PV Grid-connected Inverter

EA3KLPV/EA4KLPV/EA5KLPV

User's Manual

Contents

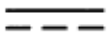
1 Manual Instruction

1.1 Symbols used in this manual

This manual contains important instructions for safety and operation which must be understood and carefully followed during installation and maintenance of the equipment. In order to reduce the risk of electric shock and to be sure that the equipment is correctly installed and ready to operate, special safety symbols are used in the manual to highlight potential safety risks or useful information. The symbols are the following:

	**DANGER!**
	DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.
	**WARNING!**
	WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.
	**CAUTION!**
	CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
	**NOTICE**
	NOTICE indicates a situation which, if not avoided, could result in property damage.
	**Information**
	Information provides tips that are valuable for the optimal installation and operation of your product.

This manual and machine may also use the following electrical symbols and identification. Description as follows:

Symbol	Description	Symbol	Description
	Direct current	—	Continuous negative voltage pole

	Alternating current		On (Supply)
	Earth (ground) TERMINAL		Off (Supply)
	Protective conductor TERMINAL		Caution, risk of electric shock
	Frame or chassis TERMINAL		Caution, hot surface
+	Continuous positive voltage pole		Caution, risk of danger
	Refer to the operating instructions		Caution, risk of electric shock. Energy storage timed discharge (time to be indicated adjacent to the symbol)

1.2 User group

Please read this manual thoroughly. This manual contains information about EA3KLPV/EA4KLPV/ EA5KLPV single phase grid-connected inverter of transportation, installation, operation, maintenance and troubleshooting.

1.3 Validity

This manual applies to EA3KLPV/EA4KLPV/ EA5KLPV grid-connected inverter.

2 Safety Instructions

- The inverter must be installed by a qualified electrician who is responsible for observing existing standards and regulations.
- Read and understand all the instructions contained in this manual and become familiar with the safety symbols in the relevant paragraphs before you install and operate the equipment.

- The connection to the distribution grid must be done only after receiving approval from the distribution utility as required by national and state interconnection regulations, and can be done only by qualified personnel.
- Comply with all corresponding marks and symbols present on each device. During operation, make sure that all covers and doors are closed.

DANGER!

Unauthorized removal of the necessary protections, improper use, wrong installation or wrong operation may lead to serious damage to people and objects.
Transport, handling, installation, start-up and maintenance must be performed by qualified and trained personnel.

DANGER!

After disconnecting the inverter from distribution grid, wait for 60 seconds for capacitors to discharge before servicing or touching any live part and electric connection.

WARNING!

The installation must be performed in full compliance with national and local standards and regulations.

WARNING!

When the photovoltaic array is exposed to light, it supplies a DC voltage to the PCE. To ensure a safe work environment, keep the whole surface of the photovoltaic panel covered with material opaque to solar radiation before connecting panel to equipment.

WARNING!

Make sure the DC input voltage does not exceed 520V, or it may damage this inverter permanently and cause other losses.

	WARNING!
	Do not change the internal components of the inverter without permission.

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

3 Product Description

3.1 Photovoltaic/PV grid-connected system

PV grid-connected system consists of PV modules, grid-connected inverters, metering device and power distribution system (Figure 1).

The solar energy is converted into DC current by PV modules and then feeding into the local power grid network by the grid-connected inverter which synchronizing the frequency, phase and pure sine waveform with the power network.

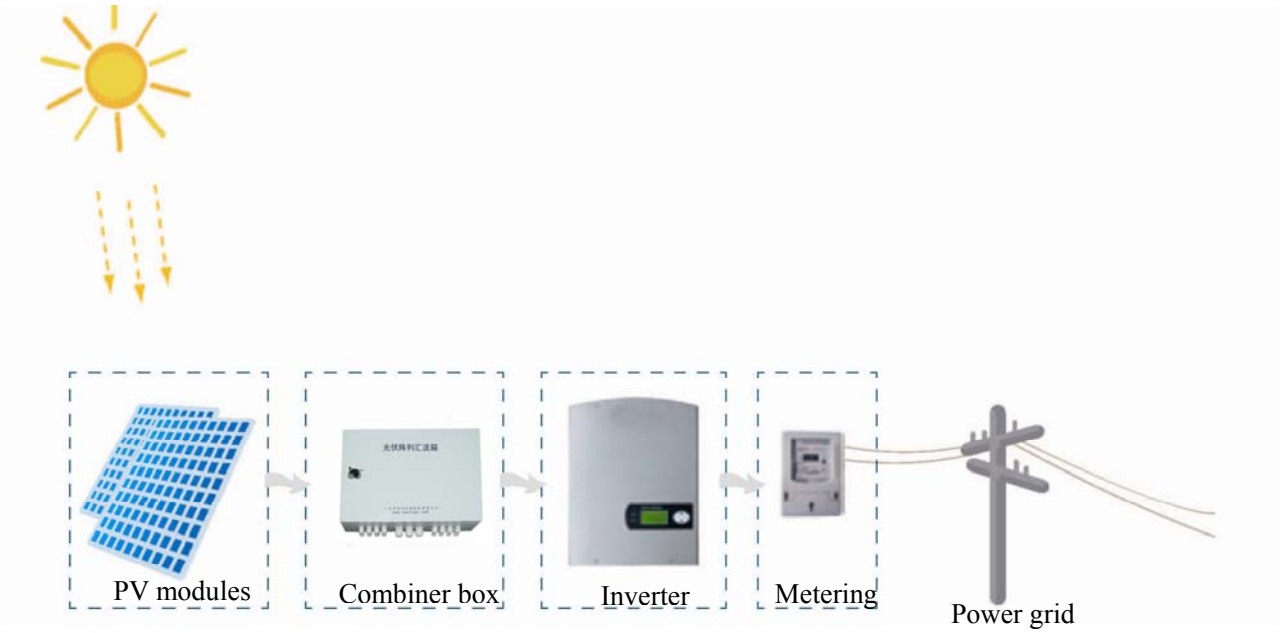


Figure 1 PV grid-connected system

3.2 Basic structure

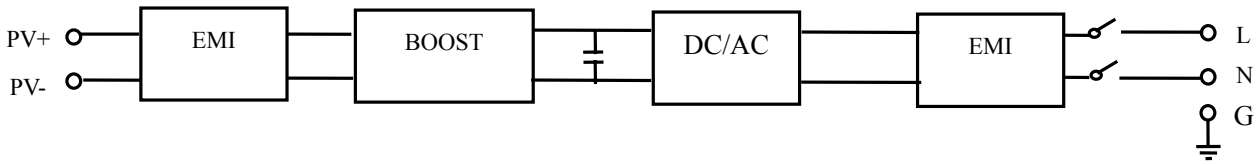


Figure 2 Working principle of EA3KLPV

This inverter is designed with boost+ inverter topology. The DC filter prevents the penetration of high-frequency line-bound interference. After the voltage equalization by the capacitor, the inverter converts the direct current from solar power system into alternating current with the same frequency and phase with the grid. The downstream LC filter has the purpose of equaling the current. Finally the current flows to the utility grid.

In order to make maximum output power of photovoltaic array, it adopt advanced MPPT algorithm in the DC boost side.

3.3 Appearance, dimension and weight

3.3.1 Appearance

	Information
	Inverter with 4 colors for customer choice. Respectively are: red, green, yellow, gray

Figure 3 External Appearance of EA3KLPV/EA4KLPV/EA5KLPV

	Information
	Installation method as shown in the 5.5.1 of " Ⅰ ".

Figure 4 External Appearance of the special EA3KLPV

	Information
	Installation method as shown in the 5.5.1 of " Ⅱ ".

	Information
	The PV input has one channel of MPPT which consists of three pairs of terminals, so there can be max three PV strings connecting to the channel.

3.3.2 Dimensions and weight

Figure 5 Dimensions of EA3KLPV/EA4KLPV/EA5KLPV

The dimensions of the EA3KLPV/ EA4KLPV/ EA5KLPV are 430mm ×568mm ×200mm (W×H×D). The inverter weighs approximately 25kg. Please take this dimension and weight into consideration during shipping, moving and installation.

3.4 Technical data

Type / Specification	EA3KLPV	EA4KLPV	EA5KLPV
Input			
Nominal DC voltage	400VDC		
Operating voltage range	150V～500V		
Max PV input voltage	520		
PV short-circuit current	20A	22A	22A
Max DC current	18A	20A	20A
Max DC power	3.3kw	4.3kw	5.3kw
Peak DC short-circuit feedback current	159 A peak impulse (duration time 2ms)		
DC to case insulation voltage	Basic insulation 1800Vdc/1min		
MPPT			

Full-load MPPT voltage range		180~420VDC	210~420VDC	250~420VDC
Number of MPP-Trackers		1	1	1
MPPT efficiency (static)		＞99%		
Output (AC)				
Working manner		continuous		
Output phase number		single phase and 3 line		
Nominal AC power		3kw	4kw	5kw
Nominal AC voltage		230Vac		
Nominal AC current		13.5A	18A	22A
Max allowable AC current		16A	20A	25A
Nominal frequency		50Hz		
Distortion （THD）		<3% (nominal power)		
Output voltage DC ponderance		<0.5%(nominal output power)		
Power factor (cos phi)		＞0.99		
Output current limit		When overload or short circuit		
Inverter short-circuit current		130 A peak impulse (duration time 2ms)		
AC to case insulation voltage		Basic insulation 1500Vdc/1min		
Efficiency				
Max efficiency		97.5%		
Euro efficiency		96.2%	96.3%	96.5%
General Requirements				
Standby consumption		12w		
Night consumption		0W		
Grid connected method		Direct connect（transformerless）		
Ingress protection		IP65		
Protection degree		Type I		
RS485 to DC input insulation voltage		Reinforce insulation 3000Vdc/1min		
Mean Time Between Failures（MTBF）		40,000 hours		
Working life		20 years		
Protection				
Input protection		Reverse connect protection		
		Short-circuit protection		
DC to ground insulation resistance detecting and protection		＞800kohm		
Output protection		Short-circuit protection		
Grid monitoring		Voltage monitoring，Frequency monitoring		
Input lower /over-voltage protection points		150V/530V		
Grid lower /over-voltage protection points	TUV: DIN VDE 0126-1-1	184V/253V		
	G59/2	X	200V/253V	200V/253V
	G83-1	207V/264V	X	X
	AS4777	205V/265V		

Grid lower /over-frequency protection points	TUV: DIN VDE 0126-1-1	50.2Hz/47.5Hz		
	G59/2	X	52.0Hz/47.0Hz	52.0Hz/47.0Hz
	G83-1	50.5Hz/47.0Hz	X	X
	AS4777	52Hz/47.5Hz		
Residual current monitoring		Comply with DIN VDE 0126-1-1		
Fault current monitoring		Comply with DIN VDE 0126-1-1		
Anti-islanding protection		Comply with DIN VDE 0126-1-1		
Standard				
Safety		IEC 62109-1，IEC 62109-2		
certification		VDE/TUV/CE		
EMC		EN61000-6-1,EN61000-1-2;Class B		
EMI		EN61000-6-3,EN61000-1-4		
Functional safety and anti-islanding		DIN VDE0126-1-1/AS4777/G83-1/G59-2		

Remark: Europe efficiency calculate :

$$\eta_{Euro} = 0.03\eta_{5\%} + 0.06\eta_{10\%} + 0.13\eta_{20\%} + 0.10\eta_{30\%} + 0.48\eta_{50\%} + 0.20\eta_{100\%}$$

Others

Items	Specification	Remarks
Radiation noise	CISPR22 Class A	
Conducted noise	CISPR22 Class A	
AC short circuit protection	Yes（current limited）	
Lightning resistant	1.2uS X 50uS 5kV	DC/AC to ground
ESD Protection	Case to operational part 15kV	System can work normally
Noise	<50dB 1m	
Vibration resistance	JEC-5917	5Hz 1G 30times at X・Y direction 10Hz 1G 30times at X・Y direction 5Hz 0.5G 30times at Z direction 10Hz 0.5G 30times at Z direction
Durable years	20 years	Average temperature 25℃ 12H/day

Environmental conditions

Items	Specification	Remarks
Operating temperature	-20℃~+50℃	
Altitude	2000 m	
Relative humidity	4% ~ 100 %	
Noise level	＜50dB 1m	
Cooling Method	Natural cooling	

* Above data just for reference. If there is a change, please refer to the machine.

4 Installation

4.1 Safety

	**DANGER! Danger to life due to fire or explosion!** Despite careful construction, electrical devices can cause fires. • Do not mount the inverter on flammable construction materials. • Do not install the inverter in areas where highly flammable materials are stored. • Do not install inverters in areas with a risk of explosion.

	**CAUTION! Risk of injury due to the heavy weight of the inverter.** •Take the weight of the inverter into account for transport. • Select a suitable mounting location and mounting surface. • When mounting the rear panel, use fastening material suitable for the mounting surface. • Two people are needed to mount the inverter.

	**CAUTION! Danger of burn injuries due to hot enclosure parts!** Mount the inverter in such a way that it cannot be touched inadvertently.

4.2 Selecting the mounting location

Consider the following points when selecting where to install:

- The protection level of this product is IP65, so it can be installed outdoors.
- Vertical installation.
- Do not install horizontally.
- Select a well-ventilated location sheltered from direct sun radiation. Choose a location that allows unobstructed airflow around the inverter.
- The operation will generate some noise (<50dB), so please install away from the people living space.
- Mount on a solid surface. Ensure the installation place does not wobble.

- The machine should be installed in the reinforced concrete wall or metal wall that can bear the weight of the inverter. It should not be installed in the wood to keep from danger of fire.
- Height from ground level should be such as to ensure that the display and status LEDs are easy to read.
- Ensure the temperature range can keep in the range (-25°C — +50°C)
- Allow sufficient room around the inverter to enable easy installation and removal from the mounting surface.
- There must be sufficient clearance between the individual inverters so that the
- cooling air from the adjacent inverter is not drawn in.

	NOTICE
	Ambient temperature range shall be -20°C to +50°C. It will affect the power output when the temperature exceeds the limit.

	NOTICE
	Environment humidity must be in the range of 4% ~ 100%.

4.3 Wall mounting

Included in the shipping package is a mounting kit with 6 screws and 6 wall plugs provided for mounting the metal bracket to a concrete wall. The screws should be mounted in the 6 holes present in the bracket (as Figure 5 shows).

After the bracket is secured to the wall, hang the inverter on the bracket. As shown below.

Figure 6 Installation for cabinet

The inverter needs to be lifted up and then slid down over the hooks making sure that the connecting points in the bracket and in the back of the inverter engage properly.

5 Electrical Connection

5.1 General safety instruction

	**DANGER!** Improper operation during the wiring process can cause fatal injury to operator or unrecoverable damage to the inverter. Only qualified personnel can perform the wiring work.

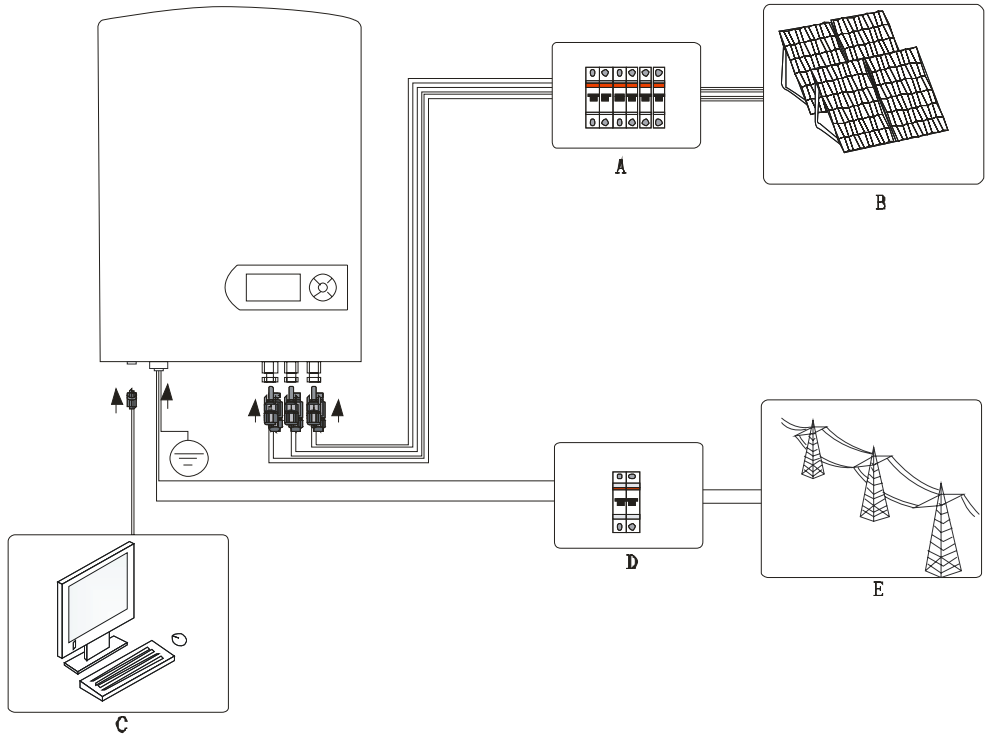
	**DANGER!** Before you connect the inverter, disconnect the AC and DC sides from all power sources and secure them against being inadvertently switched back on.

	**WARNING!** Always respect the nominal ratings of voltage and current specified in section 4 (Technical Data) when designing your system. Please observe these considerations when designing the photovoltaic field: Maximum DC voltage input to each MPPT circuit: 520 V Maximum DC current input to each MPPT circuit: 18A for EA3KTLPV and 20A for EA4KLPV/ EA5KLPV

	**WARNING!** Check the national and local standard regulations to make sure that your electrical installation design is in compliance with them.

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

5.2 The electrical connection diagram overview



Inverter electrical connection includes PV side electrical connections, AC side electrical connections and communication cable electrical connection.

No.	Item	Remarks
A	DC circuit breaker	Used as a protective device during electrical connection. User must equips this device according to the maximum input voltage and current. You must choose the external DC circuit breaker whose rated current is 40A and the max breaking capacity can reach more than 1kA.
B	PV arrays	There are three pairs of input terminals in one MPPT channel for the inverter. The allowable maximum open-circuit voltage of PV arrays is 520V. And the allowable maximum short-circuit currents of the connected modules is 22A.
C	Remote PC	User equips this device to monitor the state of the inverter.
D	AC circuit breaker	Used as a protective device during electrical connection. You must choose the external AC circuit breaker whose rated current is 40A and the max breaking capacity can reach more than 2kA. The PE cable should be connected reliably to the earth.
E	Grid	Rated voltage of each phase of the utility grid is 230V.

5.3 Cable requirements

All cables for PV power system are equipped with water-proof direct plug-in connectors. You'll find these connectors in the package.

For electrical connection in the PV system described above, the cross section of all cables used should not be smaller than the following requirements.

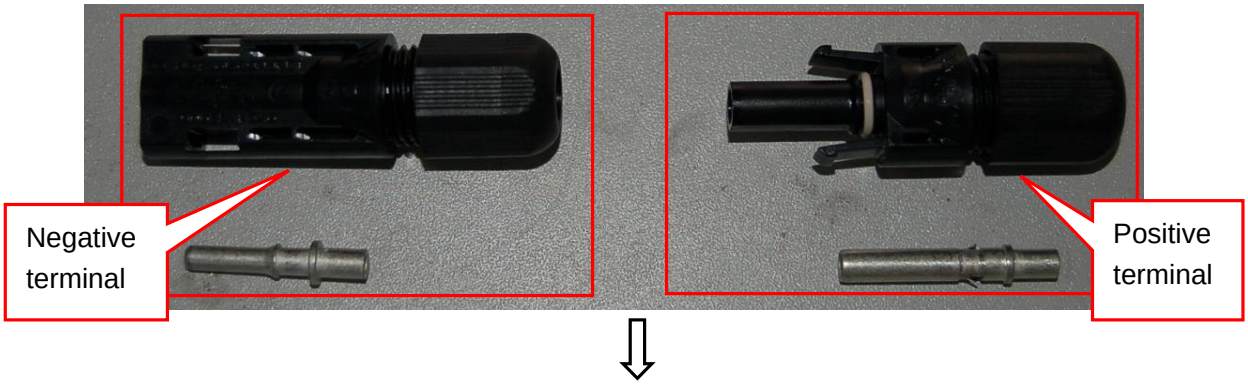
Terminals / Wire Size (mm) / AWG / Model	AC Output		DC Input 1		DC Input 2		DC Input 3	
	L	N	+	-	+	-	+	-
EA3KLPV	11	11	10	10	10	10	10	10
EA4KLPV	10	10	10	10	10	10	10	10
EA5KLPV	10	10	10	10	10	10	10	10

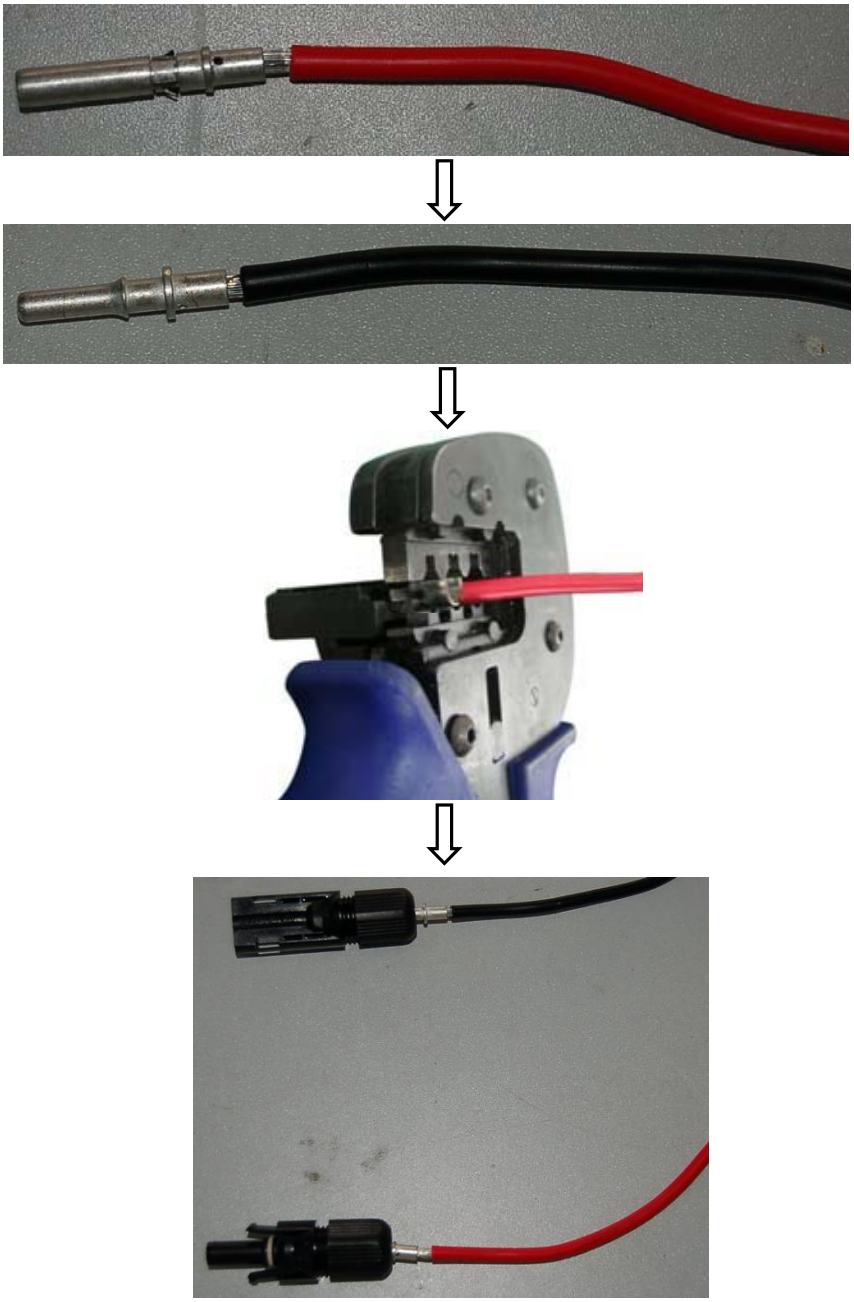
There are three channels of DC input which can connect three PV strings. The red is "+", and the black is "-". There is one channel of AC output, the red is L phase, the black is N phase， and the yellow-green is PE.

	NOTICE
	The grid impedance of the AC cable must not exceed 1 Ohm. Otherwise, the inverter will disconnect at full feed capacity due to excessive voltage at the feed-in point.

5.4 Connection of the PV generator (DC)

5.4.1 DC input wiring





5.4.2 DC connection

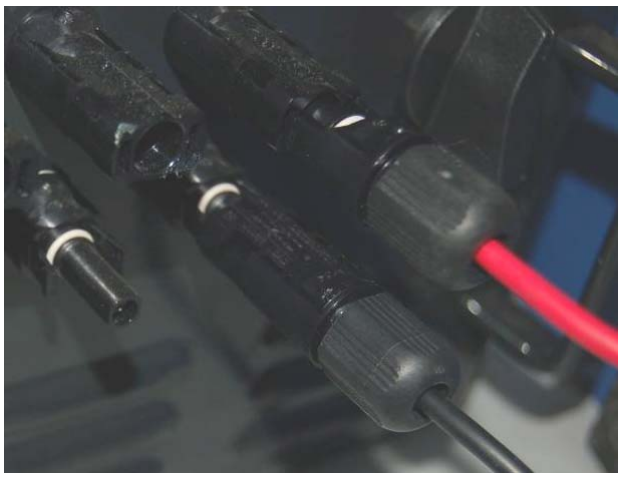
Step 1: Assemble DC cable to connector at the inverter side. See “5.4.1 DC Input Wiring”.

Step 2: Disconnect DC and AC circuit breakers.

Step 3: Check connection cable of one PV array string for correct polarity and that the maximum input open circuit voltage does not exceed 520V.

Step 4: Measure DC voltage between positive terminal of the PV string and Earth and DC voltage between negative terminal of the PV string and Earth. If the two voltages are constant and not zero, there is an insulation failure somewhere in this PV string.

Step 5: Plug DC positive and negative connector into corresponding terminals. If it makes a click sound, it means DC connector has attached to terminals.



Step 6: Link the rest of the two photovoltaic module strings in the same manner.

	NOTICE
	To create the sealing of the inverter, all the DC inputs that are not required have to be closed as follows: – Insert the sealing plugs provided into the DC plug connectors that are not required. Do not insert the sealing plus into the DC inputs on the inverter. – Insert the DC plug connectors with sealing plugs into the corresponding DC inputs on the inverter.

5.5 Connecting inverter to AC grid

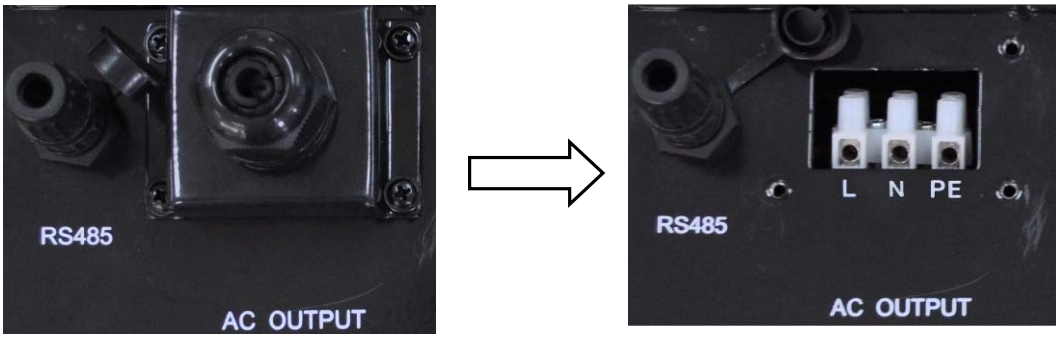
5.5.1 AC output wiring

	NOTICE
	As the series of products, in the 3KWpower section, there are two kinds of AC output terminals, So,in the installation of EA3KLPV machine, please install personnel to select the corresponding installation method

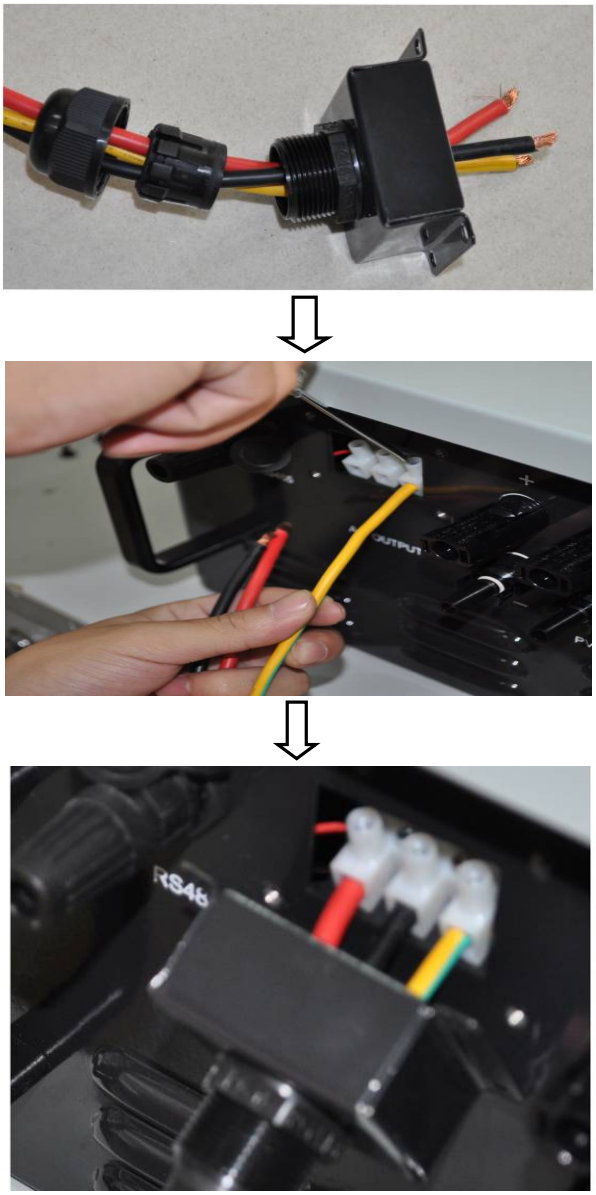
Ⅰ: Do not plug in AC output terminal installation method

	NOTICE
	The following installation method applicable to the series, with the exception of the special EA3KLPV; External Appearance as shown in Figure 3

Step 1: Unscrew AC output cover at the downside of the machine.



Step 2: Insert stripped AC cables of appropriate size into the cable glands. Fix the phase cables into corresponding terminals with screwdriver according to marks. Fix ground cable into the ground terminal.



Step 3: Screw the AC output cover.

Step 4: Tighten the cable gland in clockwise direction.

Ⅱ: Pluggable AC output terminal installation method

	NOTICE
	The following installation method is only applicable to the series of special EA3KLPV ,External Appearance as shown in Figure 4.

Step 1: Put the wires through Screw Cap, Adapter Body of the AC female connector.

Keep the wire L, N, PE corresponding to 1、3、⏚ of the AC male connector on the inverter correctly.

1	L	Wire red	
3	N	Wire black	
⏚	PE	Wire yellow&green	

	**Attention!**
	Please ensure the corresponding relationship between polarity the core cable and the holes of the terminal is the correct

Step 2: Screw these components tightly after connecting the wires.

Step 3: Finally, connect AC female terminal to AC male terminal on inverter ,tighten the cable and then screw them tightly together.



	DANGER! Danger to life due to fire or explosion!
	Despite careful construction, electrical devices can cause fires. • Do not pull out the connector, when grid-connected inverter is working, so as to avoid electric shock hazard. • Do not immediately contact pin, when grid-connected inverter after disconnection, there may be residual electricity,

5.5.2 AC connection

Step 1: Assembling AC cables to connector supplied. See “5.5.1 AC Output Wring”.

Step 2: Make sure that AC and DC circuit breaker are disconnected.

Step 3: Connect L, N to AC circuit breaker.

- Plug AC connector to corresponding AC terminals.
- Screw AC cables to AC circuit breaker.

Step 4: Connect PE to the ground.

Step 5: Connect AC circuit breaker to utility grid.

Step 6: Make sure that all AC cables are firmly installed.

	NOTICE
	Assignment of AC cables should be paid attention to, especially “PE/GND” wire.

5.6 Connecting communication cable

5.6.1 Assembling the RS485 plug connector

Step 1: Make the communication cable through the waterproof ring, and then connect the cables to the terminal.

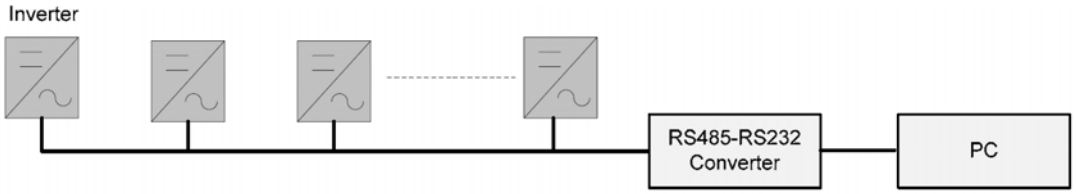
1	Blank	
2	B	
3	A	
4	GND	

2. Fasten the waterproof ring and case.

3. Finally, match the finished terminal to the RS485 communication port on the inverter's case，then it is ready for communication.

5.6.2 Monitor system connection

The inverter provides RS485 interface to communicate with remote PC. User can monitor the state of the inverter and observe current running information and history record via this interface. Below is the method to install the monitoring system.



6 Switch on and off

6.1 Switch on

1. Finish the installation of the PV array, AC grid and the inverter according to the introduction before.

2. Before switch on, checking whether AC voltage and DC voltage can meet the requirement of the inverter

3. Switch on the DC breaker at first.

4. Then switch on the AC breaker.

5. When the environment conditions allow the inverter to work, the inverter will automatically start up and connect the grid to generate power.

6. After the inverter works normally on grid, it can be left working itself without human control. It can shut down when fault occurs and it can start automatically after the fault is gone.

6.2 Switch off

1. When solar power was not enough to generate the power, the inverter will shut down automatically.

2. If you need to shut down yourself, you can operate the inverter through the front panel screen.

3. The process of emergency shutdown.

If you need shut down the inverter in emergency, first turn off the AC breaker, then turn off the DC breaker, otherwise it may lead to the damage of the DC breaker and danger to people. If any damage or loss occurs due to not following this requirement, EAST POWER will not follow the warranty.

7 Troubleshooting

7.1 Troubleshooting of the LED indicator

Type of fault	Troubleshooting
LED indicators and LCD cannot be lit	1. Disconnect AC circuit breaker. 2. Disconnect DC circuit breaker. 3. Check the polarity of DC input.
“RUN” indicator goes out	1. Disconnect AC circuit breaker. 2. Disconnect DC circuit breaker. 3. Check the correctness of electrical connection of inverter. 4. Check whether the voltage of DC input exceeds start-up voltage of inverter. 5. If all above conditions are OK, please contact East.
“Fault” indicator is lit red.	1. There is a fault which is not removed yet. 2. Perform troubleshooting according to fault type in LCD screen. See “7.2 Troubleshooting of Faults in LCD Screen”. 3. If it can’t be solved, please contact East.

7.2 Troubleshooting of faults in LCD screen

Type of fault	Explanation	Troubleshooting
PV OV	Overvoltage in PV input	1. Disconnect AC circuit breaker. 2. Disconnect DC circuit breaker. 3. Check the voltage of PV side. 4. Restart the inverter until the DC voltage returns to allowable range.
BUS OVER/ RPH.OV	Overvoltage of the bus/ Overvoltage of grid voltage	1. Disconnect AC circuit breaker. 2. Disconnect DC circuit breaker. 3. Check the voltage of grid side. 4. If local grid condition exceeds AC requirements of inverter, reset the protecting parameters. See “8.2.4 PARA. SET”. And if local grid voltage exceeds the upper limit value of “Vgrid-max”, or if local grid voltage is under the lower limit value of “Vgrid-min”, please contact your local electricity company to adjust the grid voltage. 5. If the fault still exists, please contact East.
RPH.UV	Under voltage of the grid	
RPH.OFR	Over-frequency in the grid	1. Disconnect AC circuit breaker. 2. Disconnect DC circuit breaker. 3. Check the frequency of grid side. 4. If local grid condition exceeds AC demands of inverter, reset the protective parameters. See “8.2.4 PARA. SET”. And if local grid frequency exceeds the upper limit value of “Fgrid-max”, or if local grid frequency is under the lower limit value of “Fgrid-min”, please contact your local electricity company to adjust the grid frequency. 5. Close DC circuit breaker. 6. Close AC circuit breaker. 7. If the fault can’t be solved, please contact East.
RPH.UFR	Under-frequency in the grid	

BOOST OT R MO. OT/	Over- temperature in Boost module Over-temperature in the inverter module	1. Check whether the installation place is OK. 2. Check whether AC output power exceeds rated power too much. 3. Check the state of the fans. 4. Check whether there is some foreign body blocking the air inlet and outlet. Clean air grills of air vent.
RPH.OC	Over-current in the grid side	Check whether AC output power exceeds rated power too much.
RPH.OL	Overload in the grid side	Check whether there is too much load in the output grid.
NO GRID /ISOLATED	The grid is not normal.	1. Check whether AC circuit breaker is off. 2. Check whether AC cables are all firmly connected. 3. Check whether grid is cut off. 4. If all conditions are OK and this malfunction still occurs in the LCD screen, please contact East.
MO.FAULT	There is a fault in the module of the inverter.	If this malfunction occurs, the reasons are very complicated. 1. Disconnect AC circuit breaker. 2. Disconnect DC circuit breaker. 3. Check the temperature of heat sink. If its temperature exceeds 80℃, restart the inverter until it recovers to environment temperature. 5. Close DC circuit breaker. 6. Close AC circuit breaker. 7. If this malfunction happens again, please contact us.
LEAKAGE C.	The leakage current is abnormal.	If the LCD shows these faults, there may be something damaged in the inverter or the solar modules. Then you'd better not touch any component of the inverter, shutdown the circuit-breaker or the disconnector immediately and then contact us.
PV NO EARTH	The insulation between the PV and the Earth is abnormal.	
RELAY FAULT	The state of the relay in the inverter is abnormal.	

8 Operation Instructions

8.1 Front panel introduction

The front panel consists of LCD, state indicator and the button, by which we can set the parameters and observe the operating status.

Figure 9 LCD and Interface

8.2 Operation of LCD

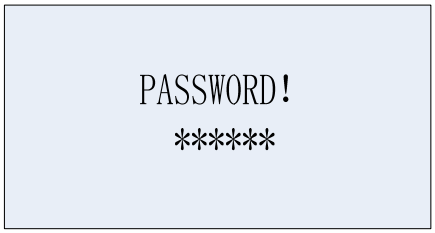
8.2.1 RUN INFO.

E-POWER : 2989 KW E-DAY : 008.1 KWH E-TOTAL : 1975 KWH STATUS : GIRD	1. Automatic screen saver interface, it displays the main running parameter including input voltage, input current, input power, grid voltage, grid current, grid power and frequency. After 5 minutes, if there is no operation, the LCD interface will automatically go into the default interface. It contains running status, generation power, the present time and date and also the fault information. 2. Press "ENTER" into the control main menu
▶ RUN INFO. HISTORY POWERON/OFF PARA. SET PORDUCT INFO.	3. Select "RUN INFO", press "ENTER" , you can check the overall running information

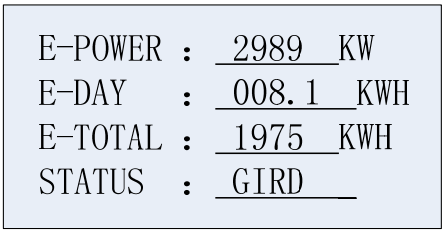
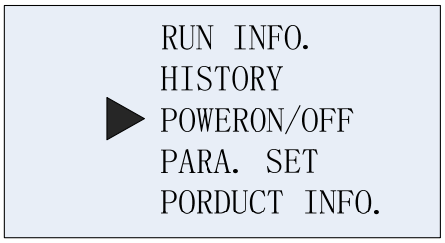
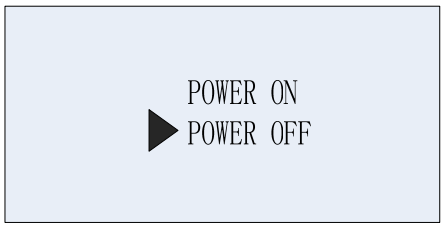
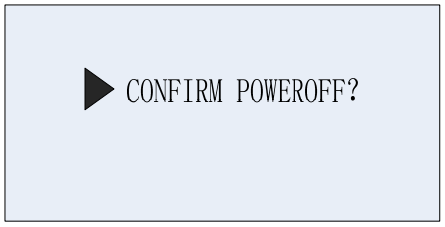
PV VOLTAGE (V) 000.0 PV CURRENT (A) 00.00 PV POWER (KW) 00000	4. It first shows the PV input parameters
VOLTAGE (V) 000.0 CURRENT (A) 00.00 POWER (KW) 00000 FREQUENCY (HZ) 00.00	5. Press▼, it displays the actual parameters of AC output

8.2.2 HISTORY

E-POWER : 2989 KW E-DAY : 008.1 KWH E-TOTAL : 1975 KWH STATUS : GIRD	1. Enter the default main menu interface; 2. Press “ENTER” into the “control main menu;
RUN INFO. ▶ HISTORY POWERON/OFF PARA. SET PORDUCT INFO.	3. Select “HISTORY”; 4. Press “ENTER” into the “History” menu
HISTORY RECORD 0001 2011/04/01 10:35:23 CONNECT 0000 0002 2011/04/11 15:23:43 STANDBY 0000	5. Fault history including present fault information and history fault information。 6. The exact fault as below: DC over voltage, AC low voltage, frequency abnormal, island effect, temperature abnormal, DSP abnormal, communication abnormal and so on.。
HISTORY RECORD 0003 2011/04/11 10:35:13 GRID 0000 0004 2011/04/15 15:23:53 ISLADN 0000	7. Press ▼ to next page to see the information. 8. Press “ENTER”,showing the interface to clear history information .

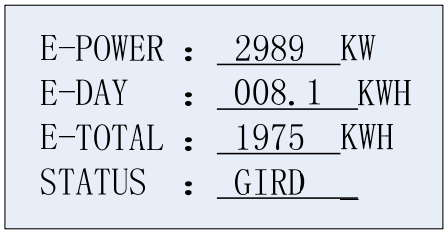
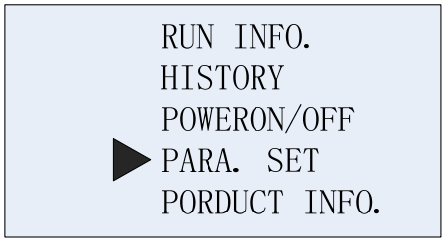
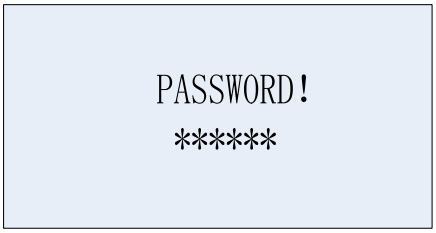
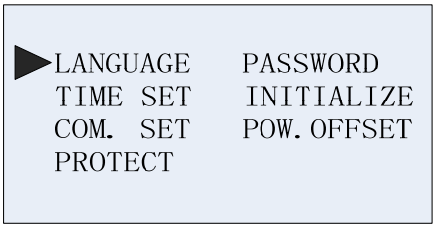
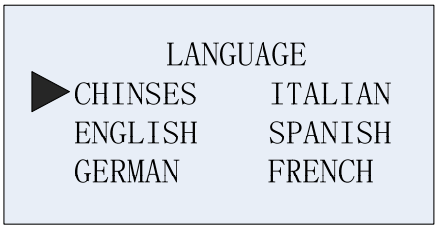
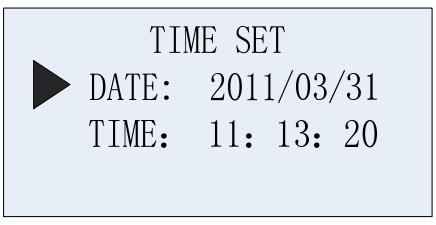
	9. Select OK ,press “ENTER”, it will shows the input code interface;
	10. Input the correct password ,the history information will be cleared ,please confirm it before the operation。

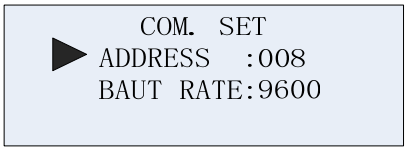
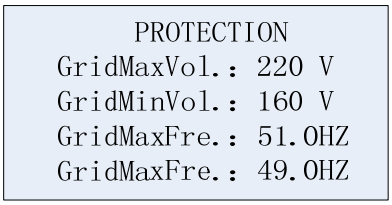
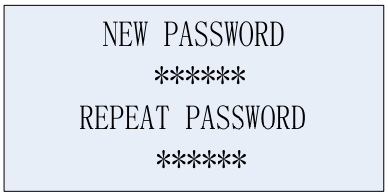
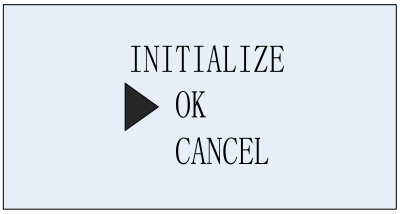
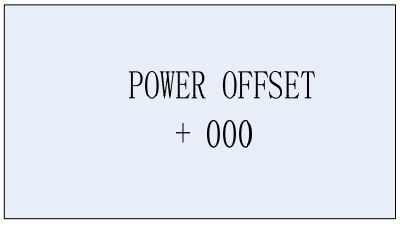
8.2.3 POWER ON/OFF

	1. Enter the default main menu interface; 2. Press “ENTER” into the “control main menu”;
	3． Select “POWER ON/OFF”;
	4. Press “ENTER” into the power off interface;
	5. Press “ENTER” to power off.

	NOTICE
	In normal case, when the external condition is OK, the machine will start by itself.

8.2.4 PARA. SET

	1. Enter the default main menu interface; 2. Press “ENTER” into the “control main menu”;
	3. Select “PARA. SET”; 4. Press “ENTER”;
	5. The default password is month+date+time, six number, eg: month and date is 2011-06-07, time is 15:23:11, so the code is 060715; 6. press “ENTER”
	7. Enter the parameter setting interface, you can set the language, time, communication mode, protect parameter, code and so on;
	8. Select “language”, press “ENTER” into the language setting interface. There are five kinds of language, you can select the relative language, use the “▶”to find the language you need and press “ENTER” to confirm.
	9. Select “time set”, press “enter” into the time setting interface, you can set the date and time;

	10. Select “communication set”, press “ENTER”, you can set the communication address and the baut rate;
	11. Select “Protection set”, press “ENTER” into the protection setting interface ,you can set the on-grid voltage and the protect frequency;
	12. Select “Code set”, press “ENTER “into the code setting interface, you can set the password in order to strengthen the safety of the system;
	13. Select “return initial set”, press “ENTER” into the initializing interface ,it can initialize the language, time, date, communication ,protect parameter and so on. All the record and fault information will be cleared and return to the parameter set interface ,so please think carefully to use the function of returning to the factory value;
	14. Press “ENTER” to select the data ,use the ▼to add or delete the value, after the set of the last value, press “enter” to confirm; 15. When the value of the generation power on the LCD is not the same with the outside metering device ,the interface will change the generation value ; Notice that when you select +,use ▼ can change the +/-; 16. Generation power compensation=metering device value-generation power value on the LCD;

	**NOTICE**
	The communication parameter is the most important parameter in the inverters’ communication and the communication between the inverter and the external monitor device.

8.2.5 PRODUCT INFO.

E-POWER : 2989 KW E-DAY : 008.1 KWH E-TOTAL : 1975 KWH STATUS : GIRD	1. Enter the default main menu interface; 2. Press “ENTER” into the control main menu.
RUN INFO. HISTORY POWERON/OFF PARA. SET ▶ PRODUCT INFO.	3. Select “product information”; 4. Press “ENTER”
PRODUCT INFO. COMPANY : EAST MODEL : EA10KTLPV SOFTWARE: V1.0	5. The interface will display the company’s name, the product’s type and software version.

9 Appendix

9.1 Packaging list

Check the packaging list for completeness and for any visible external damage. Contact your dealer if anything is damaged or missing.

No	item	quantity/unit	remarks
1	PV Grid-connected inverter	1 set	
2	User’s manual	1 pcs	
3	Product warranty card	1 pcs	
4	screws	6 pcs	
5	PV input terminal	1 set	
6	AC output terminal	1 set	

Table1 Packaging list

9.2 Exclusion of liability

The content of these documents is periodically checked and revised, when necessary, please call us or check our website for the latest information. However discrepancies cannot be excluded. No guarantee is made for the completeness of these documents. Please contact our company or distributors to get the latest version.

Guarantee or liability claims for damages of any kind are excluded if they are caused by one or more of the following:

- Improper or inappropriate use or install of the product
- Installing or operating the product in an unintended environment
- Installing or operating the product when ignoring relevant safety regulations in the deployment location
- Ignoring safety warnings and instructions contained in all documents relevant to the product
- Installing or operating the product under incorrect safety or protection conditions
- Altering the product or supplied software without authority
- The product malfunctions due to operating attached or neighboring devices beyond allowed limit values.
- In case of unforeseen calamity or force majeure.