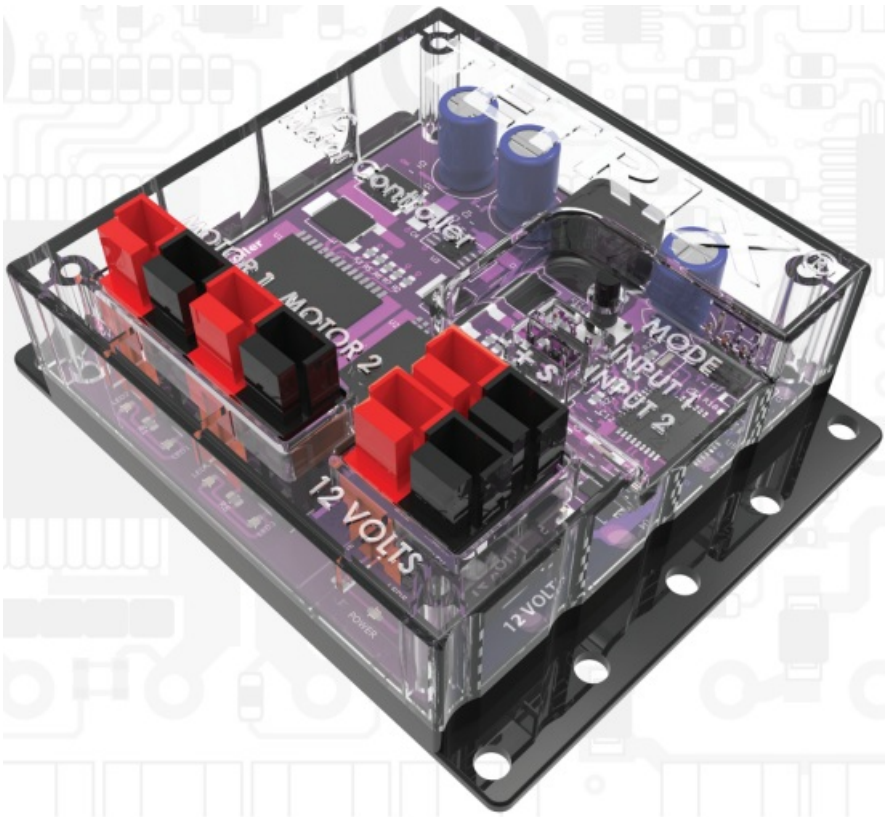
PITSCO EDUCATION Tetrix Max R/C Motor Controller User Guide



Contents

TETRIX® MAX R/C Motor Controller Quick-Start Guide

45974

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A downloadable PDF of the most recent version of this guide can be found at Pitsco.com/TETRIX-MAX-RC-Motor-Controller.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

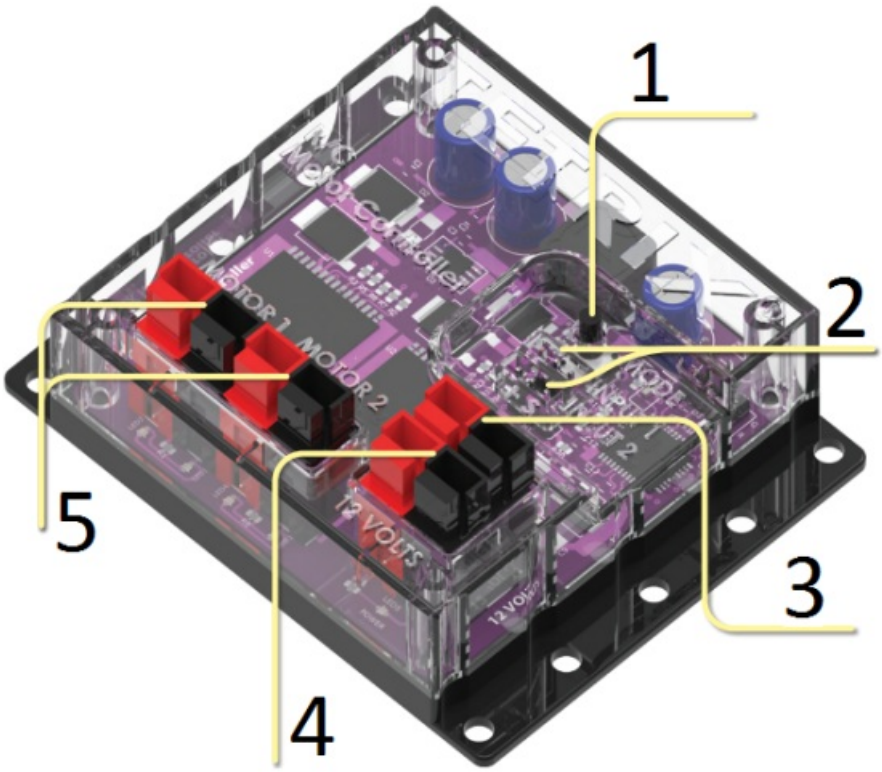
V1.0 03/20

Introduction

The TETRIX® MAX R/C Motor Controller enables you to control up to two DC motors using a standard radio control transmitter and receiver. The controller will work with any radio system that follows the standard hobby

servo-type control protocol. The motor outputs on the controller enable both speed and direction control of TETRIX TorqueNADO® DC motors. However, other 12-volt DC motors can be connected using adapter cables. Like all TETRIX controllers, power is supplied from a TETRIX 12-volt fuse-protected battery pack. Power is routed through a TETRIX power switch (43169) to the controller using Powerpole connectors.

The receiver is connected to the motor controller using two channel input cables (one for each motor). The input ports on the motor controller are pulse-width modulated (PWM) that enable precise speed and direction control of each motor channel. The controller has two different modes of operation, which are described in the Mode Switch section of this guide.



1. **Mode switch**
2. **Motor control inputs**

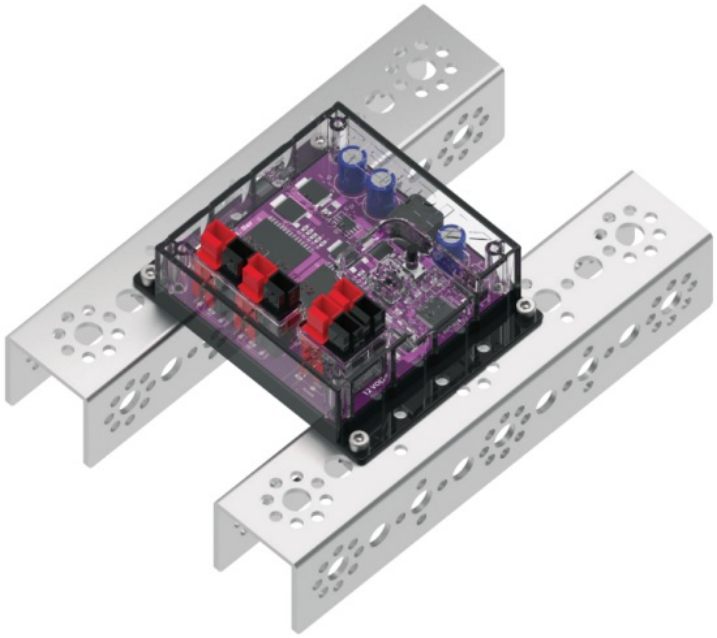
   DC motor control PWM inputs from R/C receiver
3. **Power out**

   Spare power port can be used to supply power to additional controllers; this requires the TETRIX MAX Powerpole Extension Cable (43390).
4. **Battery connection port**

   Power is supplied to the controller using the TETRIX On/Off Switch (43169) and a fuse protected battery pack. The power switch is included in TETRIX sets; additional power switches sold separately.
5. **Motor outputs**

   DC motor connections

Mounting Example



The controller can be mounted to a TETRIX structure in a variety of ways using screws and nuts included in TETRIX sets.

Operation

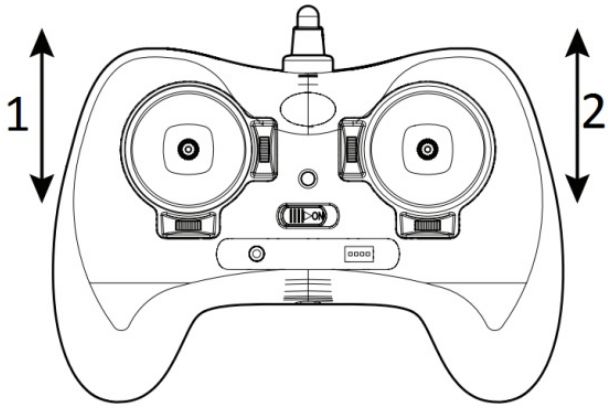
Be sure that you've made all the proper connections from your robot to the R/C controller before power-up. When the TETRIX MAX R/C Motor Controller is powered on, you should see the mode LED flash three times. This indicates that the controller is initializing. The LED will then either stay on or go off depending on which mode the controller is in. After this is complete, you can adjust the trimmer controls on your gamepad as desired.

Mode Switch

There are several ways to configure the R/C motor controller and gamepad. First, the R/C motor controller has two different modes - independent channel mode (sometimes called tank-drive mode) and mix channel mode (sometimes called singlestick mode). You can toggle between these modes by pressing the Mode button on the R/C motor controller. When the LED near the Mode button is on, the controller is in mix channel mode. When the LED is off, the controller is in independent channel mode. Each time the controller is powered up, it will remember which mode it was previously in and start in that mode.

Independent Channel Mode (Tank Drive)

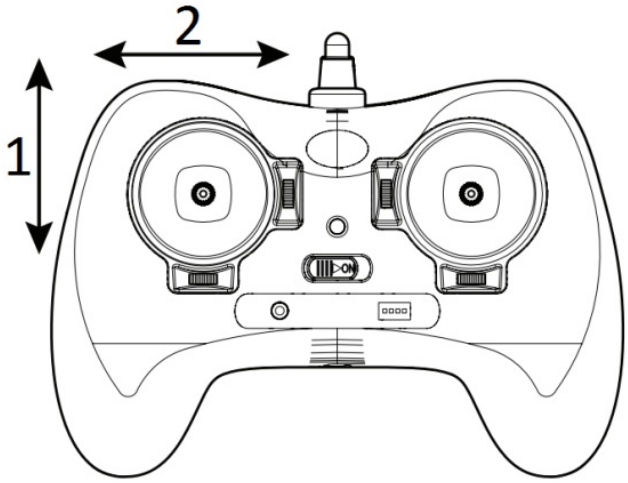
For independent channel mode, the mode LED on the controller must be off. In this mode, each motor is controlled independently by two different joysticks on the gamepad. For a typical mobile robot, the up-and-down movement of the left joystick controls forward and backward motion on the left motor. The up-and-down movement on the right joystick controls forward and backward motion on the right motor. To move the robot forward, both joysticks are pushed forward at the same rate. To turn, only one joystick is moved.



1. Left Motor Forward/Backward
2. Right Motor Forward/Backward

Mix Channel Mode (Single-Stick Drive)

For mix channel mode, the mode LED on the controller must be on. In this mode, some behind-the-scenes calculations done by the controller allow a typical mobile robot to be controlled by a single joystick on the gamepad. Usually, a joystick's up-and-down movement controls the forward and backward motion while the joystick's left and right movement causes the robot to turn. This lets you drive a robot with one hand and frees up the other joystick for controlling other elements such as servos.



1. Forward/Backward
2. Left/Right

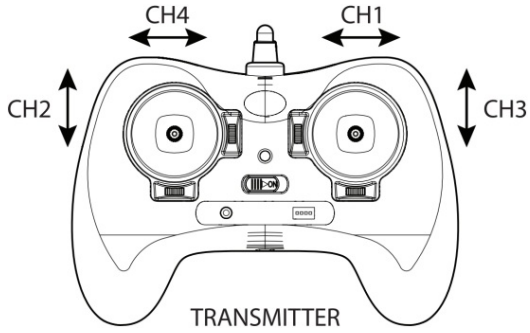
Wiring Connections and Startup Procedure

After you've mounted the R/C motor controller, the R/C wireless receiver, and the battery to your robot, you need to connect and complete the wire connections among all components. Follow these wiring instructions to correctly power the R/C motor controller and receiver.

Tip: Secure all wires so they do not become entangled in any moving parts.

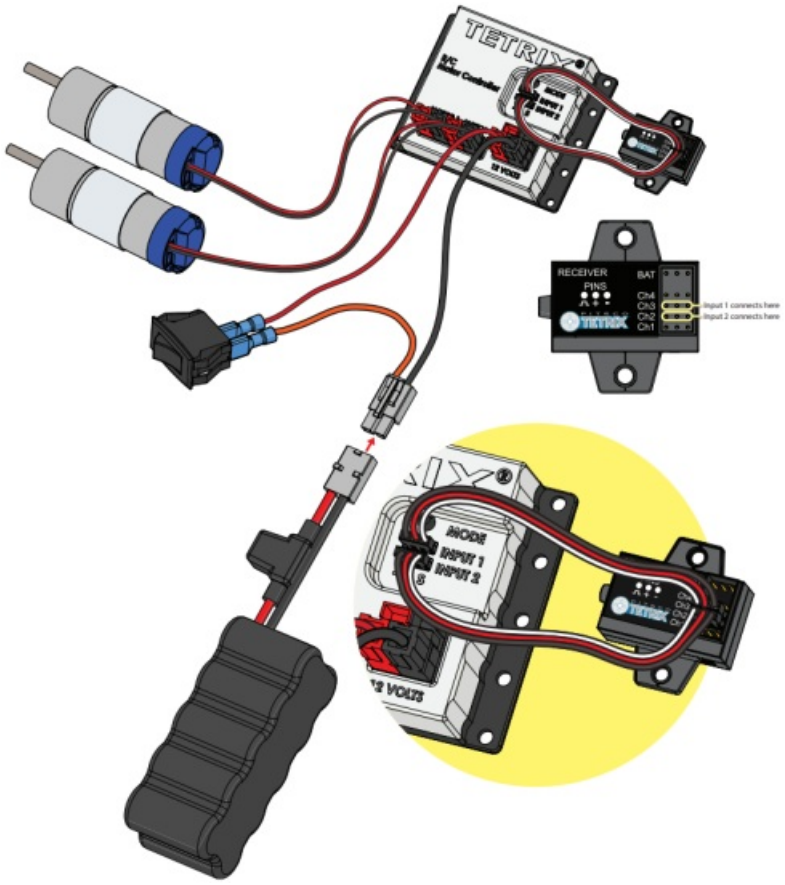
- With the robot facing away from you, connect the left DC motor cable to the Motor 1 Powerpole input on the R/C motor controller.
- Connect the right DC motor cable to the Motor 2 Powerpole input on the R/C motor controller.
- Use a 3-pin channel input cable to connect Input 2 on the R/C motor controller to one of the channels on the

R/C wireless receiver.
  • Tank drive usually uses Channel 2 on the receiver.
  • Single-stick drive also usually uses Channel 2 on the receiver.
- Use the other 3-pin channel input cable to connect Input 1 on the R/C motor controller to one of the open channels on the R/C wireless receiver.
  • Tank drive usually uses Channel 3 on the receiver.
  • Single-stick drive usually uses Channel 4 on the receiver.
- Connect the battery to the on/off switch.
- Connect the Powerpole wire from the switch to one of the 12-volt power inputs on the R/C motor controller.
- Turn on the gamepad controller.
- Turn on the on/off switch to power the R/C motor controller.
- Press the Mode button on the R/C motor controller to select the appropriate mode.
  • Tank drive - The mode LED on the controller should be off.
  • Single-stick drive - The mode LED on the controller should be on.

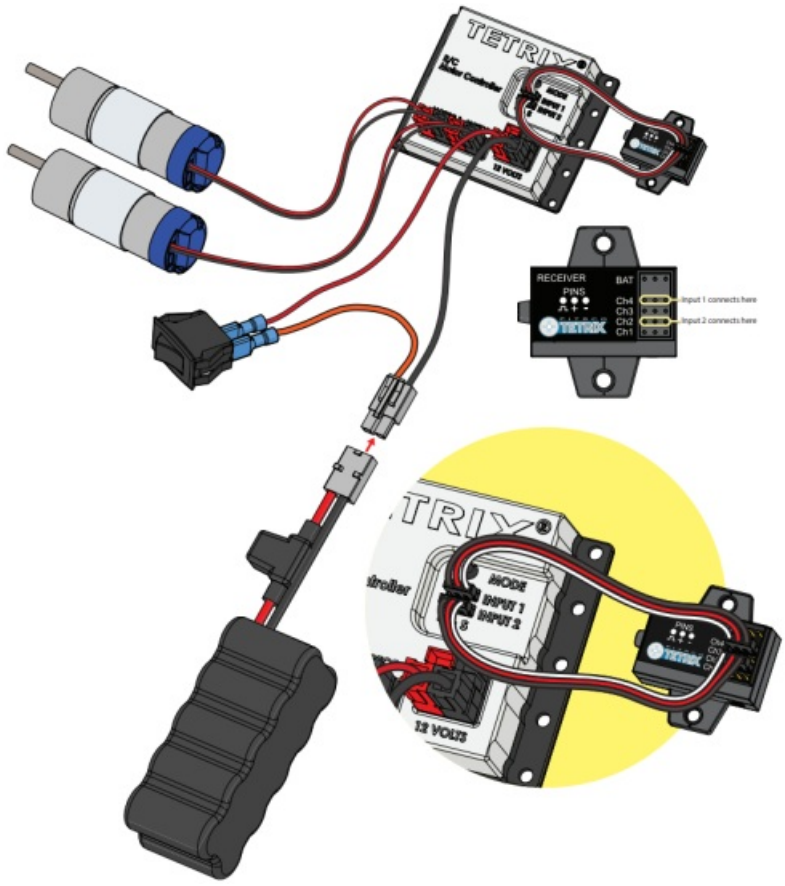


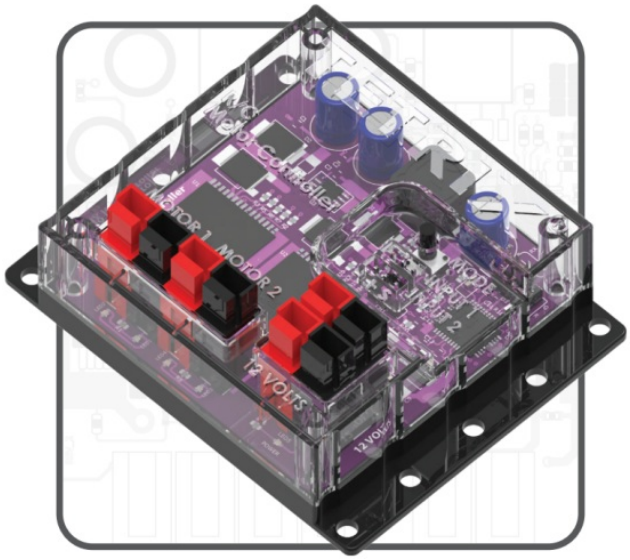
TETRIX MAX R/C Motor Controller Wiring Illustrated

Tank-Drive Mode



Single-Stick Mode





HAVE QUESTIONS?

There are a variety of ways to get in touch with us:
Call us at 800-358-4983.
Email us at orders@pitsco.com.
Chat with us on Pitsco.com/support.

Documents / Resources

	PITSCO EDUCATION Tetrix Max R/C Motor Controller [pdf] User Guide Tetrix Max, R C Motor Controller, Tetrix Max R C Motor Controller

References

- TETRIX® MAX R/C Motor Controller (W45849)