

## Three-Phase App Note

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### Audience

This App Note is intended for use by qualified personnel who plan to construct, install, or operate a system involving XW Pro inverters in a three-phase configuration.

The qualified personnel have training, knowledge, and experience in:

- Installing electrical equipment and PV input systems (up to 1500 V).
- Applying all applicable installation codes.
- Analyzing and reducing the hazards involved in performing electrical work.

In addition, qualified personnel have received specific training from the manufacturer on servicing XW Pro inverter/chargers. The qualified personnel must refer to the product's lock-out and tag-out procedures for additional lock-out and tag-out information for a variety of servicing situations.

### **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 inverters. Before reviewing this document, you must read the relevant product manuals and any applicable application notes related to multi-unit design guide. 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.**

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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://www.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:** TME24300

**Date:** May 2023

**Model Name:**

XW Pro 6848 NA

**Product Part Number:**

865-6848-21

**Model Name:**

XW Pro 8548

**Product Part Number:**

865-8548-55

## About Three-Phase Multi-unit Operation

**IMPORTANT:** For more information about system configurations, including required external contactors or Backup Control Switch (865-BCS-2200), see *XW Pro Multi-unit Design Guide* (document number 990-91373).

The XW Pro Inverter/Charger ships in a 120/240 V-60 Hz split-phase configuration by default for North America (NA) models (865-6848-21) and a 230 V-50 Hz configuration for IEC models (865-8548-55). NA models must be converted to 120 V with a jumper kit and upgraded to 120 V firmware. See Chapter 8, Converting Split-phase to Single-phase in *XW Pro NA Installation Guide* (document number 990-91228).

Ensure you are familiar with information in *XW Pro Multi-unit Design Guide* (document number 990-91373) before proceeding.

XW Pro supports three to six units in a three-phase configuration:

- a primary and secondary inverter in each phase  
OR
- one inverter in each phase

XW Pro inverters can only be configured in a wye three-phase configuration. Delta configuration is not supported.

## Communication and Events

**NOTE:** A gateway device is required for three-phase configuration (InsightFacility, InsightHome, or Conext Gateway).

Communication between multi-inverter systems is established by having each inverter connected by Xanbus cables and by Sync cables, both accomplished using straight through Cat5/5E/6 Ethernet cables.

Event Code	System Status	Cause
F69	System will not operate	All XW Pro inverters are not connected with Sync cables
F66	System will not operate	There are multiple primary inverters in the same phase
		Each inverter does not have a different device number in InsightLocal
		Each inverter in the system is not connected with a Xanbus cable

## Systemic Behavior

When configured for multi-inverter operation, any external source of AC must be present across all XW Pro inverters at their respective inputs at the same voltage, frequency and phase relationship that the inverters are programmed for in grid-forming mode.

### Examples

For a system configured for 120/208 V-60 Hz, each inverter must sense 120 VAC from L1-N, L2-N, and L3-N, and there must also be a 120 degree phase differential between L1/L2/L3 for 208 V Line-to-Line.

For a system configured for 230 V-50 Hz, each inverter must sense 230 VAC from L1-N, L2-N, and L3-N, and there must also be a 120 degree phase differential between L1/L2/L3 for 400 V Line-to-Line.

If the phase rotation is reversed from the AC source being supplied, event code W70 will result and the system will not qualify the source for pass thru. In three-phase configuration, all (3) XW Pro units qualify and disqualify an external source of AC simultaneously. Loss of phase on a single inverter will cause all XW Pro units in the system to disconnect from the external AC source.

## Use of a Transformer

For NA models, it is possible to step down from 277/480 V three-phase to 120/208 V three-phase using a wye:wye step-down transformer for interconnection to a 277/480 V three-phase AC source. A 120/208 V to 277/480 V wye:wye step-up transformer may be used to serve 277/480 V loads.

## Import-Export

**NOTE:**865-8548-55 is not evaluated for three-phase application as per AS 4777.2-2020 Grid Code.

By default, each XW Pro is set to charge and discharge at its maximum respective ratings. This will supply a balanced draw when charging and a balanced export when selling.

## Related Documents

- *XW Pro UL Datasheet*
- *XW Pro NA Installation Guide* (document number 990-91228)
- *XW Pro IEC Installation Guide* (document number 990-91403)
- *XW Pro Multi-unit Design Guide* (document number 990-91373)