



All you need to know about
Smart Energy for Home



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Overview of A Smart Energy System

Solar Panel

Solar panels convert sunlight into direct current (DC) electricity through the photovoltaic (PV) effect. The performance of the system will vary depending on geographical location, orientation roof pitch and of course, time of year.

Shading can significantly impact performance of solar systems. The Hanchu Hybrids can protect against affect of shading should it occur at times of year or in the future. This ensures reliable performance, safeguarding the system against shading issues that may arise seasonally or in the future.

Hybrid Inverter

An inverter is a crucial device that converts the DC electricity generated by solar panels to the alternating current (AC) electricity we require for our homes. A hybrid inverter also controls the charging & discharging of the batteries.

The units automatically send solar power to the house requirements, and any additional power will go to the batteries. When the solar contribution drops or stops, the batteries take over supplying the house load.

Battery

Excess electricity from your solar system is stored in the battery instead of being sent back to the grid. A battery allows you to store surplus energy generated during the day for use when the sun isn't available or during periods of high electricity demand.

Adding additional batteries is simple to do if you wish to expand your system.

EV Charger

An EV charger (Electric Vehicle charger) is a device used to supply electrical energy to recharge the battery of an electric vehicle (EV). EV chargers come in different types and power levels, providing a range of charging speeds. Hanchu EV chargers are integrated into the monitoring platform of your system, allowing you to set charge times and monitor the performance.

Heat Pump

An air source heat pump is a heating and cooling system that transfers heat between the inside of a building and the outside air, providing heating in winter and cooling in summer.

Air source heat pumps are seen as the alternative to fossil fuel boilers. Harnitek air source heat pumps can be fully integrated into the Hanchu monitoring platform.

Monitoring Platform

The free monitoring platform provides a comprehensive real-time overview (update every 10 seconds) of your system, accessible via an App or server (PC or Laptop). The platform allows full control over all aspects of your system, including integration with cheap electricity tariffs like those offered by Octopus Energy.

Customers can manage and control all connected devices ensuring they work together efficiently. Upgrades and future platform developments are automatically provided, keeping your system up-to-date and futureproofed.



Why should I consider an energy system?



Reduce Electricity Bills

Solar panels generate electricity from sunlight, reducing your need to buy electricity from the grid. Any surplus energy generated can be stored in batteries for later use, or fed back into the grid to earn payments. Low-cost energy can be harvested into your batteries if you have access to cheap rates. Solar and battery systems can significantly reduce or even eliminate your monthly electricity costs.



Leverage Cheap Electricity

Today, many households can take advantage of cheap energy rates offered by energy suppliers such as EDF and Octopus Energy. Your battery storage system can be programmed to harvest cheap electricity into your batteries, enabling you to supplement the solar system and power your home with affordable energy whenever you need it.



Energy Independence

With a solar system, you rely less on utility companies, protecting yourself from rising electricity prices. With a properly sized solar battery system, you can significantly reduce or even eliminate your reliance on the grid, making you more energy independent.



Reduce Carbon Footprint

Solar energy is a clean and renewable energy source. It reduces your carbon footprint by decreasing reliance on fossil fuels, which contribute to air pollution and climate change. By using solar power and batteries, you help reduce greenhouse gas emissions, making it an eco-friendly and future-proof choice.



HANCHU ESS

Single Phase Solution

A single phase electricity supply is a two-wire AC power circuit that supplies power at around 240 volts. Most residential homes in the UK run on single phase supply.



Single Phase Hybrid Inverters

3.68kW / 5.0kW / 6.0kW



Ultra Performance

High PV Input Capability:

Supports up to 150% oversizing to allow maximum annual generation.

Peak Efficiency:

Achieves up to 97.6% maximum efficiency, ensuring minimal energy loss and maximum output.

Powerful Charge and Discharge:

Handles up to 100A (5kW) charge/discharge from batteries allowing fast charging and covering larger loads.



Reliable Operation

Emergency Power Supply (EPS):

Backup power is available for critical installations that require uninterrupted operation during power outages.

Rapid Switch Time:

Switches to backup power in less than 10 milliseconds, providing uninterrupted power supply during outages.

Shadow Scan Feature:

Protects the system performance by allowing non shaded panels to operate fully when some panels are in shade.



Smart Energy Management

Remote Management:

Easily manage settings and monitor performance via the iESS and Hanchu app, offering convenience and real-time control.

Octopus Tariff Integration:

Compatible with Auto Octopus energy pricing, reducing energy costs by utilising cheaper rates.

Smart Weather Compensation:

Automatically adjusts settings in response to weather conditions to maximise energy efficiency.



Peace of Mind After Sales Support

UK Tech Support

A dedicated UK based technical support team, always on hand ready to assist.

12-Year Warranty

Long-term Peace of Mind - with a warranty lasting 12 years, you have protection against defects or issues that could arise over an extended period.

National RMA Service

Reliable national RMA service with a 48-hour response time



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HANCHU ESS

Single Phase Solution



Low Voltage Batteries

3.2kWh / 3.68kWh
5.12kWh / 9.4kWh



3.2kWh



3.68kWh



5.12kWh



9.4kWh



Unparalleled Safety

Premium Lithium Iron Phosphate Cells:

Features high-quality LFP cells from leading suppliers, designed with advanced safety features at the cell level to ensure maximum reliability and peace of mind.

Built-in Heat Dissipation System

Includes multiple layers of protection and an advanced cooling system to maintain safe battery operation.

Aerosol Fire Suppression System

Cutting-edge technology to swiftly deploy internal protection capsule if any external fire is detected.



Flexible and Scalable

Compact and Minimalist Design:

Features a sleek, lightweight design that is smaller and lighter compared to similar products, making it ideal for installation in limited spaces without specific spatial requirements.

Scalability:

Supports the connection of up to 16 batteries in parallel, meeting a wide range of user requirements and allowing for simple addition of batteries anytime.

Easy and Quick Installation:

Features user-friendly designs such as pre-assembled wiring harnesses and quick-connect installation, simplifying the setup process and reducing installation time.



Smart Energy Management

Smart Monitoring with iESS:

The intelligent iESS platform continuously monitors battery performance, employing both hardware and software solutions to ensure operational safety and efficiency.

Octopus Tariff Integration:

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Smart Weather Compensation:

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HANCHU ESS

Three Phase Solution

A three phase electricity supply is a three-wire or four-wire AC power circuit that supplies power at 240V and 415V. Three-phase power is typically used in commercial and industrial facilities for higher loads. However, some new build houses are moving to three phase for higher energy needs such as heat pumps.



Three Phase Hybrid Inverters

6kW / 10kW / 12kW



Ultra Performance

150% PV Array Over-Sizing:

Supports up to 150% over-sizing of the photovoltaic (PV) array, enabling greater energy generation and flexibility in system design.

100% Unbalanced Three Phase Output:

Ensures reliable and stable operation with full output capacity, even when loads are uneven across three phases, maximising system efficiency.

Bifacial and High-Power PV Module Support:

Accommodates input currents up to 20A, making it ideal for modern bifacial and high-power PV modules that require higher current ratings.



Reliable Operation

Robust IP66 Enclosure:

Provides high level of protection against dust and water, making it suitable for outdoor installations.

Ultra-Fast Switching Time:

With EPS switching time of less than 10 milliseconds, it ensures minimal interruption during power outages, crucial for sensitive electronics and critical operations.

Shadow Scan Feature:

Enhances solar panel performance by optimising output even in non-ideal conditions, such as partial shading.



Easy Maintenance

Remote Management:

Easily manage settings and monitor performance via the iESS and Hanchu app, offering convenience and real-time control.

Easy Fix DC Connections:

Equipped with Phoenix Contact connectors for quick and secure connections, streamlining the installation process with a hassle-free, push and click connections.

Wide Compatibility:

Supports high-voltage batteries and offers straightforward interfaces for integrating batteries, smart meters, and current transformers (CTs), ensuring seamless compatibility with a variety of existing systems.



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HANCHU ESS

Three Phase Solution

High Voltage Batteries

2.7kWh / 5.12kWh



2.7kWh



5.12kWh



Unparalleled Safety

Premium Lithium Iron Phosphate Cells:

Features high-quality cells renowned for their stability, safety, and long life cycle, providing a dependable and long-lasting power source.

Advanced Cooling Structure:

Incorporates a bottom cooling design that improves thermal management, enhancing battery safety and extending its lifespan.

Aerosol Fire Suppression System

Cutting-edge technology to swiftly deploy internal protection capsule if any external fire is detected.



Optimal Performance

Smart Management with iESS:

The intelligent battery management system provides cell-level protection, minimising maintenance costs through predictive diagnostics and optimising energy management with smart strategies.

High Depth of Discharge:

Achieves up to 95% Depth of Discharge, maximising usable energy for superior efficiency in energy storage.

Optimised Charge and Discharge Rates:

Benefits from enhanced rates, delivering robust power supply to home loads and effortlessly handling high-demand appliances and systems.



Flexible and Scalable

Easy Installation:

Features a modular design with smaller volume and weight, along with quick-connect installations that eliminate extra wiring, allowing for a straightforward setup in just 15 minutes.

Scalability:

Supports modular expansion with each cluster capable of scaling up to 12 units and 4 clusters in parallel, providing a total system capacity of up to 245.76 kWh to meet diverse energy needs.

Touchscreen Display:

Equipped with a touchscreen display for real-time battery status monitoring and allows for basic settings adjustments, enhancing user interaction and control.



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HANCHU ESS

EV Chargers



EV Charger Family

7kW / 11kW / 22kW

HANCHU ESS offers a range of EV chargers to suit different needs:

- **7kW Charger (Single Phase):** Ideal for residential use, providing reliable and efficient charging for home users. It's easy to install, compact, and built with safety in mind.
- **11kW Charger (Three Phase):** Perfect for residential use or small businesses, offering faster charging and enhanced energy efficiency. Suitable for multiple vehicles and daily use.
- **22kW Charger (Three Phase):** Designed for small businesses or workplaces, providing rapid charging with advanced features for safety and high-demand usage.

Each charger offers safety, efficiency, and user-friendly operation, making it an ideal choice for both residential and commercial settings.



Advanced Safety Features:

Incorporates Type A + DC 6mA leakage protection and PEN fault protection, ensuring top-tier safety for both equipment and users. Additional safeguarding measures include over/under voltage, overload, short circuit, earth leakage, ground, over-temperature, and surge protections, providing comprehensive defence against a wide range of electrical hazards.



Smart Connectivity and Integration:

Provides extensive connectivity options, including WiFi, Bluetooth, Ethernet, and 4G, along with an RS485 interface for seamless multi-device communication. Compatible with the OCPP 1.6J communication protocol, enabling interoperability across different charging network platforms.



Durability and Environmental Resilience:

Built with a robust casing rated IP54 (or IP65 for enhanced models), ensuring protection against dust and water, making it suitable for diverse environmental conditions.



Intelligent Charging Management:

Supports multiple charging methods including App control, RFID, and plug & play to accommodate various user preferences. Dynamic Load Balancing control optimises load management, preventing system overloads and ensuring efficient energy distribution.



Efficient Energy Management:

Features an intelligent platform for App and web-based monitoring, remote start, and charging schedule management to maximise energy efficiency and reduce costs. Integrated PV storage and charging control through a single platform offer a unified approach to smart energy management.



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3 YEARS
WARRANTY

HANCHU ESS

Monitoring Platform



iESS

Monitoring Platform

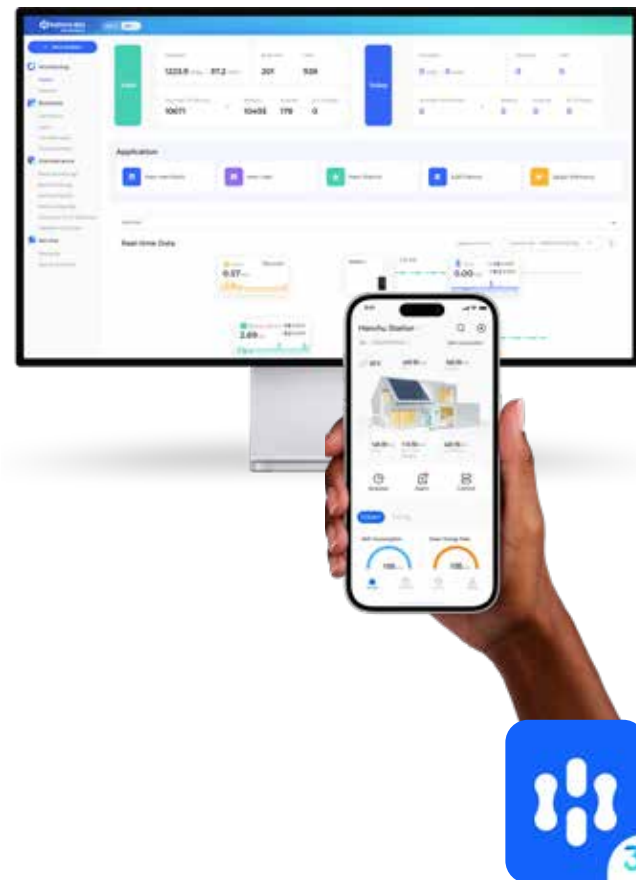
Enhancing Energy Resilience and Efficiency

The HANCHU iESS intelligent digital monitoring platform is a cutting-edge tool for monitoring battery storage systems, accessible via both an app and web portal for ease of use.

Designed to protect and extend the life of HANCHU Batteries and Hybrid systems, it enhances safety and stability. Key benefits include:

- **Safety:** Comprehensive safety features to prevent potential issues
- **Intelligence:** Advanced technology ensures efficient battery management.
- **Care:** Maximises system performance and lifespan.
- **Future-proof:** As your energy management journey develops, the platform allows you to add new devices and manage everything in one place.

The platform continuously evolves, improving system performance over time.



All-In-One Management Platform:

The HANCHU iESS platform enables seamless integration with various energy devices, including solar panels, battery storage, EV chargers, and heating systems. Users can constantly add new devices and effortlessly manage their entire energy ecosystem through a single interface, simplifying device monitoring and control.



Energy Bill Optimisation:

Leveraging strategic partnerships, such as with Octopus Energy, the platform utilises local electricity price data to implement dynamic charging and discharging strategies. Users can charge batteries during low-tariff periods and discharge them during peak hours, significantly cutting energy costs.



Smart O&M and Safety Protection:

The platform provides intelligent operation and maintenance (O&M) capabilities, including lifecycle device management, real-time alerts, and fault analysis. Users receive instant notifications about potential issues, detailed cause analysis, and step-by-step troubleshooting guidance, minimising downtime and reducing maintenance expenses.



Optimised Energy Usage:

The platform intelligently manages energy flow between solar, storage, and home systems, reducing grid dependency and maximising the use of clean energy. This approach not only reduces users' carbon footprints but also improves overall energy efficiency.



Intelligent Weather Compensation:

The platform automatically adjusts energy management strategies based on real-time weather conditions. It proactively stores energy in anticipation of cloudy or extreme weather, ensuring consistent energy availability even when solar generation is limited.



Enhanced Data Security and API Integration:

The platform is certified with 303645 Network Security Certification and complies with GDPR, providing robust data protection. Additionally, the proprietary iESSOpenAPI facilitates easy integration with external systems, enabling smooth data delivery and third-party system compatibility.



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Harnitek

Eco Heating Solution



Harnitek Air Source Heat Pumps

6kW / 9kW / 12kW

Energy-Efficient Heating Solutions

Harnitek offers a range of air source heat pumps designed to meet various heating requirements:

- **6kW Heat Pump:** Ideal for smaller homes or well-insulated properties, offering efficient heating and cooling. Easy to install and designed for low maintenance, perfect for residential use.
- **9kW Heat Pump:** Suitable for medium-sized homes or small commercial spaces, providing enhanced energy efficiency and consistent temperature control throughout the year.
- **12kW Heat Pump:** Best suited for larger homes or commercial buildings, offering powerful heating and cooling capabilities. Built to handle high-demand environments with advanced features for energy savings and reliability.

Each heat pump provides eco-friendly, cost-effective, and user-friendly operation, making them adaptable for a range of property types.



Harnitek Heatboost Radiators

1.5kW / 3.1kW / 4.6kW / 6.3kW

Energy-Efficient Heating Solutions

Heatboost offers a versatile, compact heating solution designed to meet the highest demands of any wet heating system. Our advanced technology enables efficient heating starting at just a **35°C flow temperature**, with precise room-by-room temperature control. The low water content ensures faster heating times, reducing both the load on your heating appliance and overall energy consumption.

With Heatboost, you'll experience the cutting-edge innovation of interior heating. Our fan coil radiators warm your home up to **seven times** more efficiently than traditional radiators, using less power and operating at lower temperatures. This makes them not only highly sustainable but also cost-effective, helping you save on energy bills while maintaining optimal comfort.



Case Study

In partnership with 

Helping Sarah Achieve Energy Independence in Her Eco-Friendly Home

Overview

Sarah recently moved to an all-electric, eco-friendly housing development that prioritises energy efficiency using modern building materials in Pershore. Her property was equipped with solar panels, smart water heating systems, and modern insulation techniques.

As part of her goal for greater energy independence, Sarah wanted to maximise her energy savings by harvesting excess energy from her systems.

Sarah reached out to Solar Select to help her become more energy-independent while reducing energy costs. Though savings were important, her primary focus was to achieve independence by capturing and utilising surplus energy.

After discussing the existing setup of her home, Solar Select arranged a site visit to evaluate her systems and better understand her energy consumption needs.

“ Please pass on my thanks for all the hard work the team has done to get my system up and running - I am really pleased with the system and the finished look.

I really believe in this industry and feel it's the way forward. I love being an early adopter and will be recommending Solar Select to my friends and family. I will pop a review on Trustpilot for you as well. All the best, and I look forward to seeing how you develop and grow.

- Sarah

Solutions

Following the site visit and a thorough review of Sarah's energy requirements, Solar Select recommended installing a Hanchu 3.68KW hybrid inverter paired with a Hanchu 9.4KW low voltage battery. Both units would work seamlessly with her existing solar system, optimising energy usage and storage. In line with Sarah's request, the equipment was designed to be housed in a bespoke outdoor cabinet that seamlessly blends with the aesthetics of her home.

The installation only took four days to complete, including groundworks and system testing. Despite some challenges with the groundwork, the team worked diligently to ensure the system was installed and operational within the agreed timeframe. There will be ongoing support for Sarah to ensure the system operates optimally.



Case Study

Helping Chris Transition to Energy Efficient Heating in His New Home

Overview

Chris had recently purchased a property in West Yorkshire and embarked on a comprehensive refurbishment project.

Part of his vision for the property was to replace the existing gas boiler with a renewable heating system to reduce carbon footprint and take advantage of available government grants for sustainable energy solutions.

To ensure the new system would meet the property's heating needs, a room-by-room heat loss calculation was conducted to determine the precise heat loading requirements.

This detailed analysis was pivotal in laying the foundation for selecting an appropriate and efficient heating system tailored to the property's specifications.

“ From start to finish, the process of transitioning to a renewable heating system was seamless. The team guided us through every step, from assessing our property's heating requirements to designing and installing a system that works perfectly. The heat pump runs quietly and efficiently, and we've already noticed a difference in our energy costs. We're thrilled with the outcome and would highly recommend this solution to anyone considering renewable heating!

- Chris

Solutions

Upon receiving the heat loss report, the installation company collaborated with Chris to identify the ideal renewable heating solution. Our team played a crucial role in the sizing and design of a heat pump system that would operate at an efficient flow temperature without compromising on the customer's comfort.

The process involved selecting the Harnitek 12kW Smart Hub Mono heat pump, which was perfectly suited to meet the calculated heating requirements of the property. Careful planning ensured the system would operate efficiently throughout the year, even during colder months, delivering consistent comfort and performance. The result was a highly efficient, modern heat pump system that not only met the customer's heating requirements but also supported their goal of a more sustainable home.





Why Choose Infinity Innovations?



About Us

Infinity Innovations is a dynamic company at the forefront of the renewable energy and technology sectors, dedicated to empowering both the residential and commercial sectors with advanced smart energy solutions. Our comprehensive product range includes inverters, battery storage systems, EV chargers and heat pumps, all designed to meet the growing demand for sustainable energy.

Driven by continuous research and development, we are committed to discovering new technologies and collaborating with innovative manufacturers to bring the highest-quality products to our customers. At Infinity Innovations, we take pride in delivering cutting-edge solutions that not only enhance energy efficiency but also foster a more sustainable future.



Product Training Centre

Our head office has a Product Training Centre, offering comprehensive training programmes to help you understand product features, benefits, and usage, ensuring effective deployment and usage.



National RMA Service

Reliable national RMA service with a 48-hour response time.



UK Based Technical Support

A dedicated UK based technical support team, always on hand ready to assist.



Future Protection

Our products are designed to remain relevant, functional, and valuable over time, even as technology and user needs evolve.

We look forward to helping you
**optimise your energy storage solutions and
achieve your sustainability goals!**



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