

# EPAS Power Steering Module Users Guide

v0.9





Modular Motorsports Racing, Inc.

816 Calle Plano

Camarillo, CA 93012

(805)383-4130

<http://www.modularmotorsportsracing.com>

**August 2022. © 2022 Modular Motorsports Racing, Inc. All rights reserved.**

The information contained in this manual is based on information available at the time of publication and is subject to change without notice. Accuracy and completeness are not warranted or guaranteed.

No part of this manual may be reproduced or transmitted in any form or by any means, including electronic medium or machine-readable form, without the expressed written permission of Modular Motorsports Racing.

Brand or product names are trademarks of their respective holders.

## Table of Contents

---

|                         |    |
|-------------------------|----|
| Introduction.....       | 5  |
| Overview.....           | 5  |
| EPAS Module Wiring..... | 6  |
| Testing.....            | 7  |
| Firmware Updates.....   | 8  |
| Troubleshooting.....    | 9  |
| Technical Support.....  | 10 |



## Introduction

---

The MMR EPAS Power Steering Module enables the electric power steering rack on 2005-2022 Mustangs, F150's and F150 Raptors. This allows the steering rack (EPAS) to be used in other vehicles or used with aftermarket ECU's and even EV or carbureted applications.



## Overview

---

The MMR EPAS Module creates the correct signals to activate the EPAS power steering rack, and is a simple plug and play device.

The module plugs directly into the EPAS Power Steering rack, and requires minimal wiring enable the Power Steering rack.

## EPAS Module Wiring

---

Connecting the EPAS Power Steering Module wiring is very simple process.

First place the module in a location where it is shielded from high sources of heat such as headers, coolant hoses etc. Clean the surface that the module will be attached to, then using the supplied 3M double sided adhesive, affix the module to the surface.

Next connect the EPAS modules power wires (Gray jacket wire, 2 conductor) to a power source:

| <b>Color</b> | <b>Name</b> | <b>Description</b>               |
|--------------|-------------|----------------------------------|
| Black        | GND         | Ground                           |
| Red          | +12V        | Switched +12V source, hot in RUN |

After connecting the EPAS module power wires, the EPAS CAN wires (white jacket multiconductor cable) should be routed to the 3 pin connection on the EPAS steering rack.

Care should be taken when routing the wire to avoid belts and other moving parts that could damage the wire. Once the wire has been routed to the rack, simply plug in the 3 pin connector.

## Testing

---

Once the electrical connections have been made, the EPAS power steering module should be tested by turning the car to the RUN position (no need to start the engine). The status LED on the side of the EPAS module should now be blinking steadily (1 blink), and power assist should be available (the effort required to turn the wheel should be reduced).

If steering assist is not functional, the EPAS module should be checked for an error condition, which can be determined by observing the status LED located on the side of the EPAS module.

The following status conditions are defined:

| <b>Blinks</b> | <b>Name</b>     | <b>Description</b>  |
|---------------|-----------------|---|
| 1             | Normal          | The EPAS module is operating normally and controlling the EPAS rack.  |
| 2             | OTA             | The EPAS module is in OTA firmware update mode.   |
| 3             | CAN<br>ERROR    | The EPAS module is unable to communicate with the EPAS rack on the CAN bus. Check the 3 pin connector to the rack and the CAN wiring from the module to the rack. |
| 4             | EPAS HW<br>FAIL | The EPAS module has an internal error and is unable to initiate communication on the CAN bus.   |

# Firmware Updates

---

The MMR EPAS Power Steering Module 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:

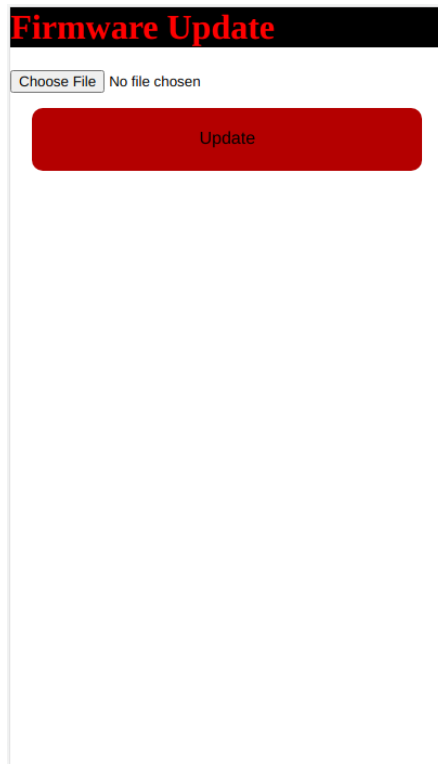
In order to put the module into firmware update mode, turn the car to RUN (do not start the engine), and press and hold the button on the side of the module for 3-5 seconds. At this point, the status LED should be a ‘blinking’ twice, indicating that the module is in OTA firmware update mode.

In firmware update mode, you can connect to the EPAS module 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 projection system.

### **Symptom**

The status LED is not blinking when the car is in RUN mode, no power steering assist.

### **Solution**

Check the power wiring to the EPAS module.

### **Symptom**

The status LED is blinking twice when powered on.

### **Solution**

The device is in OTA Firmware Update mode. Simply turn off the ignition to exit update mode.

### **Symptom**

The status LED is blinking three times when powered on.

### **Solution**

The EPAS module is not properly connected to the EPAS rack or the EPAS CAN wiring is damaged. Check the connection and wiring from the module to the rack for signs of damage.

### **Symptom**

The status LED is blinking four times when powered on.

### **Solution**

There is an internal problem with the EPAS module. Please contact MMR to troubleshoot the problem.

## 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](mailto:info@modularmotorsportsracing.com)

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