

**extend  
battery  
life**

**improve  
vehicle  
availability**

## TOP H.A.T. SS

### 200 Amp Solid State Relay Circuit Breaker Vehicle Power Timer

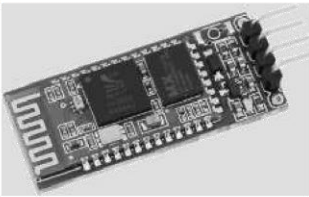
Configure  
with PC via  
USB cable

200 Amp  
Programmable  
Circuit Breaker  
Output



- **Solid State Design** - no moving parts to fail
- **Self-contained** - no external relay
- **Programmable delay** - 6 seconds to 4 days
- **Status LED signals output ON, OFF, Counting-down**
- **Optional kill switch input** - maintains switch OFF
- **Optional ignition key input override**
- **Configure with computer via USB cable**
- **Compact design** - fits in tight spaces for flexibility

**TWO YEAR  
WARRANTY**



**EGIS / COPELAND**

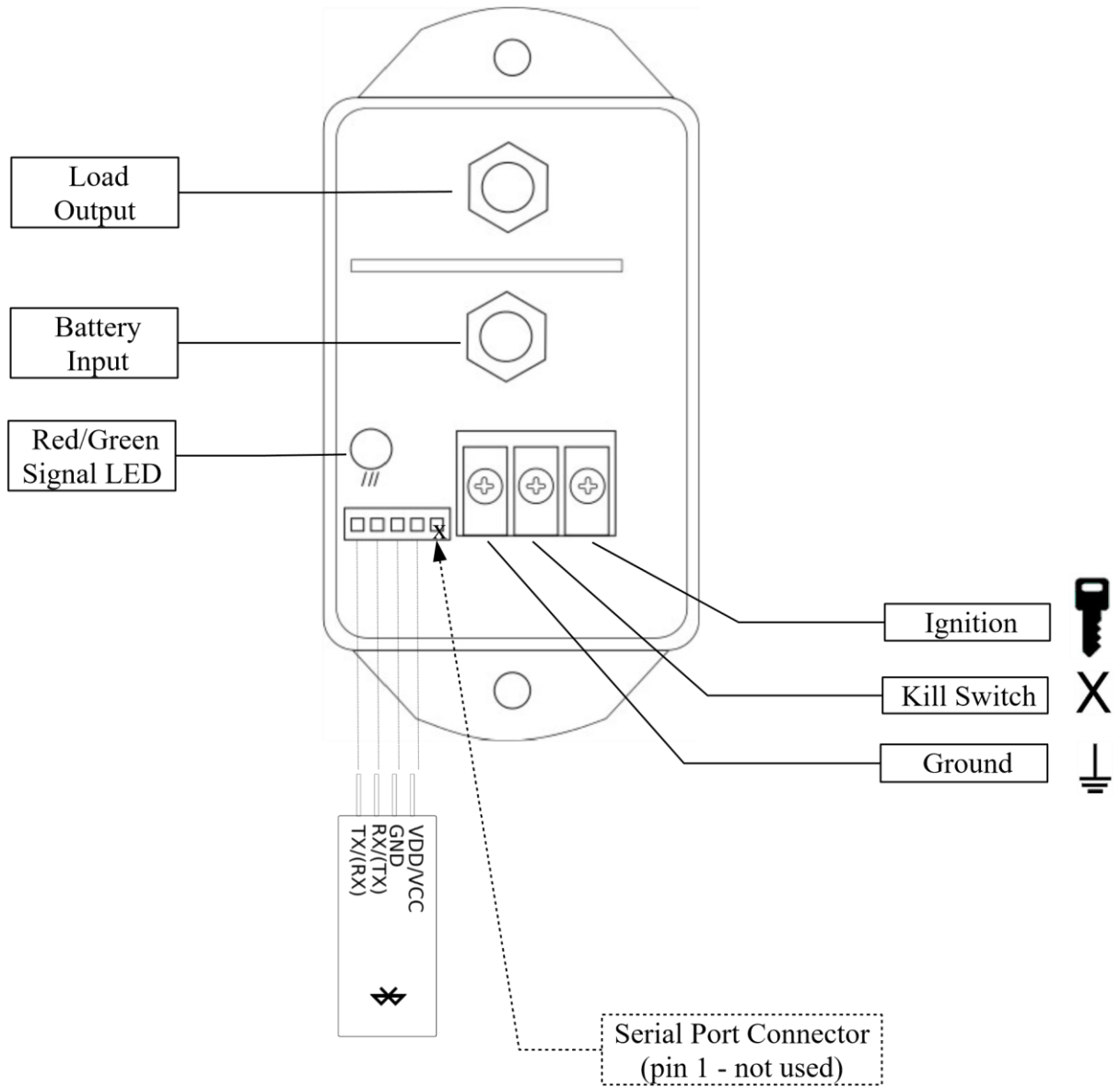
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# Copeland TOP H.A.T. SS - Device I/O

Updated: September 1, 2018



## Overview – TOP H.A.T. SS

### High Current Control with Maximum Flexibility

The TOP H.A.T. SS device is a power accessory timer with a high current configurable channel rated of over 200 Amps breaking current. The device can be easily configured via PC using a standard USB terminal. The device can have its firmware updated through its serial port.

### Kill Switch

An optional Kill Switch input, when grounded, disables the output until ground released.



### Out of Range Voltage Protection:

Programmable thresholds for abnormal Low Voltage and High Voltage protects batteries from excessive drain or voltage regulator failure, maximizing vehicle availability and battery life.

**Factory Default Voltage Levels:** (contact us for custom factory pre-programmed settings)

Low Battery: 11.0V

Ignition Off: 13.2V

Over Voltage: 18.0V

### Out of Range Timeouts:

The TOP H.A.T. SS has programmable system timeouts for Low Voltage and High Voltage. The range can be set from 1 second to 18 hours in one second increments.

Factory Default Out of Range Timeouts: (contact us for custom factory pre-programmed settings)

Low Voltage: 60 seconds

High Voltage: 15 seconds

### Ignition Off Timeout Setting:

The output can be configured to delay shutting off from 6 seconds to over four days in tenth of a minute increments.

Factory Default Ignition Off Timeouts: (contact us for custom factory pre-programmed settings)

Load Output: 15.0 minutes

## Configuring settings via serial terminal connection

A USB serial adapter can be connected directly from a PC with an optional accessory cable and serial pin adapter assembly available from Egis Mobile Electric. The device generates a VT100 compatible terminal mode interface so no proprietary software is needed. Egis Mobile Electric recommends the use of TeraTerm for making the connection from a Windows PC to the device to be configured.



### Connecting the Device for Terminal Configuration

Using Egis Mobile Electric P/N: 2871 or equivalent, insert header post strip into the Serial Port Connector leaving Pin 1 of the serial connector open (Pin 1 is utilized for firmware updates only).

- Pin 1 Not Connected
- Pin 2 to VDD/VCC of transceiver
- Pin 3 Ground
- Pin 4 RX
- Pin 5 TX

### Downloading the Drivers and Software

USB to Serial Adapter:

<https://www.silabs.com/products/development-tools/software/usb-to-uart-bridge-vcp-drivers/>

TeraTerm:

[http://filehippo.com/download\\_tera\\_term/](http://filehippo.com/download_tera_term/)

### Configuring the Device

- 1) Connect the USB end of the cable in the configuration computer and open the TeraTerm terminal emulation program already downloaded.
- 2) Select the lower "Serial" option at the bottom of the TeraTerm window. If not automatically selected, select the emulation cable plugged into the computer.
- 3) \*\*\* Important \*\*\* For Firmware Version 1.4 and newer, a wire jumper must be connected between the Kill Switch and Ground points on the device terminal block. This only need to be done momentarily during the next step #4 of this instruction.
- 4) Press any key to activate the configuration menu:  
(menus may differ slightly depending on revision)

```
Rev 0.4

V Levels: a: Batt
Low: 11.0 b: Run:
13.2 c: Over charge:
18.0

T Secs:
d: T Over Chg: 60
e: T Batt Low: 15

T Mins:
f: T IGN OFF:

Factory:
g: ADC Hot:
1008 h: T Hot:
64 r: Factory

Reset

Choose a-k, enter(refresh menu),
r(factory reset),x(exit)->
```

To change a setting:

- 1) Press a letter corresponding to a menu setting
- 2) Type in the new setting, and press <Enter>.

The menu will be displayed again with the new setting included.

- To reset the values to the factory defaults press r and <Enter>
- To exit, press x and “Console Off” will be displayed
- If nothing is entered the connection will time out and you will need to re-connect

## Debug Mode

Use debug mode to turn on / off the output and watch system variables. To enter Debug Mode, connect device as previously instructed, press any key to get into configuration menu, then press ? to enter debug mode. This brings up the menu:

```
1 to toggle channel, r to reset count, all else
exits Debug Countdown: 196

Status: IGNSWon Running AuxOn
Prescale: 06
Status Count(disabled) Output:
OFF 00

Levels
VBatt      13.3v
Aux        196
IgnSw 249  IGNbit 1 Temp
           228

Targets
Batt Low   11.0v
Run        13.2v
Over charge 18.0v
AuxOn      225
IGNSWon    20
VtempShort 1008
```

Variables such as *Input Voltage*, *Count Down Timer*, *Aux Input state*, and *Ignition Switch input state* can be monitored while in debug mode. Some values shown are not formatted for end users in order to provide greater accuracy. The output can be toggled ON or OFF by pressing "1".

Useful when installing a device, a technician can turn OFF a channel, connect items to it, and turn it on to assure proper connection, turn it off again to finalize installation, and turn channel on again to perform final test before exiting Debug Mode.

Debug Mode is exited if 'r' is not pressed before Debug Countdown reaches 0 or if a key other than 1-6 or 'r' is pressed.

## DEBUG MODE NOTES

- 1) The output does not change state from on to off while in Debug Mode, but timing counts continue.
- 2) For firmware version 1.4 and alter, The output will be turned off in Debug Mode due to the required steps to enter console mode. If the Ground and Kill Switch terminals remain connected while in Debug Mode, turning on a channel will result in it being turned on momentarily, which is useful for quick power tests.
- 3) If Aux input is grounded, all outputs go off, and do not turn on even if Aux is un-grounded (switch turned off), however output can then be turned on manually. This assures that output is never accidentally turned on in debug mode.

## LED Signals

### Red/Green Signal LED

- Green Steady – Output is ON
- Slow Red Blinking – Count down to channel being turned off  
(one or more channels may already be off)
- Red Steady – Time Delay expired, Output OFF
- Rapid Red Blinking Under Voltage or Over Voltage Lock Out
- Green/Red alternating – Console/Debug Mode, terminal connection in progress