

***Clean Room + Cold Box preliminary
discussion***

ProtoDUNE-SP ITI Meeting
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We're getting close!

- Membrane cryostat scheduled to be completed by mid-March
- Clean Room and Cold Box should be completed by April



It's time to take some decisions/clear some points in order to finalize the designs

- Given that several people may not make it to the meeting today and that many will be at the collaboration meeting next week, we (Andrea, Filippo, myself) wanted to start putting out the questions/needs we have, so to set up a discussion that can continue during the collaboration meeting next week

Clean Room

- We have to define the electrical requirements for the Clean Room, i.e., how many power outlets we need, of which kind, where
- We assume we will need outlets for oscilloscopes and laptops (basically in each station in the clean room) + those for specific needs of test and installation:
 - for the laser system to test wire tension?
 - for the scan box to test PD scintillating bars?
 - for the mini rack+laptop to test the CE box?
 - For electric hoists to assemble FC modules onto the CPAs?
- Yesterday we sent a mail to the coordinators of APA, CE, PD, CPA, Installation groups asking for information on their devices requiring power in the clean room?
- **Did I forget anyone?** If someone didn't receive such mail and thinks he/she should have as he/she needs to use something requiring power in the Clean Room, please let me know!
- **Did I forget something?** If there is some special device of general use possibly needed in the Clean Room which I didn't mention, please let me know!

Cold Box

Some questions/remarks from Andrea and myself, now that the design of the Cold Box is being finalized, to make sure no aspect is left behind

- Who provides the T section with CE and PD flange for the Cold Box? We assume a spare from those for the main cryostat will be used. Is it true? When should they arrive?
- In addition, there should be a FT for the optical fiber needed to flash the PD system. Who provides such FT? The PD group or CERN? Will the PD group bring the flashing system?
- The SSP crate for the Cold box is a spare one or will we use one of those planned for the cryostat? When should it/they arrive?
- As for the power and readout cable, we plan to use those intended for the main cryostat, connected to the power supplies in the fenced area and to the Vertical Test Stand DAQ in the general DAQ counting room: *no local power or readout is foreseen for the Cold Box tests*
- Similarly, we would like to bias the wire-planes (if possible) using the cables and power supplies installed for the main cryostat. Will all (or at least enough for 1 APA) the cables and power supplies be in place in time for the first APA Cold Box test (first week of July)?

Cold Box: temperature sensors

Cold box will be equipped with a series of temperature sensors: 10-12 sensors for both long sides of the box, ~ one sensor each meter

Question: which sensors to use?

- **Option A:** use the same sensors as the main cryostat
 - Pros: we keep the box “similar” to the cryostat and the sensor group may have spares in hand, eventually already tested, we could use without purchasing new ones
 - Cons: they are expensive (if there are no spares) and their sensitivity is overkilled for our needs

- **Option B:** use different, less sophisticated sensors, like PT1000
 - Pros: cheap, easy to use and their sensitivity is good enough for our needs
 - Cons: we are not replicating the detector in this aspect. We do have to purchase them.

Any idea or suggestion? Is someone from the sensor group at CERN next week for the collaboration meeting, so that we could have a little chat about?