

BP501 POLAR PACK

Installation/Operation Manual



New Version of the BP501G1 changed to work with Clim8zone™ II, with setting allowing it to cool to 41°F, and run the circ pump 24 hours

Optional Spaside Controls:



TP700



ST2



ST3



ST4



ST4P



ST MINI

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IMPORTANT SAFETY INSTRUCTIONS

- ! **DANGER** To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.
 - ! **WARNING - RISK OF CHILD DROWNING.** Extreme caution must be exercised to prevent unauthorized access by children. To avoid accidents, ensure that children cannot use a spa or hot tub unless they are supervised at all times.
 - ! **DANGER** To reduce the risk of injury to persons, do not remove suction fittings.
 - ▶ Spa location must accommodate sufficient drainage of water around the base of the structure, as well as the power source compartment.
 - ▶ Prolonged immersion in water that is warmer than normal body temperature can result in a dangerous condition known as **HYPERTHERMIA**. The causes, symptoms, and effects of hyperthermia may be described as follows: Hyperthermia occurs when the internal temperature of the body reaches a level several degrees above the normal body temperature of 98.6°F. The symptoms of hyperthermia include dizziness, fainting, drowsiness, lethargy, and an increase in the internal temperature of the body. The effects of hyperthermia include (1) unawareness of impending hazard, (2) failure to perceive heat, (3) failure to recognize the need to exit spa, (4) physical inability to exit spa, (5) fetal damage in pregnant women, (6) unconsciousness resulting in danger of drowning. **WARNING** The use of alcohol, drugs or medication can greatly increase the risk of fatal hyperthermia in hot tubs and spas.
 - ! **DANGER - RISK OF ELECTRICAL SHOCK.**

A spa may be installed within 5 feet of metal surfaces if each metal surface is permanently connected by a solid copper conductor attached to the wire connector on the terminal box. Refer to NEC and local codes in effect at the time of installation.)
 - ▶ A bonding lug is provided on the control box to permit connection of a solid copper bonding conductor between this point and any equipment, metal enclosures of electrical equipment, metal water pipe, or conduit within 5 feet (1.5m) of the unit as needed to comply with local requirements.
 - ▶ Bond accessible metal to the dedicated connector on the equipment grounding bus, bond the equipment ground bus to the local common bonding grid as part of the installation in the form of (1) a reinforced concrete slab for support, (2) a ground plate provided beneath the hot tub or spa, or (3) a permanent ground connection that is acceptable to the local inspection authority.
 - ! **DANGER RISK OF ELECTRICAL SHOCK.** Do not permit any electrical appliance, such as a light, telephone, radio, or television, within 5 feet (1.5m) of a spa or hot tub.
- To reduce the risk of injury:**
- ▶ The water in a spa or hot tub should never exceed 104°F (40°C). Water temperatures between 100°F (38°C) and 104°F (40°C) are considered safe for a healthy adult. Lower water temperatures are recommended for extended use (exceeding 10-15 minutes) and for young children.
 - ▶ Excessive water temperatures have a high potential for causing fetal damage during the early months of pregnancy, pregnant or possibly pregnant women should limit spa or hot tub water temperatures to 100°F(38°C).

Before entering the spa or hot tub, the user should measure the water temperature with an accurate thermometer.

The use of alcohol, drugs, or medication before or during spa or hot tub use may lead to unconsciousness with the possibility of drowning.

Persons suffering from obesity or with a medical history of heart disease, low or high blood pressure, circulatory system problems, or diabetes should consult a physician before using a spa or hot tub.

IMPORTANT SAFETY INSTRUCTIONS

Persons using medication should consult a physician before using a spa or hot tub since some medication may affect heart rate, blood pressure, and circulation.

For Cord and Plug Connected Units

Must be connected to a grounded, grounding type receptacle only. NEVER connect the spa to an extension cord.

Do not bury the cord.

For Permanently Installed Units

A terminal marked "G" or "ground" is provided in the wiring box located inside the equipment compartment. To reduce the risk of electric shock, connect the terminal or connector to the grounding terminal of your electrical service or supply panel with a continuous green insulated copper wire in accordance with National Electric Code Table 250-95 and any other local codes in effect at the time of the installation.

For Permanently Installed Units not Provided with an Internal Disconnecting Method

The electrical supply for this product must include a suitably rated switch or circuit breaker to open all ungrounded supply conductors to comply with Section 422-30 of the National Electric Code, ANSI/NFPA 70 1987. The disconnecting means must be readily accessible to the tub occupant but installed at least 5 feet (1.5m) from the tub water.

For Units with Gas Heaters

WARNING - Do not install indoors. This unit uses a gas heater that requires proper ventilation and is intended for outdoor use only.

High Voltage Warning

HIGH VOLTAGE CAN SERIOUSLY INJURE OR KILL!

ONLY EXPERIENCED TECHNICIANS SHOULD SERVICE THIS EQUIPMENT.

DO NOT remove the protective covers from any electrical enclosure, or attempt to service any related electrical device, unless you are a qualified electrician or service professional.

DANGER

Risk of electric shock. Before working with any electrical connections, make certain that the Main Power breaker from the house breaker box has been turned off.

WARNING

All electrical work must be performed by a qualified electrician and must conform to all local codes.

IMPORTANT

Due to the danger of severe electrical shock, locate all power disconnects before servicing a spa. Precautions must be taken whenever working with breaker boxes, G.F.C.I.'s, or service disconnects.

Electrical Installation

A licensed electrician must accomplish the electrical installation in accordance with the National Electric Code(NEC) Article 680, and any local codes in effect at the time of installation.

Refer to the System Data Label for equipment voltage and maximum amperage draws.

The GFCI (Ground Fault Circuit Interrupter) is a mandatory electrical safety device required for all portable spas and hot tubs as specified in the National Electrical Code Article 680-42. The GFCI in your particular installation may be installed at the electrical service panel or a separate sub-panel.

Use copper conductors ONLY. The ground must be sized following the National Electric Code, Table 250-122. For Power conductor size, refer to the National Electric Code Table 310-16.

A bonding lug has been provided on the control box to allow connection to local ground points. To reduce the risk of electrical shock, a solid copper bonding wire should be connected from this lug to any metal objects within 5 feet of the spa.

The NEC and most local codes require that a “disconnect” be installed within “line-of-site” of the spa.

Circuit & Breaker Rating	15A	20A	30A	40A	50A	60A
Maximum Amps	12A	16A	24A	32A	40A	48A
Minimum Wire Size	14	12	10	8	6	4

The above table is a wiring chart representation.

IMPORTANT- If your electrician is not absolutely sure how to connect your system correctly, call your local dealer. Any mistake may be costly and void your equipment warranty.



CAUTION: Do not connect or disconnect any components while the power is on. All connections must be done with the power off as it may cause damage to the system.

****Any resulting damages are not covered under manufacturer's warranty****



CAUTION: Damage may occur to the circuit board and spaside if the spaside plug is not properly aligned to the receptacle on the circuit board or if the spaside plug is connected or disconnected while the power is on.

****Any resulting damages are not covered under manufacturer's warranty****



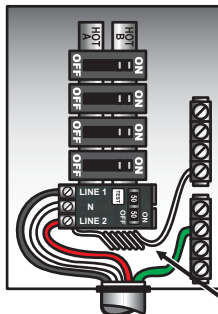
Electrical Installation

OPTION 1

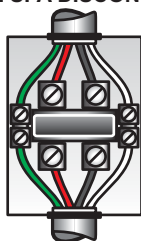
GFCI Installed in Main Service Panel

20-60AMP HARDWIRED

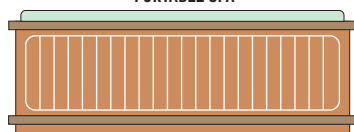
MAIN BREAKER PANEL



INLINE SPA DISCONNECT



PORTABLE SPA



REFER TO GFCI WIRING DETAIL ON PAGE 8

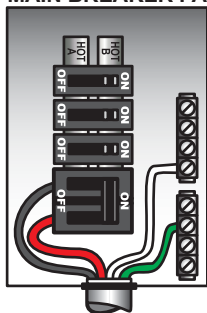
Option 1 shows the power from GFCI breaker installed into main service panel to a service disconnect within line-of-site of the spa. If the manufacturer of your homes main breaker panel makes a GFCI breaker, you may be able to add it to an open slot in the panel.

OPTION 2

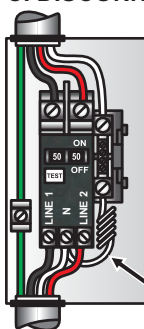
Subpanel GFCI Installed

20-60AMP HARDWIRED

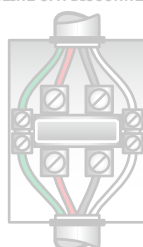
MAIN BREAKER PANEL



GFCI DISCONNECT



INLINE SPA DISCONNECT



TO PORTABLE SPA



REFER TO GFCI WIRING DETAIL ON PAGE 8

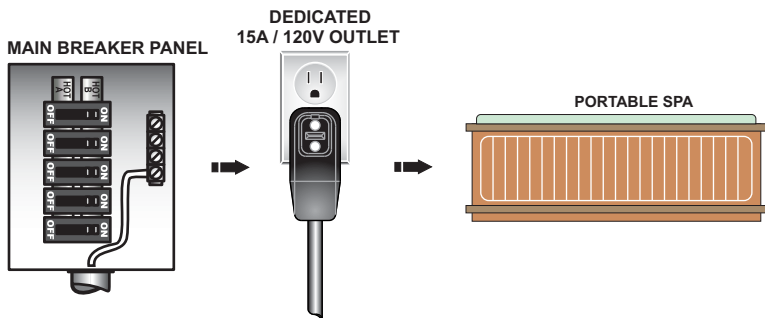
Option 2 shows the power from main service panel to a GFCI subpanel within line-of-site of the spa. (Note: Most local codes will allow a GFCI subpanel to be a disconnect. If this is not the case in your installation, a disconnect must be provided.)

Electrical Installation

If your system was configured to include a 120VAC power cord, ensure that the proper receptacle has been installed (a dedicated circuit is required). DO NOT under any circumstances modify a 20 Amp plug to fit into a 15 Amp receptacle or use an extension cord. Doing so will create hazardous conditions and/or invalidate the warranty.

OPTION 3 Units with 15A / 20A GFCI Plug Connection

15/20AMP CORD END GFCI

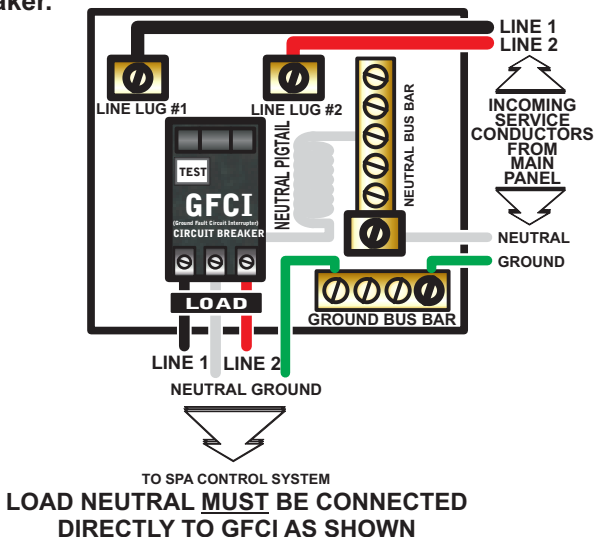


This illustration depicts a typical 15 AMP, cord-end GFCI installation.
(The spa must be installed on a dedicated circuit.)

GFCI Wiring Detail

It is important that the GFCI circuit breaker is installed correctly. Often this component has been improperly installed causing the breaker to instantly trip when the system is turned on. Below is an illustration of a typical GFCI breaker installation.

WARNING: Refer to the circuit breaker manufacturers installation instructions. This illustration is meant to be a guide for Field Technicians and is not intended to override or substitute the instructions supplied with the circuit breaker.

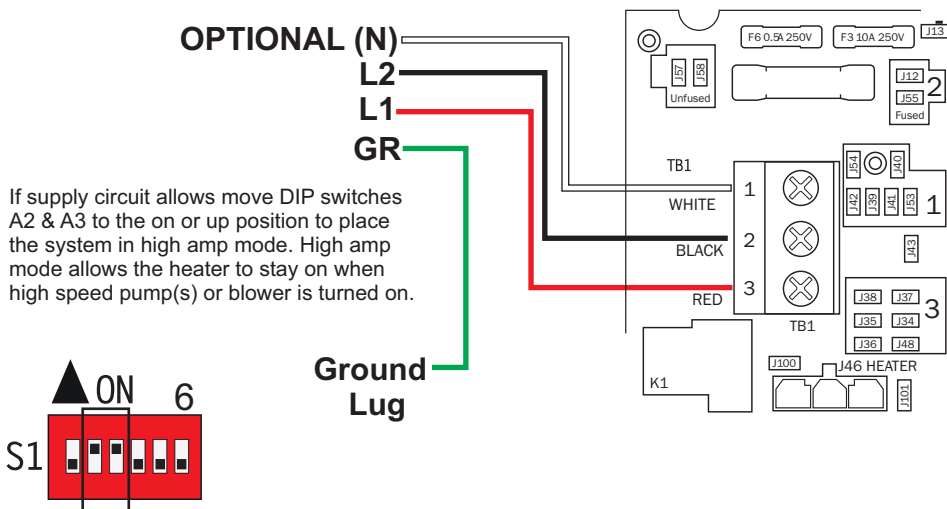


Power Connection

IMPORTANT: Always refer to the product data label (located on top of the control box) for specific electrical information.

- Use copper conductors only as required by the NEC.
- Secure wires as defined by the NEC and in compliance with any local codes in effect at the time of installation.

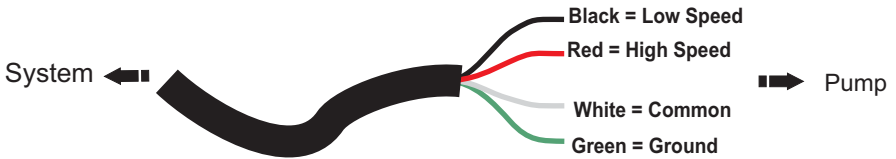
240-VOLT ELECTRICAL SERVICE REQUIREMENTS



Pump Cord Connections

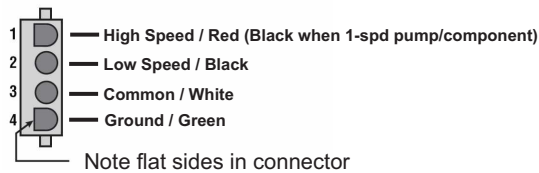
2-SPEED PUMP CORD CONFIGURATION

The following wiring configuration is for two-speed pump circuits.



SINGLE SPEED PUMP / ACCESSORY CORD CONFIGURATION

The following wiring configuration is for single-speed pump circuits, circulation pumps, ozones, blowers and accessories.



SPASIDE CONTROL INSTALLATION

If required, you may have to cut out a hole in the spa cabinet to install spaside control.

- The mounting area must be above the maximum water level of the spa and in an area with good drainage to prevent any standing water on or around the spaside.
- The spaside should never be submerged.
- The spaside should be protected from extended periods of exposure to sunlight.
- Do not step or stand on the spaside

Step 1 - Clean area and insert spaside control. (Fig.1)

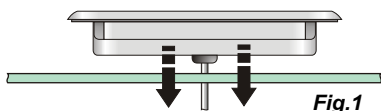


Fig.1

Step 2 - Remove the double sided adhesive from the back of the spaside. Make certain the spaside is straight and adhere to the spa shell. (Fig.2)

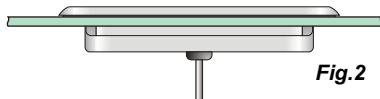


Fig.2

Step 3 - Remove protective film from display window then clean the face of the spaside. Now carefully align and apply the label. (Fig.3)

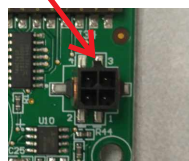


Overlay and Spaside may vary Fig.3

Step 4 - Connect spaside to an empty connection marked MAIN. (Fig.4)

Locking Tab*

Locking Clip*



Spaside Plug

Fig.4

CONNECTING SPASIDE & EXTENSION

***Must align Locking Clip on spaside plug with Locking Tab on circuit board for proper function.**

When utilizing a spaside extension cord, the clip and tab must also be aligned at all connections. Fig.5

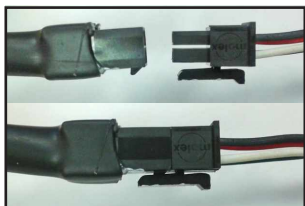


Fig.5

Cord plugs are labeled to insure proper plug alignment as shown in Fig.6

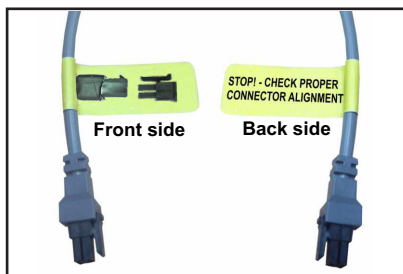


Fig.6

CAUTION: Damage may occur to the circuit board and spaside if the spaside plug is not properly aligned to the receptacle on the circuit board or if the spaside plug is connected or disconnected while the power is on.

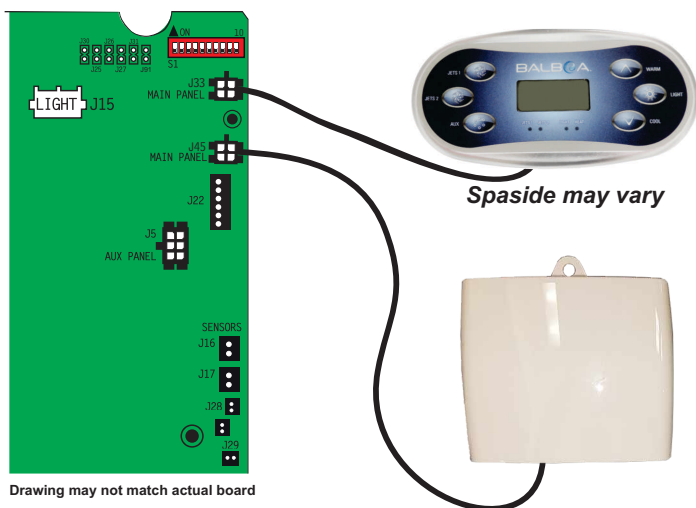
****Any resulting damages are not covered under manufacturer's warranty****

WIFI MODULE INSTALLATION KIT (OPTIONAL)

Your new system has the capability to connect with the internet using a wifi module.

If Provided with your system, please make sure to install the module following these few steps:

Step 1 - Insert wifi cable connector into an empty connection mark "Main"



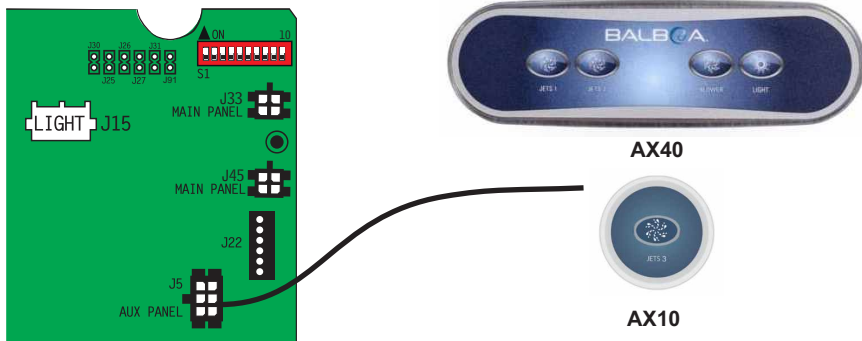
* If no main connections are available, you may use the "Y" cable provided with the wi-fi module kit (34-59303-K)

Step 2 - You may mount the CMS module inside the lower control system enclosure.

Step 3 - Please follow the instructions provided with the wifi CMS module kit to properly install your ControlMySpa App

Note: If you experience poor operation via the CMS module, it may be necessary to relocate the module closer to your wifi router.

AUXILIARY PANEL OPTIONS

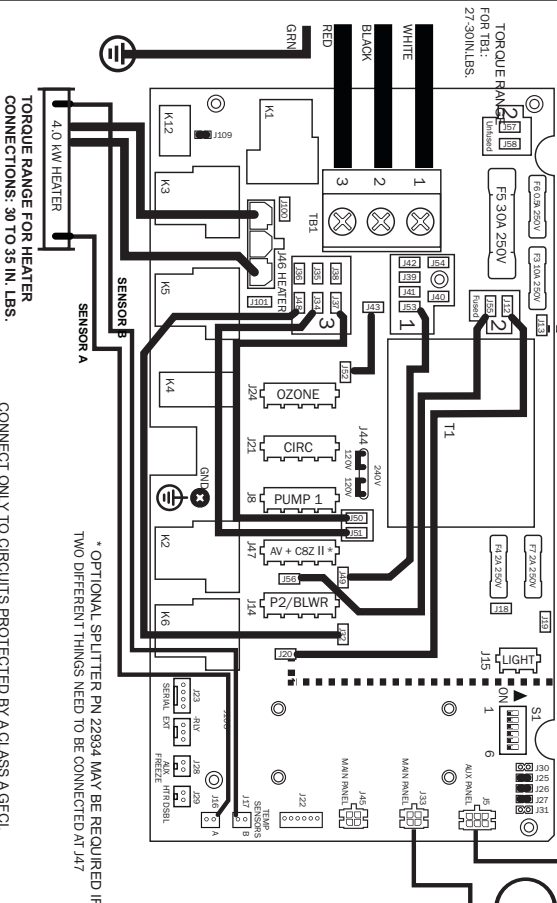


Wiring Diagram



MOVE WIRE TO CONNECT J20 TO J13
FOR BLOWER IN SETUPS 3 & 4

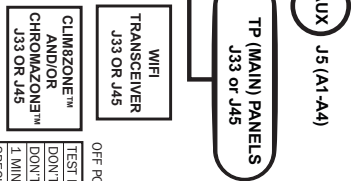
BP501PLR 59657
06-02-25



TORQUE RANGE FOR HEATER
CONNECTIONS: 30 TO 35 IN. LBS.

CONNECT ONLY TO CIRCUITS PROTECTED BY A CLASS A GFCI.
A DISCONNECTING MEANS MUST BE INSTALLED WITHIN SIGHT FROM
THE EQUIPMENT AND AT LEAST 5 FEET (1.52 M) FROM THE
INSIDE WALLS OF THE POOL, SPA, OR HOT TUB.
FOR SUPPLY CONNECTIONS, USE COPPER CONDUCTORS ONLY.
USE CONDUCTORS SIZED ON THE EMPLOYER UNIQUEMENT
BASIS OF 60°C AMPACITY BUT DES CONDUCTEURS DE CUIVRE.
RATED MINIMUM OF 90°C.
#6 AWG MIN. WIRE= 90°

* OPTIONAL SPLITTER PN 22934 MAY BE REQUIRED IF
TWO DIFFERENT THINGS NEED TO BE CONNECTED AT J47



LOCATION	DEVICE	VOLTS	MAX AMPS	FROM	TO
J8	2/1-SP PUMP 1	240V**	12A MAX	J32	AREA 3
J14	1-SP PUMP 2	240V	12A MAX	J32	AREA 3
J14	BLOWER OPT	240V	4A MAX	J32	AREA 3
J15	SPA LIGHT	10V	2A*		
J21	CIRC	240V**	2A MAX		
J24	OZONE	240V**	0.5A		
J47	P1/CIRC/OZONE LINE 1 CONNECTION	120V	3A + 10.5A	J49	AREA 3
J46	AV + CLIMBZONE™ II (C82 II)	240V	4.0 kW		

**PUMP 1, CIRC AND OZONE ALL MUST BE THE SAME VOLTAGE.
* 2A LIMIT IS SHARED BY J15 SPA LIGHT AND CHROMAZONE™

*SWITCH # 6 SHOULD BE SET TO OFF UPON FINAL INSTALLATION.
ALL UNUSED SWITCHES SHOULD BE OFF

OFF POSITION	S1 SWITCH #	ON POSITION
TEST MODE OFF	1	TEST MODE ON
DON'T ADD 1 HS PUMP W/HTR	2	ADD 1 HS PUMP WITH HEAT
DON'T ADD 2 HS PUMPS W/HTR	3	ADD 2 HS PUMPS WITH HEAT
1 MIN HTR COOLDOWN (TELG)	4	5 MIN HTR COOLDOWN (GAS)
SPECIAL AMPERAGE RULE OFF	5	SPECIAL AMPERAGE RULE ON
STORE SETTINGS*	6	MEMORY RESET*

PART A

BP501 POLAR PACK CIRCUIT BOARD SETUP NUMBERS

The Setup number designates the specific hardware configuration of the connected components, such as the number of pumps, their speeds (1-speed or 2-speed), and whether a blower, circulation pump, or other accessories are installed.

Setup Reference Table for Setups 1-6

Setup #	Circ Pump	Pump 1	Pump 2	Pump 3	Blower	Temp Scale
1	None	2-Speed	1-Speed	None	None	°F
2	24HR Circ Pump	1-Speed	1-Speed	None	None	°F
3	None	2-Speed	None	None	1-Speed	°F
4	24HR Circ Pump	1-Speed	None	None	1-Speed	°F
5	None	2-Speed	None	None	None	°F
6	24HR Circ Pump	1-Speed	None	None	None	°F

**System(and any replacement board)
is shipped in Setup 1**

Special pump cord available to achieve a filtration controlled circ pump

- Cord PT# 30-0024D
- Setups 1,3,5 Only

PROGRAMMING THE SETUP NUMBER

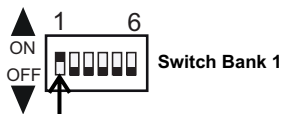
TP700 Series Spaside

After installing the circuit board and making sure all wires and plugs are connected correctly, the next step is to set the correct **Setup number**.

Look at the **Setup chart on pages 14** to find the option that matches your spa's pump setup.

Once you've found the right Setup number, switch the system into **TEST** mode to start programming.

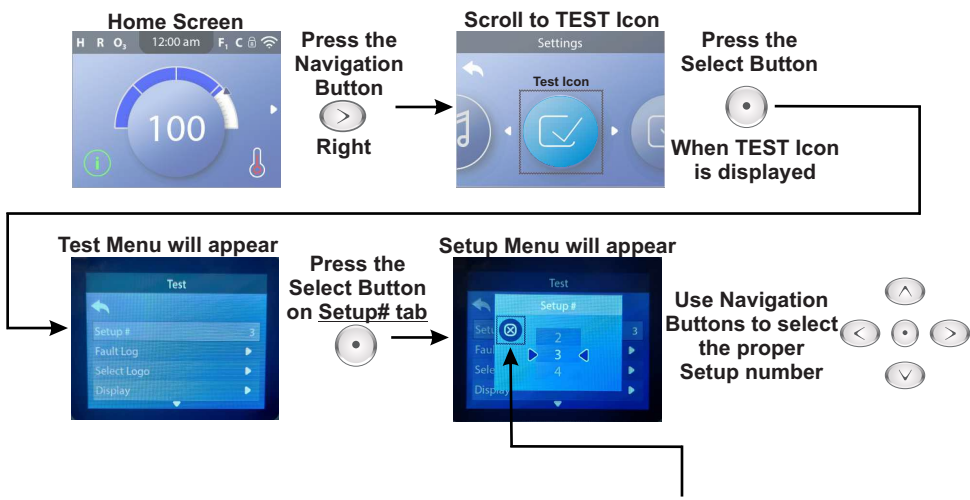
With power turned on, locate the S1 Dip Switch and move switch 1 to the ON (UP) position.



At this time, you will have 1 minute to complete the procedure below before the pump turns on to start running internal diagnostics.

If you do not complete the Setup within the 1 minute time, just push the TEMP button again to restart the 1 minute.

Proceed as follows:



Once the Setup number has been chosen, highlight the  button and press the Select button to lock the choice and the system will reset.

Dip switch #1 can now be set to the OFF (Down) position.

PROGRAMMING THE SETUP NUMBER

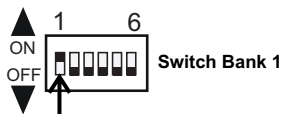
TP800, TP900 Series Spasides

After installing the circuit board and making sure all wires and plugs are connected correctly, the next step is to set the correct **Setup number**.

Look at the **Setup chart on pages 14** to find the option that matches your spa's pump setup.

Once you've found the right Setup number, switch the system into **TEST** mode to start programming.

With power turned on, locate the S1 Dip Switch and move switch 1 to the ON (UP) position.

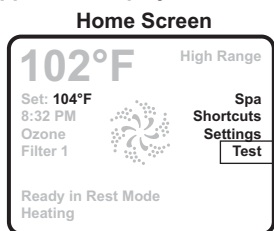


At this time, you will have 1 minute to complete the procedure below before the pump turns on to start running internal diagnostics.

If you do not complete the Setup within the 1 minute time, just push the TEMP button again to restart the 1 minute.

Proceed as follows:

As soon as Switch #1 is placed in the ON position, TEST will appear on display

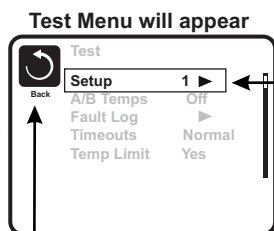


Change Setup # to correct setting using the Navigation buttons.

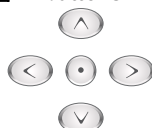
Press the Select Button



On the TEST tab



Navigation buttons



Once the Setup number has been chosen, highlight the  button and press the Select button to lock the choice and the system will reset.

Dip switch #1 can now be set to the OFF (Down) position.

PROGRAMMING THE SETUP NUMBER

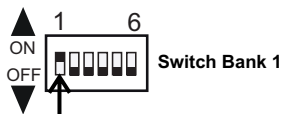
Spatouch 1 & 2 Series Spasides

After installing the circuit board and making sure all wires and plugs are connected correctly, the next step is to set the correct **Setup number**.

Look at the **Setup chart on pages 14** to find the option that matches your spa's pump setup.

Once you've found the right Setup number, switch the system into **TEST** mode to start programming.

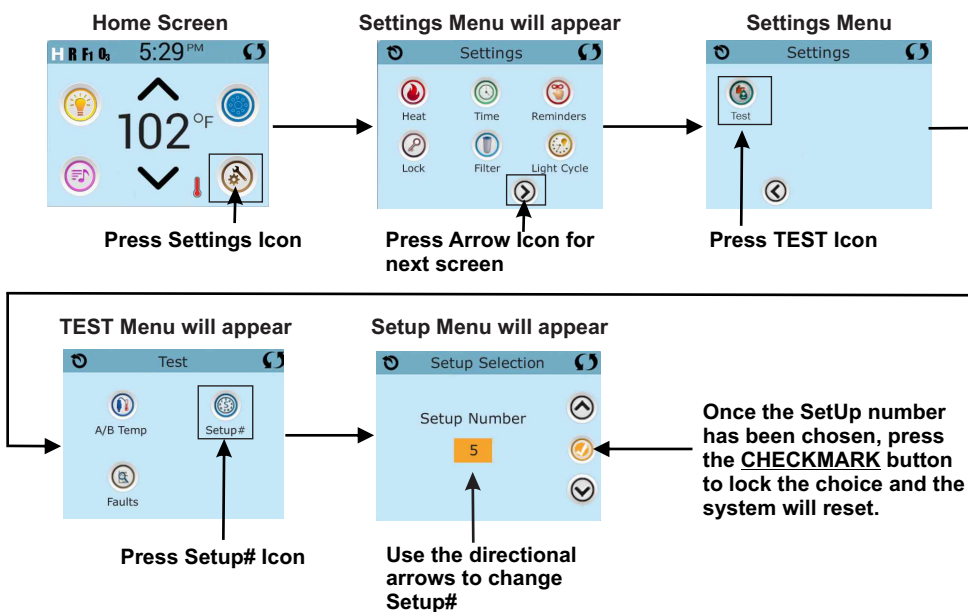
With power turned on, locate the S1 Dip Switch and move switch 1 to the ON (UP) position.



At this time, you will have 1 minute to complete the procedure below before the pump turns on to start running internal diagnostics.

If you do not complete the Setup within the 1 minute time, just push the TEMP button again to restart the 1 minute.

Proceed as follows(Touch Screen):



Dip switch #1 can now be set to the OFF (Down) position.

PROGRAMMING THE SETUP NUMBER

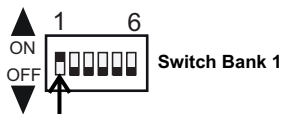
Spatouch 3, 3+, 4, 4+ Series Spasides

After installing the circuit board and making sure all wires and plugs are connected correctly, the next step is to set the correct **Setup number**.

Look at the **Setup chart on pages 14** to find the option that matches your spa's pump setup.

Once you've found the right Setup number, switch the system into **TEST** mode to start programming.

With power turned on, locate the S1 Dip Switch and move switch 1 to the ON (UP) position.



At this time, you will have 1 minute to complete the procedure below before the pump turns on to start running internal diagnostics.

If you do not complete the Setup within the 1 minute time, just push the TEMP button again to restart the 1 minute.

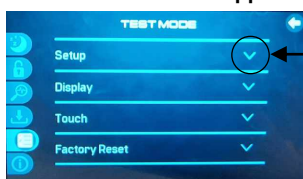
Proceed as follows(Touch Screen):

Home Screen



Press Menu Icon

Test Mode Menu will appear



Press the down arrow to reveal Setup Menu

Setup numbers will appear



Choose the correct Setup number and once the number is pressed, the system will restart

Dip switch #1 can now be set to the OFF (Down) position.

PROGRAMMING THE SETUP NUMBER

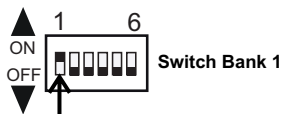
Spatouch Mini Series Spaside

After installing the circuit board and making sure all wires and plugs are connected correctly, the next step is to set the correct **Setup number**.

Look at the **Setup chart on pages 14** to find the option that matches your spa's pump setup.

Once you've found the right Setup number, switch the system into **TEST** mode to start programming.

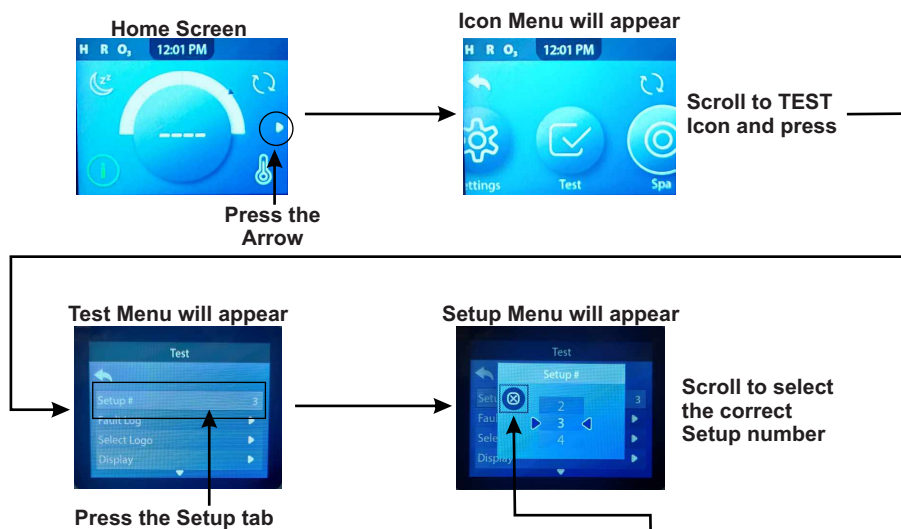
With power turned on, locate the S1 Dip Switch and move switch 1 to the ON (UP) position.



At this time, you will have 1 minute to complete the procedure below before the pump turns on to start running internal diagnostics.

If you do not complete the Setup within the 1 minute time, just push the TEMP button again to restart the 1 minute.

Proceed as follows(Touch Screen):



Once the Setup number has been chosen, highlight the  button and press the Select button to lock the choice and the system will reset.

Dip switch #1 can now be set to the OFF (Down) position.

Dip Switch Settings for BP501PP Series Systems

IMPORTANT: Power off spa when making any dip switch changes.

Dip Switch Chart

A1 Test Mode (normally OFF)

A2+A3 Control amp draw requirements (See Table 1)

A4 N/A (must be OFF)

A5 N/A (must be OFF)

A6 Persistent memory reset

Switchbank A

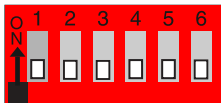


Table 1

**# of Hi-Speed
Pumps/Blower
Before Heat Disabled**

A2	A3	
OFF	OFF	0
ON	OFF	1
OFF	ON	2
ON	ON	3

System Start-Up

Preparation and Filling

Fill the spa to its correct operating level. Be sure to open all valves and jets in the plumbing system before filling to allow as much air as possible to escape from the plumbing and the control system during the filling process.

After turning the power on at the main power panel, the top-side panel display will go through specific sequences. These sequences are normal and display a variety of information regarding the configuration of the hot tub control.

Priming Mode

This mode will last for 4-5 minutes or you can manually exit the priming mode after the pump(s) have primed.

Regardless of whether the priming mode ends automatically or you manually exit the priming mode, the system will automatically return to normal heating and filtering at the end of the priming mode. During the priming mode, the heater is disabled to allow the priming process to be completed without the possibility of energizing the heater under low-flow or no-flow conditions. Nothing comes on automatically, but the pump(s) can be energized by pushing the "Jet" buttons. If the spa has a Circ Pump, it can be activated by pressing the "Light" button during Priming Mode.

Priming the Pumps

As soon as the priming mode has started, push the "Jet" button once to start Pump 1 in low-speed and then again to switch to high-speed. Also, push the Pump 2 or "Aux" button, if you have a 2nd pump, to turn it on. The pumps will now be running in high-speed to facilitate priming. If the pumps have not primed after 2 minutes, and water is not flowing from the jets in the spa, do not allow the pumps to continue to run. Turn off the pumps and repeat the process. Note: Turning the power off and back on again will initiate a new pump priming session. Sometimes momentarily turning the pump off and on will help it to prime. Do not do this more than 5 times. If the pump(s) will not prime, shut off the power to the spa and call for service.

Important: A pump should not be allowed to run without priming for more than 2 minutes. Under NO circumstances should a pump be allowed to run without priming beyond the end of the 4-5 minute priming mode. Doing so may cause damage to the pump and cause the system to energize the heater and go into an overheat condition.

Exiting Priming Mode

You can manually exit Priming Mode by pressing a "Temp" button (Up or Down). Note that if you do not manually exit the priming mode as described above, the priming mode will be automatically terminated after 4-5 minutes. Be sure that the pump(s) have been primed by this time.

Once the system has exited Priming Mode, the top-side panel will momentarily display the set temperature but the display will not show the temperature yet, as shown below. This is because the system requires approximately 1 minute of water flowing through the heater to determine the water temperature and display it.

Operation Considerations

The following describes situations you may encounter and situations to be aware of.

Warm Weather Conditions

Since your spa will normally be expected to maintain warm to hot water ready for use, a great deal of attention has been directed to the energy conservation detail of insulation to keep electrical cost down. Energy conservation efficiency may be achieved by extensive insulation of the spa cabinet, plumbing, spa shell and in some climates full foam insulation may have been provided. This energy conservation feature may cause an inconvenience during warmer times of the year. During warm periods of the year, the temperature within the equipment compartment can elevate to a point that the pump will automatically turn off for a short amount of time (15-30 minutes) to allow the pump to cool down before automatically restarting. This cool down feature will not harm your spa, but serves only to protect the pump from damage and as an indicator that it is too hot. To minimize this occurrence, refrain from using your Hydrotherapy Jets for prolonged periods of time during warm seasons. The jet pump chosen for your spa has been specifically sized for maximum performance and your Hydrotherapy enjoyment.

Filtration System

Please refer to your Spa Manufacturer's Owner's Manual regarding the operation, maintenance and cleaning of your filtration system.

IMPORTANT - Heater pump must provide a minimum flow of 23 GPM through heater.

Winterizing

When freezing weather and/or power losses are expected, contact your local spa dealer for freeze protection or winterizing recommendations for both the spa and the equipment system. Freeze related damage is not covered by the warranty.

Chemical Water Treatment

Your dealer is familiar with local water conditions and which chemicals are compatible with and designed specifically for your spa. This is the best person to advise you on proper water quality management. The one thing you can do to insure years of trouble free equipment operations is to maintain proper water chemistry.

Two basic goals of the chemical water treatment are sanitizing and balancing the water. Sanitizing simply means keeping the water free from microorganisms including algae, bacteria and viruses. The current most popular chemicals for sanitizing include chlorine, bromine and ozone.

System Functions / Features

Dual Temperature Ranges**

This system incorporates two temperature range settings with independent set temperatures. The High Range designated in the display by an "up" arrow or "High Range", and the Low Range designated in the display by a "down" arrow or "Low Range".

These ranges can be used for various reasons, with a common use being a "ready to use" setting vs. a "vacation" setting. The Ranges are chosen using the menu structure. Each range maintains its own set temperature as programmed by the user. This way, when a range is chosen, the spa will heat to the set temperature associated with that range.

High Range may be set between 80°F and 104°F

Low Range may be set between 41°F and 99°F

Freeze Protection is active in either range

Mode – Ready and Rest**

In order for the spa to heat, a pump needs to circulate water through the heater. The pump that performs this function is known as the "heater pump."

READY MODE - Will circulate water every 1/2 hour, using Pump1 Low, in order to maintain a constant water temperature, heat as needed, and refresh the temperature display. This is known as "polling." "Ready" will be displayed.

REST MODE - Will only allow heating during programmed filter cycles. The temperature display may not show a current temperature until the heater pump had been running for a minute or two. "REST" will be displayed.

READY-IN-REST MODE - Appears in the display if the spa is in Rest Mode and Jet 1 is pressed. It is assumed that the spa is being used and will heat to set temperature. While Pump 1 High can be turned ON and OFF, Pump 1 Low will run until set temperature is reached, or 1 hour has passed. After 1 hour, the system will revert to Rest Mode. This mode can also be reset by entering the Mode Menu and changing the Mode.

Time of Day**

Setting the time-of-day can be important in determining filtration times and other background features.

NOTE:

If power is interrupted to the system, Time-of-Day is not stored. The system will still operate and all other user settings will be stored. If filtered cycles are required to run at a particular time of day, resetting the clock will return the filter times to the actual programmed periods.

****See provided Spaside Control Operation Guide for programming procedures.**

System Functions / Features

Spaside Control



Pump 1 Key: Pressing this key when the pump is OFF will turn it ON to Low Speed, a second press switches the pump to High speed, a third press turns the pump OFF. If the pump is ON from manual activation, the pump low speed will time out after 30 minutes and the high speed will time out after 15 minutes. If the pump cannot be turned OFF a filter cycle is active.



Pump 2 Key: Press this key to turn Pump 2 ON and OFF. An automatic timer will turn the pump off after 15 minutes of operation. Jet 2 indicator will illuminate when it is active.



Blower / AUX Key: Press this key to turn the blower ON and OFF. An automatic timer will turn the blower off after 15 minutes of operation.



Light Key: Press this key to turn the light ON and OFF. An automatic timer will turn the light off after 4 hours of operation. The Light indicator will illuminate when it is active.



Temperature Set Keys: Press the "Cool/Down" button or "Warm/Up" button to display the current set water temperature. Pressing either button while the set temperature is displayed will increase or decrease the set temperature by 1°F. The temperature is adjustable between

High Range : **50°F - 104°F** / 5°C - 40°C or

Low Range: **41°F - 99°F** / 10°C - 37°C.

See Dual Temp Range Settings on page 24



Filtration and Ozone**

On non-circ systems, Pump 1 low and the ozone generator will run during filtration. On circ systems, the ozone will run with the circ pump.

The system is factory-programmed with one filter cycle that will run in the evening (assuming the time-of-day is properly set) when energy rates are often lower. The filter time and duration are programmable. A second filter cycle can be enabled as needed.

At the start of each filter cycle, the blower (if there is one) or Pump 2 (if there is one) will run briefly to purge its plumbing to maintain good water quality.

Freeze Protection

If the temperature sensors within the heater detect a low enough temperature (44°F), then the pump(s) and blower automatically activate to provide freeze protection. The pump(s) and blower will run either continuously or periodically depending on conditions.

****See provided Spaside Control Operation Guide for programming procedures.**

System Data Label

Note: This information will be necessary if you should ever have to request warranty or any other type of service.

The system data label is located on the control box. This label is very important and contains information you will need to establish your electrical service. The voltage and amperage ratings are shown on the bottom of the label. Product, Model, Serial and Code numbers are also shown on the label.



REFER TO NEC FOR
BREAKER SIZING

ORDER CODE: CS6200-U
MODEL: Z2EKX0L-0505GE0
SERIAL:
CODE: HYD0D-6801-
VOLTS: 120 240
AMPS: 16 40-48
PRODUCT: HQ 7000
1 PHASE - 60Hz



Warranty Information

Hydro-Quip warrants its products to the original purchaser to be free from defects in material and workmanship for a period of 1 year (12 months) from the original date of purchase, except as noted below.

Products which become defective within the warranty period will be repaired or replaced (at the option of Hydro-Quip) except for damage due to freezing, water chemistry, negligence, abuse, misuse, misapplication, unauthorized modification, improper installation, normal wear and tear or chemical attack.

This warranty extends only to normal, personal (non-commercial) usage by the original purchaser. Pump seals, o-rings, gaskets, air blower brushes are only covered for 90 days from original date of purchase.

Hydro-Quip will not be responsible for labor incurred in removing, inspecting or reinstalling of warrantable products. Hydro-Quip will not be responsible for any travel related charges or labor costs attributable to disassembly and reassembly of the spa, skirt, decking or any other materials enclosing the product, or attributable to difficulties in gaining access to the product.

Hydro-Quip will not be responsible for labor incurred for routine maintenance, adjustments or alterations to the calibration of electrical devices.

Any products which are claimed to be defective must be shipped freight prepaid to Hydro-Quip and the repaired or replaced product will be returned to the sender freight collect. When sent to Hydro-Quip, the product must be accompanied by the sales receipt or other proof of the purchase date as well as the sender's name, mailing address, daytime phone number and a detailed description of the defect as well as any other information relating to this claim.

Unless state law expressly provides otherwise, Hydro-Quip will only be responsible for repair or replacement of any of its products that are found to be defective as provided above, and will not bear the cost of any consequential damages. This warranty gives you specific legal rights but you may have other rights which vary from state to state.

CONNECTING TO CLIM8ZONE™ II

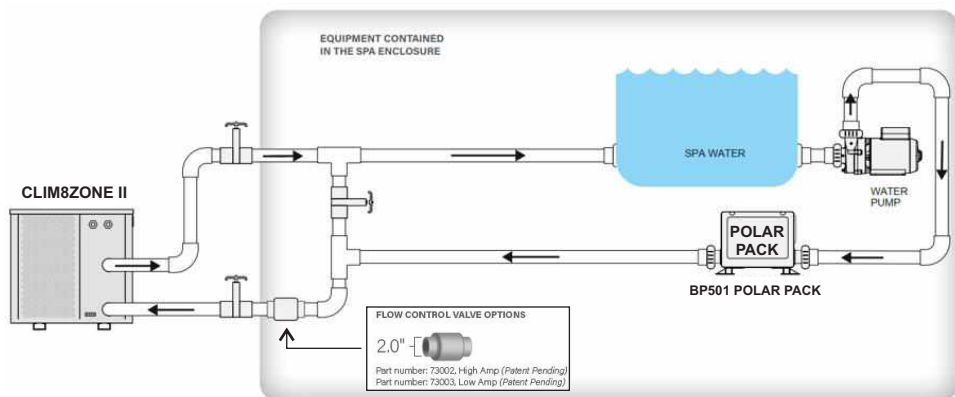


Figure 1

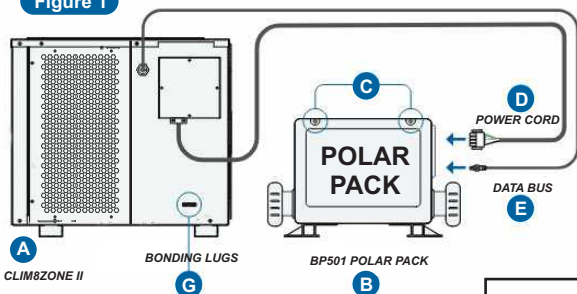
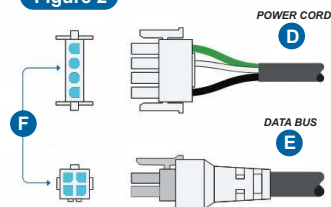


Figure 2



The connectors are keyed to help insure proper connections

ATTENTION

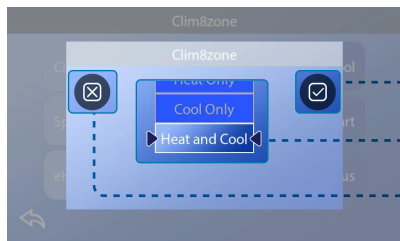
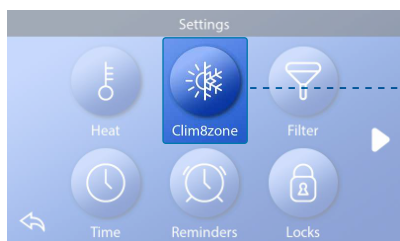
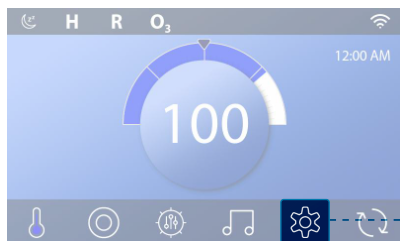
- Power off
- Connect all cables
- Power on
- Never plug or unplug anything with the power on

Follow these steps to make the electrical connections:

- 1 - Make sure the BP501PP Control System (figure 1, **B**) is powered Off at the GFCI or circuit breaker before starting the installation process.
- 2 - Remove the lid from the BP501PP Control System (figure 1, **B**) by loosening these two screws (figure 1, **C**) with a Phillips head screwdriver. There is a wiring diagram in the inside surface of the lid. Refer to the wiring diagram during steps 3 and 4.
- 3 - Connect the power cord (figure 1, **D**) to the circuit board of the BP501PP Control System (**J47 AV+C8Z II**). The connectors are keyed, so make sure they are properly aligned (figure 2, **F**) before making the connection.
- 4 - Connect the data bus (figure 1, **E**) to the circuit board of the BP501PP Control System (**J33 or J45**). Refer to the wiring diagram for the proper connection. The connectors are keyed, so make sure they are properly aligned (figure 2, **F**) before making the connection.
- 5 - Reinstall the lid of the BP501PP Control System (figure 1, **B**).
- 6 - Bonding: This unit is provided with a grounding lug (figure 1, **G**) and must be electrically bonded to the spa common bonding grid. Connect the grounding lug with the spa common bonding grid with a #8 minimum solid copper wire.
- 7 - Power On the BP501PP Control System at the GFCI or circuit breaker.

PROGRAMMING CLIM8ZONE™ II WITH TP700 / SPATOUCH SPASIDES

SETTING THE TEMPERATURE MODE



CLIM8ZONE™ ICON

Follow these steps to set the Temperature mode

- 1 - Press the Settings button (A) to enter the Settings screen.
- 2 - Press the CLIM8ZONE™ II button (B) to enter the CLIM8ZONE™ II screen.
- 3 - Press the CLIM8ZONE™ II button (C) to enter the CLIM8ZONE™ II screen.
- 4 - Select one of the following Temperature modes (E):

Heat Only (Default)

This mode only heats the spa water.
All cooling with the CLIM8ZONE™ II unit is disabled.

Cool Only

This mode only cools the spa water.
All heating on the spa is disabled.

Heat and Cool

This mode heats and cools the spa water with
the CLIM8ZONE™ II unit enabled.

Disabled

The CLIM8ZONE™ II unit is disabled.

- 5 - Press the Save button (D) to save your setting. Press the Cancel button (F) to cancel your setting.

Your setting is complete ☒

PROGRAMMING CLIM8ZONE™ II WITH TP700 / SPATOUCH SPASIDES

SETTING THE eHEATER MODE



CLIM8ZONE™ ICON

Follow these steps to set the eHeater mode.

- 1 - Press the Settings button (A) to enter the Settings screen.
- 2 - Press the CLIM8ZONE™ button (B) to enter the CLIM8ZONE™ II screen.
- 3 - Press the eHeater button (C) to enter the eHeater screen
- 4 - Select one of the following eHeater modes (E):

Disabled

The electric heater is continuously disabled.

Continuous

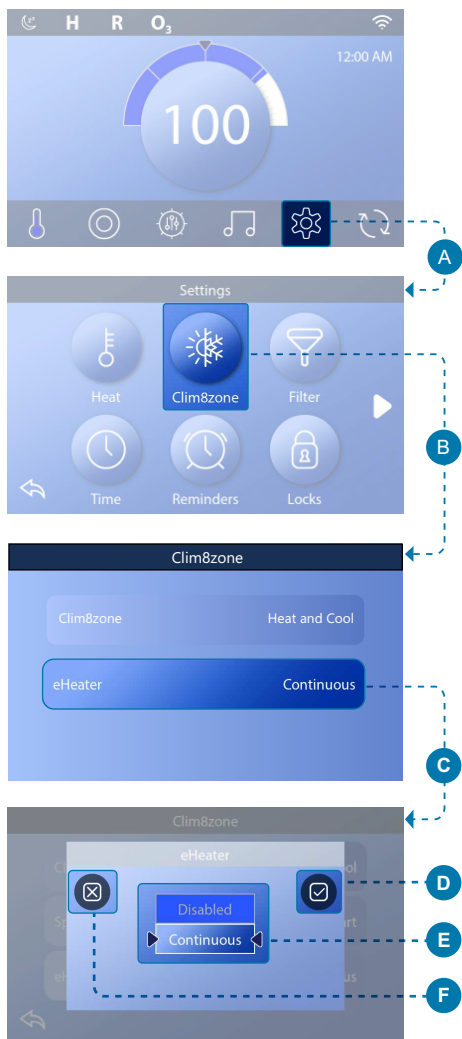
The electric heater (eHeater) is continuously enabled.

eBOOST (Default)

eBOOST mode on CLIM8ZONE™ II heat pump system is an eHeater setting designed to maximize heating capacity by utilizing both the heat pump and the spa's electric heating element simultaneously.

- 5 - Press the Save button (D) to save the new setting. Press the Cancel button (F) to cancel the setting change.

Your setting is complete. ☒



CLIM8ZONE™ II User Guide

IMPORTANT SAFETY INSTRUCTIONS

READ AND FOLLOW ALL INSTRUCTIONS

This manual contains all the necessary information for the use and installation of your heat pump

1. To ensure personal safety and prevent equipment damage, it is important to follow all safety instructions provided on the equipment and within this manual.
2. The installer must read the manual carefully and follow the instructions for installation and maintenance. The installer is responsible for the product's installation and should follow all the manufacturer's instructions and applicable regulations.
3. The manufacturer is not responsible for any damage caused to people, objects, or errors resulting from installation that disregards the manual guidelines.
4. Any use that does not conform to the product's original manufacturing is considered hazardous.
5. The warranty may become void if the equipment is not installed, maintained, or serviced properly. Improper installation contrary to the manual will void the entire warranty.
6. Any use that does not conform to the product's original manufacturing is considered hazardous.
7. Any repair or service of the heat pump should only be carried out by an authorized service center.
8. In case of necessary service, please get in touch with your local sales representative.

SAFETY SIGNALS:

This document contains safety signals placed where specific attention is necessary.



DANGER: Disregarding the following instructions will result in serious injury or even death.



WARNING: Disregarding the following instructions can result in serious injury or even death.



NOTICE: Disregarding the following instructions can result in damage to your heat pump.

When installing and using your heat pump, it is crucial to always follow basic safety precautions. Please take note of the following warnings to ensure the safety of yourself and others.

CLIM8ZONE™ II User Guide



DANGERS: Disregarding the following instructions will result in serious injury or even death

The heat pump utilizes high voltage and rotating equipment, so use caution when servicing. Always turn off the power supply before opening the cabinet to access the interior of the heat pump, as there is high voltage electricity inside. This heat pump is equipped with variable frequency compressor drive store electricity even after the power has been deactivated at the power breaker. Wait for 5 minutes after the shutdown of equipment before servicing. Follow all National Electric Codes (NEC) and CEC or State and Local guidelines.



WARNINGS: Disregarding the following instructions can result in serious injury or even death.

Installation and repairs must be performed by a qualified technician. The heat pump contains refrigerant under pressure. Repairs to the refrigerant circuit must not be attempted by untrained and/or unqualified individuals. Service must be performed only by qualified HVAC technicians. Recover refrigerant before opening the system. Improper water chemistry can present a serious health hazard. To avoid possible hazards, maintain pool/spa water per standards as detailed in hot tub or spa manual instructions. Prolonged immersion in water warmer than normal body temperature may cause a condition known as Hyperthermia. People having an adverse medical history or pregnant women should consult a physician before using a hot tub or spa. Children and the elderly should be supervised by a responsible adult. Prolonged immersion in water colder than normal body temperature may cause a condition known as Hypothermia. Persons having an adverse medical history or pregnant women should consult a physician before immersing in a cold body of water. Children and the elderly should be supervised by a responsible adult. Do not use any methods to speed up the defrosting process or for cleaning, other than those recommended by the manufacturer. The appliance must be stored in a room without continuously operating ignition sources, such as open flames, operating gas appliances, or operating electric heaters. Do not puncture or burn the appliance. It is recommended to install the unit outdoors. If it must be installed indoors, ensure that ventilation is adequate. Please note that refrigerants may not have an odor.



NOTICES: Disregarding the following instructions can result in damage to your heat pump.

Maintain proper water chemistry to avoid damage to the pump, filter, hot tub or spa shell, etc. Water flow exceeding the maximum flow rate requires a bypass. Damage due to excessive water flow will void the warranty. Please ensure to keep the display controller in a dry area to prevent it from being damaged by humidity. Always remember to drain the water from the heat pump during winterization. Failure to do so may result in damage to the Titanium exchanger due to freezing, which will void your warranty.



WARNING: Installation must be performed in accordance with the NEC/CEC and local code by an authorized person only.

CLIM8ZONE™ II User Guide



WARNING: Make sure the switch is turned to the power off position before install the heat pump or maintenance the heat pump



WARNING: To reduce the risk of injury, this appliance is not intended for use by persons (including children) with reduced physical, sensory, or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety at all times. Children should be supervised to ensure that they do not play with the appliance.



WARNING: A wire connector is provided on this unit to connect a minimum 6 AWG (13.3 mm²) solid copper conductor between this unit and any metal equipment, metal enclosures of electrical equipment, metal water pipe, or conduit within 5 feet (1.5 m) of the unit.



WARNING: A terminal marked G, GR, Ground, Grounding, or the symbol  is located inside the supply terminal box or compartment. To reduce the risk of electric shock, this terminal must be connected to the grounding means provided in the electric supply service panel with a continuous copper wire equivalent in size to the circuit conductors supplying this equipment.



WARNING: All field-installed metal components such as rails, ladders, drains, or other similar hardware within 3 m of the spa or hot tub shall be bonded to the equipment grounding bus with copper conductors not smaller than No. 6 AWG (13.3 mm²).



WARNING: DO NOT USE SPAS OR HOT TUBS UNLESS ALL SUCTION GUARDS ARE INSTALLED TO PREVENT BODY AND HAIR ENTRAPMENT



WARNING: TO AVOID INJURY, EXERCISE CARE WHEN ENTERING OR EXITING THE SPA OR HOT TUB.



WARNING: PREGNANT OR POSSIBLY PREGNANT WOMEN SHOULD CONSULT A PHYSICIAN BEFORE USING A SPA OR HOT TUB.



WARNING: DO NOT USE A SPA OR HOT TUB IMMEDIATELY FOLLOWING STRENUOUS EXERCISE.



WARNING: PROLONGED IMMERSION IN A SPA OR HOT TUB CAN BE INJURIOUS TO YOUR HEALTH.



CAUTION: MAINTAIN WATER CHEMISTRY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.



DANGER: Risk of Accidental Drowning. Extreme caution must be exercised to prevent unauthorized access by children. To avoid accidents, ensure that children cannot use a spa or hot tub unless they are closely supervised at all times.



DANGER – Risk of Injury. The suction fittings in this spa are sized to match the specific water flow created by the pump. Should the need arise to replace the suction fittings or the pump, be sure that the flow rates are compatible.

Never operate spa if the suction fittings are broken or missing. Never replace a suction fitting with one rated less than the flow rate marked on the original suction fitting.

CLIM8ZONE™ II User Guide



DANGER: Risk of Electric Shock. Install at least 5 feet (1.5 m) from inside wall of hot tub or spa using nonmetallic plumbing.



DANGER – Risk of Electric Shock. Install at least 5 feet (1.5 m) from all metal surfaces. As an alternative, a spa may be installed within 5 feet of metal surfaces if each metal surface is permanently connected by a minimum 6 AWG (13.3 mm²) solid copper conductor to the wire connector on the terminal box that is provided for this purpose.



DANGER – Risk of Electric Shock. Do not permit any electric appliance, such as a light, telephone, radio, or television, within 5 feet (1.5 m) of a spa.



WARNING – To reduce the risk of injury:

- a) The water in a spa should never exceed 40° C (104° F). Water temperatures between 38°C (100°F) and 40°C are considered safe for a healthy adult. Lower water temperatures are recommended for young children and when spa use exceeds 10 minutes.
- b) Since excessive water temperatures have a high potential for causing fetal damage during the early months of pregnancy, pregnant or possibly pregnant women should limit spa water temperatures to 38°C (100°F).
- c) Before entering a spa or hot tub, the user should measure the water temperature since the tolerance of water temperature-regulating devices varies.
- d) The use of alcohol, drugs, or medication before or during spa or hot tub use may lead to unconsciousness with the possibility of drowning.
- e) Obese persons and persons with a history of heart disease, low or high blood pressure, circulatory system problems, or diabetes should consult a physician before using a spa.
- f) Persons using medication should consult a physician before using a spa or hot tub since some medication may induce drowsiness while other medication may affect heart rate, blood pressure, and circulation.

SAVE THESE INSTRUCTIONS

 WARNING
REDUCE THE RISK OF ELECTROCUTION 1. Never place an electric appliance within 5 feet of spa.
REDUCE THE RISK OF CHILD DROWNING 1. Supervise children at all times. 2. Attach spa cover after each use.
REDUCE THE RISK OF OVERHEATING 1. Check with a doctor before use if pregnant, diabetic, in poor health, or under medical care. 2. Exit immediately if uncomfortable, dizzy, or sleepy. Spa heat can cause hyperthermia and unconsciousness. 3. Spa heat in conjunction with alcohol, drugs, or medication can cause unconsciousness.
WHEN PREGNANT , soaking in hot water for long periods can harm your fetus. Measure water temperature before entering. 1. Do not enter spa if water is hotter than 100° F (38° C). 2. Do not stay in spa for longer than 10 minutes.

CLIM8ZONE™ II User Guide

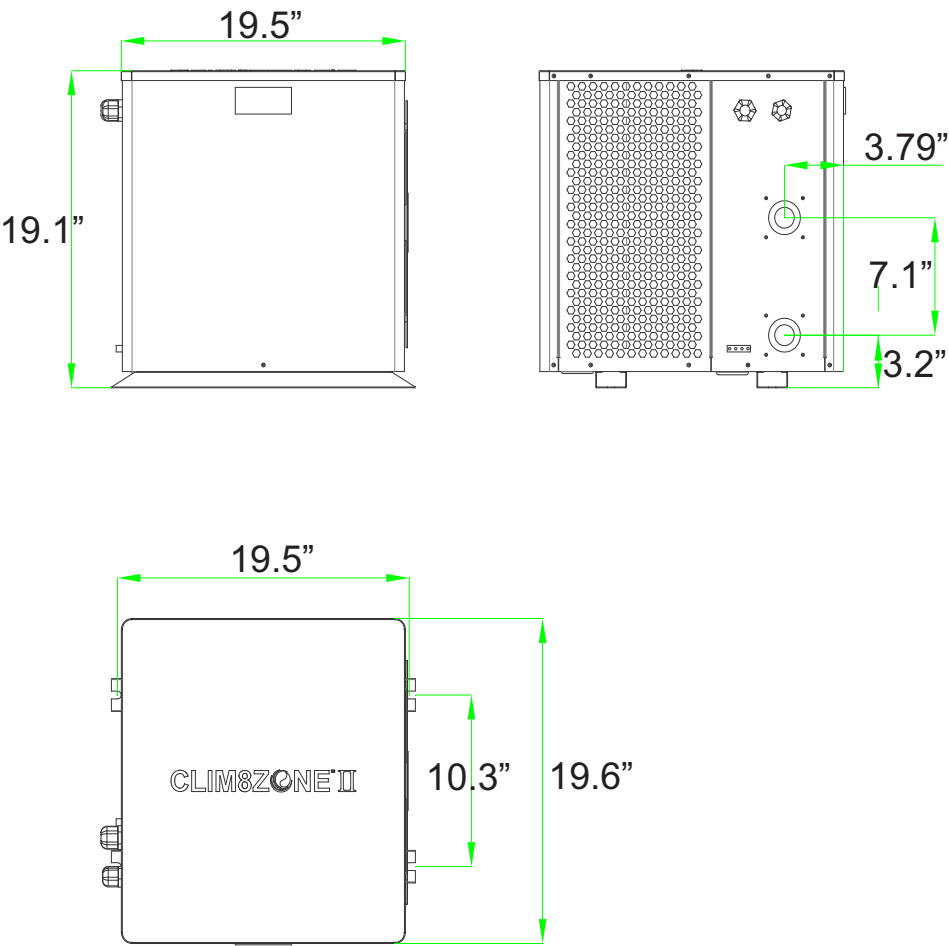
1. Specifications

1.1 Technical data

120V Clim8zone II – Compact Heat Pump for Spas				
Product model			C8ZII-120V	
Advised maximum spa volume （gallons / with cover）			600	
Heating operating ambient temperature range （℃）			-5 ~43	
Cooling operating ambient temperature range （℃）			10 ~40	
Parameters	heating*	Heating capacity (kW)	4.0~1.0	
		Heating capacity (BTU/h)	13600~3400	
		Input power (kW)	0.8~0.11	
		COP	5.0~9.5	
	heating**	Heating capacity (kW)	2.5~0.65	
		Heating capacity (BTU/h)	8500~2210	
		Input power (kW)	0.6~0.1	
		COP	4.0~6.1	
	Cooling capacity (kW)		1.6	
	Maximum current (A)		10.5	
	Advised water flow （GPM）		7.5	
	IP Grade (Level of protection)		IPX4	
	Anti-electric shock Rate		I	
	Noise (dB(A)) in 1 meter		≤45	
Net weight/Gross weight(lbs)		62/67		
Diameter of pipe (inch)		1.5” socket		
Standard Configuration	Metal plate		Metal Casing	
	Body size(W*D*H) (inch)		19.5 x 19.6 x 19.1	
	Refrigerant		R32/260g	
	Power supply		110V ± 15%/1 Ph/60Hz	
	Condenser		Titanium in PVC	
Remark: heating*: working condition, Inlet water temperature 78.8°F, Outlet water temperature 82.4°F, Dry bulb temperature 80.6°F. Humidity 80%.				
heating**: working condition, Inlet water temperature 78.8°F Outlet water temperature 82.4°F Dry bulb temperature 59°F Humidity 70%.				
Cooling: working condition, Inlet water temperature 82.4°F Dry bulb temperature 95°F Humidity 80%.				

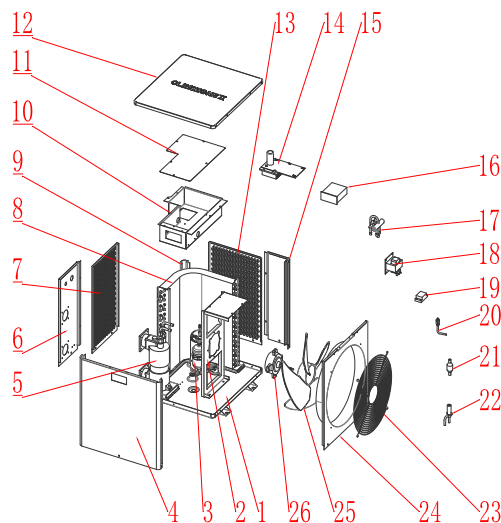
CLIM8ZONE™ II User Guide

2. Dimension (in)



CLIM8ZONE™ II User Guide

2.2 Exploded View



N0	Spare parts	N0	Spare parts
1	chassis	21	filter
2	motor bracket	22	electronic expansion valve
3	compressor	23	fan network
4	front panel	24	air deflector
5	titanium tube heat exchanger	25	fan blade
6	left side panel	26	motor
7	left net		
8	fin heat exchanger		
9	column		
10	electric box		
11	electric box cover		
12	top panel		
13	back net		
14	driver board		
15	rear side panel		
16	control board		
17	4-way valve		
18	reactor		
19	transfer terminal block		
20	needle valve		

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3. Installation and connections

3.1 Notes

The factory supplies only the heat pump. All other components must be provided by the user or the installer.

Install a bypass if the water flow from the water pump is more than 20% greater than the allowable flow through the heat exchanger of the heat pump.

Always place the heat pump on a solid foundation and use the included rubber mounts to avoid vibration and noise.

Always hold the heat pump upright. If the unit has been held at an angle, wait at least 24 hours before starting the heat pump.

3.2 Heat pump location

The unit will work properly in any desired location as long as the following three items are present:

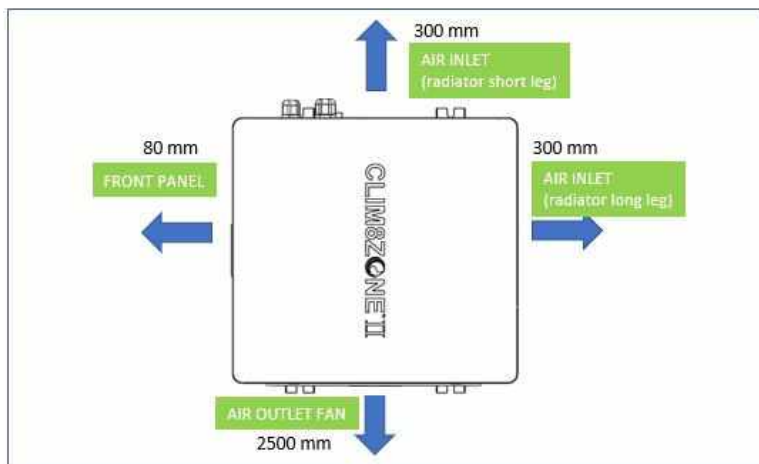
1. Fresh air –
2. Electricity –
3. Adequate water flow

The unit may be installed in virtually any **outdoor** location as long as the specified minimum distances to other objects are maintained (see drawing below). To protect the unit from snow and rain, it is suggested to add an open sides shed cover over the heat pump. Please consult your installer for installation with an indoor spa. Installation in a windy location does not present any problem at all, unlike the situation with a gas heater (including pilot flame problems).

ATTENTION:

Never install the unit in a closed room with a limited air volume in which the air expelled from the unit will be reused, or close to shrubbery that could block the air inlet. Such locations impair the continuous supply of fresh air, resulting in reduced efficiency and possibly preventing sufficient heat output.

See the drawing below for minimum dimensions.



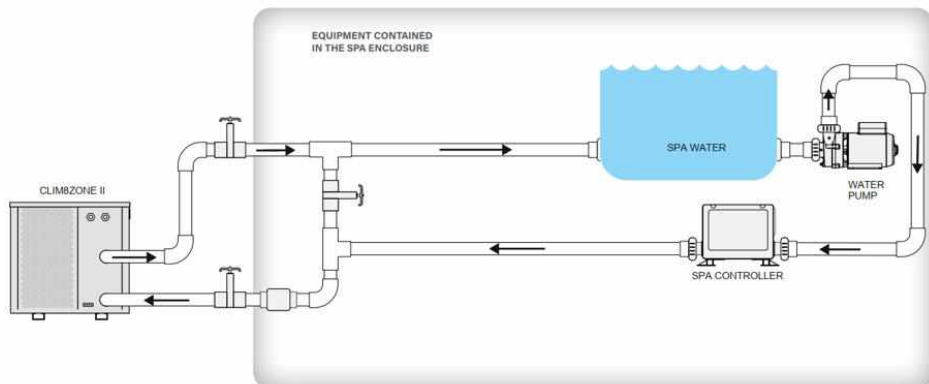
3.3 Distance from your spa

The heat pump is normally installed within a perimeter area extending 2m (6.5ft) from the spa. To minimize heat lost, it is recommended to add insulations over the pipes connecting the heat pump and the spa.

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3.4 Plumbing Connections

3.4.1 Plumbing diagram



3.4.2 Check-valve installation (recommended)

If automatic dosing equipment for chlorine and acidity (pH) is used, it is essential to protect the heat pump against excessively high chemical concentrations which may corrode the heat exchanger. For this reason, equipment of this sort must always be fitted in the piping on the **downstream** side of the heat pump, and it is recommended to install a check-valve to prevent reverse flow in the absence of water circulation.

Damage to the heat pump caused by failure to follow this instruction is not covered by the warranty.

3.5 Electrical connection



DANGER: Electrical connections below must be done by a qualified and licensed electrician. Failure to do so injury or death may occur.

1. Turn the spa breaker to OFF position before making electrical connection.
2. Make sure electrical ratings of the power source match with the electrical ratings marked on the label of this unit.
3. Attention: This unit is provided with a grounding lug and must be electrically bonded to the spa common bonding grid. Connect the grounding lug with the spa common bonding grid with a #8 minimum solid copper wire.
4. Power to this unit must be supplied through a GFCI having a rated residual operating current not exceeding 5mA.
5. Connect the unit to 120VAC AV port of the spa controller. A splitter (PN 22934, not included) may be needed if the AV port is being used for other equipment.
6. If a spa controller is not used, the unit may be hard wired to 120VAC power supply panel and must be done by a licensed electrician. The unit may also be plugged into a dedicated 120VAC power supply junction box.

3.6 Initial operation

Note: In order for the heat pump to operate, the water circulating pump must be running to cause the water to circulate through the heat pump. The heat pump will not start up if the water is not circulating.

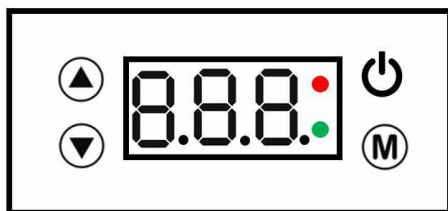
After all connections have been made and checked, follow the following procedure:

1. Switch on the water circulating pump. Check for leaks and verify that water is flowing from and to the spa.
2. Switch on power to the heat pump.

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5. Controller Panel Operation

5.1 Controller Panel Display:



The following is only applicable when NOT connected to a BP system

5.2 Button Descriptions:

No	Key	Description
1		Turn ON/OFF the controller panel
2		Increase the setting values.
3		Decrease the setting values.
4		Change modes.
5	Red LED On	Heating mode
6	Green LED On	Cooling mode
7	The red light and the green light on for 3 seconds at the same time, then the red light on	Automatic heating
8	The red light and the green light on for 3 seconds at the same time, then the green light on	Automatic cooling
9	Red LED flashing	Defrosting mode
10	Red & Green LED Off	Heat pump OFF

5.3 Operation Instruction:

1. Turn ON/OFF

Press the button for 2 seconds.

2. Mode conversion

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3. Press the  Power button on front panel for 2 seconds.
4. Set the unit to Heat or Cool mode by pressing the  Mode button. Heating = Red LED on. Cooling = Green LED on.
5. Set temperature by pressing  Up or  Down buttons.
6. The unit will start up after the time delay expires.
7. After a few minutes, air will be blowing out of the fan grill.
8. Complete!

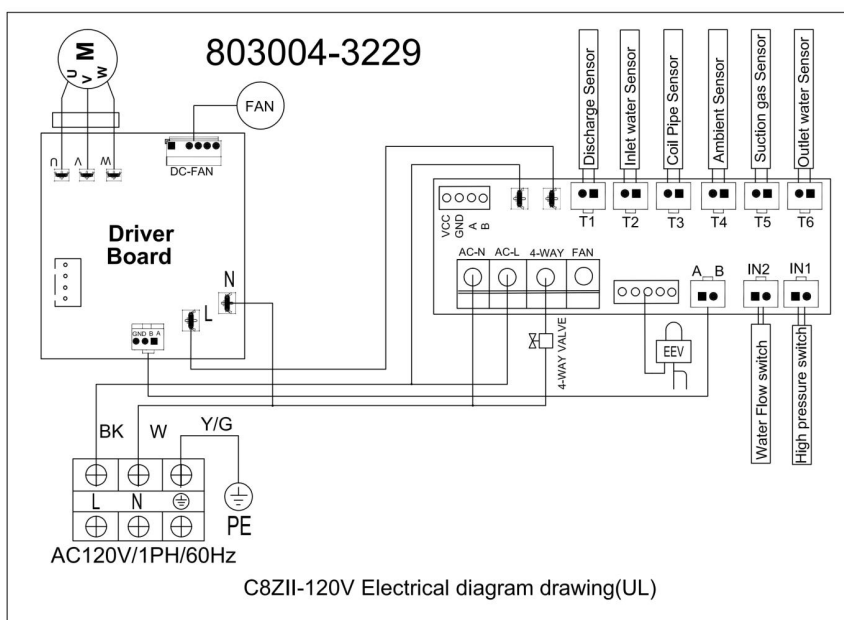
Time delay - The heat pump has a built-in 3-minute start-up delay to protect the circuitry and avoid excessive contact wear. The unit will restart automatically after this time delay expires. Even a brief power interruption will trigger this time delay and prevent the unit from restarting immediately. Additional power interruptions during this delay period do not affect the 3-minute duration of the delay.

3.7 Condensation

In heat mode, the air drawn into the heat pump is greatly cooled by the operation of the heat pump for heating the spa water, which may cause condensation on the fins of the evaporator. The amount of condensation may be as much as several liters per hour at high relative humidity. This is condensation water, not leaked water.

4. Electrical Wiring

4.1 CLIM8ZONE II HEAT PUMP WIRING DIAGRAM



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Press **(M)** button to switch heat / cooling mode; Heating =Red LED On ; Cooling = Green LED On.

3. Change temperature unit Fahrenheit/Celsius(*this can be done when connected to a BP system*)

Long press three buttons **(M)** + **(▲)** + **(▼)** at the same time to switch the display of Fahrenheit and Celsius.

4. Forced defrosting

When the outer coil pipe temperature is below the Exit Defrosting Temperature, press two buttons **(M)** + **(▼)** for 3 seconds to enter the Forced Defrosting.

5. Change Set Temperatures:

Set temperatures can be adjusted by pressing Up **(▲)** or **(▼)** Down buttons.

6. Status Query

To enter the unit status query, press **(▼)** button for 3 seconds to view the temperature parameters. See table below.

Status Query Table

Query code	Meaning	Display the range
A01	Inlet water temp.	-30~99°C (-86~210°F)
A02	Outlet water temp.	-30~99°C (-86~210°F)
A03	Ambient temp.	-30~99°C (-86~210°F)
A04	Exhaust temp.	0~125°C (32~257°F)
A05	Return gas temp.	-30~99°C (-86~210°F)
A06	Outer coil temp.	-30~99°C (-86~210°F)
A08	Electronic expansion valve opening degree	0~480
A10	Compressor current	
A11	Heat-sink temperature	
A12	DC bus voltage value	
A13	Actual compressor speed	
A14	Total main board current	
A15	DC fan speed	0~1590

5.4. Query and setting of the system parameters

Query: Press **(▲)** button for 3 seconds to enter the parameter query state. Press **(▲)** or **(▼)** button to switch from one parameter to another. Press **(M)** button to view the value of the parameter. Press **(⏮)** button to return and exit the query.

Modify: To modify the parameter, a password will be needed. The password is 68. Follow the below procedure:

Long press **(M)** and **(▲)** button to enter the input password interface,

Press **(M)** button to enter the first password digit "6" by pressing **(▲)** or **(▼)** buttons,

Press **(M)** button to advance to the second password digit and enter "8" by pressing **(▲)** or **(▼)** buttons,

Press **(M)** button to submit the password. After entering, select or change parameters by using **(▲)** or **(▼)** buttons

Press **(M)** button to make entry changes or confirm and return to the viewing status.

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SYSTEM PARAMETER TABLE

Parameter code	Parameter name	Adjust range	Default value
P01	Return Difference for Target Water Temp.	1°C~18°C (34~64°F)	1°C(34°F)
P02	Reserved	--	--
P03	Setting temp. In automatic mode	5°C~40°C (41~104°F)	5°C(40°F)
P04	Cooling setting temp.	5°C~28°C (40°F -86°F)	15°C(59°F)
P05	Heating setting temp.	15°C~40°C(59°F -104°F)	27°C(80°F)
P06=TP4	The setting temp. that Exhaust temp. too high protection	80°C~125°C(176~257°F)	110°C(230°F)
P07=TP0	Recover The setting temp. from the too high exhaust temp.	50°C~100°C(122~212°F)	90°C(197°F)
P08	Compressor current protection	2A~50A	Reserved--Without this function
P09	Inlet water temp. compensation	-5°C~15°C(41~59°F)	0°C(32°F)
P10	Reserved	--	--
P11	Defrosting cycle	20MIN~90MIN	40MIN
P12	Defrosting enters the temp.	-15°C~-1°C (5~30°F)	-3°C(26°F)
P13	Defrosting time	2MIN~20MIN	5MIN
P14	Desroting exit temperature	1°C~40°C(34~104°F)	18°C(64°F)
P15	Temp. difference between defrosting environment and coil pipe	0°C~15°C (32~59°F)	9°C(48°F)
P16	Ambient temperature of the defrosting	0°C~20°C (32~68°F)	17°C(62°F)
P17	Expansion valve cycle	20-90	30
P18	Overheat Degree in Heating Mode	-5-10	3
P19	Main valve set exhaust gas	70-125	95
P20	Main valve defrosting opening degree	2-45	30
P21	Minimum opening degree of the main valve	5-15	8
P22	Expansion valve mode	0 Manual / 1 Automatic	1

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P23	Manual steps of the main valve	2-45	35
P24	Cooling opening degree of the main valve	2-45	30
P30	High ambient temperature protection Valve	40-60	50

5.5. Error Code table:

Error code	Error description	description	Solution suggestion
E03	Water flow failure	1. The water flow switch fault 2. Low water flow 3. The inlet and outlet water are reversed 4. There is air in the pipe 5. The pipe blocked	1.Check the water flow switch and replace it if it is faulty 2.Check the water valve and the temperature difference between inlet and outlet water 3.Whether the inlet and outlet water pipes are correctly connected 4.Emptying water system 5.Pipe cleaning
E04	Winter anti-freezing	The ambient temperature is lower than the antifreeze setting value	Normal protection procedure
E05	High pressure protection	1. Low water flow 2.. Pressure switch fault 3. The fan motor unwork or the speed too low 4.Overcharged the refrigerant	1.Check whether the temperature difference between inlet and outlet water is too large, and whether the outlet water temperature is too high 2.Use a multimeter to check whether the high voltage protection switch works 3.Check the water flow of the water pump and the speed of the fan 4.Refill the refrigerant
E09	Communication with the upper computer failed (Communication with Balboa system failed)		1.Replace the main board 2.Check the communication cables between the main board and Balboa system 3.Check whether the Balboa system software matches

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E10	Communication fault of frequency conversion module (alarm when communication is disconnected between external board and drive board)	1. The main board or driver board damaged 2. The connector of the communication cable between the main board and the driver board is in poor contact or falls off 3. The communication cable is damaged	1. Replace the main board or driver board 2. Check the communication cables between the main board and driver board 3. Replace the communication cable
E12	Exhaust too high protection	1. Lessrefrigerant orleakage 2. The system blocked 3. Compressor refrigerant oil is insufficient 4. The resistance value of the exhaust probe is offset, and the inlet temperature probe is dropped	1. Refill the refrigerant 2. Replace the filter 3. Add refrigerant oil to the compressor 4. Replace the exhaust probe and reconnect the water water inlet temperature probe
E15	Inlet water temp. Error	The sensor plug is in poor contact or off, or the sensor is damaged	Check and replace the water inlet temperature sensor(T2 sensor)
E16	Outer coil pipe temp. Error	The sensor plug is in poor contact or off, or the sensor is damaged	Check and replace the coil pipe temperature sensor(T3)
E18	Exhaust gas temp. Error	The sensor plug is in poor contact or off, or the sensor is damaged	Check and replace the exhaust gas temperature sensor(T1)
E20	Abnormal protection of frequency conversion module	IPM module internal fault, check related problems according to the attached table	
E21	Ambient temp. Error	The sensor plug is in poor contact or off, or the sensor is damaged	Check and replace the ambient temperature sensor(T4)
E23	Outlet water temperature too low protection	Outlet water temperature lower than 2°C(36°F)	
E27	Outlet temperature fault	The sensor plug is in poor contact or off, or the sensor is damaged	Check and replace the water outlet temperature sensor(T6)
E29	Return gas temp. Error	The sensor plug is in poor contact or off, or the sensor is damaged	Check and replace the suction gas sensor(T5)
E46	DC Fan Error	1.Dc fan failure 2.Plug is in poor contact or off	1. Replace the DC fan 2. Reconnect cables to the DC fan

E20 fault will display the following error codes at the same time, the error codes will switch every 3 seconds. Among them, error codes 1-128 are displayed in priority.

When error codes 1-128 don't appear, then error codes 257-384 can show.

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			frequency conversion module
64	Radiator over temperature	1. The fan on the host is faulty 2. The air duct is blocked	1. Check and replace the fan 2. Ensure proper ventilation
128	Radiator temperature error	1. The heat sink sensor is short-circuited or open 2. Heat sink fouling 3. The ambient temperature too high	1. Replace the frequency conversion module 2. Remove dust and scale from the heat sink 3. Lower the ambient temperature
257	communication failure	1. The connector of the communication cable between the main board and the driver board is in poor contact or falls off 2. Internal components of the heat pump damaged 3. The output voltage of the power supply board in the module abnormal or no output	1. Reconnect and ensure stability 2. Replace the internal components 3. Replace the power module
264	AC Input low voltage	1. The input voltage too low 2. The current transformer damaged during transportation	1. Ensure that the input voltage is normal 2. Ensure that the current transformer works properly
288	IPM too high temperature	1. The fan is faulty or the air duct blocked 2. The ambient temperature rises too fast, resulting in over-temperature drop too late to react 3. The power supply voltage and current too high or too low	1. Replace the fan 2. Ensure that the air duct unblocked 3. Reduce the ambient temperature 4. Ensure that the power supply voltage and current are normal
320	Compressor peak current too high	1. Compressor load is too large; 2. The driver board is faulty 3. The compressor is damaged	1. Ensure that the ambient temperature, water temperature, water flow, etc. are within the operating range of the unit; 2. Replace the compressor driver plate. 3. Replace the compressor

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If two or more error codes appear at the same time, then display error codes accumulation.

For example, 16 and 32 occur at the same time, display 48

Error Code	name	description	Solution suggestion
1	IPM Over-current	1. The IPM overloaded or overheated 2. The U,V,W driver short-circuited 3. The IPM module fault 4. The compressor damaged	1. Ensure that the ambient temperature, water temperature, water flow, etc. are within the operating range of the unit; 2. Use a multimeter to measure the motor U,V,W in ohmic gear to ensure no short circuit 3. Replace the frequency conversion module 4. Replace the compressor
2	compressor synchronous abnormal	1. The compressor overloaded instantaneously 2. The compressor does not match the program 3. The difference between high and low pressure starts the compressor excessively	1. Ensure that the ambient temperature, water temperature, water flow, etc. are within the operating range of the unit; 2. Replace the driver board with the correct program 3. Ensure that the high and low pressure difference starts normally
8	compressor output phase absent	1. The U,V, and W cables of the compressor are missing or improperly connected 2. The compressor does not match the program 3. The difference between high and low pressure starts the compressor excessively	1. Check whether the U, V, and W wires of the compressor are missing or in poor contact 2. Update the driver 3. Ensure that the high and low pressure difference starts normally
16	DC bus low voltage	1. The power supply unstable 2. AC suddenly power off, the inverter capacitor residual power supply chip detects that the DC voltage will be too low 3. The PFC module fault	1. Ensure that the power supply is stable 2. Check the capacitor after it is powered off 3. Replace the faulty frequency conversion module
32	DC bus high voltage	1. The power supply voltage too high. 2. The capacitor fault 3. The PFC module fault	1. Ensure that the power supply voltage is normal 2. Replace the capacitor 3. Replace the faulty

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Protection code	name	description	Solution suggestion
I45	High ambient temperature protection	When the ambient temperature reaches P30(50 °C), reports I45 and the fan on	



Notice: Before install the unions, please put the Orings on the correct position to avoid leakage.

6. Maintenance

Maintaining your spa heat pump is crucial to ensure its optimal performance and longevity. Here are some essential maintenance instructions for your spa heat pump:

1. Regular cleaning: Keep your spa heat pump clean by removing any debris, leaves, or dirt that may have accumulated around it. Use a soft-bristle brush to clean the outer surfaces of the heat pump.
2. Check the water supply system regularly to avoid the air trapped in the system and occurrence of low water flow, because it would reduce the performance and reliability of heat pump.
3. Remove all water from the heat pump if it will not be used for a long period of time (especially during the winter).
4. After the unit has been properly winterized, it is recommended to cover the heat pump with a special winter cover.
5. After a long winter shutdown, before starting to run the heat pump again, make sure the spa is filled with fresh and clean water and all valves to the heat pump are open.
6. When the unit is running, it is normal that there is some water discharged under the unit all the time.
7. Schedule professional maintenance: Schedule regular maintenance with a licensed professional to ensure that your spa heat pump is in good working condition. A professional technician can identify and fix any issues before they turn into bigger problems.

Following these maintenance instructions can help keep your spa heat pump running smoothly and efficiently, ensuring that you enjoy a relaxing and comfortable spa experience.

BP Platform Upgrades and Products Available

**Water Pro
Ozonators**



UV Sanitizers



Spa Touch (touch screen) Spaside Controls



Spa Touch™ 2



Spa Touch™
mini



Spa Touch™ 3



Spa Touch™ 4



Spa Touch™ 4+

**Control My Spa
Wi-Fi Kit**



**Water Pro
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