Gecko smartbox

Technical Integration Guide



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1. Warnings

⚠️ WARNING: BEFORE INSTALLING OR CONNECTING THE UNIT, PLEASE READ THE FOLLOWING:

1.1 General

- TURN POWER OFF BEFORE SERVICING OR MODIFYING ANY CABLE CONNECTIONS IN THIS UNIT.
- LOW SUPPLY VOLTAGE OR IMPROPER WIRING MAY CAUSE DAMAGE TO THIS CONTROL SYSTEM. READ AND FOLLOW ALL WIRING INSTRUCTIONS WHEN CONNECTING TO POWER SUPPLY.
- 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.
- THIS PACK CONTAINS NO USER SERVICEABLE PARTS. CONTACT AN AUTHORIZED SERVICE CENTER FOR SERVICE.
- THIS CONTROLLER MUST NOT BE INSTALLED IN PROXIMITY OF HIGHLY FLAMMABLE MATERIALS.
- 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.
- ONLY AUTHORIZED GECKO PARTS MUST BE CONNECTED TO THIS DEVICE.
- DO NOT CONNECT ANY ACCESSORY OR DEVICE (INCLUDING LOW VOLTAGE ACCESSORY OR DEVICE) WHILE THE SYSTEM IS TURNED ON.
- 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.

1.2 Maintenance

- IF YOU HAVE PROBLEMS, DO NOT ATTEMPT TO REPAIR THE UNIT YOURSELF. RETURN IT TO YOUR DEALER OR SERVICE STATION FOR SERVICING.
- IF A CABLE IS DAMAGED, THE ENTIRE DEVICE MUST BE IMMEDIATELY REPLACED BY QUALIFIED PERSONNEL.

1.3 Accessory parts

- BE SURE TO USE ONLY THE SPECIFIED ACCESSORY PARTS. USE OF OTHER THAN DESIGNATED PARTS MAY DAMAGE THIS UNIT INTERNALLY OR MAY NOT SECURELY INSTALL THE UNIT IN PLACE. THIS MAY CAUSE PARTS TO BECOME LOOSE RESULTING IN HAZARDS OR PRODUCT FAILURE

1.4 Disposal of the product

- THE APPLIANCE (OR THE PRODUCT) MUST BE DISPOSED OF SEPARATELY IN ACCORDANCE WITH THE LOCAL WASTE DISPOSAL LEGISLATION IN FORCE.



2. Introduction

2.1 Purpose

The purpose of this Technical Integration Guide is to provide spa manufacturers, OEMs, integrators, and service personnel with the technical information required to successfully integrate, install, and service **Gecko smartbox**.

This guide consolidates the hardware requirements, installation guidelines, wiring information, troubleshooting information, and service instructions necessary for a successful product integration.

This document is the primary technical reference for the integration of **Gecko smartbox** into compatible spa systems.

2.2 Intended Audience

This document is intended for:

- OEM spa manufacturers
- Product integration engineers
- Production and assembly technicians
- Electrical installers
- Service technicians
- Technical support personnel

2.3 Scope

This Technical Integration Guide covers the complete hardware integration of **Gecko smartbox**, including:

- Technical specifications
- Integration requirements
- Installation guidelines
- Wiring and electrical connections
- Troubleshooting procedures
- Service and replacement procedures

Software applications, firmware release notes and mobile application documentation are covered in their respective product documentation when applicable.

3. Product Overview

3.1 Product Description

Gecko smartbox is the central processing and communication hub for Gecko spa systems. It acts as the logic center for connected components by receiving information, processing programmed logic, determining required actions, and communicating commands to other devices within the system.

In addition to its control functions, **Gecko smartbox** serves as the primary connectivity platform for multiple Gecko accessories and peripheral devices. It provides power distribution, communication interfaces, and integration capabilities to support a complete connected spa ecosystem.

Gecko smartbox simplifies the integration of multiple Gecko devices through a single communication and power distribution platform.

3.2 Key Features

Communication

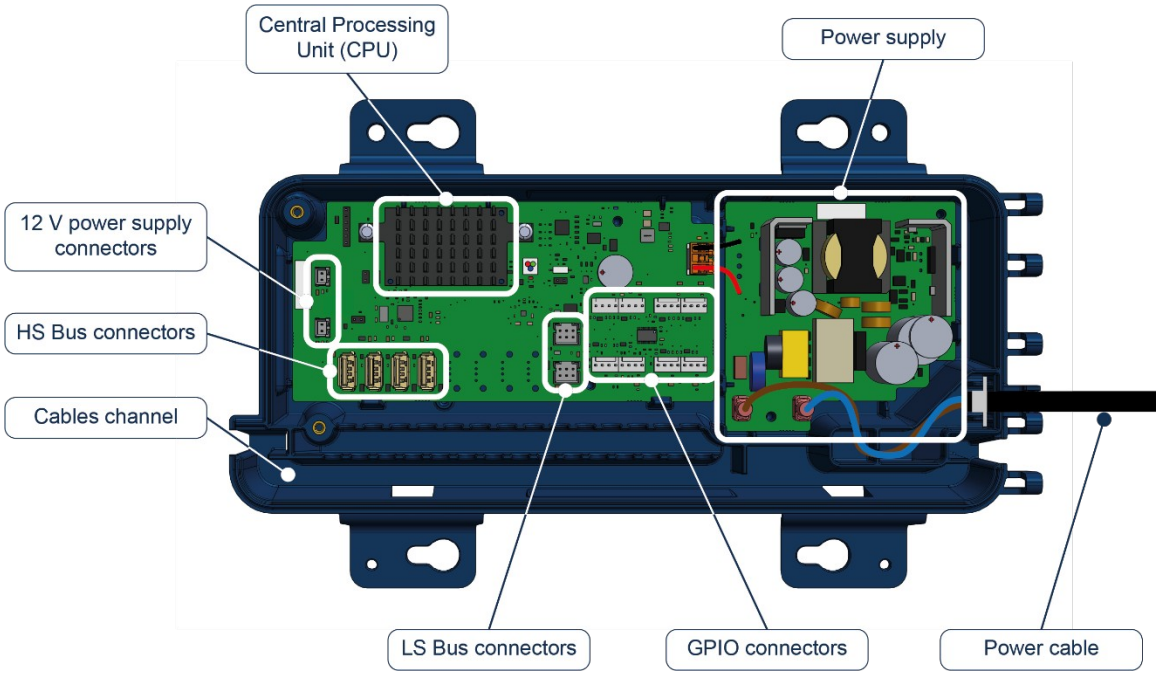
- High-Speed (HS) Bus connectivity
- Low-Speed (LS) Bus connectivity
- General Purpose Input/Output (GPIO) interface support
- WiFi / Bluetooth wireless communication

Power

- 12 V power supply for **Gecko touchpad** keypads

Central processing

- Central processing unit for connected spa components
- Support for monitoring and diagnostic devices
- Support for multiple Gecko accessories and peripherals



3.3 Supported Devices and Accessories

Gecko smartbox supports the following Gecko devices and accessories:

- **Gecko powerbox RE** and **RT** with Gecko lightdriver
- **Gecko touchpad**
- **Gecko seatcontrol**
- **Gecko beatbox**
- **Gecko waterlab**

For easier installation, it is recommended to connect all cables before routing them through the cable chicane. This sequence simplifies cable handling and positioning during installation.

3.4 Available Models

- ID: **2008-200001**
- Model: CB-PS-4USB2-2LSB-6IO-WIBT

4. Technical Specifications

4.1 Environmental Specifications

Parameter	Value
Operating temperature	32 °F (0 °C) to 140 °F (60 °C)
Storage temperature	-13 °F (-25 °C) to 185 °F (85 °C)
Water ingress protection	IPX5

4.2 Physical Specifications

Parameter	Value
Weight	2.09 lb (0.95 kg)
Dimensions (W × H × D)	12.09 × 7.50 × 2.60 in (307 × 191 × 66 mm)

4.3 Electrical Specifications

Parameter	Value
Power source	Supplied by the spa control system (in.ye-V3 or in.yt-V2ECO)
Input rating	120-240 VAC; 650-400 mA; 50-60 Hz
Line protection	2 A fuse (located on the **Gecko smartbox** power supply PCB)
Output voltage	5 V, 12 V
Output power	15 W for 5 V, 20 W for 12 V

4.4 Regulatory Certifications

Region	Standard(s)
Canada	CSA C22.2 No. 218.1
United States	UL 1563
Europe	IEC 60335-2-60:2017 for use in conjunction with IEC 60335-1:2010, COR1:2010, COR2:2011, AMD1:2013, COR1:2014, AMD2:2016, COR1:2016 IEC 60335-2-60:2017 IEC 60335-1:2010, COR1:2010, COR2:2011, AMD1:2013, COR1:2014, AMD2:2016, COR1:2016 EN IEC 60335-2-60:2023 + A11:2023 EN 60335-1:2012 + A11:2014 + A13:2017 + A1:2019 + A14:2019 + A2:2019 + A15:2021 + A16:2023 BS EN IEC 60335 2 60:2023 + A11:2023 BS EN 60335 1:2012 + A11:2014 + A13:2017 + A1:2019 + A14:2019 + A2:2019 + A15:2021 + A16:2023
Australia / New Zealand	AS/NZS 60335.2.60:2018 AS/NZS 60335.1:2020+A1:2021
EMI / EMC	FCC part 15 subpart B ICES-003 Issue 7 (2020) EN IEC 55014-1 (2021) EN IEC 55014-2 (2021)

5. Installation Guidelines

5.1 Integration Requirements

Select and validate the installation location before mounting **Gecko smartbox**. The location must meet the requirements described in the following subsections.

5.1.1 Environmental Requirements

Gecko smartbox must be located beneath the skirt of the spa, in an area that is well vented; the temperature around **Gecko smartbox** must never go above 60 °C. Therefore, it is important not to place it in a location where it can be heated by another accessory (for example, near the motor of a pump). Maintain sufficient clearance around the enclosure to allow free air circulation.

5.1.2 Water Intrusion Protection

When installed in the approved orientations, **Gecko smartbox** was tested and found to be waterproof to the IPX5 standard. Here are a few installation tips to help avoid water intrusion in cases where the cover isn't tightened properly:

- Route each cable so that it loops below the cable entry point of the **Gecko smartbox**. If water travels along a cable, the drip loop prevents it from reaching the unit.





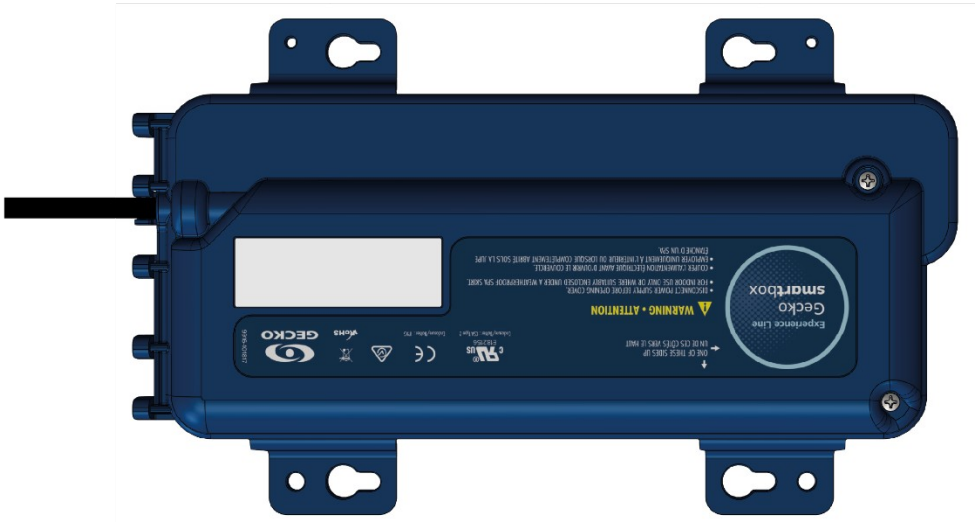
- Install **Gecko smartbox** where water cannot drip directly onto the enclosure. Avoid locations beneath keypad openings or other areas where water may enter the spa skirt.

5.1.3 Approved Orientations

Gecko smartbox can be mounted to the spa frame (wall mounting) or to the back of **Gecko powerbox RE**. Two wall mounting orientations are approved:

- Horizontal, with the cables channel at the bottom.
- Vertical, with the power cable exiting at the bottom.


Experience Line
Gecko
smartbox
WARNING • ATTENTION
GECKO




Experience Line
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smartbox
WARNING - ATTENTION
GECKO


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smartbox



Do not install **Gecko smartbox** in any other orientation or position. Testing has shown that water will penetrate the unit when it is installed in a non-approved orientation or position.

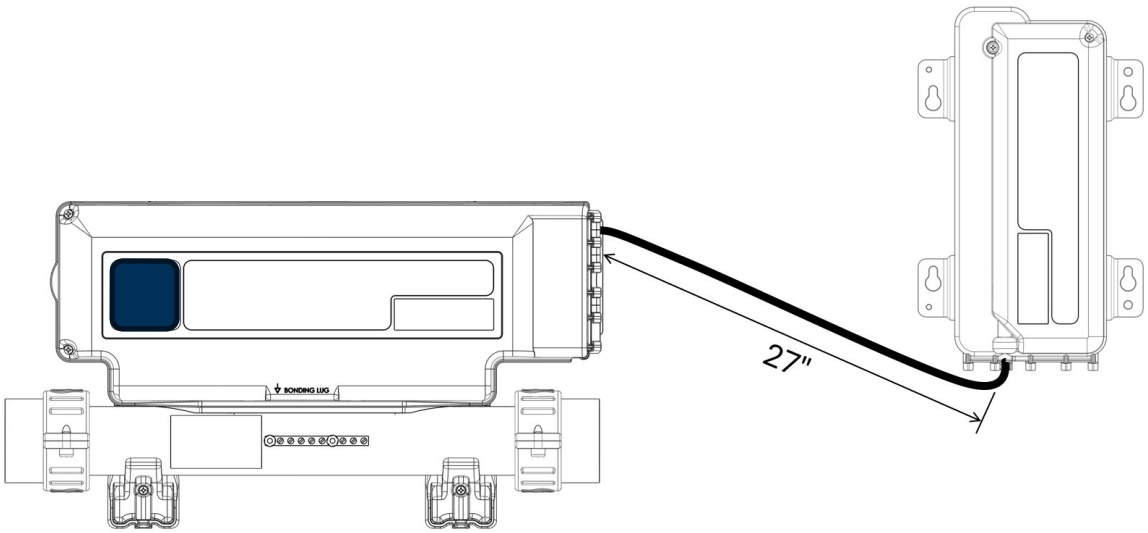
⚠ WARNING: FLOOR MOUNTING (BACK OF THE UNIT FACING THE FLOOR) IS PROHIBITED.



5.1.4 Installation Location (Accessibility, Clearances, etc.)

Gecko smartbox provides up to 14 cable outputs. Install the unit where production and service personnel can easily connect and disconnect accessories. A location that is difficult to reach increases installation and service time.

Gecko smartbox is supplied with a 48 in (1.22 m) power cable, of which 42 in (1.07 m) extends from the unit. Up to 15 in (380 mm) of this cable enters the spa control system.So, install **Gecko smartbox** so that the exit point of its power cable is no more than 27 in (685 mm) from the cable entry point of the spa control system.

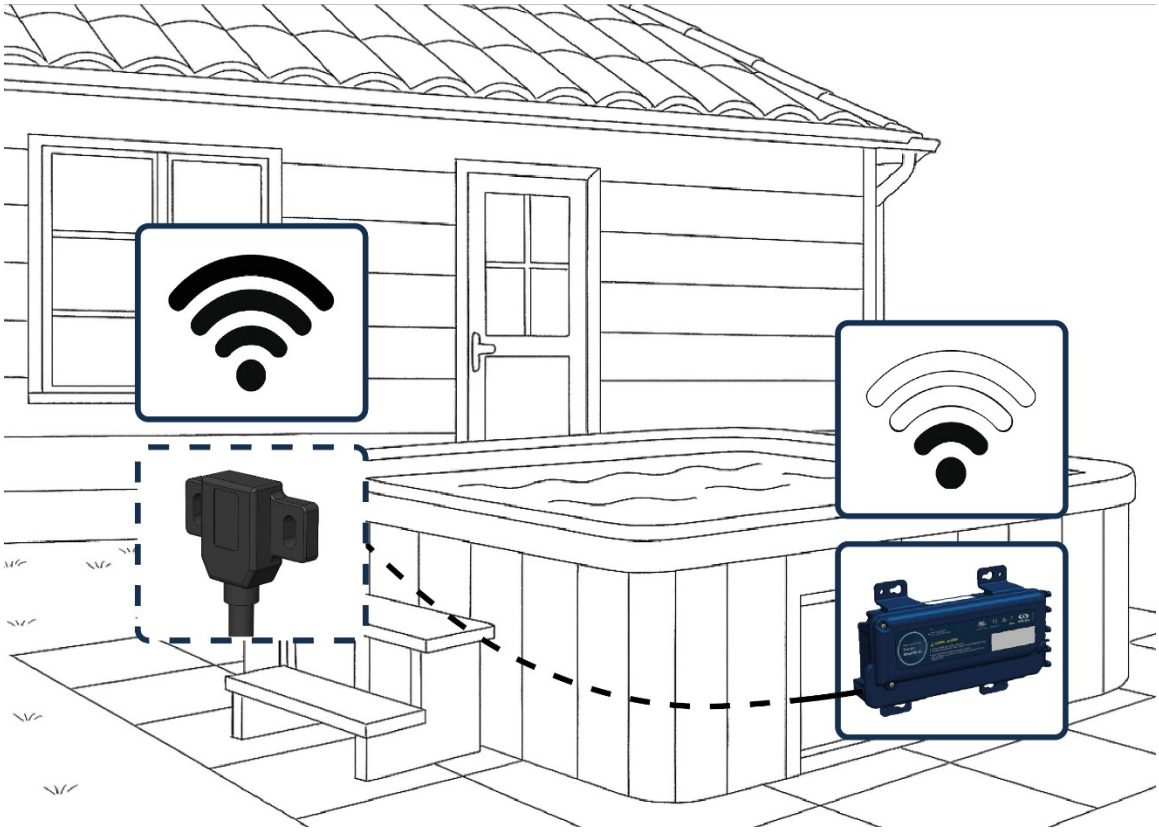


5.1.5 Wireless Communication Considerations

Wireless communication performance depends on the installation environment. Water, metal structures, and insulation materials can significantly reduce signal strength.

To optimize wireless performance with **Gecko smartbox**:

- Install **Gecko smartbox** in a location with the least possible obstruction between the unit and the access point (usually located in the house).
- Avoid installing the unit behind metal barriers or in enclosed metallic compartments.
- If signal quality is insufficient, install the WiFi / Bluetooth dongle provided with **Gecko smartbox** in a more suitable location using the Gecko 10 ft extension cable (*Gecko P/N 9920-401783*).
- Plan the installation so the WiFi / Bluetooth dongle or the Gecko 10 ft extension cable remains accessible for service or relocation if required.



For more information on this subject, please refer to the “WiFi / Bluetooth Dongle Installation Recommendation Guide for Spa Manufacturers”.

5.2 Installation

Read the following instructions for mounting and connecting **Gecko smartbox**.

5.2.1 Required Tools

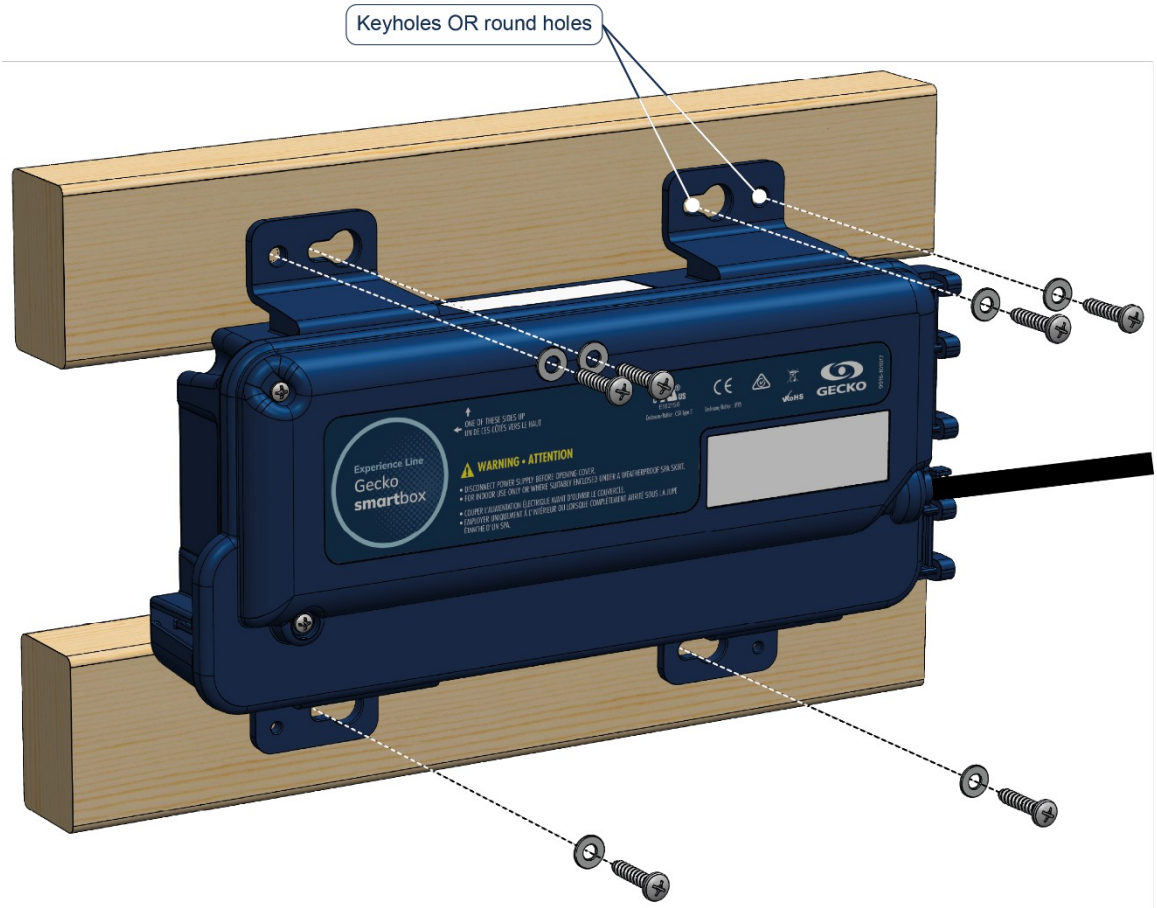
- Adjustable torque screwdriver

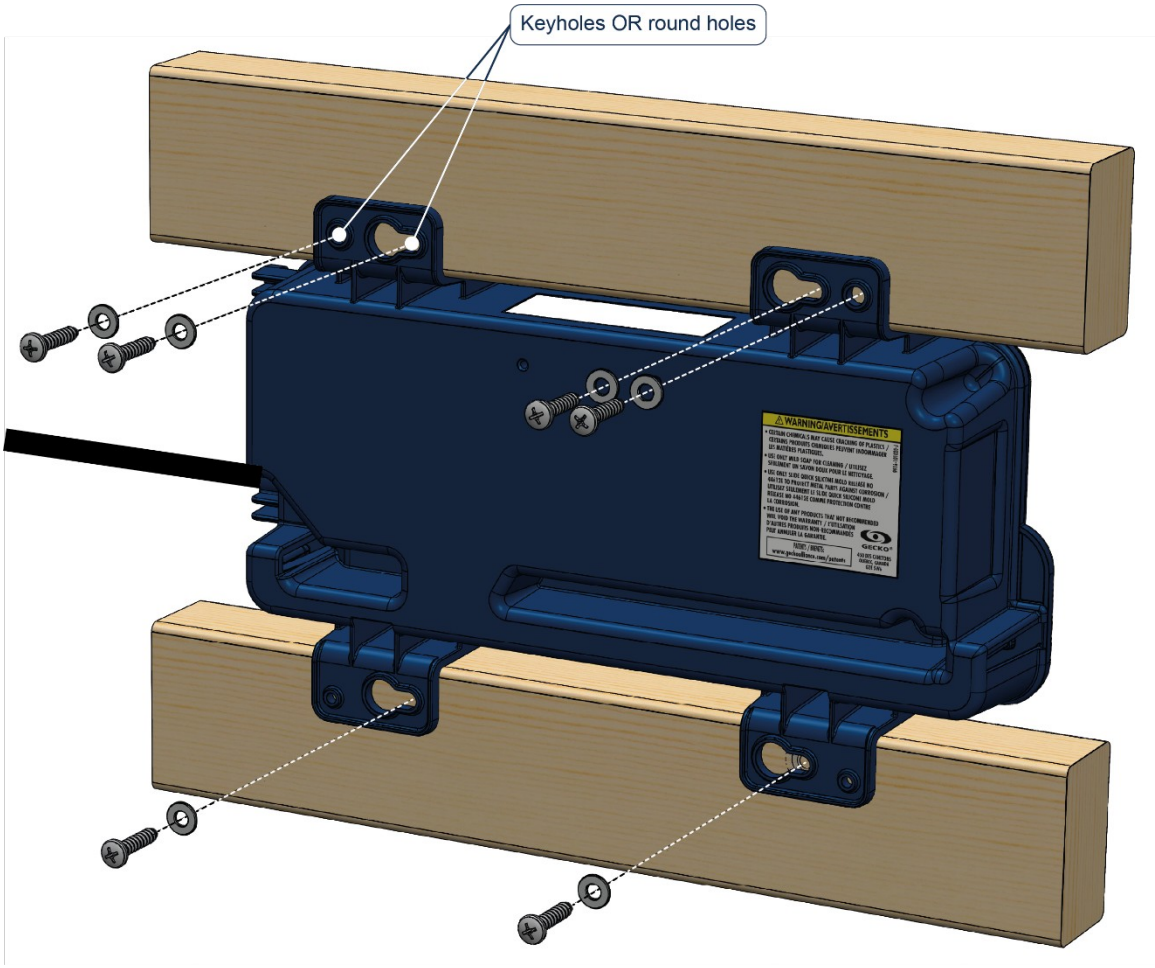
5.2.2 Recommended Mounting Procedure

5.2.2.1 Recommended Wall Mounting Procedure

Gecko smartbox should be attached to the frame of the spa with 4 screws, ideally paired with an appropriate washer. It can also be attached to a metal or plastic bracket firmly attached to the frame of the spa:

- See section "**5.1.3 Approved Orientations**".
- Screw size ranges from #10 to 1/4 in (M5 to M6) can be used.
- We recommend the use of Pan or Truss head screws; avoid using countersunk screws as they will induce stress in the holes of the fixation feet causing potential cracking of the plastic.
- You can use the 4 keyholes for an easier installation/uninstallation of the unit or 2 keyholes on one side + the 2 round holes on the other side to lock the unit in place.
- **Gecko smartbox** can be fixed from the front or the back.
- Min./max. tightening torque to apply to the screws depends on the type of screw used and the type of frame to which the unit will be attached.
- ⚠️ **CAUTION: Apply only the minimum torque required to securely fasten the unit. Overtightening may crack the plastic.**

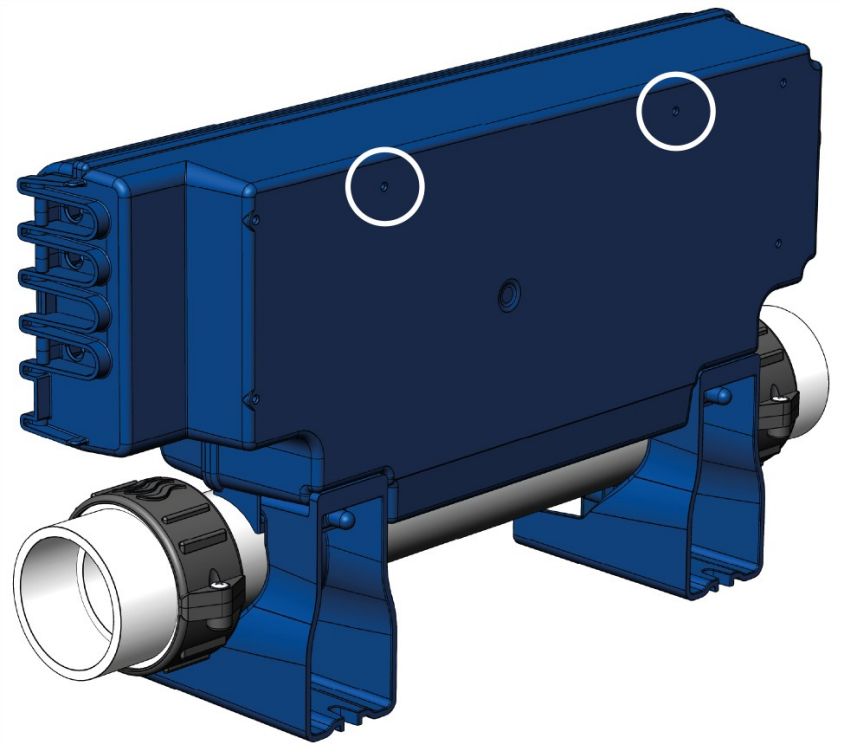

Keyholes OR round holes
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Gecko
smartbox
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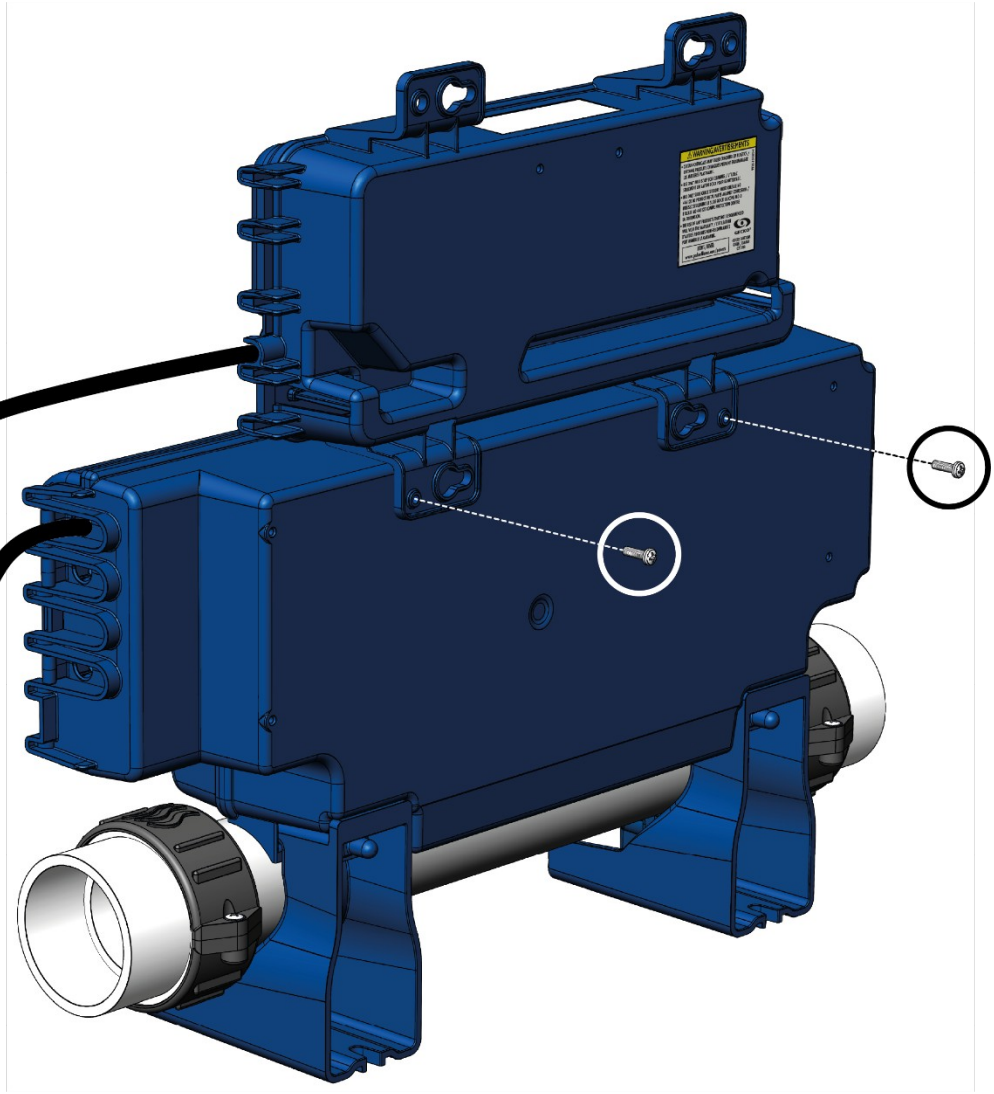


5.2.2.2 Recommended Mounting Procedure to the Back of Gecko powerbox RE

Gecko smartbox can be attached to the back of **Gecko powerbox RE** with 2 self-tapping screws:

- Use self-tapping screws Type B, #6 x 1/2 in to 5/8 in long, Pan or Truss head.
- Avoid using countersunk screws as they will induce stress in the holes of the fixation feet causing potential cracking of the plastic.
- Recommended tightening torque to apply to the screw: 13 lbf*in (1.47 N*m) max.
- ⚠️ **CAUTION: Overtightening may crack the plastic.**





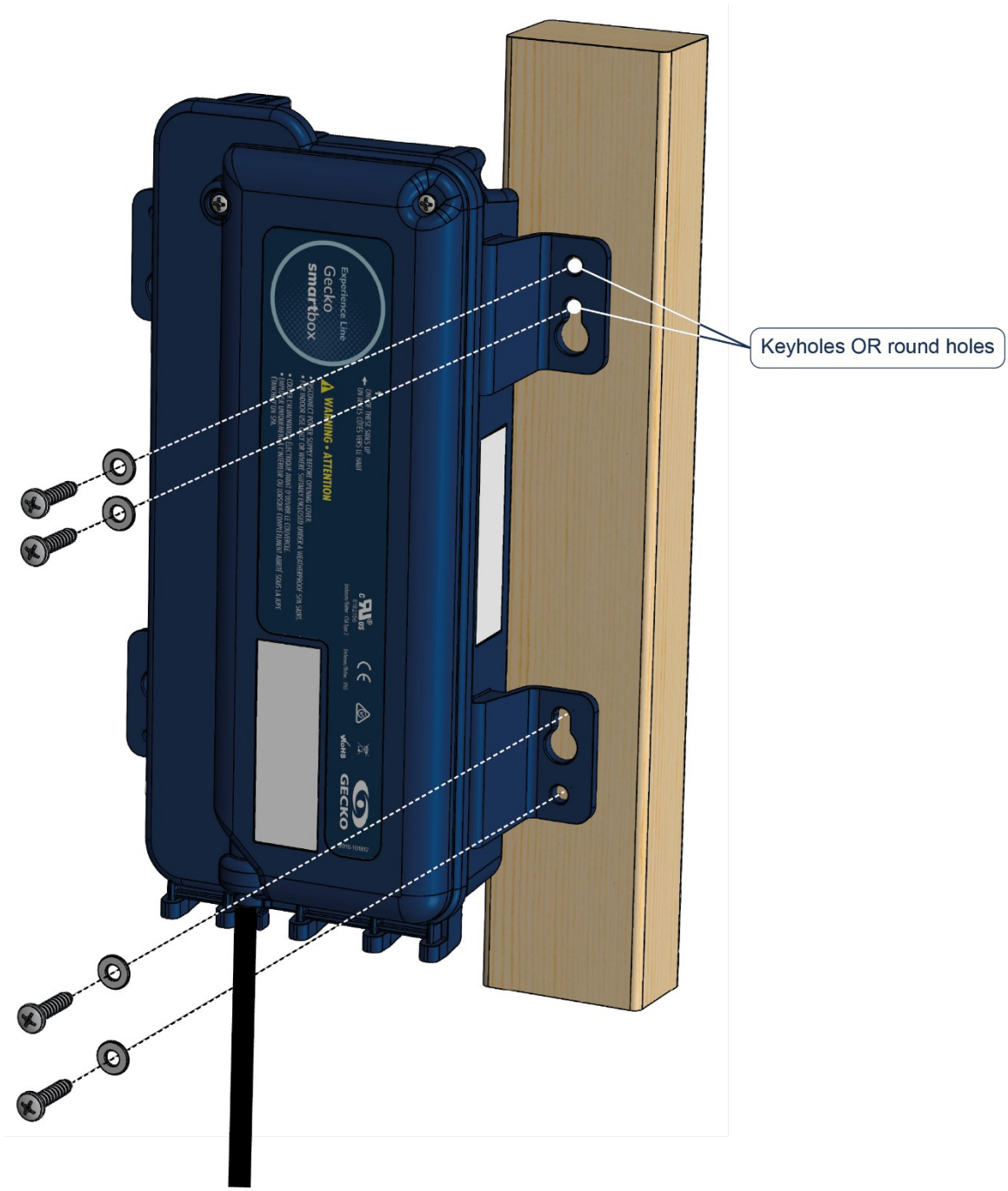
Note: **Gecko smartbox** cannot be attached to the **Gecko powerbox RT**.

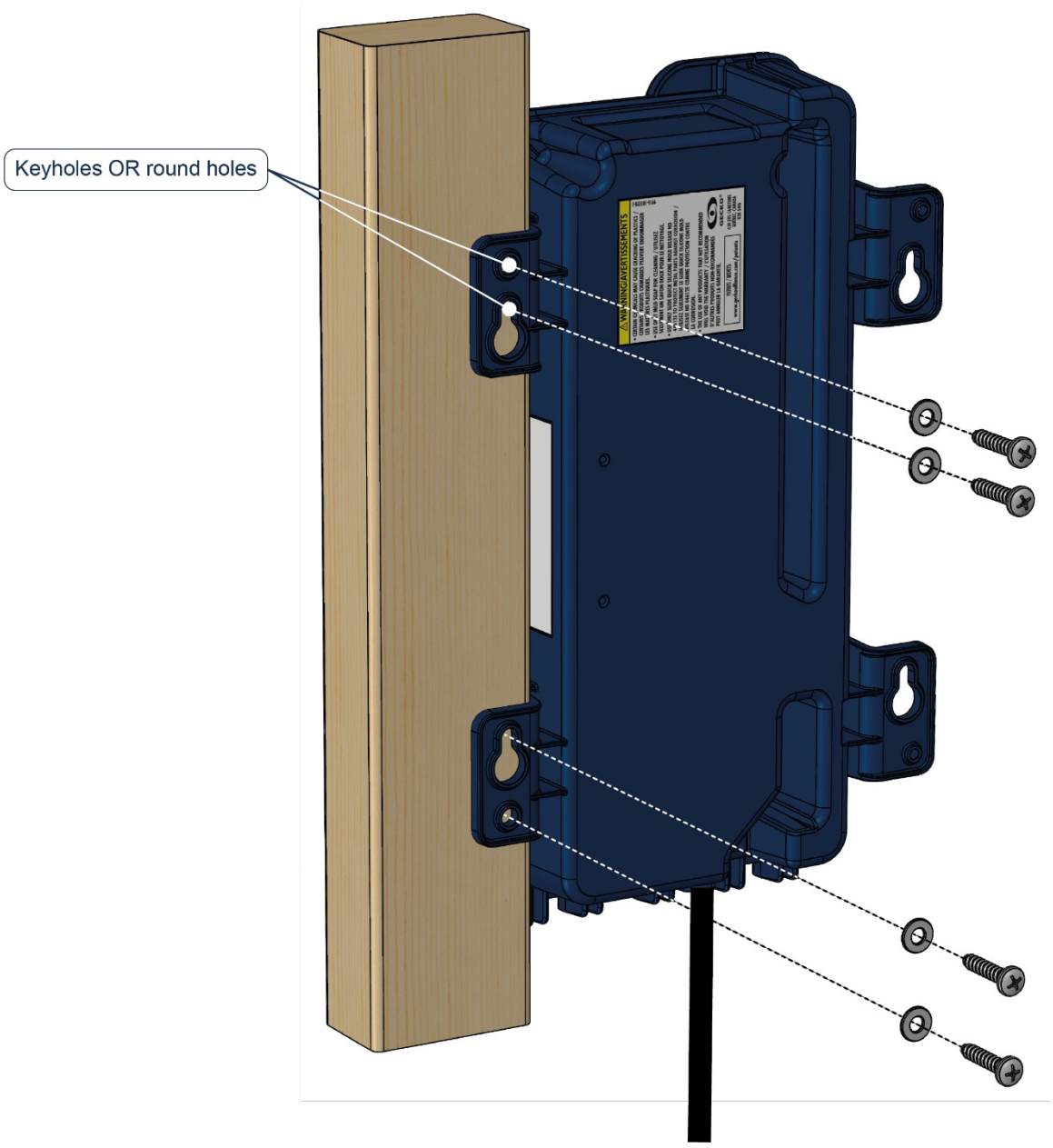
5.2.3 Alternative Mounting Procedure

5.2.3.1 Alternative Wall Mounting Procedure

Gecko smartbox can be attached to the frame of the spa with 2 screws only, ideally paired with an appropriate washer. However, this method will leave the unit more exposed to spa vibrations. It can also be attached with 2 screws only to a metal or plastic bracket firmly attached to the frame of the spa:

- See section "**5.1.3 Approved Orientations**".
- Screw size ranges from #10 to 1/4 in (M5 to M6) can be used.
- We recommend the use of Pan or Truss head screws; avoid using countersunk screws as they will induce stress in the holes of the fixation feet causing potential cracking of the plastic.
- You can use the 2 keyholes for an easier installation/uninstallation of the unit or the 2 round holes to lock the unit in place.
- **Gecko smartbox** can be fixed from the front or the back.
- Min./max. tightening torque to apply to the screws depends on the type of screw used and the type of frame to which the unit will be attached.
- ⚠️ **CAUTION: Apply only the minimum torque required to securely fasten the unit. Overtightening may crack the plastic.**


Keyholes OR round holes


Keyholes OR round holes

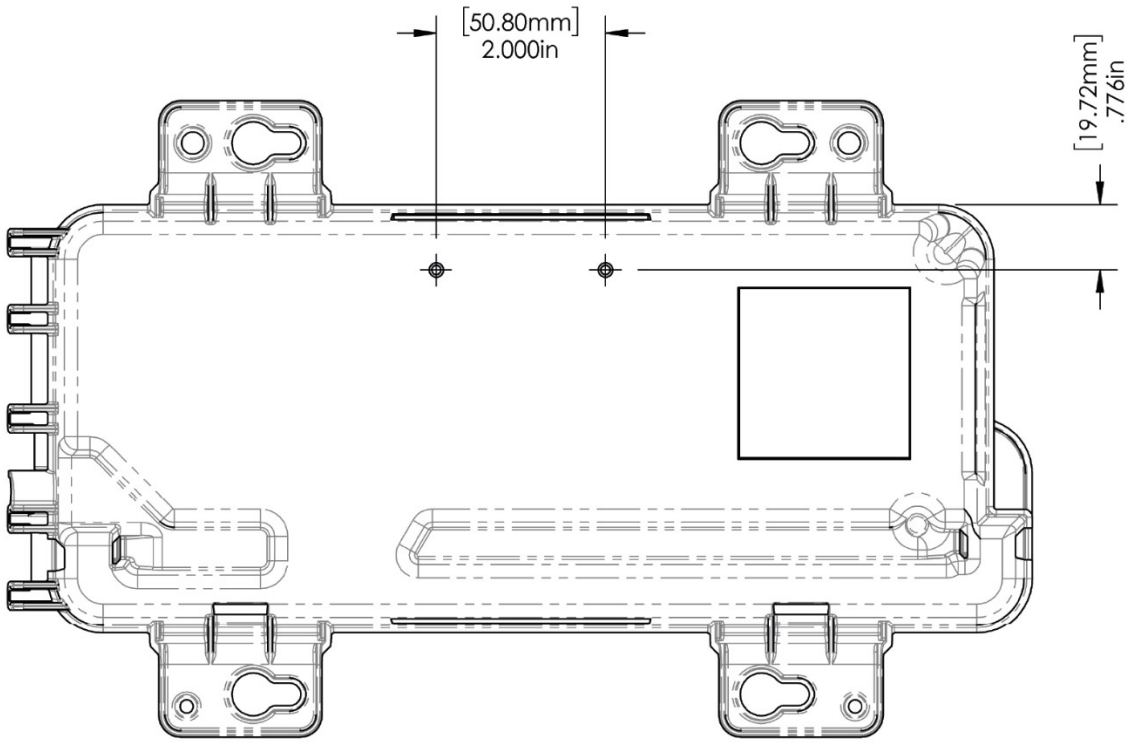
5.2.3.2 Alternative Mounting using Bracket

Gecko smartbox has 2 screws holes provided for the installation of a mounting bracket in case it is not possible to attach the unit to the frame of the spa with the fixation feet. However, this method will leave the unit more exposed to spa vibrations.

Note 1: Mounting bracket not provided by Gecko.

Note 2: *Gecko Wall Mount Bracket Kit – P/N 9920-101474* or *Gecko Z-Bracket Kit – P/N 9920-101478* cannot be used for **Gecko smartbox**.

- The mounting bracket can be fixed to the back of **Gecko smartbox** with 2 self-tapping screws Type B, #6. The length of the screws depends on the mounting bracket thickness.
- The max. engagement length of the screws in the holes provided on the back of **Gecko smartbox** is 1/4 in (6.3 mm).
- Recommended tightening torque to apply to the screw: 13 lbf*in (1.47 N*m) max.
- ⚠️ **CAUTION: Overtightening may crack the plastic.**



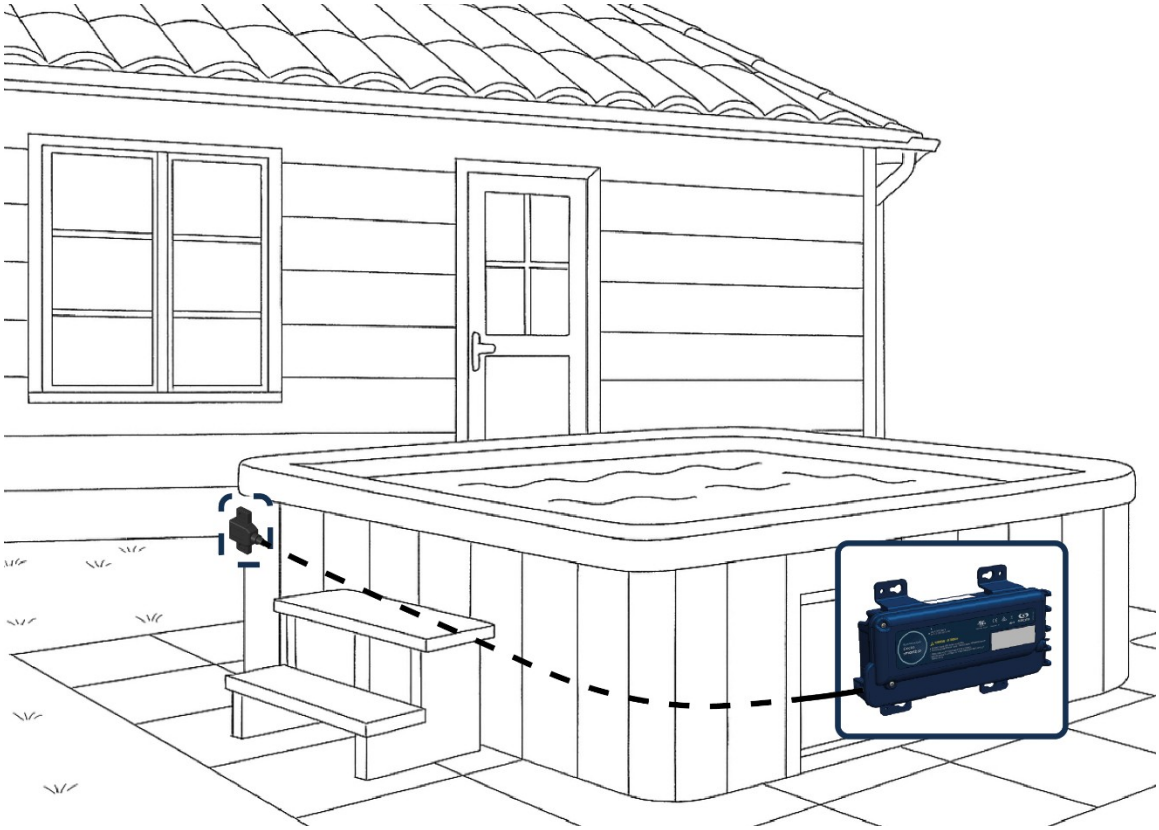
5.2.4 WiFi / Bluetooth Dongle and Extension Cable Mounting Procedure

⚠ WARNING: TURN OFF THE POWER BEFORE OPENING THE COVER.

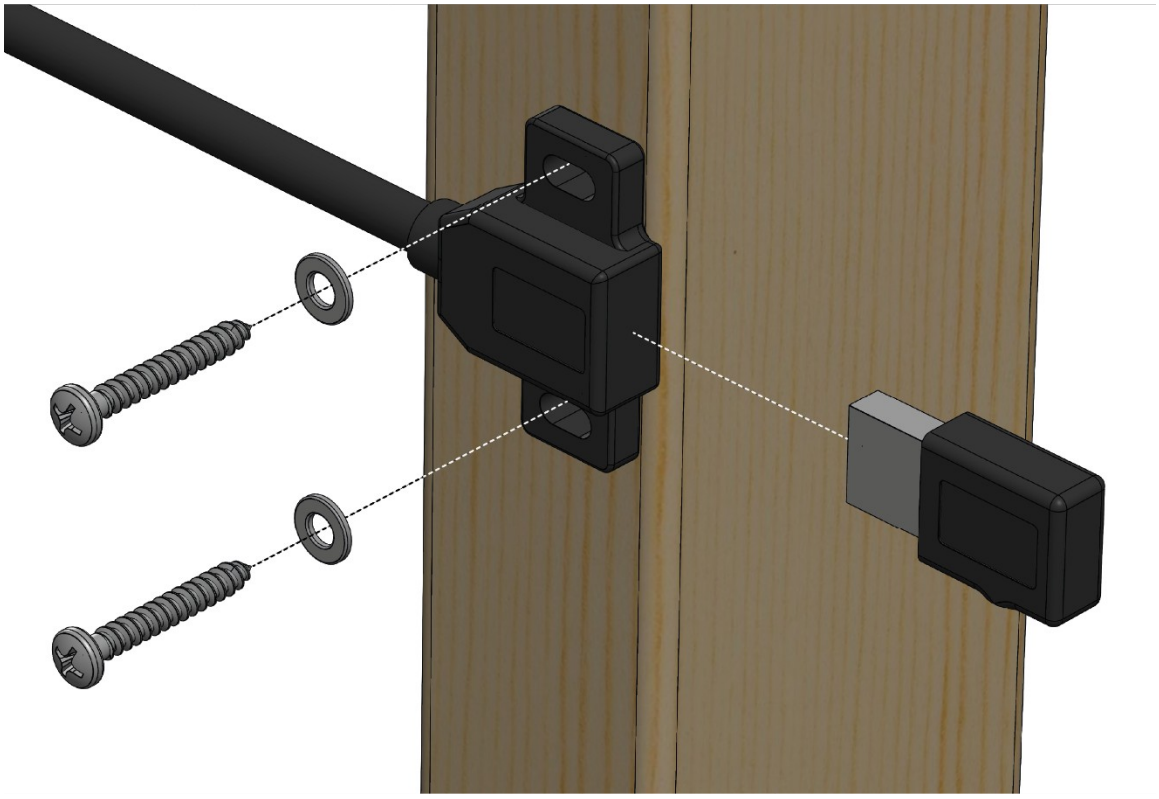
⚠ WARNING: TURN OFF THE POWER BEFORE CONNECTING OR DISCONNECTING THE WIFI / BLUETOOTH DONGLE FROM THE EXTENSION CABLE.

Gecko smartbox is equipped with a WiFi / Bluetooth dongle connected to one of its 4 High Speed (HS) Bus connectors. If **Gecko smartbox** is not ideally oriented for the wireless signal (signal needs to pass around the water basin to reach **Gecko smartbox**), it is possible to disconnect the WiFi / Bluetooth dongle and connect the Gecko 10 ft extension cable (*Gecko P/N 9920-401783*) instead to bring the dongle to a better location:

- The 10 ft extension cable must be located under the spa skirt.
- We recommend locating the extension cable connector on the top corner of the spa that is the closest to the wireless signal (generally the top corner that is the closest to the house):
    - Do not locate it under the water basin.
    - It must not be surrounded by metal.



- It should be attached to the frame of the spa with 2 screws, ideally paired with an appropriate washer. It can also be attached to a plastic bracket firmly attached to the frame of the spa.
    - **It must not be attached to metal frame or metal bracket**, as the wireless signal could be affected by metal.
    - Use #6 (M3.5) screws.
    - We recommend the use of Pan or Truss head screws; avoid using countersunk screws as they will induce stress in the holes of the fixation ears causing potential tearing of the rubber.
    - Min./max. tightening torque to apply to the screws depends on the type of screw used and the type of frame to which the cable will be attached. We recommend applying the minimum torque required to securely fasten the cable.
    - ⚠️ **CAUTION: Overtightening may cause tearing of the rubber.**
    - Provide enough space to be able to connect or disconnect the WiFi / Bluetooth dongle.



5.2.5 Wiring and Connection Procedure

5.2.5.1 Power Supply Connection

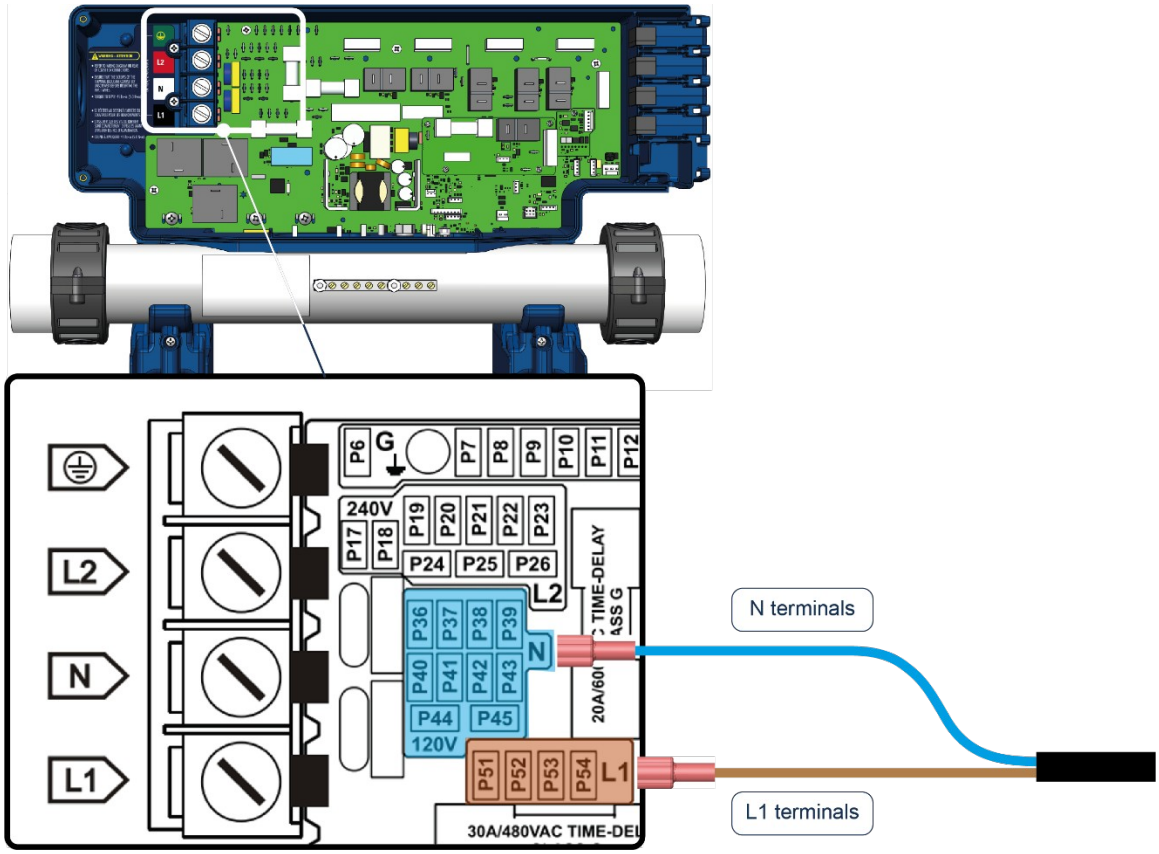
⚠ WARNING: TURN OFF THE POWER BEFORE OPENING ANY DEVICE OR MAKING WIRING CONNECTIONS.

Gecko smartbox is powered from the spa control system **Gecko powerbox RE** or **RT** through a two-wire power cable:

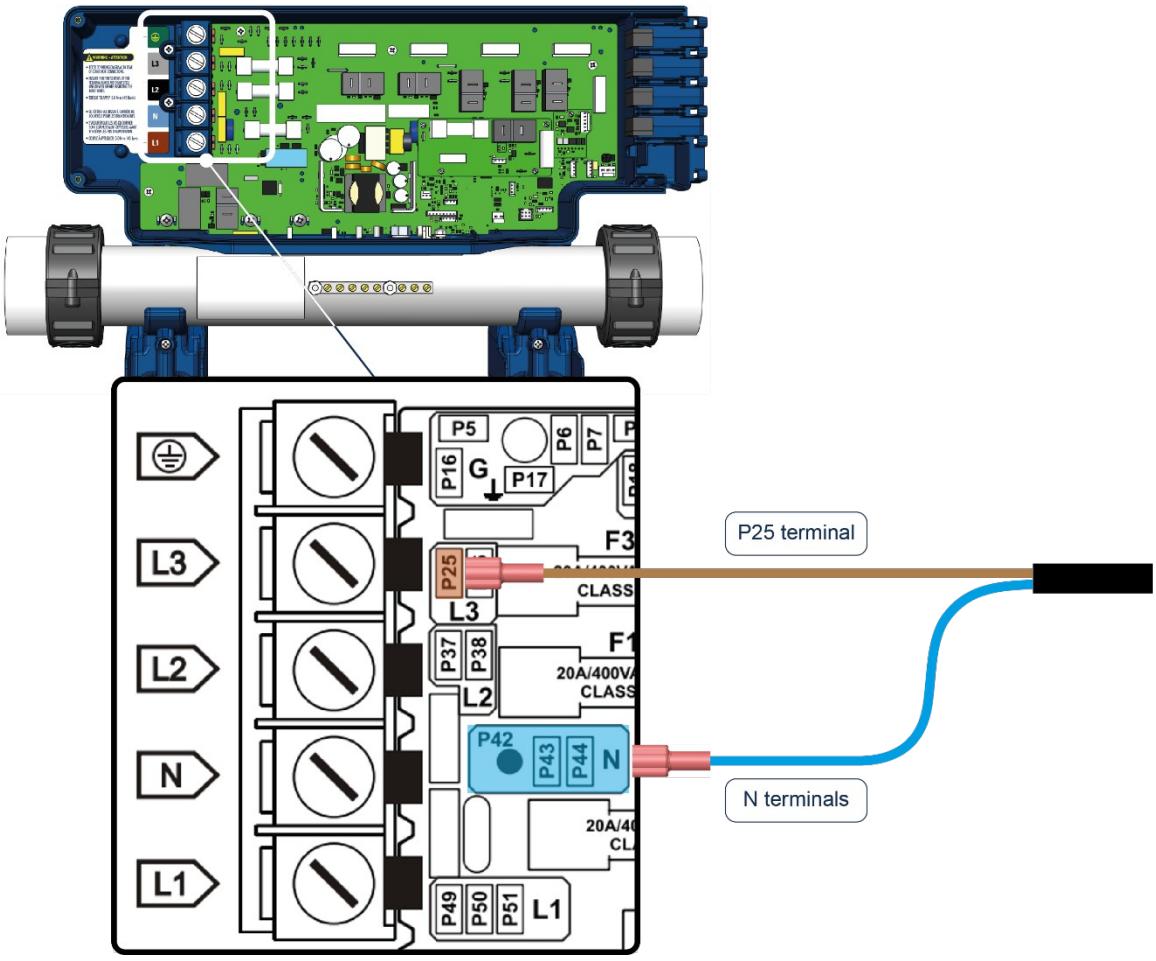
- BROWN wire (LINE)
- BLUE wire (NEUTRAL)

Connect the power cable to the spa control system as described below for the applicable control system model:

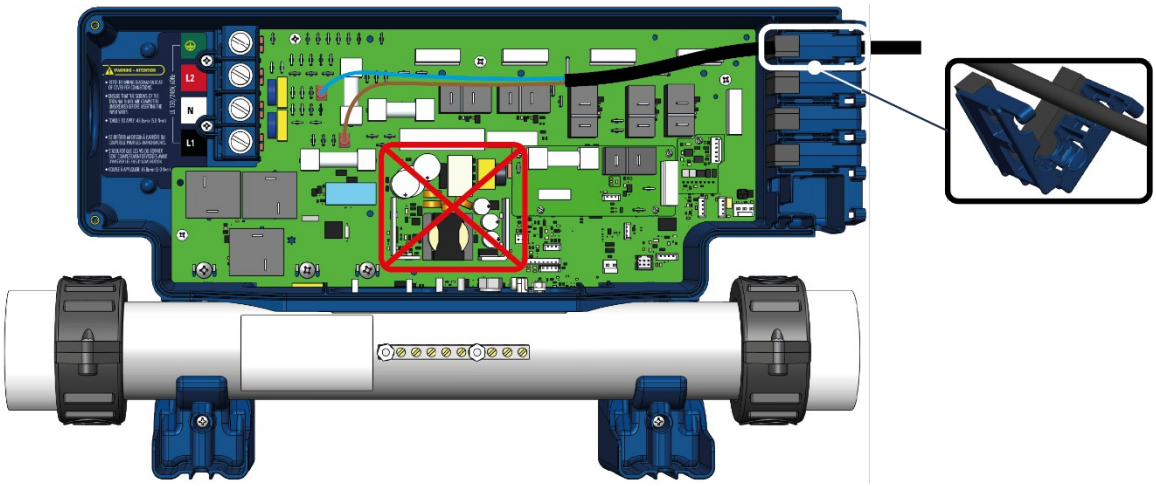
- **Gecko powerbox RE**:
    - **UL (North America)**:
        - Connect the BROWN wire (LINE) to one of the L1 terminals.
        - Connect the BLUE wire (NEUTRAL) to one of the N terminals.



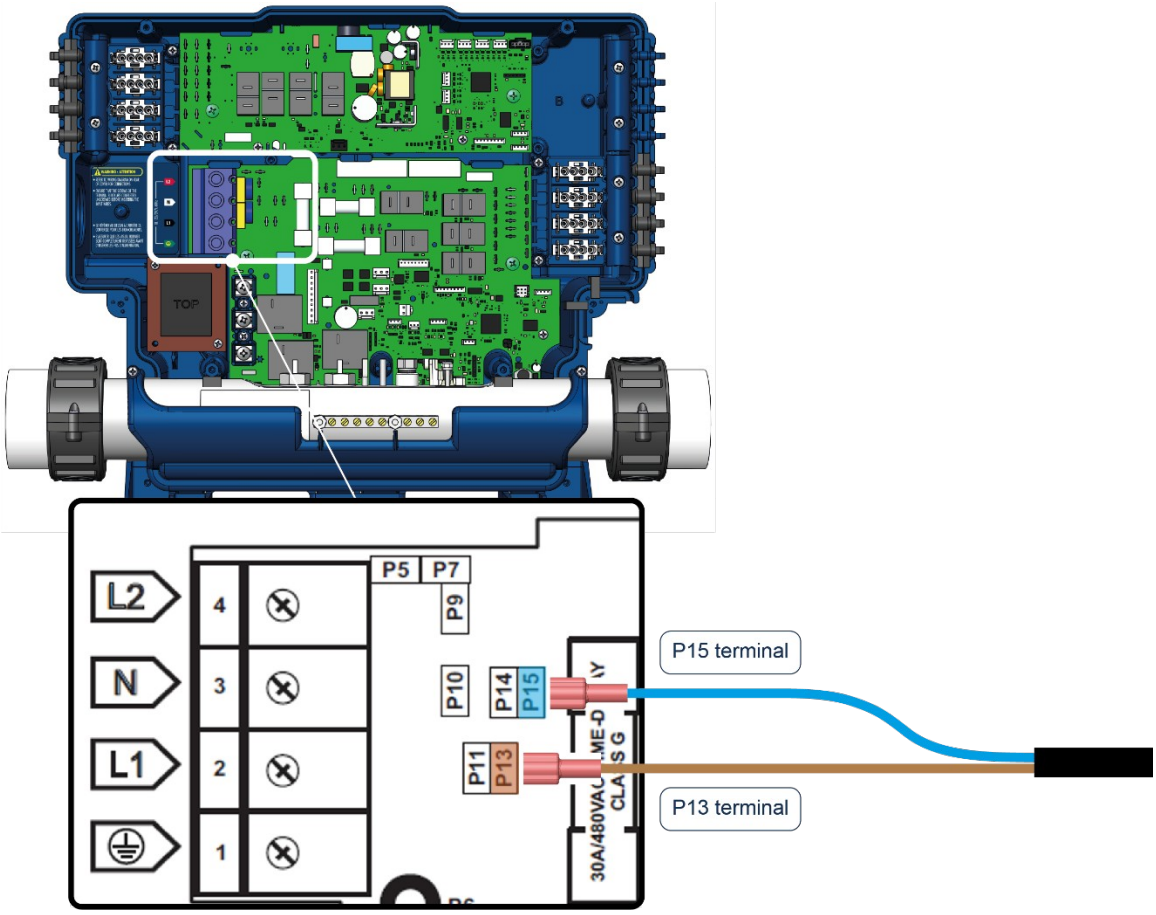
    - **CE (Europe / Australia / New Zealand)**:
        - Connect the BROWN wire (LINE) to the P25 terminal.
        - Connect the BLUE wire (NEUTRAL) to one of the N terminals.



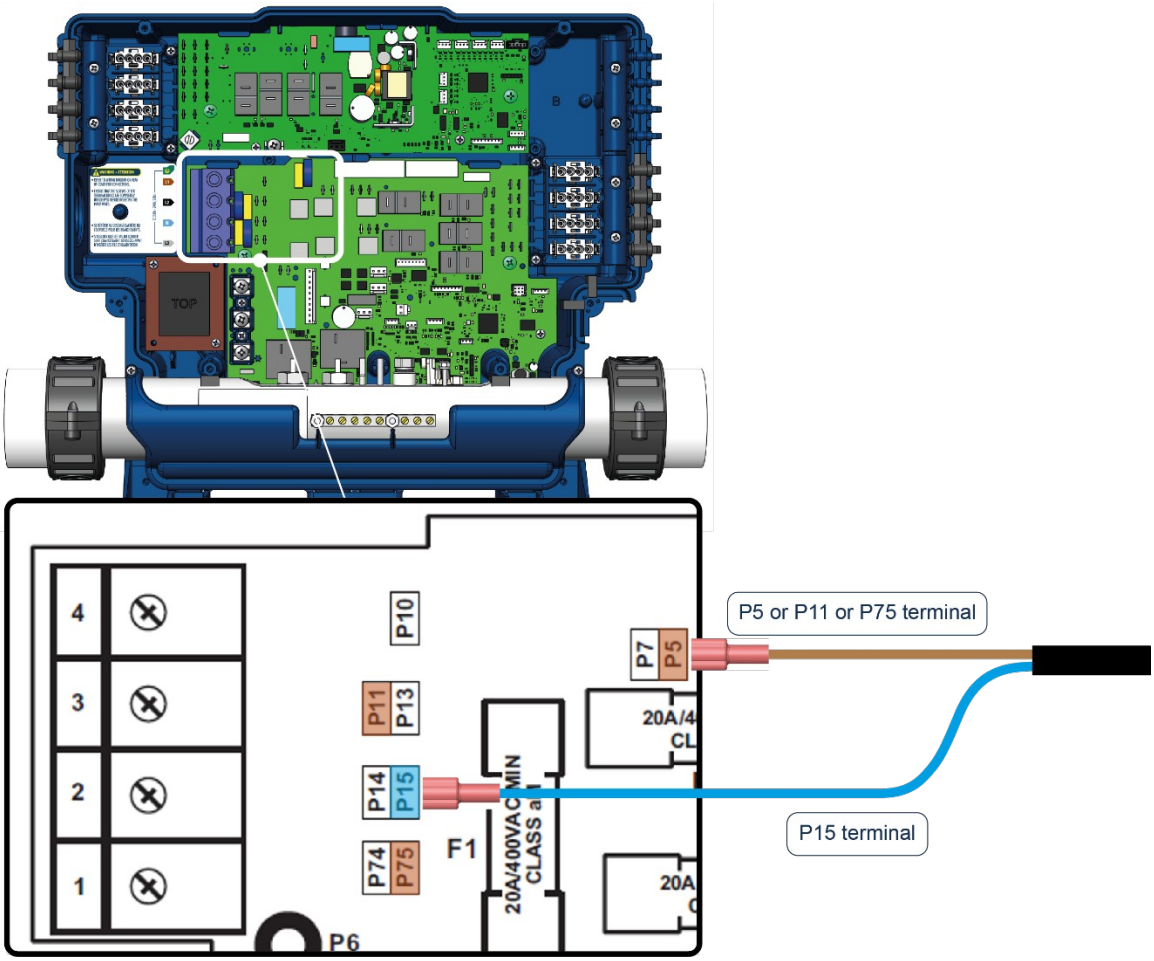
- Route the power cable through the top **in.claw** strain-relief system of **Gecko powerbox RE**.
- **⚠ WARNING: DO NOT ROUTE THE POWER CABLE OVER THE POWER SUPPLY OF GECKO POWERBOX RE; DOING SO MAY DEGRADE ELECTROMAGNETIC COMPATIBILITY (EMC).**



- **Gecko powerbox RT**:
    - **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.

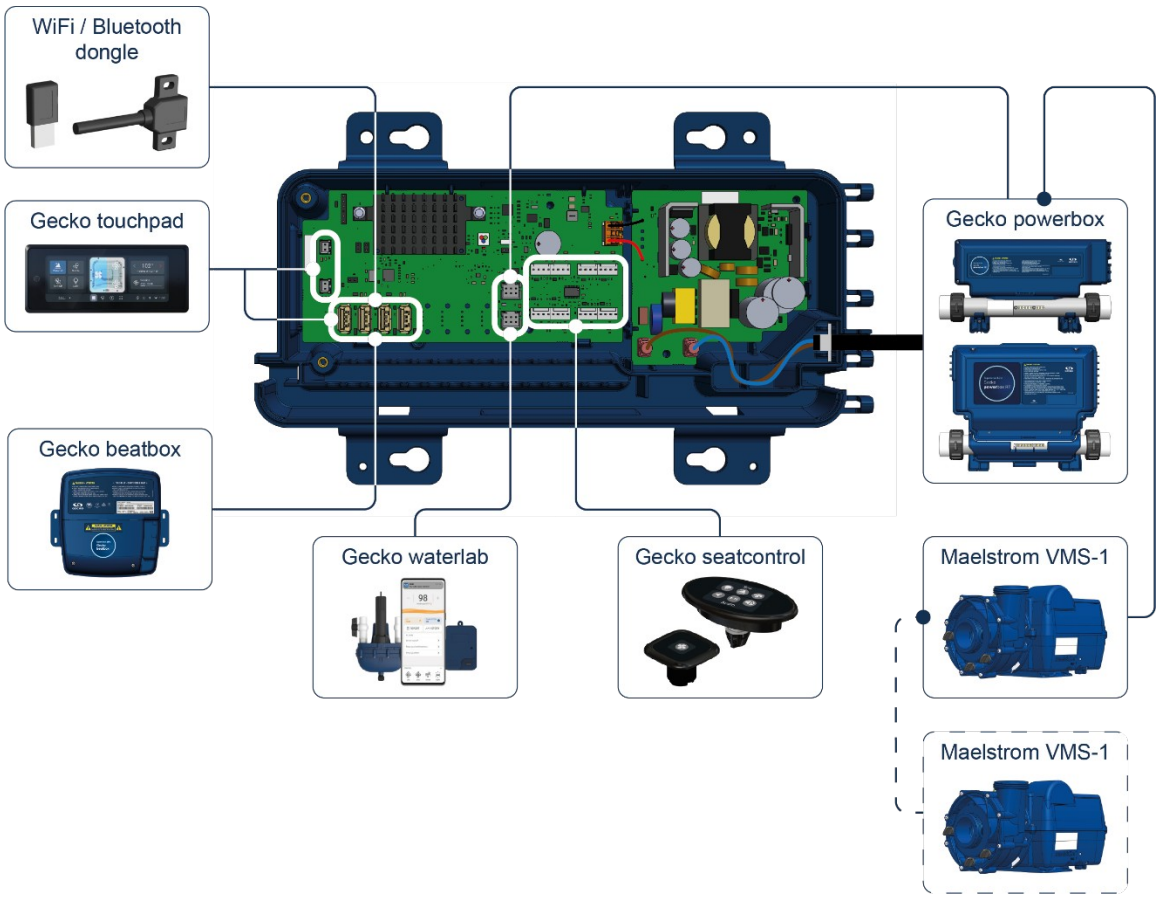


5.2.5.2 Spa Devices and Accessories Connection

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

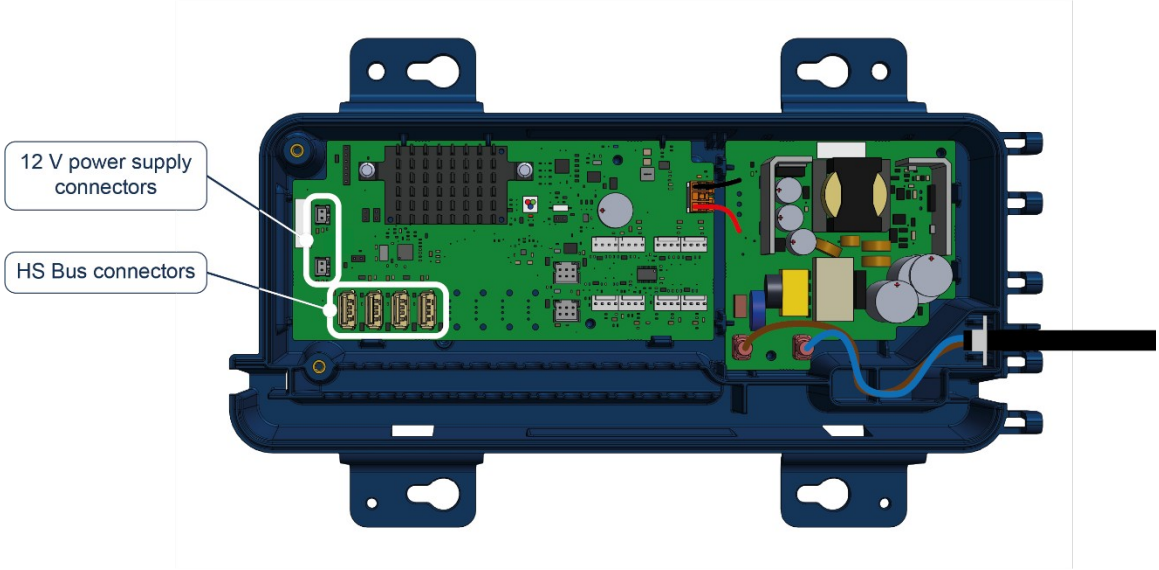
⚠ WARNING: CONNECT ONLY AUTHORIZED GECKO DEVICES OR ACCESSORIES TO GECKO SMARTBOX.

Remove **Gecko smartbox** cover to access the connectors. Connect each spa device or accessory to the appropriate connector as described below:

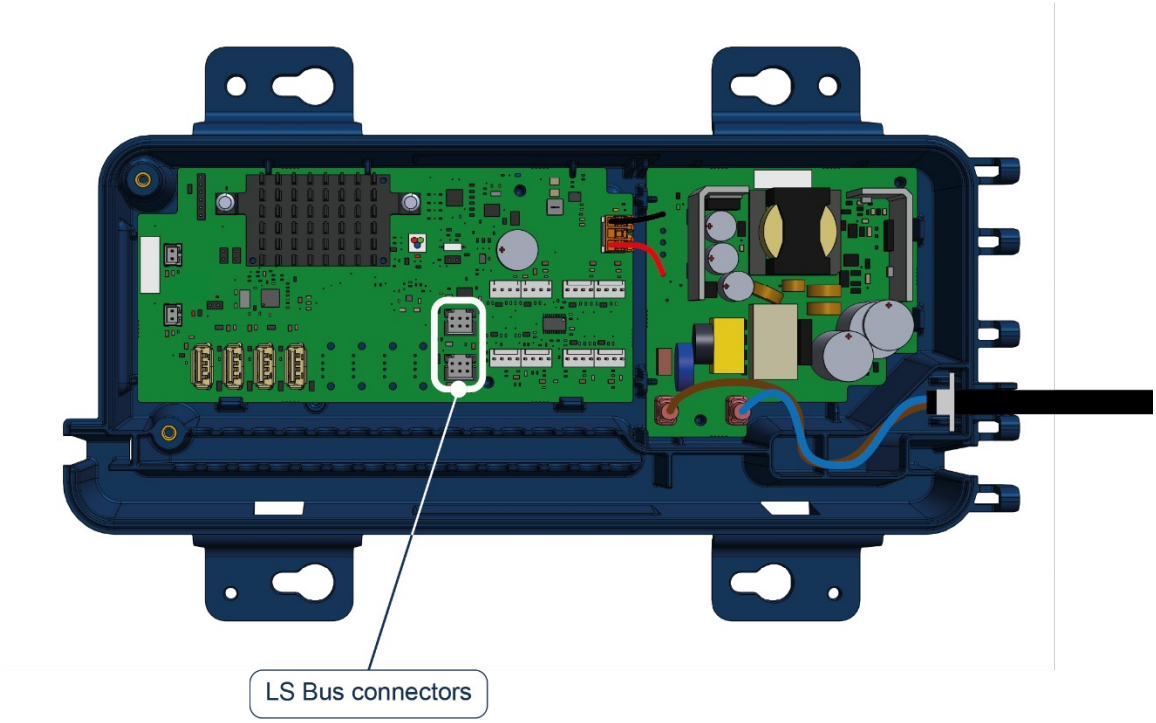


- **High-Speed (HS) Bus**: **Gecko smartbox** provides four High-Speed (HS) Bus connectors (USB) and two 12 V power supply connectors (2 pins):
    - For the following spa devices or accessories, connect their respective USB connector to one of the four HS Bus connectors of **Gecko smartbox**:
        - **Gecko touchpad**
        - **Gecko beatbox**
        - WiFi / Bluetooth dongle (or extension cable):
            - Note: Connect the WiFi / Bluetooth dongle (or extension cable) to the first HS Bus connector from the left. This port provides higher performance.

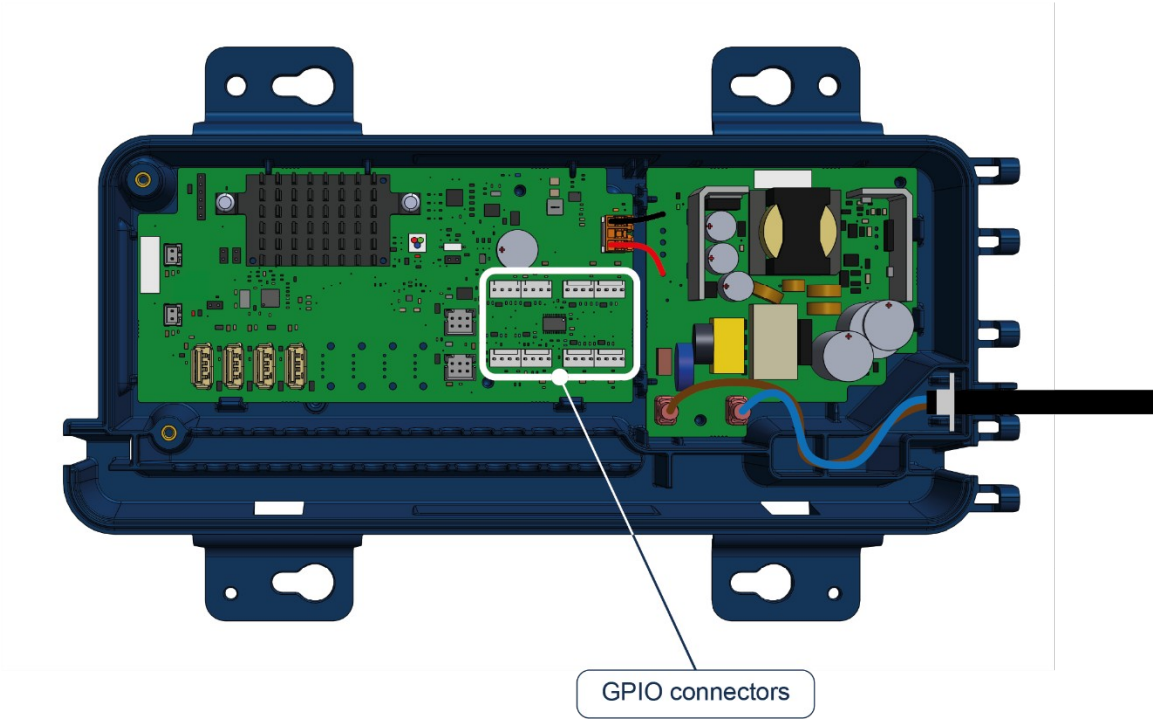
- For the following spa devices, connect their respective 2 pins connector to one of the two 12 V power supply connectors of **Gecko smartbox**:
  - **Gecko touchpad**



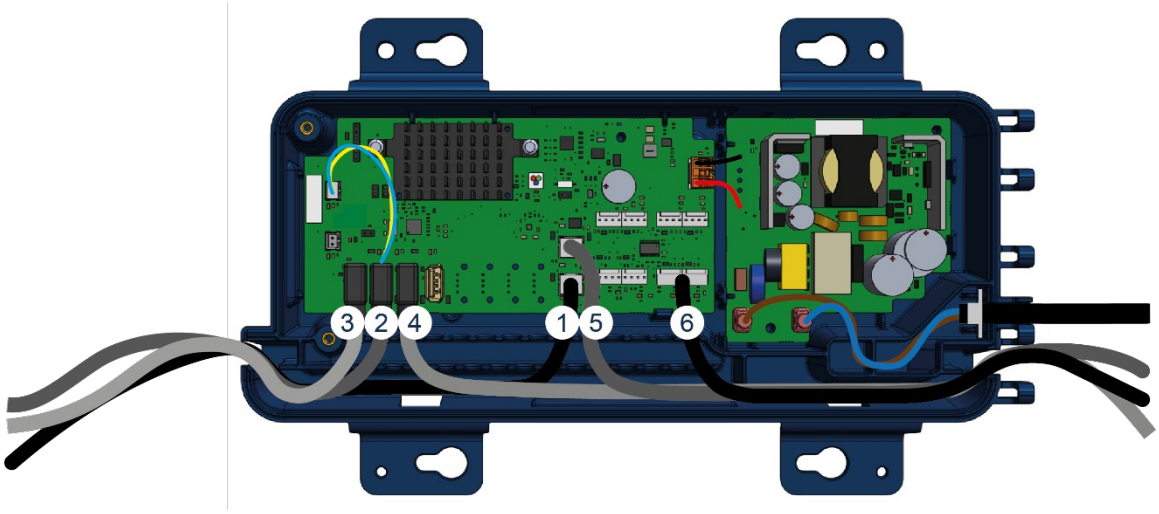
- **Low-Speed (LS) Bus**: **Gecko smartbox** provides two Low-Speed (LS) Bus connectors (6 pins):
  - For the following spa devices, connect their respective 6 pins connector to one of the two LS Bus connectors of **Gecko smartbox**:
    - **Gecko powerbox RE** / **RT**
    - **Gecko waterlab**



    - For the following spa devices, connect their respective 6 pins connector to another Gecko device LS Bus connector (daisy-chaining):
        - **Maelstrom VMS-1**
        - Other external device such as heat pump
- **General Purpose Input / Output (GPIO)**: **Gecko smartbox** provides eight GPIO 4 pins connectors (type MTA-100) grouped in pairs. For each pair, you can connect one or two cables having a 4 pins connector or one cable having an 8 pins connector:
    - For the following spa devices, connect their respective 4 pins or 8 pins connector to one of the GPIO connectors of **Gecko smartbox**:
        - **Gecko seatcontrol**

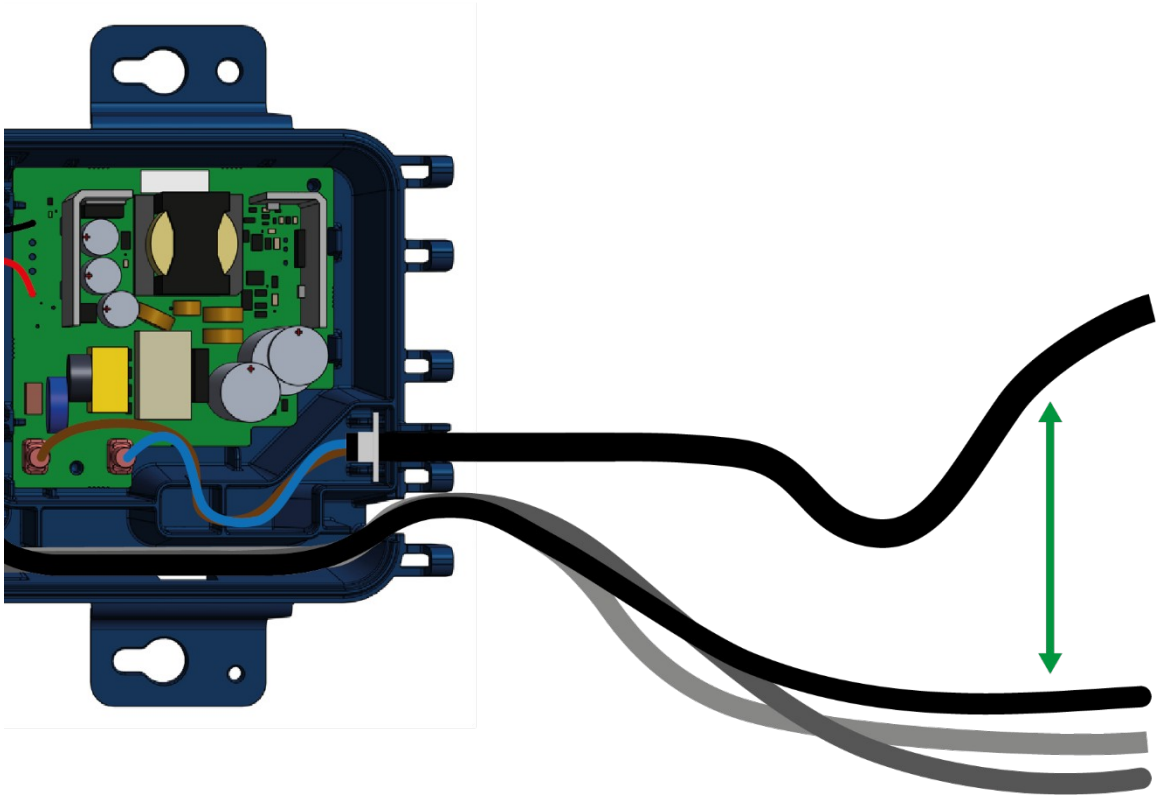


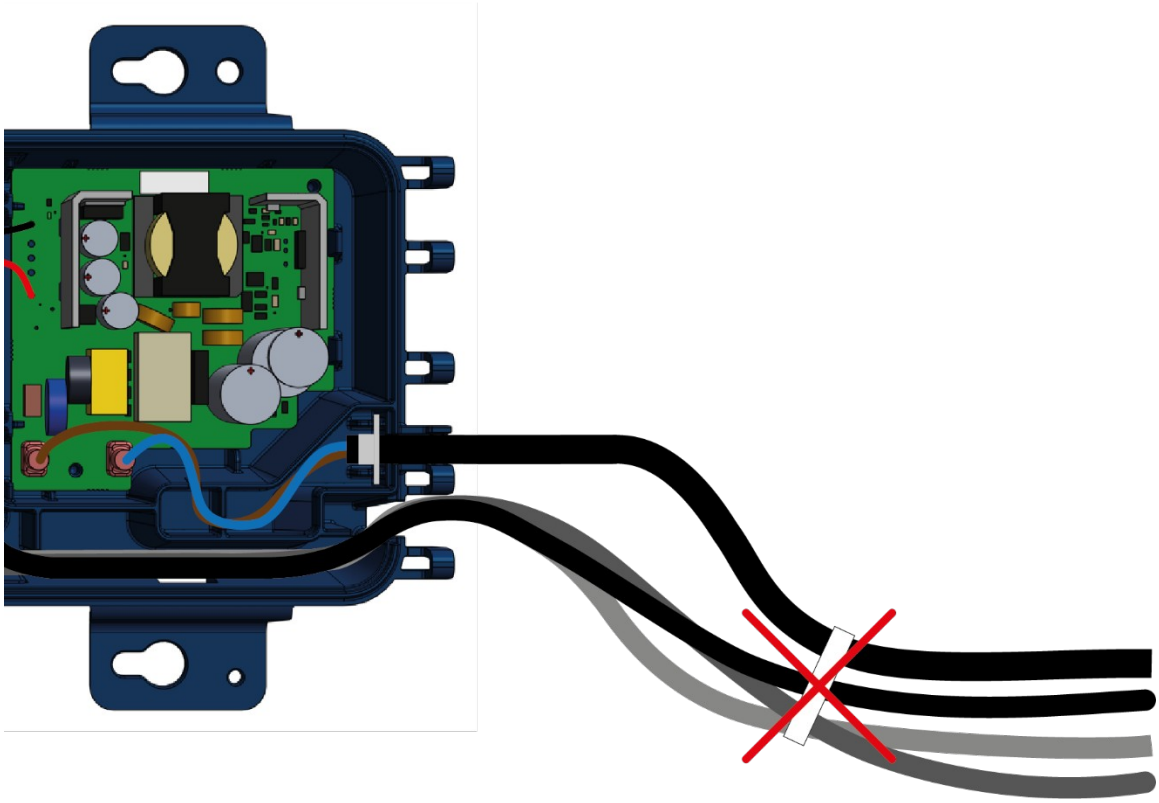
- Route every device or accessory cable through the U-shaped slots, then out of the cables channel to the left or right (or top or bottom, depending on the unit orientation). Observe the following routing rules:
    - Route no more than one cable through each U-shaped slot.
    - For cables exiting to the left (or top), connect and route cables in order from right to left (or bottom to top); reverse the order for cables exiting to the right (or bottom). This optimizes cables stacking in the channel.
    - Route no more than 7 cables per side; a higher stack prevents the cover from closing correctly.



⚠ WARNING: KEEP THE POWER CABLE AWAY FROM THE CABLES OF DEVICES AND ACCESSORIES AND DO NOT BUNDLE THEM TOGETHER; BUNDLING THEM WILL DEGRADE ELECTROMAGNETIC COMPATIBILITY (EMC).

⚠ WARNING: LEAVE SOME LOOSE ON THE CABLES TO AVOID APPLYING TENSION ON THE CONNECTIONS.





- After all cables are connected and routed, reinstall the **Gecko smartbox** cover and tighten the two captive screws to 8 ± 2 lbf*in (0.90 N*m).

6. Troubleshooting and Service

6.1 Troubleshooting

This section describes the diagnostic indicators and procedures used to identify and resolve faults in **Gecko smartbox**. Perform troubleshooting only with the precautions described below.

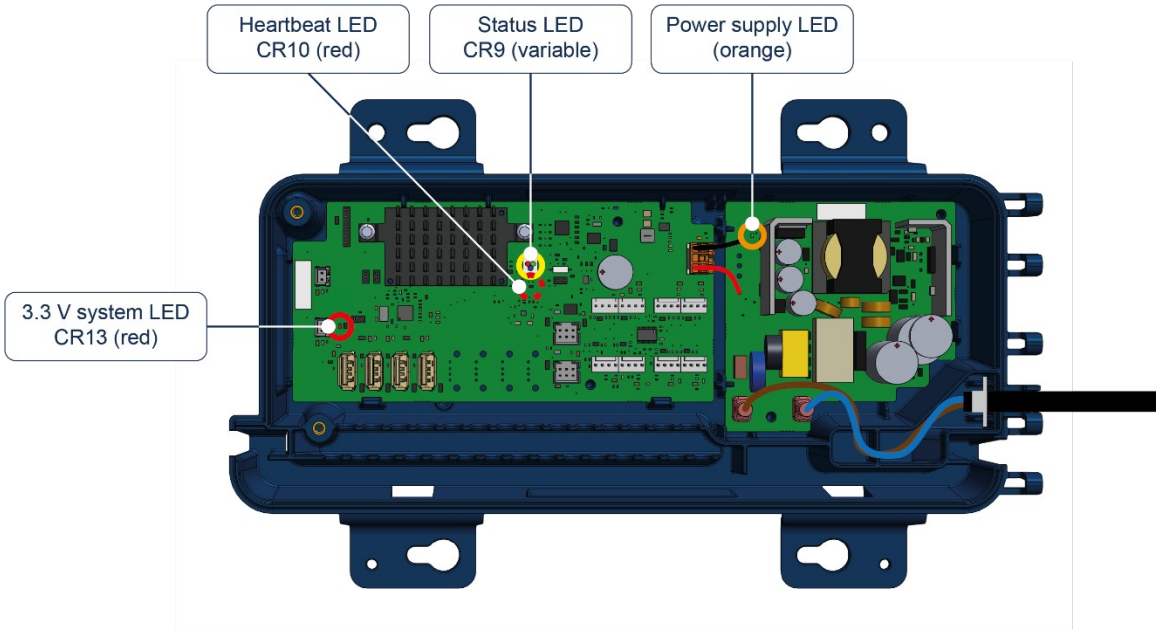
⚠️ WARNING: TURN OFF THE POWER BEFORE OPENING THE COVER.

⚠️ WARNING: RISK OF ELECTRIC SHOCK. DO NOT TOUCH THE UNIT WHILE IT IS POWERED.

6.1.1 Troubleshooting via Reference LEDs

To read the reference LEDs, remove the **Gecko smartbox** cover and reapply power. **Gecko smartbox** has four reference LEDs that indicate the condition of the unit:

- Power supply LED (orange) and 3.3 V system LED CR13 (red): on permanently during normal operation, indicating that the power stage of both PCBs is functioning.
- Heartbeat LED CR10 (red): flashes during normal operation, indicating CPU activity.
- Status LED CR9: color and flashing pattern indicate the real-time status of the unit.



The table below describes the different LED colours and associated error signals, as well as the actions to take to correct each error:

LED	Status	Description	Action
Power supply LED	On	**Gecko smartbox** running: No error; this is part of normal operation.	No action required.
Power supply LED	Off / Flashing	Power supply problem; possible short circuit.	De-energize **Gecko smartbox** and wait one minute. Disconnect all devices and accessories and restart. If the condition persists, contact Gecko Technical Support or R&D.
3.3 V system LED CR13	On	**Gecko smartbox** running: No error; this	No action required.

LED	Status	Description	Action
		is part of normal operation.	
3.3 V system LED CR13	Off / Flashing	Power supply problem on the PCB carrier; possible short circuit.	De-energize **Gecko smartbox** and wait one minute. Disconnect all devices and accessories and restart. If the condition persists, contact Gecko Technical Support or R&D.
Heartbeat LED CR10	Flashing	**Gecko smartbox** running: No error; this is part of normal operation.	No action required.
Heartbeat LED CR10	Off / On (steady)	CPU operating error.	Restart the unit. If the condition persists, contact Gecko Technical Support or R&D.

6.1.2 Common Issues

The following table lists conditions that may occur during integration or operation of **Gecko smartbox**, with their possible causes and corrective actions.

Symptom	Possible causes	Action
Gecko smartbox does not power up.	• No supply from the spa control system. • Wiring error. • Power supply PCB damaged.	Verify control system power and power supply connection (Section 5.2.5.1). If the problem persists, contact Gecko Technical Support or

Symptom	Possible causes	Action
		R&D.
A device or accessory is not detected.	• Cable connector not fully seated. • Cable connected to the wrong bus or connector. • Damaged cable.	Verify that the cable is well connected to the correct bus and connector (Section 5.2.5.2); inspect cable. If the problem persists, contact Gecko Technical Support or R&D.
Weak or no wireless connection.	• Signal obstruction between the unit and the access point. • Poor WiFi / Bluetooth dongle location.	Relocate the WiFi / Bluetooth dongle using the Gecko 10 ft extension cable (Sections 5.1.5 and 5.2.4). If the problem persists, contact Gecko Technical Support or R&D.
Configuration mismatch.	• Wrong device, or a device that does not match the spa configuration.	Verify the spa configuration and re-pair the spa and **Gecko smartbox** using QR codes.

6.2 Serviceable Parts

Gecko smartbox contains no serviceable parts. If the unit malfunctions, replace the complete unit. However, the following parts can be replaced if the problem originates from one of them:

Part	Gecko part number
WiFi / Bluetooth dongle	120AA0022
WiFi / Bluetooth dongle extension cable, 10 ft (3 m)	9920-401783

6.3 Replacement Procedure

6.3.1 Gecko smartbox Replacement

⚠ WARNING: TURN OFF THE POWER BEFORE OPENING ANY DEVICE OR BEFORE REPLACING THE GECKO SMARTBOX.

1. Remove the cover of the spa control system (**Gecko powerbox RE** or **RT)**.
2. Disconnect **Gecko smartbox** power cable (BLUE wire and BROWN wire) from the spa control system.
3. Disengage **Gecko smartbox** power cable from the strain relief system of the spa control system.
4. Remove **Gecko smartbox** cover.
5. Disconnect and remove the devices and accessories cables from **Gecko smartbox**.
6. Reinstall the cover.
7. Unscrew the screws holding the **Gecko smartbox** to the spa and remove the unit.
8. Refer to section 5.2 “Installation” of this document for the installation of the replacement unit.

6.3.2 WiFi / Bluetooth Dongle Replacement

⚠ WARNING: TURN OFF THE POWER BEFORE OPENING THE COVER.

⚠ WARNING: TURN OFF THE POWER BEFORE CONNECTING OR DISCONNECTING THE WIFI / BLUETOOTH DONGLE FROM THE EXTENSION CABLE.

⚠ WARNING: USE ONLY GENUINE GECKO REPLACEMENT PARTS.

1. Remove **Gecko smartbox** cover.
   Note: This step is not required if the dongle is connected to an extension cable.
2. Disconnect the WiFi / Bluetooth dongle and connect the replacement one.

3. Reinstall the **Gecko smartbox** cover and tighten the two captive screws to 8 ± 2 lbf*in (0.90 N*m).

6.3.3 WiFi / Bluetooth Dongle Extension Cable Replacement

⚠ WARNING: TURN OFF THE POWER BEFORE OPENING THE COVER.

⚠ WARNING: TURN OFF THE POWER BEFORE CONNECTING OR DISCONNECTING THE WIFI / BLUETOOTH DONGLE FROM THE EXTENSION CABLE.

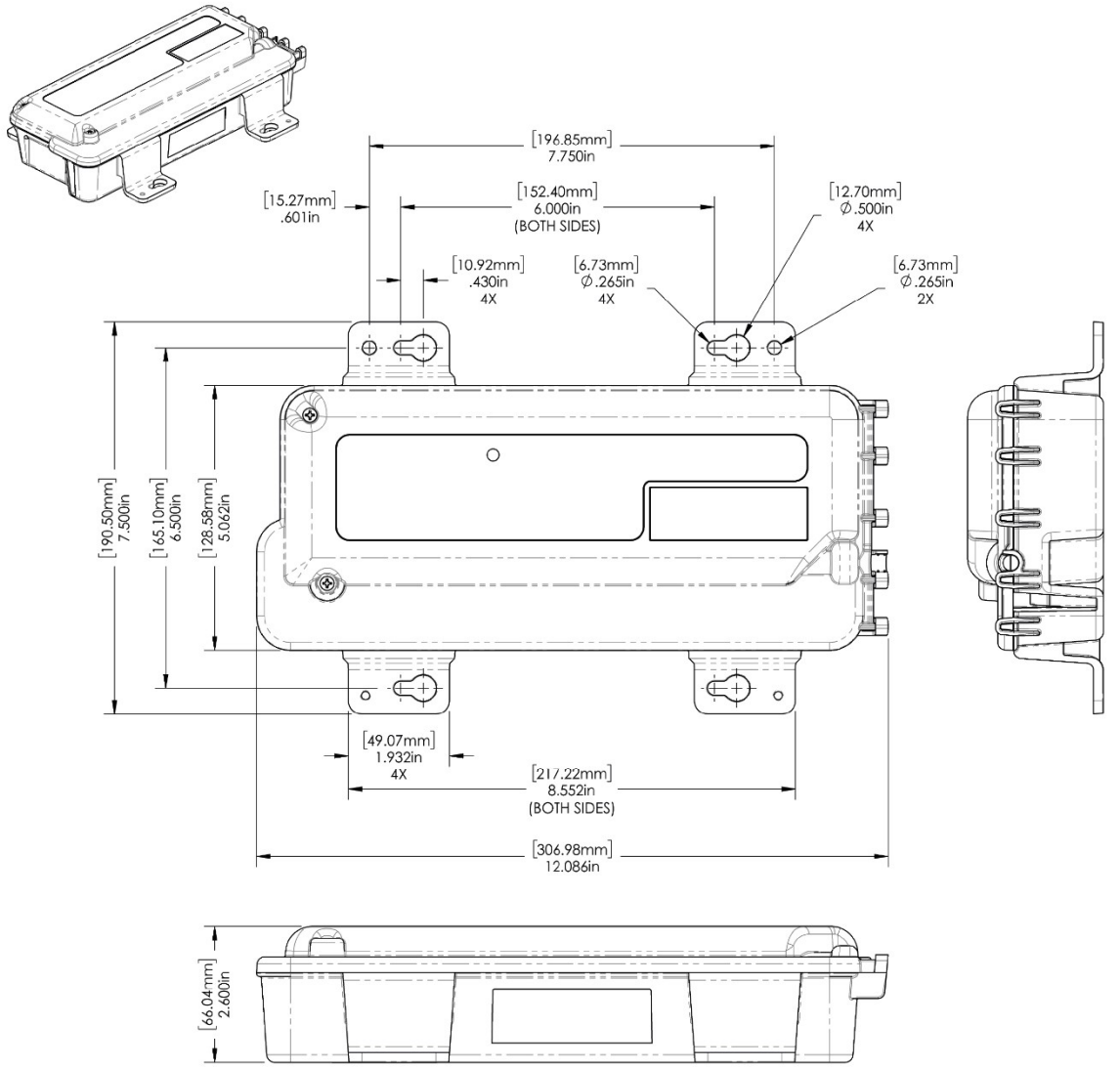
⚠ WARNING: USE ONLY GENUINE GECKO REPLACEMENT PARTS.

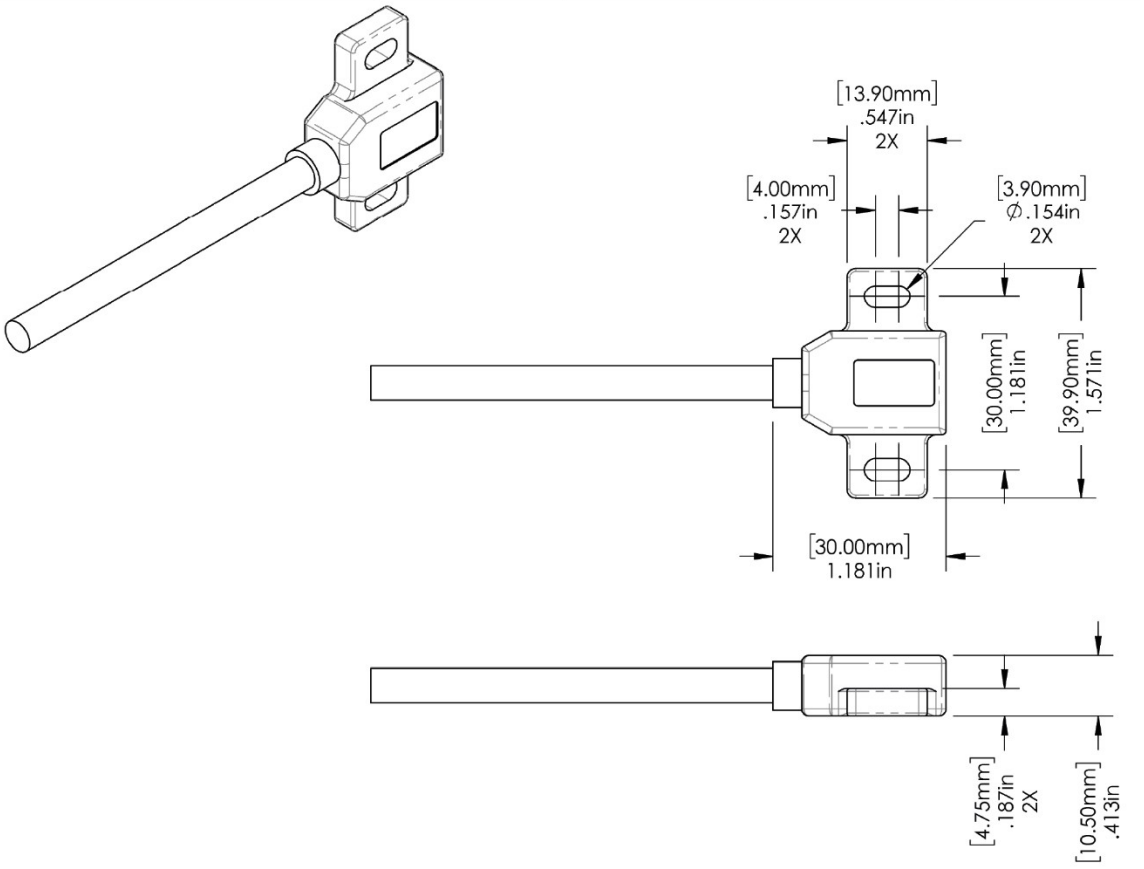
1. Remove **Gecko smartbox** cover.
2. Disconnect and remove the extension cable from **Gecko smartbox**.
3. Disconnect the WiFi / Bluetooth dongle from the other end of the extension cable and set it aside.
4. Remove the screws securing the other end of the extension cable to the spa and remove the cable.
5. Install the replacement extension cable as described in section 5.2.4 “WiFi / Bluetooth Dongle and Extension Cable Mounting Procedure” of this document.
6. Reconnect the WiFi / Bluetooth dongle to the extension cable.
7. Reinstall the **Gecko smartbox** cover and tighten the two captive screws to 8 ± 2 lbf*in (0.90 N*m).

7. Appendices

Appendix A - Mechanical Drawings

The following mechanical drawings provide the overall dimensions and mounting details of **Gecko smartbox** and its accessories.





Appendix B - Links to 3D CAD

3D CAD models are available to validate the fit of **Gecko smartbox** 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 - Revision History

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

Part number	Version	Date	Details	Author
	A	June 2026	Initial Technical Integration Guide, compiled from the R&D Product Integration Guide (Gecko smartbox, V1b1, May 2025).	Nancy Gagnon
	V1b1	Sepember 2026	Review, V1b1 Need to add status light CR9 function in next version. Provide WiFi dungle spec separately (page 21)	Mathieu R.
	V1b2	Oct 2026	Review	Jean-Martin Simard