CyberPower®

CPSPV36000ETLA-WB
CPSPV33000ETLA-WB
CPSPV30000ETLA-WB
CPSPV22000ETLA-WB

User's Manual

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Index

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1 Information on this Manual

1.1 Validity

This installation guide contains installation, commissioning, communication, trouble shooting. Information of CPSPV36000ETLA-WB series:

- CPSPV36000ETLA-WB
- CPSPV33000ETLA-WB
- CPSPV30000ETLA-WB
- CPSPV22000ETLA-WB

With this installation guide, users are able to install and operate the inverters easily. This manual does not cover any details concerning equipment connected to the CPSPV36000ETLA-WB series. Store this manual where accessible at all times.

1.2 Target Group

This manual is for qualified persons such as PV system installers or electricians.

Notes: For possible changes in this manual, Cyber Power Systems, Inc. accepts no responsibilities to inform the users

1.3 Symbols Used

The following types of safety instructions and general information appear in this document as described below:

Symbol	Description
	Read the manual
DANGER	**DANGER** indicates a hazardous situation which, if not avoided, will result in death or serious injury.
WARNING	**WARNING** indicates a hazardous situation which, if not avoided, could result in death or serious injury.
CAUTION	**CAUTION** indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
NOTICE	**NOTICE** indicates a situation which, if not avoided, could result in property damage.
Information	**Information** that you must read and know to ensure optimal operation of the system.

2 Safety

2.1 Intended Use

CPSPV36000ETLA-WB series inverters are to be used solely to feed solar energy converted solar energy into the public grid. CPSPV36000ETLA-WB series inverters are multi-string inverters with multi-MPP trackers and may only be operated in compliance with its intended use in grid-tie PV system.

Grid-tied PV system Overview:

PV Inverter

AC Breaker   Grid

PV Panel
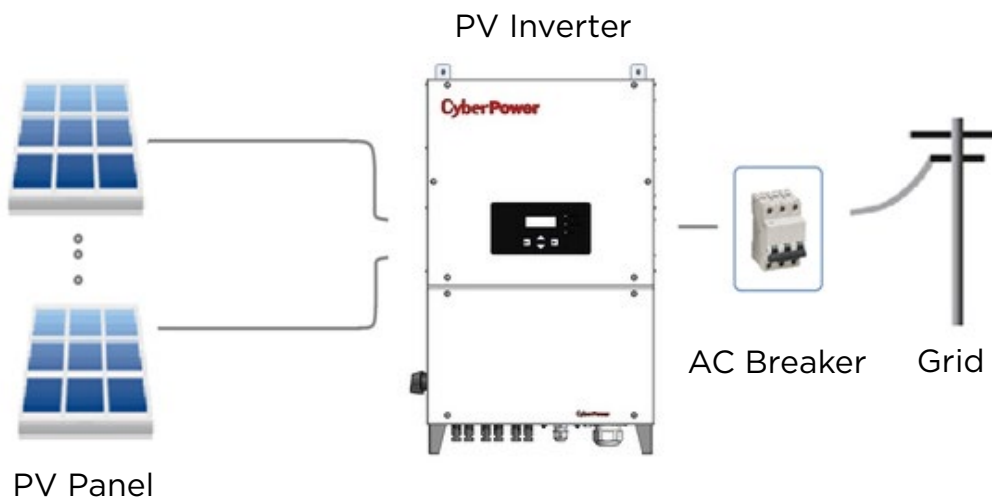
Fig 1.1

The inverter may only be operated with a permanent connection to the public power grid. The inverter is not intended for mobile use. Any other or additional use is not considered as intended use. The manufacturer will not responsible for any damages resulting from unintended use. Damage caused by such unintended use is at the sole risk of the operator.
As drawings shown above, a complete Grid-tied PV system consists of PV modules, PV inverters, public grid and other components. Moreover, PV inverters always act as key components.

2.2 Residual current limitation

There is RCMU integral in CPSPV36000ETLA-WB series. It follows the limitation from safety standard, IEC62109-2.
Normal leakage current may not exceed 300mA otherwise inverter will automatically disconnect from the electricity grid. Hence, PV modules with large capacities relative to earth may not exceed 75nF/kW under any condition.

i	**Information**	If the capacitance relative to ground of the modules is large than the request and disconnected from grid, please contact CyberPower for technical support.

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2.3 Safety Precautions

The CPSPV36000ETLA-WB series is designed and tested according to international safety requirements; however, certain safety precautions must be observed when installing and operating this inverter. Reading and follow all instructions, cautions and warnings in this installation manual.

2.4 Assembly Warnings

⚠ WARNING	➢ *Prior to installation, inspect the unit to ensure there is no any absence or damage during transportation, which could affect insulation integrity or safety clearances result in safety hazards.* ➢ *Unauthorized removal of necessary protections, improper use, incorrect installation and operation may lead to serious safety, shock hazards or equipment damage.* ➢ *In order to minimize the potential of a shock hazard due to hazardous voltages, cover the entire solar array with dark material prior to connecting the array to any equipment.*
⚠ CAUTION	*Grounding solar inverter with terminal symbol ⏚ according to local requirements or regulation to have optimal protection of the system and personnel.*

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2.5 Electrical Connection Warnings

⚠ **WARNING**	➢ Some components in the inverter are live. Touching live components can result in serious injury or death. ➢ Danger to life due to high voltages in the inverter ● Installation and maintenance to the inverter may be carried out by qualified personnel only. ● The appliance is not to be used by persons with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction.
⚠ **WARNING**	➢ Make all electrical connections firm (e.g. conductor termination, fuses, PE connection, etc.) according to local regulations. When working with the inverter powered on, adhere to all prevailing safety regulations to minimize risk of accidents. ➢ The solar inverter can be operated with PV generators (modules and cabling) with protective insulation. Do not connect any source of energy other than PV modules to the solar inverter. ➢ Systems with inverters typically require additional device (e.g., switches, disconnect, fusing circuit breakers) depending upon local safety regulation. ➢ Please read this manual carefully, the manufacturer or supplier is not responsible for damage caused by incorrect operation, installation, wiring, transport, etc.

⚠ **CAUTION**	➢ The solar inverter is to be used solely to feed and convert solar energy into the public grid. The inverter is suitable for mounting indoors and outdoors. ➢ You can use the AC current generated as follows:	
	House grid:	Energy flows into the house grid. The consumers connected, for example, household devices or lighting, consume the energy. The energy left is fed into the public grid. When solar inverter does not generate any energy, e.g., at night, the consumers which are connected are supplied by the public grid. The energy displayed on the LCD of inverter is for reference only. When energy is fed into the public grid, the energy meter spins backwards.
	Public grid:	Energy is fed directly into the public grid. The solar inverter need install a separate energy meter. The energy produced is compensated at a rate depending on the electric power company.

2.6 Operation Warnings

⚠ **WARNING**	➢ Ensure all covers are closed and secure during operation. ➢ Oversizing the solar string may result in high voltages present which could destroy the inverter. Under such condition, the inverter display will read the error message "PV Voltage High". One should: ● Turn off DC switch immediately. ● Contact installer.
⚠ **CAUTION**	➢ All operations regarding transportation, installation and start-up, including maintenance must be operated by qualified, trained personnel and in compliance with all prevailing codes and regulations. ➢ Once the inverter been disconnected from the power network, be carefully to work with inverter because electrical discharged is not enough to some components and might lead to electrical shock hazard; to minimize occurrence of such conditions. To comply with all corresponding safety symbols and markings present on the unit and in this manual.

2.7 Symbols on the inverter

Symbol	Explanation
📖ℹ	Refer to operation instruction
⚡	Caution, risk of electrical shock
⚠	Caution, risk of danger
♨	Caution, hot surface. During operation the case temperature may exceed 140℉ (60℃). Do not touch.
⏚	Main Earth (ground) terminal
⚡ 2 min	Caution, risk of electrical shock. Energy stored discharge time,2 min. To avoid electric shock, removing the front covert only after disconnecting both AC and DC for 2 minutes.
---	Direct Current (DC)
∼	Alternating Current (AC)
CE	CE mark. The inverter complies with the requirements of the applicable EC guidelines.

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3 Product Description

3.1 Product overview
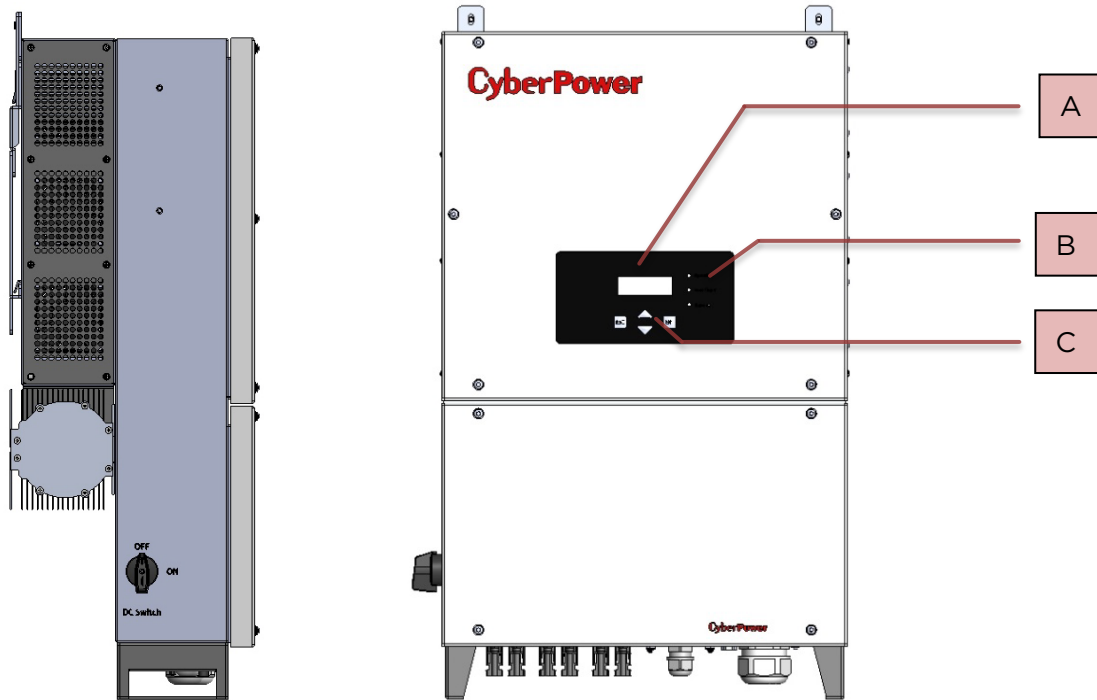
Left View

Front View
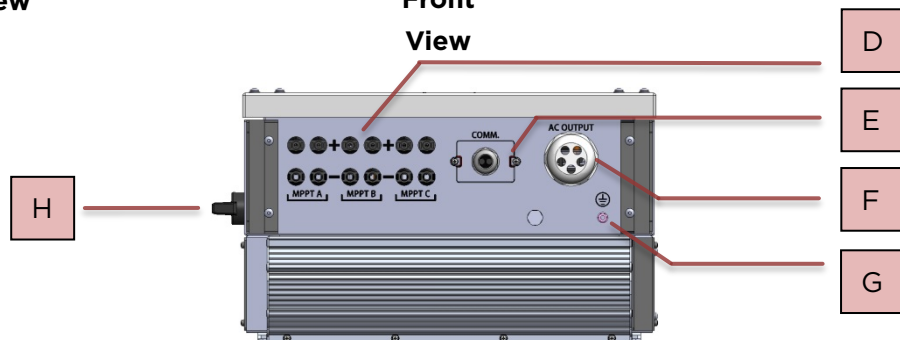
Bottom View

Position	Description
A	LCD (Charter 20*4)
B	LED (Green/Red/Yellow)
C	Buttons (Up/Down/Enter/Esc)
D	PV input terminals DC Switch
E	Water proof gland for RS-485
F	Water proof gland for AC output
G	2nd Protective Earthing Screw
H	DC Switch
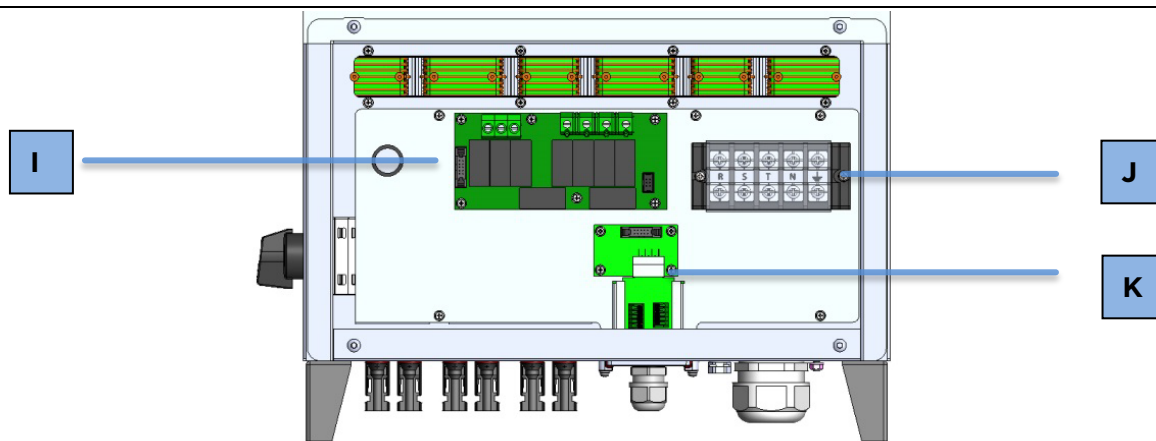
Position	Description
I	Type II AC/DC SPD
J	AC Terminal Block
K	RS485 terminal block

3.2 Type label

The type labels provide a unique identification of the inverter (The type of product, Device-specific characteristics, Certificates and approvals). The type labels are on the right-hand side of the enclosure.

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PV Grid Inverter

Model name	CPSPV36000ETLA-WB
Max. DC voltage	1000Vd.c.
DC voltage range	250 - 1000Vd.c.
MPP voltage range	500 - 800Vd.c
Max. DC input current	25 / 25 / 25Ad.c.
Max. DC short current	40 / 40 / 40Ad.c.
Max. output power	36kW / 37.9kVA
Nominal output power	36kW / 36kVA
Max. output current	56 Aa.c.
Nominal AC voltage	230 / 400Va.c. 3/N/PE
Nominal AC frequency	50 / 60Hz
Power factor	0.9cap - 0.9ind
Protective class	Class I
OVC (AC / DC)	III / II
Protection degree	IP65 (Electric Part)
Operation temperature	-25°C - +60°C

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PV Grid Inverter

Model name	CPSPV33000ETLA-WB
Max. DC voltage	1000Vd.c.
DC voltage range	250 - 1000Vd.c.
MPP voltage range	460 - 800Vd.c
Max. DC input current	25 / 25 / 25Ad.c.
Max. DC short current	40 / 40 / 40Ad.c.
Max. output power	33kW / 34.8kVA
Nominal output power	33kW / 33kVA
Max. output current	52 Aa.c.
Nominal AC voltage	230 / 400Va.c. 3/N/PE
Nominal AC frequency	50 / 60Hz
Power factor	0.9cap - 0.9ind
Protective class	Class I
OVC (AC / DC)	III / II
Protection degree	IP65 (Electric Part)
Operation temperature	-25°C - +60°C

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PV Grid Inverter	
Model name	CPSPV30000ETLA-WB
Max. DC voltage	1000Vd.c.
DC voltage range	250 - 1000Vd.c.
MPP voltage range	420 - 800Vd.c
Max. DC input current	25 / 25 / 25Ad.c.
Max. DC short current	40 / 40 / 40Ad.c.
Max. output power	30kW / 31.6kVA
Nominal output power	30kW / 30kVA
Max. output current	46 Aa.c.
Nominal AC voltage	230 / 400Va.c. 3/N/PE
Nominal AC frequency	50 / 60Hz
Power factor	0.9cap - 0.9ind
Protective class	Class I
OVC (AC / DC)	III / II
Protection degree	IP65 (Electric Part)
Operation temperature	-25°C - +60°C

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PV Grid Inverter	
Model name	CPSPV22000ETLA-WB
Max. DC voltage	1000Vd.c.
DC voltage range	250 - 1000Vd.c.
MPP voltage range	450 - 800Vd.c
Max. DC input current	25 / 25 / 13Ad.c.
Max. DC short current	45 / 45 / 25Ad.c.
Max. output power	22kW / 24.5kVA
Nominal output power	22kW / 22kVA
Max. output current	38 Aa.c.
Nominal AC voltage	230 / 400Va.c. 3/N/PE
Nominal AC frequency	50 / 60Hz
Power factor	0.9cap - 0.9ind
Protective class	Class I
OVC (AC / DC)	III / II
Protection degree	IP65 (Electric Part)
Operation temperature	-25°C - +60°C

3.3 Size and weight
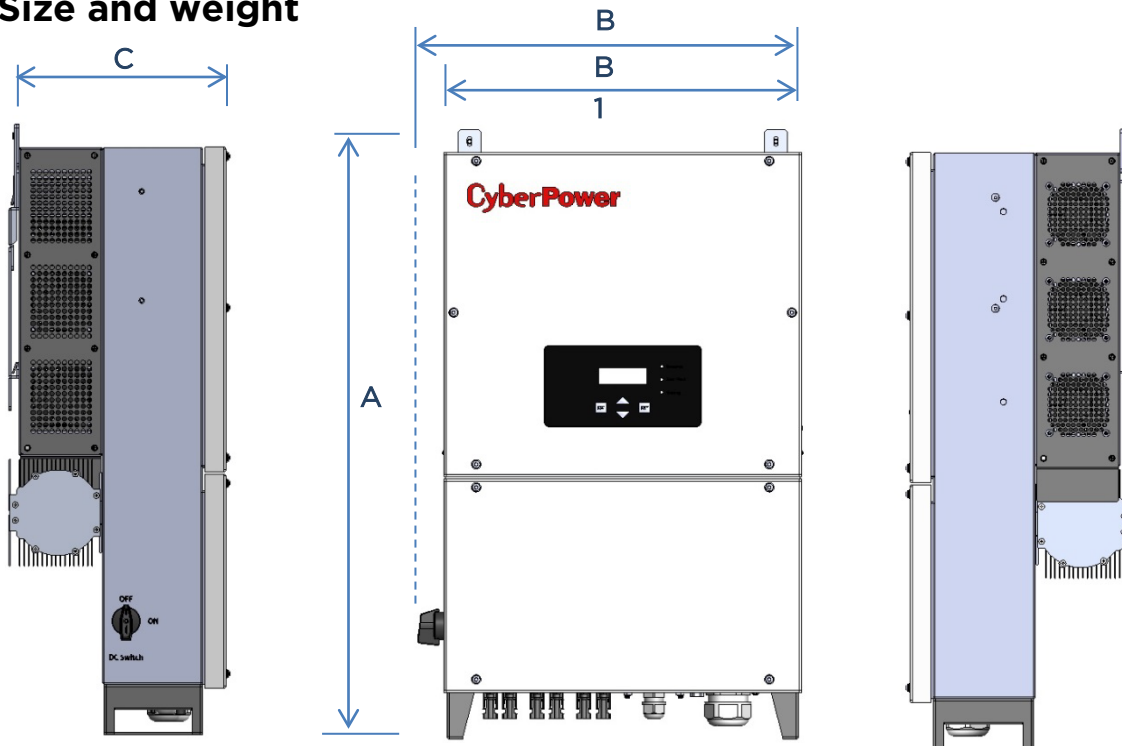
Dimension	A(mm)	B1/B2(mm)	C(mm)	Weight(kg)
CPSPV36000ETLA-WB series	783	460/495	279	47.0

3.4 Transportation

The inverter is thoroughly tested and inspected strictly before delivery. Our inverters leave our factory in proper electrical and mechanical condition. However, transport damage may still occur. The shipping company is responsible in such cases. Thoroughly inspect the inverter upon delivery. Immediately notify the responsible shipping company if you discover any damage to the packaging which indicates that the inverter may have been damaged or if you discover any visible damage to the inverter. We will be glad to assist you, if required. When transporting the inverter, the original or equivalent packaging should to be used, and the maximum layers for original carton is five, as this ensures safe transport.

3.5 Storage of Inverter

If you want to storage the inverter in your warehouse, you should choose an appropriate location to store the inverter.

➢ The unit must be stored with original package and desiccant must be left in the package.

➢ The storage temperature should lie between -25℃ and +70℃. And the storage relative humidity should be always between 0 and 95%.

➢ If there are lots of inverters need to be stored, the maximum layers for original carton is five.

➢ After long term storage, local installer or service department of CyberPower should perform a comprehensive test before installation

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4 Unpacking

Before opening the packing box, please note that whether there are any visible external damages.

Once open the packing box, please check any visible external damages of the inverter. If there are anything damaged or missing, please contact your dealer.

Complete delivery should contain as follows.
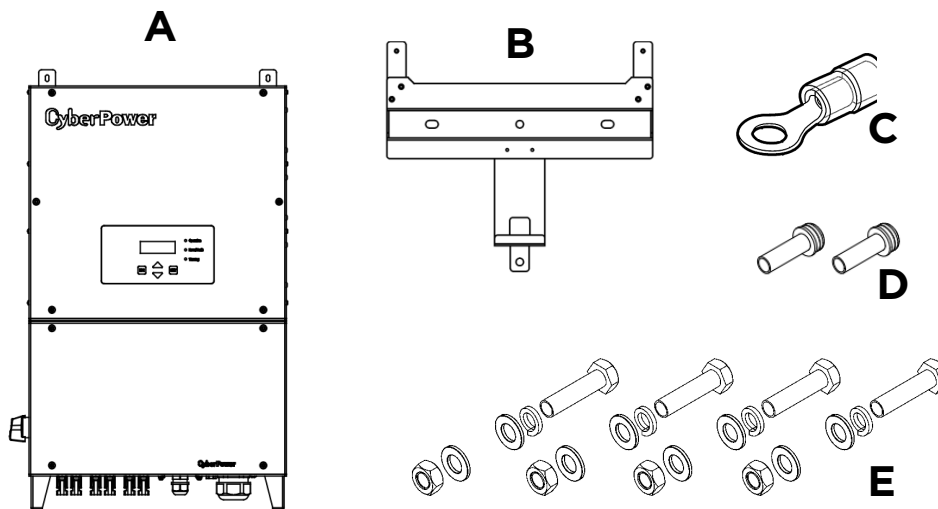
Fig 4.1

Item	quantity	Description
A	1 pcs	Solar Inverter
B	1 pcs	Wall-Mount bracket
C	5 pcs	Ring Lug for AC connection
D	2 pcs	M5 screws for fix inverter onto wall mount bracket
E	5 set	M10 screw sets for wall mount
--	1 pcs	User manual (not show in the picture)

5 Installation

5.1 Safety instruction

	Danger to life due to fire or explosion ➢ Despite careful construction, electrical devices can cause fires. ➢ Do not install the inverter on easily flammable materials and where flammable materials are stored.
	Risk of burns due to hot enclosure parts Mount the inverter in such a way that it cannot be touched inadvertently.

> ➤ All electrical installations shall be done in accordance with the local safety regulation. All wiring and electrical installation should be conducted by a qualified service personnel.
> ➤ Carefully remove the unit from its packaging and inspect for external damage. If you find any defects, please contact your local dealer.
> ➤ Be sure that the protective earth terminal of inverter firm grounded to protect personal safety.
> ➤ The inverter must only be operated with PV generator. Do not connect any other source of energy to it.
> ➤ Both AC and DC voltage sources are terminated outside the PV Inverter. Please disconnect these sources before servicing.
> ➤ This unit is designed to feed power to the public power grid (utility) only. Do not connect this unit to an AC source or generator. Connecting Inverter to external devices could result in damage to your equipment.
> ➤ Even after the unit is disconnected from the grid and photovoltaic panels, high voltages may still exist inside the PV-Inverter. Do not remove the casing until at least **5 minutes** after disconnecting all power sources.
> ➤ Although designed to meet all safety requirements, some parts and surfaces of Inverter are still hot during operation. To reduce the risk of injury, do not touch the heat sink at the back of the PV-Inverter or nearby surfaces while Inverter is operating.

5.2 Selecting the Installation Location

This is guidance for installer to choose a suitable installation location, to avoid any damages to device and operators.

1) The wall selected to install the inverter must be strong and firm enough to support the weight of the inverter for a long period time. Please refer to Chapter 11 –Specifications for the weight of inverter.
2) The location selected must be suitable for inverters' dimension. Please refer to Sec. 3.3 and Sec. 5.3 for the Dimension and clearance between inverters.
3) Do not install the inverter on structures flammable.
4) Never install the inverter in dust or poor-ventilation surroundings.
5) The Ingress Protection rate is IP65 which means the inverter can be installed outdoors and indoors.
6) Do not directly expose the inverter to direct sunlight because inverter might often decrease its output power or shut down to avoid overheating.
7) The humidity of the installation location should be 0~95% without condensation.
8) The ambient temperature of the inverter should be -25℃~+60℃.
9) The installation location must be safely and reachable for maintenance.
10) Notice the minimum clearances between inverters should be at least 800mm. (Refer to 3.3 Dimensions and Fig.5.9 Required Clearances).
11) Do not install the inverter near television antenna or any other antennas and antenna cables.

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12) Do not install the inverter in living area, the noise caused by the machine may affect daily life.

13) For security reasons, don't install the inverter in place where the children can reach.

5.3 Installation guide

5.3.1 Mounting the Bracket

> ⚠ **DANGER**
>
> **In order to avoid electrical shock or other injury, inspect existing electronic or plumbing installations before drilling holes.**

To mount the inverter on the wall, we should mount the bracket to the wall firmly first of all.
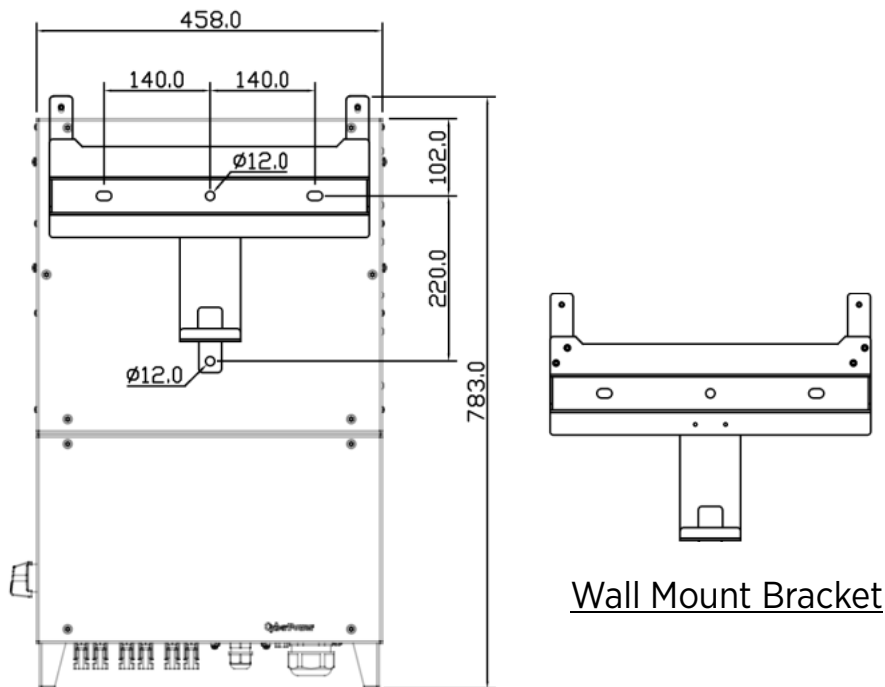
Wall Mount Bracket

PV inverter and Wall Mount Bracket Assembly

Dimension of Bracket   (units :mm)

Fig 5.3

Steps:

- Drill 4 holes for screws while use the mounting frame as template.
- Fix the mounting frame on the wall as the figures shown below, combine as the screws as the Items Fig 4.1 shows (items D)

5.3.2 Installation layout

> **i** **Information**
>
> Avoid exposing inverter to direct sunlight, rain or snow to extend the inverter service life despite the IP65 protection degree. Exposure to the sunlight may cause additional internal
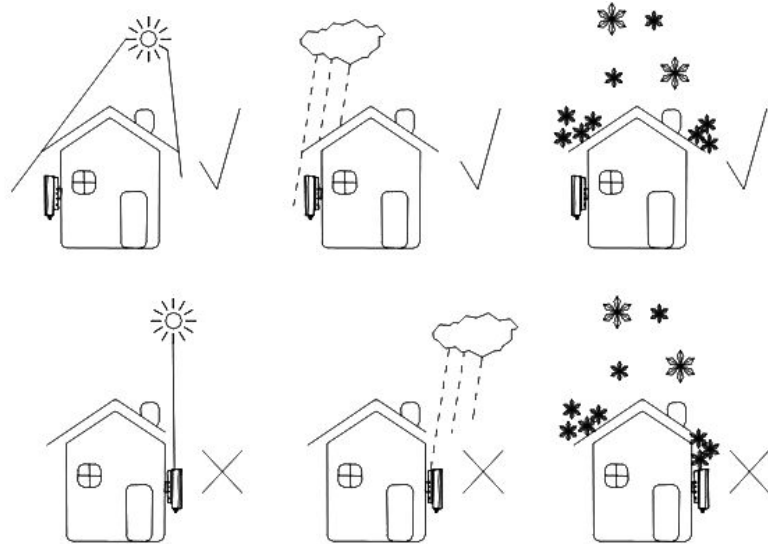
Fig. 5.8

More than one inverter need to be installed, the dimensions below should be considered.

Fig. 5.9

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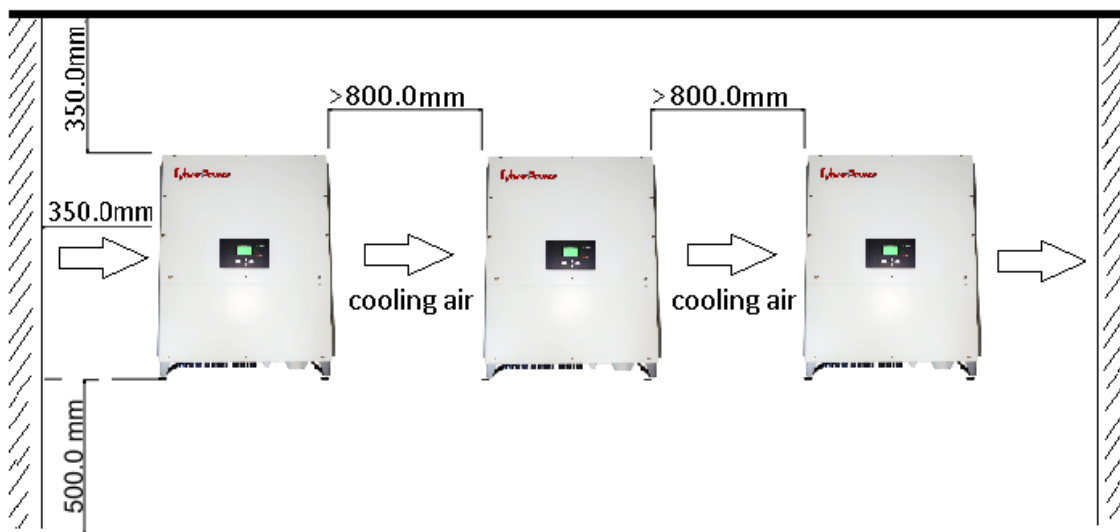
5.3.3 Mounting Inverter

> ⚠️ **WARNING**
>
> Falling equipment can cause serious or even fatal injury, never mount the inverter on the bracket unless you are sure that the mounting frame is really firmly mounted on the wall after carefully checking.

After the bracket is firmly mounted on the wall, then mount the inverter on the bracket.

- Rise up the CPSPV36000ETLA-WB a little higher than the bracket. Considering the weight, you need to hang on the inverter. During the process please maintain the balance of the inverter
- Hang the inverter on the bracket through the match hooks on bracket and the back of the inverter.
- Installed screws at each side of inverter to reliable fixed it on the wall.
- Connection of a second protective earthing conductor. Please refer to Product overview.
- Recommend awning installation to avoid directly exposing inverter under sunlight, the purpose is to extend the inverter service life and reduce the power derating of the inverter.
- To hang inverter by crane, you might require auxiliary hanging kits. See following illustrate. To fasten left and right bar with screws to inverters then fasten ring hook to the top of both bars.
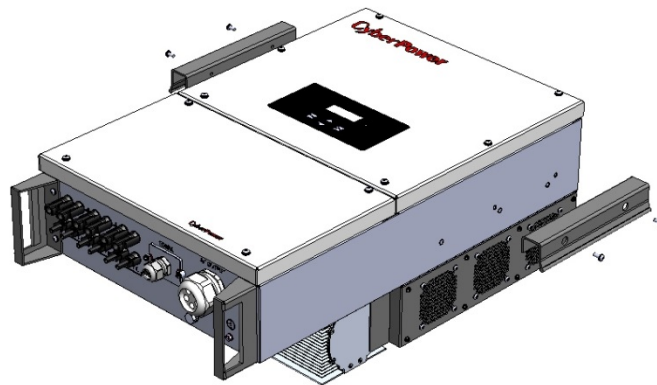
5.4 Electrical Connections

5.4.1 Safety

⚡⚠️	**DANGER**	Danger to life due to hazards voltages! High voltages which may cause electric shocks are present in the conductive parts of the inverter. Prior to performing any work on the inverter, disconnect the inverter on the AC and DC sides
⚠️	**WARNING**	Danger of damage to electronic components due to electrostatic discharge. Take appropriate ESD precautions when replacing and installing the inverter.

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5.4.2 Wiring AC Output

Conditions for the AC Connection

You must comply with the connection requirements of your utility operator.

All usages must comply with the regulations.

Residual-current protective device

The inverter is equipped with an integrated universal residual-current monitoring unit.

If the network operator stipulates a residual-current protective device, you must use a residual-current protective device that triggers in the event of a residual-current of 300 mA or more.

Connection of a second protective conductor

In some installation countries, a second protective conductor is required to prevent a touch current in

the event of a malfunction in the original protective earthing conductor.

For installation countries falling within the scope of validity of the IEC standard 62109, you must install

the protective conductor on the AC terminal with a conductor cross-section of at least 30 mm²Cu.

Or install a second protective conductor on the earth terminal with the same cross-section as the original

protective earthing conductor on the AC terminal

Separate AC disconnection unit

You must install a **separate** three-phase miniature circuit-breaker or other load disconnection unit for each inverter in order to ensure that the inverter can be safely disconnected under load.

- Recommended AC breaker for CPSPV36000ETLA-WB series: 100A/400V, 125A/400V or rating above.

Wiring AC Power Cable requirements:

Inner Hole Diameter of Ring Lug (mm)	Outer Diameter of Cable (mm)	Cross-section Conductor Area (mm²)	Available wire gauge (AWG)	Temperature rating of Cable
5	8.2~9.8	10~30	AWG#6~AWG#2	90℃ /or above

> ⚠ **NOTICE**
>
> Please do not use single-core wire cable. The single-core wire is too hard to wire and might make water-proof cable gland losing its function.

To Wire AC Power Cable onto inverter,

1) To open the Wiring Box of CPSPV36000ETLA-WB series. Tool -Allen Key #4 required on this Step.

2) The AC side terminals of the inverter are like the following picture, it is clear to confirm that 'R, S, T' represents three live line output, 'N' represents neutral line and ⏚ is grounding line.

3) Connect standard cables into relevant terminals.
   Pre-put AC power cable through both AC cable glad shell and its rubber sealed, then to press the ring terminal lug onto stripped power cable.

4) Fasten the ring lug to M5 screws on AC terminal block according to torque requirement described in Sec 11.2.

5) Fasten the cable gland shell to secure inverter from water and dust, make sure the four screws are tightened.
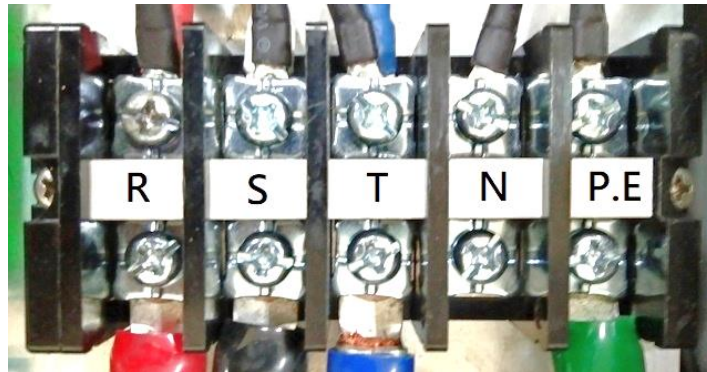
Fig 5.10 AC Terminal of CSPV36000ETLA-WB series

5.4.3 Wiring DC Input

⚡⚠ **DANGER**
Danger to life due to hazards voltages! Before connecting the PV array, ensure that the DC switch and AC breaker are disconnect from the inverter. **NEVER** connect or disconnect the DC connectors under load.
⚠ **WARNING**
Improper operation during the wiring process can cause fatal injury to operator or unrecoverable damage to the inverter. Only qualified personnel can perform the wiring work.
⚠ **WARNING**
Risk of damage to the inverter. If the voltage of the PV modules exceeds the maximum input voltage of the inverter, it can be destroyed by the overvoltage. This will void all warranty claims. Do not connect strings to the inverter that have an open-circuit voltage greater than the maximum input voltage of the inverter.

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⚠️ **WARNIN** To reduce the risk of electric shock, avoid touching the live components and treat the terminals carefully.
ℹ️ **Information** The PV modules should have an IEC61730 Class A rating*. Please use the same brand male and female PV connectors. Under any conditions the total circuit current should never exceed the Max. Current.
⚠️ **NOTICE** Excessive DC voltages can destroy the measuring device Only use measuring devices with a DC input voltage range up to at least 1,000 Vdc.

   *Relate only to transformer-less installation.
1   Check the connection cables of the PV modules for correct polarity and make sure that the maximum open circuit voltage of each string should never exceed 1000V.
2   The diagram drawing of DC side is shown as below, Fig 5.13, notice that the connectors are in paired (male and female connectors) .The vendor of DC connectors for both PV arrays and inverters should be H4 (Amphenol).

Fig.5.13

3   Check the assembled DC connectors for correct polarity and connect them to the inverter.
4   The maximum PV String currents are list below,

Type	Max. per string current
CPSPV36000ETLA -WB series	25A

5   In order to seal the inverter, all unused DC inputs must be closed with sealing plugs: Solar Cable requirements:

Model	Diameter(mm)	Area(mm²)	AWG
CPSPV36000ETLA-WB series	2.05-2.59	3.332-5.26	12-10

5.4.4 Grounding

AC Grounding

The inverter must be connected to the AC grounding conductor of the power distribution grid via the ground terminal (PE).

PV Grounding

The solar inverter is transformerless type and intended directly feed power to utility without transformer.

If PV modules of the PV system require POSITIVE or NEGATIVE to connect to GROUND, the output of inverter should connect to grid with an isolating transformer. The connection method is below:
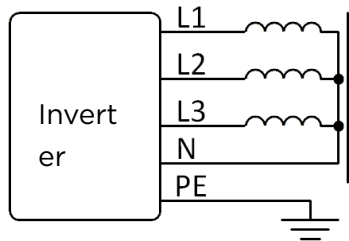
Note , Neutral point of transformer should not be connected to PE under such application.

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5.5 Grid Type

Based on the local GRID standards, it may select different connection types. In the following you will find an overview of the most common type of grid structure.
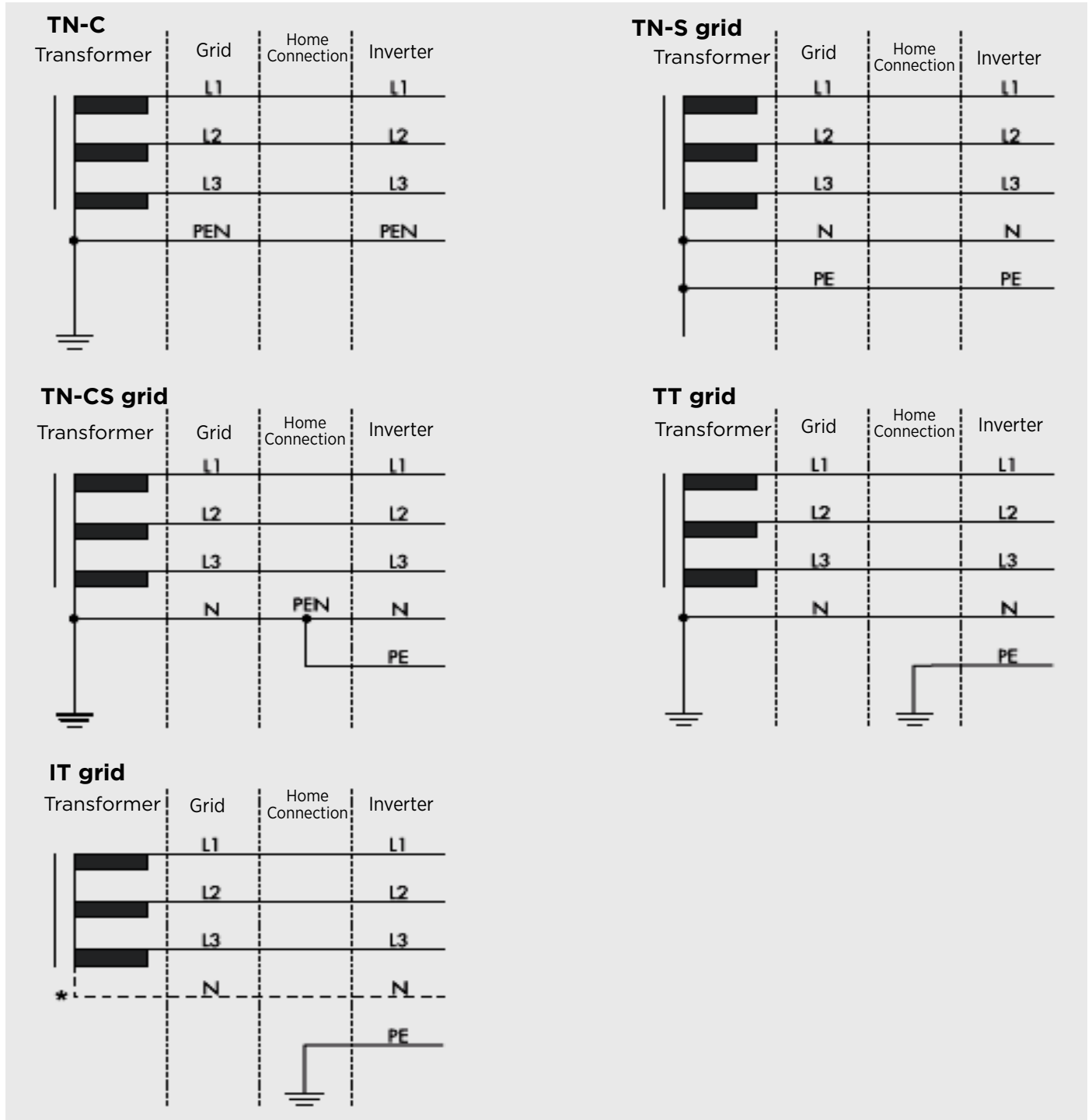
Grid type Inverter	TN-C	TN-S	TN-C-S	TT	IT
CPSPV36000ETLA-WB series	Yes	Yes	Yes	Yes,	Yes

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6 Commissioning

6.1 Commission the Inverter

DC Switch

1) Remove all covers from the PV array.
2) Check the PV and AC voltage.
3) Plug in the PV input.
4) Turn the DC Disconnect to position "ON"
5) If the inverter is connected with PV panel arrays and the input voltage is higher than 300Vdc, while the AC grid is not connected yet, LCD will display messages in order as below:
   - Company/Model name ➡ Lcd home page with state info
   - The LCD will display "Insulation test" then " No Grid "at State info and the LED turns red.
   - Please check all information on the LCD, press buttons you will see the different parameters.
6) Turn on the AC breaker between inverter and grid, the system will operate automatically.
7) Under normal operating conditions, the LCD displays 'Power: xxxxx W' at State info, this is the power feed into grid. The LED turns green at this situation.
8) Check the time and date
9) Finish commissioning.
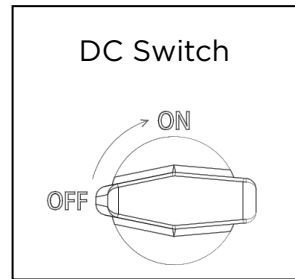
6.2 Operation Modes

Normal Mode
In this mode, the inverter works normally and LED turns green.
- Whenever the DC voltage is higher than 300Vdc, inverter converts power to grid as generated by the PV panels;
- Whenever the DC voltage is lower than 250Vdc, the inverter will work in waiting state and attempt to connect the grid. In waiting state the inverter consumes just enough power generated by the PV panel to monitor the internal system.

Notes: The inverter starts up automatically when DC power from the PV panel is sufficient.

Fault Mode
The internal intelligent controller can continuously monitor and adjust the system state. If inverter finds any unexpected conditions such as system fault and inverter fault, the fault information will be displayed on the LCD. In fault mode the LED turns red.

Notes: Detailed fault information refers to Chapter 9.1 ERROR messages displayed on LCD.

Shutdown Mode
Inverters automatically stop running during periods of little or no sunlight. In shutdown mode the inverters take no power from the grid and panel, and the LCD and LED turns off automatically.

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6.3 To operate with LCD Display

There are 4 buttons, 3 LEDs & 1 LCD display on CPSPV36000ETLA-WB series.

When inverter powered on by either solar power or utility at its initial, the Display show our Brand and product Model name as following picture.

	LED-Green
	LED-Red
	LED-Yellow
Button-Up	
Button-Esc	
Button-Down	
Button-Enter	
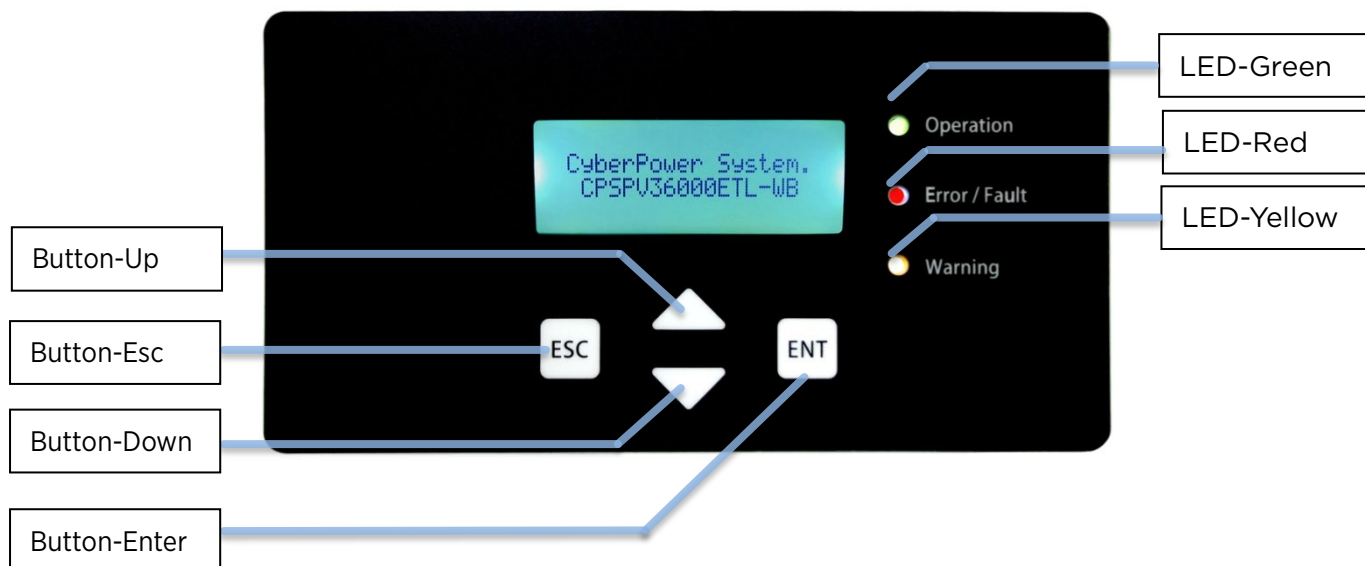
Green LED,

　　When green led flashing, Inverter is in count down mode. After count down, inverter pump power normally and LED turn to stable lighting.

Red LED,

　　Red led lighting, the inverter stops work when utility error or inverter fault.

Yellow LED,

　　When yellow led lighting, the inverter keeps pump power with partial function abnormal.

　　For Example, Fan fail or SPD broken.

6.3.1 Inverter Home Page

After inverter finished initialization, the display shows home page.

Inverter Status / Fault		Real-Time Pac,
		MPPT Voltage (MPPT A/MPPT B/MPPT C)

	`On Grid          46212 W`
	`PV:       230/450/550V`
	`AC(3Φ):230Vac/50.0 Hz`
	`Today:       136 kWh`
		Grid Information

Today Energy		

Home page

6.3.2 Display root

Home page

```
On Grid        46212 W
PV:        230/450/550V
AC(3Φ):230Vac/50.0 Hz
Today:         136 kWh
```

ESC   ▼ or ▲ or ENT

Meter page ⇄ Energy page ⇄ Event page ⇄ Device page ⇄ Configure page
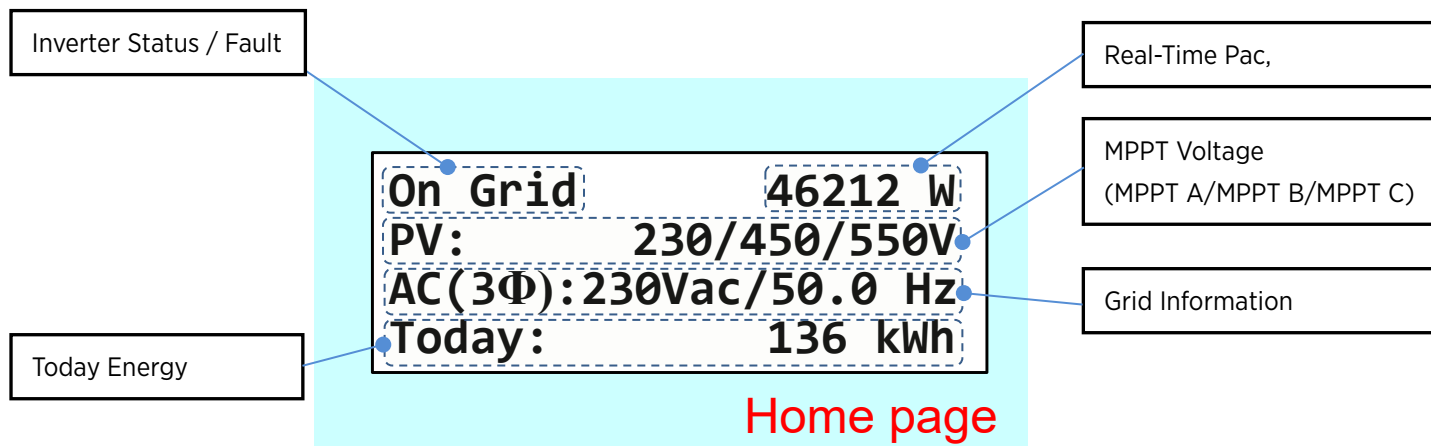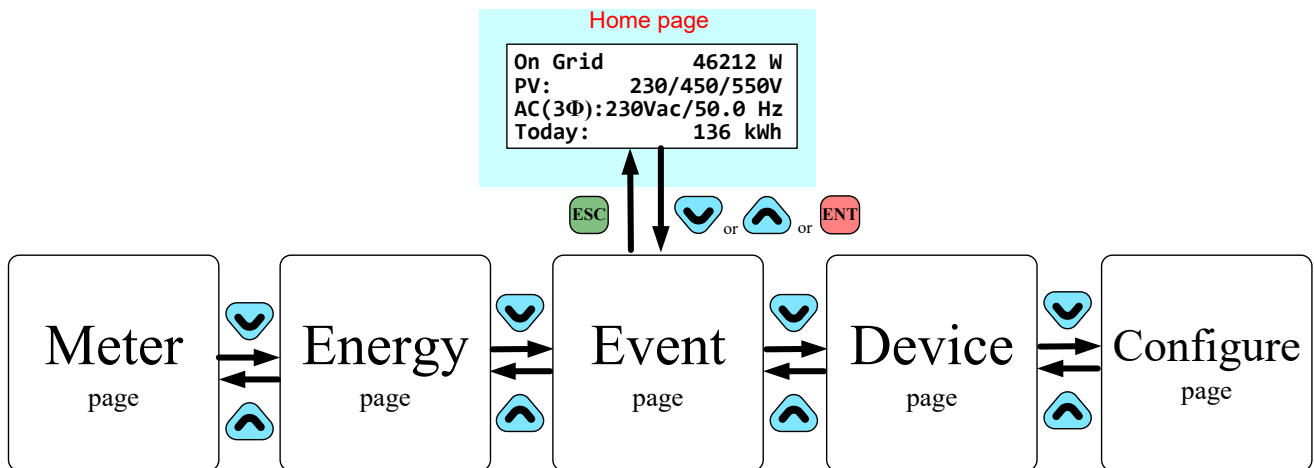
6.3.2.1 Power Meter

This interface displays parameters of Grid output and PV input in Meter page.

Grid output:

- R.: output voltage, current, and power of R phase
- S.: output voltage, current, and power of S phase
- T.: output voltage, current, and power of T phase

PV input:

- A.: input voltage, current, and power of MPPT A.
- B.: input voltage, current, and power of MPPT B.
- C.: input voltage, current, and power of MPPT C.

```
►Meter
```

```
Grid Output:
U. 231V/48.4A/11.1kW
V. 230V/48.5A/11.2kW
W. 232V/48.5A/11.1kW
```

```
PV Input:
A. 671V/38.0A/25.5kW
B. 664V/37.0A/24.6kW
C. 664V/37.0A/24.6kW
```

```
#A1-A2  10.1/10.1  A
#B1-B2  10.1/ 7.6  A
#C1-C2  10.1/10.1  A
```

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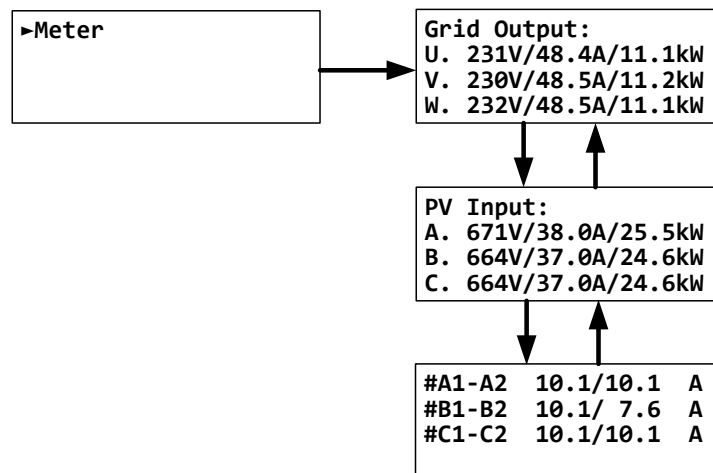
String Information,

This information only been shown in "–WB" version.

- #A1-A2 : Current of String 1 and of String 2 among MPPT A, respectively
- #B1-B2 : Current of String 1 and of String 2 among MPPT B, respectively
- #C1-C2 : Current of String 1 and of String 2 among MPPT C, respectively

6.3.2.2 Energy Log

This interface displays parameters of energy generated in Energy page.

- The first line displays energy generated today.
- The second line displays inverter's operating hours today .
- The third line displays the total energy generated since installation.
- The fourth line displays the total operating hours since installation.

```
Meter                    Today:        236 kWh
►Energy Log                           11.0 Hrs
 Event Log               Total:  12345678 kWh
 Device Info.                      1234567 Hrs
```
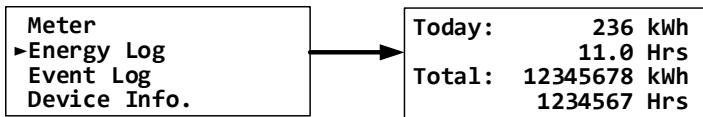
6.3.2.3 Event Log

This interface displays parameters of Inverter's error message, up to **60** lines.

```
Meter               01. No Grid          01. 2017-05-04 14:32
 Energy Log         02. AC Freq High     02. 2017-04-28 17:17
►Event Log          03. Insulation Err.  03. 2017-04-04 09:21
 Device Info.       04. PW De-rating     04. 2017-02-25 12:56

                    ----        ----

                    57. PV Low           57. 2018-01-06 18:45
                    58. PV Low           58. 2017-01-05 18:32
                    59. No Grid          59. 2017-01-04 14:32
                    60. PV Low           60. 2017-01-00 18:52
```
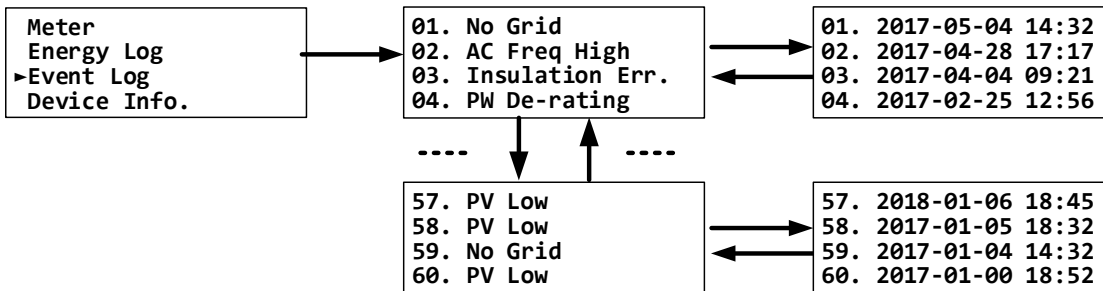
6.3.2.4 Device Information

This interface displays parameters of inverter, including module name, serial number and version.

```
Meter               CPSPV36000ETL-WB
 Energy Log         S/N:     VNBXXXXXXXXX
 Event Log          Install:  2021-06-10
►Device Info.       DSP/Red:   1.10/1.10
```
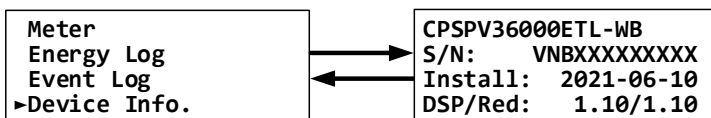
6.3.2.5 Configure Page

This interface displays parameters of inverter, including general settings, grid settings, input settings return to default and return to factory.

```
                    Configuration
```

| General Settings | Grid Settings | Inputs Settings | Return to Default | Return to Factory |
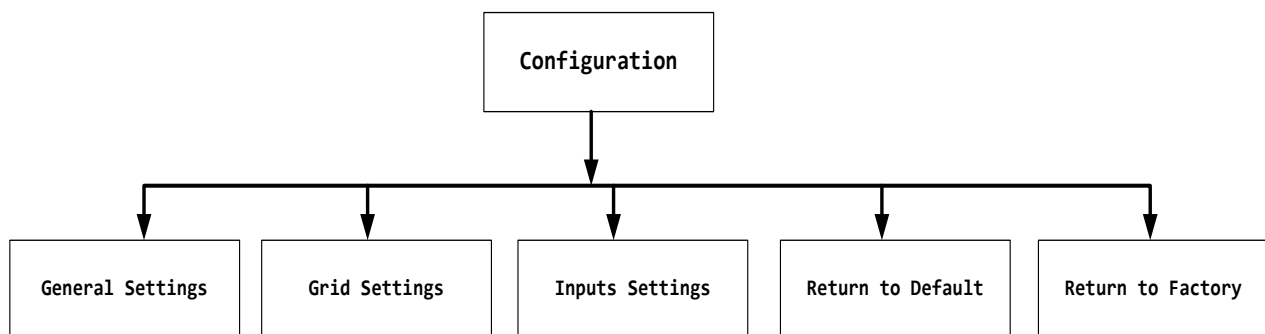
6.3.2.5.1 General Settings

This interface displays parameters of inverter, including date, time, language and RS485ID.Please refer to Ch9.

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```
Meter
Energy Log
Event Log
Device Info.
►Configuration
```
→
```
►General Settings
 Grid Settings
 Input Settings
 Return to Default
```
→
```
►Date:      2017-05-04
 Time:            13:26
 Language            EN
 RS485ID            002
```
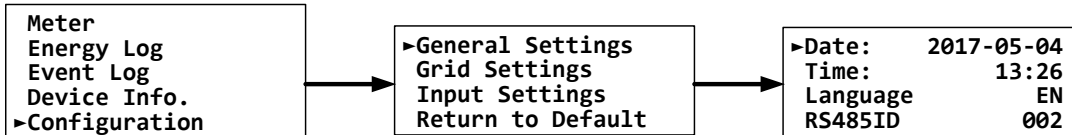
This interface displays parameters, the time setting will start from the following sequence: Year -> Month -> Date.

Date Setting:

1. To press button "ENT" to select Year, and modify by buttons "Up/Down", then button "ENT" for saving.

```
>Date:      2017-05-04
 Time:            13:26
 Language            EN
 RS485ID            002
```
⇒
```
>Date:      2018-05-04
 Time:            13:26
 Language            EN
 RS485ID            002
```
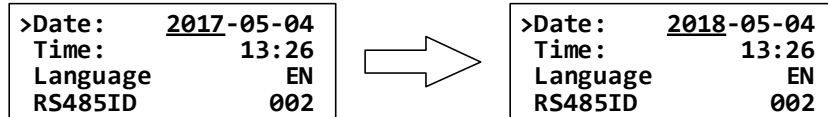
2. To press button "ENT" to select Month, and modify by buttons "Up/Down", then button "ENT" for saving.

```
>Date:      2018-05-04
 Time:            13:26
 Language            EN
 RS485ID            002
```
⇒
```
>Date:      2018-09-04
 Time:            13:26
 Language            EN
 RS485ID            002
```
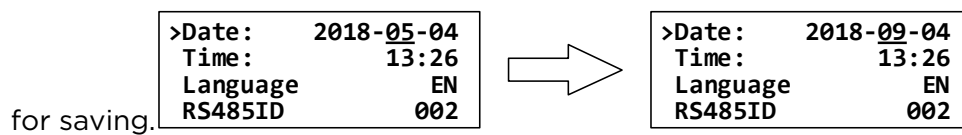
3. To press button "ENT" to select Date, and modify by buttons "Up/Down", then button "ENT" for saving.

```
>Date:      2018-09-04
 Time:            13:26
 Language            EN
 RS485ID            002
```
⇒
```
>Date:      2017-09-09
 Time:            13:26
 Language            EN
 RS485ID            002
```
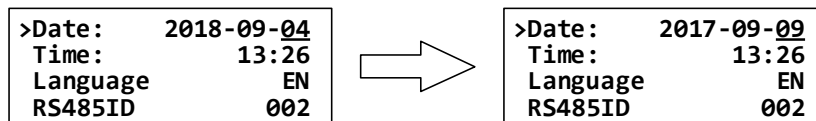
Time Settings:

1. To press button "ENT" to select hours (24H),and modify by buttons "Up/Down", then button "ENT" for saving.

```
>Date:      2018-09-09
 Time:            13:26
 Language            EN
 RS485ID            002
```
⇒
```
>Date:      2017-09-09
 Time:            15:26
 Language            EN
 RS485ID            002
```
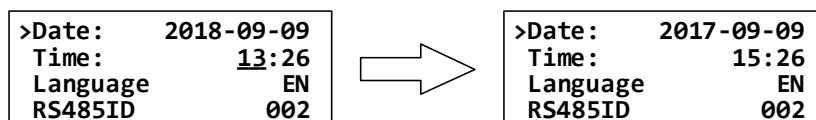
2. To press button "ENT" to select minutes, and modify by buttons "Up/Down", then button "ENT" for saving.

```
>Date:      2018-09-09
 Time:            15:26
 Language            EN
 RS485ID            002
```
⇒
```
>Date:      2017-09-09
 Time:            15:18
 Language            EN
 RS485ID            002
```
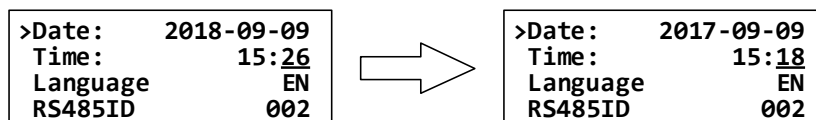
Language Setting:

1. When at the language interface 'Language:' the option is 'English' in default. By single Clicking, languages will vary from one to another.

```
>Date:      2018-09-09
 Time:            15:18
 Language            EN
 RS485ID            002
```
⇒
```
>Date:      2017-09-09
 Time:            15:18
 Language            FR
 RS485ID            002
```
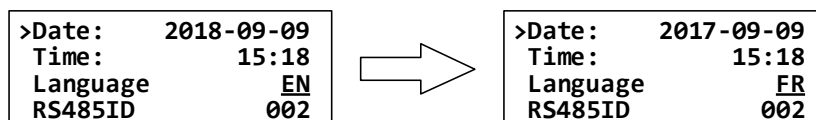
2. There are 2 languages to select:

1	English
2	French

RS485ID:

To press button "ENT" to select RS485ID, and modify by buttons "Up/Down", then button "ENT" for saving.

6.3.2.5.2 Grid Settings

This interface displays parameters of inverter, including code, type, a.c. system and detailed.

```
Meter                    General Settings        ►Code      VDE0126/TW
Energy Log              ►Grid Settings            Grid type 380V,50Hz
Event Log                Input Settings           Grid System    3P4W
Device Info.             Return to Default         Detailed
►Configuration
```
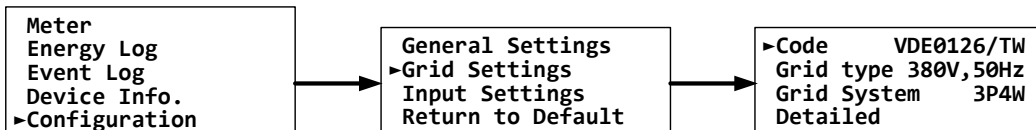
Code :

These settings required password. The inverter had completed its settings according local grid code before its delivery. This operation required password .If you do require modification, please contact qualified technical person for the modification.

1. The default code, utility standard is 'VDE0126-1-1/2013'.The item can be modified by operation with display of inverter. CyberPower can configure this item before delivery to customer.

   Notice,
   When one modifies details of code, such as overvoltage protection limit, the code will automatic transform to "custom". It means the inverter will act as custom wish instead of local utility standard.
   Meanwhile, CyberPower will only provide inverter according to local utility standard. For those settings beyond standard will be decided by customer.

```
>Code        custom         >Code      VDE0126/TW
 Type     380V,50Hz          Type     380V,50Hz
 System         3P4W          System         3P4W
 Detailed                     Detailed
```
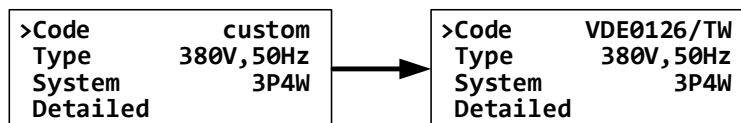
2. Grid code lists,

1	VDE0126-1-1/2013	5	VFR2014
2	VDE0126-1-1/A1	6	MEA
3	VDE0126-1-1/TW	7	IEC61727+IEC62116
4	PEA	8	CNS15382

Grid type:

The default of this item is 3Ph 400Vac,50Hz. The item can be modified by operation with display of inverter. CyberPower can configure this item before delivery to customer.
This item should be decide by local nominal grid voltage and frequency.
To carefully set this item can assure inverter work well.
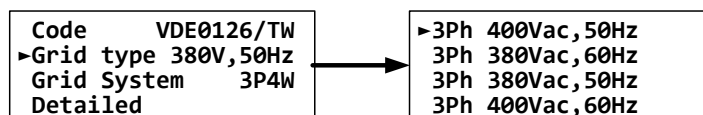
```
 Code       VDE0126/TW       ►3Ph 400Vac,50Hz
►Grid type 380V,50Hz          3Ph 380Vac,60Hz
 Grid System    3P4W          3Ph 380Vac,50Hz
 Detailed                     3Ph 400Vac,60Hz
```

Grid System:

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The default of this item is 3Ph 400Vac,50Hz. The item can be modified by operation with display of inverter.

The settings decide the way to show grid voltage on the display.

When 3P4W set, grid voltage in Meter page will show Phase voltage.

When 3P3W set, grid voltage in Meter page will show Line to Line voltage.

```
Code      VDE0126/TW          ►3P4W
Grid type 380V,50Hz            3P3W
►Grid System    3P4W
Detailed
```

Detailed :

```
Code      VDE0126/TW          ►Voltage Protection
Grid type 380V,50Hz            Freq. Protection
Grid System    3P4W            Recon.T       300 s
►Detailed                      Max. Power  50000 W


                               ►Insulation   1200kΩ
                                DCInject 1.00A/0.2S
                                RCMU              ON
                                Anti-islanding    ON


                               ►Self-Ctrl      1.09
                                Gnd Curr.      300mA
```
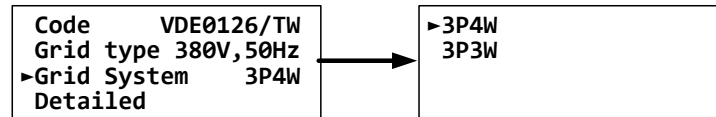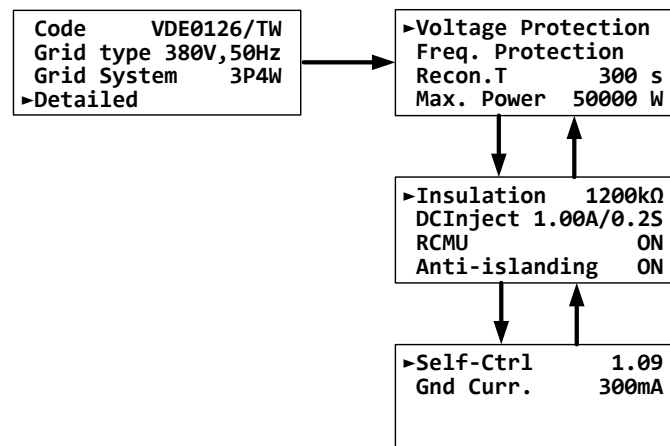
1. Voltage Protection Settings:

   U Hi-off → Over grid voltage limit

   T Hi-off → Time delay for over grid voltage limit

   U Hi-on → Recovery voltage after inverter shunt down due to over grid voltage

   U Lo-off → Under grid voltage limit

   T Lo-off → Time delay for under grid voltage limit

   U Lo-on → Recovery voltage after inverter shunt down due to under grid voltage

```
►Voltage Protection          ► U Hi-off      264.5 V
 Freq. Protection              T Hi-off        0.2 s
 Recon.T       300 s           U Hi-on       259.5 V
 Max. Power  50000 W

                             ► U Lo-off      184.0 V
                               T Lo-off        0.2 s
                               U Lo-on       189.0 V
```

2. Frequency Protection settings

   F Hi-off → Over grid frequency limit

   T Hi-off → Time delay for over grid frequency limit

   U Hi-on → Recovery voltage after inverter shunt down due to over grid frequency limit

   U Lo-off → Under grid frequency limit

   T Lo-off → Time delay for under grid frequency limit

   U Lo-on → Recovery voltage after inverter shunt down due to under frequency limit

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```
┌─────────────────────────┐       ┌─────────────────────────┐
│ Voltage Protection      │       │ ► F Hi-off      52.00 Hz│
│►Freq. Protection        │──────▶│   T Hi-off       0.2  s │
│ Recon.T        300 s    │       │   F Hi-on       50.05 Hz│
│ Max. Power   50000 W    │       └─────────────────────────┘
└─────────────────────────┘                  │    ▲
                                             ▼    │
                                   ┌─────────────────────────┐
                                   │ ► F Lo-off      49.00 Hz│
                                   │   T Lo-off       0.2  s │
                                   │   F Lo-on       49.05 Hz│
                                   └─────────────────────────┘
```

3. Reconnection timer settings

   The timer is set for count down between absence of abnormal and inverter pump power out.

```
┌─────────────────────────┐
│ Voltage Protection      │
│ Freq. Protection        │
│►Recon.T        300 s    │
│ Max. Power   50000 W    │
└─────────────────────────┘
```

4. Inverter max power settings,

   For CPSPV36000ETLA-WB, the maximum allowable power is 36000W.

```
┌─────────────────────────┐
│ Voltage Protection      │
│ Freq. Protection        │
│ Recon.T        300 s    │
│►Max. Power   36000 W    │
└─────────────────────────┘
```

5. Insulation resistance setting

   The item is set for limit to resistor between PV panels and earth.

   If the PV site can not meet the limit value, the inverter will show PV ISO on display.

   Do not set this item to 0. It might make inverter loss self-protection and damaged due to fault from PV panels or broken of site solar cable.

```
┌─────────────────────────┐
│>Insulation    1200kΩ    │
│ DCInject 1.00A/0.2S     │
│ RCMU              ON    │
│ Anti-islanding    ON    │
└─────────────────────────┘
```
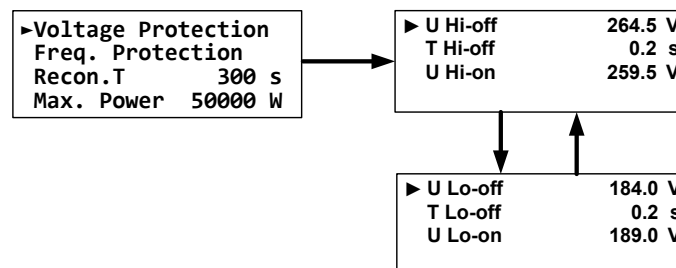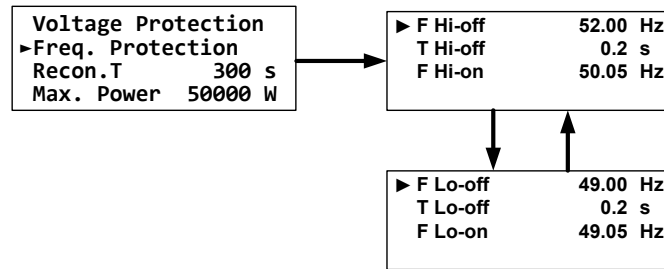
6. DC Inject settings:

   The item is set the maximum allowable limit value of DC current inject to grid system. This is normal set according to local grid standard.

```
┌─────────────────────────┐
│ Insulation    1200kΩ    │
│>DCInject 1.00A/0.2S     │
│ RCMU              ON    │
│ Anti-islanding    ON    │
└─────────────────────────┘
```

7. RCMU settings:

   This item provide disable and enable function to residual current monitor unit (RCMU). RCMU provides guard to human safety, do not disable the function in any time.

```
┌─────────────────────────┐
│ Insulation    1200kΩ    │
│ DCInject 1.00A/0.2S     │
│>RCMU              ON    │
│ Anti-islanding    ON    │
└─────────────────────────┘
```

8. Anti-islanding settings:

   This item provide disable and enable function to avoid islanding condition.

   Anit-islanding provides guard to human safety, do not disable the function in any time.

```
┌─────────────────────────┐
│ Insulation    1200kΩ    │
│ DCInject 1.00A/0.2S     │
│ RCMU              ON    │
│>Anti-islanding    ON    │
└─────────────────────────┘
```

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9. Self-Ctrl

   This item is reserved for utility standard, CNS15382 in Taiwan.

10. Gnd Curr.

   This item is set the maximum allowable limit to a.c. residual current.

   This item now is set according to safety instruction, IEC62109-2.

```
►Self-Ctrl      1.09
 Gnd Curr.     500mA
```

6.3.2.5.3 Input Settings

```
 General Settings
 Grid Settings        ►Conn. Type
►Input Settings        Fuse monitor
 Return to Default
```
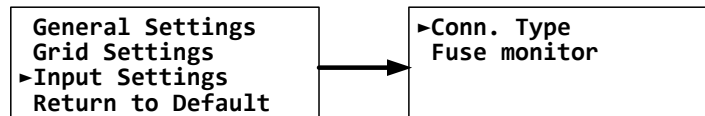
Conn. Type:

   There are two item Separate and Parallel.

   Separate is each MPPT performs maximum power tracking independently and used for PV site.

   Parallel is reserved for factory test in CyberPower.

   The setting will be configured as "Separate" before its delivery.

```
►Conn. Type          ►Separate
                      Parallel
```
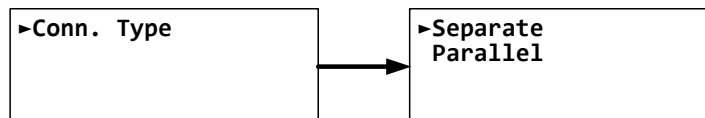
6.3.2.5.4 Return to default

   This item recovery all the settings value in "Detailed" according to current "Code" selection.

   This item is in password protection.

```
 General Settings
 Grid Settings
 Input Settings
►Return to Default
 Return to Factory
```

6.3.2.5.5 Return to factory

   This item is in password protection reserved for factory use only.

```
 General Settings
 Grid Settings
 Input Settings
 Return to Default
►Return to Factory
```

6.3.3 Kit function for quick setting during installation

   The small kit in display and buttons will be more convenient to installation PV inverter on site.

Normally, PV site required,

- Setting ID among RS485 communication.
- To check communication successfully or nor.

   To press UP and Down buttons simultaneously for 3Sec

- ✦ The function will automatically quite after 30min without any operation on display or by successive press ESC buttons.
- ✦ One can modify RS485 ID for inverter (See following picture)
- ✦ Status of RS485 communication between Inverter and data logger can be checked. "Standby" means there is no data successfully receive from data logger at inverter end.

   "Communicating" means data successfully receive from data logger at inverter end.
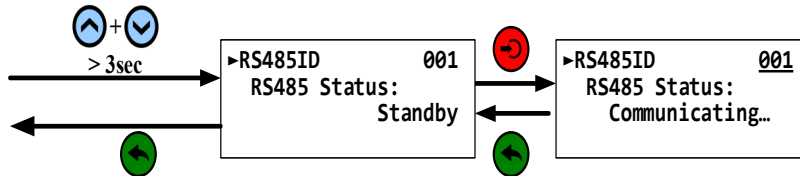
6.4 Communication

6.4.1 Using 'ModbusFwUpgrade' to Update firmware

About the software CPS PVI Firmware Upgrade , please download from CyberPower official website. For more detail information about firmware upgrade, please refer to service manual or contact with CyberPower.

6.4.2 Monitor the inverters

The inverter provides RS485 interface to communicate with remote PC or logger. User can monitor the inverter state via the following types of communication systems. For more detail information, please contact with CyberPower.

- ● Monitor CPSPV36000ETLA-WB series through CyberPower Cloud Monitor –Terra System.

   A CyberPower datalogger required under such application.
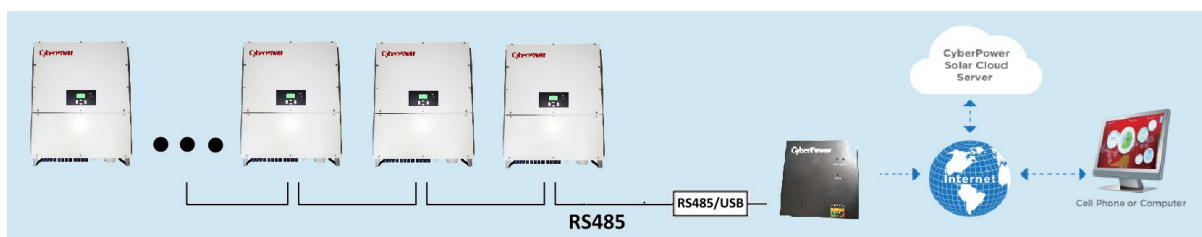
- ● CPSPV36000ETLA-WB series are compatible with Solar-Log 200/500/1000.

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6.4.3 RS485 cable connection

1. Open "COMM." (Communication) cover from bottom of wiring box of CPSPV36000ETLA-WB series by Phillips screwdriver.
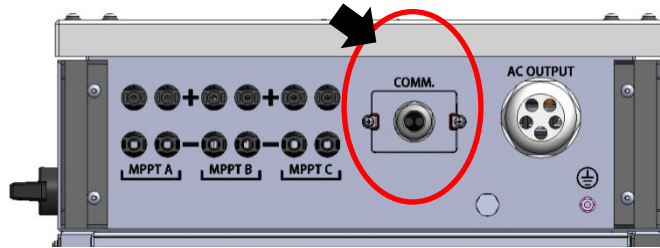
2. Unplug the RS484 interface card from its socket illustrate in Sec 3.1.

RS485 terminator Switch,
- Default OFF
- On for 120Ω

RS485 terminals (Left to Right) : D+/D-/Signal ground

RS485 Interface Card
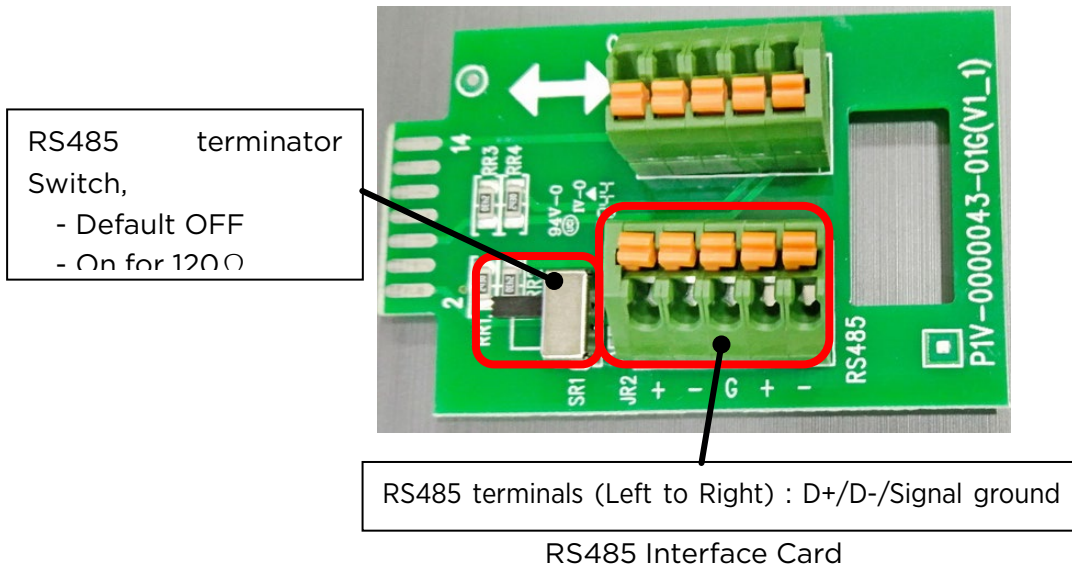
3. Put RS485 cable through the RS-485 cable gland then pushing the orange button on the terminal and plug stripped communication wire into the socket finally release the button one by one.
The relative Pin definition for RS485 is indicated as below picture.
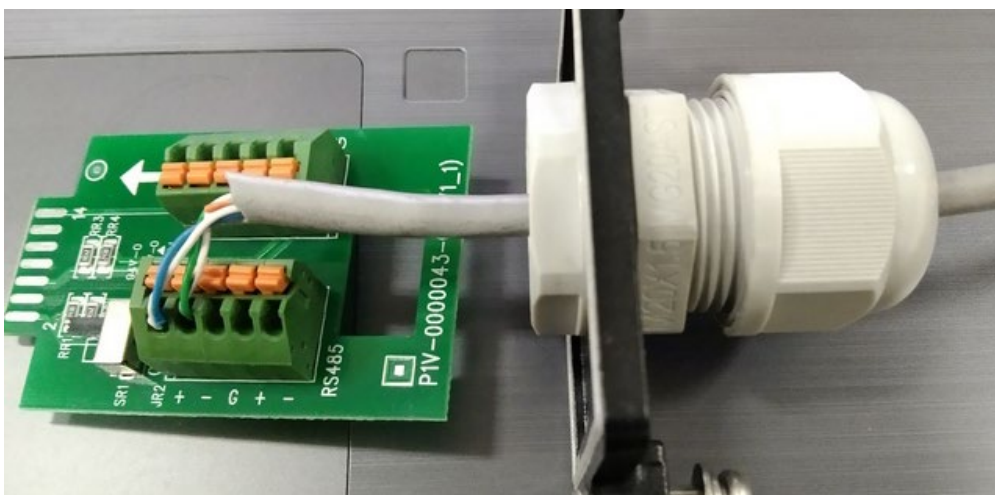
4. Fasten the cable gland shell to secure the inverter from water and dust.

7 Start-Up and shut down the inverter

7.1 Start-Up the inverter

1. Turn on the AC grid breaker;
2. Turn on the DC switch of the inverter, and the inverter will start automatically when the input voltage is higher than 300V.

7.2 Shut down the Inverter

1. Turn off the AC grid breaker;
2. Turn off the DC switch of the inverter.
3. Check the inverter operating state.
4. Until the display of LCD goes out, the inverter is shut down.

8 Maintenance and Cleaning

Once the output power is derating because of too high warming, some tips can help you solve such problems:

- The air grills or cooling fans are clogged. To clean the air grills and cooling fans
- One or two cooling fans failed. To exchange the cooling fans
- Ventilation of installation location is poor. Choose appropriate installation location before mounting.

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9 Trouble shooting

Our quality control program assures that every inverter is manufactured to accurate specifications and is thoroughly tested before leaving our factory. If you have difficulty in the operation of your inverter, please read through the following information to correct the problem.

9.1 Error Messages displayed on LCD

An error message will be displayed on the LCD screen when a fault occurs. The faults consist of system fault and inverter fault.

You may be advised to contact CyberPower in some situation, please provide the following information.

Information concerning the inverter:
● Serial number
● Model number
● Error message on LCD
● Short description of the problem
● Grid voltage
● DC input voltage
● Can you reproduce the failure? If yes, how?
● Has this problem occurred in the past?
● What was the ambient condition when the problem occurred?

Information concerning the PV panels:
● Manufacturer name and model number of the PV panel
● Output power of the panel
● Voc of the panel
● Vmp of the panel
● Imp of the panel
● Number of panels in each string

If it is necessary to replace the unit, please ship it in the original box.

9.2 System fault

System fault (system faults are mainly caused by system instead of inverter, please check the items as instructed below before replacing inverter).

Error message	Description	Suggestion
No Grid	Loss Utility or AC Break Trip/Off	The inverter trip according to local grid code and will recovery automatically once grid is normal again.
Grid over frequency	Grid frequency over limit	The inverter trip according to local grid code and will recovery automatically once grid is normal again.
Grid under frequency	Grid frequency under limit	The inverter trip according to local grid code and will recovery automatically once grid is normal again.
Phase-A over voltage	Grid voltage A Phase over limit	The inverter trip according to local grid code and will recovery automatically once grid is normal again.
Phase-A under voltage	Grid voltage A Phase under limit	The inverter trip according to local grid code and will recovery automatically once grid is normal again.
Phase-B over voltage	Grid voltage B Phase over limit	The inverter trip according to local grid code and will recovery automatically once grid is normal again.
Phase-B under voltage	Grid voltage B Phase under limit	The inverter trip according to local grid code and will recovery automatically once grid is normal again.
Phase-C over voltage	Grid voltage C Phase over limit	The inverter trip according to local grid code and will recovery automatically once grid is normal again.
Phase-C under voltage	Grid voltage C Phase under limit	The inverter trip according to local grid code and will recovery automatically once grid is normal again.
PV1 over voltage	DC voltage of MPPT1 is higher than 1000Vdc.	The inverter will stop work under such situation to avoid electrical parts over stress and will be recovery once the DC input voltage lower than 980Vdc.
PV2 over voltage	DC voltage of MPPT2 is higher than 1000Vdc..	The inverter will stop work under such situation to avoid electrical parts over stress and will be recovery once the DC input voltage lower than 980Vdc.
PV3 over voltage	DC voltage of MPPT3 is higher than 1000Vdc.	The inverter will stop work under such situation to avoid electrical parts over stress and will be recovery once the DC input voltage lower than 980Vdc.

9.3 Inverter warning

Warning code	Meanings	Suggestion
PV1 under voltage	DC voltage of MPPT1 is lower than 250Vdc	This usually happened among sunrise or sunset.
PV2 under voltage	DC voltage of MPPT2 is lower than 250Vdc	This usually happened among sunrise or sunset.
PV3 under voltage	DC voltage of MPPT2 is lower than 250Vdc	This usually happened among sunrise or sunset.
HW Fan	Fans Failed	To clear all fans or replace fan
SPD break	SPD damage.	To replace SPD

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9.4 Inverter fault

Error code	Meanings	Suggestion
AC IDC	Output DC component too High	This is normally come from shortly unstable grid voltage and will recovery automatically after its short interrupt.
Temperature low	Ambient temperature too low	Inverter will automatically recovery once the temperature higher then -25℃
Temperature high	Power Module or internal temperature is too high	1. Inverter will be automatically recovery once the temperature is lower than threshold temp. 2. Inverter locate in bad ventilation.
Temperature sensor fail	Temperature sensor is open or short	Please Contact with CyberPower service
DSP ADC1	Inverter failed its calibration during initialization.	Please Contact with CyberPower service
DSP ADC2	Inverter failed its calibration during initialization.	Please Contact with CyberPower service
DSP ADC3	Inverter failed its calibration during initialization.	Please Contact with CyberPower service
DSP ADC4	Inverter failed its calibration during initialization.	Please Contact with CyberPower service
Red. ADC1	Inverter failed its calibration during initialization.	Please Contact with CyberPower service
HW Com1	Red. DSP failed to communicate with main DSP.	Please Contact with CyberPower service
Ground current	Residual current too high	This might cause by wet solar module. Inverter will automatically recovery as the ground current lower to limit.
RCMU fail	The residual current sensor is abnormal.	Please Contact with CyberPower service
Insulation fail	The impedance between solar panels and earth is too low.	This might cause by wet and high humidity solar module. Inverter will automatically recovery once the impedance higher than the lower limit.
Relay short	AC Rly is short.	Please Contact with CyberPower service
Relay open	AC Rly failed to close	Please Contact with CyberPower service
Bus+ OVR	Positive Bus over voltage	This might cause by high solar voltage or shortly surge from utility. The inverter will automatically recovery once the voltage in range.
Bus- OVR	Negative Bus over voltage	This might cause by high solar voltage or shortly surge from utility. The inverter will automatically recovery once the

		voltage in range.
Total Bus OVR	Total Bus over voltage	This might cause by high solar voltage or shortly surge from utility. Inverter will automatically recovery once the voltage in range.
CT fail	Inverter fail its AC Current Sensor self -test	Please Contact with CyberPower service
AC HW OCP	AC output over current	This might cause by unstable grid .Inverter will automatically recovery once the voltage in range. If this keep happened, please Contact with CyberPower service.
Aux PWR Fail	DC Aux Power Failed by main CPU	Please Contact with CyberPower service
HW D/D Fail	DC Aux Power Failed by Red. CPU	Please Contact with CyberPower service

10 Decommissioning

10.1 Dismantling the Inverter

1. Disconnect the inverter as described in section 7.
2. Remove all connection cables from the inverter.

> **Caution**
>
> Danger of burn injuries due to hot enclosure parts!
> Wait 20 minutes before disassembling until the housing has cooled down.

3. Screw off all projecting cable glands.
4. Lift the inverter off the bracket and unscrew the bracket screws.

10.2 Packing the Inverter

If possible, always pack the inverter in its original carton and secure it with tension belts. If it is no longer available, you can also use an equivalent carton. The box must be capable of being closed completely and made to support both the weight and the size of the inverter.

10.3 Disposing of the Inverter

Do not dispose of faulty inverters or accessories together with household waste. Please accordance with the disposal regulations for electronic waste which apply at the installation site at that time. Ensure that the old unit and, where applicable, any accessories are disposed of in a proper manner.

11 Specification

11.1 Specification of CyberPower Mini Central Series

	CPSPV36000ETLA-WB	CPSPV33000ETLA-WB	CPSPV30000ETLA-WB	CPSPV22000ETLA-WB
Input (DC)				
Nominal. PV power	37500 W	34500 W	31250 W	23000 W
Max. input voltage	1000 V	1000 V	1000 V	1000 V
MPP voltage range / Rated input voltage	500...800 V 600 V	460...800 V 600 V	420...800 V 600 V	470...800 V 600 V
Min. input voltage / Startup voltage	250/300 V	250/300 V	250/300 V	250/300 V
Max. input current	25/25/25 A	25/25/25 A	25/25/25 A	20/25/12 A
Max. input short current	45/45/45 A	45/45/45 A	45/45/45 A	45/45/25 A
Max. back feed current to PV array	0A	0A	0A	0A
Number of MPP tracker / strings per MPPT	3 / 2	3 / 2	3 / 2	3 / 2
Output (AC)				
Rated AC power	36000 W	33000 W	30000 W	22000 W
Max apparent AC power	37900 VA	34800 VA	316000 VA	24500 VA
Max. output current	56 A	52 A	48 A	38 A
Inrush output current (peak, duration)	130A,250us	130A,250us	130A,250us	130A,250us
Max. output fault current (RMS)	92A	92A	92A	92A
Nominal AC voltage	3/N/PE, 220/380 V, 230/400 V	3/N/PE, 220/380 V, 230/400 V	3/N/PE, 220/380 V, 230/400 V	3/N/PE, 220/380 V, 230/400 V
Rated frequency	50 Hz, 60 Hz	50 Hz, 60 Hz	50 Hz, 60 Hz	50 Hz, 60 Hz

Cos phi	0.9 over-excited ... 0.9 under-excited	0.9 over-excited ... 0.9 under-excited	0.9 over-excited ... 0.9 under-excited	0.9 over-excited ... 0.9 under-excited
Feed-in phases	3	3	3	3
Efficiency				
Max efficiency	98.6 %	98.6 %	98.6 %	98.6 %
Euro-eta	98.3 %	98.3 %	98.2 %	98.2 %
MPPT efficiency	99.5 %	99.5 %	99.5 %	99.5 %
General Data				
Dimensions(W/H/D)	495/783/279 mm			
Weight	47.0 kg			
Operating temperature	–20 °C ... +60 °C			
Storage temperature	–20 °C ... +70 °C			
Maximum operating altitude	3000 m			
Noise emission	≤ 52 dB(A)			
Night consumption	<2 W			
Topology	Transformer-less			
Cooling concept	Smart Fan Cooling			
Ingress Protection	IP66 (Electric part)			
Protective class	I			
Pollution degree	3 (Overall) 2 (Electric part)			
OVC (AC/DC)	III / II			
Relative humidity	0~100 % (non-condensing)			
Features				
DC connection	H4/MC4(opt)			
AC connection	Screw terminal			
Display	LCD			
Communication	RS485			
Warranty: 5/10 years	yes /opt			
Certificates	VDE 0126-1-1, VDE 0126-1-1/A1, UTE, VFR 2014, VFR2019 CE, IEC 62109 EN61000-6-2 / EN61000-6-3 / EN61000-3-11 / EN61000-3-12	VDE 0126-1-1, VDE 0126-1-1/A1, UTE, VFR 2014, VFR2019 CE, IEC 62109 EN61000-6-2 / EN61000-6-3 / EN61000-3-11 / EN61000-3-12	VDE 0126-1-1, VDE 0126-1-1/A1, UTE, VFR 2014, VFR2019 CE, IEC 62109 EN61000-6-2 / EN61000-6-3 / EN61000-3-11 / EN61000-3-12	VDE 0126-1-1, VDE 0126-1-1/A1, UTE, VFR 2014, VFR2019 CE, IEC 62109 EN61000-6-2 / EN61000-6-3 / EN61000-3-11 / EN61000-3-12

11.2 Torque Values

Screws List	Required torqued when tightening
Enclosure lid screws	1.3Nm
AC terminal	3.0Nm
Fans screws	1Nm

12 Contact

If you have technical problems concerning our products, contact your installer or CyberPower. During inquiring, please provide below information:

1. Inverter type
2. Modules information
3. Communication method
4. Serial number of Inverters
5. Error code of Inverters
6. Display of inverter

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