



The power behind competitiveness

# Delta Power Monitor

User Manual

PPM R3E (for commercial use only.)

[www.deltaww.com](http://www.deltaww.com)



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### ■Note on expressions in this document■

Please note that product appearance, illustrations, screen depictions and data are images only. They may vary slightly from the actual product. Please keep that in mind.

# Precautions for Your Safety



■ Notations for safe use of the product and their meanings

This User Manual provides precautions with the following notations and symbols for safe use of the Power Monitor (for commercial use only.) : PPM R3E-000.





Precautions described herein contain important aspects of safety.

Please observe and follow these descriptions.

Notations and symbols are described below:

 <b>Warning</b>	Failing to handle the Product properly may result in the described danger leading to slight or intermediate level injuries and in some cases may also result in serious injury or death.
 <b>Caution</b>	Failing to handle the Product properly may result in the described danger leading to slight or intermediate level injuries or property damages in some instances.

■ Explanation of graphic symbols

	<ul style="list-style-type: none"> <li>• Electric Shock Precaution</li> </ul> Notifications pertaining to precautions for potential electric shock, under specific conditions
	<ul style="list-style-type: none"> <li>• General</li> </ul> Unspecified general notifications pertaining to prohibited actions.
	<ul style="list-style-type: none"> <li>• Disassembly prohibited</li> </ul> Notifications pertaining to prohibition of equipment disassembly, when doing so can potentially lead to injuries such as electric shock.
	<ul style="list-style-type: none"> <li>• General</li> </ul> Unspecified general notifications pertaining to instructions for users

## Warning

Do not allow any fire producing objects to be near the Product, or apply any spray, including combustible gases, to the Product. The Product may ignite or explode in the unlikely event such an occurrence takes place.



Do not touch the Product with wet hands.  
Power Monitor may cause injury due to electric shock or equipment malfunction may occur in the unlikely event such an occurrence takes place.  
Request the retailer where you purchased the Product or a specialist to perform installation work, repairs, extensions, relocations and reinstalls of the Product.



Do not disassemble or modify the Product.  
Power Monitor may cause injury or fire due to electric shock in the unlikely event such an occurrence takes place.  
Request the retailer where you purchased the Product or a specialist to perform installation work, repairs, extensions, relocations and reinstalls of the Product.



## Caution

Do not install the Product in a place that is subject to significant effects of vibration and impact. There is danger of injury from the Product falling in some rare cases.



When installing the Power Monitor on a wall made of materials that are not wood, be sure to acquire plastic anchors available on the market to secure the Wall Surface/Desktop Mounting Plate on the wall surface. There is danger of injury from the Product falling in some rare cases.



Do not install the Product in the following types of locations:  
There is danger of burnout in some rare cases.

- Locations that are exposed to rain water, such as outdoors or under eaves and the like.
- Locations that are exposed to steam or where the moisture level is 30 to 85% RH, such as lavatories, changing rooms, work sites, kitchens and the like.



- Do not use organic solvents (paint thinners, benzene and the like), strong alkaline substances or strong acidic substances to clean the case of the Product. There is danger of discoloring the case or the equipment malfunctioning in some rare cases.



## Essential Points for Safety

Items described below must be followed as they are necessary to secure safety.

1. Request a specialist to dispose of the Product.
2. Pull 6-pin terminal off when any abnormality is detected like smoke, heat.
3. Do not install the Product in any place that is prevented from having air flow, such as inside closets or under stairs.
4. Install the Product with the "DELTA" logo facing up when installing the Power Monitor on a wall. When not installed on a wall, set the Product on the Wall Surface/Desktop Mounting Plate when using the Product.
5. Take care to ensure no water or other liquid gets on the Power Monitor.
6. There is danger of injury. Do not throw the Product.
7. Do not install the Product at a high place or an unstable place when installing the product on a desk.

## Precautions for Use

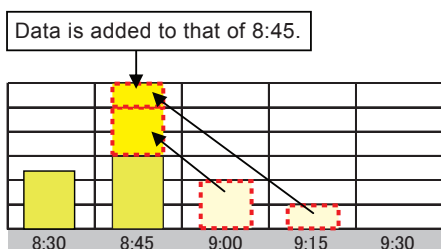
1. The Product is not a specified measuring instrument that passed any certification criteria of any designated accreditation organization as prescribed by the Measurement Act. The Product may only be used to provide a rough indication on the amount of power.
2. A touch panel type liquid crystal display has been adopted for the Product. Do not press or hit hard on the surface of the display.
3. The Product may malfunction or may be damaged by static electricity. Be sure to remove any static electricity on the body, through such means as touching a metal object nearby, prior to coming into contact with the Product.
4. Do not connect a telephone line or household LAN cable to the LAN terminal on the Power Monitor. There is danger of the Product malfunctioning.
5. Reverting the date and time by at least a 15 minute interval into the past will result in the loss of performance data. Set the date and time correctly.

Example : [A case where performance data is lost]

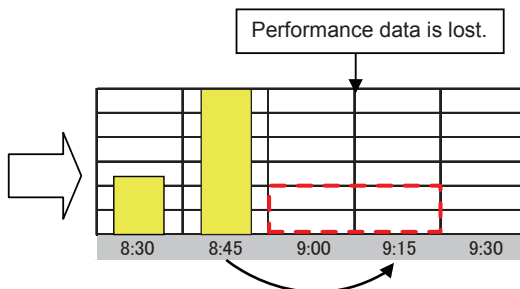
The time is inadvertently changed from 9:15 to 8:45 and then reverted to 9:15.

The performance data starting from 8:45 onwards are added to the performance data from 8:45 and the performance data for the period since 8:45 is lost. Lost data cannot be restored.

- Time is changed from 9:15 to 8:45.



- Time is changed from 8:45 to 9:15.

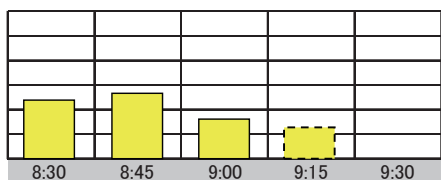


Example : [A case where performance data is not lost]

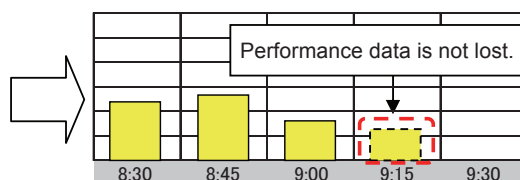
The time is inadvertently changed from 9:28 to 9:18 and then reverted to 9:28.

The performance data from 9:15 is fixed as of 9:30 and as such, the performance data is not lost, as long as the time change does not extend to at least a 15 minute interval.

- Time is changed from 9:28 to 9:18.



- Time is changed from 9:18 to 9:28.



6. Do not install the product in the following places:

- Do not expose to extreme fluctuation temperature.
- Do not expose to salt air.
- Do not expose to corrosive substances, explosive / flammable GAS, chemicals.
- Do not install in direct sunlight.
- Do not install in a place exceeding the operating temperature range (-20 to +50°C).
- Do not install above 2000m MSL or higher.
- Do not expose to water vapor, oil vapor, smoke, cotton dust, metal powder, sawdust, Warakuzu.

7. Store the Product in a location with the temperature ranging between -20 and +60°C, with the humidity ranging from 30 to 85% RH.

8. For commercial use, the product can monitor maximum 32 inverters at one time.

9. If installed outdoor, please put it in box which is suitable for outdoor use.

## Caring for the Product

Cleaning of the Product is recommended, in order to make it possible for you to use the Power Monitor in the best possible condition at all times.

- Cleaning method

A touch panel has been adopted for this Product, the display on which becomes difficult to view when soiled with fingerprints, sweat or oil.

- Wipe dry with a piece of dry, soft cloth.

Do not remove soiling by using excessive force. Doing so may result in the display being scratched and can also cause malfunction.

- Do not apply any tape, plastic or rubber matter on the Product for a long period of time.

The Product may be soiled. In such an event remove the soiling when cleaning.



# 1.Information on The Product

The Product is intended for verifying the status of a solar power generation system. The Product collects and takes measurements of respective power information, to display results as well as store performance data for a prescribed period of time or provide assistance to save energy based on such information.

## 1.1.Principal Features

- A 7-inch color liquid crystal display is adopted to provide a clear display.
- The LED backlight feature is adopted to reduce power consumption.
- A real-time display of the power production is provided.
- The function of Energy Saving has been incorporated.
- Performance data can be output and loaded onto a personal computer.
- Setting feature of the Grid Setting is available.
- The touch panel is adopted for easier operations

※ Notes on basic operation of the touch panel

Power Monitor is operated by using a touch panel, which is manipulated by touching with a fingertip. The basic operation of the touch panel is described below.

### ■ Touch


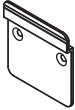




Touch lightly on the screen surface with a finger.

## 1.2.Scope of Delivery

Verify that following items are available for use prior to using this feature.

■ PPM R3E-000

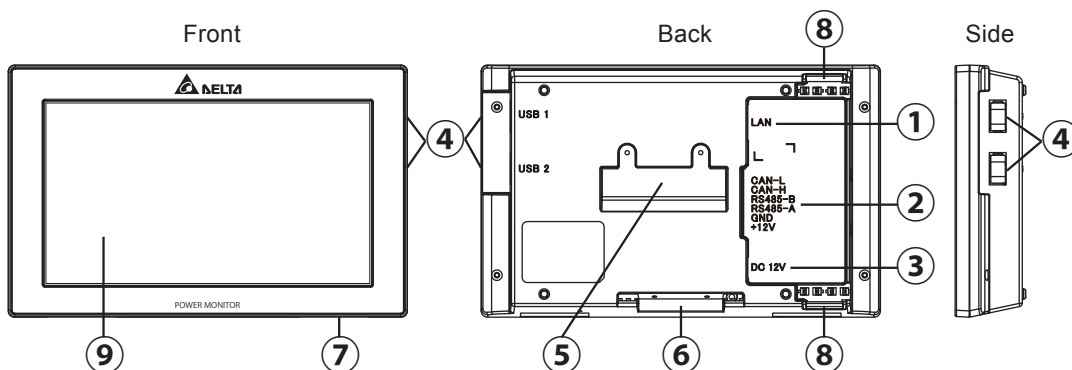
No	Product name	Shape	Qty	Remarks
1	Power Monitor		1 unit	
2	Wall Surface / Desktop Mounting Plate		1 piece	This is a plate used to install the Product on a wall or on a desk.
3	Wood screws (+) for Wall Surface / Desktop Mounting Plate (dia. 4 x 20 mm)		2 pieces	These are wood screws for the Wall Surface / Desktop Mounting Plate.
4	Quick installation guide		1 copy	

## 1.3. Descriptions and Functions of Parts and Components

### Important

Do not connect a telephone line to the LAN terminal.

#### ■ Power Monitor



- ① LAN terminal (RJ-45 terminal) (fitted with a protective cover)  
This is the terminal that is used to connect the system to an internet line. (A setup is required.)
- ② RS-485 (a 6-pin connect)  
This is the connect that is used to connect a 6-pin connector provided, to link the supply of power and signals from the Inverter.
- ③ Power Supply terminal (fitted with a protective cover)  
Not used.
- ④ USB Terminal (for USB 1 and USB 2) (fitted with a protective cover)  
Downloading of various data and upgrading of software versions can be performed.  
\* Customers are requested to procure their own USB memory and USB cable.
- ⑤ Insertion slot for anchoring the Wall Surface Mounting Plate.  
This is the insertion slot used to install the Wall Surface / Desktop Mounting Plate when installing the Product on the wall.
- ⑥ Insertion slot for anchoring the Desktop Mounting Plate  
This is the insertion slot used to install the Wall Surface/ Desktop Mounting Plate when installing the Product on desktop.
- ⑦ Reset button  
This is intended for use in maintenance work carried out by the manufacturer. Do not use this.
- ⑧ Wiring access  
According to the prescribed wiring method, remove the tab on the wiring access, and guide the cable through.
- ⑨ Touch Panel section  
Displays are switched and various settings are performed by performing touch panel operations.

# 2. Installation Method

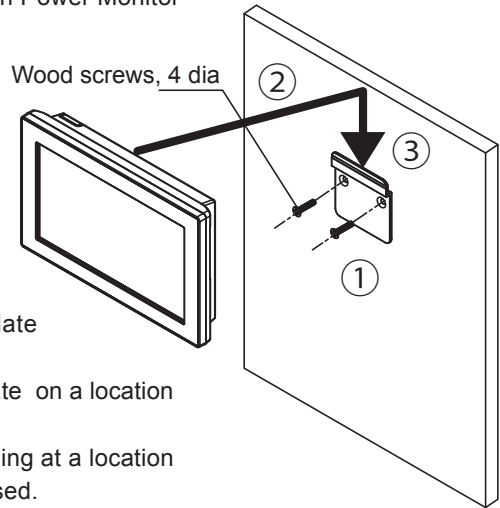
The Power Monitor may be mounted on a desktop or on a wall surface for use.

“Wall Installation”, “Desktop Installation” and “Wiring access” are respectively explained in this chapter.

\* Consult the retailer where you purchased the Power Monitor when relocating your Power Monitor.

## 2.1. Wall Installation

### ■ Installing Wall Surface / Desktop Mounting Plate on Power Monitor



#### ● Installation on wall

##### ① Install the Wall Surface / Desktop Mounting Plate

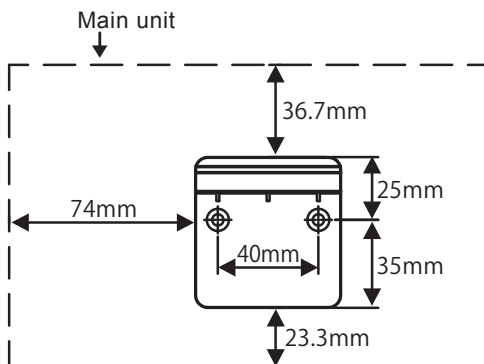
on the wall, using the wood screws provided.

- Install the Wall Surface / Desktop Mounting Plate on a location that can withstand the weight of the main unit.
- Use countersunk screws of 4 dia., when installing at a location where the provided wood screws cannot be used.
- Apply torque of 1.5 to 2.0 Nm when installing wood screws on a wall made of wooden materials.
- Install on a flat wall surface.

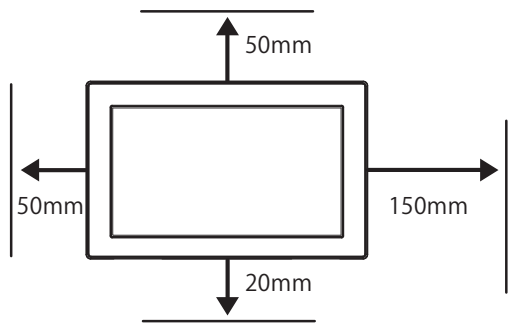
##### ② Verify the hooking portion of the Wall Surface / Desktop Mounting Plate and the Wall Mounting Plate and the insertion slot for anchoring the Wall Surface Mounting Plate on the reverse surface of the main unit, then press on the main unit until the insertion slot for anchoring is positioned above the upper section of the Wall Surface / Desktop Mounting Plate.

##### ③ Slide the main unit lower in that position and securely engage the hooking portion.

- Hook on the insertion slot for anchoring the Wall Surface Mounting Plate on the reverse surface of the main unit on the Wall Surface / Desktop Mounting Plate and shift down by approximately 1 centimeter.

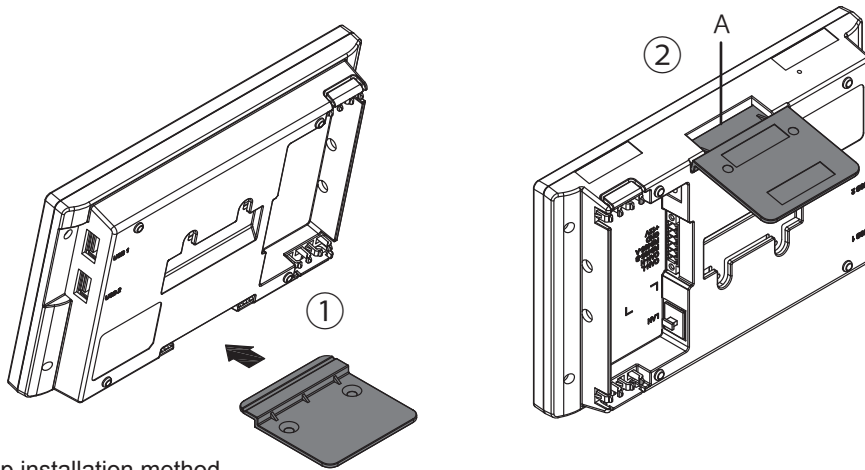


■ Dimensions of Wall Surface / Desktop Mounting Plate and the main unit



■ Separation distance from respective surfaces of main unit

## 2.2. Desktop Installation

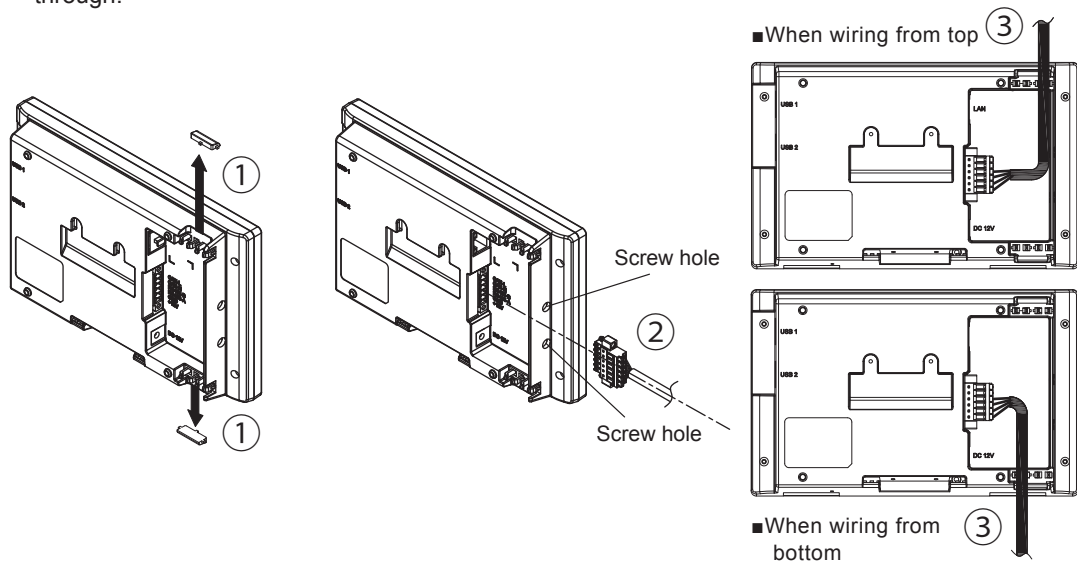


- Desktop installation method

- ① Insert the Wall Surface / Desktop Mounting Plate in the insertion slot for anchoring the Desktop Mounting Plate at the lower section of the main unit, being careful about the direction the plate is facing.
- ② Verify to ensure that there is no gap between the Wall Surface / Desktop Mounting Plate and Part A at the bottom of the main unit, as shown in the figure to the right.

## 2.3. Wiring access

- There are two wiring accesses in the upper and lower sections on the reverse side of the Power Monitor. According to the prescribed wiring method, remove the tab on the wiring access, and guide the cable through.



- ① Remove the tab on the wiring access, using a pair of pliers or the similar tool.  
(Remove burr with a pair of pliers to ensure that the cables are not scratched.)
- ② Pass a screwdriver through the screw hole, and tighten the two screws for the 6 pin connector.
- ③ When all the wiring is complete, install the Power Monitor in its installation site.

## 3. What Power Monitor can do

The Power Monitor displays the power production status of the solar power generation system and various information on a display screen.

### 3.1. Principal Functions

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The following types of information can be verified using the Power Monitor:

- Current system status can be verified.  
The current power generating amounts, as well as the operating status of the Inverter can be verified.
- Past power status can be verified.  
Power production from the past can be verified, in units of one day, one month, one year and 20 years. Furthermore, such data can also be downloaded and used for proprietary compilation or management.

#### **One Point**

The amount of electric production displayed on the Home screen or Log screen may differ from the electric power amount indicated on statements from the power company, due to such causes of errors as those described below:

- (1) Errors in measurement: The error arising from the fact that the instrument used by the electric power company for the purpose of calculating the amount of electric power production is not a specified measuring instrument but instead it is another equipment.
- (2) Errors in calculation: The error arising from rounding up or rounding off of figures in the calculation and display process of the Power Monitor.

## 3.2.Operation Screens

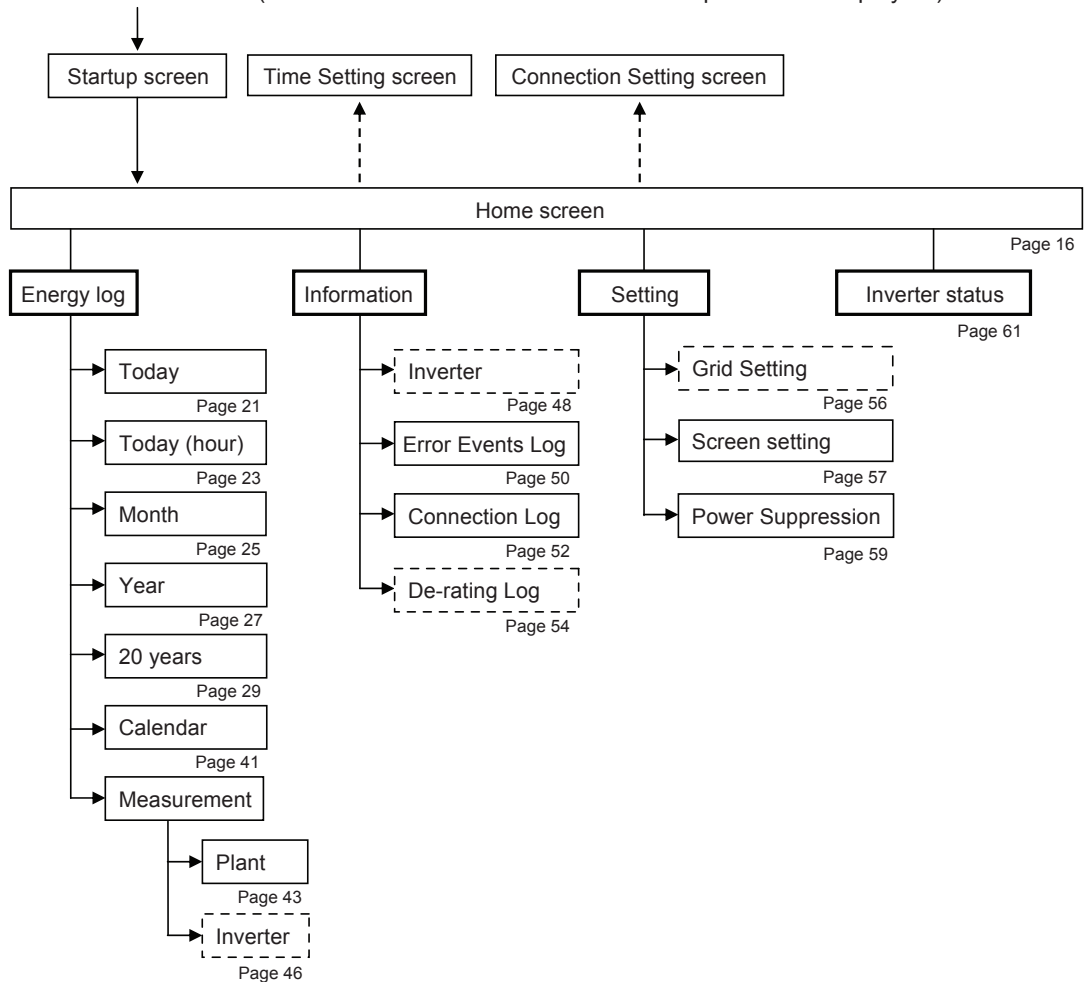
The display screen of the Power Monitor changes in the following manner, according to touch panel operations and connection setting. Display details and operations of respective screen are described in the “Display Functions” section.

### One Point

- The screens indicated by dotted arrow lines are displayed when a specific condition (such as date/time not entered, connection setting and the like) is satisfied.
- The screens surrounded by a frame of dotted line are not displayed when the Power Monitor and the Inverter are unable to communicate with each other.
- Screens indicated with solid lines are displayed for ordinary operations.

#### ■ List of Operation Screens

Power turned on (it takes about 10 seconds until the Startup screen is displayed )

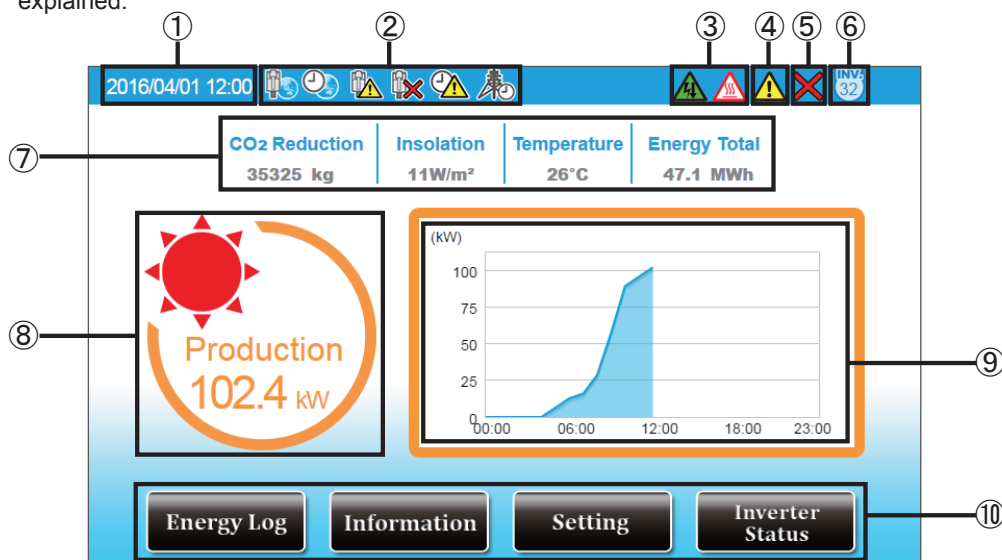


## 3.3. Interpreting and Operating Power Monitor

The Power Monitor displays a variety of information, such as the amount of power production as well as the operating status of the Inverter.

### 3.3.1. Home screen

This is the Home screen of the monitor. Illustrations and icons displayed on this screen are explained.



① Date / Time

The current date and time are displayed.

② Not connect to the LAN or internet

It's able to connect to LAN, but not able to connect to external internet

Internet is working normally

Internet time synchronization is not successful

Internet time synchronization is successful

Power suppression scheduling

③ Suppression icon

A Suppression icon is displayed when there is suppression on the operation of the Inverter.

Icon	Operating mode	Description
	Temperature elevation suppression	The internal temperature of the Inverter has reached a high level. The output of the Inverter is being suppressed.
	Voltage elevation suppression	The voltage of the commercial power system has reached a high level while the Inverter was in operation. The output of the Inverter is being suppressed.




④ Error icon

An error icon is displayed to indicate that one or more errors are occurring. The Error icon is ordinarily not displayed, and is displayed when one or more errors occur. Refer to “4. When Something Seems Wrong (Troubleshooting)” (Page 62) for details.

⑤ Communication Malfunction icon

This icon is displayed when communication with the Inverter is not available.

Icon	Operating mode	Description
	Communication malfunction	Communication with the Inverter is malfunctioning.

⑥ Number of Connected Inverters

The number of Inverters that have been checked off in the Connection setting. This feature cannot be used to verify erroneous wiring, since the actual wiring is irrelevant to this indication.

⑦ CO<sub>2</sub> Reduction / Isolation / Temperature / Energy Total

CO<sub>2</sub> Reduction :

The reduction in CO<sub>2</sub> resulting from electricity produced is calculated and displayed.

Energy Total :

Indicates the total amount of power produced from the day on which production started to the present time.

Isolation and Temperature :

If monitor connects with Pyrheliometer/Thermometer, the isolation and temperature values are displayed.

⑧ Production icon and numerical value

The icon and the numerical value indicate the current status of production.

⑨ Power graph

The details of production are displayed as graphs.

⑩ Menu buttons

The names of the Menu buttons are displayed.

Menu buttons have different names and roles for each screen that is being displayed.

Refer to the descriptions of respective functions for details of the Menu buttons.



Power log is displayed.



Status of the Inverters and the error log are displayed.



Setting for the Inverter and monitor.



Display the status of Inverters.

- Display of tabs

The selected tab is displayed in white. The non-displaying tabs are displayed in light blue.

	Selected tab	Non-displaying tab
Tab	Screen Setting	Screen Setting

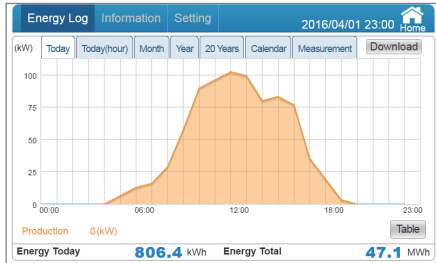
**One Point**

- Numerical values that are displayed on the screens are all displayed as values that have been rounded up or off.  
For instance in case where a value is “3.14 kWh”, this is displayed as “3.1 kWh”, whereas if the value is “3.15 kWh”, then it is displayed as “3.2 kWh”.  
Thus the numerical values that are displayed do not necessarily completely match with the true value in some cases, as described above.
- Refer to “4. When Something Seems Wrong (Troubleshooting)” (Page 62) for details when the Suppression and Communication Malfunction icons are displayed frequently.

### 3.3.2. Energy Log

The details of production are displayed by respective units (date /month /year), Graph and Table. The following screens are available:

Power log for today (Graph display)  
The power status for the day can be verified.



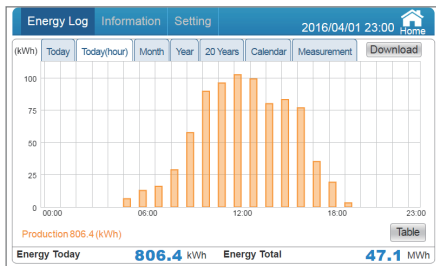
Power log for today (Table display)

Date/Time	Production
09:00	12.8 kW
09:15	16.0 kW
09:30	28.8 kW
09:45	57.6 kW
10:00	89.6 kW
10:15	96.0 kW
10:30	102.4 kW
10:45	99.2 kW
11:00	80.0 kW
11:15	83.2 kW

Energy Today 806.4 kWh Energy Total 47.1 MWh



Energy log for today by hours (Graph display)  
The energy status for each hour can be verified.



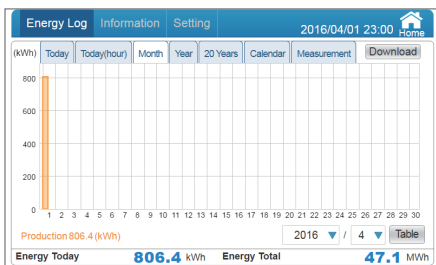
Energy log for today by hours (Table display)

Date/Time	Production
07:00	16.0 kWh
08:00	28.8 kWh
09:00	57.6 kWh
10:00	89.6 kWh
11:00	96.0 kWh
12:00	102.4 kWh
13:00	99.2 kWh
14:00	80.0 kWh
15:00	83.2 kWh
16:00	76.8 kWh

Energy Today 806.4 kWh Energy Total 47.1 MWh



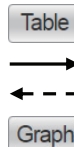
Energy log for one month (Graph display)  
The energy status for one month can be verified.



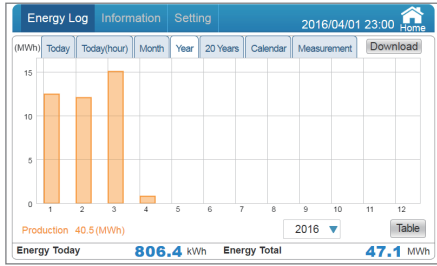
Energy log for one month (Table display)

Date/Time	Production
2016/04/01	806.4 kWh
2016/04/02	
2016/04/03	
2016/04/04	
2016/04/05	
2016/04/06	
2016/04/07	
2016/04/08	
2016/04/09	
2016/04/10	

Energy Today 806.4 kWh Energy Total 47.1 MWh



Energy log for one year (Graph display)  
The energy status for one year can be verified.



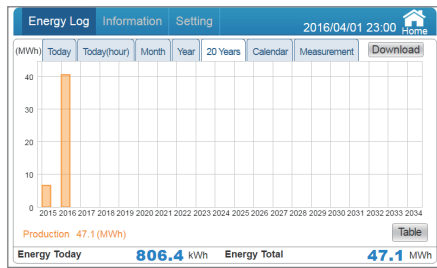
Energy log for one year (Table display)

The table displays production in MWh for the first ten months of 2016. The total production for the year is 47.1 MWh.

Date/Time	Production
2016/01	12.5 MWh
2016/02	12.1 MWh
2016/03	15.1 MWh
2016/04	806.4 kWh
2016/05	
2016/06	
2016/07	
2016/08	
2016/09	
2016/10	
<b>Total</b>	<b>47.1</b>



Energy log for 20 years (Graph display)  
The energy status for 20 years can be verified.



Energy log for 20 years (Table display)

The table displays production in MWh for the years 2015 through 2024. The total production for the year is 47.1 MWh.

Date/Time	Production
2015	6.6 MWh
2016	40.5 MWh
2017	
2018	
2019	
2020	
2021	
2022	
2023	
2024	
<b>Total</b>	<b>47.1</b>



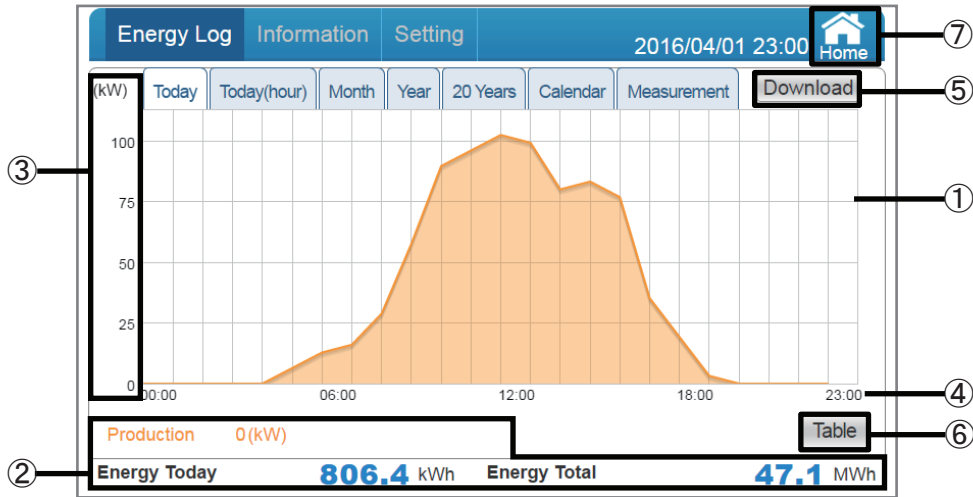
【 Power graph (Today) 】

The details of production are displayed as graphs.

● Type of graph

Instantaneous power status for the 24 hour time span of the current day is shown in increments of 15 minute intervals.

● Graph screen



① Graph areas

The details of production are shown by orange graph.

② Power / Amount of Power display area

Production: The amount of instantaneous electric power generation for today is displayed.

Energy Today: The amount of electric energy generated today is displayed.

Energy Total: The accumulated amount of electric energy generated as of today is displayed.

※ The energy displayed under Production represents the instantaneous energy with the Energy Log for “Today” only.

③ Power graph scale

The scale of the graph is displayed.

④ Time scale

The time scale suitable for respective Energy Log displays (daily / monthly / yearly) is displayed.

Energy Log	Unit
Today	Time
Month	Day
Year	Month
20 Years	Year

⑤ **Download**

Data can be downloaded onto USB memory.

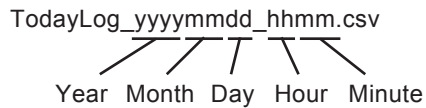
Respective power details for a 3 month period, including the current day, are downloaded as data in 15-minute increments.

Format: CSV

File name: TodayLog\_yyyymmdd\_hhmm.csv

The file name “yyyymmdd” represents the year, month and day on which the data was downloaded.

The file name “hhmm” represents the hour and minute at which the data was downloaded.



File description: Date (date)

Time (time)

Power Generation Max (kW) (maximum amount of production)


⑥ **Table**

The details of production are displayed as table. (Page 31)

⑦  **Home**

Change the display to the Home screen.

● Operating method

- In the Home screen, touch  →  .
- A list is displayed with  .
- Touch the desired Energy Log (      ) to switch respective power graphs.

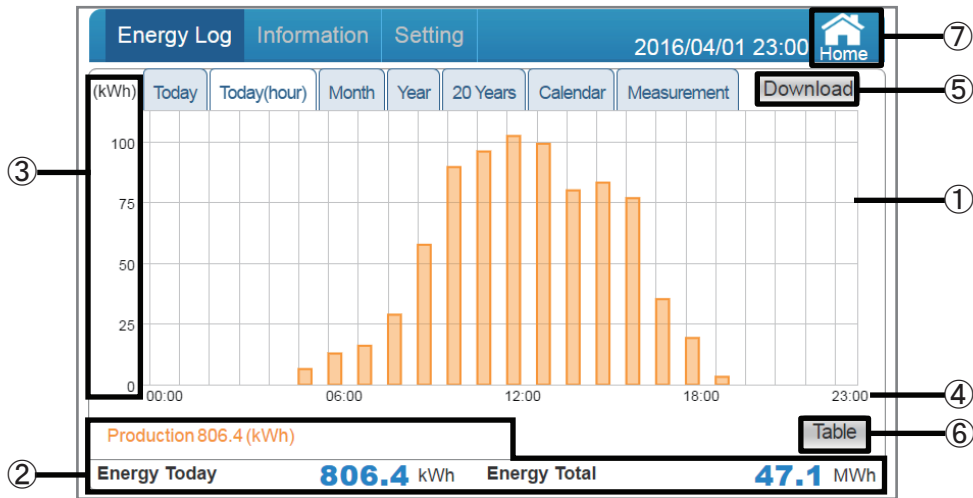
【 Energy graph (Today (hour)) 】

The details of production are displayed as graphs.

● Type of graph

Energy status for the 24 hour time span of the current day is shown in increments of 1 hour intervals.

● Graph screen



① Graph areas

The details of production are shown by orange graph.

② Amount of Power display area

Production: The amount of electric power generation for today is displayed.

Energy Today: The amount of electric energy generated today is displayed.

Energy Total: The accumulated amount of electric energy generated as of today is displayed.

③ Energy graph scale

The scale of the graph is displayed.

④ Time scale

The time scale suitable for respective Energy Log displays (daily / monthly / yearly) is displayed.

Energy Log	Unit
Today	Time
Month	Day
Year	Month
20 Years	Year

⑤ **Download**

Data can be downloaded onto USB memory.

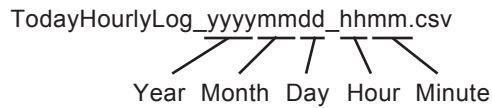
Respective power details for a 3 month period, including the current day, are downloaded as data in 1-hour increments.

Format: CSV

File name: TodayHourlyLog\_YYYYMMDD\_hhmm.csv

The file name “YYYYMMDD” represents the year, month and day on which the data was downloaded.

The file name “hhmm” represents the hour and minute at which the data was downloaded.



File description: Date (date)

Time (time)

Energy Generation (kWh) (amount of production)

⑥ **Table**

The details of production are displayed as table. (Page 33)



Change the display to the Home screen.

● Operating method

- In the Home screen, touch **Energy Log** → **Today(hour)** .
- A list is displayed with **Table** .
- Touch the desired Energy Log ( **Today** **Today(hour)** **Month** **Year** **20 Years** ) to switch respective power graphs.



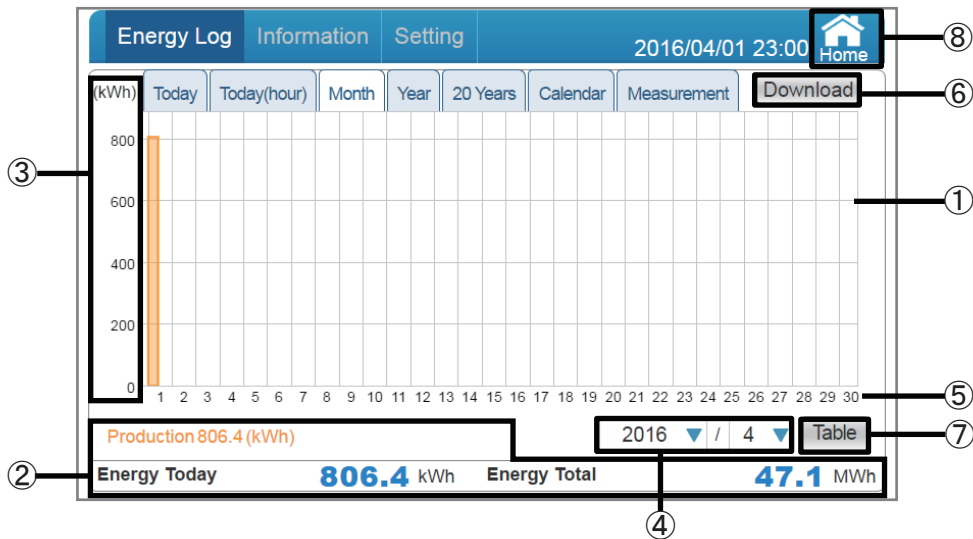
【 Energy graph (Month) 】

The details of production are displayed as graphs.

● Type of graph

Energy status for 1 month is shown in increments of 1 day intervals.  
(Including current day)

● Graph screen



① Graph areas

The details of production are shown by orange graph.

② Amount of Power display area

Production: The amount of electric power generation for today is displayed.

Energy Today: The amount of electric energy generated today is displayed.

Energy Total: The accumulated amount of electric energy generated as of today is displayed.

③ Energy graph scale

The scale of the graph is displayed.

④ Display period

The display period is indicated by respective units (month / year). Either the year or the month can be selected by touch. The display by year can only be selected if there is any production performance for that year.

⑤ Time scale

The time scale suitable for respective Energy Log displays (daily / monthly / yearly) is displayed.

Energy Log	Unit
Today	Time
Month	Day
Year	Month
20 Years	Year

⑥ **Download**

Data can be downloaded onto USB memory.

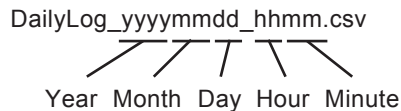
Respective power details for a 3 month period are downloaded as data in 1-day increments.

Format: CSV

File name: DailyLog\_yyyymmdd\_hhmm.csv

The file name "yyyymmdd" represents the year, month and day on which the data was downloaded.

The file name "hhmm" represents the hour and minute at which the data was downloaded.



File description: Date (date)

Energy Generation (kWh) (amount of production)

⑦ **Table**

The details of production are displayed as table. (Page 35)

⑧  **Home**

Change the display to the Home screen.

● Operating method

- In the Home screen, touch  →  .
- A list is displayed with  .
- Touch the desired Energy Log (      ) to switch respective power graphs.

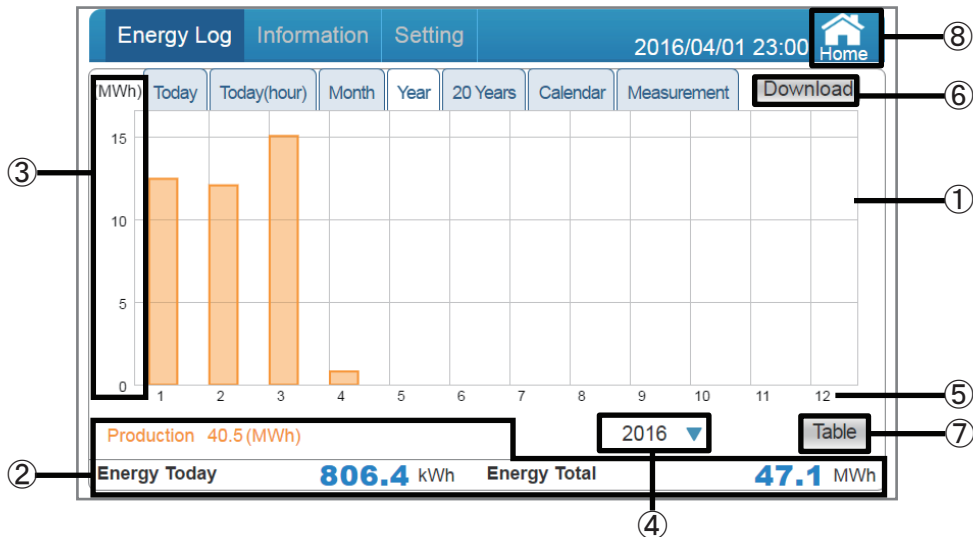
【 Energy graph (Year) 】

The details of production are displayed as graphs.

● Type of graph

Energy status for 1 year is shown in increments of 1-month intervals.  
(Including current month)

● Graph screen



① Graph areas

The details of production are shown by orange graph.

② Amount of Power display area

Production: The amount of electric power generation for today is displayed.

Energy Today: The amount of electric energy generated today is displayed.

Energy Total: The accumulated amount of electric energy generated as of today is displayed.

③ Energy graph scale

The scale of the graph is displayed.

④ Display period

The display period is indicated for each year. The year can be selected by touch.

The display by year can only be selected if there is any production performance for that year.

⑤ Time scale

The time scale suitable for respective Energy Log displays (daily / monthly / yearly) is displayed.

Energy Log	Unit
Today	Time
Month	Day
Year	Month
20 Years	Year

⑥ **Download**

Data can be downloaded onto USB memory.

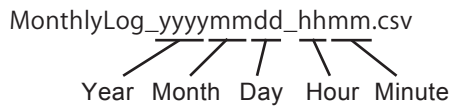
Respective power details for a 1 year period are downloaded as data in 1-month increments.

Format: CSV

File name: MonthlyLog\_yyyymmdd\_hhmm.csv

The file name “yyymmdd” represents the year, month and day on which the data was downloaded.

The file name “hhmm” represents the hour and minute at which the data was downloaded.



File description: Month (month)

Energy Generation (kWh) (amount of production)

⑦ **Table**

The details of production are displayed as tabel. (Page 37)



Change the display to the Home screen.

● Operating method

- In the Home screen, touch **Energy Log** → **Year** .
- A list is displayed with **Table** .
- Touch the desired Energy Log ( **Today** **Today(hour)** **Month** **Year** **20 Years** ) to switch respective power graphs.

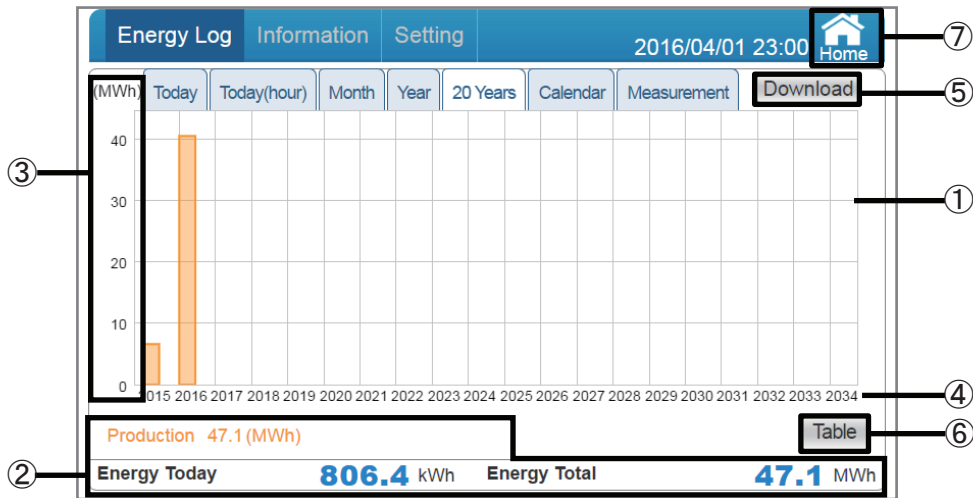
【 Energy graph (20 Years) 】

The details of production are displayed as graphs.

● Type of graph

Energy status for 20 years is shown in increments of 1-year intervals.  
(Including current year)

● Graph screen



① Graph areas

The details of production are shown by orange graph.

② Amount of Power display area

Production: The amount of electric power generation for today is displayed.

Energy Today: The amount of electric energy generated today is displayed.

Energy Total: The accumulated amount of electric energy generated as of today is displayed.

③ Energy graph scale

The scale of the graph is displayed.

④ Time scale

The time scale suitable for respective Energy Log displays (daily / monthly / yearly) is displayed.

Energy Log	Unit
Today	Time
Month	Day
Year	Month
20 Years	Year

⑤ **Download**

Data can be downloaded onto USB memory.

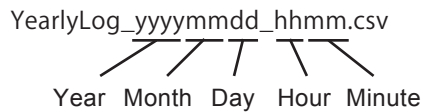
Respective power details for a 20-year period, including the current year, are downloaded as data in 1-year increments.

Format: CSV

File name: YearlyLog\_YYYYMMDD\_hhmm.csv

The file name "YYYYMMDD" represents the year, month and day on which the data was downloaded.

The file name "hhmm" represents the hour and minute at which the data was downloaded.



File description: Year (year)

Energy Generation (kWh) (amount of production)

⑥ **Table**

The details of production are displayed as table. (Page 39)

⑦  Home

Change the display to the Home screen.

● Operating method

- In the Home screen, touch **Energy Log** → **20 Years** .
- A list is displayed with **Table** .
- Touch the desired Energy Log ( **Today** **Today(hour)** **Month** **Year** **20 Years** ) to switch respective power graphs.

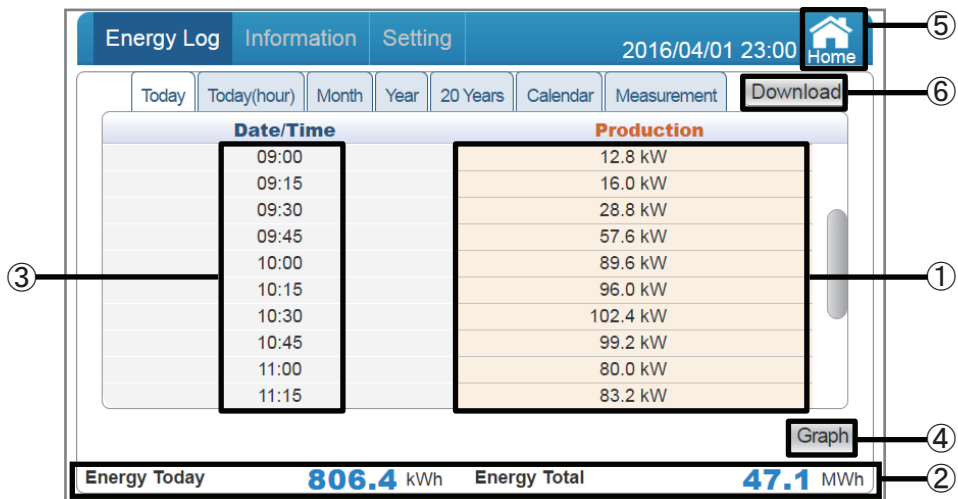
【 Table display (Today) 】

The details of production are displayed as table.

● Type of table

Power status for the 24 hour time span of the current day is shown in increments of 15 minute intervals.

● Table display screen



① Power data

The details of production for the applicable period are displayed as numerical values.  
 The maximum amounts of power for 15 minute intervals are displayed.  
 Values that have been rounded up or off are displayed.

② Amount of energy display area

Energy Today: The amount of energy generated today is displayed.  
 Energy Total: The accumulated amount of energy generated as of today is displayed.

③ Date / Time

The date / time suitable for respective performance displays (daily / monthly / yearly) are displayed.

④ Graph

The graph screen for the performance data of production is displayed. (Page 21)

⑤ Home

Change the display to the Home screen.

⑥ **Download**

Data can be downloaded onto USB memory.

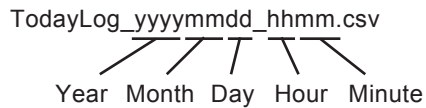
Respective power details for a 3 month period, including the current day, are downloaded as data in 15-minute increments.

Format: CSV

File name: TodayLog\_yyyymmdd\_hhmm.csv

The file name “yyymmdd” represents the year, month and day on which the data was downloaded.

The file name “hhmm” represents the hour and minute at which the data was downloaded.



File description: Date (date)

Time (time)

Power Generation Max (kW) (maximum amount of production)

● Operating method

• In the Home screen, touch **Energy Log** → **Today** → **Table** to display table of details of production.

• Touch **Graph** to return to the graph display of performance data.



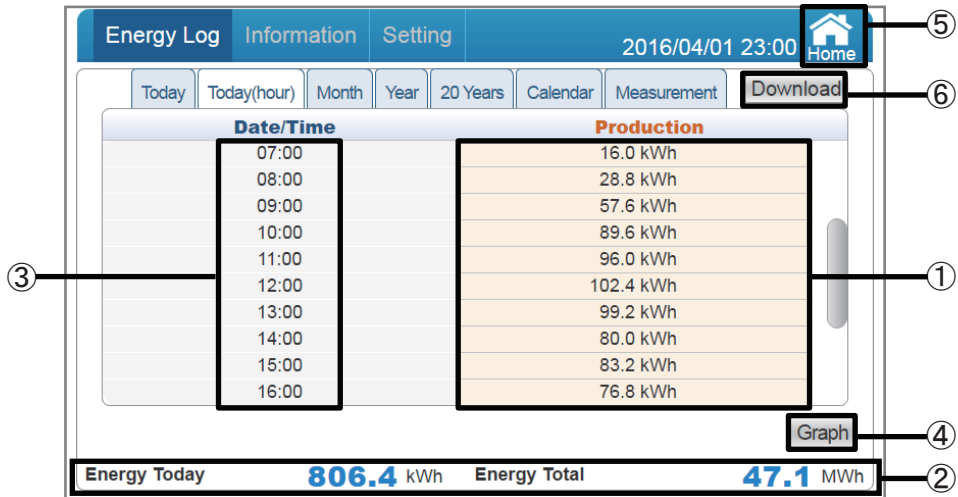
【 Table display (Today (hour)) 】

The details of production are displayed by table.

● Type of table

Energy status for the 24 hour time span of the current day is shown in increments of 1 hour intervals.

● Table display screen



① Energy amount data

The details of production for the applicable period are displayed as numerical values. Values that have been rounded up or off are displayed.

② Amount of energy display area

Energy Today: The amount of energy generated today is displayed.

Energy Total: The accumulated amount of energy generated as of today is displayed.

③ Date / Time

The date / time suitable for respective performance displays (daily / monthly / yearly) are displayed.

④ Graph

The graph screen for the performance data of production is displayed. (Page 23)

⑤ Home

Change the display to the Home screen.

⑥ **Download**

Data can be downloaded onto USB memory.

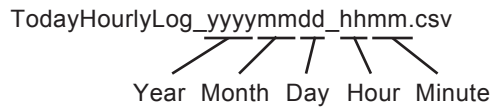
Respective power details for a 3 month period, including the current day, are downloaded as data in 1-hour increments.

Format: CSV

File name: TodayHourlyLog\_yyyymmdd\_hhmm.csv

The file name “yyymmdd” represents the year, month and day on which the data was downloaded.

The file name “hhmm” represents the hour and minute at which the data was downloaded.



File description: Date (date)

Time (time)

Energy Generation (kWh) (amount of production)

● Operating method

• In the Home screen, touch **Energy Log** → **Today(hour)** → **Table** to display table of details of production.

• Touch **Graph** to return to the graph display of performance data.

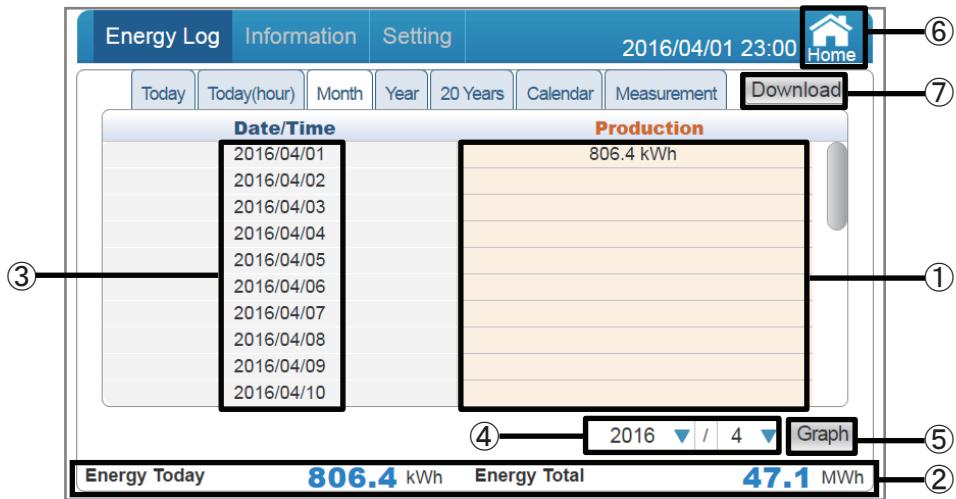
【 Table display (Month) 】

The details of production are displayed by table.

● Type of table

Energy status for 1 month is shown in increments of 1-day intervals.

● Table display screen



① Energy amount data

The details of production for the applicable period are displayed as numerical values. Values that have been rounded up or off are displayed.

② Amount of energy display area

Energy Today: The amount of energy generated today is displayed.

Energy Total: The accumulated amount of energy generated as of today is displayed.

③ Date / Time

The date / time suitable for respective performance displays (daily / monthly / yearly) are displayed.

④ Display period

The display period is indicated by respective units (month / year).

⑤ Graph

The graph screen for the performance data of production is displayed. (Page 25)

⑥ Home

Change the display to the Home screen.

⑦ **Download**

Data can be downloaded onto USB memory.

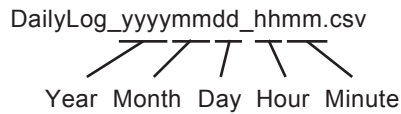
Respective power details for a 3 month period are downloaded as data in 1-day increments.

Format: CSV

File name: DailyLog\_yyyymmdd\_hhmm.csv

The file name “yyymmdd” represents the year, month and day on which the data was downloaded.

The file name “hhmm” represents the hour and minute at which the data was downloaded.



File description: Date (date)

Energy Generation (kWh) (amount of production)

● Operating method

• In the Home screen, touch **Energy Log** → **Month** → **Table** to display table of details of production.

• Touch **Graph** to return to the graph display of performance data.

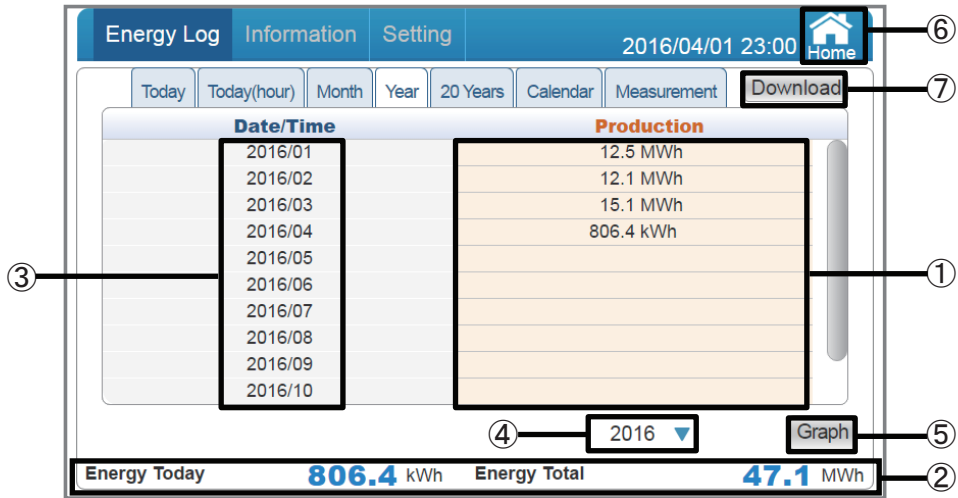
【 Table display (Year) 】

The details of production are displayed by table.

● Type of table

Energy status for 1 year is shown in increments of 1-month intervals.

● Table display screen



① Energy amount data

The details of production for the applicable period are displayed as numerical values. Values that have been rounded up or off are displayed.

② Amount of energy display area

Energy Today: The amount of energy generated today is displayed.

Energy Total: The accumulated amount of energy generated as of today is displayed.

③ Date / Time

The date / time suitable for respective performance displays (daily / monthly / yearly) are displayed.

④ Display period

The display period is indicated for each year.

⑤ Graph

The graph screen for the performance data of production is displayed. (Page 27)

⑥ Home

Change the display to the Home screen.

⑦ **Download**

Data can be downloaded onto USB memory.

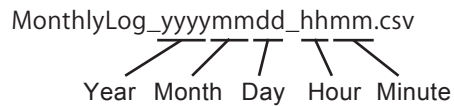
Respective power details for a 1 year period are downloaded as data in 1-month increments.

Format: CSV

File name: MonthlyLog\_yyyymmdd\_hhmm.csv

The file name “yyymmdd” represents the year, month and day on which the data was downloaded.

The file name “hhmm” represents the hour and minute at which the data was downloaded.



File description: Month (month)

Energy Generation (kWh) (amount of production)

● Operating method

• In the Home screen, touch **Energy Log** → **Year** → **Table** to display table of details of production.

• Touch **Graph** to return to the graph display of performance data.

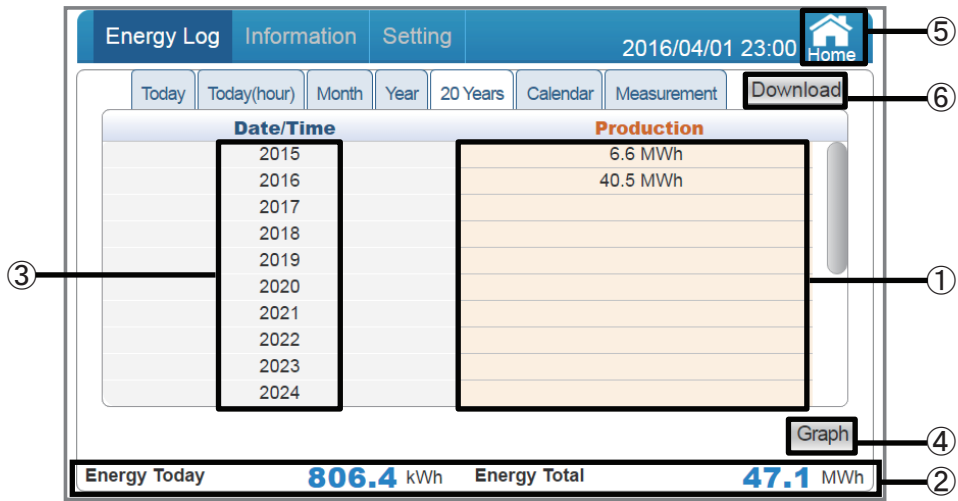
【 Table display (20 Years) 】

The details of production displayed by table.

● Type of table

Energy status for 20 years is shown in increments of 1-year intervals.

● Table display screen



① Energy amount data

The details of production for the applicable period are displayed as numerical values. Values that have been rounded up or off are displayed.

② Amount of energy display area

Energy Today: The amount of energy generated today is displayed.

Energy Total: The accumulated amount of energy generated as of today is displayed.

③ Date / Time

The date / time suitable for respective performance displays (daily / monthly / yearly) are displayed.

④ Graph

The graph screen for the performance data of production is displayed. (Page 29)

⑤ Home

Change the display to the Home screen.

⑥ **Download**

Data can be downloaded onto USB memory.

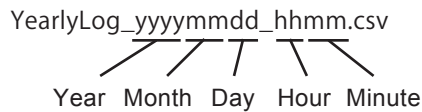
Respective power details for a 20-year period, including the current year, are downloaded as data in 1-year increments.

Format: CSV

File name: YearlyLog\_YYYYMMDD\_hhmm.csv

The file name “YYYYMMDD” represents the year, month and day on which the data was downloaded.

The file name “hhmm” represents the hour and minute at which the data was downloaded.



File description: Year (year)

Energy Generation (kWh) (amount of production)

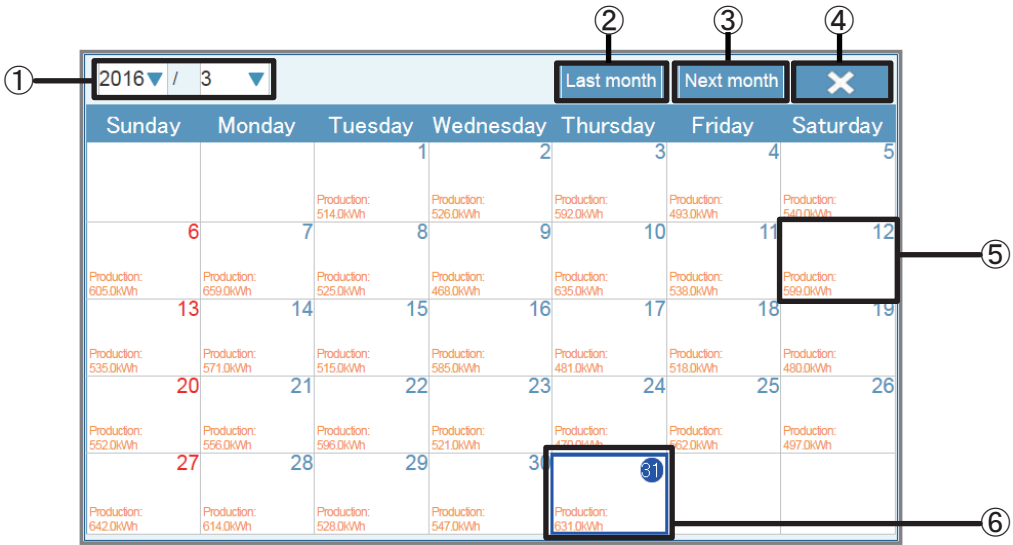
● Operating method

- In the Home screen, touch **Energy Log** → **20 Years** → **Table** to display table of details of production.
- Touch **Graph** to return to the graph display of performance data.



【 Calendar function 】

Energy production from the past can be verified on the calendar.

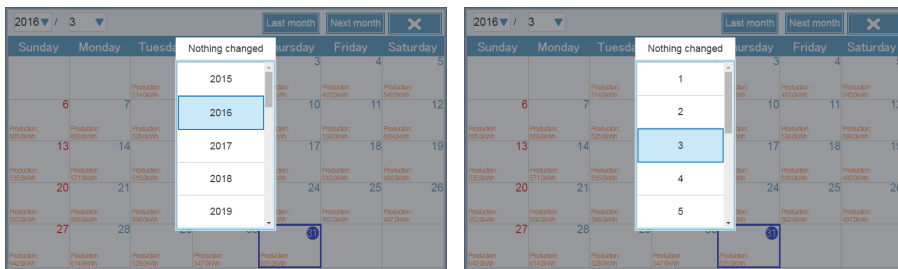


① Date

Year: Year is displayed according to the Gregorian calendar. The year can be changed with a touch.

Month: Month is displayed. The month can be changed with a touch.

Touching the “Nothing Changed” button reverts the display to the Calendar screen.



② Last month

Change the display to the previous month.

③ Next month

Change the display to the next month.

④

Change the display to the power history for today.

⑤ Energy history

The energy production for the day is displayed by graph and value.

Touch on a desired date to switch the display to the Energy history screen for that day.



Touch this button will return to the Calendar screen.

⑥ Current day display

The current day is indicated by a blue frame.

When the date in the frame is a week day, it is displayed with outlined characters in a blue circle and if it is a Sunday it is displayed with outlined characters in a red circle.

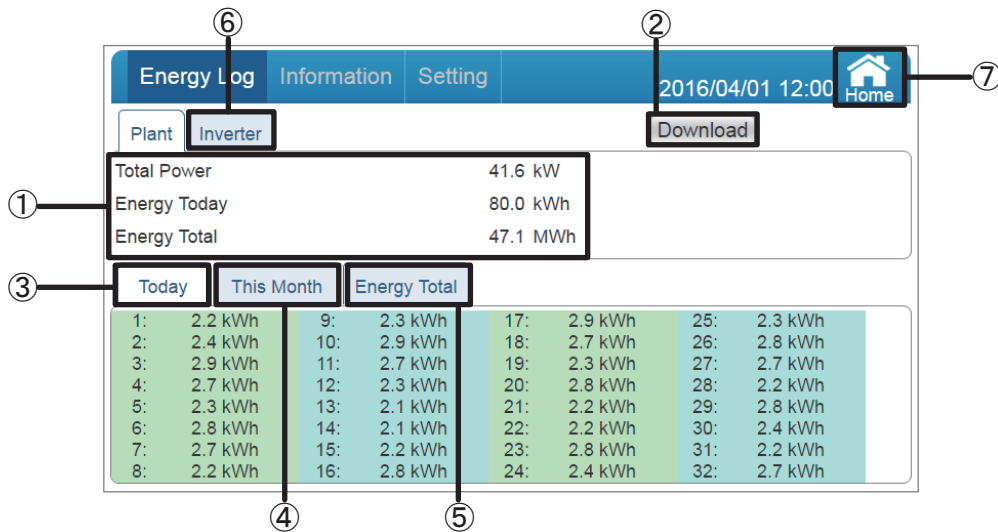
● Operating method

• In the Home screen, touch  →  .

• Touch on a desired date to switch the display to the Power status screen for that day.

**【Measurement → Plant】**

The status of the plant can be verified based on the measurement values.



① Plant screen

The amount of power generated for today and the accumulated amount of energy generated as of today are displayed.

Total Power: The instantaneous amount of power generated at that moment is displayed.

Energy Today: The amount of energy generated today is displayed.

Energy Total: The accumulated amount of energy generated as of today is displayed.

② Download

Data can be downloaded to USB memory.

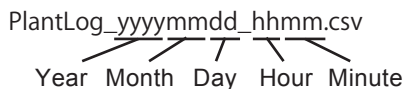
The current amount of power generated, as well as the amount of power generated today and the accumulated amount of power generated as of today, for respective Inverters as well as their totals, are downloaded.

Format: CSV

File name: PlantLog\_yyyymmdd\_hhmm.csv

The file name “yyymmdd” represents the year, month and day on which the data was downloaded.

The file name “hhmm” represents the hour and minute at which the data was downloaded.



File description: Plant Total Power (kW) (current power generation)

Plant Today Energy (kWh) (amount of energy generated for today)

Plant Total Energy (kWh) (accumulated amount of energy generated)

The energy generation data of each Inverter is listed after the title of the data.

Inverter Index (Inverter ID)

Today Energy (kWh) (amount of energy generated for today)

Month Energy (kWh) (amount of energy generated for the current month)

Total Energy (kWh) (accumulated amount of energy generated)

③ Today

Change the display to the Measurement values for today screen, where the status of the plant for today can be verified.

The amount of energy generated for today can be verified with each Inverter ID.

1:	12.5 kWh
2:	12.7 kWh
3:	13.2 kWh

Inverter ID      Amount of energy generated for today

④ This Month

Change the display to the Measurement values for current month screen, where the status of the system for the current month can be verified.

The amount of energy generated for the current month can be verified with each Inverter ID.

Today	This Month	Energy Total	
1: 720.0 kWh	9: 720.0 kWh	17: 720.0 kWh	25: 720.0 kWh
2: 720.0 kWh	10: 720.0 kWh	18: 720.0 kWh	26: 720.0 kWh
3: 720.0 kWh	11: 720.0 kWh	19: 720.0 kWh	27: 720.0 kWh
4: 720.0 kWh	12: 720.0 kWh	20: 720.0 kWh	28: 720.0 kWh
5: 720.0 kWh	13: 720.0 kWh	21: 720.0 kWh	29: 720.0 kWh
6: 720.0 kWh	14: 720.0 kWh	22: 720.0 kWh	30: 720.0 kWh
7: 720.0 kWh	15: 720.0 kWh	23: 720.0 kWh	31: 720.0 kWh
8: 720.0 kWh	16: 720.0 kWh	24: 720.0 kWh	32: 720.0 kWh

Inverter ID      Amount of energy generated for current month

⑤ Energy Total

Change the display to the Measurement values screen for the accumulated amount of energy generated, where the status on the accumulated amount of energy generated can be verified.

The accumulated amount of energy generated can be verified for each Inverter ID.

Today	This Month	Energy Total	
1: 1.5 MWh	9: 1.5 MWh	17: 1.5 MWh	25: 1.5 MWh
2: 1.5 MWh	10: 1.5 MWh	18: 1.5 MWh	26: 1.5 MWh
3: 1.5 MWh	11: 1.5 MWh	19: 1.5 MWh	27: 1.5 MWh
4: 1.5 MWh	12: 1.5 MWh	20: 1.5 MWh	28: 1.5 MWh
5: 1.5 MWh	13: 1.5 MWh	21: 1.5 MWh	29: 1.5 MWh
6: 1.5 MWh	14: 1.5 MWh	22: 1.5 MWh	30: 1.5 MWh
7: 1.5 MWh	15: 1.5 MWh	23: 1.5 MWh	31: 1.5 MWh
8: 1.5 MWh	16: 1.5 MWh	24: 1.5 MWh	32: 1.5 MWh

Inverter ID      Accumulated amount of energy generated

The accumulated amount of energy generated is accumulated for each Inverter and Power Monitor, respectively.

Therefore when a Inverter is replaced, the values for the accumulated amount of energy generated may be different on the Inverter and a Power Monitor.

## ⑥ Inverter

Change the display to the Measurement values for Inverter screen, where the status of the Inverter can be verified.

Refer to “Measurement” → “Inverter” (Page 46) for details.



## ⑦

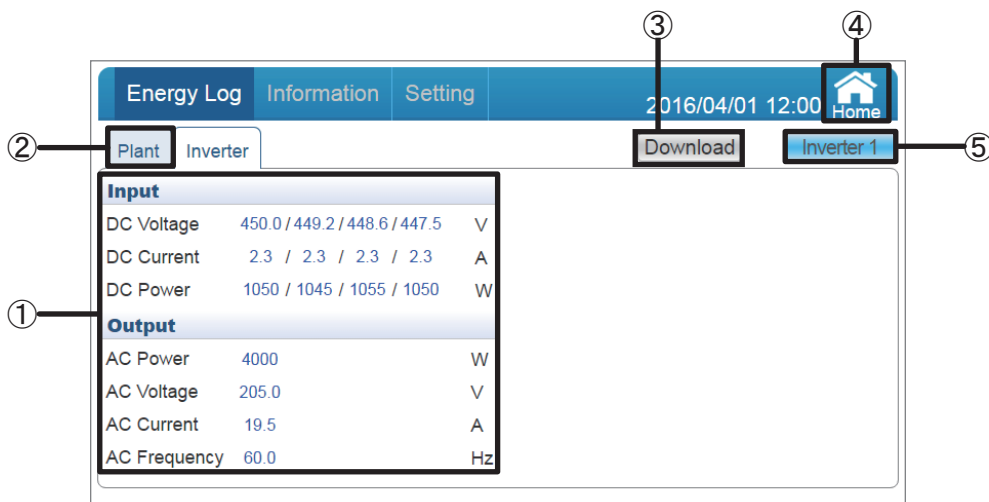
Change the display to the Home screen.

## ● Operating method

- Touch **Energy Log** → **Measurement** → **Plant** .
- Touch the desired measurement value ( **Today** / **This Month** / **Energy Total** ) to switch the display to respective measurement value screens.
- **Inverter** to display the measurement value screen of the Inverter.

【 Measurement→ Inverter 】

The status of the Inverter can be verified based on the measurement values.



① Inverter screen

Input: Values are displayed for DC voltage, current and power of each circuit (The number of circuits vary, depending on the Inverter).

\* Slight voltage may be displayed as the DC voltage of a circuit that is not in use, but this is not a malfunction.

Output: AC power, voltage, current and frequency are displayed.

② Plant

Change the display to the Measurement values screen, where the status of the plant can be verified.

Refer to “Measurement” → “Plant” (Page 43) for details.

③ Download

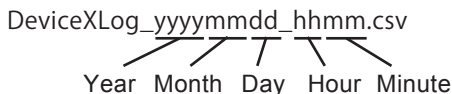
Data can be downloaded onto USB memory.

Format: CSV

File name: DeviceXLog\_yyyymmdd\_hhmm.csv

The “X” in the file name is the ID of the Inverter, while “yyymmdd” is the year for “yyyy”, the month for “mm” and the day for “dd” on which the data is downloaded.

The file name “hhmm” represents the hour and minute at which the data was downloaded.



File description

Inverter Index (Inverter ID)

Date (date), Time (time)

DC1-Volt (V) (DC1 voltage), DC1-Current (A)(DC1 current), DC1-Power (W) (DC1 power)

DC2-Volt (V) (DC2 voltage), DC2-Current (A)(DC2 current), DC2-Power (W) (DC2 power)

DC3-Volt (V) (DC3 voltage), DC3-Current (A)(DC3 current), DC3-Power (W) (DC3 power)

DC4-Volt (V) (DC4 voltage), DC4-Current (A)(DC4 current), DC4-Power (W) (DC4 power)

AC Power (W) (AC power)

AC Volt (V) (AC electric voltage)

AC Current (A) (AC current)

AC Freq (Hz) (AC frequency)

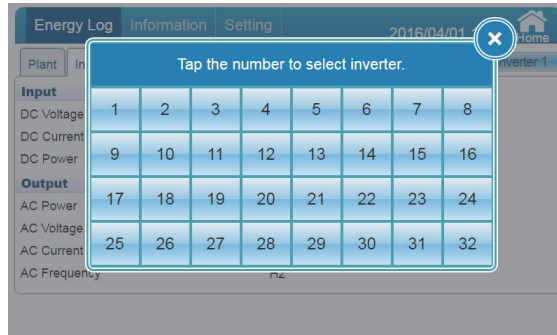
\* The number of circuits varies, depending on the Inverter.



- ④ Change the display to the Home screen.



- A screen in which the desired Inverter can be selected is displayed.  
Touch the button to display the Inverter Selection dialog box. Touch the ID of the desired Inverter.



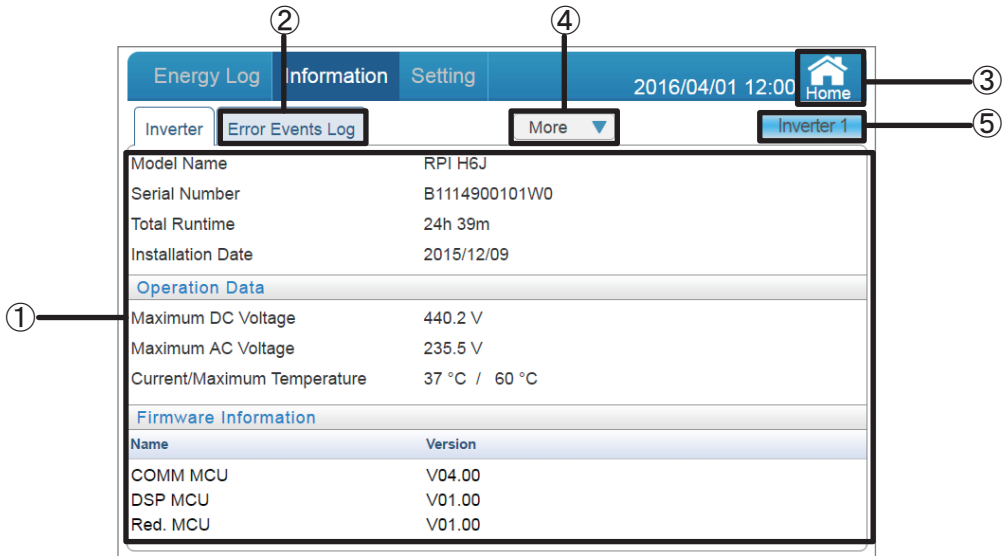
#### ● Operating method

- Touch **Energy Log** → **Measurement** → **Inverter** .
- **Inverter 1** the desired Inverter ( **1** . . . **32** ) to switch the measurement value screens of respective Inverters.
- Touch **Plant** to display the measurement value screen of the Plant.

### 3.3.3.Information

Status of the Inverter and the error log are displayed.

【 Inverter 】



① Inverter screen

Model name: The model name is displayed.

Serial Number: The serial number is displayed.

Total Runtime: The power generating time is displayed.

Installation Date: The power generation starting date is displayed

[Operation Data]

Maximum DC voltage: The maximum DC voltage is displayed.

Maximum AC voltage: The maximum AC voltage is displayed.

Current/Maximum Temperature: The Current/Maximum value of temperature is displayed.

Firmware Information: The firmware versions of the Inverter are displayed.

② Error Events Log

The error log of the inverters can be verified.

Refer to “Error Events Log” (Page 50) for details.

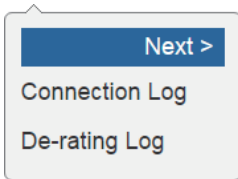
③ Home

Change the display to the Home screen.



④ **More** ▼

Touching this button to display another page menu.  
Touch the desired page to switch the display to the desired screen.



**Connection Log**

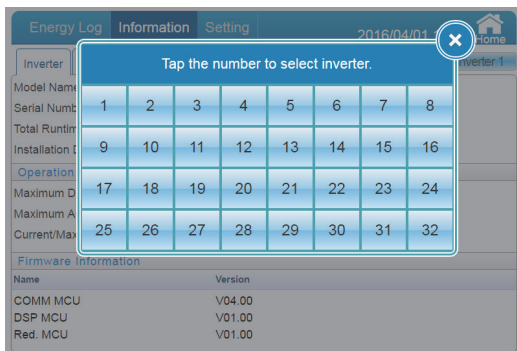
Log of the connections between monitor and inverters (meters) can be verified.  
Refer to “Connection Log” (Page 52) for details.

**De-rating Log**

Voltage elevation and temperature elevation suppression can be verified.  
Refer to “De-rating Log” (Page 54) for details.

⑤ **Inverter 1**

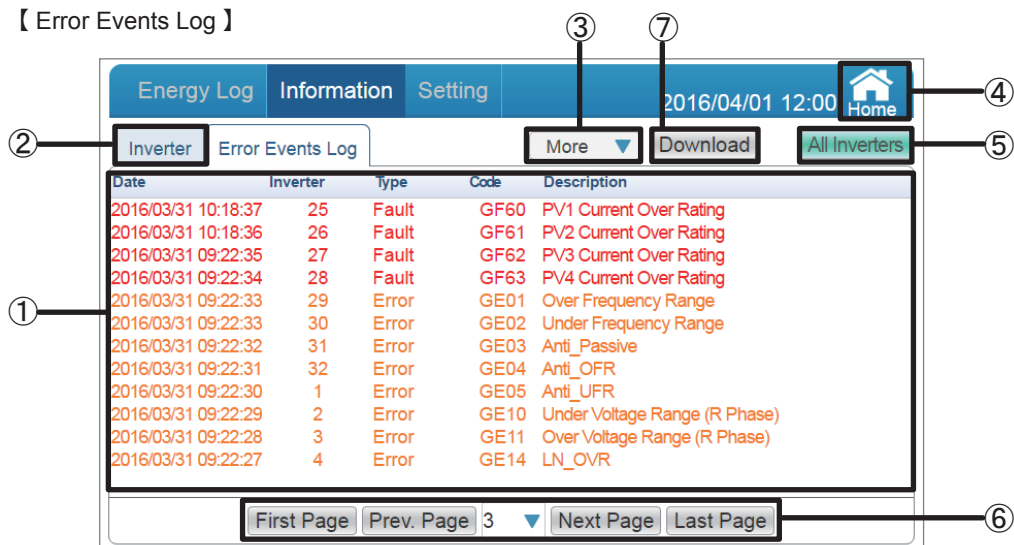
A screen in which the desired Inverter can be selected is displayed.  
Touch the button to display the Inverter Selection dialog box. Touch the ID of the desired Inverter.



● Operating method

- In the Home screen, touch **Information** → **Inverter** .
- Touch **Inverter 1** to select the desired Inverter and ( **1** · · · **32** ) to switch the measurement value screens of respective Inverters.
- Use **Error Events Log** , **More** ▼ to switch screens.

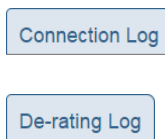
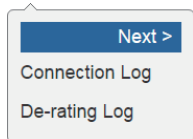
【 Error Events Log 】



- ① Error Events Log screen  
 Date: The occurrence dates are displayed in chronological order, with the most recent date on the top.  
 Maximum of 1,000 entries are stored, irrespective of the number of Inverters. Once the number of entries exceeds 1,000 the data with the oldest date is overwritten.  
 Inverter: The inverter ID is displayed.  
 Type: The type of error (error: orange; fault: red; warning: yellow) is displayed.  
 Error code: The error code is displayed.  
 Description: The explanation on the description of the error is displayed.  
 Refer to the Installation and Maintenance Manual of the Inverter for details on the responsive actions to be taken when an error occurs.

- ② Inverter  
 The status of the inverter can be verified.  
 Refer to “Information → Inverter” (Page 48) for details.

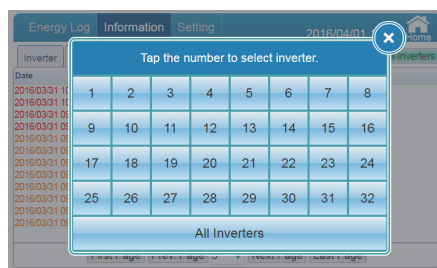
- ③ More ▼  
 Touching this button displays another page menu.  
 Touch the desired page to switch the display to the desired screen.



Log of the connections between monitor and inverters (meters) can be verified.  
 Refer to “Connection Log” (Page 52) for details.  
 Voltage elevation and temperature elevation suppression can be verified. Refer to “De-rating Log” (Page 54) for details.

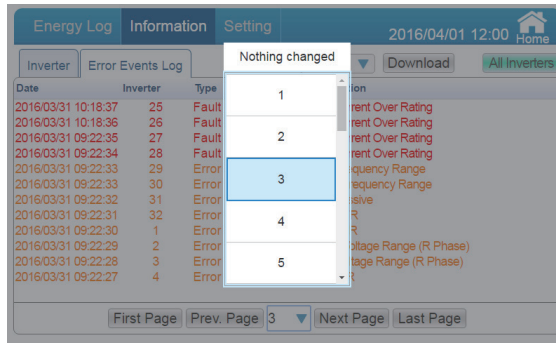
- ④ Home  
 Change the display to the Home screen.

- ⑤ All Inverters  
 A screen in which the desired Inverter can be selected is displayed. Touch the button to display the Inverter Selection dialog box. Touch the ID of the desired Inverter.



⑥ Page selection

- First Page** Change the display to the first page
- Next Page** Change the display to the next page.
- Prev. Page** Change the display to the previous page.
- Last Page** Change the display to the last page.
- 3** Desired page can be selected. (Maximum number of pages is 84 pages.)
- Nothing changed** Return to the Error Events Log screen.



⑦ Download

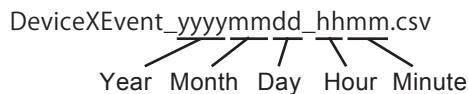
Data can be downloaded onto USB memory.

Format: CSV

File name: DeviceXEvent\_yyyymmdd\_hhmm.csv

The "X" in the file name is the ID of the Inverter. The "X" is not displayed when all Inverters are selected. The "yyymmdd" is the year for "yyyy", the month for "mm" and the day for "dd" on which the data is downloaded.

The file name "hhmm" represents the hour and minute at which the data was downloaded.



File description: Date (date)

Time (time)

Inverter # (Inverter ID)

Code (error code)

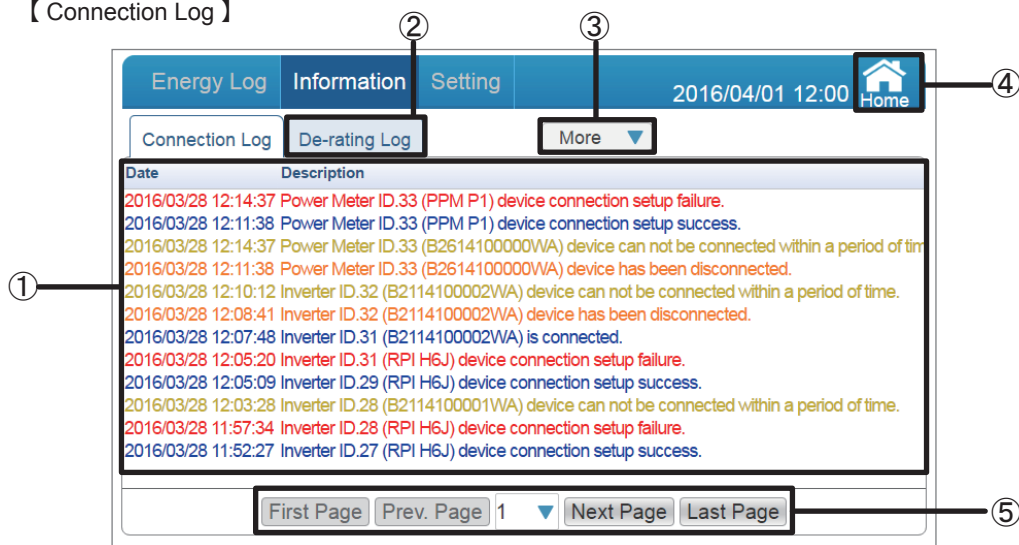
Message (error item)

\* Details are displayed in the order of date and time (Most recent displayed on top)

● Operating method

- In the Home screen, touch **Information** → **Error Events Log**.
- Touch **All Inverters** to select the desired Inverter ( 1 . . . 32 / All Inverters ) to switch the status screens of respective Inverters.
- Switch the display of respective screens by touching **Inverter** , **More** ▼ .

【 Connection Log 】



① Connection Log screen

- Date: The occurrence dates are displayed in chronological order, with the most recent date on the top.
- Maximum of 1,000 entries are stored, irrespective of the number of Inverters. Once the number of entries exceeds 1,000 the data with the oldest date is overwritten.
- Description: The explanation on the description of the connection log is displayed.

Display example

Inverter ID 1	( B1215A00000WA )	unit is connected.
Equipment name	Model / serial No.	Status description

Equipment name: The name of the equipment is displayed.

The displayed equipment names are as the followings:

- Inverter No. 1
- Inverter No. 2
- Inverter No. 3

Model / Serial No: The model name and serial number of equipment are displayed.

Status description: The status of equipment is described.

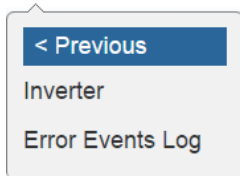
- Connection setting completed successfully. / Connected. → Blue Display when the equipment has been connected successfully.
- Connection setting failed. → Red Display when the connection of the equipment failed.
- Disconnected. → Orange Display when the equipment has been disconnected.
- Connection cannot be established within a prescribed amount of time. → Yellow Display when the connection of the equipment could not be established after a period of time.

② **De-rating Log**

Voltage elevation and temperature elevation suppression can be verified.  
Refer to “De-rating Log” (Page 54) for details.

③ **More** ▼

Touching this button displays another page menu.  
Touch the desired page to switch the display to the desired screen.



**Inverter**

The status of the Inverter can be verified.  
Refer to “Information → Inverter” (Page 48) for details.

**Error Events Log**

The error log of the Inverter can be verified.  
Refer to “Error Events Log” (Page 50) for details.

④ **Home**

Change the display to the Home screen.

⑤ Page selection

<b>First Page</b>	Change the display to the first page	<b>Next Page</b>	Change the display to the next page.
<b>Prev. Page</b>	Change the display to the previous page.	<b>Last Page</b>	Change the display to the last page.
<b>3</b> ▼	Desired page can be selected.	<b>Nothing changed</b>	Return to the Connection Log screen.

● Operating method

- In the Home screen, touch **Information** → **Connection Log** .
- Touch **More** ▼ , **De-rating Log** to switch screens.



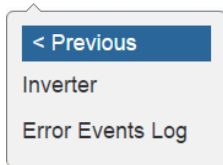
③ **Connection Log**

The Connection Log between monitor and inverters can be verified. Refer to “Connection Log” (Page 52) for details.

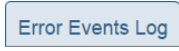
④ **More** ▼

Touching this button displays another page menu.

Touch the desired page to switch the display to the desired screen.



The status of the Inverter can be verified. Refer to “Information → Inverter” (Page 48) for details.



The error log of the Inverter can be verified. Refer to “Error Events Log” (Page 50) for details.

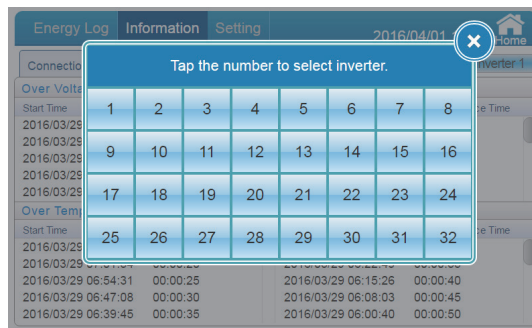
⑤ **Home**

Change the display to the Home screen.

⑥ **Inverter 1**

A screen in which the desired Inverter can be selected is displayed.

Touch the button to display the Inverter Selection dialog box. Touch the ID of the desired Inverter.



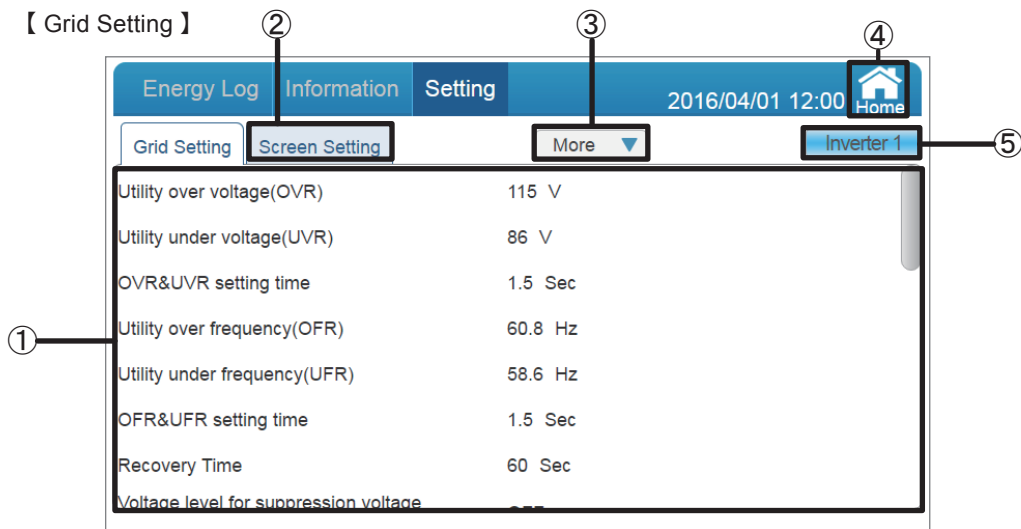
● Operating method

- In the Home screen, touch **Information** → **De-rating Log** .
- **Inverter 1** to select the desired Inverter and ( **1** · · · **32** ) to switch the information screens of respective Inverters.
- Touch **Connection Log** , **More** ▼ to switch screens.

### 3.3.4.Setting

Verification of Grid Setting and Power Suppression for the Inverters, and Screen Setting of the monitor can be performed.

【 Grid Setting 】



① Grid Setting screen

Display the descriptions of the Grid Setting.

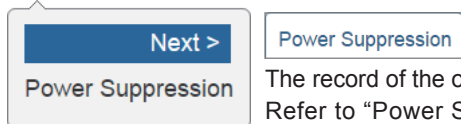
② Screen Setting

Sleep time and brightness and language for the screen can be set. Refer to “Screen Setting” (Page 57) for details.

③ More

Touching this button displays another page menu.

Touch “Power Suppression” to switch the display to the Power Suppression screen.



The record of the output suppression on the Inverter can be verified. Refer to “Power Suppression” (Page 59) for details.

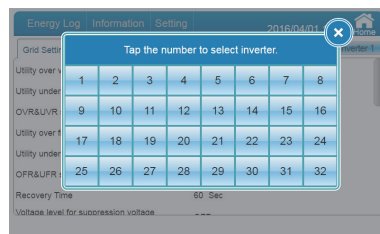
④ Home

Change the display to the Home screen.

⑤ Inverter 1

A screen in which the desired Inverter can be selected is displayed.

Touch the button to display the Inverter Selection dialog box. Touch the ID of the desired Inverter.

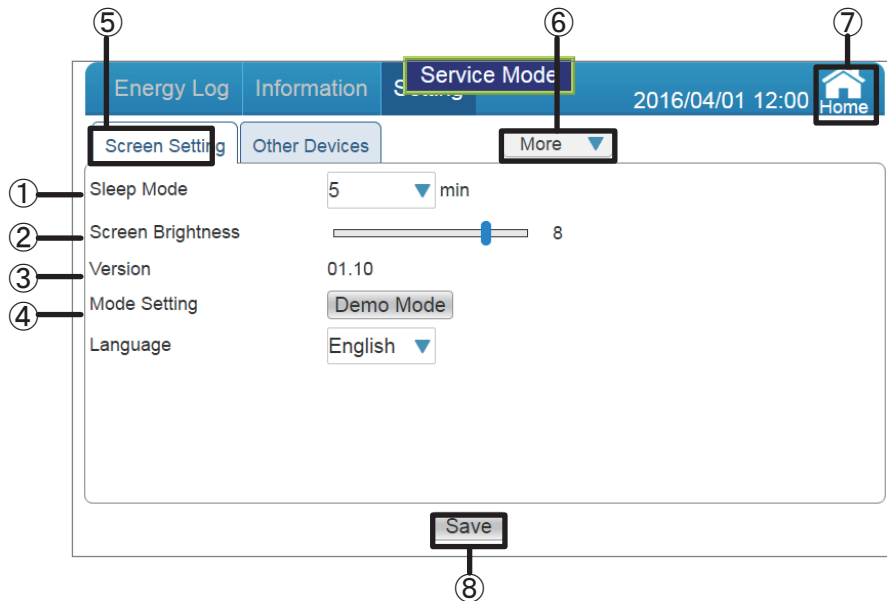


● Operating method

- In the Home screen, touch **Setting** → **Grid Setting** .
- In **Inverter 1** , touch to select the desired Inverter ( **1** . . . **32** ) to switch the information screens of respective Inverters.
- Touch **Screen Setting** , **Power Suppression** to switch the screens.



## 【Screen setting】



## ① Sleep Mode

The duration of time with no operation until the liquid crystal display on the monitor is turned off can be set.

Setting range: 1, 2, 3, 4, 5, 10, 15, 20, 25 and 30 minutes

The default setting is 5 minutes.

Touching the screen while in the sleep mode will trigger the display of the screen.

Furthermore, when an error is occurring, the screen is turned on and the display reverts to the Home screen.

## ② ScreenBrightness

The brightness of the screen can be selected in ten levels.

Setting range: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

The default setting is 8.

## ③ Version

The firmware version of the Power Monitor is displayed.

## ④ Language

The language of the Power Monitor can be selected.

Setting range: English and Japanese.

## ⑤ Grid Setting

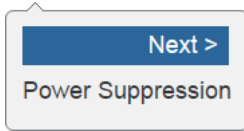
Grid Setting can be verified.

Refer to “Grid Setting” (Page 56) for details.

⑥ **More** ▼

Touching this button displays another page menu.

Touch "Power Suppression" to switch the display to the Power Suppression screen.



Power Suppression

The record of the output suppression on the Inverter can be verified. Refer to "Power Suppression" (Page 59) for details.


⑦   
Home

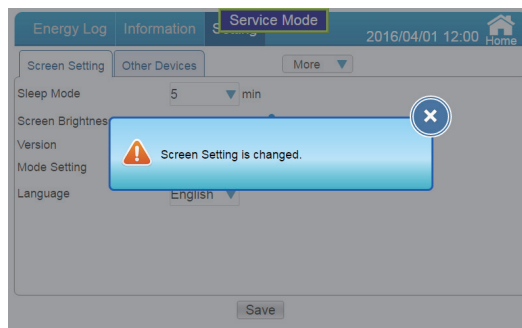
Change the display to the Home screen.

⑧ **Save**

A change is confirmed.

\* None of the settings will change until the "Save" button is touched at the end. Caution is required.


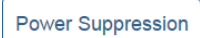
Touch  to turn off the dialog box.



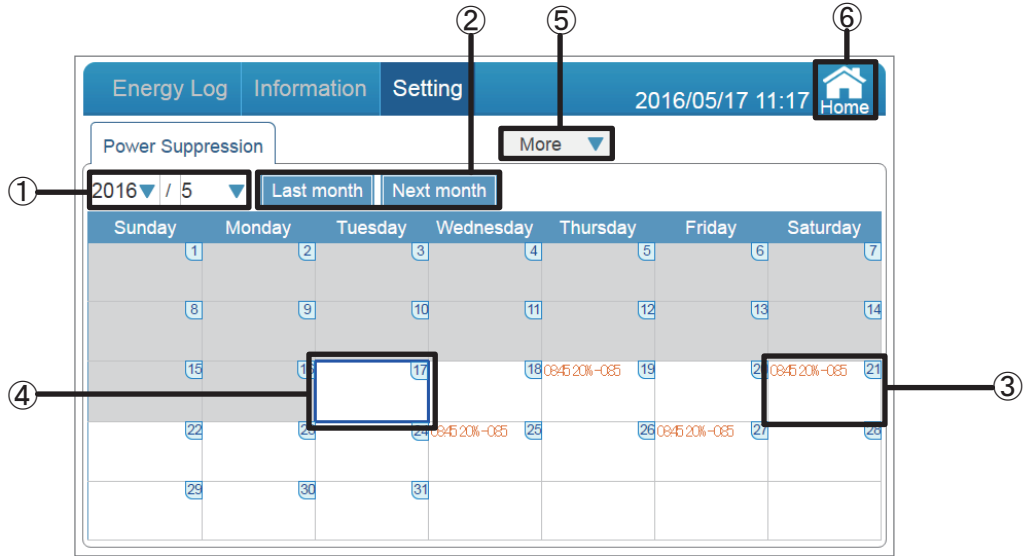
Screen Change dialog box

● Operating method

• In the Home screen, touch  → .

• Use ,  to switch each screen.

【 Power Suppression 】

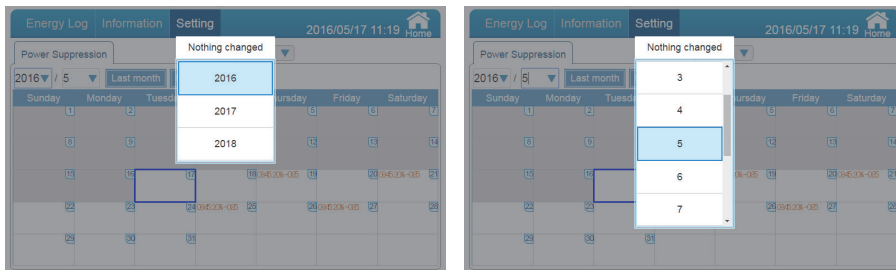


① Date

Year: Year is displayed according to the Gregorian calendar. The year can be changed with a touch.

Month: Month is displayed. The month can be changed with a touch.

Touching the “Nothing Changed” button will return to the Power Suppression screen.



② Last month

Change the display to the previous month.


Next month

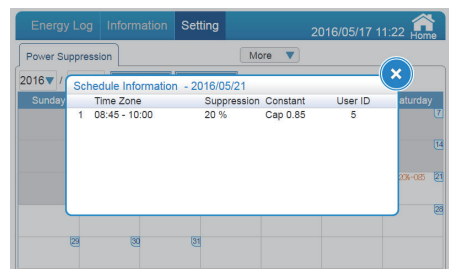
Change the display to the next month.

③ Suppression record

That displays the set of suppression details.

Touch on the desired date to display the Schedule Information for that day.

Touch  to revert to the Power Suppression screen.

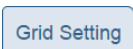
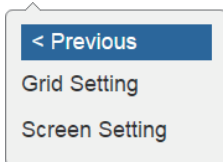


④ Current day display

The current day is indicated by a blue frame.  
Past days are displayed in gray.

⑤ **More** ▼

Touching this button displays another page menu.  
Touch the desired page to switch the display to the desired screen.



Grid Setting can be verified.  
Refer to “Grid Setting” (Page 56) for details.







Sleep time and brightness and language for the screen can be set.  
Refer to “Screen Setting” (Page 57) for details.

⑥  Home

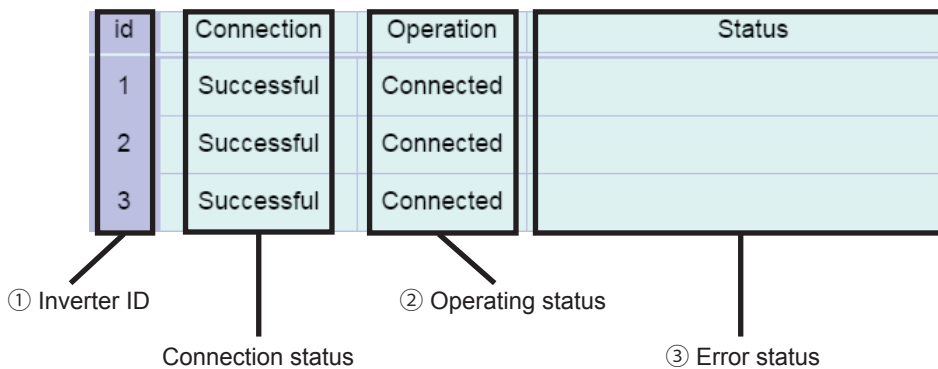
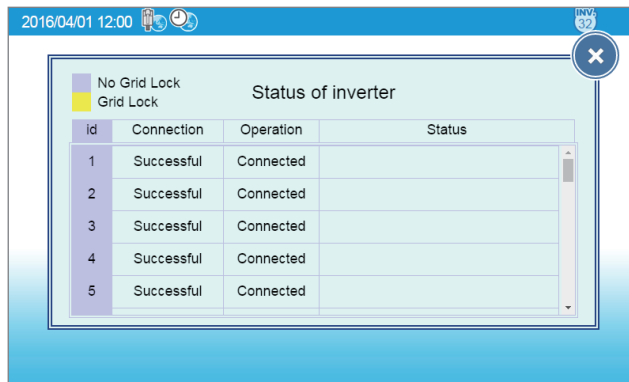
Change the display to the Home screen.

● Operating method

- In the Home screen, touch  → .
- Touch ,  to switch the screens.

### 3.3.5. Inverter Status

The status of the Inverter can be verified.





① Grid lock state will show by the color of Inverter ID.  
No grid lock if purple, and grid lock if yellow.

② Operating status  
Connected: System is connected with grid  
Independent: System is in standalone mode  
Off: The Inverter is stop

③ Error status  
When one or more errors are occurring, the error codes are displayed here.

2	Successful	Connected	GE5 GE10
---	------------	-----------	----------

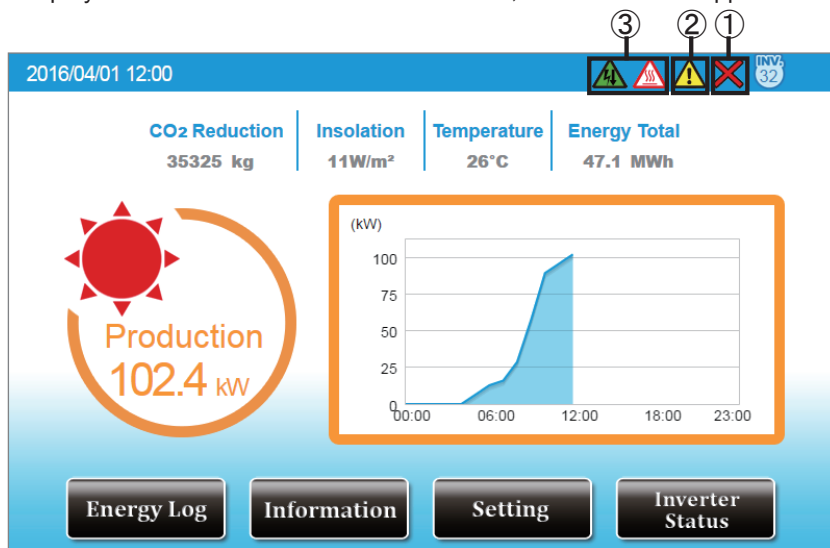
● Operating method

- In the Home screen, touch 
-  to close.

# 4 .When Something Seems Wrong (Troubleshooting)

## 4.1.Error Displays

- Icons are displayed on the Home screen when an error, malfunction or suppression occurs.



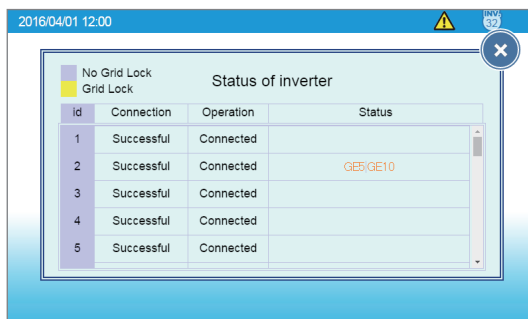
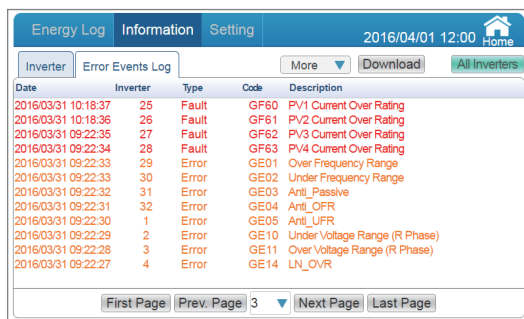
① Communication Malfunction icon

This icon is displayed when the communication with the Inverter is not available.

Icon	Operating mode	Description
	Communication malfunction	Communication with the Inverter is malfunctioning.

② Error icon

An error icon is displayed to indicate that one or more errors are occurring. The Error icon is ordinarily not displayed, and displayed when one or more errors occur. Details can be verified in the “Error Events Log” and “Inverter Status” pages. Refer to the Installation and Maintenance Manual of the Inverter for details on the error codes.





● Operating method

- In the Home screen, touch **Information** → **Error Events Log** and **Inverter Status**.
- Touch **Error Events Log** **All Inverters** and select the desired Inverter ( 1 ... 32 / **All Inverters** ) to switch status screens of respective Inverters.

## ③ Suppression icon

Displayed when the Inverter is being suppressed.

Icon	Operating mode	Description
	Temperature elevation suppression	The internal temperature of the Inverter has reached a high level. The output of the Inverter is being suppressed.
	Voltage elevation suppression	The voltage of the commercial power system has reached a high level while the Inverter was in operation. The output of the Inverter is being suppressed.

The temperature elevation suppression and voltage elevation suppression are not due to malfunctions.

These are features available to ensure the safe operation of the system.

There is no malfunction with the system if the frequency is low or when they occur for brief intervals.

Consult your retailer if the frequency is high or when the system is not restored for a long period of time.

## 4.2.Troubleshooting

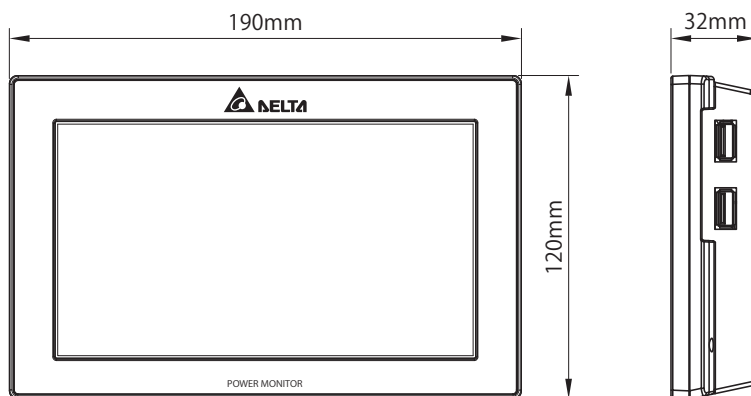
- Responsive actions that should be taken in cases where the following symptoms occur are described.

Symptom	Verification details	Responsive action
Nothing is displayed on the screen.	Is the backlight turned off?	Touching the screen will trigger the display of the screen. The duration of time the screen remains turned on can be changed in the Screen Setting. ⇒ "Screen Setting" (Page 57).
Nothing is displayed even when the screen is touched.	Has the 6-pin connector come off the Power Monitor?	Connect the 6pin connector properly to the Power Monitor. Contact your retailer if the symptom persists even after a proper connection has been established.
The screen is turned on when not in operation.	Is any error icon being displayed?	The screen is turned on and the error message is displayed automatically when a malfunction occurs. Verify the displayed error message. ⇒ Refer to the Installation and Maintenance Manual of the Inverter.
	Has any power failure occurred?	The Power Monitor restarts and the screen remains turned on for the duration of the set sleep time when the system is restored from a power failure condition after a power failure occurs.
Total accumulated power of Inverter and the total accumulated amount of power on the Power Monitor vary.	Have you replaced the Inverter?	It is normal in the following case: The accumulated amount of power is accumulated for each Inverter and Power Monitor, respectively. Therefore, the values for the accumulated amount of power may be different on a Inverter and those displayed on a Power Monitor.
Voltage elevation suppression and temperature elevation suppression are displayed.	Verify the frequency and duration of occurrence.	The Voltage Elevation Suppression function and the Temperature Elevation Suppression function are functions that are triggered to ensure safe operation of the system. There is no malfunction with the system if the frequency is low or when they occur for brief intervals. Consult your retailer if the frequency is high or when the system is not restored for a long period of time.
Performance data is lost. Alternatively, the content of the performance data has changed.	Has the time been advanced or reverted by 15 minutes or more? Has there been any power failure?	The past performance data may be affected in instances where date/time settings are performed or when a power failure occurs.
The amounts of energy generation differ from those described in the statement of the power company.	Verify the amount of power being displayed.	There may be discrepancy between the amount described in the statement of the power company and the amount of power displayed due to following types of errors. If the discrepancy is significant, consult your retailer. (1) Error in measurement: The error arising from the fact that the instrument used by the power company for the purpose of calculating the amount of energy generation is not a specified measuring instrument but instead it is another equipment. (2) Errors in calculation: The error arising from rounding up or rounding off of figures in the calculation and display process of the Power Monitor.



# 5. Specifications

## 5.1. Power Monitor



Model	PPM R3E-000
Screen	7-inch TFT liquid crystal display, 800 x 480 pixels, resistive touch panel.
Display color	24-bit RGB (16,770,000 colors)
Displayed details	Power generation, calendar history, Inverter information, error log, De-rating Log display and the like.
Data communication method	RS-485
Installation method	Wall mounted / Desktop installation (indoors)
Downloads	Every 15 minutes, for period of 3 months
	Every hour, for period of 3 months
	Every day, for period of 3 months (available for duration spanning 20 years)
	Every month, for period of 1 year (available for duration spanning 20 years)
	Every year for period of 20 years
Rated operating voltage	DC12V
Maximum power consumption	10 W or less (including USB Storage)
Power consumption	6 W (when backlight is turned ON)
Standby power	2.2 W (when backlight is turned OFF)
Operating temperature range	-20°C to 50°C (no freezing permitted)
Operating humidity range	30% to 85% (no condensation permitted)
Dimensions	120 H x 190 W x 32 D (mm)
Weight	440 g
Maximum number of Inverter connections	32 units





