

MMR Gear Display Users Guide

v0.9





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Introduction

The MMR Gear Display uses a large, bright 7 segment LED display that allows you to identify the currently engaged gear at a glance, including neutral and reverse.



Overview

The MMR Gear Display is a simple device requiring minimal connections and configuration. The device should be connected to a switched +12vdc source, ground, and the transmissions gear sensor output. Once the the electrical connections have been made, it will need to be calibrated to your specific transmission.

MMR Gear Display Wiring

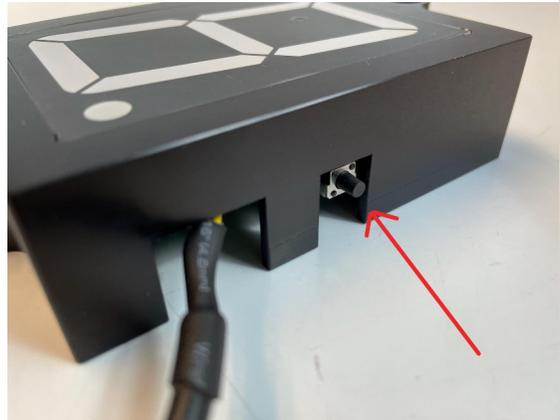
The MMR Gear display wiring is very simple and consists of 3 wires.

Color	Name	Description
Black	GND	Ground
Red	+12V	Switched +12V, hot in ACC/RUN
Yellow	SENSOR	Transmission Gear sensor output. This is a 0-3.3VDC Signal. WARNING – DO NOT EXCEED THE MAXIMUM 3.3VDC INPUT VOLTAGE, DAMAGE WILL OCCUR!

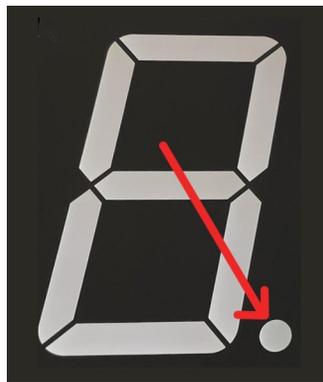
Calibration

Once the electrical connections have been made, you'll need to calibrate the display to your transmission.

In order to put the Gear Display into calibration mode, turn the car to ACC or RUN (do not start the engine), and press and hold the button on the side of the Gear Display for 3-5 seconds.



At this point, there should be a 'blinking' dot in the lower right hand portion of the display, indicating that the Gear Display is in calibration mode.



In calibration mode, you can connect to the Gear Display using any WIFI capable device (cell phone, laptop, tablet etc.) Go to your device WIFI configuration screen and connect to the MMR-???? (where ???? is a combination of letters and numbers) Gear Displays WIFI connection.

Once you have connected to the WIFI connection, open a web browser (chrome, safari etc) and go to the following address:

<http://192.168.4.1>

The calibration screen will be displayed:

GEAR	VALUE		
Neutral	0	SET	CLEAR
1	0	SET	CLEAR
2	0	SET	CLEAR
3	0	SET	CLEAR
4	0	SET	CLEAR
5	0	SET	CLEAR
6	0	SET	CLEAR
7	0	SET	CLEAR
8	0	SET	CLEAR
9	0	SET	CLEAR
Reverse	0	SET	CLEAR

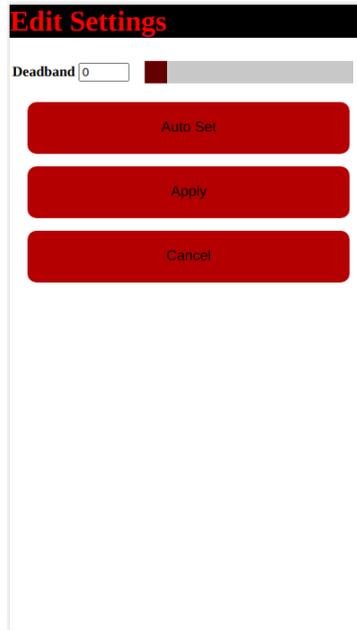
Configuration

This screen allows you to calibrate the MMR Gear Display for each gear in your transmission, including Reverse and Neutral. Gears that aren't available in your specific transmission should be left with the value of '0'

To begin calibration, put your transmission into the Neutral position, and select the 'SET' option next to the 'Neutral' gear. After selecting the 'SET' option, the calibration value for the selected gear will be updated. This process should be repeated for each gear in your transmission (including Reverse).

Once you have completed calibrating each of the gears, select the 'Configuration' button at the bottom of the screen.

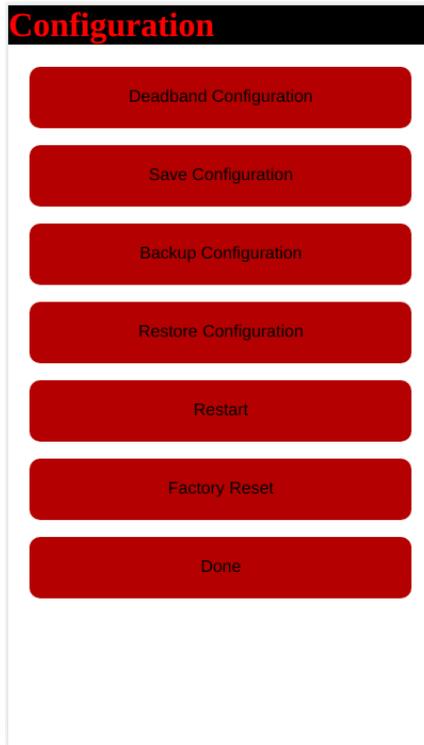
Next, select the 'Deadband Configuration'. This will cause the deadband configuration screen to be displayed:



The deadband screen allows you to set a deadband around each of the gear calibration value in order to reduce false gear displays and ‘flickering’ of the display between gears. Typically, you’ll just select the ‘Auto Set’ option and the Gear Display will attempt to calculate the optimum deadband settings based on the currently calibrated gear settings (be sure to calibrate the gears BEFORE selecting this option, otherwise it will not work correctly!)

Alternately, you can manually enter a deadband value directly by entering a value in the Deadband field. This value directly correlates to the values that were calibrated in the main calibration screen. A value too large in this field could cause the incorrect gear to be displayed, a value that is too small can cause flickering of the display.

Once you have completed configuring the deadband, select the ‘Apply’ option, and you will be returned to the ‘Configuration’ Screen.



Once you are in the configuration screen, select the ‘Save Configuration’ option. You should then turn off the ignition in order to exit calibration mode. (your WIFI device will be disconnected from the Gear Display at this point).

IMPORTANT: If you do not select the ‘Save Configuration’ option before turning off the ignition, your calibration data will be lost and you will have to recalibrate the device! Be sure to always select the ‘Save Configuration’ option any time calibration/deadband changes have been made!

WARNING: Be sure to turn off the ignition after completing calibration, the Gear Display should not be left in calibration mode during normal operation!

Firmware Updates

The MMR gear display provides the capability of OTA (over the air) firmware updates. In the case that new firmware is released, you can use the following steps to update your device:

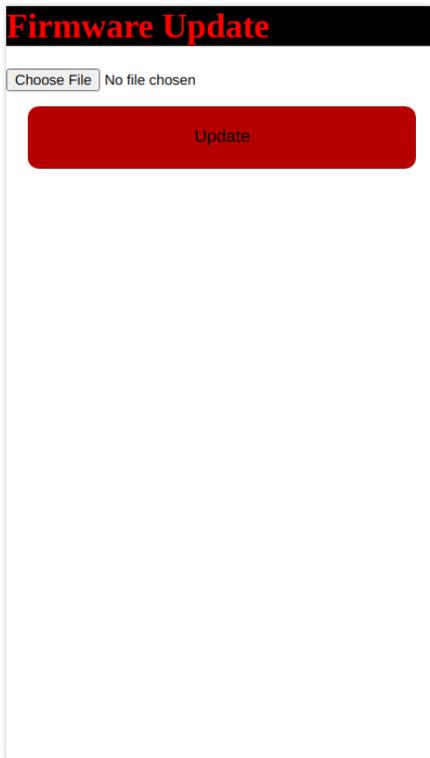
In order to put the Gear Display into firmware update mode, turn the car to ACC or RUN (do not start the engine), and press and hold the button on the side of the Gear Display for 3-5 seconds. At this point, there should be a 'blinking' dot in the lower right hand portion of the display, indicating that the Gear Display is in firmware update mode.

In firmware update mode, you can connect to the Gear Display using any wifi capable device (cell phone, laptop, tablet etc.) Go to your device WIFI configuration screen and connect to the MMR-1234 (where 1234 is a combination of letters and numbers) Gear Displays WIFI connection.

Once you have connected to the WIFI connection, open a web browser (chrome, safari etc) and go to the following address:

<http://192.168.4.1/update>

The Firmware update screen will be displayed



Select the “Choose File” option and select the firmware update file (supplied by MMR). (Note that flashing an incorrect file can permanently damage your device!) Once you have selected the firmware file, select the ‘Update’ option. Once the update has completed, you will be disconnected from the displays wifi connection and the device will restart.

Troubleshooting

Following are solution to some common issues you may encounter with your device.

Symptom

There is a blinking ‘dot’ in the lower right hand corner of the display

Solution

This means that the device is in Calibration/Firmware Update mode. Simply turn off the ignition to exit calibration mode.

Symptom

The display is showing the incorrect or no gear.

Solution

Go into calibration mode and calibrate each of the gears.

Symptom

The device is display incorrect or no gears after calibrating

Solution

You may have forgotten to save the configuration following the calibration procedure. Be sure to select the “Save Configuration” option after making any configuration changes.

Symptom

The device is flickering between different gears

Solution

You have either not set the deadband configuration, or the deadband calibration value is too small. Either use the “Auto-Set” feature, or increase the current deadband calibration value until the flickering stops. Be sure to select the “Save Configuration” option each time you make deadband calibration changes.

Technical Support

To obtain technical support for your device, please contact:

Modular Motorsports Racing

Phone: 805-383-4130
8AM – 5PM PST

Email: info@modularmotorsportsracing.com

Website: <http://www.modularmotorsportsracing.com>