Detector Support Group

We choose to do these things "not because they are easy, but because they are hard".

Weekly Report, 2024-02-21

Hall A – ECAL Test Stand

Marc McMullen

- Loaded new software and the shared variables to the cRIO 9045 located in the counting house; remapped all shared variables
    - ✶ All sensors and control devices are connected via network to the cRIO expansion chassis
    - ✶ Tested the controls with the top supermodule channel

Hall A – LAPPD

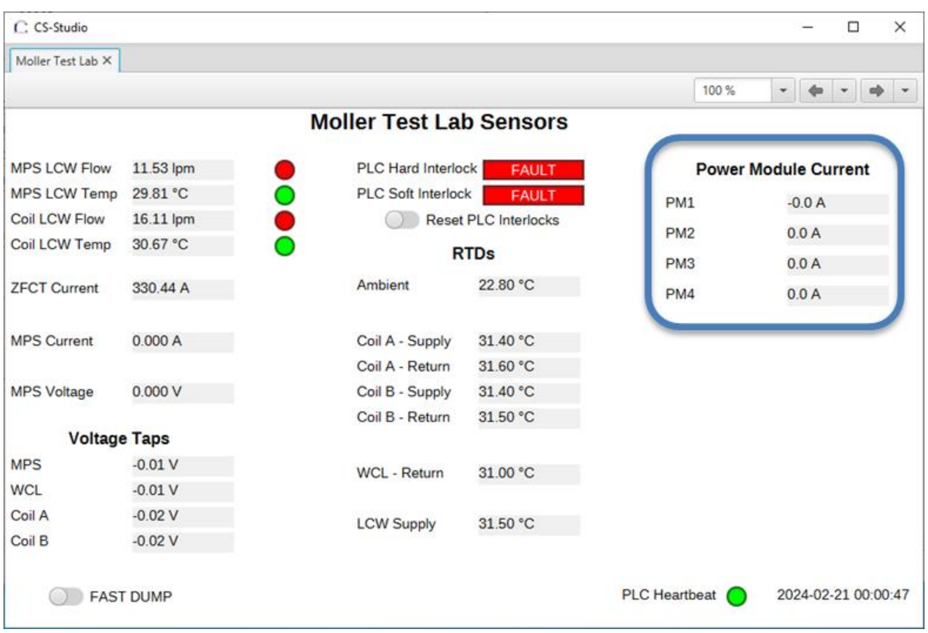
Pablo Campero and Marc McMullen

- Completed 3D model of the detector test stand
- Determined dimension of the gantry's T-profile supports and the required hardware
- Revised LED box design model
    - ✶ Removed battery power supply
    - ✶ Added hole in the box base for wiring of LED power connection
    - ✶ Reduced height of box from 75 mm to 60 mm
    - ✶ Modeling inner support for LED head placement
    - ✶ Researched methods to attach optical fiber to LED

Hall A – Møller

Brian Eng

- Completed wiring and code for power module DC current transducers on PLC side
- Updated Phoebus screen with new sensors for power module DC current transducers' readout



Phoebus screen for Møller test, with new sensors in blue box

Hall C – NPS
Aaron Brown and Mary Ann Antonioli

- Debugging version 2 of control and monitoring program's failure to trip
    - Doubled all subVIs of test program to see if the program works with multiple instances of the same subVIs
        - The first run did not work; may be due to improperly initialized arrays
- Working on requested change to control and monitoring program currently in use that would insert a delay between the scan of each Keysight channel
- Looking at how to proceed with version 3 of control and monitoring program
- Implemented remote power cycling of cRIO using network-enabled power distribution unit
    - Uses an Ethernet port in the SHMS hut
    - Set up the web application and wrote instructions for the users
    - When testing the power distribution unit, the first 40 back crystal temperatures failed to scan (multiplexer #1); fixed with a cable swap;
        - https://logbooks.jlab.org/entry/4254570
- Plotted crystal temperatures vs. ambient temperature (168 plots)

Hall D – FCAL2
George Jacobs and Mindy Leffel

- Populated 65 PMT bases; completed 1505 of 1650
- Cut 780 wires and stripped 390
- Tested 101 PMT bases; 241 completed

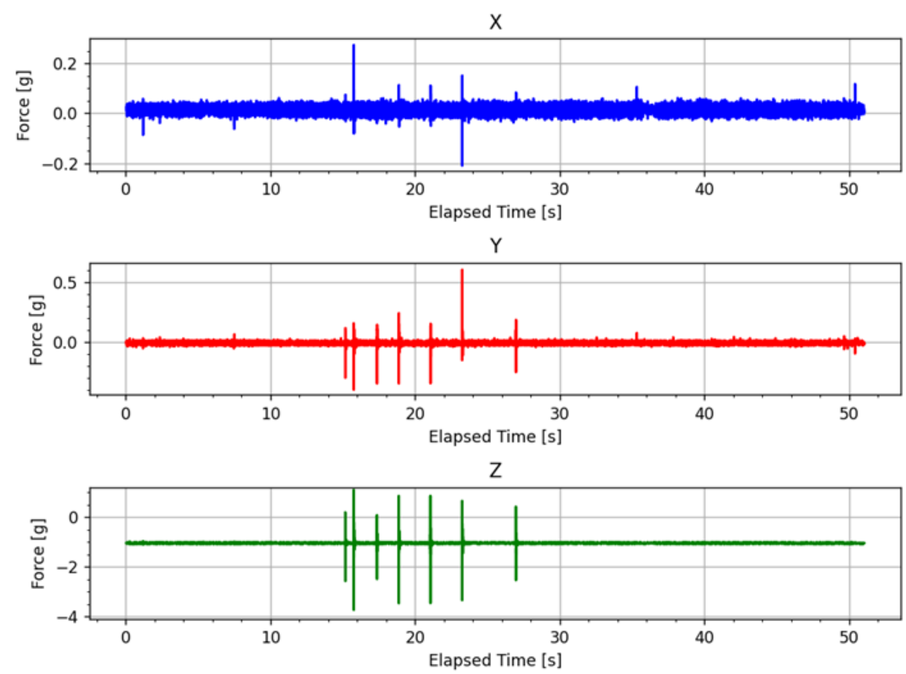
EIC
Brian Eng

- Attended remote workshop on inner detector mechanical and cooling

EIC – DIRC
Tyler Lemon, Peter Bonneau, Brian Eng, George Jacobs, and Marc McMullen

- Researching options for remote pressure monitoring by chase car of shipping crates' air suspension system
    - Option 1: Bluetooth, wireless pressure transducer
        - Pros: easy to set up, easy monitoring using included app
        - Cons: long lead time of 4–5 weeks
    - Option 2: Pressure-actuated switch to turn on a light visible by chase car
        - Pros: easiest setup, battery powered, no software, can receive all parts within one week
        - Cons: no remote readout of pressure, only status
    - Option 3: Router-based setup with controller reading pressure transducer data
        - Pros: can receive all parts within one week
        - Cons: have to consider powering router and network configurations, more components that could fail
- Adding output for an interrupt signal from the laser interlock system to the photodiode DAQ system to allow program to notate in the data file when an interlock occurred

- Developing Python program to plot data during tests from USB accelerometers to record shock response of shipping crates' air suspension system



Screenshot of accelerometer's *x*-, *y*-, and *z*-axis measurements generated by first version of program. Accelerometer's z-axis was vertical for test (-1 g offset in data is earth's gravitational pull). Spikes in data are from bumping table near accelerometer.

- Developing automated startup sequence of Phoebus alarm system software packages in Linux for Phoebus version 4.6.10
- Began wiring diagram of the laser interlock interior control unit

DSG – Website

Peter Bonneau

- Revised DSG mailing list and subscribers webpages