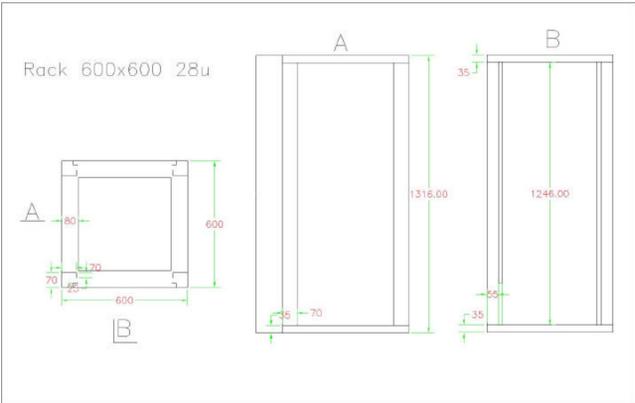
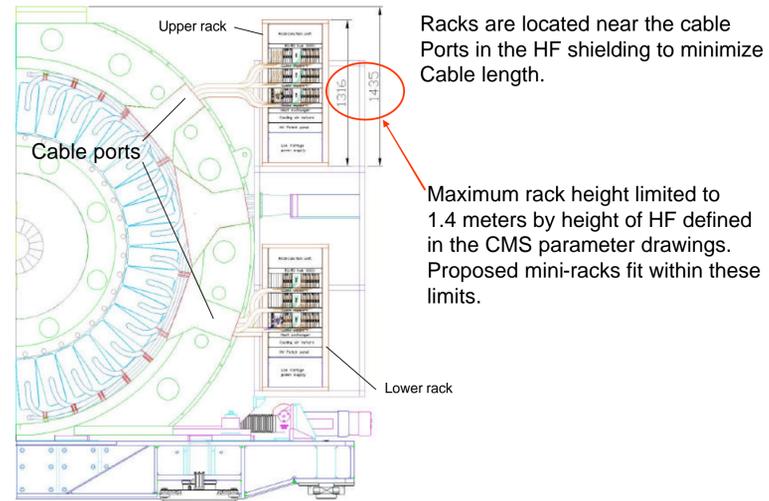


HF On-detector racks

Intend to use the proposed CMS common “mini-racks” for the HF On-detector racks. The proposed dimensions are 600 mm wide, 600 mm deep and 28 rack units high (approx. 1.3 meters).



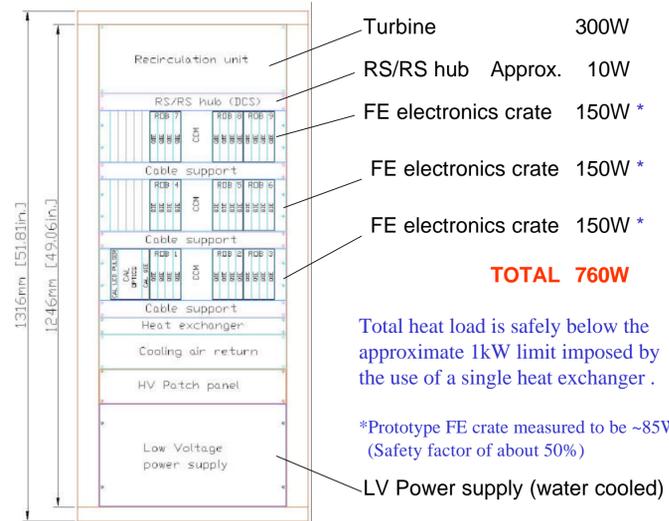
Rack locations



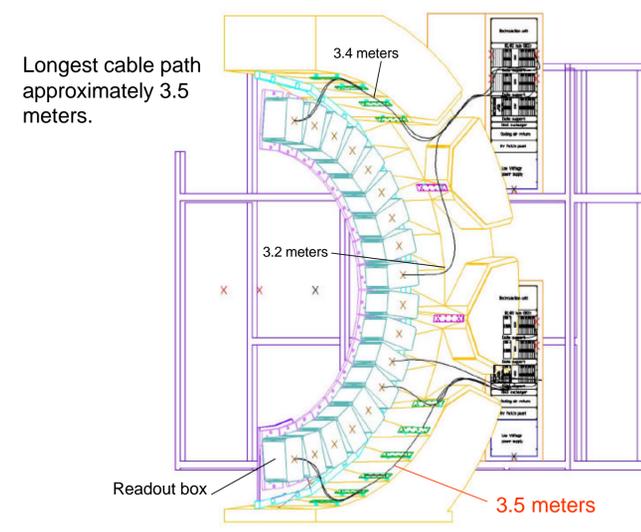
Racks are located near the cable Ports in the HF shielding to minimize Cable length.

Maximum rack height limited to 1.4 meters by height of HF defined in the CMS parameter drawings. Proposed mini-racks fit within these limits.

HF rack cooling

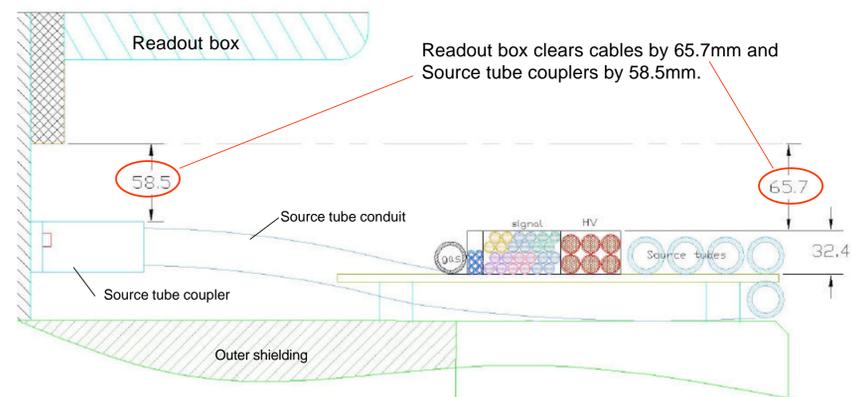


Cable pathways and lengths



Longest cable path approximately 3.5 meters.

Readout box/Cable clearance



HF Inertion

Nitrogen Gas is used to provide inertion of the readout boxes and wedge enclosures, and provides protection to the PMT's against Helium leaks.

The Nitrogen will be provided to the HF platform at 3-5 bar, and will be distributed to the readout boxes by manifolds located on each side of the HF structure servicing 18 readout boxes each.

The gas is brought into a wedge assembly from the manifold via a fitting for a 6mm O.D. flexible tube located on the connector plate of each readout box. The nitrogen flows through the readout boxes, around the PMT's, through the light guide holes in the backplane and into the fiber compartment of the wedge assembly.

Each wedge assembly is individually sealed against light leaks with covers on the front and back, but because of the complexity of the assembly the impedance of a wedge to nitrogen flow is not yet known.

Once a complete wedge is assembled measurements will be made using an oxygen sensor to determine what flow rate will be necessary to maintain an oxygen level of less than 13% needed to provide sufficient fire protection.

Once the impedance is known then an appropriate gas delivery system can be specified.

HF wedge assembly components

