DSG-GEM R&D Meeting Minutes

Date: October 26, 2020
Time: 11:00 – 12:00

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

1. Brian Eng informed the group about the GE_n experiment readiness review on which he was a committee member

2. Modifications were made to the Gas Flow Sensor chassis
    - 2.1. Mindy Leffel populated four revision1 Multiplexer boards and 20 RJ-11 to RJ-11 cables to install in the prototype chassis
        - 2.1.1. Marc McMullen installed the new components
        - 2.1.2. Revision1 of the Multiplexer board passed all functionality tests
    - 2.2. Marc McMullen modified gas line lengths to improve the tube connection angle
        - 2.2.1. Back panel (input) gas line lengths: 9.5” and 7”
        - 2.2.2. Front panel (output) gas line lengths: 9.75” and 7.5”

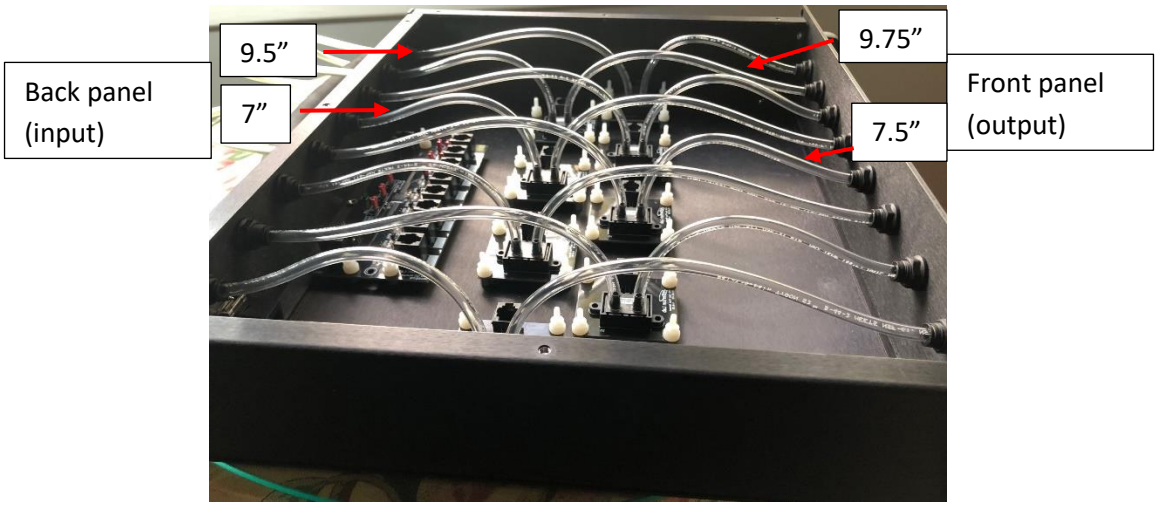

Figure 1. Assembled eight-channel gas flow sensor chassis

3. Marc McMullen has submitted a requisition to have the exhaust boxes machined
    - 3.1. Marc McMullen will drop off six boxes to be machined to the two designs Tyler Lemon developed (Flow Sensor and Multiplexer)
    - 3.2. A local machine shop will make one Multiplexer board box and one Flow Sensor board box to be tested for fit
    - 3.3. After fit testing, three Flow Sensor board boxes and one Multiplexer board box will be made from the four remaining boxes

4. Software development continues
    - 4.1. Marc McMullen tested the prototype gas flow readback Python code
        - 4.1.1. The code loops through eight multiplexer channels, reading flow from each channel

4.1.2. A one second delay between read backs has been set so that all channels are read in approximately eight seconds
4.1.3. Each channel has readback up to 250 sccm of flow

4.2. Brian Eng is troubleshooting one Multiplexer board
4.2.1. One channel is not operational and causes the code to stop readback
4.2.2. The Python code is being evaluated for modification to handle channel readback errors

4.3. Brian Eng and Marc McMullen have installed EPICS on the Raspberry Pi single board computers
4.3.1. An example IOC and database record has been tested to ensure EPICS is running as expected

5. George Jacobs has started assembling the rotameter and regulator panels

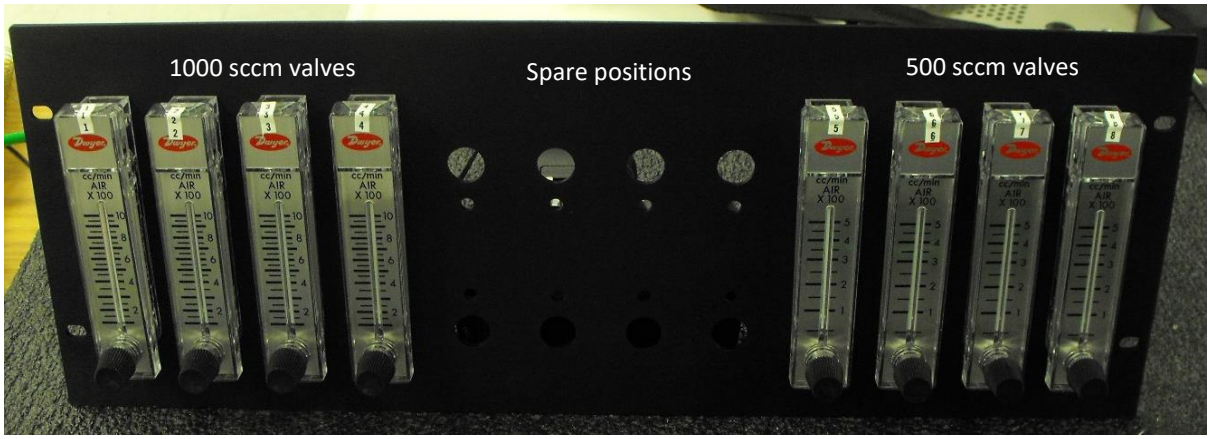

Figure 2. Flow meter valve (rotameter) panel with four 1000 sccm and four 500 sccm channels

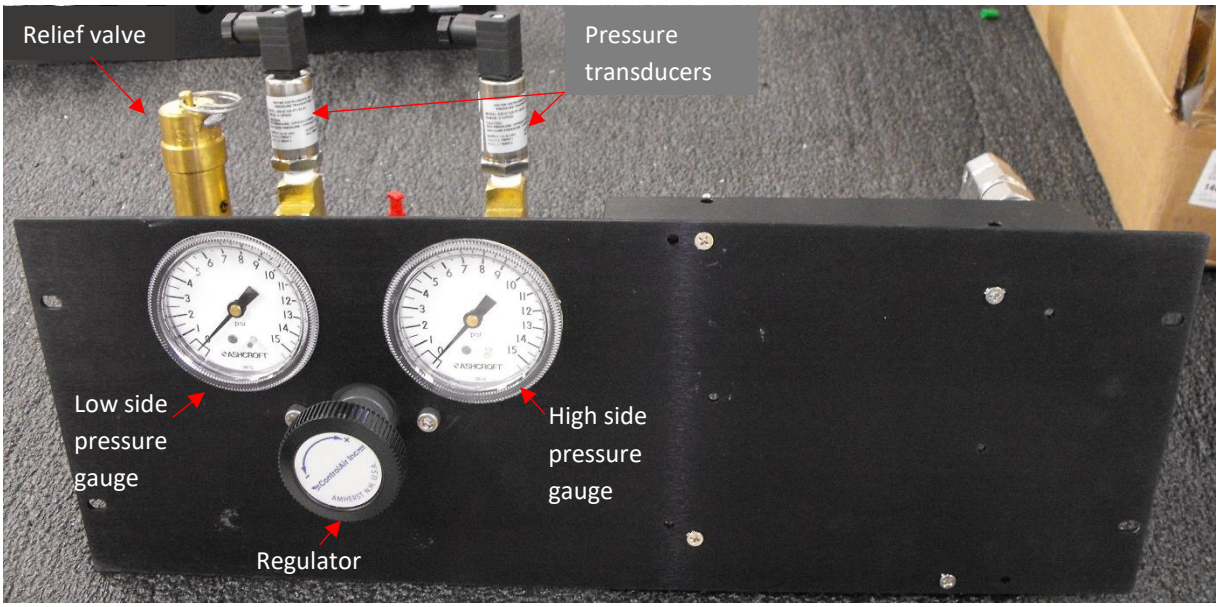

Figure 3. 0–15 PSI regulator panel