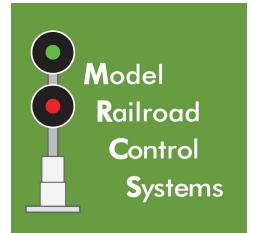


MTB MP/DP Switch Motors:



A New Generation of Turnout Controls



1.63" x 1.7" x 0.67"



2.1" x 2.5" x 0.8"



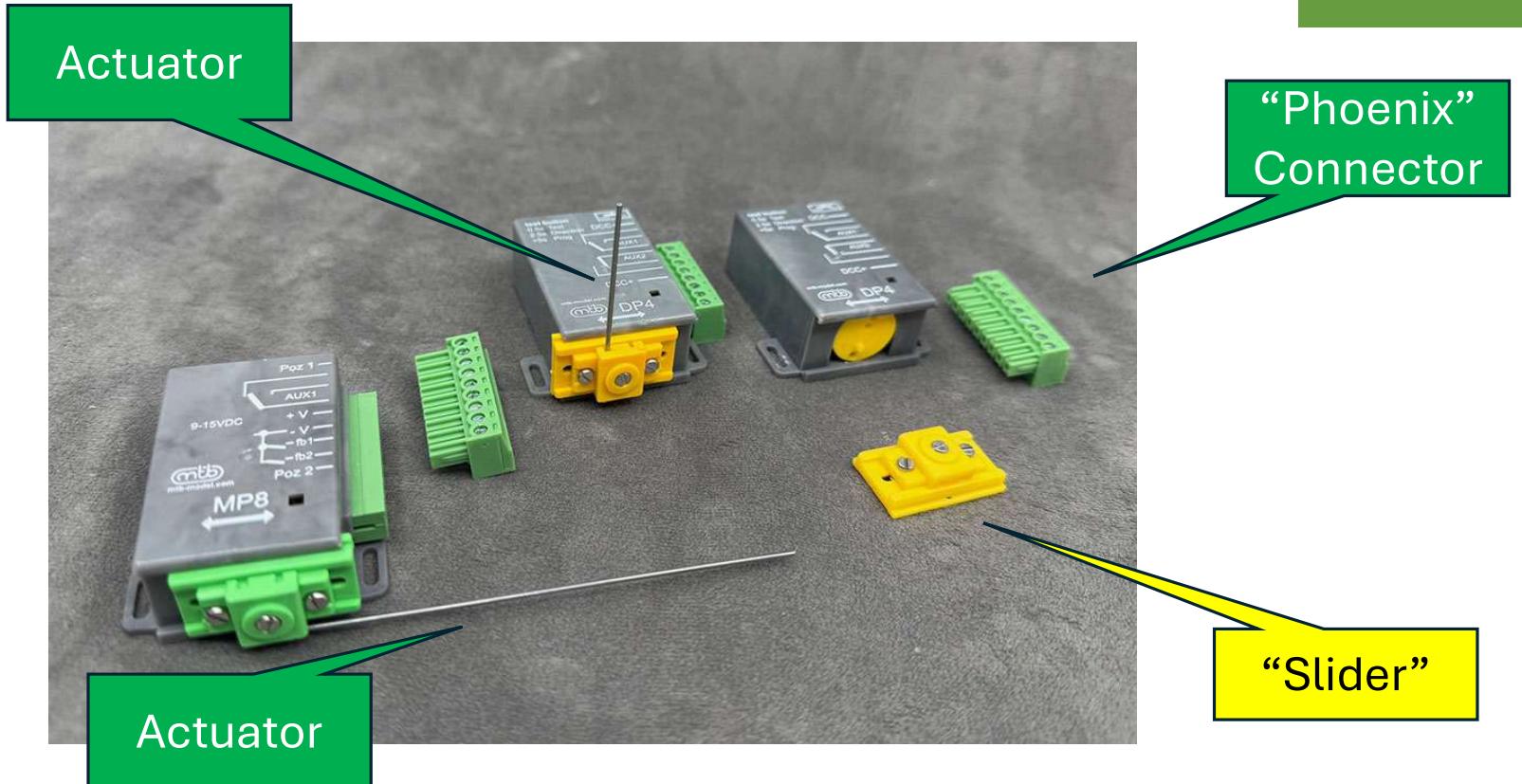
2.3" x 2.2" x 0.8"

All MTB Motors

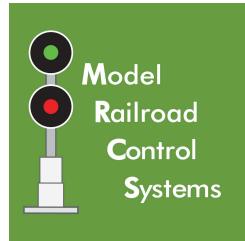


- Compact – only 20mm (~3/4") high and footprint <= to the leading stall motor
 - "No Hangie-Downies" : Easily fits within the sides of modules to save space and avoid damage, great for thin upper decks of Multi-Level layouts
 - Easily fits within trackside structures, great for topside mounting
- Control with DC or DCC or both
- 3 sizes:
 - MP1/DP1 – smallest, one aux contact, fixed connector
 - MP4/MP8/DP4 – 2 aux contacts, removable "Phoenix" connector included
 - MP10/DP10/DP16 – same footprint as "Tortoise by Circuitron™" but only 20mm high! removable "Phoenix" connector included
- Simplified Installation – no edge card connector to buy, no soldering
- Linear motion (rather than rotary)
 - No more snagging trip pins on the actuator wire as the actuator rises in the middle
 - Pin can be dropped with a screw adjustment rather than cutting off in place
 - Works well with r/c linkages, in all dimensions

Motors with Actuator Pins and Phoenix

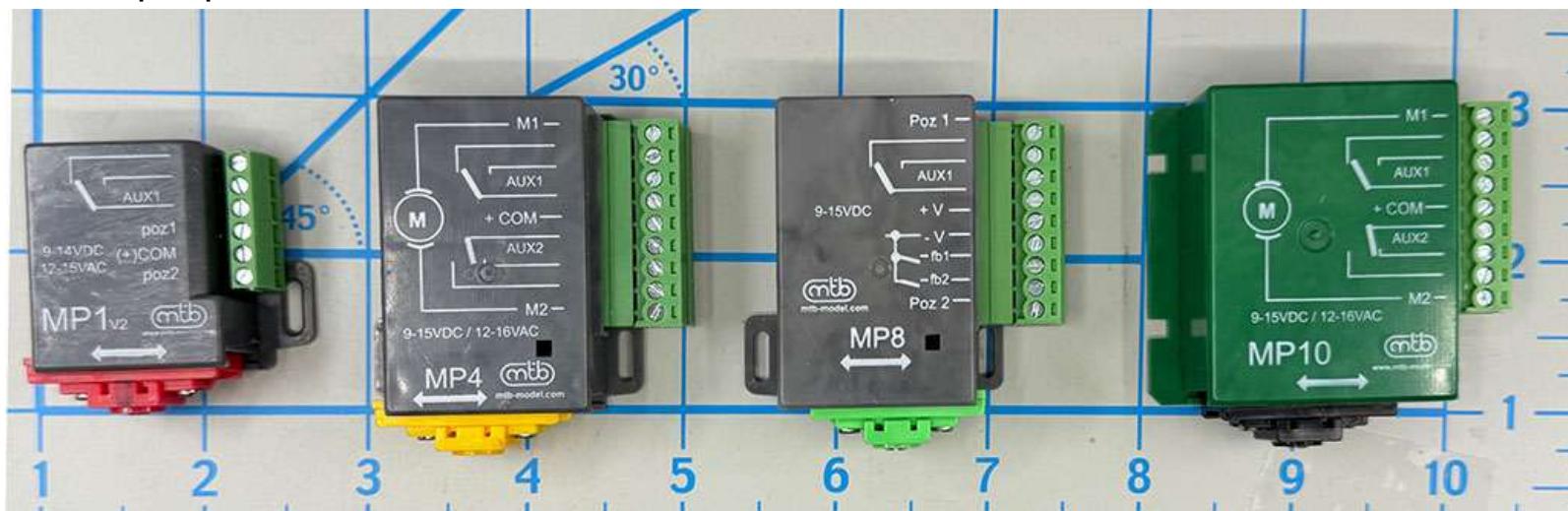


MP Series (DC Control)



- Simplified DC Control

- In 3 wire mode (all MP series) you supply +12 and ground to the operate leads with a simple SPDT switch – no DPDT reversing circuit or multiple supplies needed
- MP4, MP10 can use 2 wire control with a DPDT switch like a stall motor
- MP8 has internal latches for push button control: ideal for switches controlled from multiple points or diode matrices



	1 (Smallest footprint)	4,8 (Medium Footprint)	10, 16 (Tortoise Footprint)
MP 1,4,10	<ul style="list-style-type: none"> • SPDT Aux Contact • 3 wire control • Fixed terminal block 	<ul style="list-style-type: none"> • DPDT Aux Contact • 2 or 3 wire control • 9 Position Phoenix Connector • Medium Footprint 	<ul style="list-style-type: none"> • DPDT Aux Contact • 2 or 3 wire control • 9 Position Phoenix Connector
MP8		<ul style="list-style-type: none"> • Latching inputs for push button control • DPDT Aux Contact – 1 is a switched ground for LEDs • 9 Position Phoenix Connector 	
DP 1,4,10	<ul style="list-style-type: none"> • Switched output for Frog • Fixed terminal block • DCC Control Only 	<ul style="list-style-type: none"> • DPDT Aux Contact • DCC Control Only • 8 Position Phoenix Connector 	<ul style="list-style-type: none"> • DPDT Aux Contact • DCC Control Only • 8 Position Phoenix Connector
DP16			<ul style="list-style-type: none"> • DCC + Local Control • 8 Position Phoenix Connector • Switched Frog output + SPDT

Mechanical

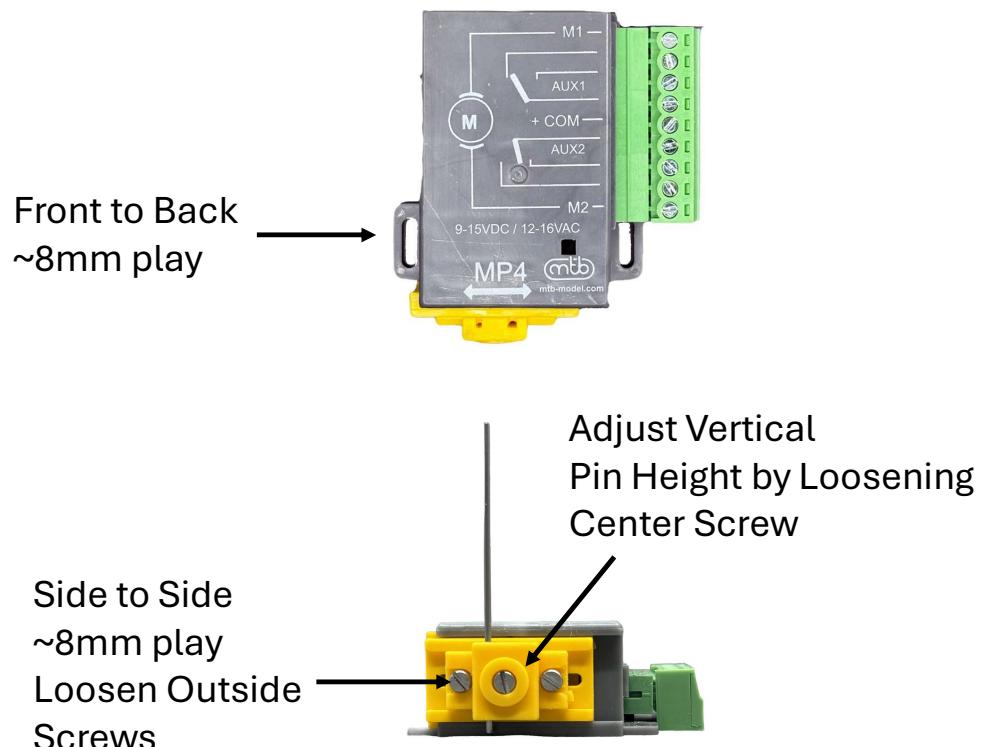
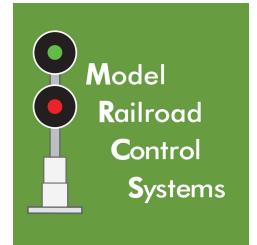


- Motion is linear, not part of an arc
- Actuator can come out vertically or bent horizontally
- Side to side adjustment on front “slider”
- I recommend .039/.047 Music Wire instead of the rigid pin supplied
- No center position, install against one end of travel
- **3, 6, 9, 12 mm throw set by cam pin** (this is fiddly: small parts under tension but adjustment is usually not needed with music wire and default 6 mm throw).

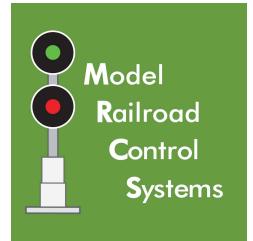
MP/DP 4 Cam Pin Adjustment



Position Adjustment in 3 Dimensions!



DC Control for MP Series Motors



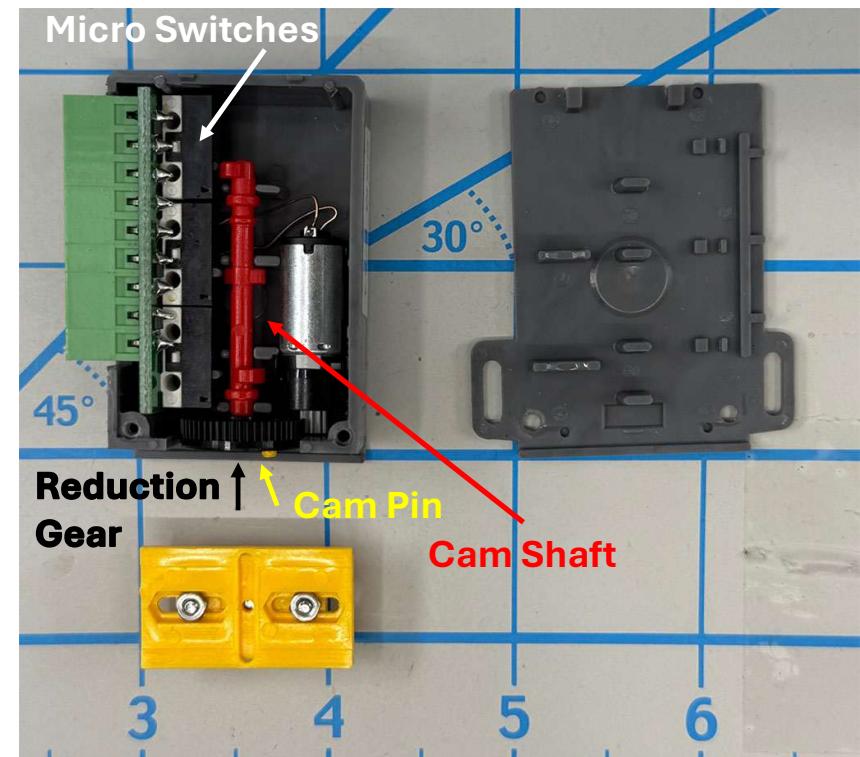
- NO Servos or Stall Motors!
 - You don't need a Servo Controller: the motor always moves to its end position, no stepwise adjustment of ends (just 3,6,9 [12] mm throw by cam pin)
 - Just put power on (+)COM and ground [Poz/M] 1 or 2.
- NOT a Stall Motor!
 - Only draws power while moving (2-3 seconds)
 - Draws 150mA maximum, more than Tortoise by Circuitron™ (20mA) but ONLY WHILE MOVING so total power consumption is very low. Many DCC accessory decoders (Hare, Switchit/Switch8) will not drive an MP – consider using DP series motors if you want DCC control
 - You can't put a bidirectional RED/GREEN LED in series –
 - The LED will burn out (only good for 30mA) and fail open, leaving motor inoperable
 - There is no current flowing when an MP motor is not moving, so the series LED will not illuminate even if it hasn't burnt out
 - If you want to control an LED use an Aux contact or wire LEDs in parallel with motor

If it's “Not a Stall Motor” What is it?

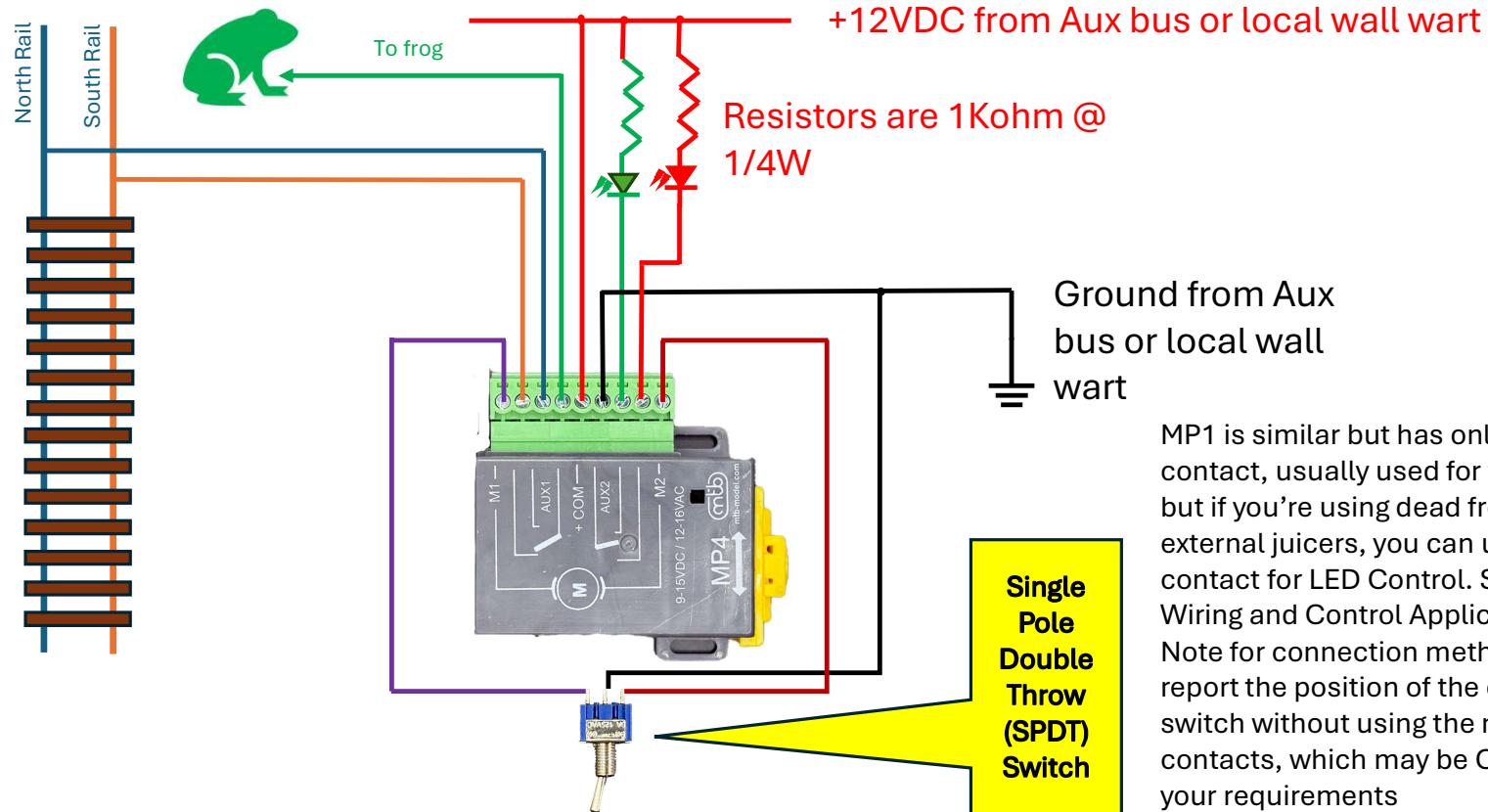


- Can Motor – really torquey!
- Cam Shaft controls start/stop position, aux contacts
- Throw controlled by cam pin at 3,6,9,12* mm
- Slider can be adjusted by loosening two screws on slider
- Pin can be dropped with center screw

* 12mm on 4,8,10,16 only



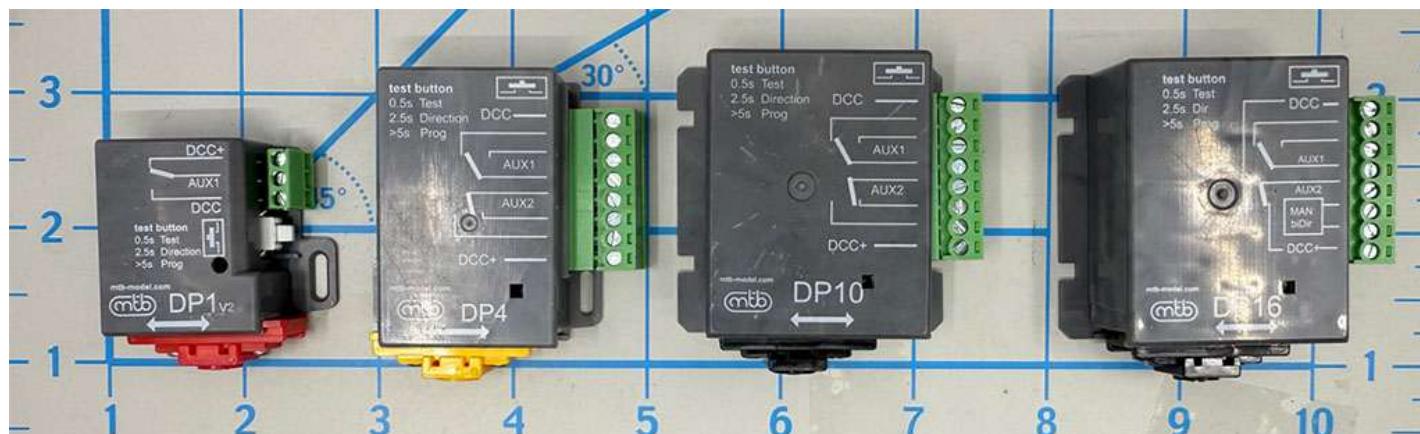
Typical MP4/MP10 Connections (MP4 shown)



MP1 is similar but has only one contact, usually used for the frog, but if you're using dead frogs or external juicers, you can use the contact for LED Control. See our Wiring and Control Application Note for connection methods that report the position of the control switch without using the motor contacts, which may be OK for your requirements

DP Series (DCC Control)

- Operates with almost all DCC systems as accessory decoders
- (address 2-2044)
- Simple one-button programming for address and normal direction
- DP Motors take power from a DCC bus (either main track power or a separate DCC bus for accessories) and do not need/can't use local power
- No provision for local control except DP16 – use a DCC Cab or similar accessory
- DP16 has auxiliary local control which can be overridden by DCC



DCC Control for DP motors

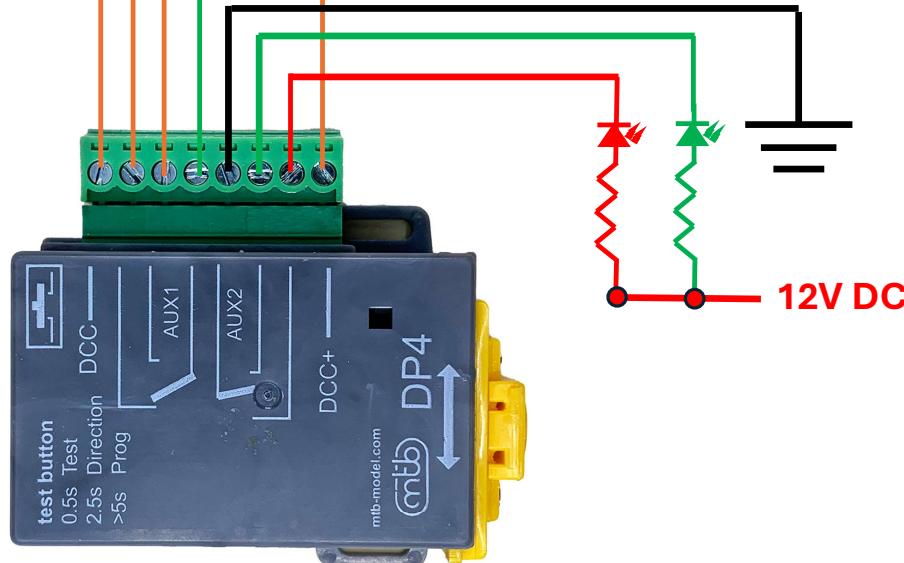


Notes:

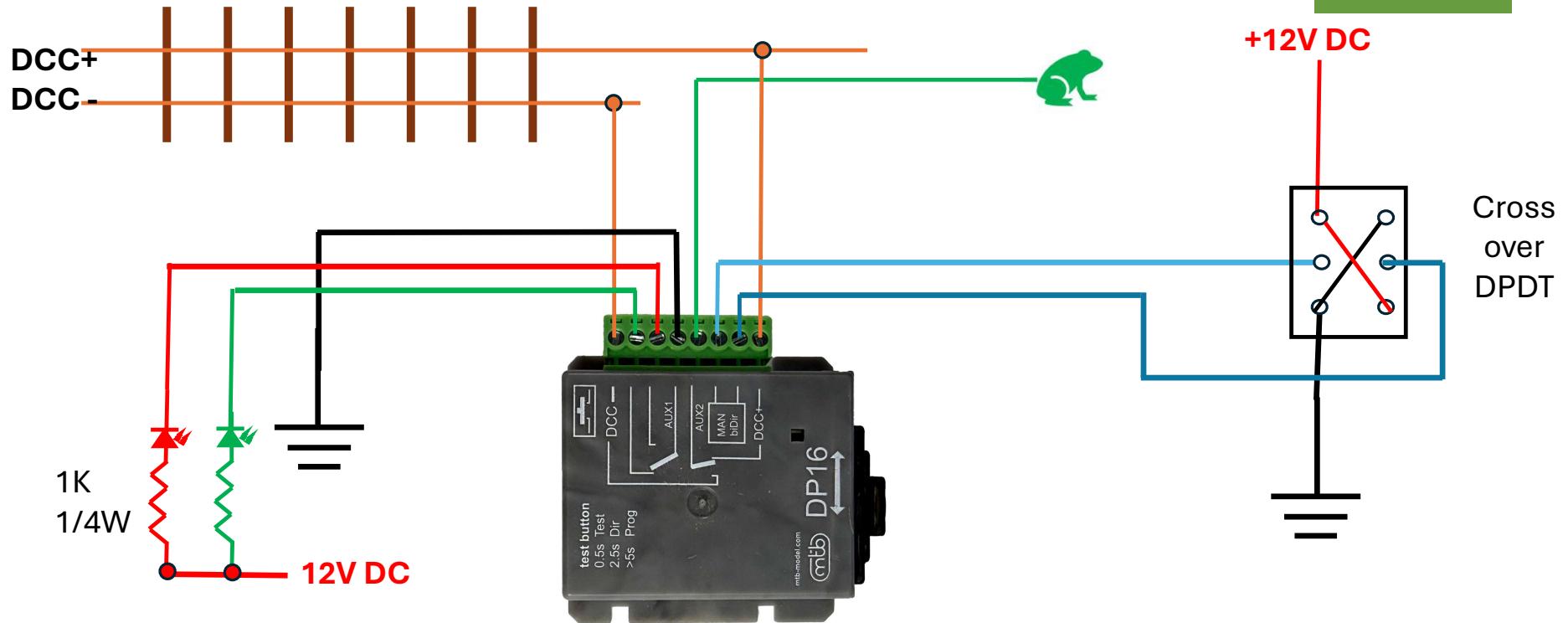
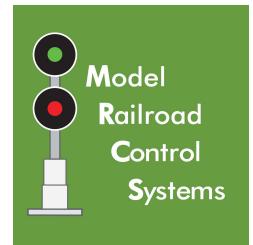
I STRONGLY recommend
Putting DP4/DP10 motors on a
separate DCC breaker or better yet, a
Dedicated booster. The Frog
connections should go to the track,
not Motor, DCC power.

If Frog is the wrong polarity, reverse
the track connections

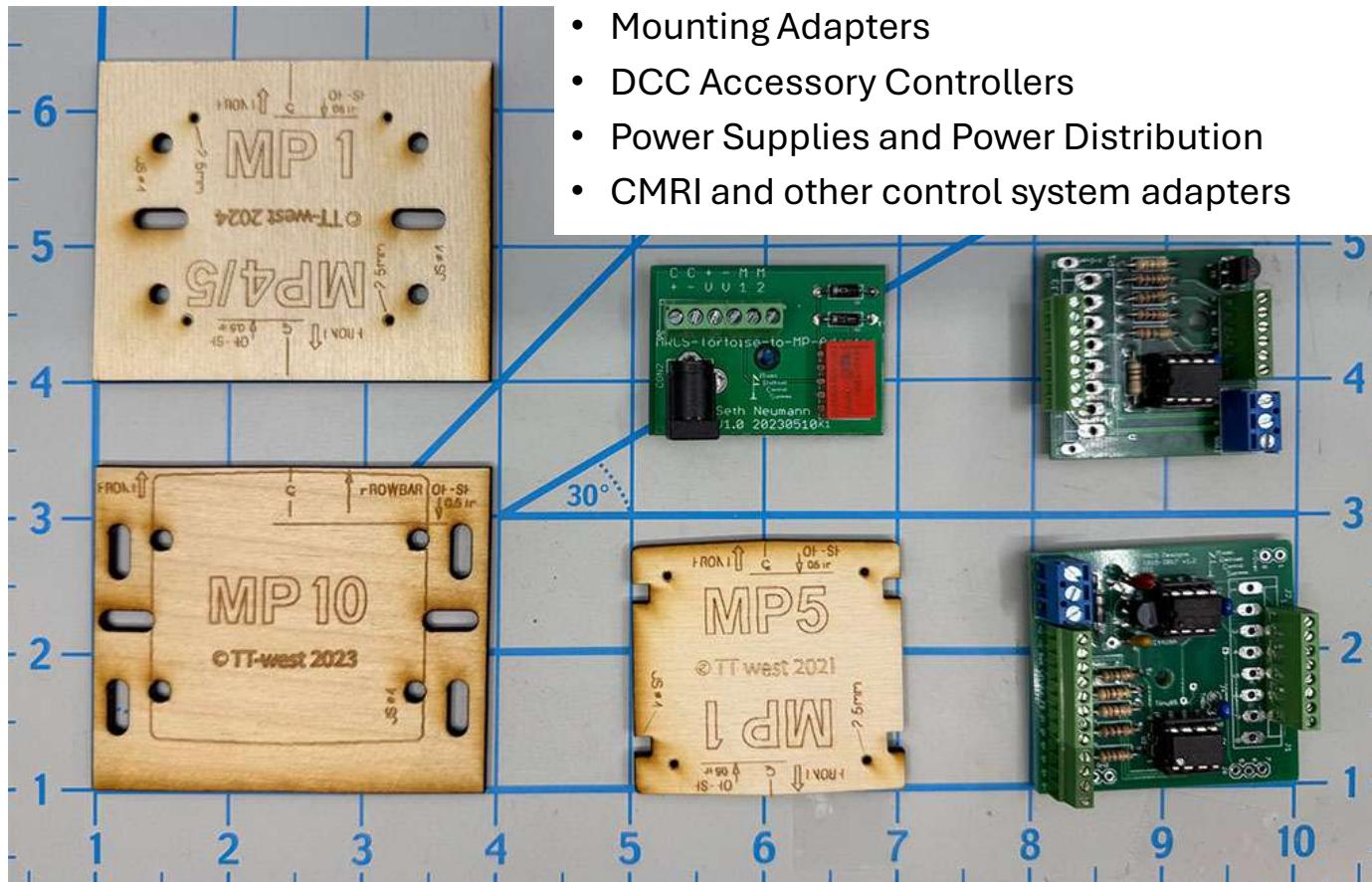
If the wrong LED is lighting, reverse
the connections to the LEDs



Dual Control for DP16



Switch Motor Accessories



Resources and Links



- Which MTB Motor is right for me?

<https://www.modelrailroadcontrolsystems.com/content/which%20MP%20is%20right%20for%20me.pdf>

- MP Series Quick Start Guide

<https://modelrailroadcontrolsystems.com/content/MP%20Quick%20Start%20Guide.pdf>

- DP Series Quick Start Guide

<https://modelrailroadcontrolsystems.com/content/DP%20Quick%20Start%20Guide.pdf>

- Go to my “Switch Motors, Drivers and Mounts” page and select the product you’re interested in

<https://www.modelrailroadcontrolsystems.com/switch-motors-drivers-mounts-etc/>

- Contact sales@modelrailroadcontrolsystems.com

MRCS Product Offerings



- Switch Motors, Controls and Accessories
- cpNode – Arduino based CMRI Nodes
- Telephone Systems for Operations
- Arduino Boards for Operations (Semaphore, Morse Code, etc)
- Operations tools (Flagmen, LightPicks)
- Simple Signaling
- Wiring and power distribution accessories