RTPC Detector Gas Controls

Date: February 28, 2019
Time: 11:00AM – 12:00AM

Attendees: (DSG: Pablo Campero, Brian Eng, George Jacobs, Tyler Lemon, Marc McMullen)
(Jlab: Howard Fenker)
(RTPC/BONuS12: Carlos Ayerbe, Stephen Bültmann, Mohammad Hattawy, Narbe Kalantarians, Sebastian Kuhn, Jiwan Poudel)

1. Schedule

1.1. Delivery to EEL

1.1.1. Carlos is wrapping up documentation and changes to gas panel. After changes are complete he will arrange for delivery, date determined by him.

1.2. D.A. mechanical inspection and pressure test

1.2.1. Carlos is preparing documentation to be delivered to D.A.; pressure systems inspections will be done after delivery to EEL.

1.2.2. Functionality testing of sensors and flow controller will be done in EEL 125 after panel is delivered and all compliance documentation is completed.

1.3. Gas for testing in EEL

1.3.1. George informed RTPC group that delivery will take four weeks after ordering He/CO_2 (80/20) premix. Sebastian requested that George submit requisition as soon as possible. George informed that each bottle will produce 9000 liters of gas, with estimated usage of 100 cc/m (6 L/h). He will procure four bottles.

2. Controls Interface Chassis

2.1. Carlos will contact D. Insley concerning location of gas panel in Hall B.

2.2. Parts Outstanding

2.2.1. For the chassis, Marc has submitted a design to Par-Metals and received a quote of $454.00.

2.2.2. Carlos gave Marc the second NI-9219, which is being stored in DSG Cabinet 9 in EEL.

	Controls Component	Manufacturer	Part Number	Distributor	Cost	Count	Subtot	comments	Ordere	Receive
1	Chassis Box	Par-Metal	14-19165B	Pi Metals	300	1	300	Order this immidiately	1	
2	Chassis Machining	Par-Metal/Cardinal	N/A	Pi Metals	200	1	200	add machining to the order, tell them to wait on a drawing before fabrication.	1	
3	NI-9219 Universal Input	National Instruments	NI-9219	National Instruments	1199	2	2398	One unit should be in-hand	2	2
4	±15V Supply	Lamda	LS75-15	allied	25	2	50		2	2
5	24V Supply	Lamda	LS100-24	allied	25	1	25		1	1
6	15pin D connector (male)	L-Com	70126857	allied	1.64	6	9.84		6	6
7	15pin D connector (female)	L-Com	70126858	allied	1.73	6	10.38		6	6
8	9pin D connector (female)	L-Com	70126552	allied	1.66	4	6.64		4	4
9	9pin D connector (male)	L-Com	70126496	allied	1.56	4	6.24		4	4
10	8 pos. Barrier Terminal	Cinch	538-8141	mouser	5.8	6	34.8		6	6
11	37 pin D connector (male)	Northern Tech	70172397	allied	1.33	1	1.33		1	1
12	37 pin D connector (female)	Northern Tech	70172398	allied	1.33	1	1.33		1	1
13	4 conductor foil shield 22 awg cab	South wire	22G4CPVC-SH	discount low voltage.com	115.14	1	115.14		1	1

Figure 1. Parts list (green items received)

3. Relocation of PT3

3.1. George explained that the absolute pressure transducer that is currently installed will not work as pressure sensor for gas line between He buffer and RTPC, as it does not have adequate resolution. He suggested that a differential pressure transducer be used to check between He buffer and ambient, to ensure there is He flow.

3.1.1. Sebastian agreed. Carlos will change transducer on the panel.

3.2. George said it would be beneficial to know ambient pressure in the bore.

3.2.1. Brian will specify an absolute pressure transducer for this as the current transducer has insufficient connectivity and exposed circuit board.

4. Open discussion
    4.1. RTPC group requested information on amount of mineral oil to be used in bubblers. George will provide guidance.
    4.2. Sebastian requested information on how gas controls will work.
        4.2.1. Marc and Brian informed him that RTPC detector gas would become part of Hall B Gas Controls system, with its own tab.
            4.2.1.1. Control of the MFC and display of pressures and temperatures will be on the tab. All shared variables will be sent to Hall B EPICS system for display. Control is generally done from gas shed. Marc will send screenshot of example to the group, via mailing list.