Global Headquarters

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Optimizer&Energy Storage Production Base

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Sungo Energy DE

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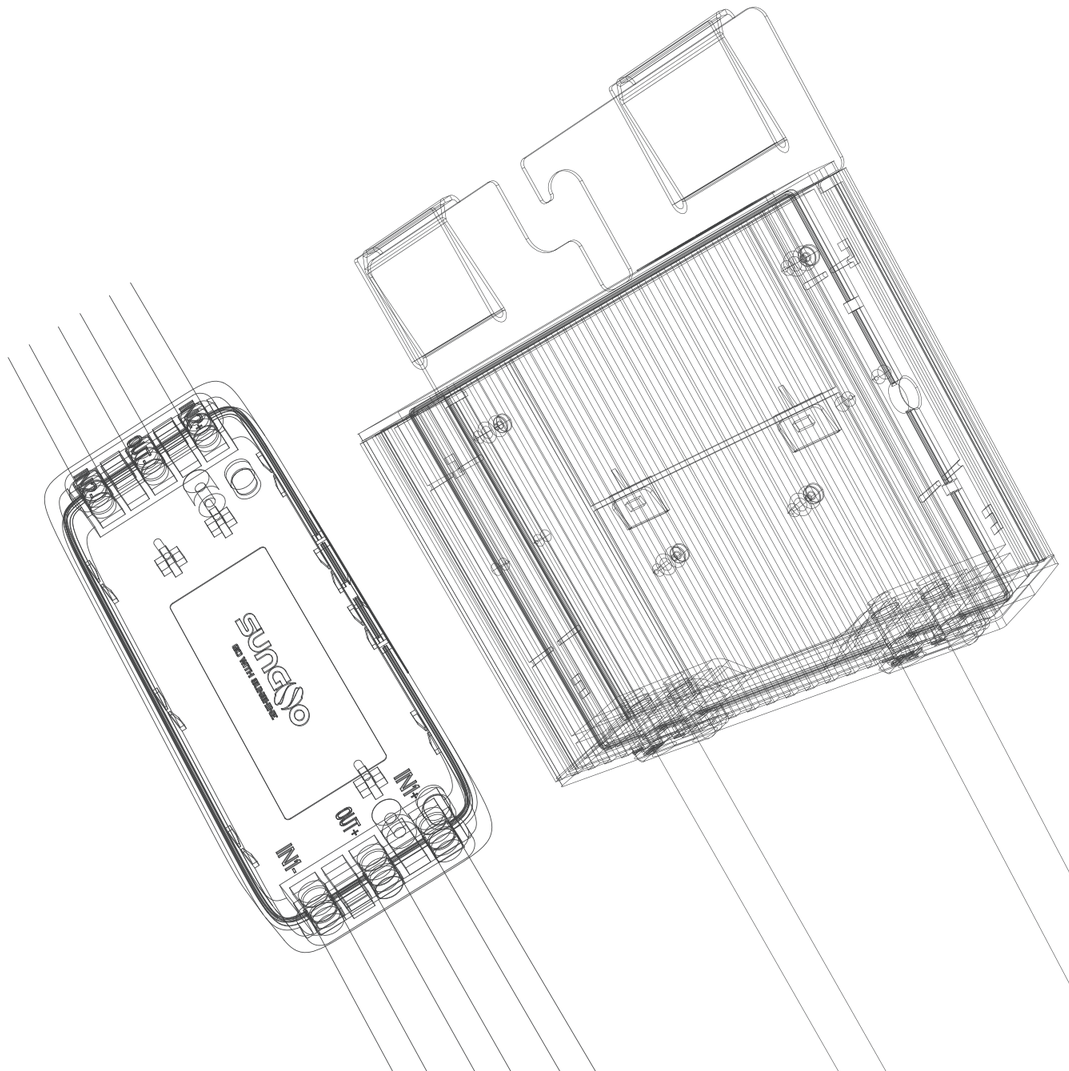
Linkedin Facebook TikTok YouTube

SUNGO-OP&RSD-V1-2024 EN

SUNGO
Always Optimized

MLPE Product Brochure

GO WITH SUNSHINE, ALWAYS OPTIMIZED



SUNGO Energy

SUNGO Energy Technology specializes in the research and development of solar and energy storage solutions, delivering high-performance, cutting-edge solar-storage products and comprehensive energy solutions for global clients. Our extensive product range includes smart optimizers, rapid shutdown devices, and lithium-ion battery energy storage systems, covering the entire value chain to meet diverse user needs. In the future, we will continue to increase investment in R&D, continuously improve our competitive advantages, and provide global clients with products which are more integrated, easier to install and maintain.

Your Green Energy, Always Optimized

1.5 million
Annual production capacity of smart optimizers

2GW
Optimizer installed capacity

15 years
Industry experience

More than 15%
Average gain per customer

30%
Percentage of R&D staff

30+
Exported countries

MLPE Application Scenarios


Blocking Shadow


Differentiation Orientation


PV Module Differentiation Attenuation


Power station renovation

MLPE Product Solutions

SUNGO Energy is dedicated to developing and promoting PV smart optimizers and rapid shutdown devices, ensuring safer and more efficient clean energy production. Our independently developed products integrate optimization, rapid shutdown, and module-level monitoring, enabling PV systems to enhance energy generation, support multiple installations, and ensure precise management.


SUNGO OPT PRO
Smart Optimizer


SUNGO iOPT & SUNGO GT
Smart Optimizer


SUNGO iOPT & SUNGO GTC
Smart Optimizer


SUNGO RSD-2 & SUNGO SD
Rapid Shutdown Device


SUNGO RSDi-2 & SUNGO GTC
Rapid Shutdown Device

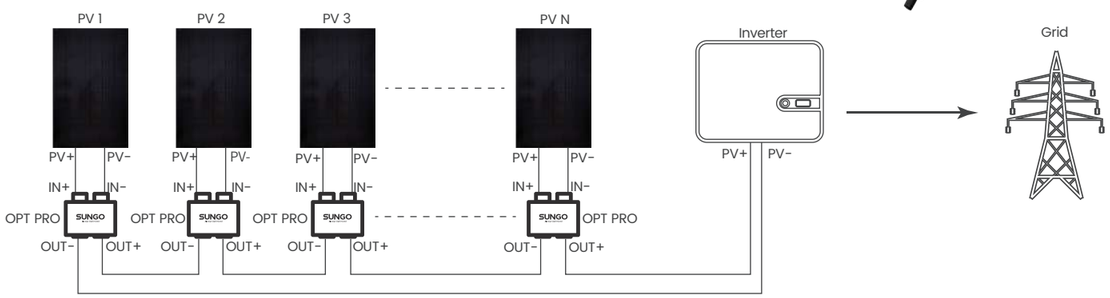

iSungo
Smart Energy Management Platform

Residential and C & I Scenario Solutions
SUNGO OPT PRO

Optimize Power Generation
Fearless of Shading

Features

- Module-level MPPT eliminates shading concerns, increasing power generation by up to **30%**
- Easy installation and broad compatibility, ideal for both power plant upgrades and new installations
- Compatible with all PV modules on the market and over 99% of inverters
- 25-year product replacement warranty



Technical Parameters

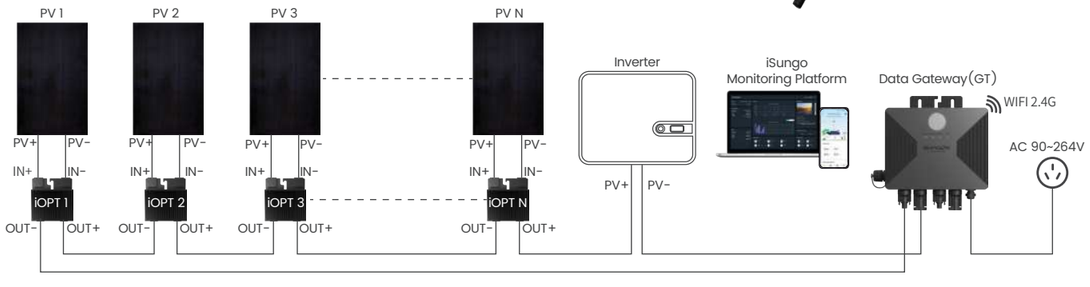
Model	SUNGO OPT PRO
DC Input	
Maximum input power	800W
Maximum operating voltage	70V
MPPT voltage range	7~60V
Maximumcontinuous input current	21A
Maximum input short-circuit current	23A
Night self-consumption	0W
DC Output	
Rated output voltage	58V
Maximum continuous output current	21A
Maximum output power	780W
Maximum system voltage	1500V
Efficiency	
Peak efficiency	99.7%
Power loss @5A	0.9W
Power loss @8A	1.4W
Power loss @12A	2.9W
Power loss @15A	4.5W
Power loss @20A	7.2W
General Data	
Dimensions (W*D*H)	103*21.3*105.3mm
Weight	0.65Kg
Input/output cable length	IN+ 200 / IN- 1100 / OUT+ 750 / OUT- 750mm
Input/output cable size	$4mm^2$(12AWG) / $4mm^2$(12AWG)
Terminals	MC4(compatible)
Protection rating	IP67/NEMA6
Relative humidity	0-100%RH
Operating temperature range	-40~+60°C
Cooling	Natural cooling
Overvoltage category	OVC II
Maximum altitude	≤4000m
Certification	CE
EMC	EN IEC 61000-6-1:2019EN IEC 61000-6-2:2019EN IEC 61000-6-3:2021ENIEC 61000-6-4:2019
Packaging	20pcs/CTN 900pcs/pallets

Residential Scenario Solutions
SUNGO iOPT & SUNGO GT

Optimize Power Generation
Intelligent Management

Features

- Module-level MPPT, no more worries of shading, power generation increased up to **30%**
- Module-level rapid shutdown, ensuring fire and maintenance safety
- Module-level data intelligent monitoring and accurate management
- Fully utilize roof space to achieve system maximization
- Convenient installation, wide range of adaptability, suitable for operating power plant renovation and new power plant installation
- 25-year product replacement warranty



Optimizer Technical Parameters

Model	SUNGO iOPT 800W
DC Input	
Maximum input power	800W
Maximum voltage	70V
MPPT voltage range	12~60V
Maximum continuous input current	21A
Maximum input short-circuits current	23A
Night self-consumption	0W
DC Output	
Output voltage	0~60V
Maximum continuous output current	21A
Maximum output power	780W
Maximum system voltage	1500V
DC Output During Shutdown	
Output voltage (without SUNGO GT)	1±0.1V
Efficiency	
Peak MPPT efficiency	≥99.7%
Communication	
Communication Method	PLC
Communication parameter	PV Voltage, Output Voltage, Output Current, Output Power, Temperature, State
Advanced Protection	
Input overvoltage protection	>75V
Output overcurrent protection	>22A
Output overload protection	>800W
High temperature protection	>110℃
General Data	
Dimensions (W*D*H)	116*31.5*123mm
Weight	0.865kg
Input/output cable length	IN+ 200 / IN- 1100 / OUT+ 750 / OUT- 750mm
Input/output cable size	4mm²(12AWG) / 4mm² (12AWG)
Terminals	MC4(Compatible)
Protection rating	IP68
Relative humidity	0~100%RH
Operating temperature range	-40~+65℃
Cooling	Natural cooling
Certification	CE
Packaging	28pcs/CTN 840pcs/pallets

Data Gateway Technical Parameters

Model	SUNGO GT
Match with	SUNGO iOPT 800W
AC Input Parameters	
AC input voltage range	90~264V
AC Input frequency	50/60Hz
Maximum AC input power	5W
Maximum AC input current	0.1A@90Vac
PV Input Parameters	
Terminals	MC4(Compatible)
Maximum system voltage	1500V
Nos of input strings	2
Maximum number of iOPT	60
Maximum current of each string	21A
Maximum module Nos per string	30
Communication Method	
Communication with optimizer	PLC
Communication with upper machine	2.4GHz Wi-Fi / RS485
Rapid Shutdown	
Initial state	Operate
Switch-on	Press the button once until the Running light is on
Switch-on time	<5s
Shut-down	1. Press the button once until the RSD indicator lights up 2. Controller AC power off, all indicator lights off
Shut-down time	<15s
Standards	
Electromagnetic compatibility (EMC)	IEC61000-6-1, IEC61000-6-2, IEC61000-6-3
Production Compliance	IEC62109-1
RoHs	Yes
Installation Specification	
Dimension (W*D*H)	140*33.5*175mm
Weight	0.88kg
AC input cable length	1m
Protection level	IP67
Working temperature range	-40~+70℃
Cooling	Natural cooling
Form of installation	Wall hanging/holding, screw locking
Certification	CE
Packaging	5pcs/CTN 40pcs/pallets

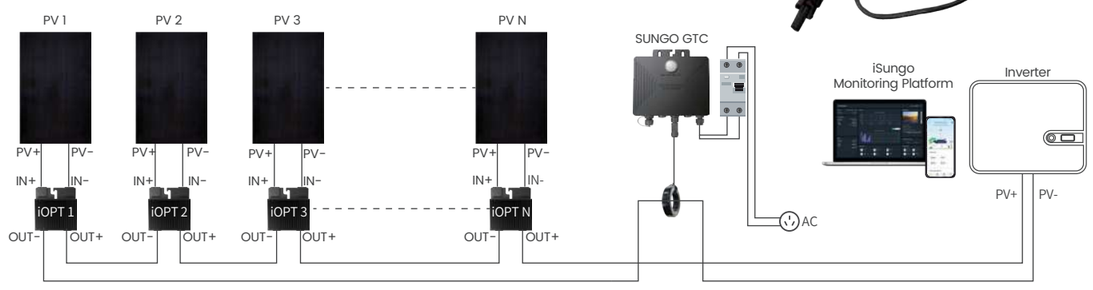
C & I Scenario Solutions
SUNGO iOPT & SUNGO GTC

Optimize Power Generation
Intelligent Management

Features

- Module-level MPPT, no more worries of shading, power generation increased up to **30%**
- Module-level rapid shutdown, ensuring fire and maintenance safety
- Module-level data intelligent monitoring and accurate management
- Fully utilize roof space to achieve system maximization
- Convenient installation, wide range of adaptability, suitable for operating power plant renovation and new power plant installation
- 25-year product replacement warranty

Data Gateway
(GTC)



Optimizer Technical Parameters

Model	SUNGO iOPT 800W
DC Input	
Maximum input power	800W
Maximum voltage	70V
MPPT voltage range	12~60V
Maximum continuous input current	21A
Maximum input short-circuits current	23A
Night self-consumption	0W
DC Output	
Output voltage	0~60V
Maximum continuous output current	21A
Maximum output power	780W
Maximum system voltage	1500V
DC Output During Shutdown	
Output voltage (without SUNGO GT)	1±0.1V
Efficiency	
Peak MPPT efficiency	≥99.7%
Communication	
Communication method	PLC
Communication parameter	PV Voltage, Output Voltage, Output Current, Output Power, Temperature, State
Advanced Protection	
Input overvoltage protection	>75V
Output overcurrent protection	>22A
Output overload protection	>800W
High temperature protection	>110℃
General Data	
Dimensions (W*D*H)	116*31.5*123mm
Weight	0.865kg
Input/output cable length	IN+ 200 / IN- 1100 / OUT+ 750 / OUT- 750mm
Input/output cable size	4mm²(12AWG) / 4mm² (12AWG)
Terminals	MC4(Compatible)
Protection rating	IP68
Relative humidity	0~100%RH
Operating temperature range	-40~+65℃
Cooling	Natural cooling
Certification	CE
Packaging	28pcs/CTN 840pcs/pallet

Data Gateway Technical Parameters

Model	SUNGO GTC
Match with	SUNGO iOPT 800W/SUNGO RSDi-2
AC Input Parameters	
AC input voltage range	90~264V
AC Input frequency	50/60Hz
Maximum AC input power	5W
Maximum AC input current	0.1A@90Vac
PV Input Parameters	
Terminals	MC4(Compatible)
Maximum system voltage	1500V
Nos of input strings	10
Maximum number of iOPT	200
Maximum number of RSDi-2	100
Communication Method	
Communication with optimizer	PLC
Communication with upper machine	2.4GHz Wi-Fi / RS485
Rapid Shutdown	
Initial state	Operate
Switch-on	Press the button once until the Running indicator lights up
Switch-on time	<5s
Shutdown	1. Press the button once until the RSD indicator lights up 2. Controller AC power off, all indicator lights off
Shutdown time	<15s
Standards	
Electromagnetic compatibility (EMC)	IEC61000-6-1, IEC61000-6-2, IEC61000-6-3
Production Compliance	IEC62109-1
RoHs	Yes
Installation Specification	
Dimension (W*D*H)	140*33.5*175mm
Weight	0.88kg
AC input cable length	1m
Protection level	IP67
Working temperature range	-40~+70℃
Cooling	Natural cooling
Form of installation	Wall hanging/holding, screw locking
Certification	CE
Packaging	8pcs/CTN, 6ctn/layer, total 8 layers, 384pcs/pallet

2-in-1 RSD & Rapid Shutdown Transmitter
SUNGO RSD-2 & SUNGO SD

Features

- AC power failure, rapid shutdown of PV outputs
- Host and slave can synchronize signals
- Two channels of DC input
- 25-year product replacement warranty

SUNGO RSD-2 is a 2-in-1 rapid shutdown device, which maintains normal power-on operation by continuously receiving heartbeat frames sent from SUNGO SD, and when the SUNGO SD signal disappears, SUNGO RSD-2 performs a rapid shutdown operation. Users can turn off the power of SUNGO SD to realize the rapid shutdown of the system, complying with NEC 2017&2020 (690.12) specifications.

2-in-1 Rapid Shutdown Device Technical Parameters

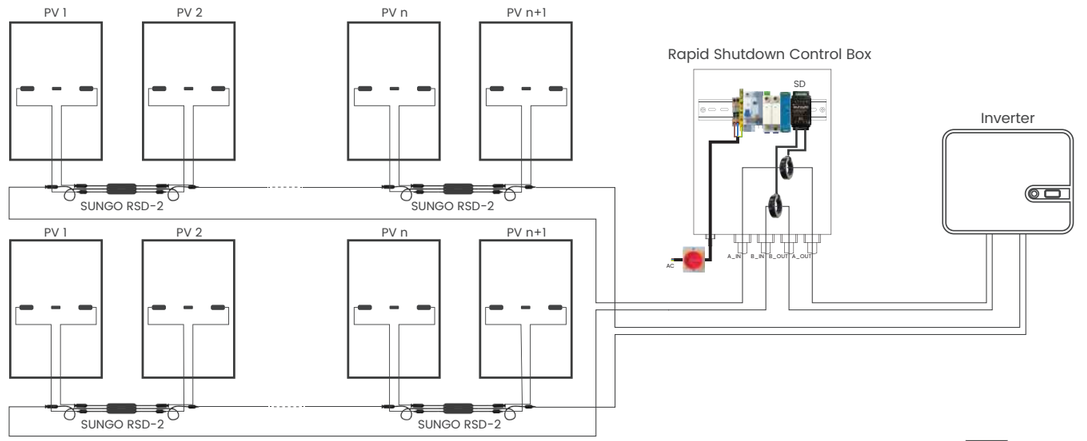
Model	SUNGO RSD-2
DC input	
Input voltage range	10-80V（Per channel）
Maximum Continuous input current	21A（Per channel）
Maximum Input short circuit current	23A（Per channel）
DC output	
Output voltage range	20-160V
Maximum Continuous output current	21A（Per channel）
Maximum System voltage	1000V/1500V
Rapid shutdown	
Shutdown time	<15s
Shutdown indication voltage*	1V
Communication method	PLC
Complies with safety regulations	
Production Compliance	IEC/EN62109-1
Specification	
Operating temperature range	-40~70°C
Dimensions (Without cables, connectors and mounting clips)	147*51*19.5mm
Cable length	Input 200mm/Output 2200mm(Can be customized according to customer requirements)
Cable specifications	TUV:4mm²/UL:12AWG
DC connectors	MC4
Shell protection grade	NEMA Type 6P / IP68
Packaging	20pcs/CTN 600pcs/pallet

*The no-load test is greater than 1V, and needs to be tested with a load of 10mA (load of 100Ω) to be 1V.

Rapid Shutdown Transmitter Technical Parameters

Model	SUNGO SD
Input voltage	12VDC
Input current	0.8A
Max. Mppt string voltage	1500VDC
Max. number of series connections	30 modules
Operating temperature	-40~70°C
Safety regulation	NEC 2017&2020 (690.12); UL1741; CSA C22.2 No. 330-17
Magnetic ring inner diameter ID	35.6mm
Number of strings inserted per ring*	5
Max. number of strings to be inserted*	10
String route length	≤300m
Packaging	10pcs/CTN 1800pcs/pallet

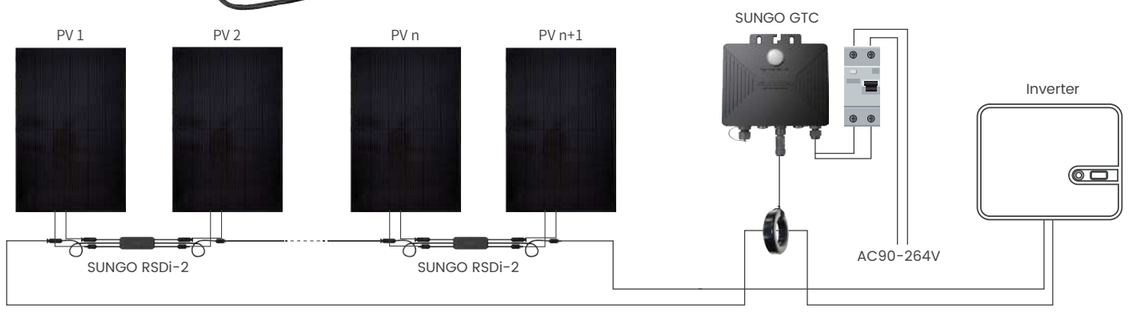
*Reduce the number of strings according to the length of wiring on site to ensure normal PLC communication.



2-in-1 RSD & Data Gateway
SUNGO RSDi-2 & SUNGO GTC

Features

- AC power failure, rapid shutdown of PV outputs
- Module-level data intelligent monitoring, one App to manage the PV power plant
- Two channels of DC input
- 25-year product replacement warranty



The SUNGO RSDi-2 is a rapid shutdown with data monitoring, matching the data gateway GTC, with a module-level rapid shutdown function that monitors the operating parameters of the PV modules and reports the operating status of the PV modules.

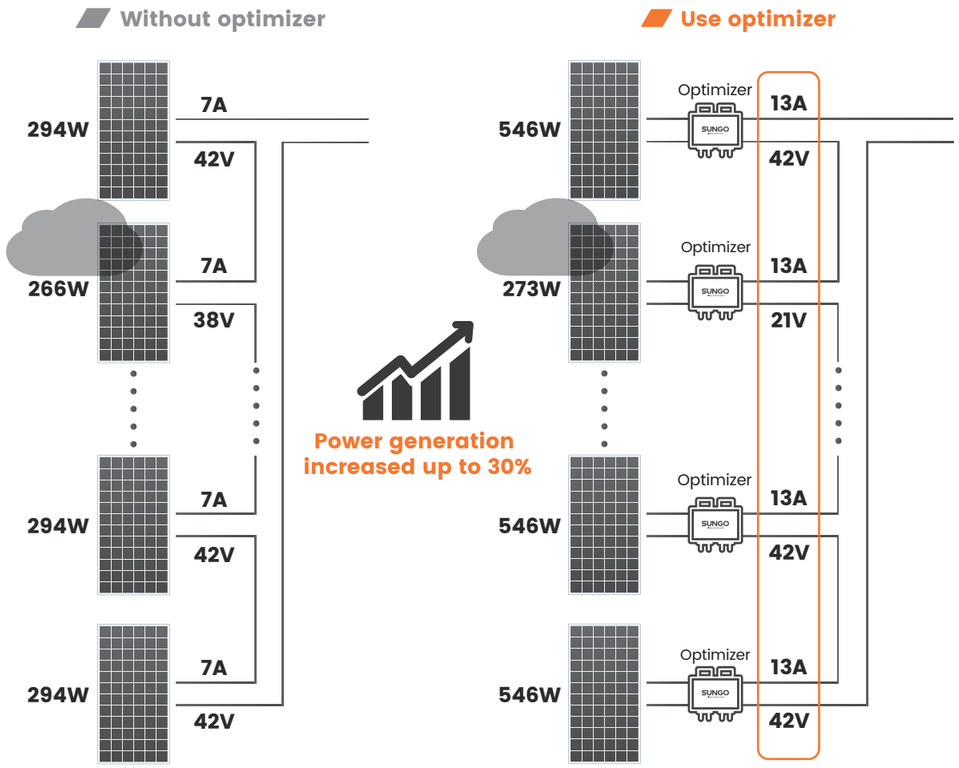
2-in-1 Rapid Shutdown Device Technical Parameters

Model	SUNGO RSDi-2
Dc Input	
Input voltage range	12-80V（Per channel）
Maximum continuous input current	21A（Per channel）
Maximum input short-circuit current	23A（Per channel）
Dc Output	
Output voltage range	20-160V
Maximum continuous output current	21A（Per channel）
Maximum system voltage	1000V/1500V
Rapid Shutdown	
Shutdown time	＜15s
Shutdown indicator voltage*	Only PV1 is connected, it is 1V; PV1 and PV2 are connected, it is 2V; only PV2 is connected, no voltage
Communication	
Communication method	PLC
Communications parameter	PV Voltage,Output Voltage,Output Current,Output Power,Temperature,State
Complies With Safety Regulations	
Production Compliance	IEC/EN62109-1
Specification	
Operating temperature range	-40~70°C
Dimensions(W*D*H)	147*19.5*51mm
Input/output cable length	Input 200mm/Output 2200mm(Can be customized according to customer requirements)
Cable specifications	TUV:4mm²/UL:12AWG
DC connectors	MC4
Enclosure protection class	NEMA Type 6P / IP68
Packaging	20pcs/CTN 600pcs/pallet

Data Gateway Technical Parameters

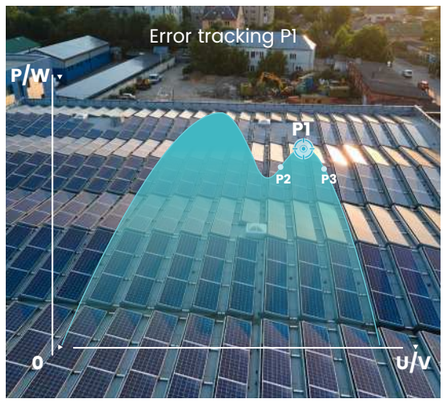
Model	SUNGO GTC
Match with	SUNGO iOPT 800W / SUNGO RSDi-2
AC Input Parameters	
AC input voltage range	90~264V
AC Input frequency	50/60Hz
Maximum AC input power	5W
Maximum AC input current	0.1A@90Vac
PV Input Parameters	
Terminals	MC4(Compatible)
Maximum system voltage	1500V
Nos of input strings	10
Maximum number of iOPT	200
Maximum number of RSDi-2	100
Communication Method	
Communication with optimizer	PLC
Communication with upper machine	2.4GHz Wi-Fi / RS485
Rapid Shutdown	
Initial state	Operate
Switch-on	Press the button once until the Running indicator lights up
Switch-on time	＜5s
Shutdown	1. Press the button once until the RSD indicator lights up 2. Controller AC power off, all indicator lights off
Shutdown time	＜15s
Standards	
Electromagnetic compatibility (EMC)	IEC61000-6-1 IEC61000-6-2 IEC61000-6-3
Production Compliance	IEC62109-1
RoHs	Yes
Installation Specification	
Dimension (W*D*H)	140*33.5*175mm
Weight	0.88kg
AC input cable length	1m
Protection level	IP67
Working temperature range	-40～+70°C
Cooling	Natural cooling
Form of installation	Wall hanging/holding, screw locking
Certification	CE
Packaging	8pcs/CTN, 6ctn/layer, total 8 layers, 384pcs/pallet

How the Optimizer Works

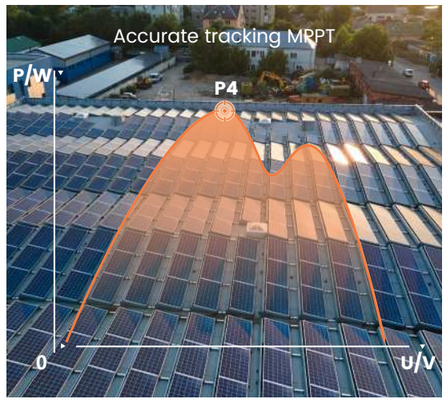


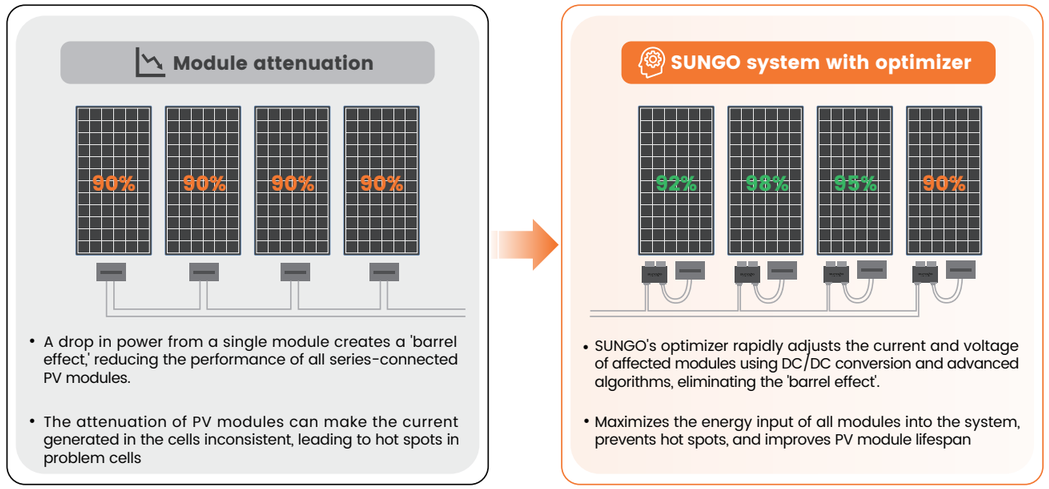
Accurate tracking of the maximum power point, increase the system power generation.

Traditional system



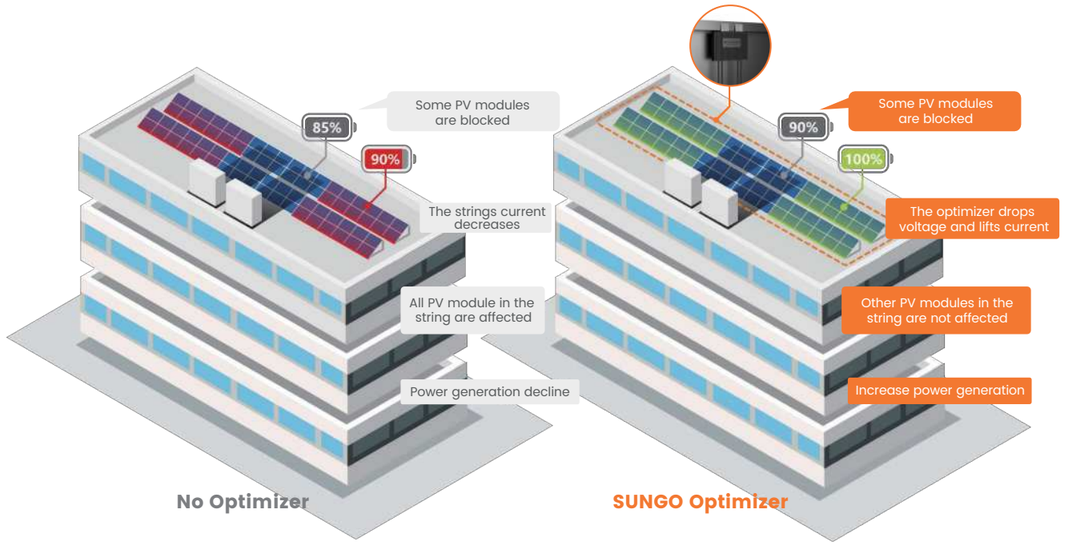
SUNGO Optimizer system





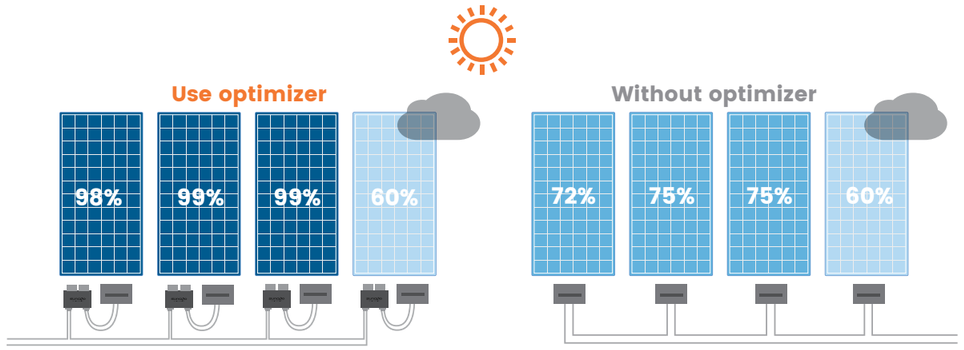
Module-level Optimization

Module-level optimization can increase power generation up to 30%.
Independent optimization at the module-level ensures that each module operates at its own optimum and tracks the maximum current of the string.



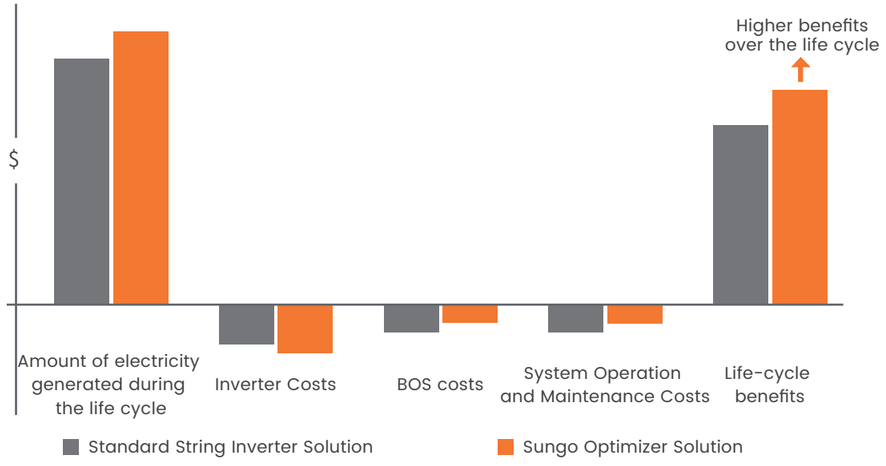
What Problem to Solve

Module-level MPPT tracking to prevent one PV module from affecting the entire string.



More Cost-effective Optimizer Solutions

Sungo's PV Smart Optimizer allows customers to optimize the cost of power generation over the life cycle of the system by increasing the amount of power generation and reducing the cost. It is able to optimize the power generation of each module, thus increasing the amount of power generation within the life cycle of the PV system. Compared to the traditional inverter system, the initial investment of the Sungo system is slightly higher, but the overall installation cost and the maintenance cost within the life cycle are lower, thus making Sungo's overall solution more attractive economically.



Avoiding Inconsistencies In Module Power Produced By PV Module Factory

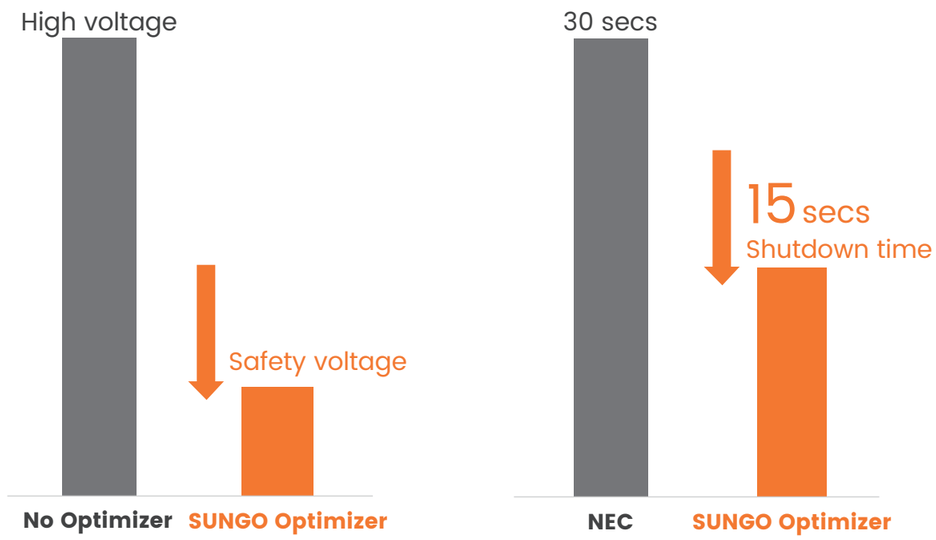
The module manufacturer's specification states that the module has a power tolerance of 0 to 3%, which can cause power generation losses to the system.
The optimizer can effectively solve this problem.

LR5-54HPH 405~425M

21.8%	0~3%	<2%	0.55%	HALF-CELL
MAX MODULE EFFICIENCY	POWER TOLERANCE	FIRST YEAR POWER DEGRADATION	YEAR 2-25 POWER DEGRADATION	Lower operating temperature

Protection of Modules and Roof Voltage Safety

The Sungo Optimizer's module-level rapid shutdown in 15 seconds ensures that the roof DC voltage is in a safe range, shorter than the NEC standard requirements.



Smart Energy Management Platform iSungo

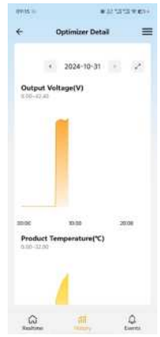
Intelligent Operation and Maintenance
Better Experience

App

Station interface for creating new stations and viewing station information

Core data is concise and clear at a glance

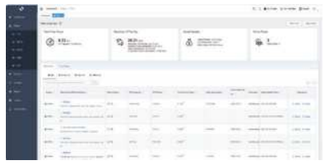
PV module layout for viewing PV module operating status



Optimizer detail for viewing PV module information status

Web

Multi-view display at a glance, easy to manage all your power stations



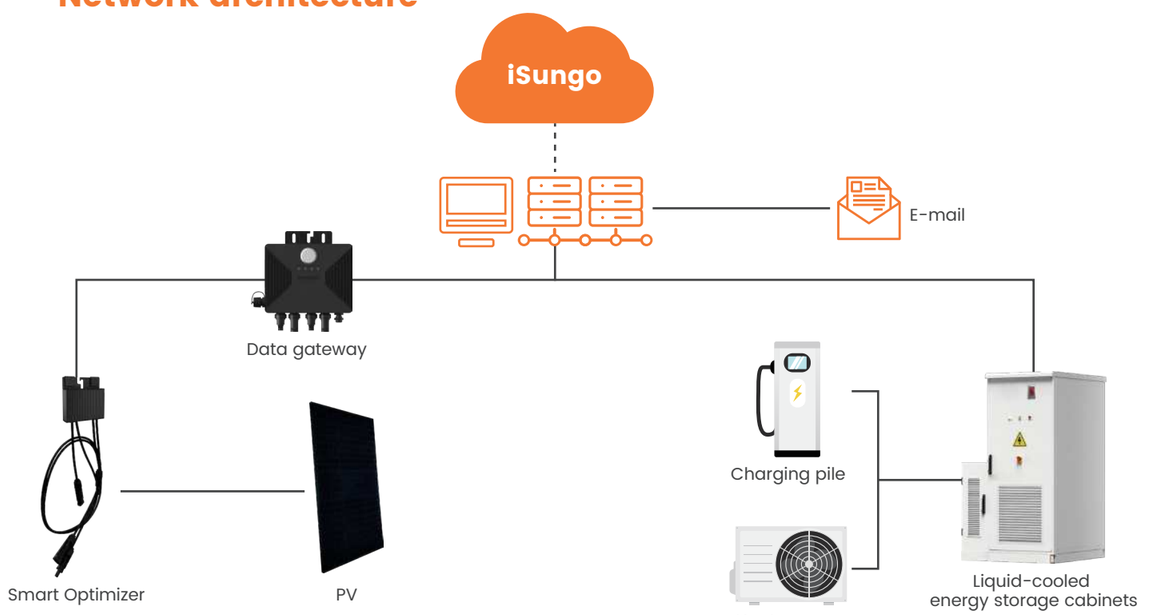
Fast access to module-level performance data to pinpoint module problems

View current and historical data by day, week, month and year, and automatically calculate returns

Features

- Intelligent management, data at a glance
- Module-level data management for easier operation and maintenance
- Comprehensive control of power station operation to realize maximum benefits
- Remote fault analysis to reduce O&M costs

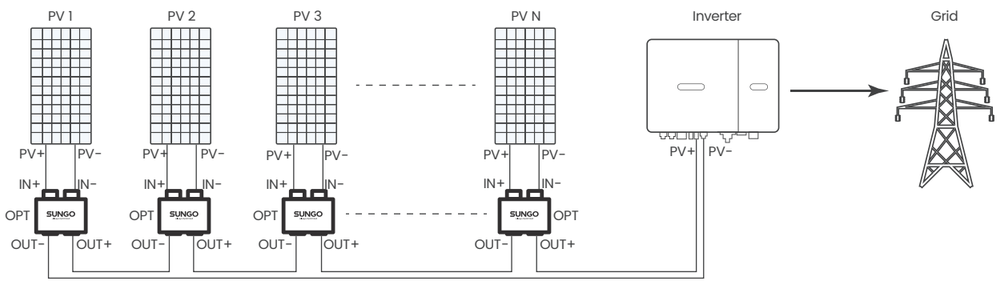
Network architecture



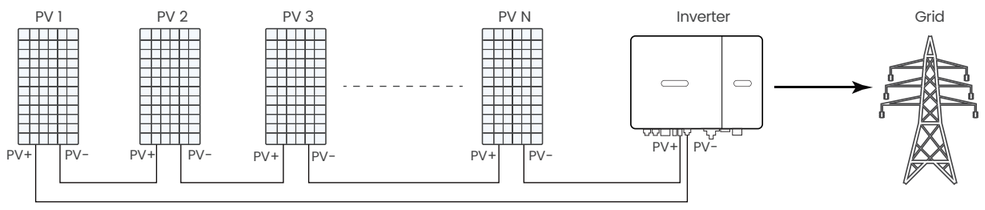
Typical Project Case Introduction

Comparison of two adjacent power stations with and without the optimizer installed.

Average power generation increase: 17.34%



Optimizer installed VS **No optimizer installed**



Optimizer installation date: july 1, 2020

Installed pv capacity: < 50kw for both systems

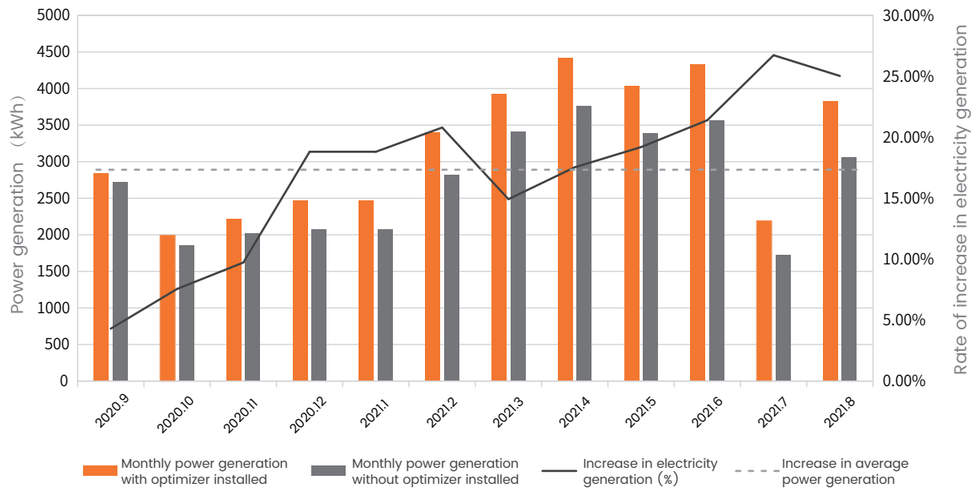
Number of optimizer installations: 143 pcs

Average power generation increase: 17.34%

Comparative Data for Two Neighboring Power Stations

Improvement effect within one year (measured value).

Effect of installing an optimizer (increase in monthly power generation)



Note: This data is collected from actual measurements taken from September 2020 to August 2021 by the customer.

This graph illustrates the improved power output of the Gunma Solar PV project in Japan following the installation of an optimizer. The optimizer significantly increased solar power generation. Specifically, it enhanced the power generation efficiency from a baseline of 4.30% to a peak of 26.74% within the period spanning September 2020 to August 2021. On average, the optimizer improved power generation by 17.34%, highlighting its strong impact on system performance.

Overall, the efficiency of PV power generation tends to improve with optimizers. However, the degree of improvement varies depending on the actual internal and external environment of the project, but the longer the life of the PV panels, the greater the optimization effect. According to a large amount of actual data, the average power generation has increased by more than 15% with Sungo's optimizers.

Project Cases

May 2021 Optimizer Project-Slovenia-200 pieces
-comprehensive power generation increased by 10.8%

January 2022 Optimizer Project-Switzerland-22 pieces
-comprehensive power generation increased by 10.2%

July 2022 Optimizer Project-Munich, Germany-18 pieces
-comprehensive power generation increased by 13.5%

September 2022 Optimizer Project-Italy-1,500 pieces
-comprehensive power generation increased by 15.9%

July 2024 RSD Project-Philippine-500 pieces

September 2024 RSD Project-Thailand-1800 pieces

Professional and Comprehensive Service

Fast Response

Agreement signed within 12 hours, accurate quotation within 24 hours

Professional R&D Team

Structural, electrical, software, industrial design engineers to satisfy the diverse requirements of clients

After-sales service

Remote support: first response and fault checking

On-site support: global programs with 24-hour access

Follow up & Customer Satisfaction Survey

Committed to a globally localized service approach