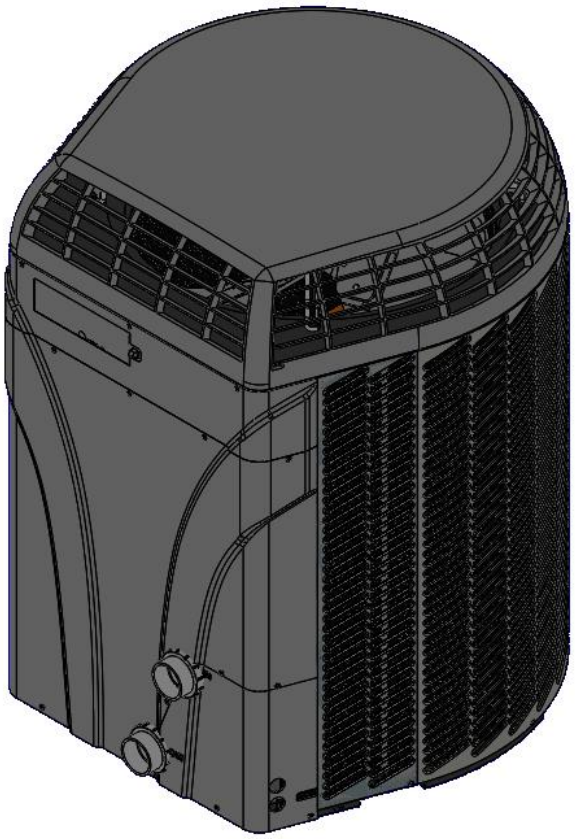
AquaCal®
Connecting Heat Pump to an External Controller



TO OUR VALUED CUSTOMERS,
One of the options of the heat pump you have purchased is the ability to control the heat thermostats from an indoor controller. Follow this guide in connecting the controller and you can take advantage of this feature.

SECTION 1 - CONNECTING HEAT PUMP TO AN EXTERNAL CONTROLLER

To support a direct connection to an external controller, AquaCal® heat pumps are equipped with optional terminal blocks. These terminals are on the microprocessor located on the low-voltage side of the electrical enclosure.

⚠ WARNING - Failure to heed the following may result in injury or death.

- This section is only for qualified installers who are familiar with swimming pool and spa safety standards.
- The installer must be familiar with service industry techniques.
- Deactivate power while routing wiring to control board.

⚠ CAUTION - Failure to heed the following may result in equipment damage.

- The wire size connecting the controller must be 16-gauge, 2-conductor or larger, low-voltage wire.
- Use direct connection (**dry contact)** provided on the microprocessor for external controllers.

Please confirm the type of external controller to be installed and follow the appropriate instructions.

- A **two-wire** controller **(with an internal thermostat)**. *The user can set and adjust the temperature at the controller's screen.*
- A **three-wire** controller **(with an "OFF" position**). *The user adjusts the temperature at the heat pump. The user can select pool or spa mode or turn off the heat pump using the controller.*
- A **three-wire** controller (**without an "OFF" position**). *The user adjusts the temperature at the heat pump. The user can select pool or spa mode, but must turn off the heat pump at the heat pump display panel.*

Dry Contact Connection Points to the Microprocessor

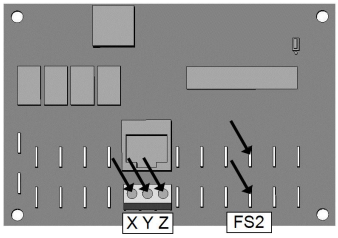


Figure 1

Two-wire controller (with internal thermostat):

1. Deactivate power to heat pump.
2. Remove heat pump electrical access panel.
3. Route the control wiring to the low voltage side of the electrical enclosure. Follow all National Electric Codes (NEC) unless State or Local guidelines supersede.
4. Connect the controller wires to the microprocessor as follows:
   - Connect one wire to “Y”. See Figure 1.
   - Connect other wire to “Z”.
   - The polarity of the wire is not important.
5. Reattach heat pump access panel.
6. Apply power to heat pump.
7. Program heat pump for a two-wire controller. See "Using JAO interface" on page 3.
8. Test external controller.

Three-wire controller (with "OFF" position):

1. Deactivate power to heat pump.
2. Remove heat pump electrical access panel.
3. Route the control wiring to the low voltage side of the electrical enclosure. Follow all National Electric Codes (NEC) unless State or Local guidelines supersede.
4. Connect the controller wires to the microprocessor as follows:
   - Connect "High" or "Spa" wire to "X". See Figure 1.
   - Connect "Common" wire to "Y".
   - Connect "Low" or "Pool" wire to "Z".
5. Reattach heat pump access panel.
6. Apply power to heat pump.
7. Program heat pump for a three-wire controller. See "Using JAO interface" on page 3.
8. Test external controller.

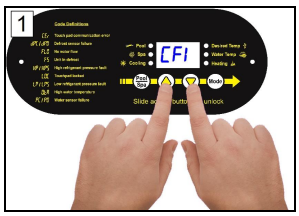
Three-wire controller (without an "OFF" position):

1. Deactivate power to heat pump.
2. Remove heat pump electrical access panel.
3. Route the control wiring to the low voltage side of the electrical enclosure. Follow all National Electric Codes (NEC) unless State or Local guidelines supersede.
4. Connect the controller wires to the microprocessor as follows:
   - Connect "Common" wire to one terminal of "FS2". See Figure 1.
   - Connect "Spa" to other terminal of "FS2".
   - The third wire is not used.
5. Reattach heat pump access panel.
6. Apply power to heat pump.
7. Program heat pump for an external controller. See "Using FS2 interface" on page 4.
8. Test external controller.

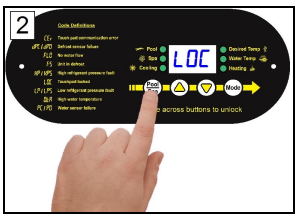
Programming for an External Controller

Configure heat pump for external control.

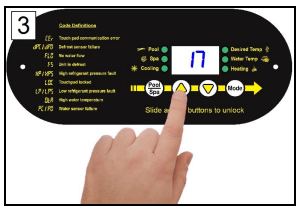
Using JAO interface



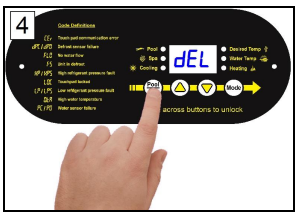
Press "Up" and "Down" buttons simultaneously until CF 1 appears.



Press "Pool / Spa" button until LOC is displayed.

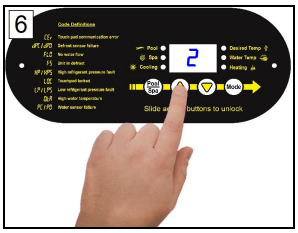


Press "Up" or "Down" to passcode. Default is "17".



Press "Pool / Spa" button once.

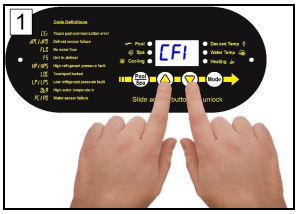
Press the "Pool / Spa" button until JAO is displayed.



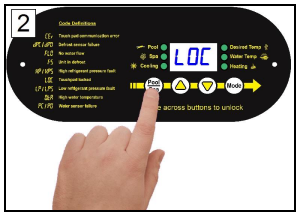
Press "Up" or "Down" button.

- "0" - none
- "2" - two-wire
- "3" - three-wire

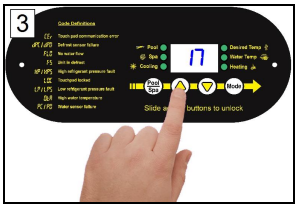
Using FS2 interface



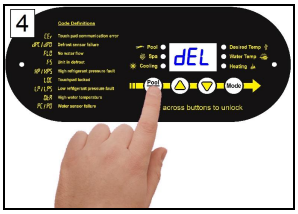
Press "Up" and "Down" buttons simultaneously until CF I appears.



Press "Pool / Spa" button until LOC is displayed.

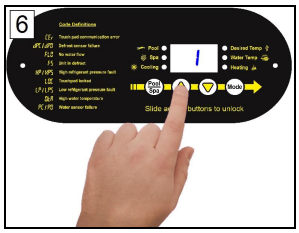


Press "Up" or "Down" to passcode. Default is "17".



Press "Pool / Spa" button once.

Press the "Pool / Spa" button until FS2 is displayed.



Press "Up" or "Down" button.

- "0" - none
- "1" - External

SECTION 2 - OPERATING HEAT PUMP (WITH AN EXTERNAL CONTROLLER)

Controller with an internal thermostat control

Activating Heat Pump

1. Set the desired temperature at the external controller.
2. Use the external controller to select either the "Pool" or "Spa" to heat.

Deactivating Heat Pump

- Set the external controller to "OFF".

> Please note - If equipped, the heat pump's cooling function **will be disabled** when using this type of controller.
> If the cooling function is needed, the heat pump must be temporarily re-programed for local control.
> - Set the heat pump to operate with external control temporarily set to "none".
> - See "Programming for an External Controller" on page 3.
> - It is ok to leave external controller wires in place while the heat pump is set for local control.

Controller with 2 positions - ("Pool" and "Spa" - *no internal thermostat control)*

Activating Heat Pump

1. Set the desired temperatures on the heat pump thermostats.
2. Use the external controller to select either the "Pool" or "Spa" to heat.
    - *Rapid movement between thermostats without a "rest" between each change can cause a missed signal by the heat pump.*

Deactivating Heat Pump

- Go to the heat pump and set the mode to "OFF".

> Please note - If equipped, the heat pump's cooling function **will be disabled** when using this type of controller.
> If the cooling function is needed, the heat pump must be temporarily re-programed for local control.
> - Set the heat pump to operate with external control temporarily set to "none".
> - See "Programming for an External Controller" on page 3.
> - It is ok to leave external controller wires in place while the heat pump is set for local control.

Controller with 3 positions - ("High", "Low", and "Off" - *no internal thermostat control*):

Activating Heat Pump

1. Set the desired temperatures on the heat pump thermostats.
2. Use the external controller to select either "High" or "Low" to heat.
    - *When changing between thermostats, select "Off" first. Then select desired thermostat.*
    - *Rapid movement between thermostats without a "rest" between each change can cause a missed signal by the heat pump.*

Deactivating Heat Pump

- Set the external controller to "OFF".