

SoF/analog readout

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Cathode readout

- Analog optical transmitter circuit
 - “Argon2x2” flavor: used in coldbox since December 2019
 - DCem 1.1 (probably no DCem 1.2): to be sent out for production immediately
 - Laser Adapter card 1.2 version: almost finalized and to be sent out to prod
 - Both to be sent out for prod by mid-oct.→ 4 boards by December ok
 - “Simp3” flavor: open possibility to be installed if tests successful
 - Boards already available should be used (but is geometry ok?)
- Lasers: flooded or sealed?
 - 40 “December 2021” FC-lasers ordered by Fermilab for flooded option ***critical***
 - Back up: increase laser current loosing some dynamic range is possible in “argon2x2”
 - Laser soldering: where? How? ***critical***
- Fibers: same as PoF, **ordered (?)**
 - Priority: no light leakage and maximize light collection.
- Installation is simultaneous to xARAPUCAS (board mounted on frame?): 4 boards end of Dec, 4 boards mid-Jan. (realistic??)
- Warm electronics:
 - Temporary solution koheron+CAEN digitizer **(8 channels available)**
 - Target optical receiver integration into DAPHNE by the start of the run?

Membrane Readout

- Available solutions for cold electronics:
 - SoF powered with copper (3 twisted pairs + one fiber). Extra boards from cathode production.
 - Open possibility: drive copper with same SoF board: but must be tested in November.
 - HD cold amplifier (3 twisted pairs).
 - Board layout done? ***critical***
 - New board must be tested before installation. In particular: different RC values on SiPM flexes in VD-like SiPM ganging. ***critical***
 - Warm electronics:
 - Available board to mimic DAPHNE until one is available

Other Items

- Flanges:
 - 8 NPT holes = 64 fibers → enough spares to put SoF on membrane if desired
 - 4 HD “blue cables” = 24 twisted pairs (calculated for 8 xARAPUCAS)
 - Discussed option to add flexibility: 1 feedthrough for additional copper
- Light-tight box:
 - To be designed. Must fit within cathode (5cm). Must be ready before cathode installation - ***critical***
 - **If SoF on wall then we also need a light tight box.**
- Testing/Installation: ***critical***
 - Need to establish both the assembly and testing procedure
 - Person power at CERN in December for installation