Supplemental Information - Connect Tubing to Unit Cooler Drain Line

The unit cooler drain line exits out the rear wall of the chamber. Connect the supplied white plastic tubing to this drain line and direct to an appropriate drain or drain pan.

Unit cooler drain line →

Supplemental Information – Open Loop Dimmable Lighting (as %)

System Capabilities:

Number of dimmable outputs: 1
Dimming threshold %: 5%
Dimmable control range: 5-100%

Components:

Logic relays
Intellus Ultra Controller
LED drivers

Dimmable Lighting Process:

Light dimming is accomplished in an "open loop" configuration, where set points are entered into the controller as percentages, and the ***controller scales its output voltage to***

the LED drivers to correspond with the set point – IT IS RECOMMENDED TO USE AN INDEPENDENT LIGHT METER TO MEASURE THE ACTUAL INTENSITY.

The system has been set up so that any set point value below 5% will deactivate the dimmable LEDs on that output. To turn off the LEDs in program mode or manual mode, simply change the set point in the controller to any value below the threshold of 5%.

Intellus Display and Setup:

The light outputs on the controller have been set up as follows:

- Light 1 controls the dimmable IncuWhite™ LEDs

When running manual settings, lighting levels are input as percentages, and are set on the Intellus Controller in the Lights menu. To enter the Lights menu so that the lighting set points can be changed, press the **LIGHTS** key on the Intellus Controller. Use the arrow keys to navigate through the menu and select the desired light output (the number of available outputs will vary according to the type of chamber and options ordered). To change a light setting, press the **ENTER** key and use the arrow keys as necessary to change the setting. Press the **ENTER** key a second time to accept the changed setting. To exit the Lights Menu, and return to the Main menu, press the **LIGHTS** key.

Lighting levels can be programmed using the programming features of the Intellus controller. For more information on using the Intellus controller to program the lighting levels, please refer to the attached ***Intellus Controller Manual.***

NOTE: Running the chamber in Diurnal mode will cause all the lights to energize at full intensity during the day cycle. Conversely, during the night cycle, all light outputs will be de-energized. Only the Manual and Program modes are conducive to the intermediate light intensities available through the dimming option.

On the main display screen, the lighting level for each dimmable lighting output will be displayed as a bar corresponding to the lighting set point (percentage).

Example: A chamber with two dimmable light outputs with settings of 75% and 50% will show two bars in the light outputs portion of the main display, with the first bar 75% full and the second bar half full.

Service and Maintenance:

- ✓ Output voltage to the control signal is a scaled 0-10VDC.

- ✓ Please refer to the Maintenance and Service Information sections of the **Installation, Operation, & Service Manual** for additional information regarding the general care, maintenance and service for lighted chambers.

Supplemental Information – Ultrasonic Humidification System

Note: It is required that de-mineralized water (water that has been treated to remove nearly all minerals and sodium that occur naturally in water) be used for humidification.

System Overview

Humidification in this chamber is accomplished with an ultrasonic humidifier. The humidifier has a water reservoir which maintains a specific water level with a float switch. Located inside the reservoir are a series of transducers which vibrate at very high frequencies. The specific frequency and vibration amplitude cause the water in the reservoir to atomize into very tiny droplets.

All humidity settings are controlled with the Intellus controller. Please refer to the attached *Intellus Controller Manual* for programming information.

Installation

The humidifier has been preinstalled at the factory. It is located in the mechanical compartment of the chamber.

Ultrasonic humidifier water requirements	– Refer to the attached Stulz instruction manual for water requirements. The Stulz manual is located in the **Associated Diagrams, Schematics and Miscellaneous Information** section of this manual. Refer to the chamber equipped list presented in the front of this manual for the appropriate humidifier model equipped on your chamber. It is recommended that the Stulz manual be thoroughly read before operating the chamber to ensure that the humidifier will operate as designed.

NOTE: For ultrasonic humidifiers it is required that demineralized water is used and the supply meets or exceeds the requirements listed in the attached Stulz manual.

The chamber is equipped with a compression style fitting with a hand valve for the humidifier water. First, connect the supplied hand valve to the compression fitting. Your building water supply should be connected to this hand valve. Either connect ¼" tubing directly to the fitting on the valve or install the provided ½ MPT adapter. To directly install ¼" tubing simply insert the tubing into the fitting as far as it will go. If it becomes necessary to remove the tubing, push inward on the ring surrounding the tubing and pull the tubing out of the fitting.

Humidifier Water
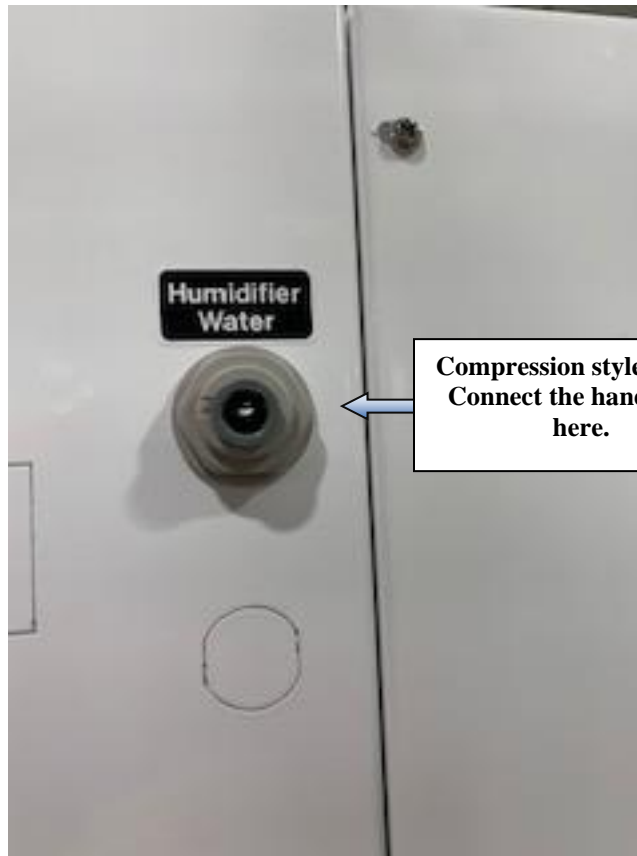
Compression style fitting. Connect the hand valve here.
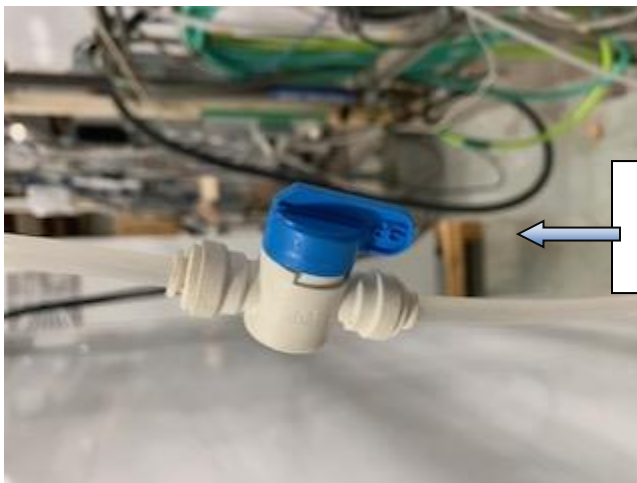
Hand valve. Connect building water supply or MPT adapter here
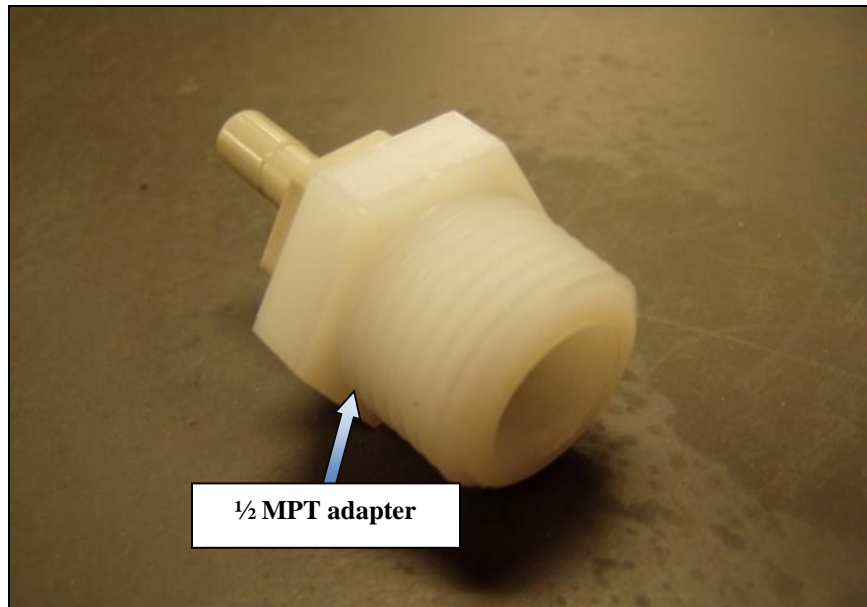
(Optional) ½ MPT adapter. Insert into compression fitting and connect water supply with ½ FPT fitting

Once the proper water supply connection has been made, turn the water supply source on and open any valves in line with the water line. The humidifier is designed to automatically fill and maintain the proper water level for proper operation.

⚠ WARNING

Under normal temperature operating conditions, to prevent damage to humidifier, always ensure that the water supply source is on and the water line shut off valve is in the open position. Operating the humidifier without water may damage the humidifier.

Intellus Setup:

The humidification / dehumidification systems are disabled when the chamber is shipped from our factory. Once the chamber has been fully installed and powered, to enable the humidification / dehumidification systems, press the **%RH** key on the Intellus controller and use the arrow keys as necessary to select "Enable Humidify". Press the **ENTER** key and use the arrow keys to change this setting to **"Yes"**. Press the **ENTER** key to accept the change. Next, press the **Down** arrow key to select "Enable Dehumidify". Press the **ENTER** key and use the arrow keys to change this setting to **"Yes"**. Press the **ENTER** key to accept the change. The humidification / dehumidification systems will now be activated as necessary.

Maintenance

For maintenance information, refer to the maintenance section in the ultrasonic humidifier manual provided as well as the information provided below.

To access the ultrasonic humidifier, remove the top panel and left hand end panel of the chamber mechanical compartment.

Ultrasonic humidifier

Periodically check the discharge from the humidifier (while the Intellus controller is calling for humidity) to verify that the humidified air produced is composed of very fine water droplets. The proper humidity rich air discharged from the ultrasonic humidifier is composed of very small water droplets and looks like fog or smoke. The production of large water droplets or no water droplets at all could signal a malfunction in the humidifier.

Recommended maintenance schedule: Periodic – at the customer's discretion

Perform proper upkeep on the treated water system used to supply water to the humidifier. Water with improper mineral content can rapidly cause premature problems with the ultrasonic humidifying elements, and lead to malfunction of the humidity system.

Recommended maintenance schedule: As per the manufacturer's requirements

Service Information

Loss of humidity control

✓ **Intellus controller:** Check the controller for correct voltage output to the humidification / dehumidification relays. If the controller fails to output the correct voltage (approximately 5VDC), replace the controller.

✓ **Signal conditioner and/or sensor failure:** Check the voltage signal from the signal conditioner to the controller. For the HMP60 sensor, the voltage should be more than 0VDC

but less than 1VDC. For the HMP110 sensor, the voltage should be more than 0VDC but less than 5VDC. If it is not, the sensor may need to be replaced.

✓ **Ultrasonic humidifier:** Check output from humidifier. Refer to the maintenance section for information on checking humidifier. Check voltage to humidifier when the Intellus controller is calling for humidity. The ultrasonic humidifier requires 48VAC.   Check humidifier relay.

✓ **Humidification / dehumidification relays:** Check the humidification and dehumidification relays for proper operation.

✓ For more service information on the ultrasonic humidifier, refer to the troubleshooting section in the ultrasonic humidifier manual provided.