Conext™ Automatic Generator Start

Owner’s Guide
975-0307-01-01 Rev G
08-2015

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Conext™ Automatic Generator Start

Owner’s Guide
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**Product Part Number:** 865-1060-01

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

Serial Number ___________________________

Product Number ___________________________

Purchased From ___________________________

Purchase Date ___________________________
About This Guide

Purpose

The purpose of this Guide is to provide explanations and procedures for installing, operating, maintaining, and troubleshooting the Schneider Electric Conext™ Automatic Generator Start (AGS).

Scope

The Guide provides safety guidelines, detailed planning and setup information, procedures for installing the Conext AGS, as well as information about configuring, operating and troubleshooting the unit. This guide does not provide information about choosing a generator or operating a generator.

Audience

The Guide is intended for anyone who needs to install and/or operate the Conext AGS. Installers should be certified technicians or electricians.

Organization

This Guide is organized into five chapters and three appendixes.

Chapter 1, "Introduction" describes the features and functions of the Conext Automatic Generator Start (AGS).

Chapter 2, "Installation" contains information and procedures to install the Conext Automatic Generator Start (AGS).

Chapter 3, "Configuration" contains information and procedures for configuring the Conext Automatic Generator Start (AGS).

Chapter 4, "Operation" describes the operation of the Conext AGS and how to get the most from its features.

Chapter 5, "Troubleshooting" contains information and procedures to troubleshoot the Conext Automatic Generator Start (AGS).

Appendix B, “Generator Auto Start Requirements and Types”, provides general information about generators that will work with the Conext Automatic Generator Start (AGS).

Appendix C, “Relay Timing” contains information about relay configuration and timing for each basic type of starting mode for the Conext Automatic Generator Start (AGS).

Related Information

For more information about related components, refer to:

Conext XW+ Inverter/Charger Owner’s Guide NA (975-0240-01-01)
Conext XW+ Inverter/Charger Owner’s Guide E (975-0385-01-02)
Conext SW Inverter/Charger 120/240V Split-Phase Owner’s Guide (975-0638-01-01)
Conext SW Inverter/Charger 230V Owner’s Guide (975-0636-01-01)
Conext MPPT 60 150 Solar Charge Controller Owner’s Guide (975-0400-01-01)
Conext MPPT 80 600 Solar Charge Controller Owner’s Guide (975-0560-01-01)
Conext System Control Panel Owner’s Guide (975-0298-01-01)
Conext ComBox Owner’s Guide (975-0679-01-01)
Conext Battery Monitor Owner’s Guide (975-0691-01-01)

You can find more information about Schneider Electric as well as its products and services at solar.schneider-electric.com.
Important Safety Instructions

READ AND SAVE THESE INSTRUCTIONS - DO NOT DISCARD

This document contains important safety instructions that must be followed during installation procedures (if applicable). Read and keep this Owner's Guide for future reference.

Read these instructions carefully and look at the equipment (if applicable) to become familiar with the device before trying to install, operate, service or maintain it. The following special messages may appear throughout this bulletin or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of either symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

---

**DANGER**

DANGER indicates a hazardous situation which if not avoided will result in death or serious injury.

---

**WARNING**

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.
Safety Information

1. **Before installing and using the Conext AGS, read all appropriate sections of this guide.**
2. If the Conext AGS is inoperative, see your warranty.
3. Do not dismantle the Conext AGS it contains no user serviceable parts. See your warranty for instructions on obtaining service.
4. Protect the Conext AGS from rain, snow, spray, and water.
5. Disable the generator's starting circuit by disconnecting the starter battery, spark plug, et cetera, before wiring this device.
6. To reduce the risk of electrical shock, put the Conext AGS into Standby before working on any circuits connected to it. See “Placing the Conext AGS in Standby Mode” on page 4–6.
7. Disable the automatic starting circuit and/or disconnect the generator from its starting battery to prevent accidental starting while performing maintenance.

**WARNING**

**SAFETY HAZARD**

Disable the Conext AGS if the generator is in an enclosed building or area where the generator exhaust is not vented to the outside. **Failure to follow these instructions can result in death or serious injury.**
Explosive Gas Precautions

WARNING

LIMITATIONS ON USE
Do not use the Conext AGS in connection with life support systems or other medical equipment or devices.

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

EXPLOSION HAZARD

This equipment is not ignition protected. To prevent fire or explosion, do not install the unit in compartments containing flammable materials or 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 or serious injury.

FCC Information to the User

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction guide, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be
determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.
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Chapter 1, “Introduction” describes the features and functions of the Conext Automatic Generator Start (AGS).

It includes:
- Overview
- System Requirements
- Features
- Indicator Lights and Connectors
Overview

The Conext Automatic Generator Start (AGS) (Conext AGS) is designed for use in a Conext system of off-grid solar and backup power equipment.

The Conext AGS requires the use of a Conext System Control Panel (SCP) or Conext ComBox for configuration and monitoring.

While both the SCP and ComBox provide status information and configuration capabilities, the ComBox provides additional access to configuration settings through a web interface. For more information, see the Conext ComBox Owner’s Guide (975-0679-01-01).

Function

The Conext AGS can continuously access information on battery voltage and State of Charge (SOC) on the Xanbus network, and start or stop the generator when the voltage or SOC drops or exceeds the preset limits. The AGS also starts the generator to assist inverter/chargers when output power demands are high.

To support a single generator, one AGS is needed per Conext system. If there are multiple battery banks, the AGS can automatically start and stop the generator based on voltage and SOC messages sent by the primary inverter/charger connected to each battery bank.

In large off-grid systems with more than one generator, multiple AGS units can be installed. A Conext Battery Monitor is required for multiple battery bank systems and for monitoring SOC.

For more information on managing multiple battery banks and generators, visit solar.schneider-electric.com.
The Conext AGS requires a source of start and stop triggers for automatic operation. The Conext AGS monitors the Xanbus network and starts or stops the generator based on the preset triggers which have been programmed into it.

Specific criteria that will trigger the Conext AGS are described in “Features” on page 1–5.
System Requirements

Minimum Conext system components include:

- Conext XW+ or Conext SW inverter/chargers
- AC generator or DC generator
- Conext SCP or Conext ComBox for configuration and monitoring
- Conext AGS for automatic generator start and stop
- 24 or 48 VDC battery bank

Optional components include:

- Conext MPPT 80 600 and MPPT 60 150 Solar Charge Controllers
- Conext Battery Monitor (required for multiple battery bank systems and for monitoring SOC)

Network Communication Protocol

The Conext AGS uses the Xanbus network to communicate settings and activity to other Xanbus-enabled devices. All network components used in the system must be Xanbus-enabled.

Network Power Supply

The Conext AGS requires 3 watts of power (maximum) to operate. This power supply is provided by the Conext XW+ Inverter/Charger through the Xanbus network.

Generator

Ideally the generator should be 2-wire or 3-wire generator with Auto Start capability. However, older generators with additional wiring requirements can also be used if connected to the wiring harness correctly.

The Generator Run signal (also called the Hour Meter Signal or Switched B+ signal) which detects whether the generator is running, is optional and only used for redundancy. The Conext AGS requests generator voltage checks from the Conext XW+ Inverter/Charger in addition to checking the Generator Run signal to detect if the generator is running.

Generator Compatibility

The Conext AGS supports most two and three-wire generator starters. Some manufacturers include, but are not limited to, Onan (Quiet Diesel, gasoline, and LP), Power Tech, Generac, Northern Lights, Fisher Panda, Westerbeke, Kohler, Honda, and Yamaha. Check with the generator manufacturer to ensure the generator in question includes automatic starting capabilities.
Features

Conext SCP

A SCP or Conext ComBox is required to configure the Conext AGS and monitor generator starting and stopping activity.

The SCP also provides real-time clock information for the Conext AGS Quiet Time and Exercise Time features.

Conext ComBox

In place of the SCP, the Conext ComBox can be used to configure and monitor the AGS and other Xanbus-enabled devices through a web interface on a PC or laptop. For more information, see the Conext ComBox Owner's Guide (Part Number 975-0679-01-01).

Conext Battery Monitor

In systems with multiple battery banks, the Conext Battery Monitor is required for monitoring battery capacity, voltage, and SOC. The battery Monitor is also required to monitor SOC on one battery bank.

For more information, see the Conext Battery Monitor Owner's Guide (Part Number 975-0691-01-01).

Features

Generator Starting Triggers

The Conext AGS can automatically start a generator in response to:

- Low battery voltage
- Low battery SOC
- High battery drain due to large AC loads
- Contact closure or thermostat signal
- Pre-programmed exercise period at a specified time of day.

Generator Stopping Triggers

The Conext AGS can automatically stop a generator in response to:

- Introduction of qualified grid power (grid power within acceptable parameters)
- High battery voltage
- Battery charge stage (float or absorb stage)
- High battery SOC
- Removal of a high battery drain from the AC loads
- Thermostat signal
- Pre-programmed quiet time period.

The Conext AGS can also be used to manually start and stop the generator at any time.
**Introduction**

<table>
<thead>
<tr>
<th>Programmable Features</th>
<th><strong>Quiet Time</strong></th>
<th>The Conext AGS features a quiet time setting, which prevents the generator starting at night or during other inconvenient periods.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Exercise Period</strong></td>
<td>During times of prolonged generator inactivity, the Conext AGS can be programmed to run (or exercise) the generator for a pre-defined period. The exercise period ensures the generator remains operational and that the starting battery stays charged.</td>
</tr>
<tr>
<td>Status Reporting</td>
<td>The Conext AGS reports its operating mode, settings, generator activity, and reason for generator starts to the Conext system. This information can be viewed on the SCP or ComBox.</td>
<td></td>
</tr>
<tr>
<td>Installation Options</td>
<td>The Conext AGS can be installed with an external shutdown input, a manual generator ON/OFF switch, and an external ON/OFF indicator light.</td>
<td></td>
</tr>
</tbody>
</table>

**Indicator Lights and Connectors**

**Front Panel**

**Indicator Lights** Four lights on the front panel indicate the operating status and network status of the Conext AGS.

![Conext AGS Front Panel](image)

*Figure 1-2 Conext AGS Front Panel*
Bottom Panel

Connectors

Two network ports on the bottom panel connect the Conext AGS to the Xanbus network. A 20-contact pluggable connector (also on the bottom panel) allows the Conext AGS to connect to the generator’s starting circuitry, thermostats and external switches.

Table 1-1 Front panel features

<table>
<thead>
<tr>
<th>LED</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
<td>Power light (green) indicates the Conext AGS is receiving network power.</td>
</tr>
<tr>
<td>Generator On</td>
<td>Generator On light (green) indicates the generator is running. This light turns on when the generator run signal is active. See “Important” on page 2–29.</td>
</tr>
<tr>
<td>Network</td>
<td>Network light (green) indicates the Conext AGS is communicating with other Xanbus-enabled devices.</td>
</tr>
<tr>
<td>Fault</td>
<td>Fault light (red) indicates an Conext AGS fault has occurred. See “Troubleshooting” on page 5–1 for information about Conext AGS faults.</td>
</tr>
</tbody>
</table>

Figure 1-3 Conext AGS Bottom Panel
Network Port

Each network port can accept an eight-pin RJ-45 plug attached to a Category 5 (CAT 5) Xanbus network cable. Depending on the installation, both ports may be required.

**NOTICE**

**EQUIPMENT DAMAGE**

Connect the Conext AGS only to other Xanbus compatible devices. Although the cabling and connectors used in this network system are the same as those used for Ethernet, this network is not an Ethernet system.

**Failure to follow these instructions may result in equipment damage.**

20-contact Connector

The 20-contact connector supports a wiring harness (included) that connects the Conext AGS to a generator and thermostats. The wiring harness also provides lines for connecting external generator shutdown sensors or switches and external generator ON/OFF controls.

Figure 1-4  Wiring Harness
Chapter 2, “Installation” contains information and procedures to install the Conext Automatic Generator Start (AGS).

- Tools and Materials Required
- Choosing a Location
- Routing the Connections
- Mounting the Unit
- Wiring to the 20-Contact Connector
- Connecting the Generator
- Connecting the Thermostats
- Connecting an External Shutdown
- Connecting the Wiring Harness to the AGS
- Connecting the AGS to the Xanbus Network
- Verifying Power is Available
Preparing an Installation

Before installing the Conext Automatic Generator Start (AGS) (AGS), consider how and where the unit will be mounted. Pre-plan the connection routes between the Conext AGS, the generator, thermostats, and the Conext System Control Panel (SCP).

Tools and Materials Required

The following tools and materials may be needed to install the Conext AGS:

- Mounting template (supplied)
- Wiring harness (manufacturer part number 809-0917, supplied)
- Four #6 self-tapping screws, 1¼ inch (supplied), or M3, 30 mm (supplied)
- #16 or #18 AWG wire (1.5 mm² or 1.0 mm²) (see “Wire Size and Length” on page 2–7)
- Xanbus network cables
- Network terminator
- Phillips screwdriver
- Drywall anchors if mounting on drywall
- Wire cutters and wire strippers
- 5A inline fuse holders (1 to 3 pieces as required)

Choosing a Location

The Conext AGS should be installed in a location that meets the following requirements:

- **Dry** The unit is intended for use in a dry location. The Conext AGS complies with UL458 Marine Supplement drip-test requirements, but the location should be as dry as possible.
- **Cool** The Conext AGS operation is guaranteed between -20 and 50°C (-4 and 122°F).
Preparing an Installation

Safe
The Conext AGS is not ignition protected. Do not install it in areas requiring ignition-protected equipment, such as compartments housing gasoline engines.

Close to generator
Avoid excessive wire lengths and use the recommended wire lengths and sizes (see “Wire Size and Length” on page 2–7). It is more important for the Conext AGS to be close to the generator than close to the inverter, although for safety reasons, the Conext AGS should not be installed in the same compartment as a gasoline-powered generator.

Installing the AGS with Multiple Generators

A single AGS is designed to connect to one generator. In large systems where there are multiple generators and battery banks, more than one AGS can be installed.

For more information on designing systems with multiple battery banks and generator redundancy, visit solar.schneider-electric.com.

Routing the Connections

<table>
<thead>
<tr>
<th>DANGER</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXPLOSION HAZARD</td>
</tr>
</tbody>
</table>
This equipment is not ignition protected. To prevent fire or explosion, do not install the Conext AGS 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 a fuel system.

| SHOCK AND ENERGY HAZARDS |
Before making any connections to the generator, ensure that the generator’s starter is disabled and the generator’s start battery is disconnected.

Failure to follow these instructions will result in death or serious injury.
Because the Conext AGS will be part of a Xanbus network, it is necessary to consider how to route two types of connections:

- Connections to the generator, thermostats, and other external devices and switches, using the 20-contact connector and wiring harness.
- Connections to other Xanbus-enabled devices, using network cables.

**Figure 2-5  Conext AGS External Connections**

**Installing the AGS**

Installing the Conext AGS involves the following steps:

1. Mounting the unit.
2. Connecting the wiring harness to:
   - Generator (page 2–9)
   - Trigger contacts such as thermostats (optional) (page 2–26)
   - External shutdown switch (optional) (page 2–27)
   - External ON/OFF switch and LED (optional) (page 2–27)
3. Connecting the wiring harness to the 20-contact connector on the Conext AGS.
4. Connecting the Conext AGS to the SCP and other network-enabled devices (page 2–31).
Mounting the Unit

The Conext AGS is to be mounted vertically on a wall with the connectors facing downwards.

To mount the Conext AGS:

1. Hold the unit flush and square against the wall, panel, or horizontal surface.
   - If the mounting surface requires pre-drill holes for the screws, use the supplied mounting template to mark, then drill, four holes.
2. With a Phillips screwdriver and the supplied #6 screws, secure each corner of the Conext AGS to the mounting surface.

Wiring to the 20-Contact Connector

**Important:** Because each installation varies according to the location, the type of generator, and the overall complexity of the Xanbus network, these instructions offer only general guidelines for the many installation options available.

**WARNING**

**SHOCK HAZARD**

Before installing the Conext AGS as part of a pre-existing Xanbus system, put the system in Standby in order to disable the electrical operation of networked devices. See “Placing the Conext AGS in Standby Mode” on page 4–6.

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

**WARNING**

**SHOCK HAZARD**

All installation wiring should be performed by a qualified installer or electrician.

*Failure to follow these instructions can result in death or serious injury.*
ELV Circuits

ELV (Extra-Low Voltage) circuits have an open-circuit voltage of not more than 30 V\textsubscript{rms} or 42.2 VDC or peak, and are therefore not a shock hazard.

Class 2 Circuits

As per the US National Electrical Code (NEC) and the Canadian Electrical Code (CEC), available power in Class 2 circuits is limited to 100 VA, usually by current limiting by means of overcurrent protection or series resistance. The current is limited to 5 A for circuits with open-circuit voltage of 20 V, and to \(I = \frac{100}{V\textsubscript{oc}}\) for circuits with open circuit voltage between 20 V and 30 V.

Circuit Limitations

The relay contacts in the Conext AGS are rated at 5 A maximum and all circuits on the 20-contact connector are rated at 30 V maximum.

Ensure that all circuits connected to the 20-contact connector comply with the following limits:

<table>
<thead>
<tr>
<th>Circuit Parameter</th>
<th>Circuit Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open circuit voltage (Voc)</td>
<td>30 V maximum</td>
</tr>
<tr>
<td>Overcurrent protection (fuse size for open circuit voltage up to 20 V)</td>
<td>5 A maximum</td>
</tr>
<tr>
<td>Overcurrent protection (fuse size for open circuit voltage from 20 V to 30 V)</td>
<td>5 A to 3.33 A ((100/V\textsubscript{oc}) amps maximum)</td>
</tr>
</tbody>
</table>

**WARNING**

**FIRE, SHOCK AND ENERGY HAZARDS**

The 20-contact connector is intended for connection to Class 2 ELV (Extra Low Voltage) circuits only. Do not exceed the circuit limitations specified in the following section.

Failure to follow these instructions can result in death or serious injury.
Wiring Harness
Connections to the generator, thermostats, and external ON/OFF switches are made using a wiring harness that plugs into the 20-contact connector (see Figure 2-5).

The wires on the wiring harness can be extended to meet installation requirements. When extending the wire harness, ensure that the extension wires are the same color as the wires on the harness.

To install the Conext AGS using the wiring harness:

1. Connect each wire on the harness to its intended wire or contact on the generator, thermostats, or external switches. Tape, or otherwise secure, the unused wires to ensure they do not make unintended connections.

2. Plug the harness into the connector on the bottom panel of the Conext AGS.

Wire Identification
Each wire on the harness is identified by a number and a color. The wire numbers are shown in Figure 2-6 and their colors and functions are described in Table 2-4.

Wire Size and Length
Required wire sizes for the external connections to the wiring harness are:

<table>
<thead>
<tr>
<th>Table 2-3 Required Wiring Size Based on Length of Cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>0–30 ft. (9 m)</td>
</tr>
<tr>
<td>18 AWG (1.0 mm²)</td>
</tr>
</tbody>
</table>

When planning the routing for external connections, ensure that wire lengths are sufficient to plug the wiring harness into the Conext AGS once all the external connections are complete.

Figure 2-6 Conext AGS Wiring Harness
**Important:** The pin number labels in Figure 2-6 are used to designate the individual wires in the AGS wiring harness for the purpose of this guide. The number labels are different from the Molex numbers that are physically marked on the male plug.

**Table 2-4 Contact Pin Numbers and Functions**

<table>
<thead>
<tr>
<th>Pin</th>
<th>Function</th>
<th>Wiring Harness Wire Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Thermostat 1 input</td>
<td>Yellow</td>
</tr>
<tr>
<td>2</td>
<td>Thermostat 1 return</td>
<td>Gray</td>
</tr>
<tr>
<td>3</td>
<td>Thermostat 2 input</td>
<td>Orange</td>
</tr>
<tr>
<td>4</td>
<td>Thermostat 2 return</td>
<td>Gray</td>
</tr>
<tr>
<td>5</td>
<td>External shutdown input</td>
<td>White/Black</td>
</tr>
<tr>
<td>6</td>
<td>External shutdown return</td>
<td>Gray</td>
</tr>
<tr>
<td>7</td>
<td>External manual on input</td>
<td>White/Green</td>
</tr>
<tr>
<td>8</td>
<td>External manual off input</td>
<td>White/Red</td>
</tr>
<tr>
<td>9</td>
<td>External ON/OFF LED indicator output</td>
<td>White/Blue</td>
</tr>
<tr>
<td>10</td>
<td>Constant 12/24 V B+ (battery positive) for External ON/OFF/LED Indicator</td>
<td>Red</td>
</tr>
<tr>
<td>11</td>
<td>External ON/OFF/LED indicator return (connected internally to wire number 13)</td>
<td>Black</td>
</tr>
<tr>
<td>12</td>
<td>Generator run signal (switched B+) sense input</td>
<td>Violet</td>
</tr>
<tr>
<td>13</td>
<td>Generator run signal (switched B+) sense return</td>
<td>Black</td>
</tr>
<tr>
<td>14</td>
<td>Relay 1 (Generator run/stop) Normally open contact</td>
<td>Blue</td>
</tr>
<tr>
<td>15</td>
<td>Relay 1 (Generator run/stop) Normally closed contact</td>
<td>White/Violet</td>
</tr>
<tr>
<td>16</td>
<td>Relay 1 (Generator run/stop) Common contact</td>
<td>Gray</td>
</tr>
<tr>
<td>17</td>
<td>Relay 2 (Generator start) Normally open contact</td>
<td>White</td>
</tr>
<tr>
<td>18</td>
<td>Relay 2 (Generator start) Common contact</td>
<td>Gray</td>
</tr>
<tr>
<td>19</td>
<td>Relay 3 (Preheat/cooldown) Normally open contact</td>
<td>Brown</td>
</tr>
<tr>
<td>20</td>
<td>Relay 3 (Preheat/cooldown) Common contact</td>
<td>Gray</td>
</tr>
</tbody>
</table>
Connecting the Generator

**NOTICE**

**EQUIPMENT DAMAGE**
Before connecting the Conext AGS to your generator, read the Generator Type descriptions in this section and consult your generator manufacturer to ensure that Gen Type settings and connections are compatible with your generator.

Damage to the generator can result from selecting an incorrect Gen Type and following the connection diagram for an incorrect Gen Type when connecting the Conext AGS to the generator.

**Failure to follow these instructions can result in equipment damage.**

To connect the Conext AGS to a generator, identify the start wiring configuration of the generator to be used. Generators must be auto-start capable, and generators equipped with remote operation connections are ideal.

If the generator is equipped for remote operation, examine the wiring of the remote cable and connector (or read the generator’s documentation, if available) and identify the following wires:

- Ground
- Start
- Stop
- Generator run signal, also known as the Hour Meter or Switched B+ (battery positive)

**Wiring Requirements**

Either #16 or #18 AWG (1.5mm² or 1.0 mm²) wire is required to connect to the wiring harness. How many of these wires you connect and in which combination depends on your generator type.
The Conext AGS has 14 preset generator configurations, or “Gen Types” (see “Gen Type” on page 3–12). After installing the hardware, it will be necessary to select one of these Gen Types from the Conext AGS Configuration Menu on the SCP.

**Important:** To change the Gen Type, the AGS must first be put in Standby. See “Placing the Conext AGS in Standby Mode” on page 4–6.

The following section describes the preset generator configurations and provides diagrams for connecting the wiring harness to the generator's start wiring.

For an explanation of the terminology used in the following section, refer to Appendix B, “Generator Auto Start Requirements and Types”. For more information about Conext AGS internal relay activity and timing, see Appendix C, “Relay Timing”.

**Important:** Connecting the B+ Gen Run signal is optional because the AGS also checks whether AC is present at the AC Input of the inverter via the Xanbus network. If the B+ Gen Run signal is not connected, it may be necessary to adjust the Gen Run Signal hold time parameter on the AGS to a longer time. See “Gen Run Hold Time” on page 3–30.
Type 1

Type 1 is a three-wire GlowStop configuration recommended for “three-wire” generators with glow plugs that need to be operated before a start is attempted.

**Figure 2-7** Type 1 Connection Diagram

**Table 2-5** Type 1 Relay and Timing Preset Configurations

<table>
<thead>
<tr>
<th>Relay Function</th>
<th>Preset Configuration Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relay 1 mode</td>
<td>GlowStop</td>
</tr>
<tr>
<td>Relay 3 mode</td>
<td>No function</td>
</tr>
<tr>
<td>Gen Run signal hold time</td>
<td>0.5 s</td>
</tr>
<tr>
<td>Preheat time</td>
<td>20 s</td>
</tr>
<tr>
<td>Preheat to crank delay</td>
<td>1 s</td>
</tr>
<tr>
<td>Crank time</td>
<td>15 s</td>
</tr>
<tr>
<td>Crank retry time</td>
<td>30 s</td>
</tr>
<tr>
<td>Gen Cool Down</td>
<td>30 s</td>
</tr>
<tr>
<td>Gen Spin Down</td>
<td>3 s</td>
</tr>
<tr>
<td>Shutdown bypass time</td>
<td>0 s</td>
</tr>
<tr>
<td>Start tries</td>
<td>3</td>
</tr>
</tbody>
</table>
Type 2

Type 2 is a three-wire GlowStop configuration recommended for “three-wire” generators that don’t require a dedicated preheat signal. In this configuration, the start signal is applied for longer because the generator does its own preheat and cranking while the start signal is applied.

**Figure 2-8** Type 2 Connection Diagram

**Table 2-6** Type 2 Relay and Timing Preset Configurations

<table>
<thead>
<tr>
<th>Relay Function</th>
<th>Preset Configuration Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relay 1 mode</td>
<td>GlowStop</td>
</tr>
<tr>
<td>Relay 3 mode</td>
<td>No function</td>
</tr>
<tr>
<td>Gen Run signal hold time</td>
<td>0.5 s</td>
</tr>
<tr>
<td>Preheat time</td>
<td>0 s</td>
</tr>
<tr>
<td>Preheat to crank delay</td>
<td>0 s</td>
</tr>
<tr>
<td>Crank time</td>
<td>30 s</td>
</tr>
<tr>
<td>Crank retry time</td>
<td>40 s</td>
</tr>
<tr>
<td>Gen Cool Down</td>
<td>30 s</td>
</tr>
<tr>
<td>Gen Spin Down</td>
<td>3 s</td>
</tr>
<tr>
<td>Shutdown bypass time</td>
<td>0 s</td>
</tr>
<tr>
<td>Start tries</td>
<td>3</td>
</tr>
</tbody>
</table>

For additional information, see “Circuit Limitations” on page 2–6.
Type 3

Type 3 is a three-wire GlowStop with shutdown bypass configuration. The configuration shown in Figure 2-9 uses a shutdown bypass output to temporarily disable the generator’s low oil pressure shutdown functionality during cranking. Generators with this functionality often have a manual means of disabling it during cranking.

**Figure 2-9** Type 3 Connection Diagram

**Table 2-7** Type 3 Relay and Timing Preset Configurations

<table>
<thead>
<tr>
<th>Relay Function</th>
<th>Preset Configuration Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relay 1 mode</td>
<td>GlowStop/Shutdown bypass</td>
</tr>
<tr>
<td>Relay 3 mode</td>
<td>Preheat/Shutdown bypass</td>
</tr>
<tr>
<td>Gen Run signal hold time</td>
<td>0.5 s</td>
</tr>
<tr>
<td>Preheat time</td>
<td>20 s</td>
</tr>
<tr>
<td>Preheat to crank delay</td>
<td>0 s</td>
</tr>
<tr>
<td>Crank time</td>
<td>15 s</td>
</tr>
<tr>
<td>Crank retry time</td>
<td>30 s</td>
</tr>
<tr>
<td>Gen Cool Down</td>
<td>30 s</td>
</tr>
<tr>
<td>Gen Spin Down</td>
<td>3 s</td>
</tr>
<tr>
<td>Shutdown bypass time</td>
<td>10 s</td>
</tr>
<tr>
<td>Start tries</td>
<td>3</td>
</tr>
</tbody>
</table>
Type 4

Type 4 is a three-wire StartStop configuration that uses relay 3 to provide a 60-second preheat signal.

Table 2-8 Type 4 Relay and Timing Preset Configurations

<table>
<thead>
<tr>
<th>Relay Function</th>
<th>Preset Configuration Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relay 1 mode</td>
<td>StartStop</td>
</tr>
<tr>
<td>Relay 3 mode</td>
<td>Preheat</td>
</tr>
<tr>
<td>Gen Run signal hold time</td>
<td>10 s</td>
</tr>
<tr>
<td>Preheat time</td>
<td>60 s</td>
</tr>
<tr>
<td>Preheat to crank delay</td>
<td>5 s</td>
</tr>
<tr>
<td>Crank time</td>
<td>15 s</td>
</tr>
<tr>
<td>Crank retry time</td>
<td>15 s</td>
</tr>
<tr>
<td>Gen Cool Down</td>
<td>30 s</td>
</tr>
<tr>
<td>Gen Spin Down</td>
<td>3 s</td>
</tr>
<tr>
<td>Shutdown bypass time</td>
<td>0 s</td>
</tr>
<tr>
<td>Start tries</td>
<td>3</td>
</tr>
</tbody>
</table>

For additional information, see “Circuit Limitations” on page 2-6.
Type 5

Type 5 is a three-wire StartStop configuration that uses relay 3 to provide a 15-second preheat signal.

- **Relay 1 mode**: StartStop
- **Relay 3 mode**: Preheat
- **Gen Run signal hold time**: 2 s
- **Preheat time**: 15 s
- **Preheat to crank delay**: 2 s
- **Crank time**: 15 s
- **Crank retry time**: 15 s
- **Gen Cool Down**: 30 s
- **Gen Spin Down**: 3 s
- **Shutdown bypass time**: 0 s
- **Start tries**: 3

For additional information, see “Circuit Limitations” on page 2-6.
Type 6 is a three-wire GlowStop configuration that has a normally closed Run/Stop contact.

### Table 2-10  Type 6 Relay and Timing Preset Configurations

<table>
<thead>
<tr>
<th>Relay Function</th>
<th>Preset Configuration Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relay 1 mode</td>
<td>GlowStop</td>
</tr>
<tr>
<td>Relay 3 mode</td>
<td>No function</td>
</tr>
<tr>
<td>Gen Run signal hold time</td>
<td>0.5 s</td>
</tr>
<tr>
<td>Preheat time</td>
<td>10 s</td>
</tr>
<tr>
<td>Preheat to crank delay</td>
<td>1 s</td>
</tr>
<tr>
<td>Crank time</td>
<td>15 s</td>
</tr>
<tr>
<td>Crank retry time</td>
<td>30 s</td>
</tr>
<tr>
<td>Gen Cool Down</td>
<td>30 s</td>
</tr>
<tr>
<td>Gen Spin Down</td>
<td>3 s</td>
</tr>
<tr>
<td>Shutdown bypass time</td>
<td>0 s</td>
</tr>
<tr>
<td>Start tries</td>
<td>3</td>
</tr>
</tbody>
</table>

For additional information, see “Circuit Limitations” on page 2–6.
Installing the AGS

Type 7

Type 7 will work with both two-wire and three-wire run mode configurations that require a preheat signal before cranking. This Gen Type setting is suitable for generators with an automatic engine cranking control system (two-wire) and generators that require that the Conext AGS control their starter separately (three-wire).

**Figure 2-13** Type 7 Connection Diagram (two-wire)

**Figure 2-14** Type 7 Connection Diagram (three-wire)

**Table 2-11** Type 7 Relay and Timing Preset Configurations

<table>
<thead>
<tr>
<th>Relay Function</th>
<th>Preset Configuration Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relay 1 mode</td>
<td>Run</td>
</tr>
<tr>
<td>Relay 3 mode</td>
<td>No function</td>
</tr>
<tr>
<td>Gen Run signal hold time</td>
<td>0.5 s</td>
</tr>
<tr>
<td>Preheat time</td>
<td>20 s</td>
</tr>
<tr>
<td>Preheat to crank delay</td>
<td>1 s</td>
</tr>
<tr>
<td>Crank time</td>
<td>15 s</td>
</tr>
</tbody>
</table>

For additional information, see “Circuit Limitations” on page 2–6.
### Table 2-11 Type 7 Relay and Timing Preset Configurations

<table>
<thead>
<tr>
<th>Relay Function</th>
<th>Preset Configuration Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crank retry time</td>
<td>30 s</td>
</tr>
<tr>
<td>Gen Cool Down</td>
<td>30 s</td>
</tr>
<tr>
<td>Gen Spin Down</td>
<td>3 s</td>
</tr>
<tr>
<td>Shutdown bypass time</td>
<td>0 s</td>
</tr>
<tr>
<td>Start tries</td>
<td>3</td>
</tr>
</tbody>
</table>
Type 8

Type 8 will work with both two-wire and three-wire run mode configurations. Type 8 is identical to Type 7 except that it provides no preheat signal before cranking.

Table 2-12 Type 8 Relay and Timing Preset Configurations

<table>
<thead>
<tr>
<th>Relay Function</th>
<th>Preset Configuration Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relay 1 mode</td>
<td>Run</td>
</tr>
<tr>
<td>Relay 3 mode</td>
<td>No function</td>
</tr>
<tr>
<td>Gen Run signal hold time</td>
<td>0.5 s</td>
</tr>
<tr>
<td>Preheat time</td>
<td>0 s</td>
</tr>
<tr>
<td>Preheat to crank delay</td>
<td>0 s</td>
</tr>
<tr>
<td>Crank time</td>
<td>15 s</td>
</tr>
<tr>
<td>Crank retry time</td>
<td>30 s</td>
</tr>
<tr>
<td>Gen Cool Down</td>
<td>30 s</td>
</tr>
<tr>
<td>Gen Spin Down</td>
<td>3 s</td>
</tr>
<tr>
<td>Shutdown bypass time</td>
<td>0 s</td>
</tr>
<tr>
<td>Start tries</td>
<td>3</td>
</tr>
</tbody>
</table>

For additional information, see “Circuit Limitations” on page 2–6.
Type 9

Type 9 is a StartStop mode configuration with shutdown bypass functionality on relay 3.

**Table 2-13** Type 9 Relay and Timing Preset Configurations

<table>
<thead>
<tr>
<th>Relay Function</th>
<th>Preset Configuration Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relay 1 mode</td>
<td>StartStop</td>
</tr>
<tr>
<td>Relay 3 mode</td>
<td>Shutdown Bypass</td>
</tr>
<tr>
<td>Gen Run signal hold time</td>
<td>0.5 s</td>
</tr>
<tr>
<td>Preheat time</td>
<td>0 s</td>
</tr>
<tr>
<td>Preheat to crank delay</td>
<td>0 s</td>
</tr>
<tr>
<td>Crank time</td>
<td>15 s</td>
</tr>
<tr>
<td>Crank retry time</td>
<td>30 s</td>
</tr>
<tr>
<td>Gen Cool Down</td>
<td>30 s</td>
</tr>
<tr>
<td>Gen Spin Down</td>
<td>3 s</td>
</tr>
<tr>
<td>Shutdown bypass time</td>
<td>5 s</td>
</tr>
<tr>
<td>Start tries</td>
<td>3</td>
</tr>
</tbody>
</table>

For additional information, see “Circuit Limitations” on page 2-6.
Type 10 is a StartStop mode configuration with no preheat signal or
shutdown bypass functionality.

**Figure 2-18** Type 10 Connection Diagram

**Table 2-14** Type 10 Relay and Timing Preset Configurations

<table>
<thead>
<tr>
<th>Relay Function</th>
<th>Preset Configuration Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relay 1 mode</td>
<td>StartStop</td>
</tr>
<tr>
<td>Relay 3 mode</td>
<td>No function</td>
</tr>
<tr>
<td>Gen Run signal hold time</td>
<td>0.5 s</td>
</tr>
<tr>
<td>Preheat time</td>
<td>0 s</td>
</tr>
<tr>
<td>Preheat to crank delay</td>
<td>0 s</td>
</tr>
<tr>
<td>Crank time</td>
<td>15 s</td>
</tr>
<tr>
<td>Crank retry time</td>
<td>30 s</td>
</tr>
<tr>
<td>Gen Cool Down</td>
<td>30 s</td>
</tr>
<tr>
<td>Gen Spin Down</td>
<td>3 s</td>
</tr>
<tr>
<td>Shutdown bypass time</td>
<td>0 s</td>
</tr>
<tr>
<td>Start tries</td>
<td>3</td>
</tr>
</tbody>
</table>
Type 11

Type 11 is a two-wire run mode configuration. It requires only two wires and one relay to control the generator. Relay 1 closes momentarily once to start the generator, and closes momentarily again to stop the generator.

![Type 11 Connection Diagram](image)

**Figure 2-19** Type 11 Connection Diagram

**Table 2-15** Type 11 Relay and Timing Preset Configurations

<table>
<thead>
<tr>
<th>Relay Function</th>
<th>Preset Configuration Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relay 1 mode</td>
<td>MomentaryRun</td>
</tr>
<tr>
<td>Relay 3 mode</td>
<td>No function</td>
</tr>
<tr>
<td>Gen Run signal hold time</td>
<td>0.5 s</td>
</tr>
<tr>
<td>Preheat time</td>
<td>0 s</td>
</tr>
<tr>
<td>Preheat to crank delay</td>
<td>0 s</td>
</tr>
<tr>
<td>Crank time</td>
<td>10 s</td>
</tr>
<tr>
<td>Crank retry time</td>
<td>15 s</td>
</tr>
<tr>
<td>Gen Cool Down</td>
<td>30 s</td>
</tr>
<tr>
<td>Gen Spin Down</td>
<td>3 s</td>
</tr>
<tr>
<td>Shutdown bypass time</td>
<td>0 s</td>
</tr>
<tr>
<td>Start tries</td>
<td>3</td>
</tr>
</tbody>
</table>

For additional information, see “Circuit Limitations” on page 2–6.
Installing the AGS

Type 12

Type 12 is a three-wire GlowStop configuration recommended for “three-wire” generators that don’t require a dedicated preheat signal. In this configuration, the start signal is applied for longer because the generator does its own preheat and cranking while the start signal is applied.

**Type 12**

<table>
<thead>
<tr>
<th>Harness Wires</th>
<th>Generator Wires - User Supplied Wiring and Interconnections</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>GENERATOR RUN SIGNAL</td>
</tr>
<tr>
<td>13</td>
<td>GENERATOR RUN SIGNAL RETURN</td>
</tr>
<tr>
<td>14</td>
<td>START</td>
</tr>
<tr>
<td>15</td>
<td>STOP</td>
</tr>
<tr>
<td>16</td>
<td>5A fuse</td>
</tr>
<tr>
<td>17</td>
<td>START</td>
</tr>
<tr>
<td>18</td>
<td>5A fuse</td>
</tr>
</tbody>
</table>

For additional information, see “Circuit Limitations” on page 2–6.

**Figure 2-20** Type 12 Connection Diagram

**Table 2-16** Type 12 Relay and Timing Preset Configurations

<table>
<thead>
<tr>
<th>Relay Function</th>
<th>Preset Configuration Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relay 1 mode</td>
<td>GlowStop</td>
</tr>
<tr>
<td>Relay 3 mode</td>
<td>No function</td>
</tr>
<tr>
<td>Gen Run signal hold time</td>
<td>4 s</td>
</tr>
<tr>
<td>Preheat time</td>
<td>0 s</td>
</tr>
<tr>
<td>Preheat to crank delay</td>
<td>0 s</td>
</tr>
<tr>
<td>Crank time</td>
<td>30 s</td>
</tr>
<tr>
<td>Crank retry time</td>
<td>40 s</td>
</tr>
<tr>
<td>Gen Cool Down</td>
<td>30 s</td>
</tr>
<tr>
<td>Gen Spin Down</td>
<td>3 s</td>
</tr>
<tr>
<td>Shutdown bypass time</td>
<td>0 s</td>
</tr>
<tr>
<td>Start tries</td>
<td>3</td>
</tr>
</tbody>
</table>
Type 13 is a three-wire PulseStop configuration that uses relay 3 to provide the preheat signal. With this generator type, there will be a delay between the generator turning off and the Conext AGS recognizing that the generator is off.

**Figure 2-21** Type 13 Connection Diagram

**Table 2-17** Type 13 Relay and Timing Preset Configurations

<table>
<thead>
<tr>
<th>Relay Function</th>
<th>Preset Configuration Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relay 1 mode</td>
<td>PulseStop</td>
</tr>
<tr>
<td>Relay 3 mode</td>
<td>Preheat</td>
</tr>
<tr>
<td>Gen Run signal hold time</td>
<td>5 s</td>
</tr>
<tr>
<td>Preheat time</td>
<td>15 s</td>
</tr>
<tr>
<td>Preheat to crank delay</td>
<td>2 s</td>
</tr>
<tr>
<td>Crank time</td>
<td>15 s</td>
</tr>
<tr>
<td>Crank retry time</td>
<td>15 s</td>
</tr>
<tr>
<td>Gen Cool Down</td>
<td>30 s</td>
</tr>
<tr>
<td>Gen Spin Down</td>
<td>3 s</td>
</tr>
<tr>
<td>Shutdown bypass time</td>
<td>0 s</td>
</tr>
<tr>
<td>Start tries</td>
<td>3</td>
</tr>
</tbody>
</table>
Type 14 works with two-wire generators that use an integrated engine control module to perform the necessary relay cycles to start and stop the generator. This is similar to Type 8 but without the B+ signal requirement. The Conext AGS closes relay 1 to start the generator and illuminates the Generator On light to indicate the relay is closed. To stop the generator, relay 1 is opened and the Generator On light turned off.

**Important:** Since Type 14 does not monitor the generator run status, illumination of the Generator On light on the Conext AGS does not necessarily indicate the generator is actually running. If this generator type is used, ensure the generator's integrated controller has the ability to monitor, control and report generator status and faults. With Type 14, no faults are raised if the generator fails to start or stop or is externally started or stopped.

Once the generator is stopped, there is a 10-minute delay before the generator can be re-started using the Conext AGS. This is to allow the generator's integrated engine controller to completely and safely shut down the generator. This delay can be adjusted by changing the Gen Spin down setting.

**Type 14**

![Type 14 Connection Diagram (two-wire)]

For additional information, see “Circuit Limitations” on page 2–6.

**Table 2-18 Type 14 Relay and Timing Preset Configurations**

<table>
<thead>
<tr>
<th>Relay Function</th>
<th>Preset Configuration Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relay 1 mode</td>
<td>RunStop</td>
</tr>
<tr>
<td>Relay 3 mode</td>
<td>Not used</td>
</tr>
<tr>
<td>Gen Run signal hold time</td>
<td>0 s</td>
</tr>
<tr>
<td>Preheat time</td>
<td>0 s</td>
</tr>
<tr>
<td>Preheat to crank delay</td>
<td>0 s</td>
</tr>
</tbody>
</table>
Connecting the Thermostats (optional)

Wires 1, 2, 3, and 4 on the wiring harness can be connected to two thermostats. Wires 1 (yellow) and 2 (gray) are intended for thermostat 1 and wires 3 (orange) and 4 (gray) are intended for thermostat 2.

### Table 2-19 Wiring for Connecting Thermostats

<table>
<thead>
<tr>
<th>Wire Number</th>
<th>Function</th>
<th>Wiring Harness Wire Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Thermostat 1 input (12/24 V)</td>
<td>Yellow</td>
</tr>
<tr>
<td>2</td>
<td>Thermostat 1 return (ground)</td>
<td>Gray</td>
</tr>
<tr>
<td>3</td>
<td>Thermostat 2 input (12/24 V)</td>
<td>Orange</td>
</tr>
<tr>
<td>4</td>
<td>Thermostat 2 return (ground)</td>
<td>Gray</td>
</tr>
</tbody>
</table>

These wires connect to 12-volt/24-volt output signals from the thermostats, or any other contact closure. The Conext AGS will start the generator in response to these signals. Thermostats can not be programmed using the Conext AGS.

For specific information about thermostat wiring and where Conext AGS connections should be made, please consult your thermostat documentation or contact the thermostat manufacturer.
Connecting an External Shutdown (optional)

The external shutdown input is a 12-volt/24-volt input used to assure that the Conext AGS keeps the generator off under conditions that may be potentially hazardous. Wire 5 (white/black) and 6 (gray) on the wiring harness are intended for an external switch or sensor (such as a moisture detector, or carbon monoxide detector) that produces an active high 12-volt or 24-volt output.

<table>
<thead>
<tr>
<th>Wire Number</th>
<th>Function</th>
<th>Wiring Harness Wire Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>External shutdown input (12/24 V)</td>
<td>White/Black</td>
</tr>
<tr>
<td>6</td>
<td>External shutdown return (ground)</td>
<td>Gray</td>
</tr>
</tbody>
</table>

Connecting an External Manual ON/OFF Switch (optional)

The external manual ON/OFF inputs (wires 7 and 8 on the wiring harness) are intended for wiring to one or more remote ON/OFF switches for starting and stopping the generator manually. Wire 7 (Start) and wire 8 (Stop) should each run to their own momentary-contact switch or push-button. The other contact on both switches (common) should be connected to wire 11 on the harness.

Note: Internally, wire 11 is connected to wire 13 so it may already be connected to the negative terminal on the generator battery.

In order for the AGS to be able to detect these switches, connect the fused positive of the generator battery to wire 10 on the harness (the constant 12-volt/24-volt wire). See Figure 2-23 on page 2–30. Ensure all circuits added to the system comply with Table 2-2, “Circuit Limitations” on page 2–6.

If the generator battery does not have the required voltage, any 12-volt or 24-volt power source meeting the limits on page 2–6, will suit this purpose. If an alternate power source is used, its positive terminal must be connected to wire 10. Its negative must be connected to wire 11.

Note: Internally, wire 11 is connected to wire 13, so in this configuration, the alternative power source negative may already be connected to the negative terminal on the generator battery.
**WARNING**

**FIRE AND SHOCK HAZARDS**

When making connections to a 12-volt or 24-volt power source that exceeds the class 2 power limitation of 100 VA (e.g., a battery) always use over-current protection as defined in Table 2-2. This also applies to thermostat and external manual ON/OFF connections. Locate the protection device at the power source in the positive wire.

Do not connect the Conext AGS to a 48-volt battery bank. The Conext AGS is limited to a 30V open-circuit maximum by its regulatory approval and cannot be connected to a 48-volt power source.

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

**NOTICE**

**EQUIPMENT DAMAGE**

Tapping 12-volts or 24-volts from a 48-volt battery bank will unevenly wear out the batteries and shortens the battery bank life.

*Failure to follow these instructions can result in equipment damage.*

<table>
<thead>
<tr>
<th>Wire Number</th>
<th>Function</th>
<th>Wiring Harness Wire Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>External manual on input</td>
<td>White/Green</td>
</tr>
<tr>
<td>8</td>
<td>External manual off input</td>
<td>White/Red</td>
</tr>
<tr>
<td>9</td>
<td>External On/Off LED Indicator output</td>
<td>White/Blue</td>
</tr>
<tr>
<td>10</td>
<td>Constant 12/24 V B+ for External On/Off/LED Indicator</td>
<td>Red</td>
</tr>
<tr>
<td>11</td>
<td>External On/Off/LED Indicator return</td>
<td>Black</td>
</tr>
</tbody>
</table>

Multiple generator control panels or simple contact closures can be wired to the external manual ON/OFF inputs. The Conext AGS detects if any of the contacts close and will change its operating mode to External
Installing the AGS

Manual On or External Manual Off (for more information, see “GenMode” on page 3–34). The Conext AGS turns the generator on or off according to these inputs and the resulting operating mode change.

The External Manual On and External Manual Off states are not affected by maximum generator run time (see “Max Run Time” on page 3–27).

Connecting an External ON/OFF LED

Wires 9 (White/Blue) and 11 (Black) on the wiring harness can be connected to an LED or other light to accompany a remote external ON/OFF switch. This light turns on when the generator run signal is active to visually indicate that the generator is running.

**Important:** With some generators, the generator run signal becomes active during the preheat stage, before the generator is actually running. In this case, the external ON/OFF LED (and the Generator On light on the Conext AGS) will turn on during the preheat stage and remain on when the generator is running.

For some generators, these lights will also remain on for a period of time after the generator has stopped.
Figure 2-23  External ON/OFF Switch and LED Wiring Diagram
Connecting the Wiring Harness to the Conext AGS

After all the external connections have been wired to the wiring harness, the connector on the wiring harness must be plugged into the 20-contact connector on the Conext AGS.

To connect the wiring harness to the Conext AGS:

◆ With the click-tab on the wiring harness connector on top (away from the mounting surface), insert the wiring harness connector into the 20-contact connector on the Conext AGS until the tab clicks into place.

Figure 2-24 Conext AGS External Connections
Connecting the Conext AGS to the Xanbus Network

**NOTICE**

**EQUIPMENT DAMAGE**

Connect only to other Xanbus-enabled devices.

Although the cabling and connectors used in this network system are the same as those used for Ethernet, this network is not an Ethernet system. Equipment damage may result from attempting to connect a Xanbus-enabled device to an Ethernet system.

**Failure to follow these instructions can result in equipment damage.**

To connect the Conext AGS to the Xanbus network, plug a Xanbus network cable (standard straight-through Ethernet cable—CAT 5e) into one of the network ports on the bottom panel of the Conext AGS. Connect the other end of that same cable to the next Xanbus-enabled component in the chain. See Figure 2-25. For the location of the ports on the Conext AGS, see Figure 2-5.

![Figure 2-25 Xanbus Network Example](image-url)
Installing the AGS

If the Conext AGS is being installed on an existing Xanbus system, the system must first be put into Standby. See “Placing the Conext AGS in Standby Mode” on page 4–6.

Depending on the layout of the Xanbus network, the following options are available for the other network connector on the Conext AGS:

- A second network cable
- A network terminator (when the Conext AGS is the last device at one end of the network).

Figure 2-26 Connecting the Conext System Control Panel

Verifying Power Is Available

When the Conext AGS has been installed properly, the Power and Network indicator lights illuminate.

If one or both lights are out, check the network connections. Check the inverter/charger to ensure it has battery power. Check to make sure the other devices in the network, such as the SCP, are responding to confirm the network is still active.
Verify Power and Network indicator lights are illuminated.

Figure 2-27 Verifying Power is Available
Chapter 3, “Configuration” contains information and procedures for configuring the Conext Automatic Generator Start (AGS).

It includes:
• Overview
• Accessing the Conext AGS Setup Menu
• Using the AGS Setup Menu
• Recording User Settings
Overview

The Conext Automatic Generator Start (AGS) (Conext AGS) can be configured to start and stop the generator under the appropriate conditions and at the appropriate time. The Conext AGS is configured using the Conext System Control Panel (SCP) or Conext ComBox. The ComBox allows you to configure and monitor the AGS and other Xanbus-enabled devices through a web interface on a PC or laptop.

This chapter explains how to configure the AGS with the SCP. To use the ComBox, see the Conext ComBox Owner's Guide (Part Number 975-0679-01-01).

System Status Screen

The System Status screen on the SCP displays basic status information. In the bottom left corner of the screen, an arrow points to the Enter button below the display (see Figure 3-28).

To get started configuring or operating the AGS, press Enter to display a list of Xanbus-enabled devices connected to the SCP. Use the arrow buttons to scroll to the AGS device in the list and press Enter again to select it. The AGS Setup menu contains all configurable settings, generator mode, fault clearing, and device information.

Figure 3-28 SCP System Status Screen and Navigation Buttons
## Overview

<table>
<thead>
<tr>
<th>Button</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enter</td>
<td>• Confirms selection of a menu item</td>
</tr>
<tr>
<td></td>
<td>• Displays the next screen</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Scrolls up one line of text</td>
</tr>
<tr>
<td></td>
<td>• Increases a selected value</td>
</tr>
<tr>
<td></td>
<td>• Displays the previous device home screen</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Scrolls down one line of text</td>
</tr>
<tr>
<td></td>
<td>• Decreases a selected value</td>
</tr>
<tr>
<td></td>
<td>• Displays the next device home screen</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Cancels selection of a menu item</td>
</tr>
<tr>
<td></td>
<td>• Displays the previous screen</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Standby</td>
<td>• Disables inverting and charging on all inverter/chargers in the system</td>
</tr>
<tr>
<td></td>
<td>when pressed for one to two seconds.</td>
</tr>
<tr>
<td>Event/Warning</td>
<td>• Indicates a device has a fault or warning condition and requires attention.</td>
</tr>
<tr>
<td></td>
<td>• Flashes red when a warning occurs, and turns solid red when a fault occurs.</td>
</tr>
</tbody>
</table>
Accessing the Conext AGS Setup Menu

The AGS Setup menu lets you configure start and stop triggers and other parameters, select the generator’s operating mode, clear fault warnings and view device information.

To access the Conext AGS Setup Menu:

1. Start from the System Status screen.
2. Press Enter.
3. Use the arrow buttons to highlight XW Conext AGS.
4. Press Enter to display the AGS Setup menu.

Figure 3-29 Accessing the AGS Setup Menu
To change basic AGS settings:

1. Use the arrow buttons to highlight the desired operation.
2. Press Enter to select the current value for that setting. Asterisks (*) indicate the last value set.
3. Use the arrow buttons to change the value. Holding an arrow button down without releasing it will scroll through the values quickly.
4. Press Enter to select the value.
5. Press Exit twice to return to the System Status screen.

See Figure 3-31.

To access advanced settings:

1. Press the Enter, up arrow and down arrow buttons at the same time.
2. Highlight Advanced Settings and press Enter.

See Figure 3-32.

Figure 3-30  Changing Settings
Using the AGS Setup Menu

The AGS Setup menu contains the following options:

- **Advanced Settings**—displays the Configuration menu for setting generator start and stop triggers, quiet times, and other parameters.
- **GenMode**—sets the generator mode to Manual on, Manual off or Automatic
- **Mode of Operation**—sets the generator to Operating or Standby
- **Clear Fault Warnings**—displays generator faults
- **View Device Info**—displays the Fault, Warning and Event logs

When first displayed, the AGS Setup menu displays basic settings, beginning with GenMode. To display the Advanced settings option, press the **Enter**, up arrow, and down arrow buttons together. See Figure 3-32.

**To change basic settings:**

1. Use the arrow buttons to highlight the desired setting. For more information on the values for each option, see “GenMode” on page 3–34.
2. Press **Enter** to select the current value for that setting. Asterisks (*) indicate the last value set.
3. Use the arrow buttons to change the value. Holding an arrow button down without releasing it will scroll through the values quickly.
4. Press **Enter** to select the value.
5. Press **Exit** twice to return to the System Status screen.

For a menu map of all basic AGS settings, see Figure 3-31.
Using the AGS Setup Menu

Changing Basic Settings

- Press the arrow buttons to move up and down the list.
- Press Enter to select a menu item, press the arrow buttons to change the setting, and then Enter again to accept the new setting.
- Press Exit to go back to the previous screen.

Figure 3-31 Conext AGS Basic Settings Menu Map
To display Advanced Settings:

1. Press the Enter, up arrow and down arrow buttons at same time.
2. Highlight Advanced Settings and press Enter to display the Config menu.
3. Use the arrow buttons to highlight the desired setting, and press Enter to select it.
4. Use the arrow buttons to change the value, and press Enter to accept the new setting.
5. Press Exit to return to the Advanced settings menu, or press Enter, up arrow and down arrow together to return to basic AGS Setup menu.
6. Press Exit again to return to the AGS Home screen.

For a menu map of all advanced configuration settings, see Figure 3-32.
Using the AGS Setup Menu

Changing Advanced Settings

- Press **Enter**, up arrow, and down arrow buttons together to display Advanced settings.
- Press the arrow buttons to move up and down the list.
- Press **Enter** to select a menu item, press the arrow buttons to change the setting, and then **Enter** again to accept the new setting.
- Press **Exit** to go back to the previous screen.

**Figure 3-32** Conext AGS Advanced Settings Menu Map
The Configuration (Config) menu is where specific start-stop parameters are set. This menu contains the following settings:

- Quiet Time Enable (QT En)
- Quiet Time Begin (QT Begin)
- Quiet Time End (QT End)
- Generator Type (Gen Type)
- Configure Trigger (Cfg Trigger)
- Configure Generator (Cfg Gen)
- Multi-unit Configuration (Multi-unit Config)
- Restore Defaults (Restore Defaults)

**QT En**

**Full name** Quiet Time Enable

**Purpose** QT En enables or disables the Quiet Time functionality of the Conext AGS. Quiet time refers to a period of time when the generator should not run.

**Dependencies** QT En requires the Conext AGS to be in Automatic mode. Setting QT En to [Enable] requires that parameters be set for the QT Begin and QT End.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enabled/Disabled</td>
<td>Enables or disables the Quiet Time functionality.</td>
</tr>
</tbody>
</table>

**When to use** Set QT En to [Enabled] when there is a period of time when it is not desired for the generator to run. The Conext AGS will ignore all automatic start triggers during the time set in QT Begin and QT Begin.

When there are no preferences or restrictions for when the generator should run, set QT En to [Disabled]. When [Disabled] is selected, the Conext AGS will ignore the times set for QT Begin and QT End.

**Considerations** Quiet Time prevents the automatic starting of the generator regardless of battery condition.
Using the AGS Setup Menu

**Important:** If quiet time is set for overnight, be aware that overnight battery drain can be significant because it may be necessary to use the inverter and batteries to supply AC Power without the help of a generator. Therefore, it is important to conserve battery power during this time. Minimize the use of interior lights and set thermostat temperature lower to prevent the furnace from coming on at night during cool weather. Set thermostats higher to prevent air conditioning coming on at night during warm weather.

Sometimes automatic start or automatic stop triggers may overlap with the beginning and end of quiet time. Three different quiet time scenarios affect when the generator stops and starts.

1. If quiet time begins after the Conext AGS has started the generator, the generator will stop. If the condition that started the generator is still present when quiet time ends, the generator will restart.
2. If a condition that requires starting the generator occurs during quiet time, the Conext AGS will ignore it until quiet time ends. If the condition still exists at the end of quiet time, the Conext AGS will start the generator.
3. If the running generator stops when quiet time begins and a condition that requires stopping the generator occurs during quiet time, the generator will not restart when quiet time ends.

### QT Begin

**Full name**

Quiet Time Begin

**Purpose**

QT Begin defines the start of quiet time.

**Dependencies**

QT Begin functions only if the Conext AGS is in Automatic mode. This setting requires QT En be set to [Enabled].

Ensure the clock on the SCP is set to the correct local time.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>12:00AM to 11:59PM (12-hour clock)</td>
<td>At the time set for QT Begin, the generator will stop (if it is running) and not be able to start again until the time set for QT End. It ignores all automatic start triggers during the time period between QT Begin and QT End.</td>
</tr>
<tr>
<td>00:00 to 23:59 (24-hour clock)</td>
<td></td>
</tr>
</tbody>
</table>
QT End

Full name

Quiet Time End

Purpose

QT End is a changeable setting that defines the end of quiet time. This setting also requires a setting for QT Begin.

Dependencies

QT End functions only if the Conext AGS is in Automatic mode. This setting requires QT Begin set to [Enabled] and also requires a setting for QT Begin.

Ensure the clock on the SCP is set to the correct local time.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>12:00AM to 11:59PM (12-hour clock)</td>
<td>At the time set for QT End the Conext AGS will be able to automatically start the generator again. If a start trigger has occurred during quiet time and is still active, the generator will start immediately after quiet time ends.</td>
</tr>
<tr>
<td>00:00 to 23:59 (24-hour clock)</td>
<td></td>
</tr>
</tbody>
</table>

Gen Type

Full name

Generator Type

Purpose

Gen Type selects the starting requirements of the generator. The starting requirements determine how the Conext AGS must be wired to the generator's starting system. For more information, see “Connecting the Generator” on page 2–9 or Appendix B.

Important: Gen Type can only be changed after the system is put into Standby. See “Placing the Conext AGS in Standby Mode” on page 4–6.

Table 3-22 Generator Type Descriptions

<table>
<thead>
<tr>
<th>Option</th>
<th>Mode</th>
<th>Description</th>
<th>For Technical Details, see...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 1</td>
<td>GlowStop</td>
<td></td>
<td>page 2–11</td>
</tr>
<tr>
<td>Type 2</td>
<td>GlowStop with no preheat</td>
<td></td>
<td>page 2–12</td>
</tr>
</tbody>
</table>
Using the AGS Setup Menu

Table 3-22 Generator Type Descriptions

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
<th>For Technical Details, see...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 3</td>
<td>GlowStop with shutdown bypass</td>
<td>page 2–13</td>
</tr>
<tr>
<td>Type 4</td>
<td>StartStop with Relay 3 prime</td>
<td>page 2–14</td>
</tr>
<tr>
<td>Type 5</td>
<td>StartStop with Relay 3 preheat</td>
<td>page 2–15</td>
</tr>
<tr>
<td>Type 6</td>
<td>GlowStop with normally closed RunStop contact</td>
<td>page 2–16</td>
</tr>
<tr>
<td>Type 7</td>
<td>Run with preheat</td>
<td>page 2–17</td>
</tr>
<tr>
<td>Type 8</td>
<td>Run with no preheat</td>
<td>page 2–19</td>
</tr>
<tr>
<td>Type 9</td>
<td>StartStop with Relay 3 preheat and shutdown bypass</td>
<td>page 2–20</td>
</tr>
<tr>
<td>Type 10</td>
<td>StartStop</td>
<td>page 2–21</td>
</tr>
<tr>
<td>Type 11</td>
<td>MomentaryRun</td>
<td>page 2–22</td>
</tr>
<tr>
<td>Type 12</td>
<td>GlowStop with no preheat</td>
<td>page 2–23</td>
</tr>
<tr>
<td>Type 13</td>
<td>PulseStop with Relay 3 preheat</td>
<td>page 2–24</td>
</tr>
<tr>
<td>Type 14</td>
<td>Run with no preheat and no switched B+ requirement</td>
<td>page 2–25</td>
</tr>
</tbody>
</table>


When to use

Use this setting after installing the Conext AGS hardware. Selecting a suitable Gen Type automatically configures the Conext AGS to work with the ignition system and starting requirements of the generator. Consult the generator manual or contact the generator’s manufacturer for specific generator starting requirements.

Outcomes

Selecting a Gen Type from the list automatically configures the following settings:

- Preheat time
- Preheat end to crank delay time
- Crank time
- Crank retry time
- Starter retry time
- Generator cool down
Configuration

- Generator spin down time
- Generator run signal hold time
- Start tries

If the presets will not work with the desired generator, it may be necessary to manually configure some of the settings listed above using information from the generator manufacturer. These settings can be changed in the CfgGen Menu on page 3–25.

Cfg Trigger Menu

The Cfg Trigger menu contains the settings for automatically starting and stopping the generator. This menu allows the adjustment of the default settings for battery voltage, state of charge (SOC), thermostat ON/OFF signals, inverter load, and battery charging stage.

There are three classes of triggers: charger-based, thermostat-based, and inverter load-based. If the generator is started by a trigger in one class, a stop condition must also be set in order for the generator to stop.

For example for charger triggers, if the generator is started by the Start DCV 30 sec condition, any of the accompanying stop triggers Stop Float, Stop Absorb and Stop V can be used to stop it.

Trigger Priority

If at least one start trigger is enabled in two or all three trigger classes, the first trigger to be true will start the generator. Conversely, the last stop trigger to be met will stop the generator.

Changing the default settings is advised for experienced users or users who have consulted service personnel.

Important: In the AGS Setup menu, GenMode must be set to ManualOff before any start trigger parameters are set.

The Cfg Trigger menu contains the following items:

Charger Triggers:

- Starting Battery Voltage - 30 seconds (Start DCV 30 sec)
- Starting Battery Voltage - 15 minutes (Start DCV 15 min)
- Starting Battery Voltage - 2 hours (Start DCV 2 hr)
- Starting Battery Voltage - 24 hours (Start DCV 24 hr)
- Stop at Float Charge Stage (Stop Float)
- Stop at Absorption Charge Stage (Stop Absorb)
Using the AGS Setup Menu

- Stopping Battery Voltage (Stop V)

**Thermostat Triggers:**
- Thermostat 1 (Temp1)
- Thermostat 2 (Temp2)

**Inverter Load Triggers:**
- Enable Inverter Load Start and Stop Triggers (Load)
- Start on Inverter Load Current (Start Load)
- Stop on Inverter Load Current (Stop Load)
- Load Start Amp Delay (Load Start Delay)
- Start at Low State of Charge (Start Soc)
- Stop at High State of Charge (Stop Soc)

**Start DCV 30 sec**

**Full Name**
Starting Battery Voltage—30 seconds

**Purpose**
The Start DCV 30 sec trigger enables the Conext AGS to start the generator whenever the battery voltage reaches or drops below a preset voltage for longer than 30 seconds.

The Conext AGS will stop the generator when the stop trigger is provided (Stop V, Stop Absorb, or Stop Float).

**Dependencies**
The Start DCV 30 sec trigger requires the Conext AGS to be in Automatic mode and needs the Stop Absorb or Stop Float trigger be enabled or a parameter to be set for the Stop V trigger.

**Values**

<table>
<thead>
<tr>
<th>Disabled, 4.0 V to 65.0 V (increments of 0.1 V)</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>44.5 V</td>
<td></td>
</tr>
</tbody>
</table>

**Considerations**
If the voltage trigger is set too high, the generator will start more frequently than is convenient.

If the voltage trigger is set too low, the batteries may be damaged by repeated cycles of excessive discharge. The generator running time necessary to charge the batteries may exceed Max Run Time and use too much fuel in the process.
If using the Conext XW+ Low Batt Cut Out (LBCO) voltage setting to trigger a start-on-voltage setting on the Conext AGS, be sure to set the Conext AGS voltage trigger higher than the Conext XW+ LBCO voltage. Otherwise the inverter/charger output turns off and then back on when the generator auto-starts.

If using an automatic generator starting system with the start trigger set to the same voltage as the LBCO voltage, do not set the LBCO Delay for less than the amount of time it takes the generator to start and connect. Otherwise, inverter output turns off and then back on when the generator auto-starts.

Battery Voltage Information

Battery voltage can be monitored from the System Status screen or the inverter/charger menu.

If Stop Float or Stop Absorb has been enabled, the generator will stop when the Float or Absorption stages of the battery charging have begun.

If the Stop V is used, the generator will stop when the battery voltage reaches the parameter set in this trigger, regardless of whether the batteries are charged.

Start DCV 15 min

Full Name Starting Battery Voltage—15 minutes

Purpose The Start DCV 15 min trigger enables the Conext AGS to start the generator whenever the battery voltage reaches or drops below a pre-set voltage for longer than 15 minutes.

The Conext AGS will stop the generator when the battery voltage has risen to the Stop V, or when the batteries have been recharged to the Absorption or Float stage.

Dependencies The Start DCV 15 min trigger requires the Conext AGS to be in Automatic mode and needs the Stop Absorb or Stop Float trigger be enabled or a parameter to be set for the Stop V trigger.

<table>
<thead>
<tr>
<th>Values</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disabled, 4.0V to 120.0V</td>
<td>Disabled</td>
</tr>
</tbody>
</table>

Considerations If the voltage trigger is set too high, the generator will start more frequently than is convenient.
If the voltage trigger is set too low, the batteries may be damaged by repeated cycles of excessive discharge. The generator running time necessary to charge the batteries may exceed Max Run Time and use too much fuel in the process.

**Battery Voltage Information**

Battery voltage can be monitored from the System Status screen or the inverter/charger menu.

If Stop Float or Stop Absorb has been enabled, the generator will stop when the Float or Absorption stages of the battery charging have begun.

If the Stop V is used, the generator will stop when the battery voltage reaches the parameter set in this trigger, regardless of whether the batteries are charged.

**Start DCV 2 hr**

**Full name**
Starting Battery Voltage—2 hours

**Purpose**
The Start DCV 2 hr trigger enables the Conext AGS to start the generator whenever the battery voltage reaches or drops below a preset voltage for longer than 2 hours.

**Dependencies**
The Start DCV 2 hr trigger requires the Conext AGS to be in Automatic mode and needs the Stop Absorb or Stop Float trigger be enabled or a parameter to be set for the Stop V trigger.

<table>
<thead>
<tr>
<th>Values</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disabled, 4.0 V to 120.0 V</td>
<td>Disabled</td>
</tr>
</tbody>
</table>

**Considerations**
If the voltage trigger is set too high, the generator will start more frequently than is convenient.

If the voltage trigger is set too low, the batteries may be damaged by repeated cycles of excessive discharge. The generator running time necessary to charge the batteries may exceed Max Run Time and use too much fuel in the process.

**Battery Voltage Information**

Battery voltage can be monitored from the System Status screen or the inverter/charger menu.

If Stop Float or Stop Absorb has been enabled, the generator will stop when the Float or Absorption stages of the battery charging have begun.
If the Stop V is used, the generator will stop when the battery voltage reaches the parameter set in this trigger, regardless of whether the batteries are charged.

### Start DCV 24 hr

**Full name**
Starting Battery Voltage—24 hours

**Purpose**
The Start DCV 24 hr trigger enables the Conext AGS to start the generator whenever the battery voltage reaches or drops below a preset voltage for longer than 24 hours.

**Dependencies**
The Start DCV 24 hr trigger requires the Conext AGS to be in Automatic mode and needs the Stop Absorb or Stop Float trigger be enabled or a parameter to be set for the Stop V trigger.

<table>
<thead>
<tr>
<th>Values</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disabled, 4.0 V to 120.0 V</td>
<td>Disabled</td>
</tr>
</tbody>
</table>

**Considerations**
If the voltage trigger is set too high, the generator will start more frequently than is convenient.

If the voltage trigger is set too low, the batteries may be damaged by repeated cycles of excessive discharge. The generator running time necessary to charge the batteries may exceed Max Run Time and use too much fuel in the process.

**Battery Voltage Information**
Battery voltage can be monitored from the System screen or the inverter/charger menu.

If Stop Float or Stop Absorb has been enabled, the generator will stop when the Float or Absorption stages of the battery charging have begun.

If the Stop V is used, the generator will stop when the battery voltage reaches the parameter set in this trigger, regardless of whether the batteries are charged.
Using the AGS Setup Menu

Stop Float

Full name: Stop at Float Charge Stage

Purpose: The Stop Float trigger allows the Conext AGS to stop the generator when the inverter/charger has recharged the batteries to the Float stage.

<table>
<thead>
<tr>
<th>Values</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disabled, Enabled</td>
<td>Disabled</td>
</tr>
</tbody>
</table>

Considerations: Stop Float or Stop Absorb would typically be used if the generator was started due to a low-battery voltage setting.

Stop Float is the recommended setting if it is desired that the generator charge the batteries completely. This will result in somewhat longer run times. However, if the generator is the primary charging source, charging them to the Float stage every time will provide longer battery life.

For more information on battery charging, see the Conext XW+ Inverter/Charger Operator’s Guide.

Stop Absorb

Full name: Stop at Absorption Charge Stage

Purpose: The Stop Absorb triggers enables the Conext AGS to stop the generator when the inverter/charger has recharged the batteries to the Absorption stage.

<table>
<thead>
<tr>
<th>Values</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disabled, Enabled</td>
<td>Enabled</td>
</tr>
</tbody>
</table>

Considerations: Set Stop Absorb to deliver only a partial charge to the batteries. The Conext AGS will start and run the generator until the inverter/charger charges the batteries through the Bulk charge stage (restoring the batteries between roughly 75% and 90% of their full charge). The Conext AGS stops the generator when the inverter/charger determines the batteries have reached the Absorption charge stage.

Because Stop Absorb will shut down the generator before the batteries are fully charged, it is recommended to use it only if there is an alternate charging source, such as wind or PV, which can complete the charge. If the generator is the only charging source, Stop Absorb will
leave the batteries consistently undercharged and may shorten the battery life. Alternately, Stop Absorb can be useful during utility outages, when it is desired to keep the generator run time to a minimum, but are expecting a full recharge once the power is restored.

For more information on battery charging, see Conext XW+ Inverter/Charger Operator’s Guide.

Stop V

**Full name**
Stopping Battery Voltage

**Purpose**
The Stop V trigger enables the Conext AGS to stop the generator whenever the battery voltage reaches a pre-set DC voltage. Whenever the generator starts automatically based on the Starting Battery Voltage, it will shut off once the Stopping Battery Voltage has been reached.

**Dependencies**
The Stop V trigger requires the Conext AGS to be in Automatic mode and needs a parameter to be set for one of the Start DCV triggers.

**Values**

<table>
<thead>
<tr>
<th>Values</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disabled, 14.5 V to 120.0 V (increments of 0.1 V)</td>
<td>Disabled</td>
</tr>
</tbody>
</table>

**Considerations**
The Stop V setting is most useful when you want the inverter/charger to give the batteries a quick, basic charge. If using this mode, it is recommended to run a complete charge or equalize cycle once in a while to restore the battery. To give the batteries a more complete, consistent charge, use the Stop Float setting. This will result in longer generator run times.

If Stop V is set too high, the generator may run for too long.

If Stop V is set too low, the Conext AGS will stop the generator before the inverter/charger has charged the batteries.

If Stop Float or Stop Absorb have been enabled, the Conext AGS will stop the generator if the Float or Absorption stages of the battery charging have begun.

Actual battery voltage can be monitored from the Home screen on the SCP.

For more information on battery charging, see the Conext XW+ Inverter/Charger Operator’s Guide.
Using the AGS Setup Menu

**Temp1**

**Full name**
Thermostat 1

**Purpose**
The Temp1 trigger enables the generator to start in response to a signal from a thermostat or other contact closure. With Temp1 set to [Enabled], the Conext AGS will start the generator to help power the item controlled by that thermostat.

<table>
<thead>
<tr>
<th>Values</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disabled, Enabled</td>
<td>Disabled</td>
</tr>
</tbody>
</table>

**When to use**
Enable Temp1 if a thermostat is available that controls a component that has a high-power requirement such as a furnace or an air conditioning system.

**Considerations**
If Temp1 is enabled, the generator will start in response to a signal from the thermostat. Everything related to setting the thermostat must be done on the thermostat. For example: setting the temperature at which the furnace or air conditioning system comes on must be done on the thermostat. There are no thermostat temperature settings on the Conext AGS or the SCP.

If Temp1 is disabled, the component connected to that thermostat will require that the generator be started manually in order for that component to have power. Otherwise, the component will need to be connected to another AC input source.

**Temp2**

**Full name**
Thermostat 2

**Purpose**
Temp2 is intended to be used when the Conext AGS is connected to a second thermostat or contact closure. All information and procedures for Temp1 also apply for Temp2.

<table>
<thead>
<tr>
<th>Values</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disabled, Enabled</td>
<td>Disabled</td>
</tr>
</tbody>
</table>
Configuration

Load

Full name
Enable Inverter Load Start and Load Stop Triggers

Purpose
The Load trigger enables or disables the Start on Inverter Load Current and Stop on Inverter Load Current functionality of the Conext AGS. This function enables the generator to start and stop based on the current being drawn on the inverter by the loads. See “Start Load” and “Stop Load” on page 3–23.

Dependencies
The Load trigger requires the Conext AGS to be in Automatic mode and needs parameters to be set for both the Start Load and Stop Load triggers.

<table>
<thead>
<tr>
<th>Value</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disabled, Enabled</td>
<td>Disabled</td>
</tr>
</tbody>
</table>

Important: This function is intended to protect the batteries from rapid drain. It is not intended to protect the inverter against overload.

Start Load

Full name
Start on Inverter Load Current

Purpose
The Start Load trigger enables the generator to start at a specified AC load (current draw) on the inverter. This current draw must be present for 5 minutes before the generator will start. The generator will assist the inverter with powering the AC load.

Dependencies
The Start Load trigger requires the Conext AGS to be in Automatic mode and the Load trigger to be set to ON. It also needs to have a stopping value set in the Stop Load trigger.

<table>
<thead>
<tr>
<th>Values</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.0 A to 33.0 A (increments of 1A)</td>
<td>10.0 A</td>
</tr>
</tbody>
</table>

Considerations
Change this setting if there are certain “peak” times of power usage or if power demands consistently exceed the output of the inverter.

If Load is set to [Enabled], the generator will start in response to the Start Load setting unless the Conext AGS is in a Quiet Time period.

The inverter load current can be monitored on the System screen.
Using the AGS Setup Menu

If Start Load is set too high, the Conext AGS may not start the generator in time to recharge the batteries before the batteries are drained by the AC load. In addition, if Start Load is set too high, the inverter may shut down due to an overload condition.

If Start Load is set too low, the Conext AGS may start the generator too frequently, wasting fuel in the process.

Stop Load

Full name: Stop on Inverter Load Current
Purpose: The Stop Load trigger enables the Conext AGS to stop the generator when the AC load falls below a specific level for 1 minute. The Stop Load setting applies to situations when the Conext AGS has started the generator to assist the inverter with powering the AC load.

Dependencies: The Stop Load trigger requires the Load trigger to be set to [Enabled]. It also needs to have a value starting value set in the Start Load trigger.

<table>
<thead>
<tr>
<th>Values</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.0 A to 28.0 A (increments of 1 A)</td>
<td>7.0 A</td>
</tr>
</tbody>
</table>

Load Start Delay

Full name: Load Start Amp Delay
Purpose: The Load Start Delay trigger configures the delay used in the Start Load trigger. The Start Load trigger enables the generator to start at a specified AC load (current draw) on the inverter. The default delay period is 5 minutes. In other words, the current draw must be present for 5 minutes before the generator will start.

Dependencies: The Load Start Delay trigger requires the Load trigger to be enabled. It also needs to have a stopping value set in the Stop Load trigger.

<table>
<thead>
<tr>
<th>Values</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0s to 25s (increments of 1s)</td>
<td>5 min</td>
</tr>
</tbody>
</table>
## Configuration

### Start Soc

**Full name**  
Start at Low State of Charge

**Purpose**  
The Start Soc trigger starts the generator when the battery State of Charge (SOC) falls below the defined value.

**When to use**  
The Start Soc trigger is valid only when a Conext Battery Monitor is installed. Use this trigger in systems with multiple battery banks.

The Start Soc trigger uses SOC information broadcast by the inverter/chargers and charge controllers as an indicator of battery energy levels. SOC is often a better indicator than voltage because batteries at different voltages may be in different charge states.

**Dependencies**

<table>
<thead>
<tr>
<th>Values</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>40% to 90% (increments of 1%)</td>
<td>50%</td>
</tr>
</tbody>
</table>

**Considerations**  
For information about configuring systems with multiple battery banks, visit [solar.schneider-electric.com](http://solar.schneider-electric.com).

### Stop Soc

**Full name**  
Stop at High State of Charge

**Purpose**  
The Stop Soc trigger stops the generator when the SOC rises above the defined value.

**When to use**  
The Stop Soc trigger is valid only when a Conext Battery Monitor is installed. Use this trigger in systems with multiple battery banks.

The Stop Soc trigger uses SOC information broadcast by the inverter/chargers and charge controllers as an indicator of battery energy levels. SOC is often a better indicator than voltage because batteries at different voltages may be in different charge states.

**Dependencies**

<table>
<thead>
<tr>
<th>Values</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>50% to 95% (increments of 1%)</td>
<td>90%</td>
</tr>
</tbody>
</table>

**Considerations**  
For information about configuring systems with multiple battery banks, visit [solar.schneider-electric.com](http://solar.schneider-electric.com).
Using the AGS Setup Menu

Cfg Gen Menu

The Generator Configuration menu (Cfg Gen) provides the means to customize the following settings if the generator being used doesn’t conform to one of the preset generator types or if an exercise period needs to be scheduled.

The Cfg Gen menu contains the following items:

- Starter Cool Down (Starter Cool Down)
- Generator Cool Down (Gen Cool Down)
- Generator Spin Down (Gen Spin Down)
- Maximum Generator Run Time (Max Run Time)
- Exercise Period (Exercise Per)
- Exercise Duration (Exercise Dur)
- Exercise Time (Exercise Time)
- Relay 3 (Relay 3)
- Generator Run Signal Hold Time (Gen Run Hold Time)
- Crank Delay (Crank Delay)
- Crank Time (Crank Time)
- Crank Retry Time (Crank Retry Time)
- Preheat Time (Preheat Time)
- Generator Start Tries (Gen Start Tries)

Starter Cool Down

Purpose

The Starter Cool Down setting allows an interval to be set between start attempts if the generator fails to start on the first attempt. This time period allows the start motor to cool sufficiently before the Conext AGS signals it to begin cranking again.

<table>
<thead>
<tr>
<th>Values</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>1s to 250s (increments of 1s)</td>
<td>60s</td>
</tr>
</tbody>
</table>

When to use

This setting is automatically configured when a Gen Type is selected for the generator. Customize the Starter Cool Down trigger on the advice of the generator manufacturer or authorized service personnel.
**Gen Cool Down**

**Purpose**  The Gen Cool Down setting allows an interval to be set between a generator stop trigger occurring and the Conext AGS actually stopping the generator. This setting is used in Conext system to unload the generator before the Conext AGS shuts it down.

When a stop trigger occurs, the Conext AGS enters a generator cool down state where it continues to run the generator for the specified time period. At the same time the Conext XW+ Inverter/Charger will disconnect the generator when it detects the Conext AGS in Generator Cool Down, allowing the generator operate unloaded and cool down before it is shut down.

This helps improve the reliability of the generator by reducing temperature peaking due to abrupt shut down of a loaded generator. It also reduces the probability of the generator backfiring that typically happens when the generator is abruptly shutdown while under heavy load. Gen Cool Down applies to all stop triggers namely Stop V, Stop Load, Stop Float, Stop Absorb, Stop Load, and Manual Off.

<table>
<thead>
<tr>
<th>Values</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>0s to 600s (increments of 1s)</td>
<td>30s</td>
</tr>
</tbody>
</table>

**When to use**  This setting is automatically configured when a “Gen Type” is selected for the generator. Customize the “Gen Cool Down” trigger on the advice of the generator manufacturer or authorized service personnel.
Using the AGS Setup Menu

Gen Spin Down

**Purpose**  
The **Gen Spin Down** setting allows an interval to be set between a generator stop signal being sent at the end of a Gen Cool Down cycle and the Conext AGS changing the Generator State to “stopped.” This setting is used in the Conext system to allow the generator to completely stop, thereby reducing its output voltage to zero and pulling the B+ signal low before the Conext XW+ Inverter/Charger can qualify and transfer the generator.

This helps the system operate properly in cases where the generator does not immediately stop when the stop signal is sent to the Conext AGS. **Gen Spin Down** applies to all stop triggers—Stop V, Stop Load, Stop Float, Stop Absorb, Stop Load, and Manual Off.

<table>
<thead>
<tr>
<th>Values</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>1s to 30 min (increments of 1s)</td>
<td>2 min</td>
</tr>
</tbody>
</table>

**When to use**  
This setting is automatically configured when a “Gen Type” is selected for the generator. Customize the “Gen Spin Down” trigger on the advice of the generator manufacturer or authorized service personnel.

Max Run Time

**Full name**  
Maximum Generator Run Time

**Purpose**  
**Max Run Time** allows a limit to be set on how long the generator will run. This setting overrides any automatic start triggers. For example, if the generator starts in response to low battery voltage, and the batteries are not fully charged before **Max Run Time** is reached, the generator will stop. In addition, when the generator is started manually from the SCP, the generator will stop when **Max Run Time** is reached.

When started with an external manual ON/OFF switch, the generator will not stop when it reaches **Max Run Time**. The generator must be stopped with the external manual ON/OFF switch, or by using the SCP to change the GenMode to ManualOff.

If the Conext AGS reaches **Max Run Time**, a warning message will appear on the SCP. The Conext AGS will stop operating until the warning is acknowledged by pressing Enter on the SCP.

<table>
<thead>
<tr>
<th>Values</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 hours to 24 hours (increments of 1hour)</td>
<td>8 hours</td>
</tr>
</tbody>
</table>
Considerations

Adjust the Max Run Time if the maximum generator run time:

- exceeds the fuel capacity of the generator, or
- is not long enough to fully recharge the batteries under optimum conditions.

Exercise Per

Full name
Set Exercise Period (in days).

Purpose
Exercise Per sets the minimum time interval between each running of the generator. If the generator has not been run within this time frame, the Conext AGS will start the generator to “exercise” it. If the generator is started for any reason during the time frame, the exercise timer resets.

For example, if you set the exercise period to 30 days, the generator will start at the appropriate time if it has not been run at all for 30 days. However, if the generator started for any reason during that time, the timer resets to zero.

Dependencies
The Exercise Per trigger requires parameters to be set in the Exercise Dur and Exercise Time menu items.

<table>
<thead>
<tr>
<th>Values</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 (Off), 1 day to 250 days (increments of 1 day)</td>
<td>21 days</td>
</tr>
</tbody>
</table>

Considerations
Generators need to run regularly in order to maintain mechanical health and performance. If the generator isn’t needed and doesn’t run, it is recommended that an Exercise period be set to keep the generator in good working condition.

If the generator runs frequently throughout the year, it may not need to be exercised. In that case, set the Exercise Per trigger to 0.

Important: Consult the generator manual or a service representative from the generator’s manufacturer for the recommended exercise period.
Using the AGS Setup Menu

Exercise Dur

<table>
<thead>
<tr>
<th>Full name</th>
<th>Exercise Duration (in minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose</td>
<td>Exercise Dur sets how long the generator will run when it is exercised.</td>
</tr>
<tr>
<td>Dependencies</td>
<td>The Exercise Dur trigger requires that any parameter other than “0” be set in Exercise Per and a time of day be set in the Exercise Time trigger.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Values</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>1min to 250min</td>
<td>30min</td>
</tr>
</tbody>
</table>

**Important:** Ensure that the Exercise Duration is not set for longer than the Max Run Time setting. Attempting to do so will generate a warning on the System Control Panel.

**Important:** Consult the generator manual or a service representative from the generator's manufacturer for the recommended exercise duration.

Exercise Time

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Exercise Time sets the time of day that the Conext AGS exercises the generator.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The Exercise Time trigger requires that any parameter other than “0” be set in Exercise Per and a value be set in the Exercise Dur trigger.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Values</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>12:00AM to 11:50PM (12-hour clock)</td>
<td>9:00AM</td>
</tr>
<tr>
<td>00:00 to 23:50 (24-hour clock) (increments of 10 minutes)</td>
<td></td>
</tr>
</tbody>
</table>

**Considerations**

If the Exercise Time is set, the generator will start at that time after being inactive for the exercise period. (Exercise Per).

If the Exercise Time occurs during Quiet Time (QT), the generator will start when Quiet Time is over and run for the full amount of time set for Exercise Dur.
Relay3

**Purpose**

Relay3 sets the function of Relay 3 of the Conext AGS. The function of Relay 3 affects contacts 19 and 20 of the 20-contact connector and external wiring harness.

<table>
<thead>
<tr>
<th>Values</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>NotUsed, Preheat, PreheatSDByp, WrmUpCoolDn</td>
<td>NotUsed</td>
</tr>
</tbody>
</table>

**Considerations**

Selecting a value for Gen Type automatically configures Relay3.

It might be necessary to manually set Relay3 according to the make and type of generator being used.

Some diesel generators require preheating of their glow plugs before start cranking. Setting Relay3 to Preheat enables Relay 3 to perform this function in addition to Relay 1.

Some generators require Relay 3 to switch 12 volts to the glow plugs, while some generators require ground to be switched to the glow plugs.

“PreheatSDByp” stands for Preheat with Shutdown Bypass. Some generators require preheat on relay 3 to remain high for crank time and shutdown bypass period. See “GlowStop Mode” on page C–4 for more details.

Gen Run Hold Time

**Full name**

Generator Run Signal Hold Time

**Purpose**

Gen Run Hold Time specifies the length of time the generator run signal (or B+ or hour meter signal) must be active before the Conext AGS considers the generator to be running and cranking can be stopped.

Some generators assert their run signal when they are being cranked, but before they have started. They also have varying delays from when cranking begins or ends to when the run signal is asserted or unasserted. The Gen Run Hold Time is designed to accommodate these generators.

<table>
<thead>
<tr>
<th>Values</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0s to 20.0s (increments of 0.5s)</td>
<td>0.5s</td>
</tr>
</tbody>
</table>
Using the AGS Setup Menu

**Considerations**
This setting is automatically configured when a **Gen Type** is selected for the generator. Manually change this setting only on the advice of the generator manufacturer or authorized service personnel.

If the installation is made without a B+ connection, it might be necessary to adjust the **Gen Run Hold Time** for the Conext AGS to successfully start the generator. When the B+ signal is not connected, the AGS requests AC status from the Inverter/Charger by checking via the Xanbus network whether AC is present at the inverter’s AC Input, which might take longer than if the B+ signal was connected.

**Crank Delay**

**Purpose**
Crank Delay specifies the delay time from when the preheat relay is de-energized to when the Start Relay is energized (and cranking the starter motor). This is also referred to as the preheat-to-crank delay.

<table>
<thead>
<tr>
<th>Values</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>0s to 60s</td>
<td>0s</td>
</tr>
</tbody>
</table>

**Considerations**
This setting is automatically configured when a **Gen Type** is selected for the generator. Manually change this setting only on the advice of the generator manufacturer or authorized service personnel.

**Crank Time**

**Purpose**
Crank Time specifies the maximum length of time the Start relay is engaged (and cranking the starter motor) for the first attempt to start the generator.

<table>
<thead>
<tr>
<th>Values</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>0s to 250s (increments of 1s)</td>
<td>30s</td>
</tr>
</tbody>
</table>

**Considerations**
This setting is automatically configured when a **Gen Type** is selected for the generator. Manually change this setting only on the advice of the generator manufacturer or authorized service personnel.
**Crank Retry Time**

**Purpose**

Crank Retry Time specifies the length of time the Start relay is engaged (and cranking the starter motor) for the second and subsequent attempts to start the generator, in cases when the generator fails to start on the first attempt.

<table>
<thead>
<tr>
<th>Values</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>0s to 250s (increments of 1s)</td>
<td>40s</td>
</tr>
</tbody>
</table>

**Considerations**

This setting is automatically configured when a Gen Type is selected for the generator. Manually change this setting only on the advice of the generator manufacturer or authorized service personnel.

**Preheat Time**

**Purpose**

Preheat Time specifies how long the Preheat relay is engaged during the start sequence. The preheat signal may be required for diesel generators with glow plugs or fuel priming for gas generators.

The Preheat relay may be Relay 1 or Relay 3, depending on the Relay3 setting or the Gen Type selected.

<table>
<thead>
<tr>
<th>Values</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>0s to 250s (increments of 1s)</td>
<td>0s</td>
</tr>
</tbody>
</table>

**Considerations**

This setting is automatically configured when a Gen Type is selected for the generator. Manually change this setting only on the advice of the generator manufacturer or authorized service personnel.

**Gen Start Tries**

Gen Start Tries specifies how many times the Conext AGS will attempt to start the generator. On the first start try, the Conext AGS cranks the starter motor for the Crank Time. If the generator does not start, on subsequent start tries, the Conext AGS cranks the start motor for the Crank Retry Time.

<table>
<thead>
<tr>
<th>Values</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 10</td>
<td>3</td>
</tr>
</tbody>
</table>
Using the AGS Setup Menu

**Considerations**

This setting is automatically configured when a Gen Type is selected for the generator. Manually change this setting only on the advice of the generator manufacturer or authorized service personnel.

**Multi-unit Config**

Multi-unit Config provides the means to identify multiple units within the same configuration.

**Dev Name**

The Device Name (Dev Name) menu item gives each Xanbus-enabled device a unique identifiable name. This makes each device easier to identify when multiple Xanbus-enabled devices are connected together. The default device name for the Conext AGS is “XW Conext AGS.”

See the Conext XW+ Inverter/Charger Operator's Guide for additional information.

**Dev Number**

The Device Number (Dev Number), menu item gives each Xanbus-enabled device a unique identifiable number in addition to the name. This provides the means to use the same name, but different numbers for similar devices (such as XW AGS 01 and XW AGS 02).

See the Conext XW+ Inverter/Charger Operator's Guide for additional information.

**Connections**

The Connections menu item identifies the AC and DC input and output sources that affect or control the system (Conext AGS). Start and stop triggers such as DC Voltage, charge stage, and AC load current, are related to these settings.

**DC Conn**

The DC Connection (DC Conn) must be set to match that of the Conext XW+ Inverter/Charger(s) in the system. This tells the Conext AGS which battery bank to use for the charger based triggers. Configuration of this parameter is only necessary for systems with more than one Conext XW+ Inverter/Charger and more than one battery bank.

**AC In**

The AC In connection tells the Conext AGS what other AC source or grid the Conext XW+ Inverter/Charger is connected to. The Conext AGS uses this setting to stop the generator once the Conext XW+ Inverter/
Configuration

Charger transfers from the generator to the grid or alternative AC source. Configuration of this parameter is only necessary for larger systems with multiple Conext XW+ Inverter/Chargers and multiple grid connections.

AC Out

The AC Out connection tells the Conext AGS what load to monitor for AC load triggers. Configuration of this parameter is only necessary for systems with more than one Conext XW+ Inverter/Charger.

Generator

This generator name is used by the Conext XW+ to identify which generator is connected to either of the two AC inputs, AC1 or AC2. It is only necessary to change this setting in installations with more than one Conext AGS in a system. In this case, the Generator name on each Conext AGS will have to be unique.

For example, if a generator is connected to AC2 on an Conext XW+, the generator name (e.g., Gen1, Gen2 etc.) selected for AC2 under Connections on the Conext XW+ must match the generator name assigned here.

See the Conext XW+ Inverter/Charger Operator's Guide for additional information.

Restore Defaults

The Restore Defaults menu item returns the Conext AGS to the factory default settings.

GenMode

Purpose

The GenMode menu item controls the current operating mode of the Conext AGS.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automatic</td>
<td>Automatic mode</td>
</tr>
<tr>
<td>ManualOn</td>
<td>Manual on mode</td>
</tr>
<tr>
<td>ManualOff</td>
<td>Manual off mode (default mode)</td>
</tr>
</tbody>
</table>

Considerations

Use GenMode when it is necessary to switch between automatic generator control and manual generator control.

When the Xanbus network powers up all network-enabled devices, the Conext AGS is in ManualOff mode. To enable automatic generator starts, the Conext AGS must be put in "Automatic" mode.
Automatic Mode

To have the Conext AGS start and stop the generator automatically, select Automatic. The generator can start and stop automatically in response to low battery voltage, SOC triggers, AC loads on the inverter, thermostat triggers, or exercise time. Automatic mode also has a Quiet Time feature, which prevents the generator from starting during evening hours or other inconvenient times (see “QT Begin” on page 3–11, “QT End” on page 3–12, and “Using Quiet Time” on page 4–4).

Automatic Mode Overrides

When the Conext AGS is in Automatic mode, several settings and conditions override automatic start and stop triggers. These overrides include, in order of priority:

- Faults—The Conext AGS stops the generator when a fault occurs.
- External Shutdown—When the Conext AGS is connected to a sensor or meter (a moisture detector, for example) wired to contacts 5 and 6 of the 20-contact connector, it stops the generator when the device is activated. See “Connecting an External Shutdown (optional)” on page 2–27.
- External On/Off—The generator is manually started or stopped with a switch wired to contacts 7 and 8 of the 20-contact connector. See “Connecting an External Manual ON/OFF Switch (optional)” on page 2–27. When started with an external manual ON/OFF switch, the generator will not stop when it reaches Max Run Time. The generator must be stopped using the external manual ON/OFF switch.
- Max Run Time—When the generator has exceeded its maximum run time, a warning message will appear on the SCP. The Conext AGS will stop operating until the warning is acknowledged by pressing Enter on the SCP. See “Max Run Time” on page 3–27.

Manual On Mode

Selecting Manual On mode overrides the automatic start settings and manually starts the generator. The generator will run until it is manually stopped or until it reaches its Conext AGS-defined Maximum Run Time (see “Max Run Time” on page 3–27).
**Configuration**

**Manual Off Mode**

Selecting Manual Off mode overrides the automatic stop settings and manually stops the generator. Manual Off must be selected to stop the generator when the generator has been started manually. The Conext AGS will not automatically start the generator again until "Automatic" is selected in the GenMode menu.

**Important:** The GenMode mode must be set to ManualOff before any start trigger settings can be changed.

**Mode**

The Mode menu item is a device operating mode and provides the means to put the Conext AGS in Standby mode or return it from Operating mode.

The Conext AGS mode must be set to Standby before selecting a generator type. Selecting Standby stops the generator (if it is running).

While in Standby, the Conext AGS “listens” to and reports its status to the network. It will not start the generator manual or automatically while in Standby.

**View Device Info Menu**

The View Device Info menu provides a means to view the Fault, Warning and Event logs. It is also where the settings can be restored to factory default settings.

**View Fault Log**

**Purpose** The Fault Log displays the last 20 Conext AGS faults for reference to assist the user in troubleshooting problems.

**When to use** Consult the Fault Log when troubleshooting or before seeking technical assistance.

**View Warning Log**

**Purpose** The Warning Log displays the last 20 Conext AGS warnings for reference.

**When to use** Consult the Warning Log when troubleshooting or before seeking technical assistance.
View Event Log

Purpose

The Event Log displays the last 20 Conext AGS events for reference. Events can include:

- Starting and stopping the generator.
- Trigger events. See Table 3-23 for a detailed list of trigger events.
- Changing the system mode.
- Changing the system clock.
- Commands to restore the default settings.

Table 3-23 Trigger Event Descriptions

<table>
<thead>
<tr>
<th>Event Displayed</th>
<th>Description of Event Trigger</th>
</tr>
</thead>
<tbody>
<tr>
<td>NotOn</td>
<td>Generator is not running</td>
</tr>
<tr>
<td>LowBattV</td>
<td>Preset minimum battery voltage with associated time delay</td>
</tr>
<tr>
<td>CntctClosed</td>
<td>Activated thermostat 1 or 2</td>
</tr>
<tr>
<td>ACIHigh</td>
<td>Preset maximum inverter load current</td>
</tr>
<tr>
<td>Exercise</td>
<td>Preset exercise period, exercise time, and exercise duration</td>
</tr>
<tr>
<td>ManualOn</td>
<td>Started manually using System Control Panel</td>
</tr>
<tr>
<td>ExtOnviaAGS</td>
<td>Started by external switch connected to Conext AGS</td>
</tr>
<tr>
<td>ExtOnviaGen</td>
<td>Started by switch connected to generator</td>
</tr>
<tr>
<td>UnableToStop</td>
<td>Conext AGS has lost control of the running generator</td>
</tr>
</tbody>
</table>
## Recording User Settings

Use this table to record any customized Conext AGS settings for future reference.

### Table 3-24 Generator Configuration Settings, Values, Defaults, and User Settings

<table>
<thead>
<tr>
<th>Setting</th>
<th>Values</th>
<th>Default</th>
<th>User Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Main Menu:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mode</td>
<td>Operating/Standby</td>
<td>Operating</td>
<td></td>
</tr>
<tr>
<td><strong>Configuration Menu:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>QT En</td>
<td>Enabled, Disabled</td>
<td>Enabled</td>
<td></td>
</tr>
<tr>
<td>QT Begin</td>
<td>12:00AM–11:59PM (12-hour clock)</td>
<td>9:00PM (12-hour clock)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>00:00–23:59 (24-hour clock)</td>
<td>21:00 (24-hour clock)</td>
<td></td>
</tr>
<tr>
<td>QT End</td>
<td>12:00AM–11:59PM (12-hour clock)</td>
<td>8:00AM (12-hour clock)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>00:00–23:59 (24-hour clock)</td>
<td>8:00 (24-hour clock)</td>
<td></td>
</tr>
<tr>
<td>Gen Type</td>
<td>Type 1 to Type 14</td>
<td>Type 2</td>
<td></td>
</tr>
<tr>
<td><strong>Triggers Menu:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Start DCV 30 sec</td>
<td>Disabled, 4.0 V–65.0 V 44.5 V</td>
<td>44.5 V</td>
<td></td>
</tr>
<tr>
<td>Start DCV 15 min</td>
<td>Disabled, 4.0 V–120.0 V Disabled</td>
<td>Disabled</td>
<td></td>
</tr>
<tr>
<td>Start DCV 2 hr</td>
<td>Disabled, 4.0 V–120.0 V Disabled</td>
<td>Disabled</td>
<td></td>
</tr>
<tr>
<td>Start DCV 24 hr</td>
<td>Disabled, 4.0 V–120.0 V Disabled</td>
<td>Disabled</td>
<td></td>
</tr>
<tr>
<td>Stop Float</td>
<td>Enabled, Disabled</td>
<td>Disabled</td>
<td></td>
</tr>
<tr>
<td>Stop Absorb</td>
<td>Enabled, Disabled</td>
<td>Enabled</td>
<td></td>
</tr>
<tr>
<td>Stop V</td>
<td>Disabled, 4.0 V–65.0 V Disabled</td>
<td>Disabled</td>
<td></td>
</tr>
<tr>
<td>Temp1</td>
<td>Enabled, Disabled</td>
<td>Disabled</td>
<td></td>
</tr>
<tr>
<td>Temp2</td>
<td>Enabled, Disabled</td>
<td>Disabled</td>
<td></td>
</tr>
</tbody>
</table>
## Table 3-24 Generator Configuration Settings, Values, Defaults, and User Settings

<table>
<thead>
<tr>
<th>Setting</th>
<th>Values</th>
<th>Default</th>
<th>User Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Load</td>
<td>Enabled, Disabled</td>
<td>Disabled</td>
<td></td>
</tr>
<tr>
<td>Start Load</td>
<td>10.0 A–33.0 A</td>
<td>10.0 A</td>
<td></td>
</tr>
<tr>
<td>Stop Load</td>
<td>7.0 A–28.0 A</td>
<td>7.0 A</td>
<td></td>
</tr>
<tr>
<td>Load Start Delay</td>
<td>0.0s to 25s</td>
<td>5s</td>
<td></td>
</tr>
<tr>
<td>Start Soc</td>
<td>40% to 90%</td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td>Stop Soc</td>
<td>50% to 95%</td>
<td>90%</td>
<td></td>
</tr>
</tbody>
</table>

### Generator Menu:

<table>
<thead>
<tr>
<th>Setting</th>
<th>Values</th>
<th>Default</th>
<th>User Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Starter Cool Down</td>
<td>1s to 250s (increments of 1s)</td>
<td>60s</td>
<td></td>
</tr>
<tr>
<td>Gen Cool Down</td>
<td>0s to 600 s (increments of 1s)</td>
<td>30s</td>
<td></td>
</tr>
<tr>
<td>Gen Spin Down</td>
<td>1s to 900s (increments of 1s)</td>
<td>3s</td>
<td></td>
</tr>
<tr>
<td>Max Run Time</td>
<td>0 hours–24 hours</td>
<td>8 hours</td>
<td></td>
</tr>
<tr>
<td>Exercise Per</td>
<td>0 days (Off)–250days</td>
<td>21 days</td>
<td></td>
</tr>
<tr>
<td>Exercise Dur</td>
<td>1 min–250min</td>
<td>30min</td>
<td></td>
</tr>
<tr>
<td>Exercise Time</td>
<td>12:00AM–11:50PM (12-hour clock)</td>
<td>9:00AM (12-hour clock)</td>
<td>9:00 (24-hour clock)</td>
</tr>
<tr>
<td>Relay3</td>
<td>Preheat, WrmupCoolDn, Preheat SDByp, NotUsed</td>
<td>NotUsed</td>
<td></td>
</tr>
<tr>
<td>Gen Run Hold Time</td>
<td>0s to 20s (increments of 1s)</td>
<td>0.5s</td>
<td></td>
</tr>
<tr>
<td>Crank Delay</td>
<td>0s to 60s (increments of 1s)</td>
<td>0s</td>
<td></td>
</tr>
<tr>
<td>Crank Time</td>
<td>0s to 250s (increments of 1s)</td>
<td>30s</td>
<td></td>
</tr>
<tr>
<td>Crank Retry Time</td>
<td>0s to 250s (increments of 1s)</td>
<td>40s</td>
<td></td>
</tr>
<tr>
<td>Preheat Time</td>
<td>0s to 250s (increments of 1s)</td>
<td>0s</td>
<td></td>
</tr>
<tr>
<td>Gen Start Tries</td>
<td>1 to 10</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>
### Configuration

**Table 3-24** Generator Configuration Settings, Values, Defaults, and User Settings

<table>
<thead>
<tr>
<th>Setting</th>
<th>Values</th>
<th>Default</th>
<th>User Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Multi-Unit Configuration:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dev Name</td>
<td>1-15 characters</td>
<td>Conext AGS</td>
<td></td>
</tr>
<tr>
<td>Dev Number</td>
<td>00 to 31</td>
<td>00</td>
<td></td>
</tr>
<tr>
<td><strong>Connections:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DC Conn</td>
<td>None, HouseBatt1 to 6, StartBatt1 to 6</td>
<td>HouseBatt1</td>
<td></td>
</tr>
<tr>
<td>AC In</td>
<td>None, Grid1 to 10, Gen1 to 10</td>
<td>Grid1</td>
<td></td>
</tr>
<tr>
<td>AC Out</td>
<td>None, ACLoad1 to 10</td>
<td>ACLoad1</td>
<td></td>
</tr>
<tr>
<td>Generator</td>
<td>Gen1 to 10</td>
<td>Gen1</td>
<td></td>
</tr>
</tbody>
</table>
Chapter 4, “Operation” describes the operation of the Conext AGS and how to get the most from its features. It includes:

- Accessing the Conext AGS Home Screen
- Starting and Stopping the Generator
- Using Quiet Time
- Modes of Operation
Accessing the Conext AGS Home Screen

Use the AGS Home screen to view the operational status information for the generator. The Conext AGS Home screen displays the generator start settings (off, on or automatic), the generator state (running or stopped), the stop trigger, and the generator signal.

To display the AGS Home Screen:
1. Start from the System Status screen.
2. Press the down arrow button until the Conext AGS Home screen is displayed.
3. Use the arrow buttons to scroll through the current settings.
4. Press the Exit button to return to the System Status screen.

Important:
The AGS Home screen is view only. To change operational settings, use the AGS Setup menu. See “Starting and Stopping the Generator” on page 4–3.

Figure 4-1 Conext AGS Home Screen
Starting and Stopping the Generator

Through the SCP, you can program the Conext AGS to start or stop the generator manually or automatically in response to an electrical system condition.

**To start and stop the generator automatically:**
1. On the Conext AGS Setup menu, highlight GenMode and press Enter.
2. Use the arrow button to highlight Automatic.
3. Press Enter.

**To start the generator manually:**
1. On the Conext AGS Setup menu, highlight GenMode and press Enter.
2. Use the arrow button to select ManualOn.
3. Press Enter.

**To stop the generator manually:**
1. On the Conext AGS Setup menu, highlight GenMode and press Enter.
2. Use the arrow button to select ManualOff.
3. Press Enter.

**Important:** To avoid Conext AGS faults, try not to combine automatic and external manual starts and stops.

When the generator has been started automatically, allow it to stop automatically unless a situation occurs that requires the generator to be stopped urgently.

Likewise, if the generator has been started manually, ensure that it is stopped manually. Only the Max Run Time setting can automatically stop the generator after it has been started manually.

---

**System Status Screen**

**Select Device Menu**

**Conext AGS Setup Menu**

---

**Figure 4-2** Starting and Stopping the Generator
Using Quiet Time

Use the Quiet Time feature to ensure that the Conext AGS will not start the generator during the night or during times that conflict with local noise restrictions.

Using Quiet Time involves configuring three settings:

- **QT En** must be set to Enabled. The default setting is Enabled.
- **QT Begin** must have an appropriate time set for Quiet Time to start on schedule. The default setting for QT Begin is [9:00 PM] or 21:00 if using a 24-hour clock.
- **QT End** must have an appropriate time set for Quiet Time to stop on schedule. The default setting for QT End is [8:00 AM] or 8:00 on the 24-hour clock.

For more information about Quiet Time settings, see “QT En” on page 3–10, “QT Begin” on page 3–11, and “QT End” on page 3–12.

**Figure 4-3 Using the Quiet Time Feature**

**To enable Quiet Time:**

1. On the Advanced Settings menu, use the arrow buttons to highlight QT En.
2. Press Enter.
3. Use the arrow buttons to select Enabled.
4. Press Enter.

**To set the beginning of Quiet Time:**

1. On the Advanced Settings menu, use the arrow buttons to highlight QT Begin, then press Enter.
2. Use the arrow buttons to select the hour, then press Enter.
3. Use the arrow buttons to select the minutes, then press Enter.
   If the 24-hour clock is being used, go to step 5.
4. Use the arrow buttons to select AM or PM, then press Enter.
5. Press Exit twice to return to the System Status screen.

To set the end of Quiet Time:

1. On the Advanced Settings menu, use the arrow buttons to highlight QT End, then press Enter.
2. Use the arrow buttons to select the hour, then press Enter.
3. Use the arrow buttons to select the minute, then press Enter.
   If the 24-hour clock is being used, go to step 5.
4. Use the arrow buttons to select AM or PM, then press Enter.
5. Press Exit twice to return to the System Status screen.

Modes of Operation

The Conext AGS supports two modes, Operating and Standby. The Conext AGS mode of operation must be set to Standby before selecting a Generator Type. Selecting Standby stops the generator (if it is running).

While in Standby, the Conext AGS listens to and reports its status to the network. However, it will not start the generator manually or automatically while in Standby.

If the Conext AGS is powered off while in Standby, it will be in Standby when it is powered on again.

The Conext AGS can also be put in System Mode Standby from the System Settings menu. Note that system settings affect the behavior of the entire Conext system.

To put every Xanbus-enabled device, including the AGS, into System Mode Standby, press Enter in the System Status screen, highlight System Settings and press Enter, highlight System Mode and press Enter, and then select Standby.

Important: If Conext AGS Fault 201 “Unable to stop gen.” is active, the Conext AGS cannot be put into Standby. Before Standby can be established, the generator must be stopped by its external switch and the fault must be cleared.
Operation

Placing the Conext AGS in Standby Mode

To place the AGS in Standby mode:

1. In the System Status screen, press Enter.
2. Use the arrow buttons to highlight AGS and press Enter.
3. Highlight Mode and press Enter.
4. Use the arrow buttons to change the setting from Operating to Standby, and then press Enter.

Placing the Conext AGS in Operating Mode

To return the AGS from Standby to Operating mode:

1. In the System Status screen, press Enter.
2. Use the arrow buttons to highlight AGS. Press Enter.
3. Highlight Mode and press Enter.
4. Use the arrow buttons to change the setting to Operating, and then press Enter.
Chapter 5, “Troubleshooting” contains information and procedures to troubleshoot the Conext Automatic Generator Start (AGS).

It includes:
- Faults and Warnings
- Warning Messages
- Fault Messages
Troubleshooting

Faults and Warnings

Under certain conditions, the Conext AGS generates a fault or warning message. These messages appear on the Conext System Control Panel (SCP).

**Acknowledging messages**

When a fault or warning message appears, it will remain on the screen until it is acknowledged by pressing **Enter** on the SCP. This action removes the message from the screen, but does not clear the condition that caused the fault or warning.

Consult Table 5-1 and Table 5-2 for recommendations for resolving the fault after it has been acknowledged.

Warnings that are in the form of a Yes/No question can be acknowledged by pressing **Enter** for Yes and **Exit** for No.

**Self-clearing warnings**

If unacknowledged, some warnings may clear themselves if the condition that generated the message goes away. For example, if the Conext AGS fails to start the generator, warning message W202 appears. However, if the generator starts on the next start try, the message goes away.

**Clearing faults**

To clear active Conext AGS faults, highlight **Clear Faults** on the Conext AGS Setup menu and press **Enter**.

**Multiple faults and warnings**

If several fault or warning messages occur before they can be acknowledged or cleared, they are displayed together on a fault list or a warning list. These lists contain messages from every Xanbus-enabled device, not just the Conext AGS. Message details can be selected and viewed from the fault list or warning list.

**To view a message from a fault list or warning list:**

1. On the list, use the arrow buttons to highlight the message to be viewed.

2. Press **Enter**. The complete message appears.

To return to the fault list or warning list, press **Exit**. To continue to the menu for the device that caused the fault or warning condition by pressing **Exit**.

Each time you return to the list after viewing a complete message, the viewed message is removed from the list.

If you have left the fault list or warning list, you can view them at any time from the **System Settings** menu.
Warning Messages

To view a fault list or warning list:

2. On the System Settings menu, highlight View Fault List or View Warning List.
3. Press Enter.

Warning Messages

Table 5-1 provides details and suggests action for Conext AGS warnings.

<table>
<thead>
<tr>
<th>Warning Number</th>
<th>Message</th>
<th>Self-clearing?</th>
<th>Cause</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>W200</td>
<td>Generator was stopped manually.</td>
<td>No</td>
<td>Generator was stopped by an external Manual Off switch.</td>
<td>Acknowledge the warning. To resume automatic starts and stops, change the Conext AGS mode to Automatic.</td>
</tr>
<tr>
<td>W201</td>
<td>Generator was started manually.</td>
<td>No</td>
<td>Generator was started by an external Manual On switch</td>
<td>Acknowledge the warning. To resume automatic starts and stops, change the Conext AGS mode to Automatic.</td>
</tr>
<tr>
<td>W202</td>
<td>Unable to start generator. Conext AGS will try again.</td>
<td>Yes</td>
<td>The Conext AGS tried, but could not start the generator.</td>
<td>No action required. The Conext AGS will try to start the generator again until it reaches the maximum number of start tries.</td>
</tr>
</tbody>
</table>
### Troubleshooting

**Table 5-1 Conext AGS Warning Messages (Continued)**

<table>
<thead>
<tr>
<th>Warning Number</th>
<th>Message</th>
<th>Self-clearing?</th>
<th>Cause</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>W203</td>
<td>Manual Off: Max generator run time reached. Reset GenMode.</td>
<td>No</td>
<td>The generator has run for its maximum allowable time. The Conext AGS has stopped the generator and changed the GenMode option to ManualOff.</td>
<td>Acknowledge the warning. Return the Conext AGS to the desired GenMode option (Automatic or ManualOn). Ensure generator has fuel and is supplying the required power for battery charging and loads.</td>
</tr>
<tr>
<td>W205</td>
<td>Generator started by its switch. Use its switch to stop.</td>
<td>Yes</td>
<td>The generator was started, but not by the Conext AGS.</td>
<td>Check your generator. Stop it using the switch or control panel on the generator.</td>
</tr>
<tr>
<td>W206</td>
<td>Mismatched triggers. Enable stop trigger or disable start trigger.</td>
<td>No</td>
<td>You have set a start trigger, but not a corresponding stop trigger.</td>
<td>Acknowledge warning and set a stop trigger.</td>
</tr>
<tr>
<td>W207</td>
<td>Mismatched triggers. Enable start trigger or disable stop trigger.</td>
<td>No</td>
<td>You have set a stop trigger, but not a corresponding start trigger.</td>
<td>Acknowledge warning and set a start trigger.</td>
</tr>
<tr>
<td>W208</td>
<td>Automatic start and stop triggers not enabled. Configure triggers.</td>
<td>No</td>
<td>You are attempting to enter Automatic Mode without setting triggers.</td>
<td>Acknowledge warning and set start and stop triggers.</td>
</tr>
</tbody>
</table>
### Table 5-1  Conext AGS Warning Messages (Continued)

<table>
<thead>
<tr>
<th>Warning Number</th>
<th>Message</th>
<th>Self-clearing?</th>
<th>Cause</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>W209</td>
<td>Gen external stop. Start gen via its control panel.</td>
<td>Yes</td>
<td>The generator has stopped, but not by the Conext AGS. The generator may have run out of gas, or may have been shut off by a switch on the generator.</td>
<td>Check the generator's fuel level and mechanical condition, then start the generator manually (using the switch or control panel on the generator) to clear the warning.</td>
</tr>
<tr>
<td>W250</td>
<td>The selected value failed to change. Try again.</td>
<td>No</td>
<td>You have tried to change the Gen Type without putting the system into Standby first.</td>
<td>Put the system into Standby, change the Gen Type, then return the system to Operating mode. You have tried to set the Exercise Dur for longer than Max Run Time, or Max Run Time for less than Exercise Dur. Ensure that Max Run Time is set for longer than Exercise Dur.</td>
</tr>
<tr>
<td>W500</td>
<td>Network connection lost. Check connections.</td>
<td>Yes</td>
<td>The Conext AGS has lost communications with the network because of a faulty connection or electronic signal disruption.</td>
<td>Check connection between the Conext AGS and the network.</td>
</tr>
<tr>
<td>W501</td>
<td>Conext AGS has fixed memory problem and restored default settings.</td>
<td>No</td>
<td>The Conext AGS encountered an internal memory problem upon startup. To remain operational, the Conext AGS restored its default settings.</td>
<td>Acknowledge the warning and reset configurable settings if necessary.</td>
</tr>
</tbody>
</table>
Fault Messages

When the Conext AGS detects a fault condition, it stops the generator. The red Fault light also comes on, and the SCP displays a fault message.

The Conext AGS remembers the GenMode that it was in at the time it detected the fault. After you have cleared the fault, the Conext AGS returns to its last known GenMode.

Table 5-2 Conext AGS Fault Messages

<table>
<thead>
<tr>
<th>Fault Number</th>
<th>Message</th>
<th>Self-clearing?</th>
<th>Cause</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>F200</td>
<td>Exceeded max number of start tries. Check gen, clear fault.</td>
<td>No</td>
<td>The Conext AGS has tried and failed to start the generator. To prevent draining the start battery, the Conext AGS will suspend further start attempts.</td>
<td>Check the generator’s fuel level and start battery condition. Consult generator manual. Clear the fault on the SCP to allow retry.</td>
</tr>
<tr>
<td>F201</td>
<td>Unable to stop gen. Stop gen via its control panel.</td>
<td>No</td>
<td>The Conext AGS has lost contact with the generator or the generator did not stop after the Conext AGS sent it a stop signal.</td>
<td>Change the Conext AGS mode to ManualOff. If this fails to work, stop the generator with the external stop switch. Check generator. Return Conext AGS to automatic mode to resume automatic starts and stops.</td>
</tr>
<tr>
<td>F203</td>
<td>Manual Off: Gen stopped by ext sensor. Reset GenMode.</td>
<td>No</td>
<td>An external sensor connected to the Conext AGS has stopped the generator and put the Conext AGS into Manual Off mode.</td>
<td>After the sensor connected to the external shutdown has deactivated, clear the fault and reset the Conext AGS to the desired mode.</td>
</tr>
</tbody>
</table>
## Fault Messages

### Table 5-2 Conext AGS Fault Messages

<table>
<thead>
<tr>
<th>Fault Number</th>
<th>Message</th>
<th>Self-clearing?</th>
<th>Cause</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>F500</td>
<td>Serial Number Failure, Service Required.</td>
<td>No</td>
<td>The silicon serial ID number has failed and the Conext AGS has gone into Standby.</td>
<td>Call your dealer or Schneider Electric.</td>
</tr>
<tr>
<td>F501</td>
<td>Memory Failure. Service Required.</td>
<td>No</td>
<td>The Conext AGS has suffered a non-volatile memory failure.</td>
<td>Call your dealer or Schneider Electric.</td>
</tr>
<tr>
<td>F505</td>
<td>Internal Failure. Service Required.</td>
<td>No</td>
<td>A controller fault has occurred and the Conext AGS has gone into Standby.</td>
<td>Clear the fault. If the fault persists, call your dealer or Schneider Electric.</td>
</tr>
</tbody>
</table>
Appendix A contains the electrical, mechanical, and environmental specifications for the Conext Automatic Generator Start (AGS).

It includes:
- Electrical Specifications
- Mechanical Specifications
- Environmental Specifications
- Regulatory Compliance

All specifications are subject to change without notice.
## Electrical Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal input network voltage</td>
<td>15 VDC</td>
</tr>
<tr>
<td>Maximum operating current</td>
<td>200 mA @ nominal input network voltage</td>
</tr>
<tr>
<td>Relay contact voltage rating</td>
<td>12 VDC, 30 VDC max.*</td>
</tr>
<tr>
<td>Maximum relay contact current</td>
<td>5 A DC*</td>
</tr>
<tr>
<td>Nominal 12/24 V thermostat input voltage</td>
<td>12 VDC/24 VDC* = On</td>
</tr>
<tr>
<td>Minimum 12/24 V thermostat input voltage</td>
<td>9.5 VDC*</td>
</tr>
<tr>
<td>Maximum 12/24 V thermostat input voltage</td>
<td>30 VDC*</td>
</tr>
<tr>
<td>Typical 12/24 V thermostat input current</td>
<td>14.6 mA @ 12 V</td>
</tr>
<tr>
<td>Nominal 12/24 V generator running B+ voltage</td>
<td>12 VDC/24 VDC* = On</td>
</tr>
<tr>
<td>Minimum 12/24 V generator running B+ voltage</td>
<td>9.5 VDC*</td>
</tr>
<tr>
<td>Maximum 12/24 V generator running B+ voltage</td>
<td>30 VDC*</td>
</tr>
<tr>
<td>Typical 12/24 V generator running B+ current</td>
<td>14.6 mA @ 12 V</td>
</tr>
<tr>
<td>Communication physical layer</td>
<td>2, CAN</td>
</tr>
<tr>
<td>Communication protocol</td>
<td>Xanbus</td>
</tr>
<tr>
<td>Maximum cable length</td>
<td>130 ft. (40 m)</td>
</tr>
</tbody>
</table>

*Limited to Class 2 levels (100 VA) as in Chapter 2, page 2–6.
## Mechanical Specifications

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>3 ¾ x 5 ¾ x 1 ½&quot; (95.5 x 146 x 37 mm)</td>
</tr>
<tr>
<td>Weight</td>
<td>0.5 lb. (225 g)</td>
</tr>
<tr>
<td>Mounting</td>
<td>4 × #6 screws (or M3)</td>
</tr>
<tr>
<td>Connectors</td>
<td>2 × Xanbus: RJ-45—8 pins</td>
</tr>
<tr>
<td></td>
<td>1 × 20-contact pluggable connector (Tyco Mate’n’ Lok 2 connector)</td>
</tr>
</tbody>
</table>

![Conext AGS Dimensions](image)

**Figure A-6** Conext AGS Dimensions
Specifications

Environmental Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating temperature</td>
<td>-20 to 50°C (-4 to 122°F)</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>-40 to 85°C (-40 to 185°F)</td>
</tr>
<tr>
<td>Maximum case temperature</td>
<td>60°C (140°F)</td>
</tr>
<tr>
<td>Operating humidity</td>
<td>5 to 95%</td>
</tr>
<tr>
<td>Storage humidity</td>
<td>5 to 95%</td>
</tr>
<tr>
<td>Ignition protection</td>
<td>None</td>
</tr>
</tbody>
</table>

Regulatory Compliance

<table>
<thead>
<tr>
<th>Category</th>
<th>Compliance Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety</td>
<td>CSA certified to CSA107.1-01 and UL 458 4th Ed. including the Marine Supplement</td>
</tr>
<tr>
<td>EMC</td>
<td>FCC part 15B Class B</td>
</tr>
<tr>
<td></td>
<td>Industry Canada ICES-0003 Class B</td>
</tr>
<tr>
<td>CE Marked under the EMC Directive 2004/108/EC</td>
<td>Complies with the following:</td>
</tr>
<tr>
<td></td>
<td>EN61000-6-1:2007 Generic standards - Immunity for residential, commercial and light industrial environments</td>
</tr>
<tr>
<td></td>
<td>EN61000-6-3:2007 Generic standards - Emissions for residential, commercial and light industrial environments</td>
</tr>
</tbody>
</table>
Appendix B describes the generator requirements and starting types that can be used with the Conext Automatic Generator Start (AGS).

It includes:

- Recommended Features
- Generator Starting Types
Generator Auto Start Requirements and Types

Recommended Features

In order for the generator to be automatically started by the Conext Automatic Generator Start (Conext AGS), it must include electric start and an automatic choke. An automatic primer system may also be required on natural gas and propane powered generators.

The generator should also include remote start ability with accessible remote start terminals or a connector. Protective systems for low oil pressure, over temperature, starter lockout and over crank control are valuable features that will prevent generator damage and increase system reliability. “Two-wire” start generators are highly recommended because of the greater simplicity for automatic starting and because they are intended for remote/automatic/unattended operation.

Generator Starting Types

The Conext AGS supports three major generator starting types:

- Two wire
- Three-wire “Onan”
- Three-wire automotive

**Note:** The terms “two-wire” and “three-wire” refer only to the minimum number of wires necessary to start the generator. Actual installations will require additional wires to connect to the generator, including the generator run signal (switched B+) wiring, and wiring to an optional external ON/OFF switch. For installation wiring diagrams, see page 2–11 to page 2–25.

**Note:** For overcurrent protection guidelines that apply to the wiring types discussed in this appendix, see page 2–5.
Generator Starting Types

Two Wire

The two-wire type is suitable for generators that are fully automatic. This merely requires two wires to be connected together for the generator to start and run. Separating the wires stops the generator.

Some generators use a momentary two-wire connection for starting and stopping.

Identification

Generators of this type are usually operated with a simple toggle switch or key that turns to on, then off to shut the generator off.

Connection

For this type of generator, the two wires are connected to the normally open and common contacts of Relay 1 (wires 14 and 16). When the Conext AGS receives a command to start the generator, it closes the contacts inside Relay 1, allowing the generator to start. The contacts remain closed for the duration of the generator run and open when the Conext AGS needs the generator to stop.

Three-Wire Onan

The three-wire “Onan” starting type is suitable for generators that are not as automated as the two-wire type. It requires a minimum of three wires: a common wire, a start wire and a stop wire. You may also need to connect the glow plug wires to Relay 1 (wire 14) or Relay 3 (wire 19). If the generator requires independent control of the glow plugs, power may also need to be run to Relay 3 (wire 20).

Identification

Generators of this type are controlled with a three-position switch that is normally in a center (or neutral) position. To start the generator, the switch is pressed and held to the start position until the generator starts. The switch is then released, and it returns to the center position. To stop the generator, the switch is pressed and held to the stop position until the generator stops. Again, releasing the switch returns it to the center position.
Connection

The common wire from the generator should connect to the common connections of both Relay 1 and Relay 2 (wires 16 and 18 respectively). The start wire from the generator connects to the normally open contact of Relay 2 and the generator stop wire connects to the normally open contact of Relay 1.

Three-Wire Automotive

The third generator starting type that is supported by the Conext AGS is similar to an automotive-style ignition. In this style, the generator uses a run circuit that is normally closed, which then receives a momentary start signal. The run circuit remains active throughout the run and then is opened in order for the generator to stop.

Identification

Generators of this type are controlled by a key or rotary switch that acts exactly as an automotive ignition. The switch is first turned to an “on” (or run) position, then further to a start position. After starting, the switch returns to the “on” (or run) position. Other variations are a toggle switch that gets turned on with a separate switch or push button for start. If glow plugs are used, you would turn the key or rotary switch to the left prior to starting. A separate momentary switch or button may be used for this purpose.

Connection

This generator starting type uses the most wires. The common wire from the generator should connect to the common connections of both Relay 1 and Relay 2 (wires 16 and 18 respectively). You may need an additional two wires if glow plugs are used. The start wire from the generator connects to the normally open contact of Relay 2 and the generator stop wire connects to the normally open contact of Relay 1.
Appendix C contains information about relay configuration and timing for each major type of Conext AGS starting mode. This information applies to each of the generator types described from page 2–11 to page 2–25.

It includes:
- RunMode
- Momentary RunMode
- GlowStop Mode
- StartStop Mode
- PulseStop Mode
RunMode

For generators with RunMode starting types (Types 7, 8, and 14):

- Relay 1 (RunStop relay) can be used for two-wire configured generators.
- Relay 1 (RunStop) and Relay 2 (Start) can be used with a common ground for three-wire configured generators.
- The Preheat will never overlap the Crank Time.
- The “Delay” refers to the “Preheat to Crank Delay” and may be zero.
- Cranking will cease when the generator run signal goes high for the specified hold time or when the crank time has elapsed.

**Figure C-7** RunMode Timing Diagram
MomentaryRun Mode

For generators with MomentaryRun mode starting types (Type 11):

- Relay 1 (Run/Stop relay) can be used for two-wire configured generators.
- Relay 2 has no unique function in this configuration, but it is easiest to leave it doing the cranking so that another configuration is not required for it.
- Preheat will generally not be used in this configuration.
- The Preheat will never overlap the Crank Time.
- The “Delay” refers to the “Preheat to Crank Delay” and may be zero.
- Cranking will cease when the generator run signal goes high for the specified hold time or when the crank time has elapsed.

Figure C-8 MomentaryRun Mode Timing Diagram
GlowStop Mode

For generators with GlowStop mode starting types (Types 1, 2, 3, 6, 12):

- Relay 1 (Stop) and Relay 2 (Start) can be used with a common ground for three-wire configured generators.
- The Preheat signal shows up on Relay 1 and also Relay 3 (if enabled) so that Relay 1 can be used for both Preheat and Stop.
- If the ShutDown Bypass is enabled, the Preheat on Relay 1 will remain high for the Crank Time and for the ShutDown Bypass period after cranking.
- The Preheat on Relay 3 will only overlap the Crank Time and perform ShutDown Bypass if Relay 3 is configured for Preheat with ShutDown Bypass.
- The “Delay” refers to the “Preheat to Crank Delay” and may be zero.
- Cranking will cease when the generator run signal goes high for the specified hold time or when the crank time has elapsed.

![GlowStop Mode Timing Diagram](image)

**Figure C-9** GlowStop Mode Timing Diagram
StartStop Mode

For generators with StartStop mode starting types (Types 4, 5, 9, 10):

- Relay 1 (Stop) and Relay 2 (Start) can be used with a common ground for three-wire configured generators.
- If Relay 3 is configured for preheat, the signal only shows up on Relay 3.
- The Preheat on Relay 3 will not overlap the Crank Time if ShutDown Bypass is not enabled.
- If the ShutDown Bypass is enabled, the Preheat on Relay 3 will remain high for the Crank Time and for the ShutDown Bypass period after cranking.
- The “Delay” refers to the “Preheat to Crank Delay” and may be zero.
- Cranking will cease when the generator run signal goes high for the specified hold time or when the crank time has elapsed.
- To get the ShutDown Bypass on Relay 3 with no preheat, Relay 3 must be configured for Preheat with ShutDown Bypass and have the Preheat time set to zero.
- StartStop mode is essentially the same as GlowStop mode with no preheat on Relay 1.

Figure C-10 StartStop Mode Timing Diagram
Relay Timing

PulseStop Mode

For generators with PulseStop mode starting types (Type 13):

- Relay 1 (Stop) and Relay 2 (Start) can be used with a common ground for three-wire configured generators.
- If Relay 3 is configured for Preheat, the signal only shows up on Relay 3.
- The Preheat on Relay 3 will not overlap the Crank Time if ShutDown Bypass is not enabled.
- If the ShutDown Bypass is enabled, the Preheat on Relay 3 will remain high for the Crank Time and for the ShutDown Bypass period after cranking.
- The “Delay” refers to the “Preheat to Crank Delay” and may be zero.
- Cranking will cease when the generator run signal goes high for the specified hold time or when the crank time has elapsed.
- To get the ShutDown Bypass on Relay 3 with no preheat, Relay 3 must be configured for Preheat with ShutDown Bypass and have the Preheat time set to zero.
- The Conext AGS will make three attempts to stop the generator. If the generator has still not stopped at the end of the third attempt, the appropriate Fault will be generated.
- Each stop attempt will consist of engaging the stop relay for 5 seconds and then waiting 20 seconds before checking the state of the Gen Run Signal to see if the stop attempt was successful.

![Figure C-11 PulseStop Mode Timing Diagram](image)

![Figure C-12 PulseStop Mode Relay 1 Behavior](image)
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