



Quick installation guide for power monitor

For energy storage system. Model name: S4E_1P

Please enter the website <http://twtpedsc.cloudapp.net/>
-> Support -> User Manual -> Monitor to download the User Manual.

1. Essential Points for Safety

- Do not connect anything other than the dedicated AC adapter on the power source terminal of the Power Monitor.
- Request a specialist to dispose of the Product.
- Pull the AC adapter off when any abnormality is detected like smoke, heat.
- Turn OFF the power breaker, to which the Meter is connected when any abnormality is detected with the Meter.
- Do not install the Product in any place that is prevented from having air flow, such as inside closets or under stairs.
- 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.
- Take care to ensure no water or other liquid gets on the Power Monitor or the Meter.
- The Product is not for outdoor use.
- Make sure that the construction is such that abnormal rated current (100A) does not flow to the current sensor that has been installed.
- 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.
- 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.



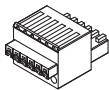
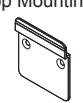

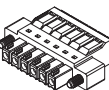

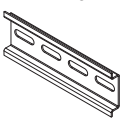





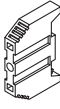

2. Precautions for Use

- 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.
- Do not connect a telephone line or household LAN cable to the LAN terminal on the Power Monitor and the Wireless Communication Unit. There is danger of the Product malfunctioning.
- Store the Product in a location with the temperature ranging between -20 and +60°C, with the humidity ranging from 30 to 85% RH.
- The Product communicates wirelessly.
- Install the Product as far away as possible from devices that emit strong radio waves, such as a civil band radio equipment.
- The communication performance varies depending on the peripheral environment. Verify in advance that the Product is communicating normally when installing the Power Monitor on a wall.
- Avoid installing the Power Monitor near iron plate or steel reinforcements and try to install the Product with as much clear space as possible.
- For residual use, the maximum inverters for connecting to monitor are 3 inverters.
- Incorrect orientation or installation site of the current sensor, and incomplete locking, will prevent accurate measurements.
- The current sensor has polarity. Install so that the power company side of the current sensor is on the systems side, and the indoor side is the master short circuit breaker side.
- Check that the connected current sensor and the current sensor cable connector are connected correctly.
- The Product is not compatible with the Total Amount Purchasing System of the Feed-in Tariff Scheme for Reusable Energy.
- Do not pull out the USB Wireless Module while the power is turned on. Communication with the personal computer and the Meter will no longer be possible.
- Do not use any USB Wireless Module other than the one that was bundled with the Product.

Do not install the Product in following types of locations:

- A location with severe fluctuation of temperature.
- A location that is exposed to sea breeze (excluding the Wireless Communication Unit for Inverter).
- A location that is exposed to volatile, combustible, corroding or toxic gases.
- A location exposed to direct sun light.
- A location exceeding the operating temperature range (-20 to +50°C) (5 to 35°C for the USB Wireless Module).
- A location with altitude of 2,000 meters or higher.
- A location with a large amount of dust (powder dust, sand dust, cotton dust, metal dust, saw dust, straw dust and the like).
- A location covered by metals or metal fittings, metals installed on walls, on top of a metal desk, between metal products or near telephone unit, facsimile unit, personal computer, personal computer peripheral device, television set, microwave oven or induction heating (IH) product.

3. Scope of Delivery ※ () is amount of spare parts.

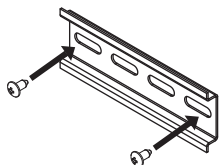
Product name/Shape	Qty	Product name/Shape	Qty	Product name/Shape	Qty
Power Monitor 	1 unit	End Crimp Terminals 	2 pcs ※ (1)	Enclosed Measuring Unit Connector 	1 pc
Wall Surface / Desktop Mounting Plate 	1 pc	Isolation Cap (Red) 	2 pcs ※ (1)	6 pin connector 	1 pc
Wood screws (+) for Wall Surface / Desktop Mounting Plate (dia. 4 x 20 mm) 	2 pcs	DIN Rail 	1 pc	CT sensor (Φ16) 	1 pc
AC Adapter 	1 unit	Wooden Screws for the Enclosed DIN Rail 	2 pcs	CT sensor cable (2m) 	1 pc
Power Meter 	1 unit	Stopper 	2 pcs	Quick installation guide 	1 copy

One Point

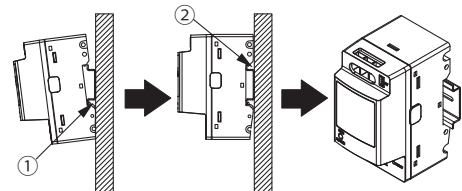
- Please set connection ID before connect to the Inverters. The ID of inverters must be different.
- The ID range is 1~3.

6.1. Mounting the Installation Unit, Wireless Communications Unit, and DIN Rail

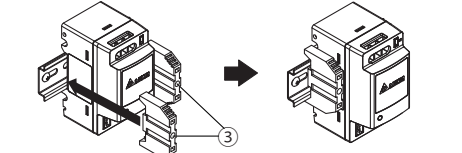
- Remove the protective cover from the power input terminal block on the power meter.
- Use wooden screws for the enclosed DIN rail to mount the DIN rail horizontally to the perpendicular site.



- Hang the hooks ① on the lower back of the power meter and the wireless communications unit at the bottom of the DIN rail.
- Hang the hooks on the top of the power meter ② on the DIN rail to secure.



- Finally, mount the stoppers to both ends of the power meter and the wireless communications unit.
 - Press the stoppers into the DIN rail and use a flat screwdriver to rotate the screws on the stopper ③ as shown in the diagram below to finish the mounting.



- Check that the stopper hooks have bitten into the DIN rail.

Warning

- Install the measuring unit out of the reach of children. Although small, there is a risk of electric shock.
- 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. The Product may cause injury due to electric shock or equipment malfunction may occur in the unlikely event such an occurrence takes place.
- Do not disassemble or modify the Product. The Product may cause injury or fire due to electric shock in the unlikely event such an occurrence takes place.
- When wiring the measuring unit, make sure to turn OFF the breakers connected to the measuring unit. Although small, there is a risk of electric shock.
- When installing the inverter wireless communications unit, make sure to turn OFF all solar generator breakers and direct current switches for the power conditioner. Although small, there is a risk of electric shock.
- Do not conceal the wiring of the AC adapter, through such means as embedding the cable inside a wall. Furthermore, do not place any heavy objects such as a furniture on top of the cable and avoid damaging the cable by rolling wheels, such as castors, over the cable. The Product may ignite or explode in the unlikely event such an occurrence takes place.

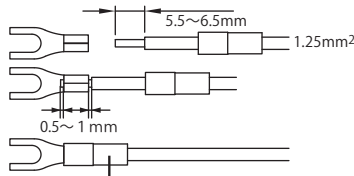
Caution

- 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.
- When installing the DIN Rail 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.
- Securely tighten the screws using a torque of 0.98 N.m. Although small, there is a risk of burns due to defective connections. Do not tighten the wiring using electric tools (drills), whose main purpose is to open holes, such as impact drivers, etc.
- Make sure to connect the measuring unit power supply to the solar generator breakers on the fuse box. Although small, there is a risk of burns.

4. Creating Voltage Detection Cables (Prepare VCTF cables (cable diameter 1.25mm².)

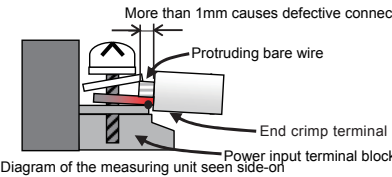
■This section explains the creation of voltage detection cables.

- Process the cable so that its bare exposed length before machining is 5.5mm to 5.6mm. (See diagram below.)
- Crimp the cables for the end crimp terminals in the box as described below.
- Crimp the crimping terminal to align to the solar generator breakers that have been mounted.



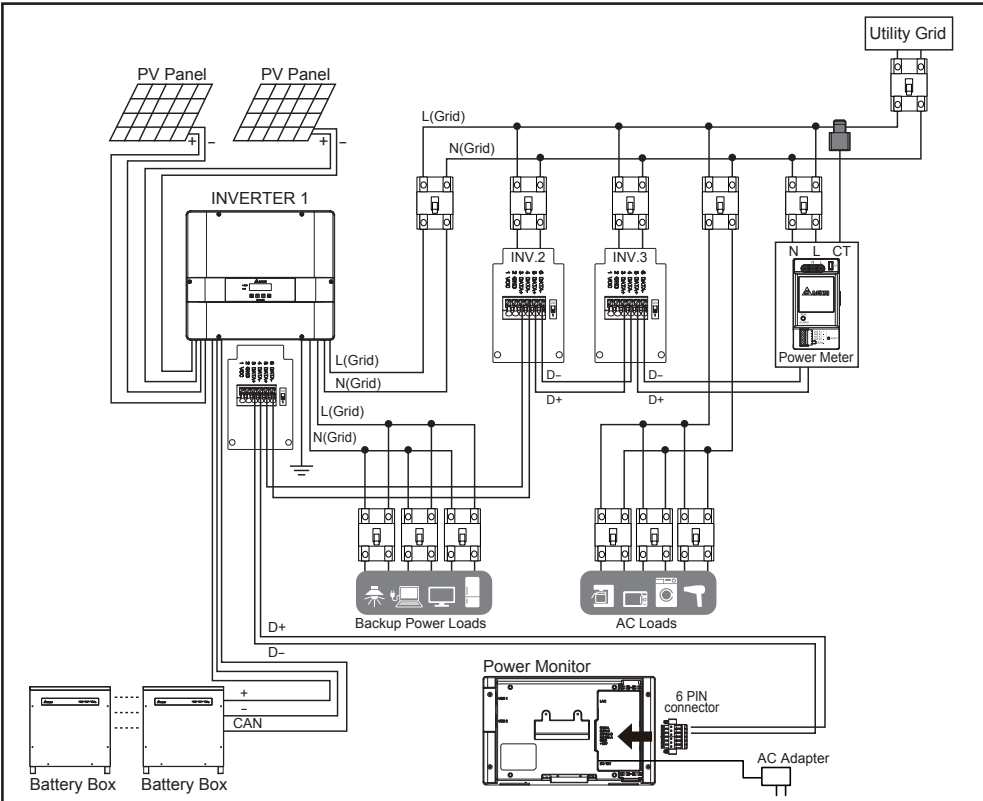
Pass the isolation cap through the cable before crimping; after crimping, mount so that the calking of the end crimp terminal is concealed.

When crimping, be careful, as it may not be possible to tighten the screws correctly if the bare wires protrude more than 1mm from the calking.



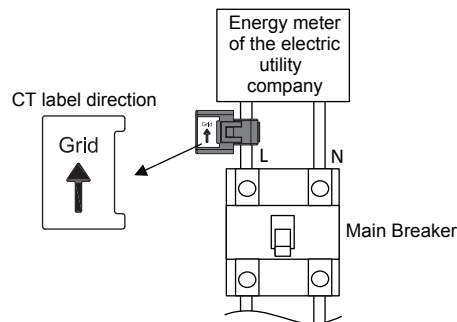
Using as is in the condition shown above creates loose screws and a gap between the end crimp terminal and power input terminal block due to insufficient screw tightening, which causes a defective connection.

5. System Diagram

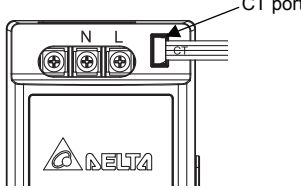


6.2. Current Transformer installation

- The CT can be opened.
- Take the CT clip on the Line conductor wire.
- Take note of the direction of CT installation. Arrow symbol means utility grid.

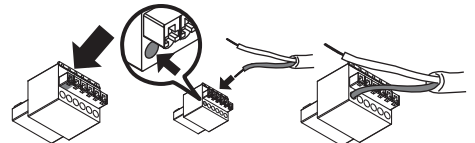


- Connect the CT wires to the device.
- Put in the CT wire into the CT port.

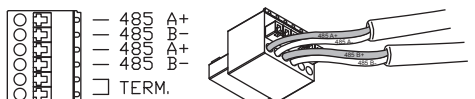


6.3. Data communication setup (1/2)

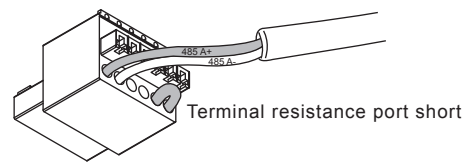
- Put the signal wires of the monitor (or the inverter) into RS-485 connector. (The wire diameter is AWG20 ~ AWG24)



- According to mark of the meter , put into the signal wires of the monitor. (or the inverter)

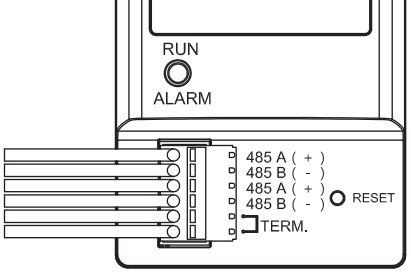


- Add the termination resistor (short the terminals) if this is the last device in the RS-485 chain.



6.3. Data communication setup (2/2)

4. Connect the RS-485 to the meter port.



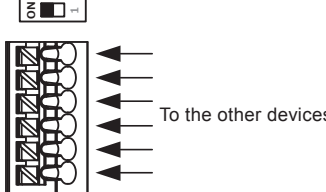
5. You can now use the Delta monitor to access and display the data.
Please refer to the User Manual for more information.

6.4. Setting the Communications Unit

■ Using 1 inverter

(1) Remove the communications connectors from the inverter, and thread the cables through the waterproof gasket.
※ If the removal method is unclear, see the inverter installation and maintenance manuals.
※ When removing the communications connectors, make sure to turn OFF beforehand the DC switches, operations switches, and solar generator breakers.

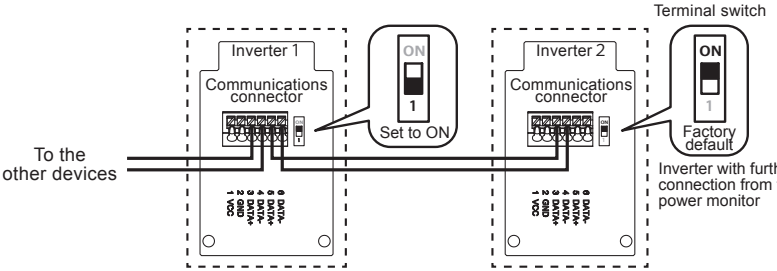
(2) Hold down the top of the terminal block on the communications connectors, and insert the cables as follows: 1 VCC, 2 GND, 3 DATA+, 4 Data-.
Check that the cables have been inserted securely.



(3) Turn ON the DIP switch on the communications director.

■ Using 2 or more inverters

(1) Remove the communications connectors from the inverter, and thread the cables through the waterproof gasket.
(2) Hold down the top of the terminal block on the communications connectors, and insert the cables connected to the power monitor as follows: 3 DATA+, 4 Data-.
(3) Next, insert the cables into the adjacent inverter as follows: 5 Data+, 6 Data-.
Check that the cables have been inserted securely.
(4) Next, insert the aforementioned cables into the adjacent inverter as follows: 3 Data+, 4 Data-.

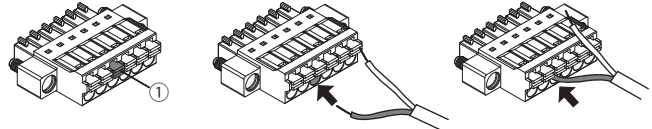


(5) After completing the connection, turn ON the terminal switch for only the inverter that is farthest from the monitor, and set all the other inverters to 1 (OFF).

If need power supply from inverter, connect all VCC to VCC, and all GND to GND.
Make sure that the voltage between VCC and GND is in operating voltage range, and connect to VCC and GND of Power Monitor.

6.5. Setting Power Monitor and Cable

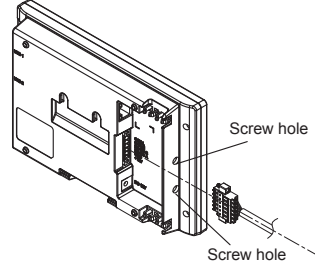
• Creating 6-pin connectors
Hold down the enclosed 6-pin connector ①, and insert the cable.



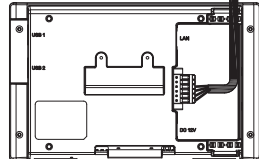
When the connectors are complete, connect to the main unit.

• Connecting the main unit and the 6-pin connectors

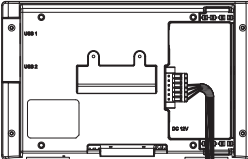
(1) Insert the 6-pin connector into the main unit.
(2) Pass a screwdriver through the screw hole, and tighten the two screws for the 6-pin connector.
(3) When all the wiring is complete, install the power monitor in its installation site.



■ Over-wiring

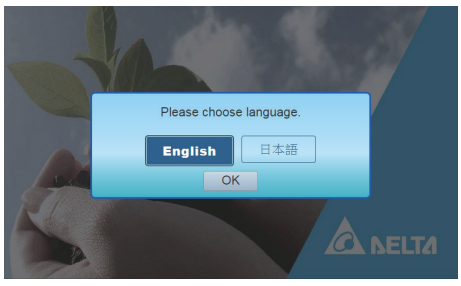


■ Under-wiring

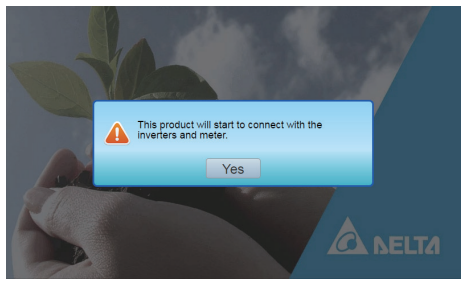


7. Default Settings

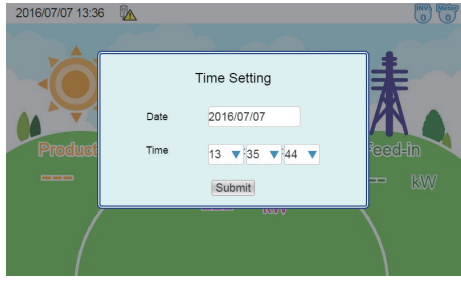
(1) Insert the 6-pin connector into the Power Monitor.
(2) After startup, the language selection screen will be displayed, so select the language to be used.



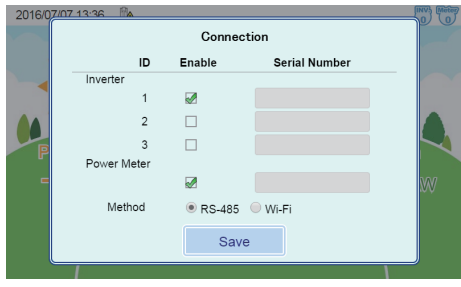
(3) The connection setting start screen will be displayed, so touch the [Yes] button.



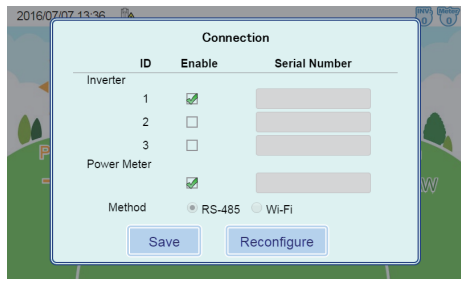
(4) When monitor shows time setting, please set up time.



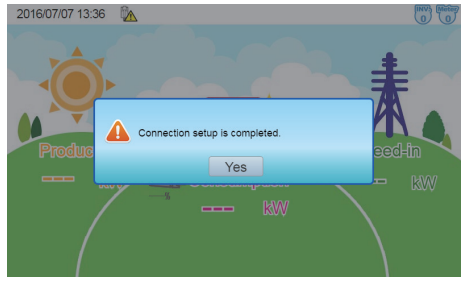
(5) When the time settings are finished, the connection setting will be displayed, so make the connection setting. If using wires, select RS-485 as the connection method, and then enable the No. field of the power meter and the No. field of the ID number set on the inverter, and press the [Save] button.



(6) The reconfirm screen will be displayed, so when the settings are finished, press the [Save] button. The "Connection setting complete" dialog box will be displayed. Press the [Yes] button to display the home screen. To change the settings, touch the [Reconfigure] button.



Reconfirmation screen



Connection setting complete screen

(7) When the settings are complete, the "Home screen" will be displayed. As processing is implemented immediately after the settings are made, a "X" icon is displayed, so check the following details 1 to 3 mins later.

- Check that the "X" icon is not displayed on the home screen.
- Check that the values for the power production icon have changed.
- Check the connection setting and connection log.
※ If making the connection setting again, switch to service mode.

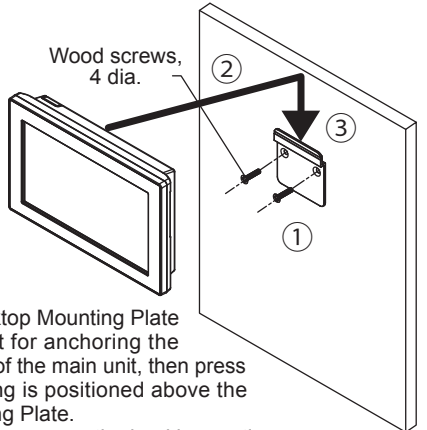
• "X" is other icon that means no internet cable is insert. Monitor can still work without internet.

8. Installation Method

■ 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.

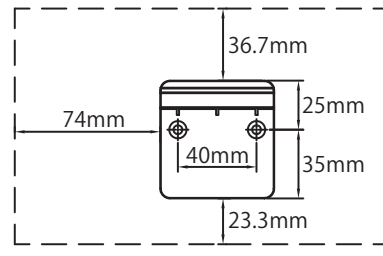


② Verify the hooking portion of the Wall Surface / Desktop Mounting Plate and the Wall Mounting Plate and the insertion slot for anchoring the Wall Surface Mounting Plate on the reverse surface of the main unit, then press on the main unit until the insertion slot for anchoring is positioned above the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

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

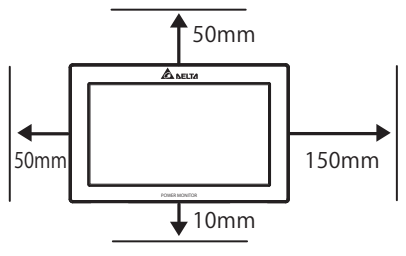
- Hook on the insertion slot for anchoring the Wall Surface Mounting Plate on the reverse surface of the main unit on the Wall Surface / Desktop Mounting Plate and shift down by approximately 1 centimeter.

Main unit



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

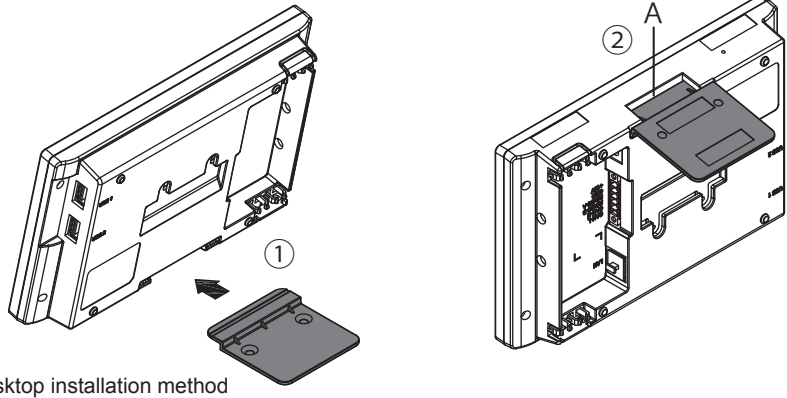
■ Separation distance from respective surfaces of main unit



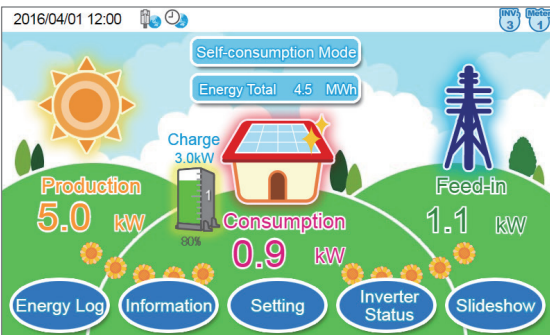
■ Desktop installation method

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.



Home screen



Touch the screen to display each menu.

- Energy Log** Power log is displayed.
- Information** Status of the Inverter and the error log are displayed.
- Setting** Setting for the Inverter and monitor.
- Inverter Status** Display the status of Inverters.
- SlideShow** This is a slideshow feature.