Conext™ Core XC Series Grid Tie Photovoltaic Inverter, 0G-XC-BB

Planning and Installation Manual

990-5738C

August 2017

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Schneider Electric

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Document Number: 990-5738C **Date:** August 2017

Contact Information

For country-specific details, please contact your local Schneider Electric Sales Representative or visit the Schneider Electric Solar Business website at: solar.schneider-electric.com

Information About Your System

As soon as you open your product, record the following information and be sure to keep your proof of purchase.

Serial Number _____

Product Number _____

Purchased From _____

Purchase Date _____

Important Safety Information

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 documentation 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.

⚠ CAUTION

CAUTION indicates a hazardous situation which, if not avoided, **could result in** minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

Please Note

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction, installation, and operation of electrical equipment and has received safety training to recognize and avoid the hazards involved.

Label Symbols

The following symbols appear on labels on or in the inverter.

Hazardous voltage

Fire hazard

Hot surface

Energy storage hazard timed discharge

Hearing damage, wear hearing protection

Refer to the Installation or Operation instructions

Protective conductive terminal

Frame or chassis ground

Direct current

Alternating current

Audience

This manual is intended for anyone who is planning or performing the installation of a Conext Core XC Series Inverter. Installers must be familiar with all the safety regulations pertaining to installing high-voltage equipment as dictated by local code.

Installation must be performed by **qualified personnel**. Qualified personnel have training, knowledge, and experience in:

- Installing electrical equipment and PV input systems (up to 1000 V).
- Applying all applicable installation codes.
- Analyzing and reducing the hazards involved in performing electrical work.
- Selecting and using Personal Protective Equipment (PPE).

Configuration, servicing, and maintenance must be performed by **authorized service personnel** only. Authorized service personnel meet the requirements for a qualified installer, and they have received specific training from the manufacturer on servicing the Conext Core XC Series. Do not open doors or covers or attempt any servicing, maintenance, or other corrective actions unless you meet the requirements for authorized service personnel.

This manual does not contain information regarding servicing or de-energization for servicing. Authorized service personnel should refer to the *Conext Core XC Series, 0G-XC-BB, Lock-Out and Tag-Out Procedures and Barrier Removal (document number: SD-XC-081)* and the *Conext Core XC Series, 0G-XC-BB, Commissioning and Configuration Manual (document number: SD-XC-082).*

About

Purpose

This manual provides explanations and procedures for planning the installation and installing the Schneider Electric Conext Core XC Series Grid Tie Photovoltaic Inverters. Operating instructions are available in the Conext Core XC Series Grid Tie Photovoltaic Inverter, 0G-XC-BB, Operation Manual (document number: 990-5737). Commissioning and Configuration instructions are available to authorized service personnel in the Conext Core XC Series, 0G-XC-BB, Commissioning and Configuration Manual (document number: SD-XC-082).

Scope

Several versions of the Conext Core XC Series inverter exist.

This manual belongs only to the BB version of Conext Core XC Series.

⚠ ⚠ WARNING

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

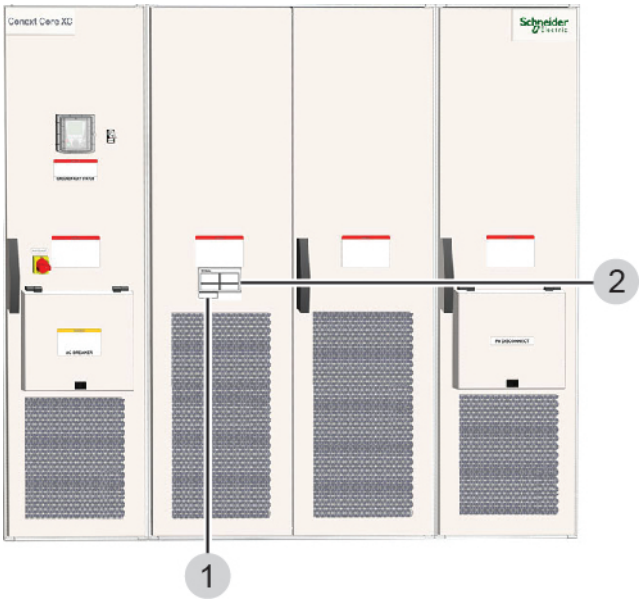
Always verify you are using the correct manual for your product before beginning any installation, operation, maintenance, or servicing work. Contact your Schneider Electric Sales Representative for details.

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

To confirm that you have a BB version of Conext Core XC Series:

1. Locate the serial number label, on the left power stage cabinet door, below the ratings label, as shown in *Figure 1*.
2. Confirm that "0G-XC-BB" is written between the two serial numbers on the label.

Figure 1 Serial number label location



1	Serial number label
2	Ratings label

Abbreviations and Acronyms

ANSI	American National Standards Institute
BDEW	Bundesverband der Energie- und Wasserwirtschaft German Association of Energy and Water Industries
CE	European Conformity mark (European Union standards compliance)
CENELEC	European committee for electrotechnical standardization
DIN	Deutsches Institut für Normung (German national standards organization)
DVC	Decisive voltage class
GEC	Grounding electrode conductor
GFDI	Ground fault detection interrupter
HVAC	Heating, ventilation, and air-conditioning
IEC	International Electrotechnical Commission
IMD	Insulation Monitoring Device
LOTO	Lock out and tag out
NFPA	National Fire Protection Association
PE	Protective earth (ground)
PPE	Personal Protective Equipment

PV	Photovoltaic
RCD	Residual current detector
RMS	Root mean square
SELV	Safety Extra Low Voltage
VAC	Volts (alternating current)
VDC	Volts (direct current)
VDE	Verband der Elektrotechnik, Elektronik und Informationstechnik (Association for Electrical, Electronic & Information Technologies)

Related Information

You can find more information about Schneider Electric as well as its products and services at: www.schneider-electric.com

For specific information on Solar, visit the Schneider Electric Solar Business website at: solar.schneider-electric.com

Product Safety Information

This manual contains important safety instructions for the Conext Core XC Series that must be followed during installation procedures.

⚠⚠ DANGER

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

- Read all instructions, cautionary markings, and all other appropriate sections of this manual before operating or troubleshooting the Conext Core XC Series.
- This equipment is for use in *closed electrical operating areas*[1] only.
- This equipment must only be installed by qualified personnel, and must only be serviced by authorized service personnel equipped with appropriate personal protective equipment, and following safe electrical work practices.
- Do not open any door[2] or remove any cover before performing these tasks:
  - Consult the system diagram to identify all PV, AC, and external auxiliary AC (if used) sources.
  - De-energize, lock out, and tag out all sources according to the procedure in the *Conext Core XC Series, 0G-XC-BB, Lock-Out and Tag-Out Procedures and Barrier Removal (document number: SD-XC-081)*.
  - Wait at least 10 minutes for internal capacitors to discharge to safe voltages.
  - Confirm circuits are de-energized with a voltage sensing device rated at least 1000 V AC and DC. Switches in or on the inverter remain energized unless sources have been externally disconnected.
- Replace all devices, doors, and covers before turning on power to this equipment.
- Select and install a suitably rated[3] isolation transformer between the inverter output and utility power line connections. The transformer must be selected and installed in accordance with this manual. The transformer must be an isolation type having separate primary and secondary windings. See the *Electrical Diagram on page 44* for details.
- This inverter must be mounted on a non-flammable surface. See *Anchoring Requirements and Layout on page 35* for details.

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

[1] Per EN/IEC62109-1 this is defined as a room or location for electrical equipment to which access is restricted to skilled or instructed persons by the opening of a door or the removal of a barrier by the use of a key or tool and which is clearly marked by appropriate warning signs.

[2] The DC cabinet door can be opened without interrupting inverter operation (opening any other doors will interrupt inverter operation). See *Operator Interface Controls on page 25*.

[3] Minimum 540 kVA rated for XC540, minimum 630 kVA rated for XC630, minimum 680 kVA rated for XC680. See*Transformer Requirements on page 43*.

⚠ WARNING

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

Obey the manual's instructions, as well as, all physical, electrical, and environmental specifications shipped with the Conext Core XC Series.

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

⚠ WARNING

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

- This inverter is energized at any time the PV arrays are exposed to light.
- In all installations, the installer must provide external disconnecting means for the PV input, AC output, and external auxiliary AC source input wiring.
- The overcurrent protection devices within the Conext Core XC Series are intended to provide adequate protection for Conext Core XC Series circuitry only.
- The installer is responsible for determining whether additional external overcurrent protection is required for the AC output, PV input, and external auxiliary AC source wiring, in accordance with the applicable installation codes.

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

⚠ WARNING

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

Do not install or attempt to operate the Conext Core XC Series if it has been dropped or has received more than cosmetic damage during transport or shipping. If the Conext Core XC Series is damaged, or suspected to be damaged, contact Schneider Electric customer service.

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

⚠ WARNING

UNINTENDED USE

The Conext Core XC Series is not intended for use in connection with life support systems or other medical equipment or devices. The Conext Core XC Series can only be used in grid-interconnected PV systems with PV modules. It is not suitable for any other application areas.

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

⚠ WARNING

HAZARD OF CRUSH INJURY AND EQUIPMENT DAMAGE

- Use caution and follow the instructions in this manual for correct lifting, moving, and mounting of the Conext Core XC Series.
- The Conext Core XC Series can topple over if tipped. You must securely attach the Conext Core XC Series to the mounting surface after positioning.

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

⚠ WARNING

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

- Do not defeat or change the settings of the heater thermostat and dew point controller located inside the Conext Core XC Series as these heaters are installed to help prevent condensation inside the Conext Core XC Series.
- Do not defeat or change the settings of internal protection devices such as circuit breakers, insulation monitor, and current sense relays.
- Do not change the settings on the AC circuit breaker.
- Do not defeat any of the door interlocks. They are an integral part of the Conext Core XC Series protection system.

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

⚠ CAUTION

HAZARD OF HEARING LOSS

Wear appropriate hearing protection as the Conext Core XC Series can generate noise levels exceeding 80 dBA.

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

⚠ CAUTION

HAZARD OF BURNS AND EQUIPMENT DAMAGE

Components become hot during normal operation. Surfaces inside of the Conext Core XC Series may continue to be hot after the 10 minute duration required to discharge the internal capacitors. After opening the cabinet doors, follow all posted warnings and use caution before touching conductive surfaces.

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

⚠ CAUTION

HAZARD OF OVERHEATING AND EQUIPMENT DAMAGE

- Keep the supply air and exhaust air areas unobstructed.
- Follow the installation, ventilation, and clearance instructions.

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

NOTICE

HAZARD OF ELECTROSTATIC DAMAGE

Conext Core XC Series electronics can be destroyed by electrostatic charge. Wear electrostatic protection gear, and use anti-static tools and procedures when installing the Conext Core XC Series.

Failure to follow these instructions can result in equipment damage.

Personal Protection

Follow these instructions to help protect yourself while working with the Conext Core XC Series.

⚠ ⚠ DANGER

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

- Never work alone when installing the Conext Core XC Series. A team of two is required until external sources are properly de-energized, locked out and tagged out, and verified de-energized with a meter, according to the *Installation Lock-out and Tag-out Procedure on page 13*.
- Thoroughly inspect the Conext Core XC Series prior to energizing. Verify that no tools or materials have inadvertently been left inside the cabinets and that all guards and barriers are properly reinstalled and secured.

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

Qualified personnel must be equipped with appropriate personal protective equipment including the following:

- Electrical rated rubber insulating gloves with leather protectors (optional liners)
- Safety glasses or goggles
- Arc-rated long sleeve shirt and arc-rated pants OR arc-rated coverall OR arc-rated flash suit
- Hearing protection suitable for noise levels exceeding 80 dBA
- Electrically rated footwear
- Arc-rated face shield with arc-rated hard hat and hood OR arc flash suit hood
- Minimum five LOTO locks and tags
- Voltage tester or multimeter with minimum ratings of 600 VAC/CAT IV and 1000 VDC/CAT III

Check local safety regulations for other requirements.

Required Tools

- Inverter door key
- Complete set of electrical hand tools
- Screwdriver set
- Socket wrench set
- Torx® driver set
- Calibrated torque wrench set (Nm or lb-ft) with extensions
- Electrostatic discharge (ESD) control vacuum cleaner
- Lint-free cloth

- Soft bristle brush
- Permanent marker pen (for creating torque marks)
- Skid-resistant stool or ladder
- Test probes intended for use with the selected multimeter or voltage tester and rated 600 VAC/CAT IV and 1000 VDC/CAT III

Installation Lock-out and Tag-out Procedure

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.

The installation LOTO procedure can only be used during installation if the Conext Core XC Series has never been energized. This procedure cannot be used once the Conext Core XC Series has been installed and energized for the first time.

If the Conext Core XC Series has been previously energized, additional steps are required to correctly LOTO the Conext Core XC Series for troubleshooting and service. These steps are detailed in the Conext Core XC Series, 0G-XC-BB, Lock-Out and Tag-Out Procedures and Barrier Removal (document number: SD-XC-081) and must be performed by authorized service personnel.

Follow all steps of this procedure to de-energize all sources of energy external to the Conext Core XC Series. This allows access to all parts of all cabinets, including behind internal barriers, during installation.

See for the locations of the parts of the Conext Core XC Series referred to in the lock-out and tag-out steps.

⚠⚠ DANGER

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

- This equipment is for use in *closed electrical operating areas*[4] only.
- This equipment must only be installed by qualified personnel, and must only be serviced by authorized service personnel equipped with appropriate personal protective equipment, and following safe electrical work practices.
- Do not open any door[5] or remove any cover before performing these tasks:
  - Consult the system diagram to identify all PV, AC, and external auxiliary AC (if used) sources.
  - De-energize, lock out, and tag out all sources according to the procedure in the *Conext Core XC Series, 0G-XC-BB, Lock-Out and Tag-Out Procedures and Barrier Removal (document number: SD-XC-081)*.
  - Wait at least 10 minutes for internal capacitors to discharge to safe voltages.
  - Confirm circuits are de-energized with a voltage sensing device rated at least 1000 V AC and DC. Switches in or on the inverter remain energized unless sources have been externally disconnected.
- Replace all devices, doors, and covers before turning on power to this equipment.
- The following procedure only applies to installation of an inverter, not to servicing. If the inverter is already installed, additional steps are needed to de-energize, LOTO, and verify internal voltages, and these steps must only be performed by authorized service personnel.
- Additional external disconnecting means for the PV, AC, and external auxiliary AC source (if used), capable of being locked out and tagged out, must be provided as part of the installation to help facilitate safe installation and for certain servicing operations.

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

Refer to *Figure 2* and follow these lock-out and tag-out steps:

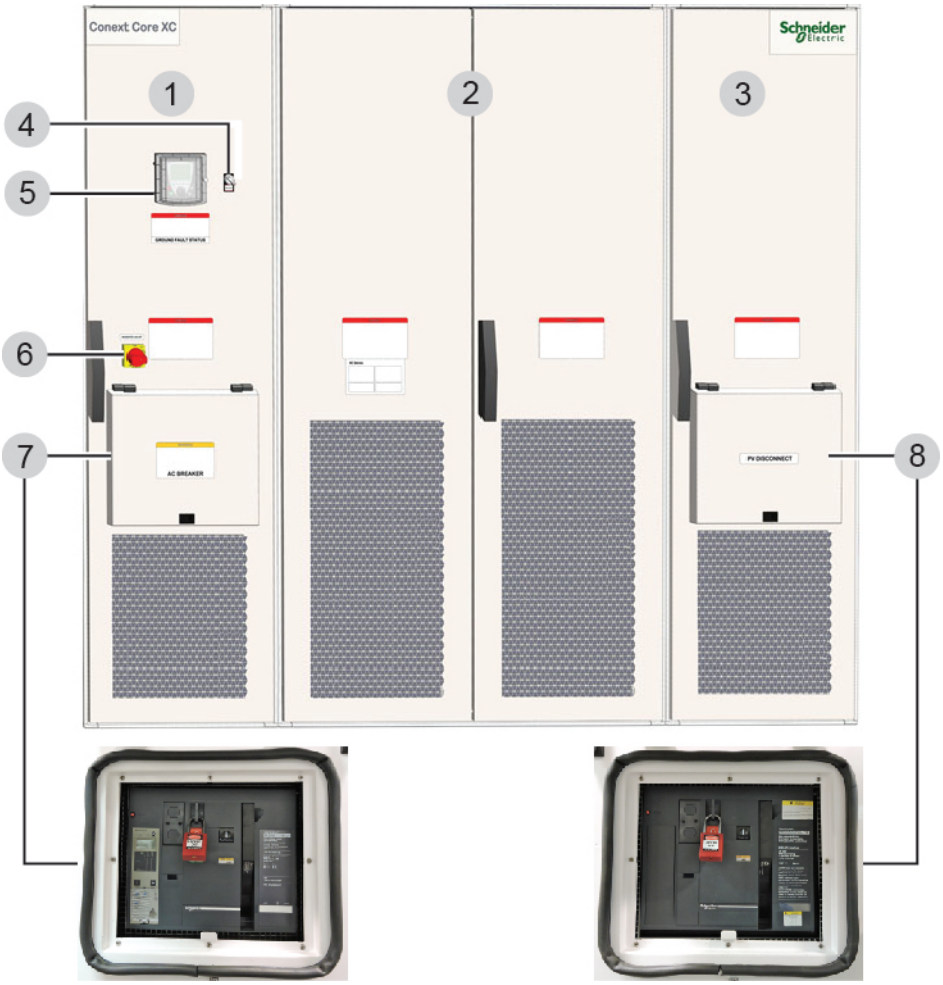
1. Turn the ENABLE STATE/DISABLE STATE switch to the DISABLE STATE position.
2. Turn the inverter ON/OFF switch to OFF.
3. Open, lock out, and tag out the AC output (grid) circuit at its external disconnecting means provided as part of the installation.
4. Open, lock out, and tag out all incoming PV input circuits at the external disconnecting means provided as part of the installation.

[4] Per EN/IEC62109-1 this is defined as a room or location for electrical equipment to which access is restricted to skilled or instructed persons by the opening of a door or the removal of a barrier by the use of a key or tool and which is clearly marked by appropriate warning signs.

[5] The DC cabinet door can be opened without interrupting inverter operation (opening any other doors will interrupt inverter operation).

5. Open, lock out, and tag out the external auxiliary AC source (if used) at its external disconnecting means provided as part of the installation.
6. Wearing appropriate PPE and using a voltmeter with minimum ratings of 600 VAC/CAT IV and 1000 VDC/CAT III that has been tested on a known AC voltage source and a known DC voltage source before use, verify that all external circuits are de-energized by checking for zero voltage at all of the following locations:
    a. AC output (grid): Measure the voltage from each phase to ground and each phase to the other phases at the inverter side of the external disconnecting means provided as part of the installation.
    b. PV input: Measure the voltage from DC+ and DC- to ground and from DC+ to DC- at the inverter side of the external disconnecting means provided as part of the installation.
    c. External auxiliary AC source (if used): Measure the voltage from each phase to ground and from phase to phase at the inverter side of the external disconnecting means provided as part of the installation.

Figure 2Conext Core XC Series main external components



1	AC cabinet
2	Power stage (PS) cabinet
3	DC cabinet
4	ENABLE STATE/DISABLE STATE switch
5	Front panel user interface
6	Inverter ON/OFF switch
7	Main AC circuit breaker
8	PV disconnect switch

When steps 1-7 have been completed the external sources are verified de-energized, locked out, and tagged out.

This completes the LOTO procedure for the external sources and the Conext Core XC Series for first-time installation.

Contents

Figures

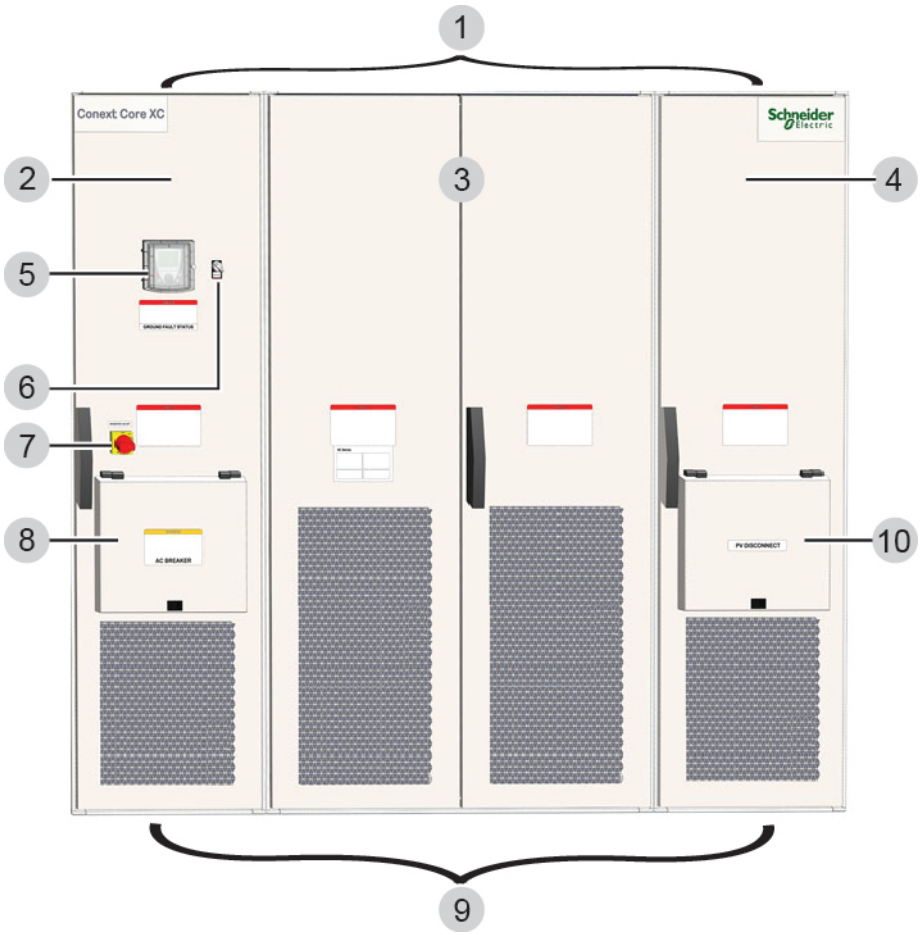
Tables

1 Introduction

What's in This Chapter?

Operator Interface Controls

Figure 3 Conext Core XC Series main external components



1	Exhausts
2	AC cabinet
3	Power stage cabinet
4	DC cabinet
5	Front panel user interface
6	ENABLE STATE/DISABLE STATE switch
7	Inverter ON/OFF switch
8	AC circuit breaker
9	Air intakes
10	PV disconnect switch

All Conext Core XC Series cabinet doors must be closed and locked during normal operation. For specific maintenance operations the DC cabinet door can be opened without interrupting Conext Core XC Series operation (opening any other doors will interrupt Conext Core XC Series operation). This feature is only intended to allow visual

inspection of components or monitoring devices located inside the DC compartment while the inverter is running. The door must be closed again immediately after inspection. Check with your country sales organization to determine whether your inverter is equipped with this feature.

ENABLE STATE/DISABLE STATE Switch

The Conext Core XC Series has an ENABLE STATE/DISABLE STATE switch located on the AC cabinet door beside the front panel user interface, see *Figure 4 on page 27*.

Under normal conditions, the ENABLE STATE/DISABLE STATE switch is in the ENABLE STATE position. The main AC circuit breaker and PV disconnect switch will not close unless the switch is in the ENABLE STATE position. The Conext Core XC Series will not operate unless the switch is in the ENABLE STATE position.

To change any grid parameter, the switch must be turned to the DISABLE STATE position. Turning the switch to the DISABLE STATE position initiates an immediate controlled shutdown of the Conext Core XC Series and opens both the main AC circuit breaker and PV disconnect switch within the inverter.

⚠ DANGER

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

Turning the switch to the DISABLE STATE position does not de-energize the Conext Core XC Series; it only stops power production. Externally disconnect the PV, AC, and external auxiliary AC sources to de-energize the Conext Core XC Series.

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

Inverter ON/OFF Switch

The Conext Core XC Series has an inverter ON/OFF switch located on the AC cabinet door, see *Figure 4 on page 27*.

The inverter ON/OFF switch is also the auxiliary power breaker. Under normal conditions, the inverter ON/OFF switch is in the ON position, providing the auxiliary power necessary for power production and for maintenance functions such as viewing and extracting data from the front panel user interface or performing software updates. The main AC circuit breaker and PV disconnect switch cannot be closed unless the switch is in the ON position. The Conext Core XC Series will not restart unless the switch is in the ON position.

To initiate a power cycle, the switch must be turned to the OFF position and then back to the ON position. Turning the switch to the OFF position initiates an immediate controlled shutdown of the Conext Core XC Series and opens both the main AC circuit breaker and PV disconnect switch within the Conext Core XC Series.

⚠⚠ DANGER

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

Turning the inverter ON/OFF switch to the OFF position does not de-energize the Conext Core XC Series; it only stops power production. Externally disconnect the PV, AC, and external auxiliary AC sources to de-energize the Conext Core XC Series.

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

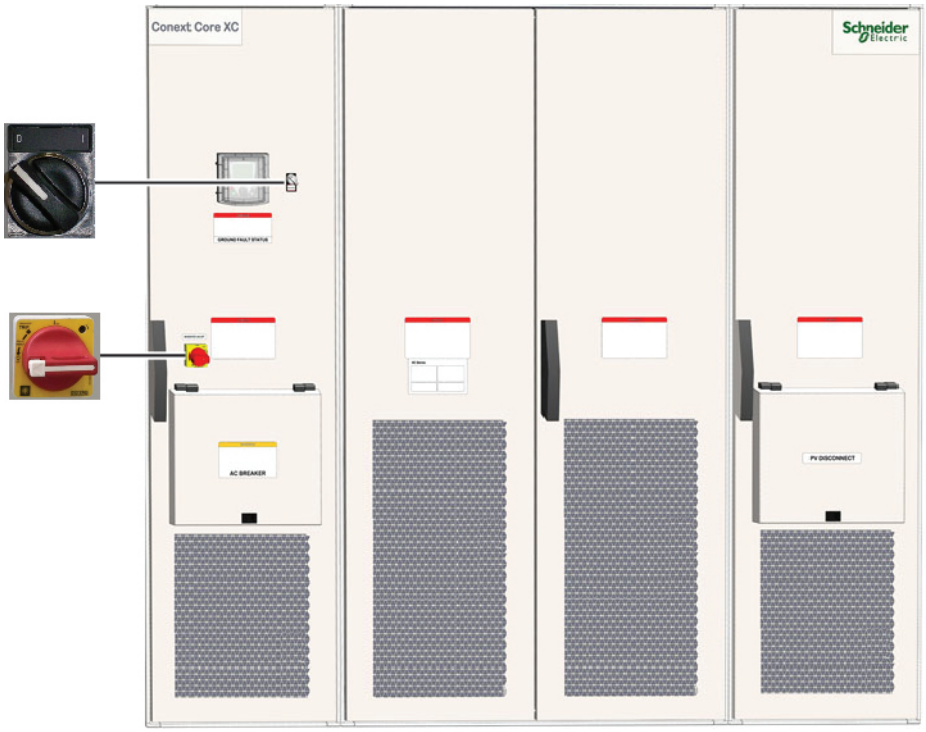
⚠⚠ DANGER

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

- Turning the inverter ON/OFF switch to the ON position energizes auxiliary and control circuits.
- The upper section of the AC cabinet must be accessed only if wearing PPE appropriate for the hazards presented by the AC auxiliary circuit.
- The DC cabinet must be accessed only if wearing PPE appropriate for the hazards presented by both the DC input circuit and AC auxiliary circuit.

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

Figure 4 ENABLE STATE/DISABLE STATE switch (top) and inverter ON/OFF switch (bottom)

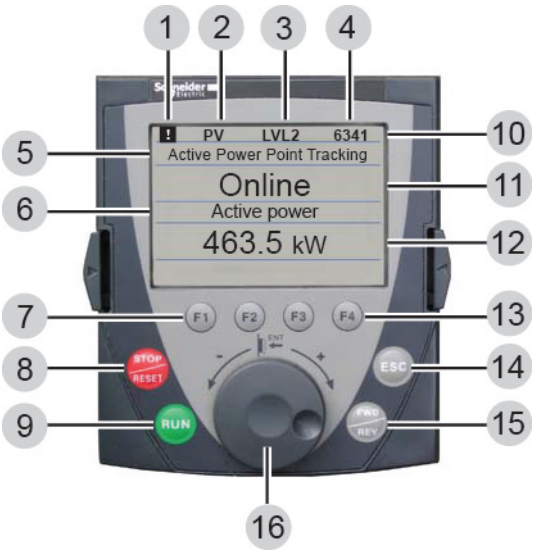


Front Panel User Interface

The front panel user interface on the Conext Core XC Series has a display and keypad with scroll wheel for local monitoring and configuration (see *Figure 5 on page 28*). The front panel user interface is covered by a plastic door.

Extensive status information and Offline state or Service state events are reported to the front panel user interface. Use the scroll wheel to navigate through menu or value options, and press the center of the scroll wheel to select the menu or value. The keypad has four function keys (F1 to F4), RUN (remote enable) and STOP/RESET (remote disable) keys, and an ESC escape key.

Figure 5 Front panel user interface



1	Periodic servicing reminder
2	Inverter operating mode
3	Access level
4	Event ID
5	Inverter activity or state description
6	Display parameter—use scroll wheel to change
7	F1 return to default parameter display
8	Disable via software command
9	Enable via software command
10	Inverter status line
11	Inverter state
12	Parameter value
13	F2, F3, and F4 function keys (context-specific)
14	Exit current menu
15	Unused
16	Scroll wheel

Local vs. Remote Monitoring

The Conext Core XC Series provides information to users about the system's current state and recent events, as described in *Table 1*.

Table 1 Communication features

Information Type	Description	Communication Method[1]
System status	The system states are: ■ Disable ■ Online ■ Offline ■ Service	■ Front panel user interface ■ Optional remote monitoring system
Offline state event	The time and details are stored in non-volatile memory.	■ Front panel user interface: event ID and a brief text description ■ Optional remote monitoring system: event ID and an extensive text description
Service state event	The time and details are stored in non-volatile memory.	■ Front panel user interface: event ID and a brief text description ■ Optional remote monitoring system: event ID and an extensive text description
Data logging		■ Optional remote monitoring system

Setting the Communication Method

The Parameter Control menu on the front panel user interface sets whether the Conext Core XC Series is controlled locally on the front panel user interface or remotely.

To change the communication method:

1. Check that you are at the home screen of the front panel user interface. If not, press Esc multiple times or F4 to return to the home screen.
2. Press the center of the scroll wheel.
3. Scroll to Language, Time, Interface, and then press the center of the scroll wheel.
4. Scroll to Parameter Control Station, and then press the center of the scroll wheel.
5. Scroll to highlight either Panel Control or Modbus, and then press the center of the scroll wheel to apply the change.

[1] Communications performance degradation due to EMI: Exposure to external electromagnetic interference may result in some intermittent loss of communication, however the communications will self-recover to normal operation after the interference subsides.

a. Select Panel Control to use the front panel user interface for communication.

b. Select Modbus to communicate through an optional remote monitoring interface.

6. Press F4 to return to the home screen.

When the parameter control is set to Modbus, you can still access the Parameter Control Station menu on the front panel interface to change back to panel control.

AC Circuit Breaker and PV Disconnect Switch

⚠⚠ DANGER

MULTIPLE SOURCES WITH HAZARD OF ELECTRIC SHOCK, EXPLOSION, ARC FLASH, AND FIRE

- Operation of the switches in or on the Conext Core XC Series does not remove all power from the Conext Core XC Series. Switch terminals remain live unless the PV, AC, and external auxiliary AC sources have been disconnected externally.
- All service and maintenance inside the inverter must be performed by authorized service personnel only by following the instructions in Conext Core XC Series, 0G-XC-BB, Lock-Out and Tag-Out Procedures and Barrier Removal (document number: SD-XC-081).

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

The main AC circuit breaker is located behind a cover on the AC cabinet door and the PV disconnect switch is located behind a cover on the DC cabinet door as shown in *Figure 6 on page 31*. These covers help to protect the circuit breaker and PV disconnect from the external environment. Twist the knob to open the covers. Although the covers are hinged at the top and they fall closed, you must manually twist the knob to latch the covers closed after use.

⚠⚠ WARNING

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

- Do not change the settings on the AC breaker.
- Do not change the settings on the external DC circuit breaker (located in the DC protection box, outside of the inverter).

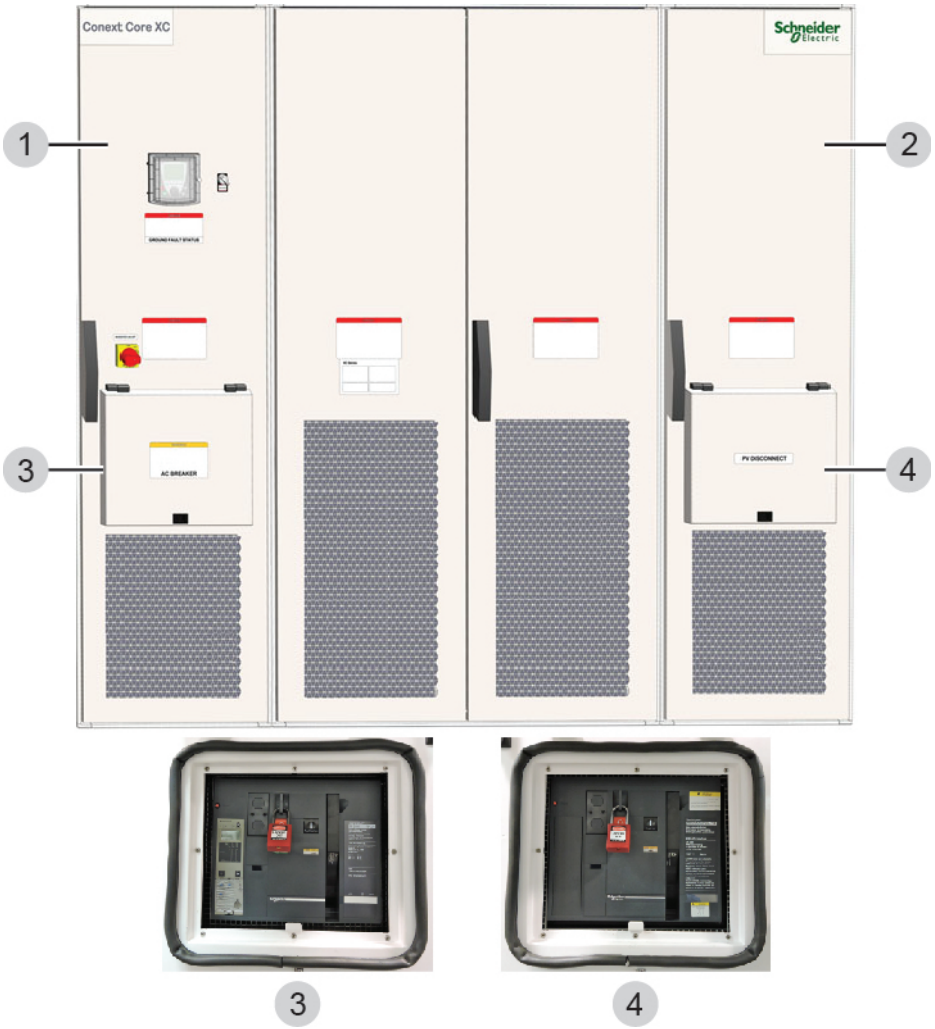
Failure to follow these instructions can result in death, serious injury, or equipment damage.

Additional external AC and PV disconnecting means, capable of being locked out and tagged out, must be provided as part of the installation to help facilitate safe installation of the Conext Core XC Series and for certain service operations.

The main AC circuit breaker and PV disconnect switch are each load-break rated disconnects. During an Offline state or Service state event—or if the Conext Core XC

Series is shut off for any reason—the AC circuit breaker and PV disconnect switch automatically open. Each is capable of breaking its full load current.

Figure 6 AC circuit breaker and PV disconnect switch



1	AC cabinet
2	DC cabinet
3	AC circuit breaker (shown locked out)
4	PV disconnect switch (shown locked out)

2 Planning

What's in This Chapter?

Conext Core XC Series Requirements

⚠⚠ DANGER

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

- Installation of the Conext Core XC Series must only be planned and performed by qualified personnel in accordance with all applicable installation codes. See *"Audience" on page 4* for the definition of qualified personnel.
- The Conext Core XC Series must be mounted over a non-flammable surface in accordance with the instructions in *Conext Core XC Series Requirements on page 33*.

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

Site Requirements

The Conext Core XC Series is designed to be installed indoors only.

Establish and maintain the following site conditions to help facilitate safe and efficient installation, operation, and servicing of the Conext Core XC Series.

⚠⚠ DANGER

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

This inverter is restricted only for use in *closed electrical operating areas*[1] to which only qualified or authorized personnel have access.

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

Accessibility

Make sure the site is forklift accessible. A customer-supplied forklift and licensed forklift operator are required to install the inverter and perform many maintenance tasks.

Make sure that the installation layout does not prevent access to the disconnection means.

Enclosure Type

Inverters must be installed indoors in a location that meets the physical and environmental requirements in EN/IEC62109-1 for *indoor, conditioned*[2] as described below:

- Inverters must have appropriate venting and ducting as described in *Ventilation Requirements on page 37*.

[1] Per EN/IEC62109-1 this is defined as a room or location for electrical equipment to which access is restricted to skilled or instructed persons by the opening of a door or the removal of a barrier by the use of a key or tool and which is clearly marked by appropriate warning signs.

[2] "Indoor, conditioned" as defined by EN/IEC62109-1

- The location of the installation must be covered by a building or enclosure that is dry and free of condensation at all times.
- The inverter must be protected from contamination and radiation due to temperature extremes.

Clearance

Maintain a minimum clearance of 1 m (39½ in.) in front of the Conext Core XC Series—or more if required by local codes for service clearance—for air intake, maintenance, and serviceability.

Maintain a minimum of 300 mm (11¾ in.) clearance above the Conext Core XC Series. Exhaust ducting for indoor installations must be installed in accordance with these requirements.

Flammability

To help reduce the risk of fire, the Conext Core XC Series must be mounted over non-flammable surfaces below the Conext Core XC Series and extending in front of the Conext Core XC Series for 1 m (39½ in.). That area under and in front of the Conext Core XC Series must also be kept clear of flammable materials during operation of the Conext Core XC Series. The Conext Core XC Series must be mounted flush to the mounting surface, without openings around the bottom perimeter of the Conext Core XC Series. Openings for wire entry must be filled or closed to maintain a non-flammable barrier under the Conext Core XC Series.

Cabling

External cabling enters the Conext Core XC Series from the bottom into the wiring compartments of the AC and DC cabinets. Low voltage communication cables must be appropriately isolated from high voltage DC input cables, using the provided cable channels in the DC cabinet. Appropriate conduits and fittings must be used based on local electrical codes.

Ventilation

The inverter has open sections in the bottom of the AC and DC cabinets and ventilation openings in the front of all cabinets. Additionally, there are exhaust openings at the top of all cabinets. Overall pressure drop between the intake and the exhaust of the inverter (including pressure applied by the environment, such as wind) must not exceed 60 Pa (¼ in.H_20).

Heat Load

See *Heat Load and Derating on page 37* for more information.

Air intake quality

The air intake for the inverter is located on the front (see *Figure 11 on page 40*). The intake air quality must meet the requirements of the environmental specifications listed in *Table 5 on page 92*. If these conditions cannot be met, filtration must be implemented external to the intake to ensure contaminants do not enter the inverter.

Conduit Entry

Power circuit conduit and cable entry is from outside the Conext Core XC Series through the bottom of the AC and DC cabinets. *Figure 7* shows a top view of the maximum allowable area and location in which electrical conduits can penetrate the cabinets of the Conext Core XC Series. Conductor size must be pre-determined when the conduit is installed and must be based on local code requirements.

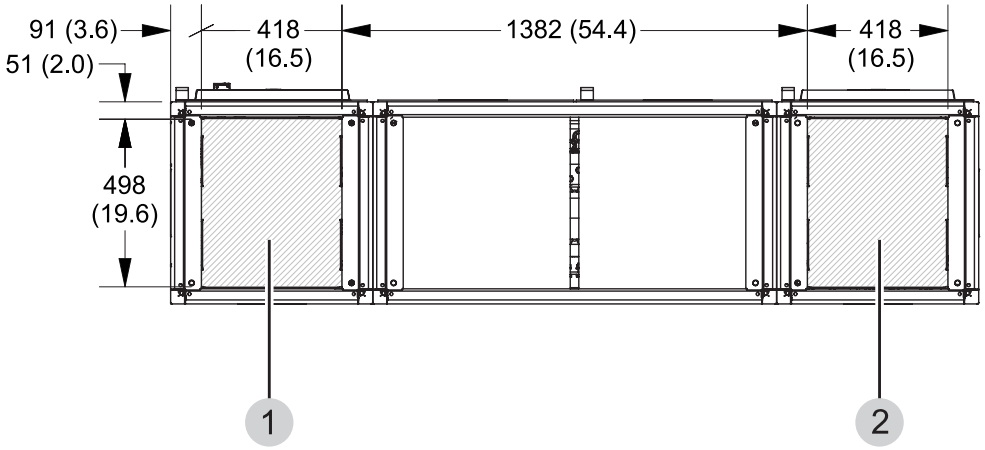
⚠ ⚠ DANGER

HAZARD OF ELECTRIC SHOCK AND NOISE INTERFERENCE

The circuits provided for use with external communications and control equipment are designed to provide safety isolation from neighboring hazardous circuits within the inverter. Separate conduit entries must be provided for the communications and control circuits and the PV circuits and all AC circuits. See *Remote Communication and Control Wiring on page 77* for proper maintenance of safety isolation for wiring related to these circuits.

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

Figure 7 Cabinet conduit entries, top view



Dimensions in mm (in.)

1	AC cable entry
2	DC cable entry

Anchoring Requirements and Layout

⚠ WARNING

HAZARD OF FIRE

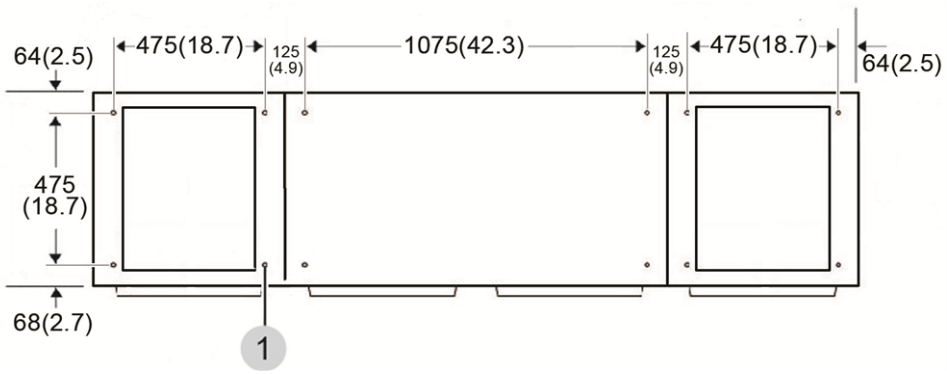
The Conext Core XC Series must be mounted on, and anchored to, a level, non-flammable surface.

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

The mounting surface upon which the Conext Core XC Series is anchored must be structurally designed to meet any applicable local codes for weight bearing and seismic requirements. The mounting surface must meet ASTM E1155 requirements, FF Floor Flatness = 38, FL Floor Levelness = 25.

Twelve 13 mm holes are provided on the bottom of the cabinets for anchoring to the mounting surface. *Figure 8* depicts the layout pattern of the anchoring holes for the Conext Core XC Series. The mounting surface must either be pre-drilled to accept masonry anchors or have pre-installed anchoring bolts. See *Figure 43 on page 97* for dimensions of the Conext Core XC Series inverter.

Figure 8 Main inverter anchor bolt pattern



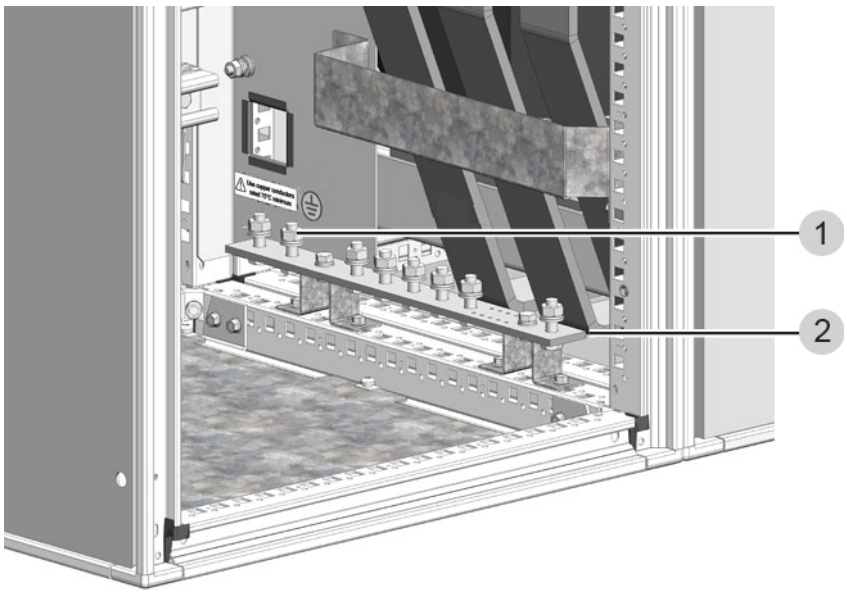
Dimensions in mm (in.)

1	13 mm (0.5 in.) mounting holes, 12 places

Grounding the Conext Core XC Series

The safety ground or protective earth connection point for grounding the Conext Core XC Series is located on the AC ground bus bar in the AC cabinet and is marked with ⏚. That point must be connected to ground (earth) in the installation in accordance with applicable installation codes. Ground connection points are also provided in the DC cabinet for the bonding wires that ground the PV array boxes or other local equipment.

Figure 9 Single point ground (PE); ground bar



1	Single point ground (PE)
2	Ground bar

Installation at High Elevation

Conext Core XC Series that are installed at elevations greater than 1000 m (3280 ft) may produce slightly less power than inverters that are installed at lower elevations. Depending on ambient temperature at altitude, the output power may automatically derate above 1000 m (3280 ft). The installer must derate the current and PV open circuit voltages above 2000 m (6561 ft). For more information about inverter performance at altitude, see the Conext Core XC Series Inverter, 0G-XC-BB: Altitude Derating Application Note (document number: AP-XC-090).

Ventilation Requirements

Ventilation must be provided on the exterior of the PV shelter, and ducting must be provided between the inverter and the interior of the PV shelter.

Heat Load and Derating

The heat load of the inverter is approximately 17 kW (58,000 BTU/hour) at full load.

The total cooling air flow required for the inverter is 4000 m³/h (3000 m³/h from the power stage cabinet and 500 m³/h each from the AC and DC cabinets).

External ventilation or air conditioning must be designed to keep the ambient air outside of the inverter cabinet to the following limits:

Full Rated DC Input Range

- 45 °C (113 °F) for full rated output power.
- Above 45 °C (113 °F) the inverter may start derating its output power to a maximum of 50 °C (122 °F)[3] .
- Above 50 °C (122 °F) the inverter may shut down.

Limited DC Input Range up to 600 VDC[4]

- 50 °C (122 °F) for full rated output power.
- Above 50 °C (122 °F) the inverter may start derating its output power to a maximum of 55 °C (131 °F)[3].
- Above 55 °C (131 °F) the inverter may shut down.

Consult with Schneider Electric on derating charts for power output depending on ambient temperature and PV input voltage. See the Conext Core XC Series Inverter, 0G-XC-BB: Thermal Derating Application Note (document number: AP-XC-089).

PV Shelter Requirements

Conext Core XC Series inverters must be installed in a PV shelter designed typically to house inverters, distribution boxes, transformers, and monitoring equipment. Schneider Electric sells PV shelters, under the product name 'PV Boxes'.

Any holes that are made in the PV shelter (for example ones made to accommodate venting requirements) must be fully sealed around the perimeter with appropriate weatherproofing materials to prevent debris, moisture, contaminants, and vermin from entering the PV shelter.

The ventilation required when using a PV shelter must meet the following criteria:

- Wind, including lateral wind, must not be allowed to stop outgoing air flow while the inverter is operating.
- Predict any way that wind, including lateral wind, may compromise the venting method used, such as partially closing vents, or closing all of the vents on one side of the PV shelter. The result of this compromise must not exceed the allowable overall pressure drop and must maintain the minimum airflow requirements of the inverter (see *Heat Load on page 34*).
- Wind, including lateral wind, must not be allowed to create a back-flow of air (carrying humidity, snow, rain, or dust) into the inverter at any time.

You may use a single component, such as an actuated damper, or a combination of components, such as a duct, shroud, and louvers, to meet this criteria.

[3] Derating is a protective mechanism to preserve the inverter safety and reliability. The ambient temperature at which the inverter starts derating depends on the DC voltage.

[4] This value may vary based on model; refer to the Conext Core XC Series Inverter, 0G-XC-BB: Thermal Derating Application Note (document number: AP-XC-089) for additional information.

Exhaust Duct Requirements

A standard HVAC sheet metal duct can be integrated and sealed to the interior wall of the PV shelter to prevent exhaust airflow from recirculating within the PV shelter. The duct must exit out the top of the shelter with steps taken to ensure that:

- The exhaust air is not recirculated into the inlet.
- The exhaust opening of the duct is located so as to prevent falling debris from entering the inverter and to meet safety certification requirements.
- The fans must be completely covered to prevent anything from falling into the fan.

The duct must be designed to accommodate the following:

- Minimum duct area: 445 x 2250 mm (17.5 x 88.5 in.).
- Ducting should maintain a minimum vertical run of 300 mm (12 in.) above the inverter top surface, with access openings to allow servicing of the inverter fans.
- If expanded metal mesh or screens are used in the place of louvers, they must be a minimum of 0.45 mm (0.018 in.) thick.
- The distance between the centers of the wires of a mesh screen must not be less than 2.0 mm (0.081 in.).
- Duct material must be non-flammable (for example, metallic) in construction. Plastic ducting is not permitted.
- Allowable overall pressure drop must not be exceeded and minimum airflow requirements of the inverter must be maintained, see *Heat Load and Derating on page 37*.
- One 90° bend with a smooth transition is permitted, as shown in *Figure 11 on page 40*.

Figure 10 on page 40 shows the mounting locations on top of the inverter to accommodate an exhaust duct (if one is planned to route the exhaust to the exterior of the PV shelter). If the inverter exhaust is to be routed to the exterior of a PV shelter, mount the exhaust duct on top of the inverter in the locations shown in *Figure 10 on page 40*.

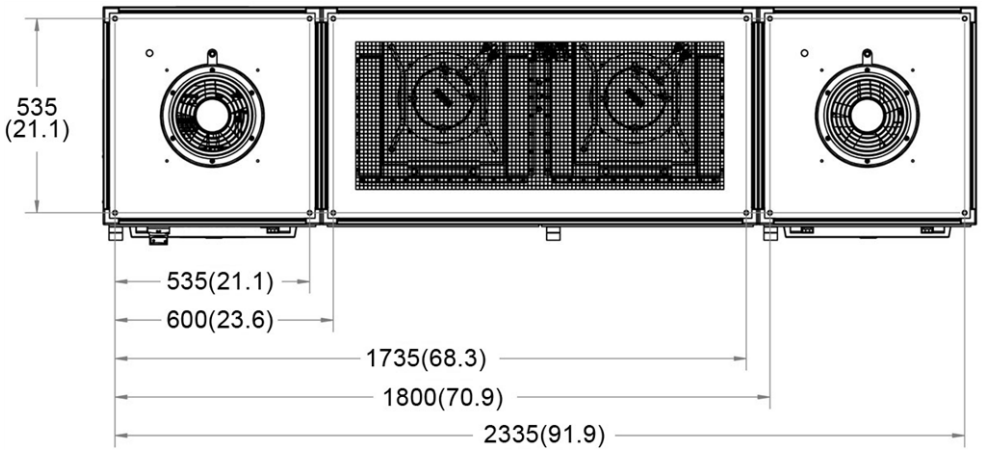
⚠ DANGER

HAZARD OF ELECTRIC SHOCK AND AMPUTATION

Do not modify the roof panels of the inverter as doing so could expose energized electrical components and moving parts. It can also cause contamination inside the inverter and compromise the inverter's functional design.

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

Figure 10 Mounting locations: exhaust routing



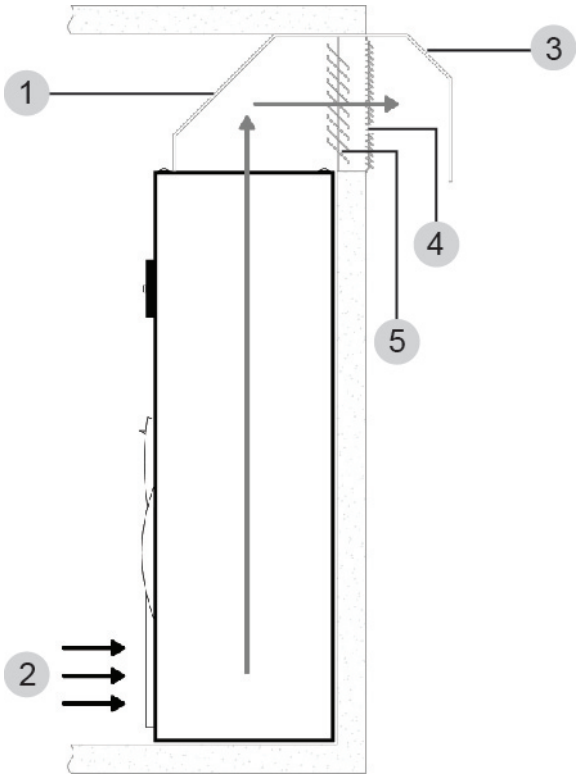
Dimensions in mm (in.)

The minimum duct area to prevent airflow restriction is 445 x 2250 mm (17½ x 88½ in.).

Venting Recommendations

You can use any configuration that meets the requirements in *Ventilation Requirements on page 37*. One recommended venting configuration is side venting with fixed and gravity louvers and a shroud .

Figure 11 PV shelter airflow with shroud (side venting)



Grey arrows show exhaust airflow

1	Duct
2	Intake airflow
3	Shroud
4	Fixed louvers
5	Gravity louvers

PV Array Requirements

In all installations, the installer must provide disconnecting means for the PV input. The installer is also responsible for determining any external overcurrent protection required for these circuits, in accordance with the applicable installation codes, the currents involved (see *Specifications on page 90*), the wiring size used, and any other system parameters required by the local installation codes.

Number of PV Panels

To determine the number of photovoltaic panels required for the PV power plant, use the Conext Designer Sizing Tool on the Schneider Electric website (solar.schneider-electric.com).

Grounding the Array

The PV input can be ungrounded (floating), positive grounded, or negative grounded, depending on the options ordered.

All grounding options have the following factory-installed devices:

- PV insulation monitoring device (IMD) — monitors the array insulation resistance to ground
- Residual current detector (RCD) — monitors for excessive, continuous residual current

If the array IMD or RCD measures outside of their respective thresholds the Conext Core XC Series will shut down, open the AC breaker and PV disconnect, and report an event with the appropriate event ID to the front panel user interface and to any optional remote monitoring system.

For positive grounded or negative grounded arrays, a factory-installed PV grounding option provides positive or negative grounding of the array, depending on the version ordered, and it includes a 5 A ground fault detector/interrupter (GFDI). This GFDI, which incorporates a combination of an RCD and a fuse, will open the array grounding path to interrupt ground fault currents exceeding the trip levels of the fuse. At the same time, it will shut down the Conext Core XC Series, open the AC breaker and PV disconnect, and report an event with the appropriate event ID to the front panel user interface and to any optional remote monitoring system.

⚠ ⚠ DANGER

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

- Measure voltage before proceeding with any interaction with the Conext Core XC Series. Always assume that messages on the front panel user interface related to the RCD, PV insulation, ground contact, or ground fuse are present due to a ground fault. Normally grounded conductors may be ungrounded and energized, or normally ungrounded conductors may be grounded, when a ground fault is present. Normally grounded DC conductors will become intermittently ungrounded with indication by the front panel user interface when the Conext Core XC Series inverter measures the PV array isolation.
- Do not defeat or modify the GFDI circuit in any way.
- Do not operate the Conext Core XC Series without a functioning GFDI circuit.

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

The qualified installer is responsible for determining the type and settings of additional system-level ground fault protection that will provide adequate protection for the array and its wiring and that are acceptable according to applicable local codes and standards.

Utility Side Requirements

In all installations, the inverter must be installed on a dedicated branch circuit and the installer must provide disconnecting means for the AC output and external auxiliary AC source input wiring. The installer is also responsible for determining any external overcurrent protection required for these circuits, in accordance with the applicable installation codes, the currents involved (see *Electrical Specifications on page 91*), the wiring size used, and any other system parameters required by the installation codes.

Input Short Circuit Current

The input power ports of the Conext Core XC Seriesare each designed for a maximum value of short-circuit current from their respective sources. The maximum short circuit currents are:

- AC mains input = 65 kA
- AC Auxiliary input = 15 kA
- PV input = 50 kA

⚠ ⚠ WARNING

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

Do not connect a source with prospective short circuit current higher than the rating specified for that input port.

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

Transformer Requirements

A custom, high-efficiency, line-frequency isolation transformer must be placed between the inverter AC output and the grid. This transformer is not provided and must be supplied as a separate component. Refer to the Application Note: Medium Voltage Transformer Selection (document number: AP-XC-048-EN) for more information on selecting the correct transformer.

The transformer must meet basic insulation requirements, as defined below:

- Dielectric Strength Rating = 1825 VAC/2539 VDC for 60 seconds (for both primary to secondary and primary/secondary to ground)
- Impulse Voltage Withstand Rating = 4.538 kV peak based on 1.2/50 us waveform and 500 ohm maximum generator impedance (for both primary to secondary and primary/secondary to ground)

NOTICE

EQUIPMENT DAMAGE

Selecting the correct isolation transformer is crucial to prevent damage to the inverter and/or transformer. Refer to the Application Note: Medium Voltage Transformer Selection (document number: AP-XC-048-EN).

Failure to follow these instructions can result in equipment damage.

Overvoltage Category

"OVC" refers to Over Voltage Category according to IEC60664-1, which relates the installation location to the magnitude of over-voltages (impulses, transients) likely to be present on the system. The following lists the various OVC categories:

- OVC IV — locations at or close to the origin of the installation, such as service entrance equipment connected to overhead power lines
- OVC III — locations and permanently connected equipment on the load side of (and including) the main panelboard
- OVC II — equipment for non-permanent connection downstream of the main panelboard, such as cord-connected appliances. OVC II is also the defined OVC for PV circuits according to IEC62109-1
- OVC I — locations or circuits in which measures have been taken that reduce over-voltages to appropriately low levels according to IEC 60664-1

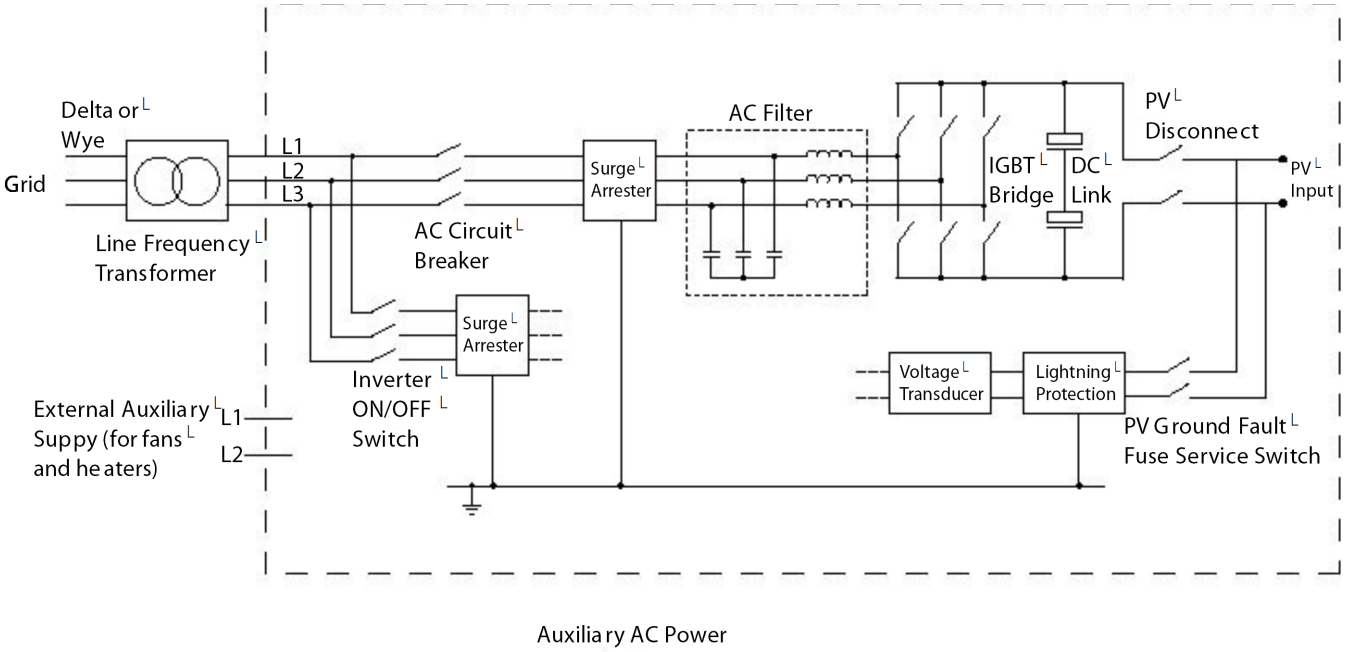
The Overvoltage Category of the ports of the Conext Core XC Series are as follows:

- The main AC output and auxiliary AC input are OVC III — any devices intended to measure the voltage levels of AC circuits in the inverter must use a meter rated at least 600 VAC, OVC IV
- The PV input is OVC II — any devices intended to measure the voltage levels of DC circuits in the inverter must use a meter rated at least 1000 VDC, OVC III

Electrical Diagram

Since installations vary widely, a sample electrical diagram of the Conext Core XC Series is provided here. Use this diagram for system planning purposes only.

Figure 12 Conext Core XC Series electrical diagram (example only)



Example only. Details such as external disconnects, overcurrent protection, and grounding are not shown.

3 Installation

What's in This Chapter?

Installation Safety

⚠ ⚠ DANGER

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

- This equipment is for use in *closed electrical operating areas*[1] only.
- This equipment must only be installed by qualified personnel, and must only be serviced by authorized service personnel equipped with appropriate personal protective equipment, and following safe electrical work practices.
- Do not open any door[2] or remove any cover before performing these tasks:
  - Consult the system diagram to identify all PV, AC, and external auxiliary AC (if used) sources.
  - De-energize, lock out, and tag out all sources following the procedure in the Conext Core XC Series, 0G-XC-BB, Lock-Out and Tag-Out Procedures and Barrier Removal (document number: SD-XC-081).
  - Wait at least 10 minutes for internal capacitors to discharge to safe voltages.
  - Confirm circuits are de-energized with a voltage sensing device rated at least 1000 V AC and DC. Switches in or on the inverter remain energized unless sources have been externally disconnected.
- Replace all devices, doors, and covers before turning on power to this equipment.
- Select and install a suitably rated[3] isolation transformer between the inverter output and utility power line connections. The transformer must be selected and installed in accordance with this manual. The transformer must be an isolation type having separate primary and secondary windings. See the *Electrical Diagram on page 44* for details.
- This inverter must be mounted on a non-flammable surface. See *Anchoring Requirements and Layout on page 35* for details.

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

[1] Per EN/IEC62109-1 this is defined as a room or location for electrical equipment to which access is restricted to skilled or instructed persons by the opening of a door or the removal of a barrier by the use of a key or tool and which is clearly marked by appropriate warning signs.

[2] The DC cabinet door can be opened without interrupting inverter operation (opening any other doors will interrupt inverter operation).

[3] Minimum 540 kVA rated for XC540, minimum 630 kVA rated for XC630, minimum 680 kVA rated for XC680. See *Transformer Requirements on page 43*.

⚠ ⚠ DANGER

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

- The lock-out and tag-out procedure beginning *on page 13* in this manual only applies to installation of an inverter, not to servicing. If the inverter is already installed, additional steps are needed to de-energize, lock out, tag out, and verify internal voltages, and must only be performed by authorized service personnel. See the *Conext Core XC Series, 0G-XC-BB, Lock-Out and Tag-Out Procedures and Barrier Removal (document number: SD-XC-081)*
- Additional external disconnecting means for the PV, AC, and external auxiliary AC source (if used), capable of being locked out and tagged out, must be provided as part of the installation to help facilitate safe installation and for certain servicing operations.

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

Unloading

⚠ DANGER

HAZARD OF CRUSH INJURY AND EQUIPMENT DAMAGE

- The inverter weighs approximately 1906 kg (4202 lbs) including the packing crate and pallet. Attempting to lift or move the inverter by other than the recommended lifting points and methods could cause the inverter to drop unexpectedly or fall over.
- Keep all the doors closed and latched when moving the inverter.
- Use appropriately rated lifting equipment.

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

NOTICE

EQUIPMENT DAMAGE

Before proceeding with the installation, determine the location and layout of the components, conduit penetration locations, conductor and conduit sizing, and method for anchoring the Conext Core XC Series. Make sure adequate space is provided for clearance for ventilation and serviceability. If necessary, review the chapter on Planning before proceeding.

Failure to follow these instructions can result in equipment damage.

NOTICE

EQUIPMENT DAMAGE

- Verify the Conext Core XC Series has not been tilted excessively in shipping by checking the tilt indicator on the front and side of the packing crate. The top and bottom balls should be in the 30°, 40°, or 50° location and the middle ball should be in the 180° location.
- Verify the Conext Core XC Series has not been dropped more than six in. by checking the shockwatch label on the front of the packing crate. The circle on the shockwatch label should be yellow.
- If any of the indicators are not as described, you must address this with the shipper. During commissioning, follow the instructions in the “Tilt and Shockwatch Indicators” section.

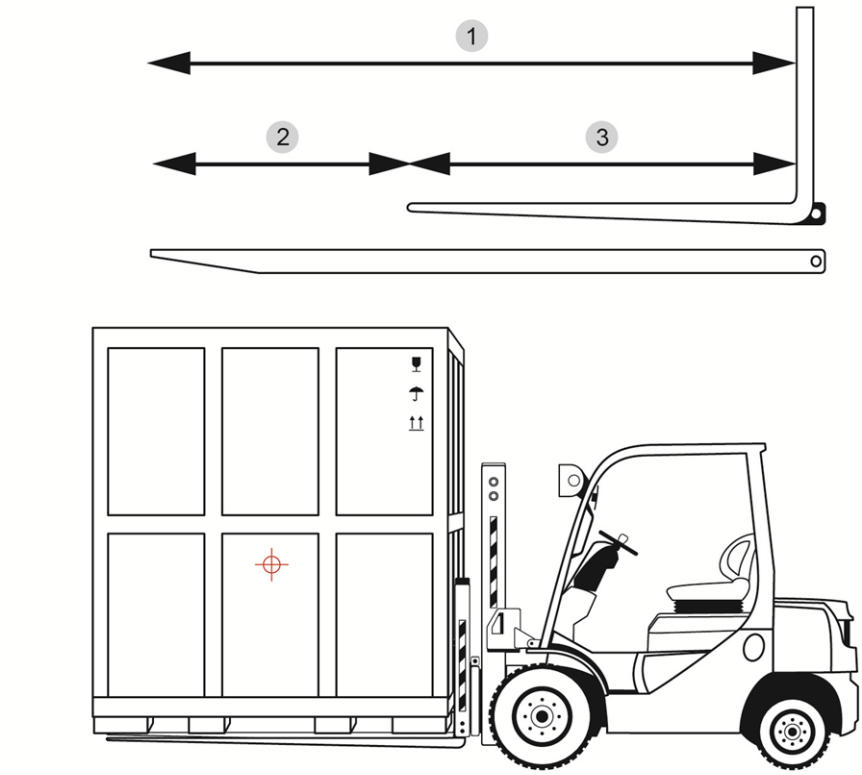
Failure to follow these instructions can result in equipment damage.

Removing the Inverter from a Truck

To load or unload the inverter from a truck, a forklift must be used to lift the inverter, inside the packing crate, from either the left or right end.

You will either need to use a forklift with extra long prongs, or you will need to add extensions to your existing forklift. The total length of the prongs needed to lift the inverter from the end is 2580 mm (101.6 in.). If you use extensions, the forklift prongs must be a minimum of 66% of the total length of the prongs plus the extension. Both the prongs and the extensions must be rated for the full weight of the inverter.

Figure 13 Using a forklift



1	Total length 100% (minimum 2580 mm/101.6 in.)
2	Maximum extension length 33%
3	Minimum prong length 66%

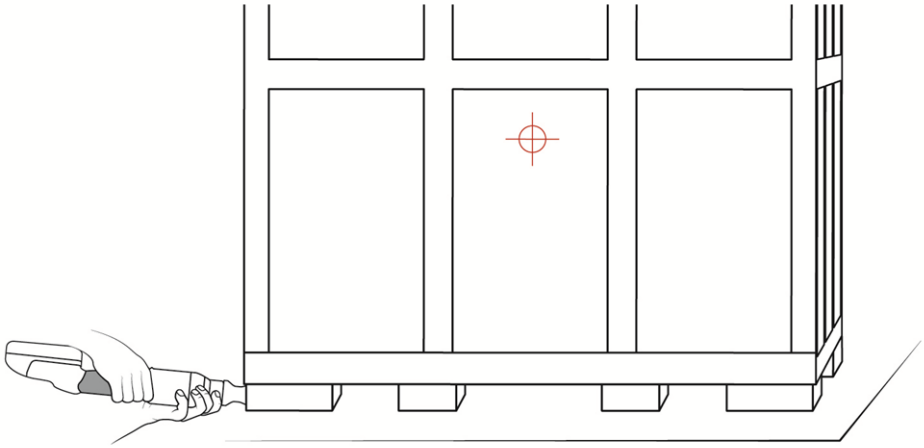
Removing the Inverter from the Pallet

To remove the inverter from the pallet:

1. Do a visual check for any damage to the wooden shipping crate.
2. Disassemble the shipping crate and remove the shrink-wrap from the inverter. Leave the plastic covers over the ventilation grills at the front of the inverter.
3. Remove the 12 bolts on the bottom of the pallet attaching it to the inverter in one of the two following ways:

- Reach under the pallet and locate the 12 bolts. These bolts attach from the bottom so use a torque, open-ended, or box wrench with a very short head to remove them, or

Figure 14 Removing bolts without lifting the inverter



- Using an appropriately rated forklift, lift the inverter a maximum of 610 mm (24 in.) and remove the 12 bolts with a standard torque wrench. Return the inverter and pallet to the floor after removing the bolts.

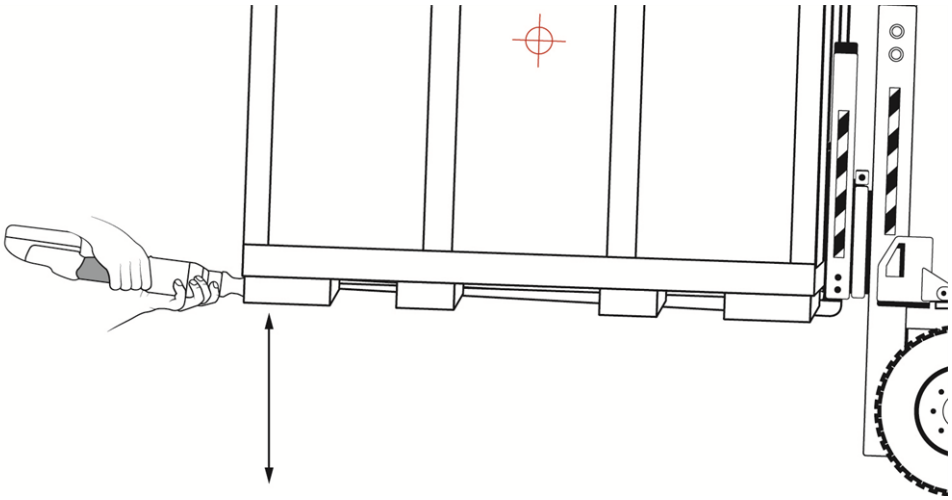
⚠ DANGER

HAZARD OF CRUSH INJURY AND EQUIPMENT DAMAGE

- Do not lift the inverter more than 610 mm (24 in.) with the forklift.
- Do not put any part of your body underneath the raised pallet, including your hands.

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

Figure 15 Removing bolts by lifting the inverter with a forklift



Mounting and Anchoring the Inverter

For information about mounting and anchoring requirements, see *Anchoring Requirements and Layout on page 35*.

Before anchoring the inverter, you may need to remove the AC cabinet and DC cabinet floor panels.

To mount and anchor the inverter:

1. Drill the floor or pad to accept masonry anchors unless it has pre-installed anchoring bolts that will fit the 13 mm (½ in.) mounting holes. See *Figure 8 on page 36*.
2. After removing the bolts connecting the inverter to the wooden pallet, connect an appropriately rated crane to the lifting bars installed on the top of the inverter.

   NOTICE

   EQUIPMENT DAMAGE

   When lifting the inverter, use dunnage between the inverter and the forklift or lifting bar to avoid damaging the exterior of the inverter.

   Failure to follow these instructions can result in equipment damage.
3. Lift the inverter into place.
4. Secure the cabinet feet to the floor with the appropriate anchoring hardware.
5. Use a level to check that the inverter is both horizontally and vertically aligned and plumb.
6. Remove the lifting bars once the inverter is secured in its final mounting location.

Opening Access Doors

All cabinet doors are accessed with the supplied key. After unlocking the door, pull the handle towards you to unlatch the door.The AC ON/OFF switch must be in the OFF position to open AC cabinet door. The power stage cabinet has additional latches at the top and bottom inside the left door.

General Wiring Requirements

All wiring methods and materials must be in accordance with applicable electrical installation codes. Examples include the US National Electrical Code ANSI/NFPA 70, IEC 60364, CENELEC HD 384, and DIN VDE 0100.

NOTICE

EQUIPMENT DAMAGE

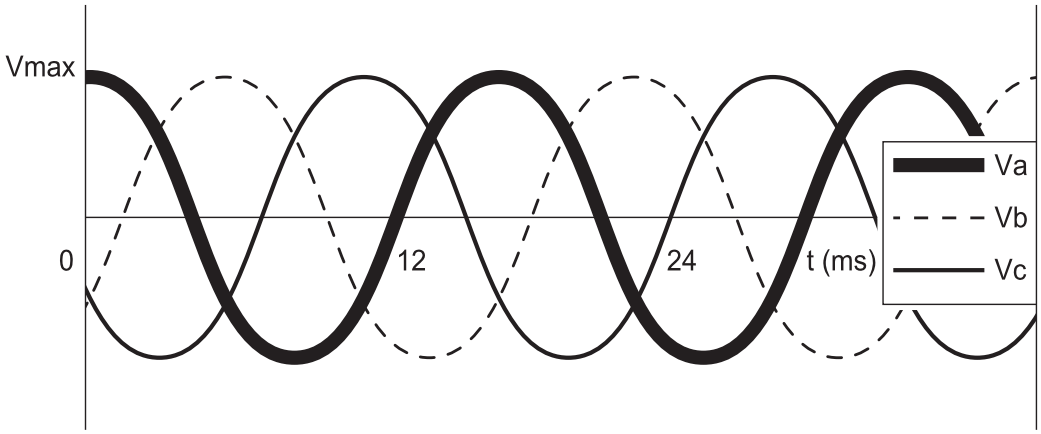
- When connecting external AC wires to the Conext Core XC Series, positive, clockwise phase rotation must be maintained throughout the installation process in North America and Europe. Outside of these countries, refer to local codes and standards to ensure correct phase rotation for your installation.
- Crimp lugs that are used to fasten aluminum conductors to the AC or PV terminals must be rated and marked for use with both copper and aluminum. For example, a dual-rated crimp lug could be marked Al9Cu or Cu7Al.

Failure to follow these instructions can result in equipment damage.

Phase Rotation

Three-phase power is characterized by three different phases, each with a phase shift 120 degrees from the other two phases. The three phases are typically referred to as “A”, “B”, and “C”. *Figure 16* shows a graphic representation of three-phase voltages.

Figure 16 Graphical representation of three-phase voltages



The peaks of the voltage waveforms are 120° (5.5 ms at 60 Hz) apart. Note that the peak of phase A occurs before the peak of phase B, which in turn occurs before the peak of phase C. This is referred to as an ABC (or clockwise) phase rotation. If any two phase labels are swapped, the result will be CBA (counter-clockwise) phase rotation. The Conext Core XC Series requires clockwise phase rotation at all times in North America and Europe. Outside of these countries, refer to local codes and standards to ensure correct phase rotation for your installation. The Conext Core XC Series auto-detects and corrects phase rotation.

Conductor Termination

The Conext Core XC Series has terminals and bus bars for making all wiring connections required for installation. All terminals used for making AC connections require the use of copper, aluminum, or copper-clad aluminum conductors with an insulation rating of 75 °C (167 °F) (or higher). All terminals used for making DC connections require the use of copper, aluminum, or copper-clad aluminum conductors with an insulation rating of minimum 90 °C (194 °F). If conductors rated higher than 75 °C (167 °F) are used, base the wire size on the requirements for 75 °C (167 °F) wire to help prevent excessive heating of the bus bars, terminals, and connected devices. Ensure that you understand the local requirements regarding the material type for the conductors.

AC Wiring

The AC output phase wiring connects to the AC terminals identified as XT1 (AC L1, AC L2, and AC L3) in the AC cabinet. These terminals require the use of a crimp-on type ring terminal or compression-type lug. Keep the cables close together as much as possible and make sure that all cables pass through the same conduit fittings and the same access point in the floor of the Conext Core XC Series. This allows any inductive currents to cancel.

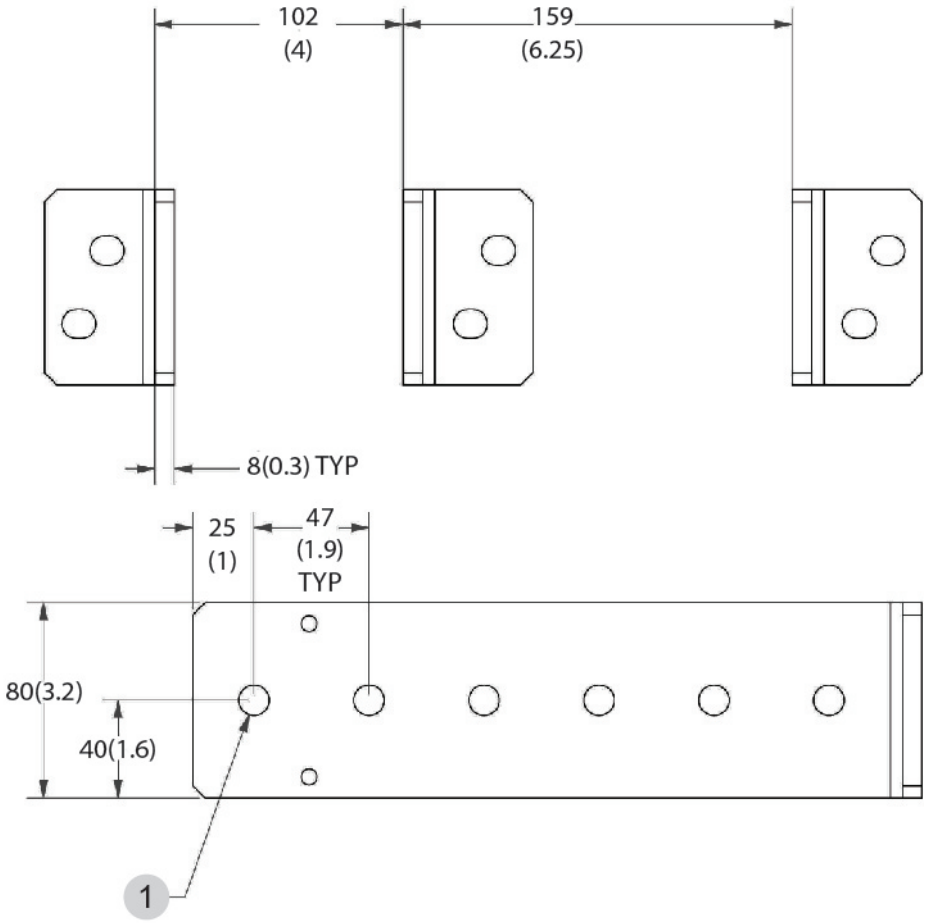
Each terminal has a pole with five holes for bolts with nuts, and each bolt accommodates a maximum of one cable. Two of the holes on the terminal are connected to L-bus terminals to increase the available connection points. These terminals each have six holes for bolts, and each bolt accommodates a maximum of two cables, one on either side of the L-bus.

If you are connecting directly to the AC terminals the maximum cable requirements to meet EN/IEC62109 bend radius requirements is 4 x 240 mm^2 per phase.

If you are connecting to the L-bus terminals the maximum cable requirements to meet EN/IEC62109 bend radius requirements is 14 x 240 mm^2 per phase.

For the location of these terminals and wiring instructions see *Connecting the AC Output to the AC Cabinet on page 62*. For bolt sizes and torque values, see *Table 6 on page 95*. For the dimensions of the terminal lug connections, see *Figure 17*.

Figure 17 AC terminal lug L-bus connections



Dimensions in mm (in.)

1	6 x Ø12.50 mm holes

Auxiliary AC wiring

The auxiliary AC input wiring connects to the terminals identified as XT4 (1 and 2) in the AC cabinet. These terminals require a crimp-on ferrule properly sized for the wire and accommodate one wire per terminal.

For the location of these terminals, see *Figure 33 on page 72*. For bolt sizes and torque values, see *Table 6 on page 95*.

DC Wiring

The PV input wiring connects to the PV terminals identified as PV+ and PV- in the DC cabinet. These terminals require the use of a crimp-on type ring terminal or compression-type lug. Keep the cables close together as much as possible and make sure that all cables pass through the same conduit fittings and the same access point in the floor of the inverter. This allows any inductive currents to cancel.

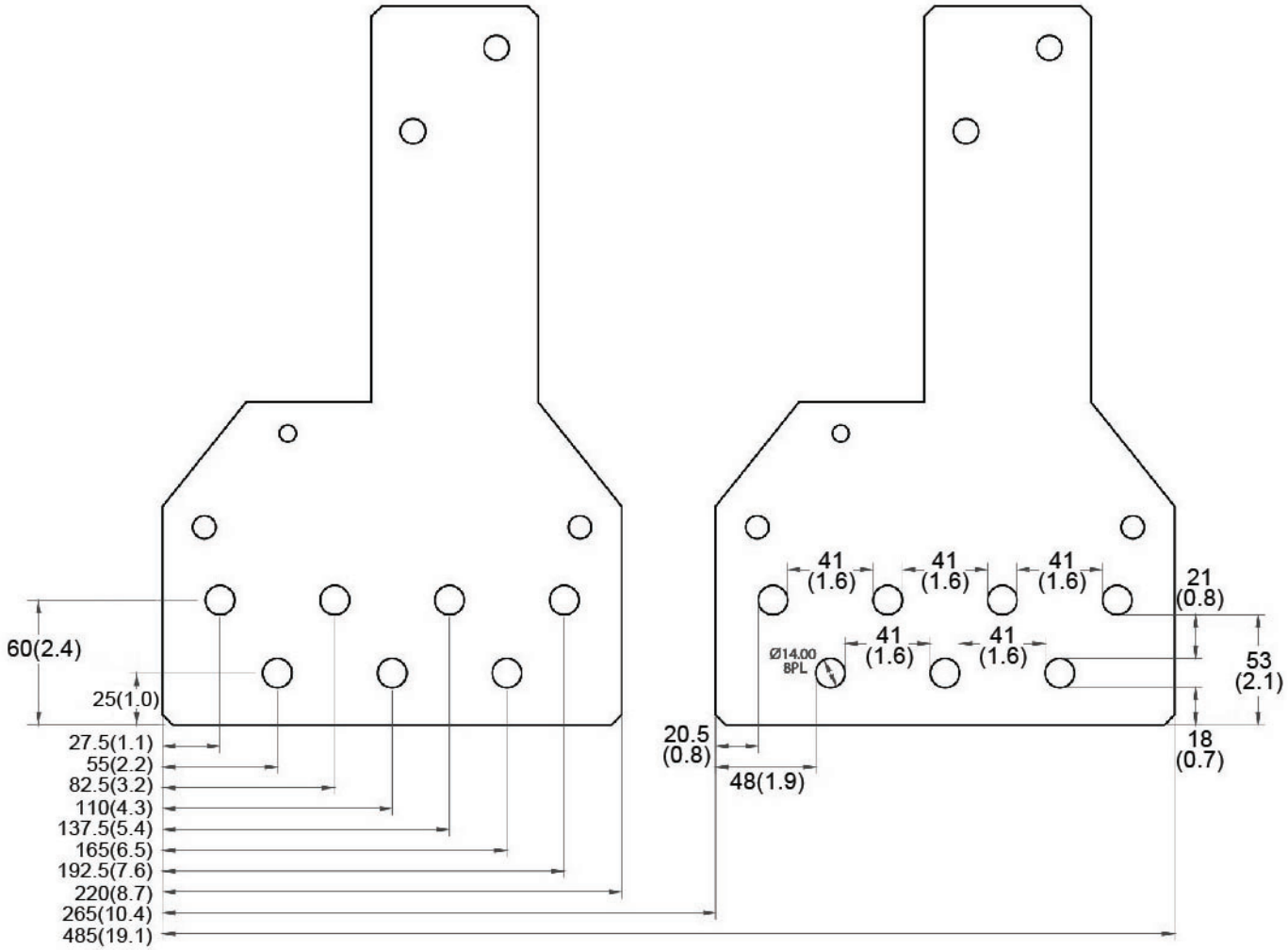
Each terminal has seven threaded holes for bolts per pole and a maximum of one cable per bolt.

The maximum cable requirements to meet EN/IEC62109 bend radius requirements varies depending on the configuration.

- Using the upper holes only: 4 x 350 mm^2 per landing plate
- Using the lower holes only: 3 x 240 mm^2 per landing plate
- Using the lower holes only, and installing two bolts back to back on each hole: 6 x 240 mm^2 per landing plate

For the location of these terminals, see *Figure 32 on page 70*. For bolt sizes and torque values, see *Table 7 on page 96*. For the dimensions of the terminal lug connections, see *Figure 18*.

Figure 18 DC terminal lug connections



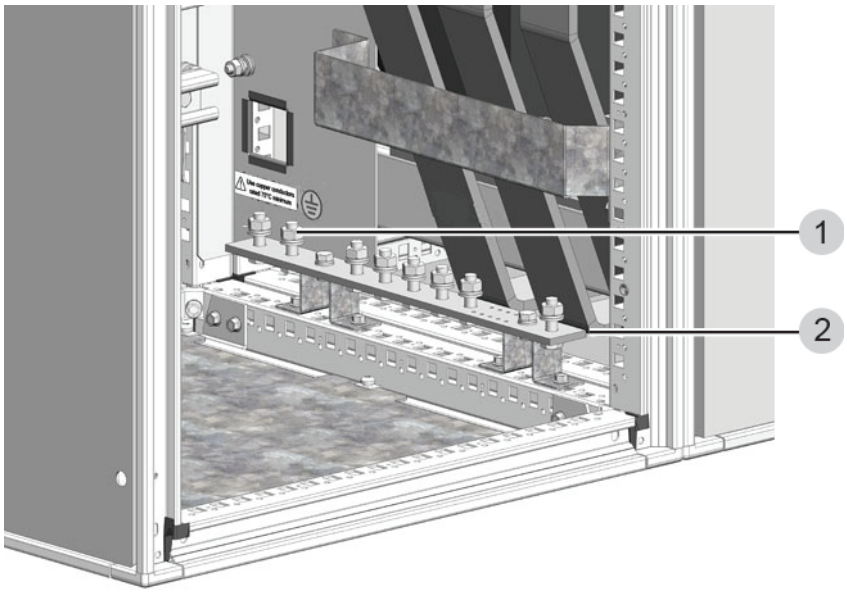
Dimensions in mm (in.)

Grounding

The safety ground or protective earth (PE) connection point for grounding the Conext Core XC Series is an M10 bolt on a copper grounding bar located at the bottom right side

of the AC cabinet and is marked with ⏚. The ground conductor size depends on the rating or setting of the overcurrent protection provided for the circuit. Refer to local applicable electrical installation codes for grounding requirements for your system. The ground wire for the external auxiliary AC source can also be terminated at this ground bar but not on the PE ground bolt. Grounding terminals for PV array frames are provided in the DC cabinet.

Figure 19 Single point ground (PE); ground bar



1	Single point ground (PE)
2	Ground bar

AC Wiring

This section provides information for connecting the AC conductors. *Table 6 on page 95* shows the specifications for the provided wiring terminals.

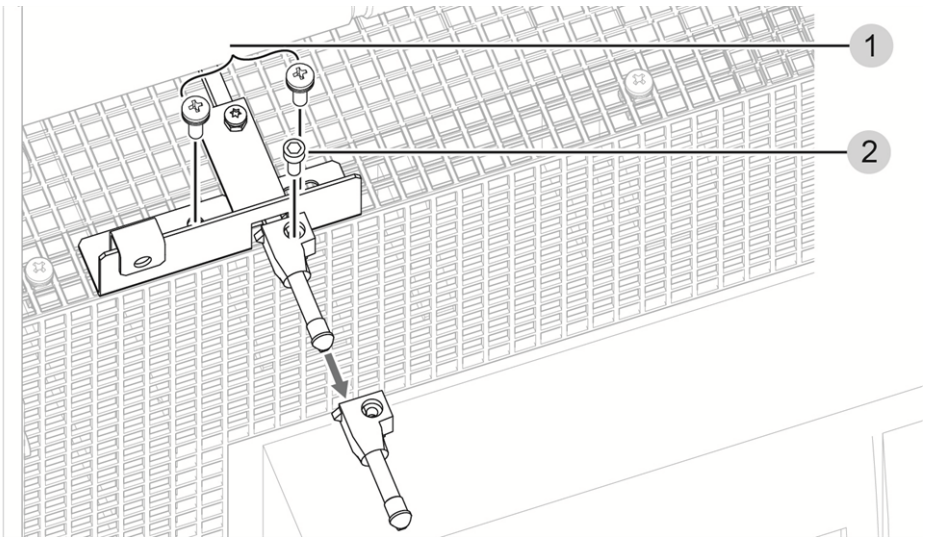
Removing AC Barriers

To help protect personnel, barriers are installed over the AC and DC electrical wiring compartments inside the Conext Core XC Series. To perform the initial installation you must remove these barriers.

To remove the AC cabinet internal barriers:

1. Turn the ON/OFF switch to the OFF position.
2. Open the AC cabinet door to its fully open position.
3. Remove the inverter ON/OFF switch shaft and bracket (see Figure 1):
    a. Remove and save the two M6x16 Phillips pan head screws and washers that secure the bracket. Store the bracket for later reinstallation.
    b. Using a 3 mm hex key, loosen the socket head cap screw that secures the connecting shaft to the switch assembly. Slide the shaft out from the assembly and store it for later reinstallation.

Figure 20 QF2 switch: shaft and bracket removal



Internal components may not be exactly as shown	
1	Two M6x16 Phillips pan head screws
2	One socket head cap screw

4. Remove and save the six M6x16 Phillips pan head screws from the vertical metal mesh barrier around the Masterpact, and then carefully lift out the barrier. Store the barrier for later reinstallation.

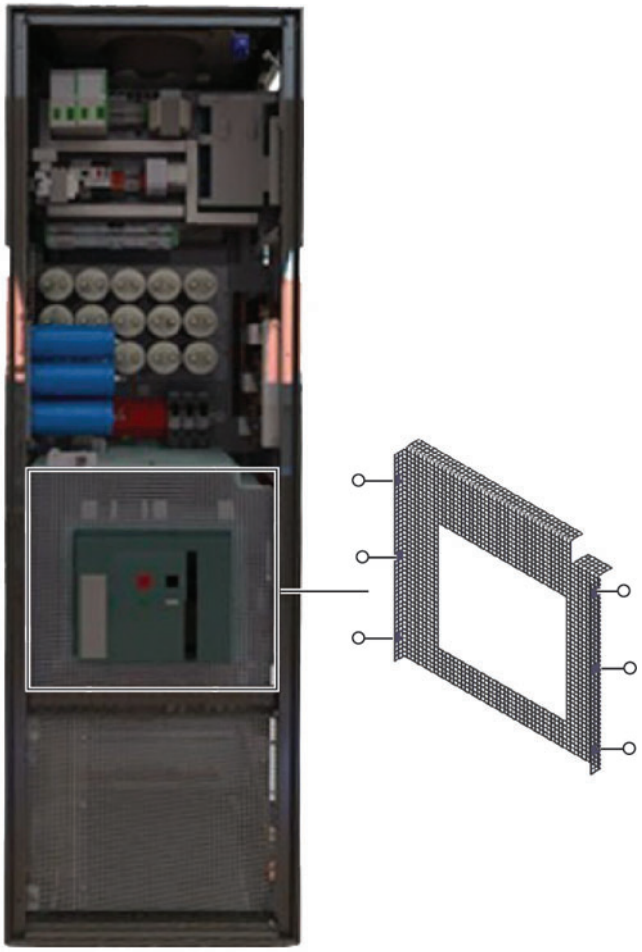
NOTICE

HAZARD OF EQUIPMENT DAMAGE

The metal mesh barriers are not rigid. Be careful not to bend a barrier out of shape when lifting it out.

Failure to follow these instructions can result in equipment damage.

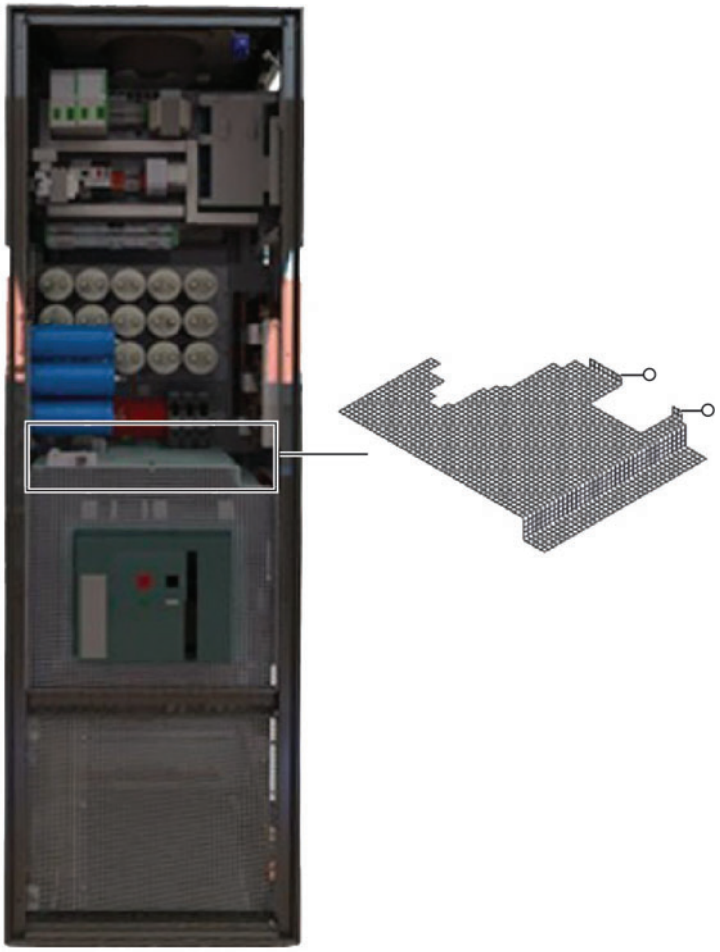
Figure 21 Metal mesh barrier around Masterpact (AC cabinet)



Internal components may not be exactly as shown

5. Remove and save the two M6x16 Phillips pan head screws from the horizontal metal mesh barrier above the Masterpact, and then carefully lift out the barrier. Store the barrier for later reinstallation.

Figure 22 Horizontal metal mesh barrier above Masterpact (AC cabinet)

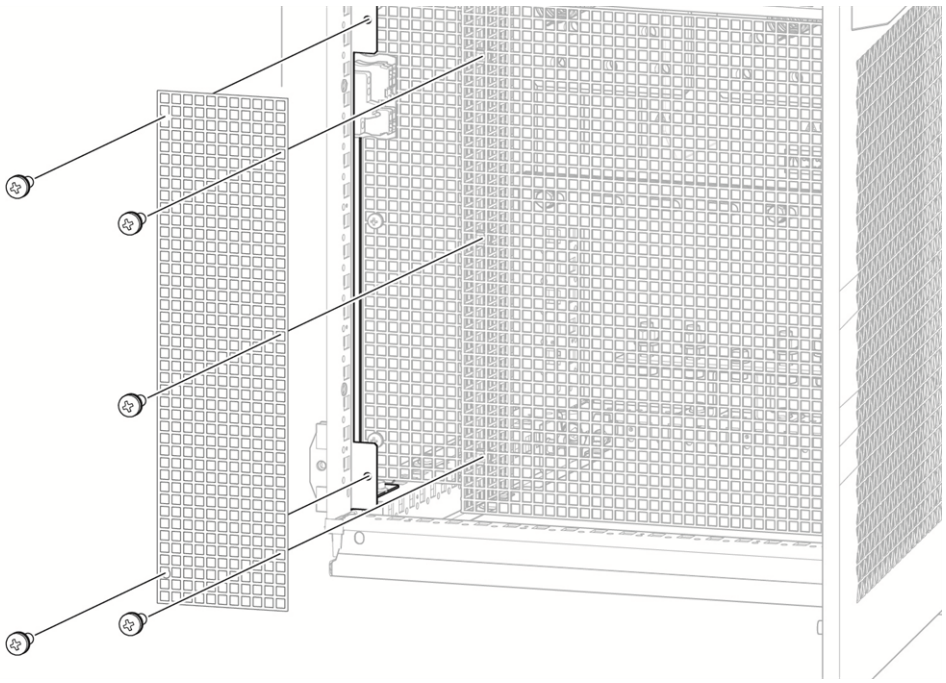


Internal components may not be exactly as shown

6. Remove and save the five M6x16 Phillips pan head screws from the small external auxiliary AC source barrier in the bottom of the AC cabinet, and then carefully lift out the barrier. Store the barrier for later reinstallation.

NOTICE
HAZARD OF EQUIPMENT DAMAGE The metal mesh barriers are not rigid. Be careful not to bend a barrier out of shape when lifting it out. **Failure to follow these instructions can result in equipment damage.**

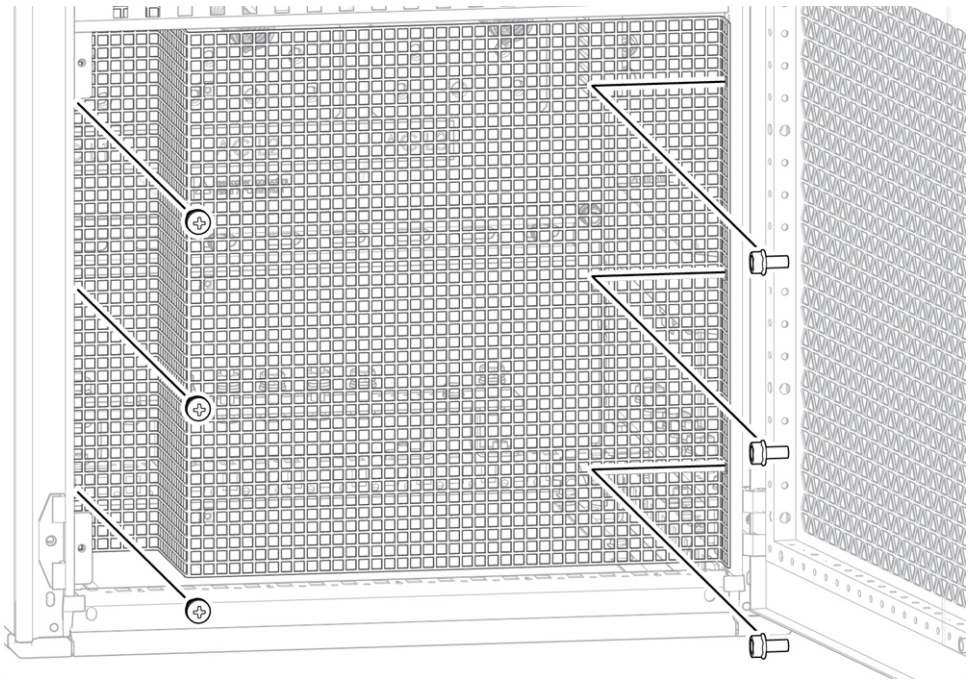
Figure 23 External auxiliary AC source barrier (AC cabinet)



Internal components may not be exactly as shown

7. Remove and save the two remaining M6x16 Phillips pan head screws from the large metal mesh barrier in the bottom of the AC cabinet, and then carefully lift out the barrier. Store the barrier for later reinstallation.

Figure 24 Main metal mesh barrier (AC cabinet)



Internal components may not be exactly as shown

Preparing the AC Cabinet Floor

To prepare the floor of the inverter for cable routing:

1. Remove the plate from the floor of the AC cabinet and keep the screw clamps. You will need to cut this plate to allow cable entry into the AC cabinet.

NOTICE
EQUIPMENT DAMAGE ■ The AC floor plate must be cut only enough to allow cable entry. ■ Reinstall the AC floor plate after cutting holes. ■ Use correctly sized conduit fittings to seal the cables in place. **Failure to follow these instructions can result in equipment damage and can compromise the IP20 rating of the enclosure.**

Figure 25 Removing the AC cabinet floor plate

2. Pre-mark all the holes to be cut out in the plate.
3. Punch or cut holes. Ensure all holes are free from burrs and sharp edges.
4. Mask and treat any exposed, cut edges with zinc galvanizing material, such as Brite Pen Galvanizing Touch Up Pen.
5. Reinstall the AC cabinet floor plate using the screw clamps removed in Step 1.

Connecting the AC Output to the AC Cabinet

To connect the AC output (grid) to the AC cabinet:

1. Route the AC power conductors AC L1, AC L2, and AC L3 and ground conductor(s) through the conduit fittings in the AC plate over the access point in the floor of the inverter.
2. Connect the AC power conductors at the AC L1 (A phase), AC L2 (B phase), and AC L3 (C phase) terminals using M12 hardware. Cables to these terminals must use a crimp-on type ring terminal or compression-type lug. See *Figure 26 on page 63* for the location of these terminals. Draw a single permanent line across the fastener and the mounting surface immediately after the connector is torqued to the correct value.

NOTICE

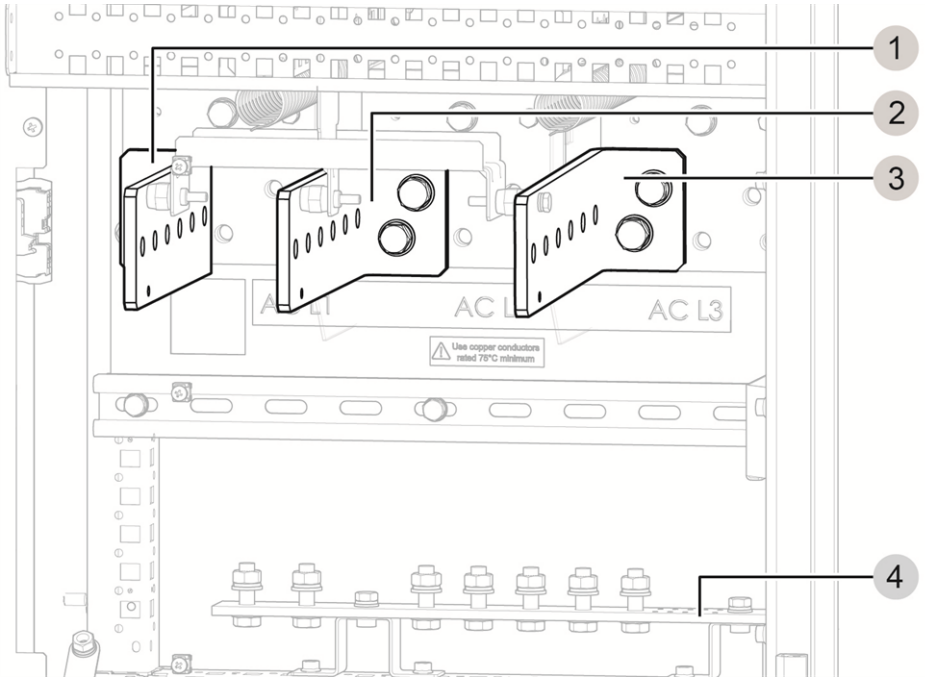
EQUIPMENT DAMAGE

When connecting external AC wires to the Conext Core XC Series, positive, clockwise phase rotation must be maintained throughout the installation process. See *Phase Rotation on page 53* for more information.

Crimp lugs that are used to fasten aluminum conductors to the AC or PV terminals must be rated and marked for use with both copper and aluminum. For example, a dual-rated crimp lug could be marked Al9Cu or Cu7Al.

Failure to follow these instructions can result in equipment damage.

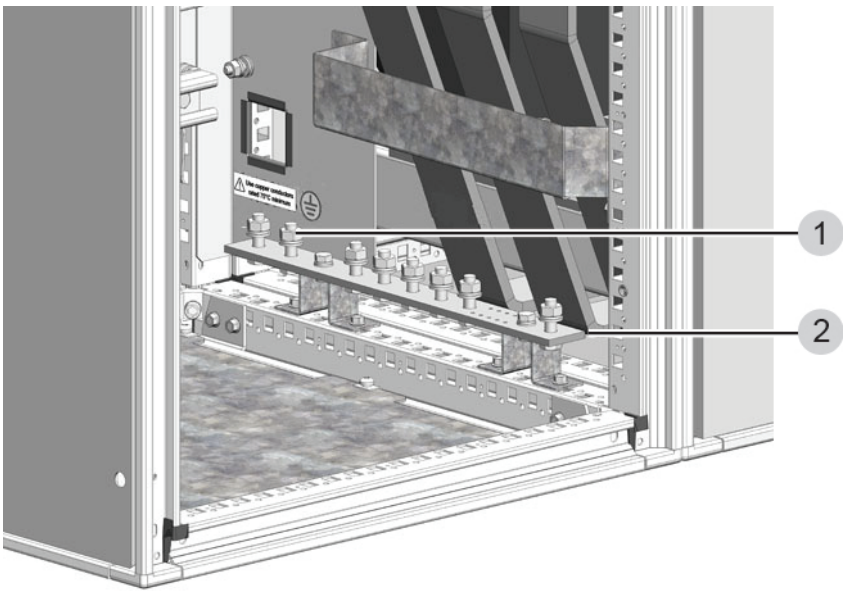
Figure 26 AC terminal and ground connections from the external transformer



1	L1 Phase terminal
2	L2 Phase terminal
3	L3 Phase terminal
4	Ground bar for everything except single point ground connection

3. Install appropriately sized retention clips on the rail below the terminals to hold the three AC power conductors in place.
4. Connect the AC output ground conductor to the ground bar (PE). Use M10 hardware to make terminations for the ground conductors at the bottom right and at the rear of the AC cabinet at the grounding bus bar. Cables to these terminals must use a crimp-on type ring terminal or compression-type lug. See *Figure 27 on page 64* for the location of these terminals.
   NOTE: The single-point ground (PE) connection point must not be used for grounding any other ground conductors, as explained *on page 56*.

Figure 27 Equipment ground connections



1	Single point (PE) ground (do not use this bolt for any other purpose)
2	Equipment ground bar

5. If you plan to install an external auxiliary AC source, follow the procedure starting *on page 71* now, and then continue with this procedure.
6. Once all of the incoming cables are connected, seal the conduit holes to prevent dust and debris from entering the bottom of the cabinet. The recommended way to do this is using a sealing foam, such as: American Polywater® Corporation FST™ Foam Sealant, 3M™ Fire Barrier Water Tight Sealant 3000 WT, or PPG Industries PR-821 CFC-free conduit sealing compound.
7. Do not reinstall the AC barriers (see *Reinstalling Internal Barriers on page 88*) until all other installation steps and steps described in the *Visual Inspection on page 87* have been completed.

PV Array Wiring

This section provides information for connecting the PV conductors. *Table 7 on page 96* shows the specifications for the provided wiring terminals.

Removing DC Cabinet Barriers

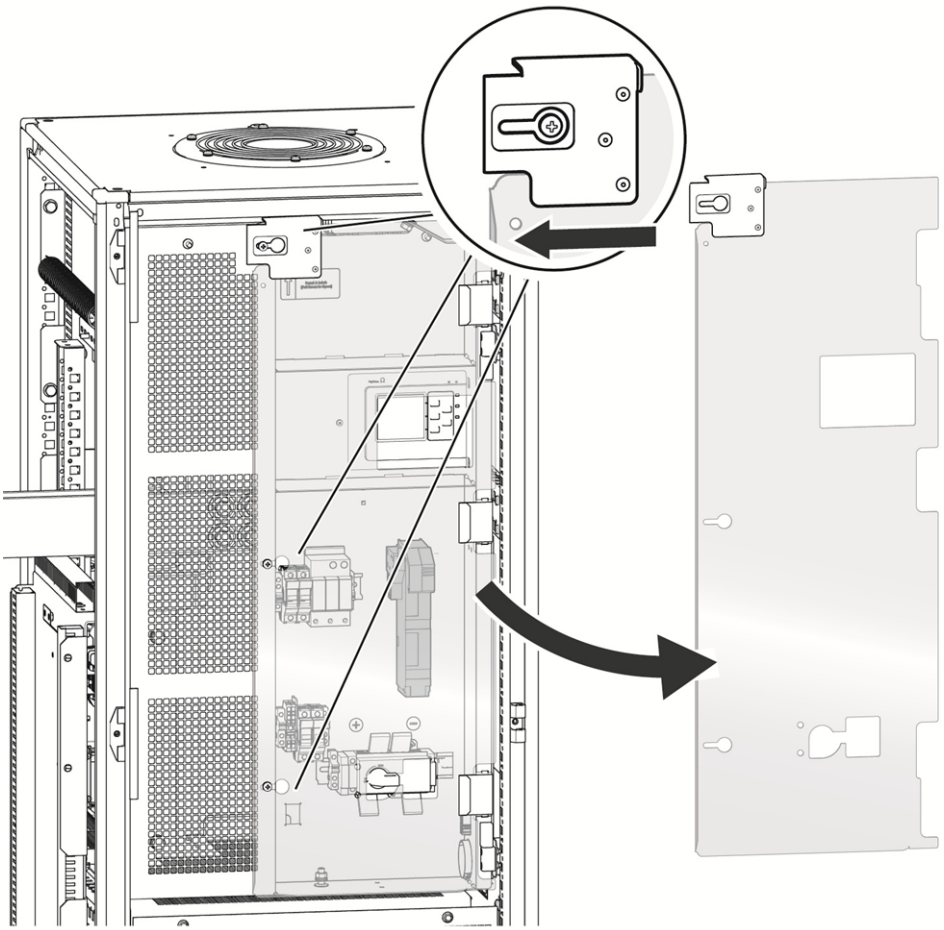
To help protect personnel, the DC cabinet is provided with three barriers:

- A plastic barrier over the right upper part of the cabinet (over the PV ground fault fuse service switch and PV surge protection devices.
- A large metal barrier with steel mesh over the left upper part of the cabinet, and solid steel behind the plastic barrier.
- A large metal barrier over the entire lower half of the cabinet.

To remove the DC cabinet internal barriers:

1. Open the DC cabinet door to its fully open position.
2. Loosen, but do not remove, the three M6x16 Phillips pan head screws securing the plastic barrier over the upper right part of the DC cabinet. Slide the barrier to the left so it clears the tabs on the right, lift it out, and store it for later reinstallation.

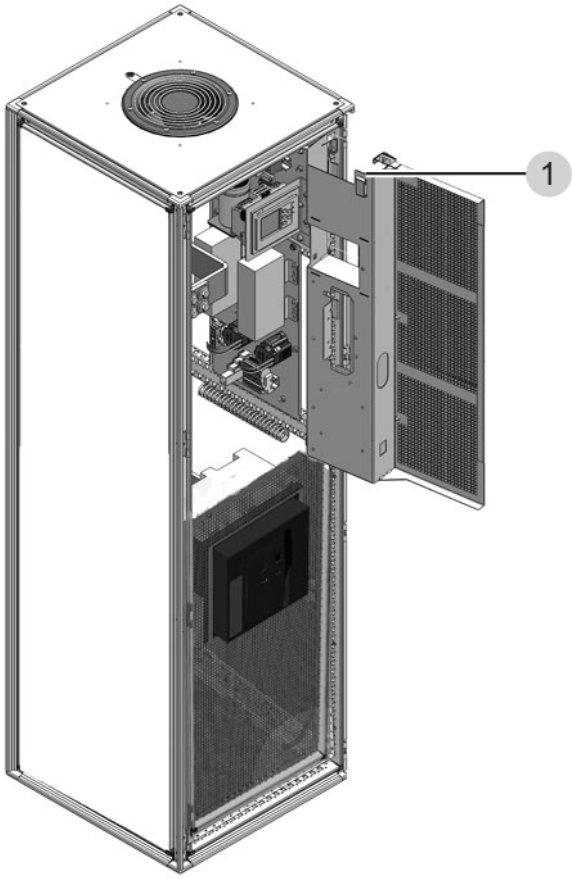
Figure 28 Plastic barrier over right upper part of DC cabinet



1	Tabs

3. Locate the latch, as shown in *Figure 29*, and pull it down with your fingers. Swing the barrier open.

Figure 29 Large metal barrier over upper part of DC cabinet

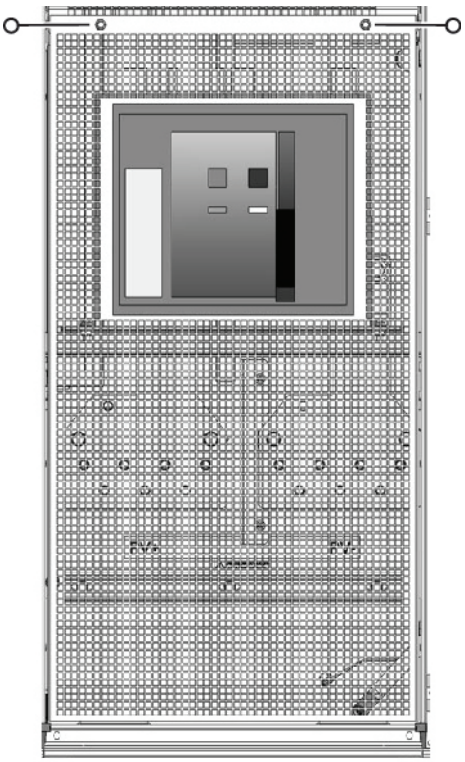


1	Door latch

4. Remove and save the two M6x16 Phillips pan head screws from the top of the metal mesh barrier below the Masterpact. Lift out the barrier (making sure the barrier clears the tabs along the bottom) and store it for later reinstallation.

NOTICE
HAZARD OF EQUIPMENT DAMAGE The metal mesh barriers are not rigid. Be careful not to bend a barrier out of shape when lifting it out. **Failure to follow these instructions can result in equipment damage.**

Figure 30 Bottom metal mesh barrier (DC cabinet)



Preparing the DC Cabinet Floor

To prepare the floor of the DC cabinet for cable routing:

1. Remove the plate from the floor of the DC cabinet and keep the screw clamps. You will need to cut this plate to allow cable entry into the DC cabinet.

NOTICE
EQUIPMENT DAMAGE ■ The DC floor plate must be cut only enough to allow cable entry. ■ Reinstall the DC floor plate after cutting holes. ■ Use correctly sized conduit fittings to seal the cables in place. **Failure to follow these instructions can result in equipment damage and can compromise the IP20 rating of the enclosure.**

Figure 31 Removing the DC cabinet floor plate

2. Pre-mark all the holes to be cut out in the plate.
3. Punch or cut holes. Ensure all holes are free from burrs and sharp edges.
4. Mask and treat any exposed, cut edges with zinc galvanizing material, such as Brite Pen Galvanizing Touch Up Pen.
5. Reinstall the DC cabinet floor plate using the screw clamps removed in Step 1.

Connecting the PV Array to the DC Cabinet

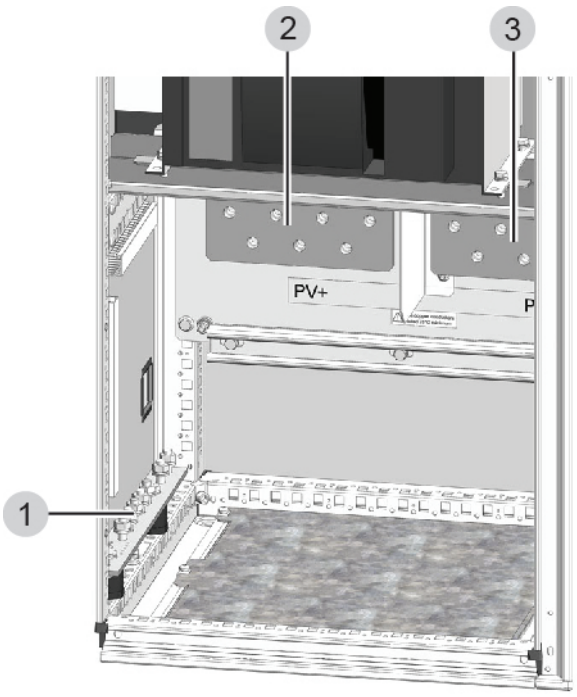
To make the connections from the PV array to the DC cabinet:

1. Route the PV+ and PV- power conductors and the PV array frame ground conductor (s) through the conduit fittings in the DC plate over the access point in the floor of the inverter.
2. Terminate the power conductors at the PV+ and PV- terminals in the DC cabinet using M12 hardware (see *Figure 32*). Polarity must be observed or the inverter will fail to qualify the PV array voltage and will not generate output power. Conductors must be provided with crimp-on ring terminals or compression-type lugs. Torque the M12 bolts per *Table 7 on page 96*. Draw a single permanent line across the fastener and the mounting surface immediately after the connector is torqued to the correct value.

NOTICE
EQUIPMENT DAMAGE If aluminium conductors are connected to the AC or PV terminals, verify that any lugs used are rated and marked for use with both copper and aluminium. For example, markings for dual-rated lugs could be Al9Cu or Cu7Al. Use anti-corrosion grease on the lugs before connecting the aluminium conductor. **Failure to follow these instructions can result in equipment damage.**

3. Connect the ground conductor(s) from the PV array frames to the ground bar (PE) (see *Figure 32*). Make terminations for the ground conductor(s) within the DC cabinet at the ground bar with M10 hardware.
4. Once all of the incoming cables are connected, seal the conduit holes to prevent dust and debris from entering the bottom of the cabinet. The recommended way to do this is using a sealing foam, such as: American Polywater® Corporation FST™ Foam Sealant, 3M™ Fire Barrier Water Tight Sealant 3000 WT, or PPG Industries PR-821 CFC-free conduit sealing compound.
5. Do not reinstall the DC barriers (see *Reinstalling Internal Barriers on page 88*) until all other installation steps and steps described in the *Visual Inspection on page 87* have been completed.

Figure 32 PV array cable routing and terminations



1	Ground bar
2	PV +
3	PV –

Auxiliary AC Source Wiring

Power for the ventilation fans and heaters is provided by an internal auxiliary AC supply transformer (TC1). The source of supply to that transformer can be configured to be one of the following sources:

- An external auxiliary AC source (a separate source of supply provided at the installation site).
- The inverter AC output circuit (XC540 and XC680 only).

The transformer has multiple taps that can be selected to allow for different AC supply voltage ranges.

NOTICE

COMPONENT DAMAGE

- Auxiliary power can only be supplied from the XC540 or XC680 inverter AC output if the AC output voltage will always be in one of the following ranges:
  270 — 330 VAC phase-to-phase
  342 — 418 VAC phase-to-phase
- Auxiliary AC supply transformer (TC1) taps must be set correctly according to the information in *Table 2*.

Failure to follow these instructions can result in equipment damage.

As shipped, the Conext Core XC Series is configured for auxiliary supply from the external AC auxiliary source and for a voltage of 230 VAC. If a 230 VAC auxiliary supply will be connected to the external AC auxiliary source input terminals (XT4), no further changes to the auxiliary AC source wiring or to the auxiliary AC supply transformer are needed. Proceed to *To connect an external auxiliary AC source to terminal XT4 in the AC cabinet: on page 72*.

Changes to the configuration of the auxiliary supply wiring and transformer tap selection will be required if either of the following is true:

- The external AC auxiliary source is being used, but the voltage is not 230 VAC.
- The auxiliary AC will be supplied from the inverter output.

Table 2 Voltage ranges and transformer taps for auxiliary AC source

Auxiliary AC source voltage (VAC rms phase to phase)	Auxiliary AC supply transformer (TC1) primary tap
208 (± 10%)	208 (external supply)
230 (± 10%)	230 (as shipped)
300 (± 10%)	315 (internal supply)
380 (± 10%)	400 (internal supply)

External AC Auxiliary Power Source

The external auxiliary AC source must be a nominal voltage that is compatible with the transformer configuration. If the source provided is 230 VAC, no change is needed. If the source provided is 208 VAC, then the tap selection for the auxiliary supply transformer (TC1) must be changed, according to *Table 2*. Instructions for changing taps are *on page 72*.

⚠ WARNING

HAZARD OF FIRE

External over-current protection must be installed for the AC auxiliary input circuit of the inverter.

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

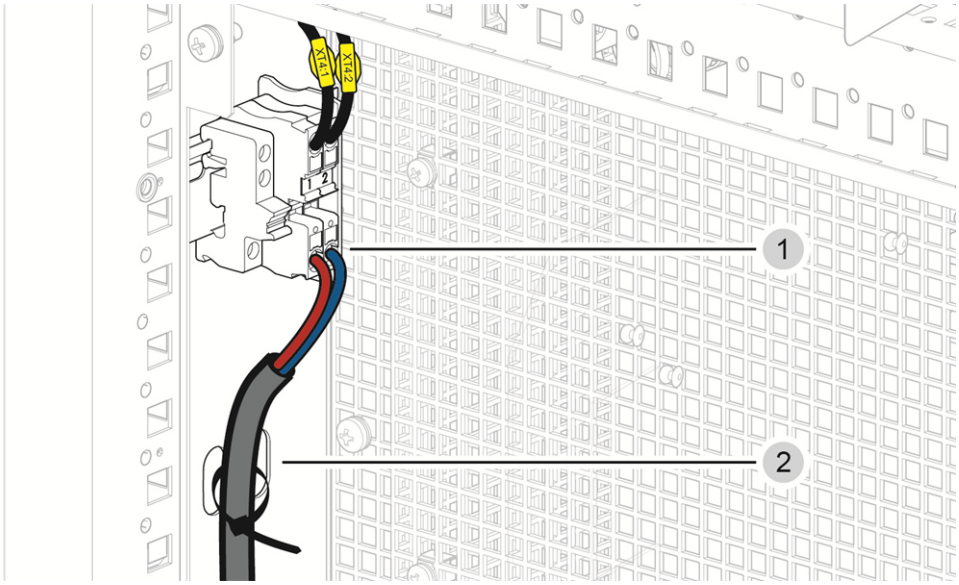
The selection of external over-current protection for the AC auxiliary input circuit of the Conext Core XC Series must be coordinated with both the internal inverter circuitry and your local electrical installation code(s). You must use an external over-current protection device with a maximum thermal trip current of 16 A plus a suitable magnetic trip curve. The recommended magnetic trip curve is Type D, but there are many different trip curves available which vary between manufacturers. You may need to test a variety of over-current protection devices with your specific circuit to prevent nuisance tripping.

Connecting the External AC Auxiliary Power Source

To connect an external auxiliary AC source to terminal XT4 in the AC cabinet:

1. Route the external auxiliary AC source conductors and their ground wire through the access point in the floor of the inverter to the AC cabinet.
2. Route the external auxiliary AC source ground conductor to one of the terminals on the equipment grounding bus bar in the AC cabinet.
3. Connect one external auxiliary AC source conductor to XT4:1 and the other one to XT4:2.

Figure 33 Connecting XT4:1 and XT4:2



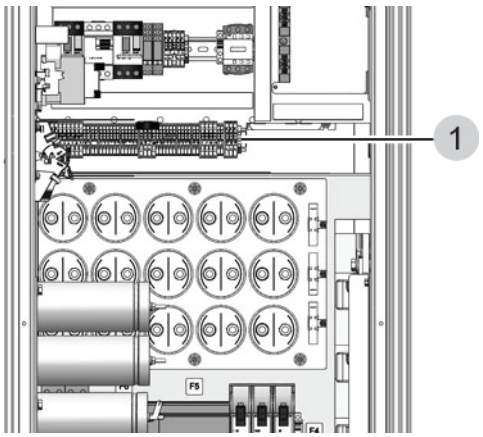
1	XT4:1 and XT4:2 connections
2	Cable tie location for auxiliary AC source voltage conductors

Selecting the Voltage Tap for TC1 (external)

To select the correct voltage tap for the control voltage transformer (TC1):

The voltage taps are set at the XT2 terminal block.

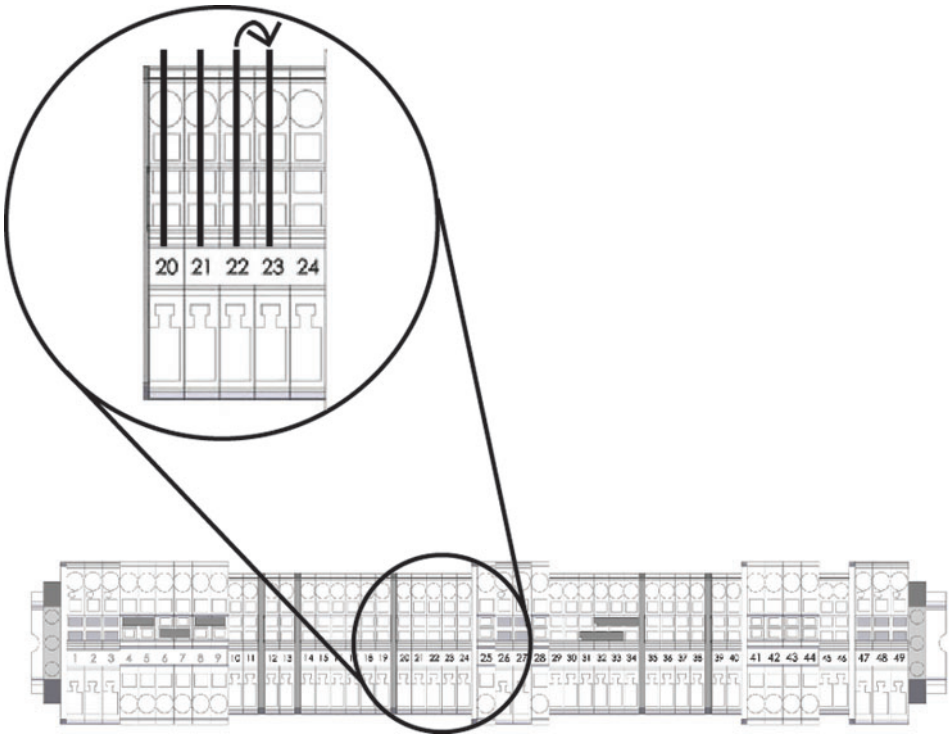
Figure 34 XT2 location in AC cabinet



1	XT2

1. If changing from the factory default 230 VAC tap, move the auxiliary power cable from XT2:22 to XT2:23.

Figure 35 Moving the voltage tap wire



Move cable marked XT2:22 as needed to select voltage.
Insert a screwdriver into the hole beneath the old location to open the clip and release the wire. Push the wire into the holder at the new location; it will click into place and hold.

2. Ensure QF3 is set to 2.3 A.
3. Ensure QF4 is set according to the auxiliary AC voltage (TC1) taps:
   a. 208/230 = 14A
   b. 315 = 10 A
   c. 400 = 9 A

⚠⚠ DANGER

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

Ensure QF3 is set to 2.3 A.

Ensure QF4 is set according to the auxiliary AC voltage (TC1) taps.

• 208/230 = 14 A • 315 = 10 A • 400 = 9 A

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

4. Do not reinstall the AC barriers (see *Reinstalling Internal Barriers on page 88*) until all other installation steps and steps described in the *Visual Inspection on page 87* have been completed.

Internal AC Auxiliary Power Source

Auxiliary power supply can be taken from the XC540 or XC680 AC output if the AC output will remain within one of the following ranges under all conditions:

- 270 — 330 VAC phase-to-phase
- 342 — 418 VAC phase-to-phase

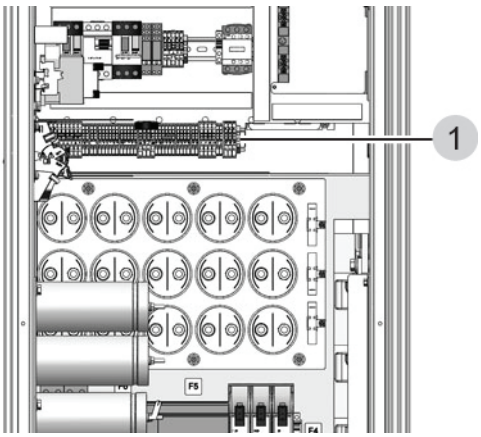
If one of these conditions cannot be met, or if the inverter is a XC630, then the auxiliary power must be supplied from an external auxiliary AC source as described in *External AC Auxiliary Power Source on page 71*.

Changing the Configuration to Internal AC Auxiliary Power

To configure the Conext Core XC Series for internal auxiliary power supplied from the AC output:

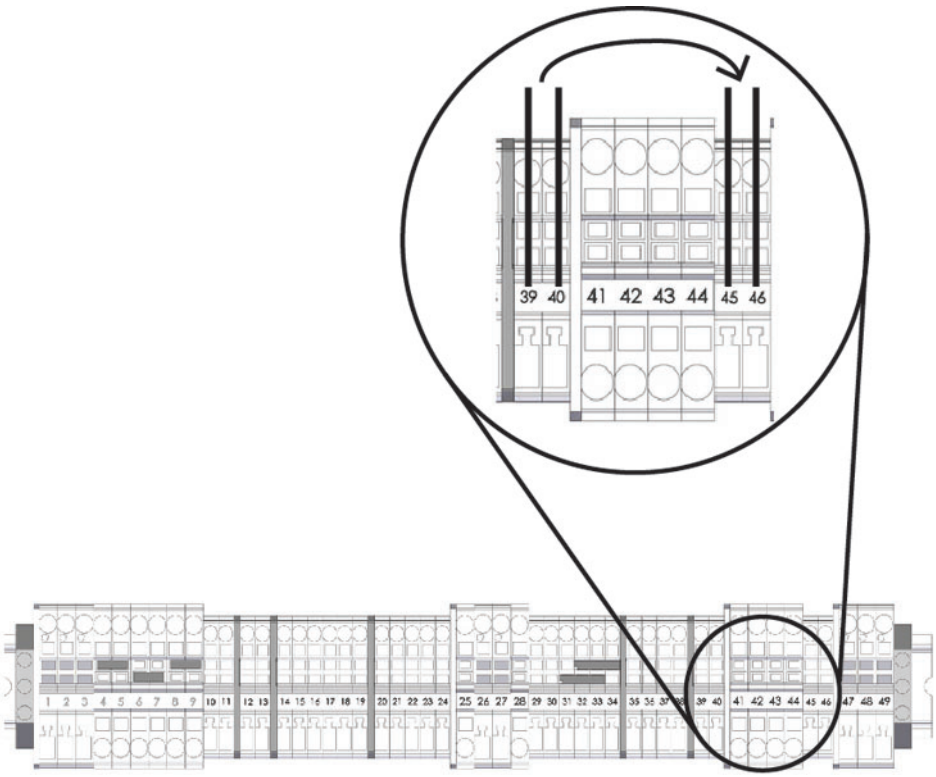
1. Change the factory configuration by moving the conductors connected to terminals XT2:39 and XT2:40 (external supply) over to terminals XT2:45 and XT2:46 (internal supply).

Figure 36 XT2 location in AC cabinet



1	XT2

Figure 37 XT2 terminal block settings for internal auxiliary AC source



Internal auxiliary supply setting (XT2:45 and XT2:46).
Insert a screwdriver into the hole beneath the old location to open the clip and release the wire. Push the wire into the holder at the new location; it will click into place and hold.

2. Using the procedure *Selecting the Voltage Tap for TC1 (external) on page 72*, adjust the tap selection on XT2 for the auxiliary supply transformer (TC1) according to *Table 3 on page 76*.

Table 3 Tap selection for internal auxiliary AC source connection

AC output voltage (VAC rms phase-to-phase)[4]	TC1 primary tap on XT2	Auxiliary AC supply transformer (TC1) primary tap
270 to 330	315	XT2:21
342 to 418	400	XT2:20

3. Ensure QF3 is set to 2.3 A.
4. Ensure QF4 is set according to the auxiliary AC voltage (TC1) taps:
   a. 208/230 = 14A
   b. 315 = 10 A
   c. 400 = 9 A

⚠ DANGER

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

Ensure QF3 is set to 2.3 A

Ensure QF4 is set according to the auxiliary AC voltage (TC1) taps.

• 208/230 = 14 A • 315 = 10 A • 400 = 9 A

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

5. Do not reinstall the AC barriers (see *Reinstalling Internal Barriers on page 88*) until all other installation steps and steps described in the *Visual Inspection on page 87* have been completed.

[4] Minimum to maximum absolute range

Remote Communication and Control Wiring

In the Conext Core XC Series, the Modbus/RS485 communication circuits are to be connected only to external Modbus/RS485 circuits that meet the requirements for both:

- Safety Extra-Low Voltage (SELV)
  SELV is a common designation that refers to a circuit in which the voltages within the circuit and from the circuit to ground have values that are not a shock hazard, under both normal and single fault conditions. This is achieved by the design of the circuits, and by maintaining protective separation (fault-tolerant insulation and isolation) between the SELV circuits and all hazardous voltage circuits, both within the inverter and in the installation.
- Decisive voltage class A (DVC-A)
  DVC indicates the minimum required level of shock hazard protection for the circuit. The DVC-A classification means that under both normal and single fault conditions the voltage levels of the circuit are:
  - for AC circuits:
    - voltage levels ≤ 25 VAC_{rms} (up to ≤ 50 VAC_{rms} for max. 0.2 s under fault condition)
    - voltage levels ≤ 35.4 VAC_{pk} (up to ≤ 71 VAC_{pk} for max. 0.2 s under fault condition)
  - for DC circuits:
    - voltage levels ≤ 60 VDC_{mean} (up to ≤ 120 VDC_{mean} for max. 0.2 s under fault condition)

  DVC-A circuits are not a shock hazard and they must be kept isolated and insulated from all hazardous voltage circuits with voltage levels higher than those described above in order to maintain the DVC-A classification.

⚠⚠ DANGER

HAZARD OF ELECTRIC SHOCK AND NOISE INTERFERENCE

- Connect only to Safety Extra Low Voltage (SELV) and DVC-A circuits.
- The circuits provided for use with external communications and control equipment are designed to provide isolation from neighboring hazardous circuits within the inverter. The communications and control circuits within the Conext Core XC Series are floating from ground and are classified as SELV and DVC-A. They must be connected only to other SELV and DVC-A circuits in a manner which maintains all the circuits within SELV and DVC-A limits and prevents ground loops. Separate conduit entries must be provided for the communications and control circuits and the PV circuits and all AC circuits.
- Physical and electrical separation of the communications and control circuits from non-SELV and non-DVC-A electrical circuits must be maintained both within the inverter and external to the inverters.

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

In the Conext Core XC Series, the communication circuits and their intended connections are:

- The Modbus/RS485 circuits on connectors S43, S44, S201, and S201-1, which must be connected only to external Modbus/RS485 circuits that are SELV and DVC-A.
- The external ENABLE/DISABLE switch circuit on terminals 15 and 16 of terminal block XT14, which must be connected only to a switch that has dry contacts (with no external voltage applied to them) and has protective separation to hazardous voltage circuits.
- The circuits for external control of active and reactive power on terminals 11, 12, 13, and 14 of terminal block XT14, which must be connected only to 4-20 mA loop circuits that are SELV and DVC-A.

Make sure the communication and control cables enter the cabinet away from the PV and AC wiring and are routed and mechanically secured away from the PV and AC wiring throughout the length of the communications and control wiring. Maintain no less than 50 mm (2 in.) separation at all points and use the provided cable channels.

Modbus/RS-485 Wiring

Isolation and Surge Protection

The recommended best practice is the use of fiber optic isolation, installed as close to the inverter as possible. This provides full isolation, removing the risk of damaging electrical surges coupling to the inverter, and, therefore, negating the need for additional surge protection.

NOTICE

EQUIPMENT DAMAGE

Installations involving non-fiber optic cables exceeding 10 m (32 ft 9¾ in.) outside of a inverter shelter or building structure to the communication ports of the inverter must be able to withstand a 1.0 kV surge from line to ground. The recommended methods to meet this requirement are listed below in order of best practices:

- Galvanic isolation installed within 10 m (32 ft 9¾ in.) of the inverter – such as, Schneider Electric gateway devices TSXETG100 or EGX300.
- No galvanic isolation – surge protection devices that provide a minimum protection rating of 1.0 kV from line to ground/earth are also acceptable but should be selected in accordance with the Schneider Electric Application Note: *Modbus/RS485 Wiring for Conext Core XC inverters (document number: AP-XC-025-EN)*.

Failure to follow these instructions can result in equipment damage.

Daisy-chaining

The RS-485 bus is a multi-drop bus implemented as a daisy chain. The Conext Core XC Series provides two RJ-45 connectors to the same Modbus ports to facilitate daisy chaining. Either port can be connected to the upstream or downstream device and a standard ethernet (straight-through) patch cable may be used to connect the devices.

NOTE: Ethernet cross-over cables must not be used.

Shielding and Grounding

The RJ-45 cable must use a shielded cable with the Modbus master end (not the inverter end) connected to protective ground. On the inverter end, the male connector must be shielded.

Connecting the Remote Communication and Control Devices

To route and connect the remote communication and control devices:

⚠ ⚠ DANGER

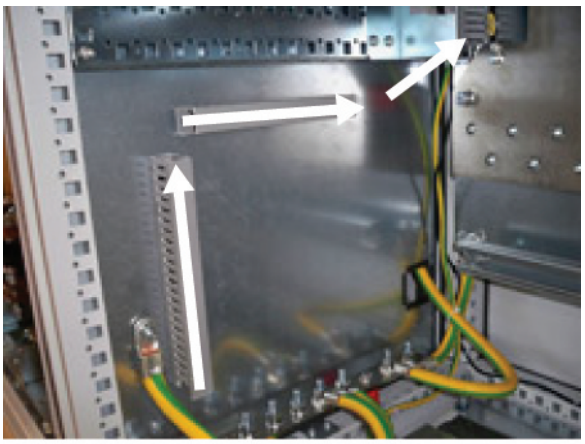
HAZARD OF ELECTRIC SHOCK, EXPLOSION, ARC FLASH, AND FIRE

- Do not attempt to use this procedure to install communications wiring on a Conext Core XC Series that has already been energized or in operation.
- If the Conext Core XC Series has been previously energized, different lock-out and tag-out procedure steps are needed and the installation must be performed by authorized service personnel. See the Conext Core XC Series, 0G-XC-BB, Lock-Out and Tag-Out Procedures and Barrier Removal (document number: SD-XC-081).

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

1. Route the communication and control cables along the following path (see *Figure 38 on page 80*):
    a. Through the conduit fittings at the access point on the floor of the DC cabinet.
    b. Through the cable channels on the left wall of the DC cabinet.
    c. Up the cable channels on the left side of the back wall of the DC cabinet.
2. Use cable ties to hold the cables in place to prevent contact from other field wiring and factory bus bars.

Figure 38 Routing the communication cable



Your product may not be exactly as shown.

3. Connect the remote control cables to the following locations, see *Figure 39 on page 81*

Cable Type	Connection Point
Active power control	XT14, terminals 11 and 12
Reactive power control	XT14, terminals 13 and 14
External enable/disable	XT14, terminals 15 and 16

4. If using a metallic cable that routes from XT14 to a location outside the inverter shelter, ensure that the cable passes through an isolation device before exiting the shelter.

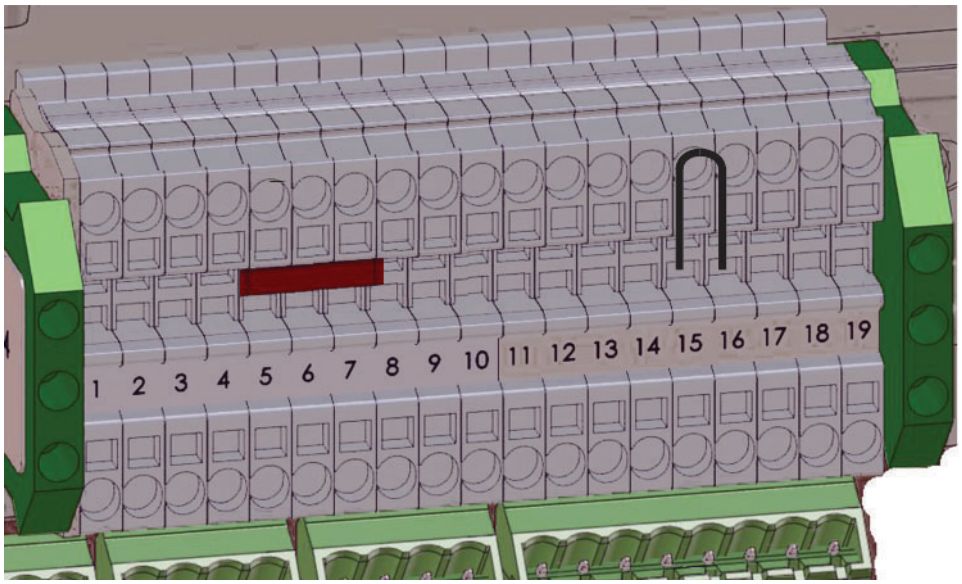
⚠ CAUTION

RISK OF POWER SURGES

- Ensure that metallic conductors routed from XT14 to a location outside the inverter shelter have proper isolation.
- Copper and other metallic conductors that are used to carry communication signals between the Conext Core XC Series inverter and devices outside the inverter shelter may conduct power surges (from lightning or ground differentials between nodes) into the inverter.

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

Figure 39 XT14 terminal block



Leave this jumper if you are not going to install an external ENABLE/DISABLE switch

5. Connect the remote communication cable to either RJ-45 port (S43 or S44) or either strip terminal port (S201 or S201-1) on the communications (CMX) board (see *Figure 40* and *Figure 41 on page 82*).
   If using a metallic cable that routes from the communication board to a location outside the inverter shelter, ensure that the cable passes through a surge protection device before exiting the box.
6. If you are connecting other Conext Core XC Series in a Modbus chain:
   a. Make sure SW2 is in the OFF (right) position, so that the Modbus communication is not terminated in this Conext Core XC Series.
   b. Connect a second RS-485/Modbus communication cable to the unused RJ-45 port (either S43 or S44) or the unused strip terminal port (either S201 or S201-1).
   c. Connect the other end of the RJ-45 communication cable to the next Conext Core XC Series in the chain.

7. If you are not connecting other Conext Core XC Series in a chain, or if this is the last Conext Core XC Series in the chain, make sure switch JMP2 is in the ON (left) position, so that the Modbus communication is terminated in this Conext Core XC Series.
8. If using the 4 – 20 mA loop circuits for external control of active and/or reactive power, connect the cables to terminal block XT14, terminals 11 and 12 (active power), and/or 13 and 14 (reactive power), with the direction of current as indicated in *Figure 42*.
9. Do not use the ports labelled CAN IN or CAN OUT. Make sure switch JMP2 is set to ON (left).

Figure 40 Connecting the communication cables

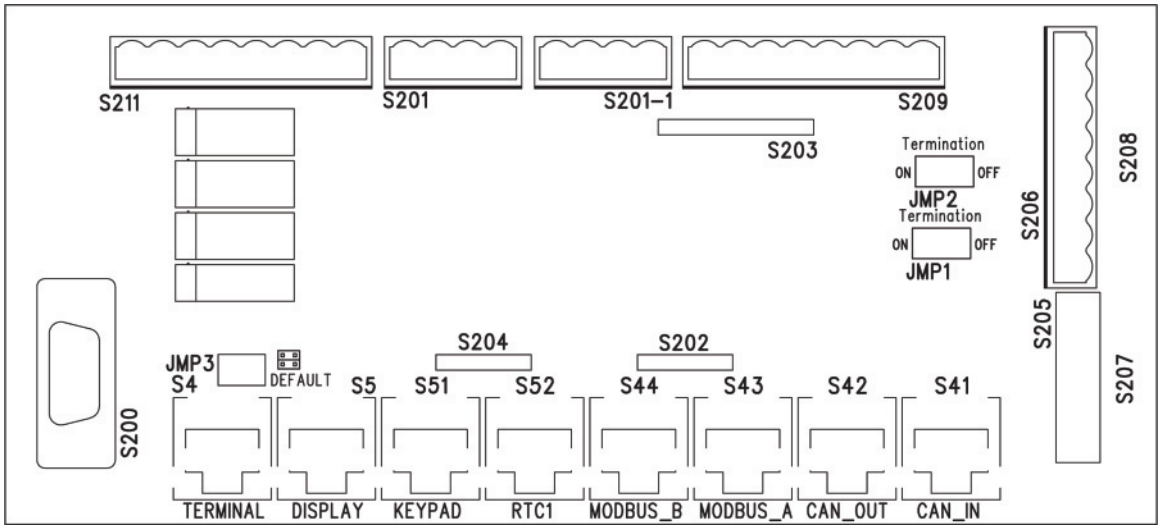
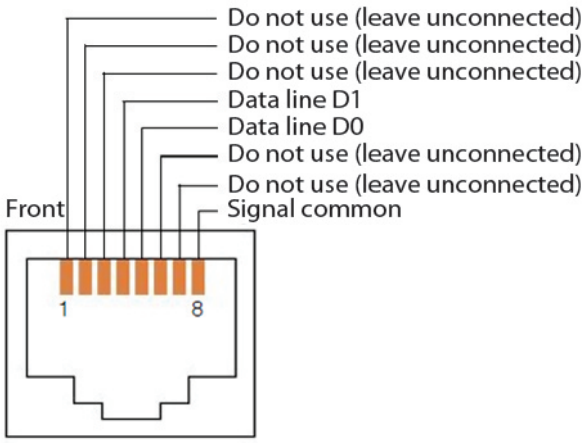


Figure 41 RJ-45 connector pin-out



10. Do not reinstall the DC barriers (*Reinstalling Internal Barriers on page 88*) until all other installation steps and the *Visual Inspection on page 87* have been completed.

Installing an External ENABLE/DISABLE Switch

To install an external ENABLE/DISABLE switch:

⚠⚠ WARNING

HAZARD OF ELECTRIC SHOCK

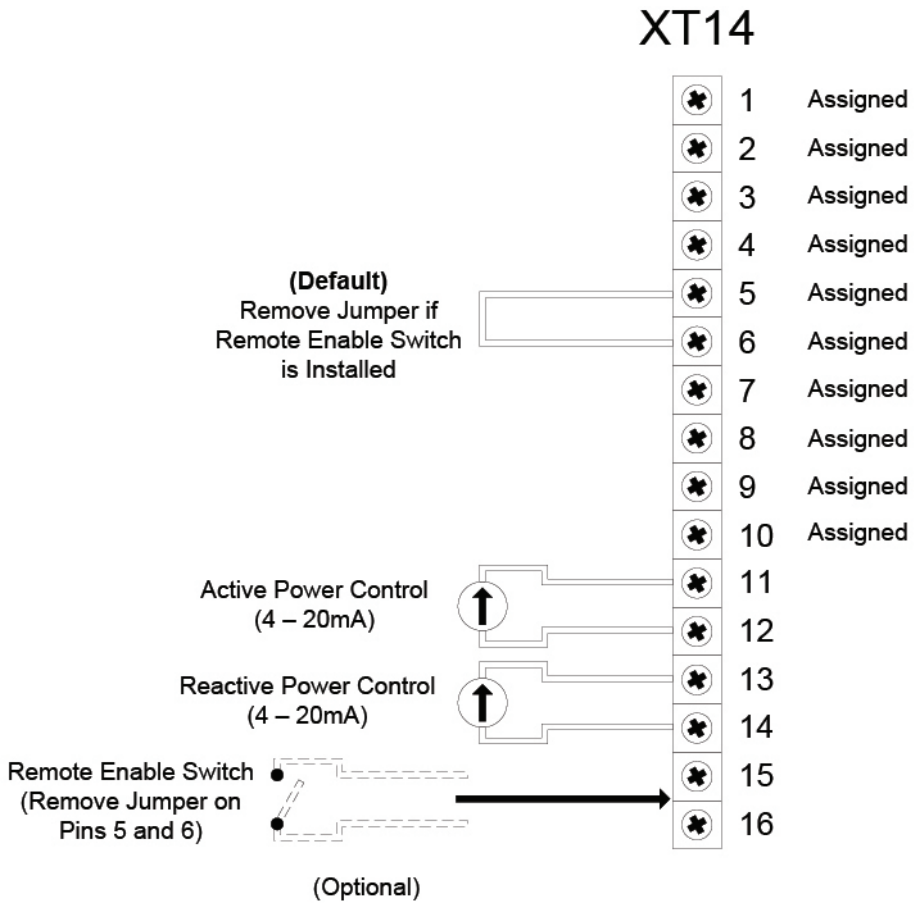
Do not apply external power to the external ENABLE/DISABLE switch.

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

NOTE: Use a switch rated for small signals and low currents. A switch rated for power circuits cannot function reliably over long term use.

1. Remove the jumper between XT14:5 and XT14:6.

Figure 42 XT14 terminal identification



2. Connect the external ENABLE/DISABLE switch wiring to XT14:15 and XT14:16.
3. Do not reinstall the DC barriers (*Reinstalling Internal Barriers on page 88*) until all other installation steps and the *Visual Inspection on page 87* have been completed.

Completing the Installation

To complete the installation:

1. Follow the steps in *Inspection on page 86*.
2. Do not reinstall the AC and DC barriers (*Reinstalling Internal Barriers on page 88*) until all other installation steps and the *Visual Inspection on page 87* have been completed.

4 Inspection

What's in This Chapter?

Visual Inspection

⚠ ⚠ DANGER

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

- This equipment is for use in *closed electrical operating areas*[1] only.
- This equipment must only be installed by qualified personnel, and must only be serviced by authorized service personnel equipped with appropriate personal protective equipment, and following safe electrical work practices.
- Do not open any door[2] or remove any cover before performing these tasks:
  - Consult the system diagram to identify all PV, AC, and external auxiliary AC (if used) sources.
  - De-energize, lock out, and tag out all sources according to the procedure in the *Conext Core XC Series, 0G-XC-BB, Lock-Out and Tag-Out Procedures and Barrier Removal (document number: SD-XC-081)*.
  - Wait at least 10 minutes for internal capacitors to discharge to safe voltages.
  - Confirm circuits are de-energized with a voltage sensing device rated at least 1000 V AC and DC. Switches in or on the inverter remain energized unless sources have been externally disconnected.
- Replace all devices, doors, and covers before turning on power to this equipment.

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

These procedures help verify correct installation and proper wiring of the Conext Core XC Series. Prior to performing the following inspection steps on the Conext Core XC Series, review all safety requirements and procedures outlined in this manual and on any cautionary markings on the components within the system.

To inspect the installation:

1. Visually inspect all the mechanical connections. This includes both electrical conduit fittings as well as cabinet anchoring and seismic bracing, if required.
2. Visually inspect the electrical connections and verify proper torque of all terminations.
3. Visually inspect the utility interconnection transformer connections. Verify that the inverter-side winding of the transformer is not connected to ground at any point.

[1] Per EN/IEC62109-1 this is defined as a room or location for electrical equipment to which access is restricted to skilled or instructed persons by the opening of a door or the removal of a barrier by the use of a key or tool and which is clearly marked by appropriate warning signs.

[2] The DC cabinet door can be opened without interrupting inverter operation (opening any other doors will interrupt inverter operation).

NOTICE

EQUIPMENT DAMAGE

Do not connect any point on the inverter-side winding of the isolation transformer to ground.

Failure to follow these instructions can result in equipment damage.

4. Visually inspect terminal block XT2 for correct tapping for both internal or external auxiliary AC power supply and for system voltage (see *Auxiliary AC Source Wiring on page 70*).
5. Perform corrective actions, if required.

Reinstalling Internal Barriers

⚠ WARNING

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

- All barriers must be properly reinstalled before energizing any circuits.
- Do not energize the Conext Core XC Series if any barriers are missing or damaged.

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

To reinstall the DC cabinet internal barriers:

For orientation of barriers, refer to the photos in *Removing DC Cabinet Barriers on page 65*.

1. Reinstall the large metal mesh barrier around the Masterpact using the 11 saved M6x16 Phillips pan head screws.
2. Locate the latch and hold it up, while you swing the large metal barrier back into place.
3. Release the latch and pull on the barrier to ensure it is latched.
4. Line the plastic barrier up so the screws are through the holes on the left of the barrier.
5. Slide the barrier to the right and under the guides on the right hand side.
6. Hand tighten the three screws.

⚠ DANGER

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

Leave the PV auxiliary circuit breaker in the OFF position to maintain the locked-out and tagged-out status of the inverter.

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

7. Close and lock the DC cabinet door.

To reinstall the AC cabinet internal barriers:

For orientation of barriers, refer to the photos in *Removing AC Barriers on page 57*.

1. Reinstall the metal mesh barrier around the Masterpact using the four saved M6x16 Phillips pan head screws in the left and right sides of the barrier.
2. Reinstall the horizontal metal mesh barrier above the Masterpact using the five saved M6x16 Phillips pan head screws.
3. Using a 3 mm hex key, attach the back of the ON/OFF switch shaft with the one saved hex screw.
4. Reinstall the ON/OFF switch shaft bracket using the two saved M6x16 Phillips pan head screws.
5. Close and lock the AC cabinet door.

Arranging for Commissioning and Configuration

The Conext Core XC Series is locked via password (showing event code 2804 on the front panel user interface) until it is unlocked by an authorized service person performing the commissioning of the Conext Core XC Series.

To arrange for commissioning and configuration:

1. Complete the *Pre-Commissioning Checklist on page 98*. This checklist provides Schneider Electric with details of the Conext Core XC Series installation and the site conditions. You may either complete the checklist manually or ask your local Schneider Electric entity to provide a digital copy.
2. Contact your local Schneider Electric entity to submit the checklist and book an appointment for authorized service personnel to perform the initial power on, commissioning, and configuration of the Conext Core XC Series.

5 Specifications

What's in This Chapter?

System Specifications

⚠ WARNING

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

Unsafe conditions and damage to the Conext Core XC Series can result if the instructions and electrical, physical, and environmental installation specifications in this manual are not obeyed.

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

The Conext Core XC Series has only been designed for use with photovoltaic power systems that operate within the following specifications.

Electrical Specifications

Table 4 Electrical specifications

Specification	XC540	XC630	XC680
Number of output phases	3	3	3
Nominal phase-to-phase AC voltage (VAC)	300 Vrms	350 Vrms	380 Vrms
Max inverter backfeed current to the array	1370 ADC	1370 ADC	1370 ADC
Overvoltage category (AC mains)	III	III	III
Maximum AC output current	1040 Arms	1040 Arms	1040 Arms
AC inrush current (AC mains)	199 Apk 7 ms	199 Apk 7 ms	199 Apk 7 ms
Max AC output fault current	3800 Apk 157 ms 1125 Arms	3800 Apk 157 ms 1125 Arms	3800 Apk 157 ms 1125 Arms
Max output overcurrent protection	1600 AAC	1600 AAC	1600 AAC
Nominal AC frequency (f)	50 Hz/60 Hz (configurable)		
Power factor settable range (Ppf dispatch)	0.7 to 1.0 (leading and lagging)		
Power factor range (PQ dispatch)	0 to 1 (leading and lagging)		
AC output current distortion	< 3% THD (total harmonic distortion) at rated power		
Output power (S)	± 540 kVA	± 630 kVA	± 680 kVA
Real power (at PF = 1)	540 kW	630 kW	680 kW
Reactive power range (Q)	± 540 kVAr	± 630 kVAr	± 680 kVAr

Specification	XC540	XC630	XC680
Suggested PV array peak power[1]	621 kW	725 kW	782 kW
Maximum open circuit PV voltage	1000 VDC	1000 VDC	1000 VDC
Maximum PV operating current	1280 A	1280 A	1280 A
Maximum array short circuit current at STC (standard test conditions)	1600 A	1600 A	1600 A
Maximum array short circuit current under any condition	2000 A	2000 A	2000 A
MPP (maximum power point) range	440[2] to 800 V	510[2] to 800 V	550[2] to 800 V
PV operating voltage range	440[2] to 885 V	510[2] to 885 V	550[2] to 885 V
External auxiliary AC source voltage	208/230 V_{rms}		
External auxiliary AC source peak inrush current and duration	208 VAC, 50 Hz: 21.44 A_{pk}, 180.13 ms 208 VAC, 60 Hz: 21.68 A_{pk}, 234.41 ms 230 VAC, 50 Hz: 17.09 A_{pk}, 140.35 ms 230 VAC, 60 Hz: 17.79 A_{pk}, 218.86 ms		
External auxiliary AC source maximum steady state current	208 VAC: 10 A 230 VAC: 9 A		
External auxiliary supply power required	2000 VA	2000 VA	2000 VA

Physical and Environmental Specifications

Table 5 shows the physical and environmental specifications for the Conext Core XC Series.

Table 5 Physical and environmental specifications

Specification	Conext Core XC Series
Dimensions	See *Figure 43 on page 97*
Net weight	1495 kg (3296 lbs)
Gross shipping weight (approximate)	1906 kg (4202 lbs)

[1] Higher PV array peak power may be possible, refer to the Conext Core XC and XC-NA Series: DC to AC Over-paneling Application Note (part number: AP-XC-056)

[2] Valid for power factor = 1 (Q = 0). For more information, see Application Note on Power Point Tracking for Conext Core XC and XC-NA Series Inverters (document number: AP-XC-007-EN).

Specification	Conext Core XC Series
Allowable ambient temperature and humidity ranges[3]	Operating: Class 3K3: -10 °C to 55 °C maximum (14 °F to 131 °F)[4] Maximum 95% relative humidity, non-condensing
	Transport: Class 2K2: -25 °C to 55 °C maximum (-13 °F to 131 °F) Maximum 95% relative humidity, non-condensing
	Storage: Class 1K2: -25 °C to 55 °C maximum (-13 °F to 131 °F) Maximum 95% relative humidity, non-condensing
Special climatic conditions[4]	Operating: Class 3Z1 Transport: Class 2Z1 Storage: Class 1Z1
Biological conditions[4]	Operating: Class 3B1 Transport: Class 2B1 Storage: Class 1B1
Chemically active substances[4]	Operating: Class 3C1 Transport: Class 2C1 Storage: Class 1C1
Mechanically active substances[4]	Operating: Class 3S1 Transport: Class 2S1 Storage: Class 1S1
Mechanical conditions[4]	Operating: Class 3M1 Transport: Class 2M1 Storage: Class 1M1
Altitude	1000 m with no deratings[5]
Maximum altitude	2400 m with possible derating
Storage air pressure	700 to 1060 mbar

[3] Environmental range ratings correlate approximately to Classes shown, as defined by EN60721 standard series.

[4] See *Heat Load and Derating on page 37* for more information.

[5] Depending on ambient temperature at altitude, the output power must be derated above 1000 m. See Conext Core XC Series Inverter, 0G-XC-BB: Altitude Derating Application Note (document number: AP-XC-090).

Specification	Conext Core XC Series
Maximum storage time[6]	■ The inverter must be commissioned within 24 months from the date of the Schneider Electric commercial invoice. ■ After commissioning, the inverter may not be shut down or de-energized for a period longer than 24 months.
Protective (safety) class	1
Enclosure ingress protection class	IP20
Environmental category	Indoor, conditioned, as defined in EN/IEC62109-1
Pollution degree	III[7]
AC overvoltage category	III
PV overvoltage category	II
DC overvoltage protection	Type II surge arrestor
Cooling air flow power stage cabinet	3000 m³/h
Cooling air flow AC/DC cabinet	500 m³/h each cabinet
Total cooling air flow	4000 m³/h
Clearance (ventilation and serviceability)	Top: 300 mm (11¾ in.) Front: 1 m (39½ in.) plus local safety standards for door clearance

[6] When de-energized and stored for more than 24 months, the performance of electrolytic capacitors used in the inverter degrades. Restoration of the capacitors by a method known as Reforming is then required prior to use. Failure to do so may res ult in damage to the capacitors and void your warranty. For more information on Reforming, see Capacitor Leakage Test for Conext Core XC Series Grid Tie Photovoltaic Inverters (document number: SD-XC-032).

[7] Minimum Pollution Degree II (when configured with EN/IEC62109-compliant grounding options see *Grounding Options* in the *Conext Core XC Series Grid Tie Photovoltaic Inverter, 0G-XC-BB Operation Manual*).

Regulatory Specifications

Regulatory specifications for the Conext Core XC Series are:

- CE marked for the Low Voltage Directive per:
  - EN50178/IEC62103; and
  - EN/IEC62109-1 and EN/IEC62109-2, when installed in a Pollution Degree II location and when equipped with one of the following configuration options:
    - Floating Array EN/IEC62109
    - Positive Ground EN/IEC62109
    - Negative Ground EN/IEC62109
- CE marked for the EMC Directive per EN/IEC61000-6-4 (emissions) and EN/IEC61000-6-2 (immunity).
- For interconnect and country-specific regulatory compliance information, go to www.schneider-electric.com or speak with your country sales representative.

Bolt Sizes and Torque Requirements

One year after commissioning, the torque on AC and DC terminal connections should be checked using a thermal camera by authorized service personnel, as defined in the *Audience on page 4*.

Table 6 provides acceptable bolt sizes and torque values for AC terminal connections.

Table 6 AC terminal bolt size and torque values

AC Terminal Connections	Number of Terminals	Max # Conductors per Terminal	Bolt (Hardware) Size	Torque Requirements[8]
Grounding (PE)	15	2	M12	61 Nm (45 lb-ft)
AC output/grid (XT1)	3 (AC L1, AC L2, ACL3)	14	M12	61 Nm (45 lb-ft))
External auxiliary AC source (XT4)	3 (AC L1, AC L2 ACL3)	1	Cable cross section 2.5 - 10 mm² (approximately 14-8 AWG) use appropriate ferrules	0.6 – 0.8 Nm (5.3 – 7.1 lb-in)

[8] Draw a single permanent line across the fastener and the mounting surface immediately after the connector is torqued to the correct value.

Table 7 provides acceptable bolt sizes and torque values for PV terminal connections.

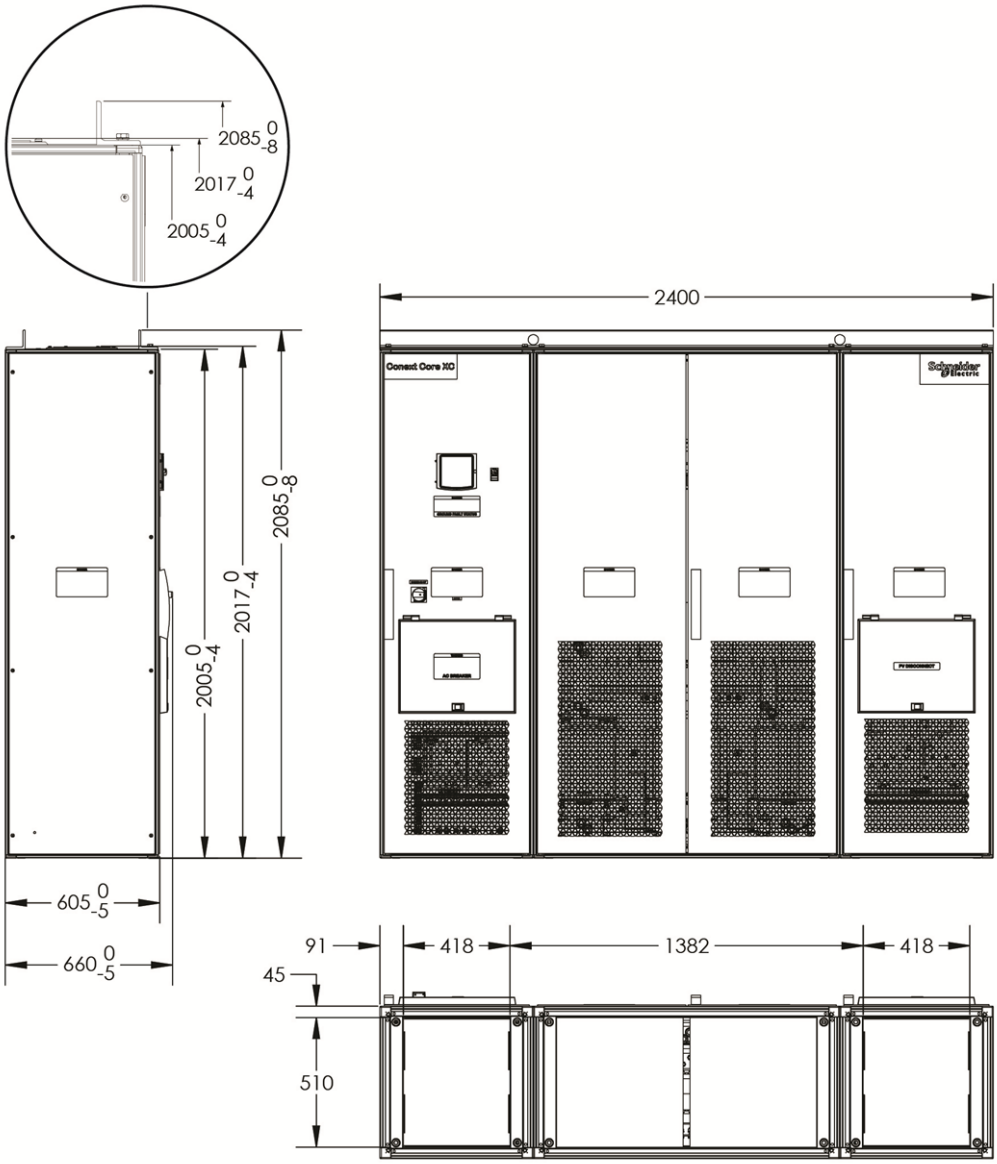
Table 7 PV terminal bolt sizes and torque values

DC Terminal Connections	Number of Terminals	Max # Conductors per Terminal	Bolt (Hardware) Size	Torque Requirements[1]
PV Terminals (XT11)	2 (PV+, PV-)	7	M12	61 Nm (45 lb-ft)

Dimensions

The height of the Conext Core XC Series inverter is 2017 mm (79.41 in.) ± 4 mm (0.2 in.) for fan clearance, without the lifting bars. If the lifting bars are left installed, the height is 2085 mm (82.09 in.).

Figure 43 Conext Core XC Series dimensions



Dimensions in mm (in.)

Pre-Commissioning Checklist

An electronic version of this checklist is available. Ask your sales or service representative for the *Schneider Electric Grid Tie Photovoltaic/ES Inverter: Pre-Commissioning Checklist (AP-XC-042)*.

Site Name:				Solution Name:			
Customer:				Contact:			
Inverter 1 Model:				Inverter 3 Model:			
Inverter 1 Serial Number:				Inverter 3 Serial Number:			
Inverter 2 Model:				Inverter 4 Model:			
Inverter 2 Serial Number:				Inverter 4 Serial Number:			
Date:							
PV/ES Readiness				AC Readiness			
Number of Strings Total:				Tx Type:	LV	V	MV V
Number of Strings Landed:				Tx Ground Type (IT Only):			Date:
PV Array/Battery Minimum Impedance to Ground:			Ω	Phase Rotation (Clockwise Test):			Date:
Ground Fault Tested		Date:		Cable Size Landed	Size:		Date:
Fuses:	#	Size:		LV to LV Impedance:			%
Fuses:	#	Size:		LV IMD Installed:			Date:
Fuses:	#	Size:		MV Switchgear	Local:		Remote:
Polarity Test Done		Date:		External Auxiliary Tx Size:	LV	V	MV V
Total Available DC/PV Power:			kW	Grid Available:			Date:
Battery Communication System Ready for Inverter		Date:		Auxiliary Available:			Date:
ES DC Protection Type:		Rating:		Signature:			
REN file for ES inverters created?				Date:			
ES configuration registers defined?				Telephone Number:			
BMS parameters defined (ES only)?				Notes:			
ES system commands:analog/modbus							

By signing above, I hereby confirm on behalf of the Customer that the Site including the components identified under the "PV/ES Readiness" and "AC Readiness" columns have passed the applicable tests and the site is ready for Schneider Electric to commission. In the event that Schneider Electric arrives on Site and discovers any deviations or discrepancies with the above and a return visit is required as a result of the Site not being ready for the commissioning of the solutions, Customer agrees to pay for Schneider Electric's fees and costs for such return visit or on-site wait time and that any previous contractual schedule commitment provided by Schneider Electric will be adjusted accordingly with respect to such delay.

Schneider Electric

As standards, specifications, and designs change from time to time, please ask for confirmation of the information given in this publication.

For other country details please contact your local Schneider Electric Sales Representative or visit the Schneider Electric Solar Business website at: solar.schneider-electric.com

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