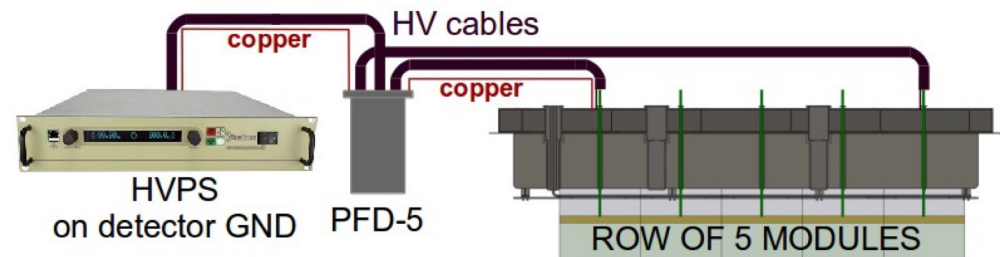


HV subsystem risks

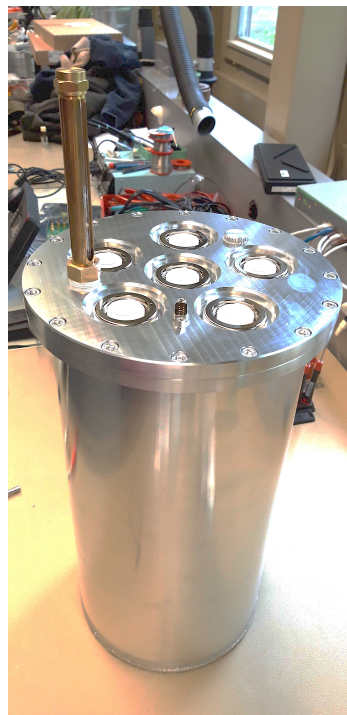
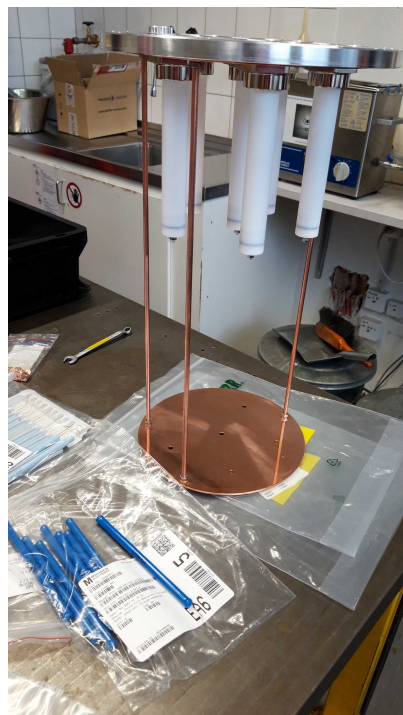
Saba Parsa, University of Bern



HV subsystem scope



x5 rows



Assembly stages of the HV filter PFD-5

What are the risks associated to the production of HV subsystem?

Risks on delivery and production

- HV PS delivery delay (10% probability)
 - Mitigation: Perform Production Readiness Review well in advance and place the order for HVPS
 - Cost/Schedule impact: 6 months delay/
- Delays with PFD-5 production (10% probability)
 - Mitigation: Perform Production Readiness Review well in advance and start manufacturing
 - Cost/Schedule impact: 63k\$ / 6 months delay
- Loss of key Personnel (?% probability)
 - Mitigation: Documentation of all tests, procedures and parts specification
 - Cost/Schedule: 3 months delay

Risks related to shipment/storage

- Damaged PFD-5 components during shipment/storage (?% probability)
 - Mitigation: Perform Quality Control tests after shipment
 - Cost/Schedule impact: 5-10k\$/1-3 months
- Damaged monitoring electronics during shipment/storage (?% probability)
 - Mitigation: Perform Quality Control tests after shipment
 - Cost/Schedule impact: 1-2k\$/1 month

Backup

Risks related to change of Filter requirements

- Change of requirement on F_{cut} (1% probability)
 - Mitigation: Implement reasonable safety margin (~1 order of mag), early testing
 - Cost/schedule impact:
- Change of requirement on V_{max} (0.1% probability)
 - Mitigation: Implement reasonable safety margin (factor of 2), early testing
 - Cost/schedule impact: 30k\$ / 5months

Risks of failure during operation

- HV instabilities (10% probability)
 - Mitigation: FSD testing of ND
 - Cost/schedule impact:
- HV Breakdown Recoverable (5% probability)
 - Mitigation: FSD testing of ND
 - Cost/schedule impact: 1 month delay
- HV Breakdown Nonrecoverable (10% probability)
 - Mitigation: FSD testing of ND
 - Cost/schedule impact: 200 k\$/ 6 months delay

HV Parts

	Item	Quantity	Cost CHF /unit	Vendor	Lead time	Purchaser	Deliver to
1	HV Power supply Spellman eSL50x300	10	5000	www.Spellmanhv.com	6 months	Bern Uni	Bern Uni
2	HVPS connector	10	100	www.Hivolt.de	1 month	Bern Uni	Bern Uni
2	HV Cables (PS to PFD-5), type 2124	10	31.03/m	www.Hivolt.de	1 month	Bern Uni	Bern Uni
3	HV coaxial connector, HC7-50A, male and female	50	200	www.Hivolt.de	1 month	Bern Uni	Bern Uni
4	Resistor 10 MΩ, Nicrom 425	50	50	www.nicrom-electronics.com	1 month	Bern Uni	Bern Uni
5	Resistor 1 GΩ, Nicrom 425	40	30	www.nicrom-electronics.com	1 month	Bern Uni	Bern Uni
6	Capacitors, 2 nF	50	100	www.hvproducts.de	1 month	Bern Uni	Bern Uni
7	Aluminum cylindrical pot and copper structure 26cm diameter x41cm height	10	2200	Custom made	3 months	Bern Uni	Bern Uni
8	Transformer oil Nytro 10 XN	110 liters	10 per liter	www.nynas.com	2 months	Bern Uni	Bern Uni
9	RPi	10	40		1 month	Bern Uni	Bern Uni
10	Slow control PCB	10	10		3 month	Bern Uni	Bern Uni
11	Current Pickup	50	638		TBD	Bern Uni	Bern Uni
12	LV Lemo	60	120		1 month	Bern Uni	Bern Uni