

pV magazine spotlight



Utility-scale inverter by
GoodWe – A long list of
functions lowers
system and O&M costs

July 27, 2020

9 am | CEST, Berlin

12.30 pm | IST, Delhi

5 pm | AEST, Sydney

powered by
GoodWe



Ali Bouattour

GoodWe

pV magazine **group**



GOODWE

YOUR SOLAR ENGINE



HT UTILITY-SCALE INVERTER:

A long list of features lowers system and O&M costs

July 2020

Ali Bouattour

GoodWe Europe GmbH

www.goodwe.com

GoodWe Global Presence



1200+ Employees



200+ Engineers



130+ Patents



12GW Production capacity

GoodWe: Globally leading inverter manufacturer



Product portfolio

- String inverters
- Storage inverters
- Monitoring solutions
- Energie management solutions



Precisely Right.

ALL QUALITY MATTERS AWARD

2015 - 2019



IHS Markit

2018



2017 - 2019







All data are preliminary and might change without prior notice

New: HT Utility-scale Inverter

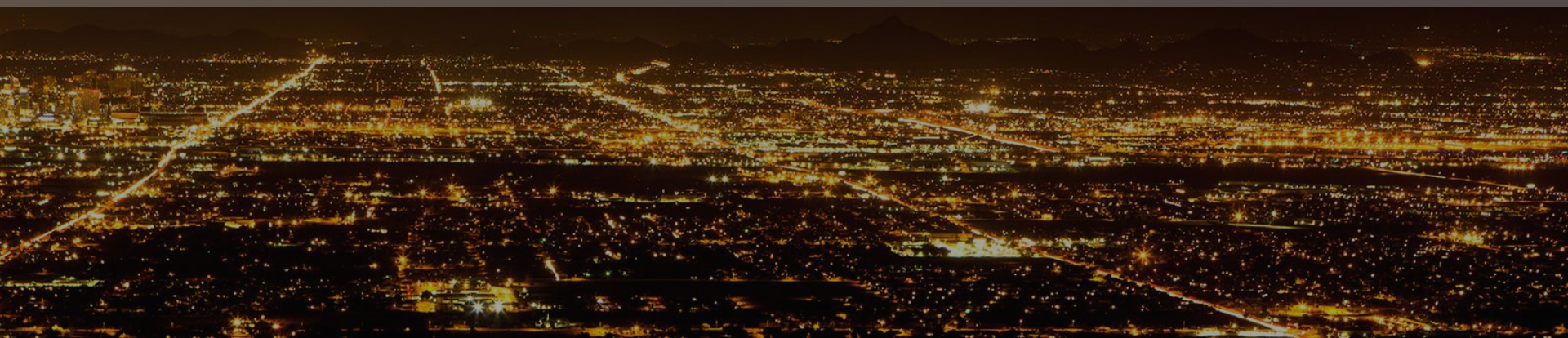


Key benefits:

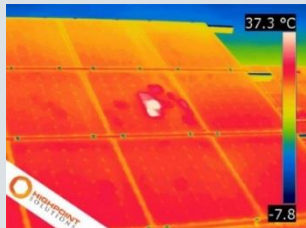
-  Higher energy yields
-  Lower investment costs
-  Simpler O&M
-  Reliable GoodWe quality

HT Series 100/110/120 kW (1100V DC / 400V AC)
HT Series 136 kW (1100V DC / 500V AC)
HT Series 250 kW (1500V DC / 800 V AC)

1. Higher energy yields



Multi-MPPT optimization of PV array performance



✗ Hot Spot



✗ Different tilt and azimuth



✗ Shattered



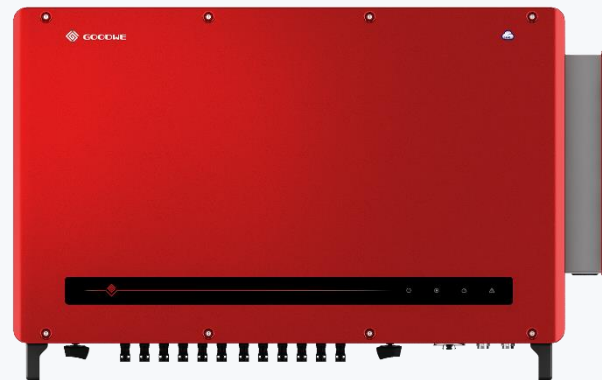
✗ Dirt



✗ Shading



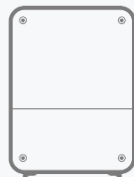
✗ Mismatch



GoodWe HT series

With up to **12 MPPT**, HT series inverters significantly reduce PV array losses.

DC oversizing to maximize installable power



Other inverter

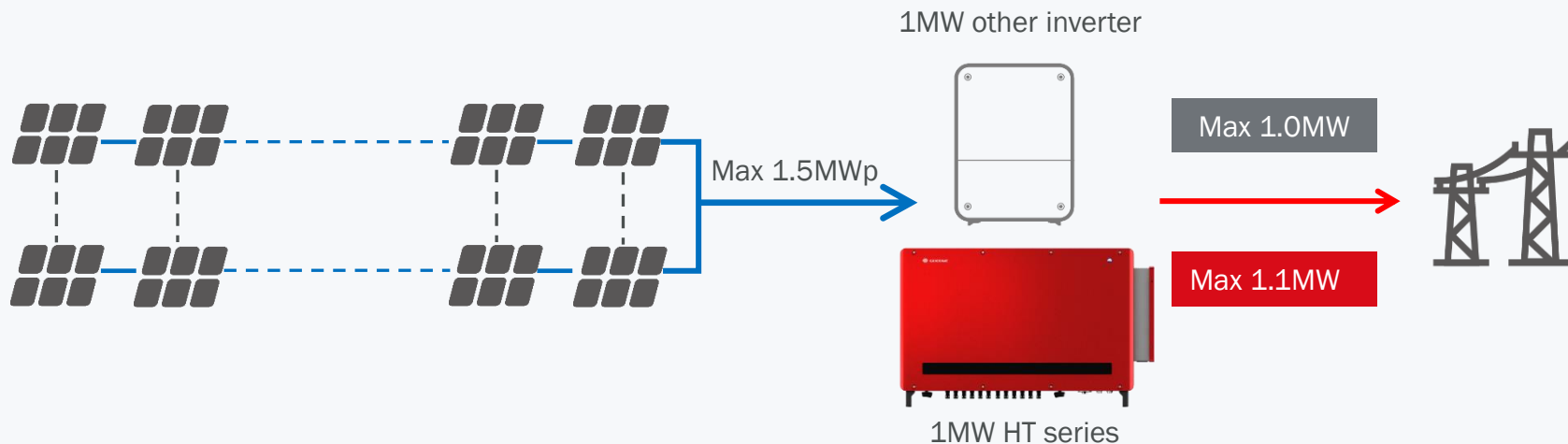
VS



GoodWe HT series

Up to **50% DC oversizing** capability increases the installable DC Power for a given AC capacity, and thus increases the energy yield.

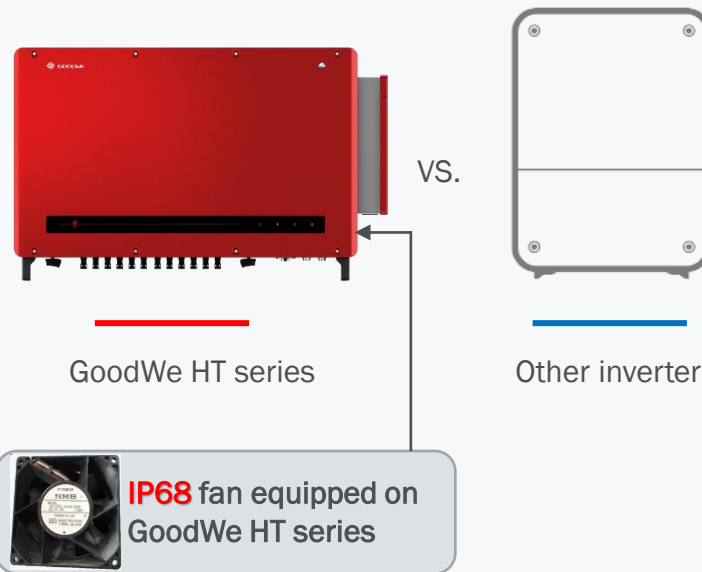
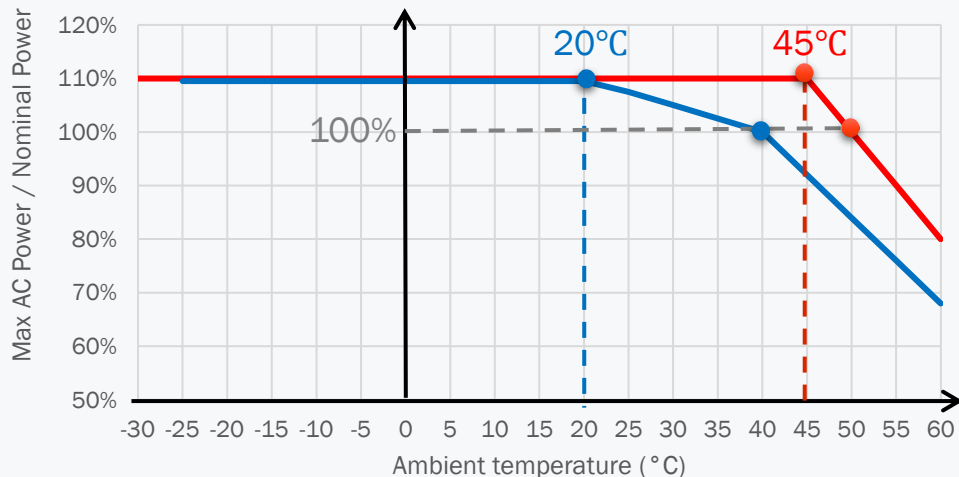
AC overloading to maximize power output



Up to **10% AC** overloading capability provides more AC output power, and thus increases the energy yield.

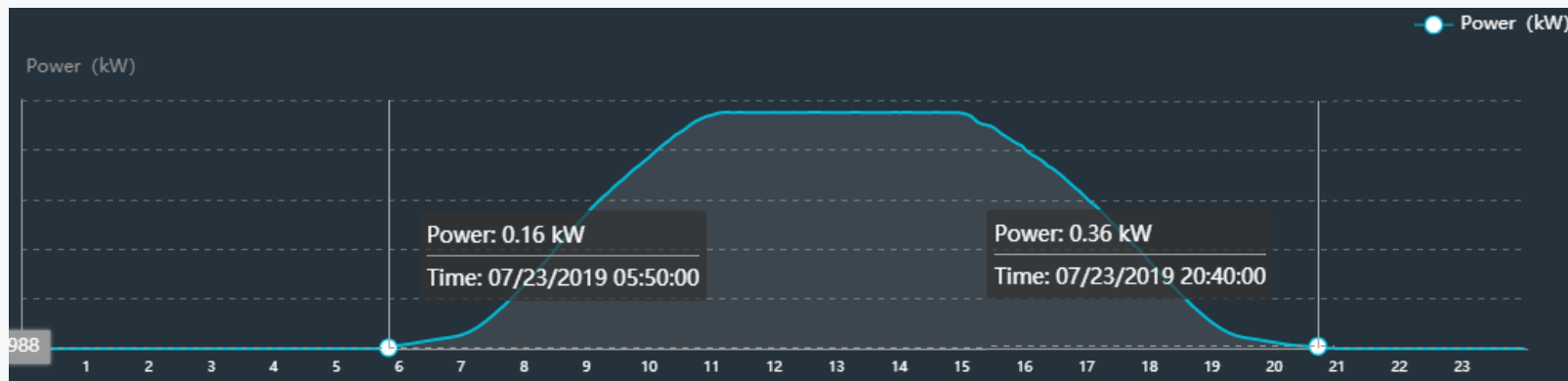
High Temperature Adaptability

Temperature derating curve



Derating threshold value of **45°C of HT Series** contributes to higher yield the in mild and hot areas.

Long operation hours due to low starting voltage



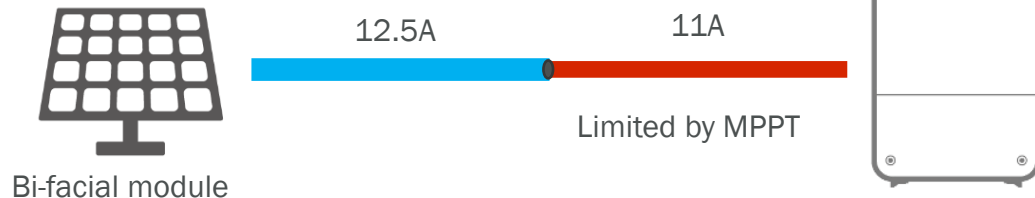
Power Curve of a reference site installation

Starting voltage 200V
Wide MPPT range: 180V – 1000V

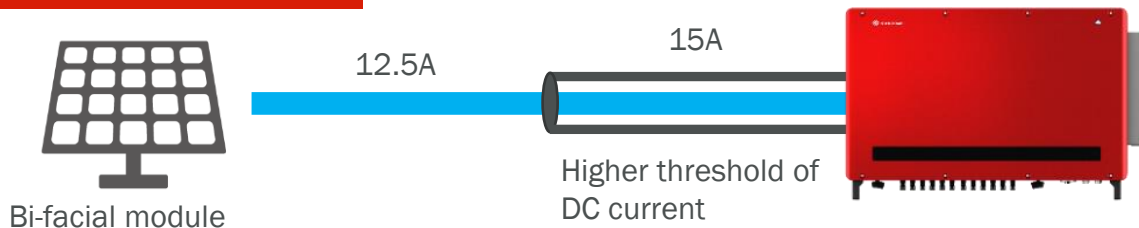


Compatible with Bi-facial modules

Other brand

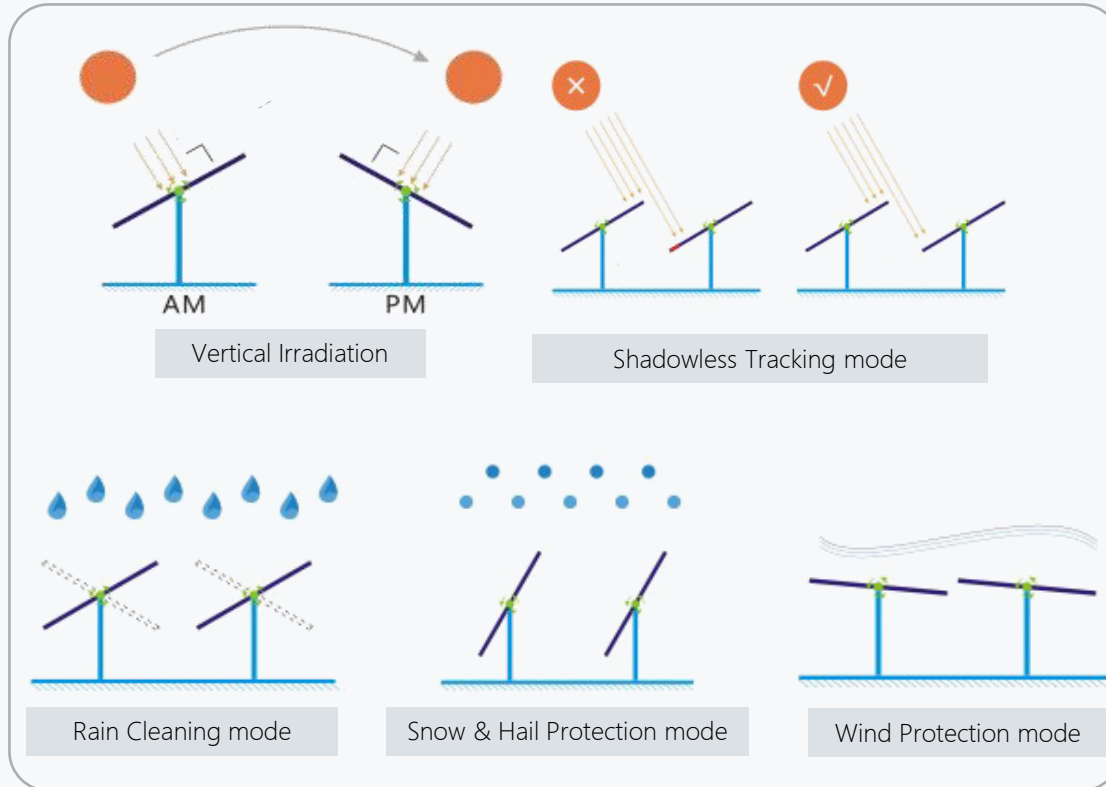


GoodWe HT series

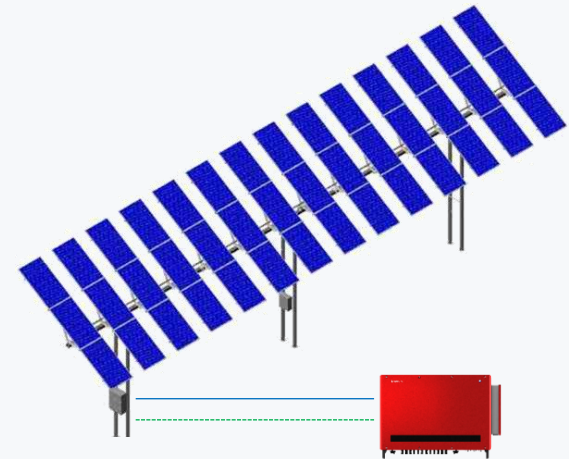


HT series inverters have a **DC current up to 15A per input** and are fully compatible with bi-facial modules.

Compatible with Tracking System



- Power supply to tracking system
- Communication with tracking system



Higher yields with HT inverters



Multi-MPPT optimization of PV array performance
10 - 12 MPPTs



Long operation hours due to low starting voltage

Starting voltage 200V

MPPT range: 180V – 1000V



DC oversizing to maximize installable power

Up to 50% DC oversizing



Compatible with Bi-facial modules

Up to 15A DC current per input



AC overloading to maximize power output

Up to 10% AC oversizing



High temperature adaptability

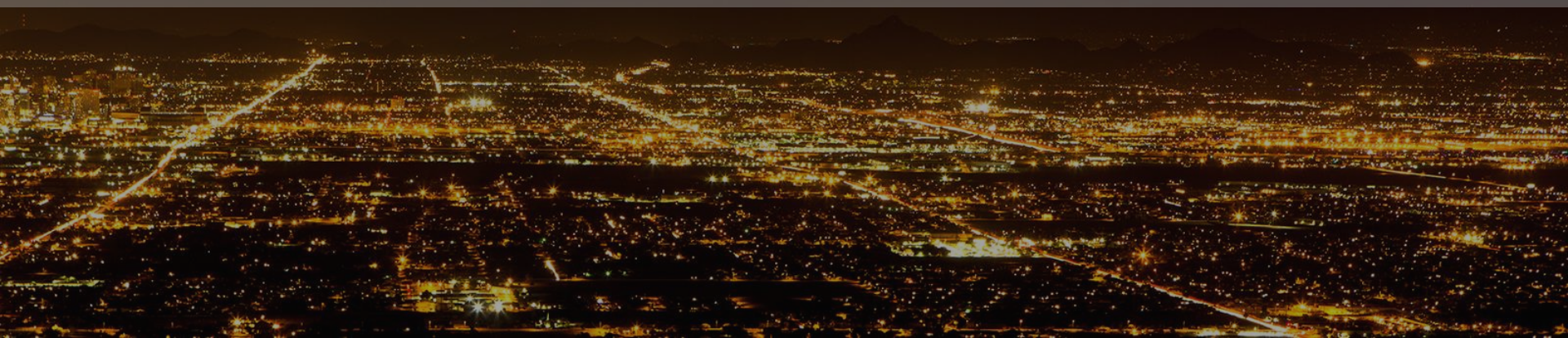
Derating threshold at 45° C



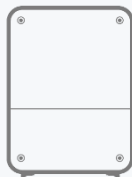
Compatible with tracking systems

Power supply and communication possible

2. Lower investment



Less inverters needed for a given DC power



1.2 MWp with 10x 100kW other inverter

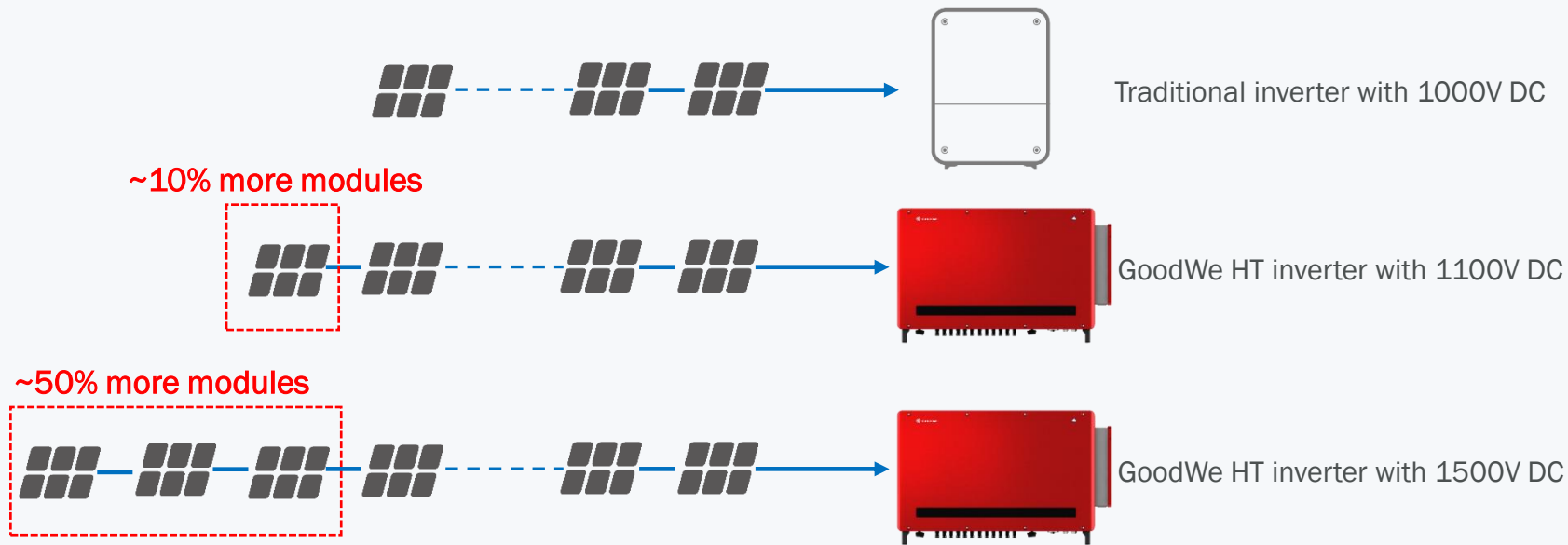
VS



1.2 MWp with 8 x GoodWe HT-100kW

Up to **50% DC** oversizing capability of GoodWe inverters reduces the number of inverters

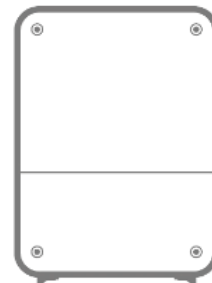
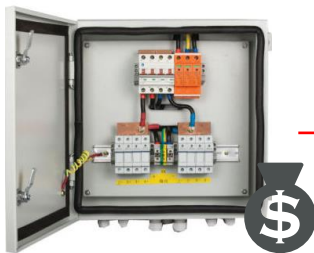
1100V and 1500V DC voltage reduce DC cabling costs **GOODWE** your solar engine



Up to **50%** lower DC cabling costs

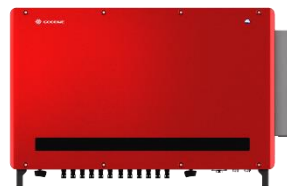
Fully Integrated SPD on the DC & AC & communication boards

Other brand



Extra expense spent on string box including SPD and breakers.

GoodWe HT series



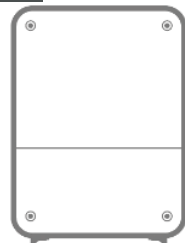
Standard Type II SPD on AC & DC sides;

Type I SPD is optional on AC & DC sides

Type III SPD on communication board

Anti-PID Board Integrated

Other brand



Inverter

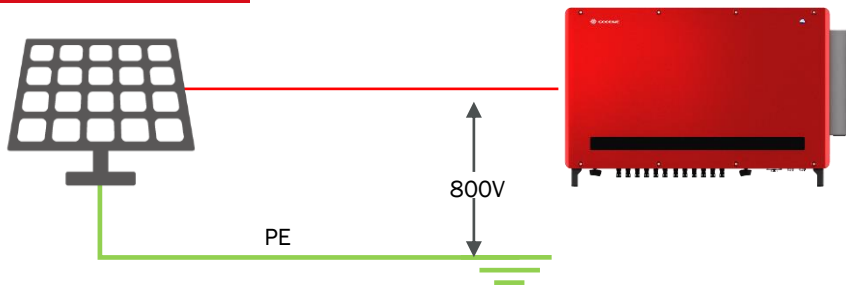
+



External anti-PID box

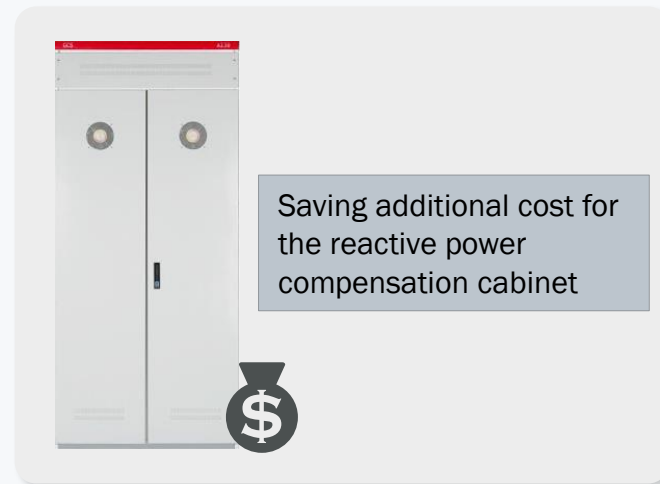
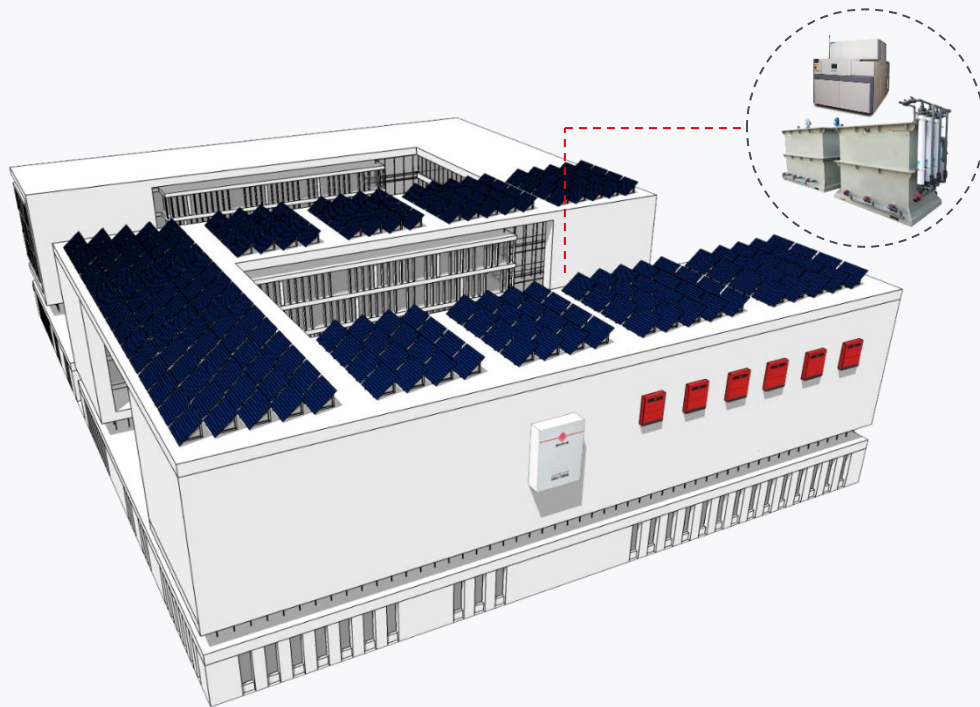
Extra expense spent external Anti-PID box

GoodWe HT series



The anti-PID function applies a reverse 800V voltage between modules negative and PE during the night.
Retrofit on field possible.

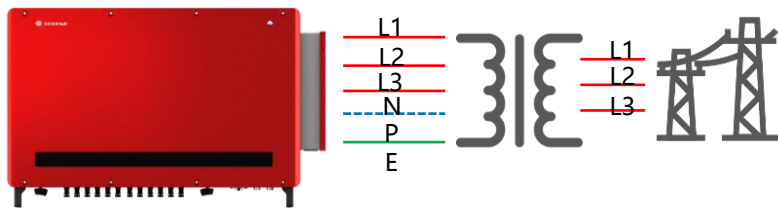
Dynamic reactive power compensation



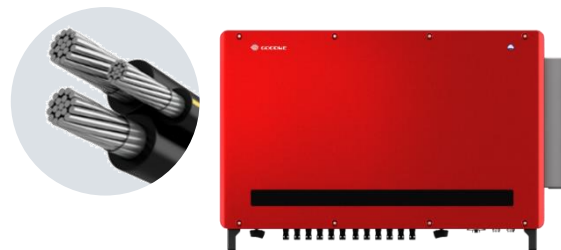
- The default setting of inverter PF is 1
- Active power range -0.8 - +0.8
- Reactive power output changes dynamically with the actual demand
- Possible with SEC1000 accessory

Multiple AC Cable Saving Solutions

Optional neutral cable saves 25% AC cable



Up to 4x300mm² + 1x150mm² cables (Al or Cu)



Lower investment costs with HT inverters



**Less inverters needed for a given
DC power**

Up to 50% DC oversizing



Less external equipment needed

Dynamic reactive power
compensation integrated



Up to 50% DC cable cost savings

1100V and 1500V DC versions



Less external equipment needed

Fully Integrated SPD on the DC & AC &
communication boards



Up to 25% AC cable cost savings

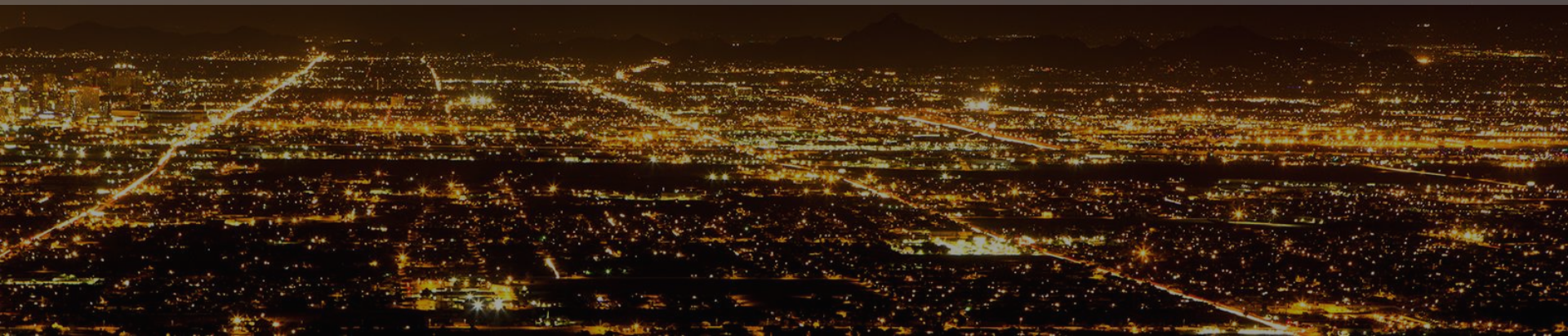
Connection of neutral wire optional



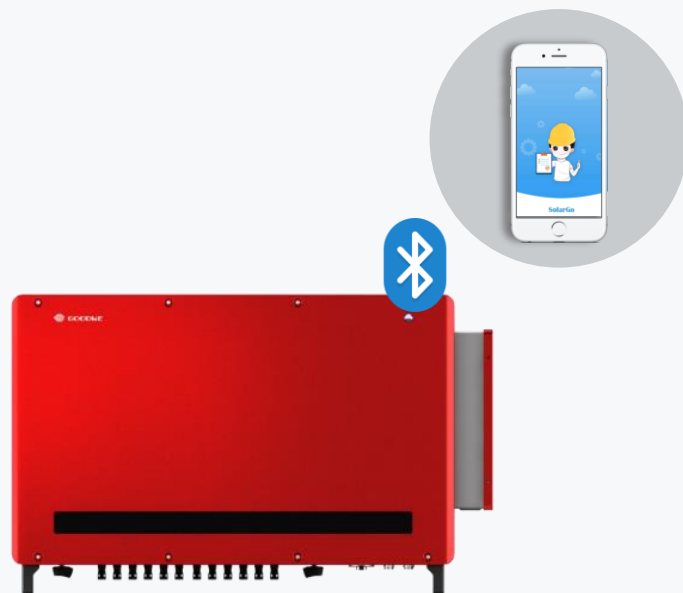
Less external equipment needed

Anti-PID Board Integrated

3. Simple O&M

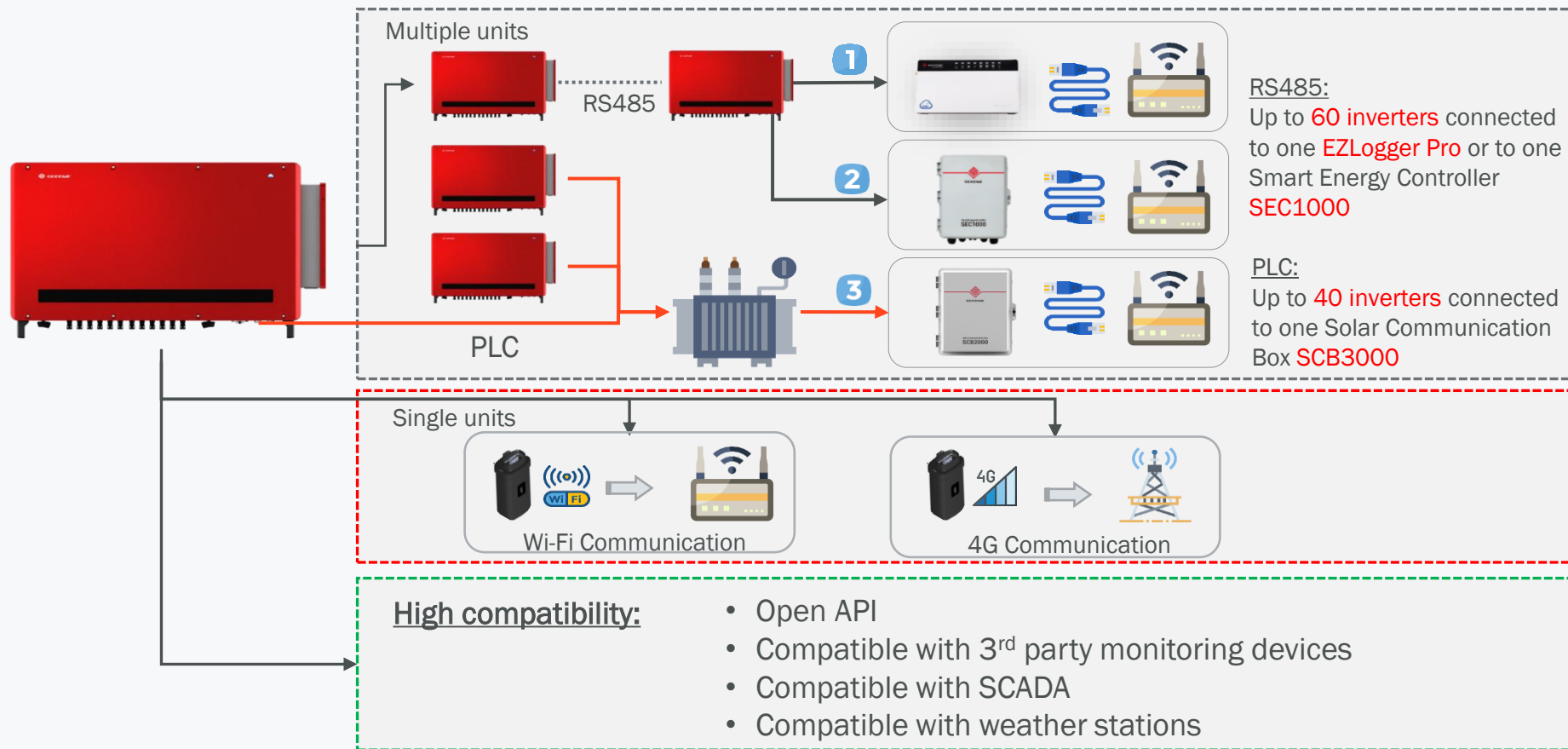


Convenient Configuration App or on Display



Standard: Bluetooth
Optional: Display

Flexible monitoring solutions

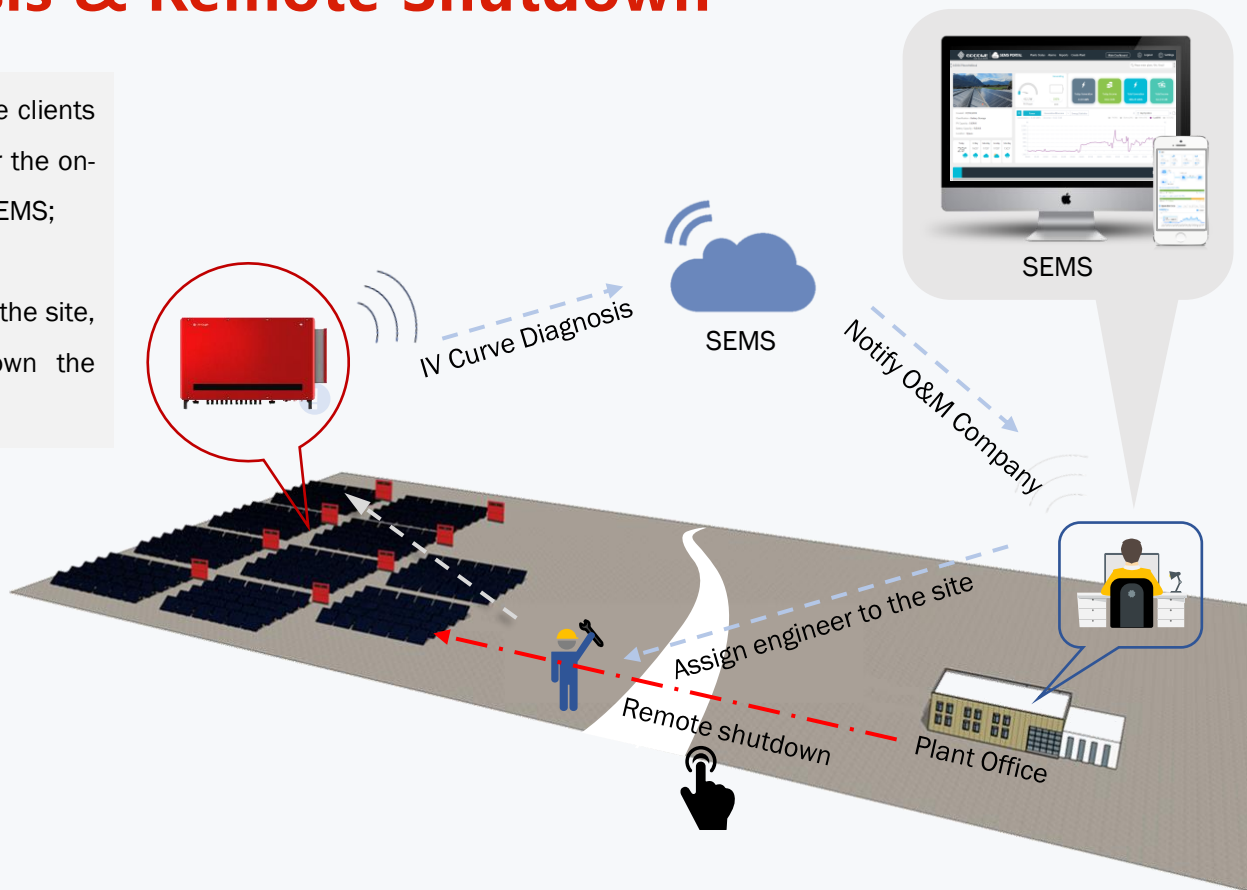


Remote Diagnosis & Remote Shutdown

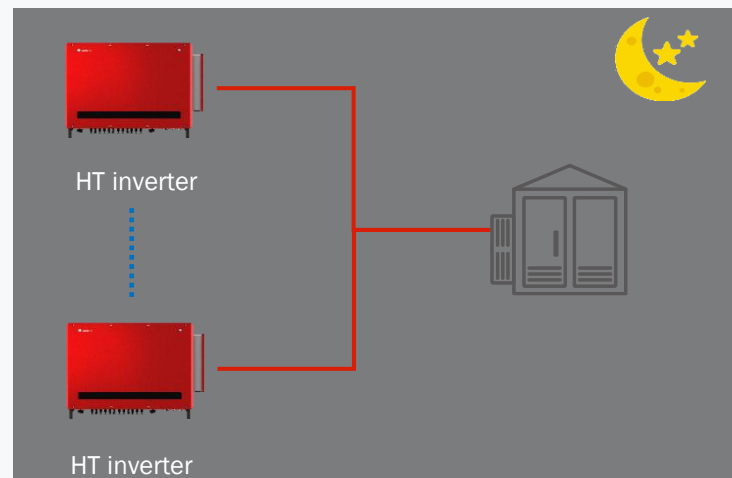
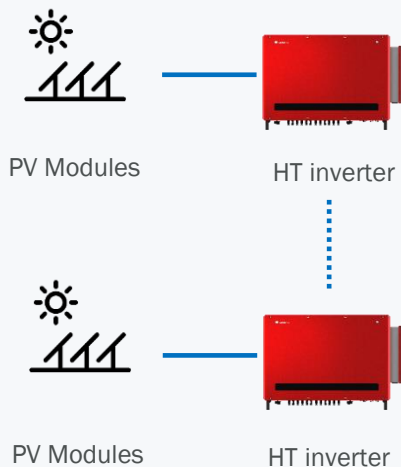


Based on the string-level monitoring, the clients can locate the problem and navigate for the on-site engineer by IV Curve Diagnosis on SEMS;

If any emergency situation happened at the site, the O&M team can remotely shutdown the inverters.



24 Hours Monitoring



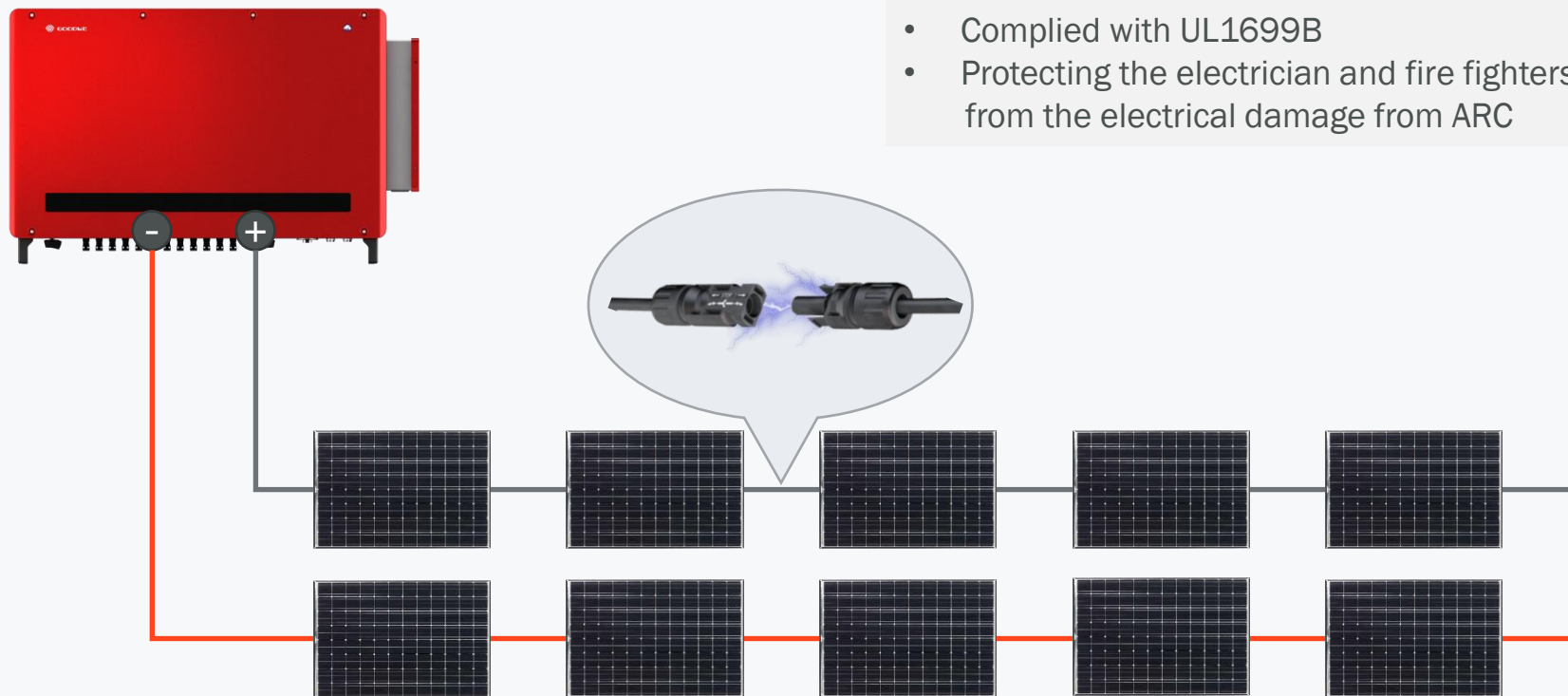
- DC & AC power supply
- The PV system can be monitored around the clock
- The night reactive compensation is available
- Maintenance work such as parameters setting can be done in the evening

Protection from Fire Hazard

AC Connector Temperature Detection



Protection from ARC Failure



Lower O&M costs with HT inverters



Convenient configuration

APP or Display based, Bluetooth communication



24 hours monitoring

Reactive power compensation by night possible



Flexible monitoring solutions

RS485, Bluetooth, LAN, PLC, Optical fiber, High compatibility



High failure detection capabilities

AC connector temperature detection and ARC failure detection



Supports remote O&M

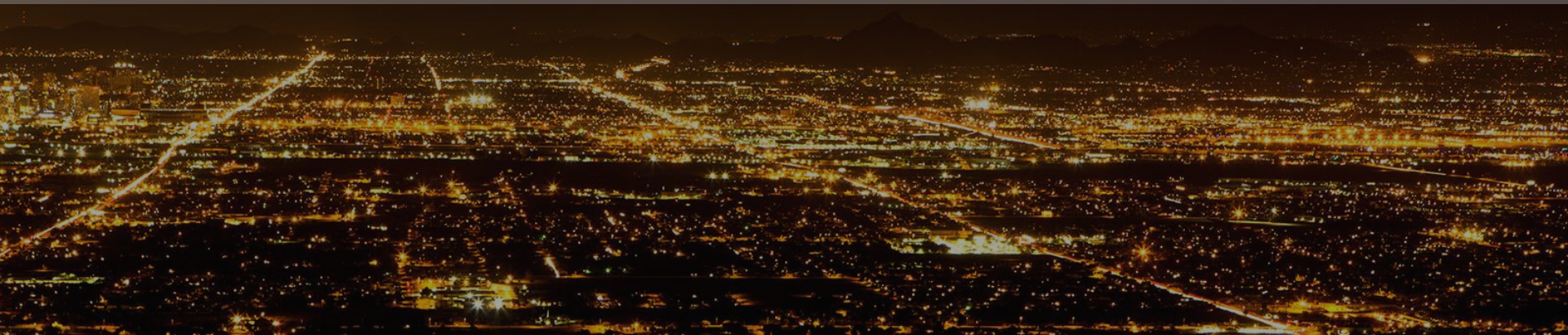
IV curve diagnosis & remote shutdown



Less external equipment needed

Integrated string monitoring

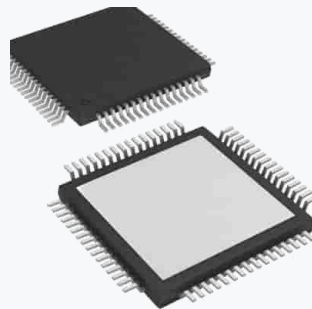
4. Reliable GoodWe Quality



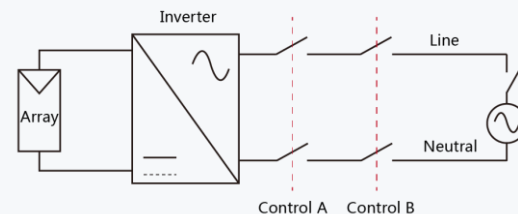
Multiple redundant protection guarantees uninterrupted operation of inverter with long life cycle



Redundant protection
Engines of aircraft



DSP – digital signal processor
Similar with CPU of PC
Master and slave DSP integrated



Relay – AC switch of inverter
Protection for maintenance people
Two sets Relay integrated

Diverse Laboratory Tests

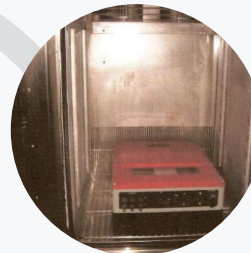
Salt spray test
By GoodWe
Anti-corrosion of surface



IP65 test
By TUV



Temperature test
Highest and lowest working Tem



Quality First

HALT test
-30°C-60°C
Unlimited times cycles



Vibration test
Transportation protection



Noise test
Full load operation



Strict Control of Production



ATS Test

Every single inverter will be tested on GoodWe self-developed ATS test platform to make sure they are 100% ready before delivery.

Aging Test

After assembled, each inverter will simulate the normal work status in the aging room with 45°C for at least 8 hours, in order to make sure they are reliable in working in the hot weather.



ISO9001 Certified Production Line

The production procedure is strictly regulated according ISO9001 standard and internally instructed by relevant department.






Antistatic Plant

The standard antistatic plant in GoodWe's new facility reduce the risk of damaging the key components by static from human bodies, guaranteeing the quality of the inverter manufactured.

Summary: HT Utility-scale Inverter



Key benefits:

-  Higher energy yields
-  Lower investment costs
-  Simpler O&M
-  Reliable GoodWe quality

HT Series 100/110/120 kW (1100V DC / 400V AC)
HT Series 136 kW (1100V DC / 500V AC)
HT Series 250 kW (1500V DC / 800 V AC)

THANK YOU FOR YOUR TIME

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