



# Detector Support Group

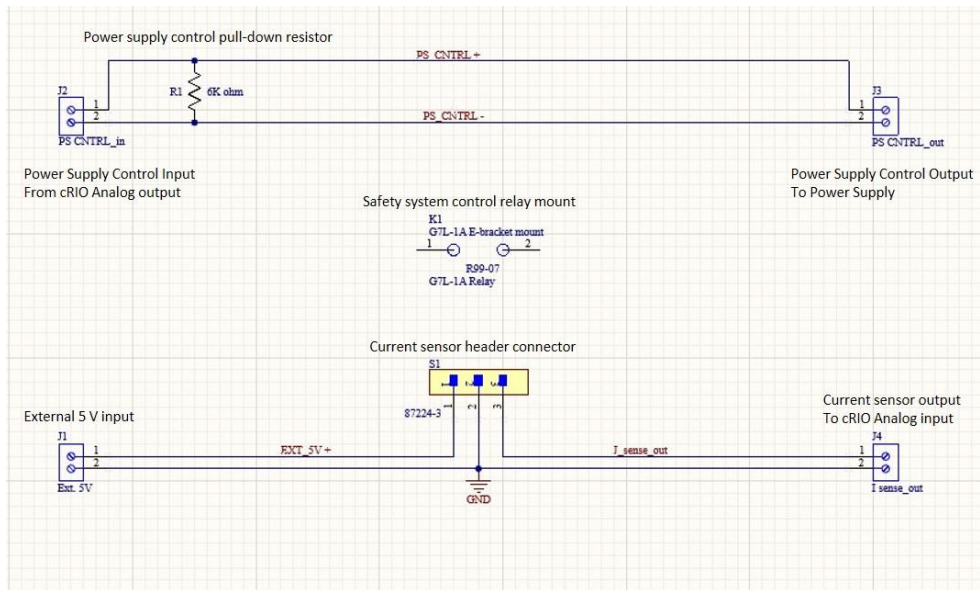
*We choose to do these things "not because they are easy, but because they are hard".*

**Weekly Report, 2024-01-31**

## Hall A – ECAL

Marc McMullen

- Power supply controls interface chassis
  - ★ Completed front and rear panel designs
  - ★ Received quote for two prototype chassis of ~\$300 per chassis
  - ★ Completed bench testing the circuit
    - Adding a resistor across the circuit positive and negative prevents the circuit from outputting full current
  - ★ Completed schematic of board
    - Each chassis will have three boards, one for each connected power supply



Altium designer schematic of the power supply interface chassis board, with a control circuit, a current sensing circuit, and mounting holes for the safety system relay.

## Hall A LAPPD

Pablo Campero and Marc McMullen

- Started setup of the Zaber-LC40B Gantry motorized system
  - ★ Tested movement commands
- Working on the design of the gantry support structure

## Hall A – Møller

Brian Eng

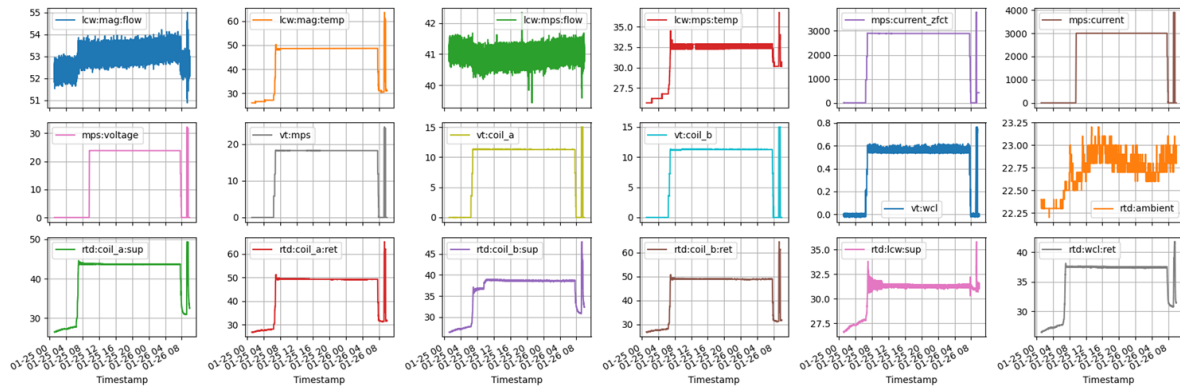
- Completed testing of TM3 MPS
  - ★ Site acceptance test passed after minor issues related to 480-VAC input
    - Phase imbalance (issue with wiring to sensor) and input current balance (sensor needed increased tolerance from 5% to 10%)
- Data analysis ongoing



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Initial plots generated from all sensors.

## **Hall B – ALERT**

*Brian Eng, George Jacobs, and Marc McMullen*

- Selected Alicat MCW 500-sccm mass flow controller

## **Hall B – LTCC Gas System**

*Brian Eng and Marc McMullen*

- Investigated issues with Forward Carriage cRIO losing heartbeat signal to EPICS
  - ★ Found to be a failing network switch: <https://logbooks.jlab.org/entry/4245129>

## **Hall B – Solenoid**

*Brian Eng*

- Reviewed data logger for the force sensors on the Solenoid
  - ★ Every Z sensor in the system has intermittent spikes in the signals. For most, the value goes up, except force sensor ZS86105US\_BL\_T (Solenoid Upstream Beam Left Top) spiked down to 1300 lbs from 2248 lbs
  - ★ ZS86105US\_BL\_T typically spikes to 2248 lbs, which is the maximum output that the Z force sensors can register (1000 Kg)
- After discussion with the magnet group, decided that the spike was not a reason to hold up taking beam
  - ★ Further discussion will be had to see if this sensor should be eliminated from the magnet interlocks. Recommend increasing the time delay for a ramp down from the ~20 s value in the controls to 60 s or 120 s, so as not to waste beam time.  
[logbooks.jlab.org/entry/4242522](https://logbooks.jlab.org/entry/4242522)
- PLC performed as programmed; will test with a controlled ramp at 500 A to verify can stop ramp

## **Hall C – NPS**

*Mary Ann Antonioli and Aaron Brown*

- Debugging control and monitoring LabVIEW program, vers. 2
  - ★ *Latch or status true* subVI is outputting empty arrays; problem appears to come from empty array inputs to that subVI
- Analyzing data from high voltage supply cable testing



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- Developing Python program to plot all sensor data and calculate Pearson correlation coefficients; completed code to generate plot of front, back, and ambient temperatures for each sensor
- Remotely rebooted Keysight mainframe, but all temperature values from multiplexer#3 are ~32° too high
  - ★ <https://logbooks.jlab.org/entry/4244128>
  - ★ Waiting for a scheduled maintenance day to further investigate

## **HalD – FCAL2**

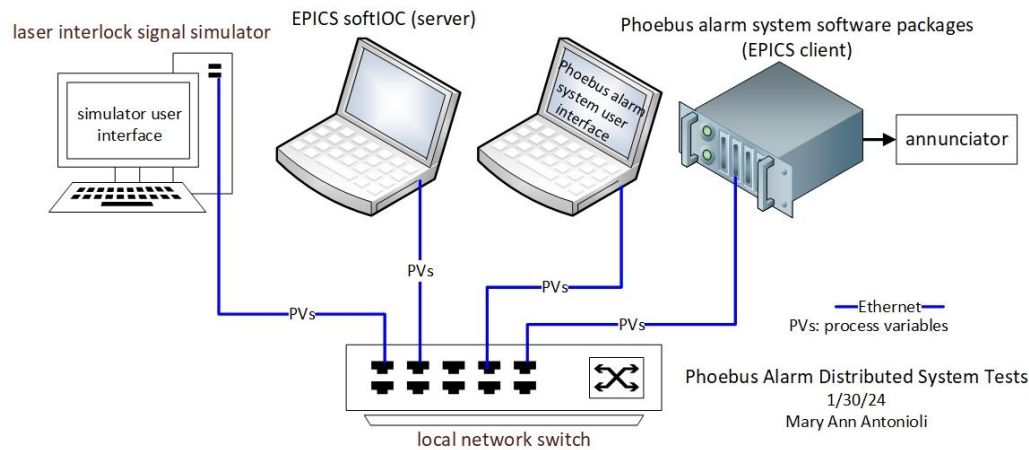
*Mindy Leffel*

- Populated 30 PMT bases; completed 1330 of 1650
- Cut 540 wires; stripped 210

## **EIC - DIRC**

*Peter Bonneau, Brian Eng, George Jacobs, Mindy Leffel, Tyler Lemon, and Marc McMullen*

- For Phoebus alarm test, developed and tested initial system startup procedures and applications that will be used when the completed hardware and software is tested for the first time
- Made Visio drawing of system tests setup



## **DSG**

*Mary Ann Antonioli*

- Began changing code to reformat Notes section of website; completed through 2020 and 2021 begun