Exit	Return to the "Configuration Menu".

8.1.1.1 Configuring the IPv4 address

Enter "1" in Step (3) on page 8-2, and then press "Enter".
[Network Information (IPv4)] is displayed.



(4) Enter the number of the menu item you want to configure and then press "Enter".

Setup menu	Description		
1.Condition	Specify the condition for the network address of the UPS.		
	1. Disabled		Select when you do not use the IPv4 address.
	2. Enabled		Select when you use the IPv4 address.
2.IP Address	Specify the network address of the UPS.		
	DHCP Mode	1.Disabled	Select this to set a static IP address. • Enter the IP address. • Enter the subnet mask.
		2.Enabled	Select this to assign the IP address by DHCP. *1
3.Default Gateway	Enter the address of the default gateway. *2		
4.DNS Server	Enter the address of the DNS server. *2		
5.Exit	Return to the "Configuration Menu".		

*1 Caution

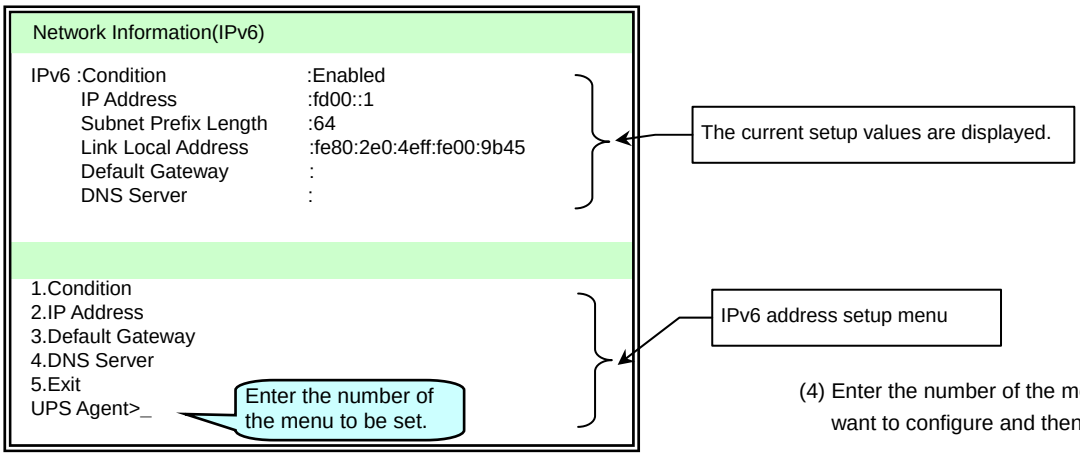
- If you change the UPS address, select "11. Exit" in the [Main Menu] to exit.
  The IP address is updated after existing the [Main Menu].
- If the IP address of the UPS is to be assigned to DHCP, it must be possible to convert the network name to an IP address. Register an IP address corresponding to the MAC address of the UPS in the DHCP server, and then register the network name corresponding to the IP address in any one of the DNS server, WINS server, and the Hosts file.

*2 Settings when DHCP is enabled

- You cannot make "3.Default Gateway" or "4.DNS Server settings" on the setting menu when DHCP is enabled.

8.1.1.2 Configuring the IPv6 address

Enter "2" in Step (3) on page 8-2, and then press "Enter".
[Network Information (IPv6)] is displayed.



(4) Enter the number of the menu item you want to configure and then press "Enter".

Setup menu	Description	
1.Condition	Specify the condition for the network address of the UPS.	
	1.Disabled	Select when you do not use the IPv6 address.
	2.Enabled	Select when you use the IPv6 address.
2.IP Address	Enter the network address and subnet prefix length of the UPS.	
3.Default Gateway	Enter the address of the default gateway.	
4.DNS Server	Enter the address of the DNS server.	
5.Exit	Return to the "Configuration Menu".	

*Caution

- If you change the UPS address, select "11. Exit" in the [Main Menu] to exit. The IP address is updated after existing the [Main Menu].
- You cannot change [Link Local Address] from the displayed value.

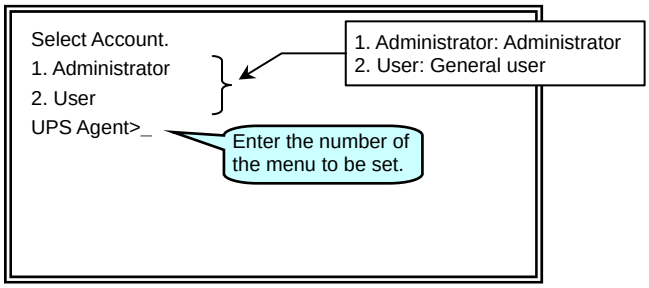
8.1.2 Configuring login accounts

Main Menu 1 > 2

Set an account.

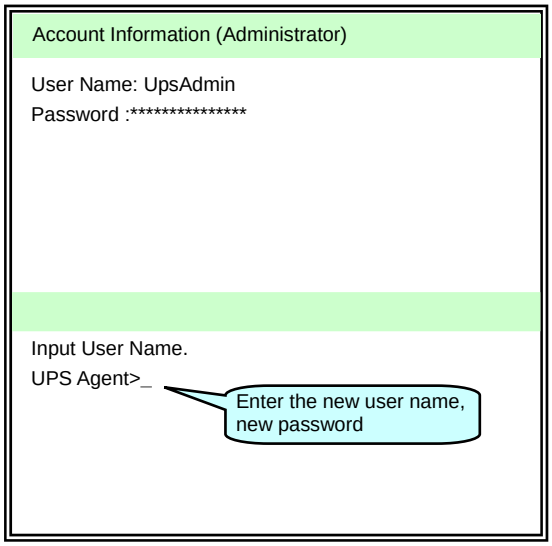
(1) Enter "1" on the [Main Menu] screen, and then press "Enter".
(2) Enter "2" on the [Configuration Menu] screen, and then press "Enter".

The [Select Account] screen is displayed.



(3) Enter the number for setting an account, and then press "Enter".

The [Account Information] screen is displayed.
The screen shown below is displayed when the Administrator is to be set.



(4) Enter the new user name and password, and then press "Enter".
Enter the password again for confirmation.

Caution

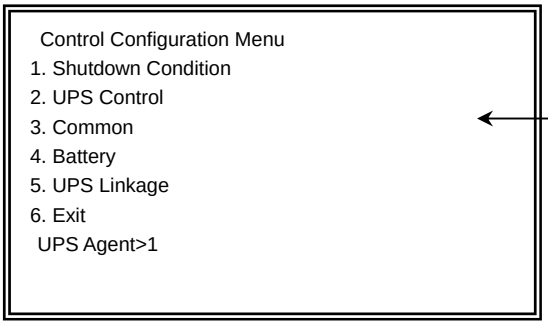
- The password is case sensitive.
- If you change the password, be sure to remember the correct password.
- When logging in from an SSH client, the user name can have only up to 16 characters and the password can have only up to 20 characters. When logging in using an SSH client, change to make sure the lengths are below the number of characters mentioned above.
- When you log in via SSH using either the administrator account or the general user account, the account and the password are case sensitive in both cases.

8.1.3 Configuring UPS control

Main Menu 1 > 3

(1) Enter "1" on the [Main Menu] screen, and then press "Enter".
(2) Enter "3" on the [Configuration Menu] screen, and then press "Enter".

The [Control Configuration Menu] is displayed.



For details on how to set menus 1 through 4, see "7.3.1 Configuring UPS operations".

For details on the setup menu 5, see "8.11 Configuring UPS Linkage".

The functions of the setup menu of [Control Configuration Menu] are described in the table below.

Setup menu	Description	Reference item
1. Shutdown Condition	Set the shutdown triggers. Power failure confirmation time Shutdown during low battery voltage Shutdown due to a serial communication error (not supported) Shutdown due to the occurrence of a major breakdown Shutdown due to the occurrence of an overload	7.3.1.1 Configuring shutdown triggers
2. UPS Control	Set the UPS control information. Stop the UPS during a power failure Automatically start the UPS during power failure recovery Battery charging rate	7.3.1.2 Configuring UPS control
3. Common	Set the common information. Existence of a delay operation (waiting for user logoff) Stop delay time (delay repetition interval when the delay operation is enabled) Shutdown delaying time UPS automatic stopping time	7.3.1.3 Configuring common information
4. Battery	Set the battery-related information. Warning for battery replacement Auto battery check (UPS main unit) Auto battery check (LAN interface card)	7.3.1.4 Configuring the battery
5. UPS Linkage	Perform the settings for grouping several UPS units into a power-supply redundant system. UPS group member settings Operation between UPS members Synchronization of time between UPS members	8.11 Configuring UPS Linkage
6. Exit	Return to the [Configuration Menu].	

8.1.4 Configuring services

8.1.4.1 Configuring services and access control

Perform the settings for the HTTP, FTP, remote login (Telnet/SSH), SNMP enabled/disabled settings, port number change, access control, etc.

(1) Enter "1" on the [Main Menu] screen, and then press "Enter".

Main Menu 1 > 4

The [Configuration Menu] is displayed.

```
   Configuration Menu
1. Network
2. Account
3. Control Configuration
4. Service
5. UPS Information
6. E-mail
7. NTP
8. Collecting Data Monitoring
9. Deviation Monitoring
10. Sensor Information
11. Exit
 UPS Agent>4
```

Enter **4**

(2) Enter "4", and then press "Enter".

The [Service Information] screen is displayed.

```
Service Information

HTTP                : Enabled (HTTP)
   Port No. (HTTP)  : 80
   Port No. (HTTPS) : 443
Remote Login        : Enabled (Telnet)
   Port No. (Telnet): 23
   Port No. (SSH)   : 22
FTP                 : Enabled (FTP)
   Port No. (FTP)   : 21
   Port No. (FTPS)  : 990
------MORE------
```

The current setup values are displayed.
------MORE------ Continued on the next screen.

Press the "Enter" key.

If ------MORE------ is displayed,
press "Enter" to view the next screen.

(3) Press "Enter".

The screen of the [Service Information] setup menu is displayed.

```
Service Information

Access Limitation   : Disabled
Access Address      : 1.
                      2.
                      3.
                      4.
                      5.

1. Condition
2. Port
3. Access Limitation
4. Access Address
5. SSH
6. SNMP
7. Exit
UPS Agent>_
```

The current setup values are displayed.

Service setup menu

Enter the number of the menu to be set.

(4) Enter the number of the menu to be set, and then press "Enter".

See the table on the next page, and set each menu.

<table>
<tr><th>Setup menu</th><th colspan="3">Description</th></tr>
<tr><td>1. Condition</td><td colspan="3">Perform the settings for HTTP, Remote Login, and FTP operation enabled/disabled.</td></tr>
<tr><td></td><td>1. HTTP</td><td>1. Enabled (HTTP)</td><td rowspan="9">Enter the number to be set.
Select the number according to your environment.</td></tr>
<tr><td></td><td></td><td>2. Enabled (HTTPS)</td></tr>
<tr><td></td><td></td><td>3. Disabled</td></tr>
<tr><td></td><td>2. Remote Login</td><td>1. Enabled (Telnet)</td></tr>
<tr><td></td><td></td><td>2. Enabled (SSH)</td></tr>
<tr><td></td><td></td><td>3. Disabled</td></tr>
<tr><td></td><td>3. FTP</td><td>1. Enabled (FTP)</td></tr>
<tr><td></td><td></td><td>2. Enabled (FTPS)</td></tr>
<tr><td></td><td></td><td>3. Disabled</td></tr>
<tr><td>2. Port</td><td colspan="3">Perform settings for the HTTP, Telnet, FTP, and SNMP port number. (1 ~ 65535)</td></tr>
<tr><td></td><td>1. HTTP</td><td colspan="2" rowspan="6">Enter the port number. Select the port number according to your environment.</td></tr>
<tr><td></td><td>2. HTTPS</td></tr>
<tr><td></td><td>3. Telnet</td></tr>
<tr><td></td><td>4. SSH</td></tr>
<tr><td></td><td>5. FTP</td></tr>
<tr><td></td><td>6. FTPS</td></tr>
<tr><td>3. Access Limitation</td><td colspan="3">Set limitations when each service is accessed externally.</td></tr>
<tr><td></td><td>1. Enabled:</td><td colspan="2">Permit access from the specified terminal.
When [1. Enabled] is set, specify the IP address of the computer from which access is permitted in [4. Access Address].</td></tr>
<tr><td></td><td>2. Disabled:</td><td colspan="2">Permit access from all the terminals.</td></tr>
<tr><td>4. Access Address</td><td colspan="3">Add or delete the IP address of the computer from which access is permitted for the HTTP, remote login, FTP, and SNMP.</td></tr>
<tr><td></td><td>1. Add</td><td colspan="2">Add the IP address from which access is permitted. (Up to five IP addresses can be registered.)</td></tr>
<tr><td></td><td>2. Delete</td><td colspan="2">Delete the already-registered IP address.</td></tr>
<tr><td></td><td>3. Exit</td><td colspan="2">Return to [Service Information].</td></tr>
<tr><td>5. SSH</td><td colspan="3">Set the user authentication method for remote login (SSH).</td></tr>
<tr><td></td><td>1. Authentication Method</td><td colspan="2">Enter the number of the method to be set.</td></tr>
<tr><td></td><td></td><td>1. Password</td><td>The user authentication method used for logging in to this device is password authentication.</td></tr>
<tr><td></td><td></td><td>2. Public Key</td><td>The user authentication method used for logging in to this device is public key authentication.</td></tr>
<tr><td></td><td>2. Exit</td><td colspan="2">Return to [Service Information].</td></tr>
<tr><td>6. SNMP</td><td colspan="3">Set the SNMP function.
See "8.1.4.2 Configuring SNMP".</td></tr>
<tr><td>7. EXIT</td><td colspan="3">Return to the [Configuration Menu].</td></tr>
</table>

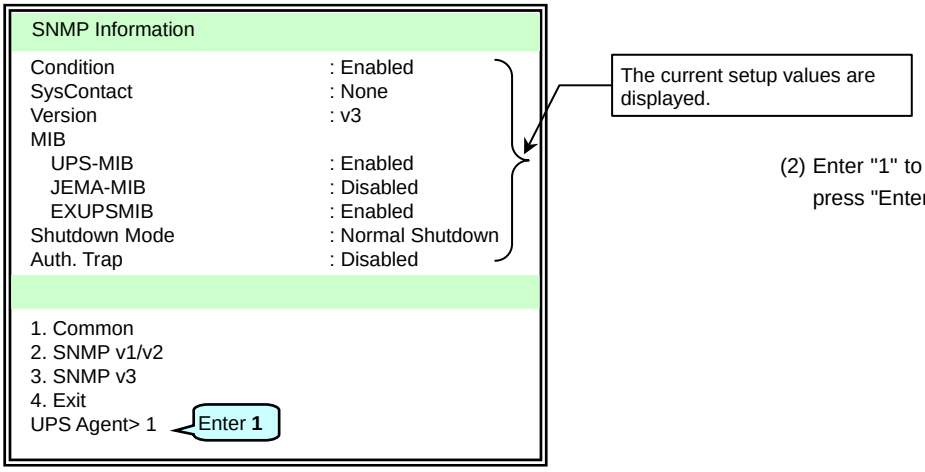
8.1.4.2 Configuring SNMP

Main Menu 1 > 4 > 6

Set the details of the SNMP function.

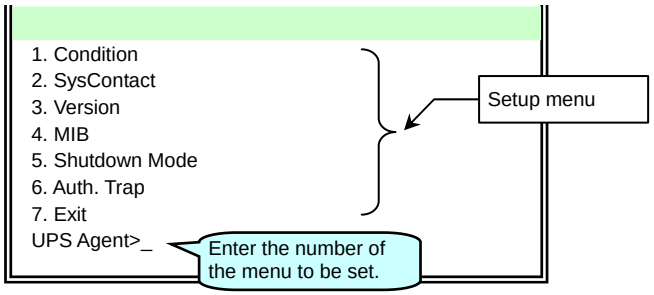
(1) Enter "6" on the [Service Information] screen, and then press "Enter".

The screen of the [SNMP Information] setup menu is displayed.



(2) Enter "1" to set the common items, and then press "Enter".

The screen of the [SNMP Information (Common)] setup menu is displayed.



(3) Enter the number of the menu to be set, and then press "Enter".

See the table below and set the respective setup menu.

Setup menu	Description		
1. Condition	Set the SNMP function to enabled/disabled.		
	1. Enabled		
	2. Disabled		
2. SysContact	Input SysContact.	Enter the SNMP place of inquiry.	
3. Version	Select the SNMP version. Set the version according to your environment.		
	1. v1/v2	Set the details on page 8-10.	
	2. v3	Set the details on page 8-11.	
4. MIB	Select the MIB to be used.		
	1. UPS-MIB	1. Enabled	Set according to your environment.
		2. Disabled	
	2. JEMA-MIB	1. Enabled	
		2. Disabled	
	3. EXUPSMIB	1. Enabled	
		2. Disabled	
5. Shutdown Mode	Specify the shutdown method when a UPS stop/reset control is output from the SNMP manager. (Target MIB : UPS-MIB / JEMA-MIB / EXUPSMIB)		
	1. Normal Shutdown	When a PC or WS is connected, shut down the computer according to the "Shutdown delaying time" or the "UPS automatic stopping time", and turn OFF the UPS output.	
	2. Immediate Shutdown	Turn OFF the UPS output regardless of the devices connected to the UPS. In this mode, the computer is not shut down.	
6. Auth. Trap	Set authentication trap sending to enabled/disabled.		
	1. Enabled		
	2. Disabled		
7. Exit	Return to the [SNMP Information] menu.		

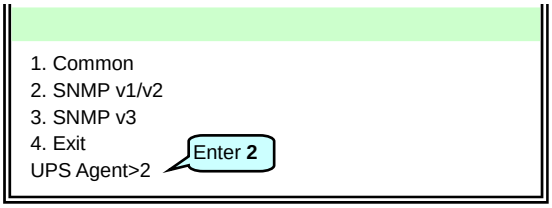
Setting SNMP v1/v2c information

Main Menu 1 > 4 > 6

On the [Common] setup menu, under [3. Version], if you set [1. v1/v2], the items described below are set.

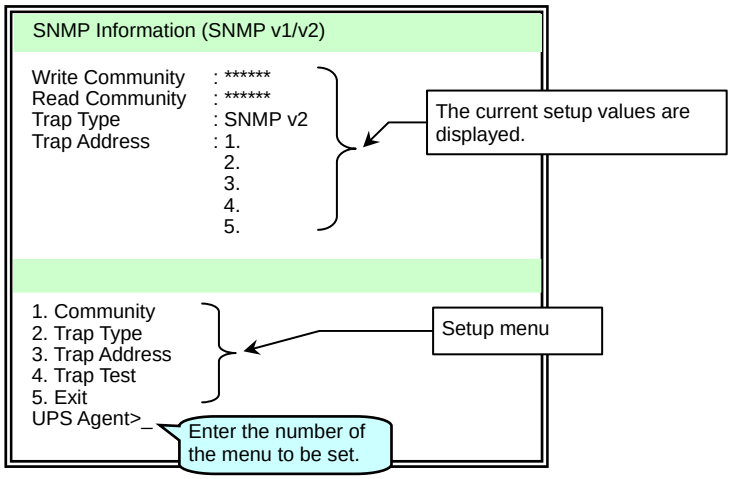
(1) Enter "6" on the [Service Information] screen, and then press "Enter".

The screen of the [SNMP Information] setup menu is displayed.



(2) Enter "2", and then press "Enter".

The screen of the [SNMP Information (SNMP v1/v2)] setup menu is displayed.



(3) Enter the number of the menu to be set, and then press "Enter".

See the table below and set the respective setup menu.

Setup menu	Description	
1. Community	Enter the community.	
	1. Write Community	Input Write Community. Enter a new Write community.
	2. Read Community	Input Read Community. Enter a new Read community.
2. Trap Type	Set the trap type.	
	1. SNMP v1	Set according to your environment.
	2. SNMP v2	
3. Trap Address	1. Add	Input Trap Address. Register the IP address for sending trap. Up to five addresses can be registered.
	2. Delete	Delete the registered IP address.
	3. Exit	Return to the previous menu.
4. Trap Test	Test OK?	Perform the trap sending test.
	1. Yes	Perform the test.
	2. No	Cancel the test.
5. Exit	Return to the [SNMP Information] menu.	

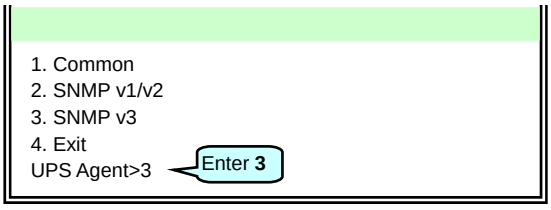
Setting SNMP v3 information

Main Menu 1 > 4 > 6

On the [Common] setup menu, under [3. Version], if you set [2. v3], the items described below are set.

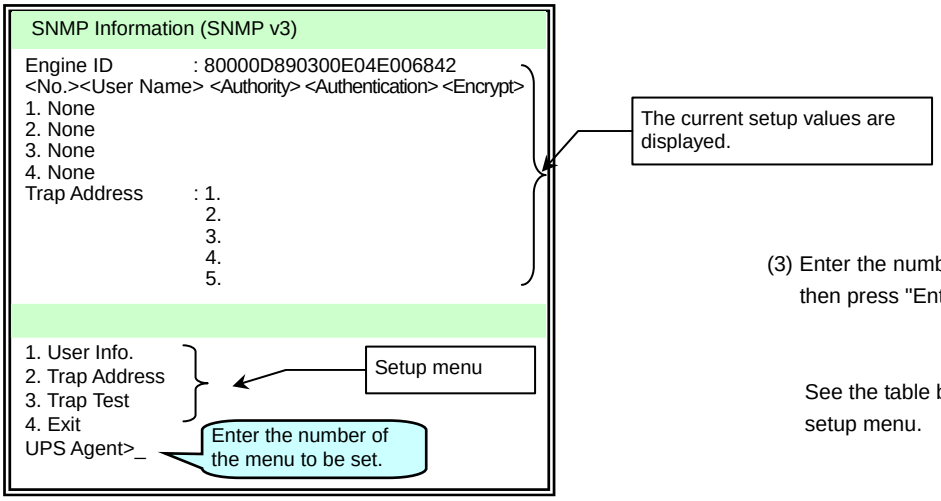
(1) Enter "6" on the [Service Information] screen, and then press "Enter".

The screen of the [SNMP Information] setup menu is displayed.



(2) Enter "3", and then press "Enter".

The screen of the [SNMP Information (SNMP v3)] setup menu is displayed.



(3) Enter the number of the menu to be set, and then press "Enter".

See the table below and set the respective setup menu.

Setup menu	Description		
1. User Info.	Add or delete a user. Up to four users can be registered.		
	1. Add	Select User No. Enter the number to which you want to add a user.	
		Input User Name. Enter the user name to be added. Enter 8 to 32 single-byte characters.	
		Select User Authority. Select the authority of the user to be added.	
		1. Read	Read only
		2. Write	Both read and write
		Select Authentication. Select the authentication method.	
		1. None	Select according to your environment.
		2. MD5 3. SHA	If you select [2. MD5] or [3. SHA], enter the authentication pass phrase according to the procedure described below.
		Input Auth. Passphrase. Enter the pass phrase. Enter 8 to 32 single-byte characters. The entered characters are not displayed.	
		Input Auth. Passphrase. Enter the pass phrase again for confirmation.	
		Select Encryption. Select the encryption method.	
		1. None	Select according to your environment. If you select [2. DES], enter the encrypted pass phrase according to the procedure described below.
		2. DES	
		Input Encryption Passphrase. Enter the pass phrase. Enter 8 to 32 single-byte characters. The entered characters are not displayed.	
		Input Encryption Passphrase Again. Enter the pass phrase again for confirmation.	
	2. Delete	Delete the registered user information.	
	3. Exit	Return to the previous menu.	
2. Trap Address	1. Add	Input Trap Address. Register the IP address for sending trap. Up to five addresses can be registered.	
	2. Delete	Delete the registered IP address.	
	3. Exit	Exit the menu.	
3. Trap Test	Test OK?	Perform the trap sending test.	
	1. Yes	Perform the test.	
	2. No	Cancel the test.	
4. Exit	Return to the [SNMP Information] menu.		

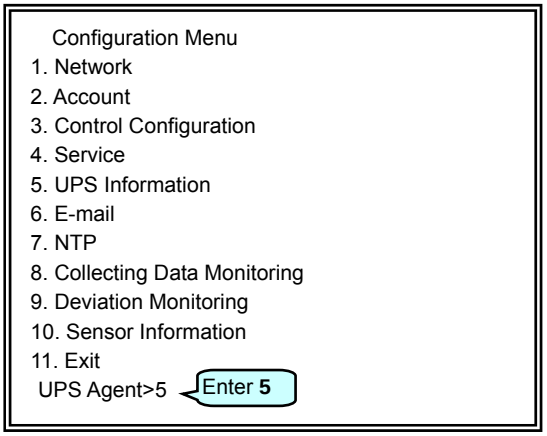
8.1.5 Configuring UPS information

Main Menu 1 > 5

Enter information about the location of the UPS.

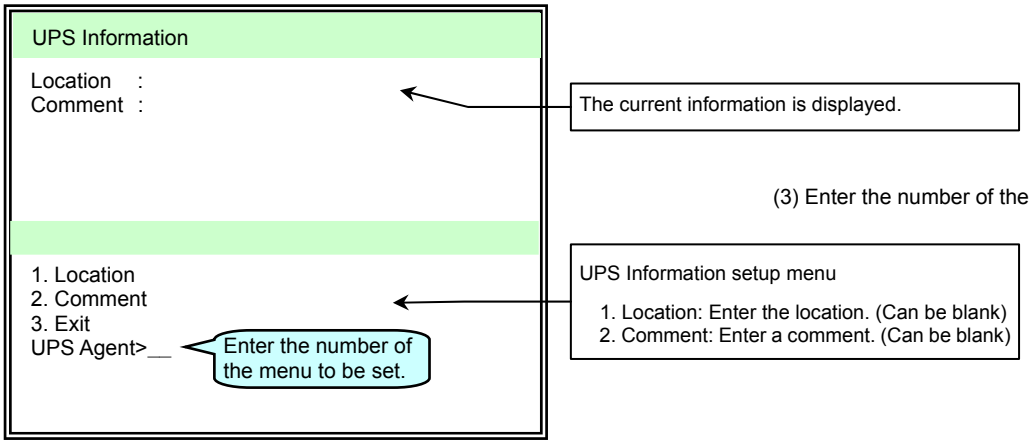
(1) Enter "1" on the [Main Menu] screen, and then press "Enter".

The [Configuration Menu] is displayed.



(2) Enter "5", and then press "Enter".

The screen of the [UPS Information] setup menu is displayed.



(3) Enter the number of the menu to be set.

(4) Enter "3", and then press "Enter" to return.

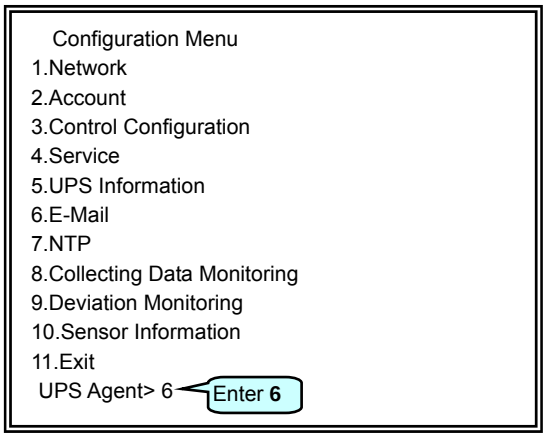
8.1.6 Configuring the e-mail server

Main Menu 1 > 6

You can configure an e-mail server (SMTP server) to transmit notification e-mails to specified addresses in the event of errors, and an e-mail server (POP3 server) to query the status to the UPS and receive the stats information e-mails.
See "8.7.2 Configuring event notification e-mail transmissions" For information on how to configure e-mails.

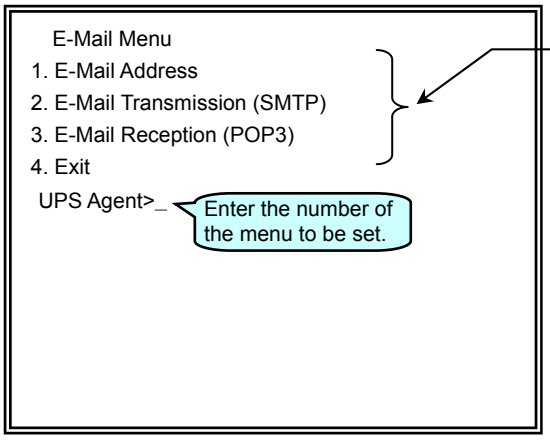
(1) Enter "1" on the [Main Menu] screen, and then press "Enter".

The [Configuration Menu] is displayed.



(2) Enter "6", and then press "Enter".

The screen of the [E-Mail Menu] setup menu is displayed.



E-Mail Menu setup menu

(3) Enter the number of the menu to be set.

See the table on the next page, and set each menu.

Setup menu	Description		
1. E-Mail Address	Set the source address for sending e-mails from the UPS.		
	1. UPS E-Mail Address	Enter the E-mail address.	
	2. Exit	Return to the previous menu.	
2. E-Mail Transmission (SMTP)	Make settings for the SMTP server.		
	1. SMTP Server Address	Set the IP address of the SMTP server. (Default value: blank space)	
	2. SMTP Port No.	Set the port number of the SMTP server. (Default value: 25)	
	3. E-Mail Sending Delaying Time	Set the delay time during mail sending. (Default value: 15 secs.)	
	4. SMTP Authentication	Set the authentication method during mail sending.	
		1. None	Authentication is not performed.
		2. POP before SMTP	Perform POP authentication.
		3. SMTP Auth. (Automatic)	Perform SMTP authentication using the authentication method selected automatically by the UPS. If you do not know the authentication method supported by the SMTP server, select "SMTP Auth. (Automatic)".
		4. SMTP Auth. (PLAIN)	Perform SMTP authentication. The authentication method is PLAIN.
		5. SMTP Auth. (LOGIN)	Perform SMTP authentication. The authentication method is LOGIN.
		6. SMTP Auth. (CRAM-MD5)	Perform SMTP authentication. The authentication method is CRAM-MD5.
	5. Encryption	Make settings for encryption.	
		1. None	Set according to your environment.
		2. SMTP over SSL/TLS	
		3. STARTTLS	
	6. Exit	Return to the previous menu.	
3. E-Mail Reception (POP3)	Make settings for the POP3 server.		
	1. Confirmation of Received E-Mail	Set whether to confirm receipt of the information request e-mail.	
		1. Enabled	Enabled
		2. Disabled	Disabled The status and measured value are not sent.
	2. POP3 Server Address	Set the address of the e-mail server (POP3 server) that receives the information request e-mail.	
	3. POP3 Port No.	Set the port number of the e-mail server (POP3 server.) (Default value: 110)	
	4. Account	Set the account information for authentication of the POP3 server.	
	5. E-Mail Confirmation Interval	Check for information request e-mails for the e-mail server (POP3 server) at the set interval.	
	6.POP3 Authentication	Specify if you want to use USER and PASS commands or the APOP command.	
		1.USER/PASSWORD	Use USER and PASS commands.
		2. APOP	Use the APOP command.
	7. Encryption	Make settings for encryption.	
		1. None	Set according to your environment.
		2. POP over SSL/TLS	
		3. STLS	
	8. Exit	Return to the previous menu.	
4. Exit	Return to the [Configuration Menu].		

8.1.7 Setting the time with the NTP server

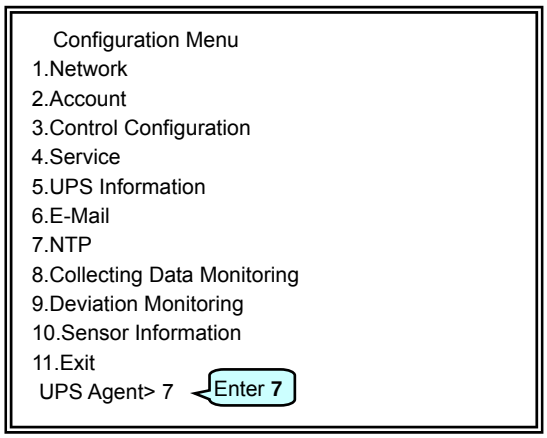
Main Menu 1 > 7

The time for the LAN interface card is set before shipment, and should be adjusted to suit your environment.
If the time has not been set when performing scheduled operations, normal operations such as operations at the scheduled time might not be performed.

You can set the time using one of the following methods.
• Setting the time from the [Main Menu] and then selecting [5. Locale Information]. See "7.4 Setting the Time on the UPS".
• Acquiring the time information from the NTP server. → Go to Step (1) below.

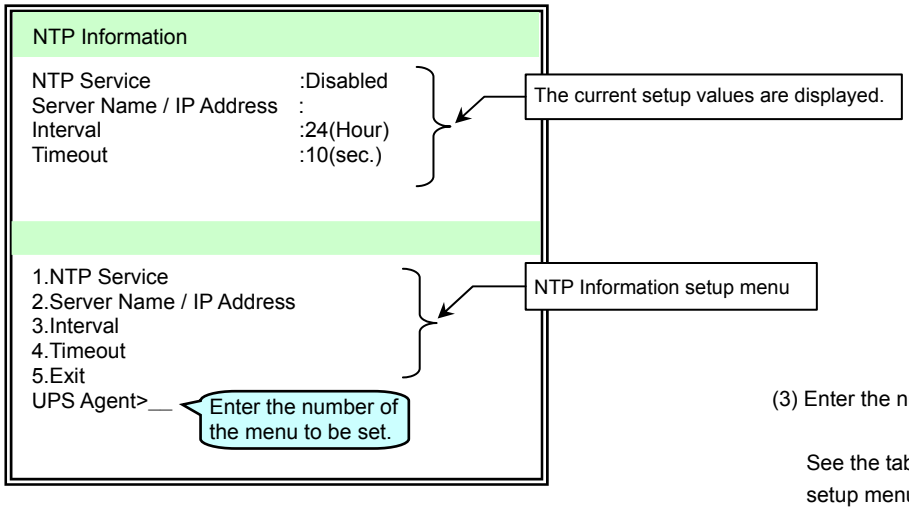
(1) Enter "1" on the [Main Menu] screen.

The [Configuration Menu] is displayed.



(2) Enter "7", and then press "Enter".

The [NTP Information] screen is displayed.



(3) Enter the number of the menu to be set.

See the table below and set the respective setup menu.

Setup menu	Description	
1. NTP Service	Set whether or not to acquire time information from the NTP server and set the UPS clock.	
	1. Enabled	Select when using the NTP server.
	2. Disabled	Select when not using the NTP server.
2. Server Name / IP Address	Enter the IP address or network name of the NTP server.	
3.Interval	Set whether or not to adjust the time at the specified interval.	
4.Timeout	Set the time period (in seconds) to wait for a response from the NTP server. If there is no response within the set time period, an error log is recorded in the event log.	
5. Exit	Return to the [Configuration Menu].	

8.1.8 Configuring measurement value management

Main Menu 1 > 8

You can make settings for measurement value administration.
For details on the measurement value administration function, see "5.7 Configuring Measured Value Administration Information".
This explanation provides a case when the Web Management Tool is used, but the functions are the same for the terminal tool.

(1) Enter "1" on the [Main Menu] screen.

The [Configuration Menu] is displayed.

```
   Configuration Menu
1. Network
2. Account
3. Control Configuration
4. Service
5. UPS Information
6. E-mail
7. NTP
8. Collecting Data Monitoring
9. Deviation Monitoring
10. Sensor Information
11. Exit
UPS Agent>8
```

Enter **8**

Caution

If the UPS does not support measurement value administration information, measured value administration is not performed even if the settings are made.

(2) Enter "8", and then press "Enter".

The [Collecting Data Monitoring Information] screen is displayed.

```
Collecting Data Monitoring Information

Monitoring                      : Disabled
Exclude Measured Value
  From Collecting Target
  During Power Failure.         : Enabled

1. Monitoring
2. Exclude Measured Value From Collecting Target During Power Failure
3. Exit
UPS Agent>_
```

The current setup values are displayed.

Enter the number of the menu to be

(3) Enter "1", and then press "Enter".
(4) Select whether or not to use the measured value administration function.

(5) Enter "2", and then press "Enter" to return.

Setup menu	Description	
1. Monitoring	Set whether or not to create collecting data of the measurement values.	
	1. Enabled	Create collecting data.
	2. Disabled	Do not create collecting data.
2. Exclude Measured Value From Collecting Target During Power Failure	Set whether or not to exclude measurement data from the collecting data during a power failure.	
	1. Enabled	The measurement data for "Input frequency" and "Input Volt." is excluded from the collection during a power failure.
	2. Disabled	Measurement data is collected during a power failure.
3. Exit	Return to the [Configuration Menu].	

8.1.9 Configuring measurement value deviation monitoring

Main Menu 1 > 9

You can make settings for measurement value deviation monitoring.
For details on measurement value deviation monitoring, see "5.7 Configuring Measured Value Administration Information".
This explanation provides a case when the Web Management Tool is used, but the functions are the same for the terminal tool.

(1) Enter "1" on the [Main Menu] screen.

The [Configuration Menu] is displayed.

```
    Configuration Menu
1. Network
2. Account
3. Control Configuration
4. Service
5. UPS Information
6. E-mail
7. NTP
8. Collecting Data Monitoring
9. Deviation Monitoring
10. Sensor Information
11. Exit
 UPS Agent>9
```

Enter **9**

Caution

If the UPS does not support measurement value administration information, deviation monitoring is not performed even if the settings are made.

(2) Enter "9", and then press "Enter".

The [Deviation Monitoring Information] screen is displayed.

```
Deviation Monitoring Information
Monitoring                : Disabled

1. Monitoring
2. Meas. Item
3. Exit
UPS Agent>1
```

The current setup values are displayed.

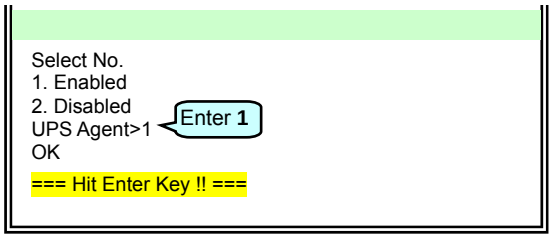
Menu to be set
1. Meas. Value Deviation Monitoring
2. Meas. Item

Enter **1**

(3) Enter "1", and then press "Enter".

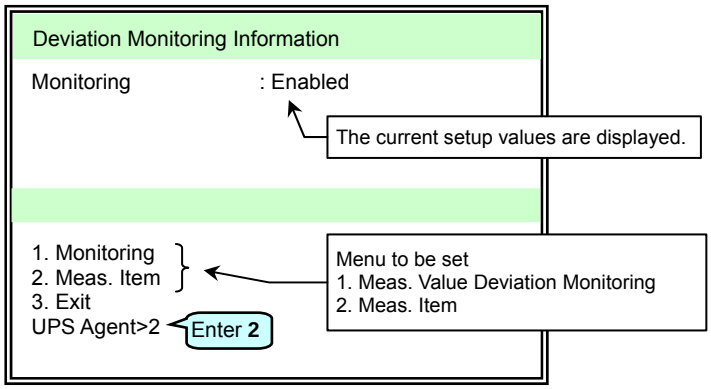
Setup menu	Description	
1. Monitoring	Set whether or not to perform measurement value deviation monitoring.	
	1. Enabled	Select to perform measurement value deviation monitoring. When [1. Enabled] is set, the measurement values are monitored, and when there is a deviation in the setup value, it is recorded in the event log, an e-mail is sent, or the syslog server is notified depending on the settings.
	2. Disabled	Select when you do not want to perform measurement value deviation monitoring.
2. Meas. Item	Make detailed settings for measurement value deviation monitoring. See the table on page 8-19 for the setup items.	
3. Exit	Return to the [Configuration Menu].	

The screen for setting measured value deviation monitoring to enabled/disabled is displayed.



(4) Enter "1", and then press "Enter".

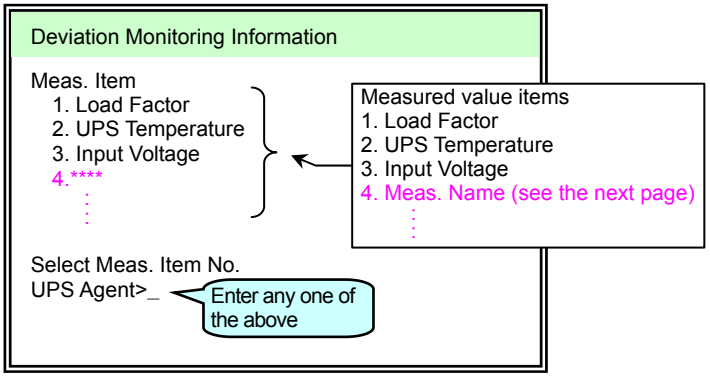
(5) Press "Enter" again.



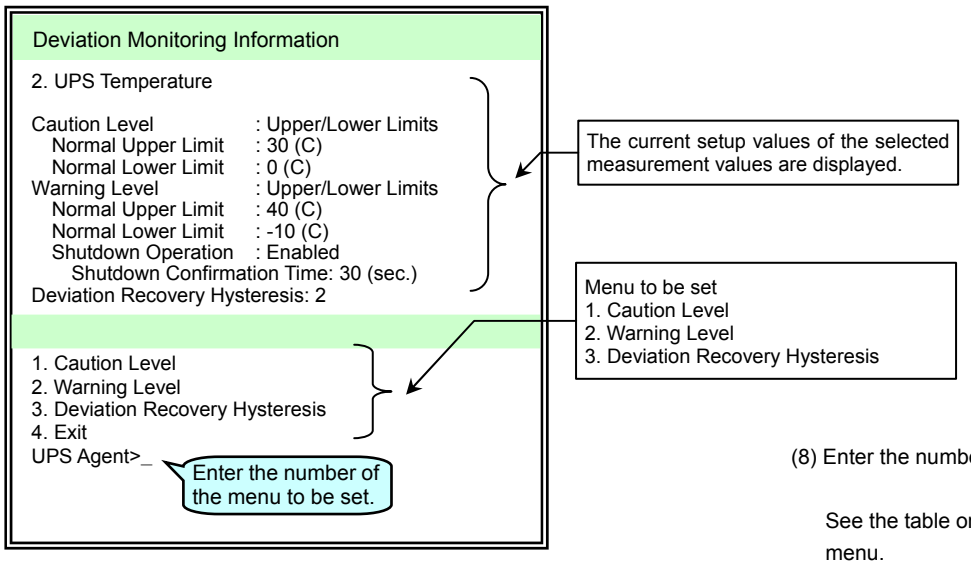
(6) Enter "2", and then press "Enter".

Caution

In the setup menu of "8.1.8 Configuring measurement value management", if "1. Monitoring" is not set to "1. Enabled", then the value set in "2. Meas. Item" is not enabled.



(7) Enter the number of the measurement value to be set.



(8) Enter the number of the menu to be set.

See the table on the next page, and set each menu.

The item in pink is available when the LAN interface card supports sensors and a sensor is connected.

Setup menu	Description				
2.Meas.Item	Select Meas. Item No. Select the target for measured value monitoring.				
	1.Load Factor	Load factor	The load factor of the devices connected to the UPS.		
	2.UPS Temperature	UPS temperature	Battery temperature; when the battery temperature is not measured, this shows the ambient temperature.		
	3.Input Voltage	Input voltage	The input voltage of the UPS. Deviation monitoring is not performed while in a power failure, or when the input voltage is 30V or less.		
	4.****** : :	Meas. name	Measurement value of the connected temperature sensor or the humidity sensor. You can specify the value for deviation monitoring for each registered sensor. The measurement names entered when registering the sensor information in "8.1.10.1 Registering sensor information" are displayed. All registered measurement names are displayed after "4." if you register more than one sensor. Caution: The accuracy of the humidity sensor varies depending on the number of years of usage. Replace the sensor according to the required accuracy.		
	1.Caution Level		Make settings for caution level monitoring.		
		1.Monitored	Set the monitoring conditions.		
			1.Disabled	Disabled	
			2.Upper Limit Only	Upper limit only	Input Normal Upper Limit. (unit) Enter the normal upper limit.
			3.Lower Limit Only	Lower limit only	Input Normal Lower Limit. (unit) Enter the normal lower limit.
			4.Upper/Lower Limits	Upper and lower limits	Input Normal Upper Limit. (unit) Enter the normal upper limit. Input Normal Lower Limit. (unit) Enter the normal lower limit.
		2.Exit	Return to the previous menu.		
	2.Warning Level		Make settings for warning level monitoring.		
		1.Monitored	Set the monitoring conditions.		
			1.Disabled	Disabled	
			2.Upper Limit Only	Upper limit only	Input Normal Upper Limit. (unit) Enter the normal upper limit.
			3.Lower Limit Only	Lower limit only	Input Normal Lower Limit. (unit) Enter the normal lower limit.
			4.Upper/Lower Limits	Upper and lower limits	Input Normal Upper Limit. (unit) Enter the normal upper limit. Input Normal Lower Limit. (unit) Enter the normal lower limit.
		2.Shutdown Operation	Set whether or not to shut down the device when the measured value is outside the range of the value set in the warning level. *1 For details on the operation, see "2.3.3" (8).		
			1.Enabled	Execute	
			2.Disabled	Do not execute	
		3. Shutdown Confirmation Time	Shutdown confirmation time. (Default value: 30 secs.) Specify the confirmation time between the occurrence of the deviation and starting the shutdown process.		
		4. UPS automatic Stop/Start operation	Specify whether or not to shut down the UPS after shutting down devices due to deviation of their measured values from the warning level, and whether or not to restart the UPS when the measured values returned to the specified normal range. *2		
			1.Don't Stop/ Don't Start	Don't stop / Don't start	
			2.Stop/ Don't Start	Stop / Don't start	
			3.Stop/Start	Stop / Start	
		5. Shutdown Device*	This option is enabled if you select measurement values for the temperature sensor and humidity sensor and select [Monitor Warning Level Deviation] and [Shutdown upon deviation]. You can select the device to be shut down for each measured value.		
			1.Device	1.Add To Shutdown Device	Add the device to be shut down.
				2.Delete From Shutdown Device	Delete the device to be shut down.
			2.UPS	1.Add To Shutdown UPS	Add the UPS to be shut down.
				2.Delete From Shutdown UPS	Delete the UPS to be shut down.
			3.Exit	Return to the previous menu.	
		6.Exit	Return to the previous menu.		
	3.Deviation Recovery Hysteresis		Input Deviation Recovery Hysteresis. Enter the hysteresis numerical value when it is judged that recovery has been performed after the measured value has deviated from the set range.		
	4.Exit		Return to the previous menu.		

*Caution

You can select devices to be shut down for [Devices to be shut down] only when you have selected measurement values for the temperature sensor and humidity sensor. All devices are shut down for any other measurement values.

About setting transmission when using the UPS linkage function

*1. When the "4. Deviation" settings are "Enabled" in "4. Shutdown Operation" from the "8.11.1 Configuring UPS group operations" menu, the settings for performing a shutdown when a deviation occurs are sent to all UPSs in the group, and the settings are replaced.
*2. When the "4. Deviation" settings are "Enabled" in "4. Shutdown Operation" from the "8.11.1 Configuring UPS group operations" menu, the settings for performing UPS automatic stop / start operations are sent to all UPSs in the group, and the settings are replaced.

8.1.10 Registering, modifying, and deleting sensor information

8.1.10.1 Registering sensor information

See this section when connecting a sensor to a LAN interface card that supports sensors.

You can register sensor information when a temperature sensor or a humidity sensor is connected to the UPS, and measure and manage the ambient temperature and humidity. You can register information for up to 16 sensors.

Main Menu 1 > 10

(1) Enter "1" on the [Main Menu] screen, and then press "Enter".

The [Configuration Menu] is displayed.

```
   Configuration Menu
1. Network
2. Account
3. Control Configuration
4. Service
5. UPS Information
6. E-mail
7. NTP
8. Collecting Data Monitoring
9. Deviation Monitoring
10. Sensor Information
11. Exit
 UPS Agent>10
```

Enter **10**

Caution

If a sensor is connected, be sure to register the sensor information. If the information is not registered, the measured values cannot be managed even if a sensor is connected.

(2) Enter "10", and then press "Enter".

The [Sensor Information] screen is displayed.

```
Sensor Information
No Sensor

1. Add
2. Delete
3. Change
4. Exit
UPS Agent>1
```

Enter **1**

The registration status of the sensor is displayed.
If no sensor is registered, [No Sensor] is displayed.

Edit menu
1. Add: Add sensor information
2. Delete: Delete sensor information
3. Change: Change sensor information

(3) Enter "1", and then press "Enter".

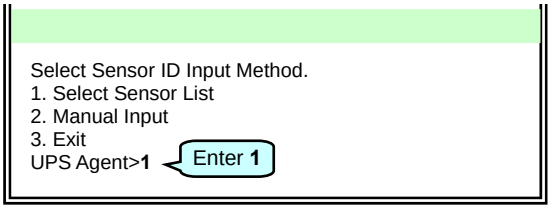
The screen for selecting the sensor ID input method is displayed.

```
Select Sensor ID Input Method.
1. Select Sensor List
2. Manual Input
3. Exit
UPS Agent>_
```

Select the sensor ID input method

Sensor ID input method menu
1. Select Sensor List: If a sensor is connected to the UPS, a list of sensor IDs that can be registered is displayed. Select and enter a sensor from this list.
2. Manual Input: If no sensor is connected to the UPS, no list is displayed. Therefore, enter the sensor IDs individually.

When a sensor ID is selected from the list



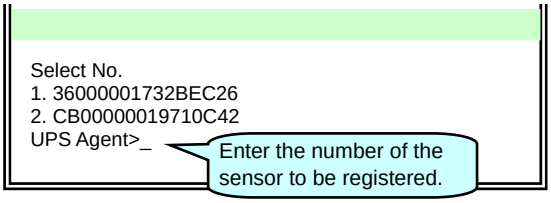
(4) Enter "1", and then press "Enter".

Point

The sensor ID is set as shown in the table below depending on the type of sensor.

The last 2 digits of the sensor ID	…42	…26
Type	Temperature sensor	Humidity sensor

A list of sensor IDs that can be registered is displayed.

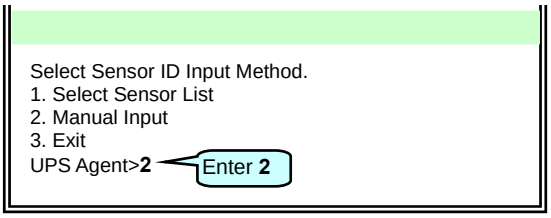


(5) Enter the number of the sensor to be registered, and then press "Enter".

↓

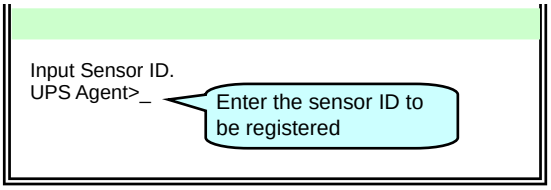
Go to Step (6)

When the sensor ID is entered individually



(4) Enter "2", and then press "Enter".

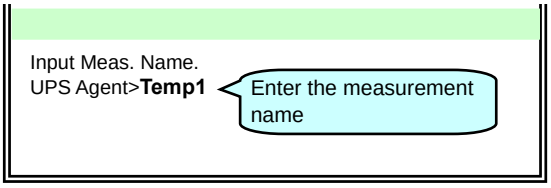
The input screen of the sensor ID to be registered is displayed.



(5) Enter the sensor ID to be registered, and then press "Enter".

Caution

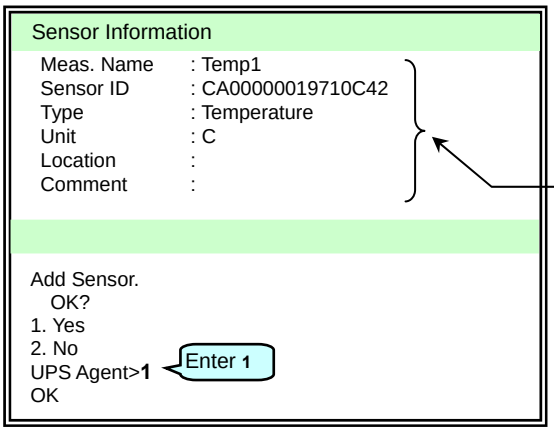
If an overlapping sensor ID is entered, "NG" is displayed and registration is not possible.



(6) Enter the measurement name, and then press "Enter".
Example: Enter "Temp1", and then press "Enter".

Caution

We recommend setting a measurement name to allow easy identification of the sensor type, etc. Set the measurement name within 32 single-byte characters. If a measurement name that is already being used is entered, "NG" is displayed and registration is not possible.



The registered sensor information is displayed.
- Meas. Name : Measurement name entered in Step (6)
- Sensor ID : Sensor ID (assigned to the sensor at the time of shipment)
- Type : Type of sensor (Temperature: Temperature sensor) (Humidity: Humidity)
- Unit : Unit of the measured value (Temperature: C, Humidity: %RH)
- Location : Location
- Comment : Comment

Input the Location and Comment in "8.1.10.3 Modifying registered sensor information ".

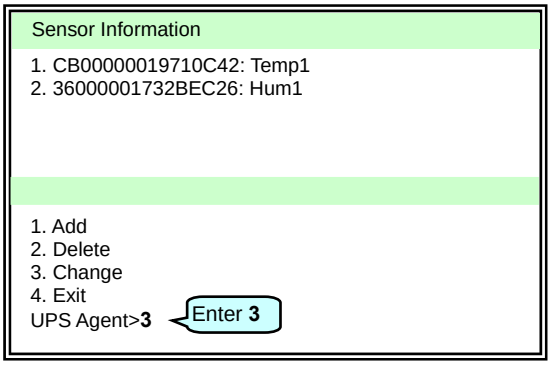
(7) Enter "1" on the confirmation screen, and then press "Enter".

8.1.10.2 Modifying the display order of registered sensor information

Main Menu 1 > 10

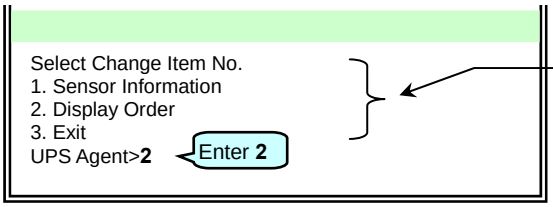
Sensor information is displayed in the order it is registered on the sensor information screen.
To easily manage the displayed sensor information, the sensor information can be rearranged in any order.

(1) Enter "1" on the [Main Menu] screen, and then press "Enter".
(2) Enter "10" on the [Configuration Menu] screen, and then press "Enter".



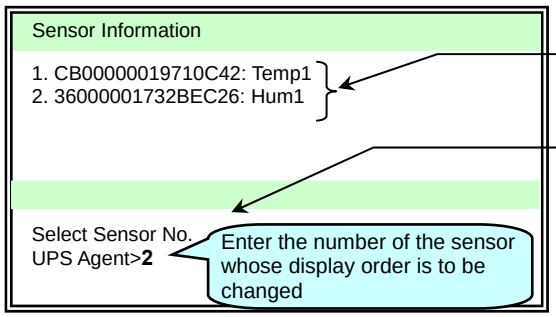
(3) Enter "3", and then press "Enter".

The screen for selecting the sensor information edit menu is displayed.



Edit menu
1. Sensor Information: Edit the registered sensor information.
2. Display Order: Change the display order of the registered sensor information.

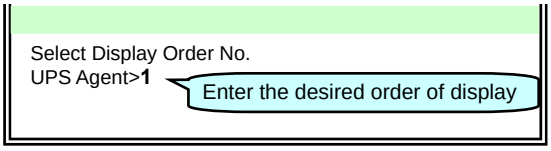
(4) Enter "2", and then press "Enter".



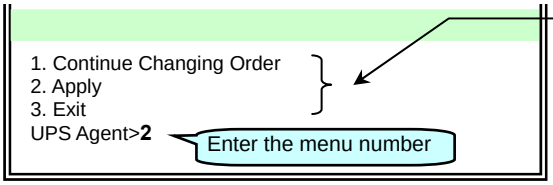
List of registered sensors

Select and enter the number of the sensor whose display order is to be changed from the sensor information list in the upper column.

(5) Enter the number of the sensor whose display order is to be changed, and then press "Enter".

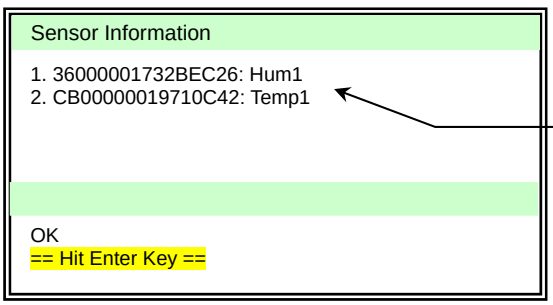


(6) Enter the order to display the selected sensors, and then press "Enter".



1. Continue Changing Order: Continue changing the display order.
2. Apply : Apply the change.
3. Exit : Return without confirming the change.

(7) Enter the menu number, and then press "Enter".
Example: Enter "2" here and then confirm the changed display order.



The sensor information list with a changed display order is displayed.

8.1.10.3 Modifying registered sensor information

Main Menu 1 > 10

You can change registered sensor information.

(1) Enter "1" on the [Main Menu] screen, and then press "Enter".
(2) Enter "10" on the [Configuration Menu] screen, and then press "Enter".

```
Sensor Information
1. CB00000019710C42: Temp1
2. 36000001732BEC26: Hum1

1. Add
2. Delete
3. Change
4. Exit
UPS Agent>3
```

Enter 3

(3) Enter "3", and then press "Enter".

The screen for selecting sensor information edit menu is displayed.

```
Select Change Item No.
1. Sensor Information
2. Display Order
3. Exit
UPS Agent>1
```

Enter 1

Edit menu
1. Sensor Information: Edit the registered sensor information.
2. Display Order: Change the display order of the registered sensor information.

(4) Enter "1", and then press "Enter".

```
Sensor Information
1. CB00000019710C42: Temp1
2. 36000001732BEC26: Hum1

Select Sensor No.
UPS Agent>2
```

List of registered sensors

Select and enter the number of the sensor whose information is to be edited from the sensor information list in the upper column.

Enter the number of the sensor whose information is to be changed

(5) Enter the number of the sensor to be edited, and then press "Enter".

```
Sensor Information
Meas. Name    : Temp1
Sensor ID     : CA00000019710C42
Type          : Temperature
Unit          : C
Location      :
Comment       :

1. Sensor ID
2. Meas. Name
3. Location
4. Comment
5. Exit
UPS Agent>_
```

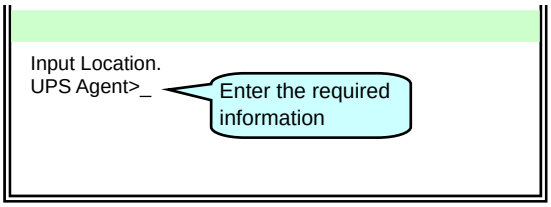
The items described below are displayed according to the selected sensor.
These items cannot be changed arbitrarily.
Type
Unit

Edit menu
Sensor ID : Sensor ID (assigned to the sensor at the time of shipment)
Meas. Name : Any arbitrary measurement name that has been entered
Location : Location
Comment : Comment

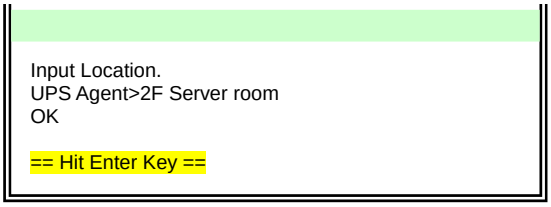
Enter the edit menu number

(6) Enter the number of the item to be edited, and then press "Enter".

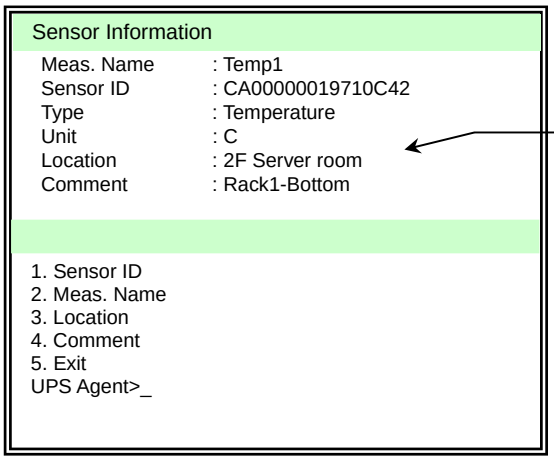
The screen for editing sensor information is displayed.



(7) Enter the necessary information, and then press "Enter".



(8) Press "Enter" again.



(9) Make sure the information has changed.

The edited sensor information is displayed.

8.1.10.4 Replacing connected sensors

Main Menu 1 > 10 > 3

When the connected sensor is replaced, the registered sensor ID is replaced with the new sensor ID.
The registered information and the collected data of the sensor prior to replacement can be inherited as is by the new sensor.

Caution

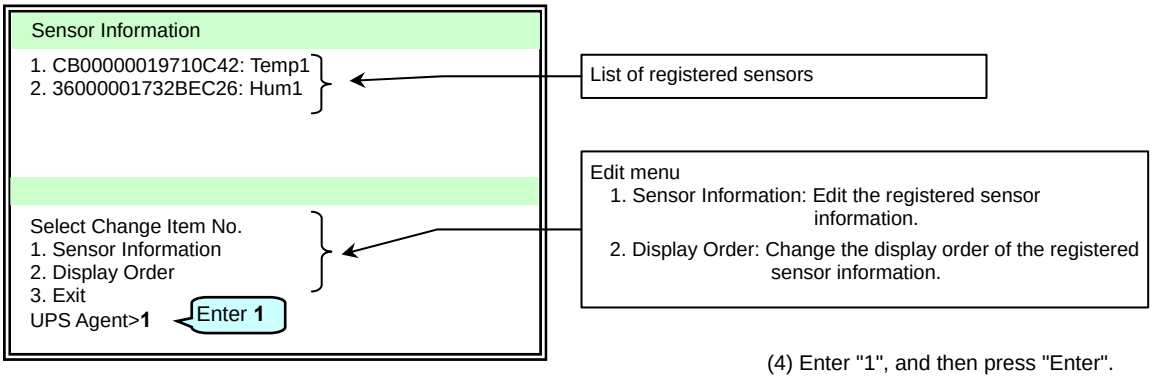
The sensor "Type" cannot be changed. When the humidity sensor and the temperature sensor are replaced, delete the registered information and then register the new sensor. When the registered information of a sensor is deleted, the collected data of the sensor is also deleted. If necessary, write the data beforehand.
The accuracy of the humidity sensor varies depending on the number of years of usage. Examine the replacement period according to the desired accuracy.

(1) Enter "1" on the [Main Menu] screen, and then press "Enter".

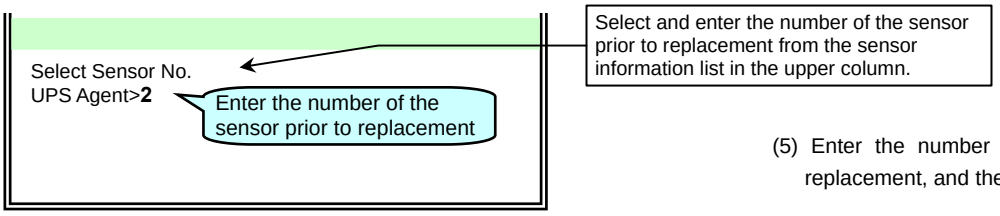
(2) Enter "10" on the [Configuration Menu] screen, and then press "Enter".

(3) Enter "3", and then press "Enter".

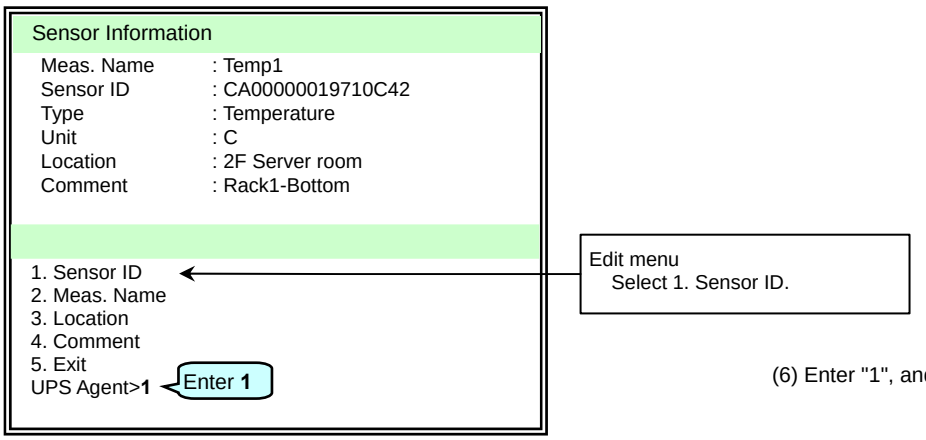
The screen for selecting the sensor information edit menu is displayed.



(4) Enter "1", and then press "Enter".

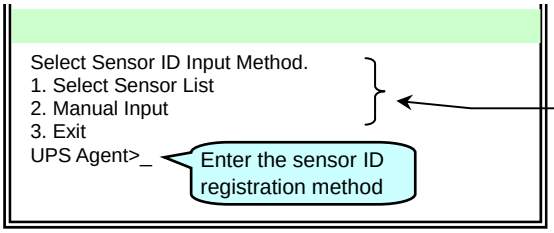


(5) Enter the number of the sensor prior to replacement, and then press "Enter".



(6) Enter "1", and then press "Enter".

The screen for selecting the sensor ID input method is displayed.



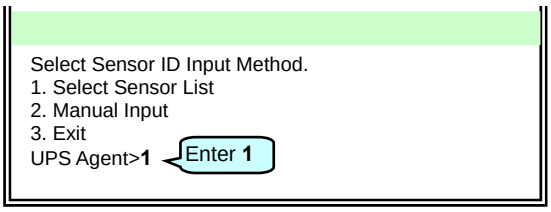
Sensor ID input method menu
1. Select Sensor List: If a new sensor is connected to the UPS, the sensor ID list is displayed. Select the sensor from this list and enter the information.
2. Manual Input: If a new sensor is not connected to the UPS, enter the sensor ID.

Point

The sensor ID is set as shown in the table below depending on the type of sensor.

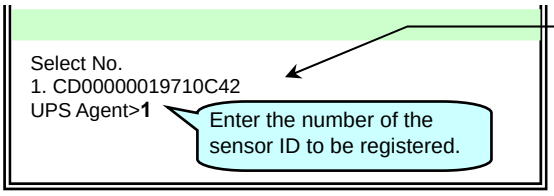
The last 2 digits of the sensor ID	…42	…26
Type	Temperature sensor	Humidity sensor

When a sensor ID is selected from the list



(7) Enter "1", and then press "Enter".

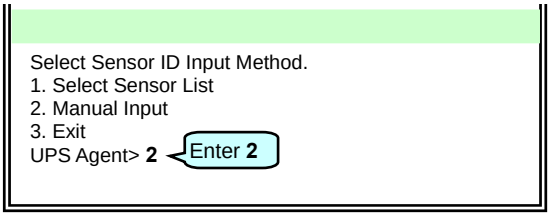
A list of sensor IDs that can be registered is displayed.



Only the ID of the sensor of the same type as that selected in Step (5) is displayed.

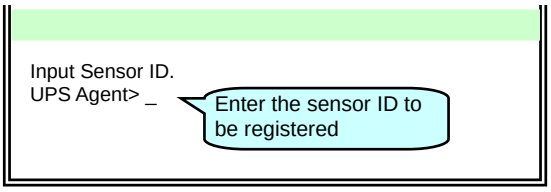
(8) Enter the number of the sensor to be registered, and then press "Enter".

When the sensor ID is entered individually



(7) Enter "2", and then press "Enter".

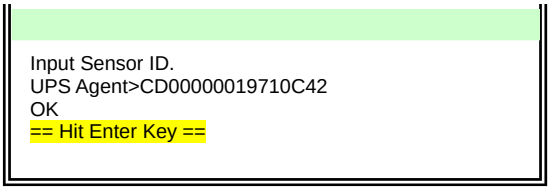
The sensor ID input screen is displayed.



(8) Enter the sensor ID to be registered, and then press "Enter".

Caution

If a sensor ID of a different type is entered, or an overlapping sensor ID is entered, "NG" is displayed, and registration is not possible.



8.1.10.5 Deleting registered sensor information

Main Menu 1 > 10

You can delete registered sensor information when a sensor is removed.
When the sensor type is changed, such as when a temperature sensor is replaced by a humidity sensor, delete the sensor information and then register a new sensor.

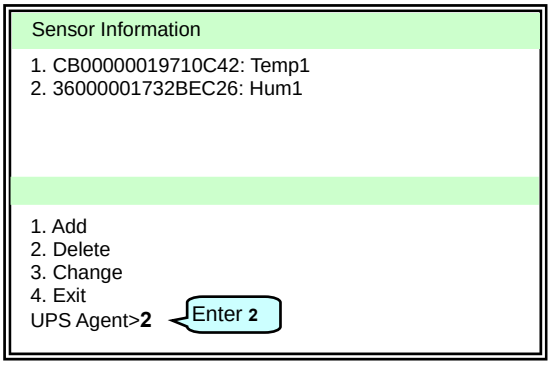
Caution

- You cannot undo the delete operation.
- When sensor information is deleted, the data collected by the sensor is also deleted. If necessary, use FTP commands or the "Information request E-mail" function beforehand to output the data.

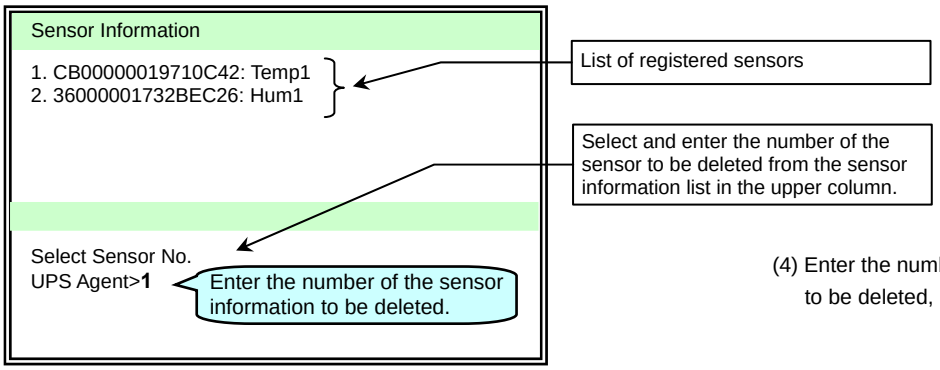
(1) Enter "1" on the [Main Menu] screen, and then press "Enter".

(2) Enter "10" on the [Configuration Menu] screen, and then press "Enter".

The screen for selecting the sensor information edit menu is displayed.

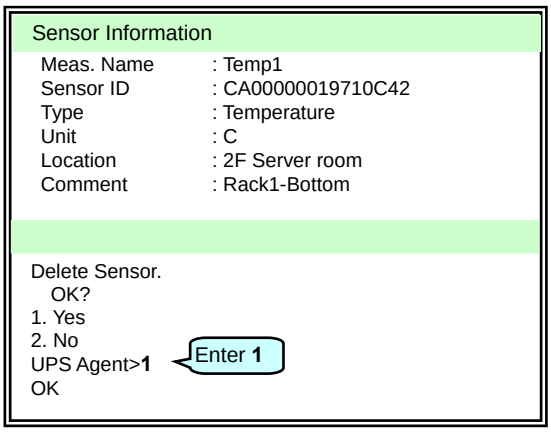


(3) Enter "2", and then press "Enter".



(4) Enter the number of the sensor information to be deleted, and then press "Enter".

A confirmation screen is displayed.



(5) Enter "1" on the confirmation screen, and then press "Enter".

8.2 Configuring Scheduled Operations

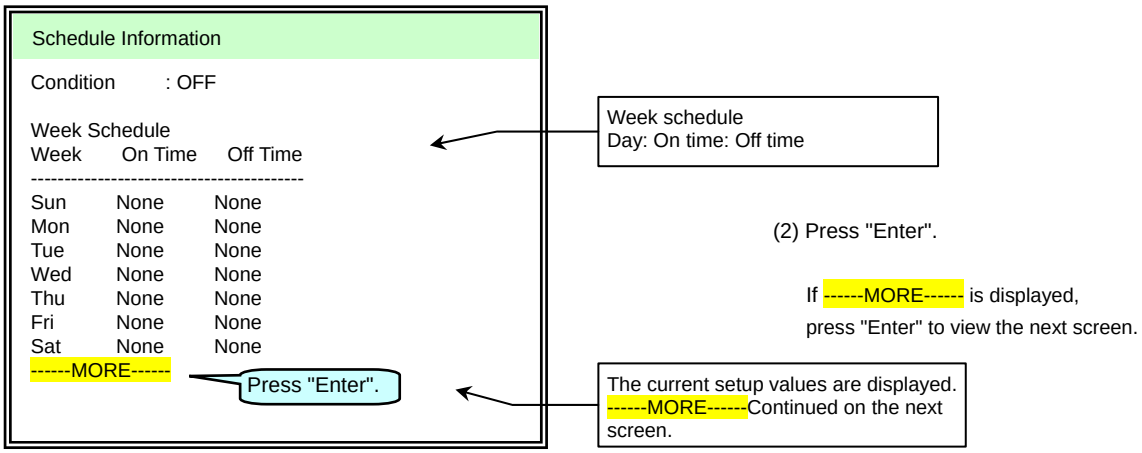
Main Menu 2

Set scheduled operations.

For details on the scheduling operation function, see "5.4 Configuring Scheduled Operations". This example provides for a case when the Web Management Tool is used, but the functions are the same for the terminal tool as well.

(1) Enter "2" on the [Main Menu] screen, and then press "Enter".

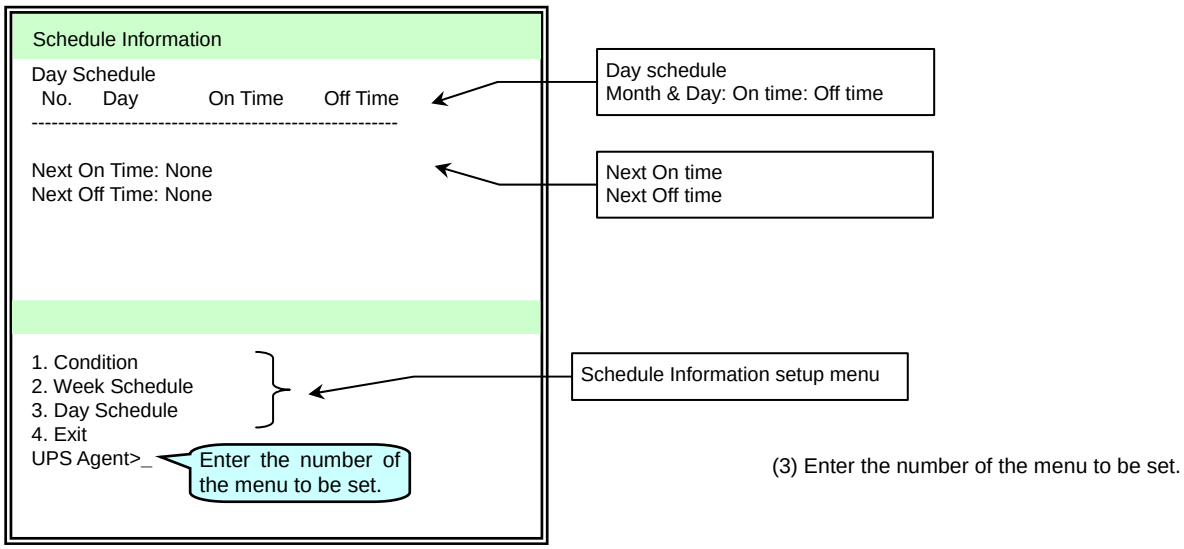
The [Schedule Information] screen is displayed.



(2) Press "Enter".

If ------MORE------ is displayed, press "Enter" to view the next screen.

The screen of the [Schedule Information] setup menu is displayed.



(3) Enter the number of the menu to be set.

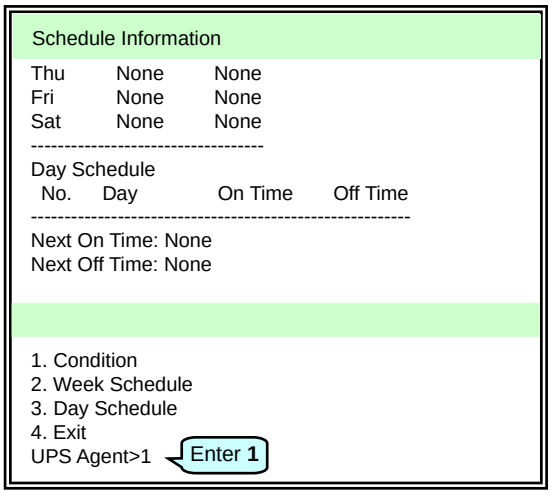
Setup menu	Description
1. Condition	Set scheduled operations to enabled/disabled.
2. Week Schedule	Set the weekly schedule.
3. Day Schedule	Set the schedule for the specified day.
4. Exit	Return to the [Main Menu].

8.2.1 Enabling and disabling scheduled operations

Main Menu 2 > 1

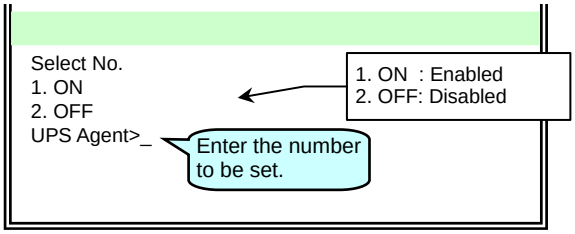
Set the scheduled operations to enabled/disabled. If you set to enabled, the UPS can be started or stopped at the specified time.

[Schedule Information] setup menu screen



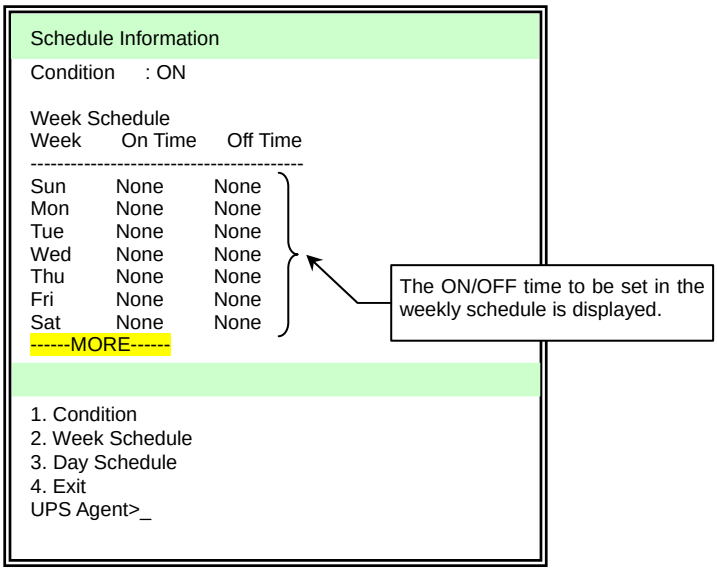
(1) Enter "1", and then press "Enter".

The screen shown in the figure below is displayed.



(2) Enter the number to be set, and then press "Enter".

Return to the [Schedule Information] screen.
Screen displayed when the schedule operation is set to [Enabled].



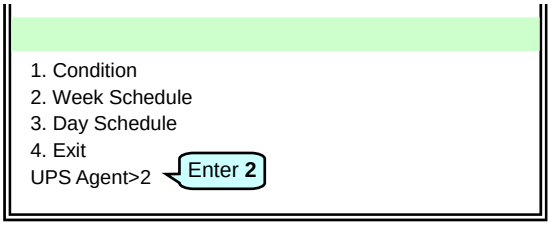
(3) If [------MORE------] is displayed on the screen, press "Enter" again.

8.2.2 Configuring scheduled weekly operations

Main Menu 2 > 2

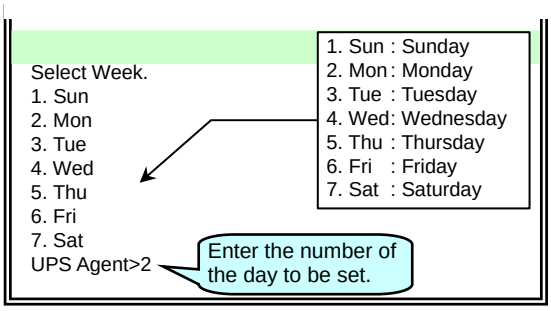
Set the ON/OFF time for each day from Sunday to Saturday.
This section explains how to set the On time to 7:00 and the Off time to 19:00 on a Monday.

[Schedule Information] setup menu screen



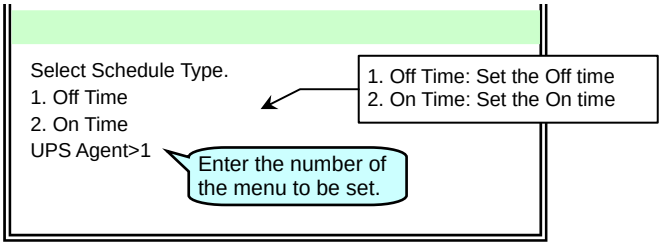
(1) Enter "2", and then press "Enter".

The Day Selection screen is displayed.



(2) Enter number "2" for the day to be set, and then press "Enter".

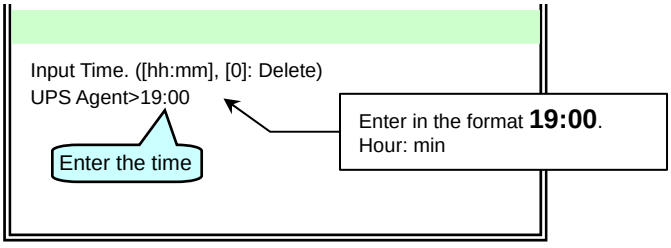
The On/Off Selection screen is displayed.



Set the Off time.

(3) Enter "1", and then press "Enter".

The Time Input screen is displayed.



(4) Enter the time of stopping the UPS, and then press "Enter".

Set the On time in the same way.

Changing and deleting the time

When changing the set time, enter a new time.
When deleting the set time, enter "0". If it is deleted, the display changes to "None".

Return to the [Schedule Information] setup menu screen.

If you set the On/Off time for the day on which the scheduled operation is to be performed, the set time is displayed in the On Time and Off Time in the screen of Step (3) when the scheduled operation is set to "Enabled" on the previous page.

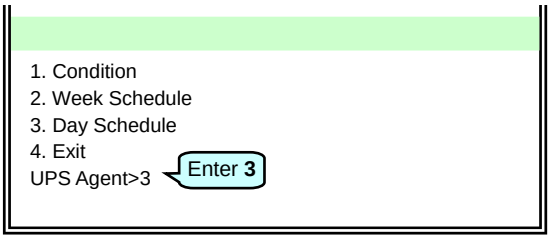
8.2.3 Configuring scheduled operations for a specific date

Setting the specified day

Main Menu 2 > 3

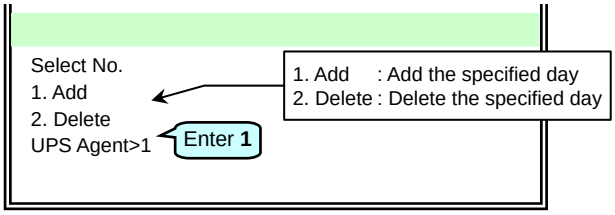
Set the On/Off time for a specific day.
This section explains how to set the On time to 8:00 and the Off time to 12:00 on December 31, 2012.

[Schedule Information] setup menu screen.



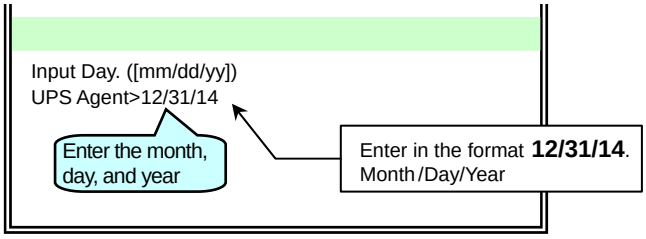
(1) Enter "3", and then press "Enter".

The screen for adding or deleting the specified day is displayed.



(2) Enter "1", and then press "Enter".

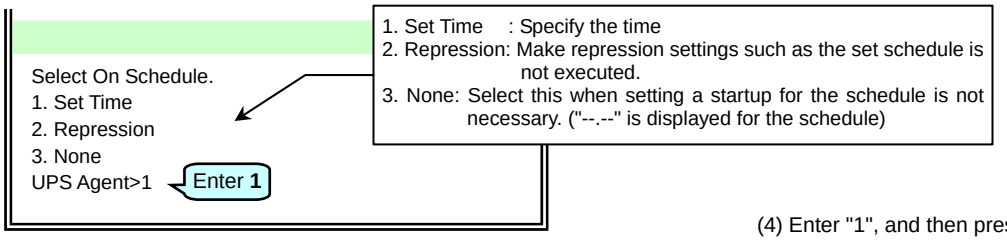
The screen for entering the year, month, and day is displayed.



Specify the date.

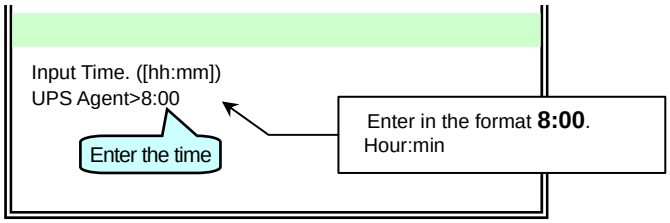
(3) Enter the month, day, and year for which the schedule is to be specified.

The setup screen for On time is displayed.



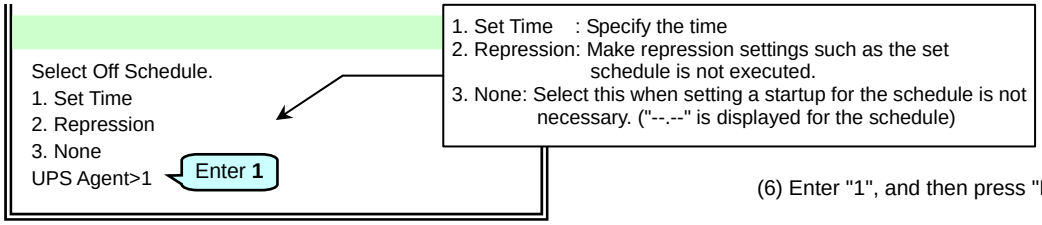
(4) Enter "1", and then press "Enter".

The Time Input screen is displayed.



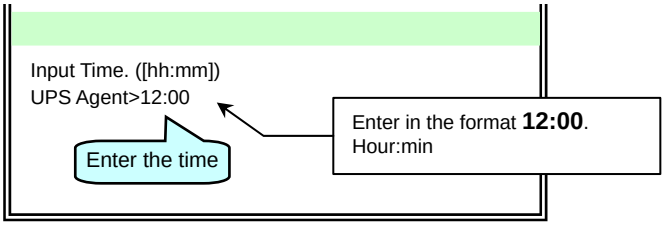
(5) Enter the time of starting the UPS, and then press "Enter".

The screen for setting the Off time is displayed.



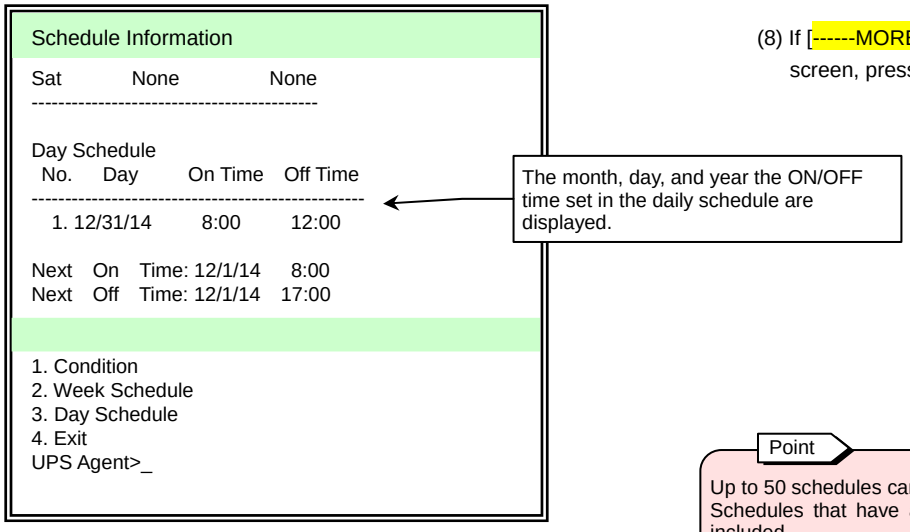
(6) Enter "1", and then press "Enter".

The Time Input screen is displayed.



(7) Enter the time for stopping the UPS, and then press "Enter".

Return to the [Schedule Information] screen.
Screen displayed when the scheduled operation is set to "Enabled"



(8) If [------MORE------] is displayed on the screen, press "Enter" again.

Point

Up to 50 schedules can be set.
Schedules that have already been executed are not included.

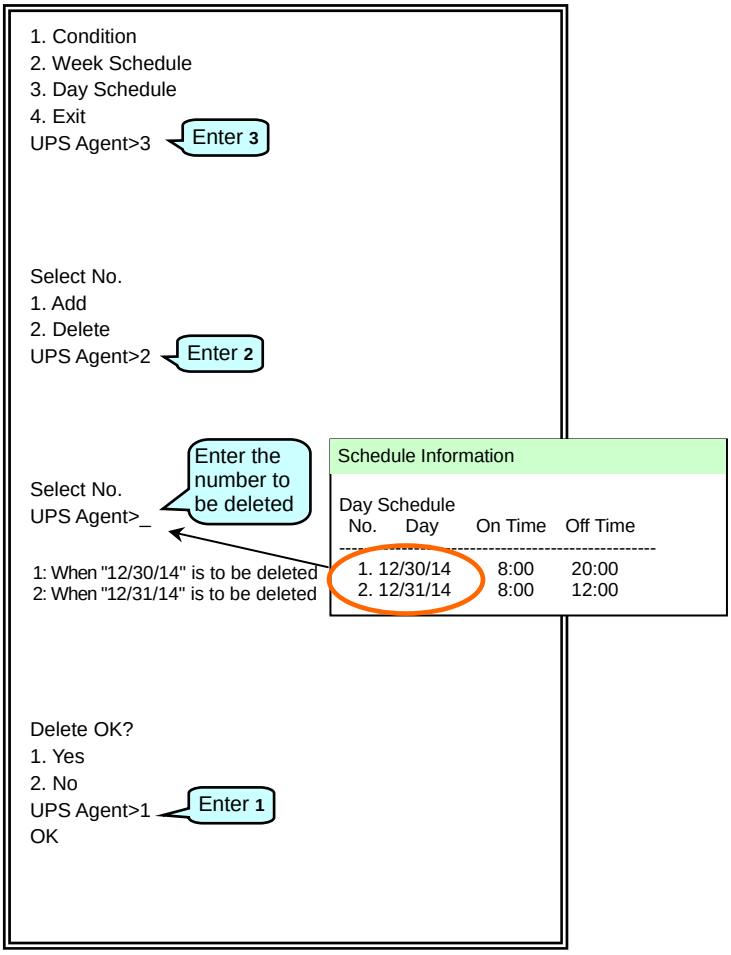
Caution

After setting a startup/shutdown time, the next startup/shutdown time may not be reflected immediately. Since the schedule time is checked periodically, wait for a while and then check the display.

Deleting the specified day

Main Menu 2 > 3

Delete the specified day for which the On/Off time has been set.
The screen that is displayed is the same as for "Adding the specified day." The screen display is shortened and explained.



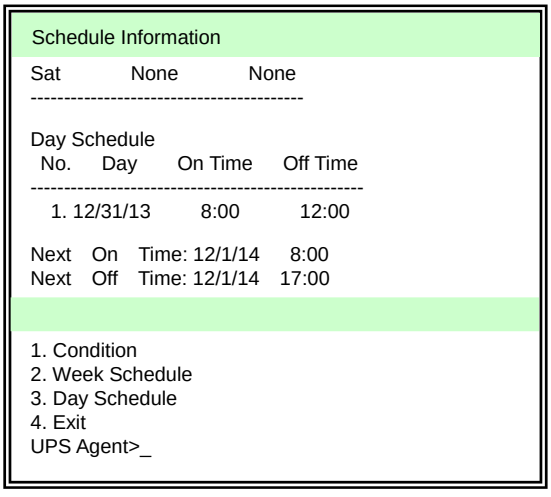
(1) Enter "3" on the [Schedule Information] screen, and then press "Enter".

(2) Enter "2" on the Add/Delete Specified Day screen, and then press "Enter".

(3) For the days displayed on the [Schedule Information] screen, enter the number of the day to be deleted, and then press "Enter".

(4) Enter "1" on the screen for deletion confirmation, and then press "Enter".

The display returns to the [Schedule Information] screen. The deleted state is visible on the displayed screen.



Repressing the daily schedule

Main Menu 2 > 3

About schedule repression settings

Even when the On/Of time has been set for Monday through Friday in the weekly schedule, there are days, such as national holidays, when the UPS does not need to be started or stopped. In this situation, perform settings to repress On/Off of the scheduled operation (such that starting and stopping are not performed.) There is no need to change the settings for the weekly schedule. Scheduled repression can be set even when the daily schedule has been set.

The repression functions for the weekly schedule and daily schedule are combined and the execution of the schedule operation is repressed on national holidays falling on weekdays, without changing the weekly schedule.

This section explains how to set repression for the set-up week schedule.

Weekly schedule setting Monday to Friday On Time 8:00 Off Time 17:00

Daily schedule setting 1/1/13 Make settings so that the scheduled operation is not performed on national holidays.

From here on, the screen display is shortened and explained. Enter the characters displayed in blue.

```
1. Condition
2. Week Schedule
3. Day Schedule
4. Exit
UPS Agent> 3
```

Select day schedule

(1) Enter "3" on the [Schedule Information] screen, and then press "Enter".

```
Select No.
1. Add
2. Delete
UPS Agent> 1
```

Select Add.

(2) Enter "1" on the Add/Delete Specified Day screen, and then press "Enter".

```
Input Day. ([mm/dd/yy])
UPS Agent>1/1/15
```

Enter the year, month, and day in the **1/1/15** format.
Month /Day/Year

(3) Enter the month, day, and year for which the scheduled operation is to be repressed.

```
Select On Schedule.
1. Set Time
2. Repression
3. None
UPS Agent> 2
```

On Time: Select repression
1. Set Time : Specify the time
2. Repression: Make repression settings such as the set schedule is not executed.
3. None: Select this when setting a shutdown for the schedule is not necessary. ("--.--" is displayed for the schedule)

(4) Set repression for the On Time. Enter "2", and then press "Enter".

```
Select Off Schedule.
1. Set Time
2. Repression
3. None
UPS Agent> 2
OK
```

Off Time: Select repression

(5) Set repression for the Off Time. Enter "2", and then press "Enter".

Screen after making settings

```
Schedule Information
Condition:   ON

Week Schedule
Week      On Time    Off Time
----------------------------------------
Sun       None       None
Mon       8:00       17:00
Tue       8:00       17:00
Wed       8:00       17:00
Thu       8:00       17:00
Fri       8:00       17:00
Sat       None       None
----------------------------------------
Day Schedule
 No. Day      On Time    Off Time
------------------------------------------------
  1. 1/1/15    XX:XX      XX:XX
```

The schedule for which repression setting is made is displayed as (XX:XX).

By setting this scheduled repression, the scheduled operation is not performed on January 01.

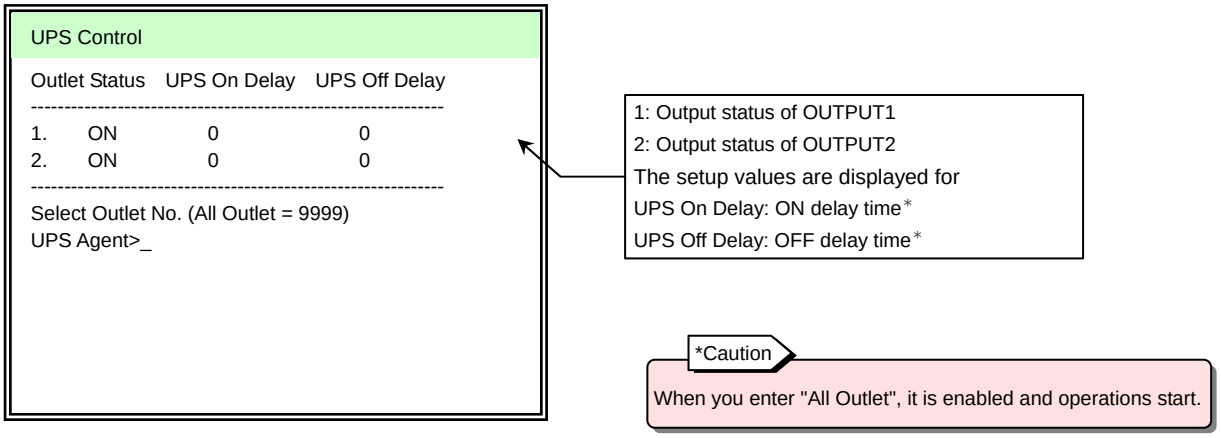
8.3 Controlling the UPS

Main Menu 3

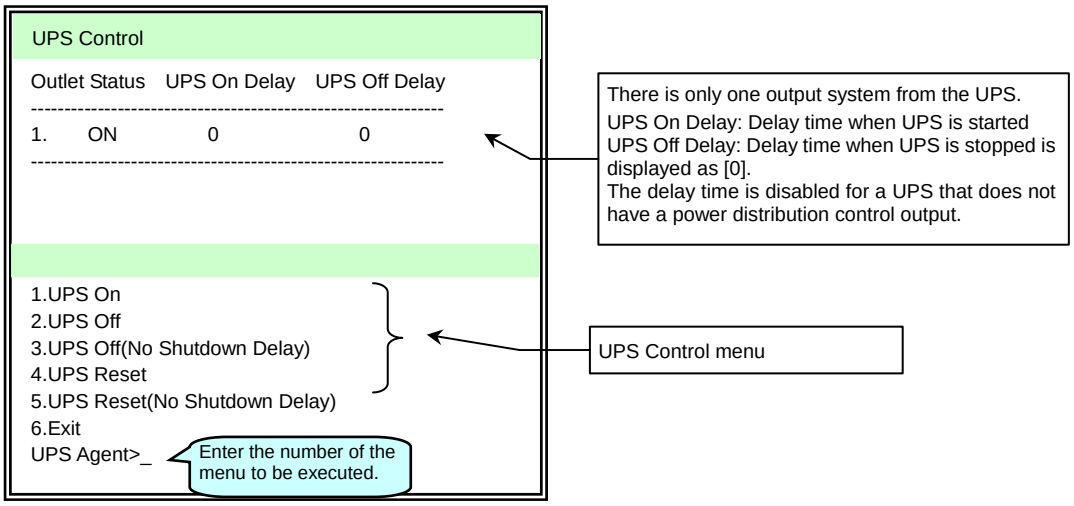
Perform settings for controlling the start/stop operation of the UPS (UPS start/stop for a UPS that does not have a power distribution control output, and UPS output ON/OFF for a UPS that has a power distribution control output.)

(1) Enter "3" on the [Main Menu] screen, and then press "Enter".

If you are using a UPS that has a power distribution control output, the [UPS Control] screen shown below is displayed.



If you are using a UPS that does not have a power distribution control output, the [UPS Control] screen shown below is displayed.



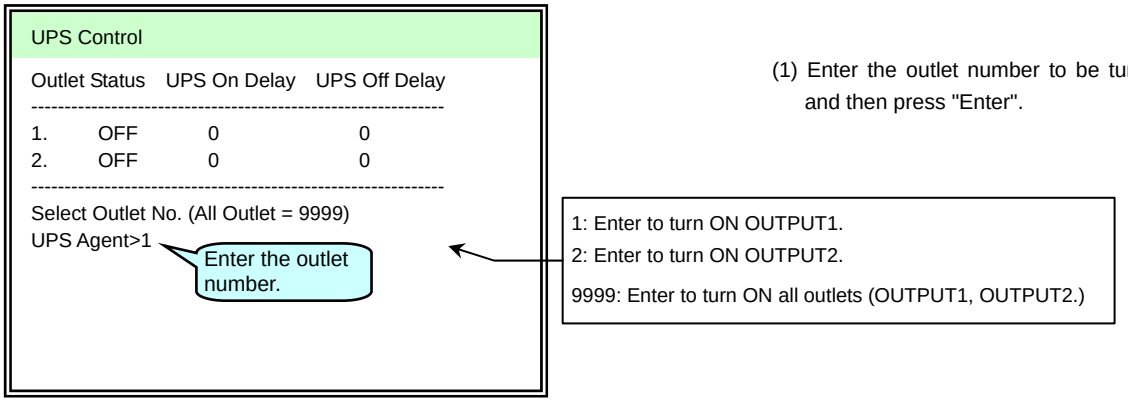
Operation menu	Description
1. UPS On	Starts (turns ON) the UPS output.
2. UPS Off	Stops (turns OFF) the UPS output.
3. UPS Off (No Shutdown Delay)	Stops (turns OFF) the UPS output without performing the delay operation.
4.UPS Reset	Starts (turns ON) the UPS when the specified duration (seconds) has elapsed after stopping the UPS.
5.UPS Reset (No Shutdown Delay)	Starts (turns ON) the UPS when the specified duration (seconds) has elapsed after stopping (turning OFF) UPS output without the delay operation.
6. Exit	Returns to the [Main Menu].

8.3.1 Turning UPS output ON

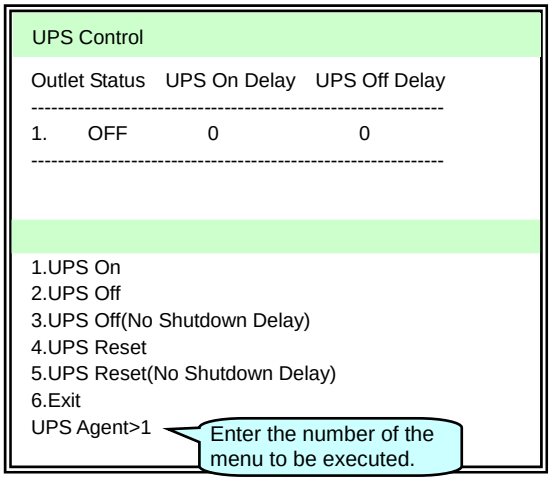
Main Menu 3 > 1

Turn the UPS output [ON] by following the procedure described below.

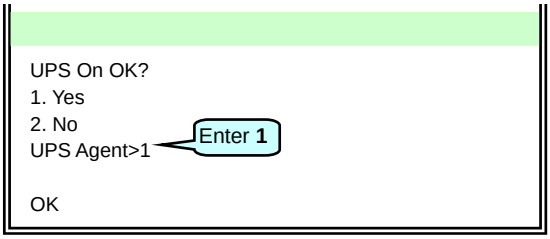
This section describes how to turn ON the outlet of OUTPUT1 when you are using a UPS with a power distribution control output.



(1) Enter the outlet number to be turned [ON], and then press "Enter".



(2) Enter "1", and then press "Enter".



(3) Enter "1" on the confirmation screen, and then press "Enter".

[OK] is displayed indicating that the outlet of OUTPUT1 has been turned ON.

Caution

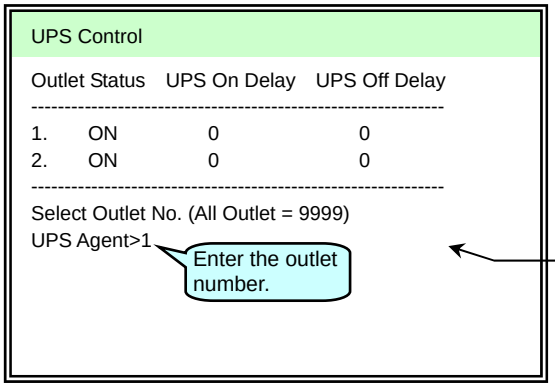
When using a UPS with a system control output and "UPS On Delay" is set, selecting "All Outlet" enables "UPS On Delay" and operations start.

8.3.2 Turning UPS output OFF

Main Menu 3 > 2

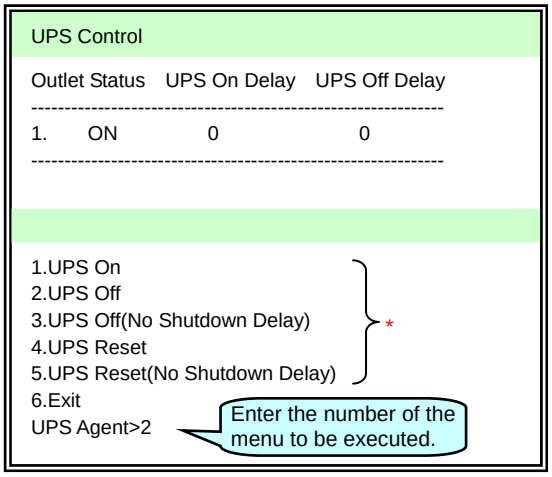
Turn the UPS output [OFF] by following the procedure described below.

This section describes how to turn OFF the outlet of OUTPUT1 when you are using a UPS with a power distribution control output.



1: Enter to turn OFF OUTPUT1.
2: Enter to turn OFF OUTPUT2.
9999: Enter to turn OFF all outlets (OUTPUT1, OUTPUT2.)

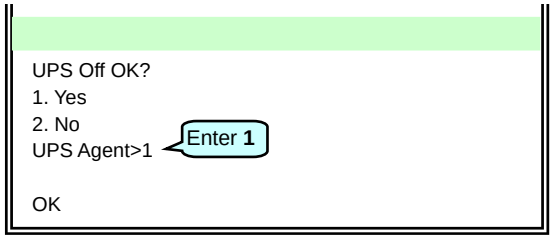
(1) Enter the outlet number to be turned [OFF], and then press "Enter".



(2) Enter "2", and then press "Enter".

*Caution

2.UPS Off and 4.UPS Reset :
If you are using UPS management software, the shutdown process occurs after waiting for the computer to log off.
If you are not using UPS management software, [3.UPS Off (No Shutdown Delay)] and [5.UPS Reset (No Shutdown Delay)] perform the same processes.
3.UPS Off (No Shutdown Delay) and 5.UPS Reset (No Shutdown Delay):
The shutdown process occurs without waiting for the computer to log off.
(The pre-shutdown process executes after the shutdown delaying time count starts.)



(3) Enter "1" on the confirmation screen, and then press "Enter".

[OK] is displayed indicating that the outlet of OUTPUT1 has been turned OFF.

8.4 Displaying UPS Information

You can view different types of information on the UPS.

Main Menu 4

(1) Enter "4" on the [Main Menu] screen, and then press "Enter".

The [Display Menu] screen is displayed.

```
   Display Menu
1. UPS Condition/Meas. Value
2. LAN Board Information
3. Event Log
4. WS Script Monitor
5. Sensor Condition/Meas. Value
6. Exit
UPS Agent>_
```

Caution

Depending on the UPS model, the measurement display function might not be available.

Display menu	Description
1. UPS Condition/Meas. Value	The UPS condition and the measured value information is displayed.
2. LAN Board Information	The UPS (LAN interface card) information is displayed. The MAC address, program, and the version are displayed.
3. Event Log	The event log of the UPS is displayed.
4. WS Script Monitor	Checks the sent and received contents of the WS script.
5. Sensor Condition/Meas. Value	The sensor condition and the measured value information is displayed. Can be used when a sensor is connected to a LAN interface card with the model number PRLANIF013B or PRLANIF014B.
6. Exit	Returns to the [Main Menu].

8.4.1 Checking the UPS status and measurement values

Main Menu 4 > 1

The UPS condition and the measurement values are displayed by performing the operation described below.

(1) Enter "4" on the [Main Menu] screen, and then press "Enter".

The [Display Menu] screen is displayed.

```
Display Menu
1. UPS Condition/Meas. Value
2. LAN Board Information
3. Event Log
4. WS Script Monitor
5. Sensor Condition/Meas. Value
6. Exit
UPS Agent>1
```

Enter **1**

(2) Enter "1", and then press "Enter".

Display item	Description
SCI With UPS(Status)	Communication status with UPS Normal communication: Normal Communication error: Error
SCI With UPS(Ver)	Protocol version used for communication with UPS
UPS Serial No.	UPS serial number
UPS Profile	UPS profile
UPS Internal Information	UPS internal information
UPS Condition	Information about UPS condition
UPS Meas. Value	UPS measurement information

The UPS information is displayed.

```
SCI With UPS(Status)   :Normal
SCI With UPS(Ver)      :3.0

UPS Serial No.              :01234567A

UPS Profile
Style                       :A11F102_A001
Controlled part Ver.        :05
Input phase                 :1
Output phase                :1
Bypass phase                :1
Rated input voltage         :100V
Rated output voltage        :100V
Rated capacity              :1.0kVA
Rated backup time           :5min
Number of outlet            :2
Constant output             :Yes

------MORE------
```

Press "Enter".

"*" is displayed for display items that are not supported by the UPS.

The current status is displayed.
------MORE------Continued on the next screen.

```
Battery voltage             :Normal
Testing the battery         :No
Battery test possible       :Possible
Overload                    :None
Battery Temp. trouble       :Normal
Battery Chg. Breakdown      :None
Fin Temp. trouble           :None
Fan breakdown               :None
------MORE------
```

If ------MORE------ is displayed, press "Enter" to view the next screen.

```
Ambient Temp.               :   30.0C
Battery Temp.               :   30.0C
Fin Temp.                   :   48.0C
Battery Charge.             :  100.0%
Battery Backup Time.        :   23.0min
OK

=== Hit Enter Key !! ===
```

(3) Press "Enter" to return.

8.4.2 Checking the UPS event log

Main Menu 4 > 3

The procedure for checking the event log of the UPS is described below.

(1) Enter "4" on the [Main Menu] screen, and then press "Enter".

The [Display Menu] screen is displayed.

```
Display Menu
1. UPS Condition/Meas. Value
2. LAN Board Information
3. Event Log
4. WS Script Monitor
5. Sensor Condition/Meas. Value
6. Exit
UPS Agent>3
```

Enter **3**

(2) Enter "3", and then press "Enter".

Up to 1,000 logs are displayed in the UPS event log.
For details on the Type and No. of the displayed event log, see "Appendix B. LIST OF UPS EVENTS."

Type : Type of event log
No. : Event No.
DateTime : Date and time of occurrence
Address : IP address of the device when an external access matches
Detail : Detailed information

```
Type No.   DateTime                  Address          Detail
-------------------------------------------------------------------------------
Inf   0552 07/05/2014 19:23:35     0.   0.   0.   0 OUTLET 1
Inf   0408 07/05/2014 19:23:31     0.   0.   0.   0 OUTLET 1
Inf   0351 07/05/2014 19:23:31     0.   0.   0.   0 Terminal
Inf   0553 07/05/2014 19:22:45     0.   0.   0.   0 OUTLET 2
Inf   0553 07/05/2014 19:22:45     0.   0.   0.   0 OUTLET 1
Inf   0407 07/05/2014 19:22:31     0.   0.   0.   0
Err   0406 07/05/2014 19:20:41 192.168.   1.100 E = 0511, L = 4T
Err   0406 07/05/2014 19:19:37 192.168.   1.100 E = 0511, L = 4T
Err   0406 07/05/2014 19:19:01 192.168.   1.100 E = 0506, L = 4T
Err   0406 07/05/2014 19:17:57 192.168.   1.100 E = 0506, L = 4T
Err   0406 07/05/2014 19:17:22 192.168.   1.100 E = 0504, L = 4T
Err   0406 07/05/2014 19:16:18 192.168.   1.100 E = 0504, L = 4T
Inf   0352 07/05/2014 19:15:44     0.   0.   0.   0 Terminal
Inf   0552 07/05/2014 19:04:23     0.   0.   0.   0 OUTLET 2
Inf   0514 07/05/2014 19:04:14     0.   0.   0.   0 0x00000004
Inf   0552 07/05/2014 19:04:13     0.   0.   0.   0 OUTLET 1
Inf   0407 07/05/2014 18:08:45     0.   0.   0.   0
Err   0406 07/05/2014 18:08:32 192.168.   1.100 E = 0504, L = 4T
------MORE------
```

The current status is displayed.
------MORE------Continued
on the next screen.

```
Err   0406 07/05/2014 19:19:37 192.168.   1.100 E = 0511, L = 4T
Err   0406 07/05/2014 19:19:01 192.168.   1.100 E = 0506, L = 4T
Err   0406 07/05/2014 19:17:57 192.168.   1.100 E = 0506, L = 4T
Err   0406 07/05/2014 19:17:22 192.168.   1.100 E = 0504, L = 4T
Err   0406 07/05/2014 19:16:18 192.168.   1.100 E = 0504, L = 4T
Inf   0511 07/05/2014 19:16:11 192.168.   1.100
Inf   0552 07/05/2014 19:04:23     0.   0.   0.   0 OUTLET 2
Inf   0514 07/05/2014 19:04:14     0.   0.   0.   0 0x00000004
Inf   0552 07/05/2014 19:04:13     0.   0.   0.   0 OUTLET 1
Inf   0407 07/05/2014 18:08:45     0.   0.   0.   0
Err   0406 07/05/2014 18:08:32 192.168.   1.100 E = 0504, L = 4T
=== Hit Enter Key !! ===
```

If ------MORE------ is displayed, press "Enter" to view the next screen.
Press "Esc" to exit.

(3) Press "Esc" or "Enter" to return.

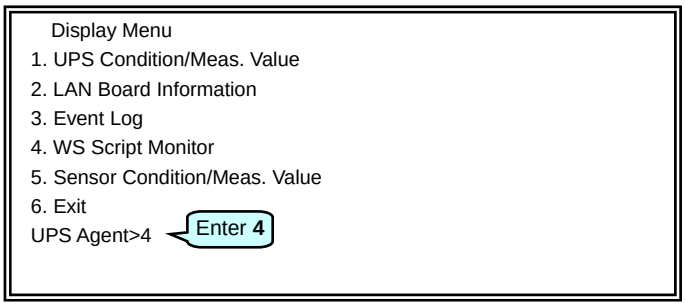
8.4.3 Checking script exchanges

Main Menu 4 > 4

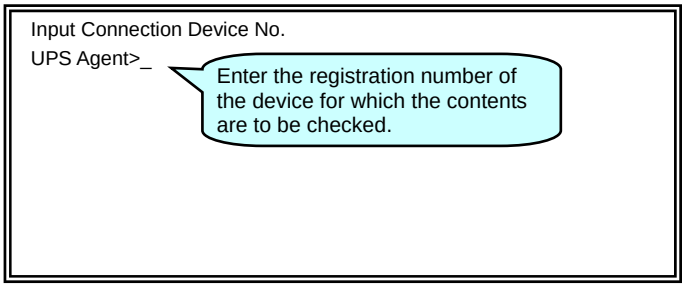
The procedure for checking the contents of script exchanges of a WS (serial), WS (Telnet connection), and WS (SSH connection) device is described below.
This function can be used to check the contents exchanged from the computer when the set-up command does not operate, or when script execution has failed.

(1) Enter "4" on the [Main Menu] screen, and then press "Enter".

The [Display Menu] screen is displayed.

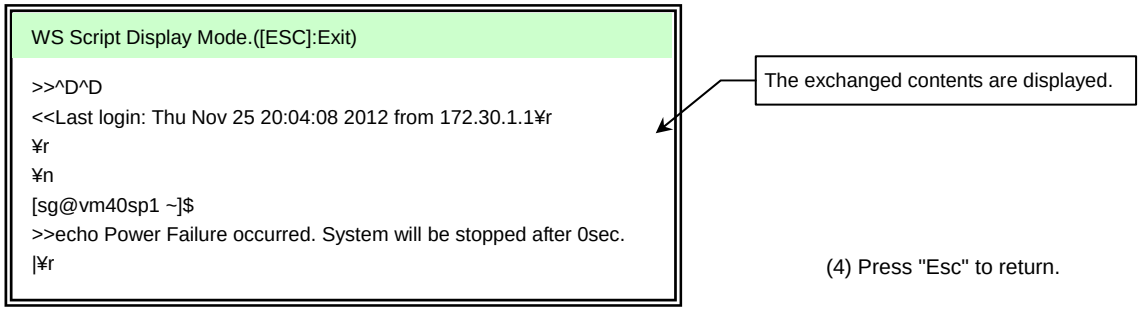


(2) Enter "4", and then press "Enter".



(3) Enter the registration number of the device for which the contents of the exchanged script are to be checked, and then press "Enter".

The contents of the exchanged script are displayed.



(4) Press "Esc" to return.

The details of the displayed symbols and character strings are described in the table below.

Symbol	Meaning	Description
>>	Send	Indicates the sending status.
<<	Receive	Indicates the receiving status.
¥r	CR	Displayed at the time of sending and receiving CR.
¥n	LF	Displayed at the time of sending and receiving LF.
^D	^D	Displayed at the time of sending and receiving ^D.
0x??	Characters that cannot be displayed	Characters that cannot be displayed are displayed in hexadecimal.

8.4.4 Checking the sensor status and measurement values

The sensor condition and the measured values are displayed by performing the operation described below.

These items are available only when the LAN interface card supports sensors and a sensor is connected.

(1) Enter "4" on the [Main Menu] screen, and then press "Enter".

Main Menu 4 > 5

The [Display Menu] screen is displayed.

```
Display Menu
1. UPS Condition/Meas. Value
2. LAN Board Information
3. Event Log
4. WS Script Monitor
5. Sensor Condition/Meas. Value
6. Exit
UPS Agent>5
```

Enter **5**

(2) Enter "5" and then press "Enter".

The sensor condition and the measured values are displayed.

```
Sensor Condition/Meas. Value
Meas.Name          : Com. State   : Meas. Value
Temp1              : Normal       : 25.5 C
Humi1              : Normal       : 45%RH


OK
== Hit Enter Key ==
```

The current measurement values of all registered sensors and the sensor information is displayed.
The display is updated at an interval of approx. 10 seconds.

(3) Press "Enter" to return.

The details of items displayed in this condition are described in the table below.

Display item	Description
Meas. Name	Measurement name the name of the measured value entered at the time of registering the sensor information is displayed.
Com. State	Sensor condition Normal : Normal communication Com. Error : Communication error Meas. Value Error : Measured value error Unknown : Not measured
Meas. Value	Measured value

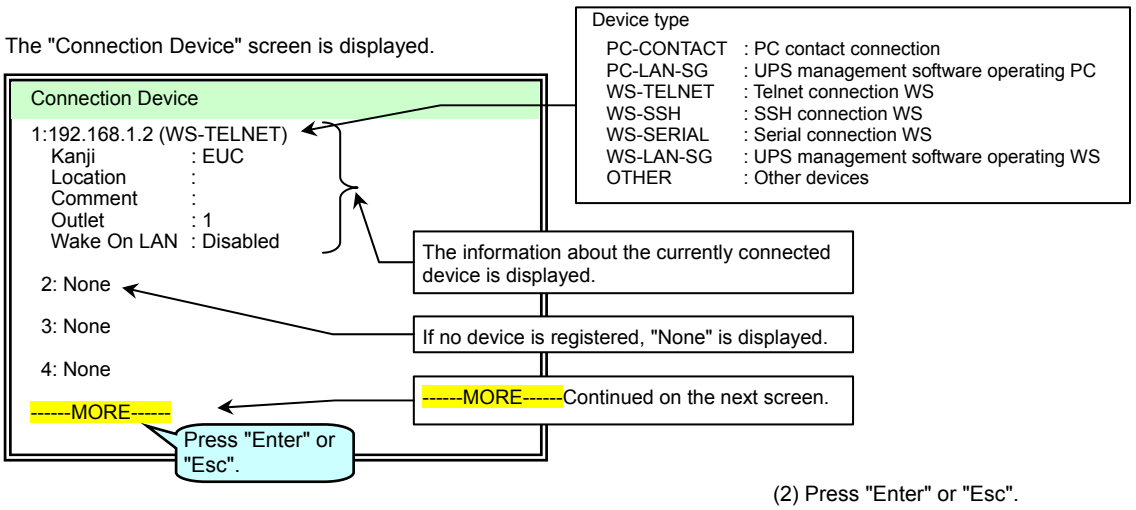
8.5 Registering, Changing, and Deleting Devices from the UPS

This section describes the procedure for registering devices to the UPS, changing the registered information, and deleting the registered information.

Main Menu 6

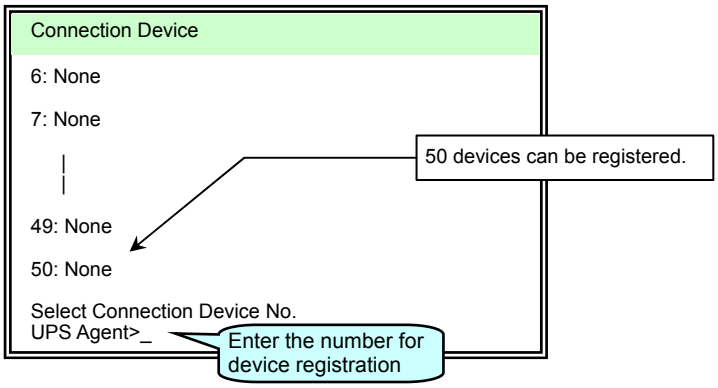
(1) Enter "6" on the "Main Menu" screen, and then press "Enter".

The "Connection Device" screen is displayed.

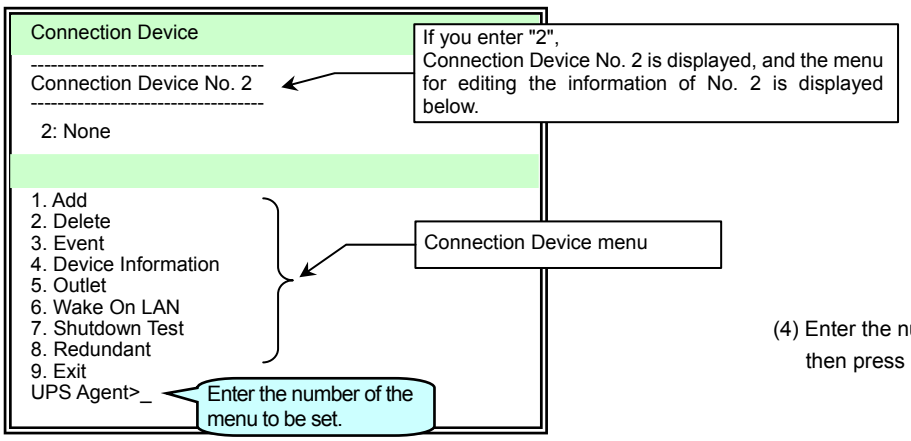


(2) Press "Enter" or "Esc".

If ------MORE------ is displayed, press "Enter" to view the next screen, and then press "Esc" to open the input screen for the device registration number.



(3) Enter the number for device registration, or the number for editing or deleting the registered information, and then press "Enter".



(4) Enter the number of the menu to be set, and then press "Enter".

Setup menu	Description
1. Add	Registers a device.
2. Delete	Deletes the information about the registered device.
3. Event	Sets the WS script during the occurrence of an event.
4. Device Information	Enter the device information (location/comment).
5. Outlet	If you are using a UPS with a power distribution control output, enter the outlet number of the UPS to be connected to.
6. Wake On LAN	Perform the settings for using the WakeOnLAN function.
7. Shutdown Test	Starts or cancels the shutdown test.
8. Redundant	Sets the necessary number of UPS in a power supply redundant system through UPS linkage.
9. Exit	Returns to the screen for setting the device number.

8.5.1 Registering devices on the UPS

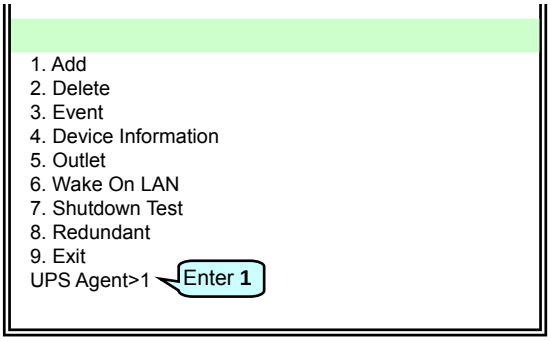
Section "7.3.2 Registering devices to be shut down on the UPS" explains how to register a "Telnet connection WS". This section, describes how to register each device type.

Registering a contact connection PC

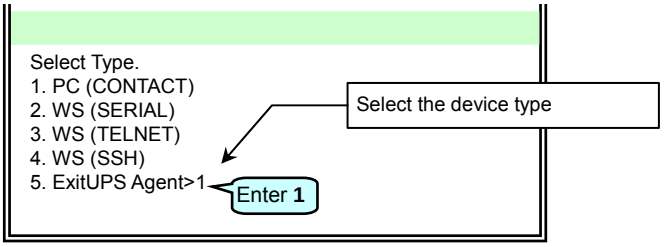
Main Menu 6 > Device No. > 1

The method of registering a "Contact connection PC" device in No. 2 is described below.

"Connection Device" screen



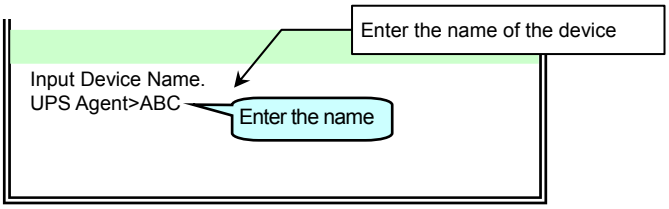
(1) Enter "2" in Step (3) on the previous page, and then press "Enter".
(2) Enter "1", and then press "Enter".



(3) Enter "1", and then press "Enter".

Caution

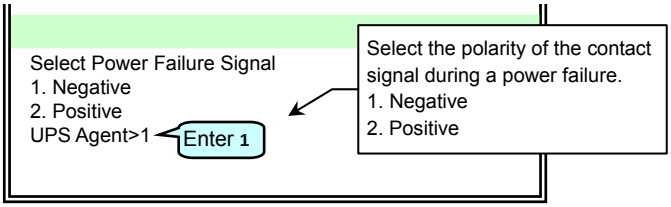
If a serial connection device is already registered, "NG (serial port was already used.)" is displayed, and a device cannot be added.



(4) Enter the name of the device, and then press "Enter".

Caution

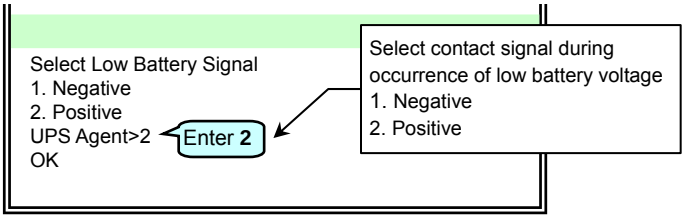
You cannot set a name that has already been registered to another device.



(5) Enter the number of the polarity of the contact signal during the occurrence of a power failure, and then press "Enter".

Caution

If you set the contact signal to "Negative", a power failure is detected when the serial communication cable is disconnected, or when the LAN interface card is reset and then started again. In order to prevent a shutdown from being executed at this time, see "Appendix A. Using the Windows Standard Service" and then make the settings.

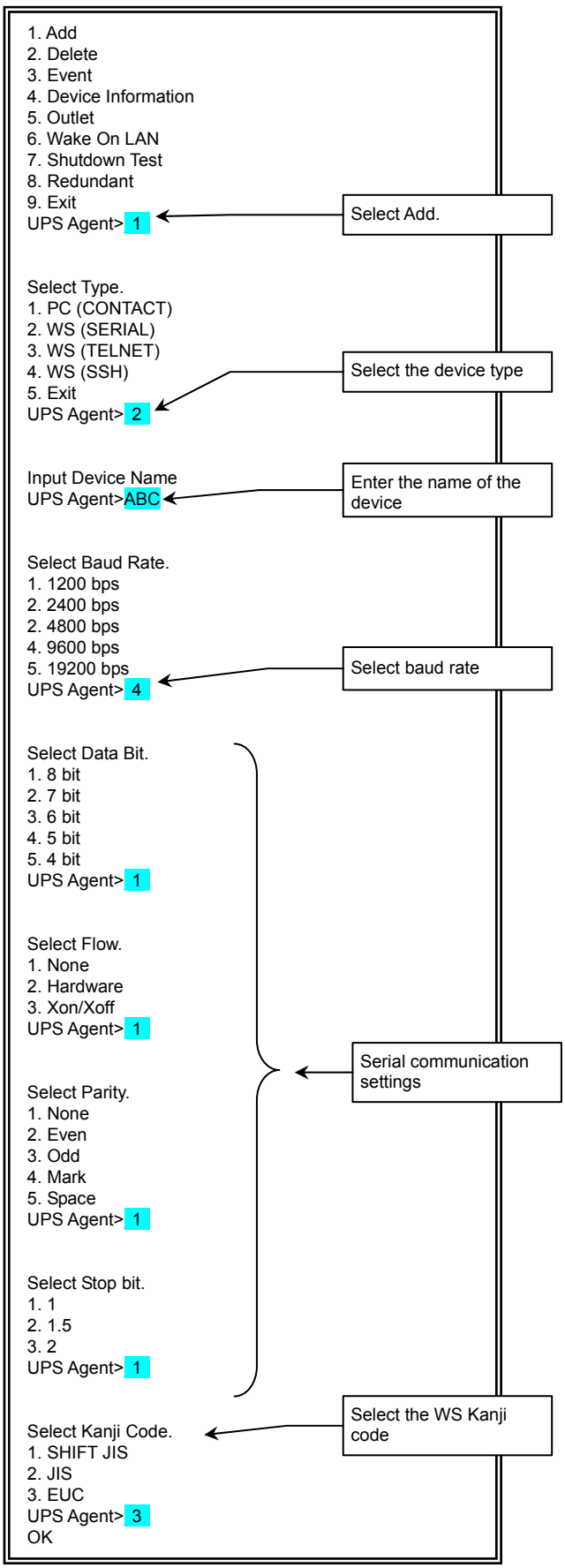


(6) Enter the number of the contact signal during the occurrence of a low battery voltage, and then press "Enter".

Registering a serial login WS

Main Menu 6 > Device No. > 1

The method of registering a "serial login WS" device in No. 3 is described below.
From here on, the screen display is shortened and explained. Enter the characters displayed in blue.



Caution

If a serial connection device is already registered, "NG (serial port was already used.)" is displayed, and a device cannot be added.

(1) Enter "3" in Step (3) on page 8-44, and then press "Enter".

(2) Enter "1", and then press "Enter".

(3) Enter "2", and then press "Enter".

(4) Enter the name of the device, and then press "Enter".

Caution

You cannot set a name that has already been registered to another device.

(5) Enter "4", and then press "Enter".

(6) Perform the settings for serial communication.
Enter the number to be set in each item, and then press "Enter".

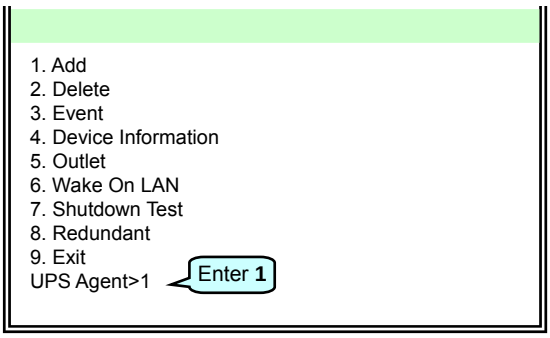
(7) Enter the number of the WS Kanji code, and then press "Enter".

Registering a Telnet connection WS

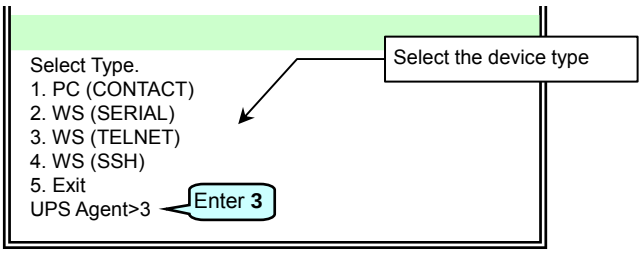
Main Menu 6 > Device No. > 1

The method of registering a "Telnet connection WS" device in No. 4 is described below.

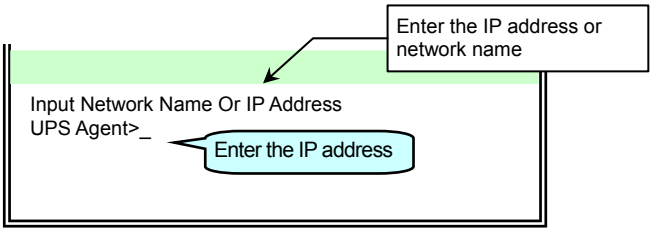
"Connection Device" screen



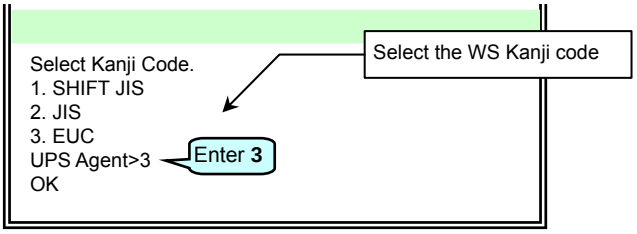
(1) Enter "4" in Step (3) on page 8-44, and then press "Enter".
(2) Enter "1", and then press "Enter".



(3) Enter "3", and then press "Enter".

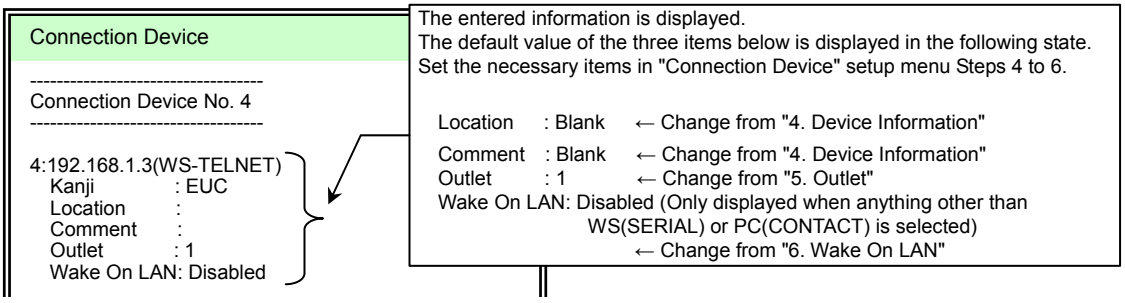


(4) Enter the IP address or network name, and then press "Enter".



(5) Enter the number of the WS Kanji code, and then press "Enter".

After entering the information, the screen shown below is displayed.

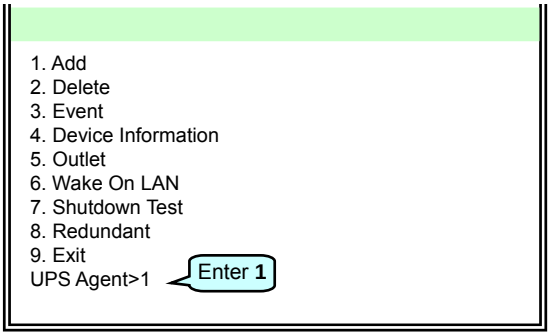


Registering a SSH connection WS

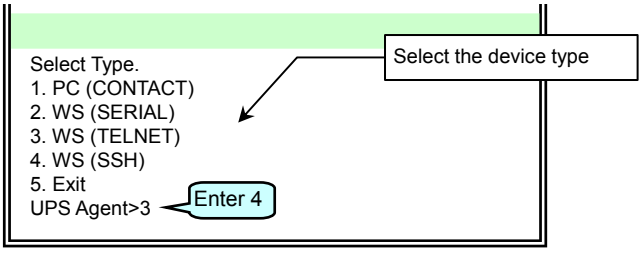
Main Menu 6 > Device No. > 1

The method of registering a "SSH connection WS" device in No. 5 is described below.

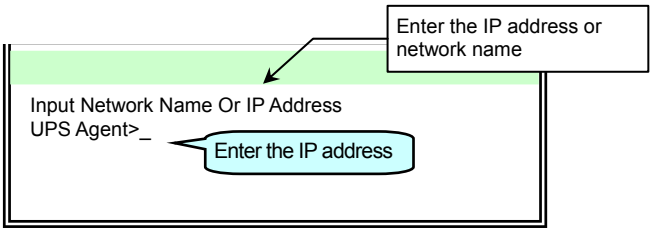
"Connection Device" screen



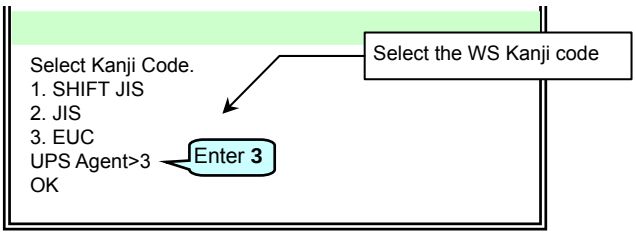
(1) Enter "5" in Step (3) on page 8-44, and then press "Enter".
(2) Enter "1", and then press "Enter".



(3) Enter "4", and then press "Enter".

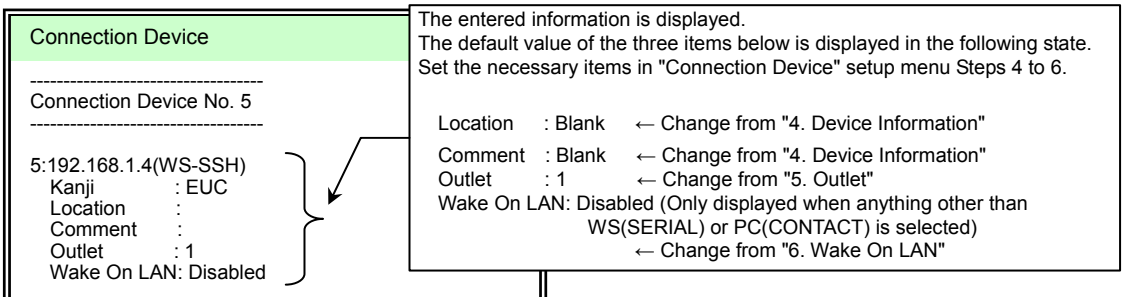


(4) Enter the IP address or network name, and then press "Enter".



(5) Enter the number of the WS Kanji code, and then press "Enter".

After entering the information, the screen shown below is displayed.



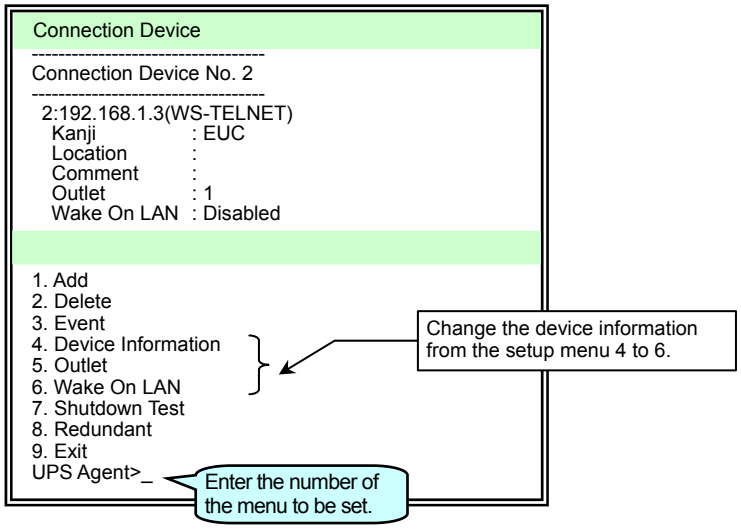
8.5.2 Changing devices registered on the UPS

You can change the default values that are set automatically when a device is registered in "8.5.1 Registering devices on the UPS".

(1) Enter "6" on the "Main Menu" screen, and then press "Enter".
(2) Enter the number of the device you want to change, and then press "Enter".

Main Menu 6 > Device No.

The "Connection Device" setup menu screen is displayed.



(3) Enter the number of the setup menu, and then press "Enter".

Setup menu	Description
4. Device Information	Enter the device location and comment.
5. Outlet	If you are using a UPS that has a power distribution control output, set the outlet of the UPS with which the selected device is to be connected. 1: OUTPUT1 2: OUTPUT2 0: OUTPUT0 (normal output)
6. Wake On LAN	Set whether or not Wake On LAN is used. See "8.5.4 Configuring the Wake On LAN function". “PC(CONTACT)” and “WS(SERIAL)” are not supported.

Caution

- You cannot change items other than setup menu 4 to 6 of the registered device. To change such items, first delete the registered information, and then register again.

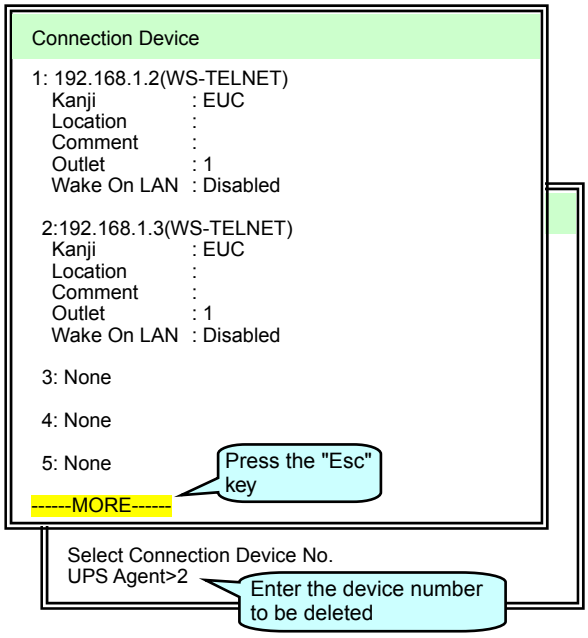
8.5.3 Deleting device information registered in the UPS

Delete the registered information of the device connected to the UPS.

Main Menu 6 > Device No. > 1

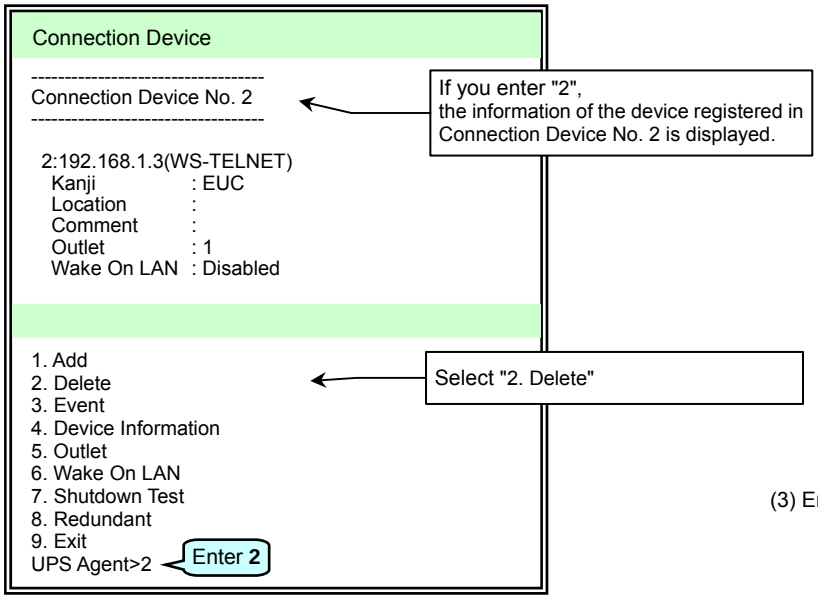
(1) Enter "6" on the "Main Menu" screen, and then press "Enter".

The "Connection Device" screen is displayed.

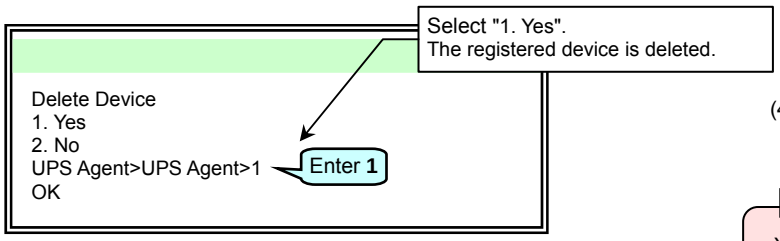


If ------MORE------ is displayed, press "Enter" to view the next screen, and press "Esc" to view the input screen for device registration number.

(2) Enter the number of the registered device to be deleted, and then press "Enter".



(3) Enter "2", and then press "Enter".



(4) Enter "1" on the confirmation screen, and then press "Enter".

Caution

- You cannot recover registered information once it has been deleted.
- You cannot use this function to delete information on a device on which the UPS management software is operating. Perform the operation with the UPS management software.

8.5.4 Configuring the Wake On LAN function

Main Menu 6 > Device No. > 6

You can use this function only when the connection device is "WS (TELNET): Telnet connection WS" or "WS (SSH): SSH connection WS". For details, see "5.1.4 Configuring the Wake On LAN function" of the Web Management Tool.

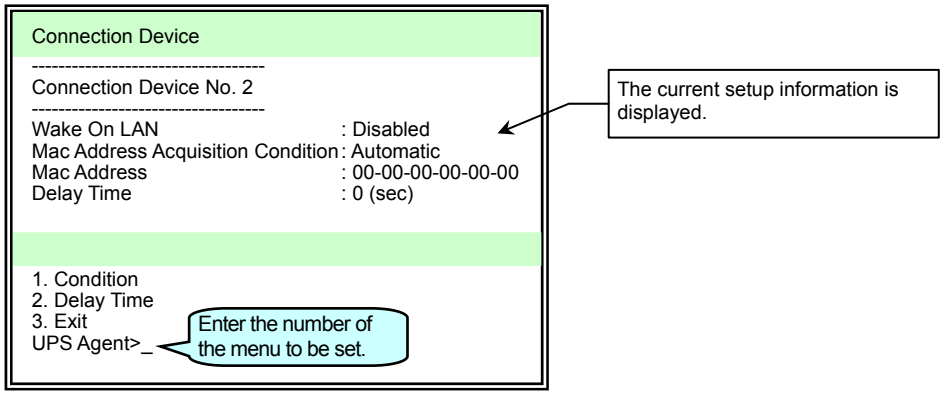
About Wake On LAN...

This function starts up a networked computer from another computer via the network.
The computer starts up when it receives the "magic packet". This must be supported by the computer hardware such as the network card, mother board, and BIOS for this function to be available.

About the Wake On LAN function of the UPS...

If Wake On LAN is set to "Enabled" when registering a device connected to the UPS, a "magic packet" is sent to the device when the UPS output is turned ON, or after the delay time if "sending delaying time" is specified.

(1) Enter "6" on the "Main Menu" screen, and then press "Enter".
(2) Enter the number of the device you want to change, and then press "Enter".
(3) Select the setup menu "6. Wake On LAN", and then press "Enter".



Setup menu	Description			
1. Condition	Select Wake On LAN Condition. : Set Wake On LAN to Enabled or Disabled.			
	1. Disabled			
	2. Enabled	Select Mac Address Acquisition Condition. Set the method of acquiring the MAC address.		
		1. Automatic	Automatic acquisition*	—
		2. Fixation	Manual setting	Input MAC Address.([XX XX XX XX XX XX]) Enter the address.
2. Delay Time	Input Delay Time. : Enter the delay time (seconds).			
3. Exit	Return to the previous menu.			

*Caution

If the method of acquiring the MAC address is set to "1. Automatic", after making the settings, make sure the correct address is displayed in the "Mac Address" for the current setup information. If "00-00-00-00-00-00" is displayed, it indicates that the MAC address has not been acquired properly. Make the settings manually.

8.5.5 Testing shutdown of registered devices

Main Menu 6 > Device No. > 7

You can execute or cancel a shutdown test for registered devices.
The shutdown test can be started or cancelled from the setup menu "7. Shutdown test" for devices other than "OTHER: ETC". Check the execution result on the actual device. For details on the shutdown test, see "5.1.5 Performing a shutdown test for the registered devices" for the Web Management Tool.

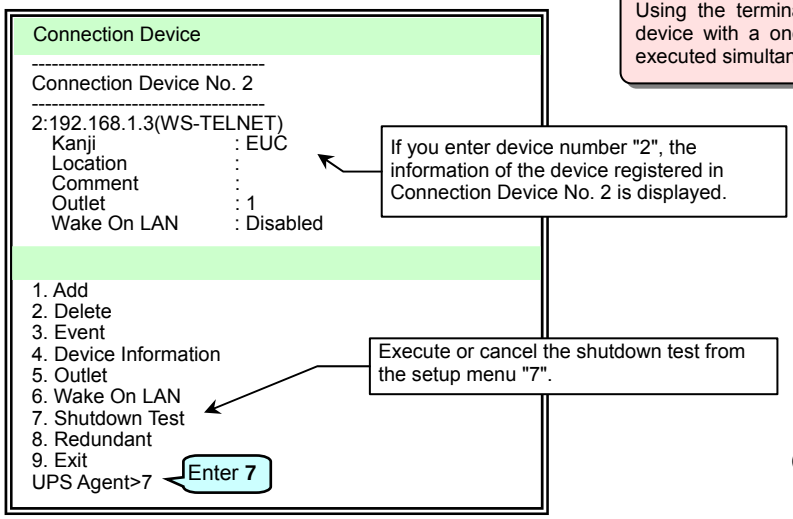
(1) Enter "6" on the "Main Menu" screen, and then press "Enter".

(2) Enter the number of the device for which the shutdown test is to be executed, and then press "Enter".

The "Connection Device" screen is displayed.

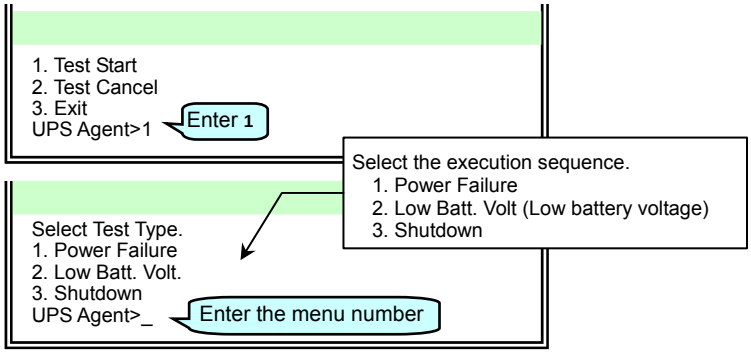
Restrictions on the shutdown test of the terminal tool

Using the terminal tool, the shutdown test is executed for one device with a one-time operation. The shutdown test cannot be executed simultaneously for several devices.



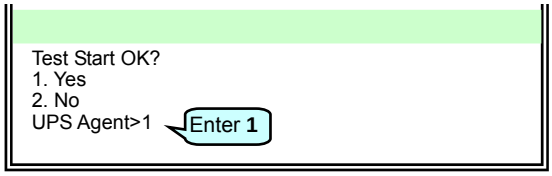
(3) Enter "7", and then press "Enter".

When the shutdown test is to be executed



(4) Enter "1", and then press "Enter".

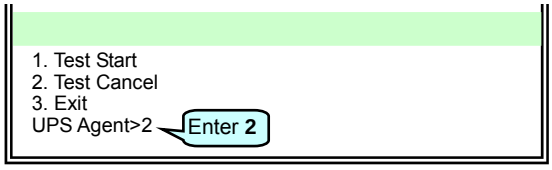
(5) Enter the number to be set, and then press "Enter".



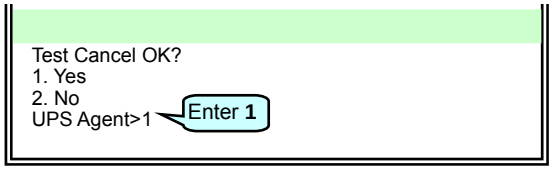
(6) Enter "1", and then press "Enter".

(7) From the event log, check if the test has been executed normally.
See "8.4.2 Checking the UPS event log" and check the test results.

When the shutdown test is to be canceled



(4) Enter "2", and then press "Enter".



(5) Enter "1", and then press "Enter".

8.6 Configuring Scripts

Main Menu 6 > Device No. > 3

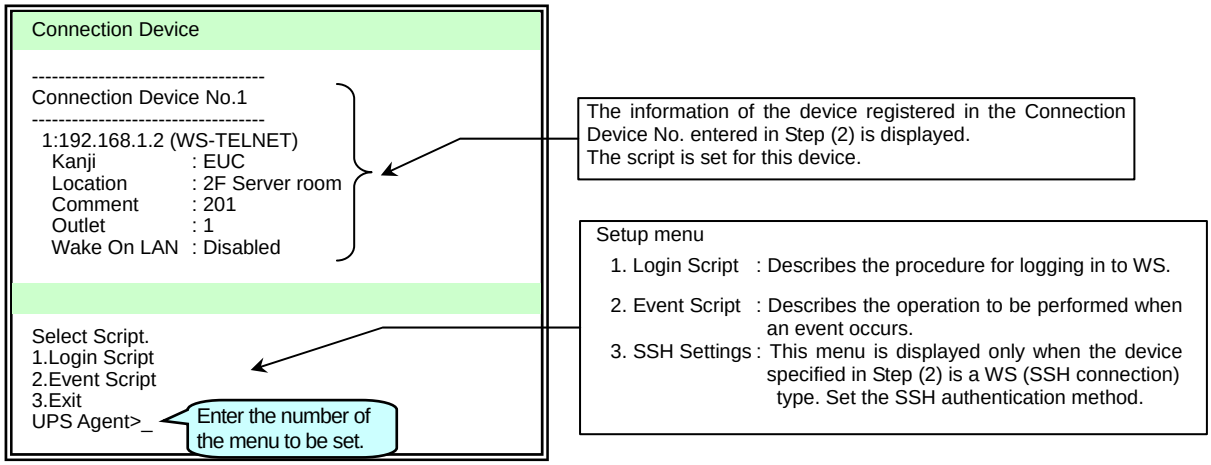
Set the script executed during the occurrence of an event for the registered WS.
This function allows you to set the shutdown operation when a power failure occurs, and the content of messages sent when a power failure occurs.

About script...

"Scripts" are descriptions of a series of operations such as transmitting commands to computers. They are different from shell scripts in UNIX.

(1) Enter "6" on the [Main Menu], screen and then press "Enter".
(2) Enter the number of the device to be set, and then press "Enter".
(3) Enter Event "3", and then press "Enter".

The screen for setting the script is displayed.



(4) Enter the number of the menu to be set, and then press "Enter".

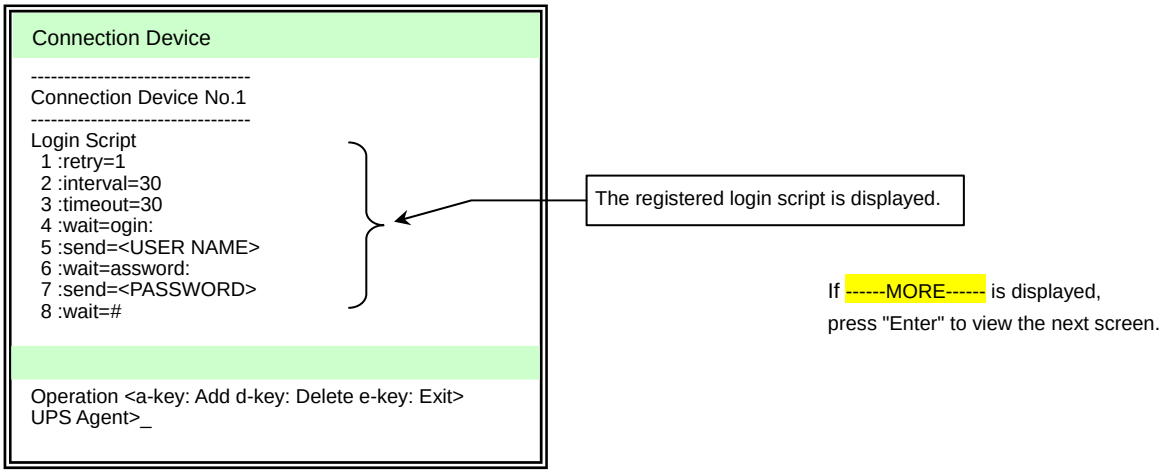
For details on the setup method, see the respective items on the next page and thereafter.

8.6.1 Configuring login scripts

Main menu 6 > Device No. > 3 > 1

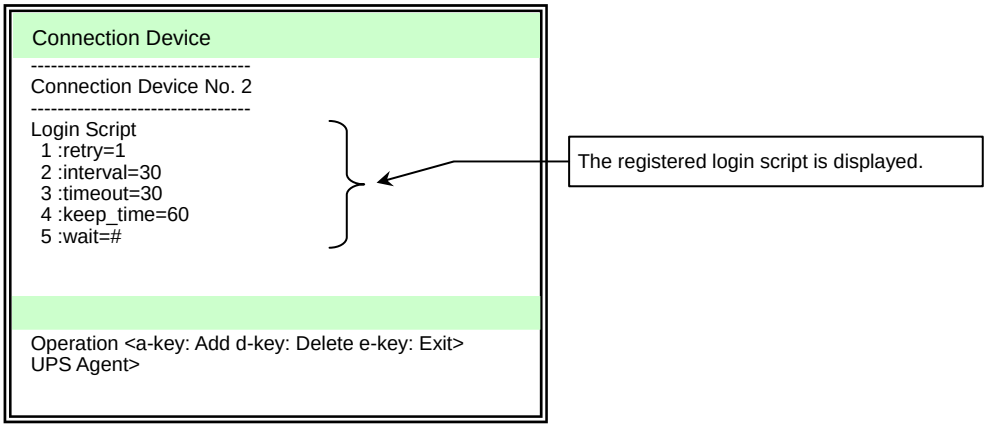
You can set the WS login operation during the execution of the event script.
The default settings of the login script are described in the figure below. Edit the settings according to your environment and purpose of use.
If you have edited the settings in "7.3.3.1 Configuring login scripts", the state after editing is displayed.

Screen for a WS (Telnet) / WS (LAN I/F card login connection)



Line	Login script	Description	
1	retry=1	Specify the number of retries when the script has failed to execute.	Operational configurations of the login script.
2	interval=30	Specify the interval between retries.	
3	timeout=30	Specify the maximum wait time before receiving data in items with "wait=".	
4	wait=ogin:	Specify the wait time for the login name.	Login name entry.
5	send=<USER NAME>	Send the login name.	
6	wait=assword:	Specify the wait time for the password.	Password entry.
7	send=<PASSWORD>	Send the password.	
8	wait=#	Specify the wait time for completing logging in to the WS.(Waiting for the prompt display)	Waiting time for the login process completion. ("#" prompt is displayed when the login is successful)

Screen for a WS (SSH)



Line	Login script	Description
1	retry=1	Specify the number of retries when the script has failed to execute.
2	interval=30	Specify the interval between retries.
3	timeout=30	Specify the maximum wait time before receiving data in items with "wait=".
4	keep_time=60	Specify the duration of the logged-in status.
5	wait=#	Specify the wait time for completing logging in to the WS. (Waiting for the prompt display)

Point

Account settings are not required in the WS login procedure for WS(SSH) since the account is specified in SSH authentication settings (see "8.6.5 Configuring SSH authentication").

Use the commands described in the "List of available commands" in the table below to describe the login script.

Notes on command entry

Specify within 510 single-byte characters. Whether or not to enter a space before and after "=" does not affect the process.

List of available commands

Command name	Description	Example
send	Specify the text to send to the WS.	send=shutdown
wait	Specify the text (prompt etc.) to receive at the UPS.	wait=login
sleep	Specify the standby time without performing any processes. Unit: seconds (s)	sleep=90
timeout	Specify the wait time for the process to finish after executing a process. Unit: Seconds. Default: 30 seconds	timeout=60
retry	Specify the number of retries when the script has failed to execute. Unit: Times (0 to 10). Default: 1	retry=2
interval	Specify the interval between retries when the script has failed to execute. Unit: Seconds (1 to 60). Default: 30 seconds	interval=10
port	Specifies the Telnet or SSH port number of the WS. Valid range: 0 to 65,535 If the value is omitted, use the following port numbers: WS (Telnet connection) ... 23 WS (SSH connection) ... 22	port=10023
cr_only	Specify the line feed code to be <CR>. Specify yes or no. The line feed code in any subsequent transmission data becomes <CR> if you specify yes. yes is assumed when omitted. (The line feed code is <CR>.)	cr only=yes cr only=no
binsend	Specify the 8-bit code to send to the WS. Valid range Hexadecimal view: x00 to xff Octal view: 000 to 377	Hexadecimal view binsend=x07 Octal view binsend=004
keep_time	Specify the duration of the logged-in status. The UPS is not logged off for the specified duration after completing the previous WS script. You can execute other WS scripts without logging in to WS. Valid range: 0 to 65,535 The following duration is used if omitted. WS(Telnet): 0 second WS(SSH): 0 second WS (LAN I/F card Log-in connection): 60 seconds	keep_time=120

When you cannot log in with superuser (root) privileges...

You may not be able to log in with superuser (root) privileges in some environments.
In this situation, use a "su" command to execute the command as the root user.

The following table shows an example of login scripts when using the "su" command.
This example assumes the user (user name: guest, password: guest) and root (password: root).
.

WS(Telnet) / WS (LAN I/F card login connection)

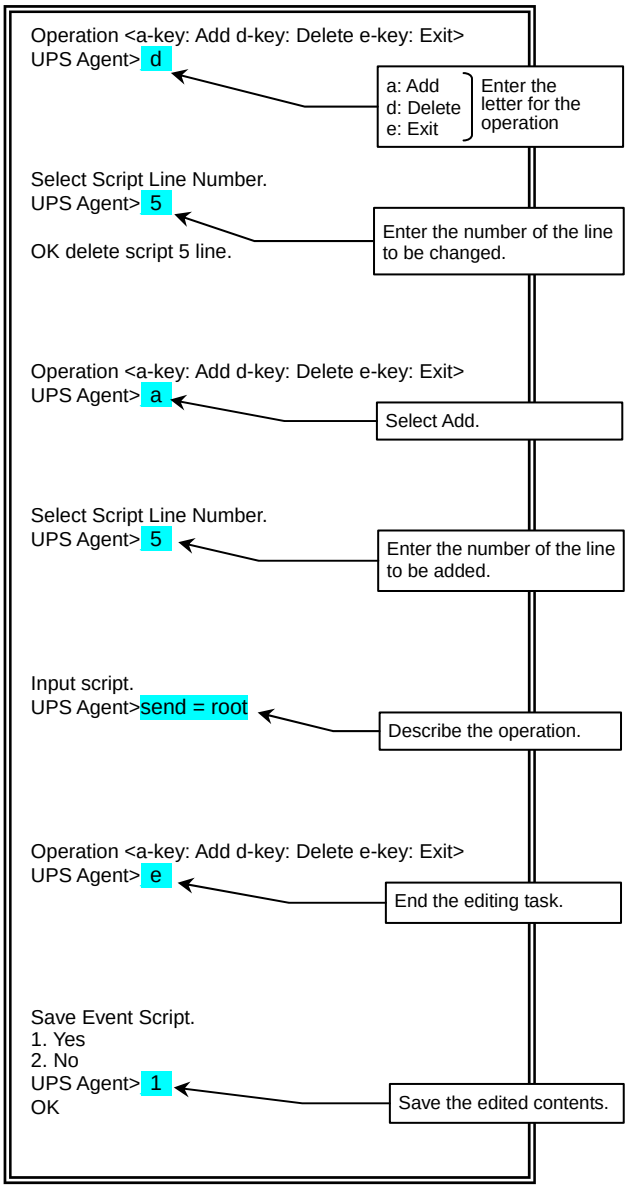
Line	Login script	Description
1	retry=1	Operational configurations of the login script.
2	interval=30	
3	timeout=30	
4	wait=ogin:	Log in as a user "guest".
5	send=guest	Enter the login name "guest".
6	wait=assword:	Enter the password of the user "guest".
7	send=guest	Enter the password "guest".
8	wait=$	Wait for the $ prompt after the login.
9	send=su	Send the "su" command and execute it.
10	wait=assword:	Enter the password of root.
11	send=root	Enter the password "root".
12	wait=#	Wait for the # prompt after logging in as root.

Editing the login script

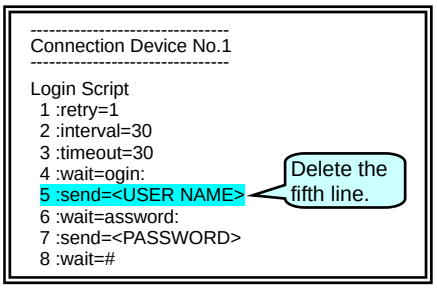
Main Menu 6 > Device No. > 3 > 1

Change the login script.
This example uses a case of changing the coding of the fifth line of the login script of the device with registration No. 1 from send=<USER NAME> to send=root.

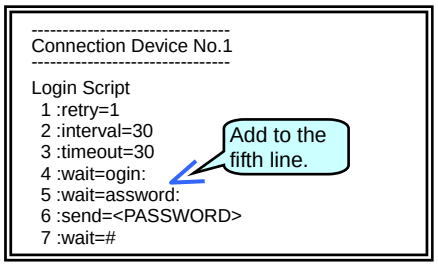
This is a continuation of the state when "1" is entered in the operation described in Step (4) on page 8-52, and the setup screen for the login script is displayed.
From here on, the screen display is shortened and explained. Enter the characters displayed in blue.



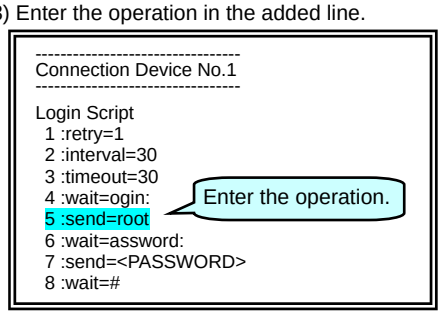
(1) Delete the line to be changed.



(2) Add the line to be changed.

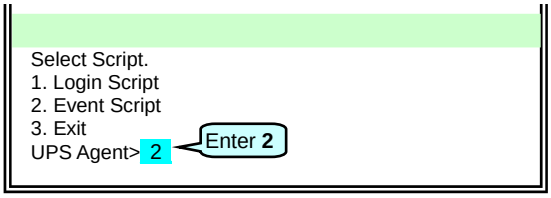


(3) Enter the operation in the added line.



(4) Save the edited contents.

Return to the screen for setting the script.



(5) To set an event script,
enter "2" and then press "Enter".

Go to Step (1) on page 8-57, and then edit the event script.

8.6.2 Configuring event scripts

Enter the script operation to be performed in WS for each event.
The commands used in an event script are described in the table below.

Notes on command entry

Specify within 598 single-byte characters.
Whether or not to enter a space before and after "=" does not affect the process.

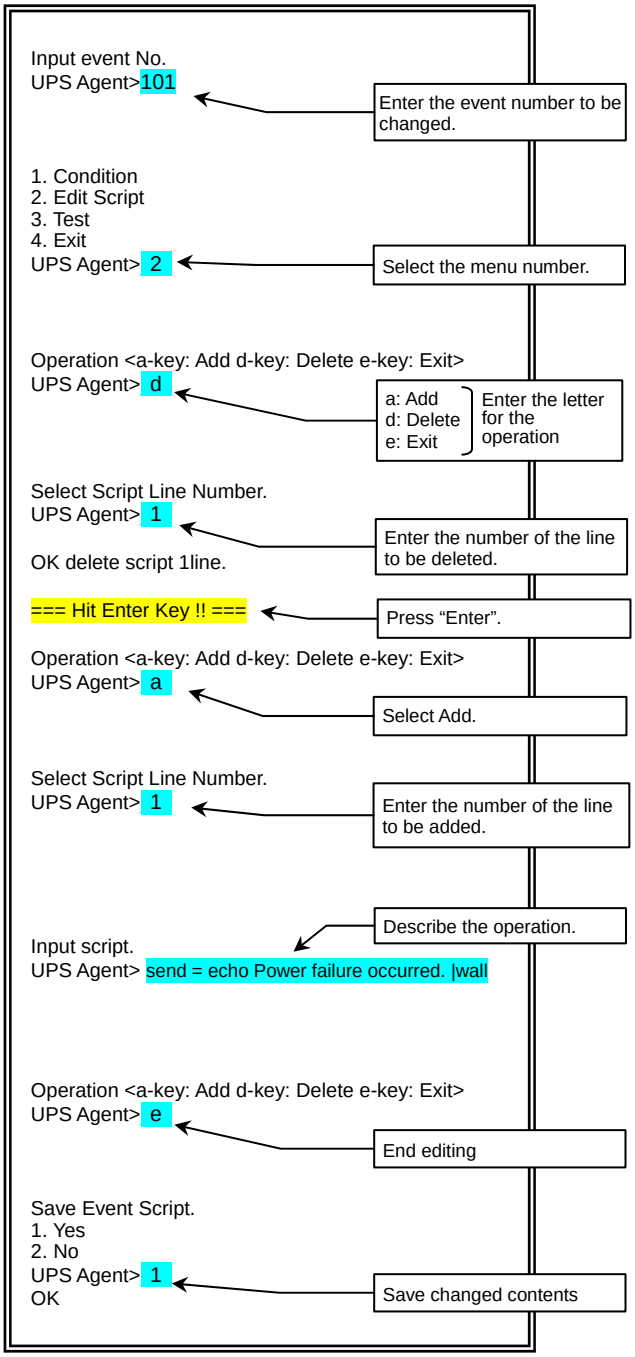
Command name	Description	Example
send	Specify the text to send to the WS.	send=shutdown
wait	Specify the text (prompt) to receive at the UPS.	wait=login
sleep	Specify the standby time without performing any processes. Unit: seconds (s)	sleep=90
timeout	Specify the wait time for the process to finish after executing a process. Unit: Seconds. Default: 30 seconds	timeout=60
retry	Specify the number of retries when the script has failed to execute. Unit: Times (0 to 10). Default: 1	retry=2
interval	Specify the interval between retries when the script has failed to execute. Unit: Seconds (1 to 60). Default: 30 seconds	interval=10
cr_only	Specify the line feed code to be <CR>. Specify yes or no. The line feed code in any subsequent transmission data becomes <CR> if you specify yes. yes is assumed when omitted. (The line feed code is <CR>.)	cr_only=yes cr_only=no
binsend	Specify the 8-bit code to send to the WS. Valid range Hexadecimal view: x00 to xff Octal view: 000 to 377	Hexadecimal view binsend=x07 Octal view binsend=004
delay	Specify the delay time for executing the script. The login script is executed after the specified delay time and then the event script is executed if "delay" are specified in the event script.	delay=60
keep_time	Specify the duration of the logged-in status. The UPS is not logged off for the specified duration after completing the previous WS script. You can execute other WS scripts without logging in to WS. Valid range: 0 to 65,535 The following duration is used if omitted. WS(Telnet): 0 second WS(SSH): 0 second WS (LAN I/F card Log-in connection): 60 seconds	keep_time=120

Editing the event script

Main menu 6 > Device No. > 3 > 2

This section explains how to change the content of a message sent when a power failure occurs through the event script of the "Power failure" event No. 101 of the device with registration number 1.

This is a continuation of the state when "2" is entered in the operation described in Step (4) on page 8-53, or when "2" is entered in the operation described in Step (5) on page 8-56, and the setup screen of the event script is displayed.
From here on, the screen display is shortened and explained. Enter the characters displayed in blue.



About the event number

Enter the event number with reference to "Appendix B. LIST OF UPS EVENTS."

(1) Enter event No. "101" of "Power failure".

(2) Select the menu to be set.

(3) Delete the line to be changed.

```
----------------------
Event No. 0101
----------------------
Condition     :ON
Event Script
  1 :send = echo Power failure occurred. System will be stopped after %STOP_TIME_S% sec. and %STOP_TIME_M%min. |wall
  2 :sleep=5
```

Delete

(4) Add the line to be changed.

```
----------------------
Event No. 0101
----------------------
Condition     : ON
Event Script
  1 :sleep=5
```

Add to the first line.

(5) Enter the operation in the added line.

```
----------------------
Event No. 0101
----------------------
Condition     : ON
Event Script
  1 :send=echo Power failure occurred. |wall
  2 :sleep=5
```

Enter the operation.

(6) Save the edited contents.

```
----------------------
Event No. 0101
----------------------
Condition     : ON
Event Script
  1 :send=echo Power failure occurred. |wall
  2 :sleep=5
```

Point

You can use macro characters in the text you are sending. See ”5.5.3.3 Available macro characters for scripts” for details.

8.6.3 Enabling and disabling event scripts

Main Menu 6 > Device No. > 3 > 2 > Event No. > 1

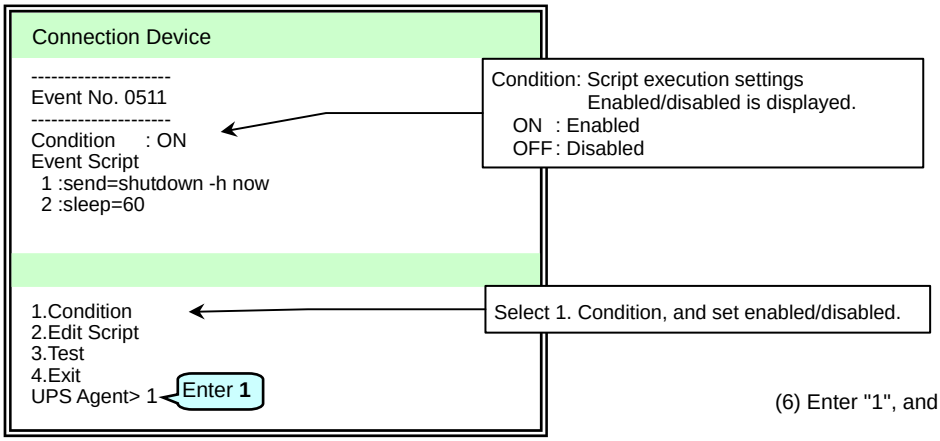
For some events, the default value of the script execution condition is set to "Disabled."
If "Disabled" is set, the script is not executed even if set. Set Enabled/Disabled according to your system environment and purpose of use.

This section provides an example of setting enabled/disabled for the event script of "Shutdown execution" event No. 0511 for a device with the registration number 1.

About the event number

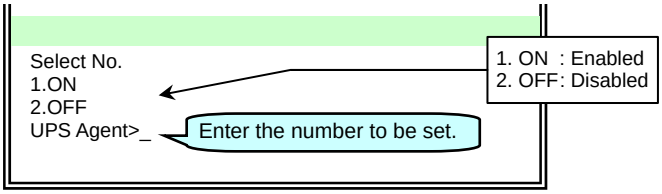
Enter the event number with reference to "Appendix B. LIST OF UPS EVENTS."

(1) Enter "6" on the [Main Menu] screen, and then press "Enter".
(2) Enter the number of the device to be set, and then press "Enter".
(3) Enter Event "3", and then press "Enter".
(4) Enter Event Script "2", and then press "Enter".
(5) Enter Event No. "511", and then press "Enter".



(6) Enter "1", and then press "Enter".

The screen for setting enabled/disabled is displayed.



(7) Enter the number to be set, and then press "Enter".

If the set script is not to be executed for the time being, set [2.OFF] disabled.

8.6.4 Testing event script operations

Main Menu 6 > Device No. > 3 > 2 > Event No. > 3

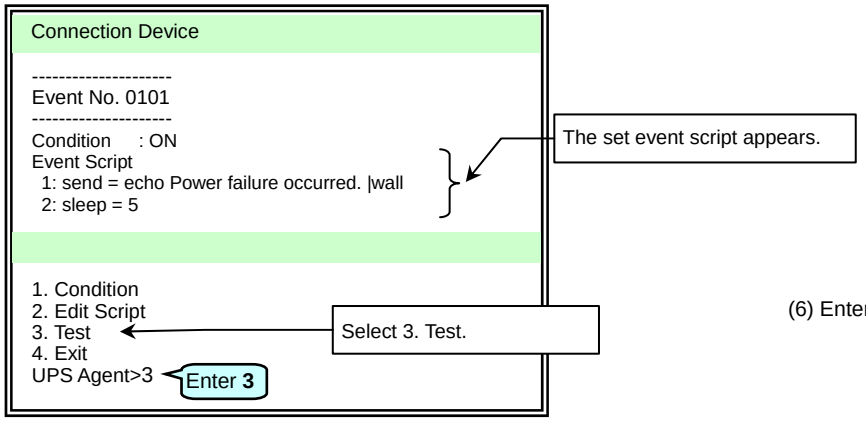
Test if the script that has been set can be executed. The execution results are recorded in an event log.

This section provides an example of how to test the event script of "Power failure" event No. 0101 for a device with the registration number 1.

About the event number

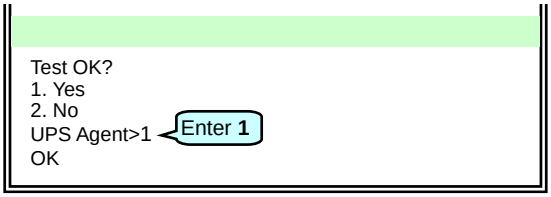
Enter the event number with reference to "Appendix B. LIST OF UPS EVENTS."

(1) Enter "6" on the [Main Menu] screen, and then press "Enter".
(2) Enter the number of the device to be set, and then press "Enter".
(3) Enter Event "3", and then press "Enter".
(4) Enter Event Script "2", and then press "Enter".
(5) Enter Event No. "101", and then press "Enter".



(6) Enter "3", and then press "Enter".

The execution of the test is checked.



(7) Enter "1", and then press "Enter".

The test is executed.

(8) From the event log, check if the test has been executed normally.
See "8.4.2 Checking the UPS event log" and check the test results.

About the test results

The test results are recorded in the event log. However, unless the event log recording conditions are set to "Enabled", the result is not recorded. Depending on the event, the default setting may be "Disabled". Therefore, see "8.7.1 Configuring event log recording conditions " and set "2. All Enabled".

For details on the displayed contents when the test results in an "Error", see "Script test results" on page 5-44.
A "Successful" test result does not indicate that the set command was successful, but indicates that the operation set in the script is complete in general.
Even if the test is "Normal", command execution might fail on the WS side due to reasons such as the path of the set command is not followed or the input characters of the command are wrong. Check the result of the set command execution from the actual condition of the device.

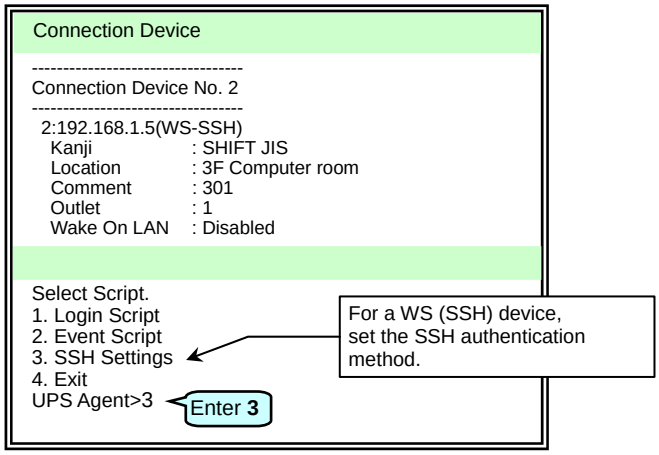
8.6.5 Configuring SSH authentication

Main Menu 6 > Device No. > 3

For a WS (SSH), the setup menu for the SSH authentication method (3. SSH Settings) is displayed.
Set the SSH authentication method (use authentication/public key authentication.)

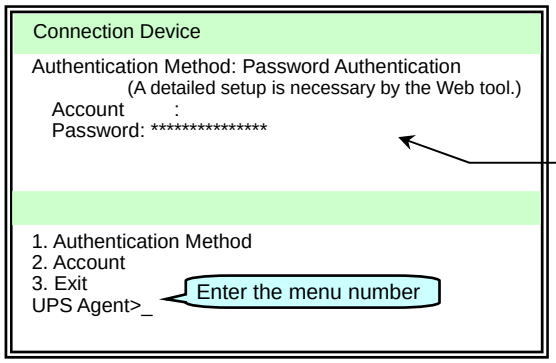
(1) Enter the number of the device to be set, and then press "Enter".
(2) Enter Event "3", and then press "Enter".

The screen for setting the script is displayed.



(3) Enter "3", and then press "Enter".

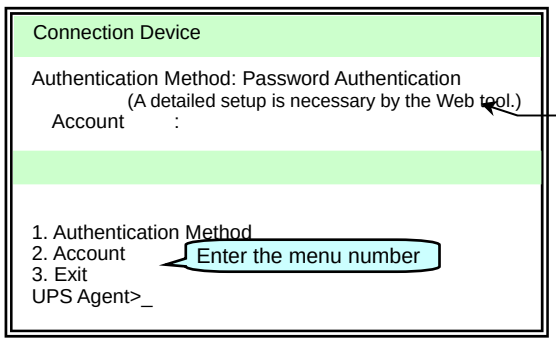
The setup screen shown in the figure below is displayed.



(4) From the setup menu, set the SSH authentication method.

Caution

You cannot set the key for host authentication/user authentication from the tool for serial (Telnet/SSH)terminal. Use the Web Management Tool to set the key.



Setup menu	Description	
1. Authentication Method	Set the SSH authentication method. (user authentication/public key authentication)	
	1. Password	Select when password authentication is used. (Default setup value)
	2.Challenge Responce	Select when challenge Responce authentication is used.
	3. Public Key	Select when public key authentication is used.
2. Account	Set the account/password for user authentication, and the account for public key authentication.	
3. Exit	Returns to the [Event" menu].	

8.7 Configuring Events

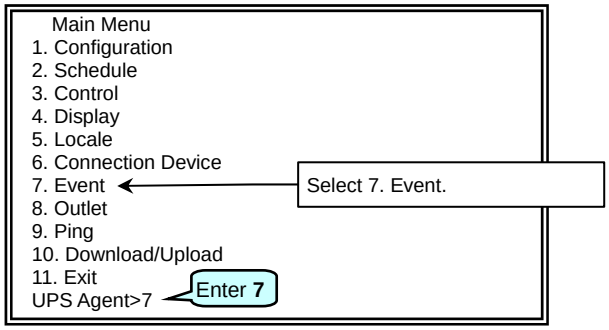
You can set the event log recording conditions and the e-mail sending conditions used when an event occurs.

To set event script, select the Main Menu [6. Connection Device], and then [3. Event]. See "8.6.2 Configuring event scripts".
You can check the event log from the Main Menu [4. Display], under [3. Event Log]. See "8.4.2 Checking the UPS event log".

8.7.1 Configuring event log recording conditions

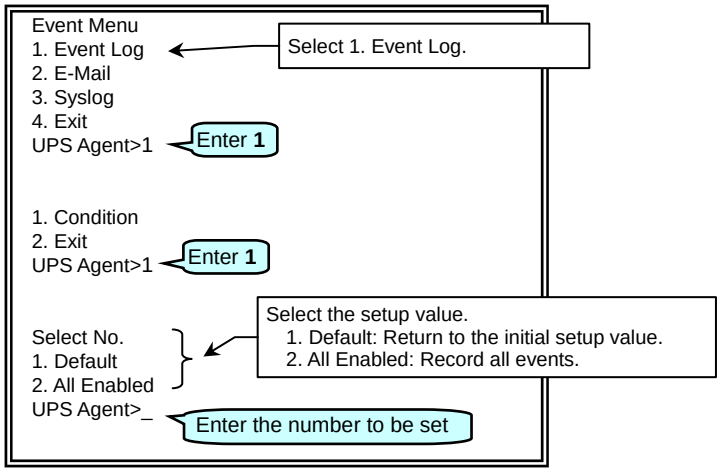
Set the event log recording conditions.

Main Menu 7 > 1



(1) Enter "7" on the [Main Menu] screen, and then press "Enter".

The [Event Menu] setup menu screen is displayed.
From here on, the screen display is shortened and explained.



Caution

If you want to set recording conditions for individual events, use the Management Tool from the Web browser.

(2) Enter "1", and then press "Enter".

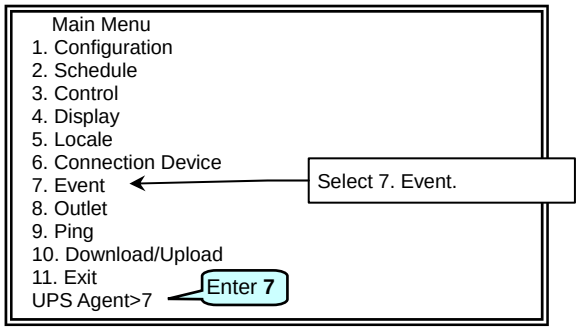
(3) Enter "1", and then press "Enter".

(4) Enter the number to be set, and then press "Enter".

8.7.2 Configuring event notification e-mail transmissions

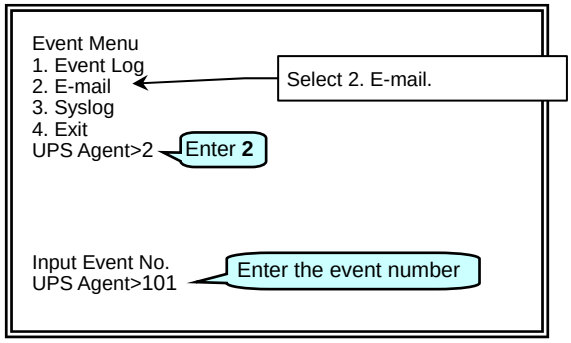
Set the conditions for the E-mail sent when an event occurs.

Main Menu 7 > 2



(1) Enter "7" on the [Main Menu] screen, and then press "Enter".

The [Event Menu] setup menu screen is displayed.



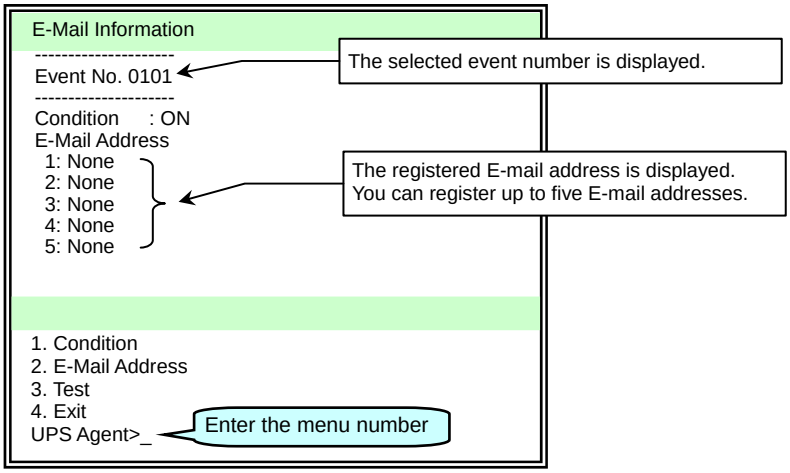
(2) Enter "2". and then press "Enter".

(3) Enter the event number, and then press "Enter".

About the event number

Enter the event number with reference to "Appendix B. LIST OF UPS EVENTS."

The [E-Mail Information] screen is displayed.



(4) Set the E-mail sending conditions.

Setup menu	Description		
1. Condition	Select No.: Set whether or not to send an e-mail.		
	1. On	Enabled: E-mail is sent.	
	2. Off	Disabled: E-mail is not sent.	
2. E-Mail Address	Select E-Mail Address No.: Select the number to which you want to set the E-mail address from the numbers 1 to 5 displayed in the upper column.		
	1-5	1. Add	Enter the E-mail address.
		2. Delete	Delete the registered address.
		3. Exit	Return to the previous menu.
3. Test	Send a test e-mail to the set address.		
4. Exit	Return to the previous menu.		

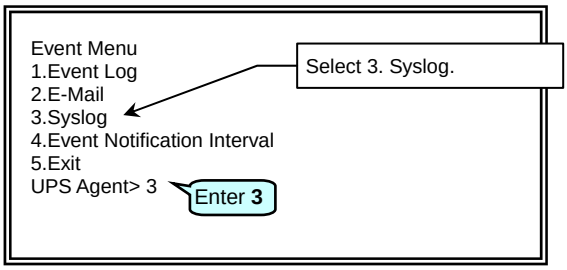
8.7.3 Configuring syslog notifications

Main Menu 7 > 3

Set the conditions for sending notification of the event log from the UPS to the syslog server when an event occurs.

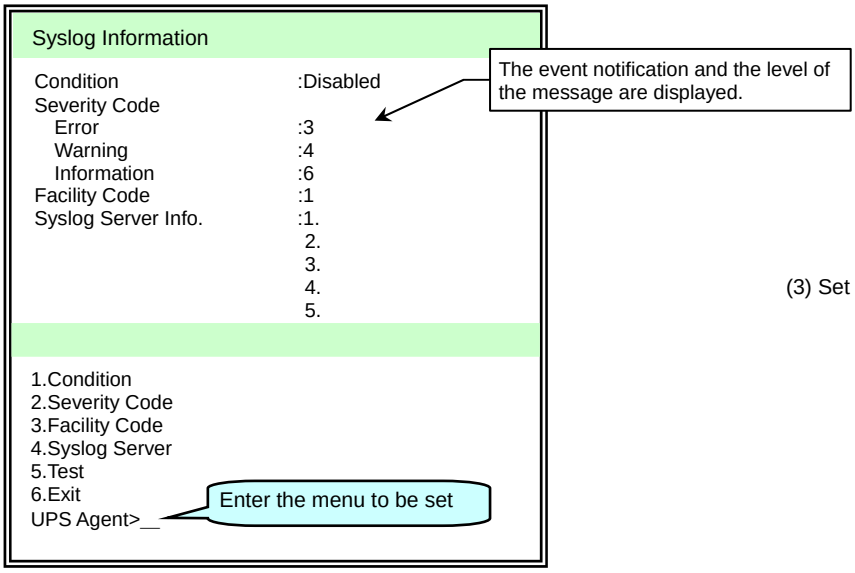
(1) Enter "7" on the Main Menu screen, and then press "Enter".

The [Event Menu] setup menu screen is displayed.



(2) Enter "3", and then press the "Enter". key.

The [Syslog Information] screen is displayed.



(3) Set the condition.

Setup menu	Description	
1. Condition	Set whether or not to notify the syslog server.	
	1. Enabled	
	2. Disabled	
2. Severity Code	Select the type of events that send notifications to the syslog server. Make the setting based on "RFC3164".	
	1. Error	
	2. Warning	
	3. Information	
3. Facility Code	Set the message code to be sent from the UPS to the syslog server. Make the setting based on "RFC3164".	
4. Syslog Server	Select a number from 1 to 5, and set the address of the syslog server that will receive notification of the event. Information for the servers registered in 1 to 5 in the upper column is displayed.	
	1. Add	Enter the address of the server and register as a new server.
	2. Delete	Delete the registered address.
	3. Exit	Return to the previous menu.
5. Test	Execute a syslog sending test for the set address.	
6. Exit	Return to the previous menu.	

Caution

When "All Enabled" is set in "8.7.1 Configuring event log recording conditions", the syslog server is notified when all events occur.
When "Default" is set, the syslog server is notified when an event occurs for which the initial setting in the event log recording conditions is set to "enabled".

8.7.4 Configuring event notification intervals

Main Menu 7 > 4

You can specify the intervals (days) between event notifications when the following events are occurring repeatedly.

- Battery life
- Major breakdown
- Minor breakdown
- Batt.-replace warning time

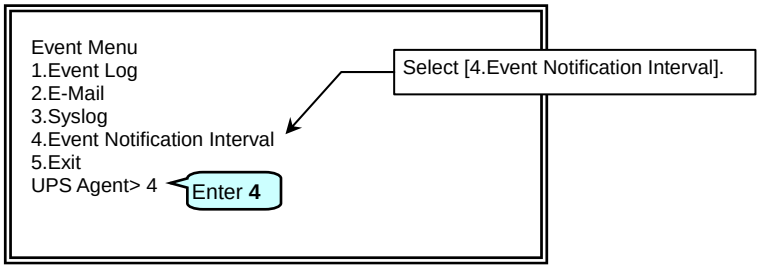
Caution

You need to configure as follows to receive event notifications.

- Specify [Enable] for [Condition of Event-Log operation].
- Specify [E-mail] for [Event Settings] receive the events via e-mail. See "8.7.2 Configuring event notification e-mail transmissions" for details.

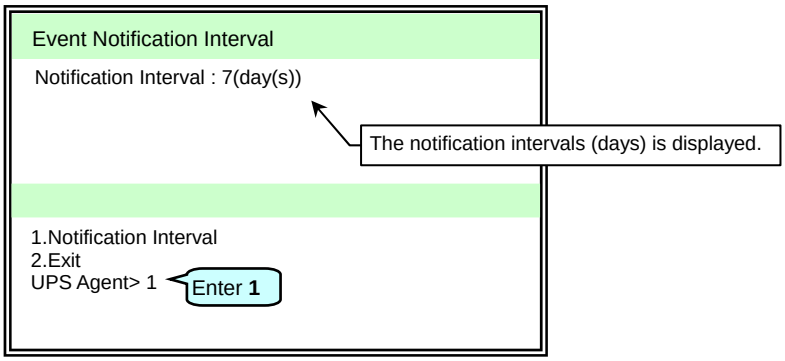
(1) Enter "7" in the [Main Menu] screen and then press "Enter".

The [Event Menu] setup menu screen is displayed.



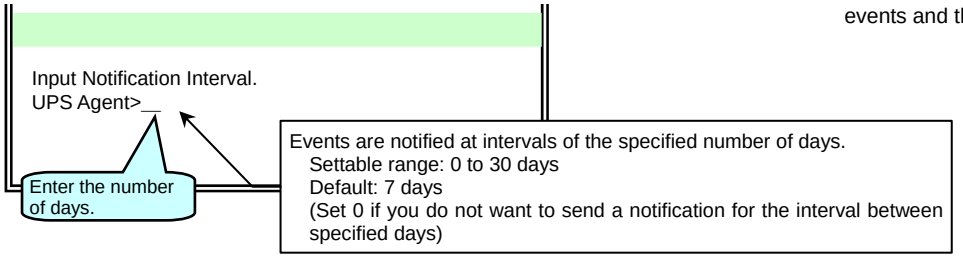
(2) Enter "4" and then press "Enter".

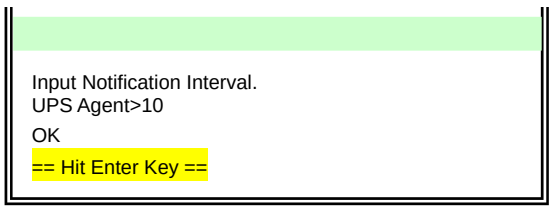
The [Event Notification Interval] screen is displayed.



(3) Enter "1" and then press "Enter".

(4) Enter the interval (days) between notifying events and then press "Enter".





(5) Press "Enter" to return.

8.8 Configuring UPS Power Distribution Control

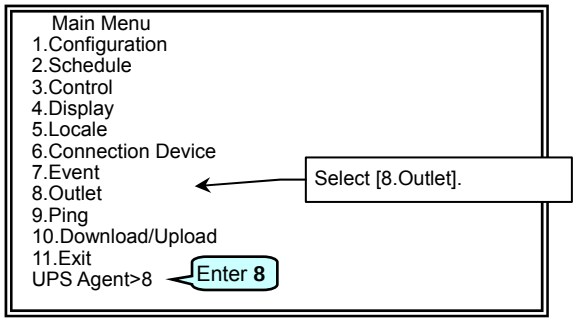
Main Menu 8

If you are using a UPS with a power distribution control output, set the operation for each output outlet to "OUTPUT1", "OUTPUT2", "OUTPUT0". If your UPS does not have a power distribution control output, you can specify the operation only for "outlets to shut down at power failure" for "OUTPUT1".

You can make the following settings for each of the output outlets.

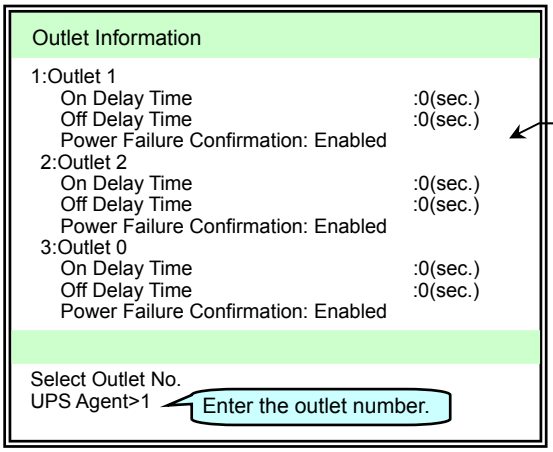
- OUTPUT1, OUTPUT2: Delay time settings when the UPS output is turned ON/OFF
- OUTPUT1, OUTPUT2, OUTPUT0: Outlets to shut down at power failure

Make the settings according to the procedure described below.

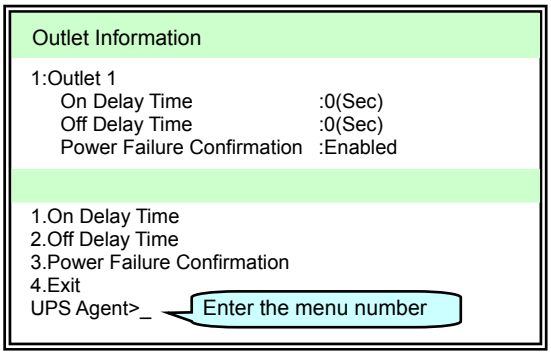


(1) Enter "8" on the [Main Menu] screen, and then press "Enter".

The [Outlet Information] screen is displayed.



(2) Enter the outlet number to be set, and then press "Enter".



(3) Set the operation of the outlet.

Caution

You can only set [Power Failure Confirmation] for Outlet0. [On Delay Time] and [Off Delay Time] are unavailable.

Setup menu	Description
1.On Delay Time	Enter the ON delay time (sec.). Output is supplied after the specified time has elapsed since the UPS started. *1
2.Off Delay Time	Enter the OFF delay time (sec.). Output stops after the specified time has elapsed since the UPS automatic stop time has elapsed. *1
3.Power Failure Confirmation	Set whether or not to execute a shutdown when a power failure occurs. *2
	1. Enabled
	2. Disabled
4.Exit	Return to the previous menu.

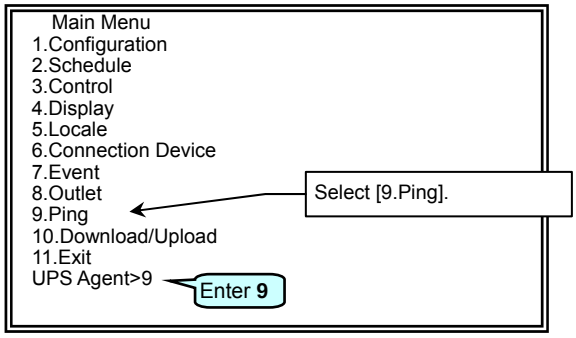
*1. When performing output control, the delay time is enabled when performing output control in all outlets.
*2. When the "1. Power Failure" settings are "Enabled" in "4. Shutdown Operation" from the "8.11.1 Configuring UPS group operations" menu, the settings for whether or not to execute a shutdown when a power failure occurs are sent to all UPSs in the group, and the settings are replaced.

8.9 Checking Communication Circuits with Ping

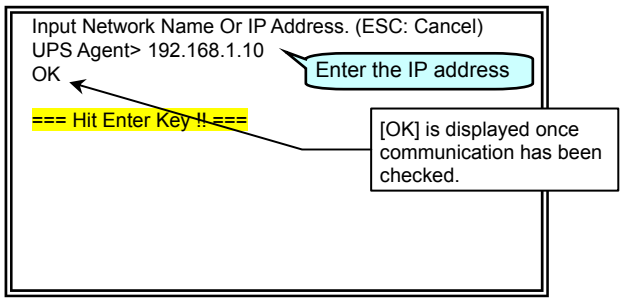
Main Menu 9

By performing a Ping from the UPS to a specific device after specifying the IP address or the network name (a character string in which the host name and the domain name are joined by dots), you can check the status of the communication line between the UPS and that device.

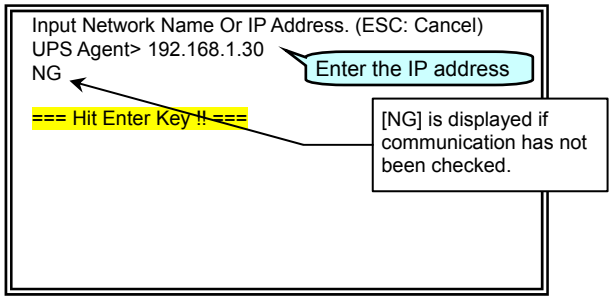
Check the status according to the procedure described below.



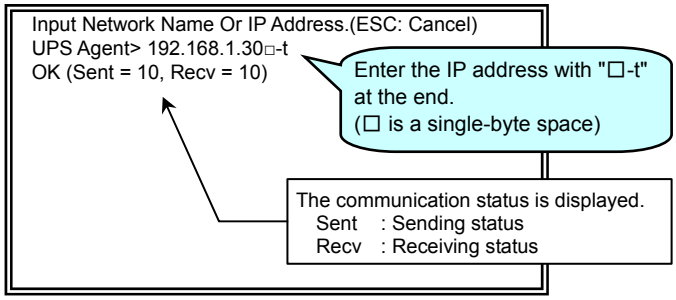
(1) Enter "9" on the [Main Menu] screen, and then press "Enter".



(2) Enter the IP address of the device with which the communication is to be checked, and then press "Enter".



When the communication status has to be checked continuously



(3) Enter the IP address of the device with which communication is to be checked with "□-t" (□ is a single-byte space) added at the end, and then press "Enter".

(4) Press "Esc" to return.

8.10 Downloading and Uploading UPS Setting Values

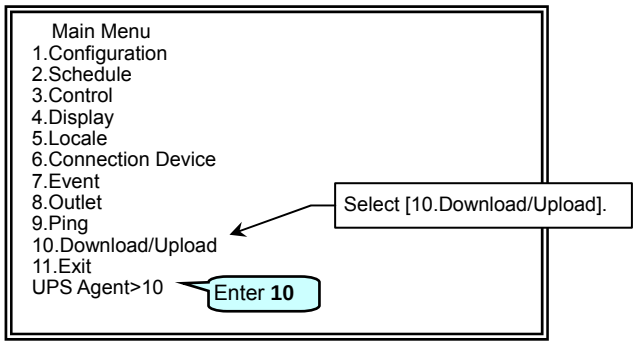
Main Menu 10

You can save the information set in the UPS to a file, and then when replacing the UPS, the saved information can be written to the new UPS.
When the UPS (LAN interface card) breaks down, this function can be used for a fast recovery.

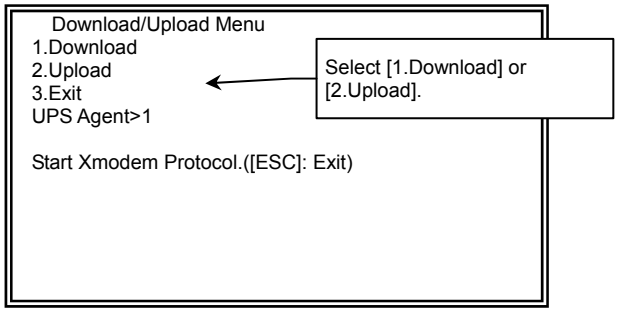
Caution

This function cannot be used from the Telnet/SSH terminal. Connect the "connector for the serial interface" of the UPS (LAN interface card) and the computer with a serial communication cable and an RS-232C cable (9-pin D-sub cross cable), and make the settings from the terminal software.
Because the "Xmodem" protocol is used for data transfer, the terminal software must support the "Xmodem" protocol.
Note that this device does not support the CRC option of the "Xmodem" protocol. Therefore, when an upload is performed by using the CRC option in the terminal software, sending starts after transitioning to the "Xmodem" protocol of the checksum method after a packet timeout occurs three times.

Make the settings according to the procedure described below.

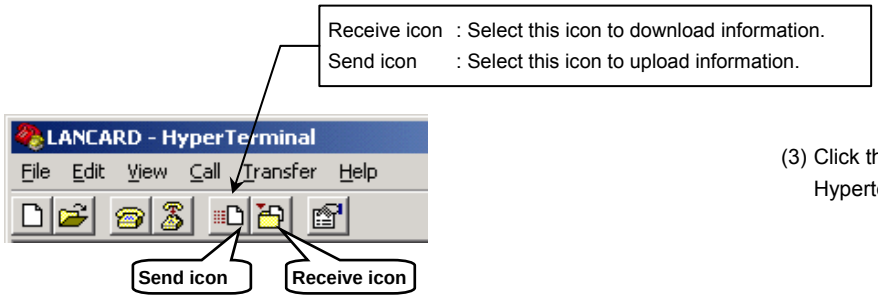


(1) Enter "10" on the [Main Menu] screen and then press "Enter".

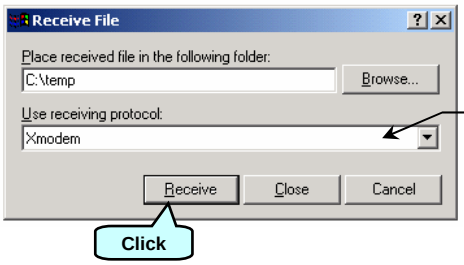


(2) Enter "1" or "2", and then press "Enter".

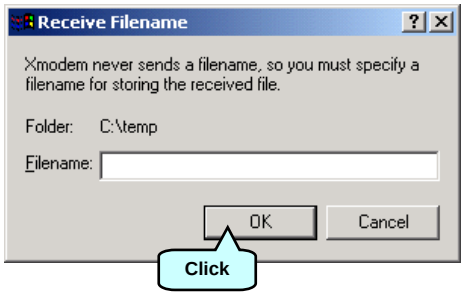
This example uses a Hyperterminal.
Perform the operation with a Hyperterminal that has similar functions to your system environment.



(3) Click the Receive (or the Send) icon from the Hyperterminal.

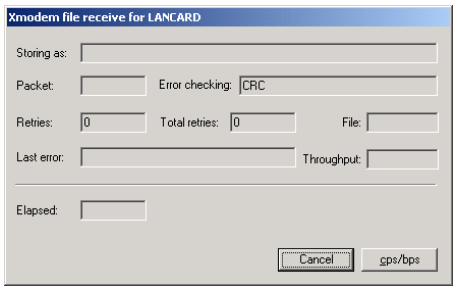


(4) Perform the reception (sending) operation.



(5) Enter the file name you want to save, and then click the [OK] button.

The screen shown below is displayed.



Data transfer starts a short while after the screen is displayed.

This screen disappears after the completion of data transfer.

The file upload procedure is the same as the download procedure.

*Using a hyper terminal

When your Windows version does not include a hyper terminal, you need to use dedicated terminal software.

Caution

A link local address is set for each LAN interface card and cannot be changed. Even when uploading a response file on a different LAN interface card, the link local address is not changed.

8.11 Configuring UPS Linkage

Set UPS linkage when grouping several UPS connected on the network and operating them as a power-supply redundancy system. You can group up to five UPS. You can also link starting and stopping the UPS, and scheduled operations. For details on the setup procedure, see "5.10 Configuring UPS Linkage." This explanation provides a case when the Web Management Tool is used, but the functions are the same for the terminal tool. However, since the terminal tool does not have a function that allows the transfer of registered device information, register the necessary device information for each UPS.

8.11.1 Configuring UPS group operations

Main Menu 1 > 3 > 5

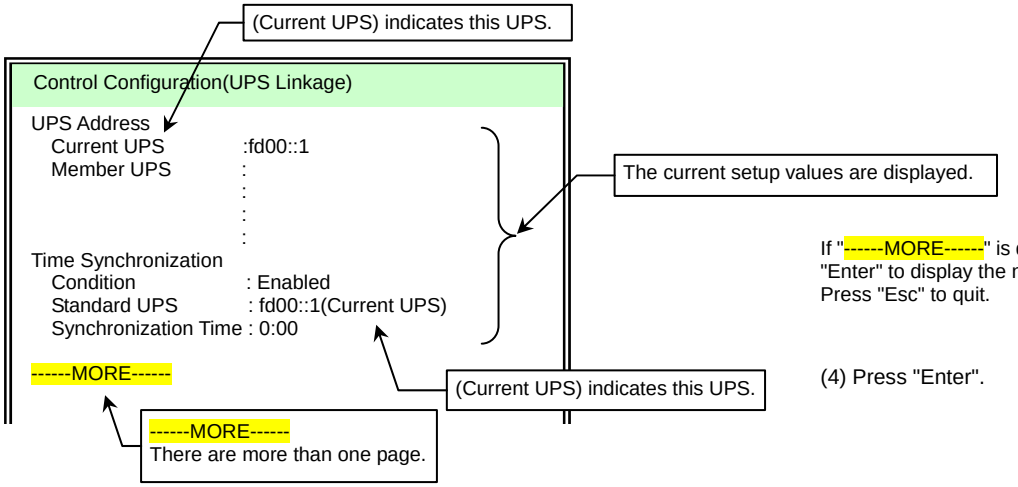
Perform settings to link several UPS into a power-supply redundancy system.

Caution

When a single device is connected to several UPS, backup is not performed for UPS in which the device information has not been registered. Register the device information for all UPS to which the device is connected.

(1) Enter "1" on the [Main Menu] screen, and then press "Enter".
(2) Enter "3" on the [Configuration Menu] screen, and then press "Enter".
(3) Enter "5" on the [Control Configuration Menu] screen, and then press "Enter".

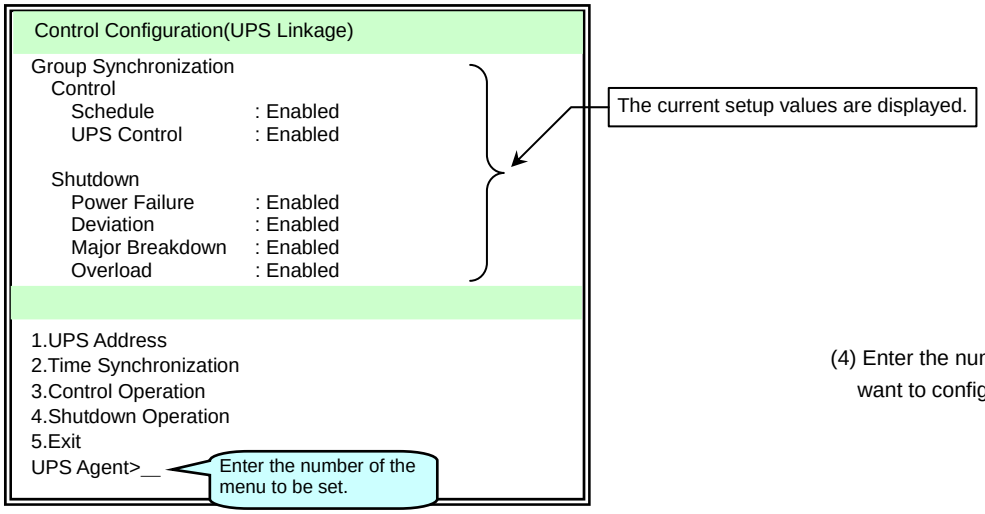
The [Control Configuration (UPS Linkage)] screen is displayed.



If "------MORE------" is displayed, you can press "Enter" to display the next screen.
Press "Esc" to quit.

(4) Press "Enter".

The [Control Configuration (UPS Linkage)] screen is displayed.



(4) Enter the number of the menu item you want to configure and then press "Enter".

Setup menu	Description		
1.UPS Address	Register or delete the IP address of the UPS to be grouped.		
	1.Current UPS	Select the IP address you want to use.	
	2.Member UPS	1.Add	Enter the IP address of the UPS to be added to the group.
		2.Delete	Enter the IP address of the UPS to be deleted from the group.
		3.Exit	Return to the previous menu.
	3.Exit	Return to the previous menu.	
2.Time Synchronization	Set the conditions for adjusting the time between members UPS.		
	1.Condition	1.Enabled	Time adjustment enabled
		2.Disabled	Time adjustment disabled
	2.Standard UPS	Specify the UPS to be used as the reference time source.	
	3.Synchronization Time	Set the time (0 to 23 hours) for time synchronization.	
	4.Exit	Return to the previous menu.	
3.Control Operation	Set operations between the grouped member UPS.		
	1.Schedule	Set whether or not to synchronize schedule operations between the members UPS.	
		1.Enabled	Scheduled operations are synchronized between the members UPS.
		2.Disabled	Scheduled operations are not synchronized among the members UPS.
	2.UPS Control	Set operations for the UPS group members when starting, stopping, resetting, etc. for the UPS is controlled by a Web Management Tool, Terminal Tool, UPS Management Software, or SNMP Manager.	
		1.Enabled	Operations are performed in synchronization with group members.
		2.Disabled	No synchronization between group members.
	3.Exit	Return to the previous menu.	
4.Shutdown Operation	Set operations between the grouped member UPS.		
	1.Power Failure	Set the operations of other member UPS during irreversible power failure or irreversible low battery voltage.	
		1.Enabled	Operations are performed in synchronization with group members.
		2.Disabled	No synchronization between group members.
	2.Deviation	Specify the operations of other member UPSs in the event of an irreversible condition due to deviation of the load factor, UPS temperature, and input voltage.	
		1.Enabled	Operations are performed in synchronization with group members.
		2.Disabled	No synchronization between group members.
	3.Major Breakdown	Specify the operations of other member UPSs in the event of an irreversible condition due to a major breakdown.	
		1.Enabled	Operations are performed in synchronization with group members.
		2.Disabled	No synchronization between group members.
	4.Overload	Specify the operations of other member UPSs in the event of an irreversible condition due to overload.	
		1.Enabled	Operations are performed in synchronization with group members.
		2.Disabled	No synchronization between group members.
	5.Exit	Return to the previous menu.	
5.Exit	Return to the [Control Configuration Menu].		

8.11.2 Configuring UPS count for UPS linkage

Main Menu 6 > Device No. > 8

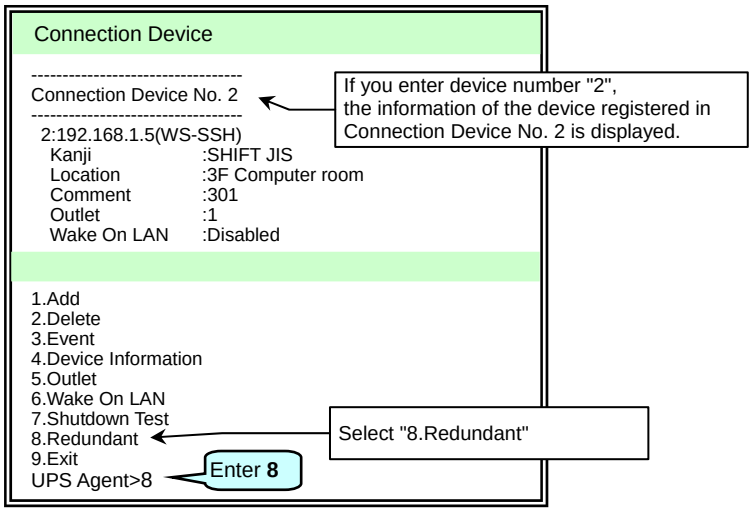
Set the "UPS count"* for a power-supply redundancy system configuration.

* About "UPS count"...

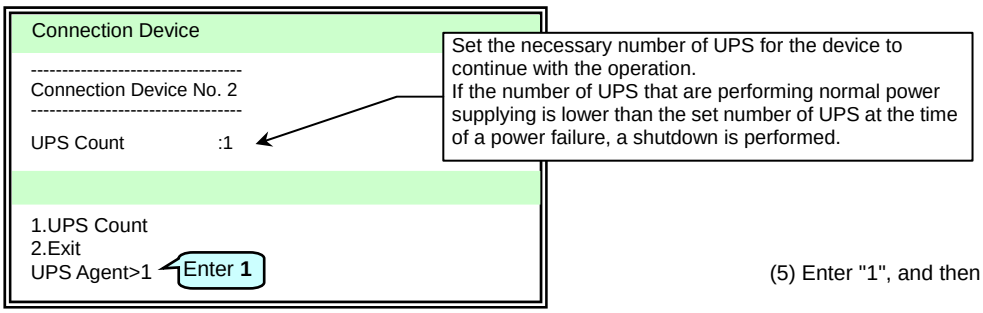
"UPS count" indicates the required number of normally operating UPS to supply the power to computers in the event of a power failure. Computers are shut down when the number of normally operating UPS is less than the specified number.

(1) Enter "6" on the [Main Menu] screen, and then press "Enter".
(2) If [---MORE---] is displayed on the [Connection Device] screen, press "Enter" to display more device information.
To stop displaying device information, press "Esc".
(3) Enter the number of the device to be set, and then press "Enter".

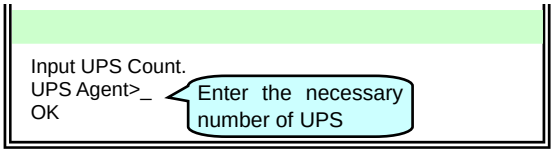
The [Connection Device] screen is displayed.



(4) Enter "8", and then press "Enter".



(5) Enter "1", and then press "Enter".



(6) Enter the necessary number of UPS, and then press "Enter".

Caution

- In the "UPS Count", enter a numeric value equal to or less than the number of UPS registered in the UPS group.
- Configure "UPS count" on each UPS to where the device information is registered. You can specify either the same values or different values on each UPS. Configure to suit your system configuration.
  However, if you set different "UPS count" value to each UPS, shutdown operation may differ. Set same value to UPS unless you have a special reason.
- The power is supplied to a device from the UPS to which the device information is registered in the event of a power failure. If you want the power supply from all connected UPS, check you have registered the device information to all UPS.
- Devices may not be shut down in a power failure if the device is connected to multiple UPS in a power redundancy system depending on the value of "UPS count" . However, the following message (0504 Stop warning) to notify a shutdown is sent from the UPS where the power failure occurred to WS (S), WS (T), and WS (SSH) devices.

  Message: "Shutdown Process will start after ** sec, and ** min."

  This message is the default setting. It is recommended to modify the message contents to suit your system configuration and purposes in a power redundancy system based on the example below. Create the message by modifying the WS script for "Event No.0504 Stop warning". See "5.5.3.2 Editing WS scripts" for details.

  Example message: "UPS will stop after ** sec, and ** min."
  Edit the WS script: "send=echo UPS will stop after %STOP_TIME_S% sec. and %STOP_TIME_M% min. |wall"

  Refer to the user guide of the UPS management software to modify the message if you are using the UPS management software.

9. USING SOFTWARE OTHER THAN WEB BROWSERS OR TERMINAL SOFTWARE

9.1 Using SNMP Manager

The UPS (LAN interface card) supports SNMP agent functions (UPS standard MIB: RFC1628, Jema MIB, UPS expansion MIB: Private MIB [exUpsMib]).
Depending on the initial settings, access is accepted from all SNMP managers, allowing you to perform status monitoring and control of the UPS without changing the settings. You can specify the trap destination and set up the community from the Web management tool or the Terminal Tool.
To improve security, access from the SNMP manager can be restricted in the UPS. This prevents access from unauthorized computers other than the administrator.

(1) Setting the SNMP
You can make various SNMP settings with the Web Management Tool or the Terminal Tool.

(2) About the SNMP shutdown mode
When a UPS stop request for the UPS standard MIB, Jema MIB or UPS expansion MIB is received from the SNMP manager, the UPS can be stopped using the shutdown mode that has been set up.
- In UPS management system compatibility mode, the UPS output stops after the computer shuts down during a remote stop.
- In RFC compatibility mode, regardless of the status of the computer, the UPS output stops when the delay time specified at the time of reception of the stop / reset request has elapsed.

(3) About status monitoring
The status of the UPS can be displayed in the SNMP manager.

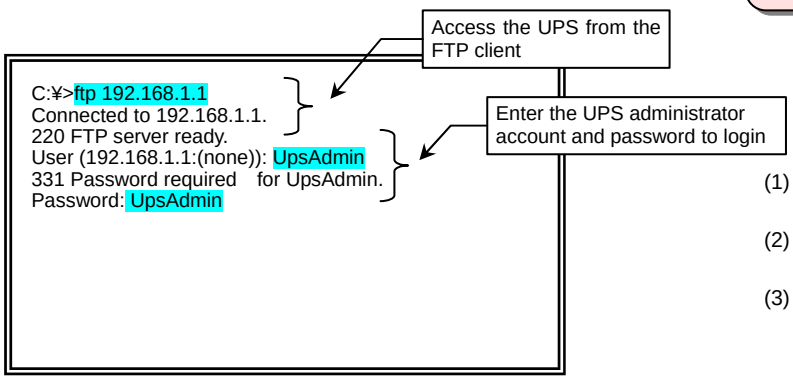
9.2 Using FTP and FTPS Client

You can access the UPS from an FTP client and then acquire the UPS setup information and event log information. You can also restore setup information for the UPS.
The method for acquiring UPS setup information is the same as "8.10 Downloading and Uploading UPS Setting Values".
This explanation uses a standard Windows FTP client.
In other situations, or when using an FTPS client, see the respective documentation.

Caution

The connection to the FTP client is disconnected if no operations are performed for one minute or more. In this situation, perform operations again from Step (1).

Access the UPS from the FTP client,
and log in with the UPS administrator account.



(1) Enter "ftp 192.168.1.1", and then press "Enter".

(2) Enter the user "UpsAdmin", and then press "Enter".

(3) Enter the password "UpsAdmin", and then press "Enter".

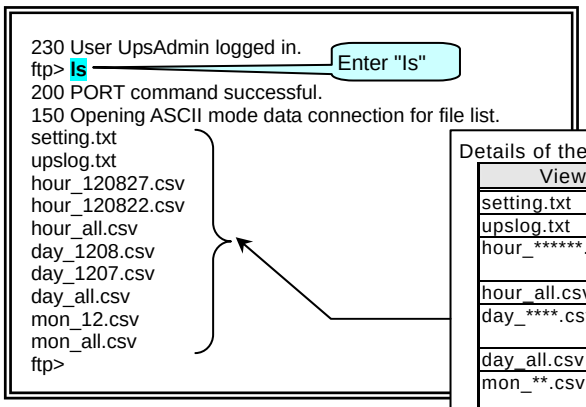
Caution

The characters entered in the password are not displayed.

You can use commands for list display, upload, and download. Refer to the respective procedures and perform the operation.

Displaying a list of files that can be operated

(4) Enter "ls", and then press "Enter".

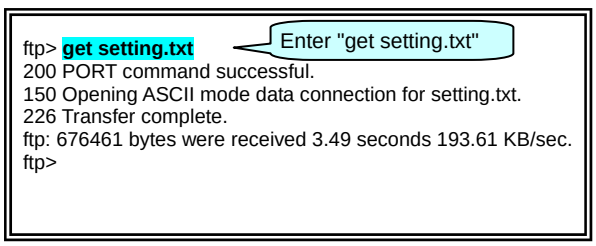


Details of the file list

View	Data content
setting.txt	Setup information of the UPS
upslog.txt	UPS event log (only 'get' is supported)
hour_******.csv	Measurement data (daily report) *1 of the hour units of **year**month**day *2
hour_all.csv	Measurement data of all hour units
day_****.csv	Measurement data (monthly report) *1 of the day units of **year**month *2
day_all.csv	Measurement data of all day units
mon_**.csv	Measurement data (yearly report) *1 of the month units of **year *2
mon_all.csv	Measurement data of all month units

*1. The daily report, monthly report, and annual report indicate the "Report type" of the statistical graph displayed by the Web display tool.
*2. get only support.

Downloading the setup information



(4) Enter "get setting.txt", and then press "Enter".

Caution

Contact SANYO DENKI for details on the UPS editing method setup information file "setting.txt".

Uploading the setup information

```
ftp> put setting.txt
200 PORT command successful.
150 Opening ASCII mode data connection for setting.txt.
226 Transfer complete.
ftp: 676461 bytes were sent 21.38 seconds 31.64KB/sec.
ftp>
```

Enter "put setting.txt"

(4) Enter "put setting.txt", and then press "Enter".

Downloading the event log

```
ftp> get upslog.txt
200 PORT command successful.
150 Opening ASCII mode data connection for upslog.txt.
226 Transfer complete.
ftp: 83981 bytes were received 0.40 seconds 209.43KB/sec.
ftp>
```

Enter "get upslog.txt"

(4) Enter "get upslog.txt", and then press "Enter".

Downloading the measurement data

From the file list displayed by the "ls" command, enter the file name of the measurement data that is to be downloaded.

```
ftp> get day_all.csv
200 PORT command successful.
150 Opening ASCII mode data connection for day_all.csv.
226 Transfer complete.
ftp: 52520 bytes were received 0.50 seconds 104.21 KB/sec.
ftp>
```

Enter "get day_all.csv"

(4) Enter "get day_all.csv", and then press "Enter".

Caution

For details on the display content of the measurement data, see "Displayed contents of the summary data" on the page describing "F. Summary data" in "Appendix C. LIST OF INCOMING E-MAILS."

Ending

```
ftp> get day_all.csv
200 PORT command successful.
150 Opening ASCII mode data connection for day_all.csv.
226 Transfer complete.
ftp: 52520 bytes were received 0.50 seconds 104.21 KB/sec.
ftp> quit
```

Enter "quit"

(5) Enter "quit", and then press "Enter".

Caution

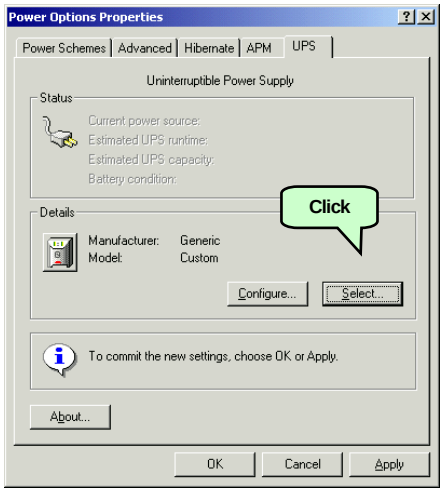
- Contact SANYO DENKI for details on the editing method for the UPS measurement data files "hour_all.csv", "day_all.csv", and "mon_all.csv". When reading a measurement data file with an error, an error is generated and the relevant measurement data is deleted.
- When uploading the UPS setting information file "setting.txt" to a different LAN interface card, the local link address does not change. Operations are performed using the link local address that has already been set.

Appendix

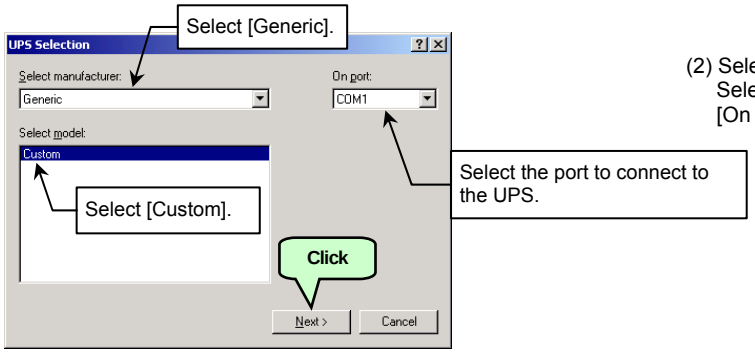
Appendix A. USING THE WINDOWS STANDARD UPS SERVICE

You can shut down PCs running Windows 2000, XP, or Windows Server 2003 by connecting the "serial interface connector" of the UPS and the PC using a communication cable. The following describes how to configure the settings.

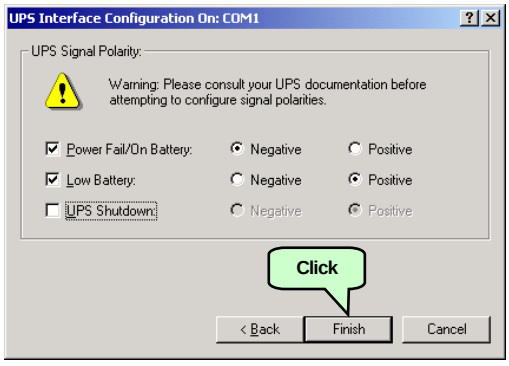
<Main functions of the UPS service>
1. Displays a warning message when a power failure occurs.
   Power failure signals are sent to PCs connected to the UPS when the confirmation time has elapsed after the power failure.
2. Shuts down the system automatically.
   Low battery voltage signals are sent to the PCs when the shutdown delaying time has elapsed after the confirmation time.
   PCs immediately shut down the systems safely.



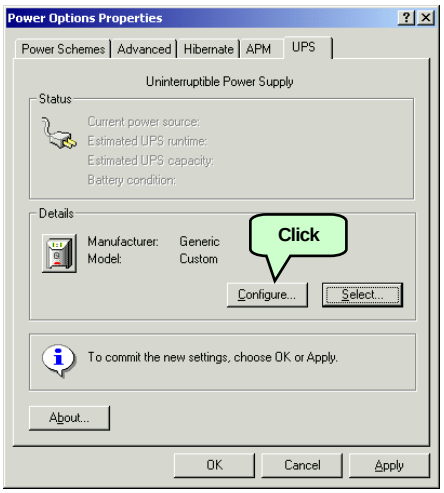
(1) Select [Power Options] in the Control Panel, select the [UPS] tag, and then click the [Select...] button.



(2) Select [Generic] for [Select manufacturer].
Select the serial port where the cable is connected to [On port], and then click [Next].

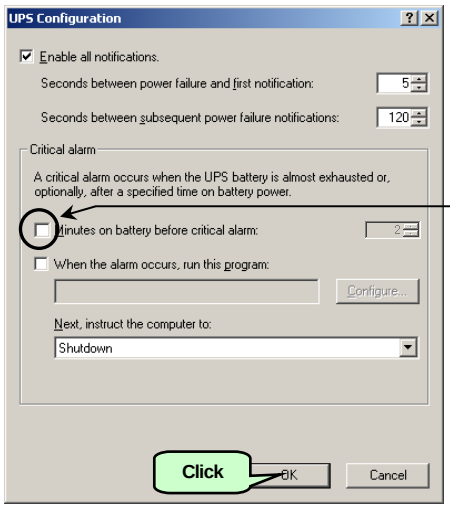


(3) Make settings as shown in the screenshot, and then click [Finish].



(4) Click [Configure...].

The [UPS Configuration] screen is displayed.



(5) Make settings as shown in the screenshot on the left, and then click [OK].

Make sure this checkbox is cleared.

Caution

The screenshot on the left shows the default values. Do not modify the configuration.
If your PC is configured differently, modify the configuration as shown on the left.

(6) The screen for Step (1) is displayed again. Click the [Apply] button.

Caution

PCs are turned off if you have shut down PCs running Windows 2000, XP, or Windows Server 2003 using the Windows Standard UPS service; therefore, PCs may not restart automatically when the UPS power output is turned on next time.
In this situation, turn them on manually.

Appendix B. LIST OF UPS EVENTS

The following table describes default values for event log recording conditions, e-mail transmission conditions, and event script execution conditions. Modify the values as necessary. However, values marked with "*" cannot be modified.

About information types

The following information types are used.
Inf: Information or status, War: Warning, Err: Error

Standard settings

Event No.	Info. type	Event name	Log recording	E-mail transmission	Script execution
0101	War	Power failure	Enable*	Disable	Enable
0102	Inf	Power failure recovered	Enable*	Disable	Enable
0106	Inf	Output ON	-	-	Disable*1
0141	Err	Major breakdown	Enable*	Enable	Enable
0142	Inf	Major breakdown recovered	Enable*	Enable	Enable
0143	War	Minor breakdown	Enable*	Enable	Enable
0144	Inf	Minor breakdown recovered	Enable*	Enable	Enable
0503	Inf	Start scheduled stop warning	Disable	Disable	Enable
0504	Inf	Stop warning	-	-	Enable
0505	Inf	Irreversible: Scheduled stop	Enable*	Disable	Enable
0506	Inf	Irreversible: Remo. Stop	Enable*	Disable	Enable
0507	War	Irreversible: Power failure	Enable*	Disable	Enable
0508	War	Irreversible: Low batt. Volt.	Enable*	Disable	Enable
0510	Inf	Exec. pre-shutdown operation	Disable	Disable	Disable
0511	Inf	Shutdown execution	Enable*	Disable	Enable
0512	Inf	Batt.-replace warning time	Enable	Enable	Enable
0518	War	Irreversible: Serial error	Enable*	Disable	Enable
0552	Inf	Output circuit on	-	-	Disable*1
0562	War	Irreversible: Major breakdown	Enable*	Disable	Enable
0563	War	Irreversible: Overload	Enable*	Disable	Enable
0652	War	Irreversible: UPS temp. trouble	Enable*	Disable	Enable
0653	War	Irreversible: Load factor abnormal	Enable*	Disable	Enable
0654	War	Irreversible: Input volt abnormal	Enable*	Disable	Enable
0655	War	Irreversible: Ext-meas. abnormal	Enable*	Disable	Enable

*1 Caution

If you want to execute the script when the UPS output is turned ON, enable the event No. 0106 "Output ON" for the UPS without power distribution control, or enable event No. 0552 "Output circuit on" for the UPS with power distribution control.

*2 About Major breakdown and Minor breakdown

Major breakdown and Minor breakdown are as follows:
Major breakdown : Failure condition of non-inverter operation
Minor breakdown : Inverter operational possible fault conditions
Failure conditions may vary depending on the UPS.
For information on the UPS failure, please refer to UPS instruction manual.

Advanced settings (UPS)

Event No.	Info. type	Event name	Log recording	E-mail transmission
0103	War	Bypass trouble	Disable	Disable
0104	Inf	Bypass trouble recovered	Disable	Disable
0105	Inf	Output OFF	Disable	Disable
0106	Inf	Output ON	Disable	Disable
0107	Inf	Synchronous	Disable	Disable
0108	Inf	Asynchronous	Disable	Disable
0109	Inf	Inverter operation	Disable	Disable
0110	Inf	Non-inverter operation	Disable	Disable
0111	Inf	Bypass operation	Disable	Disable
0112	Inf	Non-bypass operation	Disable	Disable
0113	Inf	Battery operation	Disable	Disable
0114	Inf	Non-battery operation	Disable	Disable
0115	Inf	Standing by	Disable	Disable
0116	Inf	Non-standing by	Disable	Disable
0117	Inf	Waiting for UPS stop	Disable	Disable
0118	Inf	Waiting for non-UPS stop	Disable	Disable
0119	War	Battery life	Enable	Enable
0120	Inf	Normal battery	Enable	Enable
0121	War	Low battery voltage	Disable	Disable
0122	Inf	Normal battery voltage	Disable	Disable
0123	Inf	Battery test	Disable	Disable
0124	Inf	Non-battery test	Disable	Disable
0125	Inf	Battery test is possible	Disable	Disable
0126	Inf	Battery test is impossible	Disable	Disable
0127	War	Overload	Enable	Enable
0128	Inf	Load normal	Enable	Enable
0129	War	Battery temperature trouble	Enable	Enable
0130	Inf	Battery temperature normal	Enable	Enable
0131	Err	Battery charger breakdown	Enable	Enable
0132	Inf	Battery charger normal	Enable	Enable
0133	Err	Fin temperature trouble	Enable	Enable
0134	Inf	Fin temperature normal	Enable	Enable
0135	Err	Fan breakdown	Enable	Enable
0136	Inf	Fan normal	Enable	Enable
0137	War	Bypass breaker OFF	Enable	Enable
0138	Inf	Bypass breaker ON	Enable	Enable
0139	War	Arrester breakdown	Enable	Enable
0140	Inf	Normal arrester	Enable	Enable
0145	War	UPS system OFF	Enable	Disable
0146	Inf	UPS system ON	Enable	Disable
0147	Inf	Changes UPS operation mode	Enable	Disable

Advanced settings (UPS control)

Event No.	Info. type	Event name	Log recording	E-mail transmission
0201	War	Internal com. trouble	Enable	Disable
0202	Inf	Int. com. trouble recovered	Enable	Disable
0203	War	LAN communication trouble	Disable	Disable
0204	Inf	LAN com. trouble recovered	Disable	Disable
0205	War	Address conversion failure	Enable	Disable
0206	Inf	UPS grp. info. delivering success	Disable	Disable
0207	War	UPS grp. info. delivering failure	Enable	Disable
0208	Inf	UPS communication success	Disable	Disable
0209	War	UPS communication failure	Enable	Disable
0210	War	Duplicate IPv6 address	Enable	Disable
0301	Inf	Reception of UPS stop request	Enable*	Disable
0302	Inf	Reception of UPS start req.	Enable*	Disable
0303	Inf	Rec. battery test start req.	Enable	Disable
0304	Inf	Rec. battery test stop req.	Enable	Disable
0305	Inf	Rec. bypass switching req.	Enable	Disable
0306	Inf	Rec. inverter switching req.	Enable	Disable
0307	Inf	Rec. Program update request	Enable	Disable
0308	Inf	Session confirmed	Disable	Disable
0309	Inf	Rec. session releasing req.	Disable	Disable
0310	War	Illegal access	Enable	Disable
0311	War	Request protocol error	Disable	Disable
0320	Inf	Functional Test req. reception	Enable*	-
0321	Inf	Status request E-Mail receiving	Disable	-
0322	War	E-Mail reception failure	Enable	-
0351	Inf	Reception of output ON req.	Enable*	Disable
0352	Inf	Reception of output OFF req.	Enable*	Disable
0353	Inf	Reception of reboot request	Enable*	Disable
0354	Inf	Received link-start possible	Disable	Disable
0355	Inf	Received link-start impossible	Enable	Disable
0401	Inf	Finished sending E-Mail	Disable	-
0402	War	Failed to send E-Mail	Enable	-
0403	Inf	Finished sending SNMP-Trap	Disable	Disable
0404	War	Failed to send SNMP-Trap	Enable	Disable
0405	Inf	Finished sending Script	Disable	Disable
0406	Err	Failed to send Script	Enable	Disable
0407	Inf	UPS stop (serial)	Enable	Disable
0408	Inf	UPS start (serial)	Enable	Disable
0409	Inf	Battery test start (serial)	Disable	Disable
0410	Inf	Battery test stop (serial)	Disable	Disable
0411	Inf	Bypass switch (serial)	Disable	Disable
0412	Inf	Inverter switch (serial)	Disable	Disable
0413	Inf	Session releasing notice	Disable	Disable
0414	Err	Access denied	Enable*	Disable
0415	Inf	SYSLOG sending success	Disable	Disable
0416	War	SYSLOG sending failure	Enable	Disable
0501	Inf	Cold start	Enable*	Disable
0502	Inf	Scheduled startup	Enable*	Disable
0513	Inf	Clock setting change	Disable	Disable
0514	Inf	Setting change*2	Enable	Disable
0515	Inf	PC / WS start up	Disable	Disable
0516	Inf	PC / WS stop	Disable	Disable
0520	Inf	Setting Info. update complete	Enable	Disable
0521	War	Setting Info. update failure	Enable	Disable
0522	War	Clock Setting failure	Enable	Disable

Event No.	Info. type	Event name	Log recording	E-mail transmission
0522	War	Clock Setting failure	Enable	Disable
0552	Inf	Output circuit on	Enable	Disable
0553	Inf	Output circuit off	Enable	Disable
0568	Inf	Finished battery test(Pass)	Enable	Disable
0569	Err	Finished battery test(Warning)	Enable	Disable
0570	War	Finished battery test(Error)	Enable	Disable
0571	War	Finished battery test(Abort)	Enable	Disable
0572	War	Finished battery test(Unknown)	Enable	Disable
0573	Inf	Shutdown test over	Enable	-
0574	Inf	Shutdown test success	Enable	-
0575	War	Shutdown test failure	Enable	-
0577	Inf	Execute link-start	Enable	Disable
0650	Inf	Measured data collecting start	Enable	Disable
0651	Inf	Measured data collecting stop	Enable	Disable
0656	War	UPS temp. max deviation occur(C)	Enable	Disable
0657	Inf	UPS temp. max deviation recov.(C)	Enable	Disable
0658	War	UPS temp. max deviation occur(W)	Enable	Disable
0659	Inf	UPS temp. max deviation recov.(W)	Enable	Disable
0660	War	UPS temp. min deviation occur(C)	Enable	Disable
0661	Inf	UPS temp. min deviation recov.(C)	Enable	Disable
0662	War	UPS temp. min deviation occur(W)	Enable	Disable
0663	Inf	UPS temp. min deviation recov.(W)	Enable	Disable
0664	War	Load(%) max deviation occur(C)	Enable	Disable
0665	Inf	Load(%) max deviation recov.(C)	Enable	Disable
0666	War	Load(%) max deviation occur(W)	Enable	Disable
0667	Inf	Load(%) max deviation recov.(W)	Enable	Disable
0668	War	Load(%) min deviation occur(C)	Enable	Disable
0669	Inf	Load(%) min deviation occur(C)	Enable	Disable
0670	War	Load(%) min deviation occur(W)	Enable	Disable
0671	Inf	Load(%) min deviation recov.(W)	Enable	Disable
0672	War	Input(V) max deviation occur(C)	Enable	Disable
0673	Inf	Input(V) max deviation recov.(C)	Enable	Disable
0674	War	Input(V) max deviation occur(W)	Enable	Disable
0675	Inf	Input(V) max deviation recov.(W)	Enable	Disable
0676	War	Input(V) min deviation occur(C)	Enable	Disable
0677	Inf	Input(V) min deviation recov.(C)	Enable	Disable
0678	War	Input(V) min deviation recov.(C)	Enable	Disable
0679	Inf	Input(V) min deviation recov.(C)	Enable	Disable
0680	War	Ext-meas. max deviation occur(C)	Enable	Disable
0681	Inf	Ext-meas. max deviation occur(C)	Enable	Disable
0682	War	Ext-meas. max deviation occur(W)	Enable	Disable
0683	Inf	Ext-meas. max deviation recov.(W)	Enable	Disable
0684	War	Ext-meas. min deviation occur(C)	Enable	Disable
0685	Inf	Ext-meas. min deviation recov.(C)	Enable	Disable
0686	War	Ext-meas. min deviation occur(W)	Enable	Disable
0687	Inf	Ext-meas. min deviation recov.(W)	Enable	Disable
0688	War	Ext-meas. communication trouble	Enable	Disable
0689	Inf	Ext-meas. com. trouble recovered	Enable	Disable
0690	War	Ext-meas. meas val trouble	Enable	Disable
0691	Inf	Ext-meas. meas val trouble recov.	Enable	Disable
0692	War	Self test trouble	Enable	Disable
0693	Inf	Self test normal	Disable	Disable

*2About setting change events

"0x????????" (hexadecimal notation) in the details of setting change events indicates the item that has been changed. Each bit of 32 bits is assigned to settable items, and 1 is set to the bit whose corresponding item has been changed. Bits are assigned as follows.
Contact us for details of each item.

Upper 16 bits	31-28				27-24				23-20				19-16			
	8	4	2	1	8	4	2	1	8	4	2	1	8	4	2	1
Changed setting item	(Unused)	SSH client information	Redundancy related	Measurement data	Syslog information	SSH public key information	SSH information	Automatic battery check information	(Unused)	(Unused)	(Unused)	External measurement management information	Encryption information	Service information	Contact signal polarity information	E-mail information

Lower 16 bits	15-12				11-8				7-4				3-0			
	8	4	2	1	8	4	2	1	8	4	2	1	8	4	2	1
Changed setting item	Threshold information	SNMP information	E-mail notification information	WS event script information	WS login script information	Event message information	Log event information	Statistical graph display information	Time synchronization information	Scheduled operation information	Condition of scheduled operation	Connected device information	System management information	System control information	Clock information	Account information

(Example 1) When clock information is changed
Details: 0x00000002

(Example 2) When the condition of scheduled operation (Enable/Disable) and scheduled operation information (Weekly or Specified date) are changed
Details: 0x00000060

Appendix C. LIST OF INCOMING E-MAILS

The following lists incoming e-mails.

A. UPS status measurement information

□ indicates a single-byte space. The subject is not case sensitive.

Request e-mail	
Subject	UPS□Status□Request

When using serial connection to the UPS

Response e-mail 1			Response e-mail 2	
Subject	Re:UPS Status Request(UPS Condition)		Re:UPS Status Request(UPS Meas. Value)	
Body	(Example)	(Description)	(Example)	(Description)
	[AC input voltage] : Normal [Bypass trouble] : Normal :	[Status name] : Status (Repeat as many as the information items)	[Input Volt.]: 109V [Input Curr.] : 0.6A :	[Measurement name] : Measured value (Repeat as many as the information items)

When using contact connection to the UPS

Response e-mail	
Subject	Re:UPS Status Request
Body	[AC input voltage] : Normal (or Trouble) [Battery voltage] : Normal (or Decline)

B. Device location information

□ indicates a single-byte space. The subject is not case sensitive.

Request e-mail	
Subject	Setting□Request

Response e-mail		
Subject	Re:Setting Request	
Body	(Example)	(Description)
	[IP Address] : 172.30.3.40 : fd00::1 : fe80::XXXX:XXXX:XXXX:XXXX [MAC Address] : 00-E0-4E-00-00-01 [ROM Ver] : P0010533A [Web(Management) Ver] : P0010534A [Web(Viewer) Ver] : P0010705A	[IP Address] : IPv4 address (XXX.XXX.XXX.XXX) : IPv6 address (XXXX:XXXX:XXXX:XXXX) : IPv6 link local address (XXXX:XXXX:XXXX:XXXX) [MAC Address] : MAC address (XX-XX-XX-XX-XX-XX) [ROM Ver.] : ROM program version (P00XXXXX) [Web(Management) Ver.] : Web management tool version (P00XXXXX) [Web(Viewer) Ver.] : Web display tool version (P00XXXXX)

C. Event log information (latest 10 records)

Select the format of event log information (latest 10 records) you want from the following table and enter it to the subject of the request e-mail.

Subject	Description
Log☐Request	The latest 10 records of the event log is written in the body of the reply e-mail.
Log☐Request☐–f	The latest 10 records of the event log is attached as a file "upslog.txt" to the reply e-mail.

E-mail subject example

☐ indicates a single-byte space. The subject is not case sensitive.

Request e-mail	
Subject	Log☐Request

Response e-mail		
Subject	Re:Log Request	
Body	(Example)	(Description)*

```
Type No.   Event Name                    DateTime            Address        Detail
-------------------------------------------------------------------------------------
Inf   0514 Setting change                2014/08/05 09:28:46 172.30.1.179   0x10000000
Inf   0650 Measured data collecting start 2014/08/05 09:28:45
Inf   0514 Setting change                2014/08/05 09:28:30 172.30.1.179   0x00010000
Inf   0320 Functional Test req. reception 2014/08/05 09:28:25 172.30.1.179   POP3
Inf   0320 Functional Test req. reception 2014/08/05 09:28:21 172.30.1.179   SMTP
Inf   0514 Setting change                2014/08/05 09:27:39 172.30.1.179   0x00000082
Inf   0514 Setting change                2014/08/05 09:27:39 172.30.1.179   0x00000002
Inf   0514 Setting change                2014/08/05 09:28:01 172.30.1.179   0x00000082
Inf   0512 Batt.-replace warning time    2014/08/05 09:27:27                0 months before
Inf   0514 Setting change                2014/08/05 09:27:23                0x00000004
```

(Description)*:
Type: Event type
No.: Event Number
Event Name: Event name
DateTime: Date and time
Address: Related address
Detail: Details

(The latest 10 items in descending order)

* Items in the attached file "upslog.txt" are the same.

D. Event log information (all)

Select the format of event log information (all records) you want from the following table and enter it to the subject of the request e-mail.

Subject	Description
Log☐Request☐All	All records (max 1,000 records) in the event log is written in the body of the reply e-mail.
Log☐Request☐All☐–f	All records (max 1,000 records) in the event log is attached as a file "upslog.txt" to the reply e-mail.

E-mail subject example

☐ indicates a single-byte space. The subject is not case sensitive.

Request e-mail	
Subject	Log☐Request☐All

Response e-mail		
Subject	Re: Log☐Request☐All	
Body	(Example)	(Description)*

```
Type No.   Event Name                    DateTime            Address        Detail
-------------------------------------------------------------------------------------
Inf   0514 Setting change                2014/08/05 09:28:46 172.30.1.179   0x10000000
Inf   0650 Measured data collecting start 2014/08/05 09:28:45
Inf   0514 Setting change                2014/08/05 09:28:30 172.30.1.179   0x00010000
Inf   0320 Functional Test req. reception 2014/08/05 09:28:25 172.30.1.179   POP3
Inf   0320 Functional Test req. reception 2014/08/05 09:28:21 172.30.1.179   SMTP
Inf   0514 Setting change                2014/08/05 09:27:39 172.30.1.179   0x00000082
Inf   0514 Setting change                2014/08/05 09:27:39 172.30.1.179   0x00000002
                                                 :
Inf   0514 Setting change                2014/08/05 09:27:23                0x00000004
```

(Description)*:
Type: Event type
No.: Event Number
Event Name: Event name
DateTime: Date and time
Address: Related address
Detail: Details

(1,000 records in descending order)

* Items in the attached file "upslog.txt" are the same.

E. UPS information

☐ indicates a single-byte space. The subject is not case sensitive.

Request e-mail	
Subject	UPS☐Info☐Request

When using serial connection to the UPS

Response e-mail		
Subject	Re:UPS Info Request	
Body	(Example)	(Description)
	[Style] : E11A102_A001 [Controlled part Ver.] : 12 [Input phase] : 1 [Output phase] : 1 [Bypass phase] : 1 [Rated input voltage] : 100V [Rated output voltage] : 100V [Rated capacity] : 1.0kVA [Rated backup time] : 15min [Number of outlet] : 0 [Constant output] : No [Result of battery test] : Normal finish [Date of battery test] : 13/04/25/ 20:43:35 [Number of power failure] : 8times [Battery life] : 42459hour [UPS operation estimated time] : 9386hour [Battery operation estimated time] : 509sec [Serial No.] : None	[Style] : Style (max. 16 bytes) [Controlled part Ver.] : Version No. (XX) [Input phase] : Input phase [Output phase] : Output phase [Bypass phase] : Bypass phase [Rated input voltage] : Rated input voltage (V) [Rated output voltage] : Rated output voltage (V) [Rated capacity] : Rated capacity (kVA) [Rated backup time] : Rated backup time (minutes) [Number of outlet] : Number of outputs [Constant output] : Constant output (Yes/No) [Result of battery test] : Result of the battery test* [Date of battery test] : Battery test date and time (YY/MM/DD HH:MM:SS) [Number of power failure] : Number of power failures [Battery life] : Remaining battery life (hours) [UPS operation estimated time] : Accumulated UPS operation time (hours) [Battery operation estimated time] : Accumulated battery operation time (seconds) [Serial No.] : Serial number (max. 12 bytes) → "None" is the information is not available

* Result of the battery test
= Unknown, Normal finish, Abnormal finish, Error, Test stop, or Testing

When using contact connection to the UPS

Response e-mail	
Subject	Re:UPS Info Request
Body	No Data

F. Summary data

Enter one of the following subjects to specify the data you want.
A response e-mail with an attached "csv" file will be returned.

Subject	Description
Hour□Request□All□-f□filename	Hourly summary data (all)
Hour□Request□yymmdd□-f□filename	Hourly summary data (daily)
Day□Request□All□-f□filename	Daily summary data (all)
Day□Request□yymm□-f□filename	Daily summary data (monthly)
Mon□Request□All□-f□-filename	Monthly summary data (all)
Mon□Request□yy□-f□filename	Monthly summary data (annual)

Notes on entering the subject

- □ indicates a single-byte space. The subject is not case sensitive.
- yymmdd indicates the year, month, and day. yy: The last 2 digits of the year, mm: Month in 2 digits, dd: Day in 2 digits.
- Specify any file name as the filename. Omit the filename when it is not being specified.
  Enter the file name with single-byte alphanumeric characters, and keep the length of the subject within 76 characters including the file name.

Example: Requesting summary data for **November 5, 2012** in file named **"DATA_2012_Nov-05.csv"**.

Request e-mail	
Subject	Hour□Request□121105□-f□DATA-2012-Nov-05.csv

Response e-mail		
Subject	Re: Hour Request 121105 –f DATA-2012-Nov-05.csv	
Body	(Example)	(Description)
	DATA-2012-Nov-05.csv	A file is attached if there is any applicable summary data. The e-mail body contains the file name.
	No Data	The body contains the text on the left and no file is attached if there is no applicable summary data.
Attached file	DATA-2012-Nov-05.csv	A file with the specified name is attached. See the following "Displayed contents of the summary data" for the contents of the attached file.
	hour_121105.csv	A file with the name on the left is attached if the file name was not specified.

Displayed contents of the summary data

The title row in the summary data describes the summary date and time, data type, and the type of the measured values.
The following describes the contents.

YYYY/MM/DD HH:MM:SS —— Displays the year, month, day, hour, minute, and second.

Input_V* _ ave

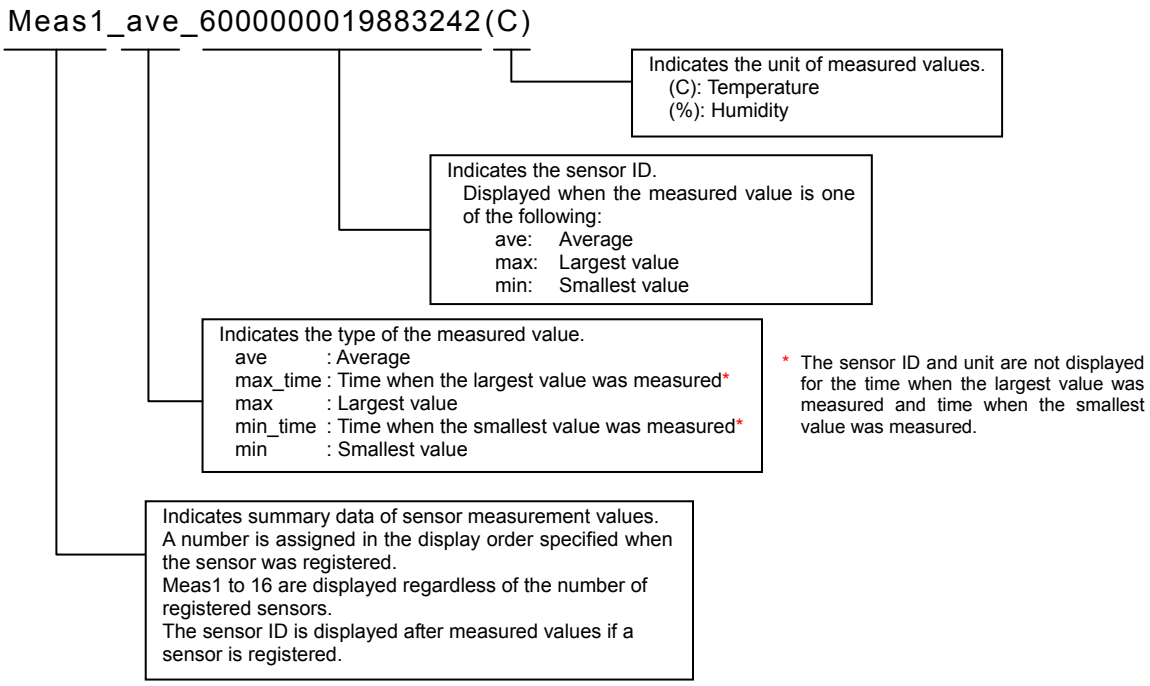
Indicates the type of the measured value.
- ave : Average
- max_time : Time when the largest value was measured
- max : Largest value
- min_time : Time when the smallest value was measured
- min : Smallest value

Indicates the type of the summary value.
- Input_V* : Input voltage *
- Input_Hz : Input frequency
- Output_V* : Output voltage *
- Output_A* : Output current *
- Output_kW : Output power
- Output_Hz : Output frequency
- Load_factor : Load factor
- Ambient_temp : Ambient temperature
- Battery_temp : Battery temperature
- Output_kWh : Output power

* 1 to 3 is displayed in the place of "*" when the I/O is multiple phase.

LAN interface card that can be connected to a sensor.

The following is displayed on the title row of sensor measurement values in the summary data.



G. Sensor status measurement information

☐ indicates a single-byte space. The subject is not case sensitive.

Request e-mail	
Subject	Sensor☐Status☐Request

Response e-mail 1			Response e-mail 2	
Subject	Re:Sensor Status Request(Sensor Condition)		Re:Sensor Status Request(Sensor Meas. Value)	
Body	(Example)	(Description)	(Example)	(Description)
	[Sensor01] : Normal [Sensor02] : Com. Error [Sensor03] : Meas. Value Error [Sensor04] : Unknown : *3	[Meas. name] *1 : Status*2 (Repeat as many as the registered sensors)	[Sensor01] : 25.5 C [Sensor02] : 60% RH [Sensor03] : - [Sensor04] : - : *3	[Meas. name] *1 : Measured value and units (Repeat as many as the registered sensors)

*1 Displays the "Meas. name" you entered when registering the sensor.
*2 The status is displayed as follows.
Normal / Unknown / Com. Error (communications error) / Meas. Value Error (measured value error) /
*3 "No Data" is returned in the e-mail body when there is no data or no sensor is connected.

Event notification emails

When an event generates a change of status or a setting change in a UPS, a notification email is sent in the following format.
If multiple events occur within the e-mail sending delaying time, all events are sent in one batch.

Notification e-mail		
Body	(Example)	(Description)
	The following events occurred. Setting change 2014/04/01 01:02:03> <192.168.1.2> <0x00000002> ---------- Mail Address :ups@syroot Location:1F ----------	The following events occurred. Event name <date-time> <related address> <Event detail> ---------- Mail Address :UPS mail address Location:UPS location information ----------

Appendix D. WS SCRIPT ERROR CODES

(1/2)

Error code	Error description	Check item	Check item in the case of OpenSSH
30000	Failed to decode the public key for host authentication	Check the public key type for host authentication specified on the device for WS(SSH) devices.	
60000	Failed to decode the private key for client authentication	Check the private key type for user authentication specified on the device for WS(SSH) devices.	
87101	Algorithm discrepancy	There is a discrepancy in the key exchange algorithm used when certifying from the LAN interface card on the host side. Check that "diffie-hellman-group1-sha1" or "diffie-hellman-group-exchange" is enabled for the key exchange algorithm.	＜sshd_config＞ Add diffie-hellman-group1-sha1 or diffie-hellman-group-exchange
		There is a discrepancy in the encryption algorithm used when certifying from the LAN interface card on the host side. Check that "aes128-cbc", "3des-cbc", or "arcfour" is enabled for the encryption algorithm.	＜sshd_config＞ Ciphers aes256-ctr,aes128-ctr ↓ Ciphers aes256-ctr,aes128-ctr,aes128-cbc (Add either 3des-cbc, aes128-cbc, aes192-cbc, aes256-cbc or arcfour)
87106	Failed to authenticate host because the key length was not supported	Received a host key that is different from the one registered to this device, or a host key whose length is other than the supported length (1024 or 2048 bits). Check the host key on the SSH server. This error occurs when the above mentioned host key is received even if host authentication is not specified.	
87110	Receive buffer error	Received a large banner from the SSH server. Stop the banner if banners are sent.	<sshd_config> Banner banner_file_name ↓ #Banner banner_file_name (Comment out)
87118	Failed to authenticate client	Check the account and password if using password authentication.	
		Check the account and user authentication key if using public key authentication.	Check that the public key for user authentication is registered to authorized_keys.
		Check if password authentication is permitted.	<sshd_config> PasswordAuthentication no ↓ PasswordAuthentication yes
		Check if an empty password is permitted in the case where password authentication with no password is specified.	<sshd_config> PermitEmptyPasswords no ↓ PermitEmptyPasswords yes
		If you are using root to log in, check if password authentication and public key authentication are configured to permit root to log in.	<sshd_config> PermitRootLogin no ↓ PermitRootLogin yes
		If you are using root to log in, check if password authentication is configured to permit root to log in.	<sshd_config> PermitRootLogin without-password ↓ PermitRootLogin yes
		Check if any specific user is prohibited to log in.	<sshd_config> DenyUser user_name ↓ #DenyUser user_name (comment out)
		Check if login is permitted even if the private key has the wrong permissions in host authentication.	<sshd_config> StrictModes yes ↓ StrictModes no
87119	Banner reception error	Stop the banner if banners are sent.	<sshd_config> Banner banner_file_name ↓ #Banner banner_file_name (Comment out)
87131	Discrepancy in group value during key exchange	If the group being used by the host at the time of key exchange does not support 1024 bit, add a 1024 bit group. Adding a 1024 bit group # cd /etc/ssh # ssh-keygen –G moduli_tmp1 –b 1024 # ssh-keygen –T moduli_tmp2 –f moduli_tmp1 # cat moduli moduli_tmp2 > moduli Delete the moduli_tmp1 and moduli_tmp2. Restart sshd deamon.	

Error code	Error description	Check item	Check item in the case of OpenSSH
87138	Received a disconnection request	Exceeded the number of authentication retries.	<sshd_config> #MaxAuthTries 2 (When commented out, the default value is 6)
87140	No corresponding key in the public key cache	The public key for host authentication differs from the configuration.	<sshd_config> Specify one of the following to match the type of public key for host authentication. HostKey□/etc/ssh/ssh_host_rsa_key or HostKey□/etc/ssh/ssh_host_dsa_key
87142	Unsupported SSH version	SSH-2 is not supported. Check the SSH version.	<sshd_config> Protocol 1 ↓ Protocol 2
		Unsupported encryption algorithm.	<sshd_config> Chiphers blowfish-cbc,cast128-cbc ↓ #Chiphers blowfish-cbc,cast128-cbc (Comment out)
		An SSH-1 key is used as the host public key.	<sshd_config> HostKey□/etc/ssh/ssh_host_key ↓ Uncomment one of the following. HostKey□/etc/ssh/ssh_host_rsa_key or HostKey□/etc/ssh/ssh_host_dsa_key
87143	SSH hostkey error	Check that the SSH hostkey settings are correct. When pasting a SSH hostkey, make sure that it is pasted correctly.	
89001	Socket transmission error	Check if the daemon is operating at the connection destination.	
		Specify a longer login grace time in the daemon configuration file at the connection destination.	<sshd_config> LoginGraceTime 1200
		When ClientAliveInterval is enabled at the destination, disable it, or change the confirmation interval and number of confirmation times to larger values. Or change the authentication method to password authentication or challenge/response authentication.	<sshd_config> ClientAliveInterval 0 (When setting is disabled.) ClientAliveInterval 120 ClientAliveCountMax 10 (When settings use large values)
		Check the communication environment.	
89002	Socket reception error	Check if the daemon is operating at the connection destination.	
		Specify a longer login grace time in the daemon configuration file at the connection destination.	<sshd_config> LoginGraceTime 1200
		Check the communication environment.	
89003	Socket timeout	Check if the daemon is operating at the connection destination.	
		Specify a longer login grace time in the daemon configuration file at the connection destination.	<sshd_config> LoginGraceTime 1200
		The support value for clientGroupBits for the DH key exchange system is not supported. When the KexAlgorithms value on the host is a setting that uses "diffie-hellman-group-exchange-sha1", set so that it does not use "diffie-hellman-group-exchange-sha1". (This may be supported depending on the OS or the OpenSSH version being used.)	<sshd_config> KexAlgorithms diffie-hellman-group-exchange-sha1, diffie-hellman-group1-sha1 ↓ KexAlgorithms diffie-hellman-group1-sha1 Delete “diffie-hellman-group-exchange-sha1”
		When disconnected by a Client Alive Message, change or disable the count values (timeout value and count value).	<sshd_config> Change the default values for ClientAliveInterval and ClientAliveCountMax. Or disable them. ClientAliveInterval 0 (Setting is disables)
		Check the communication environment.	
Others	-	Please contact us.	

Appendix E. LIST OF PRIVATE MIBS

Common OIDs:
.iso(1). org(3). dod(6). internet(1). private(4). enterprises(1). sanyoEnterpriseMIB(3465)

About access privileges

The following abbreviations are used for access privileges.
RO: Read-only, RW: Read-write, NA: Not-accessible, AFN: Accessible-for-notify

OID	ID name	Syntax	Access privilege	Description
41	exUpsObjects	-	-	-
41.1	exUpsManage	-	-	UPS management software
41.1.1	exUpsManageMibVer	DisplayString(SIZE(0..2))	RO	MIB version (Tens place: Major, Ones place: Minor)
41.1.2	exUpsManageSetCounter	Counter	RO	Configuration modification counter

41.1.3	exUpsManageType	INTEGER {
		unknown(1),
		lanCard(2),
		software(3),
		}
			RO	Device type
				1: Unknown
				2: LAN card (this product is fixed to LAN card)
				3: UPS management software

41.1.4	exUpsManageCurrentTime	DisplayString(SIZE(0..19))	RO	Current time of the LAN card (yyyy/mm/dd hh:mm:ss)
41.1.5	exUpsManageNextStartTime	DisplayString(SIZE(0..19))	RO	Next start-up time (yyyy/mm/dd hh:mm:ss) (Default "0000/00/00 00:00:00")
41.1.6	exUpsManageNextStopTime	DisplayString(SIZE(0..19))	RO	Next shutdown time (yyyy/mm/dd hh:mm:ss) (Default "0000/00/00 00:00:00")

41.1.7	exUpsManageCommunicationStatus	INTEGER {
		unknown(1),
		abnormal(2),
		normal(3)
		}
			RO	Communication status with the UPS control section
				1: Unknown
				2: Error
				3: Normal

41.1.8	exUpsManageDeviceCount	NonNegativeInteger	RO	Number of connected devices
41.1.9	exUpsManageDeviceTable	-	NA	Connected device table
41.1.9.1	exUpsManageDeviceEntry	-	NA	Entry
41.1.9.1.1.(index)	exUpsManageDeviceIndex	PositiveInteger	RO	Index (device number)

41.1.9.1.2.(index)	exUpsManageDeviceType	INTEGER {
		unknown(1),
		pcSoftwareNetwork(2),
		wsTelnet(3),
		wsSoftwareNetwork(4),
		etc(5),
		pcLanCardContact(6),
		wsLanCardLogin(8),
		pcServerSerial(9),
		wsServerSerial(10),
		pcServerContact(11),
		wsServerContact(12),
		wsSsh(13)
		}
			RO	Device type
				1: Unknown
				2: PC (network connection)
				3: WS (Telnet connection)
				4: WS (network connection)
				5: ETC connection
				6: PC (LAN I/F card contact connection)
				8: WS (LAN I/F card login connection)
				9: PC (serial connection server)
				10: WS (serial connection server)
				11: PC (contact connection server)
				12: WS (contact connection server)
				13: WS (SSH connection)

41.1.9.1.3.(index)	exUpsManageDeviceName	DisplayString(SIZE(0..64))	RO	IP address (host name)
41.1.9.1.4.(index)	exUpsManageDeviceLocation	DisplayString(SIZE(0..128))	RO	Location
41.1.9.1.5.(index)	exUpsManageDeviceComment	DisplayString(SIZE(0..128))	RO	Comment
41.1.9.1.6.(index)	exUpsManageDeviceOutletNumber	NonNegativeInteger	RO	Outlet number (0 is constant output)

41.1.9.1.7.(index)	exUpsManageDeviceStatus	INTEGER {
		unknown(1),
		stop(2),
		operating(3),
		error(4),
		shuttingDown(5),
		testingShutdown(6)
		}
			RO	Operational status
				1: Unknown
				2: Shut down
				3: Started
				4: Error
				5: Shutting down
				6: Testing a shutdown

41.1.9.1.8.(index)	exUpsManageDeviceWolCond	INTEGER {
		enabled(1),
		disabled(2)
		}
			RO	Wake On Lan conditions (used for the UPS management software, Telnet connection, and SSH connection)

41.1.9.1.9.(index)	exUpsManageDeviceWolDelayTime	INTEGER(0..65535)	RO	Wake On Lan transmission delay time (10 to 65535 seconds)
41.1.10	exUpsManageProgVer	DisplayString(SIZE(0..63))	RO	LAN card program version
41.1.11	exUpsManageCommunicationProtocolVer	DisplayString(SIZE(0..2))	RO	Protocol version of communications with the UPS control section (Tens place: Major, Ones place: Minor)
41.1.12	exUpsManageLocation	DisplayString(SIZE(0..128))	RW	Location
41.1.13	exUpsManageComment	DisplayString(SIZE(0..128))	RW	Comment

OID	ID name	Syntax	Access privilege	Description
41.1.14	exUpsManageControlSetting			UPS management software - UPS control configuration
41.1.14.1	exUpsManageControlTrigger			UPS management software - UPS control configuration - shutdown trigger
41.1.14.1.1	exUpsManageCtrlTrgPowFailConfTime	INTEGER(10..65535)	RW	Power failure confirmation time (10 to 65535 seconds)

41.1.14.1.2	exUpsManageCtrlTrgPowFailCond0	INTEGER {
		enabled(1),
		disabled(2)
		}
			RW	Shutdown conditions at a power failure (constant output)
				1: Enable
				2: Disable

41.1.14.1.3	exUpsManageCtrlTrgPowFailCond1	INTEGER {
		enabled(1),
		disabled(2)
		}
			RW	Shutdown conditions at a power failure (OUTLET1)
				1: Enable
				2: Disable

41.1.14.1.4	exUpsManageCtrlTrgPowFailCond2	INTEGER {
		enabled(1),
		disabled(2)
		}
			RW	Shutdown conditions at a power failure (OUTLET2)
				1: Enable
				2: Disable

41.1.14.1.5	exUpsManageCtrlTrgBattLowCond	INTEGER {
		enabled(1),
		disabled(2)
		}
			RW	Shutdown at low battery voltage
				1: Enable
				2: Disable

41.1.14.1.6	exUpsManageCtrlTrgUnderBkupTime	INTEGER(0..999)	RW	Backups time (Estimated battery time) (0 to 999 minutes)

41.1.14.1.7	exUpsManageCtrlTrgMjBrkCond	INTEGER {
		enabled(1),
		disabled(2)
		}
			RW	Shutdown conditions at a major breakdown
				1: Enable
				2: Disable

41.1.14.1.8	exUpsManageCtrlTrgMjBrkConfTime	INTEGER(10..65535)	RW	Major breakdown confirmation time (10 to 65535 seconds)

41.1.14.1.9	exUpsManageCtrlTrgOvrLoadCond	INTEGER {
		enabled(1),
		disabled(2)
		}
			RW	Shutdown conditions at an overload
				1: Enable
				2: Disable

41.1.14.1.10	exUpsManageCtrlTrgOvrLoadConfTime	INTEGER(10..65535)	RW	Overload confirmation time (10 to 65535 seconds)
41.1.14.2	exUpsManageControlParameter			UPS management software - UPS control configuration - parameter
41.1.14.2.1	exUpsManageCtrlParamShutdDelay	INTEGER(0..65535)	RW	Shutdown delay time (0 to 65535 seconds)
41.1.14.2.2	exUpsManageCtrlParamUpsAutoStopTime	INTEGER(0..65535)	RW	UPS automatic shutdown delay time (0 to 65535 seconds)

41.1.14.2.3	exUpsManageCtrlParamUpsAutoStopCond	INTEGER {
		enabled(1),
		disabled(2)
		}
			RW	UPS automatic shutdown conditions
				1: Enable
				2: Disable

41.1.14.2.4	exUpsManageCtrlParamUpsAutoStartCond	INTEGER {
		enabled(1),
		disabled(2)
		}
			RW	UPS automatic start-up conditions
				1: Enable
				2: Disable

41.1.14.2.5	exUpsManageCtrlParamUpsAutoStartBattCharge	INTEGER(0..100)	RW	Automatic start-up conditions at power restoration (0 to 100%) 0: Disable 2 to 100: Enable
41.1.14.2.6	exUpsManageCtrlParamUpsStopDelayOutput1	INTEGER(0..65535)	RW	Output OFF delay for OUPUT1 (0 to 65535 seconds)
41.1.14.2.7	exUpsManageCtrlParamUpsStopDelayOutput2	INTEGER(0..65535)	RW	Output OFF delay for OUPUT2 (0 to 65535 seconds)
41.1.14.2.8	exUpsManageCtrlParamUpsStartDelayOutput1	INTEGER(0..65535)	RW	Output ON delay for OUPUT1 (0 to 65535 seconds)
41.1.14.2.9	exUpsManageCtrlParamUpsStartDelayOutput2	INTEGER(0..65535)	RW	Output ON delay for OUPUT2 (0 to 65535 seconds)

41.1.14.2.10	exUpsManageCtrlParamStopDelayCond	INTEGER {
		enabledInfinity(1),
		enabledSpecified(2),
		disabled(3)
		}
			RW	Remove and scheduled shutdown delay conditions
				1: Repeat indefinitely
				2: Specified number
				3: Disable

41.1.14.2.11	exUpsManageCtrlParamStopDelayTime	INTEGER(10..65535)	RW	Remote and scheduled shutdown delay time (10 to 65535 seconds)
41.1.14.2.12	exUpsManageCtrlParamStopDelayRepeat	INTEGER(0..65535)	RW	Number of repeated delays for remote and scheduled shutdown (0 to 65535 times)

41.1.14.2.13	exUpsManageCtrlParamIndicateCond	INTEGER {
		enabled(1),
		disabled(2)
		}
			RW	Shutdown warning conditions
				1: Enable
				2: Disable

41.1.14.2.14	exUpsManageCtrlParamIndicateInterval	INTEGER(20..65535)	RW	Shutdown warning interval (20 to 65535 seconds)
41.1.14.2.15	exUpsManageCtrlParamIndicateIntervalSchd	INTEGER(20..65535)	RW	Scheduled shutdown warning start time (20 to 65535 seconds)

OID	ID name	Syntax	Access privilege	Description
41.1.15	exUpsManageMonitoringMeasurementsDeviate			UPS management software - measured value deviation monitoring

41.1.15.1	exUpsManageMonMeasDeviateCond	INTEGER {
		enabled(1),
		disabled(2)
		}
			RW	Measured value deviation monitoring
				1: Enable
				2: Disable

41.1.15.2	exUpsManageMonMeasDeviateCnt	NonNegativeInteger	RO	Number of items
41.1.15.3	exUpsManageMonMeasDeviateTable	-	NA	Table
41.1.15.3.1	exUpsManageMonMeasDeviateEntry	-	NA	Entry
41.1.15.3.1.1.(index)	exUpsManageMonMeasDeviateIndex	PositiveInteger	RO	Index
41.1.15.3.1.2.(index)	exUpsManageMonMeasDeviateID	DisplayString(SIZE(0..16))	RO	Sensor ID
41.1.15.3.1.3.(index)	exUpsManageMonMeasDeviateName	DisplayString(SIZE(1..32))	RW	Measured item name (load factor, UPS temperature, and input voltage are fixed)

41.1.15.3.1.4.(index)	exUpsManageMonMeasDeviateKind	INTEGER {
		upsLoadFactor(1),
		upsBatteryTemperture(2),
		upsInputVoltage(3),
		externalTempMeas(4),
		externalHumidityMeas(5)
		}
			RO	Type
				1: UPS load factor
				2: UPS battery temperature
				3: UPS input voltage
				4: External temperature
				5: External humidity

41.1.15.3.1.5.(index)	exUpsManageMonMeasDeviateUnit	INTEGER {
		percent(1),
		degreeCelsius(2),
		rmsVolts(3),
		percentRelativeHumidity(4)
		}
			RW	Units
				1: %
				2: °C
				3: V
				4: %RH

41.1.15.3.1.6.(index)	exUpsManageMonMeasDeviateLocation	DisplayString(SIZE(0..128))	RW	Location
41.1.15.3.1.7.(index)	exUpsManageMonMeasDeviateComment	DisplayString(SIZE(0..128))	RW	Comment
41.1.15.3.1.8.(index)	exUpsManageMonMeasDeviateMaxDisplayRange	INTEGER(-99999..999999)	RW	Display range maximum value (-99999 to 999999)
41.1.15.3.1.9.(index)	exUpsManageMonMeasDeviateMinDisplayRange	INTEGER(-99999.. 999999)	RW	Display range minimum value (-99999 to 999999)

41.1.15.3.1.10.(index)	exUpsManageMonMeasDeviateStatus	INTEGER {
		normal(1),
		deviationCaution(2),
		deviationWarning(3)
		}
			RO	Deviation status
				1: Normal
				2: Deviation (caution)
				3: Deviation (warning)

41.1.15.3.1.11.(index)	exUpsManageMonMeasDeviateData	Integer32	RO	Measured value x 10 (-99999 if error or the data is not acquired)

41.1.15.3.1.12.(index)	exUpsManageMonMeasDeviateCautionCond	INTEGER {
		enabled(1),
		disabled(2)
		}
			RW	Caution level deviation monitoring
				1: Enable
				2: Disable

41.1.15.3.1.13.(index)	exUpsManageMonMeasDeviateCautionTarget	INTEGER {
		upperLimitOnly(1),
		lowerLimitOnly (2),
		upperLowerLimits(3)
		}
			RW	Caution level deviation monitoring subject
				1: Upper limit only
				2: Lower limit only
				3: Upper and lower limits

41.1.15.3.1.14.(index)	exUpsManageMonMeasDeviateCautionMaxNormal	INTEGER(-99999..999999)	RW	Normal upper limit of the caution level (-99999 to 999999)
41.1.15.3.1.15.(index)	exUpsManageMonMeasDeviateCautionMinNormal	INTEGER(-99999..999999)	RW	Normal lower limit of the caution level (-99999 to 999999)

41.1.15.3.1.16.(index)	exUpsManageMonMeasDeviateWarningCond	INTEGER {
		enabled(1),
		disabled(2)
		}
			RW	Warning level deviation monitoring
				1: Enable
				2: Disable

41.1.15.3.1.17.(index)	exUpsManageMonMeasDeviateWarningTarget	INTEGER {
		upperLimitOnly(1),
		lowerLimitOnly (2),
		upperLowerLimits(3)
		}
			RW	Warning level deviation monitoring subject
				1: Upper limit only
				2: Lower limit only
				3: Upper and lower limits

41.1.15.3.1.18.(index)	exUpsManageMonMeasDeviateWarningMaxNormal	INTEGER(-99999..999999)	RW	Normal upper limit of the warning level (-99999 to 999999)
41.1.15.3.1.19.(index)	exUpsManageMonMeasDeviateWarningMinNormal	INTEGER(-99999..999999)	RW	Normal lower limit of the warning level (-99999 to 999999)

41.1.15.3.1.20.(index)	exUpsManageMonMeasDeviateWarningShutdown	INTEGER {
		enabled(1),
		disabled(2)
		}
			RW	Shutdown at a warning level deviation
				1: Enable
				2: Disable

41.1.15.3.1.21.(index)	exUpsManageMonMeasDeviateWarningShutdownDelay	INTEGER(0..65535)	RW	Confirmation time for a warning level deviation shutdown (0 to 65535 seconds)
41.1.15.3.1.22.(index)	exUpsManageMonMeasDeviateHysteresis	INTEGER(0..999999)	RW	Hysteresis at the recovery (0 to 999999)

OID	ID name	Syntax	Access privilege	Description
41.1.15.3.1.23.(index)	exUpsManageMonMeasDeviateWarningUpsStopStart	INTEGER { dontStopAndDontStart(1), stopAndDontStart(2), stopAndStart(3) }	RW	UPS stop at a warning level deviation 1: Don't stop / Don't start 2: Stop / Don't start 3: Stop / Start
41.1.16	exUpsManageEventLog			UPS management software - event log display
41.1.16.1	exUpsManageEvtLogCnt	NonNegativeInteger	RO	Number of event log items (latest 50 records)
41.1.16.2	exUpsManageEvtLogTable	-	NA	Table
41.1.16.2.1	exUpsManageEvtLogEntry	-	NA	Entry
41.1.16.2.1.1.(index)	exUpsManageEvtLogIndex	PositiveInteger	RO	Index
41.1.16.2.1.2.(index)	exUpsManageEvtLogString	DisplayString(SIZE(0..128))	RO	Log (display in the specified language) Old-style format
41.1.16.2.1.2.(index)	ExUpsManageEvtLogStringVer2	DisplayString(SIZE(0..256))	RO	Log (displayed in the specified language) IPv6 format
41.2	**exUpsAlarm**	**-**	**-**	**Alarm**
41.2.1	exUpsAlarmPresent	Gauge32	RO	Number of alarms being raised
41.2.2	exUpsAlarmTable	-	NA	Alarm table
41.2.2.1	exUpsAlarmEntry	-	NA	Entry
41.2.2.1.1.(index)	exUpsAlarmId	PositiveInteger	RO	Sequence number
41.2.2.1.2.(index)	exUpsAlarmDescr	AutonomousType	RO	Alarm meaning (exUpsWellKnownAlarms)
41.2.2.1.3.(index)	exUpsAlarmTime	DisplayString(SIZE(0..19))	RO	Alarm time (yyyy/mm/dd hh:mm:ss)
41.2.3	exUpsWellKnownAlarms			
41.2.3.1	exUpsAlarmBatteryReplaceWarning	-	-	Passed the battery replacement warning period
41.2.3.2	exUpsAlarmBatteryBad	-	-	Remaining battery life is 0
41.2.3.3	exUpsAlarmOnBattery	-	-	Operating on the battery
41.2.3.4	exUpsAlarmLowBattery	-	-	Detected low battery voltage while operating on the battery
41.2.3.5	exUpsAlarmTempBad	-	-	Abnormal battery temperature (major breakdown)
41.2.3.6	exUpsAlarmInputBad	-	-	AC input voltage and frequency deviation
41.2.3.7	exUpsAlarmOutputOverLoad	-	-	Output overload (including bypass switching)
41.2.3.8	exUpsAlarmOnBypass	-	-	Bypass power supply
41.2.3.9	exUpsAlarmBypassBad	-	-	AC bypass voltage and frequency deviation
41.2.3.10	exUpsAlarmOutputOffAsRequested	-	-	Waiting to shut down the UPS
41.2.3.11	exUpsAlarmChargerFailed	-	-	Charger failure (major breakdown)
41.2.3.12	exUpsAlarmUpsOutputOff	-	-	UPS output OFF
41.2.3.13	exUpsAlarmFanFailure	-	-	Fan failure (major breakdown)
41.2.3.14	exUpsAlarmFuseFailed	-	-	Bypass breaker OFF (minor breakdown)
41.2.3.15	exUpsAlarmMajorBreakdown	-	-	Major breakdown
41.2.3.16	exUpsAlarmMinorBreakdown			Minor breakdown
41.2.3.17	exUpsAlarmCommunicationLost	-	-	Serial communication internal error
41.2.3.18	exUpsAlarmShutdownPending	-	-	Counting down the shutdown delay
41.2.3.19	exUpsAlarmTestInProgress	-	-	Started the battery test
41.2.3.20	exUpsAlarmDeviationMeasurementsWarning	-	-	Measured value deviation (warning)
41.2.3.21	exUpsAlarmDeviationMeasurementsCaution			Measured value deviation (caution)
41.2.3.22	exUpsAlarmSystemOff	-	-	UPS system OFF
41.2.3.23	exUpsAlarmSelfTestTrouble	-	-	Self test error
41.3	**exUpsIdent**			**Identity**
41.3.1	exUpsIdentManufacturedNumber	DisplayString(SIZE(0..63))	RO	UPS serial number
41.3.2	exUpsIdentRatedCapacity	NonNegativeInteger	RO	Rated capacity (VA)
41.3.3	exUpsIdentRatedBackupTime	NonNegativeInteger	RO	Rated backup time (minutes)
41.3.4	exUpsIdentProtocolVersion	DisplayString(SIZE(0..2))	RO	UPS protocol version
41.3.5	exUpsIdentElapsedTime	NonNegativeInteger	RO	Accumulated UPS operation time (hours)
41.3.6	exUpsIdentManufacturedDate	DisplayString(SIZE(0..10))	RO	Production date (yyyy/mm/dd)
41.3.7	exUpsIdentManufacturer	DisplayString(SIZE(0..31))	RO	UPS manufacturer
41.3.8	exUpsIdentModel	DisplayString(SIZE(0..63))	RO	Style name
41.3.9	exUpsIdentUPSSoftwareVersion	DisplayString(SIZE(0..63))	RO	ROM version
41.3.10	exUpsIdentInputVoltage	NonNegativeInteger	RO	Rated input voltage (V)
41.3.11	exUpsIdentInputFreq	NonNegativeInteger	RO	Rated input frequency (0.1Hz)
41.3.12	exUpsIdentOutputVoltage	NonNegativeInteger	RO	Rated output voltage (V)
41.3.13	exUpsIdentOutputFreq	NonNegativeInteger	RO	Rated output frequency (0.1Hz)
41.3.14	exUpsIdentOutputPower	NonNegativeInteger	RO	Rated output power (W)
41.4	**exUpsBattery**	**-**	**-**	**Battery**
41.4.1	exUpsBatteryReplaceIndicator	INTEGER { unknown(1), noBatteryNeedsReplacing(2), batteryNeedsReplacing(3), batteryLife(4) }	RO	Battery replacement warning 1: Unknown 2: Replacement unnecessary 3: Replacement required (After the battery replacement warning appears) 4: Remaining battery life 0
41.4.2	exUpsBatteryNoticeLifeTimeRemaining	NonNegativeInteger	RW	Battery replacement warning period (x months in advance) (Battery replacement warning timing)
41.4.3	exUpsBatteryLifeTimeRemainingMonth	NonNegativeInteger	RO	Battery replacement time (x months in advance)
41.4.4	exUpsBatteryLifeTimeRemainingHour	NonNegativeInteger	RO	Remaining battery life (hours)
41.4.5	exUpsBatteryElapsedTimeOnBattery	DisplayString(SIZE(0..10))	RO	Accumulated battery operation time (seconds)

OID	ID name	Syntax	Access privilege	Description
41.4.6	exUpsBatterySecondsOnBattery	NonNegativeInteger	RO	Elapsed time into the battery operation (seconds)

41.4.7	exUpsBatteryAutoChkIntervalByUps	INTEGER {
		none(1),
		thirtyDays(2),
		ninetyDays(3),
		oneHundredEightyDays(4)
		}
			RW	Periodical automatic battery checks by the UPS
				1: None
				2: Every 30 days
				3: Every 90 days
				4: Every 180 days

41.4.8	exUpsBatteryAutoChkIntervalByManageSoft	INTEGER {
		none(1),
		thirtyDays(2),
		ninetyDays(3),
		oneHundredEightyDays(4)
		}
			RW	Periodical automatic battery checks by the LAN card or the UPS management software
				1: None
				2: Every 30 days
				3: Every 90 days
				4: Every 180 days

41.4.9	exUpsBatteryEstimatedMinutesRemaining	PositiveInteger	RO	Remaining battery operation time estimated from the current load status (minutes)
41.4.10	exUpsBatteryEstimatedChargeRemaining	INTEGER(0..100)	RO	Estimated remaining battery power against fully charged capacity (%)
41.4.11	exUpsBatteryVoltage	NonNegativeInteger	RO	Battery voltage (0.1V)
41.4.12	exUpsBatteryCurrent	Integer32	RO	Battery current (0.1A)
41.4.13	exUpsBatteryTemp	Integer32	RO	Battery temperature (°C)
41.4.14	exUpsBatteryLastReplaceDate	DisplayString(SIZE(0..10))	RW	Battery replacement date (yyyy/mm/dd)

41.4.15	exUpsBatteryStatus	INTEGER {
		unknown(1),
		batteryNormal(2),
		batteryLow(3)
		}
			RO	Battery status
				1: Unknown
				2: Battery normal
				3: Low battery voltage

41.5	**exUpsOutput**	**-**	**-**	**Output**

41.5.1	exUpsOutputConstant	INTEGER {
		unknown(1),
		withoutConstantOutput(2),
		withConstantOutput(3)
		}
			RO	Constant output
				1: Unknown
				2: Disable
				3: Enable

41.5.2	exUpsOutputNumberLines	NonNegativeInteger	RO	Number of outlets
41.5.3	exUpsOutputLineTable	-	NA	Output table (excluding constant output)
41.5.3.1	exUpsOutputLineEntry	-	NA	Entry
41.5.3.1.1.(index)	exUpsOutputLineIndex	PositiveInteger	RO	Index (outlet number)

41.5.3.1.2.(index)	exUpsOutputLineOutputStatus	INTEGER {
		unknown(1),
		on(2),
		off(3)
		}
			RO	Outlet power supply status
				1: Unknown
				2: Output ON
				3: Output OFF

41.5.3.1.3.(index)	exUpsOutputLineControlStatus	INTEGER {
		stop(1),
		running(2),
		Irreversible(3),
		}
			RO	UPS status
				1: Shut down
				2: Started
				3: Irreversible status

41.5.4	exUpsOutputInverterMode	INTEGER {
		doubleConversion(1),
		activeFilter(2),
		economy(3),
		bypass(4),
		battery(5),
		standby(6),
		stop(7),
		testingBatt(8),
		unknown(9)
		}
			RO	Inverter operation mode
				(supported in the protocol version 3 and later)
				1: Double conversion (AVR)
				2: Active filter (normal)
				3: Economy
				4: Bypass
				5: Battery
				6: Stand-by
				7: Stop
				8: Battery test
				9: Unknown (not configured, serial communication error, etc.)

41.5.5	exUpsOutputSource	INTEGER {
		other(1),
		none(2),
		normal(3),
		bypass(4),
		battery(5)
		}
			RO	Output supply source
				1: Others
				2: No output
				3: Normal operation
				4: Bypass operation
				5: Battery operation

41.5.6	exUpsOutputPercentLoad	INTEGER(0..200)	RO	Load factor (%)
41.5.7	exUpsOutputFrequency	NonNegativeInteger	RO	Output frequency (0.1Hz)
41.5.8	exUpsOutputNumberPhase	NonNegativeInteger	RO	Output phase
41.5.9	exUpsOutputPhaseTable	-	NA	Table
41.5.9.1	exUpsOutputPhaseEntry	-	NA	Entry
41.5.9.1.1.(index)	exUpsOutputPhaseIndex	PositiveInteger	RO	Index (phase)
41.5.9.1.2.(index)	exUpsOutputPhaseVoltage	NonNegativeInteger	RO	Output voltage (V) (each phase)
41.5.9.1.3.(index)	exUpsOutputPhaseCurrent	NonNegativeInteger	RO	Output current (0.1A) (each phase)
41.5.9.1.4.(index)	exUpsOutputPhasePower	NonNegativeInteger	RO	Output power (W) (each phase, or set the total output power on the first phase)
41.5.9.1.5.(index)	exUpsOutputPhaseEnergy	NonNegativeInteger	RO	Accumulated output power capacity (Wh) (set on the first phase) Accumulated value of output power capacity in the collecting period. Accumulates from 0Wh again, when exceeding upper limit 999,999,999Wh .

OID	ID name	Syntax	Access privilege	Description
41.6	**exUpsInput**	**-**	**-**	**Input**
41.6.1	exUpsInputLineBads	Counter32	RO	Number of times the input voltage deviated from the specification
41.6.2	exUpsInputFrequency	NonNegativeInteger	RO	Input frequency (0.1Hz)
41.6.3	exUpsInputNumberPhase	NonNegativeInteger	RO	Input phase
41.6.4	exUpsInputPhaseTable	-	NA	Table
41.6.4.1	exUpsInputPhaseEntry	-	NA	Entry
41.6.4.1.1.(index)	exUpsInputPhaseIndex	PositiveInteger	RO	Index (phase)
41.6.4.1.2.(index)	exUpsInputPhaseVoltage	NonNegativeInteger	RO	Input voltage (V) (each phase)
41.6.4.1.3.(index)	exUpsInputPhaseCurrent	NonNegativeInteger	RO	Input current (0.1A) (each phase)
41.6.4.1.4.(index)	exUpsInputPhaseTruePower	NonNegativeInteger	RO	Input power (W) (each phase, or set the total input power on the first phase)
41.7	**exUpsBypass**	**-**	**-**	**Bypass**
41.7.1	exUpsBypassFrequency	NonNegativeInteger	RO	Bypass frequency (0.1Hz)
41.7.2	exUpsBypassNumberPhase	NonNegativeInteger	RO	Bypass phase
41.7.3	exUpsBypassPhaseTable	-	NA	Table
41.7.3.1	exUpsBypassPhaseEntry	-	NA	Entry
41.7.3.1.1.(index)	exUpsBypassPhaseIndex	PositiveInteger	RO	Index (phase)
41.7.3.1.2.(index)	exUpsBypassPhaseVoltage	NonNegativeInteger	RO	Bypass voltage (V) (each phase)
41.7.3.1.3.(index)	exUpsBypassPhaseCurrent	NonNegativeInteger	RO	Bypass current (0.1A) (each phase)
41.7.3.1.4.(index)	exUpsBypassPhasePower	NonNegativeInteger	RO	Bypass power (W) (each phase, or set the total bypass power on the first phase)
41.8	**exUpsTest**	**-**		**Test**
41.8.1	exUpsTestId	OBJECTIDENTIFIER	RW	Test ID (OID of exUpsWellKnownTests)
41.8.2	exUpsTestSpinLock	TestAndIncr	RW	Exclusive control on the test and sub systems

41.8.3	exUpsTestResultsSummary	INTEGER {
		donePass(1),
		doneWarning(2),
		doneError(3),
		aborted(4),
		inProgress(5),
		unknown(6)
		}
			RO	Result of the previous test
				1: Normal end
				2: Abnormal end
				3: Error
				4: Cancel
				5: Testing
				6: Unknown
				(Cleared by power supply off)

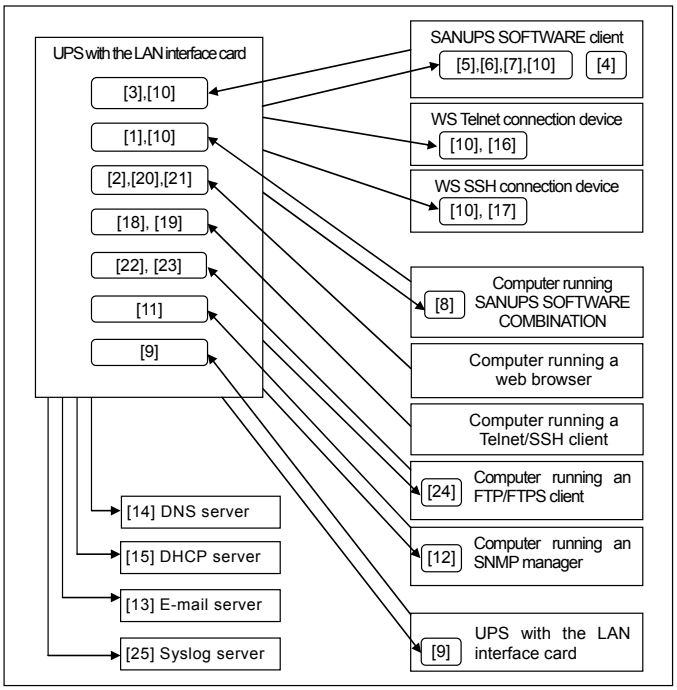
41.8.4	exUpsTestResultsDetail	DisplayString(SIZE(0..255))	RO	Additional information for the test result (test date)
41.8.5	exUpsTestStartTime	TimeStamp	RO	Battery test start time (duration from the start-up)
41.8.6	exUpsTestElapsedTime	TimeInterval	RO	Battery test elapsed time
41.8.7	exUpsWellKnownTests	-	-	-
41.8.7.1	exUpsTestNoTestsInitiated	-	-	No test history (no test has been done and no test is being done)
41.8.7.2	exUpsTestAbortTestInProgress	-	-	Test cancelled
41.8.7.3	exUpsTestGeneralSystemsTest	-	-	Standard test by the manufacturer
41.8.7.4	exUpsTestQuickBatteryTest	-	-	Battery test
41.8.7.5	exUpsTestDeepBatteryCalibration	-	-	High-accuracy battery discharge test (same as exUpsTestQuickBatteryTest)
41.9	**exUpsControl**	**-**	**-**	**Control**
41.9.1	exUpsControlOutputNumberLines	NonNegativeInteger	RO	Number of controlled outlets (duplicate with exUpsOutput)
41.9.2	exUpsCtrlOutLineTable	-	NA	Table
41.9.2.1	exUpsCtrlOutLineEntry	-	NA	Entry
41.9.2.1.1.(index)	exUpsCtrlOutLineLineIndex	PositiveInteger	RO	Index (Circuits. Controls all circuits at once when the number of circuits + 1)
41.9.2.1.2.(index)	exUpsCtrlOutLineShutdownAfterDelay	INTEGER(-1..65535)	RW	Output shutdown delay (seconds) Normally -1. Countdown starts when a value is set. Shutdown occurs when 0 but is cancelled when -1 is set.
41.9.2.1.3.(index)	exUpsCtrlOutLineStartupAfterDelay	INTEGER(-1..65535)	RW	Output start delay (seconds) Normally -1. Countdown starts when a value is set. Output starts when 0 but is cancelled when -1 is set.
41.9.2.1.4.(index)	exUpsCtrlOutLineRebootInterval	INTEGER(0..65535)	RW	Duration (seconds) between output OFF and output ON when restarting with exUpsCtrlOutLineRebootAfterDelay
41.9.2.1.5.(index)	exUpsCtrlOutLineRebootAfterDelay	INTEGER(-1..65535)	RW	Output restart delay (seconds) Normally -1. Countdown starts when a value is set. Output restarts when 0 but is cancelled when -1 is set.

OID	ID name	Syntax	Access privilege	Description
42	**exUpsTraps**	**-**	**-**	**Trap**
42.1	exUpsTrapAlarmEntryAdded	-	AFN	Alarm 1st parameter: exUpsAlarmId 2nd parameter: exUpsAlarmDescr
42.2	exUpsTrapAlarmEntryRemoved	-	AFN	Recovered from an alarm 1st parameter: exUpsAlarmId 2nd parameter: exUpsAlarmDescr
42.3	exUpsTrapSettingChange	-	AFN	Setting change 1st parameter: exUpsManageSetCounter 2nd parameter: exUpsManageEvtLogString
42.4	exUpsTrapDeviceStatChange	-	AFN	Connected device status change 1st parameter: exUpsManageDeviceIndex 2nd parameter: exUpsManageDeviceStatus
42.5	exUpsTrapBatteryReplaceWarning	-	AFN	Battery replacement warning (when the cyclic notification event occurs) 1st parameter: exUpsBatteryLifeTimeRemainingMonth
42.6	exUpsTrapOnBattery	-	AFN	Operating on battery 1st parameter: exUpsBatteryEstimatedMinutesRemaining 2nd parameter: exUpsBatterySecondsOnBattery This trap is sent every minute until either the UPS is shut down or the power is restored.
42.7	exUpsTrapTestCompleted	-	AFN	Test complete 1st parameter: exUpsTestId 2nd parameter: exUpsTestSpinLock 3rd parameter: exUpsTestResultsSummary 4th parameter: exUpsTestResultsDetail 5th parameter: exUpsTestStartTime 6th parameter: exUpsTestElapsedTime
42.8	exUpsTrapDeviationMeasurementsWarning	-	AFN	Measured value deviation (warning) 1st parameter: exUpsManageMonMeasDeviateName 2nd parameter: exUpsManageMonMeasDeviateStatus 3rd parameter: exUpsManageMonMeasDeviateData 4th parameter: exUpsManageMonMeasDeviateUnit
42.9	exUpsTrapDeviationMeasurementsWarningRecover	-	AFN	Recovered from measured value deviation (warning) 1st parameter: exUpsManageMonMeasDeviateName 2nd parameter: exUpsManageMonMeasDeviateStatus 3rd parameter: exUpsManageMonMeasDeviateData 4th parameter: exUpsManageMonMeasDeviateUnit
42.10	exUpsTrapDeviationMeasurementsCaution	-	AFN	Measured value deviation (caution) 1st parameter: exUpsManageMonMeasDeviateName 2nd parameter: exUpsManageMonMeasDeviateStatus 3rd parameter: exUpsManageMonMeasDeviateData 4th parameter: exUpsManageMonMeasDeviateUnit
42.11	exUpsTrapDeviationMeasurementsCautionRecover	-	AFN	Recovered from measured value deviation (caution) 1st parameter: exUpsManageMonMeasDeviateName 2nd parameter: exUpsManageMonMeasDeviateStatus 3rd parameter: exUpsManageMonMeasDeviateData 4th parameter: exUpsManageMonMeasDeviateUnit
42.12	exUpsTrapPowerFailure	-	AFN	Power failure
42.13	exUpsTrapPowerFailureRecovered	-	AFN	Recovered from a power failure
42.14	exUpsTrapOutputOFF	-	AFN	Output OFF
42.15	exUpsTrapOutputON	-	AFN	Output ON
42.16	exUpsTrapBatteryLife	-	AFN	Battery life
42.17	exUpsTrapNormalBattery	-	AFN	Normal battery
42.18	exUpsTrapLowBatteryVoltage	-	AFN	Low battery voltage
42.19	exUpsTrapNormalBatteryVoltage	-	AFN	Normal battery voltage
42.20	exUpsTrapOverload	-	AFN	Overload
42.21	exUpsTrapLoadNormal	-	AFN	Load normal
42.22	exUpsTrapMajorBreakdown	-	AFN	Major breakdown
42.23	exUpsTrapMajorBreakdownRecovered	-	AFN	Recovered from a major breakdown
42.24	exUpsTrapMinorBreakdown	-	AFN	Minor breakdown
42.25	exUpsTrapMinorBreakdownRecovered	-	AFN	Recovered from a minor breakdown
42.26	exUpsTrapInternalCommunicationTrouble	-	AFN	Serial communication internal error
42.27	exUpsTrapInternalCommunicationTroubleRecovered	-	AFN	Recovered from a serial communication internal error
42.28	exUpsTrapStartScheduledStopWarning	-	AFN	Start scheduled stop warning
42.29	exUpsTrapStopWarning	-	AFN	Shutdown warning
42.30	exUpsTrapIrreversibleScheduledStop	-	AFN	Irreversible status (scheduled shutdown) 1st parameter: exUpsOutputLineIndex

OID	ID name	Syntax	Access privilege	Description
42.31	exUpsTrapIrreversibleRemoteStop	-	AFN	Irreversible status (remote shutdown) 1st parameter: exUpsOutputLineIndex
42.32	exUpsTrapIrreversiblePowerFailure	-	AFN	Irreversible status (power failure) 1st parameter: exUpsOutputLineIndex
42.33	exUpsTrapIrreversibleLowBatteryVoltage	-	AFN	Irreversible status (low battery voltage) 1st parameter: exUpsOutputLineIndex
42.34	exUpsTrapExecPreShutdownOperation	-	AFN	Pre-shutdown process execution 1st parameter: exUpsOutputLineIndex 2nd parameter: exUpsManageDeviceIndex
42.35	exUpsTrapShutdownExecution	-	AFN	Shutdown process execution 1st parameter: exUpsOutputLineIndex 2nd parameter: exUpsManageDeviceIndex
42.36	exUpsTrapBatteryReplaceWarningTime	-	AFN	Battery replacement warning time 1st parameter: exUpsBatteryLifeTimeRemainingMonth
42.37	exUpsTrapOutputCircuitOn	-	AFN	Output circuit ON 1st parameter: exUpsOutputLineIndex
42.38	exUpsTrapOutputCircuitOff	-	AFN	Output circuit OFF 1st parameter: exUpsOutputLineIndex
42.39	exUpsTrapIrreversibleMajorBreakdown	-	AFN	Irreversible status (major breakdown) 1st parameter: exUpsOutputLineIndex
42.40	exUpsTrapIrreversibleOverload	-	AFN	Irreversible status (overload) 1st parameter: exUpsOutputLineIndex
42.41	exUpsTrapIrreversibleUPSTemperatureTrouble	-	AFN	Irreversible status (abnormal UPS temperature) 1st parameter: exUpsOutputLineIndex
42.42	exUpsTrapIrreversibleLoadFactorAbnormal	-	AFN	Irreversible status (abnormal load factor) 1st parameter: exUpsOutputLineIndex
42.43	exUpsTrapIrreversibleInputVoltageAbnormal	-	AFN	Irreversible status (abnormal input voltage) 1st parameter: exUpsOutputLineIndex
42.44	exUpsTrapIrreversibleExtMeasureAbnormal	-	AFN	Irreversible status (abnormal external measured value) 1st parameter: exUpsOutputLineIndex
42.45	exUpsTrapSelfTestTrouble	-	AFN	Self test error 1st parameter: exUpsManageEvtLogString
42.46	exUpsTrapSelfTestNormal	-	AFN	Self test normal 1st parameter: exUpsManageEvtLogString

Appendix F. DEPLOYED PROTOCOLS AND SERVER PORTS

The following describes TCP/UDP server ports and general protocols used by the LAN interface card.



	Protocols	Port No.	Description	SANUPS SOFTWARE*1
[1]	UPS management system	UDP: 30000 *2	Waits for the connection from SANUPS SOFTWARE COMBINATION	-
		TCP: 30001 *2	Waits for the connection from SANUPS SOFTWARE COMBINATION	
[2]		TCP: 30002 *2	Waits for the connection from the web tool	-
[3]		TCP: 30000 *2	Waits for the connection from client devices	-
		TCP: 30003 *2	Waits for the connection from the GUI tool	
		TCP: 30004 *2	Waits for the connection from the control tool	
		TCP: 30005 *2	Waits for the connection from the display tool	
[4]		TCP: 31001	Waits for the connection from the tool	-
[5]		TCP: 31000 *2	Waits for the connection from the UPS	○
[6]		UDP: 31000 *2	Waits for the magic packet for Wake On LAN	○
[7]		TCP: 31010 to 31019	Waits for the connection from the UPS (dynamic, for SANUPS SOFTWARE)	○
[8]		TCP: 31020 to 31029	Waits for the connection from the UPS (dynamic, for SANUPS SOFTWARE COMBINATION)	-
[9]		TCP: 31000	Waits for the connection from the UPS (for UPS linkage)	-
[10]	ICMP	-	Status check using ping (echo) (for IPv4 address registration device)	○
	ICMPv6	-	Status check using ping (echo) (for IPv6 address registration device)	○
[11]	SNMP	UDP: 161	Waits for the connection from the SNMP manager	-
[12]	SNMPTRAP	UDP: 162	Receives SNMP traps	-
[13]	SMTP	TCP: 25 *3	Sends E-mails (without encryption)	-
		TCP: 465 *3	Sends E-mails (SMTP over SSL/TLS)	
		TCP: 587 *3	Sends E-mails (STARTTLS)	
	POP3	TCP: 110 *3	Receives E-mails (without encryption/STLS)	-
		TCP: 995 *3	Receives E-mails (POP over SSL/TLS)	
[14]	DNS	-	Resolves names of client devices, E-mail servers, etc. (acquires IP addresses)	-
[15]	DHCP	-	Acquires dynamic addresses	-
[16]	Telnet	TCP: 23 *3	Waits for the Telnet connection (for WS Telnet connection devices)	-
[17]	SSH	TCP: 22 *3	Waits for the SSH connection (for WS SSH connection devices)	-
[18]	Telnet	TCP: 23 *3	Waits for the Telnet connection (for configuration)	-
[19]	SSH	TCP: 22 *3	Waits for the SSH connection (for configuration)	-
[20]	HTTP	TCP: 80 *3	Loads the web tool	-
[21]	HTTPS	TCP: 443 *3	Loads the web tool	-
[22]	FTP	TCP: 21 *3	Downloads and uploads UPS configuration information	-
		TCP: 32000 to 32010	Data communications in passive mode	
[23]	FTPS	TCP: 990 *3	Downloads and uploads UPS configuration information	-
		TCP: 32000 to 32010	Data communications in passive mode	
[24]	FTP/FTPS	TCP: dynamic_port	Data communications in active mode	-
[25]	Syslog	UDP: 514	Sends syslog	-

*1 Operations may be hindered unless the use of the above port is permitted if a firewall is installed on the computer where SANUPS SOFTWARE is running.
*2 Default value. The port number can be changed. See "Appendix G. LIST OF TERMINAL TOOL COMMANDS" for information on how to change it.
*3 Default value. The port number can be changed. See the relevant sections in the manuals of the web management tool and the terminal tool.

Appendix G. LIST OF TERMINAL TOOL COMMANDS

The following commands are available in the terminal tool in addition to the menu displayed on the screen.
Enter the command in [UPS-Agent>] on the main menu screen.

(1/2)

Command name	Privilege	Purpose	Description
init	Administrator	Initialization	Initializes the following information to their factory defaults. [Initialization subjects] Setting (1. Setting) - Account (1. Account) - Event message (2. Event Message) - SSH server host key (3. SSH Host Key) - SSH client common key (4. SSH Default Key) - All setting values (5. All) Event log (2. Event Log) Summary data (3. Sampling Data) Initialize all information (4. All)
reset	Administrator	Reset	Restarts the LAN interface card. Setting information is not initialized.
oldlan	Administrator	Backward compatibility for the LAN interface card	Mode provided to operate the LAN interface card as an older version to register previous versions of SANUPS SOFTWARE (prior to 2.0.0) as the shutdown subject devices. [Default] Backward compatibility off [Setting] oldlan ON → Backward compatibility on oldlan OFF → Backward compatibility off [Check the current setting] oldlan
proto	Administrator	Serial communication mode	Specifies the protocol version for serial communications with the UPS. You need to set the protocol version to 2.x when registering SANGUARD IV Lite as a shutdown subject device. Modification is applied after restarting the UPS. *Operations are restricted when using an older power supply management product. If you are using an older version, contact SANYO DENKI. [Default] Operates in normal mode [Setting] 0: Normal → Operates in normal mode (The latest protocol version supported by the UPS) 1: Proto-2X → Operates in protocol version 2.x
sgport	Administrator	UPS management system protocol port change	Changes the TCP/UDP port for the proprietary protocol used on the LAN interface card. Modification is applied after restarting the LAN interface card. See *2 in "Appendix F. DEPLOYED PROTOCOLS AND SERVER PORTS".
settotalkwh	Administrator	Accumulated output power capacity setting	Specifies the accumulated output power capacity and accumulation start date to start accumulating the output power capacity. Specify when initializing the output power capacity to 0kWh, or setting the previously accumulated value after replacing the LAN interface card. [Setting range] 0 to 999999.999 kWh
totalkwh	Administrator and User	Accumulated output power capacity display	Displays the accumulated output power capacity.
sensorlist	Administrator and User	Sensor connection status display	Searches all physically connected sensors and displays the sensor IDs. "*" is displayed on registered sensors.
coltmtype	Administrator	Time display format setting for collecting data files	Specifies the time format for collecting data file output (FTP and e-mail) and the final data of the day. [Default] 24:00:00 [Setting] 1：24:00:00 2：00:00:00
wol	Administrator	Number of Wake On LAN magic packet transmissions and intervals setting	Specifies the number of Wake On LAN magic packet transmissions and intervals. [Default] INTERVAL (transmission intervals): 10 sec. COUNT (Nos. transmissions): 7 times [Setting range] INTERVAL: 1 to 65535 sec. COUNT: 1 to 65535 times
sslver	Administrator	Configure for the SSL version used	Set enable or disable each SSL version being used for this product. [Default] TLS 1.0 Server : Disabled Client：Disabled TLS 1.1 Server : Disabled Client：Disabled TLS 1.2 Server : Enabled Client：Enabled [Setting] 1：Enable 2：Disabled Changes to this setting are applied after a manual restart.
acsyncstart	Administrator	When power failure recovered, configure of UPS synchronization start-up mode.	If "Synchronization setting by causes" - "Run in sync at a power failure or low battery voltage" is set to "Enable", set UPS start-up time by power failure recovery to be synchronized with all UPS group members' UPS. [Default] OFF [Setting] 1：ON Perform synchronization start-up 2：OFF Do not perform synchronization start-up

Command name	Privilege	Purpose	Description
stopdevsdcond	Administrator	Shutdown setting for the stopped devices.	At the default values, shutdown is not performed when device to be shut down is stopping. When you set to perform shutdown, shutdown is performed for the stopping devices. [Default] Disabled：Do not perform a shutdown when devices stop. [Setting method] - Device list is displaied when executing command. - Enter the number of the device to be set. Enter "9999" if you set all devices. - Enter setup value. 1：Enabled Perform a shutdown when devices stop. 2：Disabled Do not perform a shutdown when devices stop.
linkstart	Administrator	UPS linkage startup settings	When you use "UPS linkage" function, you can configure about redundant startup(the following value [1] to [3]). After you change setting value, the setting value is sent to the other UPSs. [1] Confirmation Time : Comfirmation time of redundant startup. [Default] 120sec. [Setting range] 0 to 600sec. & the value of [3] or less [2] Turn On Output : UPS startup condition after confirmation time. [Default] Enabled：Start-up [Setting] 1：Enabled Start-up 2：Disabled Do not start-up [3] Max Confirmation Time ：Maximum confirmation time of redundant startup. [Default] 300sec. [Setting range] 0 to 1200sec. & the value of [1] or more
help	Administrator and User	Help	Displays a list of terminal tool commands.

Appendix H. Notes when using an older version of SANUPS SOFTWARE

Note the following items when establishing a network connection to a LAN interface card using an older version of SANUPS SOFTWARE 1.x.x (any version earlier than 2.0.0).

Caution

When registering an older version of SANUPS SOFTWARE 1.x.x (any version earlier than 2.0.0) with a LAN interface card, you need to change "Backward compatibility for the LAN interface card" from "Appendix G. LIST OF TERMINAL TOOL COMMANDS" to a backward compatibility mode setting.

Changes with Backward compatibility for the LAN interface card

Set this when you change the "Backward compatibility for the LAN interface card" for the LAN interface card using terminal software or using Telnet/SSH terminal software.

(1) Login to the LAN interface card.

Login to the LAN interface card using terminal software etc.

A user authentication message is displayed. Enter the new user name and password according to the message.

The default account information is as follows.

User name:UpsAdmin

Password :UpsAdmin

(2) The [Main Menu] is displayed.

```
  Main Menu
1.Configuration
2.Schedule
  …
10.Download/Upload
11.Exit
UPS Agent>
```

(3) Change the "oldlan" setting to "Backward compatibility for the LAN interface card".

```
  Main Menu
1.Configuration
2.Schedule
  …
10.Download/Upload
11.Exit
UPS Agent>oldlan
oldlan :OFF
OK

=== Hit Enter Key !! ===
```

The current setting value (Default value : OFF)

The current value of " oldlan " is displayed.

How to operate

Enter " oldlan ", and press "Enter" key.
The current setting value is displayed.
Press "Enter" again.

```
  Main Menu
1.Configuration
2.Schedule
  …
10.Download/Upload
11.Exit
UPS Agent>oldlan ON
OK

=== Hit Enter Key !! ===
```

Change the "oldlan" setting to "ON".

How to operate

Enter "oldlan ON", and press "Enter".
"OK" is displayed.
Press "Enter" again.

(4) Exit from the Main Menu.

How to operate

Enter "11"", press "Enter". Or press "Esc".

Appendix I. Changing the UPS management system protocol port

You can change some of the section port numbers used to UPS management system listed in "Appendix F Usage protocols and service ports" using the terminal tool command "sgport". Make the following settings when changing a port number.

Caution

When using power supply management products such as SANUPS SOFTWARE when changing a port number used to UPS management system, make sure you also change the power supply management product to align the port numbers. If you only change the UPS side, you cannot perform device power supply management and network communication.

Changing the protocol port

Set this when you change the "protocol port" for the LAN interface card using terminal software or using Telnet/SSH terminal software.

(1) Login to the LAN interface card.

Login to the LAN interface card using terminal software etc.

A user authentication message is displayed. Enter the new user name and password according to the message.

The default account information is as follows.

User name:UpsAdmin

Password :UpsAdmin

(2) The [Main Menu] is displayed.

```
  Main Menu
1.Configuration
2.Schedule
  …
10.Download/Upload
11.Exit
UPS Agent>
```

(3) Perform the “sgport” command.

```
  Main Menu
1.Configuration
2.Schedule
  …
10.Download/Upload
11.Exit
UPS Agent> sgport

SG Protocol Port Setting Menu
1.Session          :30000
2.COMBI            :30001
3.WebTool          :30002
4.GUI_Set          :30003
5.GUI_Cont         :30004
6.GUI_Disp         :30005
7.Comp_Serch       :30000
8.Service_Event    :31000
9.WOL Port         :31000
10.Reset All Port
11.Exit
UPS Agent>
```

The setting value of “sgport” is displayed.

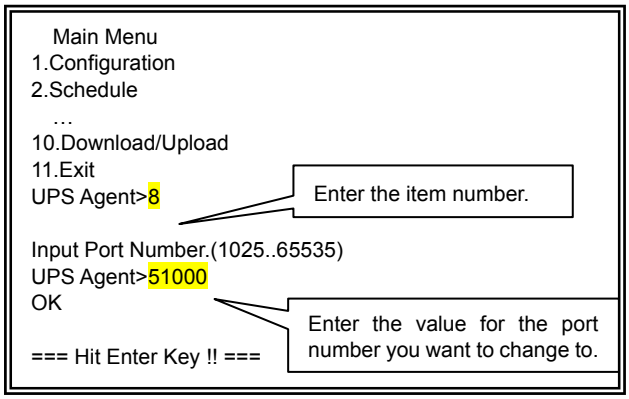
How to operate

Enter “sgport”, and press “Enter” key.

The current setting value is displayed.

(4) Change the port number.

The following procedure explains how to change Service_Event: port 31000 to port 51000.



Select the item you want to change, and then change the port number.

How to operate

Enter the item number to which you want to change the port number, and then press "Enter".

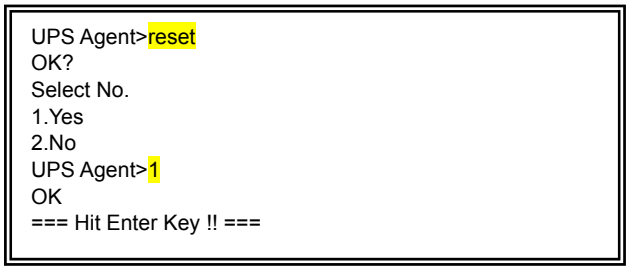
Use the keys to enter the next port number, and then press "Enter". "OK" is displayed when the number is accepted.
Press “Enter” key again.

(5) Exit from the SG Protocol Port Setting Menu.

How to operate

Enter “11”, and press “Enter” key.

(6) Restart the LAN interface card.



Restart the LAN interface card to reflect the new settings.

How to operate

In "UPS Agent>" on the Main Menu, enter the "reset" key, and then press "Enter".
When a confirmation message is displayed, enter "1", and then press "Enter".
When "Hit Enter Key!!" is displayed, press "Enter". The reboot starts 30 seconds later.

Appendix J. Supported SSH algorithms

The following table describes the supported status of KexAlgorithms, Ciphers and MACs.
Depending on the ROM program version of the LAN interface card, there are differences in the supported status.

Please refer to when checking the supported status of the SSH algorithm, such as connecting from LAN interface card to your device by SSH.

SSH Algorithms		ROM program version		
		P0010533D or later	P0010533C	P0010533A to B
KexAlgorithms	diffie-hellman-group-exchange-sha256	○	○	-
	diffie-hellman-group-exchange-sha1	○	○	○
	diffie-hellman-group1-sha1	○	○	○
Ciphers	chacha20-poly1305@openssh.com	○	-	-
	aes256-ctr	○	-	-
	aes192-ctr	○	-	-
	aes128-ctr	○	-	-
	aes256-cbc	○	○	○
	aes192-cbc	○	○	○
	aes128-cbc	○	○	○
	3des-cbc	○	○	○
	arcfour	○	○	○
MACs	hmac-sha2-512-etm@openssh.com	○	-	-
	hmac-sha2-512	○	-	-
	hmac-sha2-256-etm@openssh.com	○	-	-
	hmac-sha2-256	○	○	-
	hmac-md5-etm@openssh.com	○	-	-
	hmac-md5	○	○	○
	hmac-sha1-etm@openssh.com	○	-	-
	hmac-sha1	○	○	○
	hmac-ripemd160-etm@openssh.com	○	-	-
	hmac-ripemd160	○	○	○

○:supported, －:non-supported

About ROM program version

- If you are using the Web management tool or the Web display tool, the ROM program version is displayed in "ROM Ver." at the upper right of the screen.
  When using the terminal tool, you can check it from "LAN Board Information" on "Display" menu.
- The latest version of ROM program can be downloaded from our company's website. Please check our company's website.