

## Breaking News

### Solenoid

- PLC code written to estimate temperature in coils, based on resistance for each coil.
- PT-100 sensors, added in relief valve and vaporizer, tested.
- Solenoid valve to vent tested.

### RICH

- Mirrors 3 and 4 received from ECI.
  - ★ Both mirrors had one plastic mounting screw broken during shipping.



- ★ Both mirrors had places where reflective surface looked smudged.



## Detector Support Group

Weekly Report, 2017-06-14

- ★ Mirror 3 had scratches on reflective surface.



- Issues regarding integration of UI into LabVIEW program for hardware interlock system debugged and fixed.
- Hardware interlock cRIO configured to allow embedded UI to run on touchscreen.

### FT

- All hardware interlock threshold levels successfully tested.
- Chiller subroutine to check pump enable and coolant pressure in real-time interlock program developed, tested, and debugged.
- Automatic periodic refresh subroutine for PV signals developed and tested.
  - ★ Signals undefined after softIOC restart for EPICS real-time interface.

### SVT

- Region 4 (R4) chiller lines removed.
- Signals for R4 disabled from hardware interlock system's real-time and user interface programs.
  - ★ R4 outlet flow meter reconfigured to monitor inlet flow for R1—R3 assembly.
  - ★ R4 outlet flow renamed to Inlet Flow on hardware interlocks program.

### Gas System

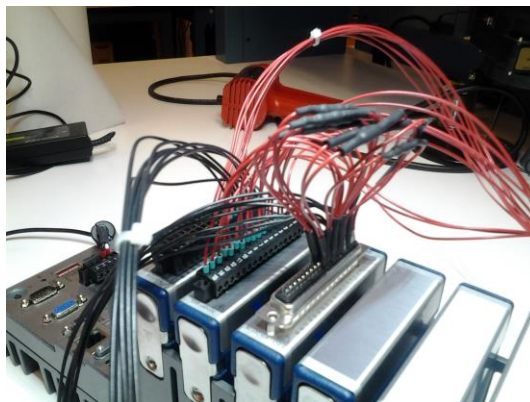
- LTCC single-sector-controls P&I diagram and components spreadsheet created.
- PRs for nine cylinders of 10% C<sub>4</sub>H<sub>10</sub> in Ar pre-mix gas and MVT mixing system MFCs submitted.
- For the MVT/FT 600 psi gauge on high pressure side of regulators installed.

### Hall D

- VME interlock system incorrectly tripping crate power on low temperature on 06/19/17. Secondary low temperature limiting check in code was found and corrected.
- Air reheat heater not working for HVAC system in Hall on 06/19/17. Temperature in hall was 60°F.

### Antonioli, Mary Ann

- Tested FT EPICS interlock signals—sensor enables, temperature high and lows, humidity highs and lows. All OK.
- Edited and posted on the DSG website Tyler’s Note 2017-05.
- Began editing Tyler’s Note on Torus 325 K error and laying out of its tables. Wired modules for the cRIO test stand.



- Updated personal computer with LabVIEW 2016.
- Compiled, formatted, and edited group weekly report.

### Arslan, Sahin

Absent

### Bonneau, Peter

- Worked with Amanda on removing **SVT** R4 sensors’ controls and monitoring from real-time and user interface hardware interlock system.
- Worked with Tyler on debugging integration of real-time program with user interface of **RICH** hardware interlock system.
- Reassembling NMR test station EEL lab in preparation for current shunt data synchronization program development and testing.

### ET

- Chiller health status subroutine was developed, tested, and debugged in real-time interlock program.
  - \* An interface to status was programmed and tested on LabVIEW user interface.
- Developed and tested for EPICS real-time interface, a periodic, automatic, refresh subroutine for PV signals that were undefined after softIOC restart.
- Held meetings on Hall D status and EPICS controls monitoring.
  - \* VME interlock system was incorrectly tripping crate power on low temperature. Secondary low temperature limiting check in code was found and corrected.



# Detector Support Group

## Weekly Report, 2017-06-14

- Designed connection scheme for cRIO module test stand.
  - \* Discussed design with Mary Ann.
- Discussed module types to be tested and quotes with Pablo for Allen-Bradley ContoLogix I/O module test station.
- Met with Accelerator SRF R&D Anne Marie, who requested Mindy's assistance with wire-bonding on NbTiN patterns.

### Campero, Pablo

#### Solenoid

- Wrote PLC code to calculate based on resistance for each coil temperature in coils.
  - \* Created new tags and updated spreadsheet.
- Tested, with Tyler and Amanda, PT-100 sensors that were added in relief valve and vaporizer.
  - \* Checked PLC configuration modules and program.
  - \* Configured Cryocon Units 2 and 3.
  - \* Verified wiring and hardware.
- Tested solenoid valve to vent.
  - \* Verified wiring and hardware.
  - \* Updated spreadsheet with results.
- Monitored and analyzed Logbook entries and EPICs screens daily.
  - \* On 6/19, problem with Hall HVAC system; temperature decreased to ~60° F, which tripped VME crate; limit was lowered to 42 °F.
- Wrote Note on Solenoid instrumentation and controls.
- Requested quote for Allen Bradley PLC Test Station.

### Eng. Brian

- Removed SVT R4 chiller lines and reconfigured R4 flow meter for outlet flow. <https://logbooks.jlab.org/entry/3476485>
- Installed 600 psi gauge on high pressure side of regulators for MVT/FT.
- Changed network cable on gas shed cRIO after it was found to connect only at 100 Mbit instead of 1 Gbit. <https://logbooks.jlab.org/entry/3476518>
- Working on verifying Krohn-Hite 523 calibration. Keithley 2002 has an HP 3458A GPIB compatibility mode, but doesn't seem to work with supplied windows testing program. Borrowing an actual HP 3458A from Hall A to test/troubleshoot.

### Hoebel, Amanda

- Tested two PT100s, Cryocon units, and Solenoid SV8622 for Solenoid with Tyler and Pablo.
- Went over FT interlocks testing with Mary Ann.

#### SVT



## Detector Support Group

### Weekly Report, 2017-06-14

- Removed R4 signals from Real Time and User Interface.
  - ★ R4 not needed—replaced by barrel MVT.
- Changed R4 outlet's flow signal name to Inlet Flow.
  - ★ Flow meter previously used for R4 outlet flow connected to supply side of chiller (inlet flow).
  - ★ Disabled interlocks for Inlet Flow signal.
- Monitored EPICS and logbook.
  - ★ Air reheat heater not working for HVAC system in Hall on 06/19/17. Temperature in hall was 60°F.
- Created summary page for weekly report.
- Gave presentation on LTCC leak rates during weekly meeting.

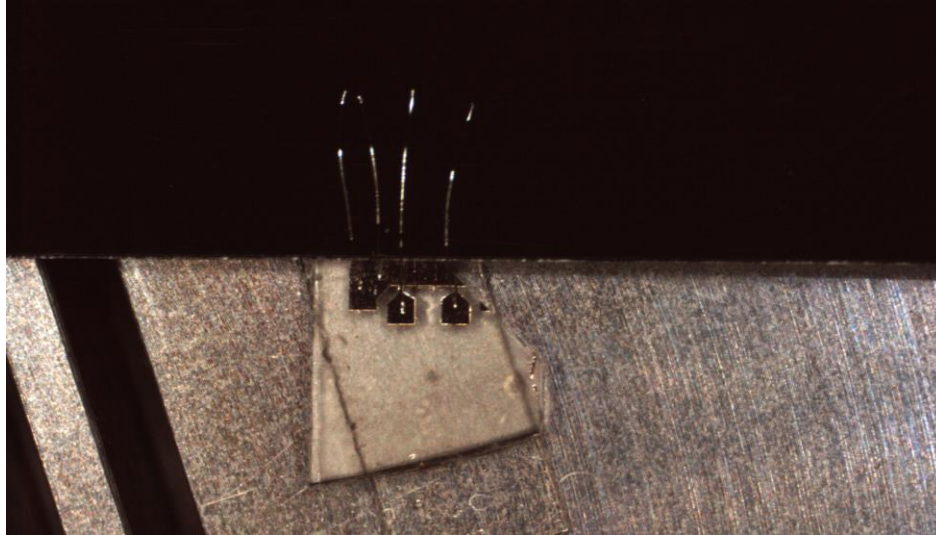
### Jacobs, George

#### GAS Systems

- Requested and received quote for MVT gas mixing system MFCs.
- Created LTCC single-sector-controls P&I diagram.
- Created LTCC-single-sector-controls components spreadsheet.
- Ordered one dewar of CO<sub>2</sub> for DC.
- Submitted PR for nine cylinders of 10% C<sub>4</sub>H<sub>10</sub> in Ar pre-mix gas.
- Submitted PR for MVT mixing system MFCs.
- Requested price and availability of C<sub>4</sub>F<sub>10</sub> gas from F2 chemicals in UK.
- Attended quarterly safety warden meeting.

### Leffel, Mindy

- Worked on RICH HTSB cables.
  - ★ Cut sixteen 40' long humidity sensor jumper wires for connection between cRIO and detector.
  - ★ Attached heat shrink and soldered jumpers to four cables.
- Repaired connector for cRIO test stand.
- Wire-bonded NbTiN patterns for SRF.
  - ★ Attended meeting to discuss project needs.
  - ★ Through troubleshooting and trial and error, attained correct settings.
  - ★ Made bonds on test sample.



Bond test sample for SRF R&D

#### Lemon, Tyler

- Set LabVIEW program with Brian's fixed voltage subVI for Cernox LV Chassis excitations as start-up application for Torus LV cRIO.

#### RICH

- Debugged and fixed issues listed below regarding integration of UI into LabVIEW program for hardware interlock system.
  - ★ Could not toggle humidity sensor #16 enable status because array was one element too short, leaving out last sensor (humidity #16).
  - ★ UI forced all sensor enable controls and limit controls to their default value when connecting to cRIO because subVI was set to display default values rather than limit values in use by real-time program.
  - ★ N<sub>2</sub> flow high and low limits did not save correctly on cRIO when changing limits from EPICS.
    - Limits for N<sub>2</sub> flow #1 would alternate between limit actually set for N<sub>2</sub> flow #1 and limit set for N<sub>2</sub> flow #2.
    - Limits for N<sub>2</sub> flow #2 did not update on cRIO.
    - SubVI that places N<sub>2</sub> flow limits into array had incorrect indices for where to place N<sub>2</sub> flow limits.
  - ★ SD card checks did not return an error if configuration file size was 0.0 bytes.
    - Configuration file size of 0.0 bytes indicates a missing or corrupt file.
    - Generating new default configuration file allowed program to correctly check SD card and load default configurations from file on boot of cRIO.
- Tested all controls to ensure real-time program on cRIO updates correctly and writes changes to configuration file; all controls work.
- Set up hardware interlock cRIO to allow embedded UI to run on touchscreen.
  - ★ Could not display on touch screen because correct Mini DisplayPort-to-DVI adapter unavailable.



## Detector Support Group

### Weekly Report, 2017-06-14

- ★ PR submitted and waiting for assigned buyer to generate purchase order.
- Began developing GUI for hardware interlock system touchscreen.
- Cleaned dusty electronic panel in EEL 124 cleanroom.
  - ★ Cleaned part of RICH assembly structure to compare amounts of dust that settles on assembly structure versus electronic panel.
- Inspected spherical mirrors 3 and 4 after final coating, with Pablo and Amanda.
  - ★ Both mirrors had one plastic mounting screw that broke during shipping from ECI to JLab.
    - Both mirrors had places where reflective surface looked smudged, possibly residue left from coating; INFN collaborators contacting ECI to ask if and how mirrors can be cleaned.
  - ★ Mirror 3 had scratches on reflective surface.

#### Solenoid

- Tested two PT100s (for vaporizer and for relief valve), Cryocon units, and Solenoid SV8622, with Pablo and Amanda.
  - ★ PT100s and solenoid valve read back correct temperature and status.
  - ★ Cryocon units cannot be reset from EPICS; PV names do not match between PLC and EPICS.
- Finished Cernox 325 K Error DSG note.
- Tested PMT with Hall B Collaborators from Canisius College.
  - ★ Collaborators needed assistance setting up test area with dark cover, oscilloscopes, and power.
  - ★ PMT tested to ensure it is working properly by observing cosmic particles.

#### McMullen, Marc

- Removed (with Brian) SVT R4 cooling lines.
- Rerouted R1-3 cooling lines to both flow meters.

#### RICH

- Attended meeting with INFN, which covered work to be completed prior to Hall B installation.
- Discussed safety documentation needed to complete work. Current OSP being developed will have to be expanded.
- Completed work on gas controls interface chassis.
- Completed presentation on LTCC Leak Study Data Collection.