Cover

OWNERS MANUAL

Cobalt AD-S2sx
Solenoid Decoder

DCCconcepts
Thinking outside the square

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Overview: Cobalt AD-S2sx Decoders

The perfect way to change solenoids on DC or DCC layouts

Please be sure to read these instructions before installing your AD-S2sx Decoder

DCCconcepts AD-S2sx 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.

AD-S2sx 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, AD-S2sx 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-S2sx 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 or more amps will do just fine!

AD-S2sx also has some exclusive added features:

AD-S2sx has all the features that solenoid users could wish for.

* Power-off Memory for turnout, frog power and 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.

Important: AD-S2sx has a high power CDU on each of its outputs.
* Be careful when wiring as incorrect connection may result in immediate failure if CDU power is accidentally cross-connected.
* Use the CDU Discharge switch, pressing it until the Blue LED is totally off before changing ANY wiring on an AD-S2sx Decoder.

Overview: Cobalt AD-S2sx Connection

Careful wire selection is important for both DC or DCC layouts

DCCconcepts AD-S2sx 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 AD-S2sx;

(1) Solenoid wiring: DCCconcepts 32x0.2 3-plaited solenoid wire. *(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 indiction 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 AD-S2sx 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 (i.e.: 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).*

AD-S2sx has all wiring positions clearly marked on the PCB. Before wiring your AD-S2sx decoder please read these instructions from start to finish and then take note of the following advice:
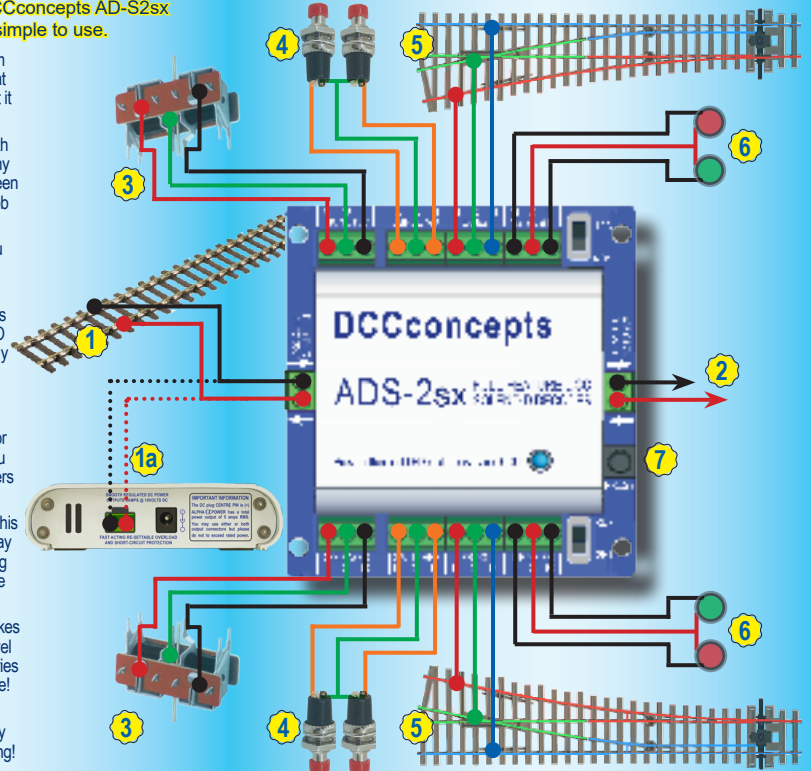
* **Plan your wiring colour codes.** A little forethought makes it much easier to maintain your layout as time goes on.
* **Make sure your soldering iron is ESD safe.** A soldering iron with voltage or mains leakage is dangerous and WILL damage electronics.
* **Make sure the mounting or work surface is clean.** Also make sure it is clear of metal objects that can cause accidental short circuits.
* **Make sure that AD-S2sx is disconnected AND that you have fully discharged the on-board CDU's by pressing the button until the Blue LED is totally "Off"** before adding any wiring to your AD-S2sx
* **Store these instructions safely for future reference.** If you are unsure at ANY time please do email us for help rather than guessing!

Instruction and overview: Cobalt AD-S2sx features and wiring

100% Soldering-free wiring, clearly marked Screw Terminals and simple, logical connections make the DCCconcepts AD-S2sx very easy to understand and extremely simple to use.

1   **DCC Users...** can power AD-S2sx directly from the track power bus. Careful design means that AD-S2sx power management makes sure that it will NOT affect loco running when operating.

1a   **DC Users...** can choose to power AD-S2sx with DC power. The Current Draw is not high, so any good quality regulated DC power supply between 15 and 20 volts @ 1 amp or more will do the job fine and will power several AD-S2sx.

2   **Using more than one AD-S2sx?** Then all you will need to do is daisy-chain them together for simple, easy and very tidy wiring.

3   **Connecting Solenoids:** There are two outputs and each output can actually power up to TWO Peco solenoid motors providing the correct power supply voltage and adequate "equal" wire are used. Wiring is very simple as shown in the diagram.

4   **Control panel switches:** You can use either momentary push-button switches as shown - or use centre-off toggle switches. Even better, you can utilise the realistic Cobalt-S signal box levers for the ultimate in control realism.

5   **Adding automatic Frog power Switching:** This too is quite simple. Follow the diagram (you may need to swap the blue and red wires depending on the point direction) and you will have reliable running at the slowest speeds.

6   **LED indicators for your Panel:** AD-S2sx makes adding LEDs an easy task. LED brightness level can vary so start with a 560 ohm resistor in series with each LED and vary it to suit your own taste!

7   **BEFORE YOU WIRE ANYTHING:** Press this button until the BLUE LED on the case is totally OFF. This discharges the 2 CDUs for safe wiring!

DCCconcepts
ADS-2sx

Setting the Address of your Cobalt AD-S2sx

Setting the AD-S2sx address is just a simple "learning" process

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

While the DCCconcepts AD-S2sx 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 AD-S2sx 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 AD-S2sx output to respond to in future.

2   Connect your AD-S2sx to the DCC track bus OR the DCC accessory Power Bus.

3   Move the "SET/RUN" Switch to SET position

4   Follow your DCC system instructions for changing the point at the Address you chose.

AD-S2sx, being in SET mode will hear the number, learn it, adding it to its memory for future use.

5   Return the AD-S2sx Switch to the RUN position. Your AD-S2sx will now operate the points/turnouts each time you operate that address.

Need help or advice? Email us at:
Questions@dccconcepts.com
Or to find out more. visit our website:
www.dccconcepts.com
DCCconcepts Ltd - UK & Australia

DCD-AD-S2sx
9 347394 000829

DCCconcepts
ADS-2sx

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 is delivered with an offset problem in Accessory addressing. Please Download and use Z21 maintenance software (Win 7~10) to correct this first.
* 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 AD_S2sx, 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 (Set 100 and LH100 etc.)
* Lenz systems such as "Set 100" do not require an entry into the database or memory prior to operating 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.

To create a very simple-to-wire control panel use Cobalt Alpha as a Digital Interface. Alpha can be used with many brands, reducing switch wiring dramatically and making control panel creation easy!
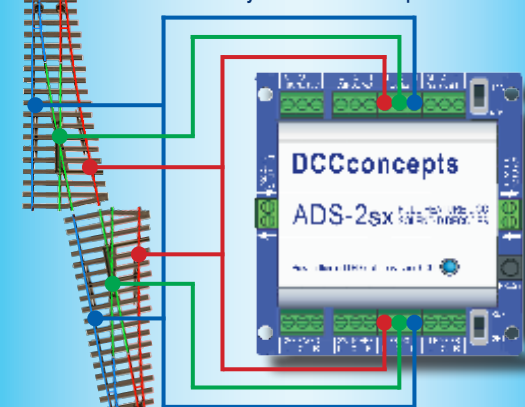

SOME MORE GUIDELINES FOR POPULAR DCC SYSTEM BRANDS

NCE systems (Power Cab, Power Pro)
* NCE systems such as Power Cab 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 a turnout) For NCE Power House Pro, use instructions on page 42 of the manual. Power Cab users, 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 their handsets.
* 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).

Addressing CROSSOVERS and LOOPS:
Instead of having independent addresses needing two operations to set crossovers and loop end point-work, you will find it easier to set BOTH of the AD-S2sx outputs to the same address, changing them both at once.

To make this easy, When carrying out Step 4/page 6 addressing, just have both of the AD-S2sx outputs switched to SET mode at the same time, and they will simultaneously adopt the number you want.

(Of course you MAY have to swap motor direction on one output. To do this just swap over the RED & Black wires. Frog wiring may need swapping too)

Instruction and overview: Cobalt AD-S2sx Special Applications

Using AD-S2sx to simultaneously control TWO live-frog points / turnouts when they are used to create Storage Loops and Crossovers

When two points / turnouts form a Crossover, the Crossings/frogs are always at opposite polarities as per this simple diagram.

Therefore you will need to use BOTH the AD-S2sx Frog Switches for separated Frog power. This means that you need 1x AD-S2sx per crossover.

You COULD also 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++
* 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.

When two points / turnouts form a Loop, the 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 AD-S2sx.

You COULD also use ONE output for both of the solenoids in the Loop, however to do this you will need to follow these important guidelines:
* Use a Track / 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.

DCCconcepts
ADS-2sx

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.

OWNERS MANUAL

Cobalt AD-S8sx
Solenoid Decoder

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Overview: *Cobalt* AD-S8sx Decoders

The perfect way to change solenoids on DC or DCC layouts

Please be sure to read these instructions before installing your AD-S8sx Decoder

DCCconcepts AD-S8sx 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.

AD-S8sx 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, AD-S8sx 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-S8sx 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!

AD-S8sx also has some exclusive added features:

AD-S8sx has all the features that solenoid users could wish for.

* Power-off Memory for turnout, frog power and 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 AD-S8sx 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 AD-S8sx;

(1) Solenoid wiring: DCCconcepts 32x0.2 3-plaited solenoid wire.
(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 indiction in the wire, 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 16 x 0.2 OK (light wire is OK).
(Your choice may be different depending on where you put your AD-S8sx 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).

AD-S8sx has all wiring positions clearly marked on the PCB. Before wiring your AD-S8sx 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 AD-S8sx 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 yourAD-S8sx**
* **Store these instructions safely for future reference.** If you are unsure at ANY time please do email us for help rather than guessing!

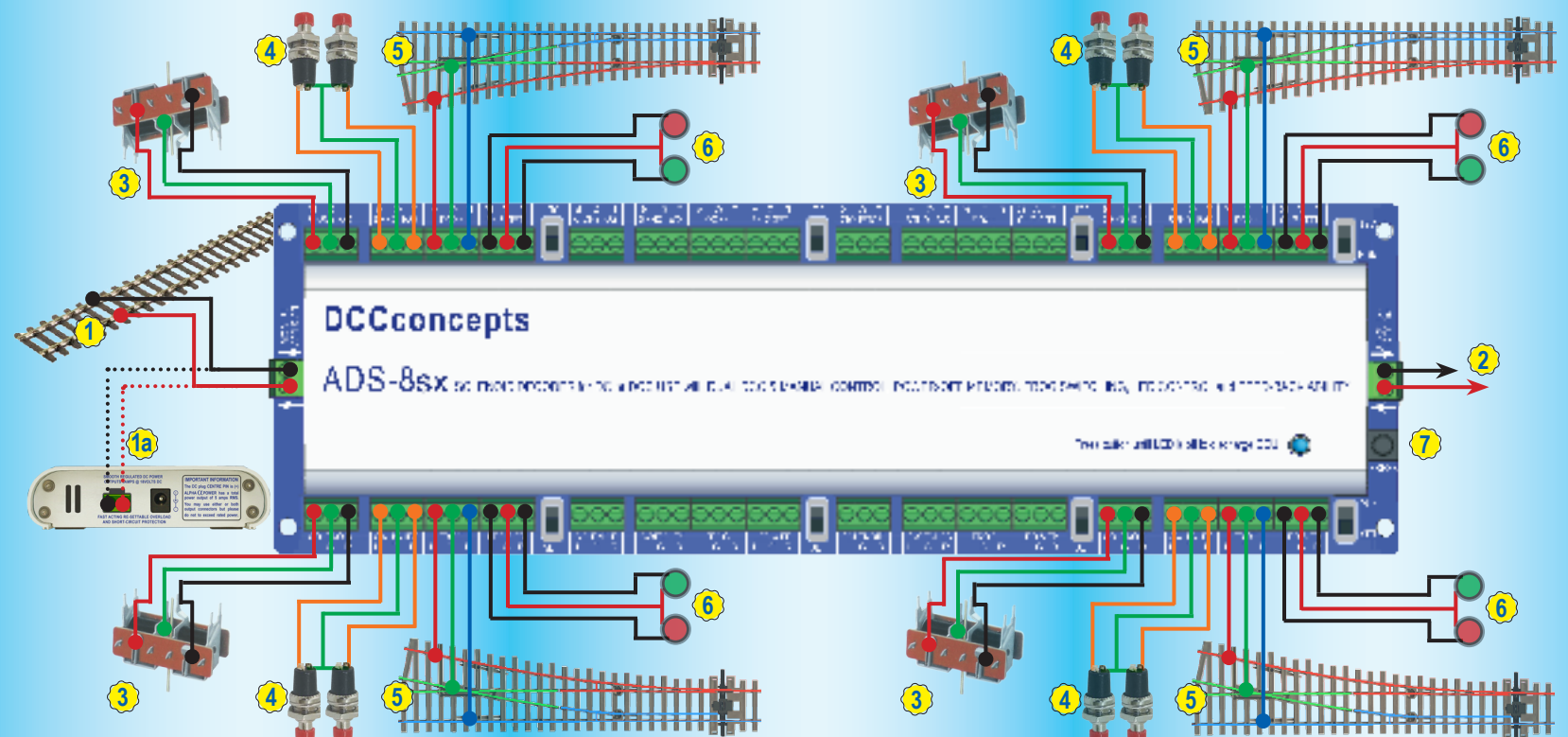### TOP TIP - Wiring TWO solenoids to ONE output.

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 AD-S8sx 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 PLAIT the wires or use DCCconcepts DCW-3WP plaited solenoid wire.
* Keep the wires between AD-S8sx & Solenoids as SHORT as possible.
* Keep ALL the wires between AD-S8sx and Solenoids the SAME length.

Instruction and overview: *Cobalt* AD-S8sx features and wiring

100% Soldering-free wiring, Separated power input & clearly marked Screw Terminals and simple, logical connections make the DCCconcepts AD-S8sx very easy to understand and extremely simple to use.

There are EIGHT outputs on the AD-S8sx. 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 AD-S8sx 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 is delivered with an offset problem in Accessory addressing. Please Download and use Z21 maintenance software (Win 7~10) to correct this first.
* 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 AD_S2sx, 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 (Set 100 and LH100 etc.)

* Lenz systems such as "Set 100" do not require an entry into the database or memory prior to operating 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 depensing 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 AD-S8sx

Just move the switch on AD-S8sx to SET position, press the appropriate button on the Cobalt ALPHA unit, then return the AD-S8sx switch to RUN.

SPECIFIC GUIDELINES FOR SPECIAL CIRCUMSTANCES

Addressing CROSSOVERS and LOOPS:

Instead of having independant addresses needing two operations to set crossovers and loop end point-work, you will find it easier to set BOTH of the AD-S8sx outputs to the same address, changing them both at once. To make this easy, When carrying out Step 4/page 6 addressing, just have both of the AD-S8sx outputs switched to SET mode at the same time, and they will simultaneously adopt the number you want.

Using the FROG Terminals:

The Frog switching is independent of other connections. The terminals are marked L (Left) C (Common) R (Right). The Frog wire goes to the (C) terminal, with L and R connected left and right rails. You MAY need to swap over the wires from the rails (Depends on how the point is installed relative to other track).

Using the SWITCH Terminals:

These are marked L (Left) C (Common) and R (Right). You may use any "Normally off" push-button switch or Centre-off SPDT toggle switch to add manual control to each of the eight AD-S8sx outputs. You can also use any form of detector automation switch on these terminals PROVIDING that it has standard switching or VERY low voltage (3~5v absolute maximum) IO type outputs. If you connect higher voltage detector outputs you WILL cause damage to your AD-S8sx that will NOT be covered by warranty.

Using the LED or I.O. Terminals:

These are marked L (Left) C (Common) and R (Right). You may use any standard "Control-panel type" LEDs on these terminals.
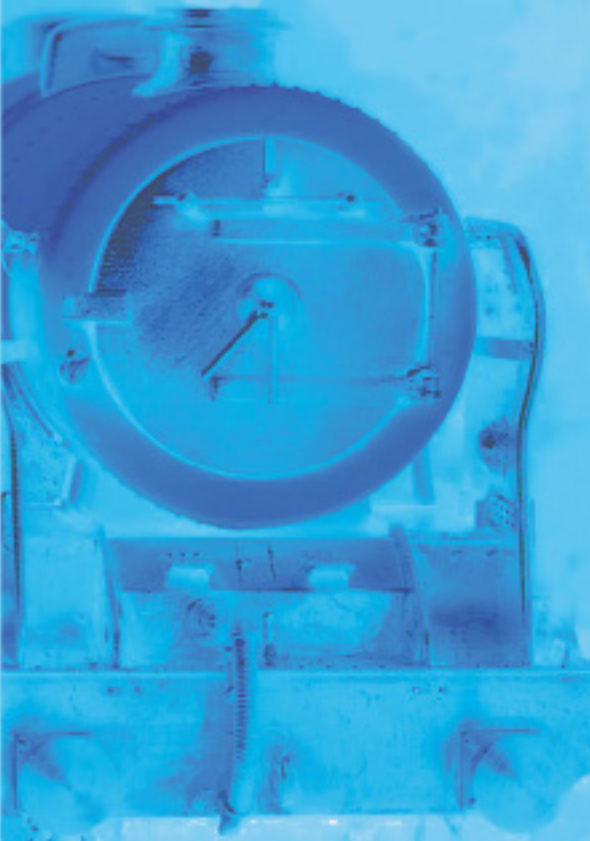
Power is regulated at a low level but a resistor is still needed to current limit the LED and control illumination level. Because of this so-called "12v LEDs cannot be used. We suggest you start with a 640 ohm resistor in series with your LED and vary this value up and down until you find the light level that you prefer.

If you choose to use a combination of red and Green LEDs or ANY dual colour combination, you will find that you will need different resistors for each colour.

Using the LED terminals for feedback: Most feedback is simply "voltage high or low". We have successfully tested this use of the LED terminals with ESU EcOS, Lenz Set 100 and many others. Email us if you have questions please.

Important: AD-S8sx 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 AD-S8sx Decoder.

Setting the Address of your *Cobalt* AD-S8sx

Setting the AD-S8sx address is just a simple "learning" process

Giving your DCCconcepts ADS decoder its own address is very easy.
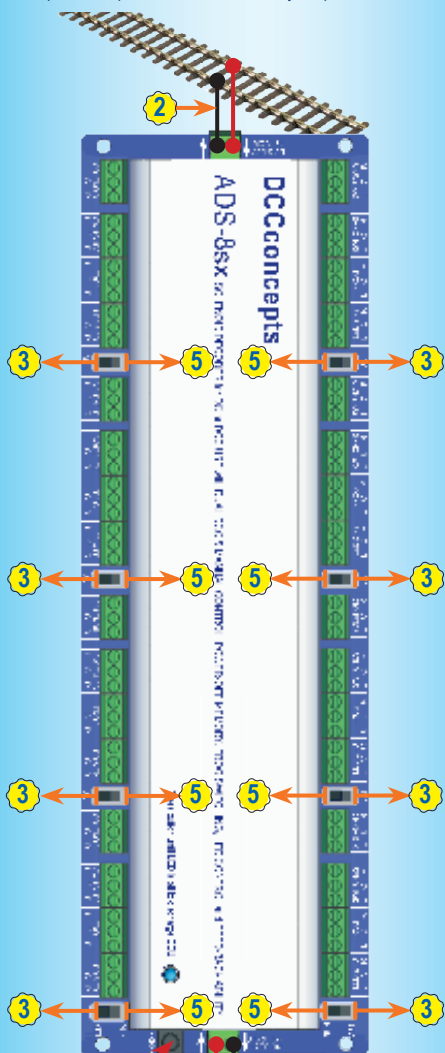While the DCCconcepts AD-S8sx is made to comply with the DCC standards, there are varying approaches to the setting of DCC addresses. Because of this **please use ONLY these DCCconcepts instructions for setting the address of your AD-S8sx decoder** outputs, as your DCC controllers accessory decoder instructions 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 AD-S8sx output to respond to.

2 Connect your AD-S8sx to the DCC track power bus OR if you have creat5ed it, the DCC accessory Power Bus.

3 Move the "SET/RUN" Switch to the SET position.

4 Follow your DCC system instructions for changing the Solenoid, Point / Turnout at the Address you chose.

(AD-S8sx, being in SET mode will "hear" the number, learn it, adding it to its memory as its own address for future use).

5 Return the AD-S8sx Switch to the RUN position. Your AD-S8sx will now operate the points/turnouts each time you operate that address.

The CDU Disharge Button.
Press this button until the Blue LED is off completely before you do ANY wiring on your AD-S8sx!

Power can be "Daisy-Chained"
If you have additional AD-S8sx, you can connect them all together using these power connections.

Need help or advice? Email us at:
Questions@dccconcepts.com
Or to find out more. visit our website:
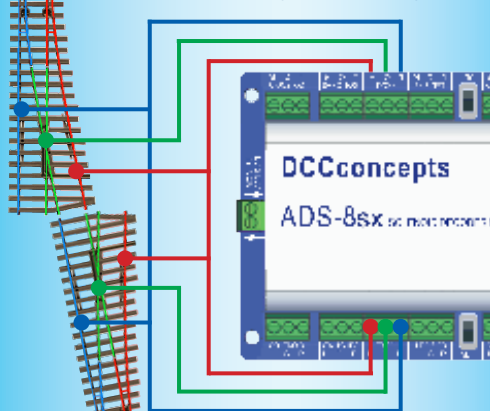www.dccconcepts.com
DCCconcepts Ltd - UK & Australia

DCD-AD-S8sx
9 347394 000836

Special cases: *Cobalt* AD-S2sx Frog Wiring

FROG wiring differences - Wiring Frogs on a CROSSOVER

When two points / turnouts form a Crossover, the Crossings/frogs are always at opposite polarities as per this simple diagram.

Therefore you will need to use TWO the AD-S8sx outputs and their Frog Switches for Frog power.

DCCconcepts
ADS-8sx DC FROG DECODER

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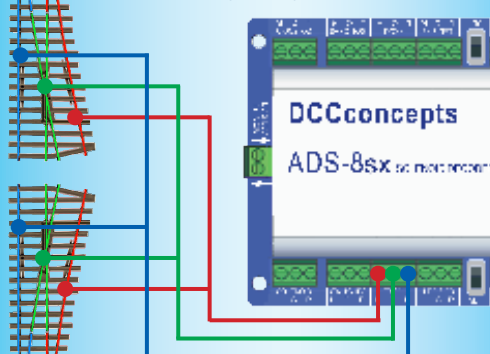* Use a Track / Accessory bus voltage of 15v++
* Use wire NOT less than 32x.2mm (18 gauge)
* Keep the wires short as possible AND keep the wires the SAME length to each of the solenoids.

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 AD-S2sx.

DCCconcepts
ADS-8sx DC FROG DECODER

You COULD in this case also use ONE output for both Solenoids in the Loop, however to do this you will need to follow these guidelines:
* Use a Track / 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 efficent 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 AD-S8sx can be used to set entire routes!

Just because the AD-S8sx 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 AD-S8sx 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 perfomance 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 sophisiticated, simple to use detection, overload protection devices and auto-reversers, the Cobalt Range keeps evolving towards tomorrow.

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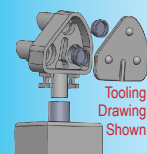
Alpha Mimic is totally self-sufficent and simply connects to the track power bus, needing only two wires and NO other wiring.

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 Apha-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 Questions@DCCconcepts.com).

EASY STREET SIDINGS

There's more to come from Alpha Mimic too - very soon, Mimic will also be packed with a dozen ready-to-go, highly accurate, DCC controlled ground signals in FOUR different styles for UK, US and Australian modellers. with connection a simple plug-and-play and a cost per signal compatible with low cost plastic kits, Alpha Mimic signals will be unbelievably economical & easy to install!

Tooling Drawing Shown

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 Commander and of course DCCconcepts exciting new Alpha MIMIC.

DCCconcepts ALPHA products make the creation of your control panels simple reducing the need for wiring of control panels by 95º or more!

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 in-Change 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 new, economical Alpha-Sniffer which creates low cost Digital Accessory power bus generator. (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 entry level unit.

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.

α-Central

Cobalt Alpha α
By DCCconcepts

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 ALPHA and the DCD-ADX Extension display are each sold separately

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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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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.