



AH6500 / AH8500

*Air Handler Wine Cellar
Cooling System*



CONGRATULATIONS!

Thank you for purchasing a new CellarPro cooling system.

Please take a minute to read through this Owner's Manual before you unpack, install and turn on your Cooling Unit.

Also please look through the boxes you receive with your Air Handler shipment to make sure you have received the correct components you ordered and that they are all functioning before the installation.

Box 1 – Cooling unit and Accessories

Box 2 – Duct Plates and Optional Humidifier

If you have any questions about your new cooling unit, it is likely that you will find the answers in this Owner's Manual. We also have more information on our website, including the latest version of the Owner's Manual, at www.cellarpro.com/customerservice.

If you still have questions, please don't hesitate to contact your dealer or CellarPro directly. We can be reached during normal business hours at 707.794.8000. You also may contact us anytime via email at info@cellarpro.com.

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I. Specifications, Cut Sheets and Cellar Construction

The following tables will provide information on the dimensions of the unit and how best to mount or locate the various models available.

Specifications

Horizontal Self Contained				
No Humidifier			With Humidifier	
Model	Dimensions WxDxH (inches)	Weight (lbs)	Dimensions WxDxH (inches)	Weight (lbs)
AH6500	18.6 x 37.1 x 19.3	161	33.0 x 37.1 x 18.5	181
AH8500	18.6 x 37.1 x 19.3	170	33.0 x 37.1 x 18.5	190

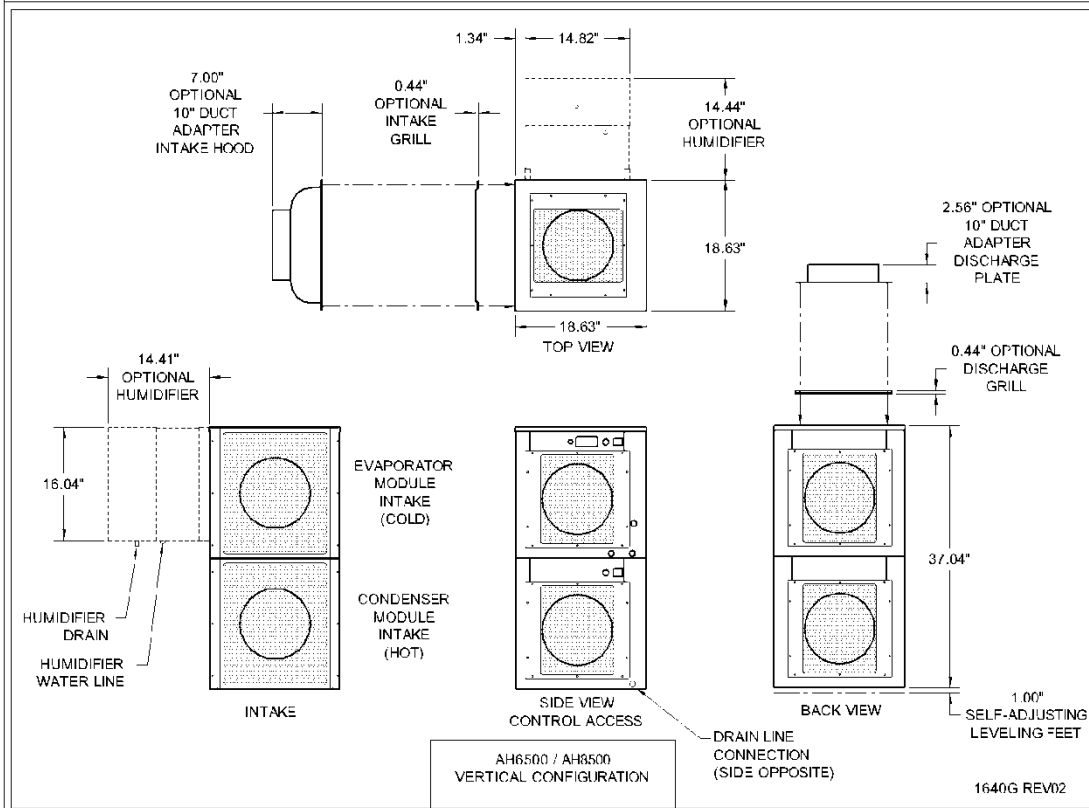
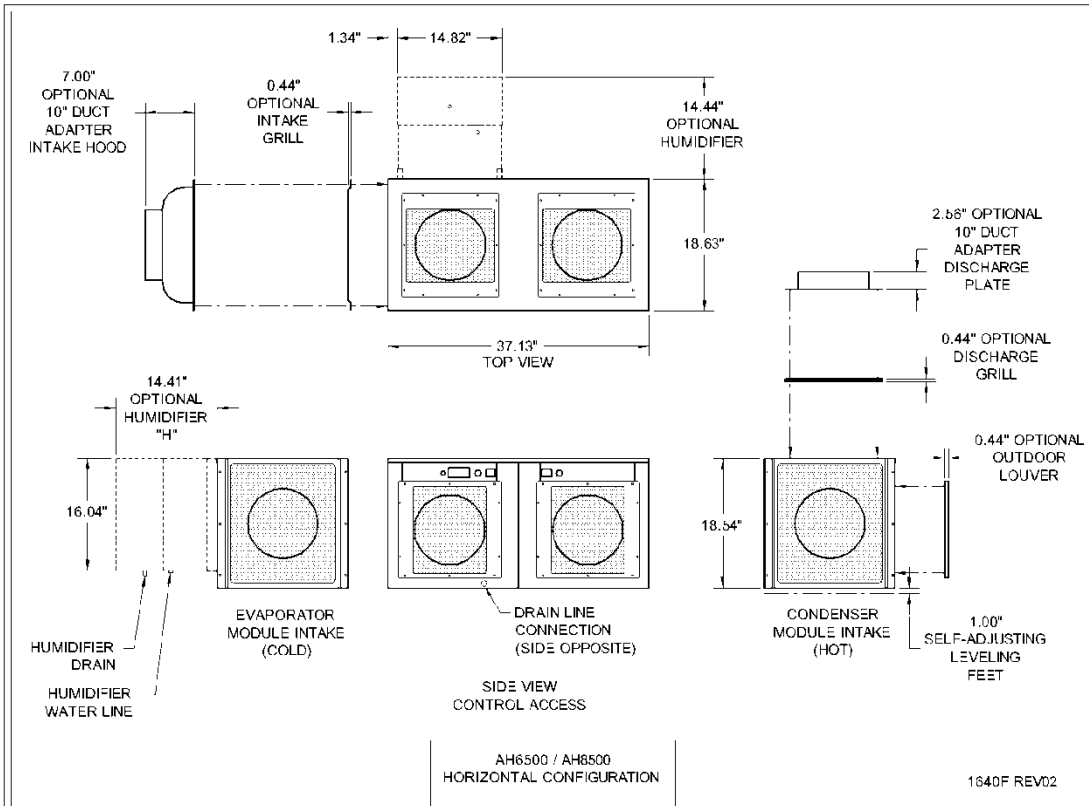
Vertical Self Contained				
No Humidifier			With Humidifier	
Model	Dimensions WxDxH (inches)	Weight (lbs)	Dimensions WxDxH (inches)	Weight (lbs)
AH6500	18.6 x 18.6 x 37.8	161	33.0 x 18.6 x 37.8	181
AH8500	18.6 x 18.6 x 37.8	170	33.0 x 18.6 x 37.8	190

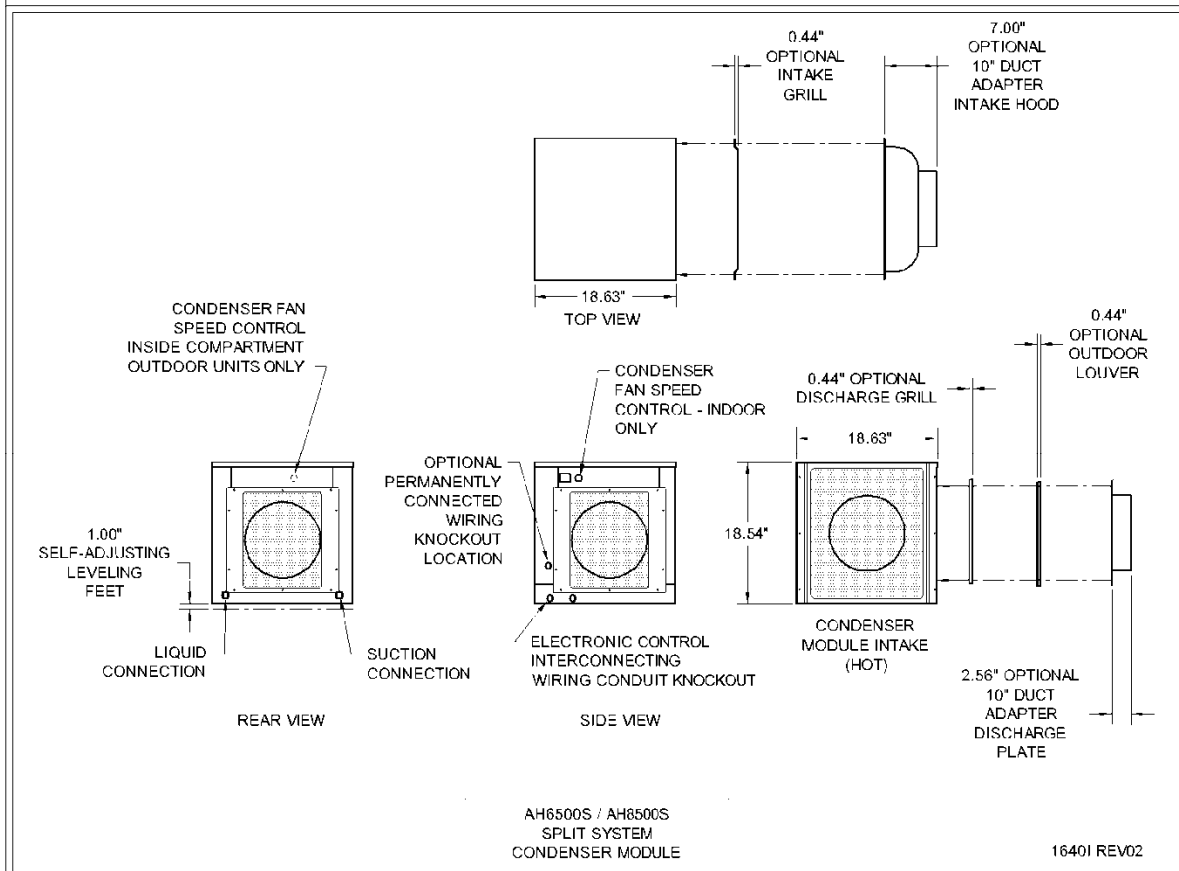
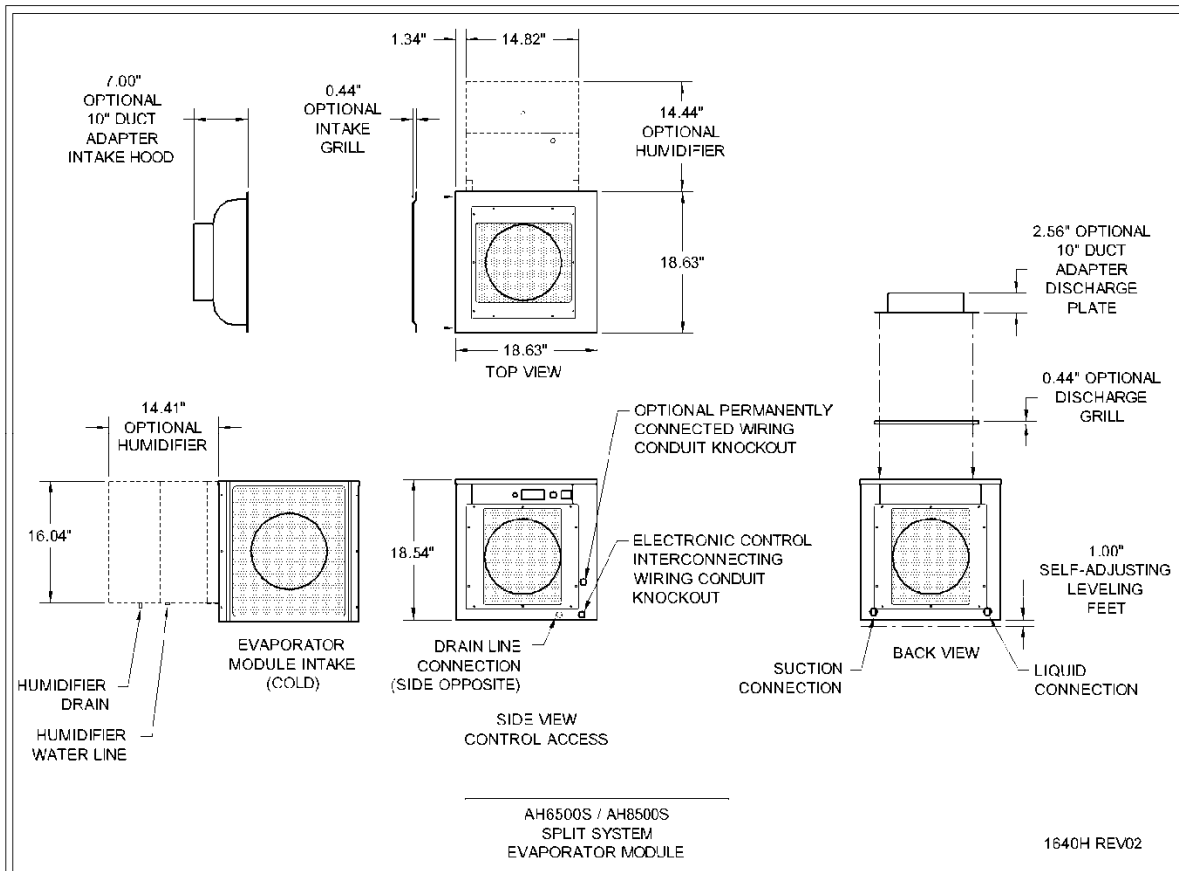
Split System Evaporator Module				
No Humidifier			With Humidifier	
Model	Dimensions WxDxH (inches)	Weight (lbs)	Dimensions WxDxH (inches)	Weight (lbs)
AH6500S	18.6 x 18.6 x 19.3	60	33.0 x 18.6 x 19.3	80
AH8500S	18.6 x 18.6 x 19.3	60	33.0 x 18.6 x 19.3	80

Split System Condenser Module		
Model	Dimensions WxDxH (inches)	Weight (lbs)
AH6500S	18.6 x 18.6 x 19.3	111
AH8500S	18.6 x 18.6 x 19.3	120

Cut Sheets

Note dimensions for mounting bolts and space required for installation.







Cellar Construction

Insulation

CellarPro cooling units are designed to be installed inside wine cellars that have proper insulation, moisture barriers and an airtight seal from the environment outside the cellar. Interior walls and floor should have a minimum of R-11 insulation, and a vapor barrier on the warm side of the insulation. The ceiling should have a minimum of R-19 insulation and a vapor barrier on the warm side of the insulation. Doors also should be insulated and tightly sealed with weatherstripping around the perimeter of the door. Surface-mounted fixtures are recommended over recessed lighting, which can allow air to leak into the cellar.



It is important that all wall-joints, doors and windows, electrical outlets and/or switches, pipes, vents and light fixtures be sealed to prevent air and moisture from entering the cellar. If there is a leak in the cellar, the cooling unit will build up excess condensation.

The condensate drain line and optional humidifier drain line must be connected to a suitable drain.

Fan Speeds

Your evaporator module fan speed setting will depend on the amount of ducting and thermal load on the wine cellar, and the resulting airflow and BTUH that is required to cool and maintain your wine cellar at the desired temperature. Your condensing module fan speed setting will depend on the condenser air intake temperature and the amount of ducting, allowing for sufficient airflow to reject the heat absorbed by the cooling system.

Ventilation

Adequate ventilation is critically important for the proper operation of your CellarPro cooling unit, particularly on the condenser (hot) side of the cooling unit.



Condenser Air Exhaust/Intake. Condensing units create significant hot air which must be exhausted into an appropriately-sized space in order for the heat to dissipate. If the space is constrained and/or too small, the heat will not dissipate. In this event, the cooling unit will be forced to re-circulate its hot air exhaust and/or the static pressure will back up the cooling unit. If this happens, the cooling unit's ability to create cold air inside the cellar will be compromised. In addition, the cooling unit must be installed so that, after its installation, the condenser coils are accessible for periodic cleaning.

Evaporator Air Exhaust/Intake. When the warm air from the cellar passes across the evaporator coils, heat is removed from the air, and the resulting cold air is exhausted into the cellar. On non-ducted installations, a minimum clearance of 12" is required from all air intake and discharge locations to maintain proper airflow. Cold air exhaust must be located at the highest point inside wine cellars, the cold air exhaust eventually will drop to the bottom of the cellar. To ensure proper airflow and reduce temperature stratification inside the cellar, the space in front of the cold air discharge should be clear of any obstructions, including wine bottles, wine racks, etc.

Evaporator/Condensor Ducting. CellarPro Air Handlers exhaust and return (hot and cold side) can be ducted up to 50 equivalent feet (100' total equivalent feet exhaust and return) with 10" diameter ducting. With our units we offer duct adaptors and ducting that attach to either the evaporator or condenser module.



II. Installation Instructions

Configuration Options

The Air Handler comes in three basic configurations:

- Horizontal configuration - which can be installed inside or outside the cellar. Additionally it can be installed through the wall with a portion of the unit in the cellar and outside the cellar.
- Vertical configuration – this is the ‘stacked’ option which is a space saving approach.
- Split configuration – with the evaporator in the cellar (ductless) or outside (ducted) and with the condenser either inside or outside the house or building.

Horizontal Configuration.

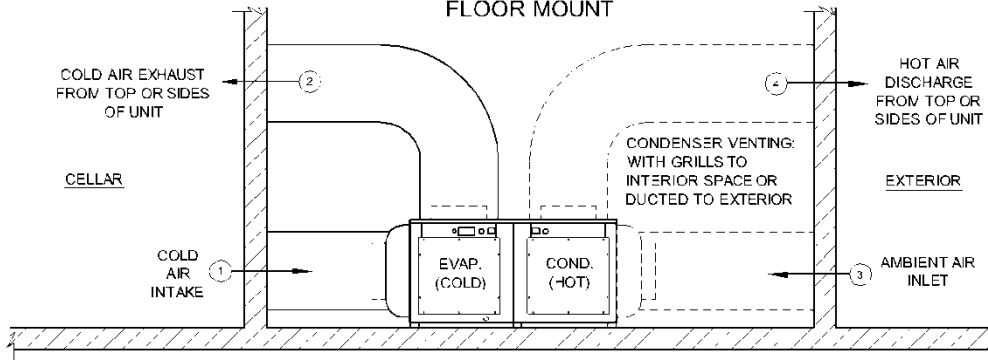
Through wall: The unit is installed through the cellar wall with the evaporator module inside the cellar, and the condenser module outside. The unit requires a mounting shelf, sized to fit the width and depth of the unit and strong enough to support the weight of the unit. The unit is secured to the mounting shelf using (4) 1/4-20 bolts secured to captive nuts located in the bottom corners of the unit (note: the provided leveling feet must be removed). The condenser can be provided with grills to vent the air, or duct adapters to duct the intake, discharge, or both. The condenser module can also pass through the cellar wall to an outdoor exposure by installing optional outdoor louvers to the intake and discharge air panel openings.

Remote ducted: The unit is mounted remote to the cellar, and the evaporator module intake and discharge air are ducted to the cellar. The condenser can be provided with grills to vent the air, or duct adapters to duct the intake, discharge, or both. The condenser module can also pass through an exterior wall to an outdoor exposure by installing optional outdoor louvers to the intake and discharge air panel openings. The unit may be floor mounted on the leveling feet provided, or flush to the floor with the leveling feet removed. The unit may be ceiling hung using six 1/4-20 threaded rods (field provided), attaching to captive nuts provided in the top corners and middle edges of the unit.

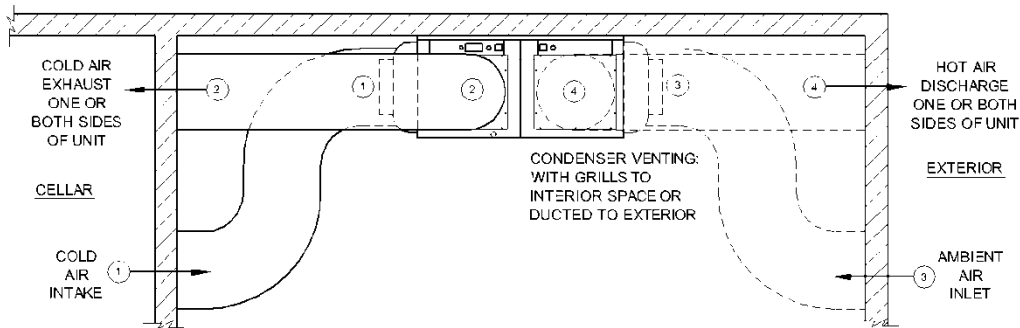
Inside cellar: The unit can be mounted inside the cellar, provided that the condenser intake and discharge are ducted to a suitably ventilated area outside the cellar.



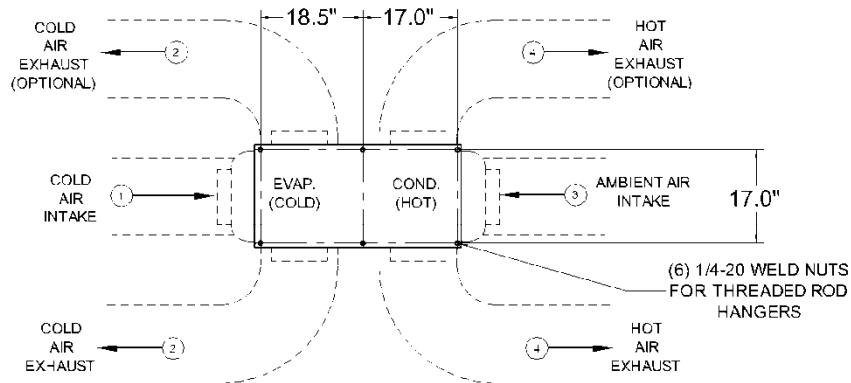
HORIZONTAL CONFIGURATION LOCATED OUTSIDE CELLAR FLOOR MOUNT



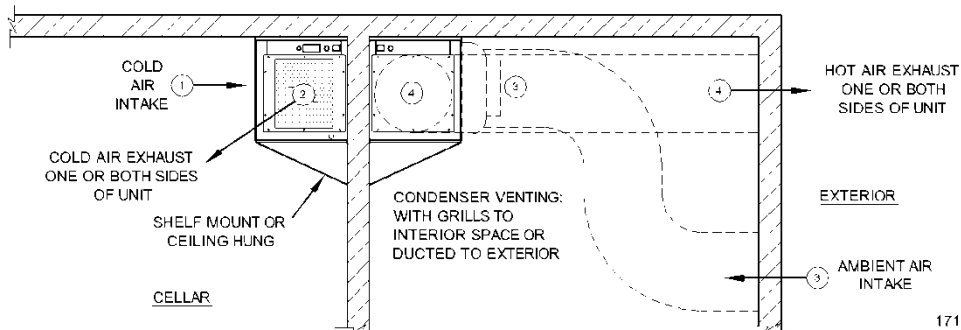
HORIZONTAL CONFIGURATION LOCATED OUTSIDE CELLAR CEILING MOUNT



HORIZONTAL CONFIGURATION TOP VIEW DUCTING OPTIONS AND CEILING MOUNT HANGER LOCATIONS



HORIZONTAL CONFIGURATION THROUGH WALL



1713A REV00

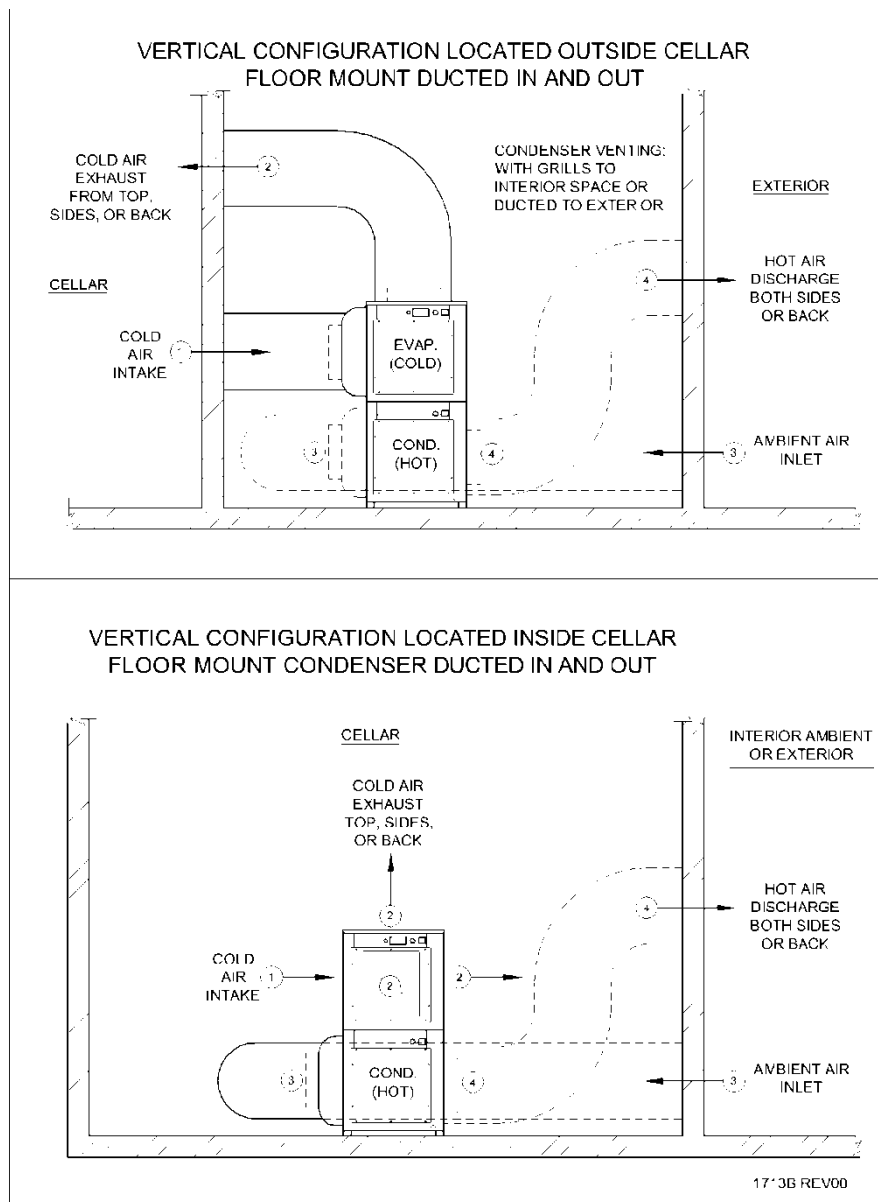


Vertical Configuration.

Through wall: Vertical units cannot be mounted in a through wall configuration.

Remote ducted: Vertical units can be mounted remotely with the evaporator intake and discharge air are ducted to the cellar. The condenser can be configured with grills to vent the air provided that the location is suitably ventilated, or with duct adapters for ducting the intake, discharge, or both to a suitably ventilated area. The unit may be floor mounted on the provided leveling feet, or flush to the floor with the leveling feet removed. The unit cannot be ceiling hung, and cannot be installed outdoors.

Inside cellar: Vertical units can be located inside the cellar, with the condenser intake and discharge ducted to a suitably ventilated area outside the cellar.





Split Configuration.

Models in the Split Configuration can be mounted as follows, with interconnecting wiring and refrigerant piping field provided by an experienced Refrigeration contractor:

Remote ducted: The unit is mounted remote to the cellar, and the evaporator module intake and discharge air are ducted to the cellar. The condenser can be provided with grills to vent the air, or duct adapters to duct the intake, discharge, or both. The condenser module can also be located outdoors by installing optional outdoor louvers to the intake and discharge air panel openings. The separate modules may be floor mounted on leveling feet, or flush to the floor with the leveling feet removed. Each module may be ceiling hung using four 1/4-20 threaded rods per module (field provided), attaching to captive nuts provided in the top corners of the module.

Inside cellar: The evaporator module can be mounted inside the cellar as follows:

- The module may be floor or shelf-mounted, or flush to the floor or shelf with the leveling-feet removed. If shelf mounted, the evaporator module requires a mounting shelf designed to support the weight of the module, and secured by four 1/4-20 bolts secured to weld nuts located in the bottom corners.
- The module may be ceiling hung using four 1/4-20 threaded rods (field provided), attaching to captive nuts provided in the top corners of the module.

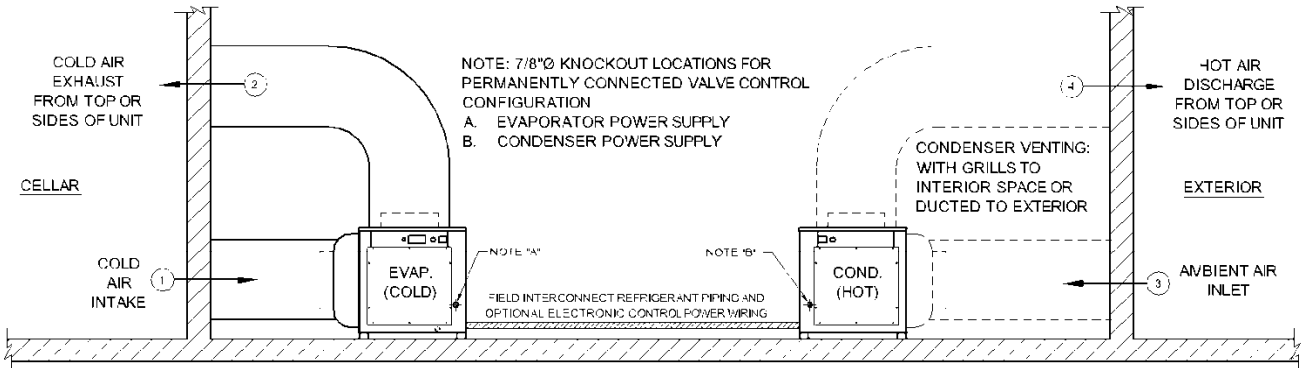
Condensing Units - Indoor

- Condensing units can be installed remotely from the cellar in an area protected from direct exposure to moisture and sunlight.
- The area must have adequate ventilation to maintain a temperature of 110°F or less.
- If the area does not have adequate ventilation, a vent fan should be added to supply fresh air to the space.
- On units that are not ducted, a minimum of 12" of open air space is required in front of the intake and discharge air panels.

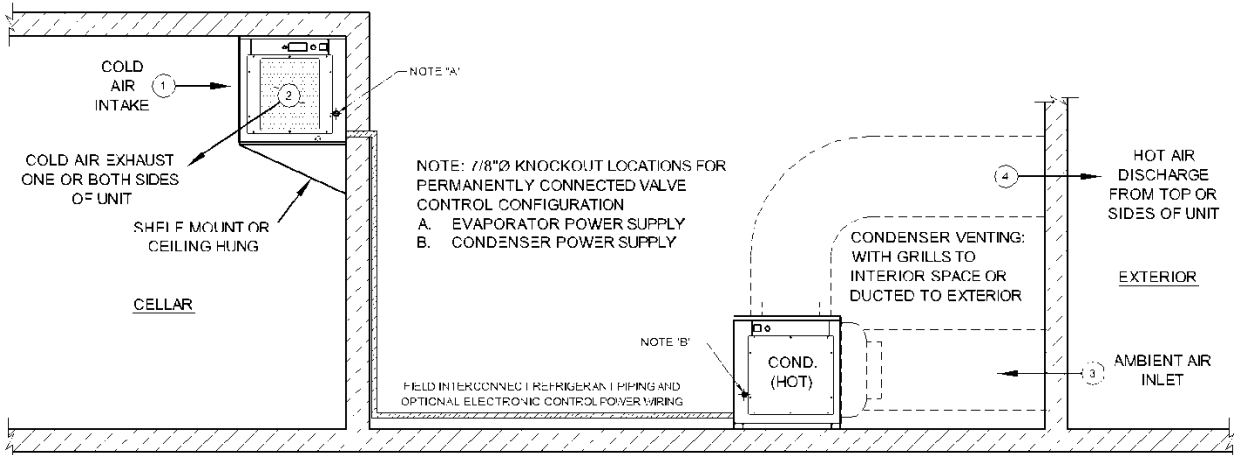
Condensing Units - Outdoor

- Both the Horizontal and Split configurations can be installed with the Condenser module located outdoors, with optional outdoor louvers installed in the air intake and discharge positions.
- The unit is designed to operate in temperatures ranging from 0°F to 110°F. Please note: Our compressor heater (ordered separately) is required for temperatures below 40° F.
- A minimum of 12" of open air space is required in front of the intake and discharge air panels.
- Knockouts are provided in the unit housing for field connection of conduit. The conduit must be liquid tight and approved for outdoor use. Conduit fittings shall be in accordance with UL 514B.

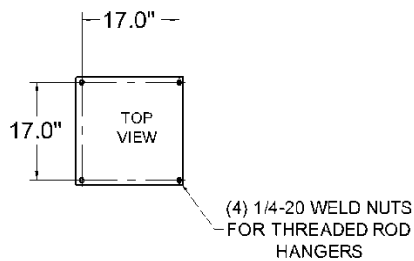
SPLIT CONFIGURATION LOCATED OUTSIDE CELLAR FLOOR MOUNT



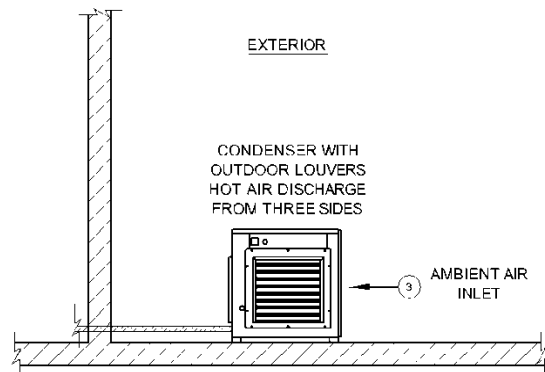
SPLIT CONFIGURATION EVAPORATOR IN CELLAR



SPLIT CONFIGURATION OPTIONAL CEILING MOUNT HOLE LOCATIONS FOR MODULES

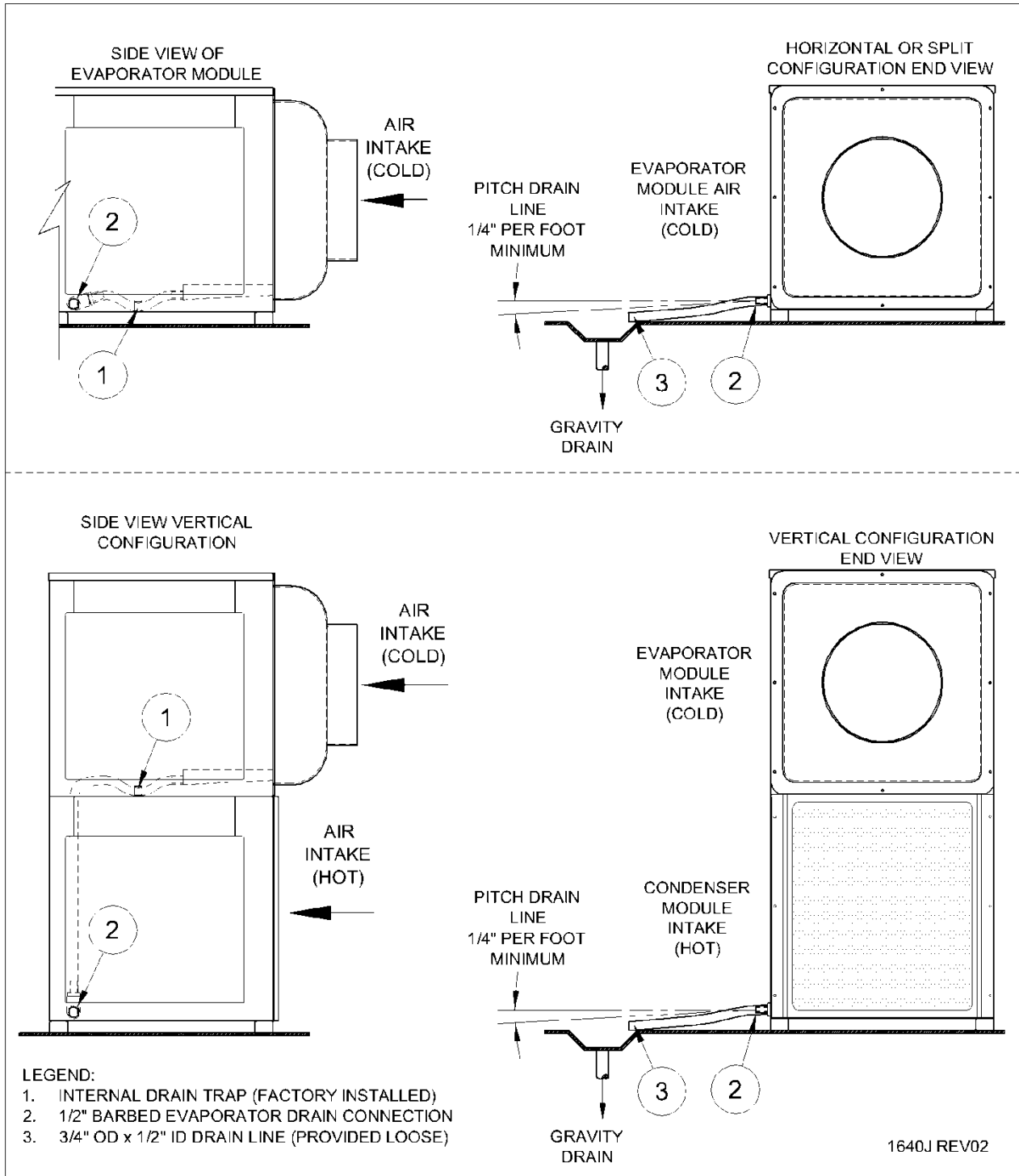


SPLIT CONFIGURATION OPTIONAL OUTDOOR CONDENSING UNIT



Condensate Drain Line – description and layout

The Air Handler has been designed to minimize the amount of condensation created when cooling. The condensate that does form on the evaporator will gather in a tray and be channeled to the drain, through a small trap, and then out through the side of the unit where it exits via a barbed fitting.





Power Supply Requirements

The Air Handler is a high performance cooling system and with significant power requirements. Each of the two sections of the unit, evaporator and condenser, requires its own power source or cord. The amps and watts for the configurations are listed below.

	AH6500 / AH6500S Cord Connected							System Total Power Input Watts
	Evaporator Module			Condenser Module				
	Amps (FLA) @ 115V / 60HZ	Breaker Size	Power Input Watts	Amps (FLA) @ 115V / 60HZ	Compressor LRA	Breaker Size	Power Input Watts	
Standard	5.6	15	640	11.46	53.0	25	824	1464
With Humidifier	6.6	15	755	11.46	53.0	25	824	1579
With Heating	10.6	15	1220	11.46	53.0	25	824	1579

	AH8500 / AH8500S Cord Connected							System Total Power Input Watts
	Evaporator Module			Condenser Module				
	Amps (FLA) @ 115V / 60HZ	Breaker Size	Power Input Watts	Amps (FLA) @ 115V / 60HZ	Compressor LRA	Breaker Size	Power Input Watts	
Standard	5.6	15	640	11.4	54.5	25	958	1598
With Humidifier	6.6	15	755	11.4	54.5	25	958	1713
With Heating	10.6	15	1220	11.4	54.5	25	958	1713

	AH6500S Permanently Connected							System Total Power Input Watts
	Evaporator Module			Condenser Module				
	Amps (MCA) @ 115V / 60HZ	Breaker Size	Power Input Watts	Amps (MCA) @ 115V / 60HZ	Compressor LRA	Breaker Size	Power Input Watts	
Standard	3.5	15	320	17.1	53.0	25	1144	1464
With Humidifier	4.5	15	435	17.1	53.0	25	1144	1579
With Heating	11.3	15	1220	17.1	53.0	25	1144	1579

	AH8500S Permanently Connected							System Total Power Input Watts
	Evaporator Module			Condenser Module				
	Amps (MCA) @ 115V / 60HZ	Breaker Size	Power Input Watts	Amps (MCA) @ 115V / 60HZ	Compressor LRA	Breaker Size	Power Input Watts	
Standard	3.5	15	320	16.9	54.5	25	1278	1598
With Humidifier	4.5	15	435	16.9	54.5	25	1278	1713
With Heating	11.3	15	1220	16.9	54.5	25	1278	1713

Notes:

1. Electrical ratings are for evaporator and condenser fans set on high speed.
2. Two dedicated non-GFI power supply circuits are required, one for each module.



System Wiring - Self Contained Configuration / Cord Connected

Models in the Horizontal or Vertical configurations are provided with two power cords for connection to two dedicated 115V/60HZ power receptacles. Each power receptacle must be on a separate circuit breaker, sized by model and module according to the electrical data table. Both power cords must be connected for the unit to operate.

System Wiring - Split Configuration / Cord Connected (Electronic Control)

Models in the Split Cord Connected configuration are provided with two power cords for connection to two dedicated 115V / 60HZ power receptacles. Each power receptacle must be on a separate circuit breaker, sized by model and module according to the electrical data table. Both power cords must be connected for the unit to operate. Field power wiring is required to connect the evaporator module to the condenser module as shown on diagram below this section. Marked field connection terminal blocks are provided in each module for the interconnecting wiring. Wiring should be 18AWG minimum, copper conductors only, enclosed in conduit in accordance with code requirements for the installation.

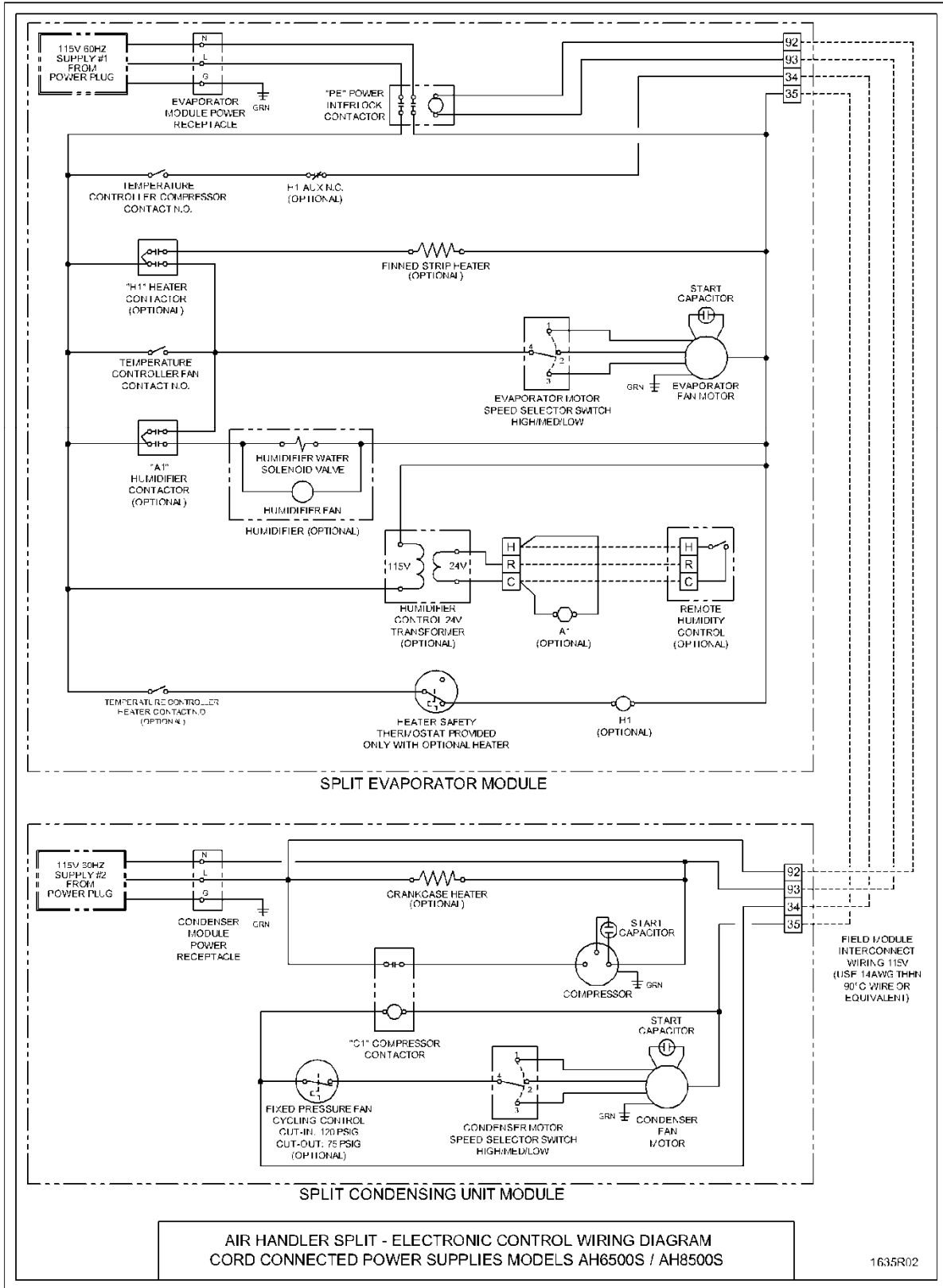
System Wiring - Split Configuration / Permanently Connected (Valve Only)

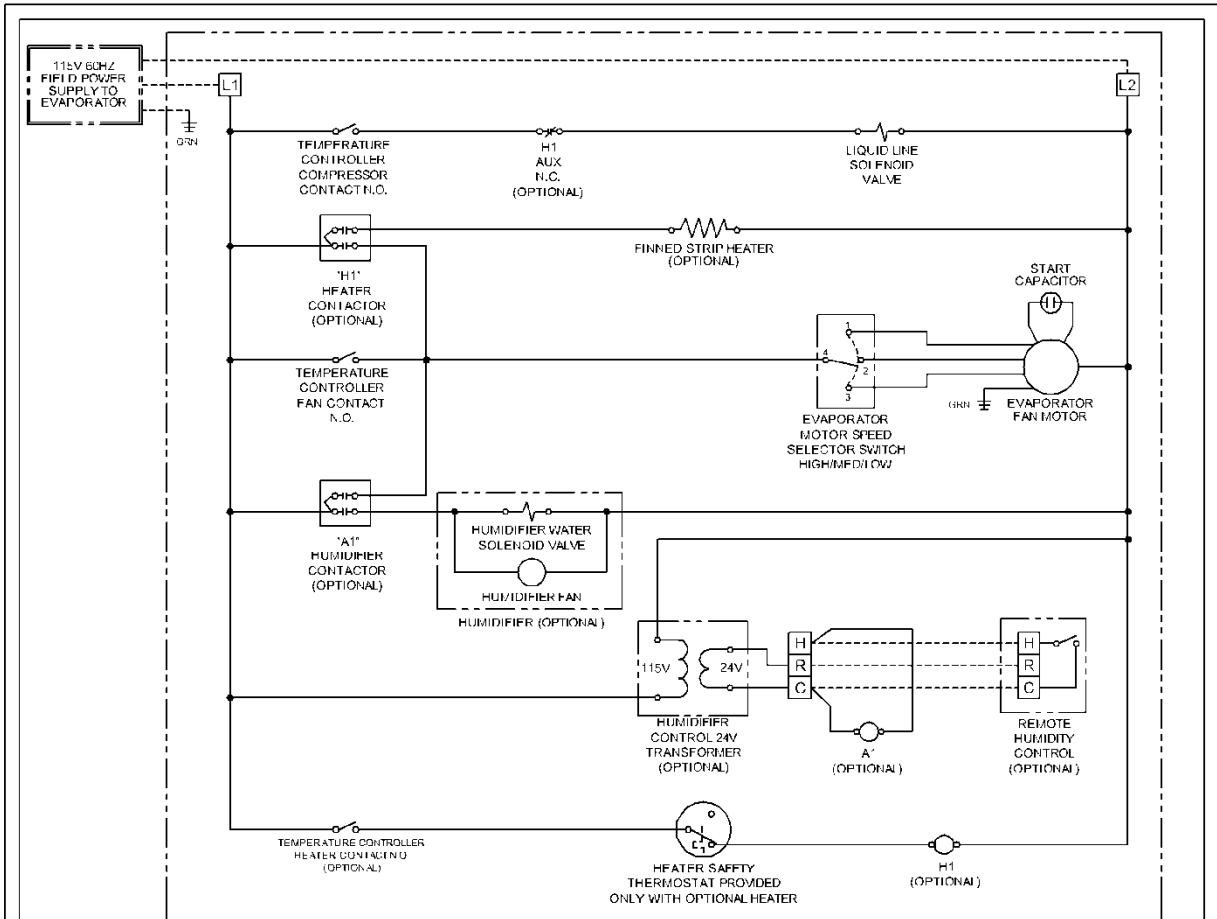
Models in the Split Permanently Connected configuration must be field wired to two dedicated 115V / 60HZ circuit breakers, sized by model and module according to the electrical data table. Field power wiring for both the evaporator module and condenser module is shown on the diagram below. Wiring must be sized to the load, copper conductors only, and done in accordance with code requirements for the installation.

Under this configuration the Evaporator and Condenser modules are separately powered, and the Condenser module turns on and off based on suction pressure, as follows:

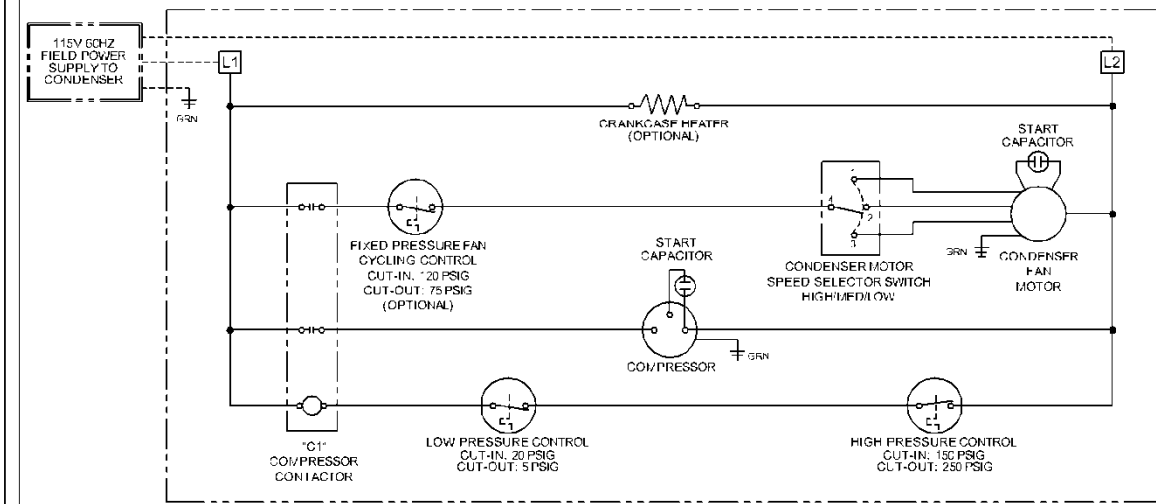
- The Evaporator module includes a factory installed liquid line solenoid valve (LLSV), which is controlled by the Evaporator temperature controller. The Condenser module is controlled by a low pressure switch which reacts to the suction pressure and senses whether the LLSV is open or closed.
- When the Evaporator temperature set-point is reached and the Evaporator turns off, the LLSV closes, causing the system to pump down until the low pressure switch shuts off the Condenser module.
- When the Evaporator turns on, the LLSV opens, causing the suction pressure to rise and activate the Condenser module.

Field power wiring is connected to both the Evaporator and Condenser module, no interconnecting wiring is needed between the Evaporator and Condensing modules.





SPLIT EVAPORATOR MODULE



SPLIT CONDENSING UNIT MODULE

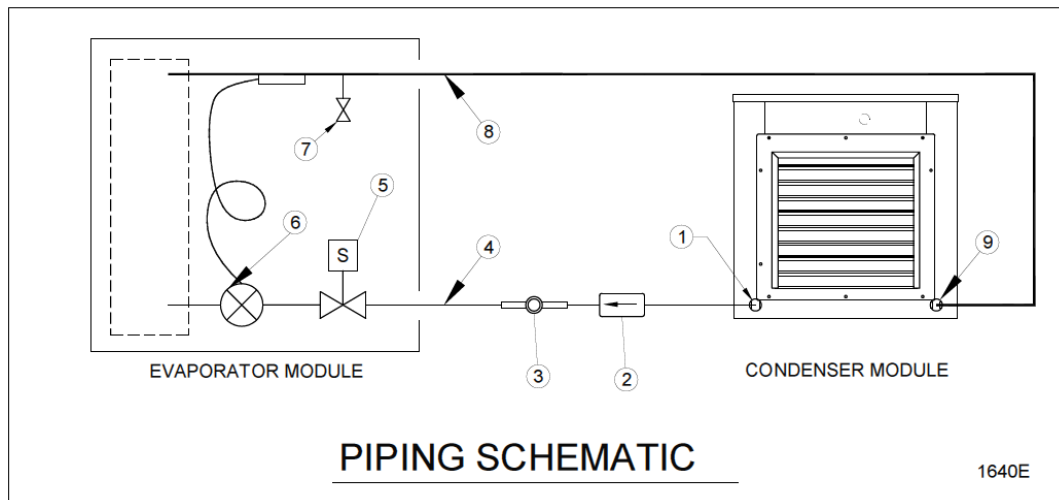
AIR HANDLER SPLIT - VALVE CONTROL WIRING DIAGRAM
 PERMANENTLY CONNECTED POWER SUPPLIES MODELS AH6500S / AH8500S

1637R02



Installing Refrigeration Lines

The Evaporator and Condensing units should be piped according to the following piping schematic:



Piping Legend

1. The 3/8" ODS liquid service valve located on Condenser Module.
2. Hermetic liquid line filter drier (shipped loose). Install with the directional flow arrow as shown.
3. Liquid line sight glass with moisture indicator (shipped loose).
4. Liquid line refrigeration piping in accordance with Line Sizing Chart.
5. Factory installed liquid line solenoid valve (normally closed) (Valve Control configurations only).
6. Factory installed thermostatic expansion valve.
7. Factory installed suction service valve to use for setting expansion valve superheat.
8. Insulated suction line refrigeration piping in accordance with Line Sizing Chart.
9. 5/8" ODS suction service valve located on Condenser Module.

WHEN BRAZING COPPER TUBING TO THE SERVICE VALVES, USE 95/5 SOLDER AND SOLDERING FLUX. DO NOT USE SILVER SOLDER BECAUSE IT REQUIRES HIGHER HEAT THAT WILL DAMAGE THE SERVICE VALVES.

Line Sizing Chart

Refer to the Line Sizing Chart below for selecting the appropriate tubing size for the length of the piping run. Note that the recommended line size may not match the connection ports on the Condensing unit and the Evaporator. Refrigeration grade fittings must be supplied by the installing technician to make the necessary transitions.

Transitions should be made as close to the unit as possible. Suction line routing must be designed to ensure oil return to the Condensing unit.



Split System Line Sizing Chart

Model	Liquid Line Size ("ODS) Up to 100 feet	Minimum Suction Line Insulation Thickness (in)	Suction Line Size by Length ("ODS)		
			Up to 25 feet	Over 25 feet up to 50 feet	Over 50 feet up to 100 feet
AH6500S	3/8	1/2	1/2	5/8	5/8
AH8500S	3/8	5/8	5/8	5/8	7/8

Notes:

- 1) Line lengths are expressed in equivalent feet = actual run length + fitting allowances.
- 2) Chart includes allowances for Condensing Unit Service Valves, Filter Drier, and Sight Glass.
- 3) Use only dehydrated refrigeration service tubing and refrigeration grade fittings.
- 4) Install refrigeration piping in accordance with local codes and ASHRAE guidelines.

Evacuation, Leak Detection, and Charging

Once the piping is installed, the following steps should be performed to ensure a dry and leak-free system:

1. The Condensing unit is pre-charged with compressor oil. To avoid moisture contamination of the oil, do not leave the service valves open to atmosphere for more than 15 minutes.
2. Open the liquid and suction service valves on the condensing unit.
3. Valve Control only: Supply power to the Evaporator only - DO NOT connect power to the Condensing unit. Turn on the temperature controller, which will energize and open the liquid line solenoid valve. Verify the solenoid is powered as indicated by the compressor icon ("snowflake") on the temperature controller display.
4. Pressurize the system to a maximum of 150PSIG of dry nitrogen. Mark the pressure and hold for a minimum of 1 hour. If the pressure holds, proceed to the next step, otherwise locate and repair the leak and repeat this step.
5. **Evacuate the system to a minimum of 500 microns.** If the vacuum is achieved, proceed to the next step, otherwise locate and repair the leak and repeat from step 4.



6. Disconnect the vacuum pump, but leave the system under vacuum. Use a charging scale to accurately weigh in the refrigerant. Charge liquid R-134a refrigerant through the liquid service valve according to the charge pounds indicated in the "System R-134a Charge Guidelines" chart below. Additional refrigerant may need to be added, as detailed in the next step. **DO NOT USE REFRIGERANT WITH ADDITIVES.**
7. Warm the bottom shell of the compressor above the ambient temperature for 30 minutes to drive excess refrigerant out of the compressor oil. Connect power to the Evaporator and Condensing unit, and activate the system. Check that the sight glass is clear when the compressor is running. The condensing temperature must be above 105°F (135.0 PSIG) when inspecting for a clear sight glass. In a low ambient environment, it may be necessary to block off the condenser air intake to force the condensing temperature higher. If the sight glass is not clear, slowly add vapor refrigerant through the suction service valve.
8. With a clear sight glass, adjust the superheat on the thermostatic expansion valve to 10°F +/- 2°F, as measured at the suction access valve located in the Evaporator.
9. Once the superheat is adjusted, ensure the condenser face airflow is unrestricted and allow the system to balance for 30 minutes.
10. Check the suction superheat at the compressor using the access port on the suction service valve. A minimum superheat of 20°F is required at this location. If it is below 20°F, recheck the thermostatic expansion valve superheat and increase as necessary to ensure a 20°F superheat at the compressor.
11. The fan cycling control (optional) is located in the Condenser Module and is non-adjustable. The condenser fan cuts-out at approximately 75 PSIG, and cuts-in at 120PSIG. Verify condenser fan operation at startup.



Installation Tips and Guidelines

- When brazing copper tubing to the service valves, use 95/5 solder and soldering flux. **Do not use silver solder** because it requires higher heat that will damage the service valves.
- Make sure all electrical connections are secure.
- Inspect Evaporator and Condensing unit fans to confirm airflow. There shouldn't be any excessive vibration, noise or obstructions to airflow.
- Observe system pressures during charging and initial operation and keep note of them as they will be required for the Service and Support Data Sheet which initiates the warranty.
- Continue charging until system has sufficient refrigerant for proper operation.
- Do not overcharge or use refrigerant with additives.
- Remember that bubbles in a sight glass may be caused by a restriction as well as a shortage of refrigerant.
- Do not leave unit unattended until the system has reached normal operating conditions.
- Make sure all access valve caps are in place and tight.
- Make sure liquid and suction service valves are properly back-seated and tighten valve packing if necessary.
- Make sure the condenser fan cuts-in at 120 PSIG and cuts-out at 75 PSIG.



Split System R-134a Charge Guidelines

Weigh in the R-134a refrigerant via the liquid service valve according to the chart below:

System R-134a Charge Guidelines																		
Actual Line Length (ft)	System Charge (lbs) by Split System Model																	
	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
AH6500S	3.72	3.92	4.12	4.33	4.53	4.74	4.94	5.15	5.35	5.55	5.76	5.96	6.17	6.37	6.57	6.78	6.98	7.18
AH8500S	3.72	3.92	4.13	4.33	4.53	4.74	4.94	5.15	5.44	5.66	5.87	6.09	6.30	6.51	6.73	6.94	7.16	7.37

Note:

- 1) Actual charge may vary - follow charging instructions detailed under Item 6 in the section titled **Evacuation, Leak Detection, and Charging** (above).
- 2) Lines sized according to Line Sizing Chart assuming actual line length plus 10 equivalent feet for fitting losses

Summary

Keep in mind the following guidelines when selecting your wine cooling unit from CellarPro:

- If the cellar is too large for the cooling unit, the cooling unit will be unable to maintain proper, even temperatures inside the cellar.
- Without proper insulation and an airtight environment, the cooling unit effectively will become a de-humidifier and potentially will produce buckets of water.
- Without access to cool air, either because of improper ventilation or because the environments is too hot, the cooling unit will be unable to maintain proper temperatures inside the cellar.
- When the cooling unit will be exposed to temperatures below 40°F, a compressor heater must be added to protect the compressor.

Under any of the above conditions, the unit's internal components may become damaged, the expected useful life of the wine cooling unit may be adversely affected, and the product's warranty may become null and void.



III. Operating Instructions

Overview

CellarPro cooling units are designed to maintain optimal conditions for wine storage and aging. These conditions include steady, cool temperatures, high humidity, minimal vibration and light, and clean air. The settings on your CellarPro cooling unit have been preset and optimized by the factory. Before changing any settings below, we recommend waiting 14 days to allow the cooling unit to “break in.”

The cooling unit is designed to cool the cellar gently without stripping moisture out of the cellar environment. Therefore, it is not uncommon for the cooling unit to run nonstop for up to a week initially, depending on the temperature inside the cellar, the size of the cellar, and the temperature of the ambient environment. Once the cellar has reached equilibrium, it is normal for the cooling unit to run as much as 75 percent of the time.

CellarPro cooling units are designed to maintain optimal temperatures for *storing and aging* fine wine. CellarPro cooling units are not designed to maintain temperatures for *servicing* wine, which tend to be much colder than storage temperatures, especially serving temperatures for white and sparkling wines.

CellarPro cooling units must be used, stored, moved and/or shipped in the upright position. Be careful when turning the unit on its side. The unit NEVER should be turned upside down.

Temperature Control

CellarPro cooling units are designed to turn “on” when the air temperature passing over the evaporator coils inside the cellar exceeds the **Minimum Set Point** plus the **Temperature Differential**, and turn “off” when the temperature drops below the **Minimum Set Point**. For example, if the Minimum Set Point is 58°F and the Temperature Differential is 4°F, the cooling unit will turn on when the temperature rises above 62°F inside the cellar, and it will turn off when the temperature falls below 58°F. In this example, the average temperature inside the cellar will be 60° F.

Basic Operation

The cooling system is programmed with a **3-Minute Delay at Startup** to protect its internal components. The temperature inside the cellar can be increased or decreased by changing the Minimum Set Point as described later in this chapter. If the cooling unit runs too much, you can raise the Minimum Set Point to reduce the cycle “on” time. Most wine collectors store their wine in the range of 55 - 60° F. CellarPro cooling units are designed to maintain appropriate levels of humidity, ranging from 50 to 70 percent, inside wine cellars. In order to increase or decrease humidity inside the cellar, the **Fon** setting can be changed as described in the “Advanced Operation” section later in this chapter.



Humidifier (optional):

Recommended for installations where the ambient humidity is insufficient to maintain 50 to 70%RH inside the cellar. The humidity control is remote mounted with 10ft of interconnecting wire inside the cellar. Refer to separate manual for detailed installation and operating instructions for the humidifier and humidity controller.

Heating (optional):

The air handler can be configured with an electric air heater for installations where the cellar may drop below the desired set point. The controller is factory programmed to automatically activate the heater and the evaporator fan when the cellar temperature is below the desired set point (parameter SET) minus the temperature differential (parameter HY). For example, if the set point (Set) is 55 , and the differential (HY) is 4, the heater will energize when the cellar temperature reaches 55 minus 4 = 51°F, and turn off when the cellar reaches 55°F. Refrigeration will be activated when the cellar temperature reaches 55 plus 4 = 59°F. If a tighter range is required, the HY should be set to "2" for the heating season. If an optional bottle probe is used to maintain the cellar temperature, the factory setting for HY is "1", and adjustment is not required. There are two heating element options: 900W and 1800W. An application chart is shown below to assist in selecting the correct wattage. For the majority of applications, the 900W heater is recommended.

900W Heater Specifications	
Power Consumption	7.8 Amps @ 115V / 60Hz
Fan Speed	Total BTUH (including fan)
High	4702
Medium	4346
Low	4218

1800W Heater Specifications	
Power Consumption	15.7 Amps @ 115V / 60Hz
Fan Speed	Total BTUH (including fan)
High	7774
Medium	7417
Low	7290

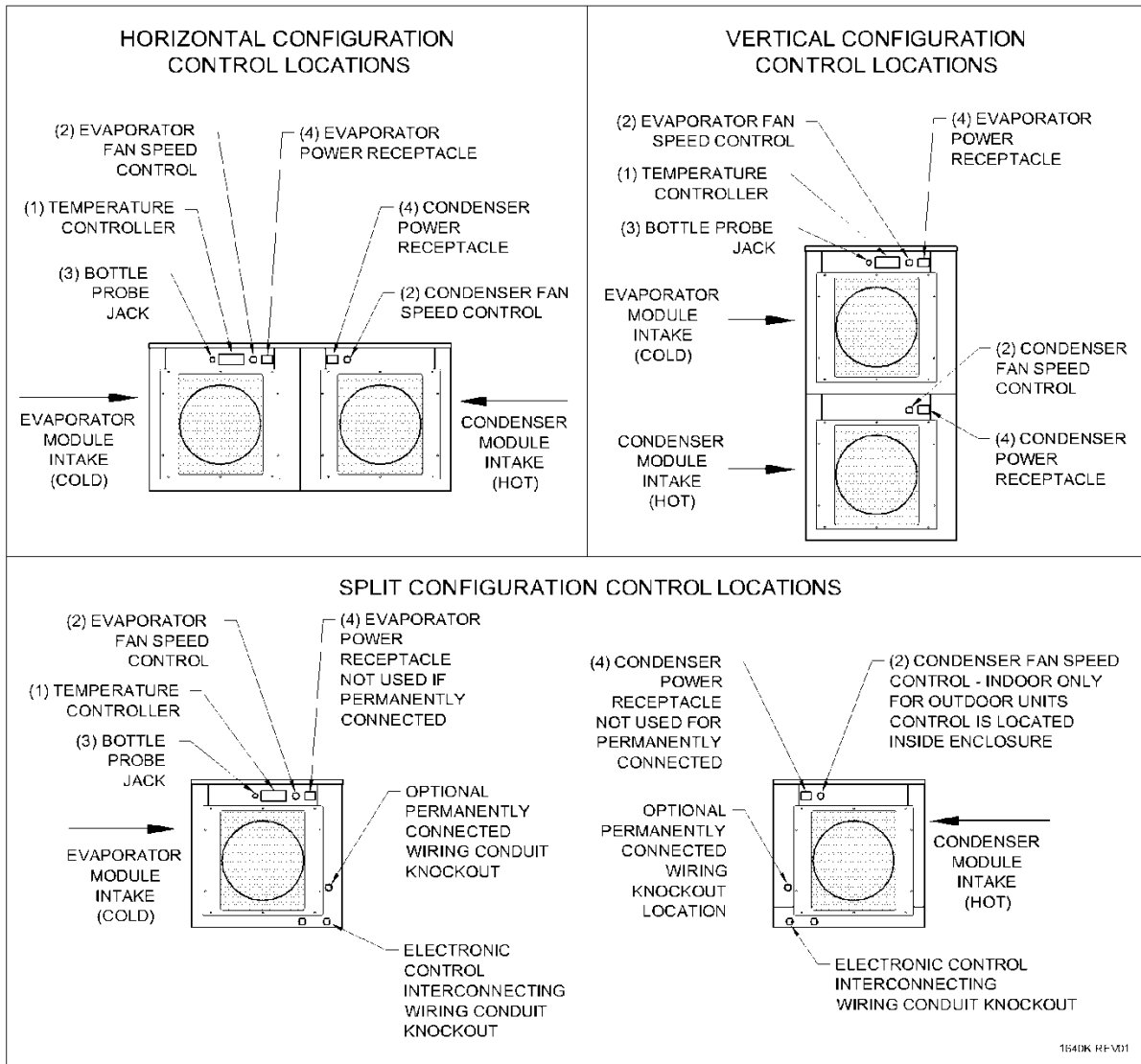
**Cellar Heating Load (BTUH) for 55°F Average Cellar Temperature
Humidification may be required to maintain cellar humidity levels >50%RH**

Cellar Dimensions	Ambient Temperature / Insulation Type											
	45°F			30°F			15°F			0°F		
	R-12	R-19	R-30	R-12	R-19	R-30	R-12	R-19	R-30	R-12	R-19	R-30
Nominal Size (cuft)												
1000	630	511	439	1574	1278	1098	2519	2045	1757	3464	2812	2416
1250	746	614	534	1864	1535	1335	2983	2456	2136	4102	3377	2937
1500	866	721	633	2164	1802	1582	3463	2883	2531	4761	3965	3481
1750	968	812	718	2419	2031	1795	3871	3250	2872	5323	4468	3949
2000	1103	934	832	2757	2336	2080	4412	3738	3328	6066	5139	4576
2250	1188	1011	904	2969	2528	2260	4751	4045	3617	6533	5562	4973
2500	1306	1119	1005	3264	2797	2513	5223	4475	4021	7182	6153	5528
2725	1398	1203	1085	3495	3007	2711	5591	4812	4338	7688	6616	5965
3025	1525	1320	1195	3813	3299	2987	6100	5279	4780	8388	7258	6572

Assumes all walls and ceiling are exposed to ambient temperature indicated. Floor is slab on grade.

= Shaded areas require 1800W heater option

Control Locations by Configuration



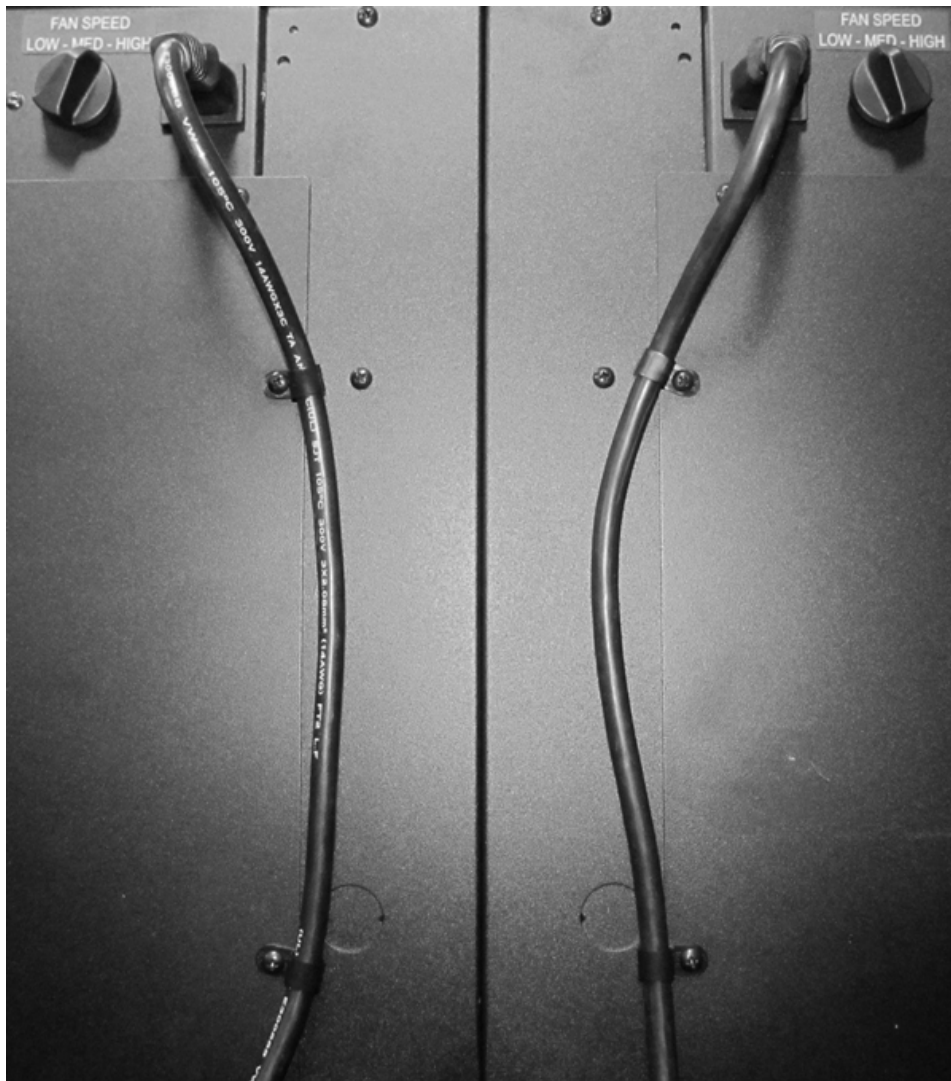
(1) **Control Panel:** Maintains desired cellar environment. Factory settings are optimized for peak performance. Controller is described in detail in the following section.

(2) **Fan Speed Selector Switch (Low/Med/High):** The fans on both the evaporator and condenser modules operate on 3 speed settings: Low, Medium, and High. For optimum sound and energy efficiency, select the lowest fan speed that will maintain the desired cellar temperature. High speed is recommended for initial cellar pull down, extreme temperature conditions and ducted installations.



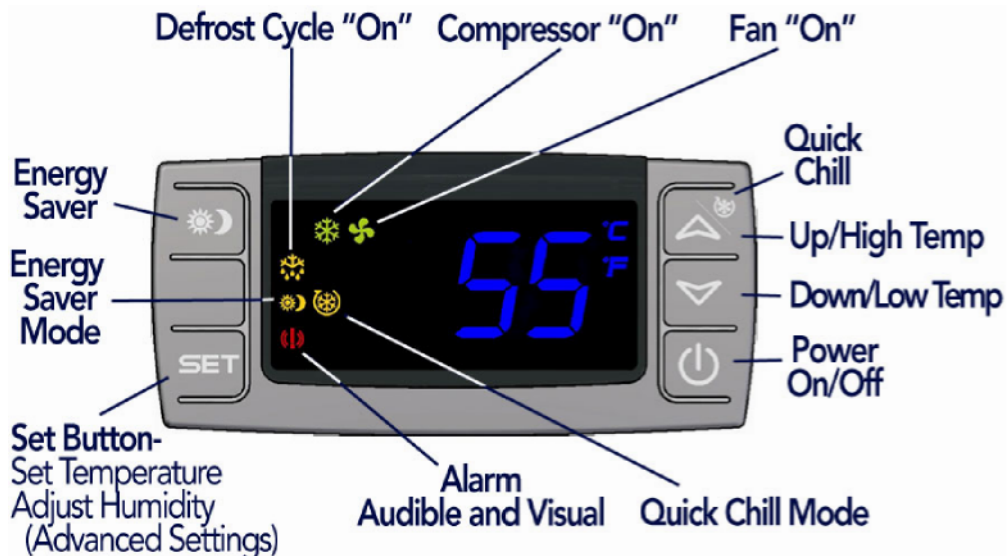
(3) Bottle Probe Jack (Bottle Probe): A bottle probe is required if the evaporator (cold side) is ducted. The bottle probe is designed to plug into the face of the cooling unit and terminate inside the cellar measuring either air or liquid. Disconnecting the probe will automatically return the control to air temperature. If used to measure air temperatures, the differential (HY) on the cooling unit should be set to “4”. If used to measure liquid temperature, the differential should be set to “1”. To change the differential on the cooling unit, please refer to our “Advanced Operation” instructions later in this section.

(4) Power receptacles: Location for power cords to connect. The picture below shows how to attach the power cords using the screw holes from the panel for the clamps.





Control Panel Instructions



Digital Display



The temperature displayed on the control indicates the real-time air temperature as measured by Probe 1 (P1) located behind the front grill of the cooling unit.

Power "On" / "Off"



Press "Power On/Off" to turn the unit on and off.

When the "Compressor On" indicator light is on, the Compressor is running.

When the "Fan On" indicator light is on, the Fan is running.

The cooling system is programmed with a **3-Minute Delay at Startup** to protect its internal components.



Up and Down Buttons

To view the “High Temp” recorded by the cooling unit, press the “Up” button once.



To view the “Low Temp” recorded by the cooling unit, press the “Down” button once.

To reset the “High Temp” or “Low Temp”, press the “Set” button for three seconds while “Hi” or “Lo” is displayed. “RST” will blink three times to indicate confirmation.

Set Button



The cooling unit is factory preset with a Minimum Set Point of 58°F and a Temperature Differential of 4°F. This means that the cooling unit will turn on when the display rises above 62°F (58°F + 4°F), and turn off when the display falls below 58°F. In this example, the average temperature inside the cellar will be 60°F.

To view the Minimum Set Point, press the “Set” button for one second.

To change the Minimum Set Point,

- Press the “Set” button for three seconds until °F” blinks
- Press “Up” or “Down” button
- Press “Set” button to confirm

The “Set” temperature will blink three times to indicate confirmation

The recommended Minimum Set Point range is 53 - 60°F. To change the Temperature Differential, see “Advanced Operation” later in this chapter.



Energy Saver Button



To activate and deactivate the “Energy Saver” mode, press the “Energy Saver” button.

The “Energy Saver” indicator light will turn on when the cooling unit is in “Energy Saver” mode.

In “Energy Saver” mode, the Minimum Set Point increases 4°F and the Temperature Differential is unchanged.

Quick Chill Button



To activate the “Quick Chill” mode, press the “Up” / “Quick Chill” button for three seconds.

To deactivate “Quick Chill”, press “Quick Chill” button for three seconds again.

The “Quick Chill” indicator light will turn on when the cooling unit is in “Quick Chill” mode.

In the “Quick Chill” mode, the cooling unit will run continuously for 6 hours (or until the intake temperature registers 50°F). This mode is useful after loading “warm” bottles in a cellar.

Maintenance

The condenser coils on the Condensing unit will collect dust, dirt and lint over time. If the condenser coils become clogged, the cooling unit will not have proper airflow and its performance and longevity will be compromised. The condenser coils themselves also can be cleaned with a vacuum cleaner – ideally with a brush attachment to loosen dust caught between the fins.



Remote Control / Display Instructions



Digital Display

The temperature displayed on the control is red instead of blue.

Quick Chill Button

To activate the "Quick Chill" mode, press the "Up" button for three seconds



Button

To deactivate "Quick Chill", press the "Up" button for three seconds again



Icon

The "Quick Chill" indicator (Row 3) light will turn on when the cooling unit is in "Quick Chill" mode,

In the "Quick Chill" mode, the cooling unit will run continuously for 6 hours (or until the unit reaches set point.). This mode is useful after loading "warm" bottles in the cabinet.

Auto Defrost Mode

The cooling unit has a factory default defrost cycle that initiates every 16 hours for 20 minutes. When the cooling unit is in auto-defrost mode, the "Defrost" Indicator light (Top row) will turn on, and the evaporator fan will run.

Manual Defrost

Hold the defrost button in for 3 seconds to initiate a manual defrost. The "Defrost" Indicator light (Top row) will turn on for a 20 minute defrost cycle.



Light

The light button function is disabled, however pressing it will turn on/off the light indicator on the display (2nd row).



Energy Saver

The remote display is not configured with an Energy Saver mode. The set point can be raised manually for periods where energy savings is desired.



Advanced Operation

CellarPro cooling systems can be programmed with advanced settings to achieve more control over conditions inside the cellar. Conditions like humidity, the Temperature Differential, and alarm settings all can be modified for custom applications. To access the advanced settings, do the following:

Press the “Set” button and the “Down” button together at the same time, and hold for three seconds. Then, use the “Up” or “Down” button to scroll to the following screen:



HUMIDITY: The factory preset for this setting is “3”.

If the humidity inside the cellar is too low, press the “Set” button, then use the “Up” button until the desired setting is reached. The recommended range for this setting is 0-6.



TEMPERATURE DIFFERENTIAL: The factory preset for this setting is “4”.

This setting determines the Temperature Differential and therefore the temperature at which the cooling unit will cycle on. The recommended range for this setting is 4 or 5.



HIGH TEMPERATURE ALARM: The factory preset for this setting is “70”.

This setting designates the High temperature inside the cellar at which the alarm is triggered. We recommend leaving this setting at the factory preset.



LOW TEMPERATURE ALARM: The factory preset for this setting is “45”.

This setting designates the Low temperature inside the cellar at which the alarm is triggered. We recommend leaving this setting at the factory preset.



ENERGY SAVINGS MODE DIFFERENTIAL: The factory preset for this setting is “4”.

This setting controls the Temperature Differential for the Energy Savings Mode. The recommended range for this setting is 2-4.



IV. Troubleshooting

Alarms

The cooling unit has both an audible notification and a visual alarm indicator (shown in “red” on the control panel) that are activated when an alarm is triggered. Please note: the temperature alarms (HA and LA) are disabled during the first 23 hours of operation after the cooling unit is plugged in and/or turned on.

The control panel also will flash a code for each alarm, as follows:

Alarm	What it means	What to do
P1	Probe 1, which senses the temperature inside the cellar and controls the on/off cycles of the cooling unit, has failed	The cooling unit enters a timed auto- cycle mode until Probe 1 is repaired or replaced. In this mode, the cooling unit will turn on for 12 minutes and off for 8 minutes. Please call CellarPro at 877.726.8496 to repair or replace Probe 1
HA	The temperature inside the cellar is too warm (above 70°F for more than 1 hour)	Check if the cellar has a leak Check if door was left open Lower the ambient temperatures
LA	The temperature of the cellar is too cold (below 45°F)	Raise the Minimum Set Point to 60°F Raise the ambient temperature
HA2	The temperature of the condenser is too high (above 140°F)	Raise the Minimum Set Point Increase the FON setting
LA2	The ambient temperature at the condenser coil is too cold	Contact CellarPro at 877.726.8496



General Conditions

- **Cooling Unit Runs Constantly**

Improper installation, inadequate insulation, or a cellar that is too large will cause the cooling unit to run continuously and be difficult to troubleshoot.

The cooling unit is designed to turn on when the air temperature in the cellar rises ABOVE the Minimum Set Point + Temperature Differential, and turn off when the air temperature falls below the Minimum Set Point. For example, if the Minimum Set Point is 58°F and the Temperature Differential is 4°F, the cooling unit will turn above 62°F and turn off below 58° F. In this example, the average temperature inside the cellar will be 60° F.

When bottles are first loaded in the cellar, the cooling unit will run continuously (even up to a week) until the temperature inside the cellar falls below the Set Point.

Hot weather conditions, insufficient ventilation and/or dirty condenser filters may cause the cooling unit to run continuously. To reduce cycle times,

1. Remove any obstructions to air flow to or from the unit
2. Check to make sure the condenser filter is clean
3. Increase the supply of cool air to the space outside the condenser coils, using a fan, ducting or an exhaust system to remove heat from the space.
4. Raise the Minimum Set Point on the cooling unit

- **Cooling Unit Is Producing Large Amounts of Condensate or is Dripping**

The cooling unit is designed to remove excess moisture from inside the cellar, which collects in the drip pan of the cooling unit and is channeled outside the cooling unit. Excess moisture can occur when the cooling unit runs constantly, when the Minimum Set Point is too low and/or when the cellar doesn't have a good seal from the outside environment. To eliminate excess condensation, do the following:

1. Ensure the condensate overflow drain line is not blocked, that the drain line is trapped and the trap is filled with water.
2. Check that the cellar has airtight seals, including the door(s), light fixtures, and all walls, ceiling and floor.
3. Raise the Minimum Set Point of the cooling unit.
4. Check to make sure the cellar has airtight seals, including the door(s), light fixtures, and all walls, ceiling and floor.



- **The HA2 Alarm has been triggered**

The cooling unit is designed to measure the temperature of the condenser coils and, if the temperature exceeds 140°F for more than 2 hours, the HA2 alarm will display on the control panel.

If this alarm happens when you first receive and start operating your CellarPro cooling unit, check for appropriate installation and ventilation (Chapter II). Also, make sure that there aren't any obstructions to the intake and/or exhaust vents. If your wine cabinet has a grill, remove the grill and/or any other obstructions above (top vent) or behind (back vent) the cellar.

If the alarm happens in conjunction with hot ambient conditions, we recommend doing the following:

1. Raise the Minimum Set Point to 60°F until temperatures cool down
2. Increase the FON setting

If the cooling unit has been operating for several months without any problems and the alarm occurs, check the condenser filter and clean or replace if necessary.

- **The LA2 Alarm has been triggered**

As noted above, the cooling unit is designed to measure the temperature of the condenser coils and, if the temperature drops below a certain point, the LA2 alarm will display on the control panel. Please contact CellarPro when the LA2 alarm has been triggered.

- **The Cooling Unit Won't Turn On**

The cooling system is programmed with a **3-Minute Delay at Startup** to protect its internal components.



Troubleshooting Issues – All Configurations

Issue	Possible Causes	Potential Solutions
<p>No cooling: no refrigerant flow.</p> <p>If the "snowflake" icon is illuminated on the temperature display control and the compressor running.</p>	No power to compressor	Power supply to Condensing Unit interrupted. Restore power.
		Check for loose wires and reconnect.
	High pressure safety shutdown / high discharge pressure	Locate and correct source of high condensing head pressure
		Condenser fan not operating in ambient temperatures above 90°F. Ensure that there is power to the Condensing Unit.. Replace condenser fan if necessary.
		Dirty or obstructed condenser coil: clean and remove all obstructions to airflow
	Intermittent power to compressor	Insufficient ventilation: reference Condensing Unit installation guidelines for proper placement and ambient temperature requirements. Correct to ensure adequate air ventilation to and from the Condensing Unit.
Check for loose wires and secure.		
Compressor cycling on internal thermal overload protection. Replace start capacitor/relay assembly		
	Faulty compressor. Consult factory	

<p>No cooling: Evaporator fan not blowing.</p> <p>If the "fan" icon is illuminated on the temperature display control, the fan should be blowing air.</p>	No power to fan	Power supply to Evaporator interrupted. Restore power.
		Power supply to fan interrupted: loose wire. Inspect for loose fan wiring and reconnect.
	Fan obstructed	With power to unit disconnected, check the rotation of the blower fan. If fan does not spin freely, inspect for and remove obstructions. If no obstructions are found, the fan may need to be replaced. Consult factory.
	Fan running but not drawing air through coil.	Fan short cycling: Make sure all housing panels are attached to the unit. Replace missing panels.
Coil is blocked with ice. Refer to the "Iced coil" section.		
Iced coil	Insufficient number of defrosts	Turn system off and melt ice from coil. Decrease the defrost interval from the default value of 16 hours by changing second level parameter "idF" to a minimum setting of 4 hours. If this corrects the problem, optimize the defrost frequency by setting and observing the system at different set points above "4" and below "16"..
		Low refrigerant charge
	Mal-functioning expansion valve.	If expansion valve is faulty, replace.
	No airflow	See "Evaporator fan not blowing" section



Troubleshooting Issues – Split System Configuration Only

Issue	Possible Causes	Potential Solutions
<p>No cooling: no refrigerant flow.</p> <p>If the "snowflake" icon is illuminated on the temperature display control, the optional liquid line solenoid should be energized and the compressor running.</p>	<p>No power to liquid solenoid valve coil (valve control)</p>	<p>Power supply to Evaporator interrupted. Restore power.</p>
	<p>Solenoid coil failure (valve control)</p>	<p>Power supply to solenoid coil interrupted: loose wire. Inspect for loose fan wiring and reconnect.</p> <p>When the Evaporator is powered on and off, a distinct "click" should be heard indicating the opening/closing of the solenoid valve. If not, the solenoid coil may need to be replaced. Consult factory.</p>
	<p>No power to compressor</p>	<p>Power supply to Condensing Unit interrupted. Restore power.</p>
		<p>Check for loose wires and reconnect.</p>
		<p>Low pressure switch is open: make sure solenoid is energized and condensing unit service valves are open. Jumper out switch to check for a faulty switch, and replace if necessary. Note that in installations below 0°F this switch may remain open. Valve Option only. Consult factory.</p>
		<p>High pressure switch is open: make sure condensing unit service valves are open. If this does not correct the problem, refer to the "High Pressure Safety Shutdown" section.</p>
	<p>High pressure safety shutdown / high discharge pressure</p>	<p>Locate and correct source of high condensing head pressure:</p>
		<p>Refrigeration line blockage</p>
		<p>Condenser fan not operating in ambient temperatures above 90°F. Ensure that there is power to the Condensing Unit and verify the fan cycling control settings (optional item). Replace condenser fan and fan cycling control if</p>
		<p>Insufficient ventilation: reference Condensing Unit installation guidelines for proper placement and ambient temperature requirements. Correct to ensure adequate air ventilation to and from the Condensing Unit.</p> <p>Improper refrigerant charge: inspect for over-charged system or non-condensibles in system.</p>
<p>Dirty or obstructed condenser coil: clean and remove all obstructions to airflow.</p>		
<p>Intermittent power to compressor</p>	<p>Check for loose wires and secure.</p>	
	<p>Compressor cycling on internal thermal overload protection. Replace start capacitor/relay assembly</p>	
	<p>Compressor cycling on high pressure - see "High pressure safety shutdown" section.</p>	
	<p>Faulty compressor. Consult factory.</p>	



Continued - Troubleshooting Issues – Split System Configuration Only

Issue	Possible Causes	Potential Solutions
<p>No cooling: Evaporator fan not blowing.</p> <p>If the "fan" icon is illuminated on the temperature display control, the fan should be blowing air.</p>	No power to fan	<p>Power supply to Evaporator interrupted. Restore power.</p> <p>Power supply to fan interrupted: loose wire. Inspect for loose fan wiring and reconnect.</p>
	Fan obstructed	With power to unit disconnected, check the rotation of the blower fan. If fan does not spin freely, inspect for and remove obstructions. If no obstructions are found, the fan may need to be replaced. Consult factory.
	Fan running but not drawing air through coil.	Fan short cycling: Make sure all housing panels are attached to the unit. Replace missing panels.
		Coil is blocked with ice. Refer to the "Iced coil" section.
Iced coil	Insufficient number of defrosts	Turn system off and melt ice from coil. Decrease the defrost interval from the default value of 16 hours by changing second level parameter "idF" to a minimum setting of 4 hours. If this corrects the problem, optimize the defrost frequency by setting and observing the system at different set points above "4" and below "16" to ensure the system is configured for maximum run time.
	Low refrigerant charge	System charged incorrectly. Review process and correct.
		Leak in system. Find and repair leak, recharge system.
	Mal-functioning thermostatic expansion valve.	Incorrect superheat setting: determine superheat and adjust. If expansion valve is faulty, replace.
		Expansion valve bulb not located correctly - review installation instructions and correct.
No airflow	Liquid flashing at the expansion valve inlet. See "High liquid line pressure drop" section.	
Insufficient liquid sub-cooling	Low refrigerant charge	See "Evaporator fan not blowing" section
		System charged incorrectly. Review process and correct.
	High liquid line pressure drop	Leak in system. Find and repair leak, recharge system.
		Check for plugged filter drier and replace if necessary.
		Inspect pipe routing for proper piping practices and correct.
Liquid line picking up too much ambient heat - may need to insulate.		



V. Limited Warranty

For five years from the date of original delivery, your CellarPro warranty covers the internal compressor if it proves to be defective in materials or workmanship. In addition, for two years from the date of original delivery, your CellarPro warranty covers all parts and labor to repair or replace any components in the wine cooling unit that prove to be defective in materials or workmanship. The warranty will not be activated until the Support and Data Service Sheet has been completed and submitted to CellarPro. The warranty period starts from the time of purchase, regardless of the time of activation.

Under the terms of this warranty, CellarPro will repair or replace the original cooling unit with a new or refurbished cooling unit and, once replaced, the original cooling unit must be returned to CellarPro.

All service provided by CellarPro under the above warranty must be performed by a designated repair center, unless otherwise specified by CellarPro. Purchaser is responsible for shipping the cooling unit to and from CellarPro or to and from a designated repair facility, and for removing and reinstalling the cooling unit from the wine cellar.

The limited warranty applies only to cooling units purchased from the factory or an authorized dealer. Damage caused by others or by any cause beyond the control of CellarPro, shall not be considered defects in material or workmanship and are not covered by the warranty. The limited warranty does not cover any parts or labor to correct any defect caused by negligence, commercial use, accident, or improper use, maintenance, installation, service or repair.

THE REMEDIES DESCRIBED ABOVE FOR EACH WARRANTY ARE THE ONLY ONES, WHICH CELLARPRO WILL PROVIDE, EITHER UNDER THESE WARRANTIES OR UNDER ANY WARRANTY ARISING BY OPERATION OF LAW. CELLARPRO WILL NOT BE RESPONSIBLE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES ARISING FROM THE BREACH OF THESE WARRANTIES OR ANY OTHER WARRANTIES, WHETHER EXPRES, IMPLIED OR STATUTORY.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other legal rights, which vary from state to state.

To receive parts and/or service and the name of a CellarPro designated repair facility nearest you, contact your CellarPro dealer. You may also contact CellarPro directly by calling us at 1.877.726.8496.



**** IMPORTANT ****
INSTALLERS MUST FILL OUT THIS SHEET AND FAX TO 707.794.8005 OR SCAN / EMAIL TO INFO@CELLARPRO.COM TO ACTIVATE THE WARRANTY.

Installing CellarPro Split Systems requires an experienced professional and adherence to industry practices which are described in the manual. To activate the warranty, the cooling unit must be installed properly. In order for us to assess and approve the installation, the installing technician must complete the page below. The page can be faxed to 707.794.8005 or emailed to info@cellarpro.com. We will contact you once we receive and review this sheet.

Technician Name **Tech Phone**

System Information

Customer Name	<input type="text"/>
Condensing Unit Model #	<input type="text"/>
Condensing Unit Serial #	<input type="text"/>
Evaporator Model #	<input type="text"/>
Evaporator Serial #	<input type="text"/>
Power to Condensing Unit (Check One)	<input type="checkbox"/> From Evaporator <input type="checkbox"/> From External Source

Piping Information

R-134a system charge lb.	<input type="text"/>
Line-set length – ft.	<input type="text"/>
Liquid line diameter – OD	<input type="text"/>
Suction line diameter - OD	<input type="text"/>

Operational Data

Take the following measurements during a normal refrigeration cycle, once the cellar has pulled down to the set-point temperature. Make sure the compressor is running when recording the data.

Evaporator

			Comment
Air temperature at Evaporator coil inlet/outlet	<input type="text"/>	°F/°F	8-10°F TD
Evaporator fan speed (High / Med / Low)	<input type="text"/>		
Evaporator power supply voltage & amps	<input type="text"/>	V & A	103-127 V – check nameplate amps

Condensing Unit

Air temperature at Condenser coil inlet & outlet	<input type="text"/>	°F/°F	20-30°F TD
Condenser fan status (ON / OFF)	<input type="text"/>		
Suction pressure at suction service valve	<input type="text"/>	PSIG	25-35 PSIG
Suction temperature at suction service valve	<input type="text"/>	°F	20°F Superheat Min.
Liquid pressure at liquid service valve	<input type="text"/>	PSIG	105-180 PSIG
Liquid temperature at liquid service valve	<input type="text"/>	°F	10-20°F Subcooling
Condensing Unit power supply voltage & amps	<input type="text"/>	V & A	103-127 V – check nameplate amps