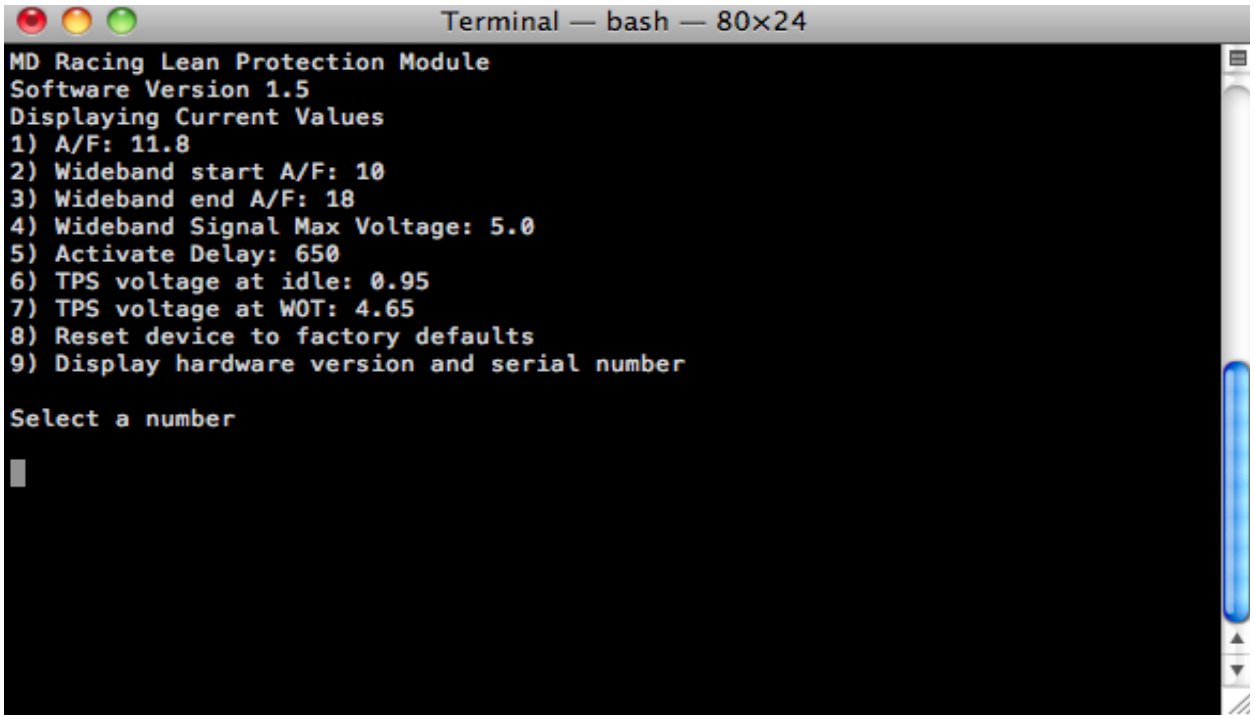
MD Racing

Programming and Troubleshooting Guide

First lets go over an explanation of the main screen



Please note your screen may have slightly different options based on the version of software you're running. If there's a feature you need but is not available you're able to update your module to the latest version of the software. Visit the support page for downloads and instructions.

The second line down that says “Software Version 1.5” means this module used for demonstration purposes is running version 1.5 of the LPM software.

Definitions of menu options:

Option 1:
This is the leanest Air Fuel (A/F) ratio you wish to experience under wide open throttle (WOT) conditions.

Option 2:
This is the lowest A/F ratio your wideband reads.

Option 3:
This is the highest A/F ratio your wideband reads.

Option 4:
This is the maximum voltage your wideband puts out.

Option 5:
This is the delay in mili seconds the LPM will allow a lean condition at WOT before shutting you down and saving your motor.

Option 6:
Throttle Position Sensor (TPS) voltage at idle

Option 7:
TPS voltage at WOT

Option 8:
Used to reset the unit back to factory default settings

Option 9:
Used to display current software version, hardware version, and serial number of LPM.

Wideband Setup:

First thing you will want to do is look at the specifications for your wideband. For this example I will use a DynoJet Wideband2. Go to the manufacture's website for your wideband and lookup what voltage it outputs and what Air Fuel (A/F) range it reads.
For my example it's 0 to 5 volts and reads 10 to 18 AF.

Almost all widebands are 0-5 volts. The industry standard. There are very few exceptions that read 0-4 volts. If you have a 0-4 volt wideband select menu option 4 and when prompted for a new value put 4 and press Enter. It will be saved.

Select option 2 and put in the starting range of your wideband. For me it's 10.
Select option 3 and put the ending range of your wideband. For me it's 18.

TPS Setup:

Next lets get the TPS setup. The LPM will actually learn the voltage of your TPS sensor at both idle and WOT position. To calibrate it simple turn the ignition key on but do not start the engine. The LED on the unit will begin flashing at power up as the 30 second initialization period begins. Wait for it to stop blinking and turn solid.

Now press and hold the button on the LPM for approximately 2 seconds and the LED will begin flashing. It has now learnt the TPS voltage of the throttle closed or idle position. Next depress the gas pedal to WOT and hold it there for approximately 5 seconds. You'll see the LED blink rapidly indicating it's learning WOT settings. Once the LED turns solid it is done learning and saved the settings and you can release the gas pedal.

Calibrating A/F ratio:

Now we can start the calibration process. First thing I recommend is setting the Activation Delay to the maximum response time of 1000 mili seconds or 1 full second. It's menu option #5. This will reduce

the sensitivity so we can get A/F dialed in without false triggers.

Next is setting up option #1 the actual A/F you want the unit to activate at. A quick explanation on variations per setup and car.

> Bare in mind all widebands don't read identical even within the same brands. Further more grounding between the wideband and the LPM is critical as even 0.1 volt variation between the two affects AF readings. Couple that with data loggers and gauges also reading off the wideband there's going to be a small amount of offset. Think of option number 1 as a dial you could turn up and down to fine tune your trigger point. Don't get caught up in it reading 11.7 when activating when your tune is 11.5 etc.

Knowing where your tune is currently at is a good starting point. If your tune is approximately 11.6 ~ 11.8 at WOT then lets set the unit at 11.8. Make a WOT pull. If it does not trigger or activate adjust it down. Try 11.6, 11.5, 11.4 etc. Lets say it trips at 11.5 meaning your car was going leaner than what the LPM is reading as 11.5 AF from your wideband. Now we have a trip point. I suggest setting it 0.2 settings higher to avoid false triggers. So set the unit up from 11.5 to 11.7.

At this point you can make WOT passes with no triggers or interruption. Now you want to dial down the activation delay.

> Activation delay exists because when you suddenly go WOT there is going be a delay before the injectors can squirt the extra fuel required for WOT, the engine needs to combust it and pass it into the exhaust. Only then can the wideband read it and report it to the LPM. This all happens in factions of a second but the delay exists.

The reason you're dialing down the activation delay is because once the car goes lean at WOT you really wouldn't want it doing that for a full second before been shutdown. Nor do you want it overly sensitive to where it's false triggering. Every car is different so this cannot be preset at the factory. The default setting is 650 mili seconds which works for a lot of cars. Try 500 mili seconds and if you get false triggers bump it up 100 to 150 at a time till you get no more.

Congratulations at this point your LPM is dialed in and should your car experience a lean condition from where it's at for any number of reasons the LPM will activate.

Troubleshooting:

My Car won't start since I wired in the LPM

1) Unplug both the 3 wire and 6 wire harnesses from the LPM and attempt to start the car. It should just crank over and not fire.
2) Plug the dummy plug into the 3 wire harness on the car and attempt to start it again. If it fires up you have the ignition break done correctly on the 3 wire harness. If not make sure you used the yellow and red wires on the 3 wire harness to interrupt the ignition circuit. The optional orange wire is for custom applications.
3) Once step 2 is corrected and the car starts up with the dummy plug you can now plug the LPM back in with both the 3 wire and 6 wire harnesses. Attempt to start. If it does not then you don't have the red wire from the 6 wire harness connected to a power source that's hot in both run and crank. Remember when the engine is cranking over the LPM can't loose power or the car will never start.

My LPM doesn't activate even if I set it to the lowest activation setting of A/F 10 and I know my car is closer to 11.8 ~ 12.0 A/F at WOT.

First we need to make sure the LPM is wired in correctly. See steps above. If all that passes then you

are more than likely experiencing a voltage drop with your car under WOT. A weak or potentially failing alternator is a very common cause of this.
Manually set the TPS WOT voltage lower than what the unit learned with the key on/engine off process you did above. If it learned 4.7 at WOT set it to 4.0. Repeat your WOT pull. If it activates now you're experiencing a voltage drop at WOT. You can then bump up the TPS WOT setting closer to 4.7 and find the stop where it still activates reliably.