

Resource  
Data Management

# Energy Meter

Commissioning/User Guide

Revision 2.0



PR0670-3PH DIN

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Please ensure all power is switched off before installing or maintaining this product.

## Introduction

This document provides operating and installation instructions for the PR0670-3PH DIN energy meter manufactured from 2024 onwards, this can be identified as having a colour display. The previous meter (2023 or earlier) can be identified as having a monochrome display, for this version please see user guide revision 1. The meter can be used with three phase, four wire (3p4w), three phase three wire (3p3w), single phase three wire (1p3w), and single phase two wire (1p2w) supplies. Measured values include voltage, frequency, current, active power, reactive power and active energy imported or exported. Energy is measured in terms of kWh and kVAh. Maximum demand current can be measured over preset periods from 1 to 60 minutes (default 15 minutes). In order to measure energy, the unit requires voltage and current inputs in addition to the supply required to power the product. The required current input is obtained via current transformers (CTs).

This meter can be configured to work with a wide range of CTs with a secondary of 0.1V (100mV) to 0.999V (999mV) output, the default is 0.333V (333mV). A built-in interface allows RS485 Modbus RTU communication. Configuration is password protected. The unit is powered from a separate auxiliary (AC or DC) supply.

## Unit Characteristics

The meter can measure and display multiple values on its inbuilt display and a limited range of values on a Modbus interface.

Measured Value - Inbuilt Display	Modbus Interface
Phase Voltage	√
Line Voltage	√
Current	√
Grid Frequency	√
Power Factor PF	√
Fundamental power factor DPF	X
Active energy Positive	√
Active Energy Negative	√
Reactive Energy Positive	√
Reactive energy Negative	√
Apparent Energy	√
Tariff Energy	X
Voltage Harmonic Distortion	X
Voltage Harmonic Value	X
Current Harmonic Distortion	X
Current Harmonic Value	X
Phasor diagram	X
Phase Sequence	X
Voltage Angle	X
Current Angle	X
UI Angle	X
Demand	√
Active power demand Max.	X
Reactive power demand Max.	X
Apparent power demand Max.	X
Voltage unbalance	X
Current unbalance	X



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Minimum and Maximum Values	Modbus Interface
	X
Phase Voltage	X
Line Voltage	X
Current	X
Active power	X
Reactive power	X
Apparent power	X

The meter has password-protected set-up screens for:

- Changing password
- Wiring Type
- Current Sensor Range
- Tariff Mode
- Tariff Period
- Demand Method (fixed or sliding)
- Demand Time
- Demand and min/max reset
- Modbus Interface Settings
- Timeclock
- Backlight

An RS485 port allows connection to an RDM Data Manager, Mini DM or Intuitive TDB controller using a suitable Modbus interface.

### Current Transformer Primary Current

The meter can be configured to operate using CTs with a 0.333V (333mV) secondary output, this can be changed to 0.1V (100mV) if required. The primary ratio is adjustable depending on the size of current transformer being used.

**NOTE: The primary current transformer ratio is defaulted to 1000A and requires setting to match the size of the current transformers being used (400A for example) for correct operation. See: [Current Transformer \(CT\) Range](#)**

### Meter and Current Transformer Part Numbers

Description	Part Number
3 Phase Energy Meter	PR0670-3PH DIN
150A Split Core Current Transformer, 0.333v (333mV) secondary	PR0675-150A
400A Split Core Current Transformer, 0.333v (333mV) secondary	PR0675-400A

RDM have two types of compatible current transformers available, however the meter is compatible with most industry standard CTs with 0.333v (333mV) secondaries.

### Note on Legacy Model Numbers

PR0690-3PH-DIN used only CTs with 0.1v (100mV) secondaries only.

PR0670-3PH-DIN used only CTs with 0.333v (333mV) secondaries only (2023 or earlier)

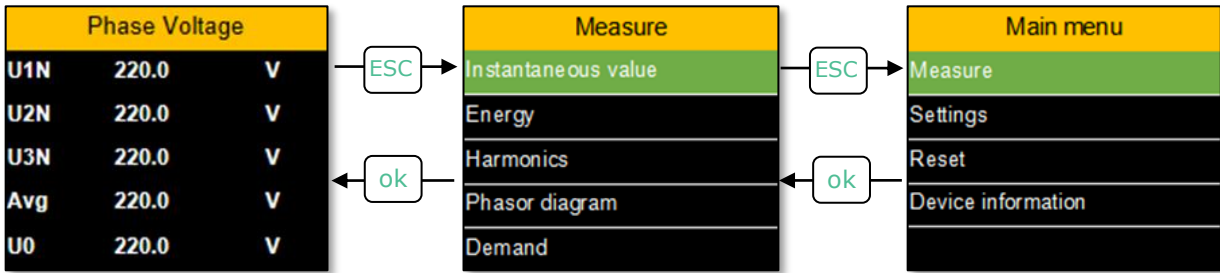
PR0670-3PH-DIN can be set to use either type of CT secondary (2024 or later)



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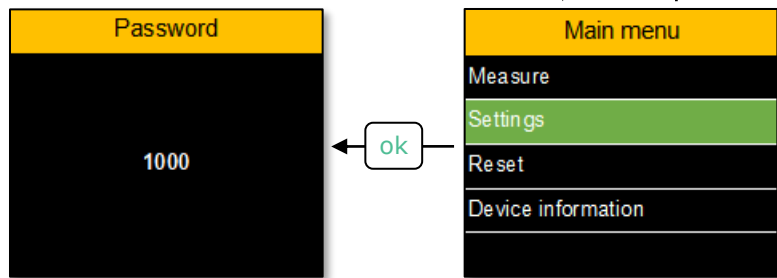
## Menu Navigation

On power up the Phase Voltage screen will be displayed. Pressing the ESC button will select the Measure Menu and pressing the ESC button again will select the Main Menu.



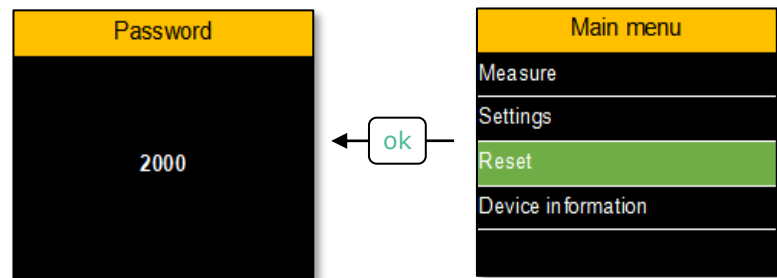
Pressing the Up and Down keys allows the sub menus to be selected, pressing the ok key opens the sub menu.

Selecting the Settings menu requires a password to be entered, the cursor will flash on the first digit. Pressing the up and down keys allows the value of this digit to be increased or decreased.

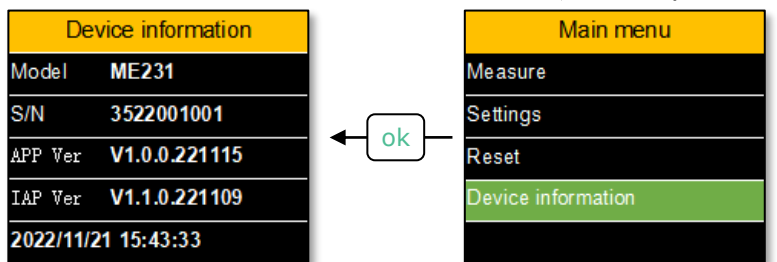


Pressing and holding the up key for a second will move the cursor to the left and pressing and holding the down key will move the cursor to the right. The default password for the settings menu is 1000. Once the password has been selected pressing the ok key will open the settings menu.

The reset menu can be selected using the same method, default passcode for this is 2000. This menu allows Maximum demand and accumulated energy to be Reset and the meter set back to factory defaults.



The device information menu Shows the model number, serial number, firmware version and current time and date.

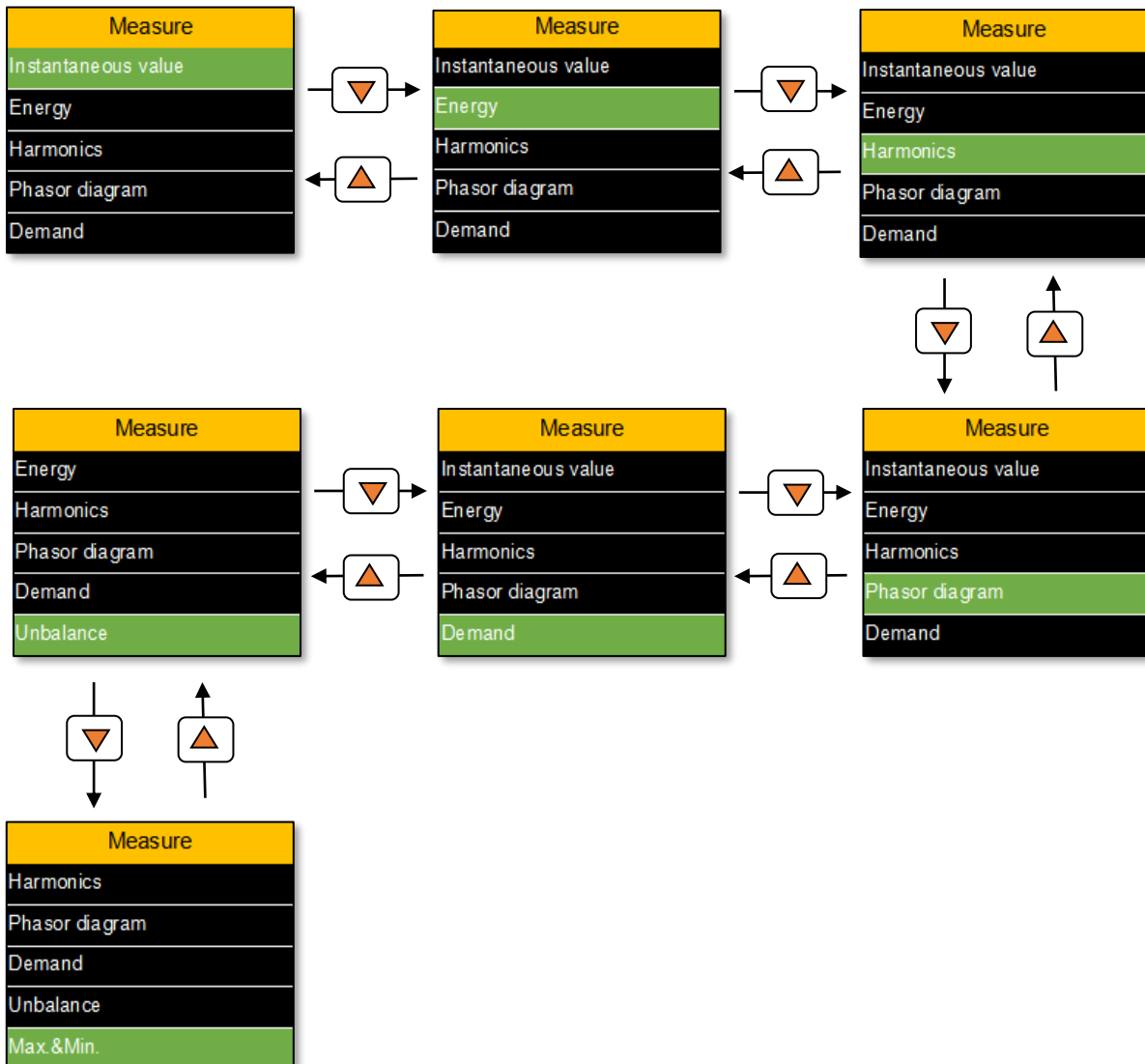


Please ensure all power is switched off before installing or maintaining this product.

## Measure Menu

There are seven sub menus under the main Measure menu: Instantaneous value, Energy, Harmonics, Phasor Diagram, Demand, Imbalance and Max & Min.

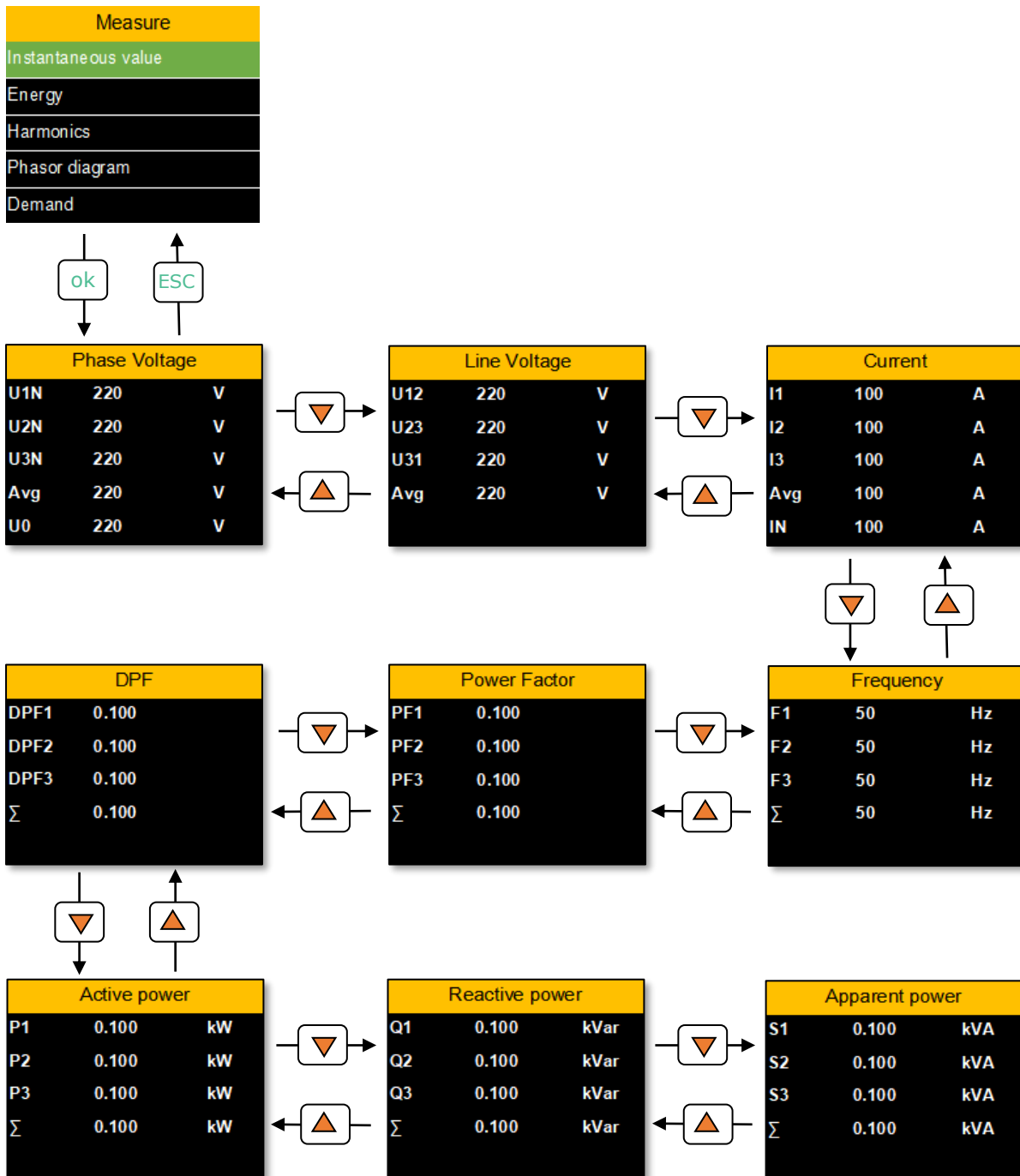
Use the Up, Down, ok and ESC buttons to navigate around the sub-menus



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### Measure Menu – Instantaneous Values

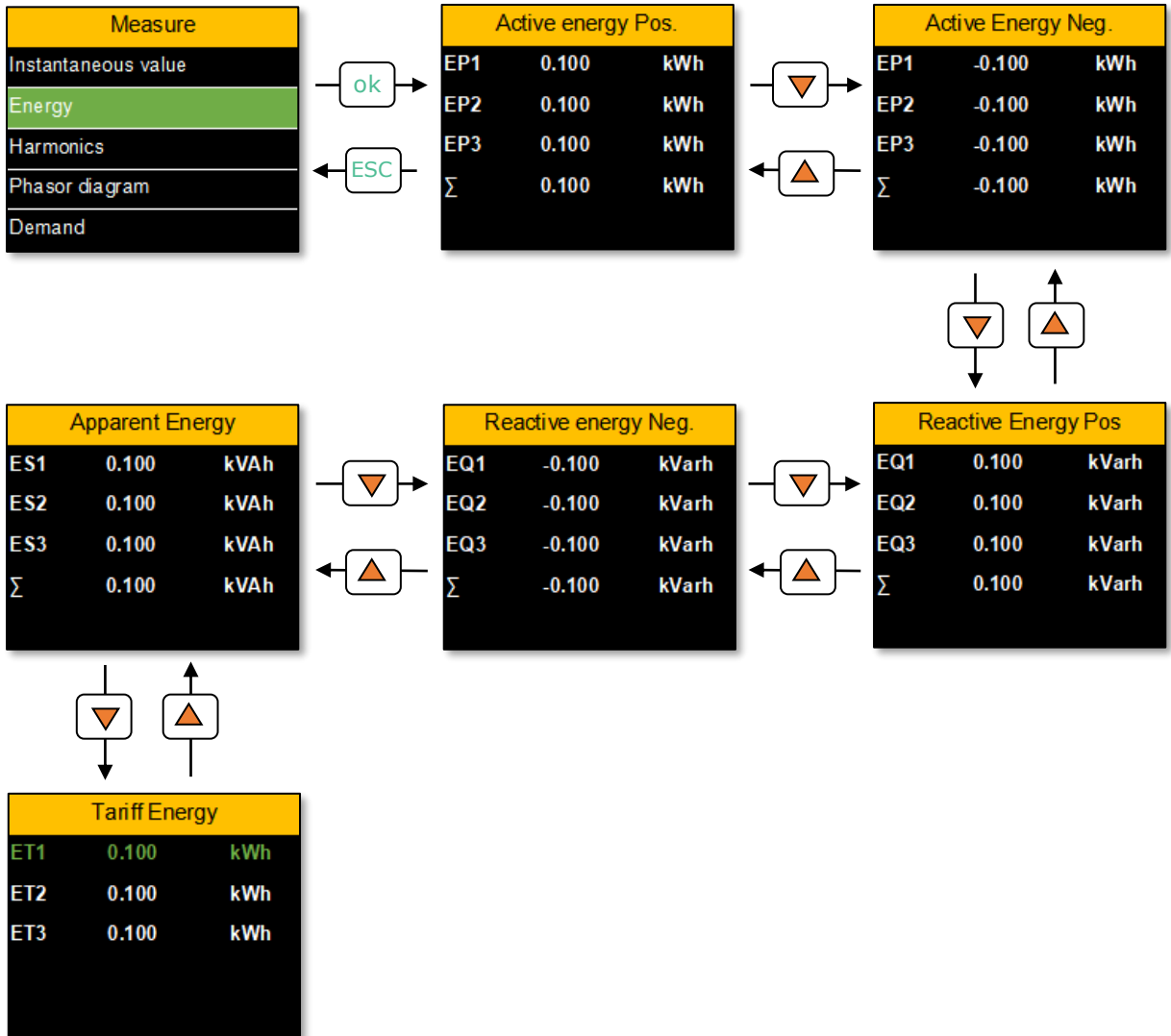
Selecting the Instantaneous Value sub-menu allows all the real time values to be shown, these are voltage, current, power, power factor and frequency. Use the Up, Down, ok and ESC buttons to navigate around the sub-menus



Please ensure all power is switched off before installing or maintaining this product.

### Measure Menu – Energy

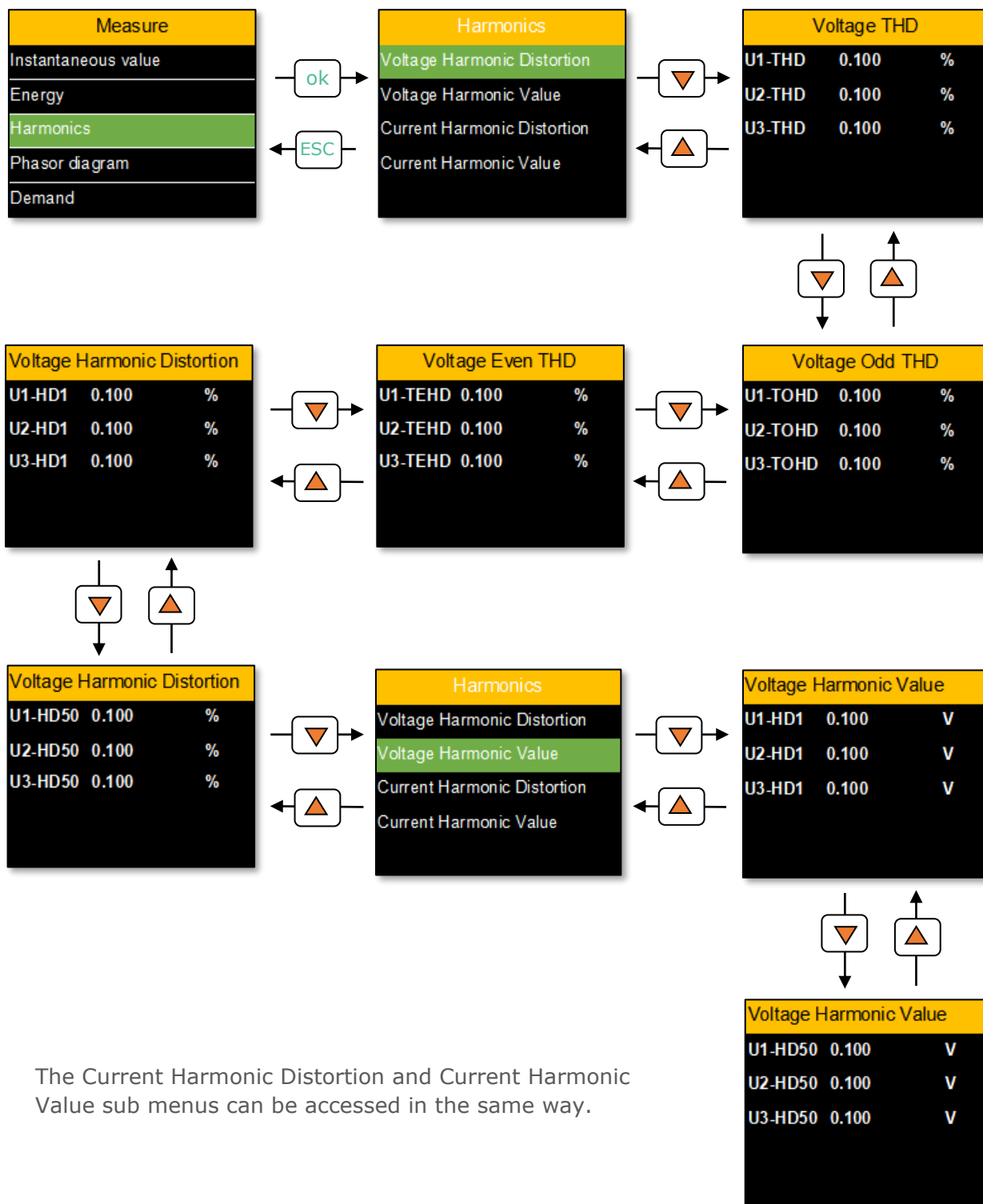
Selecting the Energy sub-menu allows all the real time energy values to be shown, these are Active energy, Reactive energy Apparent energy and Tariff. Use the Up, Down, ok and ESC buttons to navigate around the sub-menus



Please ensure all power is switched off before installing or maintaining this product.

### Measure Menu – Harmonics

Selecting the Harmonics sub-menu allows all the voltage and current harmonic values to be shown, these are Voltage Harmonic Distortion, Voltage Harmonic Value, Current Harmonic Distortion and Current Harmonic Value. Use the Up, Down, ok and ESC buttons to navigate around the sub-menus.



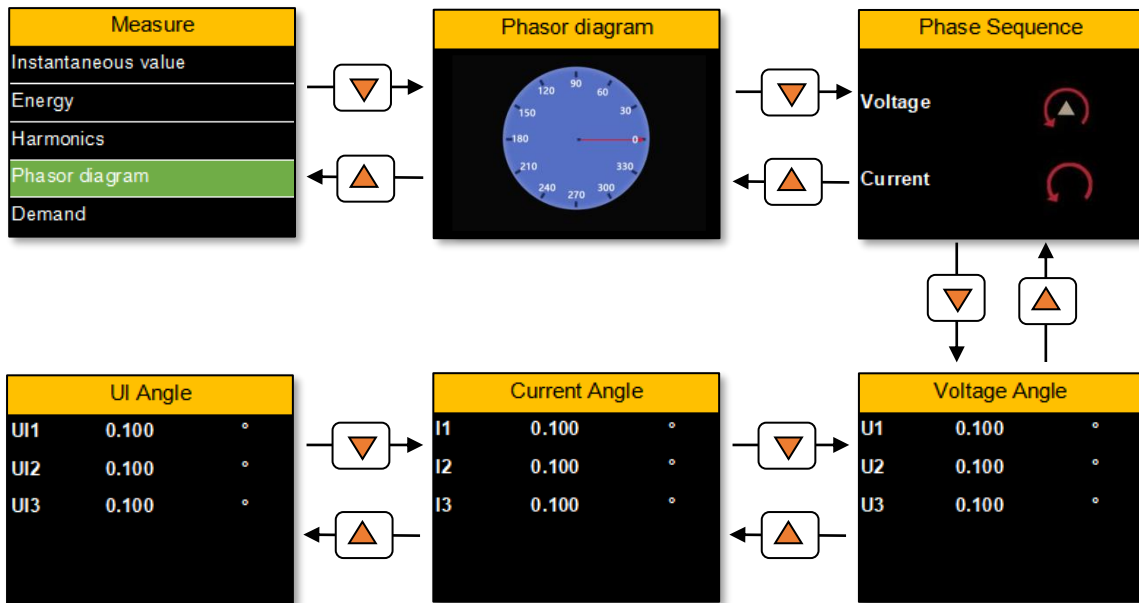
The Current Harmonic Distortion and Current Harmonic Value sub menus can be accessed in the same way.



Please ensure all power is switched off before installing or maintaining this product.

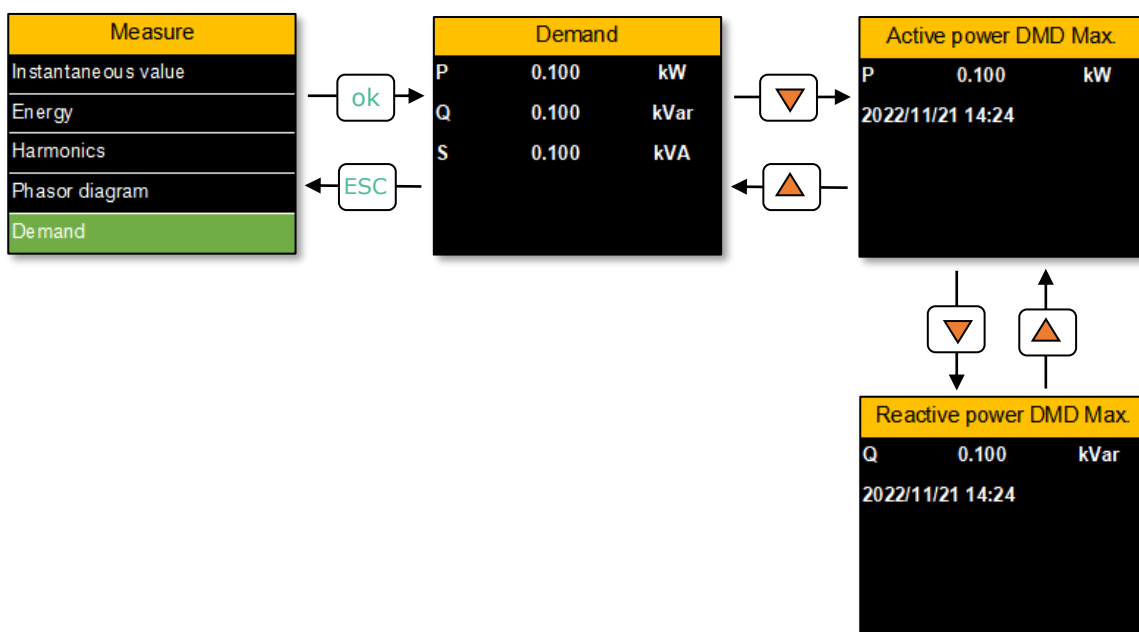
### Measure Menu – Phasor Diagram

Selecting the Phasor diagram sub-menu allows a real time phase diagram, Phase Sequence, UI Angle, Current Angle and Voltage Angle to be displayed. Use the Up, Down, ok and ESC buttons to navigate around the sub-menus.



### Measure Menu – Demand

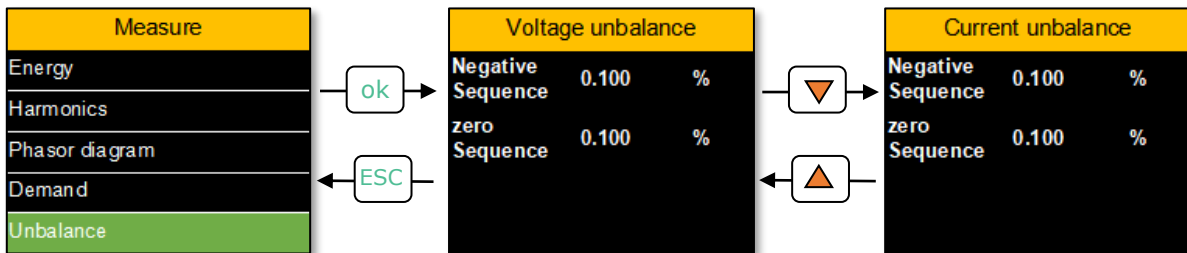
Selecting the Demand sub-menu shows Demand, Active Power Demand Maximum, Apparent Power Demand Maximum and Reactive Power Demand Maximum. Use the Up, Down, ok and ESC buttons to navigate around the sub-menus.



Please ensure all power is switched off before installing or maintaining this product.

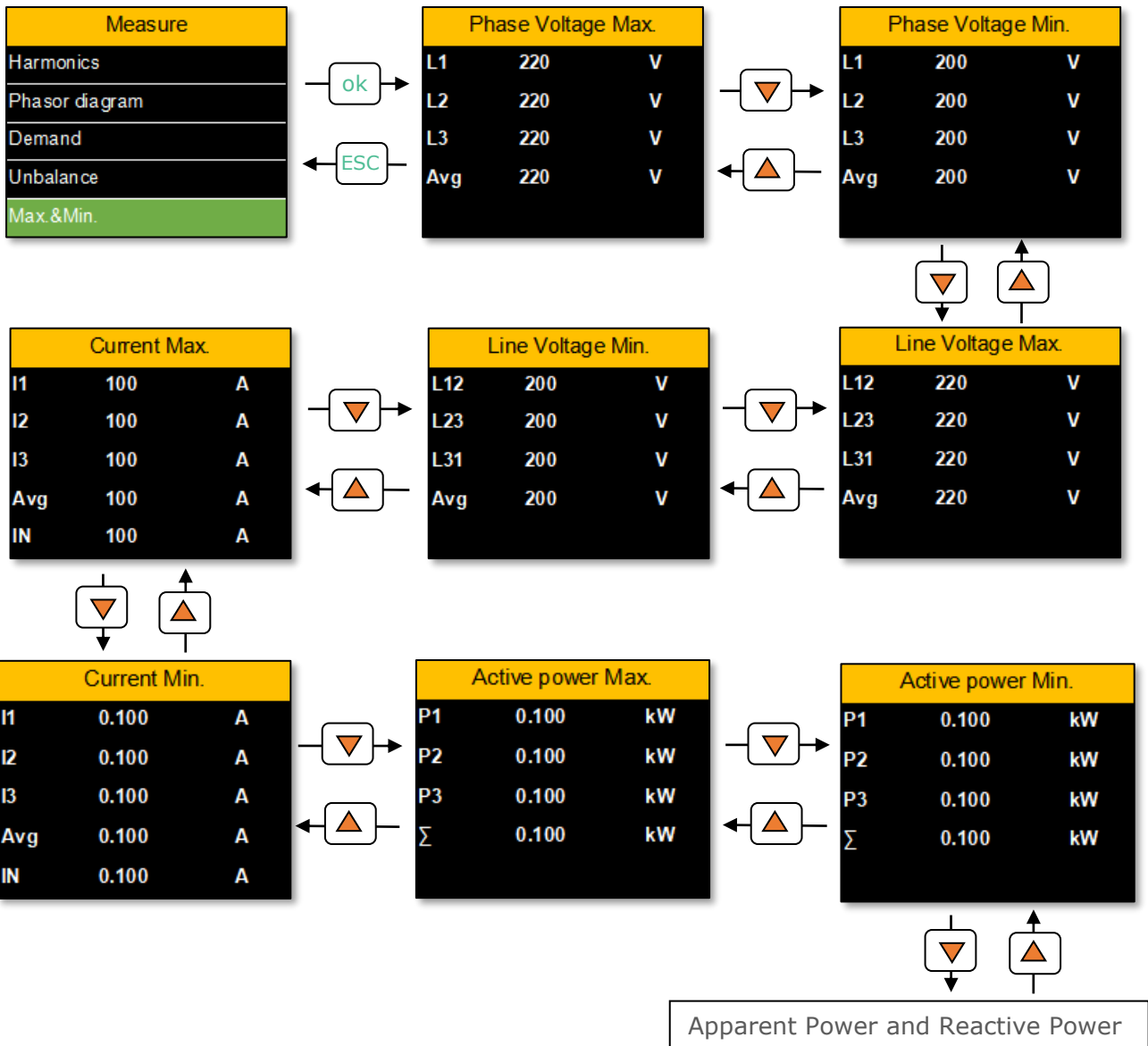
### Measure Menu – Unbalance

Selecting the Unbalance sub-menu shows the Unbalanced voltage and current. Use the Up, Down, ok and ESC buttons to navigate around the sub-menus.



### Measure Menu – Min & Max

Selecting the Min & Max sub-menu shows the minimum and maximum values of Phase Voltage, Phase Voltage, Current, Line Voltage, Active Power, Apparent Power and Reactive Power. Use the Up, Down, ok and ESC buttons to navigate around the sub-menus.



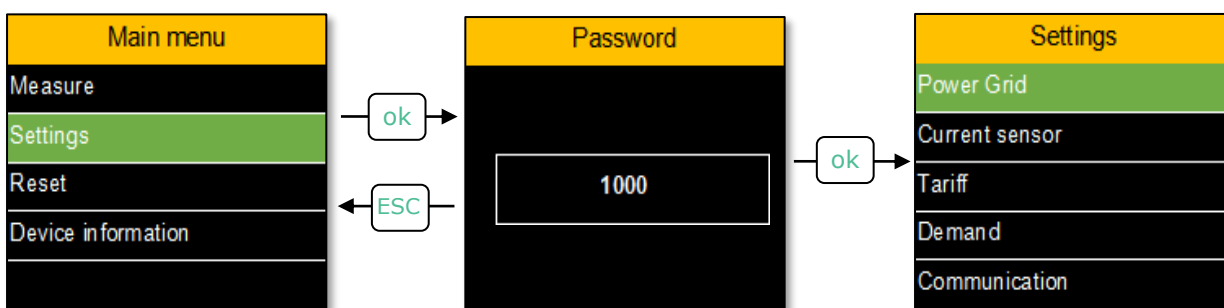
Please ensure all power is switched off before installing or maintaining this product.

## Settings Menu

The settings menu provides access to all parameters required to commission the meter. The minimum requirement is for the supply system type to be set up, 3 phase 3 wire (no neutral) or 3 phase 4 wire for example. The Current sensor type, primary range and secondary range must also be set up to allow the correct values to be read.

Other parameters can also be set such as Modbus address, tariff selection and date & time.

Use the up and down buttons to select the Settings Menu and press the ok button to enter. At this point a password will be required, the cursor will flash on the first password digit. Pressing the up and down keys allows the value of this digit to be increased or decreased. Pressing and holding the up key for a second will move the cursor to the left and pressing and holding the down key will move the cursor to the right. The default password for the settings menu is 1000. Once the password has been selected pressing the ok key will open the settings menu.



### Settings Menu – Power Grid

After entering the passcode the first settings menu is Power Grid, pressing the ok key will select the Wire Type sub menu, pressing the ok key again allows the Wire type, frequency, nominal voltage, VT ratio and CT ratio to be entered.

The wire types available are:

Wire Type	Description	CT Connections	Voltage Connections
3P4W_4CT	3 Phase, 4 Wire, 4 x CTs	L1, L2, L3 & Neutral	L1, L2, L3 & Neutral
3P4W_3CT	3 Phase, 4 Wire, 3 x CTs	L1, L2 & L3	L1, L2, L3 & Neutral
3P3W_3CT	3 Phase, 3 Wire, 3 x CTs	L1, L2 & L3	L1, L2 & L3
3P3W_2CT	3 Phase, 3 Wire, 2 x CTs	L1 & L3	L1, L2 & L3
1P3W	1 Phase, 3 Wire, 2 x CTs	L1 & L2	L1, L2 & Neutral
1P2W	1 Phase, 2 Wire, 1 x CT	L1	L1, & Neutral

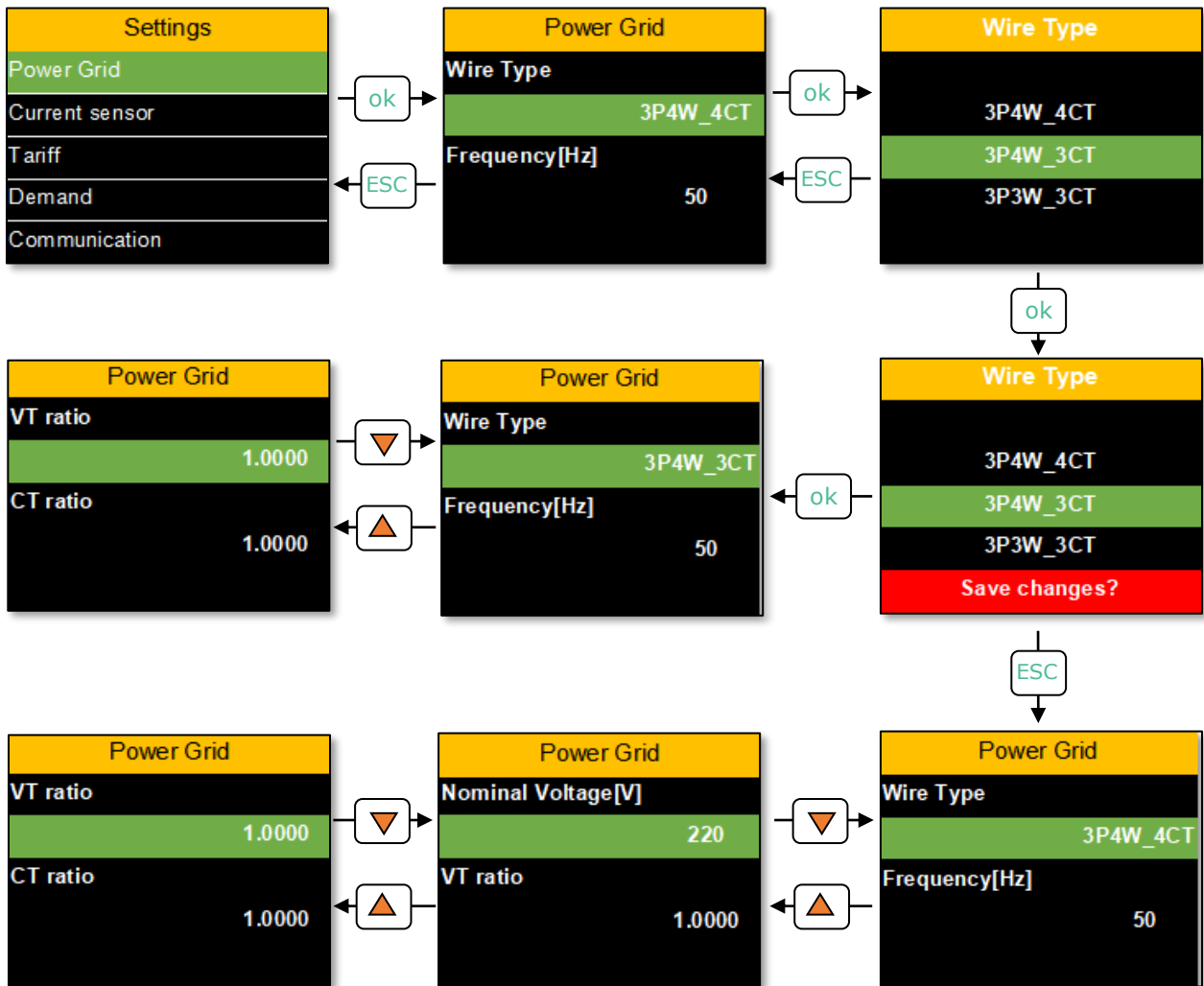
Frequency can be set as 50 or 60Hz, typically Europe operates at 50 Hz and USA is 60Hz.

VT and CT ratios can also be changed from the default value of 1, these settings would not normally need to be changed. The size of the CT primary current range is set in the Current Sensor menu (See Settings Menu – Current Sensor).

Use the Up, Down, ok and ESC buttons to navigate around the sub-menus



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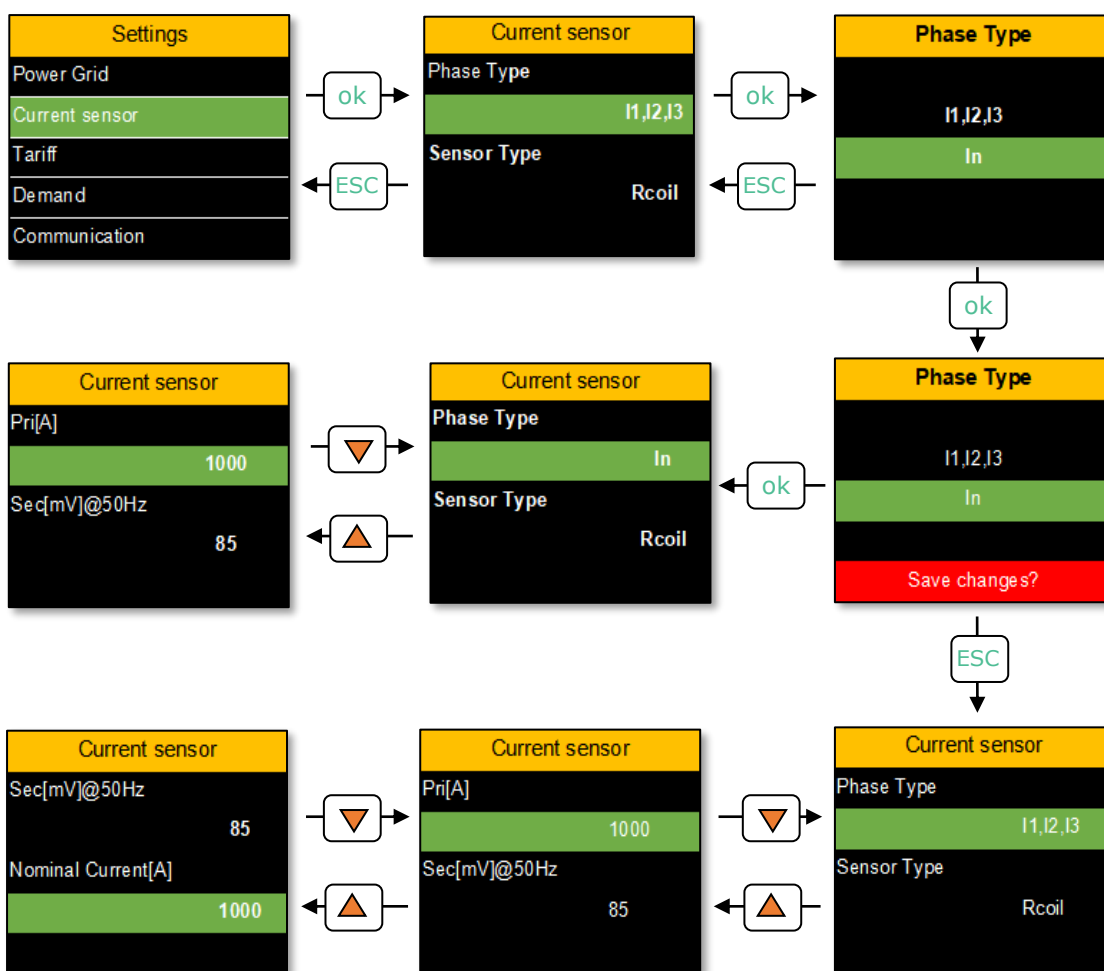
Please ensure all power is switched off before installing or maintaining this product.

### Settings Menu – Current Sensor

The Current Sensor sub menu allows the CTs (current transformers) to be set up.

Parameter	Description
Sensor Type	This selects Rogowski coil (Rcoil) or Voltage Output Type (VCT). Rogowski coil type CTs only are supplied and supported by RDM, this is the default setting.
Rcoil Pri	This is the range of the CT primary current, typically 150 or 400 Amps.
Rcoil Sec.	This is the output range in mV of the CT secondary, typically 100mV or 333 mV.
Nominal Current	The Nominal or typical current being measured, 100 Amps for example.

After selecting the menu Current Sensor, use the Up, Down, ok and ESC buttons to navigate around the sub-menus.



### Settings Menu – Zero Drift Suppression

The Zero Drift Suppression sub menu allows a voltage and current percentage value to be set.

This is not used in normal operation and can be left at default settings.



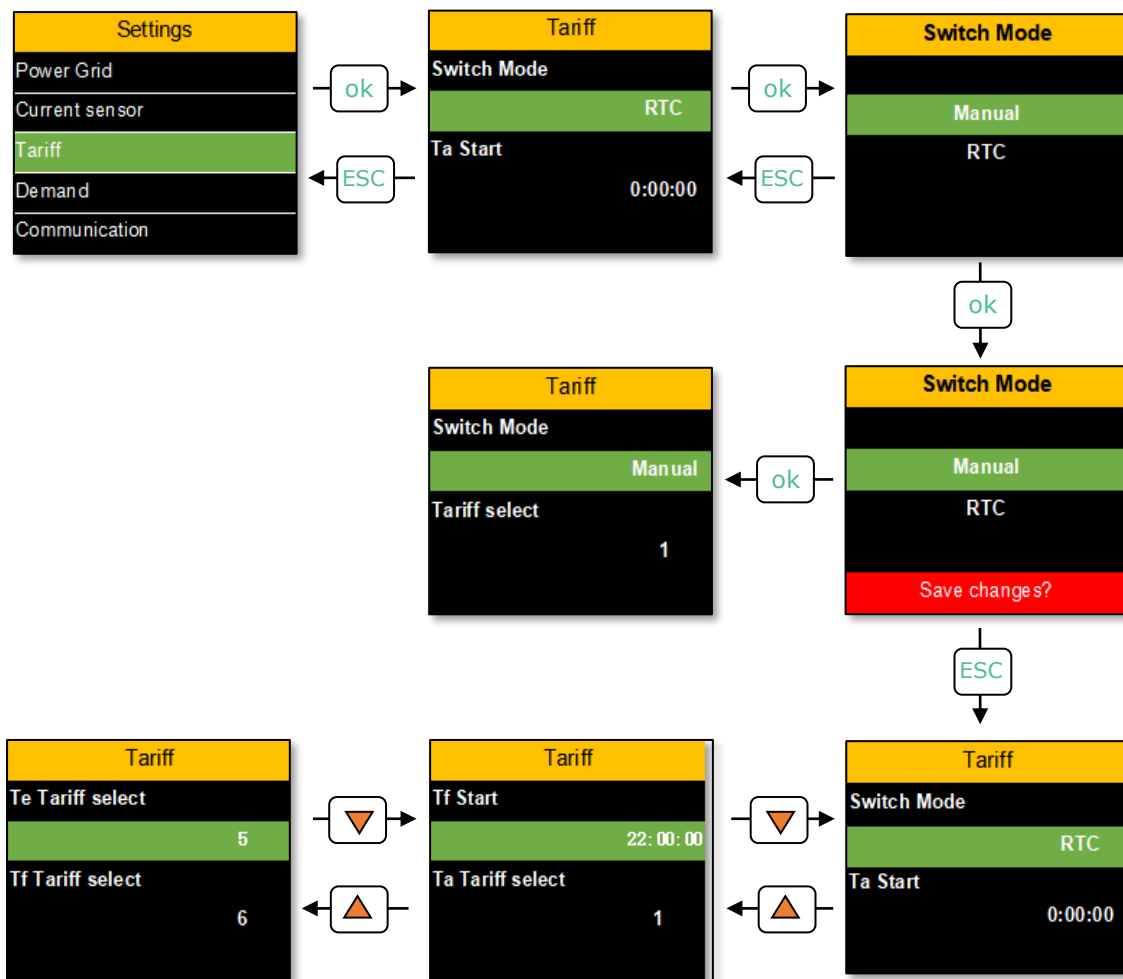
Please ensure all power is switched off before installing or maintaining this product.

## Settings Menu – Tariff

The Tariff menu allows 6 different tariffs to be used (1 to 6). These tariffs can be changed manually or each tariff can have one of 6 start times (Ta to Tf) allocated to it using the built in real time clock (RTC), this is done by setting the Switch Mode parameter to Manual or RTC.

If set to Manual the current tariff 1 to 6 can be selected.  
 If set to RTC the tariff start times can be set (Ta to Tf) and the individual tariffs (1 to 6) can be allocated to an individual start time (Ta to Tf).

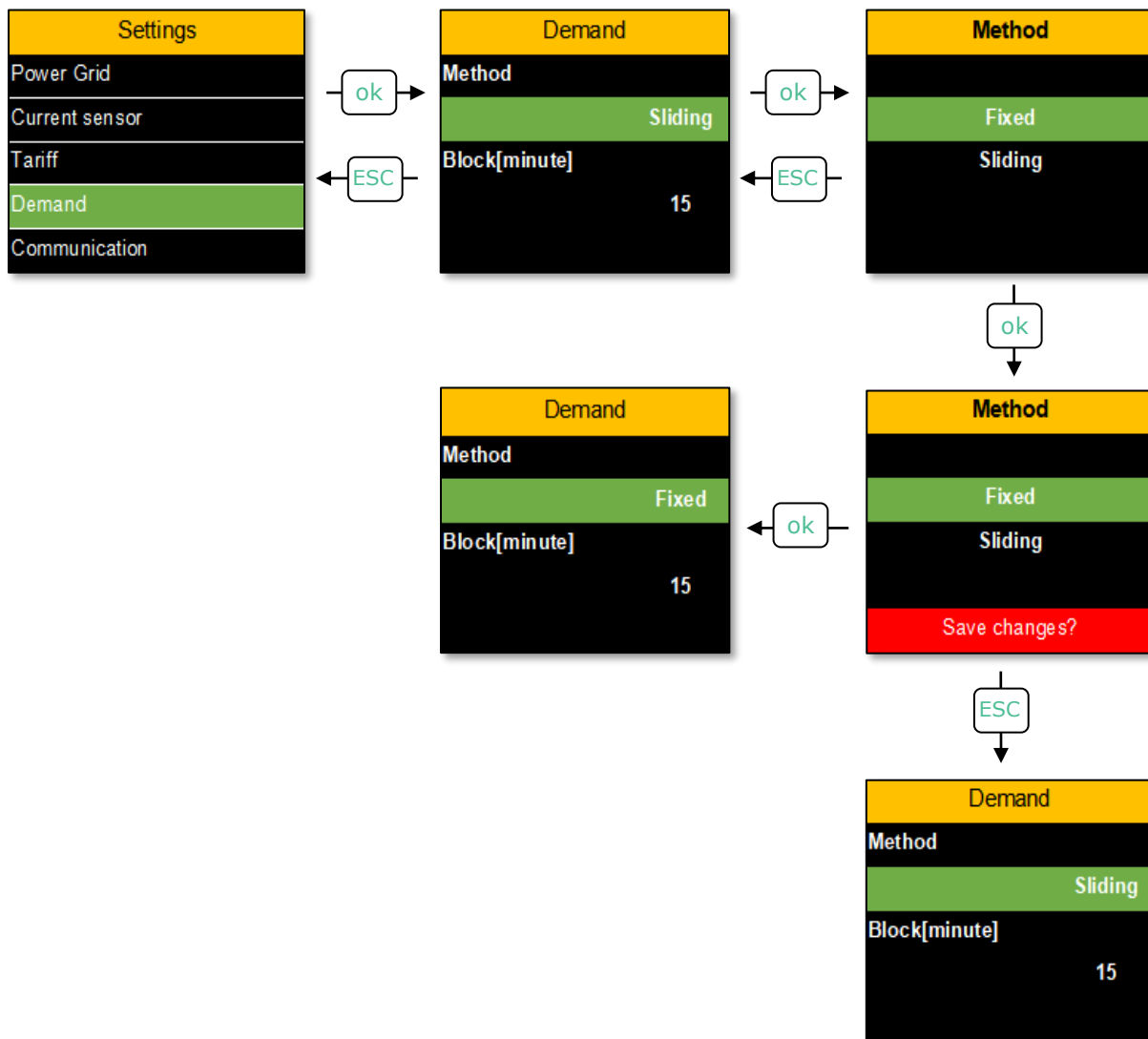
Use the Up, Down, ok and ESC buttons to navigate around the sub-menus.



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## Settings Menu – Demand

The meter will calculate the energy demand over a fixed sample period, settable from 1 to 60 minutes, default 15 minutes. This calculation method can be changed from Fixed (default) to Sliding, when Sliding is selected the calculation period remains the same, 15 minutes for example, but the value is updated every 1 minute.



## Settings Menu – Communication

The meter has a Modbus interface built in which allows it to communicate with a suitably equipped device, such as an RDM DM Touch/Mini DM or Intuitive TDB Plant Controller.

The following Modbus settings are available:

Enable/Disable: allows the Modbus interface to be switched on or off.

Device ID: the Modbus address settable between 001 and 247.

Baud Rate: 2400, 4800, 9600, 19200 or 38400.

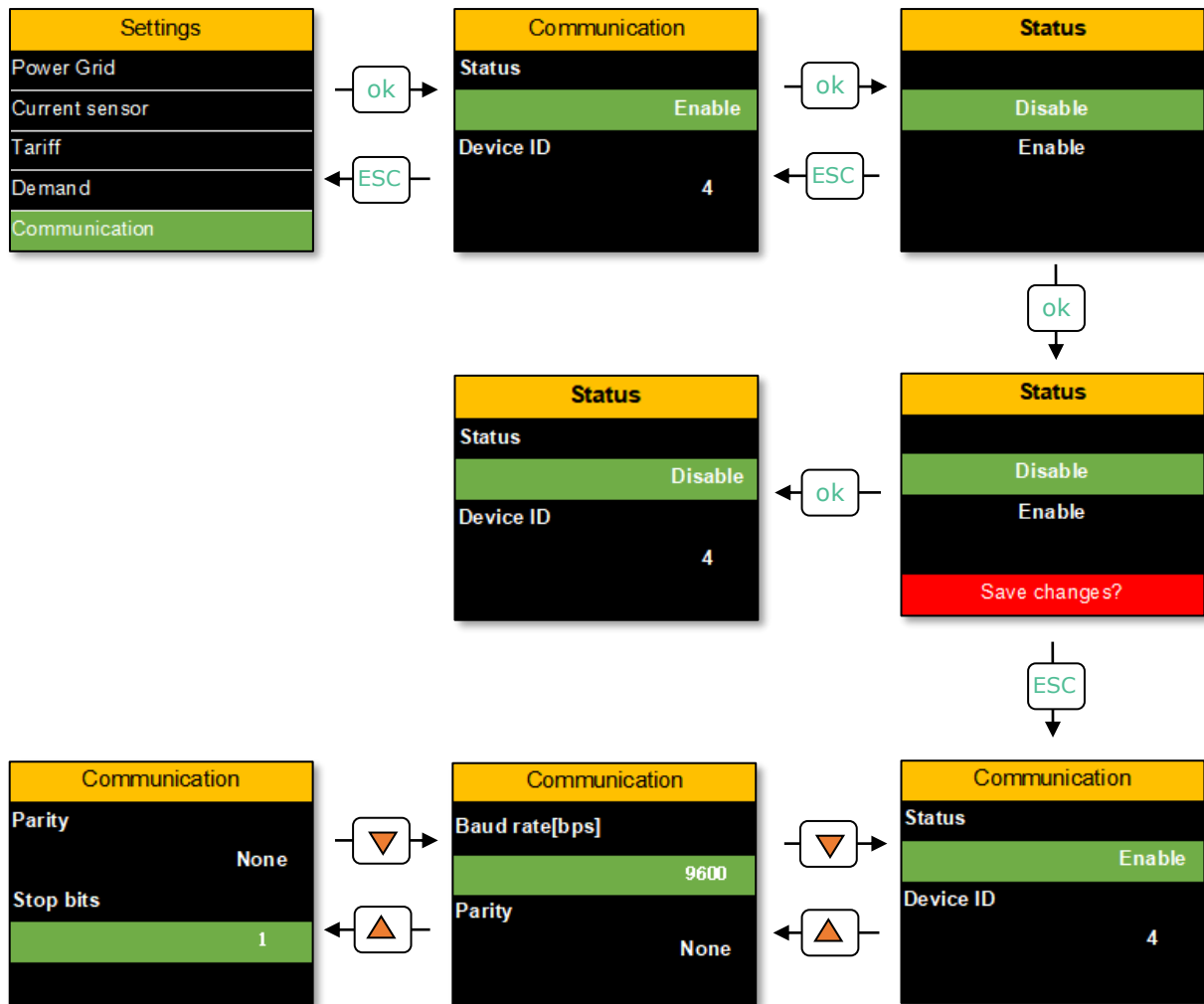
Parity: None, Even or Odd.

Stop Bits: 1 or 2.

Default is 9600 Baud, no parity and 1 stop bit.



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### Settings Menu – HMI Interface

The HMI Interface menu allows various display settings to be altered, these are:

Language: English, French or Chinese.

Clock: internal timeclock date and time.

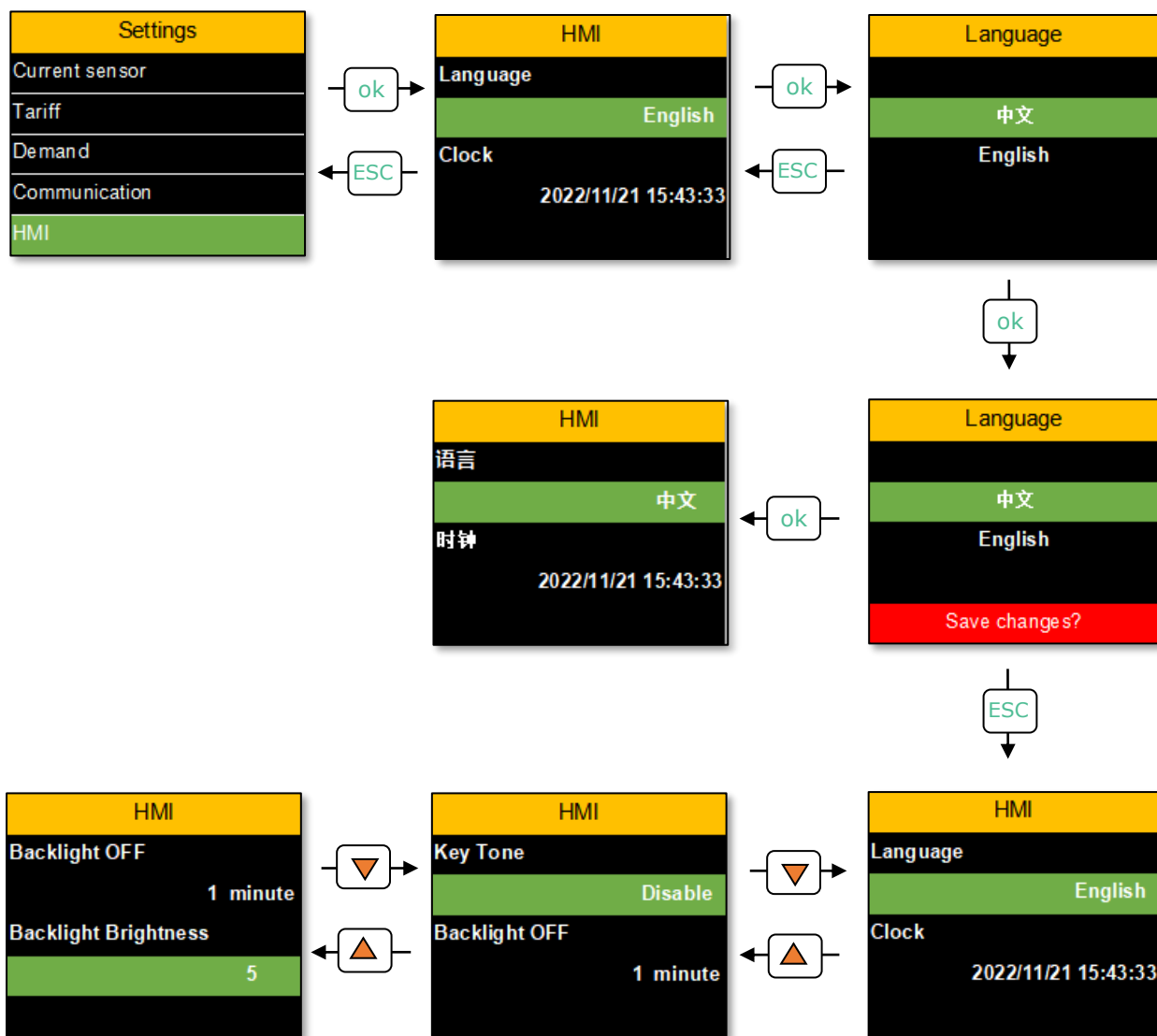
Key Tone: activates or de activates the audible click when any key is pressed.

Backlight Off: can be set to Never Off or Automatically Off after settable time period of 1 to 5 minutes.

Backlight Brightness Level: 1 to 5.



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### Settings Menu - Passwords

The meter has two passwords, a settings password and a reset password.

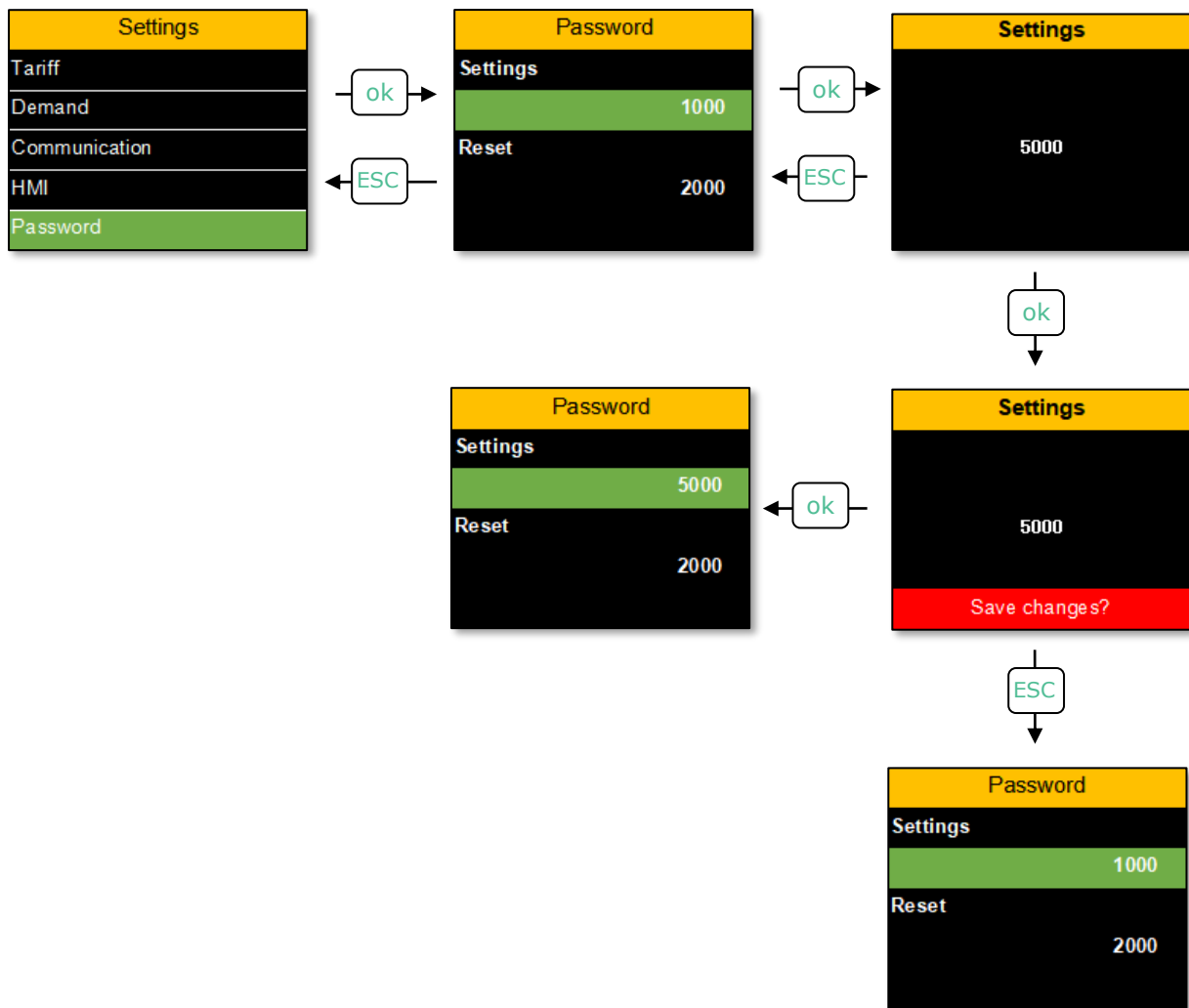
The settings password is required to set commissioning settings such as CT size, Modbus address and timeclock. This password is 1000 as default.

The reset password allows reset of stored values such as accumulated energy usage, maximum demand and tariff. This password is 2000 as default.

When the password menu is selected the two different passwords can be selected using the ok, ESC and up and down keys. When the password is selected the first digit will flash, pressing the up key repeatedly will increase this value, pressing and holding the up key will move the flashing cursor to the next digit. Pressing ok will save the new password



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## Settings Menu – Reset

The reset menu is used for resetting stored values Max.& Min., Demand Max., Tariff Energy, Energy and also allows the meter to be set back to Factory defaults.

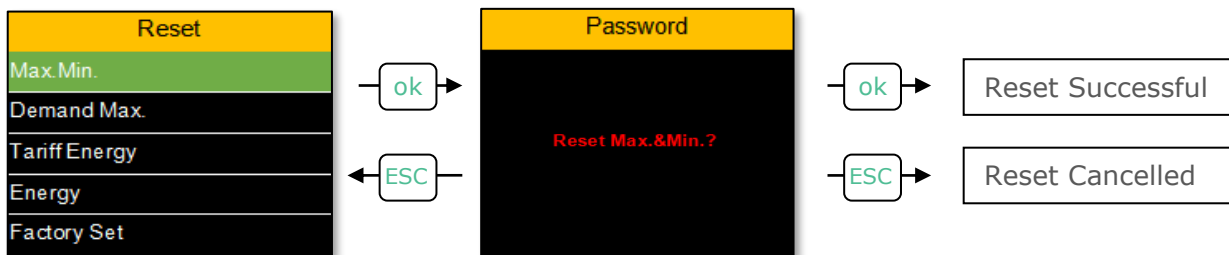
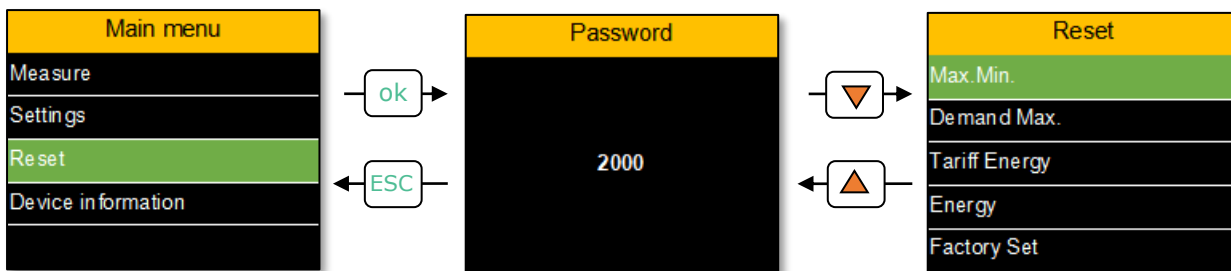
Before enter the configuration page, you need to enter the configuration password (default 2000).

When the password is selected the first digit will flash, pressing the up key repeatedly will increase this value, pressing and holding the up key will move the flashing cursor to the next digit. Press ok to enter the menu.

If the configuration password is lost, the last four digits of the device serial number can be used to enter the reset menu.

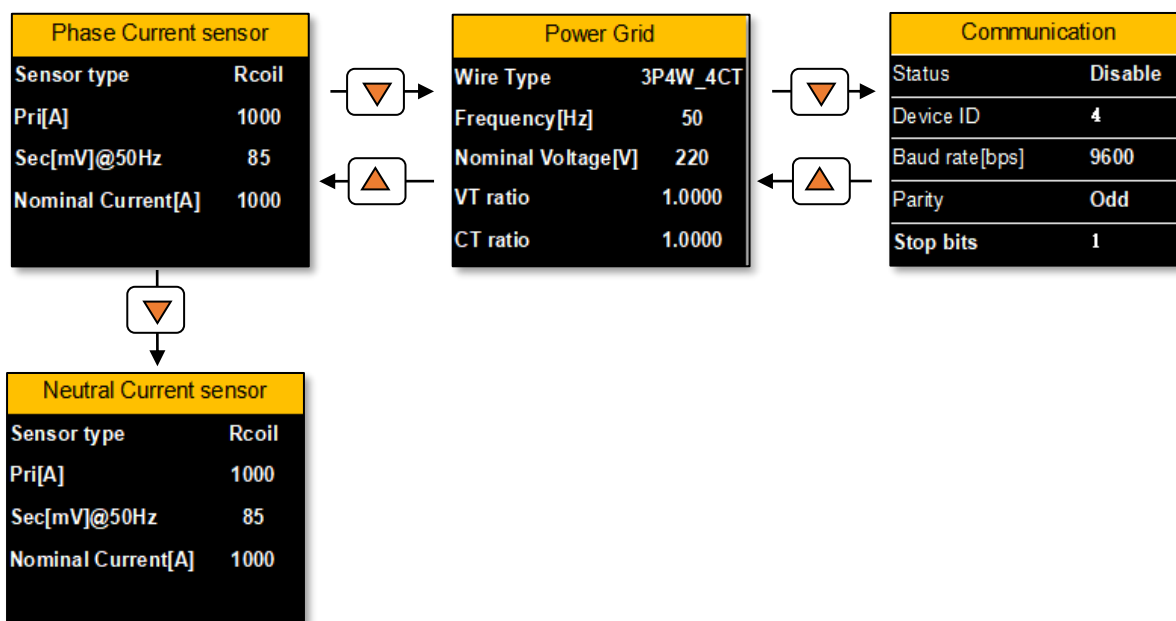
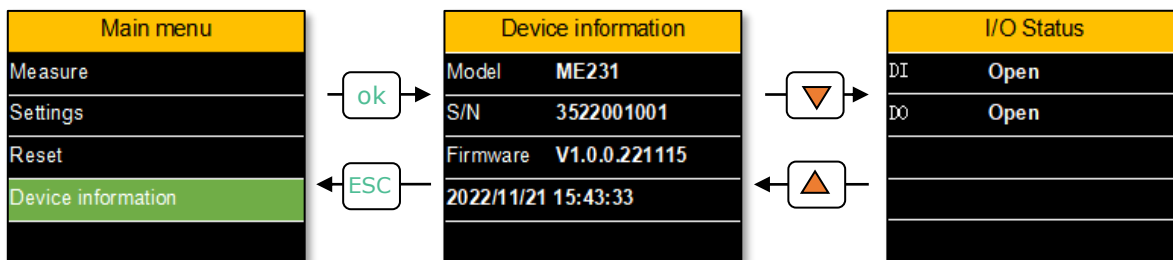


Please ensure all power is switched off before installing or maintaining this product.



### Settings Menu – Device Information

The device information menu is used to display Device model number, Serial Number, Firmware Version, Communication Settings, IO Status, Power grid, Phase Current Sensor and Neutral Current sensor.



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## Power supply

The meter's internal electronics are powered by an external supply (terminals marked Power L & N), supply voltage range is 95 ~ 265VAC / 110 ~ 260VDC, 45 ~ 60Hz, maximum power consumption is 3.5VA.

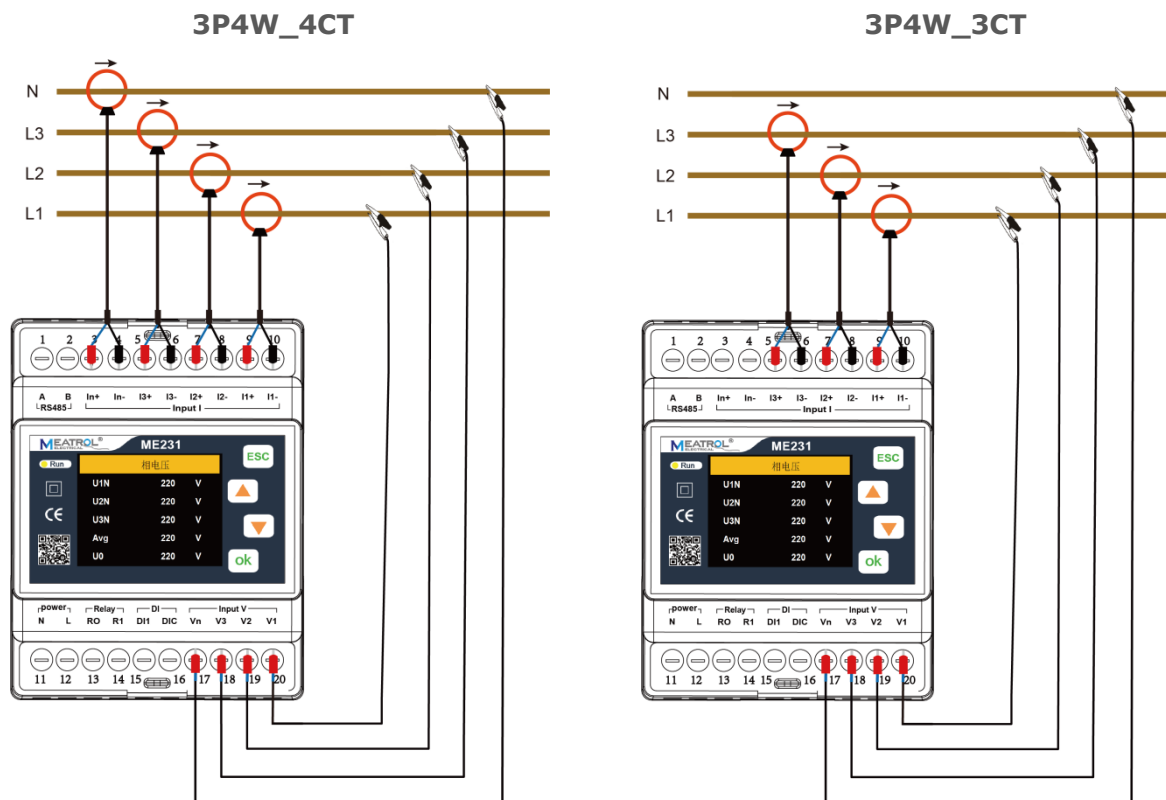
## Voltage and current

The meter supports six types of wiring methods:

3P4W\_4CT, 3P4W\_3CT, 3P3W\_3CT, 3P3W\_2CT, 1P3W and 1P2W. The wiring method should be set in settings before connecting voltage and current inputs.

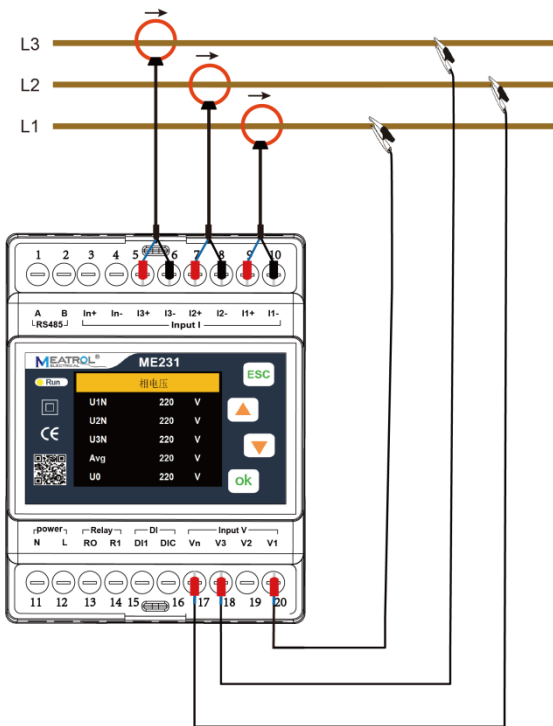
- 3P4W\_4CT requires 4 current sensors and the N phase current is measured by a separate CT.
- 3P4W\_3CT requires 3 current sensors, the N phase current is obtained by calculation
- 3P3W\_3CT requires 3 current sensors, the L2 phase current is measured by the sensors
- 3P3W\_2CT requires 2 current sensors, the L2 phase current is obtained by calculation
- The phase sequence of voltage and current must follow the same sequence otherwise the meter will display a phase sequence error for 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, the current arrow of the sensor points to the load end.

Meter voltage and current connections for each method of wiring are as follows:

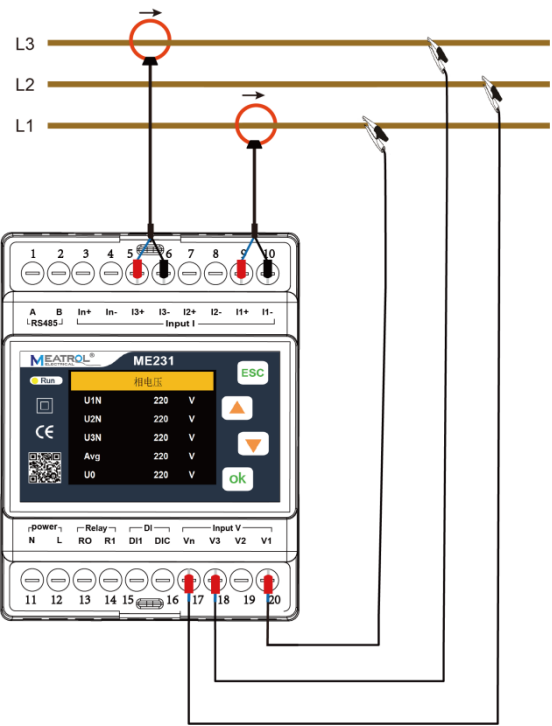


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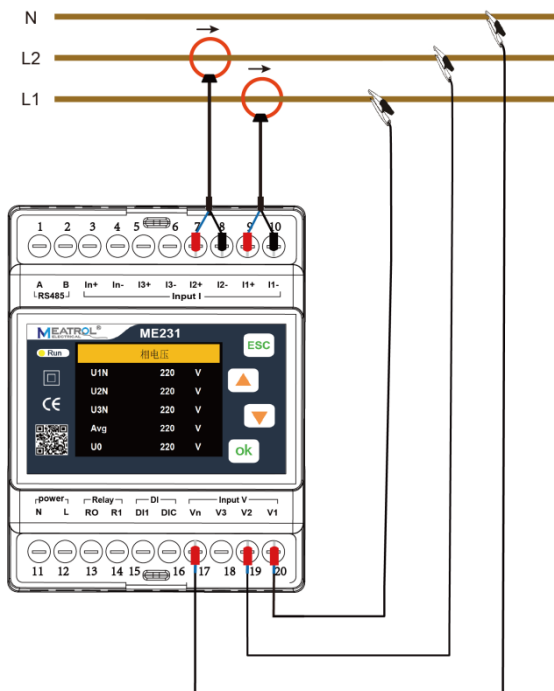
3P3W\_3CT



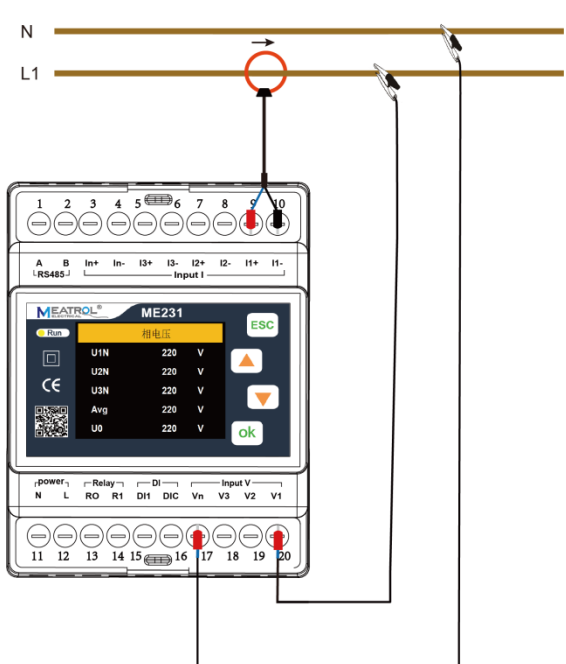
3P3W\_2CT



1P3W

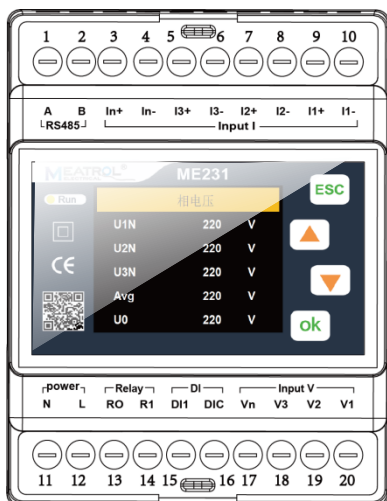


1P2W



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## Connections



Terminal Number	Name	Connection	Comments
1	A	RS485 communication A	Modbus Network
2	B	RS485 communication B	
3	In+	Phase N current input positive	CT Connections
4	In-	Phase N current input negative	
5	I3+	Phase L3 current input positive	
6	I3-	Phase L3 current input negative	
7	I2+	Phase L2 current input positive	
8	I2-	Phase L2 current input negative	
9	I1+	Phase L1 current input positive	
10	I1-	Phase L1 current input negative	
11	N	Power supply (-)	Meter Power supply
12	L	Power supply (+)	
13	R0	Relay common contact	Can only be utilised using a Modbus interface
14	R1	Relay normally open contact	
15	DI1	Digital input channel 1	Can only be utilised using a Modbus interface
16	DIC	Digital channel common terminal	
17	Vn	Neutral phase voltage input	Line Voltage Neutral
18	V3	L3-phase voltage input	Line Voltage Connections
19	V2	L2-phase voltage input	
20	V1	L1-phase voltage input	



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## Specifications

Description	
Part Number	PR0670-3PH DIN
Current sensor type	Rogowski coil
Voltage-output current clamp	Optional
Wiring system	3P4W 4CT, 3P4W 3CT, 3P3W 3CT, 3P3W 2CT, 1P3W, 1P2W
Application field	Power analysis
Display screen	45mm (1.77 inch) TFT screen display
Weight	259g
Dimension	L 94.5mm x W 72.5mm x D 66mm
Colour	White
Mounting Type	DIN rail
Current	
Current transformer input	0-900mVAC peak, 636 mV RMS
Measurement range	Dependant on current transformer
Rogowski coil	50mV/kA@50Hz(0-12000A), @60Hz(0-10000A) 85mV/kA@50Hz(0-7000A), @60Hz(0-6000A)
VCT	0~999999A
Voltage	
Channel input voltage range	0~600VAC Phase Voltage
Maximum voltage	720VAC Phase Voltage
Digital IO	
Relay output	Single pole electromagnetic relay dry contacts, contact capacity: 3A 30V DC, 3A 250V AC
Digital input	Volt free input, optocoupler isolation (5kVrms) The digital IO can only be utilised using a suitable Modbus interface.
Communication	
Modbus RTU	RS485 communication interface, two wire half duplex. Baud rate: 2400bps ~ 38400bps
Power Supply	
Supply	95~265VAC / 110~370VDC, 45~60Hz
Power consumption	3.5 VA



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Instantaneous Values	
Phase Voltage	U1, U2, U3, AVG
Line Voltage	U1-2, U2-3, U3-1, AVG
Current	I1, I2, I3, AVG, IN
Grid Frequency	F1, F2, F3, $\Sigma$
Power Factor PF	PF1, PF2, PF3, $\Sigma$
Fundamental power factor DPF	DPF1, DPF2, DPF3, $\Sigma$
Active power	P1, P2, P3, $\Sigma$
Reactive power	Q1, Q2, Q3, $\Sigma$
Apparent power	S1, S2, S3, $\Sigma$
Energy	
Active energy Pos.	EP1, EP2, EP3, $\Sigma$
Active Energy Neg.	EP1, EP2, EP3, $\Sigma$
Reactive Energy Pos.	EQ1, EQ2, EQ3, $\Sigma$
Reactive energy Neg.	EQ1, EQ2, EQ3, $\Sigma$
Apparent Energy	ES1, ES2, ES3, $\Sigma$
Tariff Energy	ET1, ET2, ET3, ET4, ET5, ET6
Harmonics	
Voltage Harmonic Distortion	THD (Total harmonic percentage), 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), TOHD (Odd total harmonic percentage), TEHD (Even total harmonic percentage), phase L1.L2.L3 1- 50th harmonic percentage, phase ABC 1-50th harmonic current value
Phasor Display	
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
Phasor setting	Malky
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
Demand	P, Q, S
Unbalance	
Voltage unbalance	Negative Sequence, zero Sequence
current unbalance	Negative Sequence, zero Sequence
Min. & Max.	
Phase Voltage	U1, U2, U3, AVG
Line Voltage	U12, U23, U31, AVG
Current	I1, I2, I3, AVG, IN



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Active power	P1, P2, P3, $\Sigma$
Reactive power	Q1, Q2, Q3, $\Sigma$
Apparent power	S1, S2, S3, $\Sigma$

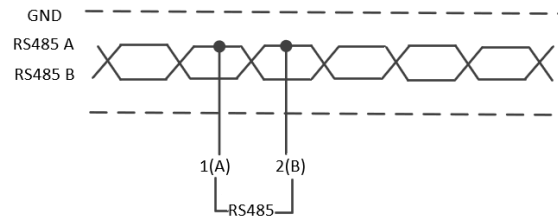
Measurement Accuracy	
Current measurement accuracy	0.1%+Accuracy of current sensor
Voltage measurement accuracy	±0.2% (60V~600V AC)
Grid frequency	±0.01% (45~65Hz)
Power factor	±0.005
Active and apparent power	IEC62053-22 level 0.5S
Reactive power	IEC62053-21 level 1S
Active energy	IEC62053-22 level 0.5S
Reactive energy	IEC62053-21 level 1S
Environment	
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, suitable for distribution systems below 277 / 480VAC
Insulation strength	IEC61010-1
Altitude	3000m Max
Antipollution level	IP20 (Meet the standard of IEC 60629)
Warranty period	12 months
EMC	
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 Standards	
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	



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## Modbus

The meter is equipped with an RS485 communication interface which supports Modbus RTU protocol. The RS485 communication port requires shielded twisted pair connection connected in the form of daisy chain. A 120  $\Omega$  termination resistor should be connected at the end of the daisy chain on the last device.



## Relay output

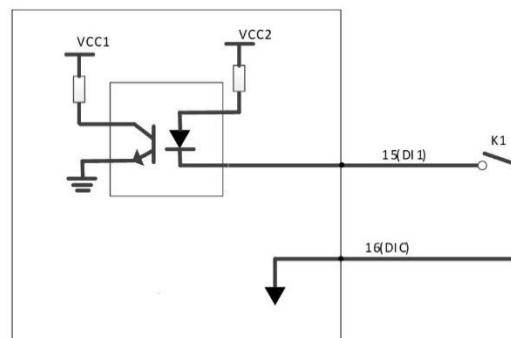
The meter is equipped with a relay output and has one normally open contact.

Relay terminal connections are labelled R1 and R0, where R0 is the common contact and R1 is the normally open contact. The relay output can only be controlled over the Modbus interface.

The closed state of normally open contact of relay is displayed on the display interface of the meter. Maximum load capacity of the relay is 3A 30V DC / 3A 250V AC

## Digital input

The meter is equipped with one digital switch input which is connected by a passive dry (voltage free) contact. The input terminals are labelled DI1 and DIC where DIC is the common contact. The status of the digital switch input can only be read using a Modbus interface. The digital switch input status can be displayed in the meter display interface.



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## Modbus Registers

Register	Name	Min	Max	Unit	Scaling	Item Type (Read Type = 3 – Read holding)	
<b>Inputs</b>							
1000	Phase L1 Current	-99999999	99999999	A	÷ 100	Ieee754	Invert
1002	Phase L2 Current	-99999999	99999999	A	÷ 100	Ieee754	Invert
1004	Phase L3 Current	-99999999	99999999	A	÷ 100	Ieee754	Invert
1006	Average Phase Current	-99999999	99999999	A	÷ 100	Ieee754	Invert
1008	Phase N Current	-99999999	99999999	A	÷ 100	Ieee754	Invert
1010	U1N Voltage	-99999999	99999999	V	÷ 100	Ieee754	Invert
1012	U2N Voltage	-99999999	99999999	V	÷ 100	Ieee754	Invert
1014	U3N Voltage	-99999999	99999999	V	÷ 100	Ieee754	Invert
1016	Average Phase Voltage	-99999999	99999999	V	÷ 100	Ieee754	Invert
1018	Zero Sequence Voltage	-99999999	99999999	V	÷ 100	Ieee754	Invert
1020	U1-U2 Voltage	-99999999	99999999	V	÷ 100	Ieee754	Invert
1022	U2-U3 Voltage	-99999999	99999999	V	÷ 100	Ieee754	Invert
1024	U3-U1 Voltage	-99999999	99999999	V	÷ 100	Ieee754	Invert
1026	Average Phase Voltage	-99999999	99999999	V	÷ 100	Ieee754	Invert
1028	Active Power 1	-99999999	99999999	kW	÷ 100	Ieee754	Invert
1030	Active Power 2	-99999999	99999999	kW	÷ 100	Ieee754	Invert
1032	Active Power 3	-99999999	99999999	kW	÷ 100	Ieee754	Invert
1034	Active Power Total	-99999999	99999999	kW	÷ 100	Ieee754	Invert
1036	Reactive Power 1	-99999999	99999999	kVAR	÷ 100	Ieee754	Invert
1038	Reactive Power 2	-99999999	99999999	kVAR	÷ 100	Ieee754	Invert
1040	Reactive Power 3	-99999999	99999999	kVAR	÷ 100	Ieee754	Invert
1042	Reactive Power Total	-99999999	99999999	kVAR	÷ 100	Ieee754	Invert
1044	Apparent Power 1	-99999999	99999999	kVA	÷ 100	Ieee754	Invert
1046	Apparent Power 2	-99999999	99999999	kVA	÷ 100	Ieee754	Invert
1048	Apparent Power 3	-99999999	99999999	kVA	÷ 100	Ieee754	Invert
1050	Apparent Power Total	-99999999	99999999	kVA	÷ 100	Ieee754	Invert
1052	Power Factor 1	-99999999	99999999		÷ 100	Ieee754	Invert
1054	Power Factor 2	-99999999	99999999		÷ 100	Ieee754	Invert
1056	Power Factor 3	-99999999	99999999		÷ 100	Ieee754	Invert
1058	Power Factor Total	-99999999	99999999		÷ 100	Ieee754	Invert
1068	F1 Frequency	-99999999	99999999	Hz	÷ 100	Ieee754	Invert
1070	F2 Frequency	-99999999	99999999	Hz	÷ 100	Ieee754	Invert
1072	F3 Frequency	-99999999	99999999	Hz	÷ 100	Ieee754	Invert
1074	Average Frequency	-99999999	99999999	Hz	÷ 100	Ieee754	Invert
2500	EP1 Active Energy Positive	-99999999	99999999	kWh	÷ 10	Int64	Invert
2504	EP2 Active Energy Positive	-99999999	99999999	kWh	÷ 10	Int64	Invert
2508	EP3 Active Energy Positive	-99999999	99999999	kWh	÷ 10	Int64	Invert
2512	EP Active Energy Positive Total	-99999999	99999999	kWh	÷ 10	Int64	Invert
2516	EP1 Active Energy Negative	-99999999	99999999	kWh	÷ 10	Int64	Invert



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Register	Name	Min	Max	Unit	Scaling	Item Type (Read Type = 3 – Read holding)		
<b>Inputs</b>								
2520	EP2 Active Energy Negative	-99999999	99999999	kWh	÷ 10	Int64	Invert	
2524	EP3 Active Energy Negative	-99999999	99999999	kWh	÷ 10	Int64	Invert	
2528	EP Active Energy Negative Total	-99999999	99999999	kWh	÷ 10	Int64	Invert	

## Revision History

Revision	Date	Changes
2.0	8/12/2023	First Edition of updated meter with colour display.



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