

# PICO500 - PLC Update

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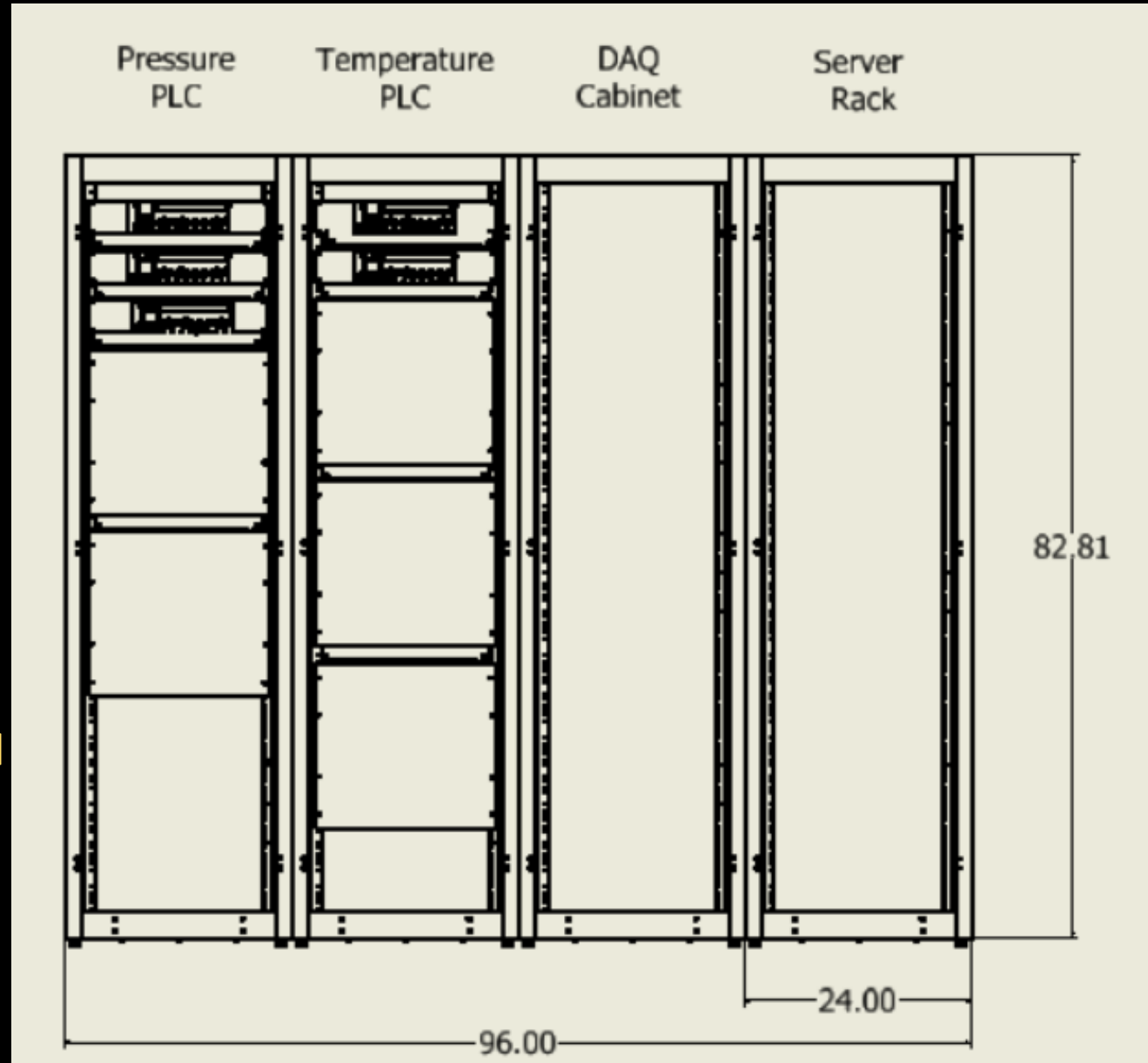
20<sup>th</sup> Aug 2024

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# Procurement and Placement of Racks

- Procurement of Hammond manufactured racks size 83"X24"X32" is in process.
- Also ordering to Identical racks (19") for DAQ and server racks.
- Racks will be placed according to the captioned image.
- Main DAQ cabinet and server rack will be shipped to SNOLAB and PLC racks to Ualberta (Mid September).
- Lead time for delivery is expected to be 2-3 weeks, with an estimated mid-September arrival.



# Updates on Electrical Schematics

- PLC channel list is completed and is waiting for review.
- Initiated the detailed electrical schematics from PLC Chassis and Michael is working from components side
- Target to complete and share electrical schematics by the end of September.
- Hardware installation will be carried out in October & November.

## Reference documents

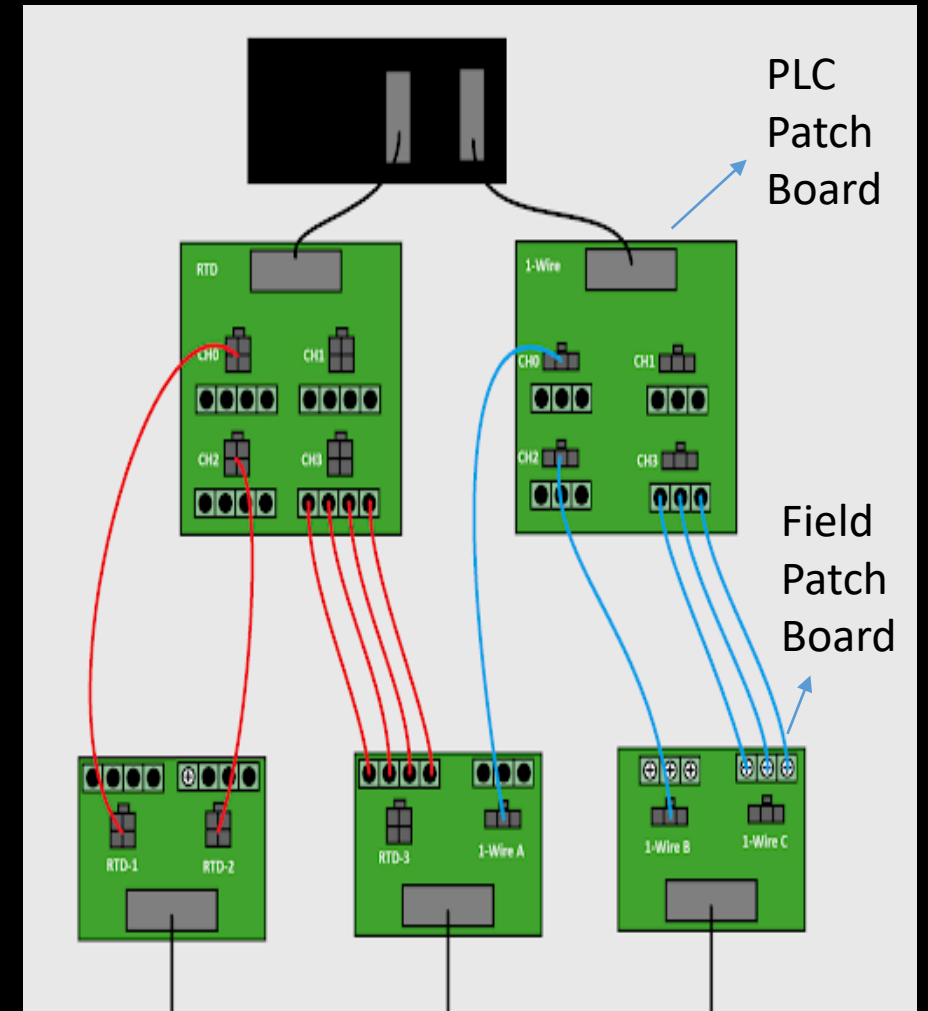
- ◆ Master equipment list
  - ◆ Contains all P&ID items with specs SNOLAB cares about + some big equipment
  - ◆ Size, electrical requirements, code requirements, ratings, hazards, ...
- ◆ PICO-500 instrumentation list
  - ◆ Contains all P&ID items with specs WE care about + some related equipment
  - ◆ Wiring, ratings, P/N, cost, controller, ...
- ◆ Wiring document
  - ◆ Needs to be created
  - ◆ Should contain:
    - ◆ Wiring best practice
    - ◆ Shielding/grounding scheme
- ◆ Wiring installation
  - ◆ Should refer to drawings and schematics
- ◆ Electrical schematics
  - ◆ Some general ones exist, but detailed ones needs to be made
  - ◆ Should contain:
    - ◆ Overall wiring
    - ◆ All detector wiring in details
- ◆ Electrical routing
  - ◆ Won't go full CAD, but overall route sketches must be made
  - ◆ Should contain:
    - ◆ Routes from/to every components
    - ◆ Wire type, size, conduit type, length, gauge, ...

# Updates on Electrical Schematics (Cont.)

- So far, PLC channels are assigned to each component recorded in the instrumentation list.
- System Schematics will include, component name/number, wire specification, location, feedthrough or ports.
- In the end, will have multiple set of schematics such as pressure PLC, temperature PLC. If needed, we can another set.
- Soon, I will start requesting PLC component shipped to Ualberta.

# Design of the Patch Panel

- Last month, initial and the revised plan for patch panel was shared with the team. Received feedback and working on design updates.
- Tentative plan is to design and fabricate custom PCB board, PLC patch boards and Field patch boards
- Final decision on patch panel is still pending approval. And It will be made soon.



Proposed plan  
for coming  
months

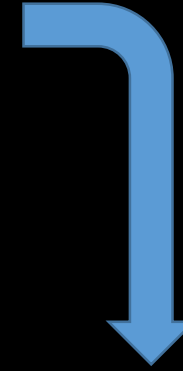
August



Task to be complete by the end  
of August

- Cabinet Procurement
- Patch Panel decision and final design buyoff
- Feedthrough cable routing decisions
- Cabinet cable routing in racks.

September



**Task List for September**

- Electrical Schematics Drafting.
- Commissioning /testing document for PLCs.
- Start sharing electrical schematics with team members by the last week of Sept or early Oct.
- Mike will design and place order for patch panel PCBs.
- Purchase purchasing remaining items for racks.
- Power calculations and power supply procurement.
- Power calculations & purchase power supplies
- Cable Routing

October



**Task List for October**

- Electrical Schematics drafting (cont.), approvals and revisions.
- Installation of rack, plc components etc.
- Testing

Question?