

DUNCAN RACING

EXHAUST AND VORTEX ECU

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HIGH-TECH STANDALONE ECU FOR THE RZR XP 900

Modification- one thing that none of us can escape. With an aftermarket dripping with hosts of performance, aesthetic, and safety modifications, it's harder to keep your UTV stock than it is to part with the cash for mods. Performance modifications are among our favorites, as we are never content with stock horsepower. Exhaust systems happen to be the most popular performance mod, and if you

want to get the most out of your pipes, you need to adjust the engine's fuel mapping. There are a host of piggyback-style systems that plug into the stock ECU's sensor equipment, but the Vortex X10 ECU is among the first readily-available standalone computers.

The difference between a piggyback and standalone system is very simple: a piggyback system changes the mapping of the stock ECU by intercepting its electronic signals to the injectors, while a standalone system completely replaces the stock ECU. The Vortex is a simple 3 minute install- tilt the driver's seat forward, unbolt the stock ECU, and bolt the Vortex X10 in its place. No fumbling with injector wires or routing cables to the battery like with piggyback systems.

The major advantages to a standalone ECU come in two parts: the first is speed. The Vortex X10's dual-core processor takes in information and fires out tuning information much faster than a piggyback system, thus increasing throttle response and speeding up tuning changes. The second is the amount of parameters it can change; in theory, you can reprogram every aspect of the ECU's tuning, rather than just increasing or decreasing injector duty cycles. Ignition maps, barometric pressure adjustments, and a host of accessory sensors can be changed to fine-tune the way the engine performs.

For testing purposes, we took a 2013 RZR XP900 with a stock powertrain, and bolted up the Vortex X10 ECU, a Duncan Racing Fatboy single exhaust, and tuned the clutch to Duncan's specifications. We ran the unit before and after the mods on the same trails, in the same weather. Duncan Racing offers both a



dual muffler and single muffler system- we chose the single system with a stainless turndown. Installation was simple, and took around 15 minutes.

Duncan sells a Team Industries-built fully adjustable CVT clutch tuning kit as well, which is essential to make the most of your mods. Just like tuning your ECU, tuning the clutch allows the UTV to put the most power down possible. Think of it this way- a stock clutch is tuned to run at a certain RPM near peak power- for simplicity, let's say it's tuned to run at 7500 RPM. When you install an exhaust system and an ECU, peak power will shift to a different RPM (let's say 8250 RPM). If you don't change your clutch setup, you will be running near the stock engine speed, and not taking advantage of the new peak power added by your mods. The Duncan kit comes





starting- our initial tune had the RZR coughing and sputtering a bit on the first startup of the day. Once warm, the problem went away, but it resurfaced after the machine had sat for a while. We worked with the clickers a bit and got the machine to start more readily, but be mindful to keep your foot off the throttle during cold starts.

The difference made by the air, fuel, and clutch

mods here is useable, and retains the reliability of the stock engine internals. From the seat of the pants, the mods feel like no less than 8-10 wheel horsepower, but we haven't had a chance to verify on the dyno. The engine revs more freely, responds more quickly, and is altogether more fun to drive. Furthermore, the adjustability of the Vortex ECU is something that will work with any future mods- even if we decide to put boost into the motor!

a "Stock" map. A built-in barometric pressure sensor in the ECU allows it to adjust fueling for different altitudes.

with a new helix, primary spring, and adjustable weights.

After the install was finished, we hooked the ECU up to a laptop to check out the tuning capabilities you have via computer. A full data logging suite is available for high-tech engine analysis, as well as on-the-fly tuning by computer software. Perhaps the best thing about the Vortex ECU, however: you don't need a laptop to adjust it. Multiple rotary switches allow finite adjustment of fueling in the low, mid, and top end regions of the fuel mapping. Adjustment capability is wide, ranging from -10% to +12.5% over the map's baseline. To set it all off, there is a 10-position map switch that allows easy switching between one of up to 10 pre-programmed ignition/fuel maps, including

We took off in the newly-modified RZR with a heavy right foot, and the difference was immediately noticeable. Throttle response was much snappier, thanks to all three modifications working in harmony. A much stronger midrange pull was noticeable, especially on higher-traction surfaces. We found ourselves outrunning the traction of the stock tires in four wheel drive much more often than in a stock 900. Mid-to-top pull was noticeably stronger, even up to its new 9,000+ RPM redline. We ended up adding two clicks of fuel to the "Top" dial, richening up the heavy-throttle fueling a bit. Power under load was much improved, as the machine felt snappier and more apt to lighten the front end.

One gremlin we did chase was with cold

PRICES:

- Vortex X10 ECU: **\$799**
- DR Fat Boy 4 Slip On Exhaust: **\$599**
- OPTIONAL stainless steel turndown: **\$109**
- Stage 1 Clutch Kit: **\$309** (Sand or Hard Pack)

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