Hall A SoLID Magnet Control Systems – Meeting Minutes

Date: September 2, 2020
Time: 10:30 – 12:00

Attendees: *Peter Bonneau, Aaron Brown, Pablo Campero, Marc McMullen, Steven Lassiter, Tyler Lemon*

1. Motor Controller Relay (MCR) board and Constant Current Source (CCS) board
    - 1.1. Reviewed modifications in the design of the MCR board
        - 1.1.1. Changed JT1, JT2, JT3, and JT4 connectors
        - 1.1.2. Changed 3 KΩ resistors to 1.2 KΩ resistors
        - 1.1.3. Selected standard 5 mm LEDs
    - 1.2. Marc McMullen is testing assembled CCS board

2. PLC programming status
    - 2.1. Pablo Campero added PLC code to generate controlled ramp down and fast dump when axial or radial support's load readouts exceed their thresholds
        - 2.1.1. Reviewed PLC sub-routine
        - 2.1.2. PLC code to handle negative values needs to be added
        - 2.1.3. PLC code to send a command to the MPS (controlled ramp down) and open fast dump contactor (fast dump) needs to be added
    - 2.2. A list of interlocks will be generated that will cause a controlled ramp down and a fast dump
        - 2.2.1. List will include thresholds and conditions
        - 2.2.2. PLC code and list must match
    - 2.3. Steven Lassiter provided information about heaters that are part of sorption system on magnet's coil shell
        - 2.3.1. When required, heaters will be turned on/off manually by the expert operators; there will be no automatic control handled by the PLC
    - 2.4. Pablo Campero added PLC code to control and monitor heaters on current leads warm end (left and right)
        - 2.4.1. Steve Lassiter mentioned that this portion of code will not be needed, since the heaters will be controlled by a local thermostat
        - 2.4.2. PLC will be monitoring only the temperature on each current lead
    - 2.5. Existing PLC code will be reviewed to determine all required modifications and additions

3. HMI programming status
    - 3.1. Completed *JT Valve Page* HMI screen for six JT valves

4. Instrumentation status
    - 4.1. Pablo Campero noticed three different names assigned for instrumentation that will be installed in current leads
        - 4.1.1. Agreed to use names Current Lead A and B
        - 4.1.2. Steven Lassiter will modify I&C spreadsheet
    - 4.2. Discussed temperature sensors to be installed in warm end of current leads
        - 4.2.1. Four-wire temperature sensors will be used.
        - 4.2.2. One signal conditioning module will be added (missed on the I&C spreadsheet) for warm current lead temperature sensor
    - 4.3. Steven Lassiter noted that discontinued LVC-2500 macro sensors (already in hand from Hall C) will be used for the SoLID magnet to determine JT valves' position

4.3.1. If new signal conditioning modules are required, they will be replaced by the new recommended model LVC-4000

4.4. Current leads warm end heaters and controllers/thermostat are not defined.

4.4.1. Need to define location for controller/thermostat

4.5. Confirmed 24 VDC and 5 VDC power supplies for PLC and instrumentation racks

4.6. Reviewed vendors/manufacturers from Instrumentation Parts List

4.6.1. Boss Enclosure and Datafig manufacturers/vendors are not available

4.6.1.1. Researched website and could not find any information

4.7. Agreed that Instrumentation Parts List will not include spares

4.8. Discussed signal conditioning modules required for diode and PT-100 temperature sensors

4.8.1. Latest I&C instrumentation spreadsheet shows different model numbers for signal conditioning modules

4.8.2. Signal conditioning modules' model numbers in the spreadsheet will be compared with the ones already ordered by Steven Lassiter

5. Electrical drawings status

5.1. Pablo Campero completed the first version of the PLC and Instrumentation rack layouts

5.1.1. Reviewed PLC and Instrumentation rack drawings:

5.1.1.1. A00000-16-03-0100

5.1.1.2. A00000-16-03-0101

5.1.1.3. A00000-16-03-0102

5.1.1.4. A00000-16-03-0103

5.1.1.5. A00000-16-03-0104

5.1.1.6. A00000-16-03-0105

5.1.2. Modifications on rack layout drawings will be made as follows:

5.1.2.1. Change location of two CCS boards

5.1.2.2. Change location of Valve Control Panels

5.1.2.3. Add terminal strips that will be used to provide 24 VDC to the signal conditioning boards

5.1.2.4. Add side, back and front doors for the racks

5.2. Steven Lassiter confirmed that new drawing numbers proposed in the *Hall A SoLID Magnet Drawings List v.10* spreadsheet are correct

5.2.1. New numbers assigned in spreadsheet will be used for existing and new drawings