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DC SERIES SINGLE STAGE DIGITAL TEMPERATURE CONTROL INSTRUCTION MANUAL

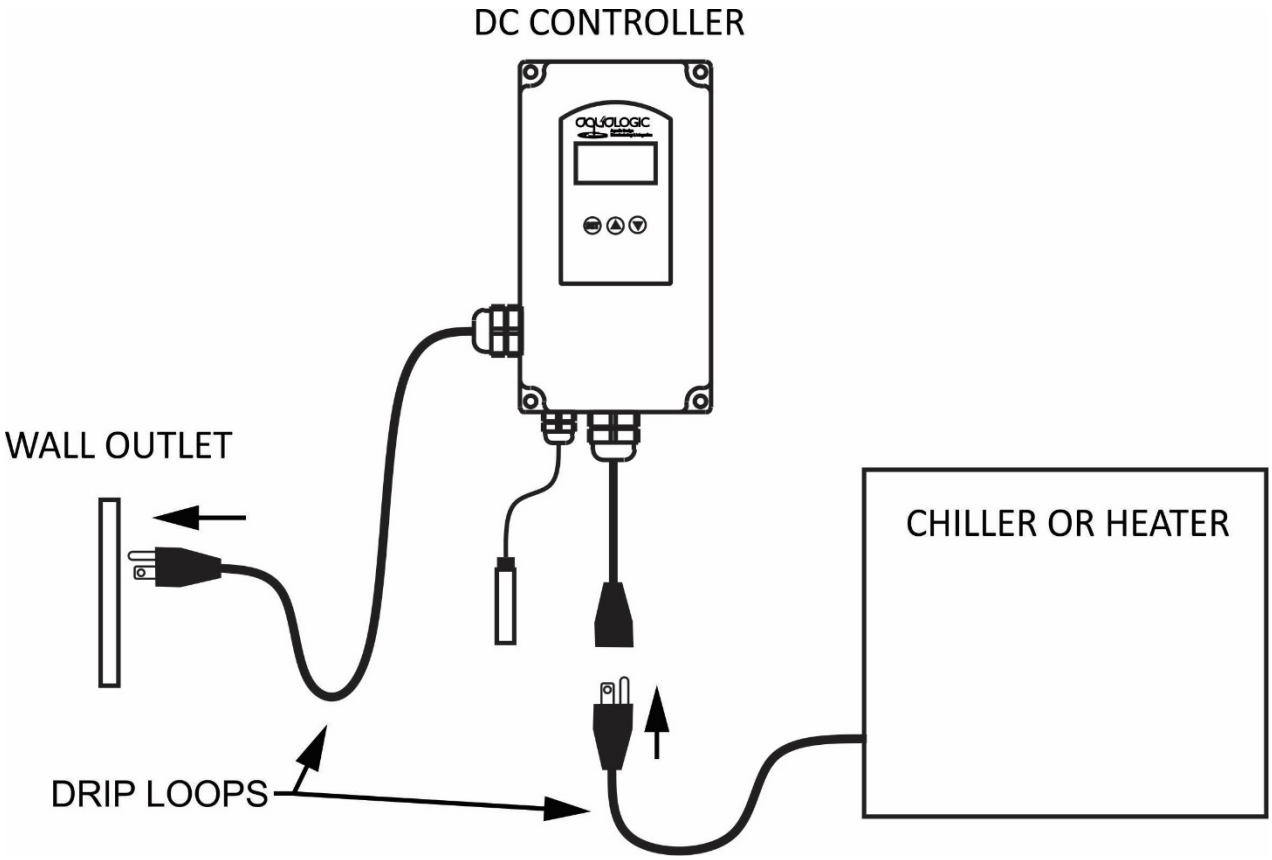
Model No. DC115S, DC115S-20 and DC230S

Thank you for purchasing our digital temperature controller. It is designed to provide on/off control for commercial heating and cooling applications. It is equipped with a red LED display that provides a constant readout of the water temperature, and a touch keypad that allows the user to easily and accurately select the setpoint temperature, differential and heating / cooling modes of operation. The control enclosure has an NEMA 4X rating but, if installed outdoors, it should be protected against the direct weather.

Installation.

1. Mount control on a wall or any vertical surface that water can't splash on it.
2. Plug-in the 115V (230V) control female plug from into the male plug of the chiller or heater.
3. Plug-in the 115V (230V) control male plug into wall outlet.
4. Install the titanium temperature sensor in your tank or sump.

Note: For your safety, you must plug the control into a dedicated 15 or 20 Amp. GFIC (Ground Fault Interruption Circuit) circuit. When installing the control in a wet area make sure to have the power cords with drip loops so water does not collect around the electrical connection



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Temperature Controller Set-up

This digital controller has been pre-programmed with all the necessary parameters to ensure reliable service and operation. The controller is pre-set from the factory with a temperature range from 30 °F to 100 °F with a display resolution of 1 degree °F and with a 1 °F temperature differential.
Note: The controller is set-up in cooling mode from the factory. For heating, change the control program parameter.



Temperature Controller Setpoint Set-up

To modify the set point* temperature.

1. Press and release the “SET” button. SP will be displayed.
2. Press the “SET” button again and the pre-programmed set point temperature will be displayed.
3. Press the up arrow ▲ to increase or the down arrow ▼ to decrease the set point value.
4. Press the “SET” button to save the set point value.
5. Press the “SET” and the “DOWN” ▼ arrow at the same time or wait for 1 minute to exit the program. This will return the display to the current water temperature.

The yellow snowflake indicates that the chiller or heater is energized.

Temperature Differential:

When the water has reached the set point temperature, the chiller or heater will switch off and will not switch back on until the water temperature has changed by 1 °F. This value is known as the temperature differential between on and off cycles. Refer to the temperature control parameters table to change the settings.

Access to all control parameters.

1. Press “SET” the button for 8 seconds. The access value “O” is displayed.
2. Press “SET” button again and a parameter is displayed.
3. Use the up arrow ▲ and down arrow ▼ buttons to scroll to the parameter to be modified.
4. Press the “SET” button to gain access to the parameter value. Use the up arrow ▲ and down arrow ▼ buttons to change the parameter value.
5. Press the “SET” to save the value.
6. Press both the “SET” button and the “DOWN” ▼ arrow at the same time or wait for 1 minute to get out of the control program parameters. The current water temperature is displayed.

Contact Aqua Logic, Inc. for help.
PH: 858.292.4773 or email: info@aqualogicinc.com

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DC SINGLE-STAGE TEMPERATURE CONTROL PROGRAMMABLE PARAMETERS TABLE

Parr.		Description	Units	Range	Factory Set (°F)	Celsius Set (°C)
1	SP1	Set Point	Degrees	r1 to r2	75	25
2	r0	Differential / Hysteresis	Degrees	1 to 20°	1	.5
3	r1	Lower value set point	Degrees	-50 to 150 °C -50 to 302 °F	30°F	0
4	r2	Higher value set point	Degrees	-50 to 150 °C -50 to 302 °F	100°F	40
5	d0	Heating or Cooling	Option	Ht or Co	Co	
6	d2	Time for Defrosting	Minutes	0 to 59	0	
7	d8	Interval Time between Defrosts	Hours	0 to 24	0	
8	c0	Min. time stop for compressor	Minutes	0 to 59	0	
9	c1	Continuous cycle time	Hours	0 to 24	0	
10	c2	On time of fault cycle	Minutes	0 to 99	0	
11	c3	Off time of fault cycle	Minutes	0 to 99	0	
12	P0	Temperature scale selection	Option	°C / °F	F	C
13	P1	Ambient Probe Adjustment	Degrees	-10 to 10°	0	
14	H5	Parameter Access Code	Number	0 to 99	0	
15	H6	Probe input type	Option	Ptc / Ntc	NTC	
16	t0	Max. temperature on display	Degrees	-50 to 150 °C -50 to 302 °F	100°F	40

PARAMETER DESCRIPTIONS

SP = Set Point. Temperature desired to regulate the machine. Can vary from r1 to r2.
r0 = Differential. Heating: If temperature is ≥ SP then output is OFF. If temperature is < SP - r0 then output is ON. **Cooling**: If temperature is ≥ SP + r0 then output is ON. If temperature is < SP then output is OFF.
r1 = Lower Set Point Limit.
r2 = Upper Set Point Limit.
d0 = Heat or Cooling Control. Ht = heating control, Co = cooling control.
d2 = Not used
d8 = Not used.
c0 = Minimum Time for Compressor to be OFF. Minimum time for the compressor to stop until it can start again.
c1 = Continuous Cycle Time. The remaining time for a continuous cooling cycle.
c2 = ON Time of fault cycle, during probe error.
c3 = OFF Time of fault cycle, during probe error.
P0 = Selection of Engineering units between F and C.
P1 = Ambient Probe Calibration. Offsets temperature in degrees to adjust the ambient probe.
H5 = Access Code to Parameters. Factory-set to 0.
H6 = Selection of Input Probe Type: NTC
t0 = Temperature Display Limit. Maximum temperature shown on the display, although the real temperature can be greater.

OPERATION IN CASE OF ERROR

If the probe or thermostat memory should fail, the chiller or heater will turn off.

Error Messages

In normal operation, the probe temperature will be shown. In case of alarm press the “SET” and the “DOWN” ▼ arrow buttons at the same time to quit the alarm. An error messages will be shown:

- **Er** – Memory error
- **--** Shorted –circuited probe error
- **oo-** Open probe

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

Warranty **EXCEPTIONS**:

- The warranty applies only to the original end user and is not transferable.
- The limited warranty may not be modified by verbal statements by the manufacturer, distributors, retailers, their agents nor any other party.
- The warranty covers only the repair or replacement of the ***AQUA LOGIC*** product. ***AQUA LOGIC*** denies all liability for any other loss including but not limited to loss of equipment, income, livestock or personal injury.
- ***AQUA LOGIC*** does not warrant the suitability of the product for the end user's application.
- All warranties are voided by the following:
  --Product labels defaced or removed.

  --Product improperly installed or maintained by user or their agent.

  --Product abused, misused, or damaged by user.

  --Product misapplied to application.

  --Product damage caused by freezing, extremely cold or extremely high temperatures.
- ***AQUA LOGIC*** shall not be liable for the cost of field repairs, inspection, installation, replacement, etc., without prior written authorization and/or valid authorization number.
- ***AQUA LOGIC*** shall not be liable for shipping damage or loss.
- ***AQUA LOGIC*** shall not be liable for unauthorized shipping costs to return warranty items to ***AQUA LOGIC.***

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 unit, Aqua Logic 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: 858.292.4773
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

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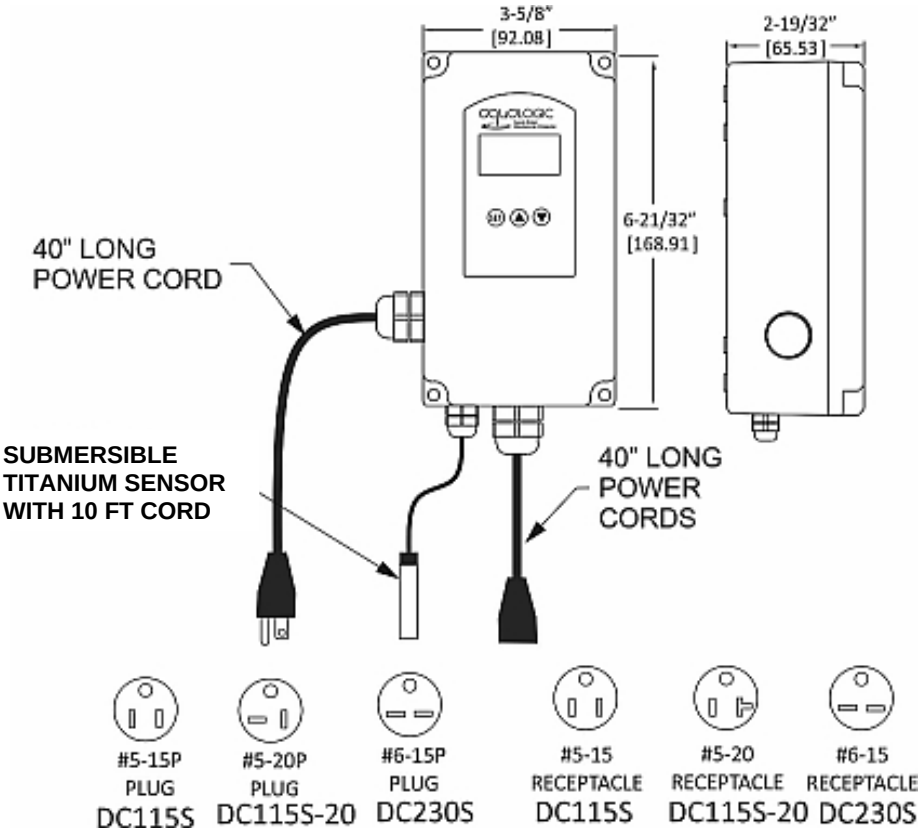
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SPECIFICATIONS

Probe Range:
NTC: -58 to 230°F (-50 to 110°C).
Input: NTC 10k Ω @ 77°F (25°C)
Control Type: On/Off.
Power Requirements: 90 to 255 VAC 50 / 60 Hz (±10%)
Power Consumption: 3.6VA.
Accuracy: ±1% Full Scale.
Display: 3 digits plus sign.
Resolution: 1° ≥ 100°.
Memory Backup: Non-volatile memory.
Ambient Temperature: 32 to 104°F (0 to 40°C).
Weight: 2.5 lbs (1134 g).
Front Protection: NEMA 4X (IP66).
Agency Approvals: CE, UL, cUL.

Controller power rating by model number.

Model	Volts / PH	Maximum Chiller size HP or Maximum Heater size Watts
DC115S	115 / 1	Up to -1/2 or 1200
DC115S-20	115 / 1	Up to -3/4 or 1800
DC230S	230 / 1	Up to 1-1/2 or 2000



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