



minim | electricity monitor

User instructions

Introduction

We'd like to thank you for choosing the minim, the first in our range of energy displays. This booklet explains how to set up and use your minim in a simple, clear way. If you have any problems or questions please call us. The number's at the back of this book, and we'll be pleased to help.

The minim is designed to help you learn about how you use electricity, and to spot when you might be wasting it. This will help you to reduce your CO₂ output and save money! How? Well, the minim gives you lots of visual feedback on your power consumption. It shows you what's happening right now – switch a kettle on and see!


It also lets you know whether you're using more or less than a typical daily allowance. Information is in real-time, and can be shown in £, CO₂ or kWh.


Please bear in mind that the minim is not a billing meter. It's pretty clever but anyway, you've already got a meter.

The next few pages tell you how to install and get the best out of your minim.


We hope you'll enjoy using the minim and will pass the word on to your friends.

Safety notice


 It is important to observe some simple safety precautions when using this product. Please read this important information before continuing. Safe operation of the minim is impaired if used in a manner not specified by the manufacturer.



 The minim product is designed to be installed simply and without the need for a qualified electrical installer. There is no need to open fuse boxes or to connect or disconnect any cabling. It is designed for internal use only, and should be used inside a suitable building or meter cabinet.

Don't fit rechargeable batteries.

 When fitting the sensor, if the cables coming out of your meter look perished (cracked, burned, or bare copper) or are loose, or wet, or you have any doubts about their condition, do not install the sensor, contact a qualified electrician.
Don't force the sensor onto the mains cable if the cable diameter appears to be too big.

Keep the minim away from water and other liquids. Disconnect before cleaning and do not immerse in water or other liquids. Please contact Green Energy Options if any components appear damaged or faulty, details are at the back of this booklet.

 To protect the environment, this product and batteries must be disposed of safely at the end of their life. Please take to a recycling centre for safe disposal.

 RoHS compliant
 CE approved

What's in the box



Display

The Display shows your energy usage. It receives a wireless signal from the Transmitter unit. The Display is mains powered.

Transmitter

The Transmitter unit will sit next to your existing electricity meter, and sends the readings to the Display. The Transmitter is powered by 3 C-cell batteries (supplied).

Power Supply

This is to power the Display. Please do not use any other supply to power the Display.

Sensor

The Sensor safely clips around the mains electricity cable that comes into your meter, and measures the energy you are using. It plugs into the bottom of the Transmitter. Please read the safety notice at the start of this manual and fit the Sensor according to the instructions on page 4/5.

Batteries

3 large C-cells for powering the Transmitter.

Set-up

Setting-up the minim for the first time takes only a few minutes and is described in the next few pages.

The initial set-up requires you to configure the Display with the time, set-up the Transmitter, establish communication between the Display and Transmitter, and to fit the Sensor. The last section of this manual details how to customise the minim to your own electricity tariff and energy consumption target.

Setting-up the display

- Unpack the Display and the Power Supply. Plug the Power Supply into a mains socket and insert the cable to the back of the Display
- The Display will show its clock screen. The clock screen can be accessed at any time from the main screen by pressing the Set button



Setting the time

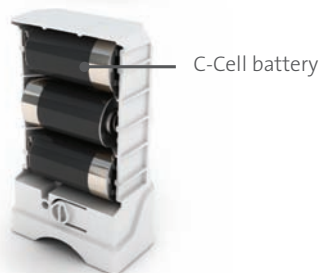
- Use the Up and Down buttons to adjust the time
- Press Set when you've finished, and the main screen is displayed

Setting-up the transmitter

Unpack the Transmitter. Remove the Base from the Cover by pressing the release Catch on the back.

Insert the batteries provided, taking care to get them the right way around according to the diagram in the battery compartment. Once fitted, an LED on the front of the Transmitter will light for a second to show that the batteries are correctly inserted.

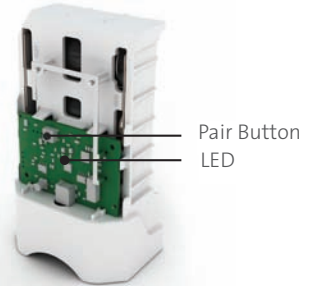
Do not replace the cover yet.



Establishing wireless connection

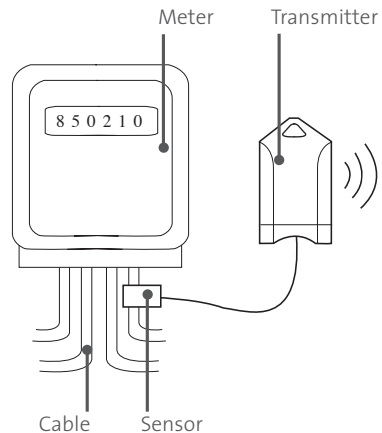
The Display and the Transmitter communicate wirelessly and need to be connected so they are “paired”. You should only need to do this once.

1. On the Display, press the Up and Down buttons at the same time until the word “Pair” is displayed.
2. On the Transmitter, press and hold the Pair Button until you see the LED light. When you release the Pair Button the LED flashes as the Transmitter pairs with the Display.
3. Once complete the screen will show the full real-time consumption bar to show that it has paired. Press Set to return to the main screen. If pairing is not successful, the Display will continue to show “pair”: please see the “Frequently asked questions”.
4. Slide the cover back onto the Transmitter and place it in a secure upright position.



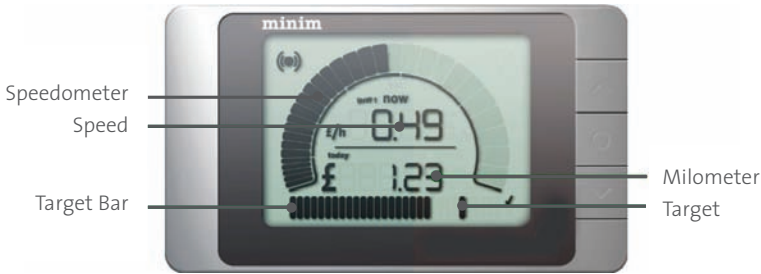
Fitting the sensor

1. Unpack the Sensor, and re-read the safety notice at the start of this manual.
2. Locate your electricity meter. Initially, without touching it, look to see if the meter is in good condition. If the cables coming out of your meter look perished (cracked, burned, or bare copper) or are wet, or you have any doubts about their condition, do not install the Sensor: contact a qualified electrician.
3. Typically there are four cables going into your meter. Fit the Sensor around any of the four cables. Make sure the Sensor snaps tightly shut. The faces of the Sensor must meet cleanly to give a good reading.
4. Plug the Sensor into the base of the Transmitter, and leave the Transmitter in a secure upright position near your meter.



You are now ready to start using the minim!

Using the minim



The Speedometer

The Speedometer shows you how much electricity is being used in your home right now. It is updated every 2 seconds.

It can show consumption up to 20kW. Typical households use a lot less than this. The first segments show small levels of electricity consumption, whereas the later segments show increasingly larger levels of consumption. The exact values of the segments can be seen in the “Frequently asked questions” at the back of this booklet.

The Speed

This shows your real-time electricity consumption in figures. It can be shown in three different units, which can be changed by pressing the Up button, you can view this in;

- **£/h** The approximate cost per hour of the present electricity consumption
- **kg CO₂/h** The equivalent amount of CO₂ produced at the present electricity usage
- **kW** The amount of power presently being used. (0.2kW = 200 Watts, or 2 x 100 Watt light bulbs.)

The Milometer

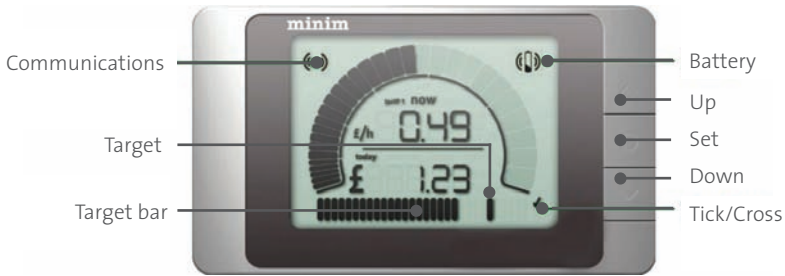
This shows how much electricity you have used today. By pressing the Up button, you can view this in;

- **£** The approximate cost of electricity used in the time shown
- **kg CO₂** The equivalent amount of CO₂ produced in the time shown
- **kWh** The amount of electricity used in the time shown

You can show the consumption for different periods by pressing the Down button.

- **Yesterday** shows consumption for the previous day (midnight to midnight)
- **7 days** shows the total consumption over the last 7 complete days
- **30 days** shows the total consumption over the last 30 complete days

The yesterday, 7-day, and 30-day figures will update at midnight each day. The consumption figure will flash if the monitor has not recorded a full set of data for the time period indicated.



The Target bar

This shows how much electricity you have used today in relation to the target you have set as a goal for each day.

The minim will learn your usage profile by remembering your pattern of energy consumption. The minim uses this profile to predict whether your consumption today will be over or under at the end of the day, and displays this as a tick or cross.

The Target bar shows the current day's cumulative consumption. If you have set a Target it will show as a segment positioned three quarters of the way along the Daily Consumption Bar. This will always be in the same position, regardless of the target you set.

The Tick/Cross symbol will show whether you are on track to beat the target you set. This is based on your usage profile for that day of the week.

If no target is set, each segment of the Consumption Bar represents 1kWh.

Once the target consumption has been equalled or exceeded the Target will flash.

Other symbols and indicators

- If the batteries in the Transmitter need changing, the Battery symbol will appear and flash. The batteries should last at least two years.
- The Communications symbol will be shown when the Transmitter and Display are paired and communicating correctly. This symbol will flash if communication is lost, see "Establishing wireless connection".

Settings



Deciding on your target electricity consumption

In order to decide on a target, check your previous electricity bills to calculate your own electricity consumption, or for a rough guide you could start with these averages:

Single person

7.5 kWh / £1.05 / 4 kg CO₂

Working couple

10 kWh / £1.40 / 5 kg CO₂

Family with two children

14 kWh / £1.96 / 6 kg CO₂

Remember you can come back and change the target setting as you get better at conserving power, when you have a better idea of your target, or if your circumstances change.

Setting the target

From the main screen, press and hold the Set button for 3 seconds.

1. The Display will show the target screen. *(If you release the button too quickly you will see the clock screen).*
2. You can set a target consumption in one of three units. Use the Up and Down buttons to choose between kWh, kg CO₂ or £:
 - **£** The approximate amount you would like to spend each day
 - **kg CO₂** The amount of CO₂
 - **kWh** The electricity usage
3. Once you have chosen your preferred unit, press Set: the figures on the screen will start to flash. This is your target. The value can be altered using the Up and Down buttons.
4. Press Set to store the target value, and this leads you to setting the Tariff described in the next section.

If a target has been set, the Target is illuminated on the main screen. If you do not want to use the target function of the monitor, then ensure all three target values are set to zero.

Setting the Tariff information

If you only have a single Tariff for electricity then you only need to enter information for Tariff 1.

The Tariff is set using your unit rate (*the price you pay per kWh of electricity*) which can be read from your latest electricity bill.

If you pay more for the first units of electricity used in a billing period, and less for the rest, you may want to calculate the average unit rate, see the “Frequently asked questions” section.

If you have a different Tariff at different times of the day, for example Economy 7 (*midnight to 7am*), then you are able to enter information for both Tariff 1 (*the main Tariff*) and Tariff 2 (*the economy Tariff*).

If, like most people, you only have a single Tariff for electricity, you only need to enter information for Tariff 1. Tariff 2 should be left as 0.

1. The Tariff value will flash until adjusted using the Up or Down buttons. The Tariff value can only be set in pounds and pence, and doesn't use fractions of pence. Press Set to store the Tariff 1 price, and move on to the Tariff 2 screen.
2. If you do have a second Tariff, then enter the price on the Tariff 2 screen. If you don't have a second tariff, then set Tariff 2 to zero and press set.
3. If you have entered a price for Tariff 2 then the minim needs to know when the second Tariff applies. The start and end times can be set in half-hour periods, using Up, Down and Set buttons.

Frequently asked questions

Q. Why won't my Display and Transmitter communicate?

The minim is designed to operate in a home environment, over a range of 30 metres with two walls in between the Transmitter and Display. If the units are further apart than this, then you may need to bring them closer together to communicate.

Other reasons for the units not communicating are:

- There is radio interference. This is unlikely in a home environment, but try moving both the Transmitter and Display away from any possible source of interference.
- The batteries in the Transmitter are flat – does the LED light illuminate brightly when the batteries are inserted? Try using new batteries.
- The Transmitter is inside a metal meter cabinet. The communication doesn't work through metal.

Q. Why is the Communications symbol flashing?

The Communications symbol will flash if:

- The Display and Transmitter are unable to communicate (*See above*).
- The Display is receiving data from two Transmitters. This can be solved by pairing the Display with the Transmitter again. This will eliminate the other transmitter.

Q. Why is the Battery symbol flashing?

We expect the batteries to last for at least two years. Toward the end of their life the Battery symbol will flash to let you know to replace them. Please ensure you replace batteries with C-Cell batteries (LR14 or R14). Do not use rechargeable batteries.

Q. Why does the Display sometimes show a different reading to my utility bill?

The minim is a good indicator of your approximate electricity consumption, and not intended to measure consumption with 100% accuracy. The electricity meter will continue to be used for billing purposes. If you provide your electricity supplier with readings, please use your electricity meter readings.

Q. Where do I find my Tariff information?

Your Tariff information can be found on your electricity bill.

Q. What Target Consumption should I set?

The Target Consumption is best set using your recent electricity bill. Your bill will show your consumption typically over the last quarter.

Q. I have a standing charge, how should I calculate my Tariff?

If you pay a standing charge, do not include this in the calculation of the Tariff. Your bill will include a unit rate shown in pence per kWh.

Q. How do I calculate my average electricity unit rate to enter a Tariff?

Take the total price paid for your first units of electricity, plus the total price paid for the remainder of your units, and divide by the total units. For example, 200 units at £0.20 and 50 units at £0.10 would work out as follows; $(200 \times £0.20) + (50 \times £0.10)$ is (£40 + £5) or £45 for 250 units = £0.18 per unit.

Q. Can I use more than one Display?

Yes, more than one Display can be used with a single Transmitter. Just put both Displays into pairing mode at the same time, and then press the 'pair' button on the Transmitter unit.

Q. Is it possible to accidentally receive a signal from another Transmitter?

Whilst this is very unlikely, if you think your Display is picking up another Transmitter, repeat the pairing and exercise to connect to your own transmitter.

Q. I want to move the unit to another property, how do I erase data?

If you want to reset the minim, and erase all consumption data, tariffs and targets press and hold the 'UP' and 'DOWN' buttons whilst turning power on to the Display. This will erase all settings and stored data.

Q. I have changed the target setting to a higher value, but the main screen hasn't updated?

The target tick and cross are only updated each hour.

Q. The minim is on all the time, how much is it costing me?

Running your minim for a whole year uses 0.25kWh, and will cost less than 1p per month. This means boiling your kettle just 3 times would use more energy than the minim uses in a whole year.

Q. What are the values for each segment of the Speedometer?

Each segment of the Speedometer will light up when the consumption exceeds the value shown in the table below.

SEGMENT VALUE	SEGMENT VALUE	SEGMENT VALUE	SEGMENT VALUE	SEGMENT VALUE	SEGMENT VALUE
1. 10W	6. 250W	11. 750W	16. 2.0KW	21. 4.5KW	26. 10KW
2. 50W	7. 350W	12. 950W	17. 2.5KW	22. 5.5KW	27. 12KW
3. 100W	8. 450W	13. 1150W	18. 3.0KW	23. 6.5W	28. 14KW
4. 150W	9. 550W	14. 1350W	19. 3.5KW	24. 7.5KW	29. 16KW
5. 200W	10. 650W	15. 1550W	20. 4.0KW	25. 8.5KW	30. 18KW

Contact Information

If you have any questions please contact us by email at cservice@greenenergyoptions.co.uk or via our website at www.greenenergyoptions.co.uk. If you suspect your monitor to be faulty, please contact the GEO helpline on +44 (0) 1223 850218

The minim is designed and manufactured by Green Energy Options Ltd.
For details of further products, accessories or enhancements go to www.greenenergyoptions.co.uk

The Future

As your understanding increases, it is possible you will be looking for more detailed information and help on managing your energy. The minimum is an introductory level device and more advanced versions to help you go further in your efforts to cut bills and reduce environmental impact are available from Green Energy Options at www.greenenergyoptions.co.uk



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Conforming Standards:

EN300 220-1 v1.3.1	Radio Device RF Performance (UK & Europe), SRD Category 2
EN301 489-3	Emissions EMC (UK & Europe)
EN61010-1	Safety Requirements (UK & Europe)
EN60950	Safety Requirements (UK & Europe)
CE	UK standards
Cat III	Max Voltage 264 Vac
	Max Current 75A

Model	Monitor Display	Monitor Transmitter	Monitor Sensor
Rated voltage	230Vac 50Hz	3 x C size 1.5V batteries	N/A
Input power	0.25W	0.2W	N/A
Operation	0 to 40°C	-20 to 50°C	-20 to 50°C
Humidity	85% non-condensing	85% non-condensing	85% non-condensing
Usage	N/A	N/A	Cat III