M2 Introduction and Installation Guide

Guangzhou Sanjing Electric Co., Ltd.

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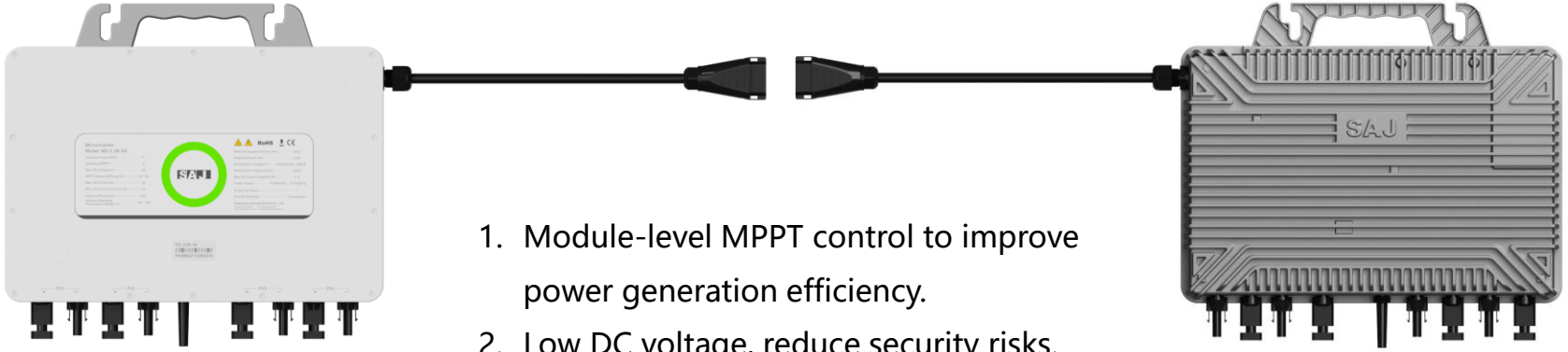
01 Overview of M2 Micro Inverter

M2 Micro Inverter (on-grid solar inverter)



1. Module-level MPPT control to improve power generation efficiency.
2. Low DC voltage, reduce security risks.
3. Built-in monitoring module.
4. 2.4G Wi-Fi / Sub 1G
5. Small size and light weight.
6. Easy to install and operate.

01 Overview of M2 Micro Inverter

M2-Naming rule and Power range

M2 – 2K – S4
① ② ③

① M2 represents for product series name.

② XK represents rated power X kW of inverter, for example 2K means 2kW.

③ S means single phase; X represents the inverter has the function of X MPP trackers, for example 4 means 4 MPP trackers.

M2-0.8K-S2/ M2-1K-S2/ M2-1.2K-S2

M2-1.8K-S4/ M2-2K-S4/ M2-2.2K-S4

M2-2.25K-S4 (Brazil only)

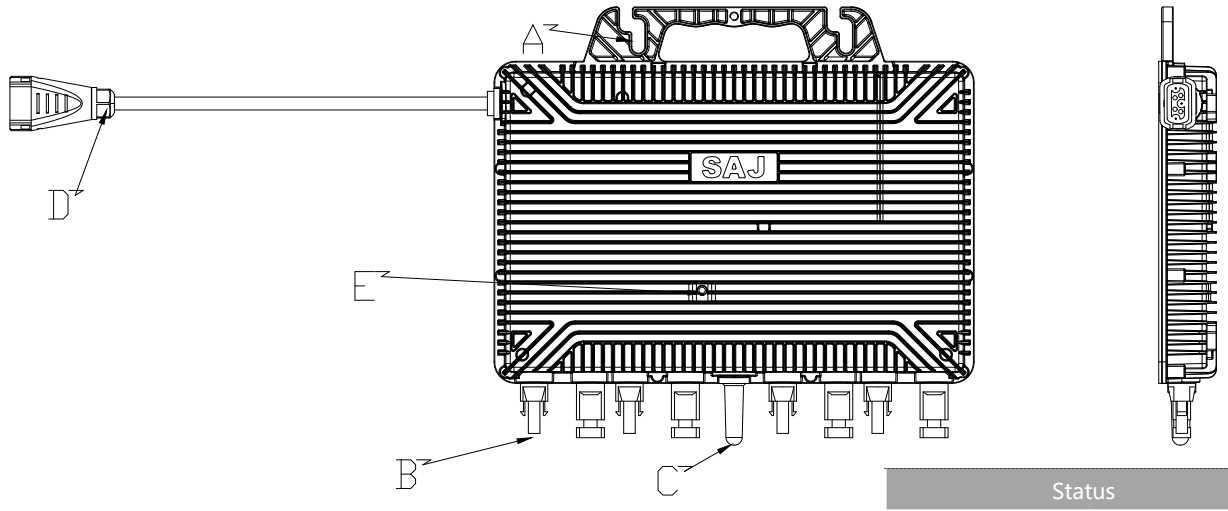
M2- Micro inverter parameters

Model	M2-0.8K-S2	M2-1.0K-S2	M2-1.2K-S2	M2-1.8K-S4	M2-2K-S4	M2-2.2K-S4	M2-2.25K-S4
Input Data (DC)							
Recommended PV Module Power (STC) Range [Wp]	400 ~ 700+						
Peak Power Tracking Voltage [V]	35 ~ 50						
Operating Voltage Range [V]	16 ~ 55						
Maximum Input Voltage [V]	60						
Maximum Input Current [A]	20 x 2				20 x 4		
Back-Feed Current [A]	0						
Overvoltage Category	II						
Output Data (AC)							
Maximum Output Power [VA]	800	1000	1200	1800	2000	2200	2250
Nominal Output Current [A]	3.5	4.4	5.2	7.82	8.7	9.56	9.78
Rated AC Voltage/Range [V]	L+N+PE, 220,230,240/180 ~ 280						
Rated Output Frequency/Range [Hz]	50,60/45 ~ 55,55 ~ 65						
Power Factor [cos ϕ]	> 0.99 default, 0.8 leading ~ 0.8 lagging						
Overvoltage Category	III						
Total Harmonic Distortion [THDi]	<3%						
Maximum Units per 10AWG Branch	9	7	5	4	3	3	3

M2- Micro inverter parameters

Model	M2-0.8K-S2	M2-1.0K-S2	M2-1.2K-S2	M2-1.8K-S4	M2-2K-S4	M2-2.2K-S4	M2-2.25K-S4
Efficiency							
Peak Efficiency	97.00%						
CEC Efficiency	96.50%						
Mechanical Data							
Operating Temperature Range	-40℃ to +60℃ (45℃ to 60℃ with derating)						
Communication	Wi-Fi/Sub-1G/4G（Optional）						
Cooling Method	Natural Convection						
Ambient Humidity	0-100% Non-condensing						
Altitude[m]	2000						
Noise [dBA]	< 20						
Ingress Protection	IP67						
Dimensions [W * H * D][mm]	279*189*36.5			333*225*40			
Weight [kg]	3.8			5.8			
Warranty [Year]	12						
Applicable Standard	EN62109-1/2, EN61000-6-1/2/3/4, EN50438, EN50549, C10/11, IEC62116, IEC61727, RD1699, CEI 0-16, CEI O-021, AS4777.2, NBR16149, NBR 16150 VDE-AR-N 4015, VDE 0126-1-1, RoSH						

M2-Terminal introduction

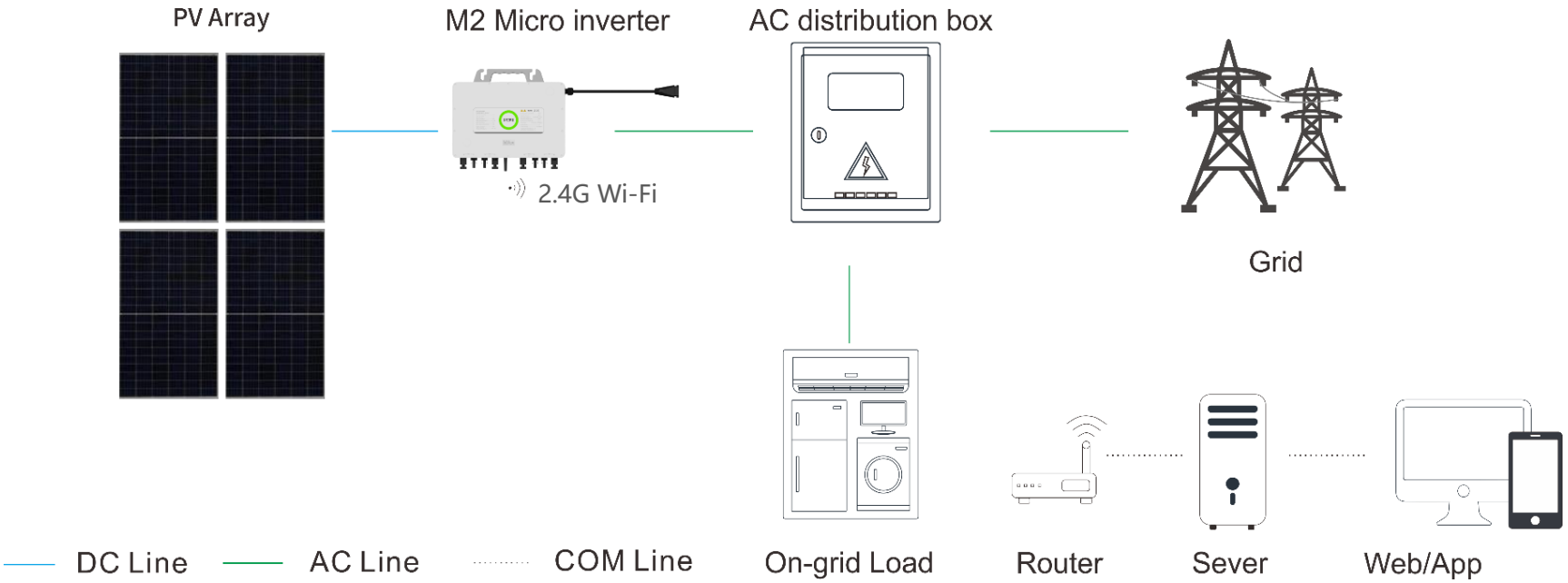


A	Installation hole	D	AC cable and connector
B	DC (PV) connectors	E	Status light
C	Antenna		

Status		Indicates
Green	Solid	Working normally
Green	Breathing	Standby/Waiting
Red	Flashing	Unable to connect
Red	Solid	Fault
Red	Breathing	Upgrading
Red & Green	Off	Not working

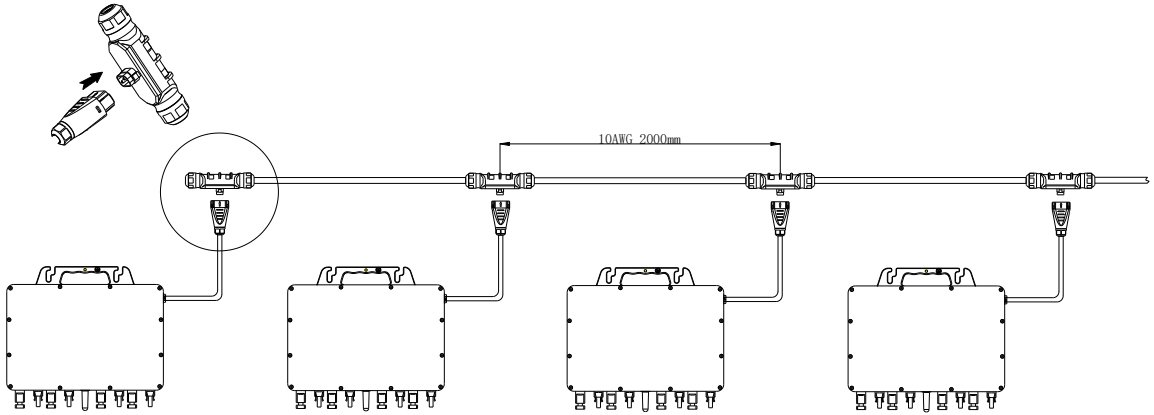
02 Application Diagram of M2

M2-Single inverter system diagram



02 Application diagram of M2

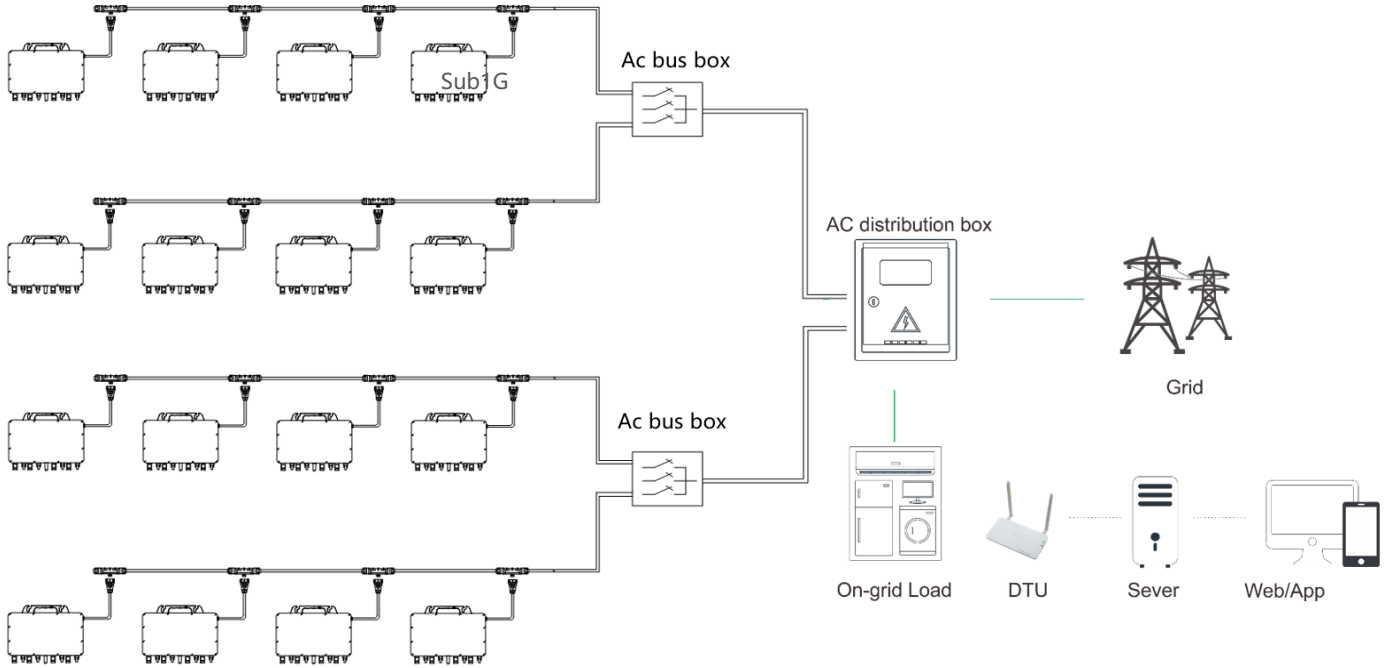
M2-Multi-inverter application diagram--Branch connection diagram



Model	M2-0.8K-S2	M2-1.0K-S2	M2-1.2K-S2	M2-1.8K-S4	M2-2K-S4	M2-2.2K-S4	M2-2.25K-S4
Maximum Units per 10AWG Branch	9	7	6	4	3	3	3

02 Application diagram of M2

M2-Multi-inverter system diagram



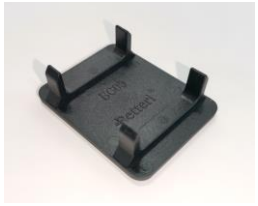
Multiple branches pass through a bus box and form a subarray, and multiple subarrays form a system.
Using Sub 1G-DTU solution, a DTU can access 99 pcs M2 inverters.

Tools list

Screwdriver kit (M3, M5)	Digital multimeter	Wire cutter	Wire stripper	MC4 Crimping pliers
				
Allen wrench kit	Socket wrench kit	Tape measure	Utility knife	Marker pen
				
Insulating gloves	Safety helmet	Insulating shoes	Safety vest	Safety rope (Possible)
				

Tools list

Inverter accessories.

Branch connector male	Branch line breaking wrench	Tee bus	Main line plug	Main line protection cover	Main line removal tool
					

Items that may be needed depending on the situation on site.

Plastic wing nut and bolt (M8*25)	Ground cable (with loop end)	PV cable (positive, negative)	AC cable (three-core)	PV connector (male and female)	Cable tie
					

M2 inverter installation steps

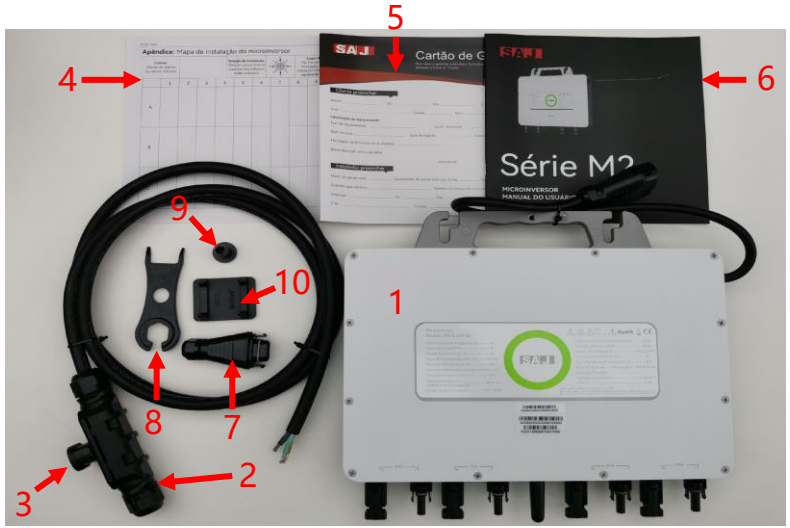
Preparatory Work:

The installation of micro inverters usually requires 2 people(installer) with electrical background.
After all tools, accessories and items are ready, the 2 installers should wear protective equipment such as insulating gloves, insulating shoes, safety helmets, safety vests, and safety ropes if necessary.

Step 1: Unpacking inspection

Open the M2 inverter packing box, carefully take out the inverter and accessories.
Check whether the accessories are complete.

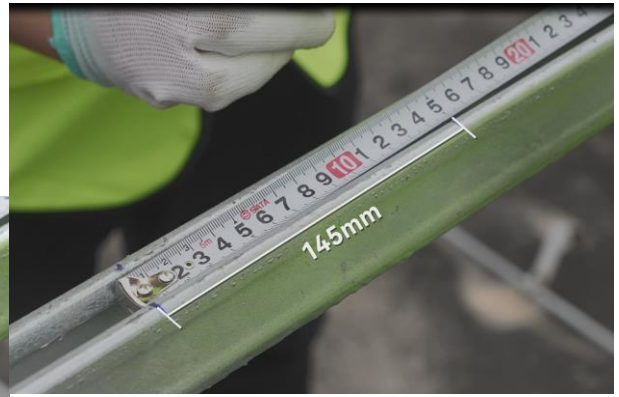
1	2	3	4	5
Inverter	Tee bus	Main line protection cover	Inverter installation map	Warranty card
6	7	8	9	10
User manual	Branch connector male	Branch line breaking wrench	Main line plug	Main line removal tool



M2 inverter installation steps

Step 2: Determine installation position

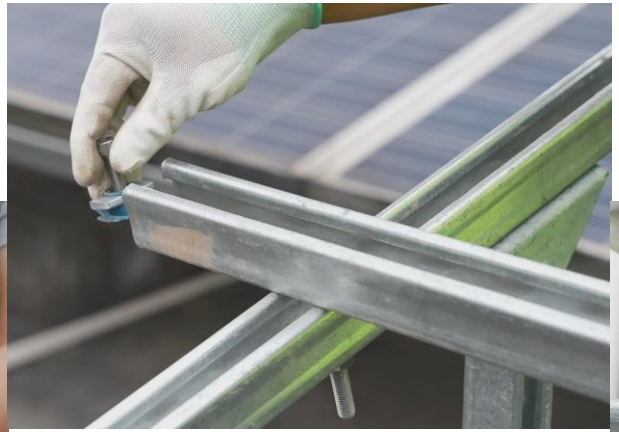
Record 2 installation points at a suitable position on the installed PV bracket with a tape measure and a marker, and the distance between the two points is 14.5cm around.

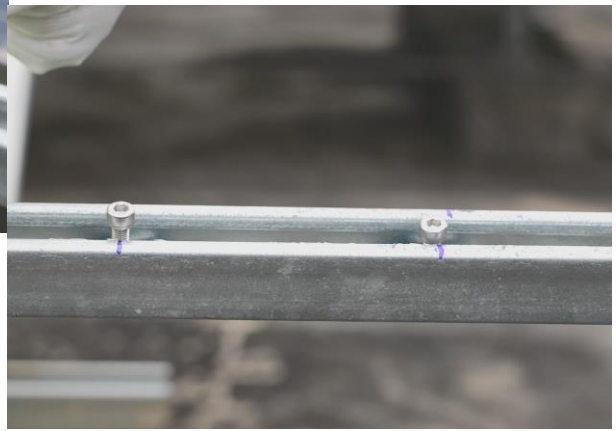


M2 inverter installation steps

Step 3: Place fixtures into installation position

Place 2 sets of plastic wing nuts and bolts in the card slot of the PV bracket at the positions of the two points just marked.





M2 inverter installation steps

Step 4: Place inverter in the installation position

Place the labeled side of the M2 inverter facing upwards, align the installation holes of the inverter with the two sets of plastic wing nuts and bolts just placed, and pull the bolt caps through the installation holes of the inverter.

M2 inverter installation steps

Step 5: Tighten the fixture to secure the inverter

Place the bolt in the narrower part of the mounting hole, and then use the allen wrench to twist the bolts and secure the inverter.

M2 inverter installation steps

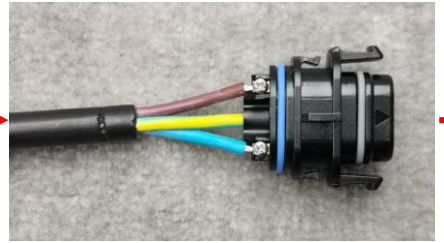
Step 6: AC connection

A: Single M2 systems

Follow the steps below to connect the AC cables, then connect the AC extension cable to AC distribution box.

Split the branch connector male into 2 parts

Pass the AC extension cable through the waterproof cover and plug and plastic housing in turn

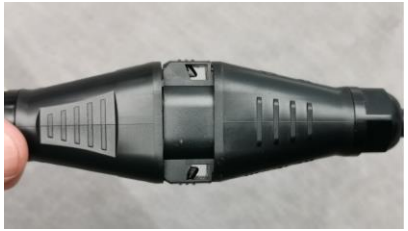


Connect the lines (L, N, PE) to the terminals and tighten them.

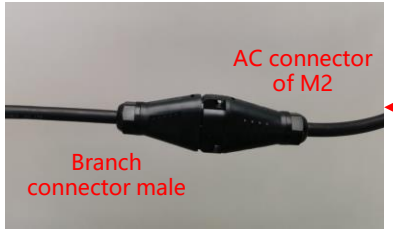
Place the terminal into plastic housing. Twist the waterproof cover back onto plastic housing

Tighten the waterproof cap with branch line breaking wrench

Position branch connector male and AC connector of M2



Connect branch connector male and AC connector in place and securely.



Fix the connector to PV bracket with cable ties, then connect the AC extension cable to AC distribution box.

M2 inverter installation steps

Step 6: AC connection

B: Multiple M2 systems - forefront inverter AC cables connection

Unscrew the waterproof cap on the tee bus end without wires, insert the main line plug into the waterproof cap, and then screw the waterproof cap back to the tee bus. Connect the AC connector of the inverter at the forefront to the tee bus, then tie the tee bus to the PV bracket with cable ties.






M2 inverter installation steps

Step 6: AC connection

B: Multiple M2 systems - subsequent inverters AC cables connection

Use the Main line removal tool to open the wiring cover of the subsequent tee bus, then unscrew the waterproof cover, and pass the cables terminal of the previous tee bus through the waterproof cover.






M2 inverter installation steps

Step 6: AC connection

B: Multiple M2 systems - subsequent inverters AC cables connection

Then connect the wires of the previous tee bus to the terminals of this tee bus, fix with screws, and cover the wiring cover. Then connect the AC terminal of another inverter to the tee bus, and tie the tee bus to the PV bracket.






M2 inverter installation steps

Step 6: AC connection

B: Multiple M2 systems - subsequent inverters AC cables connection

After the connections between the inverters and the AC cables are completed and the cables are fixed, remove the SN barcode from the inverter surface and attach it to the inverter installation map. Then install the PV modules onto the PV brackets.





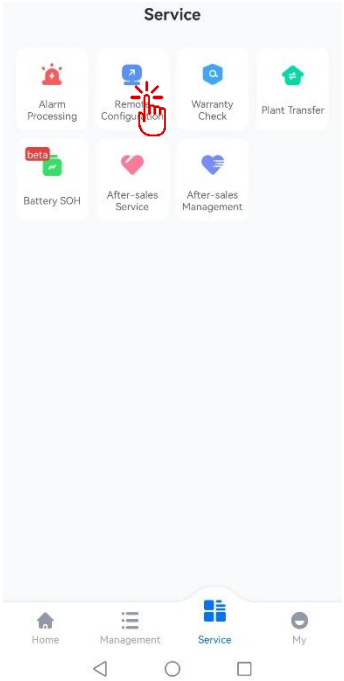

M2 inverter installation steps

Step 7: DC connection

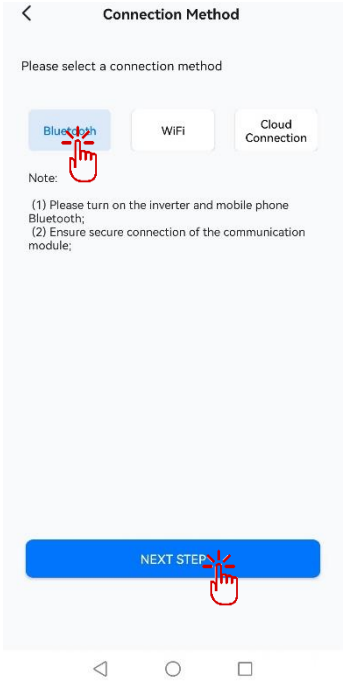
Connect the PV extension wire (Made on site with PV cables) to the PV modules, measure the voltages of the PV modules with a multimeter, and confirm that the voltage is normal and positive/negative electrodes are correct, and connect the extension wire to the PV connectors of the inverter, then turn on AC.

M2-Inverter—Network configuration

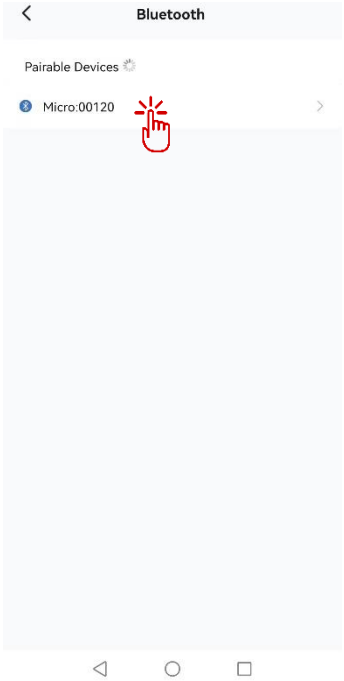
After the inverter is installed, turn on the AC switch, then connect the inverter to the local router as following steps.



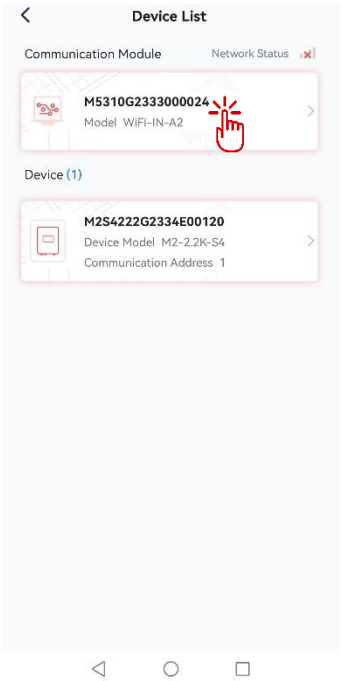
Open the "eSaj home" APP, Click "Remote Configuration" at "Service" page



Choose "Bluetooth" Click "NEXT STEP"



Choose the Bluetooth for the last 5 digits of M2 inverter SN

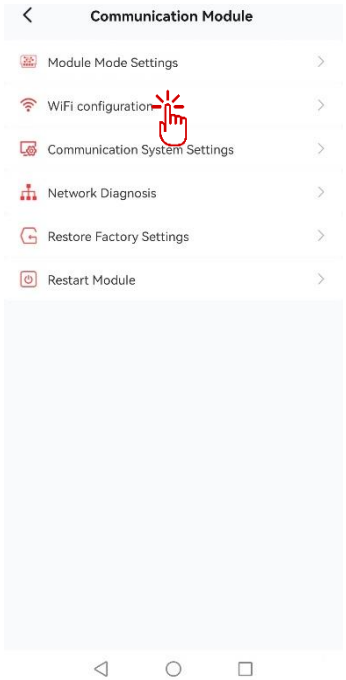


Choose Wi-Fi model of the SN started with M531

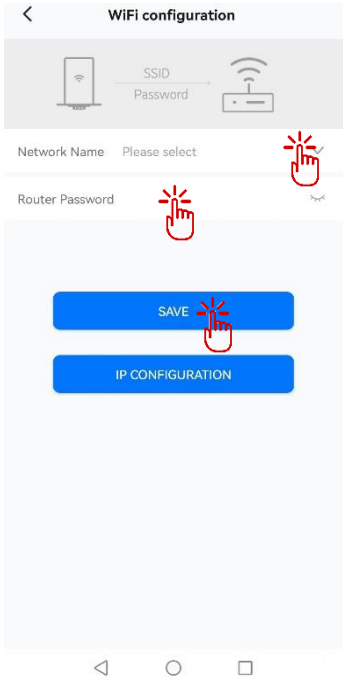
M2-Inverter—Network configuration

Connect the inverter built-in wifi module and router.

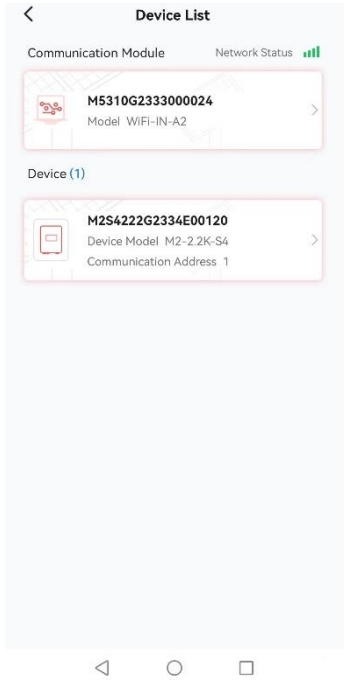
Click the gear at the upper right corner



Click " WiFi configuration"



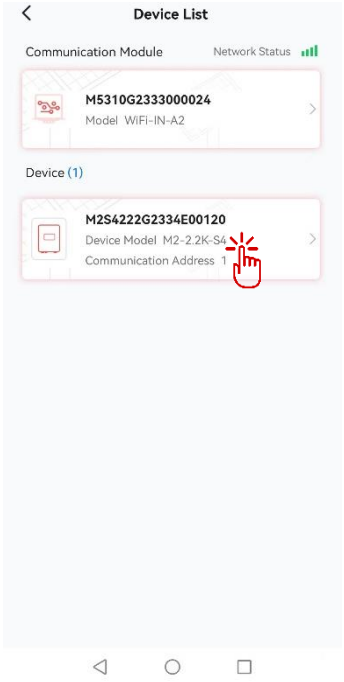
Select router signal and enter password , then click "Save" .



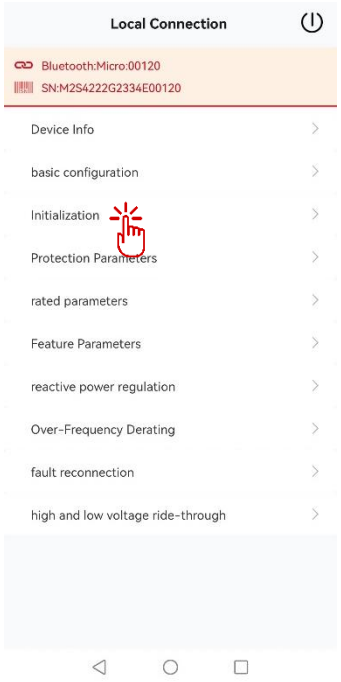
The network status will show connected.

M2-Inverter—Initialization

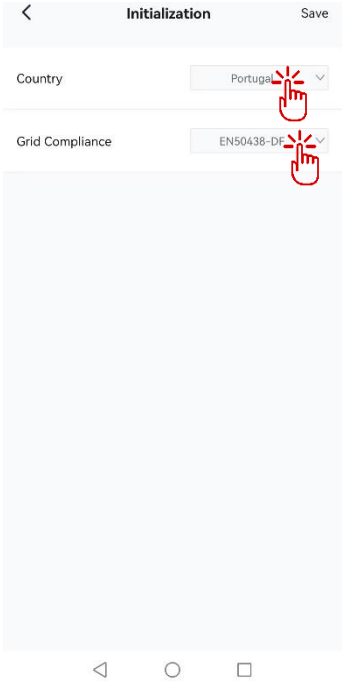
Choose a suitable grid compliance.



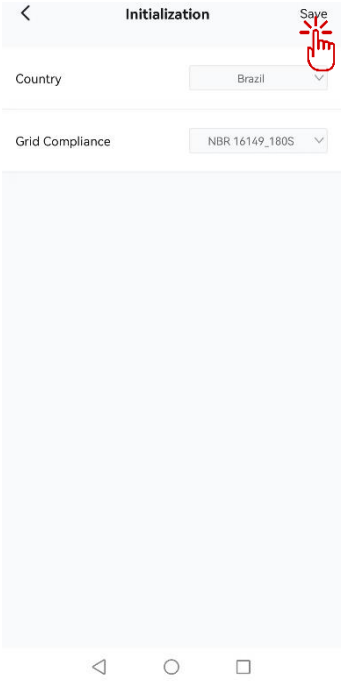
Choose M2 inverter of the SN started with M2



Click " Initialization"



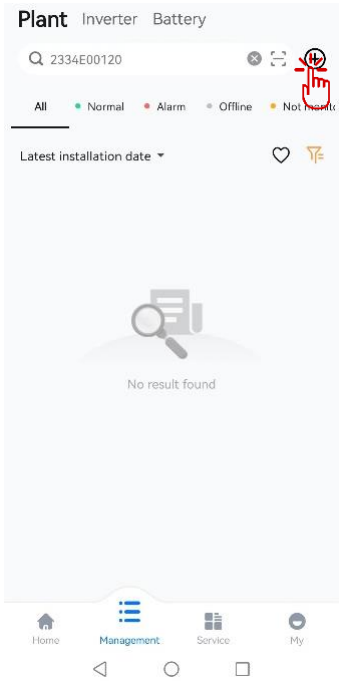
Choose Country and grid compliance for M2 inverter



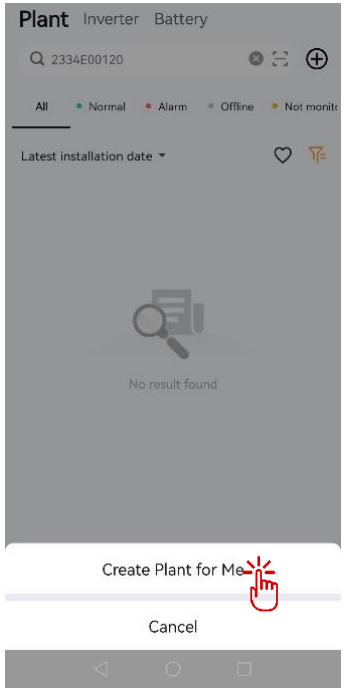
Click " Save" to save the settings

M2-Inverter— Create a plant

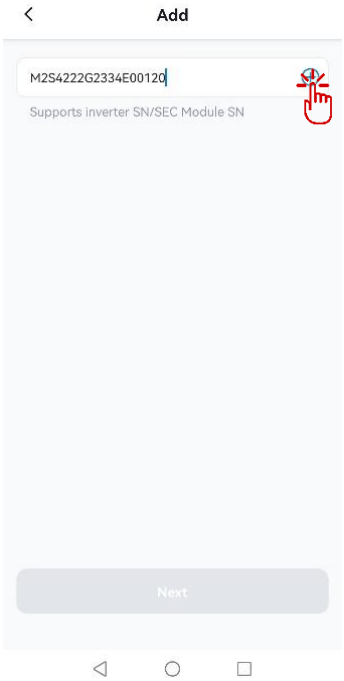
After the network is configured we start to create a plant with the inverter.



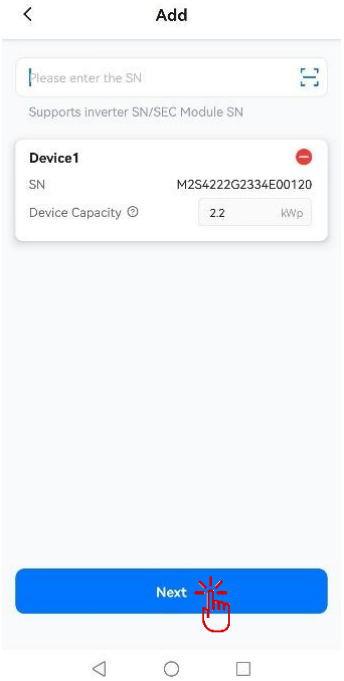
Click “+” at the upper right corner at “Management” page



Click “+” at the upper right corner at “Management” page



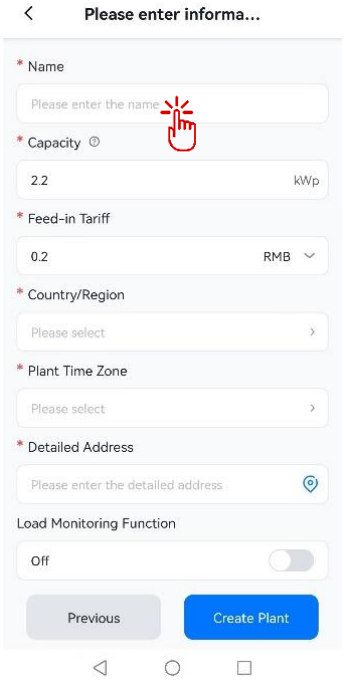
Enter the M2 inverter SN , then click “+”



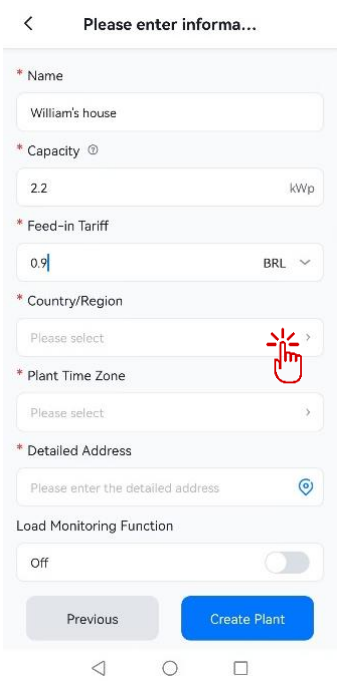
If there is only one inverter in this plant, click "Next". If not, continue to enter inverter SN

M2-Inverter— Create a plant

Fill in the information about the plant.

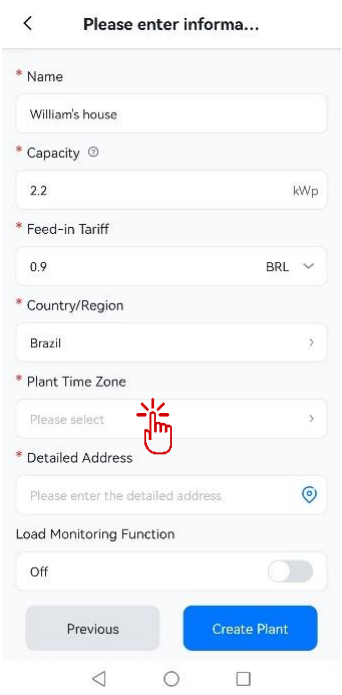


Enter the plant name at " Name" field



Enter plant capacity, electricity price, and click "Country/Region"

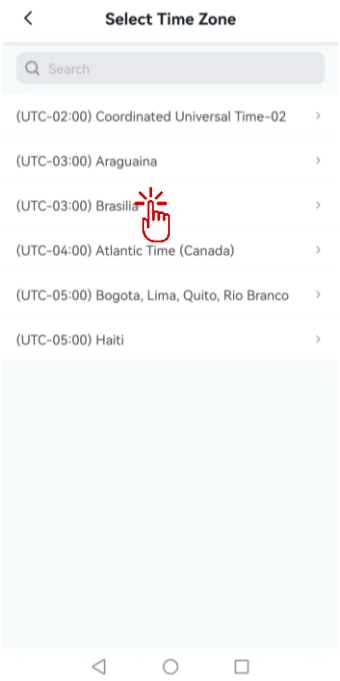
Select the country or region the plant located



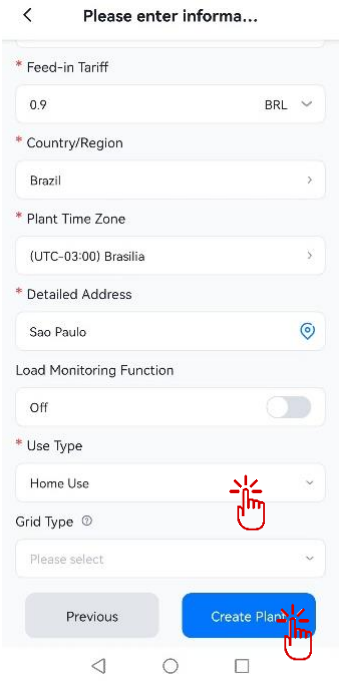
Click "Plant Time Zone"

M2-Inverter— Create a plant

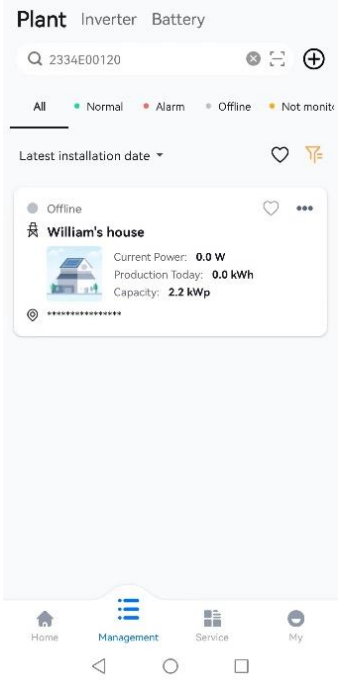
Continue to enter the plant information and create the plant.



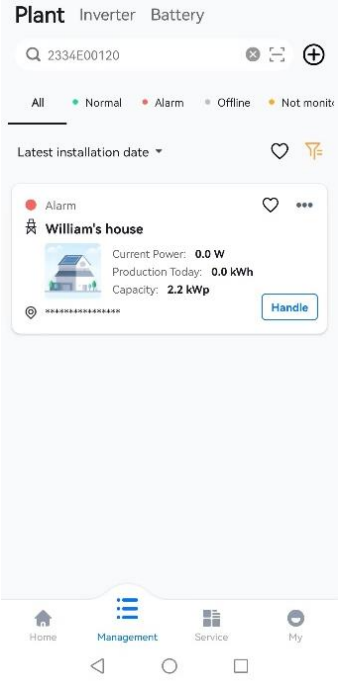
Select the time zone the plant located



Enter the plant address, select "Home Use" at " Use Type" field, then click "Create Plant"



The plant is created.



The plant is online.

THANK YOU