

Cobalt iP digital

OWNERS MANUAL



SETTING the ADDRESS of your Cobalt iP Digital:

After following the instructions to deactivate "Automatic Centering" cycle power (disconnect/reconnect) then set your chosen address. Put the switch into the "Set" position * Set your chosen address between 1 and 2049 (but not using 197/198/199 of course). **To do this use your DCC system instructions for changing an accessory or turnout** * Repeat twice to be sure. * Now return the switch to the Run position * Cobalt iP Digital will now operate at the chosen number and change position reliably each and every time you ask.

INSTALLING Cobalt iP Digital:

First, assemble your Cobalt iP Digital turnout motor: The throw arm is already pre-centred to make this easy for you.

- (1) Insert the fulcrum bar into the slides (The horizontal part of the bracket with the holes can be either at the top or bottom. We usually have it at the bottom).
- (2) Now add the throw wire, passing it upwards through the centre hole of the fulcrum bar and then inserting the bent end of the wire into the smaller top hole on the end of the throw arm. Secure it in place with the washer head screw provided.
- (3) Add the pre-cut self-adhesive foam pad to the top of the motor

Now we are ready for the installation.

- As well as the self adhesive foam pad, we include the required mounting screws with every Cobalt iP analog turnout motor so all you will need are basic tools. You will need a screwdriver and drill, plus both a 1.5mm (for pilot holes) and a 10mm drill for the throw-wire installation. (The exact drill size used is not critical so a close sized drill is OK). If the baseboard is over 20mm thick, increase drill size.
- (1) Mark the position of the hole in the turnout tie-bar with the turnout blades held at their mid-way position. This hole may be at the centre or end of the tie-bar
 - (2) Make a pilot hole at that mark, then drill right through the baseboard using the larger drill bit. Be sure to keep the drill vertical. (It is also good practice to use a countersink bit to clean up the hole top and bottom a little after drilling)
 - (3) remove the top layer from the self adhesive pad & from below the baseboard, insert the throw wire into the Tie-bar hole. When sure that your Cobalt iP analog is centralised relative to the hole and aligned properly along the turnout axis, press the it into position on your baseboard. (it can face either way). Test operation.
 - (4) Adjust the fulcrum bar as needed by raising or lowering it. (Lowering it increases throw and blade pressure, raising it reduces throw and blade pressure).
 - (5) After re-testing add a small drop of PVA to the fulcrum bar to hold it in position.
 - (6) Use the screws provided to gently fix Cobalt iP permanently in its position.

Owners Manual

Cobalt iP Digital turnout motor.

iP stands for "Intelligent power".

The DCCconcepts Cobalt iP Digital turnout motor includes a clever internal electronic control system that adapts itself to a wide range of power supply voltages and will only draw power as needed. Cobalt iP Digital is usable with all scales, from the tiny "T scale" to Z, N, TT, HO, OO, EM, P4, S, O & G.

Cobalt iP Digital has two versatile in-built SPDT switches - Switch 1 is linked to the drive power inputs for control of frog power. Switch 2 is fully independent with high (5a) power handling for any other switching needs you have.

Cobalt iP Digital can be powered by any voltage between 9 and 23v DCC or DC and can be changed by DCC accessory decoder commands from a DCC system or computer, momentary switches or by interaction with other devices.

Interactive power management ensures that your Cobalt iP Digital is very comfortable with larger scales with higher accessory voltage power supplies or when used with DCC control systems with higher output / track voltages.

Please read all of this manual before you wire or install Cobalt iP Digital.

Cobalt iP Digital comes with its throw-bar pre-centred & has a built-in software structure for automatic centering that makes installation easy. (This process uses address 198 and 199 for activation/deactivation).

Activate self-Centering (already ON by default): Put the switch into the "Set" position * Set the address to 199 * **To do this use your controllers instructions for changing an accessory or a turnout** * Repeat twice to be sure * Now return the switch to the Run position * **Cycle the power off and on** * Cobalt iP Digital will now automatically self-centre every time power is connected.

De-activate self-Centering once installation is done: Put the switch into the "Set" position * Set address to 198 (Then use the same procedure as for activation)

Cobalt iP Digital also has a convenient "Swap direction" command that will change over "normal / reverse" commands to synchronise with software. (This process uses address 197 for activation or deactivation)

To Swap over the direction of throw: Put the switch into the "Set" position, then set your Cobalt address to 197 (Then use the same procedure as for activation)

After each change using command address 197, 198, 199, turn power on and off then re-address Cobalt iP Digital with your chosen turnout number.

Cobalt iP analog turnout motor Specifications

- Dimensions:** Body only: 28mm x 38mm x 52mm deep
Top overall inc Fulcrum and tabs: 40mm x 45mm
Depth inc soldering-free connectors: 68mm
- Power:** 9-23v DCC or DC. static <5mA, active average <40mA
- Connection:** 9-way spring terminals. Wire diameter up to 32x.2 or 18g. Ideal .16x.2 or 20g. Minimum 7x.2 or 24g
- Control:** Change turnout via DCC or with momentary switches. DCCconcepts offer an economical switch pack for Cobalt Digital and our ADfx decoders (DCP-CMS-D) which includes 6 switches and a wide chrome-mounted LED selection.
- Addressing:** Cobalt iP Digital has a simple learn/Run switch at the left hand side of the terminal PCB. Connect to DCC track bus and set to Learn mode. Act as if already changing at the address you wish it to be. Return switch to run mode.

Cobalt iP Digital Life-time Warranty

DCCconcepts' guarantees and warranties are always made in respect of the original owner of the products. While our first priority is to always be sure that users of our products are given the best possible service we do also reserve the right to request proof of purchase so we can properly establish that you were the original purchaser and user of the product.

DCCconcepts use the best quality materials, testing each and every Cobalt iP Digital turnout motor multiple times prior to packaging for sale and so we have no hesitation in providing the best warranty possible.

Simple promises only need simple words:

If your Cobalt iP Digital ever fails or needs service when it is being used under fair and reasonable conditions we will repair/replace it at no charge. We offer this guarantee to you for as long as you own it.

Cobalt turnout motors and the
Cobalt accessory range are
designed & manufactured by
DCCconcepts Pty Ltd.
Sales@DCCconcepts.com
www.DCCconcepts.com

DCP-CBiP



Wiring your Cobalt iP Digital turnout motor

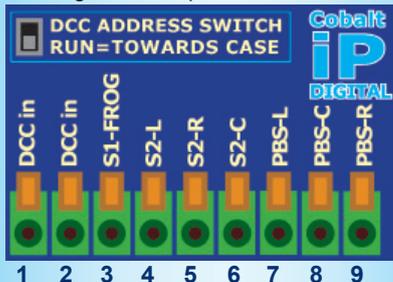
Important: Cobalt iP Digital has a different range of connections to original digital, Classic Ω or iP analog

There are 9 spring terminals on the motor. These terminals will accept a wide range of wire sizes. Use the heaviest convenient wire size. The wire should be stripped carefully exposing approx 10mm of bare wire. The best method is to "ring-strip" the insulation and then twist it as it is removed. This ensures that there are no free copper strands.

Note: The wire will always be more secure if it is NOT tinned

This drawing shows the label that is applied to each Cobalt iP digital turnout motor. please read it carefully before connecting.

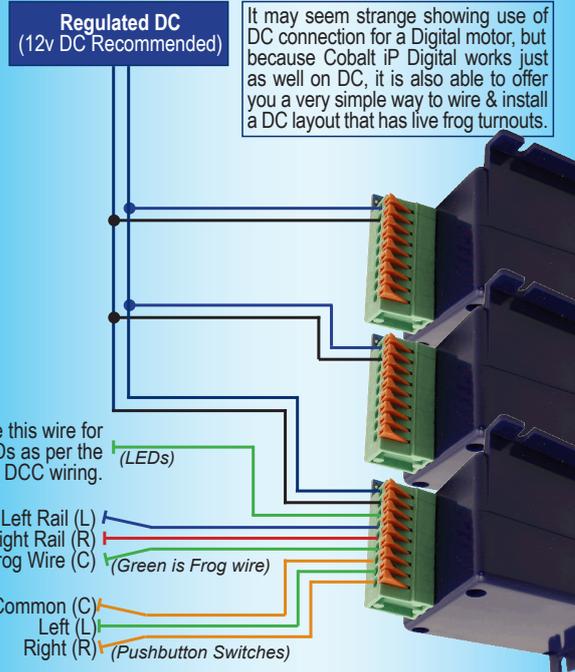
Please note: Wiring info is also printed under the connector PCB.



- 1,2 DC / DCC power input. DCC 7~23v (DC 12~23v)
- 3 Common for 1 & 2. (or Frog power with DCC)
- 4 Switch 2, Left terminal
- 5 Switch 2, Right terminal
- 6 Switch 2, Common Terminal
- 7 Left Pushbutton Switch
- 8 Common for Switches
- 9 Right Pushbutton Switch

Note please:
If you want ONE pushbutton use terminals 7 & 9
Switch terminals can be used for automation too

Basic wiring diagram for analog control of Cobalt iP Digital using a DC power source

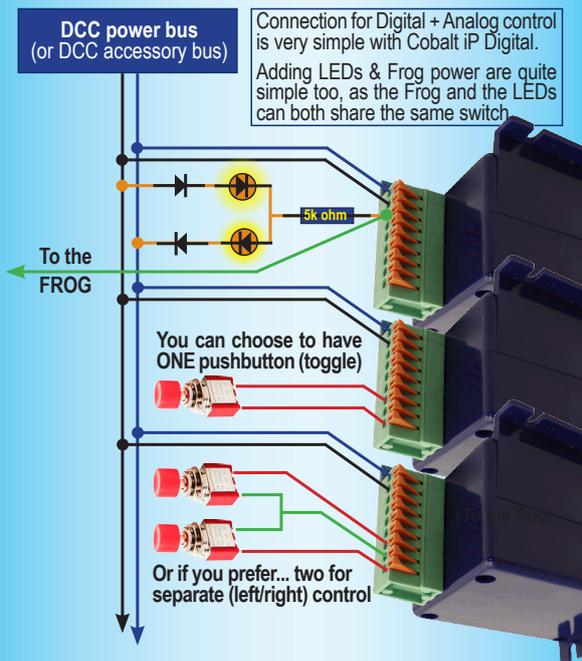


It may seem strange showing use of DC connection for a Digital motor, but because Cobalt iP Digital works just as well on DC, it is also able to offer you a very simple way to wire & install a DC layout that has live frog turnouts.

Use this wire for LEDs as per the DCC wiring. (LEDs)
Left Rail (L)
Right Rail (R)
Frog Wire (C) (Green is Frog wire)
Common (C)
Left (L)
Right (R) (Pushbutton Switches)

If you dislike Soldering then Cobalt iP digital is the perfect turnout motor for you - all connections are spring loaded and the built-in switching makes powering frogs easy too!

Basic wiring diagram for DIGITAL control of Cobalt iP Digital and adding Panel LEDs

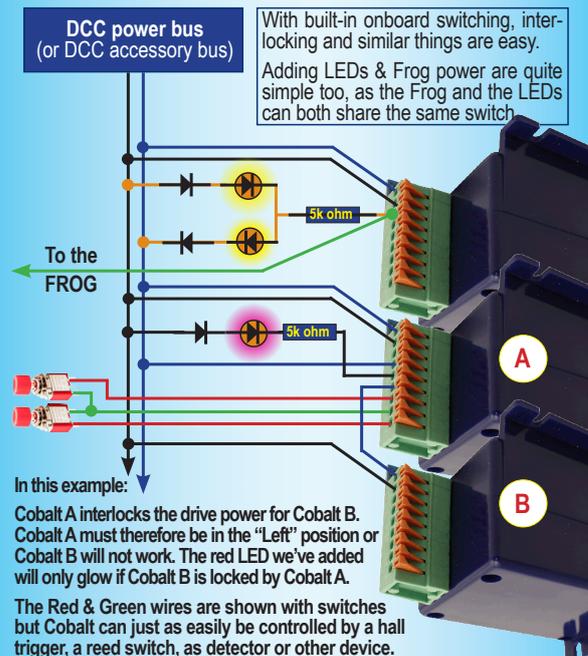


Connection for Digital + Analog control is very simple with Cobalt iP Digital. Adding LEDs & Frog power are quite simple too, as the Frog and the LEDs can both share the same switch.

You can choose to have ONE pushbutton (toggle)
Or if you prefer... two for separate (left/right) control

Even when LEDs or Pushbutton switches have been added you will still have one SPDT switch free and available for signals, interlocking or any other purpose that you choose.

Some ideas for interlocking Cobalt iP Digital and triggering turnout change using simple methods



With built-in onboard switching, interlocking and similar things are easy. Adding LEDs & Frog power are quite simple too, as the Frog and the LEDs can both share the same switch.

In this example:
Cobalt A interlocks the drive power for Cobalt B. Cobalt A must therefore be in the "Left" position or Cobalt B will not work. The red LED we've added will only glow if Cobalt B is locked by Cobalt A.
The Red & Green wires are shown with switches but Cobalt can just as easily be controlled by a hall trigger, a reed switch, as detector or other device.

Once the ability to "share" switches for more than one purpose is understood, almost anything becomes possible when you use Cobalt iP Digital to control your turnouts!