

WON-H4-D-R-SC

The WON-H4 Series is a DIN-Rail three-phase multifunctional smart meter with a current sensor system built around a **Rogowski coil**—a flexible type CT and Split Core CTs.

WON-H4 Series Rogowski-type meter excels at **accurate, safe, and flexible high-current AC measurement**, especially in tight environments or where fast transient detection is needed and position it carefully for best accuracy.

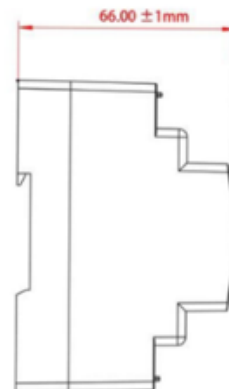
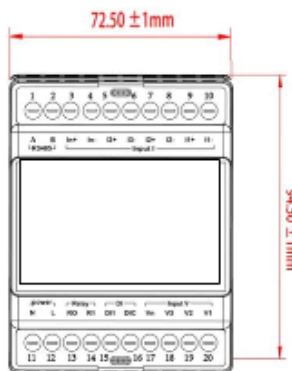
WON-H4 Series Rogowski-based multifunction meters shine in scenarios requiring **high-current, flexible, and accurate AC sensing**—especially where **transients, harmonics, space constraints, retrofit, or multi-point sensing** are present. Their strengths make them invaluable across **power systems, industrial automation, renewable energy, EV infrastructure, and research labs**.



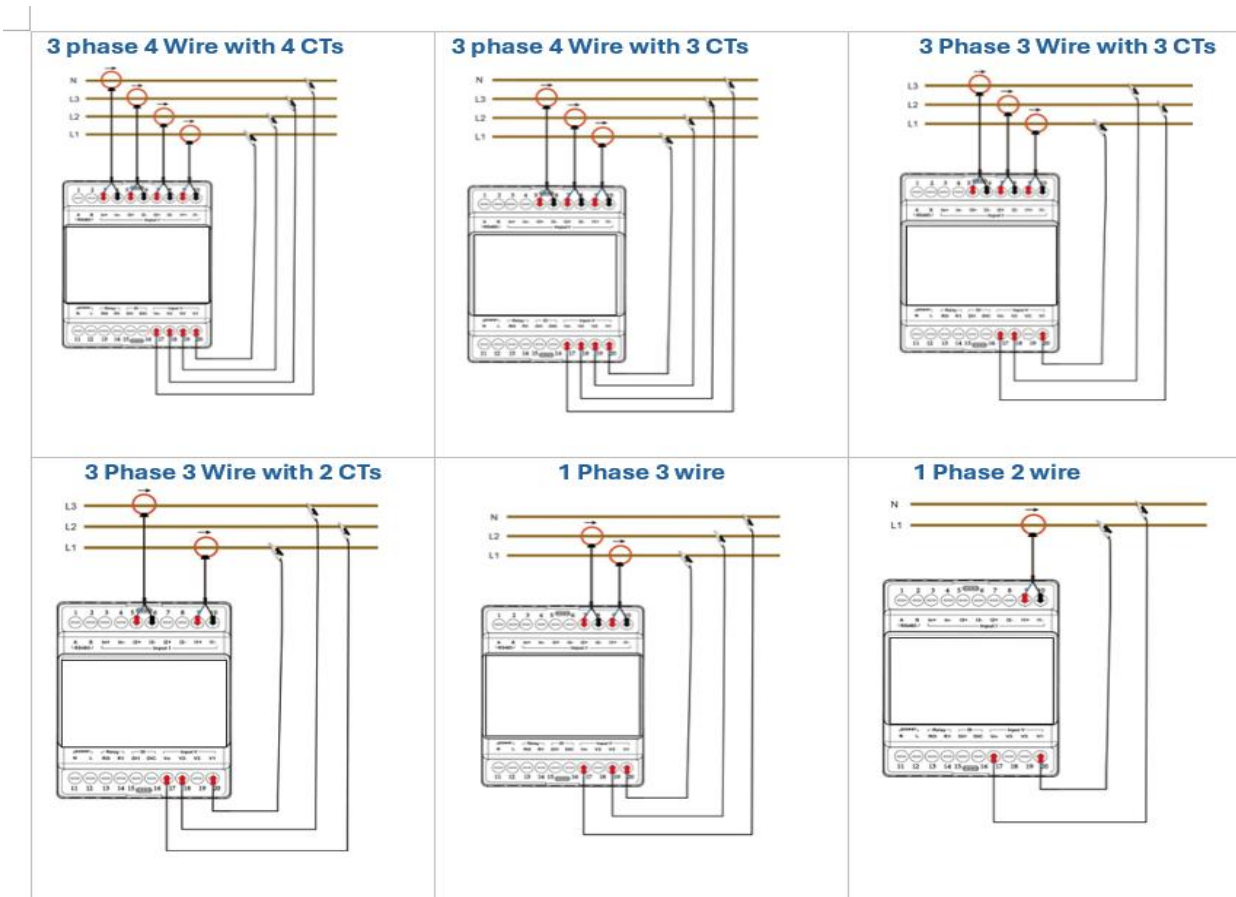
Product Features

- High current range, retrofit flexibility, space savings
- Wide bandwidth, harmonic & transient capture
- Fast di/dt response, linearity for protection relays
- Handle pulsed currents up to tens of kA safely
- Monitoring in solar, wind, EV charging systems
- Startup transients, shaft leakage, rotor health
- Extremely fast measurement in labs, welding, EMC tests
- Earth leakage, neutral line, multi-phase summation

Dimensions



Wiring Diagram



Technical Specification

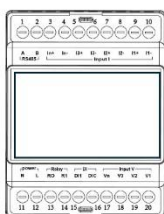
Description	
Mounting Type	DIN Rail
Model	WON-H4-D-R-SC
Current sensor type	Rogowski coil and Split Core Voltage-output current clamp
Advantage	Suitable for wide current range, no dismantling measurement
Wiring system	3P4W 4CT, 3P4W 3CT, 3P3W 3CT, 3P3W 2CT, 1P3W, 1P2W
Application field	Power analysis TarIL Meter
Display screen	1.77-inch TFT screen display
Weight	259g
Dimension	L*W*D: 9.45*7.25*6.6CM
Colour	White
Current	
Channel input voltage range	0-900mVAC peak, 636 mV RMS
Measurement range	Different current sensors have Different ranges
Rogowski coil	50mV/kA@50Hz(0-12000A), @60Hz(0-10000A) 85mV/kA@50Hz(0-7000A), @60Hz(0-6000A)
Voltage Split core CT	0~99999A
Voltage	
Channel input voltage range	0~600VAC Phase Voltage
Maximum range	720VAC Phase Voltage

Digital Signal		
Relay output	One-way electromagnetic relay output, contact capacity:3A 30V DC, 3A 250V AC	
Digital input	One-way dry contact input, optocoupler isolation（5kVrms）	
Communication		
RS485 Communication	One-way RS485 communication interface Interface type: two wire half duplexes Communication baud rate: 2400bps ~ 38400bps Protocol: Modbus RTU	
Power Supply		
Power Supply	WON-H4-D-R-SC	WON-H5-D-R-SC
	95~265VAC/110~370VDC， 45~60Hz	24VDC
Maximum power consumption	3.5VA	
Display List		
Phase Voltage	U1, U2, U3, AVG	
Line Voltage	U12, U23, U31, AVG	
Current	I1, I2, I3, AVG, IN	
Grid Frequency	F1, F2, F3, Σ	
Power Factor PF	PF1, PF2, PF3, Σ	
Fundamental power factor DPF	DPF1, DPF2, DPF3, Σ	
Active power	P1, P2, P3, Σ	
Reactive power	Q1, Q2, Q3, Σ	
Apparent power	S1, S2, S3, Σ	
Energy		
Active energy Pos.	EP1, EP2, EP3, Σ	
Active Energy Neg.	EP1, EP2, EP3, Σ	
Reactive Energy Pos.	EQ1, EQ2, EQ3, Σ	
Reactive Energy Neg.	EQ1, EQ2, EQ3, Σ	
Apparent Energy	ES1, ES2, ES3, Σ	
Tariff Energy	ET1, ET2, ET3, ET4, ET5, ET6	
Harmonics		
Voltage Harmonic Distortion	THD (Total harmonic percentage),	
Voltage Harmonic Value	TOHD (Odd total harmonic percentage), TEHD (Even total harmonic percentage), phase L1.L2.L3 1-50th harmonic percentage, phase ABC 1-50th harmonic voltage value	
Current Harmonic Distortion	THD（Total harmonic percentage）,	
Current Harmonic Value	TOHD (Odd harmonic percentage), Phase L1.L2.L3 1- 50th harmonic current value Total harmonic percentage), TEHD (Even total harmonic percentage, phase ABC 1-50th	
Phasor Diagram		
Phasor Diagram	Between voltage and current	
Phase Sequence	voltage and current	
Voltage Angle	U1, U2, U3	
Current Angle	I1, I2, I3	
UI Angle	UI1, UI2, UI3	
Demand		
Demand	P, Q, S	
Active power DMD Max.	P and Time	
Reactive power DMD Max.	Q and Time	
Apparent power DMD Max.	S and Time	

Unbalance	
Voltage unbalance	Negative Sequence, zero Sequence
Current unbalance	Negative Sequence, zero Sequence
Max & Min	
Phase Voltage	U1, U2, U3, AVG
Line Voltage	U12, U23, U31, AVG
Current	I1, I2, I3, AVG, IN
Active power	P1, P2, P3, Σ
Reactive power	Q1, Q2, Q3, Σ
Apparent power	S1, S2, S3, Σ
Measuring Accuracy	
Current measurement accuracy	0.1%+Accuracy of current sensor
Voltage measurement accuracy	±0.2% (60V~600V AC)
Grid frequency	±0.01%(45~65Hz)
Power Factor	±0.005
Active and apparent power	IEC62053-22 level 0.5S
Reactive power	IEC62053-21 level 1S
Active energy	IEC62053-22 level 0.5S
Reactive energy	IEC62053-21 level 1S
Environment Condition	
Operating temperature	-20°C~+70°C
Storage temperature	-40°C~+85°C
Humidity range	5~95% RH, 50°C(non-condensing)
Class of pollution	2
Over voltage capability	CAT III 1000V, it is suitable for distribution system below 277 / 480VAC
Insulation strength	IEC61010-1
Altitude	3000m Max
Antipollution level	IP20 (Meet the standard of IEC 60629)
EMC (Electromagnetic compatibility)	
Electrostatic Discharge	Level IV(IEC61000-4-2)
Radiated Immunity	Level III (IEC61000-4-3)
EFT Electrical Fast burst immunity	Level IV (IEC61000-4-4)
Surge immunity	Level IV (IEC61000-4-5)
Conducted disturbance immunity	Level III (IEC61000-4-6)
Power frequency magnetic field immunity	0.5mT (IEC61000-4-8)
Conduction and radiation	Class B (EN55022)
Measurement Standard	
EN 62052-11, EN61557-12, EN 62053-21, EN 62053-22, EN 62053-23, EN 50470-1, EN 50470-3, EN 61010-1, EN 61010-2, EN 61010-031	

Connection

The meter is equipped with rich interfaces to realize divergent functions.



Point Number	Point Name	Point Function			Point Type	Remarks
1	A	RS485 communication A			RS485	RS485 communication
2	B	RS485 communication B				
3	In+	Phase N Positive	current	input	Current input	Current channel
4	In-	Phase N Negative	current	input		
5	I3+	Phase L3 Positive	current	Input		
6	I3-	Phase L3 negative	current	Input		
7	I2+	Phase L2 positive	current	Input		
8	I2-	Phase L2 negative	current	input		
9	I1+	Phase L1 positive	current	input		
10	I1-	Phase L1 negative	current	input		
11	N	Power supply (-)			Power supply	Range 95~265VAC, 45~60Hz 110~260VDC
12	L	Power supply (+)				
13	R0	Relay common contact			Relay output	One relay output with normally open
14	R1	Relay normally open contact				
15	DI1	Digital input channel 1			Digital input	one-way dry contact input
16	DIC	Digital channel common terminal				
17	Vn	N-phase voltage input			Voltage input	Measurement voltage input channel
18	V3	L3-phase voltage input				
19	V2	L2-phase voltage input				
20	V1	L1-phase voltage input				

Power supply

- The meter adopts external power supply mode, without internal direct power supply. The power supply voltage range is 95 ~ 265VAC / 110 ~ 260VDC, 45 ~ 60Hz, and the maximum power consumption is 3.5VA. Do not connect the meter with the cable live.
- Before connecting the power supply, make sure that the power supply voltage is within the required range, otherwise the meter cannot work normally.

Voltage and current input

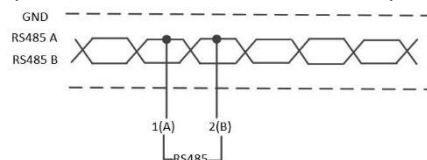
TheWON-H4-DRSC supports 6 kinds of wiring methods:3P4W_4CT,3P4W_3CT,3P3W_3CT,3P3W_2CT 1P3W,1P2W. Before connecting the measurement wires, please correctly configure the wiring method of the meter.

- The actual wiring mode of the meter must be consistent with that of the internal configuration of the meter.
- 3P4W_4CT requires 4 current sensors and the N phase current is measured by the sensors
- 3P4W_3CT requires 3 current sensors, the N phase current is obtained by calculation
- 3P3W_3CT requires 3 current sensors, the L2 phase current is measured by the sensors
- 3P3W_2CT requires 2 current sensors, the L2 phase current is obtained by calculation

- The phase sequence of voltage and current must follow the phase sequence of ABC, otherwise the meter will display the phase sequence error of voltage and current.
- When using the current sensor, the direction of the current arrow on the sensor must be consistent with the actual current flow direction, that is, the current arrow of the sensor points to the load end

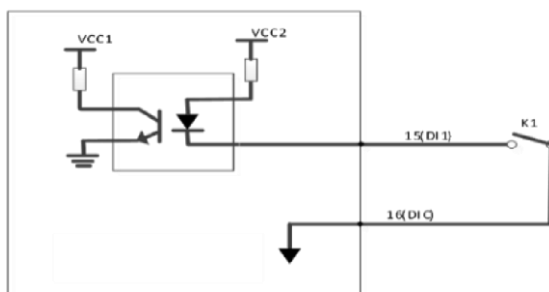
RS485

The meter is equipped with a RS485 communication interface, which supports Modbus RTU protocol. The RS485 communication port requires shielded twisted pair connection, which is connected in the form of daisy chain. In the case of long distance and high speed, a 120 Ω resistor should be parallel connected at both ends of the daisy chain.



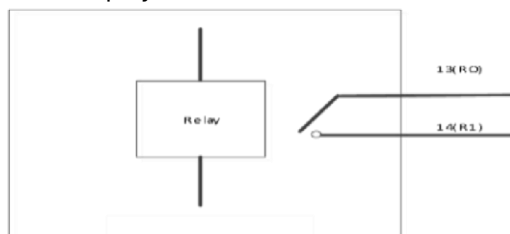
Relay output

- The meter is equipped with a relay output and has one contact, normally open. The identification of terminal blocks is:
- R1, R0, where R0 is the common contact, R1 is the normally open contact. The relay output can be controlled by RS485 / Modbus protocol.
- The closed state of normally open contact of relay is displayed on the display interface of electric meter. Maximum load capacity of relay: 3A 30V DC, 3A 250V AC



Digital input

The meter is equipped with one digital switch inputs, which are connected by passive dry contact. The identification of terminal blocks is: DI1, DIC, where DIC is the common contact. The status of one digital switch input can be read through RS485 / Modbus protocol, and the digital switch input status can be displayed in the electric meter display interface.

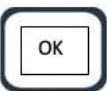


Operation and Display interface

This section is used to describe the display of the interface and key combination operation, as well as the configuration of the equipment.

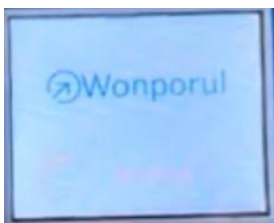
Key function display description

The four buttons of the meter are shown below:

Key function display interface	
Key symbols	Describe
 Return	Return key: used to exit the current operation interface.
 Up	Up key: used to switch the interface display and long press to switch displacement,
 Down	Down key: used to switch the interface display and long press to switch displacement,
 Confirm	Confirm key: used to confirm the operation and switch the numerical display when setting.

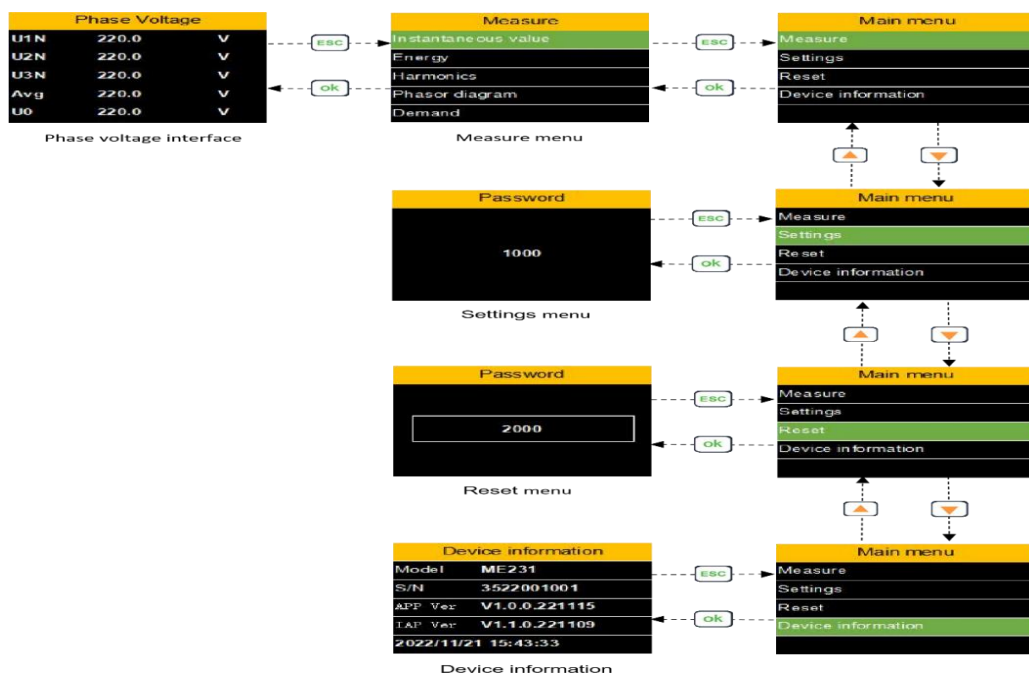
Meter start interface

After the meter is powered on and started, the following interface will be displayed



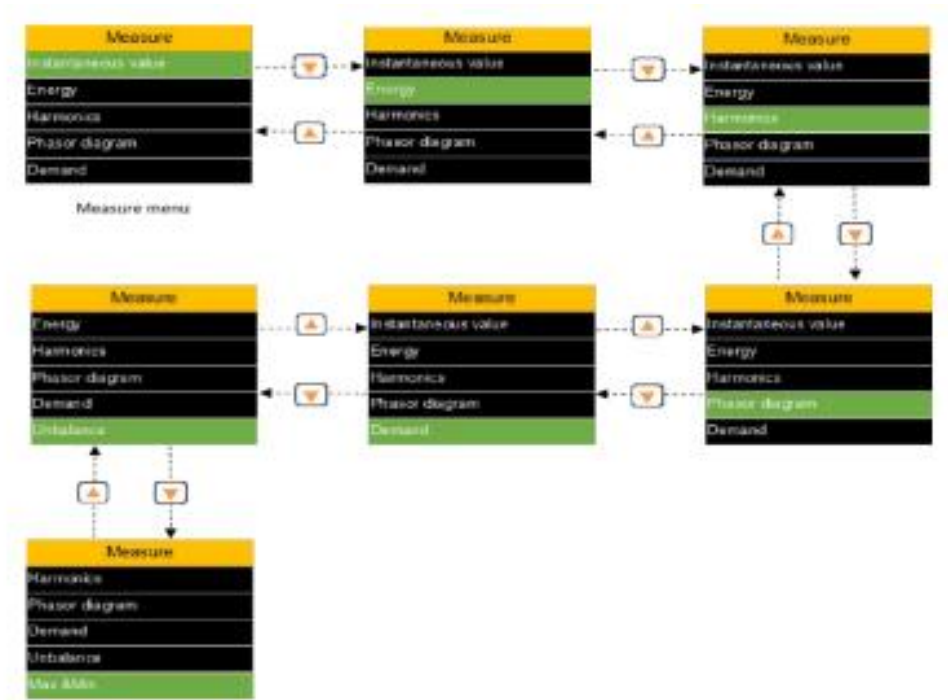
Meter display mode switching

Under the main menu of the ME231, there are four secondary menus: Measure menu, Settings menu, Reset menu and Device information menu. The switch between menus is shown in the figure below



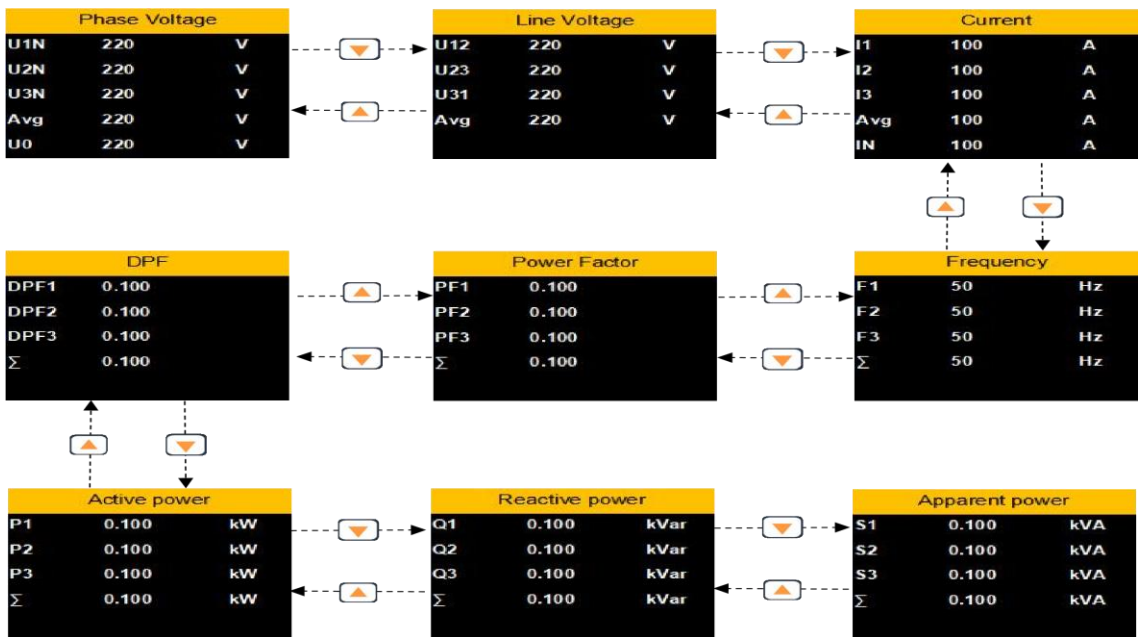
Measure menu interface

There are 7 sub-menus under the Measure menu: Instantaneous Value, Energy, Harmonics, Phase Diagram, Demand, Imbalance, Max. & Min. By pressing,  or  to switch the display of the interface.



Measure menu-Instantaneous value interface

Instantaneous value interface is used to display voltage, current, power, power factor, frequency and other data by pressing,  or  to switch the display of the interface



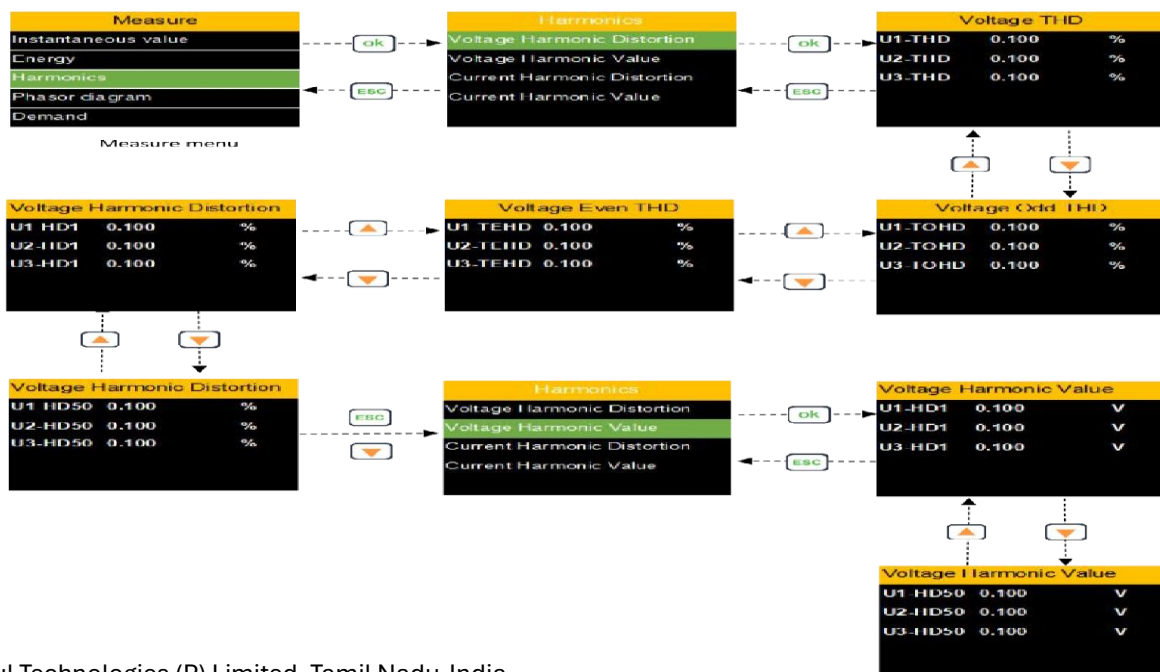
Measure menu-Energy interface

Energy interface is used to display: Active energy, Reactive energy, Apparent energy. By pressing,  or  to switch the display of the interface.



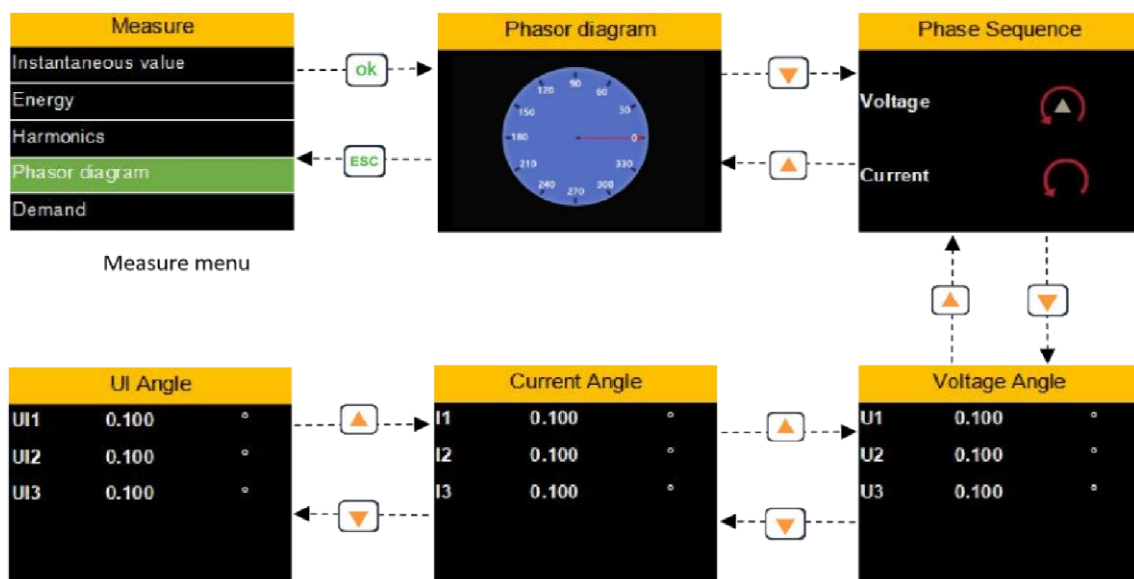
Measure menu-Harmonic interface

Harmonics interface is used to display, Voltage harmonics, current harmonics and other data. By pressing  Or  ESC or OK Key to switch the interface display.



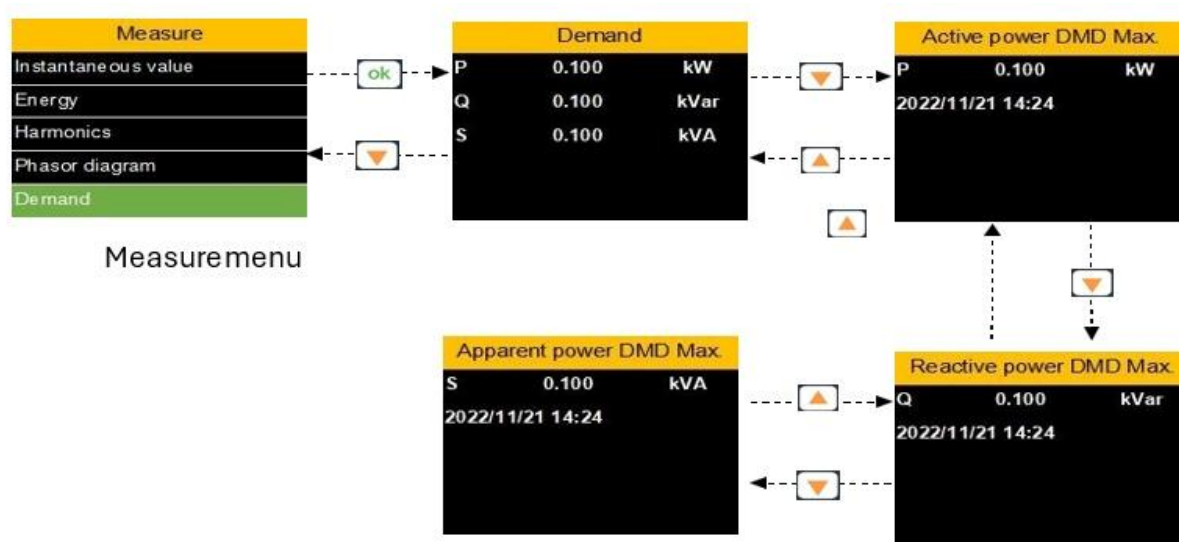
Measure menu- Phasor diagram interface

Phasor diagram interface is used to display Phasor diagram, Phase Sequence, Angle and other data. By pressing  or , to switch the display of the interface.



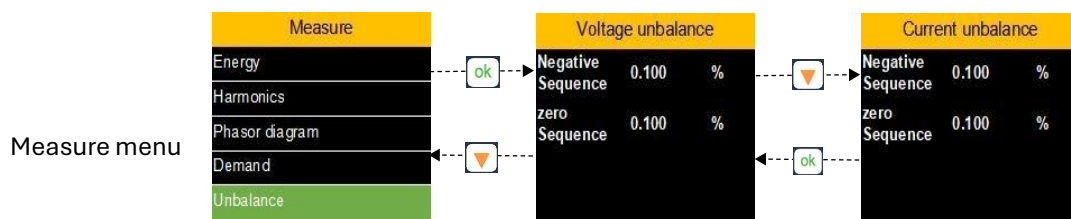
Measure menu- Demand interface

Demand interface is used to display: Active power, Reactive power, Apparent power DMD. By pressing  or , to switch the display of the interface.



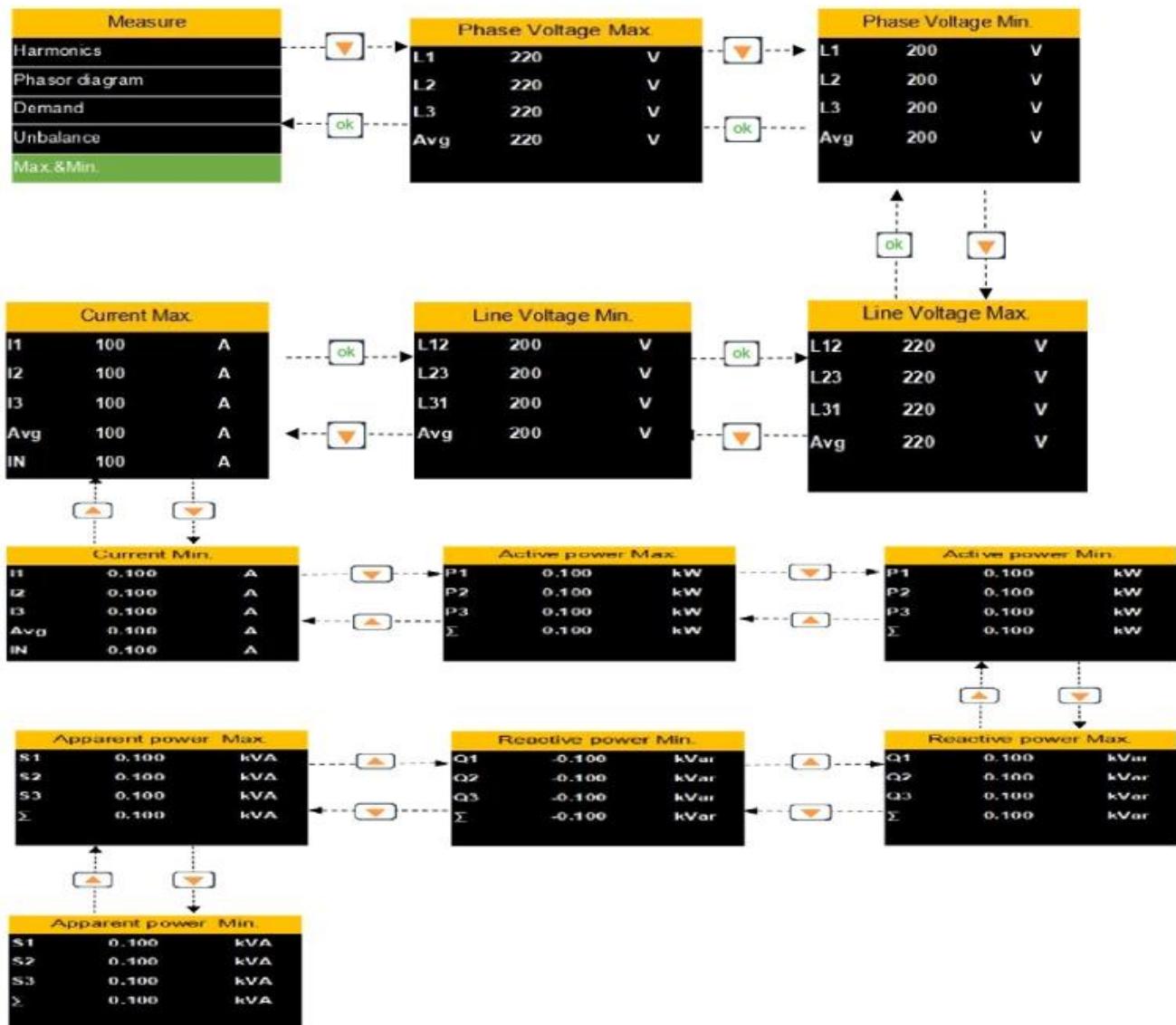
Measure menu- Unbalance interface

Unbalance interface is used to display Voltage unbalance, current unbalance. By pressing  or , to switch the display of the interface.



Measure Menu- Max &Min Interface

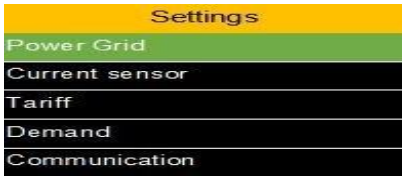
Max.&Mi. interface is used to display Voltage Max.&Mi. Current Max.&Mi. And other data. By pressing  or , To switch the display of the interface.



Settings menu interface

The setting menu is used for setting: Wire Type. Current sensor type and transformation ratio, voltage transformer transformation ratio, communication parameters, demand, backlight control, equipment time, password and other parameters.

e



Press the OK key to enter the power grid setting, press the or to modify the value. After the data modification is completed, there will be a prompt on whether to save it. Press the OK key or the ESC key to select whether to save the modification. power grid sub-menu can set the Wire Type, Frequency, Nominal Voltage, VT ratio and CT ratio.

VT ratio:1~10000, (primary end voltage / secondary end voltage) *10000.Unit V/V n

CT ratio:1~10000, (primary end current / secondary end current) *10000.Unit A/A



Settings menu -Current sensor interface

Key to enter the Current sensor setting, press the  or  modify the value. After the data modification is completed there will be a prompt on whether to save it. Press the ESC key to select whether to save the modification.

The Current sensor sub-menu can set Phase Type, Sensor Type, Pri[A], Sec[mV], Nominal Current[A].

Phase Type: I1, I2, I3 \ In

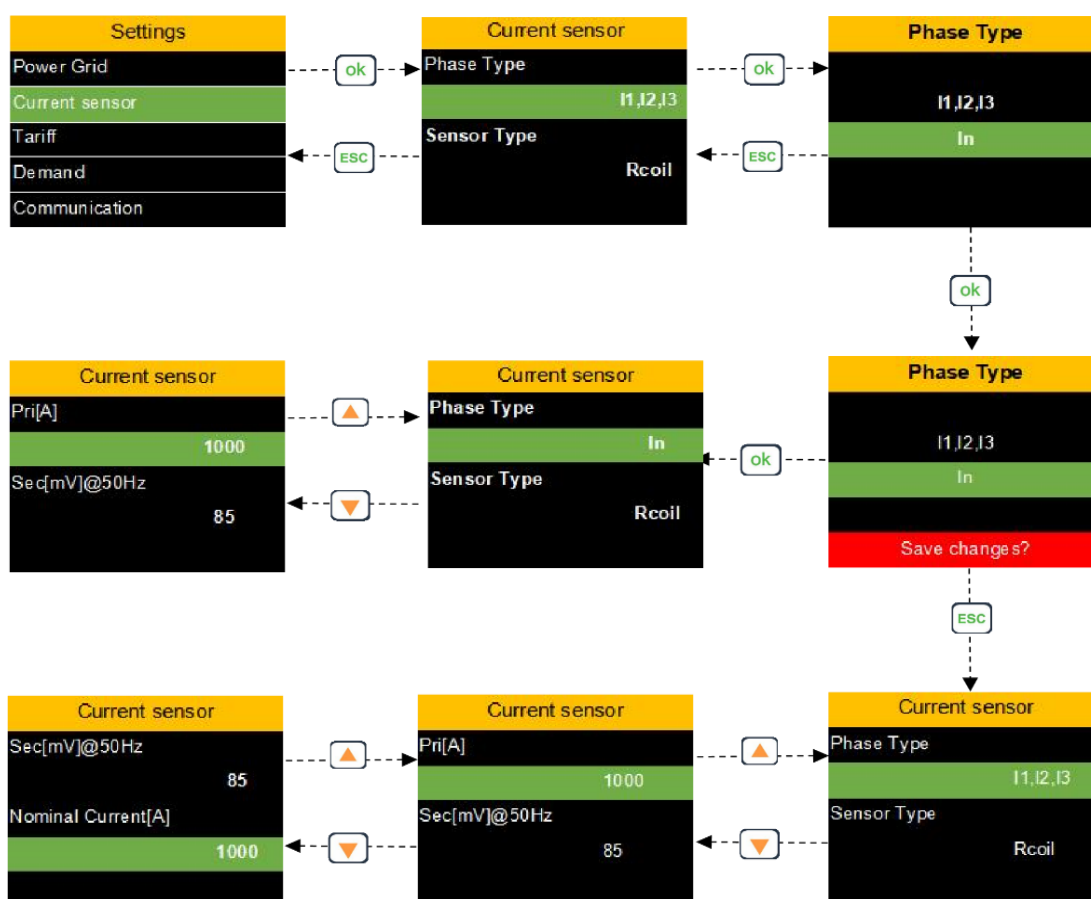
Sensor Type: Recoil \ VCT

Pri[A]:1-999999

Sec[mV] (@50Hz/@60Hz) : 1-99999

Nominal Current [A]: 1-99999

Parameter Name	Explanation
Sensor type	Recoil: Rogowski coil VCT: Voltage output type CT
Recoil Pri	Rated primary current of Rogowski coil
Recoil Sec	The secondary output value corresponding to the rated primary current
Nominal Current	The actual measured rated current value
For example, Coil Ratio:85mV/kA@50Hz, Recoil Pri =1000A, Recoil Sec=85mV, If measure 2000A, Nominal Current=2000A。 If you want to measure 100A, change to keep 100 A nominal current.	
To replace the coil with different ratios, the Pri/Sec must be reset.	



Settings menu -Tariff interface

Key to enter the Tariff setting, press the modify the value. After the data modification is completed, there will be a prompt on whether to save it. Press the OK key or the ESC k save the modification. The Tariff sub-menu can set Switch Mode, start time, Tariff select.

Can set Ta, Tb, Tc, Td, Te, Tf,6 Tariff select.



Press the Demand setting, press the  or  modify the value. After the data modification is completed, there will be a prompt on whether to save it. Press the OK key or the ESC key to select whether to save the modification. The Demand sub-menu can set Method, Block[minute]

	Explanation
Calculation method	Fixed: update the demand according to the calculation interval Sliding Type: update the demand once a minute
Calculation interval	Unit: minutes Range: 1-60 Default: 15 minutes

Settings menu -Communication interface

Key to enter the Communication setting, press  or  the modify the value. After the data modification is

The Communication sub-menu can set Status, Device ID, Baud rate[bps], Parity, Stop bits.

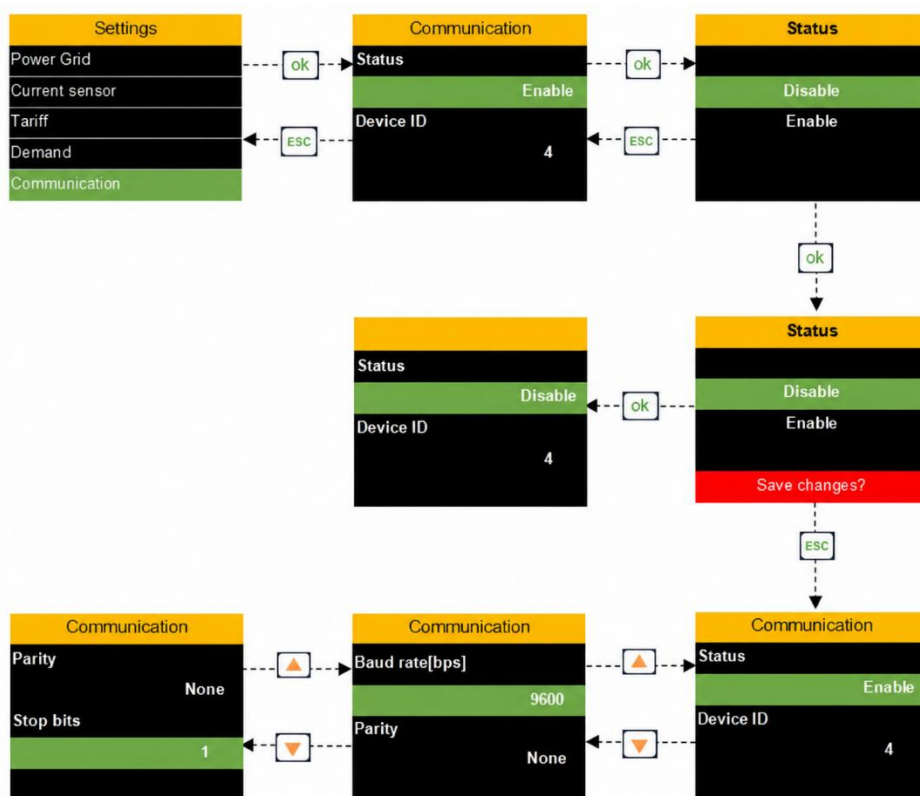
Status: Enable \ Disable

Device ID: 000-247

Baud rate[bps]: 2400, 4800, 9600, 19200, 38400

Parity: None, Odd, Even

Stop bits:1 \ 2



Settings menu -HMI interface

Key to enter the HMI setting, press  or  to modify the value. After the data modification is completed, there will be a prompt on whether to save it. Press the OK key or the ESC key to select whether to save the modification.

- The HMI sub-menu can set Language, Clock, Key Tone, Backlight OFF, Backlight Brightness.
- Language: English
- Clock: Year / month / daytime: minutes: seconds
- Key Tone: Enable \ Disable
- Backlight OFF: Never \ 1 minute \ 2 minutes \ 3 minutes \ 4 minutes \ 5 minutes

- Backlight Brightness: 1-5



Settings menu -Password interface

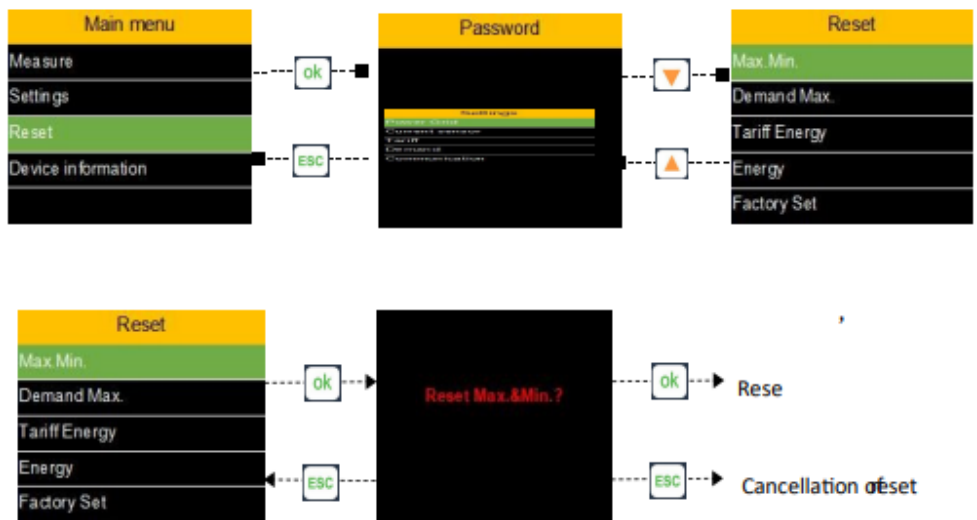
OK key to enter the Password setting, press the or modify value size, and long press or to switch displacement (the corresponding value will flash). Then press the OK key or the ESC key to select whether to save the modification.

The Password sub-menu can set settings password, reset password. Setting password: 0001-9999 Reset Password: 0001-9999



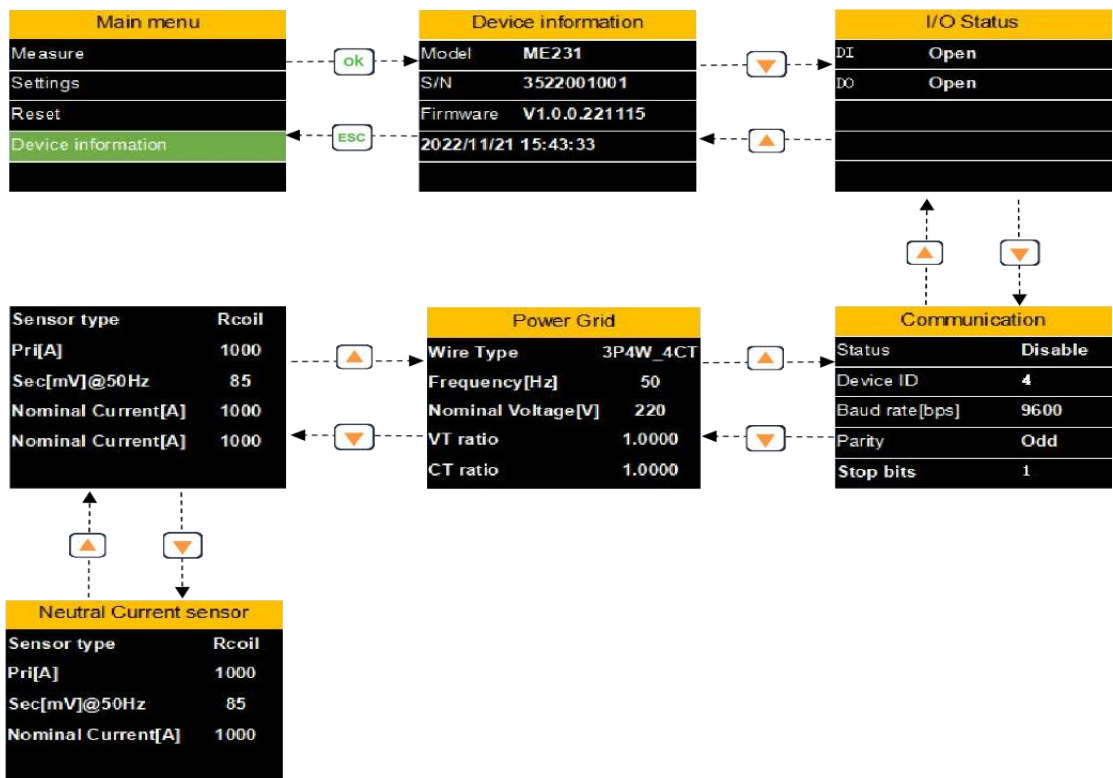
Reset menu interface

The reset menu is used for resetting Max. Min., Demand Max., Tariff Energy, Energy and Factory Set. Before entering the configuration page, you need to enter the configuration password (default 2000). By pressing OK Enter password by pressing,  or  modify value size, Long press  or  to switch displacement, (the corresponding value will flash), if the password is correct pressing Key, it will enter the configuration interface. If not, continue to stay in the password input interface. If you forget the configuration password, you can enter the last four digits of the device. If you forget the configuration password, you can enter the last four digits of the device serial number to enter the configuration interface.



Device Information Menu Interface

The device information menu is used to display Device model, S/N, Firmware, Communication, Power grid parameters, and other data. By pressing,  or  To switch the display of the interface. The Device information menu is shown in the figure below



Address

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