

INSTALLATION OPERATION MANUAL

ASN series

- ▶ ASN - 5TL
- ▶ ASN - 6TL
- ▶ ASN - 8TL
- ▶ ASN - 10TL
- ▶ ASN - 12TL
- ▶ ASN - 15TL
- ▶ ASN - 17TL
- ▶ ASN - 20TL
- ▶ ASN - 23TL
- ▶ ASN - 25TL

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Summary

This document mainly introduces the installation, electrical connection, adjustment, maintenance and troubleshooting methods of ASN series Three phase on grid solar inverter. Before installing and using the inverter, please read this manual carefully to understand the safety information and get familiar with the functions and characteristics of the inverter. The document may be updated from time to time. Please obtain the latest version of the information and other product information from the official website.

Applicable Products

This document is applicable to the following 6 types of AUX ASN series three-phase on grid inverter:

ASN - 5TL / ASN - 6TL / ASN - 8TL / ASN - 10TL / ASN - 12TL
ASN - 15TL / ASN - 17TL / ASN - 20TL / ASN - 23TL / ASN - 25TL

Applicable Staff

It is only applicable to professionals who are familiar with local regulations and standards and electrical system, have received professional training and are familiar with the relevant knowledge of the product.

Symbol Definition

To better use this manual, the following symbols are used to highlight important information. Please read the symbols and instructions carefully.



Danger:

Indicates a highly potential danger that, if not avoided, could result in death or serious injury to personnel.



Warning:

Indicates a moderate potential hazard, which could lead to death or serious injury if not avoided.



Watch out:

Indicates a low level of potential danger that, if not avoided, may result in moderate or mild injury to personnel.



Watch out:

Emphasizing and supplementing the content may also provide tips or tricks for optimizing product usage, which can help you solve a problem or save you time.

1 OPEN THE CARTON TO CHECK

1.1 Inspection before acceptance

Before signing for the product, please carefully check the following contents:

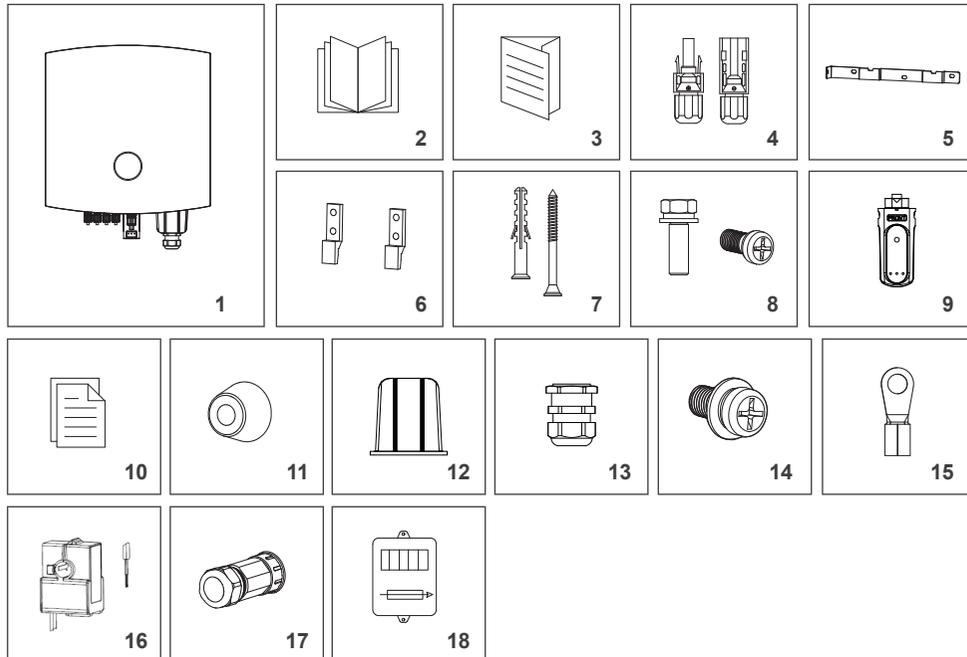
- Check the outer packaging for any damage, such as deformation, holes, cracks, or other signs that may cause damage to the equipment inside the packaging. If there is any damage, do not open the packaging and contact your dealer.
- Check if the inverter model is correct. If there is any discrepancy, do not open the packaging and contact your dealer.
- Check whether the type and quantity of delivered items are correct, and whether there is any damage to the appearance. If there is any damage, please contact your dealer.

1.2 Packing list



Watch out:

- The number of PV DC input terminals matches the number of inverter DC input terminals.
- The datalogger and electricity meter kit are provided as optional, please refer to the actual situation.



No.	Description	Model	Unit	QTY	Remark
1	Inverter	ASN-5~25TL	pc	1	
2	User's manual	ASN-5~25TL	pc	1	
3	Quick Installation Manual	ASN-5~25TL	pc	1	
4	terminal block (+, -)		pair	*	
5	Wall-mounting bracket	ASN-5~25TL	pc	1	
6	Hangers	ASN-5~25TL	pc	2	
7	Self tapping screw+bolt expansion	M6*50+Φ10*45	set	3	
8	Combination Screw	M5×12	pc	5	
9	Datalogger		pc	1	
10	Inspection report	ASN-5~25TL	pc	1	
11	Rubber	30*20*25	pc	1	
12	AC terminal waterproof cover		pc	1	
13	Waterproof joint		pc	1	
14	Combination Screw	M4×12	pc	5	
15	Power line OT terminals 14-5		pc	6	
16	current transformer		set	1	optional
17	Output signal connector		set	1	optional
18	Meter Kit		set	1	optional

* The number of PV terminals allocated corresponds to the number of specific inverter terminals.

1.3 Storage

If the inverter is not put into use immediately, please store it according to the following requirements:

- Make sure that the outer packing box is not removed and desiccant in the box is not lost.
- Make sure that the storage temperature is always - 40 °C~+70 °C and the storage relative humidity is always 0~95% without condensation.
- Make sure the inverter stacking height and direction are placed according to the label on the packing box.
- Make sure there is no risk of toppling the inverter after stacking.
- Regular inspection is required during storage. If the package is damaged due to insect and rat bite, the packaging materials shall be replaced in time.
- The inverter shall be put into use after being stored for a long time and inspected and confirmed by professionals.

2 SAFETY PRECAUTIONS

The safety precautions contained in this document must always be observed when operating the equipment.



Watch out:

The inverter has been designed and tested in strict accordance with safety regulations, but as electrical equipment, the relevant safety instructions must be observed before any operation on the equipment. Improper operation may lead to serious injury or property damage.

2.1 General safety



Watch out:

- Due to product version upgrading or other reasons, the document content will be updated from time to time. If there is no special agreement, the document content cannot replace the safety precautions in the product label. All descriptions in this document are for guidance only.
- Please read this document carefully for products and precautions before installing the equipment. Professional and qualified electrical technicians who shall be familiar with the relevant standards and safety specifications of the project site must carry out all equipment operations.
- Insulation tools and personal protective equipment shall be used to ensure personal safety during inverter operation. Electrostatic gloves, wrist strap and antistatic clothing shall be worn when contacting with electronic devices to protect the inverter from electrostatic damage.
- Equipment damage or personal injury caused by inverter not installed, used or configured in accordance with the requirements of this document or corresponding user manual is not within the responsibility scope of equipment manufacturer.

2.2 PV string safety



Danger:

- Please use the DC wiring terminal provided with the box to connect the inverter DC cable. If other types of DC wiring terminals are used, serious consequences may be caused, and the equipment damage caused thereby is not within the scope of the equipment manufacturer.
- The solar array (solar panel) will have DC high voltage.



Warning:

- PV modules used with inverters must have IEC 61730 class A rating or other equivalent standard class.
- Make sure good grounding of component frame and support system.
- Do not ground the PV array positive (+) or negative (-) as this may cause serious damage to the inverter.
- Make sure that the DC cables are firmly connected without looseness after connection.
- Use a multimeter to measure the positive and negative electrodes of the DC cable. Make sure that the positive and negative electrodes are correct, no reverse connection occurs and the voltage is within the allowable range.
- Do not connect the same PV string to multiple inverters, or the inverter may be damaged.
- In order to reduce the risk of fire, the inverter connected circuit requires an overcurrent protection device (OCPD). DC OCPD shall be installed according to local requirements. All PV power supplies and circuit conductors shall have disconnect connections in accordance with NEC Article 690, Part II.

2.3 Inverter Safety



Danger:

- Please connect the inverter AC cable with the AC wiring terminal provided with the box. If other types of DC wiring terminals are used, serious consequences may be caused, and the equipment damage caused thereby is not within the scope of the equipment manufacturer.
- Danger of electric shock. There are no serviceable parts inside the machine. Please do not disassemble it. Please obtain service from qualified and recognized service technicians.



Warning:

- Make sure that the voltage and frequency of the grid connection access point meet the inverter grid connection specifications.
- It is recommended to add circuit breaker or fuse and other protective devices at the AC side of the inverter, and the specification of the protective device shall be 1.25 times greater than the maximum AC output current of the inverter.
- The protective ground wire of inverter must be firmly connected to make sure that the impedance between zero line and ground wire is less than 10 Ω.
- Copper core cable is recommended for AC output line.

Identifications on inverter box are as follows:	
<p>Danger of high voltage. There is high voltage when the inverter is operating. When operating the inverter, make sure the inverter is powered off.</p>	<p>Time delay discharge. Wait for 5 minutes after the equipment is powered off until the equipment is fully discharged.</p>
<p>Please read the product manual carefully before operating the equipment.</p>	<p>Potential hazards after equipment operation. Please take protective measures during operation.</p>
<p>There is high temperature on the inverter surface, so do not touch it when the equipment is running; otherwise, it may cause scald.</p>	<p>Connection point of protective earthing wire.</p>
<p>CE symbol</p>	<p>The equipment shall not be treated as domestic garbage. Please treat the equipment according to local laws and regulations or send it back to the equipment manufacturer.</p>

2.4 Personnel requirements



Watch out:

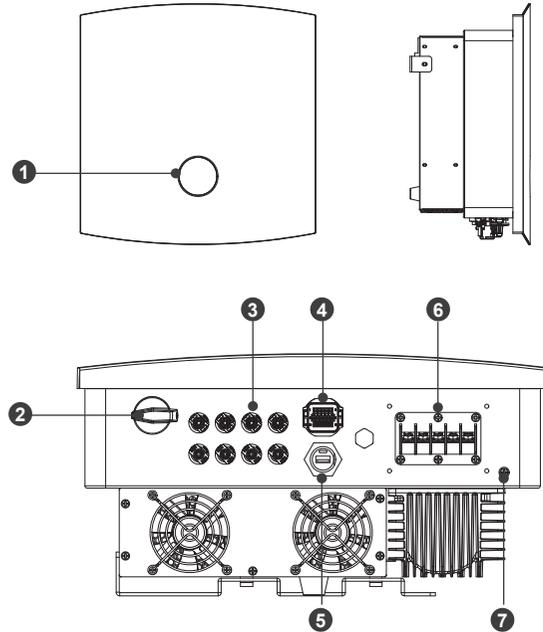
- Personnel responsible for installing and maintaining equipment must first undergo strict training, understand various safety precautions, and master the correct operating methods.
- Only qualified professionals or trained personnel are allowed to install, operate, maintain, or replace equipment or components.

3 INTRODUCTION

3.1 Products Introduction

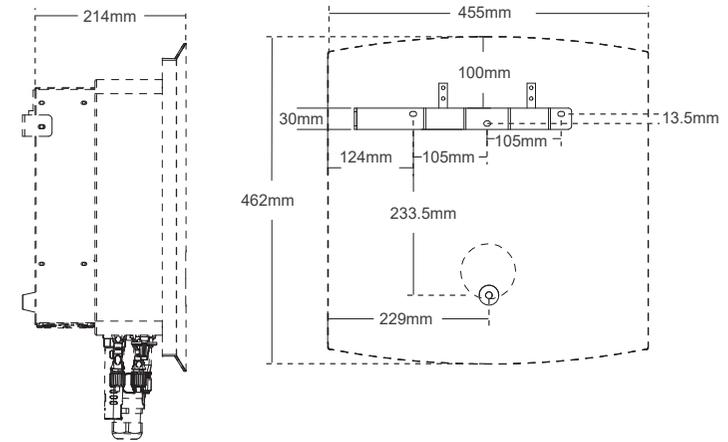
The AUX ASN series three-phase on grid inverter integrates the energy management system in the PV system to control and optimize the energy flow, adapt to the requirements of the smart grid and output the power generated in the PV system to the utility/national grid.

3.2 Exterior Introduction



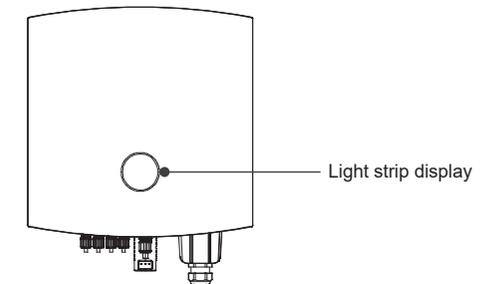
No.	Component	Description
1	LED indicator light	Indicates the working status of the inverter
2	DC switch	Control DC input on or off (warning: this switch does not have breaking capacity and is prohibited to operate when the machine is running)
3	PV DC port	Connect PV module with PV wiring connector
4	Meter communication port	Smart meters can be connected via RS485
5	Communication module port	The communication module can be connected via RS485, supporting optional communication modules such as bluetooth, Wi-Fi and 4G
6	Utility/national grid power interface (black)	Connect AC Utility/national grid supply
7	Ground terminal	

3.3 Dimension



Model	Weight	Size	Model	Weight	Size
ASN - 5TL	25kg	455 × 462 × 214mm	ASN - 15TL	25kg	455 × 462 × 214mm
ASN - 6TL	25kg	455 × 462 × 214mm	ASN - 17TL	25kg	455 × 462 × 214mm
ASN - 8TL	25kg	455 × 462 × 214mm	ASN - 20TL	25kg	455 × 462 × 214mm
ASN - 10TL	25kg	455 × 462 × 214mm	ASN - 23TL	25kg	455 × 462 × 214mm
ASN - 12TL	25kg	455 × 462 × 214mm	ASN - 25TL	25kg	455 × 462 × 214mm

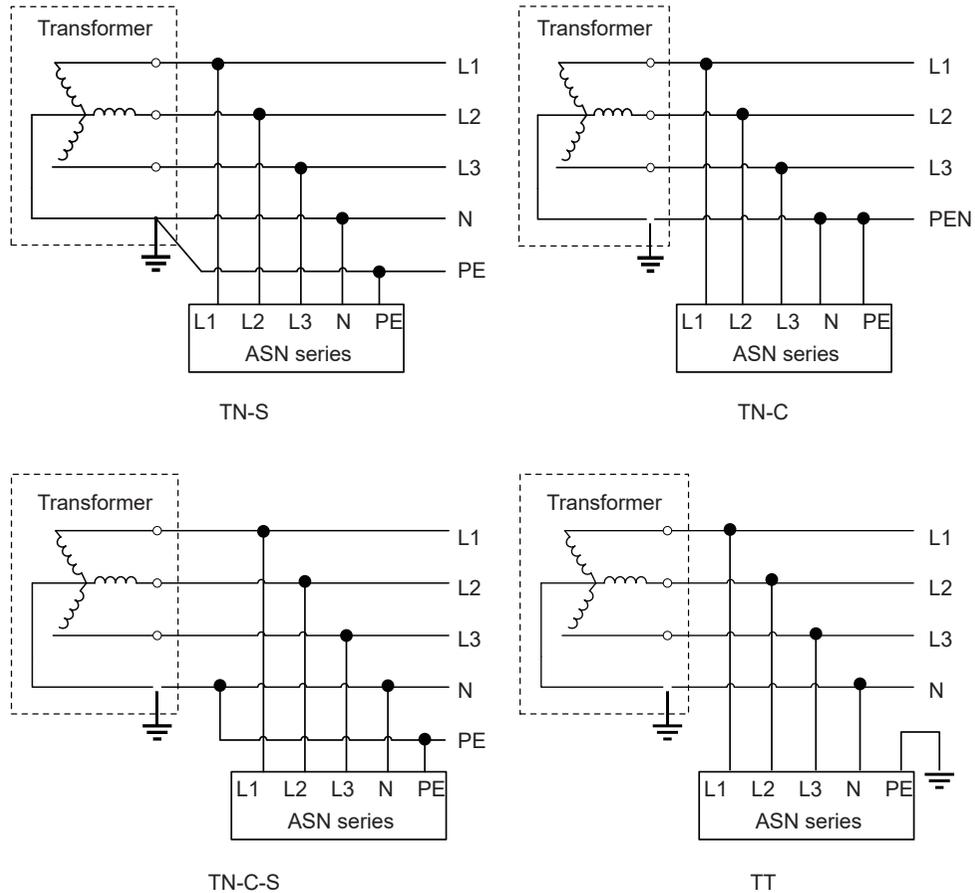
3.4 Display Description



Indicator diagram	Status	Description
Light strip	Green always on	Inverter is generating electricity
Light strip	Green flashes	Inverter Standby
Light strip	Yellow flashes	Inverter alarm
Light strip	Red always on	Inverter fault

4 APPLICATION

4.1 Grid form



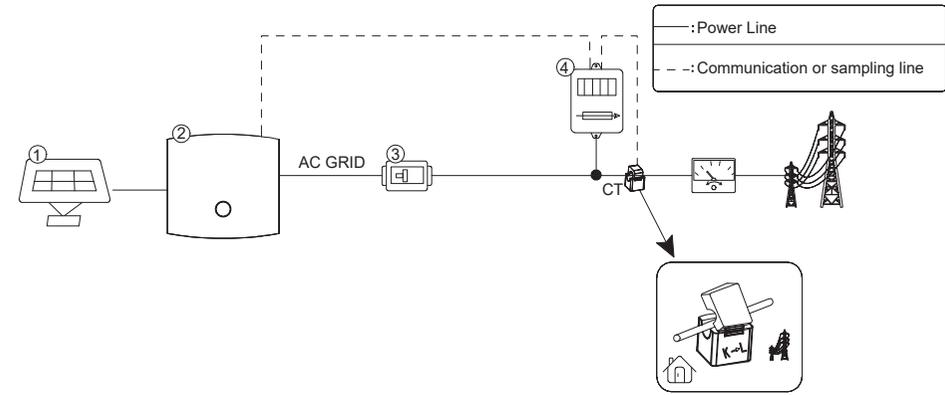
Warning:

- To ensure the normal operation of inverter, it is recommended to be applied to the network with N-wire.
- The voltage of N to PE should be less than 10V.

4.2 Application Scenario

Warning:

- PV systems are not suitable for connecting devices that rely on stable power supply, such as life-sustaining medical equipment. Please ensure that the power outage of the system does not cause personal injury.
- When the inverter is protected for a single time, the inverter can be automatically restarted; If it happens multiple times, the inverter will stop waiting and can be restarted immediately via the App.



No.	Component	Description
1	PV string assembly	PV string consists of PV modules connected in series
2	Inverter	ASN Series On grid Inverter
3	AC circuit breaker	Used for inverter and load protection and for interrupting AC supply during maintenance
4	Smart meter	Shipped with Inverter

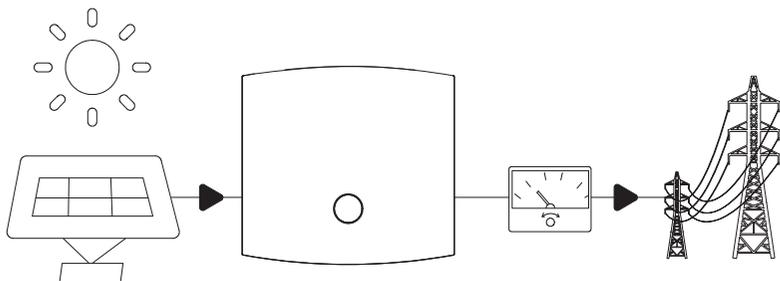
AC circuit breaker

Model	Voltage(Vac)	Current(A)	Model	Voltage(Vac)	Current(A)
ASN - 5TL	≥400	16	ASN - 15TL	≥400	32
ASN - 6TL	≥400	16	ASN - 17TL	≥400	64
ASN - 8TL	≥400	16	ASN - 20TL	≥400	64
ASN - 10TL	≥400	25	ASN - 23TL	≥400	64
ASN - 12TL	≥400	25	ASN - 25TL	≥400	64

4.3 Application mode

4.3.1 Full grid connection

If no load is required, all energy of the inverter can be supplied to the utility/national grid to realize full grid connection of power generation



4.4 Function characteristics

4.4.1 Power derating

In order to make the inverter operate safely, the inverter will automatically reduce the output power when the operating environment is not ideal.

The following factors may cause power derating, so please try to avoid them during use.

- Unfavorable environmental conditions such as direct sunlight, high temperatures, etc
- The inverter's output power percentage has been limited by the app or web-end settings
- Variation with grid voltage frequency
- High input voltage
- High input current value

5 INSTALLATION

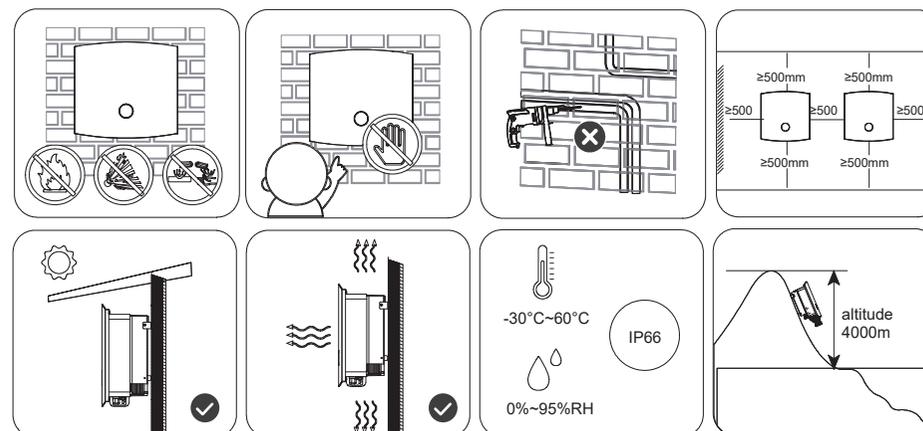
5.1 Installation Requirements

5.1.1 Environmental requirements

- The protection class of inverter is IP66, which can be installed indoor and outdoor.
- Equipment shall not be installed in flammable, explosive and corrosive environment.
- The installation position shall be kept away from the accessible range of children and the position easy to be touched. High temperatures may be present on the surface when the equipment is in operation to prevent burns.
- The installation position shall avoid the water pipe and cable in the wall to avoid danger during punching.
- The inverter shall avoid salt damage areas and installation environments such as sunshine, rain and snow. It is recommended to install the inverter in a sheltered installation position. If necessary, a sunshade can be erected.
- When installing the inverter, certain space shall be reserved around the inverter to ensure sufficient installation and heat dissipation space.
- Under the installation scenario of multiple inverters, when the space is sufficient, the installation mode of "straight line" is recommended; When the space is insufficient, it is recommended to install the product in a zig-zag manner. It is not recommended to install multiple inverters by overlapping.
- The installation height of the equipment shall be convenient for operation and maintenance, ensure that the equipment indicator lights, all labels are easy to see, and the terminal blocks are easy to operate.
- The inverter is installed at an altitude lower than the maximum working altitude of 4000m.
- Keep away from strong magnetic field environment to avoid electromagnetic interference. If there is a radio station near the installation location or wireless communication equipment below 30MHz, please install the equipment according to the following requirements:

Ferrite core with multi-circle winding or low-pass EMI filter at inverter DC input or AC output.

The distance between inverter and wireless electromagnetic interference equipment exceeds 30m.

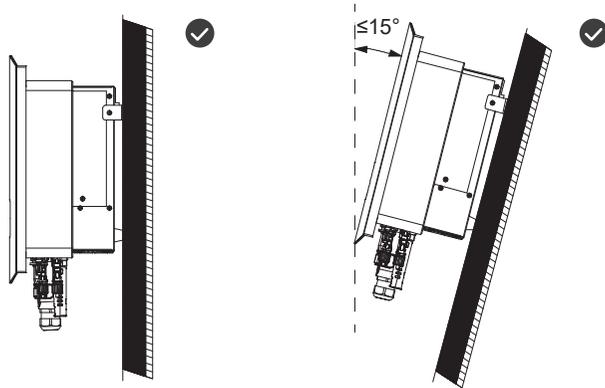


5.1.2 Carrier Requirements

- Installation carriers must not be flammable and must be fire resistant.
- Please make sure that the mounting carrier is solid and reliable and can bear the weight of inverter.
- The equipment will vibrate during operation, so do not install it on the carrier with poor sound insulation, so as to avoid disturbance to residents in the living area caused by the noise generated by the equipment during operation.

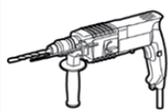
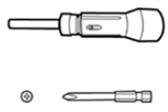
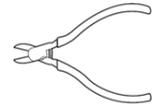
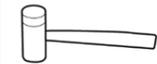
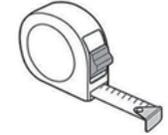
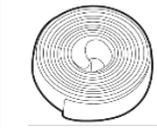
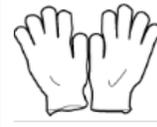
5.1.3 Installation angle requirements

- Recommended inverter installation angle: vertical or pitching $\leq 15^\circ$.
- Do not invert, tilt forward, tilt backward beyond the angle and install the inverter horizontally.



5.1.4 Installation tool requirements

The following installation tools are recommended for installation. Other auxiliary tools can be used on site if necessary.

 Percussion drill	 Sockets tool box	 Torque screw driver	 diagonal pliers	 Wire stripper
 22100 crimping pliers	 pressing terminal crimping plier	 hydraulic tongs	 wire cutter	 Multimeter (Vdc range > 1000V)
 rubber hammer	 Vacuum cleaner	 tape measure	 levelling instrument	 Electrician's knife
 Heat shrinkable sleeve	 Air heater	 cable ties	 goggles	 insulating gloves
 Protective Gloves	 respirator	 protective shoes		

5.2 Installation of inverter

5.2.1 Handling inverter



Watch out:

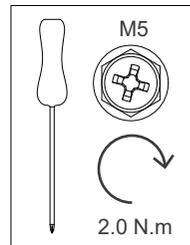
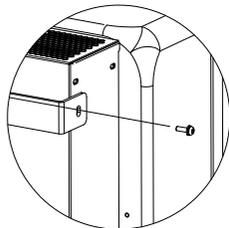
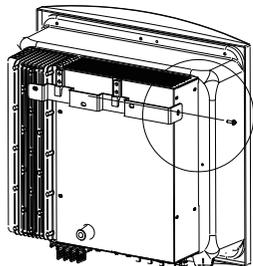
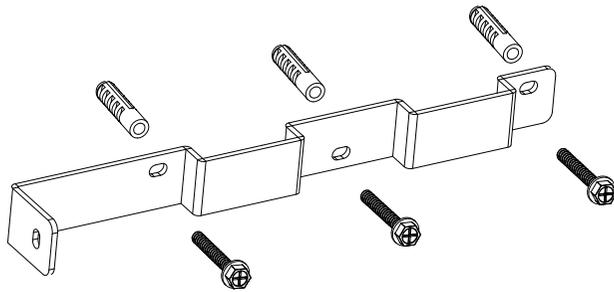
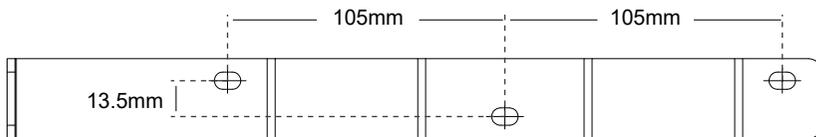
- Transportation, turnover, installation and other operations must meet the requirements of national and regional laws and regulations and relevant standards.
- Please equip corresponding personnel according to the weight of the equipment to prevent the equipment from exceeding the weight range that can be handled by human body and damaging personnel.
- Wear safety gloves to avoid injury.
- Please make sure that the equipment is balanced during handling to avoid dropping.

5.2.2 Installation of inverter



Watch out:

- When drilling holes, make sure that the drilling position is kept away from water pipes, cables, etc. in the wall to avoid danger.
- Wear goggles and dust mask when punching to avoid dust inhalation into respiratory tract or into eyes.
- Make sure that the inverter is securely installed to prevent injuries from falling.



5.3 Electrical connection

5.3.1 Safety precautions



Danger:

- Specifications of all operation, cables and components used in electrical connection shall comply with local laws and regulations.
- Before electrical connection, please disconnect the DC switch and AC output switch of inverter to make sure that the equipment is powered off. It is strictly forbidden to operate with electricity, otherwise, electric shock and other hazards may occur.
- Cables of the same type shall be bound together and arranged separately from cables of different types. It is forbidden to wind or cross cables.
- If the cable bears too much tension, it may lead to poor wiring. When wiring, please reserve a certain length of the cable before connecting to the inverter wiring port.
- When crimping the connecting terminal, please make sure that the conductor part of the cable is fully contacted with the connecting terminal, and do not crimp the cable insulation skin together with the connecting terminal; otherwise, the equipment may be unable to operate, or the inverter terminal block may be damaged due to heating due to unreliable connection after operation.



Watch out:

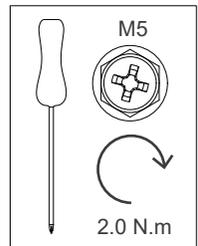
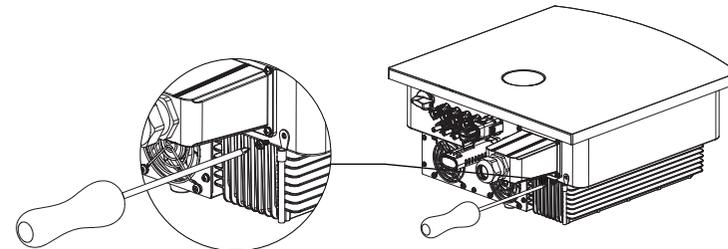
- When making electrical connection, please wear safety shoes, protective gloves, insulating gloves and other personal protective equipment as required.
- Only professionals are allowed to carry out operations related to electrical connection.

5.3.2 Connecting protective earth wire



Warning:

- The protective grounding of the crate shell cannot replace the protective grounding wire of the AC output port. When wiring, ensure that the protective grounding wires at the two places are reliably connected.
- In case of multiple inverters, make sure that the protective earthing point of all inverter crate enclosures is equipotentially connected.
- To improve the corrosion resistance of the terminal, it is recommended to apply silicone or paint on the external of the grounding terminal for protection after the connection and installation of the protective ground wire.
- Please prepare the protective ground wire, and the recommended specification:
Type: Outdoor single-core copper wire
Conductor sectional area: 4-6mm² (12 - 10AWG)



5.3.3 Connect PV input line

Danger:

- Do not connect the same PV string to multiple inverters, or the inverter may be damaged.
- Please make sure that the maximum short circuit current and maximum input voltage of each MPPT are within the allowable range of the inverter.
- Please make sure that the positive electrode of the PV string is connected to the PV port+ of the inverter, and the negative electrode of the PV string is connected to the PV port - of the inverter.
- Please prepare your own PV input line. Recommended specification:
 Type: Outdoor PV multi-core copper wire
 conductor cross-section: 4-6mm² (12 - 10AWG)
 Outer diameter of conductor insulation layer: φ3~7mm

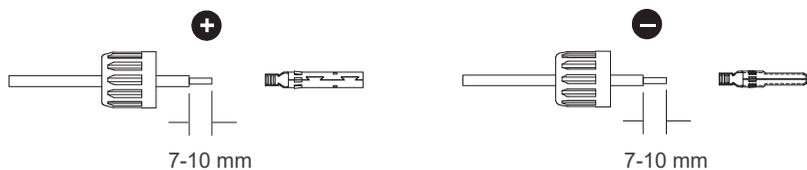


Warning:

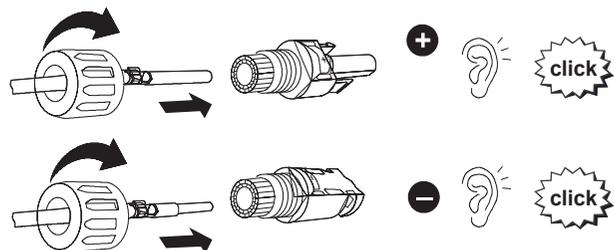
- PV string output does not support grounding. Before connecting PV string to inverter, please make sure that the minimum insulation resistance to ground of PV string meets the minimum insulation impedance requirements ($R = \text{maximum input voltage} / 30\text{mA}$).
- Make sure that the DC cables are firmly connected without looseness after connection.
- Use a multimeter to measure the positive and negative electrodes of the DC cable and ensure that the positive and negative electrodes are correct without reverse connection; and the voltage is within the allowable range.



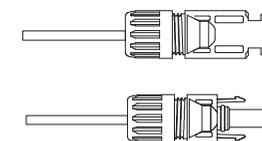
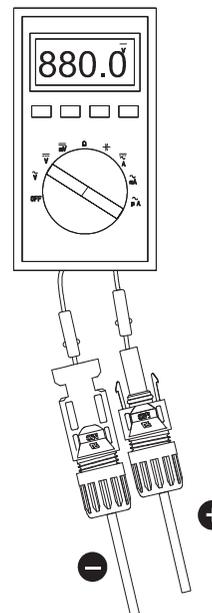
1



2



3



Make sure PV polarity is right,
PV voltage ≤ 1000V

5.3.4 Connecting AC line

Danger:



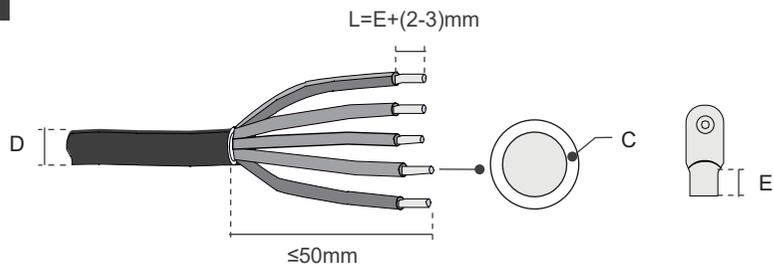
- In order to ensure that the inverter and the grid can be safely disconnected from the grid in case of abnormal conditions, please connect the AC switch on the AC side of the inverter. Multiple inverters cannot be connected to one AC switch at the same time. Please select proper AC switch according to local regulations.
- Please prepare the AC output line. See the figure for the recommended specification:
- If multi-core copper wire is selected, supporting crimping terminal shall be used for assembly. It is forbidden to directly press multi-core copper wire into the connector.

Warning:



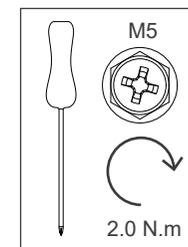
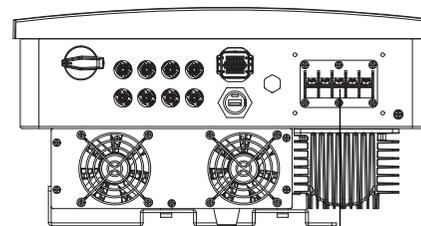
- Residual current monitoring unit (RCMU) is integrated in the inverter. When the inverter detects leakage current greater than the allowable value, it will quickly disconnect from the grid.
- During wiring, the AC line is completely matched with "L1", "L2", "L3", "N" and grounding port of AC terminal. If the cable is connected improperly, the equipment will be damaged.
- Make sure that the core is completely inserted into the terminal hole without exposure.
- Ensure that the cables are firmly connected, otherwise the terminal may be overheated and the equipment may be damaged when the equipment is operating.

1

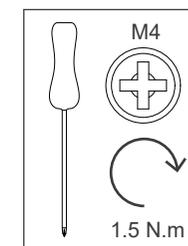
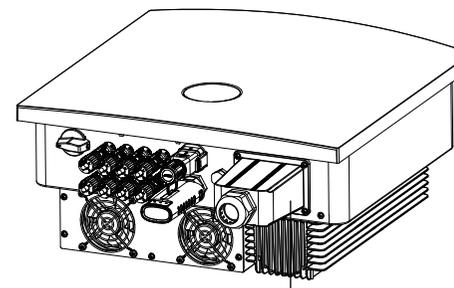


Model	C	D
ASN-5TL~ASN-12TL	4-6mm ²	12-18mm
ASN-15TL~ASN-20TL	6-12mm ²	18-25mm
ASN-23TL~ASN-25TL	7-16mm ²	18-25mm

2



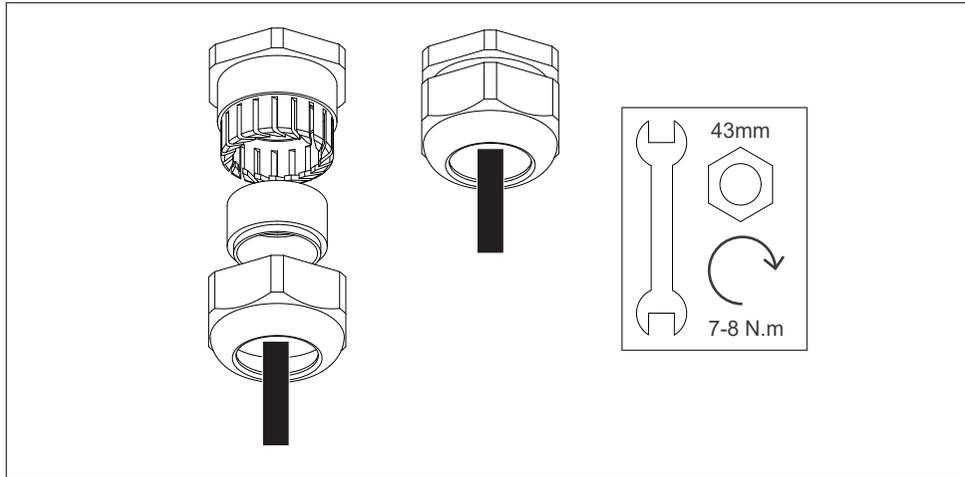
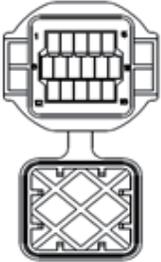
3



5.3.5 Smart meter (optional)

Watch out:

- When connecting communication lines, please ensure that the definition of the wiring port matches the device perfectly, and the cable routing should avoid interference sources, power lines, etc. to avoid affecting signal reception.
- The electrical meter and CT are shipped with the inverter, and the relevant parameters have been preset at the factory. Please do not modify the relevant parameters of the electricity meter and CT.
- Each inverter needs to be connected to a separate meter. Do not connect multiple inverters to the same electrical meter.
- To ensure the normal use of the electricity meter and CT, please ensure that the CT is connected to the phase line, CT1 is connected to L1, CT2 is connected to L2, and CT3 is connected to L3.
- Please connect CT according to the current direction. If it is reverse, CT reverse fault will be reported.
- The length of CT cable along with the inverter is 3m or 5m. Please install the meter and CT reasonably according to the actual situation.
- Please prepare the meter communication line.
- The communication line connecting the meter to the inverter supports a maximum of 100m, and the port definition is as follows:

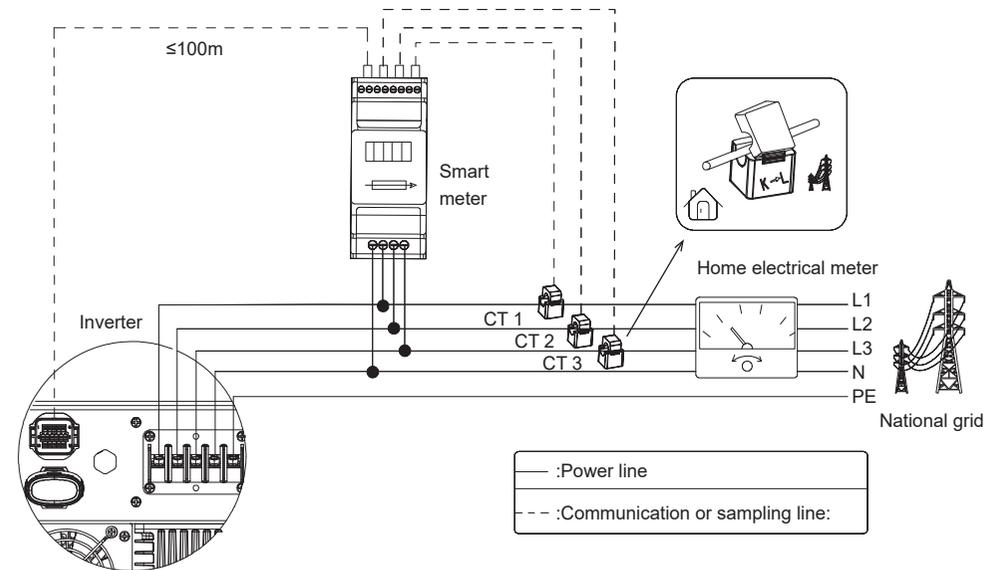



Pin	Function	Pin	Function
1	NC	5	NC
2	485A	6-11	NC
3	485B	12-16	NC
4	NC		

ASN three-phase inverter can meet the requirements of retail electricity function through one intelligent meter and three CTs. It can be set as separate phase control and three-phase sum control as required. Taking 12kW model as an example:

Single-phase independent control: three-phase on grid power is independently adjusted. For example, if the load of L1/L2/L3 phase is 1kW/4kW/8kW respectively, then the on grid power of L1/L2/L3 will be 1kW/1kW/1kW respectively (the maximum single-phase on grid power of 12kW model is 4kW). The remaining power required will be purchased from the grid.

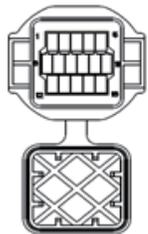
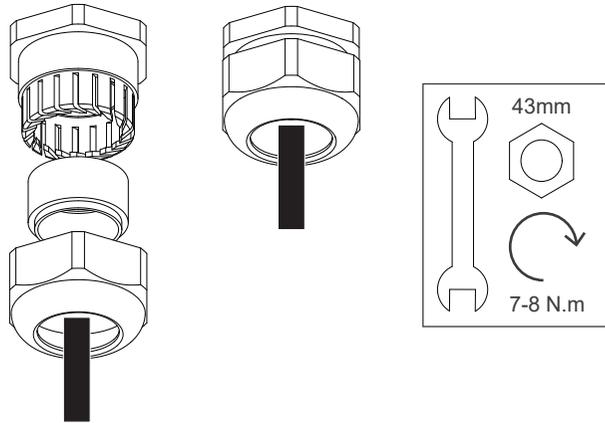
Total power control: sum regulation of three-phase grid-connected power. If L1/L2/L3 phase load is 1kW/4kW/8kW respectively, then L1/L2/L3 grid connection power will be 4kW/4kW/4kW respectively (12kW model single-phase maximum grid connection power is 4kW). The remaining power required will be purchased from the grid.



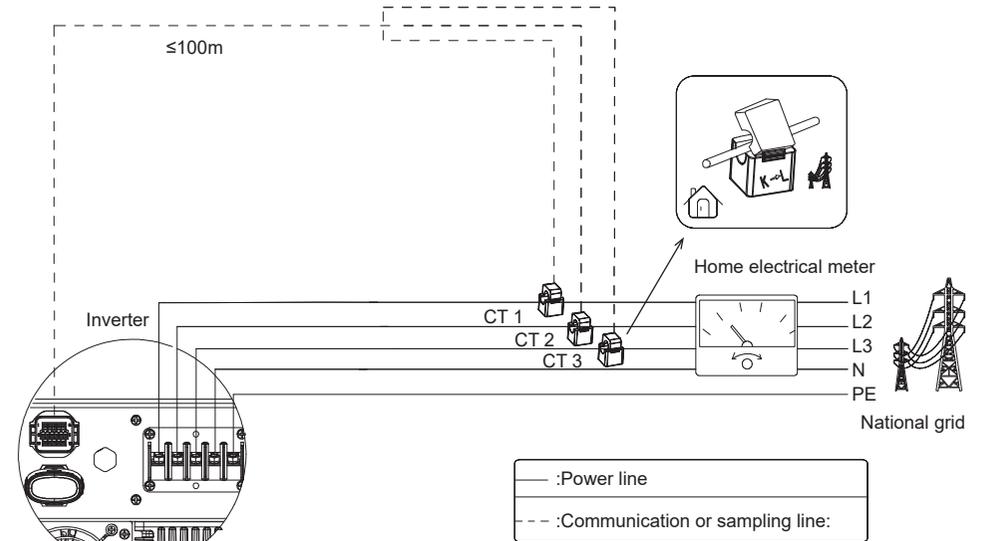
5.3.6 CT anti-reflow (optional)

Watch out:

- When connecting the communication line, please ensure that the wiring port definition is completely matched with the equipment, and the cable route shall avoid the interference source, power line, etc. to avoid affecting the signal receiving.
- CT is delivered with inverter and relevant parameters have been preset before delivery. Please do not modify relevant parameters of CT.
- To ensure CT can work normally, please ensure the following items: make sure CT is connected with phase line in a matched way, CT1 is connected to L1, CT2 is connected to L2, CT3 is connected to L3.
- Please connect CT according to the current direction. If it is reverse, CT reverse fault will be reported.
- The length of CT cable provided with inverter is 3m or 5m. Please install CT properly according to the actual situation.
- CT transformer wiring ports are defined as follows:



Pin	Function	Pin	Function
1-5	NC	13	CT2+
6-10	NC	14	CT2-
11	CT1+	15	CT3+
12	CT1-	16	CT3-

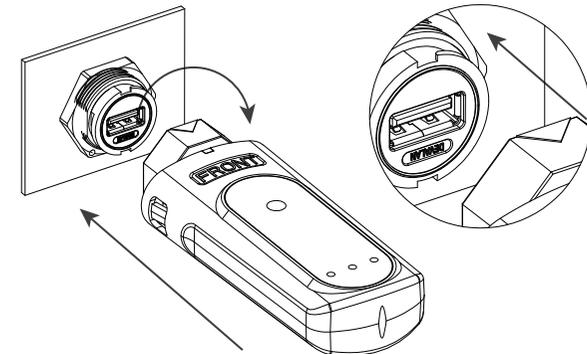


5.3.7 Datalogger Connection (Optional)



Watch out:

See the official website for details of datalogger.



6 EQUIPMENT COMMISSIONING AND MAINTENANCE

6.1 Check before power-on

Items	Checking items	Standard
1	Installation of inverter	The inverter shall be installed correctly, firmly and reliably
2	Cable arrangement	Cables shall be reasonably arranged and well protected, without damage
3	Datalogger	The data logger shall be installed correctly, firmly and reliably
4	Identifying	The safety signs and warning labels on the inverter are not blocked or damaged
5	Switch	DC SWITCH "and all switches connected to the inverter are" OFF "
6	Cable connection	The AC output line, DC input line and grounding wire are connected correctly, firmly and reliably
7	Unused terminals and interfaces	Unused terminals and interfaces are protected with waterproof covers
8	Circuit breaker	Reasonable selection of AC and DC circuit breakers
9	Environmental requirements	Reasonable installation space, clean and tidy environment, no construction remains

6.2 Power on the equipment

- Step 1: At the AC switch between the inverter and the power grid, measure the voltage at the power grid side with a multi-meter, and confirm that the power grid voltage is at the working power of the inverter Allowable pressure range.
- Step 2: Close the AC switch between inverter and utility/national grid.
- Step 3: Set "DC SWITCH" on the inverter to "ON".
- Step 4: Observe the inverter LED indicator and check the inverter operation status.

6.3 Set inverter parameters via App



Watch out:

To ensure that the inverter works properly, please use the AUXSOL application program to complete the inverter parameter setting.

Scan the QR code below to download the AUXSOL application or log in <https://www.auxsolcloud.com> Download this application.



Watch out:

Please also obtain the operating instructions of the communication rod from the official website, to set the contents more consistent with the application scenario.

6.4 Power off the equipment



Danger:

- When operating and maintaining the inverter, please turn off the inverter for treatment. Live operation of the equipment may cause damage to the inverter or electric shock.
- After the inverter is powered off, it will take a certain amount of time for internal components to discharge. Please wait until the equipment is fully discharged according to the required label time requirements.

- Step 1: Disconnect the AC switch between the inverter and the utility/ national grid.
- Step 2: At the AC switch between the inverter and the utility/ national grid, measure the voltage on the power grid side with a multi-meter to confirm that the power has been cut off.
- Step 3: Observe the inverter LED indicator, check the inverter operation status, and confirm to enter standby.
- Step 4: Set "DC SWITCH" on inverter to "OFF".

6.5 Equipment removal



Danger:

- Make sure inverter is power off.
- Wear personal protective equipment when operating the inverter.

Step 1: successively remove all electrical connections of inverter, including DC line, AC line, communication line, communication module and protective earth wire.

Step 2: Remove the inverter from the back cladding.

Step 3: Remove the back cladding.

Step 4: Properly save the inverter and ensure that the storage conditions meet the requirements if the subsequent inverter is still put into use.

6.6 Equipment scrapping

If the inverter cannot be used anymore and needs to be scrapped, please dispose according to the electrical waste disposal requirements of the inverter country/region.

The inverter shall not be treated as household garbage.

6.7 Fault Handling

Please troubleshoot according to the following methods. If the troubleshooting methods cannot help you, please contact the after-sales service center.

When contacting the after-sales service center, please collect the following information for quick solution.

1. Inverter information, such as serial number, software version, equipment installation time, fault occurrence time, fault occurrence frequency, etc.
2. Equipment installation environment, such as weather conditions, whether components are sheltered and whether there is shadow, etc. It is recommended to provide photos, videos and other documents to assist in analyzing problems.
3. Utility/National grid condition.

If there is only indicator mode for inverter, fault information can be viewed through back platform/APP mode.

Defect codes	Defect name	Solutions
101	Bus over voltage	<ol style="list-style-type: none"> 1. Restart inverter 2. If it still fails after restarting, contact the installer.
102	Bus under voltage	
103	Bus unbalance	
104	Bus over voltage	
601	R-phase inverter overcurrent	<ol style="list-style-type: none"> 1. Check whether the voltage frequency of the power grid is stable. If the power grid fluctuates greatly, restart the inverter; 2. If the fault still exists after restarting, contact the installer.

Defect codes	Defect name	Solutions
602	S-phase inverter overcurrent	<ol style="list-style-type: none"> 1. Check whether the voltage frequency of the power grid is stable. If the power grid fluctuates greatly, restart the inverter; 2. If the fault still exists after restarting, contact the installer.
603	T-phase inverter overcurrent	
701	R-phase inverter overcurrent	
702	S-phase inverter overcurrent	
703	T-phase inverter overcurrent	
801	R-phase inverter overcurrent	
802	S-phase inverter overcurrent	
803	T-phase inverter overcurrent	
901	R-phase inverter overcurrent	
902	S-phase inverter overcurrent	
903	T-phase inverter overcurrent	
1501	control panel is under excessively high temperature	<ol style="list-style-type: none"> 1. The inverter shall be wall-mounted in the environment where the ambient temperature does not exceed 60 °C; 2. If the installation method and environment are normal, please contact the installer.
1504	inverter module is under excessively high temperature	
1601	The DC component of R-phase inverter current exceeds the standard	<ol style="list-style-type: none"> 1. Restart inverter 2. If it still fails after restarting, contact the installer.
1602	The DC component of S-phase inverter current exceeds the standard	
1603	The DC component of T-phase inverter current exceeds the standard	

Defect codes	Defect name	Solutions
1801	PV1 Overvoltage	Check the configuration of the solar panel to ensure that the open circuit voltage is less than 1000V.
1802	PV2 Overvoltage	
2001	PV input overcurrent	1. Restart inverter 2. If it still fails after restarting, contact the installer.
2101	PV input arc failure	Disconnect the PV/utility (national grid) input of the inverter and check for any damage/poor contact in the wiring from the solar panel to the input end of the inverter.
2201	Reverse connection of PV1	Disconnect the inverter PV/utility (national grid) input and exchange the positive and negative connections of PV1.
2202	Reverse connection of PV2	Disconnect the inverter PV/utility (national grid) input and exchange the positive and negative connections of PV2.
2301	Short circuit of PV1	Contact the installer.
2302	Short circuit of PV2	
2401	Internal fan failure	
2402	External fan failure	

Defect codes	Defect name	Solutions
2901	ISO fault	1. Confirm whether the insulation of PV input wiring is normal; 2. Wait for the inverter to automatically recover, otherwise contact the installer.
3001	GFCI sensor failure	1. Restart the inverter; 2. If the fault still exists after restarting, contact the installer.
3002	GFCI out of limits	1. Confirm whether the insulation of PV/utility (national grid) input wiring is normal; 2. Contact the installer.
3303	Electric Relay failure	1. Restart the inverter; 2. If the fault still exists after restarting, contact the installer.
4301	DSP/ARM protocol version mismatch	Contact the installer.
4503	memory protection	
4504	Server communication error	

6.8 Regular maintenance



Danger:

The machine must be kept power off state during maintenance.



Watch out:

Regular maintenance can maintain the stability of inverter performance.

Content	Method	Cycle
System Cleaning	Check the cooling fin and air inlet/outlet for foreign matter and dust. Especially the fan needs regular maintenance to prevent debris from blocking the fan and affecting the operation of the inverter.	half year
DC switch	Turn on and off the DC switch for 10 times continuously to ensure the normal function of DC switch.	one year
Electrical connection	Check whether the electrical connection is loose, whether the cable appearance is damaged and whether there is copper leakage.	half year
Tightness	Check whether the tightness of the equipment inlet hole meets the requirements. If the gap is too large or not sealed, it shall be re-closed.	one year

7 TECHNICAL PARAMETER

model	ASN - 5TL	ASN - 6TL	ASN - 8TL	ASN - 10TL	ASN - 12TL
Input DC					
Max.input power	7.5kW	9kW	12kW	15kW	18kW
Max.input voltage	1100V				
Rated voltage	620V				
MPPT voltage range	200-1000V				
Start-up voltage	200V				
MPPT Range Full Load	460-800V				
MPPT number	2				
Max. input strings number	2				
Max.input current	16A/16A				
Max.short circuit current	20A/20A				
Output AC					
Rated output power	5kW	6kW	8kW	10kW	12kW
Max.apparent output power	5.5kVA	6.6kVA	8.8kVA	11kVA	13.2kVA
Rated grid voltage	220V / 380V, 230V / 400V, 3 / N / PE				
Grid voltage range	178V - 276V				
Rated grid frequency	50 Hz / 60Hz				
Rated output current	7.6A	9.1A	12.1A	15.2A	18.2A
Max.output current	8.4A	10A	13.3A	16.7A	20.1A
Power factor	1 (0.8 leading...0.8 lagging)				
THDi	<3%				
Efficiency					
Max. efficiency	98.30%				
EU efficiency	97.70%				
China efficiency	98%				
MPPT efficiency	99.80%				

model	ASN - 15TL	ASN - 17TL	ASN - 20TL	ASN - 23TL	ASN - 25TL
Input DC					
Max.input power	22kW	22kW	26kW	30kW	32kW
Max.input voltage	1100V				
Rated voltage	620V				
MPPT voltage range	200-1000V				
Start-up voltage	200V				
MPPT Range Full Load	520-800V				
MPPT number	2				
Max. input strings number	3	4	4	4	4
Max.input current	32A/16A	32A/32A	32A/32A	32A/32A	32A/32A
Max.short circuit current	40A/20A	40A/40A	40A/40A	40A/40A	40A/40A
Output AC					
Rated output power	15kW	17kW	20kW	23kW	25kW
Max.apparent output power	16.5kVA	18.7kVA	22kVA	25.3kVA	27.5kVA
Rated grid voltage	220V / 380V, 230V / 400V, 3 / N / PE				
Grid voltage range	178V-276Vac				
Rated grid frequency	50 Hz / 60Hz				
Rated output current	22.8A	25.7A	30.3A	34.8A	37.8A
Max.output current	25.1A	28.3A	33.3A	38.3A	39.8A
Power factor	1 (0.8 leading...0.8 lagging)				
THDi	<3%				
Efficiency					
Max. efficiency	98.50%				
EU efficiency	97.80%	98%	98%	98%	98%
China efficiency	98%	97.80%	97.80%	97.80%	97.80%
MPPT efficiency	99.80%				

Protection	
Integrated DC switch	Yes
DC rever-polarity protection	Yes
Anti-islanding protection	Yes
Short circuit protection	Yes
Output over currentprotection	Yes
DC Surge protection	Type II
AC Surge protection	Type II
Insulation impedance detection	Yes
Ground fault monitoring	Yes
Residual leakage current detection	Yes
Temperature protection	Yes
AC Over voltage protection	Yes
DC Over current protection	Yes
Strings monitoring	Optional
Antibackflow	Optional
Integrated AFCI (DC arc-fault circuit protection)	Optional
I/V Curve scanning	Optional

General Data	
Dimensions (W x H x D)	455 x 462 x 214mm
Weight	25Kg
Self consumption(night)	< 1W
Operating temperature range	-30 ... +60°C
Cooling concept	fan-cooling
Max. operation altitude	4000m (Derating above 3000m)
Relative humidity	0-100%
Ingress protection	IP66
Topology structure	Transformerless
Grid connection stadard	NB/T32004 EN50549-1, PN-EN 50549-1, PSE, PTPIREE, RD647, RD413, RD1699, UNE 217001/2, NTS631, NC RfG
Safety/EMC standard	EN 62109-1, EN 62109-2, EN IEC 61000-6-1, EN IEC 61000-6-2, EN IEC 61000-6-3, EN IEC 61000-6-4, EN IEC 61000-3-11, EN 61000-3-12
Type of DC terminal	MC4 connector
Type of AC terminal	OT terminal
Display & Communication	
Display	LED+Bluetooth+APP
Communication interface	RS485,Optional:WIFI,4G