

Libera BLD

The **B**eam **L**oss **D**etector



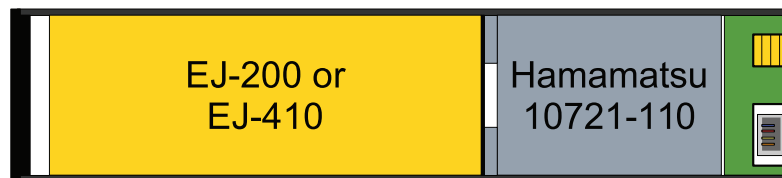
The Libera BLD is a compact beam loss detector sensitive to various lost particles. It provides the user with instant information about the relative beam loss amount through an analog output signal.

Highlights

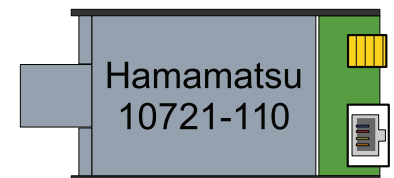
- Sensitive to various lost particles
- Compatible with optical fiber (as a scintillator)
- Compact and easy to install
- Can be calibrated in-situ
- Powered and controlled by the Libera BLM

How it works

Photons are generated when lost particles (gammas, X-rays, neutrons, etc.) pass through the scintillating material. The Photo-Multiplier Tube transforms the photons into electrical pulses and amplifies them. The readout electronics samples the electrical pulses and applies real-time processing algorithms that evaluate the loss and provide it to user in forms of numbers/counts and plots.



BLD.001, BLD.004



BLD.002, BLD.003

BLD.001 version contains the scintillator which is sensitive to any kind of lost particle. To reduce the sensitivity against X-rays, an additional lead shield (2 mm thick) can be provided.

BLD.004 version contains the scintillator which is sensitive to neutrons specifically (EJ-410).

Specifications of the Libera BLD			
Product code	BLD.001	BLD.002 BLD.003	BLD.004
Scintillator material	EJ-200	Optical fiber	EJ-410
Sensitivity to particles	gamma, X-ray		neutron
Peak wavelength of the scintillator	425 nm		450 nm
Photo multiplier tube (PMT)	Hamamatsu 10721-110		
Peak wavelength of the PMT	400 nm		
Rise time of the PMT	0.57 ns		
Supply voltage	5 V		
Gain control voltage	0 to 1 V		

BLD.002 and BLD.003 versions do not contain a scintillator. The SMA or FC adapter is intended for connecting the fiber cable that acts as a scintillator.

The benefit of this options is that fiber cable can be put in small and tight spots.

Works best with: Libera Beam Loss Monitor

Libera BLM is an instrument that analyzes the loss signals from up to 4 beam loss detectors.



It provides the power supply and gain control voltage to Libera BLD via RJ-25 connectors. Fast Interlock output is supported, too.

Processing algorithms were contributed by several accelerator laboratories worldwide. EPICS, TANGO and other clients are supported.