

Detector Support Group

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

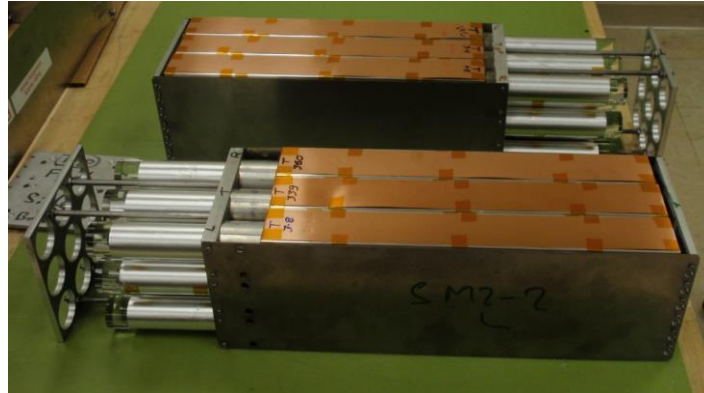
Weekly Report, 2022-02-09

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 I²C 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 I²C communication information and controls, averaging and interlock trip delay control, and system monitoring for sbRIO status information

Detector Support Group

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

Weekly Report, 2022-02-09

OVERRIDE OFF

RICH-II Hardware Interlocks

OVERRIDE OFF

Interlock Summary
OKAY
HV DISABLED
LV DISABLED

CAEN Enable Status
LabVIEW CONTROL
Heartbeat

Sensor & Limit Monitoring
Sensor Location
INTERLOCK RESET

Electronic Panel

	value	Unit	DIABLED	High Limit Feedback	Label	Unit	Immediate Status	Latched Status		value	Unit	DIABLED	High Limit Feedback	Label	Unit	Immediate Status	Latched Status
Temperature 1	value	°C	DIABLED	Label	°C	OK	OK		Humidity 1	value	%	DIABLED	Label	%	OK	OK	
Temperature 2	value	°C	DIABLED	Label	°C	OK	OK		Humidity 2	value	%	DIABLED	Label	%	OK	OK	
Temperature 3	value	°C	DIABLED	Label	°C	OK	OK		Humidity 3	value	%	DIABLED	Label	%	OK	OK	
Temperature 4	value	°C	DIABLED	Label	°C	OK	OK		Humidity 4	value	%	DIABLED	Label	%	OK	OK	
Temperature 5	value	°C	DIABLED	Label	°C	OK	OK		Humidity 5	value	%	DIABLED	Label	%	OK	OK	
Temperature 6	value	°C	DIABLED	Label	°C	OK	OK		Humidity 6	value	%	DIABLED	Label	%	OK	OK	
Temperature 7	value	°C	DIABLED	Label	°C	OK	OK		Humidity 7	value	%	DIABLED	Label	%	OK	OK	
Temperature 8	value	°C	DIABLED	Label	°C	OK	OK		Humidity 8	value	%	DIABLED	Label	%	OK	OK	
Temperature 9	value	°C	DIABLED	Label	°C	OK	OK		Humidity 9	value	%	DIABLED	Label	%	OK	OK	
Temperature 10	value	°C	DIABLED	Label	°C	OK	OK		Humidity 10	value	%	DIABLED	Label	%	OK	OK	
Temperature 11	value	°C	DIABLED	Label	°C	OK	OK		Humidity 11	value	%	DIABLED	Label	%	OK	OK	
Temperature 12	value	°C	DIABLED	Label	°C	OK	OK		Humidity 12	value	%	DIABLED	Label	%	OK	OK	
Temperature 13	value	°C	DIABLED	Label	°C	OK	OK		Humidity 13	value	%	DIABLED	Label	%	OK	OK	
Temperature 14	value	°C	DIABLED	Label	°C	OK	OK		Humidity 14	value	%	DIABLED	Label	%	OK	OK	
Temperature 15	value	°C	DIABLED	Label	°C	OK	OK		Humidity 15	value	%	DIABLED	Label	%	OK	OK	
Temperature 16	value	°C	DIABLED	Label	°C	OK	OK		Humidity 16	value	%	DIABLED	Label	%	OK	OK	
Temperature 17	value	°C	DIABLED	Label	°C	OK	OK		Humidity 17	value	%	DIABLED	Label	%	OK	OK	
Temperature 18	value	°C	DIABLED	Label	°C	OK	OK		Humidity 18	value	%	DIABLED	Label	%	OK	OK	
Temperature 19	value	°C	DIABLED	Label	°C	OK	OK		Humidity 19	value	%	DIABLED	Label	%	OK	OK	
Temperature 20	value	°C	DIABLED	Label	°C	OK	OK		Humidity 20	value	%	DIABLED	Label	%	OK	OK	
Temperature 21	value	°C	DIABLED	Label	°C	OK	OK		Humidity 21	value	%	DIABLED	Label	%	OK	OK	
Temperature 22	value	°C	DIABLED	Label	°C	OK	OK		Humidity 22	value	%	DIABLED	Label	%	OK	OK	
Temperature 23	value	°C	DIABLED	Label	°C	OK	OK		Humidity 23	value	%	DIABLED	Label	%	OK	OK	
Temperature 24	value	°C	DIABLED	Label	°C	OK	OK		Humidity 24	value	%	DIABLED	Label	%	OK	OK	

Nitrogen Volume

	value	Unit	DIABLED	High Limit Feedback	Label	Unit	Immediate Status	Latched Status		value	Unit	DIABLED	High Limit Feedback	Label	Unit	Immediate Status	Latched Status
Temperature 25	value	°C	DIABLED	Label	°C	OK	OK		Humidity 25	value	%	DIABLED	Label	%	OK	OK	
Temperature 26	value	°C	DIABLED	Label	°C	OK	OK		Humidity 26	value	%	DIABLED	Label	%	OK	OK	
Temperature 27	value	°C	DIABLED	Label	°C	OK	OK		Humidity 27	value	%	DIABLED	Label	%	OK	OK	
Temperature 28	value	°C	DIABLED	Label	°C	OK	OK		Humidity 28	value	%	DIABLED	Label	%	OK	OK	
Temperature 29	value	°C	DIABLED	Label	°C	OK	OK		Humidity 29	value	%	DIABLED	Label	%	OK	OK	
Temperature 30	value	°C	DIABLED	Label	°C	OK	OK		Humidity 30	value	%	DIABLED	Label	%	OK	OK	
Temperature 31	value	°C	DIABLED	Label	°C	OK	OK		Humidity 31	value	%	DIABLED	Label	%	OK	OK	
Temperature 32	value	°C	DIABLED	Label	°C	OK	OK		Humidity 32	value	%	DIABLED	Label	%	OK	OK	
Temperature 33	value	°C	DIABLED	Label	°C	OK	OK		Humidity 33	value	%	DIABLED	Label	%	OK	OK	
Temperature 34	value	°C	DIABLED	Label	°C	OK	OK		Humidity 34	value	%	DIABLED	Label	%	OK	OK	
Temperature 35	value	°C	DIABLED	Label	°C	OK	OK		Humidity 35	value	%	DIABLED	Label	%	OK	OK	
Temperature 36	value	°C	DIABLED	Label	°C	OK	OK		Humidity 36	value	%	DIABLED	Label	%	OK	OK	
Temperature 37	value	°C	DIABLED	Label	°C	OK	OK		Humidity 37	value	%	DIABLED	Label	%	OK	OK	
Temperature 38	value	°C	DIABLED	Label	°C	OK	OK		Humidity 38	value	%	DIABLED	Label	%	OK	OK	
Temperature 39	value	°C	DIABLED	Label	°C	OK	OK		Humidity 39	value	%	DIABLED	Label	%	OK	OK	
Temperature 40	value	°C	DIABLED	Label	°C	OK	OK		Humidity 40	value	%	DIABLED	Label	%	OK	OK	
Temperature 41	value	°C	DIABLED	Label	°C	OK	OK		Humidity 41	value	%	DIABLED	Label	%	OK	OK	
Temperature 42	value	°C	DIABLED	Label	°C	OK	OK		Humidity 42	value	%	DIABLED	Label	%	OK	OK	
Temperature 43	value	°C	DIABLED	Label	°C	OK	OK		Humidity 43	value	%	DIABLED	Label	%	OK	OK	
Temperature 44	value	°C	DIABLED	Label	°C	OK	OK		Humidity 44	value	%	DIABLED	Label	%	OK	OK	
Temperature 45	value	°C	DIABLED	Label	°C	OK	OK		Humidity 45	value	%	DIABLED	Label	%	OK	OK	
Temperature 46	value	°C	DIABLED	Label	°C	OK	OK		Humidity 46	value	%	DIABLED	Label	%	OK	OK	
Temperature 47	value	°C	DIABLED	Label	°C	OK	OK		Humidity 47	value	%	DIABLED	Label	%	OK	OK	
Temperature 48	value	°C	DIABLED	Label	°C	OK	OK		Humidity 48	value	%	DIABLED	Label	%	OK	OK	

Gas System

	value	Unit	DIABLED	Low Limit Feedback	Label	Unit	Immediate Status	Latched Status
Airflow 1	value	slm	DIABLED	Label	slm	OK	OK	
Airflow 2	value	slm	DIABLED	Label	slm	OK	OK	
Air Pressure	value	psi	DIABLED	Label	psi	OK	OK	
N2 Flow	value	slm	DIABLED	Label	slm	OK	OK	

Expert Interface

Screenshot of RICH-II hardware interlock system LabVIEW program

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

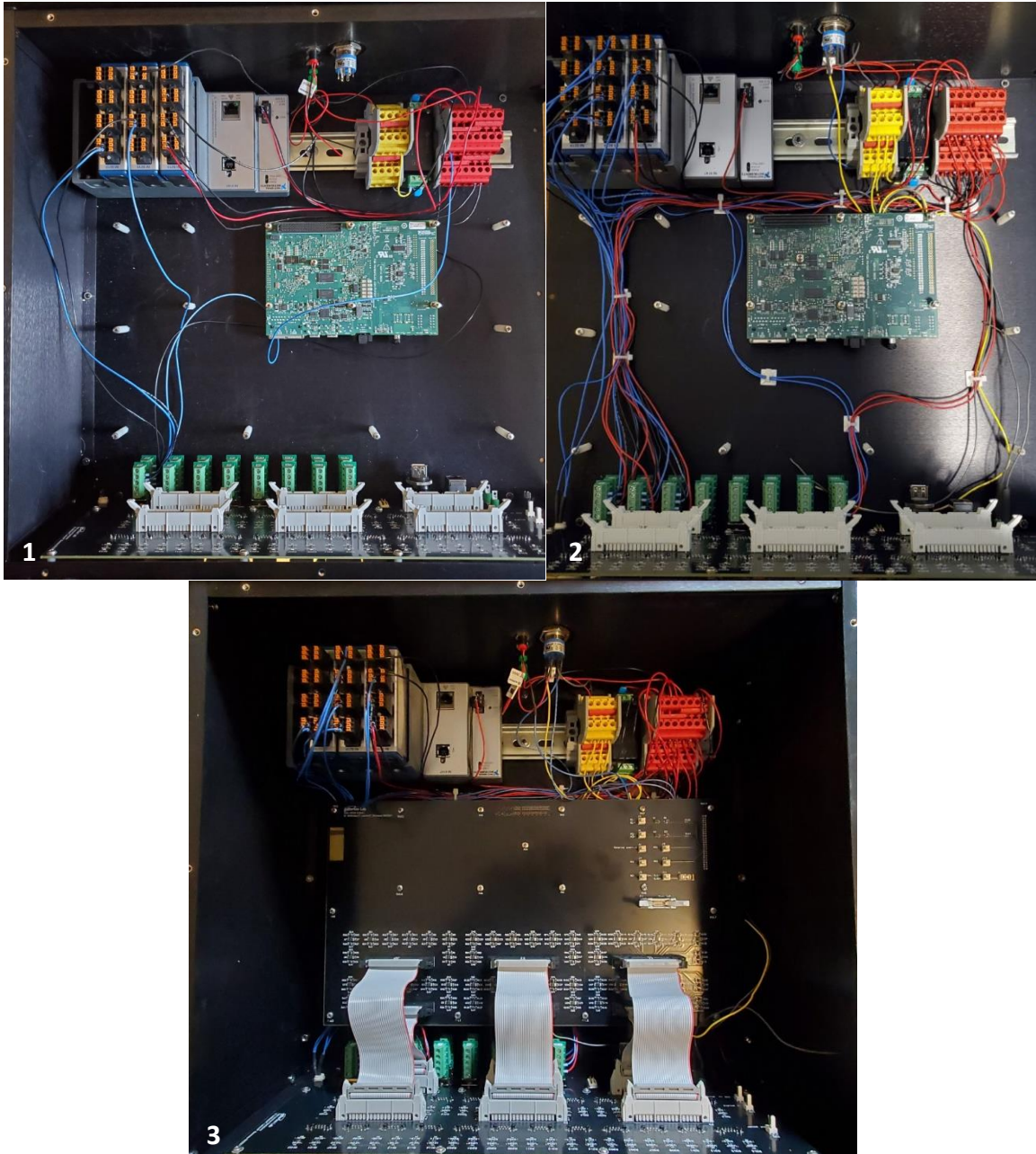
2

DSG Weekly Report, 2022-02-09

Detector Support Group

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

Weekly Report, 2022-02-09



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



Detector Support Group

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

Weekly Report, 2022-02-09

- ★ 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

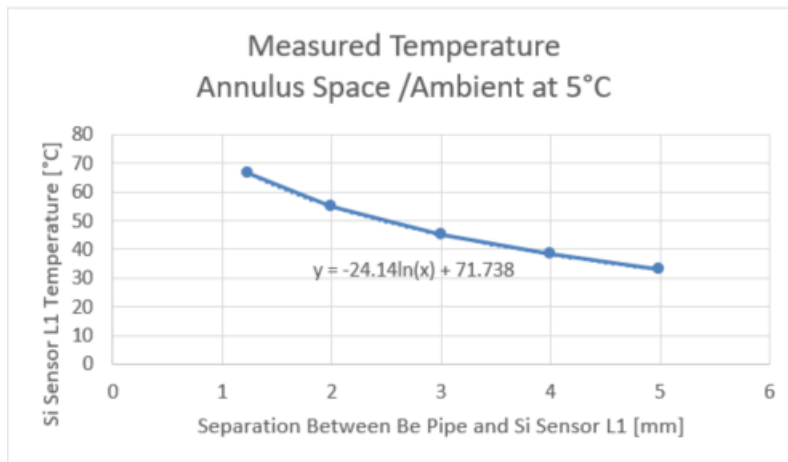
- Cut 40 ESR films
- Debugged ESR pre-shaping oven over temp issue
- Pre-shaped 23 ESR films – 23 of ~1500 complete

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





Detector Support Group

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

Weekly Report, 2022-02-09

- 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