

Fox Valley Electric Auto Association
PO Box 214
Wheaton, IL 60187-0214

Return Service Requested

Monthly Meeting: **Friday, April 17th, 2009 - 7:00PM** (doors open at 6:30PM)

Meeting Location: **Packer Engineering, 1976 N Washington St, Naperville, IL 60563**

Directions: Packer Engineering is on the East side of Washington St, just North of the I-88 Tollway (North of Diehl, South of Warrenville Rd). Turn off of Washington onto Bighorn at the Packer Engineering sign, then take the first right into Packer Engineering and then an immediate left. Park in the lot between the buildings. 1976 is the new building up the hill. Enter the building in the middle of the North side.



April 2009 FVEAA Newsletter

The FVEAA is a Not-For-Profit Illinois Corporation and the Chicago Area Chapter of The Electric Auto Association

Meeting Agenda

Business:

Call to Order and Introductions
Old Business
 Committee Reports
New Business
 Any other new business anyone?

Intermission:

EV Viewing, Networking & Raffle Tickets

Programs:

Latest Generation Charging Technology

Scott Emilfarb from CarbonDay, an affiliate of Coulumb Technologies will talk about their charging points here in Chicago.

Introduction to Controller Repair

Ted Lowe and Miodrag Zubic will discuss and demonstrate controller repair (using Ted Lowe's damaged Curtis 1231C as a case study).

President's Words - Taxman Cometh

Ted Lowe

Death and taxes... 2 inevitable things... This year i have a renewed sense that some of my tax dollars are going to better pursuits, like electric vehicles and renewable energy! Go Cleaner Energy and Electric Vehicles!

FVEAA Meeting Minutes for 3/20/09

Todd Dore

No minutes were submitted in time for publication and will be included in next month's newsletter.

Membership Update

Ted Lowe

We're **234 members strong**, 4 new since last month! **BIG WELCOME** to:

Tom Benedetti - Glenview, IL

Dennis Doney - Yorkville, IL

Mark Minion - Bolingbrook, IL

Paul Schlie - Galesburg, IL

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Telsa Opening Midwest Regional Office in Chicago



This is the "before picture" of Tesla's new Chicago location at 1053 W. Grand Ave. in the River West neighborhood. Here's an article about the opening:

<http://chicagoweekendfun.com/2009/03/10/tesla-motors-opens-electric-car-showroom-and-service-center-in-chicago-il/>

Does anyone know more about Tesla's progress in this opening? How about a group fieldtrip once they are open?!

North Coast Electric Drags - NEDRA EEvent

Darin Gilbert

I just wanted to let the Fox Valley are know that the North Coast NEDRA Race will be coming to Salem Ohio on June 27th. This is closer than the other NEDRA events. While I came to the High Voltage Nationals, sadly we were not able to race. Time to get all those east of the Mississippi together in one place! See NEDRA.com for more details. Anyone planning on going ? Let's arrange carpooling and motel room sharing soon!

Ford's Visit Was Great!

Ted Lowe

Everyone i talked to that hosted a Ford survey group had a great time! i just got my \$100 check yesterday (not bad for a few hours of my time doing something i love to do for

free:-). The Ford group that interviewed me asked a lot of really good questions about my buying and decision making process and EV-related experiences. They gave me an exercise where i got to draw a 'fictious dashboard of the future' and could blue-sky about what i'd like to see on it. Honestly, it made the current Prius display panel look really simple :-)
Oh, and i got this nifty hat too!

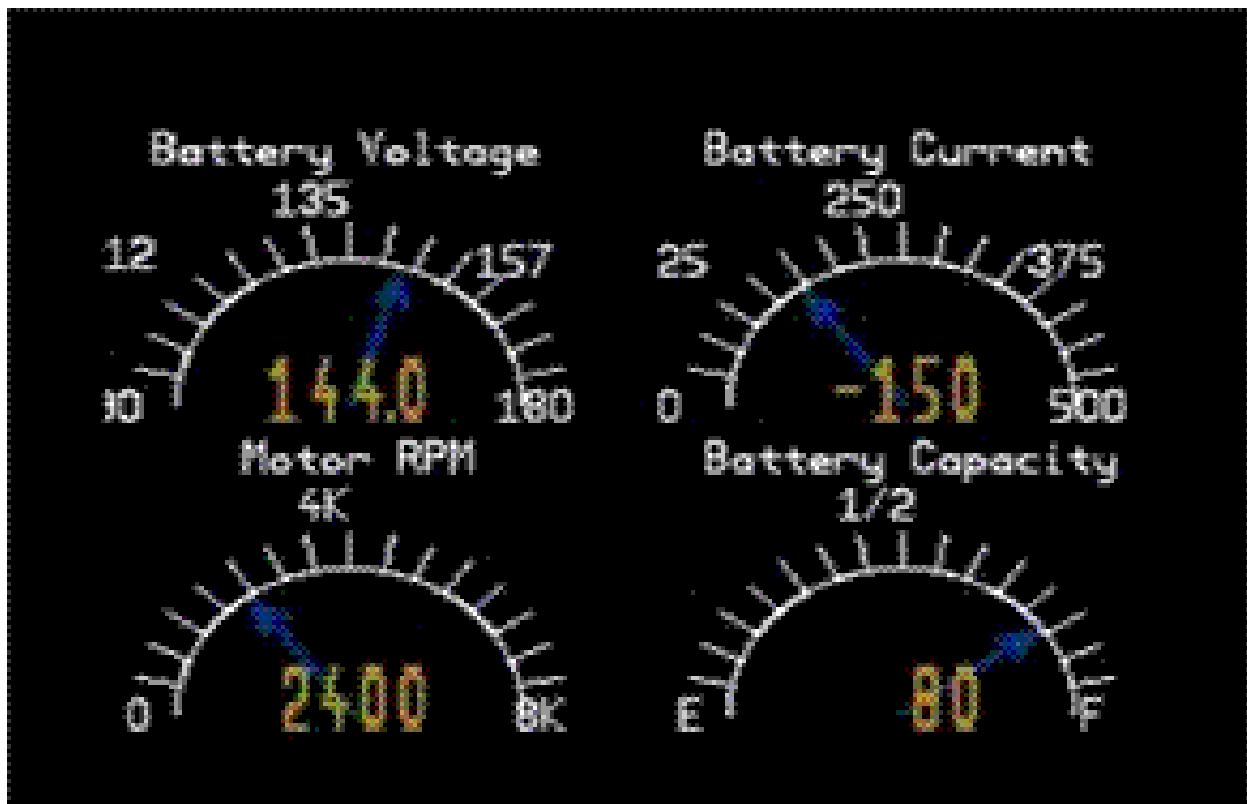
Congratulations to Ford for going out in the world to gather **real experiential** information about EVs from us longtime EVerS!



A New Solution to Information on your EV Dashboard

Rich Carroll

Within the last week, Electric Blue Motors announced a new digital dashboard for EV's. Called the Blue Window, this is a small box that contains a micro computer. This computer output is composite video, showing with four configurable displays. Each display has an analog looking portion (pixels to look like a swing needle on a meter) and a digital portion with an exact number showing. The output looks like:



Obviously there are displays for Battery Voltage, Current, Tachometer and Battery Capacity. I was impressed that the little computer box also has a temp probe, as the battery temp is considered among the parameters used in calculating the Battery Capacity.

The small motherboard runs an Embedded Linux (reportedly Ubuntu or Debian based) and the code used is open source. This means the installer, or the user can fully modify the

source code. Make the labels in French, or Urdu, no problem. Re-size the Voltage so it only shows 126 volts, no problem.

This Blue Window box outputs a simple composite video signal. You can feed it to the same dashboard display that shows your DVD's, or your rear view camera, or your CAN-View. If you don't have a display to connect it to, you can buy them fairly cheaply. I even found rear view mirrors with integral composite video displays in them. I purchased a 12 volt, color, composite video display, with on-off, brightness and contrast control for \$40. The Blue Window computer costs \$300, which is a lot cheaper than an EVision, or a Link-10 plus an ammeter and a voltmeter. You can choose the size of the monitor you want to work into your dash. Color composite monitors are very common in 5.5 inch or 7 inch or 9 inch sizes, and if you have absolutely no place to put one, you can replace your radio with one that has a pull out, flip up panel to display the information when you want.

You would want to use or borrow a programming kit, Pioneer has one to reset the values to what you need. In place of the programming kit, one can connect a USB output and get a stream of data values for nine different registers, all in a CSV format. Suddenly, you can record more data than most interfaces, and massage the data to show exactly the picture you want.

This is an elegant solution to the old question of what kind of voltmeter do you want. Do you want to see a needle swing indicating battery sag as you drive, or do you want a more exact number to determine what your resting float voltage is, and therefore information about your batteries? Here, you get both answers, simultaneously.

The same company has also introduced a low cost airconditioning solution for many EV's called the Cool Blue. This is a high efficiency 5000 BTU, low operating current, air conditioner that is small in size and light in weight. It needs 120v AC to run, but the same company offers a high efficiency inverter to help with that conversion. The name, Blue Flash should not surprise you. More on Cool Blue and the Blue Flash after we look at them in detail.

We'll try to bring a unit to a meeting soon, so you can see it in action.

FVEAA.ORG Upgrade Soon

Ted Lowe

Just a quick heads up to y'all that i will be doing a major upgrade to the fveaa.org website soon. It needs to be upgraded to add new (excellent) capabilities which i'll describe in detail soon. i'll post a message to [members] prior to the upgrade and assuming things go well, the site will be down only 4 hours or so.

Telsa Reveals Their Impressive Model S Sedan

Ted Lowe

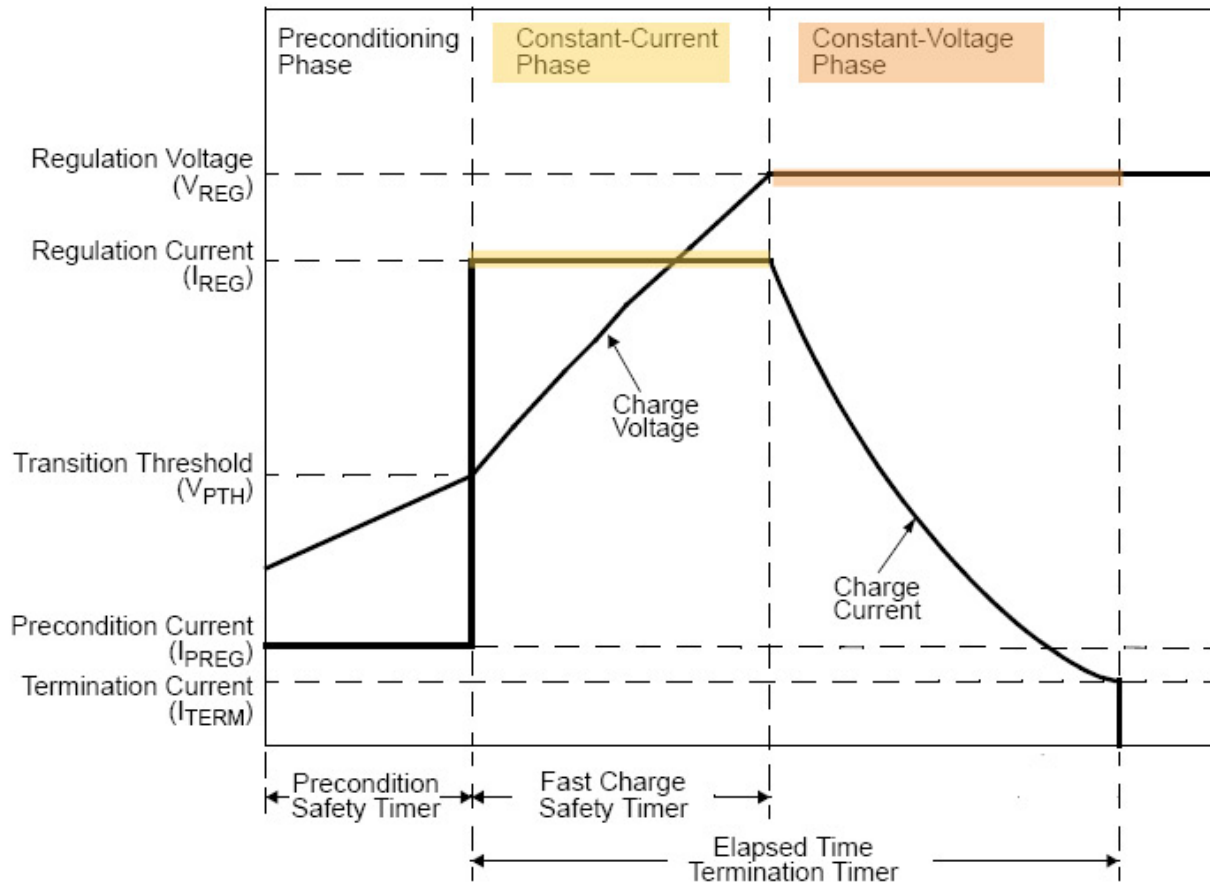
How would you like a pure electric car that seats 7, has 300 mile range per charge and goes 0-60mph in 5.5 seconds ? Tesla recently announced their Model S Sedan as the "first mass-produced highway-capable electric car". The \$50,000 price tag (after the new federal \$7,500 tax credit) is for the base-battery pack which has 160 mile range . i'm really impressed by the long list of features and the significant progress they've made since their Roadster! The \$50k is a bit steep, but perhaps they can shrink that down somewhat over time. An especially optimistic statement from their press release indicates that an EV-sized affordable lithium battery packs may be available in the not-too-distant future ("replacement battery pack will be available for well under \$5000"). Read the whole story here:

<http://www.autoblog.com/2009/03/26/tesla-model-s-50-000-ev-sedan-seats-seven-300-mile-range-0-6/>

A Look Inside Lithium-Ion Cell Charging

Ted Lowe

i've recently been experimenting with some small lithium polymer (LiPo) batteries for a project i'm working on. Charging LiPo cells is significantly different than lead acid (what we are most familiar with). LiPo cells require a **Constant-Current** phase followed by a **Constant-Voltage** phase (CCCV for short). The following figure (from Microchip's MCP73841 Advanced Lithium Cell Charge Management chip) best explains the CCCV algorithm:



Constant-Current Phase: Charge rapidly at a high constant current (I_{REG}) until the voltage reaches V_{REG} .

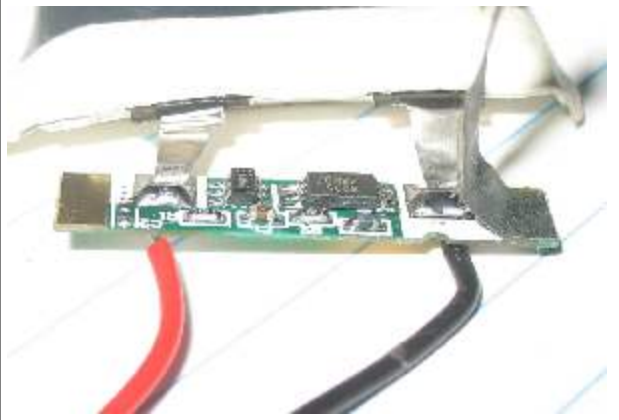
Constant-Voltage Phase: Hold the cell voltage at a constant voltage (V_{REG}) until the current falls off to its termination value (I_{TERM}).

Notice there are a number of built-in safety timers in case the LiPo cell doesn't electrically behave as expected. This will prevent explosions, fire, etc. Also notice there is a "preconditioning stage" that will slowly bring under-voltaged cells up to an acceptable value before blasting them with current. This under-voltaged state should be avoided by using similar technology in the discharge (operational) cycle.

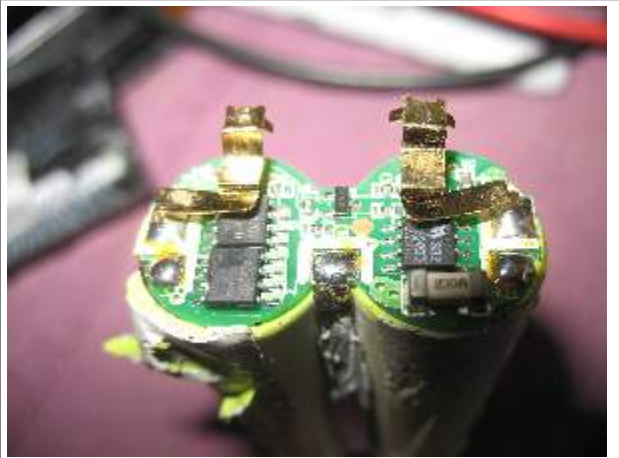
If this strict CCCV charge algorithm is carefully followed, you can expect many safe charge cycles from your LiPo cells!

[Microchip's MCP73843 Datasheet](#). [Ready to use LiPo cell charger using the MCP73843 chip](#). [Another one](#) (using [MAX1555](#) chip). Affordable LiPo cells for experimentation: [860mAh \\$9](#) [1100mAh \\$12](#) [2Ah \\$17](#)

Notice the built-in charge/discharge management circuit embedded in the 1100mAh cell:



And here is similar (cleverly) built-in circuitry in this dual 18650 cell i recently junk-picked:



This Newsletter Is For You FVEAAers!

James Zukowski, *Editor*

We could fill this newsletter with copies of articles plucked from various news organizations, but instead prefer getting articles from you FVEAAers. Please send your conversion status reports, pictures, editorials, technical insights, opinions about the EV world, etc. to us at editor@fveaa.org anytime! Thanks!

Four Battery Companies To Build in Michigan

Michigan created favorable tax incentives that has attracted four high-tech battery companies (thus far). The companies include: Johnson Controls-Saft Advanced Power Solutions LLC, LG Chem-Compact Power, KD Advanced Battery Group LLC and A123 Systems. Read more: <http://www.autobloggreen.com/2009/04/14/four-battery-makers-announce-plans-to-build-battery-plants-in-mi/>

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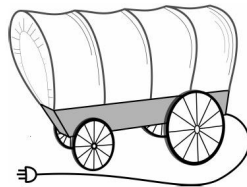


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Please check one: New Member _____ Renewal _____

How did you hear about the FVEAA ? _____

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TOTAL DUE: _____

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