AUXSOL

WIN GREEN FUTURE TOGETHER

INSTALLATION OPERATION MANUAL

ASN series

ASN - (5~15) TL - G2

AUXSOL

WIN GREEN FUTURE TOGETHER

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CONTENT

PREFACE

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 ASN series three-phase on grid inverter:
ASN - (5~15)TL - G2

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

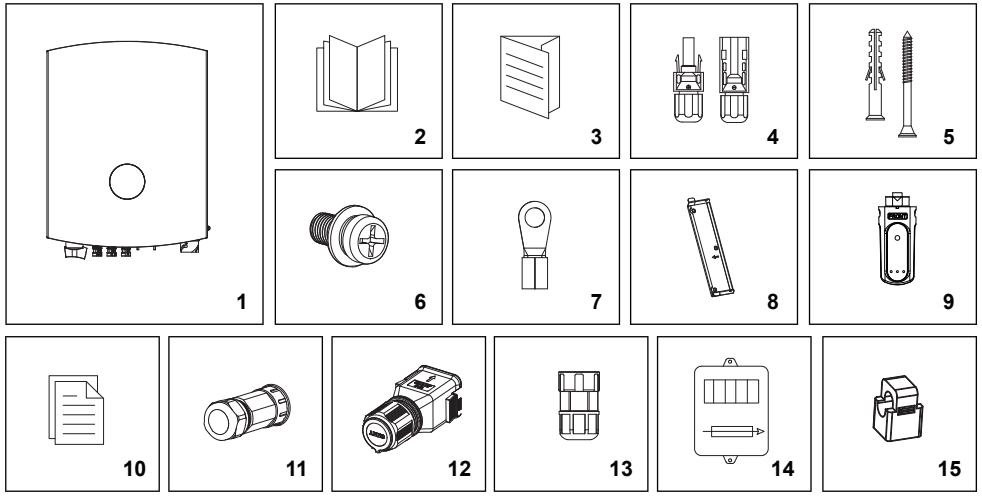
1.1 Inspection before acceptance

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.



This picture is for reference only. Please refer to the actual situation.

No.	Description	Model	Unit	QTY	Remark
1	Inverter		pcs	1	
2	User manual		pcs	1	
3	Quick installation manual		pcs	1	
4	PV terminals (+, -) *		pair	6	
5	Self tapping screws+bolt expansion	ST5.5×50+M10×45	set	3	
6	Combination screws	M4×12	pcs	2	
7	Ground wire OT terminal	14-5	pcs	1	
8	Wall-mounting bracket		pcs	1	
9	Datalogger		pcs	1	
10	Inspection report		pcs	1	
11	AC wiring terminal		set	1	
12	Waterproof cover		pcs	1	optional
13	Waterproof joint		pcs	1	optional
14	Meter kit		pcs	1	optional
15	Current transformer		pcs	3	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.
- Make sure that the storage temperature is always - 40 °C~+70 °C and the storage relative humidity is always 0~100% 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 terminals 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 panel 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 terminals provided with the box. If other types of AC 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 neutral wire and ground wire is less than 10 Ω.
- Copper core cable is recommended for AC output cable.

Identifications on inverter box are as follows:

Danger of high voltage. There is high voltage when the inverter is operating. When operating the inverter, make sure the inverter is powered off.	Time delay discharge. Wait for 5 minutes after the equipment is powered off until the equipment is fully discharged.
Please read the product manual carefully before operating the equipment.	Potential hazards after equipment operation. Please take protective measures during operation.
There is high temperature on the inverter surface, so do not touch it when the equipment is running, otherwise, it may cause scald.	Connection point of protective earthing wire.
CE symbol	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.

2.4 Personnel requirements

Watch out:

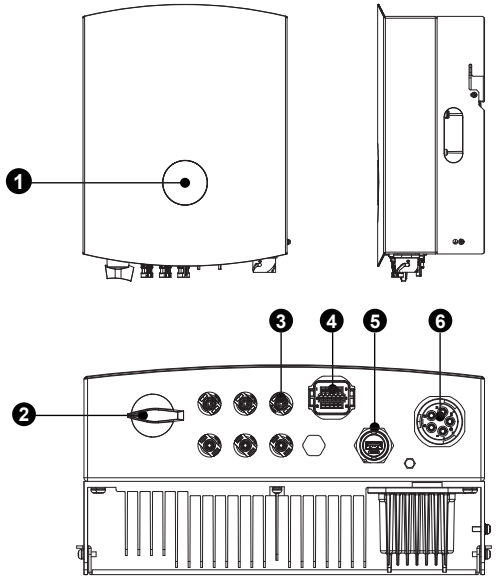
- Personnel responsible for installing and maintaining equipment must first undergo strict training, understand various safety precautions, and master the correct operating methods.
- Only qualified professionals or trained personnel are allowed to install, operate, maintain, or replace equipment or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

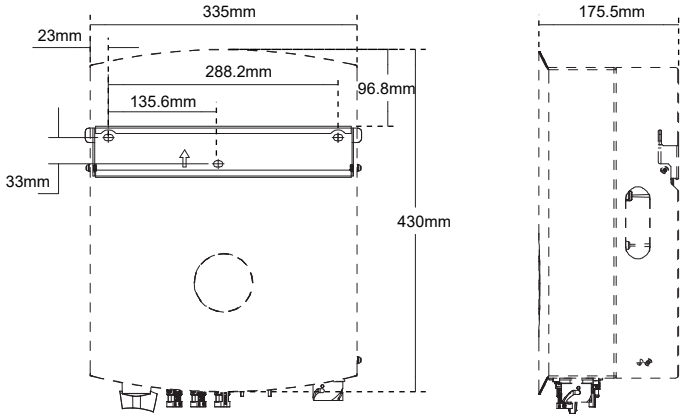
3.2 Outlook introduction



This picture is for reference only. Please refer to the actual situation.

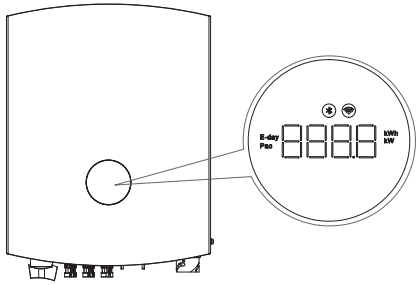
No.	Component	Description
1	LED indicator light	Indicates the working status of the inverter
2	DC switch	Control DC input on or off (warning: this switch does not have breaking capacity and is prohibited to operate when the machine is running)
3	PV DC port	Connect PV module with PV wiring connector
4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

3.3 Dimension



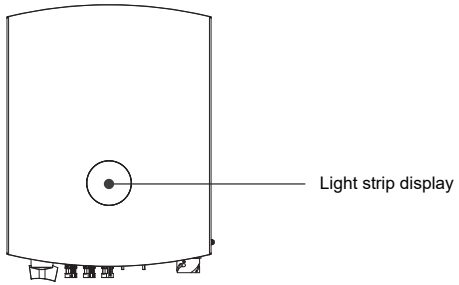
3.4 Display description

3.4.1 LED1 (Optional)



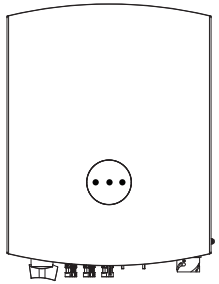
Indicator diagram	Status	Description
Bluetooth map	Off	Bluetooth not connected
	Always on	Bluetooth connected
WiFi map	Off	No communication at the communication module port
	Always on	Normal communication of communication module port
E-day	On	At this time, the central digital area displays the daily PV power generation
Pac	On	At this time, the central digital area displays the real-time grid power
Digital display tube	On	Display the specific value of this parameter
Light strip	Red always on	Fault mode (corresponding fault code displayed in the central digital area)
	Yellow flashes	Alarm mode
	Green always on	Normal operation mode
	Green flashes	Standby mode

3.4.2 LED2 (Optional)



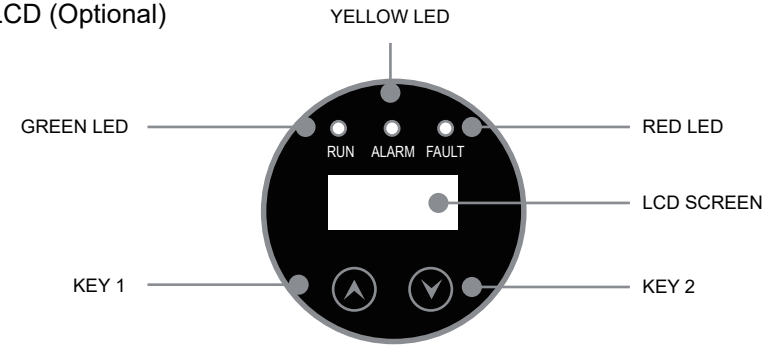
Indicator diagram	Status	Description
Light strip	Red always on	Fault mode
	Yellow flashes	Alarm mode
	Green always on	Normal operation mode
	Green flashes	Standby mode

3.4.3 LED3 (Optional)



Indicator diagram	Status	Description
PWR	Green always on	The product are connected the grid normally
	Green flashes	Product standby, startup and self-test
	Extinguish	The product is disconnected from the power grid
COM	Yellow always on	The product is properly connected to the monitoring device
	Yellow flashes	Product and monitoring equipment for date transmission
	Extinguish	The communication is abnormal or no date is transmitted
ERR	Red always on	System failure shutdown
	Red flashes	System alarm
	Extinguish	System fault clearance

3.4.4 LCD (Optional)

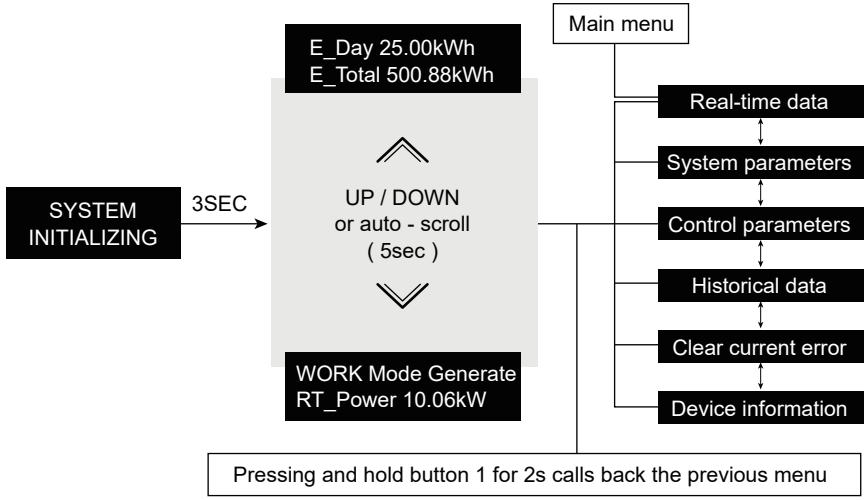


The LCD module includes a display screen and two touch keys. The function of keys are as follows:

Equipment status	LED	Priority
Upgrade	Red, green and yellow LED indicators flash alternately	1
Error	Red LED indicator always on	2
Alarm	Yellow LED indicator flashes	3
Running	Green LED indicator always on	4
Standby	Green LED indicators flashes	5
Power-on mode	Red, green and yellow LED indicators are on at the same time	6

3.4.4.1 LCD menu

- Mode display by turns, by keys or by menu.
- Key-based modification of equipment parameters such as time, regulations, language, etc.



3.4.4.2 Echo loop

The system will automatically switch to this interface once powered on or when no key is pressed within 1min. Interfaces can be switched by pressing Up or Down or automatically every 10s.

Day E 10.0kWh Total E 0.123MWh	Display daily generated energy and total generated energy
Work Mode Error Backup ON	Display current work mode and load status
Error Code 3201 Alarm Code ----	Display error code and alarm code
PV Power 10.00kW	Display PV power
Grid Power 0.00kW	Display cyclic menu of grid power

3.4.4.3 Main menu

You can press Up and Down for switching in the checked item, and then press Confirm to skip to the corresponding sub-menu. If you switch from a menu to the main menu, the checked item will become the menu item you previously switch from the main menu, which is the memory function of the main menu.

In loop mode, press Confirm to enter the main menu

1. Real Data 2. System Para	You can select to view real-time data and set system parameters
3. Control Para 4. Data Log	You can select to set control parameters and view historical data
5 Quit Error 6. Device Info.	You can select to clear current error and view the device information

3.4.4.4 Real-time data

Select the "1. Current Data." option in the main menu and press Confirm to skip to the Real-time Data menu. The data in the Real-time Data menu is read-only and unmodifiable.

1	1. Mode Error	Display current work mode of inverter
2	2. Grid Volt (V) 12.3 456.9 0.0	Display grid voltage for L1 phase, L2 phase and L3 phase,respectively
3	3. Grid Power 10kW	Display active power of grid
4	4. Grid Frequency 50.01Hz	Display grid frequency
5	5. Day Energy 50.1kWh	Display daily energy
6	6. Total Energy 3.213MWh	Display total generated energy
7	7. PV1 INFO. 600.4V 15.3A	Display PV1 voltage and PV1 current
8	8. PV2 INFO. 600.4V 15.3A	Display PV2 voltage and PV2 current

3.4.4.5 Historical data

Select to view historical data

1. History Error 2. History Gen	You can select to view the History Error menu and the History Gen. menu, press Up and Down to select history error or historical generated energy, and press Confirm to view relevant information.

3.4.4.5.1 History error

Select to view the error information

2023-03-11 19:35:15 1.3201	There are no more than 30 recent error records displayed in the History Error menu, including the time and type of error, and you can press Up and Down to switch between history errors.

3.4.4.5.2 Historical generated energy

You can press Up and Down to select historical daily generated energy, historical monthly generated energy or historical annual generated energy, and press Confirm to view relevant information.

Select to view the Historical Generated Energy menu

1. His Dialy Elec 2. His Month Elec	You can select to view the Historical Daily Generated Energy menu and the Historical Monthly Generated Energy menu.
2. His Month Elec 3. His Year Elec	You can select to view the Historical Annual Generated Energy menu and the Historical Monthly Generated Energy menu.

Select to view the historical daily generated energy

2023-03-11 0.00kWh	At most 93 days of historical daily generated energy can be displayed in "Historical Daily Generated Energy". You can select the Historical Daily Generated Energy and press Confirm to view the generated energy of the previous day.

Select to view the historical monthly generated energy

2023-02 0.00kWh	At most 120 months of historical monthly generated energy can be displayed in "Historical Monthly Generated Energy". You can select the “Historical Monthly Generated Energy”and press Confirm to view the generated energy of the previous month.

Select to view the historical annual generated energy

2022 12va.00kWh	At most 10 years of historical annual generated energy can be displayed in "Historical Annual Generated Energy". You can select the “Historical Annual Generated Energy”and press Confirm to view the generated energy of the previous year.

3.4.4.6 System parameters

3.4.4.6.1 Setting of communication address

Select Comm. Addr.which is used to set the address of multiple inverters connected to one monitor.The address number can be assigned from 01 to 255

1. Comm Addr. 1	To display the communication address,you can press Confirm, then Up and Down to switch between communication addresses, and press Confirm again.

3.4.4.6.2 Language setting

Select the Language option

2. Language English	To set language to Chinese or English, you can press Confirm, then Up and Down to switch between languages, and press Confirm again.

3.4.4.6.3 Time set

Date and time can be set in Time Set

3.Time Set 2023-09-06 01:45:31	Display the Time Set interface, and press Confirm to skip to "Date-Year" modification menu.

Press Confirm in the Time Set interface to skip to the following interface:

1. Date-Year 2023	Year modification	2. Date-Month 3	Month modification
3. Date-Day 12	Date modification	4. Time-Hour 18	Hour modification
5. Time-Minute 15	Minute modification	6. Tine-Second 8	Second modification

Language can be set by pressing Confirm, then pressing Up and Down to switch between languages, and pressing Confirm again.

3.4.4.7 Control parameters

A correct password is needed to enter this menu in which you can modify the corresponding function parameters.

Password 1020	To enter the Control Parameters menu from the main menu, you need to enter a password which is initially set as 1020.
Password Error!	If a wrong password is entered, a prompt will be given and the system will return to the main menu after 3s.

Select to enter the Control Parameters menu

1. Remote Control 2. Regulation	You can select to make settings in Remote Control and Regulation.
3. Clear Err Log. 4. Restore Setting	You can select to make settings in Clear Error Log and Restore Setting.
4. Restore Setting 5. Energy Reset	You can select to make settings in Restore Settings and Energy Reset.

Select to enter Remote Control

Remote Control Power on	Select Remote Control, press Confirm to enter the interface, and press Confirm, then Up and Down to switch on and off, and finally press Confirm again to complete the setting.

Select to enter Regulation CQC

Regulation CQC	Select Regulation, press Confirm to enter the interface, and press Confirm, then Up and Down to switch between regulations, and finally press Confirm again to complete the setting (CQC, Brazil (NBR16149), EN50549, IEC61727_50, IEC61727_60, Wide_Range_50Hz, Wide_Range_50Hz, Spain, Poland, South Africa, VDE4105).

Select to enter Clear Error Log

Error Log Clear? cancel affirm	Select Clear Error Log, press Confirm to enter the interface, then press the key again to clear the error log or press Back to cancel the setting.

Select to enter Restore Setting

Restore Setting? cancel affirm	Select Restore Setting, press Confirm to enter the interface, then press the key again to restore setting or press Back to cancel the setting.

Select to enter Energy Reset

Energy Reset? cancel affirm	Select Energy Reset, press Confirm to enter the interface, then press the key again to reset energy or press Back to cancel the setting.

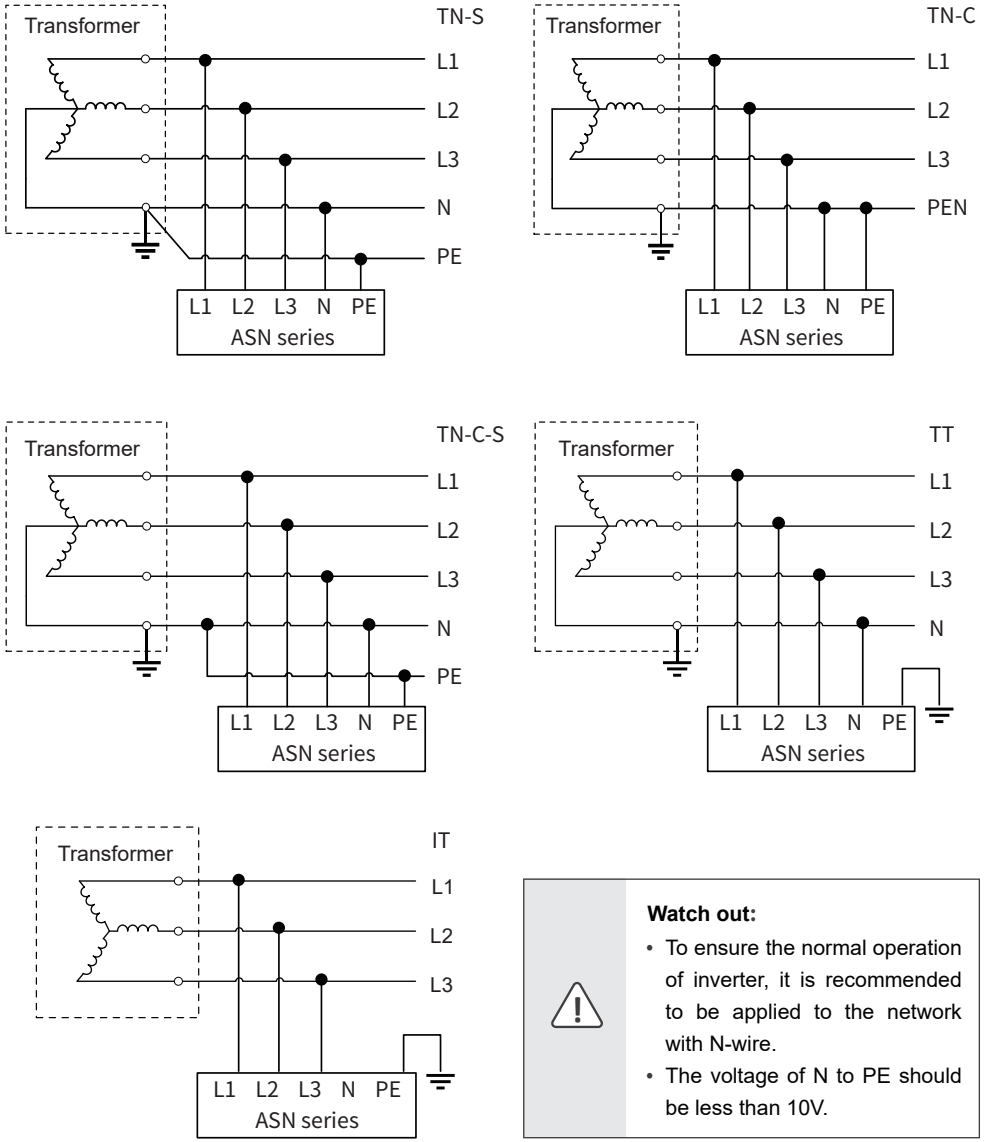
3.4.4.8 Device information

Select and enter to view device information which is read-only and unmodifiable

1. Software Version A2507/D1335	Display software version number (ARM version, DSP version)
2. Rated Power 10kW	Display rated power
3. Platform Code 000	Display platform code
4. SN Number ASN-10TL2305270020	Display SN number

4 APPLICATION

4.1 Grid form



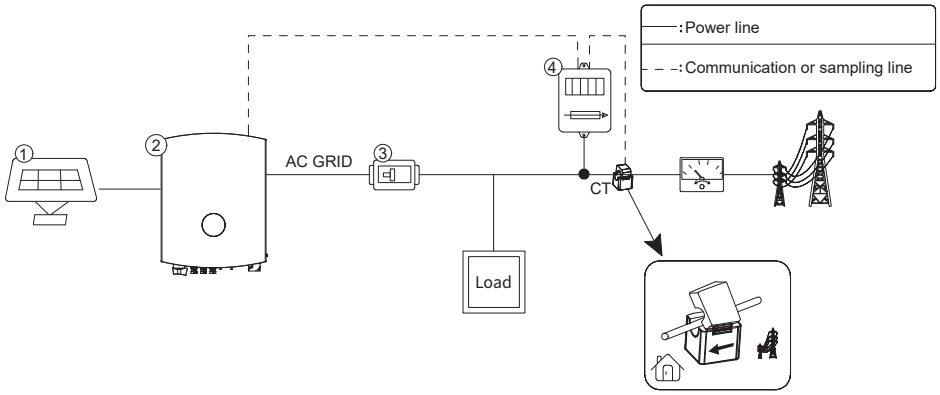
Watch out:

- 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.



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	Optional

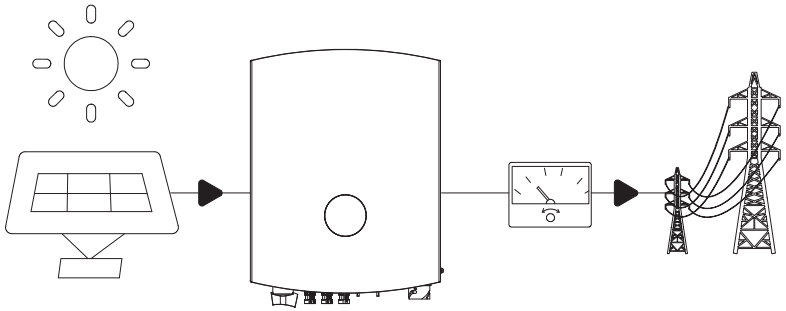
AC circuit breaker

Model	Voltage(Vac)	Current(A)
ASN - 5TL - G2	≥400	16
ASN - 6TL - G2	≥400	16
ASN - 8TL - G2	≥400	25
ASN - 10TL - G2	≥400	25
ASN - 12TL - G2	≥400	32
ASN - 15TL - G2	≥400	32

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

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

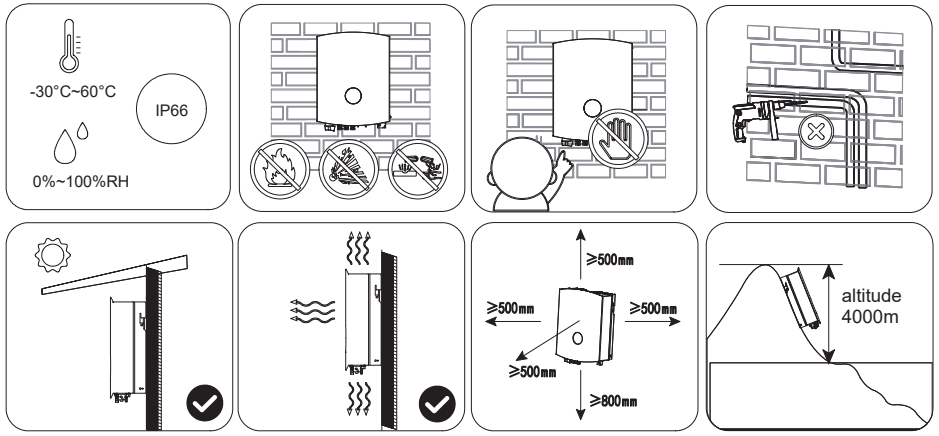
5.1 Installation requirements

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 fog 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.

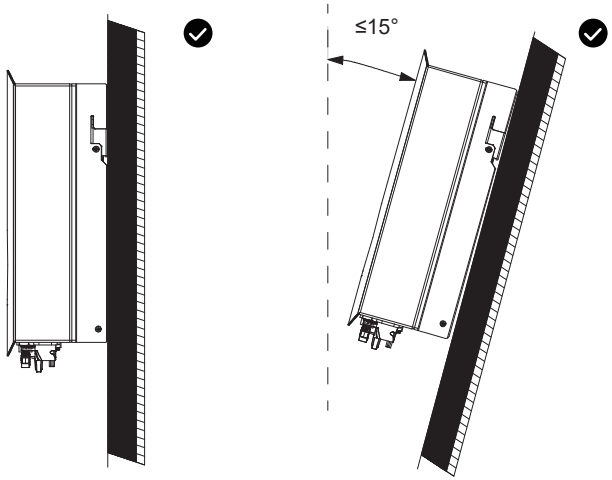


5.1.2 Carrier requirements

- 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 ≤ 15°.
- 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.

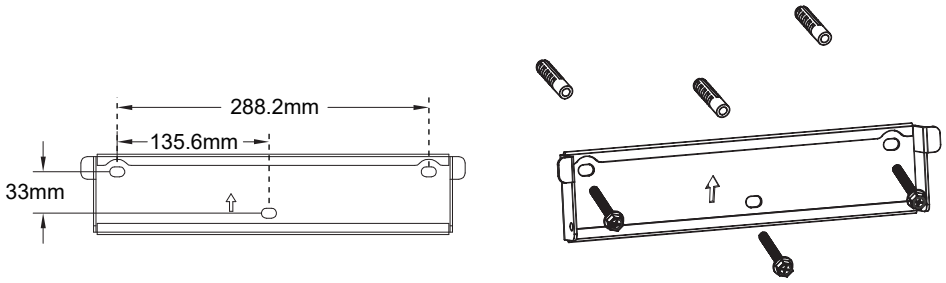
5.2 Installation of inverter

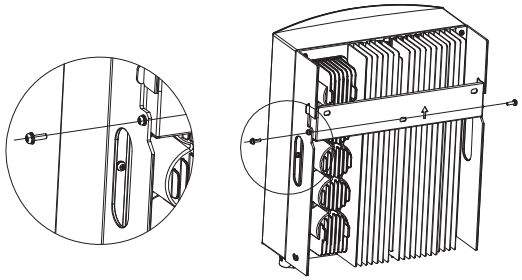
Watch out:

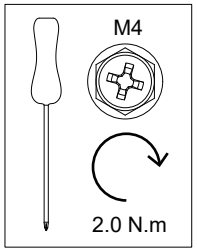
- Transportation, turnover, installation and other operations must meet the requirements of national and regional laws and regulations and relevant standards.
- Please equip corresponding personnel according to the weight of the equipment to prevent the equipment from exceeding the weight range that 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.

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.

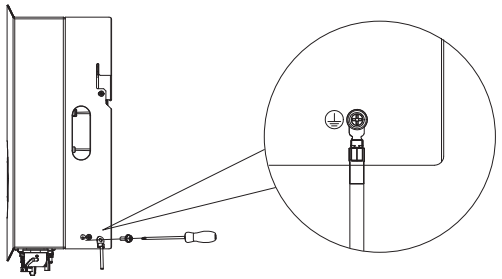
Watch out:

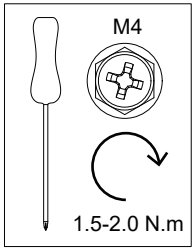
- When making electrical connection, please wear safety shoes, protective gloves, insulating gloves and other personal protective equipment as required.
- Only professionals are allowed to carry out operations related to electrical connection.

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 cable

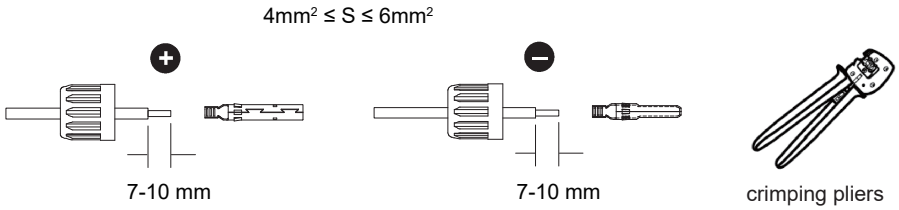
Danger:

- Do not connect the same PV string to multiple inverters, otherwise 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 cable. Recommended specification:
  Type: Outdoor PV multi-core copper wire
  conductor cross-section：4-6mm² (12 - 10AWG)
  Outer diameter of conductor insulation layer: φ3~7mm

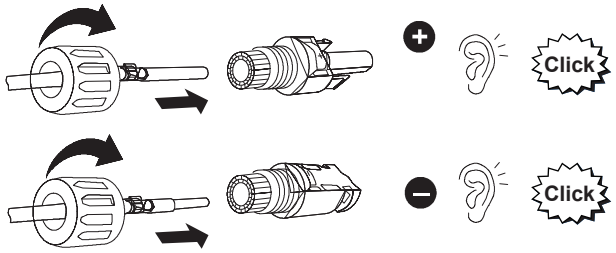
Warning:

- 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=maximum input voltage/30mA).
- 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



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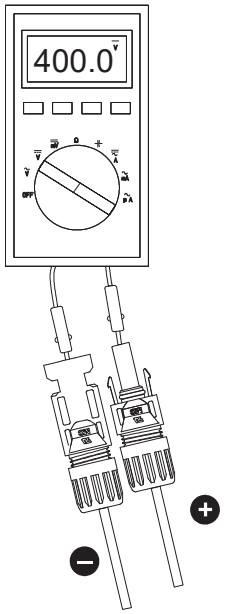
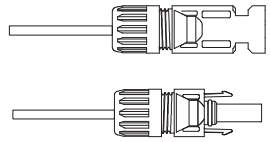




Make sure PV polarity is right,
PV voltage≤1100V(for Normal voltage)
PV voltage≤800V(for Low voltage)

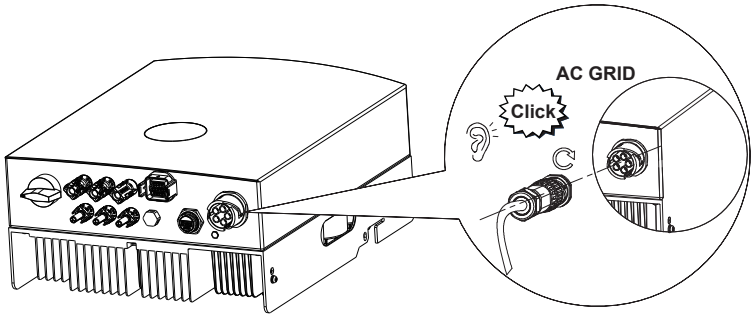
5.3.4 Connecting AC cable

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 cable. 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.

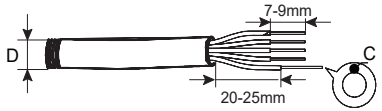
Warning:

- 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 cable 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.



This picture is for reference only. Please refer to the actual situation.

1



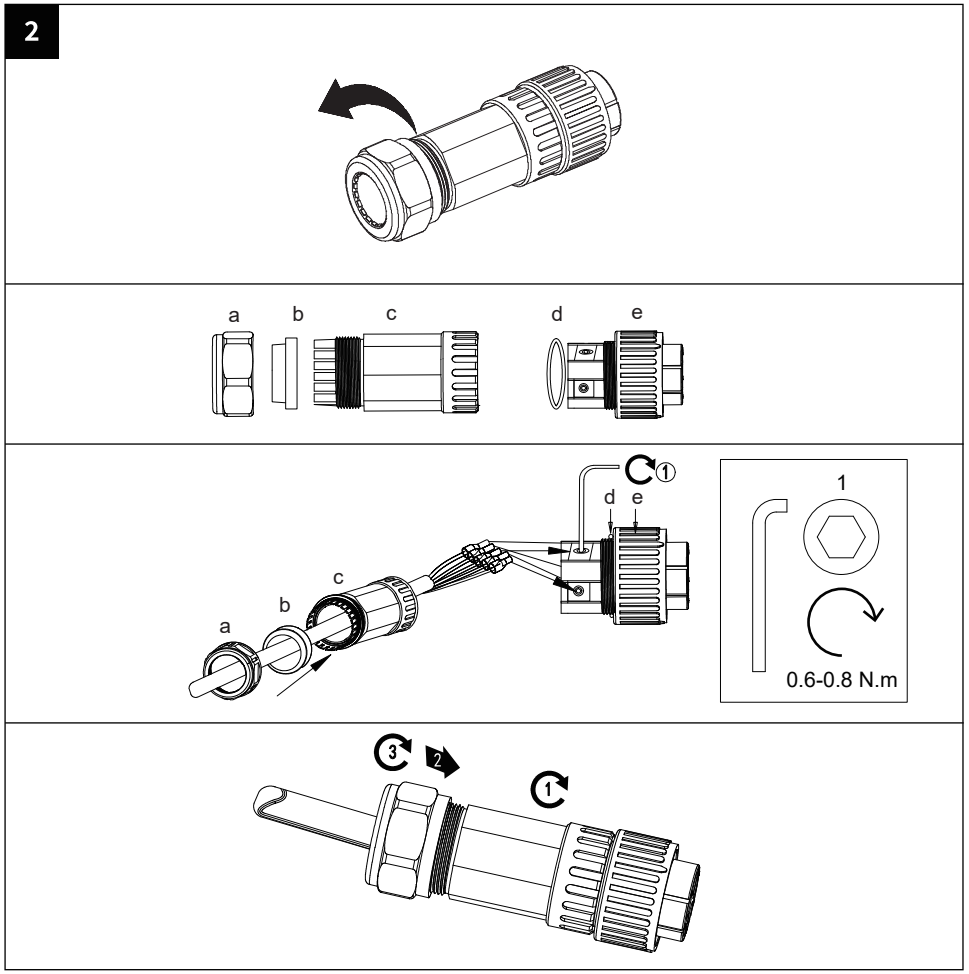
Copper core:

Model	C	D
ASN-(5~12)TL-G2	4-6mm^2	12-18mm
ASN-15TL-G2	6-12mm^2	18-25mm

Explanation:

1. It is a single core wire and does not require terminal pressing operation.
2. For multi-core wires, cold pressing terminal crimping pliers are required to press the terminals.

2



5.3.5 Monitoring of multiple inverters

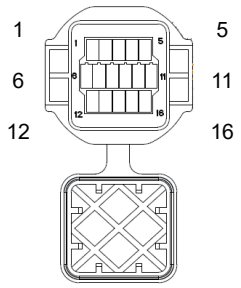
There are two communication ports on the inverter, one is the USB COM2 port and the other is the 16-core COM1 port.

The USB COM2 port is used to connect the data acquisition stick, and the 16-core COM1 port is used for multi-inverter RS485 daisy chain connection/DRM logic interface connection/electric meter communication interface.

The 16-core COM1 interface is defined as follows:

Pin	Function	Description
1	485A1_1	Interfaces for inverter cascading, grid dispatching, and external data acquisition (optional)
2	485B1_1	
3	485A1_2	
4	485B1_2	
5	485 1 GND	
6	485A2	Interface for connecting an anti-backflow meter (optional)
7	485B2	
8	485 2 GND	

Pin	Function	Description
9	DRM 1/5	DRM (optional)
10	DRM 2/6	
11	DRM 3/7	
12	DRM 4/8	
13	DRM_REF	
14	DRM_GND	
15	DRM_+5V	
16	DRM_GND	



Pin	Function	Description
9	CTA+	CT (optional)
10	CTA-	
11	CTB+	
12	CTB-	
13	CTC+	
14	CTC-	

Watch out:

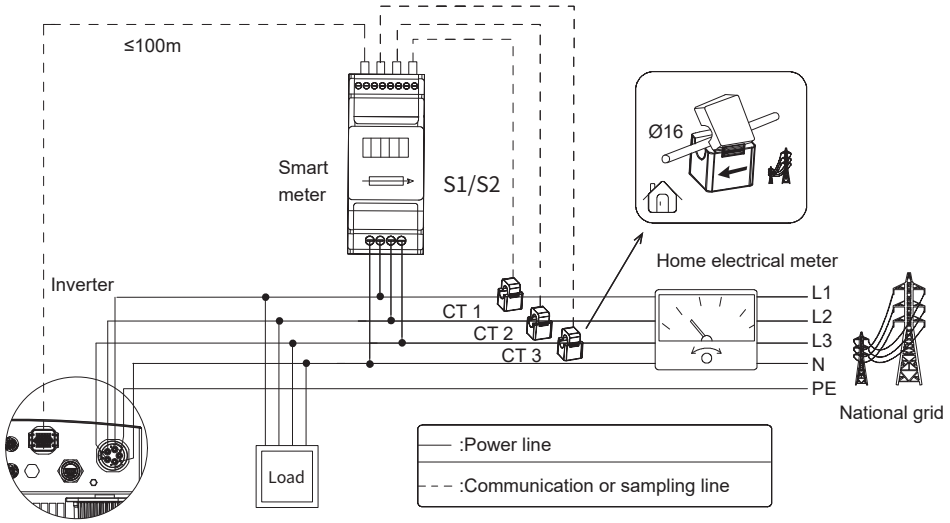
When connecting communication lines, please ensure that the wiring port definition completely matches the device, and the cable routing path should avoid interference sources, power lines, etc., so as not to affect signal reception.

ASN three-phase inverter can meet the requirements of the zero export 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:

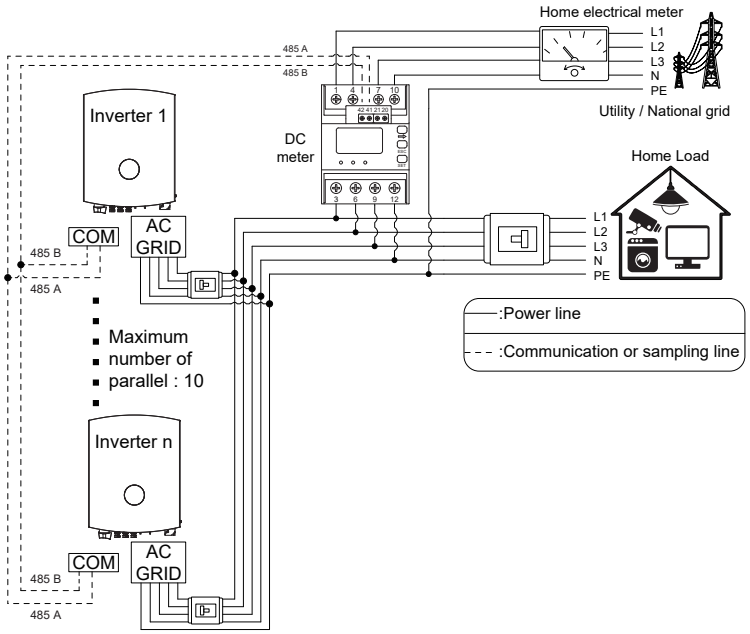
Single-phase independent control: three-phase on grid power is independently adjusted. For example, if the load of L1/L2/L3 phase is 1kW/4kW/8kW respectively, then the output power of L1/L2/L3 will be 1kW/1kW/1kW respectively (the maximum single-phase on grid power of 12kW model is 4kW). The remaining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

5.3.5.1 Power limit networking with single inverter



5.3.5.2 Power limit networking with multi inverter



5.3.6 Datalogger connection (optional)

> **Watch out:**
> Detailed introduction of communication module can be obtained from the official website.

1. Open the COM port cover plate, assemble the datalogger and USB port together as shown in the figure, and tighten the datalogger.
2. The datalogger can support Wifi, 4G or LAN communication. Refer to the datalogger installation guide for detailed operation.

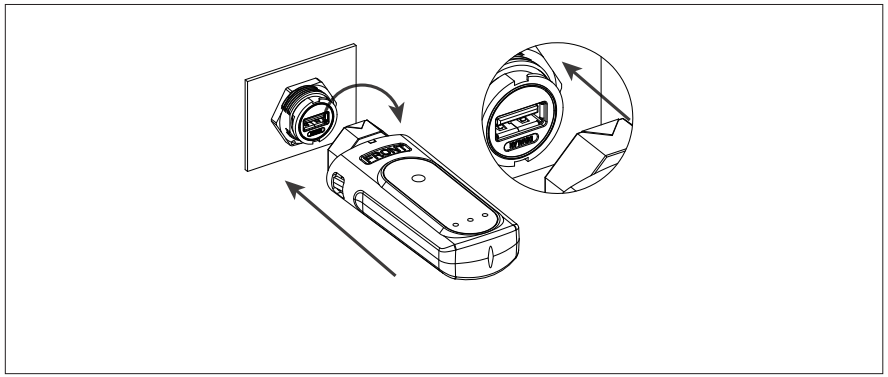
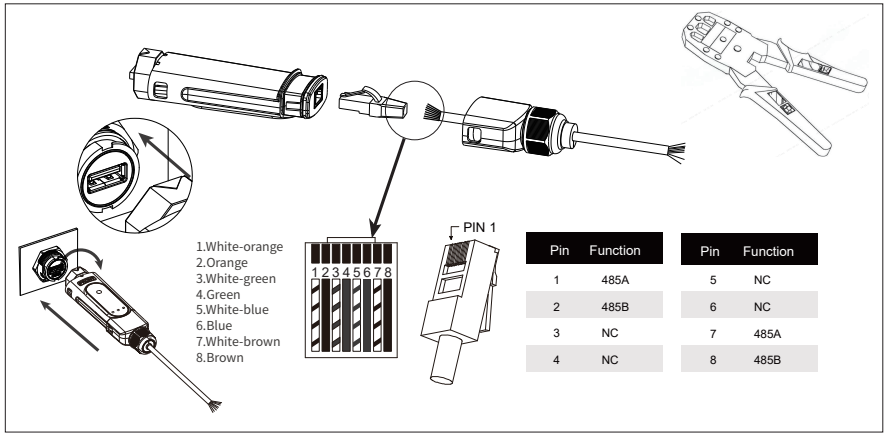


fig. 1



Pin	Function
1	485A
2	485B
3	NC
4	NC

Pin	Function
5	NC
6	NC
7	485A
8	485B

fig. 2

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 cable, DC input cable 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 circuit breaker
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 application program to complete the inverter parameter setting.

Scan the QR code below to download the application or log in following website to download this application：
https://www.auxsolcloud.com

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, 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 cable, AC cable, communication cable, 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 Trouble shooting

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	Fault cause	Solutions
0101	Bus over voltage	1. Abnormal grid or load fluctuation 2. Weak light or abnormal light changes. 3. The configuration of the photovoltaic array is wrong, and the number of photovoltaic panels connected in series is too large. 4. Poor insulation of photovoltaic to ground.	1. If it happens by chance, it may be caused by abnormal power grid, load or light for a short time. After the self-check is normal, the inverter will return to normal operation without manual intervention. 2. Check the series configuration of the corresponding photovoltaic array string to ensure that the open circuit voltage of the string is not higher than the maximum working voltage of the inverter. 3. Check the impedance of the photovoltaic string to the protection ground. If there is a short circuit, please rectify the short circuit point. 4. Restart the inverter after disconnecting the off-grid load. If The restart is normal, you need to increase the battery or reduce the off-grid load (hybrid inverter).
0102	Bus under voltage		
0103	Bus unbalance		
0104	Bus over voltage		
0301	R-phase inverter soft start timeout	1. Abnormal fluctuation of power grid. 2. Inverter sampling fault. 3. Wiring failure.	1. If it happens by accident, it may be caused by abnormal power grid or load for a short time. After the self-check is normal, the inverter will return to normal operation without manual intervention. 2. Disconnect the AC circuit breaker, battery circuit breaker and photovoltaic input switch in turn, and close the battery circuit breaker, AC circuit breaker and photovoltaic input switch in turn after 10 minutes to check whether the fault is still there? 3. Please check whether the photovoltaic, AC and battery cables are correctly connected according to the wiring requirements of the manual.
0302	S-phase inverter soft start timeout		
0303	T-phase inverter soft start timeout		
0601	R-phase inverter software overcurrent	1. Abnormal fluctuation of power grid or load. 2. Inverter sampling fault.	1. If it happens by accident, it may be caused by abnormal power grid or load for a short time. After the self-check is normal, the inverter will return to normal operation without manual intervention. 2. If it occurs frequently, check whether the voltage frequency of the power grid is stable. If the power grid fluctuates greatly, enable the weak power grid mode and restart the inverter. 3. If it appears during the first installation, please check whether the power grid is connected to the off-grid output interface (hybrid inverter) by mistake according to the wiring requirements of the manual. 4. Restart the inverter after disconnecting the off-grid load. If the restart is normal, you need to increase the battery or reduce the off-grid load (hybrid inverter).
0602	S-phase inverter software overcurrent		
0603	T-phase inverter software overcurrent		
0701	R-phase inverter hardware overcurrent		
0702	S-phase inverter hardware overcurrent		
0703	T-phase inverter hardware overcurrent		
0704	Bridge arm overcurrent		
0801	R-phase inverter high voltage		
0802	S-phase inverter high voltage		
0803	T-phase inverter high voltage		

Defect codes	Defect name	Fault cause	Solutions
1501	Control panel temperature too high	1. The inverter installation position is not ventilated. 2. The ambient temperature is too high. 3. The fan works abnormally.	1. Check whether the ventilation of the inverter installation position is good and whether the ambient temperature exceeds the maximum allowable ambient temperature range? 2. If there is no ventilation or the ambient temperature is too high, please improve its ventilation and heat dissipation. 3. Check whether the fan is working normally, whether the air duct is blocked or blocked by dust?
1504	Temperature of Inverter Module is too high		
1505	Control board NTC not connected	Abnormal temperature detection circuit.	Disconnect the AC circuit breaker, battery circuit breaker and photovoltaic input switch in turn, and then close the battery circuit breaker, AC circuit breaker and photovoltaic input switch in turn after 10 minutes to check whether the fault persists?
1508	Inverter module NTC not connected		
1801	PV1 overvoltage	The configuration of the photovoltaic array is wrong, and the number of photovoltaic panels connected in series is too large.	Check the series configuration of the corresponding photovoltaic array string to ensure that the open circuit voltage of the string is not higher than the maximum operating voltage of the inverter.
...	...		
1812	PV12 overvoltage		
1901	PV input software overcurrent	1. Unreasonable component configuration. 2. Abnormal changes in illumination.	1. Series configuration of photovoltaic array strings to ensure that the current specifications of the strings are within the specifications of the inverter. 2. If it happens by accident, it may be caused by abnormal light for a short time. After the self-check is normal, the inverter will return to normal operation without manual intervention.
2001	PV input hardware overcurrent		
2101	PV input arc fault	1. The DC string connection terminal is not firmly connected. 2. The DC wiring is damaged.	Please check whether the component cables are properly connected according to the wiring requirements in the manual.

Defect codes	Defect name	Fault cause	Solutions
2201	PV1 reverse connection	The positive and negative poles of the DC series connection are reversed.	Turn off the AC circuit breaker, battery circuit breaker and photovoltaic input switch in turn. After the inverter is turned off, adjust the DC ancestral positive and negative wiring, turn off the battery circuit breaker, AC circuit breaker and photovoltaic input switch in turn to check whether the fault is still the same?
...	...		
2212	PV12 reverse connection		
2301	PV1 short circuit	Short circuit in DC string.	Disconnect the AC circuit breaker, battery circuit breaker and photovoltaic input switch in turn, and then close the battery circuit breaker, AC circuit breaker and photovoltaic input switch in turn after 10 minutes to check whether the fault persists?
...	...		
2312	PV12 short circuit		
2401	Internal fan	1. Abnormal power supply of fan. 2. Mechanical failure (locked rotor). 3. The fan is aged and damaged.	Check whether the fan is working properly, whether the air duct is blocked or blocked by dust?
2402	External fan		
2501	First-order overvoltage (lowest voltage)	The grid voltage exceeds or falls below the allowable range.	1. If it happens accidentally, it may be that the power grid is abnormal for a short time. The inverter will return to normal operation after detecting that the power grid is normal, without manual intervention. 2. If it appears frequently, please check whether the grid voltage is within the allowable range. • If the grid voltage is outside the allowable range, contact your local electricity operator. • If the grid voltage is within the allowable range, the inverter needs to be modified after obtaining the consent of the local power operator Power grid protection point. 3. If it cannot be recovered for a long time, please check whether the AC side circuit breaker and the output cable are connected normally.
2502	Second-order overvoltage		
2503	Third-order overvoltage		
2504	10 minutes overvoltage		
2505	First-order undervoltage		
2506	Second-order undervoltage		
2507	Third-order undervoltage		
2508	Line voltage first-order overvoltage		

Defect codes	Defect name	Fault cause	Solutions
2509	Line voltage second order overvoltage	The grid voltage exceeds or falls below the allowable range.	1. If it happens accidentally, it may be that the power grid is abnormal for a short time. The inverter will return to normal operation after detecting that the power grid is normal, without manual intervention. 2. If it appears frequently, please check whether the grid voltage is within the allowable range. • If the grid voltage is outside the allowable range, contact your local electricity operator. • If the grid voltage is within the allowable range, the inverter needs to be modified after obtaining the consent of the local power operator Power grid protection point. 3. If it cannot be recovered for a long time, please check whether the AC side circuit breaker and the output cable are connected normally.
2510	Third-order overvoltage of line voltage		
2511	First-order undervoltage of line voltage		
2512	Second-order undervoltage of line voltage		
2513	Third-order undervoltage of line voltage		
2601	First-order overfrequency (lowest frequency)	Grid frequency exceeds or falls below the allowable range.	1. If it happens accidentally, it may be that the power grid is abnormal for a short time. The inverter will return to normal operation after detecting that the power grid is normal, without manual intervention. 2. If it appears frequently, please check whether the grid voltage is within the allowable range. • If the grid frequency is outside the allowable range, contact the local electricity operator. If the grid frequency is within the allowable range, it is necessary to modify the inverter grid protection point after obtaining the consent of the local power operator 3. If it cannot be recovered for a long time, please check whether the AC side circuit breaker and the output cable are connected normally.
2602	Second order overfrequency		
2603	Third-order overfrequency		
2604	First-order underfrequency		
2605	Second order underfrequency		
2606	Third-order underfrequency		

Defect codes	Defect name	Fault cause	Solutions
2701	Island fault	The grid has been disconnected, and the grid voltage is maintained due to the existence of the load, and the grid connection is stopped according to the safety protection requirements.	Wait for the grid to return to normal after the machine will be connected again.
2901	ISO fault	1. The photovoltaic string is short-circuited to the protection ground. 2. The installation environment of photovoltaic string is relatively humid for a long time and the line insulation to ground is poor.	1. Check the impedance of the photovoltaic string to the protection ground. It is normal that the resistance value is greater than 50k Ω. If the resistance value is less than 50kΩ, please check the short circuit point and rectify it. 2. Check whether the protective earth wire of the inverter is correctly connected.
3001	GFCI sensor fault	The leakage current sensor has abnormal sampling.	Disconnect the AC circuit breaker, battery circuit breaker and photovoltaic input switch in turn, and then close the battery circuit breaker, AC circuit breaker and photovoltaic input switch in turn after 10 minutes to check whether the fault persists?
3002	GFCI failure	1. The photovoltaic string or AC line is short-circuited to the protection ground. 2. Electric equipment has Leakage Current. 3. The installation environment of the machine is relatively humid for a long time and the insulation of the line to the ground is poor.	1. Confirm whether the insulation of photovoltaic string and AC line is normal? 2. Check whether there is leakage current in the electrical equipment?
3101	Secondary source exception	Power circuit failure.	Disconnect the AC circuit breaker, battery circuit breaker and photovoltaic input switch in turn. After removing the external communication cable, data acquisition rod and other equipment, close the battery circuit breaker, AC circuit breaker and photovoltaic input switch in turn, check if the fault persists?

Defect codes	Defect name	Fault cause	Solutions
3301	Relay fault	1. Abnormal relay (relay short circuit). 2. Abnormal control circuit. 3. Abnormal AC measurement wiring (virtual connection or short circuit may exist).	1. Please check whether the AC cable is correctly connected according to the wiring requirements of the manual? 2. Disconnect the AC circuit breaker, battery circuit breaker and photovoltaic input switch in turn. After 10 minutes, close the battery circuit breaker, AC circuit breaker and photovoltaic input switch in turn to check whether the fault is still the same?
4001	Grid voltage detection is inconsistent	Abnormal control circuit.	Disconnect the AC circuit breaker, battery circuit breaker and photovoltaic input switch in turn, and then close the battery circuit breaker, AC circuit breaker and photovoltaic input switch in turn after 10 minutes to check whether the fault persists?
4002	BUS voltage detection inconsistent		
4003	GFCI detection inconsistent		
4201	DRM shutdown	Respond to scheduled shutdown.	No need to deal with, if you have any questions, please contact the installer.
4202	Command shutdown		
4203	Remote Locking Machine		

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-G2	ASN-6TL-G2	ASN-8TL-G2
Input DC			
Max.input power	7.5kW	9kW	12kW
Max.input voltage		1100V	
Rated voltage		620V	
Start-up voltage		140V	
MPPT voltage range		140-1000V	
Max.input current		20A/20A	
Max.short circuit current		25A/25A	
MPPT number		2	
Max.input strings number		2	
Output AC			
Rated output power	5kW	6kW	8kW
Max.apparent output power	5.5kVA	6.6kVA	8.8kVA
Max.output power	5.5kW	6.6kW	8.8kW
Rated grid voltage		220V/380V,230V/400V,3/N/PE	
Grid voltage range		162-300V(Phase voltage),280-520V(Line voltage)	
Rated grid frequency		50/60Hz	
Rated output current	7.2A	8.7A	11.5A
Max.output current	7.9A	9.5A	12.7A
Power factor		1 (0.8 leading...0.8 lagging)	
THDi		<3%	
Effciency			
Max.effciency		98.60%	
EU effciency		98.30%	
MPPT efficiency		99.80%	

Model	ASN-10TL-G2	ASN-12TL-G2	ASN-15TL-G2
Input DC			
Max.input power	15kW	18kW	22.5kW
Max.input voltage		1100V	
Rated voltage		620V	
Start-up voltage		140V	
MPPT voltage range		140-1000V	
Max.input current	20A/20A	20A/20A	26A/20A
Max.short circuit current	25A/25A	25A/25A	32A/25A
MPPT number	2	2	2
Max.input strings number	2	2	3
Output AC			
Rated output power	10kW	12kW	15kW
Max.apparent output power	11kVA	13.2kVA	16.5kVA
Max.output power	11kW	13.2kW	16.5kW
Rated grid voltage		220V/380V,230V/400V,3/N/PE	
Grid voltage range		162-300V(Phase voltage),280-520V(Line voltage)	
Rated grid frequency		50/60Hz	
Rated output current	14.4A	17.3A	21.7A
Max.output current	15.9A	19.1A	23.8A
Power factor		1 (0.8 leading...0.8 lagging)	
THDi		<3%	
Effciency			
Max.effciency		98.60%	
EU effciency		98.30%	
MPPT efficiency		99.80%	

Protection	
Integrated DC switch	Yes
DC rever-polarity protection	Yes
Anti-islanding protection	Yes
Short circuit protection	Yes
Output over current protection	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
24-hour load monitoring	Optional
Antibackflow	Optional
Integrated AFCI (DC arc-fault circuit protection)	Optional
I/V Curve scanning	Yes

General Data	
Dimensions (W x H x D)	335 × 430 × 175.5mm
Weight *[1]	ASN-(5~12)TL-G2:12.6kg, ASN-15TL-G2:15.1kg
Self consumption(night)	＜1W
Operating temperature range	–30 ... +60°C
Cooling concept	Natural Cooling
Max.operation altitude	4000m (Derating above 3000m)
Relative humidity	0-100%
Ingress protection	IP66
Topology structure	Transformerless
Grid connection stadard	NB/T32004, EN 50549-1, IEC 61727, IEC 62116, IEC 61683
Type of DC terminal	MC4 connector
Type of AC terminal	Quick connection plug
Display & Communication	
Display	LED+Bluetooth+APP（Optional:LCD)
Communication interface	RS485,Optional:WIFI,4G,LAN

The product may be update in the future. The above parameters are for reference only.
Please refer to the real thing.

*[1]:The weight parameters here are for reference only, and the actual weight shall prevail outside the box or official website.

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打印说明：

1、页面按页码调整为中缝装订，对折后成品页面尺寸：142.5x210mm，成品展开尺寸公差±3mm;

2、封面封底157g 铜版纸打印;

3、正文内容80g双胶纸，双面黑白打印;

4、图面、字体印刷清晰，无乱码、无偏移、无毛边、不起边、油墨不脱落；

5、符合RoHs.