

AUTOMATIC REVERSE with TIMED STOP AT ENDS with Memory & Momentum Start/Stop. General overview instructions.

Getting started:

Review the drawing for the operation that you would like to use. Then mount the units with #6 screws. Choose an appropriate location for the components and secure them properly. Then proceed to wiring the units up after reading these instructions first

Basic Wiring:

For best connections, stranded wire should be used in the barrier strips (screw clamp connectors on the board). #22 - 24 awg wire can be used to wire the 12VPS output to the other Trak-xxx units. Heavier wire can always be used but is not necessary. Generally, heavier wire is used to the track. For higher current operation, #16 - #12 is suggested. Lower track power wires can be #16 - #20 but we would not suggest anything smaller than #20.

Install stranded wires by stripping insulation back 3/16", place wire in barrier strips rectangular hole, run screw down to clamp in position. Make sure that the wires do not short to adjacent terminals either from stripping too much insulation off or by not getting all of the strands into the clamp!

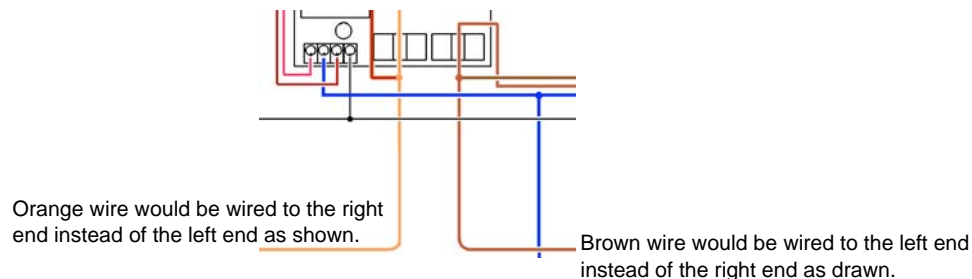
Standard wiring practices:

All wires crossing each other only connect when a DOT / CIRCLE is shown. Wire colors are shown for convenience. The wire color also changes to signify the passing of it through a sense coil even though it is still the same wire. This helps in troubleshooting the wiring as well as the initial wiring.

Dashes & other line patterns are used to clarify different wires used.

GAP - a "GAP" (cut rail to provide an air "GAP" or use insulated plastic rail joiners, wood is not recommended) is placed on one rail as shown.

"G" gauge equipment is reverse that of other gauge's, i.e. the track power convention is left rail "+" = the forward direction. This drawing is drawn for "G" operators. Therefore, when operating other DC type trains, wiring needs to be reversed from that shown for the "must STOP / REVERSE" ends for other operators. If you run off the ends due to no reversing of track power and not due to the lack of a proper stop time set on the MO-1 board, you have to reverse the end wiring. To do so merely reverse the "Brown" and "Orange" wire end positions connected to the track. Everything else stays the same!



All DC Back-N-Forth operations:

require DC (polarity reverse) track operation.

are best to start running between the slow down sections. But you are not required to do so. When starting in an end or slow down section, it may take double the start time to get going properly.

require a few seconds of time from leaving one stop location and arriving at the next stop location!

long lengths of track between locations does not affect the operation, very short lengths that the engine / trolley transverse in a short time are not recommended.

Stop Time must be quick enough to prevent the trolley / engine from running off the end. If you speed up the trolley, the time to stop will increase because it is running faster!

Start Time can be however long you want the acceleration to full track voltage to be. If there is not enough distance between the end of the Slow down / Speed up section or other Stop location, then full track voltage (set by the Track Power input voltage / speed setting) will not be achieved due to too short of a time to travel the distance between stopping locations.

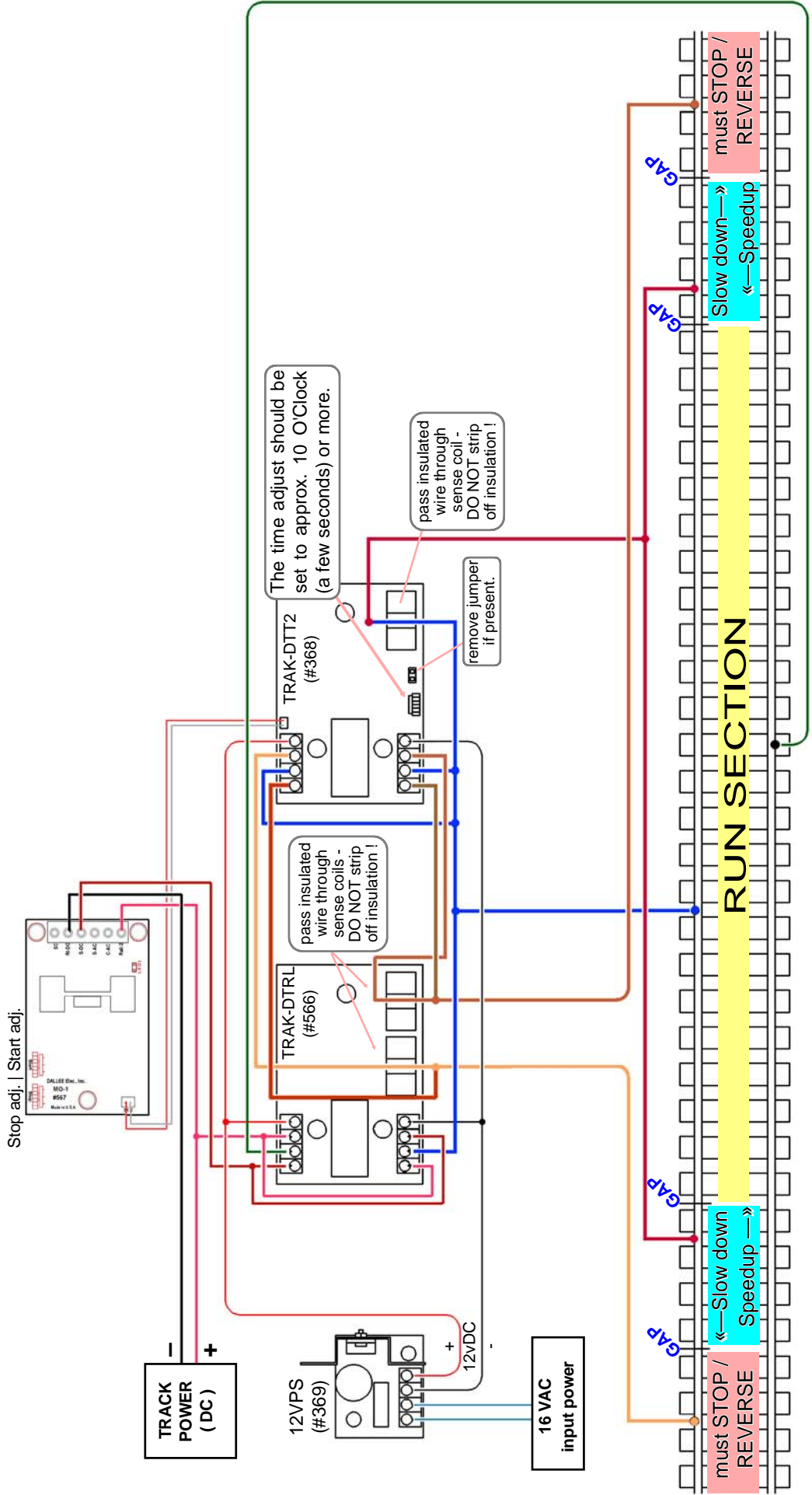
It is suggested to start with the Stop Time potentiometer set full CW for the fastest stop. Then adjust it accordingly after that.

This system has memory so that whenever it is turned off and back on, it will still remember the previous direction. It is not important where the trolley/engine is when powering up but it is important that the track power throttle remains in the correct direction. If it is not correct, the MO-1 will not work and the end reverse will go off the track!

MO-1, item 567, will first power up with it's RED LED turned on. After the control signal is cleared it will then gradually apply power to the track according to the "Start" potentiometer setting. Turning either potentiometer CW will make the time less. CCW will increase time. The RED LED will fully illuminate when the output is off and will change it's intensity as the output voltage changes.

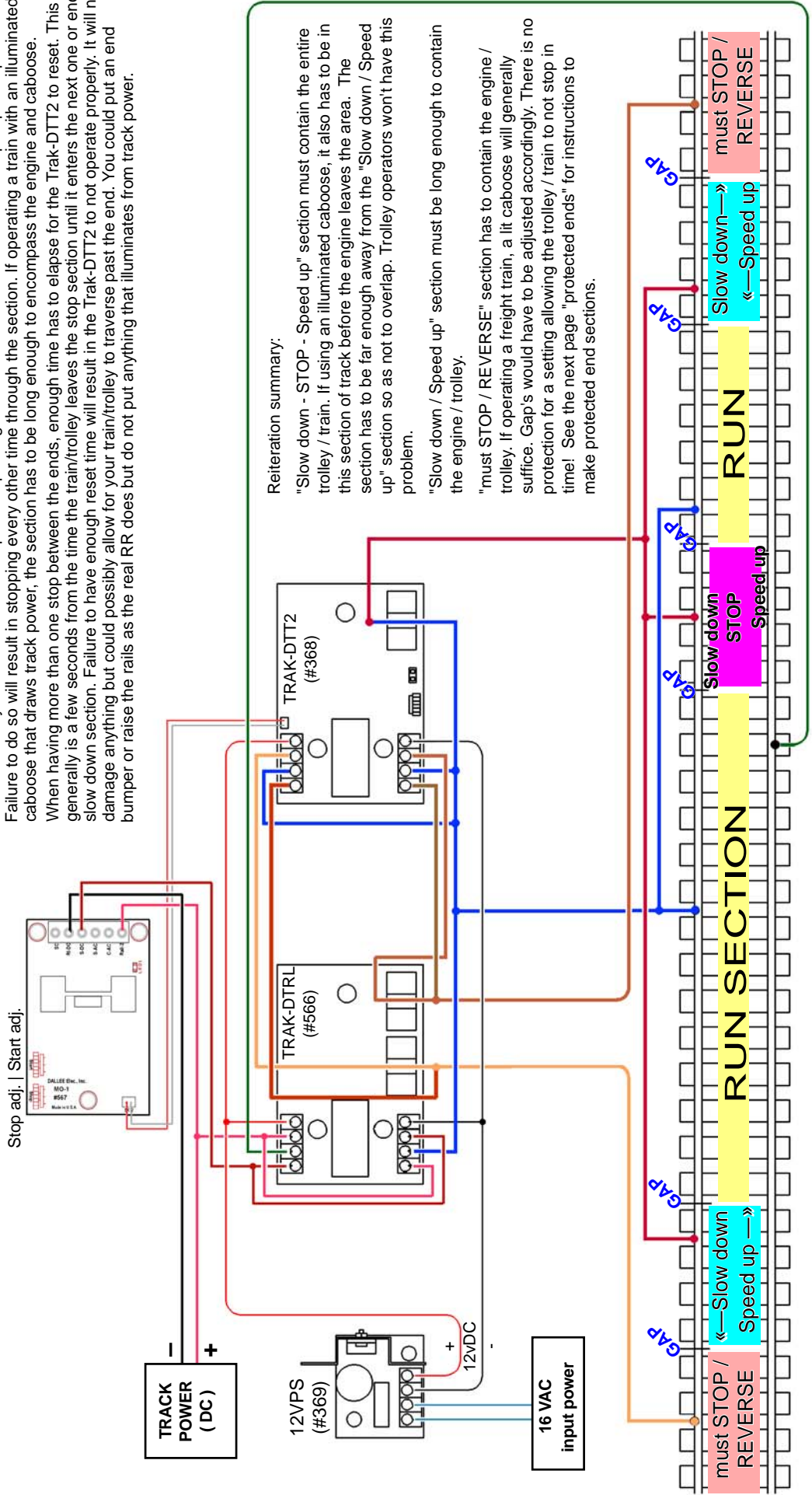
Track Power (DC) polarity must be set as shown. If it is backwards, MO-1 will not operate. Proper polarity wiring is indicated by the MO-1's RED LED illuminating upon first powering the unit up. The MO-1 receives it's power from the Track Power source.

AUTOMATIC REVERSE with TIMED STOP AT ENDS with Memory & Momentum Start/Stop.



AUTOMATIC REVERSE with TIMED STOP AT ENDS with Memory & Momentum Start/Stop and Momentum Start/Stop between ends.

All connections and explanations as found on the first main page apply to this drawing.
 Although only one stop between has been shown, multiple can be made in the same way.
 The train/trolley has to come to a complete stop being contained within the "slow down - stop - speed up" section.
 Failure to do so will result in stopping every other time through the section. If operating a train with an illuminated caboose that draws track power, the section has to be long enough to encompass the engine and caboose.
 When having more than one stop between the ends, enough time has to elapse for the Trak-DTT2 to reset. This generally is a few seconds from the time the train/trolley leaves the stop section until it enters the next one or end slow down section. Failure to have enough reset time will result in the Trak-DTT2 to not operate properly. It will not damage anything but could possibly allow for your train/trolley to traverse past the end. You could put an end bumper or raise the rails as the real RR does but do not put anything that illuminates from track power.



Reiteration summary:

"Slow down - STOP - Speed up" section must contain the entire trolley / train. If using an illuminated caboose, it also has to be in this section of track before the engine leaves the area. The section has to be far enough away from the "Slow down / Speed up" section so as not to overlap. Trolley operators won't have this problem.

"Slow down / Speed up" section must be long enough to contain the engine / trolley.

"must STOP / REVERSE" section has to contain the engine / trolley. If operating a freight train, a lit caboose will generally suffice. Gap's would have to be adjusted accordingly. There is no protection for a setting allowing the trolley / train to not stop in time! See the next page "protected ends" for instructions to make protected end sections.

Momentum Start/Stop with protected ends.

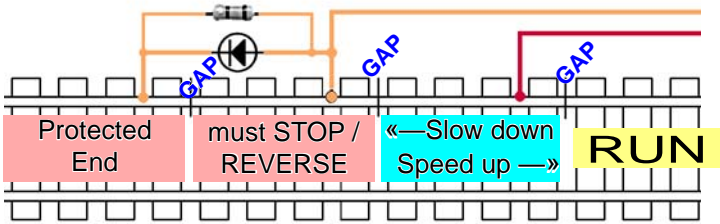
All connections and explanations as found on the other pages apply to this drawing. Since this drawing only deals with protected ends when using the MO-1 unit, that is all that is shown in large detail. This can be applied to any of the back-n-forth drawings utilizing the MO-1 unit. A full drawing example is shown at the bottom of the page.

By creating another section beyond the normal stop section a guaranteed stop is performed regardless of the speed entering the previous section of "must STOP / REVERSE". However, if you are running too fast, you may still possibly exceed the length of track in the "Protected End" section. When entering the "Protected End" section, power is removed from the track via the diode. A resistor or ballast lamp, item 538, must be used to enable detection of a load for the track power to reverse

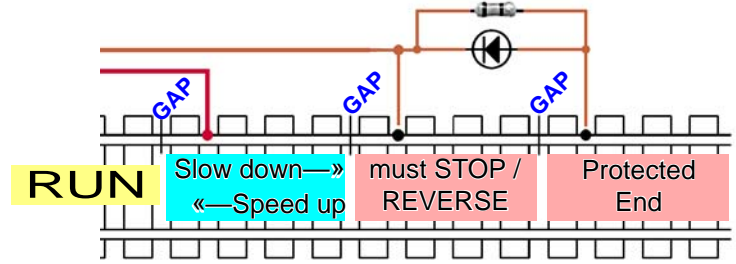
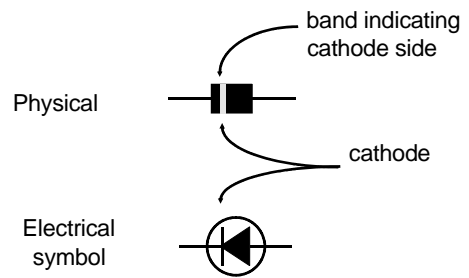
when the engine / trolley is fully into this section alone. The value of the resistor will vary as per the type of track power you are using. For "G" operators, we suggest a 22 ohm 2 watt resistor (item 504). Others may need the same, a higher value, or use the ballast lamp. When using a resistor the value has to be high enough to not operate the engine / trolley when it is to be stopped but low enough to operate the Trak-DTRL sense circuitry.

Remember, each section between the gaps needs to be long enough to hold the engine / trolley. By not making it long enough proper triggering of the units may not occur due to track power pickups not picking up from each truck at the same time (intermittently).

G operators and others requiring a high track current should use item 375 diodes (6 ampere). Low current operators can use item 374 (1 ampere) diodes.



Left side



Right side

