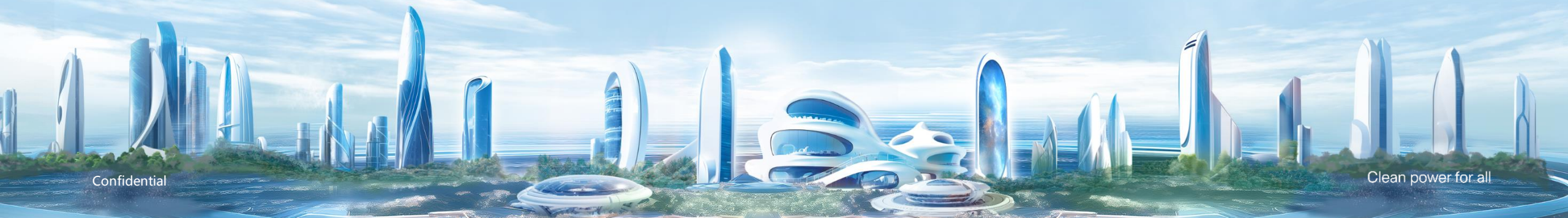
SUNGROW

SUNGROW
CHANNEL PRODUCT & SOLUTION INTRODUCTION



Contents

SGCX-P2 Series Product

SG 33-40-50 / 125 CX-P2

Max. PV input voltage

1100V

No. of independent MPP inputs

3 / 4 / 4 / 12

Max. PV input current

90 / 120 / 120 / 360 A

Max. AC output apparent power

36.3 / 44 / 55/ 125kVA

Water and dust resistance

IP66

Corrosion resistance

C5

Operating ambient temperature range

-30 to 60 °C

Surge protection

DC Type I+II / AC Type II

PV String current monitoring

Arc fault circuit interrupter (AFCI)

PID recovery function

Global MPP Tracking

10s live data refresh

String level IV Curve Scanning

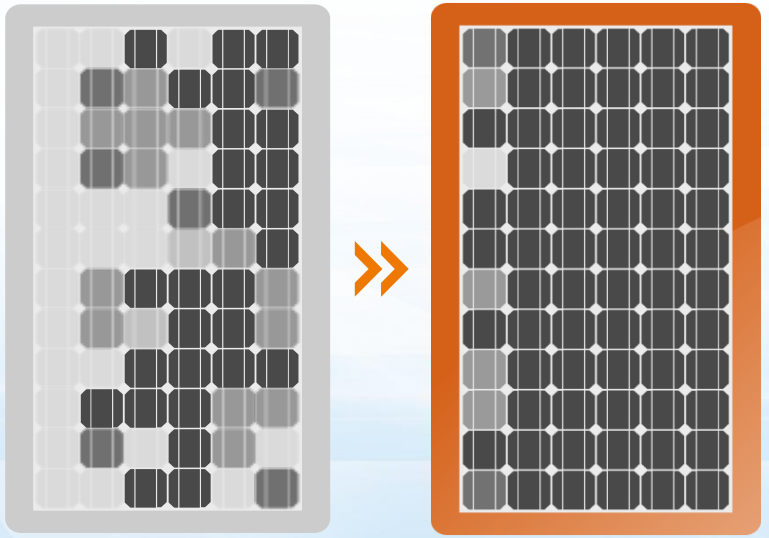
Patent Structural Design

COMMUNICATION DEVICES

	Winet-S	COM100E
No. of access devices	**1**	**≤30**
Automatic device search and setup	√	√
QR code for automatic cloud connection	√	√
O&M remotely and locally	√	√
Build-in WEB server	√	√
Zero export function	√	√
Support of data Transfer via FTP	√	√
API to 3rd-party monitoring platform	√	√
Weather station		√

PID Recovery Reduces Modules From Performance Degradation

The system boosts PV-to-ground voltage to recover modules degradation, always keep the best performance of PV modules.



Before recovery

After recovery

Experiments verify that

Boosting PV-to-ground voltage can repair module damage caused by PID ▲ **8.8%**

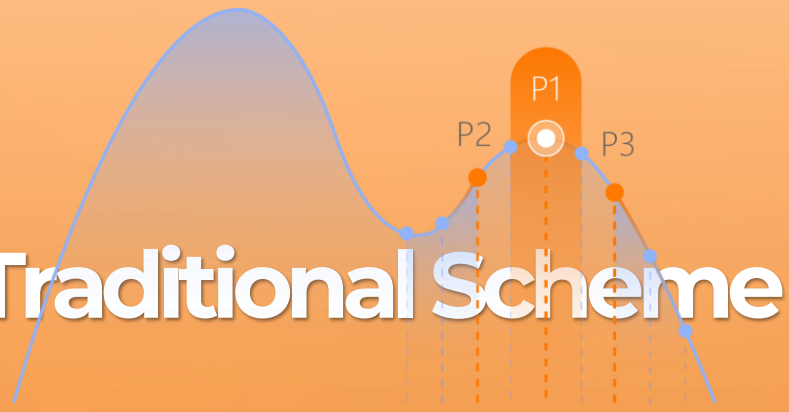
Global MPPT Tracking Increase Generation by 2%

The MPPT's can identify the global MPP and maximize the yield of your PV plant in case of shading.

Full-curve scanning allows for precise tracking of the maximum power point (P4)

SunGrow Global MPPT

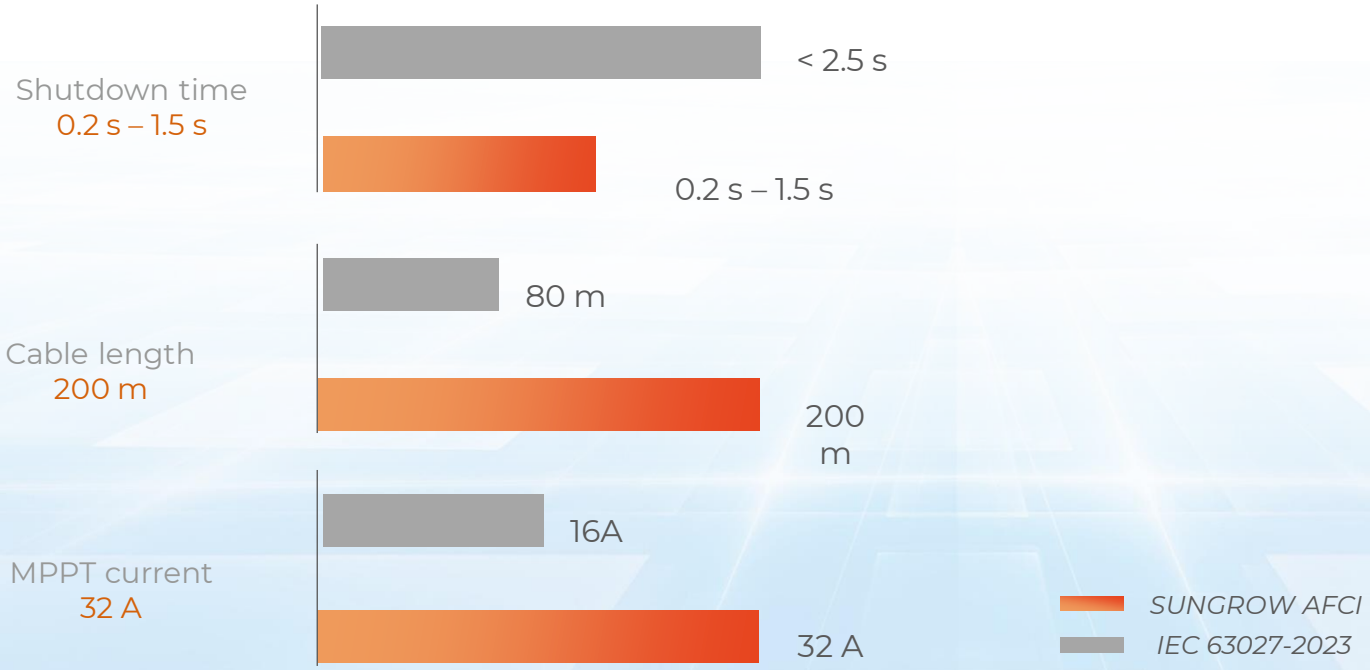
For the traditional scheme, local peak power point (P1) may be misidentified as the global peak



Traditional Scheme

AFCI Protection Performance

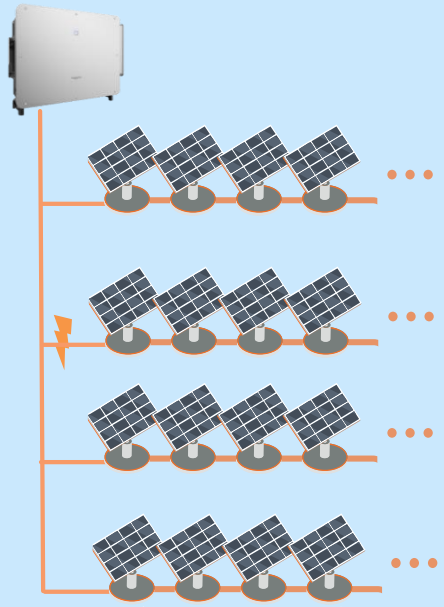
Far Outperforms That Required by UL1699B, reducing the electrical accidents caused by DC arc faults, guarding the safety at all times.



** All the performances apply to the SOLUTIONs with or without PV module optimizers.*
Note: Typical values from experimental test data

String-level Locating

Help to position the string where an arc fault occurs.



SPD Protection

Industry's First DC I/II Lightning Protection Inverter

Effective protection for direct and indirect lightening strike

Lightning Protection	CX-P2	Discharge Capacity	Waveform
• DC I+ II SPD	✓	20KA	10/350uS 8/20uS
• AC II SPD	✓	20KA	8/20uS
• Communication IV SPD	✓	6KA	8/20uS

Patent Structural Design, Saving Operation Time

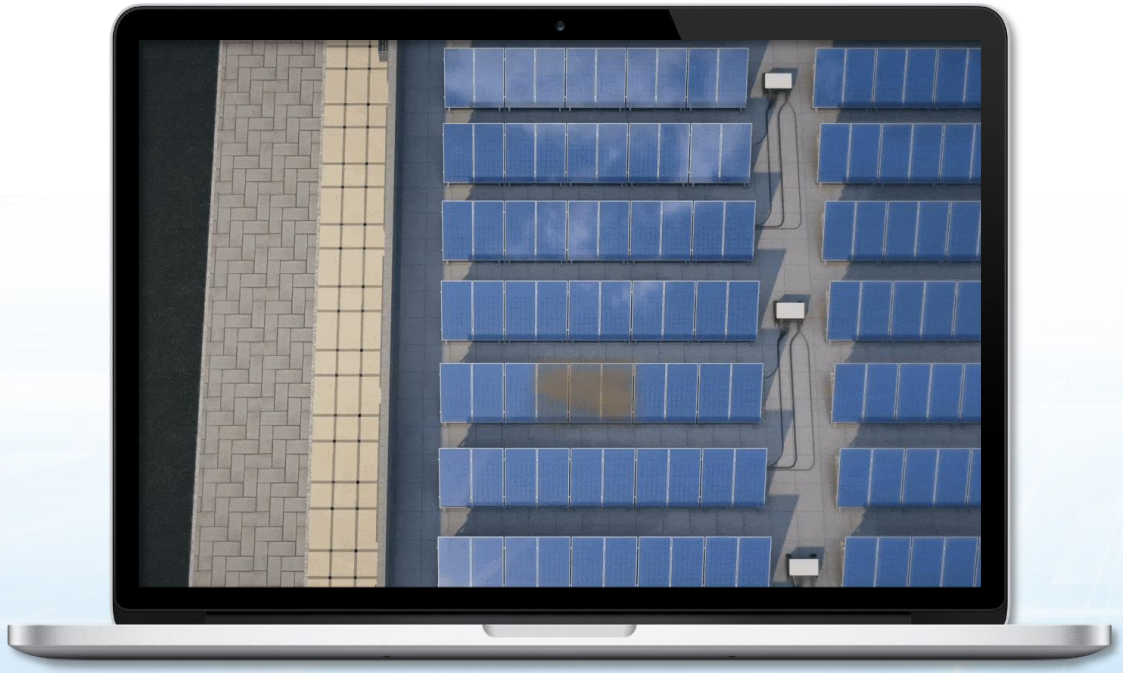
Dedicated installation methods are designed for models of different power segments to reduce the installation time by up to 30%.

Side handles
With 4 detachable side handles for easy lifting and handling of the inverter.

New AC cabinet
Connectors are easily accessible and positioned at the perfect height.

Door stopper
Practical door stop to keep the AC compartment open during installation or maintenance.

AC sealing plate
Adaptive sealing plate to cable diameter.



Smart String IV Curve Scanning

SUNGROW's intelligent IV curve analysis technology owns dual certification from TÜV and CGC, reaching **the industry's highest Level 4 rating**

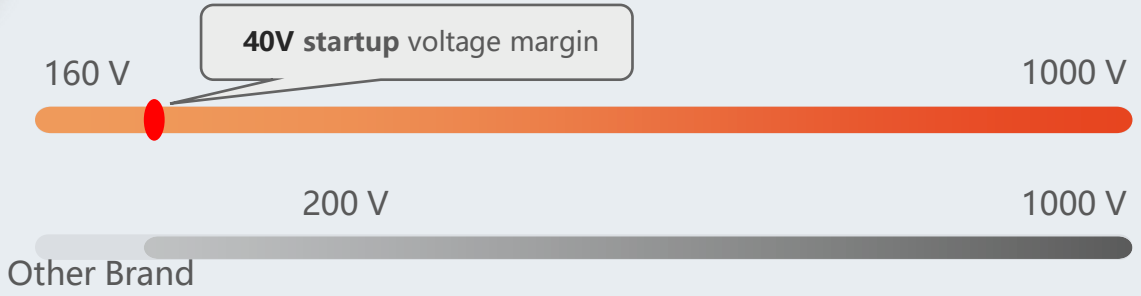
< 1s	**>17**	**≥ 90%**	**≥ 95%**
Reaction Single String	Types of faults analyzation	Scanning Accuracy	Precise Judgment Accuracy

Contents

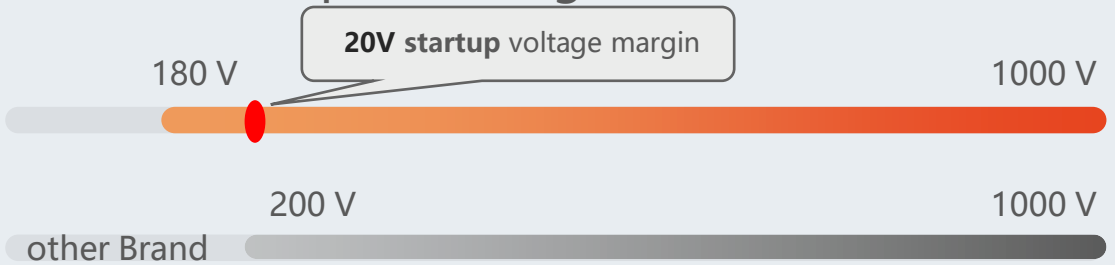
Wider MPP Voltage Range, Longer Serving Time

Start-up input voltage 200V / MPP voltage range 160-1000V

1 SG25-50CX-P2 power range



2 SG125CX-P2 power range



Power-DC Input Voltage Curve Comparison

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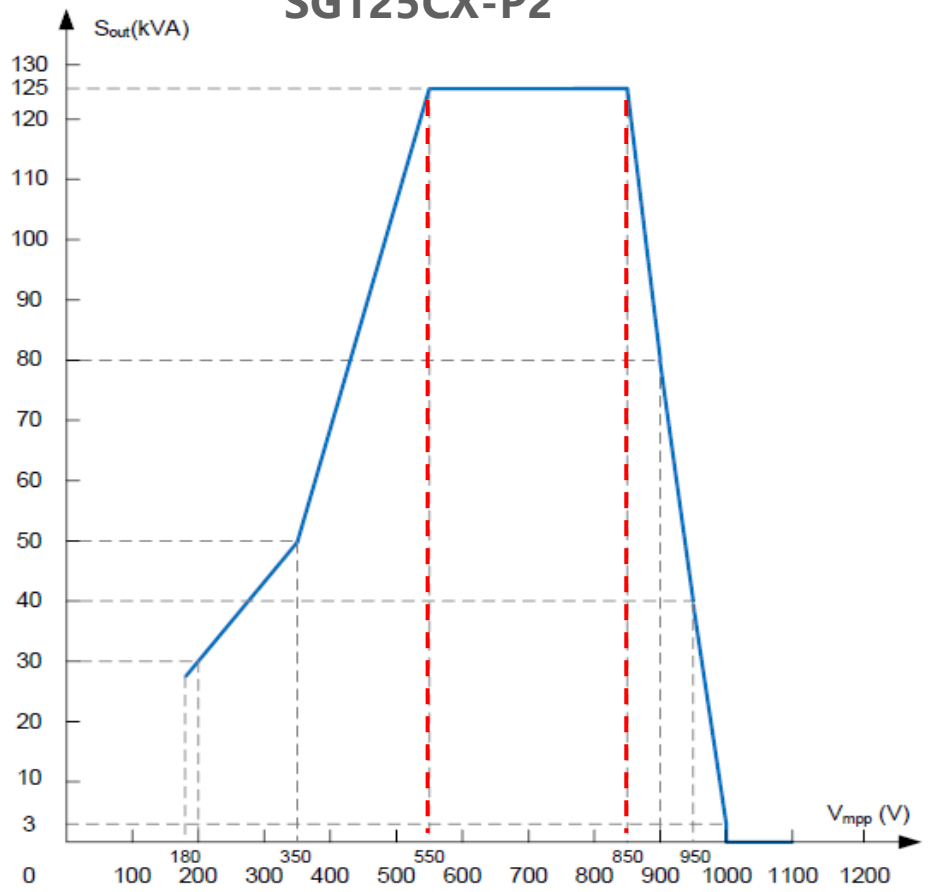
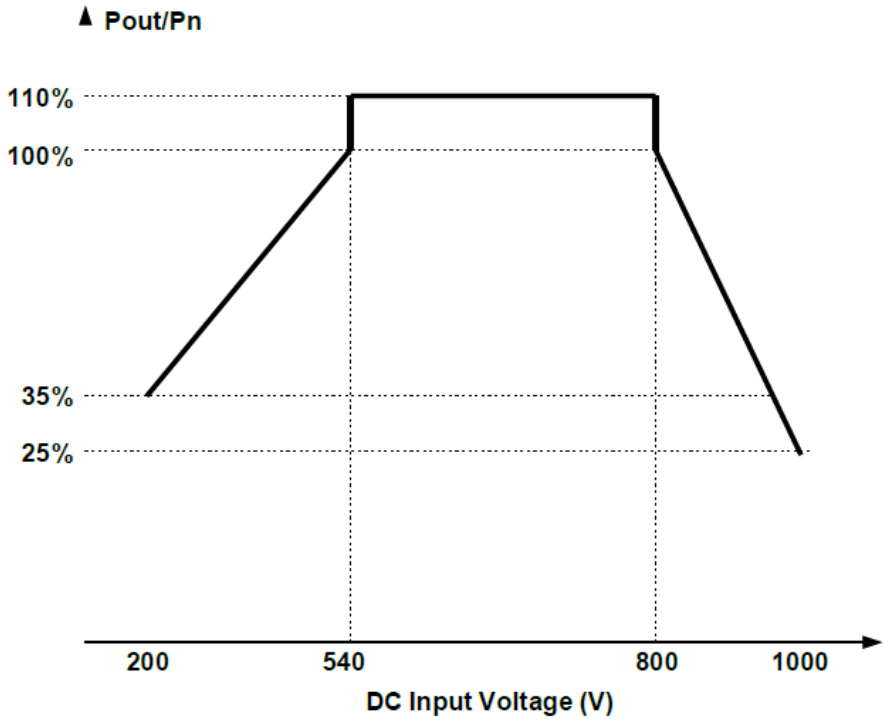
SG125CX-P2



xx-100kW



400V grid voltage, SG125CX-P2 with wider Voltage range while Full-load output for flexible design and control voltage drop rate.

Temperature De-rating Curve Comparison

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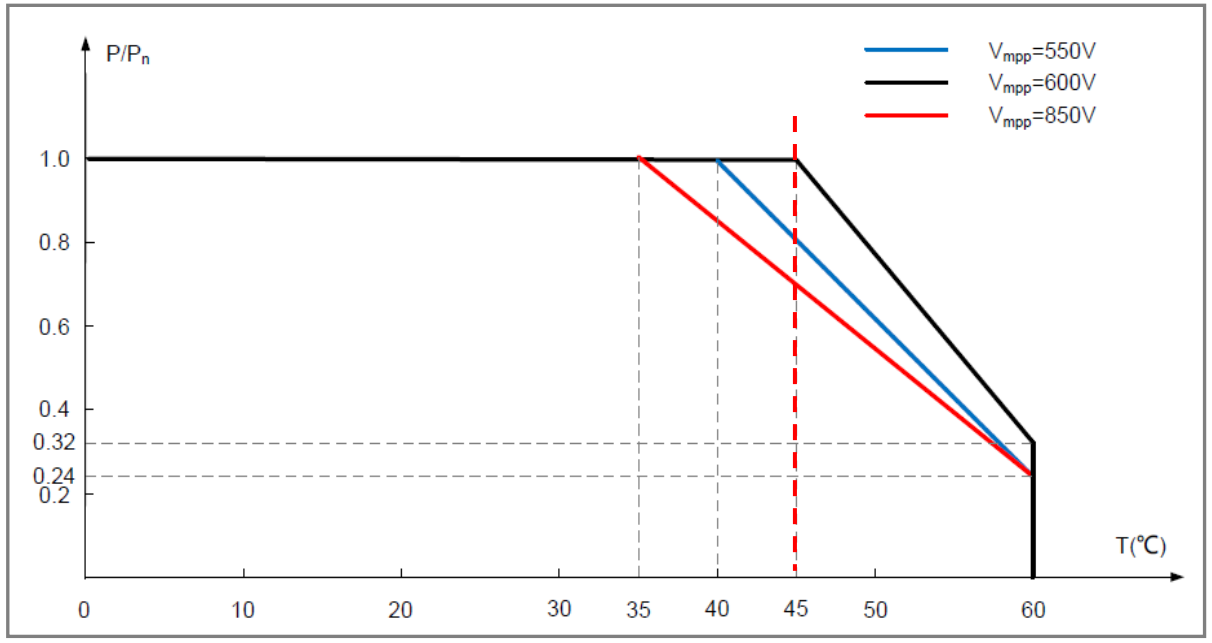
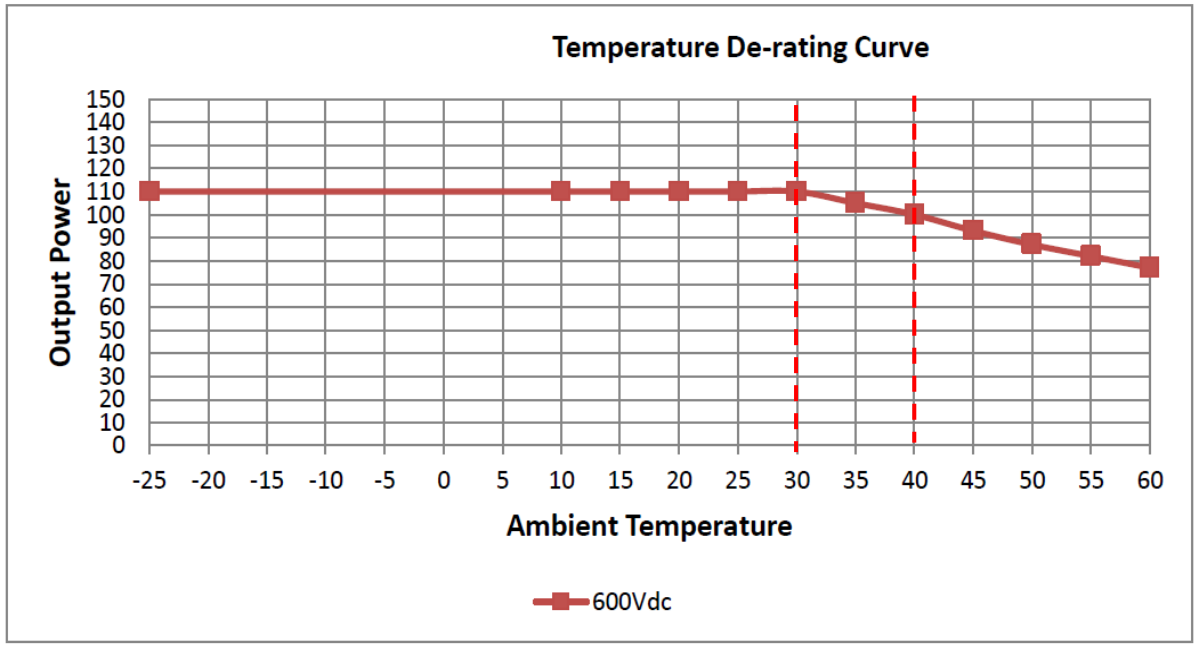
SG125CX-P2 @ 600V



100kW inverter @ 600V



If designed with 600V DC input, SUNGROW SG125CX-P2 will start derating output when the ambient temperature above 45℃. While other brand 100kW inverter will start derating output when the ambient temperature above 30℃.

AFCI Function Field Test Result

Test Procedure

DEVICE SETTING.

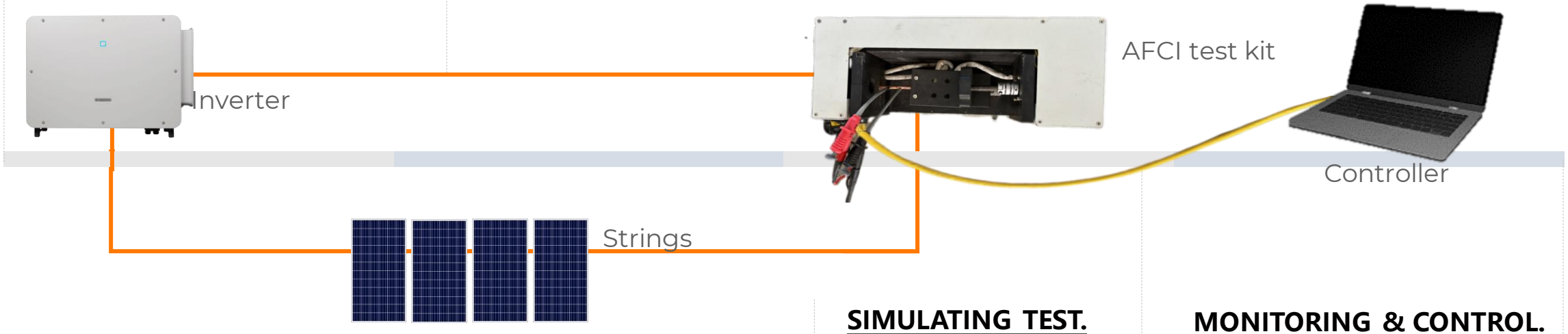
① Turn off the inverter.

② Connect the arc simulator in series with the PV string and the inverter.

CONNECTION.

③ Connect the current and voltage sensors of oscilloscope to one of DC string and arc simulator.

The kit following IEC63027 and UL1699B standards can eliminate the influence of human factors and limit the factors to DC cable length and current.



OPERATION.

④ Turn on the inverter again and wait for inverter connect to grid and run normally.

SIMULATING TEST.

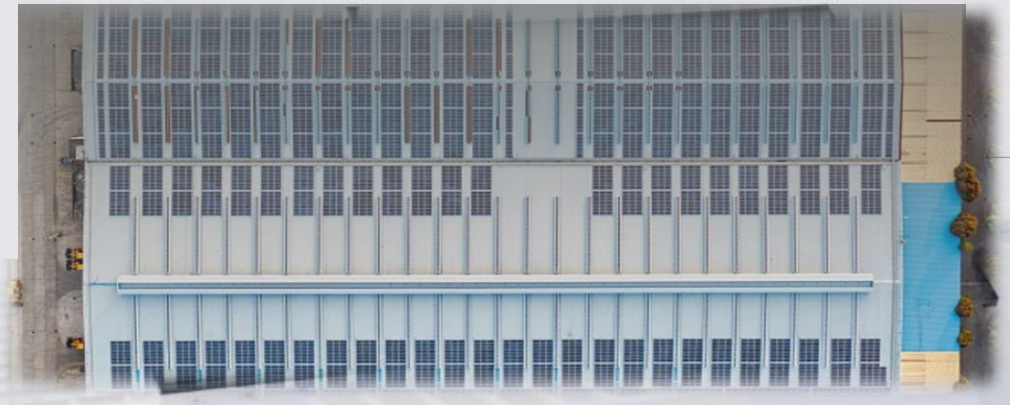
⑤ Send command to arc simulator via laptop to simulate the arc fault follow the standard.

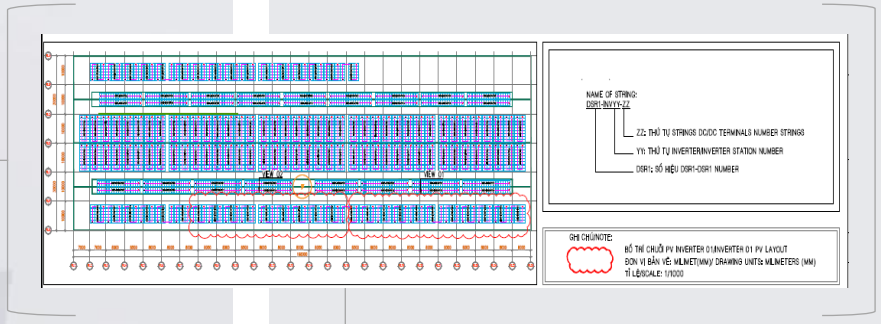
⑥ Check and confirm inverter has been stop and display AFCI alarm.

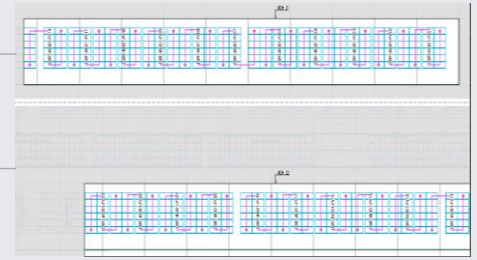
MONITORING & CONTROL.

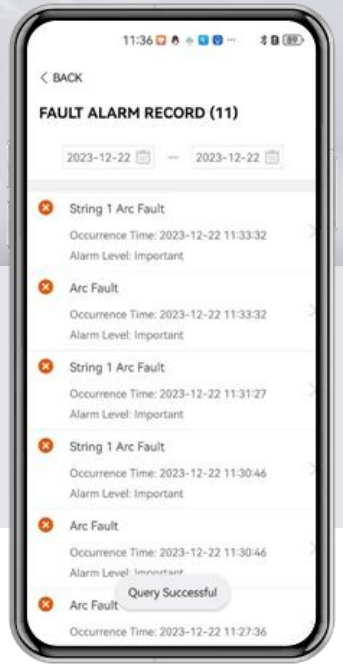
⑦ Check and confirm inverter has been stop and display AFCI alarm.

⑧ Check and record tripping time and waveform.









Site test: SG125CX-P2

No.	String No.	Cable Length	DC Current	Test No.	Pass No.	Result
1	String 1	178 m	7.5 A	2	2	100%
2	String 5	234 m	7.8 A	2	2	100%
3	String 11	297 m	7.6 A	2	2	100%
4	String 20	412 m	7.4 A	2	2	100%

Other Performance Comparison

ITEM	SUNGROW	Other Brand	Mark
DC Connector	30A , EVO2	/ , MC4	complies to higher voltage standard
SPD Design	Type I+II	Type II	better surge power protection for PV side
Data Refresh	10s	5min	quicker commissioning and efficient maintenance
Optimizer Solution	SG125CX-P2	50kW	Low BOS cost
Arc String locating	support	No support	Easy for maintenance

Contents

System Rapid Shutdown Solutions

SG33/40/50/125CX-P2

Option 1

1 in 1 optimizer (Ready)

Option 2

2 in 1-RSD (Coming in this June)

Optimizer also has the Rapid Shutdown Function

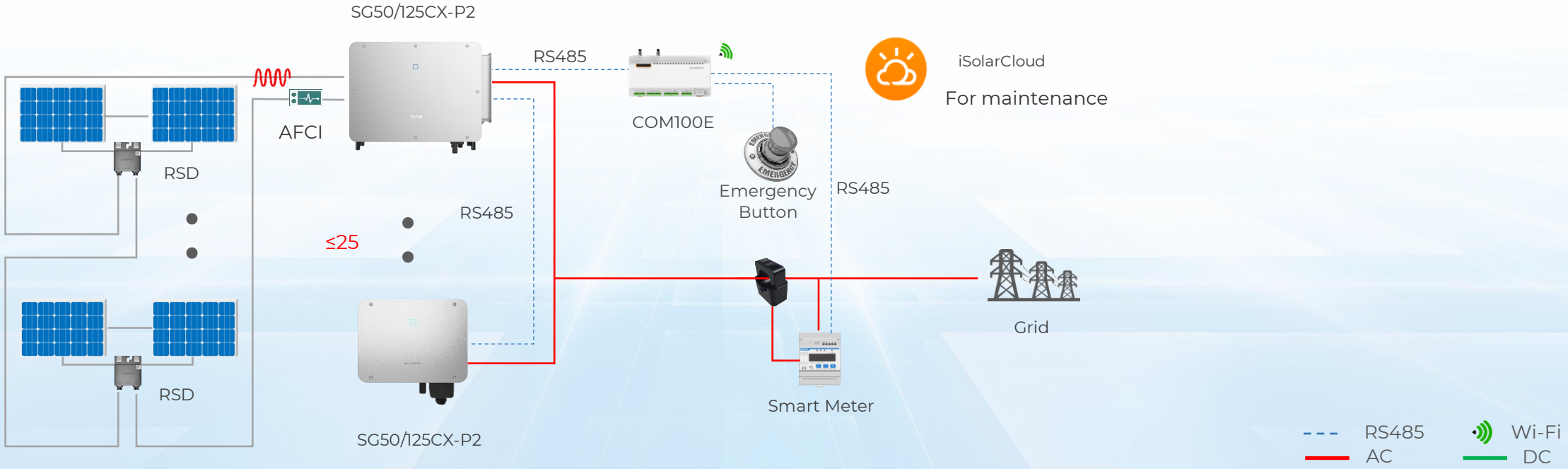
One-brand & High-integrated System

One-brand system with monitoring full support from SUNGROW

Highly integrated system without external control box easy for design and commissioning

Patented FHC bypass & Active safety (AFCI + Rapid Shutdown)

PLC distance ≤350 m



Tool Free Installation Save 45% Installation Time

SUNGROW

SUNGROW Solution

only takes **35s** to finish installation

Border clamp **5s**

Cable connection **30s**

Patented Design

Other Brand Solution

Installation time **> 1min**

TUV Rheinland verified the reliability of the quick-plug

8.5	Wall mounting	Mounting brackets withstand a force of four times the weight of the equipment.	P

Saving Installation Time & Resource

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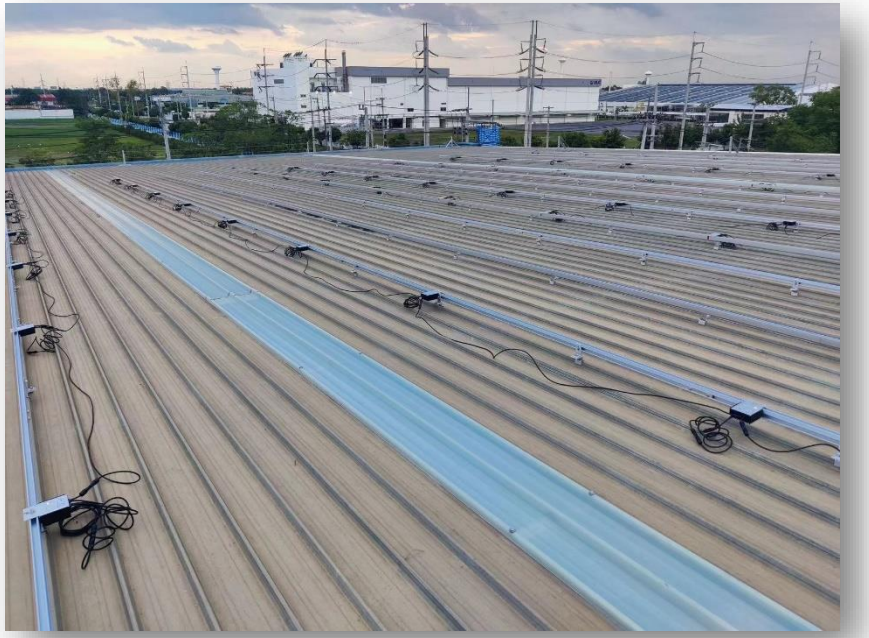
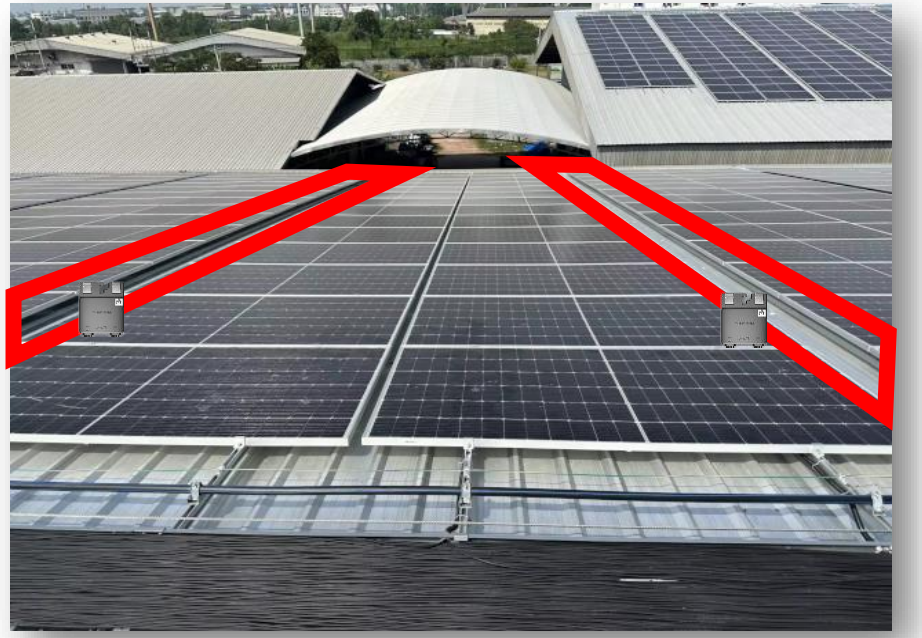
Traditional Installation



Mounting optimizer with rail

SUNGROW Installation



Mounting optimizer with PV panel frame

Support optimizer pre-mounting with PV panel on ground, reduce and operation on rooftop.

Saving 4 Times Maintenance Resource

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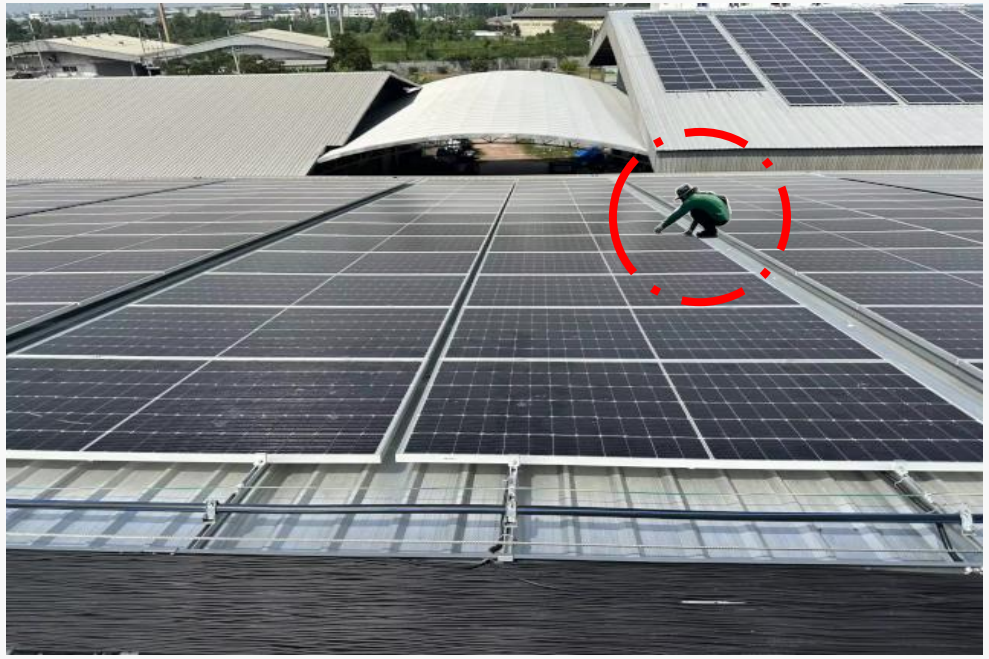
Traditional maintenance

4 person, remove panel first then replace faulty optimizer

VS

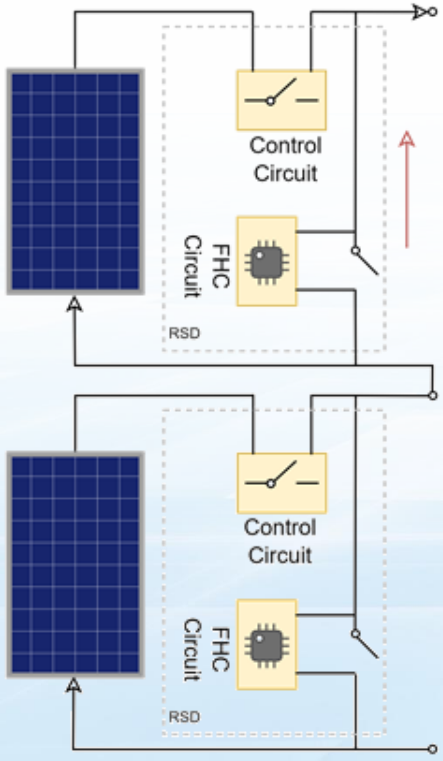
Quick plug installation and maintenance



1 person, replace faulty optimizer directly

Patented Active Bypass / Smart and Reliable

Normally, the control switch is on and gets power from 2 PV modules and outputs power to other series SR20D-M.



Patented FHC active bypass

Bypass Mode

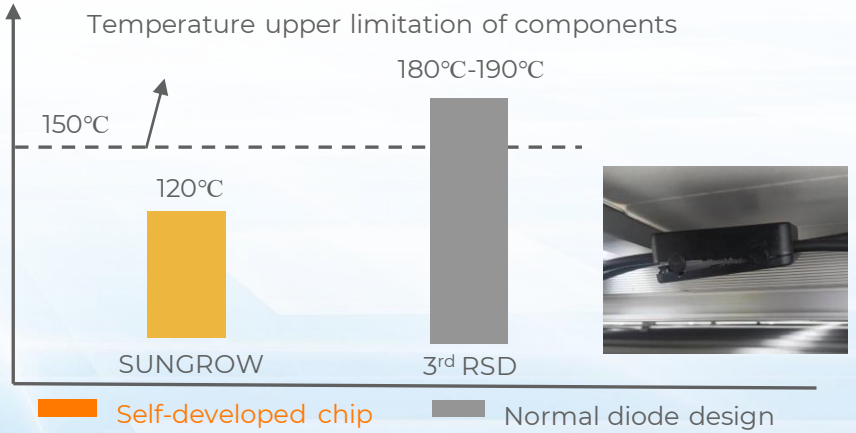
In the case of communication issue, module fault or RSD fault, the RSD will enter **bypass mode** and not affect other modules in this string.

Smart
- ✓ Actively status detection
- ✓ Active shading identification
- ✓ Active on-demand bypass

Reliable
- ✓ Lower heat
- ✓ Lower power consumption
- ✓ More reliable, longer lifetime

Comparison with 3rd RSD

SUNGROW has self-developed chip inside SR20D-M that control temperature 60 ℃ to 70 ℃ lower than 3rd RSD.

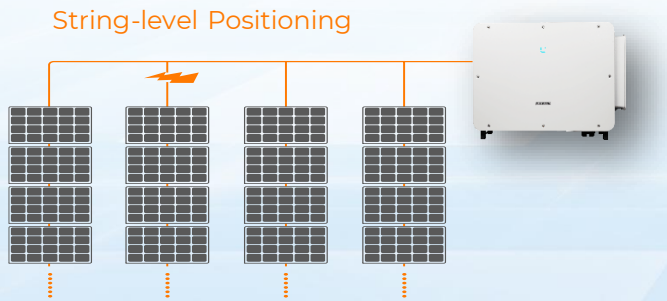


If 3rd RSD works in bypass mode, the temperature will exceed the *Upper limit of component temperature then lead to high fault rate.*

AFCI+RSD / Dual Protection & Active safety

Only the AFCI function is combined with RSD, the active safety of the system can be ensured.

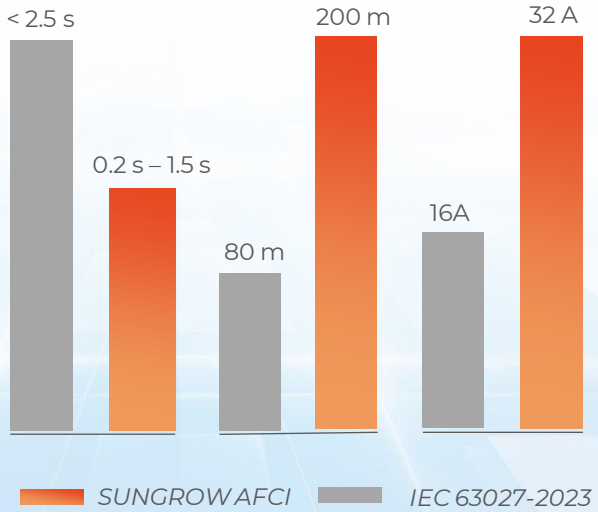
The inverter actively detects a true arc and will automatically shutdown, meanwhile the RSD will quickly shutdown the system. Then the fault detection can be carried out in time.



Help to position the string where an arc fault occurs

Shutdown time	Cable length	MPPT current
0.2 s – 1.5 s	200 m	32 A

AFCI

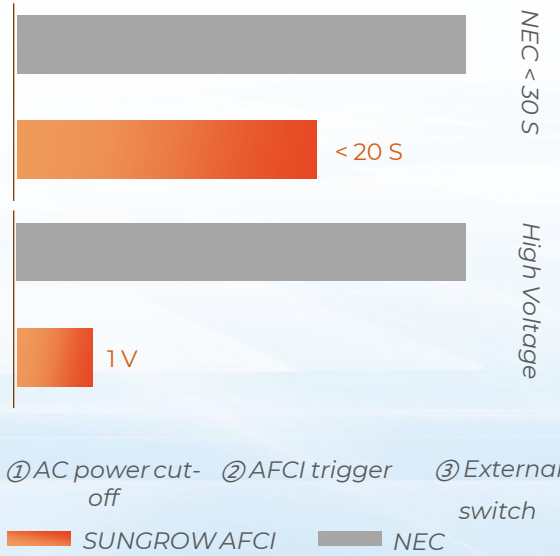


Note: Typical values from experimental test data

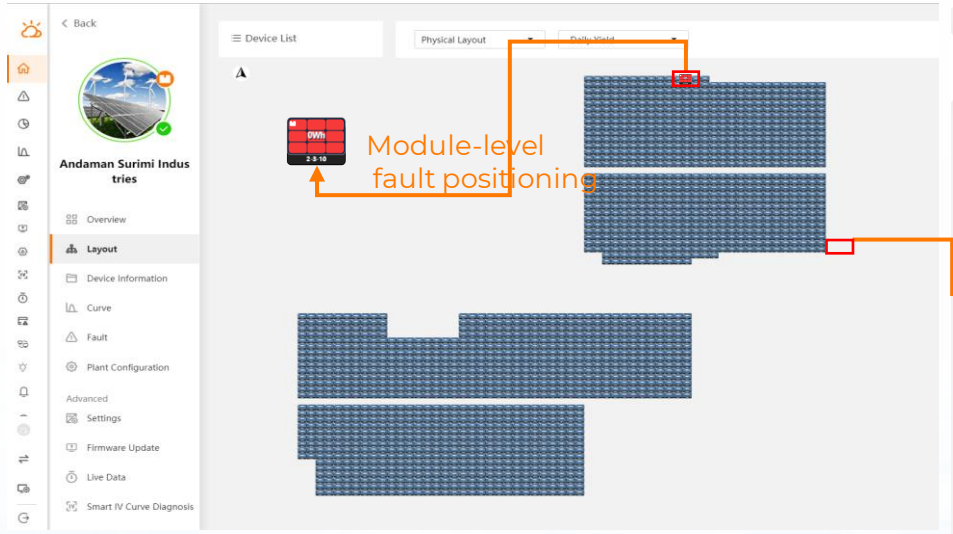
** All the performances apply to the SOLUTIONs with or without PV module optimizers.*

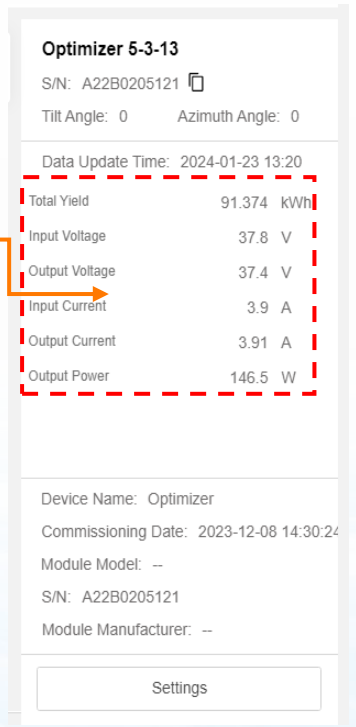
Shutdown time	Safe voltage
<20s	1 V

RSD



Shutdown within 20 s , much shorter than required by NEC standard





About
our Monitoring Platform

iSolarCloud supports PV panels **virtual layout 100% matching with installation layout**, different color indicates different operation states and supporting location faulty panel obviously.
It also provides comprehensive monitoring to check the status of each unit like output power/voltage/current.

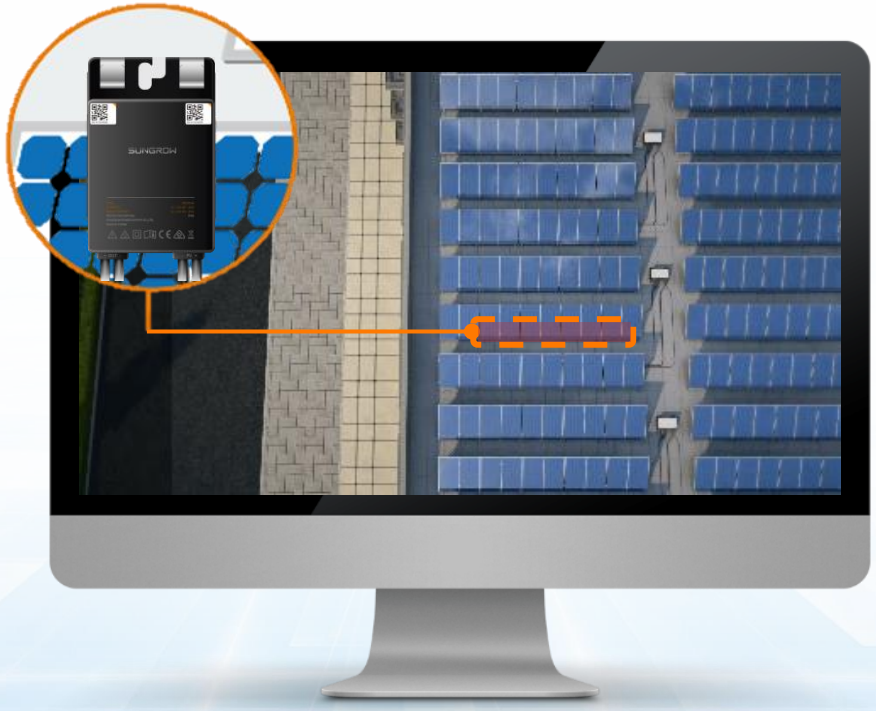
SUNGROW

String-level IV Diagnosis

For RSD

< 1s
Reaction Single String

>17
Types of faults analyzation



Module-level IV Diagnosis

For Optimizer

≥ 90%
Scanning Accuracy

≥ 95%
Precise Judgment Accuracy

* Enable IV Curve scan when the sky is sunny without cloud.
** The monitoring system needs to be equipped with Sungrow logger and iSolarCloud.

SUNGROW

THANKS

Clean power for all