

# Solar Module-Level Power Electronics

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August 2018



**Product Catalog**

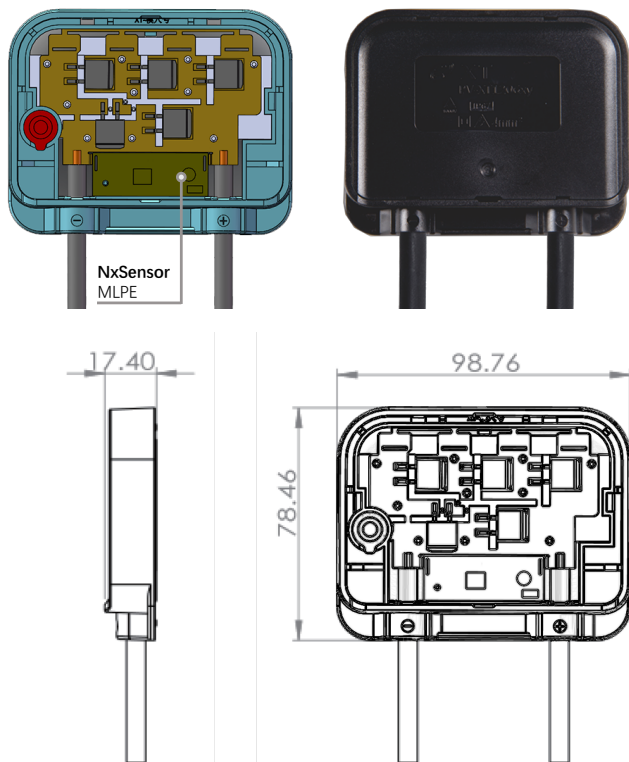


# Smart Junction Box

( PN: NX-SXT-SJB-001 )

An innovative value-added junction box with integrated NxSensor MLPE device brings smart functionalities to a solar panel. It supports following features:

- Solar PV module-level monitoring
- Solar PV module-level rapid shutdown
- Wireless communication via HOHWave™
- Wireless-tag based asset management



## Specifications

### Mechanical & Environmental

Size (without cables) 98.8mm\*17.4mm\*78.5mm

Operating Temp. -30°C to +75°C

Storage Temp. -40°C to +85°C

IP Rating IP68

Sealing Type Potting

### Electrical

Rated Voltage 1000V / 1500V

Rated Current 15A

Connectors MC4 / MC4 compatible

Max. Input Voltage 90V

### Monitoring

Voltage Range 7V to 60V, ±0.2V

Temperature Range -30°C to +75°C, ±0.5°C

Sampling Rate 1 min. to 5 min.

### Safety

Rapid Shutdown NEC 2017 690.12

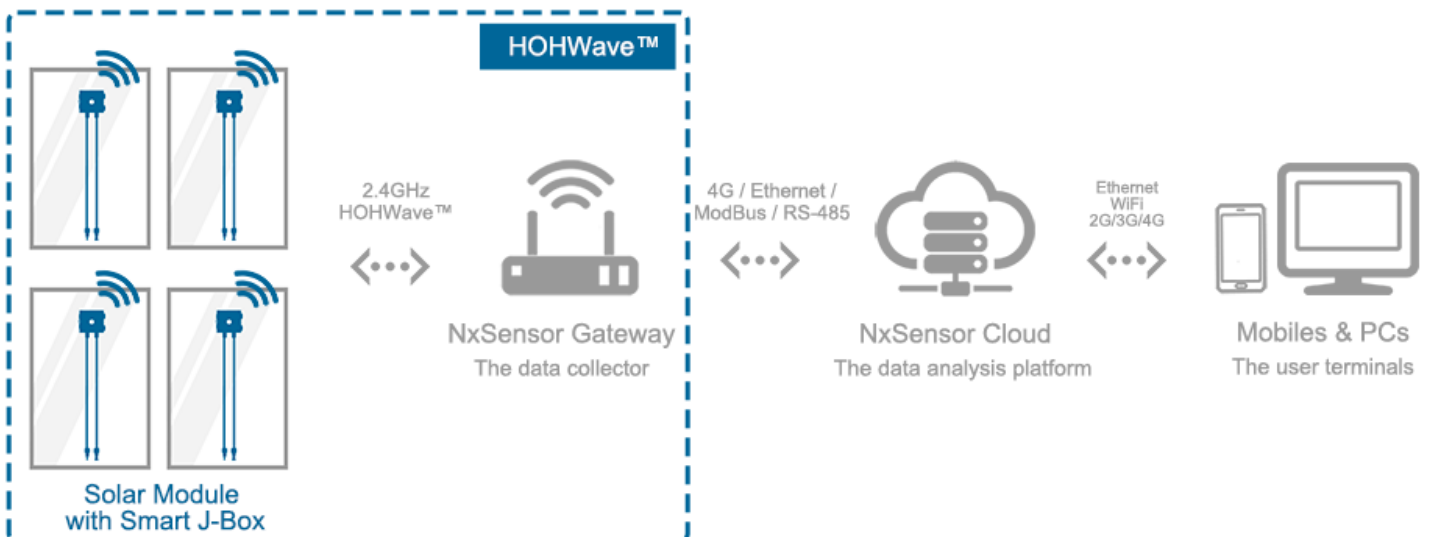
### Wireless Radio

Radio 2.4GHz ISM band

Wireless Protocol HOHWave™ MESH Network

### Power

Power Consumption < 50mW

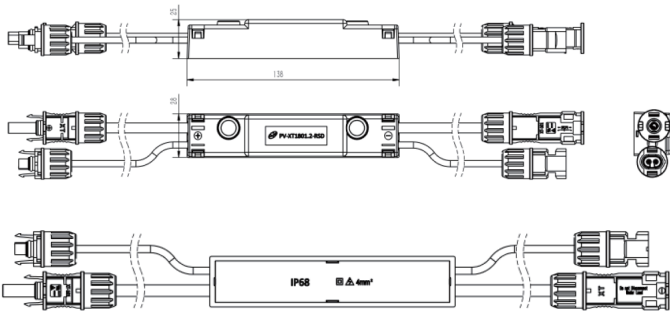


# Add-on / Retrofit Box - X

( PN: NX-SXT-ABX-001 )

The Box-X is an add-on junction box that contains NxSensor MLPE device. It is a retrofit approach to upgrade existing solar power systems with smart functionalities:

- Solar PV module-level monitoring
- Solar PV module-level rapid shutdown
- Wireless communication via HOHWave™
- Wireless-tag based asset management



## Specifications

### Mechanical & Environmental

Size (without cables) 138mm\*28mm\*25mm

Operating Temp. -30°C to +75°C

Storage Temp. -40°C to +85°C

IP Rating IP68

Sealing Type Potting / Rubber

### Electrical

Rated Voltage 1000V / 1500V

Rated Current 15A

Connectors MC4 / MC4 compatible

Max. Input Voltage 90V

Wiring Parallel connection ( replace original +/- cable output )

### Monitoring

Voltage Range 7V to 60V, ±0.2V

Temperature Range -30°C to +75°C, ±0.5°C

Sampling Rate 1 min. to 5 min.

### Safety

Rapid Shutdown NEC 2017 690.12

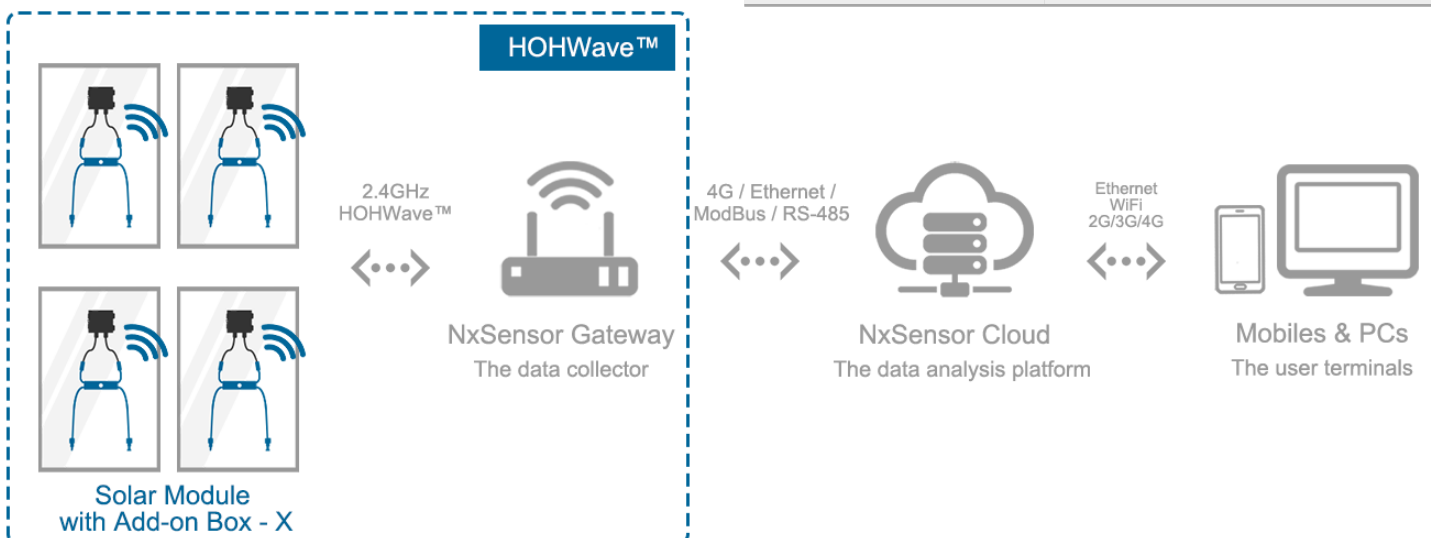
### Wireless Radio

Radio 2.4GHz ISM band

Wireless Protocol HOHWave™ MESH Network

### Power

Power Consumption < 50mW

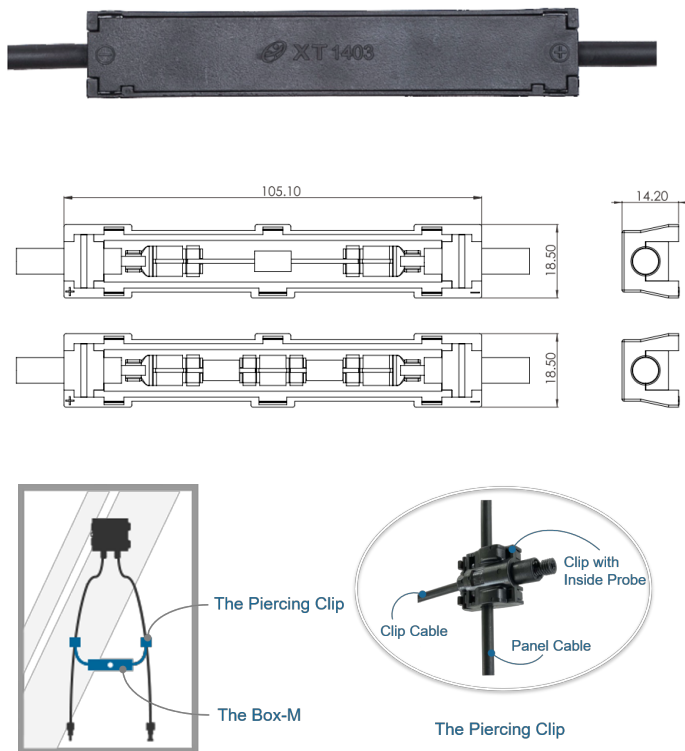


# Add-on / Retrofit Box - M

( PN: NX-SXT-ABM-001 )

The Box-M has a pair of piercing clips that could be easily attached to any solar panels. It is a fast and cost effective way to upgrade existing solar power systems with NxSensor MLPE functionalities. It supports:

- Solar PV module-level monitoring
- Wireless communication via HOHWave™
- Wireless-tag based asset management
- Fast & easy wiring & connection



## Specifications

### Mechanical & Environmental

Size ( Box-M without cables or clips)	105.1mm*18.5mm*18.5mm
Operating Temp.	-30°C to +75°C
Storage Temp.	-40°C to +85°C
IP Rating	IP68
Sealing Type	Potting / Rubber

### Electrical

Rated Voltage	1000V / 1500V
Rated Current	15A
Connectors	MC4 / MC4 compatible
Max. Input Voltage	90V
Wiring	Parallel connection ( standalone monitor, no RSD )

### Monitoring

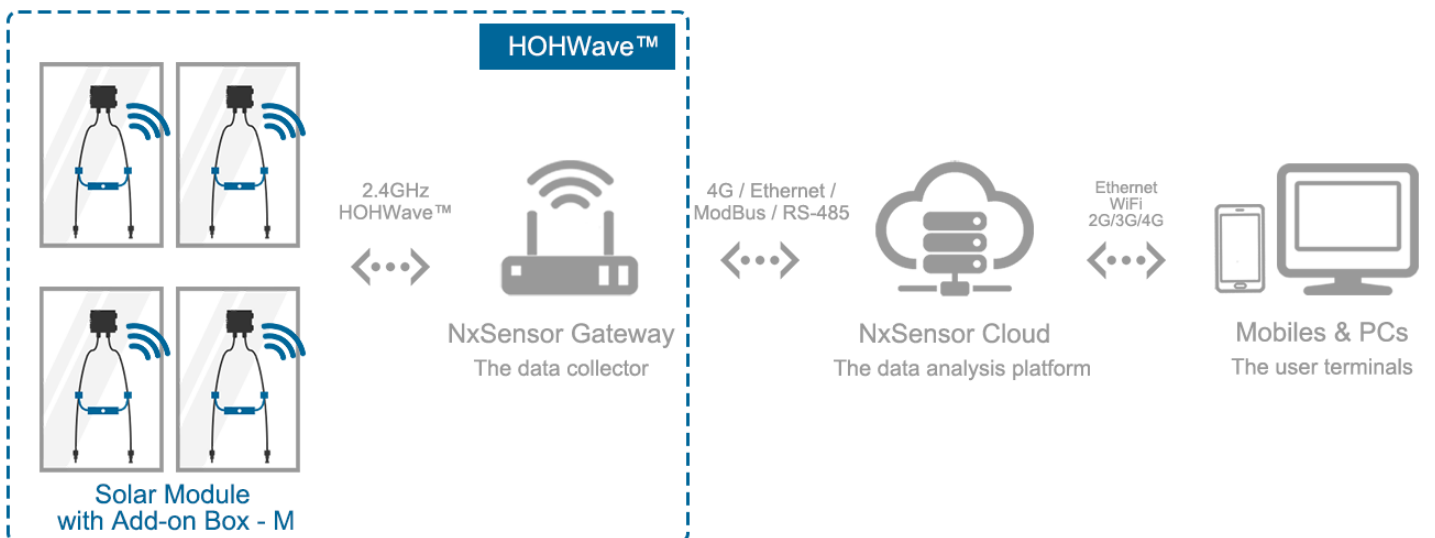
Voltage Range	7V to 60V, ±0.2V
Temperature Range	-30°C to +75°C, ±0.5°C
Sampling Rate	1 min. to 5 min.

### Wireless Radio

Radio	2.4GHz ISM band
Wireless Protocol	HOHWave™ MESH Network

### Power

Power Consumption	< 50mW
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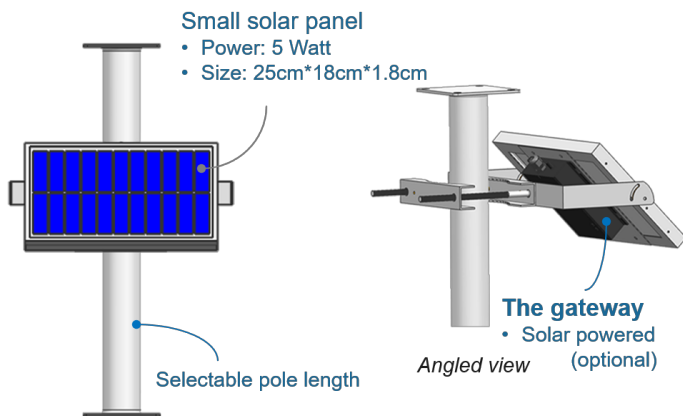


# Gateway

( PN: NX-G24-SP-001 )

The gateway manages the data transmission and logging of your solar assets by wirelessly communicating with NxSensor smart junction boxes and add-on / retrofit boxes.

- Internet connection via cellular network
- Wireless mesh network via HOHWave™
- Access 500+ nodes of NxSensor MLPEs
- External interfaces for RSD controlling
- Plug & play, easy of setup and installation



## Specifications

### Mechanical & Environmental

Size (main body) 105mm\*130mm\*28mm

Operating Temp. -30°C to +70°C

IP Rating IP65

Weight (main body) 0.45 kg

### Wireless Connectivity

Radio • 2.4GHz ISM band  
• Cellular LTE

2.4GHz Wireless HOHWave™ MESH Network

Antenna 2.4-2.5GHz SMA Male \* 2

Network Capacity 500+ nodes per gateway

Message Length Max. 64-byte length

Throughput 100 uplink messages / 1 min.

Multi-Hop 30m per hop, typ. 10 hops

Protocol MQTTS, HOHWave™

### Interface

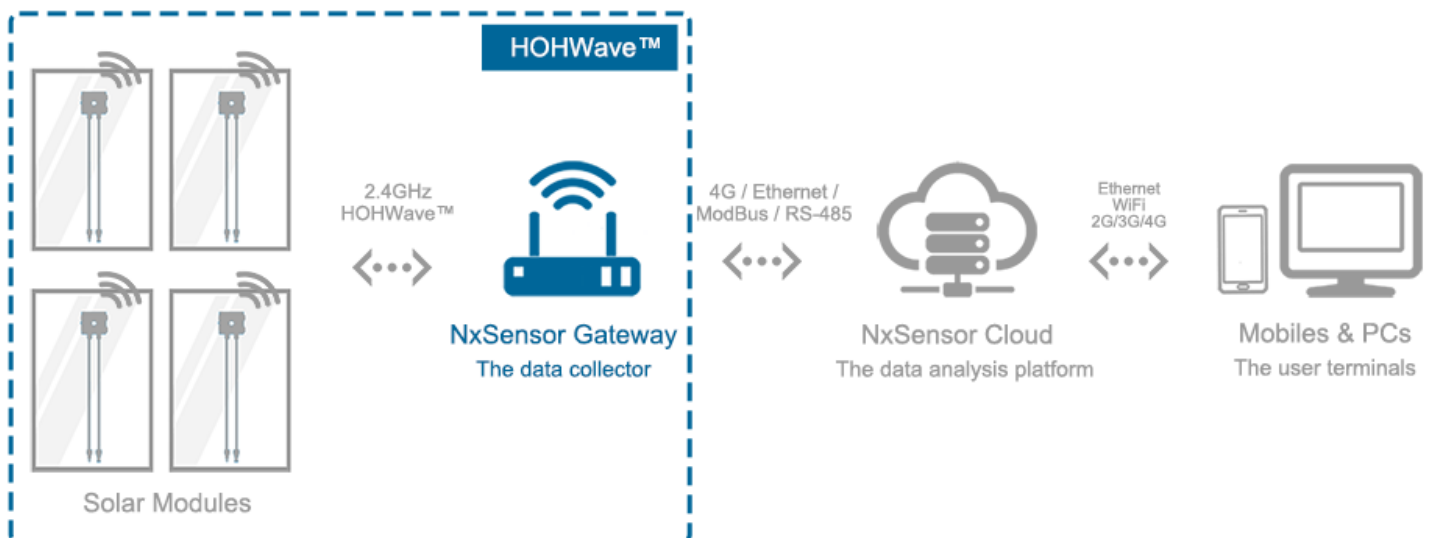
RS485 / Modbus Connect with inverters

ON / OFF signal Rapid shutdown controlling

### Power

Power Consumption < 1W

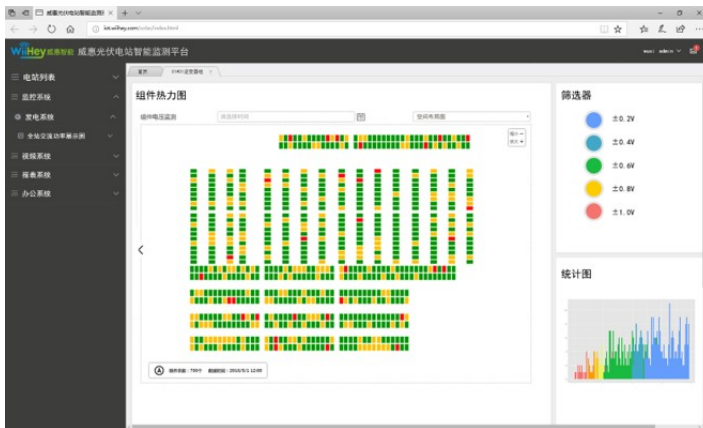
Power Source 9-24VDC or 110-240VAC  
( e.g. a small solar panel. )



# Monitoring Software

By monitoring each individual solar panel's performance, NxSensor software provides the most accurate digitized information of your solar power system. You can identify hidden issues and schedule O&M activities.

- Real-time data & remote monitoring
- Data visualization for your solar plant
- Powerful alert notification capability
- Periodic performance report / analyst
- Wireless-tag based asset management



## Specifications

Supported Web Browsers

- Google Chrome
- Mozilla Firefox
- Apple Safari
- Opera 11.0 above
- Internet Explorer 9.0 above

System Configuration

Logical (electrical connection) and physical locations of solar panels in a PV system

User Access

Selective permission levels for users and administrators

Data Storage

Storage of every complete time series data set collected from a sensor since system startup

Data Visualization

- Viewing of individual time series and trend charts
- Viewing of customizable PV system heat maps
- Intelligent single-point or time-averaged baselining

Data types

- Module voltage
- Module temperature
- Module power
- String Current (coming soon)

Alarms and Notifications

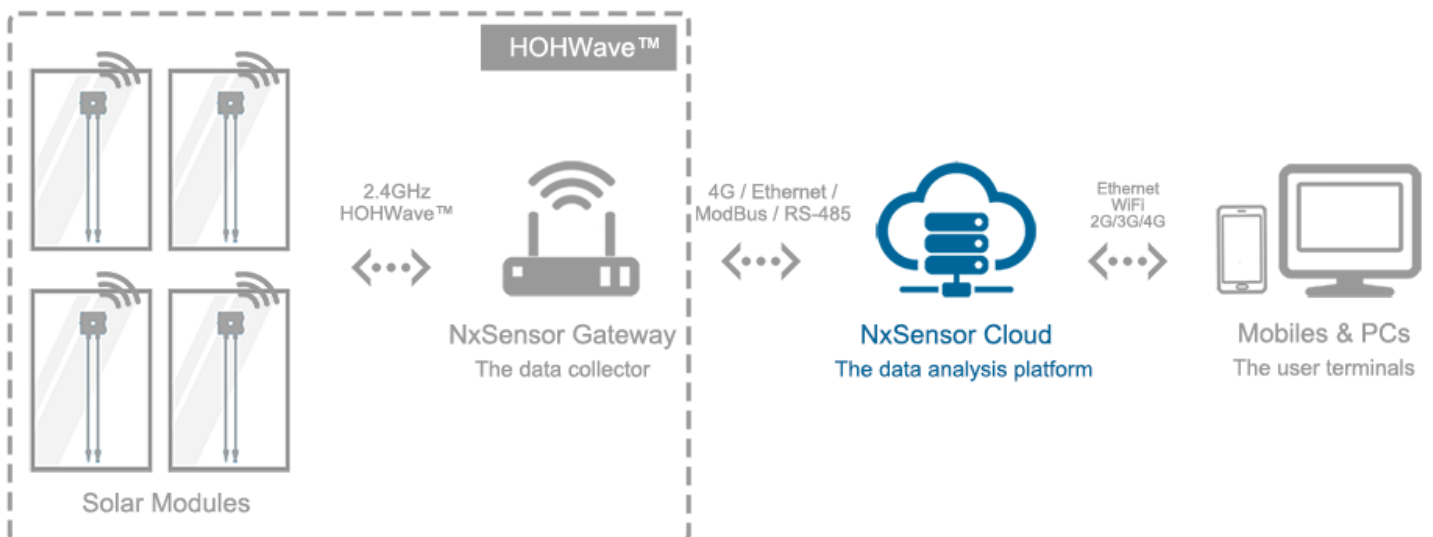
- On-screen health icons with warnings and alarms for low performance or exceedances
- Email notification of warnings and alarms

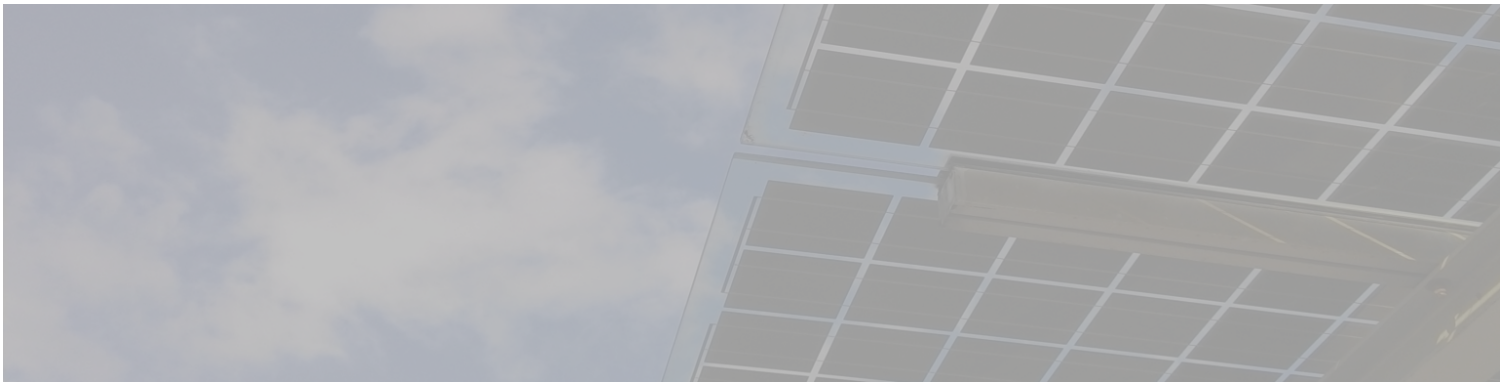
Performance Report

Daily, weekly, monthly

Safety and Rapid shutdown

- Indicator
- Controlling (coming soon)





## About NxSensor

NxSensor is a technology start-up company making intelligent MLPEs, sensors, controllers and providing digital transformation solutions for solar power systems.

## Contact

### NxSensor Head Office

URWork, Floor B1, Jumeirah Building, No.1188  
Fangdian Rd, Pudong District, Shanghai, China.

Tel: +86 021 6198 4167

Web: [www.nxsensor.com](http://www.nxsensor.com)

E-mail: [andrew@wiihey.com](mailto:andrew@wiihey.com)

