

CL 30, CL 33, and CL 50

PN: PVSCL30E / PVSCL33E / PVSCL50E <https://solar.schneider-electric.com>



Quick Start Guide

Contact Information

Contact your local Schneider Electric Sales Representative or visit the Schneider Electric website at: <http://solar.schneider-electric.com/>

Important Safety Information

Read and Save These Instructions

Do NOT discard but Do NOT store inside the CL Series cabinet.

This Guide is intended for any qualified personnel who need to install, operate, configure, and troubleshoot the CL Series. Certain configuration tasks should only be performed by qualified personnel in consultation with your local utility and/or an authorized dealer. Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. Qualified personnel have training, knowledge, and experience in:

- Installing electrical equipment
- Applying applicable installation codes
- Analyzing and reducing the hazards involved in performing electrical work
- Selecting and using Personal Protective Equipment (PPE)
- Connecting communication devices into a network

No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

This guide contains important safety instructions for the CL Series that must be followed during installation procedures. Read and keep this Quick Install Guide for future reference.

Go to <https://solar.schneider-electric.com> and download the CL Series Owner's Guide (document number: 990-91392) for additional information that should be referenced during installation.

Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service or maintain it. The following special messages may appear throughout this document or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of either symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.



This symbol alerts you to read the manual, including the CL Series Owner's Guide (document number: 990-91392) for additional information

⚠ 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.

⚡ ⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, ARC FLASH, AND FIRE

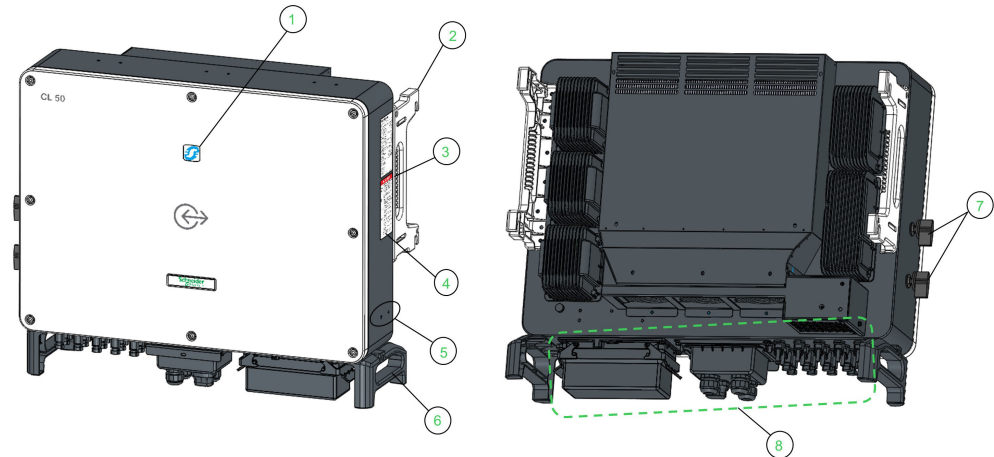
- Before using this product, read all instructions and cautionary markings on the unit and all appropriate sections of this manual.
- Do not use accessories not recommended or sold by the manufacturer.
- The manufacturer recommends that all wiring be done by a certified technician or electrician to ensure adherence to the local and national electrical codes applicable in your jurisdiction.
- Make sure existing wiring is in good condition and wire is not undersized. Do not operate equipment with damaged/substandard wiring.
- Do not operate the equipment if it has been damaged in any way.
- Do not disassemble the CL Series except where noted for connecting wiring and cabling. See your warranty for instructions on obtaining service. Do not attempting to service the unit yourself.
- Disconnect the power supply from the equipment before attempting installation, and any maintenance (including cleaning or working on any components connected to the equipment). Internal capacitors remain charged for 10 minutes after all power is disconnected.
- The equipment must be grounded. Use the protective grounding conductor provided with the AC input conductors.
- This product is designed for outdoor use and is rated IP66.
- To reduce the chance of short-circuits, always use insulated tools when installing/working with this equipment. Do not leave tools inside.
- Remove personal metal items such as rings, bracelets, necklaces, and watches when working with electrical equipment.
- Do not open nor disassemble the top half of the unit. There are no user-serviceable parts inside.

Failure to follow these instructions will result in death or serious injury.

1.0 Introduction

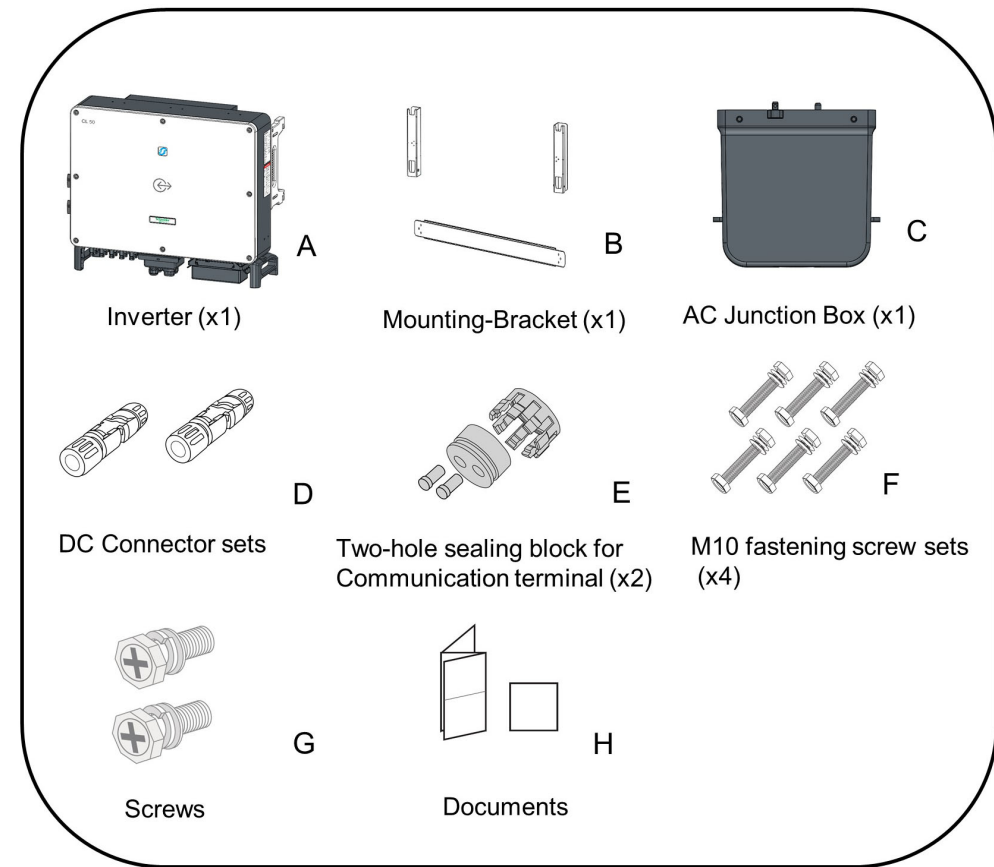
The CL Series is a transformerless three-phase photovoltaic (PV) string inverter that is designed to be an integral part of any utility grid-connected PV Power System. The CL Series is designed to convert DC power generated from the PV array into AC power that is compatible with utility grade AC power.

1.1 Features



1	LED indicator	2	Mounting ear
3	Side handles	4	Warning notices, nameplate
5	Additional ground terminals	6	Bottom handles
7	DC switch(es). See Owner's guide.	8	Wiring area

1.2 What's in the Box



2.0 Choosing a Location

Flammable wall material

Flammable material or gas near the installation

Max. ambient temperature: 60 °C

Min. ambient temperature: -30 °C

Relative humidity: 0 - 100%

Environmental Requirements

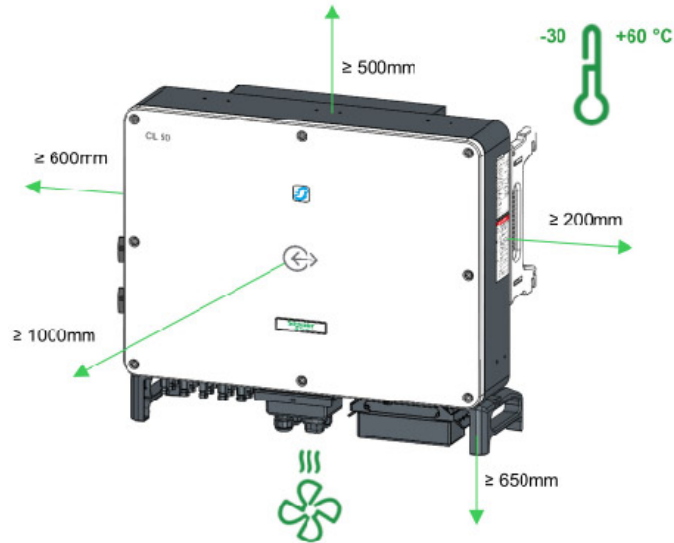
Convenient for operation

Leaning forward

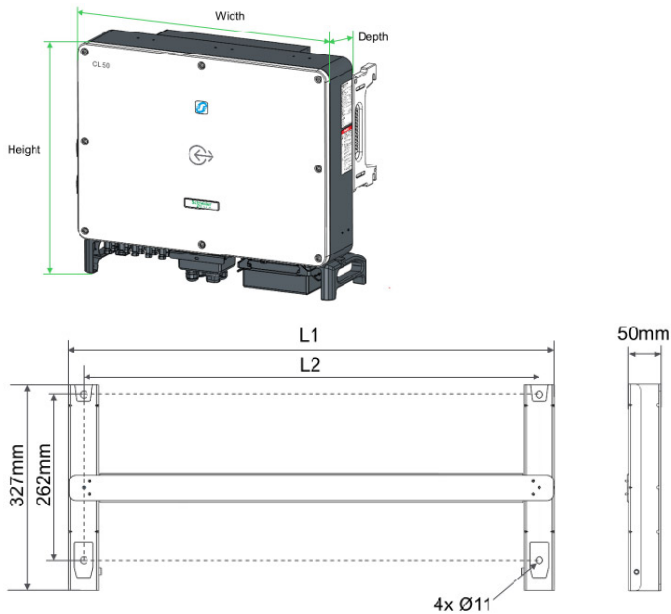
Up side down

Vertical

Leaning backward



3.0 Dimensions



Model	Dimensions (WxHxD) (mm)	Weight (kg)	L1, L2
CL 30	702 x 595 x 310	50	L1: 687 mm L2: 640 mm
CL 33	702 x 595 x 310	50	L1: 687 mm L2: 640 mm
CL 50	782 x 645 x 310	62	L1: 767 mm L2: 720 mm

4.0 Lock-out and Tag-out (LOTO)

Lock-out refers to the practice of preventing de-energized circuits from being reenergized by putting locks on the disconnecting devices, holding them open. Tag-out refers to the practice of attaching a tag to the disconnect-device locks warning others not to operate the disconnect device and containing information relating to the lock-out, such as the person responsible, the reason, and the date and time. Combined these two practices are called the lock-out and tag-out (LOTO) procedure.

⚡ ⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, ARC FLASH, AND FIRE

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Never energize the inverter with the covers removed.
- Always use a properly rated voltage sensing device (1500 VDC Cat II, 600 VAC Cat III minimum rated) to confirm all circuits are de-energized.
- The inverter is energized from multiple sources. Before opening the cover identify the power source, de-energize, lock-out and tag out, and wait ten minutes for circuits to discharge.
- The DC conductors of this photovoltaic system are ungrounded and may be energized.
- Do not open a fuse under load. Do not open the front cover without physically disconnecting the PV cables or opening the external DC disconnect device before servicing.
- Replace all devices and covers before turning on power to this equipment.

Failure to follow these instructions will result in death or serious injury.



1. Identify any disconnect device upstream from the CL Series unit.
2. Open the disconnect device that connects to the CL Series to cut off DC power.
3. Turn the CL Series's DC Switch to OFF position.
4. Lock-out and tag out the external DC disconnect device.
5. Turn off, lock-out and tag-out the external DC disconnect; if there is no external DC disconnect, remove all PV string connectors from the DC terminals.
6. Identify the AC panel breaker downstream from the CL Series unit.
7. Open the AC panel door.
8. Turn Off the AC panel breaker (open the switch) that connects to the CL Series to cut off AC power.
9. Lock-out and tag out the AC panel breaker.
10. Close the AC panel door.
11. Wait ten minutes for the circuits in the CL Series to discharge.
12. Open the CL Series enclosure and use a properly rated voltage sensing device (1500 VDC, 600 VAC) to confirm that the inverter is in zero energy state before performing work.
13. Once the inverter is in Zero energy state commence service and maintenance activities.

5.0 Mounting the CL Series

NOTE: Obtain all necessary permits prior to starting the installation. Installations must meet all local codes and standards. Installation of this equipment should only be performed by skilled personnel such as qualified electricians and Certified Renewable Energy (RE) System installers.

For full details on unit installation which includes metal frame, brick, or concrete installation, alternative lifting techniques, and multiple unit guidelines, see the CL Series Owner's Guide (document number: 990-91392) available online at <http://solar.schneider-electric.com>.

Installers must review the DANGER box and the information in Lock-out and Tag-out (LOTO) before starting work.

Check all the materials in the box (see *What's in the Box*) and make sure nothing is missing.

The following materials and tools are not supplied but are required to complete the installation (mounting):

- Personal protective equipment (PPE)
- Screwdriver and drill set (powered and/or manual)
- Six (M10x65) screws (for fastening wall-mounting backplate to the wall)
- Bubble level or spirit level to ensure the straight installation of the mounting bracket

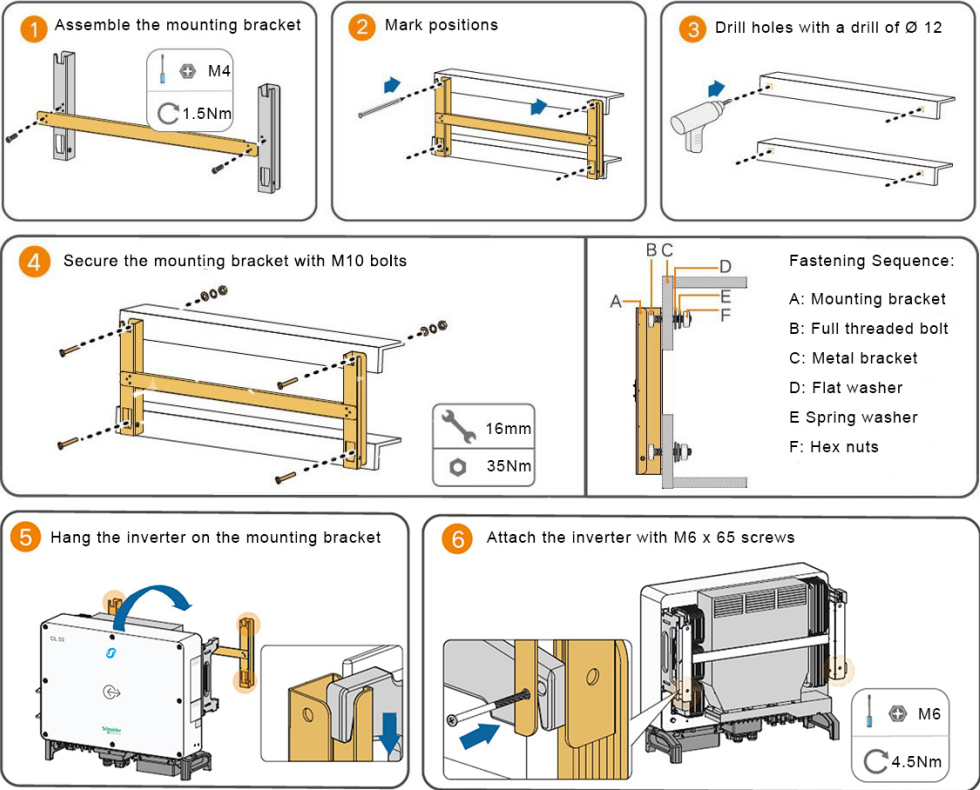
NOTE: This installation procedure is for installation on metal frames only. For more information, see the CL Series Owner's Guide (document number: 990-91392).

⚠ WARNING

HEAVY EQUIPMENT

The CL Series weighs between 50 and 60 kg. A two-person lift is required. To prevent personal injury, always use proper lifting techniques during installation.

Failure to follow these instructions can result in death, serious injury, or equipment damage.



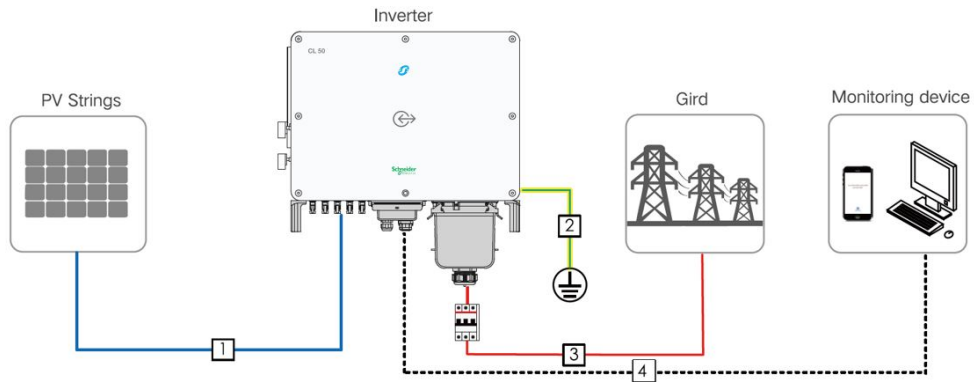
6.0 Installing the CL Series

See the CL Series Owner's Guide (document number: 990-91392) available online at <http://solar.schneider-electric.com>.

Installers must review the DANGER box and the information in Lock-out and Tag-out (LOTO) before working.

The following materials and tools are not supplied but are required to complete the installation (wiring):

- AC power cable (5-wire), copper
- DC power cables (red+, black-)
- Shielded RS-485 cable
- Crimping tool from Multi-Contact™
- Slotted screw driver
- Torque adjustable wrench
- Wire stripper, standard Molex™ crimper, AC/DC crimp pins
- Screwdriver and drill set (powered/manual)
- Calibrated professional digital multimeter (1500 VDC)
- #2 Phillips screwdrivers or power screwdriver for mounting the bracket
- Stripper and crimping tool for both AC and DC wiring

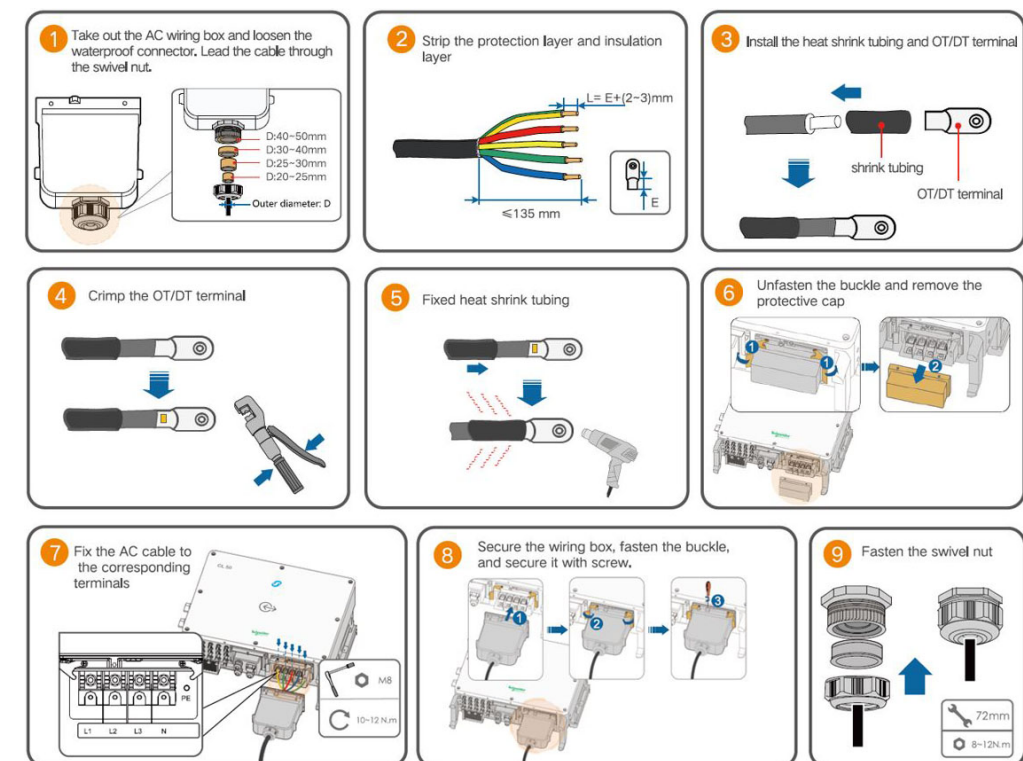


No.	Cable	Type	Outer Diameter (mm)	Cross-section (mm ²)
1	DC cable	PV cable complying with 1500 V standard	6–9	4–6
2	Additional grounding cable	Outdoor single-core copper wire cable	/	Same as that of the PE wire in the AC cable
3	AC cable	Outdoor multi-core copper or aluminium cable	20–50	L1, L2, L3, N CL 30/CL 33: 16–35 CL 50: 35–70 PE wire: Depends on phase wire cross-section S, if 16 < S ≤ 35 wire = 16 if S > 35 wire = S/2
4	Communication cable	Shielded twisted pair (terminal block) CAT-5 Ethernet cable (RJ45)	4.5–18	1–1.5 /

6.1 AC-side Cable Connection

☞ See the CL Series Owner's Guide (document number: 990-91392) available online at <http://solar.schneider-electric.com>.

Installers must review the DANGER box and the information in Lock-out and Tag-out (LOTO) before working.



6.2 DC-side Cable Connection

See the CL Series Owner's Guide (document number: 990-91392) available online at <http://solar.schneider-electric.com>.

Installers must review the DANGER box and the information in Lock-out and Tag-out (LOTO) before working.

⚡ ⚠ DANGER

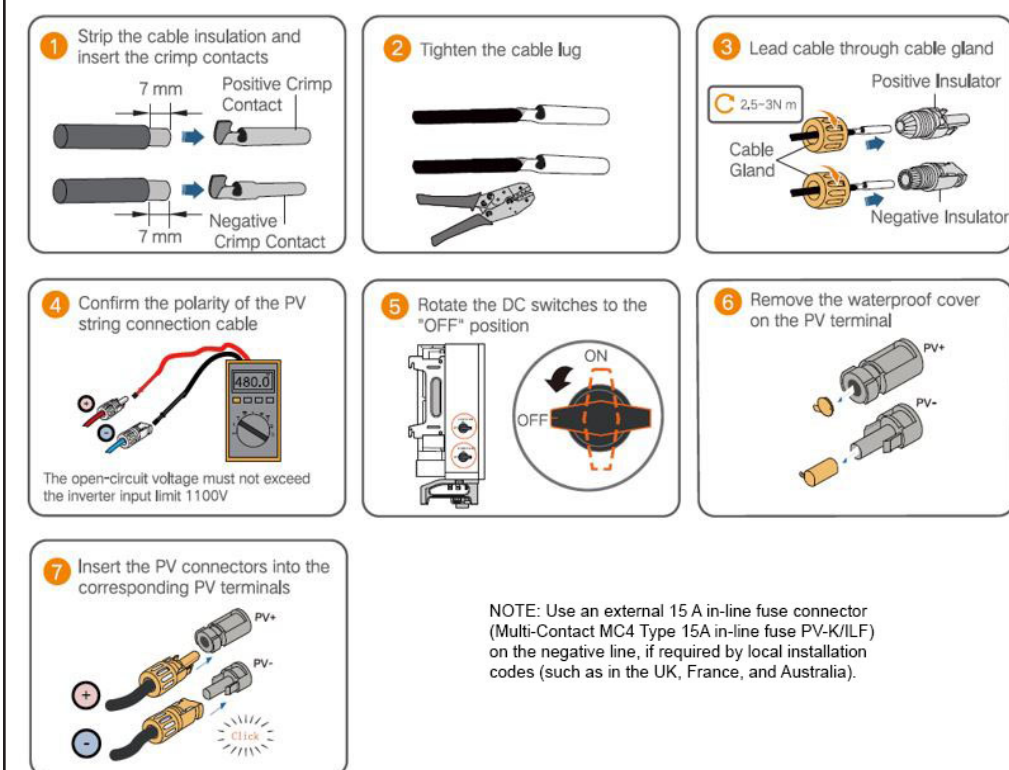
HAZARD OF ELECTRIC SHOCK

- Be careful when handling cables from PV arrays. PV arrays produce electrical energy when exposed to light.
- Check that the PV impedance to ground is within specifications before connecting the PV array to the inverter.

Failure to follow these instructions will result in death or serious injury.

Max Open-circuit Voltage @ Input = 1100 V

Short Circuit Current Limit = 120 A (CL 33 and CL 30); 200 A (CL 50)

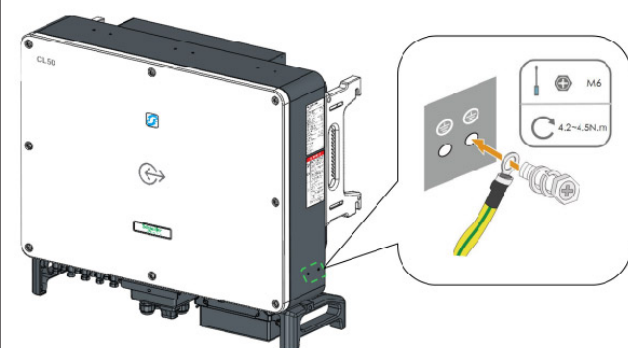


NOTE: Use an external 15 A in-line fuse connector (Multi-Contact MC4 Type 15A in-line fuse PV-K/ILF) on the negative line, if required by local installation codes (such as in the UK, France, and Australia).

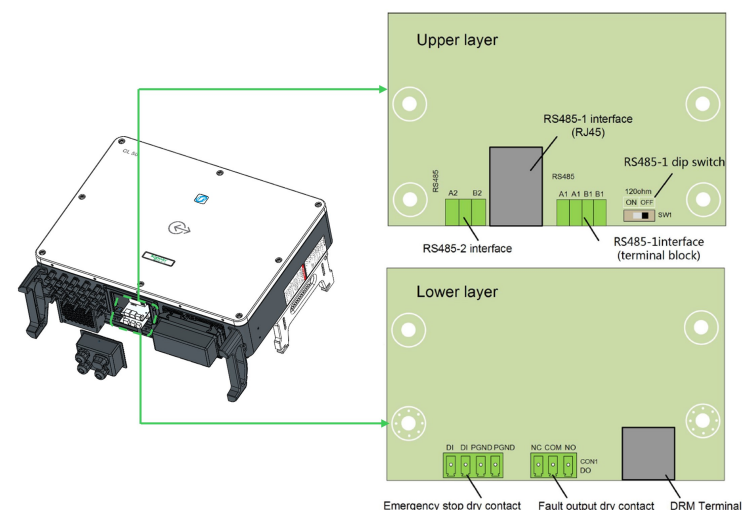
6.3 Ground Connection


See the CL Series Owner's Guide (document number: 990-91392) available online at <http://solar.schneider-electric.com>.

Installers must review the DANGER box and the information in Lock-out and Tag-out (LOTO) before working.



6.4 RS-485 Communication Cable Connection

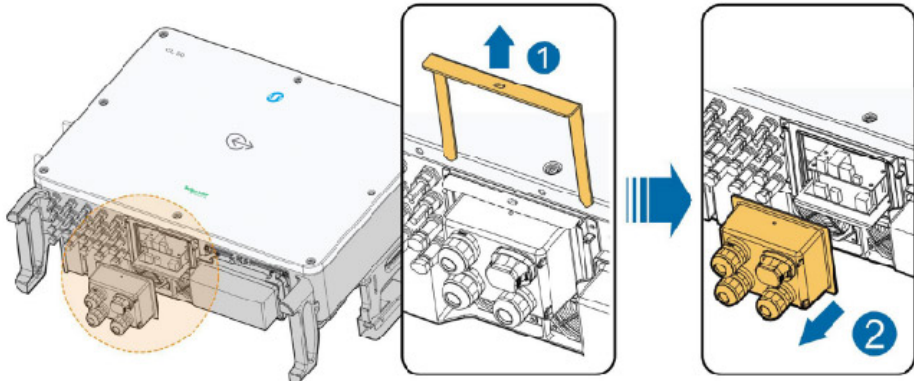


Any of the available RS-485 ports can be connected to a PC or other monitoring device. Multiple inverters can be connected via daisy-chain using the RS-485-1 port and RJ45 port.  For multiple inverter configuration, including terminating resistor settings, see the CL Series Owner's Guide (document number: 990-91392) available online at <http://solar.schneider-electric.com>.

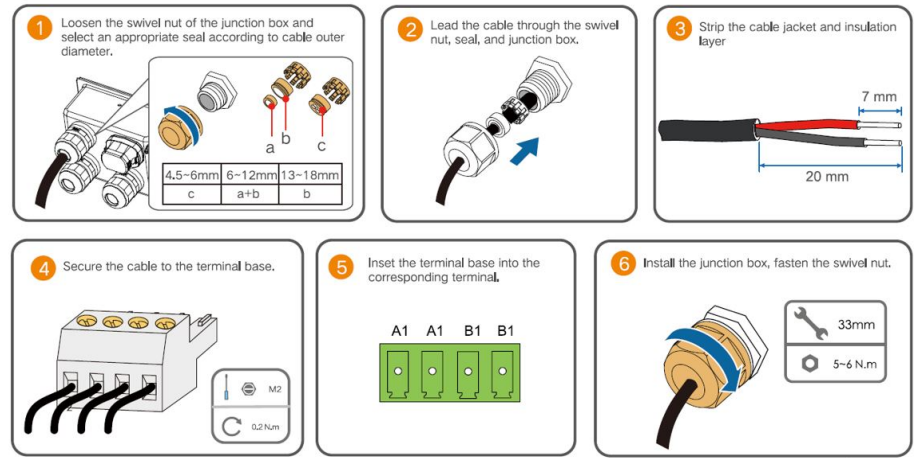
6.4.1 Terminal Block Connection

See the CL Series Owner's Guide (document number: 990-91392) available online at <http://solar.schneider-electric.com>.

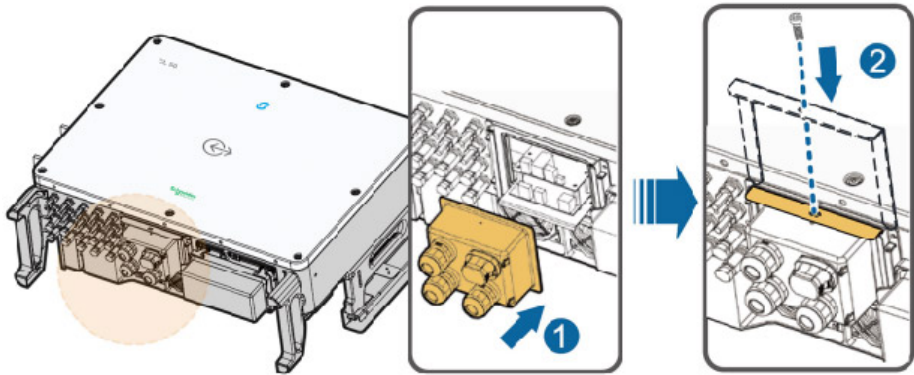
- Remove the junction box.



- Make cable connections.

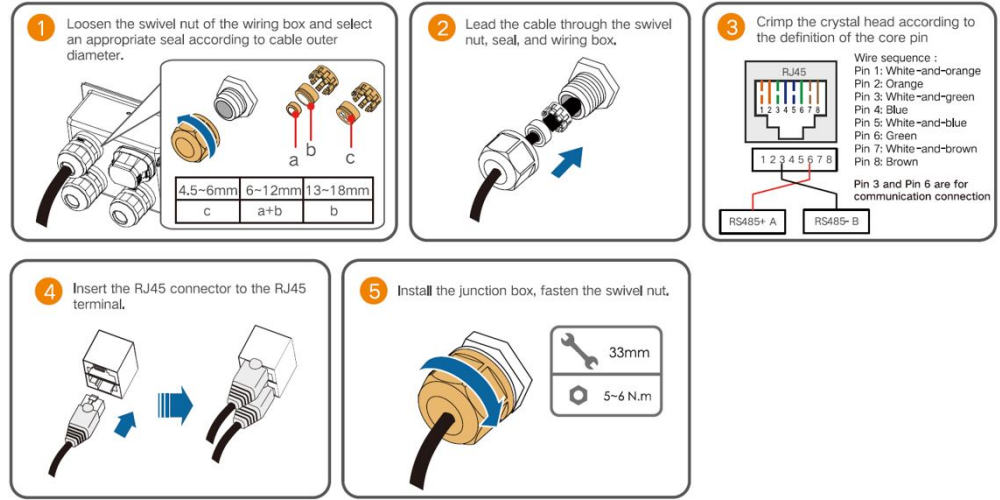


- Reinstall the junction box.



6.4.2 RJ45 Connection

See the CL Series Owner's Guide (document number: 990-91392) available online at <http://solar.schneider-electric.com>.



7.0 Commissioning

7.1 Inspection Before Commissioning

Before powering on the inverter, perform the following inspections:

- The PV inverter is accessible for operation, maintenance, and service.
- Check to confirm that the inverter is stable and fixed on the wall/metal frame.
- Check for ventilation.
- Check for and remove any object such as tools and extra screws on top of the PV inverter.
- Check that the PV inverter and its accessories are connected securely.
- The cables are routed through the cable glands and protected against potential mechanical damage. Do not overtighten the sealing locks.
- The AC circuit breaker is installed and the cables are properly connected.
- The AC terminals are properly torqued according to recommended torque settings (see installation drawings for torque information). Check both top and bottom terminals and adjust accordingly.
- The PV cables with MC4 DC cable connectors are properly connected to the DC input terminals of the inverter.
- The product warning label and rating label are affixed permanently and not peeling off from the product.
- Check that you have an iOS or Android smart device that supports Bluetooth 4.1 LE at the commissioning site.
- Check that you have the InsightMobile SE app installed on the smart device.
- If you are viewing the Owner's Guide online from <https://solar.schneider-electric.com>, make sure that you download a copy that you can access offline.

7.2 Commissioning Procedure

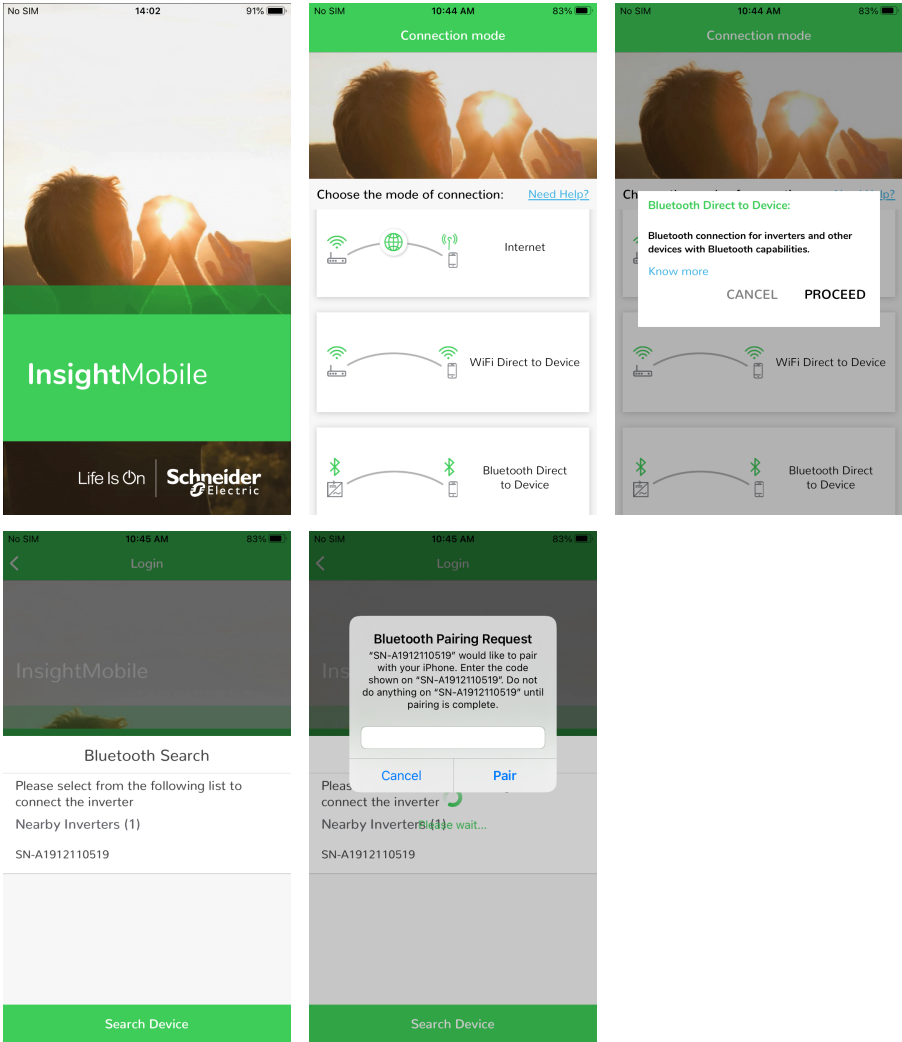
- Close (turn On) the DC disconnect device from the PV string (or array).
- Close (turn On) the AC circuit breaker.
- Rotate the DC switch to the ON position. For CL 30 and CL 50 (in the Australia or New Zealand market) ensure that external DC switch and inverter DC switch are in the ON position.
- Observe the LED indicator.
- Set initial protection parameters via the InsightMobile SE app. See Section 9.0 for quick setup instructions. For details, see CL Series Owner's Guide (document number: 990-91392). If the irradiation and grid conditions meet requirements, the inverter will operate normally.
- Observe the LED indicator to ensure that the inverter operates normally, (see installation drawings for torque information).
NOTE: Read the warning message and proceed accordingly. Select the country code according to the installation country of the inverter. Each country code represents corresponding local protective parameters that have been preset before delivery. Before country setting, there is a warning screen. After setting the country code, proceed with setting other parameters in accordance with the specific requirements of the local grid.

8.0 LED Indicator Operation

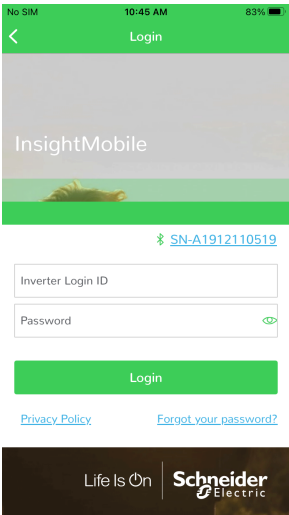
LED Indicator	LED State	Description
	Steady blue	The CL Series is connected to the grid and operating normally.
	Periodical flashing blue Period: 0.2 seconds 	The Bluetooth communication is connected and there is data communication. No inverter event is present.
	Periodical flashing blue Period: 2 seconds 	The DC or AC side is powered on and the device is in standby or startup state (not feeding power into the grid).
	Steady red	An event is present and the inverter cannot connect to the grid.
	Flashing red	An event is present, the Bluetooth communication is connected and there is data communication.
	OFF	Both the AC and DC sides are powered down.

9.0 Initial Setup with InsightMobile SE app

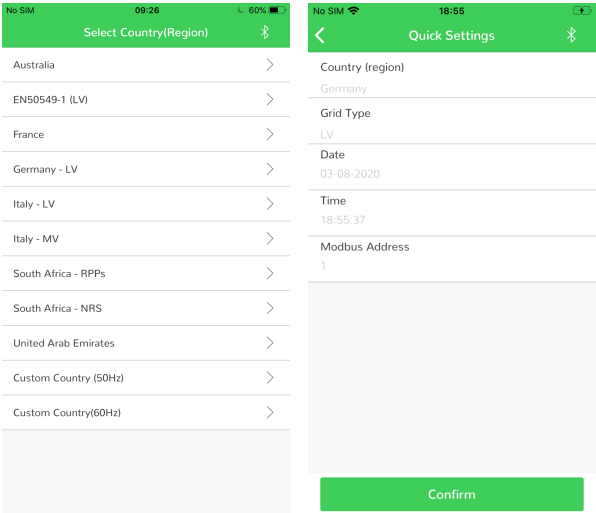
- Tap the **Bluetooth Direct to Device** option in the **Choose the mode of Connection** screen.
- Tap **PROCEED** under the **Bluetooth Direct to Device** pop up screen. In the Search Screen all the nearby inverter will be listed by serial number.
- Tap to select and connect to the required inverter.
- When the Bluetooth pairing request pops up, type the last six digits of the serial number of the inverter.



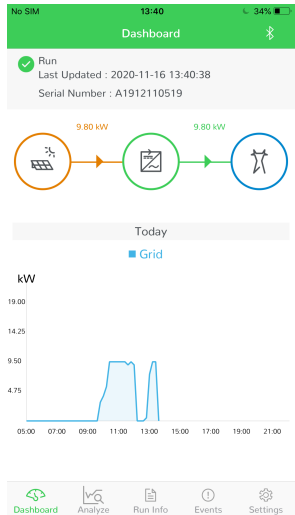
- On successful connection the **Login** screen will be displayed. Enter the login details and click **Login**. The Login ID is “user” and initial password is “User123”. For account security, change the password as soon as possible, as described in the Owner's Guide.



- On first time connection to inverter the **Select Country (Region)** menu will be displayed. Select the Country from the list.
 - In European regions, such as Netherlands, Sweden, or Denmark, whose grid code complies with EN50549, select the parameter **EN50549_1 (LV)**.
- In the **Quick Setting** menu, set the grid type, date and time values, and the Modbus address.
- Click **Confirm** to accept the inverter settings.



- On successful configuration, the **Dashboard** screen will be shown.



- NOTE: The interface in your app may differ slightly.
- See the Owner's manual for information on resetting the country name. Incorrect protection parameters may cause the inverter to trip due to errors and events.

Exclusion for Documentation

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