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CRF450R 21-23 VORTEX X10 ECU INSTALLATION & OPERATION INSTRUCTIONS

Thankyou for purchasing your Vortex X10 ECU (Engine Control Unit). We hope you will enjoy the benefits of our product. Please read and follow the below mounting and operation instructions carefully.

Step 1: Remove the seat, rear plastic shrouds and muffler.

Step 2: Remove the two allen head bolts on either side of the ECU plastic cover and remove. This is located behind the rear mud flap below the airbox.

Step 3: Remove the Rectifier/Regulator on the left hand side next to the airbox.

Step 4: Locate the standard ECU and rubber boot and remove from the 3 plastic mounting tabs. Unplug the main ECU & RELAY connector (grey connector) and remove ECU.

Warning: Connectors have a locking tabs that needs to be pressed in before unplugging.

Step 5: Place the Vortex ECU in the standard rubber mounting boot.

Step 6: Connect the main ECU and Relay connectors and mount the Vortex ECU with Rubber boot onto the three mounbting tabs.



Step 7: Replace the Plastic ECU cover box being careful to route the main wiring harness and the 2 cables coming from the Vortex ECU through the slot in the plastic cover. Use the zip ties provided to secure the Vortex ECU cables to the main wiring harness.

Step 8: Replace the plastic shrouds and seat.

[SEE PAGES 2 & 3 FOR OPERATION INSTRUCTIONS](#)

ECU MAP SELECTOR & FUEL TRIM Switch Operation:

The Vortex X10 ECU has 10 Pre-programmed Power settings from “Mild to Wild”. By changing the position of the X10 Switch on the ECU the user can change the type of power delivery for different rider styles or track conditions. See Map listing chart for explanation of the power type expected from each setting. In addition there are three switches which will modify the fuel supplied to the motor through the EFI system. These switches are divided as follows:

LO: 2.5-25% Throttle(Like a Pilot Jet on a Carby)

MID: 33-66% Throttle(Like a Needle Jet on a Carby)

HI: 75-100% Throttle(Like a Main Jet on a Carby)

Each switch position is either + or – fuel in 2.5% increments. The base position is “5,5,5” with position 6 through 0 adding fuel and position 4 through 1 is subtracting fuel from the selected X10 Map. For example if a fuel trim switch is on position 6 then 2.5% fuel is added to the selected map. If a fuel trim switch is in position 3 then 5% fuel is subtracted from the selected map.

NOTE: It is not advisable to go leaner on any setting unless you are an experienced engine tuner or are monitoring the Air/Fuel ratio with a wideband sensor / reader. Air / Fuel Ratios great than 15:1 can cause serious engine damage.

LAUNCH CONTROL FUNCTION – ACTIVATED VIA START SWITCH



The VORTEX X10 ECU is fitted with an advanced **LAUNCH CONTROL** function that uses the standard START SWITCH to activate when the engine is running.

Operation at start line

- 1/ Start the engine and press and hold the Start Switch for one second.
- 2/ When the Purple LED on the handlebar switch flashes the **LAUNCH MODE** is **ACTIVE**.
- 3/ When in Launch Mode the ECU will use Map 10 and a traction algorithm to help the rider launch out of the Motocross / Supercross start gate. This mode will typically be active for the first few meters from the start gate then swap to the race map selected by the ECU X10 switch.
- 4/ When the PURPLE LED is not flashing then the ECU is no longer in LAUNCH MODE.

DYNAMIC TRACTION CONTROL & MAP SELECTION



The Vortex X10 ECU has a feature called Dynamic Traction Control (DTC). As the name suggests when DTC is turned on the ECU will monitor rear wheel acceleration and when the pre programmed acceleration is exceeded will change parameters to reduce engine power and thus wheel spin.

ACTIVATING DTC (DYNAMIC TRACTION CONTROL) VIA STANDARD HANDLEBAR SWITCH

Engine Running in Neutral – Press the Green “T” Button. The GREEN LED will come on SOLID when DTC is ACTIVE.

MAP SELECTION VIA STANDARD HANDLEBAR SWITCH

The Vortex ECU interacts with the Honda Handlebar switch to select maps much the same as the standard ECU. The BLUE “M” switch can switch between MAP 1 (Single LED Flash) and MAP X10 which is the map selected via the X10 Switch on the VORTEX ECU. When the second map is selected the BLUE LED will flash the number of the selected map. To check what map you are on press the blue button quickly and the number of flashes 1 or X10 will indicate which map. To swap from one map to the other press the button for a longer time and release.

TPS END-POINT SETTING

This Vortex X10 ECU can set the TPS (Throttle Position Sensor) endpoint voltages without the need for a PC or any other device. It may be necessary to set the TPS endpoints when you replace a TPS (Throttle Position Sensor), or if you are having problems with general fueling and rough running. To set the TPS endpoints follow these steps:-

1/ With the THROTTLE CLOSED :- PRESS and HOLD the KILL SWITCH then press the STARTER BUTTON for 1 second. Release all and proceed to step 2.

2/ With the THROTTLE FULLY OPEN :- PRESS and HOLD the KILL SWITCH then press the STARTER BUTTON for 1 second.

3/ TPS endpoints are now set. This process can be repeated at any time and as required. Each time this process is followed it will overwrite the previous TPS Endpoint setting.

INDEMNITY

Note: This is a performance product and is designed for competition use only. The manufacturer or their distributor accepts no responsibility for damage or injury caused by this product. Because we cannot control the application or use of this product, the buyer assumes all risks of any and all damage that may occur to their self, their machinery or third party due to the use of this product. The product is guaranteed against manufacturing defects.