Lenercom

Lenercom Residential ESS-E3

User's Manual

About this manual

This manual mainly introduces the product information, Installation, operation and maintenance guidelines of the photovoltaic energy storage and grid-connected integrated machine. It does not contain all the information of the photovoltaic system. You can log on to www.lenercom.com or the equipment manufacturer's website for more information.

Scope of application

This manual is applicable to the following models of low-power string-type photovoltaic energy storage grid-connected machines:

• LC-E3

Unless otherwise specified, hereinafter referred to as LC-E3.

To the reader

This manual is intended for professional technicians who Install, operate and maintain the inverter, as well as end users who need to view inverter information.

Manual use

Please read the manual carefully before using the product, and keep the manual in a place where it is easily accessible.

The content of the manual will be continuously updated and revised, the user please refer to the actual product purchased, and can pass the www.lenercom.com or sales channels to obtain the latest version of the manual.

Firmware version of the family design inverters: V01.10.27
Firmware version of the BMS: BCMU-HV-27AH-V1.0

Symbol usage

In order to ensure the personal and property safety of users when using the product, and to use the product more efficiently and optimally, the manual provides relevant safety information, which is highlighted by the following symbols.

Please carefully understand the meaning of the warning symbols so that you can use the manual better.

Symbol	Description
DANGER	A highly potentially hazardous situation which, if not avoided, will result in death or serious injury.
WARNING	Moderately hazardous, which, if not avoided, could result in death or serious injury.
CAUTION	Low potential hazard situation which, if not avoided,could result in moderate or minor injury to persons
NOTICE	There is a low potential hazard, and if not avoided, may cause the equipment to fail to operate normally or cause property damage.
	Emphasizes and complements content, or provides tips using the product that can help you solve a problem or save time.

About this manual

1 Safety instruction

LE-E3 is designed and tested in strict accordance with relevantinternational safety standards.As electrical and electronic equipment,relevant safety regulations must be observed during its Installation, commissioning, operation and maintenance. Unreasonable use or misuse mayresult in:

- Harm the life and personal safety of the operator or a third party
- Damage the inverter or other property belonging to the operator/third party

In order to avoid personal injury, damage to the inverter or other equipment, please strictly follow the following safety precautions. The specific precautions during the operation will be explained in the corresponding chapters.

1.1 General safety instruction

Please follow the various instructions for PV panels.

DANGER

Fatal voltage danger

Exposure of PV strings to sunlight will generate dangerous voltages.

Since the energy storage battery system may cause the danger of electric shock and short circuit, in order to avoid possible accidents. All electrical connections are required and should only be done by professional technicians.

Utility grid
Please follow the access of local grid.

NOTICE

All electrical connections must meet local and national electrical codes.

The inverter can only be connected to the grid with permission from the local power department.

1.2 LE-E3

The warning signs and descriptions on LE-E3 are shown in the table below:

	CE mark. The inverter complies with the requirements of the applicable CE guidelines.
	TUV certified.
	RCM remark.
	Pay attention to danger, do not operate with electricity!
	After the LE-E3 is disconnected from all external power sources, wait at least 10 minutes before touching live devices.
	The surface is hot, be careful of burns! To avoid burns, do not touch the surface of the machine while it is running.
	High voltage danger! Installation and operation should only be performed by qualified professionals.
	Please read the manual before performing any operation on the LC-E3.
	The inverter can not be disposed together with the household waste. Disposal information can be found in the enclosed documentation.

DANGER

Danger of electric shock!

Only the intact and closed box shell can protect the safety of people and property. Do not open the cover of the LC-E3 when the LC-E3 is working or powered on, otherwise Lenercom will not be held responsible.

DANGER

Danger of damage to the LC-E3 unit or personal injury!

When LC-E3 is working, it is forbidden to plug or unplug the PV connector, AC connector and Bat connector.

All safety signs, warning labels and name plates on the LC-E3 must beclearly visibleand cannot be removed or covered .

CAUTION

Danger of burns!

When the LC-E3 is running, only touch the LED indicator and the DC switch.It is strictly forbidden to touch the hot parts of the device (such as radiator, etc.) during operation.

NOTICE

Country selection and protection parameters must be set by professional technicians according to local power grid standards. The wrong country setting may affect the normal operation of the inverter, causing the LC-E3 to be inconsistent with the country's certification.

Touching printed circuit boards or other static-sensitive components may cause damage to the device.

- Avoid unnecessary circuit board contact.
- Comply with electrostatic protection regulations and wear anti-static wristbands

1.3 Skills requirements for professional and technical personnel

All Installation operations must and only be performed by professional technicians. Professional technicians must:

- After special training;
- Read this manual completely and master the operation-related safety matters;
- Familiar with local standards and relevant safety regulations for electrical

2 Product description

2.1 LC-E3 product

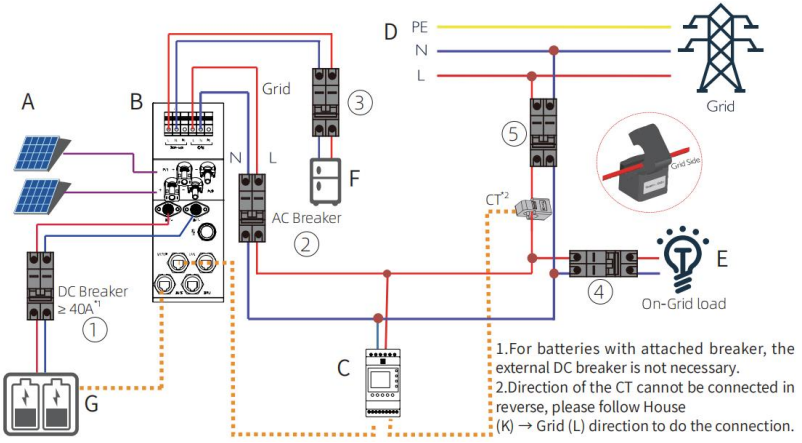
LC-E3 is a single-phase transformerless string photovoltaic energy storage grid-connected integrated inverter, which is an important part of photovoltaic power generation system. The LC-E3 converts the DC power generated by the photovoltaic panels into AC power that meets the requirements of the grid to supply the load, and the rest is charged to the battery and fed into the grid.

WARNING

Product is only suitable for the energy storage grid-connected power generation system described in this article.

Since the product is a transformer less type, it is required that the positive and negative poles of the PV strings cannot be grounded, other wise product will not be able to operate normally.

The typical application scenarios of product are shown in the following figure.



Model	1	2	3	4	5
LC-E3-505 LC-E3-508	40A/600V DC Breaker	63A/230V AC Breaker	32A/230V AC Breaker	Depends on household loads	

Fig 2-1 Application of integrated machine in photovoltaic power generation system

No.	Item	Description
A	PV	MonocryStealthine silicon, polycryStealthine silicon, thin-film batteries that do not need to be grounded.
B	Product	include inverter and battery
C	Metering device	Standard metering tool for inverter output energy.

No.	Item	Description
D	Grid	Grounding type: TT, TN.
E	Household Loads	Household appliances that consume electrical energy.
F	Important Loads	Important Loads that cannot be suddenly cut off.
G	Battery system	Battery and BMS system components.

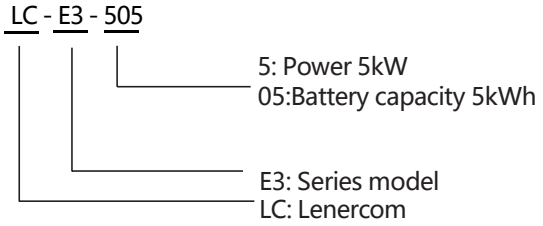
Notice

For TT-type grids, the neutral-to-ground voltage must be less than 30V.
Do not connect local loads, such as household appliances, lighting, and motor loads, between the LC-E3 and the AC circuit breaker.

2.2 Poduct introduction

2.2.1 Model description

For example,LC-E3-505:

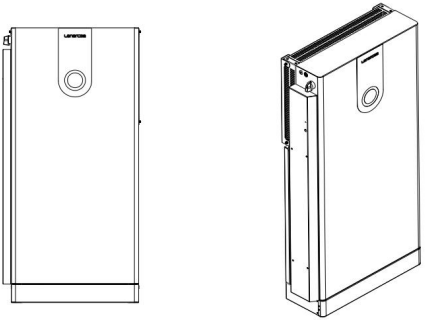


2-1 Power description

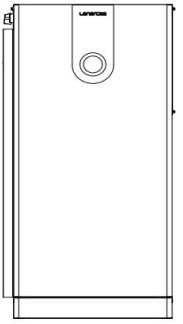
Model	Nominal ouput	Rated grid voltage
LC-E3-505	5000VA	230Va.c.(single phase)
LC-E3-508	5000VA	230Va.c.(single phase)

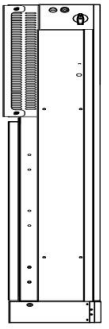
2.2.2 Apperance

The following illustrations are for reference only, please refer to the actual objects.



2.2.3 Dimensions and weight



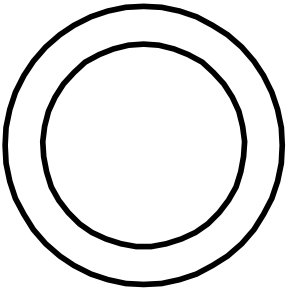


2-3 Size marking(unit：mm)

Model	Width (mm)	Height (mm)	Depth (mm)	Net weight(kg)
LC-E3-505	640	1100	220	86
LC-E3-508	640	1330	220	110

2.2.4 LED light

As a human-machine interface, LED indicators are located on the front of the LC-E3. By observing the flashing color and speed of the indicator light, the user can obtain the current working status of the inverter. Please refer to Table6-1 for the description of indicator status.



2.3 Function description

The functions of the fusion cube can be summarized as follows:

- **Inversion**

The inverter converts direct current to alternating current consistent with the requirements of the Installed regional grid and feeds it into the grid.

- **Datastorage**

The LC-E3 stores system information,such as running information and fault records.

•Parameterconfiguration

Product provides avariety of parameter configurations to meet various needs or to adjust its operating performance to the best. Users can view the information of product through the mobile app. For more professional configuration, please contact Lenercom after-sales.

- **Communication interface**

It can be connected to the WiFi communication data acquisition module to realize the communication function and connect the monitoring equipment with the entire photovoltaic energy storage system

- **Protection function**

Product has protection functions such as short-circuit protection, insulation resistance grounding monitoring, residual current protection, anti-islanding protection,and DC overvoltage/overcurrent protection.

NOTICE

Shutdown sequence

AC Breaker ➡ PV Switch ➡ Battery Swtch ➡ DC Breaker

2.4 Working mode

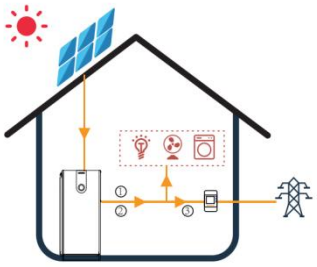
LC-E3 series, also known as hybrid or bidirectional solar inverters, is suitable for solar systems with PV, battery, load and grid systems for energy management. The energy generated by the photovoltaic system.

The power is first used to provide the load, the excess power can be used to charge the battery, and the remaining power can be used for grid connection. When the PV power is not sufficient to meet the requirements, the battery should be discharged to support the load consumption. If both photovoltaic power and battery power are insufficient, the system will use grid power to support the load.

Operation Mode Introduction

NOTICE
The above introduction describes the general working of a photovoltaic system. The operation mode can be adjusted according to the system layout on the Lenercom Cloud App. The following are the general operating modes of photovoltaic energy storage systems.

Depending on your configuration and layout conditions, PV energy storage systems typically have the following modes of operation:



MODE-1: Self Use

The self-use mode is suitable for areas with low feed-in subsidies and high electricity prices.

① When the power of PV is sufficient

Active Charging or Discharge time period: PV will power the loads firstly, and surplus power will charge to the battery . If the battery is fully charged, then sell the surplus power to the grid;

(PV > Load, PV → Load → Battery → Grid)

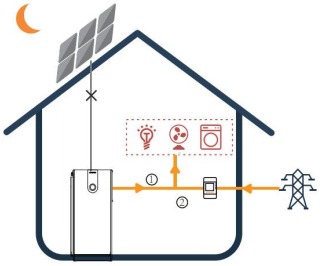
② When the power of PV is insufficient

Active Charging time period: PV will power the loads firstly ,the remaining power will betaken from the grid , the battery will not discharge at this time.

(PV < Load, PV + Grid → Load)

Active Discharge time period: PV+BAT will power the loads together. If the power is still not enough, the remaining power will betaken from the grid.

(PV < Load, PV + Battery + Grid → Load)



③ Without PV power

Active Charging time period: The grid supplies the loads and also can charge the battery;

(PV=0, Grid → Load + Battery)

Active Discharge time period: The battery will power the home loads örstly. If the battery power is not enough,the remaining power will betaken from the grid. The inverter will enter into the standby state.

(PV=0, Battery+Grid → Load)

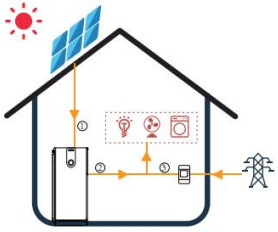
Battery min SOC can be set:10%-100%

Charge battery to min SOC can be set:10%-100%

MODE-2 Feed-in priority

The Feed-in priority mode is suitable for areas with high feed-in subsidies, but has feed-in power limitation.

① When the power of PV is sufficient



Active Charging time period: First, PV supply power to the load, then charge the battery to the set capacity, and then sell the power to the grid. If the local grid company limits the grid-connected power of the inverter, the excess energy continues to charge the battery.

(PV > Load, PV → Load → Battery → Grid → Battery)

Active Discharge time period :PV will power the loads firstly, and surplus power will feed-in to the grid.

(PV > Load, PV → Load → Grid)

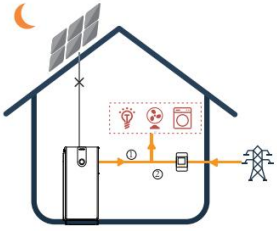
② When the power of PV is insufficient

Active Charging time period:PV will power the loads firstly, the remaining power will be taken from the grid. The battery will not discharge.

(PV < Load, PV + Grid → Load)

Discharge time period:PV+BAT will power the loads together. If the power is still not enough, the remaining power will be taken from the grid.

(PV < Load, PV + Battery + Grid → Load)



③ Without PV power

Active Charging time period: The grid will power the home loads and also charge the battery;

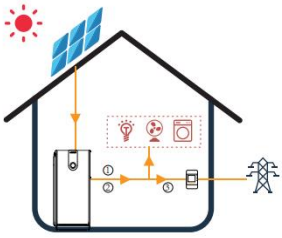
(PV=0, Grid → Load +Battery)

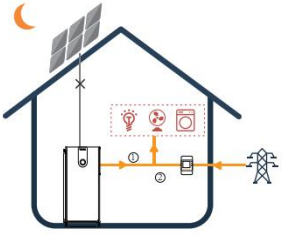
Active Discharge time period: The battery will power the home loads firstly. If the battery power is not enough, the remaining power will betaken from the grid. The inverter will enter into the standby state.

(PV=0, Battery+Grid → Load)

Battery min SOC can be set:10%-100%

Charge battery to min SOC can be set:10%-100%





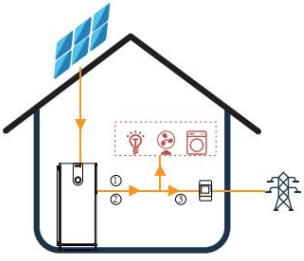
MODE-3 Backup mode

The back-up mode is suitable for areas with frequent power outages.

Same working logic with "Self-use" mode. This mode will maintain the battery capacity at a relatively high level. (Users' setting) to ensure that the emergency loads can be used when the grid is off. Customers no need to worry about the battery capacity.

Battery min SOC can be set: 10%-100%.

Charge battery to min SOC can be set: 10%-100%.



MODE-4 Forced charge and discharge mode

On the forced charge and discharge mode, the charging and discharging time can be set by the user according to the local electricity price.

Discharg during peak consumption (high tariff, usually 8: 00-12:00, 14:00-18:00) and charg during low consumption (low tariff, 23:00-7:00) to save electricitycosts.

Outside the set time ,the inverter operation state will be the same as the Self Use mode.

Notice: in the case of grid connection, all working modes work normally when the battery SOC >10%. When the SOC is below 10%, the PV or Grid will first charge the battery SOC to be 15%, and then return to the working mode by the user

3 Unpacking and storage

3.1 Unpacking inspection

Product has been completely tested and strictly inspected before leaving the factory,but damage may still occur during transportation. Please conduct a detailed inspection before signing for the product.

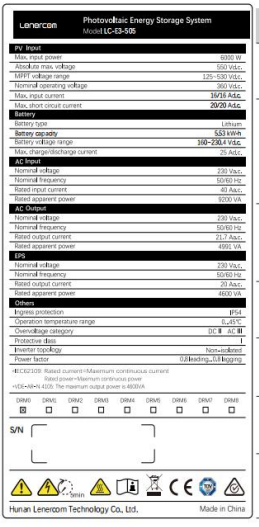
- Check the packing box for damage.
- According to the packing list, check whether the goods are complete and in accordance with the order.
- Unpack and check whether the internal equipment is in good condition.

If you find any damage, please contact the shipping company or the after-sales service of Lenercom directly, and provide photos of the damage, so as to provide the fastest and best service.

Do not discard the original packaging of product. It is best to store product in the original box after it is out of service and removed.

3.2 Identifying product

The nameplate of product is attached to the side of the body.

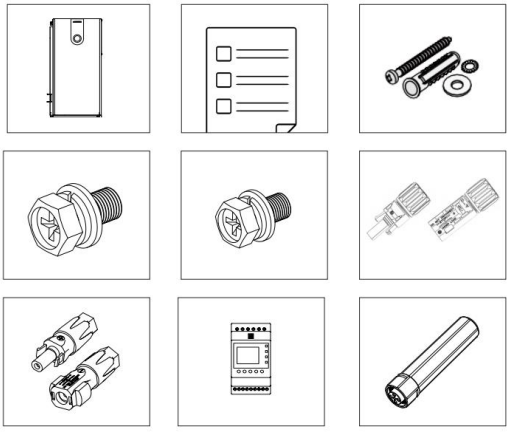


3-2 LC-E3 nameplate

Icon	Description
	Pay attention to danger, do not operate with electricity!
	After the all-in-one unit is disconnected from all external power sources, wait at least 10 minutes before touching livedevices.
	The surface is hot, be careful of burns! To avoid burns, do not touch the surface of the machine while it is running.
	Refer to the relevant instructions
	Do not dispose of Lenercom with household waste
CE	Conform to CE certificate
TÜV SÜD	Conform to TÜV certificate
	RCM remark.

Table 3-1 Description of nameplate

3.3 Delivery list



3-3 Delivery list

a)Unless other wise specified, All-in-one diagrams in this document use LC-E3 as an example.

b)Documentation includes quick user manual, certificate of conformity, packing list and product test report.

c)The WiFi communication module may be standard or optional, subject to the actual delivery.

3.4 LC-E3 Storage

If the LC-E3 is not immediately put into operation, the LC-E3 needs to bestored in specific environmental conditions:

- Repack in the original box, keep the desiccant.
- Storage temperature range 0 ℃ ~30 ℃ , relative humidity range 0~100%, no condensation.
- The maximum number of stacked layers of multiple LC-E3 doesnot exceed 8 layers.
- The packing box cannot be tilted or inverted.

4 Mechanical Installation

4.1 Installtion Precautions

DANGER

Before installing the LC-E3,make sure the LC-E3 has no connections. Before drilling, make sure to avoid the water and electricity wiringin the wall to avoid danger!

CAUTION

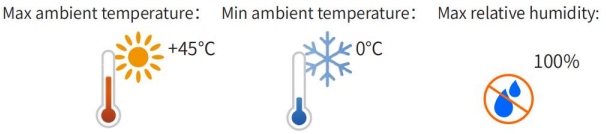
Improper handling may result in personal injury! The instructions in the manual must be followed when handling and placing the equipment. Poor ventilation in the Installation environment will affect system performance!

- It is necessary to ensure good ventilation during the operation of the equipment.
- The device must be kept upright and the heat sink uncovered to ensure adequate cooling inside the device.

4.2 Choose the Installation site

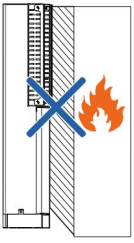
The LC-E3 is IP54 rated and can be used for indoor Installation.
Choosing the best Installation location for an integrated machine plays a very important role in its safe operation, life assurance, and performance assurance.

- The Installation wall must have the ability to support at least 4 times the weight of the inverter.
- The Installation location should be easy for electrical connection, operation and maintenance.
- Do not Install LC-E3 in the living area. The operation of LC-E3 generates some noise,which may affect daily life.
- Do not Install LC-E3 where children can reach it.
- The Installation environment must meet the following conditions:



• The Installation wall must have fire resistance, and there must be no flammable substances or flammable gas in the Installation space.

Wall material flammability

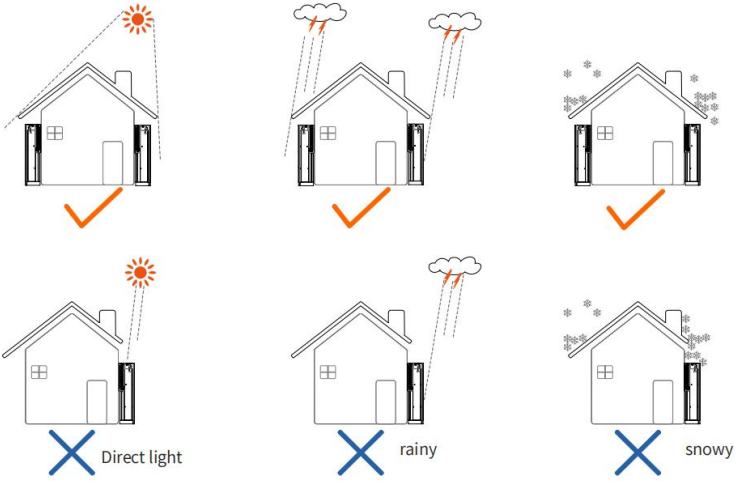


Flammable materials or gases are found near the Installation point

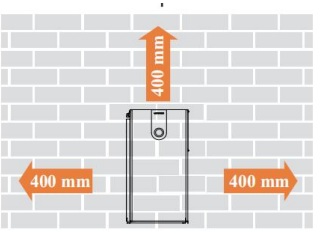
NOTICE

LC-E3 cannot be Installed horizontally, otherwise the equipment will be damaged.

• Avoid direct sunlight, rain and snow, and it is best to choose a sheltered installation site, which can prolong the service life of the equipment.



• Reserve enough space during installation to facilitate air convection around LC-E3 and subsequent maintenance.

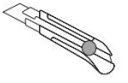
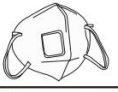
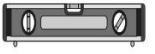


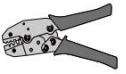
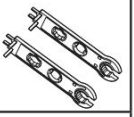
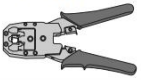
• When multiple rows are installed, the distance between two adjacent rows is required to be at least 400mm.

NOTICE

It is very important to ensure smooth ventilation and heat dissipation of LC-E3.Please install the LC-E3 in a ventilated environment. Do not install the LC-E3 in a closed box, otherwise it will affect the power generation of LC-E3.

4.3 Installation tools and parts

Type	Tools			
General	Tape 	Pen 	Tape ruler 	Knive 
	meter （≥ 1100V） 	Protective suit 	Anti-static bracelets 	Protective gloves 
	Masks 	Earplug 	Eye protector 	Insulated shoes 
	Hoovers 	Spirit level 		

Installation	Hammer : ϕ10 	Rubber hammer 	Electric screwdrivers 	Cross screwdriver 
	Wire stripper 	hydraulic clamp 	wire crimpers2.5-6mm² 	MC4 Terminal wrench 
	wire cutters 	Crystal head crimping pliers 		

4.4 Installation of LC-E3

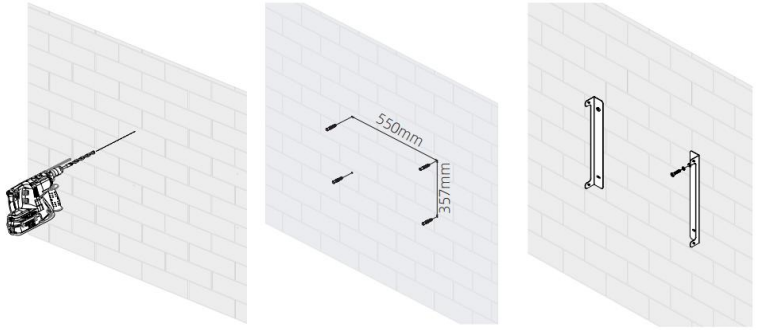
After transporting the LC-E3 near the installation site, the user chooses the fixing method (back fixing/bottom fixing)

LC-E3 installation fixing

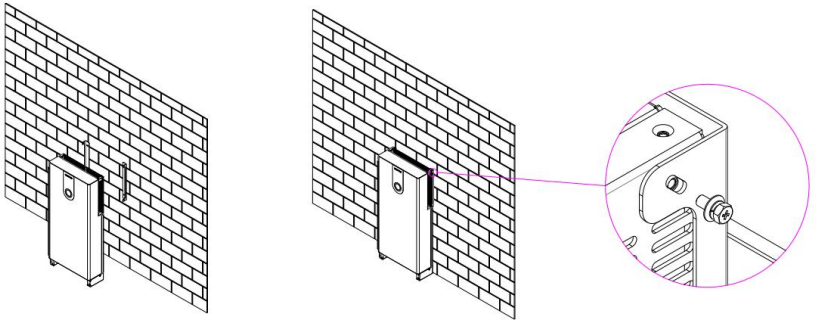
- Method 1: Back fixing

1. Mark the four drill holes at the right height on the wall, using a marker, as shown in the figure.

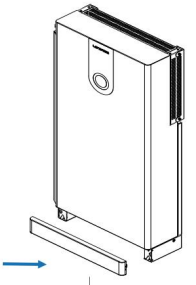
2. Drill holes at the marked locations to a depth of approximately 75mm and install the wall fixings using flat pads, locking spacers and self-tapping screws,Hole distance 550*357mm



3. Place the LC-E3 between the two wall fixings that have been fixed to the wall and fasten the LC-E3 to the wall fixings using M5*12 screws.



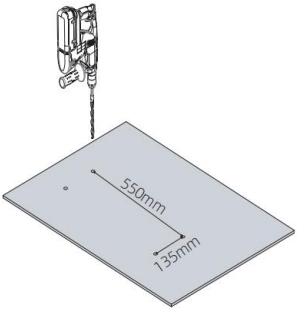
4. Install the base cover. Push the base cover inwards as shown until you hear a click and the base cover snaps securely into place on both sides of the base. Installation is complete.

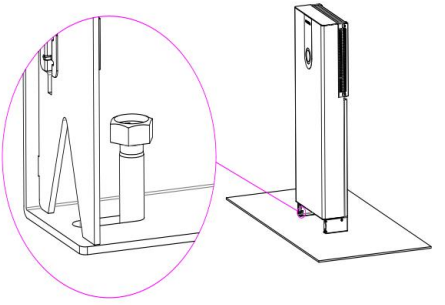


Base cover plate

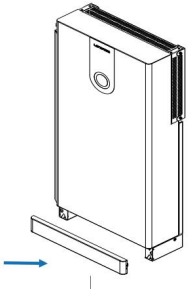
- Mode 2: Bottom fixing

1. Drill 4 holes at a suitable position on the ground to a depth of approximately 75mm and fix the base to the ground using M6*80 screws with a torque of 3.5~3.9N-m,Hole distance 550*135mm.





2. Install the base cover. Push the base cover inwards as shown in the diagram until you hear a click and the base cover snaps securely into place on both sides of the base. Installation is complete.



Base cover plate

5 Electrical connection

Personal protective equipment must be worn when working on electrical wiring.

DANGER

There may be high voltage in the LC-E3!
Pay attention to safety before making electrical connections. Exposure of PV strings to sunlight will generate dangerous voltages.
Make sure all cables are de-energized before making electrical connections, and do not close the AC circuit breaker until electrical connections are complete.

DANGER

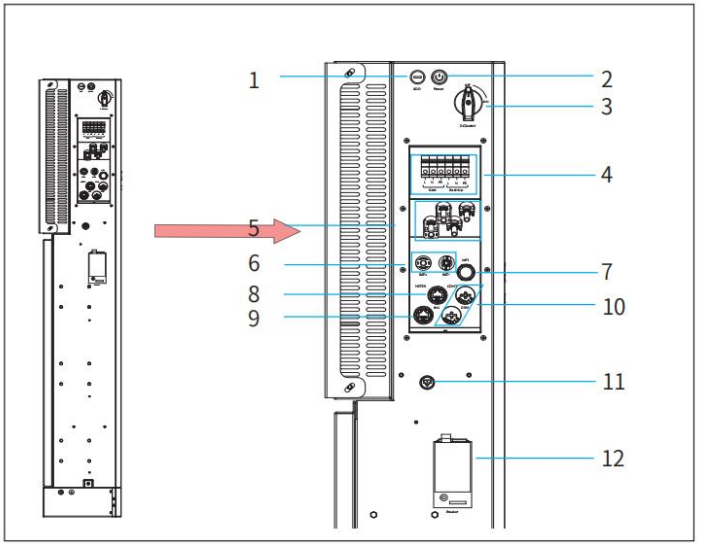
Any improper operation during wiring may result in equipment damage or personal injury. Wiring must be done only by professional technicians. Cables used in photovoltaic power generation systems must be firmly connected, undamaged, well insulated, and of appropriate size.

NOTICE

The relevant rules of the local power grid and the relevant safety instructions for PV strings and battery systems must be followed. All electrical Installations must comply with the electrical standards of the country in which they are Installed.
Connect the LC-E3 to the grid only with permission from the local power department.

5.1 Terminal introduction

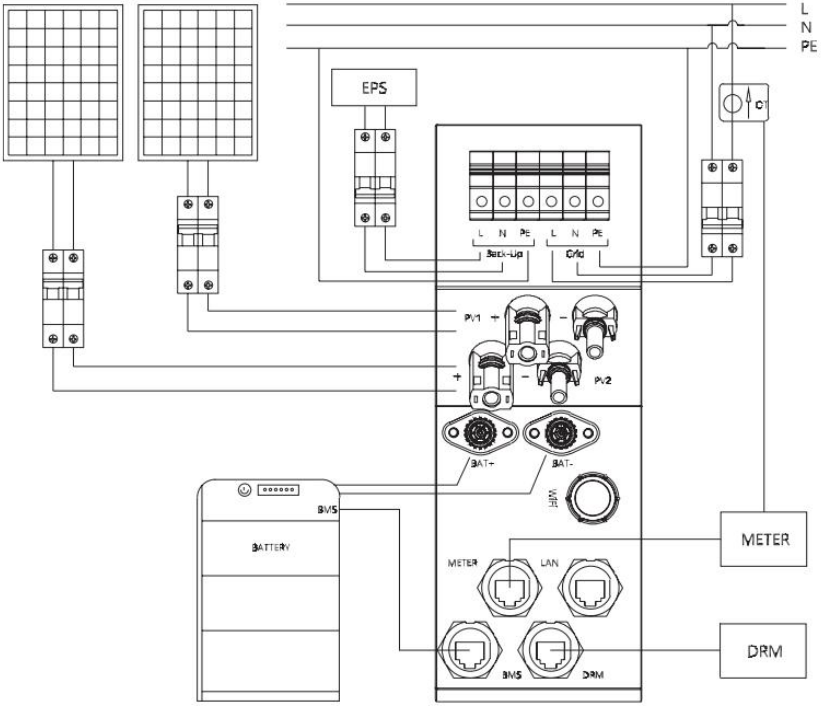
The external wiring terminals are located on the side of the LC-E3, as shown in the figure below. The picture is for reference only, please refer to the actual product!



No.	Printing	Description
1	ADD	ADD Switch
2	Power	Battery Switch
3	DC Switch	PV Switch
4	Grid/Back-up	Load/EPS(Off-grid) Output port
5	PV1+/PV1-/PV2+/ PV2-	PV connection port
6	BAT+/BAT-	Battery Parallel connection port
7	WIFI	WIFI Module connection Port
8	METER	Meter/CT Port
9	BMS	Battery Communication Port
10	COM1/DRM	Reserve ports
11		Waterproof breathable Valve
12	Breaker	Battery Breaker

5.2 Overview of electrical connection

The external electrical connections of LC-E3 include: grid connection, photovoltaic string connection, battery parallel connection, WiFi module connection and RJ45 terminal connection.



No.	Item	Remarks
A	Grid	Rated voltage is 230Vac.
B	EPS	EPS connects important loads
C	PV strings	LC-E3-505 and LC-E3-508 have 2 pairs of PV terminals.
D	The external energy storage battery system	includes batteries and BMS. Electricity meters are used for energy management.
E	Communication module	Type-C interface and WIFI module.
F	Electricity meter	Used for energy management
G	DRM	The demand of Australian grid
H	RESERVE	RESERVE

5.3 Ground connection

In the photovoltaic power generation system, all non-current-carrying metal parts and the casing of the equipment should be grounded (such as the bracket of the photovoltaic module, the inverter casing, etc.). LC-E3 adopts internal grounding, and also conducts secondary grounding externally.

Good grounding is good for resisting surge voltage impact and improving EMI performance, so before connecting AC, DC, and communication cables, grounding wires are required.

For a single-unit system, you only need to ground the PE cables; for a multi-unit system, you need to connect the PE cables of all inverters to the same grounding copper bar to ensure equipotential bonding.

DANGER

• Please make sure that the protective ground wire is connected reliably. If it is not connected or loose, it may cause electric shock.

• It is strictly forbidden to connect the N wire to the chassis as a protective ground wire, otherwise it may cause electric shock.

5.4 Grid and back-up connection

LC-E3 is connected to the power grid through L (live wire), N (neutral wire) and PE (ground wire). via Back-up_L, Back-up_N and Back-up_GND to connect with important loads.

5.4.1 AC side requirements

AC circuit breaker

In order to ensure that LC-E3 can be safely disconnected under load, an independent two-pole AC circuit breaker must be configured for each LC-E3 as a protection device.

The recommended AC circuit breaker specifications for LC-E3 are shown in the table below.

Model	Recommended specification
LC-E3-505	63A
LC-E3-508	63A

Table 5-1 Recommended AC circuit breaker specifications

Leakage current protector

There is an integrated leakage current monitoring unit inside LC-E3. When the integrated machine detects a leakage current greater than the allowable value,it will quickly disconnect from the grid.

If an RCD (Leakage Current Device) or a leakage current switch is installed externally, its operating current must be ≥ 300mA.

AC Cable Requirements

The recommended specifications of the AC cables are shown in the table below.

Model		Conductor cross-sectional area (mm^2)		Cable outerdiameter (mm)	
		Range	Recommended value	Range	Recommended value
LC-E3	Grid	6~8	8	6.0~8.0	6
	Back-up	4~6	4	4.0~8.0	4

NOTICE

Multiple LC-E3 cannot share one AC circuit breaker.

A load cannot be connected between the LC-E3 and the AC circuitbreaker.

The PE of the AC output interface is only used as the equipotential bonding point of the protective ground, and cannot be used as a substitute for the protective grounding point of the chassis shell.

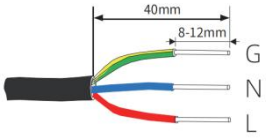
It is recommended to apply silica gel or paint on the outside of the ground terminal for protection after the ground wire is Installed.

5.4.2 Assembling the cable to the AC&Back-up connector

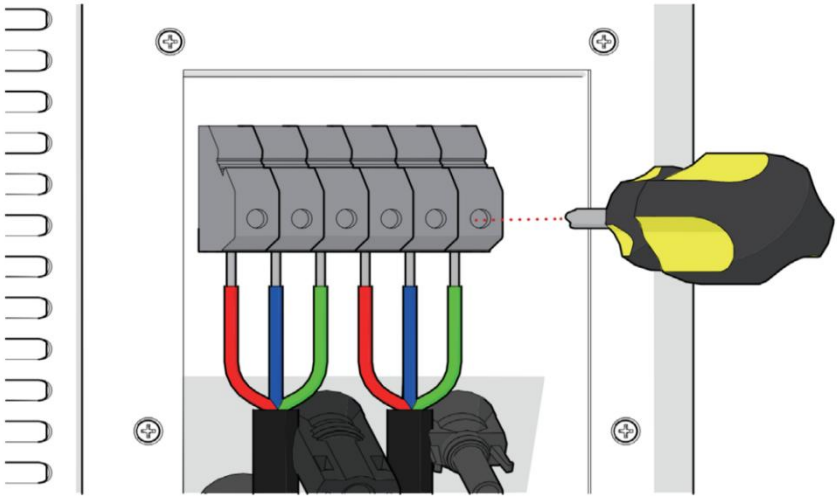
Assemble the AC cable to the AC&Back-up connector, which is a 6p*2 fence terminal.

Please refer to the local cable color standard, choose core wires of different colors, for L wire (live wire),N wire (zero line), PE line (ground line) to distinguish.

Step 1:Strip the cable jacket and core wire insulation.

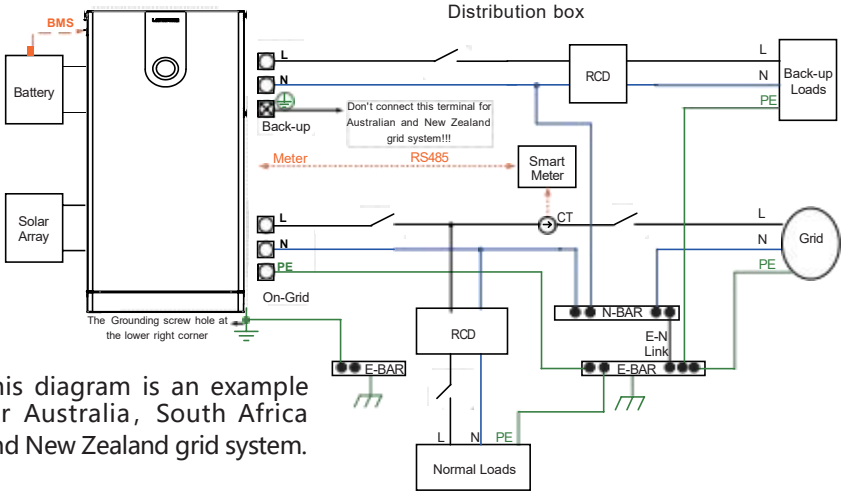


Step 2 :Use a screw driver to fasten all the core wires to the corresponding wiring ports on the fence terminals in the order of Grid_L, Grid_N, Grid_G, Back-up_L, Back-up_N, Back-up_G, and pull the cables outward to confirm the connection is firm. (Recommended torque: 0.8 N ·m)

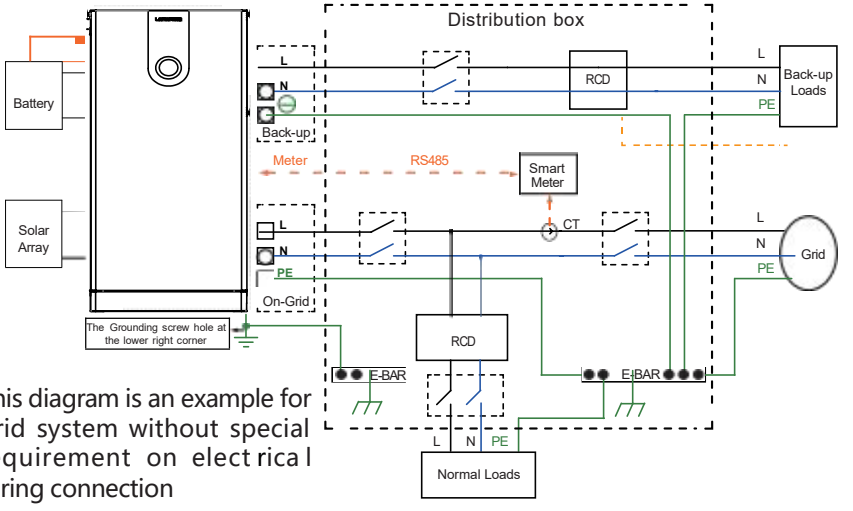


NOTICE

For Australia safety country, the neutral cable of On-Grid side and Back-Upside must be connected together, otherwise Back-Up function will not work.



This diagram is an example for Australia, South Africa and New Zealand grid system.



This diagram is an example for grid system without special requirement on electrical wiring connection

NOTICE

The back-up PE line and rack earth must be grounded properly and effectively. Otherwise the back-up function may be abnormal when the grid fail.

5.5 PV group connection

NOTICE

The following requirements must be met when connecting PV strings; otherwise, the inverter may be irreversibly damaged, and the resulting damage will not be covered by the warranty.

- Ensure that the voltage of each PV string does not exceed 550V under any circumstances.
- Ensure that the maximum short-circuit current on the PV side is within the allowable range of the inverter.
- Ensure that the PV strings are well insulated to the ground under any circumstances.
- Ensure that the DC switch, battery port, off-grid output port, and grid-connected output port are all disconnected.
- Make sure the polarity of the PV connector is correct.

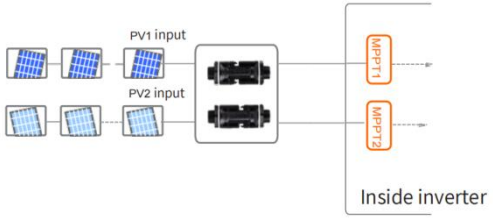
5.5.1 PV Input Configuration

LC-E3 has two inputs PV1 and PV2, each input has a pair of PV terminals. Two PV inputs, each with independent MPPT, can be configured in independent mode or parallel mode.

- Independent mode

In the independent mode, the two PV string inputs operate independently, and the two strings can be different from each other, including: different panel types, different numbers of panels forming a string, different inclination angles, and different azimuth angles.

As shown in the figure below, the inclination angles of the input panels of the two PV strings are different, and LC-E3 should select the independent mode.



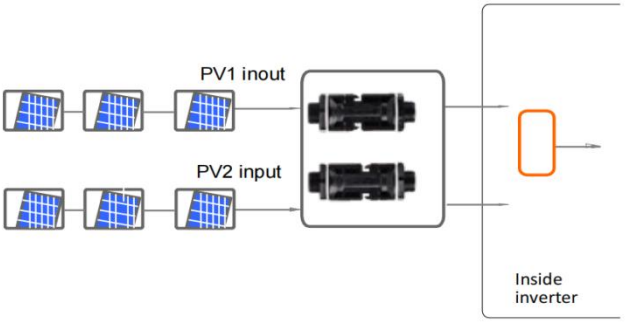
5-4 independent mode

Model	PV input total power limit	Each input open circuit voltage limit (DC1/DC2)	Short-circuit current limit per input (DC1/DC2)
LC-E3-505	6000W	550V/550V	13.8A/13.8A
LC-E3-508	6000W	550V/550V	13.8A/13.8A

• Parallel mode

In parallel configuration mode, all PV strings connected to LC-E3 must have exactly the same characteristics, including: the same model, the same number of panels,the same inclination, and the same azimuth.

In order to avoid the unbalance of the two input powers, or even the input load limit, the two PV input cables are required to be of the same type.



5-6 Parallel Mode

Model	PV input total power limit	Open circuit voltage limit	Short-circuit current limit per input
LC-E3-505	6000W	550V/550V	27.6A
LC-E3-508	6000W	550V/550V	27.6A

5.5.2 Assembling the cable to the PV connector

Assemble the DC cable to the in-line PV connector that mates with the PV terminals on the side of the unit. The specifications of the DC cables are shown in the following table.

NOTICE

The DC cable must be multi-core.
To ensure the IP54 degree of protection of the LC-E3, only use the supplied connectors or products with the same degree of protection.

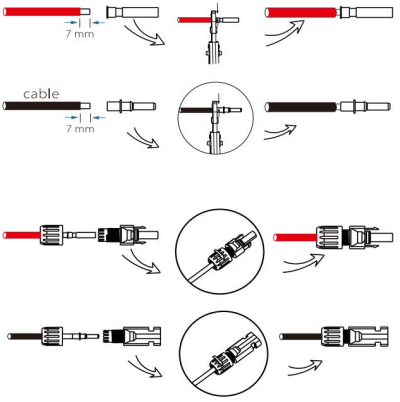
Cross-sectional area range	Cable O.D.	Max. withstand voltage	Max. withstand current
4mm^2~6mm^2	2mm~4mm	600V	25A

Step 1 Strip all DC cable insulation about 7mm.

Step 2 Use crimping pliers to bundle the cable ends on the terminal.

Step 3 Pass the cable through the cable gland and insert the insulating sleeve until it snaps shut. Pull lightly on the cable to make sure it is securely connected. Tighten the sealing sleeve and insulating sleeve with a force of 2.5~3N·m.

Step 4 Check that the polarities of the cables connecting the PV strings are correct.

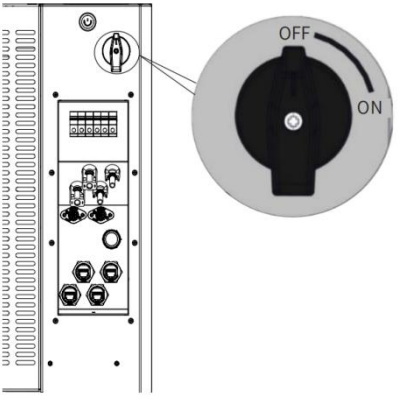


NOTICE

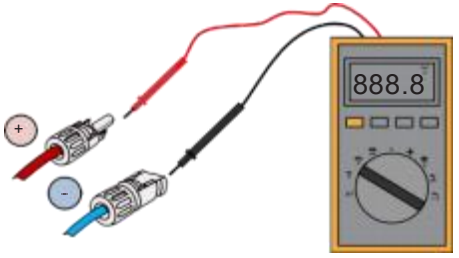
If the PV input polarity is reversed, the inverter will not operate normally.
If the PV connector is not properly assembled, it may cause arcing or overheating in the connector, which will not be covered by the warranty.

5.5.3 Installing the PV Connector

Installation steps:
Step 1 :Manually turn the DC switch on the top left to "OFF".



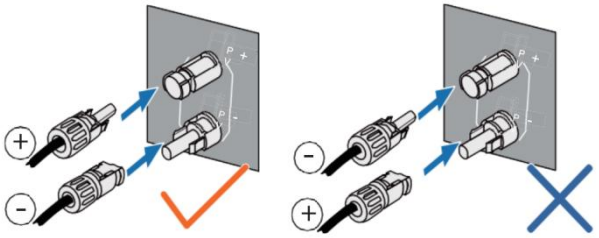
Step 2: Check whether the polarity of the connecting cables of the PV strings is correct, and ensure that the open-circuit voltage does not exceed the upper limit of the inverter input of 550V under any circumstances.



NOTICE

Before connecting the PV connector to the inverter, check the positive and negative polarities of the solar panel, and then insert the PV connector into the corresponding PV terminal after confirmation.

Step 3 Insert the PV connector into the corresponding PV terminal until you hear a "click".



5.6 Battery cable connection

5.6.1 Requirements on the battery side

The battery side port is used for external expansion and parallel connection. When LC-E3 needs to be connected in parallel, it is connected to another LC-E3 through the BAT+, BAT- output lines.If no parallel connection is required,please cover the battery terminal cap on the BAT port.

5.7 Type-C communication connection

LC-E3 provides a monitoring port to collect data from the LC-E3 and transmitit to a monitoring website through an external monitoring data collector. Lenercom can provide WiFi data collectors (WiFi modules).
The Type-C communication interface is located on the side of the LC-E3 and issued to connect the WiFi communication module.
WiFi module: A communication connection can be established between the LC-E3 and the mobile phone through the WiFi module. Available via mobile app Set the country where LC-E3 is located and the local power grid protection parameters. For details, see the user manual delivered with the module

NOTICE

LC-E3 Type-C terminal can also be used to connect external Type-C device , about the Type-C terminal pin definition and waterproof treatment,Please contact our technicians.
Lenercom will not be responsible for any problems caused by improper wiring or waterproofing.

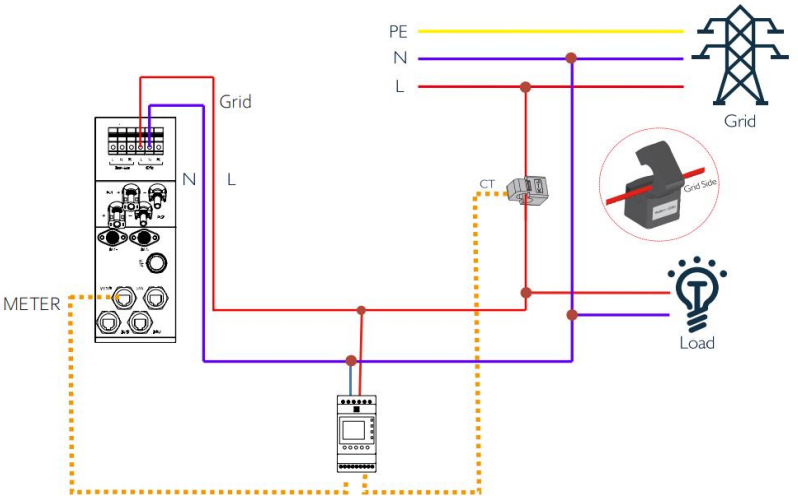
5.8 Meter Connection

NOTICE

Before connecting the smart meter and CT, make sure that the AC cable is completely isolated from the AC grid.
Smart meters must be authorized by Lenercom, any third-party or unauthorized meters may not be compatible with the LC-E3. Lenercom will not be liable if the meter is not available.

LC-E3 adopts Acrel's smart meter with CT, which is used to detect the grid voltage, current direction and magnitude, and further indicate the operation status of the grid. The meter must be connected to the LC-E3 when installing the LC-E3, otherwise the LC-E3 will shut down with a "meter failure" alarm. It is a mandatory product for all-in-one installation, and communicates with the LC-E3 through RS485. The CT must be installed on the live wire, and make sure that the arrow on the CT points to the grid side.

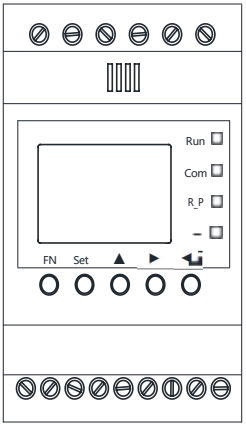
- Smart Meter and CT are configured correctly, please do not change any settings on Smart Meter.
- One smart meter can only be used for one LC-E3.
- CT must be connected in the same direction as the indicated CT.



The default CT line is 3m, and the maximum can be extended to 5m.
The smart meter communication cable (RJ45) is attached to the inverter ("connect to smart meter" cable), can extend up to 100m and must use a standard RJ45 cable and plug as shown below.

Position	Color	BMS Function	Smart Meter Function
1	Orange&white	NC	NC
2	Orange	NC	NC
3	Green&white	NC	485_B
4	Blue	NC	COM
5	Blue&white	NC	COM
6	Green	NC	485_A
7	Brown&white	METER_485B	485_B
8	Brown	METER_485A	485_A

Smart Meter LED Indication



	OFF	Steady	Flashing
Run (Green)	Not operating	/	Oerating normally
Com (Red)	Not communicating	/	Communicating
R_P (Red)	Power is positive	Power is negative	/
- (Red)	/	Negative indicator	/

5.9 DRED Connection

LC-E3 provides DRM to support various demand response modes by issuing control signals as follows.

Mode	Requirment
DRM0	Operate the disconnect device
DRM1	Does not consume power
DRM2	Power consumption does not exceed 50% of rated power
DRM3	Consume no more than 75% of rated power and provide reactive power if available
DRM4	Increased power consumption (subject to other DRM constraints)
DRM5	Does not produce power
DRM6	Generated power does not exceed 50% of rated power
DRM7	Produces no more than 75% of rated power and absorbs reactive power if available
DRM8	Increased power generation (subject to other DRM constraints)

The DRM communication cable (RJ45) is attached to the LC-E3 ("Connect to Peripheral DRED Device" cable), a standard RJ45 cable and plug must be used as shown below

1	2	3	4	5	6	7	8
DRM1/5	DRM2/6	DRM3/7	DRM4/8	+3.3V_COM	DRM0	+3.3V_COM	GND_COM

Only PIN6 (DRM0) is available now, other PIN functions are underdevelopment.

5.10 BMS Connection

The communication interface between the LC-E3 battery and the parallel machine is a CAN connector with RJ45.

PIN	1	2	3	4	5	6	7	8
Definition	BMS_CANL	BMS_CANH	GND_COM	BMS_485B	BMS_485A	NC	NC	NC

Battery communication works only when the two batterie's BMS are compatible.

6 Test operation

6.1 Inspection before test run

Before turning on the LC-E3 for the first time, you need to do the following inspections.

1. Check whether LC-E3 is firmly installed and whether the installation position is convenient for operation and maintenance.
2. No external objects or parts are left on the top of LC-E3.
3. LC-E3 and accessories are connected correctly, the cables are reasonably distributed and well protected, and there is no mechanical damage.
4. Reasonable selection of AC circuit breakers.
5. Empty terminals are sealed.
6. All safety signs and warning labels on LC-E3 are firmly pasted and clearly visible.

6.2 Test run steps

Step 1 Make sure that the above inspection items meet the requirements.
Step 2 Close the AC circuit breaker.
Step 3 Rotate the DC switch on the left side of the LC-E3 to "ON".
Step 4 Close the battery breaker or open the battery system.
Step 5 When the light is normal and the grid conditions meet the grid connection requirements, wait for 60 seconds and the inverter will run normally.
Step 6 Observe the status of the LED indicators on the LC-E3.

Table6-1 Description of the indicator status

LED Status	Description
No Light	LC-E3 PV switch and Battery switch off
Blue Light always on	LC-E3 running
Red Light always on	Errors occurs on the LC-E3

*Please refer to the manual delivered with the module for the meaning of the indicator lights of the communication module. If the trial run fails, please refer to "9.1 Troubleshooting" for troubleshooting.

7 Decommissioning, dismantling, and discarding LC-E3

7.1 Decommissioning LC-E3

It is not necessary to shut down LC-E3 under normal circumstances, but when maintenance or repair work is required, LC-E3 needs to be shut down please follow the following steps disconnect the LC-E3 from AC,DC power,and batteries; otherwise, personal injury or death or equipment damage may result.

Step 1 Disconnect the Bat circuit breaker or turn off the battery system.

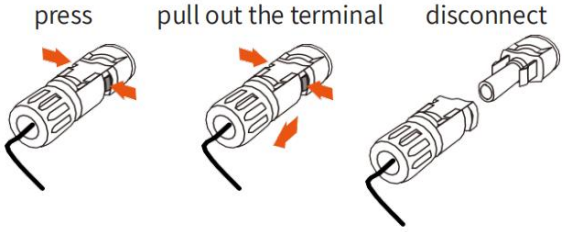
Step 2 Disconnect the external AC circuit breaker and prevent it from being reconnected due to misoperation.

Step 3 Disconnect the front-stage DC circuit breaker, and turn the DC switch to "OFF".

NOTICE

Please strictly follow the above steps, otherwise LC-E3 will not work properly.

Step 4 Wait at least 10 minutes until the internal capacitors are fully discharged.
Step 5 Use a multimeter to test to ensure that the AC output side, DC side and battery side of the LC-E3 are completely powered off.
Step 6 Remove the AC wires & Back-up wires from the AC junction box and AC barrier terminals.
Step 7 Release the locking parts of the PV connector and PV terminal, and remove the PV connector.



For detailed steps, visit the device manufacturer's website.

7.2 Dismantling

Refer to "5 Electrical Connections" and "4 Mechanical installation" and follow the reverse steps to remove LC-E3.

CAUTION

Danger of burns and electric shock!
LC-E3 must be disconnected from the power grid for at least 10 minutes before maintenance or repair operations inside the equipment can be performed.

NOTICE

If LC-E3 will be put into use in the future, please refer to "3.4 Storing LC-E3" to properly store LC-E3.

7.3 Discarding

For the LC-E3 that will no longer be put into operation in the future, the user isresponsible for proper disposal.

NOTICE

The modules and other components included in LC-E3 may pollute the environment, so please handle them according to relevant regulations.

8 Trouble shooting and maintanance

8.1 Trouble shooting

8.1.1 Trouble shooting in APP display

After the monitoring module is connected, once LC-E3 fails, the fault information can be displayed on the mobile app interface. The fault codes and troubleshooting methods are shown in the table below.

Error Code	Description	Elimination methods
1	Hardware failure	1.Disconnect PV+, PV-, Bat, Grid, and restart LC-E3.2、If the fault still exists, please contact the Lenercom customer service center.
2	Lost network failure	1.Check the grid voltage and frequency; 2.If the grid voltage and frequency are within the allowable range, please contact the Lenercom customer service center.
3	Grid voltage failure	1. Check the grid voltage. 2. If the grid voltage exceeds the allowable range, please seek solutions from the local power company. 3. If the grid voltage is within the allowable range, please contact the Lenercom customer service center.
4	Grid frequency fault	1. Check the grid frequency. 2. If the grid frequency exceeds the allowable range, please seek solutions from the local power company. 3. If the grid frequency is within the allowable range, please contact the Lenercom customer service center.
5	PV voltage failure	1. Check whether the output voltage of the solar panel is within the allowable range. 2. If it is not within the allowable range, disconnect the PV+, PV-, Bat, and Grid connections, and restart LC-E3; 3. If the fault still exists, please contact the Lenercom customer service center.
6	Bus voltage failure	1. Disconnect PV+, PV-, Bat, Grid, and restart LC-E3; 2. If the fault still exists, please contact the Lenercom customer service center.
7	Battery voltage failure	1. Check whether the battery input voltage is within the allowable range. 2. If it is not within the allowable range, disconnect the PV+,PV-, Bat, and Grid connections, and restart LC-E3; 3. If the fault still exists, please contact the Lenercom customer service center.

8	Grid voltage 10-minute average fault	1. Check whether the country setting of LC-E3 is set to the current country; 2. If the country setting is correct, wait for the LC-E3 to return to normal or seek solutions from the local power company; 3. If the fault occurs repeatedly, please contact the Lenercom customer service center.
9	Inverter current DC component fault	1. Disconnect PV+, PV-, Bat, Grid, and restart LC-E3; 2. If the fault still exists, contact the Lenercom customer service center.
10	Eps voltage DC component fault	1. Disconnect PV+, PV-, Bat, Grid, and restart LC-E3; 2. If the fault still exists, contact the Lenercom customer service center.
11	Over current fault	1. Disconnect PV+, PV-, Bat, Grid, and restart LC-E3; 2. If the fault still exists, please contact the Lenercom customer service center.
12	Leakage current fault	1. Check whether the impedance of DC input and AC output is normal; 2. Wait for the LC-E3 to return to normal; 3. If the fault still exists, please contact the Lenercom customer service center.
13	Insulation failure	1. Please check whether the insulation of the wire is damaged; 2.Wait for the LC-E3 to return to normal; 3. If the fault still exists, please contact the Lenercom customer service center.
14	Over temperature fault	1.Check whether the ambient temperature is too high; 2.When the temperature is too high, wait for the LC-E3 to recover; 3. If the fault still exists, please contact the Lenercom customer service center.
15	battery reverse connection fault	1. Check whether the string output is reversed or short-circuited; 2. Wait for the LC-E3 to return to normal; 3. If the fault still exists, please contact the Lenercom customer service center.
16	Sampling consistency failure	1. Disconnect PV+, PV-, Bat, Grid, and restart LC-E3; 2. If the fault still exists, please contact the Lenercom customer service center
17	Eps overload fault	1. Confirm that the PV current, battery current and output current are within the allowable range; 2. Check if there is a nonlinear load connected to the EPS. Remove the load to see LC-E3 return to normal; 3. If the fault still exists, please contact the Lenercom customer service center.

18	Overload fault	1. Confirm that the load power is within the EPS output power range; 2. Check if there is a nonlinear load connected to the EPS. Remove the load to see LC-E3 return to normal; 3. If the fault still exists, please contact the Lenercom customer service center.
20	Battery low voltage failure	1. Check whether the battery input voltage is lower than the lower limit. 2. If the battery voltage is within the normal range, disconnect the PV+, PV-, Bat, and Grid connections, and restart LC-E3; 3. If the fault still exists, please contact the Lenercom customer service center.
21	Hybrid_I relay failure	1. Disconnect PV+, PV-, Bat, Grid, and restart LC-E3; 2. If the fault still exists, contact the Lenercom customer service center.
24	Battery lost	1. Disconnect PV+, PV-, Bat, Grid, and restart LC-E3. 2. If the fault still exists, please contact the Lenercom customer service center.
25	Internal communication failure	1. Disconnect PV+, PV-, Bat, Grid, and restart LC-E3. 2. If the fault still exists, please contact the Lenercom customer service center.
28	EEPROM failure	1. Disconnect PV+, PV-, Bat, Grid, and restart LC-E3; 2. If the fault still exists, please contact the Lenercom customer service center.
29	Leakage current fault	1. Check whether the battery is open, whether the battery start button is pressed, and whether the communication line is loose; 2. If the fault still exists, please contact the Lenercom customer service center.
30	Eps relay failure	1. Disconnect PV+, PV-, Bat, Grid, and restart LC-E3; 2. If the fault still exists, please contact the Lenercom customer service center.
31	Grid-connected relay failure	1. Disconnect PV+, PV-, Bat, Grid, and restart LC-E3; 2. If the fault still exists, please contact the Lenercom customer service center.
32	Other equipment failure	1. Disconnect PV+, PV-, Bat, Grid, and restart LC-E3; 2. If the fault still exists, please contact the Lenercom customer service center.
33	Battery overvoltage failure	1. Shutdown the battery and restart the battery after shelved for 4h; 2. If the fault still exists, please contact the Lenercom customer service center.
34	Battery low voltage failure	1. The inverter charges after sending the charging command; 2. If the fault still exists, please contact the Lenercom customer service center.

35	Charging overtemperature failure	1Turn off the battery and restart the battery after shelving at 10~40° C for 4h; 2. If the fault still exists, please contact the Lenercom customer service center.
36	Discharge overtemperature fault	1. Turn off the battery and restart the battery after shelving at 10~40° C for 4h; 2. If the fault still exists, please contact the Lenercom customer service center.
37	Charging low temperature failure	1. Turn off the battery and restart the battery after shelving at 10~40° C for 4h; 2. If the fault still exists, please contact the Lenercom customer service center.
38	Discharging low temperature failure	1. Turn off the battery and restart the battery after shelving at 10~40° C for 4h; 2. If the fault still exists, please contact the Lenercom customer service center.
39	Charge overcurrent fault	1. Restart the battery; 2. If the fault still exists, please contact the Lenercom customer service center.
40	Discharge overcurrent fault	1. Restart the battery; 2. If the fault still exists, please contact the Lenercom customer service center.
41	Slave hardware protection	1. Restart the battery; 2. If the fault still exists, please contact the Lenercom customer service center.
42	Slave software protection	1. Restart the battery; 2. If the fault still exists, please contact the Lenercom customer service center.
44	CAN internal communication failure	1. Check whether the CAN wire connection is normal and reconnect the CAN harness; 2. If the fault still exists, please contact the Lenercom customer service center.
45	CAN external communication failure	1. Check whether the CAN wire connection is normal and reconnect the CAN harness; 2. If the fault still exists, please contact the Lenercom customer service center.
46	Insulation failure	1. Check whether the power wiring harness is damaged or short-circuited with the shell; 2. Restart the battery; 3. If the fault still exists, please contact the Lenercom customer service center.
47	Precharge failure	1. Check whether the air switch is closed; 2. Check whether the battery is loaded and turned on; 3. If the fault still exists, please contact the Lenercom customer service center.

48	Relay failure	1. Check whether the CAN wire connection is normal and reconnect the CAN harness; 2. Restart the battery; 3. If the fault still exists, please contact the Lenercom customer service center.
53	Self-test failure	1. Check whether the power wiring harness is damaged or short-circuited with the shell; 2. Check whether the CAN wire connection is normal and reconnect the CAN harness; 3. Restart the battery; 4. If the fault still exists, please contact the Lenercom customer service center.
58	Breaking	1. Check whether the slave control 485 communication harness connection is normal; 2. Restart the battery; 3. If the fault still exists, please contact the Lenercom customer service center.
64	Software inconsistency between slave controllers	1. Check whether the version number of the slave and master software is consistent, and brush the unified version software; 2. Restart the battery; 3. If the fault still exists, please contact the Lenercom customer service center
65	Overvoltage alarm	1. Shutdown the battery and restart the battery after shelved for 4h; 2. If the fault still exists, please contact the Lenercom customer service center.
66	Lowvoltage alarm	1. The inverter charges after sending the charging command; 2. If the fault still exists, please contact the Lenercom customer service center.
67	Charging overtemperature alarm	1. Shutdown the battery and restart the battery after shelved for 4h; 2. If the fault still exists, please contact the Lenercom customer service center.
68	Discharge overtemperature alarm	1. Shutdown the battery and restart the battery after shelved for 4h; 2. If the fault still exists, please contact the Lenercom customer service center.
69	Charging low temperature alarm	1. Shutdown the battery and restart the battery after shelved for 4h; 2. If the fault still exists, please contact the Lenercom customer service center.
70	Discharge low temperature alarm	1. Shutdown the battery and restart the battery after shelved for 4h; 2. If the fault still exists, please contact the Lenercom customer service center.

71	Charging overcurrent alarm	1. Restart the battery; 2. If the fault still exists, please contact the Lenercom customer service center.
72	Discharge overcurrent alarm	1. Restart the battery; 2. If the fault still exists, please contact the Lenercom customer service center.
73	Battery imbalance alarm	1. Check whether the battery module is the same model; 2. If the fault still exists, please contact the Lenercom customer service center.
74	PCBA overtemperature alarm	1. Shutdown the battery and restart the battery after shelved for 4h; 2. If the fault still exists, please contact the Lenercom customer service center.
82	RTC fault	1. Wait until 5 minutes later to confirm that the fault has been resolved, if not, restart the inverter; 2. If the fault still exists, please contact the Lenercom customer service center.
83	E2prom fault	1. Wait until 5 minutes later to confirm that the fault has been resolved, if not, restart the inverter; 2. If the fault still exists, please contact the Lenercom customer service center.
84	Internal communication failure	1. Wait until 5 minutes later to confirm that the fault has been resolved, if not, restart the inverter; 2. If the fault still exists, please contact the Lenercom customer service center.
85	CT detects failures	1. Plug and unplug the communication wire between the meter and the inverter until the comm light on the meter flashes normally; 2. If the fault still exists, please contact the Lenercom customer service center.
86	AC meter failure	1. Plug and unplug the communication wire between the meter and the inverter until the comm light on the meter flashes normally; 2. If the fault still exists, please contact the Lenercom customer service center.
87	BMS lost	1. Check whether the battery is turned on, and check whether the communication wire between the battery and the inverter is connected normally; 2. If the fault still exists, please contact the Lenercom customer service center.

8.2 Daily maintanance

DANGER

Improper maintenance practices can result in personal injury or equipment damage! Before performing any maintenance operations, the following steps must be followed:

First cut off the DC switch and battery switch, and then disconnect the AC circuit breaker on the grid side.

Wait at least 10 minutes until the internal energy storage element has beendischarged before performing maintenance or repair operations inside thedevice.

Use test equipment to verify that voltage and current are not present.

CAUTION

During electrical connection and maintenance work, temporary warning signs or barriers must be posted to prevent unrelated persons from entering the electrical connection or maintenance area.

NOTICE

Reboot the LC-E3 only after troubleshooting a problem that affects the safety of the LC-E3. LC-E3 does not contain maintenance parts, please do not replacethe internal components of LC-E3 without authorization.

If any repair service is required, please contact the Lenercom Service Center. Other wise, Lenercom will not bear any warranty and joint liability for there sulting losses.

Test content	Methods	Maintenance period
System cleaning	Check the humidity and dust around the LC-E3, and clean the radiator at the bottom of the LC-E3 if necessary.	Once every six months to 1 year (depending on the dust content of the use environment quantity)

9 Appendix

9.1 Contact

If you have any questions about this product, please contact us. In order to provide you with faster and better after-sales service, we need your assistance to provide the following information:

- Equipment model
- Device serial number
- Fault code/name
- Brief description of the fault phenomenon

9.2 Technical data

PV input		
Model	LC-E3-505	LC-E3-508
Max.input power(W)	6000	
Absolute Max.voltage(Vd.c.)	550	
MPPT voltage range(Vd.c.)	125-530	
Rated operating voltage(Vd.c.)	360	
Max.input current(Ad.c.)	16/16A	
Max.short circuit current(Ad.c.)	20/20A	
PV Back-feed Current (A)	0	

BAT output/input		
Model	LC-E3-505	LC-E3-508
Battery type	Lithium	
Battery Capacity(KWh)	5.53	8.29
Battery voltage range(Vd.c.)	160-230.4V	240-345.6V
Max.charge/discharge current(Ad.c.)	25	

Grid output/input

Grid output

Model	LC-E3-505	LC-E3-508
Rated active power(W)	4991	
Max.apparent power(VA)	4991	
Rated voltage(Va.c.)	230	
Rated frequency(Hz)	50/60	
Rated current (maximum continuous)	21.7Aa.c.	
Output inrush Current (peak/duration)	45A/500μs	
Maximum output overcurrent protection	21.7Aa.c.	

Grid input

Rated voltage(Va.c.)	230	
Rated frequency(Hz)	50/60	
Rated current (maximum continuous)	40Aa.c.	
Max.apparent power(VA)	9200	9200

EPS output

Model	LC-E3-505	LC-E3-508
Rated voltage(Va.c.)	230	
Rated frequency(Hz)	50/60	
Rated current (maximum continuous)	20Aa.c.	
Max.apparent power(VA)	4600	
Output inrush Current (peak/duration)	60A/200μs	
Maximum output overcurrent protection	23.6Aa.c.	

efficiency

MPPT efficiency	99%
European efficiency	97%
Maximum efficiency	97.6%
Battery charge/discharge efficiency	98.2%/97.5%

General Data

Model	LC-E3-505	LC-E3-508
Dimension(W/H/D)[mm]	640*1100*220	640*1330*220
Weight(kg)	86	110
Installation	Bottom fixing or back fixing	
Power factor(range)	0.8 leading-0.8 lagging	
Operating temperature range(℃)	0~45	
Storage temperature(℃)	-25~60	
Storage/Operating relative humidity	0%~100%	
Altitude(m)	2000	
Ingress Protection	IP54	
Cooling	Nautral	
Communication interface	Meter, WIFI DRM,BMS	
Buzzer	1,inside(EPS & earth fault)	
Protective class	I	
Over voltage category	DC II, AC III	
Inverter topology	non-isolated	
Active anti-islanding method	frequency shift	

Battery breaker

Model	LC-E3-505	LC-E3-508
Rated voltage [d.c.V]	500	
Rated current [d.c.A]	40	
Rated insulation voltage [d.c.V]	1000	
Rated impulse voltage [d.c.V]	6000	
Icu [kA]	6	
Ics [kA]	6	
Operating temperature(℃)	-30~70	

Hunan Lenercom Technology Co., Ltd. (hereinafter referred to as Lenercom) will repair or replace a new product free of charge for products that fail during the warranty period.

Evidence

During the warranty period, the company requires customers to present the invoice and date of purchase of the product. At the same time, the trademark on the product should be clearly visible, otherwise it has the right to not give quality assurance.

Condition

- Replaced unqualified products should be handled by our company
- The customer should reserve a reasonable time for the company to repair the faulty equipment.

Disclaimer

- The LC-E3 is transported,used and operated under environmental and electrical conditions. Lenercom reserves the right not to provide after-sales service or assistance in the following cases:
- The LC-E3 is damaged during transportation.
- The warranty period for the LC-E3 has expired and an extended warranty has not been purchased.
- Install, modify, or operate the LC-E3 in an incorrect manner without authorization from Lenercom.
- Installation or use of the LC-E3 under improper environmental or technical conditions mentioned in this user manual without authorization from Lenercom
- The installation or configuration of the LC-E3 does not meet the requirements mentioned in this user manual.
- The installation or operation of the LC-E3 is in violation of the requirements or warnings mentioned in this user manual.
- Force majeure such as lightning, earthquake, fire, storm and volcanic eruption may cause breakdown or damage to LC-E3.
- Disassemble, change or update the software or hardware of the LC-E3 without the authorization of Lenercom .
- The installation, use or operation of the LC-E3 does not comply with any relevant item in international or local policies or regulations.
- Any incompatible batteries, loads or other equipment connected to the PV energy storage system.

Note: Lenercom reserves the right to interpret all content in this user manual.
In order to ensure IP54, the LC-E3 must be well sealed, please install the LC-E3 within one day after unpacking, otherwise please seal all unused terminals/ holes, do not allow any terminals/holes to be opened, and confirm that there is no risk of water and dust entering.

Lenercom requires regular maintenance, the details are as follows:

- Before servicing, ensure that the LC-E3 is completely isolated from all DC and AC power sources for at least 10 minutes.
- Radiator: Please clean the radiator with a clean towel once a year.
- Torque: Please use a torque wrench to tighten the AC and DC cables once a year.
- DC Circuit Breaker: Check the DC circuit breaker regularly and activate the DC circuit breaker 10 times a year in a row.
- Operating the DC circuit breaker will clean the contacts and extend the life of the DC circuit breaker.

Product failure caused by the above situation, the customer requires maintenance services. After being judged by the company's service organization, paid maintenance services can be provided.

If the product size and parameters are changed, the latest information of the company shall prevail without prior notice.

Software Licensing

- It is forbidden to use part or all of the data in the firmware or software developed by the company for commercial purposes in any way.
- It is forbidden to decompile, decrypt or otherwise destroy the original program design of the software developed by the company.

Contact Information

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