

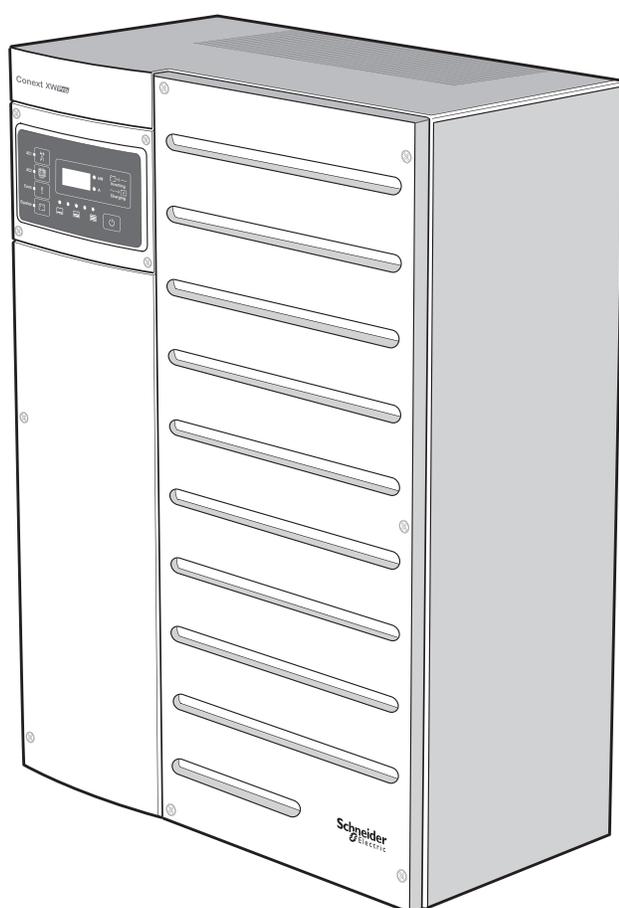
XW Pro

XW Pro 8548

Installation Guide

990-91403D-01

June 2023



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Contact Information

For country-specific details, please contact your local Schneider Electric Sales Representative or visit the Schneider Electric website at: <https://se.com/>

Information About Your System

As soon as you open your product, inspect the contents and record the following information and be sure to keep your proof of purchase. If any damage is found, contact customer support.

Serial Number _____ Purchased From _____
Product Number _____ Purchase Date _____

Document Number: 990-91403D-01

Date: June 2023

Model Name:

XW Pro 8548

Product Part Number:

865-8548-55

THIS DOCUMENT HAS BEEN SUBMITTED FOR CERTIFICATION APPROVAL.

READ AND SAVE THESE INSTRUCTIONS

Safety Information

Important 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. For more information, see Audience.

1.0 Lock-out and Tag-out Procedure

De-energize, lock-out and tag-out the XW Pro from all power sources.

DANGER

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

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Never energize the XW Pro with the covers removed.
- Always use a properly rated voltage sensing device to confirm all circuits are de-energized.
- The XW Pro is energized from multiple sources. Before opening any doors or covers, identify all power sources, de-energize, lock-out and tag out, and wait 5 minutes for circuits to discharge.

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

To lock-out and tag-out the XW Pro:

1. Identify and open the battery disconnect. Lock-out and tag-out the disconnect.
2. Identify the AC panel breaker and then turn off/open, lock-out and tag-out the breaker.
3. Wait 5 minutes for circuits to discharge.
4. Use a calibrated, properly rated voltage sensing device to confirm that all circuits are in a zero energy state before performing work.

Label Symbols

NOTE: The term "ground" is equivalent to "earth", and the use of these terms depends on local codes and standards. This document uses the term "ground" throughout.

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



Hazardous voltage



Hot surface



Stored energy hazard discharge time



Refer to the Installation or Operation instructions



Protective (grounding) conductor terminal



Direct current



Alternating current

Audience

This guide is intended for any qualified personnel planning to install the XW Pro inverter/charger and related system components. The qualified personnel have training, knowledge, and experience in:

- Installing electrical equipment.
- Applying all applicable installation codes.
- Analyzing and reducing the hazards involved in performing electrical work.
- Installing and configuring batteries.
- Selecting and using Personal Protective Equipment (PPE).

Servicing of batteries must only be performed or supervised by qualified personnel with knowledge of batteries and their required precautions. Keep unqualified personnel away from batteries.

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

About

Purpose

This guide provides explanations and procedures for installing Schneider Electric XW Pro inverter/charger.

- Operational instructions are available in the *XW Pro Operation Guide (document number 990-91402)*.
- Instructions for configuring inverter settings are also available in the *XW Pro Operation Guide (document number 990-91402)*.

For explanations and procedures related to other products, please contact the manufacturer of those products.

Scope

The Installation Guide provides safety guidelines, detailed planning, and procedures for installing the XW Pro inverter/charger and related system components. It does not provide details about configuration, operation, maintenance, or troubleshooting. See the Operation Guide or Owner's Guide of each device for this information. This Installation Guide does not provide details about particular brands of batteries, photoelectric cells, or generators. Consult individual battery manufacturers for this information.

Abbreviations and Acronyms

GT	Grid Tie
IEC	International Electrotechnical Commission
LCD	Liquid Crystal Display
LED	Light Emitting Diode
MPPT	Maximum Power Point Tracking
PV	Photovoltaic
PVGFP	PV Ground Fault Protection
RCD	Residual Current Device
VAC	Volts Alternating Current
VDC	Volts Direct Current

Related Information

Find more information about Schneider Electric as well as its products and services at:
<https://se.com/>.

For available accessories, see "Overview" on page 19.

Product Safety Information

IMPORTANT: Remember to read and follow all product safety information in this document.

General Safety Instructions

Before using the inverter/charger, read all instructions and cautionary markings on the unit, the batteries, and all appropriate sections of this manual.

- Use of accessories not recommended or sold by the manufacturer may result in a risk of fire, electric shock, or injury to persons.
- The inverter/charger is designed to be permanently connected to your AC and DC electrical systems. The manufacturer recommends that all wiring be done by a certified technician or electrician to ensure adherence to the local and national electrical codes applicable in your jurisdiction.
- To avoid a risk of fire and electric shock, make sure that existing wiring is in good condition and that wire is not undersized. Do not operate the inverter/charger with damaged or substandard wiring.
- Do not operate the inverter/charger if it has been damaged in any way.
- Most of the parts in this unit are not user-serviceable parts. Do not disassemble the inverter/charger except where noted for connecting wiring and cabling. See your warranty for instructions on obtaining service. Attempting to service the unit yourself may result in a risk of electrical shock or fire. Internal capacitors remain charged after all power is disconnected.
- To reduce the risk of electrical shock, disconnect both AC and DC power from the inverter/charger before attempting any maintenance or cleaning or working on any components connected to the inverter/charger. Putting the unit in Standby mode will not reduce this risk.
- The inverter/charger must be connected to AC ground, following the instructions in the Conext series. System designers must evaluate the given grounding system and implement any required external protection, to help ensure the unit can be operated safely in the event of a ground fault.
- Do not expose this unit to rain, snow, or liquids of any type. This product is designed for indoor use only. Damp environments will significantly shorten the life of this product and corrosion caused by dampness will not be covered by the product warranty.
- Remove personal metal items such as rings, bracelets, necklaces, and watches when working with electrical equipment.
- Do not expose this unit to excessive shock or vibration. This product is designed for stationary indoor use only. Mechanical fatigue caused by excessive shock or vibration can significantly shorten the life of this product and will not be covered by the product warranty.

  **DANGER**

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

This document is in addition to, and incorporates by reference, the relevant product manuals for XW Pro inverter/charger. Before reviewing this document, you must read the relevant product manuals. Unless specified, information on safety, specifications, installation and operation is as shown in the primary documentation received with the product. Ensure you are familiar with that information before proceeding.

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

  **DANGER**

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

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. Refer to EN 50110 or other regional safety standards.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Never operate energized with covers removed
- Energized from multiple sources. Before removing covers identify all sources, de-energize, lock-out, and tag-out and wait 5 minutes for circuits to discharge
- Always use a properly rated voltage sensing device to confirm all circuits are de-energized.

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

  **DANGER**

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

- Disconnect negative and positive DC conductors before servicing. DC conductors are to be treated as Hazardous Live and must be disconnected.
- Normally GROUNDED conductors may be UNGROUNDED and ENERGIZED when a GROUND FAULT is indicated in InsightLocal. Must be serviced by qualified personnel.

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

Precautions when Working with Batteries

NOTE: Battery work and maintenance must be done by qualified personnel knowledgeable about batteries to help ensure compliance with battery handling and maintenance safety precautions.

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Remove watches, rings, or other metal objects.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Keep sparks and flames away from the batteries.
- Use tools with insulated handles.
- Wear protective glasses, gloves and boots.
- Do not lay tools or other metal parts on top of batteries.

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

DANGER

HAZARD OF ELECTRICAL SHOCK, EXPLOSION, OR FIRE

- Battery Circuit Breakers must be installed according to the specifications and requirements defined by Schneider Electric.
- Servicing of batteries must only be performed by qualified personnel knowledgeable about batteries and the required precautions. Keep unqualified personnel away from batteries.
- Disconnect the charging source prior to connecting or disconnecting battery terminals.

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

Limitations on Use

WARNING

HAZARD DUE TO UNINTENDED USE

The XW Pro inverter is not intended for use in connection with life support systems or other medical equipment or devices. The XW Pro inverter can only be used in grid-interconnected, off grid, and integrated PV systems. It is not suitable for any other application areas.

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

Explosive Gas Precautions

⚠ WARNING
EXPLOSION HAZARD The XW Pro is not ignition protected. To prevent fire or explosion, do not install this product in locations that require ignition-protected equipment. This includes any space containing gasoline-powered machinery, fuel tanks, as well as joints, fittings, or other connections between components of the fuel system. Failure to follow these instructions can result in death, serious injury, or equipment damage.

Working in the vicinity of lead acid batteries is dangerous. Some batteries generate explosive gases during normal operation. Therefore, you must read this Installation Guide and follow the instructions exactly before installing or using your inverter/charger.

To reduce the risk of battery explosion, follow these instructions and those published by the battery manufacturer and the manufacturer of the equipment in which the battery is installed.

Maintenance

The XW Pro does not require scheduled maintenance. However it is required to be clear of dust and debris, especially around air intake and exhaust areas, at all times. Use a soft-bristle brush to clear the area around the air intake and exhaust.

NOTE: A dirty foam air filter may lead to over-temperature events. If this occurs, qualified personnel may need to clean the foam air filter. See "Troubleshooting" on page 1 for more information.
--

The surface of XW Pro can be cleaned using a lint-free soft cloth.

NOTICE
HAZARD OF EQUIPMENT DAMAGE Use only a soft cloth dampened with water and mild soap to clean the inverter. Do not use solvents or chemicals that are corrosive or flammable. Failure to follow these instructions can result in equipment damage.

Safe Transport and Storage Recommendations

- Ensure that the AC connections and battery cables have been disconnected before storing or transporting the product.
- Ensure the inverter is transported in its original packaging. No liability can be accepted for any transport damage if the equipment is shipped in non-original packaging. The original package from the factory contains one inverter package per one pallet. It's recommended to transport the package in same manner.

- Make note of the temperature and humidity ranges for storage and transportation. Refer to the ranges on page 126.

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1 Introduction

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Overview

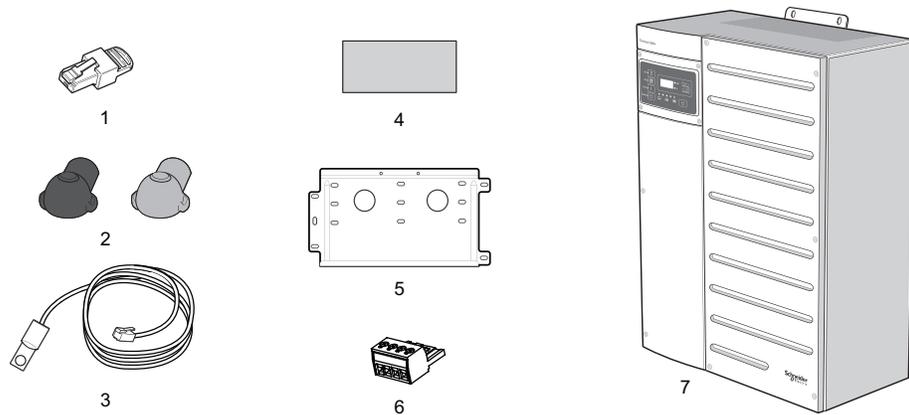
The XW Pro is a modular building block sine-wave inverter/charger that can be used for residential and commercial battery based off-grid, grid backup, and grid interactive applications.

The XW Pro is a self-contained DC to AC inverter, battery charger, and integrated AC transfer switch. It is configurable in a hybrid system to operate with generators and renewable energy sources. These configurations are capable of extending battery based off-grid/backup autonomy.

What's in the Box

The following system components are included in this package. If any items are missing, contact your authorized dealer.

Figure 1 System Components



1	Network Terminator
2	C terminal covers
3	Battery Temperature Sensor (BTS)
4	Air Filter
5	Mounting plate and hardware
6	AUX port connector
7	Inverter/Charger

Not shown:

- Ferrite bead for installation on Xanbus cables, see Figure 56 on page 112.
- Conext XW conversion jumpers

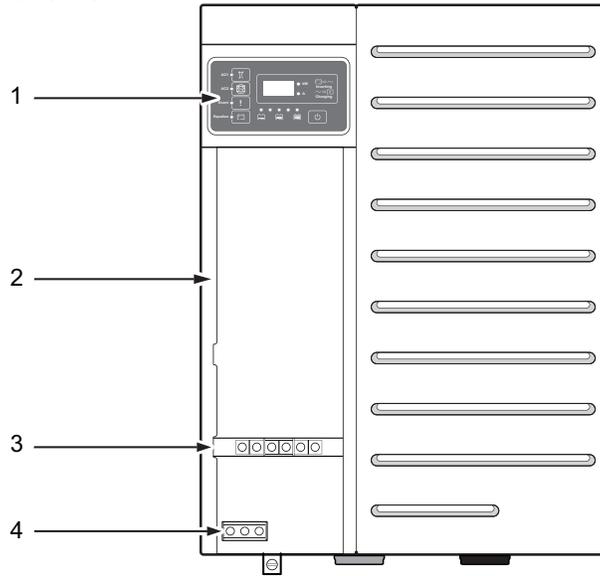
Battery Temperature Sensor

For installation instructions, see "Installing the Battery Temperature Sensor" on page 60.

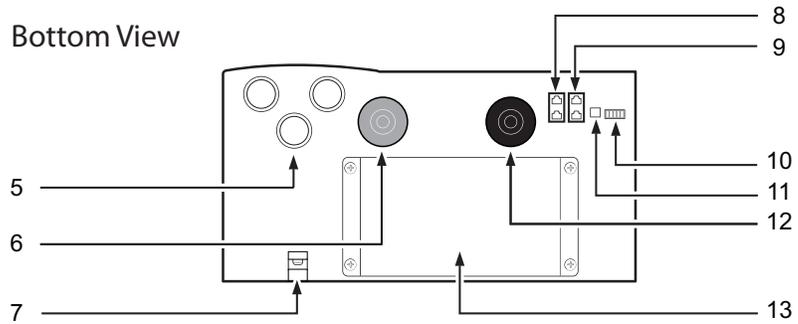
XW Pro Features

Figure 2 Features

Front View



Bottom View



1	Information Panel
2	Conext XW Pro chassis with AC access panel removed (internal components removed for clarity)
3	AC terminal block
4	AC ground bar
5	Dual nested knockouts
6	Positive (+) battery terminal (red)
7	DC ground lug
8	AC sync ports
9	Xanbus ports
10	AUX port
11	BTS port
12	Negative (-) battery terminal (black)

Optional Accessories

The following optional accessories are available for the XW Pro inverter/charger.

For an up-to-date list, call an authorized dealer or visit <https://se.com/>

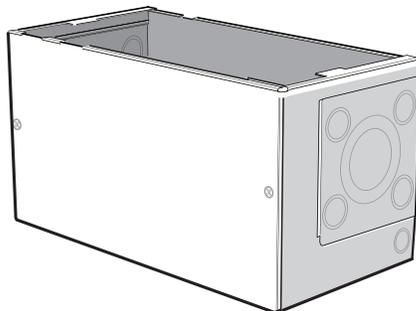
Conduit Box

Part Number 865-1025-01

The conduit box provides an enclosure over the bottom of the XW Pro and covers the cabling that runs underneath.

For installation instructions, see Pre-Installation on page 31.

Figure 3 Conduit box



NOTE: Your installation may require the inclusion of the conduit box, depending on local electrical code. Consult your local electrical authority to ensure your installation is code-compliant.

Power Distribution Panel (PDP)

Part Number 865-1015-01

The Power Distribution Panel (PDP) is factory wired and labeled with everything to support a single-inverter installation.

Internal wiring and breakers can be added to expand the XW Pro with up to three inverters, four charge controllers, or other equipment to support 230 volt, single-phase systems.

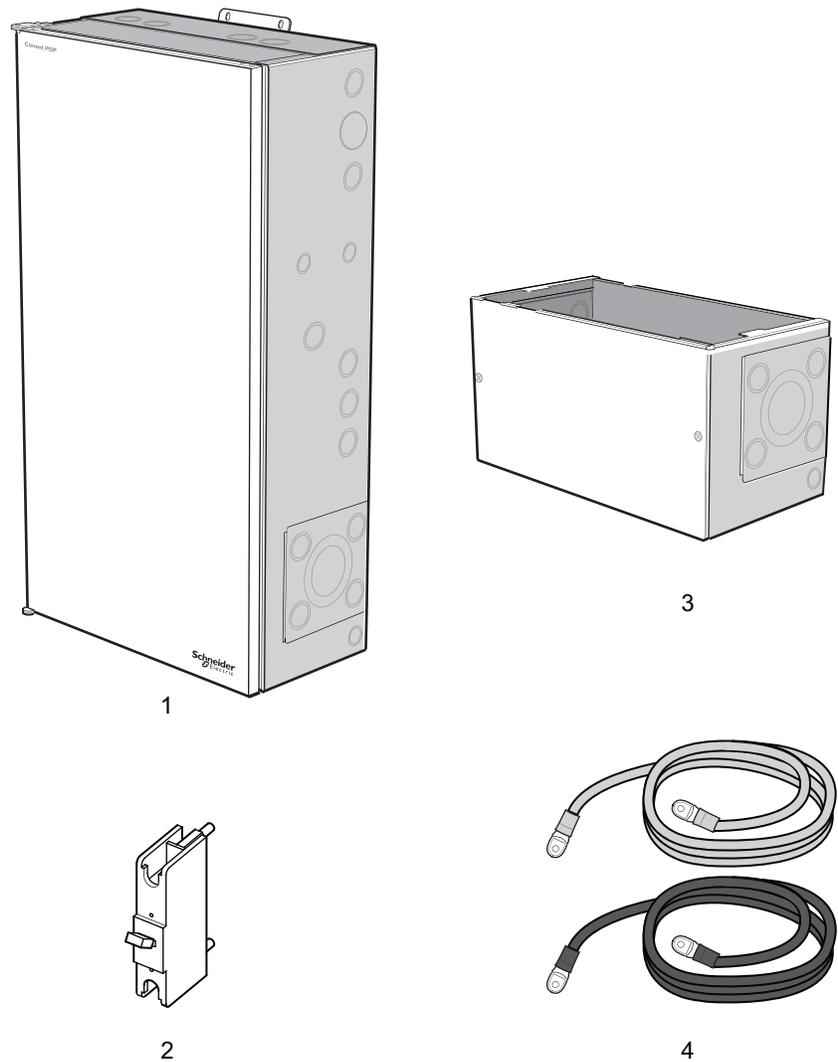
NOTE: The Power Distribution Panel (PDP) may not be available in all regions; installation is dependent upon your local electrical code. Consult your local electrical authority to ensure your installation is code-compliant.

The PDP interfaces with the following Conext products:

- XW Pro 8548 inverter/charger
- Conext MPPT solar charge controllers (breakers and wiring not included)

The XW Pro Power Distribution Panel includes the components shown below.

Figure 4 XW Pro power distribution panel with conduit box



1	PDP
2	GJ250A 160 VDC, 3/8" stud DC breaker (pre-installed)
3	Conduit Box
4	107 mm 2 (#4/0 AWG) Arctic Ultraflex Blue® battery cables (pre-installed)

Not shown:

- One ground terminal bus bar
- One neutral terminal bus bar
- One battery negative terminal bus bar
- Cable ties (3x)
- Xanbus clip-on ferrite bead

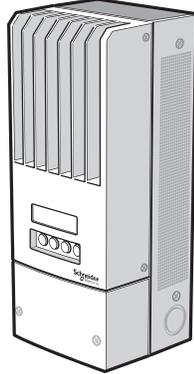
Conext MPPT 60 150 Solar Charge Controller

Part Number 865-1030-1

The Conext MPPT solar charge controller is a photovoltaic (PV) charge controller that tracks the maximum power point of a PV array to deliver the maximum available current for charging batteries.

For more information, go to <https://se.com/>.

Figure 5 Conext MPPT 60 150



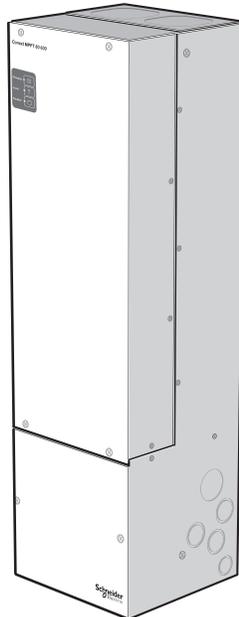
Conext MPPT 80 600 Solar Charge Controller

Part Number 865-1032

The Conext MPPT solar charge controller offers an industry-first set of integration features and top performance that allows for large PV array systems to be easily installed and connected to the battery bank at the lowest possible cost.

For more information, go to <https://se.com/>.

Figure 6 Conext MPPT 80 600



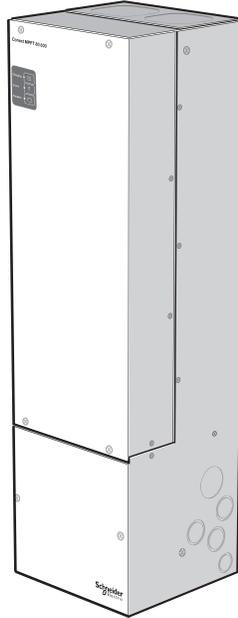
Conext MPPT 100 600 Solar Charge Controller

Part Number 865-1034

The Conext MPPT solar charge controller offers optimum system performance for DC coupled solar and storage installations, with easy, flexible installation of large PV arrays.

For more information, go to <https://se.com/>.

Figure 7 Conext MPPT 100 600



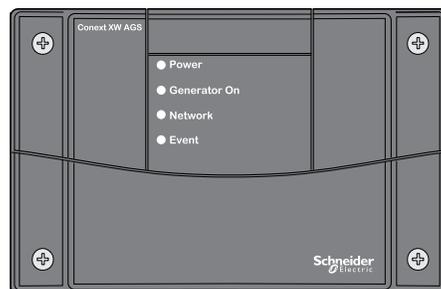
Conext Automatic Generator Start (AGS)

Part Number 865-1060-01

The Conext AGS can automatically start and stop a generator, providing your XW Pro Inverter/Charger with power to recharge depleted batteries while powering your loads. The AGS adds intelligence to power management and minimizes time spent monitoring batteries and inverter loads.

For more information, see the *Conext Automatic Generator Start Owner's Guide*.

Figure 8 Conext AGS



InsightHome

Part Number 865-0330

InsightHome is a gateway device that provides an overall view of system performance for residential power monitoring systems. It also provides a communications gateway between a network of Xanbus™-enabled devices and Modbus devices, using a web portal called InsightLocal.

For more information, see the InsightHome Owners Guide (990-91410).

Figure 9 InsightHome



InsightFacility

Part Number 865-0335

InsightFacility, formerly known as Conext Gateway, is a gateway device that provides an overall view of system performance for residential power monitoring systems. It also provides a communications gateway between a network of Xanbus™-enabled devices and Modbus devices, using a web portal called InsightLocal.

For more information, see the InsightFacility Owners Guide (990-91411).

Figure 10 InsightFacility



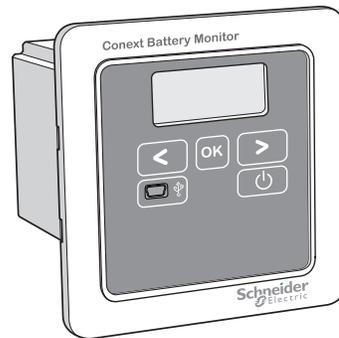
Conext Battery Monitor

Part Number 865-1080-01

The Conext Battery Monitor is Xanbus-enabled and features a local display to selectively show the estimated operating voltage, current, consumed amp-hours, remaining capacity and remaining hours in your 48 V battery bank. For Li-ion batteries, either a compatible battery with BMS integration or the Conext Battery Monitor is required for state-of-charge control.

For more information, see the *Conext Battery Monitor Quick Start Guide*.

Figure 11 Conext Battery Monitor



Backup Control Switch

Part Number 865-BCS-2200

The Backup Control Switch (BCS) is an external contactor used for switching the AC source in systems with loads larger than 60 A and multi-unit configurations.

For more information, see the *BCS (Backup Control Switch) Quick Start Guide (990-91525)*.

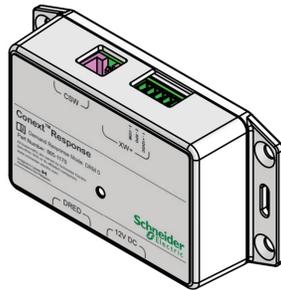
Conext Response

Part Number 865-1170

The Conext Response is a Demand Response Enabling Device (DRED) which provides a compliant electrical interface to translate a signal provided by the utility, defined as DRM0, which is required in some compliance regions.

For more information and detailed installation steps, refer to the Conext Response Quick Setup Guide (document number 975-0771-01-01). Interfacing with the XW Pro is identical to that of the XW+.

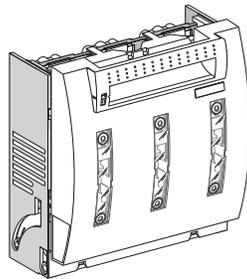
Figure 12 Conext Response



Battery Fuse Disconnect Box (250A)

Part Number 865-1031-01

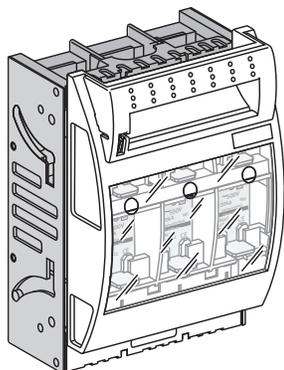
Figure 13 Battery Fuse Disconnect Box (250A)



Battery Fuse Disconnect Box (160A)

Part Number 865-1030-01

Figure 14 Battery Fuse Disconnect Box (160A)



2 Pre-Installation Planning

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Pre-Installation

Before installing the XW Pro, read all instructions and cautionary markings in this Installation Guide.

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

NOTE: If multiple XW Pro's are planned, refer to the XW Pro Multi-unit Design Guide (990-91373) for additional details and system solutions for larger installations.

WARNING

HEAVY EQUIPMENT

The XW Pro weighs approximately 120 lbs (55.5 kg). A two-person lift is required. To prevent personal injury, always use proper lifting techniques during installation.

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

NOTICE

EQUIPMENT DAMAGE

- The Automatic Transfer Relays are rated at 60 A.
- Loads connected at AC OUT must not exceed the inverter's overload ratings or the 60 A limit, whichever is lower. Unless an external contactor or external transfer switch (such as the Schneider Electric BCS) is used, the 60 A limit also applies to the total combined loads connected to the AC OUT bus of multiple inverters connected in parallel.

Failure to follow these instructions can result in equipment damage.

Planning the Installation

- Read this entire chapter before beginning the installation. It is important to plan the installation from beginning to end.
- Assemble all tools and materials needed for the installation.
- If multiple XW Pro's are planned, refer to the XW Pro Multi-unit Design Guide (990-91373).

Installation Tools and Materials

To complete the installation, you will need the following tools:

- Socket wrench, appropriately sized
- Phillips head screwdriver, appropriately sized
- Level

Depending on your installation, additional hardware may be required. The following items are not included with the XW Pro:

- Battery cables from the battery to the PDP
- Grounding wires that lead from a power source, like the main power panel or a battery, to the PDP, nor any grounding wires that lead from the PDP to any subpanel.
- Lag bolts to secure the mounting plates
- Screws for mounting the conduit box
- Additional wiring to connect the PDP to the inverter load sub-panel and utility grid
- Appropriate materials and hardware for additional wall-mount support

Residual Current Device (RCD) Recommendation

The XW Pro produces low distortion sinusoidal output via a 50 Hz isolation transformer, and there is no DC component associated with the XW Pro's AC supply during Backup mode, or while exporting power to the grid.

Standard **Type A** RCDs are recommended for use with a fixed residual current not exceeding 30 mA. Other types of RCDs may also be used (for more information, contact Technical Support).

Location

The XW Pro is certified for dry, indoor (heated or unheated) installations only.

Locate any electronic equipment susceptible to radio frequency and electromagnetic interference as far away from the inverter as possible.

Fire safety

WARNING

IGNITION AND FIRE HAZARD

This equipment is not ignition protected. To prevent fire or explosion, do not install this product in locations that require ignition-protected equipment. This includes any confined space containing lead acid batteries, or flammable chemicals such as, natural gas (NG), liquid petroleum gas (LPG) or gasoline (Benzine/Petrol).

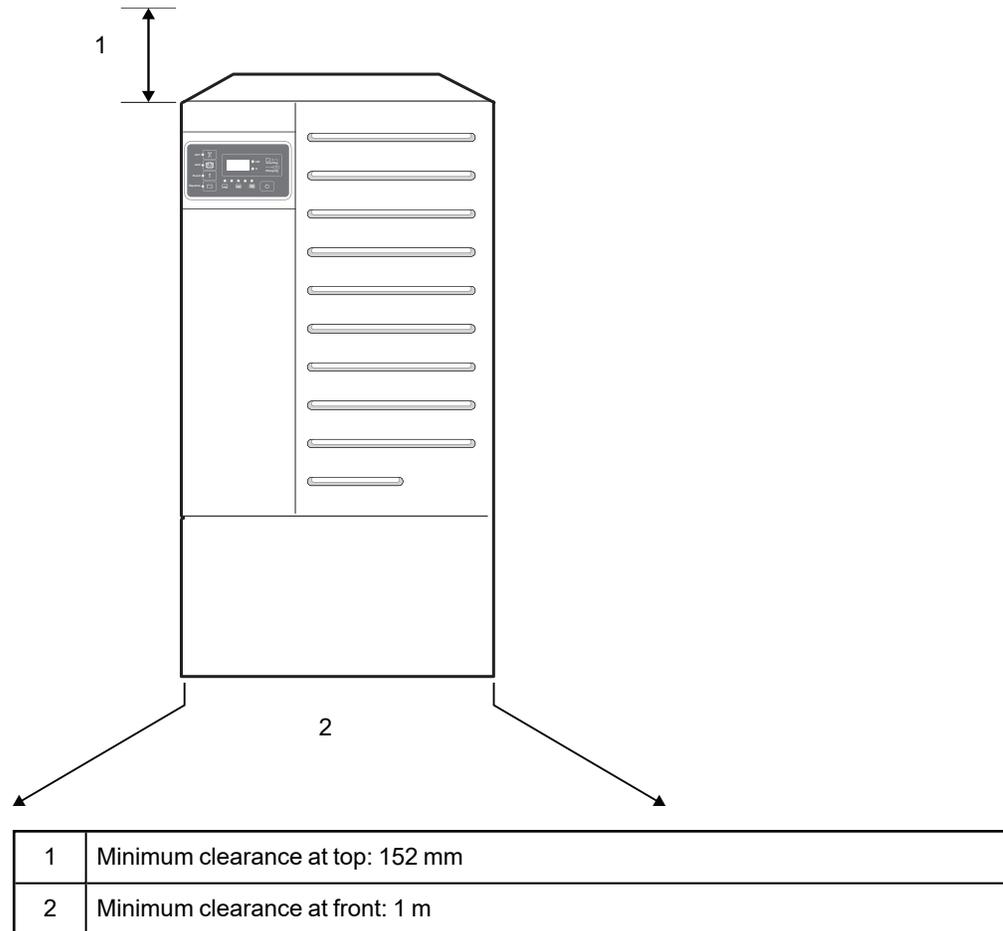
- Do not install in a confined space with machinery powered by flammable chemicals, or storage tanks, fittings, or other connections between components of fuel or flammable chemical systems.
- Do not install the inverter on a flammable surface. If installing the inverter on a wood surface, ensure that the wood is flame retardant.
- Do not install the inverter near readily flammable materials such as cloth, paper, straw, or plastic sheeting. Keep flammable materials a minimum distance of 600 cm from the top surface and 30 cm from either side surface and the front of the XW Pro Inverter/Charger.

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

Clearance Requirements

Provide at least 1 m of clearance in front of the inverter, and a minimum of 152 mm of clearance at the top and bottom of the inverter for ventilation. Ensure the vents remain unobstructed, and that the XW Pro Power Distribution Panel door has adequate room to fully open.

Figure 15 Example of clearance requirements for a Conext XW Pro with PDP



Knockout Selection

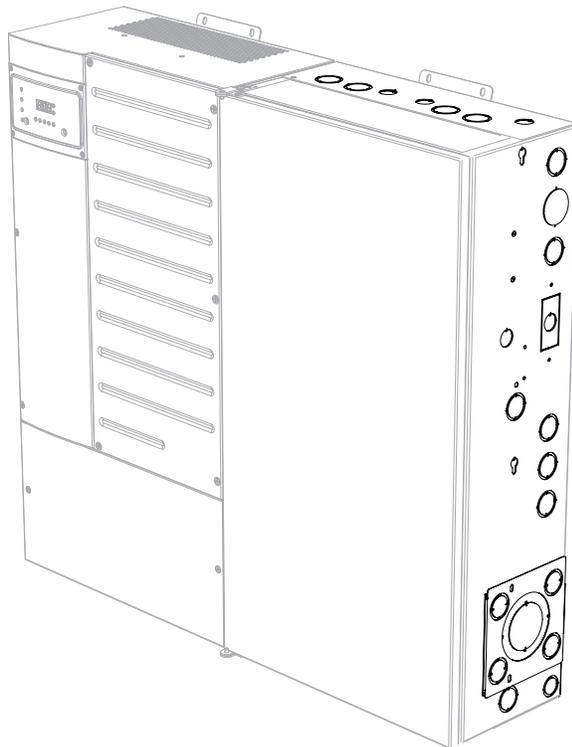
NOTE: Do not drill, cut, or punch holes into the XW Pro, conduit box or Power Distribution Panel (PDP). Use only the knockouts provided for conduit entry.

The XW Pro, Power Distribution Panel (PDP), and conduit box are equipped with nested dual knockouts for wiring through conduits.

Read "AUX Port" on page 55 and choose the knockouts for your installation.

See below, for an example of available knockouts along the top and side of the Power Distribution Panel (PDP).

Figure 16 Example of available knockouts on the PDP



Remove your choice of knockouts from the XW Pro chassis, conduit box, and/or Power Distribution Panel (PDP). Verify that no debris remains inside the chassis. Insert appropriately-sized conduit bushings into each conduit hole.

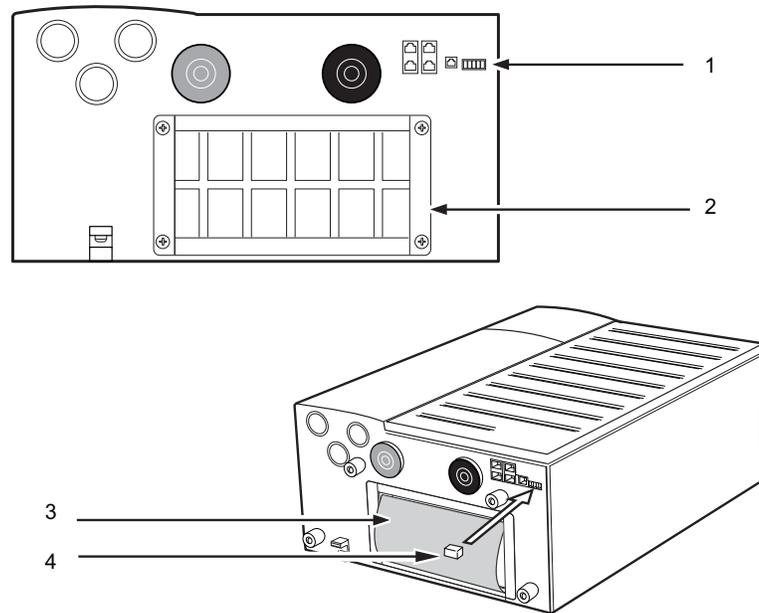
Air Filter and AUX Port Connector Installation

Insert the air filter by tucking it into the grooves on the sides of the air vent cover, see Figure 17 .

If you are planning to use the auxiliary (AUX) port features, insert the AUX port connector into the AUX port, see Figure 17 .

For more information, see AUX Port on page 55 of this Guide.

Figure 17 Air Filter and AUX Port Connector Installation



1	AUX port
2	Air vent
3	Air Filter
4	AUX port connector

Wall-Mounting

⚠ WARNING

HEAVY EQUIPMENT

The XW Pro can cause serious injury if it falls or is dropped on a person.

For structural and seismic stability, the XW Pro must be mounted onto a vertical supporting surface strong enough to support a minimum of 227 kg.

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

A mounting plate is included with each XW Pro and Power Distribution Panel (PDP), designed to meet standards for structural and seismic stability.

Each XW Pro and Power Distribution Panel (PDP) requires a separate generic mounting plate. Attach the mounting plate to the wall before you attach the XW Pro or Power Distribution Panel (PDP) to the mounting plate.

Each mounting plate requires a minimum of four ¼-inch diameter lag bolts or other fasteners (not included). The fasteners must be strong enough to support 227 kg (500 lbs).

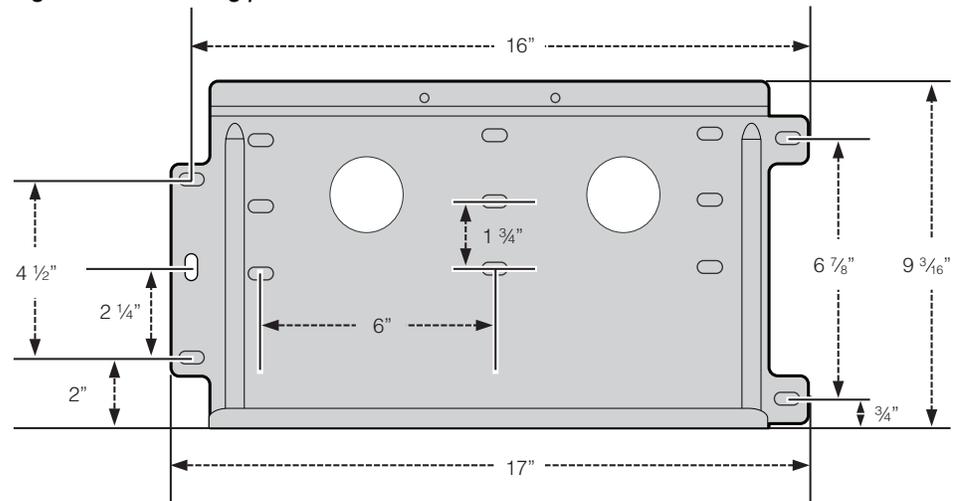
The type of fastener required to secure the mounting plate varies according to the vertical surface and wall structure of your installation location. For a list of recommended fasteners, see Table 1, below.

Table 1 Recommended fasteners

Structure	Required Fastener	Screws Per Plate
Wood studs at 400 mm on-center (O.C.)	6 mm Ø × 89 mm long lag screw	Four
Wood studs not at 400 mm O.C. (20 mm minimum fire-rated plywood ¹ panel required)	6 mm Ø × 25 mm long wood screw	Six
Steel studs at 400 mm O.C. (minimum 18 gauge)	6 mm Ø self-drilling screw	Four

The holes of each mounting plate are spaced 400 mm apart, so that the mounting plate will span two wall studs spaced 400 mm on-center. Additional mounting holes are provided to allow for other mounting options.

Figure 18 Mounting plate dimensions



Note: If the wall does not have 400 mm on-center studs, you will need to provide adequate support for the Mounting Plates. For example, a sheet of fire-rated plywood can be attached to the wall, and the Mounting Plates can then be attached to plywood.

¹ Fire rated (treated fire resistant plywood can only be used in regions where national and local building code allow the use of such materials. Use similar alternative building materials where the building codes do not allow for fire rated wood products for electrical installations.

Installing the Mounting Plate

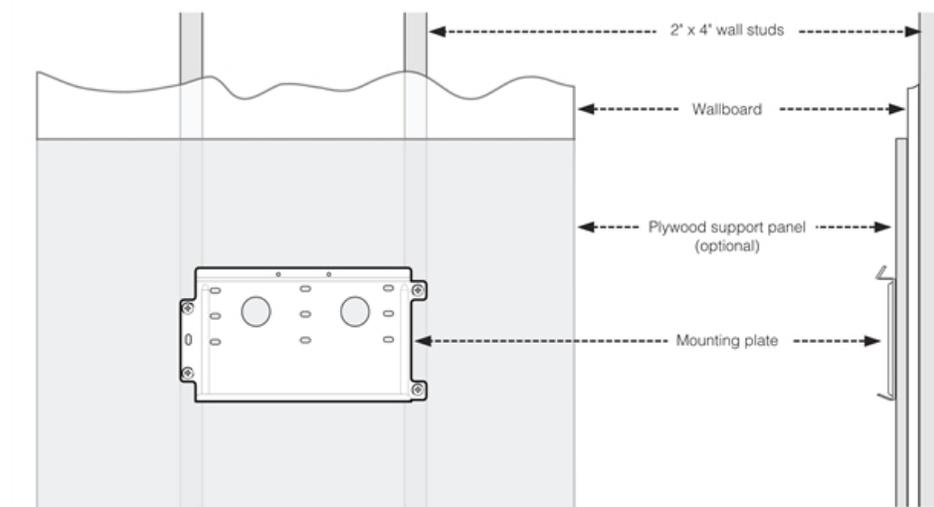
To install the mounting plate:

1. Locate the wall studs.
2. If necessary, secure a 20 mm fire-rated plywood¹ panel or other appropriate additional support panel to the wall studs. The additional support panel must span at least three wall studs.

NOTE: To secure the additional support panel to the wall, use hardware sized to support a minimum of 227 kg. (Hardware not included.)

3. Using a level, secure the first mounting bracket to the wall. Verify that the mounting plate is centered on the wall studs, as shown in Figure 19. Use recommended anchoring hardware to secure the plate, see .

Figure 19 Mounting plate centered on wall studs



Installation tip

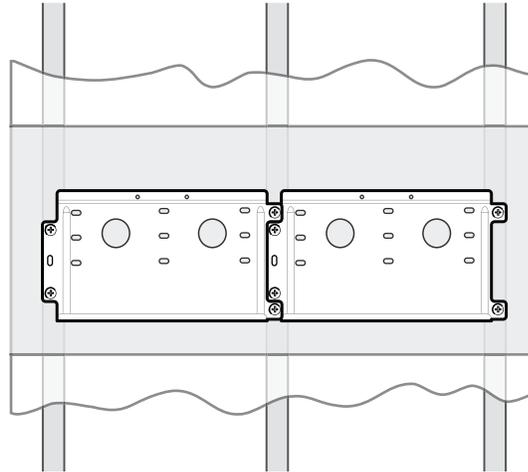
If you install the bottom of the mounting plate at 152 cm from floor, the inverter information panel will be approximately 165 cm from the floor.

4. Install additional mounting plates adjacent to each other as needed.

NOTE: The mounting plates are designed to interlock, as shown in the figure below, so that multiple plates can be installed without additional measuring or leveling.

¹ Fire rated (treated fire resistant plywood can only be used in regions where national and local building code allow the use of such materials. Use similar alternative building materials where the building codes do not allow for fire rated wood products for electrical installations.

Figure 20 Two interlocking mounting plates

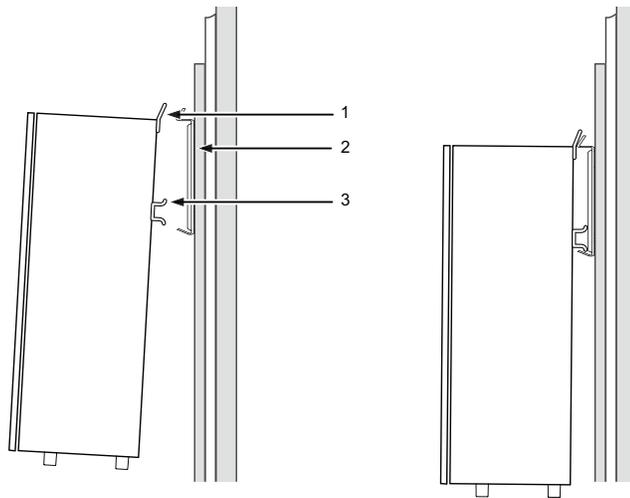


Wall-Mounting the XW Pro and PDP

To wall-mount the XW Pro Inverter/Charger:

1. Align the flange on the back of the XW Pro chassis with the bottom edge of the mounting plate, as shown in .

Figure 21 Wall-mounting the XW Pro



1	XW Pro and the chassis bracket
2	Mounting plate
3	XW Pro and chassis flange

⚠ WARNING

HEAVY EQUIPMENT

The XW Pro weighs approximately 54 kg. A two-person lift is required. To prevent personal injury, always use proper lifting techniques during installation.

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

2. Lower the XW Pro chassis flange onto the mounting plate.
3. Secure the bracket at the top of the XW Pro chassis with two #10 self-tapping screws (included).
4. Wall-mount the PDP and any additional XW Pros using this same procedure.

NOTE: The Conext XW+ Power Distribution Panel may not be available in all regions; installation is dependent upon your local electrical code. Consult your local electrical authority to ensure your installation is code-compliant.

Installation tip

The PDP is designed to mount on the right side of the inverter/charger, but it can be configured to mount on the left side instead. For more information, see the *Power Distribution Panel (PDP) Installation Guide*.

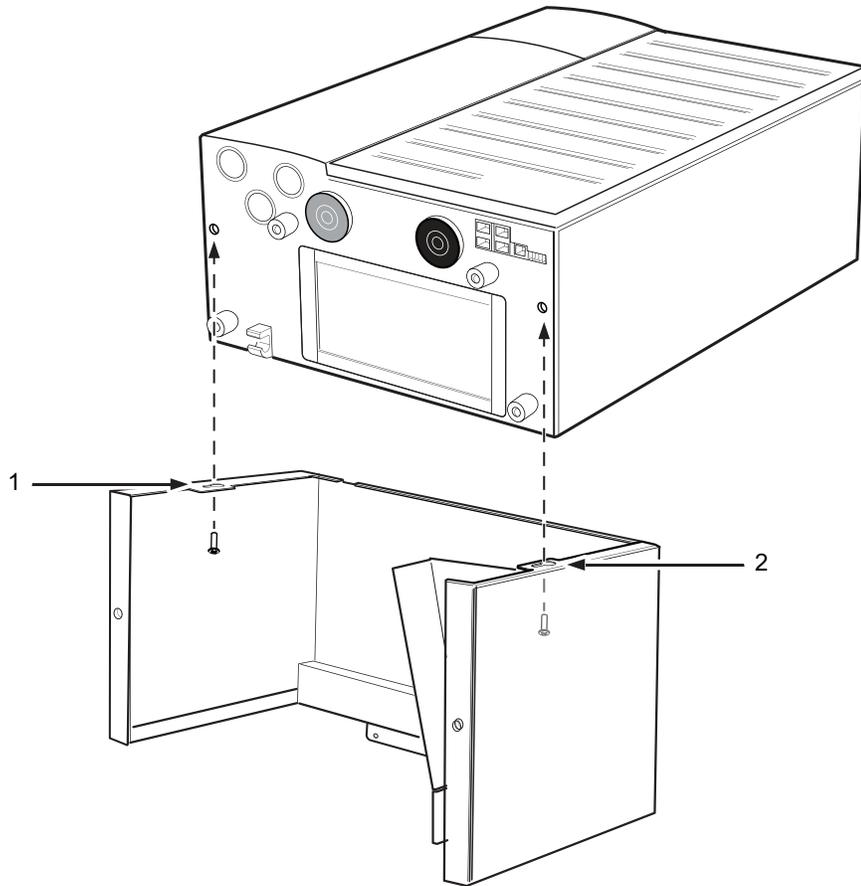
Installing the XW Conduit Box

The conduit box is divided into two parts: the rear panel and the front panel.

To secure the conduit box to the XW Pro chassis:

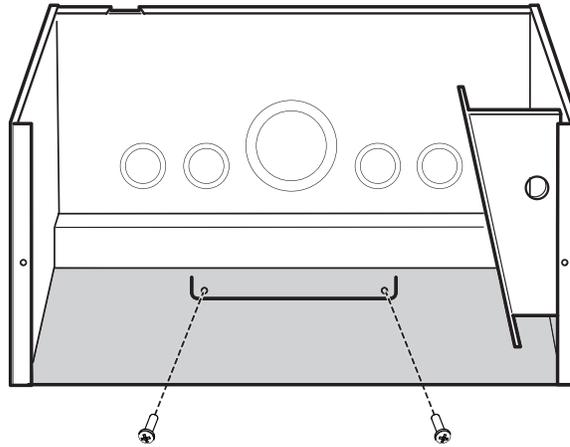
1. Remove both #10 screws from the bottom of the XW Pro chassis.
2. Find the keyhole slots located under the top of the rear panel.
3. Align the keyhole slots on the top panel of the conduit box with the corresponding #10 screws on the bottom of the inverter.

Figure 22 Conduit box keyhole alignment



1	Keyhole slot
2	Keyhole slot

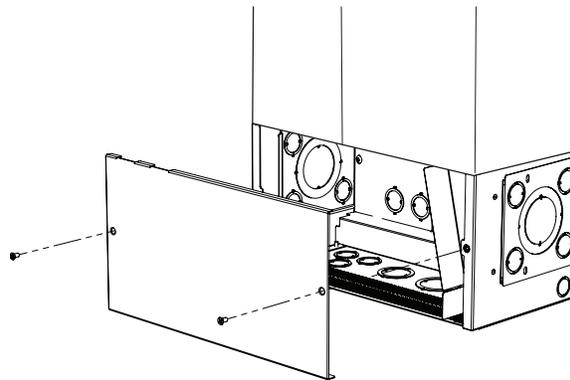
4. Secure the conduit box to the inverter with the both #10 screws.
5. Using two screws (not included), secure the bracket at the bottom edge of the rear panel to the wall. See Figure 23 .

Figure 23 Wall-mounting the conduit box**Installation tip**

Do not secure the front panel of the conduit box until you have completed all wiring.

To secure the front panel of the conduit box:

1. Slide the bottom lip of the front panel over the lower edge of the rear panel.
2. Align the two holes in the front panel with the two holes in the back panel.
3. Using two #10-32 screws (included), secure the front panel to the rear panel.

Figure 24 Conduit box installation

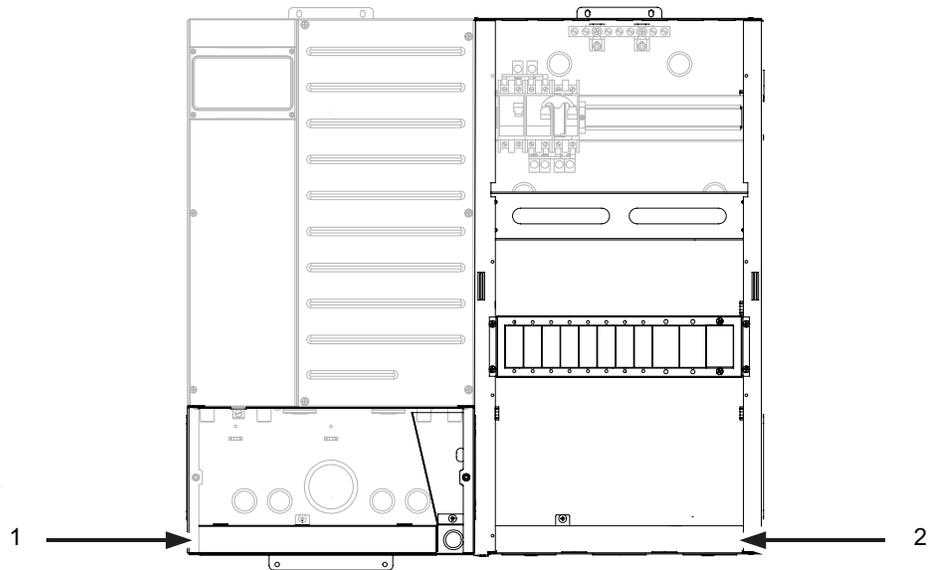
Communications Network Preparation

⚠ WARNING
<p>XANBUS SHOCK HAZARD</p> <p>Xanbus cables in contact with DC or AC power can transmit an electric shock. Do not route the Xanbus cables in the same conduit or panel as the AC and DC power cabling.</p> <p>Failure to follow these instructions can result in death, serious injury, or equipment damage.</p>

To separate the communications cables and signal cables from the DC and AC wiring, a raceway (wire barrier) has been included in the design of both the Power Distribution Panel (PDP) and the conduit box.

This raceway is built into the bottom of the Power Distribution Panel (PDP) and conduit box (see , below) and is held in place by a single screw at the top of each raceway.

Figure 25 Example of raceways in a single-inverter system



1	Raceway (conduit box)
2	Raceway (PDP)

Before routing communication cables (including the Battery Temperature Sensor) through the raceways, leave the cables hanging and confirm communications are successfully established. For easier identification, use a different color for each communications cable, or cable tags. Then, make the AC and DC connections.

Connect communications cables to their components after AC and DC connections are made.

Battery Bank Preparation

⚠ WARNING

BATTERY TYPE AND SET UP HAZARDS

Incorrect battery configurations or settings for battery types can lead to dangerously high battery temperature, fire and explosion.

To avoid damaging your batteries during charging or equalization, and to minimize the risk of fire or explosion consult battery manufacture's documentation before setting battery parameters and follow the battery manufacturer's recommended settings.

- Always use and connect the Battery Temperature Sensor (BTS), except when an external Battery Management System (BMS) that can fulfill this function is present.
- Always verify that the configured battery type matches the battery type being used.
- Custom battery settings should be configured by qualified personnel only.
- When using Lithium-Ion batteries, ensure that the battery pack being used includes a Battery Management System (BMS) with safety controls.

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

The XW Pro Inverter/Charger operates with batteries as its source of DC power. If DC power sources are connected directly to the inverter, the DC rating of the inverter can be exceeded and the inverter can be damaged.

NOTICE

OTHER SOURCES OF DC POWER

Do not connect DC power sources, such as PV arrays, wind turbines, or micro-hydro turbines, directly to the XW Pro Inverter/Charger. Connect DC power sources to a charge controller and then to the battery. DC surge protection should also be installed.

Failure to follow these instructions can result in equipment damage.

Choose Flooded, AGM, Gel, Lithium-Ion, or custom batteries for your installation.

Consider the following recommendations for battery use:

- Use only deep cycle types for inverter applications.
- Use the same battery type for all batteries in the bank.
- Use only batteries from the same lot and date in your battery bank. This information is usually printed on a label located on the battery.

Battery Bank Requirements

The DC voltage of the battery must match the nominal voltage of the XW Pro and battery-connected devices. The inverter is a 48 V inverter; therefore, the battery bank and battery-connected devices in the system must be configured for 48 volts.

NOTE:

- The battery must be sized at a minimum to safely accept the combined charge current from all sources in the system, and the discharge current of all connected loads. Consult the manufacturer for the recommended charge/discharge limits of the selected battery. The `Maximum Charge Rate` of the XW Pro must also be configured if the recommended charge current is less than the XW Pro ratings. Refer to the XW Pro Operation Guide (document number 990-91402) for information on this setting.
- It is generally recommended to use battery banks sized 200 Ah or greater for Li-ion chemistry or 400 Ah or greater for lead acid chemistry. Check with your Schneider Electric application engineer to review system designs with smaller batteries. The performance of some features including grid support may be limited with smaller batteries.
- The XW Pro is designed to operate with batteries and cannot be operated without them.
- Do not allow the battery bank to become completely discharged. If the voltage of the battery bank falls below 40 volts, the XW Pro will not operate.

Battery Cable Requirements

WARNING

OVERHEATING OF DC TERMINALS AND CABLES

Overheating of the DC terminals or DC cables to dangerous temperatures may occur due to improper installation.

- Do not put anything between the cable lug and the terminal surface.
- Do not over-tighten connections; observe all recommended torque values.
- Do not apply anti-oxidant paste that is not rated for electrical connections.
- Do not under size cables; install cables sized in accordance with national electrical code requirements.
- DC cables must have crimped copper compression lugs or crimped and soldered copper compression lugs; soldered connections alone are not acceptable. Lugs must be rated for use with fine-stranded cable.
- Do not use coarse-stranded cable; the lack of flexibility may pull DC terminal connections loose.

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

Battery cable length

Cable runs should be kept as short as practical. Length should not exceed 3 m. Run the positive and negative cables alongside each other. Avoid cable loops.

In order to keep the battery cable length short, install the XW Pro as close as possible to the battery room or battery enclosure.

NOTE: For best system performance, ensure that positive and negative battery cables are installed in close proximity to each other. UL listed angle type lugs may be vertically stacked when paralleling battery cables

Overcurrent protection

The installer must ensure that appropriate protection coordination of DC wiring and inverter from over-current is in place.

WARNING

DC OVERCURRENT WIRING PROTECTION

Your local electrical code may require both DC over current protection and a DC disconnect switch for residential and commercial electrical systems. Fuses and disconnects must be sized to protect the wiring in the system and are required to open before the wire reaches its maximum current carrying capability.

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

WARNING

DC SHORT CIRCUIT INVERTER PROTECTION

When the inverter is installed with a PDP, the integrated DC breaker is rated for 10 kA DC short circuit. If the inverter is installed with DC equipment (batteries, charge controllers) having aggregate DC short circuit contribution capability greater than 10 kA, XW Pro inverters and DC breakers must be protected by current-limiting fuses. Example fuses with ratings and part numbers are included in Table 4.

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

Terminal covers

Color-coded snap-on DC terminal covers are included to avoid accidental contact with the terminals. Terminal covers are required for all installations, even if a conduit box is used. It is also recommended that the shank of the ring terminals (cable lugs) be covered with heat shrink or some other form of insulation.

NOTE:Your local electrical code may require both overcurrent protection and a disconnect switch for residential and commercial electrical systems. These items are not supplied as part of the inverter, but are included with the Power Distribution Panel (PDP).

The continuous rating of current-limiting fuses is higher (400 A) than other means of DC over-current protections (250 A) to withstand the DC inrush current when connecting the batteries to the XW Pro DC port. Current limiting fuses are meant to protect equipment and conventional fuses/DC breakers are meant to protect the wires.

Table 2 Recommended Battery Cable Size Versus Length

Inverter Model	Up to 10 Feet (3 m) (90°C wire)
XW Pro 8548	120 mm ² (#4/0 AWG)

Table 3 Battery Cable (in Conduit) to Maximum Breaker/Fuse Size

Cable Size Required	Maximum Breaker/Fuse Size
120 mm ² (#4/0 AWG - (0000))	250 amps

Table 4 Recommended current-limiting fuses and ratings

Fuse part number	Continuous rating	Maximum SC interrupt rating
L17T400	400 A	100 kA
L50QS400	400 A	50 kA
A15QS400	400 A	100 kA
A30QS400	400 A	100 kA

Torque Values

NOTE: Wiring terminals are suitable for connecting either copper or aluminum conductors, or both.

Torque Values for the XW Pro

Table 5 Torque Values for AC Wiring (AC Terminals and Ground Bar)

Wire Size		Torque Value	
AWG	mm ²	In-lb	N-m
14-10	2.5-6.0	35	4.0
8	10	40	4.5
6-4	16-25	45	5.1

Table 6 Torque Values for the Chassis Ground Lug

Wire Size		Torque Value	
AWG	mm ²	In-lbs	N-m
6-4	16-25	45	5.1
3-2	25-35	50	5.6

Table 7 Torque Values for the Inverter Battery Terminals

Torque Value	
Ft-lbs	N-m
15	20.4

Torque Values for the Power Distribution Panel (PDP)

Table 8 Torque Values for the Ground Bus, AC Neutral Bus, DC Negative Bus, and DC Positive Bus in the PDP

Wire Size		Torque Value	
AWG	mm ²	In-lbs	N-m
14-10	2.5-6	35	4.0
8	10	40	4.5
6-4	16-25	45	5.1
3-2/0	25-35	50	5.6

Table 9 Torque Values for the Battery Cables to each DC Bus in the PDP

Torque Value	
Ft-lbs	N-m
15	20.4

3 Wiring

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Removing the AC Access Panel and PDP Internal Faceplates

DANGER

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

- Remove watches, rings, or other metal objects.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Keep sparks and flames away from the batteries.
- Use tools with insulated handles.
- Wear protective glasses, gloves and boots.
- Do not lay tools or other metal parts on top of batteries.

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

DANGER

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

- Battery Circuit Breakers must be installed according to the specifications and requirements defined by Schneider Electric.
- Servicing of batteries must only be performed by qualified personnel knowledgeable of batteries and the required precautions. Keep unqualified personnel away from batteries.
- Disconnect the charging source prior to connecting or disconnecting battery terminals.

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

Removing AC Access Panel

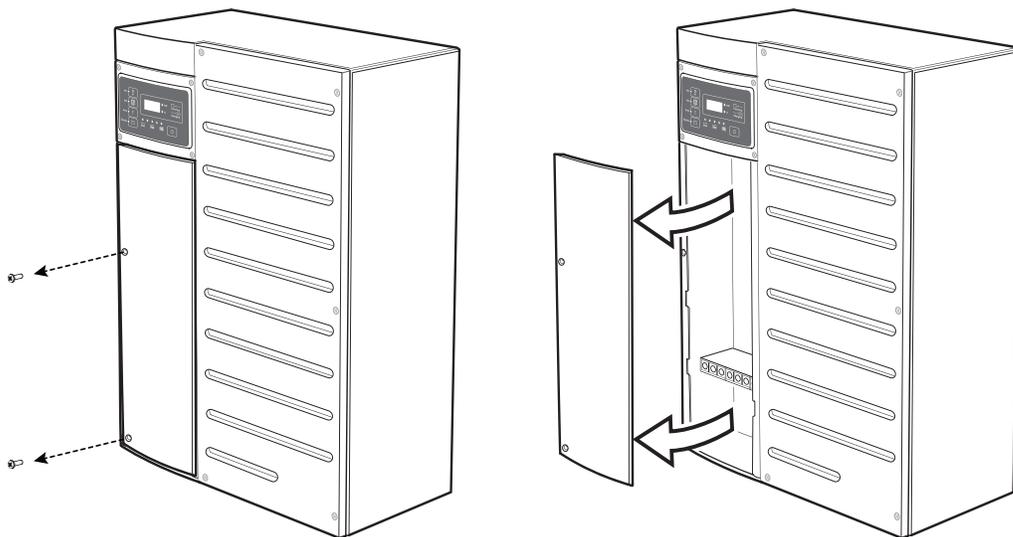
To access the AC terminal block on the XW Pro for AC wiring, you will need to remove the AC access panel, located below the inverter information panel on the left side of the XW Pro chassis.

To remove the AC access panel, remove the two screws from the AC access cover and slide the cover slightly to the left and lift away from the XW Pro chassis.

Installation tip

When re-securing the AC access cover, verify that its recessed edge slips inside the edge of the front panel.

Figure 26 AC access panel removal (internal components hidden for clarity)



Removing Power Distribution Panel Internal Faceplate

If you are wiring the XW Pro to a Power Distribution Panel (PDP), you will need to remove the two front faceplates from the PDP.

For easier access to the faceplates, begin by removing the panel door from its hinges.

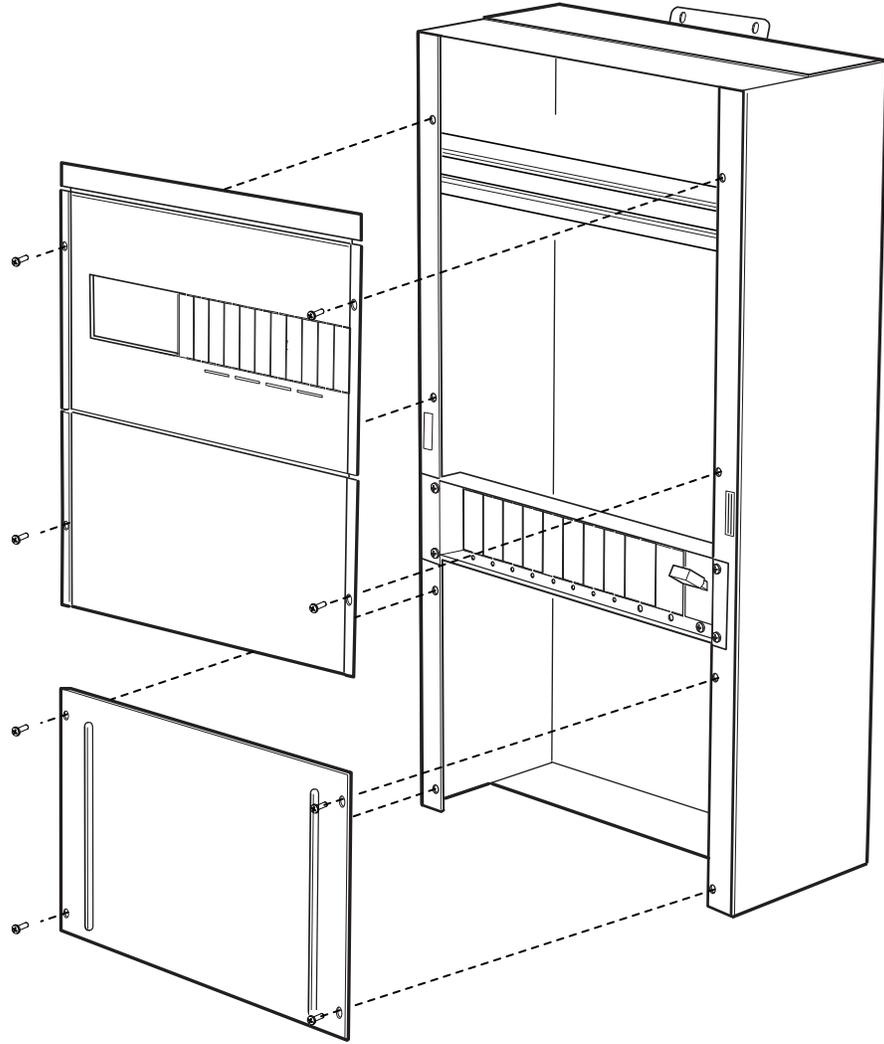
To remove the PDP door:

1. Remove the screw at the top hinge of the PDP door and remove the top section of the hinge.
2. Using your thumb or forefinger, gently pivot the hinge upward as you remove the PDP door.

To remove the PDP faceplates:

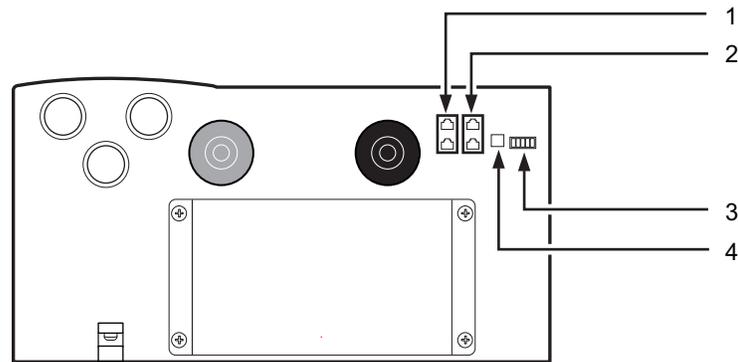
1. Remove the four screws holding the upper faceplate in place.
2. Remove the four screws holding the lower faceplate in place.

Figure 27 Power Distribution Panel (PDP) faceplate removal (internal components hidden for clarity)



Communication Ports and BTS Port

Figure 28 XW Pro communication ports



1	AC sync ports
2	Xanbus ports
3	Aux port
4	BTS Port

There are five communication ports and a Battery Temperature Sensor (BTS) port located on the bottom of the XW Pro chassis (as shown above in Figure 28):

- Two Power Distribution Panel (without AC Breakers) Xanbus ports for making network connections between inverters, charge controllers, and accessories. For more information, see "The Xanbus Network" on page 111.
- Two AC sync ports to connect multiple XW Pros in parallel. For installation instructions, see The Xanbus Network on page 111.
- AUX port: 12 VDC/250 mA output to control a relay, fan, indicator light, or other device, using a gateway device. For more information, see Communication Ports and BTS Port on page 55.
- Battery Temperature Sensor (BTS) port: For more information, see Communication Ports and BTS Port on page 55.

AUX Port

The XW Pro has a 12 VDC auxiliary (AUX) output that can be configured to trigger in response to one of the following conditions:

- low battery voltage
- high battery voltage
- low battery temperature
- high battery temperature
- charge bulk exit
- faults
- charge absorption exit
- heatsink temperature
- TOD (time of day)
- SOC (state of charge)

The auxiliary output can also be triggered manually using a gateway device.

NOTE: The AUX port is connected via an AUX port connector, included with the XW Pro.

The 12 VDC output can be used to trigger an HBX (Hi Battery Transfer) relay to disconnect from the Grid.

The auxiliary output is also designed to provide the following functions:

- Auxiliary 12 VDC power supply. See AUX+12V Voltage Supply, below.
- Remote Power Off. See AUX-RPO: User Remote Power OFF (RPO), below.

Figure 29 AUX Port Location and Pinouts

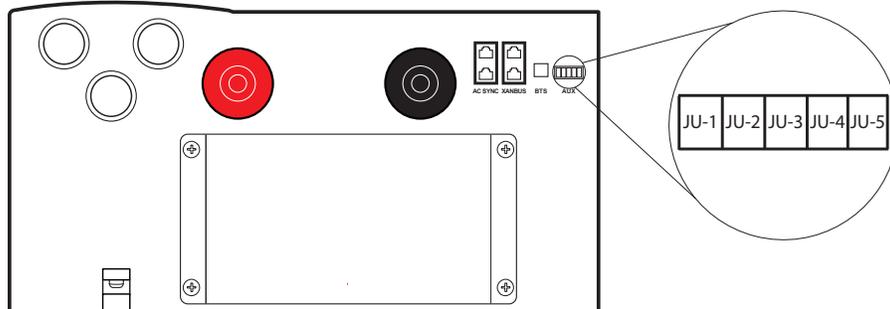


Table 10 User Connector Terminals and Functions

Pin	Reference	Name	Function
JU-1	AUX+12V	+12 V User Voltage Supply	+12 VDC Voltage source: 250 mA maximum
JU-2	AUX-RPO	Remote Power Off	Remote Power Off Logic Level: Active Low. Activating this signal shuts down system operation
JU-3	AUX-COM	Common Ground Reference	Return Common Ground Reference for 12 V, Remote Power Off signals
JU-4	EXT_TS_OUT	External Transfer switch: Output signal	Open collector type drive circuit (30V/0.5A max)
JU-5	EXT_TS_IN	External Transfer switch: Input signal	External Transfer switch: Low signal range:(0-5V) High signal range:10-28V with the consumption of 8mA@12V and 10mA@24V

AUX+12V Voltage Supply

DC voltage is available between JU-1 (AUX +12 V) and JU-3 (AUX-COM, signal return). The power available at these terminals is 12 VDC and maximum current is 250 mA (3 watts).

AUX+12 V and AUX-COM terminals can be used to power a relay (maximum 3 watts) or the Backup Control Switch (BCS). For more information on installing the BCS, see the *BCS (Backup Control Switch) Quick Start Guide (990-91525)*.

NOTE: Additional fuses may be necessary for some installations.
--

AUX +12 V voltage supply can be programmed for different tasks ON and OFF using the gateway device.

Default status of AUX+12 V is OFF.

AUX-RPO: User Remote Power OFF (RPO)

Connecting JU-2 (AUX-RPO) and JU-3 (AUX-COM) terminals together through an external switch (normally open contact) will provide the system shut off function if the switch is closed. The external switch, if pressed, overrides the control provided from the front panel.

To enable the AUX port remote power off function, enable the Remote Power Off setting in the XW Pro menu in the gateway device. For more information, see the Owner's Guide. If the external switch is cleared (not pressed), the inverter can be enabled back from the front panel. **NOTE:** The Conext MPPT60 or MPPT80 will require a power cycle to recover.

Select an external switch with normally open contact; consult your local system designer or qualified technician for specific installation instructions.

User Line Wiring

Use twisted pairs of 0.25mm² to 2.2 for connections. Carefully route the wires away from high power load cables to minimize noise effects on signal integrity.

Wiring the XW Pro with a PDP

NOTICE

OVERLOADING THE DISTRIBUTION PANEL

The amount of power that can be fed into a distribution panel and the means and location for feed-in, must be in accordance with the current requirements of the local electrical code.

Failure to follow these instructions can result in equipment damage.

This section provides instructions for making AC and DC connections between the XW Pro Inverter/Charger and an Power Distribution Panel (PDP), using a conduit box.

To install a XW Pro without the conduit box or PDP, see Wiring the XW Pro with a PDP on page 58 of this Guide.

NOTE: If a conduit box is installed, run the communication and Battery Temperature Sensor cables through the raceway at the rear of the conduit box and PDP before making AC and DC connections. The raceways become more difficult to access after AC and DC wiring is completed. For more information, see "Pre-Installation" on page 31 of this Installation Guide.

Grounding the XW Pro Inverter/Charger

⚠ WARNING

UNGROUNDING EQUIPMENT

Equipment ground terminals must be reliably connected to ground by appropriately sized grounding conductors. All installations must comply with national and local codes. Consult local and national codes for specific grounding and bonding requirements.

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

The XW Pro is provided with ground terminals that must be reliably connected to ground (protective earth) by appropriately sized equipment grounding conductors. System grounding for the AC and DC systems must be done according to all applicable installation codes.

For more information about system grounding, see "Grounding the DC System" below and "Grounding AC Equipment" on page 67.

Grounding the DC System

To connect the XW Pro to the DC grounding system, use the ground lug at the bottom of the XW Pro chassis (see Overview on page 19). The terminal accepts wires from 1.63 mm (#14 AWG) to 6.54 mm (#2AWG).

System grounding for the DC system, which typically involves bonding (connecting) the battery negative circuit to ground, is dependent on the system configuration.

⚠ WARNING

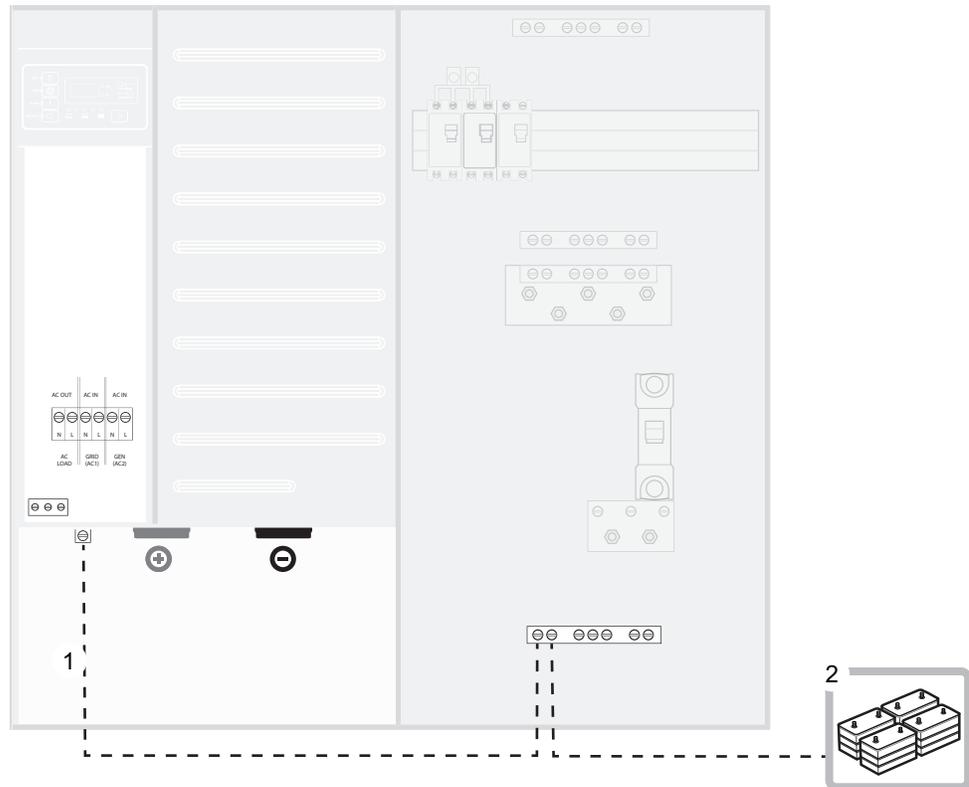
LACK OF GROUND FAULT DETECTION HAZARD

Ground fault detection on the MPPT 60 150 solar charge controller is circumvented when the XW Pro battery negative circuit is grounded.

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

NOTE: If a grounded DC system is required, ensure that the system bonding is done in one location only, and that all conductors and connections comply with all applicable installation codes.

Figure 30 DC Grounding Using a Power Distribution Panel (PDP)



1	Grounding wire
2	Vented battery enclosure

Installing the Battery Temperature Sensor

⚠ WARNING

BATTERY TEMPERATURE

- Battery temperature sensing provides necessary information for performance and safety.
- Always install and connect the Battery Temperature Sensor (BTS). Always install and connect the Battery Temperature Sensor (BTS) if an external BMS fulfilling this function is not used. See the note directly below.
- Ensure any external BMS and battery used is compatible with the Conext system.

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

NOTE: For all BTS compatible Xanbus enabled devices in the system, at least one BTS must be separately installed for each device type associated with a battery. If there is a group of the same devices forming a multi-unit setup, only one BTS is required per device type connected to the same battery (same DC association). See the installation guide of each device for BTS installation instructions.

The Battery Temperature Sensor (BTS) regulates battery charging based on battery temperature. The BTS extends battery life by minimizing overcharging in warm temperatures and undercharging in cold temperatures.

The BTS connects to the XW Pro via the BTS port, which is located at the bottom of the XW Pro chassis, next to the communication ports.

NOTE: Connect the BTS to the batteries only after the battery bank has been prepared and is ready to connect to the inverter.

To install the Battery Temperature Sensor:

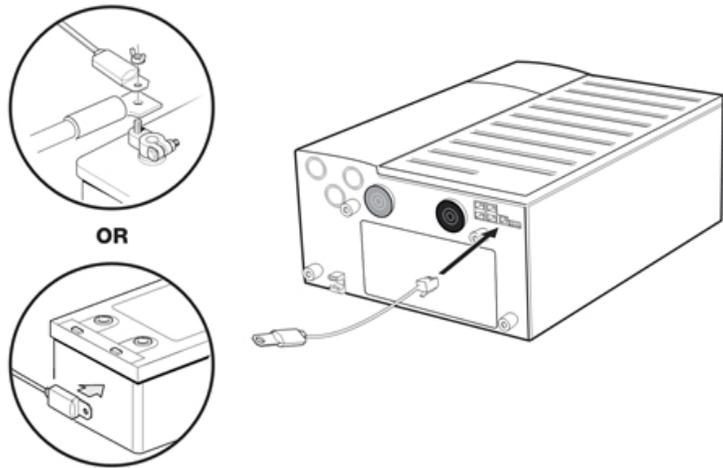
1. Route the BTS cable through your preferred conduit route and insert the BTS jack into the BTS port.
2. Route the BTS cable to the battery enclosure, and then connect the BTS using one of the following methods (as shown in Figure 31):
3. Connect the BTS ring terminal directly to a battery terminal (recommended), or:
4. Attach the BTS to any side of the battery you wish to monitor by using the adhesive backing on the BTS.

NOTE: When using the adhesive backing, install the BTS on the side of the battery below the electrolyte level.

Installation tip

Place the sensor between batteries and place the batteries in an insulated box to reduce the influence of the ambient temperature outside the battery enclosure.

Figure 31 Battery Temperature Sensor Installation



Making DC Connections

Connecting Battery Cables

DANGER

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

- Remove watches, rings, or other metal objects.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Keep sparks and flames away from the batteries.
- Use tools with insulated handles.
- Wear protective glasses, gloves and boots.
- Do not lay tools or other metal parts on top of batteries.

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

DANGER

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

- Battery Circuit Breakers must be installed according to the specifications and requirements defined by Schneider Electric.
- Servicing of batteries must only be performed by qualified personnel knowledgeable of batteries and the required precautions. Keep unqualified personnel away from batteries.
- Disconnect the charging source prior to connecting or disconnecting battery terminals.

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

⚠ WARNING**OVERHEATING OF DC TERMINALS AND CABLES**

Overheating of the DC terminals or DC cables to dangerous temperatures may occur due to improper installation.

- Do not put anything between the cable lug and the terminal surface.
- Do not over-tighten connections; observe all recommended torque values.
- Do not apply any type of anti-oxidant paste until after the cable connection is tightened.
- Do not under size cables; install cables sized in accordance with national electrical code requirements.
- DC cables must have crimped copper compression lugs or crimped and soldered copper compression lugs; soldered connections alone are not acceptable. Lugs must be rated for use with fine-stranded cable.
- Do not use coarse-stranded cable; the lack of flexibility may pull DC terminal connections loose.

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

NOTICE**DC REVERSE POLARITY**

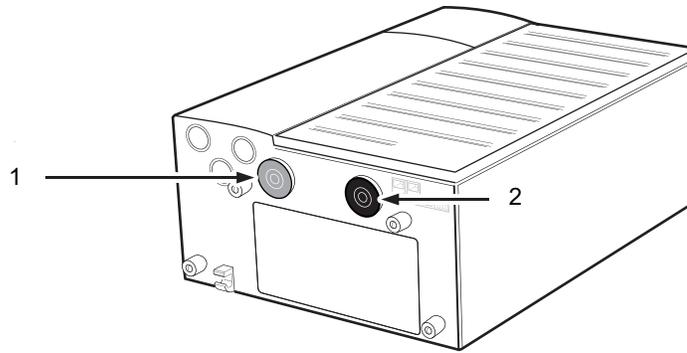
Before making the final DC connection or closing the DC breaker or disconnect, check cable polarity at both the battery and the inverter/charger. Positive (+) must be connected to positive (+). Negative (-) must be connected to negative (-).

Failure to follow these instructions can result in equipment damage.

Battery cables are not included in the XW Pro package. Depending on your installation requirements, you will need to supply at least one pair of battery cables. For battery cable requirements, see "Pre-Installation" on page 31.

NOTE: One pair of 107 mm² (#4/0 AWG) Arctic Ultraflex Blue™ battery cables is included with each Power Distribution Panel (PDP) and Connection Kit for INV2 INV3 PDP. For more information, see "Overview" on page 19.

Figure 32 Battery Terminals (bottom of XW Pro)



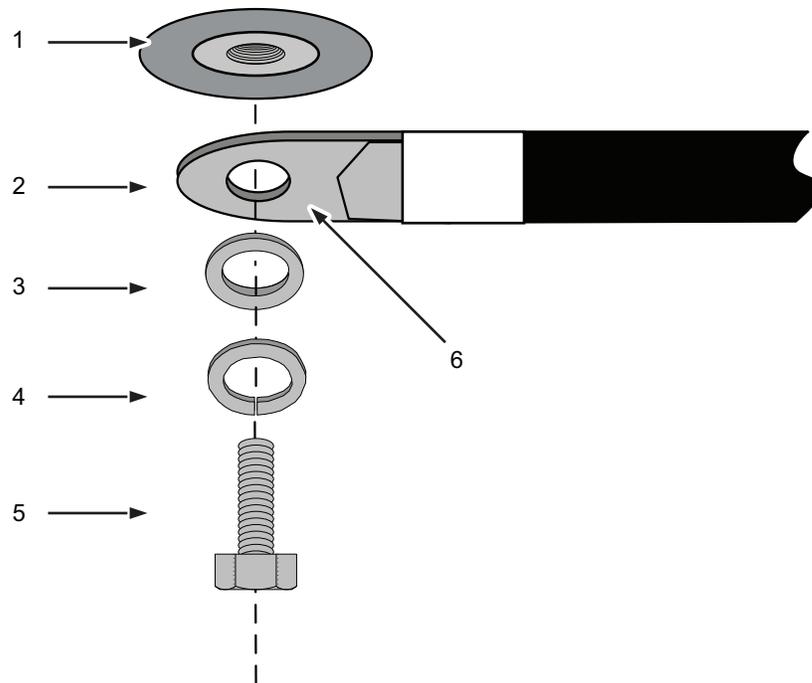
1	Positive (+) battery terminal (Red)
2	Negative (-) battery terminal (Black)

To connect the Power Distribution Panel (PDP) to the XW Pro:

1. Connect the positive battery cable (pre-installed in the PDP) to the positive battery terminal at the bottom of the XW Pro, as shown in Figure 32 .
2. Connect the negative battery cable (pre-installed in the PDP) to the negative battery terminal at the bottom of the XW Pro.

NOTE: When making the connections, be sure to observe correct hardware stacking and proper polarity, and ensure that nothing obstructs the connection between the terminal surface and the battery cable lug, see Figure 33 .

Figure 33 Battery Cable Connection



1	Terminal surface
2	Battery cable lug
3	Flat washer: 7/8" (22 mm) O.D., 3/8" (9.5 mm) I.D.
4	Split-ring washer
5	Bolt: 3/8-16 x 5/8 (included)
6	Copper compression lug
<p>Note: Do not install a washer between the terminal surface (1) and the cable lug (2).</p> <p>All bolts and washers must be made from conductive material such as copper or brass.</p>	

- Attach the DC terminal covers (included with the XW Pro) to the bottom of the XW Pro DC terminals.

To connect the PDP to the Battery Bank:

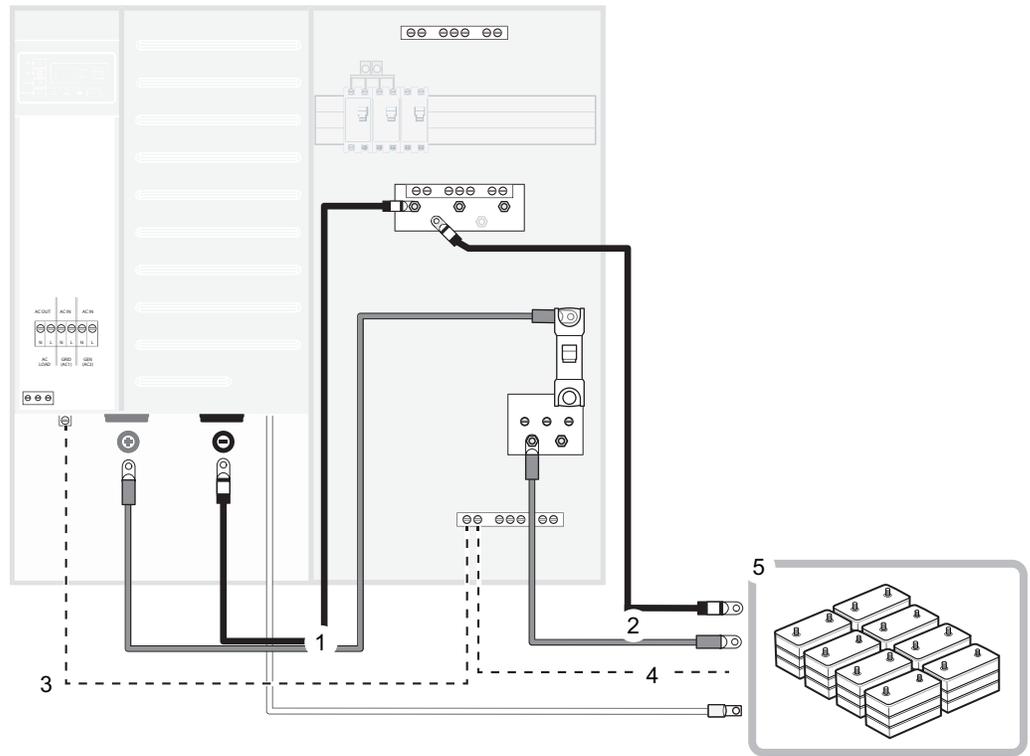
Connect your battery cables (not included) to the PDP. Connect the negative battery cable to the DC Negative Bus, and the positive battery cable to the input end of the GJ250A 160 VDC, 3/8" stud DC breaker (pre-installed in the PDP), as shown in Figure 33.

NOTE: To properly attach and torque the positive cable to the DC breaker, you may need to temporarily remove the breaker from the rail.

Route your battery cables from the PDP, through your preferred conduit path, to the battery location. Do not connect the cables to the battery yet.

NOTE: Before connecting the DC cables from the PDP to the battery, perform the procedures in "Making AC Connections" on page 66.

Figure 34 DC Connections to a Single Inverter Using a PDP



1	#4/0 AWG Arctic Ultraflex Blue battery cables (included with PDP)	 Positive (+) battery cable	<p>Actual wiring requirements may vary.</p> <p>Cable routing may vary. See "Knockout Selection" on page 35 and "Communications Network Preparation" on page 43.</p> <p>For torque values, see "Torque Values" on page 48.</p>
2	Battery cables (not included)	 Negative (-) battery cable	
3	Battery system bonding wire	 BTS Cable	
4	Grounding conductor	 Grounding wire	
5	Vented battery enclosure		

Making AC Connections

This section provides instructions for making AC connections between the XW Pro and the Power Distribution Panel (PDP) (using the pre-installed AC cables in the PDP) and between the PDP and your inverter load sub-panel.

NOTE: Install an inverter load sub-panel and AC conduit before completing your XW Pro installation. For more information, see "AC Wiring to the Inverter Load Sub-Panel" on page 72.

NOTE: If multiple XW Pro's are planned, refer to the XW Pro Multi-unit Design Guide (990-91373) as there are additional considerations that impact equipment and wiring requirements.

NOTE: Do not use a GFCI equipped AC source to power either the Grid (AC1) or Generator (AC2) inputs. The AC input filters on the XW Pro may cause nuisance tripping of ground fault protected outputs.

NOTICE

BACK FED AC POWER

Back fed AC Power can damage equipment. Do not wire the inverter's AC output port directly to the utility line or generator output.

Failure to follow these instructions can result in equipment damage.

NOTE: Wiring the inverter's AC output to the utility or generator output will cause severe damage to the inverter which is not covered under warranty.

AC Terminal Block

DANGER

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

- Remove watches, rings, or other metal objects.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Keep sparks and flames away from the batteries.
- Use tools with insulated handles.
- Wear protective glasses, gloves and boots.
- Do not lay tools or other metal parts on top of batteries.

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

⚡ ⚠ DANGER

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

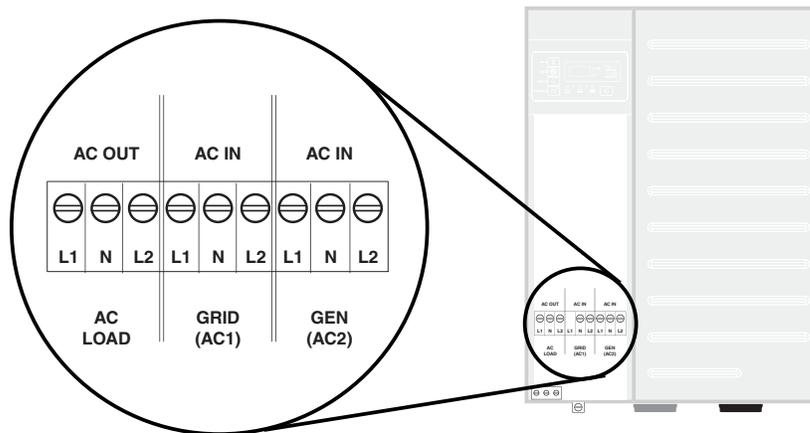
- Battery Circuit Breakers must be installed according to the specifications and requirements defined by Schneider Electric.
- Servicing of batteries must only be performed by qualified personnel knowledgeable of batteries and the required precautions. Keep unqualified personnel away from batteries.
- Disconnect the charging source prior to connecting or disconnecting battery terminals.

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

To access the AC terminal block, you will need to remove the AC access panel. For more information, see "AUX Port" on page 55.

The AC terminal block includes two terminals each (L and Neutral) for AC Grid input (AC1), AC Generator input (AC2), and AC Out (AC LOAD) connections, see Figure 35 .

Figure 35 AC Terminal Block

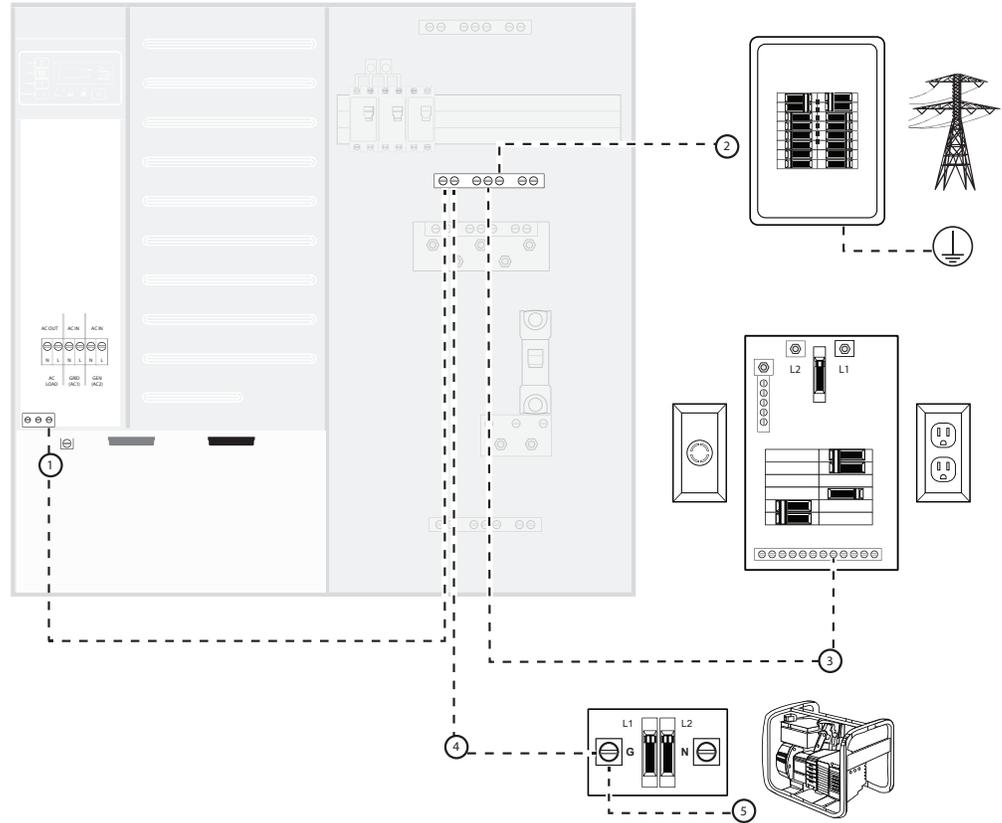


The neutral inputs are connected to each other, requiring only one neutral connection when installed with a Power Distribution Panel (PDP). Without the PDP, additional neutral connections may be required at the input sources.

Grounding AC Equipment

See "Pre-Installation" on page 31 for torque values for the AC terminal and AC ground bar. See "Pre-Installation" on page 31 for torque requirements for the ground bar in the XW Pro Power Distribution Panel.

Figure 36 AC Equipment Grounding With the PDP



1	AC ground bar	Grounding requirements may vary. Cable routing may vary. See "Knockout Selection" on page 35 and "Communications Network Preparation" on page 43. For torque values, see "Torque Values" on page 48.
2	To main utility panel	
3	To inverter load sub-panel	
4	Generator Protector Note: Depending on the location of the generator and local code requirements, the generator disconnect may be located in the power distribution panel.	
5	To AC generator	

AC System Bonding

WARNING

MULTIPLE AC NEUTRAL-TO-GROUND BONDS

Verify that only one neutral-to-ground bond exists in the system. Having more than one neutral-to-ground bond in a system violates local electrical codes, may create a shock or fire hazard, and may cause some sensitive equipment to malfunction.

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

System bonding refers to connection (bonding) of one of the current-carrying conductors of an electrical system to ground. This creates a "grounded conductor" or "neutral" that is at ground potential, but is separate from the equipment ground conductor. System bonding must be done at only one location. Procedures for system bonding vary between on-grid and off-grid systems.

System bonding for on-grid systems

The XW Pro does not connect the neutral to ground. The AC input neutral is already bonded to ground by the incoming utility grid system. Do not connect the neutral to ground in any additional location.

The XW Pro does not switch or disconnect the AC neutral in any mode of operation, so even in invert (back-up) mode, the inverter load sub-panel neutral is bonded to ground by the utility grid system. It must not be grounded again in the inverter load sub-panel.

System bonding for off-grid systems

In a system without a generator, or with a generator that does not provide a grounded neutral, you must make the connection from neutral to ground in the inverter load sub-panel or main distribution panel, as applicable.

In a system with a generator that provides a grounded neutral, no additional connection from neutral to ground is needed. Do not connect neutral to ground in the inverter load sub-panel or main distribution panel, as applicable.

AC Wiring with a XW Pro Power Distribution Panel

Grounding AC Equipment

WARNING

UNGROUNDING EQUIPMENT

Equipment ground terminals must be reliably connected to ground by appropriately sized grounding conductors. All installations must comply with national and local codes. Consult local and national codes for specific grounding and bonding requirements.

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

See "Grounding AC Equipment" on page 67.

AC Breaker Installation

The XW Pro Power Distribution Panel does not include AC breakers. Mount appropriately sized and rated AC breakers onto the DIN rail inside the XW ProPower Distribution Panel; ensure that your installation is done in accordance with all application local installation codes.

NOTE: AC breakers must be mountable on a 35 mm "top hat" DIN rail (EN 50022). Depending on your local installation codes, compatible breakers may be available from Schneider Electric (e.g. Acti 9 Miniature Circuit Breakers). For more information, contact your local Schneider Electric Sales Representative.

NOTE: AC breaker installation may vary. Ensure that your installation is done in accordance with all applicable local installation codes. For more information, contact your local Schneider Electric Sales Representative.

AC Wiring the Power Distribution Panel (PDP) to the XW Pro

An inverter load sub-panel and AC conduit must be installed before your Conext XW Pro installation can be completed. For more information, see "AC Wiring to the Inverter Load Sub-Panel" on the facing page.

Wiring for connections between the PDP and the inverter load sub-panel is not included. See "Pre-Installation" on page 31 for torque requirements.

NOTE: The instructions below are general guidelines only. AC wiring and AC breaker installation may vary. Consult your system designer or qualified technician for specific installation instructions. For more information, contact your contact your local Schneider Electric Sales Representative.

To connect the Power Distribution Panel (PDP) to the XW Pro:

1. Connect neutral wiring from the XW Pro Inverter/Charger neutral (N) terminal to the neutral bus bar on the PDP.
2. Connect the Line (L) wire from each GRID breaker to the corresponding AC Input (AC1) on the XW Pro unit.
3. Connect the L wire from each LOADS breaker to the corresponding AC OUT terminal on the XW Pro unit.
4. Connect ground wiring from the ground bus bar on the PDP to the XW Pro unit.
5. Repeat steps 1 through 4 for INV2 and INV3, as necessary.

NOTE: Neutral inputs are connected to each other, requiring only one neutral connection when installed with a XW Pro Power Distribution Panel. Without the PDP, additional neutral connections may be required at the input sources.

6. Connect the LOADS breaker(s) to the AC LOADS panel.
7. Connect the GRID breaker to the utility grid distribution panel.
8. If the installation includes a generator or second AC source, connect the L AC wiring from each pole on the GEN breaker to the corresponding AC Input (AC2) terminal on each XW Pro unit.
9. Using the labels included with the PDP, re-label the AC breakers, as appropriate.
10. Install a bypass interlock plate or external bypass switch, as appropriate. For more information, contact your contact your local Schneider Electric Sales Representative.

AC Wiring to the Inverter Load Sub-Panel

DANGER

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

- Remove watches, rings, or other metal objects.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Keep sparks and flames away from the batteries.
- Use tools with insulated handles.
- Wear protective glasses, gloves and boots.
- Do not lay tools or other metal parts on top of batteries.

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

DANGER

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

- Battery Circuit Breakers must be installed according to the specifications and requirements defined by Schneider Electric.
- Servicing of batteries must only be performed by qualified personnel knowledgeable of batteries and the required precautions. Keep unqualified personnel away from batteries.
- Disconnect the charging source prior to connecting or disconnecting battery terminals.

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

NOTE: The installer must ensure that neutral continuity is maintained by wiring the AC1 Neutral directly to the neutral busbar in the relevant switchboard. Note that AC1, AC2, and AC Out (AC Load ports) have their neutral interconnected internally, which ensures the neutral continuity is maintained internally and hence do not need separate neutral connections for each port.

An inverter load sub-panel and AC conduit must be installed before your XW Pro installation can be completed.

Wiring for connections between the PDP and the inverter load sub-panel is not included.

See "Pre-Installation" on page 31 for torque requirements.

To install the inverter load sub-panel and AC conduit:

1. Choose a location for the inverter load sub-panel and install it according to the manufacturer's directions.
2. Install an AC conduit between the PDP and the inverter load sub-panel.
3. Determine which circuits the XW Pro will power and install the appropriate circuit breakers into the inverter load sub-panel.

4. For on-grid systems:
 - a. Disconnect all power to the main AC panel (utility grid).
 - b. Choose which circuits will be backed by the inverter(s), and remove their wires from the main panel.
 - c. Reroute these wires to the new inverter load sub-panel.
5. Remove unused breakers from utility panel.
6. Install a 60 amp maximum (disconnect) main circuit breaker in the inverter load sub-panel.

NOTICE

BACK FED AC POWER

Back fed AC Power can damage equipment. Do not wire the inverter's AC output port directly to the utility line or generator output.

Failure to follow these instructions can result in equipment damage.

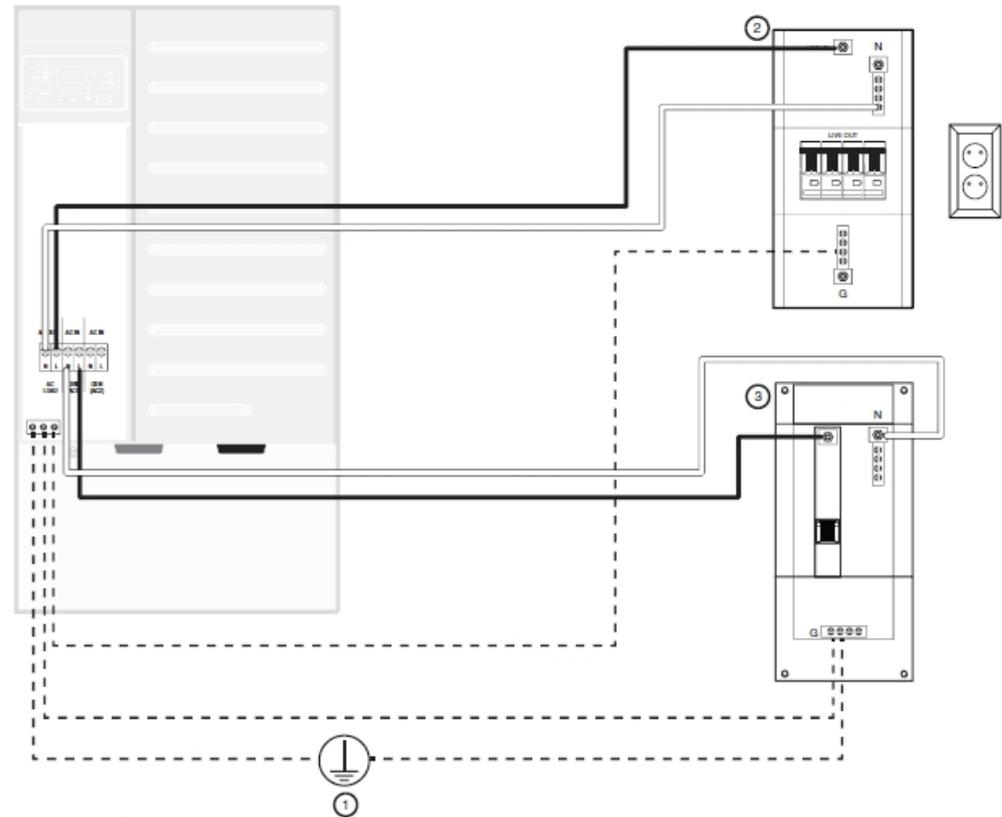
Ensure that the AC system, including the Conext XW Pro Inverter/Charger and generator, is correctly grounded according to local electrical codes. See "Grounding AC Equipment" on page 67.

NOTE: The instructions below are general guidelines only. AC breaker installation may vary. Consult your system designer or qualified technician for specific installation instructions. For more information, contact your contact your local Schneider Electric Sales Representative.

To connect the Power Distribution Panel (PDP) to the Inverter Load Sub-Panel and Utility Grid:

1. Connect L1 (from the L1 output jumper), Neutral, and Ground to your inverter load sub-panel.
2. Connect the ground wire between the PDP and the main AC Panel (utility grid).
3. Connect Neutral from the PDP to the main AC panel (utility grid).
4. Connect L1 from the input side of the AC1 breaker (L1 jumper) to the main AC panel (utility grid).

Figure 37 Wiring to the Inverter Load Sub-Panel or Utility Grid (no PDP)



LEGEND

1. Primary ground system
2. Inverter load sub-panel
3. Main utility panel

- - - - - Grounding wire
 ———— Neutral
 ———— Line (L)

Actual wiring requirements may vary.

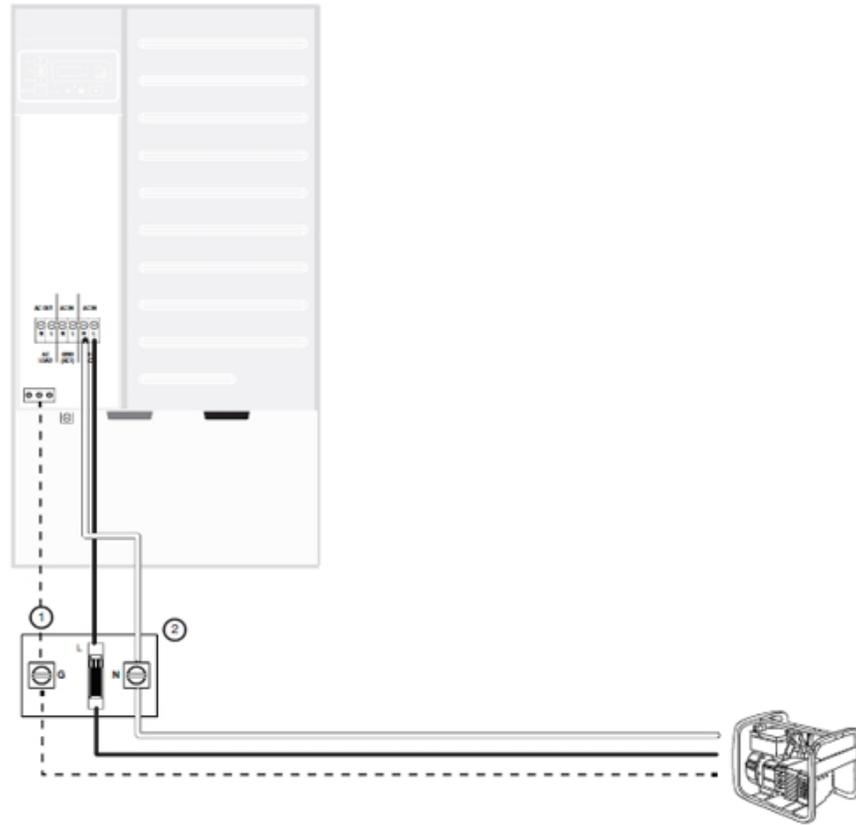
Cable routing may vary. See sections on Knockout Selection and Communications Network Preparation.

See section on Torque Requirements for torque values.

To connect the XW Pro Inverter/Charger to the AC generator:

1. Connect the ground wire from the generator breaker or disconnect to the inverter's ground bus terminal.
2. Connect the Neutral wire from the generator breaker or disconnect to the inverter's AC IN GEN (AC2) N terminal.
3. Connect the L (LINE) wire from the generator breaker or disconnect to the inverter's AC IN GEN (AC2) L terminal.

Figure 38 Wiring to the Generator (no PDP)



LEGEND

- 1. Primary ground system
- 2. Inverter load sub-panel
- 3. Main utility panel

- - - - - Grounding wire
- _____ Neutral
- Line (L)

Actual wiring requirements may vary.
 Cable routing may vary. See sections on Knockout Selection and Communications Network Preparation.
 See section on Torque Requirements for torque values.

Basic Functional Test – Single Inverter

Complete the following steps to perform a basic functional test of the XW Pro. If any test fails, refer to the Troubleshooting section in the Owner's Guide for assistance.

Confirming All Connections

After the AC and DC wiring have been installed and connected, check that all connections are correct and secure, and re-secure the AC access panel.

DANGER

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

- Remove watches, rings, or other metal objects.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Keep sparks and flames away from the batteries.
- Use tools with insulated handles.
- Wear protective glasses, gloves and boots.
- Do not lay tools or other metal parts on top of batteries.

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

DANGER

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

- Battery Circuit Breakers must be installed according to the specifications and requirements defined by Schneider Electric.
- Servicing of batteries must only be performed by qualified personnel knowledgeable of batteries and the required precautions. Keep unqualified personnel away from batteries.
- Disconnect the charging source prior to connecting or disconnecting battery terminals.

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

Applying DC Power to the Inverter

NOTICE

DC REVERSE POLARITY

Before making the final DC connection or closing the DC breaker or disconnect, check cable polarity at both the battery and the inverter/charger. Positive (+) must be connected to positive (+). Negative (-) must be connected to negative (-).

Failure to follow these instructions can result in equipment damage.

To apply DC power to the inverter:

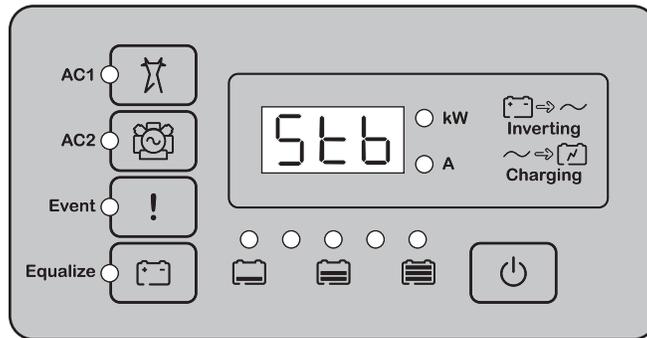
1. Before applying DC power to the inverter, measure the voltage and check polarity at all connections. Measure at the battery side of the disconnect or breaker.

NOTE: Voltage should be between 40 to 64 volts for a 48-volt system. If the DC voltage is low, the battery bank must be charged externally. Charge the battery bank, and then restart the functional test.

If the DC voltage is lower than the Low Battery Cut Out (LBCO) setting (44 volts for a 48-volt system) a DC Under Voltage Fault (F48) will be triggered. If the DC voltage is lower than the default LBCO voltage, lower the LBCO setting accordingly.

2. Apply battery (DC) power to the inverter by closing the battery bank DC disconnect. The inverter will power up in standby mode, and the inverter information panel will display Stb(standby), as shown in Figure 39 .

Figure 39 Power-up Display



Preparing for Functional Tests

Before any functional test is performed after commissioning, the firmware on the inverter needs to be upgraded to the latest version.

Upgrading the Firmware

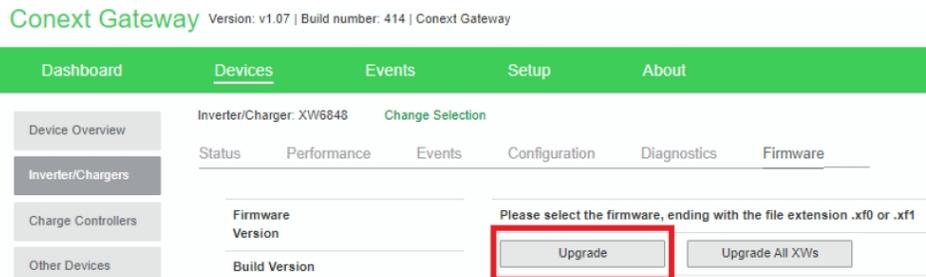
The firmware running on the XW Pro can be upgraded under the Firmware tab in the XW Pro menus.

To upgrade the firmware:

1. Download the latest firmware for your XW Pro from <https://se.com/> and save it onto your computer.
2. Using the gateway device, place the entire system in **Standby** before installing the inverter firmware update.



3. Install the firmware on the inverters by clicking Upgrade or Upgrade All XWs for single or multi-unit systems respectively.



4. Re-apply the grid code settings as per instructions in Managing Compliance Regions on page 79.

NOTE: This is required even if the inverter is still showing the correct grid code in the device menu.

Managing Compliance Regions

WARNING

ADVANCED CONFIGURATION HAZARD

- Advanced menu settings should be used by qualified personnel only.
- Three phase operation should be configured by qualified personnel only.
- Consult with the local utility before enabling XW Pro sell mode or grid support functions.
- Do not change these settings unless you are under the supervision and direction of qualified personnel.
- Connect the gateway device and the network router to an assured power source during configuration.

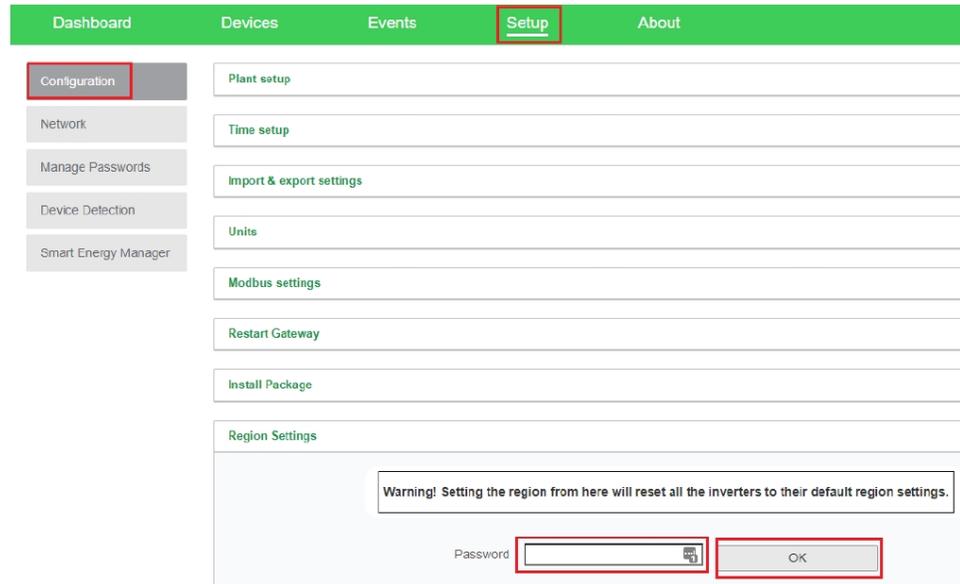
Failure to follow these instructions can result in death, serious injury, or equipment damage.

The Grid Codes tab in the XW Pro menus provides access to the autonomous grid interactive functionality including active/reactive power curves and ride-through profiles. By selecting the applicable grid compliance region, the XW Pro immediately makes all the appropriate configurations to conform with the requirements of that region, which in turn also sets the nominal grid frequency of the unit. Further adjustments of these functions can be applied after selecting a compliance region. The menu options in this page are password protected.

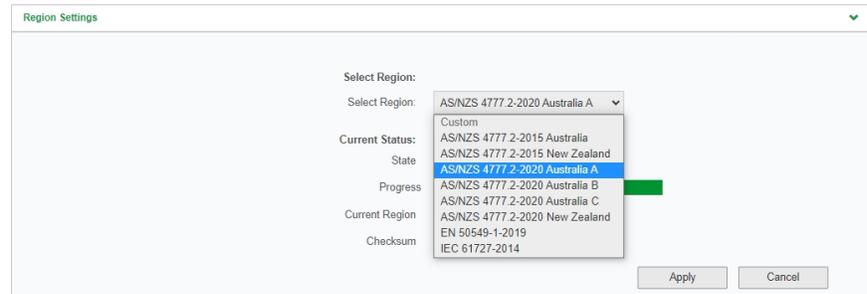
To apply a compliance region to all units connected to a gateway device simultaneously, access the Region Settings menu under Setup > Configuration. As with compliance settings for individual XW Pro in their respective menus, this menu is accessible only by qualified technicians.

To apply a grid code:

- Using gateway device, navigate to Setup -> Configuration -> Region Settings.



- Select the appropriate region grid code from the Select Region pulldown menu.
 - For grid interactive systems, the appropriate grid code is specified by the utility in their interconnection rules.
 - For AC-coupled systems, ensure that the AC coupled PV inverters are set to the same grid code.
 - Note, off-grid systems may typically use any of the grid codes. For off-grid AC coupled systems, the AS/NZS 4777.2-2015 Australia grid code is recommended for the XW Pro and PV inverters.



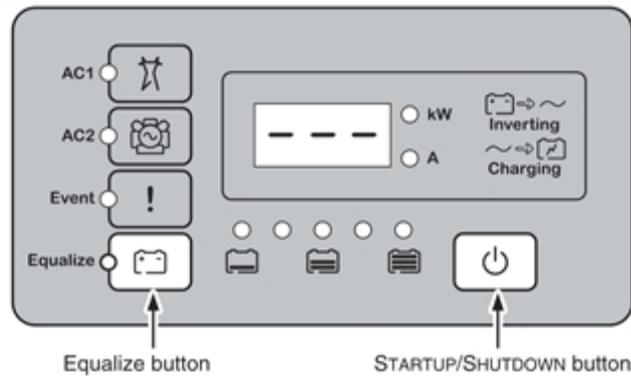
- Verify that each inverter accepted the correct Grid Code Region by navigating to Devices -> (inverter) -> Grid Codes.



Enabling the Inverter

Invert mode is enabled by default, and the XW Pro should begin inverting upon transitioning from standby mode. If invert mode is disabled, the inverter information panel will display "---" once out of standby mode, as shown in Figure 40 . If the XW Pro powers up in standby mode, press the STARTUP/SHUTDOWN button momentarily to change the mode from standby to operating.

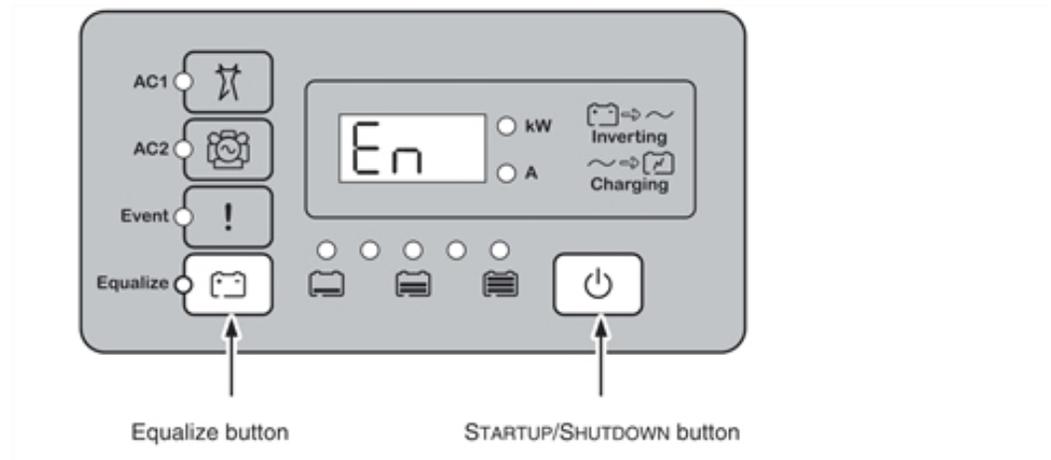
Figure 40 Disabled Mode



To enable the inverter:

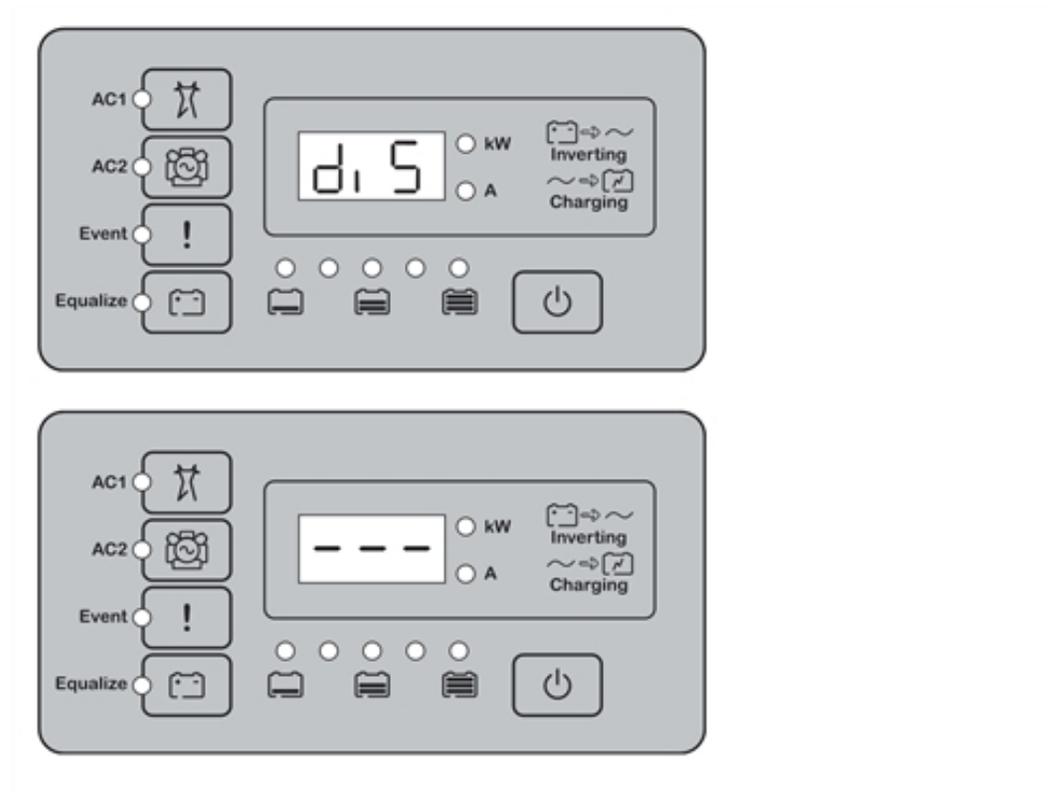
- On the inverter information panel, simultaneously press the STARTUP/SHUTDOWN button and the Equalize button. The XW Pro is now enabled, and En (enabled) is briefly displayed on the inverter information panel, as shown in Figure 41 .

Figure 41 Enabled Mode

**To disable the inverter:**

1. On the inverter information panel, simultaneously press the STARTUP/SHUTDOWN button and the Equalize button. The XW Pro is now disabled, and diS (disabled) is briefly displayed on the inverter information panel, followed by "---" (as shown in Figure 42).

Figure 42 Transition to Disabled Mode



2. Monitor the invert (green kW) LED to confirm which mode the inverter is in:
 - a. kW LED OFF – Invert mode is disabled. The inverter/charger is not powering the AC loads. However, if good AC is present, it is passed through to the loads.

- b. Sch displayed on the inverter information panel – The inverter/charger is in *search* mode and is looking for an AC load greater than the Maximum Search Watts setting (default = 25 watts). The display shows Sch (Search) when this mode has been enabled.
- c. *LED ON* – The inverter/charger is on. The inverter is operating and is able to provide power to the AC loads. This is the default mode on initial power-up once the unit is taken out of standby mode.

If the inverter is not operating or the inverter LED (kW) does not turn on, check all connections. Check the inverter's DC voltage and polarity on the positive (+) and negative(–) terminals. Check the Event LED. If the Event LED is on, check for an event code on the information panel. Correct the reported event and clear the event by acknowledging it. If the DC voltage is low, then the battery bank needs to be charged externally. Charge the battery bank and restart the functional test.

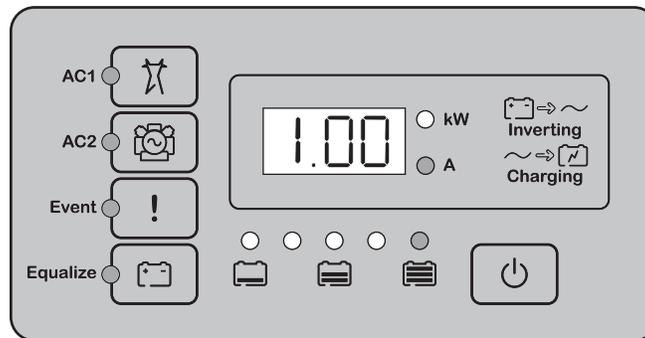
Checking AC Voltage

NOTE: This test requires the use of a voltmeter.

To perform an AC voltage check:

1. With the inverter on (green kW LED is on and steady), verify the AC voltage at AC Loads block terminal L1-Load to N-Load.
2. Verify that neutral is bonded to ground in the system by measuring the hot and neutral voltages relative to ground. Neutral-to-ground should equal zero (0) volts.
3. After confirming the correct AC voltage, turn on your AC output breaker and place a load on the inverter (plug in a light or other load to an outlet the inverter is powering).
4. Confirm that the AC load that was just turned on is working properly.

Figure 43 Checking AC Voltage

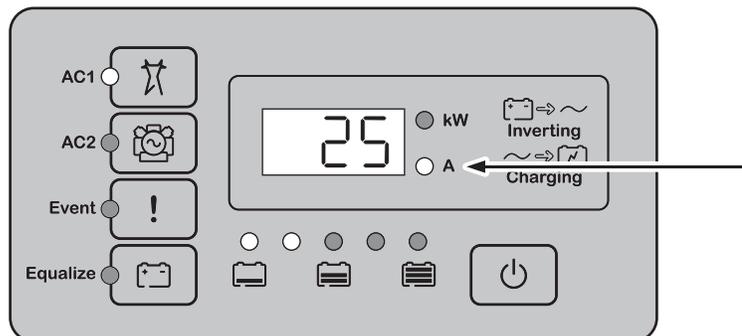


Confirming Battery Charger Operation

To confirm battery charger operation:

1. Apply AC from grid or generator. LEDs will blink while the power source is qualified.
2. Check LEDs (AC1 or AC2) on the front panel. One of them must be ON for the unit to charge.
3. Check the amp (A) LED. If the A LED is ON, the unit is charging and the battery current is displayed on the inverter information panel.

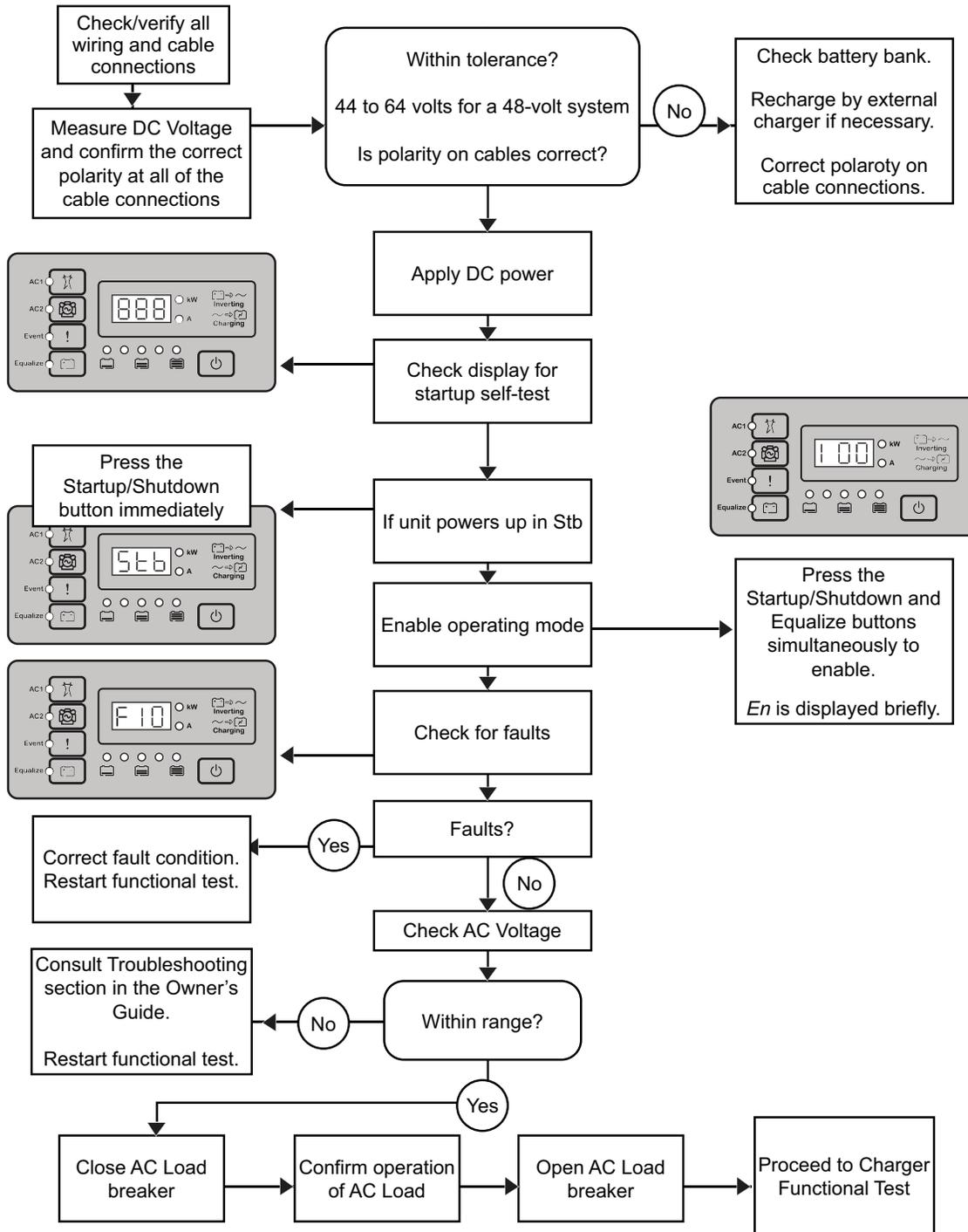
Figure 44 Checking Charging Operation



NOTE: Unless the inverter/charger settings have been changed, the inverter will charge as if it has a large (> 440 Ah) flooded battery bank (factory default setting). In newly installed systems, adjust the battery charging set points to match the batteries as installed.

This completes the functional test. If any of the internal set points need to be adjusted on the XW Pro, consult the configuration chapter of the Owner's Guide.

Figure 45 Functional Test for Single Inverter Systems



Wiring Additional XW Pro units with a PDP

This section provides instructions for making AC and DC connections between multiple XW Pro units and a Power Distribution Panel (PDP), using the cables that are included with each PDP and Connection Kit for INV2 INV3 PDP.

NOTE: The installation steps described in this section require a Connection Kit for INV2 INV3 PDP (part number 865-1020-02) for each additional XW Pro.

For more information, contact your local Schneider Electric Sales Representative or visit our website at: <https://se.com/>

NOTICE

EQUIPMENT DAMAGE

Be sure to finish all wiring (AC, DC, Xanbus, communications) when installing additional XW Pro units including wiring in "Installing AC sync and Xanbus cables" on page 115 prior to powering up the system.

Failure to follow these instructions can result in equipment damage.

Pre-Installation Steps

DANGER

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

- Remove watches, rings, or other metal objects.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Keep sparks and flames away from the batteries.
- Use tools with insulated handles.
- Wear protective glasses, gloves and boots.
- Do not lay tools or other metal parts on top of batteries.

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

DANGER

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

- Battery Circuit Breakers must be installed according to the specifications and requirements defined by Schneider Electric.
- Servicing of batteries must only be performed by qualified personnel knowledgeable of batteries and the required precautions. Keep unqualified personnel away from batteries.
- Disconnect the charging source prior to connecting or disconnecting battery terminals.

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

Before installing additional XW Pro units, disconnect all power from the system.

Depending on your installation, you may need to perform the following pre-installation steps:

1. Wall-mount additional XW Pro(s), as needed. See Pre-Installation on page 31.
2. Install the conduit box as needed. See Pre-Installation on page 31.
3. Prepare the communications network. See "Installing AC sync and Xanbus cables" on page 115.
4. Install a gateway device to configure programmable settings and to name specific network components, as needed. See Gateway Device Installation on page 119.

NOTE: When installing more than one XW Pro at a location, use a gateway device to give a unique Device Number to each XW Pro. This will help ensure Primary/Secondary relationships and other relevant configurations match the planned setup.

Up to three XW Pro units can be connected to a PDP in a split-phase system. To connect two XW Pro units to a PDP, see "Installing a Dual Inverter/Charger System" below. To connect three XW Pros to a PDP, see "Installing a Triple Inverter/Charger System" on page 91.

Grounding XW Pro Inverter/Charger

 **WARNING**

UNGROUNDING EQUIPMENT

Equipment ground terminals must be reliably connected to ground by appropriately sized grounding conductors. All installations must comply with national and local codes. Consult local and national codes for specific grounding and bonding requirements.

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

The XW Pro is provided with ground terminals that must be reliably connected to ground (protective earth) by appropriately sized equipment grounding conductors. System grounding for the AC and DC systems must be done according to all applicable installation codes.

For more information about system grounding, see "Wiring Additional XW Pro units with a PDP" on the previous page and "Wiring Additional XW Pro units with a PDP" on the previous page.

Installing a Dual Inverter/Charger System

This section provides instructions for adding a second XW Pro to your installation. Complete the following installation steps only after you have already connected the PDP to the first XW Pro, as shown in Wiring Additional XW Pro units with a PDP on page 86.

Grounding DC

See "Wiring Additional XW Pro units with a PDP" on the previous page.

Installing DC Positive Bus Bar

1. Remove the existing bus bar from the bottom terminal of the GJ250A 160 VDC, 3/8" DC disconnect/breaker (pre-installed in the PDP).
2. Install a second GJ250A - DC rated breaker (included with the Connection Kit for INV2 INV3 PDP) next to the existing DC disconnect/breaker.
3. Install the DC positive bus bar included with the Connection Kit for INV2 INV3 PDP. (his DC positive bus bar supports up to three GJ250A - DC rated breakers.
4. Remove the appropriate knockout from the Power Distribution Panel (PDP) lower faceplate.

DC Wiring for a Dual-Inverter System

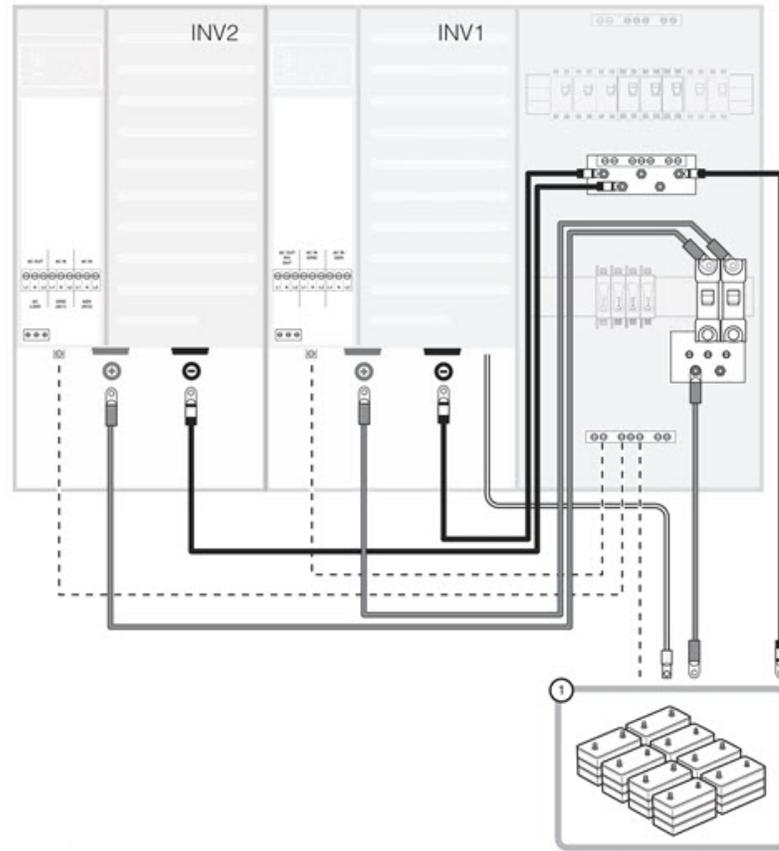
NOTE: Replace faceplates after all AC and DC wiring is complete.

1. Using the instructions provided in "Wiring Additional XW Pro units with a PDP" on page 86, make DC connections from the Power Distribution Panel (PDP) to:
 - a. the first XW Pro Inverter/Charger (INV1) and
 - b. the battery bank

NOTE: Before connecting the DC cables from the PDP to the battery, perform the procedures in "Wiring Additional XW Pro units with a PDP" on page 86.

2. Connect the positive battery cable for INV2 (included with the Connection Kit for INV2 INV3 PDP) to the top terminal on the second DC disconnect/breaker, as shown in Figure 46 .
3. Connect the negative battery cable for INV2 (included with the Connection Kit for INV2 INV3 PDP) to the DC Negative Bus.
4. Connect the positive battery cable to the positive terminal on the second XW Pro (INV2) and the negative battery cable to the negative terminal on INV2.

Figure 46 DC Connections to Dual Inverter



LEGEND

1. Battery bank

- Grounding conductor.
- (+) Positive (+) Battery
- (-) Negative (-) Battery cable

Actual wiring requirements may vary.

Cable routing may vary. See sections on Knockout Selection and Communications Network Preparation.

See section on Torque Requirements for torque values.

Grounding AC Equipment

⚠ WARNING

UNGROUNDING EQUIPMENT

Equipment ground terminals must be reliably connected to ground by appropriately sized grounding conductors. All installations must comply with national and local codes. Consult local and national codes for specific grounding and bonding requirements.

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

See "Wiring Additional XW Pro units with a PDP" on page 86.

Installing a Triple Inverter/Charger System

NOTICE

EQUIPMENT DAMAGE

- The Automatic Transfer Relays are rated at 60 A.
- Loads connected at AC OUT must not exceed the inverter's overload ratings or the 60 A limit, whichever is lower. Unless an external contactor or external transfer switch (such as the Schneider Electric BCS) is used, the 60 A limit also applies to the total combined loads connected to the AC OUT bus of multiple inverters connected in parallel.

Failure to follow these instructions can result in equipment damage.

This section provides instructions for adding a second and third XW Pro to your installation. Complete the following installation steps only after you have already connected the PDP to the first XW Pro, as shown in Wiring Additional XW Pro units with a PDP on page 86.

A system of three XW Pro units can power loads of up to 20.4 kVA. To avoid scenarios where any single unit can briefly bear the entire current drawn by the loads, an external contactor or transfer switch is required. For further details of planning for larger systems, refer to the XW Pro Multi-unit Design Guide (990-91373).

Grounding DC

⚠ WARNING

UNGROUNDING EQUIPMENT

Equipment ground terminals must be reliably connected to ground by appropriately sized grounding conductors. All installations must comply with national and local codes. Consult local and national codes for specific grounding and bonding requirements.

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

See "Wiring Additional XW Pro units with a PDP" on page 86.

Installing a DC Positive Bus Bar

1. Remove the existing bus bar from the bottom terminal of the GJ250A 160 VDC, 3/8" stud DC disconnect/breaker (pre-installed in the PDP).
2. Install a second and third GJ250A - DC rated breaker (included with each Connection Kit for INV2 INV3 PDP) next to the existing DC disconnect/breaker.
3. Install the DC positive bus bar included with the Connection Kit for INV2 INV3 PDP. This DC positive bus bar supports up to three GJ250A - DC rated breakers.
4. Remove the appropriate knockouts from the Power Distribution Panel (PDP) lower faceplate.

NOTE: Replace faceplates after AC and DC wiring is complete.

DC Wiring for a Triple-Inverter System

NOTE: One pair of battery cables is included with each Connection Kit for INV2 INV3 PDP and Power Distribution Panel (PDP).

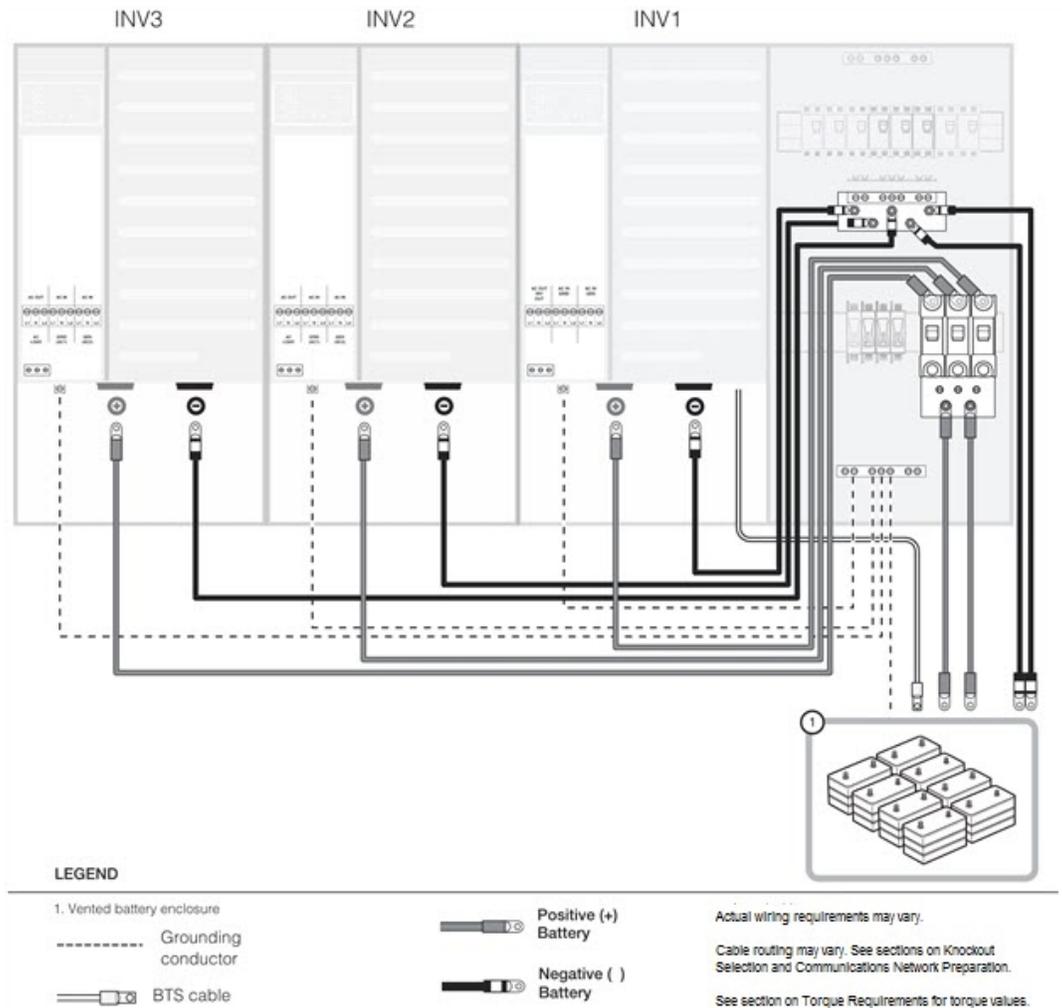
1. Using the instructions provided in "Wiring Additional XW Pro units with a PDP" on page 86, make DC connections from the Power Distribution Panel (PDP) to:
 - a. the first XW Pro Inverter/Charger (INV1) and
 - b. the battery bank.

NOTE: Before connecting the DC cables from the PDP to the battery, perform the procedures in "Wiring Additional XW Pro units with a PDP" on page 86.

2. Connect the positive battery cable for INV2 (included with the Connection Kit for INV2 INV3 PDP) to the top terminal on the second DC disconnect/breaker.
3. Connect the negative battery cable for INV2 (included with the Connection Kit for INV2 INV3 PDP) to the DC Negative Bus.
4. Connect the positive battery cable to the positive terminal on the second XW Pro (INV2) and the negative battery cable to the negative terminal on INV2.
5. Connect the positive battery cable for INV3 (included with the Connection Kit for INV2 INV3 PDP) to the top terminal on the third DC disconnect/breaker.
6. Connect the negative battery cable for INV3 (included with the Connection Kit for INV2 INV3 PDP) to the DC Negative Bus.
7. Connect the positive battery cable to the positive terminal on INV3 and the negative battery cable to the negative terminal on INV3.

NOTE: Before connecting the DC cables from the PDP to the battery, perform the procedures in "Wiring Additional XW Pro units with a PDP" on page 86.

Figure 47 DC Connections for a Triple-Inverter System



Grounding AC Equipment

See "Wiring Additional XW Pro units with a PDP" on page 86.

Calibration Procedure - Multiple Inverters

Before performing any functional tests, complete the *AC Output Voltage Configuration & Calibration* procedure found in the XW Pro Multi-unit Design Guide (990-91373).

Basic Functional Test - Multiple Inverters

The following steps will complete a basic functional test of multiple XW Pros. If any test fails, please refer to the Troubleshooting section in the Operation Guide for assistance.

To perform a functional test on multiple inverters:

1. Check/verify all wiring and cable connections.
2. Measure DC voltage at the DC terminals on the inverter and confirm it is within range and has correct polarity. The default acceptable range is 46 to 64 VDC for 48 V systems.
3. Switch INV1 DISCONNECT (DC disconnect switch) to the ON position.

4. Check inverter display for startup self-test during which LEDs will flash momentarily. Once self-test is complete, the inverter will display Stb. (The Event/Warning LED may flash for a few seconds but eventually will turn off. If the Event/Warning LED persists, check to make sure a battery temperature sensor is connected. Also, if the inverter has been pre-configured, it may go straight into normal operating mode).
5. Using the gateway device, set the First (Primary) Inverter Device Number:
 - a. Go to the inverter's Configuration page and enable Advanced View.
 - b. Under Device Instance set Device Number to 1.
 - c. Click Apply.
6. Switch INV2 DISCONNECT (DC disconnect switch) to the ON position.
7. Check inverter display for startup self-test during which LEDs will flash momentarily. Once self-test is complete, the inverter will display Stb. If the inverter has been pre-configured, it may go straight into normal operating mode or display F66 warning.
8. Using the gateway device, set the Second (Secondary) Inverter Device Number and Inverter Mode:
 - a. Select the new inverter instance in the device page.
 - b. Go to the inverter's Configuration page and enable Advanced View.
 - c. Under Device Instance set Device Number to 2 (or the next unused number).
 - d. Click Apply. The inverter will now appear as instance 2 in the device list.
 - e. Under Multi-unit Configuration, set Inverter Mode to Single Phase Secondary.
 - f. Click Apply.
9. Check for events. If events exist, correct and restart Functional Test.
10. If a third inverter is installed, repeat steps to configure it as a Secondary.
11. Using the gateway device, enable the system by going to the Devices page, and next to System Operating State, click Operating.
12. Confirm the Primary inverter displays 0.00 and the Slaves displays "---" on their front panels.
13. Check for events. If events exist, correct, and then restart Functional Test.
14. Check voltage at AC LOAD terminals of the Primary inverter.
15. Switch the AC Load breakers ON.
16. Confirm operation of connected AC loads.

NOTE: If oscillation occurs, perform the "XW+/XW Inverter/Charger Multi-Unit AC Output Voltage Configuration and Calibration" in Appendix A of the XW Pro Multi-unit Design Guide (990-91373).

17. Disconnect AC LOAD breakers.
18. Using the gateway device, reduce maximum charge rate.
 - a. From the gateway device web application, enable Cascading (if not enabled). With Cascading enabled, a change to a setting in one inverter will automatically ripple through to the other inverter(s) in the system.
 - b. In the inverter's Configuration page, under Charger Settings set Maximum Charge Rate to 10%.
 - c. Click Apply.

- 19. Switch AC input breakers ON.
NOTE: All inverters in the system must be connected to the same AC input source before they will qualify the source.
- 20. Confirm both inverters start charging.
Depending on the battery bank's state-of-charge, the output from one or more inverters may quickly drop to zero. This is considered normal operation.
- 21. Check for events. If events exist, correct, and then restart the Functional Test.

If the Inverters pass the Functional Test, proceed to the Commissioning procedure as defined in the Operation Guide.

Wiring a Balanced Three-Phase System

This section provides instructions for wiring the AC and DC connections in the Power Distribution Panel (PDP) and XW Pro for a balanced three-phase system.

NOTE: XW Pro is not evaluated for 3-phase application as per AS 4777.2-2020 Grid Code.

Pre-Installation Steps

 DANGER
HAZARD OF ELECTRIC SHOCK, EXPLOSION, ARC FLASH, AND FIRE
<ul style="list-style-type: none">▪ Remove watches, rings, or other metal objects.▪ This equipment must only be installed and serviced by qualified electrical personnel.▪ Keep sparks and flames away from the batteries.▪ Use tools with insulated handles.▪ Wear protective glasses, gloves and boots.▪ Do not lay tools or other metal parts on top of batteries.
Failure to follow these instructions will result in death or serious injury.

 DANGER
HAZARD OF ELECTRIC SHOCK, EXPLOSION, ARC FLASH, AND FIRE
<ul style="list-style-type: none">▪ Battery Circuit Breakers must be installed according to the specifications and requirements defined by Schneider Electric.▪ Servicing of batteries must only be performed by qualified personnel knowledgeable of batteries and the required precautions. Keep unqualified personnel away from batteries.▪ Disconnect the charging source prior to connecting or disconnecting battery terminals.
Failure to follow these instructions will result in death or serious injury.

Before installing a three-phase system, disconnect all power from the system.

Depending on your installation, you will need to perform the following pre-installation steps:

1. Wall-mount XW Pros and PDP. See Pre-Installation on page 31.
2. Install conduit boxes as needed. See Pre-Installation on page 31.
3. Install AC sync and Xanbus cable(s) as needed. See "Installing AC sync and Xanbus cables" on page 115.
4. Remove knockouts on the PDP as needed to accommodate the wiring. See "Pre-Installation" on page 31 for more information about knockouts.

XW Pro Inverter/Charger Grounding

WARNING

UNGROUNDING EQUIPMENT

Equipment ground terminals must be reliably connected to ground by appropriately sized grounding conductors. All installations must comply with national and local codes. Consult local and national codes for specific grounding and bonding requirements.

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

The XW Pro is provided with ground terminals that must be reliably connected to ground (protective earth) by appropriately sized equipment grounding conductors. System grounding for the AC and DC systems must be done according to all applicable NEC and local installation codes.

For more information about system grounding, see "Wiring Additional XW Pro units with a PDP" on page 86 and "Wiring Additional XW Pro units with a PDP" on page 86.

DC Wiring for a Three-Phase System

Battery cables

Battery cables are not included in the XW Pro package. Depending on your installation requirements, you will need to supply at least one pair of battery cables. For battery cable requirements, see "Pre-Installation" on page 31.

NOTE: One pair of #4/0 AWG Arctic Ultraflex Blue™ battery cables is included with each Power Distribution Panel (PDP) and Connection Kit for INV2 INV3 PDP. For more information, see "Overview" on page 19.

  DANGER

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

- Remove watches, rings, or other metal objects.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Keep sparks and flames away from the batteries.
- Use tools with insulated handles.
- Wear protective glasses, gloves and boots.
- Do not lay tools or other metal parts on top of batteries.

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

  DANGER

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

- Battery Circuit Breakers must be installed according to the specifications and requirements defined by Schneider Electric.
- Servicing of batteries must only be performed by qualified personnel knowledgeable of batteries and the required precautions. Keep unqualified personnel away from batteries.
- Disconnect the charging source prior to connecting or disconnecting battery terminals.

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

 WARNING

OVERHEATING OF DC TERMINALS AND CABLES

Overheating of the DC terminals or DC cables to dangerous temperatures may occur due to improper installation.

- Do not put anything between the cable lug and the terminal surface.
- Do not over-tighten connections; observe all recommended torque values.
- Do not apply any type of anti-oxidant paste until after the cable connection is tightened.
- Do not under size cables; install cables sized in accordance with national electrical code requirements.
- DC cables must have crimped copper compression lugs or crimped and soldered copper compression lugs; soldered connections alone are not acceptable. Lugs must be rated for use with fine-stranded cable.
- Do not use coarse-stranded cable; the lack of flexibility may pull DC terminal connections loose.

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

For more information about battery cables, see Wiring Additional XW Pro units with a PDP on page 86.

NOTE: When making DC connections, be sure to observe correct hardware stacking and proper polarity, and ensure that nothing obstructs the connection between the terminal surface and the battery cable lug, see on page 86.

DC Grounding

See "Wiring Additional XW Pro units with a PDP" on page 86.

DC Positive Bus Bar Installation

1. Remove the existing bus bar from the bottom terminal of the GJ250A 160 VDC, 3/8" stud DC disconnect/breaker (pre-installed in the PDP).
2. Install a second and third GJ250A - DC rated breaker (included with each Connection Kit for INV2 INV3 PDP) next to the existing DC disconnect/breaker.
3. Install the DC positive bus bar included with the Connection Kit for INV2 INV3 PDP. This DC positive bus bar supports up to three GJ250A - DC rated breakers.
4. Remove the appropriate knockout from the Power Distribution Panel (PDP) lower faceplate.

NOTE: Replace faceplates after AC and DC wiring is complete.

DC Wiring for a Balanced Three-Phase System

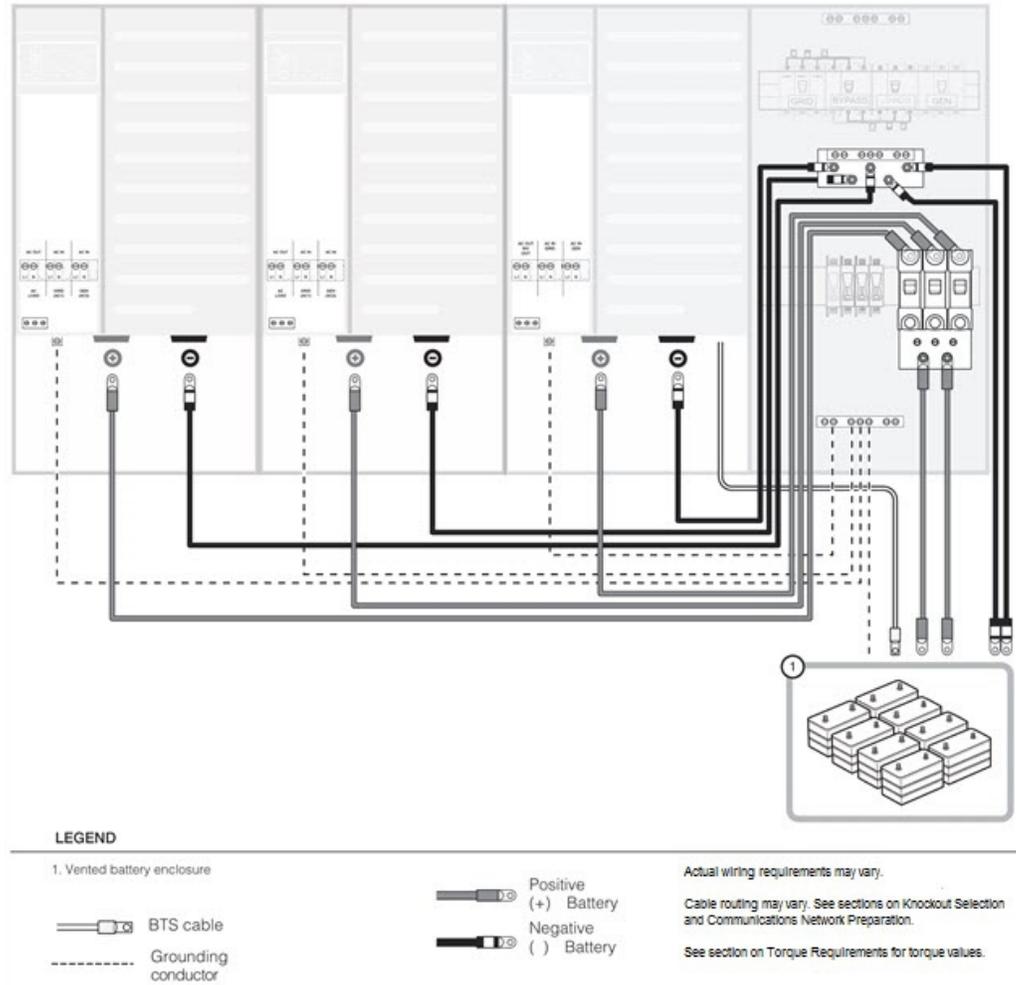
NOTE: One pair of battery cables is included with each Connection Kit for INV2 INV3 PDP and Power Distribution Panel (PDP).

1. Using the instructions provided in "Wiring Additional XW Pro units with a PDP" on page 86, make DC connections from the Power Distribution Panel (PDP) to:
 - a. the first XW Pro Inverter/Charger (INV1) and
 - b. the battery bank.

NOTE: Before connecting the DC cables from the PDP to the battery, perform the procedures in "AC Wiring for a Three-Phase System" on the next page.

2. Connect the positive battery cable for INV2 (included with the Power Distribution Panel (PDP)) to the top terminal on the second DC disconnect/breaker.
3. Connect the negative battery cable for INV2 (included with the Connection Kit for INV2 INV3 PDP) to the DC Negative Bus.
4. Connect the positive battery cable to the positive terminal on the second XW Pro (INV2) and the negative battery cable to the negative terminal on INV2.
5. Connect the positive battery cable for INV3 (included with the Connection Kit for INV2 INV3 PDP) to the top terminal on the third DC disconnect/breaker.
6. Connect the negative battery cable for INV3 (included with the Connection Kit for INV2 INV3 PDP) to the DC Negative Bus.
7. Connect the positive battery cable to the positive terminal on INV3 and the negative battery cable to the negative terminal on INV3.

Figure 48 Three-Phase DC Wiring



AC Breaker Installation

See "Wiring Additional XW Pro units with a PDP" on page 86.

AC Equipment Grounding

See "Wiring Additional XW Pro units with a PDP" on page 86.

AC Wiring for a Three-Phase System

To connect the Conext Power Distribution Panel (PDP) to the XW Pros:

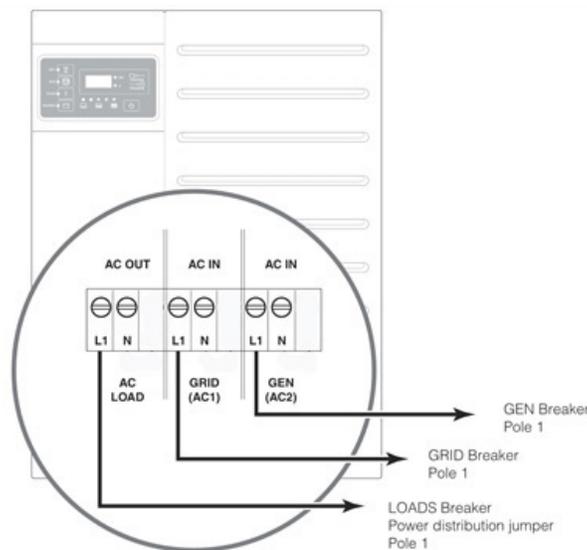
1. Connect the L1, L2, and L3 AC wiring from each pole on the GRID breaker to the corresponding AC Input (AC1) terminal on each XW Pro unit, with each line connected to a designated primary/secondary unit.
2. Connect the L1, L2, and L3 AC wiring from each pole on the LOAD breaker to the corresponding AC OUT terminal on each XW Pro unit. If an external contactor is present, do not use the AC OUT terminal. Instead, connect the L1 AC wiring from each pole on the LOAD breaker to the corresponding AC1 terminal on each XW Pro unit.

3. Connect the L1, L2, L3, Ground, and Neutral AC wiring from the LOADS breaker jumpers to the AC LOADS panel.
4. Connect the L1, L2, L3, Ground, and Neutral AC wiring from the utility grid distribution panel to the GRID breaker jumpers.
5. If the installation includes a generator or second AC source, connect the L1, L2, and L3 AC wiring from each pole on the GEN breaker to the corresponding AC Input (AC2) terminal on each of the three lines of XW Prounits.

To connect the XW Pro units to each other:

1. Connect the AC Wiring in the primary inverter/charger (INV1) terminal block. See Figure 49 . Connect INV2 and INV3 the same way, ensuring that each pole of the three-phase WYE system (L1, L2, L3) gets connected to the respective inverter (INV1, INV2, INV3).

Figure 49 Inverter/Charger Three-Phase AC Wiring



2. Connect neutral wiring from INV1, INV2, and INV3 to the neutral bus bar on the PDP.
3. Connect ground wiring from INV1, INV2, and INV3 to the ground bus bar on the PDP.
4. Label the AC breakers as appropriate.
5. Install the bypass interlock plate or external bypass switch as appropriate. For more information, contact your local Schneider Electric Sales Representative.

Wiring the XW Pro Inverter/Charger without a PDP

DANGER

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

- Remove watches, rings, or other metal objects.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Keep sparks and flames away from the batteries.
- Use tools with insulated handles.
- Wear protective glasses, gloves and boots.
- Do not lay tools or other metal parts on top of batteries.

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

DANGER

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

- Battery Circuit Breakers must be installed according to the specifications and requirements defined by Schneider Electric.
- Servicing of batteries must only be performed by qualified personnel knowledgeable of batteries and the required precautions. Keep unqualified personnel away from batteries.
- Disconnect the charging source prior to connecting or disconnecting battery terminals.

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

This section provides illustrations for wiring the AC and DC connections for a XW Pro without a Power Distribution Panel (PDP).

Pre-Installation Steps

Depending on your installation, you will need to perform some or all of some the following pre-installation steps:

1. Prepare the battery bank. See "Pre-Installation" on page 31.
2. Wall-mount the XW Pros. See Pre-Installation on page 31.
3. Install conduit boxes as needed. See Pre-Installation on page 31.
4. Install AC sync and Xanbus cable(s) as needed. See "Installing AC sync and Xanbus cables" on page 115.
5. Remove knockouts on the PDP as needed to accommodate the wiring. See "Pre-Installation" on page 31 for more information about knockouts.

Feed-in Protection Requirements

NOTICE

OVERLOADING THE DISTRIBUTION PANEL

The amount of power that can be fed into a distribution panel and the means and location for feed-in, must be in accordance with the current requirements of the local electrical code.

Failure to follow these instructions can result in equipment damage.

XW Pro Inverter/Charger Grounding

⚠ WARNING

UNGROUNDING EQUIPMENT

Equipment ground terminals must be reliably connected to ground by appropriately sized grounding conductors. All installations must comply with national and local codes. Consult local and national codes for specific grounding and bonding requirements.

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

The XW Pro is provided with ground terminals that must be reliably connected to ground (protective earth) by appropriately sized equipment grounding conductors. System grounding for the AC and DC systems must be done according to all applicable installation codes.

For more information about system grounding, see "Wiring Additional XW Pro units with a PDP" on page 86 and "Wiring Additional XW Pro units with a PDP" on page 86.

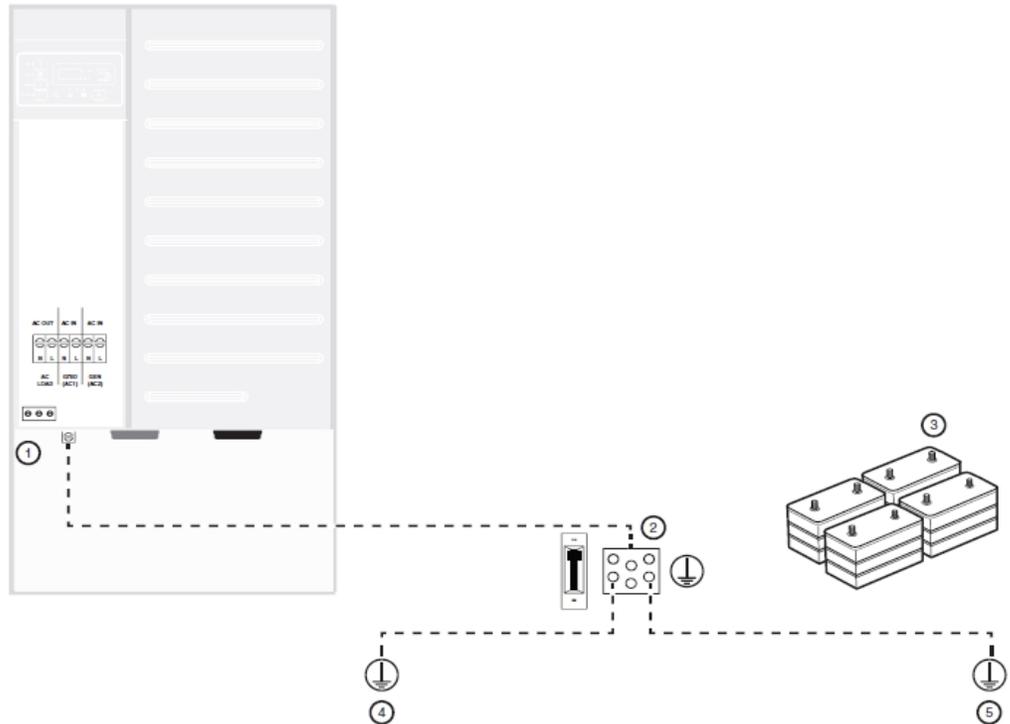
Grounding the DC System

To connect the XW Pro to the DC grounding system, use the ground lug at the bottom of the XW Pro chassis (see on page 19). The terminal accepts wires from 1.63 mm (#14 AWG) to 6.54 mm (#2AWG).

System grounding for the DC system, which typically involves bonding (connecting) the battery negative circuit to ground, is dependent on the system configuration.

NOTE: If a grounded DC system is required, ensure that the system bonding is done in one location only, and that all conductors and connections comply with all applicable installation codes.

Figure 50 Grounding the DC System (No PDP)

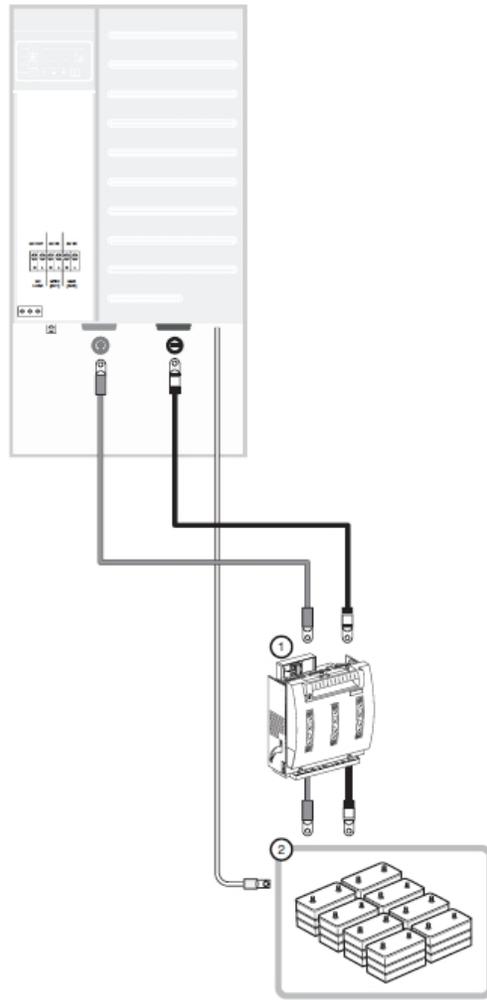


LEGEND

- 1. Ground lug
- 2. Negative ground/bus
- 3. Battery
- 4. Primary system ground
- 5. Battery chassis ground (if present)

Actual wiring requirements may vary.
 Cable routing may vary. See sections on Knockout Selection and Communications Network Preparation.
 See section on Torque Requirements for torque values.

Figure 51 DC Connections to a Single Inverter (No PDP)



LEGEND

- 1. Battery Fuse Disconnect Box
- 2. Battery

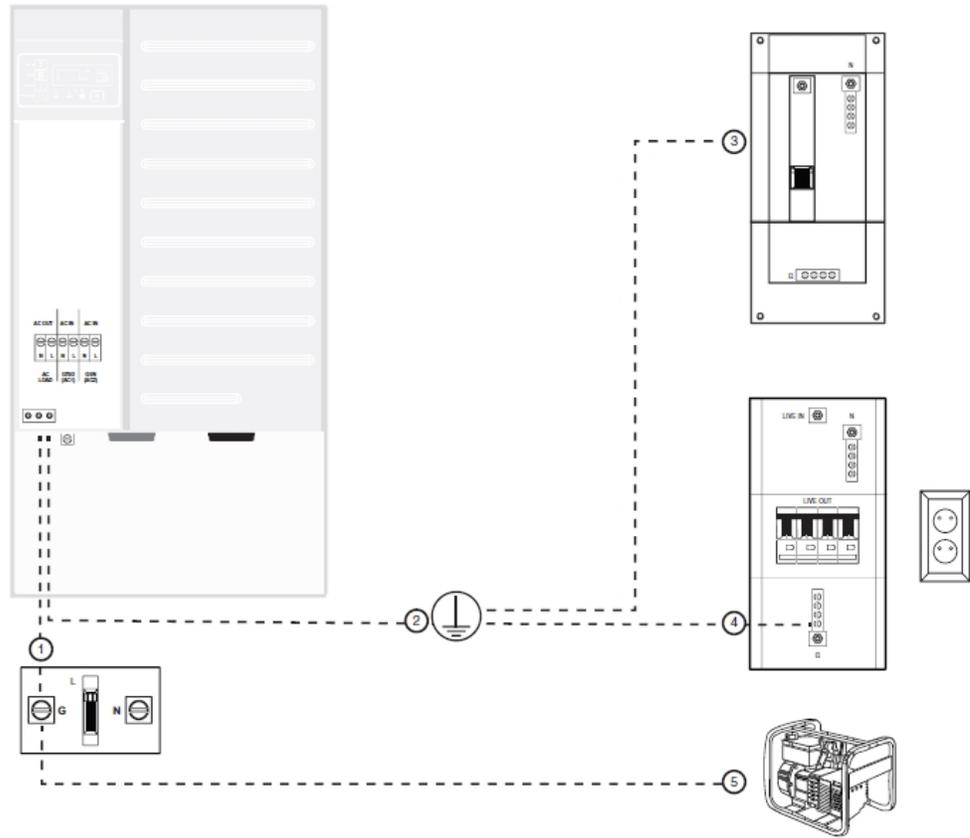
-  Positive (+) Battery cable
-  Negative (-) Battery cable
-  BTS cable

Actual wiring requirements may vary.

Cable routing may vary. See sections on Knockout Selection and Communications Network Preparation.

See section on Torque Requirements for torque values.

Figure 52 Grounding the AC System (No PDP)



LEGEND

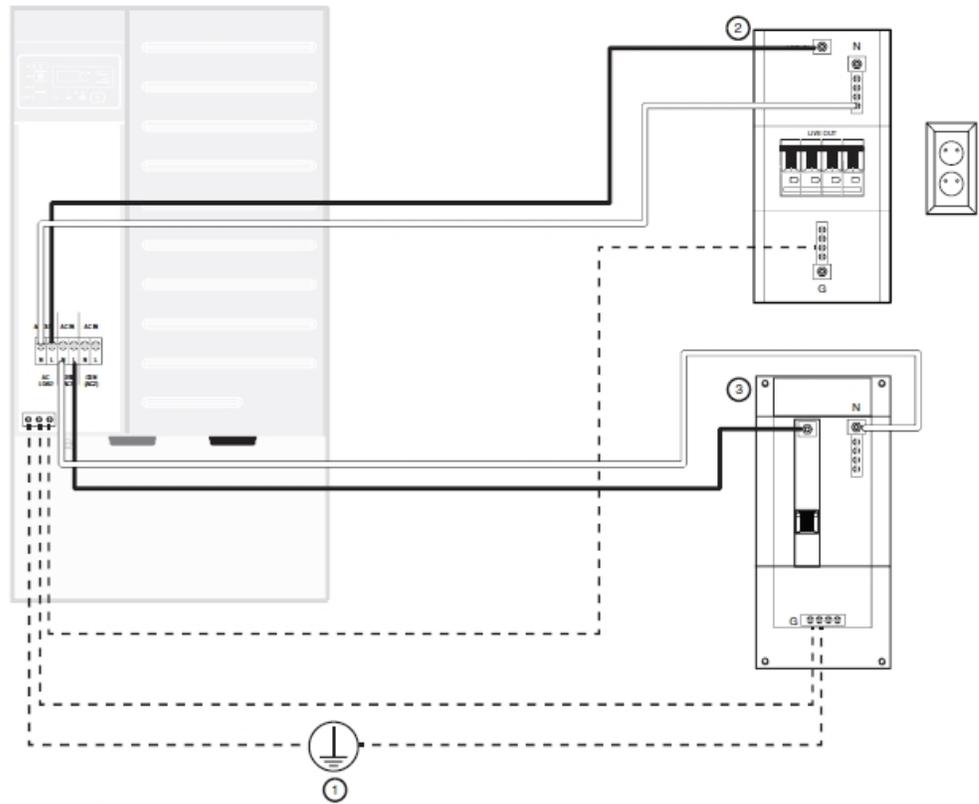
- 1. Generator disconnect
- 2. Primary system ground
- 3. Main utility panel
- 4. Inverter load sub-panel
- 5. AC generator

Actual wiring requirements may vary.

Cable routing may vary. See sections on Knockout Selection and Communications Network Preparation.

See section on Torque Requirements for torque values.

Figure 53 AC Output Wiring to the Inverter Load Sub-Panel (No PDP)

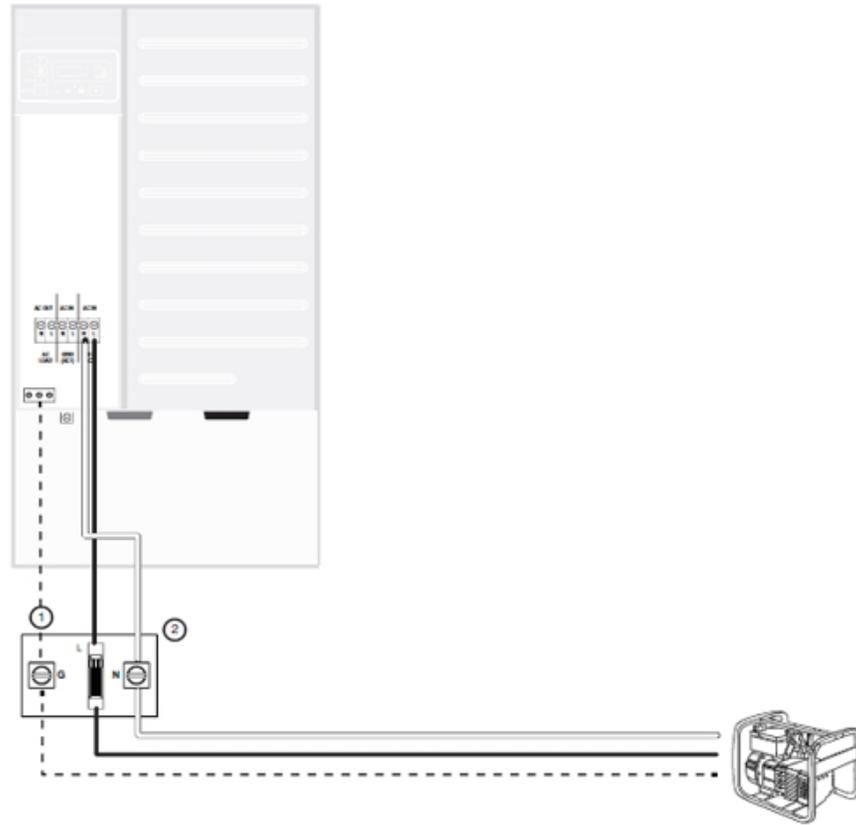


LEGEND

- | | | |
|----------------------------|-------|----------------|
| 1. Primary ground system | ----- | Grounding wire |
| 2. Inverter load sub-panel | _____ | Neutral |
| 3. Main utility panel | ————— | Line (L) |

Actual wiring requirements may vary.
 Cable routing may vary. See sections on Knockout Selection and Communications Network Preparation.
 See section on Torque Requirements for torque values.

Figure 54 Generator Wiring directly to the Inverter (No PDP)



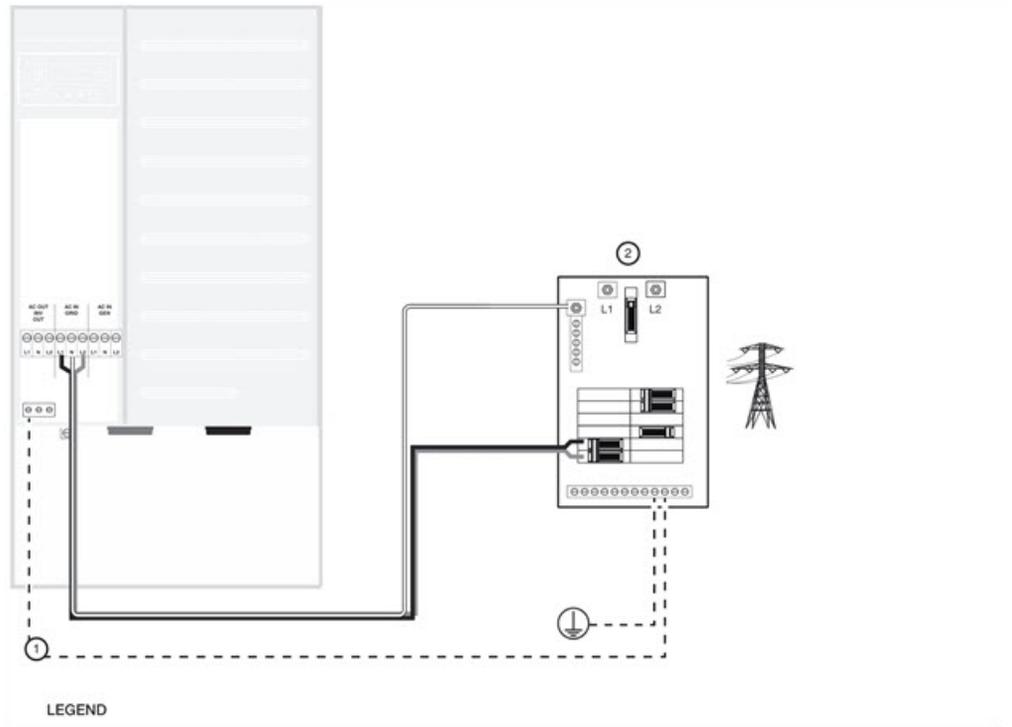
LEGEND

- 1. Primary ground system
- 2. Inverter load sub-panel
- 3. Main utility panel

- - - - - Grounding wire
- Neutral
- Line (L)

Actual wiring requirements may vary.
 Cable routing may vary. See sections on Knockout Selection and Communications Network Preparation.
 See section on Torque Requirements for torque values.

Figure 55 Utility Wiring to the Inverter Input (No PDP)



LEGEND

- 1. AC ground bar
- 2. Main utility panel

- Grounding wire
- ==== Neutral
- Hot L1
- Hot L2

Actual wiring requirements may vary.
 Cable routing may vary. See sections on Knockout Selection and Communications Network Preparation.
 See section on Torque Requirements for torque values.

4 Communication

What's in This Chapter?

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Installation Tools and Materials	115
Installing AC sync and Xanbus cables	115
Guidelines for Routing the Xanbus Cables	117

The Xanbus Network

A Xanbus network is a collection of Xanbus enabled devices that perform individual functions, but also communicate and interact with other devices on the network. The network capability of the XW Pro provides a solution that simplifies and automates the installation, configuration, control, monitoring, and integration of devices.

Network Components

NOTICE

SHORT CIRCUIT OF NETWORK COMPONENTS

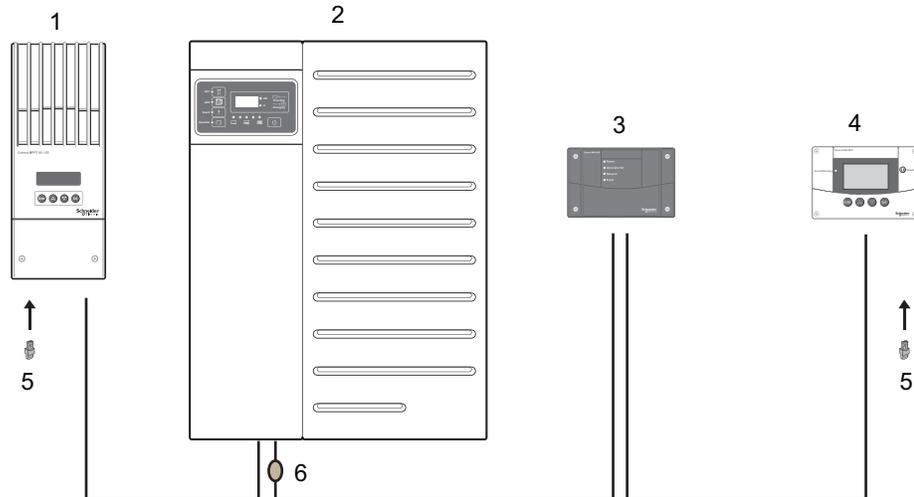
- **This network is not an ethernet system.** Only connect Xanbus-enabled devices to other Xanbus-enabled devices. Do not attempt to connect Xanbus-enabled devices to other networks or systems.
- Ethernet crossover cables are not compatible with the Xanbus system. Use Category 5 (CAT 5 or CAT 5e) cables to connect Xanbus-enabled devices.
- Do not install network terminators in an AC Sync port.

Failure to follow these instructions can result in equipment damage.

A Xanbus network consists of three elements: Xanbus-enabled devices, Xanbus power supply, and Xanbus cables.

Each device is integrated into the network using cables, network connectors, and terminators. An example of a network system is shown in Figure 56 .

Figure 56 Xanbus Network System (Example)



1	Conext MPPT Charge Controller
2	XW Pro Inverter/Charger
3	Conext Automatic Generator Start (AGS)
4	System Control Panel
5	Network Terminator
6	Ferrite Bead

Power Distribution Panel (without AC Breakers)-enabled Devices

A Xanbus-enabled device is any product that works on a Xanbus network. Below are some examples of Xanbus-enabled devices:

- gateway device
- XW Pro
- Conext AGS
- Conext Battery Monitor
- Conext MPPT solar charge controller MPPT 60 150
- Conext MPPT solar charge controller MPPT 80 600
- Conext MPPT solar charge controller MPPT 100 600

Due to network traffic, the maximum number of XW Pro units in a single Xanbus network should not exceed twelve. The maximum number of Conext MPPT Solar Charge Controllers in a single Xanbus network should not exceed six.

The combined maximum number of XW Pro units and Conext MPPT Solar Charge Controllers should not exceed twelve.

Xanbus Power Supply

Xanbus-enabled devices are either power-supplying or power-consuming. The Xanbus network needs at least one device with a power supply sufficient to run the entire network.

NOTE: The total network current supplied by the power-sourcing devices must be equal to or greater than the total current drawn by the power-consuming devices. The power supply must be capable of providing 15 VDC/200 mA to each device.

NOTICE

EQUIPMENT DAMAGE HAZARD

RJ45 ports for Xanbus and ethernet look identical but are not interchangeable. Be sure to connect the proper cable to the correct port.

Failure to follow these instructions can result in equipment damage.

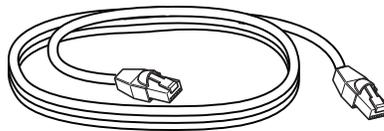
For example, in a system with a XW Pro, gateway device, and Conext AGS, the XW Pro is a power-supplying device capable of providing 800 mA at 15 VDC while the two other devices each consume a maximum of 200 mA for a total maximum consumption of 400 mA. In this example, the network is properly configured from a power perspective because the power source is capable of providing more current than is needed: $800\text{ mA} > 400\text{ mA}$.

NOTE: See the specifications for each Xanbus-enabled device to determine how much power each device consumes or supplies.

Xanbus Cables

Each Xanbus-enabled device is connected by a Category 5 (CAT 5 or CAT 5e) cable, a standard cable available from the manufacturer or any computer supply store. The cable consists of eight conductors in four twisted pairs with an RJ45 modular connector wired to the T568A or T568B standard. The minimum cable length should be 6 ft. (1.8 m).

Figure 57 Xanbus Cable



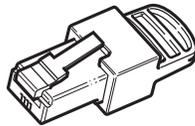
Network Terminators

The Xanbus network must be properly terminated at each end to help ensure the communication signal quality on the network. If more than two 120 Ohm terminators are used anywhere on the Xanbus network, including each of the Schneider Conext XW+/SW Configuration Tool Dongles (P/N 865-1155-01), then the Xanbus network may become unstable due to poor signal quality.

NOTE: If the network is not properly terminated, signal quality is degraded and performance on the network is reduced. Permanent configuration without terminators is not supported.

The XW Pro and other Xanbus-enabled devices ship with one network terminator. Depending on your network layout, this terminator may need to be removed from the XW Pro Inverter/Charger and inserted into another device elsewhere in the network.

Figure 58 Network terminator



Xanbus Clip-on Ferrite Bead

A clip-on ferrite bead is included to aid in suppressing high frequency electrical noise on the Xanbus network. For optimal results, place the ferrite bead as close to the XW Pro ports as possible.

Installing the Network

NOTE: Installing and replacing Xanbus-enabled devices in an existing system must be performed with the XW Pro in standby mode. For more information about standby mode, see the Owner's Guide.

Before You Begin the Installation

- Read the entire section before installing the network. It is important to plan the installation from beginning to end.
- Assemble all the tools and materials required for the installation.

Installation Tools and Materials

Tools

A Phillips head screwdriver, appropriately sized is required to install the Xanbus cables.

Materials

The following materials may be required to complete the installation.

- CAT 5 or CAT 5e cables (available from computer supply stores)
- Terminators

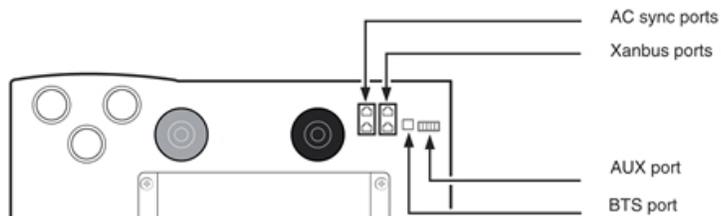
NOTE: Mount cables and network connectors in a dry location.

Installing AC sync and Xanbus cables

The AC sync cable connects each inverter and provides the necessary communication and control between multiple units. Install these cables, routing them through the conduit box raceway, prior to making the AC and DC wiring connections.

NOTE: If you are installing a Xanbus-enabled device on an existing Xanbus system, put the system in standby mode by holding the STARTUP/SHUTDOWN and Equalize buttons for 5 seconds, or via the gateway device web application.

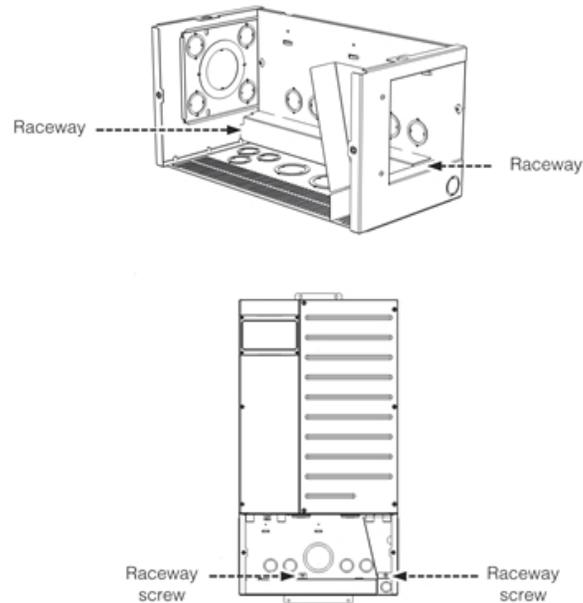
Figure 59 XW Pro communication ports



To install the AC sync and Xanbus cables:

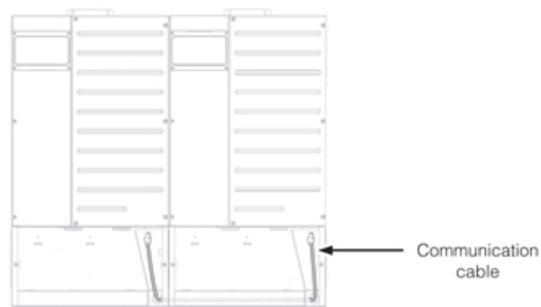
1. Remove the two raceways for the communication cabling by removing the screw holding each raceway in place, as shown in Figure 60 .

Figure 60 Conduit box raceways



2. Insert the RJ45 jack on the cable into one of the two AC Sync ports.
3. Route the cable as shown in Figure 61 . Route any additional communication cables through the raceways. Replace the wiring raceways, ensuring not to pinch the cables. Secure the raceways to the conduit box with the screw that was removed earlier.

Figure 61 Installing the AC sync and Xanbus Cables



NOTE: In a dual-inverter system, install an AC Sync Cable from INV1 to INV2. In a triple-inverter system, daisy-chain an AC Sync Cable from INV1 to INV2 and from INV2 to INV3.

Guidelines for Routing the Xanbus Cables

WARNING

XANBUS SHOCK HAZARD

Xanbus cables in contact with DC or AC power can transmit an electric shock. Do not route the Xanbus cables in the same conduit or panel as the AC and DC power cabling.

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

To help ensure maximum performance of your network, follow these guidelines when routing the Xanbus cables.

- Route the cables away from sharp edges that might damage the insulation. Avoid sharp bends in the cable—no less than a 4-inch (100 mm) radius.
- Allow at least 2 ¼ inches (57 mm) of space behind the wall to accommodate the depth of the unit and allow room for the cables to bend.
- Allow for some slack in the cable tension.
- Keep the alignment of wire pairs inside the sheath as straight as possible.
- Allow separation between data and power cables (data cables should only cross over a power cable at right angles).
- Avoid using metal cable staples. Use appropriate hardware fasteners to avoid damage to the cable.
- Support horizontal cables using J hooks or cable trays.

The total length of the network, including all connected Xanbus-enabled devices and the XW Pro, cannot exceed 130 feet (40 m).

5 Access Installation

What's in This Chapter?

Gateway Device Installation	119
Installing the Gateway Device via the Xanbus Network	119
Verifying the Installation	120

Gateway Device Installation

There are three gateway devices that allow you to configure and monitor the XW Pro through a web portal called InsightLocal on a connected PC or laptop. In addition, the InsightCloud option has available any-where-in-the-world cloud-based monitoring.

You can find information about the following available configuration and monitoring gateway devices at <https://se.com/>.

- Conext Gateway: Conext Gateway Owner's Guide (975-0806-01-xx)
- InsightHome: InsightHome Owners Guide (990-91410)
- InsightFacility: InsightFacility Owners Guide (990-91411)

Installing the Gateway Device via the Xanbus Network

⚠ WARNING

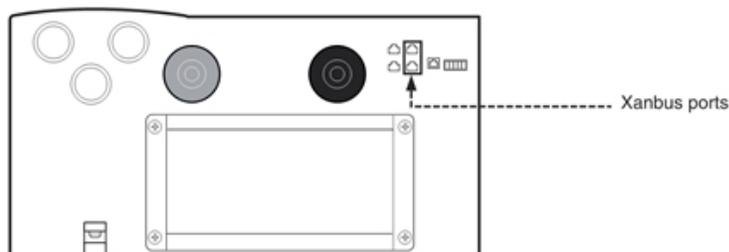
IGNITION AND FIRE HAZARD

- This equipment is not ignition protected. To prevent fire or explosion, do not install this product in locations that require ignition-protected equipment. This includes any confined space containing vented batteries, or flammable chemicals such as, natural gas (NG), liquid petroleum gas (LPG) or gasoline (Benzine/Petrol).
- Do not install in a confined space with machinery powered by flammable chemicals, or storage tanks, fittings, or other connections between components of fuel or flammable chemical systems.
- Do not install the inverter near readily flammable materials such as cloth, paper, straw, or plastic sheeting. Keep flammable materials a minimum distance of 600 cm (24 in.) from the top surface and 30 cm (12 in.) from either side surface and the front of the XW Pro Inverter/Charger.

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

The gateway device is connected to the Xanbus network via either of the two Xanbus network ports located at the bottom of the XW Pro chassis (as shown in Figure 62).

Figure 62 Xanbus Port Locations



For more information about installing a Xanbus-enabled device as part of a network system, see "The Xanbus Network" on page 111.

For wall-mounting and other installation instructions, see the documentation for your specific gateway device.

Verifying the Installation

If network power (from an inverter/charger) is present, the gateway device LEDs will illuminate. For more information, see the *XW Pro Owner's Guide*.

6 Specifications

What's in This Chapter?

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Electrical Specifications	123
Mechanical and Regulatory Specifications	125

Appendix A: Specifications

Appendix A: “Specifications” provides the electrical and mechanical specifications for the XW Pro.

DISCLAIMER REGARDING STATUS DATA

Status data reported by the XW Pro are approximate values intended to provide general and non-exact information about the XW Pro. Under no circumstances should this status data be used for precise evaluation of the XW Pro system performance, including efficiency considerations. In systems with a single XW Pro, the measurement capabilities of the inverter/charger allow for deviations of up to 5% of actual values. In systems with multiple inverter/charger units, the compounded effect of accuracy deviations in the status data could result in aggregated deviations exceeding 5% of actual values. For systems requiring higher accuracy status reporting of ac parameters, Schneider Electric recommends the use of external monitoring equipment of appropriate and accurate calibration. For higher accuracy measurement of dc (battery) parameters, Schneider Electric recommends installing an appropriate dc battery monitor in the system.

Electrical Specifications

NOTE: Specifications are subject to change without prior notice. Where settings in the table below indicate a range, the setting is dependent upon the default data in the grid code selected during commissioning.

Table 11 XW Pro Electrical Specifications

Specification	XW Pro 8548
Max. Continuous AC Output Power @ 25C (AC Out)	6,800 VA
Max. Continuous AC Output Power @ 40C (AC Out)	6,000 VA
Surge Rating AC (Overload for 1 minute, AC Out)	12,000 VA
Surge Rating AC (Overload for 30 minutes, AC Out)	8,500 VA
Max. Continuous AC Output Sell Power (AC1)	6,000 VA (5,000 VA) ¹
Nominal AC Voltage (AC1, AC2, AC Out)	230V, 1-ph/N
AC Voltage Range (AC1)	165 – 280 V ²
Nominal AC Frequency (AC1, AC2, AC Out)	50 Hz
AC Frequency Range (AC1)	40 – 70 Hz
Power Factor (Charge Mode, AC1, AC2)	> 0.98
Power Factor Range (Inverter Mode, AC Out)	0.60 leading to 0.60 lagging
Power Factor Range (Grid Interactive Mode, AC1)	0.80 leading to 0.80 lagging
AC1 (Grid) Input Current	3–60 A

¹Equivalent to rated apparent power for Australia

²Operation is specific to the active grid code

Specification	XW Pro 8548
AC2 (Generator) Input Current	3–60 A
Max. Continuous Input AC Current (AC1, AC2)	56 A
Max. Continuous Output Sell AC Current (AC1, AC2)	27 A
Nominal Output Current (AC1)	21.7 A ¹
Surge Current AC (Inverter Mode)	53 ARMS for 60 s
Inrush Current (AC1, AC2, AC Out)	Max. Continuous AC Current
Max. AC Output Fault Current (AC1, AC2)	5150 A peak for 1 ms
Max. AC Output Fault Current (AC Out)	925 A peak for 0.5 ms
Max. AC Output Overcurrent Protection AC Breaker Capacity (AC1, AC2, AC Out)	60 A max with 10 kA short-circuit interrupt rating
Total Harmonic Distortion	< 5% at rated power
Automatic Transfer Relay Capacity & Typical Transfer Time	60 A / 8 ms
Anti-Islanding Method	Active Frequency Shifting
DC Voltage Range (BATT)	40 - 64 VDC, 48 VDC nominal
DC Startup Voltage	40 - 64 V
Max. Continuous Input DC Current (Inverter Mode, BATT)	180 A
Max. Continuous Output DC Current (Charger Mode, BATT)	140 A
Compatible Batteries	Flooded, Gel, AGM, Li-ion, Custom
Peak Efficiency	95.0 %
Protective Class Rating	Class I
Decisive Voltage Class	AC: DVC-C DC: DVC-C Comm: DVC-A
Inverter Topology	Transformer Isolated
Idle Consumption – (Inverter Mode, No Load)	28 W
Idle Consumption – (Search Mode)	< 7 W
Auxiliary Relay Output	0 - 12 VDC, Maximum 250 mA
Types of electrical systems to which the inverter may be connected	TN (TN-C, TN-S, TN-C-S), TT, IT

¹Rating for Australia

Mechanical and Regulatory Specifications

NOTE: Specifications are subject to change without prior notice. Where settings in the table below indicate a range, the setting is dependent upon the default data in the grid code selected during commissioning.

Table 12 XW Pro Mechanical Specifications

Specification	XW Pro 8548
Non-Volatile Memory	Yes
Inverter Information Panel	Status LEDs indicate AC In status, events/warnings, equalize mode, battery level. 3-character display indicates output power or charge current, fault codes. STARTUP/SHUTDOWN and equalize button
Multiple Unit Configurations	Refer to InsightFacility Owners Guide (990-91411) for supported configurations.
System Network	Conext Xanbus™ (publish-subscribe network, no need for hubs or special cards)
Emissions	EN61000-6-3 "Emission Standard for Residential, Commercial, and Light-Industrial Environments"
Immunity	EN61000-6-1 "Immunity for Residential, Commercial, and Light-Industrial Environments" IEC/EN 62040-2 "Uninterruptible power systems (UPS) – Part 2: Electromagnetic compatibility (EMC) requirements"
Pollution Degree	PD2

Specification	XW Pro 8548
Regulatory approvals	<p>CE marked and complies with:</p> <p>Low Voltage Directive 2014/35/EU, per:</p> <ul style="list-style-type: none"> ▪ EN62109-1 Power converters used in photovoltaic systems ▪ EN62109-2 Particular requirements for Inverters ▪ EN60529 Degrees of protection by enclosures ▪ AS 62040-1 <p>EMC Directive 2014/30/EU, per:</p> <ul style="list-style-type: none"> ▪ EN61000-6-3 "Emission Standard for Residential, Commercial, and Light-Industrial Environments" ▪ EN61000-6-1 "Immunity for Residential, Commercial, and Light-Industrial Environments" ▪ IEC/EN 62040-2 "Uninterruptible power systems (UPS) – Part 2: Electromagnetic compatibility (EMC) requirements" <p>ROHS Directive 2011/65/EU - Restriction of Hazardous Substances</p> <ul style="list-style-type: none"> ▪ EN 50581:2012 Technical documentation for the assessment of hazardous substances <p>RCM marked and complies with:</p> <ul style="list-style-type: none"> ▪ AS/NZS 4777.2:2020 "Grid connection of energy systems via inverters Part 2: Inverter requirements" ▪ IEC 62477-1: 2022 "Safety requirements for power electronic converter systems and equipment – Part 1: General" ▪ IEC 62109-1:2010 "General Requirements" ▪ IEC 62109-2:2011 "Particular Requirements for Inverters" ▪ AS 62040.1: 2019 "Uninterruptible power systems (UPS) – Part 1: Safety requirements" ▪ IEC/EN 62116: 2014 "Utility-interconnected photovoltaic inverters – Test procedure of islanding prevention measures" ▪ Registered with the Clean Energy Council
Enclosure Type	IP20— Indoor use only
Rated Temperature Range (meets specifications)	0–25 °C
Operational Temperature Range	-25–65 °C
Operational Humidity Range	5 – 95 % Non-Condensing
Storage Humidity	5 – 95 % Non-Condensing
Storage Temperature Range	-40–85 °C

Schneider Electric

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

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