Cryo Control Panel (CCP)

► List of devices on Confluence page:

https://confluence.its.virginia.edu/display/twist/Slow+Controls#SlowControls-CryoControlPanel:CCP

▷ Conditions of devices & VIs expected for the FNAL review in early April

► VIs on GitHub repository:

https://github.com/uva-spin/e1039-target-controls/tree/devel_cryo_control_panel/Cryo-Control

- Updates
 - Added basic functions to the Fridge Valve VIs
 - Connected two more sensors to MaxiGauge
 Will test standalone VIs (by Zulkaida)
- ► Plans
 - Set up all sensors and VIs that are expected for the FNAL review

Run Valve & Bypass Valve

- Control box @ slow-control rack
 - ▶ Motor drivers (AM ST5-S)
 - For run valve:

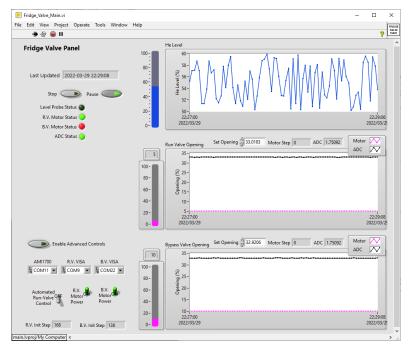
 Connected to a motor in the cave
 - For bypass valve:
 Not connected (for response test)
 - ▶ ADC (MCC USB-202)
 - ▶▶ Not connected to potentiometer
 - All are responding to Serial/USB commands properly



CCP sub panel:

Cryo-Control/Fridge_Valve/Fridge_Valve_Main.vi

- Screenshot in next page
- ▶ The He level was included because it will be auto-controlled using the run-valve position
- Relation between motor steps, motor turns & valve opening
 - ho Motor move resolution $\equiv 200$ steps per turn
 - ▶ Motor move: 0-3 turns ⇔ Valve opening: 0-100%
 - ightharpoonup ADC potentiometer reading: 0-5 V \iff Valve opening: 0-100%
 - ▶ Just assumption for now. To be updated once the hardware setting is fixed
- ► Implemented VI functions
 - ▶ Initialize the motor parameters
 - Measure the valve position with ADC to locate the absolute motor position (i.e. *N* of turns) only once when VI starts
 - ▶ Enable/disable the motor power
 - ▷ Set the positions of run valve and bypass valve manually
 - Use the absolute motor position to control the valve opening
 - ▶ Read the ADC value continuously for crosscheck (because the driver does not always warn mis-moves)



CCP Main Panel

