PSI-X3S6000-HY
PSI-X3S8000-HY
PSI-X3S10000-HY
PSI-X3S15000-HY

EN

THREE PHASE HYBRID INVERTER

User Manual

PEIMAR

PEIMAR

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Introduction

This user manual defines detailed instructions and procedures for the installation, operation, maintenance and troubleshooting of the following grid connected Peimar inverters:

PSI-X3S6000-HY	PSI-X3S8000-HY	PSI-X3S10000-HY	PSI-X3S15000-HY

Please always keep this manual available in case you need it.

1. Security measures

1.1. Security tips

The inverter is a device directly connected to a HIGH VOLTAGE electric generator;
The installation, maintenance and repair of the inverter can only be carried out by qualified personnel, who have carefully read and fully understood all the safety regulations contained in this manual.
Keep the user manual properly.

1.2. Legend of safety symbols

DANGER
Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING
Indicates a hazardous situation which, if not avoided, could result in death, serious injury, or moderate injury.

ATTENTION
Indicates a hazardous condition which, if not avoided, could result in minor or moderate injury.

NOTICE
Indicates a situation that could lead to potential damage if not avoided.

1.3. Safety instructions

DANGER

1. The user must comply with the applicable electrical codes,national and local regulations during the installation, operation and maintenance of the inverter, to avoid incurring personal injury or death, and damage to the inverter.
2. Do not touch the parts of the inverter while the device is running; There is danger to death from electric shock and high voltage.
3. To prevent the risk of an electric shock during installation and maintenance, please make sure that all AC and DC terminals are disconnected from the inverter, and never touch the positive and negative pole of the PV connection device simultaneously.
4. Make sure that the existing wiring is in good condition and that the cables are not undersized. The wiring must be carried out in a way so that the length of the cables is as short as possible.
5. Do not touch the inverter surface while the coating is wet; could cause an electric shock.
6. Do not stay close to the inverter during bad weather conditions including storm, lightning, etc.
7. Before touching the coating, the inverter must be disconnected from the grid and from the photovoltaic generator; it is necessary to wait at least five minutes to allow the energy storage capacitors to fully discharge after being disconnected from the energy source. Its needed to measure the voltage between the positive and negative poles of the PV connecting device to ensure that the device is discharged before carrying out any work on the inverter.
8. The island effect is a particular phenomenon where the photovoltaic system continues to feed energy into the grid even when there is a grid loss in the electricity system; this is a dangerous phenomenon for maintenance personnel and the public. The inverters of this series are equipped with an integrated protection to avoid the islanding effect.
9. The inverters of this series are equipped with a certified internal residual current device to protect against possible electric shock and fire hazards in the event of a malfunction of the PV array, cables or inverter. If the local regulations require an external differential switch, install a magneto-thermal differential switch

downstream of the AC side output, with a differential of at least type A (a type A or F differential is recommended) and a tripping threshold Idn=0.3A differential switch.

WARNING

1 The installation, maintenance, recycling and disposal of the inverters must be carried out only by qualified personnel, in compliance with the national and local laws and regulations in force with the use of suitable equipment. Prevent the inverter from being used by children or unqualified personnel.

2 Any unauthorized action, including the modification of any type of product functionality, may result in damage to the components and a lethal danger to the operator, or to third parties. Do not disassemble the inverter parts not mentioned in the installation guide. In an event of improper modifications Peimar is not responsible for any damage and abstains from any liability relating to the guarantee of the mentioned product.

3 The Peimar inverter must only be used in combination with photovoltaic panels only, in compliance with current regulations; do not connect other energy sources to the Peimar inverter.

4 Use only the recommended accessories, otherwise there is a risk of fire, electric shock, or injury.

5 Make sure that the photovoltaic generator and the inverter are correctly connected to the earth system; Improper grounding can cause personal injury, death, or equipment malfunction and increase electromagnetic emissions. Make sure that the ground conductor is adequately sized as required by the safety standards. Do not connect the earth terminals of the unit in series in case of multiple installation.

6 Staying within 20cm of the inverter for a long time may cause harm to health due to radiation.

7 Keep away from flammable and explosive materials to avoid fire.

ATTENTION

1. The photovoltaic inverter can reach high temperatures during operation. Please do not touch the heat sink or side surface during operation or immediately after turning off the power to avoid the risk of burns.
2. To prevent damage and personal injury, hold the inverter firmly when moving it, as it is a heavy piece of equipment.

NOTICE

1. The photovoltaic inverter is designed to feed alternating current energy directly into the public electricity grid; do not connect the AC output of the inverter to any device that is not connected to the electricity grid.
2. There may be damage to the photovoltaic system both due to direct lightning strikes and due to overvoltages due to nearby discharges. Induced surges are the most likely cause of damage especially in rural areas where electricity is usually supplied by long power lines. Induced surges are the most likely cause of damage especially in rural areas where electricity is usually supplied by long power lines. Overvoltage can be induced both on DC cables and on AC cables leading into the building. The project planner, on the basis of the lightning risk and what is required by current legislation, will evaluate the need to install any additional external surge arresters with respect to the type II SPDs already supplied with the inverter, for the protection of the photovoltaic side and AC side.

1.4. Key symbols on the label

DANGEROUS ELECTRIC VOLTAGE

This device is directly connected to the public electricity grid, therefore any work on the inverter must be carried out by qualified personnel.

DANGER TO LIFE due to high voltage!

There may be residual voltage in the inverter due to the high capacity of the condenser. Wait 5 MINUTES after disconnecting the appliance before touching the coating or carrying out maintenance on the system.

WARNING, DANGER!

The appliance is directly connected to electric generators and to the public electricity grid.

DANGER HOT PARTS

The elements inside the inverter reach high temperatures during operation. Do not touch the metal case when the inverter is active (risk of burns).

This device MUST NOT be disposed as a municipal waste.

Please refer to the "Disposal" chapter of this manual for proper management of the disposal of the inverter.

WITHOUT TRANSFORMER

This inverter does not have an isolation transformer.

EARTHING

The connection point of the protective conductor for earthing is indicated on the inverter.

CE MARK

Devices with the CE mark meet the essential requirements of the Low Voltage Directive and the Electromagnetic Compatibility Directive.

RoHS RoHS

This device complies with the directive ROHS (Restriction of Hazardous Substances)

INSTRUCTIONS

Refer to the present manual for inverter installation, operation, maintenance, and troubleshooting instructions.

2. Product information

2.1. Field of application

The PSI-X3S series inverters are hybrid inverters for connection to the electricity grid. They are essential components in grid-connected photovoltaic systems. The PSI-X3S series inverters receive the electrical energy generated in direct current (DC) by the photovoltaic panels and convert it into alternating current (AC), in compliance with the requirements of the public grid. In the event of a grid failure, thanks to the storage system, it provides an energy source to support the back-up loads, obtaining an uninterrupted power supply function.

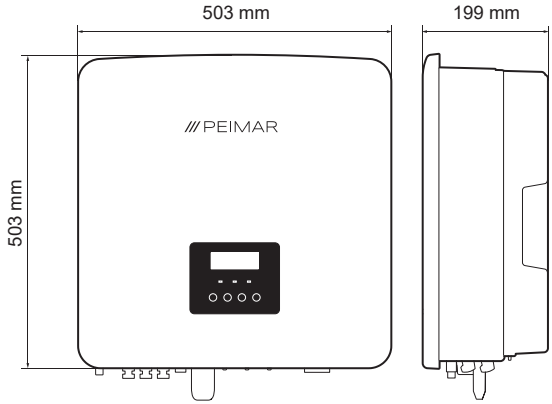
2.2. Product model specifications

PSI-X3SXXXX-HY

- PSI-X3S indicates the series name of the inverter
- XXXX indicates the rated power in W of the inverter
- HY indicates that it is a hybrid inverter

2.3. Dimensions of the products

All PSI-X3S series products have the same dimensions, shown in the figure below:



2.4. Packing list

Specifications	Quantity
Inverter	1
Support bracket	1
Protective cover for AC line and back-up line terminal blocks	1
Positive DC connectors	3
Negative DC connectors	3
Positive DC pin connectors	3
Negative DC pin connectors	3
AC Terminals	12
Ring terminal for earthing	1
Expansion screws	5
Socket head screw M5 and washers for fixing the support bracket	1
RJ45 plugs with anti-water covers	3
Positive battery connector	1
Negative battery connector	1
RJ45 terminal	5
RJ45 extender	1
PSI-X-H-WIFI-3.0 WiFi Module	1
CT for three-phase line (old version)	1

Content control

Please refer to the list of accessory components contained in the package and verify that all of it is present before proceeding with the installation; if there are any missing components, contact your dealer as soon as possible.

3. Installation hypothesis

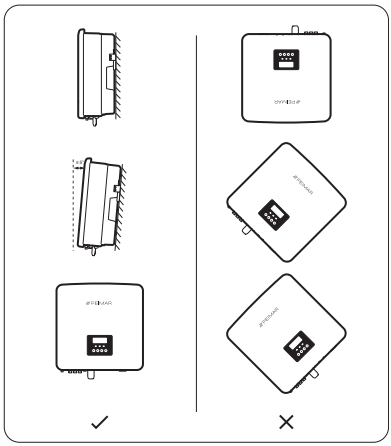
3.1. Packing check

Although Peimar inverters have passed rigorous checks and are tested before they leave the factory, it is not excluded that they may suffer damage during transport. Please check that the packaging has not shown any obvious signs of damage; in the event that such evidence occurs, please do not open the box and contact your dealer as soon as possible.

3.2. Methods of installation and placement

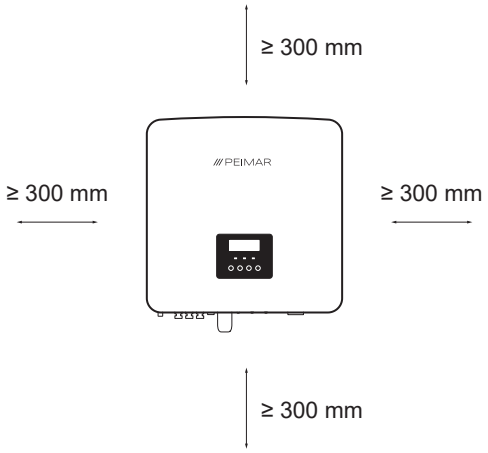
The device is cooled by natural convection and can be installed indoors or outdoors. Do not expose the inverter to direct sunlight as this may cause power derating due to overheating.

1. Please install the device as shown in the figure below. Vertical installation is recommended, or with a maximum inclination of ±5°. Never install the inverter tilted sideways, horizontally or upside down.

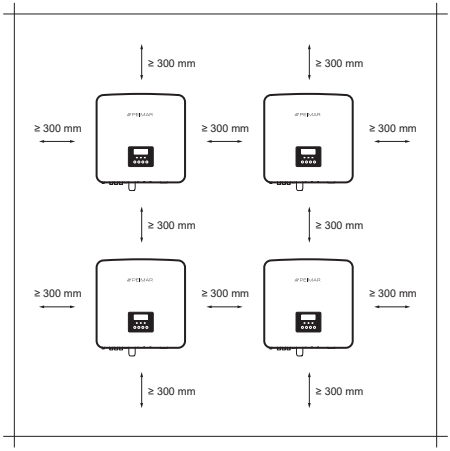


2. Install the inverter at eye level to facilitate viewing of the display and the possible maintenance activities.

3. Carry out the installation of the inverter providing for the possibility of disassembly for any maintenance works. Also make sure there is free space around the device to ensure ventilation, as shown in the figure below:

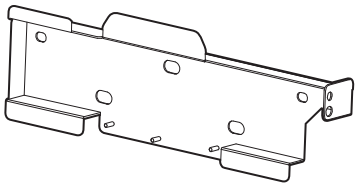


In case of installing multiple inverters, the in-line installation method is recommended. When the space is insufficient and it is necessary to install multiple inverters on top of each other, please refer to the distances indicated in the figure below:

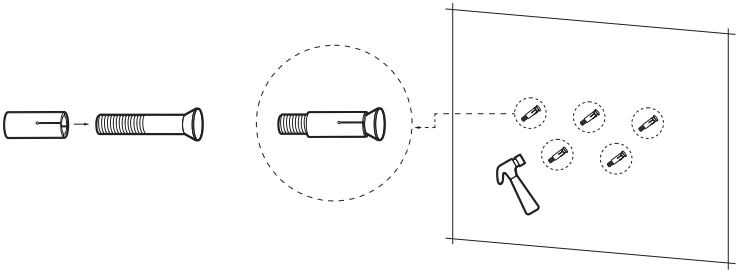


3.3. Assembly procedure

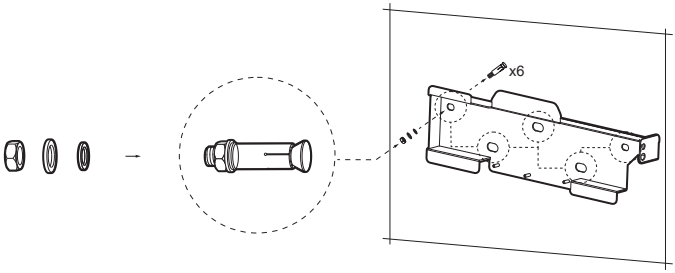
1. Mark the location of the 5 drilling points for mounting the anchor bracket



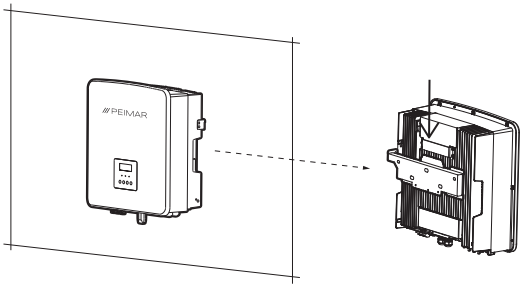
2. Drill the necessary holes in the wall (Φ8 and at least 65 mm deep) at the marked points and insert the wall plugs using a rubber hammer.



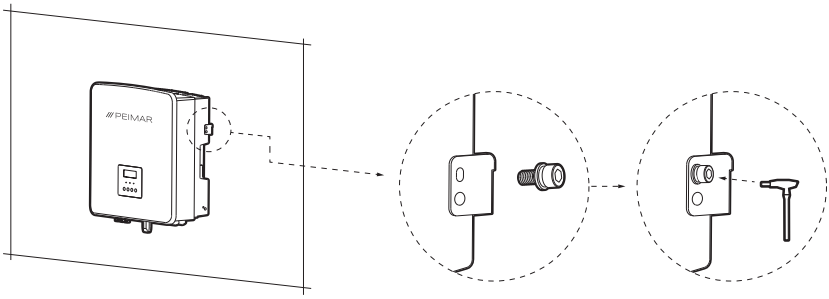
3. Fix the anchoring bracket to the wall, screwing the screws into the fixing dowels with the Allen key, with a tightening torque of 2.5±0.1 Nm.



4. Carefully fix the inverter to the bracket, making sure that the rear of the device is mounted snugly against the bracket.

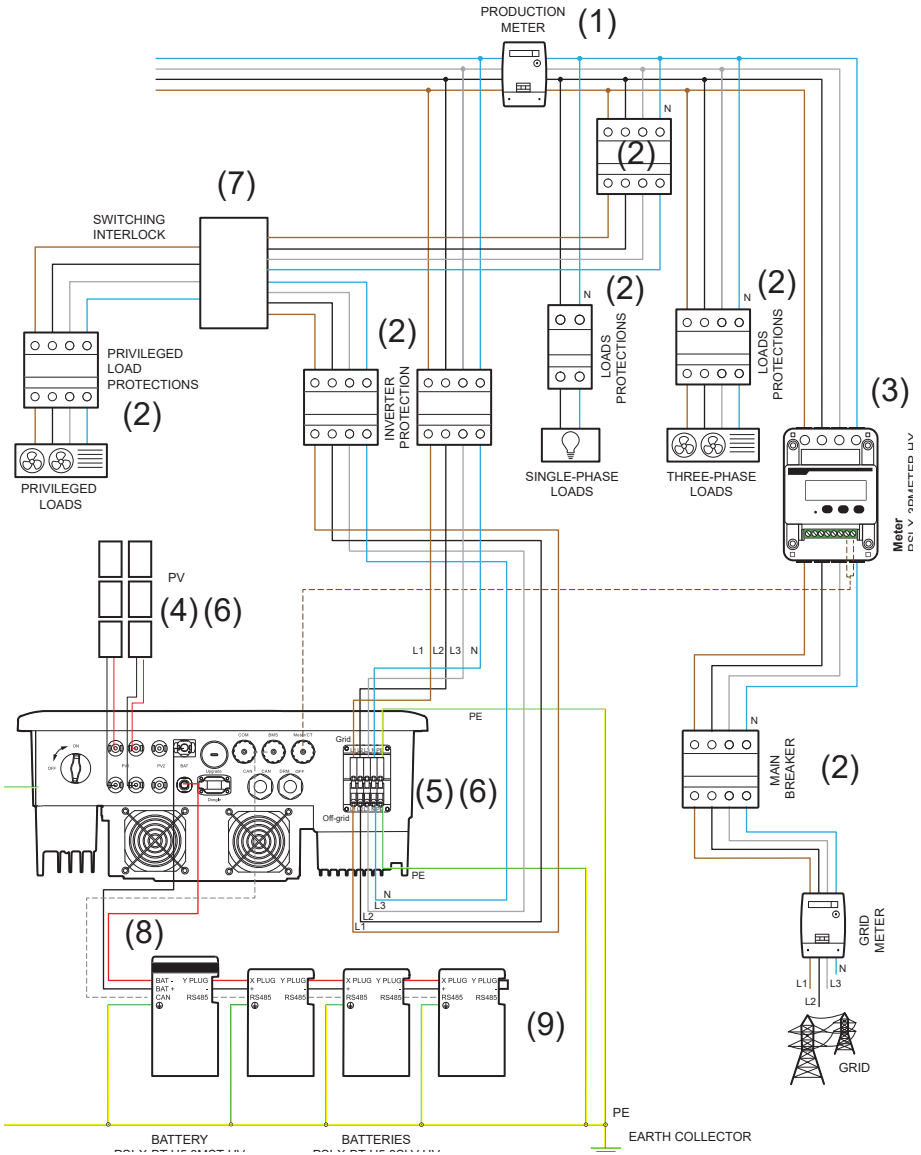


5. Use the TCEI wrench to tighten the internal hexagonal screw on the right side of the inverter with a tightening torque of 1.2±0.1 Nm



4. Installation guide

Configuration of an X3S series three-phase hybrid inverter with PSI-X-BT-H5.8MST-HV master batteries and PSI-X-BT-H5.8MST-HV slave batteries in series with back-up line (Off-grid) and meter PSI-X-3PMETER-HY.


PRODUCTION METER
(1)
(2)
N
(7)
SWITCHING INTERLOCK
PRIVILEGED LOAD PROTECTIONS
(2)
PRIVILEGED LOADS
(2)
INVERTER PROTECTION
(2)
LOADS PROTECTIONS
SINGLE-PHASE LOADS
(2)
LOADS PROTECTIONS
THREE-PHASE LOADS
(3)
Meter
PV
(4) (6)
L1 L2 L3 N
PE
Grid
Off-grid
(5) (6)
PE
N
L3
L2
L1
(8)
MAIN BREAKER
(2)
GRID METER
L1 L3 N
L2
GRID
(9)
PE
BATTERY
BATTERIES
EARTH COLLECTOR

1. The position of the energy meter indicated in the diagram is purely indicative and to be evaluated in agreement with the project planner based on the regulations in force at the time of installation and of any other existing systems.
2. The protections indicated on the diagram and their position are purely indicative and to be evaluated in agreement with the project planner based on the regulations in force at the time of installation and of any other existing systems. Peimar does not provide the protections described in this document. Contact your distributor to purchase.
3. For correct operation of the system, the Peimar PSI-X-3PMETER-HY meter (for currents up to 80 A) must be installed upstream of all network loads and downstream of the exchange meter. For currents up to 200 A the Peimar PSI-X-3PMETER-HY-CT meter with external CTs. With current values greater than 200 A or with voltages greater than 400 V, contact Peimar technical assistance. For more details, see the chapter on Meter connections in this manual.
4. For PSI-X3S8000-HY, PSI-X3S10000-HY and PSI-X3S15000-HY inverters, there are 2 DC inputs for the first MPPT (PV1) and 1 DC input for the second MPPT (PV2). It is not necessary to connect both strings, but if the configuration chosen for the system requires it, they must be equal to each other. It is recommended to use all the MPPTs of the inverter. For more details, see the chapter on PV connections in this document.
5. For safety and in compliance with the regulations, provide for the installation a magneto-thermal differential switch downstream of the AC side output and any back-up line, with a differential of at least type A and an Idn tripping threshold =0.3A. Size the AC line based on the distance between the inverter and the exchange meter. For more details, see the chapter on AC connections in this manual.
6. The project planner will evaluate the need to install any additional external dischargers, with respect to the overvoltage protections (SPD) already supplied with the inverter, for the protection of the PV side and AC side circuits. For more details, refer to the PV and AC connections chapter of this manual.
7. The back-up line (OFF-GRID) is powered only incase of zero voltage at the GRID output (grid side blackout). Therefore, in order to be able to continuously supply the loads connected to the OFF-GRID output, a switching interlock must be provided with the relative automatic protections, in accordance with current legislation (CEI 0-21, CEI 0-16, etc.).

8. Possible battery configurations:

   a) 11.5 kWh = 1 Master PSI-X-BT-5.8MST-HV + 1 Slave PSI-X-BT-H5.8SLV-HV

   b) 17.5 kWh = 1 Master PSI-X-BT-5.8MST-HV + 2 Slaves PSI-X-BT-H5.8SLV-HV

   c) 23.0 kWh =1 Master PSI-X-BT-5.8MST-HV + 3 Slaves PSI-X-BT-H5.8SLV-HV

   d) It is also possible to use the connection with the BMS in parallel with the following configurations:

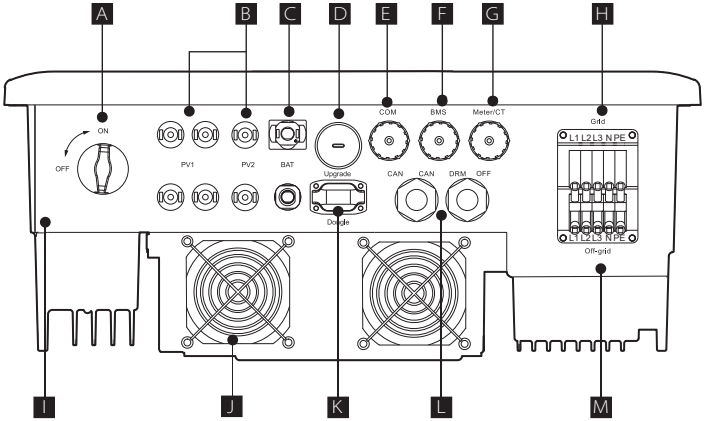
- 11.5 kWh = 1 parallel BMS PSI-X-PRL-BMS + 2 Slave PSI-X-BT-H5.8SLVHV in series on input B1
- 17.3 kWh = 1 parallel BMS PSI-X-PRL-BMS + 3 Slave PSI-X-BT-H5.8SLVHV in series on input B1.
- 23.0 kWh = 1 parallel BMS PSI-X-PRL-BMS + 4 Slave PSI-X-BT-H5.8SLVHV in series on input B1.
- 23.0 kWh = 1 parallel BMS PSI-X-PRL-BMS + 2 Slave PSI-X-BT-H5.8SLVHV on input B1 + 2 Slave PSI-X-BT-H5.8SLV-HV on input B2.
- 34.6 kWh = 1 parallel BMS PSI-X-PRL-BMS + 3 Slave PSI-X-BT-H5.8SLVHVon input B1 + 3 Slave PSI-X-BT-H5.8SLV-HV on input B2.
- 46.0 kWh = 1 parallel BMS PSI-X-PRL-BMS + 4 Slave PSI-X-BT-H5.8SLVHV on input B1 + 4 Slave PSI-X-BT-H5.8SLV-HV on input B2.

  Because PSI-X-BT-5.8MST-HV battery has integrated switch of 40A and the entire storage system is connected in series, no additional protection switch is needed.. For more details see the chapter relating to the connection of the storage system in this manual.

9. Insert the termination wire between the “-” and “YPLUG” ports on the right side of the last battery module to complete the internal circuit. The RS485 port on the right side of the last battery will remain unused.

5. Electrical connection

5.1. Connection inputs for the inverter



A	DC switch
B	Photovoltaic inputs
C	Battery inputs
D	USB port for firmware update
E	COM port for communication with external device
F	BMS port for battery communication
G	METER/CT port for communication with measuring device
H	Terminal for AC line connection
I	Hole for earth connection
J	USB port for Wi-Fi/Ethernet module connection
K	CAN port for inverter parallel connection
L	SHUT port and DRM port (for Australia only)
M	Terminal for Back-up line connection (Off-grid)

5.2. PV Connection

It is important to connect only modules with the same electrical characteristics (same model of the panel) and same orientation and exposure to the sun on the same string.

If there are panels with different electrical characteristics (different models; different number of modules in series, different orientation; etc.) it is necessary to use independent MPPTs which act separately.

For correct operation of the inverter, make sure that the voltage and current compatibility between the inverter and the photovoltaic strings are respected.

NOTICE

Make sure that the voltage and current of the strings do not exceed those at the inverter input; an incorrect configuration can cause permanent damage to the inverter, which will not be included in the warranty:

Voc_Tmin (Open circuit voltage at minimum temperature) < Vmax_cc (maximum DC voltage)

Vmp_Tmin (Voltage at Pmax at minimum temperature) < Vmax_mppt (MPPT maximum voltage)

Vmp_Tmin (Voltage at Pmax at minimum temperature) < Vmax_sis (maximum panel system voltage)

Imp_Tmax (Current at Pmax at maximum temperature) < Imax_mppt (maximum MPPT current)

NOTICE

Make sure that the string voltage is higher than the inverter start-up voltage or the system may not turn on or have poor efficiency:

Voc_Tmax (Open circuit voltage at maximum temperature) > Vstart (startup voltage)

Vmp_Tmax (Voltage at Pmax at maximum temperature) > Vmin_mppt (minimum voltage of the MPPT)

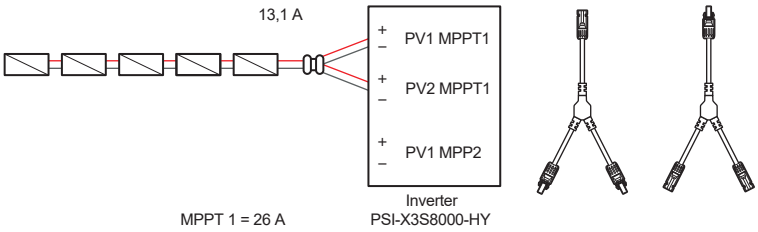
The positive and negative PV inputs are located on the underside of the inverter. It is recommended to use all the MPPTs (PV1, PV2 and PV3 if present) to make the most of the inverter.

1. For PSI-X3S8000-HY, PSI-X3S10000-HY and PSI-X3S15000-HY inverters, there are 2 DC inputs for the first MPPT (PV1) and 1 DC input for the second MPPT (PV2). It is not necessary to connect both strings for the second MPPT, but if the configuration chosen for the system requires it, they must be equal to each other.
2. In case of MPPT with two inputs, take into account that:

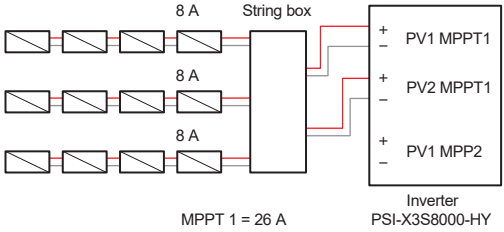
- The maximum total current of the MPPT is 26A and the maximum short circuit current is 30A.
- In case of connection of a single string, the maximum current is 18A and the maximum short-circuit current is 20A.

3. For the PSI-X3S8000-HY, PSI-X3S10000-HY and PSI-X3S15000-HY models, if the electrical parameters require it, it is possible to make the following string connections on the double input of MPPT 1:

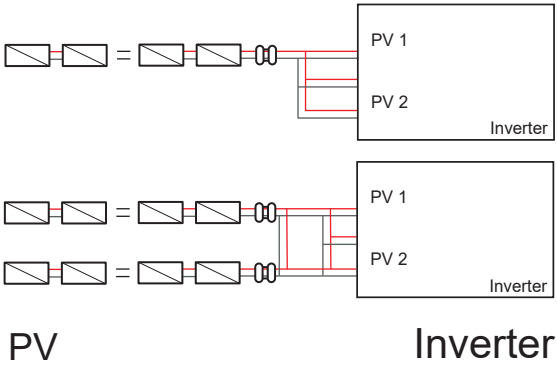
- in the case of a string with a current greater than 18 A, assume the use of Y connectors as in the figure.



- In case of more than two strings connected in parallel, but with a maximum current lower than 26A, assume the use of a parallel switchboard as in the figure.



4. The strings can also be connected to both MPPTs (PV1 and PV2), through the use of a parallel panel.



PLEASE NOTE

If a photovoltaic configuration with strings in parallel is necessary, the parallel MPPT function must be set using the following procedure:

MENU > OPTIONS > ADVANCED (Password "2014") > PV CONNECTION > MULTI/COMM

If the option is not present, check that you have the firmware version updated.

The multi option is to be selected if the MPPTs are used independently (SCHEMES 1,2,3). The comm option is to be selected if the MPPTs are placed in parallel with each other (SCHEME 4).

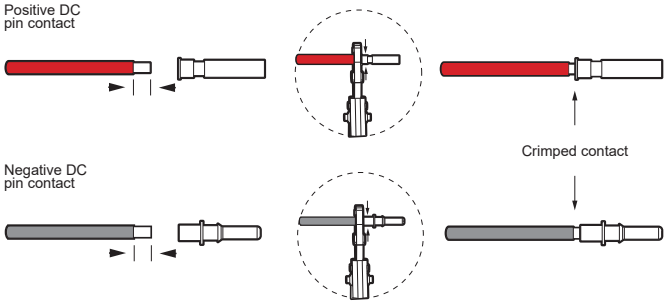
The inverter has built-in overvoltage protection via varistors; the project planner, based on the risk of lightning and what is required by current legislation, will evaluate the need to install or not external dischargers to protect the photovoltaic inputs.

DC connection procedure

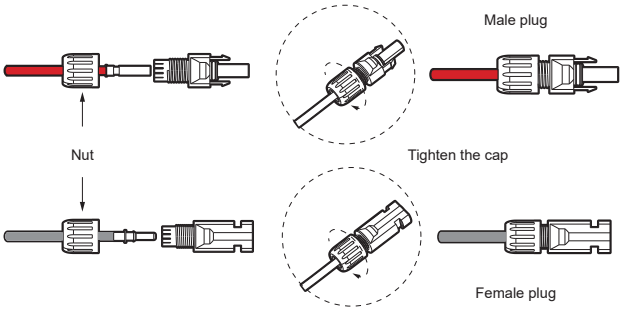
PLEASE NOTE

Before connecting the photovoltaic strings to the inverter, make sure that the DC switch of the inverter is turned OFF;

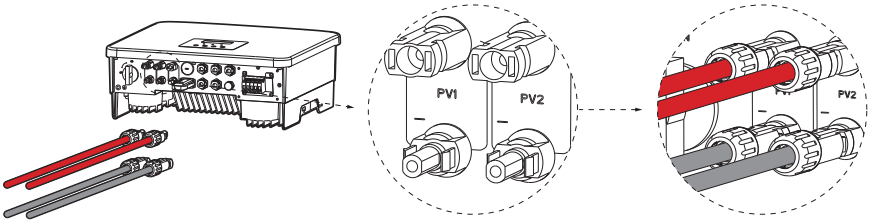
1. Observe the following assembly procedure for the DC connection: from the package, take 2 pairs of positive and negative MC4 connectors, including the waterproof gasket and metal insert, which will be mounted on the string terminals to make the connection with the inverter. Strip the ends of the photovoltaic string cables by 8-10 mm and crimp the metal pin of the MC4 connectors with pliers, paying attention to respect the polarities.



2. Insert the locking screw and waterproof gasket of each MC4 connector into the PV string cables. Screw the connector to the locking screw, being careful to respect the polarities.



3. Connect the positive and negative connectors into the respective DC input terminals of the inverter; you should hear a click when the connectors are properly connected.



5.3. AC Connection

1. For safety and in compliance with the regulations, anticipate for the installation, a magnetothermal-differential switch downstream of the AC and back-up side outputs; a differential switch of at least type A and a tripping threshold Idn=0.3A is recommended. Size the AC line according to the distance between the inverter and the exchange meter. For limits and recommended values, refer to the table below. (The values shown are standard. Please check the cable section according to the actual length of the line and the consequent voltage drop).

PSI-X3S6000-HY	PSI-X3S8000-HY	PSI-X3S10000-HY	PSI-X3S15000-HY
4-6 mm²	4-6 mm²	5-6 mm²	5-6 mm²
20 A	32 A	40 A	40 A

Size the back-up line (OFF-GRID) based on the distance between the inverter and the exchange meter. For limits and recommended values, refer to the table below. (The values shown are standard. Please check the cable section according to the actual length of the line and the consequent voltage drop).

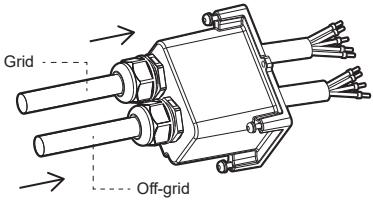
PSI-X3S6000-HY	PSI-X3S8000-HY	PSI-X3S10000-HY	PSI-X3S15000-HY
4-6 mm²	4-6 mm²	4-6 mm²	4-6 mm²
16 A	20 A	25 A	32 A

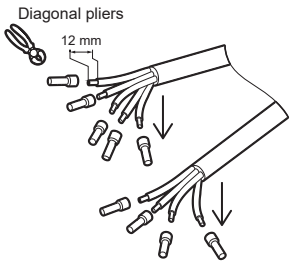
The inverter has built-in overvoltage protection via varistors; the project planner, on the basis of the lightning risk and what is required by current legislation, will evaluate the need to install or not external SPDs to protect the AC side.

PLEASE NOTE

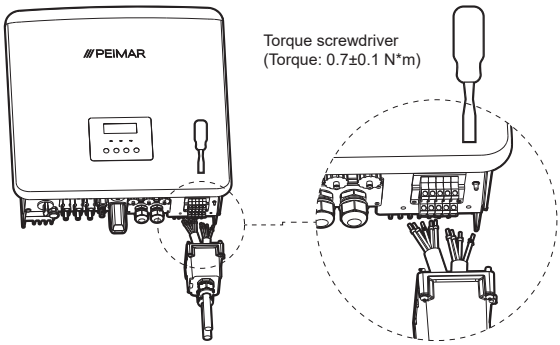
Before connecting the AC line to the inverter, make sure you have cut off the AC side power supply.

1. For the AC connection observe the following assembly procedure:





Prepare 2 penta-pole cables, then locate the European terminals and waterproof cover in the package. Connect the network cable to the GRID terminal block and any back-up line cable to the OFF-GRID terminal block. Connect the polarities of the lines to the terminal block in correspondence with the terminals, according to the order printed on the inverter casing. It is recommended to respect the cyclic sense of the phases. Reassemble the cover and tighten the cable glands.



5.4. Connection of the accumulation system

Make sure the installation site meets the following conditions:

- The building is designed with anti-seismic characteristics.
- The headquarters is far from the sea, to avoid brackish water and air humidity from damaging the batteries.
- The floor is level.
- There are no flammable or explosive materials nearby.
- The environment is cool and shady, avoid direct sunlight and keep away from heat sources.
- Temperature and humidity remain at constant levels.
- There is a minimum amount of dust and dirt in the area.
- There is no presence of corrosive gases, including ammonia and acid vapour.
- The ambient temperature is between 0°C and 55°C, and the optimum ambient temperature is between 15°C and 35°C.

Storage conditions

Batteries must be stored in accordance with the above storage requirements and must be installed and switched on for recharging within 3 months of leaving the Peimar factory. The installer shall arrange with his supplier for the timely delivery, installation and start-up of the charging storage system. At the end of 3 months of non-use, the storage system must be charged to at least 50% SOC.

PLEASE NOTE

When the system is put on stand-by or is turned off for various reasons for a prolonged period (more than 3 months), proceed with the forced charging of the storage system in order to maintain a SOC level of at least 50%.

Adding or replacing batteries to an existing storage system

In case of replacement or addition of a battery to the storage system, the new battery must have a SOC percentage charge as similar as possible to the entire system, otherwise the difference in cell voltage could create malfunctions in the storage system. A maximum difference of ±5 %.

Since the batteries when leaving the factory should have between 40% and 50% of SOC, before installing the new battery make sure that the SOC of the existing storage system is around 40%. Also check with technical assistance that the inverter and batteries are updated to the latest firmware version.

5.4.1. PSI-X-BT-5.8MST-HV master and PSI-X-BT-5.8SLV-HV slave battery connection

NOTICE

Since the PSI-X-BT-5.8MST-HV battery has an integrated 40A circuit breaker and the entire storage system is connected in series, no additional circuit breaker is required.

Included in the package of each PSI-X-BT-5.8MST-HV master battery and PSI-X-BT-5.8SLV-HV slave battery, cables for charging and BMS communication is necessary and are already crimped on both end. Possible battery configurations.

Possible battery configurations:

a) 11.5 kWh = 1 Master PSI-X-BT-5.8MST-HV + 1 Slave PSI-X-BT-H5.8SLV-HV

b) 17.5 kWh = 1 Master PSI-X-BT-5.8MST-HV + 2 Slave PSI-X-BT-H5.8SLV-HV

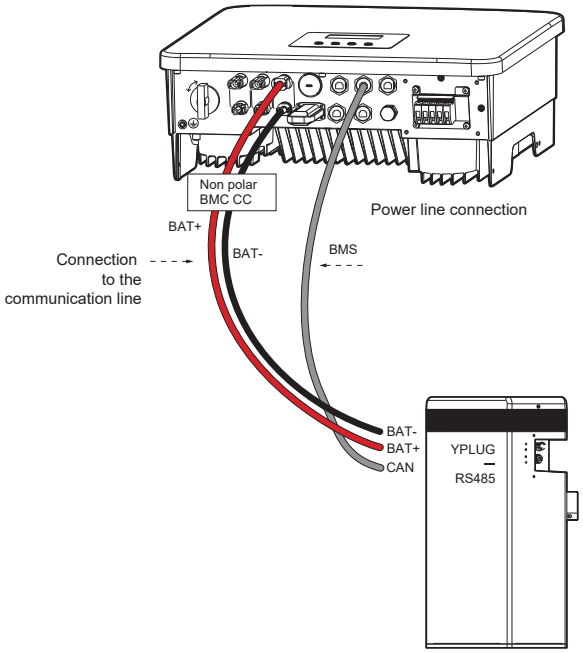
c) 23.0 kWh =1 Master PSI-X-BT-5.8MST-HV + 3 Slave PSI-X-BT-H5.8SLV-HV

PLEASE NOTE

It is not possible to connect a single PSI-X-BT-5.8MST-HV master battery.

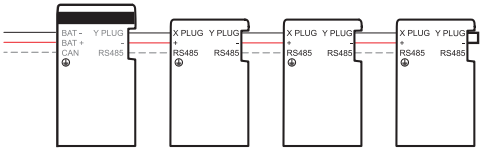
PSI-X-BT-5.8MST-HV battery connection to the inverter

1. Connect the BAT+ and BAT- ports of the inverter with the BAT+ and BAT- ports of the PSI-X-BT-5.8MST-HV battery via the power cables.
2. Connect the BMS port of the inverter with the CAN port of the PSI-X-BT- battery 5.8MST-HV through the communication cable. Secure the connection to the battery CAN port by tightening the cable gland.



Connection of PSI-X-BT-5.8SLV-HV batteries

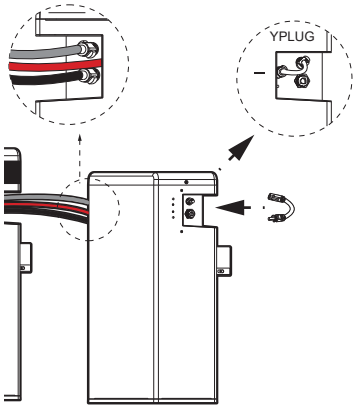
1. Connect the positive cable(red) from the port on the right side of PSI-X-BT-H5.8MST-HV / PSI-X-BT-H5.8SLV-HV to the "+" on the left side of the next battery.
2. Connect the negative cable(black) lead from the "YPLUG" port on the right side of PSI-X-BT-H5.8MST-HV / PSI-X-BT-H5.8SLVHV to "XPLUG" on the left side of the next battery.
3. Connect the communication cable from the RS485 port on the right side of the first battery module to the RS485 port on the left side of the next battery.
4. Connect the remaining batteries in the same way.



BATTERY
PSI-X-BT-H5.8MST-HV

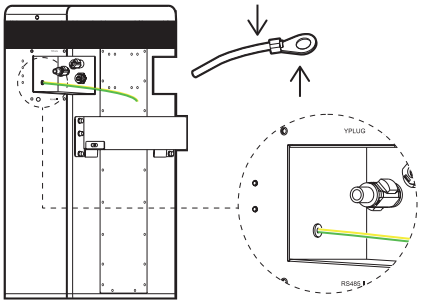
BATTERIES
PSI-X-BT-H5.8SLV-HV

5. Insert the series termination wire into "-" and "YPLUG" on the right side of the last slave battery to complete the internal circuit.



PLEASE NOTE

For the safety of the system, it is mandatory to earth the entire storage system: Crimp the terminal of the earth cable included in the box to the appropriate line and fix the earth cable in the appropriate outlet.



Put in function

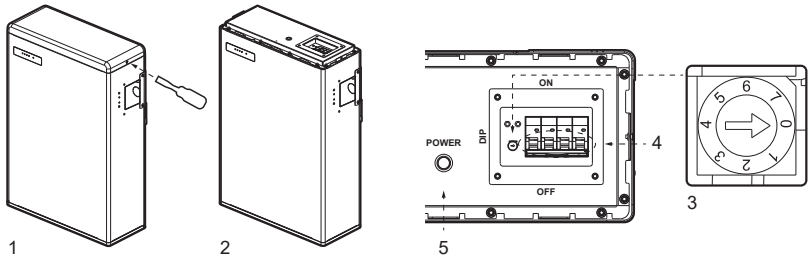
After installing the accumulation system, follow these steps for commissioning:

1. Remove the Master Battery Top Cover.
2. Remove the cover plate.
3. Rotate the DIP switch to the corresponding number of installed PSI-X-BT-H5.8SLV-HV Slave batteries:

   1 Master + 1 Slave: DIP SWITCH on 1

   1 Master + 2 Slave: DIP SWITCH on 2

   1 Master + 3 Slave: DIP SWITCH on 3
4. Flip up the switch next to the DIP switch.
5. Press the POWER key to turn on the storage system.
6. Put the cover cap back on.
7. Re-screw the top cover of the Master PSI-X-BT-H5.8MST-HV battery.



Start the battery only after turning on the inverter.

For further details, refer to the PSI-X-BT-5.8MST-HV and PSI-X-BT-5.8SLV-HV battery quick installation guide, present in the download section of the website www.peimar.com.

5.4.2. BMS connection of parallel PSI-X-PRL-BMS and slave PSI-X-BT-5.8SLV-HV

Connection with parallel BMS PSI-X-PRL-BMS and slave batteries PSI-X-BT- 5.8SLV-HV, alternative to connection with master battery PSI-X-BT-5.8MST-HV and slave batteries PSI-X- BT-5.8SLV-HV, allows to obtain a higher total storage capacity.

NOTICE

Parallel BMS PSI-X-PRL-BMS has integrated 40A switch; therefore, no additional circuit breaker is required. Included in the package of each PSI-X-BT-5.8SLV-HV slave battery and PSI-X-PRL-BMS you can find the charging cable and BMS necessary for the connection, in any case some of them must be crimped on the end.

Possible battery configurations:

11.5 kWh = 1 parallel BMS PSI-X-PRL-BMS + 2 Slave PSI-X-BT-H5.8SLV-HV in series on input B1.

17.3 kWh = 1 parallel BMS PSI-X-PRL-BMS + 3 Slave PSI-X-BT-H5.8SLV-HV in series on input B1.

23.0 kWh = 1 parallel BMS PSI-X-PRL-BMS + 4 Slave PSI-X-BT-H5.8SLV-HV in series on input B1.

23.0 kWh = 1 parallel BMS PSI-X-PRL-BMS + 2 Slave PSI-X-BT-H5.8SLV-HV on input B1 + 2 Slave PSI-X-BT-H5.8SLV-HV on input B2.

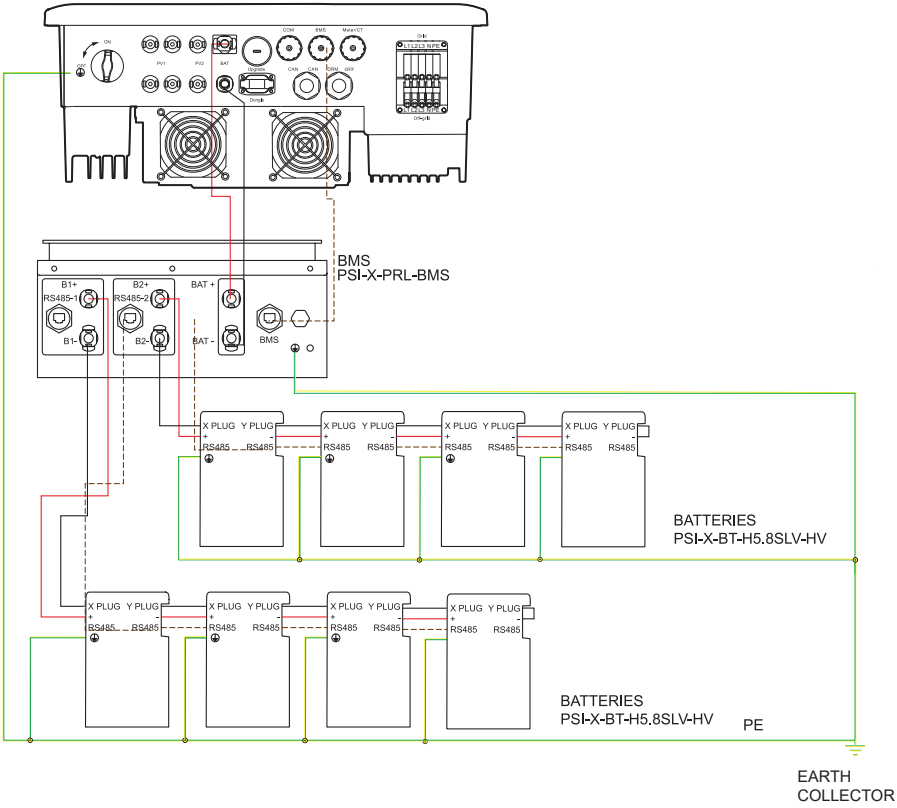
34.6 kWh = 1 parallel BMS PSI-X-PRL-BMS + 3 Slave PSI-X-BT-H5.8SLV-HV on

input B1 + 3 Slave PSI-X-BT-H5.8SLV-HV on input B2.

46.0 kWh = 1 parallel BMS PSI-X-PRL-BMS + 4 Slave PSI-X-BT-H5.8SLV-HV on input B1 + 4 Slave PSI-X-BT-H5.8SLV-HV on input B2.

PLEASE NOTE

It is not possible to connect PSI-X-BT-5.8MST-HV master batteries to the parallel BMS. It is not possible to connect a single PSI-X-BT-H5.8SLV-HV slave battery to the parallel BMS. If you connect two strings of batteries to the BMS in parallel they must have the same length (2+2, 3+3 or 4+4).



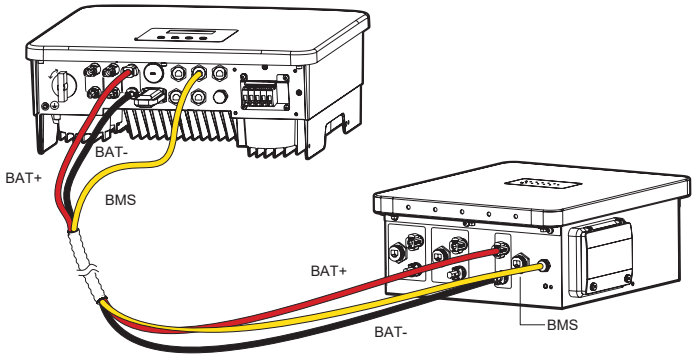
PSI-X-PRL-BMS parallel BMS connection to the inverter

Below is the connection diagram between PSI-X-BMS-PRL and inverter:

1. Connect the BAT+ and BAT- ports of the inverter with the BAT+ and BAT- ports of the parallel BMS PSI-X-PRL-BMS via the power cables.
2. Connect the BMS port of the inverter with the BMS port of the parallel BMS PSI-X-PRL-BMS via the communication cable.

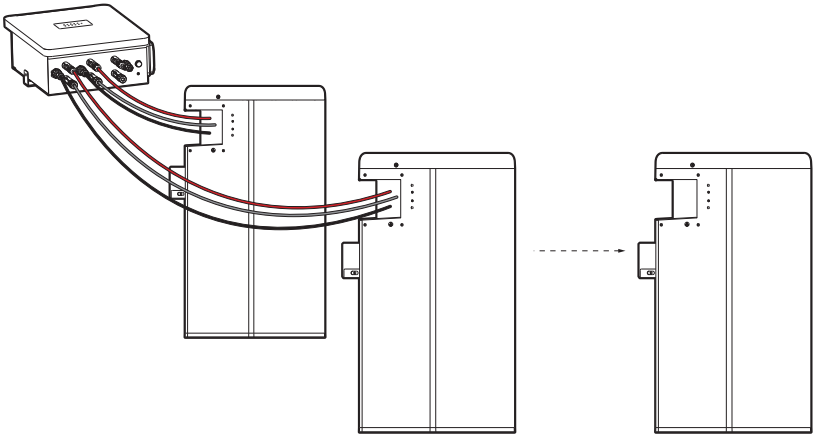
PLEASE NOTE

To ensure a correct connection, make sure you have tightened the cable gland.



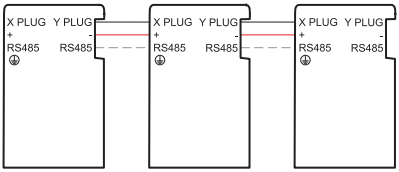
BMS connection of parallel PSI-X-PRL-BMS to PSI-X-BT-H5.8SLV-HV batteries

1. Connect the positive (red) cable from the "B1+" or "B2+" port of the parallel BMS to the "+" port on the left side of the slave battery.
2. Connect the negative (black) cable from the "B1-" or "B2-" port of the parallel BMS to the "XPLUG" port on the left side of the slave battery.
3. Connect the communication cable from the “RS485-1” or “RS485-2” port of the parallel BMS to the “RS485” port on the left side of the slave battery.



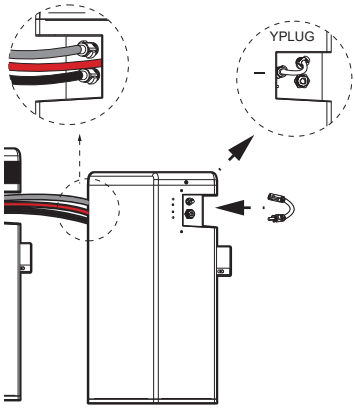
Connection of PSI-X-BT-5.8SLV-HV batteries

1. Connect the positive (red) cable from the "-" port on the right side of PSI-X-BT-H5.8SLV-HV to the "+" port on the left side of the next battery.
2. Connect the negative (black) cable from the "YPLUG" port on the right side of PSI-X-BT-H5.8SLVHV to "XPLUG" on the left side of the next battery.
3. Connect the communication cable from the RS485 port on the right side of the first battery module to the RS485 port on the left side of the next battery.
4. Connect the remaining batteries in the same way.



BATTERIES
PSI-X-BT-H5.8SLV-HV

5. Insert the series termination wire into "-" and "YPLUG" on the right side of the last slave battery to complete the internal circuit.



PLEASE NOTE

For the safety of the system, it is mandatory to earth the entire storage system: Crimp the terminal of the earth cable included in the box to the appropriate line and fix the earth cable in the appropriate outlet.

Put it to function

After installing the storage system, follow these steps to start up :

1. Lift up the waterproof cover.
2. Configure the DIP switch according to the battery installation method: Select 0 in case of connection of a single branch of batteries (input 1 or input 2); Select 1 when connecting 2 battery branches in parallel (the number of batteries in each branch must be the same).
3. Flip the switch and press the POWER button to turn on the PSI-X-PRL-BMS.
4. Put the waterproof cover back down.

PLEASE NOTE

Start the battery only after turning on the inverter.

For further details refer to the PSI-X-PRL-BMS Parallel BMS Quick Installation Guide.

5.5. Meter connection/CT

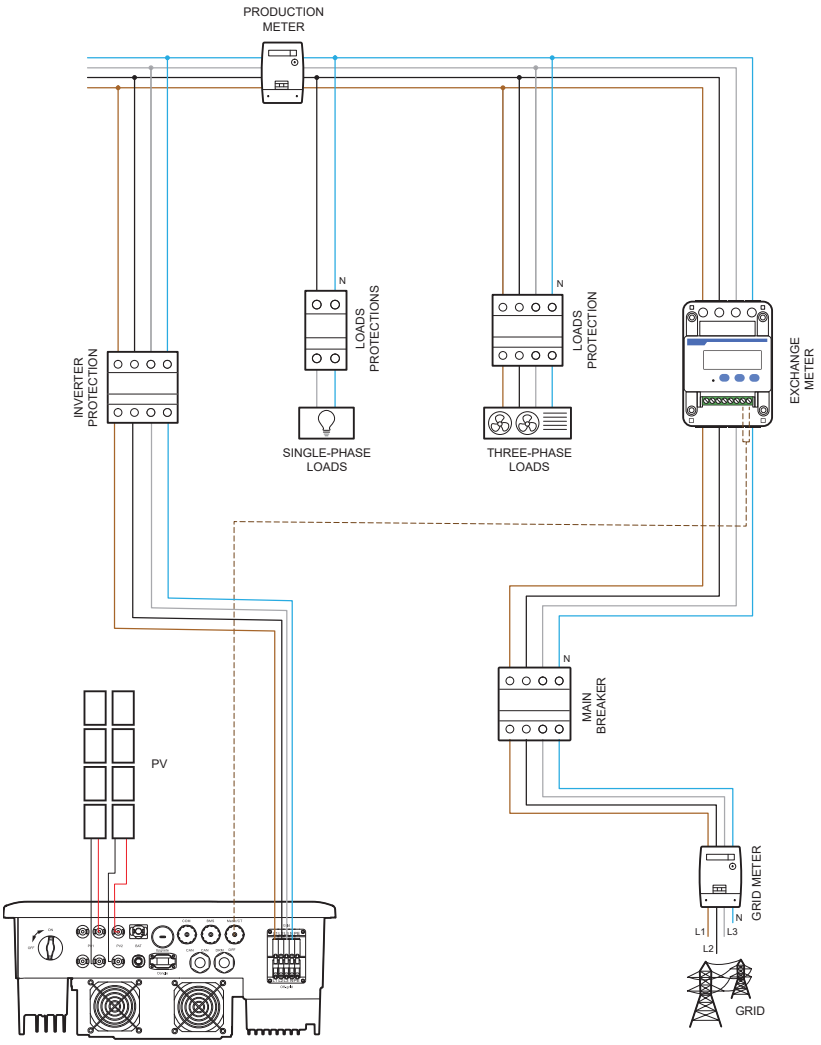
5.5.1. Meter PSI-X-3PMETER-HY

The meter is a device that allows you to analyze the energy flow of the system to manage it appropriately; the meter is compatible with three-phase inverters of the PSI-X3P (TP-TPM-HY) and PSI-X3S (HY) series for currents up to 80A is the PSI-X-3PMETER-HY with direct connection.

The meter also allows you to set the "Export Control" function which defines the power transferred to the grid. By default, the energy produced that is not self-consumed by the plant will be fed into the grid; if the user does not want to transfer power to the grid, he will have to set the value "0 Watt" in the advanced options of the inverter.

MENU > OPTIONS > ADVANCED (Password “2014”) > EXPORT CONTROL > 0 W.

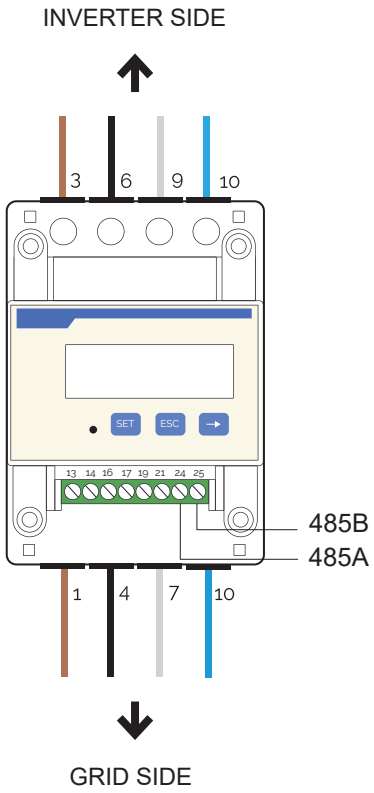
The Meter must be installed upstream of all network loads, downstream of the exchange meter; refer to the diagram below (the position of the energy meter produced and of the utility protection indicated in the diagram are purely indicative and to be evaluated in agreement with the project planner on the basis of the regulations in force at the time of installation and of any grid existing systems):


PRODUCTION METER
INVERTER PROTECTION
N
LOADS PROTECTIONS
SINGLE-PHASE LOADS
N
LOADS PROTECTION
THREE-PHASE LOADS
EXCHANGE METER
N
MAIN BREAKER
PV
GRID METER
N
L1
L3
L2
GRID

For the connection of the PSI-X-3PMETER-HY meter observe the following assembly procedure:

PLEASE NOTE

Make sure you have cut off the AC side power on the utility line.



1. Strip the three phases arriving from the exchange meter (mains side) by 8-10 mm and attach them respectively to inputs 1, 4 and 7 of the meter by tightening the terminal.

2. Strip the three phases arriving from the plant (inverter side) by 8-10mm and fix them respectively to outputs 3, 6 and 9 of the meter by tightening the terminal.
3. Strip the neutral cables arriving from the exchange meter (grid side) and from the system (inverter side) by 8-10 mm and secure them to input 10 both at the input and at the output.
4. Lay a twisted-pair cable long enough to span the distance between the inverter and the meter (a 10m cable is included in the package). Insert the two wires of a terminal into outputs 24 and 25 of the meter and fix them by tightening the clamp.
5. For the connection on the inverter side, refer to the manual of the specific model (see paragraphs below).
6. Once the electrical connection phase has been completed, fix the PSI-X-3PMETER-HY meter on 35 mm guides. Since the meter is neither waterproof nor dustproof, it is recommended to install it inside the electrical panel.
7. The display of the PSI-X-3PMETER-HY meter lights up when voltage is supplied to the system.
8. The meter is already automatically set with the correct network parameters; by briefly pressing the "arrow" key it is possible to scroll and check the various parameters.

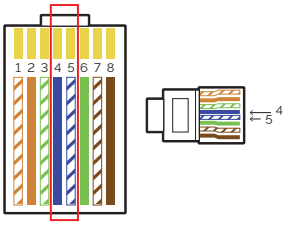
For the connection of the given meter with the inverter follow the instructions:

1. Crimp the two wires of the other end of the cable to an RJ45 plug so that there is continuity between:

- Clamp 24 of the meter and Pin 4 of the plug.
- Clamp 25 of the meter and Pin 5 of the plug

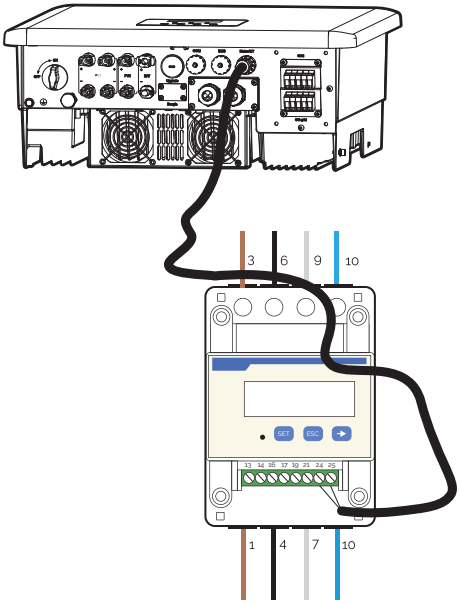
If an RS485 communication cable is used, connect the blue wire to terminal 24 and the white/blue wire to terminal 25 of the meter; from the inverter side, crimp the blue wire to Pin 4 of the plug and the white-blue wire to Pin 5 of the plug

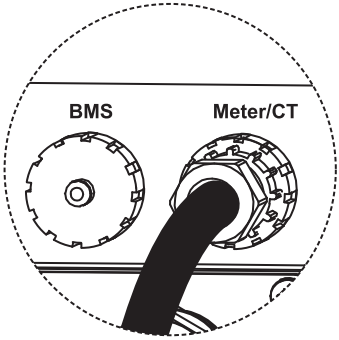
Refer to the diagram below:



1	2	3	4	5	6	7	8
-	-	-	485A	485B	-	-	-

2. Connect the RJ45 plug to the Meter/CT port.





3. In order for the PSI-X-3PMETER-HY meter to work correctly, it is necessary to select the correct setting on the inverter; from the display go to the menu:

MENU > OPTIONS > ADVANCE > METER OPTION / CT > meter.

CT/Meter Setting
> Select
Meter

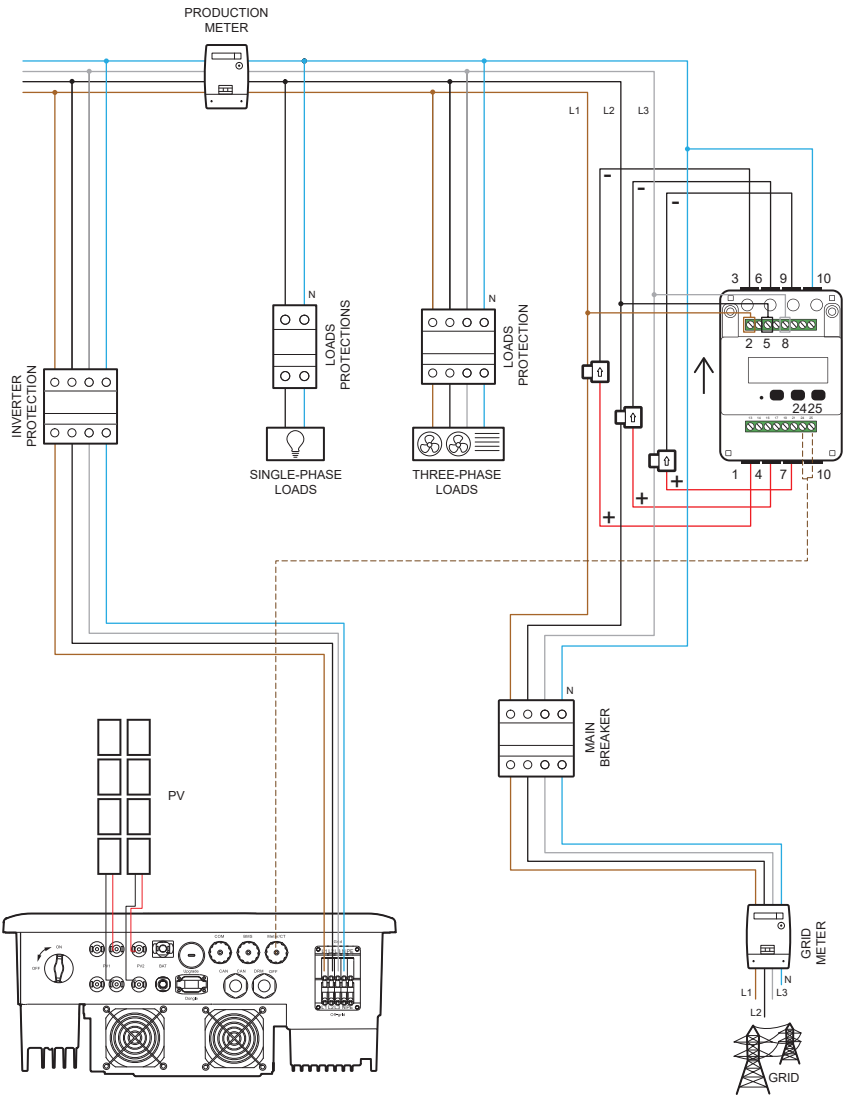
5.5.2. Meter PSI-X-3PMETER-HY-CT

The meter is a device that allows you to analyze the energy flow of the system to manage it appropriately; the meter is compatible with three-phase inverters of the PSI-X3P (TP-TPM-HY) and PSI-X3S (HY) series for currents up to 200A is the PSI-X-3PMETER-HY-CT.

The meter also allows you to set the "Export Control" function which defines the power transferred to the grid. By default, the energy produced that is not self-consumed by the plant will be fed into the grid; if the user does not want to transfer power to the grid, he will have to set the value "0 Watt" in the advanced options of the inverter.

MENU > OPTIONS > ADVANCED (Password “2014”) > EXPORT CONTROL > 0 W.

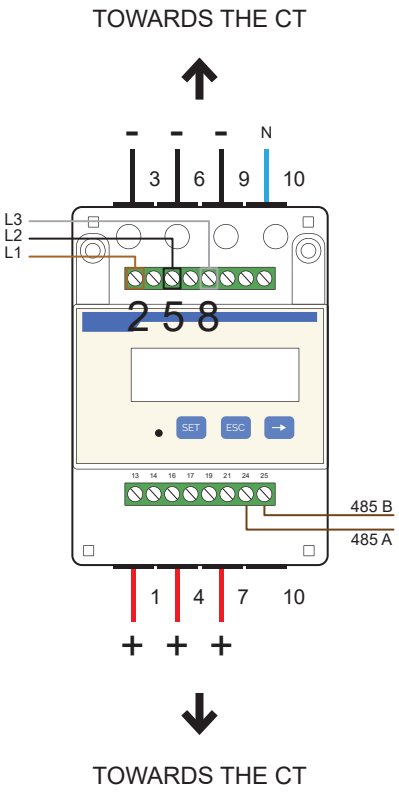
The Meter must be installed upstream of all network loads, downstream of the exchange meter; refer to the diagram below (the position of the energy meter produced and of the protections indicated in the diagram are purely indicative and to be evaluated in agreement with the designer on the basis of the regulations in force at the time of installation and of any other existing systems):



For the connection of the PSI-X-3PMETER-HY-CT meter observe the following assembly procedure:

PLEASE NOTE

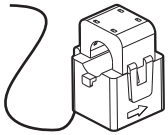
Make sure you have cut off the AC side power on the utility line.



1. Create a derivation of the three phases arriving from the exchange meter, strip them 8-10mm and fix them respectively to inputs 2, 5 and 8 of the meter by tightening the terminal; the cable should have a section of 0.25~1 mm^2 (17~23AWG).

2. Fix the positive cable (red) of the first CT to output 1 of the meter and the negative cable (black) to output 3; fix the positive cable (red) of the second CT to output 4 of the meter and the negative cable (black) to output 6; secure the positive (red) cable of the third CT to output 7 of the meter and the negative (black) cable to output 9.
3. Strip the neutral cable arriving from the exchange meter (mains side) of 8-10 mm and fix it to input 10.
4. Position the 3 CT's, hooking them around the cables of the three phases, paying attention to the direction of the arrow (the arrow on the CT must point towards the inverter). Check the correspondence of the wiring of the different lines:

- The CT connected to ports 1 and 3 must be hooked around the line cable connected to port 2 of the meter (L1 in the image).
- The CT connected to ports 6 and 4 must be hooked around the line cable connected to port 5 of the meter (L2 in the image).
- The CT connected to ports 7 and 9 must be hooked around the line cable connected to port 8 of the meter (L3 in the image).



5. Lay a twisted-pair cable long enough to cover the distance between the inverter and the meter (a 10m cable is included in the package). Insert the two wires of a terminal into outputs 24 and 25 of the meter and fix them by tightening the clamp.
6. For the connection on the inverter side, refer to the manual of the specific model (see paragraphs below).
7. Once the electrical connection phase has been completed, fix the PSI-X-3PMETER-HY-CT meter on 35 mm guides. Since the meter is neither waterproof nor dustproof, it is recommended to install it inside the electrical panel.
8. The display of the PSI-X-3PMETER-HY-CT meter lights up when voltage is supplied to the system.
9. The meter is already automatically set with the correct network parameters; by briefly pressing the "arrow" key it is possible to scroll and check the various parameters

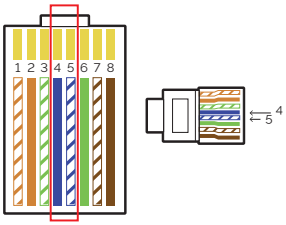
For the connection of the given meter follow the instruction below:

1. Crimp the two wires of the other end of the cable to an RJ45 plug so that there is continuity between:

- Clamp 24 of the meter and Pin 4 of the plug.
- Clamp 25 of the meter and Pin 5 of the plug.

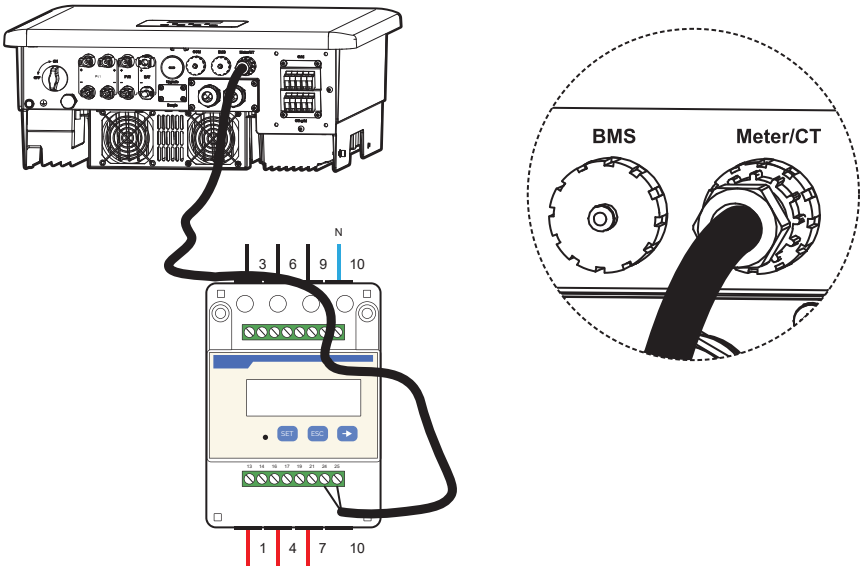
If an RS485 communication cable is used, connect the blue wire to terminal 24 and the white/blue wire to terminal 25 of the meter; from the inverter side, crimp the blue wire to Pin 4 of the plug and the white-blue wire to Pin 5 of the plug

Refer to the diagram below:



1	2	3	4	5	6	7	8
-	-	-	**485A**	**485B**	-	-	-

2. Connect the RJ45 plug to the Meter/CT port.



3. In order for the PSI-X-3PMETER-HY meter to function properly, it is necessary to select the correct setting on the inverter; from the display go to the menu:

MENU > OPTIONS > Password "2014" > ADVANCED > METER OPTION / CT > meter.

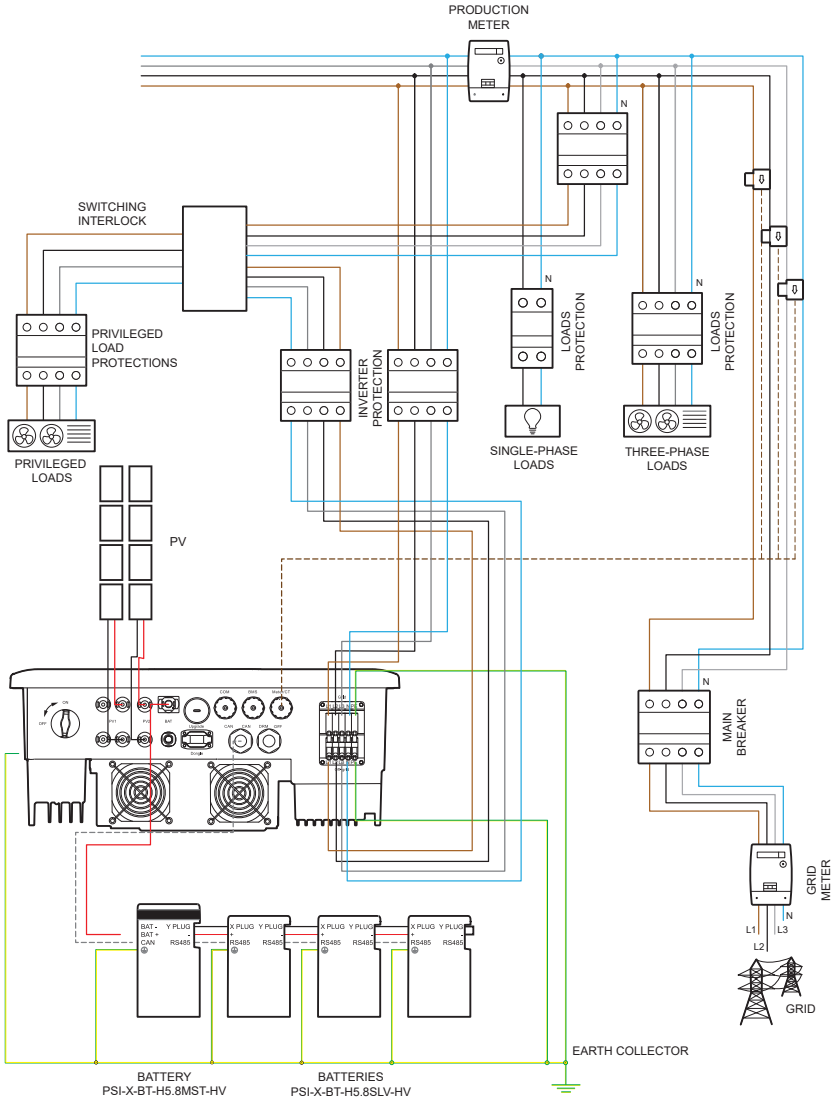
CT/Meter Setting
> Select
Meter

5.5.3. CT connection

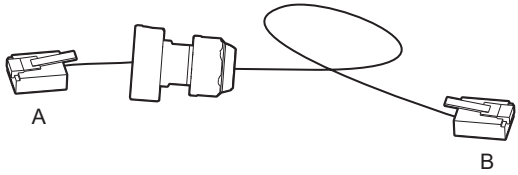
For older inverter models, energy flow management was done via CTs. The current transformers (CT) must be mounted on the phases of the alternating line upstream of all grid loads, downstream of the earth collector. For the inverters of the PSI-X3S series, a data cable connected to 3 CTs is included in the package. Each CT must be mounted around each of the three phases of the alternating line, making sure that the r,s,t of the CTs are connected respectively to phases L1, L2, L3. Refer to the connection diagrams in chapter 3 for the exact installation point.

PLEASE NOTE

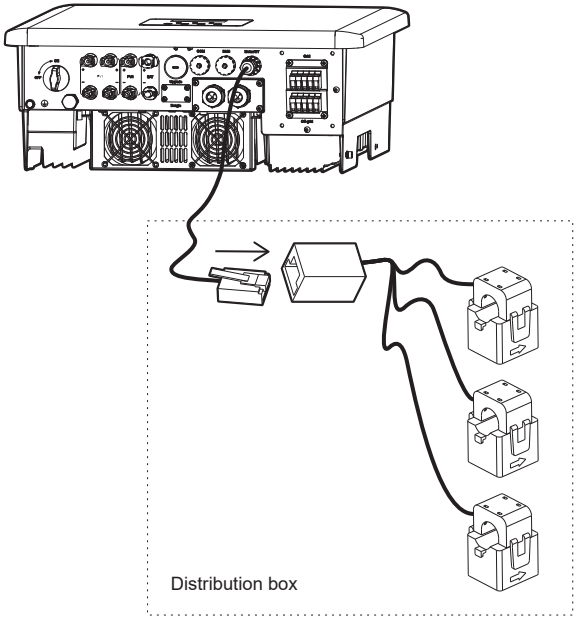
The arrow on the CT must point towards the public network.



Create a communication line with Category 5e or higher data cable wired in Mode B.



Connect the end of the cable with waterproof cover to the METER/CT port and the other end to the RJ45 extender, which serves as a connection between the communication line and the CT cable, as in the following diagram:



Check that the length of the entire line is sufficient to cover the distance between the inverter and the CT considering the length of the CT cable is 0.5 metres.

By default, the measurement device set on the inverter display is CT.

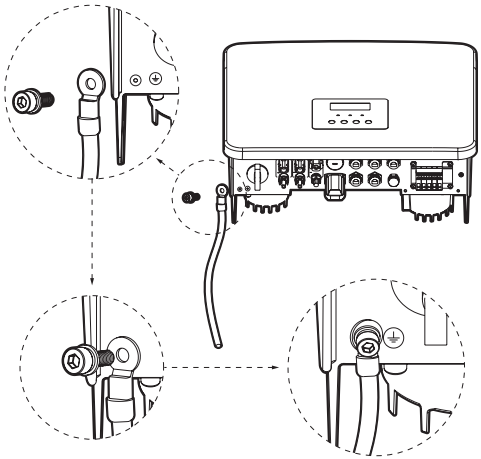
However, check the setting by going to:

MENU > OPTIONS > ADVANCED (Password “2014”) > METER OPTIONS/CT > CT.

5.6. Earthing

For the safety of the system, it is mandatory to earth the inverter:

1. Crimp the ground wire terminal included in the box to the appropriate line.
2. Fix the earth cable in the appropriate hole, identified by the earth symbol, by tightening the hexagonal head screw included in the package.



6. Parallel connection of several PSI-X3S series inverters

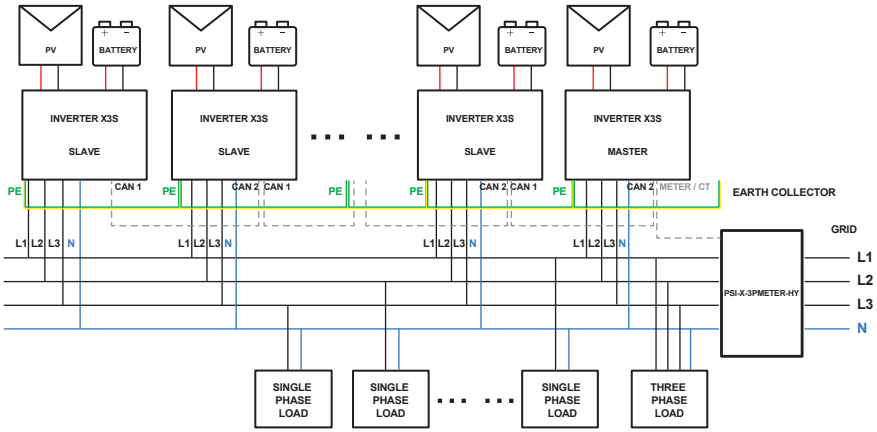
The PSI-X3S series inverters have the function of parallel connection of up to 10 inverters in one three-phase system.

In this system, one inverter will be set as the Master, and will control the energy management and delivery of all other connected inverters. In this system it is necessary to connect only one triple CT which will communicate with the Master inverter. The Slave inverters will be connected in cascade to the Master via communication cables.

For systems with a rated power greater than 11.08 kW, install an external interface protection system, as required by the legislation.

PLEASE NOTE

The parallel connection function can only be performed with the mains active: the following instructions refer only to the parallel of the mains side output. It is not possible to connect several inverters in parallel if the back-up lines (OFF-GRID) are connected.



6.1. Operation mode in parallel

There are three operating modes in the parallel system, and knowing all three will help you understand the system better, please read them carefully before operating the system.

1. Free-Independent Mode

   By default all the inverters are set in Free – Independent mode, until the inverters are put in parallel and one of them is not set as Master.

2. Master Mode

   When paralleling is done and one inverter is set as Master, it will control the energy management and delivery of all other connected inverters. The mode can be changed again via settings on the display. It is advisable to choose the one with the greatest storage capacity as the inverter.

3 Slave Mode

   Once one inverter is set as Master, all others will automatically enter Slave mode. Slave mode cannot be changed from the settings on the display.

6.2. Electrical connections of communication and display settings

PLEASE NOTE

Make sure that all inverters have the same firmware version, otherwise the parallel function cannot be used.

Step 1: Connect the three phases, neutral and earth of the inverters to the same three-phase line. Follow the connection methods described in chapter 5.3.

PLEASE NOTE

For the safety of the system, it is mandatory to ground each inverter.

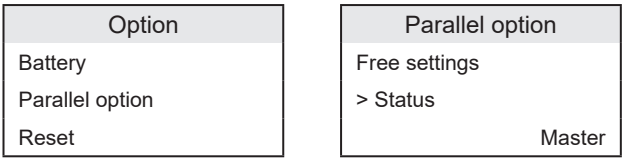
Step 2: The inverters communicate with each other via data cables. The installer must independently provide himself with a category 7 data cable for each parallel and a category 5 or higher data cable for connecting the master inverter to the meter. On each inverter there are two CAN ports (CAN 1 and CAN 2) which allow the data connection of the inverters between them and of the master inverter with the meter. Connect the meter to the master inverter as described in the relevant chapter of this manual. Connect the inverters by connecting the data cable from the CAN2 port of the master inverter to the CAN1 port of the first slave inverter; proceed in the same way for the subsequent slave inverters.

Step 3: Once the meter has been connected to the master inverter, it is necessary to activate the master mode from the display:

MENU > OPTIONS > ADVANCED (Password "2014") > PARALLEL OPTION > MASTER MODE

It is also necessary to activate the resistance switch option on both the master inverter and the last slave inverter:

MENU > OPTIONS > ADVANCED (Password "2014") > PARALLEL OPTION > MASTER MODE > RESISTANCE SWITCH > ON.



6.3. How to exit the parallel system

If you want to disable the parallel option on the inverters, follow the procedure below:

Step 1: Unplug all network cables from the CAN ports.

Step 2: For each inverter, deactivate the master mode from the display:

MENU > OPTIONS > ADVANCED (Password "2014") > PARALLEL OPTION > FREE MODE

PLEASE NOTE

If a slave inverter is set as "Free" but the network cables are not disconnected from the CAN ports, it will automatically return to "Slave" mode.

If a Slave inverter is disconnected from other inverters but not set to "Free" mode, it will stop working and stay in waiting state.

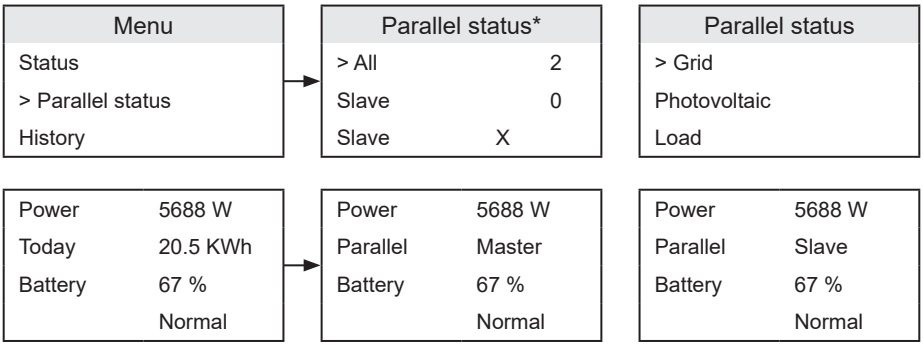
6.4. Display LCD

Main screen:

Once an inverter enters the parallel system, the "Today" daily production will be replaced by the "Parallel" inverter mode and the words Master or Slave will appear alongside depending on the status. Faults relating to the parallel will take priority over other faults and will be shown first on the main display.

Display status:

The user can see all the status data from the Master inverter. The total power of the system and the power of each Slave inverter can be seen from the display of the Master inverter.



*O: connected, X: disconnected

Whenever the master inverter trips and stops running, all slave inverters will be stopped at the same time. However, the master inverter operates independently and will not be affected by any slave inverter failure.

The system will operate according to the parameters set in the Master inverter, and all the parameters set in the Slave inverters will be disregarded. When a Slave inverter exits the system and runs as an independent unit, all its settings will be restored.

PLEASE NOTE

The settings relating to the mode when its turned off, grid standard, self-consumption, power factor and remote control selected on the master inverter apply to the entire system; the corresponding settings of the Slave inverters will not be taken into consideration.

PLEASE NOTE

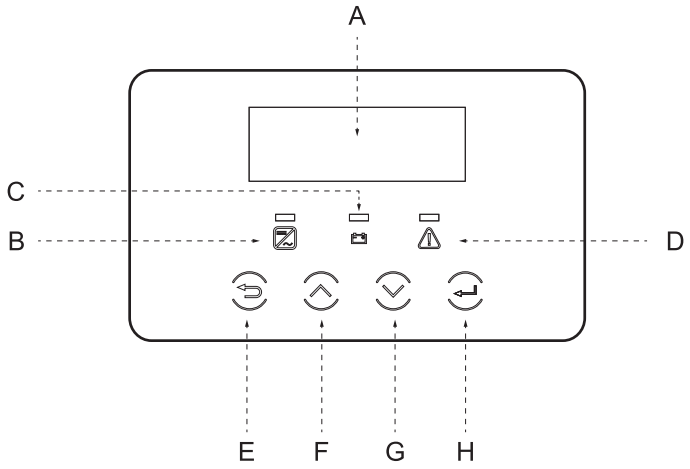
In order to monitor the entire system on the web portal, configuration via wi-fi or ethernet module (optional) of all the inverters present is required. Follow the configuration steps described in the relevant chapter of this manual.

7. Operating mode

7.1. Turning on the inverter

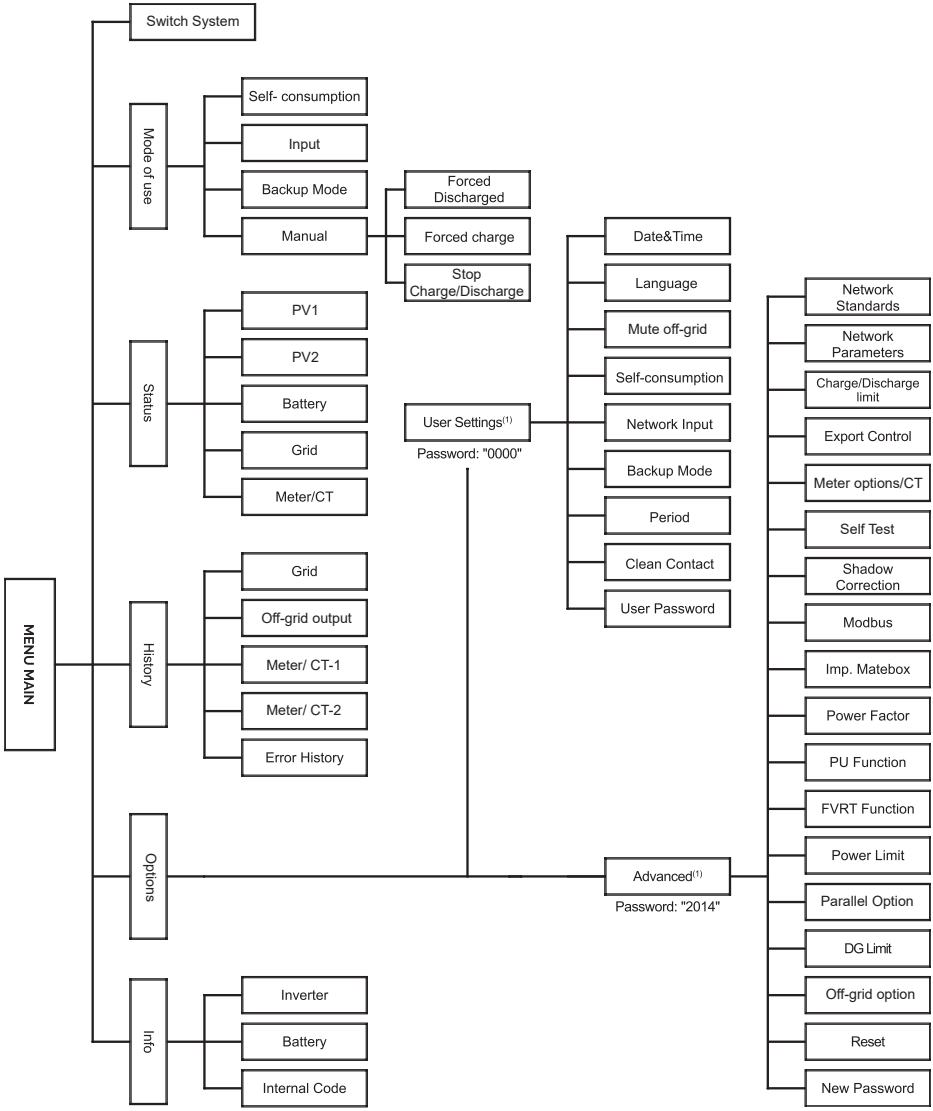
1. Make sure the inverter is properly set to the wall;
2. Make sure the DC and AC switches on the inverter are in the “OFF” position;
3. Make sure the AC cable is properly connected to the network;
4. Verify that the DC and AC lines are properly connected;
5. Verify that all photovoltaic panels are connected to the inverter correctly and that the unused DC connectors are covered by the appropriate cover;
6. Make sure that the meters/CTs are well connected and in the right position as described in the relative chapter.
7. Make sure that the batteries and/or the PSI-X-PRL-BMS are correctly connected and the DIP SWITCH is correctly set as described in the relative chapter.
8. Turn the DC line disconnector to On and raise the switches of the AC line and any OFF-GRID line.
9. Follow the procedure for starting up the storage system as described in the relevant chapter.
10. Once the inverter display is on, if in Off mode, to activate it, press and hold the ENT key of the inverter for 2 seconds. (factory setting: "Off").

7.2. Setting and visualisation interface



A	Display	The display allows the inverter production data to be viewed and the operating parameters to be set
B	LED Indicators	Solid blue light: The inverter is in normal state or in OFF GRID MODE Flashing blue light: The inverter is in waiting or checking state or the DC line circuit breaker is OFF Off: The inverter has no error
C		Solid green light: Battery communication is working normally Flashing green light: Battery communication is in normal idle mode Off: the battery does not communicate with the inverter or is absent
D		Red light on : the inverter isin error state Red light off : the inverter has no error
E	Buttons	ESC key: exit from the current interface or function
F		Up key: Scroll Up/Left or increase selected value
G		Down key: Scroll Down/Right or decrease selected value
H		Enter button: Confirm selection

7.3. Block diagram of the inverter screen



7.4. Main display functions

When the inverter is started up, the screen that appears on the display is the main one which shows the following information:

- Power = indicates the instantaneous output power
- Today = indicates the energy produced during the day
- Battery =indicates the remaining battery energy as a percentage

(Scroll with the up and down arrows to read the information on the display).

Power	0 W
Today	0.0 KWh
Battery	80 %
	Normal

Menu:

This screen is used by the user to view information relating to the inverter and change its settings. To access this screen, press "OK" on the main screen. Choose the desired settings by scrolling with the UP and DOWN arrows and press “OK” to confirm.

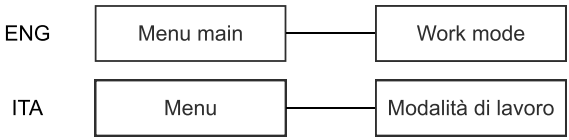
System ON/OFF:

Entering this screen, you can choose between:

“ON”: This state indicates that the inverter is running (usually it is the default state)

“OFF”: This state indicates that the inverter has stopped working and only the LCD screen is on.

Mode of work:



There are 4 modes to select: Personal use (self-consumption) / Back-up mode / Power priority (Grid input) / Manual and EPS.

In the case of grid connection, all working modes work normally when battery SOC >5%. When the battery charge rate is lower than 5%, PV or grid will charge the battery until SOC ≥11% and then auto return to user selected working mode.

You can set the battery charge/discharge time. By default, the inverter is set to always active discharge period, while the charge period is not activated.

MENU > OPTIONS > IMP USER (Password “0000”) > LOAD/UNLOAD PERIOD.

Self-consumption (default)

Self-consumption mode is the one set by default, the operation is described below.

1) In case of photovoltaic power greater than the loads:

   with an active charge or discharge period, the PV will first power the loads and the excess energy will charge the battery. If the battery is fully charged, the excess energy will be fed into the grid.

   (The inverter will limit the feed to the grid if export control has been set).

   (PV > Loads: PV => Loads => Battery => Grid)

2) In case of load power greater than the photovoltaic:

   With an active charging period, the photovoltaic system supplies the loads first and the residual power will be taken from the grid. The battery will remain on stand-by.

   (PV < Loads: PV + Grid > Loads)

   With an active discharge period, the photovoltaic and the battery will power the loads. If the power is still not enough, the remaining power will be taken from the grid.

   (PV < Loads: PV + Battery + Grid > Loads)

3) Without photovoltaic power:

   With the charging period active, the network powers the loads and charges the battery;

   (PV=0, Grid > Loads + Battery)

   Period of active discharge: The battery will power the loads. If the battery charge is not enough, the rest of the energy will be drawn from the grid and the inverter will go into standby mode.

   (PV=0, Battery + Grid > Loads)

   The minimum charge of the battery "SOC MIN" can be set via the display in the range of 10-100%:

MENU > OPTIONS > USER SETTINGS (Password “0000”) > SELF-CONSUMPTION > SOC MIN.

   The battery charging function from the network can be enabled/disabled from the display:

MENU > OPTIONS > USER SETTINGS (Password “0000”) > SELF-CONSUMPTION > LOAD FROM NETWORK.

Power Priority (Feed to Network)

Power Priority or Feed-in mode is suitable for areas with high energy sales prices but limits on feed-in power. In this mode, in addition to the minimum charge, it is also possible to set the maximum charge of the battery; once the set charge percentage is reached, the residual energy will be fed into the grid.

1) In case of photovoltaic power greater than the loads:

   With the charging period active, the photovoltaic system will power the loads first, then it will charge the battery to the set percentage capacity, and finally it will export the residual energy to the grid.

   If the grid operator limits the inverter's feed-in power, the surplus energy continues to charge the battery.

   (PV > Loads: PV > Loads > Battery > Grid > Battery)

   With active discharge period: the photovoltaic system will power the loads first and export the excess energy to the grid.

   (PV > Loads: PV > Loads > Grid)

2) In case of load power greater than the photovoltaic:

   With active charging period, the photovoltaic system first supplies the loads, and the residual power will be taken from the grid. The battery will remain on standby.

   (PV < Loads: PV + Grid > Loads)

   With active discharge period, the PV and the battery will power the loads. If the power is still not sufficient, it will be taken from the grid.

   (PV < Loads, PV + Battery + Grid > Loads)

3) Without photovoltaic power

   With active charging period, the network will power the loads and charge the battery.

   (PV=0, Grid > Loads + Battery)

   With active discharge period, the battery will power the loads first. If the battery charge is not sufficient, the remaining energy will be drawn from the grid and the inverter will enter standby mode.

   (PV=0, Battery + Grid > Loads)

   The minimum battery charge "SOC MIN" and the maximum charge "battery charge until" can be set via the display in the range 10-100%:

MENU > OPTIONS > USER SETUP (Password “0000”) > NETWORK ENTRY > MIN SOC/BATT CHARGE UNTIL.

Backup mode

Backup mode is suitable for areas with frequent network blackouts. This mode will keep the battery charge level at a relatively high percentage to ensure that back-up (Off-grid) loads are powered longer when the grid is idle.

The minimum battery charge "SOC MIN" and the maximum charge "battery charge until" can be set via the display in the range 30-100%:

MENU > OPTIONS > USER SET (Password “0000”) > BACKUP MODE > SOC MIN/ CHARGE BATT UNTIL.

Manual

In this mode, it is possible to manage battery operation by choosing from 3 submenus: forced discharge, forced charge, stop charge/discharge.

Work Select	Work Select	Work Select
> Manual	> Manual	> Manual
Forced Charge	Forced Charge	Stop Cha&Discha

EPS mode (off-grid)

EPS mode is used when there is no grid power. The system supplies emergency power via photovoltaics and batteries to supply energy to the loads connected to the back-up line (Off-grid). (Battery is required).

PLEASE NOTE

The EPS line is powered only in the event of zero voltage at the GRID output (mains side blackout). Therefore, in order to be able to continuously supply the loads connected to the EPS output, a switching interlock and the relative automatic protections must be provided, in accordance with the current CEI 0-21 standard.

1) When the photovoltaic power is sufficient, the photovoltaic system will first power the loads and the excess power will go to charge the battery.
   (PV > Back-up loads: PV => Back-up loads => Battery).
2) When the photovoltaic power is insufficient, energy will be drawn from the battery.
   (PV > Back-up loads (Off-grid): PV + Battery => Back-up loads - Off-grid).
3) Without PV power the battery will power emergency loads until the set maximum depth of discharge, min SOC, is reached, then the inverter will enter standby mode.
   (PV=0, Battery => Back-up loads - Off-grid)

The minimum battery charge “SOC MIN” for EPS mode can be set via the display in the range 10-25 %.

MENU > OPTIONS > ADVANCED (Password “2014”) > OFF-GRID OPTIONS > SOC MIN.

The frequency can also be set to 50Hz or 60Hz according to the respective loads.

MENU > OPTIONS > ADVANCED (Password “2014”) > OFF-GRID OPTIONS > FREQUENCY.

When the inverter enters EPS (Off-grid) mode, it will emit a sound every 4 seconds, which will increase in intensity as the battery charge percentage decreases. The acoustic signal can be deactivated via the display:

MENU > OPTIONS > USER SETTINGS (Password “0000”) > OFF-GRID SILENCE.

System Status:

Included here are: PV1, PV2, Battery, On Grid (the energy fed into or taken from the grid), EPS (off-grid), Meter/CT.

Press up and down to select and press “Enter” to confirm and press Exit to return to the menu.

a) / b) PV1 e PV2.

Here it is possible to view the voltage, current and power of PV1 and PV2 of the PV panels.

c) Battery

This status shows the battery condition of the system. This includes battery voltage and current, battery power, battery capacity, battery temperature, BMS connection status. The sign meaning of the battery current and power indicates: "+" means charging; "-" means download.

d) On the grid

Here the voltage, current, frequency and power of the grid are displayed.

e) EPS (off-grid)

Here the voltage, current, frequency and power of the inverter are displayed when it is disconnected from the grid.

f) Meter/CT

Here you can view meter or CT data.

Meter/CT	
>Meter/CT1-A	-6w
Meter/CT1-B	-6w
Meter/CT1-C	-6w
>Meter2-A	-6w
Meter2-B	-6w
Meter2-C	-6w

Status of the parallel function:

Here you can see the parallel of the inverters on the screen.

Parallel Status	
All	3
Slaver1	O
Slaver2	X
Slaver3	O
Slaver4	X
Slaver5	X
Slaver6	X
Slaver7	X
Slaver8	X
Slaver9	X

Historical data:

The historical data includes data regarding: inverter grid power, EPS generation power, Meter/CT power and log errors.

Press up and down to select and press “Enter” to confirm and press Exit to return to the menu.

1. On the grid

   Here you can find the data on the power of the inverter when it is connected to the grid, both during the day and the Total.

2. EPS (Off-grid)

   Here you can find the data on the inverter output of the EPS both for the day and the Total.

3. Meter/CT 1

   Here you can view the data on the energy sold by the inverter, the total energy sold, the electricity purchased from the grid and the total electricity sold on a given day.

4. Meter-2

   Here you can view the total output power of the inverter for the day.

5. Error Logs

   Here you can view the 6 most recent errors.

User settings:

Here you can set the inverter time, language, working modes, charge and discharge period, and user password.

a) Date and time

   This interface is for users who want to set a date and time.

b) Language

   The inverter has several languages to choose from.

c) Mute EPS

   Here you can choose whether the Buzzer turns on when the inverter works in EPS (Off-grid) mode. Selecting Yes, the Buzzer will silence, while selecting NO, in EPS (Off-grid) mode it will sound once every 4s when the battery is fully charged. The closer the battery is to the depleted state, the louder the buzzer will sound, to remind users that the battery is damaged.

d) Self-consumption use

   In this mode, you can set the minimum battery charge percentage, set whether power can be drawn from the grid to charge the battery, and set the amount of energy to charge the battery.

   For example: set the minimum SOC of the battery capacity at "10%", means that when the battery has been discharged to 10% capacity, the battery cannot

continue to discharge; When mains charging is set to Enabled, mains power goes to charge the battery; if set to Disable, utility power does not charge the battery; If the battery charge has been set to 90% it indicates that the network is authorized to charge the battery to 90%.

e) Power Priority :

In this mode, you can set the minimum percentage of battery charge, set whether power can be drawn from the grid to charge the battery, and set the amount of energy to charge the battery. For example: Set the minimum SOC of battery capacity to "10%", it means that when the battery has been discharged to 10% capacity, the battery cannot continue to discharge. If the battery charge has been set to 90% it indicates that the network is authorized to charge the battery to 90%

f) Backup mode

In this mode, you can set the minimum battery charge percentage, set whether power can be drawn from the grid to charge the battery, and set the amount of energy to charge the battery. For example: set the minimum SOC of the battery capacity at "10%" means that when the battery has been discharged to 10% capacity, the battery cannot continue to discharge. If the battery charge has been set to 90% it indicates that the network is authorized to charge the battery to 90%.

g) Charge and discharge time

Here you can set the period of charge and discharge. If 2 charging and discharging times are required, activate the second Period from the menu and then set it.

h) Dry contact

When the user uses the external communication control device function of the inverter, the parameters of the external response can be selected here. For the settings of the external device, refer to the manual. If the user uses the dry contacts of the inverter to control the external device (such as for a heat pump) through an Adapter Box, refer to the installation manual.

i) User password

The default password for the end user is “0000”, but you can set a new password by choosing words by pressing the up and down keys and press enter to confirm the value. Once the password has been chosen, press "Ok" to save the new password.

Advanced settings:

All advanced settings can be set here, such as the battery, network, EPS, etc.… Advanced settings are generally used to customize and reset the battery and network. Each part has submenus. The password to access is “2014”.

a) Network standards

Normally it is not necessary to modify these parameters, since they are set automatically by setting the correct network standard. If it is necessary to make changes, they must be in accordance with current legislation.

PLEASE NOTE

For inverters installed in Italy, the item CEI 0-21 is available in the list of standards with the parameters required by the current CEI 0-21 standard; only if the inverter is installed on the Areti - ACEA Group grid, please select the ACEA standard. The previous indications must be checked and confirmed by the network manager and by the technician who connects to the network.

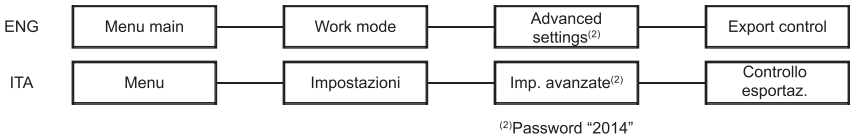
b) Grid parameter

Here you can set the frequency and protection voltage values of the grid. The default value is the one specified by the safety standards in force and cannot be modified and the user cannot change it. The display content is displayed according to the requirements of local laws and regulations, which are constantly increasing. Please refer to the contents displayed on the screen of the inverter.

c) Charge/discharge limit

Here the user can set the parameters of the charger; the inverter is compatible with both lithium batteries. The user can set the charge and discharge parameters.

d) Export control



(2)Password “2014”

This function allows the inverter to control the energy transferred to the grid. There are two values, the user value and the factory value. The factory value can be modified by the user.

The user value set by the installer must be lower than the factory value and indicates the maximum output power of the system upstream of the measuring device (TA / meter). If the user does not want to transfer power to the grid, set the value to 0 W.

MENU > OPTIONS > ADVANCED SETTINGS (Password “2014”) > EXPORT CONTROL > USER VALUE > 0W.

Export Control
User value:
0W

e) Meter option/CT

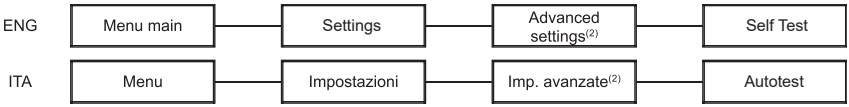
The user must select the CT or meter to connect the inverter to select the address for the meter. For CTs it is not necessary to select the address.

CT/Meter Setting
> Select
Meter

CT/Meter Setting
> Meter 1 Addr
xxxxxxxx

f) Self test

In cases where the grid standard set is CEI-021 or ACEA and the plant has a nominal power of less than 11.08kWp, it is necessary to run the self test function directly from the inverter. To start the complete self-test function, proceed as follows:



(2)Password “2014”

Once the self-test is complete, which takes a few minutes, the result screen will appear. It is also possible to view the test report at a later time by accessing the appropriate screen or to start each test individually.

PLEASE NOTE

Make sure that the inverter is connected to the grid and that it receives the minimum voltage from the photovoltaic generator throughout the self-test procedure.

g) Shadow correction

Here you can set shadow tracking with four options : off, low, medium, and high.

h) Modbus

Here you select the baud rate of the external communication protocol. The values are the addresses 19200 and 485.

i) Matebox settings

If you want to use a Matebox, set it up here.

j) Power factor

Only applicable for specific countries, please refer to your local public network. There are 5 modes: Off, Under-Excited, Over-Excited, Curve, Q(u). (It can be changed or added without notice). Press up and down key to select, press Enter key to confirm.

k) PU function

The PU function is a volt-watt response mode required by some national standards such as AS4777.2. This function can control the active power of the inverter according to the grid voltage. Selecting "Enable" means that this function is activated and is the default value. Select "Disable" to disable the feature.

l) FVRT function

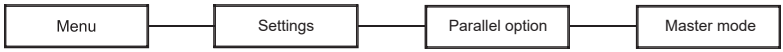
Here you can set Enable or disable.

m) Power limit

Power limit function with which you can set the maximum power of the AC output in percentage.

n) Parallel option

To activate and deactivate the parallel mode of the inverters, follow:



Password “2014”

o) DG Limit

For the power limit of the meter or CT, the current must be set in line with the contractual requirements of the service provider. Failure to set it may result in main switchboard failure, adversely affecting the charging or discharging of the battery. Click Master Breaker Limit to enter the setting interface, and then choose the corresponding amperage according to the utility requirement.

p) Off-grid option

Users can set the frequency here in EPS mode and set the minimum SOC and minimum SOC ESC. When the device is in EPS mode, once the SOC of the battery is lower than the minimum SOC of the inverter, it will display "Bat Power

Low". If PV is present, the PV energy will charge the battery. When the battery SOC reaches Min Esc SOC, the inverter will automatically enter EPS mode. Min Esc SOC defaults to 30% and Min Esc SOC can be set between 15% and 100%.

q) Reset

Reset log errors, meter power, inverter power, and restore default settings.

r) New Password

Set a new password.

Up:

Here you can see some basic information about the inverter and battery, such as serial number, software version number, and system running time.

PLEASE NOTE

It is possible to check the firmware version of the inverter by following the respective paths below:

MENU > INFO > MASTER (DSP1: 2.07 and later; DSP2: 2.01 and later; ARM: 2.03 and later).

MENU > INFO > MANAGER (DSP1: 2.07 and later; DSP2: 2.01 and later; ARM: 2.03 and later).

7.5. First configuration

Your device already has default date, language, and network standard values. It is therefore necessary to verify its correctness by following the path:

MENU > OPTIONS > USER SET (Password “0000”) > DATE AND TIME MENU > OPTIONS > USER SET (Password “0000”) > LANGUAGE.

MENU > OPTIONS > ADVANCED (Password “2014”) > NETWORK STANDARD.

PLEASE NOTE

In the case of Italy, if the network distributor is Enel, select CEI 021; if the distributor is ARETI – ACEA GROUP select ACEA.

8. Configuring the PSI-X Inverter Monitoring System

8.1. Installer account creation

PLEASE NOTE

For each system, the account of the end user (owner of the system) must always be created and subsequently, if desired, it is possible to add the system created to the installer account. Not vice versa.

To obtain an installer account, please send an email to assistance@peimar.com, entering the following data:

- Company name
- Reference email address
- Username (Characters other than letters, numbers, "@", "_", "." are not allowed, there must be no spaces)
- SN of the inverter
- Tracking SN printed on the Wi-Fi module
- Password

As soon as the credentials are received from Peimar technical assistance, it will be possible to log in from the link https://www. peimar-psix-portal.com/#/login and possibly change the password.

To monitor the customer's system it will be necessary to go to:
Device management > New devices > + Add
and enter the monitoring SN of the Wi-Fi module, then press "Accept".
If the whole procedure has been followed correctly it will be possible, after a few minutes, to observe the production data of the customer's photovoltaic system.

8.2. Configuration via Wi-Fi module

In many models of the PSI-X series (single-phase grid inverter PSI-X1P-TL/TLM ≥ 2kW, three-phase grid inverters PSI-X3P-TP, hybrid inverters PSI-X1P-HY PSI-X3P-HY and PSIX3S-HY) a) a Wi-Fi module (PSI-X-H-WIFI or PSI-X-H-WIFI-3.0) is included which allows, if configured correctly, remote monitoring of operational status and data of production.

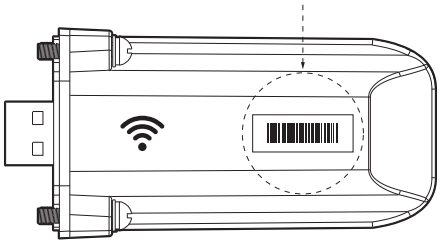
PLEASE NOTE

- **If the SN of the module starts with SWxxxxxxxx it is possible to carry out the connection procedure only via browser;**
- **If the SN of the module starts with SXxxxxxxxx or SVxxxxxxxx it is possible to carry out the connection procedure both via browser and via App.**
- **It is recommended to connect to the main Wi-Fi line since connection to repeaters / Wi-Fi does not guarantee the sending of data to the server.**

8.2.1 Configuration via browser Wi-Fi module

Connection procedure

1. Insert the Wi-Fi module into its USB port on the bottom of the inverter (WIFI for PSI-X3P-HY series inverters, Upgrade/Dongle for PSI-X1P-HY and PSI-X3S-HY series inverters , DONGLE for the inverters of the PSI-X1P-TL/TLM and PSI-X3P-TP/TPM series); the LED located on the back will start flashing (LED not present in the PSI-X-H-WIFI-3.0 model).
2. Use a laptop or smartphone and look for the device's Wi-Fi hotspot which is generally called Wifi_Sxxxxxxxxx (Sxxxxxxxxx=code printed on the Wi-Fi module itself).



3. Connect permanently to the hotspot, click on "connect" and wait for confirmation (it is normal for the internet connection failure notice to appear).

4. Open the browser and type in the address bar http://192.168.10.10/.

PLEASE NOTE

For older inverter models, which have a PSI-X-H-WIFI stick (or for PSI-X-H-WIFI-3.0 sticks with SN starting with SX) use the address http://5.8.8.8/ (Normally it is sufficient type in the address bar 5.8.8.8) Be careful not to connect to the address https://5.8.8.8/

5. Insert username "admin"
6. Insert a password:
   - "Admin" if the SN of the module starts with SWxxxxxxxx
   - Code printed on the module itself if the SN of the module starts with SXxxxxxxxx or SVxxxxxxxx.
7. Enter the "Setting Page" click on the "Find AP" button to scan the available Wi-Fi networks.
8. Select the home Wi-Fi network, enter the relative password in the "Key" box and click on "Save"

PLEASE NOTE

Network name and password must contain only numbers or letters, no special characters are accepted

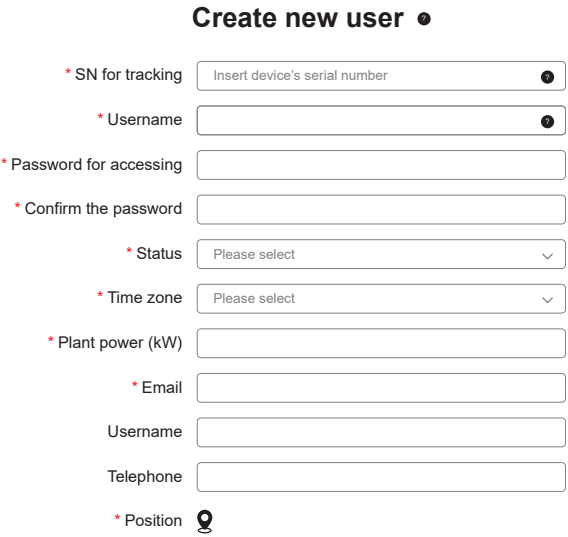
9. The LED of the module, where present, will start flashing rapidly; when after about 20 seconds it becomes permanently on, it means that the Wi-Fi module has connected to the router.
10. Reconnect to the dongle.
11. Reconnect to the http address given above. Check that the data entered remained stored correctly and that there is the IP address so as to make sure that the connection was successful.

End user account creation

PLEASE NOTE

For each system, the account of the end user (owner of the system) must always be created and subsequently, if desired, it is possible to add the system created to the installer account. Not vice versa.

Once the monitoring system has been successfully configured, type in the address https://peimar-psix-portal.com/#/login to create a new end user account by pressing the "Sign up" button.



In the field "SN Tracking" enter the code printed on the form itself and on the label applied to the box. All mandatory fields filled in (Italy time zone UTC +01:00), press the "Register" button to complete the registration. Press the "Return" key and log in with the credentials you just created. If the entire procedure has been followed correctly it will be possible, after a few minutes, observe the production data of the photovoltaic system.

8.2.2. End user account creation

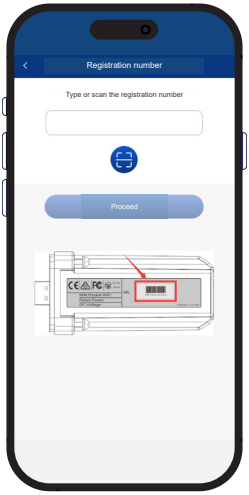
PLEASE NOTE

For each system, the account of the end user (owner of the system) must always be created and subsequently, if desired, it is possible to add the system created to the installer account. Not vice versa.

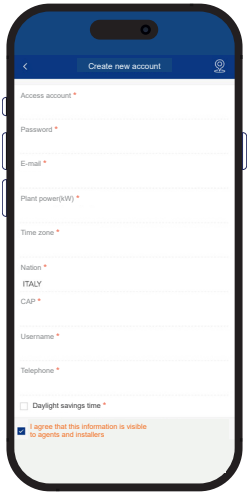
1. Download the Peimar X Portal App from the store

App Store | Google Play Store

2. Choose the language clicking on the 3 dots at the top left.
3. Press the "Create new account" button, type or scan the tracking SN printed on the Wi-Fi module itself and press the "Next" key".

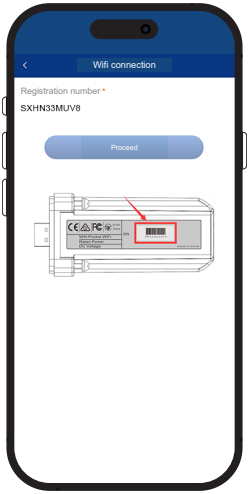


4 To create a new account enter the required data (Italy time zone UTC +01:00) and press ‘‘OK’’.



Connection procedure

1. Log in to the App with the credentials you just created.
2. Enter the User > Wi-Fi Connection section, type or scan the monitoring SN printed on the Wi-Fi module itself and press "Next".



3. At the message "Peimar X portal wants to access the Wi-Fi network", press the option "Login".
4. Enter the name of the home wi-fi network (SSID) and relative password.

PLEASE NOTE

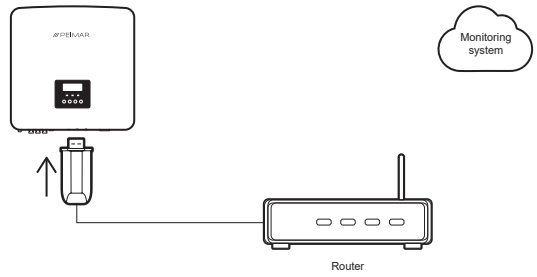
Network name and password must contain only numbers or letters, no special characters are accepted

5 If the entire procedure has been followed correctly, the module LED, where present, will become permanently on and after a few minutes the app will start receiving production data from the inverter and it will be possible to view them remotely.

8.3. Configuration via Ethernet cable (LAN) via Ethernet module.

If the Wi-Fi signal is too weak, it is also possible to connect to the server through an Ethernet cable. You will have to purchase the PSI-X-H-ETH-3.0 module of the ethernet port, which allows the connection of the inverter via data cable to the router of the house (The PSI-X3P-TPM three-phase grid inverters already have the Ethernet module included) Install the PSI-X-ETH-3.0 module into the dongle port of the inverter. The installer will need to procure a category 5e or higher data cable on their own.

Insert the Ethernet module into its USB port on the bottom of the inverter (WIFI for inverters of the PSI-X3P-HY series, Upgrade/Dongle for inverters of the PSI-X1P-HY and PSI-X3S-HY series, DONGLE for PSI-X1P-TL/TLM series inverters and PSI-X3P-TP/TPM); The installer will need to procure a Category 5e or better data cable himself.



PLEASE NOTE

To complete the configuration of the monitoring system, the same procedure described in the paragraphs "Creating an end user account" must be followed for configuration via the Wi-Fi module from the browser or from the App;

the procedure described in the "Connection procedure" paragraph is not necessary as the connection is made directly via cable.

When prompted to enter the "monitoring SN", enter the code on the label of the ethernet module in place of the code on the label of the Wi-Fi module.

9. Error codes and troubleshooting

ERROR CODE	ERROR TYPE	RESOLUTION
IE 001	TZ Protect Fault	Over current error: Check the compatibility between PV generator and inverter via designer. Check the integrity of the MC4 connectors of the photovoltaic strings.
IE 002	Grid Lost Fault	Mains voltage lost: Measure the grid voltage at the inverter terminal block. Check the correct connection of the AC cable on the inverter terminal block.
IE 003	Grid Volt Fault	Mains voltage overload: Measure the grid voltage at the inverter terminal block. Check the correct connection of the AC cable on the inverter terminal block. Wait a few minutes for it to return to the operating range.
IE 004	Grid Freq Fault	Grid frequency out of range: Wait a few minutes for it to return to the operating range
IE 005	PV Volt Fault	PV overvoltage error: Check the compatibility between PV generator and inverter via designer. Check the integrity of the MC4 connectors of the photovoltaic strings.
IE 006	Bus Volt Fault	PV overvoltage error: Check the compatibility between PV generator and inverter via designer. Check the integrity of the MC4 connectors of the photovoltaic strings.
IE 007	Bat Volt Fault	Battery overvoltage error: Check the compatibility between the inverter and the storage system.
IE 008	AC10M Volt Fault	Grid overvoltage error: Check that you have selected the correct security code (network standard). Check the voltage drop across the AC line up to the changeover counter.

IE 009	DCI OCP Fault	DCI overcurrent error: Check the compatibility between PV generator and inverter via designer. Check the integrity of the MC4 connectors of the photovoltaic strings.
IE 010	DCV OVP Fault	EPS (Off-grid) overvoltage error: Check that you have selected the correct security code (network standard). Check the voltage drop across the off-grid line up to the load.
IE 011	SW OCP Fault	Software Overcurrent Fault: Check the compatibility between PV generator and inverter via designer. Check the integrity of the MC4 connectors of the photovoltaic strings.
IE 012	RC OCP Fault	Over current error: Check the compatibility between PV generator and inverter via designer. Check the integrity of the MC4 connectors of the photovoltaic strings.
IE 013	Isolation Fault	Insulation error: Check the insulation of the AC and DC line
IE 014	Temp Over Fault	Overtemperature error: Check the place of installation of the devices
IE 015	Bat Con Dir Fault	Current Error EPS(Off-grid): Check that the maximum AC power at the Off-grid output is within the limits. Check for any non-linear load connections on the EPS (Off-grid).
IE 016	EPS(Off-grid) Overload Fault	EPS Load Error(Off-grid): Check that the maximum AC power at the Off-grid output is within the limits.
IE 017	OverLoad Fault	Network Load Overload Error: Turn off high power devices and restart the inverter.
IE 018	BatPowerLow	Low Battery Power Error: Turn off high power devices. Charge the battery to a level higher than the protection values.
IE 019	BMS Lost	Lost communication with battery: Check the integrity of the BMS cable. Verify that you have connected the cables securely to the correct communication ports.

IE 020	Fan Fault	Fan error: Check that foreign material has not caused damage to the impeller.
IE 021	Low Temp	Fan error: Check that foreign material has not caused damage to the impeller
IE 022	ARM Unmatched	Incompatible ARM firmware version. Update the ARM firmware version and restart the inverter.
IE 023	Other Device Fault	External device error: Update the inverter to the latest firmware version and restart.
IE 024	InterComms Error	Generic communication error: Restart the entire system.
IE 025	InterComms Error	Generic communication error: Restart the entire system.
IE 026	Inv EEPROM Fault	Inverter EEPROM error: Restart the whole system.
IE 027	RCD Fault	RCD error: Restart the entire system.
IE 028	Grid Relay Fault	Network Relay Error: Restart the entire system.
IE 029	EPS(Off-grid) Relay Fault	EPS Relay Error: Restart the entire system.
IE 030	PV ConnDirFault	PV string polarity error: Check the correct polarity of the MC4 connector with the photovoltaic strings
IE 031	ChargerRelayFault	Charge Relay Error: Restart the entire system.
IE 032	EarthRaleyFault	EPS Ground Relay Fault: Restart entire system.
IE 101	PowerTypeFault	Power failure: Check for firmware updates.
IE 037	CtMeterConFault	CT Meter ConFault: Check whether the cable connection of the CT or meter is proper or not.
IE 033	ParallelFault	Parallel Fault Check the communication and earth cable connection and matching resistor settings

IE 102	Port OC Warning	EPS overcurrent error: Check that the maximum AC power at the Off-grid output is within the limits.
IE 103	Mgr EEPROM Fault	EEPROM manager error: Restart the entire system
IE 104	DSPunmatched	DSP version error: Check that the DSP versions of the inverters match
IE 105	NTC Sample Invalid	NTC error: Restart the entire system. Check the place of installation of the devices.
IE 106	Bat Temp Low	Battery overtemperature error: Check the place of installation of the accumulation system.
IE 107	Bat Temp High	Battery under temperature error: Check the place of installation of the accumulation system.
IE 109	Meter Fault	Meter error: Check the correct installation of the meter/TA
IE 110	BypassRaleyFault	Bypass relay error: Restart the entire system.
BE 001	BMS_External_Err	External battery error: Check the electrical and data connections between the battery and the inverter and between the batteries.
BE 002	BMS_Internal_Err	Internal battery error: Check the electrical and data connections between the battery and the inverter and between the batteries. Check the correct setting of the dipswitch.
BE 003	BMS_OverVoltage	Battery overvoltage error: Check the compatibility between the capacity of the storage system and the inverter.
BE 004	BMS_LowerVoltage	Battery undervoltage error: Charge the battery via the Battery charger function in the advanced settings.
BE 005	BMS_ChargeOCP	Battery overcharge error: Check the electrical and data connections between the battery and the inverter and between the batteries. Restart the storage system.
BE 006	BMS_DischargeOCP	Battery overcharge error: Check the electrical and data connections between the battery and the inverter and between the batteries. Restart the storage system.

BE 007	BMS_TemHigh	Battery overtemperature error: Check the electrical and data connections between the battery and the inverter and between the batteries. Check the place of installation of the accumulation system. Restart the storage system.
BE 008	BMS_TempSensor Fault	Temperature sensor error: Restart the storage system
BE 009	BMS_CellImblance	Cell charge error: Verify that the batteries have the same SOC.
BE 010	BMS_Hardware Protect	BMS hardware error: Restart the storage system.
BE 011	BMS_Circuit_Fault	BMS circuit error: Restart the storage system
BE 012	BMS_ISO_Fault	Battery insulation error: Verify that the battery is properly grounded.
BE 013	BMS_VolSen_Fault	BMS voltage sensor error: Restart the storage system
BE 014	BMS_TemppSen_Fault	Temperature sensor error: Restart the storage system
BE 015	BMS_CurSensor Fault	Current sensor error: Restart the storage system
BE 016	BMS_Relay Fault	BMS relay error: Restart the storage system
BE 017	BMS_Type_Unmatch	BMS software error: Check for BMS updates.
BE 018	BMS_Ver_ Unmatch	BMS version error: Check battery firmware alignment.
BE 019	BMS_MFR_ Unmatch	Battery communication error: Check models and firmware versions of the batteries.
BE 020	BMS_SW_ Unmatch	BMS software error: Check battery firmware alignment.
BE 021	BMS_M&S_ Unmatch	Battery firmware mismatch error: Check battery firmware alignment.
BE 022	BMS_CR_ NORespond	Battery charge error: Check BMS firmware versions
BE 023	BMS_SW_ Protect	Slave battery software error: Check BMS firmware versions

BE 024	BMS_536_Fault	Battery discharge overcurrent error: Restart the storage system.
BE 025	BMS_SelfcheckErr	Storage system overtemperature error: Restart the whole system.
BE 026	BMS_TempdiffErr	Temperature sensor error: Restart the storage system
BE 027	BMS_BreakFault	Battery SOC Error: Restart the storage system
BE 028	BMS_Flash_Fault	BMS hardware error: Restart the storage system.
BE 029	BMS_Precharge_Fault	Battery charge error: Restart the storage system.
BE 030	BMS_AirSwitch_Fault	Battery switch error: Restart the storage system.

10. Disposal

This device MUST NOT be disposed off as municipal waste.

The crossed-out wheeled bin symbol on the device label indicates that the product at the end of its useful life must be collected separately from other waste to allow for proper treatment and recycling. The user will therefore have to deliver the equipment that has reached the end of its life free of charge to the appropriate municipal centers for the separate collection of electrical and electronic waste, or return it to the dealer according to the 1 against 1 method when purchasing a new equivalent product . Adequate separate collection for the subsequent sending of the decommissioned equipment to environmentally compatible recycling, treatment and disposal helps to avoid possible negative effects on the environment and health and promotes the re-use and/or recycling of the materials it is made of the equipment. Illegal disposal of the product by the user involves the application of the sanctions referred to in current legislation.

11. Warranty conditions

For the warranty conditions, refer to the relative document which can be downloaded from the website www.peimar.com.

PEIMAR

info@peimar.com | www.peimar.com

Version: 2024_11_02