ATHOS Gas Attenuator Operation

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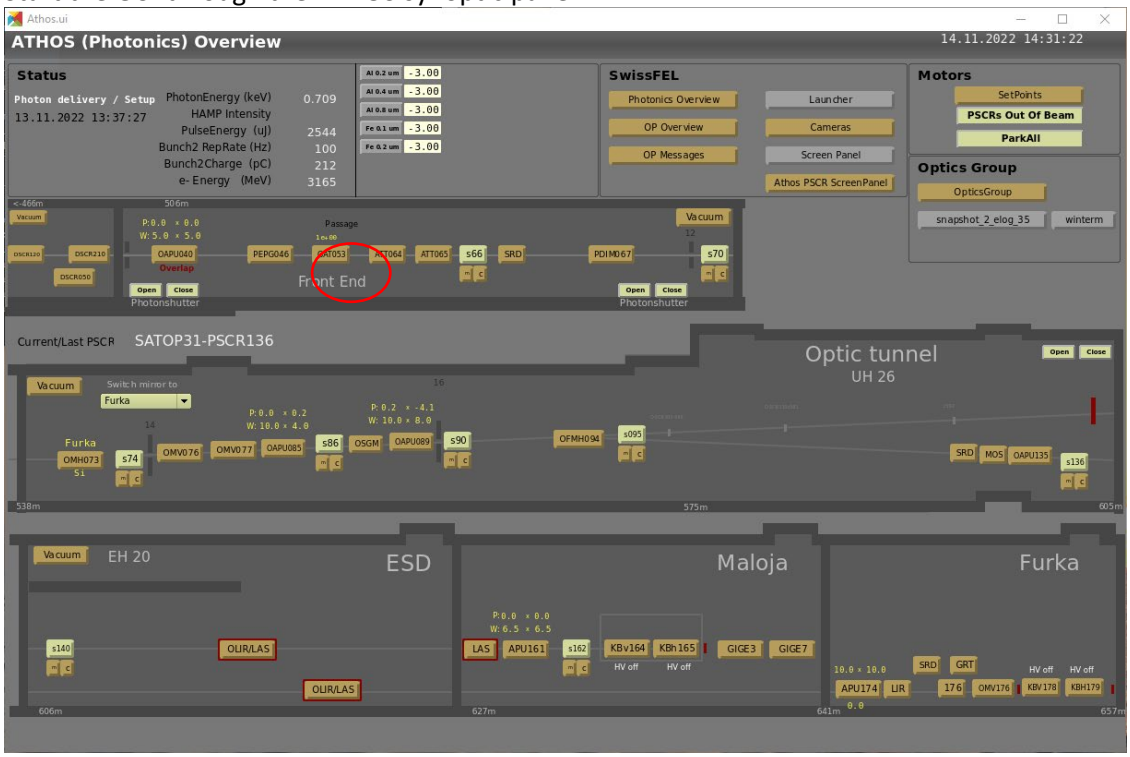
1 Introduction

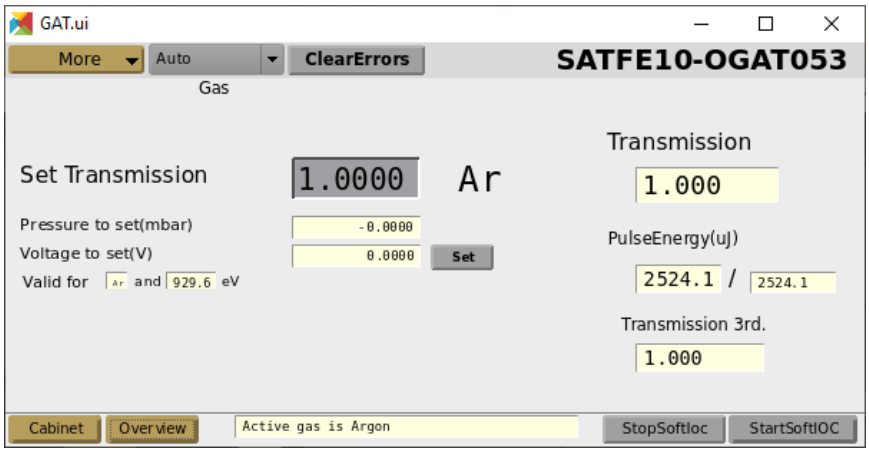
This document describes very briefly the operation of the ATHOS gas attenuator. **It is not a full manual and does not cover all aspects of the operation. Extra caution is required to operate the gas attenuator as controls are still basic.**

2 Contents

3 ATHOS Gas Attenuator GUI

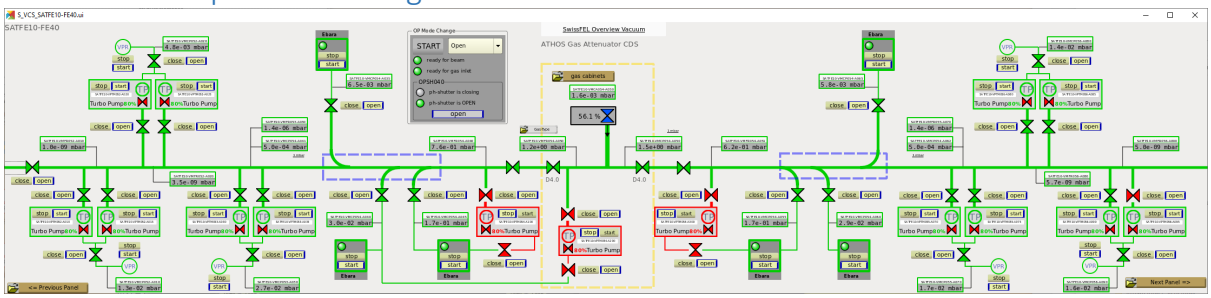
Start the GUI through the ATHOS synoptic panel:





Make sure, that the gas attenuator is setip for operation, see also chapter 4
Make sure, that the correct gas is selected, if not, see chapter 6.
Currently only N2 (up to 8mbar) and Ar (up to 1mbar) are supported.

3.1 Normal operation with gas

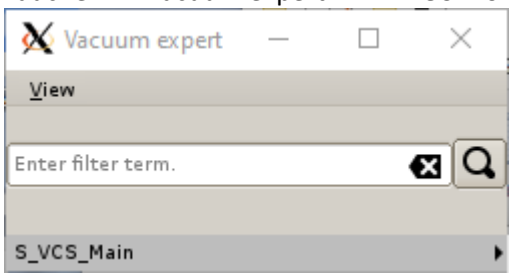


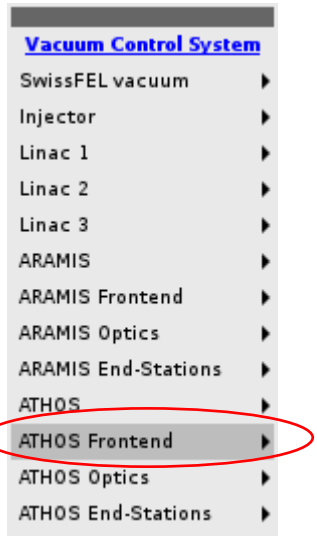
4 ATHOS Gas Attenuator Expert Operation

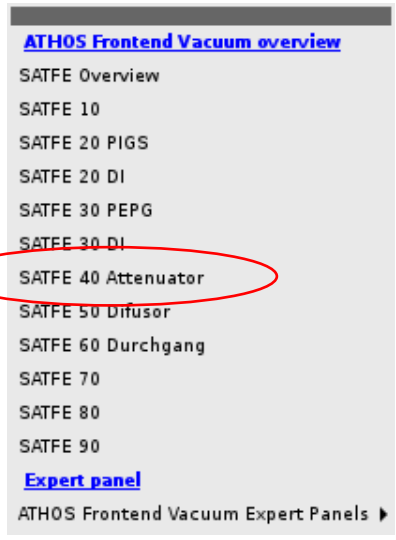
4.1 Start GUI

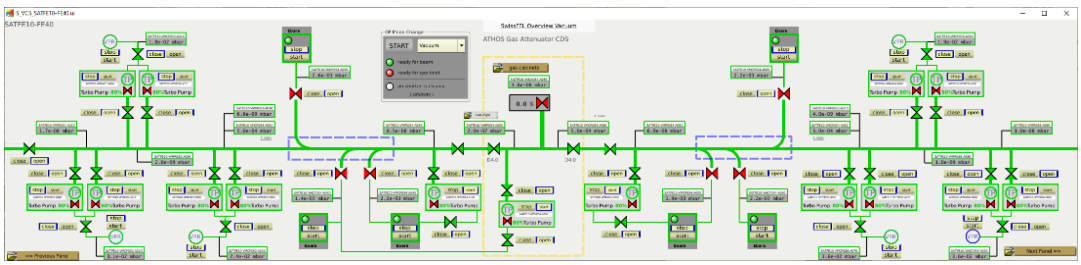
Login with phop to sf-cons-27 for full functionality (may need to go through sf-gw)

Laucher --> Vacuum expert --> ATHOS Frontend --> SATFE 40 Attenuator

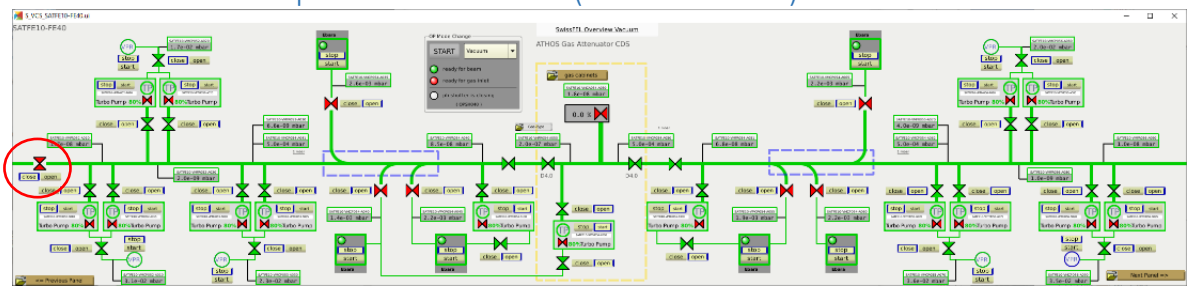


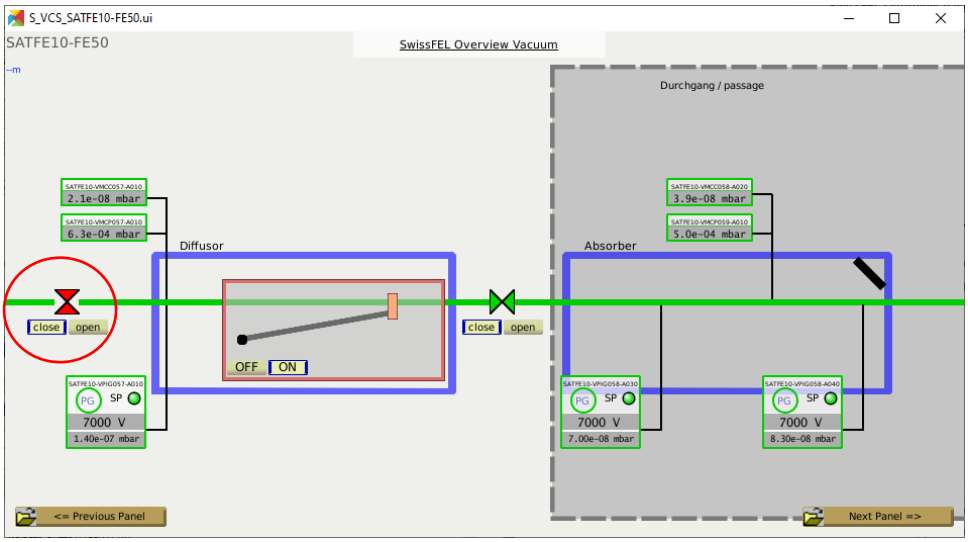




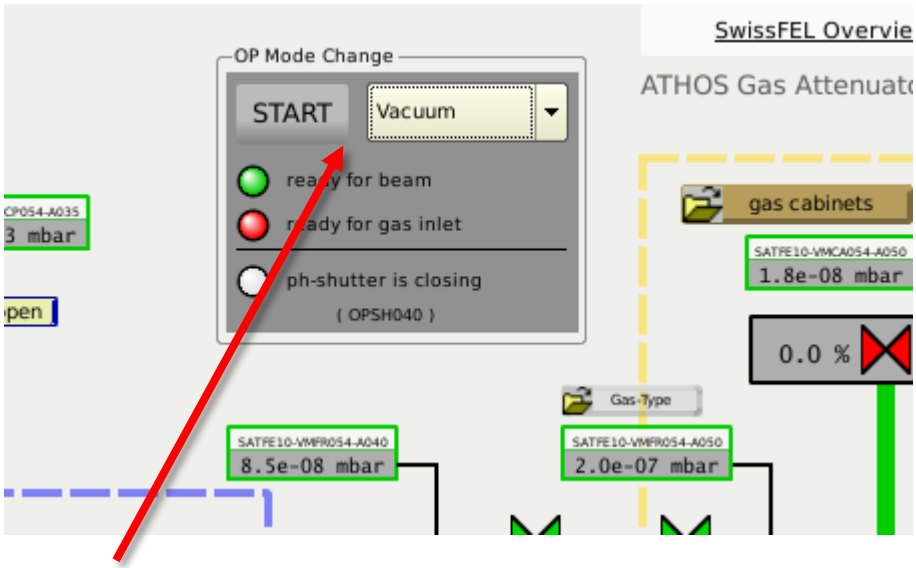


4.2 Close valves up and down stream (recommended)

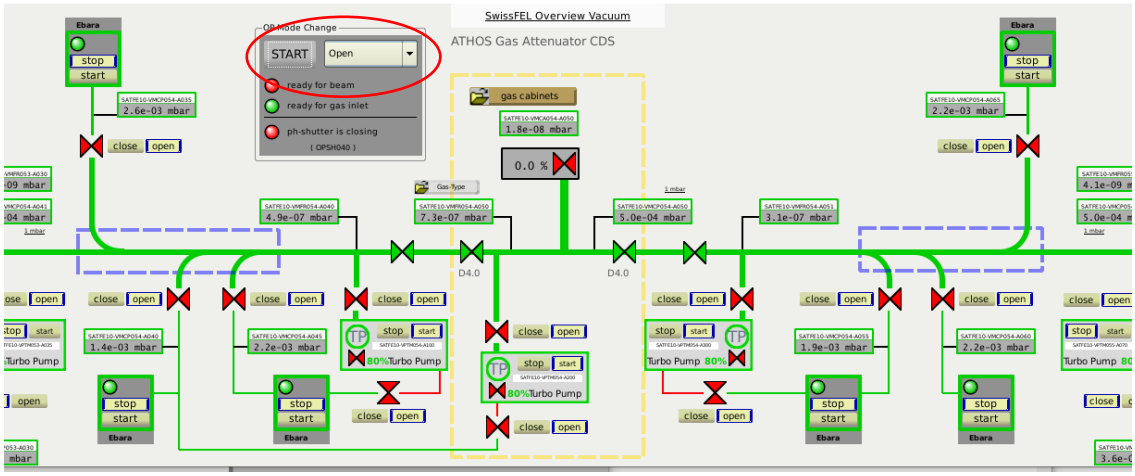




4.3 OP Mode change

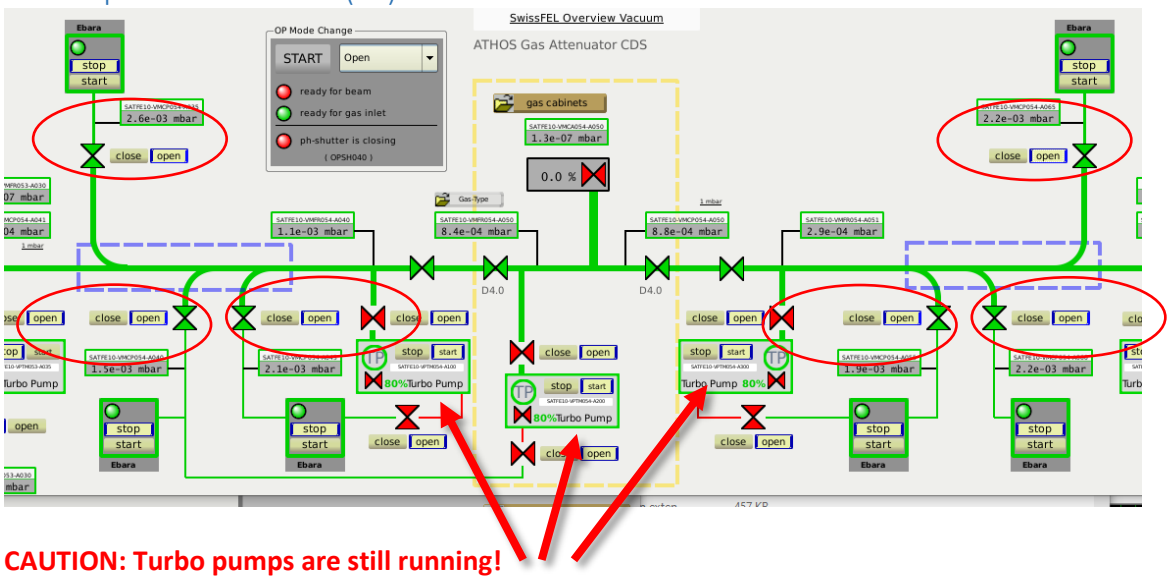


Select Open
Press START



Photon Shutter will close – need to reopen

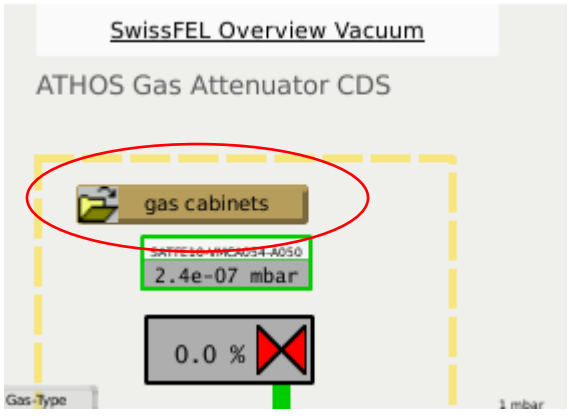
4.4 Open Ebara valves (6x)

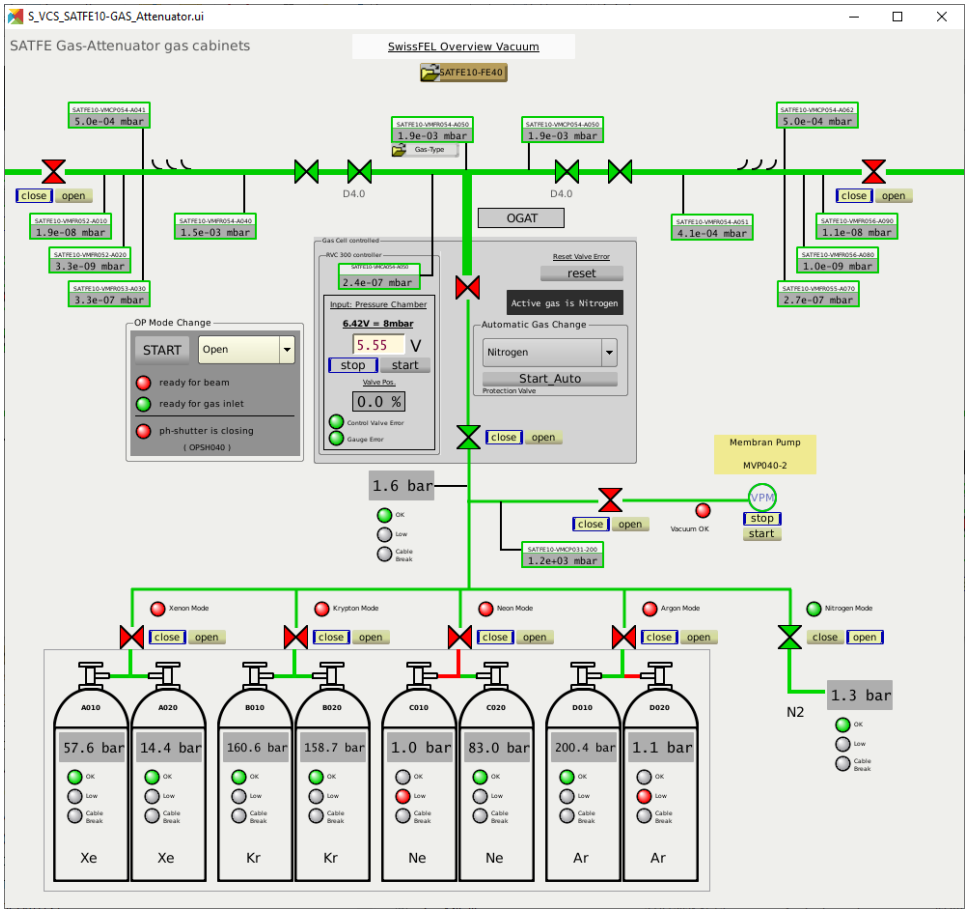


CAUTION: Turbo pumps are still running!

If gas operation is planned for longer than 1 hours, turn off small turbos!

4.5 Goto gas cabinets panel





Make sure Nitrogen is selected, if not see change gas
See chapter 6

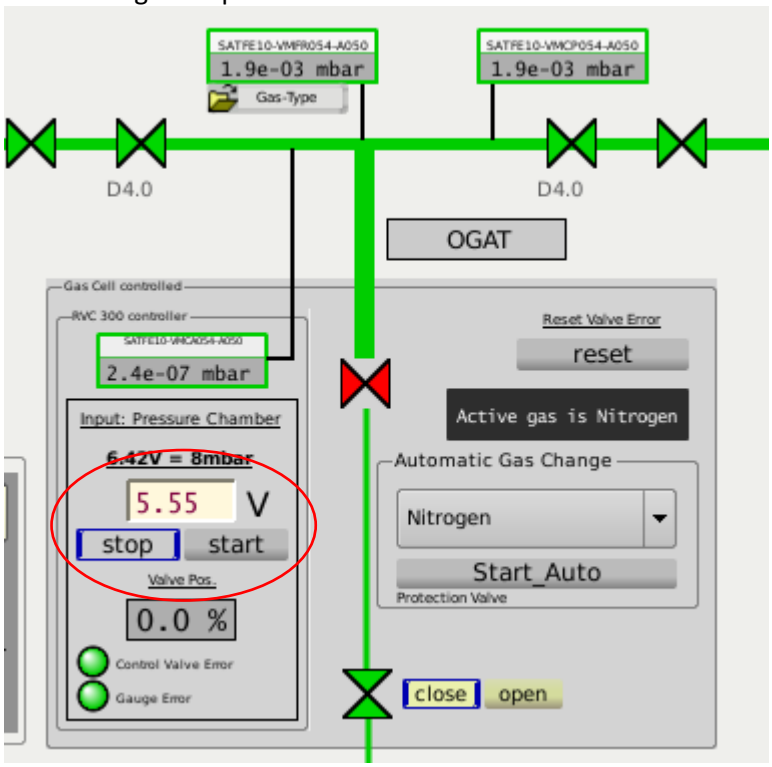
4.6 Select pressure

Pressure cannot be entered directly, use table below to set pressure through voltage.
To calculate transmission use N2 and 400cm gas length, use
https://henke.lbl.gov/optical_constants/gastrn2.html
--> Display is a little higher than real life (8.2mbar for 8.0bar)

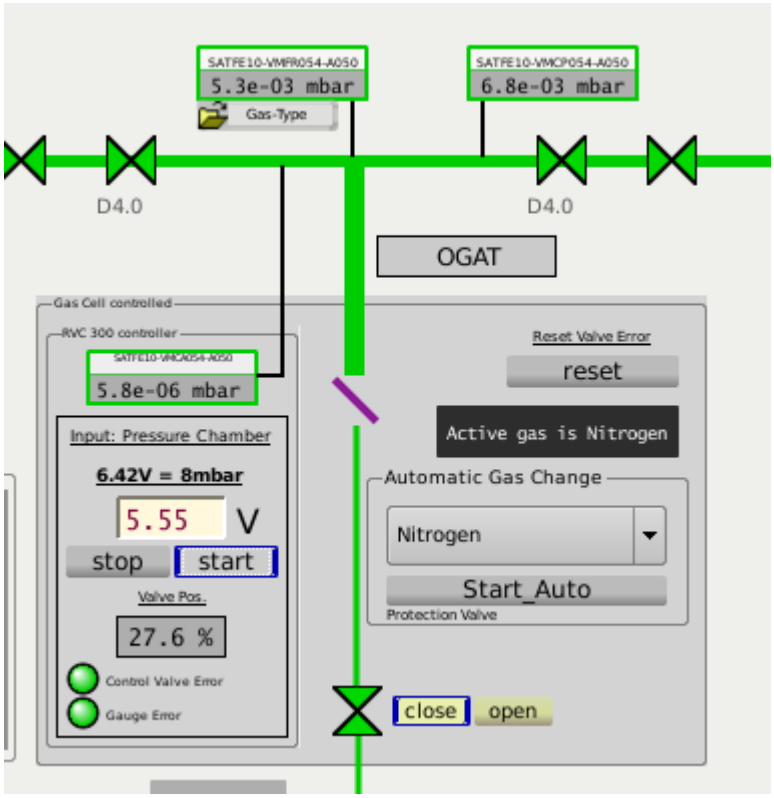
Voltage [V]	Pressure [mbar]	Pressure [Torr]
6	3.2	2.4
5.9	2.6	1.95
5.8	2.0	1.5
5.6	1.3	0.975
5.5	0.99	0.742
5.4	0.8	0.6
5.2	0.5	0.375
5.0	0.32	0.24
4.8	0.2	0.15

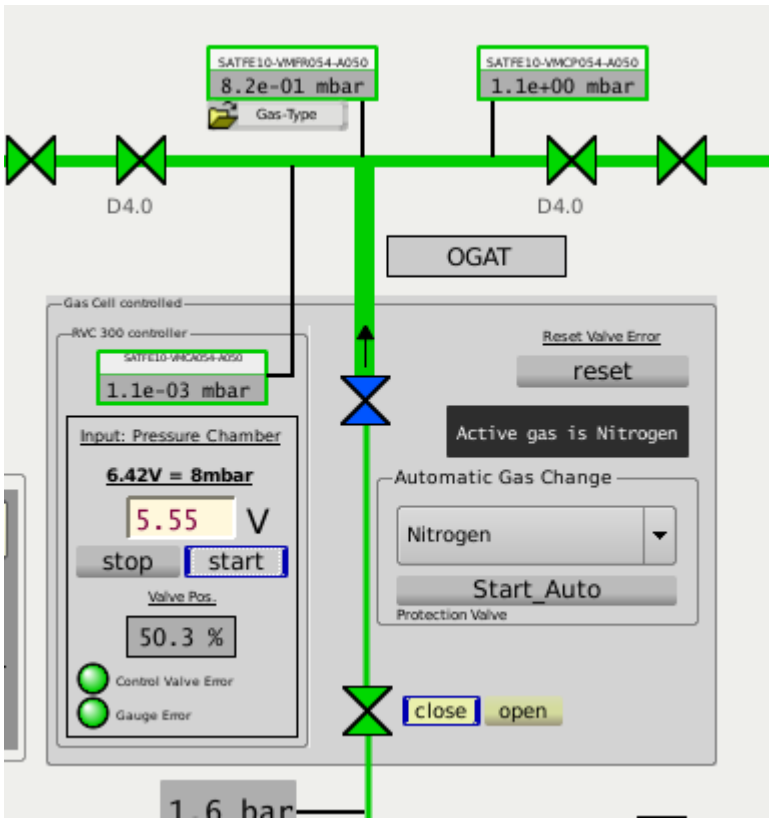
4.6	0.13	0.098
4.4	8.1E-2	0.061
4.2	5.0E-2	0.038
4	3.2E-2	0.024
0	2.1E-3	0.016

Enter voltage and press start

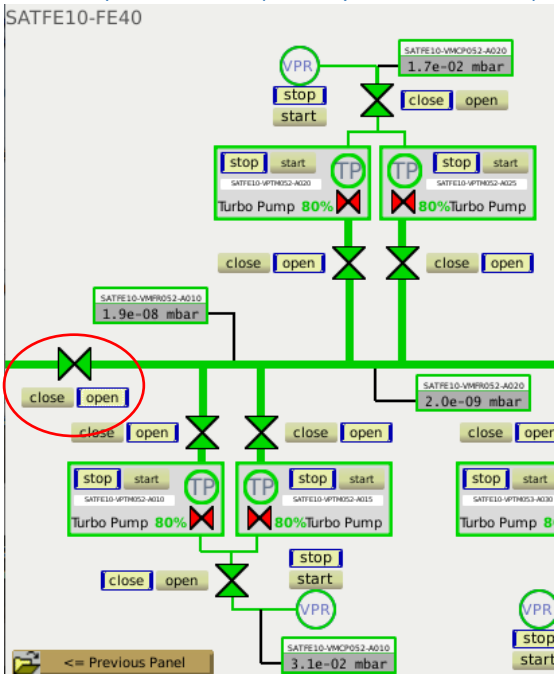


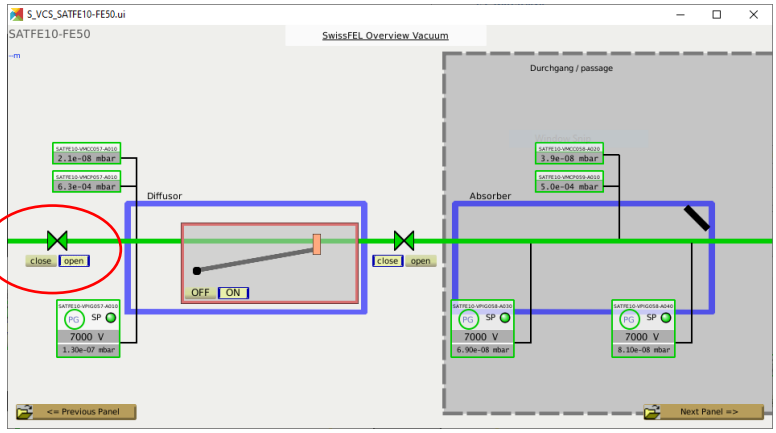
4.7 Wait for valve to regulate





4.8 Open valves (if they were closed)





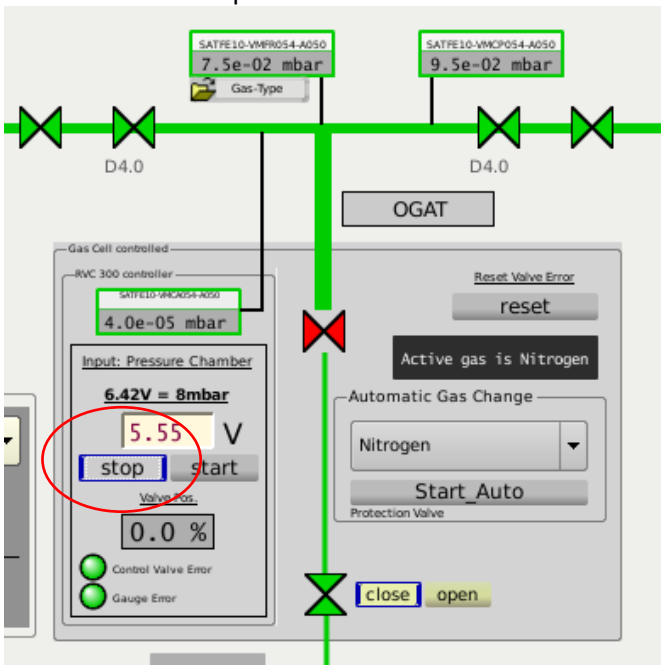
4.9 Operation Gas Attenuator when everything is setup

New voltage can be entered now without pressing start. Monitor pressure to check when the gas attenuator is stabilized.

5 No gas operation

5.1 Stop gas

Pressure --> set stop

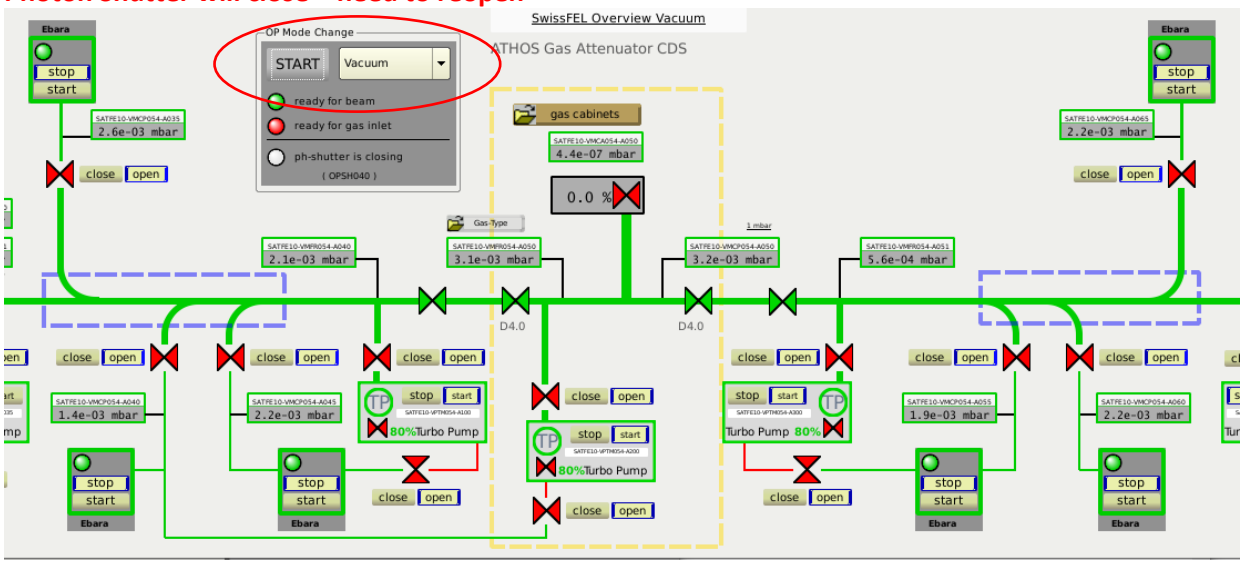


5.2 OP Mode --> vacuum

Select Vacuum mode

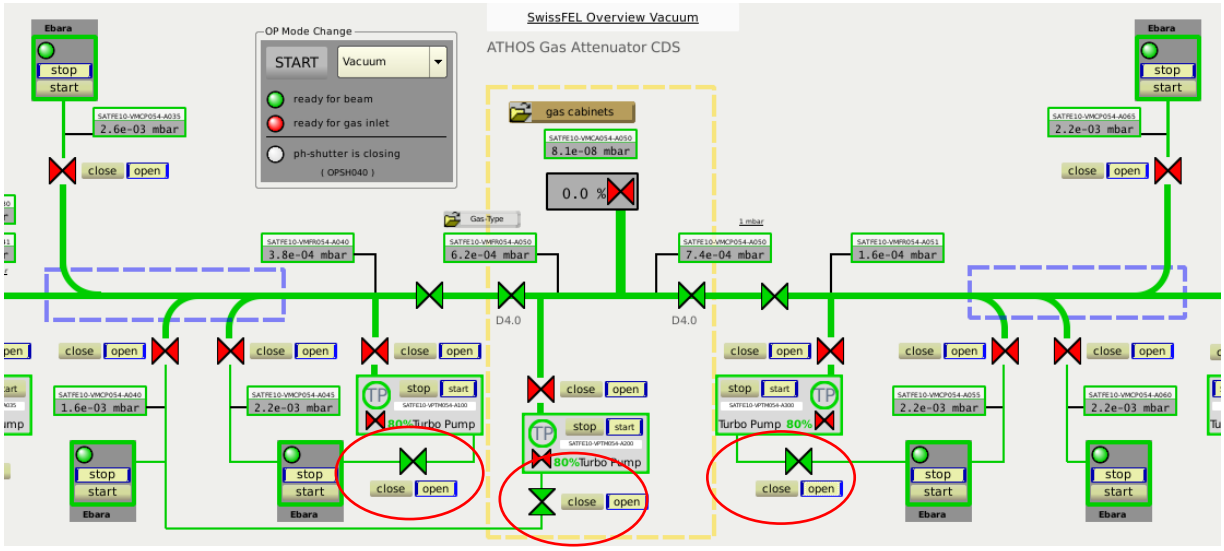
Press Start

Photon Shutter will close – need to reopen



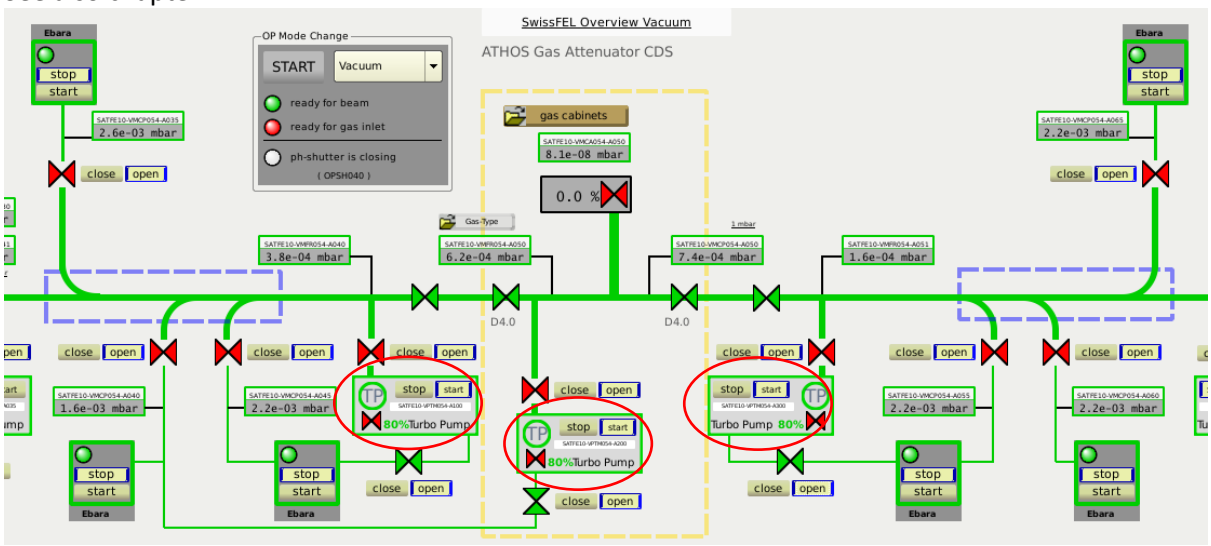
6x Ebara close automatically

5.3 -->Open Ebara Valves for Turbos (3x)



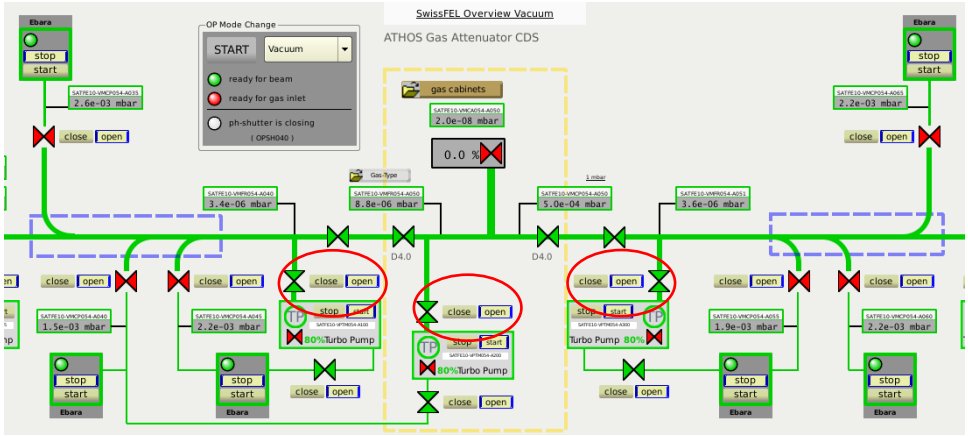
5.4 If turbos were turned off, start turbos again

See also chapter 4.4

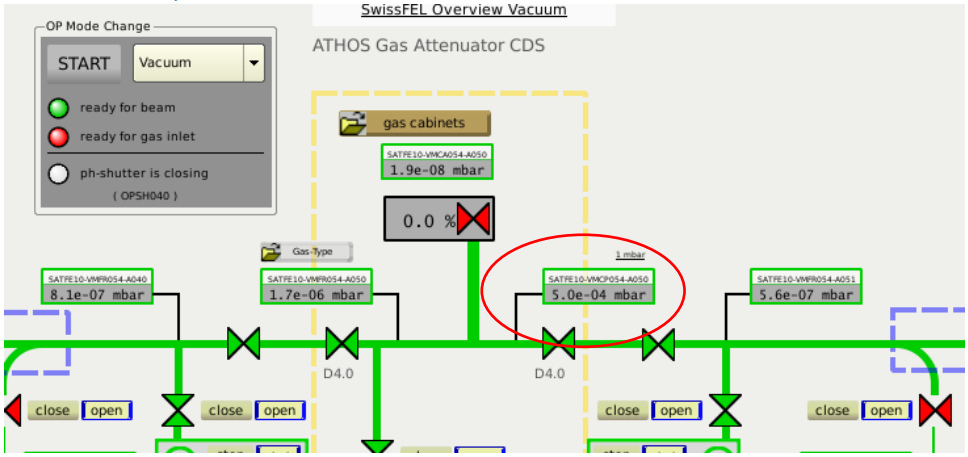


5.5 Open turbo valves (3x)

Make sure turbos are in operation and at speed

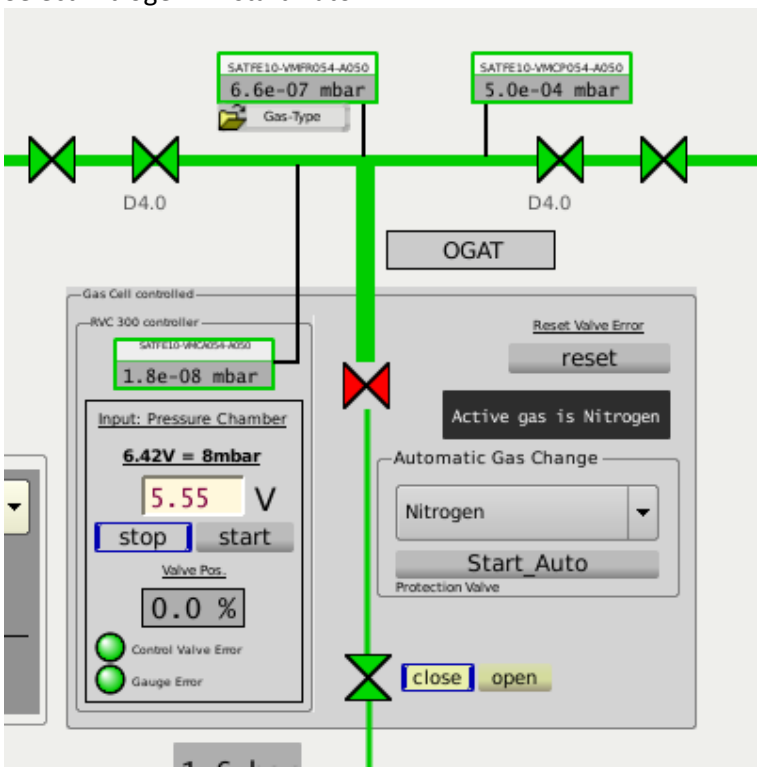


5.6 Check pressure



6 Change Gas

Select Nitrogen --> start Auto



--> wait for purge

--> "Active gas is Nitrogen" in display and N2 ok bottom right