

RIVCO POWERMASTER™ EFI MODULE

Installation & Tuning Manual

RIVCO Products, Inc. thanks you for purchasing a genuine RIVCO POWERMASTER™ EFI MODULE. This product represents a radical step forward in tuning fuel-injected motorcycles for optimal performance using “load-based” technology. We at RIVCO Products hope that you will find this development as exciting and useful as we do. Remember: Proper Fuel = Maximum Power!

The RIVCO POWERMASTER™ EFI Module connects directly to the fuel injectors and a suitable ground location on the motorcycle. On 2006 Dyna models and all 2007 and newer models there will also be two additional leads with plugs for the oxygen sensors (the sensors are located on the exhaust pipes about six inches from the cylinder heads). Please be sure you have the correct module for your year and model as the plugs and settings will vary. The RIVCO POWERMASTER™ EFI MODULE ground lead is a single black wire that is separated from the injector leads and fitted with a ring terminal for easy connection. Each injector connection lead includes a male and female OEM connector (connector types vary based on the year and model).

RIVCO EFI POWERMASTER™ EFI Package Contents

- RIVCO POWERMASTER™ EFI MODULE
- 3 zip ties
- 1 adhesive backed Velcro square
- Installation and Operation Instructions

1. Locate the fuel injectors and their connectors on the intake manifolds between the “V” of the engines cylinders. You may remove the fuel tank to gain easy access to the plugs or you can make the connections with the tank on as follows. Remove the rear fuel tank mounting bolt and loosen the front two bolts. Lift the rear of the tank as high as possible (2-3 inches) and place a piece of wood between the tank and frame to hold the tank up.
2. Mounting the POWERMASTER™ EFI Module. While you can mount the module most anywhere it is recommended to mount it under the right hand side cover for easy access when making adjustments. Find a suitable surface to mount the Velcro Adhesive Square supplied. Clean the surface with rubbing alcohol, peel the backing and press firmly in place. Press the Module onto the Velcro. Route the wires with the plugs for the injectors between the frame rails and up toward the injectors with the other wires located on the backbone of the frame. If yours is a model with wires and plugs for the oxygen sensors route these wires downward with the short lead going to the plug on the rear exhaust pipe (about 6” from the cylinder head) and the longer following along the right frame tube under the engine and forward to the front oxygen sensor and its plug.

3. Connect the wires to the injectors under the fuel tank as follows. Unplug the bike's wire harness from the injectors. Connect the male and female connectors from the injectors and the wire harness to the RIVCO POWERMASTER™ EFI Module. This places it electrically between ECU and the injectors. Repeat this process for each injector. NOTE it does NOT matter which lead goes to which injector.
4. **On models is equipped with oxygen sensors:** Locate the oxygen sensor plugs on each exhaust pipe. Unplug the sensor from the wire harness and plug in the male and female connectors from the RIVCO POWERMASTER™ EFI Module. Using the supplied cable ties secure the wires to the motorcycle and away from the exhaust pipes.
5. Locate a suitable location to ground the RIVCO POWERMASTER™ EFI Module. To properly ground the unit, select a location on the engine case, frame or the negative (-) lead of the battery. Remove the bolt or screw from the selected location, pass the bolt or screw through the ring terminal and refasten the bolt or screw to the appropriate torque setting for that fastener.
6. After connecting the, RIVCO POWERMASTER™ EFI Module check all the wire connections to ensure proper connection. To do this, gently pull on the connections to make sure they are *properly locked in*.
7. Be sure to check that the wire harnesses are not in direct contact with or pinched by any sharp edges, exhaust pipes or other objects which could result in long term wear. Replace or lower the fuel tank back into position, replace and tighten the bolts.
8. Start the bike and in approximately 4 seconds the RIVCO POWERMASTER™ EFI LEDs will energize and be visible. If properly installed, the RIVCO POWERMASTER™ EFI LEDs will individually light from left to right to left. This LED pattern will repeat for about 7 seconds. With proper installation a single green LED should be displayed. Depending on how the RIVCO EFI POWER PLUS was setup the single green LED will either slowly flash or be steady, this is normal. With an improper installation the LED display will consist of a flashing green and a flashing red LED. This occurs when the POWERMASTER™ EFI is not receiving a proper injector signal. Recheck the wire connections for any defects.
9. The POWERMASTER™ EFI is pre-programmed (Plug N' Play) with the settings RIVCO Products recommends for your bike. No adjustment is necessary. However, if you feel that the RIVCO POWERMASTER™ EFI needs further adjustment, please proceed to the operating Instructions portion of this manual.

RIVCO POWERMASTER EFI Operating Instructions

1. It is recommended that the pre-programmed settings of the RIVCO POWERMASTER™ EFI be used. However, the RIVCO POWERMASTER™ EFI can be adjusted to suit different engine modifications, states of tune and environmental conditions. To begin this process, press the mode button. To enter each successive mode, just press the mode button again. *Note that every mode will be identifiable by the color(s) of the flashing LED(s) on the LED display. There are six modes that are distinguished by an LED color or color combination.* The 6 modes are as follows, respectively: Green, Yellow, Red, Green-Blue, Yellow-Blue and Red-Blue.

2. You are now ready to manually program each mode. Consult the base settings supplied with the unit.

To program the RIVCO POWERMASTER™ EFI Module, the bike must be running in order to supply power to the RIVCO POWERMASTER™ EFI Module

Simply press the mode button to activate the first mode. If at anytime you stay in an adjustment mode for longer than 5 seconds without pressing any buttons, the RIVCO EFI POWER PLUS will exit the adjustment mode and will return to the operational mode.

To save settings in a particular mode press the MODE button which goes to the next adjustable mode or wait for the RIVCO POWERMASTER™ EFI Module to exit back to the operational mode.

The settings in each mode are adjusted by pressing the (+) and (-) buttons located on the right and left side of the mode button, respectively. For easy reference, the LEDs are numbered 1 through 8. However, the LEDs can be adjusted to the following positions: 0.5, 1, 1.5, 2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7, 7.5, 8. For example, in a particular mode, if LED 4 is flashing then the LED display is set to 4 in that mode. If the (+) button is pressed once then LEDs 4 and 5 will flash simultaneously and the LED display is set to 4.5. If the (+) button is pressed once again, only LED 5 will flash and the LED display is set to 5. The LED display can also be set to 0.5 by pressing the (-) button and scrolling the colored LED to position 1 and then pressing the (-) button once more until the LED in position 1 is flashing twice as fast as normal.

- I. The first mode (Green Mode) represents an additional amount of fuel added under cruise conditions. A flashing green LED should appear on the LED display. To add **more** fuel, scroll the flashing green LED to the right using the (+) button. To add **less** fuel, scroll the flashing green LED to the left using the (-) button. If you set the flashing green LED to the 0.5 position on the LED display, no fuel will be added to the stock fuel curve.
- II. The second mode (Yellow Mode) represents an additional amount of fuel added during acceleration. A flashing yellow LED should appear on the LED display. To add **more** fuel, scroll the flashing yellow LED to the right using the (+) button. To add **less** fuel, scroll the flashing yellow LED to the left using the (-) button. If you set the flashing yellow LED to the 0.5 position on the LED display, no fuel will be added to the stock fuel curve.
- III. The third mode (Red Mode) represents an additional amount of fuel added during full throttle conditions. A flashing red LED should appear on the LED display. To add **more** fuel, scroll the flashing red LED to the right using the (+) button. To add **less** fuel, scroll the flashing red LED to the left using the (-) button. If you set the flashing red LED to the 0.5 position on the LED display, no fuel will be added to the stock fuel curve.

Note: If the flashing green, yellow and red LEDs in modes 1 through 3 (Green, Yellow and Red) are set to the 0.5 position on the LED display then the BETA GEN III will **not add any fuel** to the bike's stock fuel curve. This setting will essentially turn off the BETA GEN III even though it is still attached to the bike's fuel injection system. The bike will run as though the BETA GEN III is not installed. The BETA GEN III LEDs will still operate normally even though no fuel is being added.

The fourth mode (Green-Blue Mode) is an adjustment to determine the point on the RPM range when the cruise/Green Mode fuel shuts off. A flashing green LED appears on the LED display while at the same time a flashing blue LED appears on the 8th LED. The cruise/Green Mode fuel is pre-programmed to turn on just above idle and then turn off at a point selected by the user by adjusting the green LED in this mode. The Green-Blue mode is RPM based only. Each LED position represents a specific RPM on your bike. In this case, LED 0.5 will turn off the cruise/Green Mode fuel at 3,500 RPM and LED 8 will turn off the cruise/Green Mode fuel at 5,000 RPM. Each LED setting in between 0.5 and 8 will turn off the cruise/Green Mode fuel in between the above-mentioned RPM points. You can calculate what RPM corresponds to what LED by interpolation. The cruise/Green Mode fuel should be turned off somewhere between these two RPM points because typically, Japanese sport bikes begin to add more part throttle fuel somewhere in this range and the cruise/Green Mode fuel is no longer needed.

- IV. The fifth mode (Yellow-Blue Mode) is an adjustment to determine the time when the acceleration/Yellow Mode fuel amount turns on. A flashing yellow LED appears on the LED display while at the same time a flashing blue LED appears on the 8th LED. To **increase** the sensitivity and therefore cause the Yellow Mode fuel to turn on sooner, scroll the flashing yellow LED to the left using the (-) button. To **decrease** the sensitivity and therefore cause the Yellow Mode fuel to turn on later, scroll the flashing yellow LED to the right using the (+) button.
- V. The sixth mode (Red-Blue Mode) is an adjustment to determine the time when the full throttle/Red Mode fuel amount turns on. A flashing red LED appears on the LED display while at the same time a flashing blue LED appears on the 8th LED. To **increase** the sensitivity and therefore cause the Red Mode fuel to turn on sooner, scroll the flashing red LED to the left using the (-) button. To **decrease** the sensitivity and therefore cause the Red Mode fuel to turn on later, scroll the flashing red LED to the right using the (+) button.

Cleaning

If the unit requires cleaning, use a cloth that is only lightly dampened with water or mild detergent.

Warranty

RIVCO Products warrants that this product carries a warranty for 2 years from date of purchase against original defects in materials and workmanship. Should this product fail to perform for either of the above reasons, RIVCO Products will repair or replace it with an equivalent product at no charge, except for postage, to the original retail purchaser.

To obtain the benefits of this warranty, the retail purchaser must return the product and proof of purchase.

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