Solar Powered Cathodic Protection Systems



The JCE Solar Powered Cathodic Protection System is a fully integrated, self-contained solution manufactured to provide reliable corrosion protection for buried pipelines, tanks and associated metallic infrastructure in remote locations.

The system combines solar power generation, battery storage and intelligent cathodic protection controls to provide continuous autonomous operation where conventional mains power is unavailable or impractical.

Designed and manufactured by JCE, the system can be supplied for Safe Area installations and hazardous environments including ATEX and IECEx Zone 1 and Zone 2 applications.

Long buried pipelines often require multiple ICCP stations distributed along the route. JCE systems can incorporate GPS synchronised interruption technology, enabling all stations to switch simultaneously to eliminate IR-drop errors and allow accurate instant-off potential measurements. This improves monitoring accuracy and supports compliance with recognised industry standards.

Key Features

- Fully autonomous, self regulating operation
- 50W to >2500W modular scalable output
- GPS synchronised current interruption
- ATEX & IECEx certified enclosures (Zone 1/2)
- Constant voltage, constant current or reference cell control
- Low skill on-site installation and maintenance
- No fuel, no emissions, no grid connection required
- 25 year system design life
- Remote monitoring and data logging ready
- Suitable for all gas groups and temperature classes
- Compliant with major oil & gas industry specifications
- All equipment UK/EU manufactured

Ordering Information

Part Number	Description

Certification

ATEX IEC IECEx

System Components

Solar Array	Industrial photovoltaic modules for off-grid battery charging. Anti-reflective glass, IP67 junction boxes. Scalable output: 50–2,500+ W continuous.
Support Structure	Hot-dip galvanised steel to BS EN ISO 1461. Adjustable tilt angle. Stainless steel fixings. Bird-spike protection.
Battery Bank	High-cycle deep-discharge battery system with insulated interconnection kit. Typical replacement interval: 4–7 years (dependent on cycling and ambient temperature).
Battery Enclosure	Polypropylene or powder-coated steel enclosure matched to battery configuration. Thermally managed; installed beneath array.
Charge Controller	Microprocessor-based battery management system with overcharge and deep-discharge protection. Factory configured to battery bank. Solid-state switching.
CP Controller (CPC)	DC output control: 0–100%. Output range: 0–50 V, 0–50 A DC. Operating modes: constant voltage, constant current, automatic reference cell/half-cell control. RS485/Modbus communications.
GPS Interrupter Module	Integrated with CPC. GPS-synchronised current interruption for instant-off pipe-to-soil potential measurements. Supports up to 30 interrupt sequences.
Cable System	Interconnecting cables, connectors, identification labels, and IP65 junction boxes supplied.
Documentation	Installation, Operation & Maintenance (IOM) manual, wiring diagrams, and test records included.

Technical Specification

Parameter	Value / Range	Notes
Output Power (CP)	50W - > 2500W	Modular, specify at order
Output Voltage	0-50V DC	Step-less control
Output Current	0-50A DC	Step-less control
Control Modes	CV / CC / Ref Cell	Auto-selectable
Pipe-to-soil Target	-850mV vs $Cu/CuSO_4$	Adjustable setpoint
Operating Temperature	–40°C to +70°C	Enclosure dependent
Communications	RS485 / Modbus RTU	Optional: GSM/satellite telemetry
Certification	ATEX / IECEx Zone 1 & Zone 2	Safe Area option also available
Design Life	25 years (battery: 4-7 yr replace)	Minimal planned maintenance

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- Details of certification and conformity can be provided on request
- All products are sold subject to our terms and conditions of business
- Health and Safety at Work Act 1974. In the UK, all equipment must be installed and disposed of (as required) within the legislative requirements of the Health & Safety at Work Act 1974
- We reserve the right to make alterations to the technical data dimensions, weights, designs, and product available without notice
- The illustrations should not be considered legally binding

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