

E470 Series 3 SMETS2 100 mm

User Manual and Functional Description
Issue 1.2



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1 Safety

1.1 Safety information

The following symbols are used to draw your attention to the relevant danger level, i.e. the severity and probability of any danger, in the individual sections of this document.



Danger

This symbol is used to indicate a possible dangerous situation which could result in severe physical injury or death.



Warning

This symbol is used to indicate a possible dangerous situation which could result in minor physical injury or material damage.

Note

This symbol is used to indicate general details and other useful information.

In addition to the danger level, safety information also describes the type and source of the danger, its possible consequences, and measures for avoiding the danger.

1.2 Meter Operator Code of Practice

The E470 must be installed in accordance with the Meter Operation Code of Practice Agreement (MOCOPA®), defining safety, technical and business interface requirements regarding the provision of meter operation services.

For more information see <https://www.mocopa.org.uk/>.

1.3 Safety regulations

The following safety regulations must be observed at all times:

- Local safety regulations must be observed and shall take precedence over these regulations in the event of a conflict. Only technically qualified and appropriately trained personnel are authorised to install the meters.
- Meters that have been dropped must not be installed, even if no damage is apparent, but must be returned to the service and repair department (or the manufacturer) for testing. Internal damage may result in malfunctions or short-circuits.
- The meters must not be cleaned under running water or with compressed air. Water ingress can cause short-circuits.
- The meter terminal cover should be secured in place before any load is supplied.

2 Physical description

2.1 Meter construction

This document doesn't include a description of the internal construction of the meter. Opening the meter after delivery isn't permitted. If it is opened the meter's calibration and certification will automatically be rendered void.

The meter case is made of antistatic polycarbonate plastic glass filled 10%.

The top part of the meter houses an intimate communications hub interface (ICHI).

The middle part of the meter – the meter faceplate area – comprises the user interface with the liquid crystal display (LCD) display, the metrology (measurement) light emitting diode (LED) and the display buttons A and B.

The lower part of the meter – the terminal area – is protected by a removable terminal cover. It includes the main electricity ingress and egress terminals and auxiliary connections.

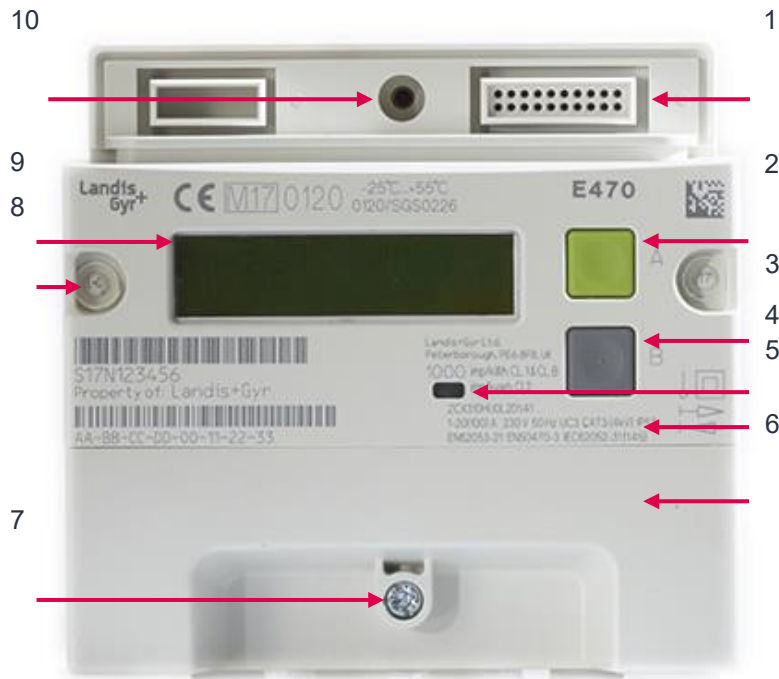


Figure 1 Front view of meter

- 1 Intimate communications hub interface (ICHI)
- 2 Display button A
- 3 Display button B
- 4 Metrology LED (red)
- 5 Faceplate: see Figure 4 for details
- 6 Terminal cover
- 7 Terminal cover sealing point: wire rope and ferrule
- 8 Meter case sealing (left and right side): ultrasonic stakes printed with the manufacturer's name (L+G) and the year of manufacture
- 9 LCD
- 10 ICHI sealing: secured by comms hub screw

3 Meter Displays

3.1 Display and navigation structure

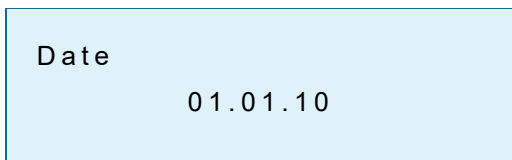
The E470 SMETS2 meter has a display structure that provides end users with information relating to the meter's operation.

3.2 Display examples

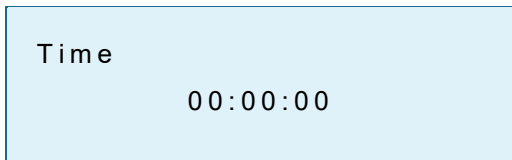
The following section details the typical displays that the meter supports and includes the following:

- Time/date displays
- Total register displays
- Rate register displays
- Instantaneous value displays

3.2.1 Time/date displays



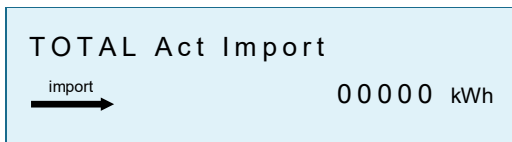
The date is shown in the format DD.MM.YY.



The time is shown in the format HH:MM:SS

3.2.2 Total registers





The following display formats are for total energy registers. The examples show 5 significant figures and no decimal places – just like it'll appear on the meter display.



Total active import energy

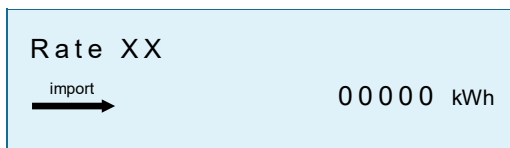


Total active export energy

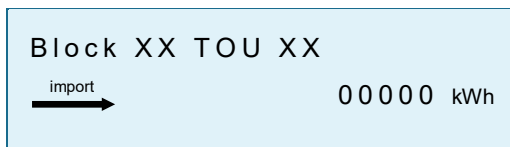
<p>TOTAL (sum)</p>  <p>00000 kWh</p>	Total active energy (sum) (import + export)
<p>TOTAL (net)</p>  <p>00000 kWh</p>	Total active energy (net) (import – export)
<p>TOTAL (ind.) Q1</p> <p>00000 kvarh</p>	Total reactive energy quadrant 1 (import inductive)
<p>TOTAL (cap.) Q2</p> <p>00000 kvarh</p>	Total reactive energy quadrant 2 (import capacitive)
<p>TOTAL (ind.) Q3</p> <p>00000 kvarh</p>	Total reactive energy quadrant 3 (export inductive)
<p>TOTAL (cap.) Q4</p> <p>00000 kvarh</p>	Total reactive energy quadrant 4 (export capacitive)
<p>TOTAL Rea Import</p>  <p>00000 kvarh</p>	Total reactive import energy (kvarh)
<p>TOTAL Rea Export</p>  <p>00000 kvarh</p>	Total reactive export energy (kvarh)
<p>TOTAL App Import</p> <p>00000 kvarh</p>	Total apparent import energy (kVah): +VA (QI+QIV)
<p>TOTAL App Export</p> <p>00000 kvarh</p>	Total apparent export energy (kVah): +VA (QII+QIII)

3.2.3 Rate registers

The meter displays time of use (TOU) rates and block rated registers.



TOU Rate xx - active import energy (kWh)
(rates 1 to 48)

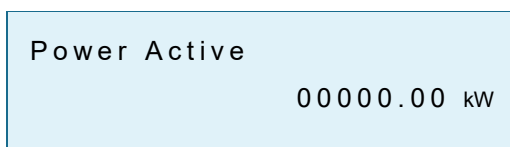


Block xx TOU Rate xx – active import energy (kWh)
(Block 01 to 04, TOU Rate 01 to 08)

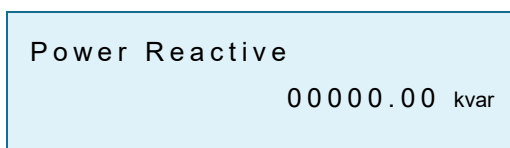
The import and export representation arrow is for Active energy only

3.2.4 Instantaneous values

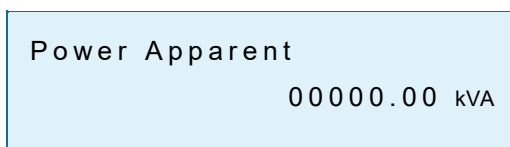
The meter displays instantaneous values for power, power factor, voltage, current, frequency and meter balance.



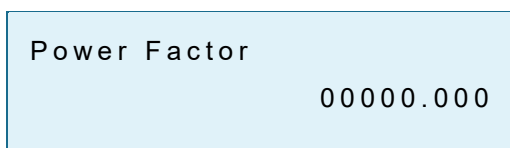
Instantaneous Active Power (kW)



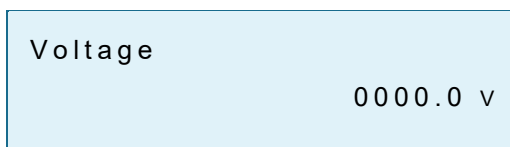
Instantaneous Reactive Power (kvar)



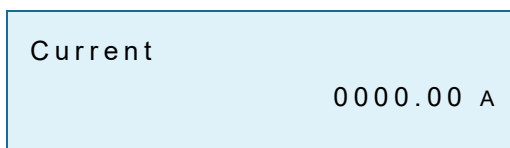
Instantaneous Apparent Power (kVA)



Power Factor



Voltage (V)



Current (A)

Frequency
0000.0 Hz

Mains Frequency (Hz)

Credit Mode Bal
£0.00

Meter Balance (Credit Mode)

3.2.5 MID displays

The meter can display the approved and calculated checksums (CRC).

APPRXXXXXXXXX
MIDCRC

Approved CRC

CALCXXXXXXXXX
MIDCRC

Calculated CRC

3.2.6 Charge displays

The meter can display the standing charge.

Standing Charge
£0.00

Standing charge (pounds and pence)

3.3 Credit mode status displays

The following section details the displays that the user can see when in the credit mode of operation.

3.3.1 Credit mode balance

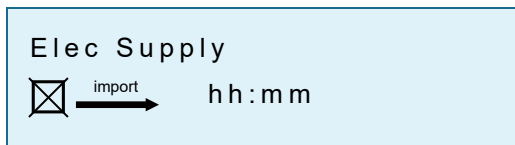
Meter in credit mode: Supply On, Credit meter balance shown.

Credit Mode Bal
 import → £0.00

Credit mode balance

3.3.2 Customer PIN enabled but not entered

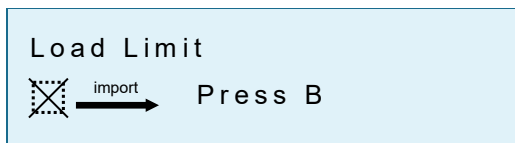
Display when customer PIN enabled but not entered. Supply status could be any one of the following: off, arm or on.



PIN enabled but not entered

3.3.3 Load limit exceeded

Display when customer has exceeded load limit. Supply status armed.



When load limit is exceeded the supply control switch box symbol flashes

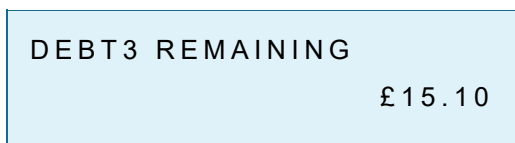
3.4 Debt management displays

The meter supports two types of debt collection: payment based and time based (see below).

3.4.1 Payment based debt displays

3.4.1.1 Debt remaining

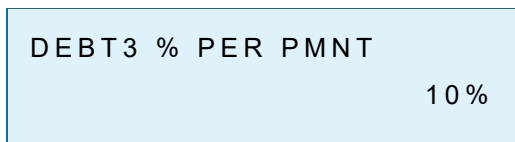
Where the meter is set up to perform payment based debt collection, it will display the amount of debt that the customer has outstanding.



Debt remaining

3.4.1.1 Debt collection percentage

The meter will display that amount of debt to be collected from each top-up performed (detailed as a percentage per payment).



Debt remaining percentage per payment

3.4.1.1 Maximum debt collection per week

The meter will detail the maximum amount of debt that it's able to collect per week from the payment top-ups received.

DEBT3 MAX PER WK £ 50.00	Maximum debt collection per week
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3.4.1.1 Debt amount paid

The meter will detail the total amount of debt that's been paid, based on the payments that the meter has processed.

DEBT3 AMNT PAID £ 20.12	Amount of debt paid
----------------------------	---------------------

3.4.1 Time based debt displays

3.4.1.1 Debt remaining

Where the meter is set up to perform time based debt collection, it will display the amount of debt that the customer has outstanding.

DEBT1 REMAINING £ 20.12	Amount of debt remaining
----------------------------	--------------------------

3.4.1.1 Debt collection interval

The meter will display the amount of debt to be collected, detailing the time-period for each collection and the amount of money to be collected at each interval.

DEBT1 / 1440 min £ 00.40	Debt collection period (One hour or one day)
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3.4.1.1 Debt collection not configured

The meter will display a 'not configured' notification if it hasn't been set up to collect a time based debt.

DEBT1 NOT CONFIG £ 00.00	Debt collection not configured
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3.4.1.1 Debt amount paid

The meter will detail the total amount of debt paid, based on the payments already processed by the meter.

DEBT1 AMNT PAID
£15.10

Amount of debt paid