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SDE Upgrade WP1 Meeting Grenoble January 2014

SDE Upgrade

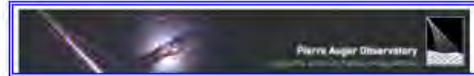
Detectors Analog Interfaces

WP10LPSC07E_SDEU_DICD_23jan14

Detectors Interface Control Document (DICD)



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|----------|------|------|
| WP10 | LPSC | 07A |
| 16/10/13 | | 1/10 |

Pierre Auger Observatory

Surface Detector Electronics Upgrade UUB External Detectors Interface Control Document (DICD)

Abstract:

This document lists the different external detectors electrical interfaces to the Upgraded Unified Board (UUB) available in the present design and lists the needs for the detector upgrade propositions.

| | |
|---------------------------------------|---------------------------------------|
| <i>Document written by:</i> P. Stassi | <i>Agreed by:</i> T. Suomijärvi |
| <i>Date:</i> October 16, 2013 | <i>Date:</i> October 16, 2013 |
| <i>Local Reference:</i> n/a | <i>Project Reference:</i> WP10LPSC07A |

WP10LPSC07A_SDEU_DICD_16Oct13.docx

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Up to Date Detectors Analog Input Interfaces Needs

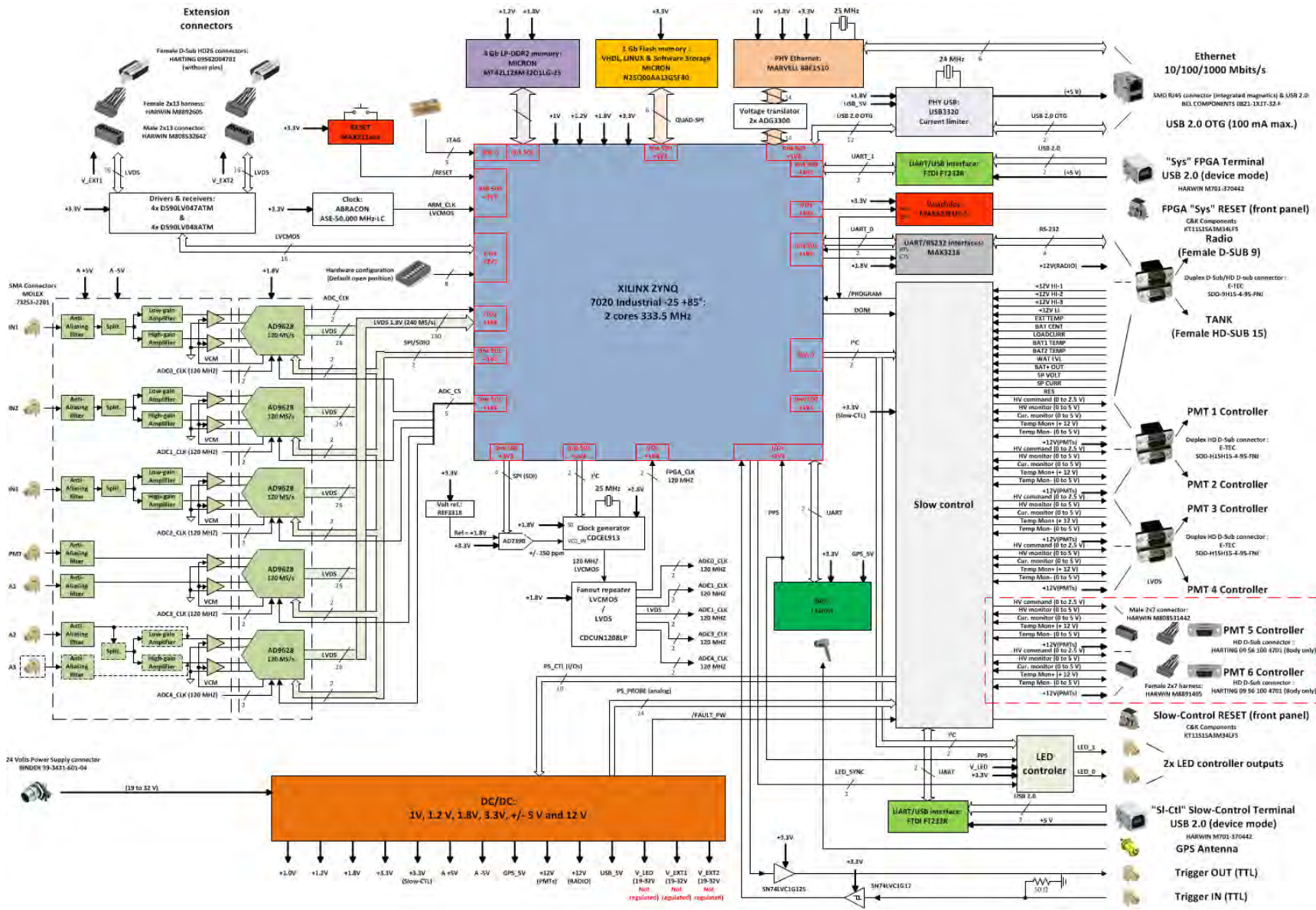


| <i>Det. Proposition</i> | <i>Analog Inputs</i> | <i>Trigger</i> | |
|-----------------------------|---|--|-------------------------------|
| AMIGA G. & AMIGA | Not needed | Needed. In front panel or in digital I/O LVDS line, TBD | I/O con Pre thrc pos |
| ASCII | 2 FADC inputs for PMT signal with one amplified (Gain identical to the 3 main PMTs), ideally one input similar to 3 normal PMTs | Not needed, but FADC have to be available for both fast and slow buffers to allow calibration | Not |
| LSD | 2 FADC inputs for PMT signal with one amplified and one attenuated. (SMPT might not be used) | Not needed. | Not |
| MARTA | Not needed | Needed. In digital I/O LVDS line | I/O con |
| TOSCA | 3 FADC inputs for PMTs anodes or one split input (2 FADC, one attenuated) and one single input | Needed in case of 3 FADC inputs: this means to have electronics for trigger generation outside the UUB. Not needed in case of 4 FADC inputs. | Two sele One thre |
| AERA | Probably not needed | Trigger-in and trigger-out is defined with D I/O, thus not needed. | Yes R/V line be t |
| EASIER | One single FADC input | Not needed for the moment but can be used in the future. | Not |

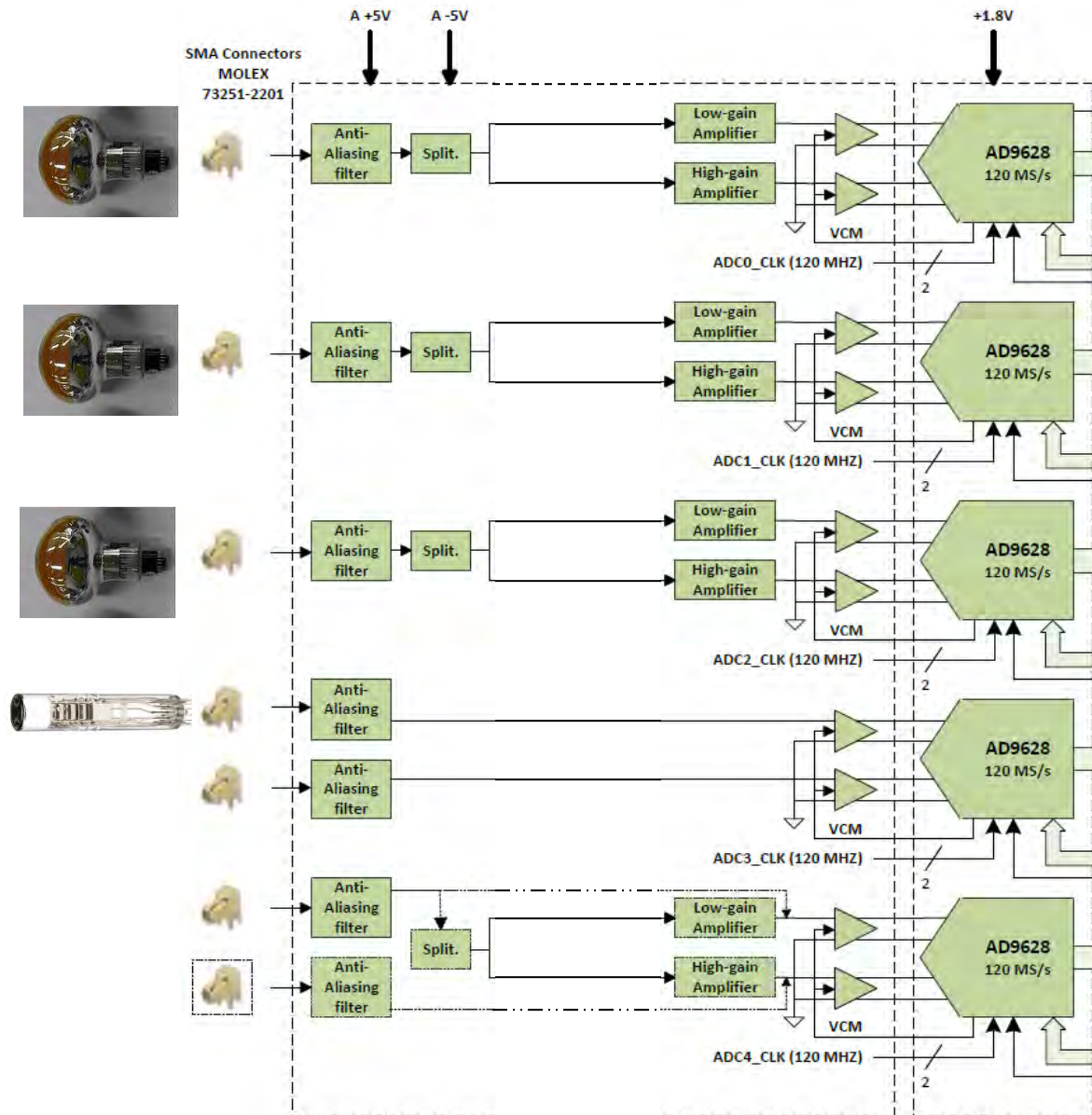


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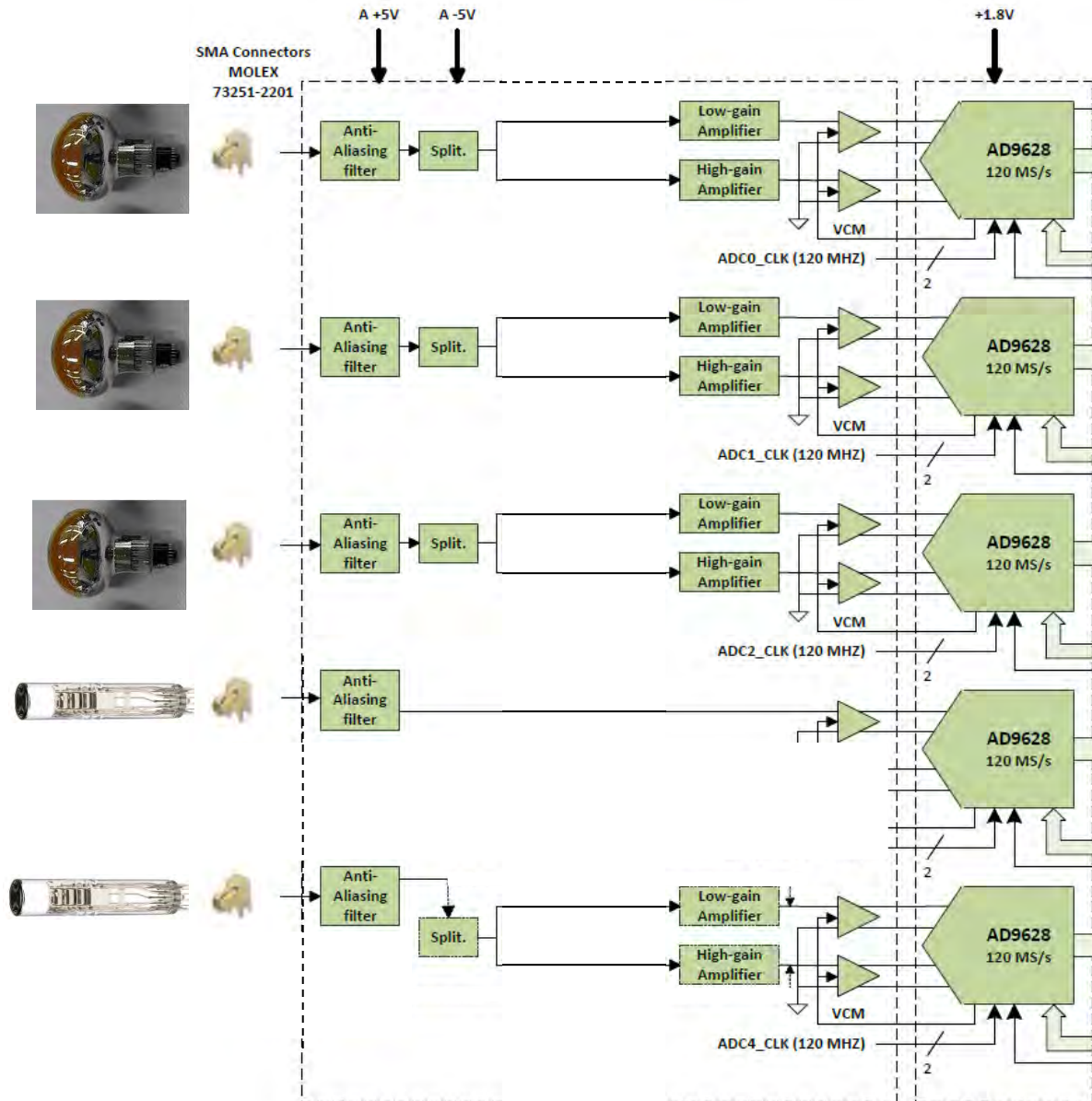
UUB Connection diagram



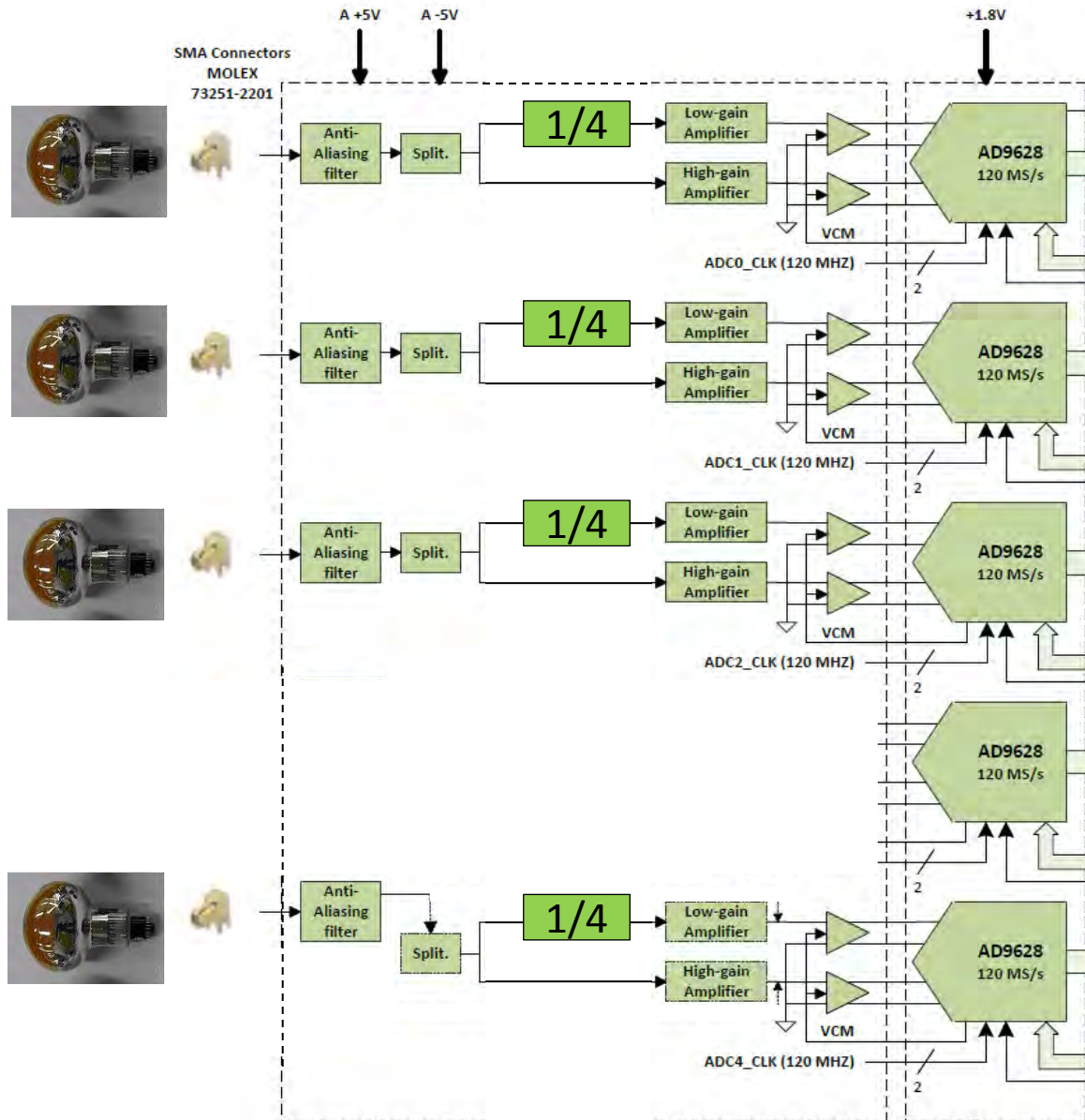
UUB Baseline FE Connection diagram



Need for Muon Detectors : ASCII



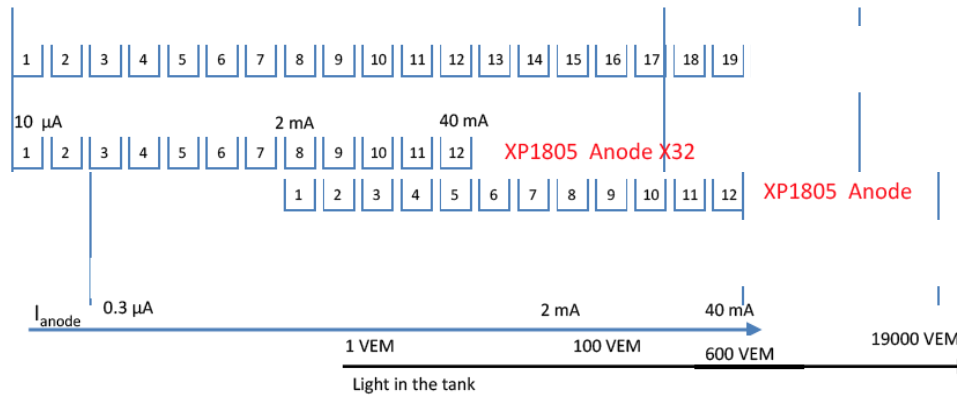
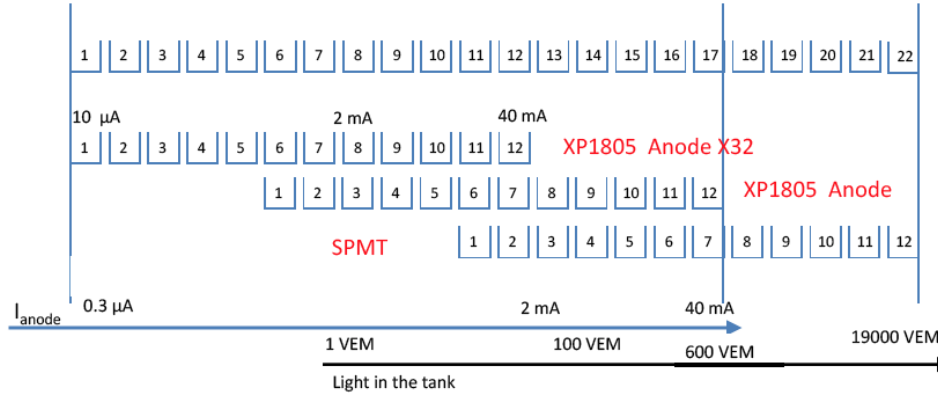
Need for Muon Detectors : LSD



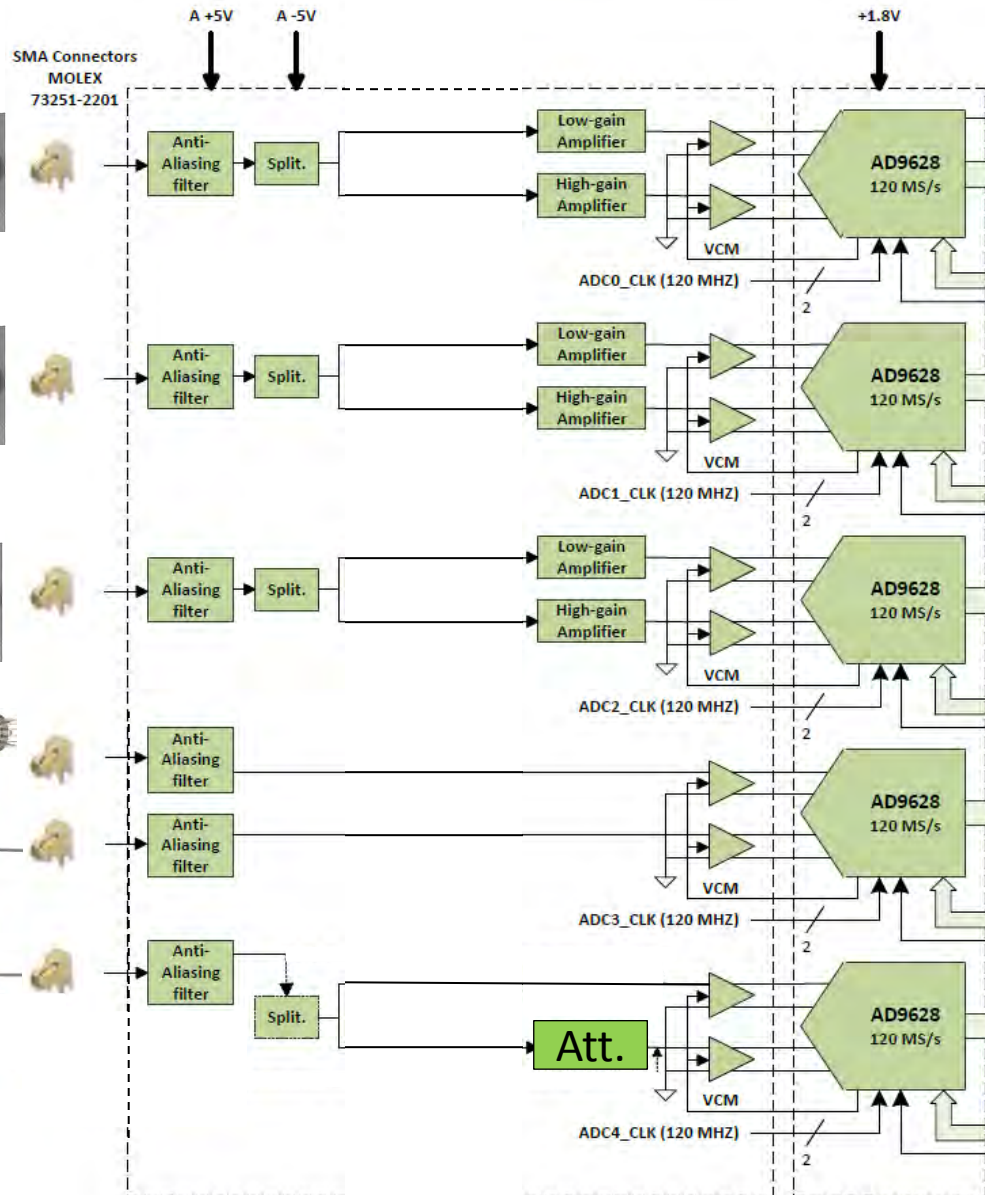


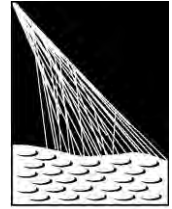
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Need for Muon Detectors : LSD



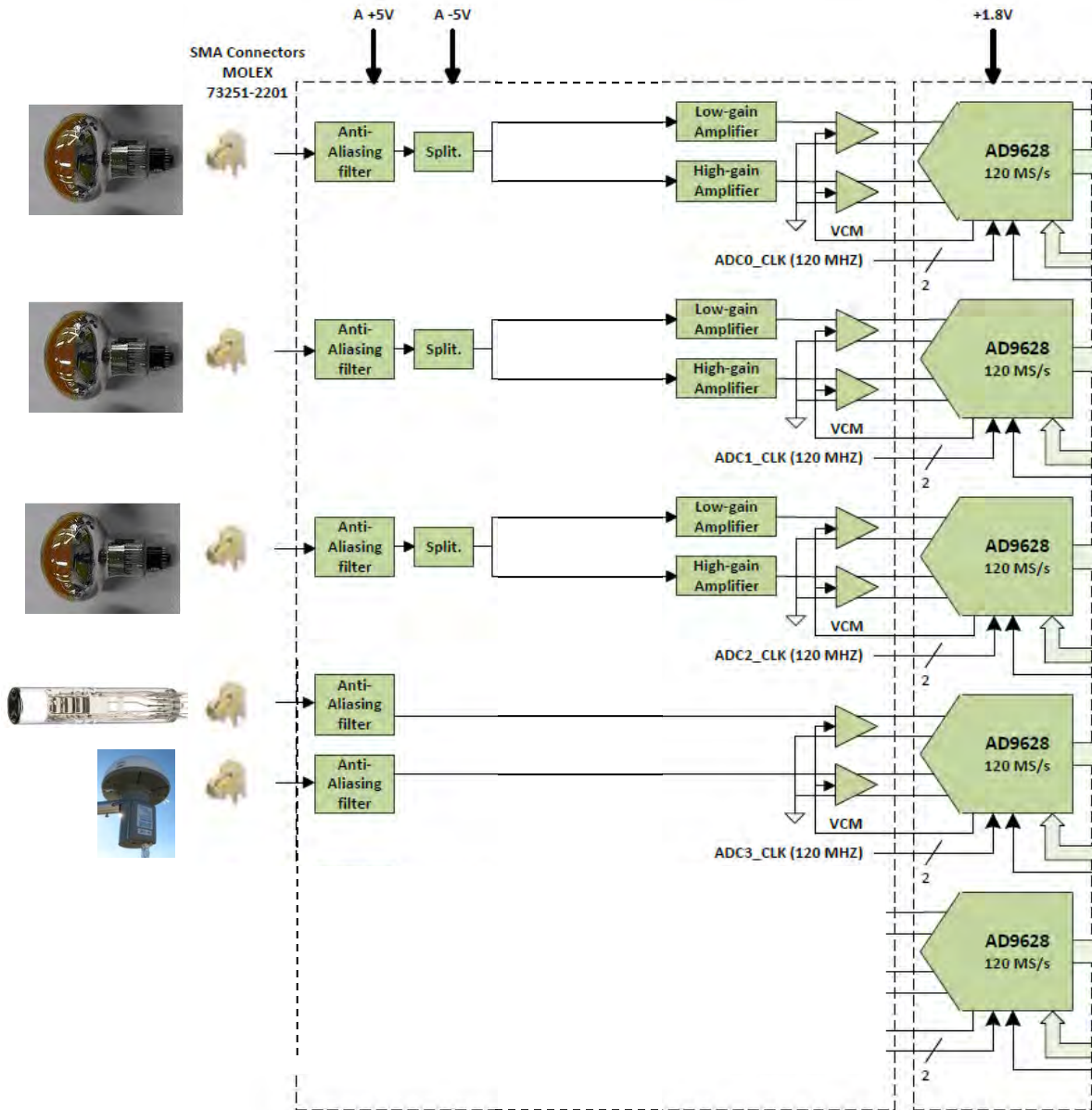
Need for Muon Detectors : TOSCA





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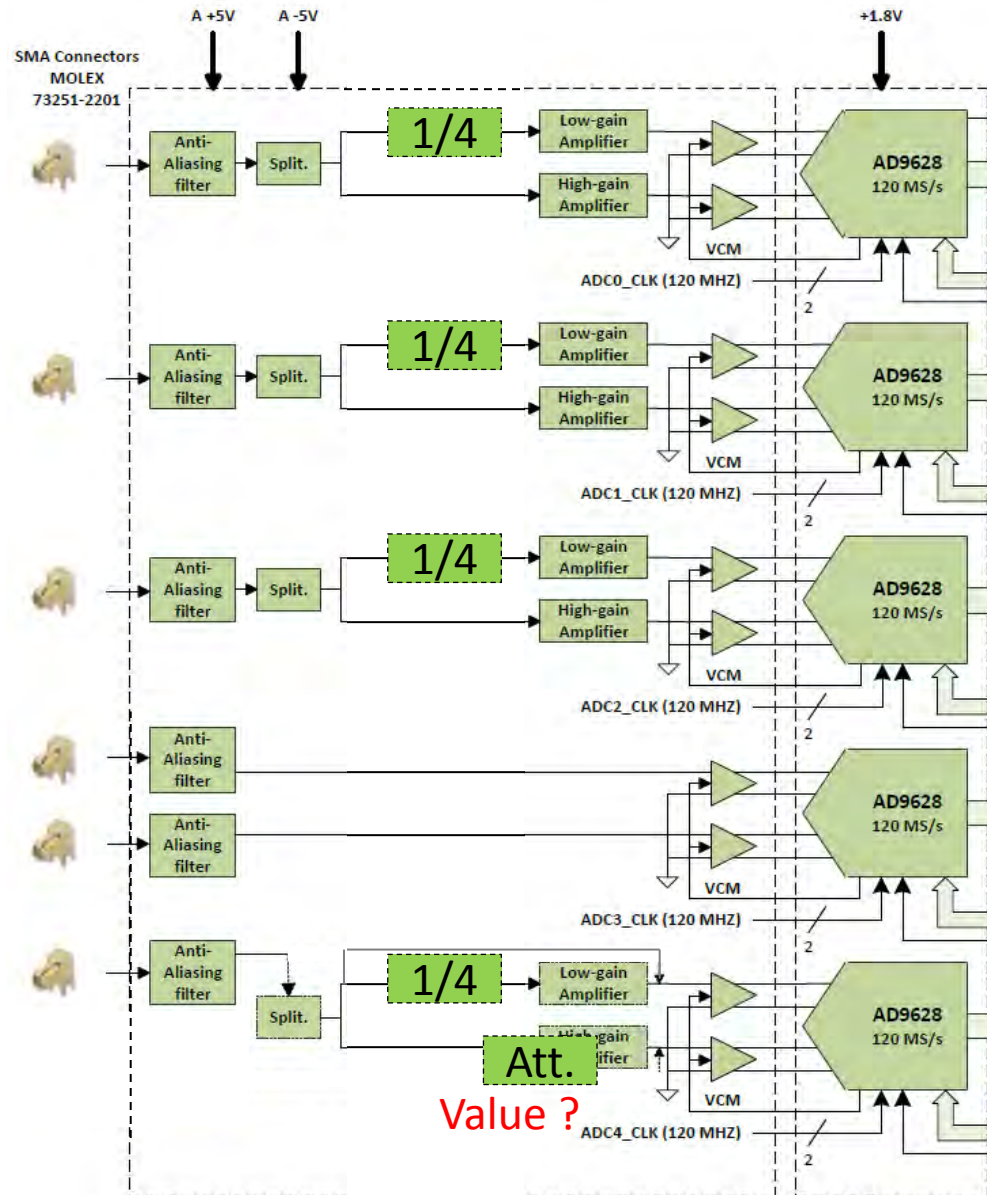
Need for R&D Detectors : EASIER





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PCB configuration to fit all Needs



UUB Baseline FE Connection diagram

