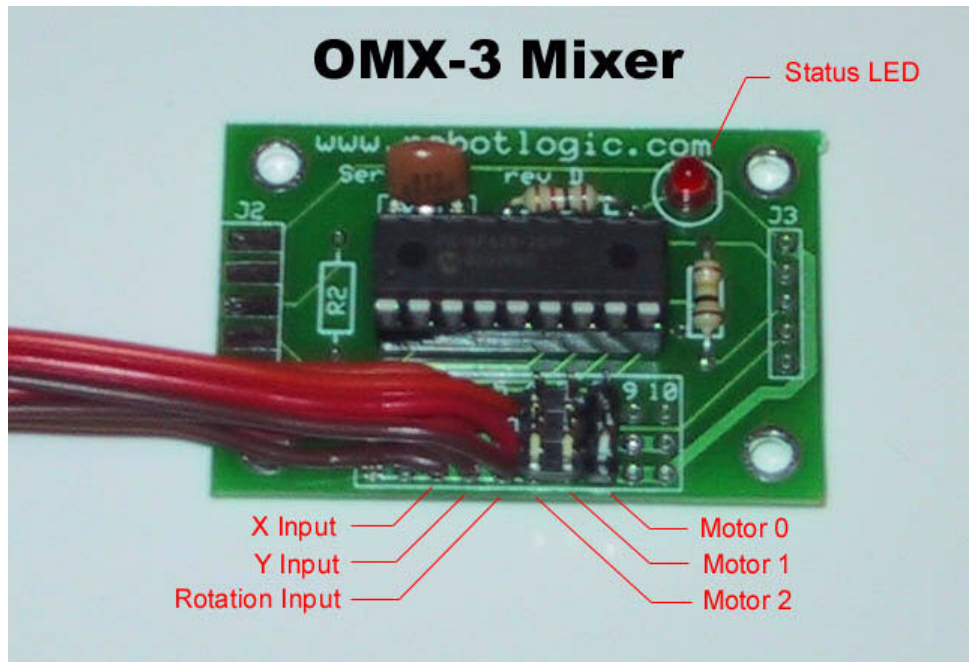


# RobotLogic

[www.robotlogic.com](http://www.robotlogic.com)

**OMX – 3  
Omni-Directional Mixer  
Users Guide**



## Introduction

The OMX-1 mixer generates motor control servo pulses suitable for driving a three-wheeled omni-directional robot. The mixer is installed between your RC receiver and your motor speed controller. Three RC inputs are used to control your robot or vehicle: X, Y, and rotation. From these inputs, the necessary motor control signals are calculated; giving full 3 degrees of freedom motion.

## Features

### Omnidirectional Mixing

This mixer can compute the appropriate motor control signals for an arbitrary combination of two translational inputs and one rotation input.

### User selection of "forward"

Logically, a three-wheeled omni-directional robot can have one of two conventions for "forward". You either want one of your wheels to be "forward" or one of your edges to be "forward". We allow you to select which of these conventions your robot needs. By default, we assume that one of the edges of your robot is its "front"; you can select the opposite convention by closing the connection on solder pad 1 (drop a dot of solder across the two pads).

### Failsafe

The OMX-3 acts as a failsafe. It will shut off all outputs whenever no signal or an invalid RC signal is detected. The incoming signal is constantly monitored and operation is resumed as soon as a valid RC signal is re-detected.

### **Signal Boosting**

When used with the popular IFI speed controllers, there is no need for additional in-line signal boosters. The OMX-3 can drive up to two Victor 833 speed controllers per output.

### **LED Status Indicator**

The LED on your IMX-1 Mixer can be used to verify proper operation. Its behavior can indicate one of the following 4 states:

<b>LED Behavior</b>	<b>Mixer Status</b>
Off	No power
On – Solid	Valid signal
On – Slow Blinking	Invalid signal or no signal detected

# Installation Instructions

## Connect the Mixer to your RC receiver.

- Plug the X servo lead into the left-right RC channel on your receiver. For most RC systems, this will be channel 1.
- Plug the Y servo lead into the forward-back RC channel on your receiver. For most RC systems, this will be channel 2.
- Plug servo lead 3 into the RC channel which you wish to use to control rotation. We use the left-right axis of our left control stick to control rotation; this is RC channel 4 on the Futaba 8UAPS.

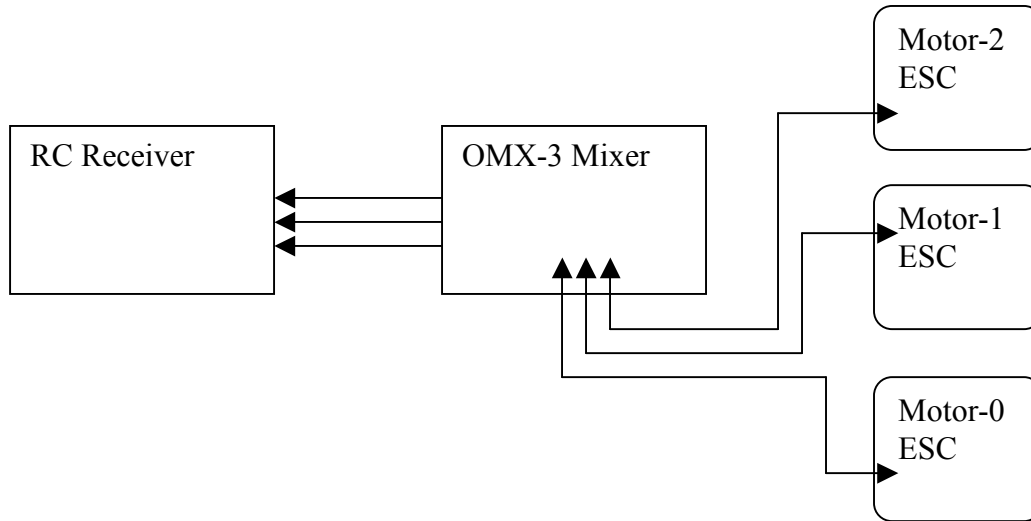
## Signal Test

- Connect your receiver battery and turn on your transmitter.
- The LED will perform a couple of flashes during startup. After that, the LED should turn on when it detects a valid signal. If the LED does not turn on, check that the servo leads are plugged into the receiver completely in the proper orientation, your receiver is receiving power and your transmitter is on.

## Connect Speed Controllers to the Mixer

- Using the cables that came with your speed controller, connect your motor speed controllers in counter-clockwise order to the mixer. Ensure that the connector is oriented such that the signal wire is near the center of the board and the ground wire is near the bottom edge of the board.
- With your robot/vehicle supported so that its wheels are not touching the ground, power everything up and test the behavior of the system. In order to get the desired side of your robot to be the "front" you may need to rotate the speed controller connections to the OMX-3.
- When you move the rotation stick to the right, all of your motors should spin your bot clockwise. If any motors spin in the wrong direction, you'll need to reverse their polarity from the speed controller.

## Wiring Diagram



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