



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. |
| Size | 69 mm x 34 mm x 18 mm |

Order codes

| | |
|--------|------------------------------|
| BLM-SE | BLM with single-ended output |
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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

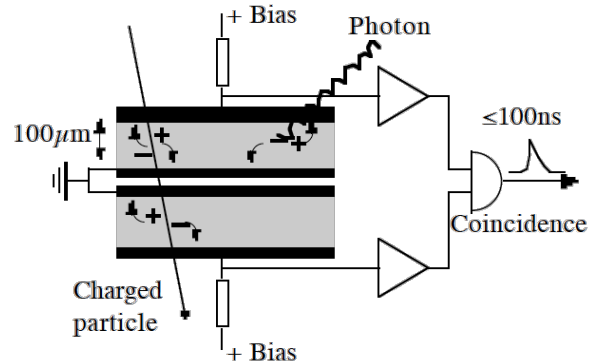
Recovers 100 ns after a hit

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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