

# sonnen UK – Frequently Asked Questions (FAQs)

## About sonnen

### Who are sonnen?

sonnen GmbH are the global market leader in residential battery storage and one of the fastest-growing technology companies in Germany.

### How old is the company?

sonnen was founded in 2010 by Christoph Ostermann and Torsten Stiefenhofer who are still running the company today. The first sonnenBatterie came on the market in 2011 as the first fully-integrated lithium-ion battery storage systems. Since this time sonnen has led the development of the global residential energy storage market.

### How big is sonnen?

sonnen employs around 500 employees and now has more than 45,000 sonnenBatterie systems installed in homes and businesses worldwide. According to recent market analysis by EuPD, sonnen accounts for more than 20% of residential battery storage systems sold in Europe – that's more than any other manufacturer.

### What awards has sonnen won?

sonnen has won several awards for innovation and leadership, including the MIT "Top 50 Smartest Companies", the Zayed Future Energy prize, and the Global Cleantech 100 "Continued Excellence Award". In 2018 sonnen were awarded the prestigious Red Dot Award for its combination of forward-looking technology and outstanding design.

### What markets is sonnen active in?

sonnen is focused on developing battery storage products and associated energy services to homes and small businesses.

### Where is sonnen based?

The sonnen headquarters is in Wildpoldsreid, a small Bavarian town in Germany, where the sonnenBatterie systems are designed and manufactured. sonnen also has offices in Italy, Australia, the US and the UK. There is also a separate manufacturing facility in Atlanta, USA which serves the US and other associated markets. A third manufacturing facility is also being set up in Adelaide in Australia.

### What presence does sonnen have in the UK?

sonnen's UK headquarters is in Bristol. The UK team are supported by a nationwide network of authorised distributors and Certified Installers who supply and install sonnenBatterie systems to UK homes and businesses.

## The sonnenBatterie

### What is a sonnenBatterie?

The sonnenBatterie is a fully integrated energy storage solution with perfectly synchronized components including battery modules, integrated bi-directional inverter and smart energy management system – supplied in one easy-to-install box. Much more than just a battery, the sonnenBatterie enables users to change the way they manage and control their energy.

The latest (ninth) generation of the sonnenBatterie series was launched in Q1 2018 throughout sonnen's global markets. It is a single-phase battery storage system which is available as both AC-coupled (eco 9.43) and DC-coupled (hybrid 9.53) options providing the optimum solution for both new and existing PV installations.

### How much electricity can a sonnenBatterie store?

It depends on which size of system you choose. A sonnenBatterie can be sized with between 2.5 and 15 kWh battery capacity. This means that you can size the system to suit your needs and your budget – much better than a one size fits all solution offered by some competitors. Most commonly installed systems in UK homes have 5-7.5 kWh capacity.

### Is the sonnenBatterie AC- or DC-connected?

The sonnenBatterie is available as both an AC- and DC- connected system, giving greater flexibility to connect to new and existing solar PV systems.

### Is the sonnenBatterie smart home ready?

The sonnenBatterie has been developed as an intelligent system with smart home functionality including smart plug adapters to automatically or remotely switch on loads or appliances. As a sonnenBatterie owner, you can choose how to access and control the system data and communicate with your system. In addition to the integrated touchscreen display option, system owners can use the sonnen web portal, the sonnen App, and more recently Alexa – a voice-controlled assistant from Amazon.

### What warranty does the sonnenBatterie have? How does it compare?

The sonnenBatterie comes with a market-leading warranty of 10 years or 10,000 charge cycles, and a battery service life of 20 years. The performance guarantee states that the battery will be not less than 70% of its installed capacity after 10,000 cycles. This is a market-leading warranty which is founded on the superior battery technology that we use in the sonnenBatterie to give a longer service life.

The sonnen warranty is available to download from the sonnen website.

## Battery chemistry

### What type of battery chemistry does a sonnenBatterie use?

The sonnenBatterie uses Lithium Iron Phosphate (LiFePO<sub>4</sub> or LFP) battery modules which are ideal for stationary energy storage in homes. LFP chemistry is superior to other battery chemistries – in safety,

reliability and performance – including Lithium-ion NMC (Nickel Manganese Cobalt) which is used in many other competitor products as well as in many electric vehicles (EVs). The superior battery chemistry means that we can offer a market-leading, no quibble warranty of 10 years or 10,000 cycles.

### **What makes sonnen battery cells safer?**

The inherent safety of LFP battery technology makes it an ideal solution for residential applications. With its robust crystal structure, even at high temperatures the cathode material of the LFP battery does not release oxygen making it safer in extreme conditions. In the event of a short circuit, there is no fire or explosion. Other lithium ion chemistries – such as NMC and NCA – are significantly less stable and are susceptible to thermal runaway in the event of a short circuit.

Battery cells are stored in a hermetically sealed metal case, designed to withstand temperatures and pressures encountered during normal use. As a result, during normal use, there is no physical danger of ignition or explosion, or chemical danger from a hazardous material leakage.

## System design & installation

### **Do sonnen supply solar PV systems to work with the sonnenBatterie?**

sonnen do not supply solar PV systems, just the battery system. However, most of our Certified Installers also offer solar PV and will be able to design and install a system to suit your needs at the same time that they install your sonnenBatterie.

### **I already have a solar PV system. Can I add a sonnenBatterie?**

sonnenBatterie systems can be installed with both new and existing PV systems. For existing systems there is no requirement to change the current design of your PV system or replace any components or wiring.

Installing a sonnenBatterie is a great way for existing PV owners to optimise the amount of solar electricity that is used in the house rather than being lost to the grid.

### **Can I install a sonnenBatterie without solar PV?**

The sonnenBatterie can also be installed in homes without any on-site solar PV generation, connecting into the grid and charging from off-peak electricity rates. It can also be connected to other renewable energy generators such as wind turbines and combined heat and power (CHP) units.

### **How much space do I need for a sonnenBatterie?**

The space needed for a sonnenBatterie depends on the kWh size of the system. In its smallest form, a 2.5 or 5 kWh unit is designed to be installed on a wall-space. This unit is just 23cm deep, 67cm wide and 88 cm high.

For systems of 7.5 to 15 kWh, an additional battery extension cabinet is installed on the floor, connecting to the base cabinet as one single unit; a small cabinet is available for systems up to 10 kWh, and the large cabinet goes up to 15 kWh. With an extension cabinet the depth and width of the system stays the same whilst the height of the unit is either 137cm or 186cm depending on the cabinet size.

The dimensions of each sonnenBatterie system size are provided in the sonnenBatterie eco 9.43 or hybrid 9.53 datasheet.

### **Where can I install my sonnenBatterie?**

A sonnenBatterie can be installed almost anywhere indoors. Common locations are utility rooms, cupboards under the stairs, hallways, cloakrooms, offices, kitchens and garages.

### **What is included with a sonnenBatterie?**

The sonnenBatterie is a fully integrated system including battery modules, an integrated bi-directional inverter and battery management system – supplied in one easy-to-install box. Unlike many competitor products, all components in a sonnenBatterie are designed to work together as a single system and are covered by a single, comprehensive warranty. Additional electrical components needed to connect your system will be supplied by your installer.

### **What size sonnenBatterie do I need?**

A sonnenBatterie can be sized to suit the requirements of your household. This is influenced by the amount of electricity that you consume, the amount of on-site generation (i.e. from your solar PV), and your available budget.

Most commonly installed systems in UK homes have 5 or 7.5 kWh battery capacity which works well with typical solar PV installs of 3-6 kWp.

### **Can I add additional battery storage capacity later if my needs change?**

Yes, additional battery modules can be simply installed into your sonnenBatterie should your requirements change.

### **How long will the installation take?**

A sonnenBatterie system can be typically installed in 3-4 hours although this will depend on each property. Of course, if you are having a solar PV system installed as well as a battery it will take longer. The Certified Installer will be able to confirm how long the install will take after they have completed a survey.

## **How does it work?**

### **How do solar panels work with a sonnenBatterie?**

Most people with solar PV installed consume just 20-30% of the electricity generated – this is because they often don't need the electricity at the time that it is generated (i.e. through the middle of the day). This surplus electricity is essentially exported back to the grid and lost forever. You then have to buy extra electricity from your supplier as you need it.

By adding a sonnenBatterie to your solar PV system, you can store a large proportion of the electricity that you are generating and save it for when you actually need it. This means you'll need to buy less electricity from your supplier, saving you money on your bills. A sonnenBatterie will typically allow you to use more than 75% of the solar electricity that you generate (depending on the size of your system).

### **How much of my electricity requirements can be met by solar PV and a sonnenBatterie?**

Using a sonnenBatterie typically enables households to meet around 70% of their annual electricity demand with their solar PV system (depending on system sizing, PV generation and overall consumption).

### **How does the sonnenBatterie optimise my self-consumption of solar energy?**

The smart energy management software in the sonnenBatterie is designed to maximise the amount of solar energy that the household uses, minimising export to the grid. This includes using smart plug connections to switch on appliances (e.g. dishwashers, dryers, etc.), as well as through connections with heating (e.g. heat pumps and CHP units) and hot water systems. The smart software is able to evaluate the household's consumption data and takes weather statistics into account in order to determine the optimal time intervals for charging and discharging the storage system.

### **What does the energy management system do?**

The energy management software measures the battery charge/discharge, the solar PV generation, and the overall household consumption. The self-learning software uses historical data to manage the current and future energy needs of the house – transforming the property into a smart energy home.

### **How does the sonnenBatterie charge from the grid?**

The sonnenBatterie can be used to charge from the grid during off-peak times when electricity is cheap; this low-cost electricity can be stored in your sonnenBatterie and then used later when electricity prices are at their highest, saving you more money on your bill. Off-peak tariffs (also known as time-of-use tariffs) include Economy 7 and Economy 10. Using the sonnenBatterie in this way also extends the use of the battery over winter months when there is less solar generation.

### **Will a sonnenBatterie work in a power cut?**

An emergency back-up is available as an option with the sonnen Protect unit. This enables you to have a limited, continuing supply to keep the lights on and provide essential supply during a power cut (provided that there is energy stored in the battery at that time). The Protect can be added to an installed system later if required.

### **Can I go off-grid with a sonnenBatterie?**

No, a sonnenBatterie is designed as a grid-connected system. To go fully off-grid would require a large number of batteries to maintain a continuous electricity supply which would not be cost effective in most cases.

### **Does the sonnenBatterie have to be connected to the internet?**

Yes, the sonnenBatterie relies on an internet connection to provide the system monitoring. We are also able to remotely identify and fix system faults online, as well as provide regular, free software updates to ensure that the functionality of the system is up-to-date.

### **What maintenance does a sonnenBatterie need?**

Your sonnenBatterie does not need any maintenance other than to check on the portal or App that the system is operating OK. Alarms can also be set up on the portal to let you know if there is a problem with the system (e.g. that your internet connection has dropped out).

## How do I control my sonnenBatterie?

The sonnen App and web portal provide an easy-to-use interface giving you the ability to monitor and manage your energy usage and generation 24/7. You can view current and historic data as well as see a forecast of expected solar generation and consumption for the next three days.

The sonnen App is available to download in iOS or Android stores – just search for “sonnen”. There is a demo feature on the App which will enable you to explore the functionality of the system.

## Bill savings and payback

### How much money can I expect to save on my electricity bills?

How much you save will depend on a number of variables such as the size of your PV system and sonnenBatterie, and how and when you use energy in your home. Based on experience of thousands of other sonnenBatterie households, you could reduce the amount of electricity you buy from the grid by more than 70%, saving around £400-500 a year on a typical household bill.

In addition to your bill savings, you will also get an additional income from your solar generation through the Feed-in Tariff (FIT) payments. Your FIT income will depend on the rate that was available at the time that you installed and registered your solar PV system.

### Will the sonnenBatterie affect my FIT?

Using a sonnenBatterie will not affect the FIT income that you receive from the electricity generated through your solar panels.

### When can I expect to get payback with a sonnenBatterie?

Again, this will depend on a number of variables such as your PV system and sonnenBatterie size, as well as how and when you use energy in your home. You can also improve your payback by using your battery to charge electricity from the grid during off-peak periods, particularly during winter months when solar generation is less. Notwithstanding all these variables, we would expect your system to pay for itself within the period of sonnen’s 10-year product warranty.

## The sonnenCommunity

### What is the sonnenCommunity?

The sonnenCommunity is the first-of-its-kind decentralised energy sharing community where sonnenBatterie owners share their self-produced energy with other sonnenCommunity members.

The generated energy surplus of individual sonnenBatterie systems is fed into a virtual energy pool and distributed to other members of the Community anywhere in the country – in this way, consumers become producers. A central software links up and monitors all sonnenCommunity members – while balancing energy supply and demand. The sonnenCommunity enables households to break away from their traditional energy supplier and become energy independent.

### Where is the sonnenCommunity available?

Since the launch of the programme in February 2016, over 8,000 sonnenBatterie owners in Germany have joined the sonnenCommunity, with a further 500 in Austria. sonnenCommunity Italy and Australia launched in 2018 with other key sonnen markets set to follow, including the UK and Ireland.

### **Why isn't sonnenCommunity available in the UK and Ireland now?**

As the UK and Ireland market battery storage markets develop, we are developing our offer for sonnenCommunity, carrying out various trials and development work in line with the changing regulatory framework.

Importantly, all sonnenBatterie units installed in the UK are future-proofed for sonnenCommunity as soon as it comes available.

You can register your interest in the sonnenCommunity on our website. We will then get in touch to let you know when we have further news.

## Next steps

### **How can I get my sonnenBatterie?**

You can visit [www.sonnenbatterie.co.uk](http://www.sonnenbatterie.co.uk) and enter your details into our enquiry form. One of our team will then put you in touch with your local Certified Installer who will be able to find the right solution for you and provide a quotation.