

SCSD-8

8 Output Solenoid Driver

User's Guide

Tower Controller I/O Modules

All RR-CirKits Tower Controller I/O modules may be plugged directly into the TC-64, or else mounted in Tyco 3-1/4" Snap-Track® mounted to the bench work and connected with ribbon cables. Each I/O module is equipped with two connectors to facilitate these connection options.



Single Coil Solenoid Driver - 8 The SCSD-8 Output Module is designed to drive individual solenoid coils or other high voltage high power devices. Normally the input voltage should not exceed 35VDC. The SCSD-8 board is optically isolated from the driving circuitry to protect the TC-64 or other control device from the high power outputs.

By using the proper options on the Tower Controller the SCSD-8 may also be used to control dual coil switch machines. This should not be attempted if the switch machine power supply is not of the capacitive discharge type that will limit the long term current to a low value. **Failure to observe this precaution may result in destruction of equipment and be a fire hazard!**

Connections

There are 3 input connections and 2 output terminal strips on the SCSD-8.

Power Connection

The input power connector should be supplied with the required voltage to match the coils or other loads that you are driving. The SCSD-8 includes a reverse current protection diode. There is also an internal PTC fuse to limit the long term current to approximately 1 amp total. This will not limit the surge current required to operate dual coil switch machines.

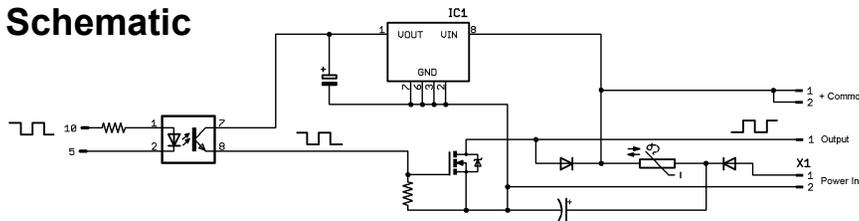
Input Connector Pin Identification

The input connections use the standard TC-64 10 pin cable connections that are shared by all Tower Controller I/O modules. Both a male and

Assign each pair of outputs to a single address that corresponds to the turnout number you have chosen to operate each dual coil machine. The numerical 'Address' number you will enter is one less than the number you actually use to operate the turnout. For example to operate turnout number '1' you place an address of '0' in both secondary message address boxes. (the above example is for turnouts 1, 2, 3, and 4)

Next set the first entry of each pair to the 'Message Type' of 'respond norm' and 'Switch Request'. Set the second entry of each pair to the 'Message Type' of 'respond inv' and 'Switch Request'.

Schematic



This simplified schematic shows the input and output circuits of the SCSD-8 output module.

Warnings!

This board is capable of driving 300-400 watts of peak power for a short duration. It is protected against long term over current, but if the power supply is not of a limited energy type, such as a capacitive discharge unit, it is possible to destroy this and/or other connected equipment. Total current of continuous loads should be limited to 1A or less.

Intermittent operation of this board relies on proper settings in the driving controller. For intermittent use with high current loads it is recommended that the outputs first be tested with low power lamps of the proper voltage. This will allow you to safely confirm the proper operation of the unit.

Due to the polarity of the input drive circuitry, accidentally connecting this board to a TC-64 port configured as an Input port will turn on all the output lines.

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

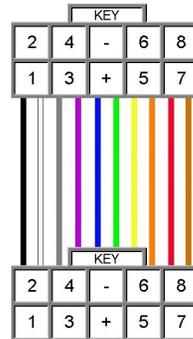
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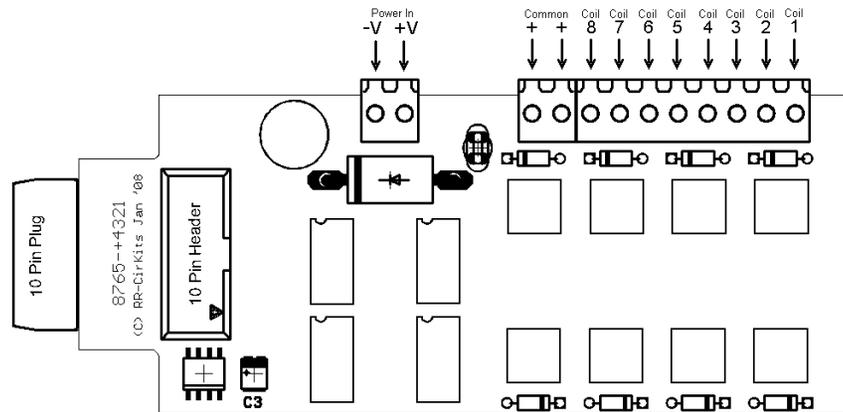
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female connector are provided, and either may be used depending on your requirements. The port connector wiring is as follows.

Pin number	Connection	Color
1	h (8)	Black/Red
2	g (7)	White
3	f (6)	Grey
4	e (5)	Magenta
5	Ground	Blue
6	+5VDC	Green
7	d (4)	Yellow
8	c (3)	Orange
9	b (2)	Red
10	a (1)	Brown



10 position IDC connector



Output Connector Terminal Strips

The Output terminal strip wiring is shown on the above layout drawing. Two positive common points are provided to simplify your connections. The 8 coil outputs connect to the appropriate coils or other loads. Kickback clamp diodes are included on the board and are not required on your coils or other inductive loads.

TC-64 Settings

The TC-64 or other controlling device should normally be configured using DecoderPro or other similar software. Programming with a hand held controller is also possible, but not advised.

Single Coil Solenoids or Other Individual Loads

To drive eight individual steady state loads simply configure the Tower Controller port that controls the SCSD-8 to be 'Type: Driver'.

To drive intermittent loads, set the 'Output Polarity' for each individual line to 'normal', the 'I/O Type' to 'Short Pulse' and the 'I/O Timing' to the length of time that you want the load to be turned on.

Dual Coil Solenoids

To drive dual coil solenoids requires that the 'Secondary Message' options of the Tower Controller be used. Configure the output port as pairs of drivers responding to opposite commands from four individual turnout addresses.



DecoderPro dual coil switch machine Programming Example.

You should give the port a throw-away 'Base Address'. Be sure that the address range you choose will not ever be used for any other purposes. The same address may be used for multiple ports. (example 1000)

To drive dual coil switch machines you must set the 'Output Polarity' for each individual line to 'normal', the 'I/O Type' to 'Short Pulse' and the 'I/O Timing' to the length of time that you want the coil to be turned on. (Normally 0.2 sec)

Next set each 'Secondary Message' entry to be 'Send on Positive Edge'.