SOLARMAN
Monitored Analyzed Networked

IGEN

IGEN Tech Co., Ltd.

# 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 14 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.
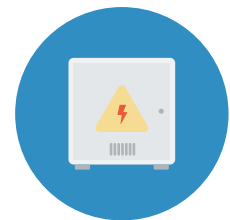
Products and Services

Different types of external data loggers

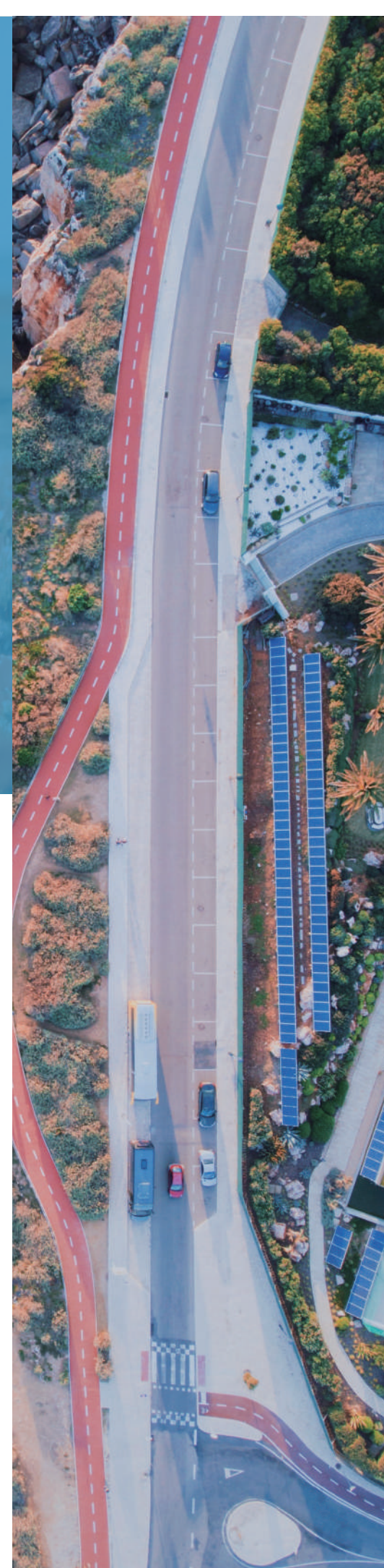Embedded monitoring module for inverters

Smart meters and sockets

Weather stations

Web-based monitoring portal

Monitoring app and dashboard

Customerized software platform

TABLE OF CONTENTS

SOLARMAN Smart Energy Management System around the world

North America

Germany
R&D Innovation Center

China Office

Jinan Office, China

Wuxi Office, China
R&D, Sales&Production Center

Shanghai Office, China
Big Data Lab&Operation Support Center

Shenzhen Office, China

South America

Australia Office

193 Countries

125+ GW Energy Assets

2,050,000+ Solar Plants

1,500,000+ End Users

10,000,000+ Devices

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 Optimizer

Stick Logger

Data Logger Socket

Smart Meter

Stick Logger
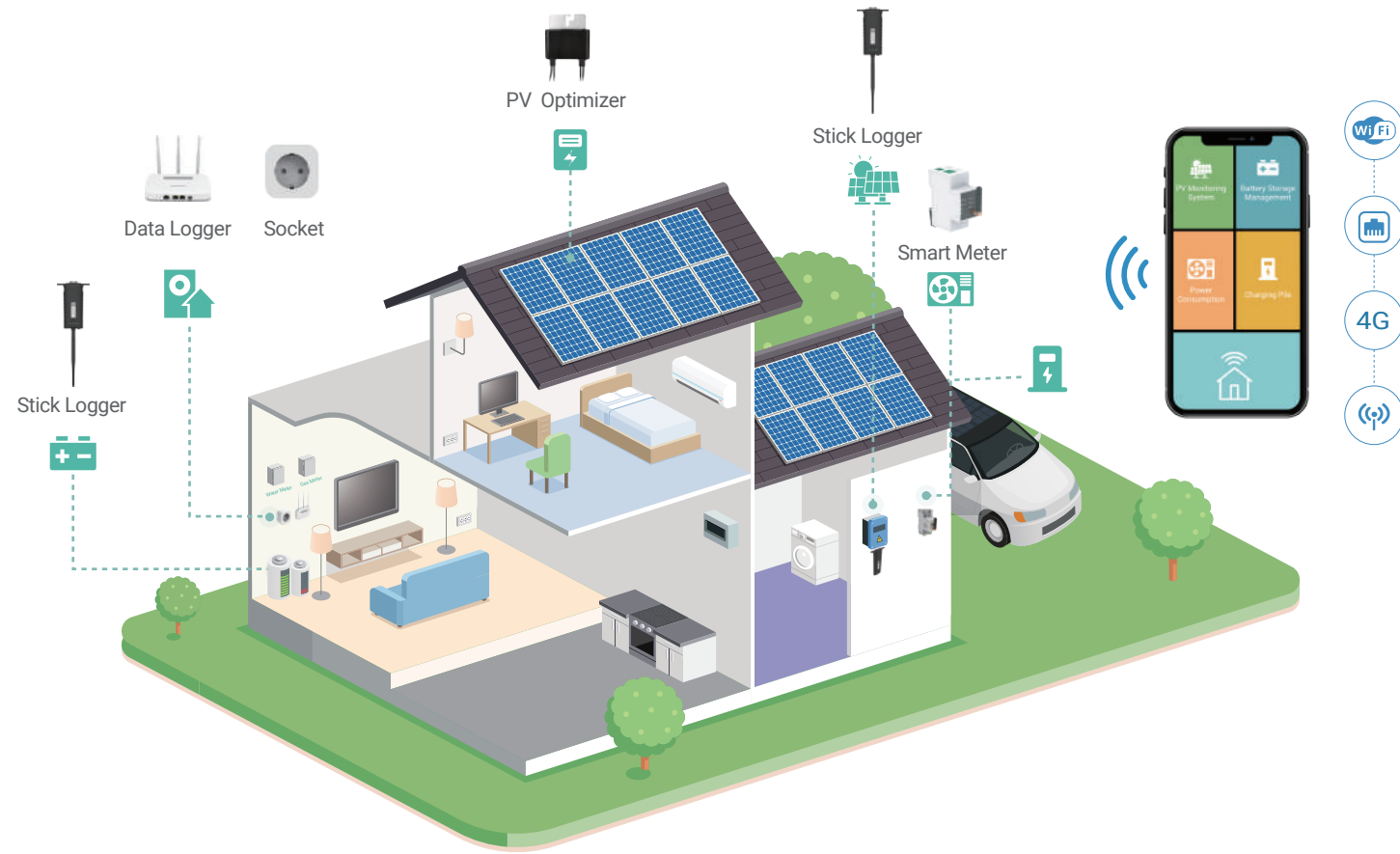
- PV Monitoring System
- Battery Storage Management
- Power Consumption Monitoring System
- PV Optimizer
- Smart Energy Management
- Charging Pile Monitoring System

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.

Anti-Reflux Box

Pro Logger

Weather Station

EMB-2
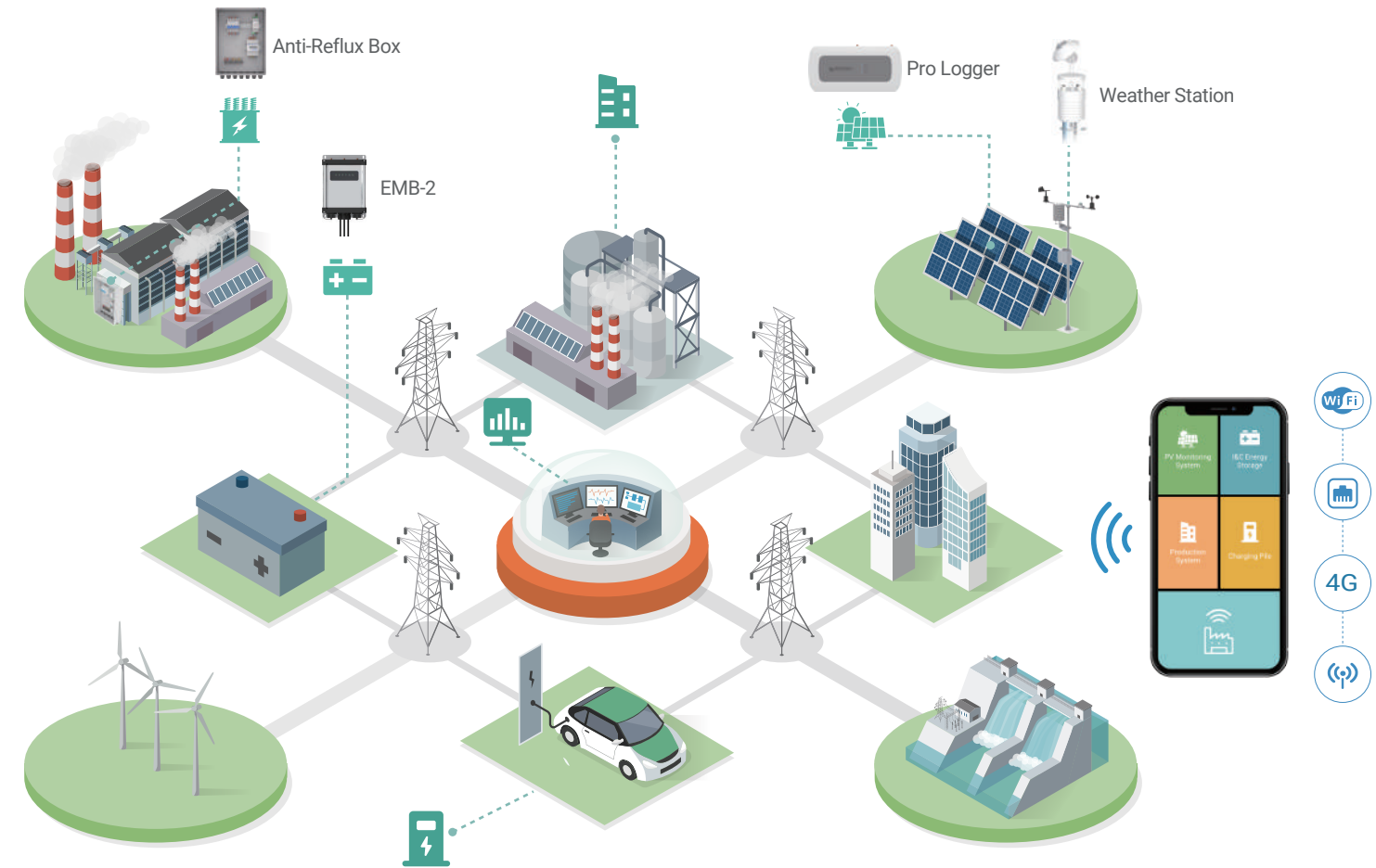
- PV Monitoring System
- I&C Energy Storage Management
- Feed-In Management
- UPS Monitoring System
- Power Consumption Monitoring System
- Charging Pile Monitoring System

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.
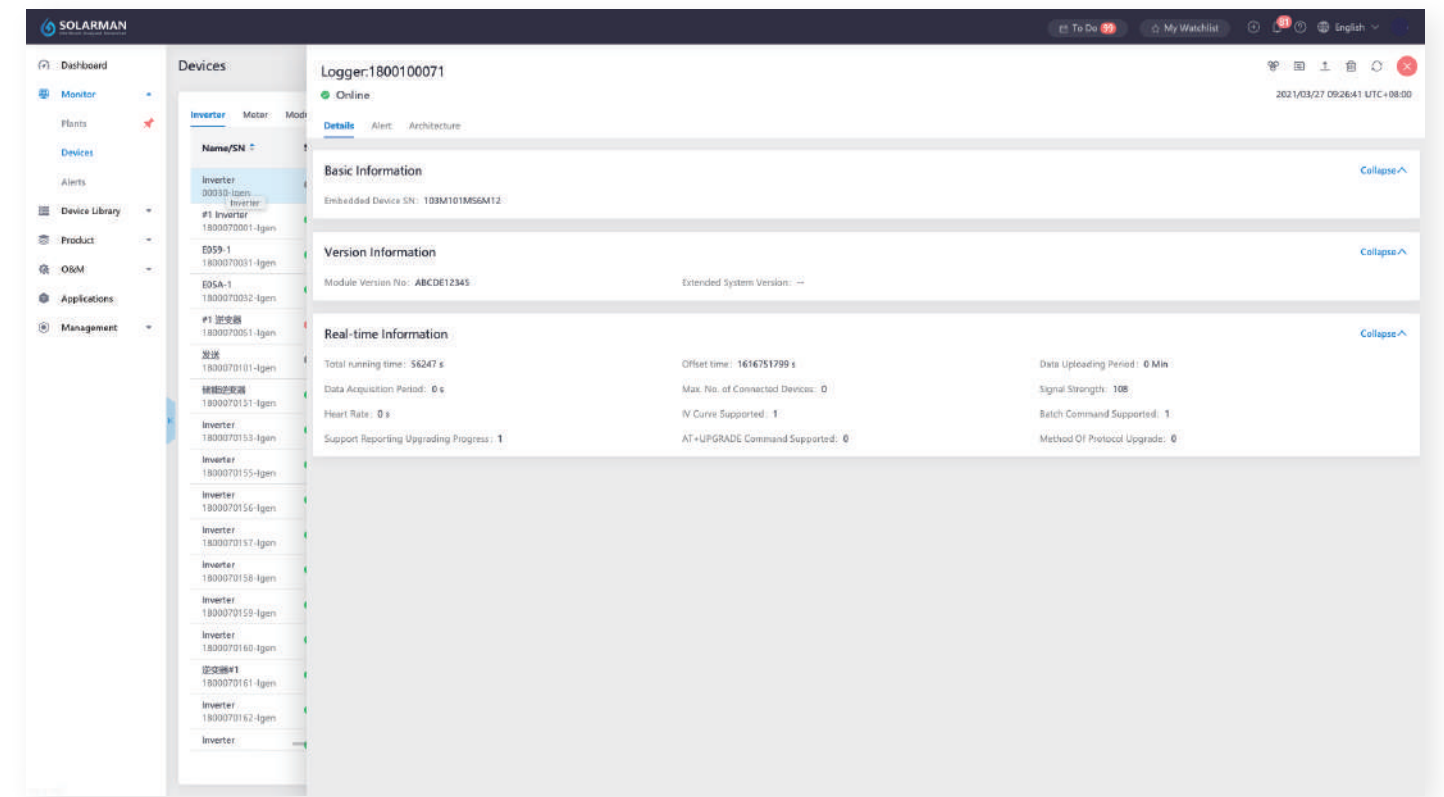
Key features of SOLARMAN Business – Device Sector:

- 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 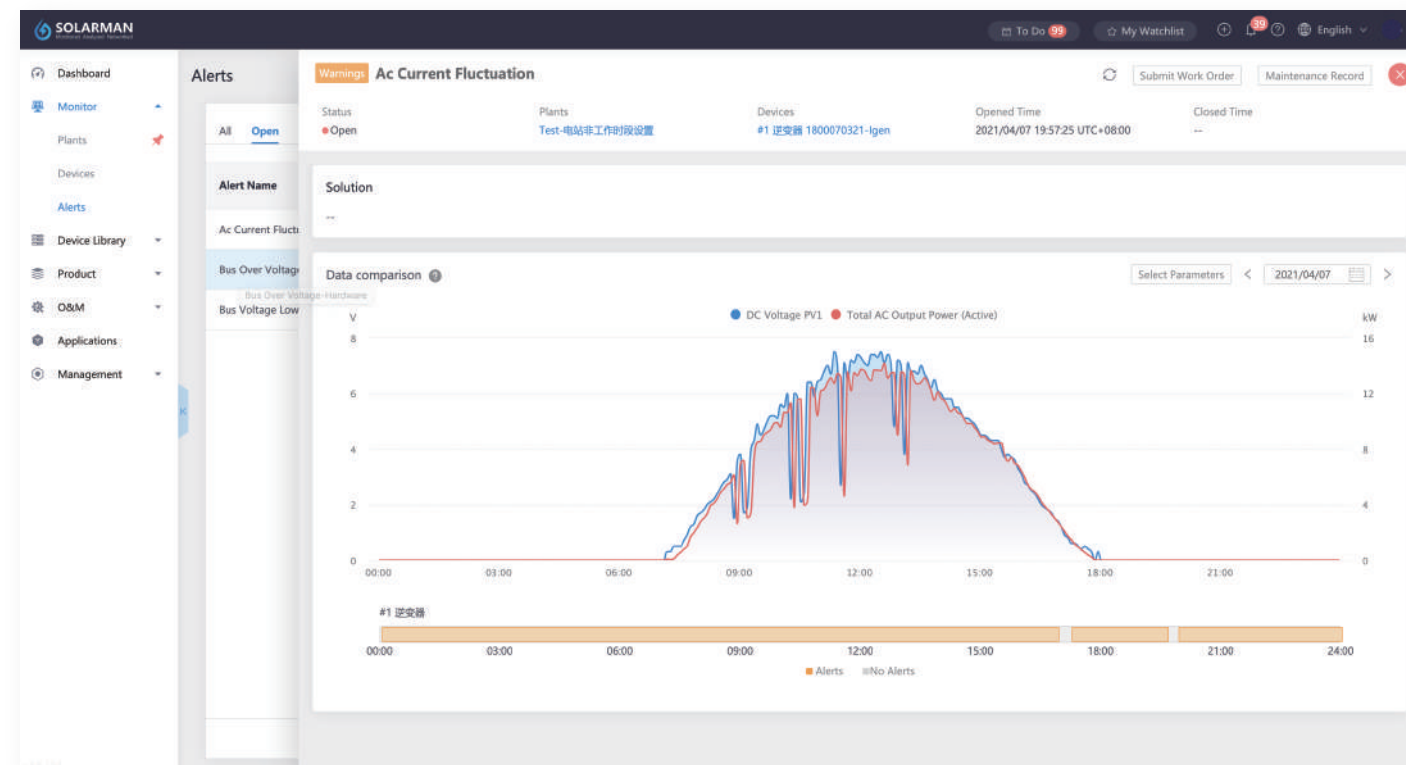between plant's actual generation and weather-based simulation. The expanded performance analysis gives extra meaningful messages for plant management.

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.
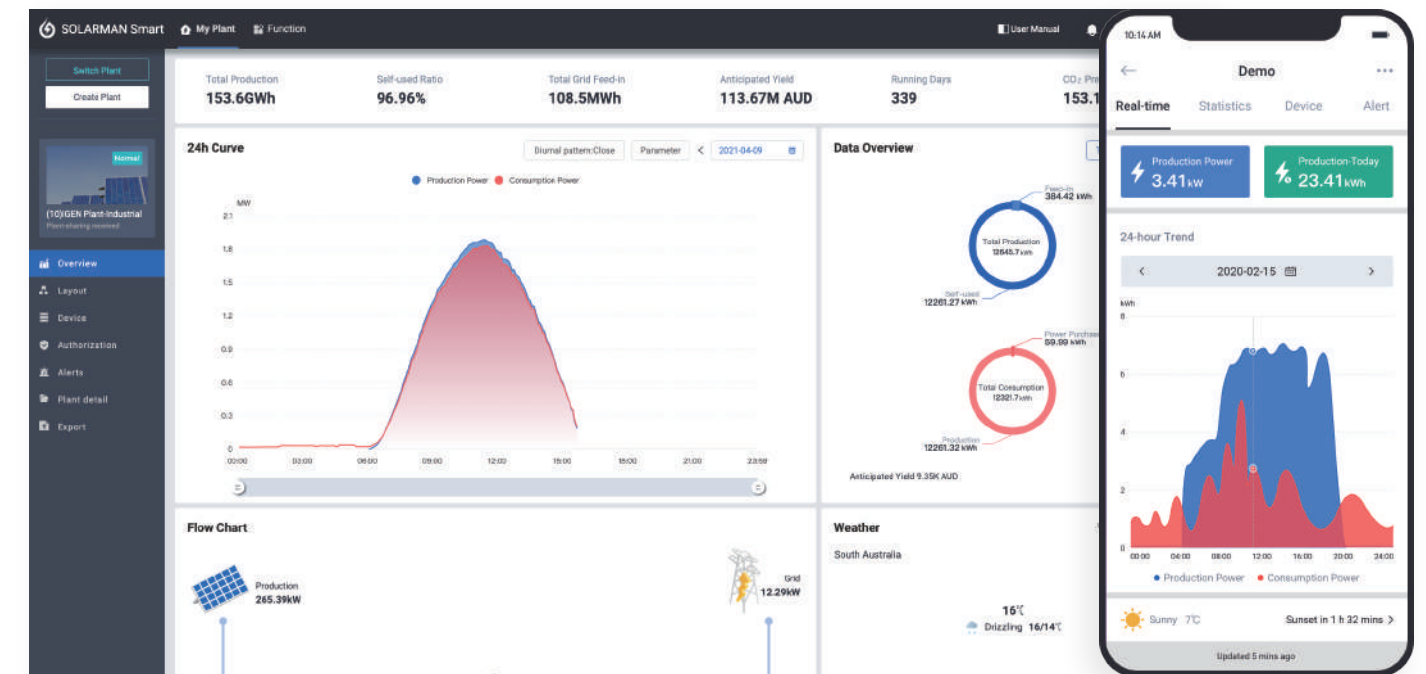
Key features of SOLARMAN Smart:

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

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	LSW-5	LSW-3	LSG-3	LSE-3
Remote Communication Interface	4G	2.4G WiFi	2.4G WiFi	GPRS	LAN
GNSS	<20m	–	–	–	–
Antenna	Internal Antenna	Internal Antenna	External Antenna	External Antenna	–
Data Interface	RS485/RS232/TTL/USB				
Working Voltage	DC 5-12V				
Working Power	3.5W	1.5W	1.5W	3W	1W
SIM Card	Chip Card/MicroSIM	–	–	Chip Card/MicroSIM	–
Memory	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	BT/APP/Web/Remote	Remote/Web	Remote	Remote/Web
Firmware Upgrade	Remote	Remote/Web	Remote/Web	Remote	Remote/Web
Real-time Control	√				
Data Rresuming	√				
Power-off Reminder	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;

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 understand risks and problems about their plants in time;

Review data via APP/Web at anytime and anywhere;

Integrated with DIN-Rail power supply device, LD4G-3 has a more simple and practical appearance.

Product Model	LD4G-2	LDW-1	LD4G-3
Product Picture			
Remote Communication	4G	WiFi/Ethernet	4G(Cat.1)
No. of Connections	1-16	1-10	1-20
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℃～+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	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℃～+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 PV plant, power system, communication station, intelligent building and etc,. It features in high reliability, high accuracy, compact size and easy to install, etc.

Single-Phase Meters

- Compact size, 2P width;

- Protection functions in case of overvoltage, undervoltage, overcurrent, overload;

- Embedded communication module, support GPRS, WiFi, 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, WiFi, 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 Picture				
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	WiFi/GPRS	NA	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℃-+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	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

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 Model	EMH-2	EMB-2
Product Picture		
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℃~+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;

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

SOLARMAN platform provides visualized meteorological data;

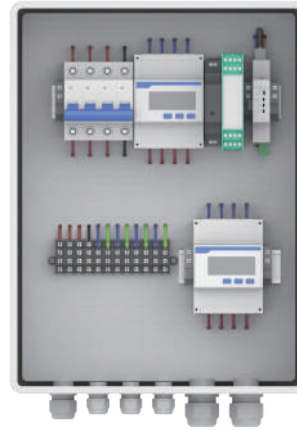Real-time alerts with timely notification, ensuring fast troubleshoot;

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℃～+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℃～+80℃ 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

Smart Power Controller

SOLARMAN Smart Power Controller manages real-time situation of grid-tied PV plant by analyzing data from three-phase meter, logger, circuit breaker, DIN-Rail power supply device and RS485 repeater, and adjusting inverter outputs accordingly to make sure no power injection to the local Grid.
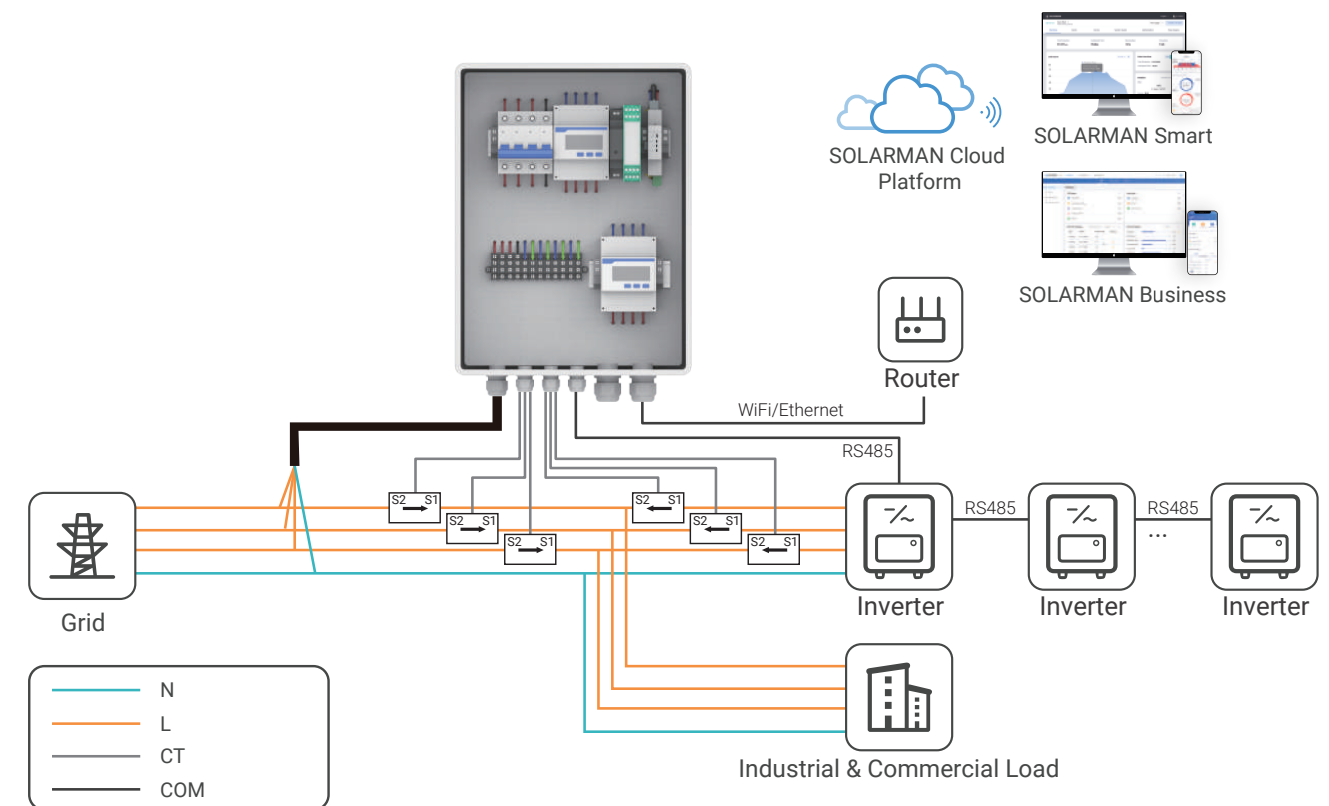Supported data transmission mode: WiFi&Ethernet.

- Real-time monitoring of power production&consumption situation in case of power injection;
- 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.

Production
35.1 kW

Grid
0.00 kW

Consumption
35.1 kW
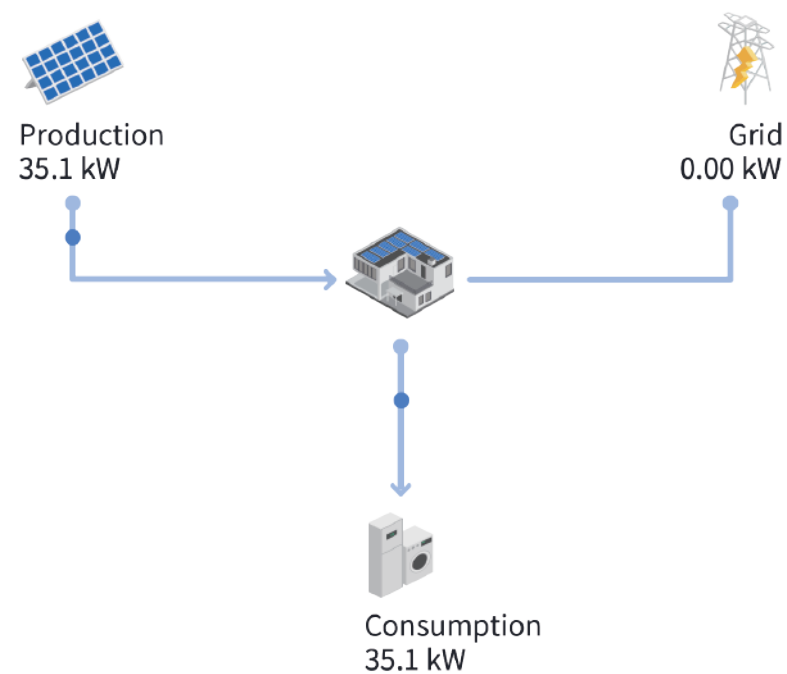
Product Model	SAR-100-10	SAR-100-5
Remote Communication	2.4G WiFi+Ethernet	
Local Communication	RS 485	
No. of Connections	10	5
Power Regulation Period	2s	
Accessing Method	Three-Phase Four-Wire	
Working Voltage	3x230/400V 50/60Hz	
Working Current	3x1.5(6)A	
Size	400*300*170mm	
IP Grade	IP65	
Working Temperature	-30℃~+70℃	
Working Humidity	5%-95% (No Condensation)	
Installation Method	Wall-Hanging	

Power Control Solution (Three-Phase Four-Wire)

SOLARMAN Cloud Platform

SOLARMAN Smart

SOLARMAN Business

Router

WiFi/Ethernet

RS485

Grid

Inverter

RS485

Inverter

RS485

Inverter

Industrial & Commercial Load

N
L
CT
COM

Component-level Optimizer

In case of shadow occlusion, component current mismatch, component attenuation, surface area gray, double-sided power generation, etc., the output current and voltage of the component can be controlled by using the component-level photovolt optimizer, thereby reducing the power generation loss caused by current mismatch. Pair with SOLARMAN gateway, data can be transmitted through WIFI/4G, and the power generation status of the components can be monitored on the SOLARMAN platform, including android and ios mobile devices.
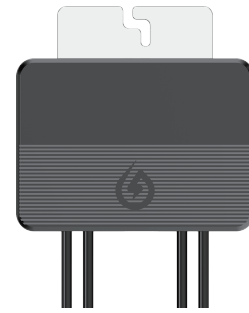
Applicable Scenarios

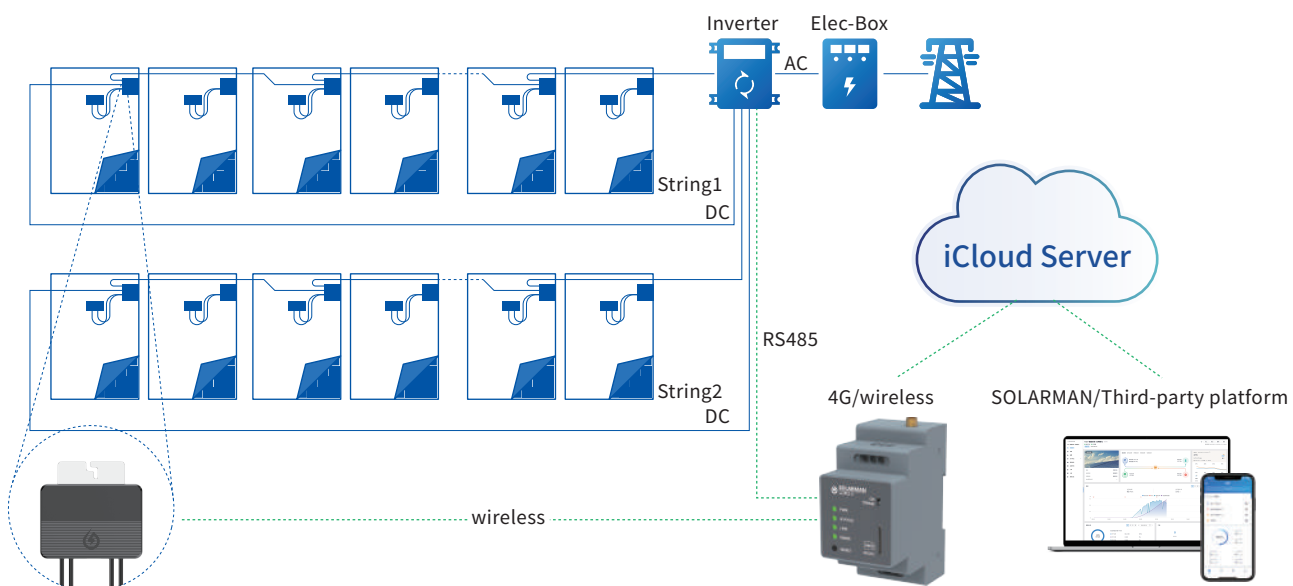Shading   Soiling   Snow Remnant   Degradation   Orientation   Bifacial Application

Product Advantages

- Recover 3~25% of power generation loss
- Eliminates component hot spots
- Support local and remote on/off control
- Support comprehensive data for components & system
- Increase the installation area by 5~15%
- Support long-string function
- Support wireless self-organizing network

Inverter   Elec-Box

AC

String1 DC

String2 DC

RS485

iCloud Server

4G/wireless   SOLARMAN/Third-party platform

wireless

Classify	Parameter	Numeric value
Input	Rated input power	600 W
	Maximum input voltage	70 V
	MPPT voltage range	8~65 V
	Maximum input current	15 A
	Peak conversion efficiency	99.5%
Output	Maximum output current	15 A
	Maximum output voltage	42 V	Adjustable
	Weighted efficiency	99.0%
Shape	Size (mm).	145*105*20
	Weight (with cable)	<550 g
	Connect the terminals	MC4 compatible
	Cable length	IN 0.4m/OUT 1.2m/customized
	Wire gauge	4mm²/10-12AWG
Usage environment	Operating temperature	-40℃~+85℃
	Humidity range	0~100%
	Degree of protection	IP 68
	System voltage	1500 V
	altitude	2000m (higher to drop load).
Communication	Maximum distance	50m
	Number of connections	100 (more to expand).
	Communication method	wireless self-organizing
Authentication	TUV	IEC61215 etc
	CE	EMC EN 61000-6-1/2
Life span	Design for service life	25 years

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.

Product Model	MPS 600	MPS 1200
No. of Connections	1pcs	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 ℃	
IP Grade	IP65	

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 ℃
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℃
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.
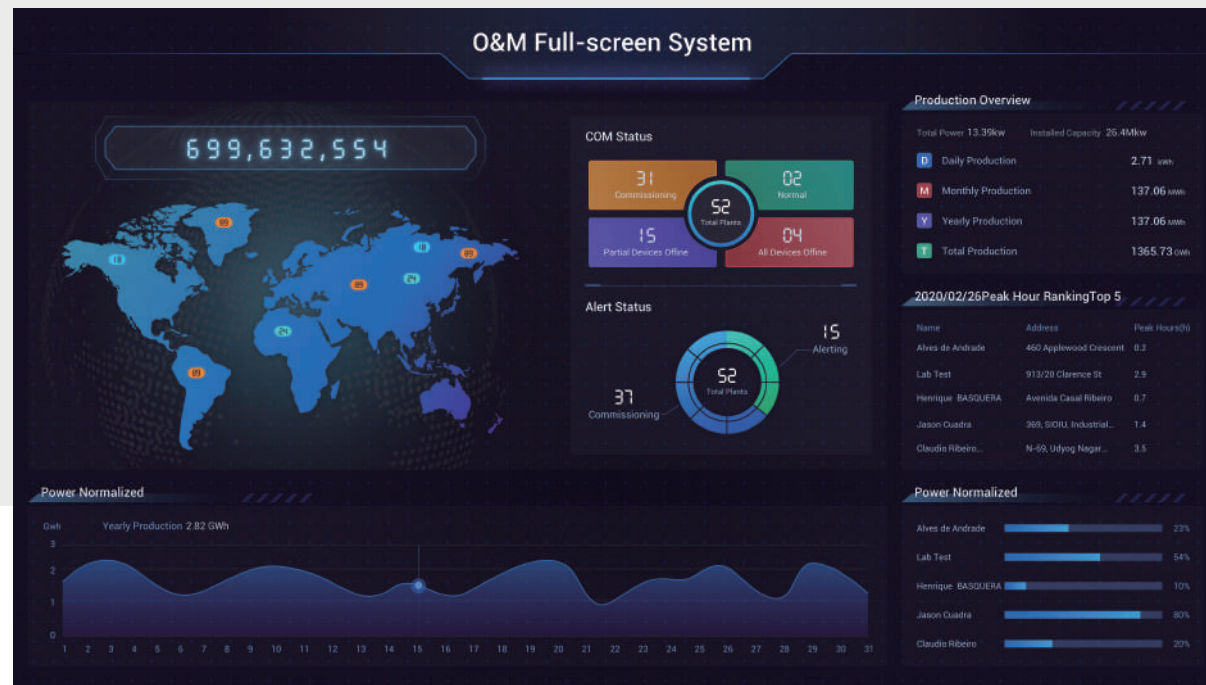
▶ Exclusive Hardware and Software Custom-Project

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.