Wi-Fi & LoRa Smart Energy Meter Quick Start Guide

SUN-SMART-CT02 / SUN-SMART-CT02-W / SUN-SMART-CT02-L / SUN-SMART-CT02-WL

30240301005814

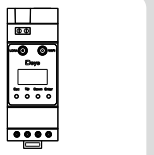
Scan QR code to download APP

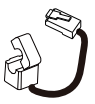
1. Safety Instructions

Labels	Description
	Caution, risk of electric shock.
	Symbol for the marking of electrical and electronics devices according to Directive 2002/96/EC. Indicates that the device, accessories and the packaging must not be disposed as unsorted municipal waste and must be collected separately at the end of the usage. Please follow Local Ordinances or Regulations for disposal or contact an authorized representative of the manufacturer for information concerning the decommissioning of equipment.
CE	CE mark is attached to the solar inverter to verify that the unit follows the provisions of the European Low Voltage and EMC Directives.
	Refer to the operating instructions
Qualified personnel	Person adequately advised or supervised by an electrically skilled person to enable him or her to perceive risks and to avoid hazards which electricity can create. For the purpose of the safety information of this manual, a "qualified person" is someone who is familiar with requirements for safety, refrigeration system and EMC and is authorized to energize,ground, and tag equipment, systems, and circuits in accordance with established safety procedures. The inverter and endues system may only be commissioned and operated by qualified personnel.

2. Unboxing

Standard


Smart Meter*1


Current Transformer (CT) *1

Quick Start Guide

Standard for Wi-Fi/LoRa Model


Wi-Fi Antenna *1 (For Wi-Fi model only)

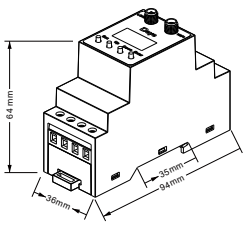

LoRa Antenna *1 (For LoRa model only)

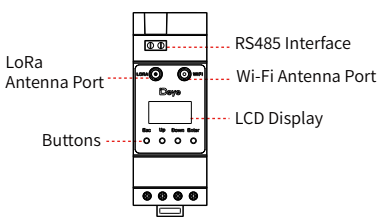
Optional for Wi-Fi/LoRa Model

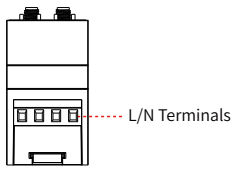

Extension Wi-Fi Antenna (Optional 3/5/10 m Cable) *1

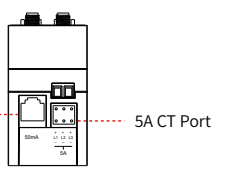

Extension LoRa Antenna (1m Cable) *1

3. Overview





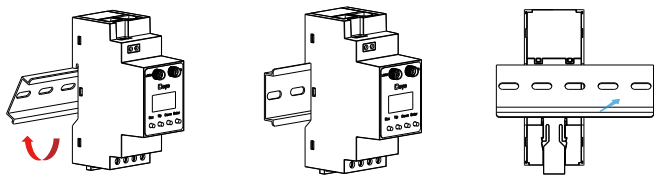




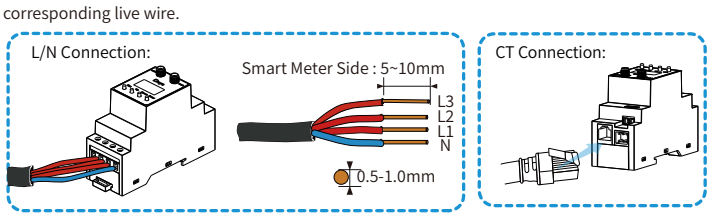
4. Installation

*Ensure the power if off during electrical connections.
*Secure all connections properly to avoid electrical faults or device malfunction.

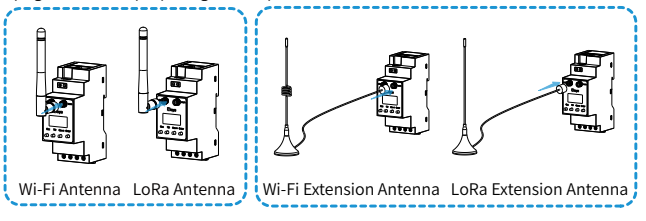
① Pull out the clip, mount the smart meter onto the DIN rail, then push the clip back to secure it.



② Connect the smart meter to the grid, making sure to connect to the correct L and N wires.
③ Insert the CT lead wire into the CT port on the smart meter, and clamp the CT around the corresponding live wire.

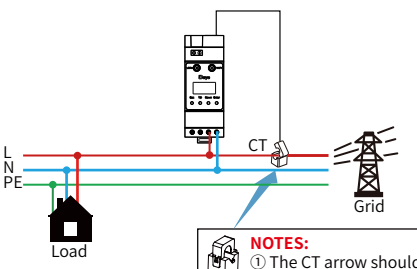


④ Tighten the antenna or extension antenna to the antenna port and keep the antenna upright to ensure proper signal reception.



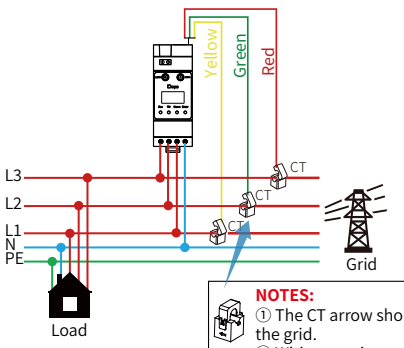
⑤ Wiring diagrams are shown below:

Single phase two wire



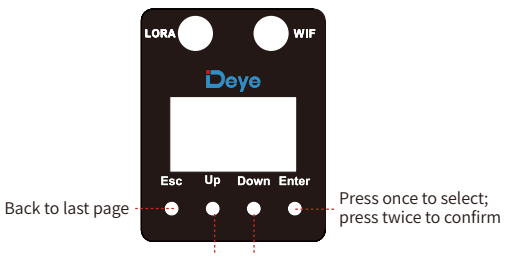
NOTES:
① The CT arrow should point toward the inverter from the grid.
② Must use the meter's L1 terminal to connect with the live wire of the grid.
③ Clamp the CT between the inverter and the grid, usually on the incoming side of the home main switch.

Three phase four wire



NOTES:
① The CT arrow should point toward the inverter from the grid.
② Wiring requirements: L1 → CT with yellow cable; L2 → CT with green cable; L3 → CT with red cable.
③ Clamp the CT between the inverter and the grid, usually on the incoming side of the home main switch.

5. Display



① Data display

Screen Display	Description
P L1: 0W L2: 0W L3: 0W	Displays the power of each phase.
Frequency F: 50.0Hz	Displays the measured frequency.
Energy-In L1: 0.00kWh L2: 0.00kWh L3: 0.00kWh	Displays the input energy of each phase of the inverter.
Energy-Out L1: 0.00kWh L2: 0.53kWh L3: 1.12kWh	Displays the output energy of each phase of the inverter.
PF L1: 0.000 L2: 0.000 L3: 0.000	Displays the power factor of each phase of the inverter.
Q L1: 0.00Var L2: 0.00Var L3: 0.00Var	Displays the reactive power of each phase of the inverter.
I L1: 0.00A L2: 0.00A L3: 0.00A	Displays the current of each phase of the inverter.
V L1:229.7V L2:231.0V L3:230.8V	Displays the phase-to-neutral voltage of each phase of the inverter.

② Information

Screen Display	Description
Information << Dev Info Fault Record Paran Setting → SN:C26101A9A9 AP:CT_1226520214 Soft Ver:C32F Lora Channel:06	Displays the serial number, AP address, firmware version, and LoRa communication channel.

③ Device information

Screen Display	Description
Information Dev Info << Fault Record Paran Setting → Link:N_C AP_Number:0	**"N-N":** The meter is not connected to the inverter. **"N-C":** The meter is connected to the inverter via wireless communication. **"C-N":** The meter is connected to the inverter via RS485 wired communication. **AP number** indicates how many devices are connected to the meter.

⑤ Parameter Setting

Screen Display	Description
Information Dev Info Fault Record Param Setting <<	Fault information will be displayed if any.
NRG OUT Reset << NRG IN Reset Addr setting Baud setting → start of init	Press the "Enter" button twice to reset “Energy_Out” data.
NRG OUT Reset NRG IN Reset << Addr setting Baud setting → start of init	Press the "Enter" button twice to reset “Energy_In” data.
NRG OUT Reset NRG IN Reset Addr setting << Baud setting → Addr num:0x01	RS485 communication address. Default value: 0x01; range: 0x01-0xFF.
NRG OUT Reset NRG IN Reset Addr setting Baud setting << → Baud Rate: 9600	Communication baud rate. Default value: 9600; available options: 9600 / 14400 / 19200 / 38400 / 56000 / 57600 / 115200
Addr setting Baud setting Lora Channel << CT Ratio set → Com Chan:06 << Upg Chan:06 Scan Chan	Select "Scan Chan" to scan channels 01–09 to locate the transmitter's communication channel. If detected, the channel number will be displayed. If not detected, "Not detected" will be shown.
Addr setting Baud setting Lora Channel CT Ratio set << → Ratio: 2000:1	CT ratio setting. Range: 2000:1 to 10000:1; adjustment step: 100.
Lora Channel CT Ratio set T1 Mode << CT Type → Enable << Disable	CT power transmission mode. When enabled, the power of three phases (L1, L2, L3) is transmitted to the inverter LCD. The inverter LCD displays the total power on L1 only. This mode is mainly used when l oads are connected.
Lora Channel CT Ratio set T1 Mode CT Type << → 50 mA << 5 A	CT type selection. Select the appropriate CT type according to the measuring range.

6. Description of EV Charger Control Functions

NOTES: Only LoRa communication is supported.

① Data display

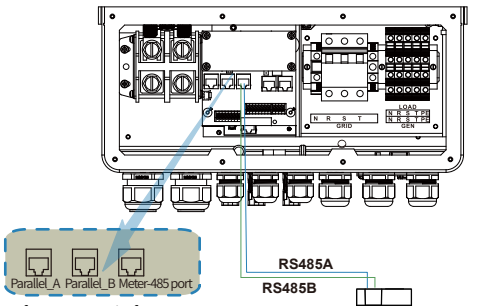
Screen Display	Description
EV SN: E257250210 LIN: N FaultCode: Normal	Display the SN, connection status, and fault codes of the connected EV charger.
EV MO: Charge Now ST: IDLE M-P: 0W	Display the current operating mode of the EV charger(Charge Now, Schedule, Cancel) and the actual charging power.
EV P1: 0W P2: 0W P3: 0W	Display the power of each phase of the EV charger.

② Parameter Setting

Screen Display	Description
CT Ratio set T1 Mode CT Type EV setting << → EV Sn << EV MasterMode EV PWR Mode EV PemitP → EV Sn E257250210 - UP/DN: chg, EN:mov	Manually enter the EV charger SN, confirm and return to the previous page to save the connection.
EV Sn EV MasterMode << EV PWR Mode EV PemitP → EV MasterMode Disable << Enable	Enable or disable the EV charger. In enabled mode, the main interface displays the charging pile information. In disabled mode, the information is hidden.
EV Sn EV MasterMode EV PWR Mode << EV PemitP → Work Pwr Mode: Free Work << Solar Only ZE Mode	The charging pile offers three operating modes (Free Work, Solar Only, and ZE Mode) for selection based on actual conditions.
EV Sn EV MasterMode EV PWR Mode EV PemitP << → Permit Power 7000 W << UP/DN: +10/-10W EN: Save	Set the maximum charging power of the EV charger. The upper limit is 22 kW.

7. Setup

① RS485 wired communication



Definition of RJ45 Port pin for Meter-485

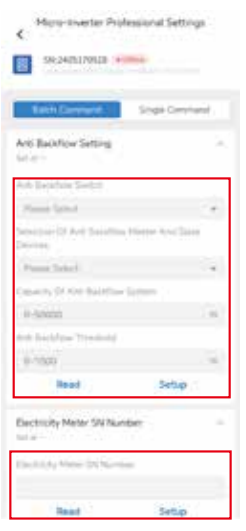
No.	Meter-485 Pin
1	485-B
2	485-A
3	COM-GND
4	485-B
5	485-A
6	COM-GND
7	485-A
8	485-B

Note:① The defination of meter-485 port (Please refer to the user manual of your inverter)
② Please set the communication address and baud rate under parameter setting.

② Wi-Fi wireless communication

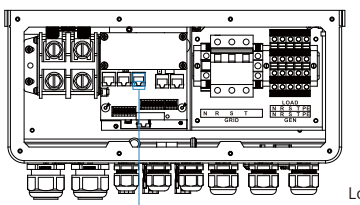
Step 1. Scan the QR code in the upper-right corner to download and install the app. Register an account and create a plant.

Step 2. Wi-Fi communication
A. Enable Bluetooth and connect the smart meter to a Wi-Fi network. If required, enter the meter Wi-Fi SN to bind it to the inverter.

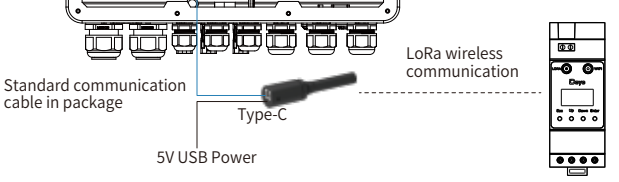


B. Go to the "Device" page, select "Meter", and you can check the meter's information.

③ LoRa wireless communication

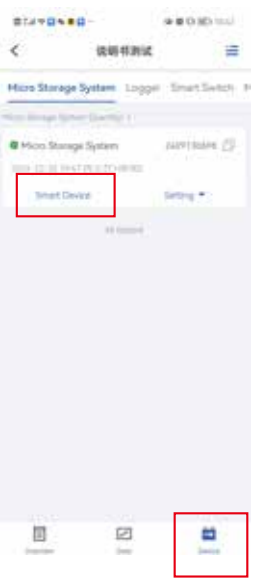


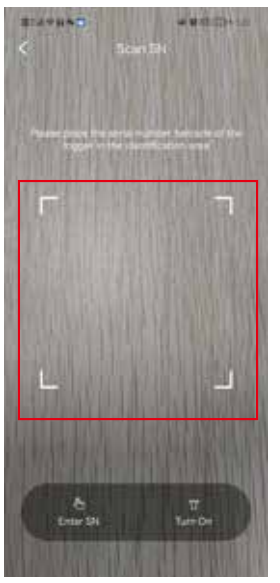
Note: If the meter port of the inverter can provide 5V DC power, the antenna does not require a Type-C power cable.

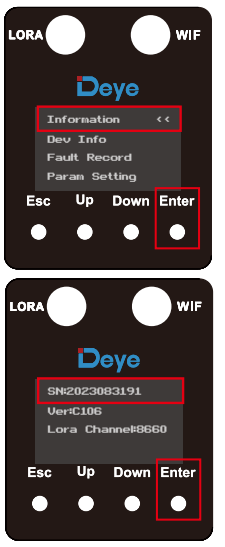


Step 1. Scan the QR code in the upper-right corner to download and install the app. Register an account and create a plant.

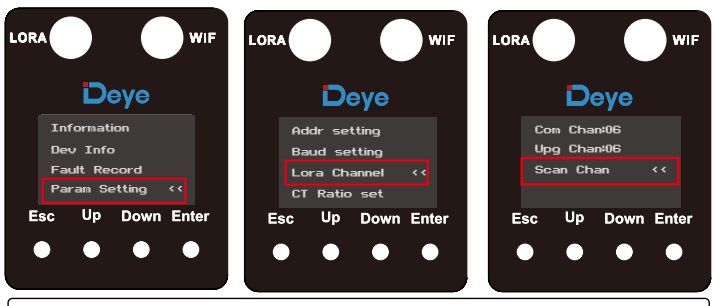
Step 2. LoRa communication
A. Add a new device by scanning the QR code on the device or by manually entering its SN.







B. Perform a channel scan on the meter to establish LoRa communication with the inverter.



NOTES:
1. If you are not using the default 100A/50mA current transformer (CT), set the CT ratio under Parameter Setting.
2. For detailed wireless system setup instructions, refer to the inverter user manual. Configuration steps may vary depending on the inverter type. The above steps are for reference only.

8. Datasheet

Model	SUN-SMART-CT02	SUN-SMART-CT02-W	SUN-SMART-CT02-L	SUN-SMART-CT02-WL
Electrical Parameters				
Connection Type	L1/N (Single phase); L1/L2/L3/N (Three phase);			
CT (Rated Secondary Output)	50mA/5A			
Voltage Range	85~300Va.c. (Phase voltage)			
Frequency & Range	50Hz (45Hz-55Hz) / 60Hz (55Hz-65Hz)			
Power Consumption	⩽2W			
AC Withstand Voltage	4KV / 1min			
Measurement Accuracy				
Voltage	±0.1V			
Current	±0.01A			
Frequency	±0.01Hz			
Power	±1W			
Communication & Display				
Communication Interface	RS485	Wi-Fi&BT/ RS485	LoRa/RS485	Wi-Fi&BT /RS485/LoRa
LoRa Communication Distance	/		Up to 200 m (Open area)	
Display Type	LCD			
Displayed Parameters	Voltage, Current, Power, Frequency, Power Factor, Reactive Power, Energy			
General Parameters				
Operating Temperature Range	-40~+60°C			
Permissible Ambient Humidity	0~75%			
Ingress Protection	IP20			
Maximum Operating Altitude	⩽3000			
Mounting Method	DIN-rail mounting			
Dimensions (W × H × D)	36*94*64mm			
Weight	0.12kg			
Warranty	5 years			
Standards	IEC/EN 61010-1			
LoRa Parameters				
Frequency Band	/		863MHz-870MHz	
Antenna	/		Dipole Antenna/Suction cup antenna	
Antenna Gain	/		-2.81/2.00dBi	
WIFI Parameters				
Frequency Band	/	2412MHz-2484MHz	/	2412MHz-2484MHz
Antenna	/	Dipole Antenna/ Suction cup antenna	/	Dipole Antenna/ Suction cup antenna
Antenna Gain	/	2.59/2.39dBi	/	2.59/2.39dBi

9. EU Declaration of Conformity

within the scope of the EU directives
- Radio Equipment Directive 2014/53/EU (RED)
- Restriction of the use of certain hazardous substances 2011/65/EU(RoHS)

NINGBO DEYE INVERTER TECHNOLOGY CO., LTD. confirms herewith that the products described in this document are in compliance with the fundamental requirements and other relevant provisions of the above mentioned directives. The entire EU Declaration of Conformity and certificate can be found at https://www.deyeinverter.com/download/#smart-load.

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