eManager-C1 Pro Smart Communication Box Quick Installation Guide

This quick guide provides installation operations. For safety precautions and detailed product information, refer to the *User Manual* on the SAJ Website www.saj-electric.com. You can scan the below QR code to access all the product documentation.

NOTICE

- Before installation, operation, and maintenance, read the product documentation carefully.
- ONLY qualified and trained electricians who have read and fully understood all safety regulations contained in this manual can install, maintain, and repair the equipment. The operation personnel should understand the system, its working principles, and relevant national and regional standards.
- During operations, wear protective equipment and use dedicated tools.

☐1. Check the outer packing

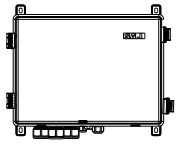
1. Check the outer packing package for any damage, such as holes and cracks.
2. Check the equipment model.

If any serious damage is found or the model is not what you requested, do not unpack the product, and contact your dealer as soon as possible.

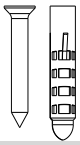
☐ 2. Check the product packages

Contents in your shipment are order-dependent. Not all packages listed below may be in your shipment.

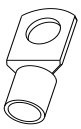
Place the connectors separately after unpacking to avoid confusion for connection of cables.



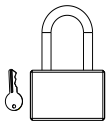
eManager-C1 Pro *1



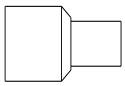
Expansion bolt *4



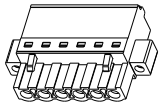
Grounding OT terminal *1



Lock with a key *1

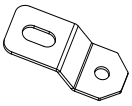


Cable terminal *4



Six-pin connector *1

ST4.8 screw *4



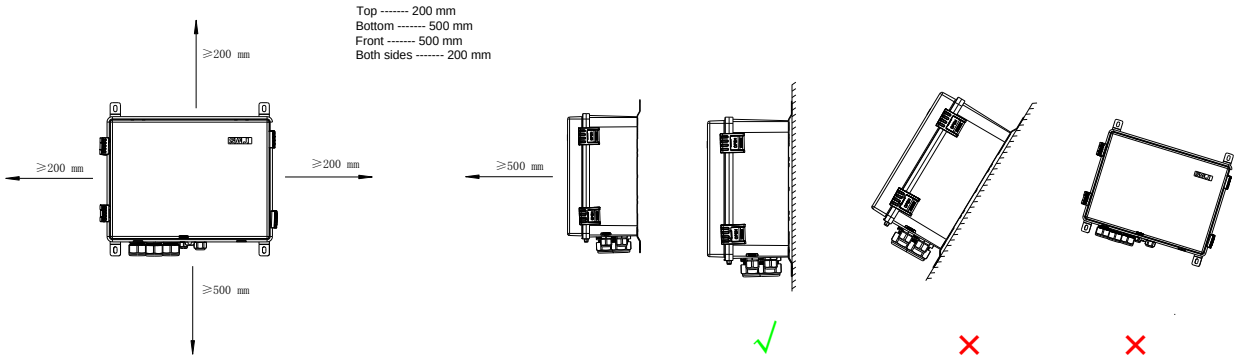
Mounting lug *4

Wi-Fi module *1

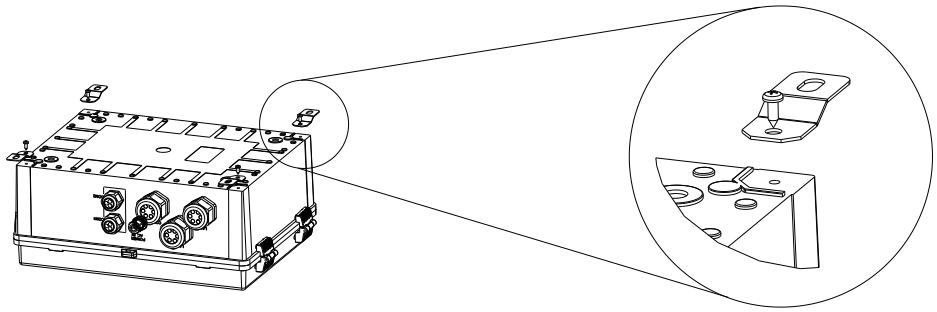
Printed document *2

☐ 3. Install the eManager box

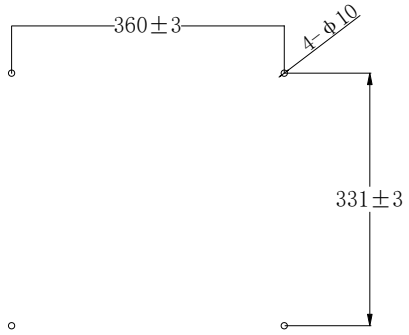
1. Follow the required installation manner to determine the installation location.

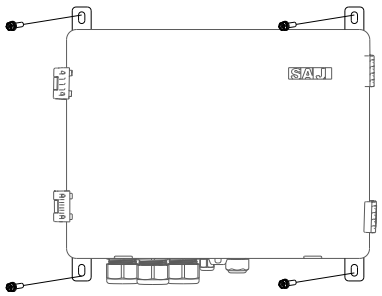


2. Use the ST4.8 screws to secure the four mounting lugs on the four corners of the eManager box.

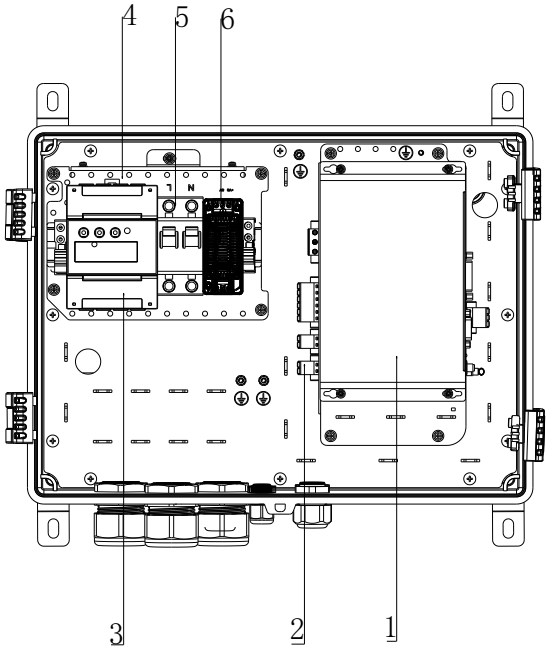


3. Lift the box onto the wall to mark positions for drilling holes and put it down.
4. Drill four holes with 10-mm diameter and 45-mm depth in the wall.
5. Lift the box upwards and align the mounting plugs to the drilled holes. Use four expansion bolts and screws to secure the box to the wall.





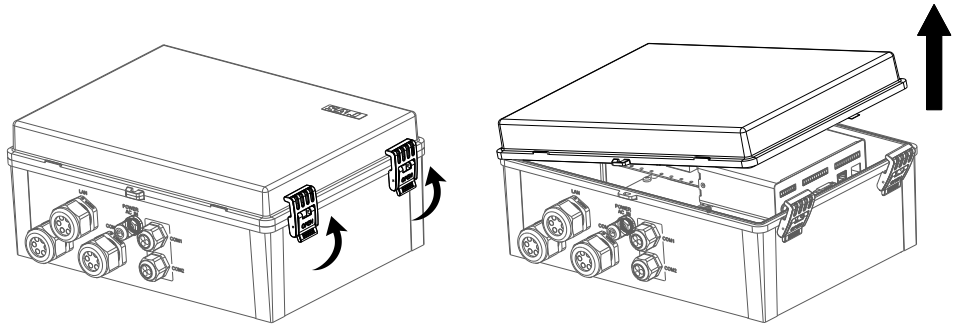
4. Assemble the electrical connection



Callout	Description
1	EMS control module (eManager-C1-1)
2	EMS power module (eManager-C1-2)
3	Smart meter
4	Switch
5	Circuit breaker
6	DC-DC power module

1. Unlock the box

Hold the two tabs and pivot them upwards. Then, lift the box cover up.



2. Assemble the communication connection

1. Connect the smart meter

1. Prepare the communication cables.

2. Loosen the nut from the COM0 cable gland at the bottom of the eManager box.

3. Connect the cables to terminals 19 and 21 on the smart meter.

4. Tighten the nut back to the COM0 cable gland.

2. Connect the EMS control module

1. Prepare the communication cables.

1. Loosen the nut from the COM1 or COM2 cable gland at the bottom of the eManager box.

2. Insert the cables through the nut and then the cable gland.

3. Insert the cables to the RS485 ports on the eManager-C1-1 module, as listed below.

485A2	485B2
485A3	485B3
485A4	485B4

Note: 485A1 and 485B1 are pre-connected to terminals 24 and 25 on the smart meter.

RS485 interface	Connected devices	Baud rate setting
RS485_1	Export limit meter with address 1	When the factory default baud rate of the electric meter fails to meet your on-site requirements and you need to manually change the baud rate level setting of the electric meter, refer to the electric meter instruction manual to make changes. In addition, you need to adjust its baud rate level setting accordingly in the RS485 setting interface in App Bluetooth mode.
RS485_2	Metering meters, such as the energy storage meter with address 2 and the photovoltaic metering meter with address 10	
RS485_3	Reserved	/
RS485_4	Reserved	/

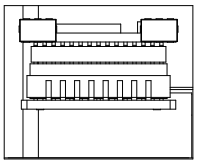
4. Tighten the nut back to the COM1 or COM2 cable gland.

3. Connect the router

Per your needs, you can choose one of the following connection manners.

Ethernet (wired manner)

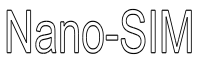
Use a standard network cable to connect the router to the NET2 network port of the EMS control module (eManager-C1-1).



4G (wireless manner)

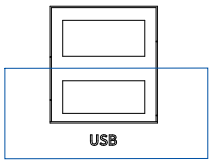
The eManager-C1-1 provides an internal mini-PCIe port and an external Nano-SIM card slot for inserting a standard SIM card with 4G function. You need to purchase a nano-SIM card in your local area.

If the SIM card has been replaced, you need to restart the EMS so that the 4G function can work properly.



Wi-Fi (wireless manner)

To use the Wi-Fi function, insert the Wi-Fi module to the USB port on the EMS control module (eManager-C1-1).



3. Connect the Ethernet ports on the switch

The switch provides 16 Ethernet ports with one pre-connected to the NET1 port on the EMS control module and the other 15 reserved for connecting multiple inverters.

Procedure

1. Prepare the Ethernet cables.
2. Insert the cables through the LAN1 or LAN2 cable gland.
   a. Loosen the nut from the cable gland at the bottom of the eManager box.
   b. Remove the seals from the cable gland. Use a knife to cut through a hole in the seals.
   c. Insert the cable through the nut, seals hole, and then the cable gland.
3. Insert the cables to the Ethernet ports on the switch.
4. Tighten the nut back to the LAN1 or LAN2 cable gland.

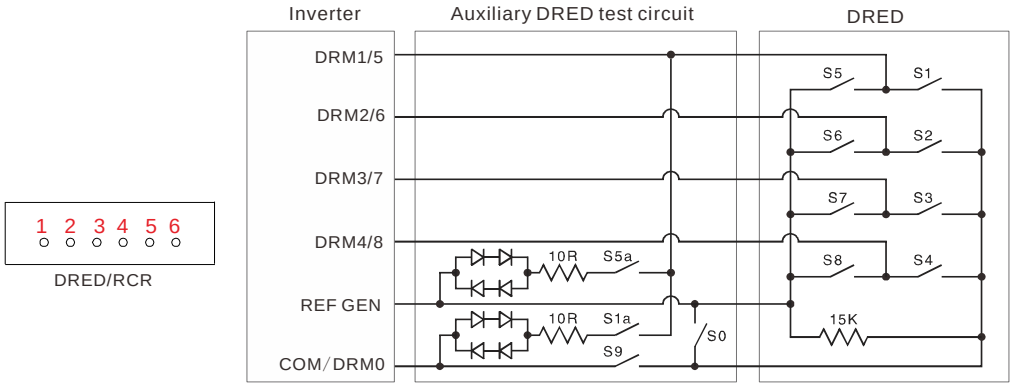
4. Connect other required ports (optional)

Based on your actual needs, you can use the reserved ports, such as the NET2, DO, and DI ports on the EMS control module (eManager-C1-1) and the DRED/RCR port on the EMS power module (eManager-C1-2).

DRED Connection (Australia)

The DRED signal controlling ports are provided to meet the Australia DERD certification requirements and other regions.

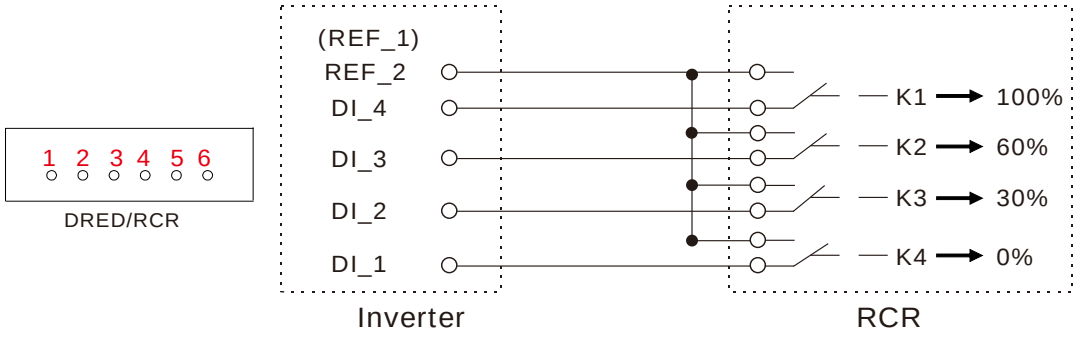
1	DRM1/5
2	DRM2/6
3	DRM3/7
4	DRM4/8
5	COM/DRM0
6	REF GEN



RCR Connection (Germany)

The RCR signal controlling ports are provided to meet the power dispatching requirements in Germany and other countries and regions.

1	DI_1
2	DI_2
3	DI_3
4	DI_4
5	REF_1
6	REF_2



5. Connect the power supply

In general scenarios, 220/230 V AC main power supply provides the power to the eManager. However, in off-grid scenarios, to ensure the normal and stable operation of system communication and control, it is necessary to connect the DC-DC power supply module according to the different model. For detailed connection, refer to the user manual of the corresponding models:

- CHS2
- CHS-P
- CM1

Note: Currently, CM1 has not been applied to the off-grid scenario.

1. Connect the 220V/230 V AC power supply

The 220/230 V AC power supply is connected to the circuit breaker within the eManager.

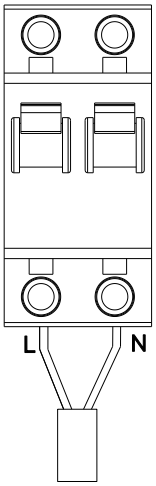
Prerequisite

The circuit breaker is in OFF position.

Procedure

1. Prepare the AC power cables by using the provided cable terminals.
   a. Strip the insulation around 10 mm.
   b. Assemble the cable terminals by using the crimping pliers.
2. Locate the POWER AC_IN cable gland at the bottom of the eManager box and loosen its nut.

3. Insert the power cables through the nut and the cable gland. Connect the cables to the ports on the circuit breaker.



4. Tighten the nut back to the POWER AC_IN cable gland.

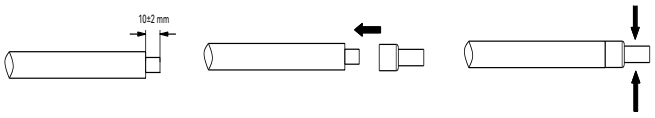
2. Connect the 12 V or 24 V DC power module

The recommended DC wiring diameter ranges from 1.0 to 2.5 mm2 (16/15/14 AWG).

Procedure

1. Prepare the DC power cables by using the provided cable terminals.

   Strip the insulation around 10 mm. Assemble the cable terminals by using the crimping pliers.



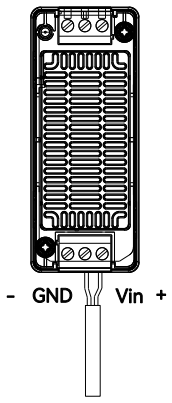
2. Locate the COM1 cable gland at the bottom of the eManager box and loosen the nut.

3. Insert the power cables through the nut and then the cable gland.

4. Depending on the inverter to be connected, choose a corresponding power module and connect the cables.

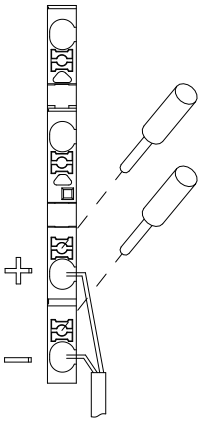
- 12 V DC power module:

Cable	From the 12 V DC power module	To the CHS2 (Choose one of the following pairs)	
Positive	Vin port	RSD.1 + port	RSD.2 + port
Negative	GND port	RSD.1 − port	RSD.2 - port



- 24 V DC power module:

Cable	From the 24 V DC power module	To the CHS2-P (Choose one of the following pairs)	
Positive	+ port	EMS.1 + port	EMS.2 + port
Negative	- port	EMS.1 − port	EMS.2 - port

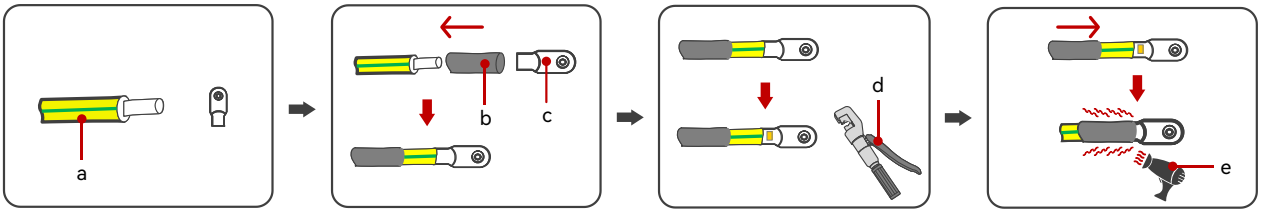


5. Tighten the nut back to the cable gland COM1.

6. Connect the grounding cable

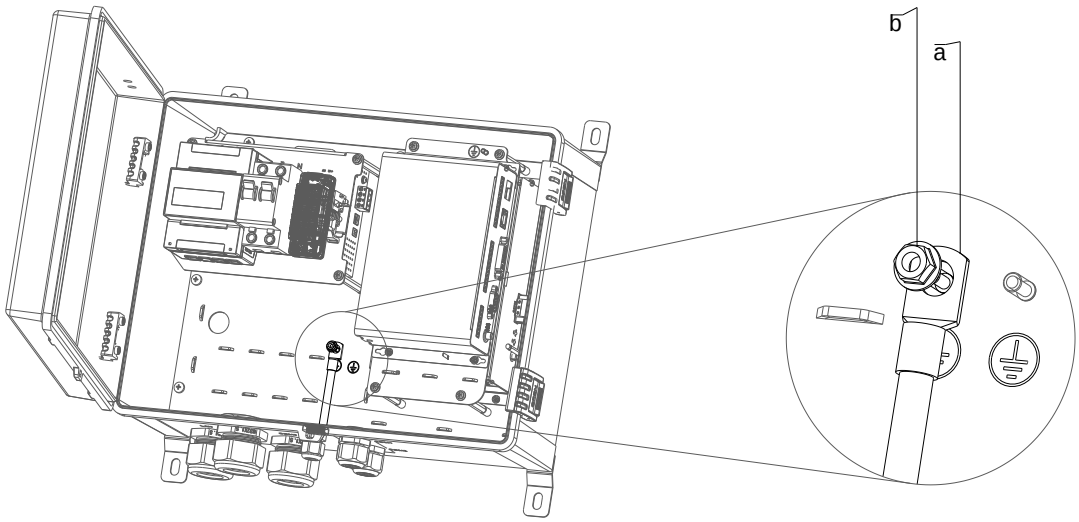
Insert the grounding cable through the POWER AC_IN cable gland at the bottom of the eManager box.

1. Prepare an OT terminal.



Callout	Description	Callout	Description	Callout	Description
a	Cable	b	Heat shrink tubing	c	OT terminal
d	Hydraulic pilers	e	Heat gun	/	/

2. Locate the grounding bolt. Install the OT terminal to the bolt and tighten it by using the hexagon flange nut.



Callout	Description
a	OT grounding terminal
b	Hexagon flange nut

7. Connect the smart meter

Procedure

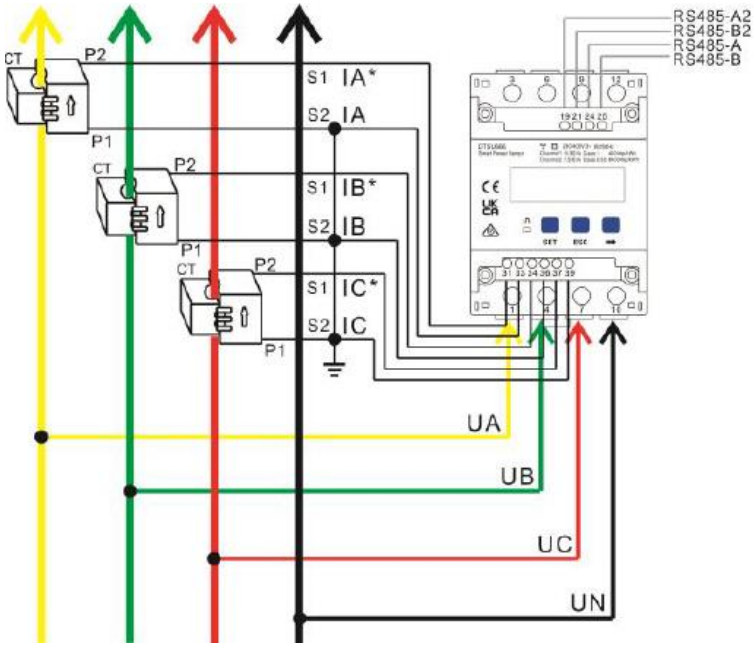
1. Connect the grid cables to the UA, UAB, UC, and UN terminals on the smart meter.

2. Connect the cables of three current transformers (CT) to terminals 31, 33, 34, 36, 37 and 39 on the smart meter.

From (CT)	To (meter)
IA*	31
IA	33

From (CT)	To (meter)
IB*	34
IB	36

From (CT)	To (meter)
IC*	37
IC	39

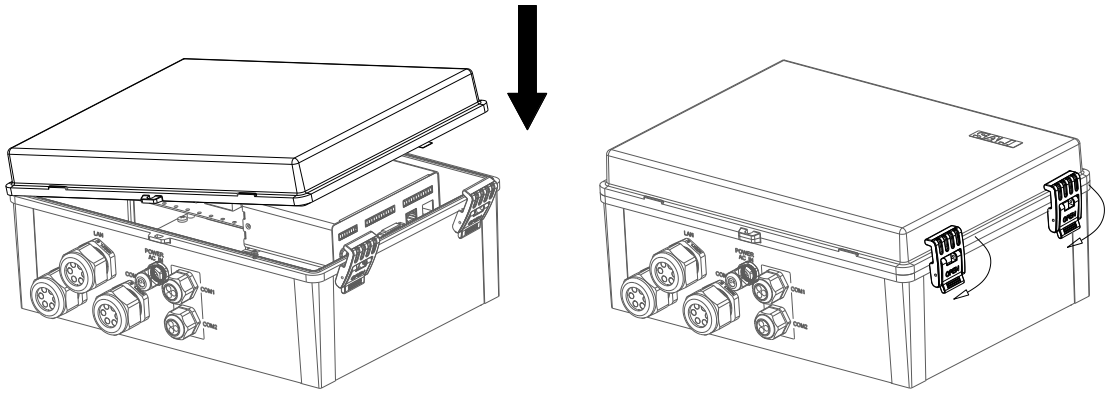


8. Turn on the circuit breaker

Turn on the circuit breaker by toggling down the switch.

9. Lock the box

Close the box cover. Press the tabs to lock the cover.



Installer: _____