Gecko powerbox RT

Technical Integration Guide



4

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1. WARNINGS

1.1 Before installing or connecting the unit, please read the following

* FOR UNITS FOR USE IN OTHER THAN SINGLE-FAMILY DWELLINGS, A CLEARLY LABELED EMERGENCY SWITCH SHALL BE PROVIDED AS PART OF THE INSTALLATION. THE SWITCH SHALL BE READILY ACCESSIBLE TO THE OCCUPANTS AND SHALL BE INSTALLED AT LEAST 5' (1.52 M) AWAY, ADJACENT TO, AND WITHIN SIGHT OF THE UNIT.

* ANY DAMAGED CABLE MUST BE IMMEDIATELY REPLACED BY QUALIFIED PERSONNEL.

* TURN POWER OFF BEFORE SERVICING OR MODIFYING ANY CABLE CONNECTIONS IN THIS UNIT.

* TO PREVENT ELECTRIC SHOCK HAZARD AND/OR WATER DAMAGE TO THIS CONTROL, ALL UNUSED BUSHING CONDUITS MUST BE PLUGGED WITH THE ATTACHED NIPPLE.

* THIS CONTROLLER MUST NOT BE INSTALLED IN PROXIMITY OF HIGHLY FLAMMABLE MATERIALS.

* LOW SUPPLY VOLTAGE OR IMPROPER WIRING MAY CAUSE DAMAGE TO THIS CONTROL SYSTEM.
READ AND FOLLOW ALL WIRING INSTRUCTIONS WHEN CONNECTING TO POWER SUPPLY.

* THIS PACK CONTAINS NO USER SERVICEABLE PARTS. CONTACT AN AUTHORIZED SERVICE CENTER
FOR SERVICE.

* ALL CONNECTIONS MUST BE MADE BY A QUALIFIED ELECTRICIAN IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND ANY STATE, PROVINCIAL OR LOCAL ELECTRICAL CODE IN EFFECT AT THE TIME OF THE INSTALLATION.

* Product must be disposed of separately in accordance with local waste disposal legislation.

* 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.

* Children should be supervised to ensure that they do not play with the appliance.

* Means for disconnection must be incorporated in the fixed wiring in accordance with the wiring rules.

* Caution: In order to avoid a hazard due to inadvertent resetting of the thermal cut-out, this appliance must not be supplied through an external switching device, such as a timer, or connected to a circuit that is regularly switched on and off by the utility.

* Parts containing live parts, except parts supplied with safety extra-low voltage not exceeding 12 V, must be inaccessible to a person in the bath or spa.

* Parts incorporating electrical components, except remote control devices, must be located or fixed so that they cannot fall into the bath or spa.

* Parts are to be installed in the correct zone and equipotential bonding carried-out in accordance with the Wiring Rules.

*Clearance and minimum distance between the various parts of the appliance and the surrounding structure are not specified as long as they are sufficient so that the ambient temperature around the controller does not exceed 60°C.

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1.2 Introduction



R series - optimize your customers' spa experience

The R Series offers the kind of simplicity that makes for a genuine top-of-its-class product. It is the natural choice for anyone who wants an easy-to-understand multi-application solution.

You don't have to wonder about compatibility; instead, there's just the comforting certainty that when you invest in the R Series, all spa configurations are supported. What's more, it also takes into account future compatibility, so you can have peace of mind knowing that you can enjoy your spa pack for years to come.

1.3 Features

The R Series systems boast a long list of technical features. Each of them contributes to bringing the most advanced solutions available to Y Series equipped spa owners:

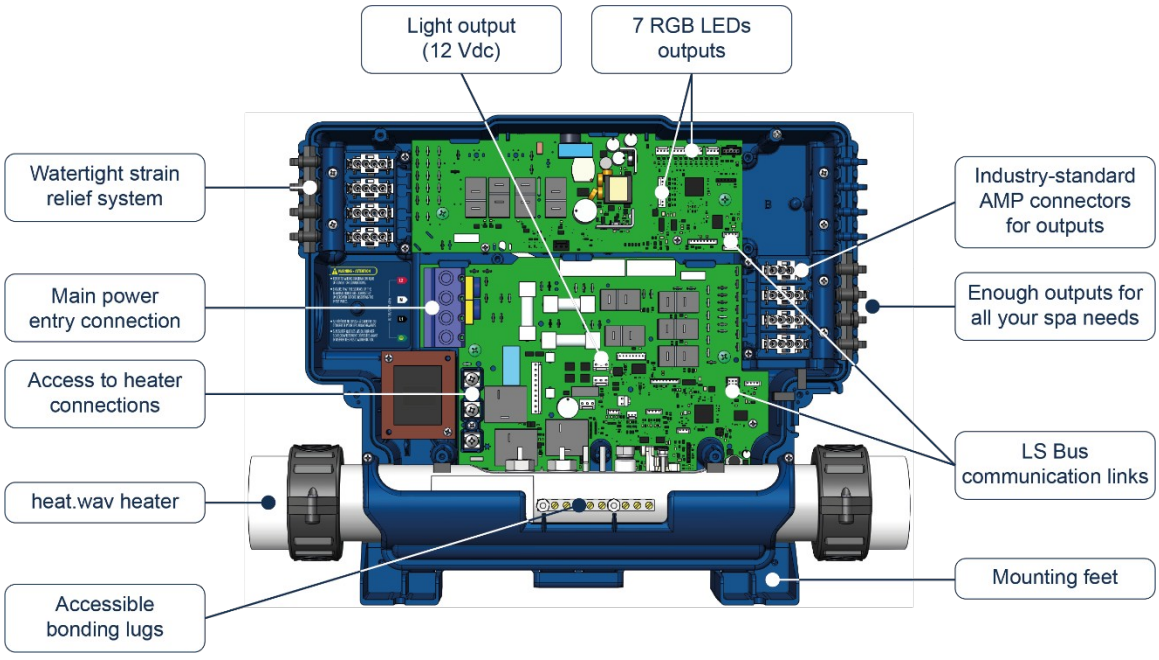
in.seal - watertight protection
in.seal provides an extra level of protection against water infiltration. Connectors and power box are designed to be watertight (IPX5)

in.put - input terminal block
in.put was designed to ease wire insertion (up to # 4 AWG) and connections. Tighter input connection reduces heat generated for increased component lifetime.

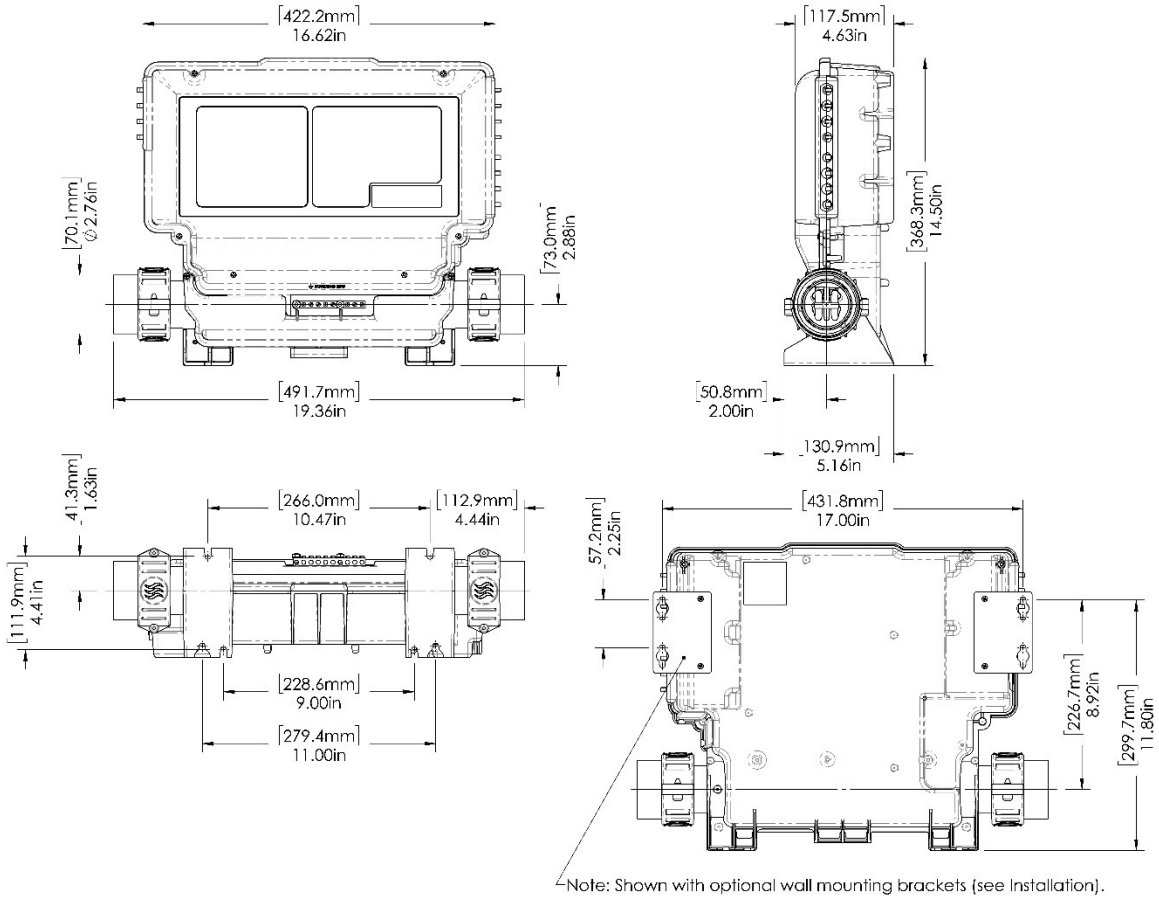
in.flo - dry-fire protection inflo is an all-electronic dry-fire protection that is built on the heatwav heater The inflo eliminates the burden of adjustments, calibrations and failures associated to usual water flow sensors

in.t.cip - water temperature algorithm
intcip is an intelligent water temperature refresh algorithm that calculates optimal time to start pumps and get water temperature readings intcip continuously readjusts the heater start time (according to exterior temperature)

1.4 Gecko powerbox RT Overview



1.5 Gecko powerbox RT dimensions



2. Installation

Important! Read before starting:

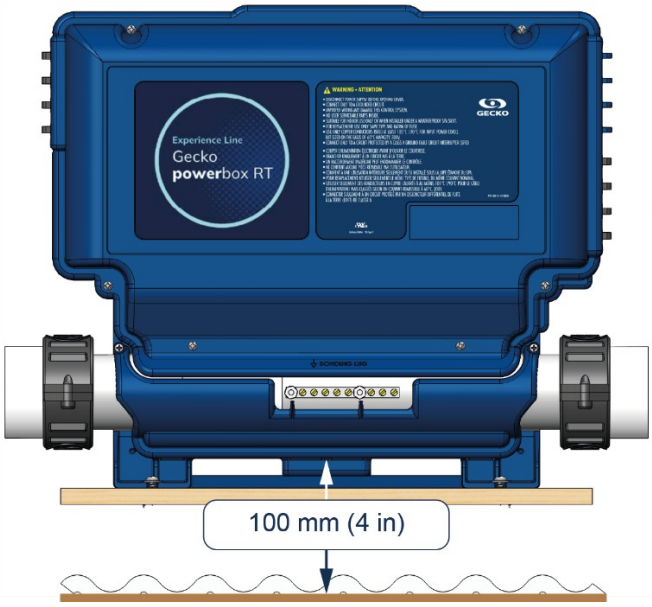
Please note that countersunk screws must not be used as they can damage the power box support.

The heat.wav element must be installed on the circuit of the main circulation pump (either the pressure or the suction side).

⚠️ WARNING

Beware of the application of some products commonly used against corrosion (such as WD-40 family products) as they could damage the pack, due to a negative chemical reaction between some industrial oils and its plastic enclosure. Any other materials which may come in contact with the enclosure must be carefully evaluated under end use conditions for compatibility.

Note: The spa pack must be installed at least 4"
(100 mm) above potential flood level. If floor is on ground level, pack should be raised at least 4" (100 mm).



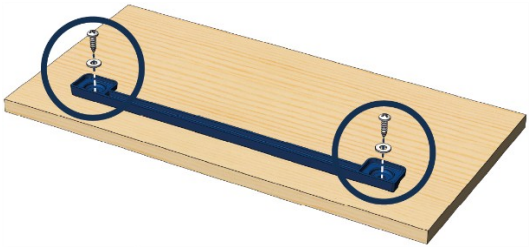
2.1 Floor installation procedure with optional guide plate

The following material is recommended:

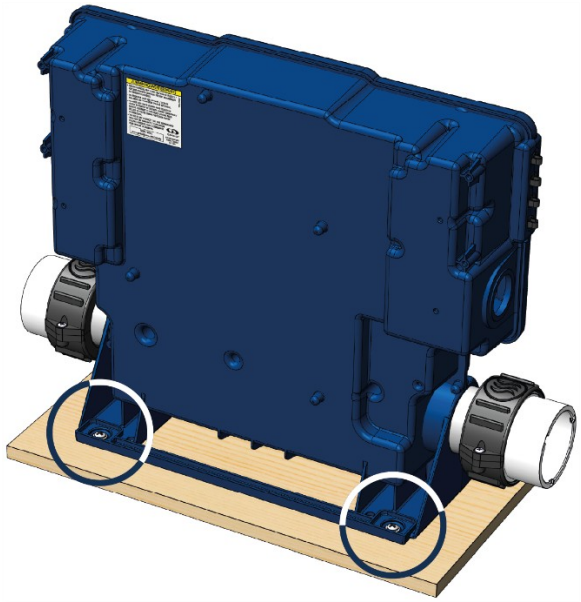
4- # 10 screws of appropriate length with round, truss or pan head.
4- washers .5" OD x .0625" thickness (12 mm OD x 1.5 mm)

Select the location on the floor for spa pack and firmly attach guide plate to wooden base with 2 screws backed by 2 washers.

Part numbers: 9917-100873 (Gecko powerbox RT guide plate)



Slide back side of the unit's feet into the guide plate. It should easily slide into place.



Now firmly attach unit to wooden base by using the remaining 2 screws backed by 2 washers to attach the front feet.

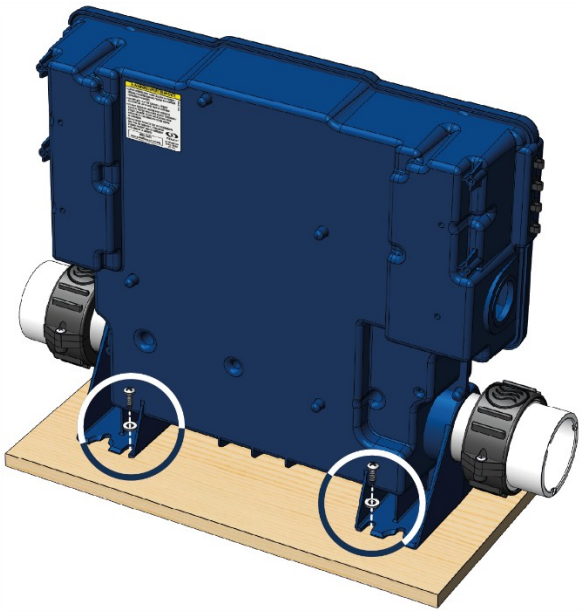


2.2 Floor installation procedure without guide plate

The following material is recommended:

4- # 10 screws of appropriate length with round, truss or pan head.
4- washers .5 OD" x .0625" thickness (12 mm OD x 1.5 mm)

Select the most appropriate location on the floor for the spa pack and firmly attach the 2 rear feet to the wooden base using 2 screws backed by 2 washers.



Now firmly attach the front feet of the pack to the wooden floor using 2 more screws backed by 2 washers.

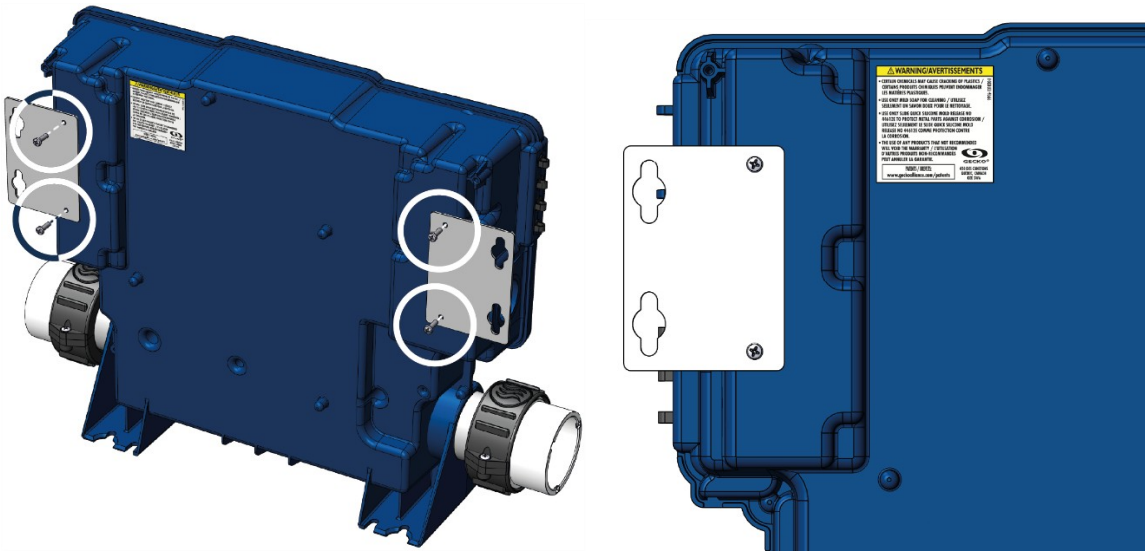


2.3 Wall installation procedure with optional wall mounting brackets

Install mounting brackets on both sides of the rear of the unit, using screws provided with bracket.

Part number:
Wall mount bracket kit 100 pcs - 9920-101474 (with 200 screws to attach to pack)

Torque screws to 13 in. lb max (1.49 N.m).



The following material is recommended:

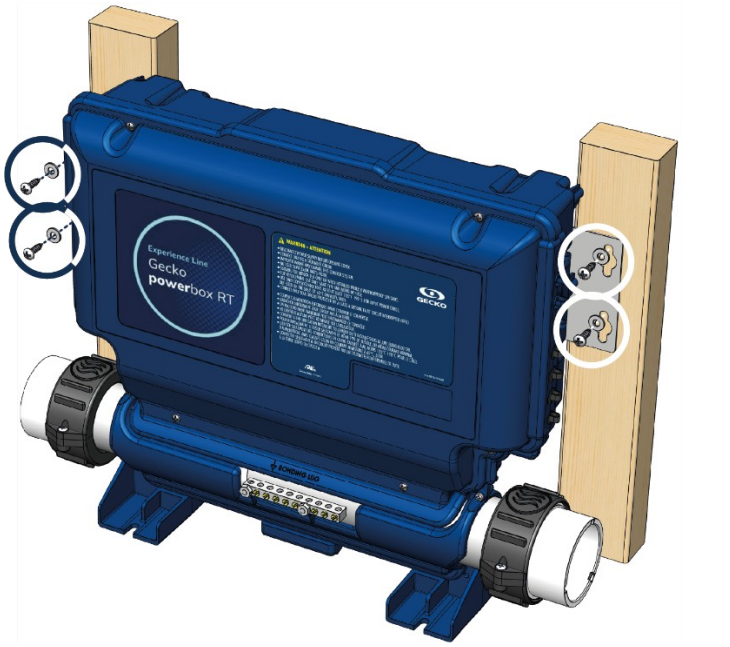
4- # 10 screws of appropriate length with round, truss or pan head.
4- washers .5 OD" x .0625" thickness (12 mm OD x 1.5 mm)

Use 2 standard 2" x 4" or 2" x 6" wall studs, spaced 17-inch from center to center to fix the spa pack.

Firmly attach, one at a time, upper mounting holes on each side of the spa pack with 2 screws backed by 2 washers.

Firmly attach lower mounting holes on each side of the pack with the 2 remaining screws and 2 washers.

Lower mounting holes are 2" (51 mm) below upper holes.



3. Connections

3.1 Gecko smartbox connection

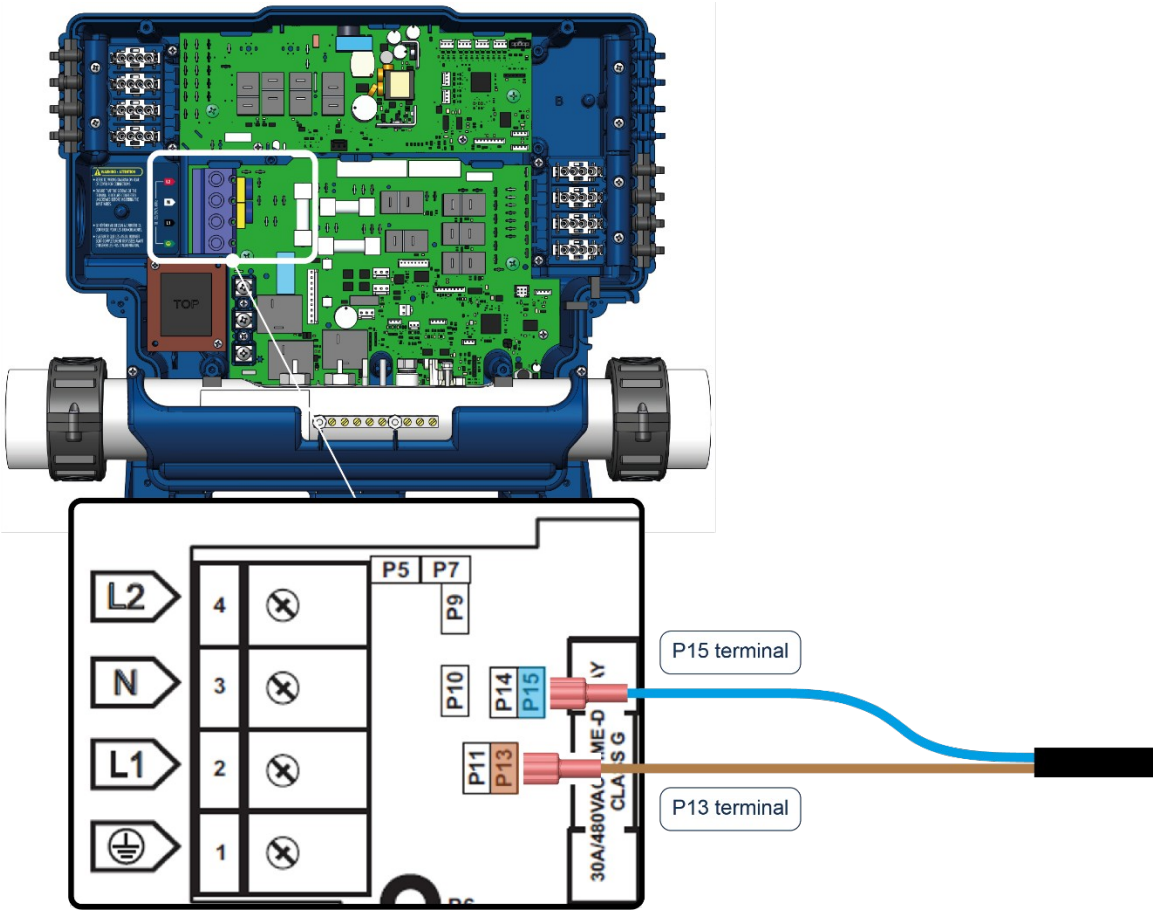
⚠ WARNING: TURN OFF THE POWER BEFORE OPENING ANY DEVICE OR MAKING WIRING CONNECTIONS.

Gecko smartbox is powered by **Gecko powerbox RT** through a two-wire power cable:

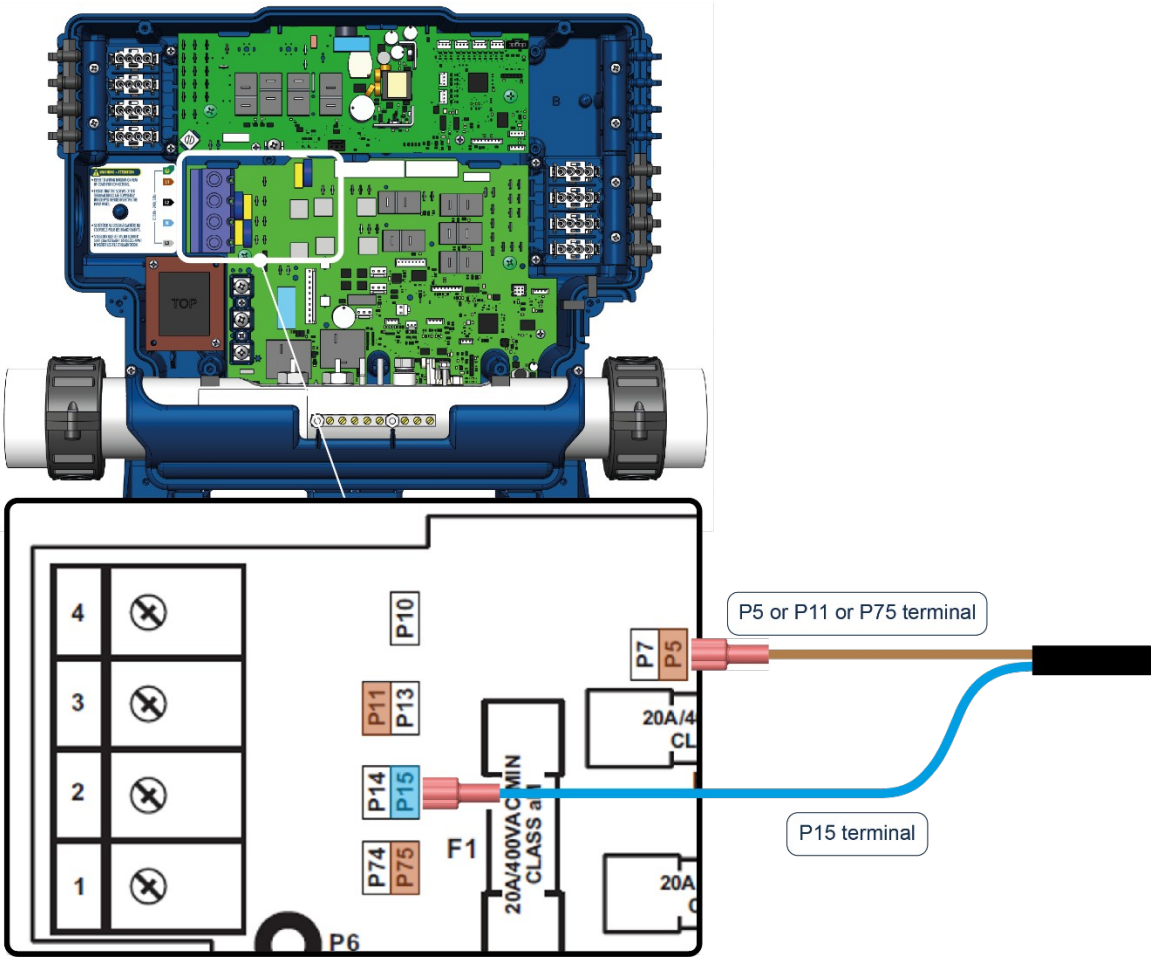
- BROWN wire (LINE)
- BLUE wire (NEUTRAL)

Connect the power cable of **Gecko smartbox** to **Gecko powerbox RT** as described below for the applicable model:

- **UL (North America)**:
    - Connect the BROWN wire (LINE) to the P13 terminal.
    - Connect the BLUE wire (NEUTRAL) to the P15 terminal.

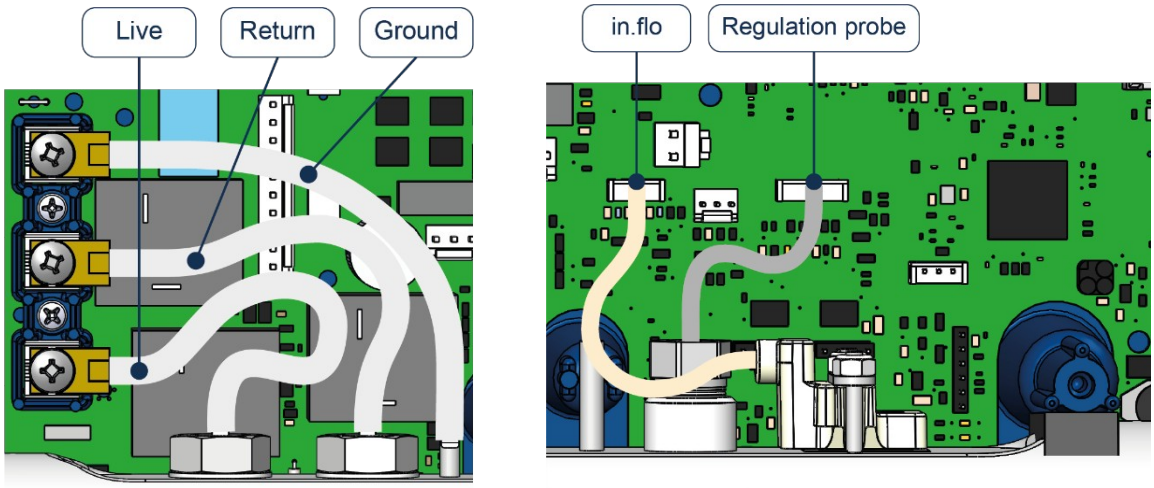


- **CE (Europe / Australia / New Zealand)**:
    - Connect the BROWN wire (LINE) to the available P5 or P11 or P75 terminal.
    - Connect the BLUE wire (NEUTRAL) to the P15 terminal.


4
3
2
1
P10
P11
P13
P14
P15
P74
P75
P7
P5
F1
P6
20A/400VAC MIN
CLASS a
P5 or P11 or P75 terminal
P15 terminal

3.2 heat.wav water heater connections

Gecko powerbox RT comes with a high-performance heat.wav heater. With no pressure switch, it features in.flo integrated dry-fire protection.



The heat.wav heater is factory configured for 240 V / 4 kW, but it can be converted to a dedicated 120 V / 1 kW by simply adding a cable connection. (120 V conversion is available on North American Gecko powerbox RT models only).

The heat.wav heater is also offered in 240 V / 5,5 kW or 240 V / 2 kW version.

heat.wav specification summary:

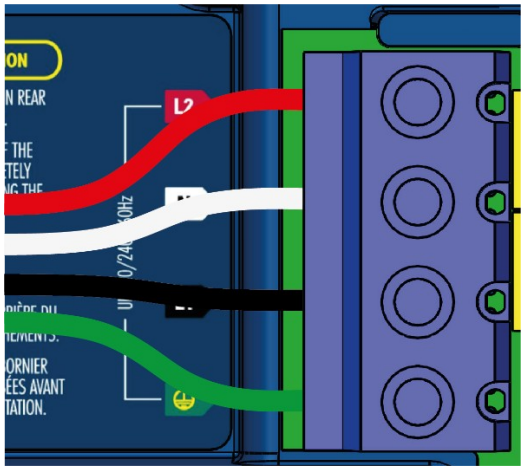
- Supports 120 V or 240 V (3kW, 4kW and 5.5kW version available)
- Incoloy825® heater element with 316 stainless Steel housing
- Protected by external breaker (not fused) *

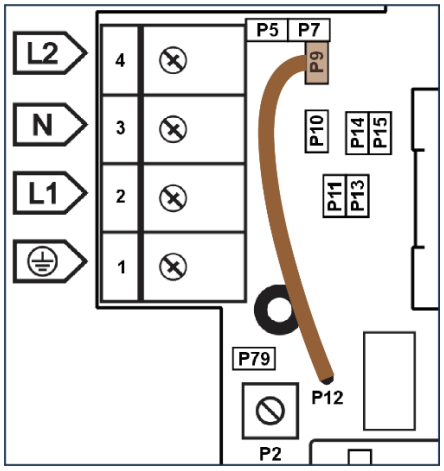
*Note : European models are 230-240 V only and are fuse protected.

All heater connections are accessible when the cover is removed. Connections include the in.flo dry-fire protection, hi-limit/regulation probe connectors, power and ground cable connections.

Connections for 240 V heaters (North American installations only)

BROWN wire must be correctly connected between P12 and P9.

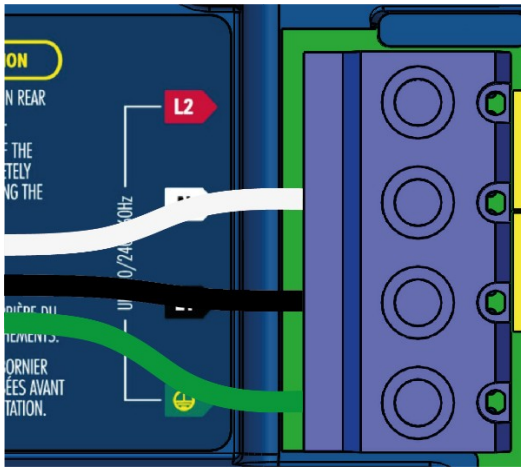


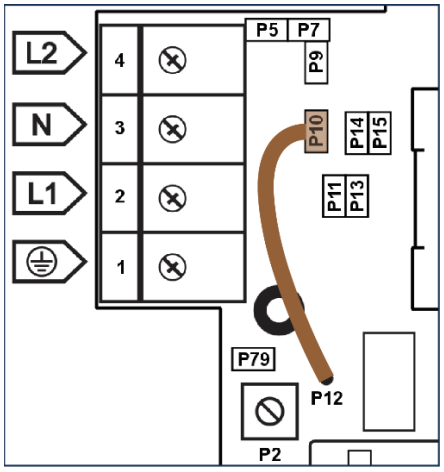


For early North American version installations the YELLOW wire must be between P25 and P20. The ORANGE wire must be between P24 and P16.

Connections for 120 V (1 kW) heaters (North American installations only)

BROWN wire must be correctly connected between P12 and P10.





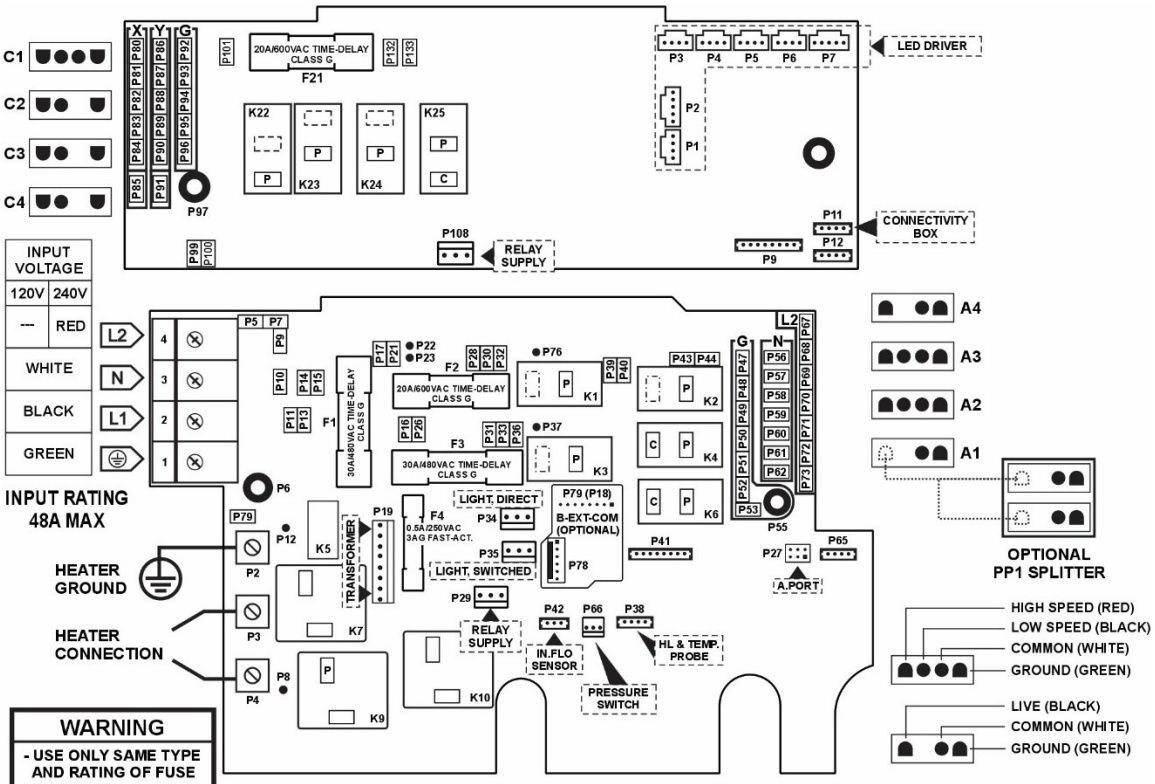
Note: To convert model to a 120 V system, the white (common) accessory wire must be moved. See wiring diagram for details.

3.3 Connecting high voltage accessories: all models

Two options are available with Gecko powerbox RT for connecting high voltage accessories: 0.250” quick-connect terminals, or AMP connectors conform to industry standards.

3.3.1 Connecting high voltage accessories: North American model Gecko powerbox RT

For the connection to the 0.250-inch terminals, the high voltage accessories must be provided with female quick connect terminals, straight and non-insulated for all types of connections, including the ground. Accessories of 120 V or 240 V may be connected to the corresponding terminals of the printed circuit of Gecko powerbox RT. Refer to the wiring diagram inside the unit cover for correct connections. Note that all female terminals must be correctly and completely seated on the printed circuit terminals for proper current ratings.



WARNING

- USE ONLY SAME TYPE AND RATING OF FUSE
- UTILISER SEULEMENT LE MÊME TYPE DE FUSIBLE, DU MÊME COURANT NOMINAL

MAX CURRENT PER FUSE (@50°C)	
F1 : 24A MAX	F21 : 15A MAX
F2 : 15A MAX	
F3 : 24A MAX	

HEATER CONNECTIONS	
ELEMENT	P4
ELEMENT	P3
HEATER GROUND	P2

HEATER VOLTAGE		
	240V	120V
BROWN (P12)	P9	P10

PCB LINKS

WIRES			CABLES		
	BOTTOM	TOP		BOTTOM	TOP
RED	P5	P85	#1	P29	P108
WHITE	P14	P91	#2	P41	P9
BLACK	P11	P101	#3	P65	P12
GREEN	P79	P99			
ORANGE	K10-P	K25-C			

PCB EXT LINKS (OPTIONAL)		
	PCB EXT	MAIN PCB
B-EXT-COM PCB	P79	P18 (YE)

MANDATORY CONNECTION	
GRAY (P22)	K4-C
BLUE (P37)	K6-C
BLACK (P8)	K9-P

LIGHT (12VAC, 1A MAX)	
RELAY	P35

- ***IMPORTANT NOTICE:***
  *FOR PROPER GROUNDING, **GREEN** WIRES MUST BE CONNECTED TO A **G** TERMINAL. /*
  *POUR LA MISE À LA TERRE, LES FILS **VERTS** DOIVENT ÊTRE CONNECTÉS À UN CONNECTEUR **G** DE LA CARTE ÉLECTRONIQUE.*

- ***240V ACCESSORIES:***
  *ALL OUTPUTS MAY BE CONFIGURED AS 240V BY PLUGGING THEIR RESPECTIVE **WHITE** WIRES TO ANY **L2** OR **X** TERMINAL.*

- ***120V ACCESSORIES:***
  *ALL OUTPUTS MAY BE CONFIGURED AS 120V BY PLUGGING THEIR RESPECTIVE **WHITE** WIRES TO ANY **N** OR **Y** TERMINAL.*

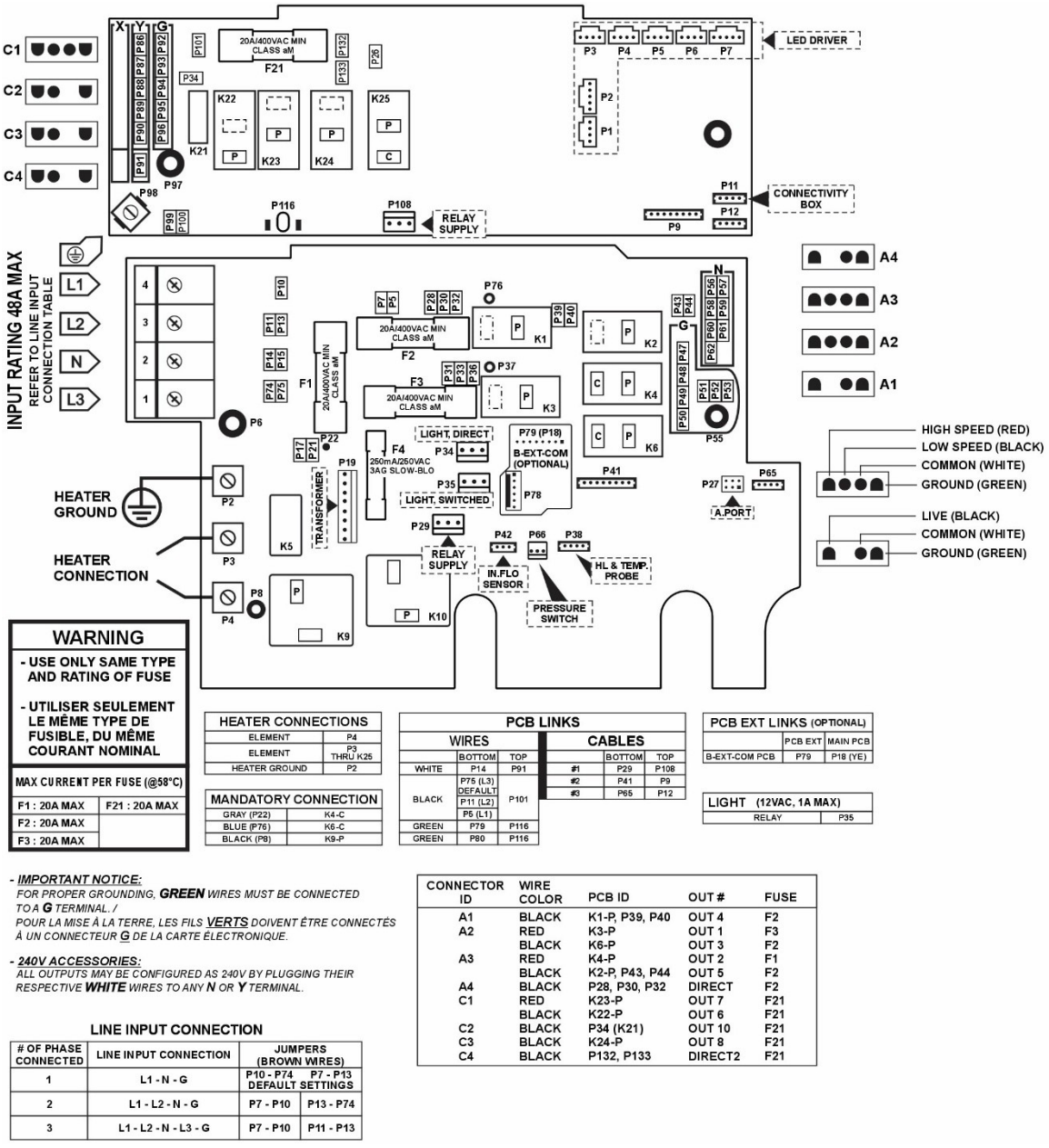
*** ALL OUTPUTS FACTORY SHIPPED AS **240V***

CONNECTOR ID	WIRE COLOR	PCB ID	OUT #	FUSE
A1	BLACK	K1-P, P39, P40	OUT 4	F2
A2	RED	K3-P	OUT 1	F3
	BLACK	K6-P	OUT 3	F3
A3	RED	K4-P	OUT 2	F1
	BLACK	K2-P, P43, P44	OUT 5	F2
A4	BLACK	P28, P30, P32	DIRECT	F2
C1	RED	K23-P	OUT 7	F21
	BLACK	K22-P	OUT 6	F21
C2	BLACK	K25-P	OUT 9	F21
C3	BLACK	K24-P	OUT 8	F21
C4	BLACK	P132	DIRECT	F21

Typical wiring diagram. OEMs may have a different connection scheme. Refer to the wiring diagram inside the unit cover.

3.3.2 Connecting high voltage accessories: European model Gecko powerbox RT

For the connection to the 0.250-inch terminals, the high voltage accessories must be provided with female quick connect terminals, straight and non-insulated for all types of connections, including the ground. Only 230 V accessories may be connected to the corresponding terminals of the printed circuit of Gecko powerbox RT. Refer to the wiring diagram inside the unit cover for correct connections. Note that all female terminals must be correctly and completely seated on the printed circuit terminals for proper current ratings.



WARNING

- USE ONLY SAME TYPE AND RATING OF FUSE
- UTILISER SEULEMENT LE MÊME TYPE DE FUSIBLE, DU MÊME COURANT NOMINAL

MAX CURRENT PER FUSE (@58°C)	
F1 : 20A MAX	F21 : 20A MAX
F2 : 20A MAX	
F3 : 20A MAX	

HEATER CONNECTIONS	
ELEMENT	P4
ELEMENT	P3 THRU K25
HEATER GROUND	P2

MANDATORY CONNECTION	
GRAY (P22)	K4-C
BLUE (P76)	K6-C
BLACK (P8)	K9-P

PCB LINKS					
WIRES			CABLES		
	BOTTOM	TOP		BOTTOM	TOP
WHITE	P14	P91	#1	P29	P108
BLACK	P75 (L3) DEFAULT	P101	#2	P41	P9
	P11 (L2)		#3	P65	P12
	P5 (L1)				
GREEN	P79	P116			
GREEN	P80	P116			

PCB EXT LINKS (OPTIONAL)		
	PCB EXT	MAIN PCB
B-EXT-COM PCB	P79	P18 (YE)

LIGHT (12VAC, 1A MAX)	
RELAY	P35

- *IMPORTANT NOTICE:*
  *FOR PROPER GROUNDING, **GREEN** WIRES MUST BE CONNECTED TO A **G** TERMINAL. /*
  *POUR LA MISE À LA TERRE, LES FILS **VERTS** DOIVENT ÊTRE CONNECTÉS À UN CONNECTEUR **G** DE LA CARTE ÉLECTRONIQUE.*
- *240V ACCESSORIES:*
  *ALL OUTPUTS MAY BE CONFIGURED AS 240V BY PLUGGING THEIR RESPECTIVE **WHITE** WIRES TO ANY **N** OR **Y** TERMINAL.*

LINE INPUT CONNECTION

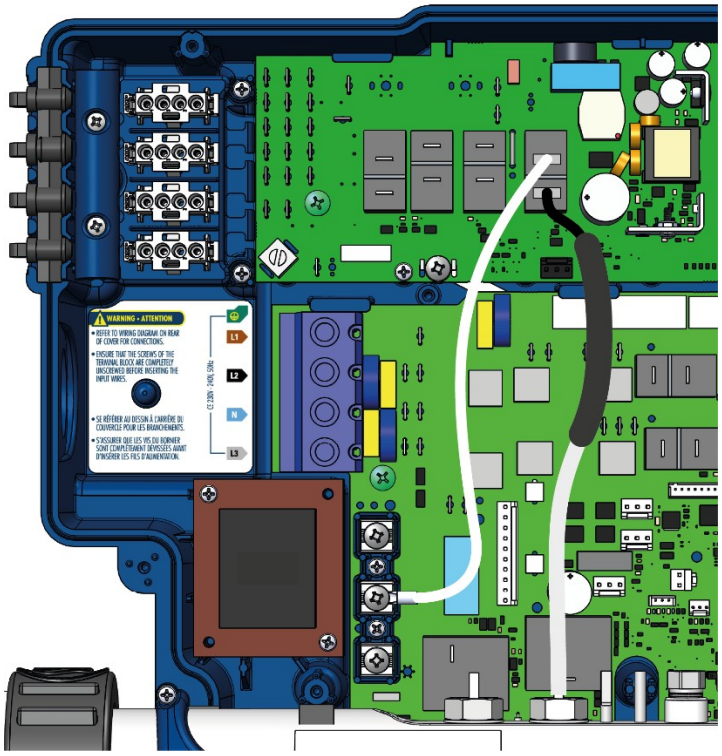
# OF PHASE CONNECTED	LINE INPUT CONNECTION	JUMPERS (BROWN WIRES)	
1	L1 - N - G	P10 - P74 DEFAULT SETTINGS	P7 - P13 DEFAULT SETTINGS
2	L1 - L2 - N - G	P7 - P10	P13 - P74
3	L1 - L2 - N - L3 - G	P7 - P10	P11 - P13

CONNECTOR ID	WIRE COLOR	PCB ID	OUT #	FUSE
A1	BLACK	K1-P, P39, P40	OUT 4	F2
A2	RED	K3-P	OUT 1	F3
	BLACK	K6-P	OUT 3	F2
A3	RED	K4-P	OUT 2	F1
	BLACK	K2-P, P43, P44	OUT 5	F2
A4	BLACK	P28, P30, P32	DIRECT	F2
C1	RED	K23-P	OUT 7	F21
	BLACK	K22-P	OUT 6	F21
C2	BLACK	P34 (K21)	OUT 10	F21
C3	BLACK	K24-P	OUT 8	F21
C4	BLACK	P132, P133	DIRECT2	F21

Typical wiring diagram. OEMs may have a different connection scheme. Refer to the wiring diagram inside the unit cover.

3.3.3 Optional Heater connection: European model Gecko powerbox RT-v2flx

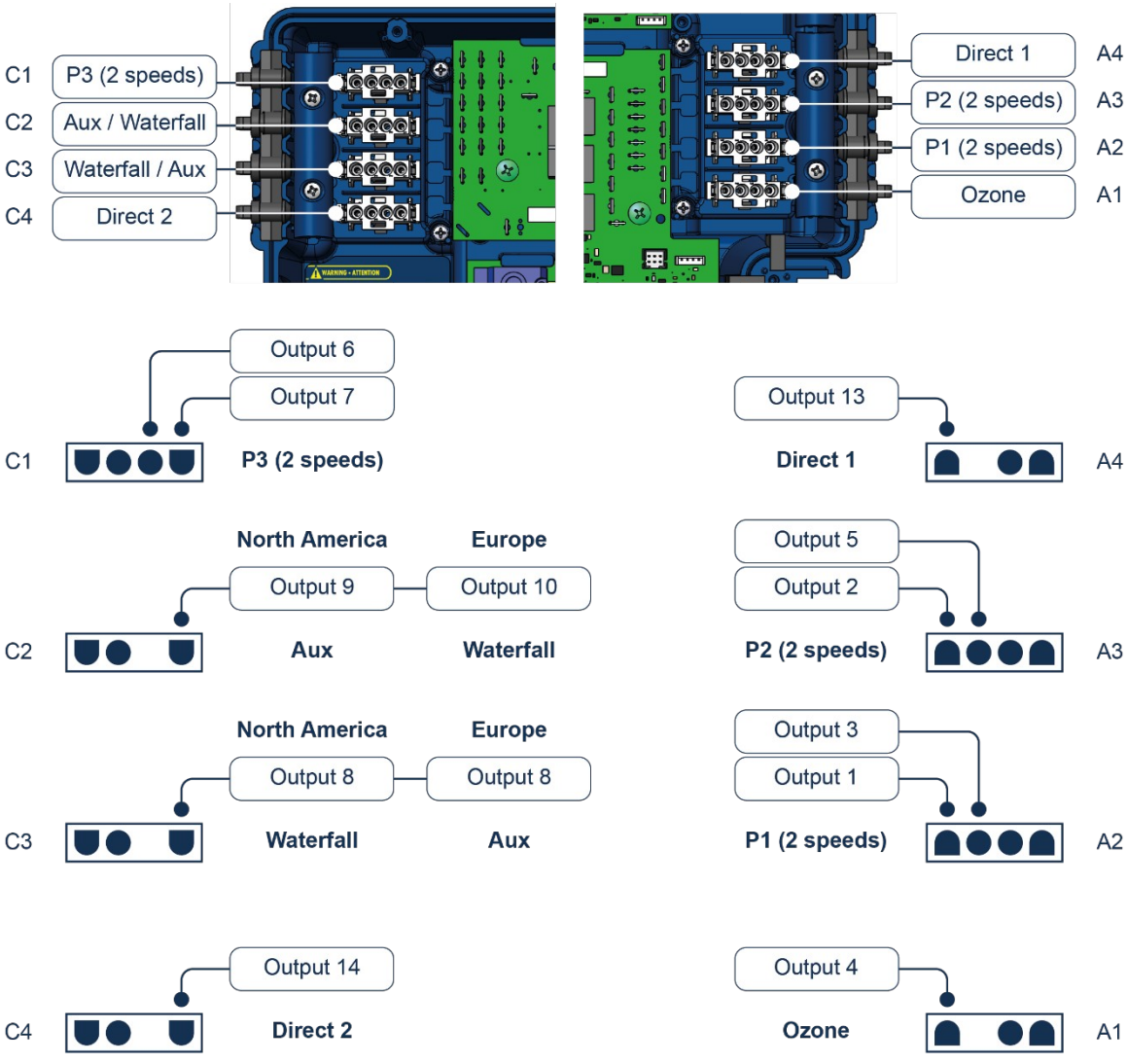
The heater neutral connection goes through a relay on the upper printed board. Adjustment would be required in the accessories mapping.



Contact your account manager for more details.

3.3.4 AMP output connectors and typical accessories

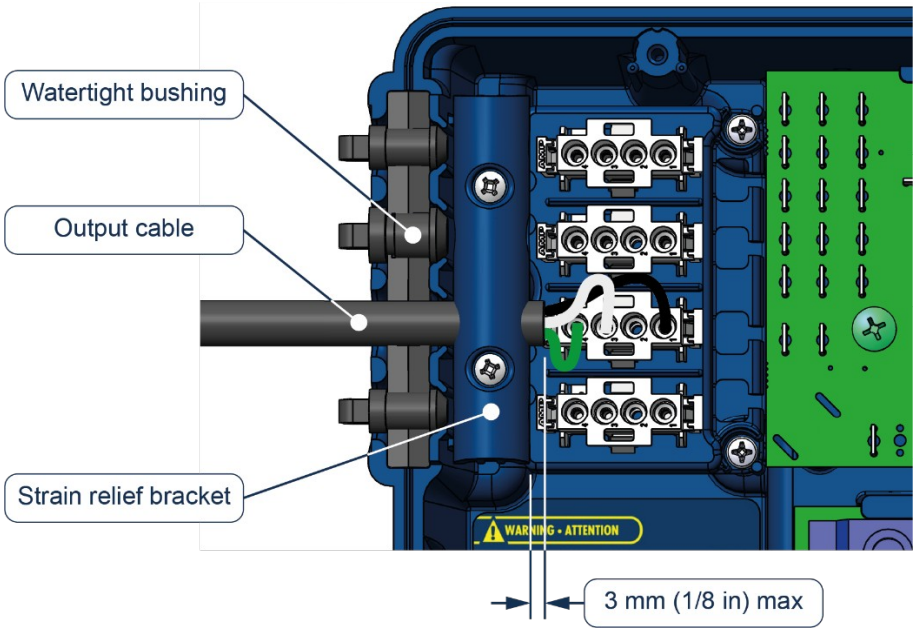
OEMs may have different accessories. Refer to the wiring diagram provided for each configurations (provided to Spa Manufacturers only).

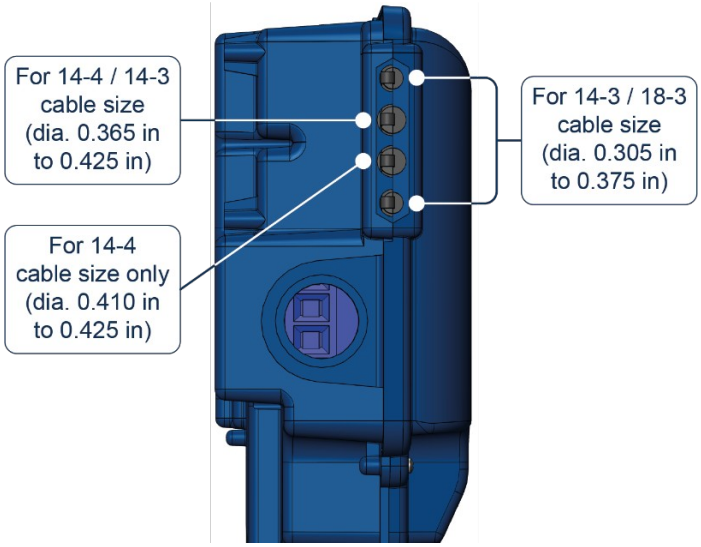


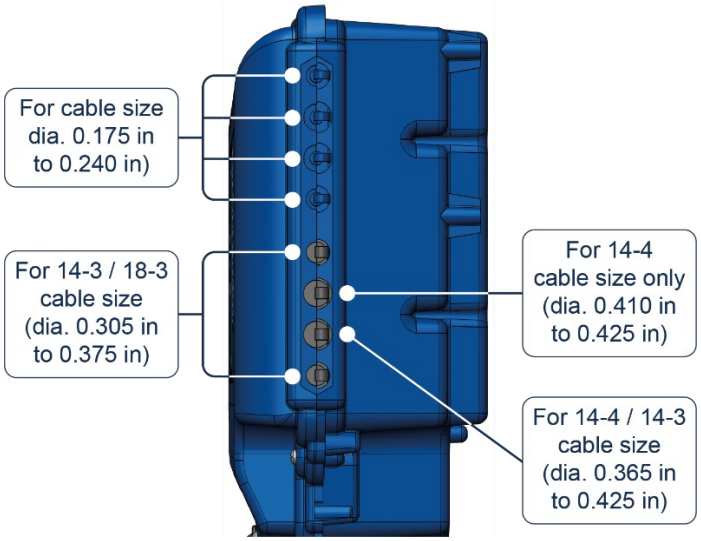
3.3.5 Completing the installation

Once all cables of high voltage accessories are routed through the openings provided for this purpose on each sides of the enclosure of the control system, you can replace the strain relief brackets.

Replace the cover. Do not over tighten cover screws (torque to 8 in.lb max (0.9 N.m)
The cable jacket must not exceed the strain relief bracket more than 1/8" (3 mm).




For 14-4 / 14-3 cable size (dia. 0.365 in to 0.425 in)
For 14-4 cable size only (dia. 0.410 in to 0.425 in)
For 14-3 / 18-3 cable size (dia. 0.305 in to 0.375 in)


For cable size dia. 0.175 in to 0.240 in)
For 14-3 / 18-3 cable size (dia. 0.305 in to 0.375 in)
For 14-4 cable size only (dia. 0.410 in to 0.425 in)
For 14-4 / 14-3 cable size (dia. 0.365 in to 0.425 in)

4. Wiring

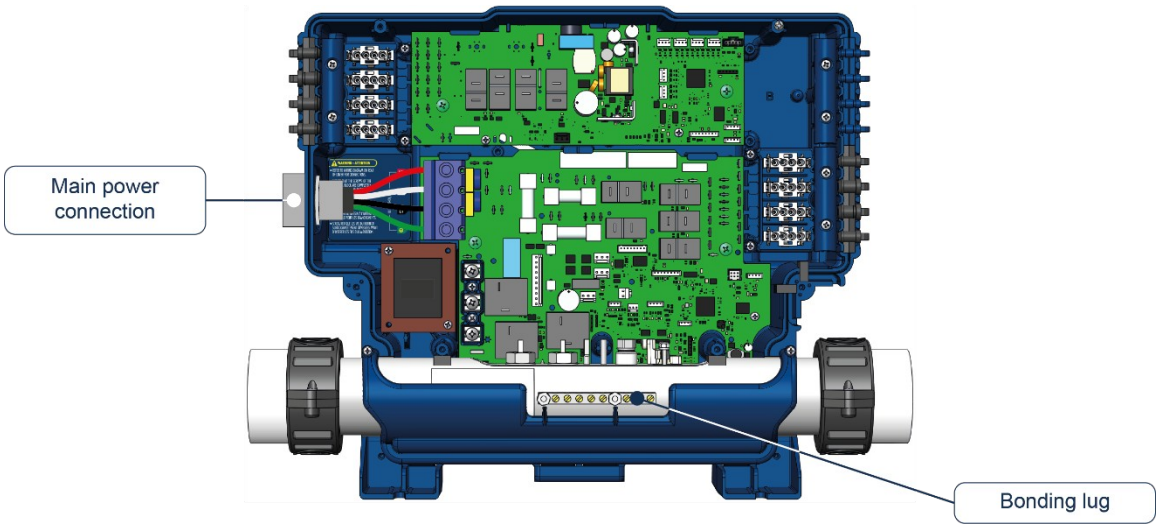
4.1 Completing the installation

A special PP-1 splitter can be ordered (Part #: 9920-401369) and used to split an output into 2 parallel outputs (i.e. a single output could be used to drive two accessories like an ozonator and a UV generator, or a CP). Both accessories driven must be of the same operating voltage (120 V or 240 V).

5. Electrical wiring

5.1 Electrical wiring : all models

⚠ WARNING
Disconnect power before starting electrical work.
Wiring must be completed by a qualified electrician and must be done in accordance with the local electrical code.



To complete the electrical connections of our Gecko powerbox RT control system you will need a Phillips screwdriver and a flat-head screwdriver.

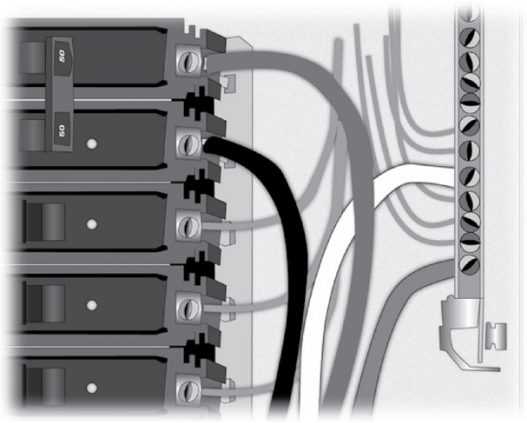
Remove the screws from the system control lid and remove it.

Remove 5 1/2" (142 mm) of cable insulation.

Strip away 1" (25 mm) of insulation from each wire.

Pull the cable through the cutout of the box and secure it with a NPT strain relief* (hole diameter 1,335" [34,42 mm]). Ensure that the NPT strain relief clamps around the outer sheath of the cable.

* For CE use an IEC certified plastic bushing that will maintain the IPX5 rating.



⚠ WARNING

For units for use in other than single-family dwellings, a clearly labeled emergency switch shall be provided as part of the installation.
The switch shall be readily accessible to the occupants and shall be installed at least 5' (1.52 m) away, adjacent to, and within sight of the unit.

This product must always be connected to a circuit protected by a ground fault interrupter.

Proper wiring of the electrical service box, GFCI and Y Series terminal block is essential!

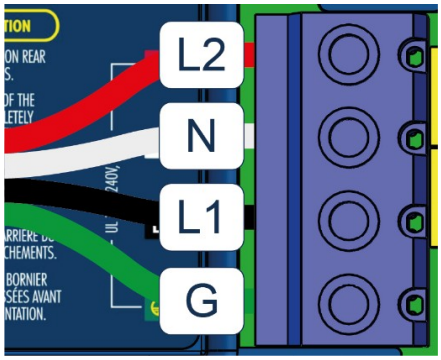
Check your electrical code for local regulations. Only copper wire should be used, never aluminum.

Disposal of the product
The appliance (or the product) must be disposed of separately in accordance with the local waste disposal legislation in force.

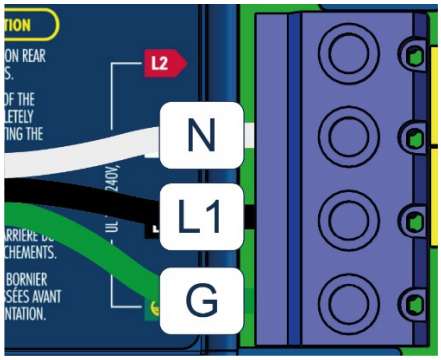
5.2 Electrical wiring: North Amercian model Gecko powerbox RT

Refer to wiring diagram in the enclosure box lid for more information.

240 V (4 wires)



120 V (*3 wires)



* If connected to a 3 wires system, the heat.wave and accessories will not operate at 240 V.

Refer to the section « Connections for 120 V heaters ».

Note: To convert model to a 120 V system, the white (common) accessory wire must be moved. See wiring diagram for details.

Insert each wire into the appropriate socket of the main entry terminal block according to the color code indicated on the sticker. Use a flat-head screwdriver to tighten the screws on the terminal (torque to 36.5 in.lb {4.1N.m} for AWG 2-20 wire*).

After making sure wires are securley connected, push them back into the box and replace the cover. Do not over tighten cover screws (torque to 8 in. lb max {0.9 N.m}).

Connect the bonding conductor to the bonding lug on the front of the spa pack (a grounded electrode conductor should be used to connect the equipment grounding conductors) (see table below for torque value*).

Bonding lug Tightening Torque value

AWG*	in.lb	N.m
8	25	2.8
6-4	35	4.0

*All connections must be made by a qualified electrician in accordance with the National Electrical Code and any applicable state, provincial, or local electrical codes in effect at the time of installation.

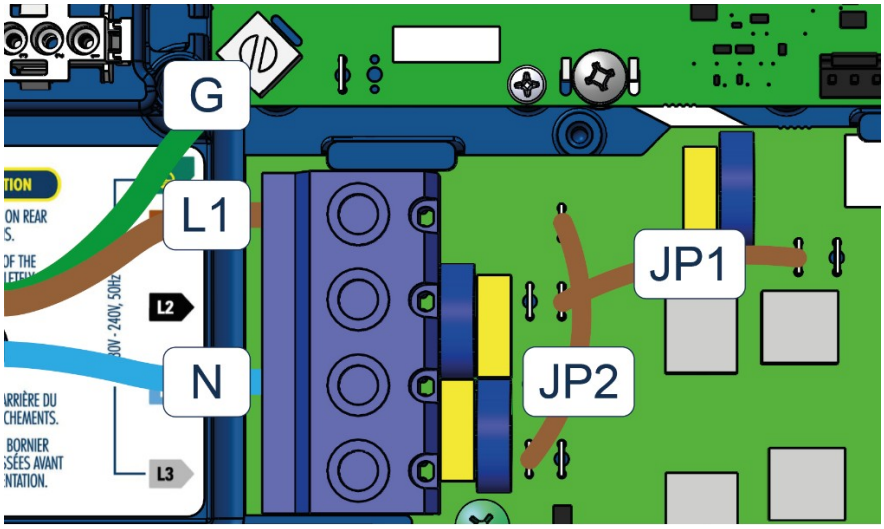
5.3 Electrical wiring: European model Gecko powerbox RT

Refer to wiring diagram in the enclosure box lid for more information.

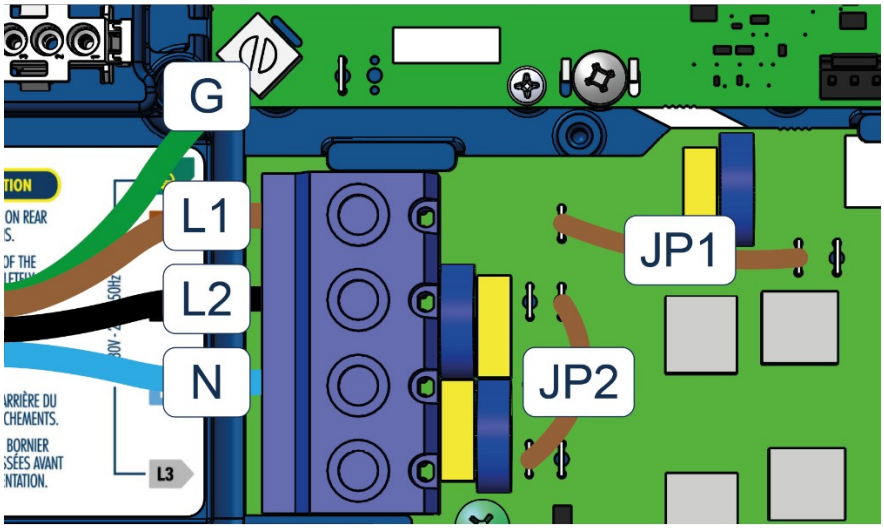
⚠ WARNING

Gecko powerbox RT.CE models must always be connected to a circuit protected by a Residual-Current Device (RCD) having a rated operating residual-current not exceeding 30 mA. Correct wiring of the electrical service box, RCD, and pack terminal block is essential!
Check your electrical code for local regulations. Only copper wire should be used, never aluminum.

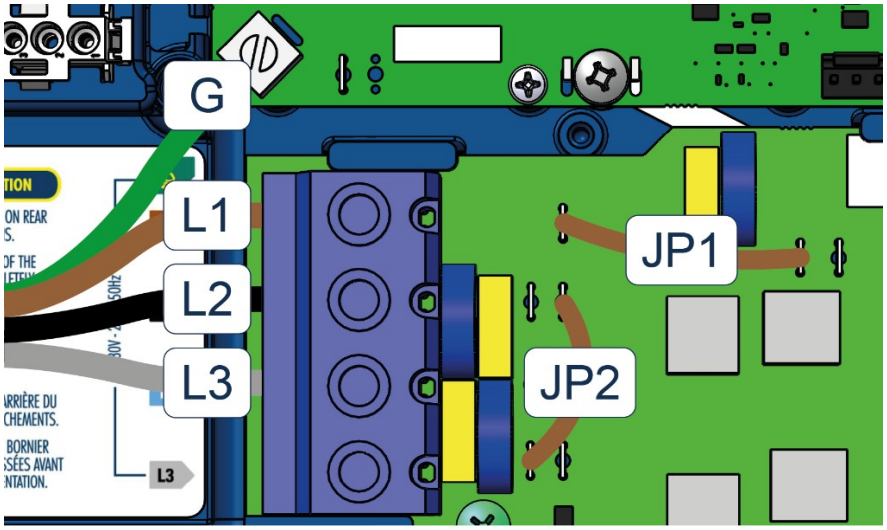
1-phase
Connect JP1 between P7 and P13.
Connect JP2 between P10 and P74.



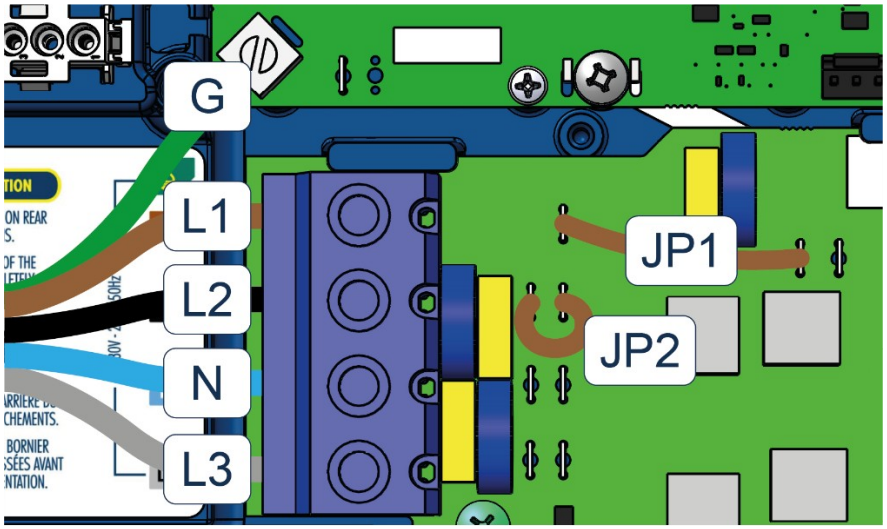
2-phase
Connect JP1 between P7 and P10.
Connect JP2 between P13 and P74.



3-phase Delta (no neutral) L1-L2-L3, 230V line to line voltage
Connect JP1 between P7 and P10.
Connect JP2 between P13 and P74.



3-phase with single neutral L1-L2-L3-N, 400V line to line voltage 230V line to Neutral
Connect JP1 between P7 and P10.
Connect JP2 between P11 and P13.



Insert each wire into the appropriate socket of the main entry terminal block according to the color code indicated on the sticker. Use a flat-head screwdriver to tighten the screws on the terminal (torque to 36.5 in.lb {4.1N.m} for 0.5-35mm² cross-sectional area wire*).

After making sure wires are securely connected, push them back into the box and replace the cover. Do not overtighten cover screws (torque to 8 in. lb max {0.9 N.m}).

Connect the bonding conductor to the bonding lug on the front of the spa pack (a grounded electrode conductor should be used to connect the equipment grounding conductors) (see table below for torque value*).

Bonding lug Tightening Torque value

AWG (mm^2)*	in.lb	N.m
10	25	2.8
16-25	35	4.0

*All connections must be made by a qualified electrician in accordance with the National Electrical Code and any applicable state, provincial, or local electrical codes in effect at the time of installation.

7. Compatible keypads

7.1 List of compatible keypads for Gecko Experience Line control system

For more information on the compatible keypads for your control system refer to the corresponding document.

Main keypads: Gecko touchpad 550, 935, 1025

Auxiliary keypads: Gecko seatcontol 1 & 7

9. Specifications

Environmental ratings	
Operating temperature	32 °F (0 °C) to 140 °F (60 °C)
Storage temperature	−13 °F (−25 °C) to 185 °F (85 °C)
Humidity	Up to 85% RH, non condensing
Level of waterproofing	IPX5

Mechanical	Value
Weight	Up to 12 lbs (5.45 kg)
Dimensions (W × H × D)	19.6" x 14.5" x 5.1" (497 x 368 x 130 mm)

10. Specifications

10.1 Gecko powerbox RT North American electrical specifications

Input rating: 120/240 V nominal (+5/-10 %)
60 Hz, (2 lines required with neutral) 48 A max.

or (Gecko powerbox RE-3 only): 120 V nominal only (+5/-10 %)
60 Hz, (single line with neutral) 16 A max.

Heat.wav rating:

Voltage: 120 V or 240 V, 60 Hz
Wattage: 5,5 kW at 240 V, 4 kW at 240 V or 1 kW at 120 V
Flow rate: Minimum of 18 GPM (68 LPM) is required

Output	Voltage	Maximum current	Typical Device	in.yt-8	in.yt-12
Output 1	120 or 240 V	15 FLA/60 LRA (inrush)	Pump 2 high speed	•	•
Output 2	120 or 240 V	15 FLA/60 LRA (inrush)	Pump 1 high speed	•	•
Output 3	120 or 240 V	15 FLA/60 LRA (inrush)	Pump 2 low speed	•	•
Output 4	120 or 240 V	15 FLA/60 LRA (inrush)	Ozonator	•	•
Output 5	120 or 240 V	15 FLA/60 LRA (inrush)	Pump 1 low speed	•	•
Output 6	120 or 240 V	15 FLA/60 LRA (inrush)	Pump 3 low speed	•*[2]	•
Output 7	120 or 240 V	15 FLA/60 LRA (inrush)	Circulation pump	•	•
Output 8	120 or 240 V	15 FLA/60 LRA (inrush)	Pump 3 high speed		•
Output 9	120 or 240 V	20 FLA/80 LRA (inrush)	Pump 4 high speed	•*[3]	•
Output 10	120 or 240 V	15 FLA/60 LRA (inrush)	Pump 4 low speed	•*[4]	•

Output 11	120 or 240 V	15 FLA/60 LRA (inrush)	Blower		•
Output 12	120 or 240 V	15 FLA/60 LRA (inrush)	Pump 5		•
Direct out 1	120 or 240 V	5 A	Audio/video	•	•
Direct out 2	120 or 240 V	5 A	Audio/video	•	•

Important:

The maximum current for output 2 on fuse F1 may not exceed 20 A.

The maximum current for outputs 4, 5 and Direct 1 on fuse F2 may not exceed 15 A.

The maximum current for outputs 1 and 3 on fuse F3 may not exceed 20 A.

The maximum current for outputs 6 to 8 and Direct 2 on fuse F21 may not exceed 15 A.

The maximum current for outputs 11 and 12 on fuse F22 may not exceed 15 A.

The maximum current for outputs 9 and 10 on fuse F23 may not exceed 20 A.

The total maximum current for the fuses F22 and F23 may not exceed 30 A.

*[2] The typical accessory for the output 6 on a Gecko powerbox RT-8 is a pump 3 high speed.

*[3] It's possible to configure the output 9 as a secondary heater on Gecko powerbox RT-8.

*[4] The output 10 of Gecko powerbox RT-8 is limited to 1A. This output is normally used with
low current accessories.

UL/CSA Standards

UL 1563 Sixth Ed. (2012)

UL File: E182156

CAN/CSA C22.2 No. 218.1-13 (2013)



10.2 Gecko powerbox RT North American electrical specifications

Input rating: 230/240 V nominal (+5/-10 %)
50 Hz, (3 lines required with neutral), three-phased system 16 A Max per phase.

or 230/240 V nominal (+5/-10 %)
50 Hz, (2 lines required with neutral), dual-phase system 20 A Max per phase.

or 230/240 V nominal (+5/-10 %)
50 Hz, (1 line required with neutral), single-phase system
48 A max.

Heat.wav rating:

Voltage: 230/240 V, 50 Hz
Wattage: 3,8 kW at 230 V or 2,8 kW at 230 V
Flow rate: A minimum of 18 GPM (68,1 LPM) is required

Output	Voltage	Maximum current	Typical Device	in.yt-8	in.yt-12
Output 1	120 or 240 V	15 FLA/60 LRA (inrush)	Pump 2 high speed	•	•
Output 2	120 or 240 V	15 FLA/60 LRA (inrush)	Ozonator	•	•
Output 3	120 or 240 V	15 FLA/60 LRA (inrush)	Pump 2 low speed	•	•
Output 4	120 or 240 V	15 FLA/60 LRA (inrush)	Pump 1 high speed	•	•
Output 5	120 or 240 V	15 FLA/60 LRA (inrush)	Pump 1 low speed	•	•
Output 6	120 or 240 V	15 FLA/60 LRA (inrush)	Pump 3 low speed	•*[1]	•
Output 7	120 or 240 V	15 FLA/60 LRA (inrush)	Circulation pump	•	•
Output 8	120 or 240 V	15 FLA/60 LRA (inrush)	Pump 3 high speed		•
Output 9	120 or 240 V	20 FLA/80 LRA (inrush)	Pump 4 high speed	•*[2]	•
Output 10	120 or 240 V	15 FLA/60 LRA (inrush)	Pump 4 low speed	•*[3]	•

Output 11	120 or 240 V	15 FLA/60 LRA (inrush)	Blower		•
Output 12	120 or 240 V	15 FLA/60 LRA (inrush)	Pump 5		•
Direct out 1	120 or 240 V	5 A	Audio/video	•	•
Direct out 2	120 or 240 V	5 A	Audio/video	•	•

Important:

The maximum current for output 2 and heater output on fuse F1 may not exceed 20A.

The maximum current for outputs 4, 5 and direct 1 on fuse F2 may not exceed 20A.

The maximum current for outputs 1 and 3 on fuse F3 may not exceed 20A.

The maximum current for outputs 6 to 8 and direct 2 on fuse F21 may not exceed 20A.

The maximum current for outputs 11 and 12 on fuse F22 may not exceed 20A.

The maximum current for outputs 9 and 10 on fuse F23 may not exceed 20A.

The total maximum current for the fuses F22 and F23 may not exceed 30 A.

*[2] The typical accessory for the output 6 on a Gecko powerbox RT-8 is a pump 3 high speed.

*[3] It's possible to configure the output 9 as a secondary heater on Gecko powerbox RT-8.

*[4] The output 10 of Gecko powerbox RT-8 is limited to 1A. This output is normally used with low current accessories.

European and international standards

IEC 60335-1: 2010

IEC 60335-2-60: 2002, A1: 2004, A2: 2008

EN 60335-2-60: 2003, A1: 2005, A2: 2008, A11: 2011, A12: 2010

EN 60335-1: 2012

EN 62233: 2008

EN55014-1

EN55014-2

EN61000-3-2

EN61000-3-3

10. Appendix

Appendix A– Mechanical Drawing

The following mechanical drawings provide the overall dimensions and mounting details of **Gecko powerbox RT**.

Appendix B – CAD Drawings

3D CAD models are available to validate the fit of Gecko powertbox within the spa design. The following files are available:

- CB-PS.STEP
- CB-PS.x_t
- Extension cable 9920-401783.STEP
- Extension cable 9920-401783.x_t

Appendix C – Part Numbers

The following table lists the Gecko part numbers for Gecko powertbox and its serviceable components.

Part	Description	Gecko part number
Gecko smartbox	Connectivity box (UL: CB-PS; configuration 4USB2-2LSB-6IO-WIBT)	2008-200001
Gecko Wi-Fi/Bluetooth Module	Wireless Wi-Fi/Bluetooth module	120AA0022
Wi-Fi/Bluetooth Module extension cable, 10 ft (3 m)	USB 2.0 extension, Type A-M right-angle to A-F, with mounting holes, 10 ft	9920-401783
In-line fuse holder cable, 2 A	In-line fuse holder cable for the LINE wire	9920-401780
Fuse, 2 A	Replacement fuse for the in-line fuse holder	430AC0286

Packaging: 14 units per box; 336 units per skid.

Appendix D – Acronyms

The following acronyms are used in this document.

Acronym	Definition
CB	Connectivity Box (legacy designation of Gecko smartbox)
CI	Control Interface
EMC	Electromagnetic Compatibility
EMI	Electromagnetic Interference
GPIO	General-Purpose Input/Output
HS	High-Speed (bus)
IP	Ingress Protection
LED	Light-Emitting Diode
LS	Low-Speed (bus)
OEM	Original Equipment Manufacturer
PCB	Printed Circuit Board
QR	Quick Response (code)
USB	Universal Serial Bus
VMS	Variable-speed pump (TODO (R&D): confirm definition)

Appendix E – Approved Accessories

The following Gecko accessories are approved for connection to Gecko powerbox.

Accessory	Interface
Gecko touchpad	HS Bus — USB Type-A and 12 V supply
Gecko Wi-Fi/Bluetooth Module	HS Bus — USB Type-A
Gecko beatbox	HS Bus — USB Type-A
Gecko powerbox	LS Bus — 6-pin Hirose
Gecko waterlab	LS Bus — 6-pin Hirose
Gecko VMS pump	LS Bus — 6-pin Hirose (daisy-chain)
Gecko seatcontrol	GPIO — 4-pin MTA-100
External digital sensors and switches	GPIO — 4-pin MTA-100

Appendix F – Revision History

This appendix records the revision history of this Technical Integration Guide.

Part number	Version	Date	Details	Author
9919-101ZZZ	A	June 2026	Initial Technical Integration Guide, compiled from the R&D Product Integration Guide (Gecko smartbox, V1b1, May 2025).	Nancy Gagnon