

InstaGen String Inverter Smart Meter

RMK Series

This manual is an integral part of InstaGen RMK Smart Meter

An introduction to the assembly, installation electrical connection and debugging.



Table of Contents

SYSTEM INTRODUCTION	3
WIRING TERMINALS	4
INSTALLATION	4
SMART METER	4
CURRENT TRANSFORMER	5
WIRING CONNECTION	5
AC CONNECTION	5
METER CONNECTION TO THE INVERTER	6
IMPORTANT CONNECTION NOTES	7
COMMISSIONING	7
RMK NETWORK CONFIGURATION	7
DISPLAY INTERFACE	8
RMK WI-FI CONFIGURATION	11
RETROFITTING TO AN EXISTING SYSTEM	13
INSTAGEN TECHNICAL SUPPORT	14
HEAD OFFICE	14
SOLAR TECHNICIANS	14

System Introduction

RMK series is a smart meter that supports different voltage levels and power grids. The RMK can collect the data in real time, including grid voltage, current, power and energy yield. By cooperating with InstaGen monitoring system, RMK can realize real-time monitoring of load consumption.

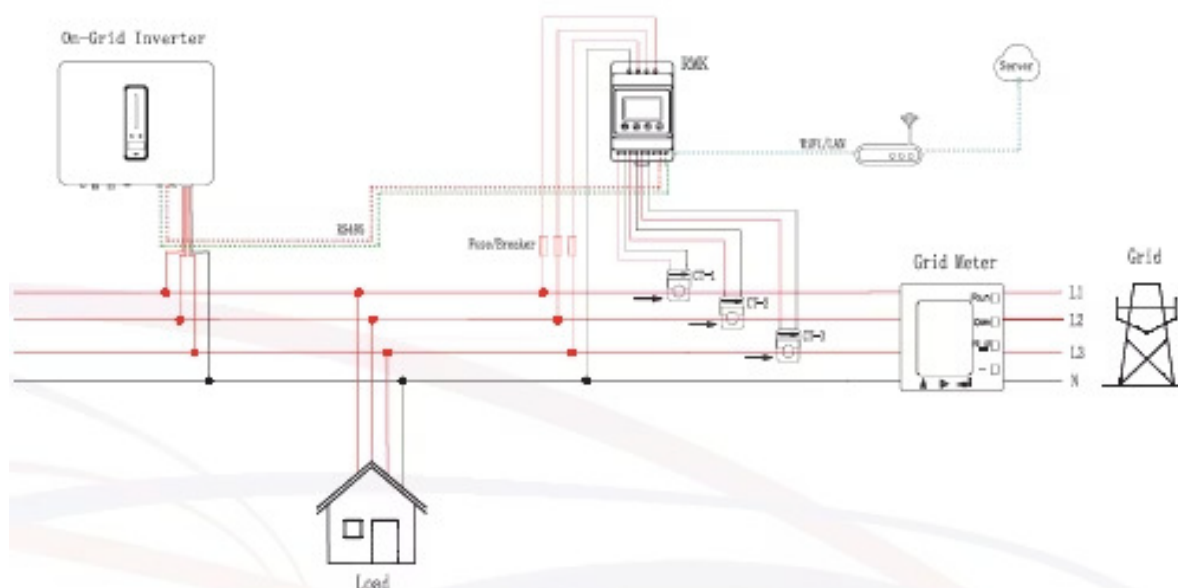
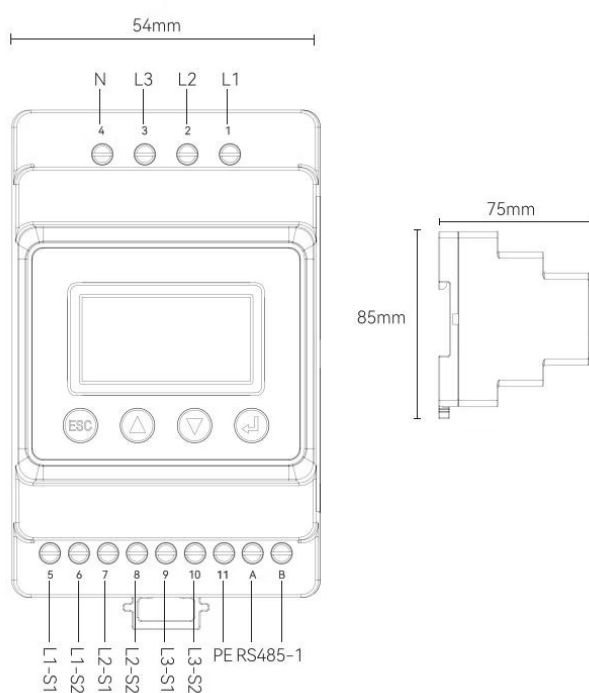


Figure 3-2 RMK connected with Solinteg inverter



Wiring Terminals

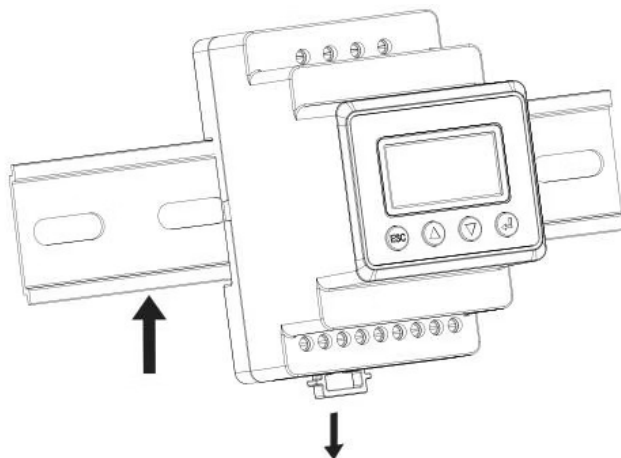
No.	Definition	Function
1	L1	L1/L2/L3/N connect to grid to detect power grid voltage
2	L2	
3	L3	
4	N	
5	L1-S1	To detect the CT current and direction
6	L1-S2	
7	L2-S1	
8	L2-S2	
9	L3-S1	
10	L3-S2	
11	PE	Ground connection
RS485-1		RMK, communicate with single-phase and three-phase PV grid-connected inverter
ANT		Wi-Fi antenna port
LAN		LAN communication port

Installation

RMK series is IP20 and should be installed indoors only.

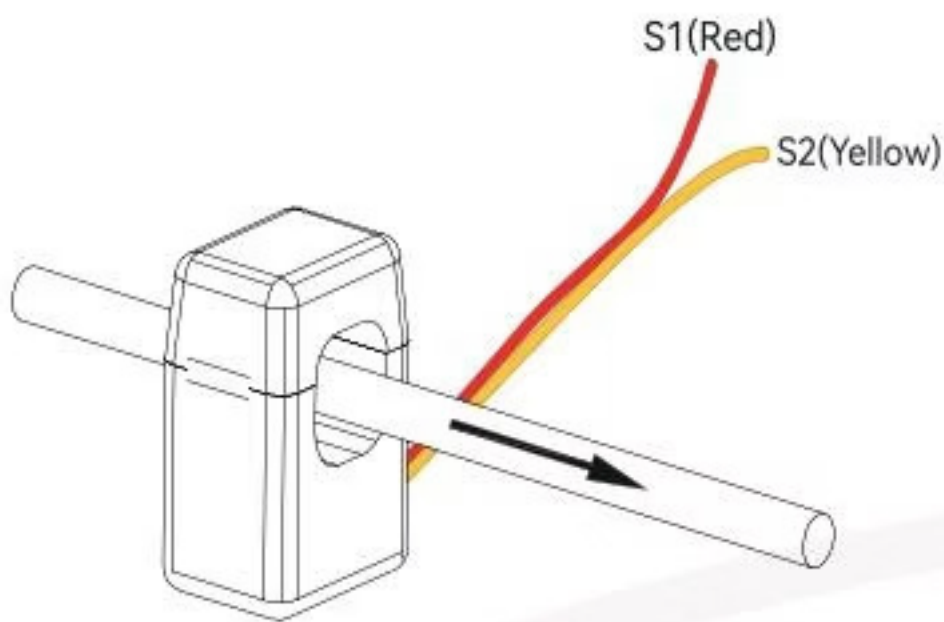
Smart Meter

1. Pull to release the retaining clip
2. Mount the meter on the track and push the retaining clip up (a click sound indicates it is installed well)



Current Transformer

Follow the directions of the CT as shown with the arrow pointing to the grid.



Wiring Connection

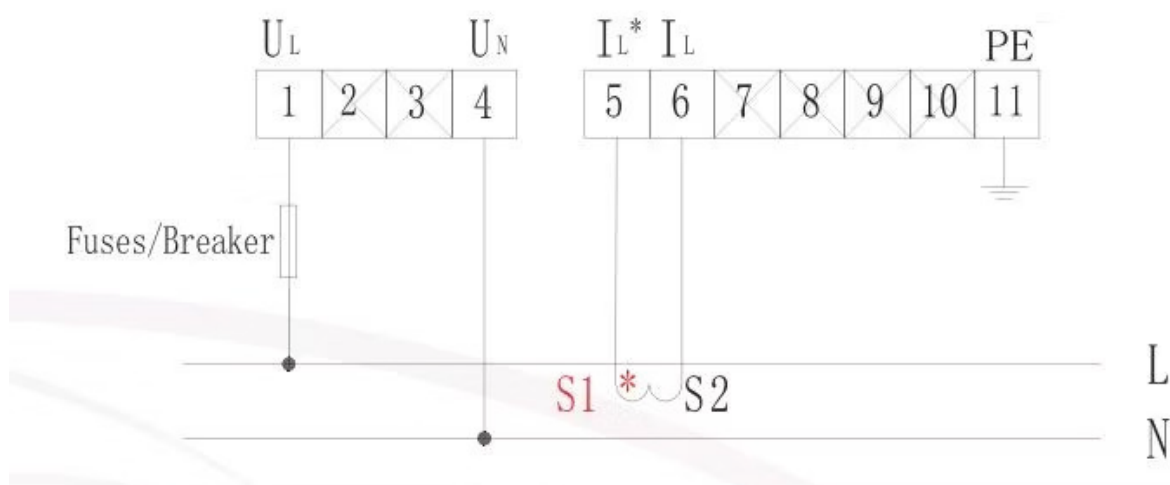
AC Connection

The installation of the meter should be strictly in accordance with the instructions of the User Manual, otherwise, the meter may not work properly. According to different application scenarios, the meter wiring is different, and the meter used is also different. Please select the appropriate meter according to the use scenario.

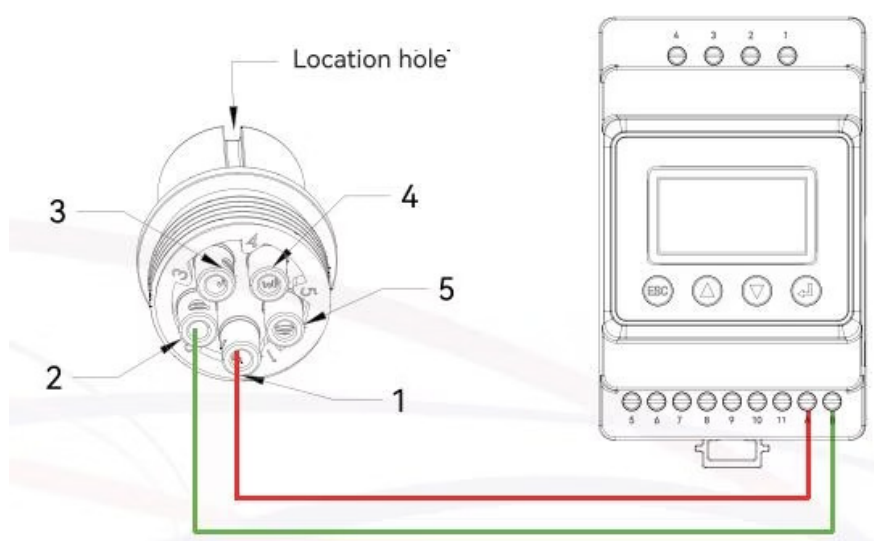
The RMK supports three-phase grid (with 3 CTs), single-phase grid (with 1 CT).

Grid Type	Rated Voltage	CT Number	Note
Single-phase	220/230/240V (L-N)	1*CT	L/N/PE
Three-Phase	380/400/415V (L-L)	3*CT	Wye (3L/N/PE)
	208/220/240V (L-L)		Delta (3L/PE)

The following is a list of common terminal connection diagrams. Select a proper system schematic diagram based on the actual situation.



Meter Connection to the Inverter



Important Connection Notes

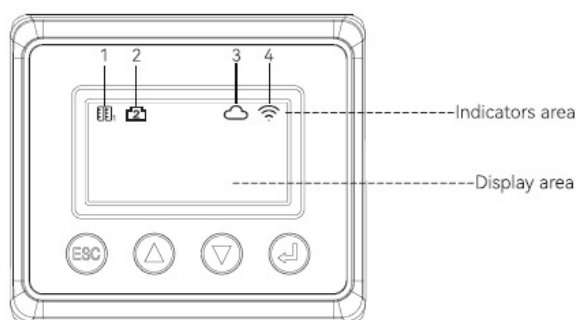
When the RMK is connected to InstaGen grid inverters:

1. The inverter does not need to be connected to the network, the RMK is configured to connect to the network instead
2. The Modbus address of the inverter must be 247. If the communication between the RMK and inverter fails, check the Modbus address of the inverter

Commissioning

RMK Network Configuration

1. Select the network mode in Comm Set-Connect Type;
2. If you select the Wi-Fi network mode, please configure the Wi-Fi parameters according to the 7.5 Wi-Fi Configuration. If you choose LAN networking mode, skip this step
3. Check if the DHCP of router is enabled. If DHCP is enabled on the router, the DHCP/IP Address/Gateway Address/ Subnet Mask/ DNS Address does not need to be configured. Otherwise, they will need to be configured on RMK screen.



Item	Indicator	Status	Description
1		RS485-1	Always On
		Off	Disconnection
2		RS485-2	Always On
		Off	Disconnection
3		Network status	Slow flashing
		Quick flashing	The meter is connected to the router but not connected to the server.
		Always On	Communicate with the server normally
4		LAN	Always On
		Off	The communication method is not selected as LAN in display
		WiFi	Slow flashing
		Off	The communication method is not selected as WiFi in display



key



key



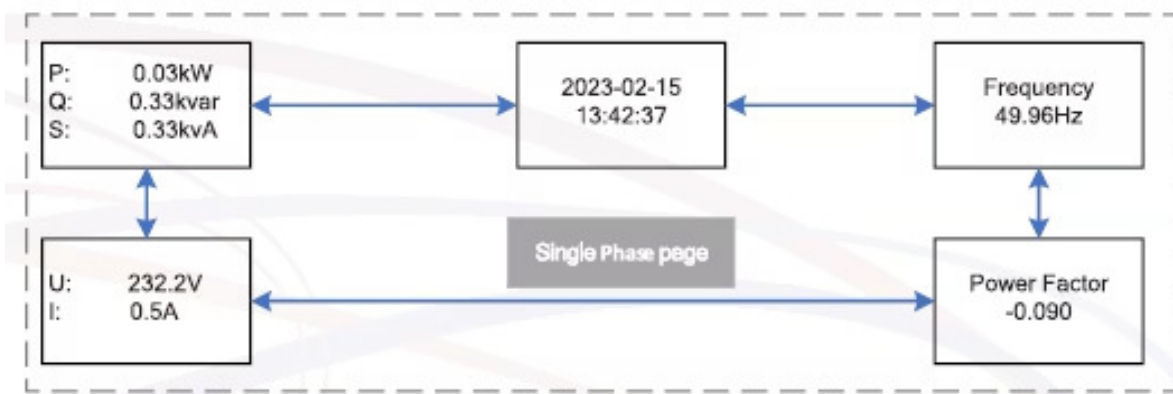
key

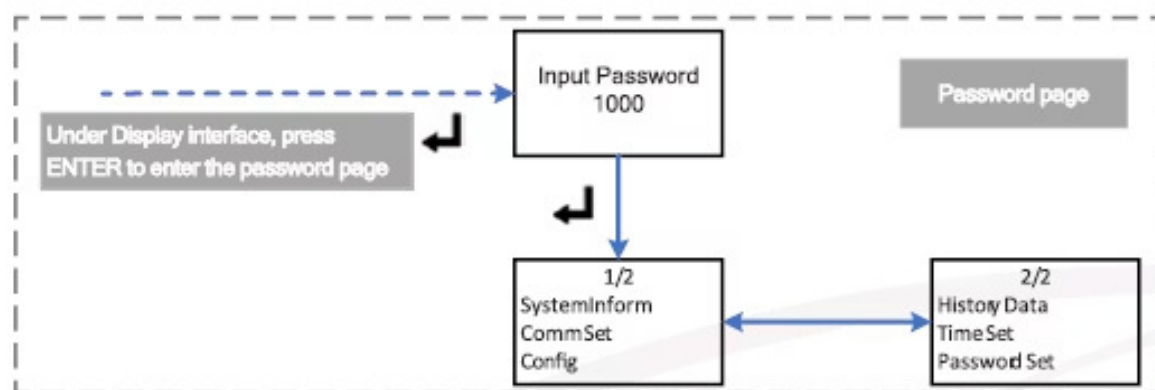
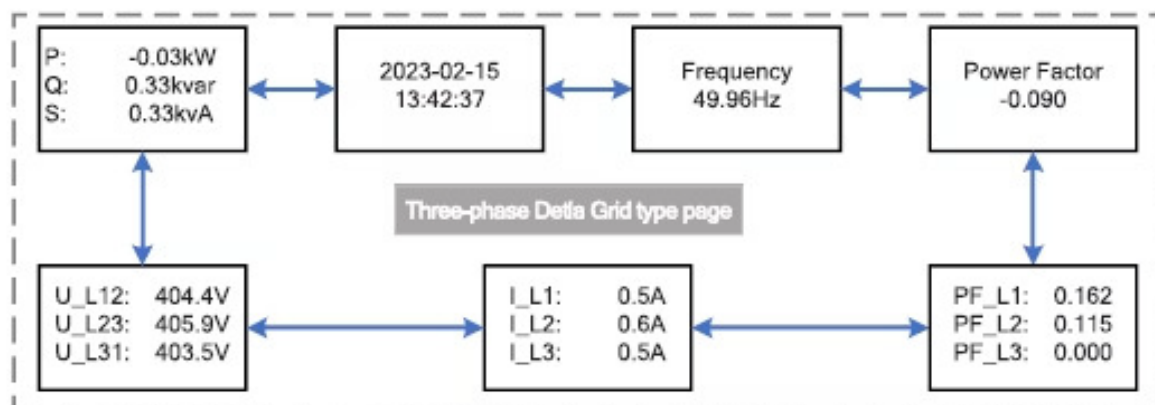
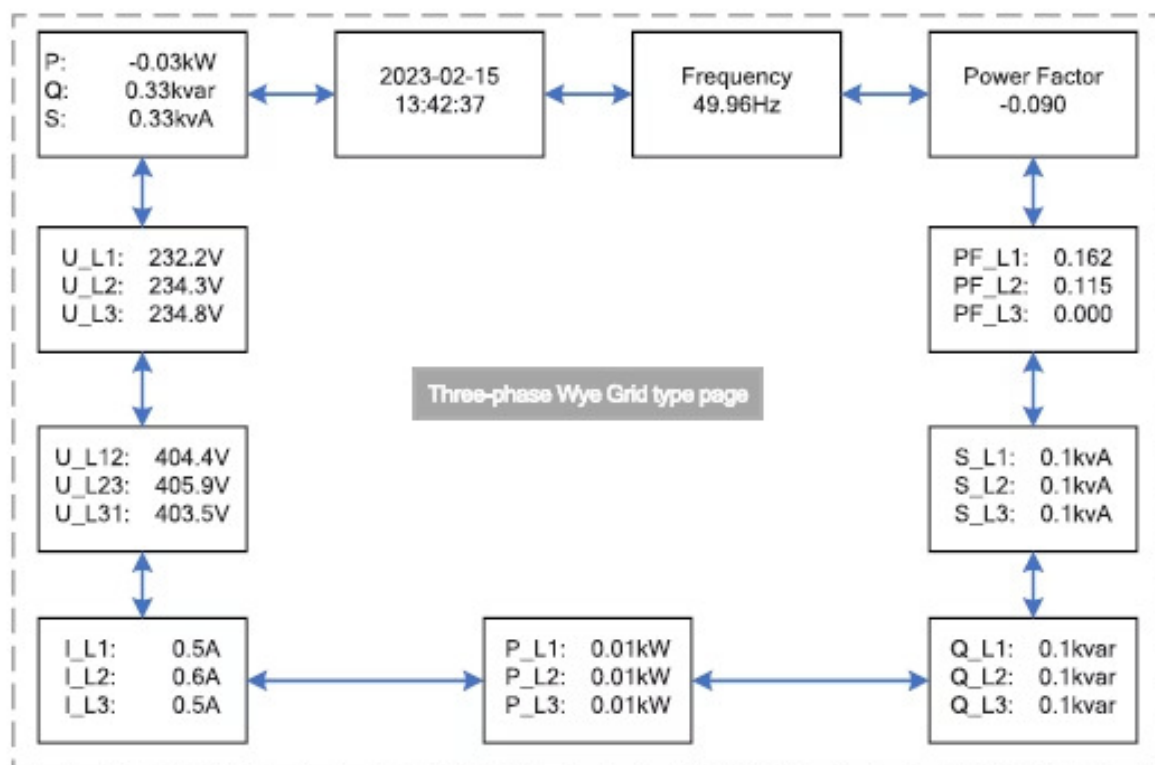


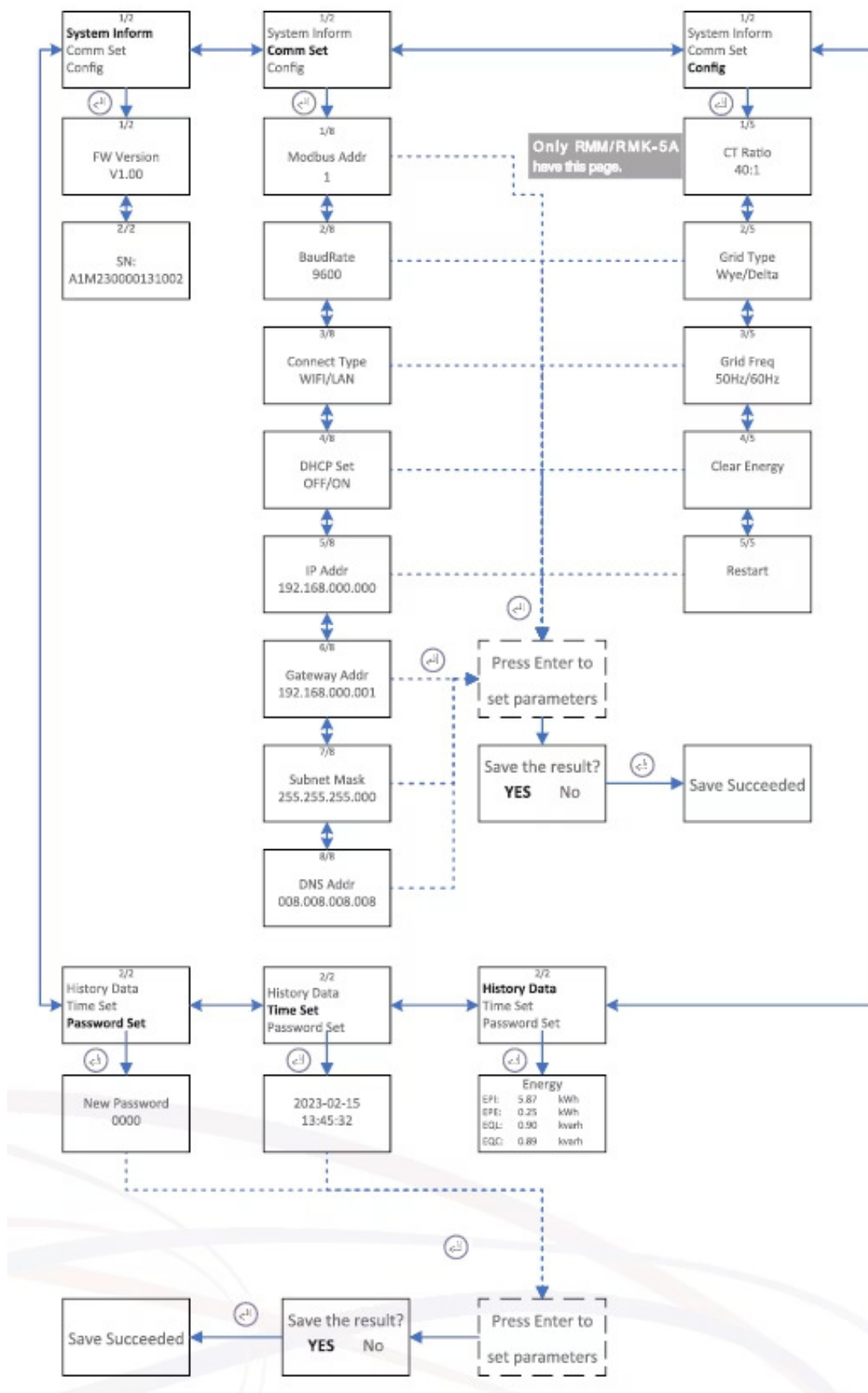
key

Key	Function
	Under the setting page, press this key to return to the upper menu
	Under Display interface, press this key to move the cursor to the upper part; Under Setting interface, press this key to toggle level menus or increase the value
	Under Display interface, press this key to move the cursor to the down part; Under Setting interface, press this key to toggle level menus or decrease the value
	Under Display interface, press this key to enter the password page for parameters setting; Under Setting interface, press this key to confirm the selection of the items and modification of parameters.

Display Interface

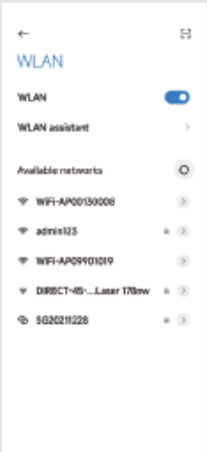






RMK Wi-Fi Configuration

1 Prepare a laptop or Smartphone and turn on the WLAN connection.



2 Searching for the corresponding WLAN in the WLAN connection list "WIFI-AP*****" (*represents the last 8 numbers of the inverter SN), and tap connect.



3 Open the browser and enter 10.10.100.254.



4 Tap "Scan", A list of WiFi network names pop up.



5 Click and select the corresponding router network you want to configure.



6 Input the password of wireless network, (note the case difference), Tap "Connect"



7

If connected successfully “Connection succeeded” will be displayed. After successful configure, the indicator status of WIFI module will be steady on.



Retrofitting to an Existing System

1. **To add a meter:** Connect the meter's communication LAN cable to the inverter
2. **Connect the meter to the network:** Shown on page above – 'RMK Wi-Fi configuration'
3. **Retain communication module:** The communication module of the inverter can be retained
4. **Check indicator light:** Pay attention to the indicator light on the inverter – its colour differs when the meter is disconnected versus connected. Ensure the light is normal.

▼ 3.2.3 Indicator

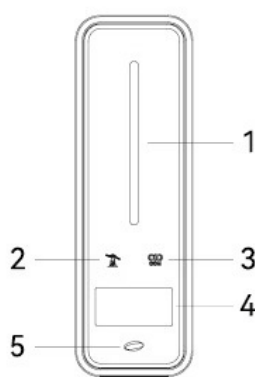


Figure 3-4 Inverter display interface

Item	Indicator	Status		Description
1	Power and Alarm Indicator	Off		No power.
		Green	Quick flashing	Inverter entered self-test status.
			Slow flashing	Inverter entered waiting status.
			Breathe flashing	Inverter works normal.
		Red	Always on	An alarm or fault is detected, view the fault info on the display.
2	Grid Indicator	Off	Grid lost.	
		Slow flashing	Inverter detected grid but not running in on-grid mode.	
		Always on	Inverter works in on-grid mode.	
3	Communication Indicator	Green	Always on	The inverter communication is running normally.
		Green	Flashing	The inverter communicates with datalogger or InstaGen SK through RS485.
4	Display	Display off to save power, press the button to wake up the display.		
5	Button	Switch display information and set parameters by short press or long press.		

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