HELIO™

PTC Titanium Heating System

Before use, be sure to read this guide, including the safety precautions.

This guide will familiarize you with how to use the heating system correctly.

www.innovative-marine.com

INNOVATIVE IM MARINE

Innovative Marine is proud to introduce HELIO, our new line of heaters utilizing ultra-safe PTC (positive temperature coefficient) technology.

Up until now, the way we chose to heat our aquariums have been electric immersion heaters that use resistance wires as the primary source of heat. This is the same technology commonly used in toasters. When these types of aquarium heaters are exposed to air or become covered with debris, the heat is unable to dissipate quickly enough resulting in a rapid temperature spike, reduction in operation life and eventually catastrophic failure of the aquarium.

When developing the HELIO, we looked at the aquaculture industry and how PTC technology was utilized. After scrutinized detailed analysis, we extrapolated how to efficiently heat (in both cost and thermal dispersion), as well as minimizing the danger of air exposure and for everyday use.

PTC technology utilizes solid state ceramic chips that are programmed to reach only a certain predetermined set temperature. As compared to resistance wires that continuously increase in temperature until the element ceases.

When the temperature of the ceramic chip heating element increases, the sensor on the chip itself reads the increase and will increase its electrical resistance resulting in decreased heat output. This simply means that as the heating element gets hotter, it will become relatively more difficult to become hotter. Safety is inherently built in and not added on.

Now, after we re-engineered and redesigned as well as incorporated the latest reef aquarium technologies, the PTC self-regulating heater and its components are ready to operate safely and efficiently in a harsh marine reef aquarium ecosystem.

The mastermind behind the HELIO Heating System is our PTC smart controller, which bridges the gap between hobby grade and commercial heating systems. The smart controller's processor goes hand in hand with the PTC heating elements to keep your temperature stable. Communicating back and forth with the elements and alerting you immediately after any fluctuations in temperature have been detected.

The PTC smart controller has been fitted with a titanium remote temperature sensor and dual heating element power lines. Since each heating element has its own built in temperature regulation system, there's safety in redundancy from the controller's temperature sensor. And if dual heating elements are employed, there is yet another level of safety added to the system.

Each piece of the HELIO heating system was created to work harmoniously together. Commercial grade titanium heating sheaths and screws prevent corrosion. Rare earth magnetic heating element holders allow optimal water flow. Quick disconnects for the controller's temperature sensors and heating elements make for easy maintenance and upgradeability.

After years in development, the HELIO heating system possesses powerful features that exceed current reef aquarium heater expectations and achieve three main objectives: Increased safety. Improved reliability. And to provide a new reef aquarium heating technology superior to the long held standard.

HELIO PTC Titanium Heating System.
Safe. Stable. Smart.

IMPORTANT SAFETY INSTRUCTIONS

WARNING: Follow the warnings below otherwise death or serious injuries may result.

READ AND FOLLOW ALL SAFETY INSTRUCTIONS BEFORE OPERATION

To avoid electric shock, special care should be taken since water is employed in the use of aquarium equipment. For each of the following situations, do not attempt to repair yourself. Return the appliance to Innovative Marine for service or discard the appliance.

If the controller falls into water, DO NOT reach for it! First, unplug it and then retrieve it. If the electrical components of the appliance gets wet, unplug the appliance immediately.

Carefully examine the appliance after installation. It should not be plugged in if there is water on parts not intended to be wet.

Do not operate any appliance if it has a damaged cord or plug, or if it is malfunctioning or if it is dropped or damaged in any manner.

To avoid the possibility of the appliance plug or receptacle getting wet, position aquarium to one side of a wall mounted receptacle to prevent water from dripping onto the receptacle plug. A "Drip Loop" should be arranged by the user for EACH cord connecting an aquarium appliance to a receptacle. The "Drip Loop" is that part of the cord below the level of the receptacle or the connector if an extension cord is used. This "Drip Loop" prevents water traveling along the cord and coming in contact with the receptacle. If the plug or the receptacle do get wet, DO NOT unplug the cord. Disconnect the fuse to the circuit breaker that supplies power to the appliance. Then unplug and examine for the presence of water in the receptacle.

Close supervision is necessary when any appliance is used by or near children.

To avoid injury, do not contact hot parts such as heating elements.

Always unplug an appliance from the outlet when not in use, before putting on or taking off parts, and before cleaning. Never yank the cord to pull plug from the outlet. Before any type of maintenance or trouble shooting, grasp the plug and pull to disconnect.

Do not use an appliance for other than intended use. The use of attachments not recommended or sold by the appliance manufacturer may cause an unsafe condition.

Do not install or store the appliance where it will be exposed to the weather or temperatures below freezing.

Make sure an appliance mounted on a tank is securely installed before operating it.

Read and observe all the important notices on the appliance.

If an extension cord is necessary, a cord with a proper rating should be used. A cord rated for less ampere watts than the appliance rating may overheat. Care should be taken to arrange the cord so that it will not be tripped over or pulled.

ONLY FOR POLARIZED ATTACHMENT PLUG APPLIANCES

If this appliance has a polarized plug (one blade is wider than the other) as a safety feature, this plug will fit in a polarized outlet only one way. If the plug does not fit fully in the outlet, reverse the plug. If it still does not fit, contact a qualified electrician. Never use with an extension cord unless plug can be fully inserted. Do not attempt to defeat this safety feature.

SAVE THESE INSTRUCTIONS

SAFETY WARNINGS

Do not operate Element(s) outside of water.

Element(s) and Remote Sensors must be cleaned every 30 days or as needed.

Element(s) must be placed in an area with good water flow.

Element(s) must not be placed behind any kind of ornament.

Element(s) must be fully submerged. (Figure 1)

HELIO PTC Smart Controller must be away from water.

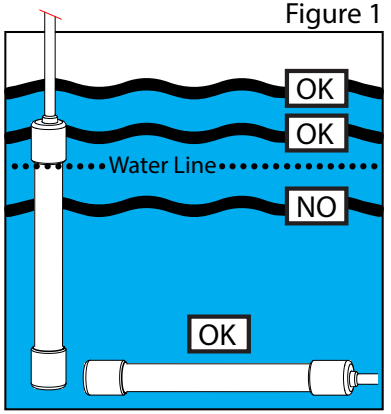
Unplug the HELIO PTC Smart Controller for 1 hour prior to a water change.

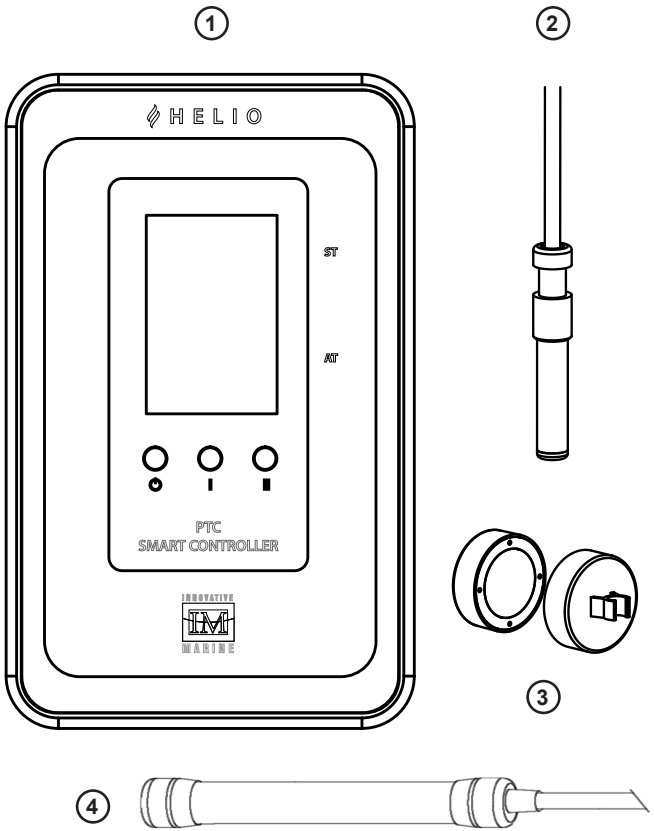
For indoor aquarium use only.

Keep out of reach of children and pets.

Strong magnets. Can be harmful to pacemaker wearers and others with medical implants. Keep tools and other metal objects away.

Figure 1



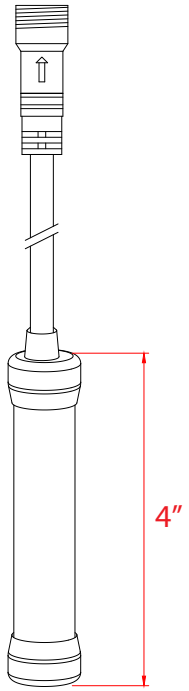


		Item Code
1	1 x PTC Smart Controller	830008
2	1 x Remote Sensor	830002
3	1 x Remote Sensor Holder	830007
4	1 x 50W PTC Titanium Element	830010

Note: Helio 50W Heater Does Not Include PTC Titanium Element Holder

Attaching the Remote Sensor and Elements

Warning: Controller must be unplugged during attachment of remote sensor, element(s), holder set up and element/sensor placement.



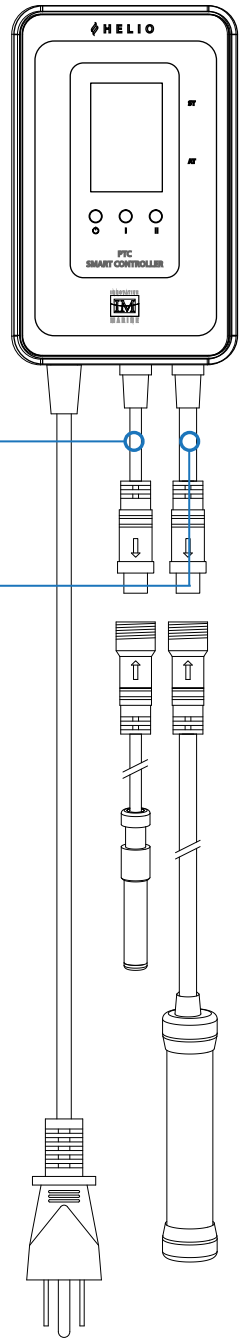
Attach the Remote Sensor

① Connect remote sensor to this plug.

Attach the PTC Titanium Element

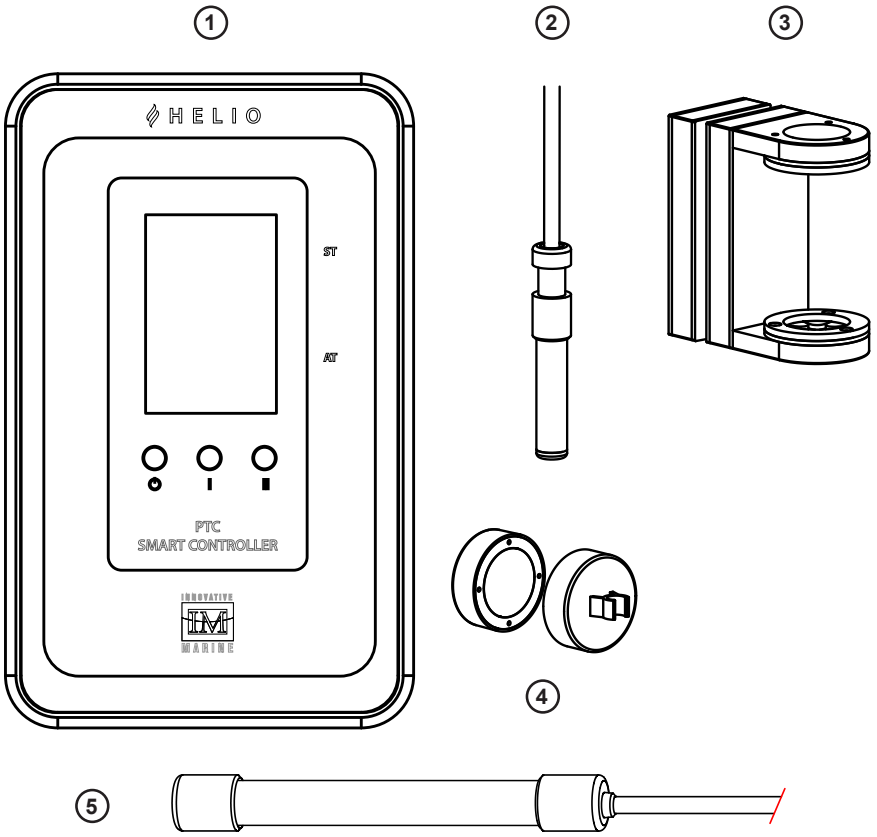
② Connect the PTC Titanium Element to this plug.

*Note: 8300-A Has One Element Plug.

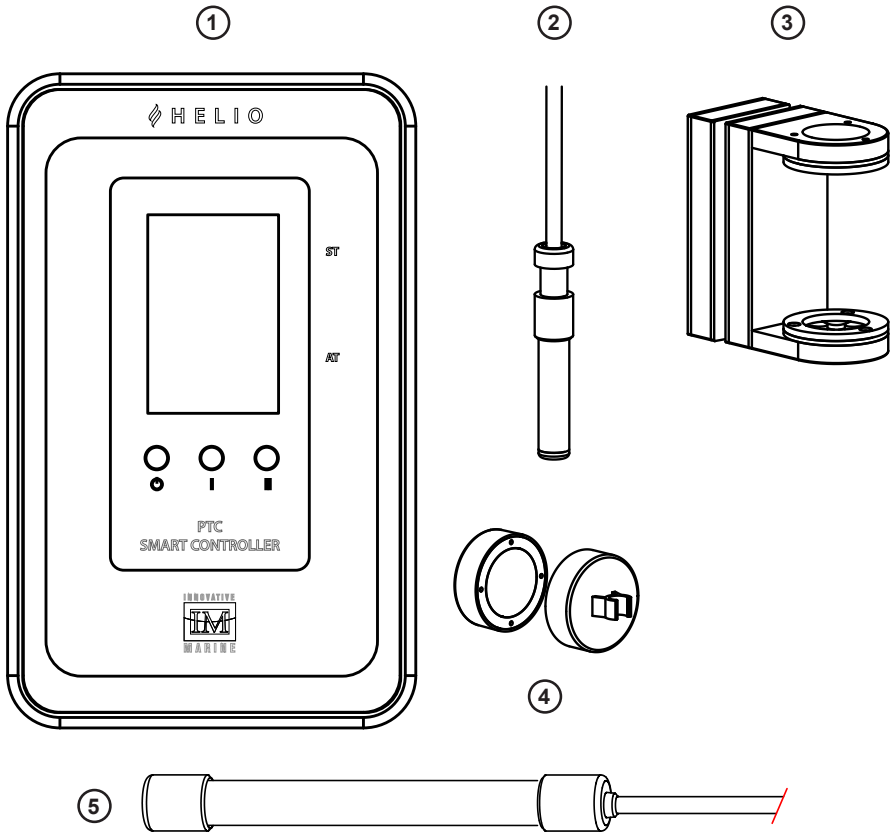


Single Element

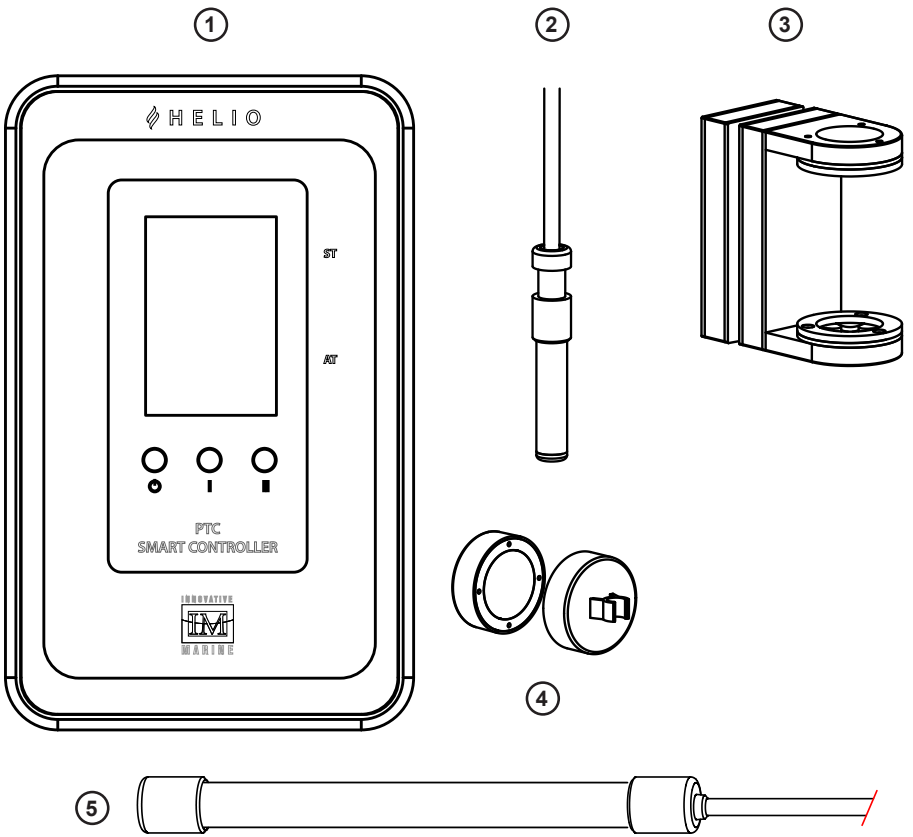
50 Watt	Up to 20 Gallons*



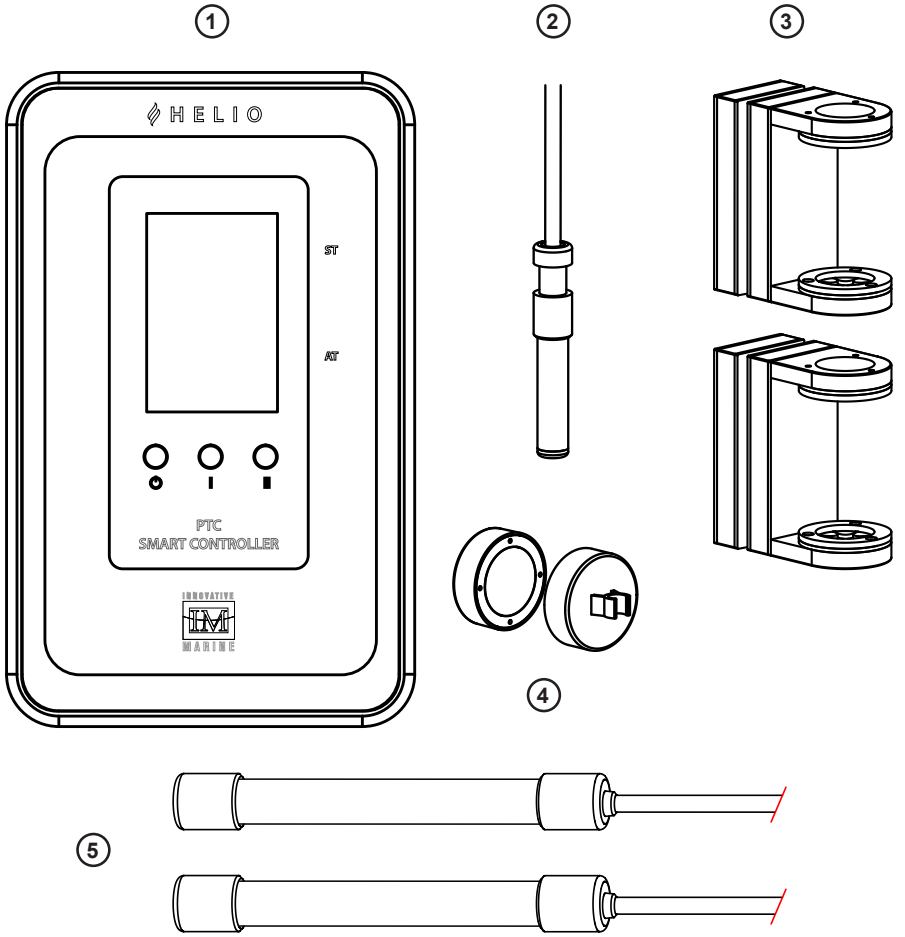
		Item Code
1	1 x PTC Smart Controller	830001
2	1 x Remote Sensor	830002
3	1 x PTC Titanium Element Holder	8300-1
4	1 x Remote Sensor Holder	830007
5	1 x 100W PTC Titanium Element	830003



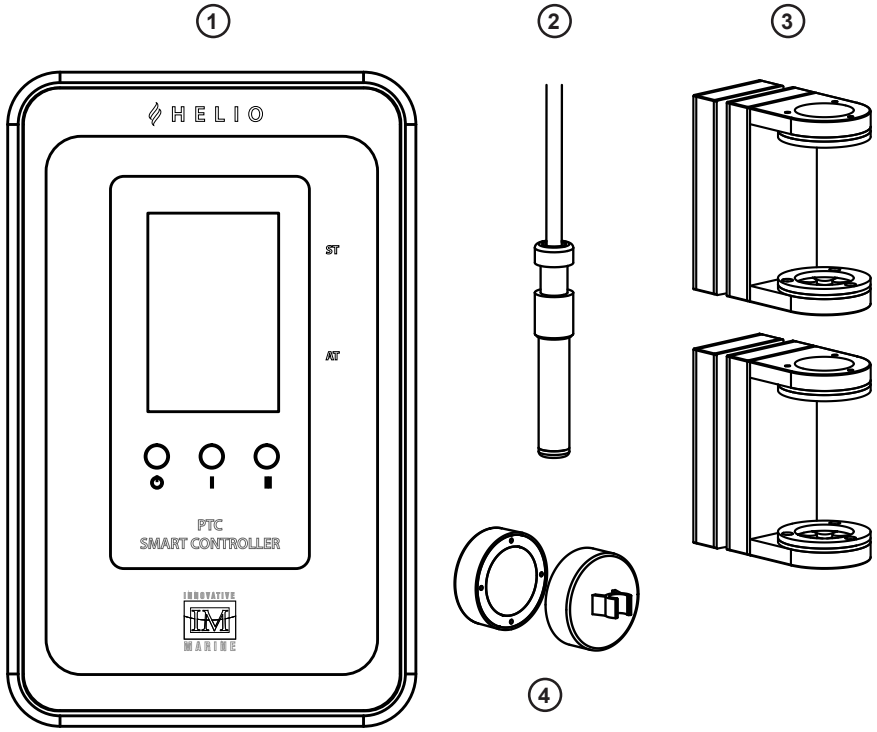
		Item Code
1	1 x PTC Smart Controller	830001
2	1 x Remote Sensor	830002
3	1 x PTC Titanium Element Holder	8300-1
4	1 x Remote Sensor Holder	830007
5	1 x 200W PTC Titanium Element	830004



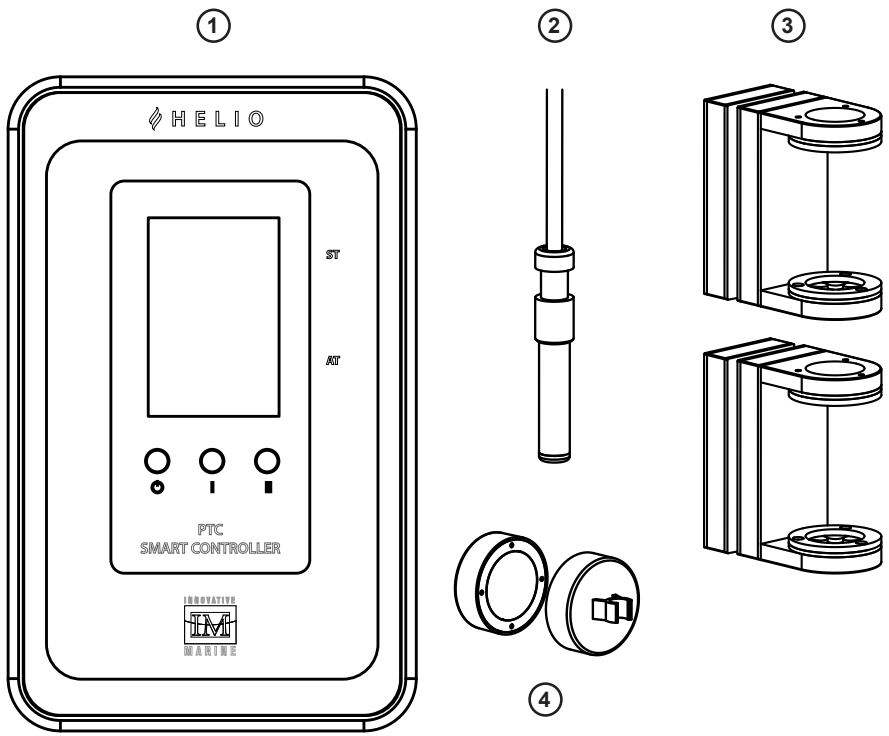
		Item Code
1	1 x PTC Smart Controller	830001
2	1 x Remote Sensor	830002
3	1 x PTC Titanium Element Holder	8300-1
4	1 x Remote Sensor Holder	830007
5	1 x 350W PTC Titanium Element	830005

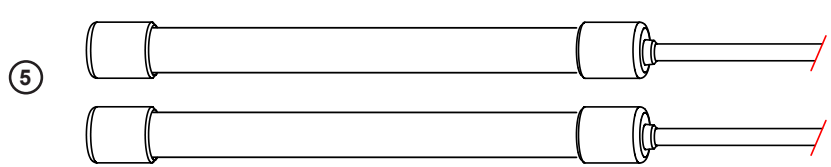


		Item Code
1	1 x PTC Smart Controller	830001
2	1 x Remote Sensor	830002
3	2 x PTC Titanium Element Holder	8300-1
4	1 x Remote Sensor Holder	830007
5	2 x 100W PTC Titanium Element	830003

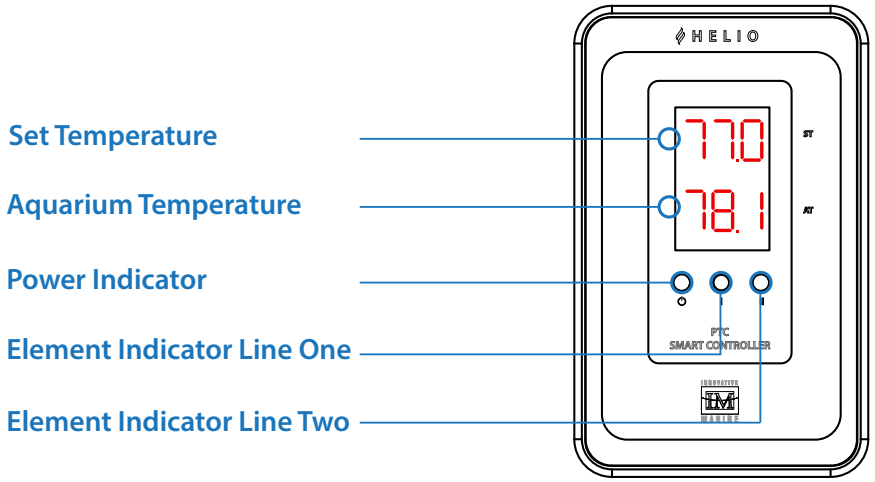


		Item Code
1	1 x PTC Smart Controller	830001
2	1 x Remote Sensor	830002
3	2 x PTC Titanium Element Holder	8300-1
4	1 x Remote Sensor Holder	830007
5	2 x 200W PTC Titanium Element	830004

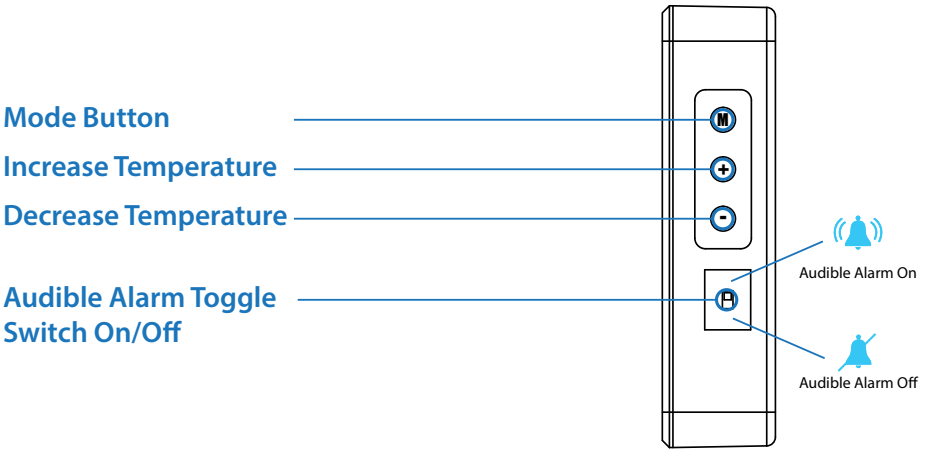




		Item Code
1	1 x PTC Smart Controller	830001
2	1 x Remote Sensor	830002
3	2 x PTC Titanium Element Holder	8300-1
4	1 x Remote Sensor Holder	830007
5	2 x 350W PTC Titanium Element	830005

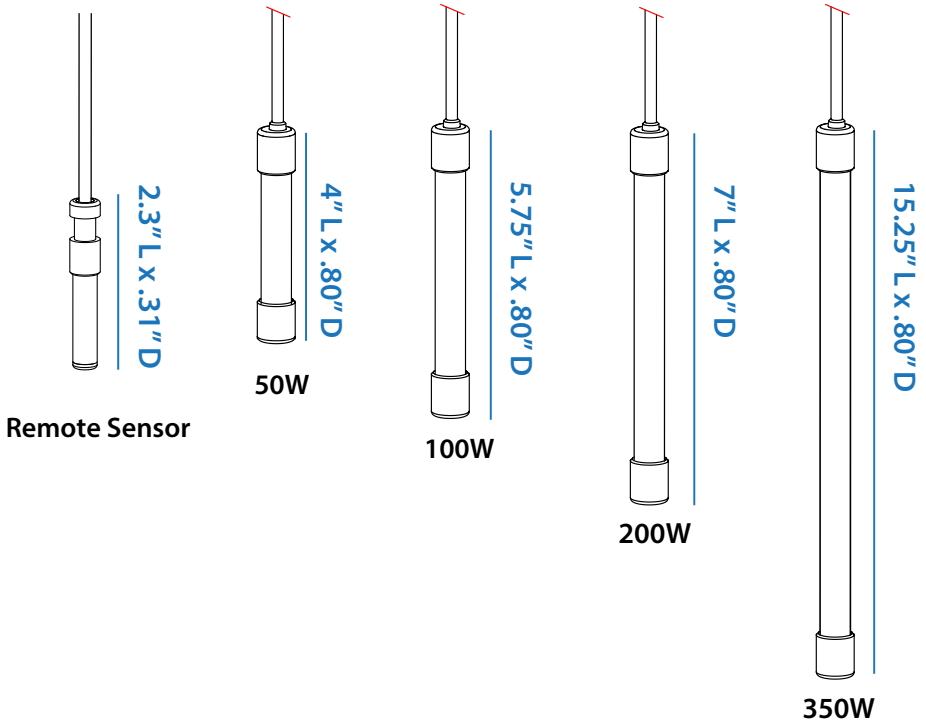


(Front View)



(Right Side View)

Factory Preset Temperature	77° F
Factory Preset Low Alarm	74° F
Factory Preset High Alarm	80° F
Temp Set Range	59° - 95° F
Low Alarm General Range	57° - 93° F
Low Alarm Minimum Range	-2° F from Set Temperature
High Alarm General Range	60° - 96° F
High Alarm Minimum Range	+1° F from Set Temperature
Accuracy	< ±1° F
Resolution	0.1° F
Calibration Range	± 9° F



Single Element

50 Watt	Up to 20 Gallons*
100 Watt	10 - 25 Gallons*
200 Watt	25 - 50 Gallons*
350 Watt	50 - 100 Gallons*

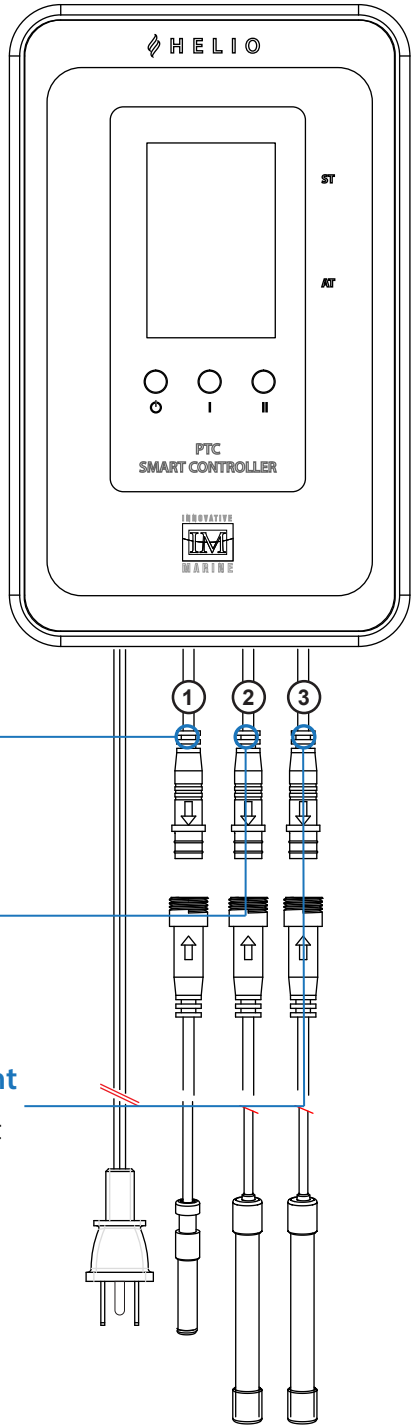
Double Element

(2) x 100 Watt	25 - 50 Gallons*
(2) x 200 Watt	50 - 100 Gallons*
(2) x 350 Watt	100 - 200 Gallons*

*Chart guideline ratings based on +10° F water temperature increase from current ambient temperature.

Attaching the Remote Sensor and Elements

Warning: Controller must be unplugged during attachment of remote sensor, element(s), holder set up and element/sensor placement.



Attach the Remote Sensor

(1) Connect remote sensor to this plug.

Attach the PTC Titanium Element

(2) Connect the PTC Titanium Element to this plug.

Attach the Second PTC Titanium Element

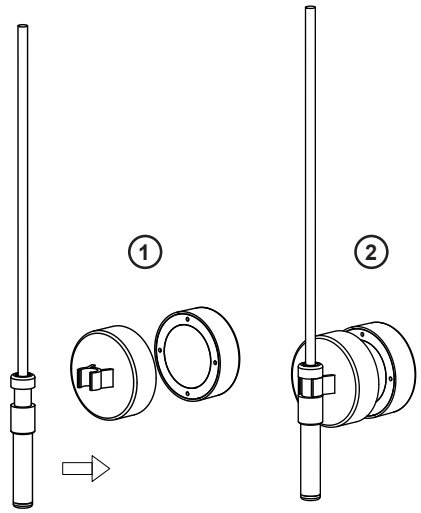
(3) If applicable, connect the second element to this plug.

Attach Remote Sensor to Holder

(1) Attach sensor to the magnetic holder.

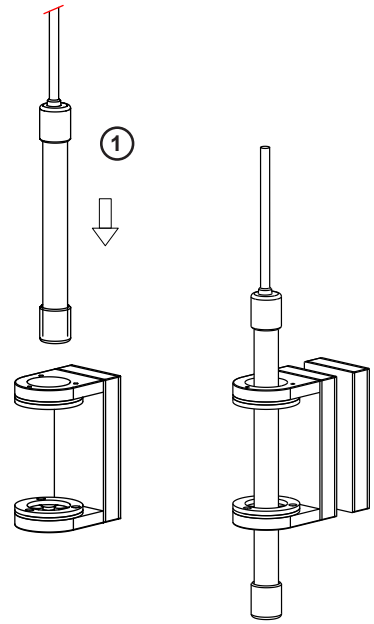
(2) Attach the magnetic backing to secure the sensor in your aquarium.

magnetic holder strength up to 1/2" thick



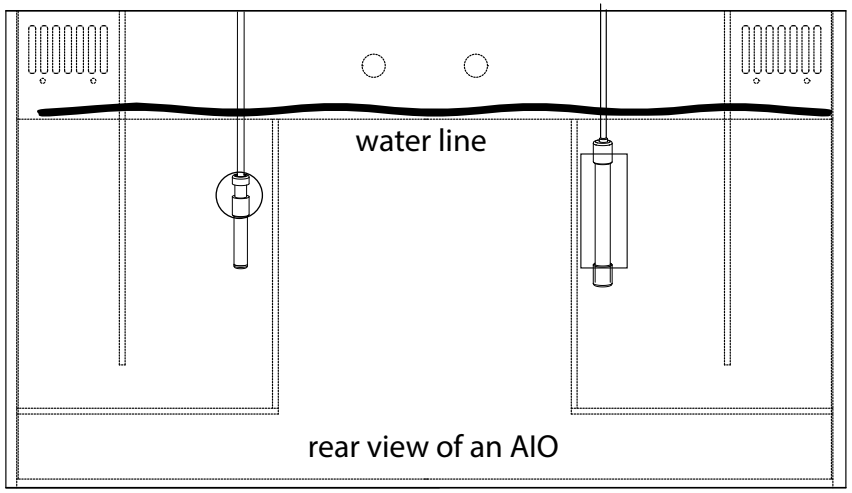
Insert PTC Element into the Holder

(1) Insert element into heater holder as illustrated.

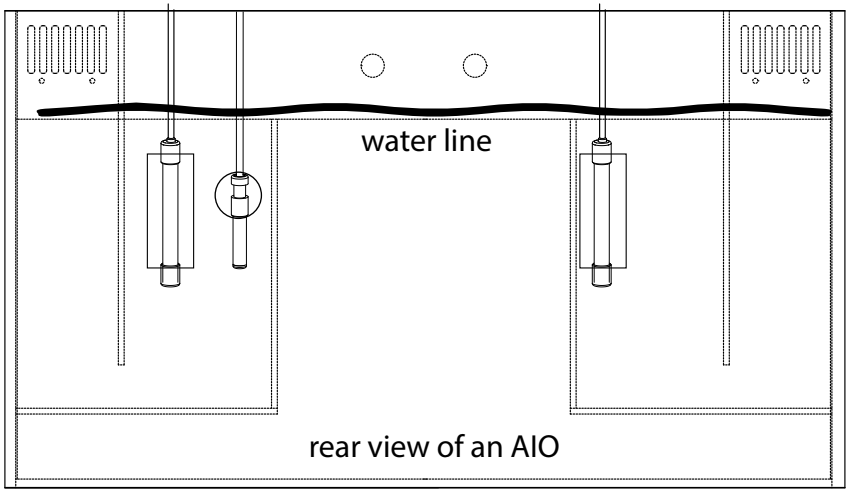


Element & Remote Sensor Placement

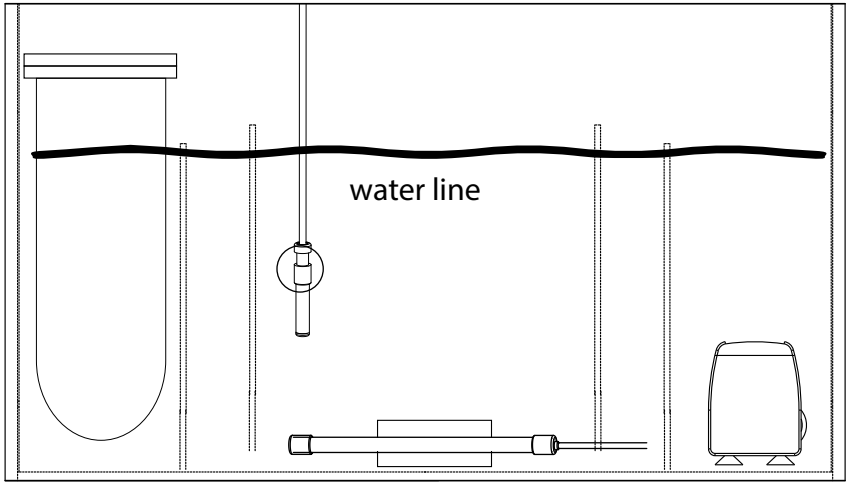
AIO Placement: (Single) Element Configuration



AIO Placement: (Double) Element Configuration

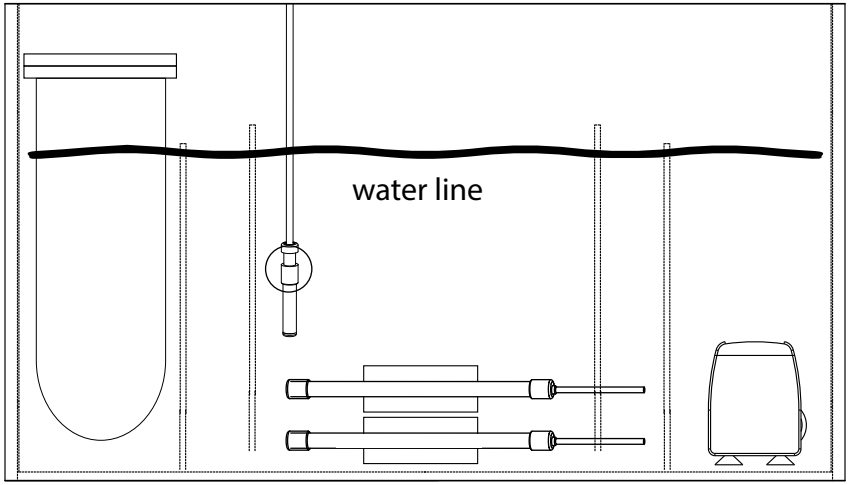


Sump Placement: (Single) Element Configuration



Interior view of a sump

Sump Placement: (Double) Element Configuration

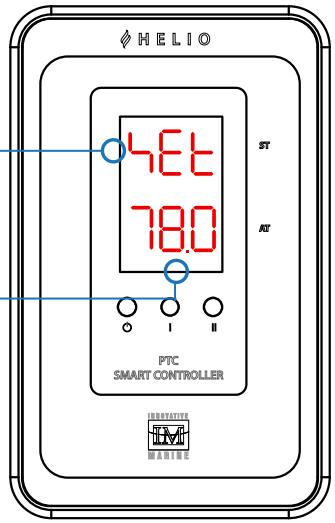


Interior view of a sump

Set Desired Temperature

Plug in controller to receptacle

Press the Mode button 1 time then the display will read SET.

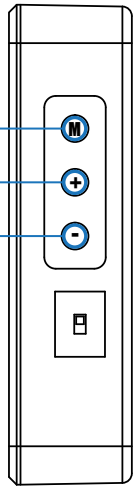


Temperature

Set desired temperature by pressing the "+" or "-" button. You can increase or decrease your desired temperature by 1.0° F.

Temp Set Range: 59° F - 95° F

Wait 3 seconds, then your set temperature will be automatically saved.



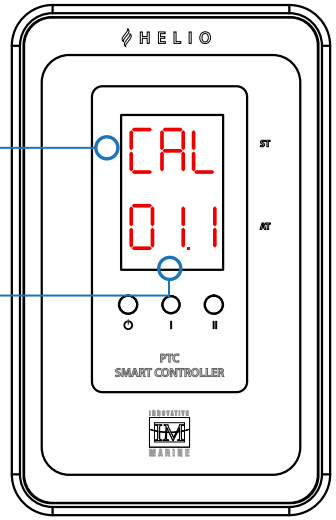
Mode Button

Increase Temperature

Decrease Temperature

Calibrate the Sensor

Press the Mode button 2 times then the display will read CAL.

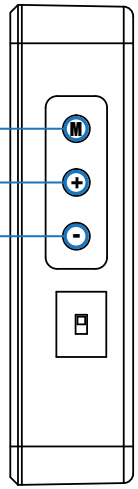


Calibrate Sensor Temperature

Set desired calibration by pressing the "+" or "-" button. You can increase or decrease your desired calibration by 0.1° F increments.

Temp Set Range: ±9° F

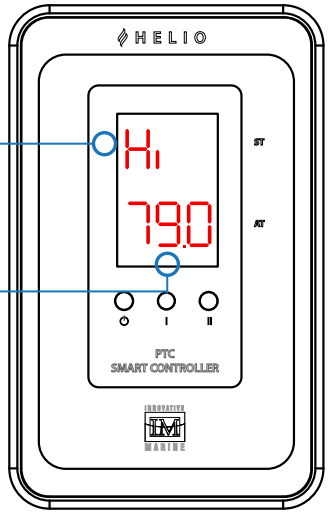
Wait 3 seconds, then your calibrated temperature will be automatically saved.



Mode Button

Increase Temperature

Decrease Temperature



Set High Alarm

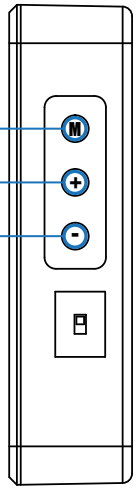
Press the Mode button 3 times then the display will read Hi .

Set Temperature

Set desired high alarm by pressing the "+" or "-" button. You can increase or decrease your desired temperature by 1.0°F.

High alarm general range: 60° - 96° F
High alarm minimum range: +1°F from set temp.

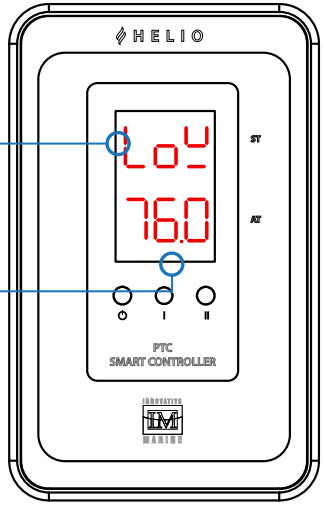
Wait 3 seconds then your set temperature will be automatically saved.



Mode Button

Increase Temperature

Decrease Temperature



Set Low Alarm

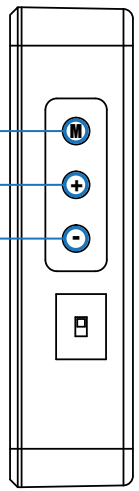
Press the Mode button 4 times then the display will read Lo.

Set Temperature

Set desired low alarm by pressing the "+" or "-" button. You can increase or decrease your desired temperature by 1.0°F.

Low alarm general range: 57° - 93° F
Low alarm minimum range: -2°F from set temp.

Wait 3 seconds then your set temperature will be automatically saved.



Mode Button

Increase Temperature

Decrease Temperature

Error Code Quick Guide

E1	Remote Sensor Not Connected
E2	Element(s) Not Connected
E3	High Temperature Alarm
E4	Low Temperature Alarm
E5	Element (I) Error
E6	Element (II) Error
E7	Remote Sensor Error

E1 : Remote Sensor Not Connected

The remote sensor is not connected. Check the connection between the controller and the remote sensor. (1)

E2 : Element(s) Not Connected

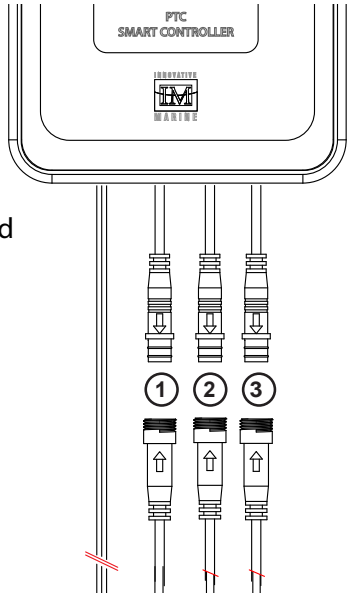
One or both elements are not connected. Check the connection between the controller and element(s). (2) or (3)

E3 : High Temperature Alarm

The aquarium's water temperature has exceeded the high temperature set point.

E4 : Low Temperature Alarm

The aquarium's water temperature has subceeded the low temperature set point.



Caution: Controller must be unplugged to avoid electrical shock or fire prior to attempting to connect sensor or element cables.

Press any button to disengage visual or audible alarm.

E5 : Element (I) Error

Element (I) is out of water or low water flow detected around element (I) (2)

E6 : Element (II) Error

Element (II) is out of water or low water flow detected around element (II) (3)

E7 : Remote Sensor Error

Remote sensor has been detected to be out of water or a sudden temperature swing. (1)

In order to keep the HELIO element(s) and remote sensor working optimally, they must be cleaned and free from mineral deposits every 30 days or as needed.

To Clean the HELIO

Unplug the HELIO PTC Smart Controller for at least 1 hour before cleaning.

Soak the element(s) and sensor in a solution of 1 part vinegar to 1 part water for an hour (or as needed). DO NOT soak the connectors in the cleaning solution.

Then gently wipe the sensor and element(s) with a sponge or towel to remove any excess cleaning solution.

Let the sensor and element(s) dry before placing them back into your aquarium.

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