

SUNGROW

**INNOVATION TO INVERT
OUR FUTURE**



YOUR SPEAKERS

For Today



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AGENDA

For Today

COMPANY

WE ARE
SUNGROW

1

QUALITY
COMMITMENT

2

INNOVATION

SAFETY AND
PERFORMANCE

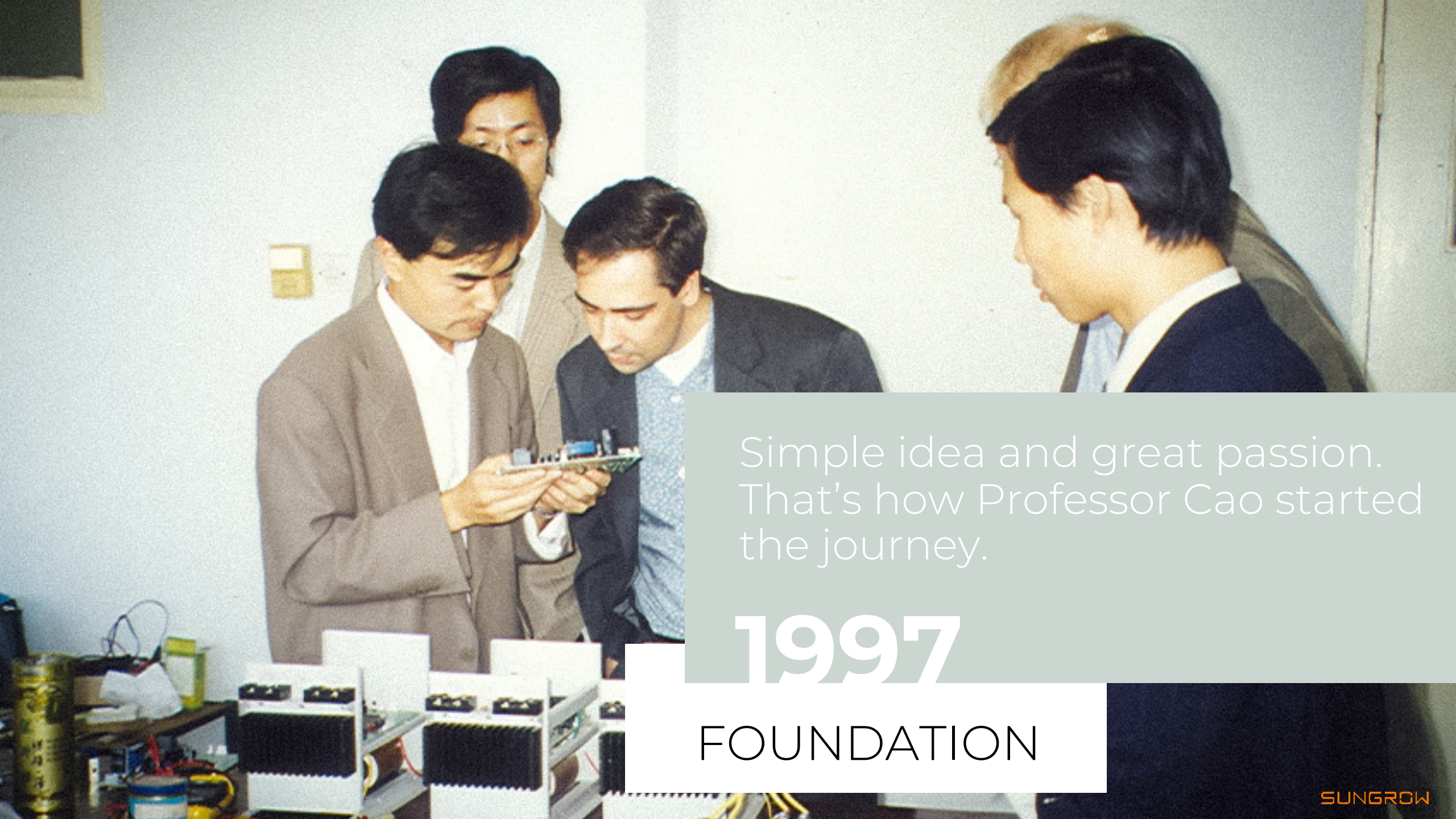
3

HYBRID

4

MONITORING

5



Simple idea and great passion.
That's how Professor Cao started
the journey.

1997

FOUNDATION



SUNGROW EUROPE

Global leading with strong local presence

12 local teams

7 service hubs

7 subsidiaries

2 training centers



+ 150 GW

installed worldwide



+ 50 GW

annual production capacity



3000 units

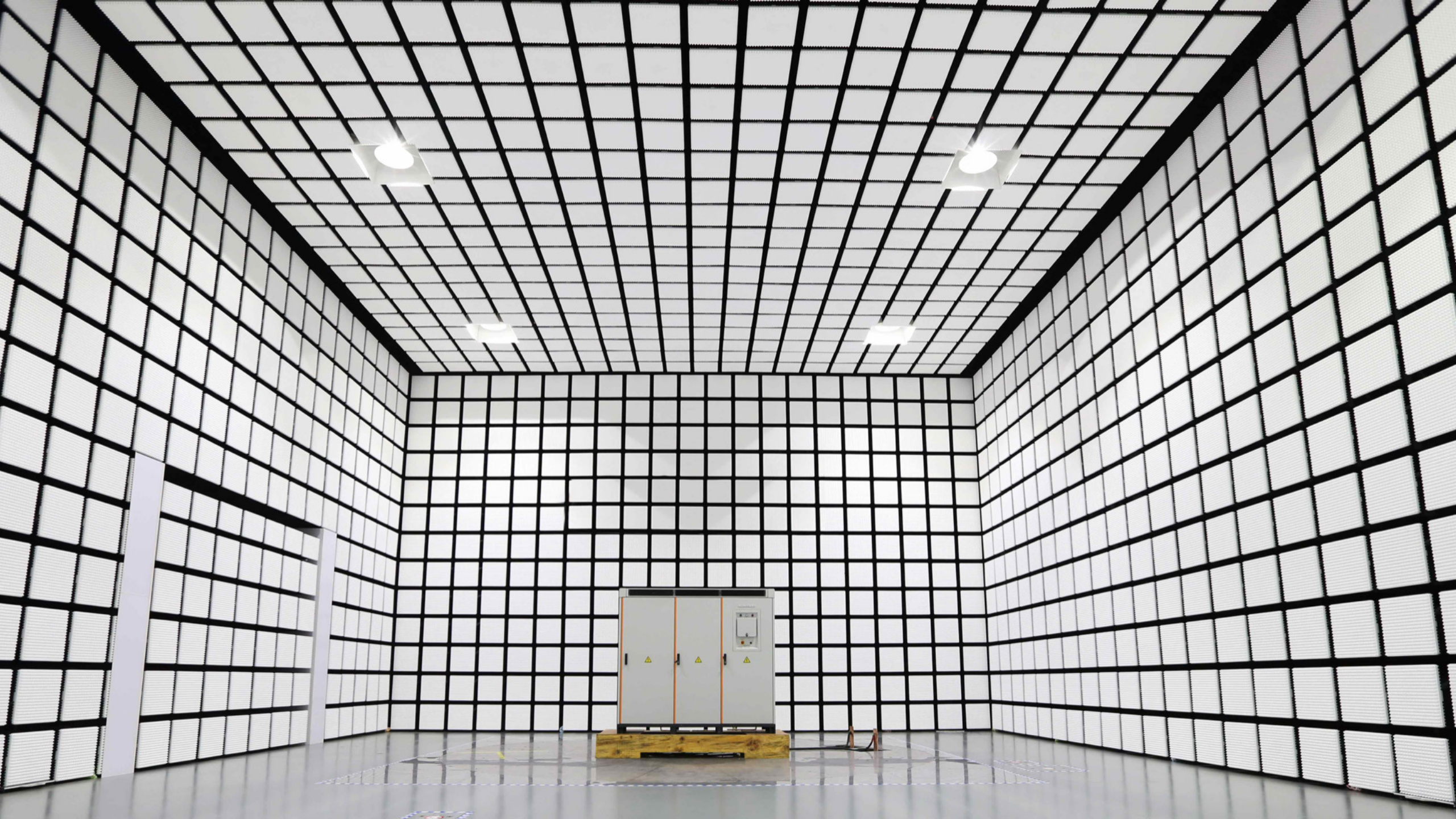
per day



Warehouse in Venlo

35 working days

from production to distributor



LARGEST EMC CHAMBER IN THE PV WORLD



Certified

TÜV Rheinland,
TÜV SÜD, CSA, ...



Proven

Introduced in
2016



Leading

EMC emission
test



Safe

immunity
tests



实验室用电安全管理制度

1. 实验室用电必须遵守《中华人民共和国电力法》、《电力供应与使用条例》、《用电安全导则》等有关规定。
2. 实验室用电设备必须经检验合格后方可使用。
3. 实验室用电设备必须定期检查，发现问题及时处理。
4. 实验室用电设备必须专人管理，严禁私自接线。
5. 实验室用电设备必须接地良好，严禁带电作业。
6. 实验室用电设备必须设置漏电保护装置。
7. 实验室用电设备必须设置警示标志。
8. 实验室用电设备必须设置安全操作规程。
9. 实验室用电设备必须设置应急预案。
10. 实验室用电设备必须设置安全培训记录。

PREPARED FOR ENVIRONMENTAL STRESS



Durable

IP65 test



Resilient

Rapid temperature
change test



Strong

Vibration and
drop test



Powerful

Heat & humidity start-
up and running test

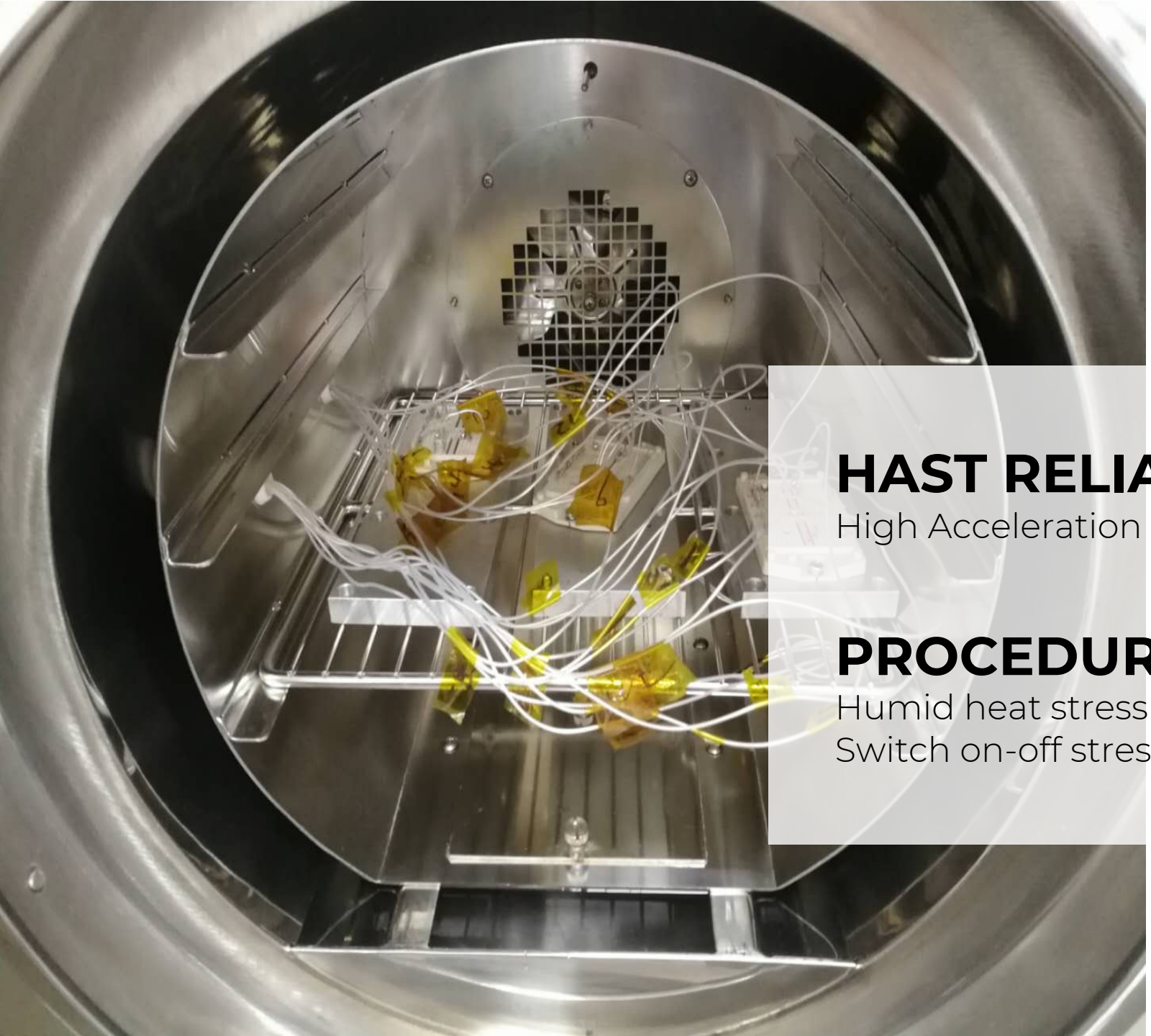
HALT RELIABILITY TEST

Highly Accelerated Life Test

PROCEDURES

Cold, hot, and vibration step stress, rapid thermal shock cycle test, comprehensive stress test





HAST RELIABILITY TEST

High Acceleration Stress Test

PROCEDURES

Humid heat stress test, Voltage clearance test,
Switch on-off stress test, Frequency marginal test,...

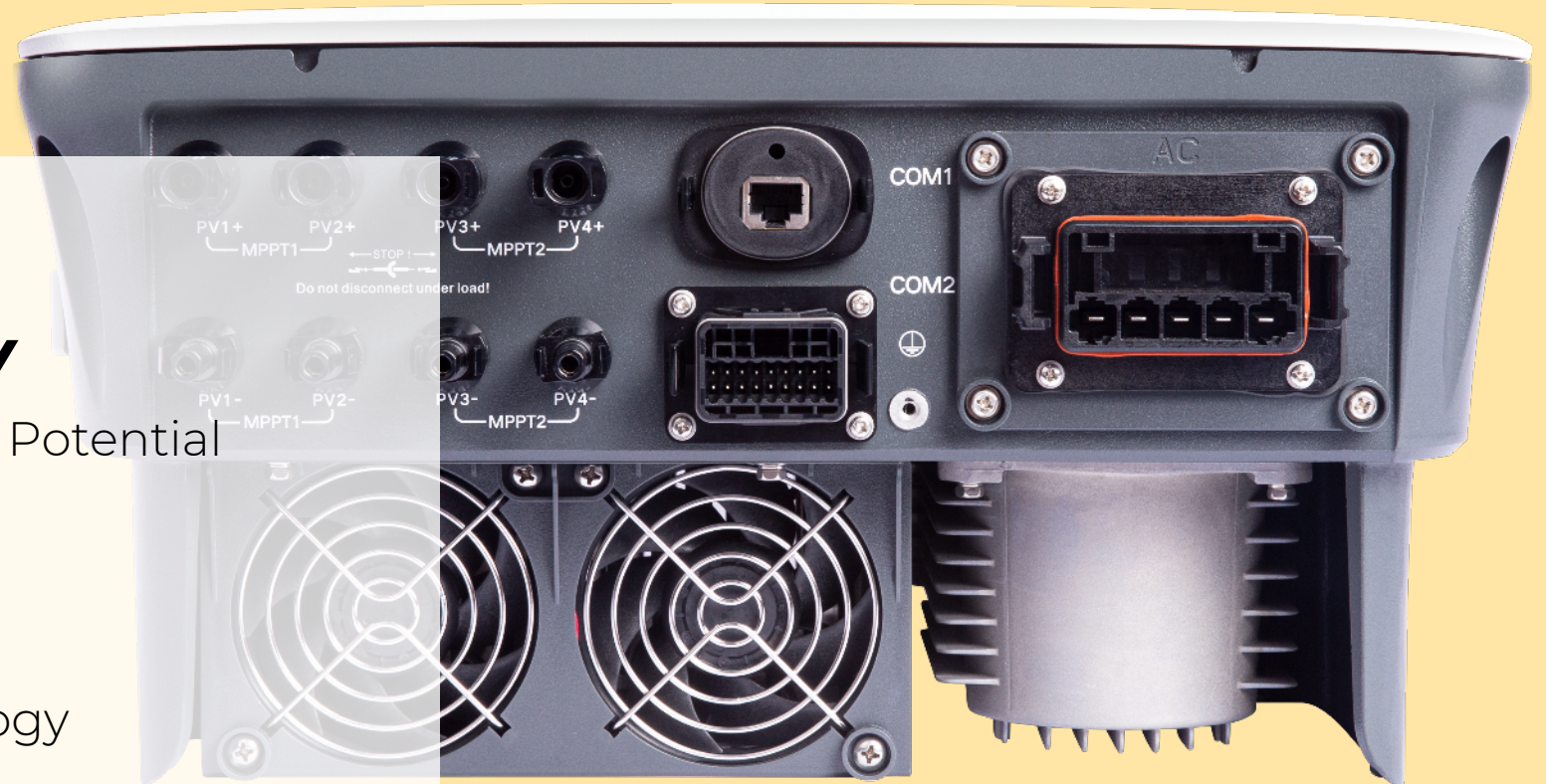
ADVANCED

PID RECOVERY

Reversibility Solution for Potential
Induced Degradation

AFCI

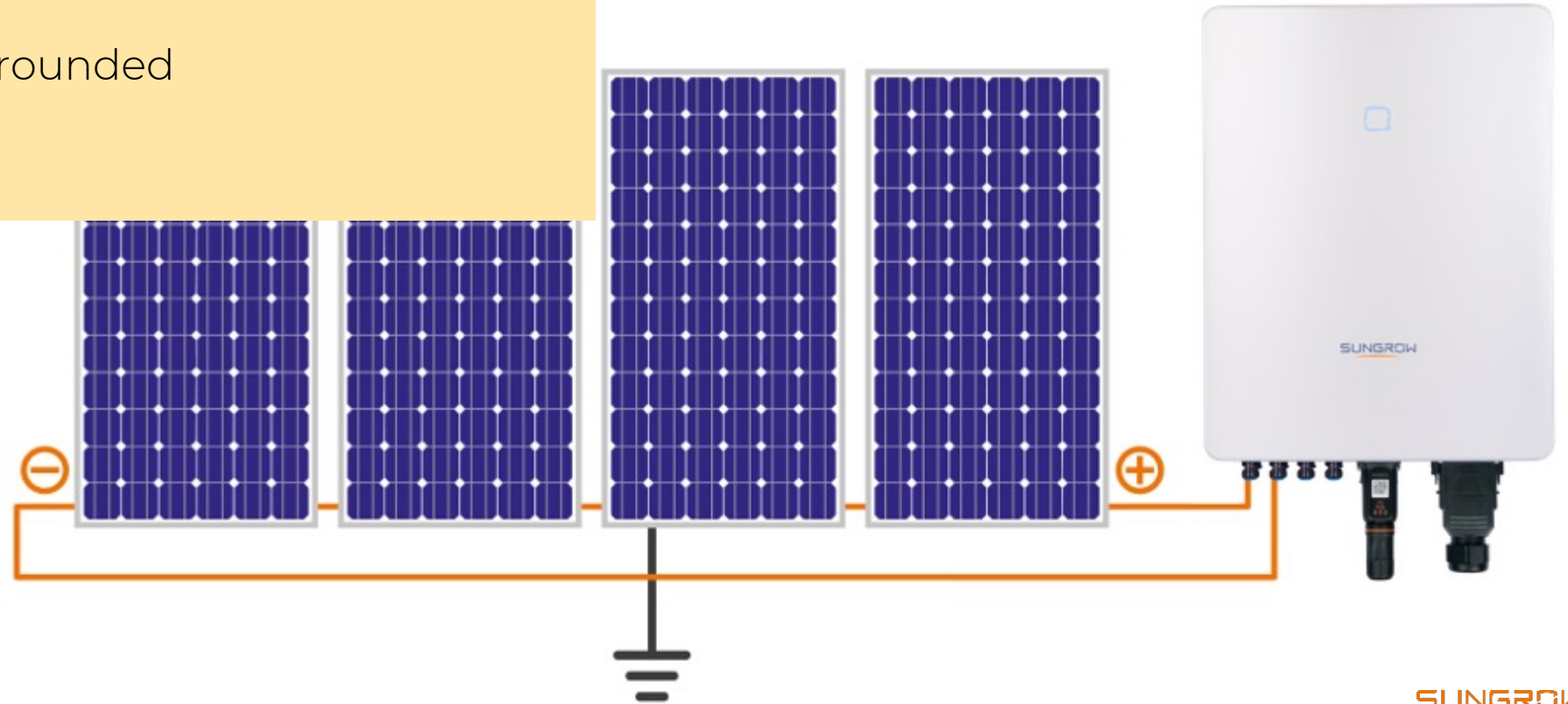
Arc Prevention Technology



PID RECOVERY

SYSTEM OVERVIEW

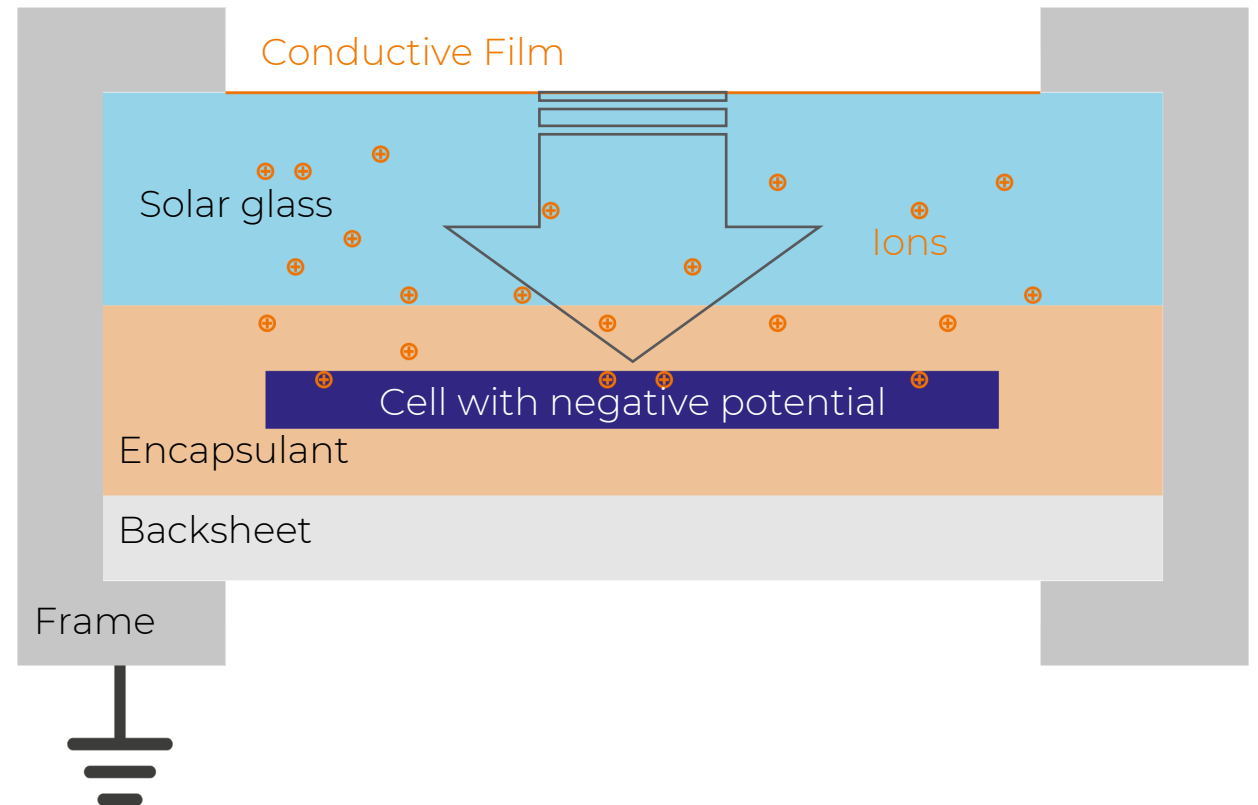
- Strings with positive / negative end
- PV module frames are grounded



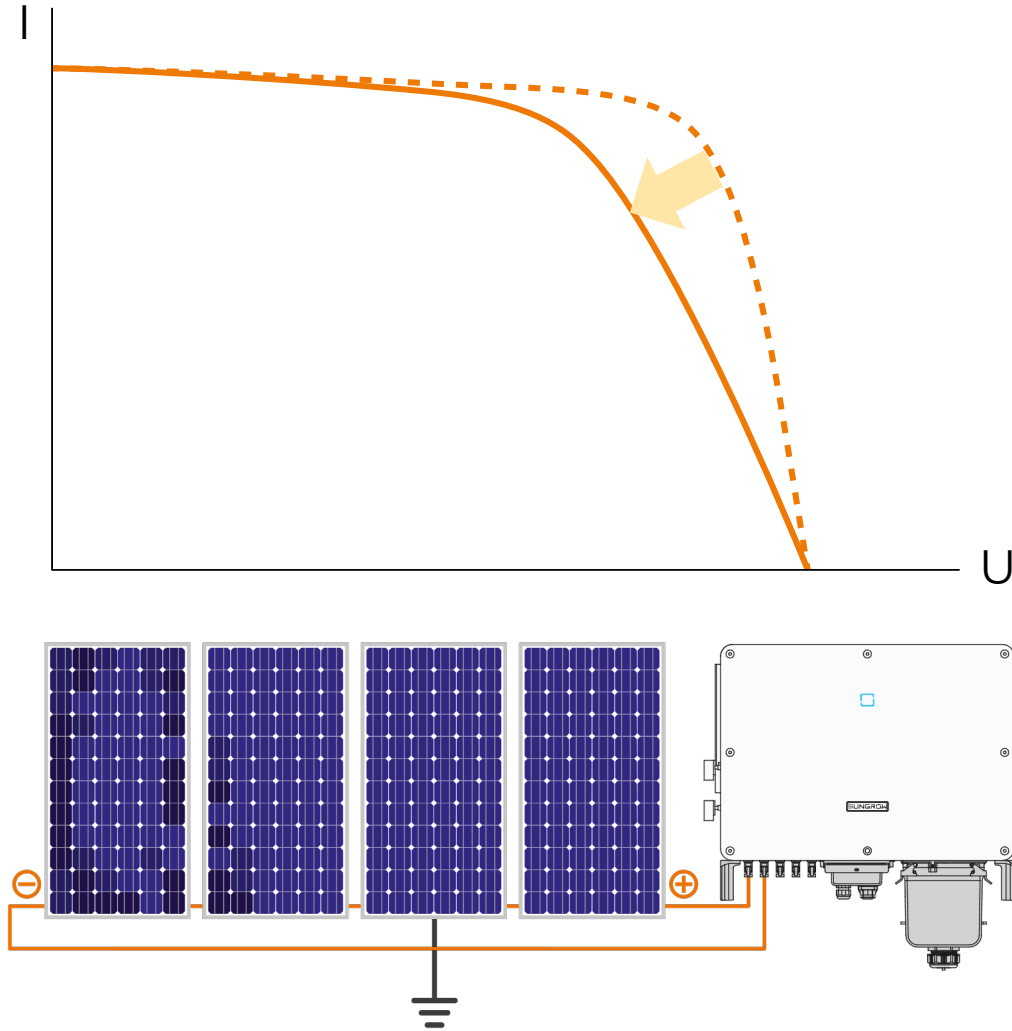
PID RECOVERY

INSIDE A PV-MODULE

- Electric field between grounded frame / conductive film and negative cells
- Greatest effect close to the frame
- Leak currents inside the cell



PID RECOVERY

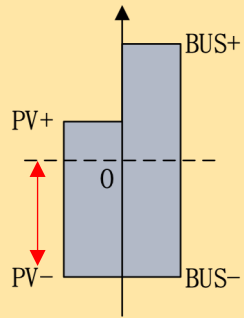


DETECTING PID

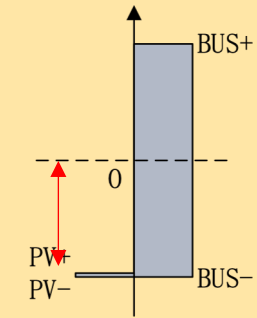
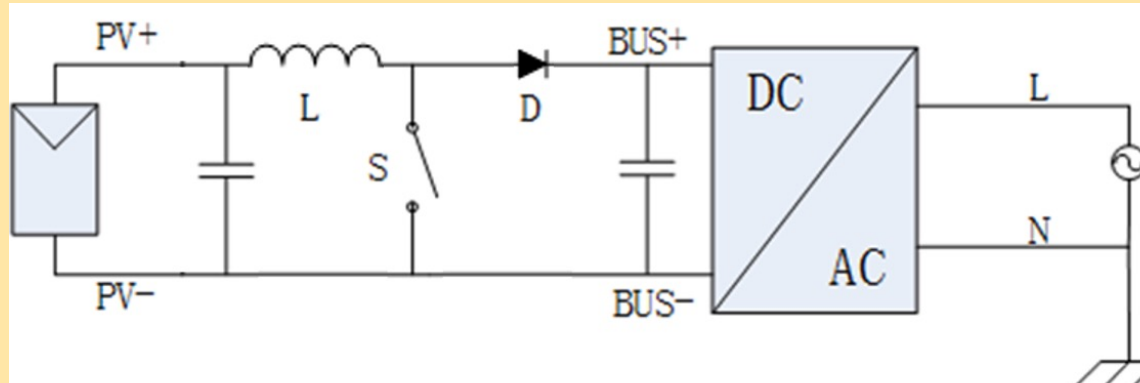
- Power loss
- IV curve scan
- Thermography
- Elektro-luminescence

PID RECOVERY

PID RECOVERY



Day time



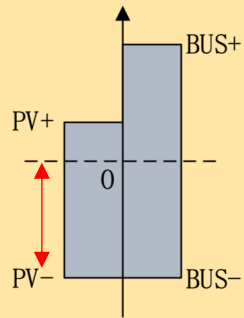
Night time

- Taking N-type Si PV Module
- Bus- to ground is reversed

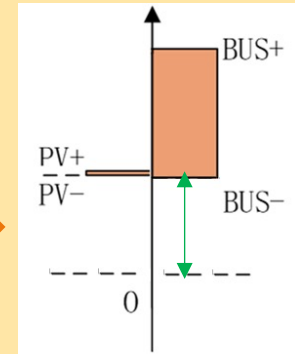
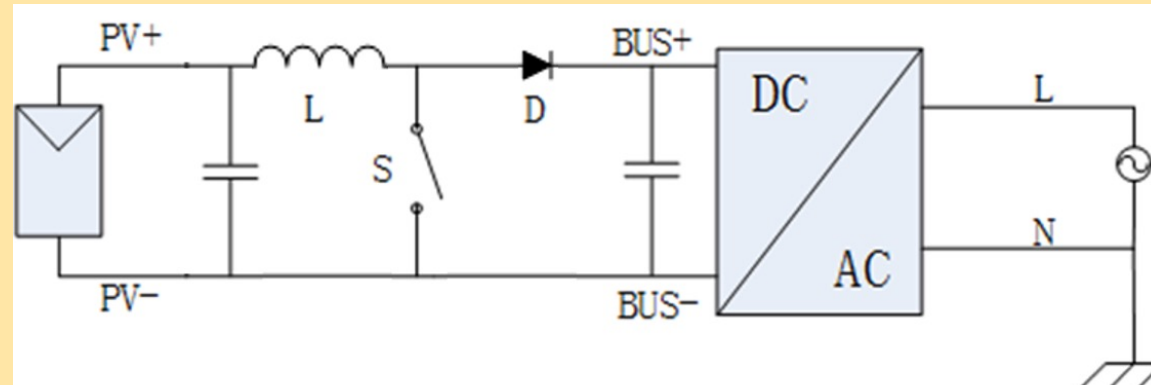
PID RECOVERY

PID RECOVERY

ON



Day time



Night time

- Taking N-type Si PV Module
- Bus- to ground is reversed

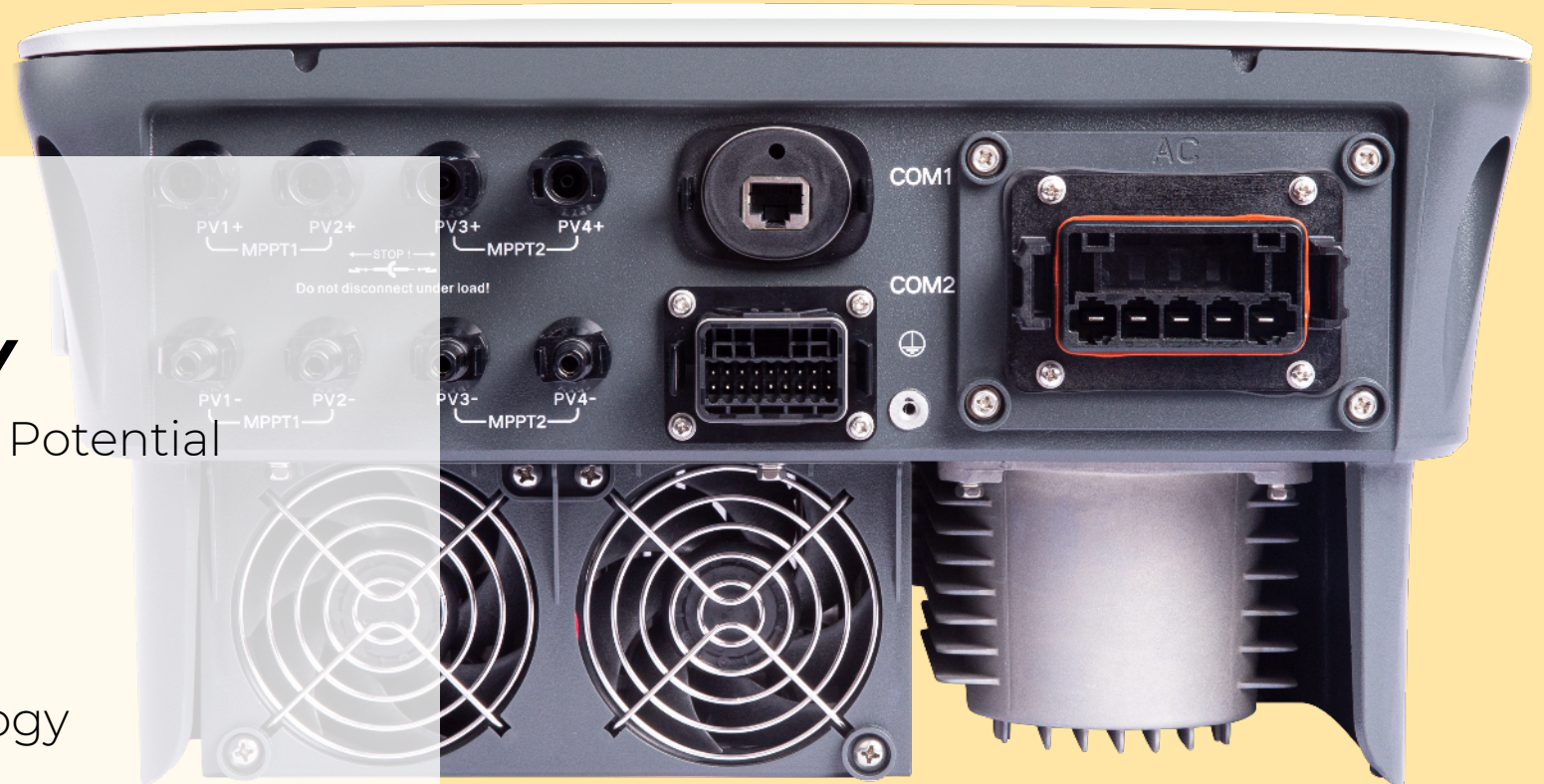
ADVANCED

PID RECOVERY

Reversibility Solution for Potential
Induced Degradation

AFCI

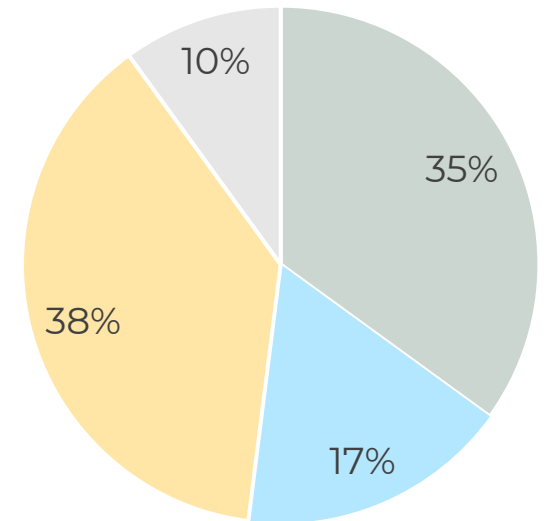
Arc Prevention Technology



AFCI TECHNOLOGY

- **Product failure:** PV inverter or PV module
- **Planning failure:** poor mechanical and electrical design (e.g. incorrect selection of DC isolators, cabling)
- **Installation mistake:** DC connections not mated properly, badly crimped connectors, no strain relief,...
- **External influence:** animals, lightning,...

Root cause

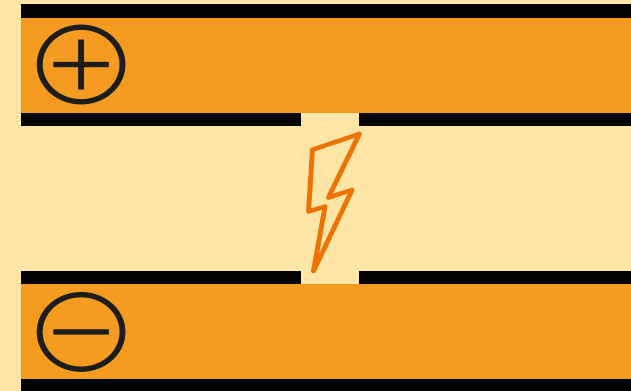


- Product failure
- Planning failure
- Installation mistake
- External influences

AFCI TECHNOLOGY

PARALLEL ARC

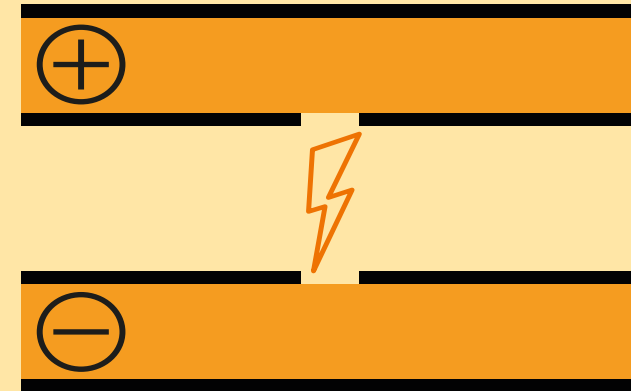
- Between two phases
- Between phase and ground



AFCI TECHNOLOGY

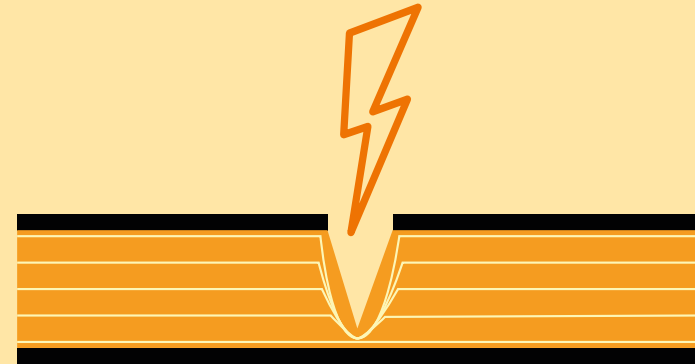
PARALLEL ARC

- Between two phases
- Between phase and ground



SERIES ARC

- Gap inside a conductor



AFCI TECHNOLOGY

PARALLEL ARC

- Between two phases
- Between phase and ground

SERIES ARC

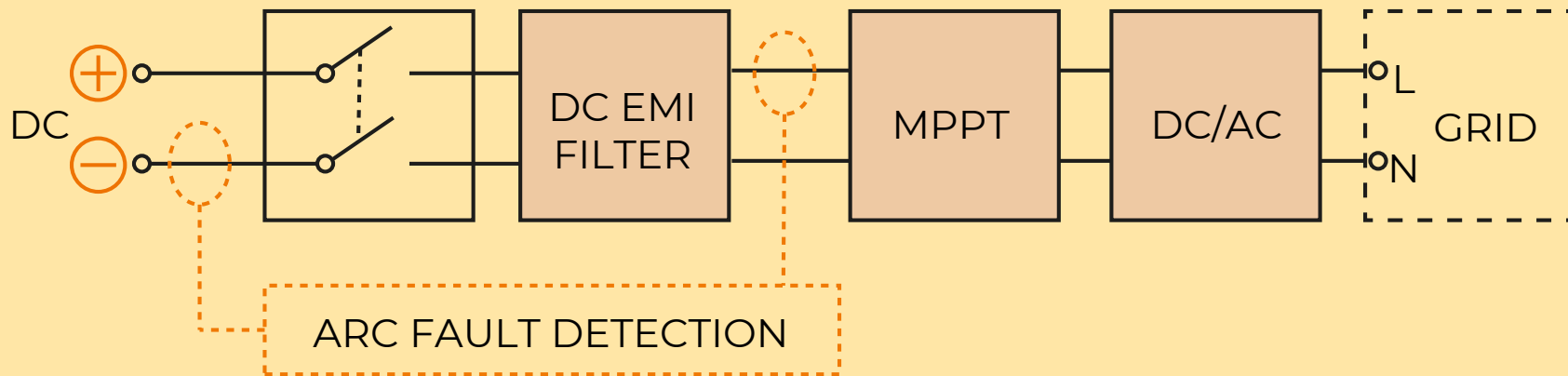
- Gap inside a conductor



AFCI TECHNOLOGY

Series arc

- Arc detection
- Circuit interruption (200ms)



ADVANCED

1-PHASE
Residential



2 kW – 6 kW

3-PHASE
Residential



3 kW – 20 kW

3-PHASE
Commercial



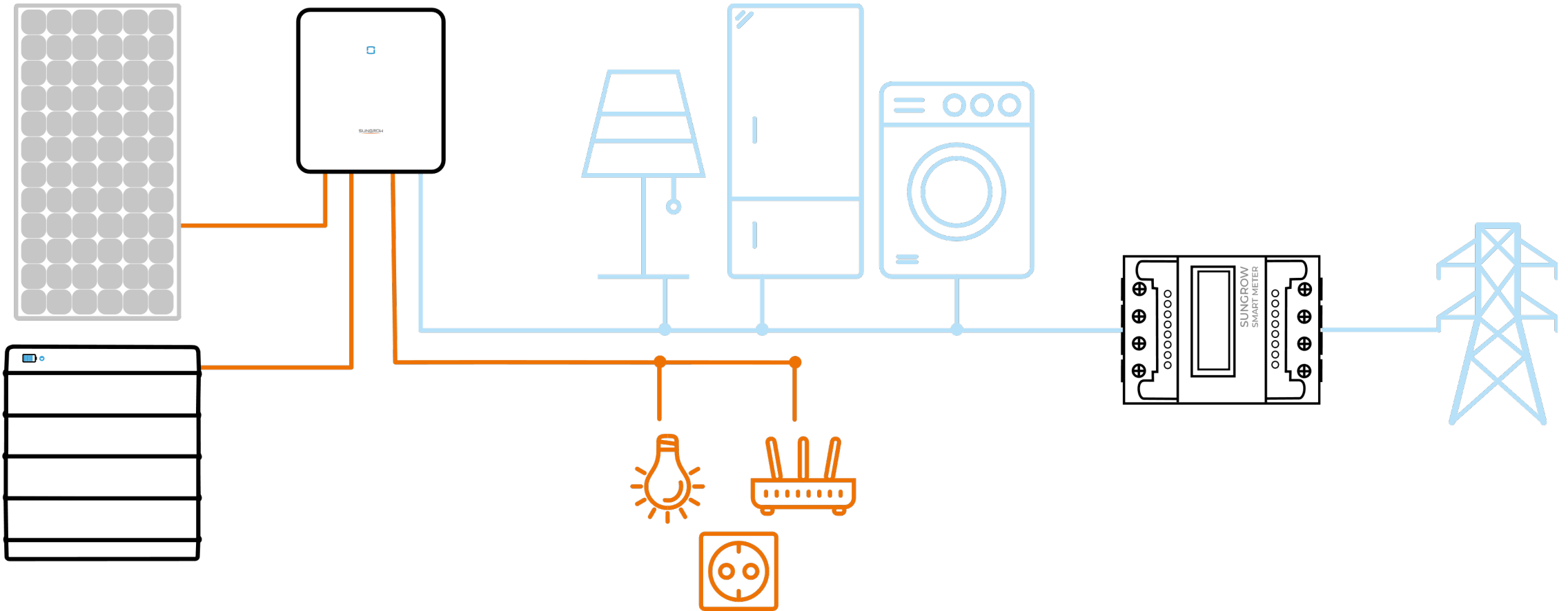
33 kW – 110 kW

3-PHASE HYBRID

BACKUP
AND
PARALLEL



BACKUP MODE

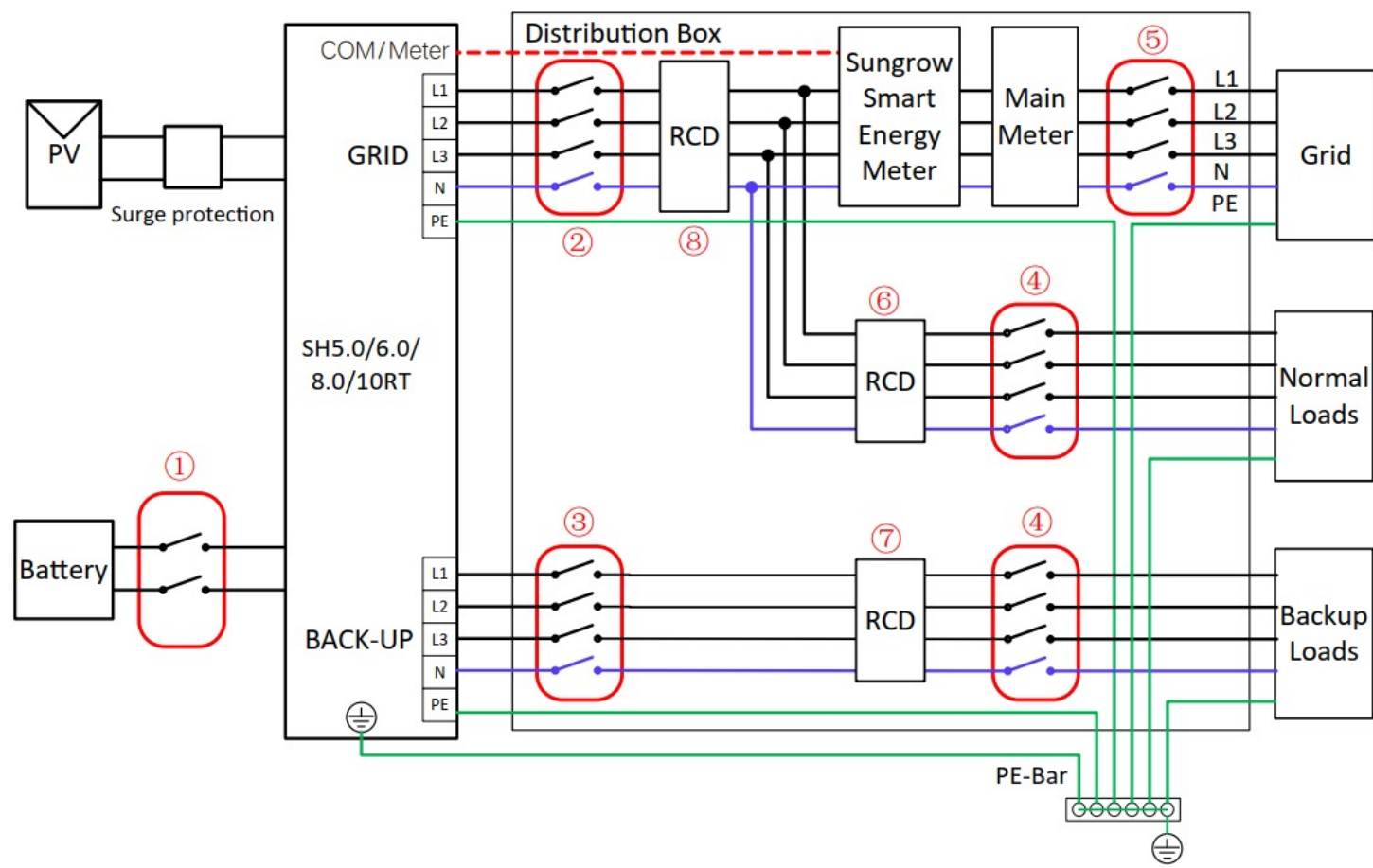


BACKUP MODE

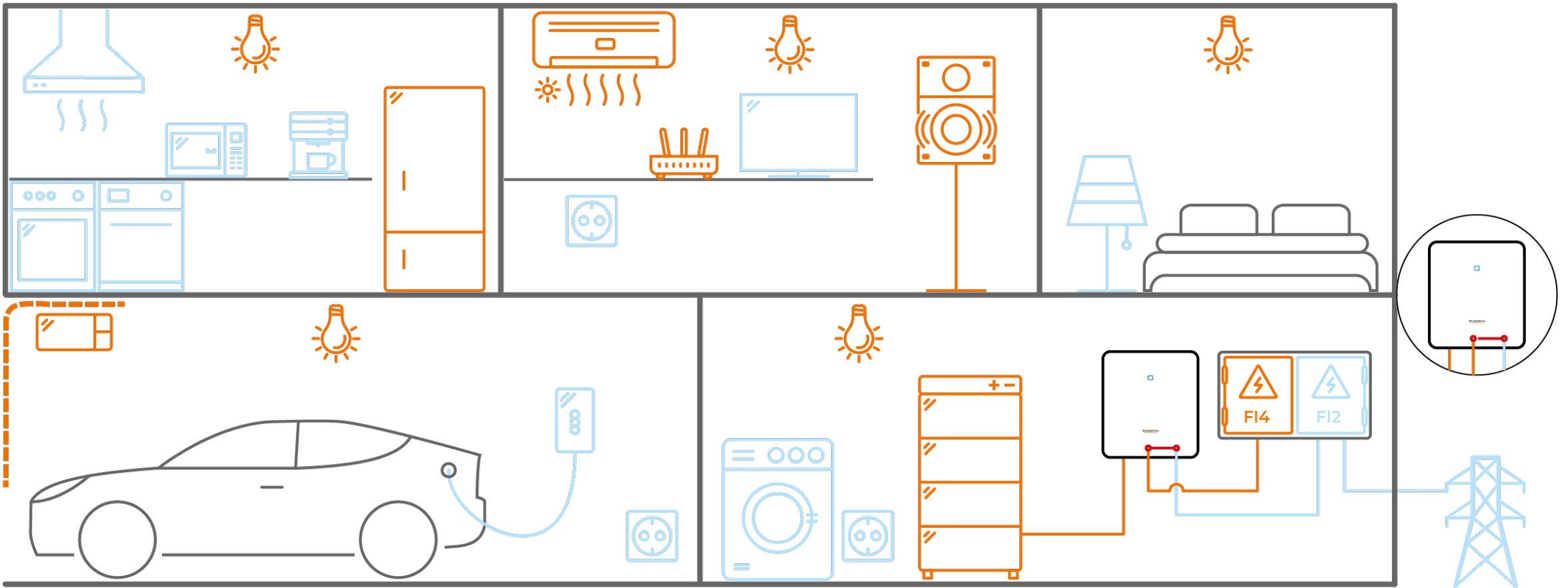
Model	①	②	③	④	⑤	⑥ ⑦	⑧
SH5.0/6.0RT	40A/600V	25A/400V AC breaker	25A/400V	Depends on loads	Depends on household loads and inverter capacity (Optional)	30mA RCD (Recommended)	300mA RCD (Recommended)
SH8.0/10RT	DC breaker *	32A/400V AC breaker	AC breaker				

Note: * If the battery is integrated with a readily accessible internal DC breaker, no additional DC breaker is required.

Note: The values in the table are recommended values and can be set to other values according to actual conditions.

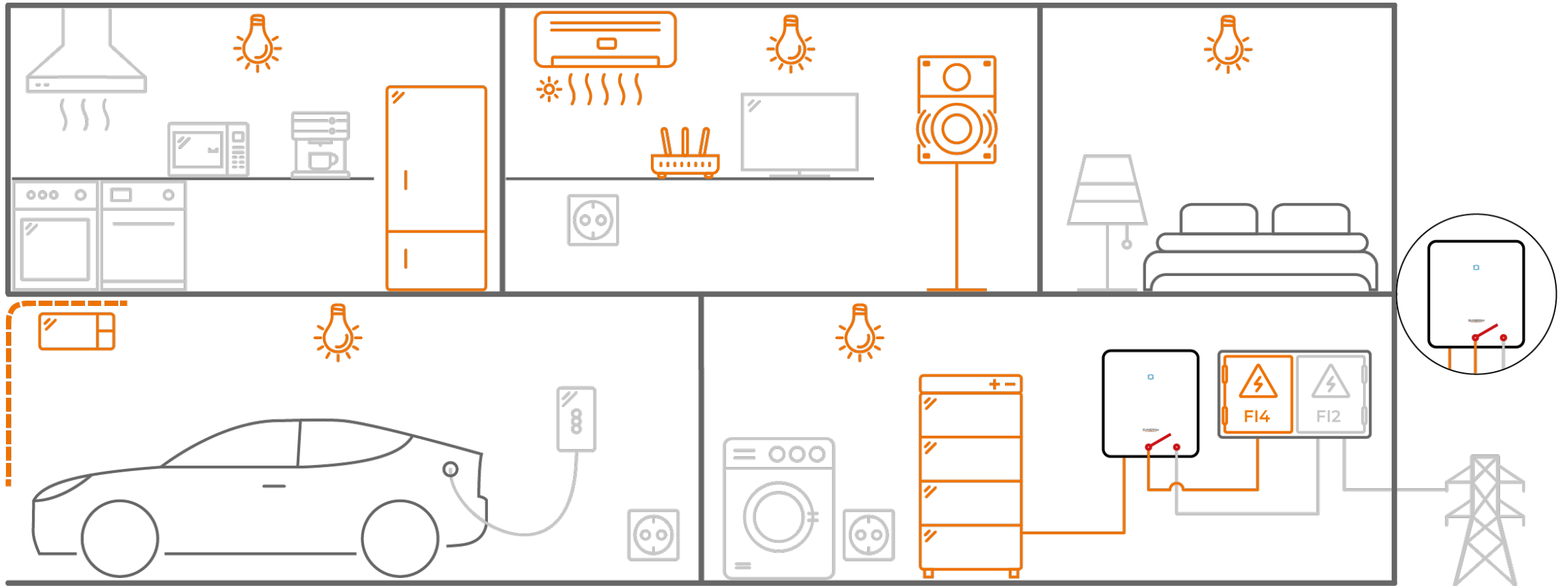


ON GRID



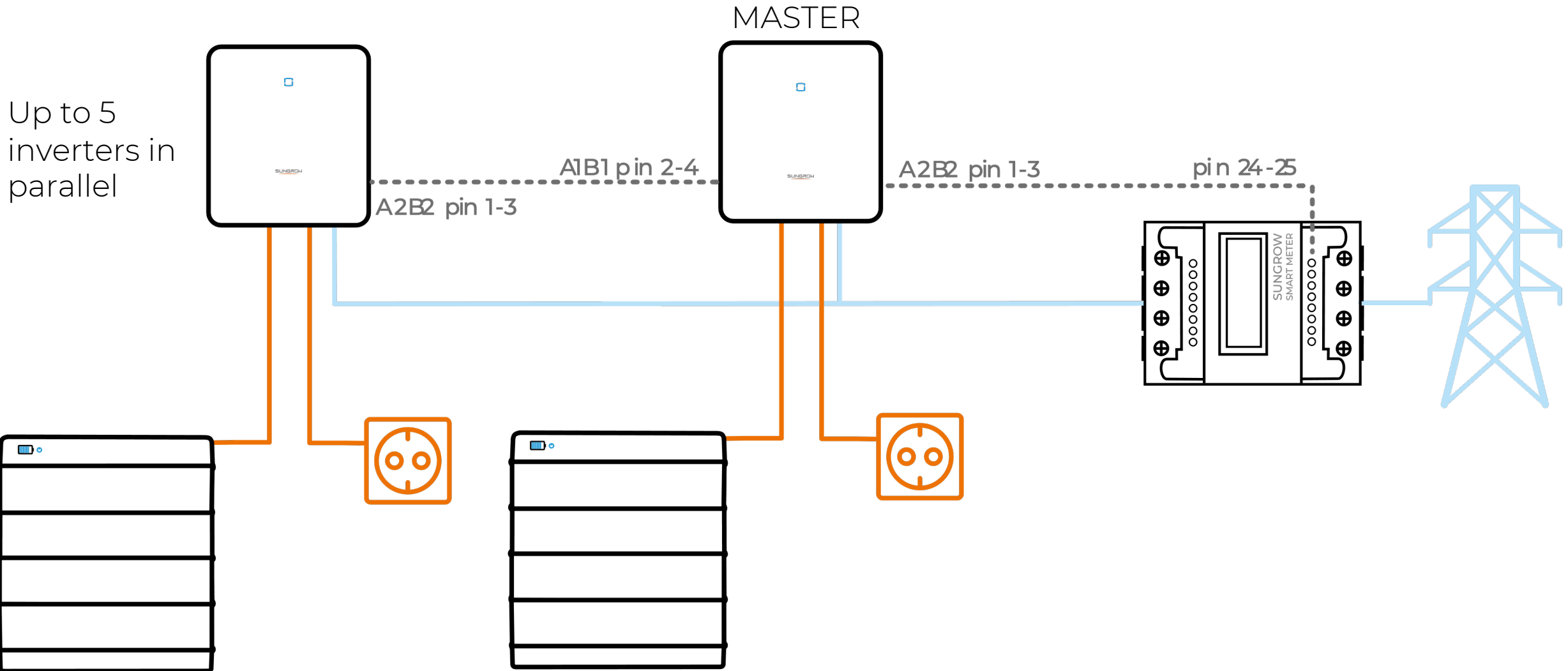
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POWER OUTAGE

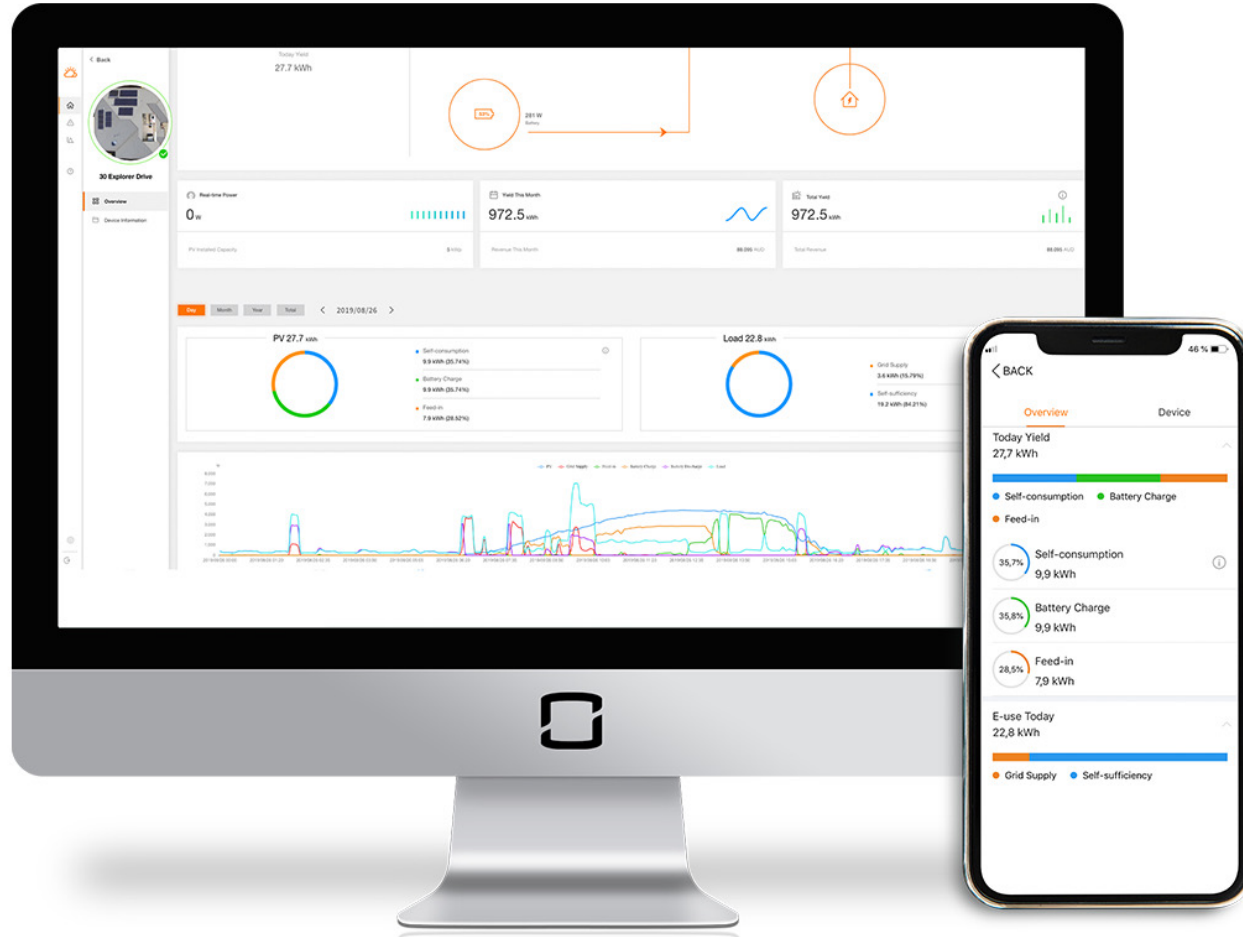


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PARALLEL MODE



MONITORING



iSolarCloud



www.isolarcloud.com

MONITORING



GDPR COMPLIANT

Server located in Europe

SECURE

redundant data storage

FLEXIBLE

iSolarCloud as APP and on desktop

FEATURE-RICH

Many useful features, gradual deployment of new functions

WINET-S

2-in-1

Wifi and Ethernet dongle

FREE

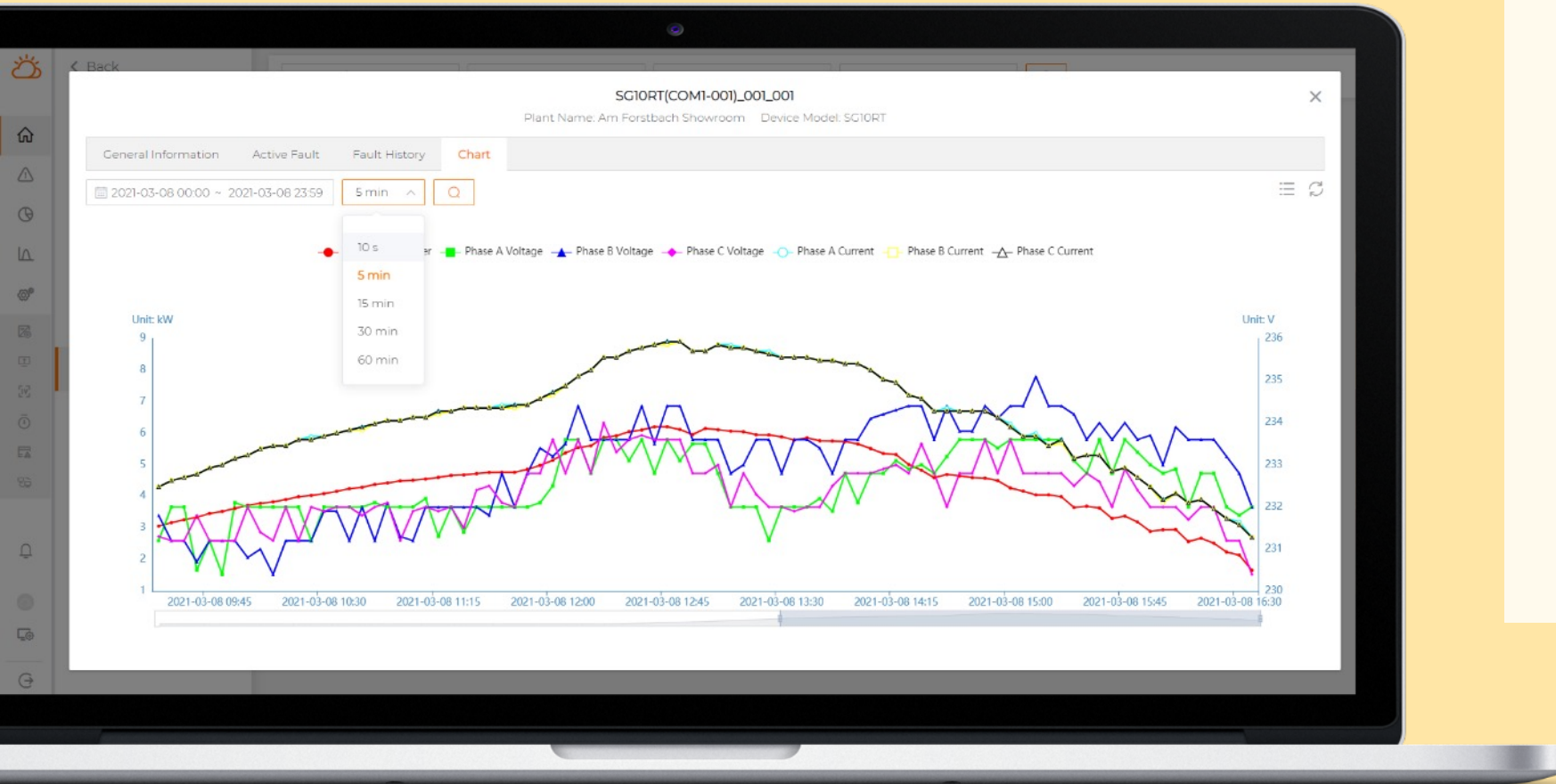
Included in scope of delivery

FAST

10 sec refresh rate for Total Power, Phase Current and Voltage



ADVANCED



EASY

Remote FW updates,
parameters settings

CONNECTED

Easy sharing

SMART

Live data, 10sec refresh time

COMPATIBILITY



1-PHASE
Residential



3-PHASE
Residential



3-PHASE
Hybrid



3-PHASE
Commercial



One more thing

The Battery

One more thing

Beyond powerful

9.6 - 100 kWh

Beyond powerful



Beyond easy

Modular, plug & play

Beyond easy



Beyond usual

Optimized for backup

Beyond usual



MX
DC 12/24V

PROJOY
electric
PEBS-H



(C) 50A
750V
IEC60947-2
Icu:6kA Cat:A



Beyond safe

LFP Battery, VDE2510-50

Beyond safe



Beyond powerful

Beyond easy

Beyond usual

Beyond safe



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www.sungrowpower.com