SolarGo App   SEMS Portal App   LinkedIn   Company's Offical Website

GOODWE (China)

No. 90 Zijin Rd., New District, Suzhou, 215011, China
T: +86 (0) 512 6958 2201
sales@goodwe.com (sales)
service@goodwe.com (service)

GOODWE (Germany)

Fürstenrieder Str. 279a 81377 München, Germany
T: +49 8974120210 +49 421 83570-170 (service)
sales.de@goodwe.com
service.de@goodwe.com

GOODWE (Brazil)

Rua Abelardo 45, Recife/PE, 52050-310
T: +55 81 991239286
sergio@goodwe.com
servico.br@goodwe.com

GOODWE (Netherlands)

Franciscusdreef 42C, 3565AC Utrecht, the Netherlands
T: +31 (0) 30 737 1140
sales@goodwe.com
service.nl@goodwe.com

GOODWE (UK)

6 Dunhams Court, Dunhams Lane, Letchworth
Garden City, SG6 1WB UK
T:+ 44 (0) 333 358 3184
enquiries@goodwe.com.uk / service@goodwe.com.uk

GOODWE (India)

1202, G-Square Business Park, Sector 30A, Opp. Sanpada
Railway Stn., Vashi, Navi Mumbai- 400703
T: +91 (0) 2249746788
sales@goodwe.com / service.in@goodwe.com

GOODWE (Italy)

Via Cesare Braico 61, 72100 Brindisi, Italy
T: +39 338 879 38 81; +39 831 162 35 52
valter.pische@goodwe.com (sales)
operazioni@topsenergy.com; goodwe@arsimp.it (service)

GOODWE (Turbutton)

Adalet Mah. Megapol Tower K: 9 No: 110 Bayraklı - Izmir
T: +90 (232) 935 68 18
info@goodwe.com.tr
service@goodwe.com.tr

GOODWE (Australia)

Level 14, 380 St. Kilda Road, Melbourne,
Victoria, 3004, Australia
T: +61 (0) 3 9918 3905
sales@goodwe.com / service.au@goodwe.com

GOODWE (Mexico)

Oswaldo Sanchez Norte 3615, Col. Hidalgo, Monterrey,
Nuevo Leon, Mexico, C.P. 64290
T: +52 1 81 2871 2871
sales@goodwe.com / soporte.latam@goodwe.com

GOODWE (Korea)

8F Invest Korea Plaza, 7 Heoleung-ro
Seocho-gu Seoul Korea (06792)
T: 82 (2) 3497 1066
sales@goodwe.com / Larry.Kim@goodwe.com

Note: The information above is subject to change without prior notice, for details refer to www.goodwe.com

GOODWE
YOUR SOLAR ENGINE

MT SERIES USER MANUAL

GOODWE
YOUR SOLAR ENGINE | SOLAR INVERTER

Version 1.0

1 Symbols

⚠️	Failure to observe a warning indicated in this manual may result in injury.
♻️	Recyclable materials
⚡	Danger of high voltage & electric shock
↑↑	This side up - The package must always have the arrows point up
🔥	Don't touch, hot surface!
4	No more than four (4) identical packages be stacked on each other.
🗑️	Special disposal instructions
🍷	Fragile
☂️	Keep Dry
📖	Refer to operation instructions
⚡🕐 5min	Wait at least 5 minutes after disconnecting the inverter before touching internal parts
CE	CE mark.

⚠️ 2 Safety Measures & Warning

This manual contains important instructions for MT series of inverter which must be followed during installation and maintenance.

The MT series includes Four-MPPT, Three-Phase solar inverter without transformer which consists of GW30KLV-MT / GW35KLV-MT / GW50KLV-MT / GW50KN-MT / GW50KBF-MT / GW60KN-MT / GW60KBF-MT / GW70KHV-MT / GW75K-MT / GW80KHV-MT / GW80K-MT and GW80KBF-MT model type.

MT Series have been designed and tested strictly according to the international safety regulation. As these are electrical and electronic equipments, related safety instructions must be complied during installation, commissioning. Improper operation will cause serious harm to:

1. The life and well-being of the operators or a third party.

2. The inverter and other properties that belong to the operator or a third party.

Therefore the following safety instructions must be read and be always kept in mind prior to any work. All detailed work-related safety warnings and notes will be specified at the critical points in corresponding chapter. All installation and electrical work must only be performed by qualified personnel. They need to meet the standards as stated below:

• Been trained specially;

• Already completely read through and understood all related documents.

• Been familiar with safety requirements of electrical systems.

The inverter must be installed and maintained by professionals in compliance with local electrical standards, regulations and the requirements of local power authorities or companies.

• Improper handling of the device will pose a risk of injury.

• Always follow the instructions contained in the manual when moving or positioning the inverter.

• The weight of the equipment can cause injuries, serious wounds or bruise if improperly handled.

• Please install it where it is out of reach of children.

• Before installing and maintaining the inverter, it is crucial to make certain that the inverter is not electrically connected.

• Before maintaining the inverter, disconnect the connection between the AC grid and the inverter first, then disconnect the connection between the DC input and the inverter, the operator should wait at least 5 minutes after the disconnection in case of electric shock.

• All cables must be firmly attached, undamaged, properly insulated, and adequately dimensioned.

• The temperature of some parts of the inverter may exceed 60°C during operation. To avoid being burnt, do not touch the inverter during operation. Let it cool down before touching it.

• Without permission, opening of the inverter's front cover is not allowed. Users should not

touch/replace any components of the inverter except the DC/AC connectors. Manufacturer assumes no responsibility for any damage to inverter or person caused by improper operation.

• Static electricity may damage electronic components. Appropriate measures must be adopted to prevent such damage to the inverter; otherwise the inverter may be damaged and the warranty will be annulled.

• Ensure that the output voltage of the proposed PV array is lower than the maximum rated input voltage of the inverter; otherwise the inverter may be damaged and the warranty will be annulled.

• If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

• When exposed to sunlight, the PV array will generate very high voltage which can cause electrical shock hazard. Please strictly follow the instruction we provided.

• PV modules should have an IEC61730 class A rating.

• Prohibit inserting or pulling the AC or DC terminals when the inverter is working. Otherwise the inverter will be destroyed.

Only DC connectors provided by manufacturer are permitted for use, otherwise the inverter may be damaged and the warranty will be annulled.

• The inverter can exclude the possibility of DC residual currents to 6mA in the system, where an external RCD is required in addition to the built-in RCMU, and a type A RCD must be used to avoid tripping.

• The default photovoltaic module is not grounded.

• If there are more than 3 PV strings on input side, an additional fuse installation will be suggested.

⚠ The IP65 premise is that the machine is completely sealed. Please install it within one day after unpacking, otherwise please block the unconnected port and do not open it to ensure that the machine is not exposed to water and dust.

To our inverter product, GOODWE provides standard manufacture warranty which comes with the product and prepaid warranty extension solution to our customer. You can find the details about the terms and solution from below linkage.

https://en.goodwe.com/warranty.asp

3 Product Introduction

3.1 Intended Usage

The MT series which is a Four MPPT, three phase transformer-less grid-connected inverter which is a crucial unit between the PV string and the utility grid in the PV power system.

Inverter is dedicated to converting direct current generated by the PV modular into alternating current, which conforms to parameters of local utility grid and fed it into the utility grid. The intended usage of the inverter is illustrated in the below figure.

A   B   C   D
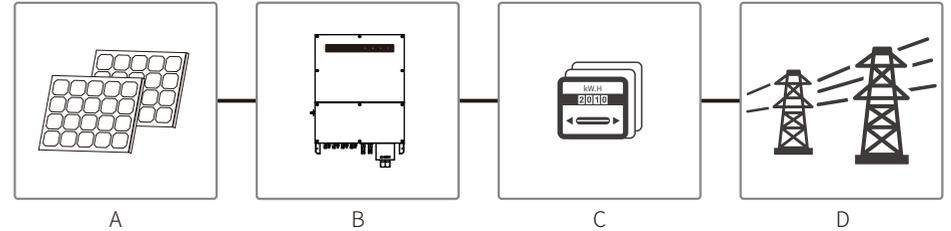
⚠ The reason why the inverter can't be connected to the PV module is that the positive or negative terminal should be grounded, except when a transformer has been used between the inverter and grid.
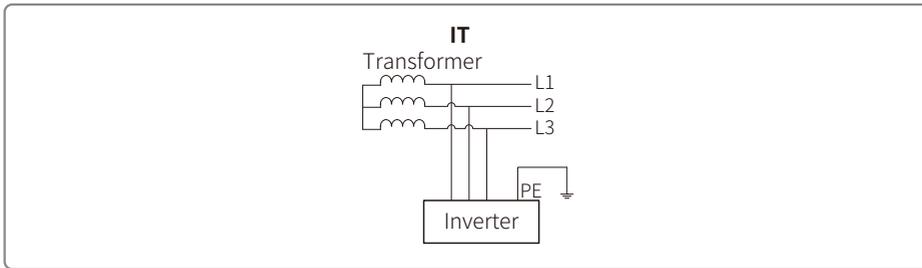
Item	Description	Note
A	PV string	Monocrystalline silicon, polycrystalline silicon and others.
B	Inverter	MT Series
C	Meter device	Meter cupboard with distributed generation system
D	Utility grid	TN-S, TN-C, TN-C-S, TT, IT (different Model types with different types of utility grid as below)

MT series GW30KLV-MT/ GW35KLV-MT / GW50KLV-MT / GW50KN-MT / GW60KN-MTV / GW50KBF-MT / GW60KBF-MT / GW75K-MT / GW80K-MT support four different types of grid.
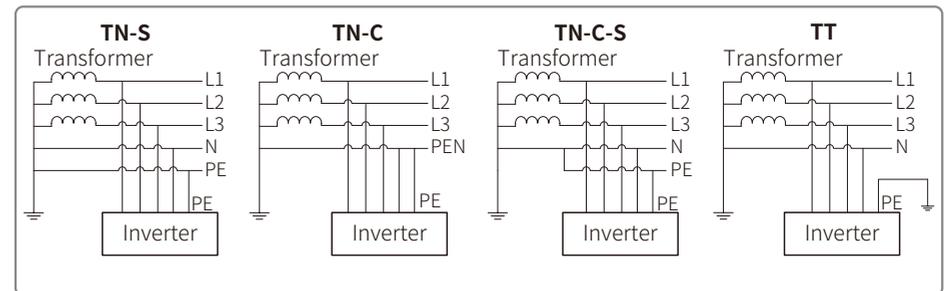
Note: For TT grid structure, RMS voltage between neutral wire and earth wire must be less than 20V.
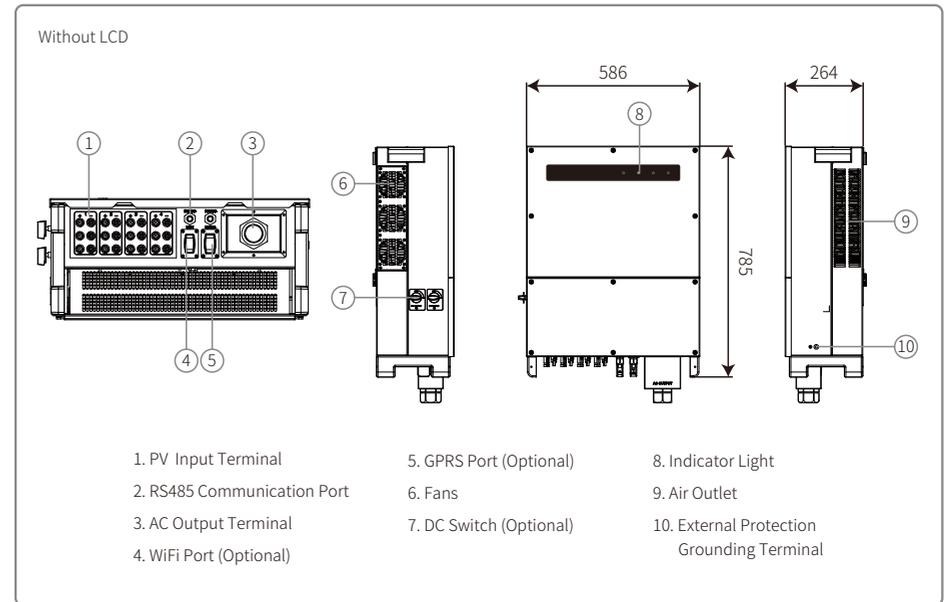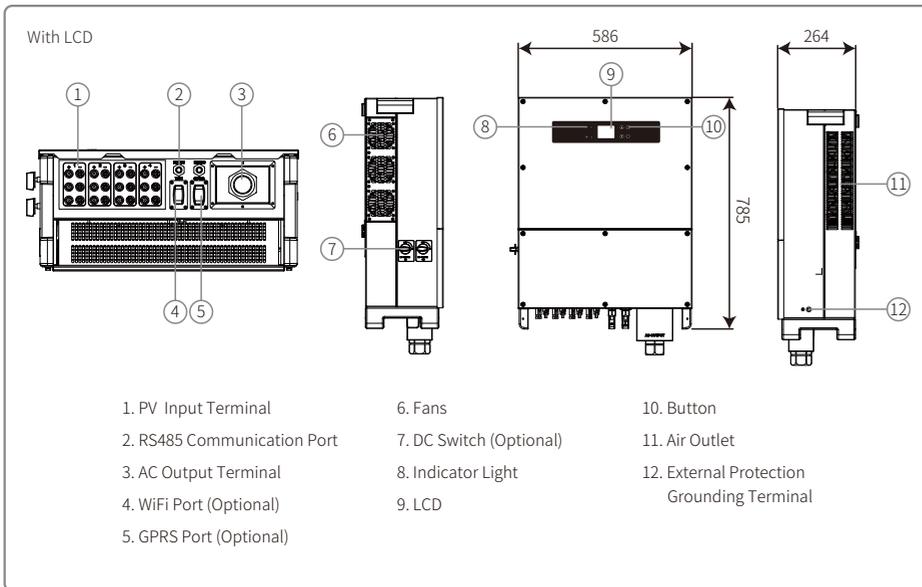
GW70KHV-MT / GW80KHV-MT and GW80KBF-MT support IT grid type. Refer to below figure.

IT
Transformer
L1
L2
L3
PE
Inverter

3.2 Inverter Overview

MT series inverter illustration.

Note: Image shown here is for reference only, actual product you receive may be different.

With LCD

586   264

785

1. PV Input Terminal   6. Fans   10. Button
2. RS485 Communication Port 7. DC Switch (Optional)   11. Air Outlet
3. AC Output Terminal   8. Indicator Light   12. External Protection
4. WiFi Port (Optional)   9. LCD   Grounding Terminal
5. GPRS Port (Optional)

Without LCD

586   264

785

1. PV Input Terminal   5. GPRS Port (Optional)   8. Indicator Light
2. RS485 Communication Port 6. Fans   9. Air Outlet
3. AC Output Terminal   7. DC Switch (Optional)   10. External Protection
4. WiFi Port (Optional)   Grounding Terminal

Item	Name	Description
1	PV Input Terminal	For AC cable connection
2	RS485 Communication Port	For PV string connection
3	AC Output Terminal	WiFi/GPRS For connection
4	WiFi Port (Optional)	For WiFi module connection
5	GPRS Port (Optional)	For GPRS module connection
6	Fans	There are six fans to perform controlled force-air cooling.
7	DC Switch (Optional)	During normal operation it is in "on" state, it can shut down the inverter after it is disconnected from the grid by the AC breaker.
8	Indicator light	Display the state of the inverter
9	LCD	Inverter operation data viewing and parameter configuration.
10	Button	For configuration and viewing parameters.
11	Air Outlet	Exit of hot air during the inverter operation.
12	External Protection Grounding Terminal	Second protection earth terminals as specified in EN50178.

3.3 Technical Description

3.3.1 Principle Description

PV string voltage is transmitted to DC BUS via BOOST circuit.

The MT series is equipped with four MPPTs for four DC inputs to ensure that the maximum power is utilized even in different PV installation condition.

DC/AC converter circuit converts DC power into AC power which can be fed into the utility. Protective circuits are designed to protect both the inverter's safety and human's safety.

DC switch is integrated for safe disconnection of the DC input. The inverter provides standard interface RS485, Wi-Fi (optional) for communication. Inverters also provide running recode data display, parameter configuration via LCD panel or App.

Please refer to chapter 6.2 to check the main block diagram.

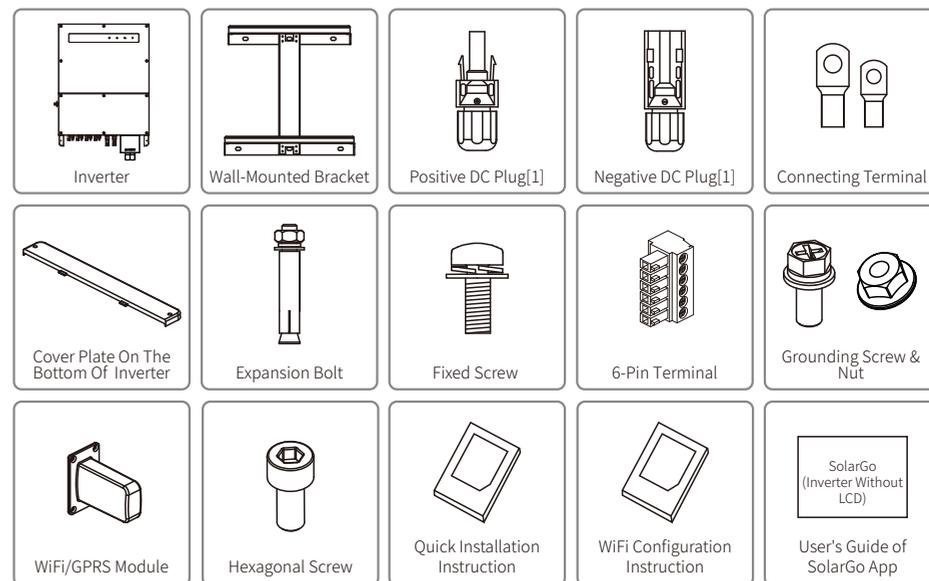### 3.3.2 Function Description

Inverter functions can be grouped as following.

• Conversion function
 Inverter converts direct current power into alternating current power which conforms to the grid requirement of its installation country.

• Data storage and display
 Inverter stores the running information and fault records and displays them on the LCD screen or APP.

• Parameter configuration
 Inverter provides various parameter configurations for optional operation.

• Communication interface
 Inverter provides USB,WiFi(optional) and standard RS485 communication interface.

• Protection functions
 >Insulation resistance to ground surveillance
 >Input voltage monitor
 >Residual current monitoring unit
 >Anti-islanding protection
 >PV array string fault monitoring
 >DC fuse
 >DC switch
 >DC SPD
 >AC SPD
 >SPD fault monitoring
 >AC over curent protection
 >Insulation monitoring

3.4 Package

The unit is thoroughly tested and strictly inspected before delivery. Damage may still occur during shipping.

1. Check the package for any visible damage upon receiving.

2. Check the inner contents for damage after unpacking.

3. Check the package list below.

Inverter	Wall-Mounted Bracket	Positive DC Plug[1]	Negative DC Plug[1]	Connecting Terminal
Cover Plate On The Bottom Of Inverter	Expansion Bolt	Fixed Screw	6-Pin Terminal	Grounding Screw & Nut
WiFi/GPRS Module	Hexagonal Screw	Quick Installation Instruction	WiFi Configuration Instruction	SolarGo (Inverter Without LCD) / User's Guide of SolarGo App

[1]Positive & Negative DC plug：

　　GW50KBF-MT 8 pairs.

　　GW30KLV-MT / GW50KN-MT 10pairs.

　　GW35KLV-MT / GW60KN-MT / GW60KBF-MT / GW70KHV-MT / GW80KBF-MT 12 pairs.

　　GW50KLV-MT / GW75K-MT / GW80KHV-MT / GW80K-MT 16 pairs.

4 Installation

4.1 Mounting Instructions

1. In order to achieve optimal performance, the ambient temperature should be lower than 45°C.
2. For easy maintenance, we suggest to install the inverter at eye level.
3. Inverters should not be installed near flammable and explosive items. Strong electro-magnetic charges should be kept away from installation site.
4. Product label and warning symbols should be placed at a location that is easy to read by the users.
5. Make sure to install the inverter at a place where it is protected from direct sunlight, rain and snow.
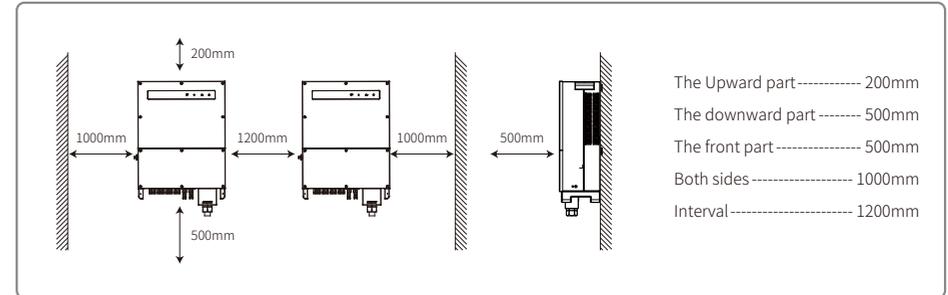
| Keep away from sunlight | Keep dry | Keep it clear of snow | Sun | Rain | Accmulated snow |
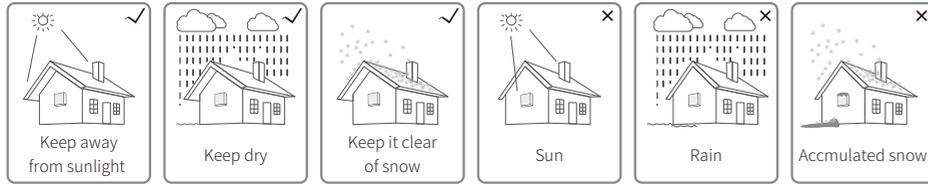
4.2 Equipment Installation

4.2.1 Select The Installation Location

1. Take the bearing capacity of the wall into account. The wall (such as concrete walls and metal structures)should be strong enough to hold the weight of the inverter over a long period of time.
2. Install the unit where it is accessible to service or do the electrical connection.
3. Do not install the unit on the wall of flammable material.
4. Make sure the installation location is well ventilated.
5. Inverters should not be installed near flammable or explosive items. Any strong electro-magnetic equipment should be kept away from installation site.
6. Install the unit at eye level to for convenient operation and maintenance.
7. Install the unit vertically or tilted backwards of no more than 15 degrees, no lateral tilt is allowed. And wiring area should be facing downwards. Horizontal installation requires more than 250mm off the ground.
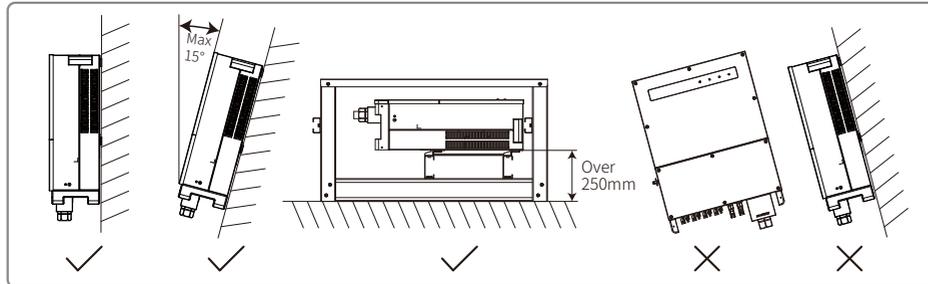
To ensure heat dissipation and convenient disassembly, the minimum clearance around the inverter should not be less than the following values.

The Upward part----------- 200mm
The downward part -------- 500mm
The front part -------------- 500mm
Both sides ------------------- 1000mm
Interval---------------------- 1200mm

4.2.2 Mounting Procedure

1. Use the wall-mounted bracket as a template and drill 6 holes on the wall, 13 mm in diameter and 65 mm deep.

2. Fix the wall-mounted bracket on the wall with six expansion bolts in accessory bag.

3. Carry the inverter with the handles on both sides of the inverter.

4. Place the inverter on the wall-mounted bracket as illustrated.
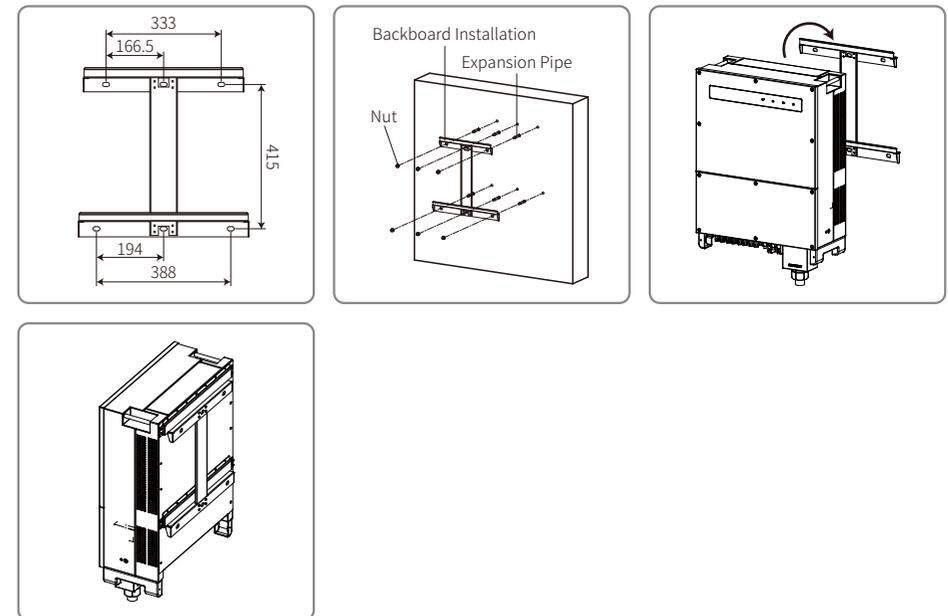
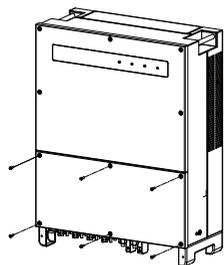### 4.2.3 Schematic Diagram Of Cover Dismantling And Installation Steps

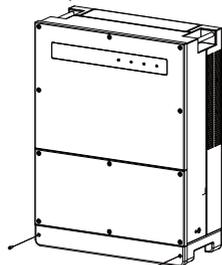**1. Dismantle the downside cover.**
(Tool: external hexagonal screwdriver)
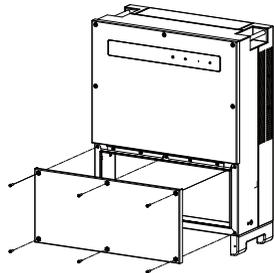
2. Electrical installation.

3. Assemble bottom side cover.
(Tool: hex button. Twisting Force: 2N.m)

4. Assemble downside cover.
(Material: M5 inner-hexagon screws.
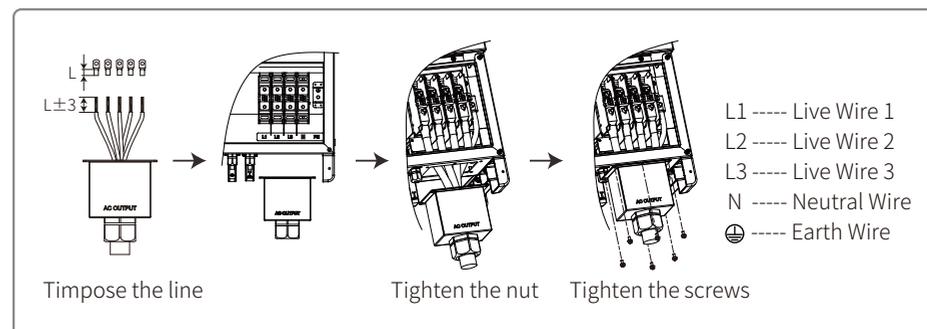Tool: hex button)

4.3 Electrical Connection

### 4.3.1 Connection To Grid (AC Side Connection)

1. Measure the voltage and frequency of grid-connected access point, and make sure it is in accordance with the grid-connected standard of inverter.

2. It is recommended to add breaker or fuse to AC side. The specification should be more than 1.25 times of rated of AC output current.

3. The PE line of inverter should be connected to the earth, make sure that the impedance between the neutral wire and earth wire is less than 10 ohm.

4. Disconnect the breaker or fuse between the inverter and the utility.

5. Connect the inverter to the grid: The wiring installation method on the AC output side is shown as below.

6. Fix (Torque:6~8 N.m) the connector of AC cable to the corresponding terminals.

7. Neutral conductor shall be blue, line conductor shall be black or brown (preferred), protective earth bonding line shall be yellow-green.

8. The AC line construction shall be such that if the cord should slip from its anchorage, placing a strain on conductors, the protective earthing conductor will be the last to take the strain. such as the PE line is longer than L and N.

L1 ----- Live Wire 1
L2 ----- Live Wire 2
L3 ----- Live Wire 3
N ----- Neutral Wire
⏚ ----- Earth Wire

Timpose the line   Tighten the nut   Tighten the screws

⚠ Note: It is not necessary to connect Neutral wire to the inverter of GW30KLV-MT / GW35KLV-MT / GW50KN-MT / GW60KN-MT / GW75K-MT / GW80K-MT product. Please select Delta grid on the panel or SolarGo App if not connect neutral wire to them. Do not connect the neutral wire to the inverter of GW70KHV-MT, GW80KHV-MT and GW80KBF-MT products.

AC cable illustration :

Annealed Copper Wire
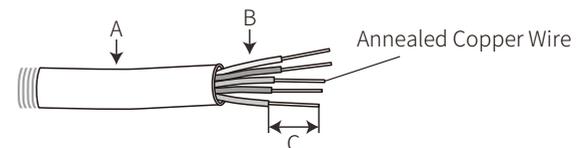
Grade	Description	Value
A	O.D	30~38mm
B	Section area of conduction material	25~95mm²
C	Length of Bare wire	According to the terminal length

4.3.2 AC Circuit Breaker And Residual Current Protection Device

An independent three or four pole circuit breaker for each inverter must be installed at the output side to ensure that the inverter can be safely disconnected from the grid.

The output current of GW30KLV-MT / GW50KN-MT is 80A, so we recommend that the nominal current of the AC breaker is 100A. The output current of GW35KLV-MT / GW50KBF-MT / GW60KN-MT / GW60KBF-MT / GW70KHV-MT / GW80KHV-MT and GW80KBF-MT is 90A, so we recommend that the nominal current of the AC breaker is 120A.

The output current of GW50KLV-MT / GW50KLV-MT / GW80K-MT is 133A, so we recommend that the nominal current of the AC breaker should be more than 160A.

⚠ Note: It's not allowed for several inverter to use the same circuit breaker. Connecting loads between the inverter and circuit breaker is not allowed

The internal integrated residual current detection device (RCD)of inverter can detect external leakage current in real time. When the detected leakage current value exceeds the limit value, the inverter will be disconnected from the grid immediately. If an external RCD is installed, the action current should be 500mA or higher.

4.3.3 Earth Terminal Connection

The inverter is equipped with earth terminal according to the requirement of EN 50178.

All non-current carrying exposed metal parts of the equipment and other enclosures in the PV power system must be grounded.

Please connect "PE" cable to ground.

1. Strip the wire insulation sheet of a suitable length with a wire stripper, illustrated as below.

Section area of AC cable (S)	Section area of PE cable	Note
S > 16mm²	16mm²	Only applicable when the material of PE wire and L wire is the same. If the material is different, please select according to the equivalent resistance of PE wire.
S ≤ 35mm²	16mm²	
S > 35mm²	S/2	

2. Insert the stripped wire into the terminal and compress it tightly by crimping pliers.
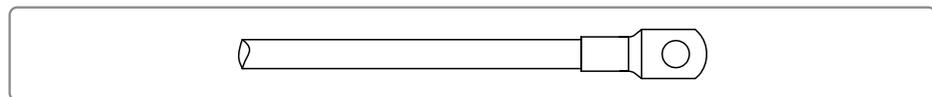
3. Fix the earth wire on the machine.

NO.	Name	Explanation
A	Cold-pressed terminal	
B	Screw	M8*20
C	Yellow and green line	The maximum is 25mm²

4. In order to improve the corrosion resistance of the terminal, it is recommended to apply silica gel on the earth terminal for corrosion protection after the grounding cable assembly is completed.

4.3.4 Connecting Inverter To PV Pannel

⚠ Caution

1. Make sure the DC switch is turned off before connecting PV string to the inverter.

2. Make sure PV string polarity confirms with DC connector. Otherwise, it will cause damage to inverter.

3. Make sure the maximum open circuit voltage (Voc) of each PV string does not exceed the maximum input voltage of the inverter under any condition(1100V).

4. Make sure that the maximum short circuit current of each DC input is less than the inverter allowable limit.

5. Do not connect positive or negative pole of PV string to earth (PE terminal). Otherwise, it will permanently destroy the inverter.

6. Positive cable should be red, negative cable should be black.

7. The minimum insulation resistance to ground of the PV panels must exceed 33.3kΩ (R = 1000/30 mA), there is a risk of shock hazard if the requirement of minimum resistance is not met.

8. The MT series has four PV input area PV1 input, PV2 input, PV3 input, PV4 input, each with MPP tracker. The four PV input works independently, therefore the four PV input can be different with each other, including different types of modular, different numbers of connecting PV strings, different orientation angel of PV modular.

There are four types of DC connectors, DEVALAN, MC4, AMPHENDL H4 and QC4.10 series.

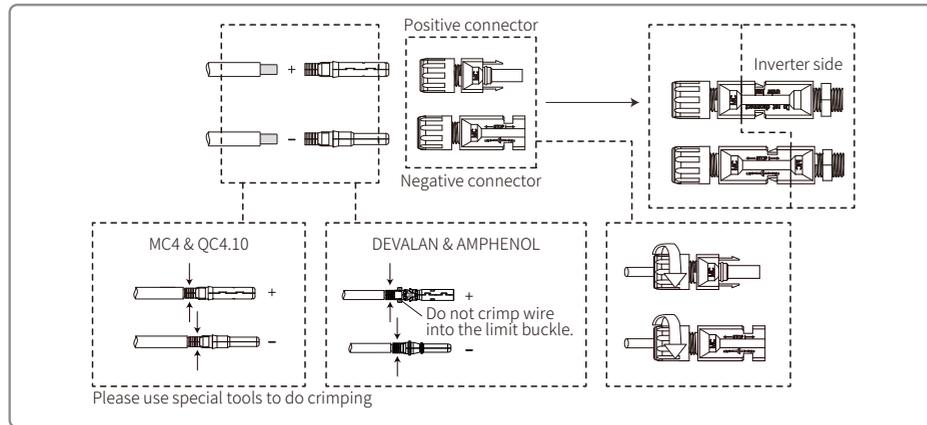DEVALAN SERIES   MC4 SERIES

AMPHENOL SERIES   QC4.10 SERIES
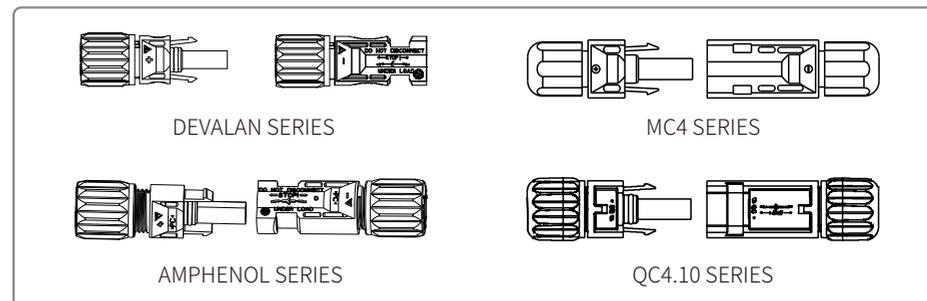
Note: The actual DC connector used is as shown in the accessory box.

DC cable specification:

Label	Description	Value
A	External diameter of wire stock	4~5mm
B	Cross-sectional area of conductor material	2.5~4mm²
C	Length of bare wire	About 7mm

The installation method of DC connector.

In order to better dustproof and waterproof the internal inverter, all the DC connectors provided by accessory bag should be connected to the inverter. If only some of the DC connectors are used, the DC connectors without connection should be blocked with non-conductive insulator.

Plug with PV waterproof plug
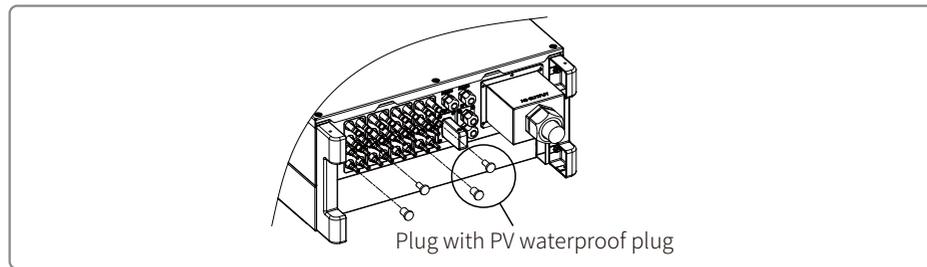
4.3.5 DC Switch

The DC switch is designed to be able to safely disconnect the DC input if required.

The inverter works automatically when the input and output meet the requirements. Rotating the DC switch to "OFF" position will immediately cut off the flow of DC current.

Rotate the DC switch to "ON" position before starting the inverter.

4.4 Communication Connection

Inverter operation data can be transferred by USB, RS485 or WIFI Module to a PC with monitoring software or to a data logger device such as Ezlogger Pro. USB is only used for service debug; RS485 is the standard communication choice for inverter, and WIFI modular can be used optionally for communication.

4.4.1 USB Connection

USB cable must be connected according to the following steps as shown below:

1. Open the bottom cover
2. Insert the USB data cable
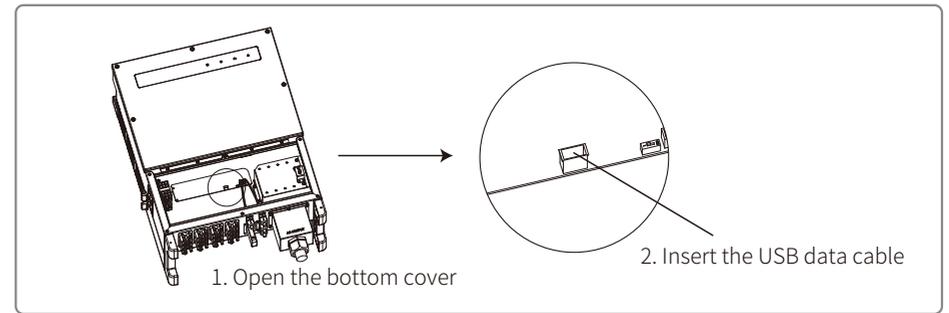
This function is only for local firmware upgrade and parameter calibration.

4.4.2 RS485 Communication

This function only applies to the inverter with RS485 ports.

The RS485 port of inverter is used to connect the EzLogger Pro, and the total length of connecting cable should not exceed 1000m.

Communication lines must be separated from other power lines to prevent interference to the communication. RS485 connection are shown as below.
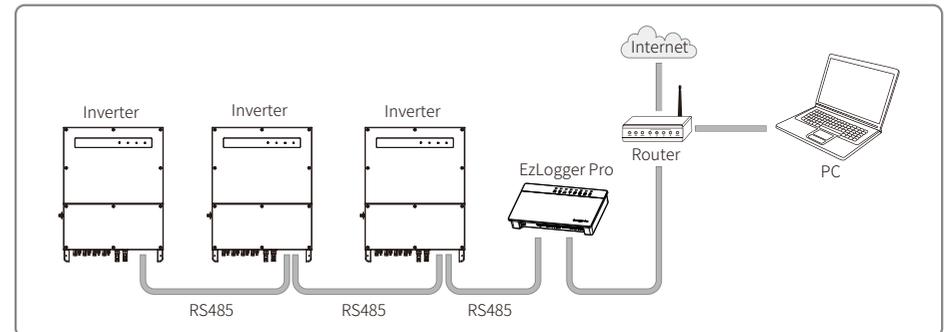
The connection steps of RS485 communication of MT series are as follows:

Step 1: Find the RS485 terminal and screw out the screw cap.
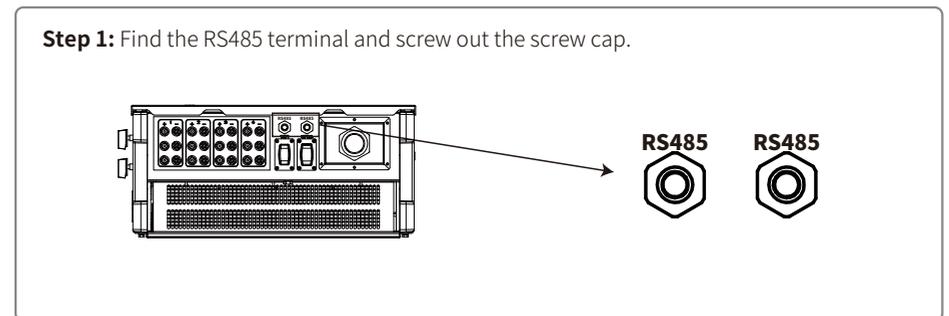
RS485   RS485

Step 2:

Put the cable through the plate, and connect RS485 cable on the 6-pin terminal.

Advise to use cable 16AWG-26AWG.

No.	Function
1	RS485+
2	RS485-
3	Reserved
4	Reserved
5	RS485+
6	RS485-

6.5mm

25mm

RS485 communication board   Single hole seal ring   Cable

Lock   Nut   The Insulator   Screw Cap

123456

Step 3:

Connect the terminal to the right position onto the inverter.

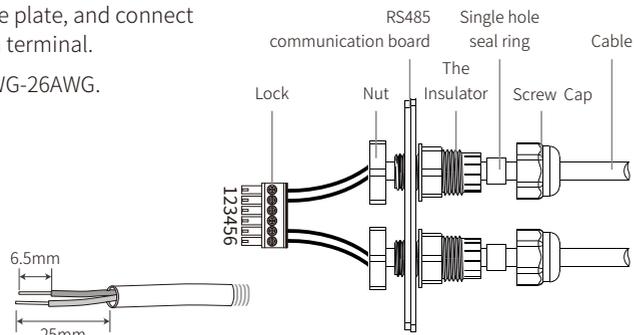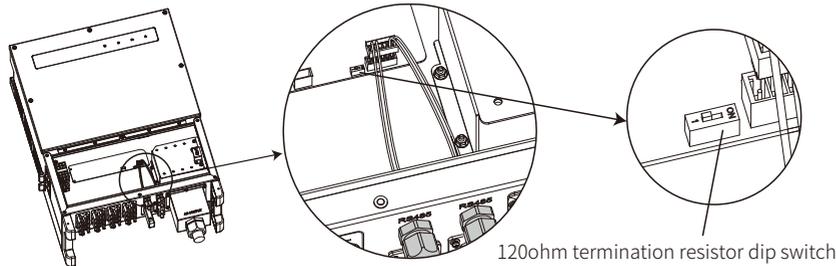Note: The termnial of different inverter model may locate in different place.

120ohm termination resistor dip switch

⚠ Caution

Cable requirements of RS485 communication: Shielded twisted-pair cable or shielded twisted-pair

Ethernet cable 120ohm termination resistor is controlled by dip switch. "ON" means connected, and "OFF" means disconnected.

The terminal resistance dial switch is selected to be 120 ohms.

• When single inverter is in communication, rotate the terminal resistance dial switch to ON state (The default state is OFF) which is next to the RS485 communication port of inverter, so that the RS485 terminal is with 120ohm.Then make the shielding layer of munication line single-point grounding.

If multiple inverters are in communication, connect all the inverters in a daisy chain through the

RS485 communication cable for device at the end of daisy chain, rotate the terminal resistance dial switch to ON state (The default state is OFF). Then make the shielding layer of communication line single-point grounding.

4.4.3 WiFi Communication

This function is only applicable for WiFi model inverter. Please refer to "Wi-Fi Configuration Instruction" to complete WiFi configuration.

After the configurations are completed, please register on the website www.goodwe.com.

Please refer to WiFi app for specific configuration.

The WiFi module installation of MT series are shown as below.
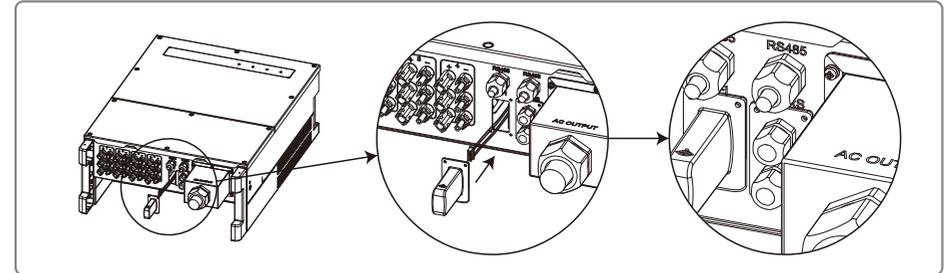
4.4.4 Earth Fault Alarm

The inverter complies with IEC62109-2 13.9. When earth fault occurs, Buzzer in EzLogger Pro will ring for 1 minute, and run LED will be lighting for 1 minute. The alarm will ring again every half an hour unless the fault is resolved.

4.4.5 DRED

DRM function is achieved by Ezlogger Pro, and please connect the Ezlogger Pro through RS485 port. Please refer to Ezlogger Pro manual for detailed DRED connection.

4.4.6 Remote Shutdown

Step1:
Screw this plate off from the inverter.

Step2:

1. Plug out the 4-pin terminal and dismantle the resistor on it.
2. Plug the wire out, leave the 4-pin terminal for next step.

Plug The Wire Out

Step3:

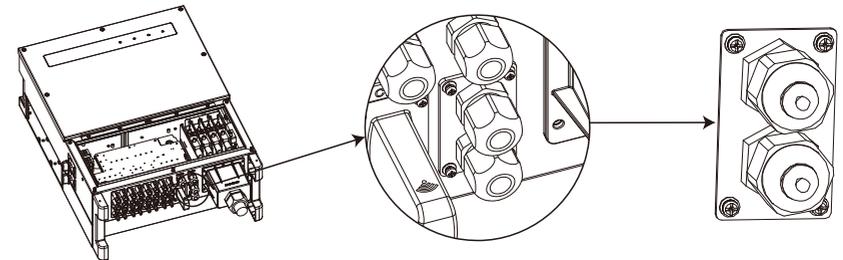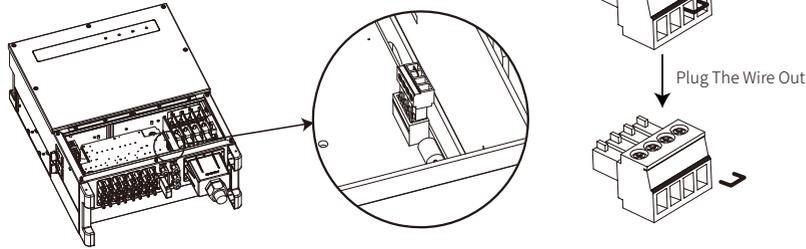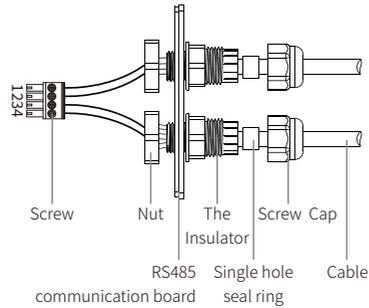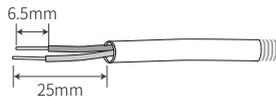Insert the gateway cable through the components as the followings: screw cap, one-hole sealing ring, insulation body and sheet metal parts.

No.	Function
1	24V
2	Shutoff _1
3	24V
4	Shutoff _2

6.5mm

25mm

1 2 3 4

Screw   Nut   The Insulator   Screw Cap

RS485 communication board   Single hole seal ring   Cable

Step4:

1. Connect the terminal to the right position onto the inverter.
2. Fasten the waterproof plate to inverter.
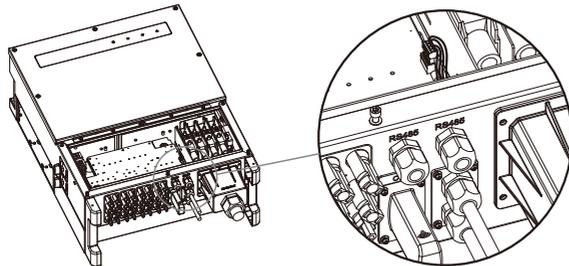
4.4.7 SEMS Portal

SEMS Portal is an online monitoring system. After completing the installation of communication connection, you can access www.semsportal.com or download the App by scanning the QR code to monitor your PV plant and device.

Please contact the after-sales for more operation of SEMS Protal.

SEMS Portal App

5 System Operation

5.1 LCD Panel And LED

As a human-computer interaction interface, LCD display panel comprises of LED indicators, buttons and LCD display on the front panel of the inverter.

LED indicates the working status of the inverter.

Buttons and LCD are used for configuration and viewing parameters.

LCD panel is included in GW30KLV-MT / GW35KLV-MT / GW50KN-MT / GW60KN-MT / GW50KBF-MT / GW70KHV-MT model type.

Enter
Up
ESC
Down
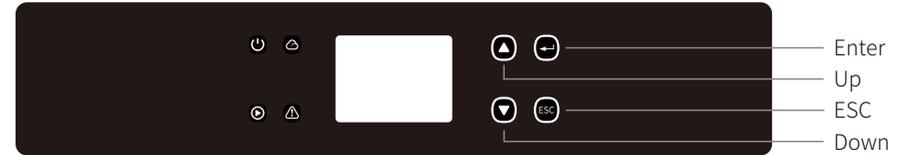
LED only panel is included in: GW50KN-MT / GW50KLV-MT / GW50KBF-MT / GW60KN-MT / GW60KBF-MT / GW70KHV-MT / GW75K-MT / GW80KHV-MT / GW80K-MT and GW80KBF-MT.

Green / green /green / red light respectively corresponds to: ⏻ / ▶ / ☁ / ⚠

Indicator	Status	Explanation
⏻	▬▬▬ (green)	ON = Equipment Power-on
	▬▬▬	OFF = Equipment Power-off
▶	▬▬▬ (green)	ON = Inverter is feeding power
	▬▬▬	OFF = Inverter is not feeding power
	▬ ▬ (green)	Single slow flash = Self check before grid connects
	▮▮▮▮▮ (green)	Single flash = Will connect / active
☁	▬▬▬ (green)	ON = Wireless connected / active
	▮▮▮▮▮ (green)	Blink 1 = Wireless system resetting
	▐▐ ▐▐ (green)	Blink 2 = Wireless router problem
	▮▮▮ ▮▮▮ (green)	Blink 4 = Wireless server problem
	▬▬ ▬ (green)	Blink = RS485 Connected
	▬▬▬	OFF = Wireless not active
⚠	▬▬▬ (red)	ON = Fault occurred
	▬▬▬	OFF = No fault

5.2 User Interface Introduction

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

⑬

⑭

⑮

E-DAY
999KWh ⑩

E-TOTAL
999KWh ⑪

80.00KW
Waiting

2019-10-28 11:37:20 ⑫

GPRS
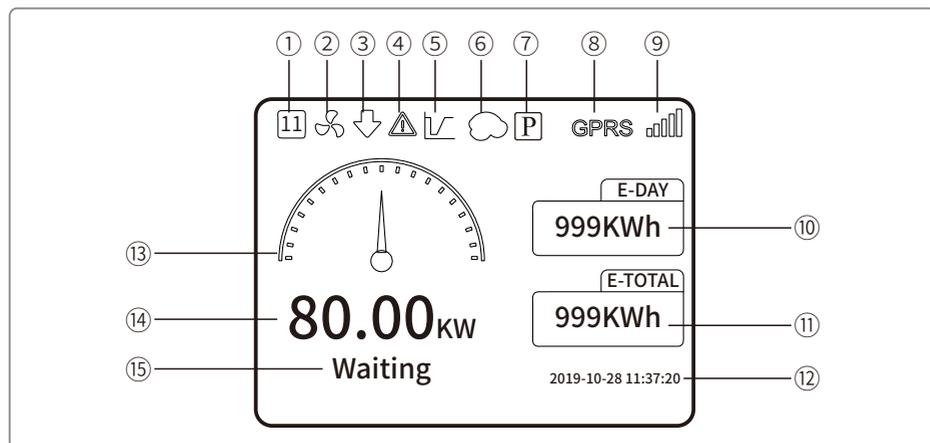
① Safey code: The number represents the safety serial number
② Fan icon: The fan icon indicates that the fan is on
③ Power Derating: The output power of the inverter is deretaing
④ Alarm icon: The alarm icon indicates that the system LVRT function is on
⑤ LVRT icon: The LVRT icon indicates that the system LVRT function is on
⑥ Shadow scan: The Shadow icon indicates that the Shadow scan function is on
⑦ PID icon: The PID icon indicates the existence of the PID module
⑧ Communication icon: The way of communication, There are three GPRS, WiFi and RS485
⑨ Communication information icon: GPRS and WiFi show the signal strength, RS485 shows the communication address.
⑩ E-Day icon: Daily generation
⑪ E-Total: Total generation
⑫ Time and date
⑬ Real-time power icon
⑭ Real-time power
⑮ System status information

5.3.1 Overview Of Menu Architecture

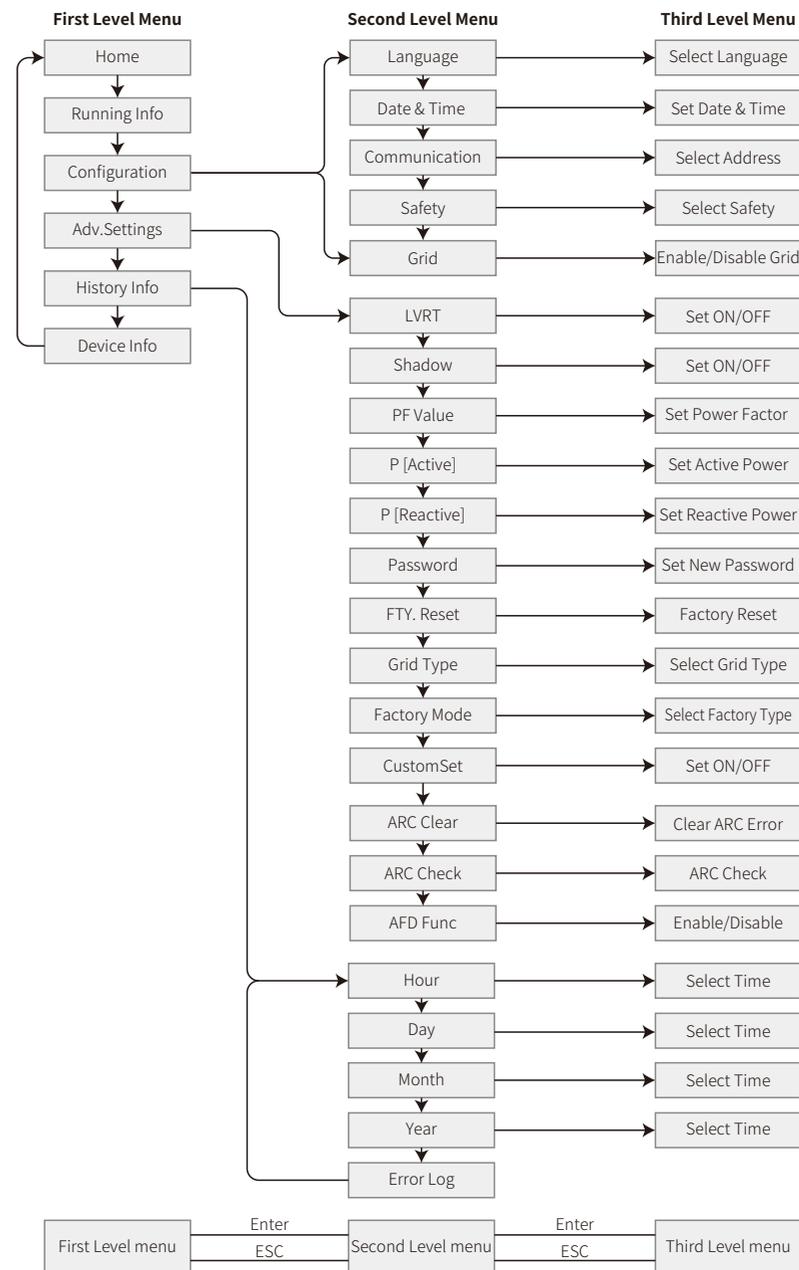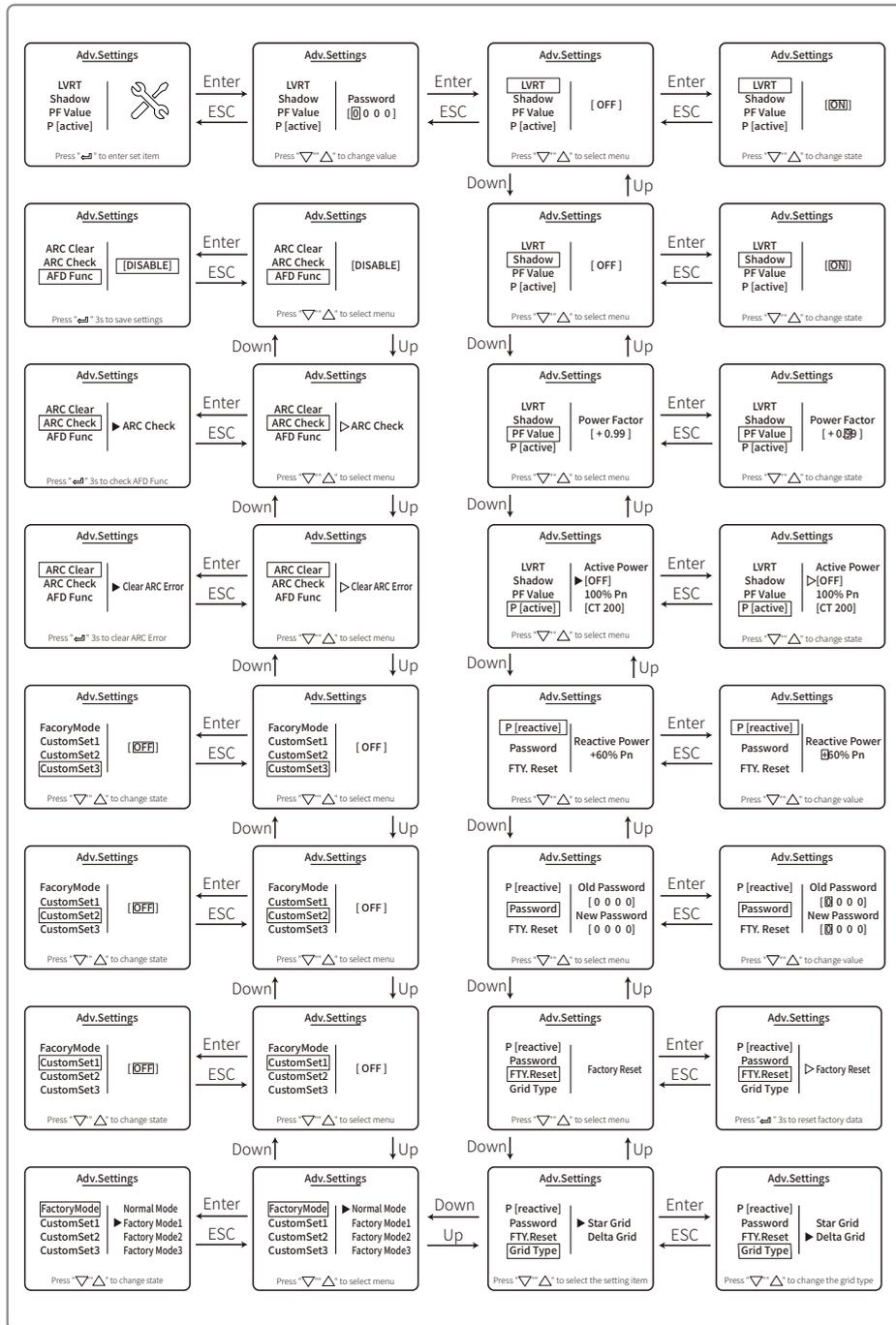The display menu has a total of three levels. Use the "Up" "Down" "Enter" "ESC" button to operate the menu. The enter button has two operating ways: long press (greater than 3s) and short press the button. In summary, it has 5 buttons in total to operate the menu.

Press the "Enter" / "ESC" to enter / exit the each level menu, use the "Up" / "Down" to select the item and change the parameters, and long press the "Enter" (greater than 3s) to set the parameters.

First Level Menu	Second Level Menu	Third Level Menu
Home	Language	Select Language
Running Info	Date & Time	Set Date & Time
Configuration	Communication	Select Address
Adv.Settings	Safety	Select Safety
History Info	Grid	Enable/Disable Grid
Device Info	LVRT	Set ON/OFF
	Shadow	Set ON/OFF
	PF Value	Set Power Factor
	P [Active]	Set Active Power
	P [Reactive]	Set Reactive Power
	Password	Set New Password
	FTY. Reset	Factory Reset
	Grid Type	Select Grid Type
	Factory Mode	Select Factory Type
	CustomSet	Set ON/OFF
	ARC Clear	Clear ARC Error
	ARC Check	ARC Check
	AFD Func	Enable/Disable
	Hour	Select Time
	Day	Select Time
	Month	Select Time
	Year	Select Time
	Error Log	

First Level menu	Enter / ESC	Second Level menu	Enter / ESC	Third Level menu

5.3.2 First Level Menu

Press "up" / "down" to select on the inerface of First Level: History, Configuration, Adv.Settings etc. Pressing the Enter button will enter corressponding Second Level menu. Select the item through the "up" / "down" button in Second Level menu. Press Enter button to enter the project setup menu in the Third Level menu, change the setting contents by pressing the "up" / "down", and press the "Enter" to set the conntents. If country's safety setting is not selected (shows "Configure Safety" on display at home page), press any button to enter country's safety setting page.

5.3 System Configuration

5.4.1 Basic Settings

Basic settings is mainly used to set the commonly used parameters, including language settings, time settings, communication settings and safety settings .

5.4.2 Advanced Settings

Advanced settings are mainly used to set the function parameters of the equipment to running. In order to prevent the device from running abnormally due to improper operation, all advanced settings items requires a password to obtain advanced settings' permission to operate (enter a password so that you can set all the settings in the advanced setting menu). In case the customer forgets the password, all devices have a unique super password and SN binding.

Advanced settings items include LVRT settings, Shadow settings, PF value settings, Active power settings, Reactive power settings and password modification settings.

5.4.3 History Information

The history information is mainly included in the information of the generating capacity of the equipment, the fault record, the power generation information. The power generation information is mainly included in the amount of electricity generation, daily power generation, monthly power generation and annual power generation information.

5.4.4 Operation Of Display When Started Up

When the input voltage reaches the inverter's turn-on voltage, the LCD will indicate 'WAITING'. If the grid is accessible, "Checking xxx Sec" (The time is decided by the grid connection standards from different country) will be shown up in 5 sec. As it is counting, the inverter is doing self-check. When it shows "00Sec", you will hear the voice from the motion of the relay. The LCD will display "Normal" afterwards. The instant power output will be shown at the left of LCD.
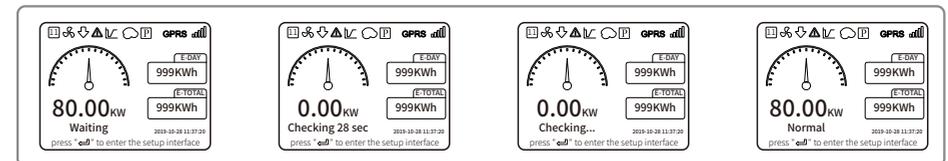
5.4.5 Menu Introduction

When PV panel is feeding power to the inverter, the screen shows the first interface of first level

menu. The interface displays current state of the system. It shows "Waiting" when in the initial state; it shows "Normal" when in the power generation mode; if there is something wrong with the system, error message will be shown. Please refer to "5.6 Error Message".

• In the first level menu, the displayed information can be switched through "Up" and "Down" button operation. There are 6 interfaces in total, which are circulatory. The second level menu can only be selected through "Enter" button from the seventh interface.

• In "History Info" menu, press "Enter" and "Down" to select "Error Log", press "Enter" to enter the historical error message interface. Press "Up" and "Down" to switch the display page and inquire the historical error message. Press "ESC" back to upper menu.

• In "Configuration" menu, select "Date & Time" to enter the setting interface, Press "Up" and "Down" to change the data, short press "Enter" to move cursor, long press "Enter" to save the settings.

• You need to type in the password before entering the Advantage Setting. The inverter's default password is 1111, you can set the parameters and modify the password after this password verification is passed. If you forget your password, please contact after-sales for help.

• In "Configuration" menu, select "Language" and press "Enter" to enter language setting interface, press "Up" or "Down" to change language, long press "Enter" to save the settings, press "ESC" to return.

• In "History Info" menu, short press "Enter" in turn to enter the second level and third level menu. In the third level menu, press "up" or "down" to inquire the historical power generation data in Year Mode, Month Mode, Day Mode and Hour Mode. Press "ESC" back to upper menu.

• In "Configuration" menu, choose "Comm" and press "Enter" to enter Modbus address interface. Press "Up" or "Down" to set the address, long press "Enter" to save the address.

⚠ **This function is used for special requirements, please don't set it arbitrarily.**

• In the second level menu, select "LVRT"(if LVRT mode has not been truned on), it will show "[OFF]" on the right hand of LCD. Then press "Up" or "Down" to change the state to "[ON]". Long press "Enter" to save the setting，and then the screen will display "[ON]" after a while, this means that LVRT mode has been successfully turned on.

⚠ **This function is used for special requirements, please don't set it arbitrarily.**

• In the second level menu, select "Shadow"(if shadow mode has not been turned on), it will show "[OFF]" on the right hand of LCD. Then press "Up" or "Down" to change the state to "[ON]". Long press "Enter" to save the setting，and then the screen will display "[ON]" after a while, so that the Shadow mode has been successfully turned on.

⚠ **This function is used for special requirements, please don't set it arbitrarily.**

• Select "Safety" in the "Configuration" menu, then press "Enter", so that the set safety interface will be shown. Press "Down" or "Up" to choose the safety you need and then long press "Enter", the chosen safety option will be set. If there is no exactly proper country code, please choose "50Hz Grid Default" or "60Hz Grid Default" accordingly.

5.4 Wi-Fi Reset & Wi-Fi Reload

These functions are only available for Wi-Fi model inverters.

1. In "Configuration" menu, select "Wi-Fi Reset" and press "Enter" for 3 seconds to reset inverter Wi-Fi module. Wait for a while, operation result will be shown on the display. The function can be applied when inverter is unable to connect to router or monitor server.
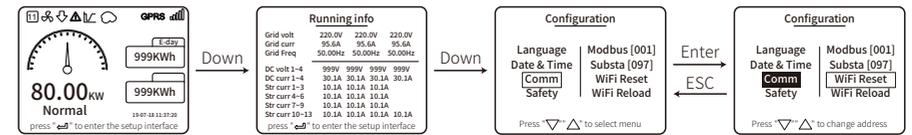
2. In "Configuration" menu, select "Wi-Fi Reload" in lever 3, press "Enter" for 3 seconds. The initial setting of Wi-Fi modular will be reload. Wait for a while, operation result will be shown on the display. The function can be applied when inverter is unable to connect to Wi-Fi modular. Once Wi-Fi modular is restored to initial setting, Wi-Fi modular needs to be reset again.

5.5 Precaution For Initial Startup

1. Make sure the AC circuit is connected and AC breaker is turned off.

2. Make sure the DC cable between inverter and PV string is connected, and the PV voltage is normal.

3. Turn on the DC switch, and set safety according to the local regulation.

4. Turn on the AC breaker. Check the inverter work normal.

5.6 Error Message

The error message in below diagram will be displayed on the LCD if faults occur.

Error code	Error message	Description
01	SPI Failure	Internal communication failure
02	EEPROM R/W Failure	Memory chip failure
03	Fac Failure	Grid Frequency exceed the inverter limit
07, 25	Relay Check Failure	Relay self-checking failure
12	LCD Communication Failure	Communication error occurs between LCD DSP and the Master DSP

Error code	Error message	Description
13	DC Injection High	The DC component of AC current exceed inverter's limit
14	Isolation Failure	Insulation Resistance between the ground and the panel is too low
15	Vac Failure	Grid voltage exceeds the inverter limit
16	External Fan Failure	External Failure
17	PV Over Voltage	PV Array voltage exceeds the inverter limit
19	Over Temperature	Over temperature on the case
20	IFAN Fault	Internal FAN Fault
21	DC BUS HIGH	BUS voltage is too high
22	Ground I Failure	Residual current protection
23	Utility Loss	Grid disconnection/fault
30	REF 1.5V Failure	1.5V reference voltage exceeds the limit
31, 24	AC HCT Failure	AC current sensor failure
32, 26	GFCI Failure	Leakage current detection circuit Failure
Others	Device Failure	Internal Device Failure

5.7 Special Adjustable Setpoints

The inverter has a field where the user could set functions, such as trip points, trip times, reconnect time,active and inactive of QU curve and PU curve. It is adjustable through special software, if you want to use it, please contact with after sales.

To achieve manuals for using the software, you can download them from official website or contact with after-sales.

6 Troubleshooting

If the Inverter is not able to work properly, please refer to the following instructions before contacting your local service. If any problems arise, the red (FAULT) LED indicator on the front panel will light up and the LCD screen will display relevant information. Please refer to the following table for a list of error message and associated solutions.

Type of fault		Troubleshooting
System Failure	Isolation Failure	1. Check the impedance between Ground and PV (+) & PV (-) . The impedance value must be greater than 100kΩ. Make sure the inverter is earthed. 2. Contact local service office for help if the problem still persist..
	Ground I Failure	1. The ground current is too high. 2. Unplug the inputs from the PV generator and check the peripheral AC system. 3. When the problem is cleared, reconnect the PV panel and check the Inverter status. 4. Contact local service office for help if the problem still persist.
	Vac Failure	1. The PV Inverter will automatically restart within 5 minutes if the grid returns to normal. 2. Make sure grid voltage conforms with the specification. 3. Make sure neutral (N) wire and PE wire are connected well. 4. Contact local service office for help if the problem still persist.
	Fac Failure	1. Grid is not connected. 2. Check grid connection cables. 3. Check availability of grid.
	Utility Loss	1. Not connect to the grid. 2. Check if the power grid is connected to cable. 3. Check the availability of power grid.
	PV Over Voltage	1. Check if the PV open circuit voltage is higher or too close to the maximum input voltage or not. 2. If the problem still persist when PV voltage is less than the maximum input voltage, contact local service office for help.
	Over Temperature	1. The internal temperature is higher than normal value specified. 2. Reduce ambient temperature. 3. Move the inverter to a cool place. 4. If the problem still exists, contact local service office for help.

Type of fault		Troubleshooting
Inverter Failure	Relay-Check Failure	1. Turn off DC switch of the inverter. 2. Wait till the inverter's LCD light is off. 3. Turn on DC switch and make sure it is connected. 4. If the problem still exists, contact local service office for help.
	DCI Injection High	
	EEPROM R/W Failure	
	SCI Failure	
	SPI Failure	
	DC BUS High	
	BUS Unbalance	
	GFCI Failure	
	Ifan Fault	
	Efan Fault	
	Afan Fault	
	No display	1. Turn off DC switch, take off DC connector, measure the voltage of PV array. 2. Plug in DC connector, and turn on DC switch. 3. If PV array voltage is lower than 250V, please check configuration of inverter module. 4. If voltage is higher than 250V, please contact local office.
Others	Wi-Fi module fail to connect to network	1. If the Wi-Fi module fail to connect to network after choosing the right router hotspot and entering the right passwords，it's possible that there are special characters not supported by module in the hotspot passwords. Please modify the password to consist of only Arabic numerals or uppercase / lowercase letters. 2. If the problem still exists, contact local service office for help.

Note:

When sunlight is insufficient, the PV Inverter may continuously start up and shut down automatically due to insufficient power generation by the PV panel.

7 Technical Parameters & Block Diagram

7.1 Technical Parameters

Technical Data		GW30KLV-MT	GW35KLV-MT	GW50KLV-MT
DC Input Data				
Max. PV Power (W)		54000	63000	90000
Max. DC Input Voltage (V)		800	800	800
MPPT Range (V)		200~650	200~650	200~650
Starting Voltage (V)		200	200	200
Min. Feed-in Voltage(V)		210	210	210
Nominal DC Input Voltage (V)		370	370	370
Max. Input Current (A)		30/30/20/20	30/30/30/30	44/44/44/44
Max. Short Current (A)		38/38/25/25	38/38/38/38	55/55/55/55
No. of MPP Trackers		4	4	4
No. of Input Strings per Tracker		3/3/2/2	3/3/3/3	4/4/4/4
AC Output Data				
Nominal Output Power (W)		30000	36000	50000
Max. Output Power (W)	208VAC	28800	34500	47300
	220VAC	30000	36000	50000
	240VAC	33000	39900	55000
Max. Output Apparent Power (VA)		33000	39900	55000
Nominal Output Voltage (V)		150~300	150~300	150~300
Nominal Ouput Frequency (Hz)		50/60	50/60	50/60
Max. Output Current (A)		80	96	133
Output Power Factor		~1 (Adjustable from 0.8 leading to 0.8 lagging)		
Output THDi (@Nominal Output)		<3%		
Efficiency				
Max. Efficiency		98.7%	98.8%	98.7%
European Efficiency		98.3%	98.5%	98.3%
Protection				
PV String Current Monitoring		Integrated		
Anti-islanding Protection		Integrated		
Input Reverse Polarity Protection		Integrated		
Insulation monitoring		Integrated		
DC fuse		Integrated		
Anti-PID Function for Module		Optional		
DC SPD Protectioin		Integrated（Type II)		
AC SPD Protectioin		Integrated（Type II)		
Residual Current Monitoring Unit		Integrated		
AC Over Current Protection		Integrated		
AC Short Protection		Integrated		
AC Over Voltage Protection		Integrated		
General Data				
Ambient Temperature Range (°C)		-30~60		
Relative Humidity		0~100%		
Operating Altitude (m)		≤4000		
Cooling		Fan Cooling		
Display		LCD or WiFi+APP	LCD or WiFi+APP	LED, WiFi+APP
Communication		RS485 or WiFi	RS485 or WiFi	RS485&WiFi, PLC(Optional)
Weight (kg)		59	64	70
Dimension (Width*Height*Depth mm)		586*788*264	586*788*264	586*788*267
Protection Degree		IP65		
Night Self Consumption (W)		<1		
Topology		Transformerless		
Certifications & Standards				
Grid Regulation		Visit homepage to achieve information.		
Safety Regulation				
EMC Regulation				

Technical Data	GW50KN-MT	GW60KN-MT	GW50KBF-MT
DC Input Data			
Max. PV Power (W)	65000	80000	65000
Max. DC Input Voltage (V)	1100	1100	1100
MPPT Range (V)	200~1000	200~1000	200~1000
Starting Voltage (V)	200	200	200
Min. Feed-in Voltage(V)	210	210	210
Nominal DC Input Voltage (V)	620	620	620
Max. Input Current (A)	33/33/22/22	33/33/33/33	30/30/30/30
Max. Short Current (A)	41.5/41.5/27.5/27.5	41.5/41.5/41.5/41.5	37.5/37.5/37.5/37.5
No. of MPP Trackers	4	4	4
No. of Input Strings per Tracker	3/3/2/2	3/3/3/3	2/2/2/2
AC Output Data			
Nominal Output Power (W)	50000	60000	50000
Max. Output Power (W)	55000;57500@415Vac	66000;69000@415Vac	55000;57500@415Vac
Max. Output Apparent Power (VA)	55000;57500@415Vac	66000;69000@415Vac	55000;57500@415Vac
Nominal Output Voltage (V)	400, default 3L+N+PE , 3L+PE optional in settings		
Nominal Ouput Frequency (Hz)	50/60	50/60	50/60
Max. Output Current (A)	80	96	80
Output Power Factor	~1 (Adjustable from 0.8 leading to 0.8 lagging)		
Output THDi (@Nominal Output)	<3%		
Efficiency			
Max. Efficiency	98.7%	98.8%	98.8%
European Efficiency	98.3%	98.5%	98.3%
Protection			
PV String Current Monitoring	Integrated		
Anti-islanding Protection	Integrated		
Input Reverse Polarity Protection	Integrated		
Insulation monitoring	Integrated		
DC fuse	Integrated		
Anti-PID Function for Module	Optional		
DC SPD Protectioin	Integrated（Type II）		
AC SPD Protectioin	Integrated（Type II）		
Residual Current Monitoring Unit	Integrated		
AC Over Current Protection	Integrated		
AC Short Protection	Integrated		
AC Over Voltage Protection	Integrated		
General Data			
Ambient Temperature Range (℃)	-30~60		
Relative Humidity	0~100%		
Operating Altitude (m)	≤4000		
Cooling	Fan Cooling		
Display	LCD or WiFi+APP		
Communication	RS485 or WiFi or PLC		
Weight (kg)	59	64	60
Dimension (Width*Height*Depth mm)	586*788*264	586*788*264	586*788*264
Protection Degree	IP65		
Night Self Consumption (W)	<1		
Topology	Transformerless		
Certifications & Standards			
Grid Regulation	Visit homepage to achieve information.		
Safety Regulation			
EMC Regulation			

Technical Data	GW60KBF-MT	GW75KBF-MT	GW80KBF-MT
DC Input Data			
Max. PV Power (W)	80000	97500	104000
Max. DC Input Voltage (V)	1100	1100	1100
MPPT Range (V)	200~1000	200~1000	200~1000
Starting Voltage (V)	200	200	200
Min. Feed-in Voltage(V)	210	210	210
Nominal DC Input Voltage (V)	620	620	620
Max. Input Current (A)	44/44/44/44	44/44/44/44	39/39/39/39
Max. Short Current (A)	55/55/55/55	55/55/55/55	54.8/54.8/54.8/54.8
No. of MPP Trackers	4	4	4
No. of Input Strings per Tracker	3/3/3/3	3/3/3/3	3/3/3/3
AC Output Data			
Nominal Output Power (W)	60000	75000	80000
Max. Output Power (W)	66000;69000@415Vac	82500	88000
Max. Output Apparent Power (VA)	66000;69000@415Vac	82500	88000
Nominal Output Voltage (V)	400, default 3L+N+PE , 3L+PE optional in settings	500, 3L/PE	540, 3L/PE
Nominal Ouput Frequency (Hz)	50/60	50/60	50/60
Max. Output Current (A)	96	95.3	94.1
Output Power Factor	~1 (Adjustable from 0.8 leading to 0.8 lagging)		
Output THDi (@Nominal Output)	<3%		
Efficiency			
Max. Efficiency	98.8%	99.0%	99.0%
European Efficiency	98.3%	98.4%	98.4%
Protection			
PV String Current Monitoring	Integrated		
Anti-islanding Protection	Integrated		
Input Reverse Polarity Protection	Integrated		
Insulation monitoring	Integrated		
DC fuse	Integrated		
Anti-PID Function for Module	Optional		
DC SPD Protectioin	Integrated（Type II）		
AC SPD Protectioin	Integrated（Type II）		
Residual Current Monitoring Unit	Integrated		
AC Over Current Protection	Integrated		
AC Short Protection	Integrated		
AC Over Voltage Protection	Integrated		
General Data			
Ambient Temperature Range (℃)	-30~60		
Relative Humidity	0~100%		
Operating Altitude (m)	≤4000		
Cooling	Fan Cooling		
Display	LED or WiFi+APP		
Communication	RS485 or WiFi or PLC		
Weight (kg)	65	65	65
Dimension (Width*Height*Depth mm)	586*788*264	586*788*264	586*788*267
Protection Degree	IP65		
Night Self Consumption (W)	<1		
Topology	Transformerless		
Certifications & Standards			
Grid Regulation	Visit homepage to achieve information.		
Safety Regulation			
EMC Regulation			

Technical Data	GW70KHV-MT	GW80KHV-MT
DC Input Data		
Max. PV Power (W)	91000	120000
Max. DC Input Voltage (V)	1100	1100
MPPT Range (V)	200~1000	200~1000
Starting Voltage (V)	200	200
Min. Feed-in Voltage(V)	210	210
Nominal DC Input Voltage (V)	750	800
Max. Input Current (A)	33/33/33/33	44/44/44/44
Max. Short Current (A)	41.5/41.5/41.5/41.5	55/55/55/55
No. of MPP Trackers	4	4
No. of Input Strings per Tracker	3/3/3/3	3/3/3/3
AC Output Data		
Nominal Output Power (W)	70000	80000
Max. Output Power (W)	77000	88000
Max. Output Apparent Power (VA)	77000	88000
Nominal Output Voltage (V)	500, 3L/PE	500, 3L/PE
Nominal Ouput Frequency (Hz)	50/60	50/60
Max. Output Current (A)	89	94.1
Output Power Factor	~1 (Adjustable from 0.8 leading to 0.8 lagging)	
Output THDi (@Nominal Output)	<3%	
Efficiency		
Max. Efficiency	99.0%	99.0%
European Efficiency	98.4%	98.4%
Protection		
PV String Current Monitoring	Integrated	
Anti-islanding Protection	Integrated	
Input Reverse Polarity Protection	Integrated	
Insulation monitoring	Integrated	
DC fuse	Integrated	
Anti-PID Function for Module	Optional	
DC SPD Protectioin	Integrated（Type II)	
AC SPD Protectioin	Integrated（Type II)	
Residual Current Monitoring Unit	Integrated	
AC Over Current Protection	Integrated	
AC Short Protection	Integrated	
AC Over Voltage Protection	Integrated	
General Data		
Ambient Temperature Range (°C)	-30~60	
Relative Humidity	0~100%	
Operating Altitude (m)	≤4000	
Cooling	Fan Cooling	
Display	LCD or WiFi+APP	LED, WiFi+APP
Communication	RS485 or WiFi or PLC	
Weight (kg)	60	65
Dimension (Width*Height*Depth mm)	586*788*264	586*788*267
Protection Degree	IP65	
Night Self Consumption (W)	<1	
Topology	Transformerless	
Certifications & Standards		
Grid Regulation		
Safety Regulation	Visit homepage to achieve information.	
EMC Regulation		

Technical Data	GW75K-MT	GW80K-MT
DC Input Data		
Max. PV Power (W)	112500	120000
Max. DC Input Voltage (V)	1100	1100
MPPT Range (V)	200~1000	200~1000
Starting Voltage (V)	200	200
Nominal DC Input Voltage (V)	600	620
Max. Input Current (A)	44/44/44/44	44/44/44/44
Max. Short Current (A)	55/55/55/55	55/55/55/55
No. of MPP Trackers	4	4
No. of Input Strings per Tracker	4/4/4/4 (Standard)	4/4/4/4 (Standard) 3/3/3/3 (Optional, Support bifacial module)
AC Output Data		
Nominal Output Power (W)	75000	80000
Max. Output Power (W)	75000	88000
Max. Output Apparent Power (VA)	75000	88000
Nominal Output Voltage (V)	380/415	400, default 3L+N+PE, 3L+PE optional in settings
Nominal Ouput Frequency (Hz)	50/60	50/60
Max. Output Current (A)	133	94.1
Output Power Factor	~1 (Adjustable from 0.8 leading to 0.8 lagging)	
Output THDi (@Nominal Output)	<3%	
Efficiency		
Max. Efficiency	98.8%	
European Efficiency	98.3%	
Protection		
PV String Current Monitoring	Integrated	
Anti-islanding Protection	Integrated	
Input Reverse Polarity Protection	Integrated	
Insulation monitoring	Integrated	
DC fuse	Integrated	
Anti-PID Function for Module	Optional	
DC SPD Protectioin	Integrated（Type II)	
AC SPD Protectioin	Integrated（Type II)	
Residual Current Monitoring Unit	Integrated	
Humidity Monitoring	Invegrated	
AC Over Current Protection	Integrated	
AC Short Protection	Integrated	
AC Over Voltage Protection	Integrated	
General Data		
Ambient Temperature Range (°C)	-30~60	
Relative Humidity	0~100%	
Operating Altitude (m)	≤4000	
Cooling	Fan Cooling	
Display	LED, WiFi+APP	
Communication	RS485 & WiFi, PLC(Optional)	
Weight (kg)	70	
Dimension (Width*Height*Depth mm)	586*788*267	
Protection Degree	IP65	
Night Self Consumption (W)	<1	
Topology	Transformerless	
Certifications & Standards		
Grid Regulation		
Safety Regulation	Visit homepage to achieve information.	
EMC Regulation		

Note：

Overvoltage Category Definition

Category I: applies to equipment connected to a circuit where measures have been taken to reduce transient overvoltage to a low level.

Category II: applies to equipment not permanently connected to the installation. For example, appliances, portable tools and other plug-connected equipment;

Category III: applies to fixed downstream equipment, including the main distribution board. For example,switchgear and other equipment in an industrial installation;

Category IV: applies to equipment permanently connected at the origin of an installation (upstream of the main distribution board).For example, electricity meters, primary overcurrent protection equipment and other equipment connected directly to outdoor open lines.

Moisture Location Category Definition

Moisture parameters	Level		
	3K3	4K2	4K4H
Temperature Range	0~+40°C	-33~+40°C	-20~+55°C
Humidity Range	5%～85%	15%～100%	4%～100%

Environment Category Definition

Outdoor : the ambient air temperature is -20~50°C. Relative humidity range is from 4% to 100%, applied to PD3.

Indoor unconditioned: the ambient air temperature is -20~50 °C. Relative humidity range is from 5% to 95%, applied to PD3.

Indoor conditioned: the ambient air temperature is 0~40 °C. Relative humidity range is from 5% to 85%, applied to PD2.

Pollution Degree Definition

Pollution degree 1: No pollution or only dry, non-conductive pollution occurs. The pollution has no influence.

Pollution degree 2: Normally only non-conductive pollution occurs. However, a temporary conductivity occasionally caused by condensation must be expected.

Pollution degree 3: Conductive pollution occurs. Or dry, non-conductive pollution becomes conductive due to condensation, which is expected.
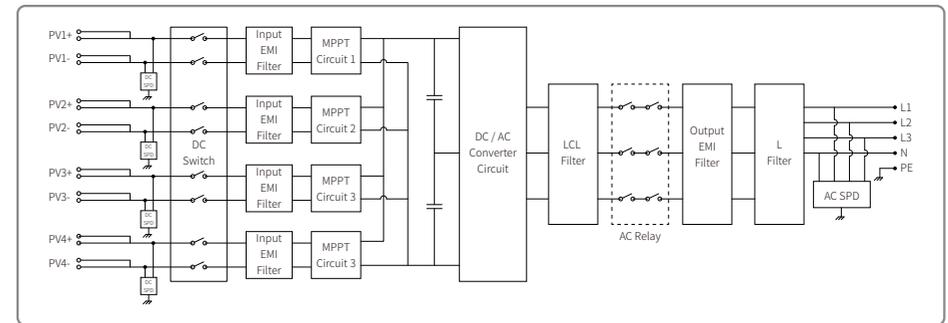
Pollution degree 4: Persistent conductive pollution occurs. For example, the pollution cause by conductive dust, rain and snow.
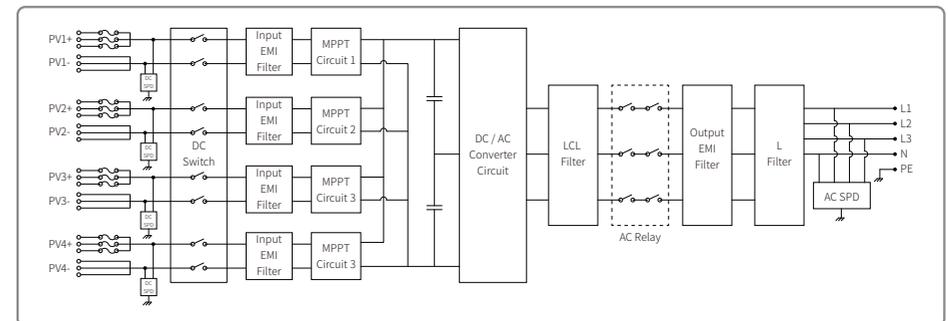
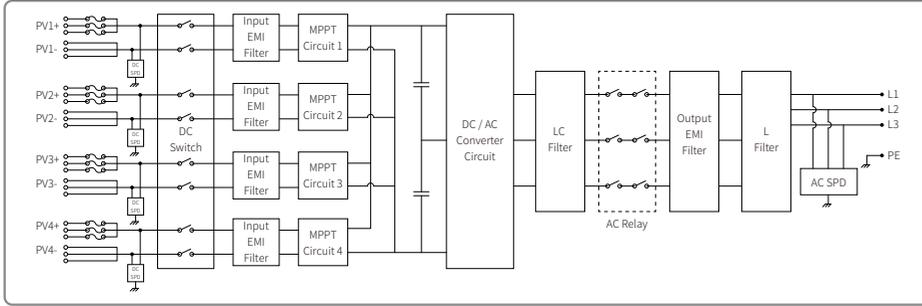## 7.2 Block Diagram

GW30KLV-MT / GW50KN-MT main circuit.
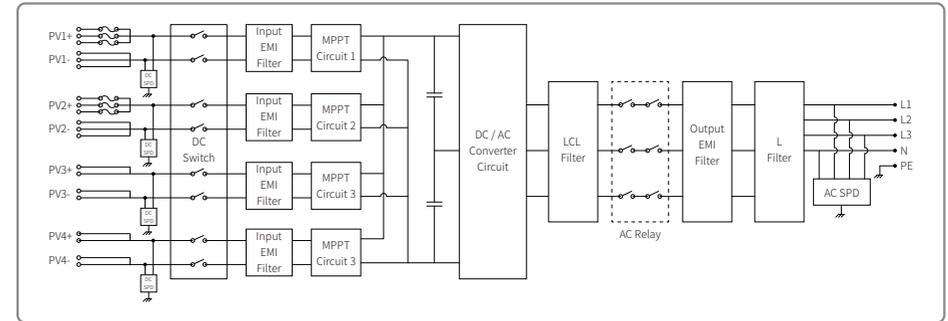
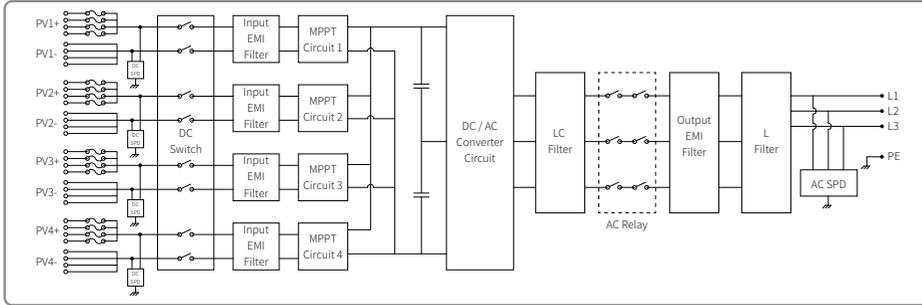GW50KBF-MT main circuit.

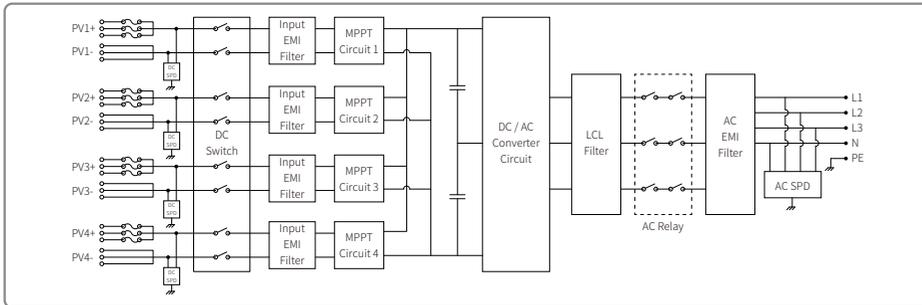GW35KLV-MT / GW60KN-MT / GW60KBF-MT main circuit.

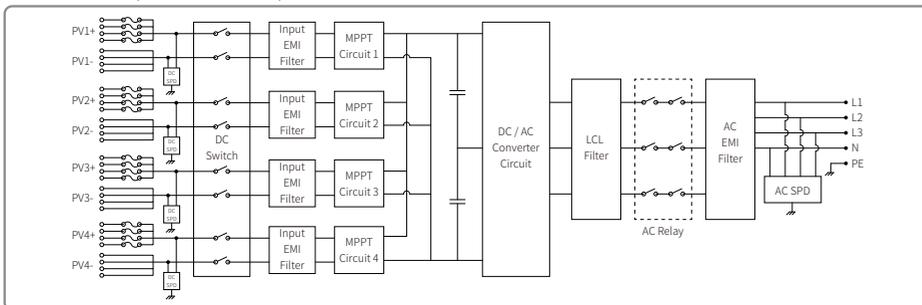GW70KHV-MT / GW80KBF-MT main circuit.

GW80KHV-MT main circuit.

GW50KLV-MT / GW75KW-MT / GW80K-MT PV3 main circuit.

GW50KLV-MT / GW75KW-MT / GW80K-MT PV4 main circuit.

8 Caution

Regular maintenance ensures a long operating life and optimal efficiency of the entire PV plant.

Caution: Before maintenance, please disconnect the AC breaker first and then disconnect DC breaker. Wait 5 minutes until the residual voltage has been released.

8.1 Clearing The FAN

MT series inverter is equipped with three fans on its left side. The fan intakes and handle covers should be cleaned yearly with a vacuum cleaner. For more thorough cleaning, completely remove the fans.

1. Disconnect the AC breaker first and then disconnect DC breaker.

2. Wait 5 minutes until the residual voltage has been released and the fans are no longer running.

3. Disassemble the fans (Refer to the below figure).

   • Loosen the five screws with a crosshead screwdriver, then remove the fans out of the cabinet about 50mm slowly.

   • Open the lockers of the three fans connectors and remove them from housing, then take the fans away.

4. Clean the ventilation grid and the fan with soft brush, paint brush, or compressed air.

5. Reassemble the fans into the cabinet.
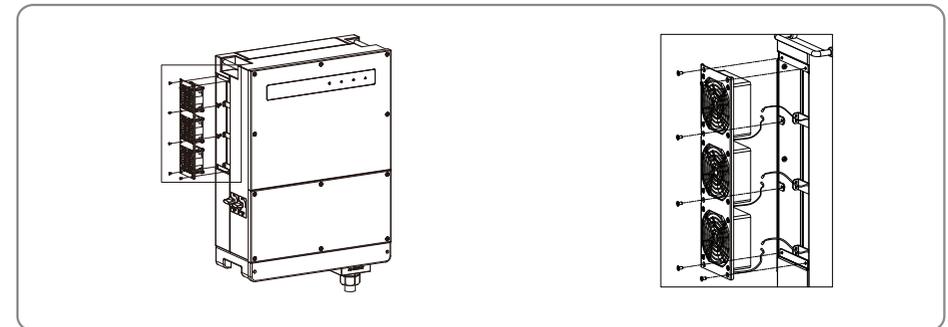
8.2 Checking The DC Switch

DC switch does not require any maintenance

Though unnecessary, maintenance as below is still recommended:

• Check the DC switch regularly.

• Activate the DC switch 10 times in a row once a year.

Operating the switch will clean the switch and will extend the life of the DC switch.

8.3 Turn On/Off The Inverter

Boot order:

1. Turn on the breaker on AC side.

2. Turn on the DC switch.

3. Turn on the breaker on DC side.

Note: If there's no switch, only need to do step 1 and step 3(please skip step 2).

Shutdown order:

1. Turn off the breaker on AC side.

2. Turn off the DC switch.

3. Turn off the breaker on DC side.

Note: If there's no switch, only need to do step 1 and step 3(please skip step 2).

8.4 Checking The Electrical Connection

1. Check if the AC or DC wire is loose.

2. Check if the earth wire is reliably grounded.

3. Check if the waterproof covers of RS485 and USB port are fasten.

Note: Maintenance cycle is once every half a year.

8.5 Fuse Replacement

If the inverter fuses are broken, replace them quickly, the steps are as follows:

1. Disconnect the circuit breaker on the AC side.

2. Rotate the DC switch to the "OFF" position.

3. Disconnect the front-end circuit breaker of PV input terminal or pull out the PV input terminal.

4. Wait at least 10 minutes.

5. Open the junction box's cover on the bottom of inverter.

6. Confirm that the fuses are broken.

7. Remove the broken fuses on vertical direction which is shown in the right figure and don't remove fuses by prying or other methods.

8. Install the fuses which should be the same model from the same company, to the corresponding fuse holders.

9. Install the junction box cover on the inverter.