VORTEX PERFORMANCE PTY LTD
CROYDON SOUTH, VICTORIA
AUSTRALIA

SEE PICTURES ON WEBPAGE

www.vortexcdi.com

POLARIS RZR XP900 VORTEX X10 ECU
INSTALLATION 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 driver's seat.

Step 2: If dirty wash and remove any dirt around the standard ECU box and connector using a brush and low pressure hose. Allow to dry or blow off any excess water with high pressure air. **Give extra attention to any dirt near the connector housing as any dirt that enters the connector when it is unplugged can cause permanent damage to the wiring harness.**

Step 3: Remove the Standard ECU and mounting bracket. Remove the Standard ECU from the plastic mounting bracket. Unplug the 56Way ECU Connector **Note: The ECU Connector has a locking arm that needs to be lifted up and away from the wire harness before being unplugged.**

Step 4: Remove the VORTEX X10 ECU from its package and mount onto the standard plastic mounting bracket. Locate the Vortex ECU and

Step 5:.Locate the VORTEX ECU and plastic mounting bracket as per the below picture and plug and lock the 56 Way ECU Connector onto the Vortex ECU.

Step 6: There is an additional two harnesses coming from the VORTEX X10 ECU. This is the Programming Interface and Multi - Function Expansion Port. Use the zip tie provided to secure these cables to the main wiring harness. Note: Do not over tighten zip ties used for wiring.

Step 7: Replace the driver's seat. Installation of the Vortex CDI is now **complete!**

SEE BELOW INSTRUCTIONS FOR OPERATION

MAP SELECTOR & FUEL TRIM Switch Operation:

The Vortex X10 ECU has 10 Pre-programmed Power settings to suit different conditions and engine modification. By changing the position of the X10 Switch on the ECU the user can change the type of power delivery for different track conditions or fuel & ignition requirements. See Map listing chart for explanation of the ignition and fuel maps in each switch position. In addition there are three fuel trim 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.

MULTI-FUNCTION EXPANSION PORT

The VORTEX X10 ECU has an additional Multi-Function Expansion Port with functions such as:

- Dynamic Map Selection – Via a Switch (TBD)
- External Kill (or Lanyard) Switch – TBD (To be developed)
- External MAP (Manifold Absolute Pressure) Sensor to allow high pressure Turbo speed density mapping - TBD
- Protected Low Side Switch – TBD

Note: This expansion port is only used for engine developers that use the Vortex ECU Software.

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.

X10 ECU SETTINGS
POLARIS RZR XP900 12-13

X10 Map File Name: XP900_12 RELEASE-2 (FW 0-3-29) 30-1-14.Vecu1

X10 Switch Position	POWER TYPE (IGNITION)	FUEL MAP DESCRIPTION	Rev Limit RPM	Rev Limit Style
1	POWER MAP 1 (BEST OVERALL POWER)	FUEL MAP 1 DYNO (DRI PIPE & FILTER KIT)	9,000	SPARK CUT/50
2	POWER MAP 2 (TECHNICAL TERAIN)	FUEL MAP 1 DYNO (DRI PIPE & FILTER KIT)	9,000	SPARK CUT/50
3	TORQUE MAP 1 (LESS IGNITION ADVANCE)	FUEL MAP 1 DYNO (DRI PIPE & FILTER KIT)	9,000	SPARK CUT/50
4	POWER MAP 1 (BEST OVERALL POWER)	FUEL MAP 2 TRACK (DRI PIPE & FILTER KIT)	9,000	SPARK CUT/50
5	POWER MAP 2 (TECHNICAL TERAIN)	FUEL MAP 2 TRACK (DRI PIPE & FILTER KIT)	9,000	SPARK CUT/50
6	TORQUE MAP 1 (LESS IGNITION ADVANCE)	FUEL MAP 2 TRACK (DRI PIPE & FILTER KIT)	9,000	SPARK CUT/50
7	POWER MAP 1 (BEST OVERALL POWER)	FUEL MAP 3 RICHER (DRI PIPE & FILTER KIT)	9,000	SPARK CUT/50
8	POWER MAP 2 (TECHNICAL TERAIN)	FUEL MAP 3 RICHER (DRI PIPE & FILTER KIT)	9,000	SPARK CUT/50
9	TORQUE MAP 1 (LESS IGNITION ADVANCE)	FUEL MAP 3 RICHER (DRI PIPE & FILTER KIT)	9,000	SPARK CUT/50
0	BASED ON STANDARD IGNITION MAP	FUEL MAP 1 DYNO (DRI PIPE & FILTER KIT)	9,000	SPARK CUT/50

Date	Revision Record
12/12/2013	RELEASE-1 (FWe009-0-3-29) - DRI - FIRST RELEASE ONLY
29/01/2014	RELEASE-2 (FWe009-0-3-29)

Standard Rev Limit: 8,500

WARNING: ALL MAPS HAVE BEEN TESTED WITH AND WE RECOMMEND USING 98 RON (USA AKI=92) OR HIGHER OCTANE FUEL
IF FUEL LESS THAN 95 RON FUEL IS USED WITH THIS PRODUCT MAY CAUSE DETONATION AND ENGINE DAMAGE

USA AKI = (R+M)/2) = 92
AUSTRALIA & NZ RON = 98
EUROPE RON = 98

DATE: 27/08/2010

See below the VORTEX X10 ECU Fault Flash Codes. The Vortex ECU will flash the Handlebar LED or the FI light (on applicable models) when there is a fault condition in one of the sensors.

This Code will flash until the ECU is reset by being powered down and restarted.

NOTE: These are a tool for fault finding a problem only and cannot be considered absolute.

Fault Code	Fault Condition	Troubleshooting Suggestions
1	Tip over sensor activated - High	Vehicle is not upright - Engine won't start
		Tip Over Sensor is faulty - Engine will not start
2	Tip over sensor activated - Low	Vehicle is not upright - Engine won't start
		Tip Over Sensor is faulty - Engine will not start
3	TPS sensor input voltage low	TPS connector unplugged.
		TPS wiring short or open circuit.
		TPS sensor wrong position adjustment.
		TPS sensor faulty.
4	TPS sensor input voltage high	TPS connector unplugged.
		TPS wiring short or open circuit.
		TPS sensor wrong position adjustment.
		TPS sensor faulty.
5	MAP sensor input voltage low	MAP connector unplugged.
		MAP wiring short or open circuit.
		MAP sensor faulty.
6	MAP sensor input voltage high	MAP connector unplugged.
		MAP wiring short or open circuit.
		MAP sensor faulty.
7	IAT sensor input voltage low	IAT wiring short or open circuit.
		IAT sensor faulty.
8	IAT sensor input voltage high	IAT connector unplugged.
		IAT wiring short or open circuit.
		IAT sensor faulty.
9	ECT sensor input voltage low	ECT wiring short or open circuit.
		ECT sensor faulty.
10	ECT sensor input voltage high	ECT connector unplugged.
		ECT wiring short or open circuit.
		ECT sensor faulty.
11	BARO sensor input voltage low	BARO connector unplugged.
		BARO wiring short or open circuit.
		BARO sensor faulty.
12	BARO sensor input voltage high	BARO connector unplugged.
		BARO wiring short or open circuit.
		BARO sensor faulty.

FIRMWARE VERSION ECU_0_2_XXX
IMPLEMENTED FOR ECU WITH DATE CODE ON OR LATER THAN 100820
DATE CODE 100820 is date 20th AUG 2010