



Havis ChargeGuard® Auto Shut-off Timer

Protect Your Battery
+ Protect Your Peripherals =

PRODUCTIVITY PROTECTION

WARNING

PLEASE READ ALL WARNINGS
AND FOLLOW ALL INSTRUCTIONS TO
ENSURE PROPER OPERATION

SPECIFICATIONS (Part # CG-X)

Model Number:	CG-X
Operating Voltage (nominal):	13.8V DC
Low Voltage Disconnect:	11V DC
High Voltage Disconnect:	18V DC
Stand-by Current:	5mA
Operating Current:	80mA
Operating Temperature:	-30°C to 70°C
Load Current Rating:	30A
Minimum Time Delay:	5 sec.
Selectable Time Delay:	5 sec. to 18 hrs.
3 Year Limited Warranty	
Made in USA	

DOCUMENT PART NUMBER:
CG-0006-IS-J

ChargeGuard® Auto Shut-off Timer

HOW IT WORKS

- Supplies power to two-way radio, computer or other equipment when vehicle is started
- Keeps peripherals on after the engine is turned off
- Turns off peripherals after a pre-set time or if vehicle's battery shows signs of fatigue
- Prevents dead batteries by shutting off peripherals before excessive discharge to ensure there is enough battery left to start vehicle
*Applies to typical batteries in good condition
- Protects peripherals from voltage surges and under/over voltage situations
- Voltage Diagnostic LED display indicates if vehicle voltage is too low or too high

BENEFITS

- Turns on peripherals when you want them on
- Turns off peripherals when you NEED them off
- Saves battery wear & tear, and extends battery life
- Reduces maintenance & service calls
- Installs easily with simple set up
- Convenient override/test button for testing and emergencies
- Works with many applications in multiple modes
- Established track record with over 250,000 units installed

FEATURES

- Selectable Timeout Delay
- 30 Amp Load Current Rating
- Selectable Switch Modes
- Hi & Low Voltage Disconnect
- Reverse Polarity Protection
- Override/Test Button
- Rugged, durable construction
- Voltage Diagnostic LED

INSTALLATION NOTES

MOUNTING

- ChargeGuard® may be mounted in the cabin or trunk of the vehicle. It should be wired through a fuse directly to the battery.

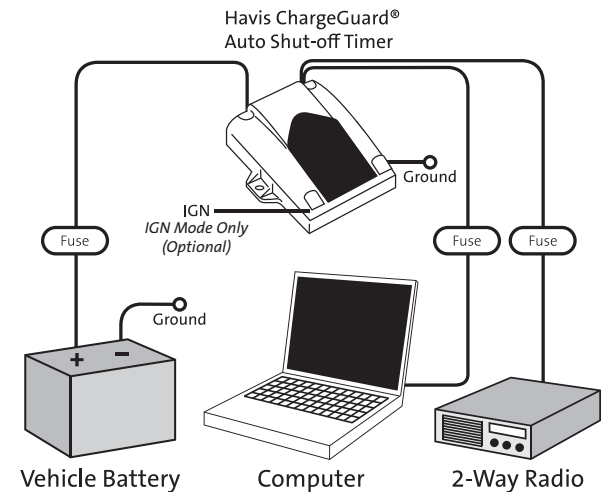
WARNING

- Mode must be selected before battery power is connected.
- ChargeGuard® should not be mounted under the hood or in any area that gets wet. Doing so would void the warranty and pose a safety risk.
- ! Do not expose to direct water or steam. Power is present in the unit at all times unless disconnected from the battery.
- ! The ChargeGuard® must be used with an inline fuse (Littelfuse #ATO 30, Slo-Blo 30A, or equivalent) on input power. Fuses on power output are recommended but not required and should be sized appropriately for peripheral.

NOTE

- Ground connection to negative battery connector must be less than 1.0 OHM.
- ChargeGuard® Ground terminal is for ChargeGuard Ground ONLY.
- Failure to fuse device properly or use outside of temperature operating range could result in an unsafe condition.

WIRING DIAGRAM

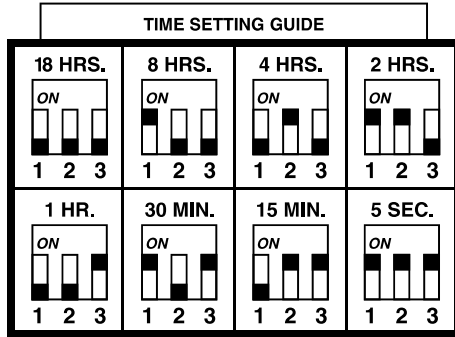


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U.S. Patents 4,950,913 & 5,272,386 & 5,563,452 & 7,211,907
Canadian Patents 2,013,888 & 2,560,825

EASY FOUR STEP SET UP

BEFORE BEGINNING: Configure vehicle and peripherals to your desired specifications before installing ChargeGuard®.

1. SET THE TIME: Choose a time setting at which the unit will turn your devices off automatically. This delay begins the instant the engine is turned off. Time selection is made via dip switch setting. See chart below for available settings.



2. CHOOSE A MODE:

⚠ WARNING: Mode must be selected before battery power is connected.

DC Mode: Charge Voltage, DC Rise:

Responds to the rise and fall of battery voltage produced. When the vehicle's engine is running, the alternator produces a charge voltage that is greater than the nominal battery voltage. The ChargeGuard unit automatically senses this voltage change to turn on/off the peripherals. To select this option, set mode switch to "DC".

AC Mode: Charge Voltage, AC Sensing:

Responds to the AC ripple voltage produced by the vehicle's alternator. When the vehicle's engine is running, the alternator produces a charge voltage that has an AC ripple characteristic riding on the battery voltage. The ChargeGuard unit automatically senses this AC ripple voltage to turn on/off the peripherals. In older ChargeGuard products (CG-12D, CG-MP, etc), this is the traditional "normal" mode for which CHARGE GUARD® is famous. To select this option, set mode switch to "AC".

Ignition Mode: Switched, DC-DC:

Responds to a switched voltage input (min. 2/3 battery voltage, max 19V). This mode uses a separate wire to monitor the ignition position; the ChargeGuard unit is then controlled by the vehicle's ignition. For proper/expected operation, it is necessary to choose a connection that is a true ignition source (not accessory, crank, etc). It may be necessary to choose this mode of operation if the vehicle has a weak electrical system, degraded batteries, hybrid battery technology, and/or other limitations prohibiting sensing modes. To select this option, set mode switch to "IGN" and connect an 18AWG jumper wire from the ignition terminal to the ignition source.

3. HOOK UP THE WIRES

(Use UL recognized wiring material):

Minimum wire size between "BAT" terminal and Battery should be 10 gauge regardless of the fuse size, and larger for long runs over 15 feet.

- Connect appropriate size wire based on load and wire length from "OUT" terminal to Peripherals
- Connect 18 gauge wire from "GND" terminal to Vehicle Chassis (Ideal ground connection is made directly back to negative battery terminal)
- IGN MODE ONLY: Connect 18 gauge wire from "IGN" terminal to on/off power source

NOTE: Use inline fuses in all wire runs and ensure that all wires are completely captured and terminals are fully tightened.

4. TEST INSTALLATION:

Press Emergency Override/Test Button: Power will be applied to the peripherals for a minimum of 15 minutes (if time delay is set for greater than 15 minutes power will be applied for a period equal to current setting). Power will be turned off when the timer runs out or if the vehicle voltage drops too low. This is a convenient means to turn equipment on and off.

NOTE: As added protection, the override function is disabled during high voltage conditions above 18 volts.

NOTE: Holding the override button in for 3 seconds will turn the ChargeGuard® Auto Shut-off Timer off. If the engine is still running, or an active signal is still present at the "IGN" terminal this will temporarily disable the unit until button is released.

DIAGNOSTIC LED REFERENCE GUIDE

- LED Off (Relay De-energized)
- Solid Green (Relay Energized)
- Blinking Green (Relay Energized, Timer Counting)
- 4 Blink Red (High Voltage Condition, > 18V)
- 2 Blink Red (Low Voltage Condition, < 10V)

TECHNICAL NOTES

• **Mode Change** – If a mode change is desired after the CG-X has been installed, first disconnect battery power to the unit. Next, make the necessary mode change, then reconnect battery power to the unit.

• **Low voltage** – To prevent a low battery condition, if the battery falls below 11 volts, the ChargeGuard® Auto Shut-off Timer unit automatically turns equipment off in 15 minutes. Below 10 volts, the ChargeGuard® Auto Shut-off Timer turns equipment off in 5 minutes. Programmed delay setting is restored when vehicle voltage returns to normal.

• **High voltage** – To protect equipment from high voltage conditions commonly caused by an erratic voltage regulator or 24V jump start, the ChargeGuard® Auto Shut-off Timer immediately turns equipment off above 18 volts.

• **Reverse polarity** – The unit will not operate when the voltage is reversed. Both the equipment and the ChargeGuard® Auto Shut-off Timer are protected from damage due to an improper installation or jump-start.

• **Surge/Transient** – To protect equipment from voltage surges and spikes common in electrical systems, the ChargeGuard® Auto Shut-off Timer has internal transient suppression built in.

TERMINAL GUIDE (CG-X)

