CONTENT

- Lifter procedure
- A brief update on the microwave setup

TARGET LIFTER SYSTEM PROCEDURES

- **docDB# : 10381**
- System status
  - The lifter control box, Lifter ADC box, and ADC power supply are connected with the appropriate cables in the slow controls rack
  - The slow controls rack is up and running.

Lifter ADC box

Lifter ADC power supply

Lifter control box

TARGET LIFTER SYSTEM PROCEDURES

1. Turn on the Lifter control box

   The three LEDs should be light up

2. Turn on the ADC power supply

3. Press “Recall” button two times. (~1s pause)

   This will supply the pre set voltage to the two potentiometers

   Now both 10V and 12 V LEDs on the lifter ADC box should be light up.

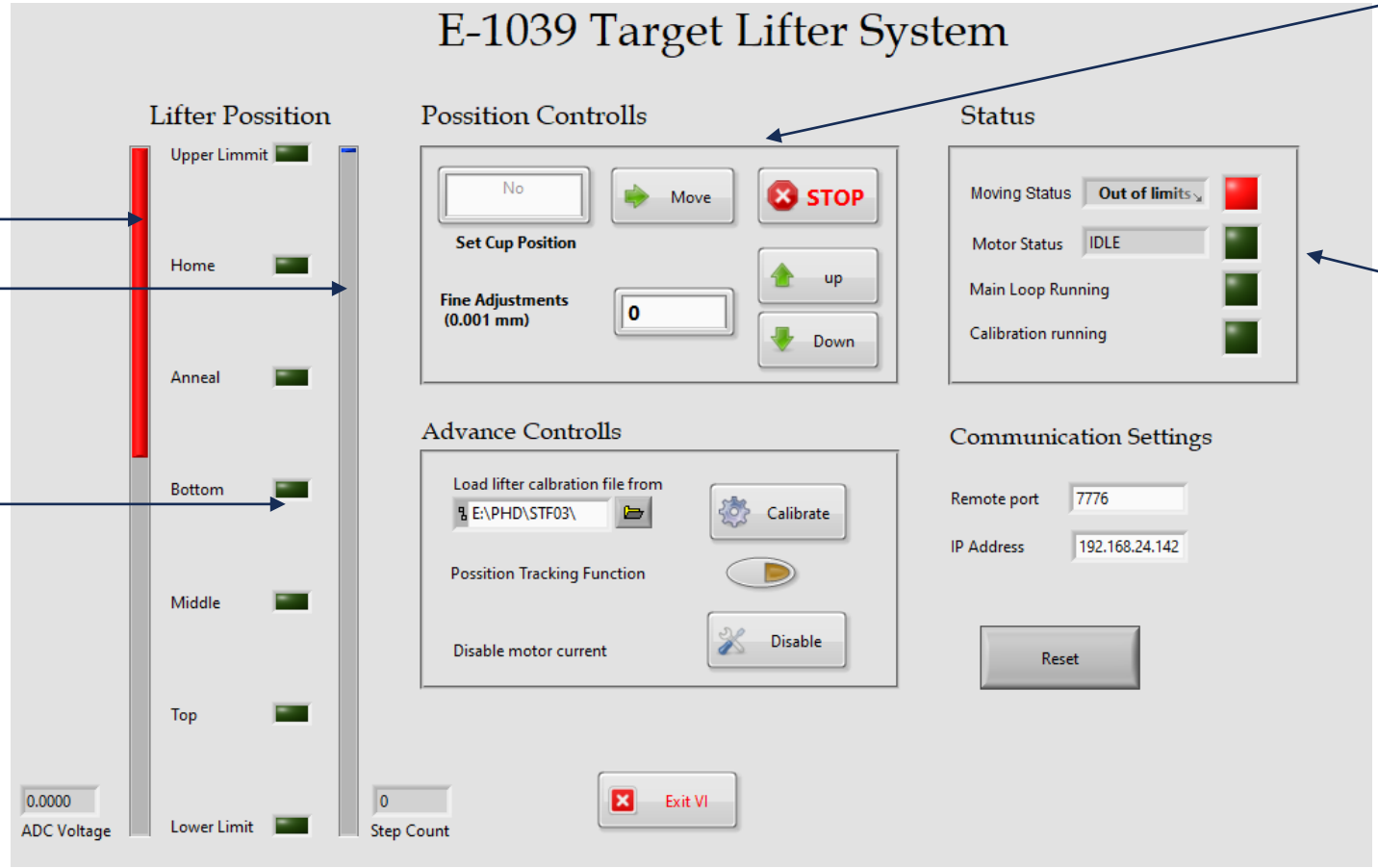
   - Now the lifter is ready

TARGET LIFTER SYSTEM PROCEDURES

Two position indicators

Absolute position : Red bar
Step count : Blue bar

7 switch indicators



Position controller

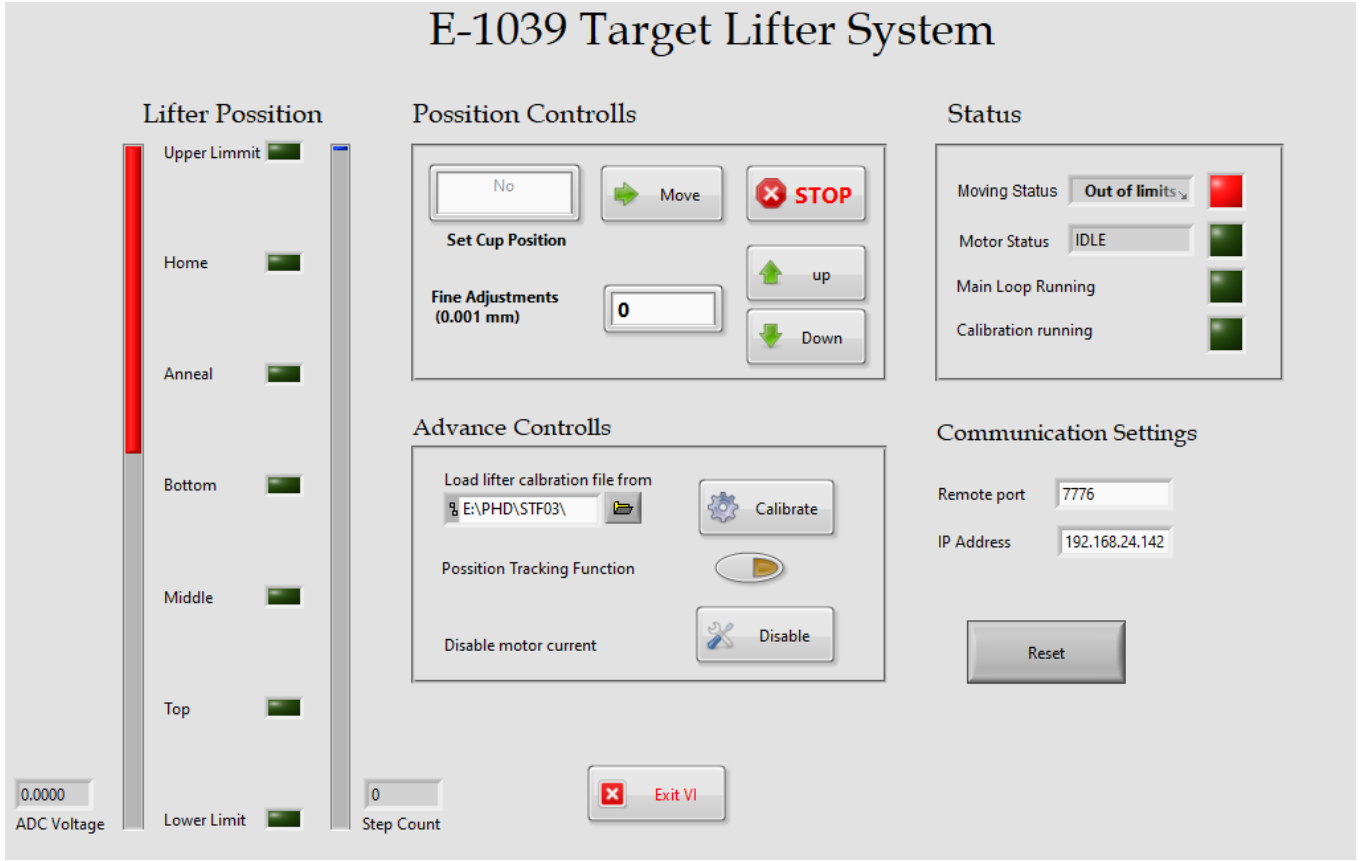
Status

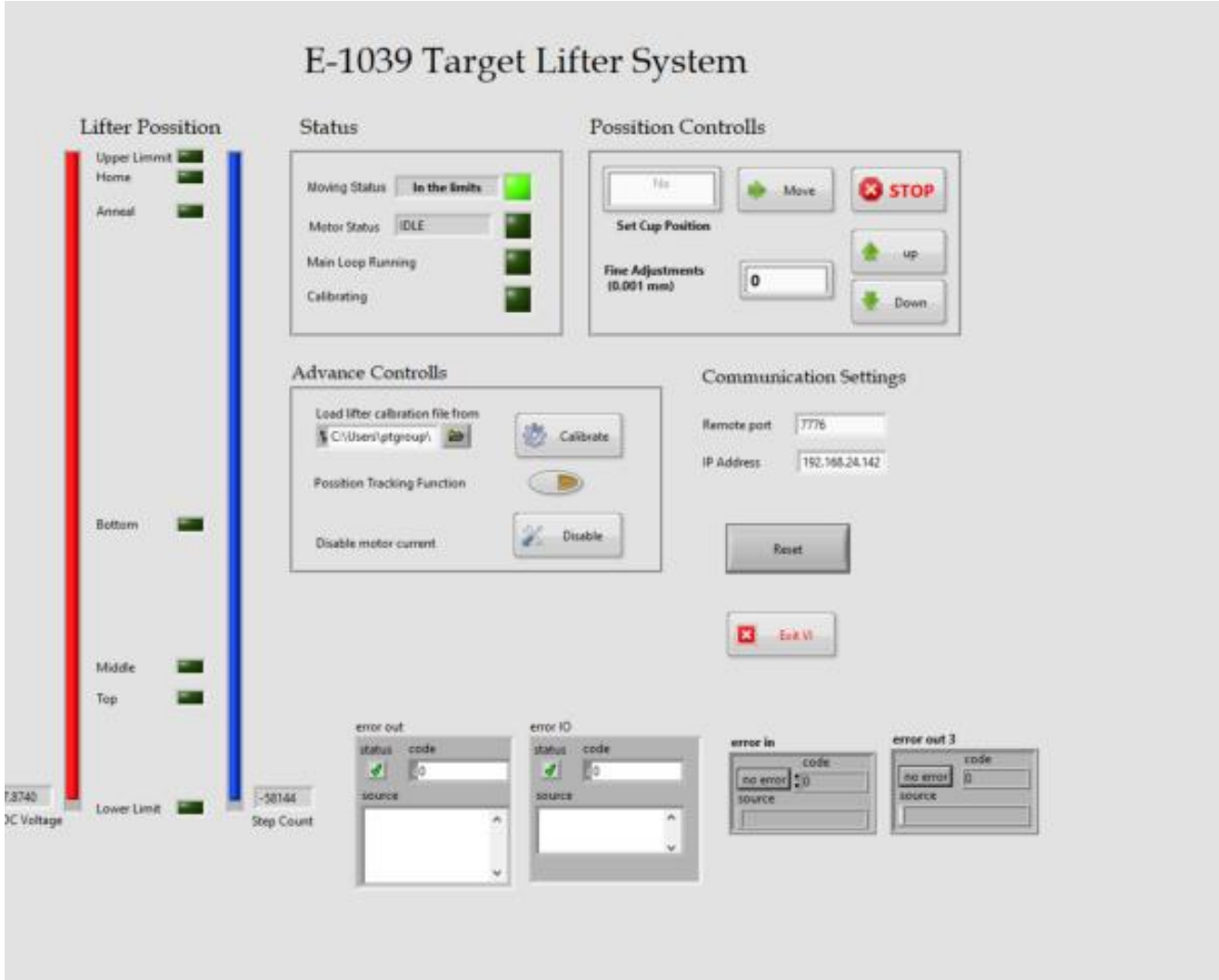
Very first start of the lifter system

- At the very first start of the lifter system, you will see the following status values
  - Moving Status : Out of Limits (Red)
  - Motor Status : Ideal
  - Main Loop Running : Blinking
  - Calibration running : Black
- Press the “Calibrate” button

  Wait until lifter moves to a nearby switch and update the step count.

  Now the lifter is ready to move

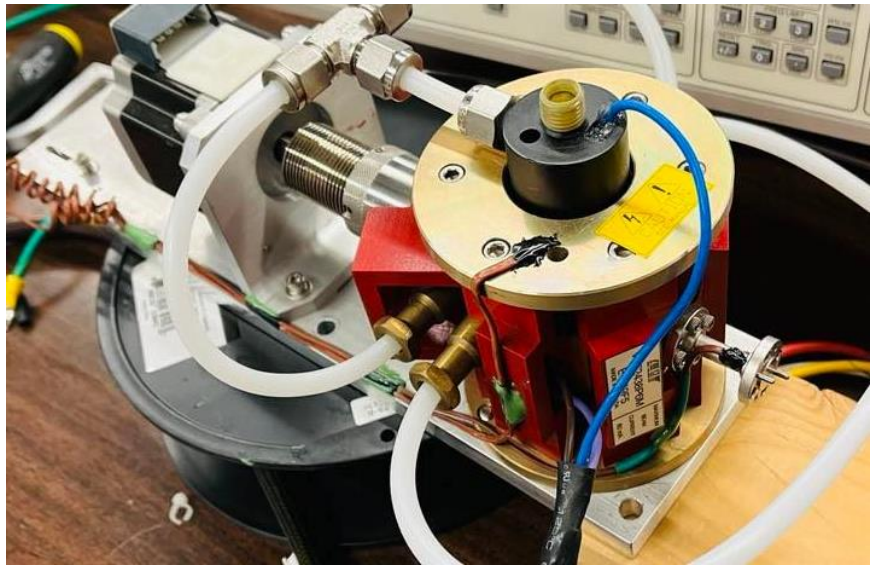



E-1039 Target Lifter System
Lifter Possition
Upper Limmit
Home
Anneal
Bottom
Middle
Top
Lower Limit
Step Count
Status
Moving Status
In the limits
Motor Status
IDLE
Main Loop Running
Calibrating
Possition Controlls
Move
STOP
Set Cup Position
Fine Adjustments
(0.001 mm)
up
Down
Advance Controlls
Load lifter calibration file from
C:\Users\ptgroup\
Calibrate
Position Tracking Function
Disable motor current
Disable
Communication Settings
Remote port
7776
IP Address
192.168.24.142
Reset
Exit VI
error out
error IO
error in
error out 3
status
code
source
no error

UPDATE ON THE MICROWAVE SETUP

- The microwave power supply is connected to the interlock box.
- The box contains two temperature monitors and one flow monitor. Each module can generate an interrupt and bring the power supply to fault status.

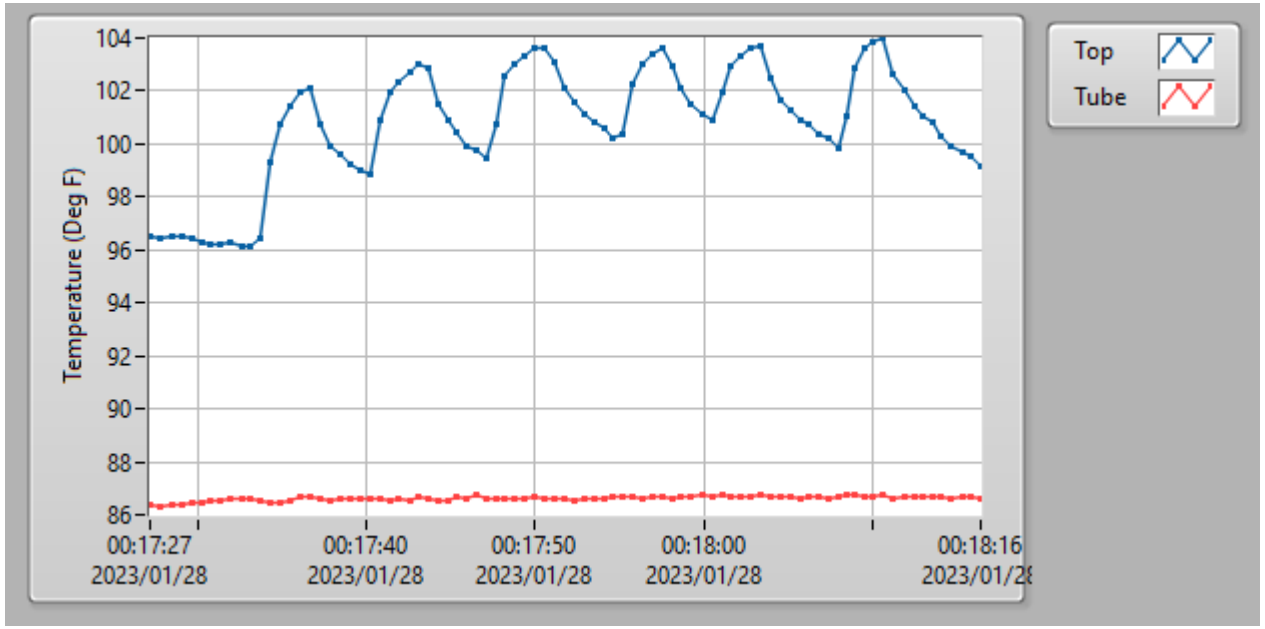
T-Type thermocouples a installed on the EIO top plate and the output tube.

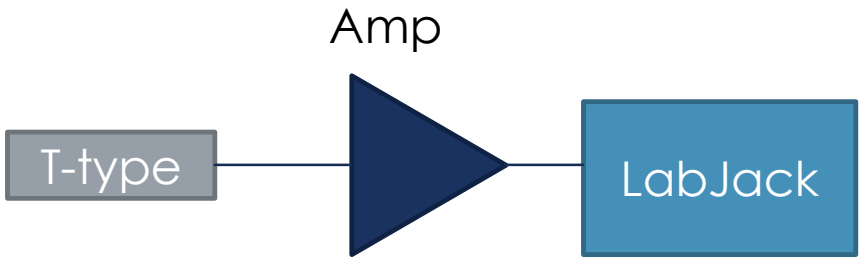


The plan is to read the temperatures using an DAQ and send interlock signals from the DAQ.
The two temperature modules are bypassed from the interlock circuit.

The available DAQ is LabJack U3 which is cheaper than the MCC DAQ (dedicated for thermocouples)
However, the sensitivity of the LabJack is not sufficient to read thermocouple voltage.

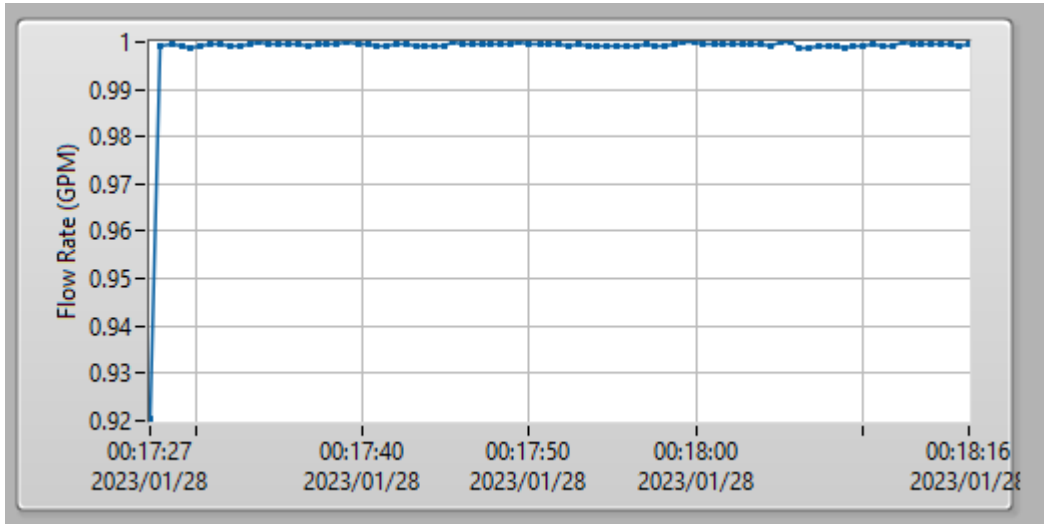
As a test, an op-amp amplifier was added between the thermocouple and the LabJack to amplify the thermocouple voltage. This was successful and observed better response.





The output of the flow sensor is set of pulse. The frequency of the signal is proportional to the flow rate.

As a test the DAQ was configured to count frequency of an external signal.
Configured an Arduino as 500 Hz pulse generator and was able to read the correct frequency from the DAQ.
This confirms that we can read the flow rate from the DAQ



I am working on the signal conditioning circuity to match the sensor voltage to DAQ

After this modification we will have fully control of the microwave interlock box from the control room.