



BLM-DIF
with differential output
on RJ45 connector

BLM-SE
with single-ended TTL
output on HE10 connector

K. Wittenburg was awarded the Faraday Cup in 2000 for the design of the PIN photodiode Beam Loss Monitor and its implementation at HERA. Bergoz Instrumentation was granted a license by DESY to use Wittenburg's original development.

Specifications

Single particle detection efficiency	>30 %
PIN-photodiode surface	7.34 mm ²
Spurious count rate	<0.1 Hz
Maximum count rate	>10 MHz
Count rate @ 6kGray/yr SR photons	≈ 100 Hz
Same with 3cm lead shielding	≈ 1 Hz
Output	positive TTL 50 Ω pulse
Cable driving capability	>200 m RG213
Output female connector	10-pin HE10
Power supply	+5 V <50 mA; 45 mA typ. -5 V <80 mA; 72 mA typ. +24 V <10m A; 4 mA typ.

Order codes

BLM-SE	BLM with single-ended output
BLM-DIF	BLM with differential output

Beam Loss Monitor

Large dynamic range Compact BLM

This Beam Loss Monitor is a new approach to measure and localize beam losses.

Very small size and low unit cost make it possible to monitor all locations where beam loss is predicted.

Vacuum quality around the storage ring can be measured based on BLM count rate.

Two PIN-photodiodes mounted face-to-face detect charged particles. Coincidence counting makes it insensitive to synchrotron radiation photons.

Spurious count very low: < 1 count in 10 s

Up to 10 MHz counting: dynamic range > 10⁸

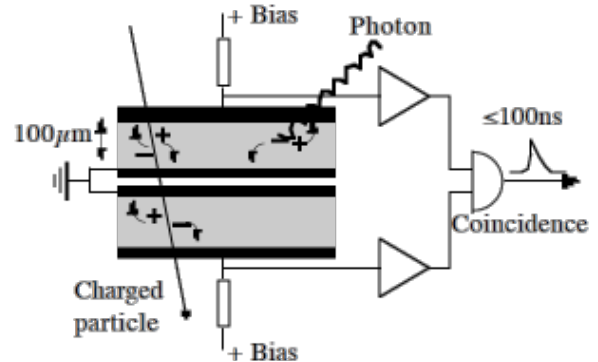
Recovers 100 ns after a hit

Choice of detector solid angle: Large PIN-diodes can be user installed.

Output is a TTL compatible pulse: easy counting

Tested successfully up to 1 MGray for hardness.

Operating principle



The charged particle crosses both PIN diodes, causing a coincidence.

Synchrotron radiation photons, if stopped by either PIN-diode, do not cause a coincidence.

MANUFACTURER

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