BridgeWire MAKERSPACE

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DECEMBER 2020

HAPPY DECEMBER!

President's Corner

Officers assigned for 20-21 term.

The New Board has assigned 6 of the 7 officer positions. Your officers for the coming year are:

President – Eric Bradford
Treasurer – Ryan Bibbey
Secretary – (Rotates between officers)
Facility Officer – Loren Montague
Education Officer – Drew Knight
Marketing Officer – Lee Elliott
Membership Officer – Open

Continued Covid-19 watch

Well, we are closed to the public at this point. However, current members are allowed to use the shop and some classes are still offered to members only. We are not allowing guests nor are we accepting any new memberships at this time. If you plan on making a holiday gift at Bridgewire, I would recommend getting started now and finishing soon. If the covid surge gets worse, it's possible we could get shut down again like

the 6 weeks back in Mar-Apr. We will keep the members up to date on any changes as we move forward. It looks like everyone is being real good with masks and social distancing, so thank you to all our members.

Happy Holidays,
Eric Bradford

Facilities Changes

Bridgewire Laser - Fixed We got a lot of use out of the laser tube but it finally died. A brand new tube has been installed and it is working great. Because we have good manufacturer data on the tube, it has been set to operate at a current which should result in a very long tube life. We also purchased a backup tube which will minimize the down time when the current tube needs replacing.

Bridgewire Laser – New Features While we had the laser apart, we implemented new features. Most notable is that the Chiller, Exhaust fan, and Air Assist pump are now wired into the laser controller. Dan Brncic added timer shutoff delays to the exhaust fan (30sec) and the Air assist pump (2sec). The only switches you need to turn on and off now are the Main Power and Laser Power switches. Everything else automatically turns on and off. We are also in the process of adding an exhaust bar for the through vector cuts. This will result in less creosote and other deposits on your work piece.

Bridgewire Laser – New Software We have purchased a licensed copy of Lightburn for the laser. This software does everything that our RayCAM (aka LaserCAD) does plus it has integrated the editing tools for images similar to CorelDRAW or Nick's ObjectWorks. You can see some images created below. The car image on wood shows excellent details with good contrast. The lithophane old verses new shows much more detail. Also defocusing the engravings by 3mm reduces the granularity.

WHO DUNNIT?

Inspector Policy is our house detective. He is always on duty looking for rules violations which disrupt the peace and fair maker environment. He lives by the maker credo "Be Excellent to each other". Each month he will ask for your help to identify a rules violator.

This month's case:

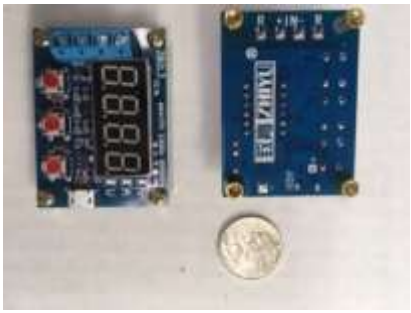
"All quiet on the maker front"

This past month we didn't see any policy violations in the shop worth mentioning. The rather bored Inspector Policy was heard saying, "This community is fantastic. True support and respect for the fellow maker".

He does want to take this moment to remind members that consumable materials are generally supplied as part of membership. However, if you use a significant amount of a consumables life, you are expected to replace that item.

.Inspector Policy

Craig's LiIon Battery Tricks



The ZB2L3 is a small tester to check your batteries for capacity (we know that cells going bad have less capacity than good ones), and it will record mAhrs, both cumulative and real time, shows voltage- under load and not, and can be set to turn off battery at almost any voltage, which is an outstanding feature. This has saved the lives of a lot of my lithiums, because I too often go off and forget that they are running.

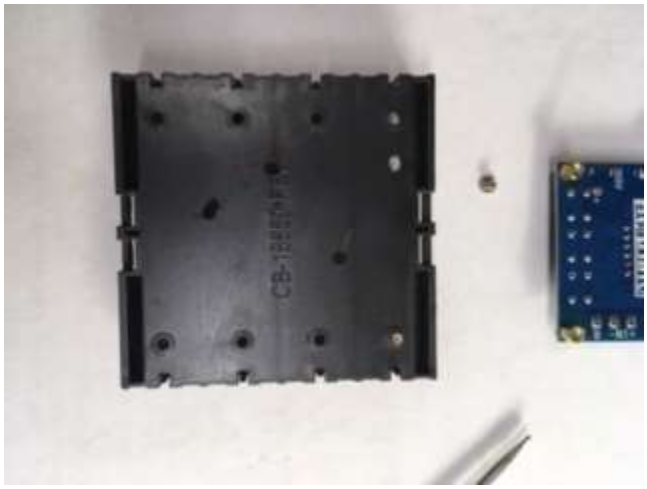
While it is rated up to 15 V, (it may be able to run a 4S pack - 16.8V peak, 14.8 nominal?) I mostly use 1,2,or 3S. It generally comes with a large ceramic 5 W resistor to act as the load for discharge. You can run a lot of other things also, incandescent car

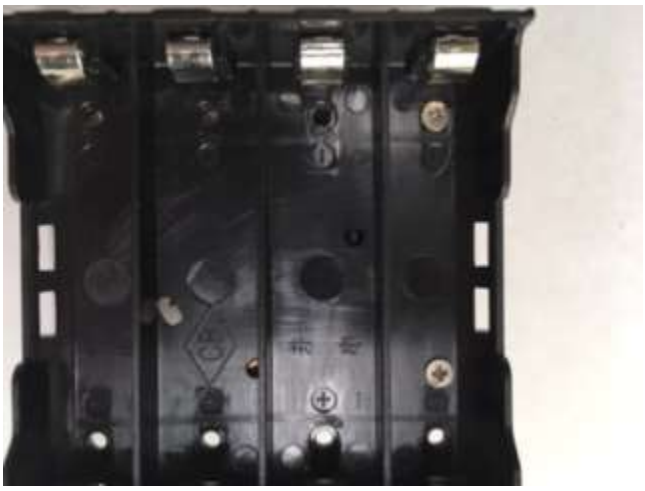
bulbs, small DC hand warmers, all kinds of LED lights, fans, Peltier junctions, nichrome wire, little motors and you can hook it up to a boost converter to get up to about 28 V on output.

Power to run the tester is 5 V, and you can plug in your phone charger to run it. I have discovered that if you power it with two lithium cells in series (6.2-8.4V) it runs just fine. This is interesting because it will let you make a portable unit. Also it fits nicely onto the back of a 4-cell holder.

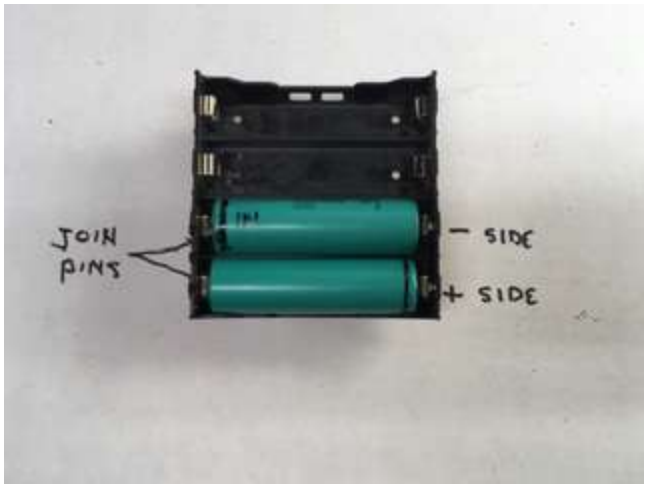
This is how I make mine-

Drill a hole as shown. Unit will mount on the back with one screw through an existing hole, and the other through the one you just drilled. Two screws will hold it in place quite well.





On the back of the board, under your USB connector, you'll see a solder pad for plus and negative. Solder a small hot wire and a ground wire to the pads and connect them to the pins on your battery holder as shown. Next join together the two pins on the other side/edge of the



holder, you can either insert a strip of nickel, or

Solder the two pins together with a short wire.

Now you can put in your two lithiums - positive battery to the plus side and negative battery to the minus side. You should see your display light up. Next run a hot wire and a ground wire from the two center terminals of

your connecting block, observing proper polarity; they are marked underneath, and this will be the connections for your battery under test. I like to run wires to the two unused cell positions, again you can run two short nickel strips to join them and then solder a positive wire and a negative wire accordingly. This will give you two batteries in the holder in parallel to test, at 3.7 V nominal. Or you can use these two spaces to make a 2S series system at 7.4 V. Or you can just run the two wires to connect to an external battery of any voltage you wish up to 15 V.

All you need now is to connect your load to the two outer terminals, again observing proper polarity.

I have fun making these and really like the ability to make the whole unit portable and, if you do your battery charging with solar panels you can make it pretty much completely off grid.

You could probably use this thing to actually check battery capacity, but I like it for its portability and its ability to turn off my cells when they get below safe voltage. You can get these things on eBay for about four bucks or a little less, and if you were interested I have a couple extra of these so drop me an email if you want one. If you have any questions on this somewhat confusing post, please PM me and I will respond. Also it might be fun to continue this build on our bridge wire Facebook page, which certainly could use some participation.

Thank you

ARTICLES ALWAYS NEEDED!

The Newsletter

Things are looking up for the Bridgewire Newsletter, we're getting more and more interest in submitting articles, making the BWNL more interesting and relevant than ever. Thanks to Eric, and Craig, for contributing to this month's issue. If you have an article in mind or just a particular subject that you would like to see in the newsletter please email your entries to Lance, at lance@ipc-solar.com .

EDUCATION HAPPENINGS

Embedded Systems Group: Every Tuesday of the month with lessons in soldering, basic circuitry and electronics projects. We are restarting this group. We plan to have a meeting every week during the summer. This would be the place to learn electronics and upgrade your knowledge. Projects will be presented every meeting.

Bridgewire Classes and Workshops.

We offer a varying array of classes and workshops from month to month which can be viewed in our Calendar.

FINAL NOTES

Clean up for the cleaning crew?

We're back! And strict hygiene rules are in place. It's important that we pay attention to our workspace and be sure to consider the other members who come after us. Bridgewire's industrial cleaning service will again be doing a terrific job of keeping the shop tidy, safe and dust free. We can all help them focus on the deep cleaning aspects of their job by keeping work areas organized and sanitized and cleaning up after ourselves. Let's not forget that Bridgewire is a co-operative facility that relies on member participation to maintain the facilities while keeping an affordable fee structure. This service frees us to spend more time on infrastructure issues. There's plenty of need for repair and maintenance of the tools and equipment.

New Members

Bridgewire is proud to welcome Ari Reiknights. Our latest new member.

BRIDGEWIRE CALENDAR

Bridgewire Calendar
December 2020

DEC

	Tue	Wed	Thu	Fri	Sat	
	December 1	2	3 6 pm - 9 pm CANCELLED Open House Night 7 pm - 9 pm Metal Shop and Welding	4	5 10 am - 1 pm Quarterly Board Meeting	6
Day	8	9	10 6 pm - 9 pm CANCELLED Open House Night 7:30 pm - 9 pm Laser Cutting & Etching	11	12	13
	15 6 pm - 8 pm Embedded Microprocessor Group meeting	16 8 pm - 9 pm Officers Meeting	17 6 pm - 9 pm Open House Night 6:05 pm - 8:05 pm Wood Shop	18	19	20
	22	23	24	25 Christmas	26	27
	29	30	31	1 New Year's Day	2	3

BELOW Click on “Calendar” to go to the Bridgewire calendar with interactive event details.

ALL MEMBERS, If you would like to add an event. Email us at info@bridgewire.org or click on the button below the calendar to schedule your event with details and contact info. The new event will be approved by an officer or director to make it show up. Your events can be any project you want to share or get help with. Add Event

Calendar