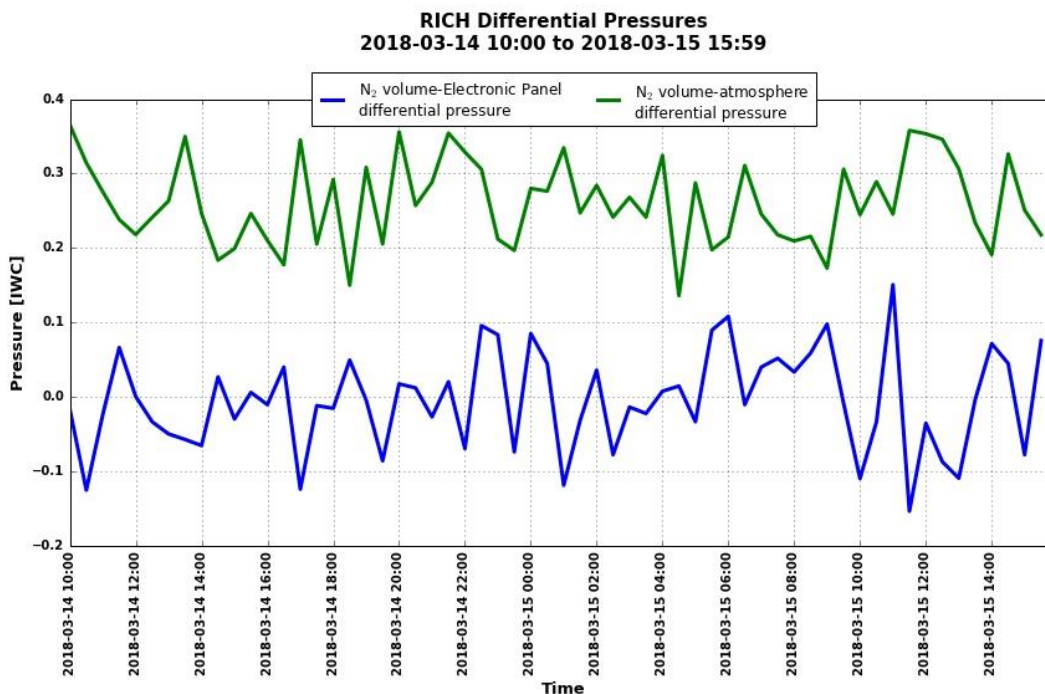


Summary

RICH

- Two differential pressure transducers installed:
 - ★ PT 1 for E-Panel and N₂.
 - ★ PT 2 for N₂ and Atmosphere.



Plot 1: Differential pressures measured from March 14 at 10:00AM to March 15 at 4:00PM. Average differential pressure between N₂ volume and E-Panel was -0.002 ± 0.066 IWC. Average differential pressure between N₂ volume and atmosphere was 0.258 ± 0.061 IWC.

SVT

- Hardware Interlock System cRIO processor replaced.
 - ★ On 3-6-2018, the Hardware Interlock System cRIO processor failed to boot.
 - ★ Failed processor was replaced with a temporary processor.
 - ★ Temporary processor was installed, configured, and tested.
- Upgraded version of the *SVT Hardware Interlocks* cRIO systems implemented.
 - ★ EPICS user interface added.
 - ★ Output signal of leak sensor controller tested.
 - Sensor outputs 24 V DC signal when liquid is detected.
 - Sensor outputs 0 V DC signal when liquid is not detected; however, sensor pulses 24 V DC every 2.4 ms.
 - ★ Fixed value of 100 samples added to interlocks program avoid the 24 V pulse signal output from the leak sensor controller.

HDice

- Offset of 10 G fixed in NMR program for manual power supply control.



Detector Support Group

Weekly Report, 2018-03-14

Hall D Magnets

- Debugged incorrect magnetic field reading in PXI-e1078 chassis.
 - ★ PXI showed negative offset when at zero current.
 - ★ Incorrect magnetic field reading is believed to be from an accidental selection EPICS button to reset or zero the PXI sensors, which in turn caused the offset.

CRIO Test Station

- Incorporated accuracy test into samples taken for **cRIO test station**, include mean and standard deviation, and writes voltage for every read (instead one time for all reads).
 - ★ Worked on new test, which currently can compute mean and standard deviation for voltages of -10 to 10 for one channel. Debugged and tested.
 - ★ Changed gain test to compute percent.



Detector Support Group

Weekly Report, 2018-03-14

Antonioli, Mary Ann

- Incorporated accuracy test into samples taken for cRIO test station, include mean and standard deviation, and writes voltage for every read (instead one time for all reads).
 - ★ Worked on new test, which currently can compute mean and standard deviation for voltages of -10 to 10 for one channel. Debugged and tested.
 - ★ Changed gain test to compute percent.

Bonneau, Peter

HDice

- Worked with Amanda on NRM program issues.
 - ★ A 10 gauss offset was reported in the manual power supply control.
 - Program was halting too soon while ramping to requested current.
 - Offset issue will be fixed in HDice lab when NMR rack is not in use.
 - The DSG NMR test station was used to debug & test the power supply setting vs. read-back while in manual mode.
- Revised and posted DSG talk on HDice synchronization status report.

SVT

- Worked with Tyler and Pablo on the debug and replacement of the SVT Hardware Interlock System cRio processor.
 - ★ Last Tuesday (3-6-2018) the SVT Hardware Interlock System cRio processor failed to boot.
 - ★ The system was bypassed to enable the SVT HV/LV and chiller to operate without the interlock system.
 - ★ A replacement cRio has been ordered and delivery is expected by 3-27-2018.
 - ★ In the interim, a loaner cRio has been installed, configured, and tested.
 - ★ The latest version of the hardware interlock program has been installed and tested.
 - ★ All outstanding hardware and software issues have been resolved with this SVT Hardware Interlock System update.
 - ★ A summary of SVT Hardware Interlock System new version features and updates was posted.
 - ★ Showed Yuri how to operate the LabVIEW and EPICS user interfaces.
- Worked with Nathan Baltzell on the integration of the hardware interlocks in EPICS .
 - ★ Added Interlock EPICS CSS screens to main Hall B SVT slow controls.
 - ★ Changed softIOC to run on clonoc1.
 - ★ Added 118 EPICS SVT hardware interlock signals to Mya archiving.
 - Requested same dead band as similar slow control signal type (temperature, humidity, etc.).

Hall D

- Held meetings on Hall D status and EPICS controls monitoring.
- A PR was submitted for a screen for monitoring Hall D detectors.



Detector Support Group

Weekly Report, 2018-03-14

Campero, Pablo

Magnets

- Debugged Torus Fast-Daq-cRIO with Brian.
 - * Controller unable to start program and connect to the network.
 - * Powered on Torus Fast-Daq-cRIO after one day of disconnection, and it recovered connections and functions without any problem.
 - Mentioned behavior could be considered a potential issue during run period.

SVT

- Implemented upgraded version of the *SVT Hardware Interlocks* cRIO systems with Peter and Tyler.
 - * Added and ran EPICS user interface screen with no problems.
 - * Tested proper output functions of leak sensor controller.
 - Tested all output signals of the new spare leak sensor controller by using a scope and spare leak sensor connected in different configurations.
 - Determined output signal of controller when leak sensor detects liquid is a constant 24 VDC signal and pulse 24 VDC signals when there is no liquid.
 - * Added fixed value (100 samples) to the interlocks program to averaging input signal in cRIO ADC input module and avoid the 24 VDC pulse signal output from the leak sensor controller (generated every 2.4 [ms]).

RICH

- Installed two differential pressure transducer for RICH detector:
 - * PT 1 for E-Panel and N2.
 - * PT 2 for N2 and Atmosphere.

Solenoid

- Tested repaired PXI-e1078 chassis.
 - * Used PXIe-8135 controller and eight PXI-4300 AI modules from current PXI system running in Hall D.
 - Connected controller and AI modules to the fixed chassis.
 - Chassis run as expected, no power issues presented for all slots in the chassis.
 - Returned all AI modules and controller back to the chassis running in Hall D.
- Investigated results for “Gain Errors” generated as part of the **cRIO Test Station** tests.
 - * Calculated “ideal Gain” for the NI-9207 module and verified “Gain Error” formula used in cRIO Test Station LabVIEW program.
 - * Determined that excel spreadsheet test results for the “Gain Error” of NI-9207 ADC module has to be expressed in [%] in order to be compared properly with its specs.
- Installed and activated site license for LabVIEW 2016 and RS-Logix5000 in Halldsc9 PC.
- Installed EPICS drivers for LabVIEW 2016 in PRBDSGLT1 laptop.

Eng, Brian

SVT

- Tested LV at lower than normal voltage.
 - * To reduce the heat load of the SVT: <https://logbooks.jlab.org/entry/3544082>



Detector Support Group

Weekly Report, 2018-03-14

MVT

- Tested mixing system by running it with different parameters.
 - * Tested with sub-zero temperatures: <https://logbooks.jlab.org/entry/3543990>
 - * Tested with high pressure set point: <https://logbooks.jlab.org/entry/3544154>

Hall D Magnets

- Swapped all ADC modules into chassis with replacement PSU & fans + newest controller. Worked fine.
- B_field wiring is good on PXI terminal block: <https://logbooks.jlab.org/entry/3543919>
- More debugging of the gaussmeter on the PXI with Tyler and Amanda, swapping terminal block and ADC didn't fix it. Maybe bad offsets? <https://logbooks.jlab.org/entry/3544238>

Hoebel, Amanda

HDice

- Debugged 10 G offset present when in manual mode.
 - * Loop in program for ramping power supply stopped at target field - 0.001T, which is a 10 G offset.

RICH

- Installed two differential pressure transducers with Marc, Tyler, and Pablo.
 - * Transducers monitor pressure between N2 and electronic panel, and N2 and ambient.

Hall D

- Troubleshoot PXI problem with Brian, Tyler, and Pablo.
 - * PXI ADC module was not working.
 - * Swapped out cables and replaced terminal block.
 - Problem still existed.
 - * Replaced Ethernet card.
 - Problem still existed.
- Helped Mary Ann debug cRIO test station program.
 - * Program would not append array to existing array rows.
 - * Wrote test program that appended test values to array rows.

Jacobs, George

GAS Systems

- Had discussions concerning differential Pressure Transducers for RICH to atmosphere and RICH air to RICH N2 installation, spans of bipolar transducers.
- Reduced LTCC S5 pressure setpoint to 1.4"wc in order to save gas.
- Further reduced LTCC S5 pressure setpoint to 1.2"wc to save C4F10 gas after verifying gas window has not deformed inward.

HALLB

- Hall B will begin ordering their own gasses for all operations.
- Discussions with Mauri U. about reducing C4F10 gas usage during the downtime.



Detector Support Group

Weekly Report, 2018-03-14

Leffel, Mindy

RICH

- Continued working on third cRIO chassis.
 - * Further researched tools for cutting holes in chassis.
 - * Researched Allen Bradley terminal blocks.
 - * Punched initial holes for AC power plug/switch.
 - * Attached components and terminal blocks to DIN rails, connected blocks with power jumpers.
 - * Cut cables, crimped ferrules, and attached them to components.
 - * Discussed alternate methods for cutting holes in chassis with fast electronics.
- Registered for next available fire safety training, May 30.

Lemon, Tyler

RICH

- Installed two differential pressure transducers in Hall B with Amanda, Pablo, and Marc.
 - * Pressure transducers (PTs) used to measure pressure differential between nitrogen volume and electronic volume and between nitrogen volume and atmosphere.
 - * Cables for PTs ran from cRIO on Forward Carriage Level 2 to bubbler on ground level of Hall B.
- Updated N2 cRIO's LabVIEW program. Updates include:
 - * Correction of air-cooling tank's moisture transducer in EPICS Client.
 - * Addition of monitoring of the two differential pressure transducers.
 - Waiting for differential pressure PVs to be added to soft IOC.

PXI

- Debugged incorrect magnetic field reading with Amanda and Brian.
 - * Magnetic field measured by PXI was not correct
 - Showed negative offset when zero current.
 - * Tested module that reads magnetic field measurement with calibration program to verify module is working.
 - Module passed test.
 - * Swapped terminal block for spare to see if terminal block is causing bad reading; no change in magnetic field reading.
 - * Swapped module for spare; no change in magnetic field reading.
 - * Noted discrepancy in calibration file in LabVIEW project that sets sensors' offsets for converting raw voltage to correct units when comparing to version of file on GitHub.
 - * Most likely cause of bad magnetic field reading is someone accidentally clicked EPICS button to reset or zero the PXI sensors, which in turn caused the offset.

McMullen, Marc

MVT

- Hall B has tested the mixing system to see if the C4H10 condensing issue has been resolved with modifications to the system. There was a small amount of condensed gas after the ambient temperature was ~26 degrees F.



Detector Support Group

Weekly Report, 2018-03-14

SVT

- Completed all corrections for SVT Patch Panel PCBs 1 and 2. Submitted designs for DFM check. No issues were found. Sent boards out for quote. At 50 pieces each board will cost ~11\$ to manufacture.

RICH

- Installed differential pressure transducers with Lemon, Hoebel, and Rojas. The transducers are 4-20mA, with a span of -10iwc to 10iwc. Worked with other DSG members on cabling and internal wiring of the RICH Interlock chassis.

LTCC

- During CHL outage the process control setpoint was changed from 1.82 to 1.42.

