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ImmerSUN-Frequently Asked Questions

What is the immerSUN?

The immerSUN is our 'state of the art' energy saving device. It helps you to self-consume the green energy produced by your microgeneration system, and is compatible with all renewable generation technologies, including solar PV, wind turbine and hydro systems.

The device is essentially an **automatic** power controller that diverts **surplus** power to a designated load, normally a hot water heater, to save energy and minimise your utility bills.

What does the immerSUN do?

The immerSUN, via a CT sensor, monitors power imported from, and exported to, the grid. Power that is normally exported is **surplus** power generated by your PV or other microgen system.

The immerSUN intercepts this surplus power, and diverts this to the water heater or other load, thus preventing it from being exported.

How does diverting this energy benefit me?

Surplus energy that is exported back to the grid can be as high as 80% of the total that is generated in the first place. The immerSUN can help you use up to 100% of your microgenerated energy, which is completely free!

Please see our **'before & after' graphs** for further examples.

How does the immerSUN save me money?

The immerSUN allows you to **store** energy as hot water even when you are out. Later on in the day you are able to use this **free** hot water in the home. Without the immerSUN you will be paying up to 15.0p per unit to heat your water.

How much can the immerSUN save me?

By allowing users to self-consume up to 100% of green energy, the immerSUN can save you up to £250 annually - more if you use electricity to heat your water and home! The higher the price you pay for your energy, be it electricity, gas or oil, the greater the savings will be from your immerSUN.

Does having an immerSUN affect my Feed-in Tariff?

No -You are still eligible for the FIT that has been agreed with you by your provider. You are currently paid both for **generation** and **export**, which is deemed to be 50% of the generation total.

You will still receive your FIT even if you use 100% of your microgen surplus that would otherwise be exported! (unless you have a 'smart' meter fitted that monitors the export)

Are there any benefits other than financial, to having an immerSUN fitted?

Maximising your usage of renewable energy will help to reduce your reliance on grid power. The usage of green electricity will help reduce your carbon footprint and therefore make your property more environmentally friendly.

Who will benefit the most from having an immerSUN installed?

To reap the biggest financial rewards you ideally need to have a hot water storage tank with an electric immersion fitted. By directing surplus energy to the immersion element, you can utilise up to 100% of all self-generated green energy – even when you're not at home!

Can I view my savings on the immerSUN?

The immerSUN is fitted with a clear graphical LCD display, allowing the following information to be viewed.

- Grid import/export in kW
- Diverted energy in kW
- Savings made both in monetary value and kWh

What will be my likely Return on Investment?

Your ROI will be between 2-5 years depending on individual circumstances. This will of course be dependent on what fuel you normally use to heat your water.

What compliance standards does the immerSUN device follow?

The immerSUN has full CE product approval, please see our **Technical Specification** page for more details.

Who manufacturers the immerSUN?

The immerSUN is manufactured by **SISEM Ltd – the UK's leading designer and manufacturer of microgen energy saving devices.** Our premises are located in Binbrook which nestles in the the heart of the Lincolnshire Wolds.

Where can I buy the immerSUN and who can I get to install this?

Information on purchasing the immerSUN is on our website **www.immersun.co.uk .** Simply click on the **'Where to Buy'** link, and complete the 'search' box. This will give you details of local distributors and installers.

What guarantee does the immerSUN have?

The immerSUN has been manufactured using high-end components and has been designed to last circa 20-25 years. The immerSUN has a 1 year guarantee as standard, however this can be increased to 3 years by completing the 'Warranty Registration' document on our website.

For full details please see our **Warranty Statement** page.

Technical Information

What technology does the immerSUN use to control the diverted power?

TruSINE™ PWM is the power control technology implemented by the immerSUN. This was developed by SISEM Ltd as our proprietary control method. **Pulse Width Modulation** (PWM) ensures that the power going to the load is a non-distorted true sine wave, with only the voltage altered. This means the voltage is very smoothly adjusted to alter the power to the heater.

This control technology is unique to the immerSUN device and means that it is much more sophisticated than any similar products on the market.

Why have SISEM Ltd invested in truSINE technology?

TruSINE technology ensures that the power from the immerSUN is the same quality as that of the electricity that enters your property from the grid. This technology is the reason the immerSUN meets all CE product approval guidelines.

Careful consideration was given to this decision as choosing a cheaper control method, such as **phase angle**, to save money on the the initial cost of the unit, would have been false economy as problems could arise after installation.

For full details of the different power control methods, please see our **AC Power Control** page.

Why should I not install a device that uses 'phase angle' as its control system?

Phase angle devices dealing with large loads (up to 3kW) mean the higher frequency harmonic currents flow through the power system. They can cause communication errors, overheating and damage to inverters and other electrical devices.

Utilising PWM as its control method ensures the immerSUN is the only such device that meets the legal requirements to comply with the limits for 'harmonic current emissions' and other important EMC standards.

What if I have a combi boiler and no hot water tank?

You can still use an immerSUN if you have an electric microgen system and the following:

1) Electric storage heaters (the immerSUN is compatible with Economy 7 & 10)
2) Underfloor heating
3) Space saving electric heaters
4) Any other electrical resistive load up to 3kw with a mechanical thermostat

Does my immersion heater need the full 3kW of power before it starts heating the water?

No - The immerSUN and in turn the immersion (or other resistive load) are inherently able to deal with variable power, this can fluctuate between 100W and 3kW dependent on the power being generated by the PV system and the power usage in the property.

What is the minimum amount of 'exported' power required, before the immerSUN starts heating the water?

The immerSUN is a **proportional controller**, this means that an amount as low as 100W can be diverted to the water heater or other electrical resistive load.

What is the maximum amount of power the immerSUN can utilise?

Each immerSUN can utilise a maximum **3.2kW** of power and cannot be connected to a load greater than **3kW**.

What if I want to utilise more than 3kW?

The immerSUN has a built-in '**wireless interface**' which means you can link up to 5 immerSUN units wirelessly. This means that up to **15kW** of power can be utilised, however 5 individual loads of 3kW would need to be available to facilitate this.

What other advantages does the 'wireless interface' give the immerSUN?

immerLINK™ is a wireless network used by immerSUN devices. This feature means that a wireless sensor can be paired with the immerSUN. (Please see the 'installation information' below for further details).
This technology means that in the future you will be able to upgrade to 'full monitoring', initially via a designated web page and thereafter via Apps.
How many heaters can the immerSUN control?

The immerSUN can control up to 3 heaters sequentially. It has 2 dedicated heating outputs, and a third load can be connected to the integral multi-function relay.

Does the immersion heater need to replaced?

No – As long as the immersion heater is in good working order this does not need to be replaced. It may be prudent to get this tested whilst having the immerSUN installed.

Can I still use my immersion heater after the immerSUN has been installed?

Yes – The immerSUN has a built in seven day programmable boost timer function as well as a manual boost option. This ensures your immersion will never draw power from the grid, unless you set a boost function.

Does the immerSUN offer built-in protection?

The immerSUN is the only such device that has internal electronic circuitry protection, this ensures the following:

- Fully short circuit protected in case of load fault
- Overload/thermal damage protection
- Soft starting to avoid power surges and extend heater life
- Surge protection.

What is the integral multi-function relay?

The immerSUN's integral multi-function relay provides additional functions such as Economy 7/10 control, cylinder de-stratification pump control and export power threshold detection. For full details please see page 14 & 15 of the **Installation & User Guide** (link below).

Is the immerSUN compatible with Smart meters/third party monitoring devices?

The immerSUN utilises cutting-edge technology, this makes it future proof and ensures it is compatible with all Smart meters and third party monitoring devices. TruSINE technology guarantees trouble-free operation with all inverters and compatibility with all import/export energy monitors.

What technical support does SISEM Ltd offer for the immerSUN device?

There is a dedicated technical team available (**Monday to Friday 9.00am-5.00pm)** to assist you with queries relating to our products and the installation process. For details of up-to-date contact phone numbers please visit our website.

NB. If you require further technical information please see our **Installation & User Guide** page.

Installation information

How long does the immerSUN take to install?

In most cases the immerSUN can be installed and setup within one hour.

Where is the immerSUN installed?

The immerSUN is normally installed close to the distribution board, however it can be installed adjacent to the load if required.
If the immerSUN is to be positioned some distance from the distribution board, then you can either;

- Extend the length of the the cable on the CT sensor to circa 50m using standard 'category 5' cable
- You can install a Wireless Sensor in conjunction with the CT sensor. The range of this device is circa 30M dependent on individual circumstances

Is the Wireless Sensor mains or battery powered?

The Wireless Sensor is mains powered, which means the immerSUN is more accurate than devices that use battery powered sensors. Also you will never need to change a battery- simply fit and forget!

Why is a mains Wireless Sensor more accurate that a battery powered one?

Battery powered sensors communicate with their respective controller every 10 seconds or so. This means the information is delayed and can result in 'old' data being received. The reason for this delay is to conserve battery power, but in turn this can reduce the system's overall efficiency.

Over time this erroneous information can mean lost opportunities to divert surplus power to the immersion heater, and can on occasions mean the immersion heater draws power from the grid. **The immerSUN communicates with the mains Wireless Sensor every second resulting in 'up to the second' data being received.**

Can the immerSUN be installed with a 3-phase system?

Yes - An immerSUN can be used on each phase, but must be on the same phase as the CT sensor.

- If you have a single phase inverter installed on one of the phases, then all of the available power up to 3.2kW can be utilised
- If you have a 3-phase inverter, the total generation will be split into thirds, one 1/3rd on each phase, again up to a maximum of 3.2kW
- Up to 5 immerSUN devices can be installed on each phase.

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If you require further installation information including wiring diagrams, please see our **Installation & User Guide** page.
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For further details about our products please view our website; **www.immersun.co.uk**