Instruction Manual for all HX-W Heat Exchangers

1-2018

Model No. HX-36-W

Model No. HX-180-W

AQUA LOGIC, INC., INC. 9558 Camino Ruiz, San Diego, CA 92126
PH (858) 292-4773 FAX (858) 279-0537 www.aqualogicinc.com

Check packing slip and product to see if they match. If not, contact Aqua Logic immediately!!

Important: Unpacking your heat exchanger.

This heat exchanger was properly packed and accepted by the transportation company for shipment. It is the responsibility of the transportation company to deliver it to you in perfect condition.

APPARENT DAMAGE OR LOSS

If, upon delivery, the shipping container or equipment indicates DAMAGE IN TRANSIT, such damaged goods should not be accepted until the transportation company's agent has noted on the freight bill, which he will give you, the nature and extent of the damage. If any part of this shipment is LOST IN TRANSIT, have the shortage noted on the freight bill by the agent.

CONCEALED DAMAGE

Remove crate cover to inspect the unit for damage.

If, when this equipment is unpacked, shipping damage is discovered which was not apparent upon delivery, notify the transportation company IMMEDIATELY to inspect the damaged equipment. The inspector is REQUIRED to provide you with a DAMAGE INSPECTION report.

THIS INSPECTION MUST BE REQUESTED WITHIN FIFTEEN (15) DAYS OF DELIVERY. DO NOT MOVE DAMAGED SHIPMENTS FROM POINT OF DELIVERY. RETAIN ALL CONTAINERS AND PACKING FOR INSPECTION.

Protect yourself. File your claim immediately with the transportation company! Remember, Aqua logic Inc. is not responsible for any damage after the carrier accepts a shipment. Claim for FULL VALUE REIMBURSEMENT should be made by you against the transportation company. Replacement of the damaged equipment should be requested by the purchaser as a new order.

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Very Important!

1. The standard target fluid temperature is limited to a range of 40° F to 85° F on all heat exchangers (evaporator). Without special factory installed equipment, possible damage to the unit can occur when attempting to access fluid temperatures outside this range. Aqua Logic, Inc.'s warranty does not apply to application temperatures under 40°F or above 85° F without special factory modifications.

2. Water going to the heat exchanger should be protected by filters to keep debris from collecting in the evaporator PVC shell. Clogged shells lead to heat exchange problems and will void the warranty.

3. Improperly installed or out of adjustment rapid sand filters can put sand into the stream of water flowing into the heat exchanger. This condition is similar to "sand blasting" and may abrade holes in plumbing lines and or the evaporator titanium tubes. Conditions like these would void the Aqua Logic, Inc. warranty.

   40° F to 85° F Process Temperature Applications

   Wetted parts contain titanium, PVC plastic, rubber, and polymer. These materials are non-reactive with fresh and salt water. You must consult with Aqua Logic, Inc. if any other fluids are to be pumped through the chiller.

   If humid or wet conditions exist where the heat exchanger is to be located, care must be taken to prevent water from getting on electrical components.

4. Allow only qualified licensed plumber personnel connect copper plumbing and electric power to heat exchanger. Installation must be done in accordance with local and national codes.

5. Incoming water pressure to the evaporator must not exceed 50 PSIG. Over pressuring the evaporator may cause damage to the PVC shell, which is **not** covered under warranty.

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Installation Instructions:

1. Place the heat exchanger on a level concrete floor for models HX-65W thru HX-240W. For model HX-3W thru HX-60W mount on wall or shelve that can support the weight the unit with water in it. Have at least two (2) feet of space around the unit to allow room for access to the unit and for maintenance. Also, allow clearance above to remove the PVC shell for cleaning (models HX-65W thru HX-240W). If the unit is to be mounted outdoors, it must be placed in to a weather proof housing to protect from direct weather and rain.

2. Have qualified licensed plumber connect copper plumbing and electric power to heat exchanger.

   Installation must be done in accordance with local and national codes.

3. Connect the plumbing from the pool to the heat exchanger PVC water fittings on the front of the heat exchanger. Be careful not to over tighten the plastic fittings. See "Heat Exchanger By-pass Plumbing"

4. Check for water leaks.

Installation must proceed in accordance with national building and electrical codes by qualified technicians only.

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HEAT EXCHANGER CLEANING
IMPORTANT SAFETY INSTRUCTIONS

WARNING:

SAVE THESE INSTRUCTIONS!!!

To guard against injury, basic safety precautions should be observed including the following:

- **DO** read and follow all safety instructions.
- **DO** read and observe all the notices in this instruction sheet.
- **DO** make sure unit is mounted securely before operating.
- **DO** carefully examine this unit after installation.
- **DO NOT** allow water to freeze in unit. Severe damage may result.
- **DO NOT** store unit in extremely hot or cold areas. Damage may result.
- **DO NOT** exceed the maximum rating of 40-psi for this unit or serious damage may result.
- **DO NOT** perform bleach [organic removal] flush with muriatic acid [mineral removal] at the same time. The resultant poisonous gas can be extremely dangerous or deadly.

Heat Exchanger Cleaning:

NOTE:

The heat exchanger should be cleaned approximately every 12 months or as needed to allow proper performance. On some models this process may be done without removal of the heat exchanger shell. (i.e., water flushing system)

WARNING:

When using bleach and acid special care should be observed.
Always wear hand, eye and body protection. Use rubber gloves.

DO pour acid or bleach into the water. **DO NOT** pour water into acid or bleach solution.
DO NOT perform acid and bleach flushing at the same time. The gas generated by the mixture is poisonous and can result in serious injury or death.

To remove organic deposits from titanium tube bundle without removing the shell:

- Isolate the heat exchanger. (see drawing below)
- Mix 1 part bleach to 3 parts distilled water in five gallon bucket or larger container.
- Circulate via pump the solution through heat exchanger for approximately one to two hours or as needed.
- Thoroughly rinse heat exchanger with clean water.

To remove mineral deposits from titanium tube bundle:

Use the same steps as above, but use muriatic acid instead of bleach. Be sure to follow the muriatic acid manufacturer's instructions for use and safety.

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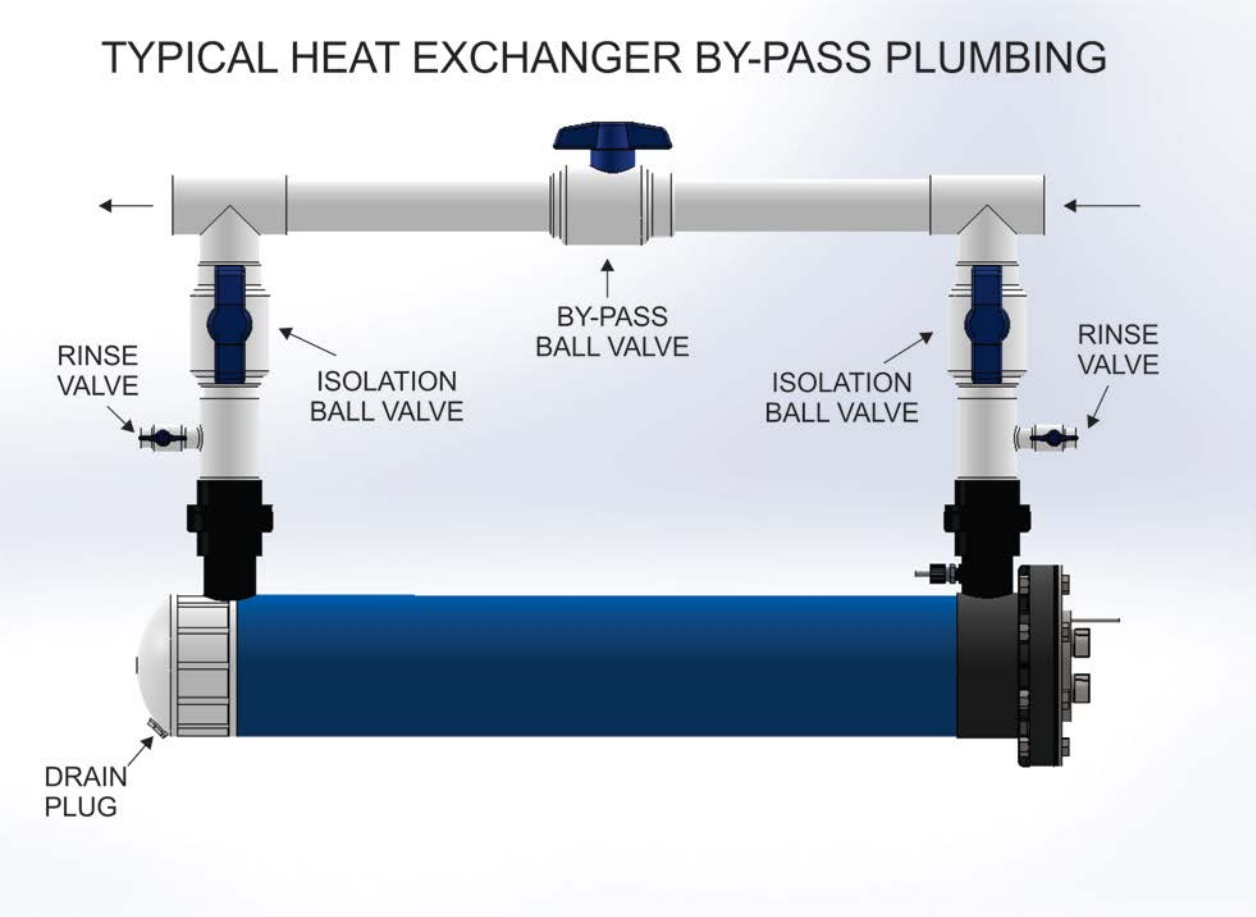

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DCW-115, DCW-220, DC-115S and DC-230S Temperature Controllers

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.

Temperature Controller Setpoint Set-up

To modify the set point* temperature. Press and release the “SET” button. SP will be displayed. Press the “SET” button again and the pre-programmed set point temperature will be displayed. Press the up arrow ▲ to increase or the down arrow ▼ to decrease the set point. Once the desired set point value has been selected, do not touch any of the keys for 1 minute or press the “SET” and the “DOWN” ▼ arrow at the same time. The control will then revert to displaying the current water temperature. It will now control the water temperature to the desired set point.

This indicates that it’s calling for either chilling or heating mode.

Temperature Differential:

When the water has reached the set point temperature, the water valve 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.

Display Calibration and Program Parameters

If the displayed water temperature on the control is different from the system water temperature, than an adjustment to the control can be done. The easiest way to calibrate the control is to press and hold the "Set" button for 8 seconds. The parameter “O” will be displayed. Wait 4 seconds. Then press the “SET” button and the “SP” will be displayed. Use the down ▼ or up ▲ arrow until you see the menu parameter "P1". Then press the “SET” button one time. The display will show “0”. Press the up or down arrows to adjust to the temperature offset. Once you have set the correct temperature offset, press "SET" button one more time and then wait 1 minute or press the “SET” and the “DOWN” ▼ arrow buttons at the same time to quit the programming. The display should return to the water temperature. The display should read correct water temperature readout.

DCW-115S and DCW-230S for HX-3W thru HX-60W models

DC-115S and DC-230S controls for HX-65W thru HX-240W and all custom models

See the next page for changing other settings.

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DCW AND DC TEMPERATURE CONTROL PROGRAMMABLE PARAMETERS TABLE

DCW-115 AND DCW-230 CONTROLLER

Parr.		Description	Units	Range	Factory Settings	Note Change
1	SP	Set Point	Degrees	r1 to r6	75	
2	r0	Differential / Hysteresis	Degrees	1 to 20°	1	
3	r1	Lower value set point	Degrees	-50 to 150 °C -50 to 302 °F	30°F	
4	r2	Higher value set point	Degrees	-50 to 150 °C -50 to 302 °F	100°F	
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	A0	Alarm differential or hysteresis	Degrees	1 to 20	0	
13	A1	Max. alarm temperature	Degrees	1 to 90	100	
14	A2	Minimum alarm temperature	Degrees	1 to 90	30	
15	A7	Alarm time validation	Minutes	0 to 999		
16	P0	Temperature scale selection	Option	°C / °F	F	
17	P1	Ambient Probe Adjustment	Degrees	-10 to 10°	0	
18	P4	Decimal point	Option	Yes or No	yes	
19	H0	Factory setting	Option	0		
20	H4	Address	Numeric	0 to 999		
21	H5	Parameter Access Code	Number	0 to 99	0	
22	H6	Probe input type	Option	Ptc / Ntc	Ptc	
23	t0	Max. temperature on display	Degrees	-50 to 150 °C -50 to 302 °F	100°F	

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DC-115S AND DC-230S CONTROLLER

Parr.		Description	Units	Range	Factory Settings	Note Change
1	SP1	Set Point	Degrees	r1 to r6	75	
2	r0	Differential / Hysteresis	Degrees	1 to 20°	1	
3	r1	Lower value set point	Degrees	-50 to 150 °C -50 to 302 °F	30°F	
4	r2	Higher value set point	Degrees	-50 to 150 °C -50 to 302 °F	100°F	
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	
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	Ptc	
16	t0	Max. temperature on display	Degrees	-50 to 150 °C -50 to 302 °F	100°F	

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: PTC or NTC.
t0 = Temperature Display Limit. Maximum temperature shown on the display, although the real temperature can be greater.

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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
- **--** = Short circuit probe error
- **Oo** = Open probe
- **ALH** = High temperature alarm.
- **ALL** = Low temperature alarm.

Note: To turn alarm off press the SET button and the down arrow at the same time.

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Limited Warranty Terms (PLEASE READ CAREFULLY)**:**

All Heat exchangers manufactured by ***AQUA LOGIC, INC.*** (hereafter called ***AQUA LOGIC***) are warranted against defects and workmanship for a period of one (1) year from the date of purchase by the original purchase. Any ***AQUA LOGIC*** product found to be defective within the warranty period will repaired or replaced at the option of ***AQUA LOGIC.***

Warranty **EXCEPTIONS**:

- The warranty applies only to the original enduser 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 enduser'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 electrical surges, spikes, brownouts or improper voltage.

  --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.***

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