CellarPro

AH6500 / AH8500

Humidification System

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CONGRATULATIONS!

Thank you for purchasing a new CellarPro integrated humidifier. This system comes packaged separately and requires some assembly and some steps to connect it to your air handler.

Package Contents	Tools Required
Humidifier	Adjustable wrench (2)
Remote humidistat with 10ft. 3 conductor leads	Phillips screw driver
10 ft. x ½" ID drain line	Screwdrivers (slotted) - #1 and #2
Self-tapping water line saddle valve	

Specifications and Cut Sheets

General Description:

The CellarPro Humidifier is designed to mount directly to the evaporator module of any AH 6500 and 8500 series cooling unit.

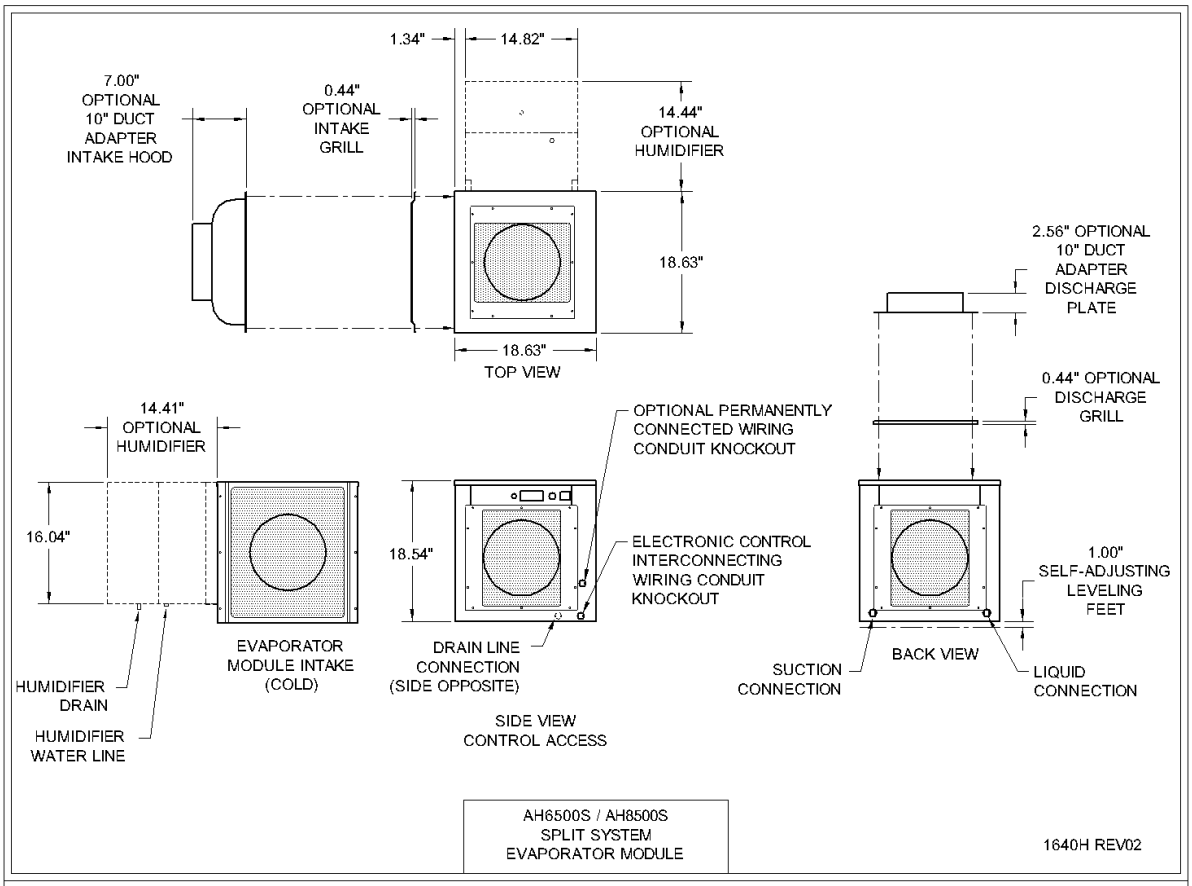
The humidifier is designed to increase the cellar humidity level above a 50% threshold where wine bottle storage is more stable for preserving the corks. The humidifier for this unit utilizes an evaporative water pad, with a fresh water supply line providing water to saturate an evaporative pad, which adds moisture to the cold air being supplied to the cellar. It is intended for situations where the ambient relative humidity of the air surrounding the cellar is insufficient to maintain the desired humidity level inside the cellar, as indicated by the shaded areas in the chart below:

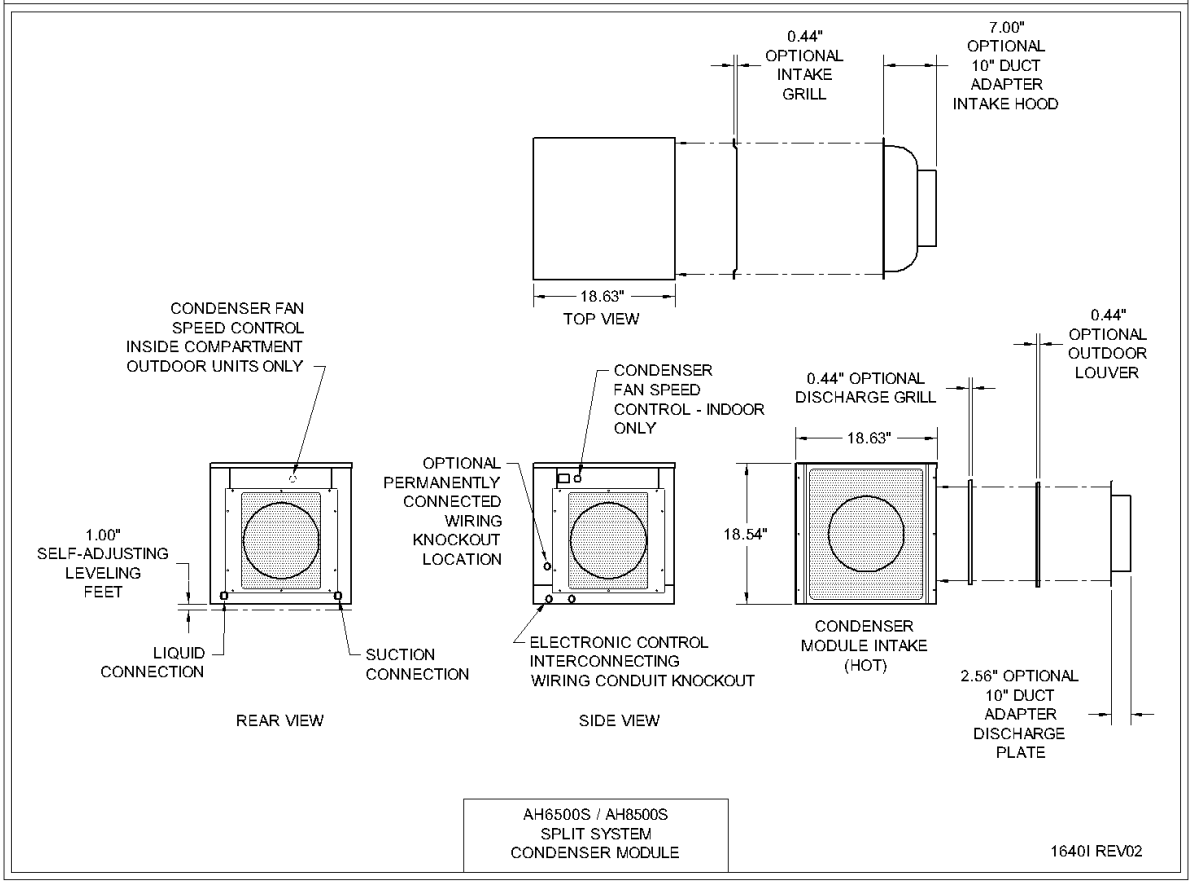
Typical Relative Humidity Range (%RH) for 55°F Cellar Temperature without Humidifier							
Ambient RH	**Ambient Temperature °F**						
	65	**70**	**75**	**80**	**85**	**90**	**95**
10	9-14	12-17	15-20	18-23	22-27	27-32	33-38
15	16-21	20-25	25-30	30-35	37-42	44-49	50-60
20	23-28	29-34	35-40	42-47	50-60	50-60	60-70
25	30-35	37-42	44-49	50-60	50-60	60-70	60-70
30	38-43	44-49	50-60	50-60	60-70	60-70	65-70
35	44-49	50-60	50-60	60-70	60-70	65-70	65-70
40	50-60	50-60	60-70	60-70	65-70	65-70	65-70
45	50-60	60-70	60-70	65-70	65-70	65-70	65-70
50	50-60	60-70	65-70	65-70	65-70	65-70	65-70
55	60-70	60-70	65-70	65-70	65-70	65-70	65-70
60	60-70	65-70	65-70	65-70	65-70	65-70	65-70

The humidifier is controlled by a 24V remote humidistat powered from the cooling unit. The humidistat must be mounted inside the cellar near the return air plenum inside the cellar. The humidifier operates independently from the cooling unit, and uses the cooling unit evaporator fan to circulate the air. The factory set-point on the humidistat is 55%RH, adjustable in 5% increments to a maximum of 70%RH.

Evaporative pad type humidifiers require a constant flow of water over the pad when the humidifier is on to keep the water pad saturated and flush minerals and solids through to the drain. The water supply is regulated by an internal orifice inside the humidifier, and will produce a continuous flow through to the drain line of approximately 6 gallons of water per hour during humidification. The humidifier will operate with a hot or cold water supply, however the humidifier will operate more efficiently if supplied with hot water (140°F maximum).

Humidifier Specifications	
Dimensions (HxWxD)	16.04"x14.82"x14.41"
Weight	28 lbs
Power Consumption	0.96 Amps @ 115V / 60Hz
Humidistat Factory Set Point	55% RH
Humidstat Set Point Range	5% to 70% RH
Humidistat Adjustment Increments	5% RH
Humidistat Display Range	0% to 95% RH
Humidistat Display Accuracy	(+/-) 4.5% RH
Water Supply Feed Rate	6 gph (gallons/hour)
Nominal Water Evaporation Rate 70°F, 35%RH room 140°F water supply	0.50 gph
Cellar Water Evaporation Rate - 55°F Air, 50%RH cellar	
60°F water supply	0.09 gph
90°F water supply	0.18 gph
120°F water supply	0.30 gph


1.34"
14.82"
7.00"
OPTIONAL
10" DUCT
ADAPTER
INTAKE HOOD
0.44"
OPTIONAL
INTAKE
GRILL
14.44"
OPTIONAL
HUMIDIFIER
18.63"
18.63"
TOP VIEW
2.56" OPTIONAL
10" DUCT
ADAPTER
DISCHARGE
PLATE
0.44" OPTIONAL
DISCHARGE
GRILL
14.41"
OPTIONAL
HUMIDIFIER
16.04"
OPTIONAL PERMANENTLY
CONNECTED WIRING
CONDUIT KNOCKOUT
18.54"
ELECTRONIC CONTROL
INTERCONNECTING
WIRING CONDUIT
KNOCKOUT
1.00"
SELF-ADJUSTING
LEVELING
FEET
HUMIDIFIER
DRAIN
HUMIDIFIER
WATER LINE
EVAPORATOR
MODULE INTAKE
(COLD)
DRAIN LINE
CONNECTION
(SIDE OPPOSITE)
SIDE VIEW
CONTROL ACCESS
BACK VIEW
SUCTION
CONNECTION
LIQUID
CONNECTION
AH6500S / AH8500S
SPLIT SYSTEM
EVAPORATOR MODULE
1640H REV02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OPTIONAL
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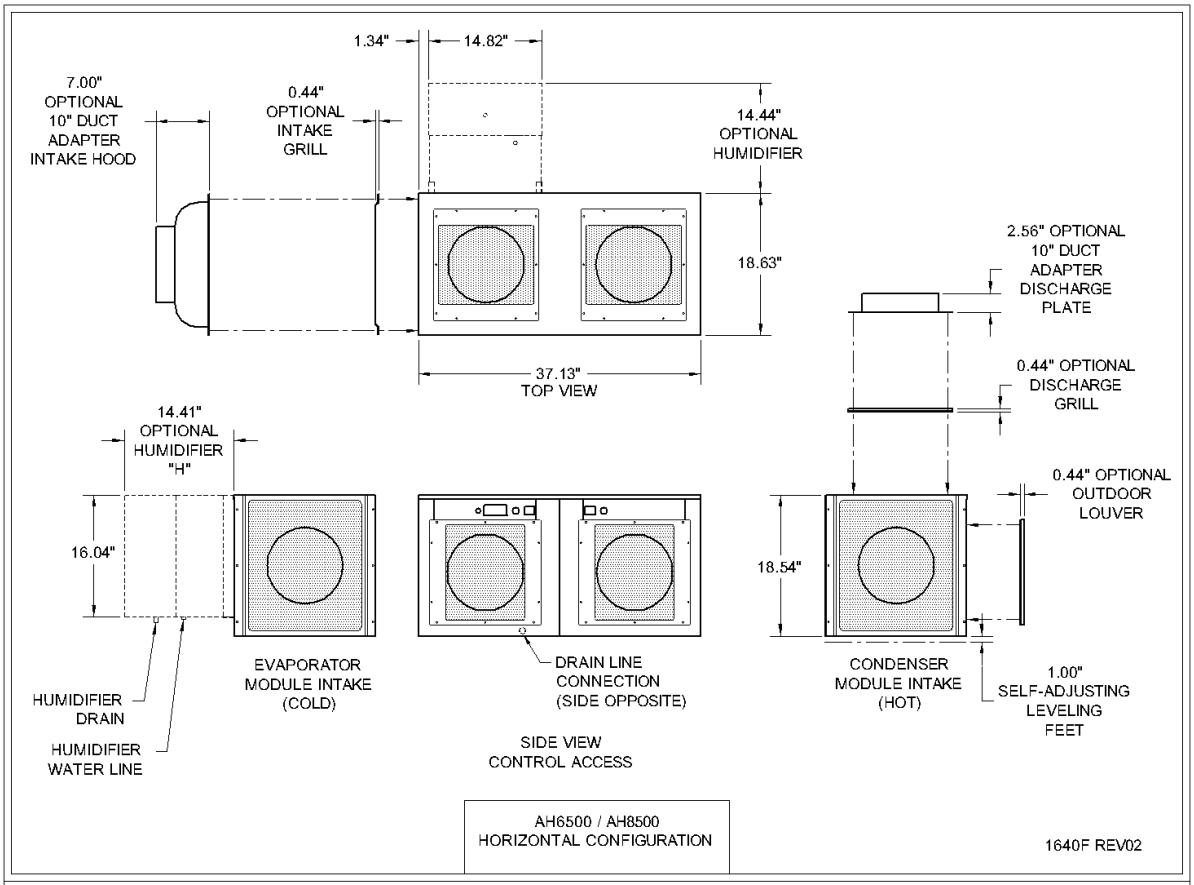
GRILL
7.00"
OPTIONAL
10" DUCT
ADAPTER
INTAKE HOOD
18.63"
TOP VIEW
CONDENSER FAN
SPEED CONTROL
INSIDE COMPARTMENT
OUTDOOR UNITS ONLY
CONDENSER
FAN SPEED
CONTROL - INDOOR
ONLY
0.44" OPTIONAL
DISCHARGE GRILL
0.44"
OPTIONAL
OUTDOOR
LOUVER
18.63"
OPTIONAL
PERMANENTLY
CONNECTED
WIRING
KNOCKOUT
LOCATION
18.54"
1.00"
SELF-ADJUSTING
LEVELING
FEET
LIQUID
CONNECTION
SUCTION
CONNECTION
ELECTRONIC CONTROL
INTERCONNECTING
WIRING CONDUIT KNOCKOUT
CONDENSER
MODULE INTAKE
(HOT)
2.56" OPTIONAL
10" DUCT
ADAPTER
DISCHARGE
PLATE
REAR VIEW
SIDE VIEW
AH6500S / AH8500S
SPLIT SYSTEM
CONDENSER MODULE
1640I REV02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"H"
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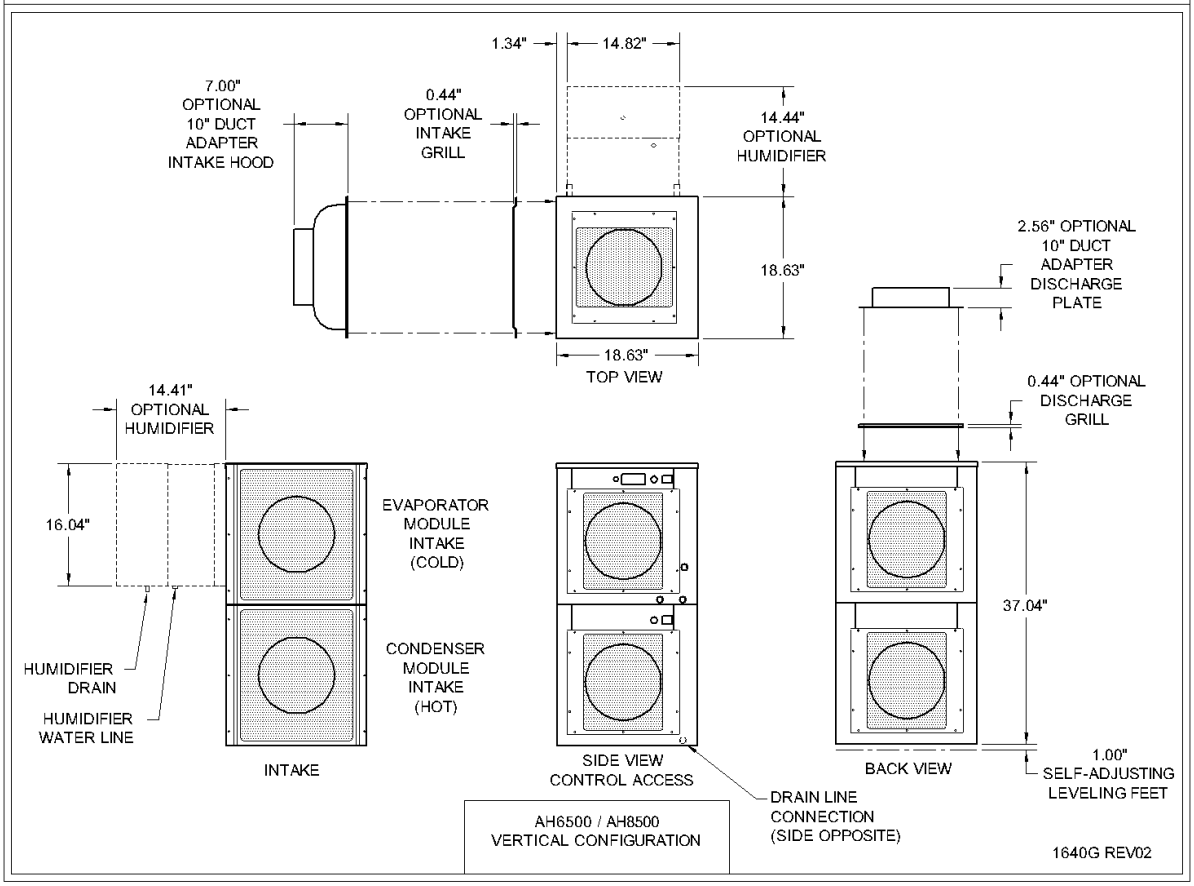
OUTDOOR
LOUVER
18.54"
HUMIDIFIER
DRAIN
HUMIDIFIER
WATER LINE
EVAPORATOR
MODULE INTAKE
(COLD)
DRAIN LINE
CONNECTION
(SIDE OPPOSITE)
CONDENSER
MODULE INTAKE
(HOT)
1.00"
SELF-ADJUSTING
LEVELING
FEET
SIDE VIEW
CONTROL ACCESS
AH6500 / AH8500
HORIZONTAL CONFIGURATION
1640F REV02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MODULE
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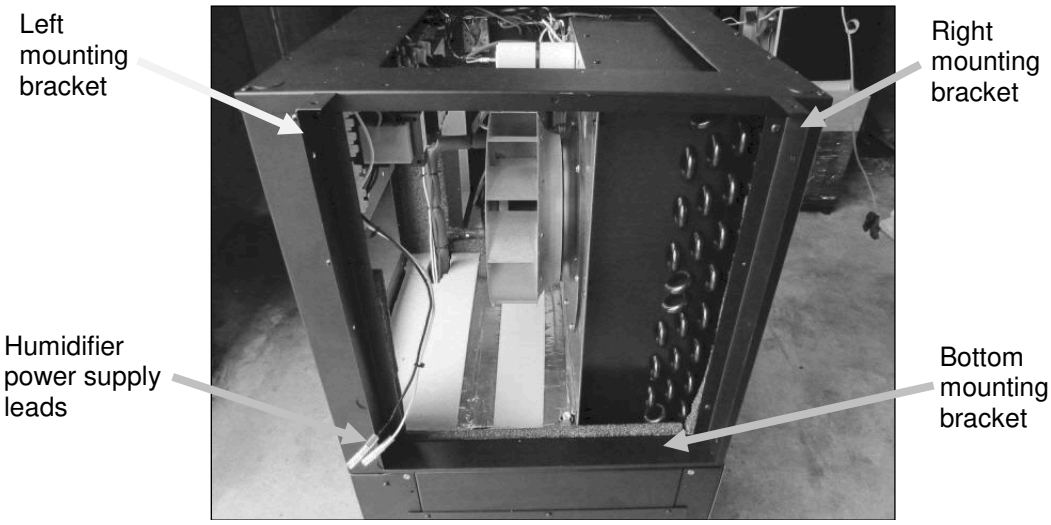
HUMIDIFIER
DRAIN
HUMIDIFIER
WATER LINE
INTAKE
SIDE VIEW
CONTROL ACCESS
BACK VIEW
1.00"
SELF-ADJUSTING
LEVELING FEET
DRAIN LINE
CONNECTION
(SIDE OPPOSITE)
AH6500 / AH8500
VERTICAL CONFIGURATION
1640G REV02

Installation Instructions

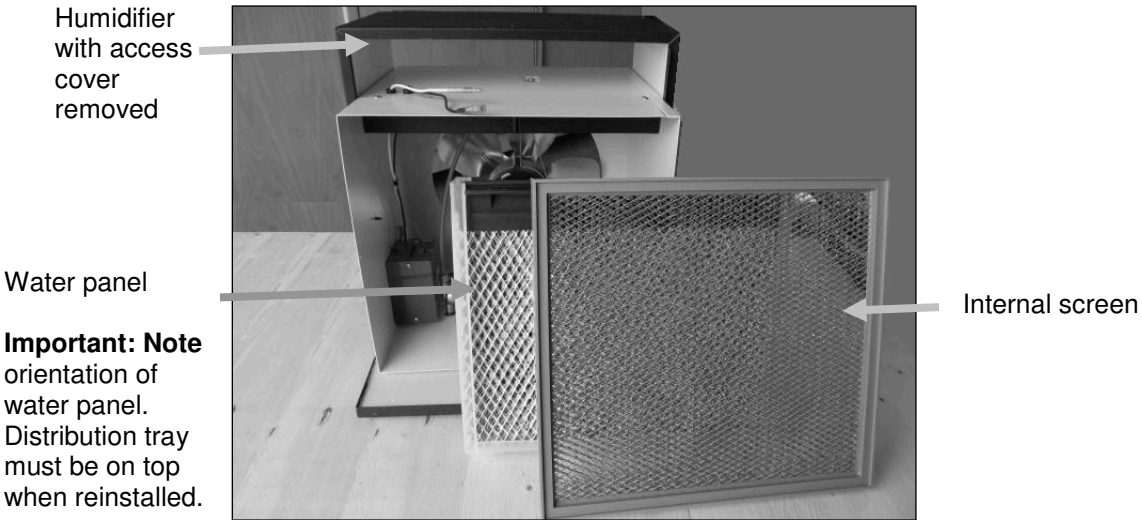
Step 1: Installing humidifier mounting brackets.

Install humidifier mounting brackets using #8 phillips head sheet metal screws. From the box of accessories remove three brackets and the screws. The three brackets get mounted onto the Evaporator Module as shown (left side facing air intake). Please make sure to mount the unit on the cold side, which is marked and on the side opposite the controls. The brackets will form a sleeve for the humidifier to slide into. Locate the humidifier power supply leads: black lead "80" and white lead "81". These leads will be pulled through the humidifier and connected later in the process.



Step 2: Preparing the humidifier module for mounting.

From the humidifier in the box remove the humidifier access cover, internal screen, and water panel.

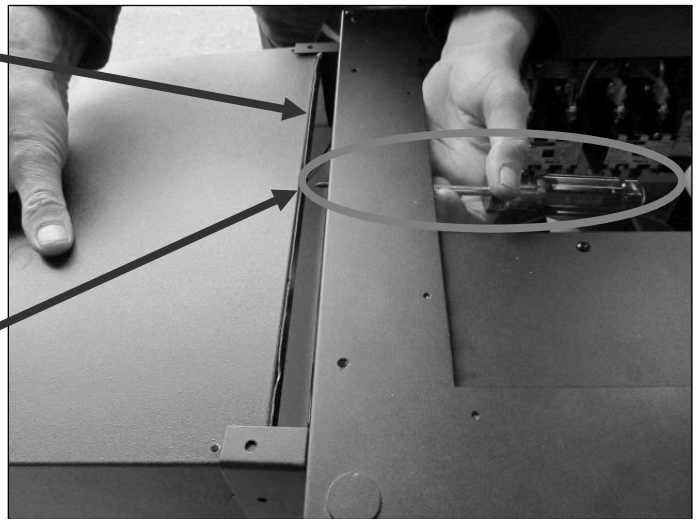


Important: Note orientation of water panel. Distribution tray must be on top when reinstalled.

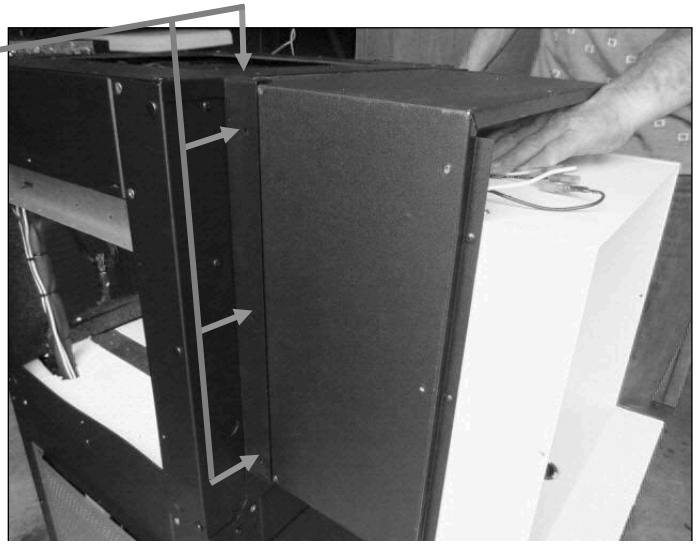
Step 3: Mounting the humidifier module onto the Air Handler.

Mount the large humidifier module to the evaporator module by sliding into the mounting brackets and secure with the #8 phillips head sheet metal screws that are provided.

- Remove backing from double sided tape on humidifier top inside flange
- Slide humidifier into mounting brackets until flush with evaporator module
- Attach (1) screw through the inside top panel of the handler to the humidifier top flange

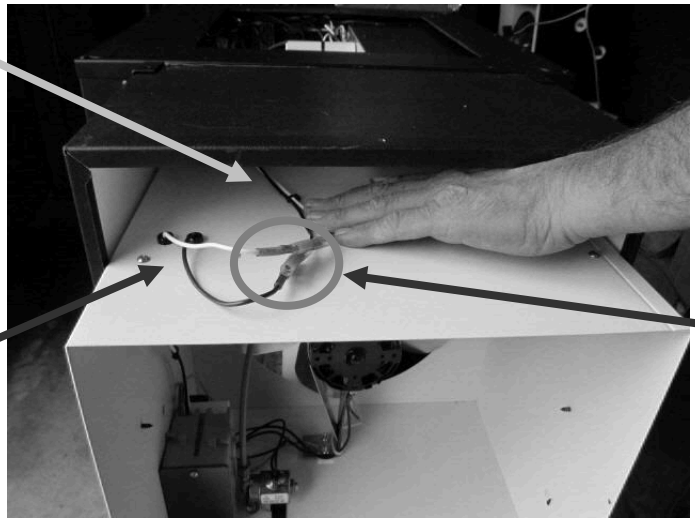


- Attach screws through left and right mounting brackets to humidifier housing, (4) screws per bracket.



Step 4: Making the electrical connection to the Air Handler.

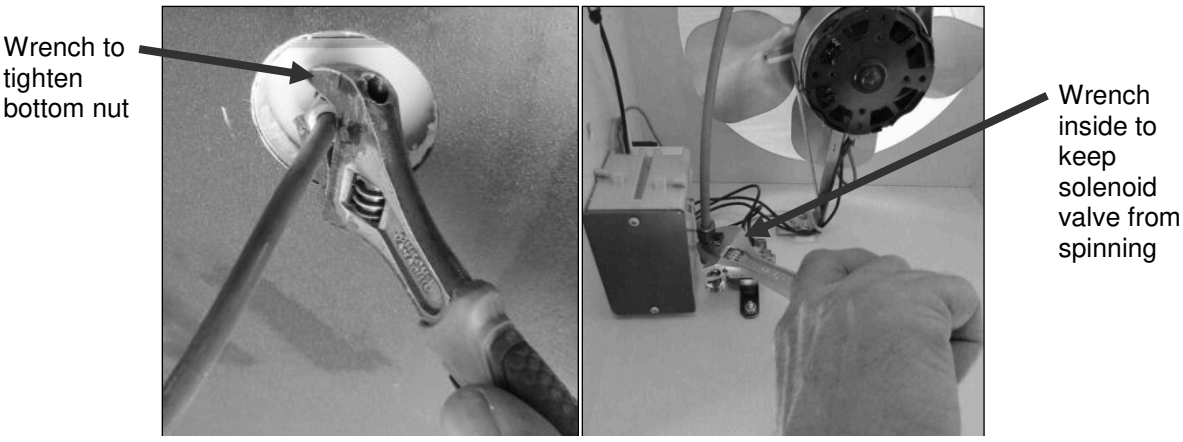
Connect humidifier power leads - black "80" to black, white "81" to white. Secure with cord clamp.



Step 5: Connecting the water supply to the humidifier.

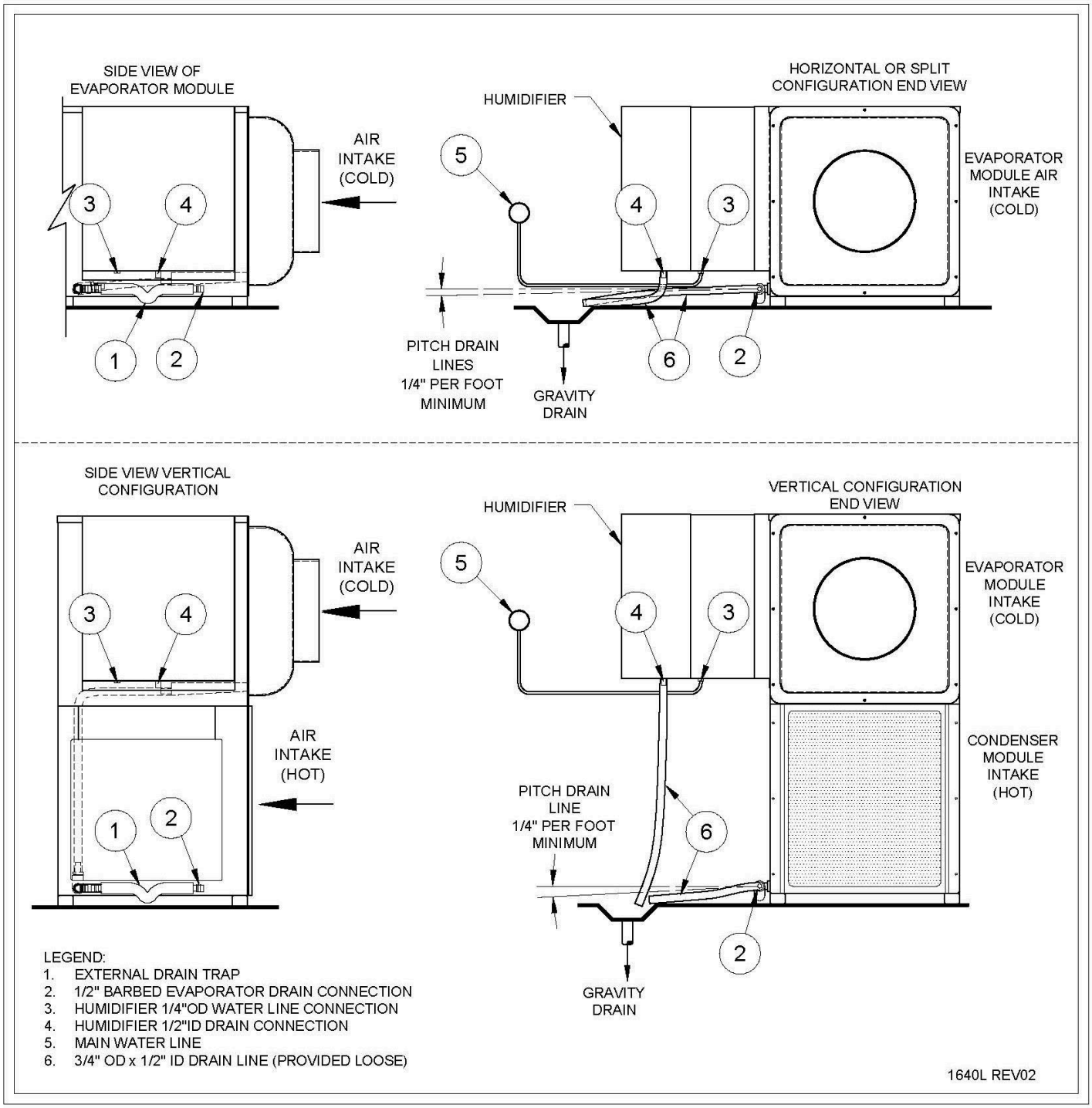
Install 1/4" copper water line using compression fitting and flare nut to the water connection on the bottom of the humidifier. Install humidifier drain line by sliding 1/2"ID flex tubing onto drain connection stub.

Use two wrenches when tightening water line to avoid damage to the internal water solenoid valve.



Step 6: Setting up the excess humidifier water drain.

The humidifier filter pad will have a continuous supply of excess water which will flow out of the drain. The diagram below shows how the drain should be located for the various configurations.

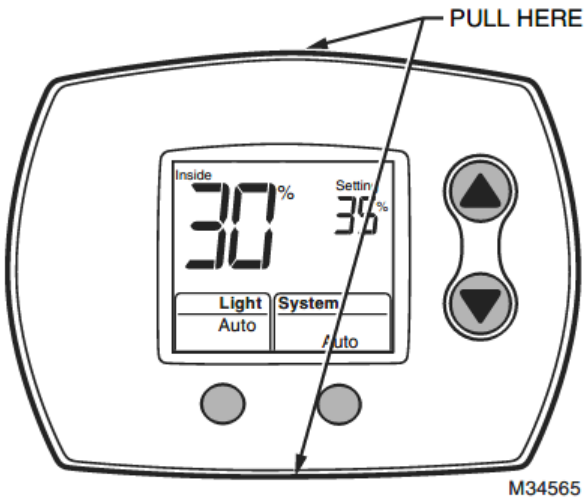


Step 7: Re-assemble the humidifier components.

Place the water panel back into the humidifier. Make sure the water discharge tube inserts into the water panel top opening, and the water panel bottom drain is aligned with the housing drain. Replace the internal screen and humidifier access cover.

Step 8: Mount and connect the humidistat.

Mount the remote humidistat inside the cellar near the return air plenum, at a convenient height to access the display. Separate the wallplate from the humidistat:



Caution: Electrical Hazard

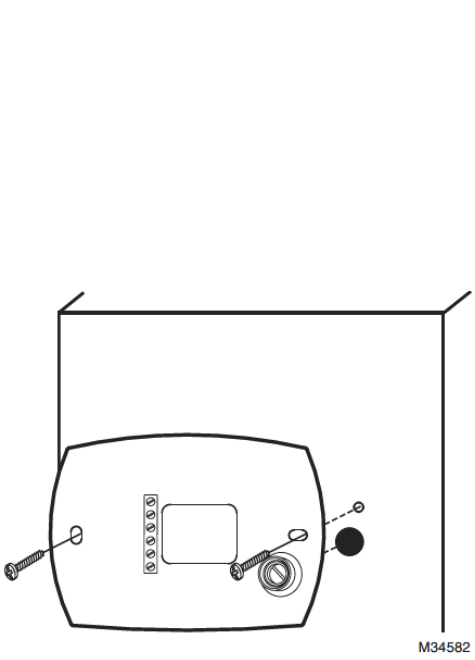
Can cause electrical shock or equipment damage.
Disconnect power before beginning installation.

- Run the humidistat lead wire through the back hole to the terminals.

- Install the mounting plate using two wall mounting screws.

- Connect wiring by matching the wire lead color to the terminals as shown.

- Replace the cover.



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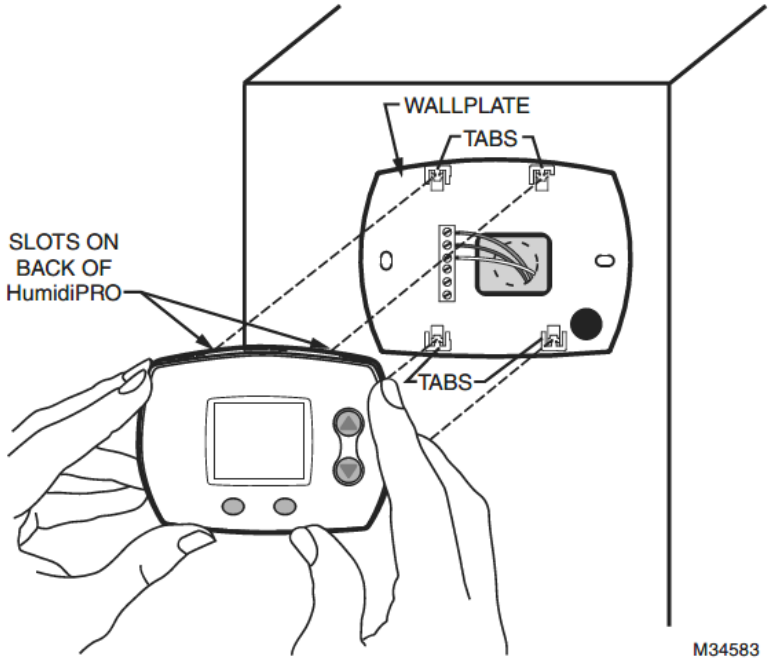

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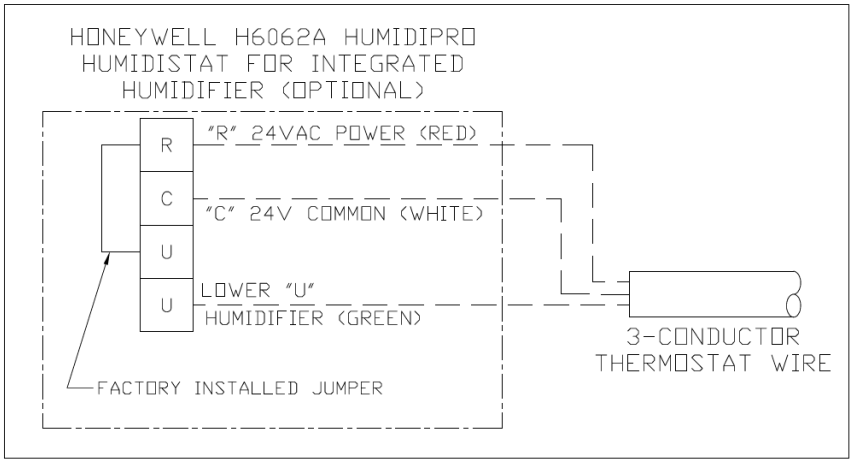


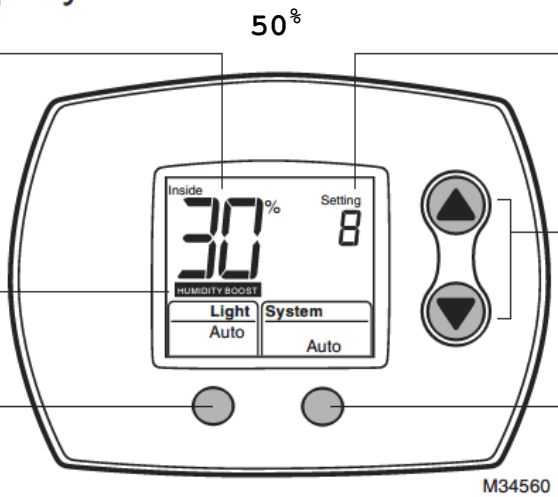
Step 9: **Getting started.**

Power up the unit and set the humidistat to turn the humidifier on, and verify that water is flowing through to the drain. The humidifier is now ready to put into service.

Operating Instructions

The humidifier is controlled by the remote humidistat located in the cellar. The only function enabled on the controller is humidity. The humidistat displays temperature in addition to relative humidity; however the cooling unit temperature control is managed by the primary temperature controller. The humidistat controller will have no effect on the air handler temperature settings for the cellar.

Controls and display



Current Inside Humidity

Current Setting

Humidity Setting Adjustment
Press the up or down buttons until you reach the desired setting.

Humidity Boost
Optional

Light Button
Press **Light** to select Auto or On.

System Button
Press **System** to select Auto or Off

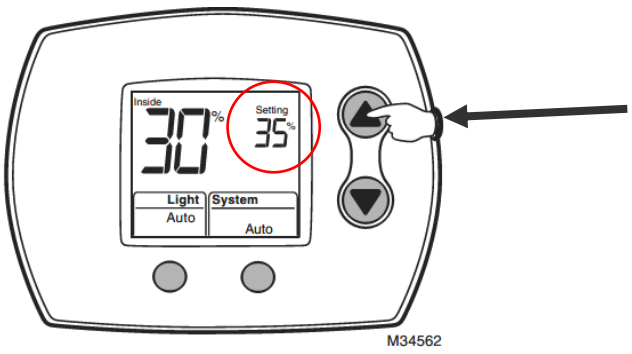
Auto: the most commonly used setting. The backlight will turn on when any button is pressed. It will turn off in 10 seconds if no other buttons are pressed.

On: the backlight is always on.

Auto: the most commonly used setting. The humidity control calls for humidity when needed.

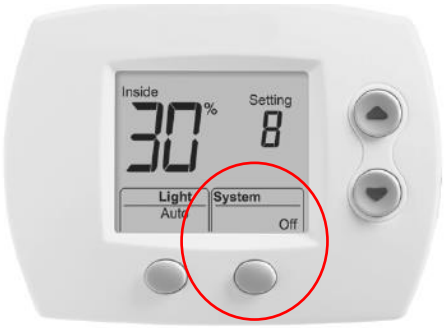
Off: the humidity control does not call for humidity.

The humidistat has a factory set point of 55%RH, adjustable in 5% increments using the "Up" or "Down" arrows. The maximum humidity set point is 70%RH. Settings above 70% are not recommended, because mildew will grow on the bottle labels and walls of the cellar. A range of 50-60% humidity is ideal for the cellar and optimal operation of the handler. Humidity above 60% will negatively affect the performance of the handler because the increased humidity on the evaporator coil will cause it to work harder.

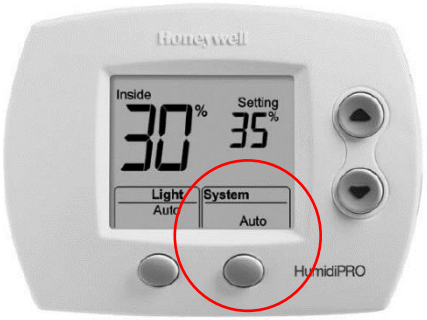


Pressing the "Up" or "Down" arrows will cause the display to change and the current set point value to blink. Use the arrows to increase or decrease the humidity set point to the desired value. The display will return to the normal display mode after a few seconds, showing the current relative humidity.

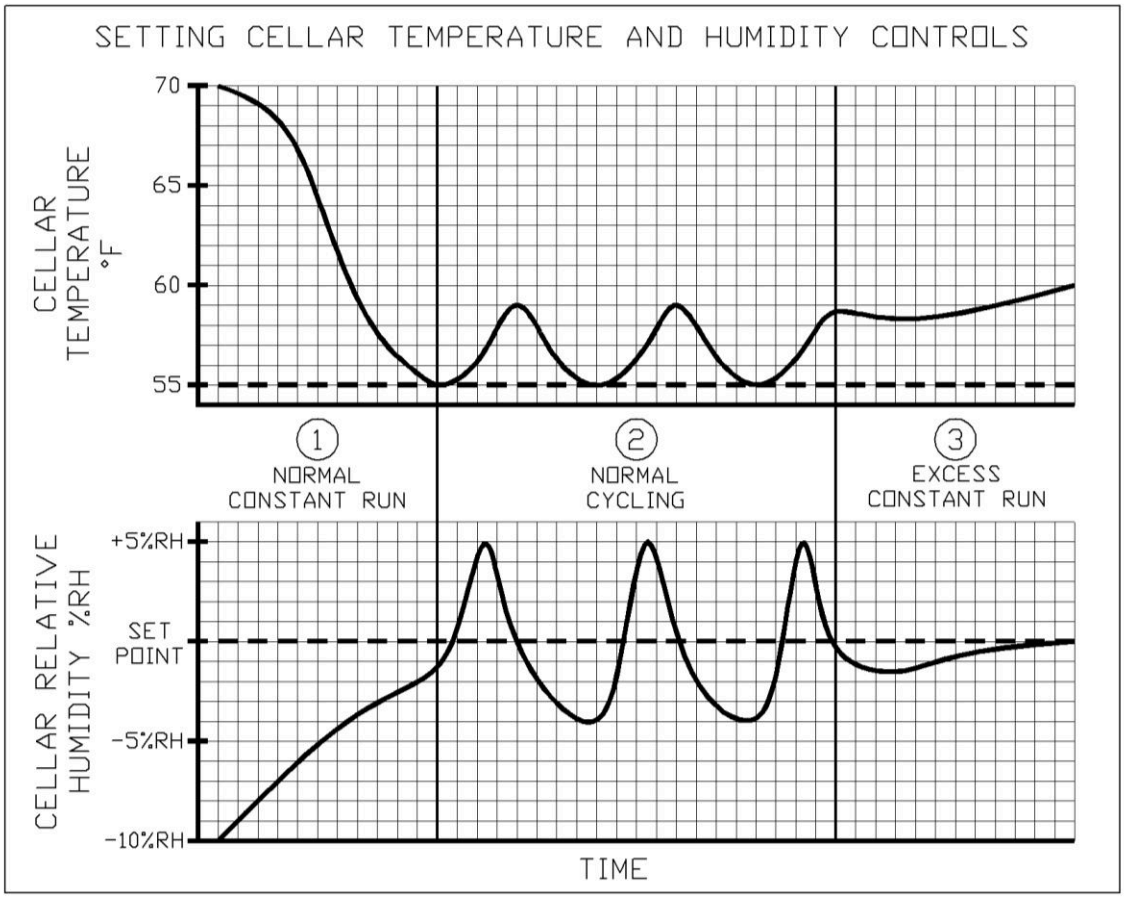
"Auto" runs the humidifier automatically based on the set-point, "Off" turns the humidifier off. To turn the humidifier off, press the “System” button until the following screen is shown:



To set the humidifier to “Auto”, press the “System” button until the following screen is shown:



Operating Guidelines



Region 1: Initial Cellar Startup

As the temperature pulls down, the relative humidity rapidly increases from the base humidity level. This increase in humidity will happen naturally, so for a faster pull down it is strongly recommended that the humidifier not be turned on until the cellar pulls down to the set point temperature.

Region 2: Normal Cooling Cycle

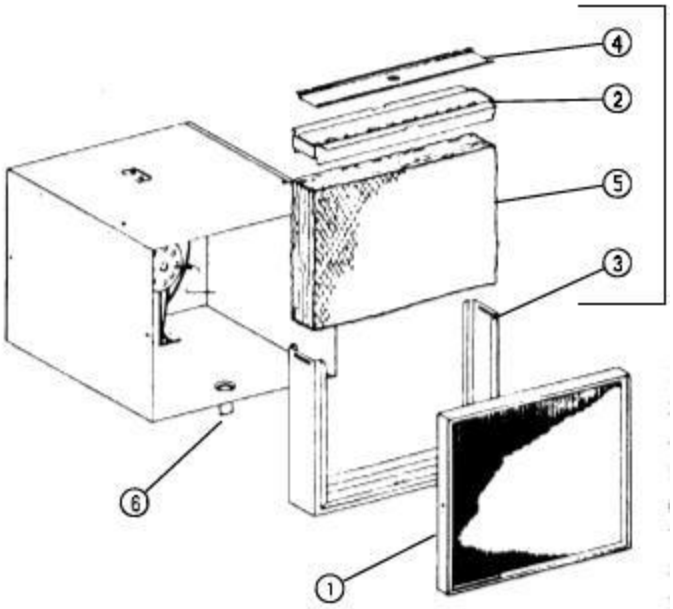
As the cellar temperature decreases it will reach the temperature set point, and the cooling unit turns off. The cellar temperature increases over time until the controller calls for cooling, and the cycle repeats. During the cooling cycle, it is normal for the humidity to drop below the humidistat set point. When the cooling unit turns off, there will be a spike in humidity that will balance out during the cooling unit off cycle. This is caused by water left on the fins of the cooling coil re-evaporating into the cellar, causing the short overshoot in humidity levels. The humidifier will control to the humidistat set point independently of the cooling unit cycles.

Region 3: Excess Run Time

Based on the ambient conditions and the cooling unit loading, it is possible that the humidity set point will be too high to allow the cooling unit to reach the desired temperature set point. If so, the unit will run constantly, wasting electricity and shortening the life of the unit. If the unit runs excessively, either the temperature set point must be raised or the humidity set point must be lowered until the unit cycles as shown in Region 2.

Water Panel Maintenance

For optimal performance, we recommend that you replace the water panel at least once a year, and clean out mineral deposits in the distribution tray and drain:



1. Internal Screen
2. Distribution Tray
3. Scale Control Insert
4. Distribution Tray Cover
5. Water Panel Evaporator
6. Drain Connection

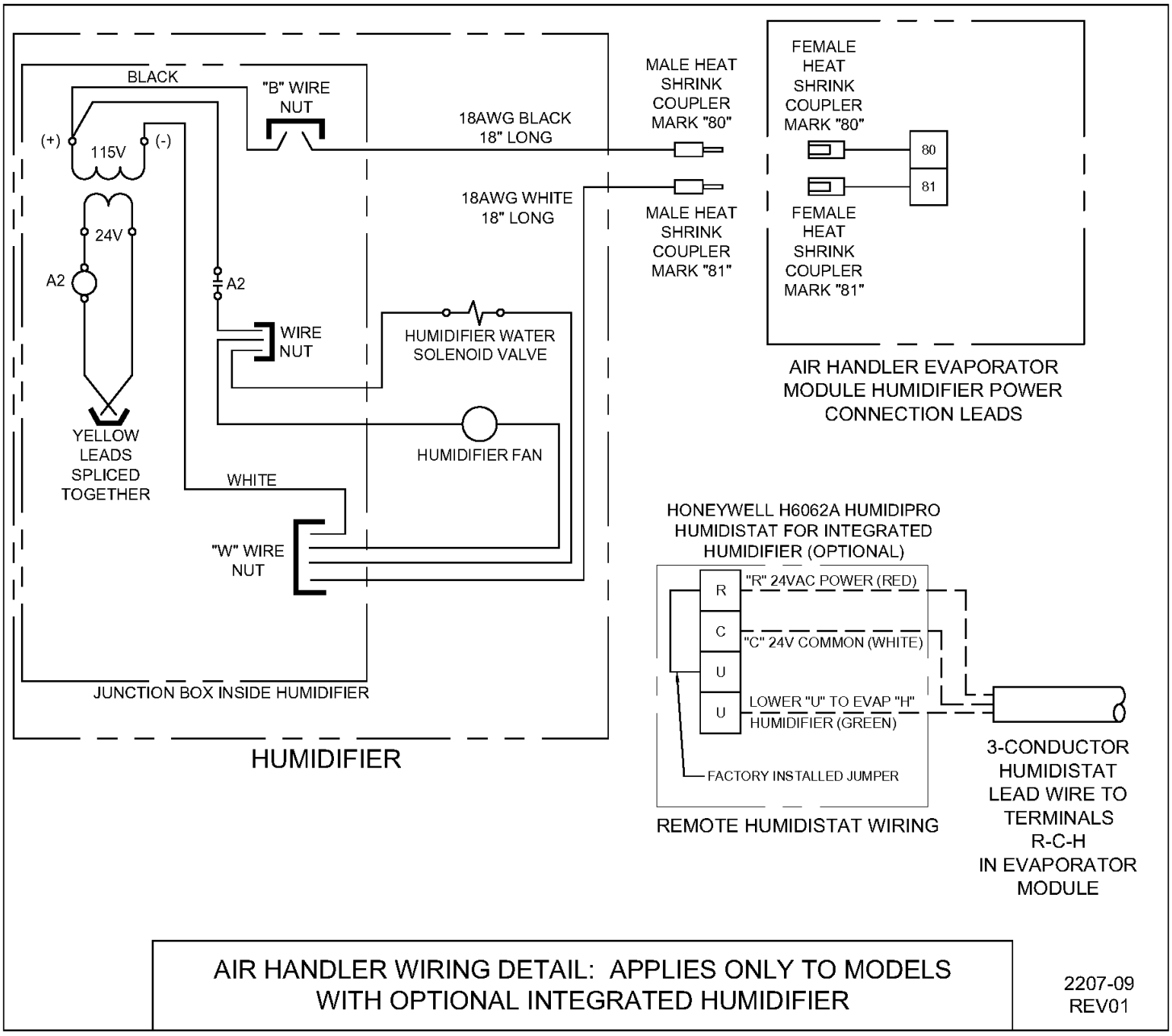
- Turn the cooling unit off and disconnect the power supply to evaporator and condenser.
- Turn off the water supply to the humidifier.
- Remove the humidifier access cover to gain access to the internal humidifier components.
- Remove Internal Screen (Item 1).
- Lift the Water Panel evaporative assembly out of the humidifier housing.
- To remove the distribution tray (Item 2) from Water Panel evaporative assembly, push down on tray and pull out scale control insert (Item 3). To clean the "V" openings of the tray, gently pry the distribution tray cover (Item 4) from the tray. Lightly scrape out or brush off any mineral deposits, being careful not to stretch or loosen the synthetic fabric liner. Soaking the tray in vinegar or a lime-removing agent is helpful when trying to remove stubborn mineral deposits.
- Slide the Water Panel evaporator (Item 5) out from the scale control insert (Item 3) and dispose of the Water Panel. Clean the scale control insert of mineral deposits. Replace the Water Panel evaporator with a replacement Water Panel from CellarPro. Slide the Water Panel back into the scale control insert (Item 3) and snap the distribution tray cover (Item 4) into the distribution tray (Item 2). Then snap the distribution tray back into the scale control insert.
- Inspect the plastic feed tube by gently flexing it and looking for cracks or signs of wear. Replace tube if it is cracked, brittle or has been damaged.
- Remove the drain line from the bottom of the humidifier and flex it to loosen any mineral deposits or blockage. Then flush it with water under pressure. If it does not properly clear, replace it. Slip the drain line back onto the drain fitting (Item 6). Make sure the drain line has a constant downward slope and is not flattened or blocked.
- Reinstall Water Panel evaporative assembly and Internal Screen (Item 1).
- Reconnect electrical power and turn on water supply.
- Set the humidistat to activate the humidifier and verify proper water flow through to the drain line.
- Return the humidistat set point to the desired level.

Troubleshooting

Issue: **Cellar humidity does not reach desired set point**

Diagnostics

<table>
<tr><td rowspan="4">Cooling Unit Power Check:</td><td colspan="6">Is the display on the humidistat illuminated?</td></tr>
<tr><td>Yes</td><td>Is the humidistat set to "Auto" and the set point at the desired value?</td><td>Yes</td><td colspan="2">Proceed to Humidifier Power and Water Supply Check</td></tr>
<tr><td></td><td></td><td>No</td><td colspan="2">See instructions for setting the humidistat to "Auto" and changing the set point.</td></tr>
<tr><td>No</td><td>Is the temperature display on the cooling unit illuminated?</td><td>Yes</td><td colspan="2">Check for loose connections on the humidistat lead connections inside the humidistat. If the connections wired correctly and tight in the terminals, the unit must be serviced by a qualified technician. Possible causes: loose internal wiring, failed 24V transformer.</td></tr>
<tr><td></td><td></td><td>No</td><td colspan="2">Check power supplies to both the evaporator and condenser module. If the power supply to both modules is confirmed, the unit must be serviced by a qualified technician.</td></tr>
<tr><td rowspan="5">Humidifier Power and Water Supply Check:</td><td colspan="6">Is there water flowing from the humidifier drain?</td></tr>
<tr><td>Yes</td><td>Is the evaporator fan blowing?</td><td>Yes</td><td>Is the internal humidifier fan blowing?
To verify, remove the access cover, internal screen, and water pad.</td><td>Yes</td><td>The humidifier is functioning. Possible corrective actions: Replace Water Panel, check set point, check humidistat placement in cellar, increase supply water temperature to increase humidifier performance (120°F recommended, 140°F maximum), increase evaporator fan speed.</td></tr>
<tr><td></td><td></td><td></td><td></td><td>No</td><td>The humidifier fan needs to be replaced.</td></tr>
<tr><td></td><td></td><td>No</td><td colspan="3">See cooling unit diagnostics related to evaporator fan</td></tr>
<tr><td>No</td><td>Is there water flow in the supply line to the humidifier?</td><td>Yes</td><td colspan="3">Verify the power leads "80" and "81" are connected properly and are providing power to the humidifier. Refer to the humidifier installation instructions to identify these leads (accessed by removing the humidifier Access Cover). If there are no loose connections, the unit must be serviced by a qualified technician. Possible causes: loose internal wiring, failed water solenoid valve, internal water line blockage, failed humidifier contactor.</td></tr>
<tr><td></td><td></td><td>No</td><td colspan="3">Correct issue to ensure water is being supplied to the humidifier.</td></tr>
</table>



Warranty

Please refer to the warranty section in the Air Handler Manual for the terms and conditions of the warranty for this product.