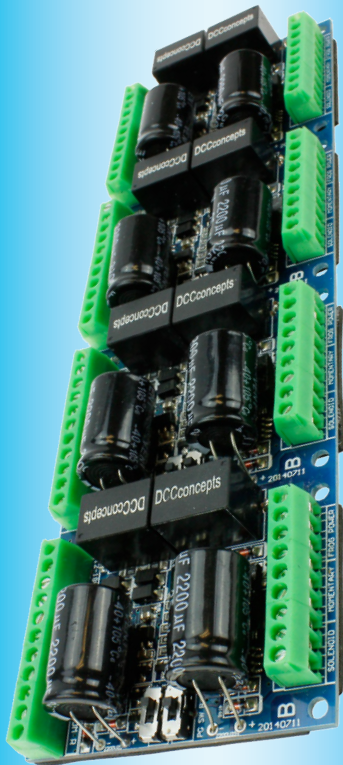# Cobalt

AD-S8fx Solenoid Decoders

(Also applicable to AD-s2fx)

OWNERS MANUAL

Overview: Cobalt AD-S8fx Decoders

The perfect way to change solenoids on DC or DCC layouts

Please be sure to read these instructions before installing your AD-S8fx Decoder

DCCconcepts AD-S8fx 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 similar point motors simultaneously.

AD-S8fx Decoders can be connected directly to DCC track power or a DCC accessory power bus and need no added power supply or wiring when used with DCC (15v DC is required for DC layouts).

Unlike other brand Accessory decoders which run out of energy, AD-S8fx 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.

AD-S8fx decoders always remain ready to do whatever you wish reliably every time, without draining available 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 - Any regulated 15v DC supply that can deliver about 1.5 amps should be just fine!

AD-S8fx also has some exclusive added features:

AD-S8fx also has all the features that solenoid users could wish for:

* Frog polarity control for live frog (electrofrog) pointwork.
* 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.

Overview: Cobalt AD-S8fx Connection

DCCconcepts AD-S8fx decoders have screw terminals for most common connections to make wiring easier for you. The use of all terminals is also marked clearly on the PCB. The LEDs however do need soldering. The LED solder pads are underneath the PCB. *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 AD-S8fx.

(1) Solenoid wiring: DCCconcepts 32x0.2 3-plait solenoid wire.
(if not available, please use 32x0.2 wire if possible, 16x0.2 minimum for shorter runs (Plait it too. Plaited wire is neat and tidy. Plaiting also helps the decoder manage voltage spikes created when a solenoid operates).

(2) Switch, LED & IO wiring: 7x0.2 to16x 0.2 is OK (light wire is OK).
(Your choice may be different depending on where you put your AD-S8fx decoders, however 6-core alarm wire can be an excellent choice as it gives you 3 wires for switches and 3 more LED etc in one tidy cable).

(3) Frog Wiring: 16x 0.2 or even 7x 0.2 are OK (Dropper wire sizes).
(Please keep frog power wires as short as possible. We suggest you adopt a consistent colour for frog wires - green is the usual choice).

AD-S8fx has all wiring positions clearly marked on the PCB. Before wiring your AD-S8fx 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.
* Because the LED connections are UNDER the PCB, you will need to complete wiring for the LEDs before fixing the AD-S8fx in place.

> **Important: AD-S8fx has a high power CDU on each of its outputs. Allowing the lower face of the PCB to contact conductive areas, metal tools, etc. will cause serious damage to on-board electronics.**

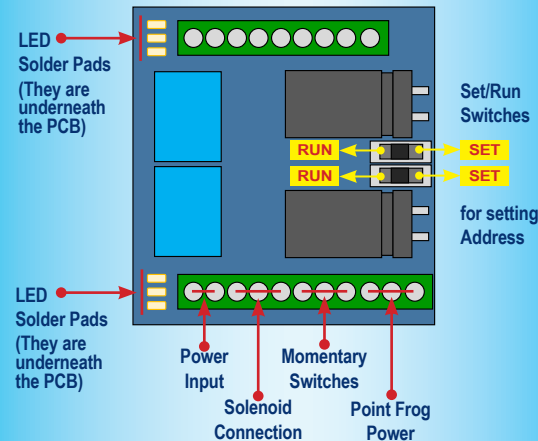## Overview: Cobalt AD-S8fx Connection

(Continued)

* **Make sure your soldering iron is ESD safe.** A soldering iron with voltage or mains leakage at the tip can be very dangerous AND it will cause damage to the AD-S8fx electronic circuits.
* **Make sure your mounting or work surface is clean.** Also make sure it is clear of metal objects that can cause accidental short circuits.
* **Make sure layout power is turned off before connecting AD-S8fx.**
* **The LED outputs do need soldering.** Therefore it may be easier for you to pre-wire them before installing the AD-S8fx into its final position.
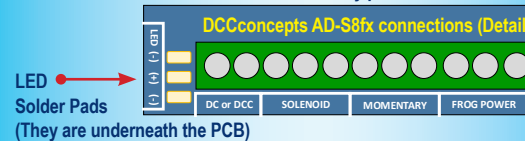
Overview: Cobalt AD-S8fx Connection

DCCconcepts AD-S8fx Solenoid decoder connection structure.
* For clarity, we show only one 2-output section of the AD-S8fx here.
* Each output has a similar layout. Only ONE power input is needed, and a single power input provides power to all 8 x AD-S8fx outputs.
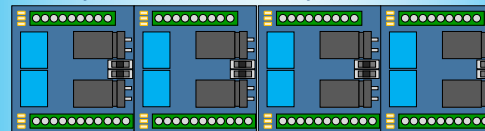* Layout of the 3-way connections is always "Left - Common - Right".

(More wiring diagrams are provided on the next page)

LED Solder Pads (They are underneath the PCB)

Set/Run Switches

RUN ← SET
RUN ← SET

for setting Address

LED Solder Pads (They are underneath the PCB)

Power Input
Momentary Switches
Solenoid Connection
Point Frog Power

All connections are clearly printed onto the PCB

DCCconcepts AD-S8fx connections (Detail)

LED (-) (+) (-)

DC or DCC | SOLENOID | MOMENTARY | FROG POWER

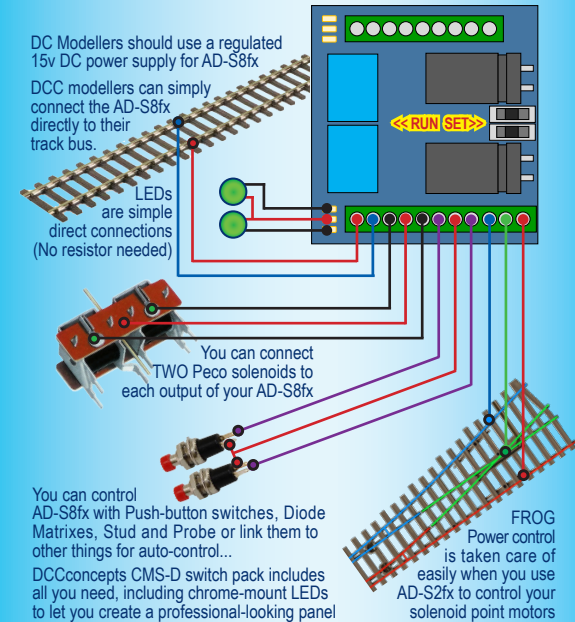LED Solder Pads (They are underneath the PCB)

An 8-way AD-S8fx Solenoid Accessory decoder looks like this

Cobalt AD-S8fx can do everything you need!

Overview: Cobalt AD-S8fx Connection

As you can see, each of the EIGHT ADS accessory decoder outputs provides you with everything you will need for perfect control and operation of any twin-coil solenoid point motor.

DC Modellers should use a regulated 15v DC power supply for AD-S8fx

DCC modellers can simply connect the AD-S8fx directly to their track bus.

LEDs are simple direct connections (No resistor needed)

<< RUN SET >>

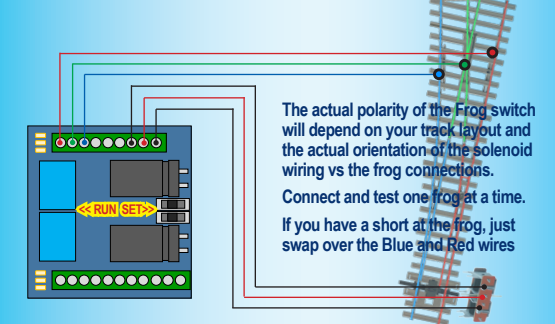You can connect TWO Peco solenoids to each output of your AD-S8fx

You can control AD-S8fx with Push-button switches, Diode Matrixes, Stud and Probe or link them to other things for auto-control...

DCCconcepts CMS-D switch pack includes all you need, including chrome-mount LEDs to let you create a professional-looking panel

FROG Power control is taken care of easily when you use AD-S2fx to control your solenoid point motors

Example: Cobalt AD-S8fx Connection

SOLENOID and FROG

<< RUN SET >>

The actual polarity of the Frog switch will depend on your track layout and the actual orientation of the solenoid wiring vs the frog connections.

Connect and test one frog at a time.

If you have a short at the frog, just swap over the Blue and Red wires

9 347394 000775

POWER, LED and SWITCHES

**LED's are easy.
Just remember
The centre pad
Is positive (+) !**

**Switch connection is simple.
Our CMS-D switch pack contains
6 momentary switches and a wide
selection of Panel-mount LEDs**

Power Connections (only one power input powers all outputs)
* DCC Modellers - connect AD-S8fx directly to the Power Bus
* DC Modellers - please use a 15v DC regulated power supply

**Important: AD-S8fx has a high power CDU on each of its outputs.
Allowing the lower face of the PCB to contact conductive areas,
metal tools etc. will cause serious damage to onboard electronics.**

Setting the Address

Giving your DCCconcepts ADS decoder its own address is very easy.

Just remember to use ONLY these DCCconcepts instructions as all other DCC
manufacturer instructions are valid only for their own accessory decoders.

You do NOT ever need to connect ADS decoders to a programming track

**For ALL handset and console-based products that use a simple and direct
"Press-the-button" routine to change a point/turnout, do as follows:**

* Connect the AD-S8fx to the track power bus or the dcc accessory power bus.

* Decide on the number that you wish
 to give each AD-S8fx Decoder output

* Carefully move the "Set/Run" switch
  of that output to the "SET" position

* Follow your control systems instructions
  for **Operating** a point at that address.
  Use just the number only - do not add
  any leading zeros. (3 = 3, not 0003)
  (Complete the operation totally - from "select address" to "changing the point").

* Return the "Set/Run" switch to the Run position and your ADS decoder will now
  respond to that address - it really IS that simple!

Decoder #1
Switch #1
Switch #2
<< RUN SET >>
Decoder #2

**For ALL Screen-based products such as ESU, Z21, Hornby E-link and
similar products you may first have to set up a track diagram or add a new
point (turnout) to the controller system's accessory control library.**

Next, using your controller instructions, first complete the on-screen track
plan or enter any information needed for the new accessory. Once that is
done, and you have chosen which turnout on your on-screen display you
want to control, all you need do is follow the instructions above.

AD-S8fx is easy to set up & easy to address!
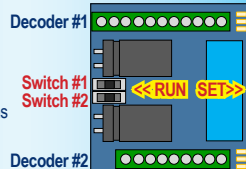
The *Cobalt Collection* - Point Motors & Signal Levers

**While the first Cobalt product was a unique form of point
motor, the DCCconcepts "Cobalt Collection" has already
evolved to be much, much more than that.**

Our 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.

Cobalt continues to evolve and now includes many other products,
each unique in its class. Before too long, the Cobalt Collection will
include everything you will ever need to control the layout.

Cobalt Ω (omega) Point Motor

Successor to the original Cobalt, Cobalt Ω looks very familar but
it has been totally re-tooled inside and out to make them even better.

Cobalt may look the same as before... but Cobalt Ω has a revised
internal gear structure, is even quieter than its predecessor and now
features THREE on-board SPDT switches for extreme versatility.

We have also
added a simple to use
voltage range-change switch
giving you totally reliable
performance over a very
wide power supply choice
(We like to operate at 9v,
but really anywhere from
6 ~18 volts DC is just fine).

Current users of Cobalt motors
will find the Cobalt Ω operates in total
harmony with their existing Cobalt motors. The
only significant wiring change being the position of the connections.
These are now moved to terminals 1 and 2 (same as Cobalt iP and
iP Digital) to keep all "New Generation" Cobalt motors in harmony.

Cobalt iP Analog Point Motor

While the shape is familiar, our Cobalt iP Analog has the same
super-quiet operation and 3 on-board switches of Cobalt Ω plus
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!

Cobalt iP Digital Point Motor

Cobalt iP Digital includes all of the features of iP Analog and more!

Connection-wise, we've added a second set of momentary push but-
ton switch contacts for fully independent left/right "change direction"
control (instead of 1-button toggled action).

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. We've made use of these easy by utilising
standard "Address-setting procedures"
to activate or deactivate them.
These new software options
activate or deactivate the self
centering function and also let
you "flip the change direction".

This allows you to synchronise
or change operating direction
so that it matches perfectly with
track diagrams on screen-based control
systems & with any brand of layout
control software, route control or similar digital control methods.

(It also makes it possible to install Cobalt iP digital facing either the
Toe or Heel of the point, so installations in tight places are easier!)
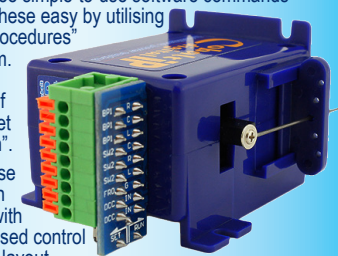
Cobalt-S Traditional Signal Levers

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 you 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 satisying 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!

To add icing to the cake, ALL three new Cobalt point motors now come pre-centred and ready to install. (Cobalt iP Digital also has a unique set
of software commands to activate self-centering). We now also include our die-cut "foam mounting pads" free with every Cobalt point motor.

Cobalt Accessories

Each & every Cobalt product has a match-
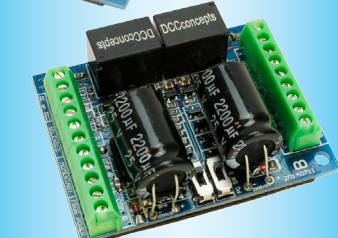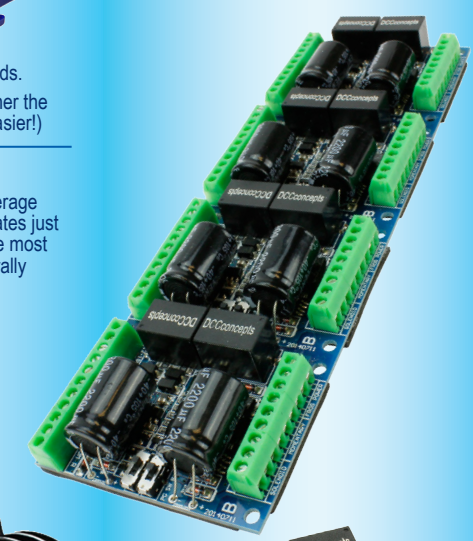ing range of accessories.

These are of course perfect for Cobalt
product operation and they represent
exceptional value as we always include
many options in the pack.

We pre-wire some
switches to make
installation
easier too.

The full range
of accessory
packs is shown
and explained clearly on our website at

www.dccconcepts.com...

Please visit us there soon!

DCCconcepts
Thinking Outside the Square!