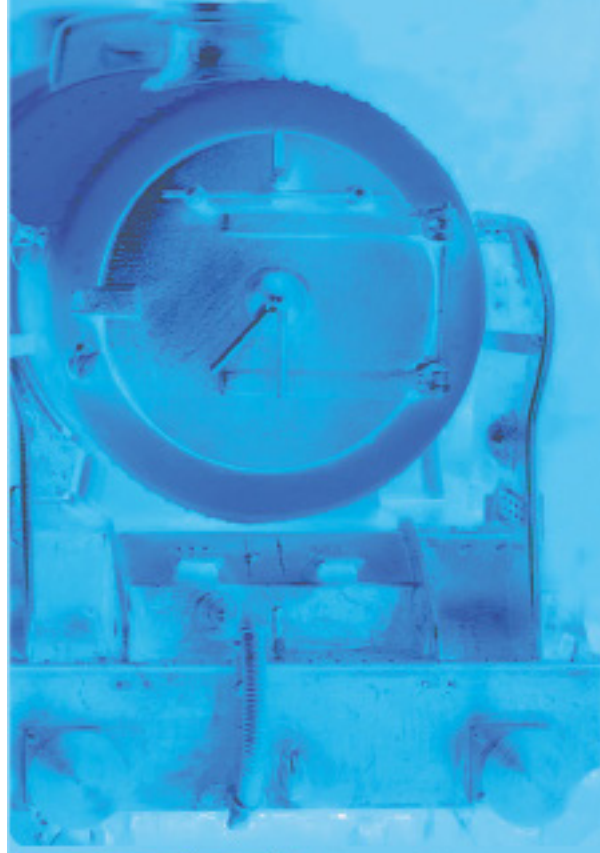


OWNERS
MANUAL

Cobalt ADS-8sx Solenoid Decoder



DCC Concepts
Thinking outside the square
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Overview: Cobalt ADS-8sx Decoders

The perfect way to change solenoids on DC or DCC layouts

Please be sure to read these instructions before installing your ADS-8sx Decoder

DCCconcepts ADS-8sx decoders have been designed from the outset to work perfectly on both DC & DCC controlled layouts and each output is able to reliably change two Peco, Seep, Hornby, or any similar solenoid point motors simultaneously if wired correctly.

ADS-8sx decoders can be connected directly to DCC track power or a DCC accessory power bus and need no added power supply or wiring if used with DCC (15-18v DC is required for DC layouts).

Unlike other accessory decoders which can just run out of energy, ADS-8sx decoders are able to reliably fire all outputs at once (for route control, diode matrix control, macro or computer control) as each individual output stores all the power it needs on-board.

ADS-8sx decoders operate without draining your DCC track power. Power use is intelligently managed on-board, so you don't need a big power supply even when used on DC layouts - a regulated 15v to 18v DC supply that can deliver 1.5 amps should be just fine!

ADS-8sx also has some exclusive added features:

- ADS-8sx has all the features that solenoid users could wish for.
- * Power-off memory for turnout, frog power & LED panel/signals.
- * Frog polarity control for live frog (electro-frog) point-work.
- * LED outputs ready for you to add lights to your control panel.
- * Dual momentary contact switch option so you can have both digital & manual control of your points - switching contacts are triggerable with hall, diode matrix or detectors for automation.
- * CDU discharge switch to power-down for safe wiring at any time.

When connecting high current solenoid motors, the wiring techniques used and the wire size chosen are both important for reliable DC or DCC performance.

DCCconcepts ADS-8sx decoders have screw terminals for all common connections to make wiring easier for you. The use of all terminals is marked clearly on the PCB. (Also see diagrams here)

Please do NOT tin the wire ends when using screw connectors - it is less reliable long term. Just strip the wires carefully and twist them tightly.

We recommend the following wire choices for ADS-8sx;

(1) Solenoid wiring: DCCconcepts 32x0.2 3-plait wire. (DCW-PW25) (if not available, please use 32x0.2 wire if possible, 16x0.2 is OK only for short runs plait it too if you can. Plaited wire is very tidy - and it reduces induction in the wiring, improving power delivery and helping to manage the harmful voltage spikes created when a solenoid is operated).

(2) Switch, LED or IO wiring: 7x0.2 to 16x 0.2 OK (light wire is OK). (Your choice may be different depending on where you put your ADS-8sx decoders, however 6-core alarm wire can be an excellent choice as it gives you 3 wires for switches and 3 for LEDs etc in one tidy cable).

(3) Frog Wiring: 16x 0.2 is ideal (ie: Dropper wire size). (Please keep frog power wires as short as possible. We suggest you adopt a consistent colour for frog wires - green is the usual choice).

ADS-8sx has all wiring positions clearly marked on the PCB. Before wiring your ADS-8sx decoder please read these instructions from start to finish and then take note of the following advice:

- * Plan your wiring colour codes. A little forethought makes it much easier to maintain your layout as time goes on.
- * Make sure your soldering iron is ESD safe. A soldering iron with voltage or mains leakage is dangerous and WILL damage electronics.
- * Make sure the mounting or work surface is clean. Also make sure it is clear of metal objects that can cause accidental short circuits.
- * Make sure that ADS-8sx is disconnected AND that you have fully discharged the onboard CDU's by pressing the button until the blue LED is totally "Off" before adding any wiring to your ADS-8sx
- * Store these instructions safely for future reference. If you are unsure at ANY time please do email us for help rather than guessing!

TOP TIP - Wiring TWO solenoids to ONE output.

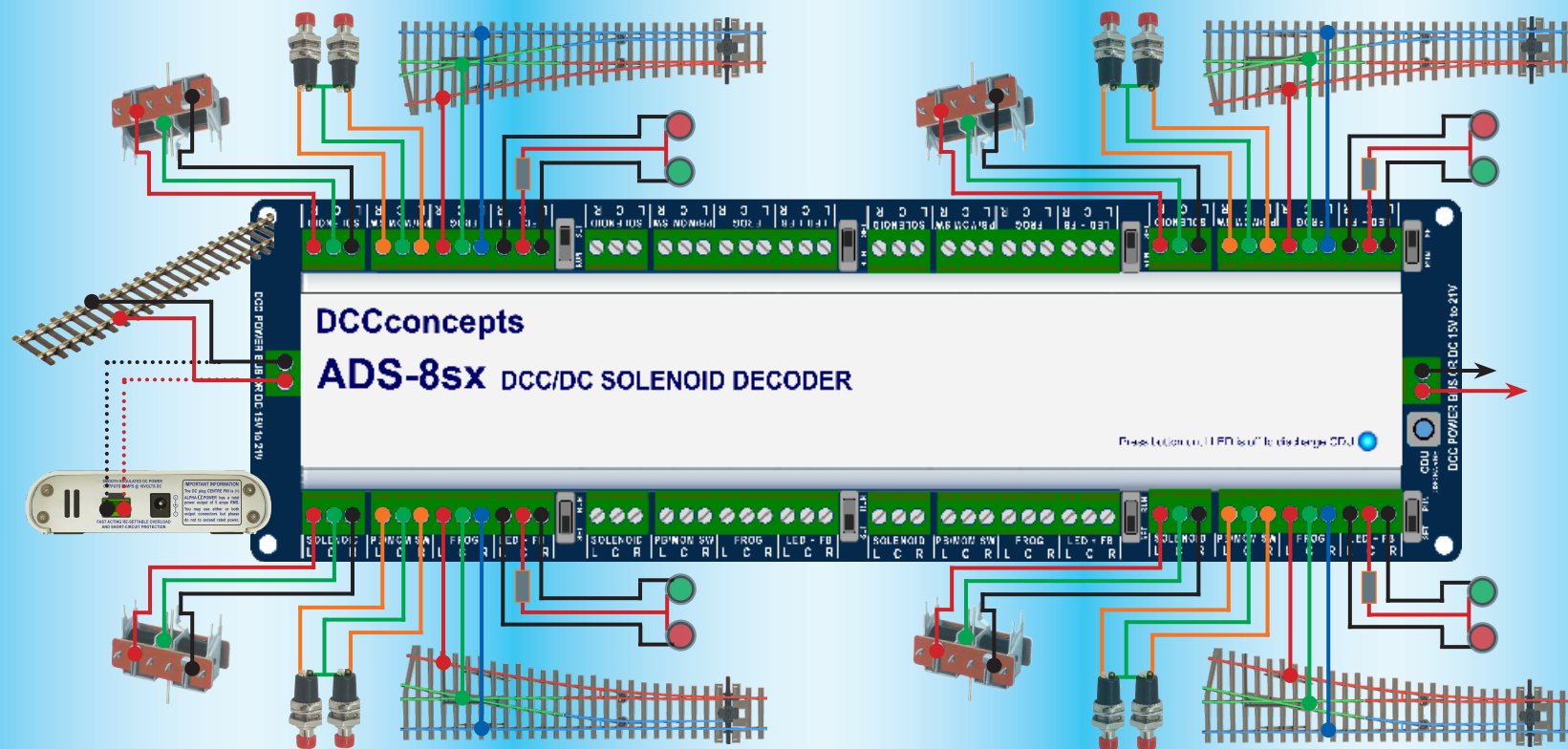
You can use ONE output for both points or turnouts in a loop or crossover, however changing two solenoids at once needs a really BIG peak in power delivery from your ADS-8sx to be evenly shared between them.

For the best result, please follow these important guidelines:

- * Use a "DCC Track bus" or "Accessory bus" voltage of 15v or more
- * Use wire that is NOT less than 32 x 0.2mm (18 gauge). If possible PLAIF wiring or use DCCconcepts DCW-PW25 plaited solenoid wire.
- * Keep the wires between ADS-8sx & solenoids as SHORT as possible.
- * Keep ALL the wires between ADS-8sx and solenoids the SAME length.

Instruction and overview: Cobalt ADS-8sx features and wiring

100% Soldering-free wiring, Separated power input & clearly marked Screw Terminals and simple, logical connections make the DCCconcepts ADS-8sx very easy to understand and extremely simple to use.



There are EIGHT outputs on the ADS-8sx. Rather than create a totally confusing drawing, we have used only four sets of connections here. The other four connections are of course, identical in layout.

Setting the Address of your Cobalt AD-S2sx

Setting the ADS-8sx address is just a simple "learning" process. These guidelines will help users of many common DCC brands - but we are here to help so if you need, please email at any time!

SPECIFIC GUIDELINES FOR SOME POPULAR DCC SYSTEM BRANDS

ESU EcOS system

- * Before attempting to set an address you must first create a link for the turnout in the EcOS system's memory. Refer page 24 of the EcOS manual.
- * Once this is done, follow the instructions on page 6 of this manual. (Note: For step #4 - to change a point/turnout with EcOS, use EcOS manual p24)

Roco Z21 system

- * Z21 can be delivered with an offset problem in accessory addressing. Please download and use Z21 maintenance software (Win 7-10) to correct if needed.
- * Before attempting to set an address you must first create a link for the turnout in the Z21 system's memory. Refer to page 57 of the Z21 manual. Once this is done, follow the instructions on page 6 of this manual. (Note: for step #4 - to change a turnout with Z21, refer to Z21 operating screen)

Hornby E-link system and Rail-master software.

- * Before attempting to set an address in ADS-8sx, you must first create a link for the turnout in the E-link system. To do this follow E-link instructions and use the Track Design screen, adding the turnout and giving it a number - then return to the driving screen that shows the turnout in the layout plan. Once this is done, follow the instructions on page 6 of this manual. (Note: For step #4 - please do NOT use the in-build drop down addressing screens - to change a point or turnout with E-link, just click on it with the mouse)

Please note: Make sure E-link is communicating properly when you're setting addresses. E-link has a somewhat messy DCC waveform that CAN cause problems if wiring isn't tidy. We strongly recommend adding a BT-2 Power Bus terminator to the ends of the DCC power bus to improve communication

Lenz system (Various full system model numbers)

- * Lenz systems do not currently require entry into a database/system memory prior to operating DCC accessory decoders with their handsets.
- * Simply follow the instructions on page 6 of this manual. For step 4 Lenz users will find the instructions for changing a point/turnout on page 37 of the LH100 v36 manual. LH90 users, please use LH90 V3.6 manual page 30/31.

NCE systems (Powercab, Power Pro)

- * NCE systems such as Powercab and Power Pro do not require any entry into a database or system memory prior to operating accessory decoders. All actions are carried out directly with their handsets.
- * Simply follow the instructions on page 6 of this manual.
- * For step 4 (operating turnouts) - for NCE PowerHouse Pro, use instructions on page 42 of the manual. PowerCab users, use page 33 of the manual.

Digitrax systems (Zephyr, Empire Builder, Super Chief)

- * Digitrax systems such as Zephyr, Empire builder and Super Chief do not require an entry into a database or system memory prior to operating accessory decoders. All actions are carried out directly with their handsets.
- * Simply follow the instructions on page 6 of this manual.

- * For step 4 (operating a turnout) For Zephyr, use instructions on page 41 or page 42 of the manual depending on version. For Empire Builder, use page 75, for Super Chief, use page 80. (Page # may vary slightly with version)

Roco and Fleischmann DCC systems (Multimaus)

- * Roco systems such as the Roco 10810 Multimaus do not require an entry into a database or system memory prior to operating accessory decoders. All actions are carried out directly with the Roco 10800 handset.
- * Simply follow the instructions on page 6 of this manual.
- * For step 4 (operating a turnout) For Multimaus 10810, use the instructions on page 40 of the manual. (Earlier versions vary, so do check the manual).

DCCconcepts Cobalt ALPHA Central:

- * Cobalt ALPHA Central turnout controller and ALPHA devices in general give a direct digital command to any accessory decoder used on your layout.
 - * This makes Cobalt ALPHA the easiest switch-based control interface there is.
 - * It also makes using Cobalt ALPHA the simplest way to address an ADS-8sx
- Just move the switch on ADS-8sx to SET position, press the appropriate button on the Cobalt ALPHA unit, then return the ADS-8sx switch to RUN.

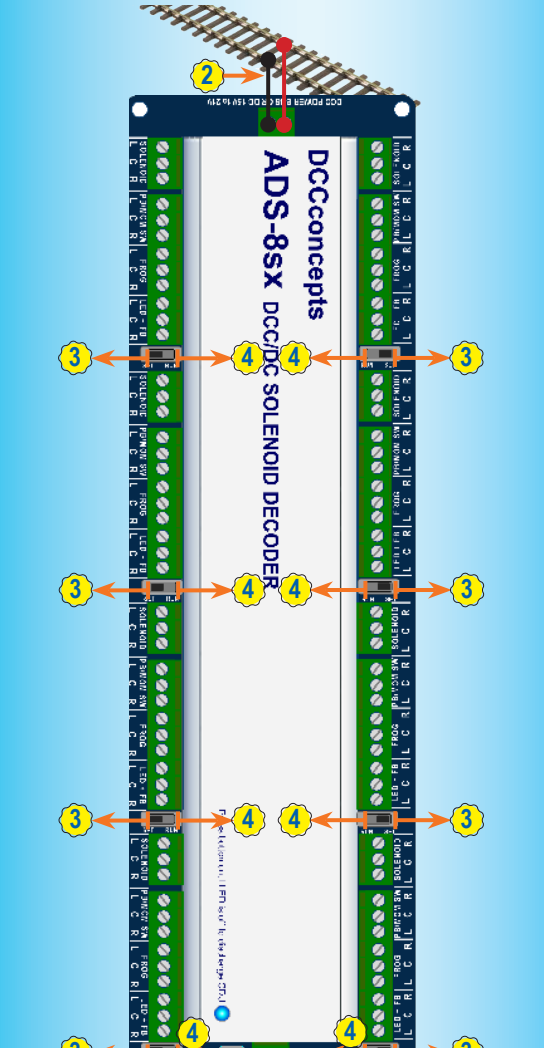
Important: ADS-8sx has a high power CDU on each of its outputs. This stores a large amount of energy to assist the changing of solenoids. Therefore you MUST be careful when wiring as incorrect connection may result in immediate failure if CDU power is accidentally cross-connected. If you need to change wiring at any time, ALWAYS use the CDU Discharge button, pressing it until the Blue LED is totally off before changing ANY wiring on your ADS-8sx Decoder.

Setting the Address of your Cobalt ADS-8sx

Setting the ADS-8sx address is just a simple "learning" process

Giving your DCCconcepts ADS decoder its own address is very easy. While the DCCconcepts ADS-8sx is made to comply with the DCC standards, there are varying approaches to the setting of DCC addresses. Because of this please use ONLY these DCCconcepts instructions for setting the address of your ADS-8sx decoder outputs, as your DCC controllers accessory decoder instructions may not be valid for DCCconcepts or some other brand products. You do NOT ever need to connect ADS decoders to a programming track!

- 1 Decide which address number that you wish the solenoid point motor that you connected to the ADS-8sx output to respond to.
- 2 Connect your ADS-8sx to the DCC track power bus OR if you have created it, the DCC accessory power bus.
- 3 Move the "SET/RUN" Switch to the SET position. Follow your DCC system instructions for changing the solenoid, point / turnout at the address you chose. (ADS-8sx being in SET mode will "hear" the number & learn it... adding it to its memory as its own address for future use).
- 4 Return the ADS-8sx Switch to the RUN position. Your ADS-8sx will now operate the points/turnouts each time you operate that address.



The CDU Discharge Button. Press this button until the Blue LED is off completely before you do ANY wiring on your ADS-8sx!

Power can be "Daisy-Chained" If you have additional ADS-8sx, you can connect them all together using these power connections.

Need help or advice? Email us at sales@dccconcepts.com

To find out more visit our website and look in "Manuals and Advice" www.dccconcepts.com

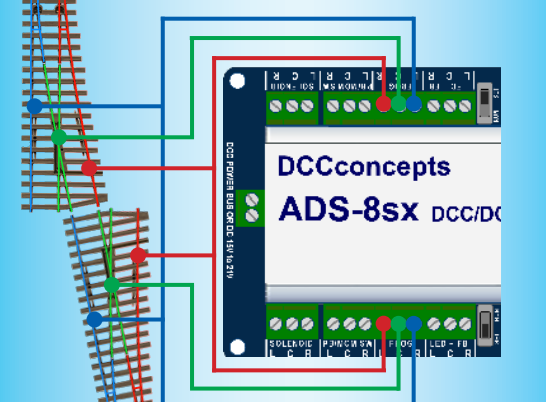
DCD-ADS-8sx

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Special cases: Cobalt ADS-8sx Frog Wiring

FROG wiring differences - wiring frogs on a CROSSOVER

When two points / turnouts form a crossover, the common crossings (frogs) are always at opposite polarities as you can see from this simple diagram. Therefore you'll need to use 2 of the eight ADS-8sx outputs and their frog switches for frog power.



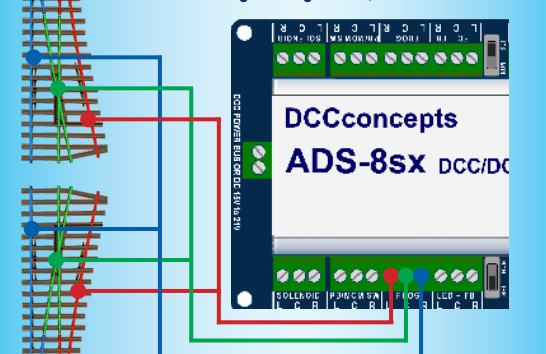
You COULD just use ONE output for both of the solenoids in the crossover, however to do this you will need to follow these important guidelines:

- * Use a Track / Accessory bus voltage of 15v plus
- * Use wire NOT less than 32x.2mm (18 gauge)
- * Keep the wires short as possible AND keep the wires the SAME length to each of the solenoids.

FROG wiring differences - Wiring Frogs on a STORAGE LOOP

When two points / turnouts form any type of LOOP, the Common crossings-frogs are always at the same polarity as per this simple diagram.

Subject to the guidelines below you can power TWO solenoid motors from ONE AD-S2sx output. Therefore you will be able to control TWO loops, including live frog control, from ONE ADS-2sx.



You COULD also use ONE output for both of the solenoids here, but you will need to follow these guidelines. (Frog wiring WILL be an issue though)

- * Use a track or accessory bus voltage of 15v++
- * Use wire NOT less than 32x.2mm (18 gauge)
- * Keep the wires short as possible AND keep the wires the SAME length to each of the solenoids. (Also try using more efficient solenoids. Examples are Gaugemaster PM10 and PM20. They are 6 ohms rather than 4 ohms. This assists efficient operation)

TOP TIP - Wiring multiple switches to one output.

Or indeed, multiple outputs to ONE switch! Experiment with this as switches connected to an ADS-8sx can be used to set entire routes! Just because the ADS-8sx is a digital device does NOT mean that you can no longer use a more traditional "DC-based" method of route setting. Pushbutton switches ONLY make contact when pressed, so you could, for example, connect ONE switch to multiple ADS-8sx switch terminals so that it controls several points / turnouts all at the same time. You could also connect two switches to ONE output so you can have control from two separate operating positions. Have fun and experiment carefully. Keep the wiring tidy and as short as possible though - long wire lengths can create lots of induction, especially if untidy. This affects performance.

The DCCconcepts Cobalt Collection - Innovative design and a creative approach to layout control that greatly improves performance while simplifying installation and wiring.

While the first Cobalt product was a unique form of point motor, the DCCconcepts "Cobalt Collection" is steadily evolving to become everything needed for the control of your layout. The Cobalt range now includes a wide range of Point Motors, Signal Levers and extremely high-feature level Accessory Decoders... accompanied by an economical and versatile range of accessories. The range continues to evolve with the addition of Cobalt ALPHA, which digitises switching of all types and is almost totally "Plug and Play". Cobalt ALPHA lets you create professional looking control panels without fuss and with NO complicated wiring. With a fully featured DCCconcepts Control system nearing release, accompanied by sophisticated, simple to use detection, overload protection devices and auto-reversers, the Cobalt Range keeps evolving towards tomorrow.

Alpha-Mimic

At last - Realistic signal box or control panel diagrams without the need for any complex wiring and with NO cutting of wires or soldering required as Alpha Mimic is totally plug-and-play! Alpha-Mimic panels and LEDs simply plug together so an illuminated Mimic Panel is now as easy to assemble as Lego™.

Alpha-Mimic works with ALL DCC system brands. This also makes it a perfect match for Cobalt Alpha, Alpha Central, Alpha-Switch-D and Cobalt-S Levers of course.

Alpha Mimic is totally self-sufficient and simply connects to the track power bus, needing only two wires and NO other wiring.

Each Alpha Mimic provides plug-and-play links for 24 LED outputs (each capable of managing several Mimic LEDs) that will reflect the status of DCC controlled accessories on your layout panel. Of course, multiple Alpha-Mimic boards can be linked for complicated layouts, displaying the status of over 2000 DCC accessories - Yet addressing the Alpha Mimic outputs remains VERY simple to do.

Our exclusive "Alpha-LED" design, has been created for easy installation. With one output able to control several LEDs a well designed control panel can also define routes clearly and show the route selected! Alpha-Mimic is available with red, green or red + green 2-colour LEDs. (We also offer matching add-on Alpha-Mimic LED packs which include extension leads and multiple-link adapters).

We have even created a file of railway track-diagram symbols and icons to help you with your control panel design (Available on our Website or by email from sales@dccconcepts.com).

Alpha Mimic is also available complete with with a dozen ready to go, highly accurate, DCC controlled ground signals in FOUR different styles for UK, US and Australian modelers. With connection a simple plug-and-play and a cost per signal comparable with low cost plastic kits these exceptional ground signals are unbelievably economical & easy to install! (also available in pack of four without a Mimic control board)

Cobalt iP Digital Point Motor

Cobalt iP Digital includes all of the features you can imagine! Connection-wise, in addition to onboard FROG power switching and a second independent SPDT switch for any use you might imagine, we've also added a second set of momentary push button switch contacts for fully independent left / right "change direction" control (instead of 1-button toggled push-button control).

This gives you totally independent control panel and digital control making Cobalt iP Digital perfect for both DC and DCC users.

Cobalt iP Digital is comfortable with 7-23v DCC track power and is super-easy to install as it's delivered self-centred and ready to go!

Cobalt iP Digital also has three simple-to-use software commands built in. These convenience features are:

- * Swap direction of motor throw
- * Self Centering ON
- * Self Centering OFF

These new software options are REALLY simple to use because all you need to do is move the switch to RUN and use standard "operate accessory" commands from your DCC control system.

Cobalt Digital meets all DCC standards and also integrates perfectly with DCCconcepts ALPHA products such as Alpha-Switch D, Alpha Central and of course, DCCconcepts exciting Alpha MIMIC system.

DCCconcepts ALPHA products make the creation of a control panel simple, reducing the need for wiring inside the panel by 95% or more!

When it comes to Solenoids, efficiency REALLY matters as they are generally VERY power-hungry. While there are no DCCconcepts Solenoids, we DO test them all when we make our Accessory decoders. Our conclusion: Gaugemaster PM10, PM20 surface mount or the Hattons PM-01 are the best choices.

Alpha-Central

Accessory decoder wiring just can't get any easier than this! Cobalt Alpha Central is literally a complete, ready-to-use digital control panel for 12 points or turnouts... ready to go, in a box!

In fact it is so simple to set-up and use that the instructions could simply read "Unpack, plug it in and change your points" Alpha Central can be connected directly to any NCE system however other DCC brands are not forgotten. Low cost adapter leads are available and Alpha central can even be used by DC modellers when combined with the economical Alpha-Sniffer which creates a low cost Digital accessory power bus. (A clever move for DC users as digital accessory control greatly reduces wiring complexity while extending layout control abilities)

Alpha Central also combines very easily with the Alpha Box 5 Amp intelligent booster to create an Accessory Power bus that will both increase any DCC system output power and add the luxury of intelligent Alpha Accessory control to entry level systems such as Gaugemaster Express & Bachmanns EZ command basic units.

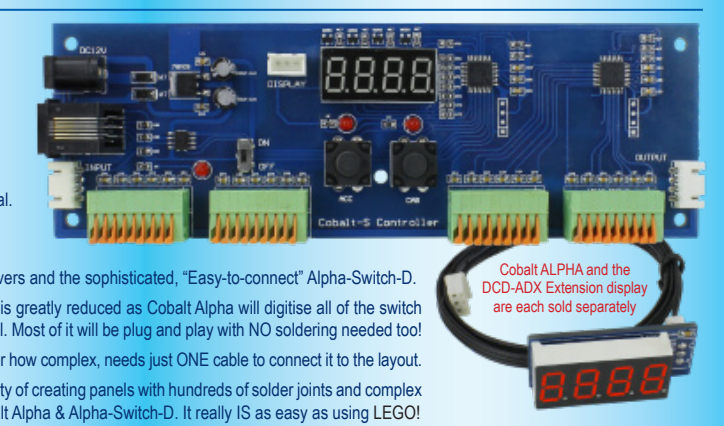
Do you already have a full feature DCC system? You will still benefit, as DCCconcepts Cobalt Alpha also adds the luxury of almost wire-free manual control-panel operation to a wide range of aftermarket systems of all brands, including the screen-based Z21 or EcOS. Multiple Alpha-Central units can be linked to control 2000+ Accessories & addressing your Accessory decoders becomes incredibly simple once you have installed Cobalt Alpha in ANY of its forms as your DCC control interface.



Cobalt Alpha

The very Heart of Alpha. Cobalt Alpha interprets commands from ANY momentary switch & turns them into a digital signal. Cobalt Alpha allows you to connect ANY form of switch from "Stud and Probe" to a simple push-button.

Cobalt Alpha is of course also ideally suited for Cobalt-S Levers and the sophisticated, "Easy-to-connect" Alpha-Switch-D. No matter what kind of panel switch you choose, the wiring is greatly reduced as Cobalt Alpha will digitise all of the switch commands, meaning that all wiring is within the control panel. Most of it will be plug and play with NO soldering needed too! And - because of Alpha, your ENTIRE control panel, no matter how complex, needs just ONE cable to connect it to the layout. So - if you love the hobby but really do not enjoy the complexity of creating panels with hundreds of solder joints and complex wiring, we strongly recommend that you take a look at Cobalt Alpha & Alpha-Switch-D. It really IS as easy as using LEGO!



Cobalt-S Traditional Signal Levers

Cobalt-S is something very special. For the first time, the average modeller in ANY scale can have a signal-box lever that operates just like the real thing. Even better, the Cobalt-S lever really is the most versatile control device ever offered by anyone, as it can literally control everything ever made... by any brand - in any scale.

Cobalt-S includes both a momentary contact SPDT changeover switch and TWO on-on SPDT changeover switches, giving it the ability to work with AC, DC or DCC control and literally capable of operating every item ever designed for use with a model railway.

At 140mm high, it is a substantial product that is very satisfying to use... the lever and mechanism itself is solid brass, the contacts are high quality long-life phosphor bronze and the case is a tough engineering plastic.

Cobalt-S oozes quality and as a result it is guaranteed for life!

The full Cobalt-S range can be seen at www.dccconcepts.com... Please drop in and take a look soon!

Cobalt iP Analog Point Motor

While the shape is familiar, our Cobalt iP Analog has the same quiet operation and 3 on-board switches of Cobalt Ω & a simple to use "Swap direction" switch to let you synchronise the changing of direction with software / macros or route control.

We have also added something very special inside.... The iP in the Cobalt iP Analog name means Intelligent power control! Cobalt iP Analog self-manages power use for the same drive speed irrespective of voltage (7-23v is OK).

When it's standing still, Cobalt iP Analog draws only enough power to listen for the next command and even when operating, it draws only 40-60mA. That is in fact less than the current draw of one super bright LED! Cobalt iP Analog really is the best choice for larger, busy layouts!

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