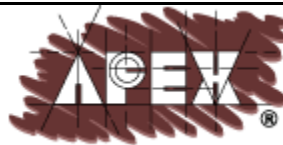




## **DS Series Ducted System *Installation, Operation & Care Manual***

**CellarTec 1/3 Ton-DS  
CellarTec 1/2 Ton-DS  
CellarTec 3/4 Ton-DS**



WINE CELLARS & SAUNAS

[www.apexwinecellars.com](http://www.apexwinecellars.com)

[www.cellartec.com](http://www.cellartec.com)

**READ AND SAVE THESE INSTRUCTIONS**

# TABLE OF CONTENTS

<b>Important Safety Information.....</b>	<b>2</b>
<b>Features &amp; Specifications.....</b>	<b>3</b>
<b>Cellar Construction.....</b>	<b>5</b>
<b>Installer’s Instruction.....</b>	<b>6</b>
<b>Temperature Control &amp; Humidity Adjustment.....</b>	<b>9</b>
<b>Service Guide.....</b>	<b>13</b>
<b>Electrical Wiring.....</b>	<b>19</b>
<b>Care Guide.....</b>	<b>26</b>
<b>User’ Troubleshooting.....</b>	<b>27</b>
<b>Customer Support.....</b>	<b>30</b>
<b>Warranty.....</b>	<b>31</b>

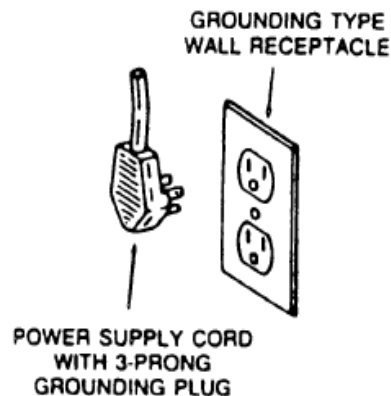
## Important Safety Information

### **WARNING**



#### To avoid the risk of electrical shock, property damage, personal injury or death:

- The power cord must be plugged into a 3-prong grounding-type wall receptacle, grounded in accordance with the National Electrical Code, ANSI/NFPA 70 - latest edition and local codes and ordinances.
- It is the personal responsibility of the consumer to have a proper 3-prong wall receptacle installed by a qualified electrician.
- **DO NOT, UNDER ANY CIRCUMSTANCES, REMOVE THE POWER CORD GROUNDING PRONG.**
- A separate adequately fused and grounded circuit should be available for this appliance.
- Do not remove any grounding wires from individual components while servicing, unless the component is to be removed and replaced. *It is extremely important to replace all grounding wires when components are replaced.*



### **WARNING**



#### **ELECTRIC SHOCK HAZARD**

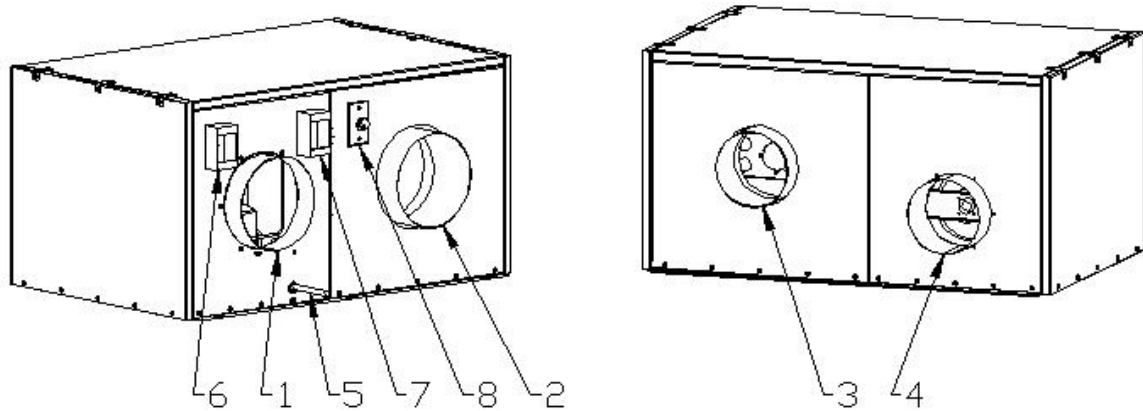
- Disconnect electric supply from appliance before servicing.
- Replace all panels before operating.
- Failure to do so could result in death or electrical shock.

#### **WARNING:**

- **DO NOT USE A GROUND FAULT INTERRUPTER (GFI).**
- **A DEDICATED CIRCUIT IS REQUIRED, 15 AMP FOR 1/3 Ton-DS AND 20 AMP FOR 1/2-3/4 Ton-DS.**

## Features and Specifications

- CELLARTEC ducted system CellarTec 1/3-3/4 Ton-DS are designed and used to provide a cold temperature between 50~65 °F for a properly insulated wine room at a normal environment.
- The wine room will maintain humidity of 50~70% RH even when the environment becomes dry and humid. These temperatures and humidities are optimized for long term storage of wine.
- The DS ducted systems are designed for both outdoor and indoor installation.
- Back-curved impeller fans are good for total 50 ft long duct to cut the operation noise.
- Self-contained ready for use with no extra refrigeration tubing in the field.



1. FRESH-AIR INTAKE (CONDENSING UNIT)
2. WINE ROOM RETURN-AIR INTAKE (EVAPORATOR UNIT)
3. WINE ROOM COLD-AIR SUPPLY (EVAPORATOR UNIT)
4. HOT-AIR EXHAUST (CONDENSING UNIT)
5. DRAIN TUBE
6. OUTLET BOX (CONDENSING UNIT)
7. OUTLET BOX (EVAPORATOR UNIT)
8. FAN SPEED CONTROL (EVAPORATOR UNIT)

**Fig. 1 CellarTec 1/3-3/4 Ton-DS FEATURES**

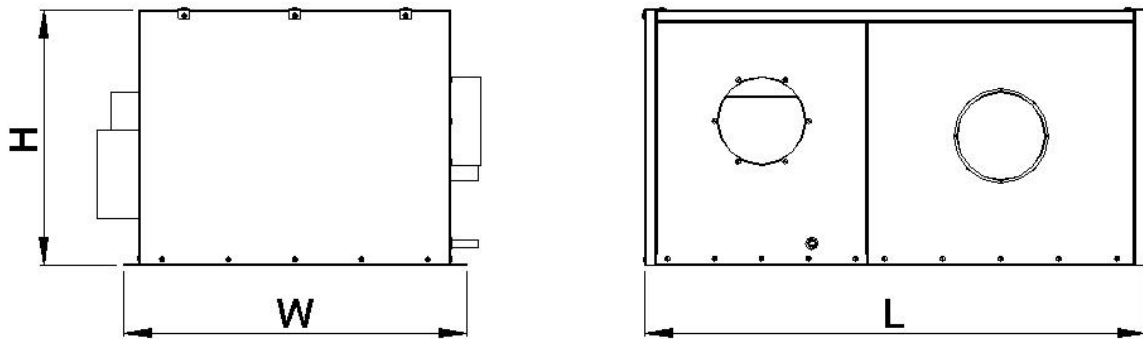
**Parts included:**

Self-contained Cooling Unit

Temperature Controller + Air Sensor

The dimensions and capacities are specified as follows:

MODEL	DIMENSION L"xW"xH"	Btu/h CFM (55/90°F)	BOTTLE CAPACITY (55/75°F)	REFRIGERANT	ELECTRICAL	WEIGHT(lb)
CellarTec 1/3 TON- DS	45X34X23	4500/380	1000 cu ft	R134a	115V-60HZ-8A	140
CellarTec 1/2 TON- DS	45X34X23	6500/490	1500 cu ft	R134a	115V-60HZ-14A	170
CellarTec 3/4 TON- DS	45X34X25	8500/750	2000 cu ft	R134a	115V-60HZ-17A	220



**Fig. 2 CellarTec 1/3-3/4 Ton-DS DIMENSIONS**

**CAUTION:**  
**LOW AMBIENT TEMPERATURE KIT IS REQUIRED IF THE INSTALLATION**  
**AREA WILL BE BELOW 50°F.**

## Cellar Construction

This is only a guide and shall be considered as minimum requirements.

All interior walls and floors shall have a vapor barrier and a minimum of R11 insulation. All exterior walls and ceiling shall have a vapor barrier and a minimum of R19 insulation. The vapor barrier shall be installed on the warm side of the insulation. All joints, door frames, electrical outlets or switches and any pipes or vents that go through the enclosure shall be sealed to prevent air and moisture leakage into the room. Concrete, rock, and brick are not insulation or vapor barriers.



Doors shall be of a minimum size, insulated to at least R11 and tightly sealed with high quality weather stripping. Be sure to seal the bottom of the door and fill gap between the door's frame and wall before installing the cap molding.

In order to maintain 55 °F in the wine cellar, the ambient temperature surrounding the enclosure shall not exceed the temperature of the enclosure by more than 25 °F. No enclosure wall shall receive direct sun or strong wind.

Lighting shall be of low wattage, with a timer to insure lights are not left on when the enclosure is not occupied.

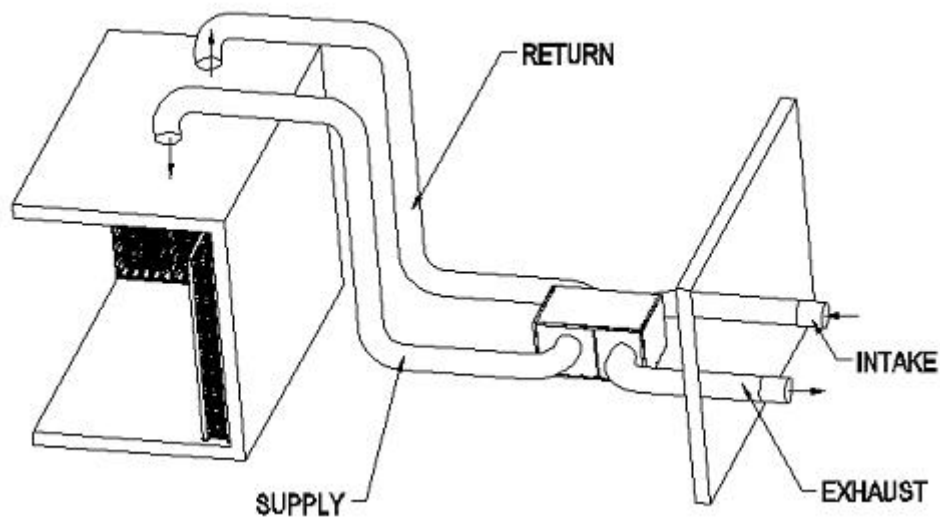
The cooling system will not be able to maintain the proper temperature if fresh moisture-laden air is constantly being introduced to the enclosure. Symptoms of this condition are; unit runs all the time with only a slight reduction in temperature and/or water overflows from the unit. Because of the temperature difference between the inside and outside, very small cracks can allow large amounts of outside air to enter into the enclosure. Please be aware that moisture can pass through solid concrete, paint and wood. Often a newly constructed room contains fresh wood, paint, concrete and other building materials. These materials contain large amounts of moisture. When placed into operation in this type of environment, the system will work harder to remove this extra moisture resulting in increased "run" time.

## Installer's Instruction

 <b>WARNING</b>	
	<p>Always check wiring harness connections before initiating any test procedures.</p> <p>Disconnect electric power from the appliance before performing any maintenance or repairs.</p> <p>Voltage checks should be made by inserting meter probes beside the wires in the connector blocks with the electric power source on and the connector block plugged in.</p> <p>Resistance checks should be made on components with the electric power off and the connector block disconnected.</p>

**Federal law requires that CELLARTEC ducted cooling systems be installed by an EPA certified refrigeration technician.**

CELLARTEC ducted system is shipped ready for use only after a certified refrigeration technician has properly installed the system. Proper installation is critical. Apex can only warrant the quality of the components. The installation of the system must be warranted by the installer. Installation of the system must be done in accordance with all state and local building and electrical codes.



**Fig. 3 DS System Installation**

## **1. Location**

- Place the unit in a properly ventilated location. If it is not, heat exhausted by the condensing unit will build up and the cooling system will not operate properly.
- Cooling unit shall be elevated to avoid possible flooding and shaded from direct sun. It shall not be exposed to temperatures higher than 110 °F or lower than 50 °F (optional low ambient kit available).
- Leave minimum 5 feet clearance for hot air exhaust and leave minimum 1 foot clearance for the fresh air intake.
- There is a gravity drain line and the unit shall be installed level or with a slight angle toward the drain connection.
- Supply air flow shall be unobstructed for at least 12" for free installation or 2" for deflector installation and return air shall be unobstructed for 6".
- Overall combined supply + return or exhaust + intake duct length can be up to 50 ft long.

## **2. Mounting**

- The unit must be mounted on a floor or slab that is level and strong enough to support up to 300lb.
- There are six ½" bolts required to secure the unit base.

## **3. Customer Wiring**

- Use 14 AWG wires.
- If it is CellarTec 1/3 Ton-DS without low ambient kit, go to the next step. Connect wires in the outlet box of the condensing unit to the power lines
- Connect wires in the outlet box of the evaporator unit to the temperature controller and then connect the controller to the power lines.

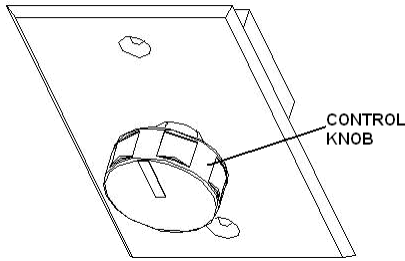
## **4. Thermostat and Air Sensor(USE 18 GAUGE THERMOSTAT WIRE)**

- The thermostat with a built-in air sensor can be installed in the wine room 5 ft above the floor in an area with good air circulation at average temp.
- If the thermostat is mounted outside the wine room, a remote air sensor is required inside the wine room. The air sensor can be located in a well circulated or in the return air area, but not the supply air or air dead area.
- If air sensor is in a return duct, the evaporator fans shall be running all the time. Due to the temperature differential the temperature setting needs to be adjusted in order to maintain the proper wine room temperature.

## **5. Air Flow (Evaporator unit)**

- If the overall duct length is less than 50ft, it is necessary to check the air flow to meet the specified CFM. It may use fan speed control to adjust the system refrigeration performance to achieve 8-10°F differential between return air and supply air while wine room temperature is maintained 55°F. Turn the control knob clockwise to decrease the air flow or counter-clockwise to increase the air flow.





**Fig. 4 Fan Speed Control**

**6. Intake and Exhaust Guards**

- If the intake and exhaust are located outdoor, protection guards may be required.

MODEL	INSULATED DUCT	DRAIN LINE
CellarTec 1/3 TON-DS	8"	7/8" OD
CellarTec 1/2 TON-DS	10"	7/8" OD
CellarTec 3/4 TON-DS	10"	7/8" OD

**7. Unit Operating**

- Turn on the fan speed control.
- Adjust thermostat temperature setting.

**CAUTION:**

**IF THE CONDENSING UNIT IS EQUIPPED WITH A LOW AMBIENT CONDITION KIT, DO NOT TURN ON THE COMPRESSOR UNTIL THE CONDENSING UNIT HAS BEEN POWERD FOR 24 HOURS.**

# Temperature Control & Humidity Adjustment

## 1. Temperature Setting

- Set the temperature at 55 °F for the optimum aging of wine
- On initial start-up, the time required to reach the desired temperature will vary, depending on the quantity of bottles, temperature setting and surrounding temperature.
- Allow 24 hours to stabilize the temperature for each new temperature setting operation

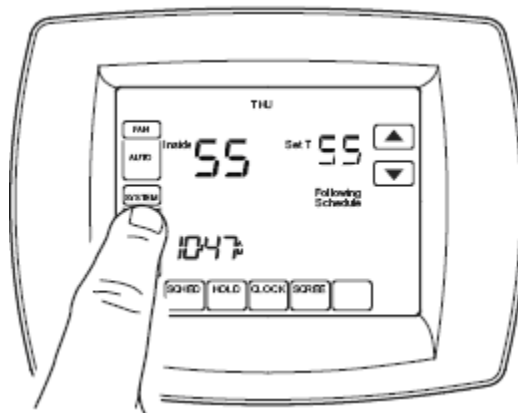
## 2. Use of the Programmable Thermostat



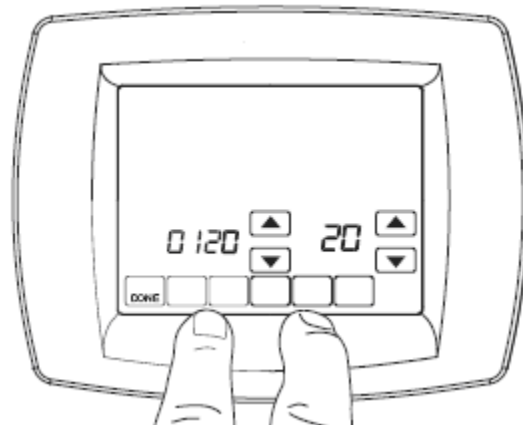
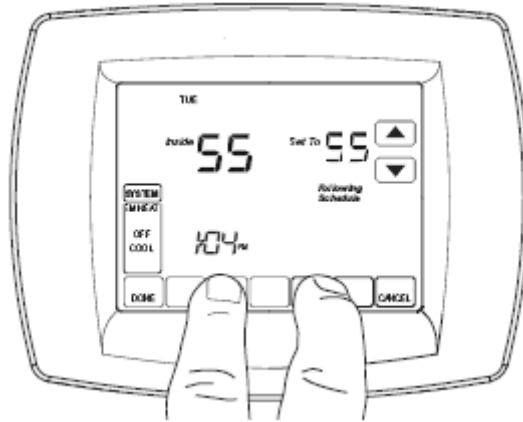
Fig. 5 Touchscreen Programmable Thermostat

### 1) System Setup

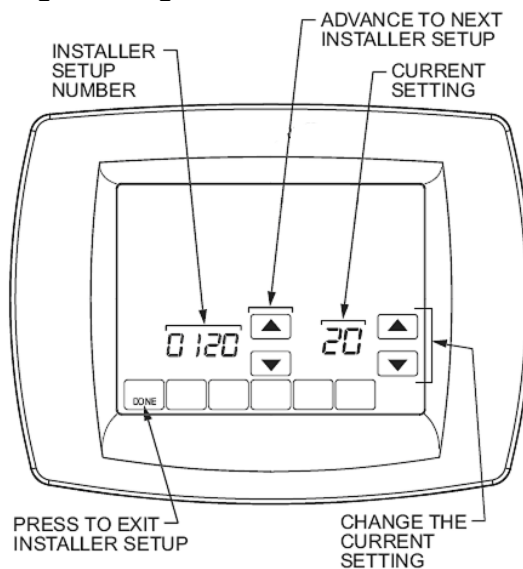
1. Press and release the SYSTEM Key.



2. Press and hold the two blank keys on either side of the center blank key for approximately five seconds until screen matches the screen below.



3. Press UP/DOWN advance keys to select setup number; press UP/DOWN change keys to change settings.



4. Press the DONE key to exit the Installer Setup screen.

## Factory Setup Menu

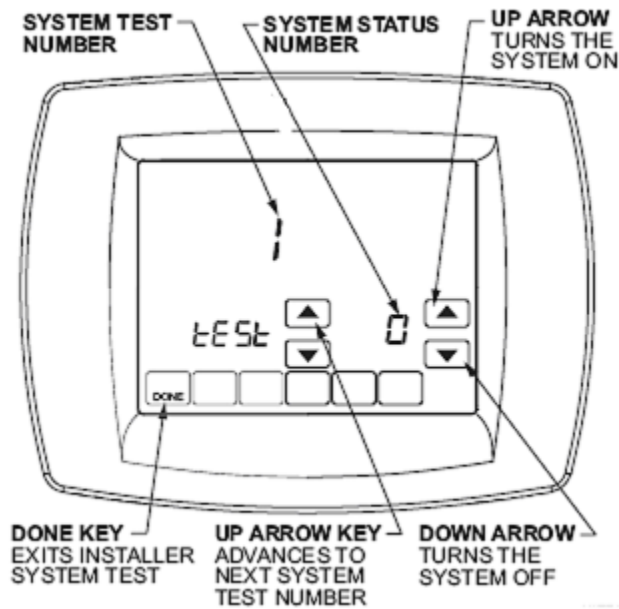
Setup Number	Setup Name	Settings
0120	Date (Year Upper)	Select first two digits of current calendar year
0130	Date (Year Lower)	Select last two digits of current calendar year
0140	Date (Month)	Select number for current calendar month
0150	Date (Day)	Select number for current calendar date
0160	Schedule Options	0-nonprogrammable
0170	System Selection	6-cool only conventional
0220	Cycles Per Hour	2
0280	Continuous Backlight	0-not; 1-yes
0300	Changeover	0-manual
0320	Temperature Display	0-fahrenheit; 1-celsius
0330	Daylight Savings	0-off; 1-on
0340	Remote Air Sensor	0-no; 3-indoor
0380	Indoor Dehumidification	0-no
0580	Min Compressor Off	5-five minutes off
0610	Min Cool Temp	50 °F
0640	Clock Format	12-12 hour; 24-24 hour
0660	Extended Cool Fan On	0-0 seconds
0670	Keypad Lockout	0-unlocked; 2-fully locked
0690	Cool Temp Control	2-standard
0700	Temperature Offset	0-no

### NOTES:

- The setup 0660 can be used to increase the humidity in the wine cellar. The higher the setting is, the higher the humidity will be.

### 2) System Test

1. Enter the system setup, and press DOWN key to select setup number. "TEST" appears at the end of the installer setup number.
2. Press the keys below to test.



**Fig. 6 System Test**

Test Number	Test Type	Description
1	cooling	1-on; 0-off
2	fan	1-on; 0-off

### 3) Clock Setting

1. Enter the system setup and set 670 = 0 to unlock screen, then exit.
2. Press CLOCK key; press UP/DOWN keys to change clock.
3. Press DONE key to exit.
4. Enter the system setup and set 670 = 2 to lock screen, then exit.

### 4) Temperature Setting

1. Enter the system setup and set 670 = 0 to unlock screen, then exit.
2. Press UP/DOWN keys to modify temperature.
3. Enter the system setup and set 670 = 2 to lock screen, then exit.

### 5) Remote Air Sensor

Enter the system setup and set 340 = 3, then exit

### 6) Humidity Display

It only displays the humidity where the thermostat is installed. The humidity level is shown in the lower right corner of the screen.

## Service Guide

### CAUTION:

- **ALWAYS USE THE SUPERHEAT AND SUBCOOLING, PRESSURE READINGS TO CHARGE REFRIGERANT PROPERLY, THE LISTED CHARGES ARE FOR REFERENCE ONLY.**
- **CHARGE 15% MORE REFRIGERANT IN THE SUMMER IF THE UNIT IS EQUIPPED A LOW AMBIENT CONDITION KIT**

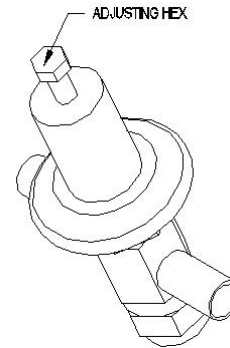
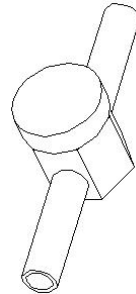
### NOTES:

- **THE VALVE CONNECTION SIZES OF CONDENSING UNIT AND THE LINE CONNECTION SIZES OF EVAPORATOR UNIT ARE NOT NECESSARY THE SAME AS THE ABOVE SPECIFIED LINE SIZES.**
- **IF THE CONDENSING UNIT IS INSTALLED ABOVE THE EVAPORATOR UNIT, USE THE SUCTION LINE ONE LISTED SIZE SMALLER.**
- **EXPANSION AND SOLENOID VALVES ARE INSTALLED ON LIQUID LINE.**

### 1. Refrigeration Piping, Evacuating, Charging and Starting

- The installation order starts from condensing unit (including the receiver, discharge valve), liquid line filter-drier, moisture-liquid indicator/sight glass, liquid line, to evaporator unit (including liquid line connection, solenoid valve, expansion valve, and suction line connection), returning to insulated suction line, suction valve and then condensing unit.
- Use inverted siphons to prevent liquid from flooding back to the compressor and aid oil returning to the compressor.
- Charge the system after pipe brazing, leak testing and evacuating. Liquid must always be charged into the high side.
- It may use fan speed control to adjust the air flow to achieve the specified CFM. Turn control knob clockwise to the lowest speed position, locate and adjust the minimum speed setting (on the side or front) with screw driver. Rotate the setting clockwise to decrease minimum speed or counter-clockwise to increase minimum speed). The minimum speed should be adjusted until it supplies the required CFM. The fan will run from this preset minimum speed to full speed with the control knob at lowest and highest speed position.
- The subcooling at the condensing unit shall be around 10° F. The charge may be complete when there are no more bubbles forming in the sight glass.
- Head pressure: 125-150 psig at 70 -90 °F ambient temperatures.
- The evaporator's constant pressure expansion valve is set around 35-40°F at factory. This pressure setting gives a dew point to maintain the humidity for storing wine.
- Suction pressure: Adjust the AXV to 30-35 psig.
- The temperature split between return air and supply air shall be 8-10°F at 55°F wine room temperature.

- The superheat at the evaporator unit shall be around 9-18°F under low - high heat load at normal ambient temperatures.
- If the superheat is high, check the subcooling first to know if the refrigerant charge is sufficient. If the charge is not sufficient, add more refrigerant. If the charge is good, then increase the evaporator suction pressure by turning the hex nut (5/16") clockwise.
- If the superheat is low, then decrease the evaporator suction pressure by turning the hex nut (5/16") counter-clockwise.



**Fig. 7 Liquid Filter**

**Fig. 8 Sight Glass**

**Fig. 9 Expansion Valve**

The line sizes and refrigerant charges are listed as follows.

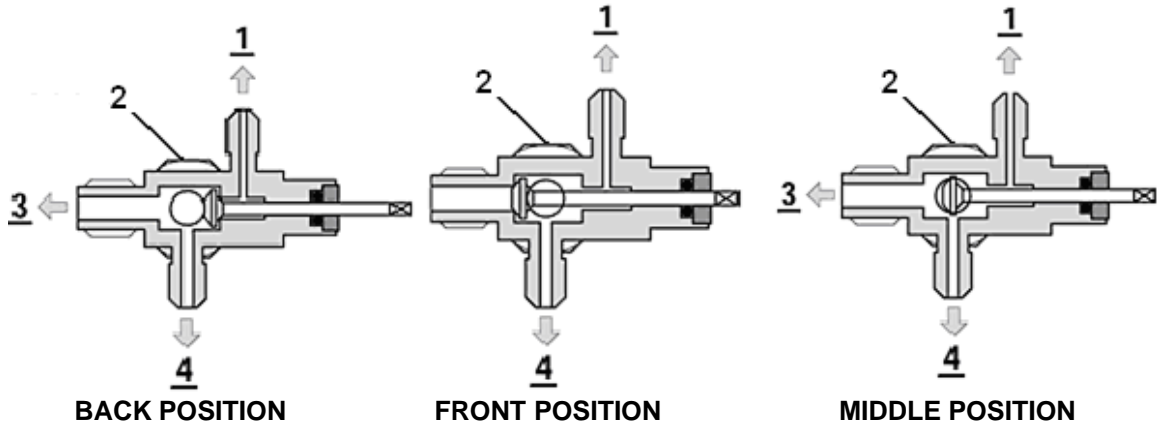
MODEL	LIQUID LINE	SUCTION LINE	DRAIN LINE	CHARGE (R134A)
CellarTec 1/3 TON-DS	1/4" OD	1/2" OD	7/8" OD	24 OZ
CellarTec 1/2 TON-DS	1/4" OD	1/2" OD	7/8" OD	32 OZ
CellarTec 3/4 TON-DS	3/8" OD	5/8" OD	7/8" OD	40 OZ

## 2. Discharge/Suction Valve Operation (Condensing unit)

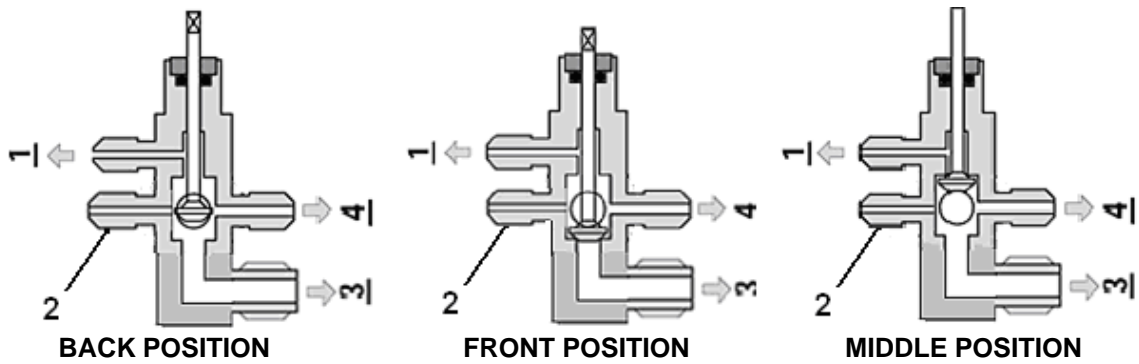
**Back Position:** Normal operation, process and manometer port closed

**Front Position:** Liquid/suction line connection closed

**Middle Position:** All ports open for evacuation, charge and manometer reading



**Fig. 10 ROTALOCK Valve Operation**



**Fig. 11 Base Valve Operation**

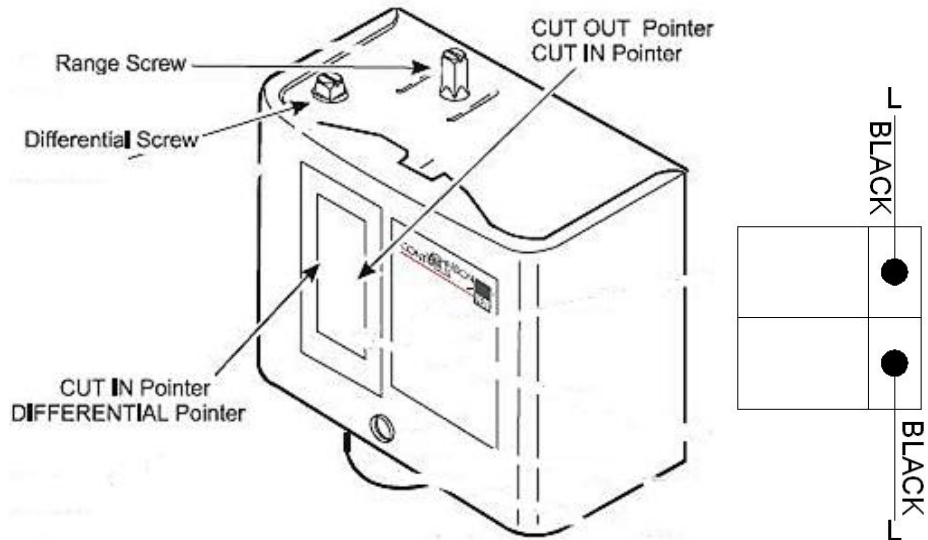
**1 - Process & Manometer; 2 – Receiver Discharge)/Compressor Suction  
3 – Liquid Line/Suction Line; 4 - Pressure Control**

**3. Use of the adjustable pressure control (if applicable for pump-down)**

Suction pressure setting: Cut out=5 psig; Cut in=25 psig; Differential=20 psig  
 Head pressure setting: Cut out=230 psig; Cut in=150 psig; Differential=80 psig  
 It may need to adjust the setting in the field to get the right cycle time.

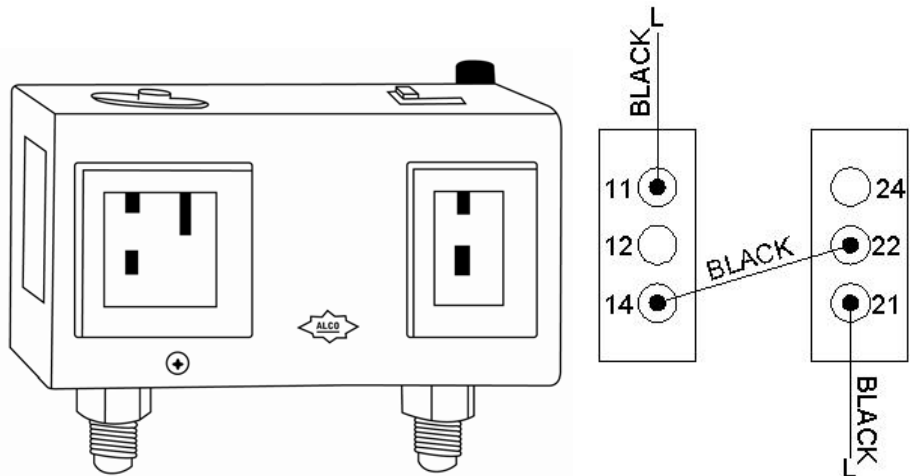


### A. Single Control



**Fig. 12 Single Adjustable Pressure Control**

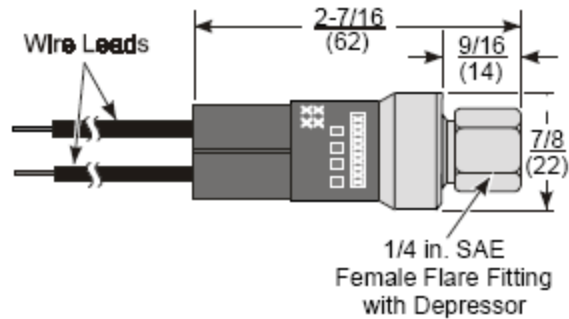
### B. Dual Control



**Fig. 13 Dual Adjustable Pressure Control**

#### 4. Use of the encapsulated low pressure control (if applicable)

Fixed suction pressure setting: Cut in = 32 psig; Cut out = 10 psig



**Fig. 14 Fixed Pressure Control**

**5. Use of the condenser fan control (if applicable for low ambient kit)**

Head pressure setting: Cut in=170 psig; Cut out=120 psig; Differential=50 psig

It may need to adjust the setting in the field to avoid fan short cycle.

**6. Use of the crankcase heater (if applicable for low ambient kit)**

The crankcase heater is installed around the lower part of the compressor and shall be turned on all the time. The heater is self-modulated.

**7. Pressure, Superheat and Subcooling Readings**

**CAUTION:**

**THE VALVES MUST BE IN THE MIDDLE POSITIONS TO READ PROPERLY.**

Complaint	Possible Causes
a. High suction pressure and low head pressure	a. Compressor may be bad
b. High suction pressure and low head pressure Low superheat and low subcooling	b. Expansion valve opened, too much oil
c. High suction pressure and high head pressure Low superheat and high subcooling	c. Overcharge
d. High to normal suction pressure and high head pressure Low subcooling	d. Non-condensable gas
e. High suction pressure and high head pressure Low subcooling	e. Air restricted, dirty condenser, bad condenser fans
f. High suction pressure and high head pressure High superheat	f. High room temperature, high evaporator load
g. Low suction pressure and low head pressure High superheat and low subcooling	g. Undercharge
h. Low suction pressure and low to normal head pressure High superheat and high subcooling	h. Liquid line restricted after receiver, solenoid valve restricted
i. Low suction pressure and low head pressure Low subcooling	i. Suction line restricted
j. Low suction pressure and low head pressure Low superheat and low subcooling	j. Air restricted at evaporator, evaporator iced
k. Low suction pressure and low to normal head pressure High superheat and normal to high subcooling	k. Evaporator restricted

<ul style="list-style-type: none"> <li>l. Low suction pressure and normal head pressure High superheat and normal subcooling</li> <li>m. Low suction pressure and high head pressure High superheat and high subcooling</li> <li>n. Low suction pressure and high head pressure High superheat and high subcooling</li> <li>o. low to normal suction pressure and high head pressure High to normal superheat and high subcooling</li> </ul>	<ul style="list-style-type: none"> <li>l. Expansion valve restricted</li> <li>m. Both evaporator and condenser restricted</li> <li>n. Liquid line restricted before receiver</li> <li>o. Condenser restricted</li> </ul>
--	--

## 8. Condensing Unit Troubleshooting

Unit not running	
<ul style="list-style-type: none"> <li>a. Incorrect power supply</li> <li>b. Incorrect or loose wirings</li> <li>c. Failed components</li> <li>d. Liquid refrigerant in the compressor</li> <li>e. Low pressure switch shutting down the system</li> </ul>	<ul style="list-style-type: none"> <li>a. Check for proper voltage</li> <li>b. Check all wirings and connections</li> <li>c. Check start relay, start capacitor, overload protector, compressor.</li> <li>d. Call service for OEM information</li> <li>e. Check for system restriction or low refrigerant</li> </ul>

## Electrical Wiring

### CAUTION:

- USE 14 GAUGE WIRE FOR POWER LINE WIRING.
- USE 18 GAUGE WIRE FOR THERMOSTAT AND SENSOR.
- IF EQUIPPED WITH LOW AMBIENT CONDITION KIT, USE LOW AMBIENT TEMPERATURE WIRING DIAGRAMS. TURN OFF THE COMPRESSOR BEFORE POWER THE CONDENSING UNIT. ONLY TURN ON THE COMPRESSOR AFTER THE CONDENSING UNIT HAS BEEN POWERED FOR 24 HOURS.

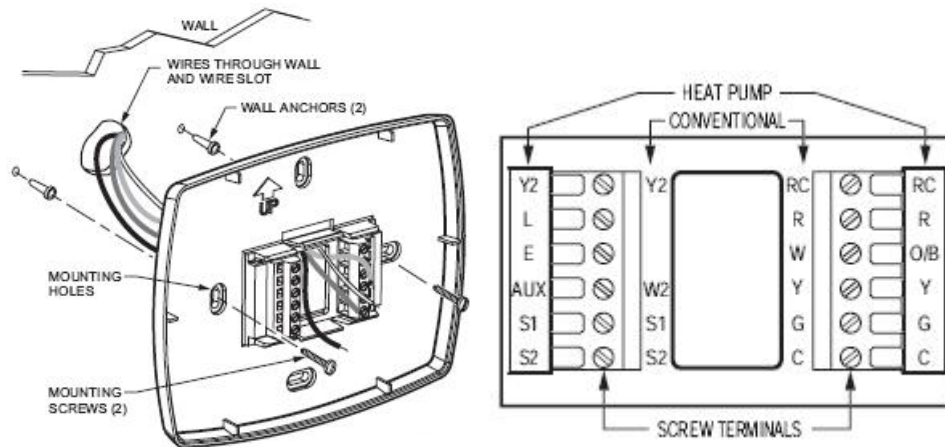
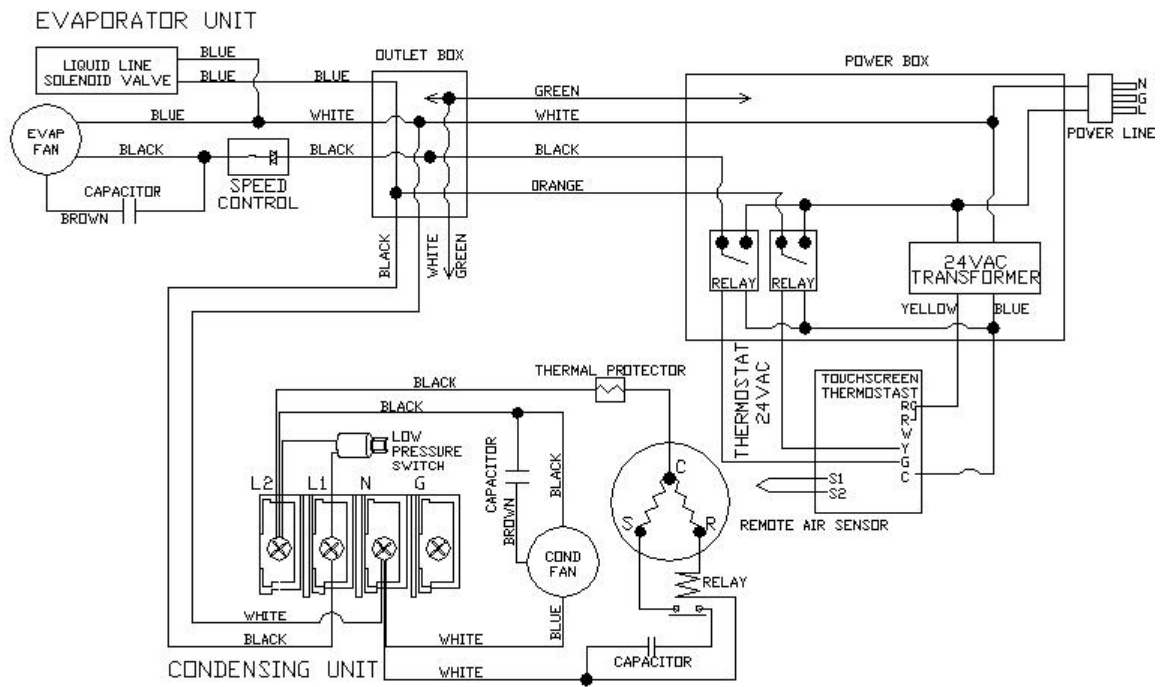
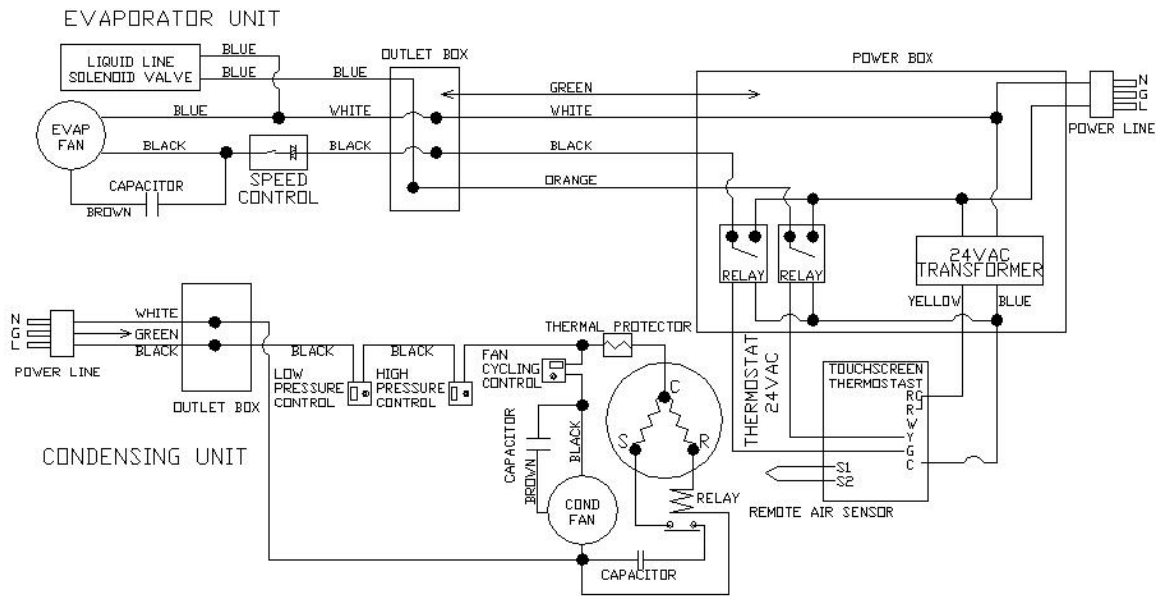


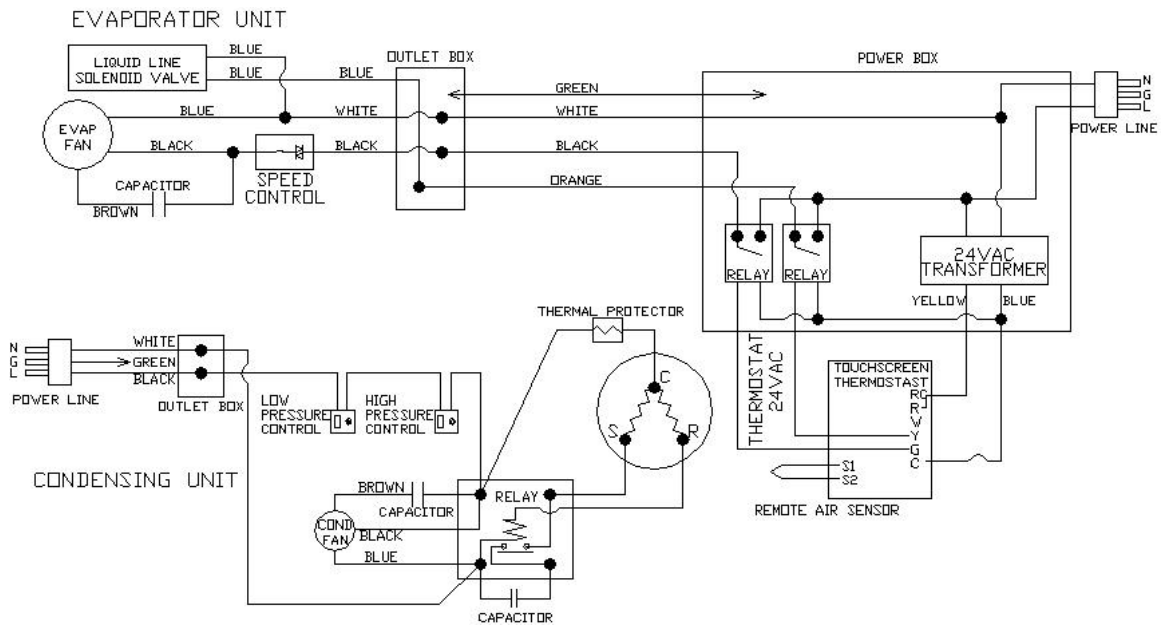
Fig. 15 Thermostat Installation



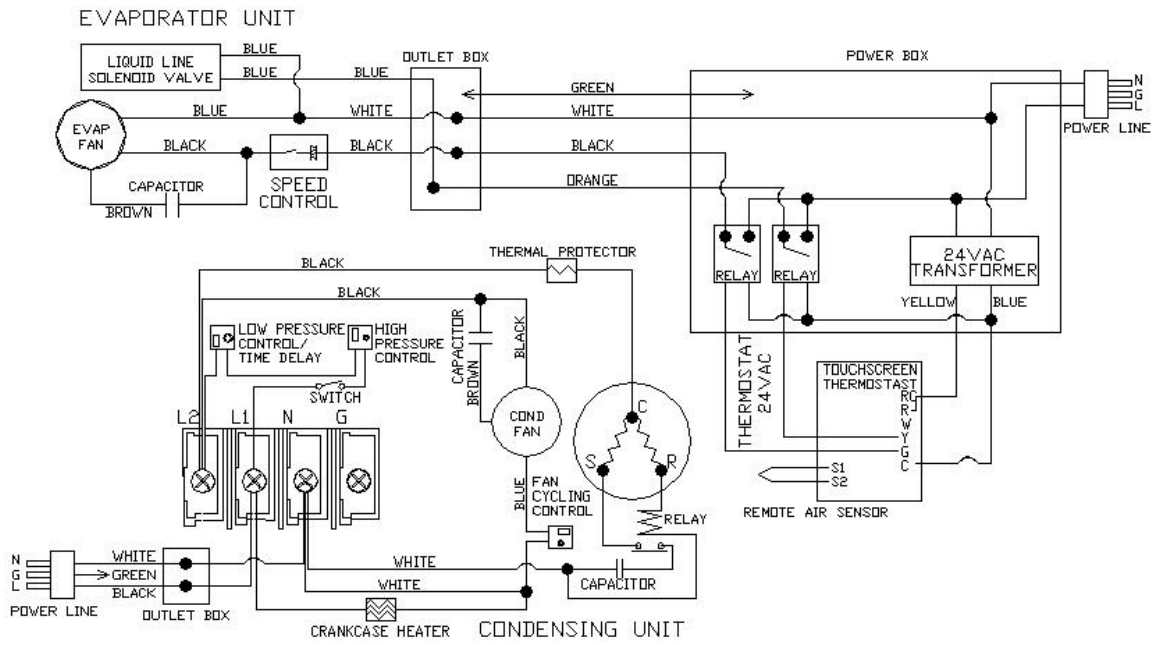
**Fig. 16 CellarTec 1/3 Ton-DS Electrical Wiring Diagram**



**Fig. 17 CellarTec 1/2 Ton-DS Electrical Wiring Diagram**

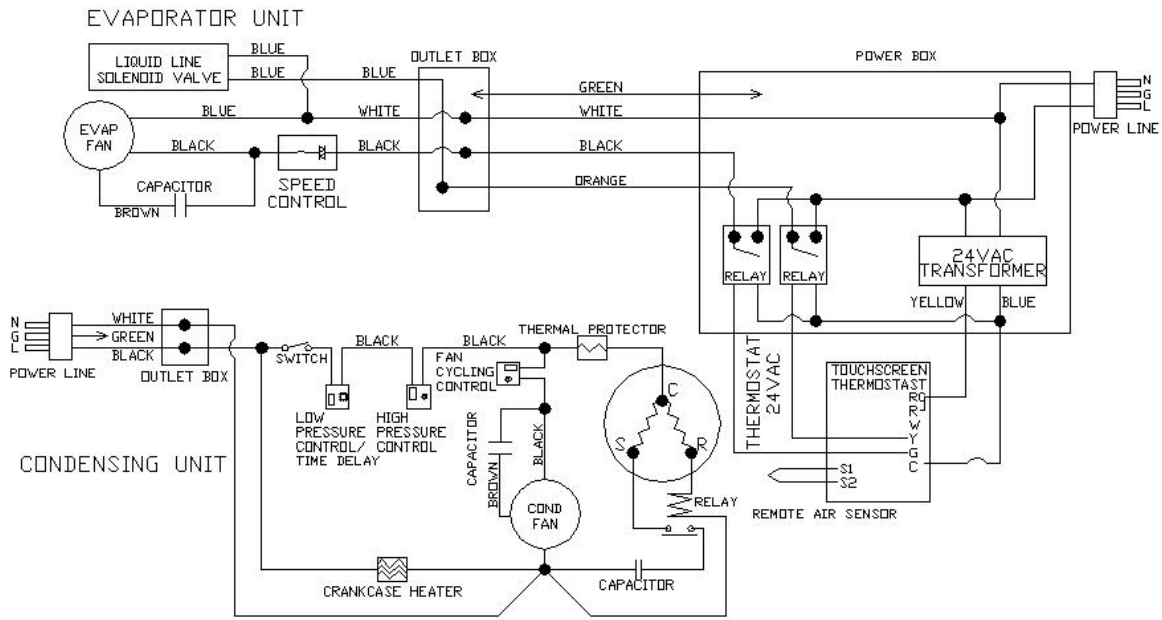


**Fig. 18 CellarTec 3/4 Ton-DS Wiring Diagram**

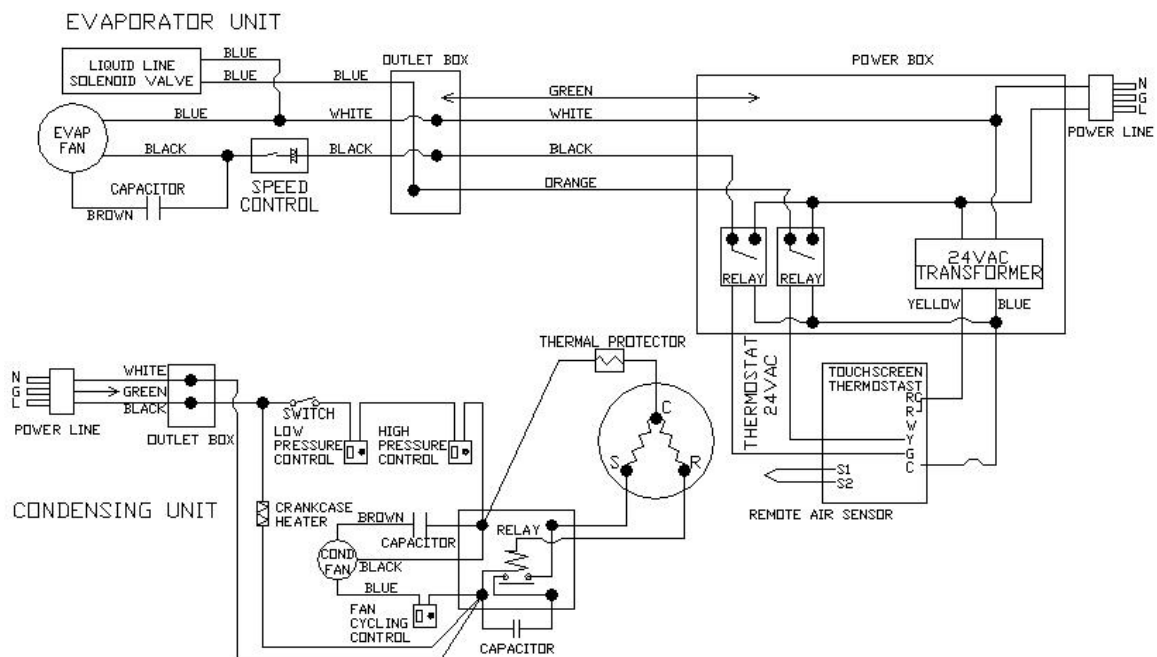


**Fig. 19 Low Ambient Temperature CellarTec 1/3 Ton-DS Electrical Wiring Diagram**







**Fig. 20 Low Ambient Temperature  
CellarTec 1/2 Ton-DS Electrical Wiring Diagram**



**Fig. 21 Low Ambient Temperature  
CellarTec 3/4 Ton-DS Wiring Diagram**

## Care Guide

 <b>WARNING</b>	
	<b>ELECTRIC SHOCK HAZARD</b> Disconnect the electrical power before servicing any components. Failure to do so can result in death or electrical shock.

In general, always unplug system or disconnect power while doing care.

### 1. Coil Cleaning

- Clean the condenser coil regularly. Coil may need to be cleaned at least every 6 months.
- Unplug the system or disconnect power.
- Use a vacuum cleaner with an extended attachment to clean the coil when it is dusty or dirty.
- Plug cooling system or reconnect power.

### 2. Moisture Removing

- Remove the extra condensate if it is accumulated in the wine cellar at high ambient temperature and humidity.

## User's Troubleshooting

This Troubleshooting Chart is not prepared to replace the training required for a professional refrigeration service person, not is it comprehensive

### Troubleshooting Chart

Complaint	Possible Causes	Response
<b>1. Unit not running</b>	<ul style="list-style-type: none"> <li>a. No power</li> <li>b. Power cord unplugged</li> <li>c. Setting higher than ambient temperature</li> <li>d. Defrost light blinking</li> <li>e. Compressor light blinking</li> <li>f. Incorrect or loose wirings.</li> <li>g. Low voltage.</li> </ul>	<ul style="list-style-type: none"> <li>a. Check power at receptacle &amp; fuses</li> <li>b. Check for power cord plug</li> <li>c. Lower temperature setting</li> <li>d. Unit is under defrost mode</li> <li>e. Unit waits for anti-short cycle delay</li> <li>f. Check all wirings and connections</li> <li>g. Contact an authorized electrician</li> </ul>
<b>2. Displaying Temperature fluctuating</b>	<ul style="list-style-type: none"> <li>a. Air sensor</li> </ul>	<p>When using an air sensor, the wine bottle temperature is mainly controlled by the average air temperature. If the set-point is 55°F with a differential 4 °F, the cooling unit turns on at 59°F of air temperature and turns off at 55°F of air temperature. The average air temperature is 57°F, and then the wine temperature is around 57+/-0.5°F. The air is light enough to change so quickly that it maintains relatively constant average temperature that would prevent wine bottle temperature from varying.</p>
<b>3. Temperature high, but displaying temperature low, unit stopping and starting with short running time</b>	<ul style="list-style-type: none"> <li>a. air sensor contacting the evaporator</li> <li>b. Short circuit of air flow between supply and return air</li> <li>c. Setting too high</li> <li>d. Failed temperature controller and air sensor</li> </ul>	<ul style="list-style-type: none"> <li>a. Move the air sensor away from the evaporator</li> <li>b. Deflect the supply air down</li> <li>c. Lower setting</li> <li>d. Call service for diagnosis</li> </ul>
<b>4. Temperature high, compressor stopping and starting but short running time</b>	<ul style="list-style-type: none"> <li>a. Incorrect voltage</li> <li>b. Failed components</li> <li>c. Improper condenser airflow</li> <li>d. Dirty condenser</li> <li>e. Overcharge of refrigerant</li> <li>f. Discharge or suction pressure too high</li> </ul>	<ul style="list-style-type: none"> <li>a. Check for voltage</li> <li>b. Check compressor windings, start relay and overload protector.</li> <li>c. Check for condenser fan</li> <li>d. Clean condenser</li> <li>e. Call service for removing refrigerant</li> <li>f. Call service for OEM information</li> </ul>
<b>5. Not cooling or</b>	<ul style="list-style-type: none"> <li>a. Improper room insulation &amp; seal</li> <li>b. Room too large</li> </ul>	<ul style="list-style-type: none"> <li>a. Check for insulation, gasket and door opening</li> <li>b. Check for excessive size</li> </ul>

<p><b>temperature too high and running continually</b></p>	<ul style="list-style-type: none"> <li>c. Ambient temperature too high</li> <li>d. Exhaust restricted</li>   <li>e. Malfunctioning fans</li>   <li>f. Improper evaporator or condenser airflow</li> <li>g. Dirty Condenser</li> <li>h. Iced evaporator</li> <li>i. Sealed system problem</li>   <li>j. Undercharge or overcharge</li> </ul>	<ul style="list-style-type: none"> <li>c. Check for installation location</li> <li>d. Leave minimum 3 feet clearance for the exhaust side and leave minimum 1 foot clearance for the fresh air intake side</li> <li>e. Check for both evaporator and condenser fans</li> <li>f. Check for air restrictions</li>   <li>g. Clean condenser</li> <li>h. Defrost and reset temperature</li> <li>i. Call service for checking loss of refrigerant or restrictions</li> <li>j. Call service to add or remove refrigerant</li> </ul>
<p><b>6.Unit running too long</b></p>	<ul style="list-style-type: none"> <li>a. Improper room insulation &amp; seal</li> <li>b. Exhaust restricted</li>   <li>c. Room too large</li> <li>d. Ambient temperature extremely high</li> <li>e. Dirty Condenser</li> </ul>	<ul style="list-style-type: none"> <li>a. Check for insulation, gasket and door opening</li> <li>b. Leave minimum 3 feet clearance for the exhaust side and leave minimum 1 foot clearance for the fresh air intake side</li> <li>c. Check for excessive size</li> <li>d. Check for installation location or increase setting</li> <li>e. Clean condenser</li> </ul>
<p><b>7.Evaporator freezing up</b></p>	<ul style="list-style-type: none"> <li>a. Evaporator air flow restriction</li> <li>b. Unit not stopping due to air leak, high ambient temperature or low setting</li> <li>c. Low ambient temperature</li> <li>d. Bad thermostat or sensor</li> <li>e. Refrigerant low or leak</li> <li>f. Expansion valve blockage</li> </ul>	<ul style="list-style-type: none"> <li>a. Check for fans, CFM</li> <li>b. Check for seal, door opening, ambient temperature and setting</li>   <li>c. Defrost the unit</li> <li>d. Check for thermostat and sensor</li> <li>e. Check for sealed system leakage</li> <li>f. Check for low side pressure</li> </ul>
<p><b>8.Water leak</b></p>	<ul style="list-style-type: none"> <li>a. Unit not level</li> <li>b. Drain line restricted</li> <li>c. Drip tray leak</li>   <li>d. Very high humidity</li> <li>e. Wine room air leak</li> </ul>	<ul style="list-style-type: none"> <li>a. Check for installation</li> <li>b. Check drain line</li> <li>c. Check for if water leak but no overflow</li> <li>d. Use dehumidifier</li> <li>e. Check for air leak and if condensation on the cooling unit</li> </ul>
<p><b>9.Circuit tripping</b></p>	<ul style="list-style-type: none"> <li>a. Incorrect fuse or breaker</li> <li>b. Incorrect wirings</li> <li>c. Overcharge of refrigerant</li> <li>d. Condenser air restriction</li> <li>e. Failed components</li> </ul>	<ul style="list-style-type: none"> <li>a. Check for proper fuse or breaker</li> <li>b. Check for wirings and connections</li> <li>c. Call service for removing refrigerant</li> <li>d. Check condenser fan</li> <li>e. Call service</li> </ul>

<b>10.Noisy operation</b>	a. Mounting area not firm b. Loose parts  c. Compressor overloaded due to high ambient temperatures or airflow restriction d. Malfunctioning components	a. Add support to improve installation b. Check fans, cabinet washers, tubing contact and loose screws. c. Check for airflow blockage  d. Call service for checking Internal loose, inadequate lubrication and incorrect wirings
---------------------------	---	--

## Customer Support

If you still have problems, please contact us at:

Apex  
17631 South Susana Road  
Rancho Dominguez, CA 90221  
Tel: (310) 886-3332  
Fax: (310) 886-3310  
Email: [info@groupapex.com](mailto:info@groupapex.com)

# Warranty

## Thank you for choosing an Apex cooling unit.

Please enter the complete model and serial numbers in the space provided:

Model \_\_\_\_\_  
Serial No. \_\_\_\_\_

Attach your purchase receipt to this owner's manual.

### 1. Limited Warranty

APEX warrants its products, parts only, to be free from defects due to workmanship or materials under normal use and service for twelve months after the initial sale. If the product is defective due to workmanship or materials, is removed within twelve months of the initial sale and is returned to APEX, in the original shipping carton, shipping prepaid, APEX will at its option, repair or replace the product free of charge.

This warranty constitutes the entire warranty of the APEX with respect to its products and is in lieu of all other warranties, express or implied, including any of fitness for a particular purpose. In no event shall APEX be responsible for any consequential damages what is so ever. Any modification of APEX products shall void this warranty.

### Service under Warranty

This service is provided to customers within the continental UNITED STATES only. APEX cooling units are warranted to produce the stated number of BTU/H. While every effort has been made to provide accurate guidelines, APEX can not warranty its units to cool a particular enclosure.

In case of failure, APEX cooling units must be repaired by the factory or its authorized agent. Repairs or modifications made by anyone else will void the warranty.

Shall an APEX cooling unit fail, contact the dealer for instructions, do not return the unit to the factory without authorization from APEX. If the unit requires repair, re-pack it in the original shipping carton and return it to the factory, shipping prepaid. APEX will not accept COD shipments. If the unit is determined to be faulty and is within the twelve month warranty period APEX will, at its discretion,



repair or replace the unit and return it free of charge to the original retail customer. If the unit is found to be in good working order, or beyond the initial twelve month period, it will be returned freight collect.

## **2. Limitation of Implied Warranty**

**APEX'S SOLE LIABILITY FOR ANY DEFECTIVE PRODUCT IS LIMITED TO, AT OUR OPTION, REPAIRING OR REPLACING OF UNIT.**

**APEX SHALL NOT BE LIABLE FOR:  
DAMAGE TO OTHER PROPERTY CAUSED BY ANY DEFECTS IN THE UNIT,  
DAMAGES BASED UPON INCONVENIENCE, LOSS OF USE OF THE UNIT,  
LOSS OF TIME OR COMMERCIAL LOSS, ANY OUTER DAMAGES,  
WHETHER INCIDENTAL, CONSEQUENTIAL OR OTHERWISE.**

**THIS WARRANTY IS EXCLUSIBE AND IS IN LIEU OF ALL OTHER  
WARRANTIES, EXPRESSED OR INPLIED, INCLUDING BUT NOT LIMITED  
TO, IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A  
PARTICULAR PURPOSE.**

While great effort has been made to provide accurate guidelines APEX cannot warrant its units to properly cool a particular enclosure. Customers are cautioned that enclosure construction, unit location and many other factors can affect the operation and performance of the unit. There for suitability of the unit for a specific enclosure or application must be determined by the customer and cannot be warranted by APEX.