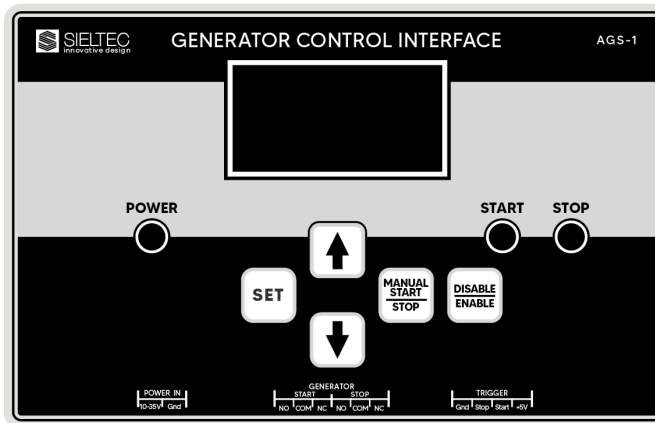




**SIELTEC**  
innovative design



# AGS-1 Generator Start Interface

## User Manual

Issue 1.0

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This manual is not printed with product distribution for environmental and cost reasons.

Document is available with QR scan of QR code on box or product ensuring latest version of manual is provided.

**Statement of Appreciation**

Thank you for purchasing this AGS-1 from Sieltec. We understand that with this purchase comes a responsibility for Sieltec to ensure the product is fit for purpose and provides many years of trouble free service. If you are not satisfied with this product please contact Sieltec support and we will do all we can to rectify any problem relating to this product.

# AGS-1 Generator Interface

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# Introduction

## Typical application

Auto start facilities can be installed in marine environments to allow the protection of discharging batteries. When a certain State of Charge (SOC) is reached, the generator can turn on and charge the battery bank. Other start criteria can be set like temperature or mains failure but overwhelmingly it is battery SOC that starts a generator.

A typical scenario has an auto start monitor like a Victron CerboGX, programmed to sense when the generator should start.

A potential impediment to using such a system is knowing exactly what connections you need to take from a single relay on a Victron product to a generator. In some cases the interface requires some research and some additional components to make the correct pulses required to start and stop the generator as it was designed.

This is not a difficult task but does require some design thought and the ability to assemble and connect the components neatly to produce the desired result.

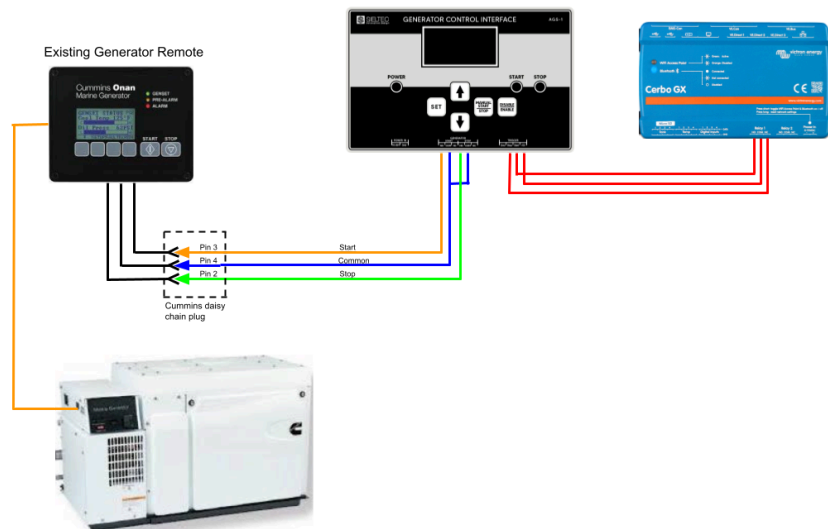


Figure 1 AGS-1 Typical Configuration

## Solution

To remove the engineering design and assembly of a custom built interface to each generator, Sieltec Innovative Design have provided an easily programmable device to be installed between the single relay on the monitoring equipment and the generator.

The Sieltec AGS-1 takes the start and stop signals from the monitoring device, sometimes normally Open (NO) and Normally closed (NC) contacts of a relay, and provides the appropriate pulses to start and stop the generator. It is a simple device but takes the worry and guesswork out of interfacing to a generator.

The programmable parameters of the AGS-1 are the start pulse length, the stop pulse length and the separation duration between start and stop commands. That is all that can be programmed.

Some generators have two distinct start and stop pulses on different circuits required to control the generator. Others have a pulse to start on a single circuit and a pulse to stop on the same circuit. If the generator requires pulses on the same circuit simply join the start and stop outputs on the AGS-1.

The output of the AGS-1 is a relay contact used to trigger the generator commands.

The input to the AGS-1 is power (10-30volts) and the NO and NC contacts of the controlling relay. In the case of the Victron CerboGx we supply +5 volts to the common terminal of the CerboGx relay and connect to the NO and NC contacts. The NO contact goes to the "start" input and the NC contact goes to the "stop" input. These contacts are marked on the AGS-1 box to avoid any confusion. Just three connections are required. From that simple connection the AGS-1 supplies start and stop commands in accordance with the CerboGx control.

The programming of the AGS-1 is via push buttons on the front of the unit. This will only need to be set up once. The menu appears on a small readout and you sequentially progress through the menu until finished. You can manually start and stop the generator from a front panel push button if required. This is to test the wiring from the AGS-1 to the generator after installation. The unit can also be disabled or enabled by a dedicated button on the front panel if required. This may be required if the vessel is lifted from the water and starting of the water cooled generator is prohibited.

After a length period the display will dim and then switch off. With any activity like a trigger or button push the display will light and be ready for use.

This device simply converts relay contact closure to appropriate pulses. It does not sense if the generator is running, it doesn't retry after a failed start attempt and it does not sense any generator alarms. It simply sends pulses resulting from a relay closure.

# Installation

## Selecting location

Most boats have the AGS-1 mounted in the engine or equipment room or close to the monitoring equipment. Please select a location that is not subjected to extreme vibration, extreme heat or water ingress. The cable connection is by pluggable spring push button connectors. The cable to both the monitoring device (like the CerboGX) and the generator can be unshielded multicore. Electrical noise immunity is high so shielding is not required.

## Connection to CerboGx

Provide a 3 core from the 3 relay contacts and connect common to the +5 volt supply, normally open to the start input and normally closed to the stop input.

## Connection to Generator

Different generators require different wiring. Please see the Appendix to select what is best for your installation.

## Setting Pulse Times

Hold the "SET" button for an extended duration to enter "programming mode". If you press the "SET" button while in programming Mode you will step through the menu. The menu steps through the following headings

- Start Pulse Duration
- Stop Pulse Duration
- Separation Duration

## Connector Configuration

The connectors on the main unit interface to vessel power, trigger device and the generator.

## Connection to Power

The Power is connected through a pluggable spring push button plug. The power input is reverse polarity protected and has a range of 10 - 35 Volts. All fusing of circuits should be considered external to the main unit.

Table 1 - 2 Pin Wiring Connector (CN1) Power In

Pin	Identifier	Meaning
1	-ve Ground	Vessel Negative supply
2	+ve DC Power Supply	Vessel Positive Supply 10-35 Volt

## Connection to Trigger Device

Connection to the trigger device is through a pluggable spring push button plug. The trigger device is normally a relay with normally open (NO) or normally closed (NC) contacts. If connecting to a CerboGX please used the 5 volts supplied on the connector for the common relay terminal, the CerboGX NO contact for the "Start" trigger and the NC contact for the "Stop" trigger. There is no need to connect the ground connection in this case.

Table 2 - 4 Pin Wiring Connector (CN2) CerboGx trigger

Pin	Identifier	Meaning
1	-ve Ground	Common negative supply (not used for Cerbo)
2	Start Trigger	Positive pulse (4-30volts)
3	Stop Trigger	Positive pulse (4-30volts)
4	+5 Volt	Current limited supply (200mA)

## Connection to Generator

The 6 pin connector provides an interface to the generator with separate start and stop pulses. Each relay has both normally open and normally closed presented at the 6 pin connector.

Table 3 - 6 Pin Wiring Connector (CN3) External connections

<b>Pin</b>	<b>Identifier</b>	<b>Meaning</b>
1	Relay 1 NC contact	Start pulse normally closed
2	Relay 1 Common contact	Start pulse common
3	Relay 1 NO contact	Stat pulse normally open
4	Relay 2 NC contact	Stop pulse normally closed
5	Relay 2 Common contact	Stop pulse common
6	Relay 2 NO contact	Stop pulse normally open

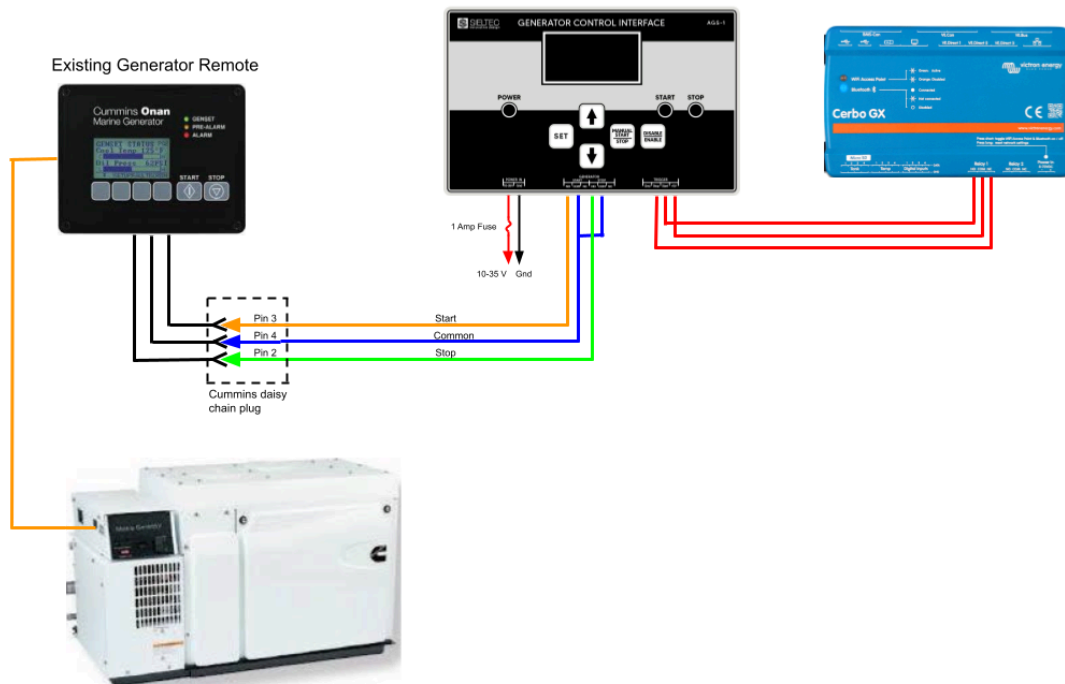
## Technical Specification

<b>Power Supply</b>	
Supply Voltage	10 - 35 Volts DC
Supply Protection	Continuous reverse polarity protection
Supply current	<300mA
Power Supply connector	Phoenix 2.5mm Pitch, pluggable spring push button 2 Pin
Start/Stop Relays connector	Phoenix 2.5mm Pitch, pluggable spring push button 6 pin
CerboGx Trigger Connector	Phoenix 2.5mm Pitch pluggable spring push button 4 pin
Maximum Relay Current	3 Amps, normally open and normally closed contacts
<b>Mechanical</b>	
Enclosure material	Lid and base high impact flame resistant ABS UL94-V0
Unit dimensions	L127 x W71 x H36
Enclosure fixing	2 screws on flange base
Protection	IP40

## Appendix A

Common Generator Settings.

Cummins Onan (Cummins Model MDKBJ & MDKBW



For the Onan generator set the start pulse length to longer than the maximum pre-heat time period. The pre-heat time is dependent upon the temperature of the engine but will not exceed 15 seconds. To ensure the engine will start in all conditions please set the start pulse length to 19 seconds.

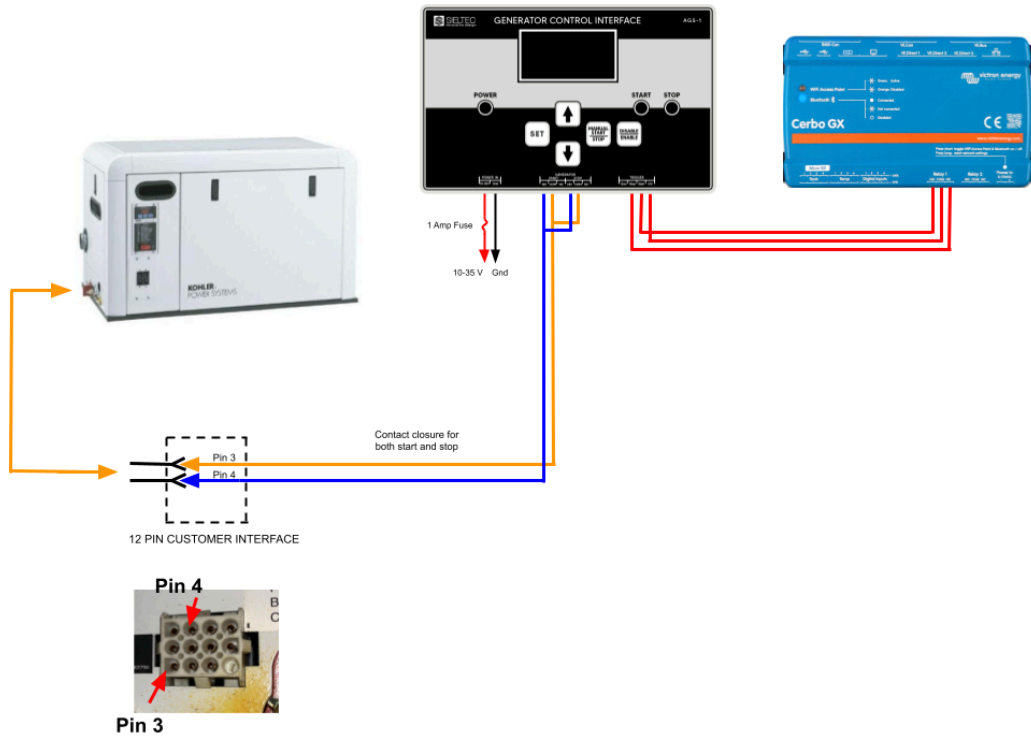
The stop pulse length can be set to 12 seconds.

The separation between pulses can be set to 2 seconds

The configuration should be set to separate because start and stop pulses are on different circuits.

**Kohler**

5EKD – 7.5EKD – 10EKD – 6EKOD – 9EKOZD – 11EKOZD



The Kohler generator simply needs a short pulse to start and a short pulse to stop. Once the pulse is received by the generator, the generator electronics ensure all starting parameters are correct.

The start and stop pulse length can be set to 2 seconds.

The separation between pulses can be set to 2 seconds