

# HV Fanout and Breakout Boxes

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# HV Splitting

For luminosity  $\sim 15 \text{ fb}^{-1}$ ,  $T = -10 \text{ C}$  :

Layer	Bias	$\mu\text{A}/$ hybrid	$\mu\text{A}/$ stave	Split	Hybr ids	HV channels	Fanout Boxes
<b>0</b>	<b>1000V</b>	310 (107*)	--	1:1	144	144	6
<b>1</b>		360 (119*)	--	1:1	72	72	3
<b>2</b>	<b>300V</b>	<530	1790 (768*)	1:1	96	96	4
<b>3</b>		<230	770 (336*)	1:2	144	72	3
<b>4</b>		<180	550 (198*)	1:4	192	48	2
<b>5</b>			(138*)	1:4	240	60	3

**492**

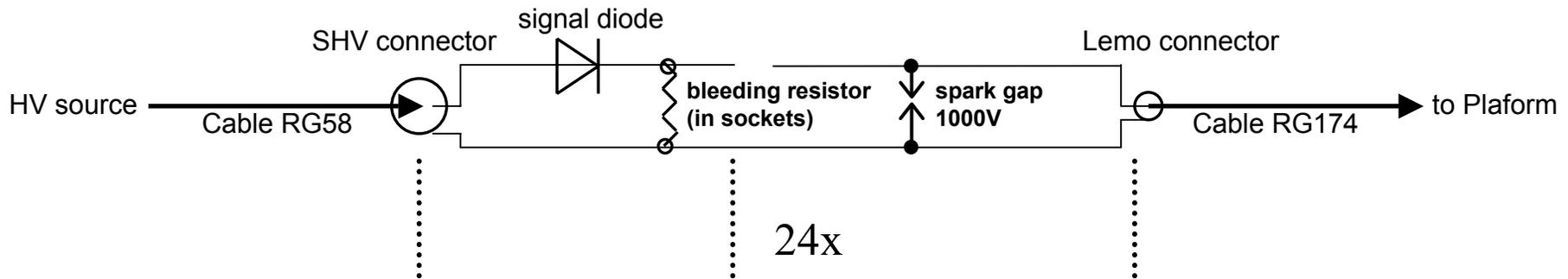
*Reference: Run IIb upgrade TDR;*

*\*D0 note 3959, Frank Lehner: New leakage current, noise and depletion voltage expectations for Run IIb*

- HV power supplies BiRa 3.2 and 2.3mA,
- HV channel split  $\sim$  max. current  $< 0.6\text{mA}$   
 $\Rightarrow$  total 492 HV channels.

### L0-1 (1000V)

- New fanout boxes will be designed and manufactured (9+spares), no splitting:



- New HV RG174 cabling MCH2-Platform-AdapterCard for L0&1, 216+24 spares (no breakout boxes for the inner layers needed).

## L2-5 (300V)

- Current fanout+breakout boxes and cabling from run2a are probably OK for 300V, but will be tested for sure;
- Fanout box upgrade for 300V necessary:
  - \* 150V spark gaps replaced by 350V version,
  - \* signal diodes exchanged for >300V version,
  - \* maybe new bleeding resistors.
- For run2b only 12+sp. fanout&breakout box sets needed (available 22).

# Schedule

<b>High Voltage System</b>	<b>101 w</b>	<b>3/4/02</b>	<b>3/15/04</b>
Decision on HV PS type	2 w	3/4/02	3/15/02
Procure new modules (Cinvestav)	29 w	3/18/02	10/9/02
<b>Production of HV System During Project Phase</b>	<b>70 w</b>	<b>10/10/02</b>	<b>3/15/04</b>
Procure new modules (Fermilab)	22 w	10/10/02	3/26/03
Design HV distribution system	16 w	3/27/03	7/18/03
Test new modules	8 w	3/27/03	5/21/03
Procure new fanout boxes	16 w	7/21/03	11/10/03
Assemble and test fanout boxes	8 w	11/11/03	1/16/04
Procure new breakout boxes	16 w	7/21/03	11/10/03
Assemble and test breakout boxes	8 w	11/11/03	1/16/04
Procure HV cables	20 w	7/21/03	12/10/03
Test HV cables	4 w	12/11/03	1/16/04

## Prague group responsibilities:

- Current version of the fanout boxes will be tested for 300V ASAP (December?);
- New HV cables RG174 and Lemo connectors will be tested for 1000V (when they are available);
- New fanout box prototype for L0-1 will be designed, manufactured, assembled and tested by end of March 2003 (PRR?), if no problems found next about 13 production boxes will be built and tested soon after (exact delivery time to be specified later).