



## **TurboXS Fuel Cut Defender Instructions**

This document is to be used as a guide for the installation and use of a TurboXS Fuel Cut Defender (FCD). It is recommended that the FCD be installed by a qualified mechanic.

**WARNING:** Raising boost levels too much can cause serious damage to your engine. When raising boost pressure, make sure you have a boost gauge and that the boost level you set is appropriate for the components you have installed, the state of tune or your car, and the octane rating of the fuel you are using.

### **FCD Applications:**

The TurboXS FCD is designed to be used on a turbocharged vehicle that uses a 5 Volt Manifold Absolute Pressure (MAP) sensor as the means of triggering overboost fuel cut protection. If your car does not use a 5 Volt MAP sensor as the means of triggering overboost fuel cut protection, the TurboXS FCD will not work.

### **FCD Overview:**

The TurboXS FCD is installed in series with the MAP signal wire running from the MAP sensor to the factory ECU. It works by "clamping" the voltage signal coming from the MAP sensor to the ECU at a voltage below the level that would normally trigger overboost fuel cut. It can also be set up to "unclamp" the voltage signal at a certain boost pressure so that you can set a higher than stock over boost fuel cut level.

The FCD has a switch which enables you to completely disable overboost fuel cut. Move the switch to the OUT position and you will have no overboost fuel cut limit. Moving the switch back to the IN position re-enables overboost fuel cut, but at a boost level that you set.

The FCD has two LED indicators and two dials that tell you what the FCD is doing and help you to set it up. The left LED is a red LED which indicates that the FCD is clamping the MAP signal. You set this clamp point by driving the car and turning the left dial counter-clockwise until the red LED comes on at a boost level just below the factory overboost fuel cut level.

The right LED is a blue LED which indicates that the boost level has reached your new over boost fuel cut level. You set this level by driving the car and turning the right dial counter-clockwise until the blue LED comes on at the maximum boost level you want to run. Turn the right dial clockwise just a bit more until the LED goes out and you have now set your new overboost fuel cut level just above your desired maximum boost level. Turn the switch back the IN position and your new overboost level is enabled.

**NOTE: If you do not put the switch back to IN you will have no overboost protection!**

We recommend that the FCD be housed within the passenger compartment.

### **FCD Installation Instructions (see diagram on back):**

1. Disconnect the battery.
2. Locate the factory ECU.
3. Locate the Manifold Absolute Pressure (MAP) signal wire going into ECU.
4. Cut the MAP signal wire, noting that some cars use a screened or shielded wire.
5. Connect the Green wire of the FCD to the MAP signal wire going to the MAP sensor.
6. Connect the Violet wire of the FCD to the MAP signal wire going to the ECU.
7. Connect the Red wire to a +12V power supply. This should be a +12V supply that is switched OFF when the car is OFF.
8. Connect the Black wire to a grounding point on the car chassis.
9. Reconnect the battery.

### FCD Adjustment/Set Up:

Setting up the FCD is best done with a boost controller, a boost gauge, and an assistant to watch the gauge and adjust the FCD. The setup process consists of four (4) main steps:

1. Disable Overboost Fuel Cut
  - a. Move the FCD switch to the OUT position (to the right).  
**NOTE: You now have no overboost protection at all so be careful!**
2. Set the boost level at which to start clamping the MAP voltage
  - a. Turn both dials on the FCD fully clockwise until they stop turning.
  - b. Use your boost controller to set the boost at a level that is BELOW the factory overboost fuel cut boost level. That is, if factory overboost fuel cut boost level is 18psi, set the boost controller BELOW 18psi.
  - c. Drive the car so that the boost gauge shows you are about 1-2 psi below the factory fuel cut boost level. Have the assistant turn the CUT dial (left dial) counter-clockwise until the Red LED turns on while at this boost level.
  - d. You have now set the boost level at which the FCD will **START** clamping MAP voltage. Whenever the FCD is clamping the MAP voltage, the Red LED will be lit.
3. Set the boost level at which to stop clamping MAP voltage
  - a. Use your boost controller to set the boost at your desired maximum boost level.
  - b. Drive the car so that you are hitting your desired maximum boost level. Have the assistant turn the SAFETY dial (right dial) counter-clockwise until the Blue LED turns on while driving at your desired maximum boost level.
  - c. Drive the car again and have your assistant turn the SAFETY dial (right dial) clockwise just a little until the Blue LED turns off while driving at your desired maximum boost level.
  - d. You have now set the boost level at which the FCD will **STOP** clamping MAP voltage. Whenever your boost level goes above your desired maximum boost level, the Blue LED will be lit.
4. Re-enable Overboost Fuel Cut
  - a. Move the FCD switch to the IN position (to the left).

### FUEL CUT DEFENDER WIRING DIAGRAM

MAP signal wire will read approximately ~2.0 Volts with ignition on/engine off and ~0.5 Volts with ignition on/engine idling.

