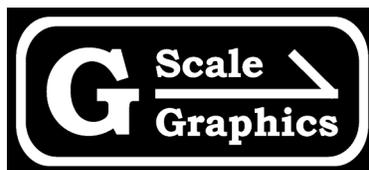


No Frills Track Throttle

Operation and Installation Manual



G-Scale Graphics
5860 Crooked Stick Dr.
Windsor, CO
970-581-3567

GScaleGraphics@comcast.net

www.GScaleGraphics.net

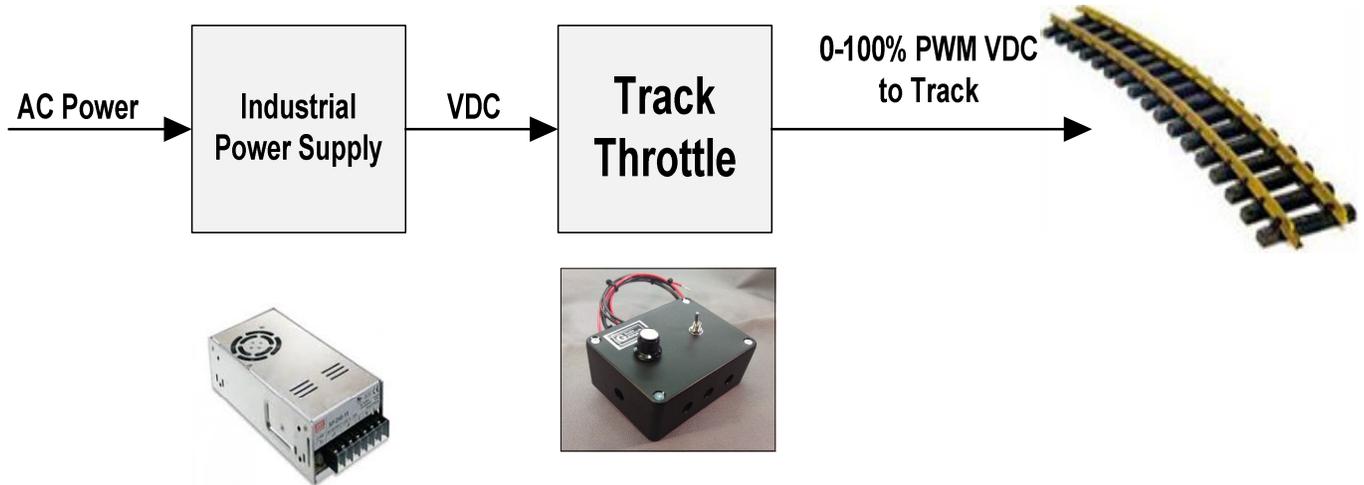
Overview

No Frills, just the power you need for large scale trains. The “No Frills Track Throttle” simply controls the speed and direction of large scale track powered locomotives. It is used in conjunction with a low cost industrial power supply to provide up to 5 amps at 12-24 volts to your track, which will easily handle your largest locomotives and consists.

PWM (Pulse Width Modulation) output is provided for extra torque during slow speed operation. Short circuit and over temperature protection insure reliability.

The throttle is available in a box with pigtail wiring, or you can mount it in your own custom control panel.

Choose your own DC power supply (purchased separately): 12 to 24V. It must be a filtered and regulated power supply, not a simple transformer. Power supply voltage will determine your maximum speed.



We recommend:

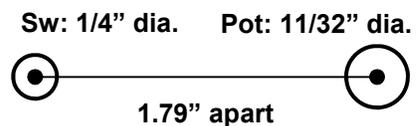
Meanwell LRS-150-24 (24V, 6.5A) available from multiple on-line sources for about \$18

Note: Keep in mind that most locomotives only require about 1 amp while running. A power supply capable of 3-5 amps is usually more than enough for most applications. More amps won't make it run any better. It just blows the fuse faster (and sometimes the wiring in your train) when you get a short (as in a derailment).

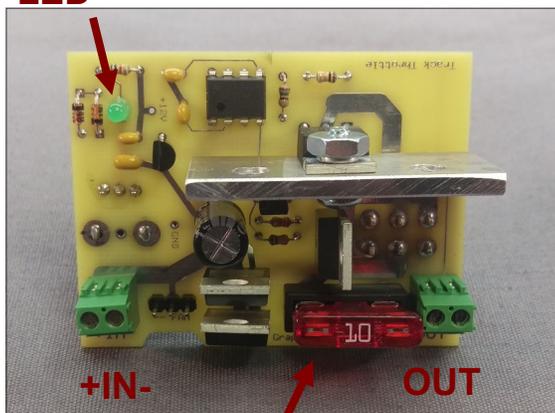
Installation

Mounting in a panel or box

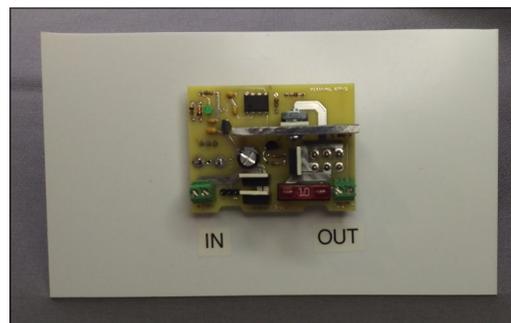
Drill two holes using this actual size template: 1/4" diameter hole for the direction switch, and a 11/32" diameter hole for the speed pot, 1.79" center to center.



LED



FUSE



Panel Mount



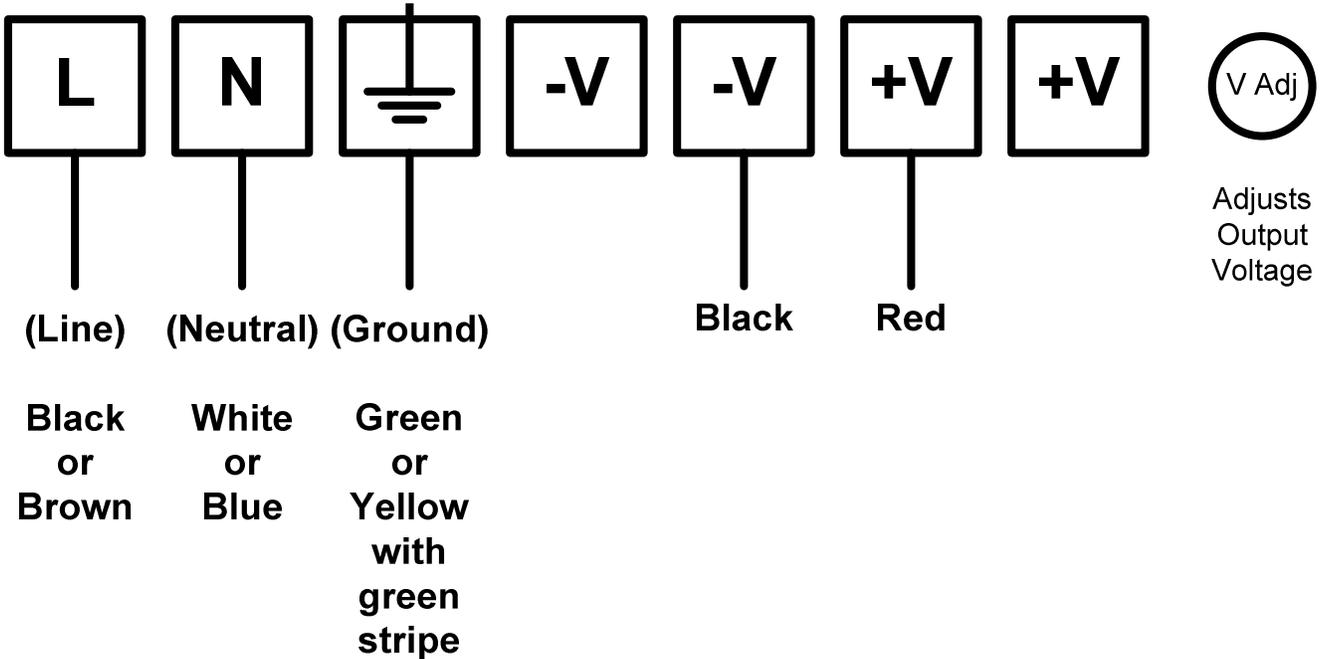
Wiring

Wiring a Meanwell Power Supply

You will need to provide or purchase your own AC power cord and connect it to your Meanwell power supply. Any 3-wire power cord will work. Set the power input switch on the side of the power supply for 115 VAC U.S.

Output voltage should be 24 VDC maximum for use with the G-Scale Graphics Trackside R/C or Track Throttle. But no adjustment should be necessary as received.

Meanwell Power Supply

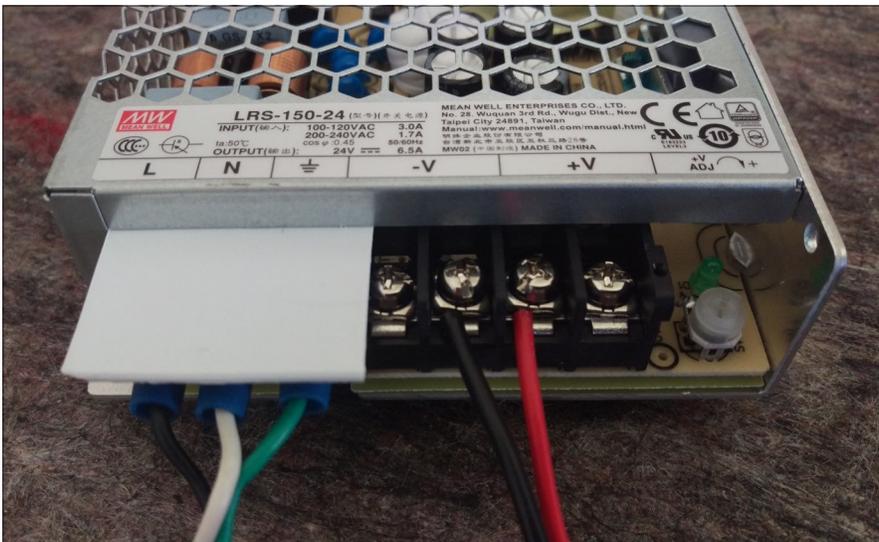


**115 VAC
Input**

VDC Output(s) to Track Throttle(s)

(Set switch on side of power supply for 115 VAC in U.S.)

Crimp some spade connectors on the wire ends for a nice neat connection. The AC input terminals on your power supply may be exposed, so you may want to insert a piece of styrene over them for added safety.



Always use stranded wire and tin the ends with solder prior to making any connections. Wiring between the Track Throttle and your power supply should be at least 16 AWG. Output wiring to your track, the bigger the better to reduce voltage drops. 16 AWG or heavier (smaller AWG number). Any wiring connections or splices not directly connected to a component must be covered. Use heat shrink tubing or wire nuts.

All connections to the Track Throttle can be made via screw terminals when panel mounting. Connections to the power supply should be done using spade or ring lugs crimped onto the wire ends. Wire to wire connections can be done with wire nuts or solder joints. You may be required to supply your own AC cord for the power supply.

Operation

The green LED on the board will illuminate when power is applied to the input terminals (+IN,-IN).

Speed will vary from 0 to 100% of power supply voltage as the pot is rotated CW.

Running direction is set using the direction switch.

Caution: You should always set the speed to zero prior to changing direction to avoid gear damage to your locomotive.

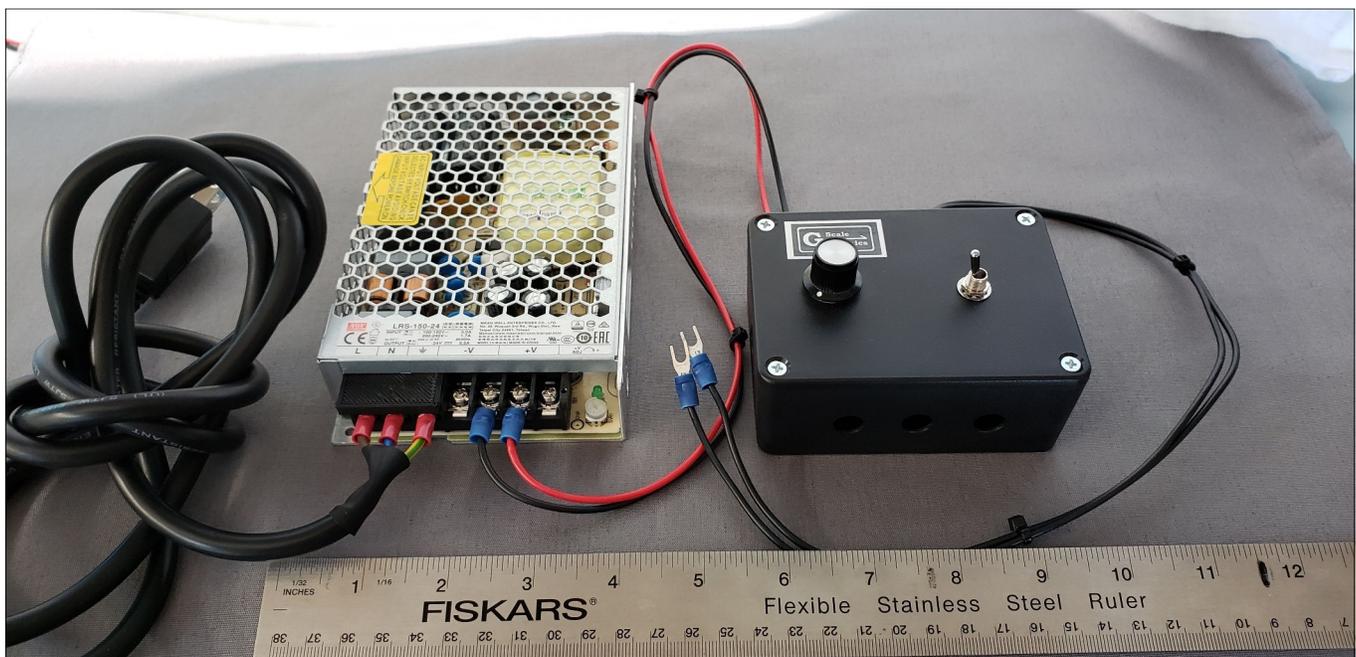
Trouble Shooting

The green LED should be on if you have an input voltage of 12-24 VDC applied to terminals +IN,-IN. Connecting this input with reverse polarity will not damage the control, but the LED will be off, and there will be no output voltage.

A short circuit may cause the fuse to blow and there will be no output voltage, but the LED will still be on. The most common causes of short circuits are derailments and wheels shorting in turnouts.

An over temperature condition in the output driver will cause the output voltage to drop to zero. The LED will still be on. To restore operation after the driver has cooled down, cycle the input power off and back on.

If the lights in your loco are acting funny, not working well, or perhaps flickering, it may be due to the PWM (Pulse Width Modulation) output of the track throttle. It won't cause any harm to your loco, but it can be corrected, if desired, by using a PWM to Linear Converter made by Crest; P/N CRE-57091A. This will provide a pure DC output to the track and loco.



No Frill Track Throttle Specifications

Board Revision "New"

Mechanical

Physical Size: PCB – 2.5" X 1.9". Components extend 1.4" to the rear when panel/box mounted.

Plastic shaft on the speed pot has a 1/4" dia. shaft

Box Assy: 3" X 4" X 1.6"

PCB wiring: Screw clamp terminal strips accept individual wires, 20 to 16 AWG.

Requires a 1/16" slotted screwdriver.

Box Assembly wiring: 16 AWG tinned wires.

Mounting:

Max panel thickness: 0.10"

Speed Pot Hole: 1/4" dia.

Direction Switch Hole: 11/32" dia.

Holes are 1.79" apart, center to center

Electrical

Power Input from an external DC Power Supply: 12 to 24 VDC

Must be a filtered regulated DC power supply. Not a hobby power pack, or a simple transformer.

DC Track Output

5 amps max

PWM (Pulse Width Modulated), 10KHZ

Max amplitude: Input voltage minus driver loss

Control

Single turn rotary speed setting potentiometer, 0 to 100% of input voltage, CCW to CW, 300 degs.

Direction switch, DPDT switch on output.

Fuse

Automotive 5 amp ATC.

Over Temperature

Output will shutdown if driver circuit gets too hot. After cool down, reset by cycling power.

LED

Indicates input power is present and on-board power is OK. Does NOT indicate output power is OK

Fan

3-pin connector on PCB can supply input voltage (12-24VDC) to an external fan (not included) if needed.

Environmental

Control must be protected from the weather.

Neither the printed circuit board, nor the box assembly are weather proof.

