



## Cavity Resonator Beam Current Monitor

**Ideal for CW beams and for macropulses in FLASH experiments**

**Non-interceptive beam current detection**

**Charged particle radiation therapy facilities**

**FLASH experiments**

**Radio-isotope production facilities**

### Operating principle

Based on a prototype developed by S. Srinivasan and P.A. Duperrex at PSI, the CR-BCM is a re-entrant cavity resonator used as a beam current monitor.

The CR-BCM operates at the fundamental mode of resonance, i.e. transverse magnetic mode tuned to a given harmonic of the beam repetition rate.

The fundamental mode of resonance is proportional to the beam current or to the bunch charge of single beam pulses.

The re-entrant cavity resonator provides a position- and beam-size-independent response.

Calibration check is possible without dismounting the cavity from the beam line.

### Main features

**Adaptable working frequencies**

**Compact design**

**Beam size/position-independent**

### Specifications

#### Performance

Beam repetition frequency      From 30 MHz to 175 MHz  
Response time                      < 1  $\mu$ s

#### Dimensions

Axial length                              100 mm  
External diameter                      300 mm

### CRCDs - Cavity Resonator Current Detection System

#### Description

To form a turn-key solution for low current measurement, the CR-BCM can be associated with:

- a low noise amplifier from Bergoz Instrumentation
- a dedicated digital readout system from Instrumentation Technologies

#### Performance

Resolution                                       $\leq$  100 pArms  
Data rate                                        500 Hz real time

#### MANUFACTURER

**BERGOZ Instrumentation**  
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Espace Allondon Ouest  
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#### DISTRIBUTORS

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