



Linac4 Vacuum Interlocks system

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General view

- Linac4 Interlock system is based in LHC interlock system.

Linac 4 BIS

Linac 4 internal Interlock.

Pirani gauges gives interlock to the penning and this gives to VPI controller.

Linac 4 valve's Interlock.

Each valve is interlocked by four devices

Linac 4 to BIS

If a valve is closed a signal is transmitted to the BIS

Linac 4 User's alarm.

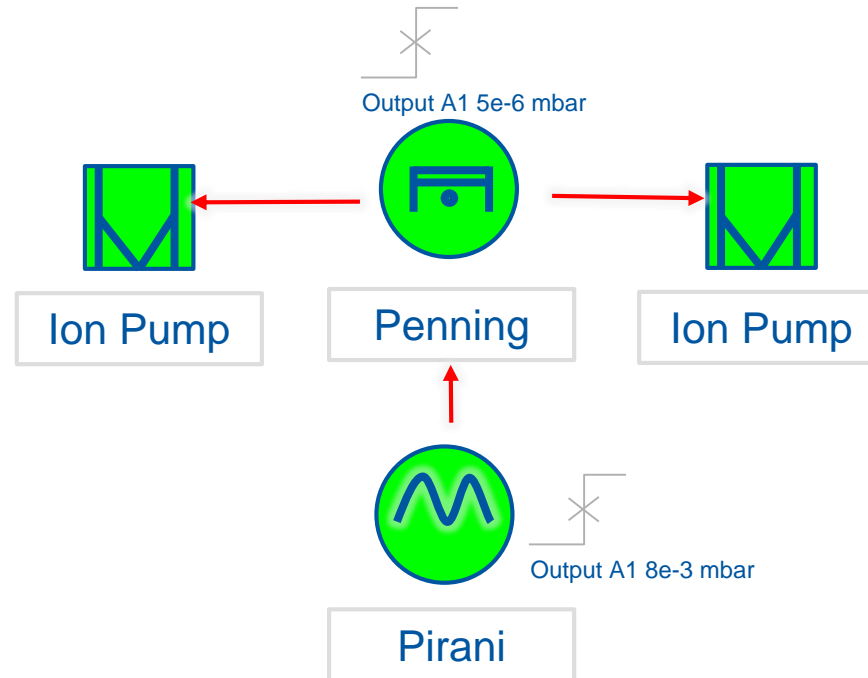
VPI controller gives alarms for the users.

Internal interlock.

- Penning gauges give a **start interlock** for the VPI controllers.

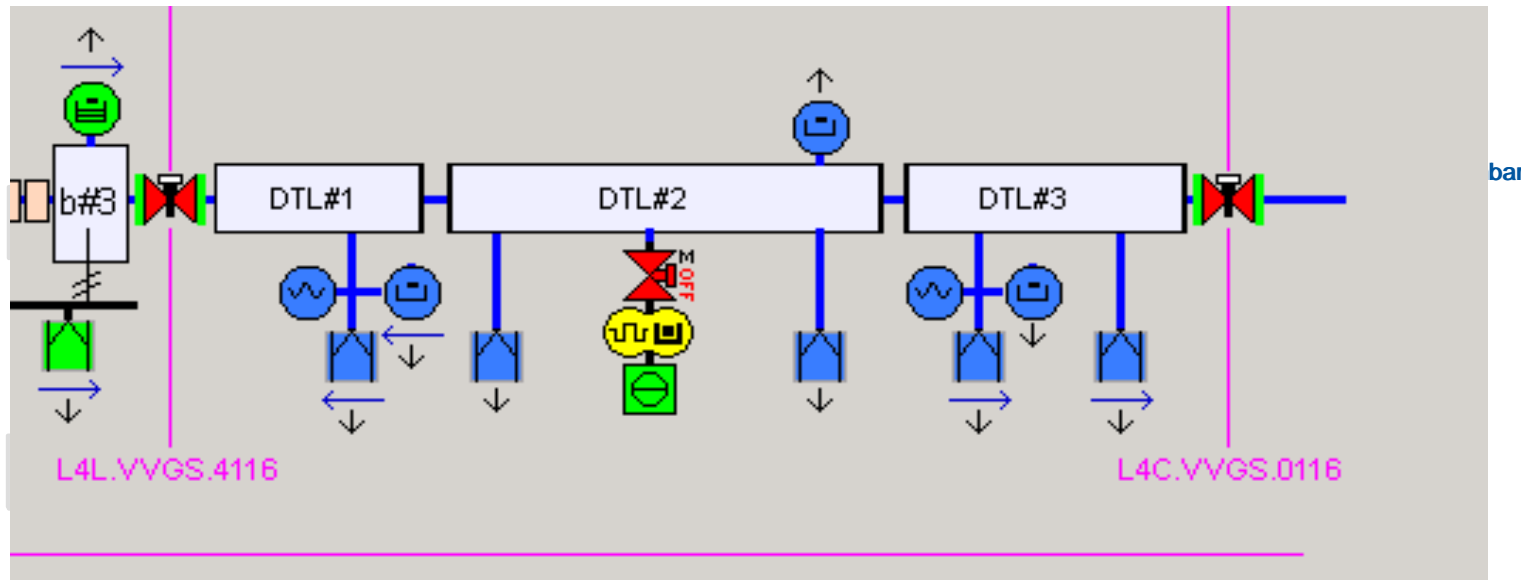
Condition:

IF (Penning gauge signal **OK**) THEN (Ion Pumps can operate)



Valve Interlock

- Linac4 valves Interlock system is based in LHC interlock system.
 - Each VVS is controlled by 4 devices (VPI controller or TPG300) that can give the interlock signal.
 - A sector valve can be opened if **ALL** devices are ready.
 - A sector valve is closed when there is an **interlock trigger of 3 of the 4 devices**
 - The **VVS-1** and **VVS+1** will be closed.
 - In this way two sectors are isolated and a signal is transmitted to the BIS to dump the beam.



User alarms.

- Users receive the alarms from penning gauges and VPI controller like a **dry contact**.
- Analog output from penning are used for their accuracy. But in no case can be used as an alarm or an interlock.
- RF conditioning required digital output from penning gauges and a serial output configuration in the VPI controllers for the PIMS. Threshold are set up to $5e-6$ mbar.
- The final configuration will be in parallel and we will use the penning analogue output to have a first approach

