



Use of MIL Lamp and Engine Protection for TA2

Introduction

The AEM Infinity ECU has the built-in capability to trigger a Malfunction Indicator Lamp as well as Engine Protection strategies. These can be used together or separately depending on user preference. We are not covering the Coolant Temp or Oil Temp based rev limiters in this document. For advanced users, the MIL status is sent out over CAN and can be configured in a race dash display.

Selecting a suitable light

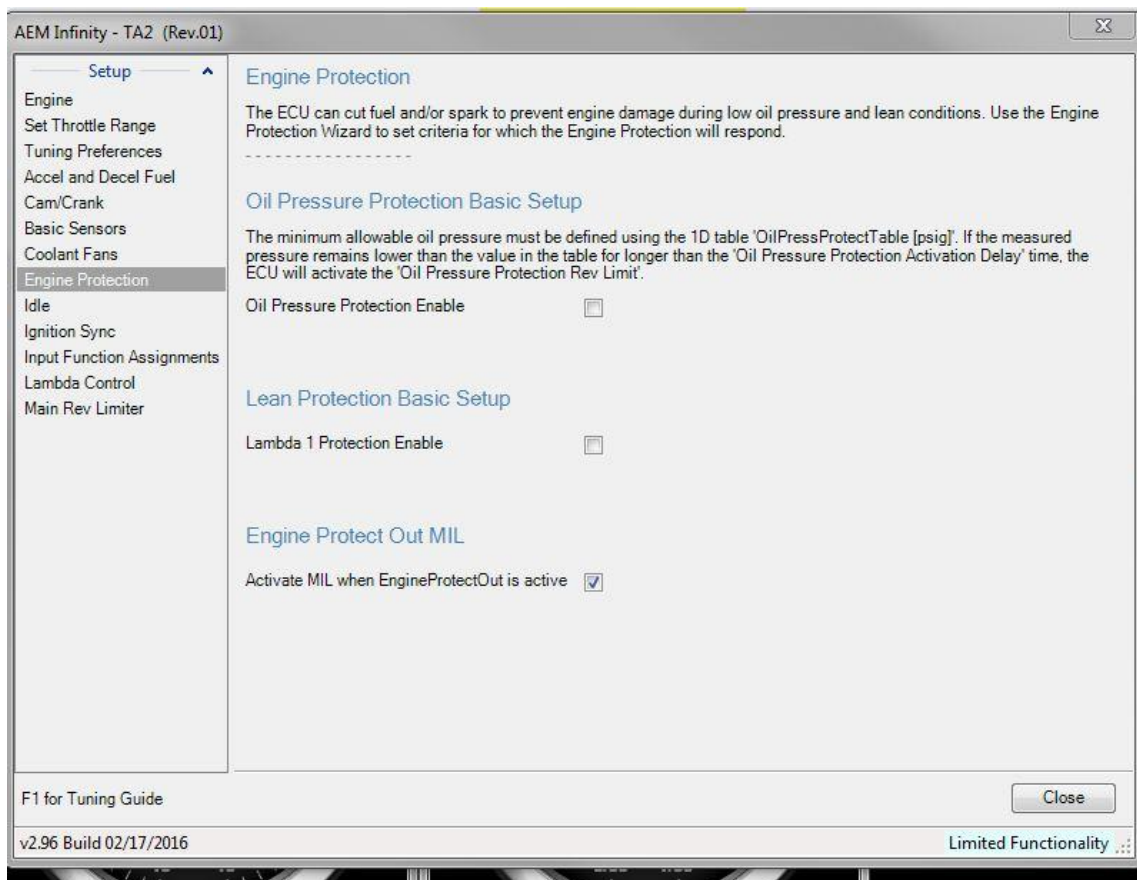
There is a 5 amp max for the output of the MIL. It is best to use an automotive resistive type LED for this output. The MIL output can also be sent to a dash display, such as Aim or Motec.

Wiring the MIL

When the Infinity switches the MIL on, it is grounding Pin 7 in the AUX Connector. The easiest way to wire this would be to connect an LED to Pin 7 and Pin 12 of the AUX Connector wires. Pin 12 is a 12 volt feed when the ECU is on.

How to activate the MIL

The MIL output must first be turned on in the Wizard, Engine Protection.





With only this checked, your MIL will only illuminate during sensor failures (out of voltage range) and when the Wideband UEGO sensor is warming up.

MIL and Engine Protection

The MIL can also be configured to illuminate during Low Oil Pressure and UEGO too *lean*. The lean protection is effective when a fuel pump fails, or begins to fail, and the Fuel Pressure sensor compensation hits its maximum (95% injector duty.)

Oil Pressure Protection Setup

First check the box in the Wizard – Setup Wizard –Engine Protection

Choose an Activation Delay (the units are milliseconds)

Choose a soft rev limit for safety.

NOTE: THIS CAN BE 0 RPM IF YOU WANT TO SHUT THE ENGINE OFF OR 6800 RPM IF YOU DON'T WANT ANYTHING TO HAPPEN OTHER THAN THE MIL ILLUMINATING.

Finally, fill out the table under the Protection tab in the layout called OilPressProtectTable.

In this table, the MIL will come on after the Oil Pressure falls below 30 psi for 1 second at 5,000 RPM. And the engine will rev limit to 3000 RPM.

Lean Protect Setup

The Lean protection is set up in the same way as above.

Check the box in the Wizard

Choose your delay time.

Choose your rev limit



You also get a minimum limit for RPM and throttle position for this error to activate.
 Fill out the table Lean ProtectTable

The screenshot shows the AEM Infinity Tuner interface. The main window is titled 'AEM Infinity - TA2 (Rev.01)' and displays the 'Lean Protection Basic Setup' configuration. The 'Oil Pressure Protection Basic Setup' section includes:

- Oil Pressure Protection Enable:
- Oil Pressure Protection Activation Delay: 1000 ms
- Oil Pressure Protection Rev Limit: 3000 rpm

The 'Lean Protection Basic Setup' section includes:

- Lambda 1 Protection Enable:
- Lean Protect on Sensor Error:
- Lean Fuel Cut Enable:
- Lean Spark Cut Enable:
- Lean Protection Minimum Engine Speed: 2000 rpm
- Lean Protection Minimum Throttle: 20 %
- Lean Protection Activation Delay: 1000 ms
- Lean Protect Rev Limit: 2500 rpm

Surrounding the configuration window are several monitoring graphs:

- CoolantProtectRPMLimit [RPM]**: A graph showing a limit of 12000 RPM.
- OilTempProtect [RPM]**: A graph showing a limit of 15000.0 RPM.
- OilPressProtectTable [psig]**: A table with values ranging from 8000 to 9000 psig.
- LeanProtectTable [Lambda]**: A table with values ranging from 0.95 to 1.10.
- LeanProtectTable [Lambda]**: A graph showing a curve that starts at 1.04 and drops to 0.95 as MAP increases from 60 to 120 kPa.

In this example, if the Lambda 1 sensor (the only one used in TA2) reads leaner than 0.95 lambda, and RPM is over 2000 and throttle is larger than 20, and 1 second passes with the sensor reading this condition, the MIL will illuminate and the engine will rev limit to 2500 RPM.