SOLARMAN
Monitored Analyzed Networked

Monitored . Analyzed . Networked

for Smart Energy

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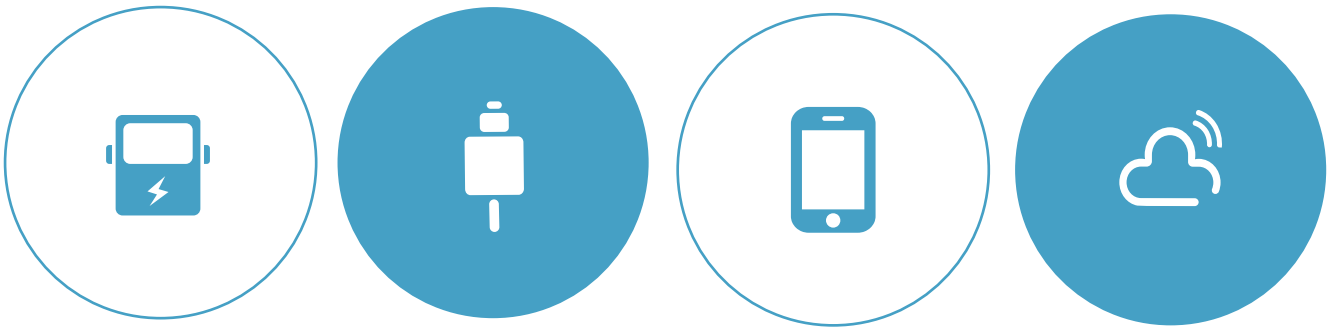
Monitored Analyzed Networked

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 12 years, the company has integrated state-of-the-art technologies into energy system, and has developed a complete solution including hardware, software and data analysis to offer smart energy for global customers.

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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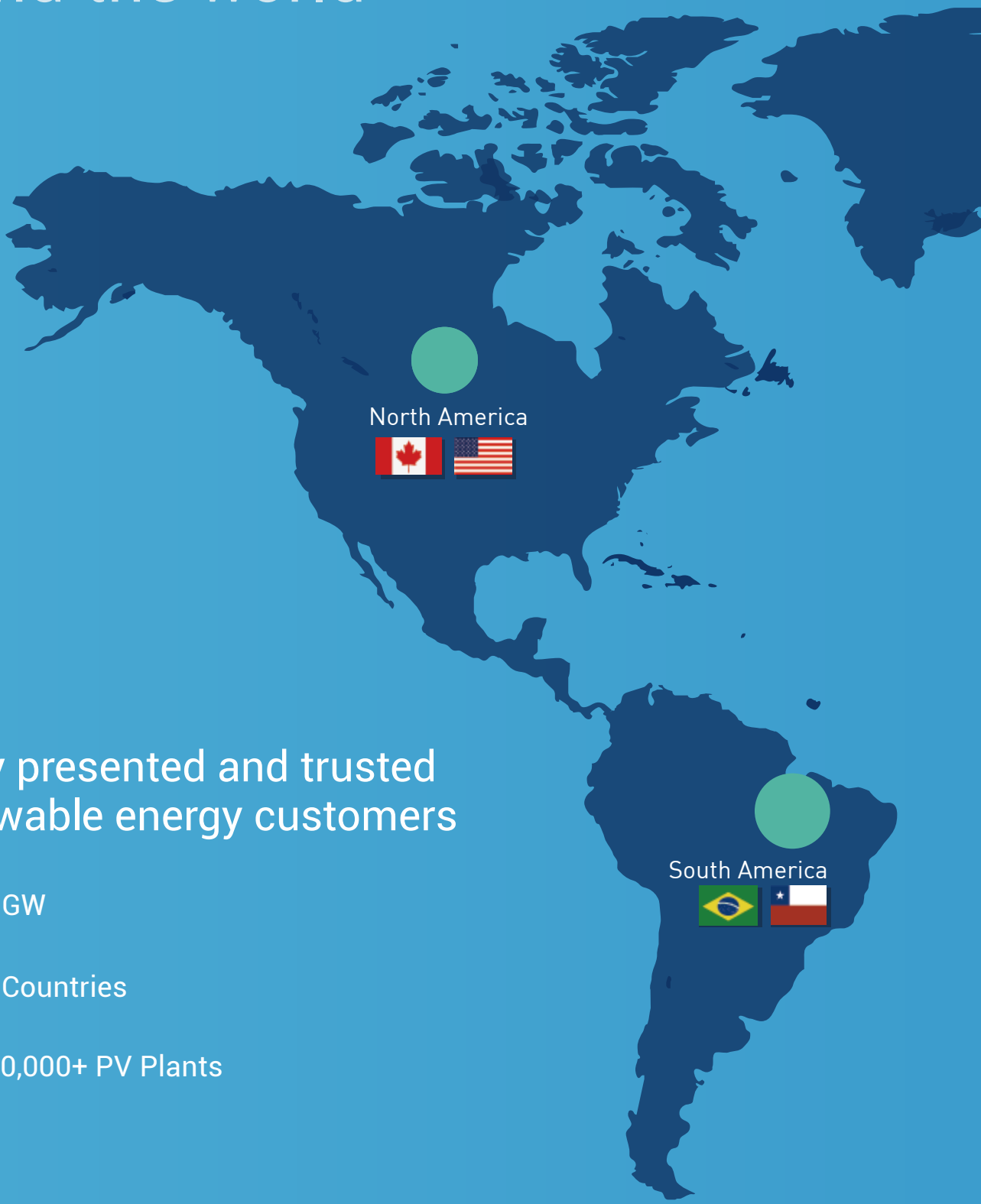
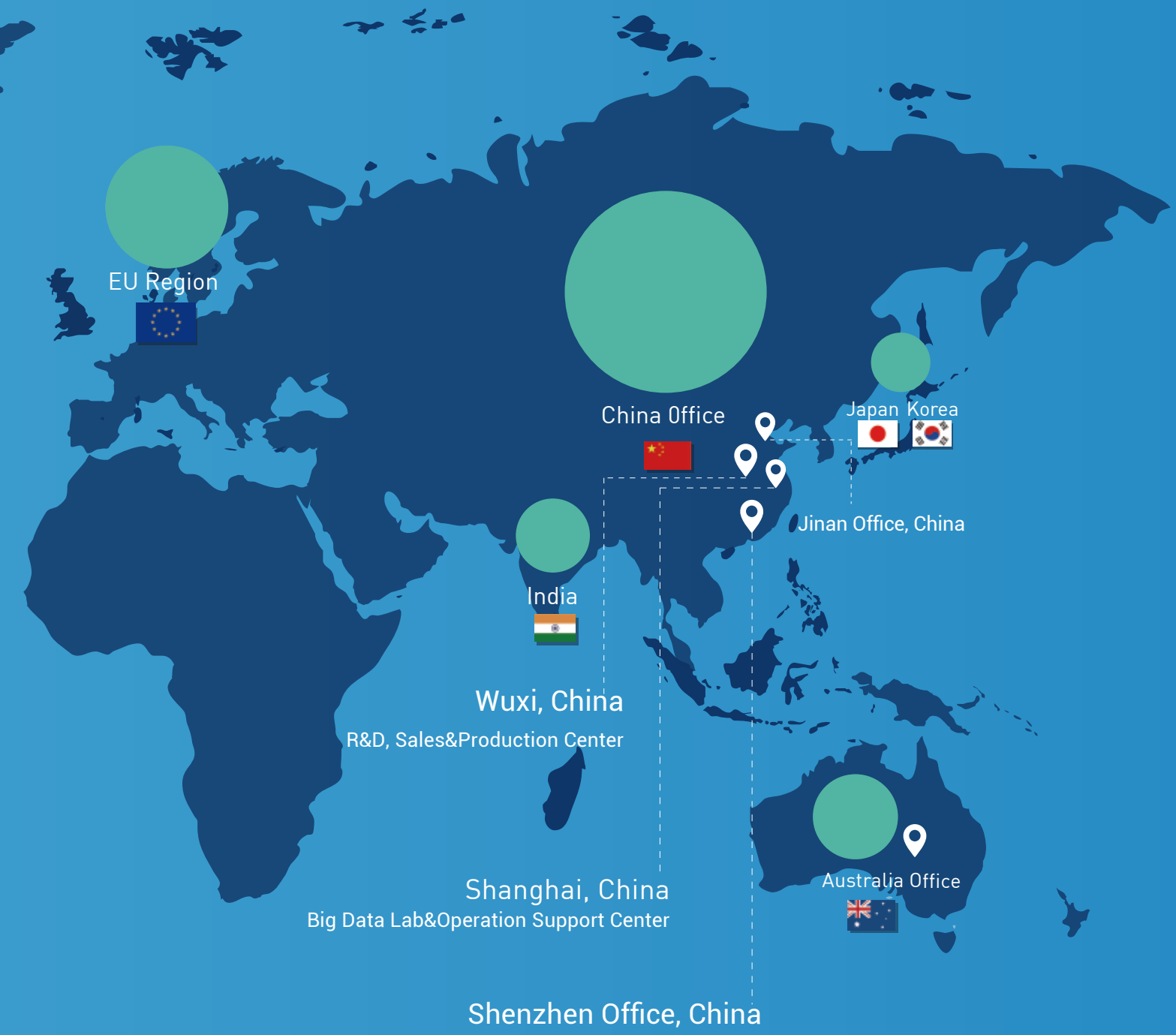
SOLARMAN Smart Energy Management System around the world



Globally presented and trusted by renewable energy customers

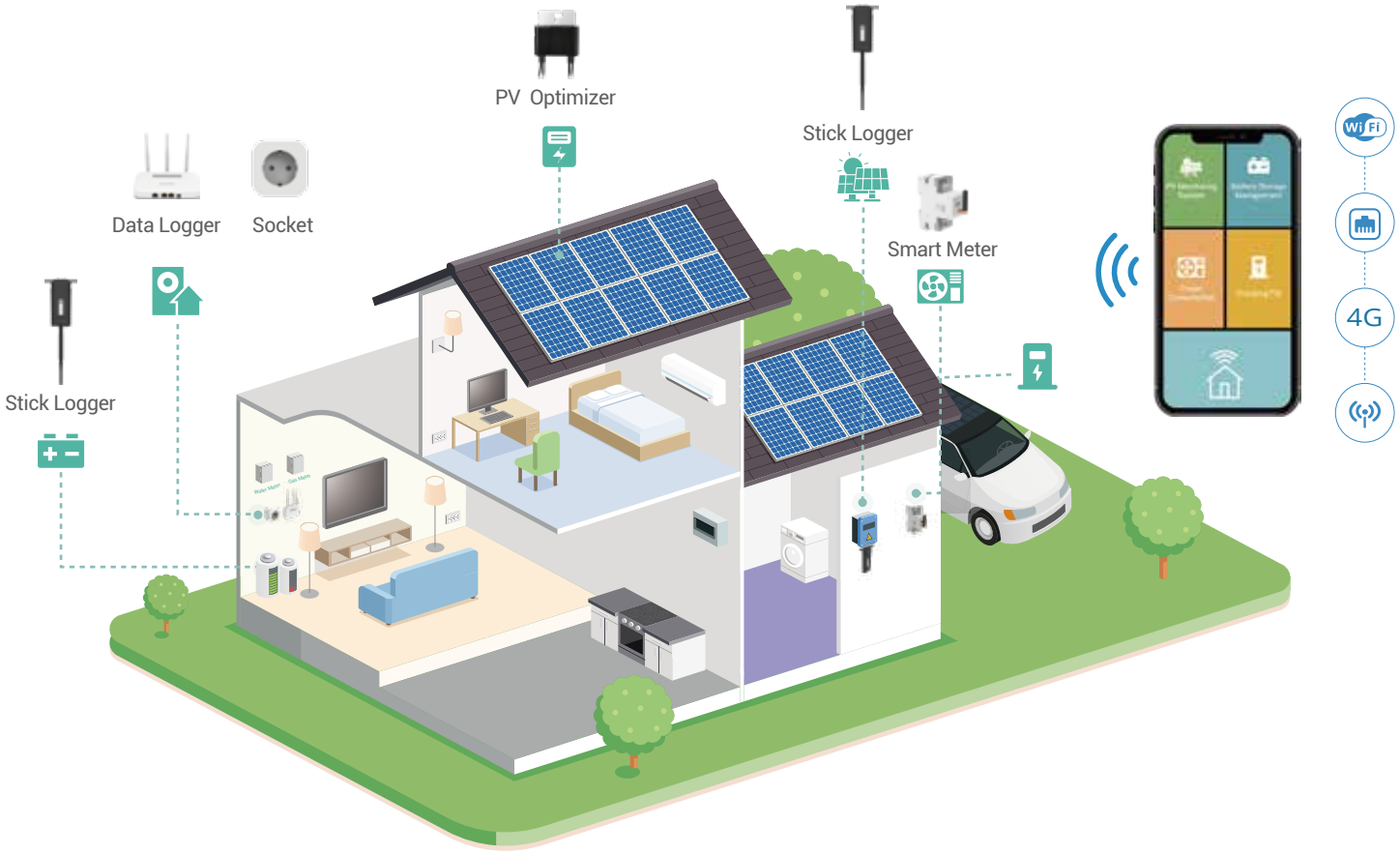
- 25+ GW
- 122 Countries
- 1,000,000+ PV Plants


EU Region
China Office
Japan
Korea
Jinan Office, China
India
Wuxi, China
R&D, Sales&Production Center
Australia Office
Shanghai, China
Big Data Lab&Operation Support Center
Shenzhen Office, China

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.

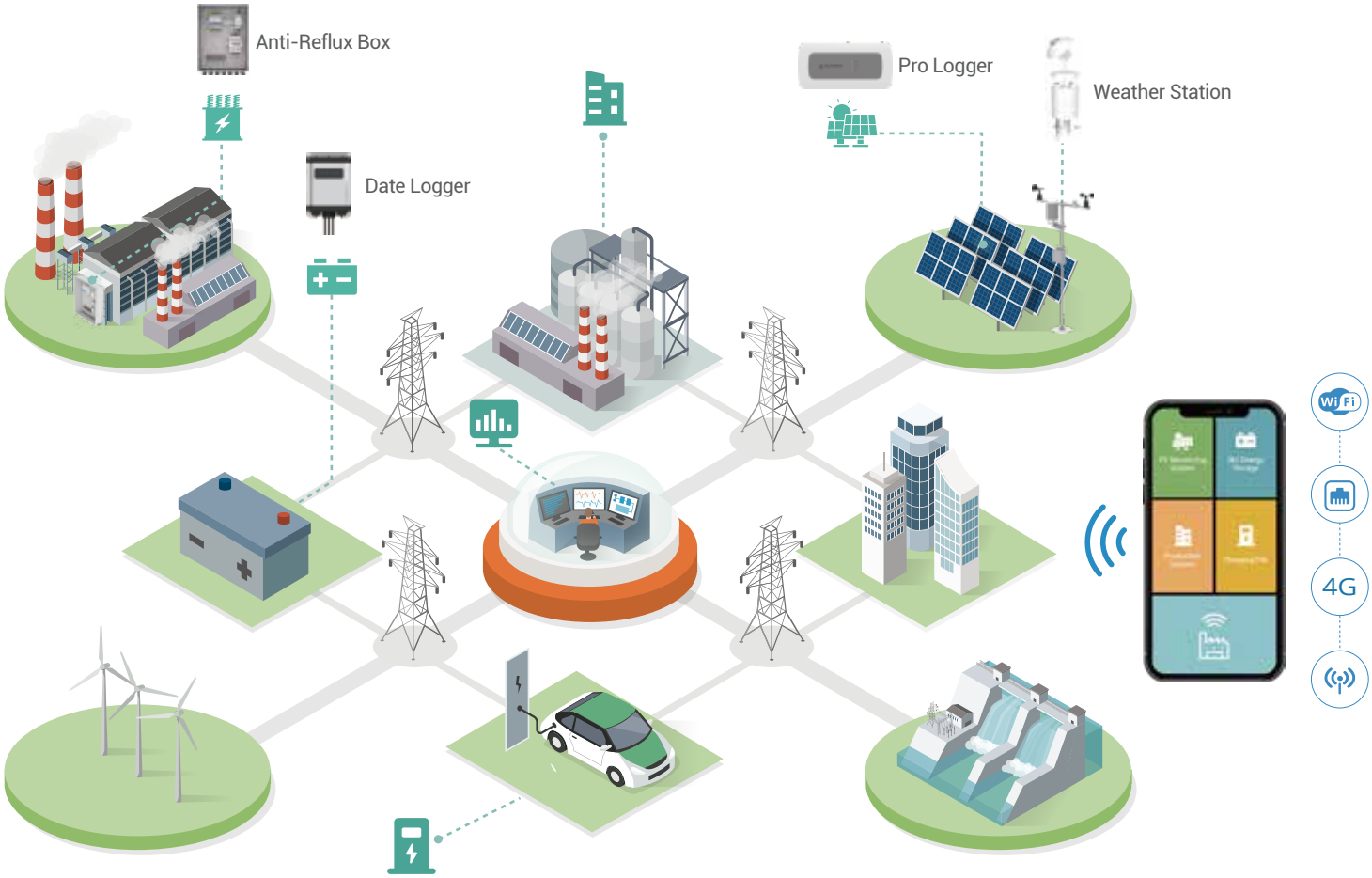
By applying advanced technologies of IoTs (Internet of Things) and wireless communication, etc., SOLARMAN products are able to connect a variety of devices at your home, to make your daily operation in a more convenient, comfortable and eco-friendly manner.



- PV Monitoring System
- PV Optimizer
- Battery Storage Management
- Smart Energy Management
- Power Consumption Monitoring System
- 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
- UPS Monitoring System
- I&C Energy Storage Management
- Power Consumption Monitoring System
- Feed-In Management
- 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.

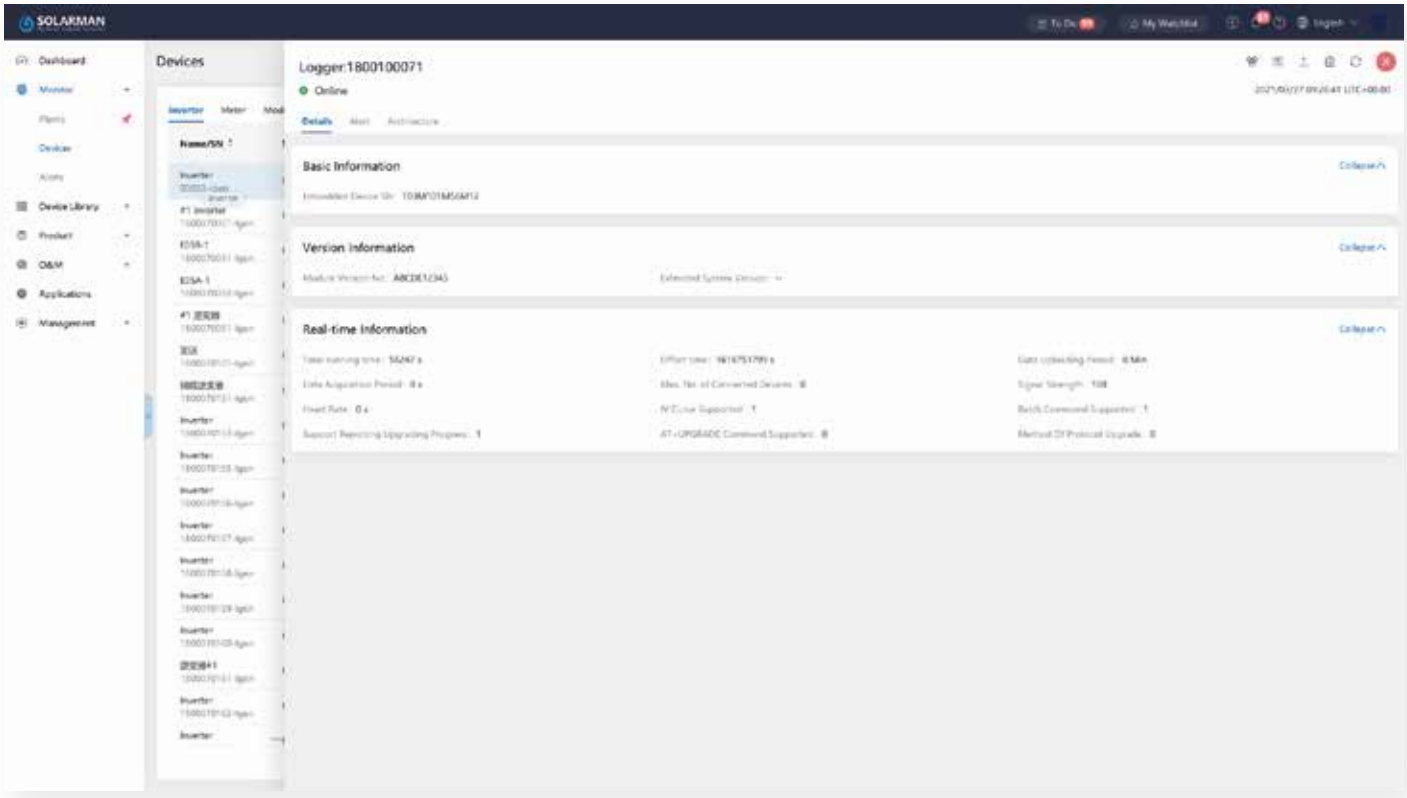
Plant O&M - Data monitoring and visualizing, fault detecting and troubleshooting, performance rating, etc.

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.



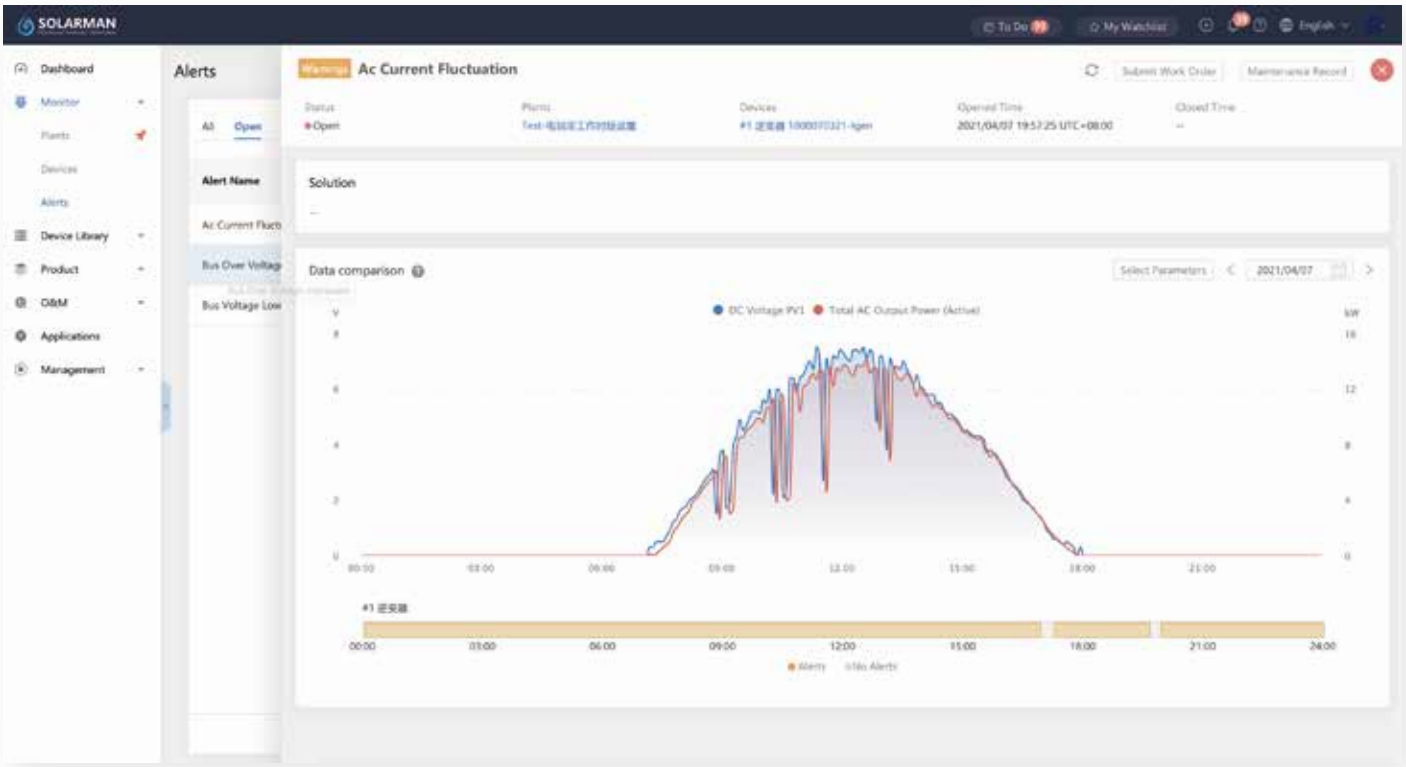
Key features of SOLARMAN Business – Device Sector:

- 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.

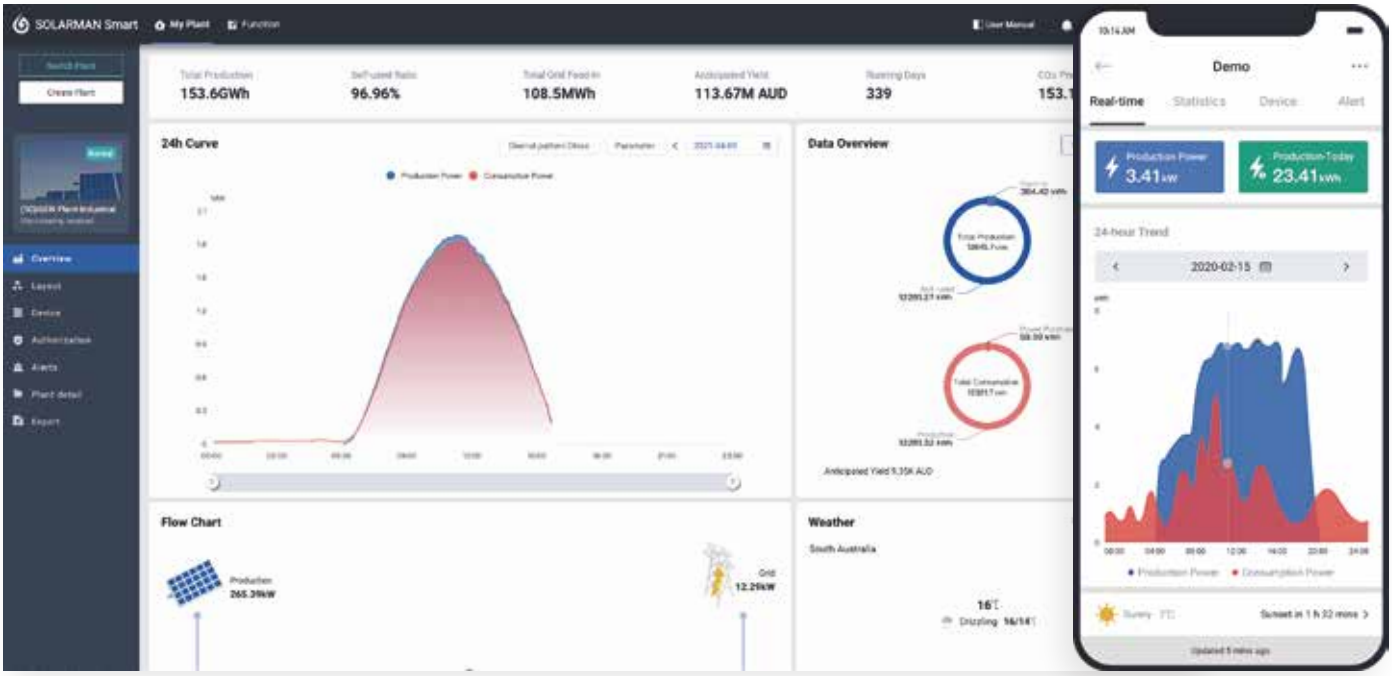


Furthermore, 'Intelligent and Intuitive Alerts' allows O&M staff to spot fault information you care about at a glance.

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 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 qucik 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	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℃～+85℃					
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
Firmware Upgrade	Remote	Remote	Remote/Web	Remote/Web	Remote	Remote/Web
Real-time Control	√					
Data Rresuming	√					
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℃ ~ +60℃
	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/G-PRS. 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;

Data Resuming

Ensure data integrity;

Remote Upgrade

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

Alert Notification

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

Timely alert report, helping users under-stand risks and problems about their plants in time;

Review data via APP/Web at anytime and anywhere;

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

Logger+Meter+More Devices

Product Model	LD4G-2	LDG-2	LDW-1
Remote Communication Interface	4G	GPRS	WiFi
Working Frequency	LTE-FDD, LTE-TDD, WCDMA TD-SCDMA, CDMA, GSM	GSM850/EGSM900/ DCS1800/PCS1900MHz	2.142GHz~2.484GHz
No. of Connections	1-16	1-16	1-10
Ethernet	-	-	10/100M (Adaptive Network)
Working Voltage	DC 4.7-15V	DC 4.7-15V	DC 4.7-15V
Working Power	3.8W	3W	1W
Local Communication	RS485/RS422/RS232		
Serial Communication Rate	1200—115200bps Configurable		
Data Uploading Interval	Default: 5 mins (1-15 mins Configurable)		
Memory	2M Flash (512K-16M Optional)		
User Configuration	AT+Instruction Set, Remote Server	AT+Instruction Set, Remote Server (BT3.0+EDR Configuration&Access)	AT+Instruction Set, Remote Server
SIM Card	MicroSIM	MicroSIM	-
Antenna	4G Small Antenna (Sucker Antenna Optional)	GPRS Small Antenna (Sucker Antenna Optional)	GPRS Small Antenna (Sucker Antenna Optional)
Working Temperature	-40℃~+85℃ (Battery Version: -20℃~+60℃)	-40℃~+85℃ (Battery Version: -20℃~+60℃)	-40℃~+85℃
Working Humidity	＜90% (No Condensation)		
Dimension	91mm×76mm×18mm		
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℃～+75℃
	Storage Temperature	-45℃~+90℃
	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	RF-100
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℃~+70℃
Configuration	APP/Web	Working Humidity	10%-90% (No Condensation)
Working Temperature	-30℃~+70℃		
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	
Product Name	DIN-Rail Single-Phase Meter 	Single-Phase Remote Control Meter 	DIN-Rail Three-Phase Meter 	Six-circuit Multi-function Meter 
Product Model	DDS122-D	DDZY422-D2	DTSD422-D	DTSD422-D3
Dimension (mm)	92*76*18	110*77*36	91.5*76*36	91.5*85*36
Remote Communication	NA	WiFi/GPRS	NA	WiFi/GPRS
Serial Communication	RS485		RS485	
Rated Voltage	220V		3x220/380V	
Frequency	50/60Hz		50/60Hz	
Rated Current	5（40）A	5（60）A	3x6A/100A	6x6A/100A
Rated Power	8.8kW	13.2kW	66kW	
Power Consumption	0.5W	3W	0.5W	3W
Accuracy	1		1	
Two-way Metering	√		√	
Working Temperature	-25℃-+60℃	-30℃-+70℃	-25℃-+60℃	-30℃-+70℃
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	High Accuracy Sampling Mn-Cu		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)

Equipped with bluetooth, optimizing networking experience and simplifying local configuration

Support RF local networking, no communication wiring is required

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	3.5W	3.5W
Remote Communication	WiFi (2.4GHz) Ethernet x2 4G (Optional) NB (Reserved) Slot SIM (IP20)	WiFi (2.4GHz) Ethernet x1 4G (Optional) NB (Reserved) Slot SIM (IP65)
Local Communication	BT RF (Optional) LoRa (Optional)	BT RF (Optional) LoRa (Optional)
Configuration	APP/Remote	APP/Remote
Serial Communication	RS485 x2 (RS232 compatible)	RS485 x1
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
Dimension (mm)	160x108x28	167x136x71
Enclosure	PC	Aluminium Alloy
Installation Method	Flatwise/Wall-Hanging/DIN-Rail	Wall-Hanging
IP Grade	IP20	IP65
Working Temperature	-30℃~+70℃	-30℃~+70℃
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;

SOLARMAN platform provides visualized meteorological data;

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

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

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

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℃～+40℃): <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℃～+40℃): ±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℃～+40℃): ±5% Nonlinear: ±5% Visual Angle: 180° Measurement Accuracy: 5%
Ambient Temperature	Measuring Range: -50.0℃～+80.0℃ Resolution: 0.1℃ Accuracy: ±0.1℃ Working Environment: Temperature -40℃～+80℃ 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℃～+80℃ Humidity ≤100%RH
Wind Direction	Measuring Range: 0～360° Resolution: 3° Accuracy: ±3° Startup Wind Speed: ≤0.5m/s Working Environment: Temperature -40℃～+80℃ 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℃～+80℃ Humidity ≤100%RH
Module Temperature	Measuring Range: -50℃～+80℃ Resolution: 0.1℃ Accuracy: ±0.1℃ Working Environment: Temperature -40℃～+80℃ Humidity ≤100%RH
Height	1.5m
Power Supply&Communication Junction Box	Power: AC 230V, COM: RS485
IP Grade	IP65

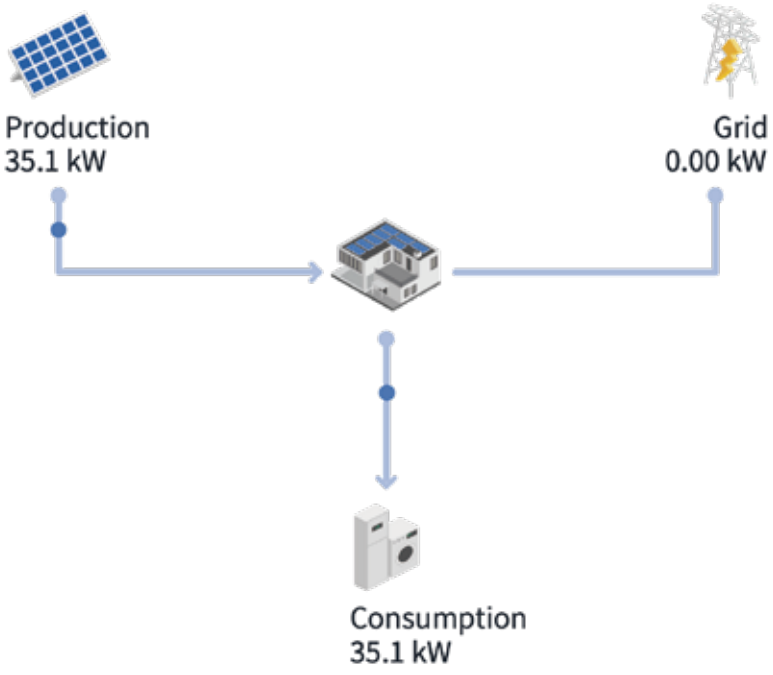
Anti-Reflux Box

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.

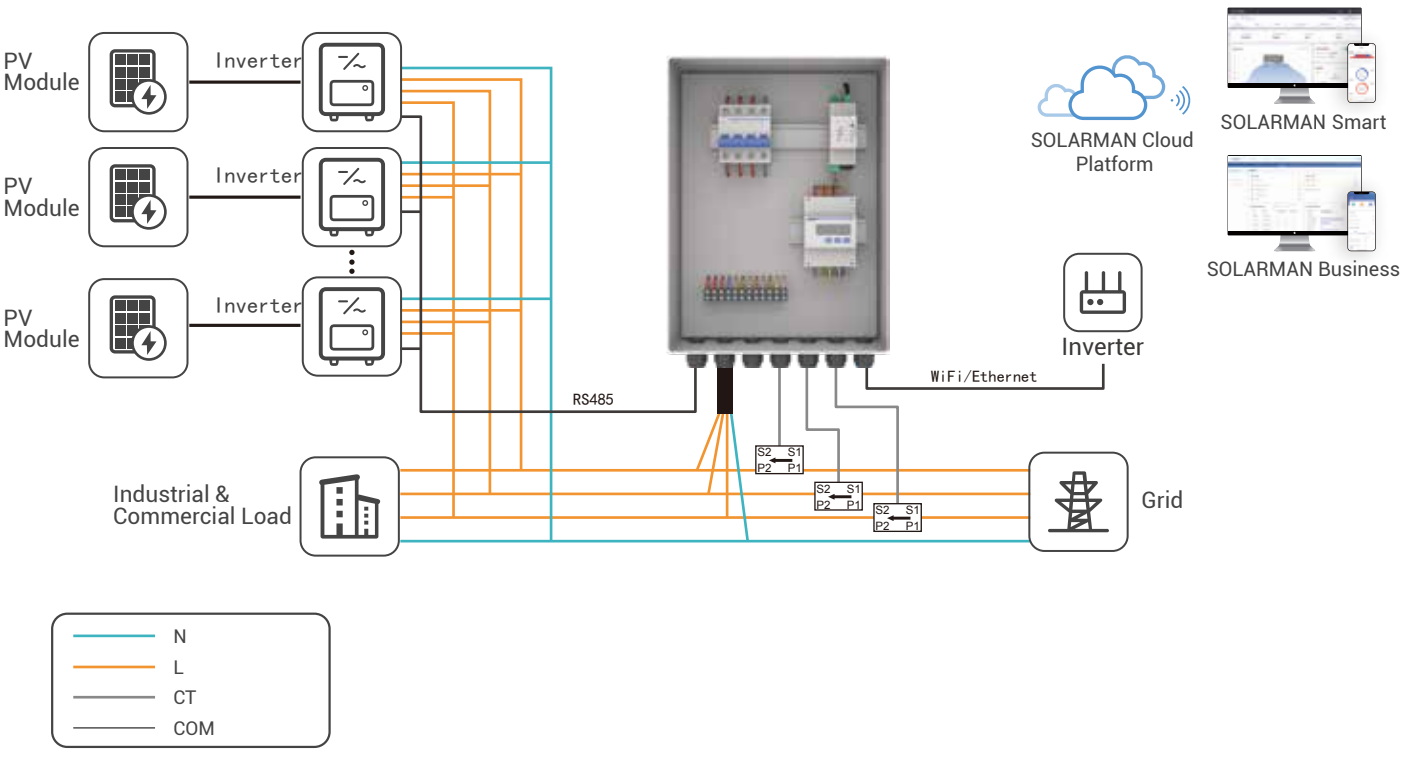
Supported data transmission mode: WiFi&Ethernet.Supported data transmission mode: WiFi&Ethernet.

- 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℃~+70℃
Working Humidity	5%-95% (No Condensation)
Installation Method	Wall-Hanging

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



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℃
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.

IGEN-Tech, as a world-leading IoTs solution provider, has developed an exclusive, stable and high-quality platform and a tailored general-purpose data logger for the distributor, which enables the monitoring of production/consumption/grid/energy storage data on the same 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.

▸ Beijing PV Energy Storage Based EV Charging Station

Beijing PV Energy Storage Based EV Charging Station

This integrated charging station includes a PV system with a capacity of 1MW, an energy storage system with a capacity of 25MWh and 85 high-power DC quick charging piles with the single power of 150KW.

With the advantages of PV and energy storage system, the project reduces the burden of local distribution network effectively. Moreover, this project commercializes solar power through charging piles, realizing a coordinated operation of building energy efficiency management, energy-saving management and source-network-load-storage model.

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