

Batteries - The age old quest for more power

On 1 Apr2010, at 17:37

Originator - From: Stuart Halewood, UCSB

Hello out there,

Yet again I enter the quest for better batteries to be used in the marine subsurface environment.

Today's question is, has anyone as yet found and reliable batteries to replace packs of Alkalines?

I know from past exploits that:

Rechargables never seem to have sufficient power or capacity especially when running at lower temperatures. Is this still so has anyone relied on them for month long deployments?

lithium varieties give us the life but then under pressure there can be safety issues along with the fun of trying to ship them these days. Any new ones that may be better but not terribly expensive?

the third option i guess is looking for higher capacity Alkalines and making up your own custom packs. does anyone have a favorite company or contact that they use for this?

We are trying to come up with a more cost effective and less wastefull option for powering some subsurface instrumentation for month long deployments, depths ranging from surface to 400m. i can give more details to anyone who would like them.

i know this is a pretty common problem for us all and i'd like to get the conversations starting again to see if there's technology out there that I'm missing.

As always thanks in advance for any and all help/advice.

Cheers,

Stuart

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Stuart Halewood
Associate Development Engineer
Institute for Computational Earth System Science
6835 Ellison Hall
University of California
Santa Barbara, CA 93106-3060
email: halewood@icess.ic.ucsb.edu

Reply From: Jules Hummon, U. Hawaii

Stuart

We're using an oil-filled lead-acid battery manufactured by Deep Sea Power and Light. They call it the SeaBattery. We call them SOB (Safe Orange Battery).

Our application involves putting them on a CTD rosette for repeated full-ocean depth casts. We've found them to be safe, heavy, and reliable. They're not cheap though. I think the last one was about \$4000.

<http://www.deepsea.com/batteries2.html>

We're using the 48V version. They are not nearly the hazmat hassle that lithium is.

Jules

Reply From: Chad Waluk, OSU

I have been able to use smaller sized sealed lead acid batteries for some of our own custom applications. They have the positives of being rechargeable, reliable, and 'robust' with regards to power. They usually have enough voltage and physical shape options to meet varying needs. The higher density can be an issue for some applications but I often find that the extra weight is needed to deal with varying buoyancy issues.

The good source for these with some of the best prices has been...

<http://www.portablepower.com/>

Cheers

Chad

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Chad Waluk
Oregon State University
College of Oceanic and Atmospheric Sciences
104 Ocean Admin Bldg
Corvallis, OR. 97331-5503

Reply From: Jim Newman, WHOI

Stuart --

For a high-end battery solution look at: <http://www.ocean-server.com/> I've never personally used them but I've heard good things.

-- Jim

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| jim newman  
| woods hole marine systems, inc  
| jim@whmsi.com

| http://www.whmsi.com/  
| po box 164, woods hole, massachusetts 02543 USA  
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**Reply From: George Tupper, WHOI**

Stuart,

At the risk of sounding a bit cavalier, which I don't mean to do, there could be another option. I'm not sure what instrumentation you have - or if it is modifiable - but another alternative to more battery could be less power consumption? We use quite a lot of instrumentation from depths of 100m to 5000m for periods of one to two years.

Just a thought...

George Tupper

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**Reply From: David Fisichella, WHOI**

Stuart,

You may want to look into A123 lithium nanophosphate batteries. They don't have the self-combustive potential of lithium polymer, but they do have very low internal resistance and offer extremely high charge and discharge rates. I also think they hold their voltage over a long period of time without self-discharge.

David

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David Fisichella  
Manager  
Shipboard Scientific Services  
Woods Hole Oceanographic Institution

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