

# Mixergy®



## USER GUIDE

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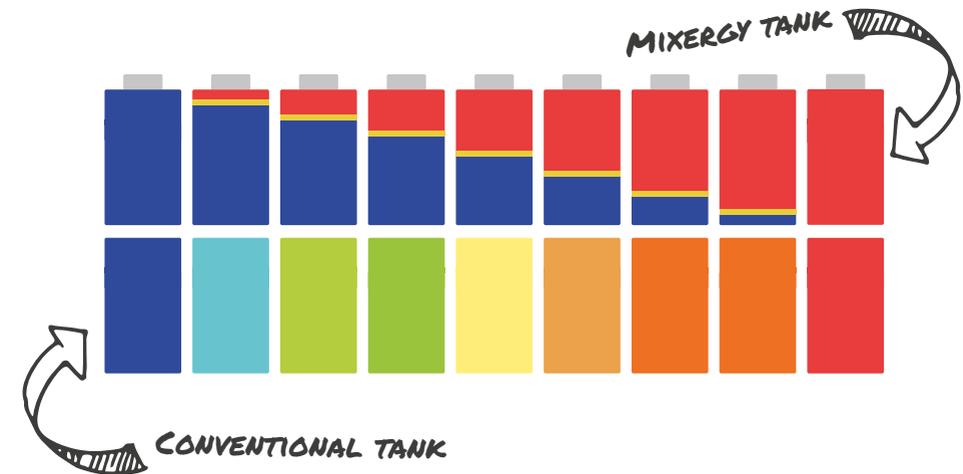
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## HOW IT WORKS

Mixergy uses novel top-up technology to 'float' hot water on top of cold. This means you can selectively heat what you need, rather than the whole tank. A sensor within the tank ensures you'll always know how much hot water is available.



## BENEFITS OF TOP-UP TECHNOLOGY

### Water is ready faster

- ▶ Volumetric charging heats water to a useable temperature faster (5x for electric, 2x for gas)

### Energy is saved

- ▶ A smaller surface area of hot water reduces heat losses
- ▶ You can heat smaller volumes of water

### Hot water bills are reduced

- ▶ Use less energy to heat less water and save on hot water bills
- ▶ Heat cheaply by exploiting off-peak tariffs i.e. economy 7/10

### Better utilisation of renewable energy

- ▶ Selective heating means that the remainder can be heated using surplus renewable energy when it becomes available



## MIXERGY INTERFACES

Mixergy tanks operate on an integrated Internet of Things (IoT) platform i.e. they're internet connected so that the tank, App, and Mixergy servers can communicate with each other meaning you can control your tank from anywhere in the world.

Automatic software updates are regularly sent to ensure your tank is running smoothly with the newest features and any remote diagnostics can be carried out to check out any potential issues.

The Mixergy cloud offers the most sophisticated control over your tank. However, you can still connect it to other smart home energy management systems including Hive, Nest, Tado and more.



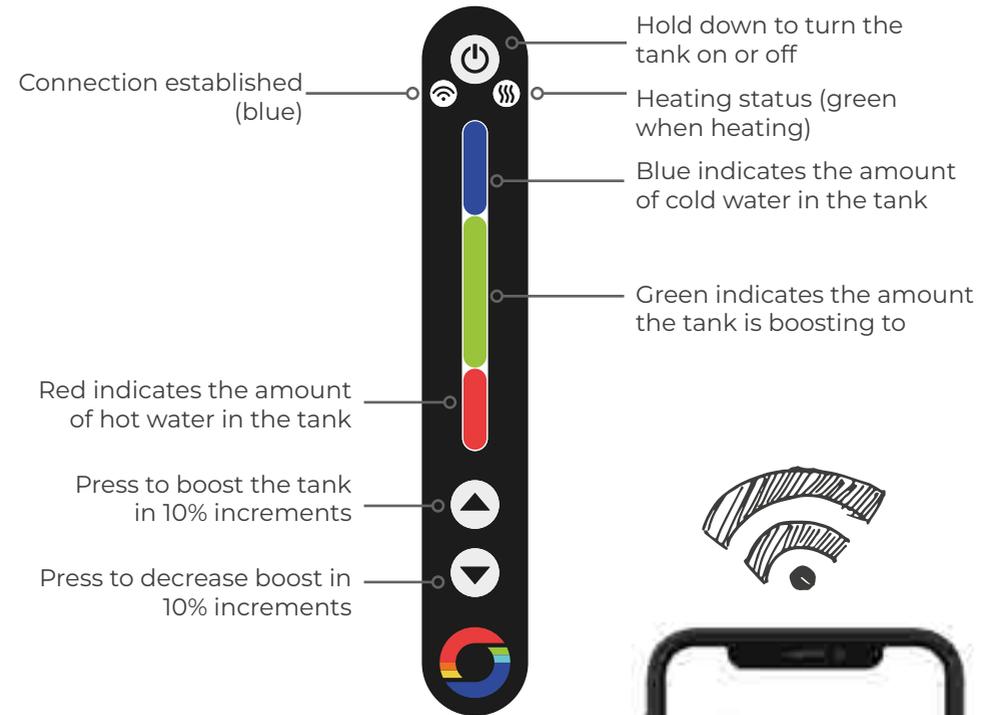
### HEATING WITH RENEWABLES

If you have an additional heat source, such as solar thermal or PV, you can heat water for free when the sun shines. By heating a smaller portion of the tank, you are leaving more water available to be heated by renewable energy. This allows you to use more of the energy you produce, and export less!



## CONTROLLING YOUR SYSTEM

Your Mixergy tank comes equipped with a simple gauge to allow for easy and fast control of your hot water:



### WANT MORE CONTROL?

For intelligent remote control over your Mixergy tank, use the Mixergy App. This can be downloaded from the App Store, or Google Play.



## HOW TO ACHIEVE THE MOST FROM YOUR TANK



### Mixergy terminology key

- **Hot water level:** the % of usable hot water available, or **state of charge**.
- **Draw event:** any amount of hot water discharged from the tank.  
**Heating event:** a scheduled heating instruction set in the Mixergy App (e.g. heat to 50% at 7am on Monday)
- **Maintain levels:** You can set your tank to maintain a state of charge between a minimum and maximum level. If the level of hot water drops below the minimum level, your tank will automatically heat until the maximum level is reached. We recommend a level of 15% (min) to 20% (max) to cover any small draw event (e.g. washing dishes).

### Manual schedule control

#### FUEL TYPE



**Economy tariffs with price variability (e.g. electric economy 7, 10)**

**Flat tariffs with no price variability (e.g. electric flat rate, indirect sources such as gas boiler)**

#### BEST TIME TO HEAT



You'll want all of your heating schedules to run when electricity is cheapest, during the set off peak hours.

The time you heat won't affect how much you pay for the energy. To minimize heat losses, we suggest setting your tank to heat to the required amount just before the first expected draw event.

#### HOW MUCH TO HEAT



If possible, you'll want to heat enough water to cover your expected usage for the entire day in one heating event.

Set your tank to heat enough water at the times you need it.

Be sure to put your tank in "indirect mode" through the App to ensure gas is used if it is cheaper than your electricity tariff!

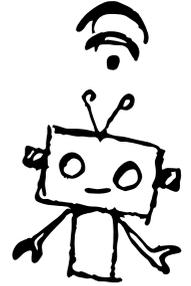
### Scheduling for renewables

If its due to be a sunny day, you'll want to maximise the free energy produced by your solar systems. We recommend scheduling/boosting just enough water to be heated for any draw events in the morning in order to leave as much capacity free to be heated with solar during the day.



## Automatic schedule control

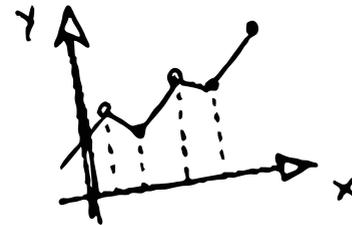
It can be tricky to know exactly how much hot water you'll require on a daily basis, and that's why we've produced an intelligent machine learning algorithm, which will select the best possible heating schedule for you. This algorithm will optimise your energy use, so you're always saving as much money on hot water bills as you can. It's a win-win situation for you, and our planet!



Automatic control can be set to one of two modes:

1. **Standard:** your tank will heat conservatively, aiming to save some money whilst minimising the chance that you'll run out of hot water.
2. **Economy:** your tank will heat to maximise savings. This comes with an increased risk that you may run out of hot water if your household uses more than estimated.

Before the machine learning kicks in, your actual hot water usage will be monitored over a short period. You should either set a manual schedule yourself to begin with, or your tank will run a default schedule – heating to 100% at 3am.



\*Friendly disclaimer – scheduling is trying to predict water usage happening in the future. Therefore no manual or automated schedule will ever perfectly predict the exact amount of hot water you'll actually need, though we hope our suggestions and automatic heating control setting will do a pretty good job!

# MIXERGY APP GUIDE



## DOWNLOADING THE MIXERGY APP

Download the Mixergy App by searching for **Mixergy** on the **App Store** or **Google Play**.



## CREATING YOUR ACCOUNT

Upon opening the App, you will be presented with a Login screen. Click **Create Account** and then set your credentials.



After entering all the required details, you will receive an email from **noreply@mixergy.co.uk**. Click through this link to validate your account, and then go back to the Mixergy App to login with your set credentials.

Mixergy's terms and conditions are available during sign up and are also available at <https://mixergy.co.uk/terms-of-use/>. Our privacy notice is available at <https://mixergy.co.uk/privacy/>.

## REGISTERING YOUR TANK TO YOUR ACCOUNT

After logging in for the first time, you will be asked to register your tank to your account.

On your tank, there will be a label containing a **mixdevice** code which is a **25-character identifier** unique to your tank (please note: this is not the MX number shown on the same label!).

Enter this code into the App. Alternatively, **scan the QR Code** (only available in iOS) on the label on your tank to save typing in this code.

On this screen, you may choose whether you'd like to manually schedule your tank (you choose when it heats, and how much), or you can select the option for **Automatic Schedule Control** (our machine learning algorithm will optimise your schedule to save on energy and money).

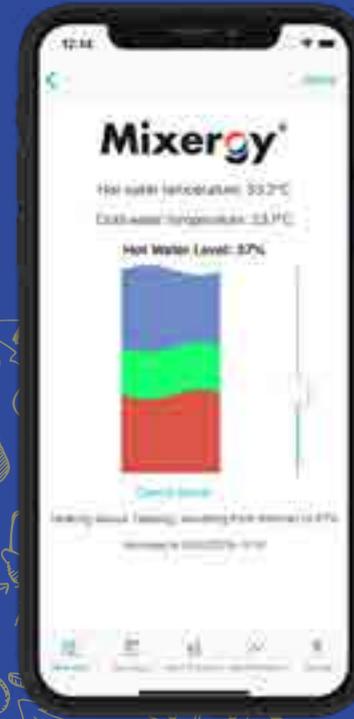
- If set to **Off**, your schedule will not be adjusted (i.e. you must manually schedule your tank).
- If set to **Standard**, your tank will be conservative in its scheduling, aiming to save some money whilst minimising the chance that you'll run out of hot water.
- If set to **Economy**, your tank will optimise its schedule to maximise savings. This comes with an increased risk that you may run out of hot water if your household uses more than estimated.



Click **Add Tank** to link your tank to your account.

## VIEW YOUR HOT WATER LEVEL

The home screen shows the current heating status of your tank, and how much water is available.



The **Hot Water Level** is the percentage of the water in the tank that is usable hot water.

In this example, 37% of the water in the tank is usable hot water (the red portion of the graph!) and the remaining 63% is considered cold (the blue portion of the graph!).

The **Heating Status** tells you if the tank is currently heating or not. If it is heating, it will state where the instruction has come from. For example, whether it's in response to a boost (from the internet or gauge), or due to a user defined heating schedule, demand side response, or a water sterilisation cycle.

Underneath the Heating Status it will say what time the water measurements were last received by Mixergy servers. This information can be useful when diagnosing internet connection issues in the home!

## BOOSTING YOUR TANK

To boost your tank to heat more water, drag the slider on the right up with your finger to the desired level and let go. The green portion of the graph represents the level your tank is heating to, and the heating status below will change. As the tank heats up, the red portion will climb until the target hot water level is reached.

To cancel a boost made from the App, click **Cancel Boost**.

## SETTING A MANUAL HEATING SCHEDULE

Click on the **Schedule** tab at the bottom of the page and press the **+** button to set when and how much you want your tank to heat. Click **Save** to view your new schedule.

You can set a different schedule for each day, or **copy** the same schedule over to several days. You can also set the tank to **maintain** between a **minimum** and **maximum** level – this means that if the hot water level falls below the minimum hot water level, the tank will automatically turn back on again until the maximum level is reached. If no maintain parameter is set, the usable hot water will naturally cool off, unless it is first used by a draw event.

In this example, a schedule has been set every week day to heat in the morning at 06:00 up to 80%, and then again at 18:00 to 40%. The initial heat to 80% in the morning should provide enough water to cover all morning showers, with a second boost in the evening in anticipation for another shower or bath for example.

On the weekends, it could be that everyone is expected to be in the house all day and likely to be using hot water at different times. Therefore a schedule has been set to heat at 08:00 to 70%, and then a maintain parameter is set to ensure between 15-25% usable hot water is always available throughout the

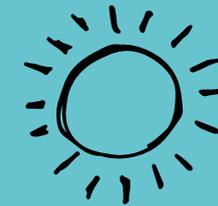
rest of the day.

If you do not set a schedule yourself, your tank will automatically run on a 'default schedule' until you do. This setting will heat your tank to 100% every day at 3am. This may be useful to begin with if you are unsure of how much hot water your household requires, but please note that this may not be the most efficient setting to optimise on energy/cost!

*Please note, the minimum hot water level your tank can heat to will be approx. ~40% for indirect tanks and 20% for direct tanks (this will be slightly different depending on tank size). After this initial heat, you will be able to heat in 1% increments.*



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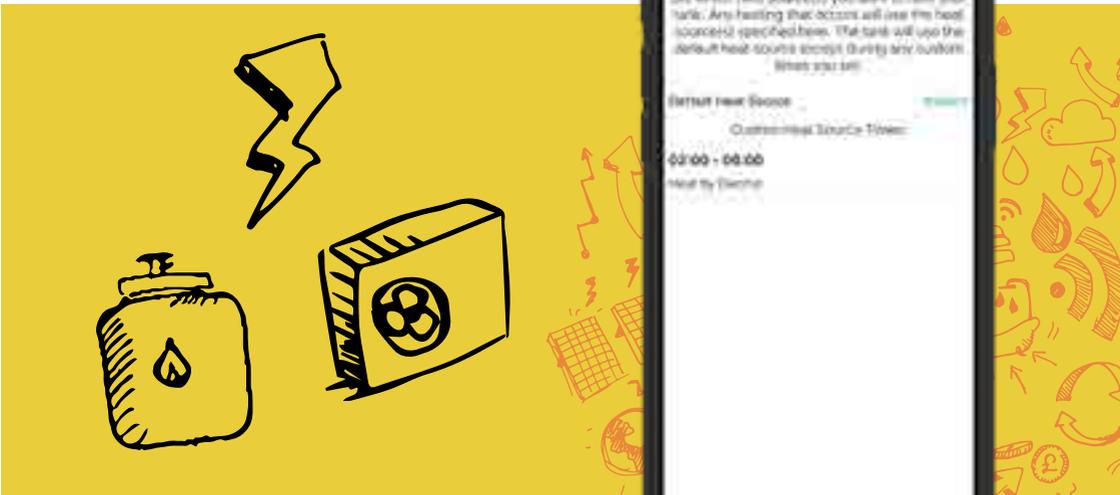
## VACATION MODE

Vacation mode will stop your tank heating when you are away, and any schedule currently set will be ignored until your return day.

To enter vacation dates, click the **airplane icon** on the tool bar.

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## SETTING YOUR HEAT SOURCE



Click the **Heat Sources** tab to specify which heat sources you want to use to heat your tank.

Set which **Default Heat Source** you'd like to use to heat your water. This will be used for all heating (boosting or scheduling), unless a **Custom Heat Source** is selected to run for a certain time of day. For example, you may wish to use electricity for heating during off-peak Economy 7 hours when electricity is cheap, and by gas outside of these hours.

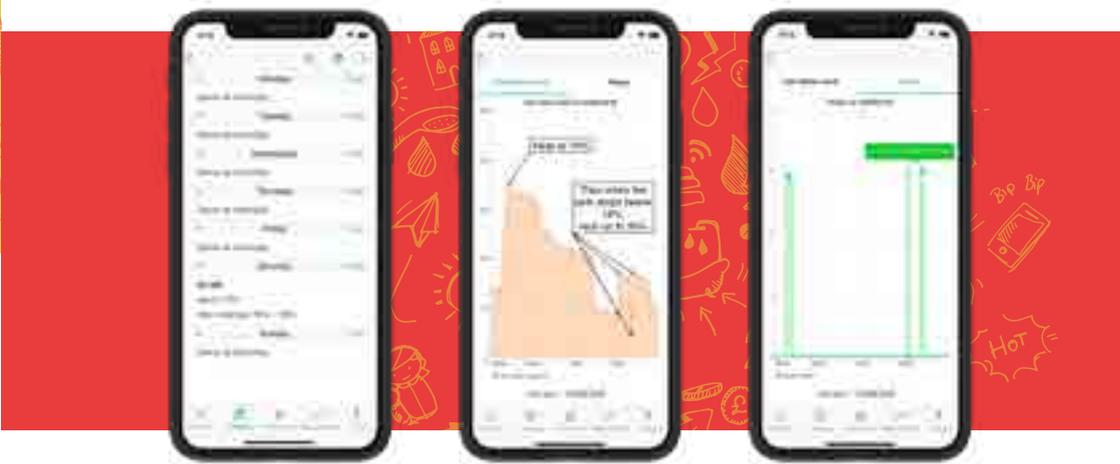
You can set a custom source by clicking **Add Heat Source** on the toolbar. Select from **Electric** and **Indirect** (e.g. gas/oil/biomass). Please note: If available, your tank will automatically utilise any surpluses of solar thermal or PV, regardless of the heat sources selected in this tab.

In this example, the tank will use electricity for any heating that occurs during 02:00 and 06:00 and will use an indirect heat source for any heating that occurs during the rest of the day.

## VIEWING HOT WATER USAGE

Click the **Measurements** tab to view graphs visualising your hot water usage and electricity consumption. You can see graphs of previous days by clicking **Pick Date** underneath the graph.

You can see how these graphs are consistent with the set heating schedule and reflect water usage and natural cooling of the water throughout the day.



For example, in the hot water level graph you can see the hot water level rising to 70% at 01:30, as per the schedule. Just after 18:00, the water level dropped below 18%. As the tank's schedule was set to maintain between 18% and 35%, the tank automatically boosted itself to 35%. This worked out well for the user as shortly afterwards there was a large draw event, and without this boost there wouldn't have been enough hot water available.

Swipe right to see the **Power** graph. This shows how much power was used by the immersion heater (if heating by electric). In this example, there are three spikes, one at 01:30, and another one after 18:00 and 20:00. This is what you'd expect to see from looking at the heating schedule and hot water levels.

## CALCULATION OF ENERGY USAGE AND COST

The Mixergy App can calculate how much energy you've used to heat your water, and provide an estimate of how much this has cost. Click the **Energy** tab, and depending on which heat source you use, select either **Electricity** or **Indirect**. Then click **Set Tariff**.

If you are heating electrically, enter your peak/off-peak electricity prices for an estimation.



If you are heating via an indirect source, enter your tariff price and the capacity of your tank (in litres – this is written on the label on the front of your tank!). If you know the efficiency of your indirect heat source, enter this here for the most accurate price estimate. If you do not know the efficiency, a default rating of 80% efficiency will be set.



## MORE OPTIONS

To log out, change your password, or add a new tank to your account, return to the homepage **Tank Info** and click **More**.

Click **System Settings** to change the target temperature of your hot water, change your automatic schedule control setting.

If you are using a heat pump as a heat source, you can set your heat pump temperature here.

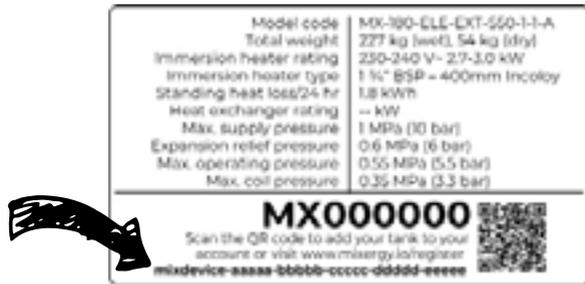


## FAQS AND TROUBLESHOOTING



### 1. The Mixergy App won't let me register my tank, what should I do?

- a. Before you will be able to register your tank with your Mixergy account, the tank must first be installed and connected to the internet. If you are unable to establish internet connection, please see the answers to question 2 below.
- b. Ensure you are entering the **25-character mixdevice number**, and *not* the MX number. This is printed on a white sticker on the side of your tank.



### 2. What should I do if my tank is not connecting to the internet?

A powerline adapter (included with your tank) should be plugged into a mains socket and connected to your internet router via the included ethernet cable. Check this set-up has been correctly followed by your installer. If you still do not have internet connection, check each of the following steps:

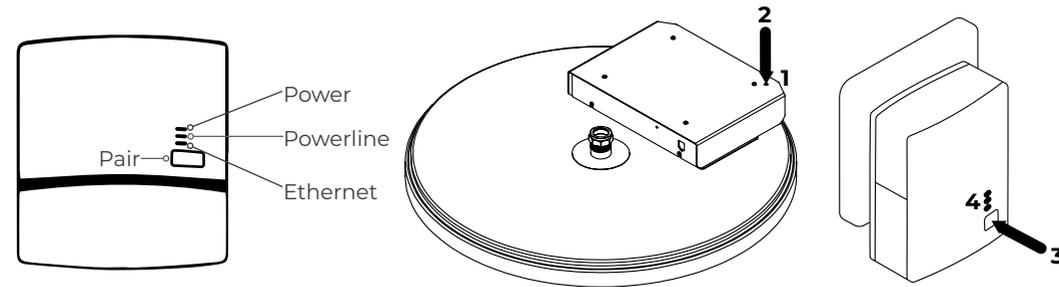
- i. If you already have a homeplug AV network installed in your home, it is recommended that you pair the tank with an existing homeplug adaptor to avoid interference
- ii. Ensure that the adapter is not plugged into an extension lead.
- iii. If the bottom ethernet LED on the adapter [4] is not lit, the ethernet cable may have come loose and will need to be plugged in again (you should hear it click into place).
- iv. If the middle powerline LED on the adapter [4] is not lit, then your tank may have become unpaired from the powerline adapter connected to your router.

1. You will need to press the pair buttons on both the adapter [3] (plugged into the mains) and the tank (the pair button is within the Mixergy controller box [1] found on the top of the tank – you

will need to use a thin tool to press the button inside [2]). Press both buttons for one second, within 2 minutes of each other in order to re-establish pairing.

2. During the pairing process, the top power LED on the adapter [4] should start blinking, if it doesn't, press the pair buttons again.
3. The middle LED will be solid when the pairing is complete.

If the above steps do not work to re-establish internet, try to power the tank off and on at the mains, not through the power button on the gauge.



### 3. What will happen to my heating schedule if the tank loses internet connection?

- a. Your tank will continue to heat according to the last schedule set when there was internet connection.
  - i. However, if you power the tank off at the mains it will need to re-connect to the internet in order to begin running the schedule again with the correct time. If no internet connection is available, the tank will enter an 'offline' mode where it will constantly maintain between 40-50% charge using your primary heat source.
- b. You can continue to boost your tank via the gauge without an internet connection.

### 4. Why is my tank heating when the schedule is not set to heat?

- a. The tank may have been boosted from the gauge or the App.
- b. If you have set 'maintain levels' within the App, then your tank will automatically begin to heat when the water level drops below the minimum parameter.
- c. If you have solar PV or solar thermal, your tank will automatically heat

when surplus energy becomes available.

d. A sterilisation cycle occurs every two weeks. This will heat the tank entirely to 100% in order to prevent legionella growth.

e. If you have opted for automatic heating control, your heating schedule will be automatically optimised and may be altered to assist with balancing of the National Grid energy system.

#### 5. Why is my tank not following the schedule?

a. If you have a 'sense' cable connected, your tank will ignore its schedule and will heat up when the sense cable becomes live and will stop heating when the cable is no longer live. To disable the sense cable in the app, click on the Schedule tab, click on the cog icon on the top tool bar, click "Ignore automatic off-peak sense and follow schedule".

b. If you do not have sense cable connected, it is still worth checking the above step, as it could be that the system has wrongly identified a sense cable to be present.

c. If the tank has lost internet connection and been powered off and on, it will have entered offline mode and will maintain between 40-50%.

d. If the tank is in vacation mode, the tank will not follow its schedule until the return date set on in the App.

e. If the power button on the gauge has been pressed and held, the tank will enter a standby mode and will not heat. Press and hold the button again to continue heating according to the set schedule.

**If you continue to have to have any problems with internet connection or how to operate your tank, please call Mixergy on 01865 884343 and we'll be happy to help!**



## MIXERGY WARRANTY STATEMENT

**Please Note:** To validate your warranty you must first register your tank. You can do this either using the Mixergy App (downloadable from the App Store or Google Play), or by going online at [www.mixergy.io](http://www.mixergy.io).

Once registered and connected online, the Mixergy hot water tank comes with a **25 year warranty** against faulty materials or manufacture subject to the following terms:

- It has been correctly installed as per the accompanying manual and all the relevant standards, regulations and codes of practice in force at the time, and the commissioning checklist within the manual has been completed.
- The tank has been commissioned correctly and is connected to the Mixergy platform (via App) – this facilitates remote condition monitoring. Failure to connect the tank to the App will limit warranty period to 2 years.
- Labour costs to cover any software or hardware faults is included within the scope of this warranty whereby an approved Mixergy installation partner has been used. This period last for 12months, before labour costs become chargeable. A list of current approved installers found on our website.
- It has not been modified in any way, other than by the manufacturer.
- It has not been misused, tampered with or subjected to neglect.
- It has only been used for the storage of potable water.
- It has not been subjected to frost damage.
- The unit has been serviced annually.
- A benchmark service record has been filled in after each annual service by the installer or the unit has been connected to the online analytics platform through the app and monitored each year.
- The guarantee period starts from the date of purchase and no registration is required.
- The extended guarantee is not transferable, and rests with the original householder.
- The system is fed from a public mains water supply.
- Store temperatures do not exceed 65°C.





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