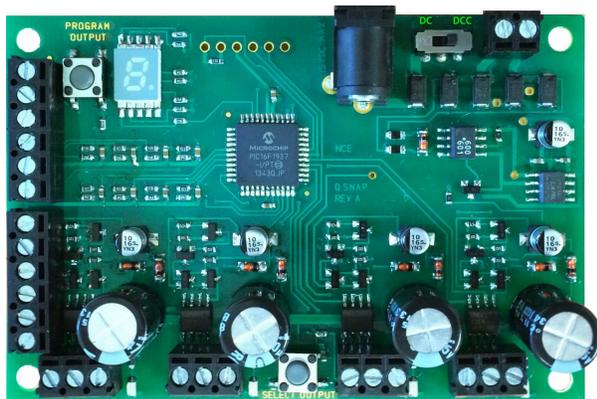


NCE

The Power of DCC

QSnap-Mk2



Age
14+

Version 1.1

FOR TWIN COIL SWITCH MACHINES ONLY
All new easy programming!

- ✓ Control for 4 twin coil solenoid type switch machines (Atlas, Peco, etc)
- ✓ Supports the full range of DCC accessory addresses (1-2044)
- ✓ Runs from track power *or* external 9-15 Volt DC power supply
- ✓ Easy address programming, no need to connect it to programming track
- ✓ Inputs for local control panel push buttons
- ✓ Simple hook up, 2 wires to the track, 3 wires to each switch machine



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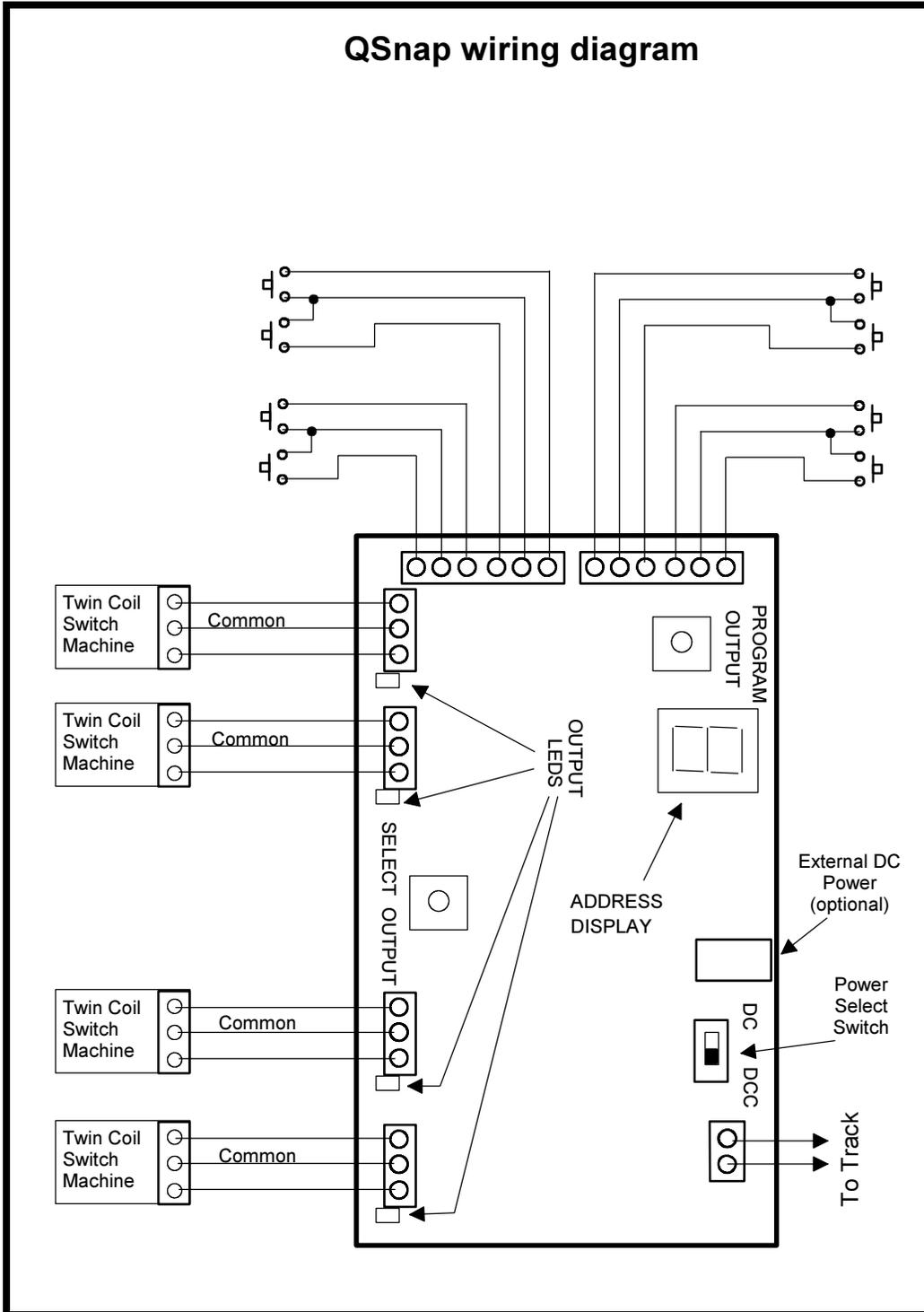
Warning: This product contains chemicals known to the state of California to cause cancer, birth defects or other reproductive harm.

Notes:

This decoder is designed to control twin coil (dual solenoid) type switch machines. There are four mounting holes at the corners of the QSnap.

Wiring:

See the diagram below for wiring particulars. The only required wires are two wires to the track and two wires to each machine. It is OK to use the QSnap for control of less than 4 machines.



If you have never used a QSnap before:

We recommend trying the decoder out first before installing it on the layout.

Connect a twin coil switch machine to screw terminals 1N/1R of the decoder with the common (center) connection of the switch machine to '+'.

Connect two wires from the decoder track connection to your DCC system.

Make sure the small switch next to the track connection is moved to the 'DCC' position.

When you first apply power to the QSnap the address display will show some numbers (the software version) then 3 horizontal bars for about 1 second followed by vertical bars "wig wagging" back and forth on the display. The wig-wagging indicates the decoder is receiving DCC information and is ready for use.

Press the 'SELECT OUTPUT' button on the decoder until the output 1N/1R LED lights (each push of the button will select a different output - on the fiith push all LEDs will turn off). The address display will now start indicating the output currently programmed for that output. For a factory fresh QSnap output #1 it will flash 1. If you select output 2 it will flash 2 and so on as indicated below:

Factory default values for decoder

- Output 1 factory programmed to accessory address 1
- Output 2 factory programmed to accessory address 2
- Output 3 factory programmed to accessory address 3
- Output 4 factory programmed to accessory address 4

Now let's actually test the decoder output #1.

Use your DCC system to throw the switch. The instructions below can be used for throwing a switch depending on which DCC system you have:

To throw a switch using the NCE system:

- Press 'SEL ACCY'
- Type in the desired accessory number followed by 'ENTER'
- Push '1' (or '2') to throw the switch.

To throw a switch using a Digitrax system:

- Press 'SWCH'
- Type in the desired accessory number
- Push 'OPTN' to throw the switch.

To throw a switch using a Lenz system:

- Press 'F'
- Press '5'
- Type in the desired accessory number followed by 'ENTER'
- Push '+' (or '-')

If throwing the switch one way doesn't do anything, try the other direction. You should be rewarded with the turnout reversing its position.

Address programming:

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

To program an output to a new address using any DCC system:

- 1) Connect wires from the track to the decoder DCC terminals.
- 2) Make sure the Power Select Switch is set to DCC.
- 3) Push the SELECT OUTPUT button until the LED corresponding to the output lights.
- 4) Push the PROGRAM OUTPUT button (notice the display flashes "P" now) When the display is flashing you have one minute to complete the next step or the decoder will exit programming mode.
- 5) Use your DCC system to select and operate the switch (see above).
- 6) The decoder will accept that switch address as its new address and begin showing its new address on the address display. It will show the address one digit at a time in sequence.

You may confirm the address for any output at any time by pressing the OUTPUT SELECT button until the appropriate output LED lights. The address for that output will be displayed.

Setting other options in the QSnap:

Use **Accessory OPs mode** programming ("PROG" followed by "7" on NCE systems). If you have an entry level system that does not support **Accessory OPs mode** programming follow the instructions on the back page for setting CVs with Loco Ops. For CV561 through CV568 and CV577 through CV580 use the accessory address for the corresponding output number. For all other CVs use the accessory address programmed for output 1.

Reversing the polarity of an output:

Each of the outputs can have its polarity reversed by programming a CV for that output

For output #1 program CV561 to a value of 0 (default) for normal polarity, 1 for reverse.
For output #2 program CV562 to a value of 0 (default) for normal polarity, 1 for reverse.
For output #3 program CV563 to a value of 0 (default) for normal polarity, 1 for reverse.
For output #4 program CV564 to a value of 0 (default) for normal polarity, 1 for reverse.

If your DCC system does not support OPs mode programming for accessories you can just swap the two wires to the switch machine.

Note: CV548 should be programmed via Accessory Ops mode programming to the address of output 1 only.

Setting outputs to toggle when used with optional push buttons

Setting CV548 to 1 will cause pushbuttons "toggle" the switch machine output. Each press of a button will alternate the switch position. Setting CV548 = 1 enables the toggle option. CV548 = 0 disables it.

CV548 is "global" to the QSnap-Mk2, meaning it will affect all buttons. (Factory default = 0)

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 all the decoder outputs by the optional pushbuttons. Setting CV556 to 0 enables operation of these buttons. You can enable or disable ALL decoders on the layout at the same time by using the accessory decoder broadcast address of 2044 when programming CV556. CV556 is "global" to the QSnap-Mk2, meaning it will lockout all button inputs. (Factory default = 0)

Notes on CV556:

CV556 should be programmed via Accessory Ops mode programming to the address of output 1 only.

CV556 is not 'sticky'. The decoder will not remember that CV556 was programmed the next time the layout is powered up.

Output On Time:

The 'On Time' or time that the output is active can be controlled for each output individually. Occasionally you will have an especially free throwing switch machine that will travel all the way to the mechanical stop on the machine then bounce back away from the stop. This means that the decoder is throwing the machine with too much energy. By controlling the time that the output is activated we can control how much energy is transferred from the decoder to the switch machine. The factory default value for this is 100mS which is usually satisfactory. If you find you need more or less energy you can program the decoder (in increments of 4mS or 4/1000s of a second). CV577 through CV580 are used to control the time. A value of 25 = 100mS (default) higher or lower values may be programmed. Programming the CV=0 disable control so use values from 1-255.

CV577 - On time for output 1 (100mS = value of 25 default)

CV578 - On time for output 2 (100mS = value of 25 default)

CV579 - On time for output 3 (100mS = value of 25 default)

CV580 - On time for output 4 (100mS = value of 25 default)

Factory reset:

To reset the QSnap to original factory setting program CV8 to 8. A reset will only be performed if you program CV8=8 via Accessory OPs mode programming to the address of output 1.

Upon reset all settings will revert to the factory default setting as indicated below.

Factory default values for decoder

The Switch8-MK2 is factory programmed to the following values

Output 1 = accessory address 1

Output 2 = accessory address 2

Output 3 = accessory address 3

Output 4 = accessory address 4

CV548 is set to 0 (normal dual pushbutton operation by the optional pushbuttons)

CV556 is set to 0 (pushbutton lockout not engaged)

CV561 is set to 0 (normal output polarity)

CV562 is set to 0 (normal output polarity)

CV563 is set to 0 (normal output polarity)

CV564 is set to 0 (normal output polarity)

CV577 is set to 25 (100mS on time)

CV578 is set to 25 (100mS on time)

CV579 is set to 25 (100mS on time)

CV580 is set to 25 (100mS on time)

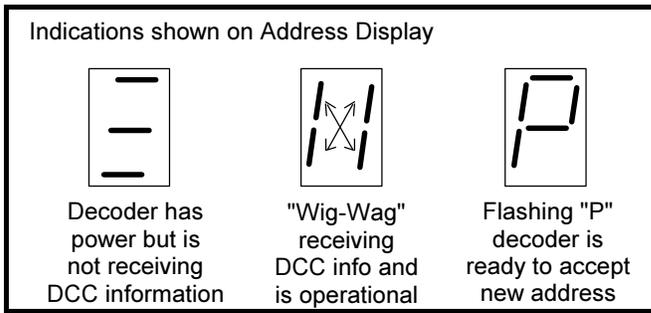
DC power option

A DC power connector is provided if you wish to use external power to run the decoder and switch machines. This will enable the QSnap-Mk2 to ride through DCC track shorts without power interruptions. Use a power supply providing between 9 and 15VDC with a 2.5/5.5mm plug, center positive (The NCE P114 is a good option here). The power supply should be able to supply at least 200mA. If you connect an external supply move the DC/DCC Power Select Switch to the DC position.

The DC voltage for the switch machines will be approximately 2 volts less than twice the DC volts. Example : 12Vdc will yield about $((2 \times 12) - 2)$ or 22 volts to the switch machine.

Other technical stuff:

- We have successfully controlled two Atlas switch machines with one decoder output when used in a crossover. We can't guarantee this will work in all cases.



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Programming CVs with systems that don't support Accessory OPs mode programming:

- Press the SELECT OUTPUT button on the QSnap until the button for output #1 lights.
- Press PROGRAM OUTPUT (the display should start flashing 'P')
- Use loco OPs mode programming (Program on the Main) to program the desired CV. Any loco address can be used for this.
- Repeat the steps above for each CV you wish to program.

If the programming "takes" the display will stop flashing.

Note:

The display will only flash for about 1 minute. When it stops flashing the QSnap will not accept programming. If it times out and stops flashing before you finish programming just press PROGRAM OUTPUT again.

Note:

You can only program CVs using Loco OPs mode when output #1 is selected. If any other output is selected Loco OPs will not work (only Accessory OPs works with all outputs)

Optional push buttons:

Normally open momentary push buttons or toggle switches will work with the QSnap. Grounding terminal 1N will activate output 1 of the QSnap to the "normal" position. Grounding 1R will throw the QSnap to the "reverse" position. The other terminals on the QSnap work similarly to activate the corresponding outputs.

NOTES:

The warranty is voided if the decoder is miswired, electrically modified or connected to more than 22 volts.

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. If the decoder fails for non-warranted reasons NCE will replace the decoder, no questions asked, for \$20 US plus \$2 shipping. For warranty or non-warranty replacement send the decoder (and any payment, if required) to:

NCE Warranty Center, 82 East Main Street, Webster, New York 14580



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