

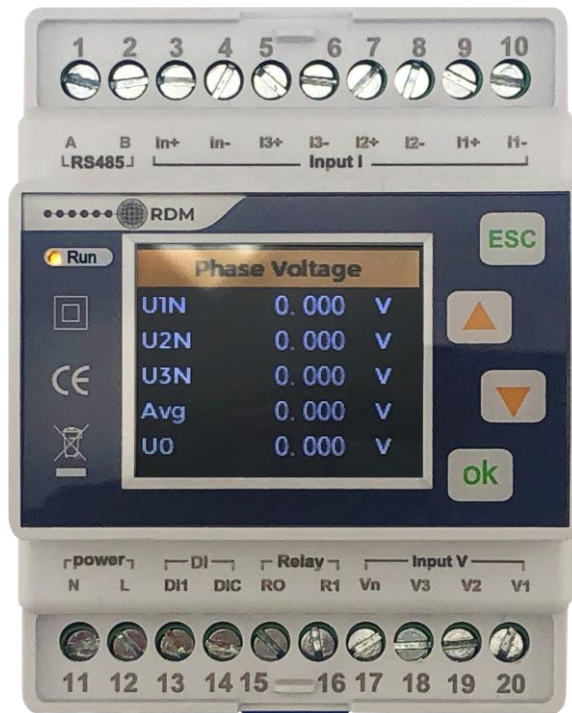


Resource
Data Management

Energy Meter

Commissioning/User Guide

Revision 2.0d



PR0672-3PH 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 PR0672-3PH DIN energy meter manufactured from 2024 onwards, this can be identified as having a colour display. The previous meter PR0670-3PH DIN (2023 or earlier) can be identified as having a monochrome display, for this version please see user guide for PR0670-3PH DIN. 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 typical secondary of 0.1V (100mV) or 0.333V (333mV) up to a maximum of 0.999V (999mV) output. 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 | PR0672-3PH 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)

PR0672-3PH-DIN can be set to use either type of CT secondary (2024 or later)



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Quick Start Guide

For most applications the parameters that need to be configured for the meter to operate correctly are:

Grid Type – typically 3 Phase 3 Wire 3 CT (no neutral connection) or 3 Phase 4 Wire 3 CT (with neutral connection).

Current Sensor Primary – typically 400A if using an RDM CT.

Current Sensor Secondary – Typically 333mV if using an RDM CT.

When first powered up the meter display will show the line voltage values, press the ESC button twice to display the setup menu.

Press the down button and select "Settings", the passcode screen will show with 0000 and the cursor flashing on the right-hand digit.

Press and hold the up button for half a second, the cursor will move along one place to the left, repeat this twice again until the cursor is flashing on the first digit on the left. Press and release the up button quickly to increase this value to 1.

The passcode will now read 1000 which is the default passcode, press the OK button to enter the setup menu.

The first setting "Power Grid" will be highlighted, press the OK button to access this setting, press the up and down keys to select the power grid type required (3P3W_3CT for example) and press the OK button to set the value.

Press the esc button once to go back to the main settings menu, "Power Grid" will be highlighted. Press the down button to select the "Current Sensor" menu and press the enter button, the menu "Phase Type" will be highlighted. Press the down button twice to select the "Pri(A)" menu and press the OK button. This is the Current Transformer Primary Current setting which by default is set to 1000 Amps.

Press and hold the up button for half a second to move the cursor left and press and hold the down button to move the cursor right. When the cursor is on the required digit press and release the up and down buttons quickly to increase and decrease the value. Press the OK button twice to save this setting. The main current sensor menu will be displayed.

Press the down key to select the "Sec(mV)@50Hz" menu and press the OK button, this is the Current Transformer Secondary Voltage Output setting which by default will be 085.00. Press and hold the up button for half a second to move the cursor left and press and hold the down button to move the cursor right. When the cursor is on the required digit press and release the up and down buttons quickly to increase and decrease the value. The most common setting for the CT secondary voltage is 333mV or 100mV. Press the OK button twice to save this setting.

The meter is now set and ready to operate.

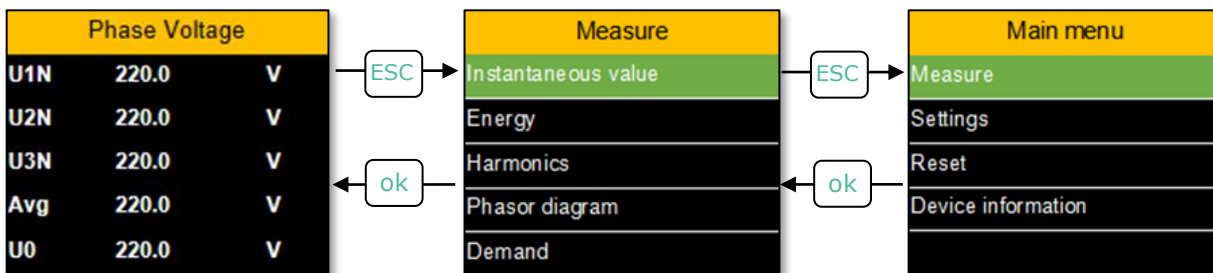
If the meter is being connected to a Modbus network the default Modbus address is 1, Baud rate 9600, Parity None and Stop Bits 1. These parameters can be accessed and changed in same way as the "Grid" and "Current Sensor" menus described above by selecting the "Communications" menu.



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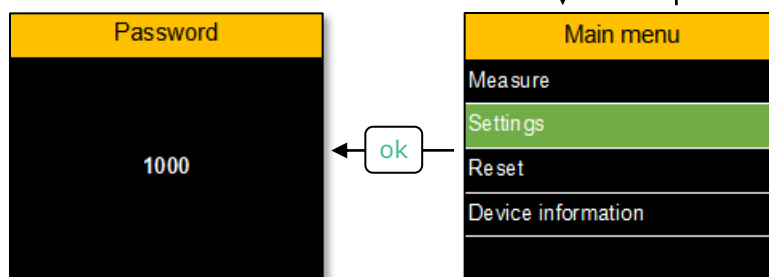
Menu Navigation

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.



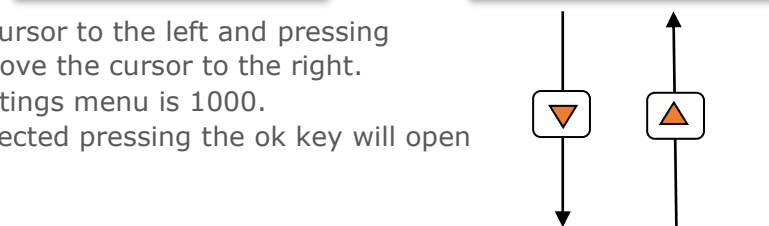
Pressing the Up and Down keys allows the sub menus to be selected, pressing the ok key opens the sub menu.

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.

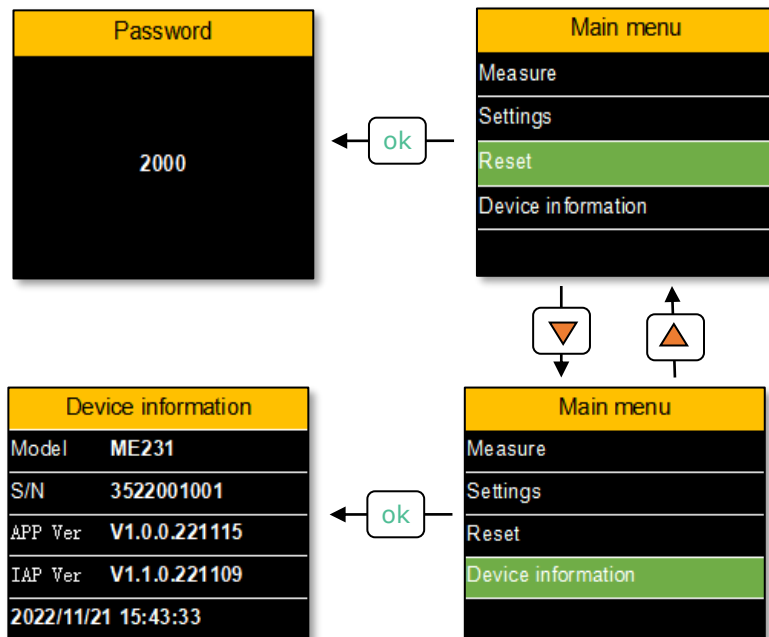


Pressing and holding the up key for a second will move the cursor to the left and pressing and holding the down key will move the cursor to the right. The default password for the settings menu is 1000. Once the password has been selected pressing the ok key will open the settings menu.

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.

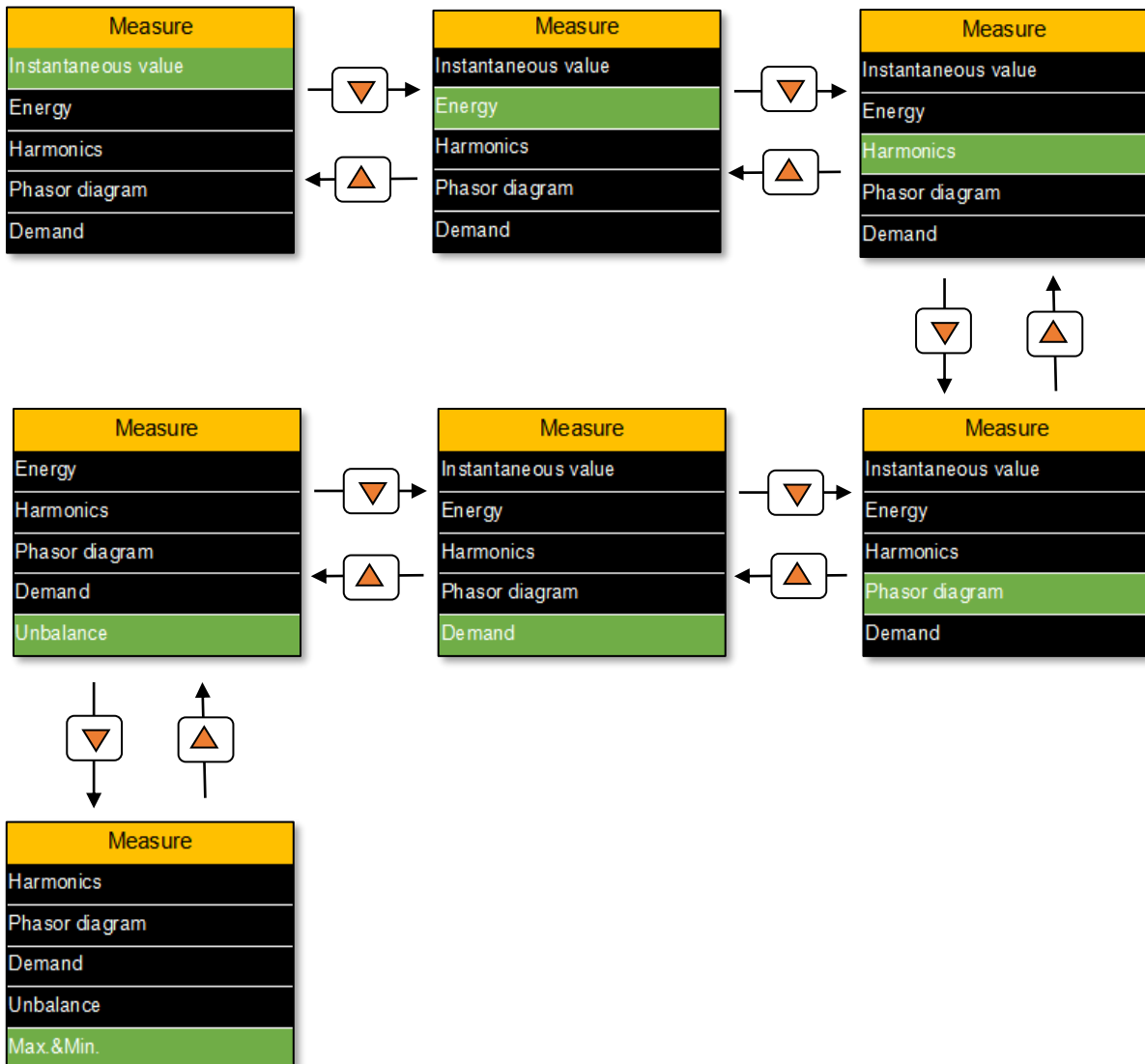


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Measure Menu

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

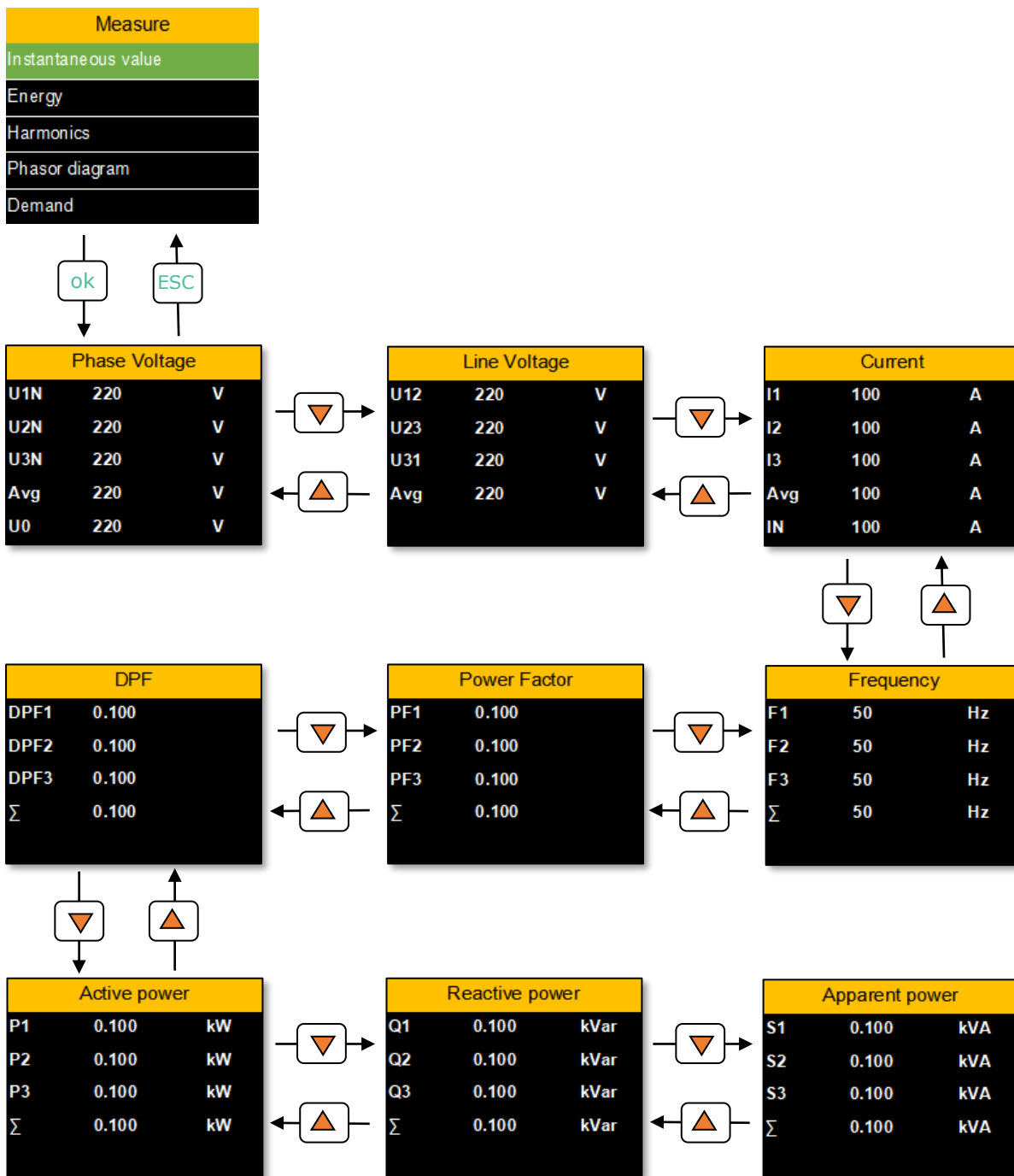
Use the Up, Down, ok and ESC buttons to navigate around the sub-menus



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Measure Menu – Instantaneous Values

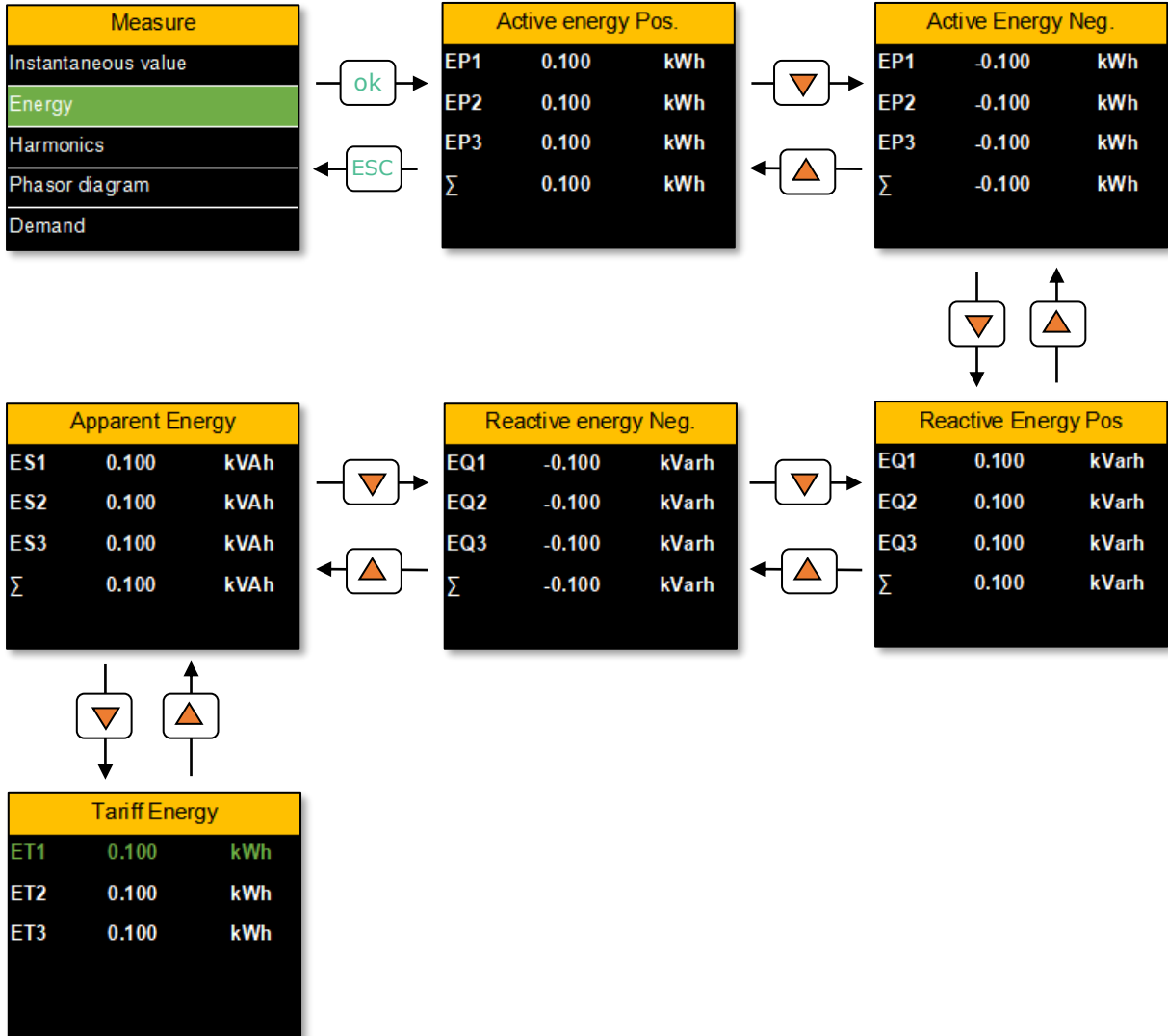
Selecting the Instantaneous Value sub-menu allows all the real time values to be shown, these are voltage, current, power, power factor and frequency. Use the Up, Down, ok and ESC buttons to navigate around the sub-menus



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

Measure Menu – Energy

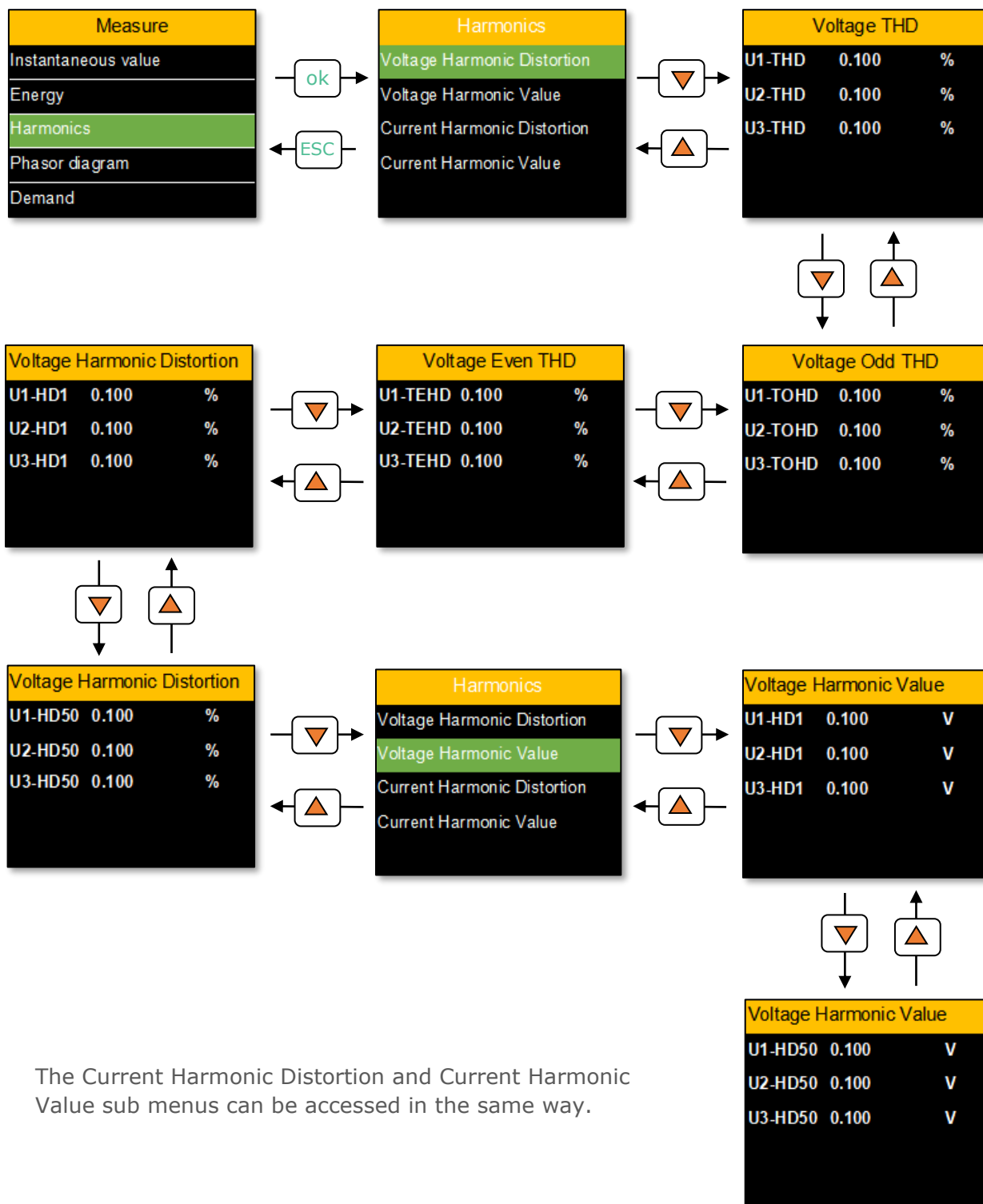
Selecting the Energy sub-menu allows all the real time energy values to be shown, these are Active energy, Reactive energy Apparent energy and Tariff. Use the Up, Down, ok and ESC buttons to navigate around the sub-menus



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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.



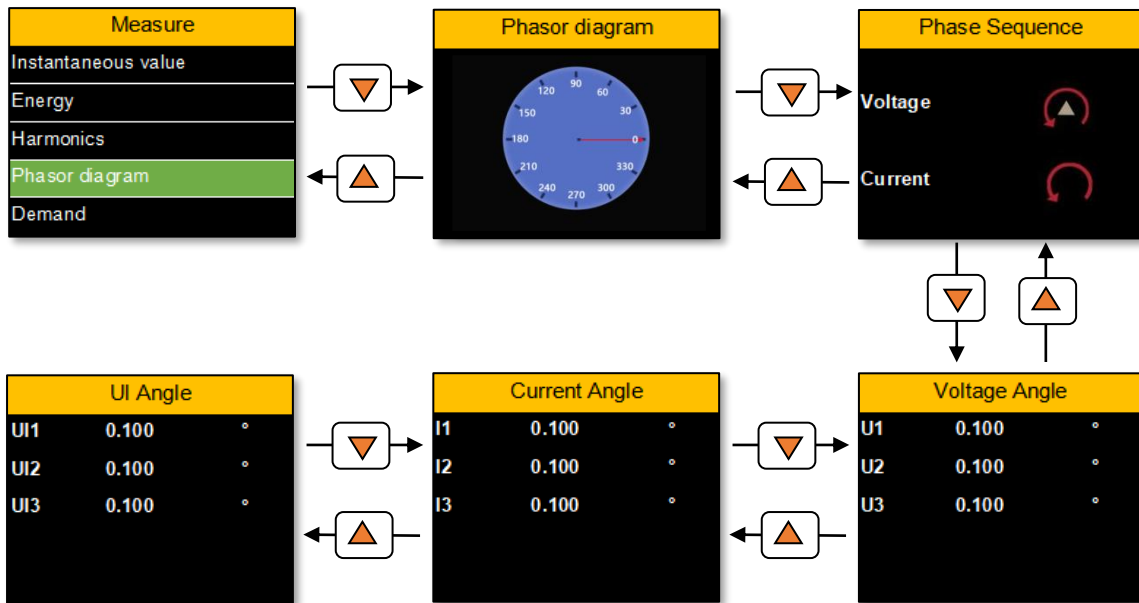
The Current Harmonic Distortion and Current Harmonic Value sub menus can be accessed in the same way.



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

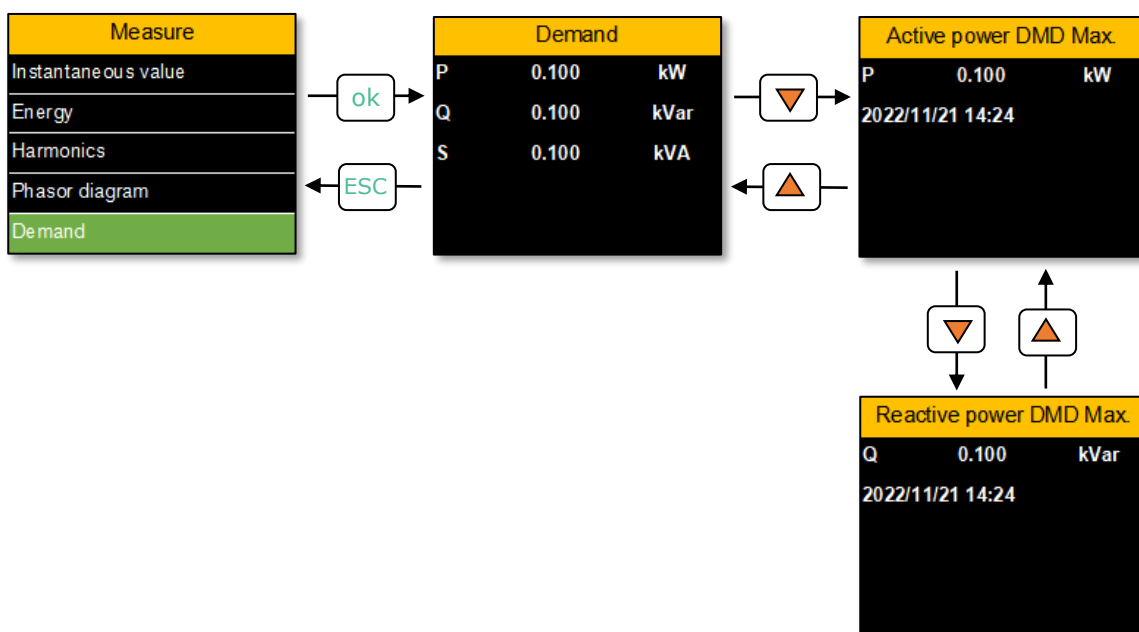
Measure Menu – Phasor Diagram

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

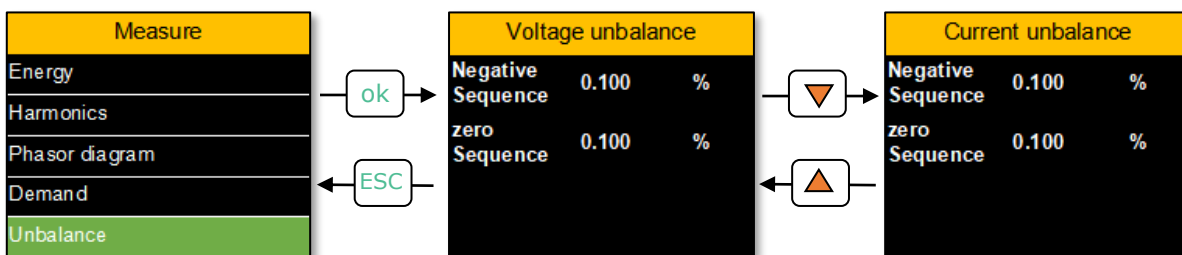
Selecting the Demand sub-menu shows Demand, Active Power Demand Maximum, Apparent Power Demand Maximum and Reactive Power Demand Maximum. Use the Up, Down, ok and ESC buttons to navigate around the sub-menus.



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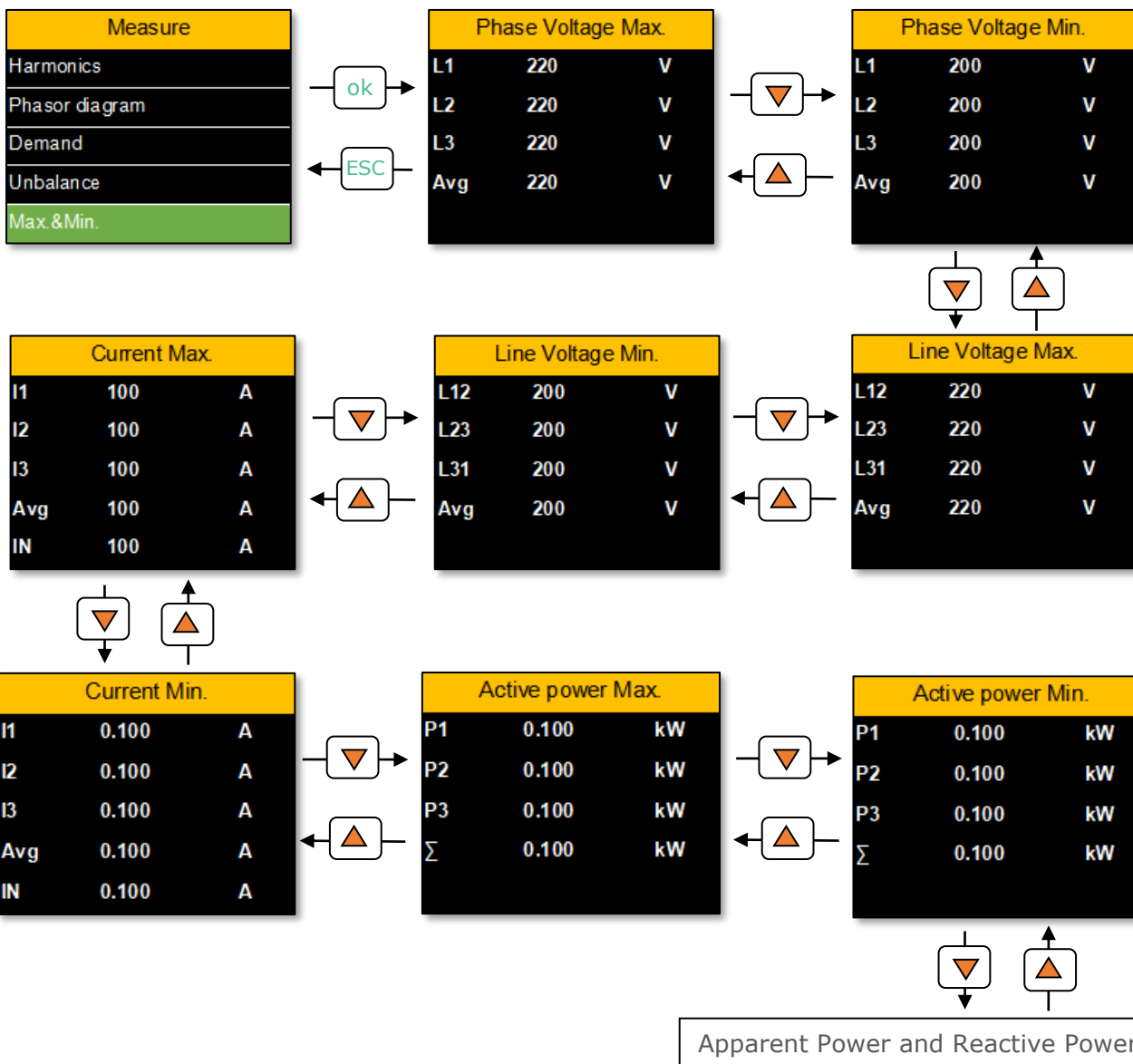
Measure Menu – Unbalance

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.



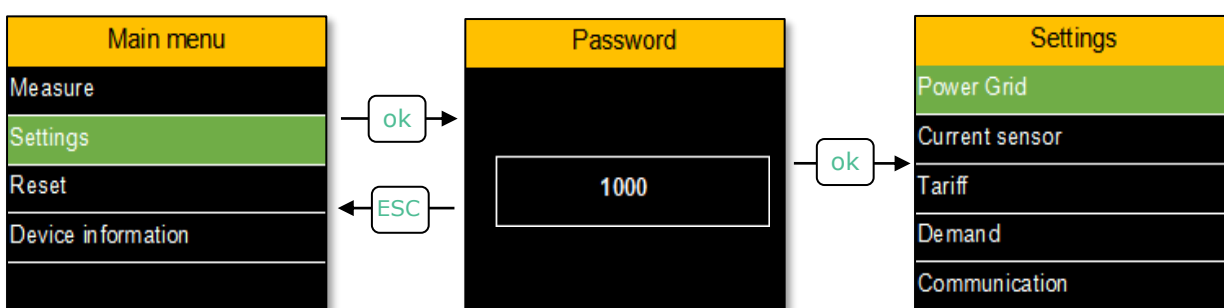
Please ensure all power is switched off before installing or maintaining this product.

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 |

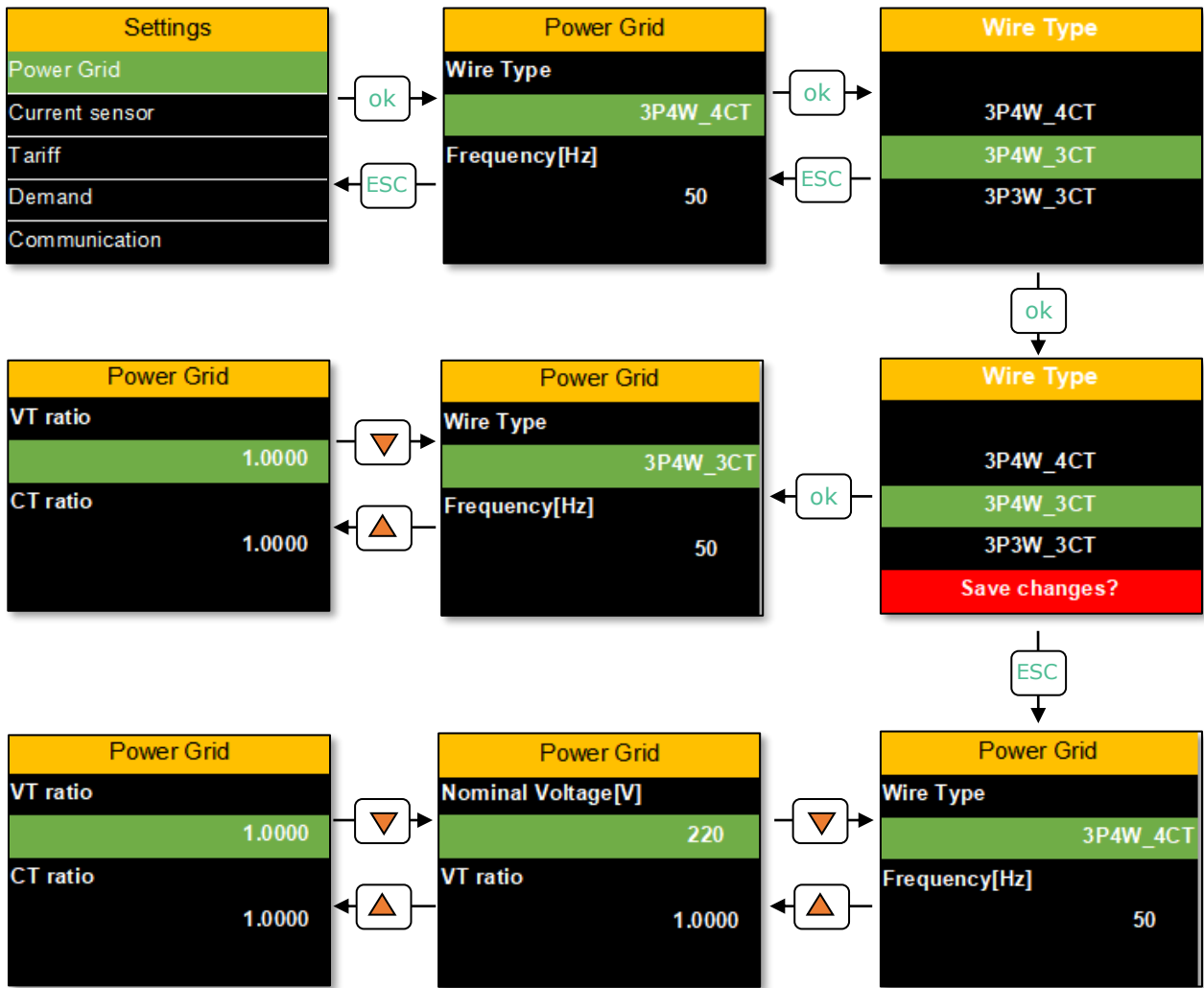
Frequency can be set as 50 or 60Hz, UK operates at 50 Hz.

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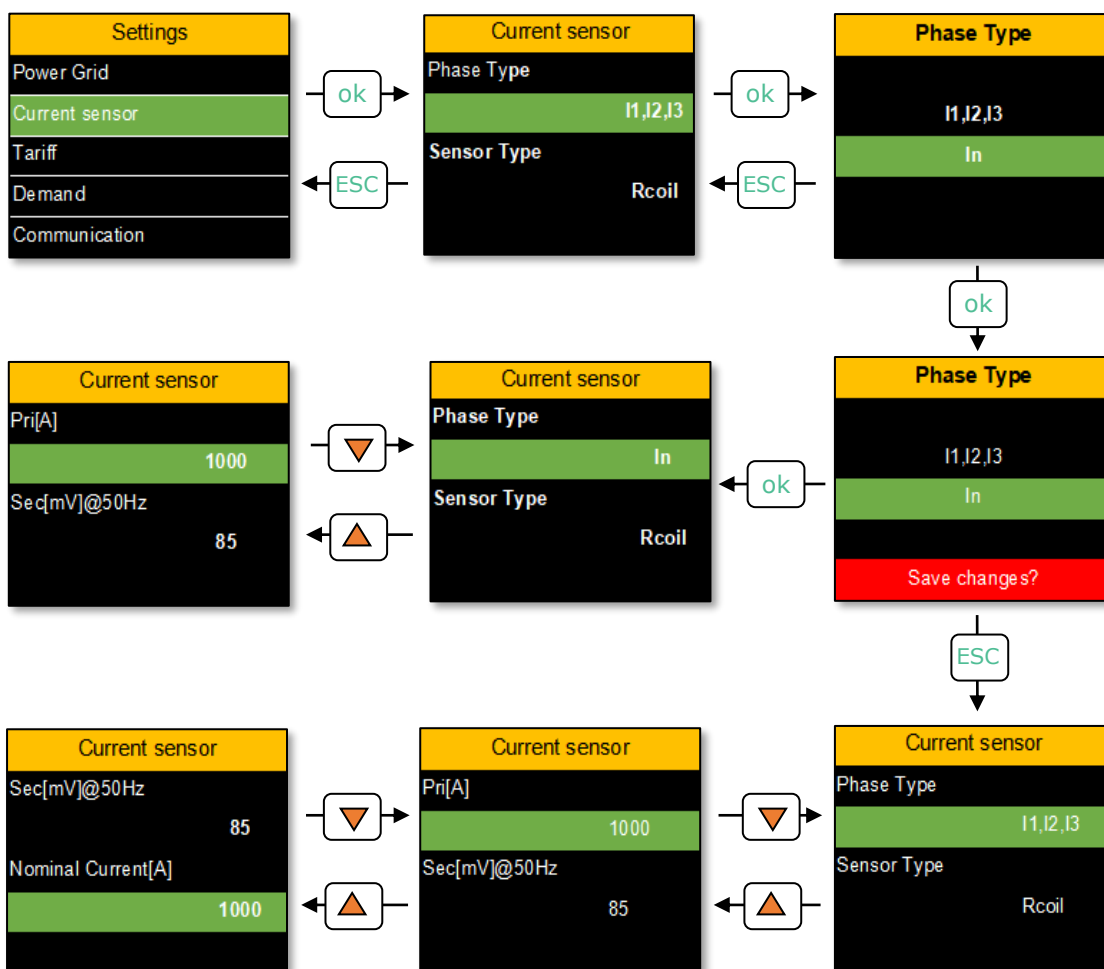
Please ensure all power is switched off before installing or maintaining this product.

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). |
| 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 | This is the maximum value of current that will be measured accurately by the meter. This would normally be set to the same value as the CT primary current range. |

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.

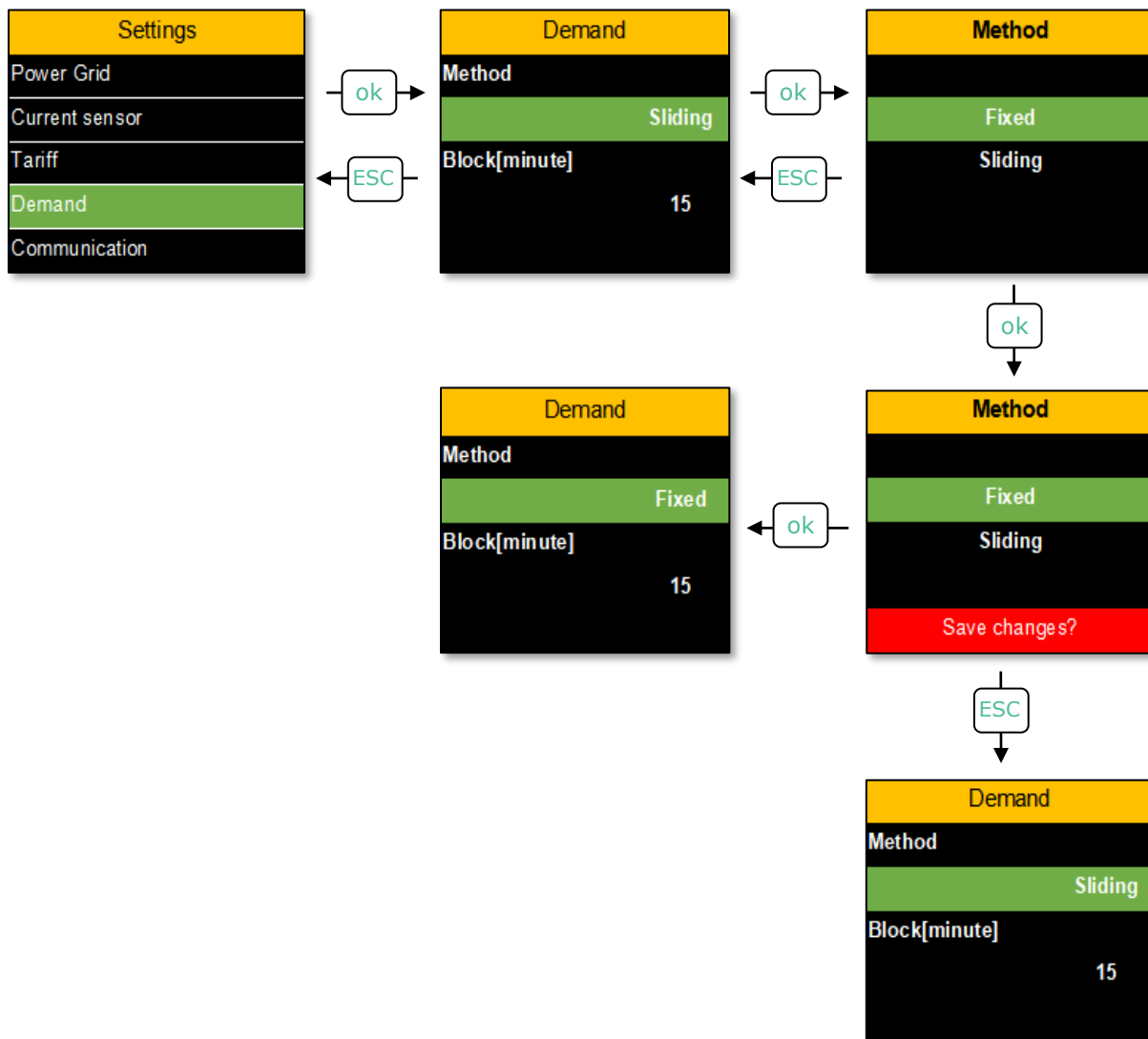
This is not used in normal operation and can be left at default settings.



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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.

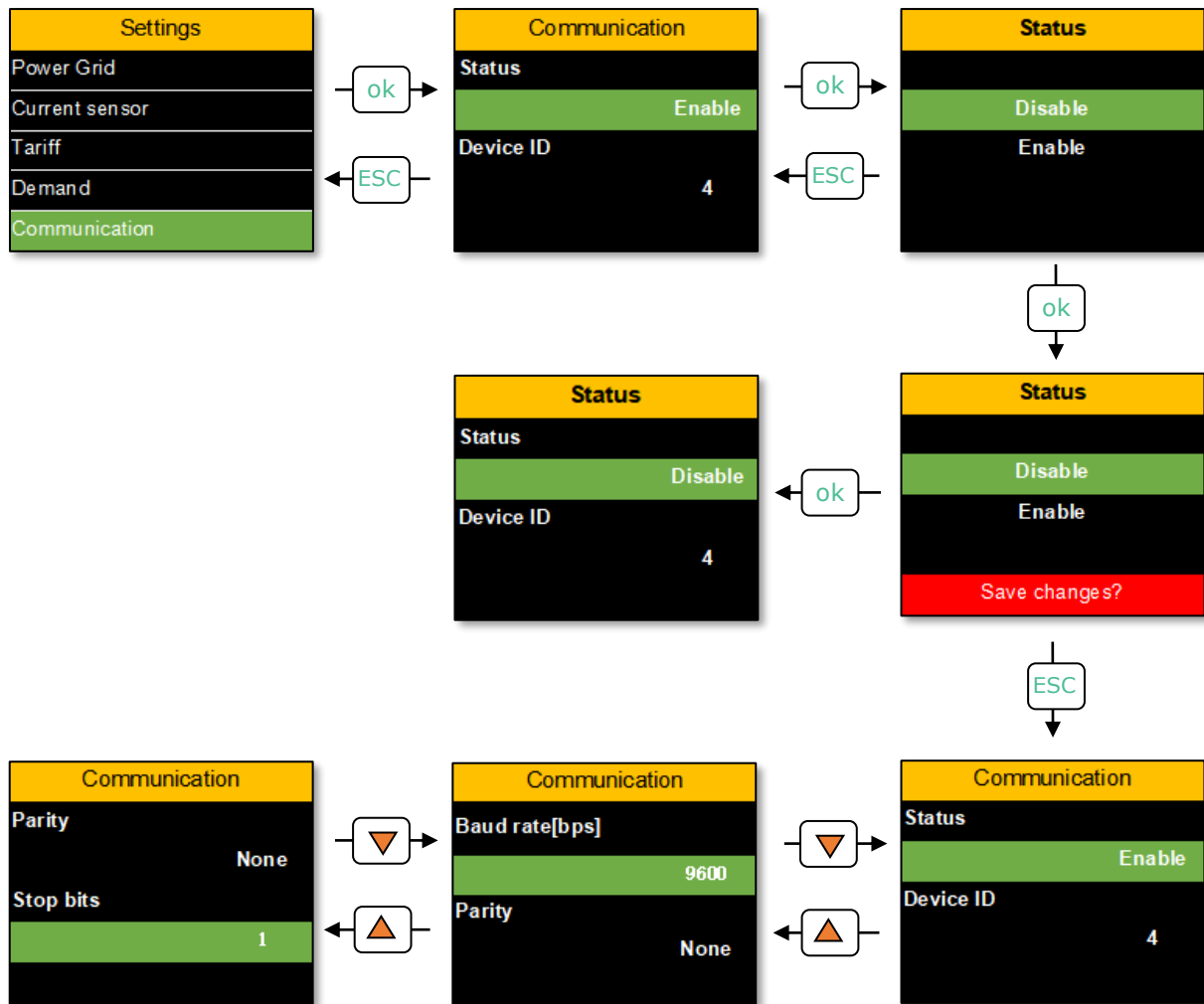
Parity: None, Even or Odd.

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.

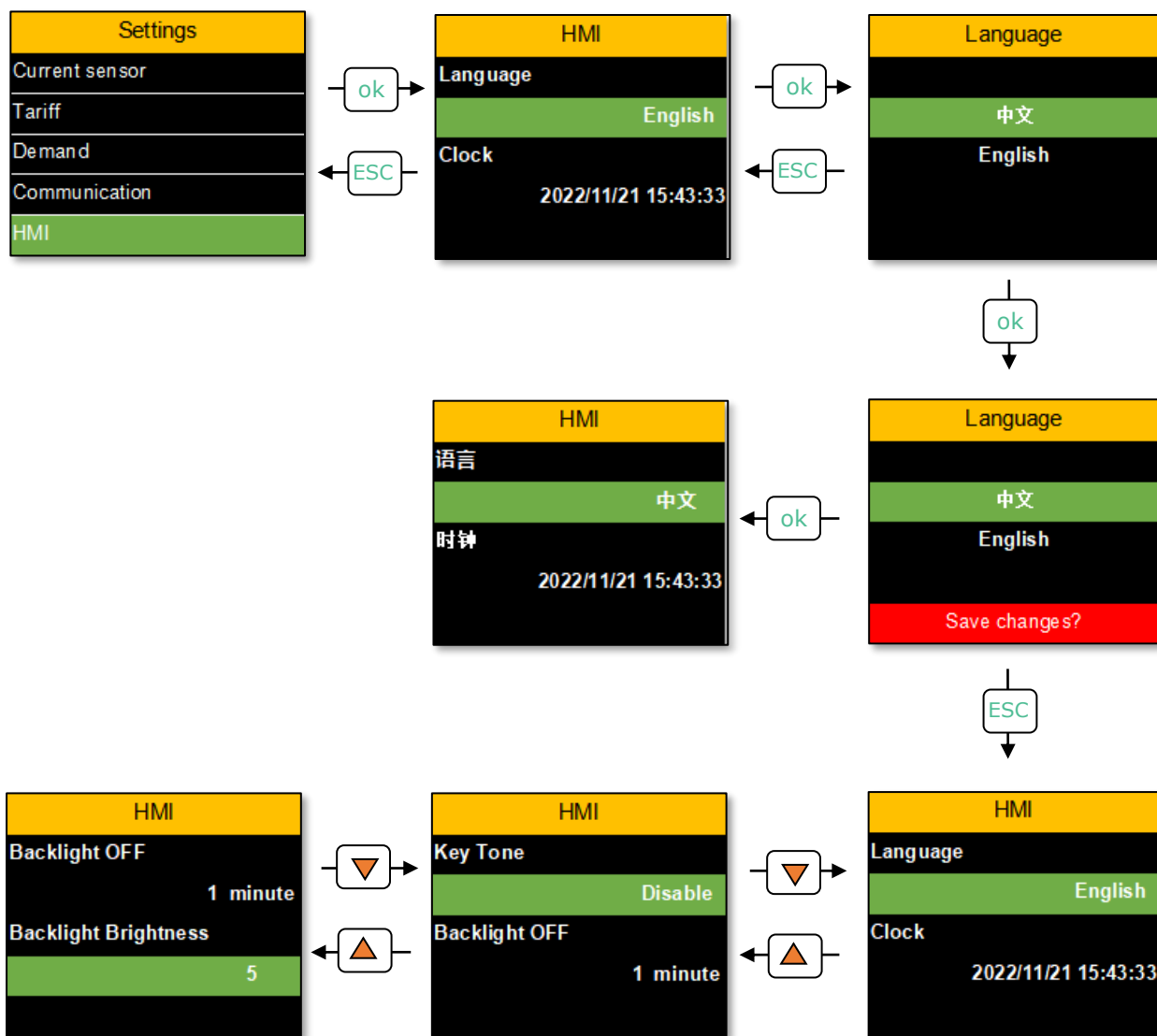
Key Tone: activates or de activates the audible click when any key is pressed.

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.

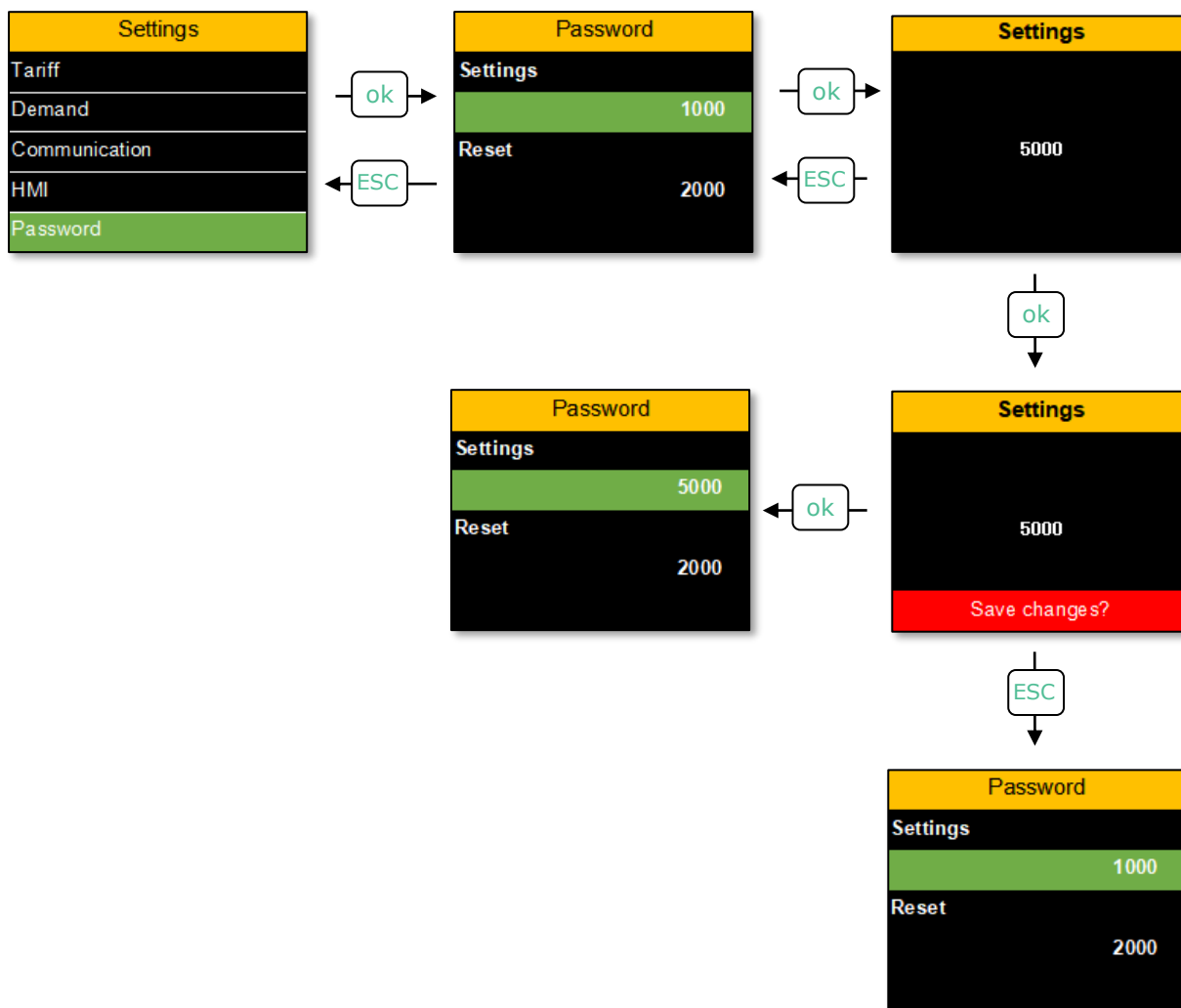
The settings password is required to set commissioning settings such as CT size, Modbus address and timeclock. This password is 1000 as default.

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.

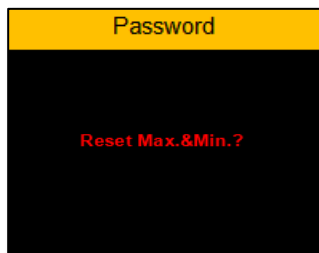
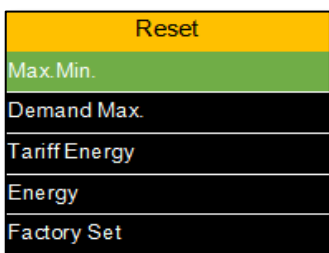
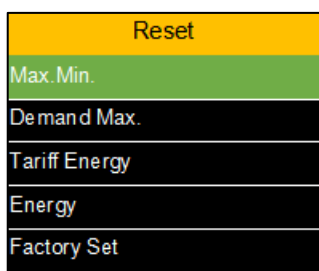
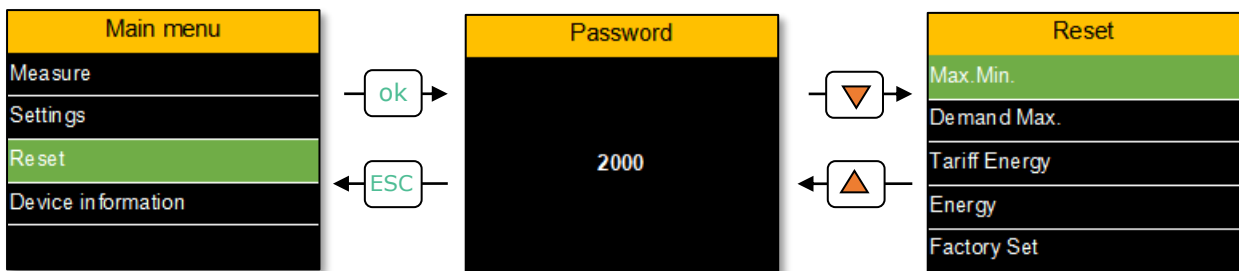
Before enter the configuration page, you need to enter the configuration password (default 2000).

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.



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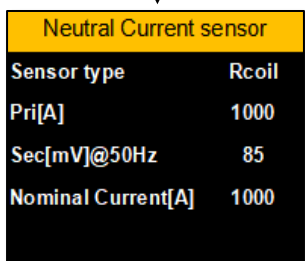
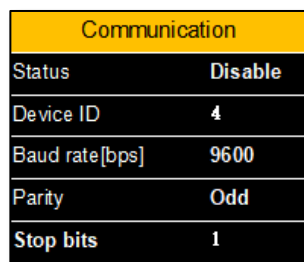
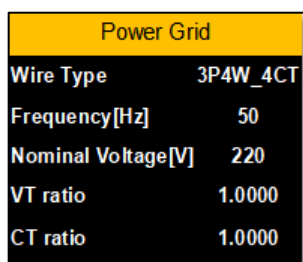
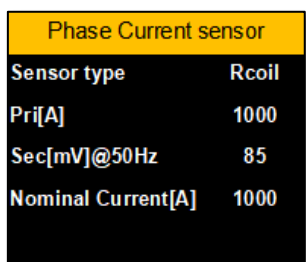
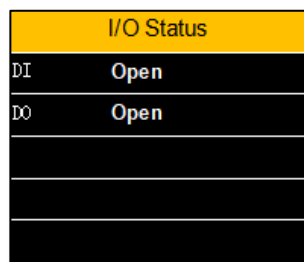
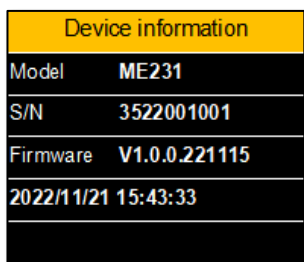
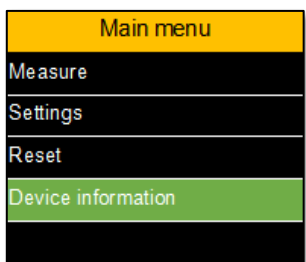


Reset Successful

Reset Cancelled

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.

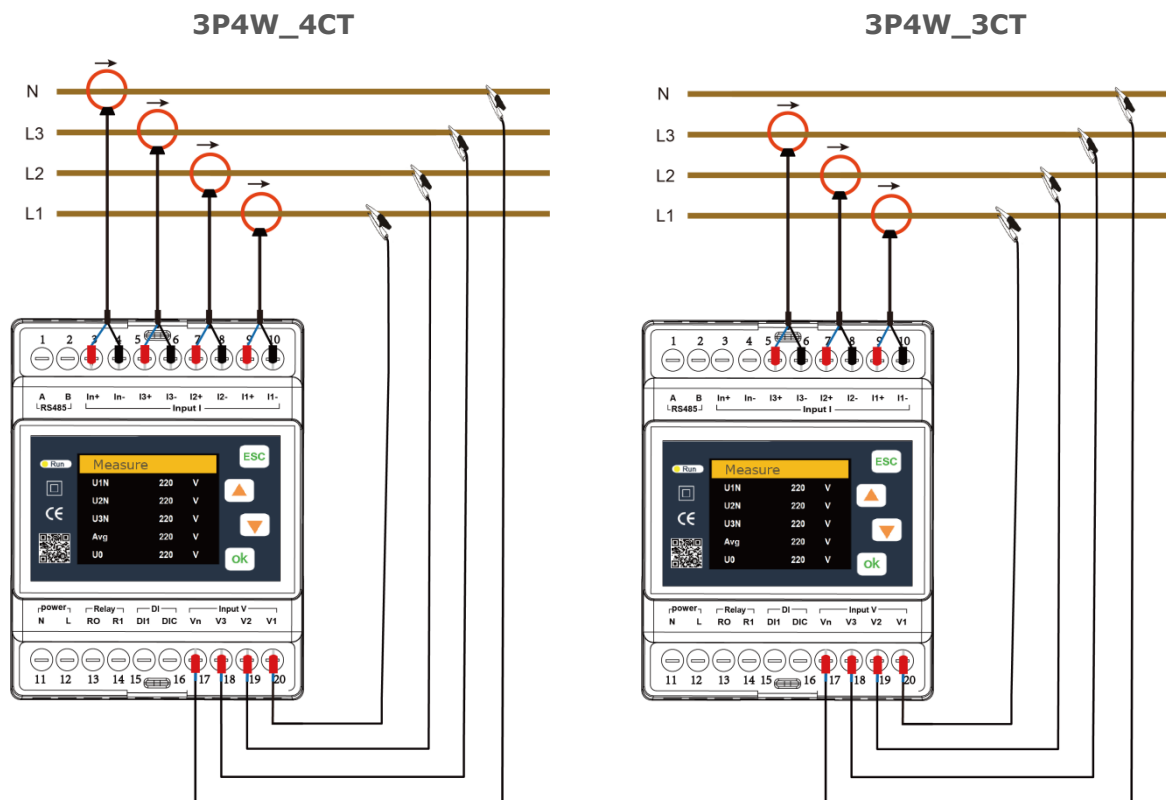
Voltage and current

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.

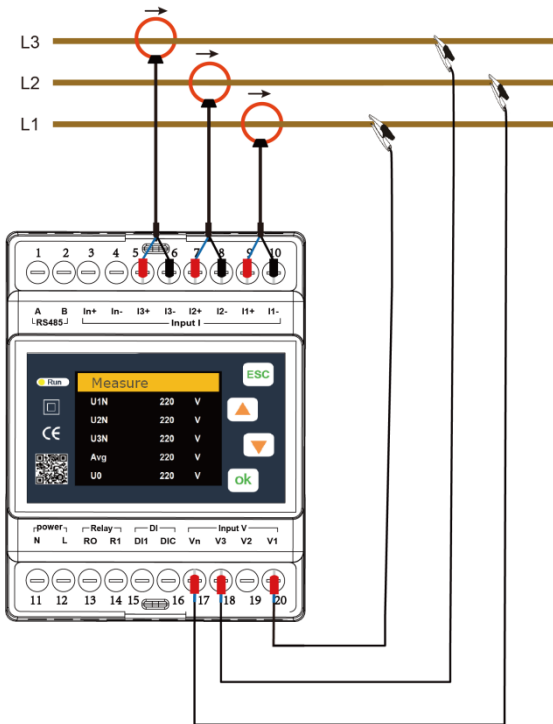
- 3P4W_4CT requires 4 current sensors and the N phase current is measured by a separate CT.
- 3P4W_3CT requires 3 current sensors, the N phase current is obtained by calculation
- 3P3W_3CT requires 3 current sensors, the L2 phase current is measured by the sensors
- 3P3W_2CT requires 2 current sensors, 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:

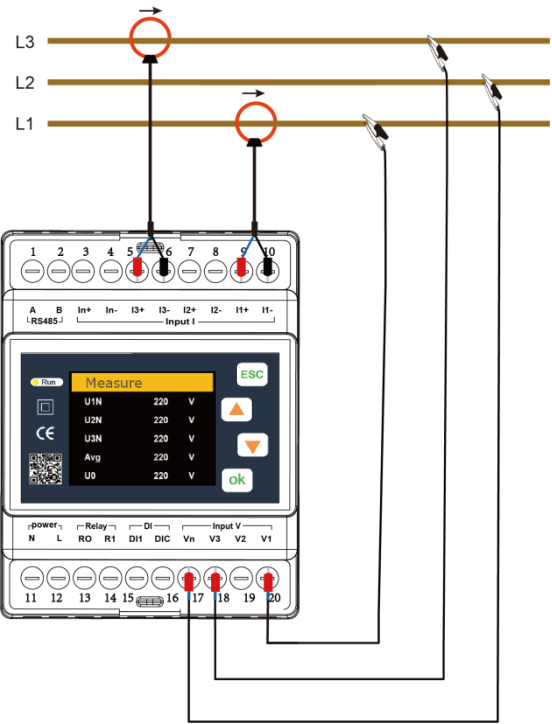


Please ensure all power is switched off before installing or maintaining this product.

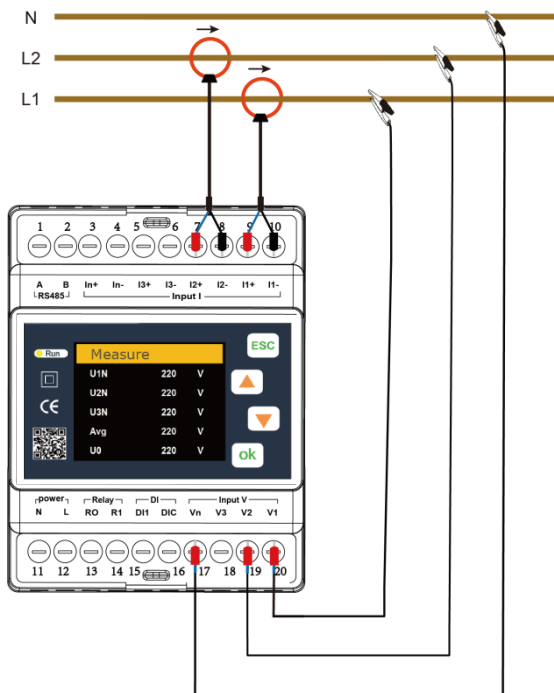
3P3W_3CT



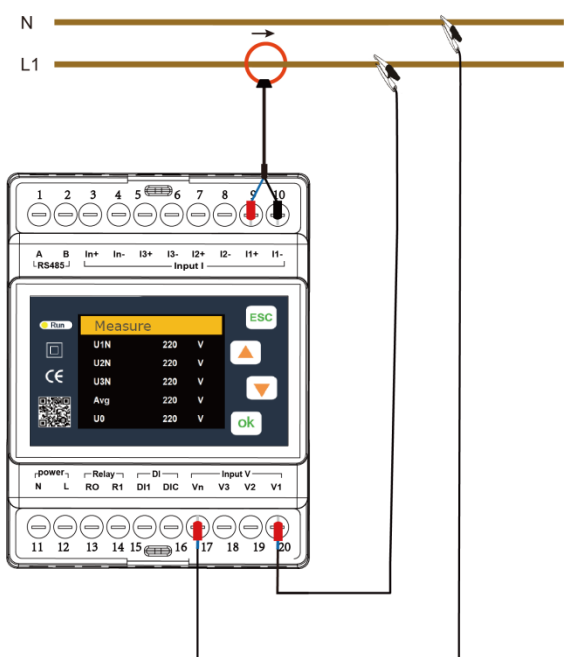
3P3W_2CT



1P3W

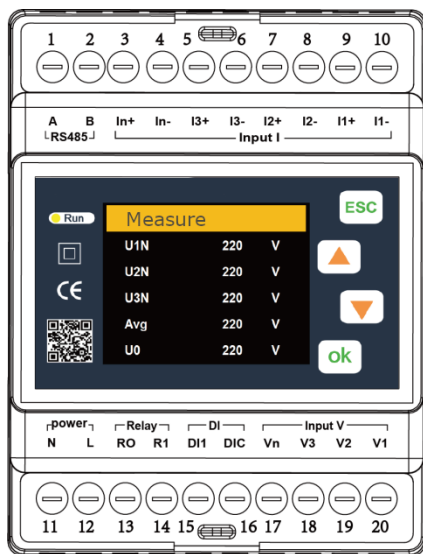


1P2W



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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 compatible Modbus interface |
| 14 | R1 | Relay normally open contact | |
| 15 | DI1 | Digital input channel 1 | Can only be utilised using a compatible Modbus interface |
| 16 | DIC | Digital channel common terminal | |
| 17 | Vn | Neutral phase voltage input | Line Voltage Neutral |
| 18 | V3 | L3-phase voltage input | |
| 19 | V2 | L2-phase voltage input | Line Voltage Connections |
| 20 | V1 | L1-phase voltage input | |



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Specifications

| Description | |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------|
| Part Number | PR0672-3PH DIN |
| Current sensor type | Rogowski coil or VCT |
| 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, 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), 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 |
| 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 |
| Active power | P1, P2, P3, Σ |



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| | |
|----------------|----------------------|
| Reactive power | Q1, Q2, Q3, Σ |
| Apparent power | S1, S2, S3, Σ |
| | |

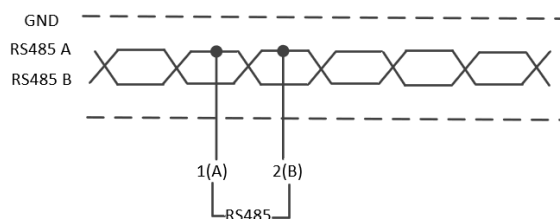
| Measurement Accuracy | |
|------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|
| Current measurement accuracy | 0.1%+Accuracy of current sensor |
| Voltage measurement accuracy | $\pm 0.2\%$ (60V~600V AC) |
| Grid frequency | $\pm 0.01\%$ (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 Ω 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.

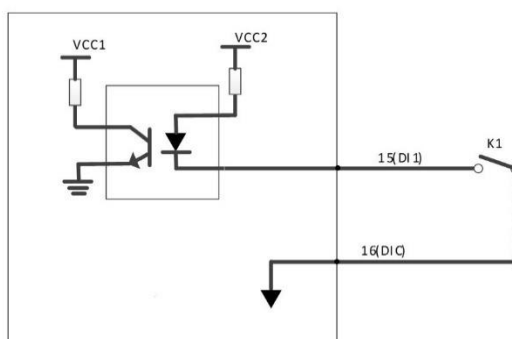
The relay output by default is non-operational but can only be controlled using a suitable Modbus interface if required. The RDM Modbus template allows the meter to communicate information to an RDM DM Touch or Intuitive TDB controller but does not contain any relay (output) functionality.

Relay terminal connections are labelled R1 and R0, where R0 is the common contact and R1 is the normally open contact.

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 suitable Modbus interface, the RDM Modbus template does not read this input although the digital switch input status can be displayed in the meter display interface under I/O status.



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Modbus Registers

| Register | Name | Min | Max | Unit | Scaling | Item Type (Read Type = 3 – Read holding) | |
|---------------|---------------------------------|-----------|----------|------|---------|---------------------------------------------|--------|
| Inputs | | | | | | | |
| 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) | | |
|---------------|---------------------------------|-----------|----------|------|---------|---------------------------------------------|--------|--|
| Inputs | | | | | | | | |
| 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. |
| 2.0a | 22/03/2024 | Quick start guide added. Nominal current description updated. |
| 2.0b | 17/04/2024 | Clarification of Modbus control of Relay and digital input. |
| 2.0c | 01/07/2024 | Part number updated to PR0672 3PH DIN. |
| 2.0d | 09/07/2024 | Updated image added with RDM logo. |



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