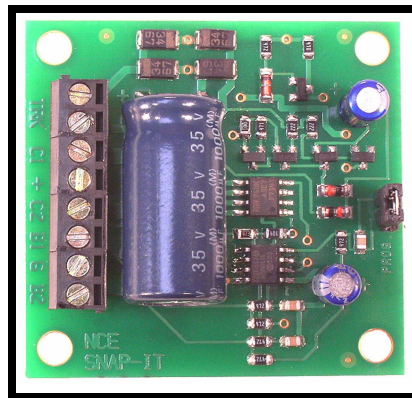


NCE

The Power of DCC

Snap-It



\$19.95

For use with most twin coil switch machines such as:
Atlas, LifeLike, Peco, Bachmann, NJ, Rix, Kemtron and others
Dimensions: 1.80" x 1.50" (46 x 38 mm)

This is an accessory (switch machine) decoder

- ✓ **Now with voltage doubler for more power**
- ✓ Control for one twin coil switch machine
- ✓ Capacitive discharge for very low current draw of track power
- ✓ Snap-It supports the full range of DCC accessory addresses (1-2044)
- ✓ Easy address programming, no need to connect it to programming track
- ✓ Simple hook up, 2 wires to the track, 3 wires to switch machine
- ✓ Includes optional connections for "local" control push buttons



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Warning: This product contains chemicals known to the state of California to cause cancer, birth defects or other reproductive harm.

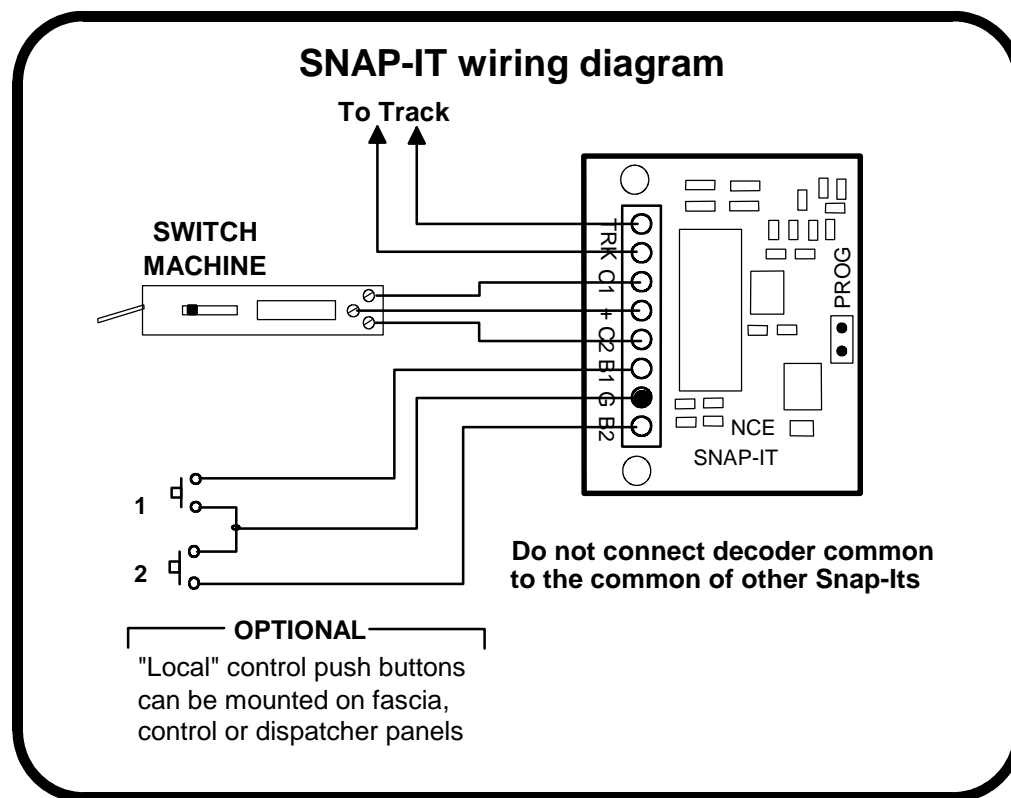
Installation Notes:

This decoder is designed to control one "twin coil" type switch machine. The output is driven by a voltage doubled capacitive discharge supply. A capacitive discharge supply draws a small amount of current over a period of time and stores this energy in capacitors. When it comes time to throw a switch the stored energy in the capacitor is released all at once to the switch machine. This provides the large amount of power needed by twin coil machines without drawing a large amount of power from the track.

The Snap-It draws the most current when the layout power is first turned on to charge the capacitors. It will never draw more than 60mA (.060 Amps) during this time. After the capacitors are charged the current drops to about 2mA (.002 Amp). This means that 30 Snap-Its will draw about 2 Amps when the layout is first turned on, then the current will drop to about 60mA which is about the amount of current drawn by 1 locomotive headlight. Most DCC systems can easily supply twice this much power.

Wiring:

See the diagram below for wiring particulars. The Snap-It only needs two wires to the track and three wires to the switch machine. Make sure to keep the wires to the switch machine short to prevent voltage drop while the switch is throwing. We suggest 22 AWG wires to the switch machine for runs of less than 3 feet. If you need longer runs 18 AWG is more appropriate. Wire from the track to the Snap-It can be small (22, 24 or 26 AWG are OK) as there is little current draw from the track.



Optional push buttons:

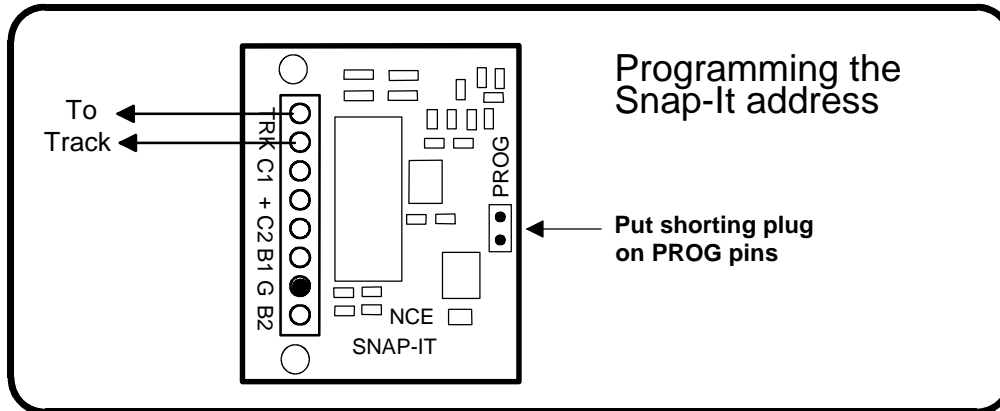
Push buttons may be added for local control of the switches. Use momentary contact switches for local control. **Do not use a toggle switch** (unless it is momentary), its continuous connection will prevent DCC control of the turnout. You can have multiple buttons wired in parallel for operation of the machine from more than one control panel. You can also program the Snap-It to "toggle" the outputs with each push of the local control pushbuttons.

Programming information

The Switch-It **cannot** be programmed on your programming track. It is always programmed while connected to the mainline track. This decoder address can be programmed by all systems that support accessory control using the procedure below.

To program the Snap-It to a new address:

- 1) DCC track power to the Snap-It **TRK** connections.
- 2) Place the supplied shorting plug on the PROG connector as shown below.



- 3) Use your DCC system to throw the accessory (switch) number you want the Snap-It to use as its **new** address.

To throw a switch using the NCE system:

Press "SEL ACCY"

Type in the accessory number followed by "ENTER"

Push "1" to throw the switch.

To throw a switch using a Digitrax system:

Press "SWCH"

Type in the accessory number

Push "OPTN" to throw the switch.

To throw a switch using a Lenz system:

Press "F"

Press "5"

Type in the accessory number followed by "ENTER"

Push "+"

To throw a switch using the MRC system:

Press "SEL ACCY"

Type in the accessory number followed by "ENTER"

Push "1" to throw the switch.

- 4) Remove the shorting jumper.

Do **not** leave the jumper in place after programming or you won't be able to control the switch.

Programming the different options and features of the Snap-it:

NOTE: The Snap-It comes already set to the most popular CV settings. Entry level DCC systems (Lenz, MRC, etc.) usually do not have the "Program Accessories on the Main" (OPS mode programming of accessories) feature necessary for programming accessory decoder CVs while wired into the layout. You will not be able to change CVs if you have one of these systems. Your DCC system manufacturer may have an upgrade available to allow your system to program accessories.

Procedure for programming accessory CVs with a Power Pro or Power Cab system:

- 1) Press the "Prog/Esc" button on your cab followed by the "7" key to go to the Program Accessories menu. (Alternatively you can press Prog/Esc 7 times)
- 2) Press "Enter" to access the menu
- 3) Enter the address of the accessory you wish to program followed by "Enter"
- 4) Type in the CV number you want to program followed by "Enter"
- 5) Put in the value for the CV followed by "Enter"
- 6) Press "Prog/Esc" to exit the programming menu.

Programmable CVs in the Snap-It decoder:

"Toggle" the outputs using only 1 pushbutton (CV548)

Setting CV 548 to a value of 1 uses pushbutton 1 to "toggle" the switch machine output. Each press of button 1 will alternate the switch position. Pushbutton 2 will be disabled when toggle mode is enabled. Set CV548 = 1 enables the toggle option or CV548 = 0 disables it.

Capacitor recharge time (CV550):

You can use the PROG ACCESSORIES feature of your NCE Powerhouse Pro or Power Cab. Push "PROG" followed by "7" to access this feature. Set CV550 to ten times the number of seconds you wish to allow for the capacitors to recharge after throwing a switch machine. You will not be able to throw the switch again until the recharge time has elapsed. A Snap-It usually will recharge in .8 seconds with normal HO voltage settings. Use the lowest setting that gives satisfactory operation. The factory setting is 15 for 1.5 seconds to allow for the low voltages used in small scales.

"On time" of the output (CV552):

CV552 controls how long the output of the Snap-It is enabled while throwing the switch. Set CV552 to the number of milliseconds (1/1000 second) the output is to be activated. The range is 1-255. 125 (125 milliseconds or 1/8 second) is factory default. If the switch throws then "bounces back" to its original position lengthen the on time to keep the points in the correct position until the capacitor of the Snap-It discharges.

Legacy OPS programming disable (CV554):

There are two methods for programming accessory decoders "on the main" (OPS mode programming). Legacy mode, in use since 1995, is being phased out by the NMRA and replaced by the current, newer method. The Snap-It supports both kinds of programming on the main. You can disable Legacy mode by setting CV554 to a value of 1. If you disable legacy mode and find you can no longer program the decoder with your system, your system only supports legacy mode. You can re-enable Legacy mode by resetting the Snap-It back to factory defaults as described below.

Pushbutton lockout (CV556):

On some layouts it may be desirable to disable operation of the local control pushbuttons. Setting CV556 to a value of 1 prevents operation of the decoder by the buttons. Setting CV556 to 0 enables operation of these buttons. You can disable or enable ALL decoders on the layout at the same time by using the accessory decoder broadcast address of 2044 when programming CV556.

Factory reset:

- 1) Disconnect track power to the Snap-It.
- 2) Install the shorting plug on the PROG pins.
- 3) Reconnect track power to the Snap-It
- 4) Remove the **shorting plug**.
- 5) The Snap-It is reset to address 1, a recharge time of 1.5 seconds, no output toggle, activation time of .125 seconds, legacy OPS mode programming enabled and pushbuttons enabled

Factory default values for decoder

The Snap-It is factory programmed to accessory address 1 (decoder addr 1, output 1)

CV548 is set to 0 (normal dual pushbutton operation)

CV550 is set to 15 (1.5 second capacitor recharge time)

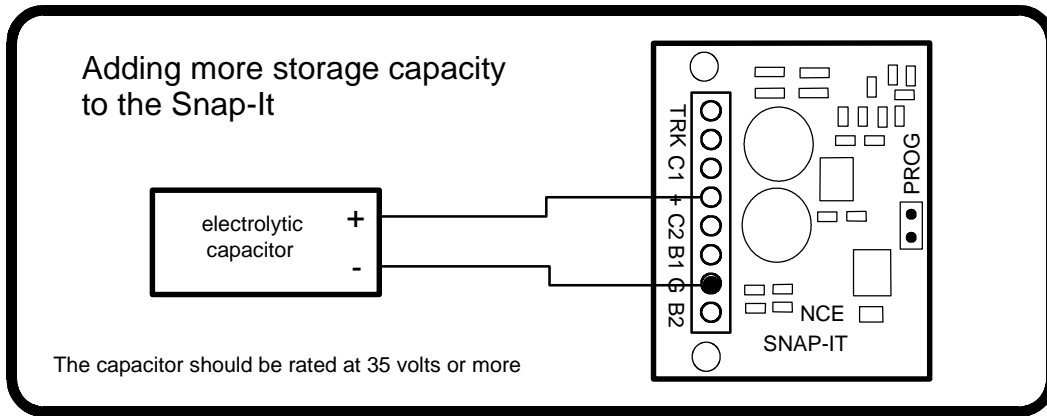
CV552 is set to 125 (the output is activated for .125 seconds when a command is received)

CV554 is set to 0 (legacy OPs programming mode enabled)

CV556 is set to 0 (pushbutton lockout not engaged)

The warranty is void if the decoder is miswired, or connected to more than 18 volts DCC or DC.

The Snap-it is designed to power Atlas Snap switch machines or other twin coil switch machines from Lifelike, Bachmann, Rix. If you wish to power multiple switch machines you will likely need to add more energy storing capacity. This can be done by connecting an external capacitor to the Snap-It. The diagram below illustrates the addition of an external capacitor. We suggest an electrolytic capacitor of 470 to 2200UF with a rating of 35 volts or more. Most Radio Shack stores stock electrolytic capacitors



There is no provision for adding an external power supply to the Snap-It.

Warranty

This decoder is fully factory tested and warranted against manufacturing defects for a period of 1 year. As the circumstances under which this decoder is installed can not be controlled, failure of the decoder due to installation problems can not be warranted. This includes misuse, miswiring, operation under loads beyond the design range of the decoder or short circuits in the locomotive manufacturer's factory wiring. If the decoder fails for non-warranted reasons NCE will replace the decoder, no questions asked, for \$10 US plus \$2 shipping. For warranty or non-warranty replacement send the decoder (an any payment, if required) to:

NCE Warranty Center
82 Main Street
Webster, New York 14580



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