

Detector Support Group

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

Weekly Report, 2023-02-08

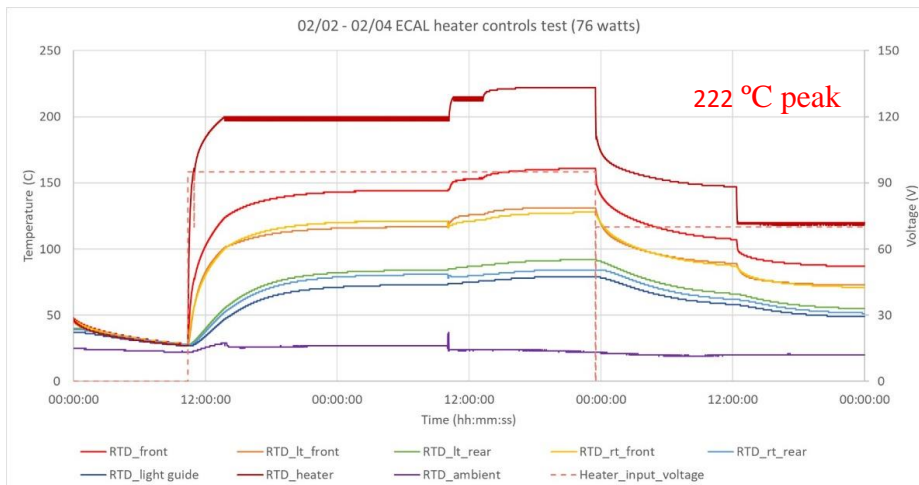
Hall A – ECAL

Marc McMullen

- Completed test of ECAL heater at 76 W, inside an insulated enclosure (mineral wool and Teflon)



- ★ The heater temperature peaked at 222 °C



Heater test results

- Started a test of the heater at 92 W inside the insulated enclosure
 - ★ The temperature has reached 250 °C and being controlled to $\leq 0.5\%$ of 250°C

Hall A – Møller

Mary Ann Antonioli and Brian Eng

- Reviewed RTD drawing progress
 - ★ Kaiyi used too many channels so had to shift channels by one
 - ★ Per Probir's request, only using a single row of terminal strips
- Placed PR for additional three analog input modules to have enough channels for a full seven coils of RTD and voltage taps



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- Sent RFI/RFQ to additional companies to check for RTDs similar to the Omega; price increased ~10% since last order on 11/10/2022 (\$190 to \$209)
- Found potential flow meter (Omega FV100); selection limited due to requirement of 215 psi and 168 gpm

Hall A – SoLID

Mary Ann Antonioli and Pablo Campero

- Completed setting up phycad56 computer so that it accesses HMI system and connects to PLC controller
- Configured Alarms and Event Server
 - ★ Added 26 digital alarms and email notification for all interlocks
- Made changes to HMI screens

Hall C – NPS

Mary Ann Antonioli, Peter Bonneau, Aaron Brown, Pablo Campero, Brian Eng, Mindy Leffel, and Marc McMullen

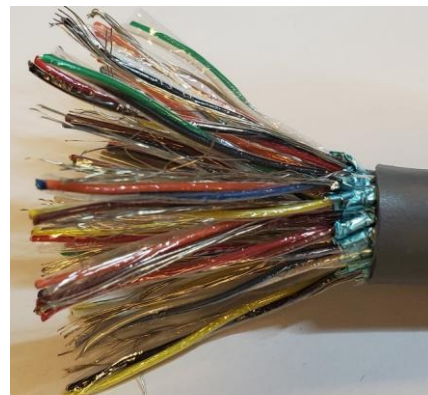
- Revised hardware interlock system's thermal readback LabVIEW program so that connections between chillers and cRIO automatically reset if there is an error
- Assembled cRIO chassis with the cRIO, a 24-V supply, power distribution terminals, and fusing
- Cloned alarm system solid-state drive (SSD) after failure of Phoebus V4.6.10
- Cut four 60', fifty-conductor cables; all 12 cables cut
- Terminated three 50-conductor cables; seven of 12 completed
 - ★ Process to fabricate cable



Jacket removed



Pairs untwisted, first layer of shielding (clear) removed

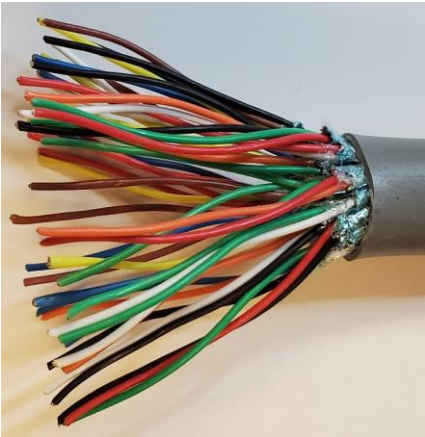


Second layer of shielding (blue) removed

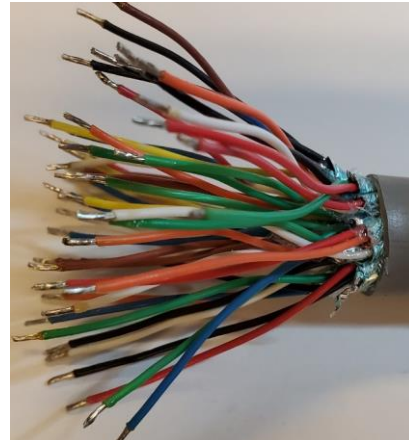
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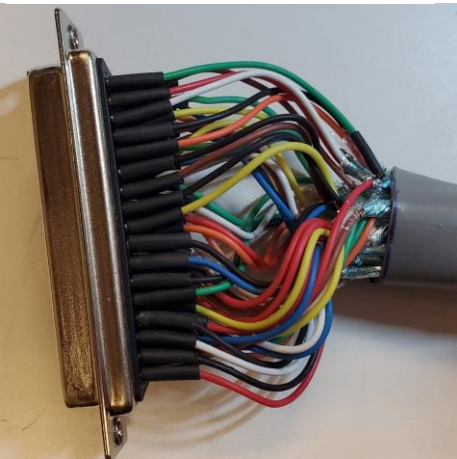
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Third layer of shielding (clear) and 50 drains removed



Fifty wires stripped and tinned



Wires soldered to connector, with heat shrink attached

- ★ Testing cables for attenuation when thermocouple sensors are connected

Hall D – JEF

George Jacobs and Mindy Leffel

- Disassembled, cleaned, and inspected 15 crystals (39 total to date)

Hall D – WEDM

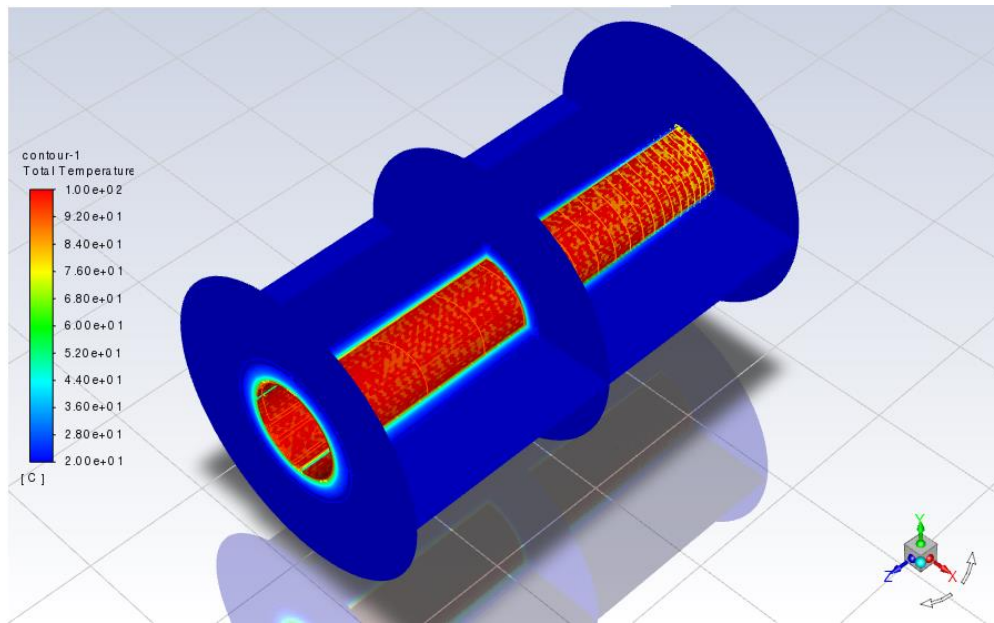
Tyler Lemon

- Updated units on LCW monitoring screen for flow of pair spectrometer magnet power supply from gallons per minute (GPM) to liters per minute (LPM)

EIC

Brian Eng and Pablo Campero

- Modified 3D model of beryllium pipe section and imported model to *Ansys Fluent*
 - ★ Configurations for thermal analysis
 - Beryllium pipe temperature: 100°C
 - Air temperature for enclosure and annulus space: 20°C
 - Air inlet velocity for enclosure and annulus space: 0.001 and 1 m/s
 - Number of iterations : 100
- Ran two simulations; preliminary result shows the maximum temperature of silicon layer 1 is 98.35°C when velocity is 0.001 m/s and 65°C when the velocity is 1 m/s



Isometric view of the temperature model with aerogel, 1 m/s air flow velocity, and 2 mm of separation between beryllium pipe and silicon layer1

EIC-DIRC

- Created laser interlock circuit in Altium simulation program to run a final check of circuit