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Accessory Decoder Option.

Servo Driver Board with DPDT Relay and DCC

Servo Decoder

SwitchWright Board

v.1.0

Power 5V DC



SWR006



Installation

Attach Power. Power input is 5-7 volts filtered and regulated DC. AC will not work. Poorly regulated DC will not work. The best power is a 5V switching wall wart. Do not exceed 7V. Do NOT use an old "DC Power Pack" - these do not produce clean DC! Under normal loads the board should use about 20 mA (0.02 Amps) at idle and 200 mA when driving. Caution: Damage may occur if a hot DCC wire touches the board.



Install Centering Jumper. The centering jumper is used to put the servo in the precise center. The jumper is ON when it covers both pins. If it is on one pin or no pins, it is OFF. Center the servo while installing.

Place SwitchWright. Remove the protective covering on the foam tape and put it on the bottom of the SwitchWright. Thread the wire up through the hole and in to the hole in the throw-bar (this is by far the hardest part!).



Servo Driver Board

- DPDT Relay
- Plug-in Fascia Control and LED indicators
- DCC Accessory Decoder Option
- Servo for High-torque
- Adjustable Speed and Endpoints
- Turn Servo Off or Keep it Powered Option



Move the SwitchWright such that the wire is straight up and down with the throw-bar centered. The wire will be bent when in the proper, straight-up, position. Press the tape against the roadbed to hold the SwitchWright in place. Drill 2 pilot holes for the mounting screws and then tighten these in to place to hold the SwitchWright. Remove the centering jumper. You can now check the installation by throwing the SwitchWright back and forth.

Mounting Options - You may want to remove the PC board by removing the 2 screws and mount the board nearby. The base can be trimmed if needed to make it fit tight spaces. You may also drill holes for the mounting screws in alternate locations it needed.

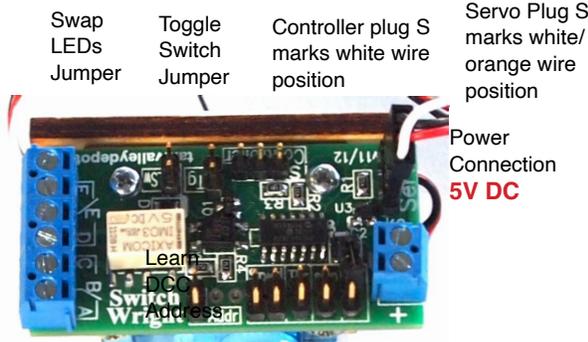
Button and LED Indicators - Fascia Controllers

Fascia controllers can be used for manual operation of the SwitchWright. The controllers use the same cables as servos. Connect the cable to the Controller plug such that the white/signal wire is near the S. To change the position of a servo press the button briefly. The LEDs flash while the SwitchWright is driving between positions.



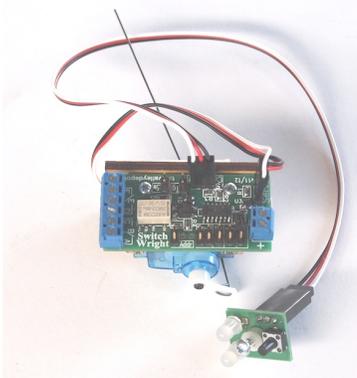
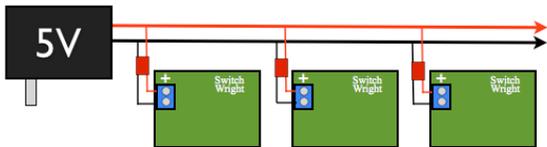
LSwp Jumper - this jumper swaps the LEDs on the controller. Use to align the controller with the direction of the points after mounting.

More help can be found inside and at www.tamvalleydepot.com. Technical Support may be obtained by emailing dmcree@tamvalleyrr.com.



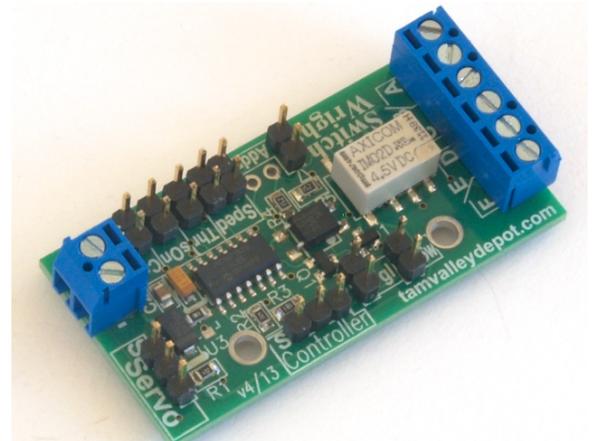
DPDT Relay/ DCC Connections

Option Jumpers Speed, Throw, Stay on, Center



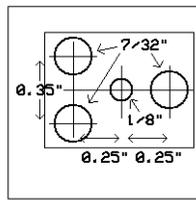
Above: How to plug in power for multiple boards.

Left: Shown with fascia controller and servo plugged in



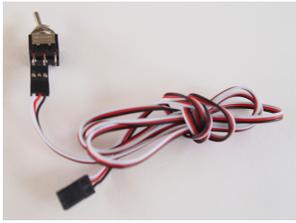


A Y cable can be used to connect 2 Fascia Controllers. Both controllers will act the same.



Fascia Controller Drilling Template

You may also want to use these precision laser-cut fascia controller mounts. They fit in to a 1 3/8" hole which can be drilled with a hole saw or a Forstner bit.



Toggle Switch - You can also use a toggle switch to control the SwitchWright by putting on the Tgl Jumper as shown. A SPST (on-off) toggle will do, although if you use a DPDT as illustrated you can use the extra contacts to wire the frog power. Attach the switch across the two Controller end posts (signal and ground) skipping the middle post.

If you want to have LEDs indicators they can be wired as shown in the schematic.

Option Jumpers

Sped (Speed) - These are 2 jumpers that control the speed of the servo. No jumpers is the slowest speed and both jumpers on is the fastest.

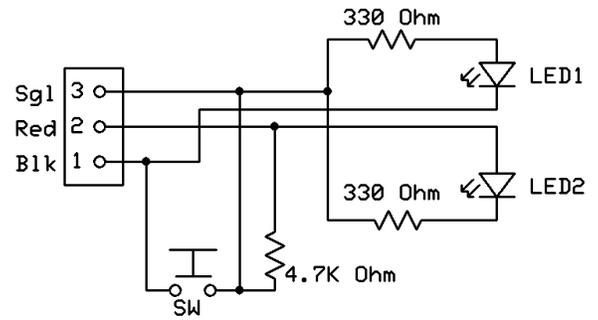
Thr (Amount of Throw) - This controls the total throw from side-to-side of the wire. Off is full throw and on is one-half throw. If the points are being pushed hard against the stock rails you may want to put this jumper on.

sOn (Stay On) - The servo normally turns off at the end of the throw. In some cases the servo may not be able to hold unless powered continuously. This can greatly increase the amount of current draw and may cause the servo to buzz (not harmful but annoying).

Cnt (Center) - Puts the servo in the precise center and holds it there for mounting.

DCC/Relay Option

Teaching the DCC Address. To teach/set the DCC address connect inputs A and C to the DCC bus as in the diagram on the left. If you are not powering your frog with the SwitchWright, leave the green wire connected to B off. Note that inputs D and F are not connected to the DCC input circuitry of the SwitchWright so you must use A and C for the DCC connection. To program the DCC address, place the jumper across the two **Addr** pins to put the SwitchWright in learning mode (fascia controller LEDs will flash to indicate it is ready) and then issue an accessory command exactly as you would to throw a turnout. If the turnout is thrown issue a throw command and if it is closed issue a closed command as the decoder uses this to set the sense of throw/close (note that this makes it easy to reverse throw/close if you wish). The decoder will store the address and

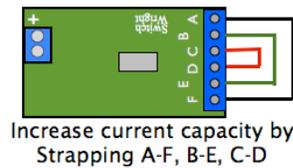
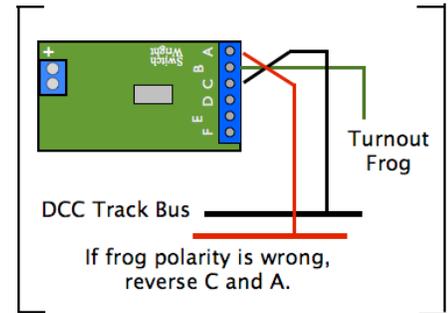
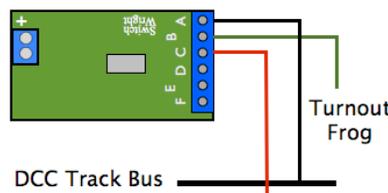


Fascia Controller Schematic for Single Color LEDs. 4.7K resistor is optional but will increase noise rejection. The switch can either be a pushbutton or a toggle.

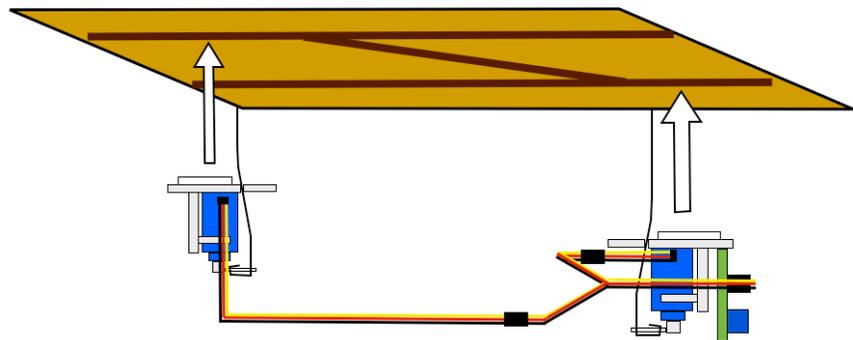
the throw/close sense and stop flashing the fascia controller to indicate it has been successfully programmed. **Be sure to remove the jumper when finished programming.** It can be stored on a single pin. Once the DCC is connected you can check the connection by issuing a switch throw command at address 1 - the factory default address. If the unit does not respond it may already be thrown so try the close command.

Reset the Address- If you forget the address of the SwitchWright you can set it back to 1 by putting on the jumper and then turning the 5V power off and on.

Power Draw - the SwitchWright is optically isolated from the DCC bus and draws only about 8 mA of power from the DCC bus. There is no need to for a separate DCC accessory bus.



Increase current capacity by Strapping A-F, B-E, C-D



Wiring a crossover with a slave unit and a Y. Unplug the servo from the SwitchWright and replace it with a Y keeping the wire colors in the orientation. Replug the servo in to one arm of the Y and a slave unit in to the other arm.