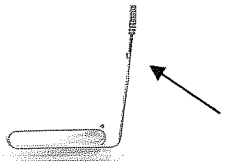
TradeWind Chillers

Installation Instructions for 1/5hp-Compact 1/2hp Drop-In Style Chiller

1. **Location of Chiller**
It is essential that the chiller be located in a well ventilated location. The chiller will not function correctly if even partially confined. If placing the chiller inside the aquarium stand or cabinet is the only option, make sure to have at least two vents to allow fresh air into the chiller and to allow the warm air produced by the chiller to escape from the chiller's location. These vents must be at least as large as the chiller's condenser (part that looks like a radiator). The condenser (front) and rear portion of the chiller should be at least 24" from any wall, and air flow should be directed so as to first enter the condenser. The chiller's cover can be left on or removed, however if the chiller is located outside the cover should be left on and the chiller protected from the elements by a partial enclosure.

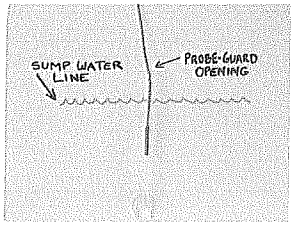
2. **Location of Drop-In Coil**
The Drop-In coil must be located in an area of the sump or main tank where there is sufficient water flow in and around the coil. If the coil does not get adequate water flow it may create a temperature barrier around it, drastically reducing its cooling efficiency. **Do not submerge the Drop-In coil past the section marked by the red sticker (see photo). Doing so will void the warranty on the chiller.**



3. **Flow Rate**
The following flow rates refer to the sump region where the Drop-In coil is typically located. If the coil is located in the main tank, it should be placed in front of a submersible pump or water inlet with the same flow rate range.

1/5hp Drop-In	5-14 gpm (300-840 gph)
1/4hp Drop-In	7-20 gpm (420-1200 gph)
1/3hp Drop-In	8-25 gpm (480-1500 gph)
Super 1/3hp Drop-In	10-30 gpm (600-1800 gph)
Compact 1/2hp Drop-In	10-30 gpm (600-1800 gph)

4. **Temperature Controller Installation**
The chiller and controller should be on a dedicated circuit (GFCI recommended). The controller must be placed in a location away from water or spray. Plug the male power cord of the chiller into the female power cord of the controller, and plug the male power cord of the controller into a 115v wall outlet (extension cord not recommended). Insert the temperature sensor from the controller all the way into the supplied acrylic Probe-Guard™ and place the Probe-Guard™ into the sump or aquarium using the suction cup to hold it in place so that the opening of the Probe-Guard™ is well above the water level (see diagram). Use the enclosed piece of cork tape to seal the opening of the Probe-Guard™ where the sensor wire is inserted to prevent the ambient outside air from affecting the temperature sensor.



5. **Maintenance**
The condenser of the chiller should be cleaned regularly (once a month) using a brush and a vacuum. If the condenser ever appears dirty to the eye it may be necessary to clean it more often. A dirty condenser will drastically reduce the cooling efficiency of the chiller and can reduce its life span.

510 Corporate Drive, Suite F Escondido, CA 92029 phone 760-233-8888, fax 760-233-8889
www.tradewindchillers.com

TradeWind Chillers

Installation Instructions for 1/5hp-1/2hp Inline Style Chiller

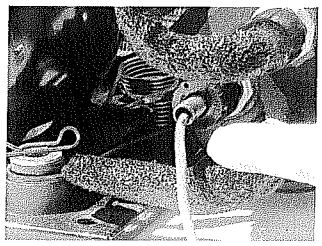
1. **Location of Chiller**
It is essential that the chiller be located in a well ventilated location. The chiller will not function correctly if even partially confined. If placing the chiller inside the aquarium stand or cabinet is the only option, make sure to have at least two vents with fans to allow fresh air into the chiller and to allow the warm air produced by the chiller to escape from the chiller's location. These vents must be at least as large as the chiller's condenser (part that looks like a radiator). The condenser (front) and rear portion of the chiller should be at least 24" from any wall, and air flow should be directed so as to first enter the condenser. The chiller's cover can be left on or removed, however if the chiller is located outside the cover should be left on and the chiller protected from the elements by a partial enclosure.

2. **Plumbing the Chiller (user supplied pump required)**
As with all plumbed aquarium devices, it is strongly recommended that you install union & ball valves on both the inlet and outlet for easy removal of the chiller. For best results and most efficient cooling the chiller should be plumbed so that water flows directly from the chiller to the aquarium, not in a "loop" from the sump back to the sump. The bottom female fitting of the evaporator housing is the inlet to be connected to the water pump, and the upper fitting is the outlet for the return line back to the aquarium. The pump should be connected to the chiller so that it is pushing water into the chiller, not pulling it. Once the chiller has been plumbed, and before it is plugged in, it is recommended that you start the water pump supplying water to the chiller to check for leaks in the plumbed fittings. If you notice air bursts from the return line into the aquarium, gently tilt the chiller to allow any air pockets in the evaporator or plumbing to escape. When plumbing the chiller it is recommended to use 45^0 elbows and/or flexible PVC or vinyl tubing instead of 90^0 elbows to avoid air pockets and to minimize the restriction of the flow rate.

3. **Flow Rate**
The following flow rates refer to the water flow through the chiller. It is important to consider head pressure and the hose or PVC diameter requirements for the pump you are using to supply water to the chiller. The pump manufacturer should be able to assist you in determining if the flow rate with your specifically plumbed system falls within the range listed for your chiller.

1/5hp Inline	5-14 gpm (300-840 gph)
1/4hp Inline	7-20 gpm (420-1200 gph)
1/3hp Inline	8-25 gpm (480-1500 gph)
Super 1/3hp / Compact 1/2hp	10-30 gpm (600-1800 gph)
Super 1/2hp Inline	12-35 gpm (720-2100 gph)

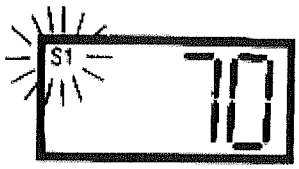
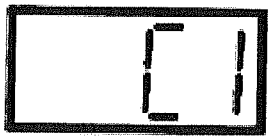
4. **Temperature Controller Installation**
The chiller and controller should be on a dedicated circuit (GFCI recommended). The controller must be placed in a location away from water or spray. Plug the male power cord of the chiller into the female power cord of the controller, and plug the male power cord of the controller into a 115v (or 220v) wall outlet (do not use an extension cord). The temperature sensor for the controller will insert into a stainless "probe well" located on the opposite side of the PVC evaporator from the plumbed fittings (see photo). Removing the cover will make accessing the probe well easier. Insert the temperature sensor from the controller all the way into the probe well and seal off the probe well opening with silicone or cork tape to prevent the outer ambient temperature from influencing the sensor's reading.



5. **Maintenance**
The condenser of the chiller should be cleaned regularly (once a month) using a brush and a vacuum. If the condenser ever appears dirty to the eye it may be necessary to clean it more often. A dirty condenser will drastically reduce the cooling efficiency of the chiller and can reduce its life span.

510 Corporate Drive, Suite F Escondido, CA 92029 phone 760-233-8888, fax 760-233-8889
www.tradewindchillers.com

Programming procedure for single stage RANCO® ETC series controllers

Steps	Procedure	Annunciator	Description	Display
Step 1	To start programming, press the SET key once to access the Fahrenheit/Celsius mode. The display will show the current status, either F for degrees Fahrenheit or C for degrees Celsius. Then Press either up or down arrow key to toggle between the F or C Designation.	F or C	Fahrenheit or Celsius Scale	
Step 2	Press SET key again to access the setpoint. The LCD will display the current setpoint and S1 annunciator will be blinking on and off to indicate that the control is in the setpoint mode. Then press either the up key to increase or the down key to decrease the set point to the desired setting.	S1 (blinking)	Setpoint Temperature	
Step 3	Press SET key again to access the differential. The LCD will display the current differential and DIF1 annunciator will be blinking on and off to indicate that the controls in the differential mode. Then press either the up key to increase or the down key to decrease the differential to the desired setting.	DIF 1 (blinking)	Differential Temperature	
Step 4	Press SET key again to access the cooling or heating mode. The LCD will display the current mode, either C1 for cooling H1 for heating. Then press either the up key or the down key to toggle between the C1 or H1 designation. Press the SET key once more and programming is complete.	C1 / H1	Cooling or Heating mode	

Troubleshooting error messages

Display	Messages	To correct
E1	Appears when either the up or down key is pressed when not in the programming mode	If the E1 message appears even when no keys are being pressed, replace control.
E2	Appears if the control settings are not properly stored in memory.	Check all settings and correct if necessary.
EP	Appears when the probe is open, shorted or sensing a temperature that is out of range.	Check to see if the sensed temperature is out of range. If not, check for probe damage by comparing it to a known ambient temperature between -30°F and 220°F. Replace the probe if necessary.
EE	Appears if the EPROM dada has been corrupted.	This condition cannot be field repaired. Replace the control.
CL	Appears if calibration mode has been entered.	Remove power to the control for at least five seconds. Reapply power. If the CL message still appeared, replace the control.

TradeWind Chillers

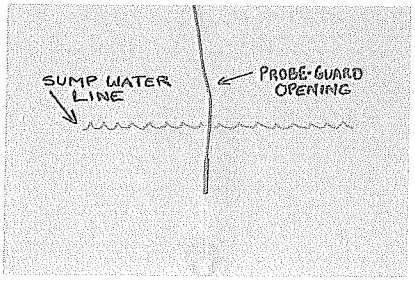
Caution!!

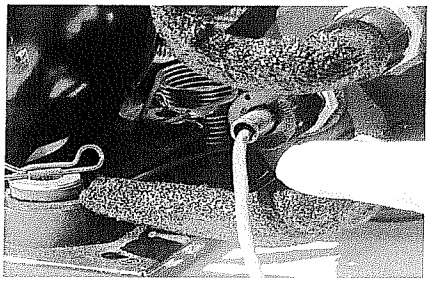
For controllers being used in aquatic conditions

The temperature sensor of the controller must not come into contact with any water (fresh or salt). Submersion in water can cause failure of the sensor and voids any warranty associated with the sensor and controller.

To protect the temperature sensor from contact with water, it is necessary to insert the sensor into a water-tight protective sleeve, such as the **TradeWind ProbeGuard™** (see photo 1), which still allows the sensor to read the surrounding water's ambient temperature. Once the sensor is inserted into the sleeve, seal off the opening with cork tape or silicone to prevent the outer ambient temperature from influencing the inner temperature of the sleeve.

Some water chillers, such as the **TradeWind** inline models, have a tube installed in the evaporator housing called a probe well (see photo 2). The sensor can be inserted into this tube where it will read the ambient temperature inside the evaporator and prevent a "freeze-up" in the event that the pump supplying water to the chiller stops working. As with the ProbeGuard™, seal off the opening with cork tape or silicone to prevent the outer ambient temperature from influencing the inner temperature of the probe well.



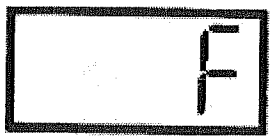
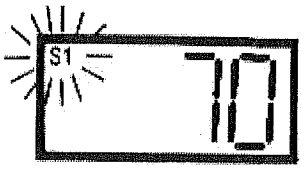
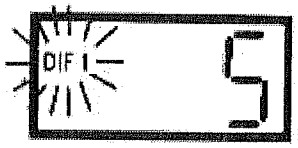
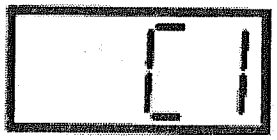
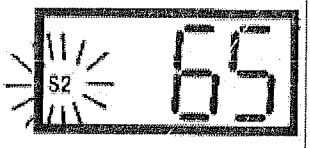


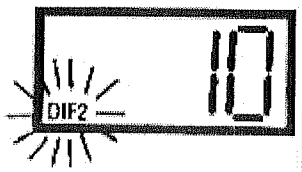
Differential Setting Warning for Water Chillers

Do not set the differential on your Ranco controller less than (2)! The temperature differential for the Ranco controllers start at $.1^0$ and increase 1 degree for each subsequent setting (a "2" setting = 1.1^0). Setting the controller at a 1^0 ($.1^0$) differential can cause the chiller to "short cycle" and damage the starting components on the compressor.

510 Corporate Drive, Suite F Escondido, CA 92029 phone 760-233-8888, fax 760-233-8889
www.tradewindchillers.com

Programming procedure for Dual Stage RANCO® ETC series controllers

Steps	Procedure	Annunciator	Description	Display
Step 1	To start programming, press the SET key once to access the Fahrenheit/Celsius mode. The display will show the current status, either F for degrees Fahrenheit or C for degrees Celsius. Then Press either up or down arrow key to toggle between the F or C Designation.	F or C	Fahrenheit or Celsius Scale	
Step 2	Press SET key again to access the stage 1 setpoint. The LCD will display the current setpoint and S1 annunciator will be blinking on and off to indicate that the controls in the setpoint mode. Then press either the up key to increase or the down key to decrease the set point to the desired setting.	S1 (blinking)	Stage 1 Setpoint Temperature	
Step 3	Press SET key again to access the stage 1 differential. The LCD will display the current differential and DIF1 annunciator will be blinking on and off to indicate that the controls in the differential mode. Then press either the up key to increase or the down key to decrease the differential to the desired setting.	DIF 1 (blinking)	Stage 1 Differential Temperature	
Step 4	Press SET key again to access the stage 1 cooling or heating mode. The LCD will display the current mode, either C1 for cooling H1 for heating. Then press either the up key or the down key to toggle between the C1 or H1 designation.	C1 / H1	Stage 1 Cooling or Heating mode	
Step 5	Press SET key again to access the stage 2 setpoint. The LCD will display the current setpoint and S2 annunciator will be blinking on and off to indicate that the controls in the setpoint mode. Then press either the up key to increase or the down key to decrease the set point to the desired setting.	S2 (blinking)	Stage 2 Setpoint Temperature	

Step 6	Press SET key again to access the stage 2 differential. The LCD will display the current differential and DIF2 annunciator will be blinking on and off to indicate that the controls in the differential mode. Then press either the up key to increase or the down key to decrease the differential to the desired setting.	DIF 2 (blinking)	Stage 2 Differential Temperature	
Step 7	Press SET key again to access the stage 2 cooling or heating mode. The LCD will display the current mode, either C2 for cooling H2 for heating. Then press either the up key or the down key to toggle between the C2 or H2 designation. Press the SET key once more and programming is complete.	C2 / H2	Stage 2 Cooling or Heating Mode	

Troubleshooting error messages

Display	Messages	To correct
E1	Appears when either the up or down key is pressed when not in the programming mode	If the E1 message appears even when no keys are being pressed, replace control.
E2	Appears if the control settings are not properly stored in memory.	Check all settings and correct if necessary.
EP	Appears when the probe is open, shorted or sensing a temperature that is out of range.	Check to see if the sensed temperature is out of range. If not, check for probe damage by comparing it to a known ambient temperature between -30°F and 220°F. Replace the probe if necessary.
EE	Appears if the EPROM data has been corrupted.	This condition cannot be field repaired. Replace the control.
CL	Appears if calibration mode has been entered.	Remove power to the control for at least five seconds. Reapply power. If the CL message still appeared, replace the control.