

I06 (Branchline) – Setup Procedures – rev. 2.1

Experimental chamber size and photon beam

1. The maximum allowed footprint of the experimental chamber that can be connected to the beamline inside the hutch is 1.5x2m; the ceiling is 3.5m. Moreover all the instrumentation must be introduced inside the cabin through the main door, whose size is 1.5x3m.
2. The beam spot size at the focus is 180 μ m horizontally and twice the exit slit size vertically (usually about 40 μ m). The position of the focus with respect to the last valve of the beamline is indicated in Figure 1.
3. The base pressure of the user experimental chamber must be $<10^{-6}$ mbar for operation with thin film window or $<10^{-9}$ mbar without the thin film window. All vacuum pumps must be oil-free.
4. All the equipment must be tested for electrical safety before use on the beamline.
5. A crane whose max load is 250 Kg is available.

I06EC2
BRANCHLINE ENCLOSURE

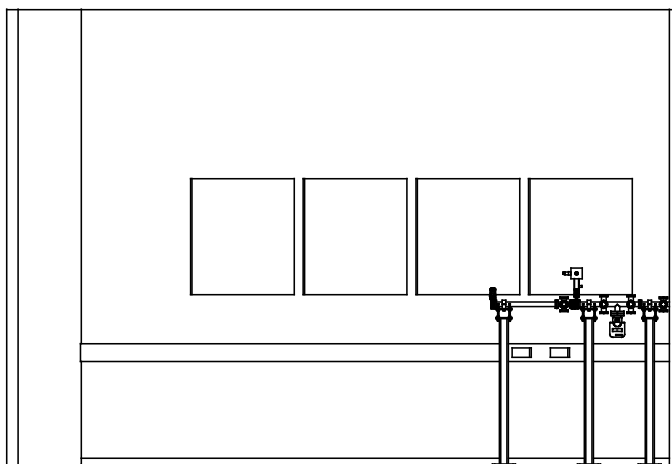
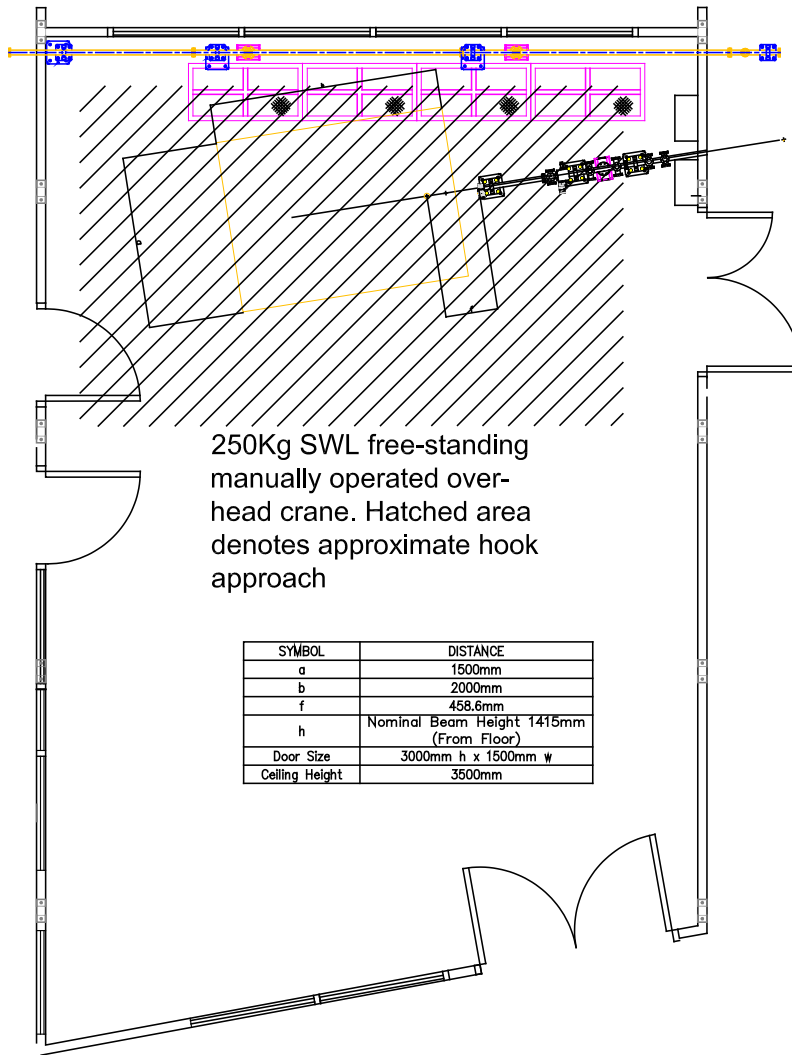


Figure 1 sketch of the inside of the experimental cabin with the maximum allowed dimensions of the instrumentation, with the position of the beam focus with respect to the last valve of the beamline.

Software Control and Data Acquisition

1. Detectors controlled by third party software can usually be incorporated into the beamline, but requires developments of appropriate routines and drivers and needs to be planned well in advance. For new equipment discussion should start 3/4 months before the scheduled beamtime.
2. All the equipment can be controlled by a serial interface via the GDA software.
3. Signal acquisition is usually performed using Keythley 428 current amplifiers and NOVA VtoF converters
4. TTL output signal is available for equipment control.
5. DAC ($\pm 10V$) are available for instrumental control.
6. All the experimental data must be stored on the beamline data storage area.
7. Six motor controllers with limits and encoders are available. These can be configured for most stepper motors. Details should be discussed with the beamline staff well in advance. Discussion should start before the scheduled beamtime.

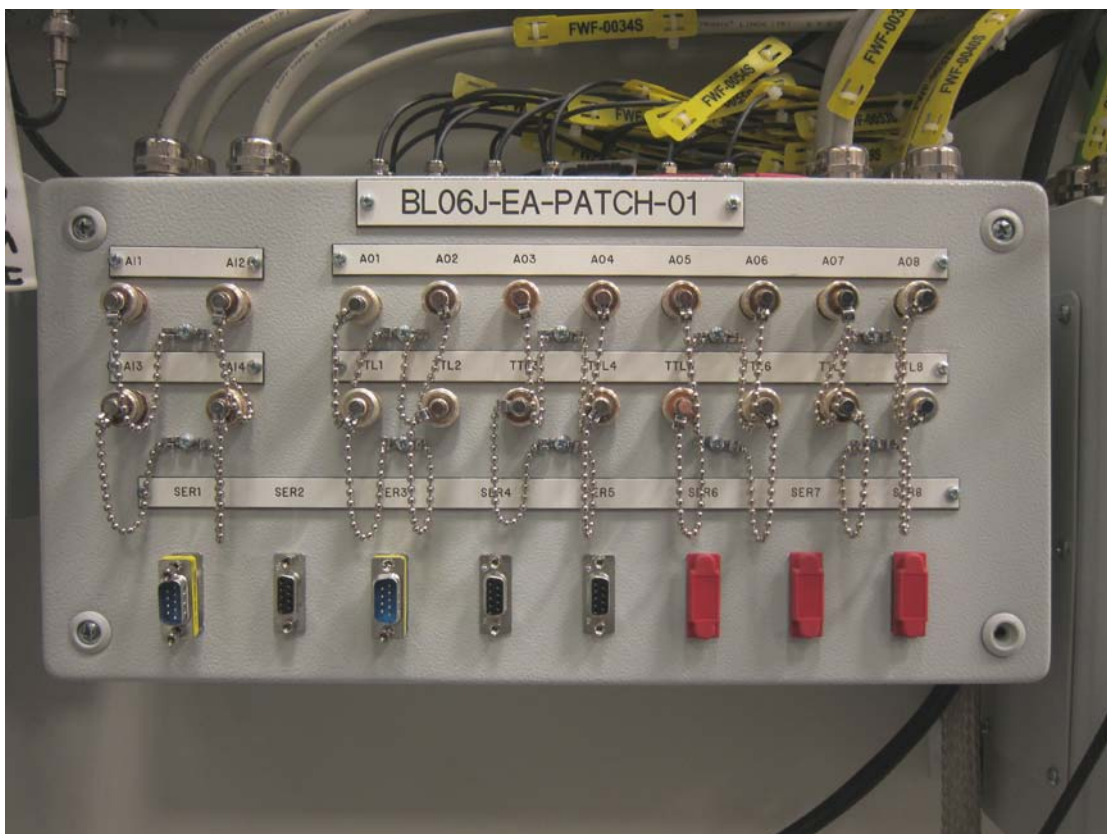


Figure 2 patch panel scheme

Cryogenics

1. Liquid nitrogen is available and can be supplied during the experiment.
2. Liquid helium must be requested from the user office at the proposal stage.

Delivery and installation

1. All the equipment should be delivered at least one week before the beamtime to the diamond stores. Equipment can only be used onto the beamline if it has been accepted by diamond stores.
2. Users should come in advance on the beamtime to install and test the instrumentation with the help of the beamline staff.

Health and safety

1. If a direct beam is visible on a view port then the view port must have a suitable lead glass cover.
2. Any equipment deemed unsafe will be removed from the beamline.

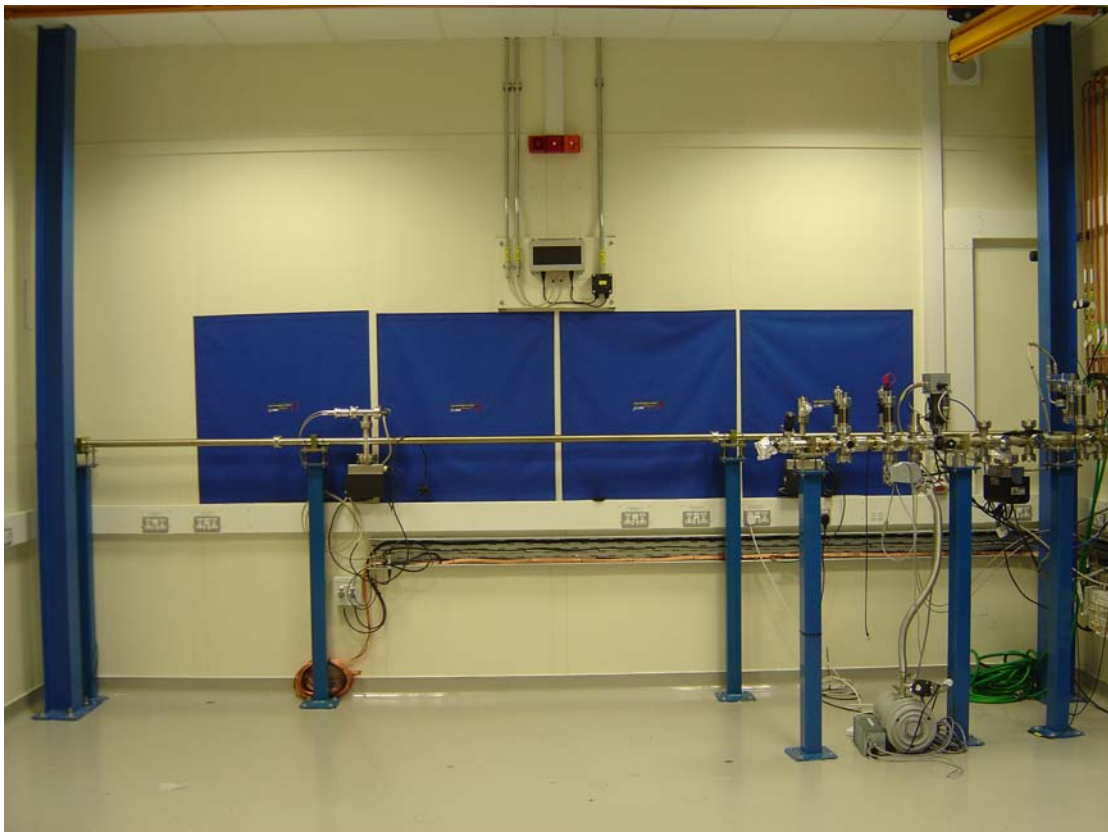


Figure 3 View of the branchline area