

Adding LEDs to Cobalt turnout motors

Adding LEDs to Cobalt Turnout motors:

Electronically, stall motor types do vary, and there are actually three different types of Cobalt motor. Each type needs a different approach to adding LEDs. Cobalt motors have lots of built-in switching too, so they also allow you more than one way to add control panel LEDs. How you choose to do it is up to you, but be sure you use the method that specifically suits your motors!

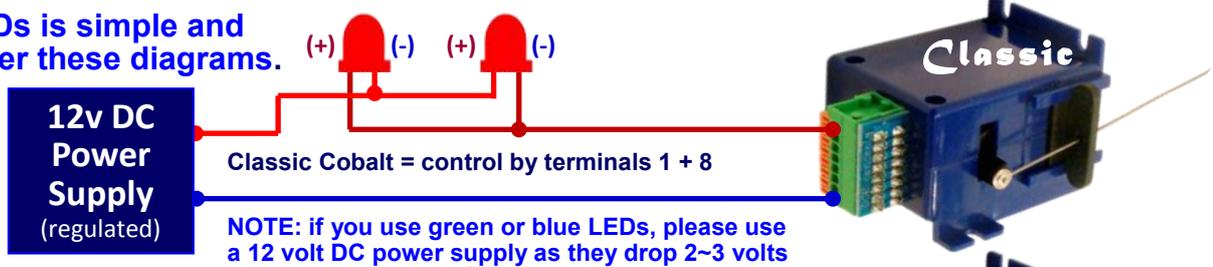
Standard DC powered Cobalt Motors

This includes original **Cobalt Classic** and the new **Cobalt Ω (Omega)** turnout motors.

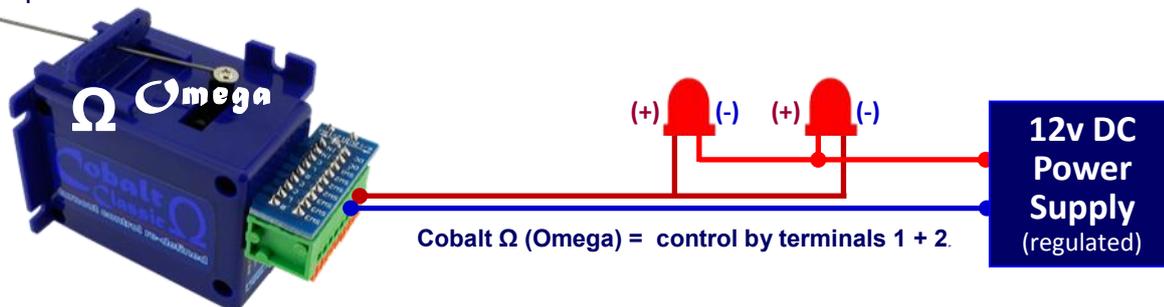
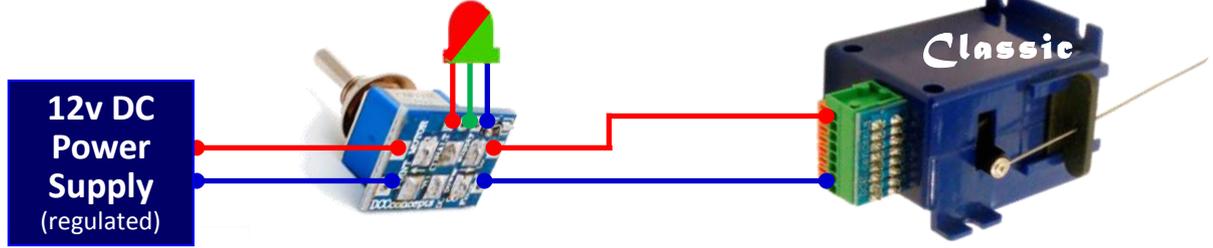
The motor drive in these types has constant DC power, with the polarity reversing to change the turnout. The combination of the motors own internal resistance plus any resistances within the drive circuit inside the motor provide enough resistance, so you can connect LEDs directly in-line with a motor lead without the need to add a resistor, providing you are using DCCconcepts recommended drive voltage range of 9~12v DC or utilising a DCCconcepts AD series accessory decoder.

Adding panel LEDs is simple and can be done as per these diagrams.

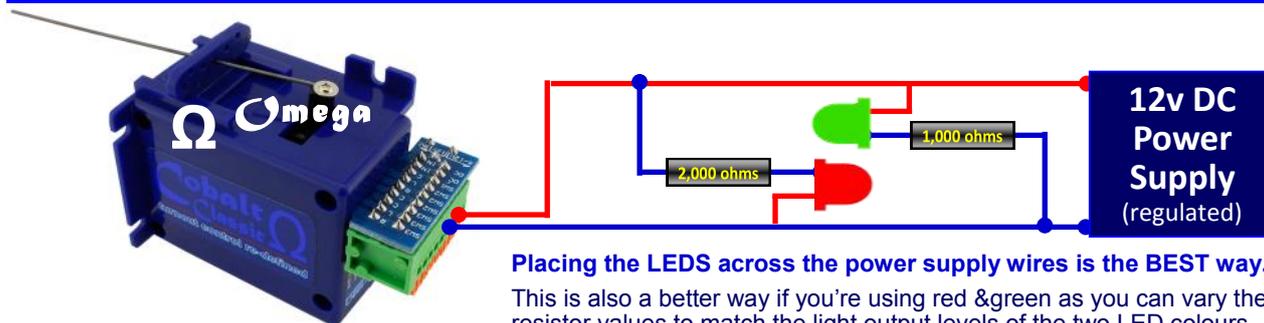
- (1) Two LEDs put back-to-back in one lead from the DC Power supply



- (2) Bi-Colour LED and switches that are in the DCCconcepts switch packs



IF YOU ARE NOT USING OUR SWITCHES, WE THINK THIS IS THE BEST WAY TO DO IT



Adding LEDs to Cobalt turnout motors

Continued...

Adding LEDs to Cobalt iP Analog turnout motors:

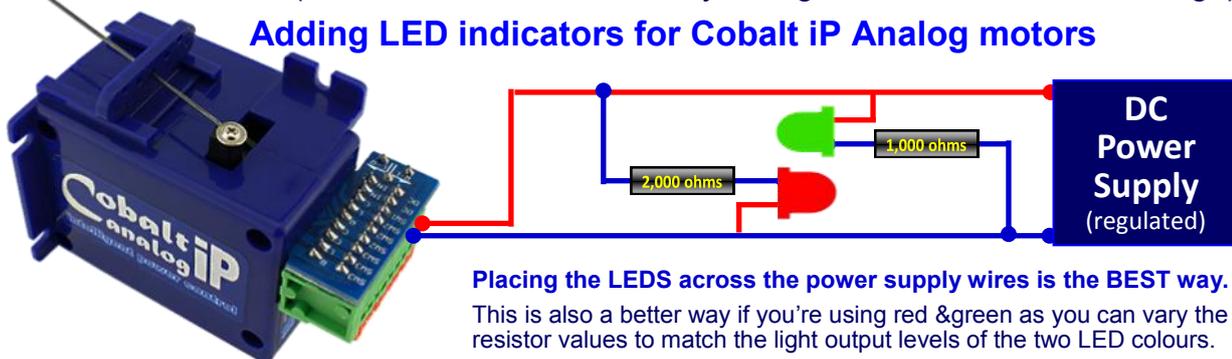
Cobalt "Intelligent power" motors such as Cobalt iP Analog and Cobalt iP Digital manage their power use quite differently to the Cobalt classic and the Cobalt Ω Omega, and this means we cannot use the same methods for adding LED indicators to our control panels

This is because the current draw varies during the throw cycle. While Cobalt iP motors typically draw less than 4 mA while static and waiting to be thrown, the current draw rises and falls as they change, with peaks at between 40 and 60mA for less than a second at the mid point of the throw.

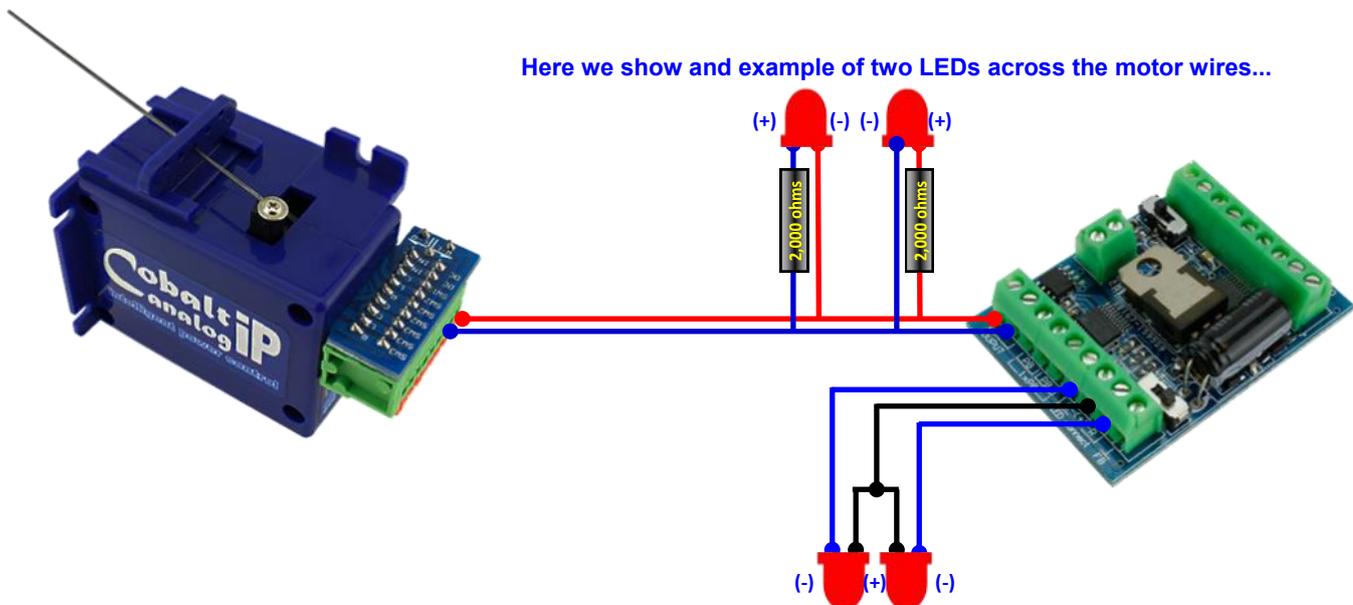
It is therefore not possible to use an LED inserted into the power supply lead. Doing that would simply destroy the LED and leave an open circuit so that the motor would no longer work.

Fortunately Cobalt iP Analog and Cobalt iP Digital offer several other ways to add Panel LEDs that are equally easy AND in some ways better, as they have the advantage that the illumination level will not vary as the motor moves (Inline LEDs DO dim and vary in brightness as the motors change).

Adding LED indicators for Cobalt iP Analog motors



Here we show an example of two LEDs across the motor wires...



Of course, if you use DCCconcepts AD-2fx or AD-8fx decoders... With EITHER Cobalt iP Analog or Cobalt Ω Omega - you have the choice of adding the LEDs to the decoder (or you can use decoder outputs for other things like computer I.O. or light-signal control)

We hope that you have found this article useful. It is one of many advice-type documents that we've made available on our website at www.dccconcepts.com. If you need more, email questions@dccconcepts.com

Adding LEDs to Cobalt turnout motors

Continued...

Adding LEDs to Cobalt iP Digital turnout motors:

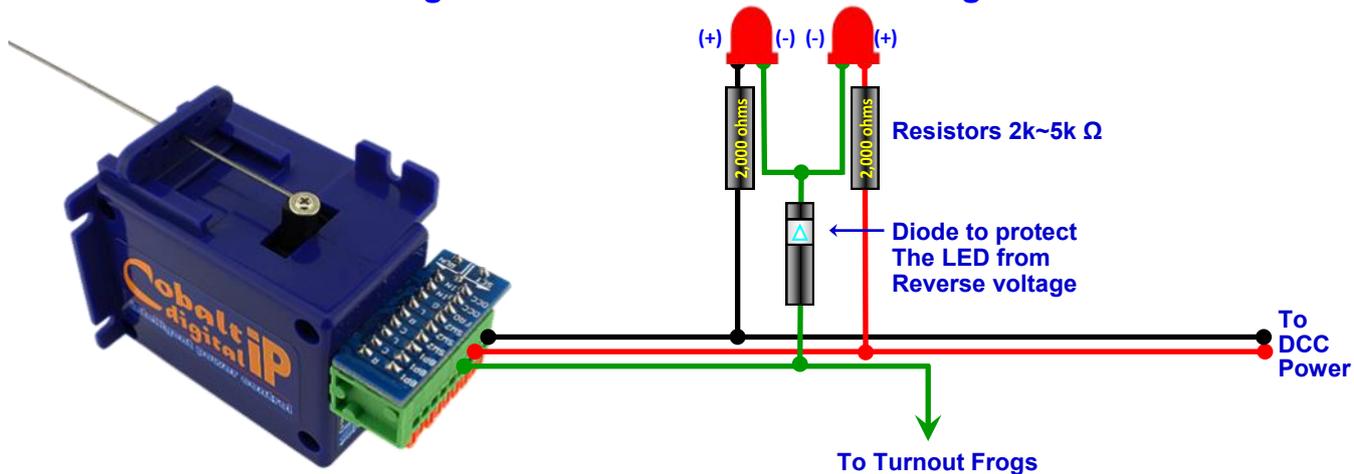
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It is therefore not possible to use an LED inserted into the power supply lead. Doing that would simply destroy the LED and leave an open circuit so that the motor would no longer work.

Fortunately Cobalt iP Digital offers other ways to add Panel LEDs that are equally easy AND in some ways better, as they have the advantage that the illumination level will not vary as the motor moves (Inline LEDs DO dim and vary in brightness as the motors change).

Adding LED indicators for Cobalt iP Digital motors



Cobalt iP Digital can also control LEDs via the SPDT changeover switch that is built in, however you may wish to reserve this for other things...

Therefore DCCconcepts have decided to introduce a neat new pack of control panel LED + switch combinations early 2015.

This will have switches with integrated LEDs that can add manual control for your Cobalt iP digital at the control panel.

They will also feature on-board memory so they remember all of the turnout positions even after power has been turned off!

The part numbers of these switches will be as follows

DCP-DMG - Digital Switch pack, Green TACT switches

DCP-DMR - Digital Switch pack, Red TACT switches

DCP-DMB - Digital Switch pack, Blue TACT switches

Delivery of all three types is expected March/April 2015

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