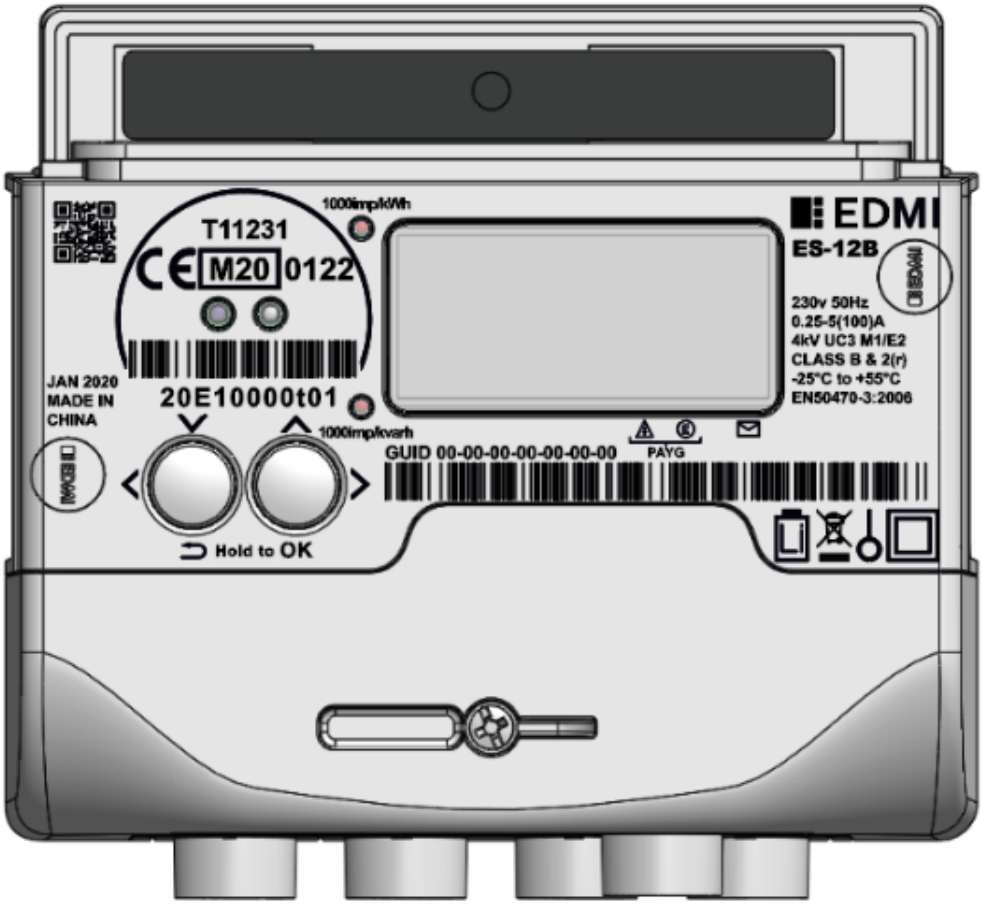
ES-12B 5 Terminal Single Phase Residential Electricity Meter

Product Guide



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Glossary of Terms

Term	Description
ALCS	Auxiliary Load Control Switch
LCS	Load Control Switch – 100A relay for controlling external circuits
BEIS	Department for Business, Energy & Industrial Strategy.
CPA	Commercial Product Assurance – A version of the document entitled 'Commercial Product Assurance Security Characteristic Smart Metering – Electricity Smart Metering Equipment' that is identified in the Smart Energy Code as being relevant to the GBCS.
DCC	Data Communications Company – Government licenced company in charge of the smart metering infrastructure
GBCS	Great Britain Companion Specification – Technical specification document, an compliment to SMETS
HAN	Home Area Network – ZigBee home network for the connection of metering and in home display devices
HCALCS	HAN Connected Auxiliary Load Control Switch
ICHIS	Intimate Communications Hub Interface Specification – Technical specification for the communications unit to be supplied to every home in the UK
LCD	Liquid Crystal Display – Visual display on the meter
MAP	Metering Asset Providers – Purchase meters on behalf of energy providers on (commonly) a lease agreement
RMA	Return Merchandise Authorisation – Product return procedure
SMETS	Smart Metering Equipment Technical Specifications – Technical specification documents published by DECC
VAC	Volts Alternating Current – 230VAC is standard in the UK for sockets

1 Introduction

The EDMI ES-12B is a single element, SMETS2 compliant single phase direct connected electricity meter with LCS support that can be fitted with an ICHIS compliant Communications Hub.

The EDMI ES-12B electricity meter and Communications Hub (if fitted) are intended for use in CAT III 300V / 4000VAC rated installations.

This means that they are suitable for use in locations on conductors that have up to 300V phase to ground and can withstand transient impulses up to 4000VAC.

Note: Please be aware that all images and figures are subject to change until product has been released.

1.1 Safety Precautions

Only qualified electricity meter installers should install this equipment.

To prevent incidents of electric shock, explosion, or arc flash hazards, follow safe electrical work practices:

- Handle any parts indicated by  and  warning labels with caution. These symbols show where live circuits or high voltage connections are present.
- The internal relay of the meter is not an isolator. Therefore, never assume that the meter is isolated even if the relay is open.

Failure to follow safe electrical working practices may lead to personal injury, damage to electrical equipment and other property; serious injury or death in the worst scenario.

1.2 Meter Warning Symbols

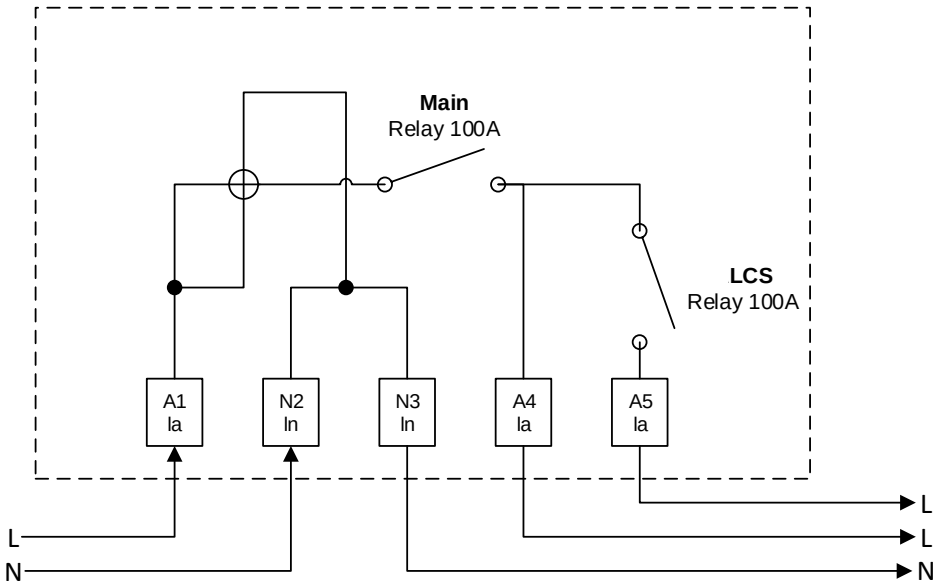
Symbol	What it means
	This symbol indicates the presence of high voltage and risk of electric shock hazards. The meter must be isolated or disconnected from hazardous live voltage before access! **WARNING: To avoid risk of electric shock, do not touch these parts when the meter is live.**
	This symbol is placed to make people aware of possible dangers or hazard ahead in the process of installing the meter. It indicates a need to consult to instructions provided in this manual. **WARNING: A potential risk exists if the operating instructions are not followed.**

1.3 Difference between ES-10 & ES-12

The ES-12B features an additional 100Amp latching relay which serves as a Load Control Switch (LCS), connected to the 5th terminal. Thus ES-12B is fitted with two internal breakers (2x 100A bi-stable relays) allowing to switch off or on power delivery to the end customer.

Terminal arrangement has a configuration Active - Neutral - Neutral - Active - Active, where the output of the integrated LCS is the last Active.

Figure 1-1: ES-12B connection diagram



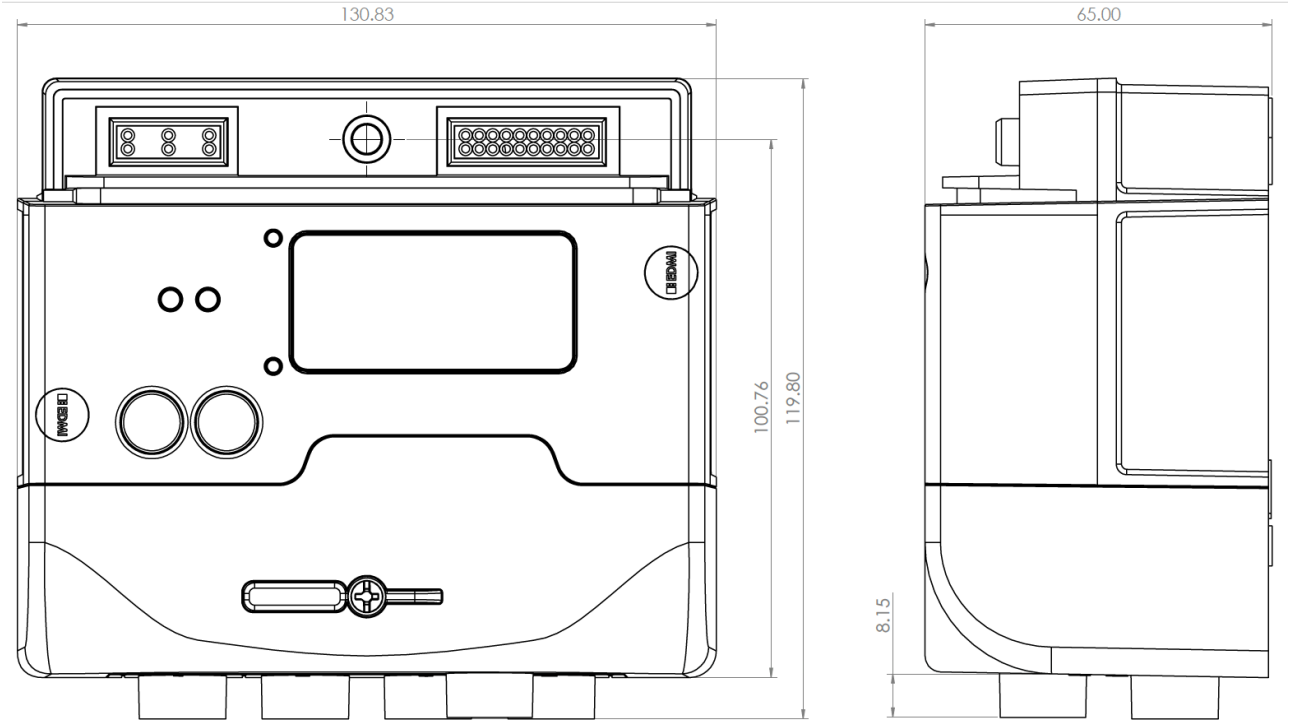
Note: Opening the main relay will cut supply to the 5th Terminal (LCS). Unlike the ES-10 where it's ACLS is operated independent of the main relay.

Key differences:

- 100A LCS relay in place of the ALCS 2A switch
- An extra terminal connection point
- Terminal 5 LCS switch in series with the main relay

Visually the ES-10B and ES-12B electric meters seem very similar and at first glance, can be mistaken for one another. To distinguish between the two the model name, artwork and the presence of the 5th terminal can be seen.

2 Meter Dimensions



Note: Height, width and depth values for the meter do not include the dimensions of the Communications Hub. Please refer to the relevant Product Guide for Communications Hub dimensions

Figure 2-1: Meter Dimensions

3 Environmental Conditions

The ES-12B requires the following environmental conditions:

- The meter must be physically installed in a typical meter environment:
  - Either in a standard form non-metallic meter box (BS8567:2012) in an external location
  - Or in a standard form non-metallic meter box, or exposed non-metallic backboard in an internal location
- The meter must be installed in an area which is clear of any metallic obstructions for at least 16cm above to the sides and in front.
- The meter must not be surrounded by earthed metal screening (Faraday cage) that is likely to exclude electromagnetic signals.
- The meter must be installed in a dry, clean, safe, environment where it is not exposed to the elements.
- The meter must be installed in an environment free from obvious indications of damp, excessive moisture and in which the humidity remains between 10 to 95% non-condensing.
- The meter must not be exposed to temperatures below -25°C or that exceed +55°C. The operation of the meter cannot be predicted outside the stated limits.

There is a risk to the functional operation of the meter, if installed in an environment which does not meet the requirements specified above

Note: When selecting or inspecting the meter installation site, remember that you will need to allow space to mount an ICHIS compliant Communications Hub, or Cradle and Flying Lead on the top of the meter. You will also need to consider the operating conditions required by the Communications Hub.

The Communications Hub dimensions and required environmental conditions will vary according to manufacturer. For Communications Hub specifications, refer to your Communications Hub documentation.

4 Handling of Meters

To ensure the longevity of ES-12B meters supplied by EDMI we ask for the following steps to be followed when handling meters.

4.1 Always use EDMI provided packaging

EDMI packaging is supplied with every meter, this packaging is designed to protect the meter from any environmental impact as well as protecting it from damage. This packaging should be used when the meter is not in use or in transit.

4.2 Meters should not be placed in environments that have a possibility of accelerating environmental factors

It is imperative that the ES-12B meter is stored correctly. For example, meters should not be put into a sealed plastic bag, when damp or have been on the ground. This can accelerate condensation within the meter which could result in physical and/or functional issues in later life of the meter.

4.3 Operating the meter without a Communication hub

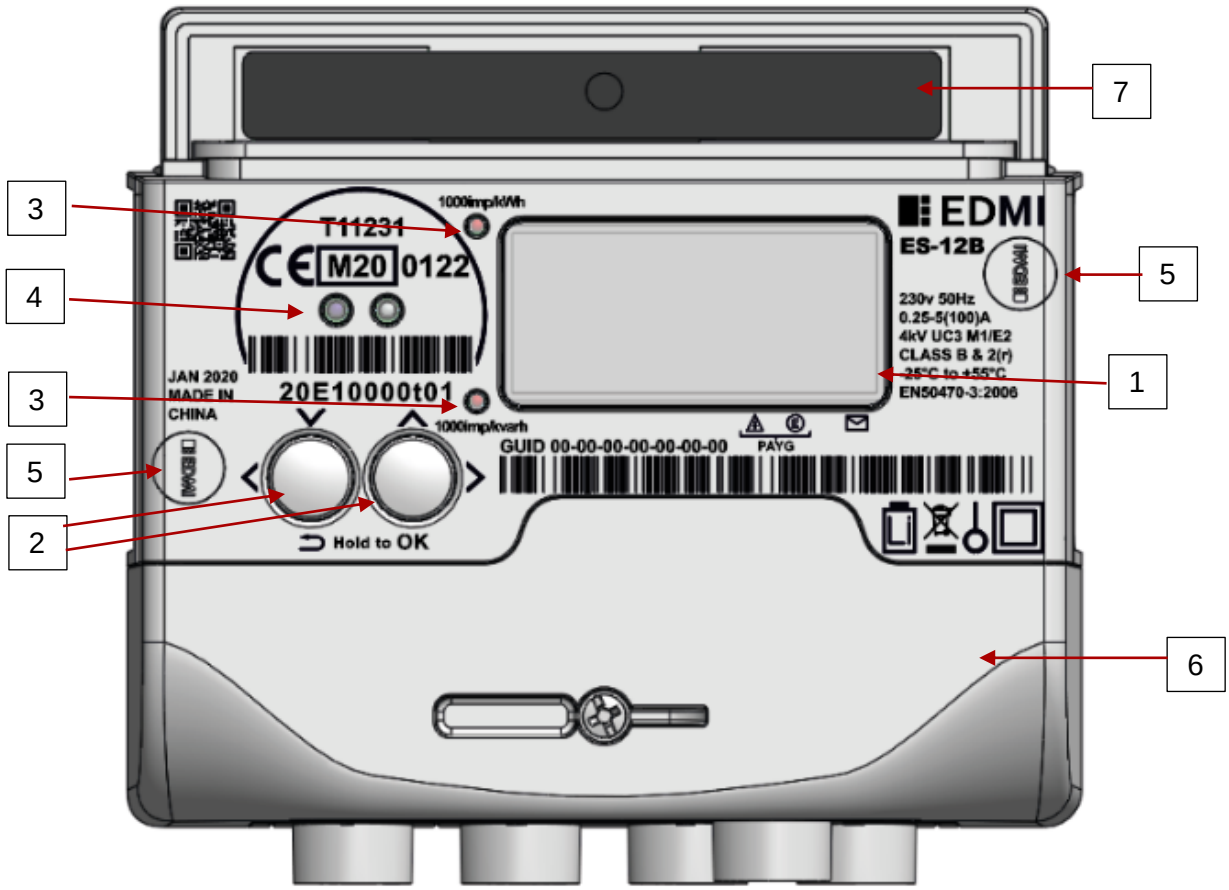
When operating the meter, please determine if the meter has been supplied with a rubber bung or hard ICHIS cover. If the meter is supplied with the rubber bung it must be removed before testing or replaced by the ICHIS hard cover.

Note: If this meter is operated with a rubber bung or no ICHIS cover safety, performance may be impacted. For best operating performance, always use the hard cover or a CH on top of the meter.

5 External Features

5.1 Meter Parts

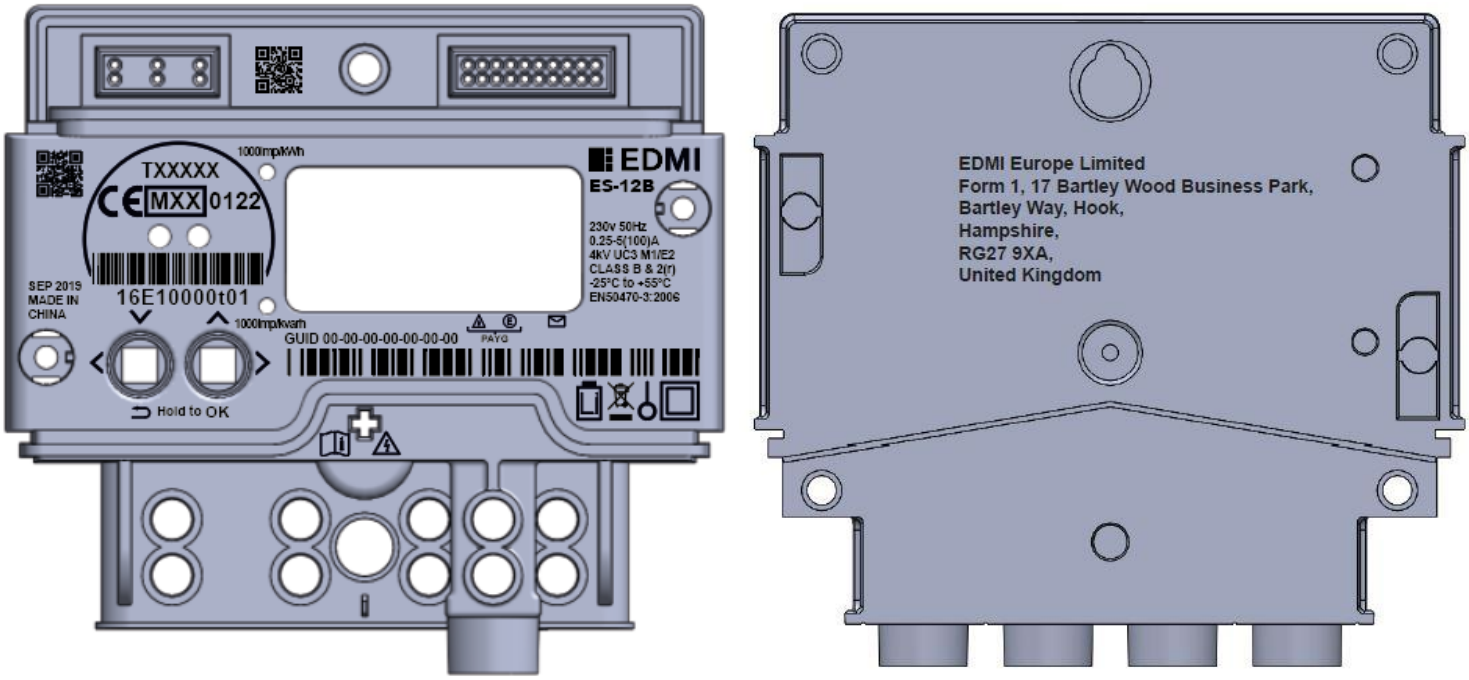
Figure 5-1: ES-12B Meter



1	Liquid Crystal Display (LCD)
2	Navigation Buttons (for menu navigation and selection): ▪ Left button: Press to navigate up or left (as applicable), press and hold to return. ▪ Right button: Press to navigate down or right (as applicable), press and hold for OK.
3	LED energy indicators: ▪ Top: Flashing at 1 pulse per Wh (1/1000th kWh) ▪ Bottom: Flashing at 1 pulse per varh (1/1000th kvarh)
4	Local optical port.
5	Tamper evident seals protecting the meter lid screws.
6	Terminal Cover. Beneath the terminal cover is the terminal block for the main supply and loads along with the terminal block for the output 100A relay – the Load Control Switch.
7	ICHIS cover. Remove to install a Communications Hub on the meter.

5.2 Meter Markings

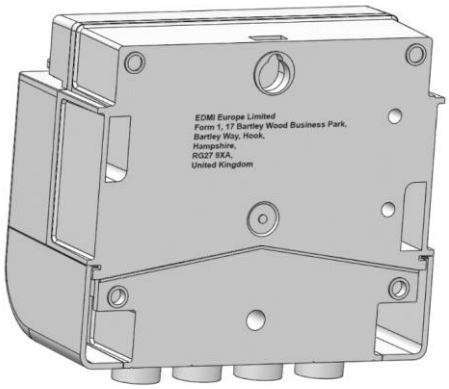
Figure 5-2: Meter Marking



6 Mounting the Meter

For mounting, use 3 screws with a threaded section no larger than 5mm in diameter with a screw head no smaller than 8mm in diameter.

Figure 6-1: Meter Mounting Points



7 Under the Terminal Cover

7.1 Removing the Terminal Cover

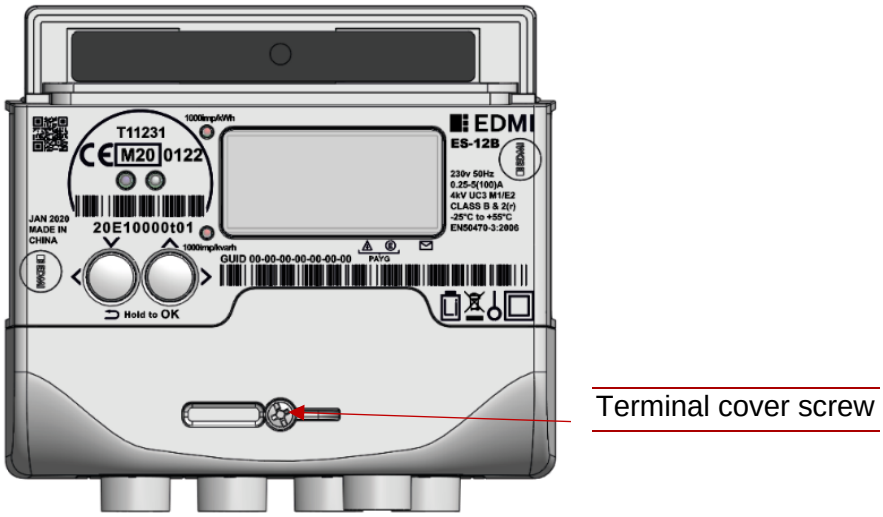
Caution! Supply to the meter must be isolated or disconnected before access.

The terminal cover is secured with a single pozi drive screw.

To remove the terminal cover:

1. Unscrew the central screw on the terminal cover.
2. Slide off the cover.

Figure 7-1: Terminal Cover Screw

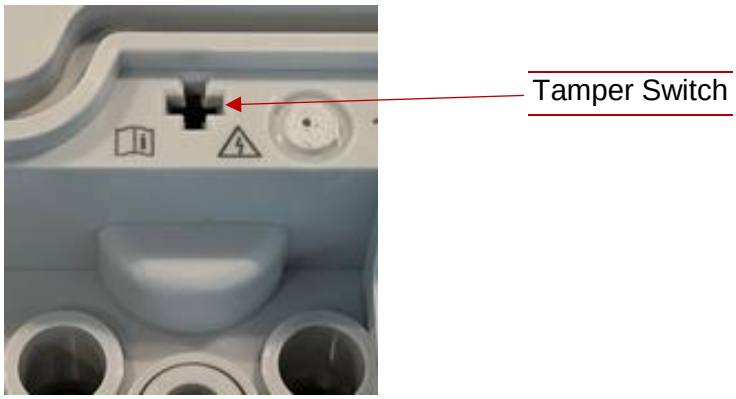


7.2 Terminal Cover Tamper Detection

The ES-12B meter has an integral micro switch that detects the opening of the terminal cover. It is located at the centre of the terminals. The meter generates an alert, which will be sent via the HAN to the energy supplier and logged internally, when the switch is released. This switch also serves to enable access to the meter's Engineering menu.

Note: To access the Engineering menu, you do not need to completely remove the terminal cover. The recommended practice is to simply loosen the terminal cover until the tamper switch releases.

Figure 7-2: Tamper Switch

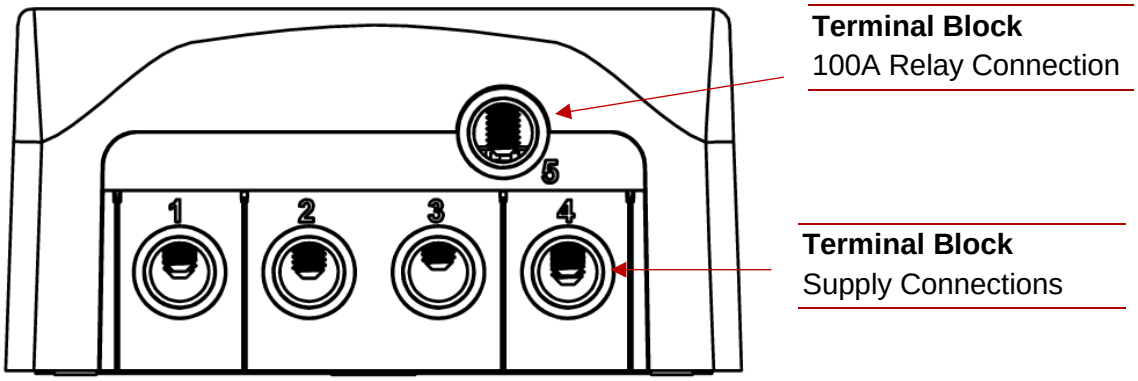


7.3 Connections

Under the terminal cover, there are two rows of connections:

- Supply Connections
- 100A Relay Connection

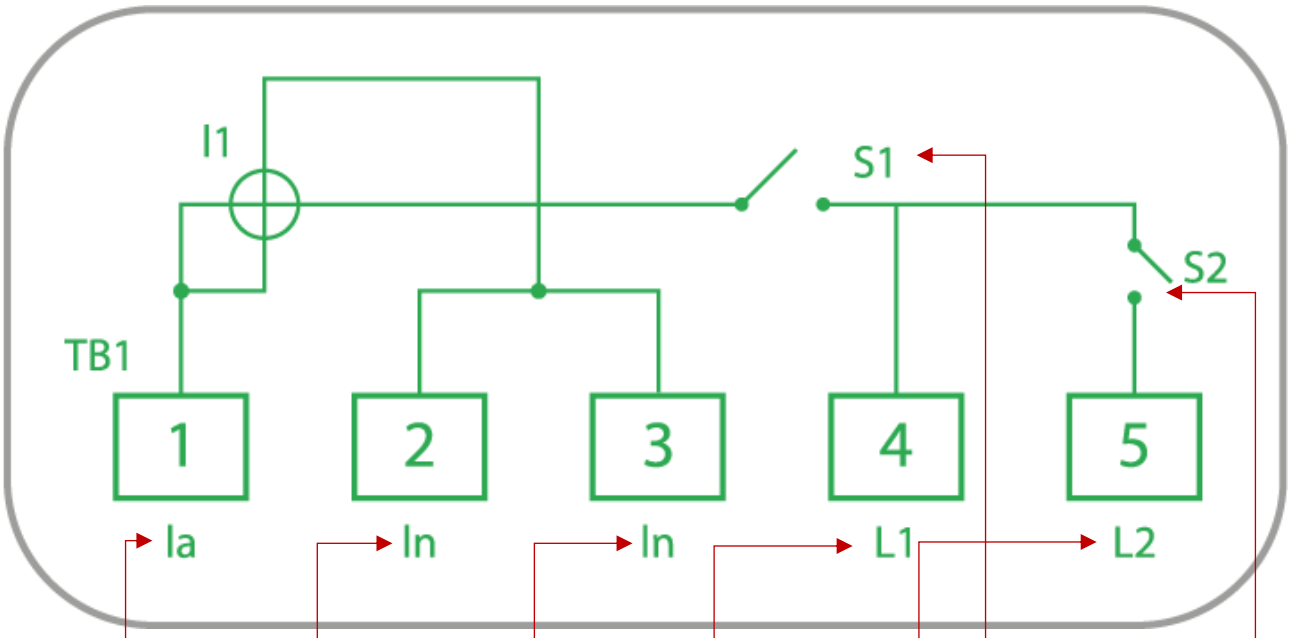
Figure 7-3: Terminal Blocks



The diagram below is printed on the underside of the terminal cover and is provided for reference to ensure the meter is connected correctly.

The following diagram is embossed on the underside of the meter terminal cover.

Figure 7-4: Terminal Connections



L (in)	N (in)	N (out)	L (out)	L (out)	S1	S2
Line 100A max	Neutral 100A max	Neutral 100A max	Main circuit load 100A max	Main circuit load 100A max	Main disconnect relay	LCS

7.4 Current and Voltage

The meter's voltage and current ratings are specified in *Section 0* ***Error! Reference source not found.***.

When the incoming voltage is too high, the main disconnect relay will open. Similarly, when the incoming current exceeds the maximum, the active connection is interrupted by a disconnect relay.

If the Main disconnect relay is open / disconnected the LCS relay will be disconnected as it is running in series. This functionality is different to the previous ES-10A & ES-10B which acted independently to the main disconnect relay.

7.5 Load Control Switch (LCS)

The ES-12B is fitted as standard with a 100A LCS relay connection from the fifth terminal. The fifth terminal acts as separate switch, however runs in series so will still be disconnected if the main disconnect relay (S1) is set to open.

For the locations of the outputs see Figure 7-3. A basic specification and connection diagram is shown underneath the terminal cover as shown in Figure 7-4.

7.6 Local Optical Port

Note: The optical post is used for triage and test purposes.

The local optical port position is shown in Figure 5-1: ES-12B Meter

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The ES-12B uses an optical interface to connect the meter to a PC/Test bench/Portable device using a magnetic optical port read head. The optical interface provides a serial connection to the device at 9600 baud.

Once the meter has left the factory it is in locked (or operational) mode. The optical interface only allows a limited subset of read commands (not customer sensitive) to be accepted.

The optical port is only functional when the tamper switch under the terminal cover is released. To release the switch, you do not need to completely remove the terminal cover.

Note: You do not need to completely remove the terminal cover. The recommended practice is to simply loosen the terminal cover until the tamper switch releases.

8 Battery

The ES-12B is fitted with an integral, non-replaceable, 3.0V Lithium primary cell, which is connected during manufacture and sealed inside the case. There is no optional external battery and it is not user replaceable.

The purpose of the battery is to keep the Real Time Clock running when the meter is not powered and to maintain the meter's physical tamper protection by retaining tamper alerts to be sent to the supplier when power to the meter is restored.

9 Inside the Meter

Note: The meter is not designed to be opened after manufacture unless in an EDMI approved triage centre.

Care must be taken as dangerous voltages are present in the circuitry inside the meter while the meter is active. Even when the meter is not powered, care should be taken to prevent electrostatic damage to the circuitry of the meter.

During the normal operational life of the meter there is no reason to remove the meter cover. The tamper evident seals restrict access to the screws which hold the meter lid closed. Only by permanently breaking them will the screws become accessible and the meter case can be opened.

The screws underneath the seals enable the main meter lid to be removed. Any attempt to remove the main cover will trigger a 2nd physical tamper alert to be logged in the meter and sent via the HAN.

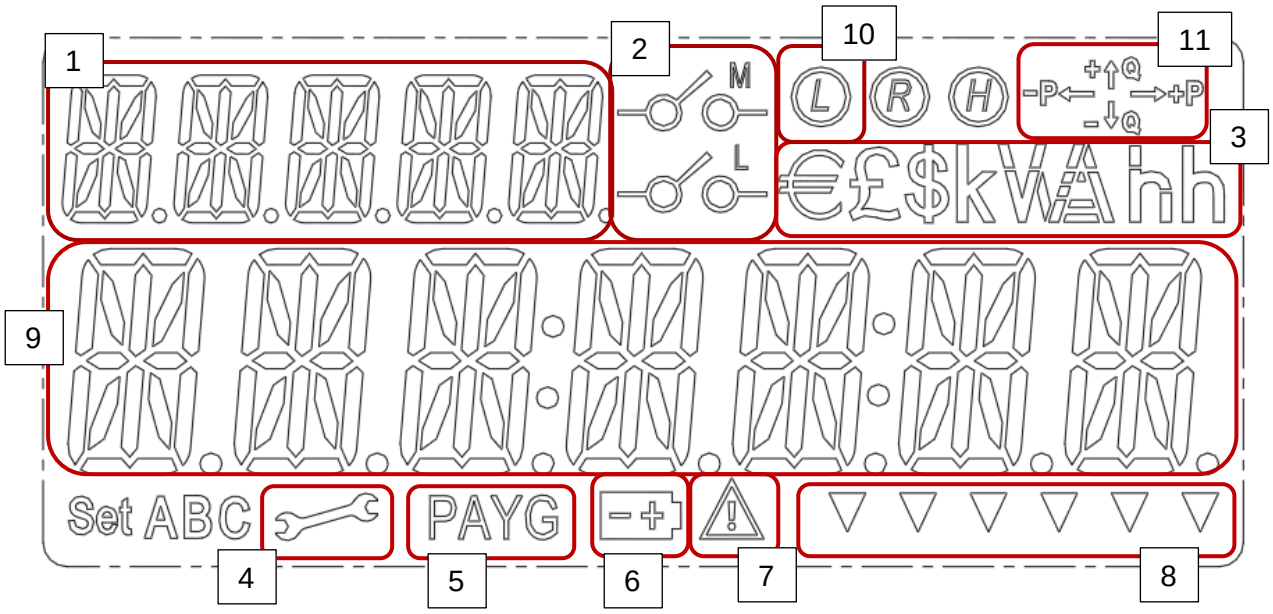
Any issues with metering products should be referred to EDMI through the RMA procedure (See Section 18).

10 The Liquid Crystal Display (LCD)

The LCD is the main user interface for the meter (Figure 10-1). Its purpose is to provide feedback during installation, manufacture, calibration, diagnostics issues and simply for end user reference. It has a central row of 7 ‘starburst’ type digits to display values/date/time/messages and 5 upper left ‘starburst’ type digits to display a description/label.

The LCD has a number of fixed segments to indicate a range of functions. For low light conditions, the LCD has a backlight, which comes on when a button is pressed, unless configured not to do so at manufacture.

Figure 10-1: Liquid Crystal Display



Section	Description
1	5 character label, shows: • Description for main character array (9) • Current menu level
2	Relay state icons. M for main disconnect relay, L for LCS. Operating states: • M icon ON: Main supply has been disconnected • L icon ON: LCS is Open • M & L icons ON: Meter is currently in a ‘Non-Disablement’ period • M & L icons OFF: Supply connected, LCS is Closed
3	Currency and unit symbols. Note only £ will be used in the UK.
4	Engineering menu activated
5	Pay As You Go (or Prepayment) mode is activated
6	Internal battery low indicator

7	Alert indicator
8	Enunciators. Please refer to section 11 for more detail
9	Main character array. Shows all figures for billing, information and content for messages
10	Load Limiting indicator. Icon is lit when site has a restricted maximum load
11	Power flow quadrants +P = Import Kw - P = Export Kw +Q = Import kVar (Lag) -Q = Export kVar (Lead)

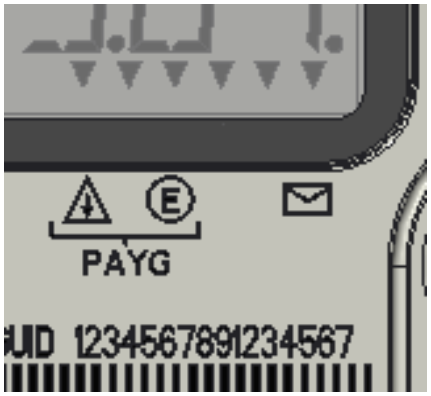
11 Enunciators

Located on the bottom right of the LCD are six downward facing enunciator arrows. They allow for specific notifications to be printed on the main meter plastics, allowing for a wide variety of uses.

Enunciator 1, 3 and 6 are used for the indication of low credit, emergency credit available (both prepayment mode notifications) and supplier message available respectively.

Figure 11-1 shows the default layout of enunciators and their corresponding printed graphics.

Figure 11-1: Enunciators

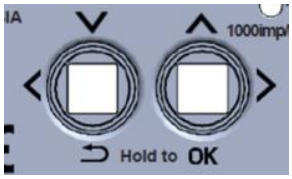


12 The Pushbuttons & User Interface

The ES-12B has two pushbuttons for installers/customers to interact with the meter, and both are multifunctional. Figure 12-1 shows the two buttons and labelling around them. The left button acts as both as the ‘down’ and ‘left’ functions, and the right button acts as the ‘up’ and ‘right’ functions.

The two buttons have further functionality when held down for a period of 1 second. Holding the left button acts as a ‘return’ function, holding the right button acts as an ‘OK’ function. The text underneath ‘hold to’ is there to prompt the user to hold the buttons to perform these actions.

Figure 12-1: Pushbuttons



To…	…do this.
Move down the menu structure one level…	…press the **OK** (right/up) button and hold it for one second.
Move left, within the same level of the menu structure…	…press and release the **Left** button.
Move right, within the same level of the menu structure…	…press and release the **Right** button.
Move up the menu structure one level…	…press the **Return** (left/down) button and hold it for one second.
Confirm a selection (i.e. Press OK)…	…press the **OK** (right/up) button and hold it for one second.

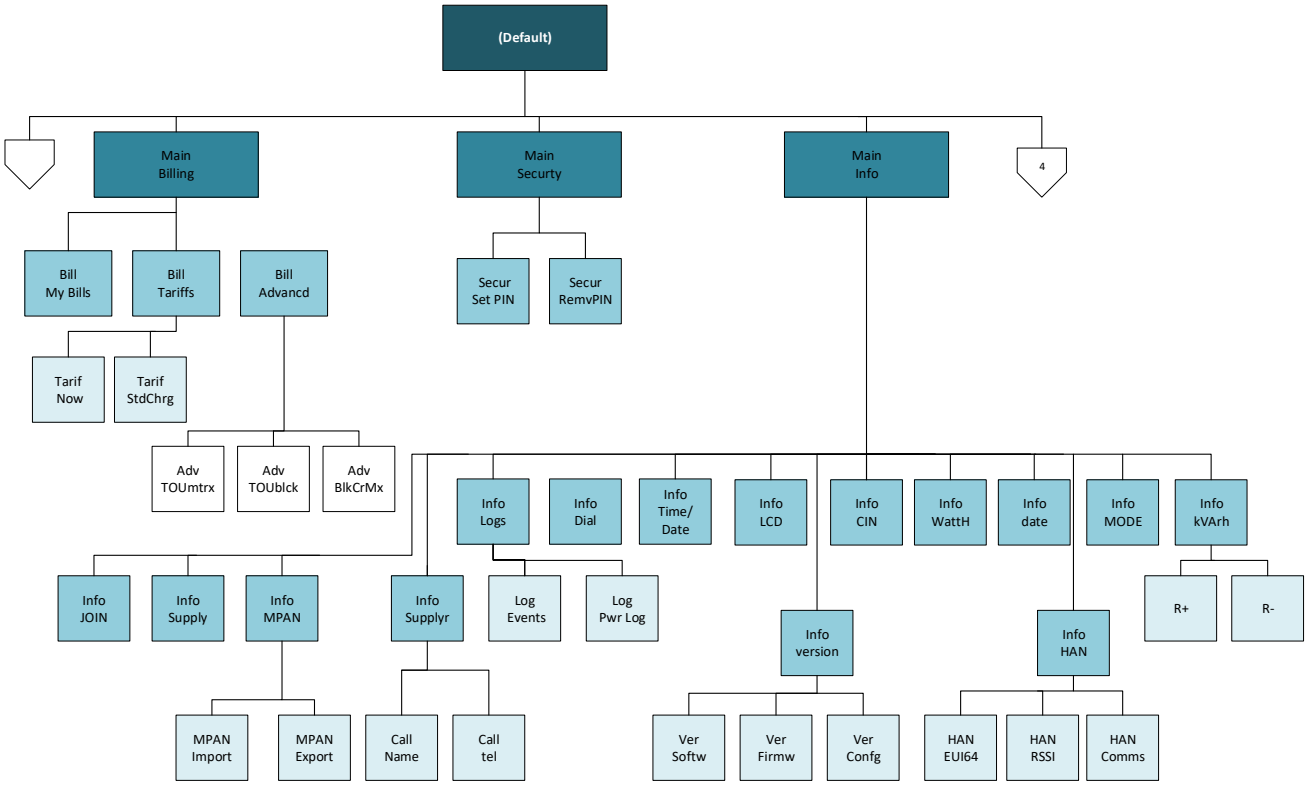
Note: After a period of inactivity, the meter will revert to the main screen. This time will depend upon each supplier’s configuration.

13 Menu Structures

The meter's menu is activated by pressing the OK button. This level of menu includes the main headings of the document (Billing, Security, Info, and Message). Pressing OK on each of these headings on the UI will open up the submenus denoted by subheadings under each section. Pressing the left and right buttons, navigates between menu headings.

Figure 13-1: Credit Mode Menu Structure

13.1 Credit Mode Menu Structure



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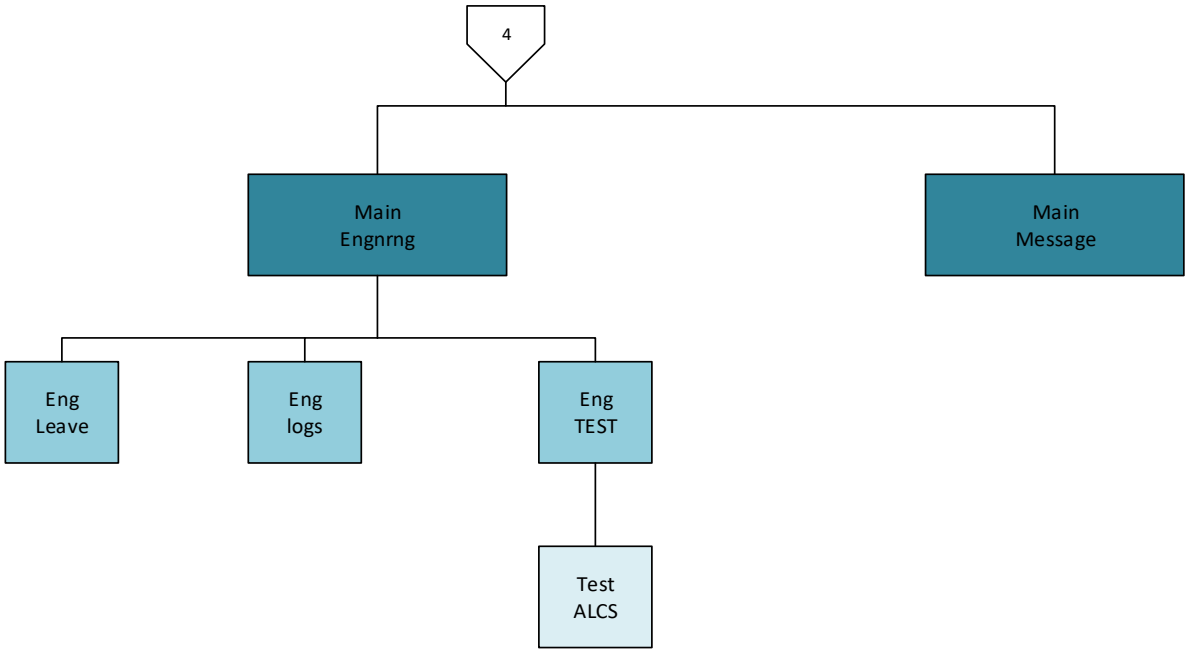


13.2 The Default (Main) Screen – Credit Mode

The main screen displays basic information at-a-glance, cycling through:

Active Import register

I	M	P	R	T				
1	2	3	4	5	6	7		kWh

Active Export Register

E	X	P	R	T				
0	0	0	0	1	2	3		kWh

Meter Balance

B	I	L	L					
		1	1	0.	4	5		£

When on any other screen, the meter display reverts to this default screen if no buttons have been pressed for one minute.

13.3 Billing Menu Screens

The Main Billing screen provide access to:

- My Bills, which displays energy usage in kWh or £.

- Tariffs, which enables you to view the current tariff and standing charge.
- Advanced billing information (TOU Register Matrix, TOU Block Register Matrix, and TOU Block Counter Matrix).

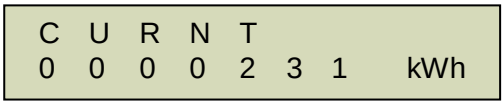
13.3.1 My Bills

The **MyBills** menu displays kWh and £ usage for the current billing period, allowing you to scroll though previous periods.

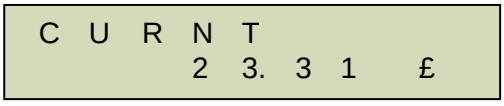
When in this menu, the UI buttons perform the following actions:

Left / Right	Scroll up and down the table through periods.
OK	Switch between kWh and Cost.
Return	Returns to parent menu.

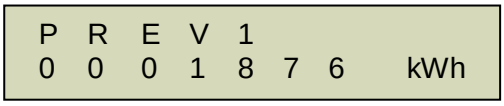
Current usage in kWh



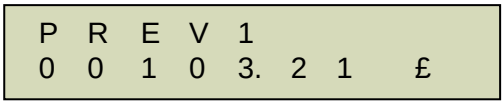
Current usage in £



Previous period in kWh



Previous period in £



When the meter is operating in prepayment mode, the equivalent of this information is displayed on the Prepay (PAYG) menus and the MyBills menu displays:

13.3.2 Tariffs

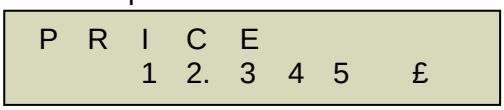
The **Tariffs** menu provides access to:

- Display of current tariff.
- Display of current standing charge.

13.3.2.1 Tariff Now

The **Tariff Now** menu item displays the current active tariff price.

For example:



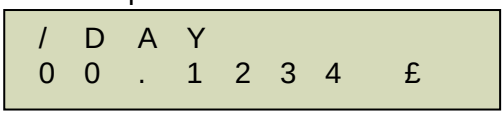
When in this menu, the UI buttons perform the following actions:

Left / Right	No effect.
OK	No effect.
Return	Returns to parent menu.

13.3.2.2 StdChrg

The **StdChrg** menu item displays the current standing charge, inclusive of VAT.

For example:



When in this menu, the UI buttons perform the following actions:

Left / Right	No effect.
OK	No effect.
Return	Returns to parent menu.

13.3.3 Advancd

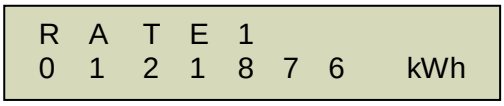
The **Advancd** menu enables you to view the:

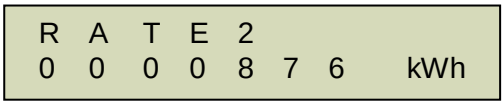
- TOU Register Matrix.
- TOU Block Register Matrix.
- TOU Block Counter Matrix.

13.3.3.1 TOUmatrix

The **TOUmatrix** menu item displays the TOU Register Matrix. Pressing the left and right UI buttons allows you to scroll through the list of 0rates and associated kWh values.

For example:





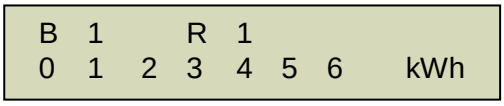
When in this menu, the UI buttons perform the following actions:

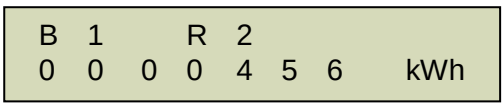
Left / Right	Scroll up or down the table.
OK	No effect.
Return	Returns to parent menu.

13.3.3.2 TOUblck

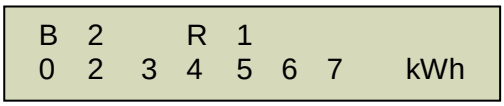
The **TOUblck** menu item displays the TOU Block Register Matrix. The information is arranged into up to four tables, with up to eight rates in each table.

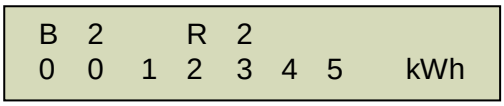
For example, rows one and two of table one (Block One) would be represented as:





Similarly, rows one and two of table two (Block Two) would be represented as:





When in this menu, the UI buttons perform the following actions:

Left / Right	Scroll up or down the table. Wrapped.
OK	Move to next table. Wrapped.
Return	Returns to parent menu.

13.3.3.3 BlkCtMx

The **BlkCtMx** menu item displays the TOU Block Counter Matrix. Pressing OK moves to the next table displaying the next block of usage. There can be a maximum of four tables and eight rates included in those tables.

For example, rows one and two of table one (Block One) would be represented as:

```
B 1    R 1
0 1 2 3 4 5 6   kWh
```

```
B 1    R 2
0 0 0 0 4 5 6   kWh
```

Similarly, rows one and two of table two (Block Two) would be represented as:

```
B 2    R 1
0 2 3 4 5 6 7   kWh
```

```
B 2    R 2
0 0 1 2 3 4 5   kWh
```

When in this menu, the UI buttons perform the following actions:

Left / Right	Scroll up or down the table. Wrapped.
OK	Move to next table. Wrapped.
Return	Returns to parent menu.

13.4 Security Menu Screens

The Main Security screen provides access to the:

- Set PIN menu, on which you can set a PIN or change an existing PIN.
- Remove an existing PIN.

13.4.1 Set PIN

If no PIN exists, on entering the Set PIN menu item, the screen will display the prompt

```
P I N
_ _ _ _
```

Using the left and right buttons, scroll through the digits 0-9 and press **OK** to select the digit. The digits will be masked with an asterisk ***** symbol when selected. For example:

```
P I N
* * * _
```

After entering and selecting the fourth digit, the screen will display:

```
O K    T O
C O N F I R M
```

Press **OK** to confirm the PIN you have entered. The screen will displays:

```
P I N :
S A V E D
```

After two seconds, the display returns to the parent menu.

If a PIN already exists, on entering the Set PIN menu item, the screen will display the prompt:

```
E N T E R
P I N: _ _ _ _
```

Using the left and right buttons, scroll through the digits 0-9 and press OK to select the digit. The digits will be masked with an asterisk * symbol when selected.

If the PIN you enter is correct, follow the same procedure as you would to set a PIN if no PIN exists (described above).

If the PIN you enter is incorrect, you will be given two more opportunities to enter the correct PIN. If the PIN that you enter after the third attempt is incorrect, you will be locked out of the user interface for one hour.

13.4.2 Remove an Existing PIN

On entering the **RemvPIN** menu, the screen will display the prompt:

```
E N T E R
P I N: _ _ _ _
```

Using the left and right buttons, scroll through the digits 0-9 and press OK to select the digit. The digits will be masked with an asterisk * symbol when selected.

If the PIN you enter is correct, the screen will display the prompt:

```
R E A D Y
H O L D   O K
```

Press and hold OK to remove the PIN. The screen will then display

If the PIN you enter is incorrect, you will be given two more opportunities to enter the correct PIN. If the PIN that you enter after the third attempt is incorrect, you will be locked out of the user interface for one hour.

13.5 Info Menu Screens

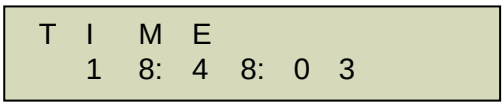
The Main Info menu provides access to several informative displays including but not limited to:

- Logs.
- Supplier information.
- Information about the supply.
- Meter version.
- HAN connection.

13.5.1 Time

The **Time** menu item displays the local time, taking into account BST.

For example:



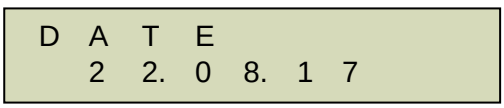
When in this menu, the UI buttons perform the following actions:

Left / Right	No effect.
OK	No effect.
Return	Return to parent menu.

13.5.2 Date

The **Date** menu item displays the local date, taking into account BST.

For example:



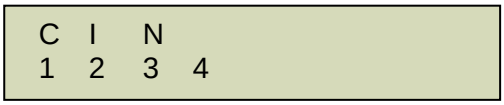
When in this menu, the UI buttons perform the following actions:

Left / Right	No effect.
OK	No effect.
Return	Return to parent menu.

13.5.3 Customer Identification Number

The **CIN** menu displays the unique *Customer Identification Number*.

For example:



When in this menu, the UI buttons perform the following functions:

Left / Right	No effect.
OK	No effect.
Return	Return to parent menu.

13.5.4 Supplier Information

The **Supplyr** menu provides access to the supplier name and telephone number to advise of the customer's point of contact.

13.5.4.1 Name

The **Name** menu item displays the supplier's name. The name entered can be a maximum of 15 characters and scrolls at a rate of one character per second.

For example:

(Full message string "Supplier A")

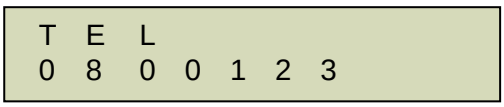
When in this menu, the UI buttons perform the following actions:

Left / Right	No effect.
OK	No effect.
Return	Return to parent menu.

13.5.4.2 Tel

The **Tel** menu displays the supplier's telephone number. The number entered my be up to 18 characters long and scrolls at a rate of one character per second.

For example:



(Full message string "08001234567")

When in this menu, the UI buttons perform the following actions:

Left / Right	No effect.
OK	No effect.
Return	Return to parent menu.

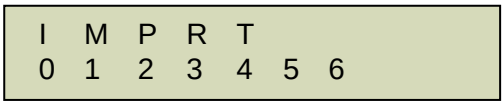
13.5.5 Meter Point Administration Numbers (MPAN)

The **MPAN** menu options display the Import and Export Meter Point Administration Numbers.

13.5.5.1 Imprt

The **Imprt** option displays the Import Meter Point Administration Number. The 13 digit string scrolls across the screen at a rate of one character per second.

For example:



(Full message string "0123456789101")

When in this menu, the UI buttons perform the following actions:

Left / Right	No effect.
OK	No effect.
Return	Return to parent menu.

13.5.5.2 Exprt

The **Exprt** option displays the Export Meter Point Administration Number. The 13 digit string scrolls across the screen at a rate of one character per second.

For example:

```
E X P R T
0 1 2 3 4 5 6
```

(Full message string “0123456789101”)

When in this menu, the UI buttons perform the following actions:

Left / Right	No effect.
OK	No effect.
Return	Return to parent menu.

13.5.6 Logs

The **Logs** menu provides access to the:

- Event Log
- Power Log
- ALCS Log

13.5.6.1 Event Log

Note: Event and message codes are defined in GBCS Table 16.4.

The **Events** menu displays the meter’s Event Log. A maximum of 100 events are displayed, the most recent event being 1. The top row of the screen shows the event number (1-100) and the bottom row shows event code the timestamp information.

Use the left/right buttons to scroll up and down the list of events and press the OK button to switch between the Event Code and the Timestamp display (every two seconds, the Timestamp display cycles between the date and time display).

For example:

```
      0 0 1
8 2 5 4. 2 3 4
```

This indicates that the first message in the Event Log (001) is GBCS Event Code 8254.234.

Pressing **OK** will display:

```
      0 0 1
  0 1. 0 1. 1 5
```

```
      0 0 1
  2 3: 0 1: 1 5
```

This shows that Event 001 occurred at 23:01:15 on 01.01.15. The display will cycle between the time and date every two seconds.

When in this menu the UI buttons perform the following actions:

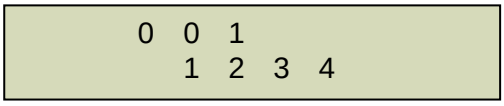
Left / Right	Scroll up or down the table. Wrapped.
OK	Cycle between two tables, holding same row position in both at the same time.
Return	Return to parent menu.

13.5.6.2 Power Event Log

The **Pwr Log** menu displays the meter's Power Event Log. A maximum of 100 events are displayed, the most recent event being 1. The top row of the screen shows the event number (1-100) and the bottom row shows event code the timestamp information.

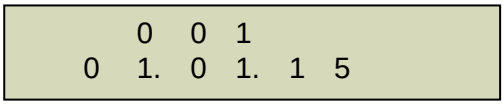
Use the left/right buttons to scroll up and down the list of events and press the OK button to switch between the Event Code and the Timestamp display (every two seconds, the Timestamp display cycles between the date and time display).

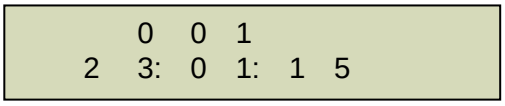
For example:



This indicates that the first message in the Event Log (001) is Event Code 1234.

Pressing **OK** will display:





This shows that Event 001 occurred at 23:01:15 on 01.01.15. The display will cycle between the time and date every two seconds.

When in this menu the UI buttons perform the following actions:

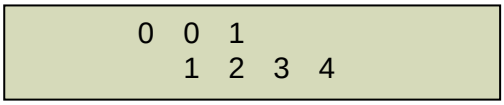
Left / Right	Scroll up or down the table. Wrapped.
OK	Cycle between two tables, holding same row position in both at the same time.
Return	Return to parent menu.

13.5.6.3 Auxiliary Load Control Switch Event Log

The **ALCSLog** menu displays the meter's Auxiliary Load Control Switch Event Log. . A maximum of 100 events are displayed, the most recent event being 1. The top row of the screen shows the event number (1-100) and the bottom row shows event code the timestamp information.

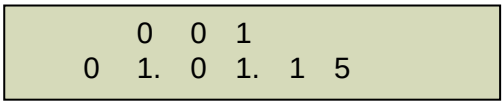
Use the left/right buttons to scroll up and down the list of events and press the OK button to switch between the Event Code and the Timestamp display (every two seconds, the Timestamp display cycles between the date and time display).

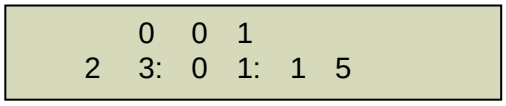
For example:



This indicates that the first message in the Event Log (001) is Event Code 1234.

Pressing **OK** will display:





This shows that Event 001 occurred at 23:01:15 on 01.01.15. The display will cycle between the time and date every two seconds.

When in this menu the UI buttons perform the following actions:

Left / Right	Scroll up or down the table. Wrapped.
OK	Cycle between two tables, holding same row position in both at the same time.
Return	Return to parent menu.

13.5.7 Supply

The **Supply** menu display the supply state as either being Enabled, Disabled (displayed as Disabld to fit on the screen), or Armed.

For example:

When in this state the UI buttons perform the following actions:

Left / Right	No effect.
OK	No effect.
Return	Return to parent menu.

13.5.8 Join

The **Join** option enables you to start the ZigBee rejoin process ad-hoc in cases where the trust centre has to be swapped and the automatic retries are infrequent enough to need to be controlled manually.

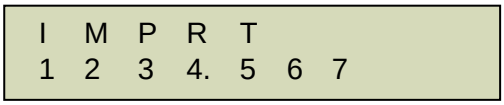
The Find and Join SMHAN operation will result in an Event Log entry with User Interface Command Code 0x001A

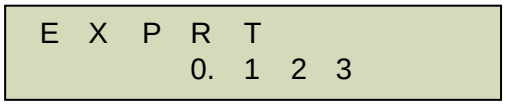
13.5.9 DIAL

The **DIAL** menu is used for in-service testing, allowing engineers to witness the accumulation of energy on a smaller scale that is provided on the main screen.

The screen displays the import and export register readings, cycling at 5 second intervals.

For example:





When in this menu the UI buttons perform the following actions:

Left / Right	No effect.
OK	No effect.
Return	Return to parent menu.

13.5.10 Version

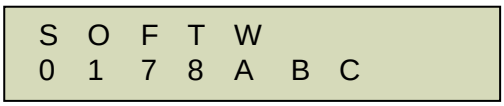
The **Version** menu provides information about the:

- Software Version
- Firmware Version
- Configuration Version

13.5.10.1 Software Version

The **Softw** menu displays the software version and the integrity check version.

For example:



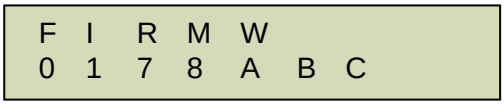
When in this menu the UI buttons perform the following functions:

Left / Right	No effect.
OK	No effect.
Return	Return to parent menu.

13.5.10.2 Firmware Version

The **Firmw** menu displays the firmware version.

For example:



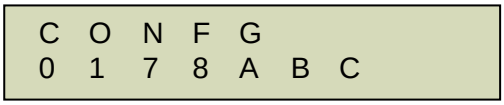
When in this menu the UI buttons perform the following functions:

Left / Right	No effect.
OK	No effect.
Return	Return to parent menu.

13.5.10.3 Configuration Version

The **Confg** menu displays the meter's configuration version.

For example:



When in this menu, the UI buttons perform the following functions:

Left / Right	No effect.
OK	No effect.
Return	Return to parent menu.

13.5.11 HAN

The **HAN** menu options provide, for each device on the Home Area Network, the following information:

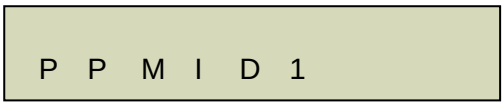
- The EUI64.
- The Received Signal Strength Indicator (RSSI).
- The time and date of the last successful communication from the meter to the selected device.

13.5.11.1 Devices

Each heading in the HAN menu is taken from the Device Log and is identified as one of:

- CHF
- PPMID
- IHD

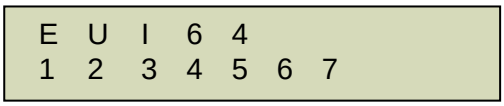
If there is more than one device of the same type on the HAN, a number will be appended to the name. For example:



13.5.11.2 EUI64

Displays the EUI64 of the selected device.

For example:



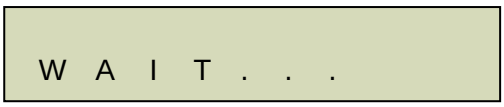
When in this menu, the UI buttons perform the following functions:

Left / Right	No effect.
OK	No effect.
Return	Return to parent menu.

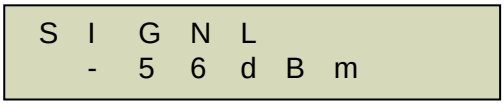
13.5.11.3 RSSI

The **RSSI** menu displays the Received Signal Strength Indicator, which displays the link quality of received ZigBee packets, in units of dBm. Once received, the value is refreshed every three seconds.

When you first enter this menu, the screen displays:



The meter samples the RSSI for three seconds and then displays the signal strength. For example:



When in this menu, the UI buttons perform the following functions:

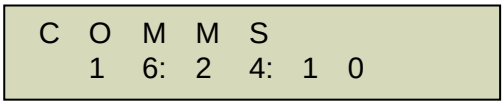
Left / Right	No effect.
OK	No effect.
Return	Return to parent menu.

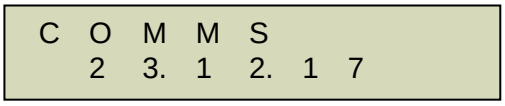
13.5.11.4 Comms

The **Comms** menu displays the time and date last successful communication from the meter to the selected device.

The display will automatically cycle between time and date every three seconds. You can use the left/right buttons to manually scroll between the two displays.

For example:





When in this menu, the UI buttons perform the following actions:

Left / Right	Scroll between two screens.
OK	No effect.
Return	Return to parent menu.

13.5.12 LCD

The **LCD** menu option enables you to test that all LCD pixels are functioning. All LCD segments should be on for two seconds and then off for two seconds.

When in this menu, the UI buttons perform the following actions:

Left / Right	No effect.
OK	No effect.
Return	Return to parent menu.

13.5.13 Watt Hour

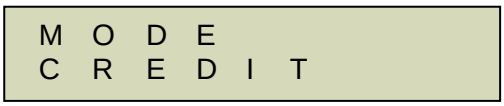
Displays the consumption in the same units as is stored in the meter. It will need to automatically scroll to accommodate any extra digits.

The import and export values displayed in this screen are deemed to be legally relevant measurement data, according to MID metering regulations.

Left / Right	No effect.
OK	No effect.
Return	Return to parent menu.

13.5.14 Mode

Displays the payment mode which is PIN protected (refer to section 7), which shall either be “Credit” or “PAYG”, where PAYG means the meter is in prepayment mode.



When in this menu, the UI buttons perform the following actions:

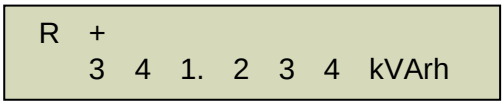
Left / Right	No effect.
OK	No effect.
Return	Return to parent menu.

13.5.15 kVArh

This menu item shall contain 2 additional screens for the display of the reactive import and reactive export. The import and export reactive values displayed in this menu are deemed to be legally relevant measurement data, according to MID metering regulations.

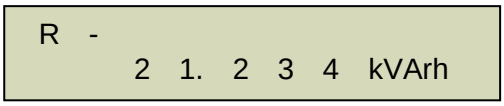
13.5.15.1 R+

Displays the Reactive import register in kVArh to 3DP (3 Decimal Point). It will need to automatically scroll to accommodate any extra digits.



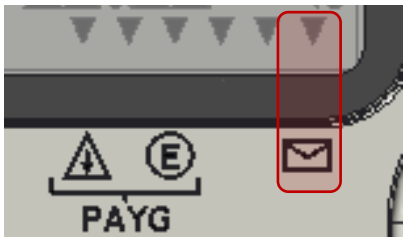
13.5.15.2 R-

Displays the Reactive export register in kVArh to 3DP (3 Decimal Point). It will need to automatically scroll to accommodate any extra digits.



13.6 Message

When the meter receives a message, the Message enunciator on the main screen will be lit.



The **Message** menu option displays supplier messages. The message will automatically scroll when you access this menu, but you can automatically scroll through it using the left/right UI buttons.

When in this menu, the UI buttons perform the following functions:

Left / Right	Scroll up/down the message.
OK	Hold to open message, no effect on reading of message
Return	Return to Default Main Screen.

If you access the **Message** menu, and there is no active message, the screen will display:

```
< N    O N E >
```

13.7 Boost

The ES-12B supports the boost functionality of the electricity device. The boost functionality will support the following message codes, resulting in the “Activation”, “Cancelation” or “Extension” of the boost period.

Message Code	User Interface Command
0x0001	Activate Boost Period
0x000A	Cancel Boost Period
0x000F	Extend Boost Period

13.7.1 Start

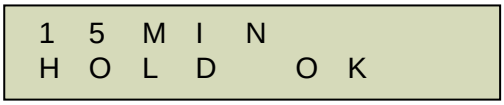
To start boost of the Load Control Switch the user will have to carry out the following.

For a boost period of 15 minutes:

Navigate to the submenu ‘ALCS1’ should offer a menu item as such:

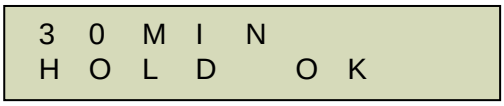
```
S T A R T
A L C S 1
```

On selection of an above submenu, the LCD will display:



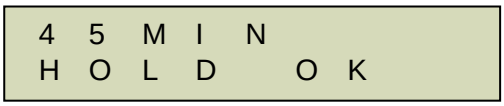
Left / Right	Next options
OK	1 second hold initiates the closing of the LCS switch for 15min
Return	Return to parent menu.

For a boost period of 30 minutes:



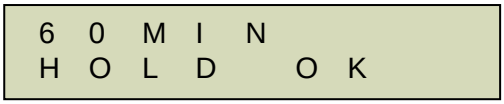
Left / Right	Next options
OK	1 second hold initiates the closing of the LCS switch for 30min
Return	Return to parent menu.

For a boost period of 45 minutes:



Left / Right	Next options
OK	1 second hold initiates the closing of the LCS switch for 45min
Return	Return to parent menu.

For a boost period of 60 minutes:



Left / Right	Next options
OK	1 second hold initiates the closing of the LCS switch for 60min
Return	Return to parent menu.

If the switch is already closed the menu will display

```
N O T
A V A I L
```

13.7.2 Cancl

If the Boost period is active it can be cancelled via the submenu “ALCS1”.

This should translate to a menu item as such:

```
C A N C L
A L C S 1
```

On selection of an above submenu, the LCD will display:

```
C A N C L
H O L D   O K
```

The operation will result in an Event Log entry with User Interface Command Code.

Left / Right	No effect.
OK	1 second hold initiates LCS switch state to normal operation as per configured ALCS calendar..
Return	Return to parent menu.

13.7.3 Extnd

To extend the boost function only if a Boost Period is active,

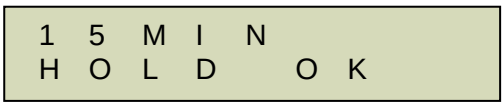
The possible selections available will depend upon the amount of time that the boost function was activated for, so that the total time cannot exceed one hour.

For example if the boost was activated for 1 hour, then it is not possible to extend this time – and no option will be available for selection, the options are detailed in the table below.

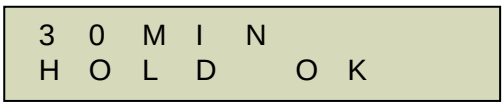
Activation Time Period	Extension Time Period Options
1 hour	None
45mins	15mins
30mins	15mins, 30mins
15mins	15mins, 30mins, 45mins
0	None

It should use this information to populate the submenu labels, the following submenu should be available on the UI.

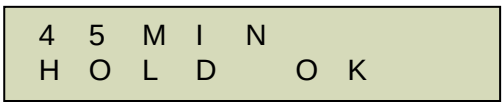
On selection of an above submenu, the LCD will display:



Left / Right	Next option
OK	1 second hold keeps the LCS switch closed for a further 15min
Return	Return to parent menu.



Left / Right	Next option
OK	1 second hold keeps the LCS switch closed for a further 30min
Return	Return to parent menu.



Left / Right	Next option
OK	1 second hold keeps the LCS switch closed for a further 45min
Return	Return to parent menu.

13.8 Engineering Menu

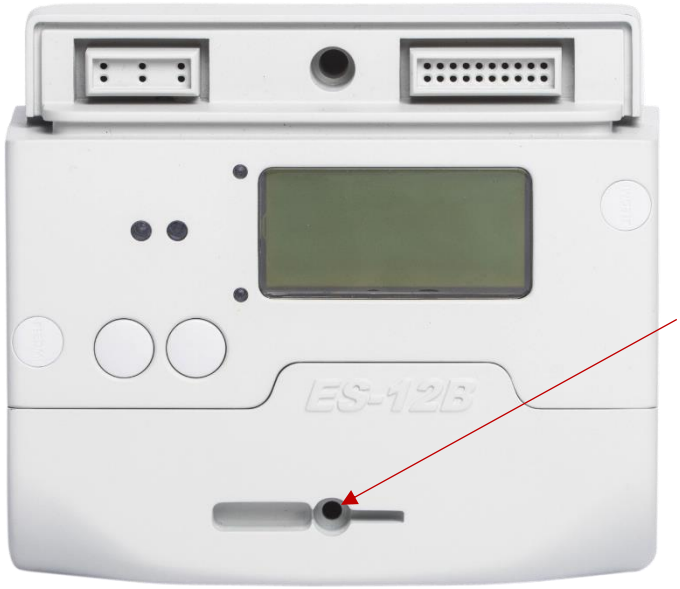
The **Engineering** menu enables installers to access information that should otherwise be unavailable to the customer. When the meter is sealed, the Engineering menu cannot be accessed. In order to access the menu, the terminal cover must be partially removed.

Note: Normal installation, commissioning, and operation of the meter does not require any access to the Engineering menu.

13.8.1 Accessing the Engineering Menu

To access the Engineering menu, loosen the terminal cover enough to activate the tamper detection switch.

Figure 13-1: Terminal Cover Screw



Do not remove the terminal cover. To access the Engineering menu, you need only loosen the terminal cover screw enough to active the tamper switch.

13.8.2 Logs

The **Logs** menu displays the meter's Security Log. A maximum of 100 events are displayed, the most recent event being 1. The top row of the screen shows the event number (1-100) and the bottom row shows event code the timestamp information.

Use the left/right buttons to scroll up and down the list of events and press the OK button to switch between the Event Code and the Timestamp display (every two seconds, the Timestamp display cycles between the date and time display).

For example:

```
    0  0  1
       1  2  3  4
```

This indicates that the first message in the Event Log (001) is GBCS Event Code 8254.234.

Pressing **OK** will display:

```
    0  0  1
 0  1.  0  1.  1  5
```

```
    0  0  1
 2  3:  0  1:  1  5
```

This shows that Event 001 occurred at 23:01:15 on 01.01.15. The display will cycle between the time and date every two seconds.

When in this menu the UI buttons perform the following actions:

Left / Right	Scroll up or down the table. Wrapped.
OK	Cycle between two tables, holding same row position in both at the same time.
Return	Return to parent menu.

13.8.3 ALCS

The **ALCS** menu option tests the LCS switch by causing it to change states for five minutes and then returning it to its previous state (e.g. if the switch is closed it will be opened for five minutes and then close again). When you enter the Test ALCS menu, it will identify the number that has been assigned to the switch.

For example:

```
T E S T
A L C S 1
```

On selection of this menu, the screen displays:

```
S T A R T
H O L D    O K
```

Press and hold the **OK** button for one second to start the test. The screen will display the state of the LCS. For example, if the switch was originally open, the switch would close for five munites and the screen would display:

```
A L C S 1
C L O S E D
```

After the test has completer (five minutes), the screen will display the following for five seconds:

```
A L C S 1
O P E N
```

After which, the screen displays:

```
T E S T
E N D
```

This test results in an Event Log entry 0X0013.

When in this menu, the UI buttons perform the following functions:

Left / Right	No effect.

OK	1 second hold initiates the ALCS test.
Return	Return to parent menu.

13.8.4 Leave

To initiate the ZigBee network leave process. The meter shall only send a NWK leave message (announcement) if it has the active network key. If the meter does not have the active network key then it shall silently leave the network without sending a NWK leave announcement.

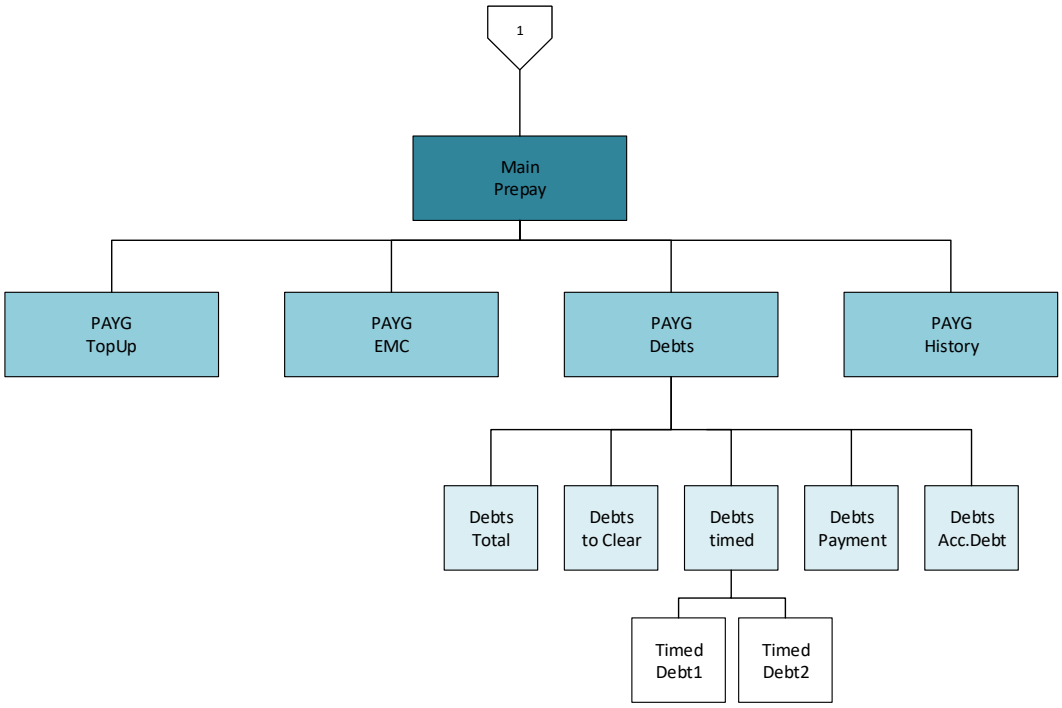
Left / Right	No effect.
OK	Initiates the HAN NWK leave.
Return	Back to Parent menu.

Upon Successful Completion

The message will time out after 10 seconds or if dismissed by pressing the OK button. LCD reverts to Parent Menu.

13.9 Prepayment Mode Menu Structure

Figure 13-2: Prepayment Menu Structure



13.10 The Default (Main) Screen – Prepayment Mode

The main screen displays basic information at-a-glance, cycling through:

Active Import register

I	M	P	R	T				
1	2	3	4	5	6	7		kWh

Active Export Register

E	X	P	R	T				
0	0	0	0	1	2	3		kWh

Meter Balance

B	A	L	N	C				
			3	0.	4	5		£

When on any other screen, the meter display reverts to this default screen if no buttons have been pressed for one minute.

13.11 Prepayment Menu Screens

When the meter is in Prepayment Mode, there is an additional Prepayment menu that enables users to:

- Top up pay as you go credit.
- View and activate emergency credit.
- View pay as you go debts.
- View pat as you go history

13.11.1 Top Up Pay as You Go Credit

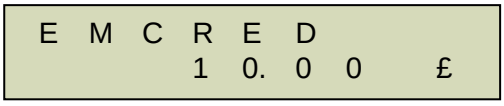
The **Top Up** menu enables users to add credit to the meter by entering a Unique Transaction Reference Number (UTRN).

For more information, see Section 14 *Top Up Pay As You Go Credit*.

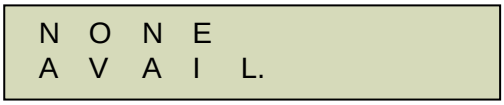
13.11.2 View Emergency Credit

The **EmCred** menu displays if there is emergency credit available on the meter or if emergency credit is in use.

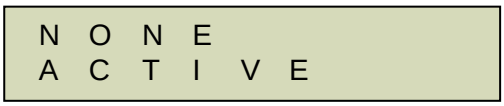
If emergency credit is available, the screen will display the amount available. For example:



If there is no emergency credit available, the screen will display:



If emergency credit has not been activated, the screen will display:



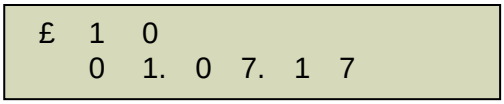
When in this menu, the UI buttons perform the following actions:

Left / Right	No effect.
OK	No effect.
Return	Return to parent menu.

13.11.3 View Pay as You Go History

The **History** menu displays the last five top ups applied to the meter. The top row shows the amount rounded up to the nearest £1 and the bottom row show the date on which the top up was applied.

For example:



When in this menu, the UI buttons perform the following actions:

Left / Right	Scroll up and down the table.
OK	No effect.
Return	Return to parent menu.

13.11.4 Debts

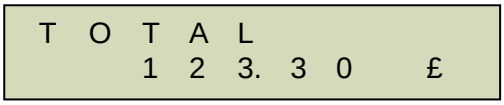
The **Debts** menu provides access to several screens which display the following debt related information:

- Total debt owed
- Debt to clear
- Time based debts
- Payment based debt
- Accumulated debt register

13.11.4.1 Total Debt Owed

The **Total** menu displays the total of all debts owed by the customer; that is, Aggregated Debt (Time Based Debts + Payment Based Debts) + Accumulated Debt.

For example:



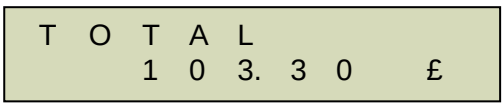
When in this menu, the UI buttons perform the following functions:

Left / Right	No effect.
OK	No effect.
Return	Return to parent menu.

13.11.4.2 Debt to Clear

This menu displays the amount of credit that must be added to the meter in order to reactivate a disabled supply.

For example:



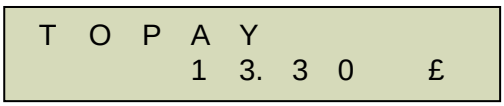
When in this menu, the UI buttons perform the following functions:

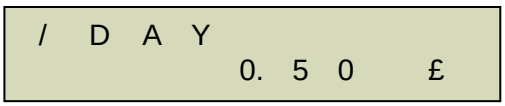
Left / Right	No effect.
OK	No effect.
Return	Return to parent menu.

13.11.4.3 Time Based Debts (1 & 2)

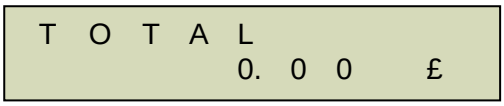
The **Timed Debt1** and **Timed Debt2** menus cycle through displays indicating time based debt amounts and the recovery rates on those debts.

For example:





When the debt is cleared (or none exists), the screen displays:



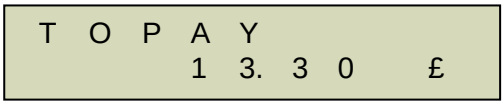
When in this menu, the UI buttons perform the following actions:

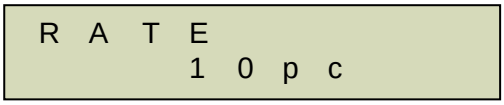
Left / Right	Scroll between two screens.
OK	No effect.
Return	Return to parent menu.

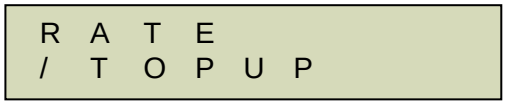
13.11.4.4 Payment Based Debt

Displays payment based debt, cycling through screens displaying the debt amount and the rate.

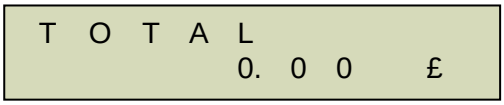
For example:







When the debt is cleared (or none exists), the screen displays:



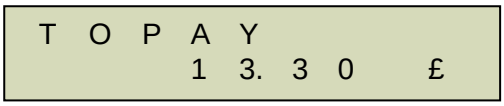
When in this menu, the UI buttons perform the following actions:

Left / Right	Scroll between three screens.
OK	No effect.
Return	Return to parent menu.

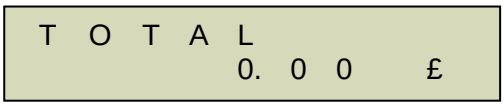
13.11.4.5 Accumulated Debt Register

Displays Accumulated Debt Register, the amount of debt recorded from standing charge and time based debt.

For example:



When the debt is cleared (or none exists), the screen displays:



When in this menu, the UI buttons perform the following actions:

Left / Right	No effect.
OK	No effect.
Return	Return to parent menu.

14 Top Up Pay As You Go Credit

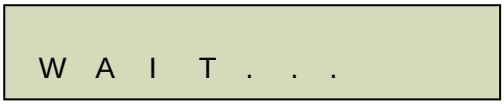
To top up your PAYG credit, you require a Unique Transaction Reference Number (UTRN). Each UTRN is valid for only one transaction on a specific meter.

To top up your meter balance:

1. From the Top Up menu, use the:

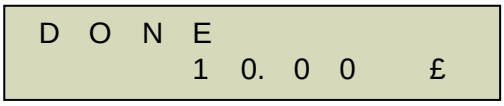
   - Left / Right buttons to scroll through digits 0-9.
   - OK button to select a digit.
   - Return button to delete the currently selected digit and return to the previous one.

2. After you have entered the last digit of the UTRN, the screen will display:

   (For up to 10 seconds)

   If the entered UTRN is valid, the screen will then display:

   If the UTRN Code is not valid for any reason, the screen will display:

Where the [CODE] corresponds to the following table:

[CODE]	Reason
DUPLICATE	The same UTRN has been previously entered.
EXCEEDS MAX	UTRN exceeds Maximum Credit Threshold or exceeds maximum top up.
NOT VALID	UTRN not Authentic.
NOT SUITABLE	UTRN not for this Device.

You will be prompted to re-enter the UTRN. If a UTRN entry fails for the number of times specified by your supplier, you will be locked out of the user interface for one hour.

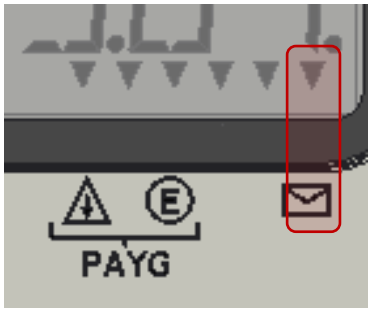
15 Activate Emergency Credit

Emergency credit can be made available to ensure that supply is not interrupted in circumstances defined by the supplier. If it is available to you, you can activate emergency credit in two instances, either:

- When the meter balance has fallen below the Emergency Credit Threshold specified by the supplier, but has not yet fallen below zero.
- When the meter balance has fallen below zero and the supply has been disabled.

If the meter balance has fallen below the Emergency Credit Threshold, but not below zero. The Emergency Credit Enunciator will be lit.

Figure 15-1: Emergency Credit Enunciator marking



The Home screen will cycle through:

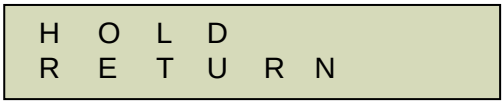
```
I M P R T
0 0 0 1 3 4 5    kWh
```

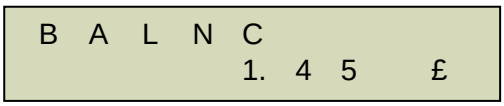
```
E M G C Y.
C R E D I T
```

```
H O L D
R E T U R N
```

```
E X P R T
0 0 0 0 1 2 3    kWh
```

```
E M G C Y.
C R E D I T
```



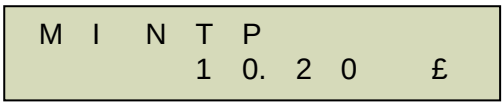


(For example)

To activate emergency credit, press and hold the **Return** button.

If the meter balance has fallen below £0, and there is emergency credit available, the procedure for applying credit is the same as above.

However, if there is no emergency credit available, the Home screen will display:

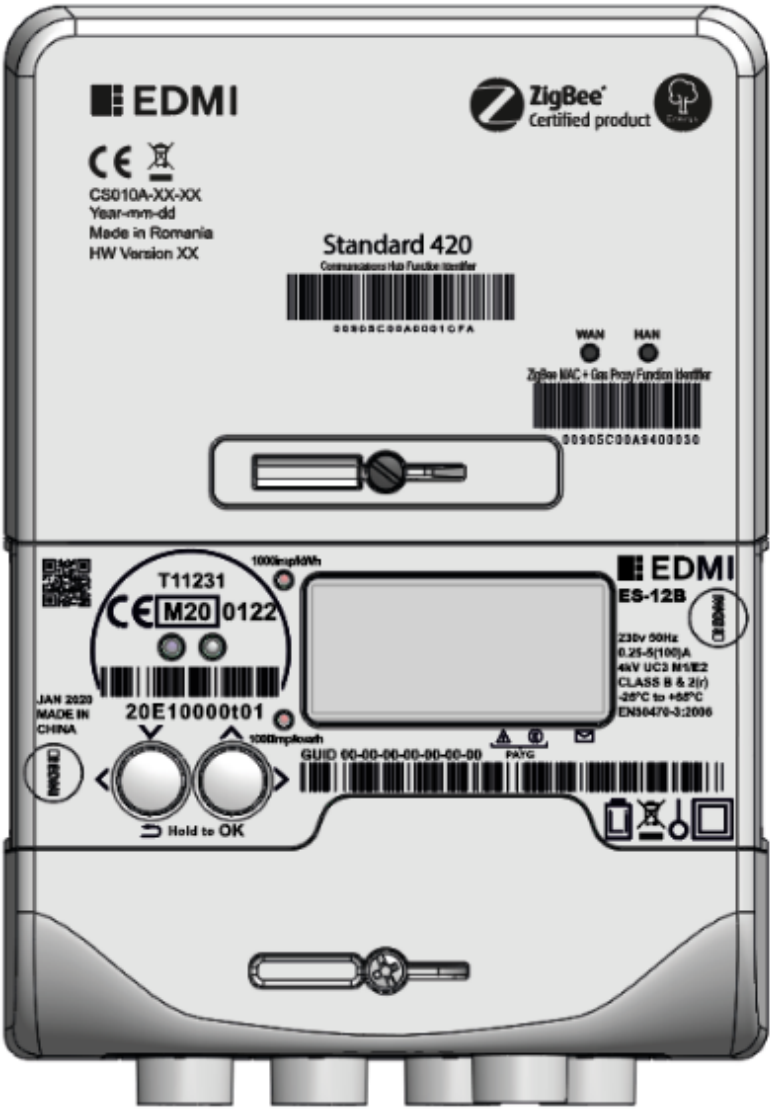


Indicating that there is no credit available and the minimum top up required to re-enable supply. In this event, follow the procedure described in section 14 Top Up Pay As You Go Credit.

16 Communications Hub

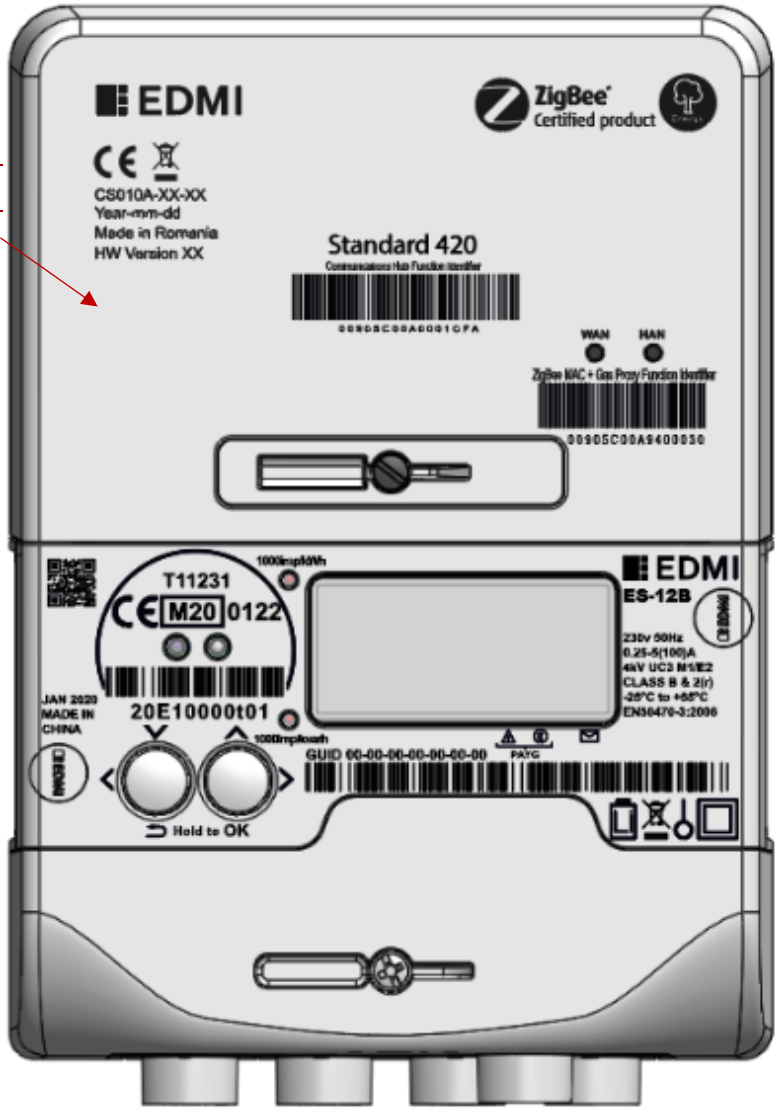
Normally, a Communications Hub will be fitted to the top of the meter after installation. The Communications Hub allows the various elements of a Smart Metering System to communicate with each other and to the supplier (via the Communications Service Provider).

Only Communications Hubs that follow the ICHIS standard are compatible with the ES-12B (previous hubs used with the Mk7B are not compatible).



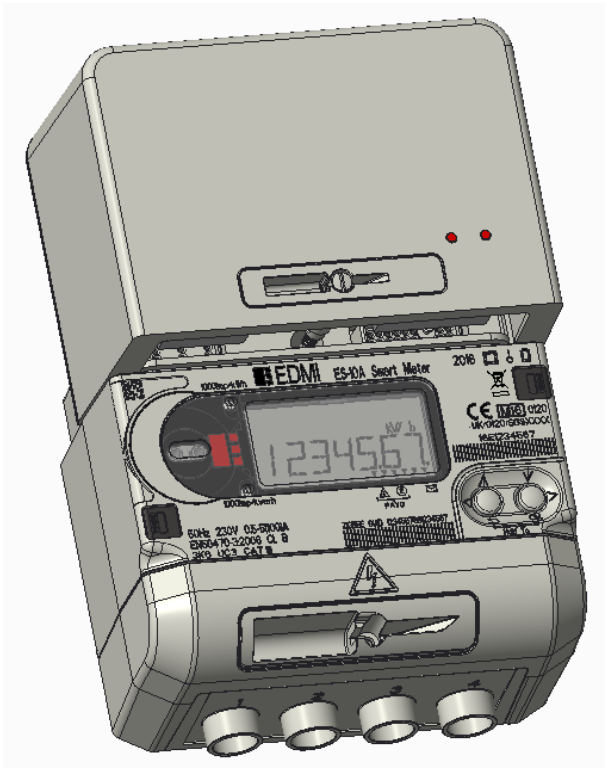
shows a meter with an intimate connection to an Arqiva Communications Hub.

For detailed installation instructions, please refer to the Communications Hub installation documentation.



The Communications Hub is securely mounted via the top sealing screw. Care should be taken to align the Communications Hub rails to that of the meter, so the Communications Hub header can mate properly with the meter connector. Both the screw meter mount and the connection interface is common and specified in ICHIS. However, the size and shape of the Communications Hub, and presence and position of any LEDs will vary depending upon its manufacturer. Refer to the appropriate Communications Hub documentation.

Figure 16-1: Fitting a Communications Hub



17 Servicing

The meter is not designed for field servicing and has no user serviceable parts. The meter has no internal fuses. In the event of failure of the meter, contact EDMI or follow your approved diagnostics and triage process.

18 RMA Returns Form

The below attached excel should be filled in and attached with any meters returned to EDMI.

RMR In-life Meter Returns.xlsx

19 Data Sheet

Regulatory and Test Standard Compliance	
Regulatory (where applicable)	CE 93/68/EEC - EU Declaration of Conformity Directive 2014/32/EU - Measuring Instruments Directive (MID) ▪ MID Annex II, Module B ▪ MID Annex II, Module D Directive 2014/53/EU - Radio Equipment Directive (RED) Directive 2014/30/EU - EMC Directive 2004/22/EC - Software Guide (Measuring Instruments) ▪ WELMEC 7.2 2015 Directive 2012/19/EU - Waste Electrical and Electronic Equipment Directive 2011/65/EU - Restriction of Hazardous Substances (RoHS) Directive 2010/48/EC - Social Measures for target groups SI 871: 2007 Producer Responsibility Obligations (Packaging Waste) Regulations REACH 1907/2006EC Registration Evaluation Authorisation / Restriction of Chemicals EC 1103/97 EMU
Secondary Compliance(where applicable)	BS EN 50470-1:2006 BS EN 50470-3:2006 IEC 62052-11:2003 IEC 62053-21:2003 IEC 62053-23:2003 IEC 62052-31 UC3 @ Imax, 230VAC IP 53 Degrees of ingress protection provided by enclosures (IP Code) PD CLC/TR 50579 EN 301489-17 Great Britain Companion Specification (GBCS) v1.0 Release 0.8.2 Smart Metering Equipment Technical Specifications Version2 Release 1.59 Commercial Product Assurance (CPA) Electricity Smart Metering Equipment v1.2 Device Language Message Specification (DLMS) CTT 3.0 ZigBee Smart Energy 1.2b Smart Meter Device Assurance scheme (SMD) DCC's Intimate Communications Hub Interface (ICHIS) v1.0
Recommendation (where applicable)	BS 7856: 2017

Measurement Accuracy	
Active Energy	Class B or Class A (EN50470-3) Class 1 or Class 2 (IEC 62053-21)
Reactive Energy	Class 2 (IEC 62053-23)

Voltage	
Reference	230V
Specified operating range	207V – 253V
Extended operating range	184V – 264.5V
Meter Constant	Active Energy: [imp./kWh]: 1000 Reactive Energy: [imp./Varh]: 1000
Configuration	Records power events on configurable thresholds

Frequency	
Reference	50Hz

Current	
I_{ref} (I_b) Reference / Nominal Current	5A
I_{st} Starting Current	0.02A
I_{min} Minimum Current	0.25A
I_{tr} Transitional Current	0.5A
I_{max} Maximum Current	100A
Main Relay	Main disconnect relay: 100A Long term overcurrent: 145A for 2 hours BS 7856 Disconnect Rating: IEC62052-31 UC3 @ 100A, 230VAC
Relay	Load Control Switch(LCS) (230V, 100A)

Environmental	
Insulation Strength	Class II meters (IEC Protection Class)
Measurement CAT	CAT III (Working Voltage 300V / Transient Overvoltage 4000V)
Operating Temperature	Specified Operating: -10ºC to 40ºC Limit range of operating: -25ºC to 55ºC Limit range for storage: -25ºC to 55ºC Limit range for transportation: -25ºC to 70ºC
Ingress Protection	IP53 Indoor without suction
Relative Humidity	Non-condensing Annual mean: < 75% Up to 95% for 30days these days being spread in a natural manner over one year

Hardware	
Time Clock	Accurate within 10 seconds of the UTC date and time under normal operating conditions. On first detection of clock drift, if > 10 seconds an alert will be sent via the Communication Hub to the supplier for rectification. Crystal clock drift ±0.5 sec/day as per 7.5.2.2 – IEC 62054-21
Battery	Internal battery with up to 1 year of shelf storage
Liquid Crystal Display	Readable from left/right/top and bottom angles Backlight for low light conditions
Buttons	Two navigation buttons (for menu navigation and selection)
LED energy indicators	Top LED - Active Energy: [imp./kWh]: 1000 Bottom LED - Reactive Energy: [imp./Varh]: 1000

Security & Communication	
Tamper Detection	Electronic tamper detection for terminal cover and meter cover interface whilst energized or de-energized (powered by battery). Meter cover MID approved tamper evident metrological seals Provision for wire seals to be used for communication hub and terminal cover.
Security	Commercial Product Assurance (CPA) v1.2 for Electricity Smart Metering Equipment. Security aspect of Measuring Instrument Directive (MID & WELMEC).
Communication	Local optical port - for calibration, configuration or triage ZigBee Smart Energy Profile 1.2b DLMS CCT 3.1 SMETS2 v2.0 & GBCS v1.1

20 Revision History

Description of Change	Date	Version
Document Approved	07/02/2020	1.0

Contact Us

If you have any further questions or would like to get in touch, please use the details below.

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