



Detector Support Group

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

Weekly Report, 2020-10-14

Summary

Hall A – SoLID Magnet Controls

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

- Developing *Cryo Control Reservoir Expert* CSS-BOY screen
- Wrote PLC routine for the radial strain gauge load interlock
 - ★ Routine groups the upstream and downstream strain gauges' load sensors (8 upstream and 8 downstream),
 - ★ Obtains max and min values for each group
 - ★ Enables interlock for each group based on the max and min values
- Modified *Instrumentation Rack Layout* drawings
 - ★ Changed half rack to full rack (44 U) in drawings A00000-16-03-0100 and A00000-16-03-0101
 - ★ Added rack frame layout to drawing A00000-16-03-0102
- Updated databasing spreadsheet with the new proposed PVs to be used on the new *CCR-Expert* CSS-BOY screen

Hall A – GEM Gas System

Peter Bonneau, Brian Eng, George Jacobs, Mindy Leffel, Tyler Lemon, Marc McMullen

- Debugging communication issues which arise when multiple multiplexer PCBs are used simultaneously
 - ★ Manually communicating with known attached sensors works without issues
 - ★ Code to automatically detect attached sensors causes multiplexers to freeze requiring a reset or power cycle
- Developing, using Python, gas flow monitoring software
- Assembled prototype gas flow chassis and determined internal tubing lengths
- Assembling prototype gas supply regulator and flow meter panel
- Generated fabrication drawings for exhaust flow sensor and multiplexer boxes

Hall C – NPS

Mary Ann Antonioli, Peter Bonneau, Aaron Brown, Pablo Campero, George Jacobs, Mindy Leffel, Tyler Lemon

- Developing PMT voltage and current limit settings screen using new numbering scheme and CSS macros
 - ★ Use of macros means that only one screen needs to be made and PVs are assigned to the screen according to which action is chosen



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Scheme 2

00:35	01:35	02:35	.	.	.	29:35
00:02	01:02	02:02				29:02
00:01	01:01	02:01				29:01
.	.	.				.
.	.	.				.
.	.	.				.
00:00	01:00	02:00	.	.	.	29:00

mm:nn ⇔ slot#:ch # ⇔ pmt col # : pmt pos # (in column)

Numbering scheme chosen for NPS viewed from rear (PMT side) of detector. Each column represents a column of PMTs/crystals and one CAEN HV module.

- Researched temperature scanning systems for use in NPS crystal and electronics zones
 - ★ Keysight Technologies model 34980A is a multifunction switch/measurement unit
 - ★ Keysight Technologies model 34980A can measure temperature, AC/DC voltage, resistance, frequency, and current
 - ★ One unit can measure up to 160 4-wire RTDs or 320 2-wire thermocouples
- Nine hundred of 1100 high voltage divider cables fabricated
- In preparation to fabricate remaining 200 cables
 - ★ Cut 200 jumper wires, 200 pieces of heat shrink, and 200 RG-174 cables
- Analyzing, with Excel, HV (with load) stability test current data
 - ★ Twenty-three of 32 modules' current data analyzed

HDice

Peter Bonneau, Tyler Lemon

- Researched the application of boxcar averaging in testing and measurement instrumentation
- Debugged, in LabVIEW, dual Oxford IPS 120 power supply remote control VI
 - ★ Resolved coding error that was causing issues with communication to the two power supplies
 - ★ Moved version of VI to *HDiceNMR2* PC for use in UITSF

EIC

Brian Eng

- Continued working on Tracker Detectors' Costs (6.10.3 in WBS)