



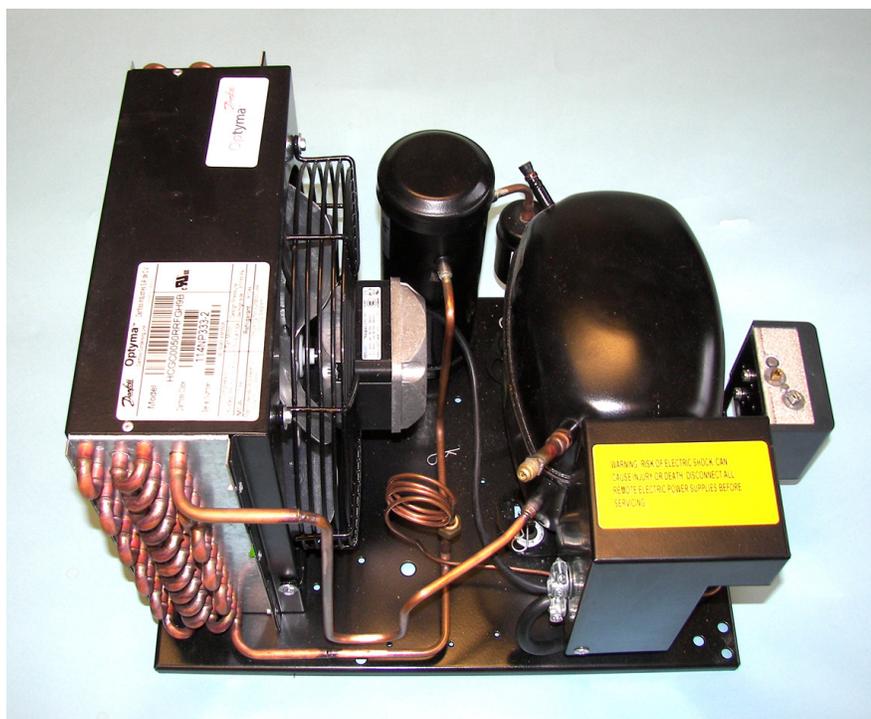
## BCS 1000-1500D Ducted Installation Manual

### SUPPLIES NEEDED FOR INSTALLATION

1. Double insulated refrigerant line set
2. 1/4" copper water supply and saddle valve.
3. 1/4" condensate vinyl drain tube/tube clamps
4. Provide 120v 15A circuit for indoor evaporator, and 120v/230v 30A, single or three phase (dependent upon your condensing unit) for outdoor condensing unit. Check local codes.
5. 18-2 stat wire; to be used to extend temperature sensor, humidity sensor cable, and keyboard
6. Condensing unit pad
7. Double gang box with a blank plate

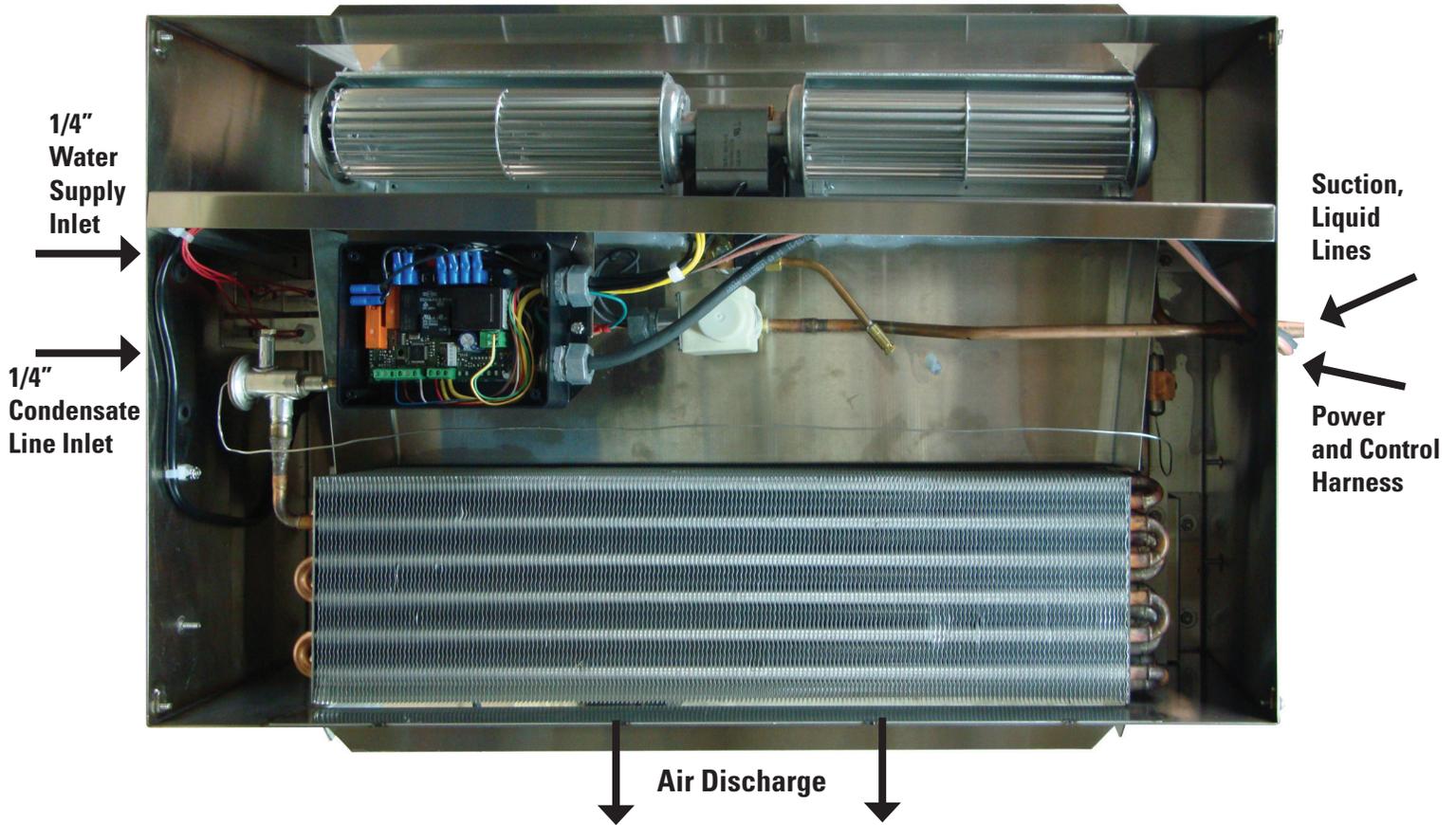
### CONDENSING UNIT SET UP

1. Place a (suggested model) on a firm level location (pad) for outdoor applications, or add 4 anti-vibration pads to each corner of the condensing unit for indoor use. Place in an area with adequate ventilation.
2. Braze in suction and liquid lines to condensing unit.
3. Run the recommended double insulated line set from the condensing unit to the evaporator (50 foot max).
4. Power from disconnect (recommended) 12-2/with ground to the condensing unit.
5. Check low pressure control for the correct 20 psi setting, with a 15 psi differential.



## EVAPORATOR SET UP

1. Locate a suitable location, as close to the middle of the room as possible. Set on stable surface.
2. Run the wire harness (14-2/ground) to a power source (115v box).
3. Run the 1/4" drain line to the pump in the evaporator through the side opening and out to a suitable location. Heat tape any portion susceptible to freezing.
4. Attach 5-1/2" x 20" sheet metal flange to evaporator on supply (coil side) and duct to the supply grille as high and as close to the middle of the room as possible. Accordingly, attach a 4" x 24" sheet metal flange to the fan side of the evaporator and duct to a low mid point return grille.



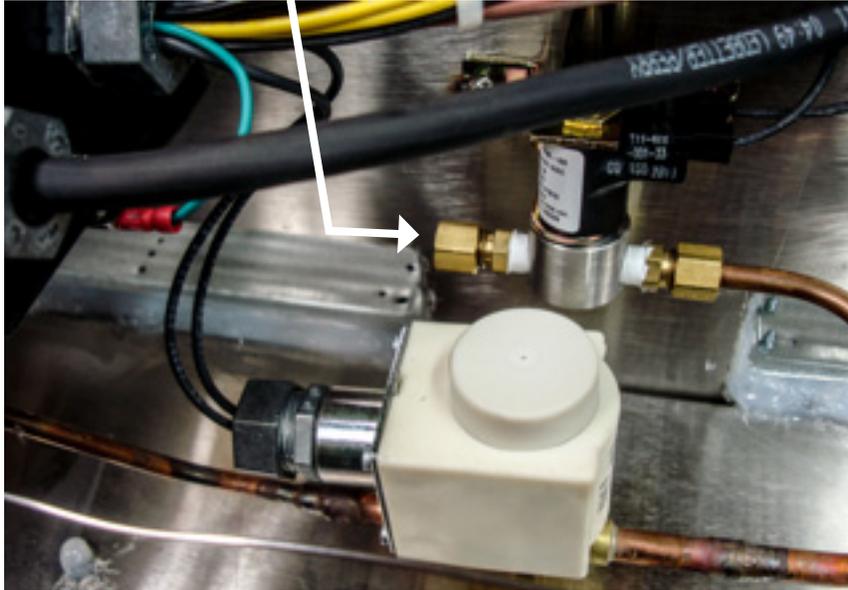
Supply Side



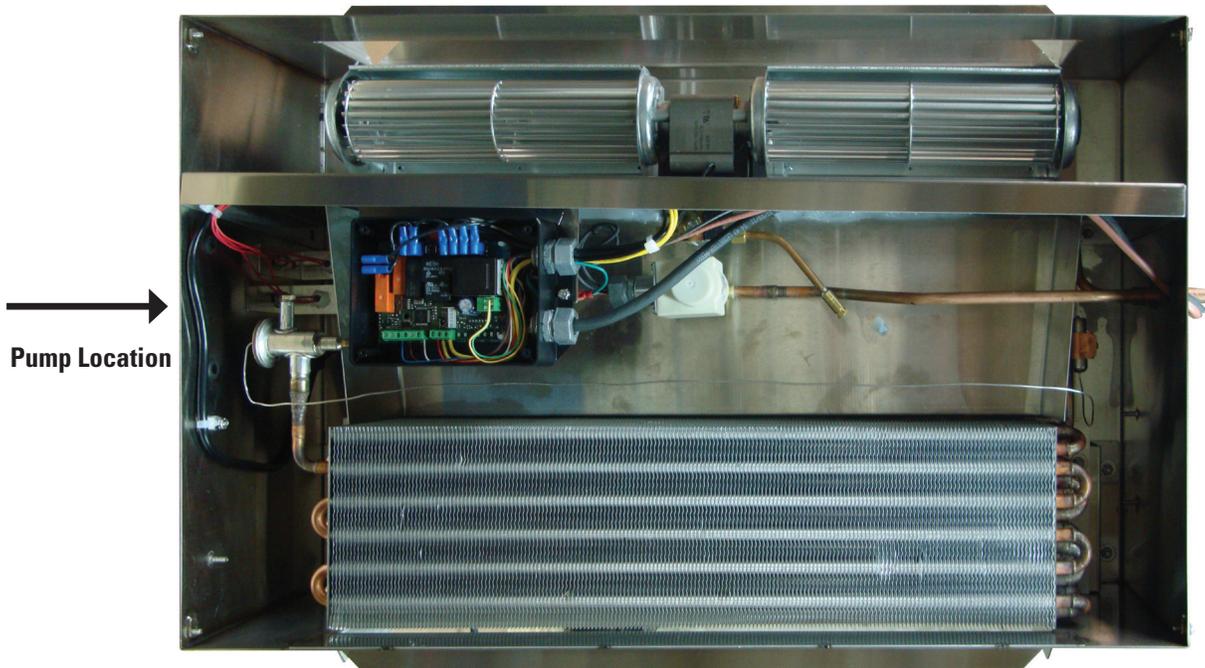
## EVAPORATOR SET UP, continued

5. Wrap TXV and refrigerant solenoid with heat block, remove the TXV bulb from its bracket, and braze in liquid and suction lines. Replace bulb when cool.

**Water Solenoid Connection**



6. Locate the nearest water supply. Shut off water supply to the line and braze in a compression tee, or use a saddle valve adapter. Connect the water filter to the fitting and run 1/4" copper from the filter thru the evaporator side opening and attach to the water solenoid inlet.



7. Attach the 1/4" vinyl hose drain tube to the outlet of the condensate pump. Run the line to the nearest drain and afix with a clamp. The pump sits flush in the bottom of the sump.

## CONTROLLER DISPLAY SET UP

1. Install double gang box and cut out the blank plate to accept the Bacchus Temp/Humidity Keyboard (VH620) A stainless steel plate is available. See wiring diagram on the following page. The keyboard can be mounted inside or outside of the room. Run 18-2 stat wire from the keyboard back to the evaporator control harness, and attach to the yellow and green lead wires indicated. The keyboard can be mounted up to 75 feet from the evaporator.
2. Mount the humidity sensor (XH10P) to a discreet side wall location @ 6ft. from the floor. Bring the extended white and red leads from the 18-6 exiting the evap, and attach to the + and – terminals indicated. White lead to the #2 terminal, and Red lead to the #1 terminal on the sensor. Do not mount in the air discharge (coil side) of the evaporator. Polarity sensitive.
3. Mount the temp sensor adjacent to the humidity sensor, and run the lead wires back to the wire harness. It is best to place both sensors in a location where they cannot be touched by the end user, and are not in the air discharge of the evaporator.
4. Check supply voltage before connecting to the controller/power board.
5. Do not expose to water or moisture: use the controller only within the operating limits avoiding sudden temperature changes with high atmospheric humidity to prevent formation of condensation.
6. Warning: disconnect all electrical connections before any kind of maintenance
7. Ensure that the wires for probes leads and the power supply are separated and are not intertwined or crossed
8. The microprocessor has been preprogrammed for 55F degrees, and 50% RH. To change either setting:
  - A. Push the Temp or Humidity Set Key for three seconds and release
  - B. Use the up^ and down v keys to change the value
  - C. Push the appropriate set key again, and hold for three seconds and actual setting will appear.
9. There is no reason to change any parameter besides temperature or humidity set point depending upon the end users preference.

### IMPORTANT:

10. On occasion, high humidity in the cellar will result in the refrigeration cycle to run past the temperature set point to de-humidify. This could result in a room temperature below 50°F. To contend with this, reset the humidifier set point to a level equal to actual. Later, after the system equalizes, the humidity can then be set lower.



**VH620 Keyboard**



**XH10P Humidity Sensor**



**18NBI**

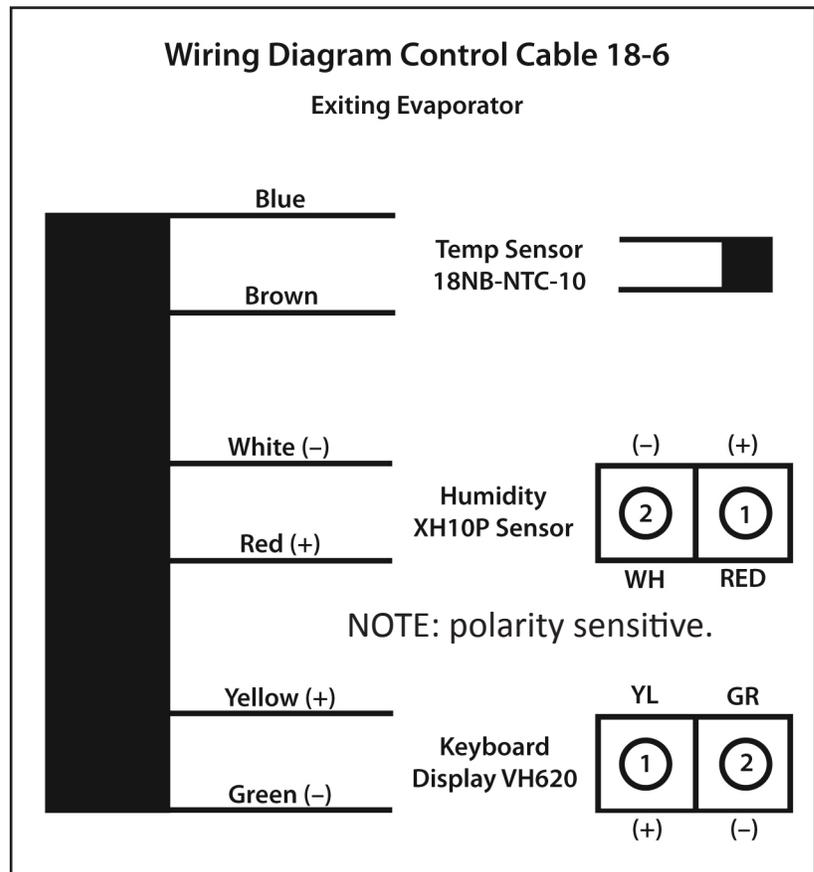
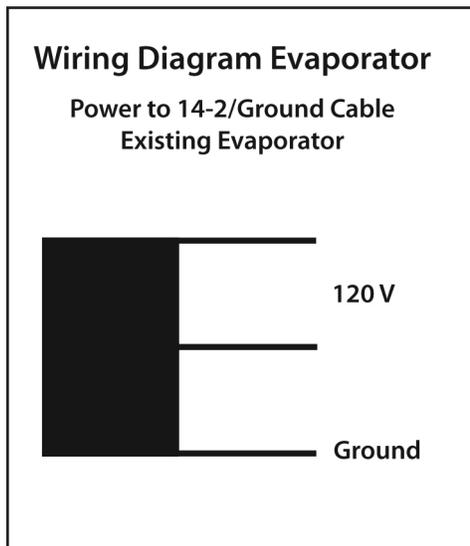
## 11. ALARM SIGNALING

Message	Cause	outputs
"P1"	Thermostat probe failure	compressor and heating outputs off (on dehumidification system only)
"P3"	Humidity probe failure	humidity regulation off
"HA"	High temp alarm	outputs unchanged
"LA"	Low temperature alarm	outputs unchanged
"HHA"	High humidity alarm	outputs unchanged
"HLA"	Low humidity alarm	outputs unchanged

In the instance of any of these alarms, call Bacchus Tech Services, or your installation contractor

### POWER TO THE EVAPORATOR

1. Bring in 14-2 conductor wire with ground to the evaporator, and connect to the 14-2 with ground wire harness exiting the evaporator . Make sure the line has adequate amp rating for the circuit.



## CHARGING THE SYSTEM

System has slight nitrogen charge for shipping.

1. Evacuate and pressure test the system. This can be accomplished by charging with nitrogen to 75 lbs and checking your gauges for any sign of a leak. Evacuate the system to 500 microns.
2. Charge the system to with R134A until the sight glass goes clear. It is very important not to overcharge this system. As soon as the bubbles in the sight glass disappear, discontinue charging. Overcharge will result in an ice block in the evaporator.
3. System Start up. Before replacing stainless steel enclosure cover, power up the system to make sure water solenoid is opening correctly. The misting nozzle will be open. Remove power and replace the cover. Power up the evaporator, and let the system pull down. At temp set point the refrigerant solenoid will close and the system will pump down and shut off the condensing unit.

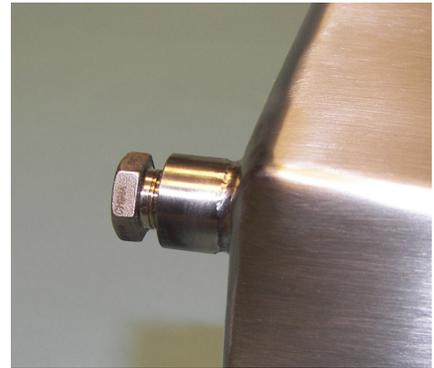


Breakers. We recommend a 30a fused disconnect for the condensing unit, and 15A for the indoor unit.

## MAINTENANCE AND TROUBLESHOOTING

Have your system checked each year by a certified refrigeration technician. He should:

1. Clean the indoor and outdoor coils
2. Change the water filter on the Humidification models, and change out the humidification mister head
3. Drain the Stainless steel sump and clean it if necessary. This will prevent any possible mold build up .
4. Check the operation of the condensate pump, and make sure the water misting fitting is working properly, by allowing water to flow thru it. Clean with vinegar if clogged and change the water filter.
5. Check the electronic controller for any alarm conditions
6. Check the refrigerant level and system operating pressures.
7. Clean the water solenoid on a yearly basis, and replace it every two years.  
Warning: If the water solenoid sticks open, overflow can result.



## TROUBLESHOOTING

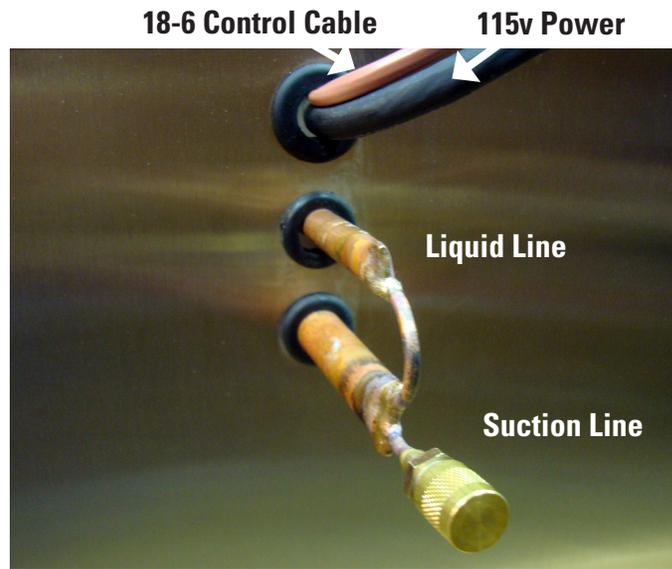
Alarm conditions on the electronic controller Call BCS Tech Services at 937-665-0424

Unit will not reach temperature	Call your installation contractor to Determine proper refrigerant charge. Dirty condenser?
Unit has shut off	Call BSC tech services or field Service; could be bad Compressor, fans, controller or Pump

In the instance of any of these alarms, call Bacchus Tech Services, or your local service contractor

<b>DIMENSIONAL /ELECTRICAL</b>						
	BCS1000D Cond. Unit	BCS1000D Evap	BCS1500D Con. Unit	BCS1500D Evaporator	BCS2000D Con. Unit	BCS3000D Con. Unit
Dimensions	17"D x 13.3"W x 11.8"H	18"D x 29"W x 9"H	19"D x 16.2"W x 14"H	18"D x 29"W x 9"H	19"D x 21"W x 16.5"H	25" D x 20"W x 16"H
Weight	51 lbs.	49 lbs.	62 lbs.	51 lbs.	81 lbs.	135 lbs.
Refrigerant connection	3/8" suc. 1/4" dis.	3/8"sw	3/8" suc 1/4" dis	3/8"sw x 1/2"sw	3/8"suc 5/16" dis	1/2"suc 3/8" dis
Water Supply connection		1/4" compression		1/4" compression		
Condensate connection		1/4" mpt		1/4" mpt		
compressor HP/voltage	1/2 hp 115v		.65 hp 115v		1 hp 115v	1 1/2 hp 208/230-1v
Electrical						
compressor rla	10A		11A		8A	12.1A
compressor lra	53A		51A		43A	49A
cond. Unit MFS	20A		30A		15A	17.6A
cond. Unit mca	13.4A		13.4A		11.3A	12.1A
BTU capacity 40F suc, 110 amb.	4857		6250		10200 (100f amb)	12,185

## REFRIGERANT AND ELECTRICAL CONNECTIONS



Phone: 937-665-0424  
Fax: 937-890-6664