

RTPC Gas System Update

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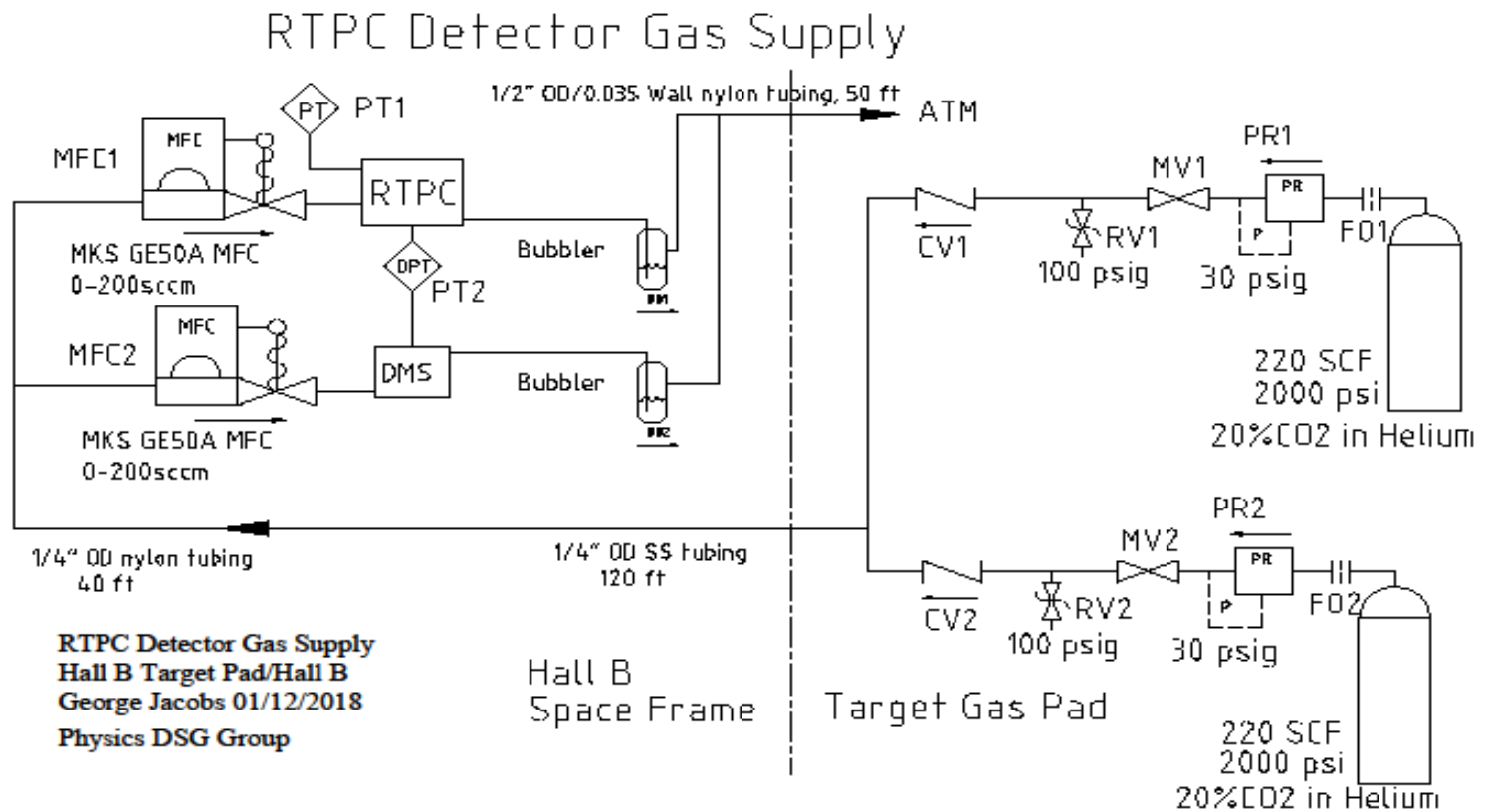
Physics DSG

01/24/2018

Status

- Conceptual P&I submitted by DSG to RTPC group
- Preliminary cost estimates for gas system hardware and controls submitted by DSG to RTPC group
- DSG has requested information of funding for gas equipment.
- Preliminary run expectation is Fall 2019.

P&I Diagram



Hardware Estimate

Part	Part Info	Part Number	Pressure Rating	Cost	
PR1	20% CO2 in He Supply	Matheson 3530A-580, 0-50 psi out	3000 psi	\$402.12	
PR2	20% CO2 in He Supply	Matheson 3530A-580, 0-50 psi out	3000 psi	\$402.12	
FO1	20% CO2 in He Supply	Okeefe G-17-SS (place holder)	4000 psi		
FO2	20% CO2 in He Supply	Okeefe G-17-SS (place holder)	4000 psi		
RV1	20% CO2 in He Supply	Aquatrol series 130-100	100 psi	\$120.00	
RV2	20% CO2 in He Supply	Aquatrol series 130-100	100 psi	\$120.00	
MFC1	RTPC supply flow control	MKS GE50A 013 202 S B V 020	1500 psi burst	\$1,650.00	
MFC2	DMS supply flow control	MKS GE50A 013 202 S B V 020	1500 psi burst	\$1,650.00	
spare MFC	spare	MKS GE50A 013 202 S B V 020	1500 psi burst	\$1,650.00	
CV1	check valve	Nupro SS-4C-1/3	1000 psi	\$120.00	
CV2	check valve	Nupro SS-4C-1/3	1000 psi	\$120.00	
misc swagelock hardware				\$1,500.00	
PT1	Detector volume absolute pressure	MKS AA01A 13 BA S 3 B 00 0 0 0	45 psi	\$995.00	
Temperature probe	Detector temperature	?			
PT2	delta P between the RTPC and the DMS	MKS 226A 11T BB BB F B4 A 1	40 psi	\$695.00	
total costs				\$9,424.24	
Tubing				Length	Part #
1/2" NyloTube 12	1/2" 0.075" wall nyloflo	1/2" OD x 0.075" wall	330 psi	50 ft	NewAge
1/4" NyloTube 12	1/4" 0.035 wall Nyloflo	1/4" OD x 0.063" wall	450 psi	40 ft	NewAge
1/4" SS OD	1/4" SS tubing	Seamless, 0.035 wall	3750 psi	80 ft	Banner# 1/4"-T4A-OS-00250-035B0
Gas	Contents	Pressure of full cylinder			
20% CO2 in He	220 SCF	2000 psi			

Controls Estimate

Controls Component	Manufacturer	Part Number	Cost	Count	Subtotal
Chassis Box	Par-Metal	14-19165B	300	1	300
Chassis Machining	Par-Metal/Cardinal	N/A	200	1	200
NI-9219 Universal Input	National Instruments	NI-9219	1199	1	1199
±15V Supply	Lamda	LS75-15	25	2	50
24V Supply	Lamda	LS100-24	25	1	25
15pin D connector	TE	1757820-2	9.53	2	19.06
9pin D connector	TE	1757820-1	5.58	2	11.16
8 pos. Barrier Terminal	Cinch	538-8141	4.46	6	26.76
37 pin D connector	TE	205167-1	11.46	1	11.46
Fuse	Bussman	BK/HTB-22M-R	2.88	2	5.76
AC input power connector	Schurter	6100.33	1.3	1	1.3
				Subtotal	1849.5
Cables	Manufacturer	Comment	Cost	Count	Subtotal
MFC Network	Cat6	Cat6 outdoor p/n (C6EU2511)	89.5	2	179
MFC Power	DSG manufactured	Belden 5502FE-0085-00	70	2	140
Analog Input multi conductor	DSG manufactured	Belden 5502FE-0085-00	70	2	140
Power chassis internal power	16 awg power wire	internal chassis wiring	100	1	100
Power chassis internal signal	22 awg signal wire	internal chassis wiring	100	1	100
chassis wiring lugs and connectors	various connection terminals		100	1	100
				Subtotal	759