
Grid Monitoring Relay Prescription for Conext XW+ Inverter/Chargers

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Rev A

THIS PRESCRIPTION DOCUMENT IS IN ADDITION TO AND INCORPORATES BY REFERENCE THE RELEVANT PRODUCT MANUALS FOR SCHNEIDER ELECTRIC CONEXT XW+ SERIES INVERTER/CHARGERS. BEFORE REVIEWING THIS DOCUMENT, BECOME FAMILIAR WITH THESE MANUALS.

Purpose

This document discusses how the Conext™ XW+ inverter/charger achieves compliance with country specific grid-interactive requirements through the use of an external grid monitoring relay, and provides a prescription for relay selection and deployment.

Audience

This guide is intended for qualified personnel. Qualified personnel include authorized dealers, installers and local Authority Having Jurisdiction (AHJ inspectors).

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

Why A Grid Monitoring Device?

The Conext XW+ series of inverter/chargers are grid interactive solar and backup power systems equipped with anti-islanding and grid sell features.

Anti-islanding is a safety feature required of all certified grid-tie/grid-interactive inverters. If the Conext XW+ detects the grid operating outside of very tight conditions, it stops exporting power for at least five minutes. The purpose of this key safety feature is to protect technicians from back-fed line voltage in the event of grid failure.

While the Conext XW+ meets North American grid interconnect standards, to achieve compliance with some European regulations, Conext XW+ systems in a PV grid-tie configuration also require an external grid monitoring relay.

The grid monitoring relay is additional network protection and isolation equipment that automatically disconnects Conext XW+ inverter/chargers from the public grid when grid frequency (Hz) or grid voltage (VAC) exceeds prescribed thresholds (either too low or too high).

By isolating the inverter/chargers when grid voltage or frequency measurements are outside utility prescribed limits, the relay ensures the Conext XW+ system does not unintentionally energize the grid. The monitoring relay reconnects the Conext XW+ system to the grid only when conditions for connection are met.

Device Requirements

The grid monitoring relay is equipment external to the Conext XW+ inverter/charger located at the AC load distribution panel for all plants rated <30 kVA.

Protective Functions

The relay must be a certified NS protection device and must be fault-tolerant, with protective functions maintained in the event of a malfunction in the control system.

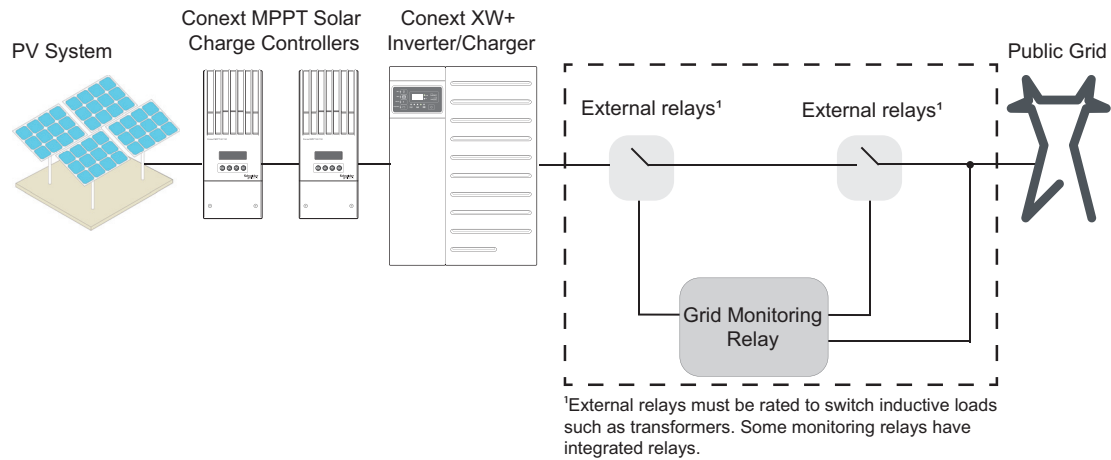
The grid monitoring relay must provide:

- Voltage drop protection: $U <$
- Rise in voltage protection: $U >$, $U >>$ using a 10 minute rolling average
- Frequency decrease protection: $f <$
- Frequency increase protection: $f >$
- Islanding detection

Standards Compliance

Depending on the geographic location of the Conext XW+ system, the relay must satisfy VDE-AR-N 4105 (Germany).

Block Diagram



Recommended Products

Customers are responsible for ensuring the grid monitoring relay of choice meets local codes in their respective geographic locations.

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Contact Information

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