

# DS52

**All Scales**  
Up to 22V Track Voltage

Stationary Decoder for use with 2 slow motion, solenoid, or bi-polar turnout machines

## Features

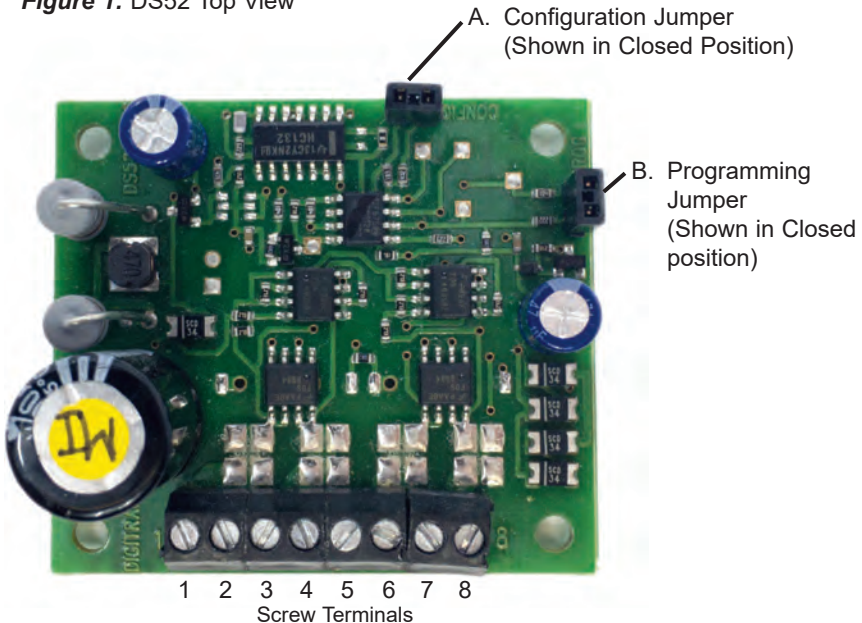
- Simple hook up and set up.
- Control 2 individual turnout machines.
  - 2 Slow motion turnout machines, such as Tortoise™ by Circuitron or Switchmaster™.
  - OR
  - 2 Solenoid-type turnout machines such as three wire Peco or Atlas Snap Switches or two wire bi-polar type turnout machines such as Kato Unitrack, AristoCraft, or LGB turnouts with powerful capacitive discharge capability.
- Turnout addresses can be set individually or in groups of 2.
- Screw terminals make installation easy!
- DCC compatible.

## Parts List

1 DS52 Stationary Decoder

1 Instruction Card

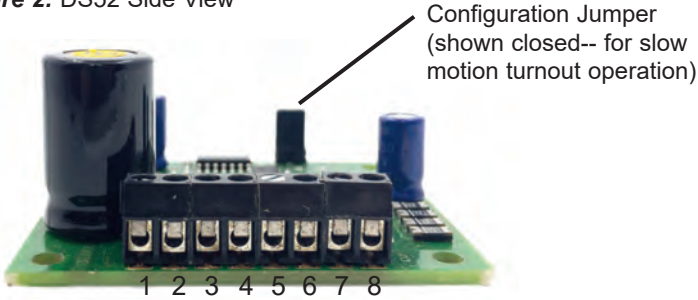
*Figure 1:* DS52 Top View



## Installation Instructions

1. Turn off track power. (**Note: Failure to turn off power before connecting your DS52 may damage your DS52.**)
2. Connect the wires from the track to the DS52's screw terminals 4 & 5.

**Figure 2:** DS52 Side View

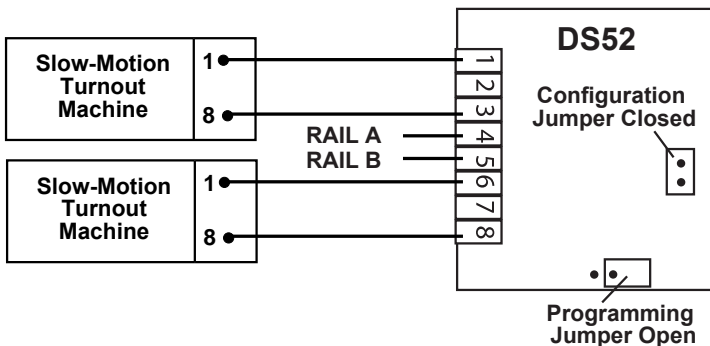


3. Connect the wires for the type of turnout machine, slow motion or solenoid, as shown below.

### Slow motion turnout machines:

1. Connect the turnout machines as shown in *Figure 3*.
2. The *configuration jumper* on the DS52 should be set to the closed position as shown in *Figure 2* and *Figure 5*.
3. When the DS52 is configured for slow motion turnout machine operation, you may connect **ONLY slow motion turnout machines** to the DS52

**Figure 3:** Slow motion turnout machine hook up



### Slow Motion Turnout Machine Operating Notes:

1. Turnout commands are executed immediately upon your command.
2. You can operate up to 2 slow motion turnout machines on each DS52 output.

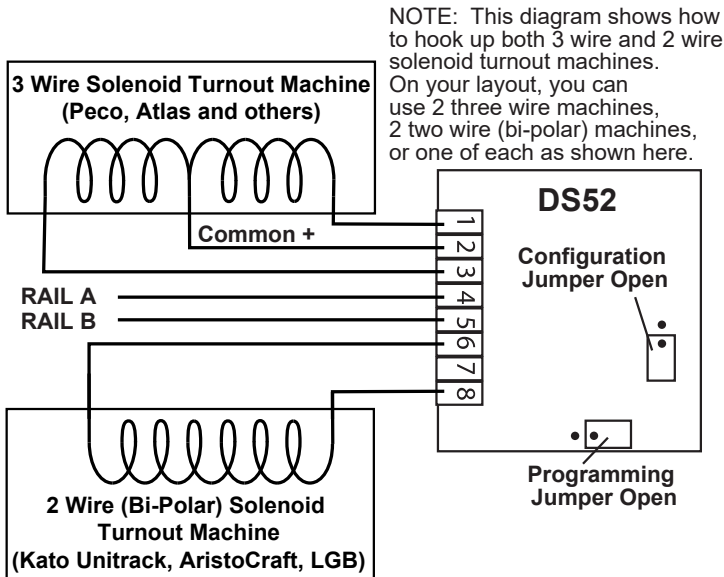
## Solenoid type turnout machines: Three-wire (Atlas, Peco & others) and Bi-Polar two-wire (Kato Unitrack, AristoCraft, LGB & others):

1. Connect the turnout machines as shown in *Figure 2*. Note that you can use either three-wire or two-wire turnout machines. You can even use a two wire machine on one output and a three-wire machine on the other output as shown below.
2. The *configuration jumper* on the DS52 should be in the open position as shown in *Figure 4* and *Figure 5*.

### Three wire solenoid & two wire bi-polar turnout machines operation notes:

1. Because it takes more energy to throw solenoid type turnouts, the DS52 needs approximately 1 second capacitive discharge time between switch commands to operate solenoid type turnout machines.
2. Turnout commands are stored in a buffer that holds up to 8 commands. The commands are executed in the order received at 1 second intervals.
3. When commands are sent to both the A & B Outputs, execution alternates between the A & B buffers.
4. Multiple turnout machines can be operated on a single DS52 output. You can run 2 Peco or Atlas Snap Switches on a single DS52 output. Up to 4 Kato Unitrack switches (such as the Unitrack double crossover) can be run

**Figure 4:** Solenoid turnout machine hook up



on a single DS52 output.

## Jumper Positions

There are two jumpers on the DS52 board (shown in *Figure 1*). To properly use your DS52 you must be sure these jumpers are in the correct position.

The *configuration jumper* (*Figure 1, A*) sets your DS52 to operate either slow motion or solenoid type turnout machines. When the jumper is set to the closed position it will operate slow motion turnout machines. When the jumper is set to the open position it will run solenoid turnout machines.

The *programming jumper* (*Figure 1, B*) determines whether the DS52 is in programming mode or operation mode. To program the addresses for the DS52 the program jumper must be set to the closed position. For normal operation, it must be set to the open position.

**Figure 5:** Jumper positions



Closed Jumper



Open Jumper

## Closed And Thrown Operation

The following table details the outputs on each of the DS52's terminals

If you find that your turnout is operating “backwards” simply switch the + & - wire connections to achieve correct operation.

### DS52 Outputs

	Terminal	Slow Motion		Solenoid	
		Thrown Output	Closed Output	Thrown Output	Closed Output
Output A	1	-	+	-	+
	2	N/A	N/A	+	+
	3	+	-	+	-
Track A	4	Track A	Track A	Track A	Track A
Track B	5	Track B	Track B	Track B	Track B
Output B	6	+	-	+	-
	7	N/A	N/A	+	+
	8	-	+	-	+



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## DS52 Address Programming

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The DS52 is shipped from the factory with switch addresses 1 & 2 pre-programmed. Use the following steps to program your DS52's addresses:

1. After completing the installation steps, turn off track power. (**Note: Failure to turn off power before connecting your DS52 may damage your DS52.**)
2. Move the program jumper so that it covers both pins as shown in *Figure 5*.
3. Turn on track power.
4. Using your throttle, operate the two switch addresses you want to set for the A & B Outputs of the DS52. The first switch address you operate sets the address of DS52 Output A (Pins 1,2 & 3), the second sets the address of Output B (Pins 6,7, & 8).
  - a. If you do not operate the first and second switch address within 16 seconds after turning on track power, the DS52 will default to the next sequential address.
  - b. The switch addresses do not have to be sequential.
  - c. If you do not operate both turnouts quickly enough and wind up with two sequential addresses, simply start over and operate the first and second turnout within 16 seconds after turning on track power to program two independent switch addresses.
  - d. If you do not operate any switch address within 16 seconds, the DS52 will time out and no new addresses will be programmed. If this occurs, the previously programmed addresses will be unchanged.

**Example: Operate switch addresses 06 & 13 (within 16 seconds after turning on the track power). This will set the DS52 to control switch addresses A=06 & B=13. If you just operate switch address 06 the DS52 will automatically program the second switch as address 07. To reset the address for 06 and 13, turn track power off, then on, then operate switch address 06 and 13 within 16 seconds after turning on the power.**

5. Turn track power off.
6. Reset the program jumper to the open position.
7. Turn track power on. The DS52 is now ready for operation using the two addresses you have just set.

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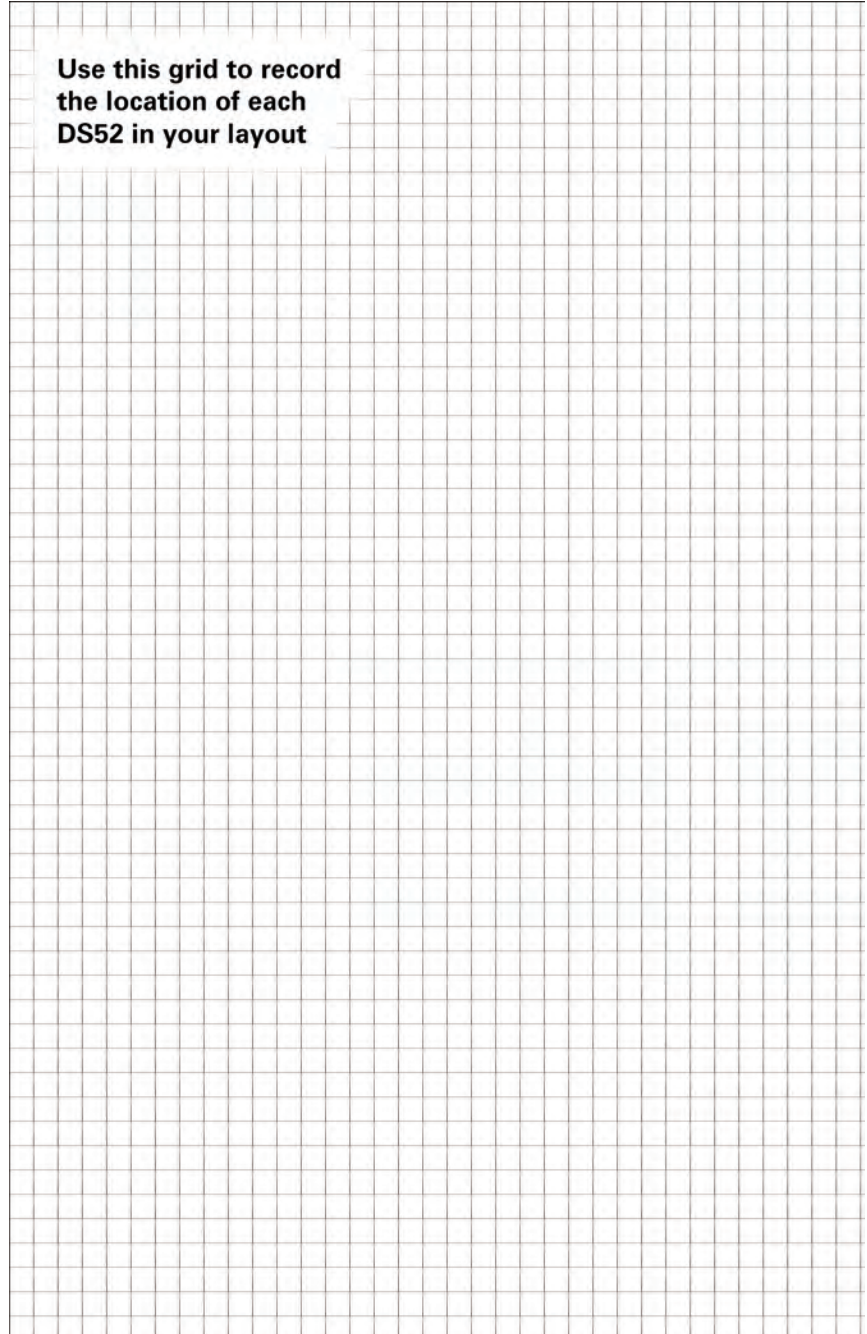


## The DS52 In Your Layout

To aid in the planning and troubleshooting of your system, it is important to keep track of DS52 that is used in the layout, where they are used, and which turnout machine addresses they are controlling. Since the DS52 does not have an address of its own, some people will put a small label on the top of the capacitor and then number to each DS52 for easy location in the layout grid. The chart and the layout grid that follow will help you keep track.

<b>DS52 Number</b>	<b>Turnout Type (Slow Motion, Solenoid, or bi polar)</b>	<b>Output</b>	<b>Switch Address</b>
		A	
		B	
		A	
		B	
		A	
		B	
		A	
		B	
		A	
		B	
		A	
		B	
		A	
		B	
		A	
		B	
		A	
		B	
		A	
		B	
		A	
		B	
		A	
		B	
		A	
		B	

**Use this grid to record  
the location of each  
DS52 in your layout**

A large, empty grid of small squares, intended for recording the location of each DS52 in a layout. The grid is approximately 30 units wide and 60 units high.





# DS52

Stationary Decoder for 2 Turnout Machines

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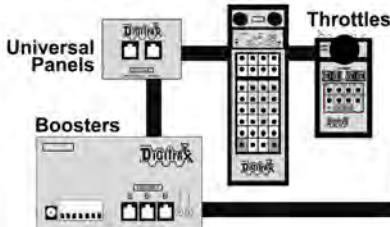
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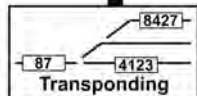
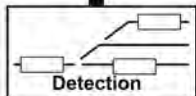
Stationary Decoders

### Computer Controls

Computer Interface  
Decoder Programmer  
Sound Programmer

Signals

### It All Adds Up To Complete Train Control



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