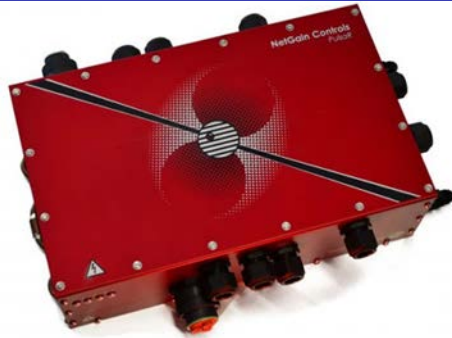


### Warp-P Drive Industrial



NetGain is on a real roll at the moment – or maybe I just haven't been watching them recently; anyway here is a 1000Amp 160Volt through to 1400Amp 460 Volt liquid cooled controllers. Basically this is an updated version of their original Warp Drive controller but with almost twice the current ratings. The concept of an industrial design is that the unit uses water proof cable glands and case sealing with everything attached inside the case, this means that the unit can be safely located anywhere on the vehicle including spots that would normally be questionable due to water splash. The base unit is \$2400 with user upgradable modules allowing upgrade paths to the 1400A 460V max. Communication is via OBDIII CAN so it will interface to the PulsarR seamlessly.

Apparently these controllers and the PulsarR Plus have been a co-development of NetGain and Jack Rickard of <http://www.evtv.me/> fame.



### PulsarR Plus

NetGain have been up to some amazing electronics tricks creating a couple of new devised to make EV conversions easier than ever. The unit pictured above PulsarR Plus is an all in one EV Power control unit and 500Amp motor controller, the PulsarR has no motor controller but retains all the following features. Both units have an integrated 24KW AC charger (that's 240Volt 100Amps) and a 150KW DC Fast charger to recharge your traction pack in as short a time as possible. But Wait: there's more! No not the steak knives, rather DC-DC converter with 53Amps output and adjustable output from 12 to 15 volts; all contactors; main plus DC-DC and charger - Pre charge circuitry to handle start up. OBDIII CAN bus communication to integrate with the latest auto systems, oh and it comes with ANDROID controllability, Integral J1772 control and it even has control outputs for intelligent PWM control for motor air blowers and a liquid cooling pump.

In other words this little beauty provides all the infrastructure necessary to complete your EV conversion in the one 15Kg package – you do need to connect 16 cables but all those annoying little interfaces are taken care of. Price \$3200 - \$4200



### Chrysler (Fiat) Electric

To enhance the performance of the little all electric, Fiat made several major changes from the base 500 ICE powered unit. It designed a new chassis and suspension around the electric powertrain to improve driving dynamics. As well as series of aerodynamic enhancements, such as re-sculpted front and rear fascias and the rear spoiler, went through more than 140 hours of wind-tunnel testing to cut drag and extract 5 extra miles (8 km) of range.

Like any good electric vehicle, the Fiat 500e will have an accompanying smartphone app. The app, which will be available for both Apple and Android phones, will manage charging, provide real-time vehicle status, track energy usage, find the vehicle and nearby charging stations, plan and send routes to the vehicle, and provide text-message alerts.



### Fiat 500E

The first all-electric car from the third member of the Detroit Big Three made its debut this week at the 2012 L.A. Auto Show, Chrysler unveiled its Fiat 500e as competition to the two other Detroit bastions electric offerings; (GM has the Volt and the Spark, Ford has the Focus Electric). Fiat believes its new electric car effectively combines zero local emissions driving and "iconic Italian design." The 500e is powered by a 83 kW electric motor and floor-mounted 24 kWh lithium-ion battery pack that provide up to 130 km of range 160km in the city, 147 lb-ft of torque and a top speed of 137kmh. Fiat estimates that the 500e will comfortably provide 108 mpg-e combined, making it one of the most efficient cars on the road.

In an effort to attract the petrol entrenched driver, the Fiat 500e incorporates a "creep" feature, which launches the car smoothly as soon as its brake pedal is released, just like an automatic vehicle powered by an idling engine. The interior has a 7-inch TFT instrument cluster with TomTom navigation system. A push-button electronic shifter sits below the instrument panel.

## Sierra AC

With a recent email circulating around the traps regarding heating of your EV I decided to investigate the option of Air Conditioning. What I found was quite interesting; yes it's not a cheap option but it is an efficient one.

MasterFlux manufactures a range of DC powered compressor and brushless DC control modules for the Automotive and Light Aircraft industry.

The Sierra and Alpine range can be operated by DC supplies from 12V to 300V. The Sierra range is the most versatile, with models available in 12/24, 24/48; 48/100; 100/150 and 150/300 Volt DC operating ranges; the Alpine units are 300VDC only.

As you could imagine, being able to operate the heat/cool system for your EV directly from the traction pack is quite useful. No high current 12V circuits to worry about; in fact the SIERRA05-0434Y3

100/150V unit only draws 5.4Amps at maximum output. Pricing for the Compressor/controller combo \$1450.



<http://www.masterflux.com/products/sierra>

## KTM Freeride-E



Austrian Motorcycle manufacturer KTM have release an all-electric plugin dirt bike.

The Freeride E agile, lightweight, and noise-free, motorcycle that is designed to change the way enduro riding is to be enjoyed into the future. The bike is powered by a Permanent magnet synchronous motor in a disc armature design that generates a peak power of 22 kW – constant output of 15kW - and 42Nm of torque. The Freeride E has a single speed chain drive of 3.5:1 so you don't have to worry about using a clutch.



All you need is to recharge the battery and you're ready to go!

The compact and easily exchanged 300Volt battery provides 2.1 kWh of energy for close to an hour of riding pleasure. So that you can happily ride while a second battery is being charged! Speaking of charging, the batteries take 1.5hrs for a full recharge.

Both the drive unit, with its electric motor and power electronics, along with the battery are completely dust and waterproof. The Freeride E is therefore well prepared for the toughest offroad tracks.

The bikes braking system is controlled by two hand levers. There are no foot brakes, so it may take a bit of time to get used to. But the 95kg machine is certainly light enough to be used by even junior riders.

## Look Where EV's Have Gone Now!!



## Volta Volaré

From Portland Oregon comes this amazing four seater hybrid light aircraft. The GT4 is a carbon fiber high tech cruiser that has 650km all electric range and a total hybrid range of 1850km. At only 1.5 litre the petrol motor starts and powers the electric motor when the battery charge falls to 25%. Main electric power comes from a 408kg LiPo battery made up of 236 cells powering the EViation drive that delivers 220 kW (300 hp), while the "range extension generator" dishes out about 130 kW (180hp). The GT4 has a Take Off Distance: 1400ft (430m), Rate of Climb: 1800ft/min (550 m/min), Landing Distance: 1500ft (460m), Cruise: 160 knots (296 km/h) @ 12,500ft, Ceiling: 24,000ft, Maximum speed (sea level): 310 knots (574km/h), Minimum Speed: 65 knots (120km/h) and a Landing Speed: 75 knots (139km/h). Normally maintenance for a light aircraft requires a major overhaul every 1000 flight hours, with the GT4 this figure has been extended to 10,000 flight hours. The only problem with this intriguing aircraft is the \$495,000 price tag, but there are still 10 available for 2012 and 35 are scheduled for production in 2013, so get your order in today.

## This Month's Q&A Technology Tip



Q. I've managed to obtain a J1772 plug and socket setup but how do I safely integrate into the charging circuit?

A. Modular EV-Power have created the AVC1 and 2 boards that take the pilot and proximity control lines from the J1772 connector and provide relay contacts to disable your speed controller when charging and stop the charger when the J1772 is disconnected Price \$42. They also have

a J1772 charge station for your mains control, the kit comes as a shortform circuit board that you encase in an appropriate wiring box; this unit talks to the AVC2 and turns off power when the pack is full. Price \$275 A bit better than \$1600 for commercial units! [http://www.modularevpower.com/J1772\\_EVSE.htm](http://www.modularevpower.com/J1772_EVSE.htm)