

# Cobalt-SS

## OWNERS MANUAL



Thinking outside the square

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Created by  
DCCconcepts

MADE  
in  
CHINA

# Cobalt-SS

## General Cobalt-SS product information

### DCCconcepts Cobalt-SS Surface mount point motor:

Thank you for buying our Cobalt-SS point motors. Cobalt-SS and its control board perform well with DCC or DC power. We cover wiring and control with both power sources later in this manual.

Every single Cobalt-SS is thoroughly tested both during production and prior to packing for sale, so we are confident it will work well.

The final steps for successful use, long life and reliability are of course installation, connection and setting Cobalt-SS up ready for operation.

While installation and connection are not at all difficult, as always there is something new to learn and there are right and wrong ways to do some things - so we would like you to read this manual carefully, work step by step and refer to the manual often during that process.

If you get stuck or have questions at any time, please do not hesitate to call us or email your enquiry to [questions@dccconcepts.com](mailto:questions@dccconcepts.com).

**Each pack of Cobalt-SS will include the following.**  
(The actual quantity supplied depends on the Cobalt-SS pack size)

- \* Comprehensive Instruction booklet.
- \* 2, 6 or 12 Cobalt-SS micro-sized Above-Board Point motors
- \* 1, 3 or 6 Cobalt-SS control and connection boards
- \* 1, 2 or 3 600mm 4-wire Cobalt-SS Extension leads
- \* 1, 2 or 3 Adapter PCBs to allow you to economically power TWO or more Cobalt-SS motors from one output. Including Y connection & an adapter with "reverse throw" option for crossovers or passing loops.
- \* A generous quantity of tie bar linkage designs suitable for N, OO/HO and O scales, both with and without track-bed.
- \* A generous quantity of screws for fixing Cobalt-SS & Control board.
- \* **ALL packs also include free samples of our finely tooled scale models of Westinghouse EP point motors.** (We will include 1x OO/HO scale, 1x N scale and 1x O scale sample in all 2, 6 and 12 packs).

*The Westinghouse EP prototype point/turnout motor was used widely in many countries including UK, USA, Australia and parts of Europe from the early part of the 20th century. In fact, it is still in use today!*

(If you wish to add more of these important details to your layout, they are available in economical 12-packs from your DCCconcepts Dealer)

### Warranties and After-Sales Service:

The basic warranty for Cobalt-SS is 12 months from date of purchase. However, we only use the highest quality parts for all of our Cobalt & Cobalt-SS products so should your motor ever fail, please contact us.

Even if your Cobalt-SS fails outside the warranty period we will still do our best to help you. Providing we are satisfied that user error is not the cause or if we cannot clearly identify reasonable cause for failure, we will usually replace any faulty parts free of charge.

We understand that waiting for the return of warranty items can be frustrating for you so we guarantee spare-parts availability, and if we do not have the parts needed for repair available or in stock, we will replace the product rather than inconvenience you.

**Please note:** Warranties are not transferrable and are offered to the original owner. We do reserve the right to request proof of purchase.

### Help and Advice:

These detailed instructions should give you most of the information you will need to install, set up and operate your Cobalt-SS motors. Please read them carefully as most things are explained here.

Additionally, there are additional instructions provided with Cobalt-SS accessories and adapter leads.... with both added application manuals and video instructions underway as well. (check our website for updates please)

However we do understand that you may still have some questions, as experience has shown us that there will always be a special application for almost any product we create. Therefore we invite you to email or telephone us if you need more information. Our customer supports staff in Australia and the United Kingdom are ready to help.

### Important Information:

Cobalt-SS is very simple to use and connect but please remember that it is a sophisticated 4-wire stepper-motor managed by digital micro-controllers.

All electronics are sensitive to how you handle them and it is very important that you read and follow all of our instructions as you install and connect Cobalt-SS.

Do not remove the plug or try to connect a Cobalt-SS motor directly to AC, DC or DCC. When adding power to the Cobalt-SS PCB use only a regulated DC power supply 11-23v or a DCC system with an output track voltage between 11 and 23 volts.

NEVER connect active power (eg track power or similar) to the push-button switch inputs of the Cobalt-SS Control PCB. Incorrect wiring or wrong power supply choices will lead to failure which is NOT covered by warranty. Installation & connection must be done with the power off. If in any doubt please ask us first!

# Cobalt-SS

## Basic Preparation, Planning Installation

### Installing your DCCconcepts Cobalt-SS: The Basics.

Please read these instructions first, then keep them close at hand.

Take your time with the first few installations. Work one step at a time and check as you go. Installation is quite simple, all screws and fittings are supplied and the connection between Cobalt-SS and its Control board is a simple plug and socket, so it is easy to do and the whole process will soon become a pleasant and satisfying hobby task.

### Preparing your pointwork for Cobalt-SS installation:

These instructions are common to many brands, however as many of our Cobalt-SS customers will use Peco pointwork, we will focus on it here:

\* We strongly recommend that you use live frog or "Electrofrog" for all types of pointwork. (We also find that the finer rail of Peco Code 75 is easier to work with and lay well, so please do consider using it)

\* Remove the Peco "Snap Spring" before laying the turnout. It is no longer needed. It will increase loading and interfere with smooth changing

\* While it is NOT always necessary, we DO suggest that you consider modifying the turnout to properly isolate the frog from the closure rails.

This simple modification will really enhance the reliability of electrical contact in your pointwork. It really IS a simple task & detailed "How to" advice can be found later in this manual OR in the advice section of our our website at [www.dccconcepts.com](http://www.dccconcepts.com). (search "Wiring pointwork" please)

\* Cobalt-SS linkages are designed to link to your pointwork via a small hole in the end of the tie-bar (The part that moves the blades). This is VERY easy with Peco. Simply use a sharp blade to cut off the small, hollow vertical pin at the end of the tie-bar and it will already be there!

### The Control PCB. Planning the position & mounting it.

We mention this first as each motor is fitted with a non-removeable pre-terminated connection lead so you will need to decide where to place the Cobalt-SS control board most conveniently for connection.

(Please note: As you will need to set up the throw distance as well as the addresses of your Cobalt-SS motors, you MAY find it easier to use set up your motors prior to fixing the Control Board under the layout). This is made easy to do by the "Plug and Play" nature of all connections.

Each DCCconcepts Cobalt-SS motor will be connected to a control board. Each control board will handle 2 motor addresses and each output can also handle TWO motors for a complete crossover from one output.

Your Cobalt-SS Control Boards will need to be mounted quite close to the motors that they control. Cobalt-SS motor lead length is 150mm and we include extension leads in each pack to give you a choice of position.

Every pack also includes 1 or more combined reverse-direction and Y connector leads to make complex interconnection easier. As one output is able to operate crossovers & loops this also makes it very economical.

**Optional Accessories also include:** (See the full list later in the manual)

(1) A Cobalt-SS "Crossover ADD-ON" pack" that includes TWO additional Cobalt-SS motors and accessories including links, an extension lead and both Y-connection and Reverse connection adapters.

(2) A wide selection of Y-connectors, reverse adapters and extension leads plus, for the solderer... additional cable. Our Accessory packs will allow almost any possible configuration to remain plug and play.

**Should you mount the Control PCB on top OR underneath?** It is up to you. You can choose to install the Control Board above or below the baseboard. Wherever you choose to place the Control Board, please plan carefully and think about the following issues:

\* If above the baseboard, it should be in a position that is easily accessed for connecting switches or LEDs, adjustment or set-up of the address.

It should also be protected from moisture while adding scenery and be in a safe position that will not allow metal fragments (from stripping wire etc) to fall onto the PCB surface and create accidental damage.

\* If mounted below the baseboard, it should be close enough to each motor so that the plug is not awkward to insert or the lead pulled too tight (ie: when you install the motor and drill the small hole for the motor lead, please also allow for baseboard thickness plus a little slack in the lead). As the Cobalt-SS lead is 150mm long this generally means positioning the appropriate control board connection within 100mm of the hole.

\* To fix the Control board in place, please use the screws provided and don't over-tighten them. If you prefer you can also use good quality foam mounting tape, but please use only 3M or a similar high quality brand foam tape as low cost discount-store tapes sometimes have slightly acidic glue and can potentially damage the copper tracks of the control board.