InclusiveEnergy

CLOUD SOLAR ®
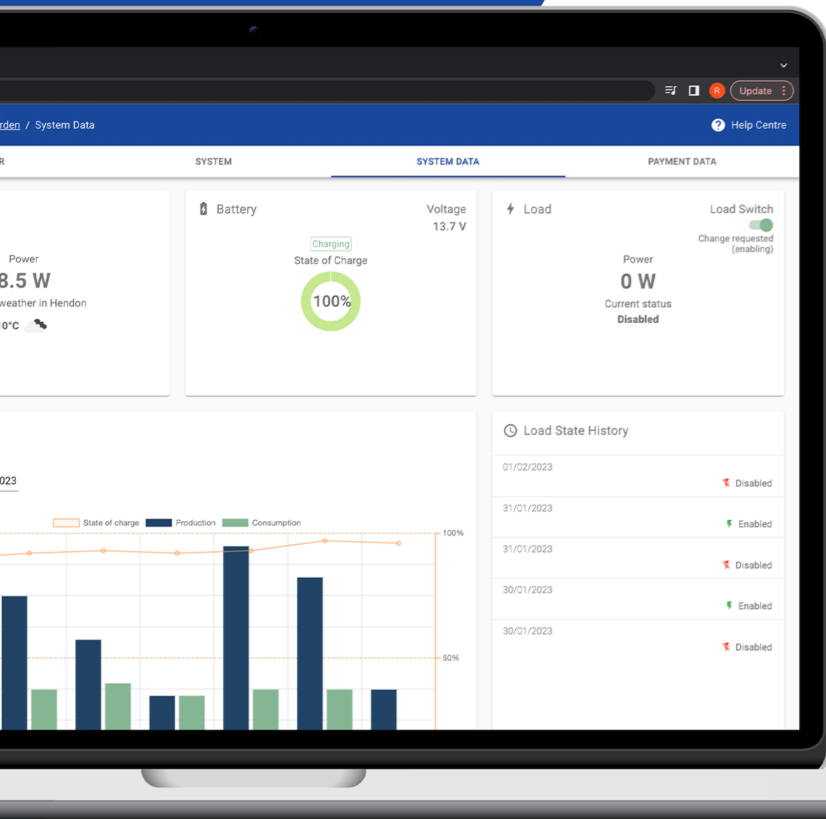
CS Smart PWM 40 Charge Controller
40A | 12/24/48 V

Inclusive Energy

Cloud Solar

Data Driven Off-Grid Solar

Remote monitoring and analytics solutions for off-grid solar companies.

About
Cloud Solar

Cloud Solar is a remote monitoring and analytics solution for off-grid solar companies. Perfect for energy-as-a-service businesses, and monitoring of stand-alone productive use applications.

Cloud Solar helps energy providers to monitor their portfolios; operate PayGo and energy-as-a-service models; manage field teams and stay in touch with customers.

Cloud Solar smart charge controllers and integrated packages offer:

Remote monitoring of DC solar systems up to 2 kW

Mobile data connectivity and 28 days of local data storage for areas with weak network.

Viewing live data, managing communications with customers, and control of devices on the Cloud Solar web platform.

Managing customer payment plans and tracking payments.

A REST API giving direct access to your data for use with other software.

Cloud Solar

Smart Charge Controllers

Our smart monitoring, control and communications hardware is packaged into a range of charge controllers, enabling access to 'data driven solar' for a wide range of organisations. Cloud Solar is perfect for integration into 'component based' systems and for monitoring larger, productive use applications.

Specifications

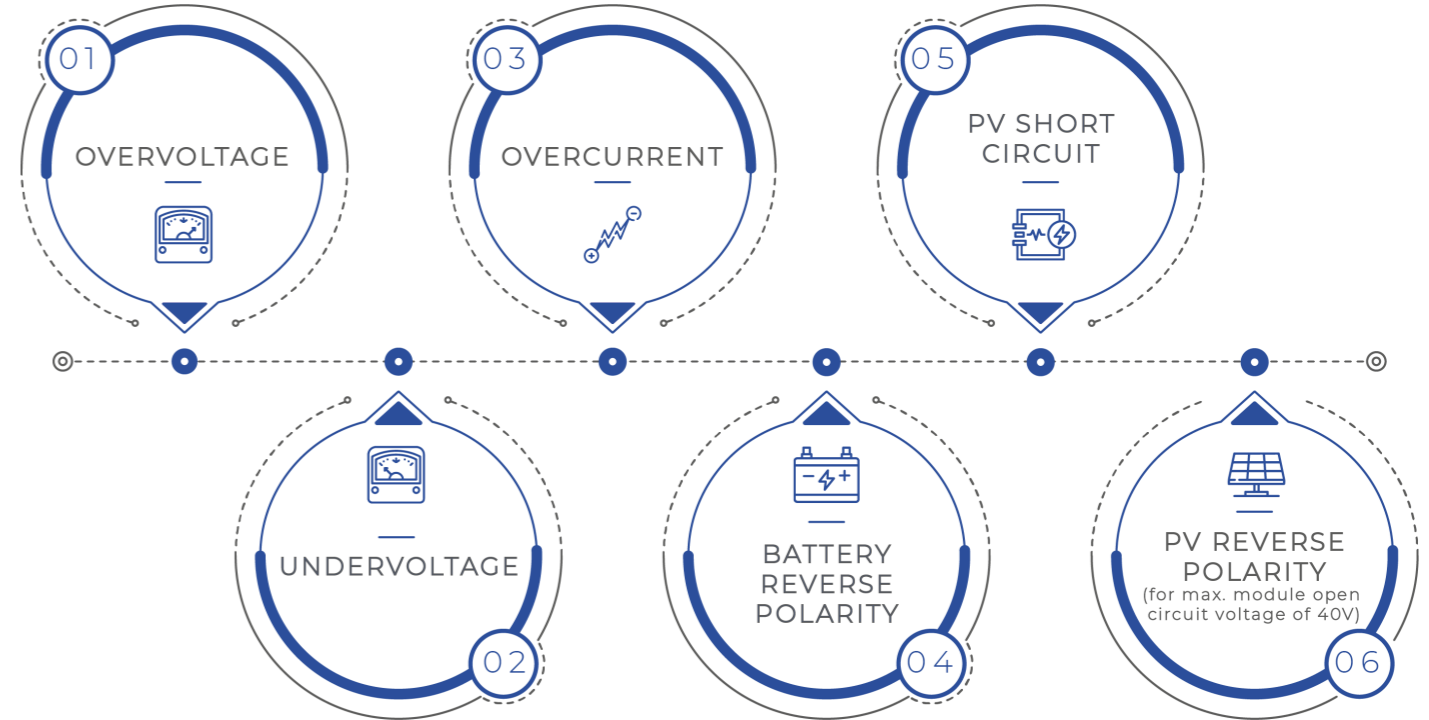|	CS Smart PWM 48-40	CS Smart PWM 24-40	CS Smart PWM 48-20	CS Smart PWM 24-20
Nominal Battery Voltage	12/24/48V Auto Select	12/24V Auto Select	12/24/48V Auto Select	12/24V Auto Select
Abs Max Battery Voltage	60V	30V	60V	30V
Max Solar Voltage Open Circuit (Voc)	92V	46V	92V	46V
Max Solar Voltage Maximum Power Point (Vmpp)	72V	36V	72V	36V
Maximum Solar Current	35A		20A	
Maximum Load Current	40A		20A	
USB Max Current	2A			
Heat Sink	Extruded Aluminium		Fabricated Aluminium	
Product Weight	433g		266g	

Battery Types

Supported Battery Types*	Typical No. of cells	Absorption / Full (V)	Bulk (V)	Float (V)	Low Voltage Disconnect (V)	Low Voltage Reconnect (V)
Flooded Lead-Acid Battery	6	14.4	13.2	14.1	11.1	12.3
GEL Battery	6	14.4	13.2	13.8	11.1	12.3
AGM Battery	6	14.4	13.2	13.8	11.1	12.3
Li-ion Batteries (3.2V nominal)	4	14.2	13.4	N/A	12	12.6
NMC/Graphite Li-ion Batteries (3.7V nominal)	3	12.6	11.7	N/A	9.9	10.8
NMC/Graphite High Voltage Li-ion Batteries (3.7V nominal, 4.35 max)	3	13.05	11.7	N/A	9.9	10.8

*Default battery type is GEL. For any other battery type, make a request to Inclusive Energy.

**Values shown for 12V nominal battery packs. For 24V or 48V, values are multiplied by 2x and 4x respectively.

Built In Protection

01 OVERVOLTAGE

02 UNDERVOLTAGE

03 OVERCURRENT

04 BATTERY REVERSE POLARITY

05 PV SHORT CIRCUIT

06 PV REVERSE POLARITY (for max. module open circuit voltage of 40V)

Communications*

2G	2G + 4G (Coming Soon)
• SIMCom SIM800C	• SIMCom A7672S-FASE
• Quad-band GPRS	• LTE Cat-1 + EDGE + GPRS
	• BLE
	• GNSS

*Global SIM card can be provided, data costs vary depending on location.

Additional Features

- 1" OLED Display (Optional)
- Multi-function button for OLED / Reboot
- External RJ45 socket for diagnostics

Data Storage and Sending

Data packet granularity*	20 minutes
Data sending frequency*	4 hours
Data backup**	28 Days
Data points	Load State Load Power Total Load Energy (Wh) Solar Power (W) Solar Voltage (V) Total Solar Energy (Wh) Battery Voltage (V) State of Charge See Help Centre for more info: https://support.inclusive.energy/portal/en/kb/articles/data-csv-file-12-5-2022

*Configurable, contact Inclusive Energy.
**Depending on configuration.

Cloud Solar
Micro-Power

CS Micro-Power is a small, reliable and off-grid energy kit for applications that need 24/7 power. It uses our Cloud Solar smart charge controller, enabling remote monitoring and control.

The performance of the energy system is continuously monitored, with information fed remotely to the Cloud Solar web platform, allowing active monitoring and control of the CS Micro-Power system and the appliances it is powering.

Specifications

	Option 1	Option 2	Option 3	Option 4
Solar Panel Power	10W	20W	50W	100W
Battery Type	LiFePO4, 12.8V			
Battery Capacity	12Ah	24Ah	24Ah	30Ah
Charge Controller	CS Smart PWM 24-20			
Maximum Continuous Load	1W	2W	4W	5W
Enclosure	IP65 or IP67 PVC enclosure			

Typical Applications

01 Wireless sensors, transmitters, base stations, modems

02 Process controls, instrumentation

03 Irrigation drip systems, water pumping, valves

04 Flow meters, data loggers

05 SCADA & radio telemetry systems

06 Signage and signals, e.g. highway blinkers

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Cloud Solar
Street Smart

CS Street Smart is our range of solar street lights, using the Cloud Solar smart charge controller to enable remote monitoring and control.

The performance of the energy system is continuously monitored, with information fed remotely to the Cloud Solar web platform, allowing active monitoring and control of the streetlights.

Specifications

Solar Panel Power	100W
Battery Type	LiFePO4, 12.8V
Battery Capacity	30Ah
LED Power	24W
Luminosity	120 lumens per Watt
Colour Temperature	6500K (cool white)
Hours of Light from Full Charge	12 hours
Charge Controller	CS Smart PWM 24-20
Indicators	LED indicator displaying charging and low battery
Features	Streetlight turns on when solar voltage < 4V* Streetlight turns off when solar voltage > 5V*

*Set points are configurable.
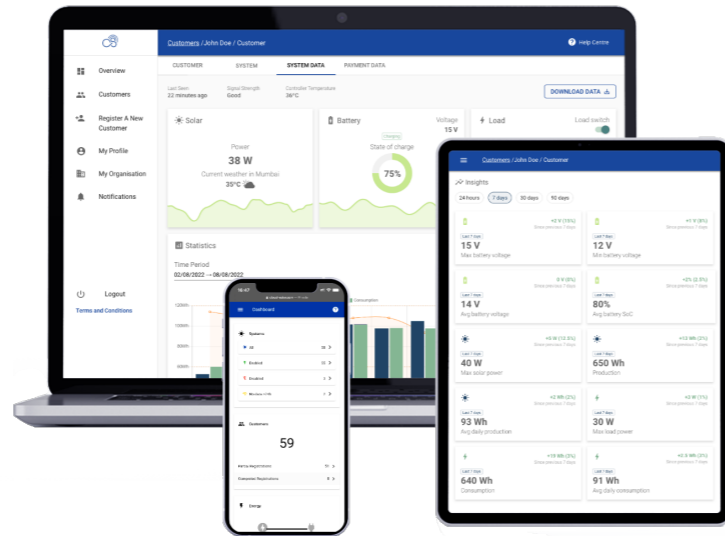Other streetlight configurations are available on request.

Cloud Solar
Web Platform

All Cloud Solar products are connected to the Cloud Solar web platform.

The platform works seamlessly across web and mobile. It allows providers of solar energy assets to easily track the real-time performance of all installed systems, facilitate payments, and manage repair and maintenance operations with technicians.

Our versatile user interface allows different categories of users to access specific parts of the Cloud Solar service.

Features

- CRM with table and map views, search and filter

- Capture and display of asset data + download data

- Create payment plans

- Pay as you go platform

- Team management

- Notifications

- Business and energy analytics (coming soon)

- Automated fault diagnosis (coming soon)

Get In Touch

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