The Operation of Pre-Payment Meters

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1.0 Revision Record

Issue	Pages	Date	Details
2.3	All	April 2018	Document review, up-issued with no changes.
2.2	All	April 2017	Document review, updated section 17 and 18.
2.1	All	April 2016	Document review, updated section numbering
2.0	All	June 2015	Document review, up-issued with no changes.
1.1	All	June 2014	Document review, up-issued with no changes
1.0	All	June 2013	First release of Work Instruction

2.0 Contents:

1.0 Revision Record 1
2.0 Contents: 1
3.0 Introduction 2
4.0 Basic Information 2
5.0 Setting up a Meter with Basic Data and Activating (Libra Series) 3
6.0 Decom/ Recom (Decommission and Recommision) 6
7.0 Tampers and Faults 10
8.0 Purge Gas 12
9.0 Transferring Customer Data (Last Values) 13
10.0 Rolling Registers 14
11.0 Owed Screen 20

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12.0 Meter Index 21
13.0 Wind On Emergency Credit 21
14.0 George Wilson U6 Pre-payment Meters 21
15.0 Decommissioning 22
16.0 Activating Engineering Gas (Purge Gas) 24
17.0 GIST and Customer GASCARDS 25
18.0 Card Refresher Terminal 27

3.0 Introduction

This section provides guidance for EDF ENERGY Gas Competent Staff to repair meter faults and carry out maintenance work on pre-payment gas meters. Pre-payment gas meters are commonly referred to as Electronic Token Meters. EDF ENERGY only install three types of electronic token meters, the Landis & Gyr Libra series, the 200, 200a and 210 (pictured below).



200 200a 210

4.0 Basic Information

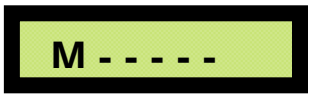
The display will always be blank on the meter unless physical interaction is happening with it. This is to save the life of the built in lithium battery. The display is either activated by pressing the red button A or by inserting a customer or GIST card into the card slot.

With the exception of semi concealed meter boxes (where a “top box” can not be fitted) the meter should be installed vertically and securely (refer to section 4 Install, Exchange and Removal of Low Pressure Gas Meters up to 6m^3/hr).

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5.0 Setting up a Meter with Basic Data and Activating (Libra Series)

When removing the meter from the box, check the display before installation is carried out.





The display that should be visible on the Libra 200 is "M" and five dashes. "M" and five stars will be displayed on the Libra 200a and 210. This is acceptable to install as the "M" stands for married and means that the module is "married" (talking) to the meter. If the dashes or stars are preceded by an "U" then this means that the module is disconnected (Unmarried) from the meter and the meter should not be used and returned.

Insert the Gist card and the following should be displayed.



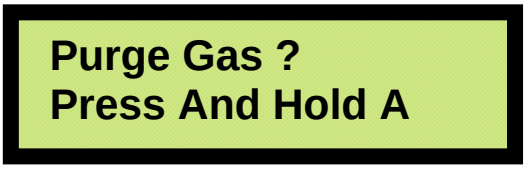
Press and release button A and the display will change to.



Press and release button A again and the card clock time will appear. "Please Wait" will then be displayed for about 15 seconds (When displayed on the meter this will be shown in actual time).



Then the display will change to:



Press and hold button A for five seconds and the display will change to:

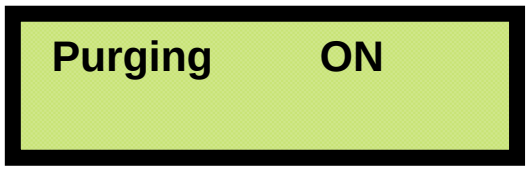
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Release button A to start the valve opening process. Whilst this is happening the display will change to:



When the valve has opened the display will change to (This is for the 200 and 200a only):



The 210 display will show the volume of purge gas used. To update the display press button B:



Testing and purging can be now completed (refer to SECTION 4 Testing and Purging)
When either the purge time limit **or** the purge gas volume limit has been reached the display will change to the display below and the process will have to be repeated if the purge is not finished.
NOTE: If purging is complete before either of the limits is reached, the card may be removed and the valve will then close.
Re-insert the GIST card.
Clear all faults and tampers by servicing the meter (Refer to 20.6 Meter Servicing in this section).



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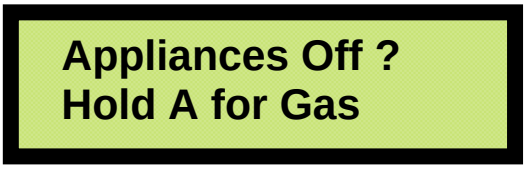
The meter is now ready for the customer's GASCARD. As the meter has just been commissioned, twice the normal emergency credit amount will be available to the consumer (normally £12). If the meter is activated using a blank GASCARD then only £10 emergency credit will be available. Insert the GASCARD, the display will inform the value of credit on the card, then press Button A (The picture below shows what the display will be when using a blank GASCARD).



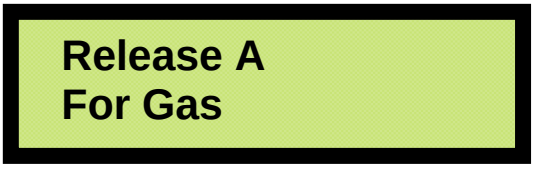
The meter will accept all of the credit for payment for gas and the display will change to:



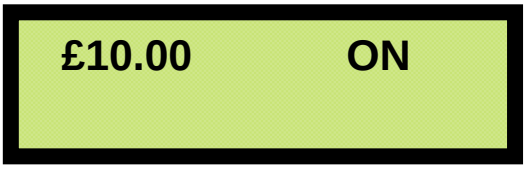
The display will then change to below (Appliances should have already been turned off as part of the initial tightness test:



Continue holding A for gas until the display changes to:



Wait for the valve to open and when this has happened the display will change to:



The meter has now been activated and appliances can be relit (refer to section 5 Relighting and Checking of Appliances).

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For safety reasons the valve opening procedure **must** be completed within 2 minutes of inserting the GASCARD. If the display shown below appears, then the 2 minute timeout has occurred. Remove the GASCARD, reinsert it and restart this procedure from the beginning.



6.0 Decom/ Recom (Decommission and Recommision)

When a previous customer moves out and a new customer moves in a "decom/ recom" action may be required as the previous customer might have debt on the meter that the new customer is not responsible for. The meter will be reset back to a basic state and activated with a new GASCARD.

Insert the previous customer GASCARD and transfer any credit on to the meter (only if it is available).

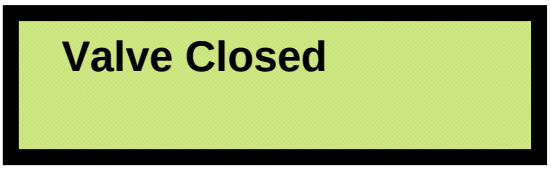
Insert the GIST card and the display will change to:



Press and hold button B and the display will change to:



Carry on holding button B and if the valve is open, it will now close and the display will change to:



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The divorce option is now offered (see display below). This is disconnecting the meter from the module. Button A **should** not be pressed. If the meter is divorced then the meter will require exchanging and can not be used.



Wait for 5 seconds and the display will then change to:



After a further 5 seconds the display will change to:

200



200a/210



Remove the GIST card. The meter is now back in its original state and is ready to be set up for the next customer.

To recommission the meter refer to Setting up Meter with Basic Data and Activating in this document.

6.0 Pre-payment Meter Removal

When a pre-payment meter is being removed (this is normally if the customer is changing back to credit payment and a credit meter is to be installed) the above sequence for decommissioning the pre-payment meter **shall** be applied.

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7.0 Meter Servicing

As well as carrying out a meter service on initial installation (this needs to be done in case any fault flags are left on the meter at time of manufacture), meter servicing will need to be carried out if a fault occurs once installed.

Insert the GIST card and the display will change to:



Press and release button A and the display will change to:
This will be displayed for about 4 seconds (display will show real time and date).



The display will then change to “please wait” while internal processing of the meter is carried out:



The first tamper will then be displayed (if any exist). Clear the tampers by pressing Button A (repeatedly for multiple tampers). Tampers will be shown by the letter “T” being displayed with a number next to it (refer to Tamper and Meter Faults in this section for a list).

When all tampers have been cleared or there are none then the display will show: (If the tamper does not clear then the meter will have to be exchanged).



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The meter will then move on to faults and any faults will then be displayed (if any exist). Clear the faults by pressing button A (repeatedly for multiple faults). Faults will be shown by the letter "F" being displayed with a number next to it (refer to Tamper and Meter Faults in this section for a list).

When all faults have been cleared or there are none then the display will show: (If a fault will not clear then the meter will have to be exchanged).



The meter will then move on to time closures and any time closures will then be displayed (if any exist). Clear the time closures by pressing button A (repeatedly for multiple time closures). Faults will be shown by the letter "C" being displayed with a number next to it (refer to Tamper and Meter Faults in this section for a list).

When all faults have been cleared or there are none then the display will show (If the tamper does not clear then the meter will have to be exchanged):



One further press of button A will cause "Please Wait" to be displayed while the meter writes data to the GIST card.

If the faults and tampers can be removed then the display will revert back to original state before the problem occurred (see below):



Purge gas is now available for testing purposes if required (refer to Purge Gas in this section). Remove the GIST card and the meter is now ready to activate using the GASCARD.

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7.0 Tampers and Faults

As with any mechanical equipment faults can occur with the meter. Some of these can be rectified without changing the meter. Others can not and the meter will need to be exchanged. Also tamper detection is built into the meter to detect if the customer has been interfering with it. Tampers and faults are cleared by following the instructions in the 20.6 Meter Servicing part of this section above.

A list of faults and tampers can be found in the table below

Code	Fault / Tamper Type	Resettable
T01	Leaky Valve Tamper	Yes
T02	Excess Flow Tamper (Reverse Flow on 210)	Yes
T03	Batt cover tamper	Yes
T04	Token Hack Tamper	Yes
T05	Valve Open Tamper	Yes
T06	Valve Close Tamper	Yes
F11	Valve Open Fault	Yes
F12	Valve Close Fault	Yes
F13	Temperature Fault	Yes
F14	Slot Damage Fault	No
F15	Slot Short Fault	Yes
T16	Repeated Insertion Tamper	Yes
T17	Excess New Cards Tamper	Yes
T18	Authorisation Invalid Tamper	Yes
T20	Regional Corrupt Tamper	Yes
T21	Event Corrupt Tamper	Yes
T22	Cold Boot Tamper	No
T23	Identical New Cards.	Yes
F25	CCF Security Check Failed	Yes
F26	E6 Failed to Action Command	Yes

Below is an example of what would show on the display for a F15 fault.



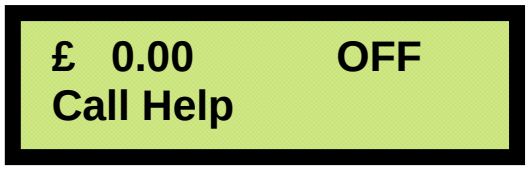
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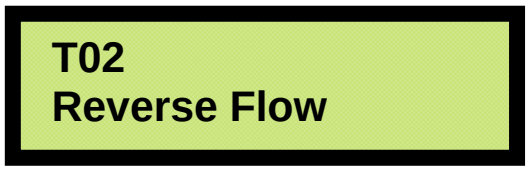
Sometimes when inserting a GASCARD or GIST card, Card Fail 34 or 35 will be shown on the display. The first thing to do is to clean the contact on the card(s). If this does not work try using an alternative GASCARD. If the problem persists then the meter is defective and will need exchanging.

As shown in the tamper and fault table T02 refers to reverse flow on the 210. This has been changed because the casing of the 210 is smaller than that of the other pre-payment meters and this means that the meter can be turned around and reversed even when a meter bracket is fitted. If this occurs the base meter will record reverse flow. If a daily threshold of reverse flow is exceeded the meter will close the valve. Correct orientation of the meter will allow the customer to re-insert their card to open the valve. However the message "Reverse Flow Recorded" will be displayed prior to the valve open message:



Subsequent reverse flow detection will result in valve closure and "Call Help" being displayed with T02 recorded. Gas will be unavailable to the consumer until the tamper is cleared by a service visit:





If the battery is running low the display below will be shown. As EDF ENERGY does not currently change the batteries on the meters the meter will require exchanging:



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If the display shown below is found then the meter requires an immediate exchange as it has software and hardware issues and will not be able to be reset.

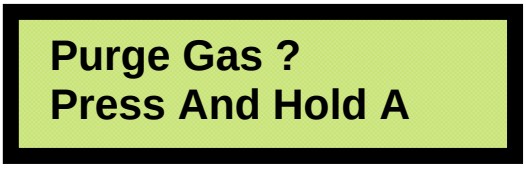
Please Note: The GIST card must not be inserted in to the meter as the meter could corrupt the GIST card.



8.0 Purge Gas

With the use of a GIST card purge gas is always available on the meter even if there is no customer credit on the meter. Carry out a meter service (refer to 20.6 Meter Servicing in this section). Once finished do not remove the Gist card from the meter.

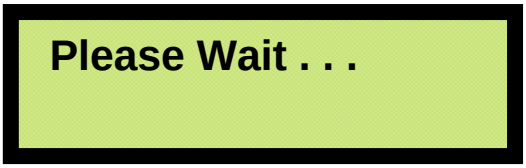
Press and hold button A for 5 to 10 seconds. After this time the display will change to:



Press and hold button A for five seconds and the display will change to:

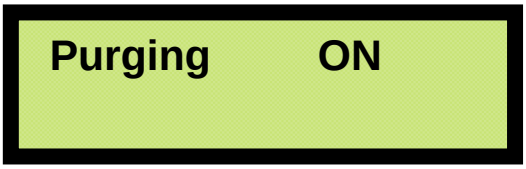


Release button A to start the valve opening process. Whilst this is happening the display will change to:



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When the valve has opened the display will change to: (This is for the 200 and 200a only).



For the 210 the display will show the volume of purge gas used. To update the display press button B:



Testing and purging can be now completed (refer to section 4 Tightness Testing and Purging) When either the purge time limit **or** the purge gas volume limit has been reached the display will change to the display below and the process will have to be completed if the purge is not finished.
NOTE: If purging is complete before either of the limits is reached, the card may be removed and the valve will then close.



9.0 Transferring Customer Data (Last Values)

If on a site visit the meter is found to be defective and the tampers and faults will not clear then the customer information can be transferred from the old meter to a new pre-payment meter.

Decommission the old meter in the usual way (refer to “Decom / Recom” in this section)

Insert the Gist card in to the new meter and the following should be displayed.



Press and release button A and the display will change to:

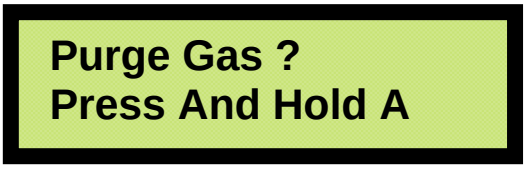
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Press and release button B. This will now transfer the details just down loaded from the old meter onto the new meter. The card clock time will appear, "Please Wait" will then be displayed for about 15 seconds (When displayed on the meter this will be shown in actual time).



Then the display will change to:



Carry on setting up the meter as if it were a new installation.

If the meter is a 200 then the original GASCARD will not work in the meter and the meter will need to be activated using a blank GASCARD and a new customer GASCARD will need to be ordered.
If the meter is a 200a or 210 then the original GASCARD should still work in the new meter.

Please note: If existing data is to be transferred across to a new meter then this must be done immediately because if the GIST card is used for any other operation then this information will be lost.

10.0 Rolling Registers

There are different displays available on the meter that allows the customer to access certain information. Listed below are the different displays and what information they will show. The display number always shows in the left hand side of the screen. The displays are activated by pressing and holding button A when the meter is in normal mode. On the 200 the GASCARD needs to be inserted in to the meter to access display 24 onwards as where with the 200a and 210 the GASCARD is not needed.

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Display No: 27
Description:
Gas Debt Remaining

Value: Example - £10.55



Display No: 25
Description:
Gas Debt - Weekly Minimum collection value

Value: Example - £0.00



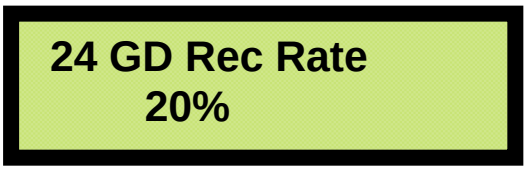
Display No: 26
Description:
Gas Debt - Weekly maximum collection value

Value: Example - £2.00



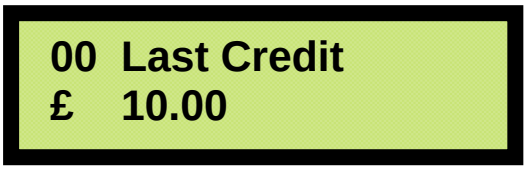
Display No: 24
Description:
Gas Debt Recovery Rate- the amount of credit to Pay for gas debt

Value: Example – 20%

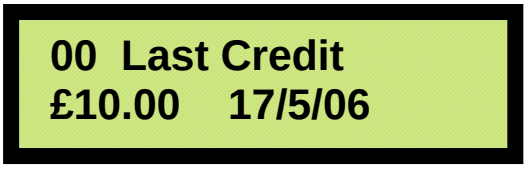


Display No 00 200
Description:
The last value of credit Transferred to the meter

Value: Example - £10.00



200a/210



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Display No: 01
Description:
The value of debt repaid from the last credit transfer

Value: Example - £2.00



Display No: 02
Description:
The value of emergency credit repaid from the last credit transfer

Value: Example - £2.00



Display No: 03
Description:
The value of gas from the last credit transfer

Value: Example - £4.00



Display No: 31
Description:
Non Gas Debt remaining

Value: Example - £0.00



Display No: 29
Description:
Non Gas Debt weekly minimum value

Value: Example - £0.00



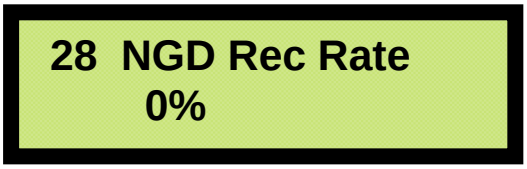
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Display No: 30
Description:
Non Gas Debt weekly maximum Value



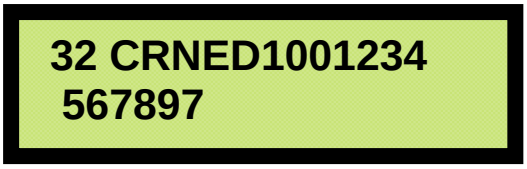
Value: Example - £0.00

Display No: 28
Description:
Non Gas Debt recovery rate as a percentage of last credit



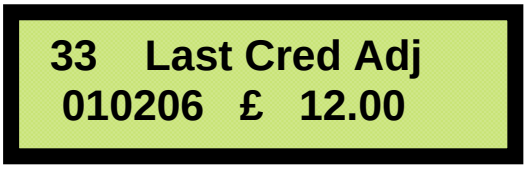
Value: Example - 0%

Display No: 32
Description:
Customer Reference Number



Value: Example – ED1001234567897
Note register 32 display is a new screen: it was not available on the 200

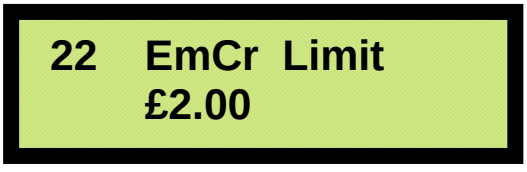
Display No: 33
Description:
Last Credit Adjust



Value: Example -£12.00
Received by meter on 01/02/2006

Note register 33 display is a new screen: it was not available on the 200

Display No: 22
Description:
Current amount of emergency credit which may be offered

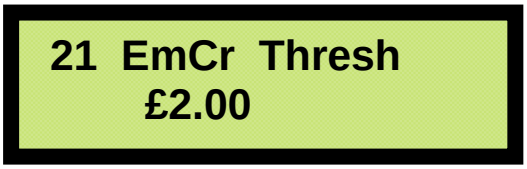


Value: Example - £2.00

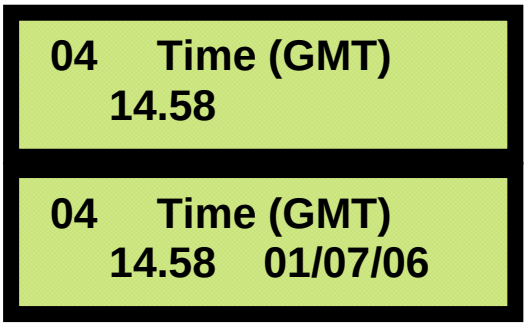
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Display No: 21
Description:
Threshold at which Emergency Credit is available

Value: Example - £2.00



Display No: 04 **200**
Description:
Current time in the meter (and date on 200a and 210)
Value: Example – 14:58 GMT **200a/210**



Display No: 05
Description:
Cost per kWh - Tariff 0

Value: Example - 0.000p



Display No: 06
Description:
Cost per kWh - Tariff 1

Value: Example - 0.000p



Display No: 07
Description:
Cost per kWh - Tariff 2

Value: Example - 0.000p



Display No: 08
Description:
Cost per kWh - Tariff 3

Value: Example - 0.000p



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Display No: 09
Description:
Cost per kWh - Tariff 4

Value: Example - 2.516p



Display No: 10
Description:
Cost per kWh - Tariff 5

Value: Example - 1.393p



Display No: 17
Description:
Standing Charge per day

Value: Example - 0.00



Display No: 11
Description:
No of kWh (per day) on Tariff 0

Value: Example - 0.00



Display No: 12
Description:
No of kWh (per day) on Tariff 1

Value: Example - 0.00



Display No: 13
Description:
No of kWhr (per day) on Tariff 2

Value: Example - 0.00



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Display No: 14
Description:
No of kWhr (per day) on Tariff 3



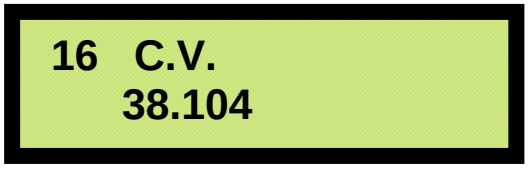
Value: Example - 0.00

Display No: 15
Description:
No of kWhr (per day) on Tariff 4



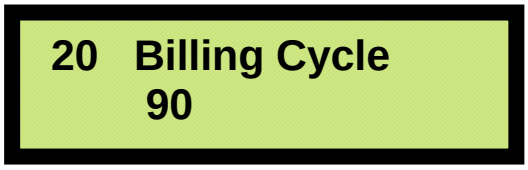
Value: Example - 12.56

Display No: 16
Description:
Calorific Value in MJ per m3



Value: Example – **38.104**

Display No: 20
Description:
Number of days in the billing cycle



Value: Example - 90 days
Display No: 23
Description:
Gas Allocation Rate - the percentage of credit guaranteed to be available for gas



Value: Example - 50%

11.0 Owed Screen

From the default display, a short press of button A will cause the “Owed” screen to be displayed. The amount displayed is the general debt amount added to the emergency credit debt. It does not include gas or non gas debt.

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12.0 Meter Index

On the 200 and 200a there are two indexes. The index on the meter and the index on the module, as where the 210 only has one index on the module.

To access the index on a 210 from the "Owed" screen, a short press of button A will cause the meter index to be displayed on Libra 210 meter.

13.0 Wind On Emergency Credit

Additional emergency credit can be added to the meter using the GIST card. This is normally carried out if the customer has lost or damaged their GASCARD and are waiting for a new one. To be able to add additional emergency credit the meter must first be totally out of credit. Carry out a meter service and the emergency credit will automatically be added.

14.0 George Wilson U6 Pre-payment Meters



Although EDF ENERGY do not currently install these meters work will still need to be carried out on them from time to time. This is mainly decommissioning the meters when they are to be replaced with a credit meter and activating engineering gas to test before an exchange if there is no credit on the meter.

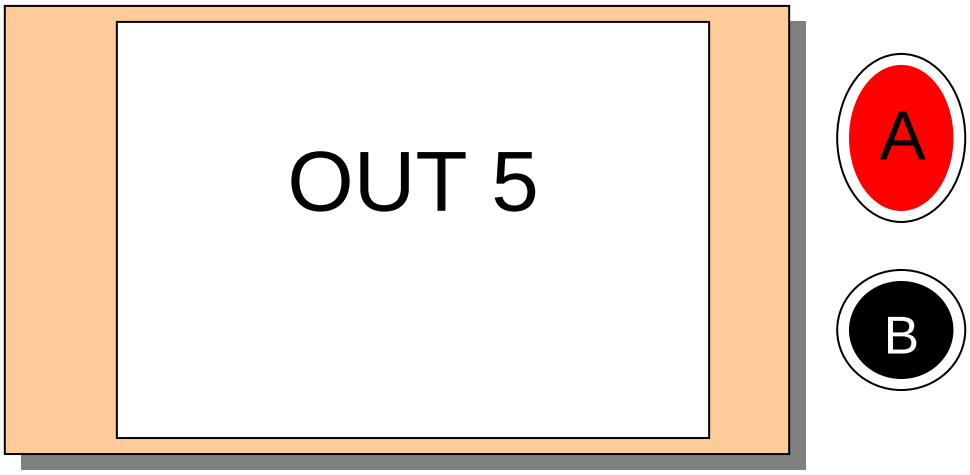
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15.0 Decommissioning

Insert the previous customer GASCARD and transfer any credit on to the meter (Only if it is available). Insert the GIST card and the display should show.

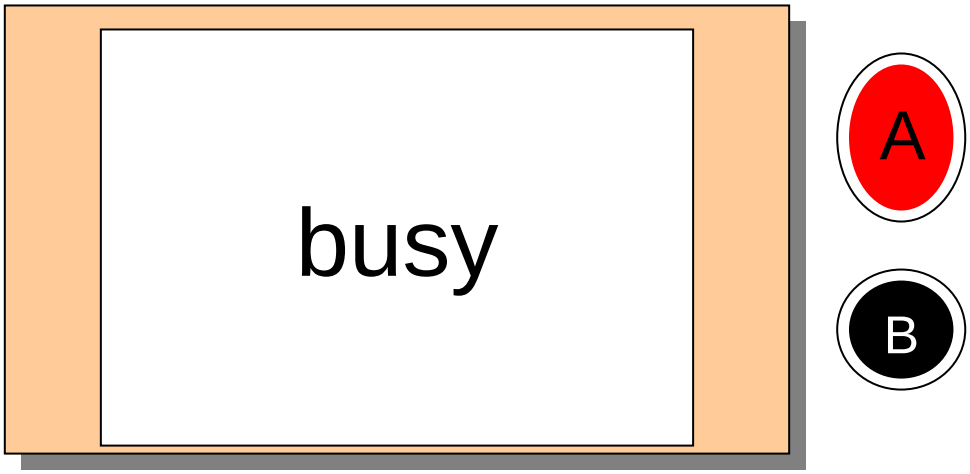


Press button A the display will change to:



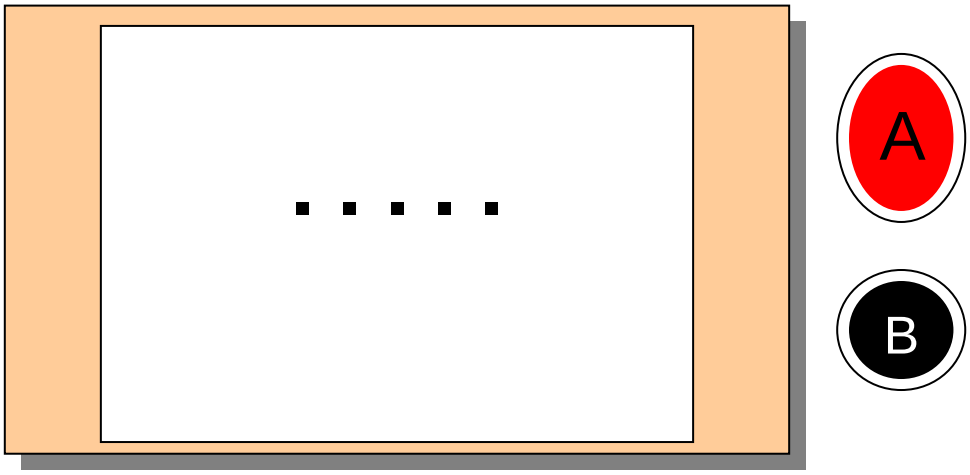
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The display will start to count down to zero. Keep repeating pressing button A so the meter starts to count up. When it gets to "Out 10" the display will change to:



The busy display will show for a few seconds while the information is being transferred from the meter to the GIST card.

When all the information has been transferred, a tone will be heard and the display will change to (OFF will also be displayed in the bottom left hand corner):



The meter is now decommissioned and all data has been taken from it.

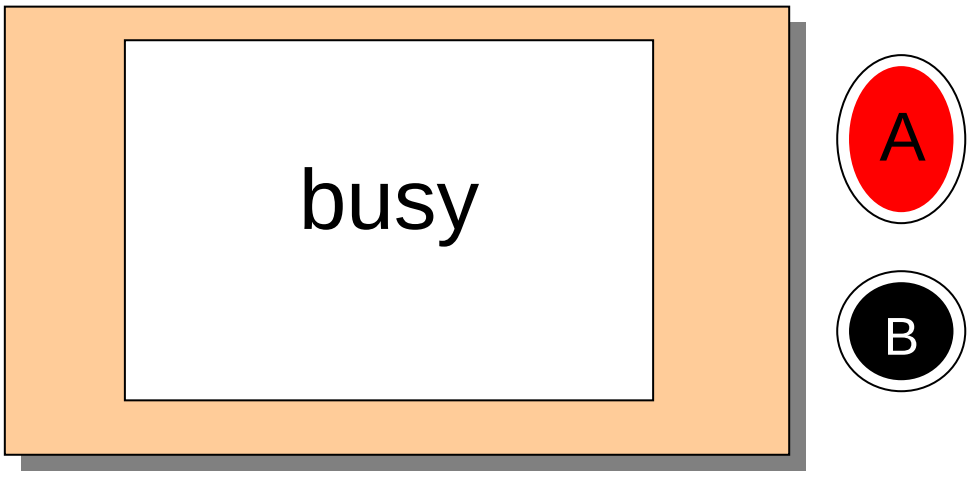
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16.0 Activating Engineering Gas (Purge Gas)

Insert GIST card and the following will be displayed.

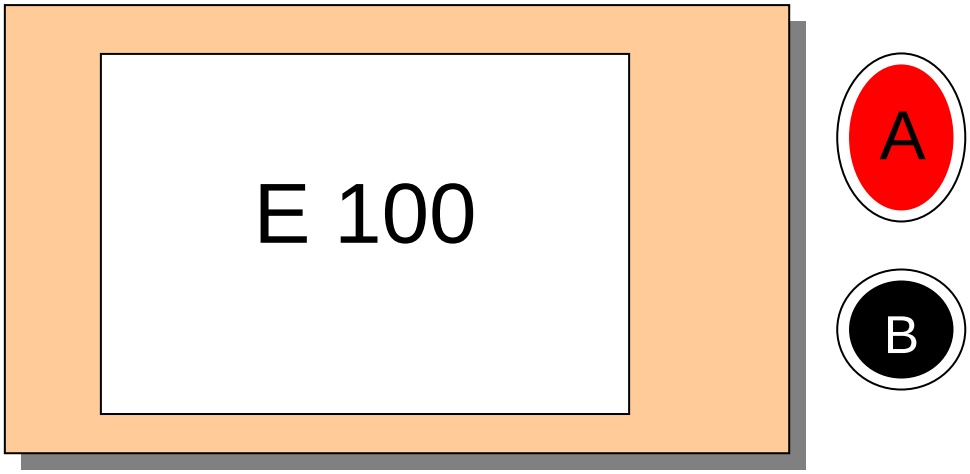


Press button A and let the meter count down from 5 to 0. Clear any faults and tampers and the meter will then show “busy”:



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"E 100" will then be displayed. Engineering gas has now been activated so the tightness test can be carried out:



Once finished, just remove GIST card from meter.

17.0 GIST and Customer GASCARDS

The GIST card (Generic Ironbridge Service Tool) can be used as a service tool for both the ETM and E6 ETM (Electronic Token meter) gas meters. It will decommission both types of meter and will re-commission both types of meter from last or standard values. The GIST tool contains a clock which will resynchronise a meter's clock during a service visit. The clock synchronisation message may be displayed during a service operation on an E6 ETM.



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Due to security reasons, the GIST card has a limited working life and needs to be refreshed at least every 14 days. Also it only takes up to a maximum of 70 transactions before it will need to be refreshed.

The earlier GIST cards (pictured above) have 2 AA batteries fitted which will need to be changed approximately every 18 months while the later cards are sealed with a lithium battery inside them which does not need changing.

Customer GASCARDS come in various colours and designs depending on the Energy supplier. They are pre-programmed with the customer account information before they are sent out. Once the cards are refreshed they then become blank and can be used to set up new meters. GASCARDS only work in one meter so if they are lost and someone tries to use it in another meter it will not work.



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18.0 Card Refresher Terminal

As already stated both GIST cards and customer GASCARDS will need to be refreshed. This is done using a card refresher terminal (pictured below). Insert the card in to the card slot and press button 1 to refresh the card.



Card refresher terminals are located at:

Bexleyheath.
Gadeon House, Exeter.
Hove.
Plymouth.
Project Park.
Willow Lane.

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