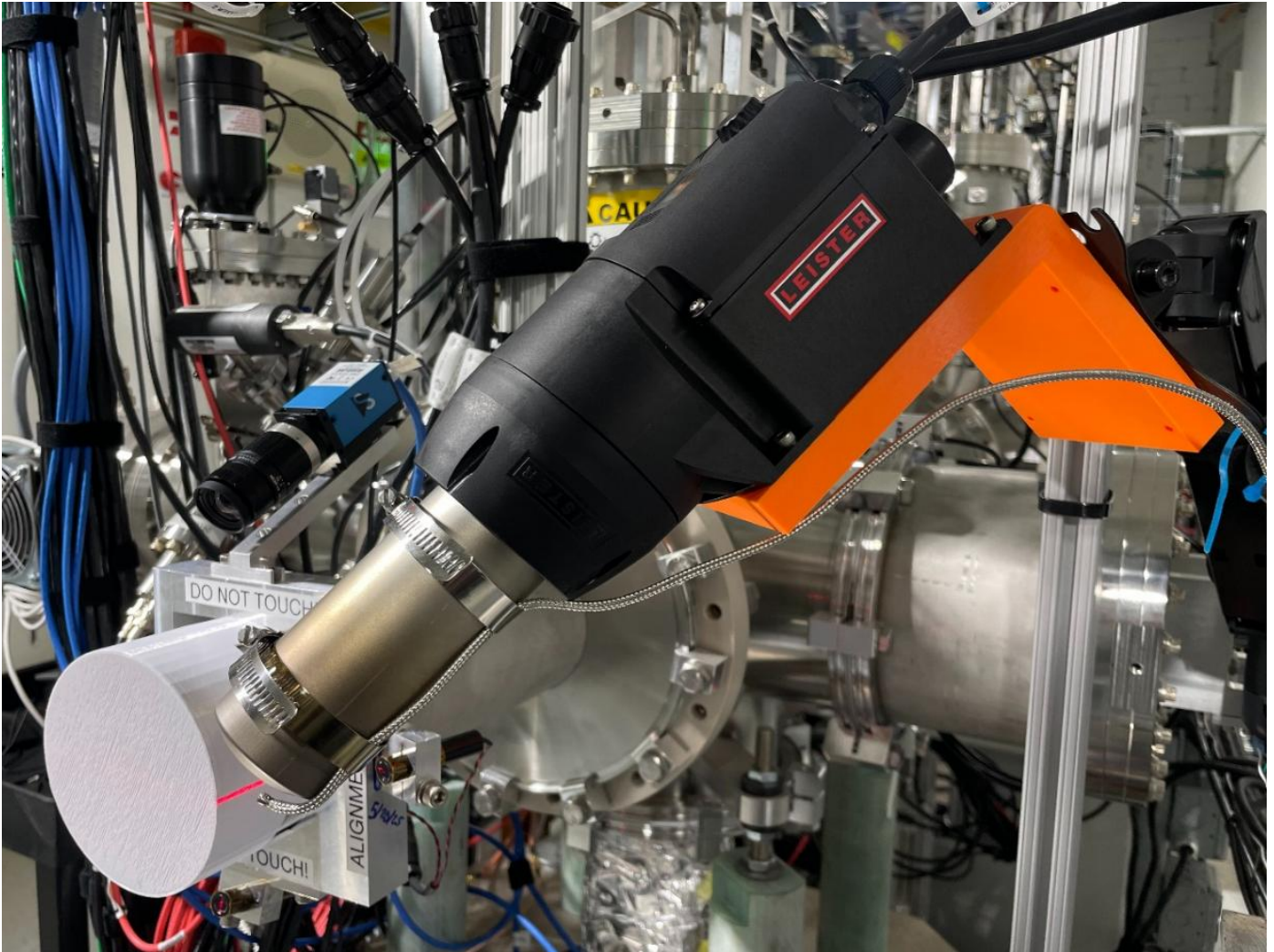# KSEE Heater User Manual

Heater Menu Overview

Heater On/Off

Binary on and off control of the heater.

Thermocouple RDs

Provides live temperature readbacks at the barrel and target.

Air Volume

- Set Air Vol [%]:
- Air Vol RD [%]:
- Please note that the selected airflow will have an effect on the output heat.

HTR PID Manual

Manual mode allows users to set the percentage heat output from the heater. 100% is equal to ~650°C, the maximum output of the device.

- Manual (%)
- Temp RD (°C): Live temperature readback while in manual mode reported in degrees Celsius from the thermocouple located at the end of the heater barrel.
- Output (%)
- Man Enable: Select Man. Enable to initiate control of the heater in manual mode.

HTR PID Auto

Auto mode allows users to set the desired temperature and once the heater is powered on, it will begin heating until it reaches the setpoint. The percentage output is of the maximum temperature, 650°C. Note the temperature is reported from a thermocouple located at the tip of the heater barrel.
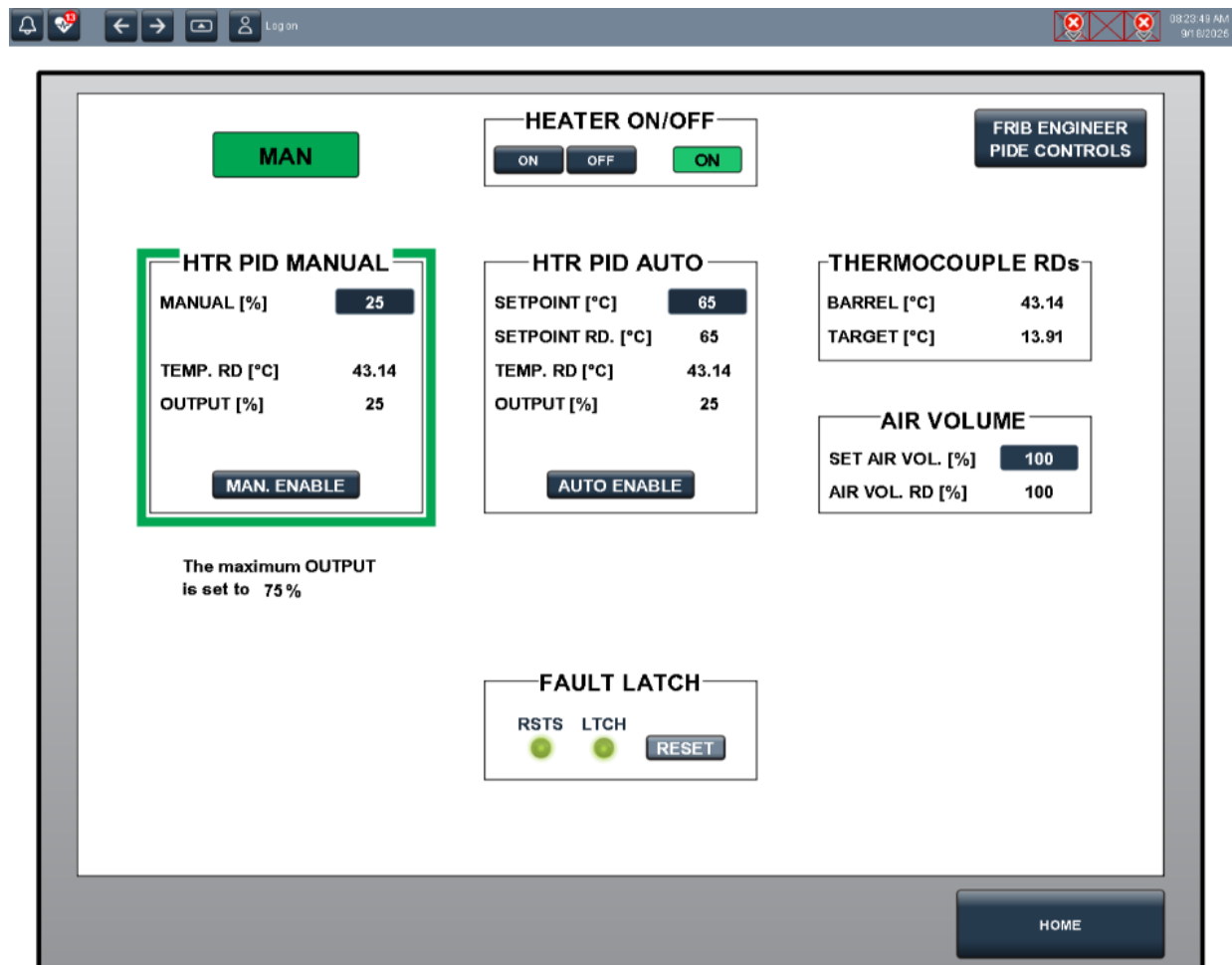
- Setpoint (°C): Target temperature in degrees Celsius.
- Setpoint RD (°C): Once the temperature setpoint is entered and registered by the heater it will be displayed below.
- Temp RD (°C): Live temperature readback while in auto mode reported in degrees Celsius from the thermocouple located at the end of the heater barrel.
- Output (%)
- Auto Enable: Select Auto Enable to initiate heater control in auto mode.

Operating Instructions

The heater must be turned on before selecting a mode of operation.

Manual Mode

1. Select MAN. ENABLE from the heater menu.
2. Enter the desired heat output as a percentage of 650°C. The maximum percentage output is displayed below the Manual menu.
3. Select ON from the Heater On/Off menu
   a. The RSTS LED will flash red and then hold green. The LTCH LED will remain green.
   b. The heater will now begin heating to the target output. A live temperature readback is displayed at TEMP. RD and percentage heat output is shown next to OUTPUT.
4. To turn off the heater, select OFF from the Heater On/Off menu.
5. Note: If you intend to switch to auto mode, set the manual output to 0% first.

Auto Mode

1. Select AUTO ENABLE from the heater menu.
2. Enter the desired temperature setpoint in the text entry box. Once entered, confirm the setpoint matches the value displayed next to SETPOINT RD.
3. Select ON from the Heater On/Off menu
   a. The RSTS LED will flash red and then hold green. The LTCH LED will remain green.
   b. The heater will now begin heating to the setpoint. A live temperature readback is displayed at TEMP. RD and percentage heat output is shown next to OUTPUT.
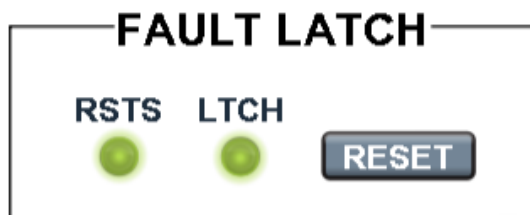4. To turn off the heater, select OFF from the Heater On/Off menu.

Troubleshooting

Fault Latch

Should the heater indicate a fault status, the RSTS (Status Readback) LED will illuminate red. Any issue should be investigated and resolved before resetting the fault including verifying adequate airflow through the heater and ensuring the output and temperature setpoints do not exceed the limit.

If the RSTS LED illuminates red, the heater has exceeded the internal temperature limit. If the heater exceeds the limit for more than 3 seconds, the LTCH (Latch) LED will illuminate red. Once the heater has cooled down you can select RESET.

Once resolved, you may press RESET and power on the heater.

Functioning normally.

Heater internal temperature exceeds 650°C

Heater internal temperature exceeds 650°C and has latched. Heater will power off.