

Quick Install Guide



Conext CL-60A

**A Important Safety Information**

This Guide is intended for any qualified personnel who need to install, operate, configure, and troubleshoot the Conext CL-60A. 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
- Installing and configuring batteries
- 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.

1. Before using this product, read all instructions and cautionary markings on the unit and all appropriate sections of this manual.
2. Use of accessories not recommended or sold by the manufacturer may result in a risk of fire, electric shock, or injury to persons.
3. 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.
4. To avoid a risk of fire and electric shock, make sure that existing wiring is in good condition and that wire is not undersized. Do not operate the equipment with damaged or substandard wiring.
5. Do not operate the equipment if it has been damaged in any way.
6. Do not disassemble the Conext CL-60A except where noted for connecting wiring and cabling. See your warranty for instructions on obtaining service. Attempting to service the unit yourself may result in a risk of electrical shock or fire.
7. To reduce the risk of electrical shock, 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 5 minutes after all power is disconnected.
8. The equipment must be grounded. Use the protective grounding conductor provided with the AC input conductors.
9. This product is designed for outdoor use and is rated Type 4X.
10. To reduce the chance of short-circuits, always use insulated tools when installing or working with this equipment. Do not leave tools inside.
11. Remove personal metal items such as rings, bracelets, necklaces, and watches when working with electrical equipment.
12. Do not open nor disassemble the top half of the unit. There are no user-serviceable parts inside.

**READ AND SAVE THESE INSTRUCTIONS - Do NOT DISCARD BUT Do NOT STORE INSIDE THE CL-60A CABINET.** This guide contains important safety instructions for the Conext CL-60A that must be followed during installation procedures. Read and keep this Quick Install Guide for future reference.

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 bulletin 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.

**⚠ 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.



Keep for your records. This contains the model and serial number of the inverter.

Get a 10 Year Warranty! Register your CL-60A

Warranty without registering: **5 Years** Product Warranty

Warranty Activated AFTER registering: **+ 5 Years** Additional Promotional Warranty

**= 10 Year Warranty**

To redeem the additional promotional warranty option, inverters have to be registered<sup>1</sup>.

For more information or to download the **my Schneider app™**, go to

<http://solar.schneider-electric.com/product-registration/>



Schneider Electric Product Registration

One Easy Step / Multiple Methods

Register today in one easy step to receive additional warranty and valuable benefits!

Select your Method

Scan or Visit or Call

QR Code on the equipment label: <http://solar.schneider-electric.com/product-registration> <http://solar.schneider-electric.com/tech-support/>

Register with **my Schneider app**

**Register your CL-60A** → **Receive a Response**

Register within 6 months of purchase and redeem additional warranty

Receive your Warranty Certificate

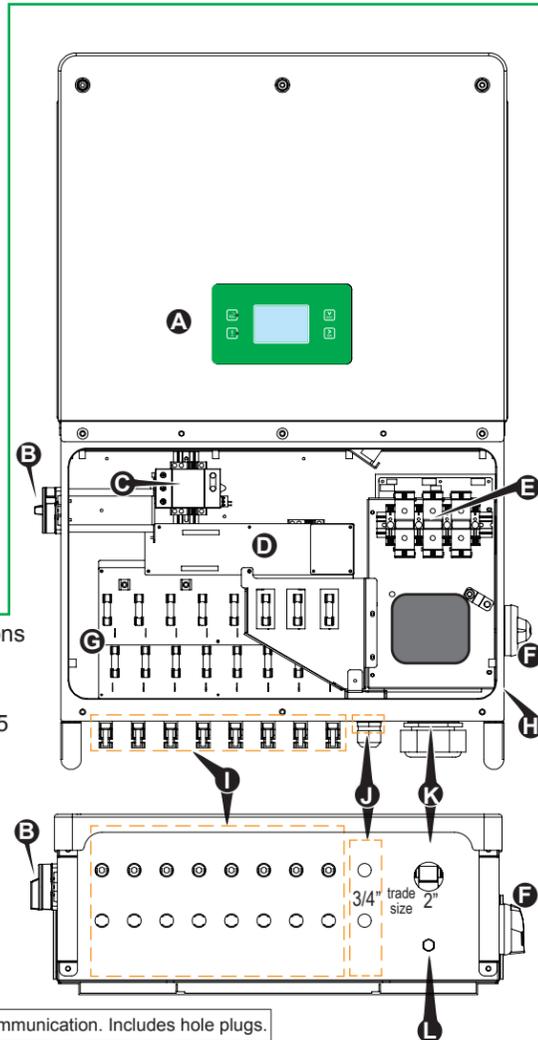
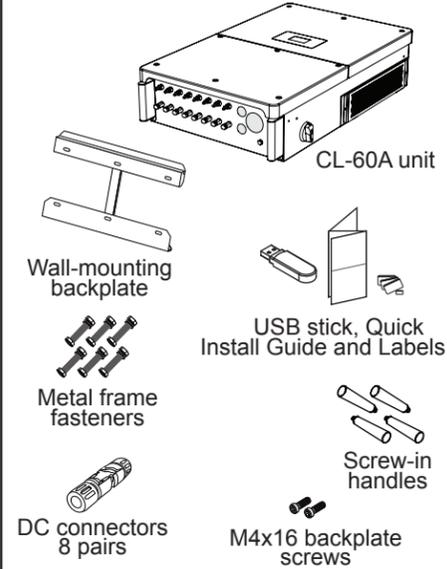
**Contact Information**  
<http://solar.schneider-electric.com>  
 Please contact your local Schneider Electric Sales Representative or visit the Schneider Electric website at:  
<http://solar.schneider-electric.com/tech-support/>

<sup>1</sup> To validate your data, we may ask you to provide additional information.

## B Introduction

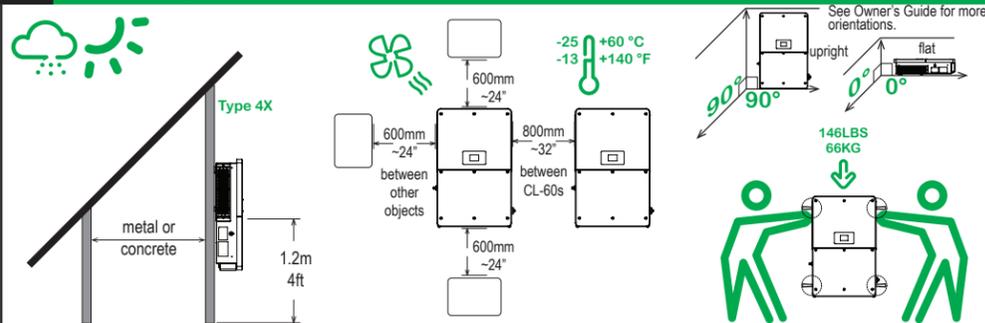
Conext CL-60A (also referred to as CL-60A PV Inverter) is a transformerless three-phase photovoltaic (PV) string inverter that is designed to be an integral part of any utility grid-connected PV Power System. The Conext CL-60A is designed to convert DC power generated from the PV array into AC power that is compatible with utility grade AC power.

### Features



- A** LCD display with status LED and buttons
  - B** DC switch
  - C** DC surge protection device (SPD)
  - D** Configuration circuit board with RS-485 and Ethernet ports
  - E** AC output terminals
  - F** AC switch
  - G** DC fuse board with integrated Arc fault detector
  - H** Ground Ⓧ location
  - I** Amphenol® H4 DC input terminals
  - J** 3/4" trade size conduit knockouts\*
  - K** 2" trade size conduit knockout for AC
  - L** Waterproof air valve
- \* for communication. Includes hole plugs.

## C Mounting Considerations



### Exclusion for Documentation

UNLESS SPECIFICALLY AGREED TO IN WRITING, SELLER (A) MAKES NO WARRANTY AS TO THE ACCURACY, SUFFICIENCY OR SUITABILITY OF ANY TECHNICAL OR OTHER INFORMATION PROVIDED IN ITS MANUALS OR OTHER DOCUMENTATION; (B) ASSUMES NO RESPONSIBILITY OR LIABILITY FOR LOSSES, DAMAGES, COSTS OR EXPENSES, WHETHER SPECIAL, DIRECT, INDIRECT, CONSEQUENTIAL OR INCIDENTAL, WHICH MIGHT ARISE OUT OF THE USE OF SUCH INFORMATION. THE USE OF ANY SUCH INFORMATION WILL BE ENTIRELY AT THE USER'S RISK; AND (C) REMINDS YOU THAT IF THIS MANUAL IS IN ANY LANGUAGE OTHER THAN ENGLISH, ALTHOUGH STEPS HAVE BEEN TAKEN TO MAINTAIN THE ACCURACY OF THE TRANSLATION, THE ACCURACY CANNOT BE GUARANTEED. APPROVED CONTENT IS CONTAINED WITH THE ENGLISH LANGUAGE VERSION WHICH IS POSTED AT [HTTP://SOLAR.SCHNEIDER-ELECTRIC.COM](http://solar.schneider-electric.com).

## D Installation (Mounting)

### 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 installation, alternative lifting techniques, and multiple unit guidelines, see the full Owner's Guide available on the USB stick that came with the box.**

### ⚠️ DANGER

#### HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Do not connect the PV Inverter to a live power source prior to cabling and wiring. The inverter can be energized from two sources namely, DC from the PV array and AC from the grid.
  - Do not connect any powered device to the PV Inverter during installation.
- Failure to follow these instructions will result in death or serious injury.**

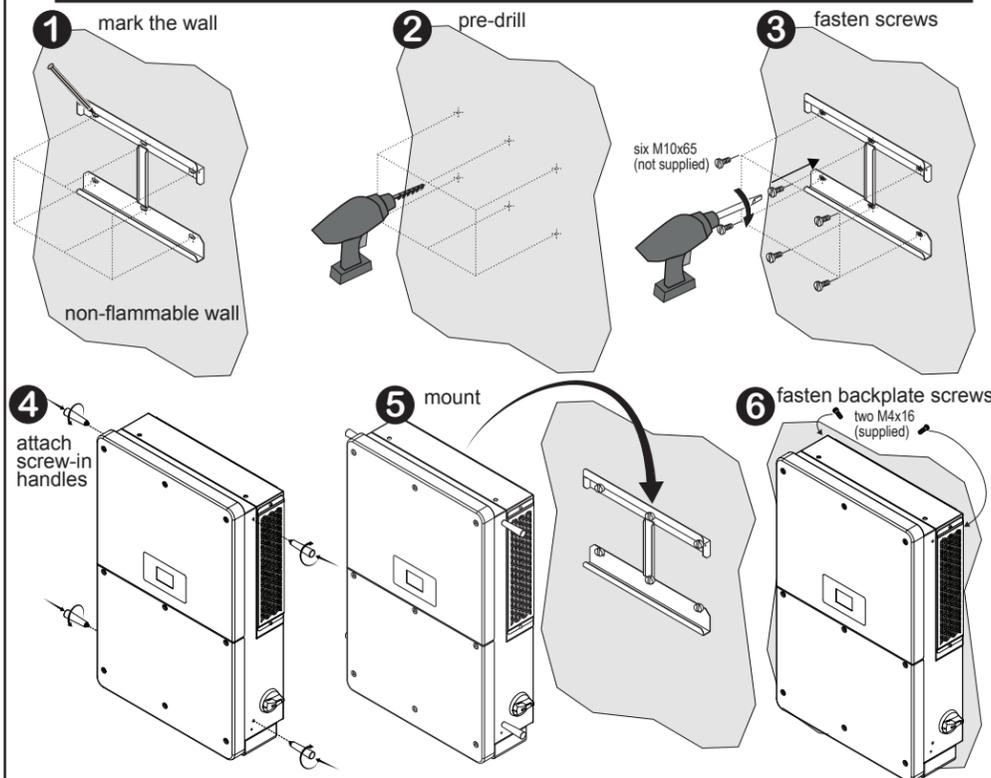
Check all the materials in the box (see Features) and make sure nothing is missing. The following materials and tools are not supplied but are required to complete the installation (mounting):

- Personal protective equipment (PPE)
- Screwdriver and drill set (powered and/or manual)
- Six (M10x65) screws (for fastening wall-mounting backplate to the wall)

### ⚠️ DANGER

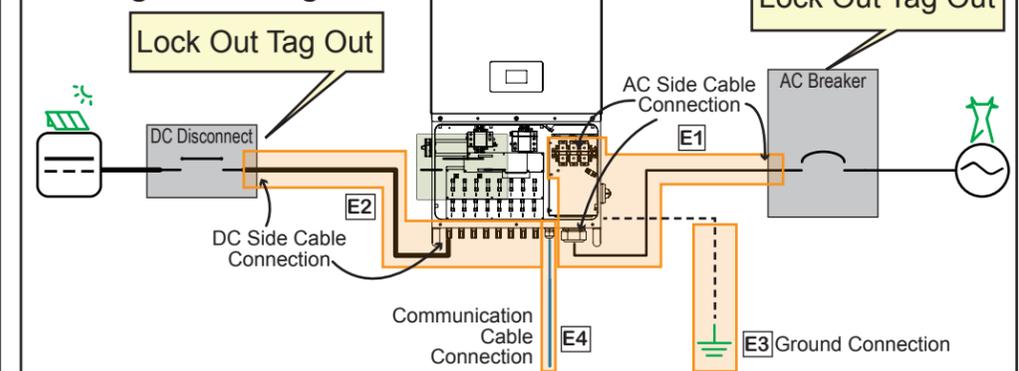
#### HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E or CSA Z462.
  - This equipment must only be installed and serviced by qualified electrical personnel.
  - Never energize the inverter with the covers removed.
  - Do not open fuse holders under load. The fuse must be de-energized from all sources before servicing.
  - The inverter is energized from multiple sources. Before removing covers identify all sources, de-energize, lock-out, and tag-out and wait 10 minutes.
  - Always use a properly rated voltage sensing device to confirm all circuits are de-energized.
  - Replace all devices and covers before turning on power to this equipment.
  - The DC conductors of this photovoltaic system are ungrounded and may be energized.
- Failure to follow these instructions will result in death or serious injury.**



## E Installation (Wiring)

### Single Line Diagram

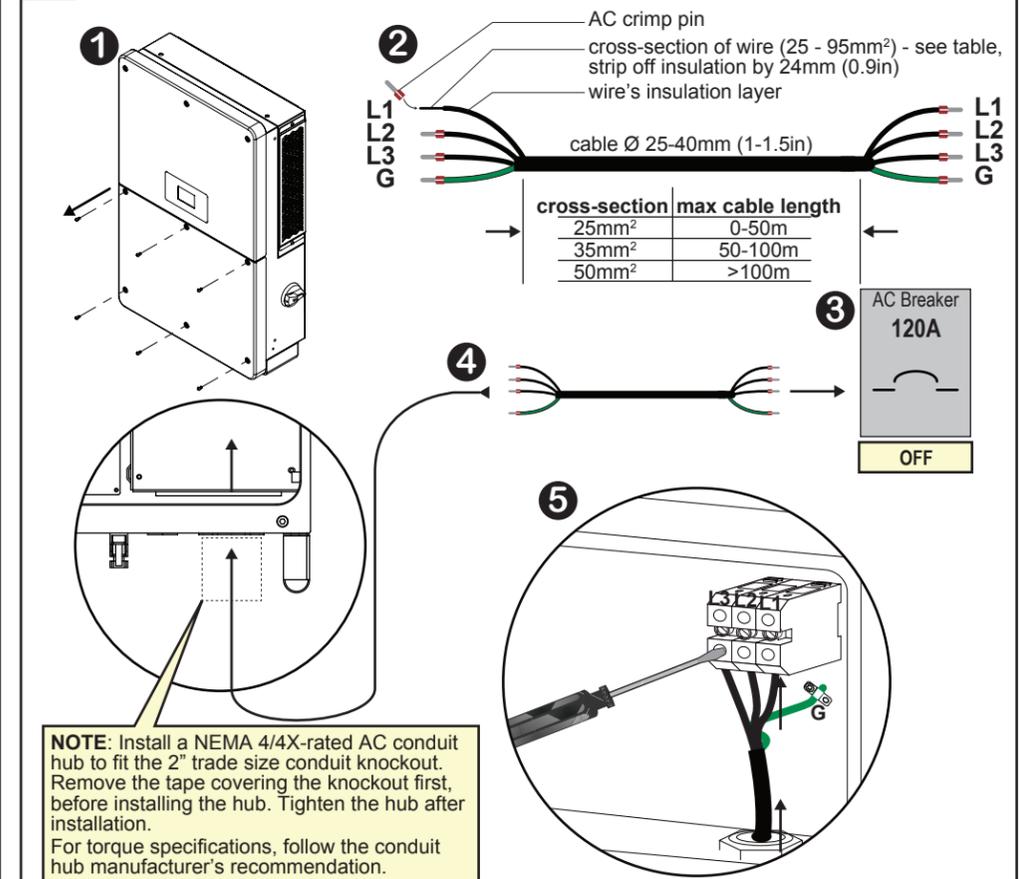


See **DANGER** and **NOTICE** messages in **D** before proceeding.

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

- AC power cable (4-wire)
- DC power cables (red+, black-)
- RS-485 cable for Modbus/RS-485 device
- CAT6/5/e network cable for Modbus/RS-485 PV Inverter and Ethernet TCP/IP connections
- Wire stripper, standard mollex crimper, AC/DC crimp pins
- Screwdriver and drill set (powered and/or manual)
- Calibrated professional digital multimeter
- Crimping tool for Amphenol ( <https://www.amphenol.com/> )
- 1 AC conduit hub (for 2" trade size knockout)
- 1 or 2 conduit hubs (for 3/4" trade size knockouts)

### E1 AC Side Cable Connection - for more information see the Owner's Guide



**NOTE:** Install a NEMA 4/4X-rated AC conduit hub to fit the 2" trade size conduit knockout. Remove the tape covering the knockout first, before installing the hub. Tighten the hub after installation. For torque specifications, follow the conduit hub manufacturer's recommendation.

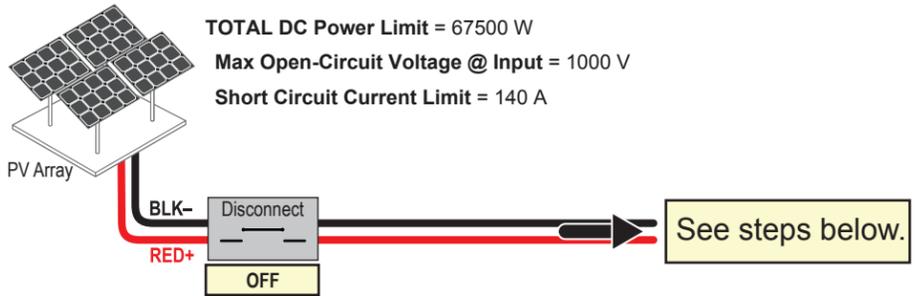
## E2 DC Side Cable Connection - for more information see the Owner's Guide

**⚠️ DANGER**

**ELECTRIC SHOCK HAZARD**

- 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.**

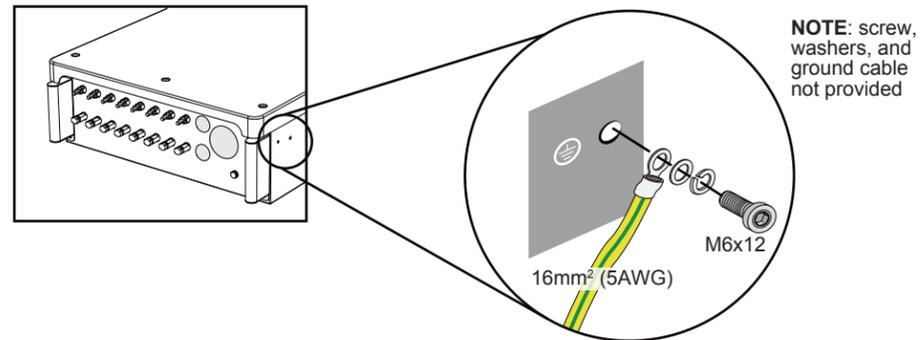


- strip**  
Strip 7mm (.25in) of BLK- and RED+ wires.
- separate connectors\***  
Separate the H4 connectors.
- remove cable glands and matching pins**  
Remove old glands and pins. Use for BLK- cable and RED+ cable.
- crimp**  
Crimp matching pins onto the BLK- and RED+ cables.
- thread cable through glands**  
Thread the cables through the glands.
- insert contact into insulator**  
Insert the crimped contacts into the insulator. Snap.
- attach cable glands**  
Attach the cable glands to the insulator.
- turn OFF DC switch**  
Turn the DC switch OFF.
- attach (-) H4 connectors\* to (-) terminals and (+) H4 connectors\* to (+) terminals**  
Attach the H4 connectors to the terminals.

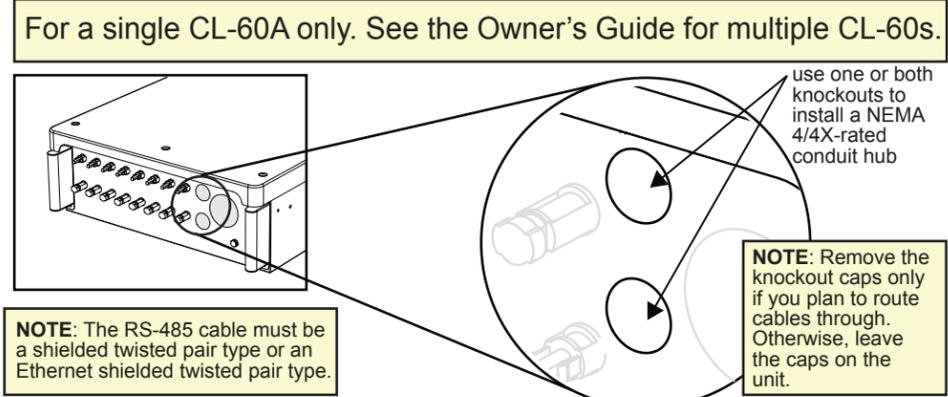
**NOTE:** Use a spanner, if available, to tighten the cable glands to the insulator.

**\* Use a Y-type connector with 15 A in-line fuses (Amphenol H4 YY and H4 YX), one in each branch.**

## E3 Ground Connection - for more information see the Owner's Guide



## E4 Communication Cable Connection - for more information see the Owner's Guide



**RS-485 Connection (2 connection types)**

**Bus**

- install a NEMA 4/4X-rated 3/4" trade conduit hub
- thread an RS-485 cable through the hub and strip the wires
- connect each wire (A, B, and GND) to the connector terminals

**RJ45**

- install a NEMA 4/4X-rated 3/4" trade conduit hub
- thread an RS-485 cable through the hub and terminate with RJ45 plugs
- connect each wire (A, B, and GND) to the connector terminals

**NOTE:** pin 5 (white-blue) = RS-485-B  
pin 4 (blue) = RS-485+A

**NOTE:** An RS-485-232 converter is required. See the Owner's Guide for information.

**Ethernet Connection**

- install a NEMA 4/4X-rated 3/4" trade conduit hub
- thread a standard CAT6/5/e Ethernet cable through the hub
- attach the RJ45 plug to the Ethernet1 terminal

**RS-485 Connection (2 connection types)**

**Bus**

- attach the connector to the RS485out terminal
- switch the terminating resistor to OFF

**RJ45**

- attach the RJ45 plug to the RS485out terminal
- switch the terminating resistor to OFF

**NOTE:** Do not leave tools and other objects on and inside the CL-60A.

**NOTE:** Do not leave tools and other objects on and inside the CL-60A.

**Ethernet Connection**

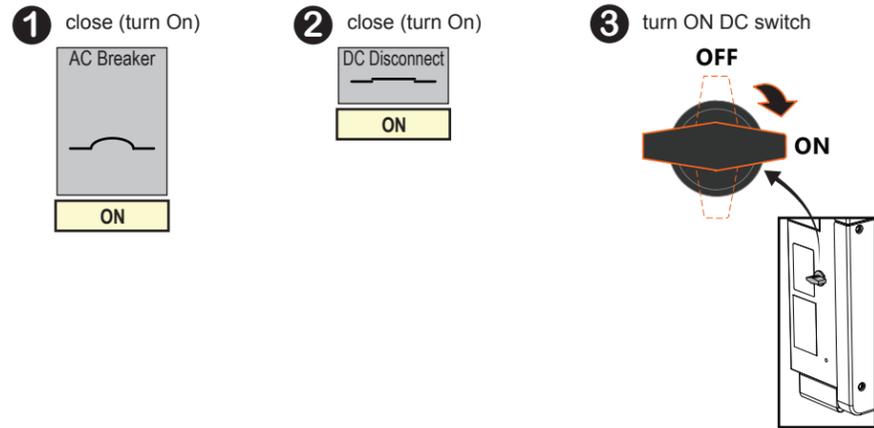
- Ethernet communication can be set up in the following configurations:
  - single-network
  - star network
  - multiple-daisy-network
  - single-direct
  - multiple-daisy-direct
- replace the cover

**NOTE:** Do not leave tools and other objects on and inside the CL-60A.

**Inspection Before Commissioning**

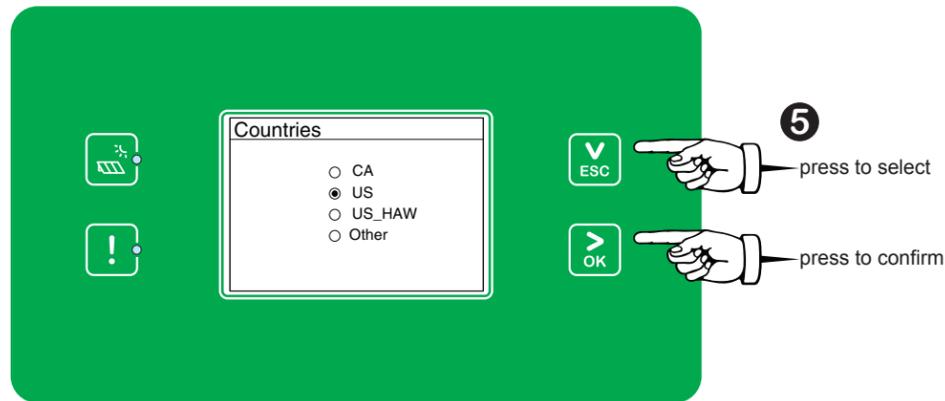
- CL-60A accessible?
- CL-60A stable and secure on the wall?
- Ventilation - CL-60A free of obstructions?
- No tools left on and inside CL-60A?
- Cable connections tight and secure?
- AC and DC circuit breakers are connected to CL-60A?
- Unused terminals are sealed?
- Permanently affixed product rating and warning labels?

**F Commissioning**



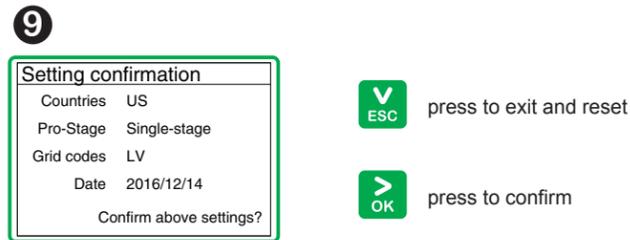
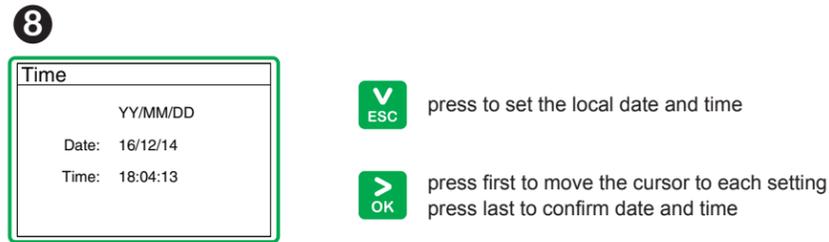
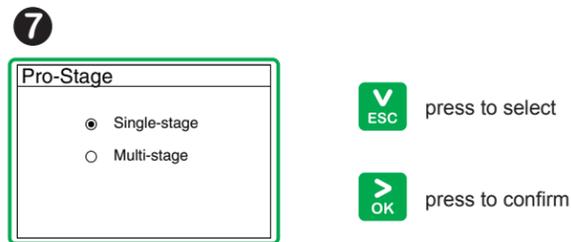
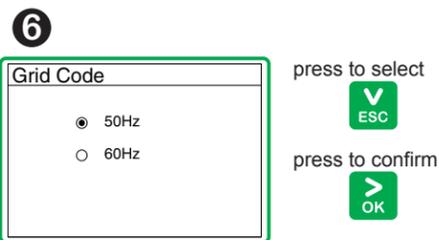
**NOTE:** If there is enough sunlight and the PV array initializes, then DC power should start energizing the CL-60A. The LCD display activates soon after.

**4** observe the LCD display for the splash screen, warning screen, and then the **Countries** screen (Country Code) appears

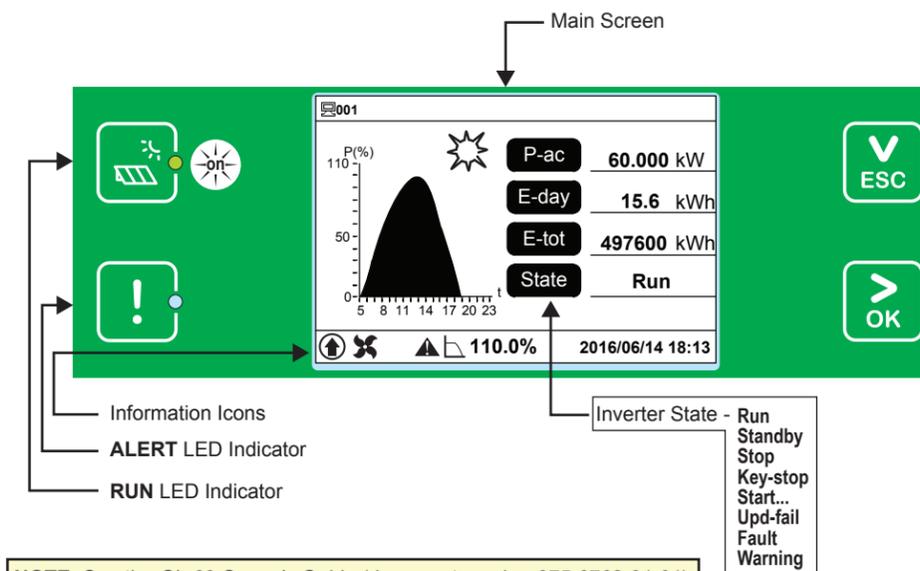


**NOTE:** Each country code is pre-programmed with its country's local protective parameters, in compliance with local utility grid requirements. If one of the highlighted country codes below is selected, an additional **Grid Code** screen appears. Otherwise, proceed to the next step.

Country Code	Grid Code	Country	Language
CA	50Hz, 60Hz	Canada	English
US	50Hz, 60Hz	USA	English
US_HAW	50Hz, 60Hz	USA - Hawaii	English
Other	50Hz, 60Hz	Country not listed	English



**NOTE:** If the Commissioning procedure succeeds after confirming the settings above, the CL-60A will enter into the startup process and will start displaying some activity on the main screen. Observe the status of the **LED indicators** and the **Main Screen** on the LCD display shown below.



**NOTE:** See the *CL-60 Owner's Guide (document number 975-0768-01-01)* for a full description of the Information Icons, LED Indicators, Inverter State, and other Main Screen objects.

**G Appendix**

**G1 Lock Out Tag Out (LOTO)**

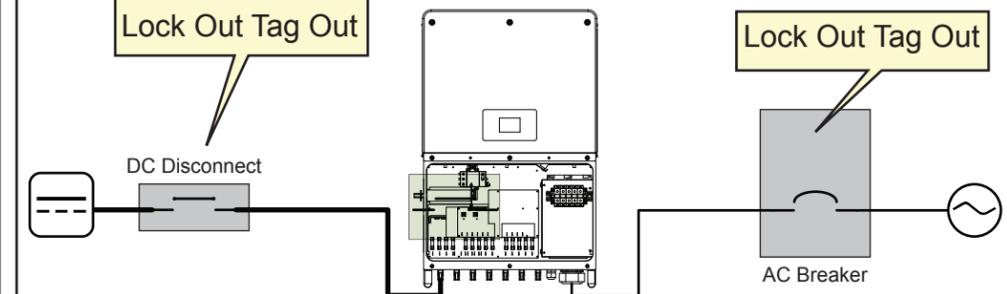
Lock-out refers to the practice of preventing de-energized circuits from being re-energized by putting locks on the disconnecting devices, holding them open. Tag-out refers to the practice of attaching a tag to the disconnect-device locks warning others not to operate the disconnect device and containing 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, OR ARC FLASH**

- 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 to confirm all circuits are de-energized.
- Replace all devices and covers before turning on power to this equipment.
- The DC conductors of this photovoltaic system are ungrounded and may be energized.
- Before removing covers identify the power source (see A), de-energize (see B), lock-out and tag-out (see C), and wait ten minutes for circuits to discharge (see D).

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



- Identify any disconnect device upstream from the CL-60A unit.
- Open the disconnect device that connects to the CL-60A to cut off DC power.
- Turn the CL-60's DC Switch to OFF position.
- Lock out and tag out the DC Disconnect.
- Identify the AC Panel Breaker downstream from the CL-60A unit.
- Open the AC Panel door.
- Turn Off the AC Panel Breaker (open the switch) that connects to the CL-60A to cut off AC power.
- Close the AC Panel door.
- Lock out and tag out the AC Panel.
- Wait ten minutes for the circuits in the CL-60A to discharge.
- Open the CL-60A enclosure and commence service and maintenance activities.

**G2 Firmware Upgrade Using CL EasyConfig Tool**

**NOTE:** See the *Conext CL-60 EasyConfig Tool Owner's Guide (document number 975-0773-01-01)* for full instructions including illustrations.

**G3 Torque Values**

Torque (ft-lb)	Type	Description
2.8	cable gland	for communication cables such as RS-485 Ethernet cable
8.8-9.6	cable gland	for smaller AC cable
11.8-12.5	cable gland	for larger AC cable
0.15	connector screw	RS-485 wire connector
0.6 ±0.1	fastener	transparent protection panel
3.2 ±0.15	fastener	lower enclosure panel
2-3.5	fastener	to secure the CL-60 unit to the mounting backplate
25.8	fastener (metal)	metal frame-mounting backplate nut
25.8	fastener (wall)	wall-mounting backplate expansion
1.8-2.2	terminal gland	MC4 DC terminal
5.9-8.9	terminal screw	AC terminal block
3.2 ±0.15	terminal screw	PE (ground) terminal block