M0009058C

SANUPS

PV Monitor

Instruction Manual

SANYO DENKI

Introduction

Thank you for choosing the SANUPS PV Monitor.
This manual contains important instructions that should be followed during operation and maintenance of the SANUPS PV Monitor to protect the safety of the customers and the service technician[*1]. To use the SANUPS PV Monitor correctly and safely, read this manual before using the SANUPS PV Monitor. After reading, please keep it handy for convenient reference.
For information on the functions and operation of the applications, please refer to the "SANUPS **PV Monitor** User Guide".

This SANUPS PV Monitor is intended for installation in a temperature-controlled indoor environment free of conductive contaminants.
· Operating temperature: 0 to 40°C (32 to 104°F)

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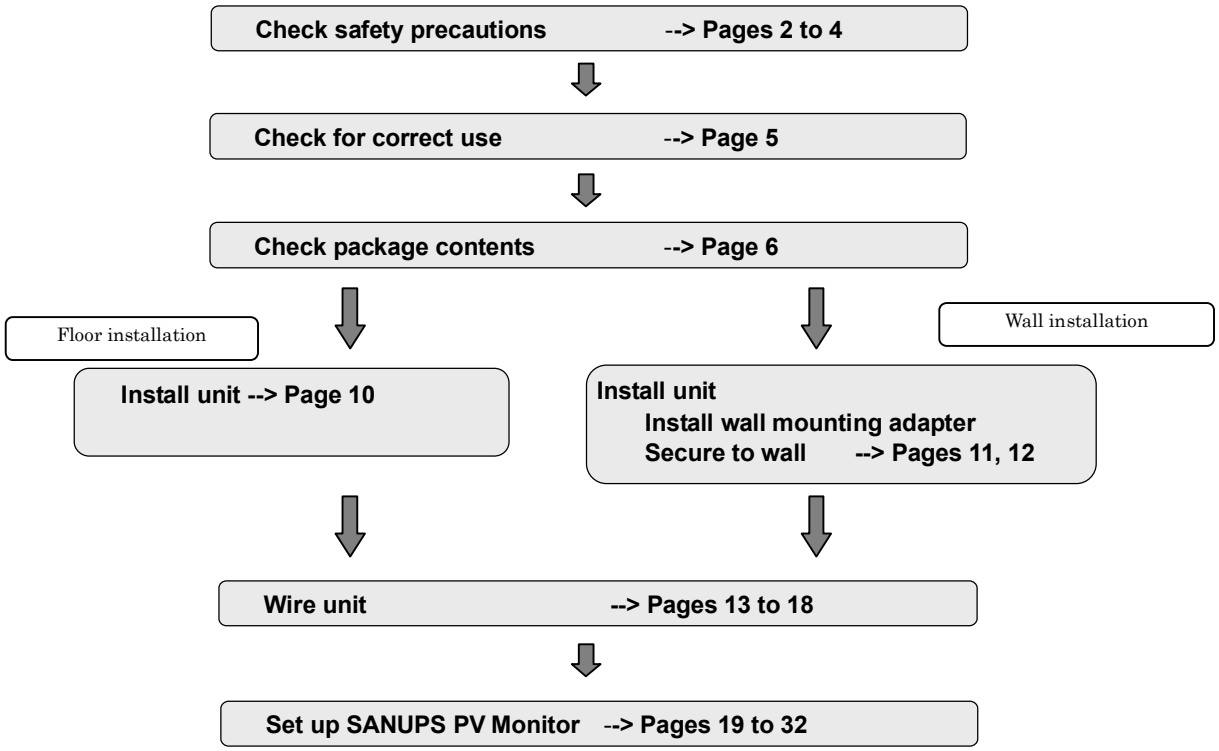
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[*1] Service technician

This term is used to indicate service technicians from SANYO DENKI or entrusted from SANYO DENKI with knowledge of this SANUPS PV Monitor.
Maintenance work must not be performed by other than a qualified service technician.

1. Before Operation

The procedure on using SANUPS PV Monitor is as follows. Be sure to follow the procedure in this manual to use the SANUPS PV Monitor correctly and safely.



2. Safety Precautions

PRECAUTIONS
(IMPORTANT SAFETY INSTRUCTIONS)

This manual contains important instructions for operating and maintaining the SANUPS PV Monitor to protect the safety of the service technician and the customers.
Before installing, operating, performing maintenance or inspecting the SANUPS PV Monitor, be sure to read this manual and accompanying documents carefully to obtain a clear understanding of the information related to its operation, safety and important precautions.
This manual describes two warning levels, WARNING and CAUTION, as described below.

Label	Explanation
⚠WARNING	Denotes **immediate hazards which WILL probably cause severe bodily injury or death, as a result of incorrect operation.**
⚠CAUTION	Denotes **hazards which COULD cause bodily injury and product or property damage, as a result of incorrect operation.**

Additionally, even those hazards denoted by ⚠ **CAUTION** could lead to a serious accident, so the instructions should be strictly followed.

The graphic symbols indicate prohibited and mandatory actions.

Symbol	Explanation
	Indicates actions that **must not be done** to occur (prohibited actions).
	Indicates actions that **must be taken** (mandatory actions).  : This example signifies the mandatory actions.  : This example signifies that the equipment must be securely grounded.
	Indicates **CAUTION (including WARNING)**. Specific information appears within the graphic symbol or in an explanation nearby.  : This example signifies the general caution.  : This example signifies that there is danger of electric shock.  : This example signifies that there is danger of a fire or smoke generation.

1. Relocation and Transportation Precautions

⚠ CAUTION

- Be careful to avoid falling or dropping the SANUPS PV Monitor during relocation or transportation, as bodily injury could result.

2. Installation Precautions

⚠ CAUTION

- The SANUPS PV Monitor should be installed only by a service technician. Improper installation can result in electric shock, bodily injury, and/or fire.
- Never operate or store the SANUPS PV Monitor in the following environmental conditions. Doing so may cause the SANUPS PV Monitor to malfunction, sustan damage or deteriorate, which could result in a fire.
  a. In ambient environmental conditions other than those specified in the product brochure and instruction manual (temperature 0 to 40˚C (32 to 104˚F), relative humidity 20 to 90%), such as in extremely high or low temperature and high humidity.
  b. Where the SANUPS PV Monitor is exposed to direct sunlight.
  c. Where the SANUPS PV Monitor is directly exposed to the heat from a heat source, such as a stove.
  d. Where the SANUPS PV Monitor may be subject to vibration or physical shock.
  e. Near a device that may emit sparks.
  f. In the presence of dust, salt, or corrosive or flammable gas.
  g. Outdoors
- When mounting the SANUPS PV Monitor on the wall, install the supplied wall mounting adapter according to the Instruction Manual. If the SANUPS PV Monitor is installed incorrectly, it may fall or move inadvertently, resulting in bodily injury.
- Place packing bags, films, and screws of accessories at a location where infants cannot reach with their hands.
  If small children put the films over their heads or swallow the screws, there is a risk of impairing breathing.

3. Wiring Precautions

⚠ CAUTION

- Incorrect wiring can result in electric shock and/or fire.
- Protection in primary circuits against over currents, short circuits and earth faults is not provided inside this SANUPS PV Monitor.
  Protection in primary circuit against over curents, short circuits and earth faults shall be provided as part of the building installation.
- Connect the grounding cable securely in the manner specified (power cable).
  This SANUPS PV Monitor requires class D grounding work. Failure to connect the grounding cable may result in electric shock.
  If grounding work is required, have it done by qualified personnel (fees required).

4. Precaution for use

⚠ WARNING

- Immediately unplug the power cable if the SANUPS PV Monitor malfunctions, or if an unusual odor or noise is observed. Failure to do so may result in a fire.
- Do not open the cover of the SANUPS PV Monitor. There is danger of electric shock and equipment damage.



⃠ PROHIBITED

- Never use the SANUPS PV Monitor for the following types of loads:
  a. Medical instruments used for life support.
  b. Control units for trains or elevators, failure of which could cause bodily injury.
  c. Computer systems upon which social or public infrastructure depends.
  d. Devices which serve applications related to the above.

  Contact your sales representatives if you need to use the SANUPS PV Monitor in an application like the above.
  Special equipment, such as redundant devices or an emergency generator must be incorporated when operating, maintaining and controlling systems in which the SANUPS PV Monitor is used with loads affecting lift-support or public infrastructure-dependent applications.
- Do not smoke or use an open flame near the SANUPS PV Monitor, as it could cause the SANUPS PV Monitor to explode or rupture, resulting in injury or fire.
- Do not place containers of liquid, such as flower vase, on the SANUPS PV Monitor.
  If the container was to spill, the liquid could cause a short circuit, resulting in sparks or fire inside the SANUPS PV Monitor.
- Do not sit, step or lean on the SANUPS PV Monitor, as bodily injury could result if the SANUPS PV Monitor was to fall.
- Do not operate the switches with wet hands. There is danger of electric shock.
- All repairs and modifications to the SANUPS PV Monitor are prohibited.
  All such repairs and modifictions will void the warranty.



5. Maintenance and Inspection Precautions

⚠ CAUTION

- Maintanenace and repair of the inside of the SANUPS PV Monitor should be performed only by technically qualified personnel.
  Electric shock, bodily injury, fuming, or fire could otherwise result.
- Contact your supplier or SANYO DENKI to have the SANUPS PV Monitor repaired or to replace defective parts.
  Opening the cover carelessly can result in an electric shock.





6. Other Precautions

⚠ CAUTION

- The SANUPS PV Monitor is an object of controlled goods in Annex 1 (Item 16) of Export Trade Control Order in Japan. When exporting the SANUPS PV Monitor, or exporting together with other goods, or exporting as embedded into other goods, we recommend that you apply to the regulatory agency regarding security export control, including review of "Informed Requirements" and "Objective Requirements".

3. Precaution for correct Use

3.1 Input Power Supply

[1] Input Power Supply and Capacity

The following is the rated AC input power of the SANUPS PV Monitor.

Input voltage	AC100-240V
Input frequency	50/60Hz
Power supply capactity	1A

3.2 Operating Environment

1. A TCP/IP network environment is required.
2. A hub for connecting 10/100Base-T cables is required.

4. Checking the Contents of the Package

After opening the package, check to make sure that it contains all of the following items.

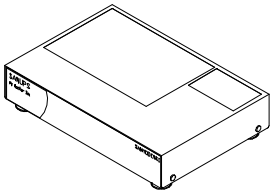
Does it contain the unit and all accessories?

Is the exterior of the unit damaged or unusual?

Check and place a mark in the box ☑.

The drawings are for illustration only. They are different from the actual products.

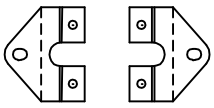
☐ SANUPS PV Monitor



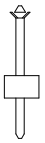
☐ Instruction Manual



☐ Wall mounting bracket



☐ Cable fixture
(for power cable)



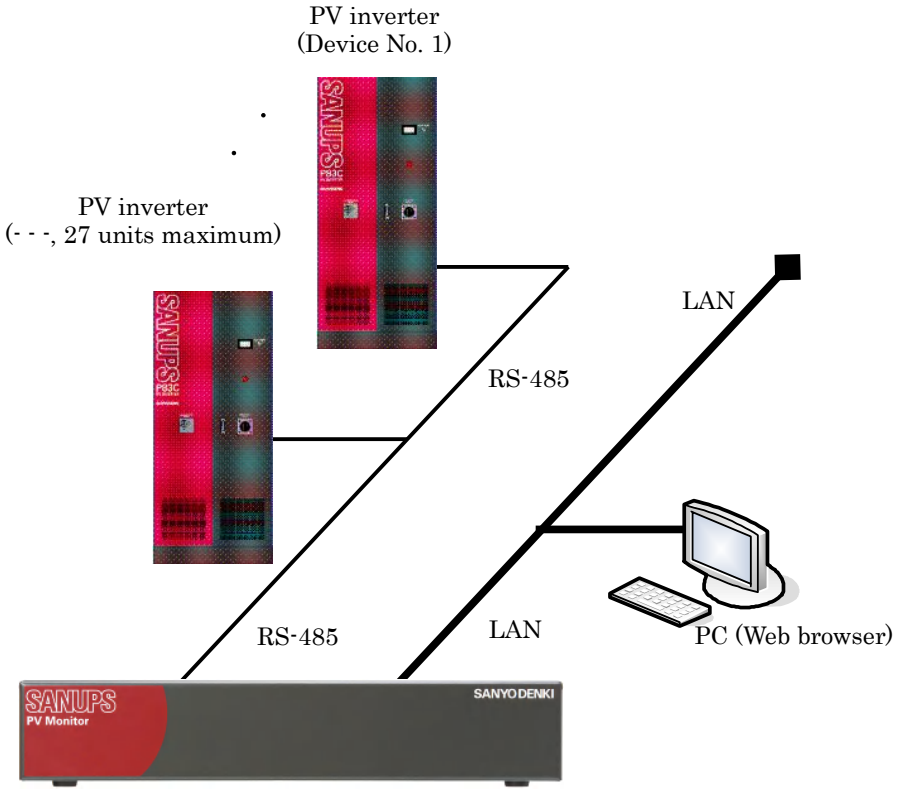
☐ Cable fixture
(for RS-485
communication cable)



If any item is missing or unusual, contact your supplier or SANYO DENKI.

5. Overview of the Unit

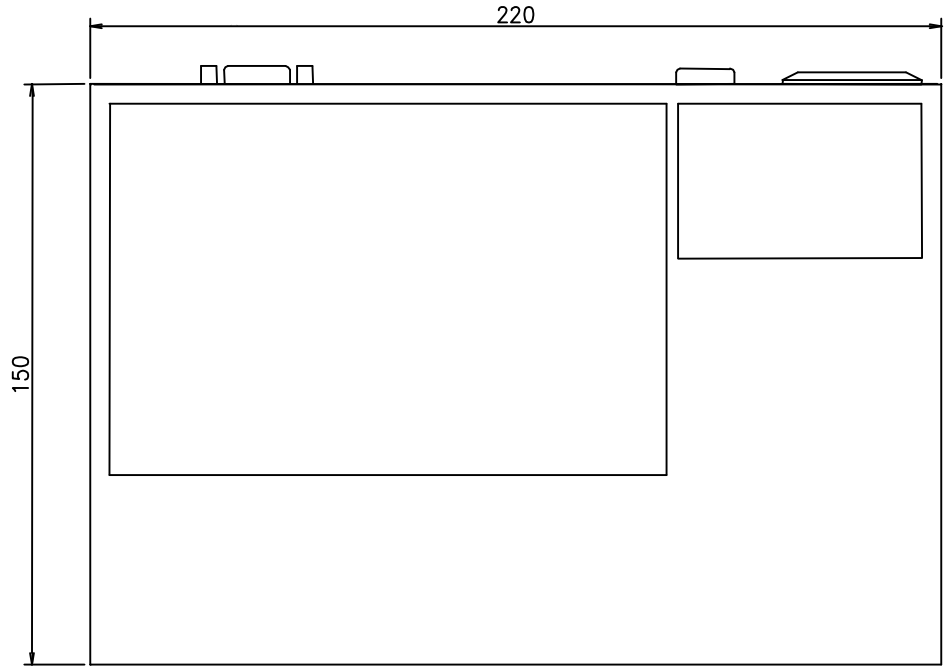
The SANUPS PV Monitor can be used by connecting it to a SANYO DENKI PV inverter or a measuring instrument with an RS-485 communication cable.
The SANUPS PV Monitor allows you to choose our original communication protocol (referred to below as SANUPS PV communication protocol) or Modbus/JBUS communication protocol via RS-485 communication.
The SANUPS PV Monitor can monitor a maximum of 27 PV inverters or measuring instruments.
The SANUPS PV Monitor allows you to use a Web browser to monitor, via the network, the state and measurements of the PV inverters or the measuring instruments.
The SANUPS PV Monitor can notify you of PV inverter or measuring instrument malfunctions by email. Also, you can get the state and measurements by email.



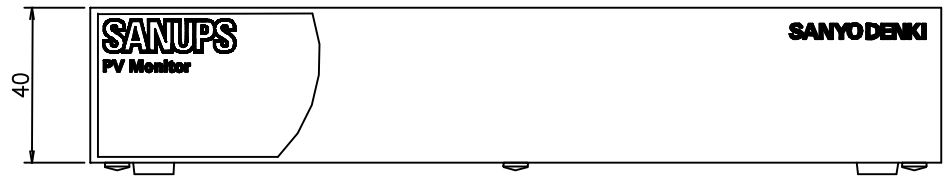
6. External Dimensions and Part Names

6.1 External Dimensions

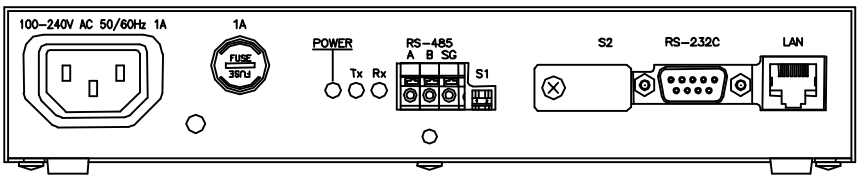
The external dimensions of the SANUPS PV Monitor are shown below.



Top

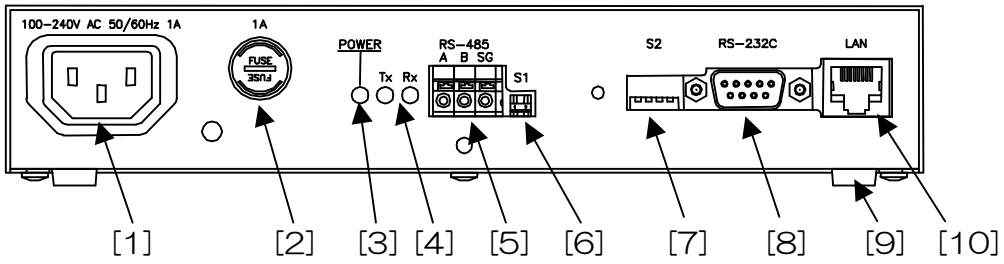


Front



Rear

6.2 Part Names



This figure shows the control section on the rear panel of the SANUPS PV Monitor.

	Name	Label	Function
[1]	Power Socket (AC100/200V)	100-240V AC 50/60Hz 1A	Insert the power cable here. By connecting to the AC100V/200V outlet, you can supply power to the SANUPS PV Monitor.
[2]	Fuse (Fuse holder)	1A	Fuse for protecting the unit.
[3]	Power Input LED	POWER	Lights in green when AC power is supplied.
[4]	Communication LED	Tx Rx	Flashes in green during communication with PV inverter or measuring instrument.
[5]	RS-485 Communication Terminal Block	RS-485 A B SG	Communication terminal block for PV inverter or measuring instrument. Connect it to the RS-485 communication terminal block of a PV inverter or measuring instrument for data communication.
[6]	Termination DIP Switch	S1	Specify termination for RS-485 communication. No. 1 OFF --- No termination No. 1 ON --- Termination used * No. 2 is not used. (The factory default settings of No. 1 and No. 2 are all OFF.)
[7]	Communication DIP Switch	S2	Set No.1 to ON, if you want to send PV inverter information to other communication units via the SANUPS PV Monitor via RS-232C. Usually, set it to OFF. Set No.2 to ON, if you want to communicate with Modbus/JBUS communication protocol via RS-485. * No. 3 to No. 4 are not used. (The factory default settings of No. 1 to No. 4 are all OFF.)
[8]	Setting Connector	RS-232C	This is a connector for RS-232C signal (D-SUB 9-pin connector, male screw, inch). You can connect the serial interface (RS-232C) of a PC to it, and then check the settings and state of this product.
[9]	Rubber Feet for Floor Installation	—	These are rubber feet for floor installation.
[10]	LAN Interface Connector	LAN	This is a modular jack (RJ45) for LAN interface. Use it to connect to a network. Use a network cable to connect to a hub etc. The transfer speed (100Mbps/10Mbps) is automatically identified.

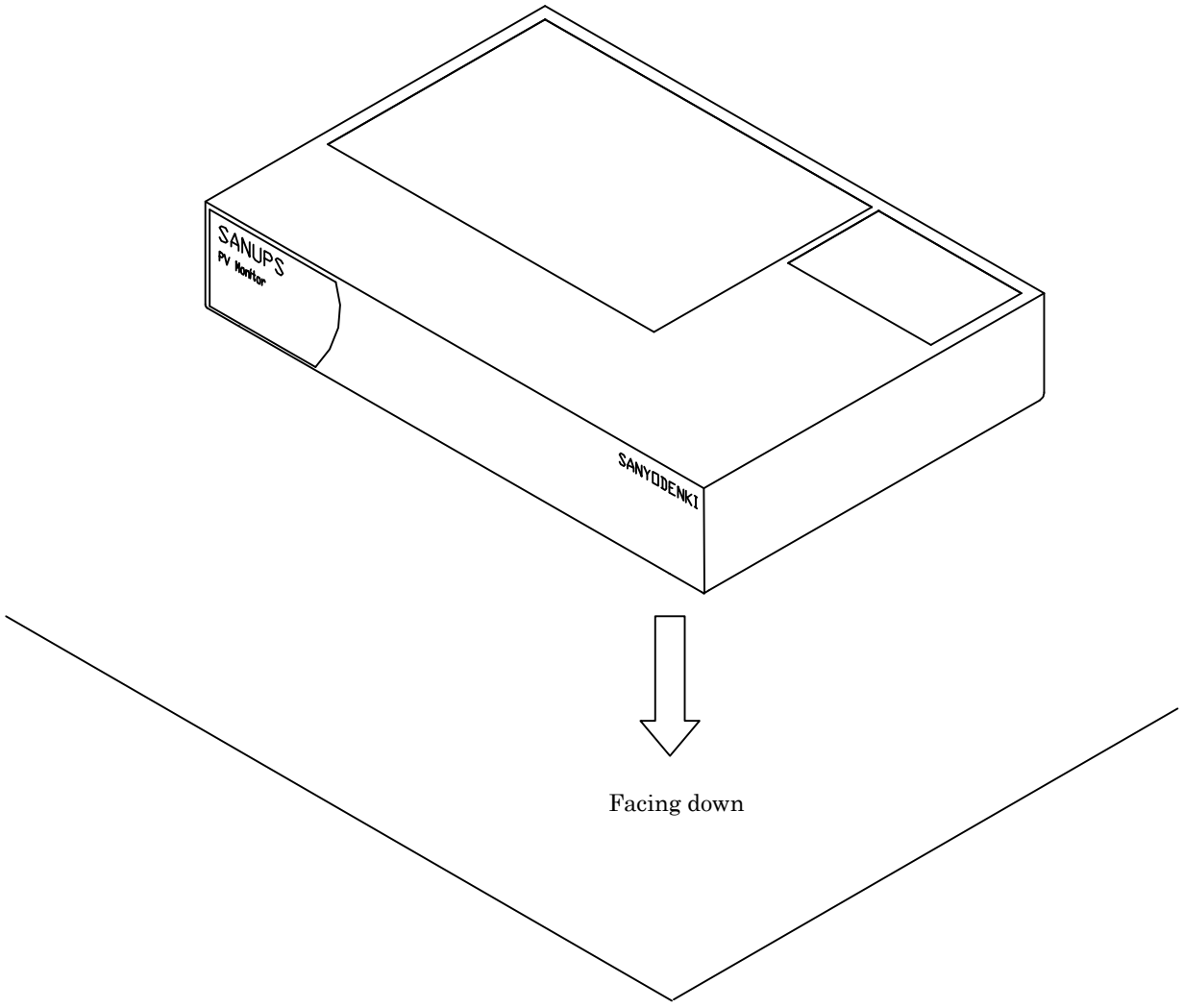
7. Installing and Wiring the Unit

You can install the SANUPS PV Monitor using one of the following methods.

1. Floor installation
2. Wall installation

7.1 Floor Installation

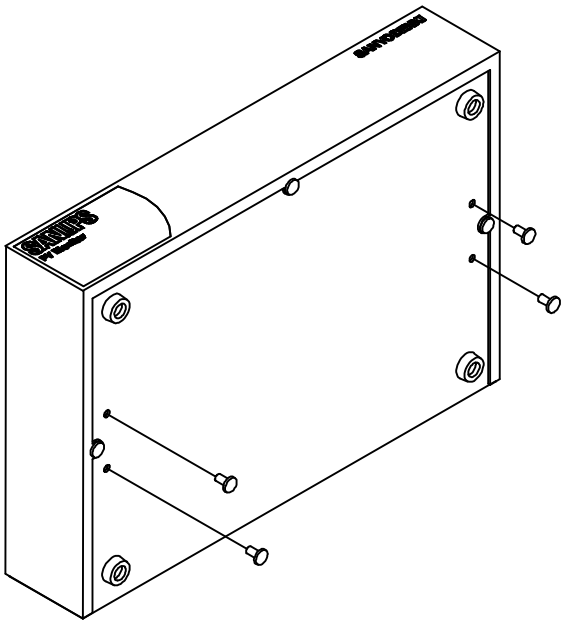
Place the unit on a flat location so that the side with the rubber feet attached is facing down.



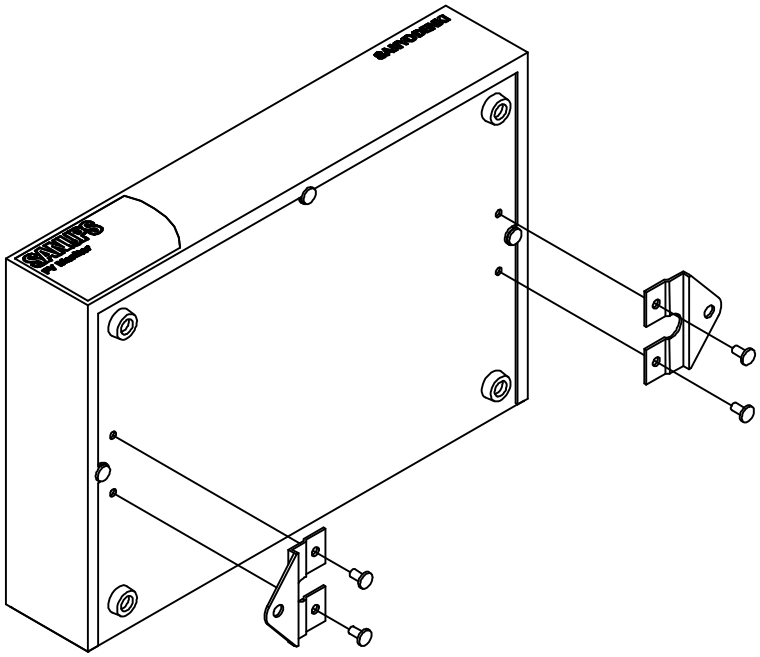
7.2 Wall Installation

Use the following procedure to secure the unit to the wall.

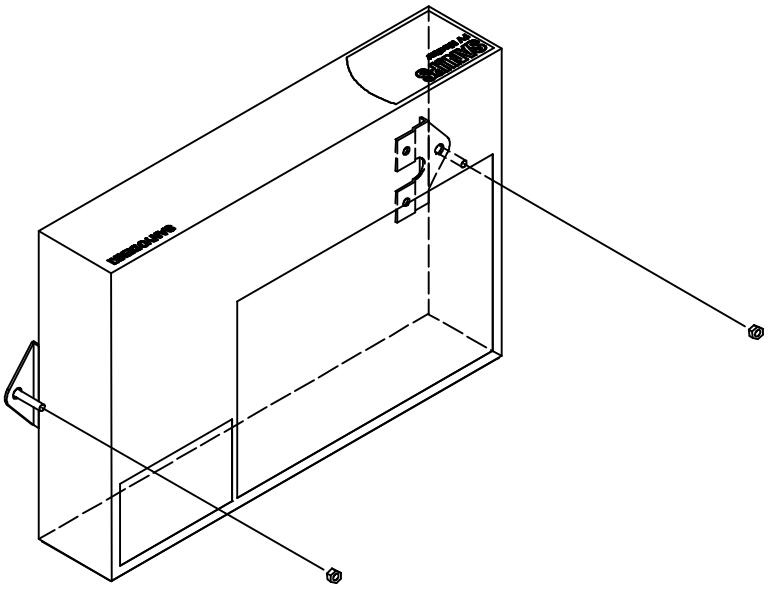
1. Remove the screws for the wall mounting bracket.

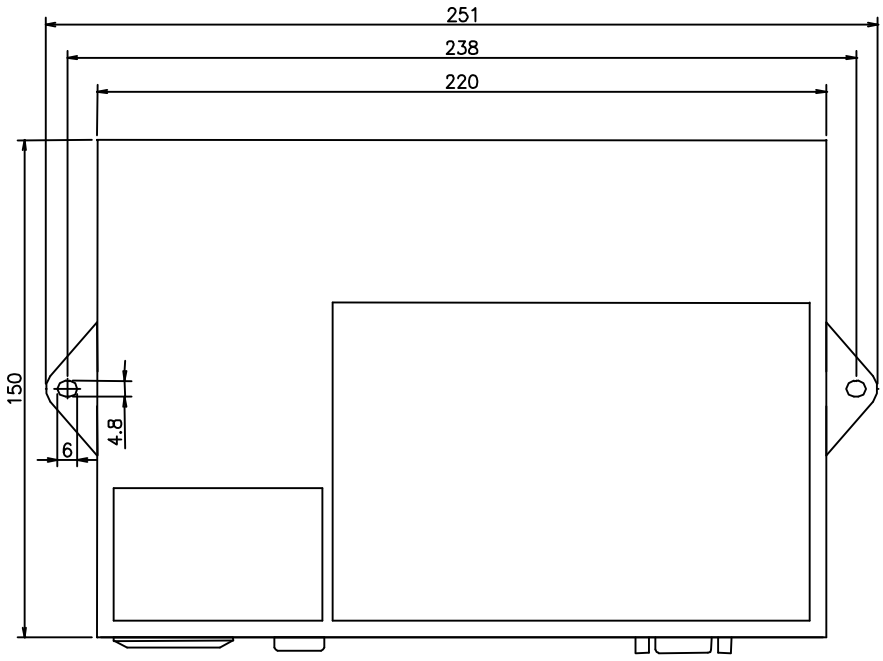


2. Attach the supplied wall mounting bracket to the unit with the screws removed in the above step 1.

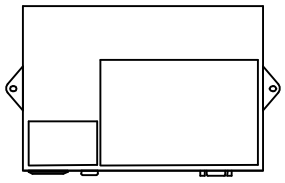


3. Use M4 screws or bolts to secure the unit to the wall.

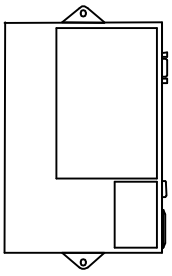




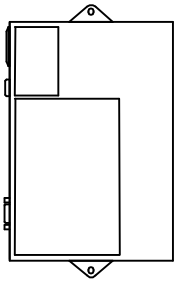
Mounting direction, the following three directions and please.



Under side of the operation site



Right side of the operation site



Left side of the operation site

7.3 Wiring

Use the following procedure to wire the SANUPS PV Monitor.

7.3.1 Connecting to a PV Inverter

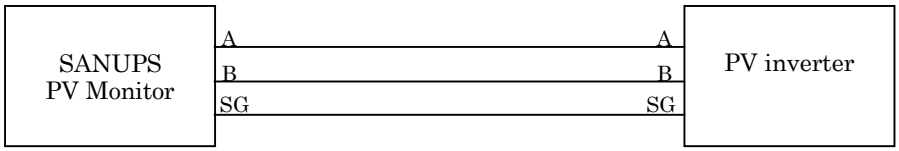
Connect its RS-485 communication terminal block to a PV inverter or a measuring instrument using a communication cable.

(1) Communication signals

The following table lists signals used in the communication with a PV inverter or a measuring instrument.

Signal Name	Label (Rear Side)	Recommended Cable
Communication signal A side: TXA/RXA	A	KPEV-SCF 2P 0.5mm²
Communication signal B side: TXB/RXB	B	
Communication signal ground	SG	

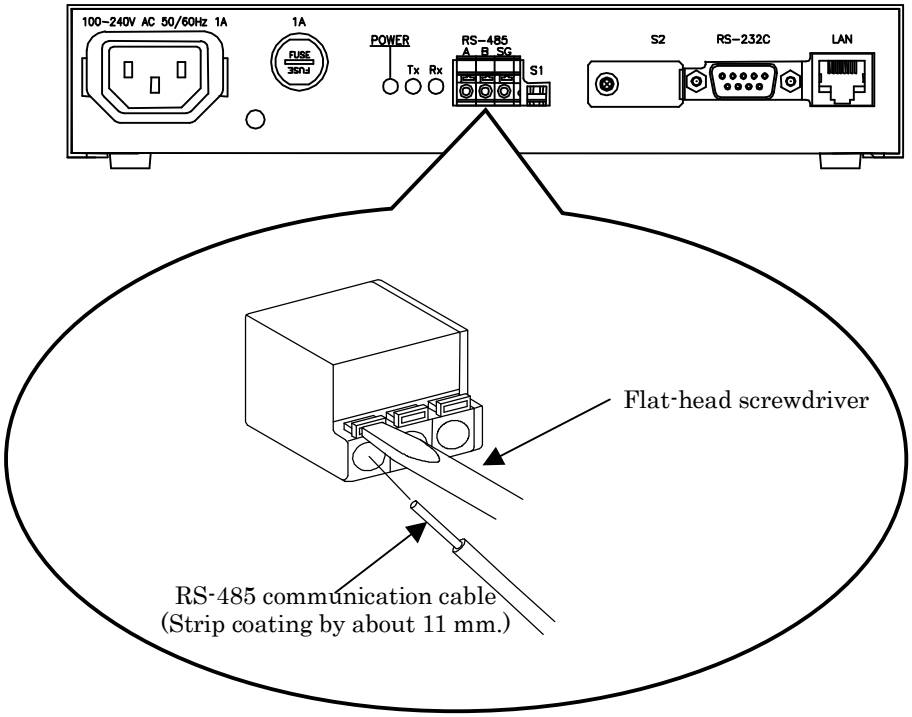
Connections between the SANUPS PV Monitor and the PV inverter or the measuring instrument are shown in the figure below, so check the labels on the RS-485 communication terminal block.



(2) Wiring the RS-485 communication terminal block

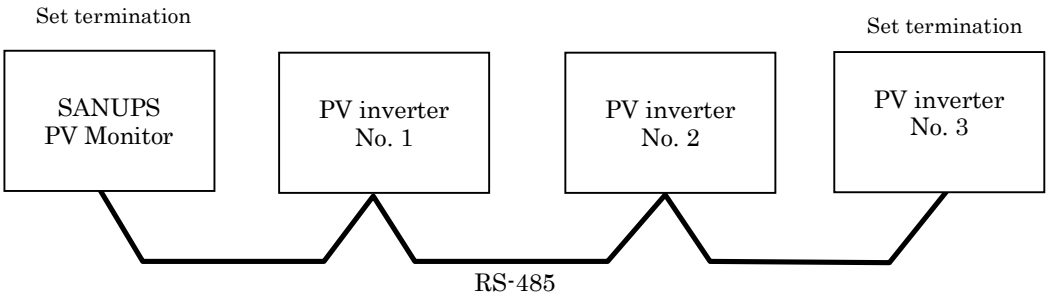
Insert the communication cable (with about 11 mm of coating stripped already) while pressing the button on the RS-485 communication terminal block with a flat-head screwdriver.

For information on how to connect the cable to the PV inverter or the measuring instrument, refer to the instruction manual of the PV inverter or the measuring instrument.

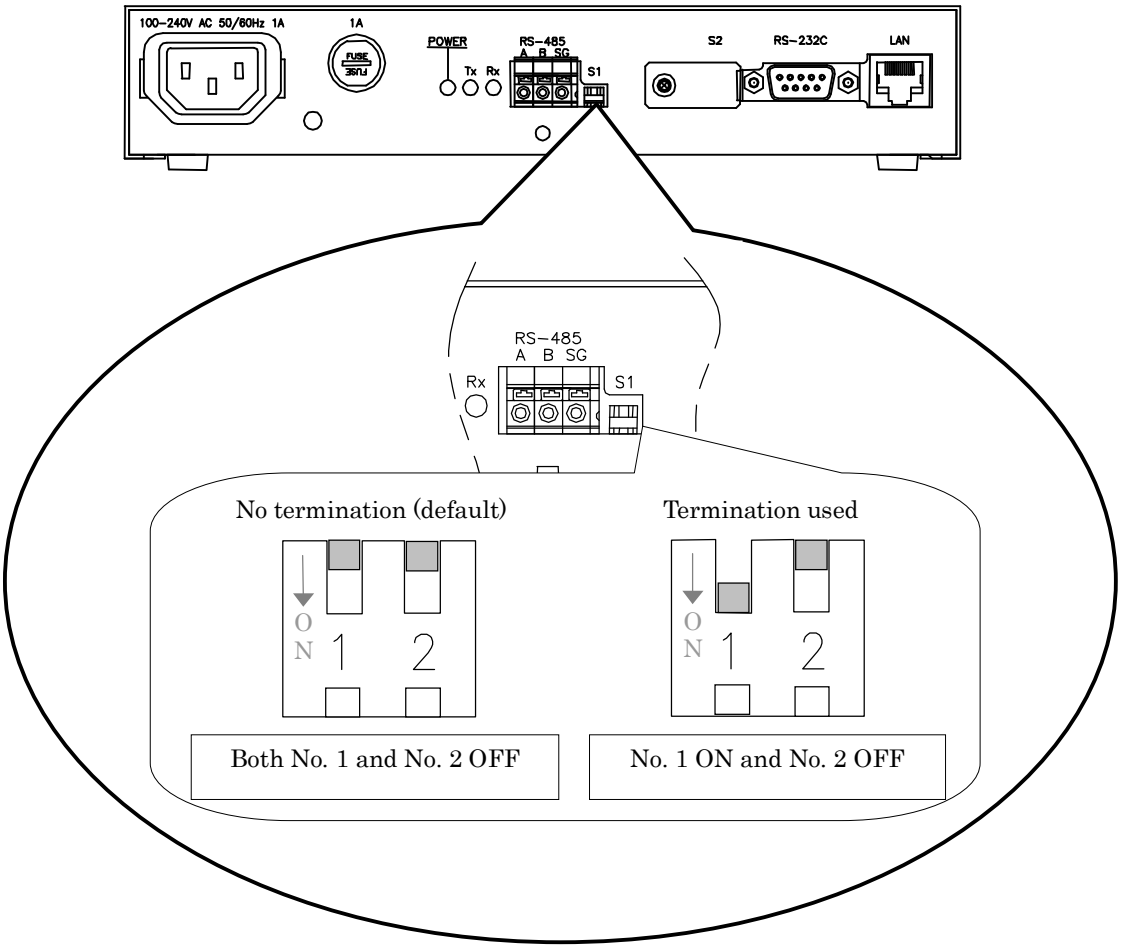


(3) Setting termination

After connecting the communication cable to the PV inverter or the measuring instrument, set termination to the one becoming the termination unit.

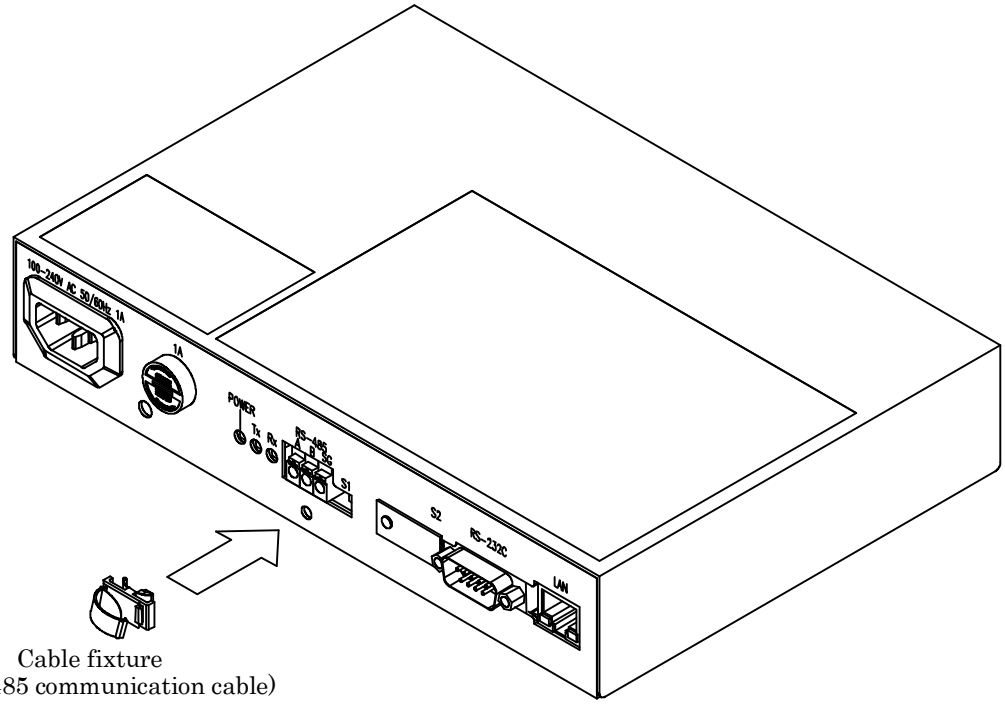


The factory default setting of the SANUPS PV Monitor is OFF (no termination).

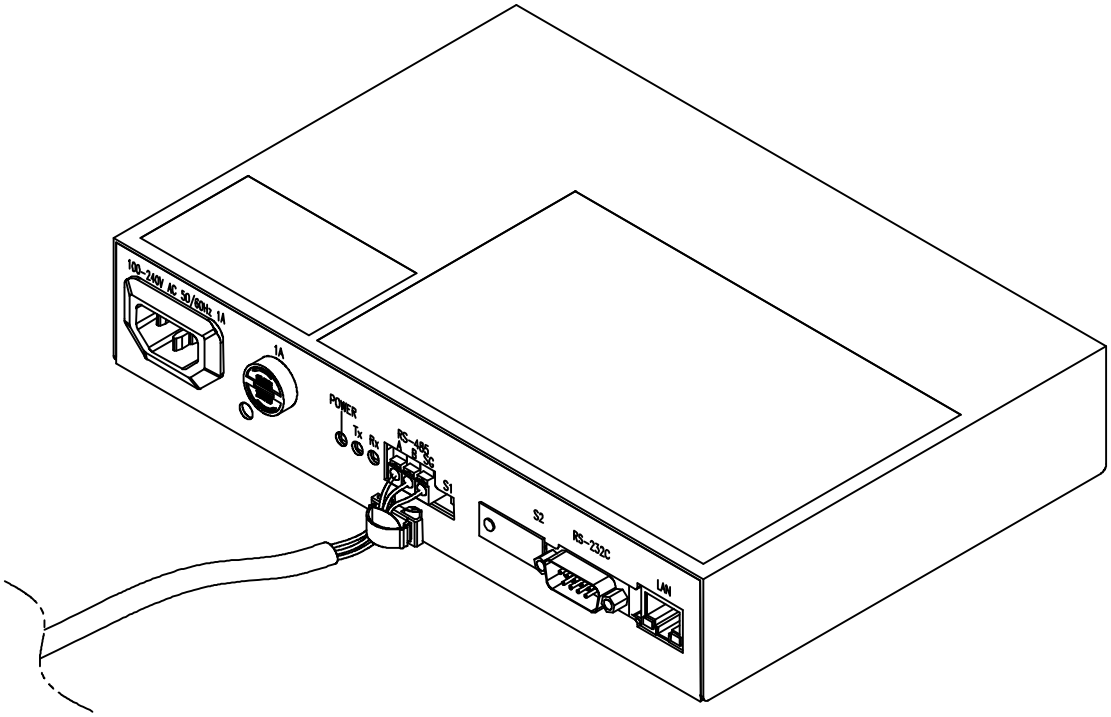


(4) Securing the communication cable

If you need to secure the RS-485 communication cable, use the supplied cable fixture (for RS-485 communication cable).



Cable fixture
(for RS-485 communication cable)

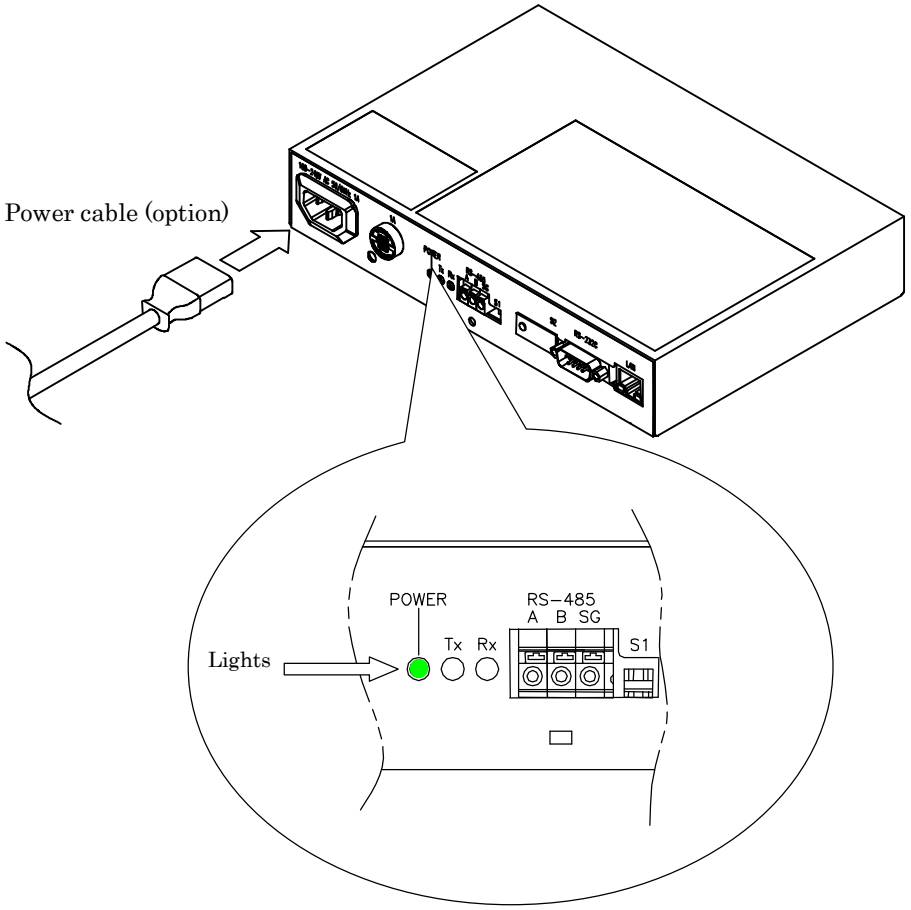


7.3.2 Connecting the Power Cable (option)

(1) Connecting the power cable and turning on the power

Connect the power cable (not included, must be purchased separately) to the power socket of the SANUPS PV Monitor.

When the power turns on, the power input LED lights in green.

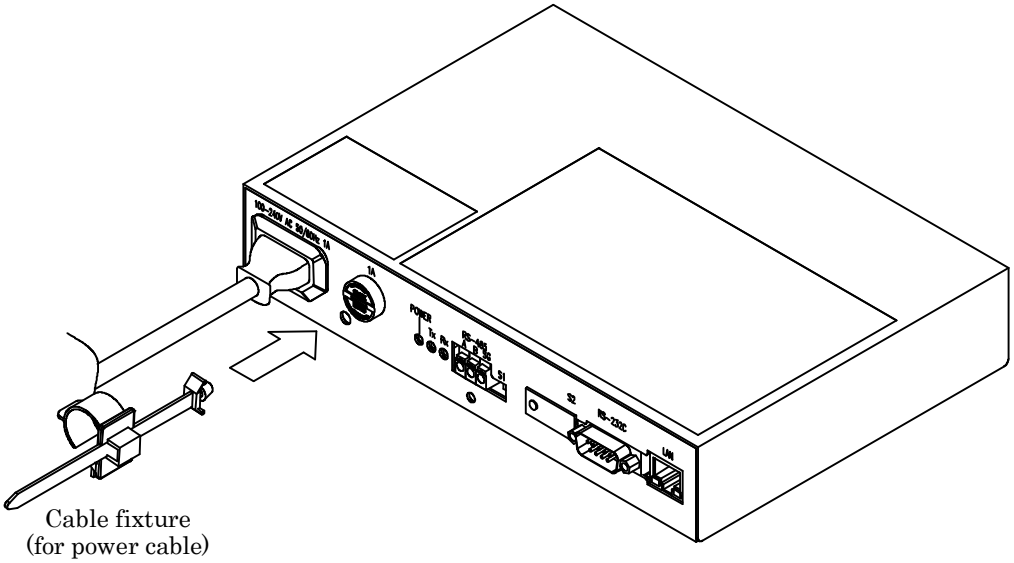


< Safety precautions >

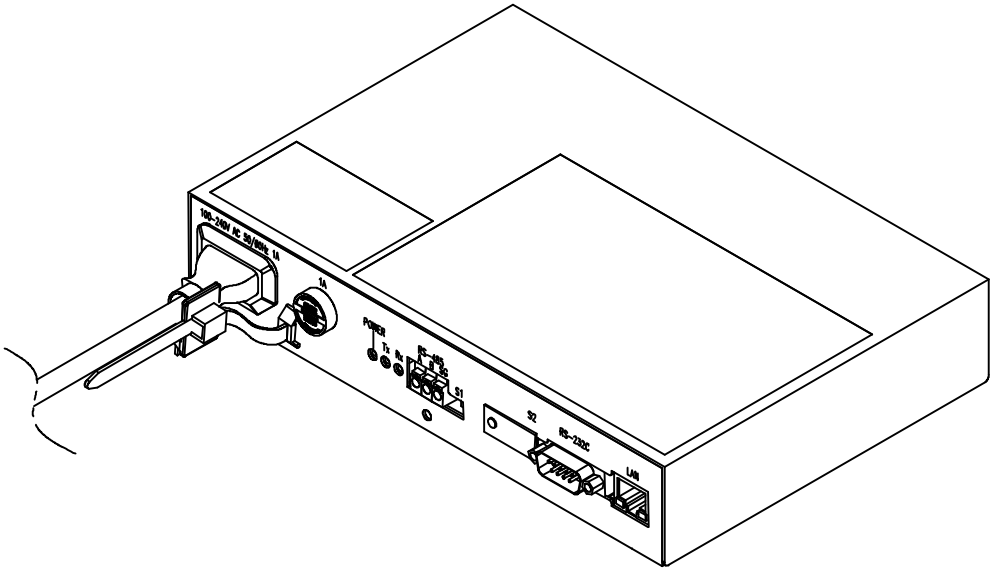
Within the reach of the power cable, please check that you have a commercial outlet.

(2) Securing the power cable

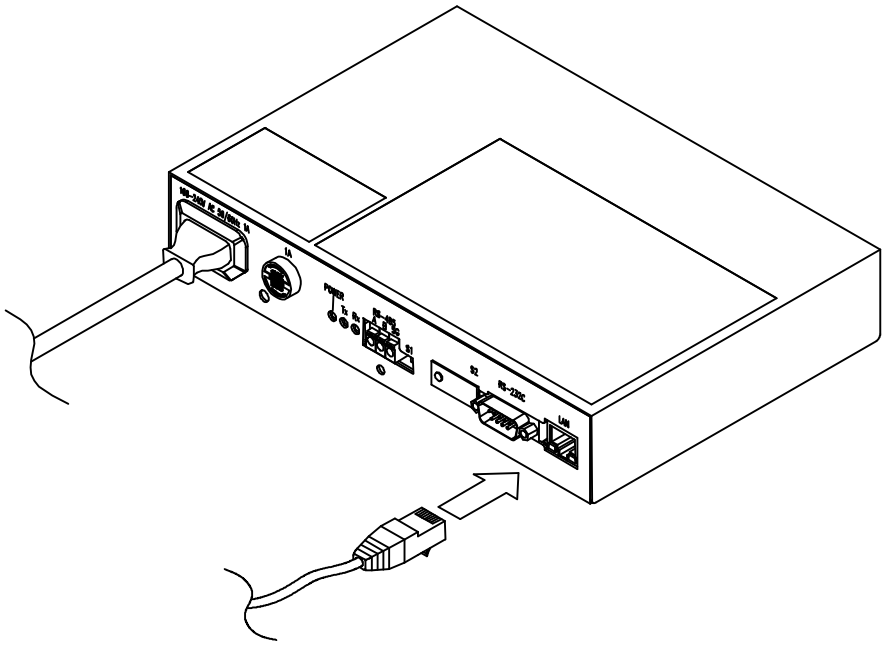
If you need to secure the power cable, use the supplied cable fixture (for power cable).



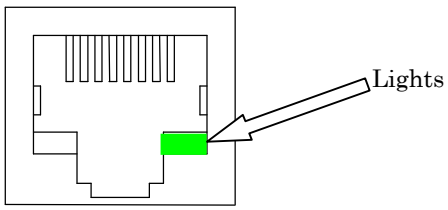
Cable fixture
(for power cable)



7.3.3 Connecting a Network Cable



Connect a network cable to the LAN connector on the SANUPS PV Monitor.
If the network can be used, the link LED lights.
The LAN connector in this unit is configured to recognize the communication speed (100Mbps／10Mbps) automatically. If you connect this unit to HUB in which a setting of communication speed can be changed, set the communication speed in the port to which this unit is connected to “automatic recognition”. If there is no automatic recognition setting, connect at 100Mbps／half duplex or 10Mbps／half duplex.



<Note on handling>
The factory default setting of the SANUPS PV Monitor's IP address is 192.168.1.1.
If there is already a device using the IP address 192.168.1.1, do not connect the network cable until the SANUPS PV Monitor's network address is set.

8. Setting up the SANUPS PV Monitor

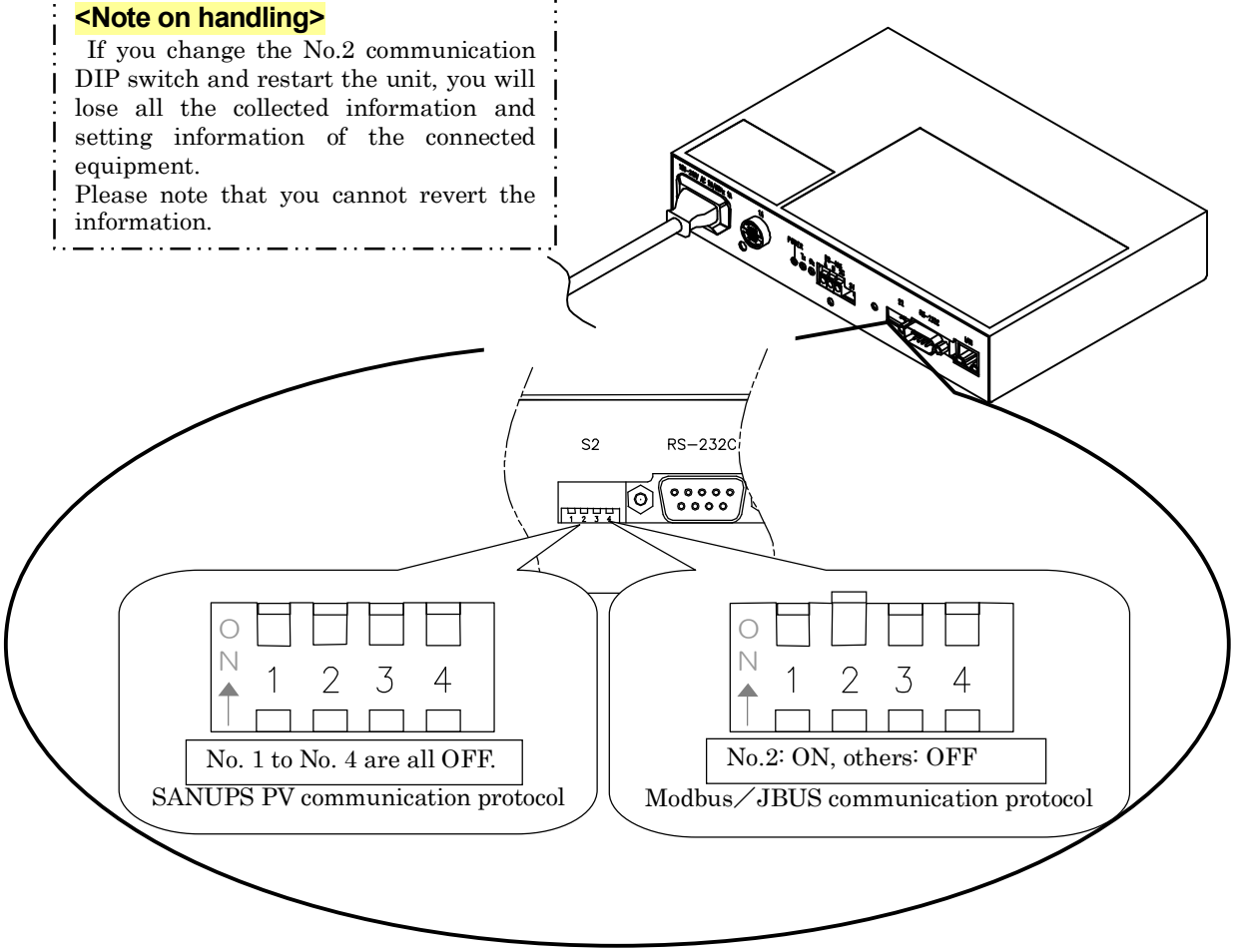
8.1 Checking the Communication DIP Switch --- Page 19
8.2 Setting a Network Address --- Page 20
8.3 Checking the Locale Setting --- Page 30
8.4 Checking the Communication with the PV inverter --- Page 32

8.1 Checking the Communication DIP Switch

Check the status of the communication DIP switch.

<Note on handling>

If you change the No.2 communication DIP switch and restart the unit, you will lose all the collected information and setting information of the connected equipment.
Please note that you cannot revert the information.



Switch no.	State	Description
1	OFF	Set it to OFF except for the following purpose.
	ON	Set it to ON if you want to send PV inverter information to other communication units via the SANUPS PV Monitor.
2	OFF	Set it to OFF when a protocol used via RS-485 is SANUPS PV communication protocol.
	ON	Set it to ON when a protocol used via RS-485 is Modbus／JBUS communication protocol.
	You must restart the unit after changing the settings for the changes to take effect.	
3	OFF	They are usually not used.
4	OFF	Leave them at OFF.

8.2 Setting a Network Address

You need to set a network address for the SANUPS PV Monitor so that it becomes part of the network.
The factory default setting of the SANUPS PV Monitor's IP address is 192.168.1.1.
Change the IP address to suit your network environment.

Network environment

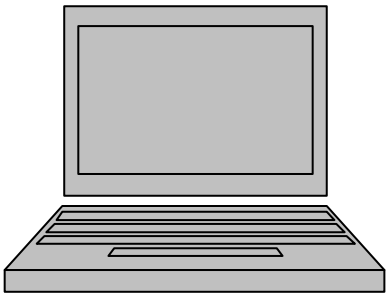
☐ Static IP	☐ Address assigned by DHCP
IP address (. . .)	Assigned IP address (. . .)
Subnet mask (. . .)	
Router address (. . .)	
DNS server address (. . .)	

You can use one of the following methods to set a network address. Select one that suits your environment.

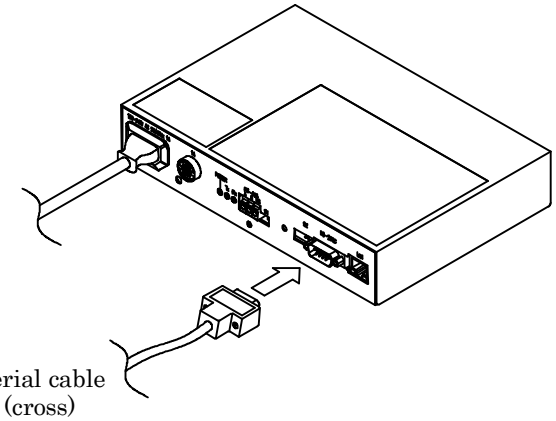
8.2.1 Setup Using the Setting Connector --- Page 20
8.2.2 Setup via the Network --- Page 28

8.2.1 Setup Using the Setting Connector

With this method, you use a serial cable (RS-232C) to connect the SANUPS PV Monitor's RS-232C connector to a PC and then set up the network address.



PC



Serial cable
(cross)

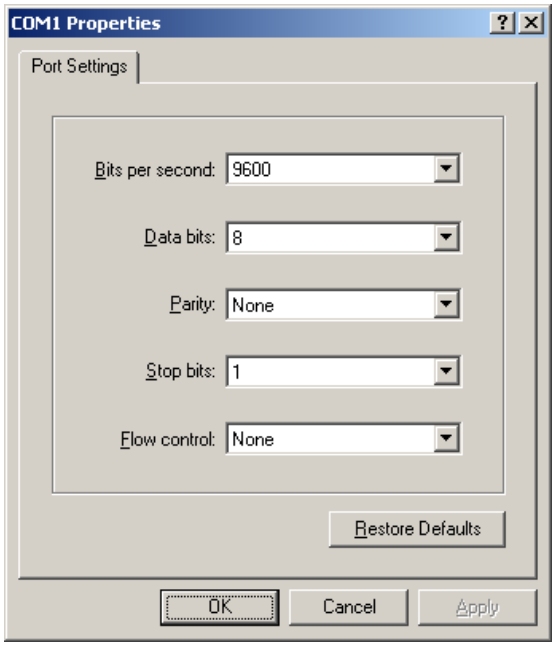
Items to prepare

- ☐ PC
- ☐ A commercially available RS-232C cable (D-sub 9-pin, cross)
  * If the PC does not have a serial port, use a commercially available USB to RS-232C converter.

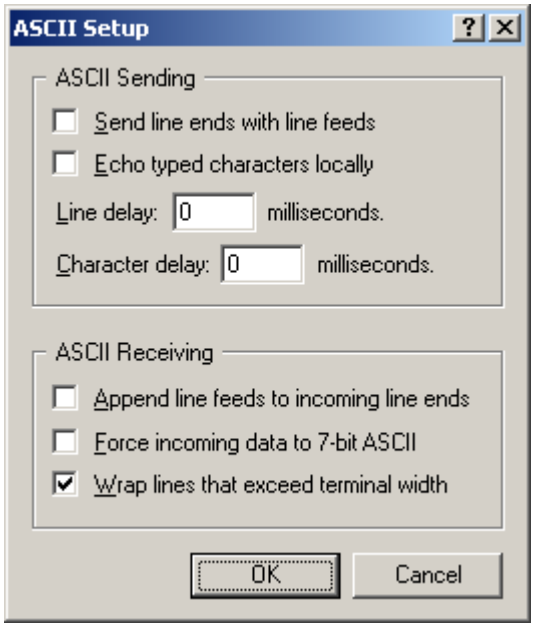
(1) Run the terminal emulation program.

Run the terminal emulation program on the PC to set up the communication conditions. The example here uses Windows program HyperTerminal.

[1] Port Settings



[2] ASCII Setup



(2) Specify a network address.

From the terminal emulation program's screen, press Enter. The SANUPS PV Monitor's Main Menu appears.

[1] Main Menu

```
   Main Menu
1.Configuration
2.Display
3.Locale
4.Event
5.Ping
6.Download/Upload
7.Exit
Agent>1
```

<Operation>
Enter 1, and then press Enter.

[2] Configuration Menu

```
   Configuration Menu
1.Network
2.Account
3.Monitoring
4.Service
5.Unit Information
6.E-Mail
7.NTP
8.Exit
Agent>1
```

<Operation>
Enter 1, and then press Enter.

[3] Network Information Menu

```
Network Information
DHCP                :Disable
IP address          :192.168.1.1
Subnet Mask         :255.255.255.0
Router Address      :0.0.0.0
DNS Server Address  :0.0.0.0




1.IP Address
2.Router Address
3.DNS Server Address
4.Exit
Agent>1
```

<-- Enable or disable DHCP
<-- IP address
<-- Subnet mask
<-- Router address
<-- DNS server address

1. Change IP address.
2. Change router address.
3. Change DNS server address.

<Operation>
Enter 1, and then press Enter.

[4] Set a network address

(a) Specifying a static IP address --- Page 23
(b) Using DHCP to assign an IP address --- Page 26

The following addresses will be used in the examples to show how to set up a network address.

IP address	:	172.30.3.181
Subnet mask	:	255.255.255.0
Router address	:	172.30.3.254
DNS server address	:	172.30.1.9

(a) Specifying a static IP address

```
Network Information
DHCP                :Disable
IP address          :192.168.1.1
Subnet Mask         :255.255.255.0
Router Address      :0.0.0.0
DNS Server Address  :0.0.0.0

Select DHCP Mode.
1.Disable
2.Enable
Agent>
```

For DHCP, select Disable.

<Operation>
Enter 1, and then press Enter.

```
Network Information
DHCP                :Disable
IP address          :192.168.1.1
Subnet Mask         :255.255.255.0
Router Address      :0.0.0.0
DNS Server Address  :0.0.0.0

Input IP Address.
Agent>172.30.3.181
```

Enter an IP address.
<Operation>
Enter an IP address, and then press Enter.

```
Network Information
DHCP                :Disable
IP address          :192.168.1.1
Subnet Mask         :255.255.255.0
Router Address      :0.0.0.0
DNS Server Address  :0.0.0.0



Input SubnetMask.
Agent>255.255.255.0
OK
=== Hit Enter Key !! ===
```

Enter a subnet mask.
<Operation>
Enter a subnet mask value, and then press Enter.
Press Enter again.

```
Network Information
DHCP                :Disable
IP address          :172.30.3.181
Subnet Mask         :255.255.255.0
Router Address      :0.0.0.0
DNS Server Address  :0.0.0.0



1.IP Address
2.Router Address
3.DNS Server Address
4.Exit
Agent>2
```

Select Router Address.

<Operation>
Enter 2, and then press Enter.

```
Network Information
DHCP                :Disable
IP address          :172.30.3.181
Subnet Mask         :255.255.255.0
Router Address      :0.0.0.0
DNS Server Address  :0.0.0.0



Input Router Address.
Agent>172.30.3.254
OK
=== Hit Enter Key !! ===
```

<Operation>
Enter a router address, and then press Enter.
Press Enter again.

```
Network Information
DHCP                :Disable
IP address          :172.30.3.181
Subnet Mask         :255.255.255.0
Router Address      :172.30.3.254
DNS Server Address  :0.0.0.0



1.IP Address
2.Router Address
3.DNS Server Address
4.Exit
Agent>3
```

Select DNS Server Address.

<Operation>
Enter 3, and then press Enter.

```
Network Information
DHCP                :Disable
IP address          :172.30.3.181
Subnet Mask         :255.255.255.0
Router Address      :172.30.3.254
DNS Server Address  :0.0.0.0



Input DNS Server Address.
Agent>172.30.1.9
OK
=== Hit Enter Key !! ===
```

<Operation>
Enter a DNS server address, and then press Enter.

```
Network Information
DHCP                :Disable
IP address          :172.30.3.181
Subnet Mask         :255.255.255.0
Router Address      :172.30.3.254
DNS Server Address  :172.30.1.9



1.IP Address
2.Router Address
3.DNS Server Address
4.Exit
Agent>
```

(b) Using DHCP to assign an IP address

<Note on handling>
When DHCP is used to assign an IP address to the SANUPS PV Monitor, there is need for the ability to convert network name to IP address. Just register the IP address for the corresponding MAC address of the SANUPS PV Monitor to the DHCP server, and then register the IP address as well as the corresponding network name to the DNS server, WINS server, or Hosts file.

```
Network Information
DHCP                :Disable
IP address          :192.168.1.1
Subnet Mask         :255.255.255.0
Router Address      :0.0.0.0
DNS Server Address  :0.0.0.0

Select DHCP Mode.
1.Disable
2.Enable
Agent>2
OK
=== Hit Enter Key !! ===
```

For DHCP, select Enable.

<Operation>
Enter 2, and then press Enter.
Press Enter again.

[5] Update the settings.

To update the network address settings, you need to exit the Main Menu.

```
Network Information
DHCP                :Enable
IP address          :172.30.3.181
Subnet Mask         :255.255.255.0
Router Address      :172.30.3.254
DNS Server Address  :172.30.1.9


1.IP Address
2.Router Address
3.DNS Server Address
4.Exit
Agent>4
```

<Operation>
Enter 4, and then press Enter.
Or, you can also press Esc.

```
  Configuration Menu
1.Network
2.Account
3.Monitoring
4.Service
5.Unit Information
6.E-Mail
7.NTP
8.Exit
Agent>8
```

<Operation>
Enter 8, and then press Enter.
Or, you can also press Esc.

```
  Main Menu
1.Configuration
2.Display
3.Locale
4.Event
5.Ping
6.Download/Upload
7.Exit
Agent>7
Disconnected ! (Serial)
Agent Start!!!
```

<Operation>
Enter 7, and then press Enter.
Or, you can also press Esc.

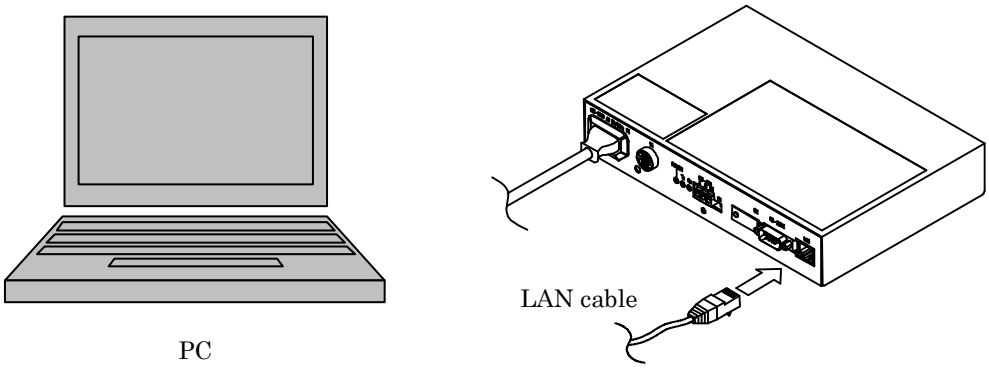
<-- Disconnection message

<-- Reset message

After the disconnection message appears for 30 seconds, the SANUPS PV Monitor is reset.
After the reset, the SANUPS PV Monitor is now ready for use within the network.

8.2.2 Setup via the Network

With this method, you use a remote login program such as Telnet or SSH to connect to the SANUPS PV Monitor via the network, and then set up its network address.
It is necesary that TCP/IP communication can be carried out between the PC and the SANUPS PV Monitor.



PC

Item to prepare

☐ PC

If the PC cannot communicate with the SANUPS PV Monitor directly at its address of 192.168.1.1 due to network segment class setting or another reason, you need to change the network environment using steps (A) to (C).

(A) Change the PC's network environment.
↓
(B) Change the IP address of the SANUPS PV Monitor.
↓
(C) Restore network environment to its original state.

If the PC can communicate with the SANUPS PV Monitor at its address of 192.168.1.1, proceed to the next page.

In this example, Windows is used to perform the setting.
If your environment is UNIX/Linux, replace the commands in the example with the network commands of your UNIX/Linux environment.

(A) Change the PC's network environment.

From the PC's command prompt window, run the following command.

route add 192.168.1.1 MASK 255.255.255.255 <PC's IP address>

Example: If the PC's IP address is 172.30.1.10

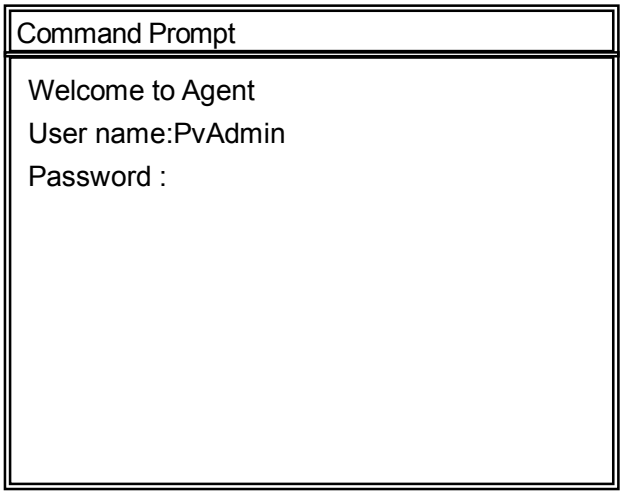
```
C:¥ > route add 192.168.1.1 MASK 255.255.255.255 172.30.1.10
```

* Use the ping command to make sure communication with the SANUPS PV Monitor is possible.

(B) Change the IP address of the SANUPS PV Monitor.

Use the Telnet command to log in to the SANUPS PV Monitor, and then enter the account information.

telnet 192.168.1.1



After you log in using Telnet, you are prompted to enter User Name and Password.
Enter the following information (in single-byte characters).

Field	Enter	Notes
User name	PvAdmin	
Password	PvAdmin	The input is case-sensitive.

After you enter the information, the Main Menu appears. Then, follow the instructions in "(2) Specify a network address." (page 22) in "8.2.1 Setup Using the Setting Connector" to set up a network address in the same way.

(C) Restore the network environment to its original state.

After the operation is finished, restore the PC's network environment to its original state.
From the PC's command prompt window, run the following command.

route delete 192.168.1.1

8.3 Checking the Locale Setting

The factory default locale setting of the SANUPS PV Monitor is different depending on the model. Make sure the setting matches the locale of the operating environment.

Model	Date format	Time zone	Language
PVMB001B	YYYY/MM/DD	+09:00	Japanese
PVMB002B	MM/DD/YYYY	+00:00	English
PVMB003B	YYYY/MM/DD	+08:00	Chinese(Simplified)
PVMB004B	YYYY/MM/DD	+08:00	Chinese(Traditional)
PVMB005B	YYYY/MM/DD	+09:00	Korean

[1] Main Menu

```
  Main Menu
1.Configuration
2.Display
3.Locale
4.Event
5.Ping
6.Download/Upload
7.Exit
Agent>3
```

<Operation>
Enter 3, and then press Enter.

[2] Locale Information Menu

```
Locale Information
Date Time          :2010/02/01 08:15:00
Date Format        :MM/DD/YYYY
Time Zone           :00:00
Language           : English




1.Date Time
2.Date Format
3.Time Zone
4.Language
5.Exit
Agent>
```

<-- Current date and time
<-- Date format
<-- Time zone
<-- Language

1. Change the current date and time.
2. Change the date format.
3. Change the time zone.
4. Change the language.
5. Exit

[3] Example on changing the settings

1. Date format

```
Locale Information
Date Time          :2010/02/01 08:15:00
Date Format        :MM/DD/YYYY
Time Zone          :00:00
Language           : English

Select No.
1.YYYY/MM/DD
2.MM/DD/YYYY
3.DD/MM/YYYY
Agent>2
```

<Operation>
Enter a number to select one of the three options, and then press Enter.

2. Time zone

```
Locale Information
Date Time          :2010/02/01 08:15:00
Date Format        :MM/DD/YYYY
Time Zone          :00:00
Language           : English

Input Time Zone.
Agent>00:00
```

<Operation>
Enter the time difference with the Coordinated Universal Time (UTC).
(+)Hour:Minute (ahead of UTC)
(-)Hour:Minute (behind UTC)
Press Enter.

3. Language

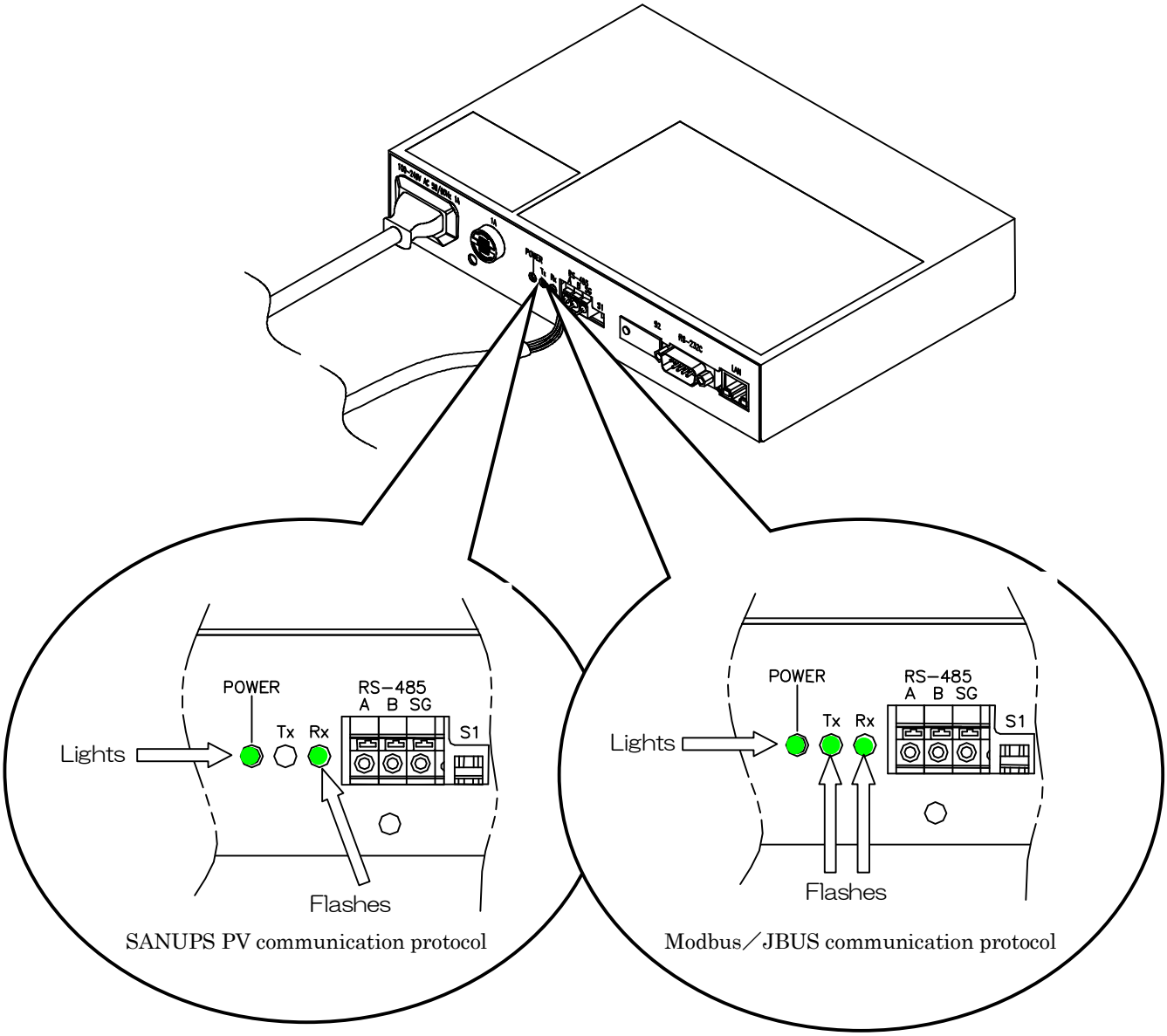
```
Locale Information
Date Time          :2010/02/01 08:15:00
Date Format        :MM/DD/YYYY
Time Zone          :00:00
Language           : English

Select No.
1.Japanese
2.English
3.Chinese (Simplified)
4.Chinese (Traditional)
5.Korean
Agent>2
```

<Operation>
Enter a number to select one of the five options, and then press Enter.

8.4 Checking the Communication with the PV Inverter

To make sure communication with the PV inverter or the measuring instrument is working, check the Rx side of the communication LED on the SANUPS PV Monitor. When signals from the PV inverter are received, the LED flashes.



This completes the connection between the SANUPS PV Monitor and a PV inverter or a measuring instrument.

To modify other SANUPS PV Monitor settings, refer to the "SANUPS **PV Monitor** User Guide", and then use a Web browser to make changes via the network.

You can download the "SANUPS **PV Monitor** User Guide" from the following URL.
SANYO DENKI's home page URL: www.sanyodenki.co.jp

9. Specifications

The SANUPS PV Monitor specifications are listed below.

Item		Specifications	Notes
Rated Input Voltage		100 to 240V	
Acceptable Input Voltage		85 to 264V	
Rated Input Frequency		50/60Hz	
Maximum Power		10W	
Overcurrent Protection		Fuse (1A)	
External Interfaces			
	PV Inverter Interface	Plug-In Type Terminal Block	RS-485 ・SANUPS PV communication protocol ・Modbus./JBUS communication protocol (RTU mode)
	LAN Interface	10/100BASE-T RJ-45 1 port	
	Serial Interface or Port	D-Sub 9-pin, male, 1 port	RS-232C Communication destination selection via DIP switch
LED Labels		POWER, Tx, Rx,	
External Dimensions		220 x 150 x 40 mm (W x D x H)	For floor installation
Weight		1200g	

10. Inspection and Maintenance

Check the LEDs on the unit to see whether there is any problem. In particular, there is no need for inspection and cleaning. Also, because there is no component in the unit that needs to be replaced over time, regular inspection is not necessary.

11. Troubleshooting

Item number	Event	Solution
1	The POWER LED turns off.	・ Is the power cable correctly connected? → Read "7.3.2 Connecting the Power Cable". If the power cable is correctly connected, contact your supplier or SANYO DENKI for assistance.
2	Communication with a serial terminal is not possible.	・ Is the DIP switch (S2) correctly set up? → Read "8.1 Checking the Communication DIP Switch".
3	Communication on the network is not possible.	・ Is the network cable correctly connected? → Read "7.3.3 Connecting a Network Cable". ・ Is the network address correctly set up? → Read "8.2 Setting a Network Address".
4	The Rx LED (which indicates the communication state) does not flash.	・ Is the communication cable correctly connected to the PV inverter? → Read "7.3.1 Connecting to a PV Inverter". ・ Is the RS-485 communication protocol correctly set up? → Read "8.1 Checking the Communication DIP Switch". ・ Does the system consist of one PV inverter only? →When a protocol used via RS-485 is SANUPS PV communication protocol, read "Appendix A Setting up a PV Inverter According to the System Composition".

12. Warranty Conditions

The warranty period for this Unit is two full year after purchase. After two year, repair and replacement of defective parts are available at a charge, subject to the following conditions.

Free Warranty Conditions

1. If the product malfunctions under normal operating conditions as stated in this manual,repair is provided free of charge during the warranty period.
2. If the Unit fails, please contact your nearest supplier or SANYO DENKI's headquarters or the offices listed at the end of this manual.
3. Warranty coverage does not include the following conditions within the warranty period.
   (1) Defects or damages arising from improper repair, modification or wiring made by the customer.
   (2) Defects or damages arising from fire, earthquake, storm or flood disaster, lightning or other natural disasters including pollution, salt disaster, gas disaster (chloridegas), non-standard voltage or incorrect power sources other than those specified.
   (3) Defects or damages arising from mishandling, such as during transportati.

Appendix A Setting up a PV Inverter According to the System Composition

Note: When SANUPS PV communication protocol is used

Data collection device	Display device	System composition	Setup at PV inverter
Yes	Yes	—	None in particular
Yes	No	—	
No	Yes	—	
No	No	Two or more PV inverters	
No	No	One PV inverter	Change the PV inverter's device mode setting DIP switch to Master. If the DIP switch is set to Slave, the PV inverter cannot be monitored. For details, refer to PV inverter's instruction manual.

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