



Detector Support Group

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

Weekly Report, 2023-05-10

Hall A – AEXP

Mindy Leffel

- Fabricated four, two-conductor RTD cables

Hall A – ECAL

Brian Eng, Tyler Lemon, and Marc McMullen

- Installed four thermocouples on aluminum bar heater
Modified controls software to include the additional thermocouples

Hall A - GEp

Mindy Leffel

- Completed two high voltage boxes; 13 of 22 completed

Hall A – SoLID

Pablo Campero

- Working on modifications to drawing A00000-16-03-0250
 - ★ Checked wiring connections for voltage taps; current wiring does not match the requested changes

Hall B – HPS

Tyler Lemon

- Modified Raspberry Pi program that reads temperature and humidity inside the storage freezer with an SHT35 sensor and writes that data to EPICS
 - ★ Added IP address to environment variable EPICS_CA_ADDR_LIST
 - ★ Changed the system's softIOC from running on an older PC in EEL that is having startup and stability issues to a server in the Hall B counting house

Hall B – MVT

Brian Eng

- Troubleshooting FMT mixing issues
 - ★ Initially presented as a bad mix ratio, but this was due to high pressure in the mix tank
 - ★ Despite trying to lower pressure in the mix tank by flowing 50% of the requested flow, pressure was still rising in the tank
 - ★ With flow set to zero on all mixing mass flow controllers, and both FMT (mix 1) and BMT (mix 2) set to 4.5 L/hr, BMT was losing pressure faster than FMT
 - ★ Possibly, the detector mass flow controller has an offset, since it is actually flowing less than requested



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Hall C – NPS

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

- Remade alarm testing screens for the hall and the cooling system, using individual PVs instead of arrays; all screens completed
- Began adding loops that break out arrays into individual variables to LabVIEW code; 16 of 108 loops completed
- Continued alarm system development
 - ★ Integrating new NPS thermocouple screens into the alarm test system
 - ★ Developing VisualDCT thermocouple template used to generate simulated thermocouple signals within the EPICS database upon startup of softIOC
- Ordered parts for the serial cable (RJ50 to DB9m)

Hall D – JEF

George Jacobs, Mindy Leffel

- Wrapped ten crystals with 3M foil and Tedlar; 743 wrapped to date
- Pre-shaped 32 foils; completed

EIC

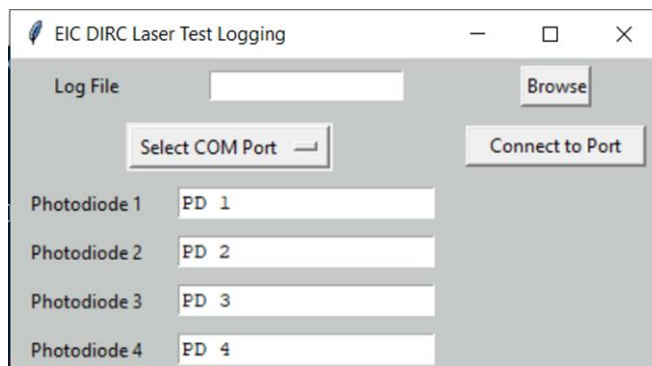
Brian Eng

- Attended silicon consortium meeting; summary of meeting with CERN / ALICE / ITS3 presented
 - ★ Will need to rethink disc sensor layout

EIC - DIRC

Tyler Lemon and Marc McMullen

- Reviewing and creating flowcharts for programs provided by collaborators for laser test station DAQ and analysis
- Assembled on a breadboard and tested full transimpedance amplifier circuit and ADC readout components for DAQ development
- Developing a Python program to display photodiodes' measurements and save data to a log file
 - ★ Will be used during manual alignment tests
 - ★ Screen created using Python's Tkinter package





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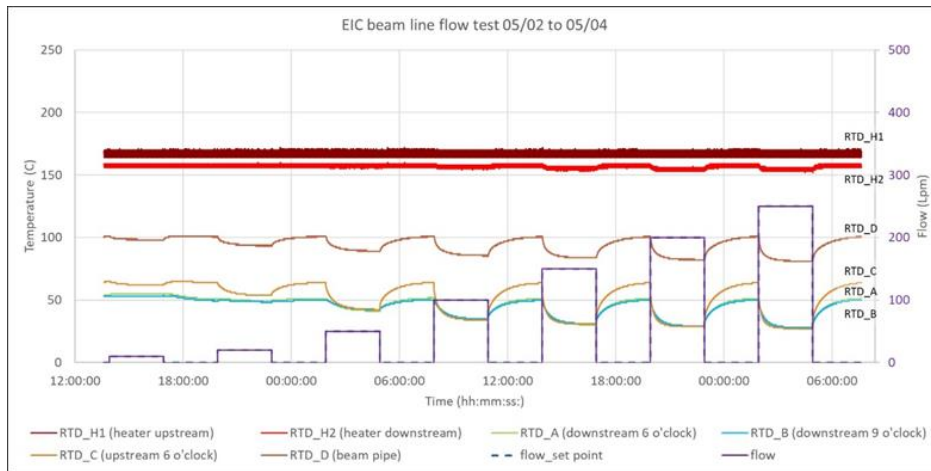
- Continued modifying layout of the interlock board to improve ease of population
 - ★ Replaced surface mount integrated gate circuits with through-hole
 - ★ Replaced all passive surface components with through-hole

EIC - Thermal Test Stand

George Jacobs and Marc McMullen

- Replaced thermal insulation
- Completed flow tests
 - ★ Analysis of test stand data with beampipe at 100°C

Flow (lpm)	~Velocity (m/s)	Bare Beampipe			1-mm Aerogel Wrapped Beampipe		
		RTD Beampipe (°C)	RTD In (°C)	RTD Out (°C)	RTD Beampipe (°C)	RTD In (°C)	RTD Out (°C)
0	0	85	54	41.5	100	65	51.5
10	0.1	81	51	42.5	98	62	54
20	0.2	77	46	40.5	93	54	49.5
50	0.5	73	38	35	89	42	41.5
100	1	67	31.5	29.5	85	34	34.5
150	1.6	65	29.5	28	84	31	30.5
200	2.1	64	28.5	27	82	29	29
250	2.7	62	26.5	81	27	27.5	

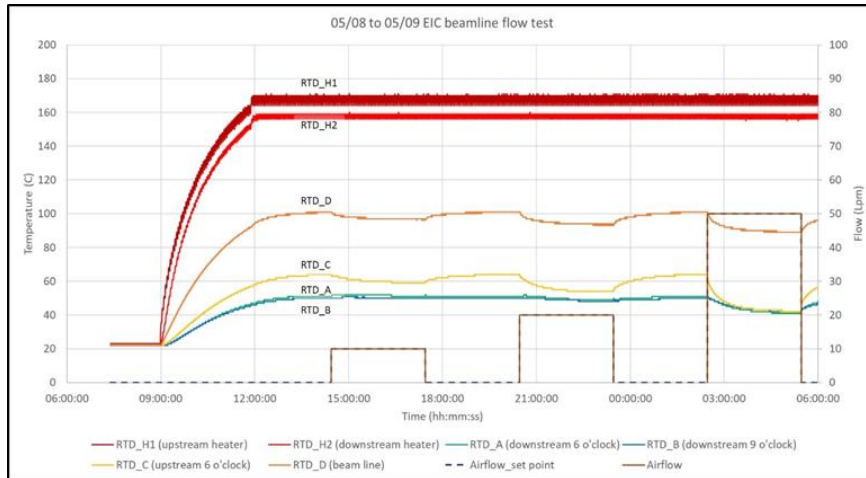


- ★ Started a second test using the same values to verify that the temperature change at 10 lpm increases the temperature of the downstream RTD sensors of the outer pipe (simulated silicon)

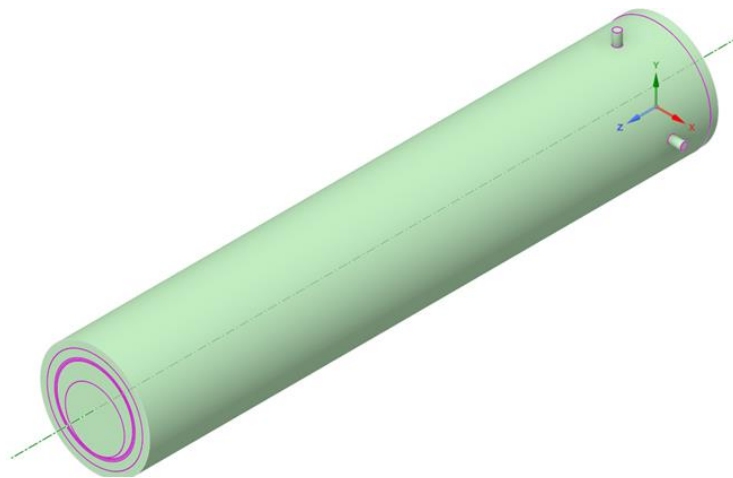
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- ★ All other flow values decrease the temperature readings of the RTDs on the surface of the outer pipe (simulated silicon)
- Coordinating with IH, Fire Safety, and DA of pressure system to run test stand at a higher temperature
- Worked on thermal simulation
 - ★ Made 3D model in SpaceClaim
 - ★ Set up model



Ansys
2022 R1

DSG Website

Peter Bonneau

- Developed a new information format on the main page
- Investigated playing an audio clip automatically upon loading the main page
 - ★ Developed an audio autoplay webpage and tested with Firefox, Chrome, and Edge
 - ★ By default, all browsers will not autoplay audio; must enable manually within the browser settings