RSPS

REMOTE SOLAR POWER SYSTEMS

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Off-Grid Power Systems for Remote Locations

REMOTESOLARPOWERSYSTEMS.CO.UK

POWER WHERE MAINS POWER DOESN'T REACH

Reliable power is essential for modern agriculture and remote infrastructure.

But in many locations, mains electricity is either unavailable, prohibitively expensive to install, or undesirable due to visual impact.

A PRACTICAL ALTERNATIVE

Diesel generators are often considered as an alternative, but these bring ongoing fuel costs, supply challenges, maintenance requirements, and operational risk.

Remote Solar Power Systems (RSPS) provide a reliable, long-term alternative to diesel and grid connection in off-grid locations.

Each system is a complete, self-contained power solution, designed to operate independently and deliver consistent performance in remote environments.

Every installation is tailored to the specific site and application, ensuring the system is correctly sized to meet demand without being over- or under-powered.

- **Reliable power where it is needed.**
- **No reliance on fuel supply or refuelling.**
- **Minimal maintenance and ongoing intervention.**

WHERE RSPS SYSTEMS ARE USED

RSPS systems are used across a range of applications where reliable off-grid power is required, including:

- Agricultural water pumping.
- Remote infrastructure and utilities.
- Estates and land management.
- Environmental and conservation sites.

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DESIGNED DIFFERENTLY – BUILT TO LAST

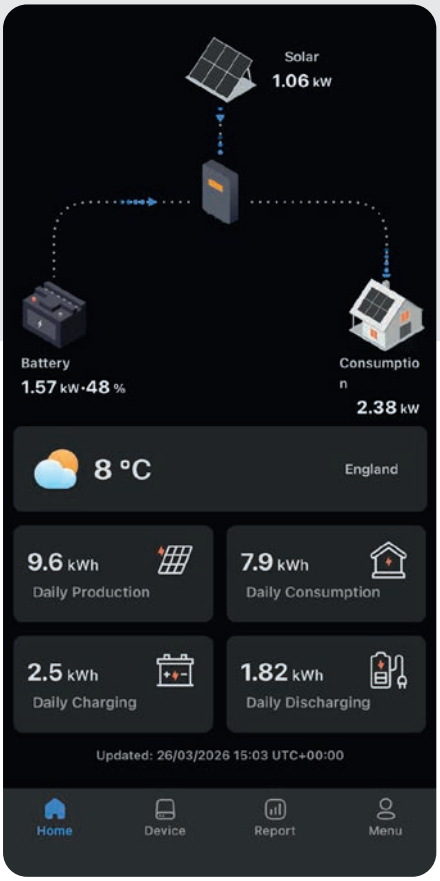
INTELLIGENT SYSTEM DESIGN

Every RSPS installation is configured to balance power generation, energy storage, and system demand.

This ensures:

- Available solar energy is used effectively throughout the day.
- Battery systems are protected from excessive cycling.
- Stable performance is maintained under changing conditions.

Rather than simply generating power, the system is designed to manage it, delivering consistent output while protecting long-term system health.



VISIBILITY AND CONTROL

All RSPS systems include integrated telemetry, providing:

- Real-time performance monitoring.
- Remote access to system data.
- Early identification of faults or issues.
- Confidence that the system is operating as expected.

RSPS SYSTEMS ARE ENGINEERED AS LONG-TERM INFRASTRUCTURE, NOT TEMPORARY EQUIPMENT.

They are built for real-world conditions, with robust system design and components selected to operate reliably in exposed and unattended environments.

Installed once, they deliver consistent performance over many years, forming part of the site's working infrastructure rather than a short-term solution.

As a fixed installation providing ongoing utility, they may be treated as part of the site's infrastructure and considered a capital investment rather than an ongoing operational cost. With appropriate financial planning and advice, this can support the financial viability of longer-term projects.

RSPS MODULAR SYSTEMS

Every installation is different, so RSPS systems are designed to be modular and tailored to your specific requirements. This ensures each system is correctly specified, delivering **reliable performance** without over-sizing or under-powering your application.

RSPS VDL SERIES – LIGHT PLATFORM (24V / 3KW)

Generation	Storage	Notes
2 PV Panels (2 PV)	4 GEL Batteries (4GB)	VDLT/expanded systems: up to 6GB / 3PV

Model	Configuration	System Role	Key Characteristics
VDLS	Single Pump Control	Designed for single pump applications and light off-grid power, where simplicity and reliability are critical.	Stable operation with small PV arrays. Optimised for low to moderate daily demand. Compact, efficient system architecture. Full RSPS control logic integration.
VDLT	Dual Pump Control	Designed for alternating or scheduled dual pump operation, maintaining system stability under shared load.	Dual pump scheduling capability. Load balancing through system control logic. Maintains operation in variable solar conditions. Ideal for distributed or staged water movement.

RSPS VDM SERIES – MEDIUM PLATFORM (24V / 3KW)

Generation	Storage	Notes
2 PV Panels (2PV)	6 GEL Batteries (6GB)	Expanded systems: 8–10GB / up to 4PV

Model	Configuration	System Role	Key Characteristics
VDMS	Single Pump Control	Built for continuous-duty single pump systems requiring increased resilience and runtime.	Increased storage for poor weather operation. Improved recovery after heavy load cycles. Stable voltage behaviour under sustained demand. Proven field reliability.
VDMT	Dual Pump Control	Designed for dual pump systems requiring higher endurance and longer operational windows.	Extended runtime vs VDL platform. Controlled dual-load operation. Maintains system integrity under cycling conditions. Suitable for demanding agricultural applications.

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RSPS VDH SERIES – HEAVY PLATFORM (48V / 5KW)

Generation	Storage	Notes
4 PV Panels standard (4PV) — Expandable to 8 PV Panels	12 GEL Batteries (12GB)	

Model	Configuration	System Role	Key Characteristics
VDHS	Single Pump Control	Designed for high-load single pump systems and continuous heavy-duty operation.	High power delivery capability. Strong recovery characteristics. Stable operation under large electrical loads. Built for infrastructure-scale applications.
VDHT	Dual Pump Control	RSPS flagship platform for continuous twin-pump operation.	Proven diesel replacement platform. Intelligent pump scheduling. Designed for unattended, continuous deployment. Powerlock™-protected operation. Field-proven under real load conditions.

SMART PUMP SERIES (INTEGRATED SYSTEMS)

Model	Generation	Storage	System Role	Key Characteristics
SPDMINI	2PV standard — Expandable to 4PV	4GB standard — Expandable to 6GB	Compact, integrated pumping solution for small-scale water systems.	Self-contained RSPS pumping platform. Fast deployment. Simple system architecture. Ideal for low-demand sites.
SPDMIDI	2PV standard — Expandable to 4PV	6GB standard	Mid-range integrated system for consistent water delivery with moderate demand.	Balanced storage and generation. Improved endurance vs MINI. Reliable daily operation. Field-proven DAB integration.
SPDMAX	3PV standard — Expandable to 4PV	12GB standard	High-capacity integrated system for demanding pumping applications.	Large storage capacity. Strong performance under load. Built for high-demand environments. Upgrade-ready (Powerlock compatible).

RSPS GATE MASTER SERIES

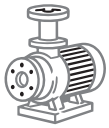
Model	Platform	Generation	Storage	System Role	Key Characteristics
GML	3kW | 24V Platform	2PV standard — Expandable to 4PV	4GB standard — Expandable to 8GB	Designed for control, access, and light infrastructure systems.	Reliable low-load operation. Extended uptime capability. Compact and efficient. Ideal for remote access control systems.
GMH	5kW | 48V Platform	2PV standard — Expandable up to 8PV	12GB standard	Heavy-duty control and infrastructure platform for high-reliability remote systems.	High-capacity system control. Long-duration autonomy. Stable performance in remote environments. Built for critical infrastructure.

WHICH SYSTEM DO I NEED?

A simple guide to selecting the right RSPS system for your application.

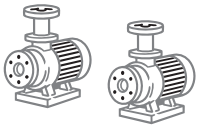
STEP 1: WHAT ARE YOU RUNNING?

Choose the closest match.



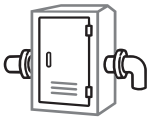
SINGLE PUMP
(borehole / transfer)

→ Go to Step **2A**



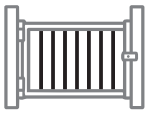
TWO PUMPS
(alternating or scheduled)

→ Go to Step **2B**



INTEGRATED PUMP SYSTEM
(DAB unit)

→ Go to Step **2C**



GATES / CONTROL / REMOTE SYSTEMS

→ Go to Step **2D**

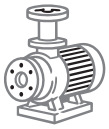
MIXED USE
(pump + power/lighting)

→ Go to Step **2E**

STEP 2: WHAT'S YOUR SCENARIO?

Match your requirement to the best RSPS system.

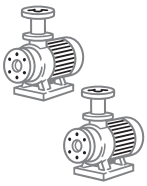
2A SINGLE PUMP SYSTEMS



Low demand Short runs, small pump (<1.2kW)	→	**VDLS**
Medium demand Daily use, moderate runtime	→	**VDMS**
High demand Long runtime, high load	→	**VDHS**

i If reliability matters more than cost, move up one tier.

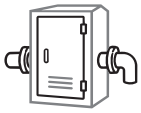
2B DUAL PUMP SYSTEMS



Light dual use Alternating pumps, short runs	→	**VDLT**
Moderate dual use Regular switching, longer runtime	→	**VDMT**
Heavy / continuous Twin pumps + high demand	→	**VDHT**

i If you are replacing diesel → **VDHT.**

2C INTEGRATED PUMP SYSTEMS (DAB)



Small / low demand	→	**SPDMINI**
Medium / consistent use	→	**SPDMIDI**
High demand / large delivery	→	**SPDMAX**

i These are self-contained systems — fastest to deploy.

2D CONTROL / INFRASTRUCTURE

Gates, access, low-load systems	→	**GML**
Critical infrastructure / high reliability	→	**GMH**

2E MIXED USE SYSTEMS

Pump + light power	→	**VDMS**
Pump + multiple loads	→	**VDMT / VDHS**
Full off-grid building capability	→	**VDHT**

STEP 3: SITE CONDITIONS

IMPORTANT

Once the base system is selected, sizing is refined based on:

Daily runtime required

Solar exposure
(season + location)

Water demand / delivery distance

Storage vs generation balance

i This determines battery (GB) and PV (PV) configuration.

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CASE STUDIES

Case Study 1: VDHT - CEH Cambridge

LOCATION: CEH Cambridge

SYSTEM TYPE: RSPS VDHT – Heavy Twin Platform

OPERATIONAL SINCE: June 2025

CONFIGURATION:

- 5kW / 48V platform
- 12 × GEL batteries
- 8 × 660W PV panels
- Twin DAB pumps (alternating duty)

System Overview

A high-demand, continuous-duty pumping installation designed to operate autonomously as a direct alternative to diesel-powered systems.

System Operation

- Daily operation (06:00–19:00 schedule).
- Pump duty cycles are easily adjusted and configured to suit site requirements.
- Alternating twin-pump control.
- Fully autonomous operation with no manual intervention required.

Real-World Performance

(Measured over the first four months of operation).

- 2.7+ MWh total PV generation.
- ~22.9 kWh average daily production.
- ~95% PV utilisation efficiency.
- 7,500m³+ water delivered.

Telemetry-Verified Performance

- All data logged in real time.
- Accessible remotely via RSPS telemetry.
- Verified over extended operational periods.
- Based on measured system behaviour, not modelling.

What This Demonstrates

Continuous, real-world load handling
Sustained operation under continuous electrical load, not intermittent or simulated demand.

Efficient use of available solar energy
High conversion of available solar into usable work, with around 95% PV utilisation.

Stable battery performance
Controlled charge and discharge behaviour with consistent recovery across daily cycles.

Engineered thermal stability
Internal conditions remain controlled year-round. The system stays warm enough to avoid condensation in winter, while passive cooling prevents overheating in summer.

True autonomous operation
The system adapts to solar conditions automatically, requiring no manual intervention.

Diesel replacement capability
Delivers performance comparable to diesel systems, without fuel, servicing or refuelling requirements.

Key Takeaway

The VDHT platform delivers true infrastructure-level performance. It is a field-proven solar solution capable of replacing diesel in continuous, high-demand water systems.

CASE STUDIES

Case Study 2: SPDMINI (Kibworth)

LOCATION: Kibworth

SYSTEM: RSPS SPDMINI – Integrated Smart Pump System

PLATFORM: 24 V / 3 kW

CONFIGURATION:

- 24V / 3kW system
- 4 × GEL batteries
- 2 × PV panels
- Integrated DAB pump system

System Overview

A compact, self-contained RSPS pumping platform delivering reliable, pressurised water supply.

Designed to match the specific requirements of the site, providing a practical, integrated solution without unnecessary system complexity.

System Operation

- Fully integrated pump and control system.
- Compact, self-contained RSPS pumping platform.
- Autonomous field operation.
- Integrated telemetry for continuous monitoring of battery and generation performance.

Real-World Performance

(Measured over the initial operating period).

- 209.6 kWh cumulative PV generation.
- Consistent daily energy production.
- Stable operation through winter months.

What This Demonstrates

Application-matched system design
System engineered to meet site demand without unnecessary scale or complexity.

Reliable pressurised water delivery
Consistent water supply through integrated DAB pumping.

Simple, integrated platform
Reduced installation time and on-site complexity.

Stable year-round operation
Maintains performance through lower solar periods, including winter.

Key Takeaway

SPDMINI delivers a reliable, application-matched off-grid solution, providing consistent water supply through a compact, fully integrated system designed for straightforward deployment and dependable operation.

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