

Expected Conditions for the Running Period

Content:

Interaction of Users with REX/HIE-ISOLDE

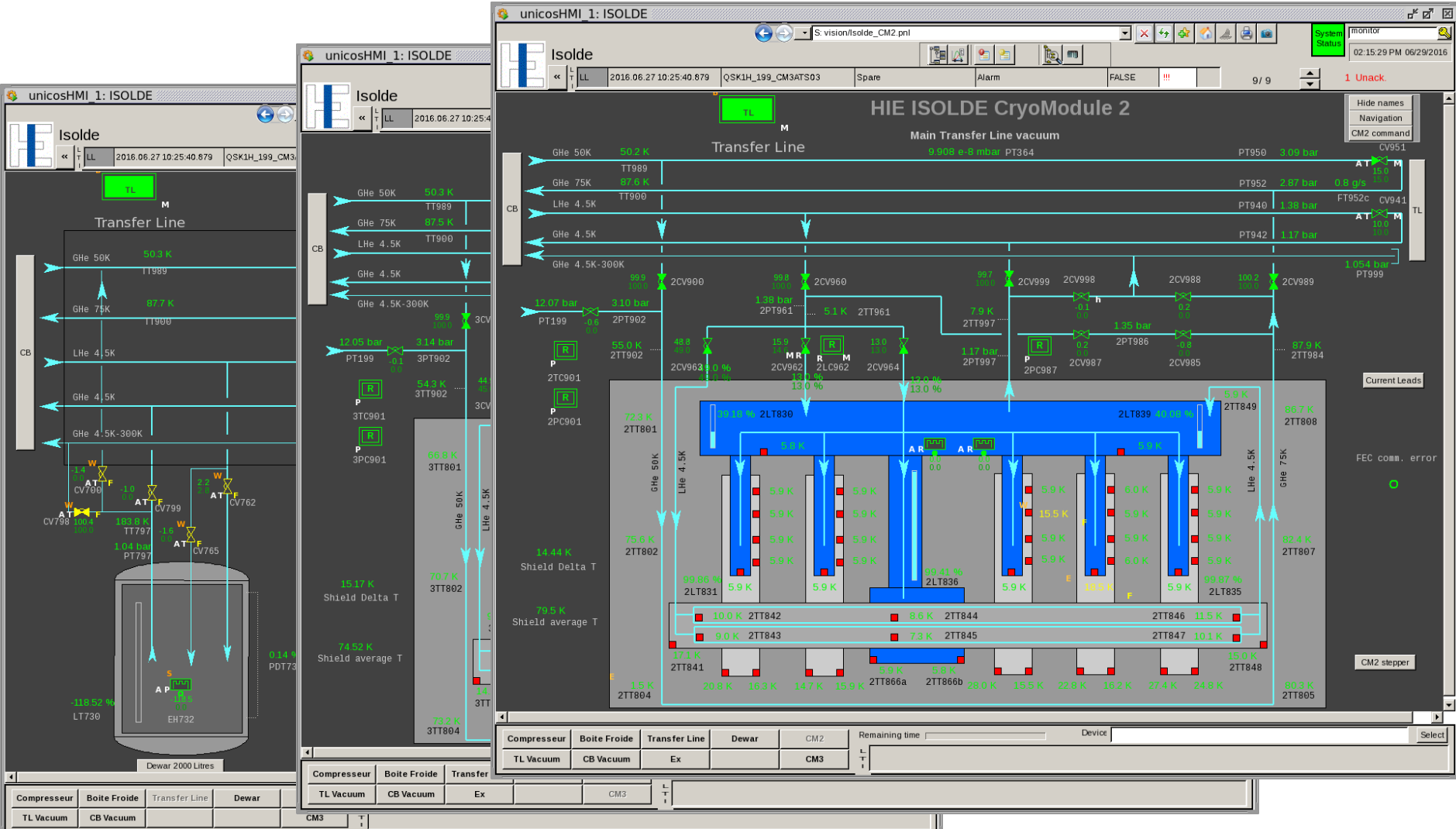
- Cryogenics
- Vacuum
- RF
- Diagnostics
- Optical elements

Expected Operational Envelop

Cryogenics:



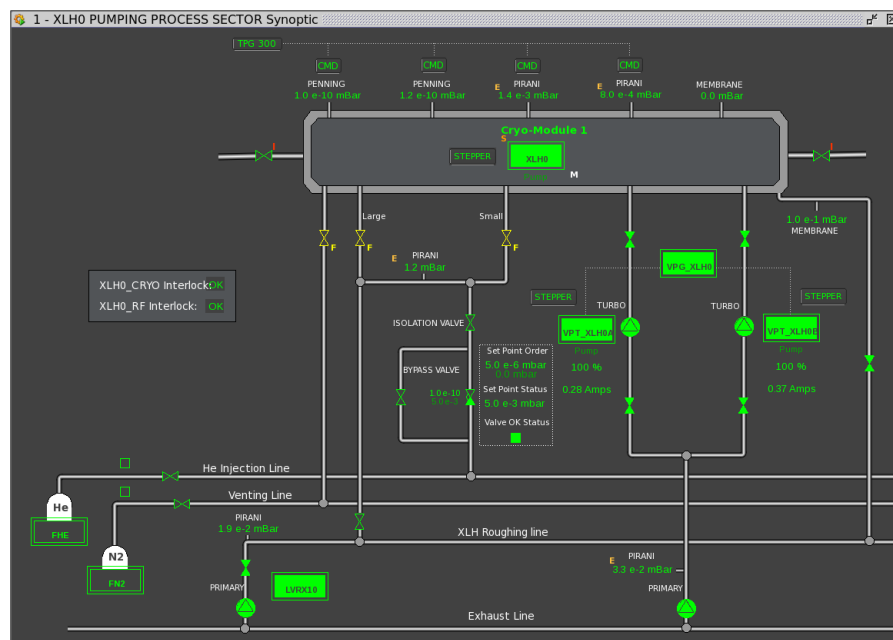
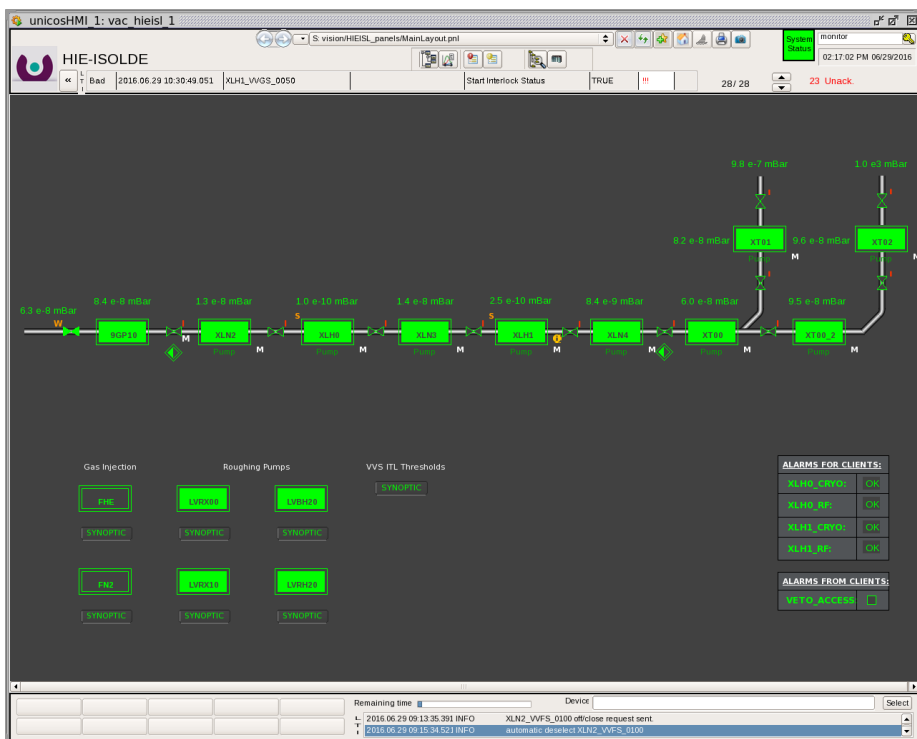
- All relevant information (temperatures, LHe levels, status of valves...) will be accessible
- Users will not be able to make any changes in the cryo system



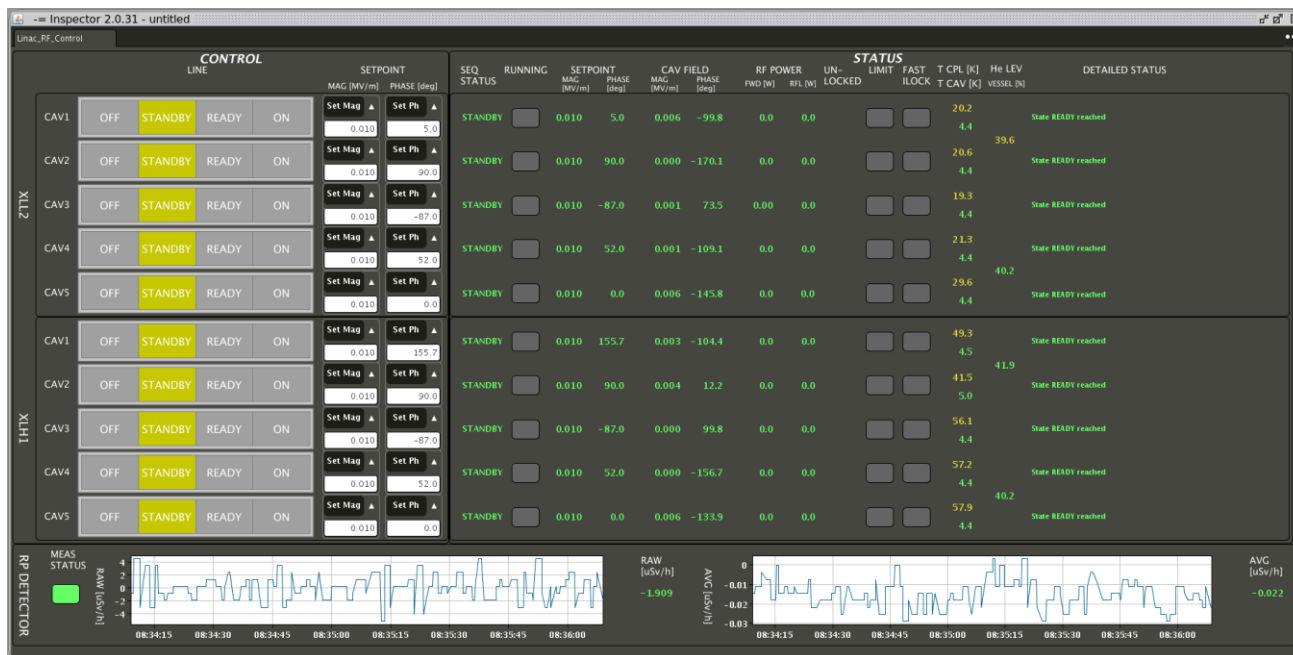
Vacuum:



- All relevant information (vacuum pressure, status of valves...) will be accessible to the users
- The interlock pressure of the HEBTs/experiments sector valves will be in the (1-5)E-6 mbar range. It will be reduced progressively as additional cryomodules are installed
- Only properly trained users will be able to open/close the HEBTs/experiments sector valves. They will need to make the request ahead of time to be granted open/close rights. They will need to use their NICE username to log in
- Venting the experimental station should be planned and generally done during normal working hours



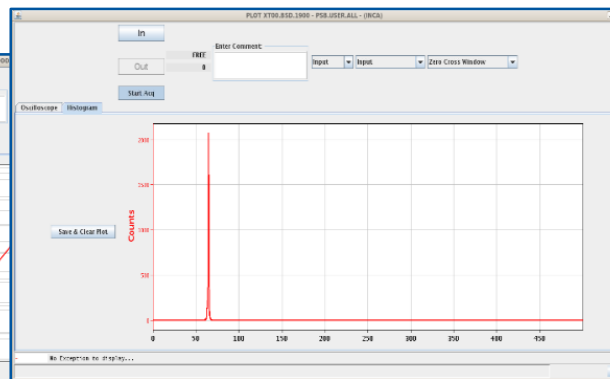
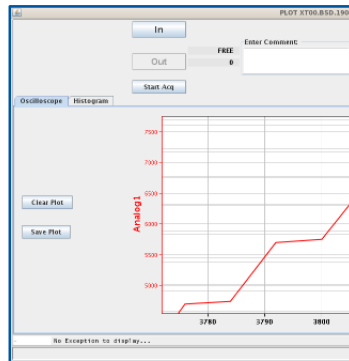
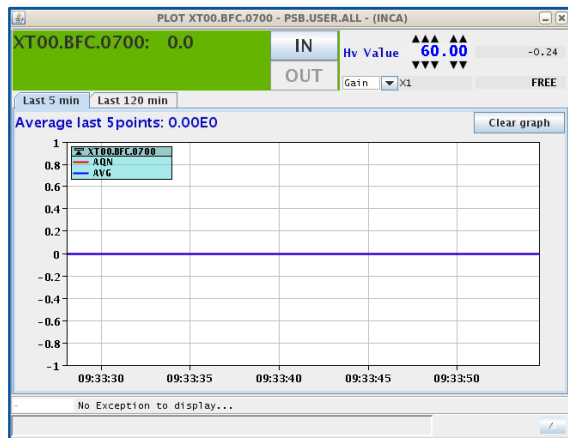
- Users will have access to all the relevant information
- Users will not be able to change the RF settings (peak power, phase, pulse length or repetition rate)
- Users will not be able to restart an amplifier. They will need to contact the EIC. The EIC will evaluate the situation and contact the equipment experts if necessary
- Note: No RF piquet service available. Only best-effort available



Diagnostics:



- Users will be able to use FCs, insert/retract collimators and scanning slits in the HEBT lines
- Users will not be able to use the Silicon detectors



HIE Beam Diagnostic v 1.0.8 - PSB.USER.ALL - (INCA)

Expert Show Devices

FC		Scanning Slits				Collimator			Silicon Det	
XLN2.0300 0.00E0	IN OUT	FREE	OUT	0	Scan Step Scan	FREE	OUT	0	FREE	Use SD FREE
XLN3.0300 0.00E0	IN OUT	FREE	OUT	0	Scan Step Scan	FREE	OUT	0	FREE	
XLN4.0300 0.00E0	IN OUT	FREE	OUT	0	Scan Step Scan	FREE	OUT	0	FREE	
XT00.0700 0.00E0	IN OUT	FREE	OUT	0	Scan Step Scan	FREE	OUT	0	FREE	
XT00.1000 0.00E0	IN OUT	FREE	OUT	0	Scan Step Scan	FREE	OUT	0	FREE	Use SD FREE OUT
XT00.1300 disconnected	IN OUT	FREE	OUT	0	Scan Step Scan	FREE	OUT	0	FREE	
XT01 XT02										
XT01.0400 0.00E0	IN OUT	FREE	OUT	0	Scan Step Scan	FREE	OUT	0	FREE	Use SD FREE OUT
XT01.0900 0.00E0	IN OUT	FREE	OUT	0	Scan Step Scan	FREE	OUT	0	FREE	

No Exception to display...

09:32:17 - Registering cern.japc.context.ParameterMachineGroup\$Jmx

Optical Elements:



- Users will be able to change the settings of the steerers and last triplet in the HEBT lines
- Users will not be able to change the dipoles or focusing elements other than the last triplet in the linac

The image displays two screenshots of the EquipArray software interface. The left screenshot shows a table of optical elements with columns for OB Name, Buffer, CCV Value, and AQN Value. The right screenshot shows a similar table with a control panel on the right side containing buttons for REX, READ EQP TO BUFFER, WRITE BUFFER TO EQP, and SCALING, along with numerical input fields for A1, q1, E1, A2, q2, and E2.

OB Name	Buffer	CCV Value	AQN Value
XRFQ.QP40-V	1270.00	CCV 1270.0V	AQN
XRFQ.QS50-V	720.00	Foc 720.0V	Aqn F
XRFQ.QS50-V	-5.00	Hor -5.0V	Aqn H
XRFQ.QS50-V	-10.00	Vert -10.0V	Aqn V
XRFQ.QP70-V	840.00	CCV 840.0V	AQN
XRFQ.QP80-V	1420.00	CCV 1420.0V	AQN
XRFQ.QP90-V	1240.00	CCV 1240.0V	AQN
XRFQ.QS100-V	1590.00	Foc 1590.0V	Aqn F
XRFQ.QS100-V	0.00	Hor 0.0V	Aqn H
XRFQ.QS100-V	10.00	Vert 10.0V	Aqn V

OB Name	Buffer	CCV Value	AQN Value
XT00.RCV.1350	0.00	CCV 0.00	AQN I: -0.00
XT00.RQ.1400	27.96	CCV 22.96	AQN I: -0.00
XT01.RB.0100	168.70	CCV 162.62	AQN I: 0.00
XT01.RQ.0300	35.28	CCV 31.56	AQN I: 0.00
XT01.RB.0500	168.70	CCV 162.62	AQN I: 0.00
XT01.RQ.0600	20.88	CCV 16.80	AQN I: -0.00
XT01.RQ.0700	37.32	CCV 31.75	AQN I: -0.00
XT01.RQ.0800	18.00	CCV 18.46	AQN I: -0.00
XT01.RCH.0950	0.00	CCV -7.00	AQN I: 0.00
XT01.RCV.0950	0.00	CCV 6.00	AQN I: -0.00

Control Panel (Right Screenshot):

- Buttons: REX, READ EQP TO BUFFER, WRITE BUFFER TO EQP, SCALING
- From section: A1 1, q1 1, E1(MeV/u) 1.00
- To section: A2 1, q2 1, E2(MeV/u) 1.00

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Expected Operational Envelop

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- Not fully defined yet. The commissioning needs to be completed before is defined

REX:

A/q	Rep. Rate [Hz]	Pulse length [ms]	
3.5	50	0.5	All Structures Tested
4	30	0.5	RFQ and Buncher Tested No problems expected
4.5	10	0.5	RFQ and Buncher Tested 7gap2 may have problems
4.5	5	1.0	
4.5	3	2.0	Need intervention in the 101 MHz amplifiers. Do we need it?

HIE-ISOLDE:

- The maximum beam energy will be defined after high-field conditioning is completed
- It would be useful to know the final energy (and A/q) required during the Physics Campaign. The hardware and beam commissioning could be faster if it is targeted

Expected Operational Envelop :



Beam energy characterization:

- With the new system based on TOF, we expect to be able to reach $\sim \pm 0.5\%$ (system not commissioned yet)

Beam transmission:

- Based on last year beam commissioning, it is expected to be $\sim 75\%$ from separator to end of experimental line

Slow extraction:

- Will be possible if requested. It will add a couple of hours to the set-up time