

# **DC Custom Electronics**

*Intelligent Locomotion Controller Gas Hydraulic system (ILCGH)*

**General Use Instructions and wiring diagrams**

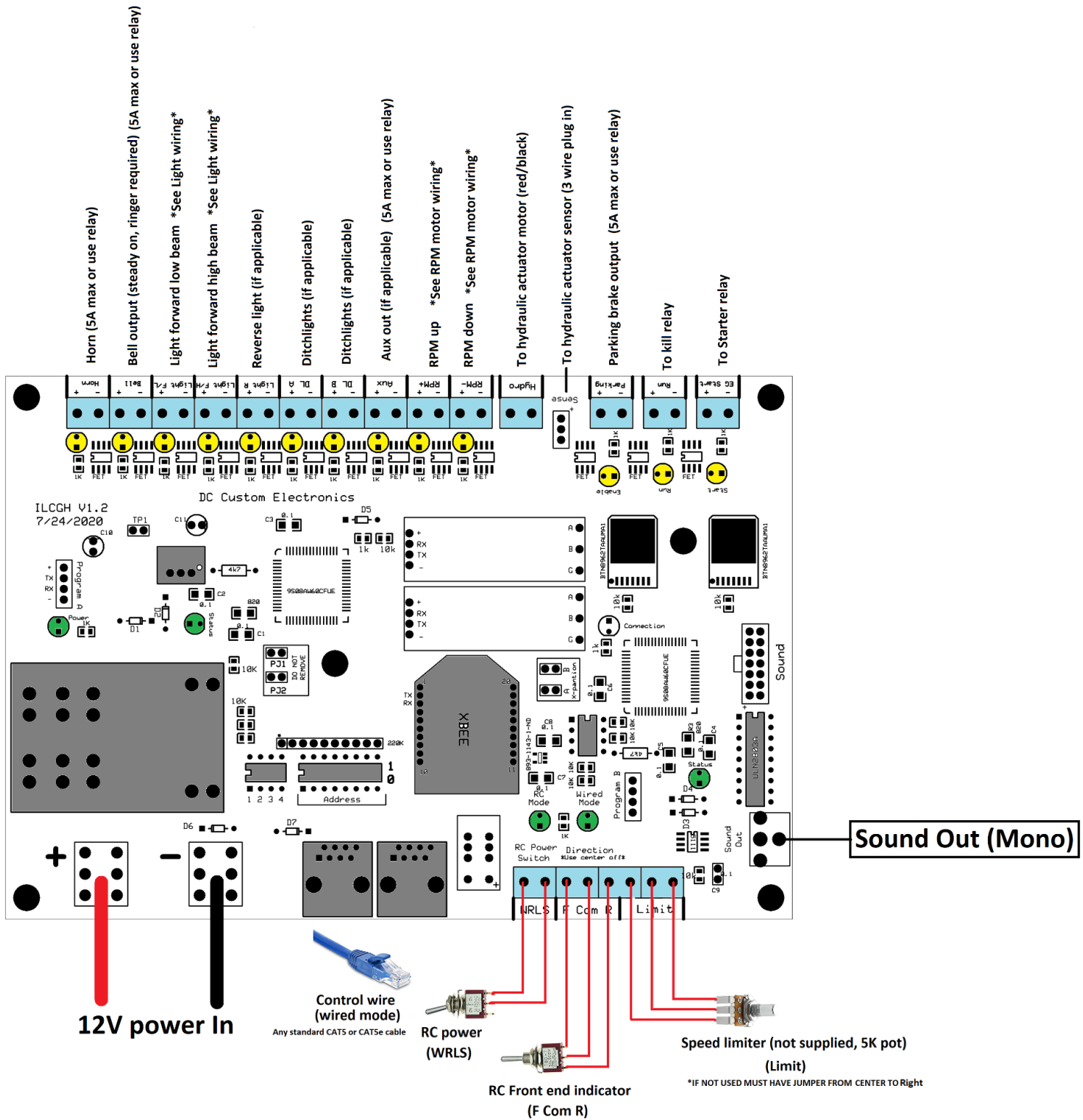
**DcCustomElectronics.weebly.com**

**[DcCustomElectronics@gmail.com](mailto:DcCustomElectronics@gmail.com)**

**+1 (623) 256 2021**

# DCCE ILCGH General Instructions and Wiring

## Wiring And Connections Overview:

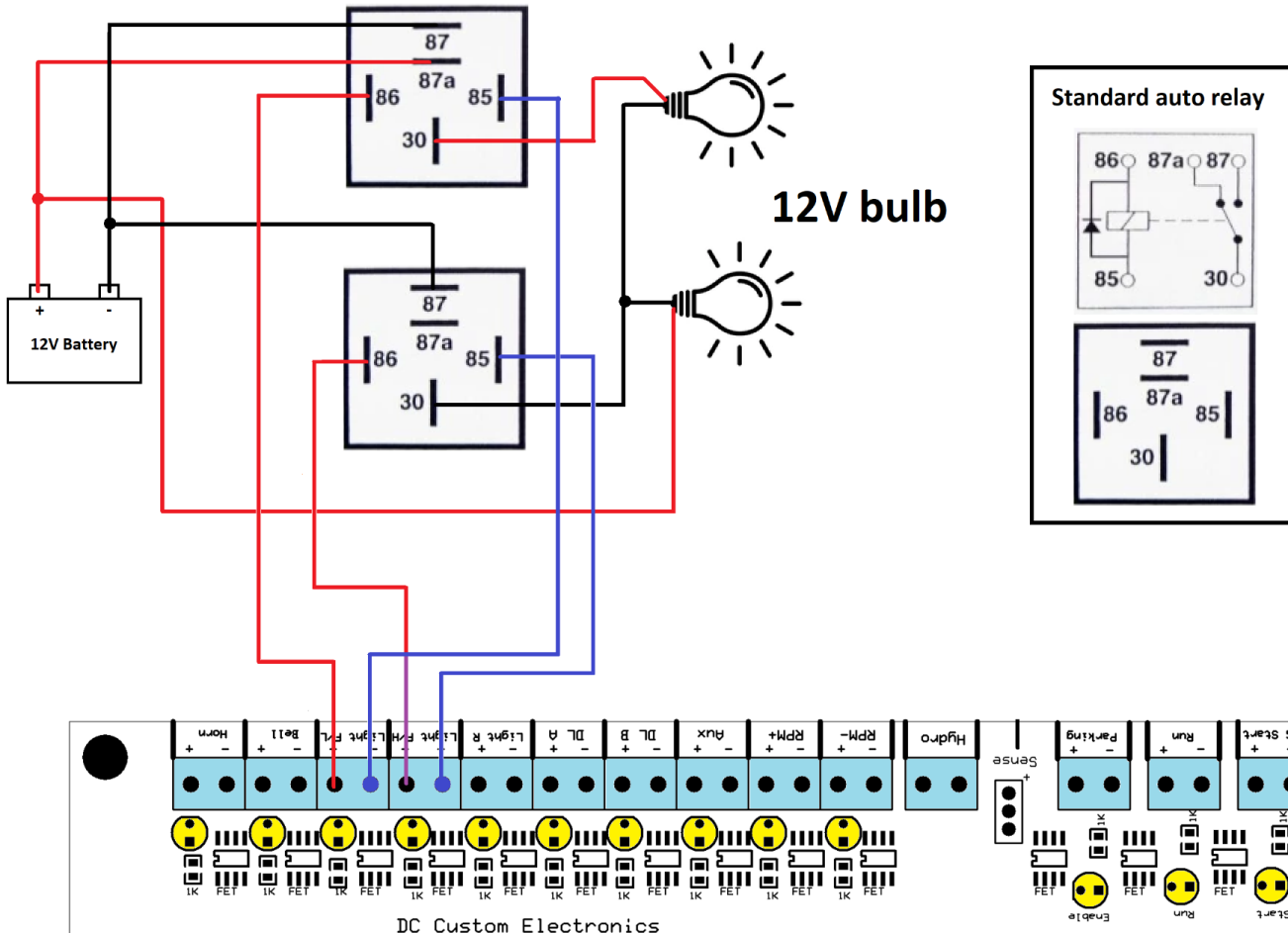


# DCCE ILCGH General Instructions and Wiring

## Headlight wiring

\*2nd Bulb may be replaced with a properly sized resistor for single bulb applications

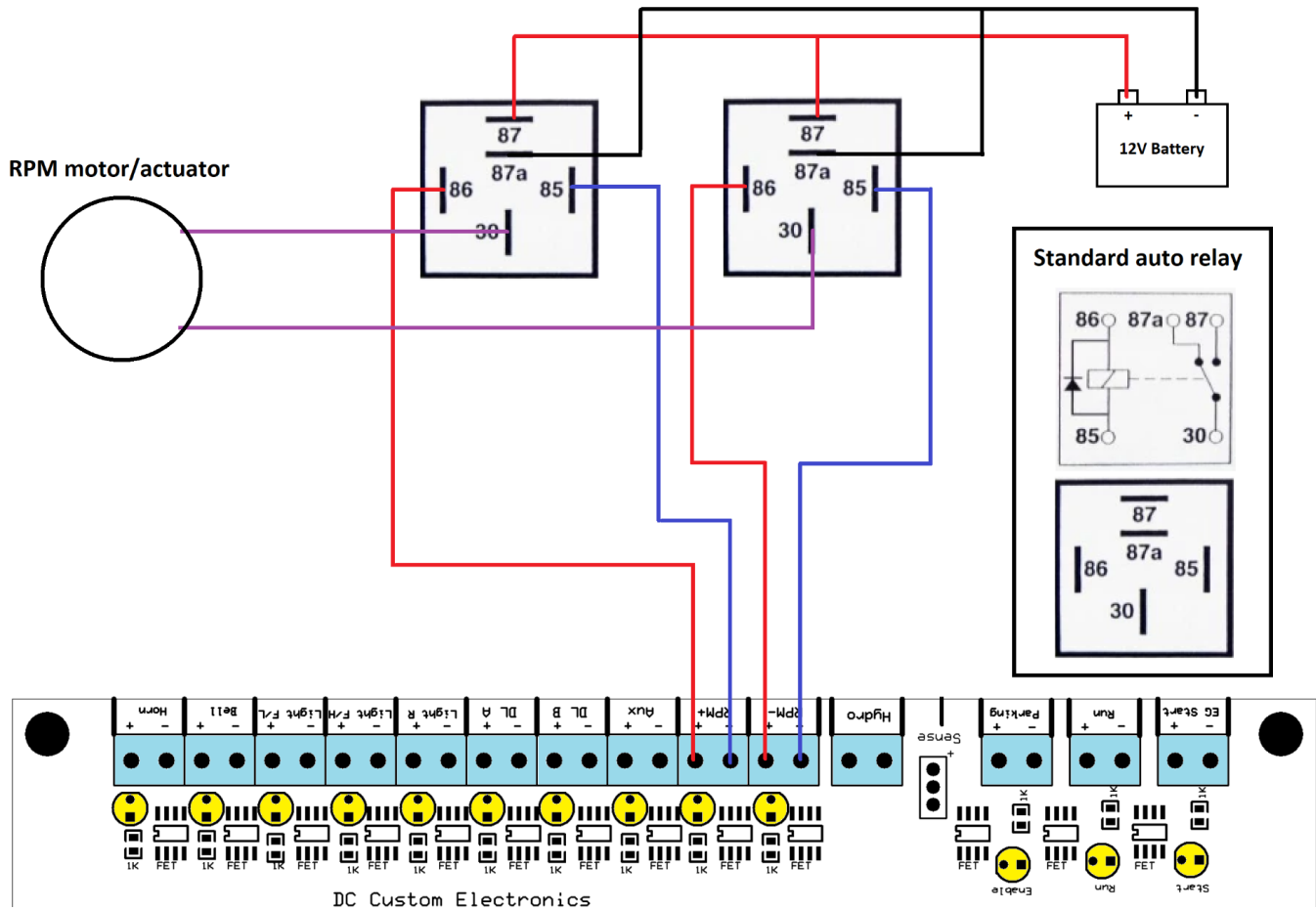
\*\*Dual bulb version will NOT work with LED bulbs



When using LED Bulbs for dual headlights, Place bulbs in parallel and connect in place of ONE bulb in the above diagram, then replace the other bulb with an appropriate resistor for low beam.

# DCCE ILCGH General Instructions and Wiring

## RPM WIRING



RPM Motor should be slow moving 12V. A linear actuator or other 12V means of actuating the throttle cable may be used.

## *DCCE ILCGH General Instructions and Wiring*

### **Wiring notes:**

RC power - this connection is used to power up the locomotive when operating in wireless mode (because the control box has no wired means to do this)

RC front indicator (optional)- use this switch in RC mode to change what side of the loco is considered "forward". This switches the forward and reverse directions. Leaving this disconnected will default to "normal" mode.

Speed limiter- (semi-optional) this will reduce the max throw of the linear actuator dictated by the position of a 5K pot wired to these 3 terminals. If you are not using this you MUST connect a jumper between the leftmost connector and center.

All outputs are low side switched . This means that there is always power on the + (plus) pin of each output and the - (minus) pin is switched on and off. The maximum current of each output is 5 amps.

# DCCE ILCGH General Instructions and Wiring

## Locomotive RC controller instructions:

### Front of controller-

Here you see the layout for a fully loaded Controller. Your controller may be missing some of the controls shown here. This is because your custom system does not need these extra controls. You may also notice some of the labels are different, therefore your controller may function slightly differently than shown in this document. Please refer to your specific notes OR contact us for help if needed.

All controls are fairly straightforward. Flipping the bell switch to the up position simply turns on the bell. Flipping it down will turn it off. The light switch has an up, center, and down position, High, off, low, respectively.

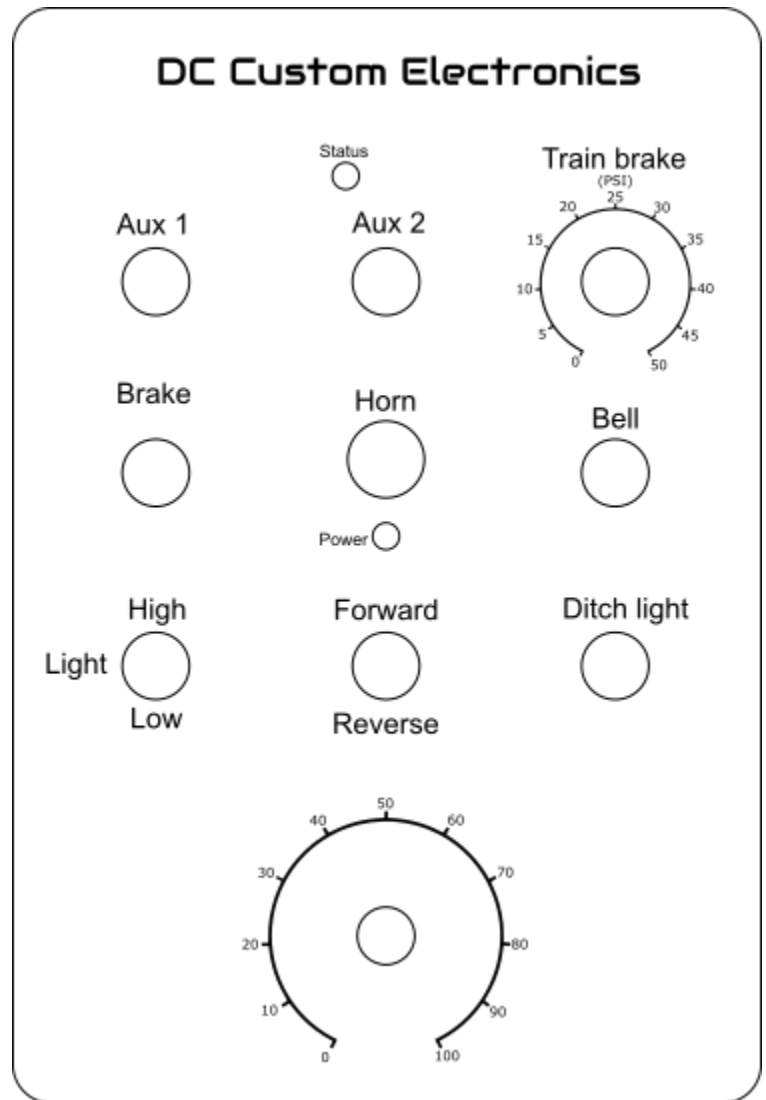
The direction control labeled forward and reverse also has a center off, or neutral, position. This will disable the throttle knob located at the bottom center.

Aux1 and Aux 2 are specific to each unit and you will have to refer to your specific controller to know what they do.

Train brake refers to our variable pressure air brake controller and will apply a variable amount of brake line pressure out to the train on equipt systems.

### Status lights:

There are two (2) status lights on the control box. One directly below the horn button (see small hole), This is the power indicator, this will



## *DCCE ILCGH General Instructions and Wiring*

be lit when the control box is turned on. To ensure that the batteries do not go dead, make sure this light is off when not using the train.

The next light is Located near the top and should be labeled "status" (see small hole) This light will blink fast for 10 seconds after turning on the remote, this is to help judge the time it takes for the train to connect to the RC controller. After this the light will be steady on OR blinking slowly, If the light is blinking slowly you will need to change the 8 AA batteries in the controller. To do this remove the 4 screws from the back side of the controller, replace all 8 batteries and put the back plate back on, Note that the back plate does have to go back on the same way it came off. Batteries should last at least 15-20 hours of straight operation but It has been found that they may last up to 50 hours.

# DCCE ILCGH General Instructions and Wiring

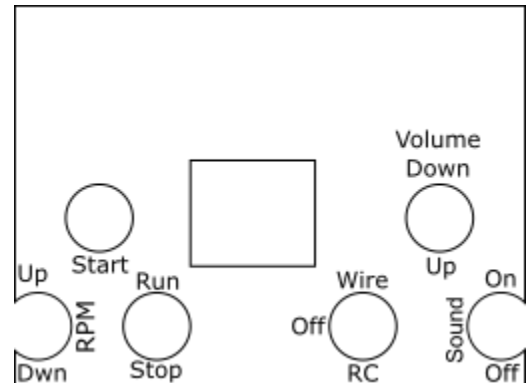
## Top of control box:

Here you see the top of the control box, Note that only systems with sound will have the sound and volume switches installed.

### Power switch:

Located third from the right, the power switch has 3 positions, Wire, Off, And RC

When using a wire to plug into the train, plug in both ends of the cable, one to the train and one to the control box, THEN turn the power switch to “wire” to power on the train.



To power on the control box for RC (remote control) mode, put the power switch in the “RC” position.

Off (center) will turn the control box off.

### Engine controls:

There are three (3) switches that pertain to the gas engine.

“Run/Stop” - This switch will need to be set to the run position before you can start the locomotive and depending on how you wire accessories, lights and horn may not function in the stop position.

“Start” - This switch is a momentary toggle. This is used to start the engine. With the run switch set to run, pull the start switch toward you (or the face of the controller) until the engine starts (choking or changes to RPM may be required as needed). Once the engine starts, release the start switch. Note that once the engine is started, so long as the alternator is working and the battery voltage raises above 14VDC the starter will NOT activate again when pressing the start switch to protect the starter motor. Consequently if the battery voltage stays above 14V (unlikely) when the engine is shut off the starter may not function.

“RPM” - Use this switch (also momentary) to toggle the RPM up or down. You may hold this switch as needed or tap for fine control.



## *DCCE ILCGH General Instructions and Wiring*

### ***Powering on the train in RC mode:***

To power on the train in remote control mode, locate the power switch on the side of the locomotive under the deck, turn this on.

Next locate the power switch on the control box and turn it to “RC” and wait until the top status light stops flashing (about 10 seconds). Now the train should be connected and ready to run,

To power off the train shut down the engine and power off all lights. Now simply turn off the power switch on the locomotive and then put the power switch on the controller in the middle “off” position.

**\*\*NOTE:** if the control box is left on the batteries may die!! Make extra sure to turn the power switch to the OFF position on the top of the controller!!