DSG-ECAL Controls Meeting

Date: October 3, 2023
Time: 11:00 – 12:00

Attendees: Peter Bonneau, Jimmy Caylor, Brian Eng, George Jacobs, Donald Jones, Tyler Lemon, Marc McMullen, Zak Remele

1. **ECAL six-supermodule test stand controls in Hall A**
   Marc McMullen, Brian Eng
   1. Completed ECAL six-supermodule controls installation and tested at low temperatures (< 100℃)
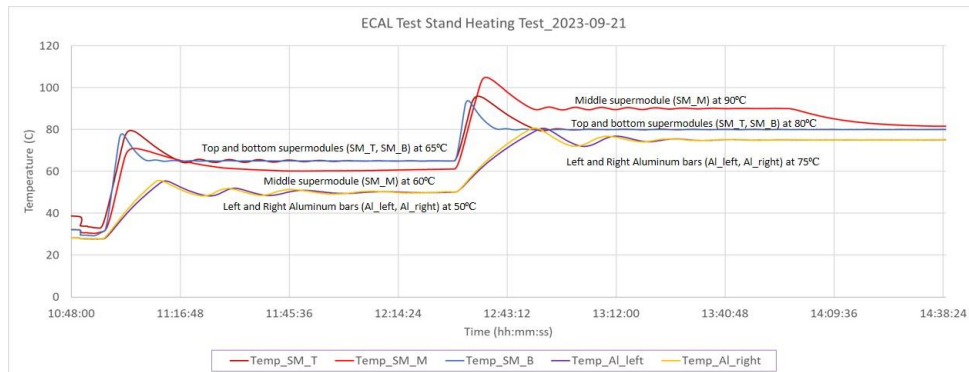

Figure 1. Low temperature testing of all five heater channels was completed on 2023-09-21

   2. Current status of controls
      - cRIO installed and running
      - Safety system installation completed (* indicates new feature)
        – Omega process controller – detector volume over-temperature interlock (opens heater power relays, latching)
        – Software channels temperature limit – monitors individual heated surfaces for temperature over setpoint (opens heater power relays, non-latching)
        – LabVIEW-based watchdog – reboots the system into safe state if the software crashes (opens heater power relays)
        – *Hardware watchdog relay – monitors software heartbeat and opens heater power relays if not present (non-latching)
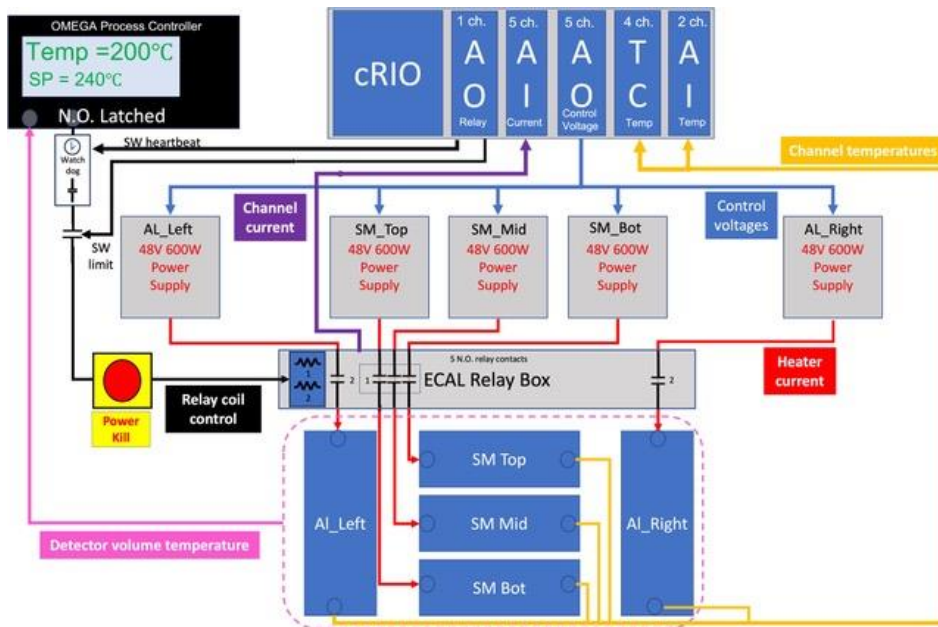
Figure 2. Diagram of the ECAL heater controls and safety system with the addition of the watchdog relay in series with the software limit, and power kill switch

2. ECAL six-supermodule temperature monitoring (non-controls)
Hall A/DSG

1. The cRIO thermocouple module is installed and is monitoring all 16 locations
   - Sensors are on various locations on each supermodule
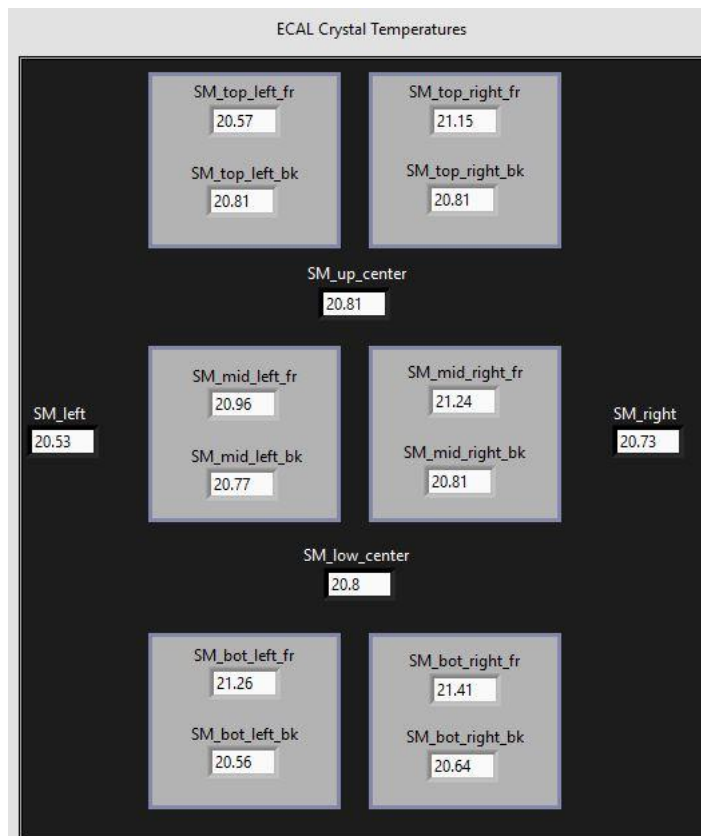   - Sensord not used in the controls system; will be monitored from a different display

Figure 3. ECAL crystal temperature display monitors 16 thermocouples attached to the surfaces of the supermodule crystals

3. EPICS monitoring
Hall A/DSG
1. DSG will use the cRIO as an EPICS client to update process variables hosted by an IOC
    - A database file with the EPICS process variables will be provided to Hall A

4. Hall A ECAL monitoring PC
Hall A/DSG
1. Hall A is still working on a permanent solution
2. DSG has suggested using segalpc, which is in Jack's old area in the EEL building, until a new computer can be procured
    - Hall A will work with the computer center to get it set up and on the correct subnet
3. DSG will provide access to the software and operating instructions

5. Start-Up
Hall A/DSG
1. Hall A will conduct a start-up meeting with DSG, the DSO, and the Lab Fire Protection representative to go over full-time operation of the system
    - An email will be sent via dsg-halla_ecal@jlab.org