

Power monitor motes

Went to rim-tower to replace the TRH at 20m since it has been reading way off scale, and we have not been able to reset it with ctrl-R or "eio 15 0/1". See <https://wiki.ucar.edu/x/6RtaE> and <https://wiki.ucar.edu/x/FRdaE>

It is connected to port 15. The power monitors for rim and rimup are in ports 14 and 16. I wondered if somehow the power monitors are "back" powering the interface board through their serial cables. To test this, I removed the jumpers labeled FET and +V for ports 14 and 16. The power motes kept coming in, so, as expected, they are getting their power from the battery. After removing those jumpers, I can now power cycle the TRH with eio, and reset it with ctrl-R. After that it looks like the TRH is reporting good data, so didn't replace it.

Prior to removing the jumpers, at some point the rim dsm crashed as I've seen once or twice before on this project, reporting "too much work for irq 4", which is the irq of the second serial board. I believe this happens after an "eio 15 0", which might exacerbate the "back" power problem. See <https://wiki.ucar.edu/x/jwtaE>

Since this seemed to help rim, I then removed the power monitor jumpers at near, far and base. All those motes continued to report.

Post-Project Update, JohnM. 15Nov13.

I cannot reproduce the reported 'back-trh-power' problem coming from the power monitor motes. I did a test using the rim dsm, a trh plugged into ttyS15 and the same 2 power monitor motes connected into ttyS14/16 and with all the jumpers re-installed, although there were no other sensors installed and the exact same cables cannot be determined. Nevertheless this is the same sub-configuration that Gordon had with 2 separate battery boxes for pwrmote ID8 and ID9 and one running the dsm. I tried eio 15 0/1 with eio 14/16 0/1, etc. and everything worked as advertized. I really didn't think the problem reported could have been due to the power monitor motes because as he mentioned, they're powered independently by the batteries themselves and the interface cable has only gnd,tx,rx on it: i.e. no power. I suppose there is a possibility that there was a bad cable but i'm doubtful of that too because it is hard to see how either a bad cable could have been working, which it was, or how it could have back-fed power to port 15 forcing it's way through the power control fets specific to each port. What exactly happened is a mystery. Could there have been an issue in the Diamond board that caused either both, or the wrong digital i/o line to be pulled? Was the dsm restarted or 'tickled' or was the power shutdown while the jumpers were changed and the trh worked on? Could one of the fet jumpers for the trh have been loose or intermittent in cold/warm and possibly contact re-established? Etc.,etc. I don't know but feel it's safe to say the power monitor motes cannot back-feed power through their serial port to a dsm. And if in doubt they can also be setup for wireless (bluetooth, xbee or wifi) data delivery.