10-Button Keypad with Temperature Display for VSC/BSC
(Model: L1004B-KP-V3)
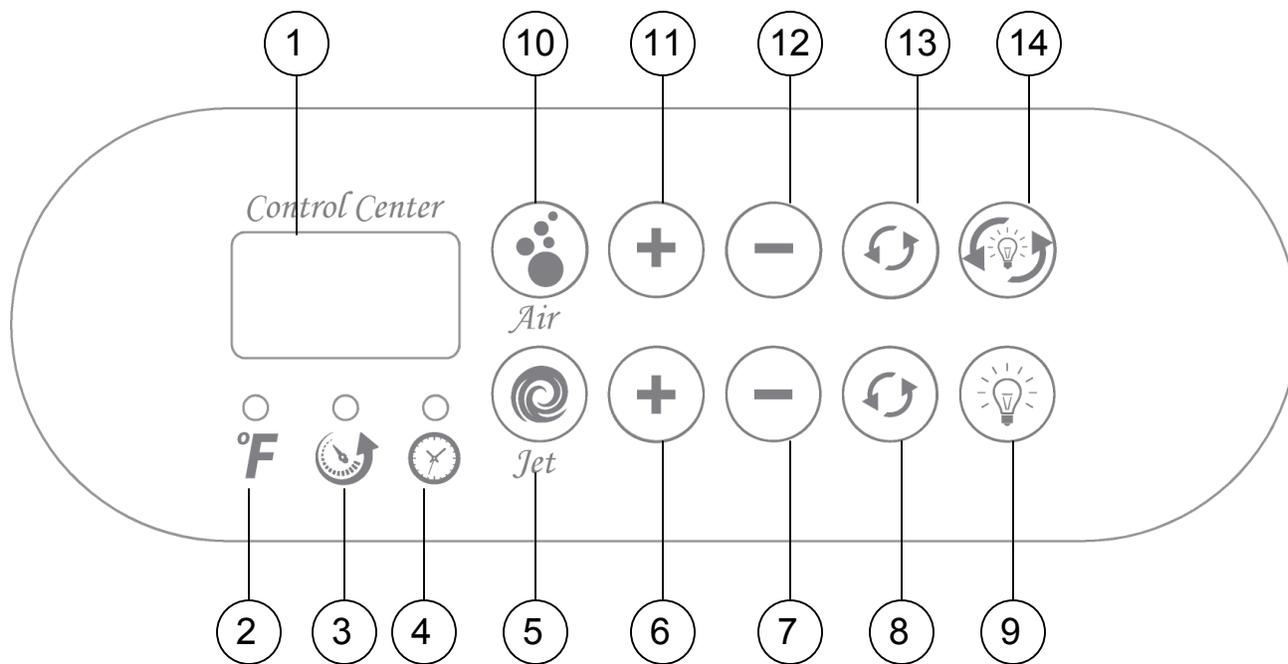
Understanding the Unit

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1	Display	Screen OFF: Unit is in 'idle' mode
		Screen ON: Unit is displaying speed, time remaining or error information.
2	Temperature	When on, the screen displays the water temperature in degree F
3	Speed level	When on, the screen displays speed level from 1 to 10 of the corresponding pump.
4	Time remaining	When on, the screen displays the cycle time remaining in minutes.
5	Jet pump button	1st press: Jet pump ON, Light ON, LED ON
		2nd press: Jet pump OFF, LED OFF
6	Speed + button	Speed goes up, screen displays speed. Max. speed level is 10.
7	Speed – button	Speed goes down, screen displays speed. Min. speed level is 1.
8	Pulse mode button	1st press: Pulse mode ON, LED ON
		2nd press: Pulse mode OFF, LED OFF
9	Light button	1st press: Light ON, LED ON
		2nd press: Light OFF, LED OFF
10	Air pump button	1st press: Air pump ON, Light ON, LED ON
		2nd press: Air pump OFF, LED OFF
11	Speed + button	Speed goes up, screen displays speed. Max. speed level is 10.
12	Speed – button	Speed goes down, screen displays speed. Min. speed level is 1.
13	Pulse mode button	1st press: Pulse mode ON, LED ON
		2nd press: Pulse mode OFF, LED OFF
14	Light pulse button	Light color changes, LED on the button blinks.

Features

1. **Pump pulsating mode**: In this mode, the pump speed varies automatically with a cycle period of approximately 10 seconds.
2. **Light pulsating mode**: In this mode, the light color changes each time the light pulse button is pressed.
3. **Speed Change**: By default, the pump speed level is set to 10. When the pump is turned OFF, the speed level during the time of turning OFF is saved.
4. **Pump Soft Start**: When the pump is turned ON, the pump speed is softly ramped up to maximum speed in about 5 seconds, and then the pump speed goes back to saved speed level/ default level. During the 5 second soft ramp up, the 'Speed+', 'Speed-' and 'Pulse' mode button for the corresponding pump are disabled.
5. **Built in shutdown timer**: The unit has 20 minute in-built timer. So the unit will shut down after 20 minutes of operation and save the speed level for next cycle use.
6. **Purge mode**: The drying cycle will start automatically 15 minutes after the system stops (The system can be either stopped manually, or it stops automatically after 20 min due to built in timer, or it stops automatically if no water is detected on water level sensor) . The air pump will run at maximum speed for duration of 2 minutes. During this 2 minute drying cycle, the keypad is disabled. The display at this time counts down from 120 sec to 0 sec and after that the air pump will automatically stop.
7. **Temperature Display**: If the temperature probe is connected to keypad, the screen will display the water temperature in degree F. Disconnecting the temperature probe from keypad disables the temperature display functionality.

Note: Make sure that the water level sensor or a jumper is connected to VSC box. Otherwise, the unit will not turn on.

Error Codes

The display screen has special error codes to determine and debug possible error conditions. They are as follows:

E-1	There is a connection problem between VSC/BSC to keypad. Try reconnecting the cable and reset the power on VSC/BSC.
No H20	The unit will not turn on because the water level sensor is detecting no water in tub. If water level sensor is not used, a jumper should be connected at water sensor port of VSC/BSC.
E-2	The unit shuts down due to over-heating. Check the fan connection in the VSC unit.
E-3	There is a connection problem from port 1 to VSC/BSC. Try re-connecting the cable.
E-4	There is a connection problem from port 2 to VSC/BSC. Try re-connecting the cable.

Port 1:
Connect to button port of BSC.

Port 2:
Connect to button port of VSC.
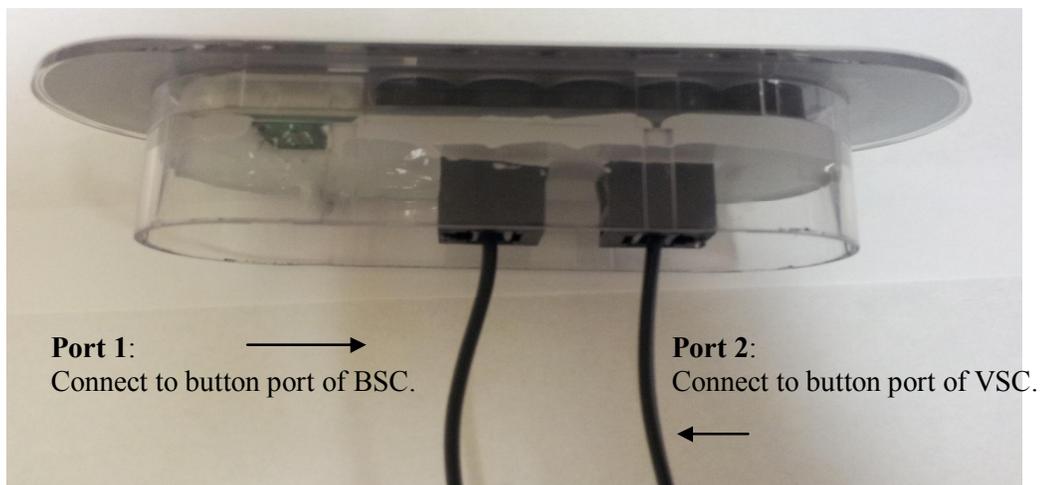
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Port 1	Control air pump connected to the BSC. This connection is must for the keypad to operate.
Port 2	Controls jet pump connected to the VSC. This connection is not required if user wants to control just air pump connected to port 1.

Understanding the Setup
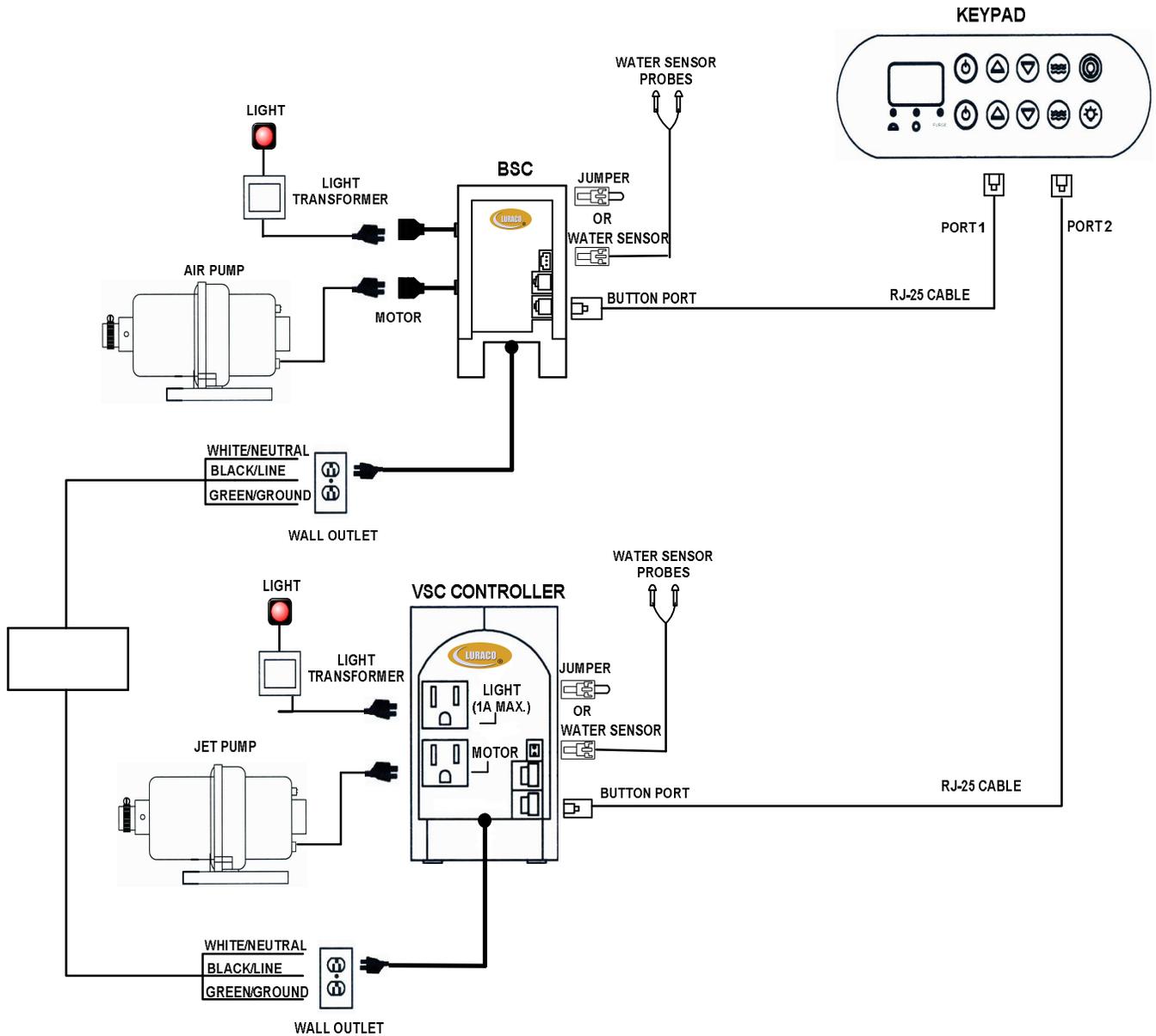
Steps to Follow

1. Connect keypad to VSC/BSC using RJ25 cable.
2. Connect water level sensor/ jumper on the sensor port of VSC/BSC. Note that only one water sensor probe is required for the system. That sensor can be connected on either VSC or BSC controller, while the other sensor input needs to have a jumper.
3. Connect Pump to the 'Pump outlet' and Light to the 'Light outlet' of the VSC/BSC.
4. Connect power cable to the power outlet and turn on the unit using power button on keypad.

2D Drawing
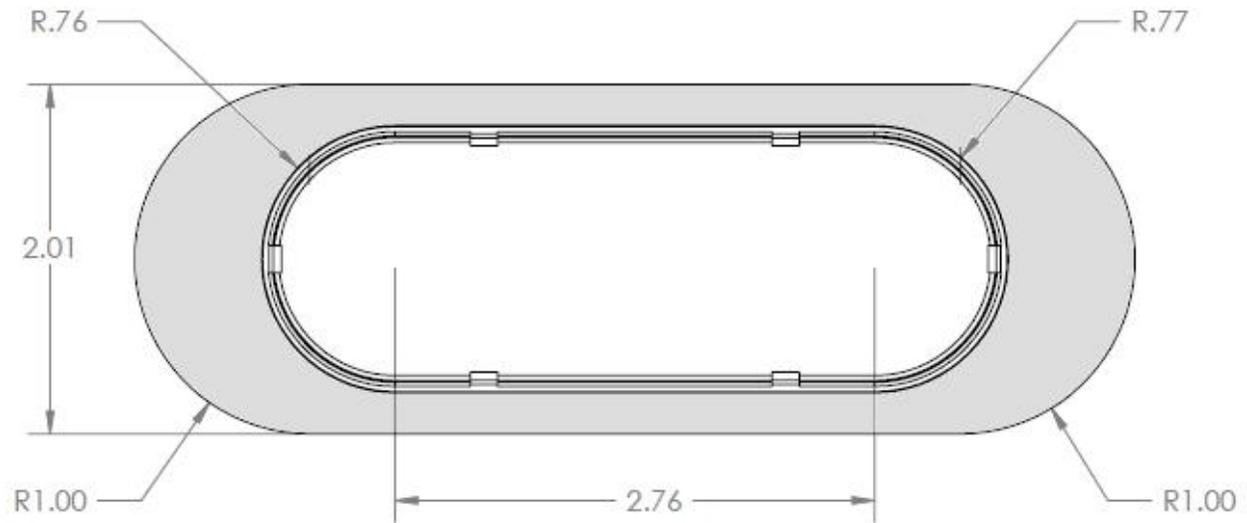
Backside view of keypad (All dimensions in inch)