



Detector Support Group

Weekly Report, 2017-04-12

Status

Solenoid

- Cryogenic control system drawings generated.
- “Interlock Thresholds_Solenoid” spreadsheet corrected.

Torus

- LV cRIO code modified to automatically trigger delay and VISA Clear when any Cerenox reads 325 K.

Gas System

- 10-psi leak checking of DC piping completed .

HDice

- First draft of flowchart of NMR program completed.

SVT

- Repaired chiller works after plug was changed to be compatible with Jlab outlets.
- Replacing fuses in the second chiller fixed the problem.

RICH

- All subVIs for configuration file of interlock software completed.
- INFN has selected vendor G&R for stiffeners.

FT

- EPICS interface for interlock system completed.

Hall D Magent

- Rebuilt and configured HallDSC9-PC for Hall D subnet.
- Noticed on 04/11 that chiller temperatures are out of range at ~65 F.
- Flow rates on Solenoid VCL up/down stream (~ 26 and 31 SLPM) mismatched.
- Solenoid’s downstream vapor-cooled lead has excessive flow.
 - * Spare MFC installed but failed.
 - * Testing indicates that MFC does not open or close completely when instructed to do so by controller. More testing is in progress.
- BCAL chiller operational set point raised after spring run.
 - * Chiller is now ~64 F.
- Requested David Lawrence to modify script (run_elog.py) called from CODA to add Autolog tag to their logbook entries so that they are easier to hide when browsing logbook.



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Antonioli, Mary Ann

- Completed all subVIs for configuration file of **RICH** interlock software.
- Made Visio drawing of **Solenoid** cryogenic control system.
- Compiled, edited, and formatted weekly report.

Arslan, Sahin

Absent

Bonneau, Peter

Forward Tagger

- Developed EPICS interface for interlock system, which will also be a template for SVT and RICH.
 - * Completed 21 EPICS interface subVIs that control and monitor system thresholds for calorimeter and hodoscope temperature, humidity, and gas flow.
 - * Interlock system LabVIEW user interface (expert screen) is used to enable or disable threshold control by EPICS.
 - * Wrote medm control and monitoring program to test and debug controls implemented to date.
 - * Programmed and tested parallel loop sub-routines for EPICS in real-time program and LabVIEW-controlled user interface program.

RICH

- Discussed real-time subroutine library that controls configuration files of hardware interlock system with Mary Ann.
- Presented overview of interlock system user interface (UI) and UI subroutines.
- Held daily meeting on Hall D status and EPICS controls monitoring.
 - * Solenoid downstream vapor-cooled lead has excessive flow. Spare MFC was installed but failed. Testing indicates that MFC does not open or close completely when instructed to do so by controller. More testing is in progress.
 - * BCAL chiller operational set point was raised after spring run. Chiller is now ~64 F.

Campero, Pablo

Solenoid

- Made corrections to “*Interlock Thresholds_Solenoid*” spreadsheet.
- Debugged magnet interlock PLC routine.
- Generated *Hall B- Solenoid Cooldown ERR* power point presentation.

RICH

- Analyzed rotation of RICH structure by using gantry crane.
 - * Calculated equation to find relation between two angles of rotation ($\beta = f(\alpha)$)
- Rebuilt and configured HallDSC9-PC for Hall D subnet.
- Monitored and analyzed logbook entries and EPICs screens daily for Hall D.



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- * Noticed on 04/11 that chiller temperatures are out of range at ~65 F.
- * Flow rates on Solenoid VCL up/down stream (~ 26 and 31 SLPM) mis-matched.
- Investigated method to write data directly from PLC (acquisition data) to excel files.
 - * Tested OPC (OLE for Process Control) configuration on RS-Link Classic.
 - * Created and associated tag variables to perform test.

Eng. Brian

SVT

- Powered up system to test new chiller after FE changed plug. Fuses replaced in previously broken chiller, which fixed that one.
- Moved save/restore scripts to svtsystem1 since PVs are now on Hall B subnet. Added V450 ambient sensors to PV list that are saved/restored.

Gas System

- MKS replied that only way to reboot MFC is to power-cycle them, which is what was done on mixing MFCs that were misbehaving. After doing so, they could control flow correctly.
- Modified DC mixing modes VI so that it works with shared variables, in particular in manual mode (automatic was already working correctly); previously this functionality was run inside GUI, now is run from main VI to make it independent of GUI.
- NI finally solved issue with writing large arrays to EPICS with cRIO (they've since updated their documentation:
<http://digital.ni.com/public.nsf/allkb/1C27BA2348AAACC586257619005556665> for Linux based controllers).
- Requested that David Lawrence modify script (run_elog.py) called from CODA to add Autolog tag to their logbook entries so they're easier to hide when browsing logbook.

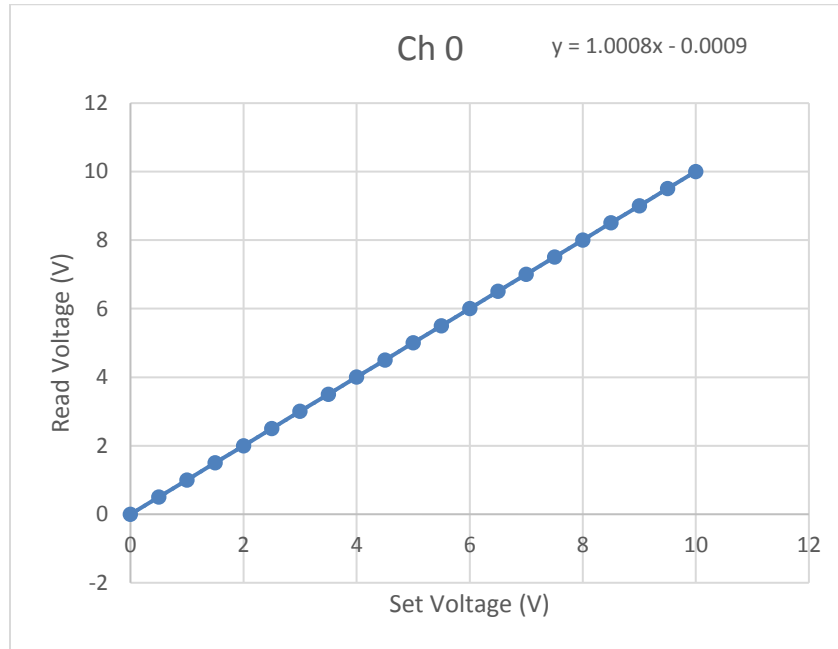
Hoebel, Amanda

- Wrote program to read voltage values from PLC ADC in LabVIEW.
 - * Ran program for ADC test for 0 –10 V.

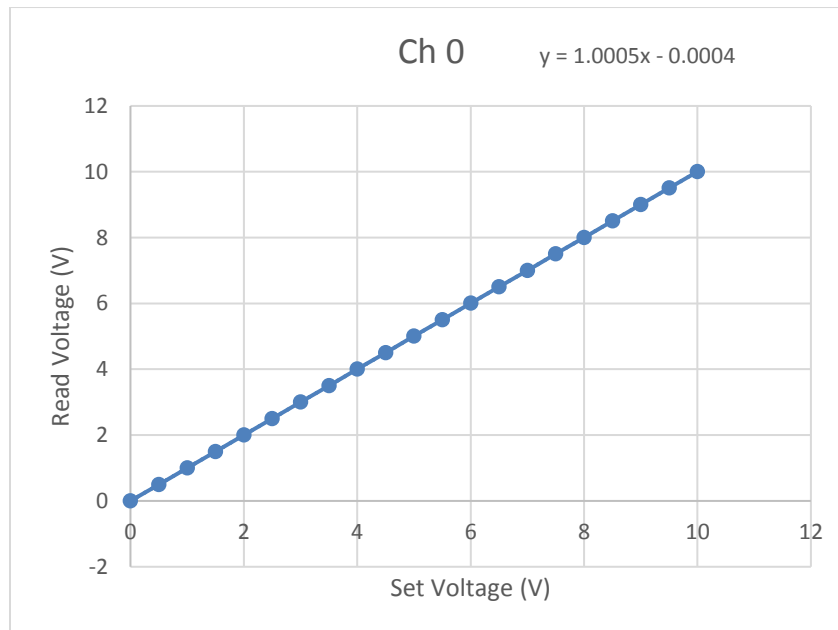


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Graph of PLC ADC test for channel 0 read with loop program in LabVIEW.



Graph of PLC ADC test for channel 0 taken with one data point per set voltage in RSLogix 5000.

Jacobs, George

GAS Systems

- Drew P&I diagram for MVT testing in EEL 124.
- Completed 10-psi leak checking of DC piping.
- Fixed DC leaks by replacing piping and redoing connections as required.
- Added four valves on space frame for N₂ service.
- Discussed N₂ utility service connections with Doug T, Denny I, Bob M.



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- Met with pressure systems DA for DC, multiple times.
- Received two HP LN₂ dewars for pressure testing DC.
- Discussed N₂ system with RICH gas system DA.
- Submitted work request to power RICH air compressor in Hall B.

- Participated in review of new ODH form.

Leffel, Mindy

- Assisted in **DC** gas leak repairs.
 - * Worked with Sahin replacing gas panel fittings.
 - * Worked with George tightening fittings on tanks.
- Completed fabrication of eight **RICH** HTSBs.
 - * Tested continuity.
 - * Attaching pins for board-mounted side of disconnect connector.

Lemon, Tyler

- Modified **Torus** LV cRIO code to automatically trigger delay and VISA Clear when any Cerenox reads 325 K.
 - * Changes should replicate part of what happens when LV cRIO is restarted.
 - We know manually restarting LV cRIO fixes 325 K error.
 - During restart, VISA Clear is implemented and there is a period with no communication between cRIO and LV Chassis.
- Continued analysis of **RICH** rotation parameters and forces.
 - * Created AutoCAD diagrams of gantry position and hoist chain angle.

- Monitored logbook and EPICS on daily basis.
 - * Noted on 2017-04-05, downstream vapor cooled lead heater was malfunctioning.
 - Fuse in heater checked and replaced; heater now seems to work properly.

McMullen, Marc

Gas System

- Completed troubleshooting DC mixing MFCs with Brian. After rebooting, controllers worked fine.
- Started reviewing TCU porting of DC gas mixing with Brian.
- Added MFC valve position to DC mix and supply controls.

RICH Assembly

- INFN has selected RICH vendor. They will complete conversion of components to SAE standard for manufacturing drawings and have them reviewed by Hall B engineering and Facilities to ensure Jlab standards are met.
- Continued work on RICH gas interface chassis.

RTPC

- Completed gas monitoring components list.

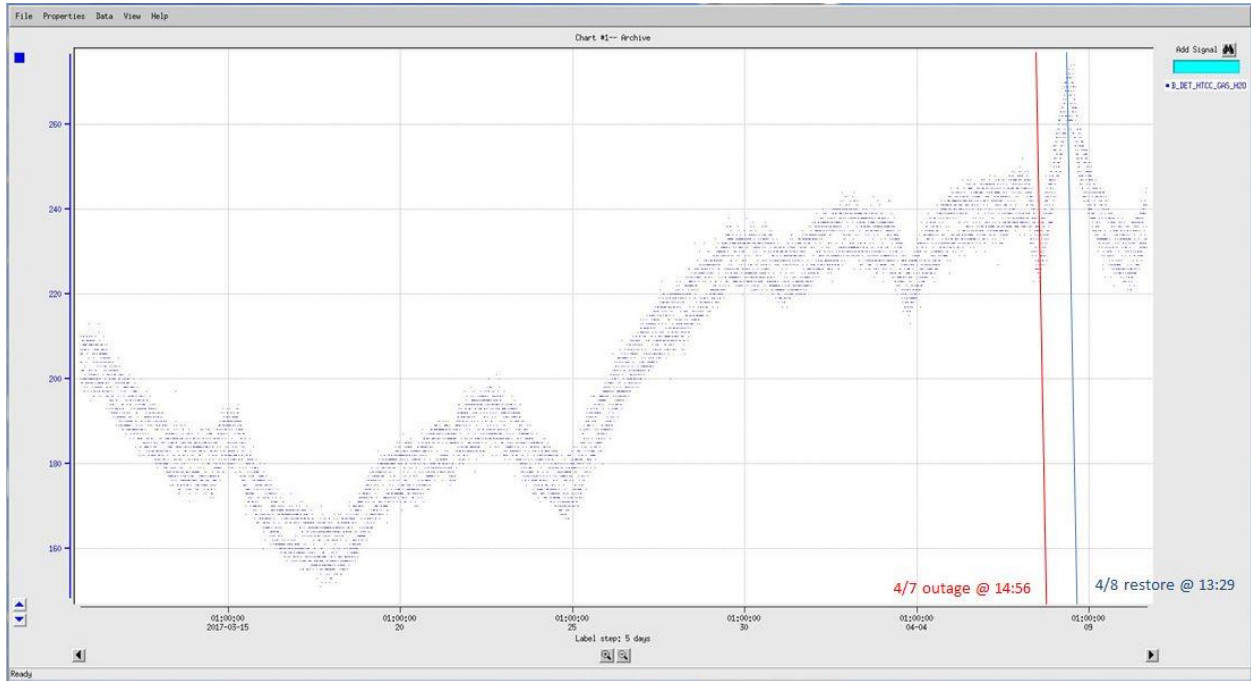


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HTCC

- Plotted water vapor content in PPM during an outage of N₂ supply using Mya viewer.
 - ★ Increase in H₂O PPM during outage (24 hours) indicated by vertical lines



LTCC

- Extracted gas usage rates from Brian's LabVIEW MFC flow monitor.