

# Which MTB Switch Motor is Right for Me?

We are currently carrying 8 styles of MTB switch motor:

The [MP1](#) is the original MP motor, it is the smallest, and features an SPDT auxiliary contact (usually used for frog power switching), has a fixed screw terminal connector and 3,6,9 mm throw adjustments, although, as with all MP motors, we recommend using music wire instead of the manufacturer-supplied rigid actuator pin for more flexibility in mounting. The MP1 has 3 wire control (but you can make it work with 2 wires using external diodes). You can't use the series bi-polar LED trick with MP Motors so if you need a LED position indicator, either don't switch the frog or use an MP4, 5 or 10, all of which have DPDT contacts. Size including mounting ears: 1.63" x 1.7" x 0.67" (42mm x 42mm x 17mm )



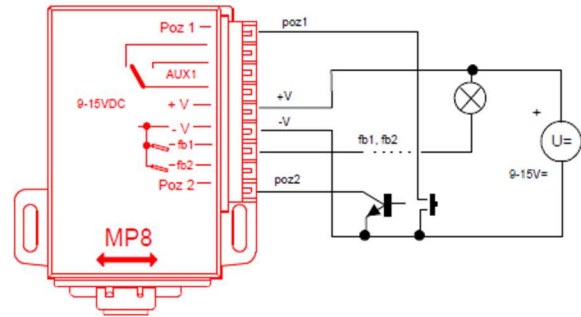
The [MP4](#) was designed as a replacement for the [MP5](#) with an improved "Phoenix" style removable screw terminal connector. The MP4 is the standard DPDT version. The package is 8mm longer than the MP5 but is narrower as the connector only adds about 5mm. The [MP4](#) has a DPDT contact (one side for frog power switching and the other for position feedback or lighting a LED to show position - you can't use the series bi-polar LED trick with MP Motors). [MP4](#) features a removable screw terminal connector, 2 or 3 wire control, and 3-, 6-, 9-, and 12-mm throw adjustments. Size including mounting ears and connector: 2.1" x 2.5" x 0.8" (56 mm x 52 mm x 20 mm)



The DP4 is an MP4 with an internal DCC Accessory decoder. It has an 8-position connector (DCC+/DCC- and a DPDT contact (one side for frog power switching and the other for position feedback or lighting a LED to show position - you can't use the series bi-polar LED trick with DP Motors). The [DP4](#) features a removable screw terminal connector, DCC Accessory Control, and 3-, 6-, 9-, and 12-mm throw adjustments. Size including mounting ears and connector: 2.1" x 2.5" x 0.8" (56 mm x 52 mm x 20 mm). Note there is no local control option, you MUST send commands to the DP4 as a DCC Accessory – almost all DCC systems support 2044 accessory decoder addresses. NCE users can use macros or Mini-Panels, JMRI users can control accessories through a computer interface to most DCC systems.



The MP8 is similar to the [MP4](#) except that it has an internal latching relay so that it operates reliably with push button control. This makes it ideally suited for applications where a motor needs to be controlled at multiple locations such as opposites sides of a module, opposite sides of a peninsula, remote control of wye switches and diode matrix controls. The MP8 has the same mounting footprint and 9 position connector as the MP4, and size including mounting ears and connector: 2.1" x 2.5" x 0.8" (56 mm x 52 mm x 20 mm). The MP8 has 3-, 6-, 9-, and 12-mm throw adjustments. The MP8 has one isolated contact (AUX1 in the diagram, usually used for frog polarity switching) and a pair of outputs for position feedback, referenced to the -V power input. The MP8 requires a constant 9-15V power supply.



The [MP10](#) is similar to the [MP4](#) except that it has the mechanical footprint of a Tortoise by Circuitron (tm) motor. However, the MP10 is only 20mm (~.75") high as opposed to the Tortoise's 83mm. MP10 uses the same removable screw terminal connector as the MP4, 2 or 3 wire control, and 3,6,9, and 12 mm throw adjustments. Size including mounting ears and connector: 2.3" x 2.2" x 0.8" (58 mm x 55 mm x 20 mm )



The DP10 is an MP10 with an internal DCC accessory decoder. It has an 8-position connector (DCC+/DCC- and a DPDT contact (one side for frog power switching and the other for position feedback or lighting a LED to show position - you can't use the series bi-polar LED trick with DP Motors). The [DP4](#) features a removable screw terminal connector, DCC Accessory Control, and 3-, 6-, 9-, and 12-mm throw adjustments. Size including mounting ears and connector: 2.3" x 2.2" x 0.8" (58 mm x 55 mm x 20 mm). Note there is no option for local control: you MUST send commands to the DP10 as a DCC Accessory – almost all DCC systems support 2044 accessory decoder addresses. NCE users can use macros or Mini-Panels, JMRI users can control accessories through a computer interface to most DCC systems.



The DP16 has the same footprint as the MP10 and DP10 but it has DUAL CONTROL. You can think of it as a DP10 that also provides for local DC Control. It has one SPDT contact and another lead which switches the DCC power polarity, so it can be used to power a frog from the DCC input to the switch. Note the DP16 receives power from the DCC bus on the two outer pins and is NOT powered by the DC controls.



The [MP5](#) has a slightly larger package than an MP1 with a DPDT contact (one side for frog power switching and the other for position feedback or lighting a LED to show position (You can't use the series bi-polar LED trick with MP Motors). MP5 features a removable screw-less connector, 2 or 3 wire control, and 3,6,9, and 12 mm throw adjustments. The removable connector sticks out about 10mm (~0.5"). Size including mounting ears and connector: 1.7" x 2.5" x 0.76" (43mm x 63.5mm x 19.27mm) The MP5 is being phased out in 2025 so it is not recommended for new installations, but we are trying to keep stock to support our existing MP5 users as long as MP5s are available from MTB.



## So which MTB motor should I choose?

1. Do you want DC control (toggle switches, push buttons, Arduino or computer) or DCC control via cabs (or JMRI via a computer interface to a DCC command station) or both?
  - a. Use MPs for DC control and DPs for DCC control.
  - b. If you need DCC AND local control, use the NEW DP16.
2. Once you've made that decision, what size/format and number of contacts do you need?
  - a. If you are going for small, top side mounting, hidden in structures, modular layouts where you don't want things hanging down, upper decks where no LED indicator is needed (unless you're using juicers or don't care about frog power switching) the [MP1](#) is for you, but it's available only with DC control.
  - b. Users needing a DPDT contact (both frog power switching and a LED indicator), removable connectors, or 12mm throw will find an MP4/MP10 or DP4/DP10 are the better choices. The [MP4](#) is the current design, and is recommended for new installations. The [MP10/DP10](#) are electrically similar to the [MP4/DP4](#) but have the same footprint as the Tortoise by Circuitron (tm) so are preferred for Tortoise by Circuitron™ replacements or if you have fixtures and templates for installing tortii and want to maintain mechanical compatibility.
  - c. If you would like to use push button controls, usually for control from multiple locations or via diode matrix, check out the NEW MP8.

3. If you need BOTH DC (usually for a local fascia switch) AND DCC control, the NEW DP16 is for you! Note that the DP16 has one SPDT contact as well as a switched frog lead, which covers most use cases for a DPDT contact set.

	Small SPDT, fixed connector	DPDT, removable connector, smaller footprint	DPDT, removable connector, Tortoise by Circuitron™ footprint
DC Control <ul style="list-style-type: none"> <li>• Toggle Switch</li> <li>• Arduino</li> <li>• Computer</li> </ul>	MP1	MP4	MP10
DC Control, push button or pulsed (minimum 100 mS)		MP8	
DCC Control		DP4	DP10
BOTH DC and DCC Control			DP16*
First Generation DC Control – not recommended for new installations		MP5	

Figure 1 - Note: in this chart DC/DCC refers to control of the MOTOR, you can run DC or DCC for train power on either type of motor.

\* One contact is free for anything you want to use it for, the second is switched frog power from the DCC input.

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