Detector Support Group

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

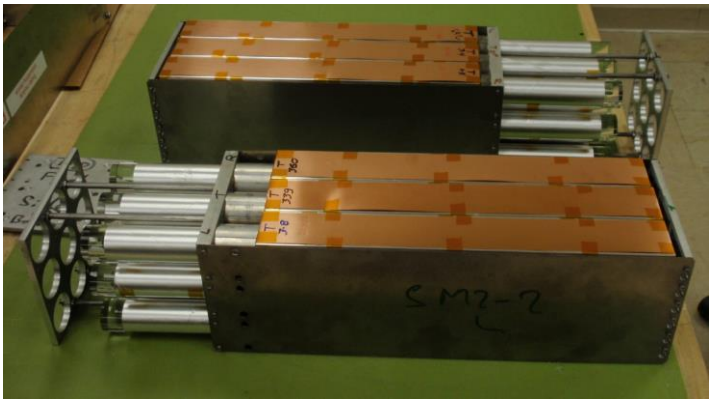
Weekly Report, 2022-02-09

Summary

Hall A – ECal

George Jacobs, Mindy Leffel, Marc McMullen

- Assembling supermodules – 20 of 59 complete
  - ✶ 153 of 192 total supermodules have been assembled



Two completed ECal supermodules

Hall A – GEM

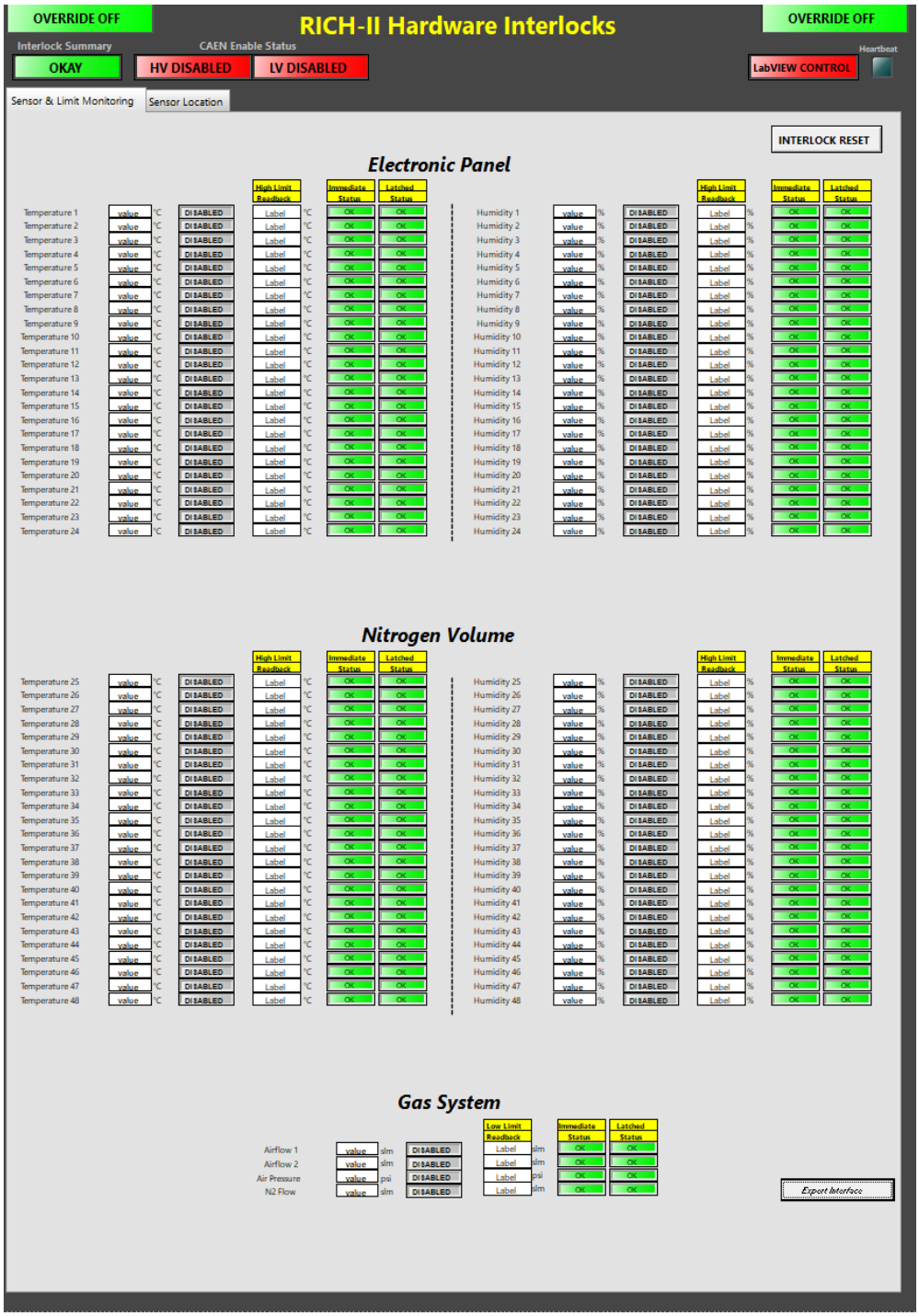
Brian Eng, George Jacobs, Marc McMullen

- Recovered SBS gas flow monitoring system after power outage
- Successfully tested GEM pressure monitoring using 100' cable on I^2C channel #2 while monitoring flow on channel #1

Hall B – RICH-II

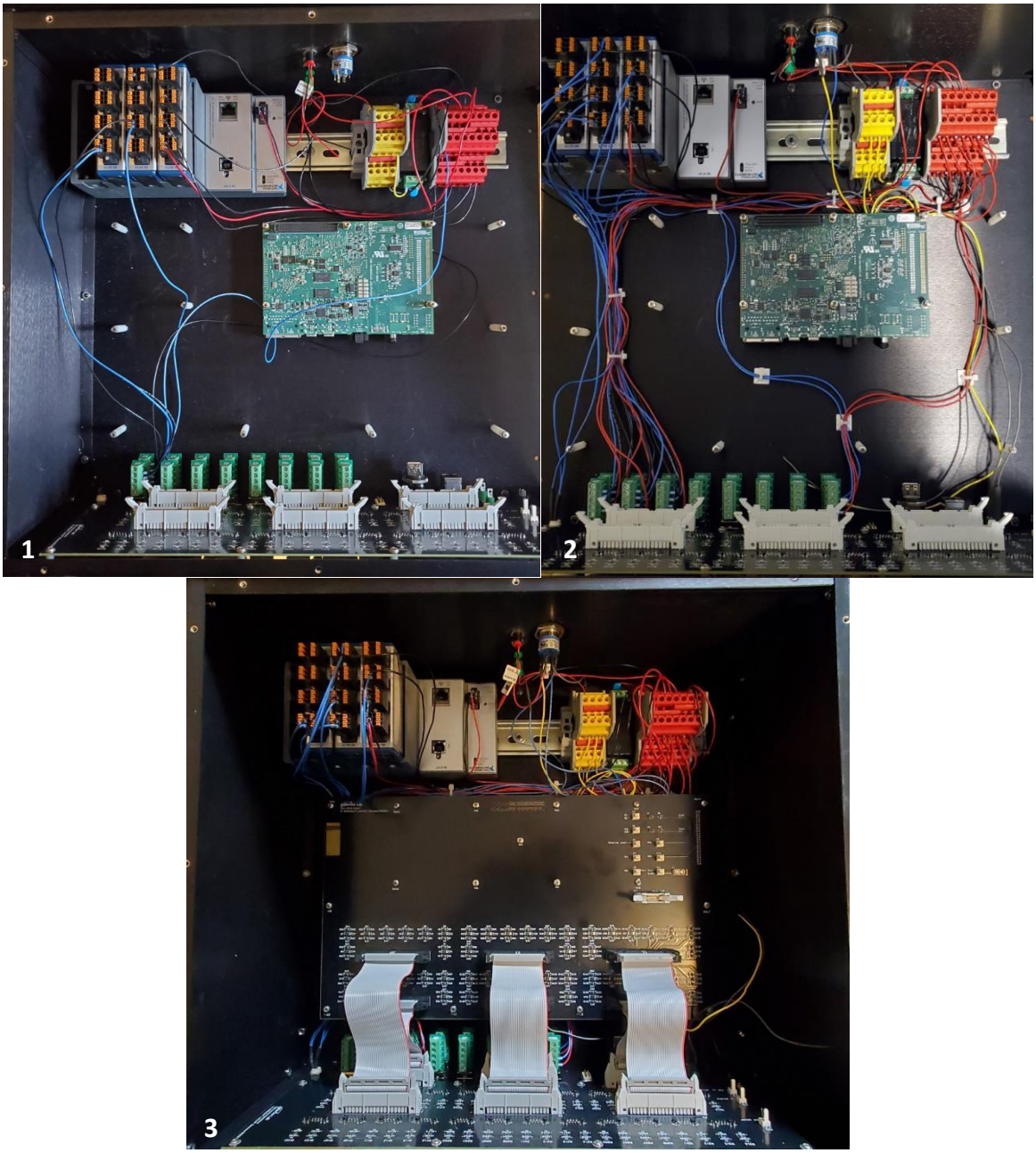
Mary Ann Antonioli, Peter Bonneau, Pablo Campero, Brian Eng, George Jacobs, Tyler Lemon, and Marc McMullen

- Developing CSS-BOY screens for hardware interlock system
  - ✶ Screens based on those from first RICH sector, but modified to display information based on SHT35 sensor grouping
  - ✶ User-level and expert-level CSS-BOY screens under development for hardware interlock system
  - ✶ User-level screen
    - Sensor data in list view and in graphical format
    - Read-only for interlock limits, interlock enable
    - Buttons to reset interlocks and to open expert-level screen
  - ✶ Expert-level screen
    - Sensor data in list view with controls for enabling interlocks and setting interlock limits
    - Additional tabs on screen for I^2C communication information and controls, averaging and interlock trip delay control, and system monitoring for sbRIO status information



Screenshot of RICH-II hardware interlock system LabVIEW program

- 3D printed two batches of spring supports for spherical mirrors
- Fabricating hardware interlock chassis



Interior of hardware interlock chassis in various stages of fabrication

Hall C – NPS

Mary Ann Antonioli, Peter Bonneau, Aaron Brown, Pablo Campero, Brian Eng, George Jacobs, Mindy Leffel, Tyler Lemon, and Marc McMullen

- Completed final five LabVIEW device drivers to read from, and write to, the chillers
  - ✶ Write user control flags
  - ✶ Read chiller status
  - ✶ Read plant temperature
  - ✶ Read setpoint temperature

- ✶ Read user menu configuration
- Developing program to test all chiller device drivers
- Installed 19 K-type thermocouples to Keysight terminal block #2 (66 of 112 installed)

Hall D – JEF

Mary Ann Antonioli, Aaron Brown, George Jacobs, and Mindy Leffel

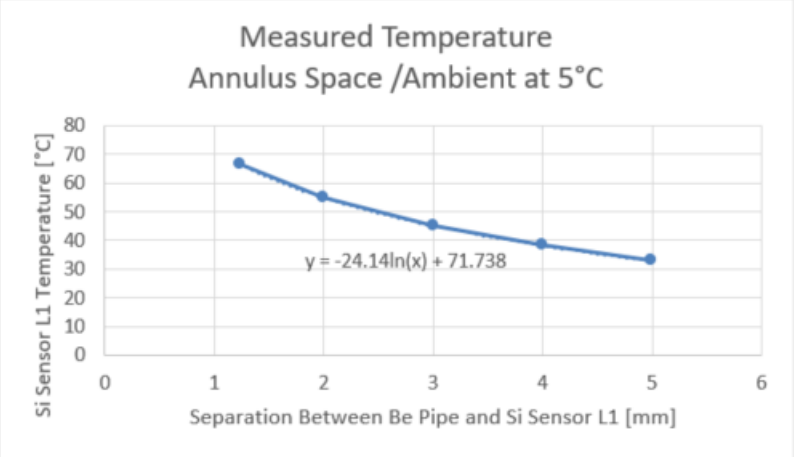
- Cut 40 ESR films
- Debugged ESR pre-shaping oven over temp issue
- Pre-shaped 23 ESR films – 23 of ~1500 complete

EIC

Pablo Campero, Brian Eng

- Continued steady state thermal analysis of Be section – ran simulation for five models
  - ✶ Separation between Be pipe and Si Sensor L1 of 1.24, 2, 3, 4, and 5 mm
  - ✶ Repeated simulation with different temperatures for air in annulus space and ambient for 5, 10, 15, and 20°C

Measured temperature			
Air temp. (annulus space and enclosure): 5°C			
Separation between Be pipe and Si sensor L1 [mm]	Be pipe inner face temp. [°C]	Si sensor L1 temp. [°C]	ΔT between Be pipe and Si sensor L1 [°C]
1.24	100.00	66.75	33.25
2.00	100.00	54.81	45.19
3.00	100.00	45.01	54.99
4.00	100.00	38.24	61.76
5.00	100.00	33.10	66.90



- Proto-collaboration resumed, mostly focused on documentation while proposal process continues
- Developing table comparing tracking detectors between proposals

DSG R&D – EPICS Alarm System

Peter Bonneau

- Installing and debugging EPICS base – used to create an Input/Output Controller (IOC) for the development and testing of the alarm system
- Investigating compiling errors during the EPICS system build of the channel access code
- Installation and configuration of Apache Kafka

DSG R&D – PLC PID Controls Test Station

Pablo Campero

- Writing PLC code to simulate filling of a helium tank when valve is opened
- Added indicators to HMI control screen to check tank filling status