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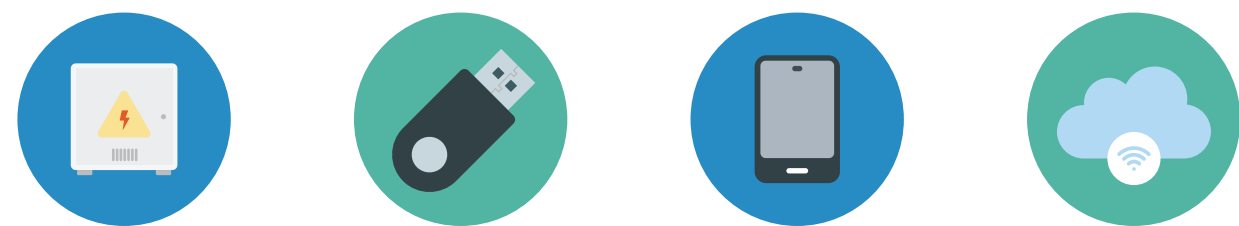
Monitor and manage your smart energy  
for a better world

# INTRODUCTION

IGEN Tech Co., Ltd., founded in 2009, a high-tech enterprise, is professional in innovative applications based on technologies of IoTs, cloud computing and big data. Being focus on energy field for 13 years, the company is committed to constructing sustainable solutions and services into energy system, and has developed a complete solution including hardware, software and data analysis to offer smart energy for global customers.

Adhereing to green vision and better future, IGEN-Tech will keep close to customer needs in energy field of the globe.

SOLARMAN is a brand of IGEN-Tech, specialized in intelligent PV solutions. SOLARMAN product has been a global leading PV monitoring and management platform, which covers the whole life cycle of PV station and provides differentiated solutions for distinct users.



## Products and Services

- Different types of external data loggers
- Embedded monitoring module for inverters
- Smart meters and sockets
- Weather stations

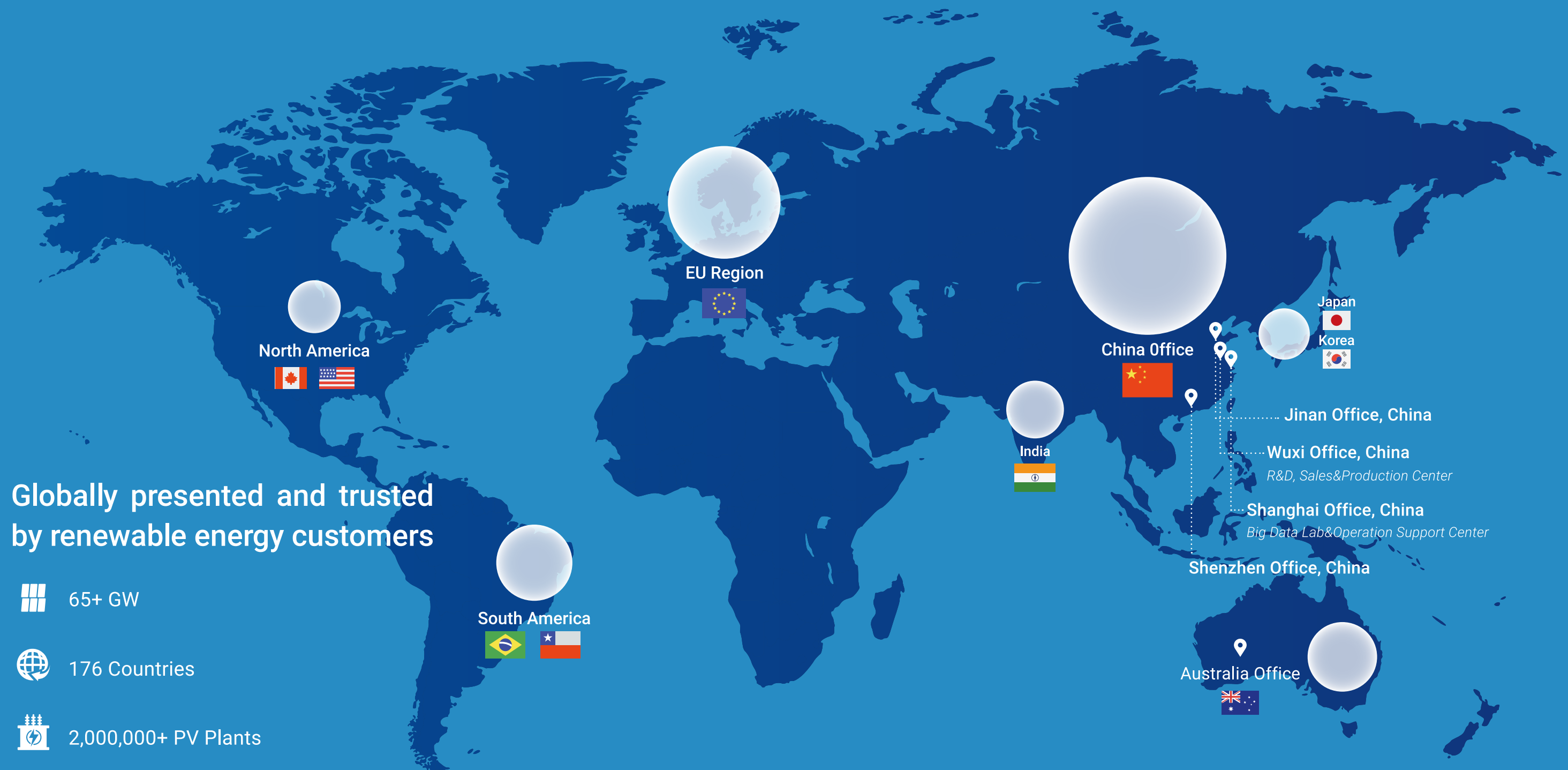
- Web-based monitoring portal
- Monitoring app and dashboard
- Customerized software platform

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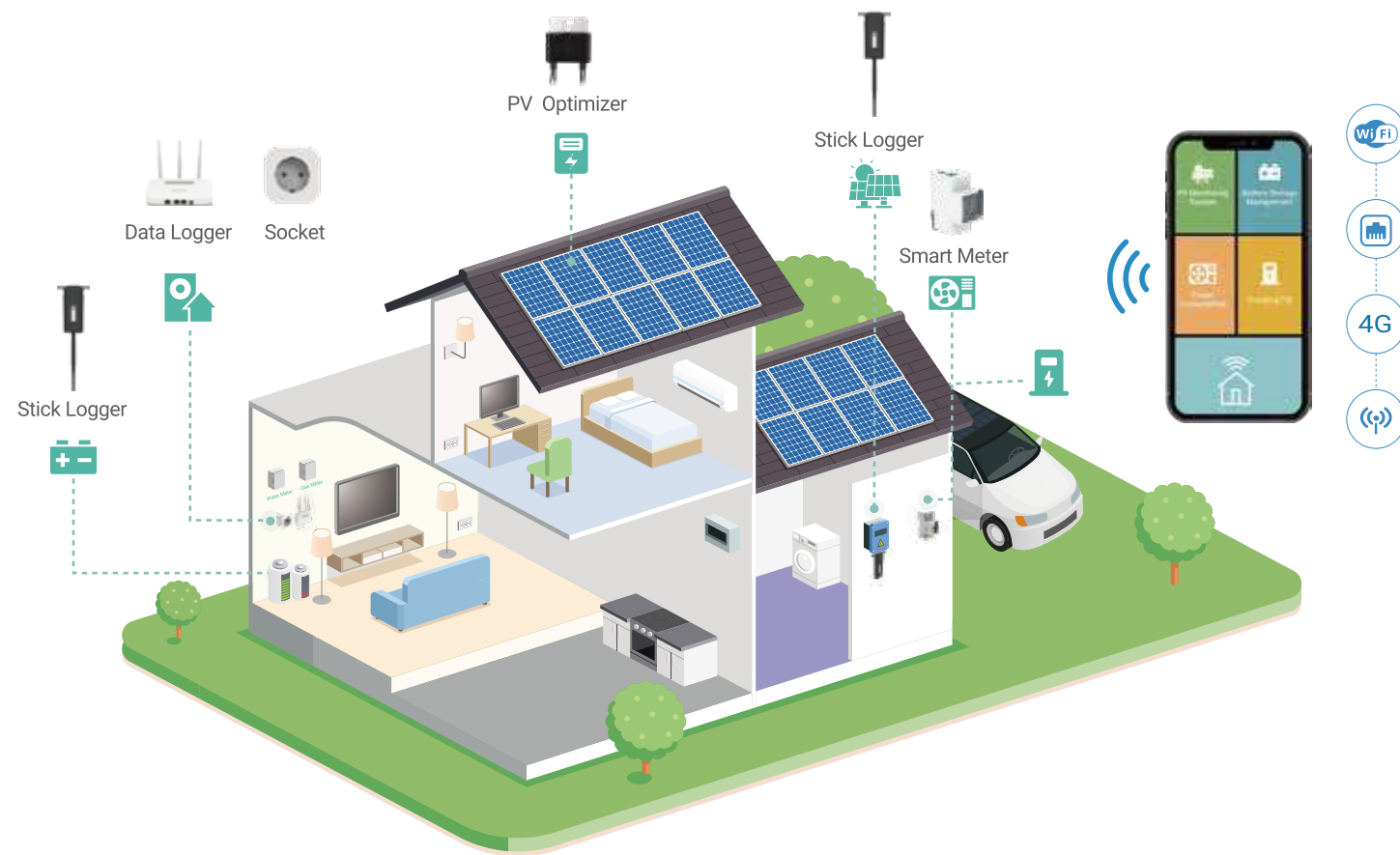
# SOLARMAN Smart Energy Management System around the world



## Residential Solution - Home Energy Management

Wisely managing energy use has been the 1st priority when households decide to pursue a smart life with sustainable energy, improved efficiency and reduced bills.

By applying advanced technologies of IoTs (Internet of Things) and wireless communication, etc., SOLARMAN products are able to connect a variety of devices at your home, to make your daily operation in a more convenient, comfortable and eco-friendly manner.



PV Monitoring System



Battery Storage Management



Power Consumption Monitoring System



PV Optimizer



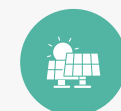
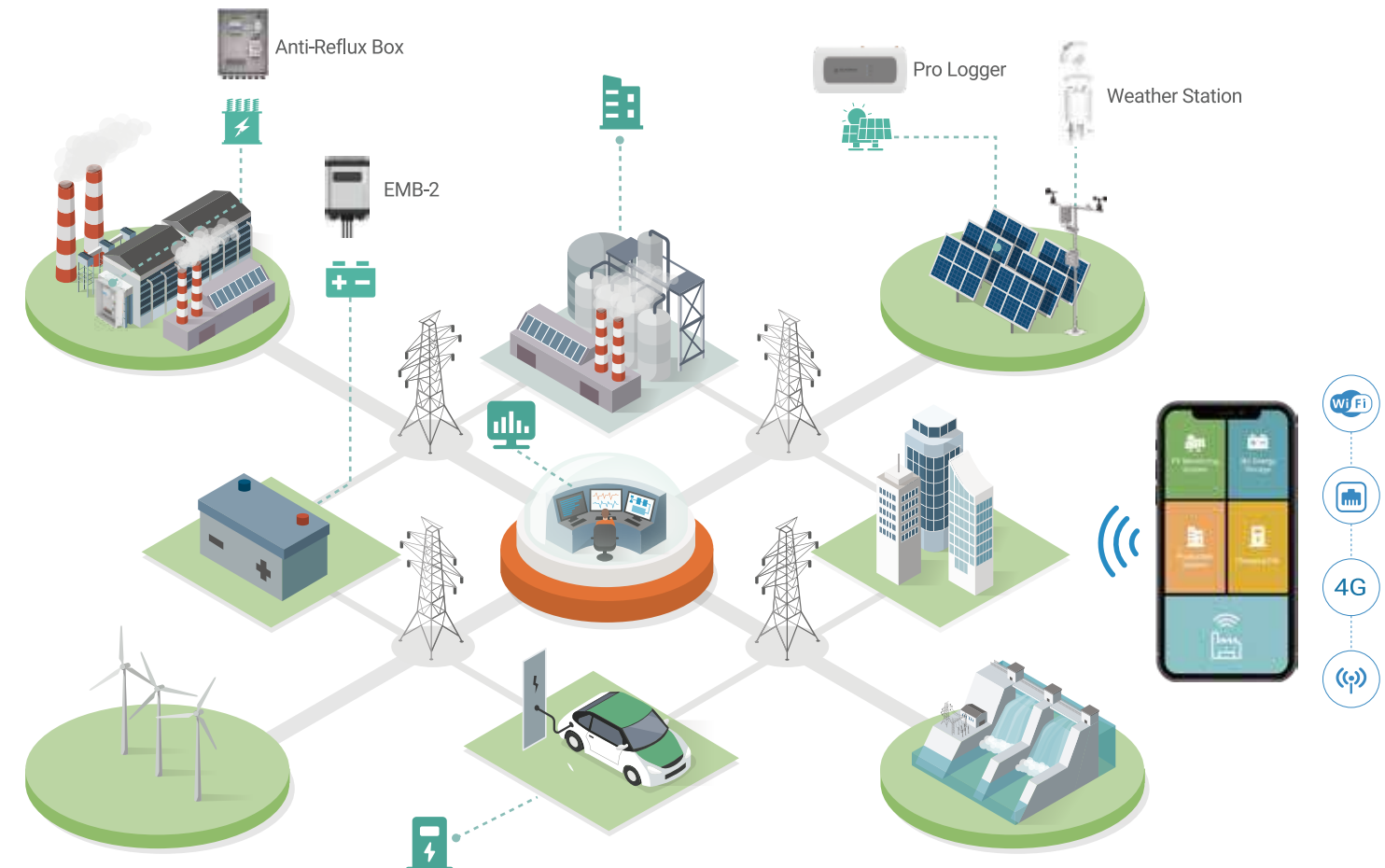
Smart Energy Management



Charging Pile Monitoring System

## Commercial&Industrial Solution - Plant Energy Management

More and more corporates are going green by utilizing carbon neutral energy-especially solar power generated from their plants' and buildings' rooftops, and at the same time, battery storage is ready to leverage renewable energy to the upmost efficiency. SOLARMAN helps the companies to get insights on power transaction and hence make smart decisions.



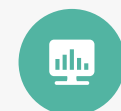
PV Monitoring System



I&C Energy Storage Management



Feed-In Management



UPS Monitoring System



Power Consumption Monitoring System



Charging Pile Monitoring System

## Overview of SOLARMAN Software

With the most reliable hardware devices, functional software and outstanding service, SOLARMAN is the right choice for everyone. It meets requirements of device manufacturer, investor, project developer, EPC and plant owner, etc. Moreover, the tailor-made needs can be easily covered under SOLARMAN modular design.

SOLARMAN software consists of two different products—SOLARMAN Business and SOLARMAN Smart. Both products are available in web-based portal and APPs.



**SOLARMAN Business** is developed to support professional service providers, covering the full life-cycle of PV plants:



Project Evaluation - PV resource analysis, plant simulation, production/yield forecast, etc.



Plant O&M - Data monitoring and visualizing, fault detecting and troubleshooting, performance rating, etc.

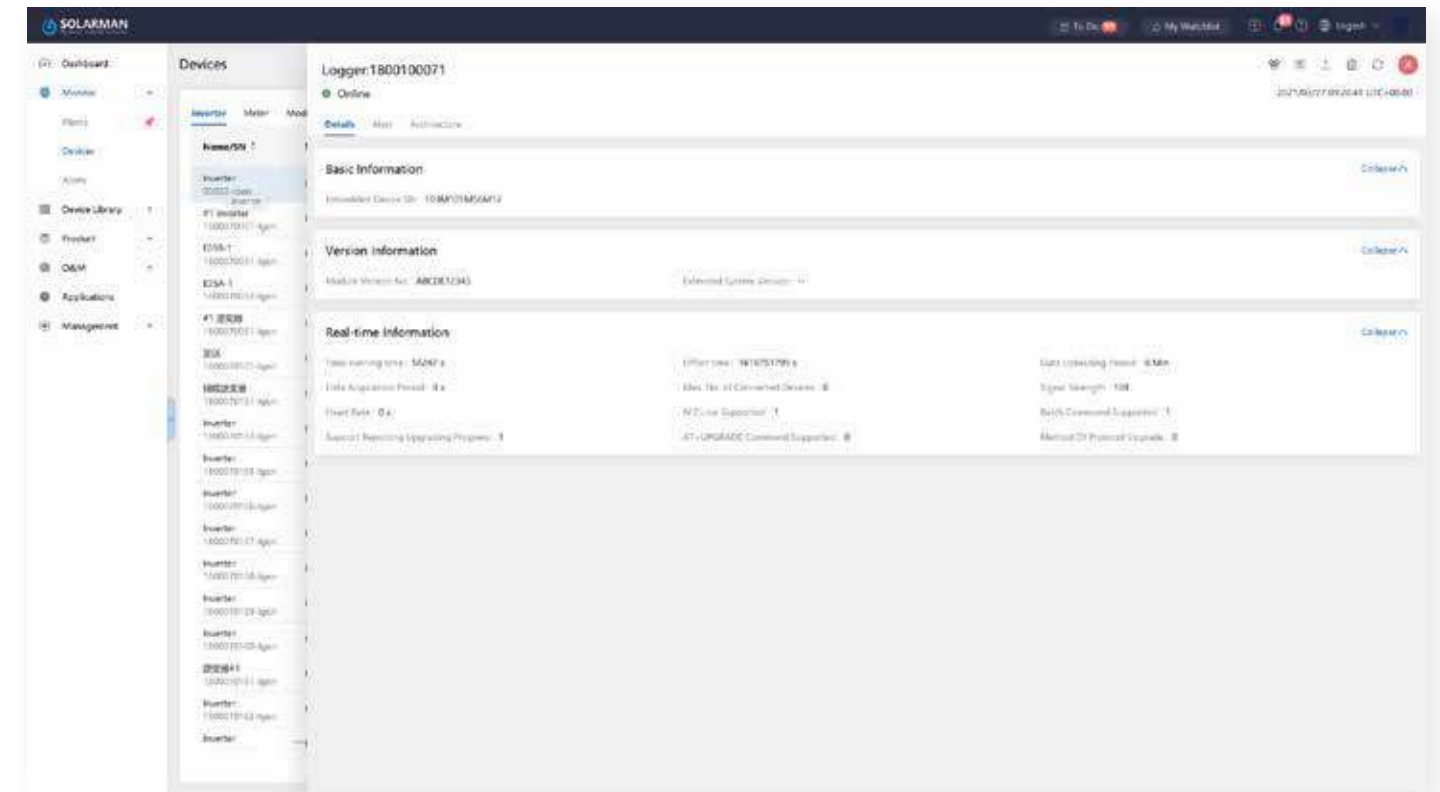


Asset Trade - Financial evaluation, cash flow forecast, ROI analysis, etc.

**SOLARMAN Smart** offers excellent experience to individual users, who can get all important data/information at a glance. The product is designed in simple style, ease of use, perfect for end-users.

## SOLARMAN Business - Device Access, Control and Data Processing

SOLARMAN solution is compatible with the inverter models from all major manufacturers and with numerous components, i.e. energy meter, gas meter, weather station, heat pump and smart plug, etc.



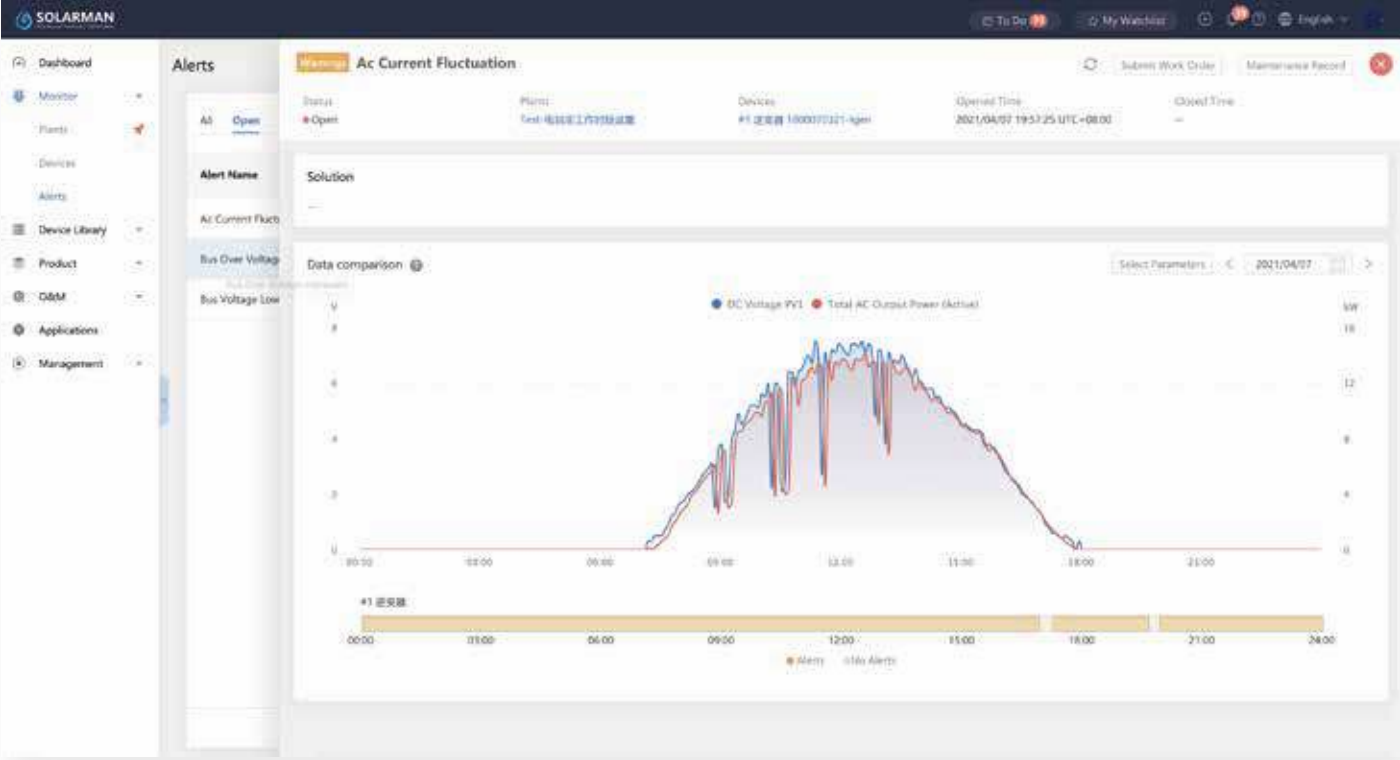
Key features of SOLARMAN Business – Device Sector:

- Fast adaption with new devices and protocols;
- Remote upgrade device firmware in batches;
- Intelligent device controls under local/remote mode, fast response within seconds;
- Customization for warnings and alerts;
- Great flexibility for real-time data processing and authorization.

# SOLARMAN Business - PV Plant Management

SOLARMAN Business perfectly fulfills the needs of technical professionals, making PV plant management easy, effective and efficient.

Besides visualizing real-time data and analyzing performance indexes, i.e. PR, the product enables comparison among different plants, and comparison between plant's actual generation and weather-based simulation. The expanded performance analysis gives extra meaningful messages for plant management.



Furthermore, 'Intelligent and Intuitive Alerts' allows O&M staff to spot fault information you care about at a glance.

To get rid of tons of alerts, SOLARMAN system merges the same type of alerts, and plots them on a distribution graph with intuitive trending display. As a specific device alert is linked to key parameter curves, you can easily find out impacts, such as yield loss, etc.

# SOLARMAN Smart - An Energy Expert Around You

SOLARMAN Smart monitors and visualizes all conditions of smart devices at end- user's home, the household energy management has never been easier.



## Key features of SOLARMAN Smart:



Fast Setup - completes a plant setup after a few steps and adds smart devices as you need;



Graphic Display - understands power production&consumption status from a glimpse of energy flow chart;



Accurate Analysis - calculates and reports energy usage pattern and give reasonable advice;



Device Management - adds, deletes, changes, controls any devices at any time, any place;



Plant Management - shares a plant to a service provider or any friends within SOLARMAN platform, creating great convenience.



# Stick Logger

4G/GPRS/WiFi/Ethernet

SOLARMAN stick logger supports GPRS, WiFi, 4G, Ethernet and other communication method. Furthermore, stick logger supports RS485/RS232/TTL/USB and other serial communication. With the design of multi-cover, it adapts to a vast majority of inverters. By collecting operating status and power generation of inverter, stick logger can run a long-term and efficient monitoring of PV system, which increases work efficiency and reduces management cost significantly. With its extended functions, such as GNSS, power-off reminder, Bluetooth, stick logger enables a quick configuration at site and an easy plant O&M.



- External indicator lights, ensuring collection status at a glance;
- Plug and play, no extra power supply is required;
- Independent module, protecting internal parts of inverter;
- Waterproof design, resistant to bad weather;
- External design, easy to replace faulty equipment;
- Review data and yields via SOLARMAN Smart at anytime and anywhere;
- Extended function: Power-off reminder;
- Extended function: GNSS.

Product Model	LS4G-5	LS4G-4-C	LSW-5	LSW-3	LSG-3	LSE-3
Remote Communication Interface	4G	4G	2.4G WiFi	2.4G WiFi	GPRS	LAN
GNSS	<20m	—	—	—	—	—
Antenna	Internal Antenna	External Antenna	Internal Antenna	External Antenna	External Antenna	—
Data Interface	RS485/RS232/TTL					
Working Voltage	DC 5-12V					
Working Power	3.5W	3.5W	1.5W	1.5W	3W	1W
SIM Card	Chip Card/MicroSIM		—	—	Chip Card/MicroSIM	
Memory	8M Flash	8M Flash	8M Flash	2M Flash	2M Flash	2M Flash
Working Temperature	-40°C~+85°C					
Working Humidity	<90% (No Condensation)					
No. of Connections	One					
Serial Communication Rate	9600bps (1200—115200bps Configurable)					
Data Uploading Interval	Default: 5 mins (1-15 mins Configurable)					
User Configuration	BT/APP	Remote	BT/APP/Web/Remote	Remote/Web	Remote	Remote/Web
Firmware Upgrade	Remote	Remote	Remote/Web	Remote/Web	Remote	Remote/Web
Real-time Control	√					
Data Resuming	√					
Power-off Reminder	Configurable	Configurable	Configurable	—	—	—

# Pro Logger

4G/GPRS/WiFi/Ethernet



SOLARMAN pro logger is applicable to various types of devices, including inverter, combiner box, weather station, meter and etc,. It is specially designed for industrial&commercial scenarios, which can be mounted both on DIN-Rail and the wall.

Featuring in customization, it perfectly adapts to different kinds of distributed PV projects. Moreover, it furnishes plant developers, installers, O&M service providers with sophisticated tools to increase work efficiency and reduce management cost.

- Multiple-way RS485, RS232, RS422, CAN interface; Supports P1 meter; Accommodate hundreds of devices;
- Support magnetic latching relay external control (AC 250V/16A);
- 8GB TF card (Standard), 20-year storage; Data in SOLARMAN platform will be saved permanently;
- Multiple-way digital/analog input interface; Support grid dispatching, sensor and other scenarios;
- Through SOLARMAN Business, users can achieve an intelligent plant management.
- Dual SIM cards, supporting grid-tied project that requires private network power supply;
- Support static page configuration or upgrade, local/remote multi-mode monitoring;
- Support importing data and fault history via USB;
- Embedded ultra-capacitor supports power-off reminder; Simplify plant O&M significantly;

Product Model		LP-2
Wireless Parameters	Remote Communication 1	4G
	Remote Communication 2	4G
	Remote Communication 3	LAN
	Antenna	Sucker Antenna
	Local Configuration	WiFi (Embedded Antenna)/Web
Hardware Parameters	Input Voltage	DC 15V~60V
	Working Power	<10W
	Output Voltage	DC 12V 500mA
	Indicator Light	LED x4
	Memory	128MByte NAND FLASH 8GB TF Card (Optional)
	Analog / Digital Input	Analog Input x4 / Digital Input x6
	Digital Output	AC 16A 250V Magnetic Latching Relay Output x2
	USB	USB 2.0
	S0 in	2
	RS485	x4
	RS232	x1
	CAN	x1
	P1 Meter	x1
	Internal Clock	√
	Power-off Reminder	√
	Working Temperature	-20°C ~ +60°C
	Relative Humidity	5%-95% (No Condensation)
	Dimension	240*118*49mm
	IP Grade	IP20
	Installation Method	35mm Din-Rail Mount
Software Parameters	No. of Connections	1-128
	Data Uploading Interval	Default: 5 mins (1-15 mins Configurable)
	User Configuration	Remote Server/Web
	Firmware Upgrade	Remote Server/Web
	Real-time Control	√
	Data Resuming	√



# DIN-Rail Logger

4G/GPRS/WiFi/Ethernet



By collecting operating status and power generation of inverter, meter and other devices, DIN-Rail logger can run a long-term and efficient monitoring of PV system.

Logger can connect to multiple devices via RS485/RS422/RS232 and other interfaces. Meanwhile, remote monitoring cloud platform (SOLARMAN Portal) provides powerful data support for the logger. Logger sends the data to the monitoring platform via WiFi/Ethernet/GPRS. The real-time status and historical data can be displayed with graphs, enabling intuitive and clear understanding of PV system.

### Standard DIN-Rail Mount

Suitable for 35mm DIN-Rail mount;

### Remote Upgrade

Remote upgrade and system debugging, easy for O&M;

Timely alert report, helping users understand risks and problems about their plants in time;

Pair with DIN-Rail power supply device, achieving power-off reminder function.

### Data Resuming

Ensure data integrity;

### Alert Notification

Real-time alerts with timely notification, ensuring fast troubleshoot;

Review data via APP/Web at anytime and anywhere;



Product Model	LD4G-2	LDW-1	LD4G-3
Remote Communication Interface	4G	WiFi	4G(Cat.1)
No. of Connections	1-16	1-10	1-20
Ethernet	-	10/100M (Adaptive Network)	-
Working Voltage	DC 5-15V	DC 5-15V	AC 150-380V
Working Power	4W	1.5W	5W(Max.)
Local Communication	RS485/RS422/RS232		RS485/RS232(Configurable)
Data Uploading Interval	Default: 5 mins (1-15 mins Configurable)		
Memory	2M Flash (512K-16M Optional)		Default: 32M Byte Flash
User Configuration	AT+Instruction Set/Remote Server		BT/APP
SIM Card	MicroSIM	-	MicroSIM(Plug-in)
Antenna	4G Small Antenna (Sucker Antenna Optional)	GPRS Small Antenna (Sucker Antenna Optional)	Sucker Antenna (Optional)
Working Temperature	-30℃~+70℃ (Battery Version: -20℃~+60℃)	-30℃~+70℃	-30℃~+70℃
Working Humidity	<90% (No Condensation)		
Dimension	91mm×76mm×18mm		91*68*54mm
Installation Method	35mm DIN-Rail		

DIN-Rail Power Supply Device

DIN-Rail power supply device is used to provide DC 5V input for DIN-Rail logger or other equipment at site. According to real situation, it would turn AC 85-265V or DC 24V power input to DC 5V as output. In addition, an embedded capacitor will power DIN-Rail logger for another 20s in case of power outage, enabling data logger to send out a warning alert.



Wide Voltage Design

AC Voltage Input Range: AC 85V-265V  
DC Voltage Input Range: DC 5V-24V

High Power Output

Support DC 5V, 2000mA output

Power-off Reminder

Equipped with an embedded capacitor, easy for O&M

Easy Installation

Standard 35mm DIN-Rail mount



DIN-Rail Power Supply Device (Capacitive)		
Hardware Parameters	Input Voltage	AC 85~265V/DC 5~24V
	Output Current&Voltage	DC 5V, 2000mA
	Indicator Lights	AC IN: AC Power Input
		DC IN: DC Power Input
	Working Temperature	-40°C~+75°C
	Storage Temperature	-45°C~+90°C
	Dimension	91mm×76mm×18mm
	Installation Method	35mm DIN-Rail

RF Gateway Stick Logger (RF)



Ethernet

SOLARMAN RF series include RF gateway and stick logger (RF). RF gateway supports local networking, no communication wiring is required. Furthermore, it features in long communication distance and strong through-wall ability.

Single RF gateway can connect to multiple stick logger (RF)s.

- No communication wiring is required, reducing construction;
- Long communication distance, reaching 200m in case no shelter exists;
- Strong through-wall ability, 2 reinforced concrete walls at max;
- Support multi-device network, high efficiency in data acquisition.

RF Gateway		Stick Logger (RF)	
Product Model	RF-100	Product Model	LSR-4
Remote Communication	Ethernet	Local Communication	RF
Local Communication	RF	Serial Communication	RS485/RS232/TTL
No. of Connections	10	No. of Connections	1
Local Networking Distance	200m (Without shelter) Through-wall Ability: 2 reinforced concrete walls (15cm) (Networking distance reaches 20m when going through 2 walls.)	Working Voltage	DC 5V-12V
Working Voltage	DC 5V	Memory	8M Flash
Memory	8M Flash	Working Temperature	-30°C~+70°C
Configuration	APP/Web	Working Humidity	10%-90% (No Condensation)
Working Temperature	-30°C~+70°C		
Working Humidity	10%-90% (No Condensation)		

# Smart Meter





SOLARMAN smart meter is applied for energy management purpose, and it works to measure and control electricity consumption of apartment renting, household and industrial electricity, charging station, PV plant, intelligent building, chain stores, communication stations and etc,. It features in high reliability, high accuracy, compact size and easy to install, etc.

## Single-Phase Meters

- Compact size, 2P width
- Embedded relay, supports ON/OFF switch locally/remotely
- Protection functions in case of overvoltage, undervoltage, overcurrent, overload
- Embedded communication module, support GPRS, NB-IoT, WiFi, 4G, etc
- Measuring range: 0~60A, 0~13200w
- Embedded high-capacity capacitor, able to trigger power-off alert

## Three-Phase Meters

- 2P width, less space occupied in distribution panel
- Embedded communication module, support GPRS, NB-IoT, WiFi, 4G and etc
- Max. measurement: 6 circuits with single - phase CT, or 2 circuits with three-phase CTs
- Open-type CT, easy for installation
- Protection functions in case of overvoltage, undervoltage, overcurrent, overload

	Single-Phase		Three-Phase	
	DIN-Rail Single-Phase Meter	Single-Phase Remote Control Meter	DIN-Rail Three-Phase Meter	Six-circuit Multi-function Meter
Product Name				
Product Model	DDS122-D	DDZY422-D2	DTSD422-D	DTSD422-D3
Dimension (mm)	92*76*18mm	110*77*36mm	91.5*76*36mm	91.5*85*36mm
Remote Communication	NA	4G/WiFi/GPRS	NA	4G/WiFi/GPRS
Rated Voltage	220V		3x220/380V	
Rated Frequency	50/60Hz		50/60Hz	
Rated Current	5 (40) A	5 (60) A	3x6A/100A	6x6A/100A
Rated Power	8.8kW	13.2kW	66kW	
Accuracy	1		1	
Two-way Metering	√		√	
Working Temperature	-25°C~+60°C	-30°C~+70°C	-25°C~+60°C	-30°C~+70°C
Power Supply	1 circuit with single-phase CT		1 circuit with three-phase CTs/ 3 circuits with single-phase CT	6 circuit with single-phase CT/ 2 circuits with three-phase CTs
Measurement	Direct Access		Clip-On CT	
No. of CTs	NA		3	6
Electrical Parameters	Voltage, Current, Active Power, Active Energy, Frequency, Power Factors	Voltage, Current, Active Power, Active Energy, Time-sharing Power, Frequency, Power Factors	Voltage, Current, Active Power, Apparent Power, Active Energy, Apparent Power, Split-phase Energy, Time-sharing Power, Reactive Power, Reactive Energy, Frequency, Power Factors	
Remote Switch	×	√	×	
Automatic Settlement	×	√	√	
Data-frozen	×	Point-frozen, Daily-frozen, Scheduled-frozen	Point-frozen	
Power-off Reminder	×	√	×	
Protection	×	Overvoltage/Undervoltage, Overcurrent, Overload (break-off)	×	Overvoltage/Undervoltage, Overcurrent, Overload (Alert)
Data Acquisition (Inverter)	×	√	×	√
Installation Method	35mm DIN-Rail		35mm DIN-Rail	



# Energy Management Device

Ethernet



SOLARMAN energy management device is specially designed for distributed residential/industrial& commercial plants. With its brand new design, it features in high reliability, high accuracy and high efficiency.

Featuring in customization, it perfectly adapts to different kinds of distributed PV projects. Moreover, it furnishes plant developers, installers, O&M service providers with sophisticated tools to increase work efficiency and reduce management cost.

For residential plants, it supports the monitoring of inverter, energy storage battery and other devices.

For industrial&commercial plants, it is durable. And it supports inverter, combiner box, meter, weather station and other devices.

Standard Model: WiFi (4G optional)



Support RF local networking, no communication wiring is required



Equipped with bluetooth, optimizing networking experience and simplifying local configuration



Product Name	Energy Management Device	Energy Management Device
Product Model	EMH-2	EMB-2
Usage Scenario	Distributed Residential Plant	Distributed Industrial&Commercial Plant
No. of Connections	10	32
Working Voltage	DC 12V	DC 12V
Consumption	5W	5W
Remote Communication	WiFi (2.4GHz)/4G (Optional) Ethernet x1 Slot SIM (IP20)	WiFi (2.4GHz)/4G (Optional) Ethernet x1 Slot SIM (IP65)
Local Communication	BT RF (Optional) LoRa (Optional)	BT RF (Optional) LoRa (Optional)
Configuration	APP/Remote	APP/Remote
Serial Communication	RS485 x1/RS232 x1 (Compatible)	RS485 x2
Data Acquisition Interval	5min	5min
Memory	512M NAND FLASH	512M NAND FLASH
Extended Function	Data Resuming Real-time Control -	Data Resuming Real-time Control Power-off Reminder (Optional)
Dimension (mm)	160*110*29.5mm	194*135.6*72.2mm
Enclosure	PC	Aluminium Alloy
Installation Method	Flatwise/Wall-Hanging/DIN-Rail	Wall-Hanging
IP Grade	IP20	IP65
Working Temperature	-30°C~+70°C	-30°C~+70°C
Working Humidity	10%-90% (No Condensation)	10%-90% (No Condensation)

# Weather Station

SOLARMAN weather station is specifically designed for PV system. It provides a comprehensive environmental monitoring solution for users including irradiance, ambient temperature and humidity, wind direction and speed, and module temperature. With the combination of accurate real-time data, durable products and powerful online platform, SOLARMAN helps users evaluate yield efficiency in a more comprehensive and convenient way.



Accurate real-time and historical data, enabling a comprehensive evaluation of system performance;



Compatible with SOLARMAN data logger, ensuring simple configuration and lower O&M cost;



SOLARMAN platform provides visualized meteorological data;



Real-time alerts with timely notification, ensuring fast troubleshooting;



Standard sensors for general demands (High accuracy sensor for project with high demands);



Product Model	WP-2S
Irradiance (Sub-reference Level)	ISO 9060:1990 (Sub-reference Level) Sensitivity: 7~14μV/W/m2 Instability (Year): <0.5% Measuring Range: 0~4000W/m2 Spectral Range: 270~3000μm Zero Offset (No ventilation) (a) Thermal Irradiance (200W/m2): <7W/m2 (b) Temperature Variation (5K/h): <2W/m2 Nonlinear: <0.2% Directional Response (80°, 1000W/m2 at max.): <10W/m2 Spectral Selectivity (350~1500nm): <1% Tilt Response (0°-90°, 1000W/m2): <0.2% Temperature Response (-10°C~+40°C): <1% Visual Angle: 180°
Irradiance (Level 1)	Sensitivity: 7~14μV/W/m2 Instability (Year): ±2% Measuring Range: 0~2000W/m2 Cosine (Deviation between solar altitude angle 10° in sunny day and ideal value ): ≤±2% Spectral Range: 0.28~3.0μm Temperature Characteristic (-20°C~+40°C): ±2% Nonlinear: ±2% Visual Angle: 180° Measurement Accuracy: 2%
Irradiance (Level 2)	Sensitivity: 7~14μV/W/m2 Instability (Year): <2% Measuring Range: 0~2000W/m2 Cosine (Deviation between solar altitude angle 10° in sunny day and ideal value ): ≤±5% Spectral Range: 0.28~3.0μm Temperature Characteristic (-20°C~+40°C): ±5% Nonlinear: ±5% Visual Angle: 180° Measurement Accuracy: 5%
Ambient Temperature	Measuring Range: -50.0°C~+80.0°C Resolution: 0.1°C Accuracy: ±0.1°C Working Environment: Temperature -40°C~+80°C Humidity ≤100%RH
Ambient Humidity	Measuring Range: 0.0~100.0%RH Resolution: 0.1%RH Accuracy: ±2% (≤80%), ±5% (>80%) Working Environment: Temperature -40°C~+80°C Humidity ≤100%RH
Wind Direction	Measuring Range: 0~360° Resolution: 3° Accuracy: ±3° Startup Wind Speed: ≤0.5m/s Working Environment: Temperature -40°C~+80°C Humidity ≤100%RH
Wind Speed	Measuring Range: 0~70m/s Resolution: 0.1m/s Accuracy: ±(0.3+0.03V)m/s Startup Wind Speed: ≤0.5m/s Working Environment: Temperature -40°C~+80°C Humidity ≤100%RH
Module Temperature	Measuring Range: -50°C~+80°C Resolution: 0.1°C Accuracy: ±0.1°C Working Environment: Temperature -40°C~+80°C Humidity ≤100%RH
Height	1.5m
Power Supply&Communication Junction Box	Power: AC 230V, COM: RS485
IP Grade	IP65

# Anti-Reflux Box

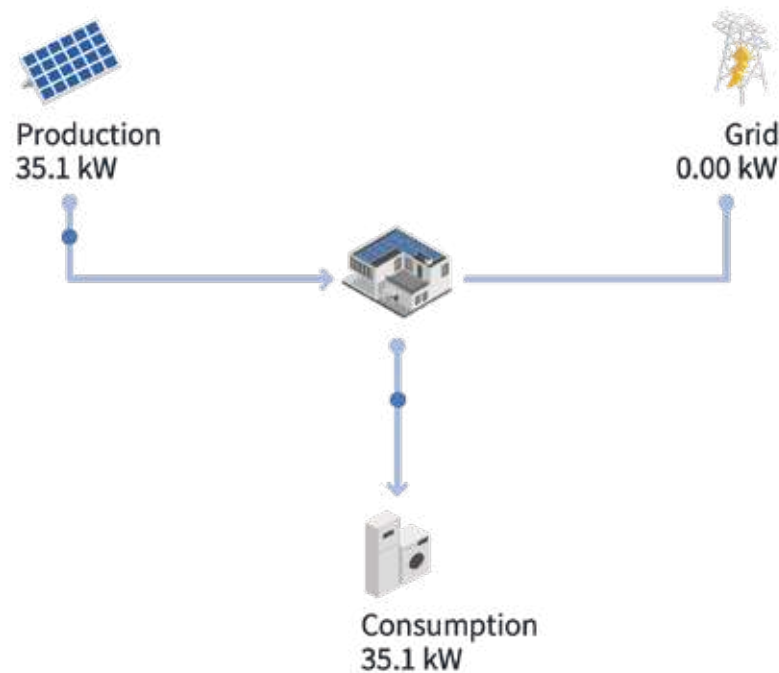
WiFi/Ethernet



SOLARMAN anti-reflux box manages real-time situation of grid-tied PV plant by analyzing data from three-phase meter and inverters, and adjusting inverter outputs accordingly to make sure no power injection to the local Grid.

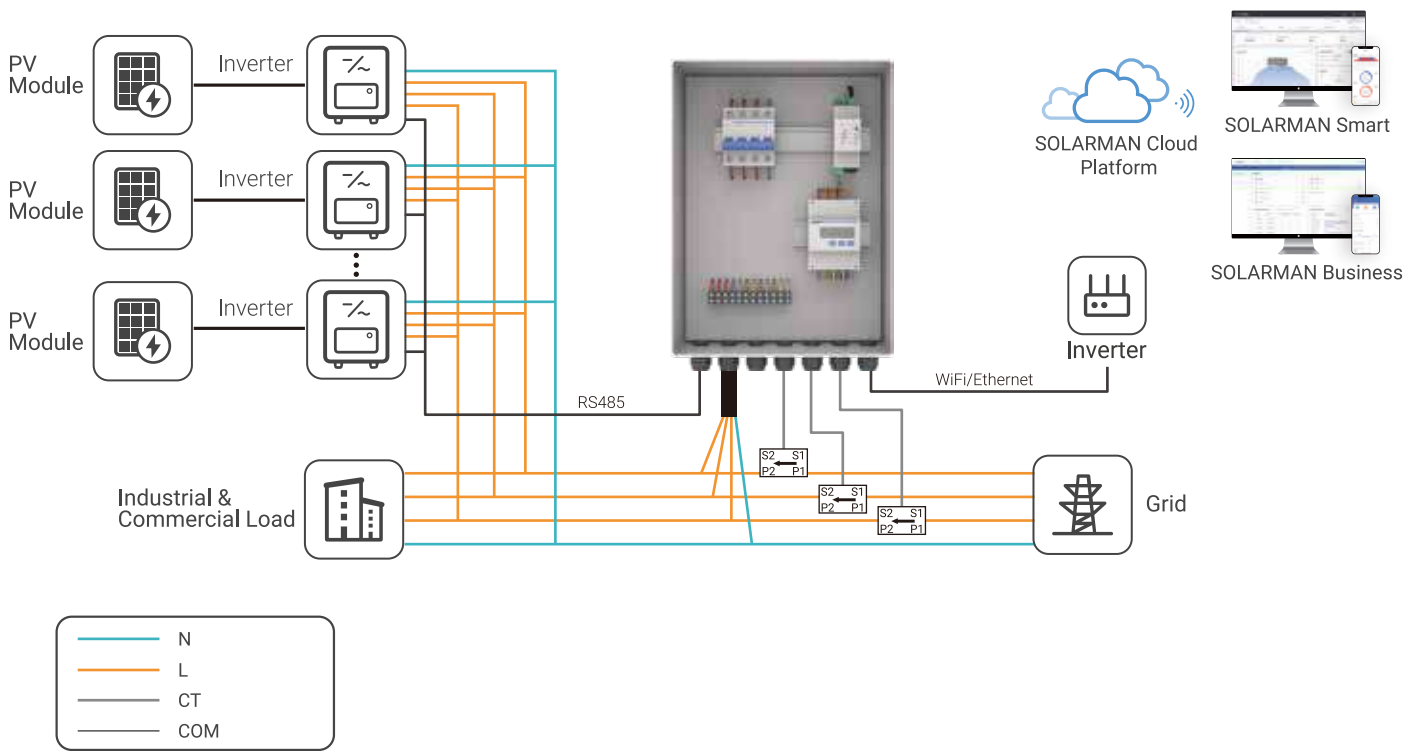
Supported data transmission mode: WiFi&Ethernet.

- Real-time monitoring of power production&consumption situation in case of Anti-Reflux;
- Waterproof design, resistant to bad weather;
- Connection terminal, easy for installation;
- Standard air switch, ensuring the safe use;
- Compatible with all inverters, conducting the comprehensive management.



Product Model	SAR-100
Remote Communication	2.4G WiFi+Ethernet
Local Communication	RS 485
No. of Connections	10
Power Regulation Period	5s
Accessing Method	Three-Phase Four-Wire/Three-Phase Three-wire
Working Voltage	3x230/400V 50/60Hz
Working Current	3x1.5(6)A
CT (Regular)	250/5A, 600/5A, 800/5A, 1000/5A, 1500/5A, 2000/5A
IP Grade	IP65
Working Temperature	-30°C~+70°C
Working Humidity	5%-95% (No Condensation)
Installation Method	Wall-Hanging

## Anti-Reflux Solution (Three-Phase Four-Wire)





# Module PV Optimizer

By controlling the output current and voltage of module, SOLARMAN module PV optimizer (MPO) can reduce the loss of power generation caused by current mismatch in the case of shadow shield, module decay, ash deposition, double-sided power generation and etc., which can be recovered by up to 25%. Paired with SOLARMAN gateway, it realizes data transmission via WiFi/LAN/4G and etc.. Furthermore, remote monitoring cloud platform (SOLARMAN Portal) provides a real-time monitoring of module power generation status.



Shading



Soiling



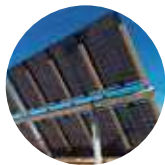
Snow Remnant



Degradation

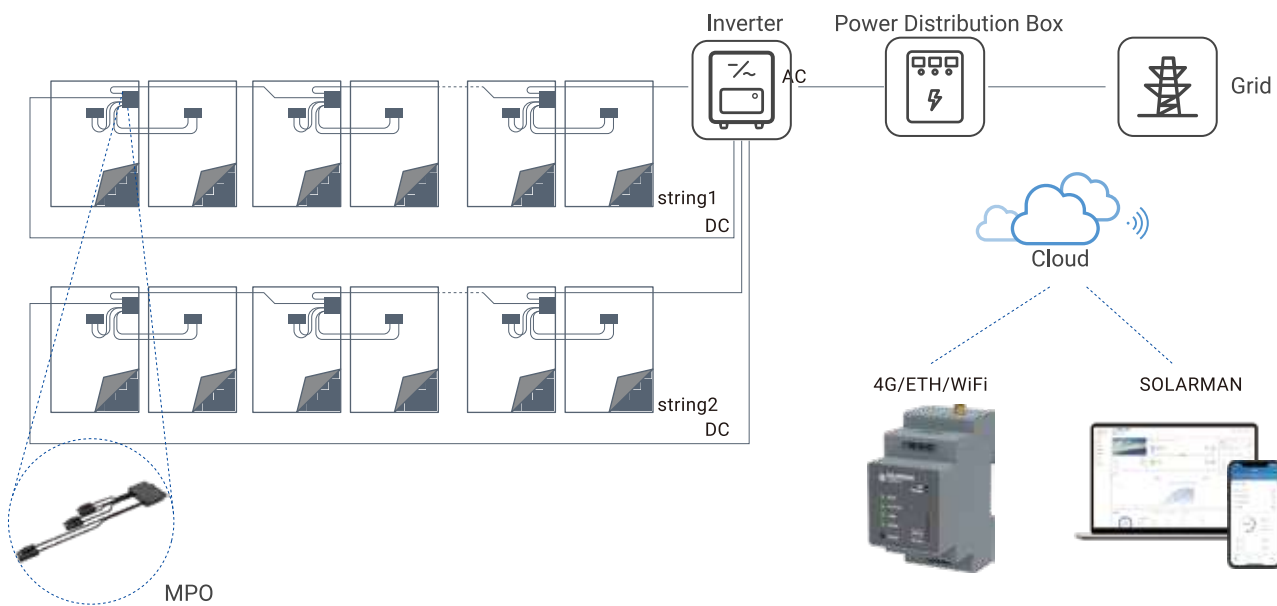


Orientation



Bifacial Application

## Applicable Scenario



Product Model		MPO 600	MPO 1200
Input Parameter	Max. Input Power	600W(1pc)	1200W(2pcs)
	Operating Voltage Range	7~ 70 V	
	MPPT Voltage Range	7~ 70 V	
	Max. Input Current	15 A   Upgradeable	
	Over-current Protection Value	20 A	
Output Parameter	Over-temperature Protection Value	150 ℃	
	Max. Output Current	20 A	
	Output Voltage Limiting Threshold	1500 V	
	Total Max. System Voltage	24pcs @1000 V, 36pcs @1500 V	
Conversion Efficiency	Peak Conversion Efficiency	0.995	
	Consumption@5 A	0.9W	
	Consumption@12 A	2.9W	
Installation	Dimension (mm)	105*105*20	150*105*20
	Weight	480 g	800 g
	Cable	Area 4.0 mm² Input 70cm Output 100 cm	
	Connector	MC4/MC4 (Configurable)	
	Working Temperature	-40 ~ +65 °C	
	IP Grade	IP65	
Others	Designed Life	25 Years	
	Standard	Optimization   No hot spot   Anti-Shadow	
	Optional	Communication   Monitoring	

# Module PV Rapid Shutdown



SOLARMAN module PV rapid shutdown(MPS) can provide module-level shutdown solution when a fire occurs, which enables that any two nodes voltage of PV array shall not exceed 80V. It ensures the safety of firefighters and O&M personnel.

- NEC 2020 690.12 certified
- Meet SunSpec standard
- Easy installation
- 25-year design life, compatible with PV module

Product Model	MP600	MPS 1200
No. of Connections	1pc	2pcs
Operating Voltage Range	7 ~ 60 V	
Max. Input Current	15 A   Scalable	
Max. System Voltage	1500 V	
Dimension	105mm*105mm*20mm	150mm*105mm*20mm
Weight	480g	800g
Cable	Area 4.0 mm² Input 70cm Output 100 cm	
Connector	MC4/MC4 (Configurable)	
Working Temperature	-40 ~ +65 °C	
IP Grade	IP65	
Designed Life	25 years	

# Module PV Rapid Shutdown Controller



SOLARMAN module PV rapid shutdown controller(MPSC) can control turn-on and turn-off of module PV rapid shutdown via DC PLC. It meets the standard of NEC 2020 690.12.

- PLC communication, additional wiring is not required
- High reliability, strong disturbance-resistant
- NEC 2020 690.12 certified
- Meet SunSpec standard (Optional)
- Easy installation

Product Model	MPSC
Communication Type	PLC
Working Temperature	-40 ~ +65 °C
IP Grade	IP65
No. of Connections	1~4 Strings
Connector	MC4/MC4 (Configurable)
AC Power Supply	100~240 V, 50/60 Hz
EMC	FCC part 15 class, IEC 61000-6-2, IEC 62000-6-3
Safety Standard	IEC62109-1 (class2 safety) UL1741
Safety Shutdown	Wall-hanging/Pillar-hanging

# Smart Socket



- Power&electricity analysis, easy for energy consumption tracing;
- Standard bluetooth, increasing networking efficiency;
- Bidirectional measurement, applicable to household electrical appliances and microinverters;
- Remote control, SOLARMAN protects the system security at anytime and any where;
- Support overload protection and automatic shutdown functions.

Product Model		SP-1-EU
Remote Communication		2.4G WiFi
Networking		BT5.0
Input Voltage		95-265V AC
Max. Current		16A
Max. Power		3680W
Working Frequency		50/60Hz
Accuracy		<3%
IP Grade		IP20
Working Temperature		0~40°C
Working Humidity		≤80%RH (No Condensation)
Case Material		Flame Retardant (PC V0)
Dimension (mm)		60*60*73
Certification Standard		CE/ROHS

# Reference



## ► Sunshine Campus

Sunshine Campus was a joint project between Beijing Municipal Government and the World Bank. With a \$120 million loan provided by the World Bank, over 1,000 solar PV systems were installed on the rooftop of about 1,000 school campuses in Beijing. SOLARMAN, a leading brand in China PV monitoring field, was named as the solution provider of smart monitoring system. With the convenient deployment for public clouds, SOLARMAN platform transmitted the data to Beijing Energy Conservation and Environmental Protection Center smoothly, which also assisted in evaluating the benefit of the project.

This project achieved good results, which would gradually implement to the whole city, such as rail transit station, passenger terminal, P+R parking lot, water reclamation plant, refuse processing plant and other energy-using units.





## ► Exclusive Hardware and Software Custom-Project

Exclusive Hardware and Software Custom-Project is a tailored project for a large-sized PV distributor, who establishes partnerships with many device manufacturers of inverter and battery, e.g. Solis, Growatt, SMA, Huawei, Sofar, GoodWe, SolaX, SolarEdge, Deye, BYD and LG, etc.

SOLARMAN, as a powerful PV monitoring platform, has provided an exclusive and high-quality solution and a tailored general-purpose data logger for the distributor, which enables the monitoring of production/consumption/grid/energy storage data on SOLARMAN platform at anytime and anywhere. By end of 2020, the distributor has established thousands of PV systems on platform, penetrating European market at a much faster pace.

## ► SOLARMAN Presence in Middle East

At INTERSOLAR EUROPE 2019, an EPC from Middle East area visited SOLARMAN booth. As for security reason of data transmission, the communication mode in Middle East could only be transmitted through the satellite LAN and the monitoring software could only be deployed on the government-owned server.

After learning well about the demands of the EPC, SOLARMAN team developed a tailored data logger with dual network ports to connect inverter and weather station at the same time. Meantime, customized features including UI design, offline map and etc were realized at SOLARMAN platform, which improved O&M efficiency significantly.

Adhereing to the vision of zero-carbon future, SOLARMAN is willing to work together with global partners in PV field to achieve the zero-carbon goal in 2060.

