

DC Custom Electronics

Intelligent Locomotion Controller (ILC)

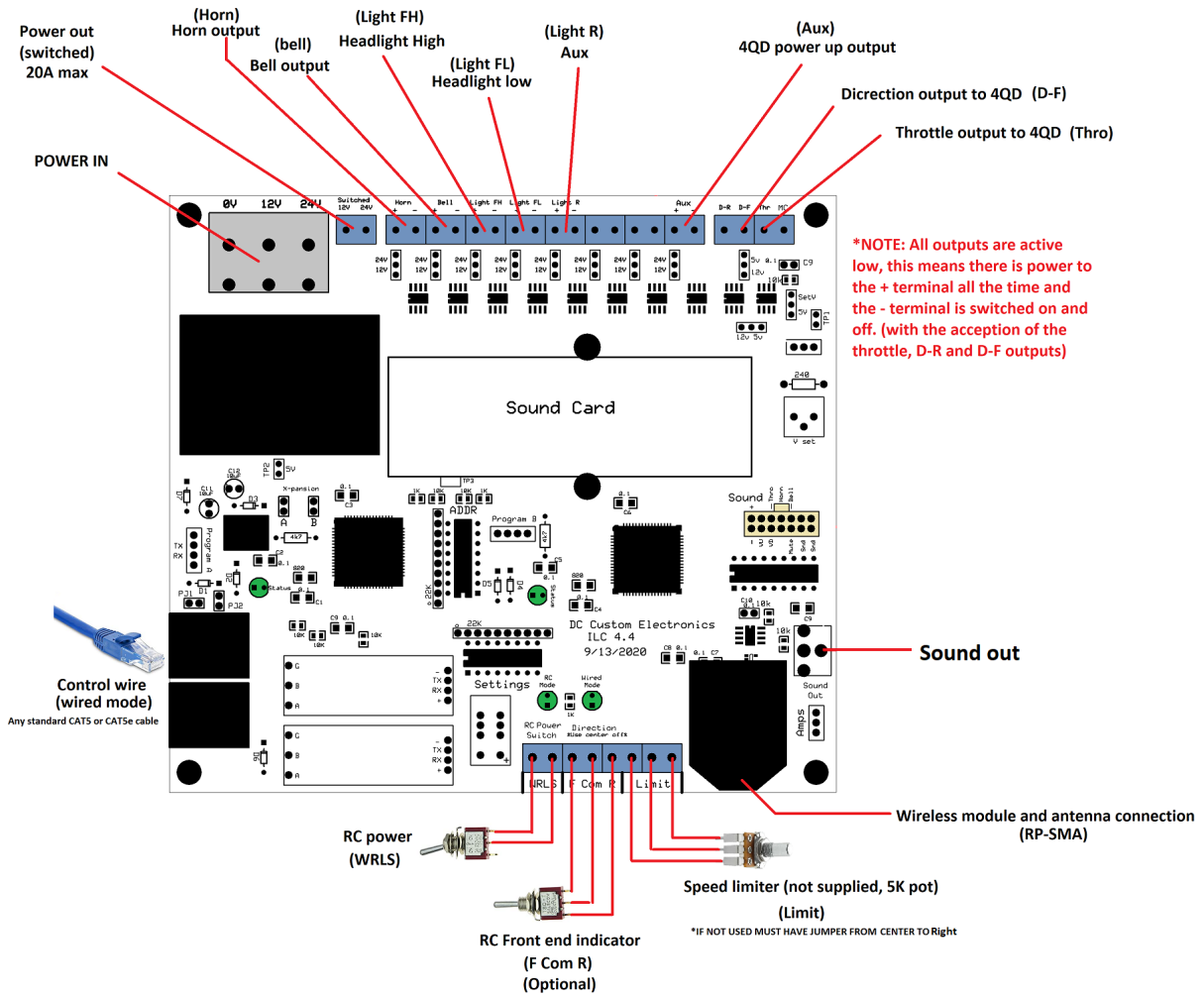
General Use Instructions and wiring diagrams

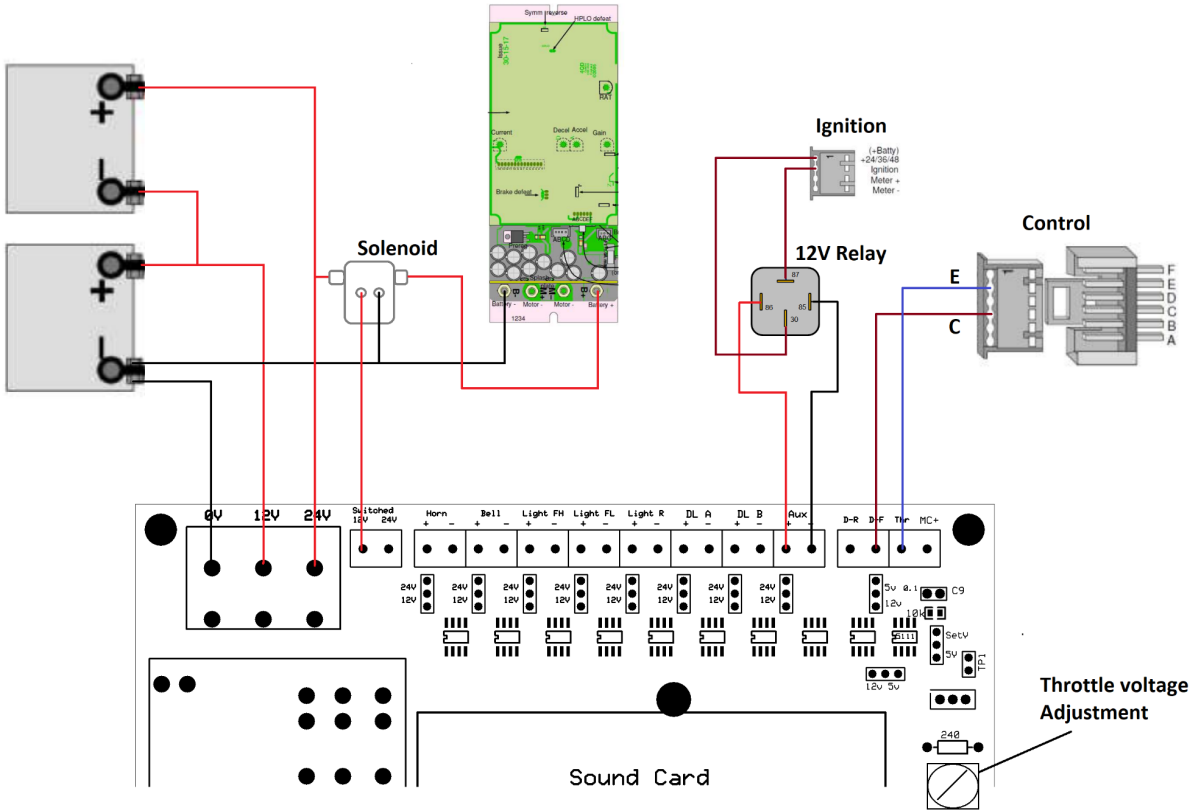
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WIRING:





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. *note this must be centered (off) when in wired mode.

Speed limiter- (semi-optional) this will reduce the max speed by a percentage 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 right-most connector and center.

Throttle voltage adjustment- preset to ~10V this is used for 4QD controllers. Use this along with the gain control on the 4QD to adjust for full throttle at max pot. *Note: It may be easiest to leave this set to 10V and adjust the gain on the 4QD only*

All outputs are low side switched (with the exception of “D-F” and “thro”). This means that there is always power on the + pin of each output and the - pin is switched on and off. The maximum current of each output is 5 amps. The voltage can be switched between 12V and 24V by moving the corresponding jumper to the 24V position.

Locomotive RC controller instructions:

Front of controller-

All controls are as marked here.

Direction is controlled with the “forward, reverse” switch. Placing this switch in the middle will “park” the train, you will not be able to move until you place it in either forward or reverse.

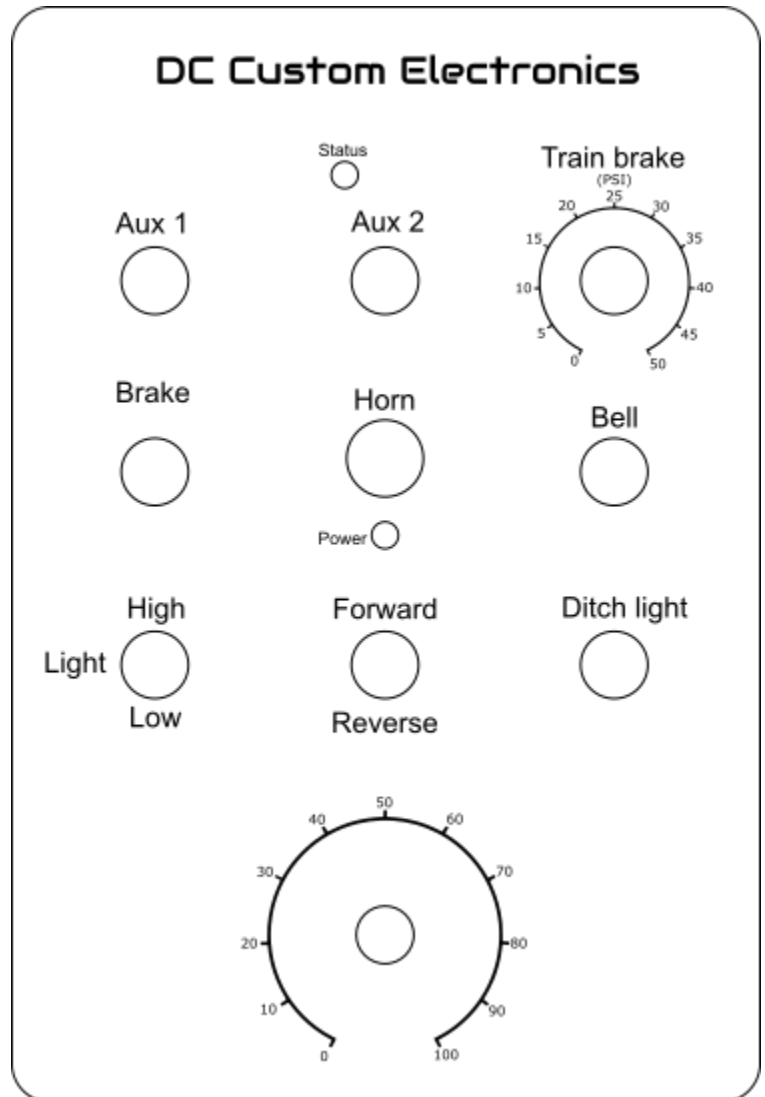
Status lights:

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 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 (status), 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.



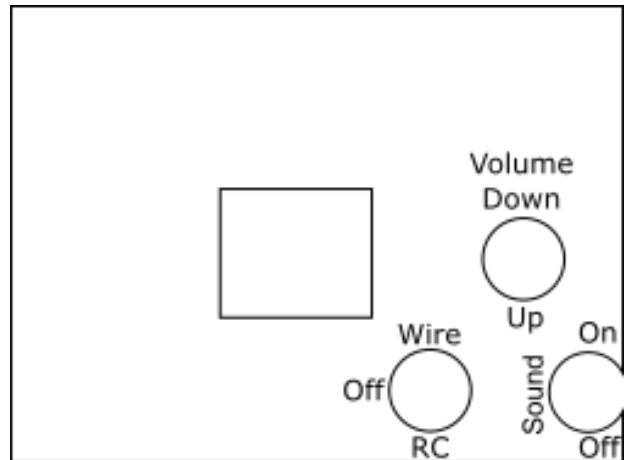
Top of control box:

Power switch:

Note that the power switch has 3 positions:

Wire
Off
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.

Powering on the train in RC mode:

To power on the train in remote control mode, locate the power switch on the locomotive (wired to the “WRLS” connection on the circuit board) and turn it on.

Next locate the power switch on the control box and turn it to “RC” and wait until the status light stops flashing (about 10 seconds). Now the train should be connected and ready to run. A quick way to test is to simply honk the horn or turn on the headlight.

Note that if the throttle is not set to 0 when the train is powered on it will not move until you return the throttle to 0 and choose a direction with the direction switch.

To power off the train 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!!

Powering on the train in Wired mode:

At some point your batteries may die in the controller when you are out on a ride. If this is the case you may connect the controller to the locomotive via a wired connection.

- To do this, power off the locomotive AND the control box.
- Plug in any standard Cat5 or Cat5e cable of any length.
- On the controller only, flip the power switch to the “wire” position. Both the controller and the loco should power up together.
- Wait 10 seconds for the status light to be solid and power up is complete.

Additional notes:

There are some programmable settings on the main (blue) circuit board. Locate the 8 dip switches labeled “settings”. They are as follows:

- Dip1 ;Headlight dim mode (1= PWM dim, 0= external dim)
- Dip2 ;Bell ring mode (1= pulse, 0= steady)
- Dip3 ;4QD power up enable delay (1= on, 0= off)
- Dip4 ;Disable sound horn when sound is muted
- Dip5 ;Disable sound Bell when sound is muted
- Dip6 ;Disable sound horn and only use mechanical horn
- Dip7 ;Disable sound bell and only use mechanical Bell
- Dip8 ;NOT USED