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# Outer Tracker Cosmics

This page serves as documentation for the OT cosmics setup in the LHCb pit.

Expected rate, based on measurements in the pit: about 2000 events/day

## Presentations

- Thomas in June 2007 LHCb week [☞](#)
- Draft for talk in St Nectaire

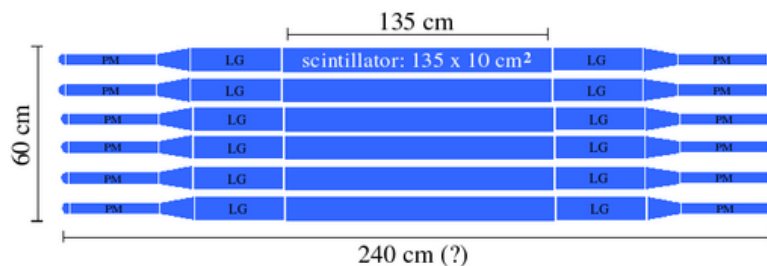
## Aim

- in situ tuning-in and measurements of efficiency and resolution
- have some real data in brunel, such that we can check that software is actually working
- reconstruct the first track in LHCb !

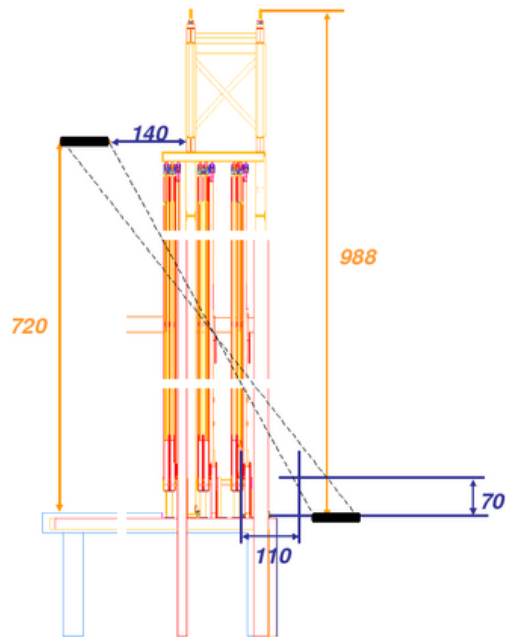
## Setup

Scintillators:

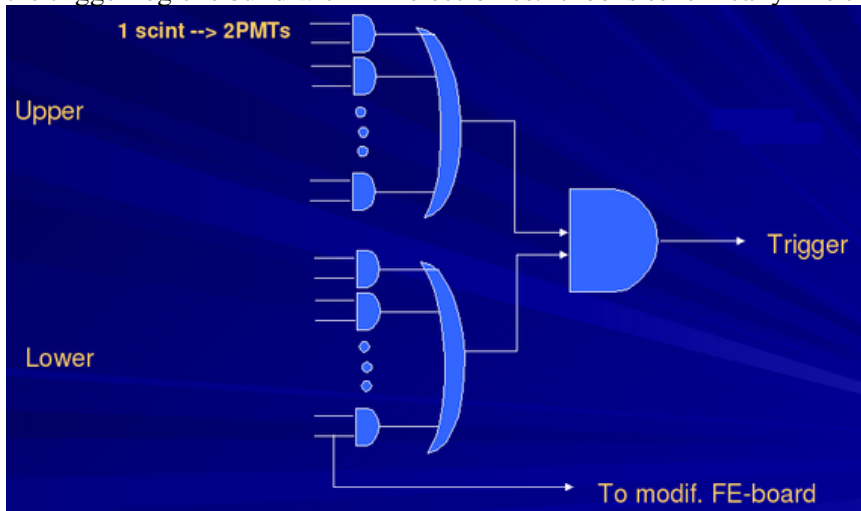
- 1 frame has 6 scintillators of 10 x 135 cm<sup>2</sup>



- there are 4 frames
- each scintillator is read out by 2 PMs
- 1st set of two frames is positioned horizontally, next to the magnet, at about 3 meters from the cavern floor
- 2nd set will be positioned vertically, parallel and behind station 3, at about 10 meters from the cavern floor. This is an old picture of the setup: the 2nd set of frames will eventually be vertical



- the trigger logic is build with nim electronics. It looks schemically like this



including nim modules used, delays, etc. Look at nim specification for delays inside electronics. We need a full description,

The dimensions and different FE\_channels are given in the following slides

## Electronic set-up

- \* Nikhef custom made octal discriminator
- \* LeCroy 622 Quad 2-fold Logical Unit
- \* LeCroy 429A Logic Fan-In/Out

## High Voltage values PMTs

- \* FU(Upper Frame)

scintillator	channel#	A[ V ]	channel#	B[ V ]
S1	C0	1775	C6	1700
S2	C1	1700	C7	1700

S3	C2	1700	C8	1775
S4	C3	1750	C9	1700
S5	C4	1730	C10	1750
S6	C5	1700	C11	1700
S25	C12	1700	C18	1700
S26	C13	1700	C19	1775
S27	C14	1700	C20	1700
S28	C15	1700	C21	1775
S29	C16	1700	C22	1650
S30	C17	1700	C23	1700

\* FL(Lower Frame)\*

scintillator	channel#	A[ V ]	channel#	B[ V ]
S13	C0	1600	C6	1700
S14	C1	1700	C7	1700
S15	C2	1700	C8	1700
S16	C3	1700	C9	1800
S17	C4	1750	C10	1750
S18	C5	1700	C11	1700
S19	C12	1700	C18	1700
S20	C13	1700	C19	1700
S21	C14	1775	C20	1700
S22	C15	1825	C21	1800
S23	C16	1775	C22	1775
S24	C17	1700	C23	1700

## Input modified FE boards

FE channel# FU	PMT channel	FE channel# FU	PMT channel
c1	A13	c1	A1
c2	B13	c2	B1
c3	A14	c3	A2
c4	B14	c4	B2
c5	A15	c5	A3
c6	B15	c6	B3
c7	A16	c7	A4
c8	B16	c8	B4
c9	A17	c9	A5
c10	B17	c10	B5
c11	A18	c11	A6
c12	B18	c12	B6
c13	A19	c13	A25
c14	B19	c14	B25
c15	A20	c15	A26
c16	B20	c16	B26
c17	A21	c17	A27
c18	B21	c18	B27
c19	A22	c19	A28
c20	B22	c20	B28
c21	A23	c21	A29
c22	B23	c22	B29

c23	A24	c23	A30
c24	B24	c24	B30

## Log book

[Link to Besma's spreadsheet](#)

## Reconstruction

A dedicated twiki with information on simulation and reconstruction can be found [here](#)

-- WouterHulsbergen - 06 Sep 2007

- [Electronic\\_setup.ppt](#): Electronic set-up
- [Dimensions\\_setup.ppt](#): Current dimensions Cosmic setup

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This topic: LHCb > OTrCosmics

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