Detector Support Group

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

Weekly Report, 2022-09-21

Summary

Hall A – ECal

Brian Eng, Mindy Leffel, Marc McMullen

- Started developing single supermodule heating test
- Working on Visio drawing of supermodules

Hall A – GEM

Brian Eng, Marc McMullen

- Replaced I2C extender node in the hall and restarted full system
  - ✶ Binary gas analyzer on-line for SBS
  - ✶ 73% argon measured over the weekend
- Updated DSG I^2C extender circuit to include additional filtering on circuit output

Hall A - Gen-II

Mindy Leffel

- Replaced broken sensor on RTD cable

Hall A – Moller

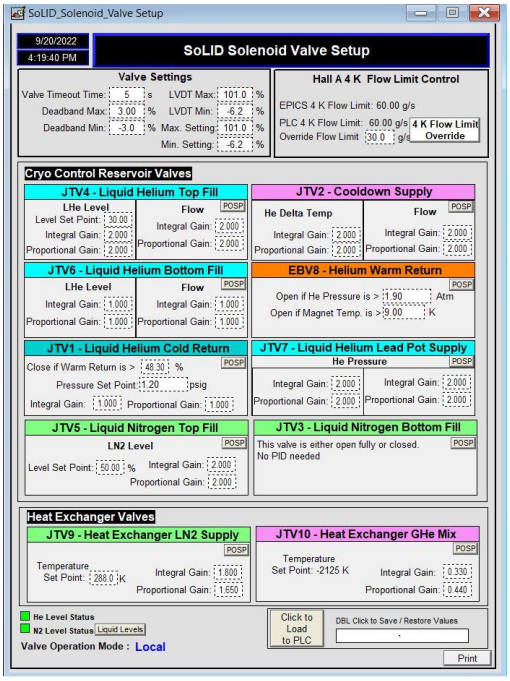
Aaron Brown, Brian Eng

- Coil 3 prototype test
  - ✶ Unable to locate any of Nick's previous work (code—except copy of the coil test PLC code—documentation, hardware) Assisted with testing of prototype magnet coil #3
  - ✶ The plan is to ramp the magnet coil to 700 A and monitor the temperature, pressure, and flow
- Debugged readout of pressure and flow transmitters
  - ✶ Connected wiring of two pressure sensors and one flow meter to PLC
  - ✶ The pressure sensors needed an additional wire (input) connected to the PLC channels
  - ✶ Need to fix scaling formulas; all channels are configured to read as raw instead of engineering units
- Researched specifications for Automation Direct flow transmitter (fsa75-42-6h) and pressure transmitter (spt25-20-150D)

Hall A – SoLID

Mary Ann Antonioli, Pablo Campero

- Completed modifications to *Solenoid Valve Setup* HMI screen
  - ✶ Added input controls for integral and proportional gain set points
  - ✶ Added input control and indicator for set temperature in heat exchanger
  - ✶ Added buttons to access Position Proportional screen



- Modified PLC code to control through PLC automatic mode the aperture of the nitrogen and helium mix heat exchanger valves
  - ✶ Added code to determine if heat exchanger is enabled
  - ✶ Configured one PID controller instruction per valve
  - ✶ Programmed the correct process variable, set point, and limits for PID controller
- Revised, reviewed, and reposted electrical drawings with cabling and connector changes

Hall B – RICH

Tyler Lemon

- Writing instructions on how to remotely access hardware interlock system for debugging and rebooting

Hall C – NPS

Mary Ann Antonioli, Aaron Brown, Brian Eng, Tyler Lemon

- Developing LabVIEW code for configuration file management
  - ✶ Completed code to read in default configuration file
  - ✶ Working on code to generate the updated configuration file if input parameters have been changed
- Continued writing manual for Phoebus screens

Hall D – JEF

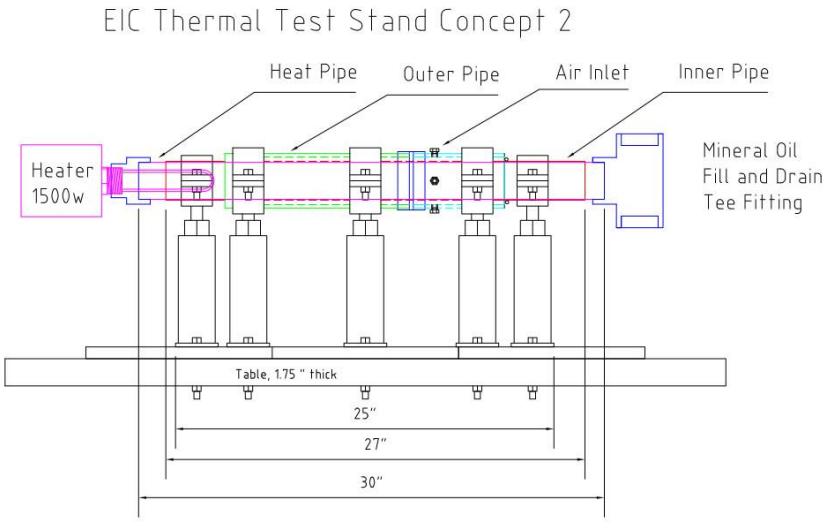
Mindy Leffel

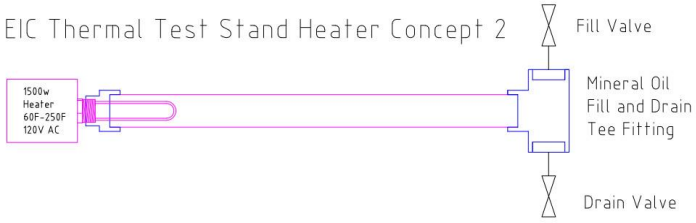
- Wrapped ten crystals

EIC

Pablo Campero, Brian Eng, George Jacobs, Marc McMullen

- Beampipe test stand
  - ✶ Pressure system parts can be ordered
  - ✶ Located self-adhesive surface thermocouples
  - ✶ Updated heater design using mineral oil as the medium with screw-in immersion heater and thermostat; mineral oil is stable up to 300°C (572°F)

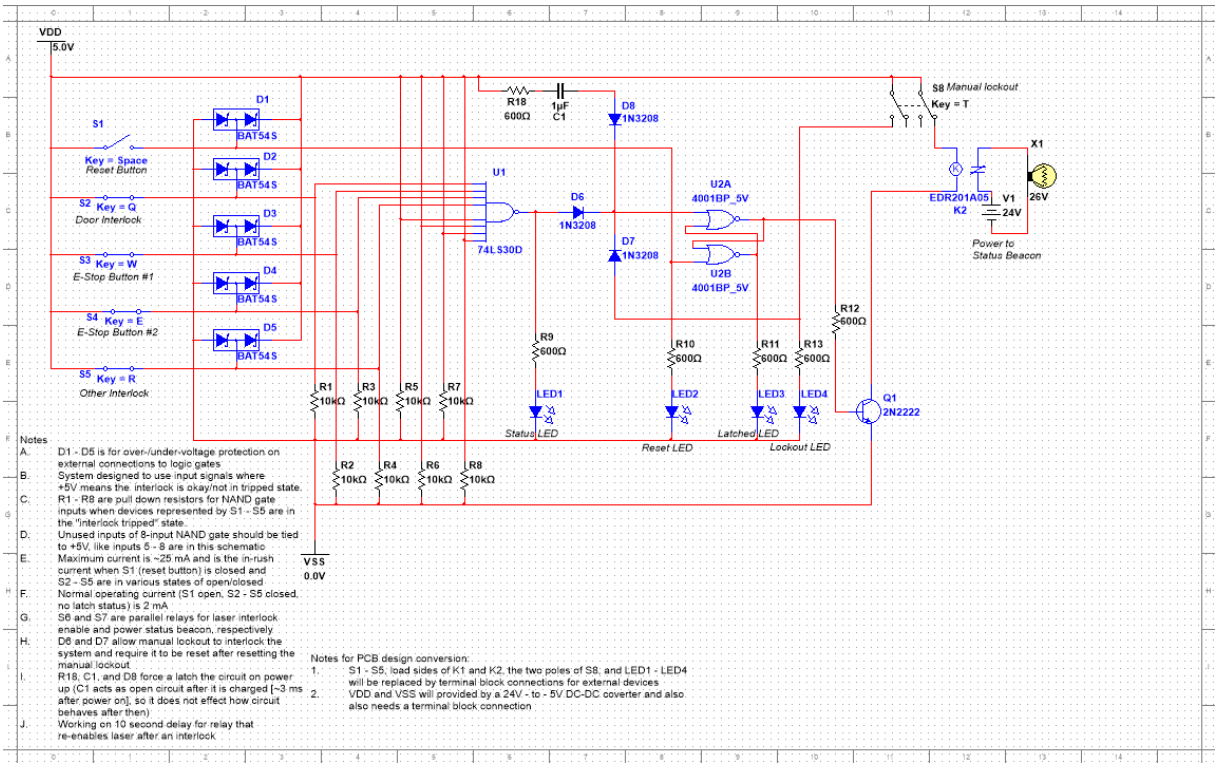




EIC - DIRC

Tyler Lemon, Marc McMullen

- Compiling parts list for laser interlock chassis
- Used Multisim to design a circuit for laser interlock
  - ✶ Uses logic gates to monitor for interlock conditions, such as door open or emergency stop button pressed
  - ✶ If no interlock conditions exist, relay to laser is closed, allowing laser to be powered
  - ✶ Relays control a yellow beacon light to indicate that laser is powered
  - ✶ Contains a set-reset latch that will keep laser interlocked until system is reset via a push button
  - ✶ Includes a keyed switch to allow manual, local lock-out of laser with interlock system; prevents interlocks from being reset while one is working in laser controlled area
  - ✶ Investigating how to have a 10-second delay between beacon turning on and laser being enabled; possibly use a 555 timer IC to implement delay



- Started Laser Specific Lesson Plan for the DIRC He-Cd laser
  - ✶ Determined minimal optical density value for eye protection to be 5+, on a scale of 1 to 9; value refers to the amount of light transmitted through the optical lens, with less light as the number increases

DSG R&D - CS-Studio Phoebus

- Rebuilding Phoebus development system
  - ✶ System drive for Phoebus development became corrupted
  - ✶ Linux operating system reinstalled
  - ✶ EPICS, CS-Studio Phoebus, and support programs being reinstalled and compiled
  - ✶ Backup of Phoebus configuration files, EPICS SoftIOC, and Kafka configuration files being used in the rebuild