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Inline Titanium heaters
0.5 kW thru 120 kW



Delta-Star inline water chillers. -1/4 thru 1-1/2 HP

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TR SERIES SINGLE-STAGE DIGITAL TEMPERATURE CONTROL INSTRUCTION MANUAL

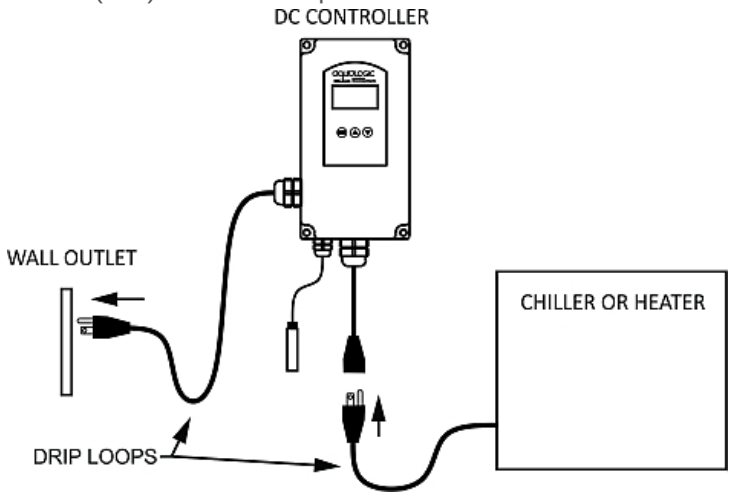
Model No. TR115SN and TR230SN

Used for chillers up to ½ HP and heaters up to 1000 watts

Thank you for purchasing our digital temperature controller. The control is designed to provide on/off control of water chillers and heaters. The control has an LCD display that provides a constant readout of the water temperature and a touch keypad that allows the user to quickly and accurately select the setpoint temperature and differential. The control enclosure has a NEMA 4X rating, but should be protected against direct outdoor weather.

Installation.

1. Mount the controller in a dry area away above the surface of the water tank. Install the power cords in a drip loop so water will not migrate into the controller or the chiller/heater. (See the drawing below.)
2. Plug the male 115 (220) volt power cord from the chiller into the 115 (220) volt female power cord on the controller.
3. Plug the male 115 (220) volt power cord from the controller to the 115 (220) volt wall receptacle.



Operation.

Liquid Crystal Display (LCD)

The LCD display provides a constant readout of the sensor temperature and indicates if the output relay is energized. When the S1 annunciator is constantly illuminated during operation, the relay is energized. The display is also used with the keypad to allow the user to adjust the setpoint temperature, differential and heating/cooling modes.

Backlight

When any of the 3 mode keys are pressed, the backlight is activated and the ETC is in control mode. Press the SET key to begin program mode.

Limited Warranty

This controller has a one (1) year limited warranty.

Aqua Logic, Inc. warrants this temperature controller to be free of defects in materials or workmanship for a period of one (1) year from the date of purchase. In the event of a defect or failure of this product, RETURN THE CONTROLLER WITH PROPER PACKAGING along with pre-authorized issued RMA number, proof of purchase and / or a copy of the original bill of sale to the address below, freight prepaid. COD shipments will be refused. After inspection, to ascertain that there is a defect due to material or workmanship and that the product is still under warranty, Aqua Logic will repair or replace the product at our discretion and return ship the controller.Our liability is limited to the cost of defective materials. In no case will Aqua Logic assume liability for consequential damage resulting from any failure. Not covered by this warranty are damage due to corrosion, abuse, accidental, alterations, unreasonable or improper use. Aqua Logic is not liable for payment or field repair work without prior written authorization.

Call or email Aqua Logic for a RMA number.

PH: 704.774.1391

email to: info@aqualogicinc.com

Return the controller to this address below with a copy of the RMA inside the box within 30 days to:

Aqua Logic, Inc.

Attn: Return Dept. RMA# (put your number here)

2806 Gray Fox Rd..

Monroe, NC. 28110

TROUBLESHOOTING ERROR MESSAGES

Display Messages

E1 Appears when either the up Ç or down È key is pressed when not in the programming mode.
To correct: If the E1 message appears even when no keys are being pressed, replace the control.

E2 Appears if the control settings are not properly stored in memory.
To correct: Check all settings and correct if necessary.

EP Appears when the probe is open, shorted or sensing a temperature that is out of range.
To correct: Check 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 EEPROM data has been corrupted.
To correct: This condition cannot be field repaired. Replace the control.

CL Appears if calibration mode has been entered.
To correct: Remove power to the control for at least five seconds. Reapply power. If the CL message still appears, replace the control

Control Setup.

The temperature setpoint refers to the temperature at which the controller will de-energize. Determine if you are controlling a heater or a chiller. (Refer to Figure 1 for a visual representation)

When the cooling mode is chosen, the differential is above the set point. The relay will de-energize as the temperature falls to the set point.

Anti-short Cycle Compressor Delay for cooling.

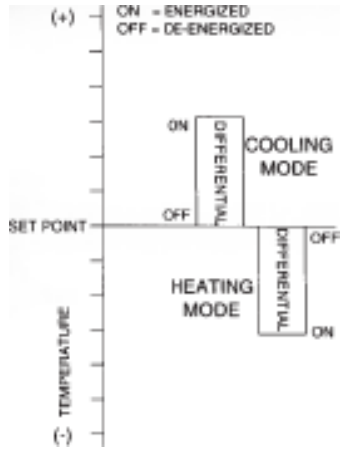


Figure 1: Setpoint and Differential Settings. Diagram indicates on and off points in either the heating or cooling modes

After a relay de-energizes, the control will prevent the chiller from turning on until a configurable time has occurred to protect the compressor.

When the heating mode is chosen, the differential is below the set point. The control will de-energize the heater as the temperature rises to the set point.

Programming Steps and Display Mode

The controller can be programmed in four simple steps using the LCD display and the three keys on the face of the control.

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 the up Ç or down È arrow key to toggle between the F or C designation.

Step 2 Press the SET key again to access the setpoint. The LCD will display the current setpoint and the **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 setpoint to the desired temperature.

Step 3 Press the SET key again to access the differential. The LCD will display the current differential and the **DIF 1** annunciator will be blinking on and off to indicate that the control is in the differential mode. Then press either the up ⬆ key to increase or the down ⬇ key to decrease the differential to the desired setting.

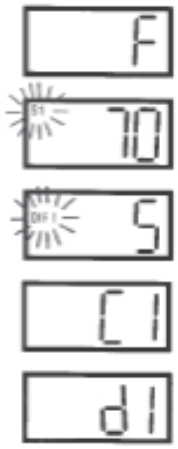
Step 4 Press the SET key again to access the cooling or heating mode. The LCD will display the current mode, either C1 for cooling or H1 for heating. Then press either the up ⬆ or down ⬇ key to toggle between the C1 or H1 designation.

Step 5 Press the SET key again to access the Anti-short Cycle Compressor Delay when in Cooling Mode. Press the up ⬆ or down ⬇ keys to set the delay from 1 to 20 minutes. Press the SET key again to finish the programming.

NOTE: The controller will automatically end programming if no keys are depressed for a period of thirty seconds. Any settings that have been input to the control will be accepted at that point.

All control settings are retained in non-volatile memory if power to the controller is interrupted for any reason. Re-programming is not necessary after power outages or disconnects unless different control settings are required.

Step	Annunciator	Description
1	**F** or **C**	Fahrenheit or Celsius Scale
2	**S1** (blinking)	Setpoint Temperature
3	**DIF 1** (blinking)	Differential Temperature
4	**C1 / H1**	Cooling or Heating
5	**D1**	Cooling Delay Set to 1-20 Minutes



Lockout Switch

The controller is provided with a lockout switch to prevent tampering by unauthorized personnel. When placed in the LOCK position, the keypad is disabled and no changes to the settings can be made. When placed in the UNLOCK position, the keypad will function normally.

To access the lockout switch, disconnect the power supply and open the control. The switch is located on the inside cover about 2 inches above the bottom. (See Figure 2). To disable the keypad, slide the switch to the left LOCK position. To enable the keypad, slide the switch to the right UNLOCK position. All ETC controls are shipped with this switch in the UNLOCK position.

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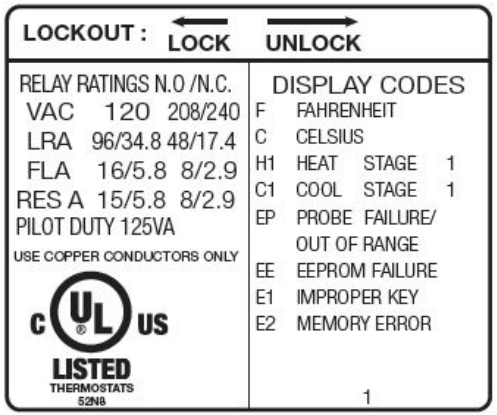


Figure 2: Lockout Switch