

ELECTRICAL REQUIREMENTS AND INSTALLATION

The following information is provided for hooking up electrical supply to your new spa. A qualified, licensed, electrician must perform this work. Failure to follow these instructions will terminate all warranty coverage and can cause serious injury or death.

Your spa is preset at the factory to run on 120 V 60 Hz with a 12 A input and 15 A GFCI power cord, and requires a 15 A dedicated service. The single pump spa may also be setup to run off of 240 V, 60 Hz, 32 A that requires 40 A class A GFCI protected service. This feature gives you the most performance out of your spa.

Codes and Compliance

North American 60 Hz

Voltage	240 V	120 V
Max Current Draw	32 A	12 A
Number of Wires	4	3
Circuit Breaker	40 A*	15 A GFCI Cord

* In this configuration, the heater will operate while any jet pump is running.

All of the electrical wiring methods and materials used to complete the electrical installation of the control system must be in accordance with the National Electrical Code or the Canadian Electric Code, as well as any local electrical codes in effect at the time of installation.

The selection of electrical materials required to accomplish this installation and the installation of the control system must be accomplished by, or be under the direct supervision of, a qualified electrician.

The control is classified as a “continuous duty appliance” and is intended primarily for installation at a single family dwelling. The installation recommendations and instructions contained in this manual are directed solely toward these issues.

GFCI Requirements

A Ground-Fault Circuit Interrupter (GFCI) is required to be installed in the electrical supply circuit connected to these products. GFCI's are ultra-sensitive switching devices, providing the ultimate in safety.

The most common style of GFCI also provides high-current protection as a circuit breaker.

One of the two configurations of GFCI's, as shown, will be required for your installation, depending upon the options selected.

Note: 15 A GFCI power cord is included with a 120 VAC spa. This can be used for a cord-connected 120 V setup only, and only in place of a stand-alone GFCI. 120 V Set up must be on a dedicated 15 A service.

Electrical Disconnect

An electrical disconnect (sometimes referred to as a “local disconnect”) is installed apart from the main service panel. The electrical disconnect must be installed where readily accessible and within sight of the spa, but at least 5 ft. (1.5 meters) from the inside wall of the spa.

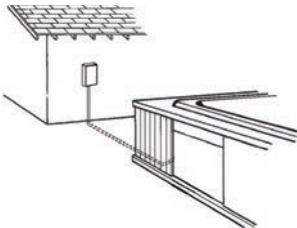
The disconnect must open all ungrounded conductors of the electrical supply connected to the spa.

If the main panel meets the sight-line and distance criteria, a GFCI circuit breaker installed in that panel may be used as the disconnect, as shown in Option A.

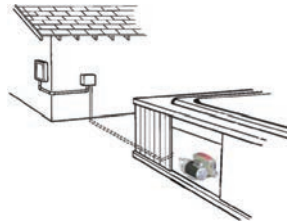
A new sub-panel must be installed to meet the sight-line requirements. Two possible arrangements exist (shown below).

1. The GFCI circuit breaker may be installed in the main panel, and a suitable switch, circuit breaker or other disconnecting device installed in the sub-panel (Option A).

2. The GFCI circuit breaker may be installed in the sub-panel, and a suitably rated circuit breaker (non-GFCI) installed in the main panel (Option B)



Service Disconnect
Option A



Service Disconnect
Option B

VOLTAGE CHECKS

(240V) Set voltmeter to AC Volts. Voltages should check out as follows:

Line 1 Black to Line 2 Red – 240 VAC

(Range of acceptability: 216 VAC – 246 VAC).

(120V) Set voltmeter to AC Volts. Voltages should check out as follows:

Black to (Neutral or Red) - 120 VAC

Red to Neutral - 0 Volts

Black To Red - 120 VAC

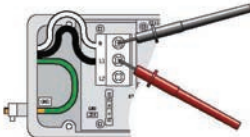
Red to Neutral to Ground - 0 Volts

Black to Ground - 120 VAC

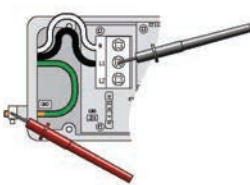
These readings should be consistent at all points in all electrical enclosures and breaker boxes. If the readings are not in the acceptable ranges, do not power up the system and call an electrician to evaluate the installation.

120 VAC Systems

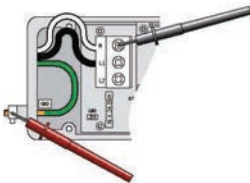
120 VAC (108 VAC-132 VAC)
Line 1 and Neutral



120 VAC (108 VAC-132 VAC)
Ground and Line 1

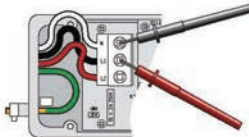


0 Volts
Ground and Neutral

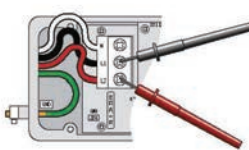


240VAC Systems

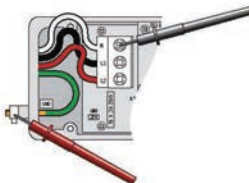
120 VAC (108 VAC-132 VAC)
Line 1 and Neutral



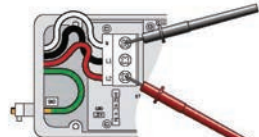
120 VAC (216 VAC-264 VAC)
Line 1 and Line 2



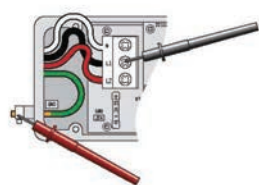
0 Volts
Ground and Neutral



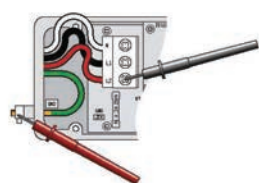
120 VAC (108 VAC-132 VAC)
Line 2 and Neutral



120VAC (108 VAC-132 VAC)
Line 1 and Ground

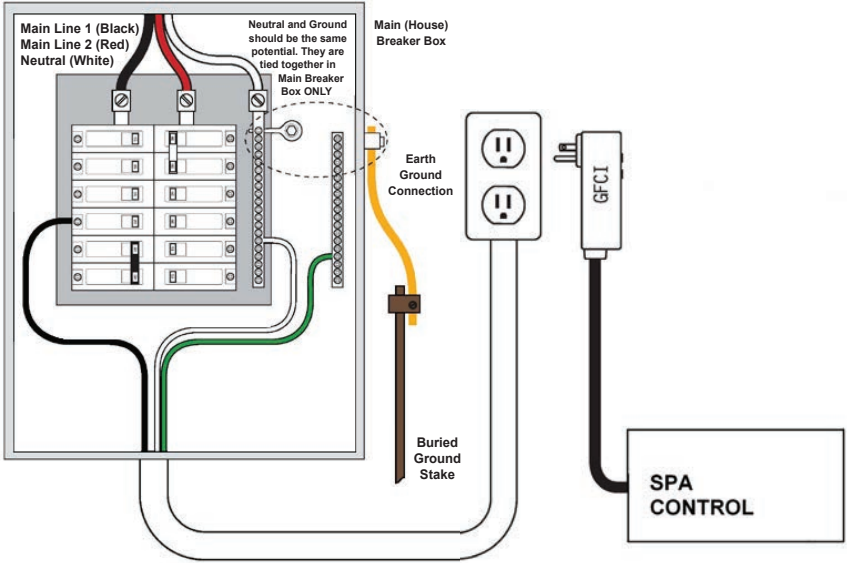


120 VAC (108 VAC-132 VAC)
Line 2 and Ground

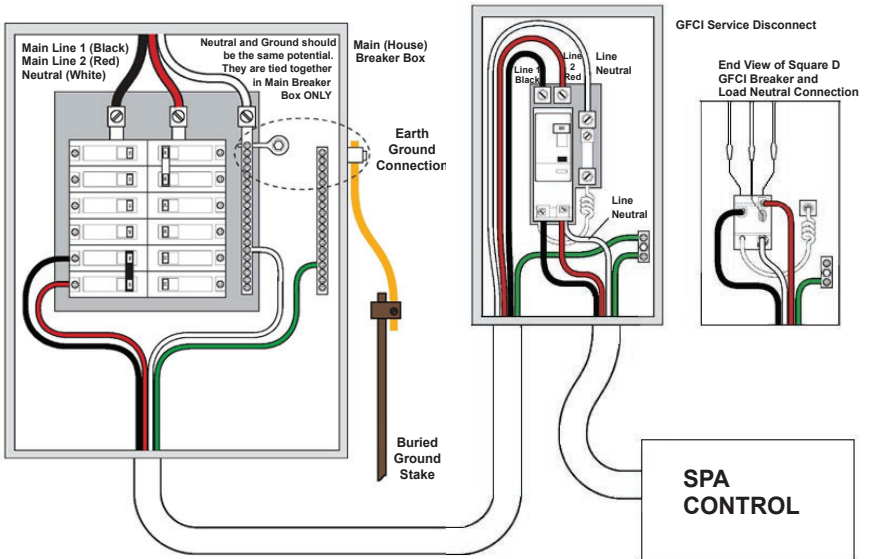


60 Hz GARDEN SPAS TERMINAL OPTIONS

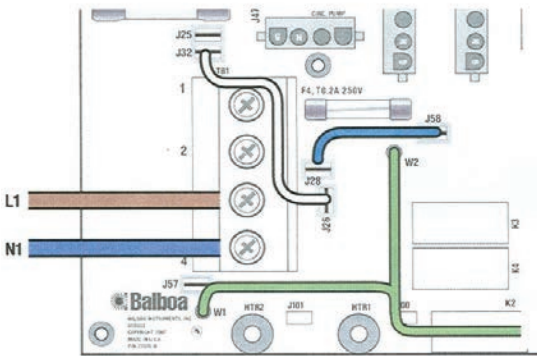
120 VAC WIRING SCHEMATIC



240 VAC WIRING SCHEMATIC



50 Hz GARDEN SPAS SINGLE/DUAL/THREE PHASE



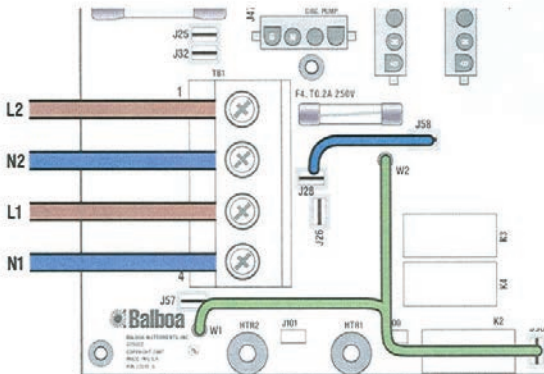
**Single Service,
TN and TT
Electrical Systems
(1 X 16 Amp or 1 X 32 Amp)**

3 Wires (1 Line + 1 Neutral + 1 Protective Earth)

Protective Earth wire (Green / Yellow) must be connected to system ground terminal as marked.

This option is configured and shipped as the default.

All equipment (pumps, blower and heater) runs on service line L1



**Dual Service,
TN and TT
Electrical Systems
(2 x 16 Amp)**

5 Wires (2 Lines + 2 Neutrals + 1 Protective Earth)

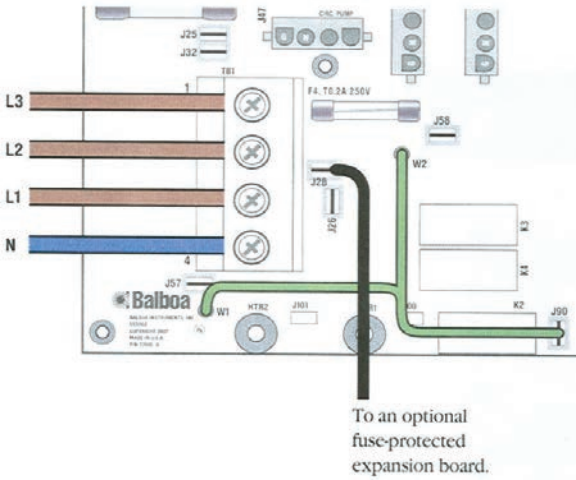
Protective Earth wire (Green / Yellow) must be connected to system ground terminal as marked.

The heater runs on service line L1, while all other equipment, such as pumps and blowers, run on service line L2

Completely remove the white wire from J26 and J32.

Note: J32 and J25 are electrically identical. The white wire may be attached to either terminal before removal.

50 Hz GARDEN SPAS SINGLE/DUAL/THREE PHASE



3-Phase Service, TN and TT Electrical Systems (3 x 16 Amp)

5 Wires (3 Lines + 1 Neutral + 1 Protective Earth)

Protective Earth wire (Green / Yellow) must be connected to system ground terminal as marked.

IMPORTANT - Service **MUST** include a neutral wire, with a line neutral voltage of 230 VAC.

The heater runs on service line L1.

All main-board equipment run on service line L3

Additional equipment, such as expansion boards, run on service line L2

Completely remove the white wire from J26 and J32, or J25

Completely remove the blue wire from J28 and J58.

If an expansion board is installed, black wire must connect to J28 (Line L2) only.