

DSG-RICH R&D Meeting

Date: May 24, 2021

Time: 11:00AM – 12:00PM

Attendees: Mary Ann Antonioli, Aaron Brown, Pablo Campero, Brian Eng, George Jacobs, Mindy Leffel, Tyler Lemon, Marc McMullen, and Amrit Yegneswaran

1. SHT35 sensor PCB fabrication

Peter Bonneau, Brian Eng, Tyler Lemon, and Marc McMullen

- SHT35 sensor PCBs have been fabricated, assembled, shipped, and received
- Sensors will be tested

2. Reviewed RMC schematic sheets for relay control, sbRIO monitoring, and I²C communication

Peter Bonneau, Brian Eng, Tyler Lemon, and Marc McMullen

3. RICH-II hardware interlock program development is in progress

Peter Bonneau, Pablo Campero, and Tyler Lemon

Program Component	Status	Comment
SHT35 readout	Complete	Reads temperature, humidity, and measurements' cyclic redundancy checks (CRCs)
SHT35 extra features	Complete	Control of sensors' internal heater, reading/clearing status registers, software reset of sensors
sbRIO analog input/output interface	Complete	DAQmx tasks created to monitor analog inputs for interlock chassis status monitoring and control of analog outputs for relay control
Rolling averaging	Complete	Allows averaging to be enabled for individual sensors for user-set number of samples
Trip delay	Complete	Program waits user-set duration before initiating an interlock trip if any sensor goes out of bounds
Interlock logic	In progress	Complete for SHT35 temperature and humidity; incomplete for gas system monitoring, behavior on CRC errors to be determined
User interface	In progress	LabVIEW User Interface development in progress by Pablo Campero; will be integrated into main LabVIEW program when complete
Configuration file	In progress	First version of code done, needs further testing/debugging
Network shared variables	In progress	Developing way to programmatically generate shared variable configuration file to avoid having to manually enter all variables into program
EPICS interface	Not started	Will be added when network shared variables part is complete
Expansion chassis gas system monitoring	Not started	Expansion chassis delivered to JLab; need to retrieve for development

- Discussed program's behavior upon CRC errors (incorrect sensor data)
 - Decided that program should not trip on individual CRC error, but on multiple CRC errors within the same area, indicating a problem with I²C communication