

The NCE BD20 Detector

How to use it, how to connect it and how to set it up for best results

The NCE BD20 detector is simple and reliable device used in layouts of all sizes. We are aware that most will simply want to install it as is without additional complication, so this additional document summarises the basics of using BD20.

(Of course, there will be those who wish to explore the limits - We have of course also included a full copy of the original manual as a PDF with your NCE BD20. You will find it on a DCCconcepts branded USB memory card/stick included in the packaging)

If you still have some questions, please do not hesitate to ask. Please call us on 01729 821 080 or email salesuk@dccconcepts.com

How to set the track and items to be detected in order to make best use of this Detector:

Using the BD20 detector: The BD20 detector is normally used to indicate the presence of a powered item (locomotive or lit coach or item of rolling stock within a section of the track. Locomotives and stock with lights installed will be detected because they are already drawing some current.

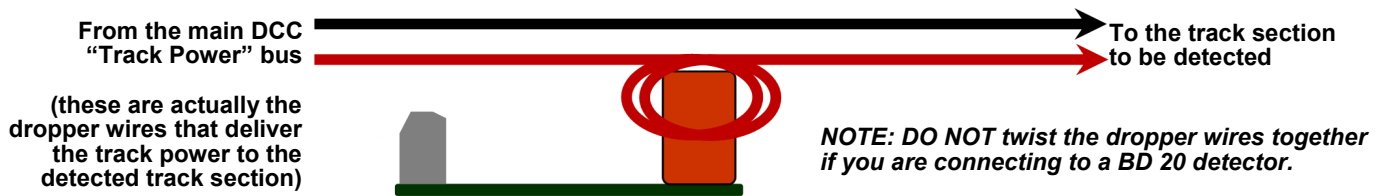
If you want "whole of train detection": To make this possible, you need to add a resistor as a "load" across the two wheels of each axle a coach or wagon to create "Resistive Wheelsets".

The best way to do these is to fix a surface mount resistor to the axle and "Paint" the connection between the live wheel and axle and the isolated wheel by using pure silver conductive paint. (See below for instructions) Please note Soldering will also work if the axle/wheel materials will allow it.

The track section that will have BD20 Detection installed: It should have both rails gapped and isolated from the track either end of it.

It should be as long as is needed within reason - ie: as long as the longest train or the loco plus its train of "detector enabled" rolling stock.

The BD20 is NOT direct connection to the track: It is simply installed by carefully looping the rail power droppers from the section being detected through the hole in the BD20 induction loop before they are connected to the track power bus. (see drawing later on this page).



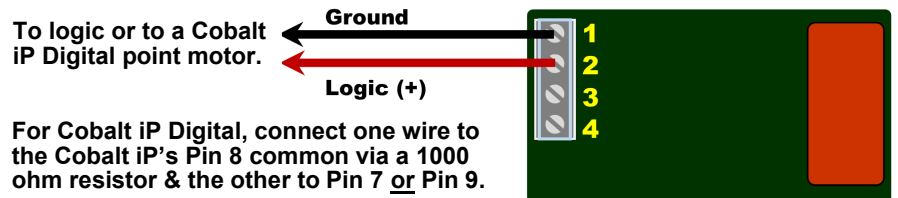
How many turns through the coil? Normally 2 turns are OK, but 3 may be needed. If this does still not work for you, please refer to the extended instructions as there are limits on the # of turns used with DCC systems above 5 amps output ability. (Too many turns can actually damage the BD20).

Using the BD20 for feedback to signal logic, computer OR to activate & automate a Cobalt iP Digital motor:

When BD20 is activated, the energy created induces a low level voltage output in the coil of the inductor that acts to generate a "signal" to tell something else to act:

For example, it can trigger a low current relay or Cobalt REX unit, indicate occupancy to a computer via an NCE AUI or other brand detector board or similar.

Or... it could also act to automatically change a Cobalt iP Digital point motor (Connection to Cobalt would be to terminals 7 and 8 OR 8 and 9).

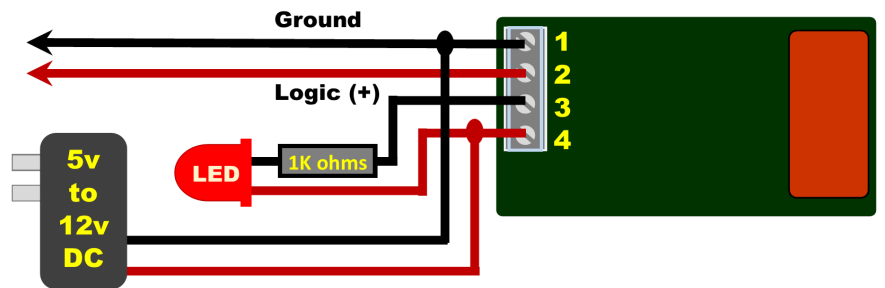


Extending connections to also drive a relay etc OR add a series of remote LEDs onto your control panel:

For panel indicators or perhaps a row of LEDs along a track length, a standard power relay or similar, more power is needed. This is very simple to add. See this drawing.

Keep the power supply low voltage. A spare mobile phone charger is adequate in most cases! More voltage or higher current will normally not be needed unless you are using the output for a higher voltage relay coil.

The BD20 is a great companion for the DCCconcepts REX by the way... its multiple relays and versatile setup make the BD20 and REX a powerful pair, allowing automatic point control, signals, road/rail crossings and many other devices to be activated or triggered by the passing of a train through a BD20 controlled block!



You can quite easily make your own resistive wheelsets!

Use "0804" or 1205 sized resistors, with a value of 10k~12k ohms (10,000 to 12,000 Ohms).

Glue the resistor to the axle with Epoxy (Glue it close to the insulator on the insulated wheel). When glue is dry, paint on "silver conductive paint" to electrically join the resistor to the axle and to the insulated wheel. Let the silver paint dry and test with your meter. If it is not correct, re-paint to complete the circuit.

TIP: Shake Silver paint really well. Take a drop out and let it dry a bit before using. It will be easier to use!

