



Detector Support Group

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

Weekly Report, 2020-07-01

Summary

Hall A – SoLID Magnet Controls

Mary Ann Antonioli, Aaron Brown, Pablo Campero, Brian Eng, Tyler Lemon, Marc McMullen

- Developing Driver Motor Wiring Diagram Drawing A00000-16-03-1250
 - ★ Drawing comprises of 4 sheets and shows two JT driver motor valves per sheet
 - ★ Modified PLC remote readback position for keyed switch used for local and remote controls
 - ★ Added motor drivers for eight valves
 - ★ Assigned relay output and digital input PLC module channels to control opening/closing of valves and monitor remote/local mode respectively

Hall A – GEM Detector Gas Systems

Brian Eng, Mindy Leffel, Marc McMullen

- Populated four 400 SCCM gas flow sensor boards
- Redesigning gas output panels

Hall B – Gas

Brian Eng

- Debugging LTCC gas purification process
 - ★ Detector failed to enter cooldown
 - ★ LN2 Mass Flow Controller wasn't responding; re-initialization of MFC fixed the issue

HDice - fsNMR Program

Peter Bonneau, Tyler Lemon, Marc McMullen

- Modifying program version 5.5
 - ★ Simulated sensor data is integrated into code in a stand-by loop which stops if interrupted by a command to perform a scan
 - ★ Similar case to acquire sensor data has been added to the last frame of the scan sequence
 - ★ Both sensor data DAQ frames write data to a timestamped file entry

Hall C - NPS

Aaron Brown, George Jacobs, Mindy Leffel

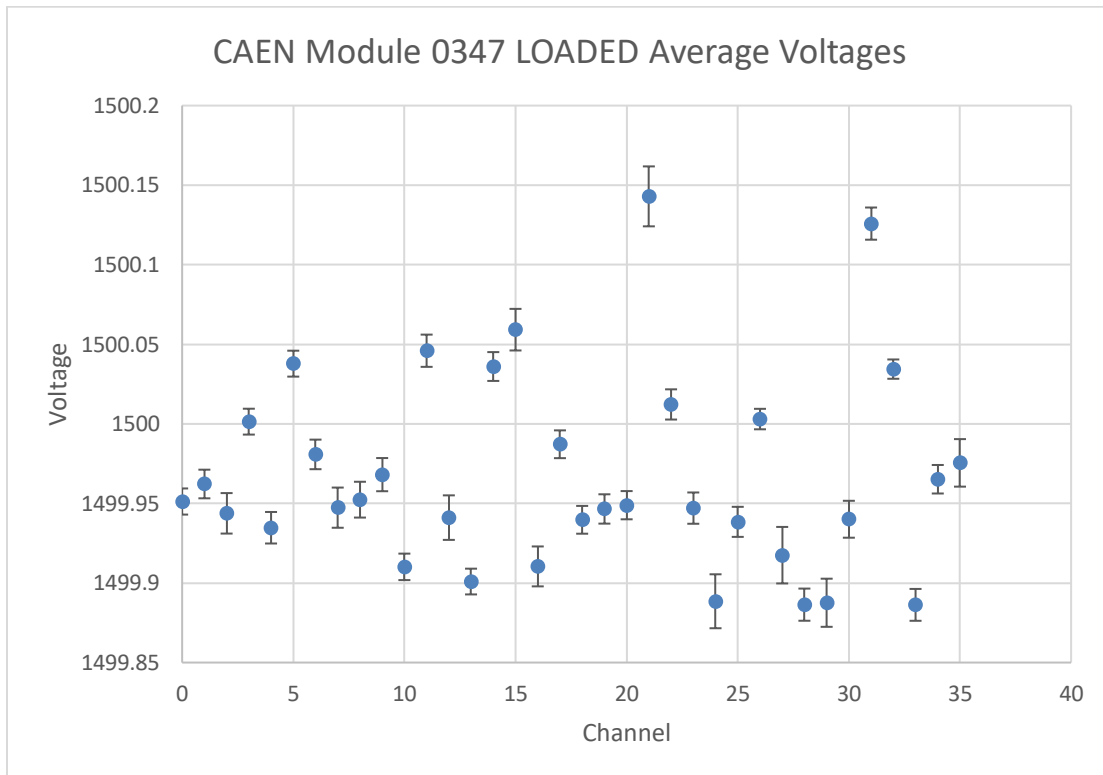
- CAEN high voltage testing
 - ★ Performed load stability tests on CAEN modules #0316, #0339, #0309, #0313, and #0351
 - ★ Analyzing data from HV stability tests – #0347, #0349, #0338, and #0337 with load



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Stability test data analysis for module #0347

- ★ Analysis of data for both trials on module #349 show that channel #13 failed to reach set voltage (1500 V)
- ★ Continued development of EPICS stability test
 - Test script has been written and tested on *hvcaentest3*
 - Need to decide on best method of data collection: MySQL database, GECO 2020, or both
- Terminated 30 high voltage divider cables (total of 340 cables made so far)
- Interlock Systems
 - ★ Determined that an interlock system for the detector cooling system will be needed

Hall C- HMS/SHMS Magnets CSS Screen Development

Mary Ann Antonioli, Aaron Brown, Pablo Campero, Brian Eng, Tyler Lemon

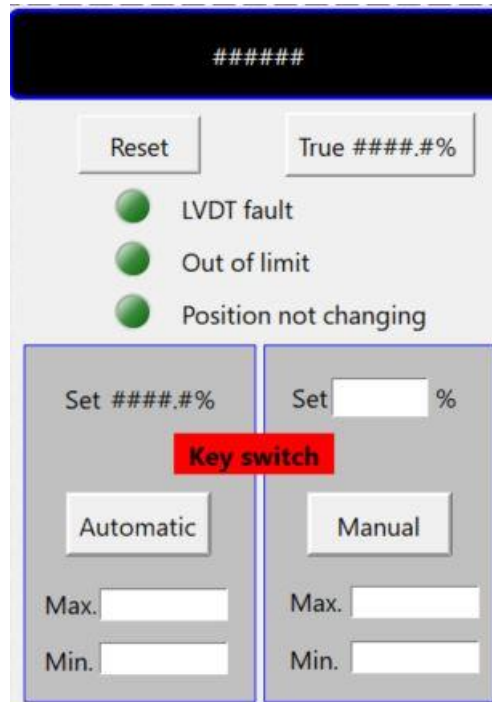
- Completed HMS HX JT, HMS Quad JT, and HMS Quad CL screens



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Screenshot of HMS Quad JT page

- Started development of HMS Quad JT Setup screen

EIC

Brian Eng

- Discussed services needed for Silicon Central Tracker
 - ★ HV, LV, data cables, cooling, etc.

DSG R&D – Test OPI Creator

Tyler Lemon

- Reworked Test OPI Creator’s Python program to fully utilize CSS’s built-in capabilities to read and set individual widgets’ properties.
 - ★ New version of program only creates one screen containing both test and control screen.
 - ★ Debugging of addition of controls to test rules still in progress.

DSG R&D – MSELV Chassis for Hal B Magnets

Peter Bonneau, Tyler Lemon, Marc McMullen

- Developed RMC debugging program to manually toggle sbRIO digital outputs to verify correct signals seen at RMC connectors.
- Tested RMC in chassis with sbRIO.
 - ★ All DAC functions and sbRIO-to-ADC communication lines work correctly
 - ★ ADC-to-sbRIO communication line does not work as buffer driver used is the wrong type.



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- Buffer driver was selected to match documentation on original communication breakout board in chassis, but documentation was out of data.
- Buffer driver used passes through low (~0 V) signals, while entering a high-impedance state if a high (~3.3 V) signal is input into buffer.
- Correct buffer driver should pass through both high and low signals,
- Correct part has been procured.

DSG R&D – Interlock Systems

Peter Bonneau

- Researched latest multi-function sensors from Sensirion
- Sensirion manufactures three versions of the SHT35
 - ★ Reviewed specifications for SHT35-DIS (digital output), SHT35-ARP (analog voltage output), and SHT35A-DIS (automotive grade – digital output).
 - ★ The digital versions of the SHT35 have an alert mode
 - Enables the sensor to output an alarm signal based on programmable limits

DSG – Website Design

Peter Bonneau, Aaron Brown, Brian Eng

- Continued redesign of DSG Talks and DSG Notes pages
- Generated spreadsheet with titles of all notes/talks and list of keywords
 - ★ Altered titles of notes and talks to reflect additions to keywords list