PURE LAB HE

INSTRUCTIONS for COLUMN REGENERATION

VERSION	DATE	COMPLETED BY	CHANGES
0.0	8/11/2025	EJK	INITIAL RELEASE

Contents

1 REGENERATION

To initiate the regeneration of the purification column in your PureLab HE, follow these steps using the Regeneration Setup screen:

1. Access Regeneration Setup:
    - From the Main Menu screen (FIGURE 19), tap the Regen Setup button to open the Regeneration Setup screen (FIGURE 22).
2. Regeneration Type:
    - On the Regeneration Setup screen, select "SOLVENT REGENERATION" for the "Regeneration Type."

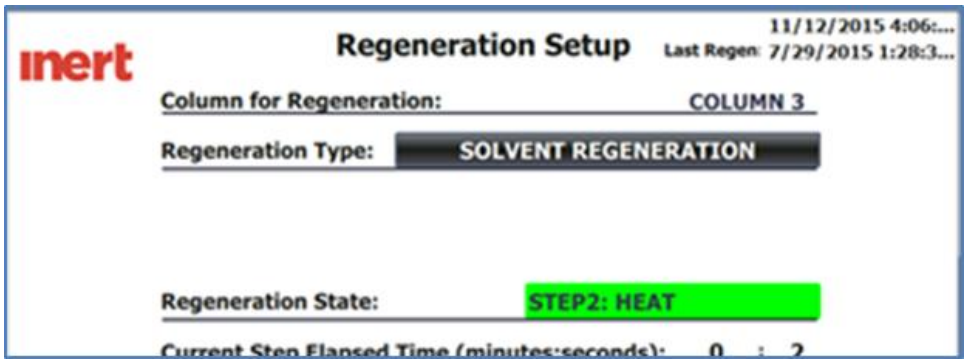


Figure 1 - Regeneration Setup

3. Purpose of Regeneration:
    - The purification column contains a mixture of copper-based catalyst and molecular sieve to absorb oxygen and moisture, respectively.
    - Over time, these materials become saturated and lose their ability to absorb oxygen and moisture.
    - The regeneration process restores these materials to their original state, allowing continuous scrubbing of oxygen and moisture.
4. Recommended Frequency:
    - It is recommended to perform regeneration every three years to maintain optimal performance.
    - The regeneration cycle involves five steps, each with default times measured in minutes.
5. Warning for Oxygen Levels:
    - The final step (Cooling) exposes the freshly regenerated purifier material to the PureLab HE atmosphere.
    - Ensure that the PureLab HE atmosphere contains less than 50 ppm oxygen before starting the regeneration.
    - If the oxygen level is above 50 ppm, initiate the purge process during regeneration.
6. Regeneration Steps:

- The regeneration cycle comprises five steps: Drying, Purging, Heating, Cooling, and Standby.
- Refer to TABLE 5 on page 52 for detailed descriptions of the Regeneration Timers screen.

NOTE: Ensure that you do not expose the purifier materials to atmosphere during the regeneration sequence. If you have any questions or need assistance, refer to the support section in the user manual or contact your Inert representative.

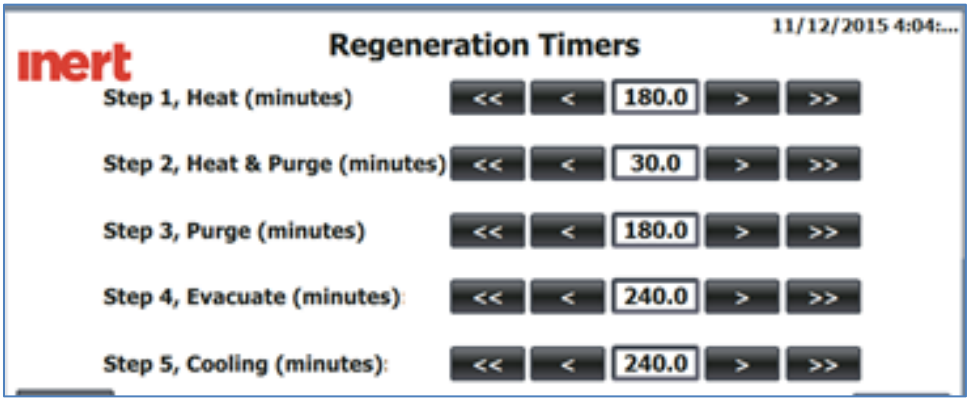


Figure 2 - Regeneration Timers

1.1 SINGLE-COLUMN PURIFICATION SYSTEM REGENERATION PROCEDURE

1. Connect Regeneration Gas Cylinder:
   - Connect a cylinder of regeneration gas (forming gas) to the regen gas connection on the rear of the Gas Management module.
   - The regeneration gas should contain between 3% and 7% hydrogen, with the balance being nitrogen or argon.
   - Ensure all connections are tightened correctly.
   - Open the regulator and set it to 7 psi.
2. Turn Off Blower:
   - On the Main Menu screen (FIGURE 19), turn off the Blower.
   - For a single-column system, this action automatically closes the purification column valves.
3. Initiate Regeneration:
   - Tap the "REGEN START" button on the Regeneration Setup screen (FIGURE 22).
4. Confirm Column Valve Closure:
   - Press the "Yes" button next to "Are the Column Valves Closed?"
   - A "click" sound indicates the solenoid valves opening to allow regeneration gas flow.

NOTE: Closed column isolation valves have a yellow indicator tab, not visible when the valve is closed.

5. Adjust Regeneration Flow:
    - Adjust the needle valve on the regeneration flow meter (located on the front of the Gas Management module) to 25-30 SCFH on the graduated scale.
6. Verify Flow:
    - Press "Yes" next to "Is Flow OK?"
    - At this point, regeneration gas flow stops, and "Step 1. Heating" begins.
    - The Regen Status displays as Heating, and the timer starts counting up.
    - The Regeneration Status is also shown on the Main Menu screen.
7. Automatic Progression Through Steps:
    - The system automatically progresses through regeneration steps 1 to 5.
    - At the conclusion of the regeneration sequence, the blower automatically turns back on if enabled in the System Setup screen.
    - Alternatively, you can manually turn on the blower by tapping the Blower button.

NOTE: Ensure proper safety measures during the regeneration process. The purifier column becomes very hot. Ensure regeneration exhaust gas is properly ventilated. If you encounter any issues or have questions, refer to the support section in the user manual or contact your Inert representative.

1.2 DUAL-COLUMN PURIFICATION SYSTEM REGENERATION PROCEDURE

For dual-column purification systems, the regeneration procedure allows one purifier column to regenerate while the other remains in use. This ensures continuous operation. Follow these steps:

1. Column Selection:
    - From the System Setup screen (FIGURE 29), identify the column currently in use in the "Column(s) In Use" field.
    - Tap the number of the column in use.
    - Enter a new column number in the Data Entry keypad and tap Enter (e.g., enter 2 for Column 2).

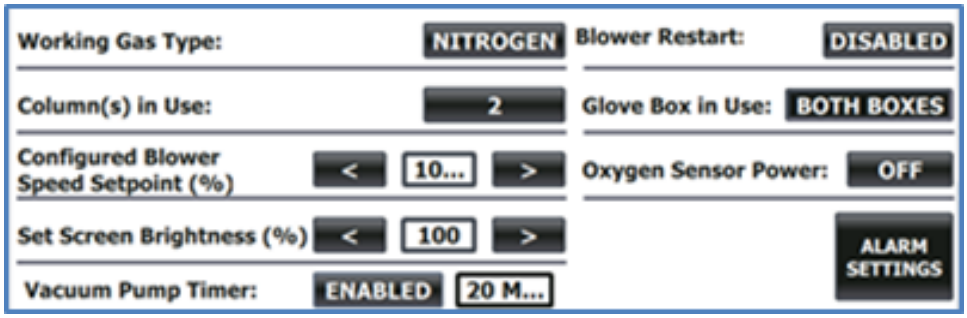


Figure 3 - System Setup

2. Regeneration Steps:
    - Follow steps 1, 3, 4, 5, and 6 of the single-column regeneration process.
    - Ensure the blower remains switched on during the regeneration of a dual-column system.

NOTE: Dual-column systems allow regeneration of one column while the other is in use.

NOTE: Ensure proper safety measures during the regeneration process. The purifier column becomes very hot. Ensure regeneration exhaust gas is properly ventilated. If you encounter any issues or have questions, refer to the support section in the user manual or contact your Inert representative.

To regenerate, perform steps 1, 3, 4, 5, and 6 as for the single column purification system regeneration. The blower should remain switched on during the regeneration of a dual column system.

1.3 SOLVENT COLUMN REGENERATION

NOTE: The Blower does not need to be turned off.

NOTE: You will need a 1/8th" Allen wrench to loosen the screw that secures the sliding panel.

1 Connect a cylinder of high purity inert gas to the regen gas connection on the rear of the Gas Management module. The Inert gas should be 99.998 nitrogen or argon. Ensure that the connections are tightened correctly. Open the regulator and set it to 7 psi.

2 Open the bypass valve (labeled A in **FIGURE 13** below). This is located in the Gas Purifier. The top must be removed to access the valve.

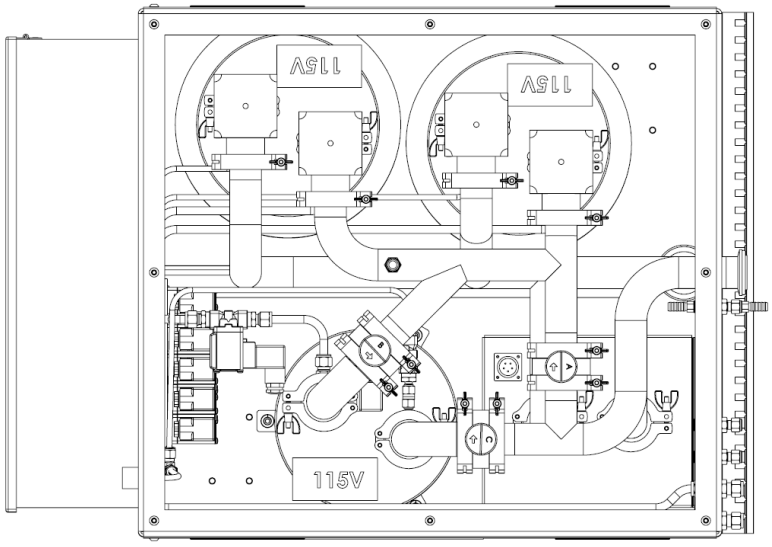


Figure 4 - Inside the Gas Purifier

3 Close the isolation valves (labeled B & C) connected to the solvent column. This is located in the Gas Purifier. The top must be removed to access valve.

4 From the Main Menu screen (**FIGURE 19**), tap the Regen Setup button. The Regeneration Setup screen (**FIGURE 14**) appears. Then tap the Regeneration Type button to select Solvent Regeneration.

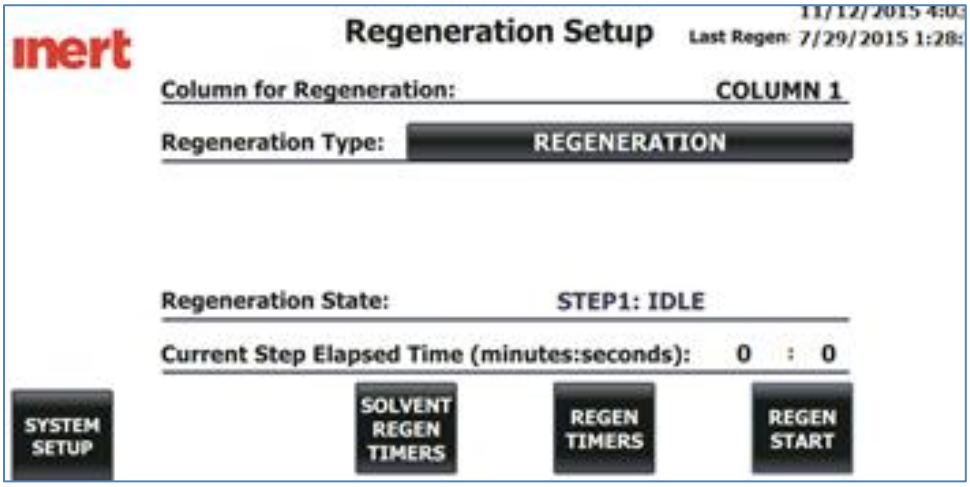
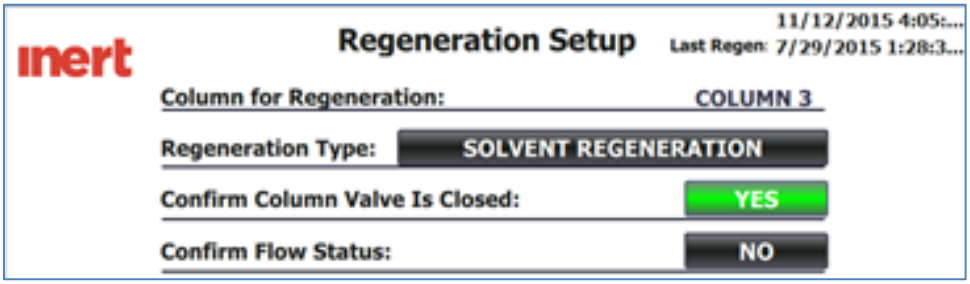


Figure 5 - Regeneration Setup Main

5 Tap the Regen Start button.

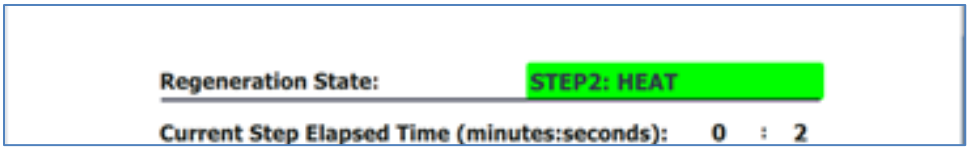
6 Tap the Yes button next to "Are the Column Valves Closed?" (**FIGURE 14**) A "click" will be heard as the solenoid valves open to allow regeneration gas to flow.



7 Adjust needle valve on the regeneration flow meter located on the front of the Gas Management module to set the flow to 25-30 scfh on the graduated scale on the flow meter.

8 Verify that gas is flowing out of the exhaust line. If it is flowing, tap Yes next to "confirm Flow Status?" At this point the regeneration gas stops flowing. Step 1. Heating begins. The Regen Status shows as Heating and the timer begins to count up. The Regeneration Status is also shown on the Main Screen.

9 The system automatically progresses through the regeneration steps 1 to 5.



10 Upon completion of the solvent regeneration, open the column isolation valves (B & C), then close the Solvent by-pass valve (A).