

Installation and Operation Manual



Levolor[®] by Jandy[®] Electronic Water Leveler Models K-1100, LX2 and K2300

WARNING

FOR YOUR SAFETY - This product must be installed and serviced by a professional pool/ spa service technician. The procedures in this manual must be followed exactly. Failure to follow warning notices and instructions may result in property damage, serious injury, or death. Improper installation or operation will void the warranty.

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Section 1. Safety Information

IMPORTANT SAFETY INSTRUCTIONS PERTAINING TO A RISK OF PROPERTY DAMAGE OR INJURY TO PERSONS READ AND FOLLOW ALL INSTRUCTIONS

When installing and using this equipment, basic safety precautions should always be followed, including the following:

FOR YOUR SAFETY. This product must be installed and serviced by a professional service technician, qualified in pool/spa installation and maintenance. Improper installation or operation could cause serious injury, property damage, or death. Improper installation or operation will void the warranty.

A WARNING

Before installing this product, read and follow all warning notices and instructions accompanying it. Failure to follow safety warnings and instructions could result in severe injury, death, or property damage.

To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.

A WARNING

Risk of electric shock - Install the control box at least five (5) feet (152.4cm) from the inside wall of the pool and/ or hot tub using non-metallic plumbing. Canadian installations must be at least three (3) meters from the water. Children should not use spas or hot tubs without adult supervision.

Do not use spas or hot tubs unless all suction guards are installed to prevent body and hair entrapment. People using medications and/or having an adverse medical history should consult a physician before using a spa or hot tub.

WARNING

To reduce the risk of electrical shock, connect the green ground wire marked (=) to the ground of your electric service or supply panel with a continuous copper conductor having green insulation and one that is equivalent in size to the circuit conductors supplying this equipment, but no smaller than no. 12 AWG (3.3mm). This ground wire marked (=) is provided within the control box.



Attention installer: Install to provide drainage of compartment for electrical components.



ATTENTION INSTALLER: This manual contains important information about the installation, operation and safe use of this product. This information should be given to the owner/operator of this equipment.

SAVE THESE INSTRUCTIONS

Section 2. System Description

Levolor[®] by Jandy[®] Models K-1100 and LX2 are computer-controlled devices that detect a low water condition and automatically replace the water to a preset level. They can be used in all pools and spas.

Levolor[®] II by Jandy[®], Model K-2300, is a dual-fill device that can maintain the water level in two separate environments, such as a pool/spa combination or dual-equipped application. It can be used in any situation where a consistent liquid level is desired.

The Levolor[®] is comprised of a sensor, a control box, and a solenoid valve. The Levolor[®] II is comprised of two (2) sensors, a control box, and two (2) solenoid valves.

Sensor

There are four (4) types of sensors:

- 1. Slip type (Single end sensor that glues to coupling)
- 2. Dual type (Half-moon on one end and slip type on the other end)
- 3. Half-moon (Single end sensor)
- 4. Optional threaded type (Single end sensor screws into a one (1) inch threaded coupling)

Depending on the model, the sensor comes with 50 to 500 feet of wire at the top and two (2) stainless steel contacts at the bottom. You can cut off the sensor wire you do not use.

Control Box

The control boxes for the K-1100 and LX2 models have three (3) LED displays to indicate power on, sensor activated and valve fill activated. The control box for the K-2300 has five (5) LED displays to indicate power on, level 1 sensor activated, level 1 valve fill activated, level 2 sensor activated, and level 2 valve fill activated.

The K-1100 and K-2300 are factory wired for 220 volt operation and require rewiring for 110 volt operation. The LX2 comes in a 220 volt unit and a 110 volt unit.

Valve

The K-1100 and LX2 models require one (1) valve, and the K-2300 model requires two (2) valves. The Jandy-supplied valve is made by Weathermatic[®] and is an SOL-100. It has a pressure rating that cannot exceed 125 PSI.

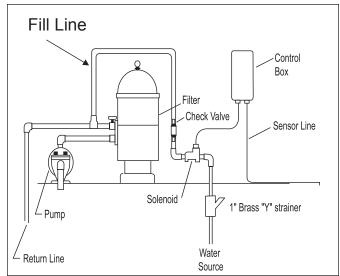


Figure 1. K-1100 and K-2300 Installation

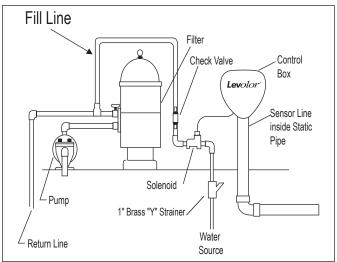


Figure 2. LX/2 Installation

2.1 Electrical Specifications

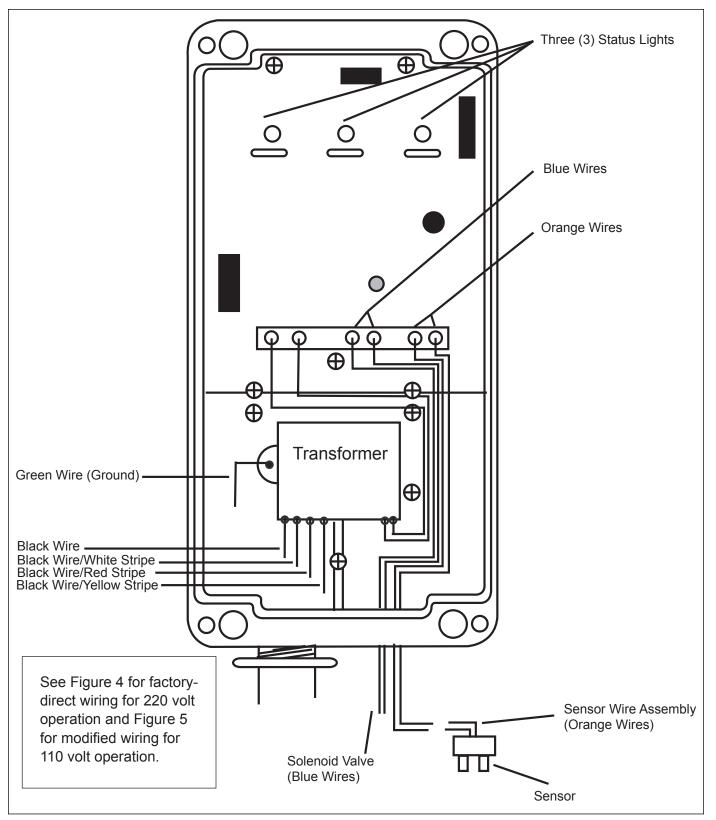
Models K-1100, LX2, and K-2300 Input: 110 VAC, 50/60 HZ, 0.5 AMPS 220 VAC, 50/60 HZ, 0.5 AMPS

Output: 24 VAC@ 1 AMP

Models K-1100 and K-2300 are factory wired for 220 VAC service. If available electrical service is 110 VAC, the power supply wiring must be changed to operate on 110 VAC as shown in figures 4, and 5.

2.2 Wiring Diagrams

This section contains wiring diagrams for the K-1100 and K-2300, along with detailed views of the factory-direct wiring for 220VAC and the way the wiring needs to be modified for 110VAC. The section also contains a wiring diagram for the LX2, along with detailed views of the factory direct wiring for the 220 VAC and 110 VAC units.



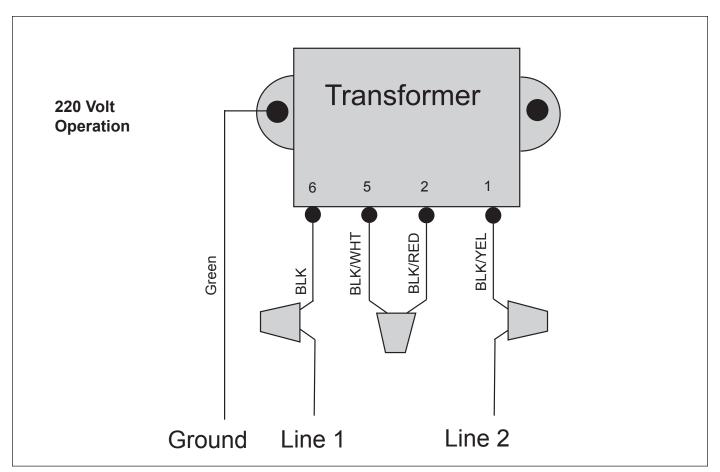


Figure 4. K-1100 and K-2300 Factory Wiring for 220 Volt Operation

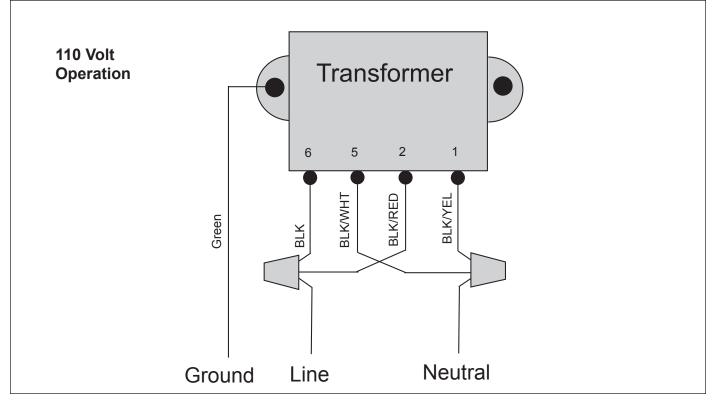


Figure 5. K-1100 and K-2300 Modified Wiring for 110 Volt Operation

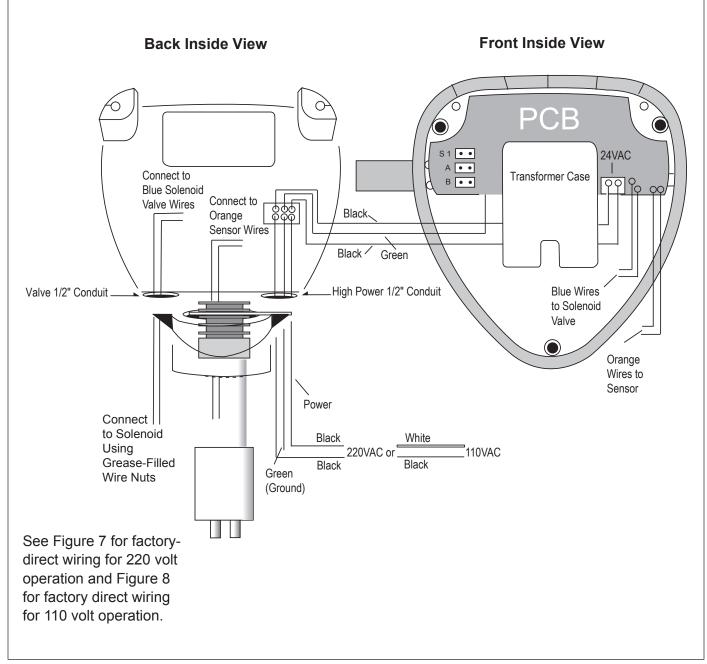
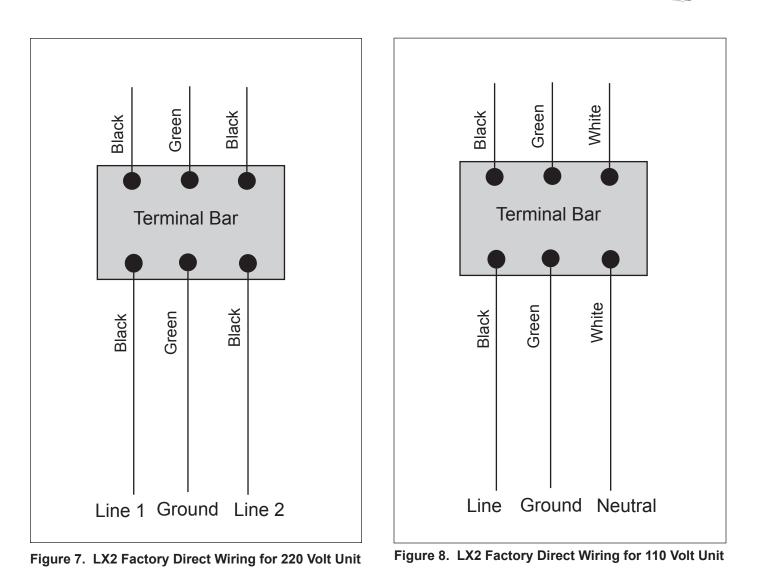


Figure 6. LX2 Control Box



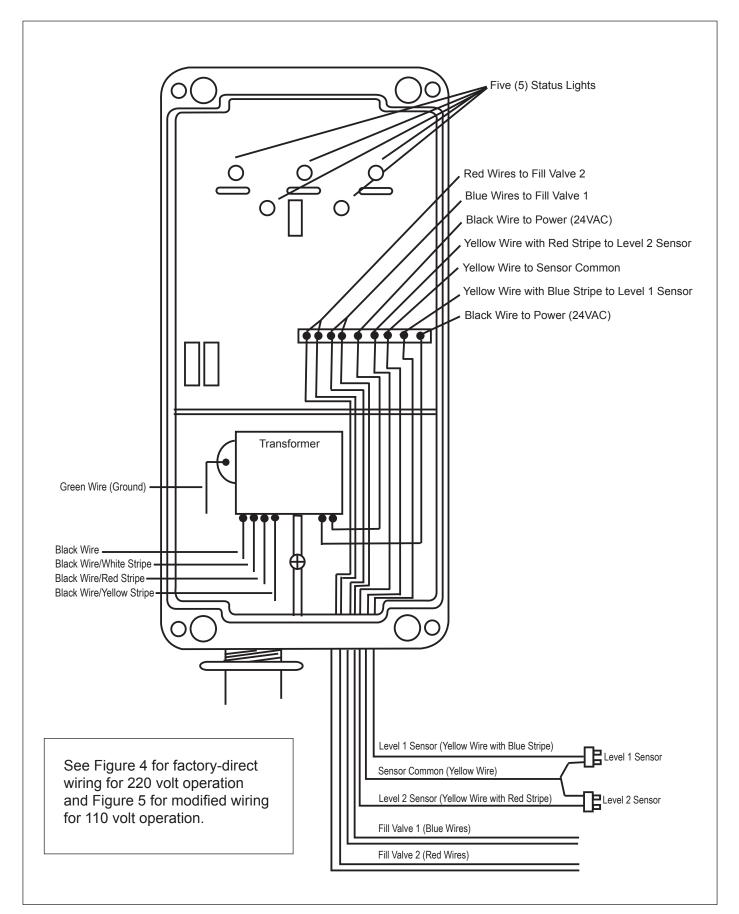


Figure 9. K-2300 Control Box

Section 3. Installation Instructions

3.1 Materials and Tools

Installation Materials Furnished for	Qty
Levolor [®] Models K-1100 and LX2	
Sensor with Wire	1
Solenoid Valve	1
1" Coupler	1
Control Box	1
Remote Sensor Housing (K-1100 only)	1
Hardware Kit	1
Grease Filled Wire Nuts for Valve	2
Screws	4
Anchors	4
Owner's Manual - Warranty Information	1

Installation Materials Furnished for	Qty
Levolor [®] II, Model K-2300	
Sensor with Wire	2
Solenoid Valve	2
1" Coupler	2
Control Box	1
Remote Sensor Housing	2
Hardware Kit	2
Grease Filled Wire Nuts for Valve	2 per kit
Screws	4 per kit
Anchors	4 per kit
Owner's Manual - Warranty Information	1

Additional Materials Needed for Installation

Electrical Service Connection Hardware

18 Gauge Solid Core Direct Style Burial Cable Wire Nut Connections, including Two (2) Grease Filled Wire Nuts for Each Sensor

Open the box and check to see that it contains the contents listed above. If it does not, contact your dealer or Jandy technical support at (707) 776-8200 extension 260.

3.2 Installing the Control Box

NOTE When installing a Levolor[®] on a spa (less than 300 sq ft of surface area), turn the flow control down to reduce the flow rate of the valve.

Models K-1100 and K-2300

- 1. Mount the control box to the wall near the pump and filter. See Figure 1. *Do not install the control box within 10 ft (3 m) of the pool edges.*
- 2. Mount the control box at eye level. Leave sufficient clearance on all sides of the chassis backplate.
- 3. Check the source voltage. (Both units are factory wired for 220 volt operation.) To modify the wiring for 110 volt operation, see Section 3.3.
- 4. For 220 volt operation, connect the black wire to line 1 and connect the black wire with the yellow stripe to line 2. See Figure 4.

Model LX2

- 1. Mount the control box in the static pipe where the sensor is installed. See Figure 2.
- 2. Check the source voltage. (There are separate units for 220 and 110 volt operation.)

a. For 220 volt operation, connect one (1) of the black wires to line 1 and the other black wire to line 2. See Figure 7.

b. For 110 volt operation, connect the white wire to the white neutral wire. Then connect the black wire to the black power line. See Figure 8.

3.3 Changing Wiring for 110 Volt Operation

WARNING

Potentially high voltages in the Levolor[®] control box can create dangerous electrical hazards, possibly causing death, serious injury or property damage. Turn off power at the main circuit breaker providing power to the control box to disconnect the control box from the system. To properly and safely wire the system, be sure to carefully follow the applicable requirements of the National Electrical Code (NEC), NFPA 70 or the Canadian Electrical Code (CEC), CSA C22.1. All applicable local installation codes must also be adhered to.

Models K-1100 and K-2300

1. Refer to Figure 5 and do the following:

a. Cut the splice cap connecting the black/white and the black/red wires.

b. Connect the black/red wire with the black wire and connect to the line side of power.

c. Connect the black/white wire with the black/ yellow wire and connect to the neutral side of power.

3.4 Earth Bonding (Grounding)

Connect the green ground wire marked (=) to the ground of your electric service or supply panel with a continuous copper conductor having green insulation and one that is equivalent in size to the circuit conductors supplying this equipment, but no smaller than no. 12 AWG (3.3mm). Refer to your local codes for the acceptable grounding wire gauge.

3.5 Installing the Valve

- NOTE Install the valve with the directional water flow arrow pointing in the appropriate direction. The directional water flow arrow is located on the inlet side of the valve.
- 1. Connect the 24VAC water solenoid valve to the 18-gauge solid wire or cable rated and listed for direct burial using grease-filled wire nuts.
- 2. Then connect the other end according to the model being installed per the applicable instructions below:

Models K-1100 and LX2: Connect the wires to the blue wires in the control box using wire nuts.

Model K-2300: Connect the wires from valve 1 to the blue wires in the control box using small blue wire nuts. Connect the wires from valve 2 to the red wires in the control box using wire nuts.

- 3. Turn the flow control knob (+) on the top of the valve (See Figure 10) to set the flow rate to your specifications. (The rate can be set up to 30 GPM.)
- 4. Put the manual ON/OFF lever, located just below the solenoid, in the horizontal (closed) position, so it will only open with the electronic water Levolor. See Figure 11.

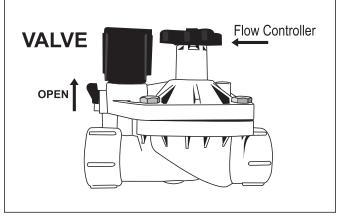


Figure 10. Valve Flow Controller

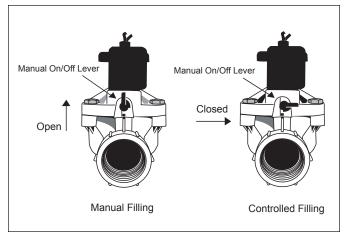
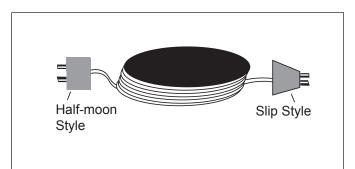


Figure 11. Manual Valve Lever

3.6 Installing the Sensor

NOTE If using a dual-type sensor, determine the appropriate sensor to use and cut off and discard the sensor on the other end of the wire.

Important Safety Instructions. Sensor wires must be continuous and not spliced. Solder all low voltage wire connections when possible and always use grease-filled wire nuts on low voltage connections.





1. Install the sensor in the appropriate location for the sensor type.

a. Use the half-moon shaped sensor to mount horizontally to an existing skimmer. The halfmoon sensor can be mounted with a suitable adhesive in the skimmer throat behind the whir door arc. See Figures 13 and 15.

b. Use the round sensor to mount vertically in a static pipe. Cut off the unused end. See Figures 2 and 14.

c. Screw the threaded sensor into a one (1) inch threaded coupling. See Figure 23.

2. Connect the sensor wires as follows:

Models K-1100 and LX2: Connect the sensor cable to the two (2) orange wires in the control box using small blue wire nuts. See Figures 3 and 6.

Model K-2300:

a. Connect one (1) wire from the Level 1 Sensor and one (1) wire from the Level 2 Sensor to the yellow common wires using small blue wire nuts. See Figure 9.

b. Connect the other wire from the Level 1 Sensor to the yellow wire with the blue stripe using small blue wire nuts. See Figure 9.

b. Connect the other wire from the Level 2 Sensor to the yellow wire with the red stripe using small blue wire nuts. See Figure 9.

- NOTE When using the static pipe method, glue all 1" fittings only. Do not glue 2" fittings. Glue all fittings with proper ABS/PVC glue: 793 IPS brand for ABS/PVC.
- NOTE For all models, the wire to the sensors must be continuous. There cannot be any wire splices.

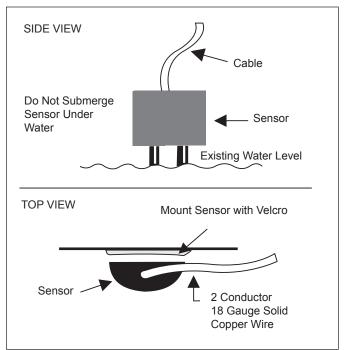


Figure 13. Half-Moon Sensor Retrofit Installation

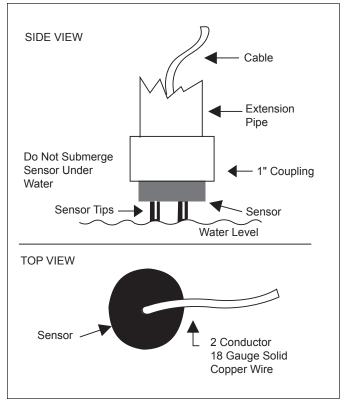
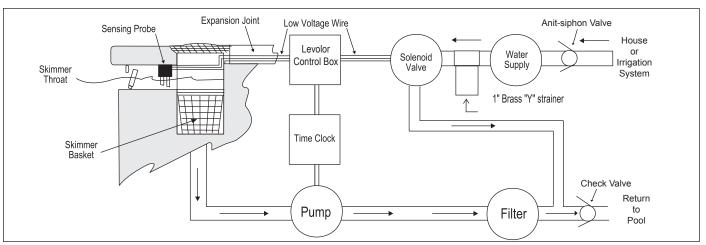


Figure 14. Slip Style Sensor Installation





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3.7 Skimmer Installation in an Existing Pool

A 24VAC solenoid valve will provide water from a supply line to the pool or spa. You can install the supply line either before or after the filter at the equipment pad or on a dedicated line back to the pool.

Jandy recommends a minimum 3/4 inch valve and an anti-siphon valve, which provides inexpensive insurance against accidental draining of the pool. Always use an in-line strainer, which can be purchased from Jandy. See Figure 15.

3.8 Stand Pipe Installation in a New Pool

Figure 16 is a schematic for a stand pipe installation of a Model K-1100 or Model K-2300 in a new pool. Figures 17 and 18 on the following page show details of the schematic.

NOTE When using the static pipe method, glue all fittings with proper ABS/PVC glue: 793 IPS brand for ABS/PVC.

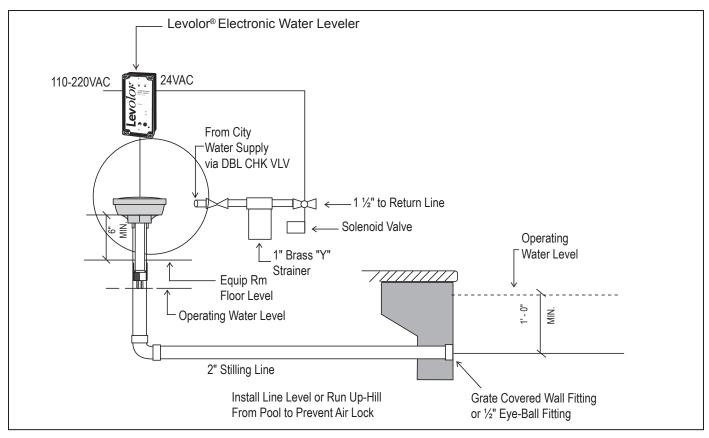


Figure 16. Stand Pipe Installation of Model K-1100 or Model K-2300 in a New Pool



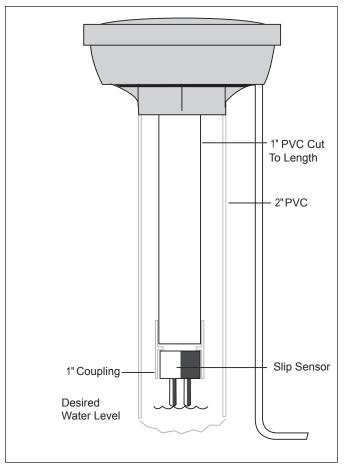


Figure 17. Details of Installation in New Pool

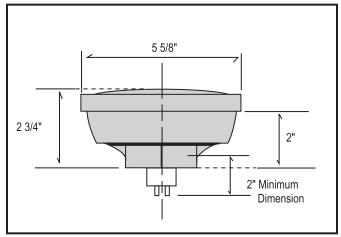


Figure 18. Remote Sensor Housing Detail

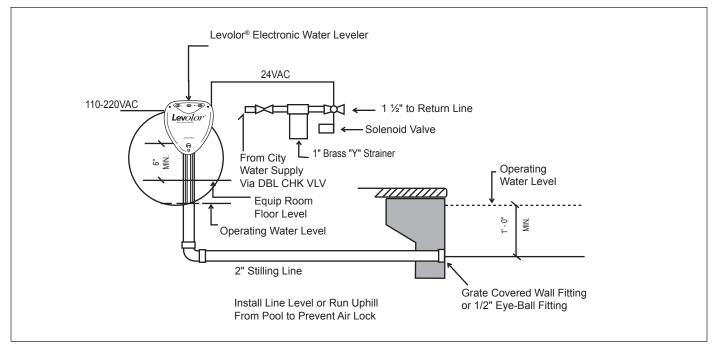


Figure 19. Installation of Model LX2 in a New Pool

Figure 19 is a schematic for installation of a Model LX2 in a new pool. Figure 20 shows details of the schematic.

NOTE When using the static pipe method, glue all fittings with proper ABS/PVC glue: 793 IPS brand for ABS/PVC.

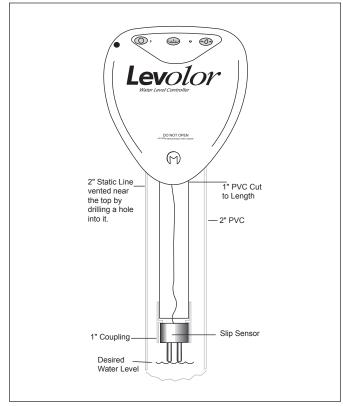


Figure 20. Details of Installation of Model LX2 in a New Pool

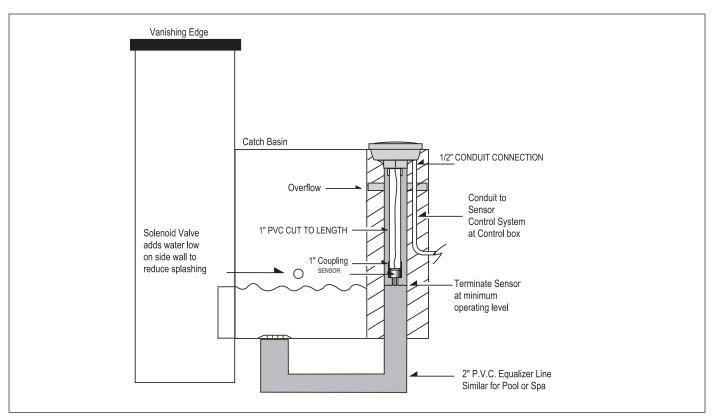


Figure 21. Vanishing Edge Pool Installation

3.9 Installation in a Vanishing Edge Pool

Figure 21 shows the details for installation in a vanishing edge pool.

3.10 Installation in a Deck

Figure 22 shows the details for installation in a deck.

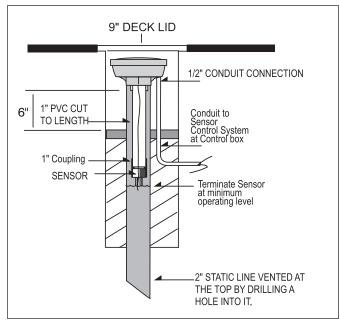


Figure 22. Deck Lid Installation Details

NOTE When using the static pipe method, glue all fittings with proper ABS/PVC glue: 793 IPS brand for ABS/PVC.



Section 4. Operation

4.1 Levolor[®] Models K-1100 and LX2

The controllers for the K-1100 (See Figure 23) and the LX2 (See Figure 24) each have three (3) lights.

The Power light, located in the upper left corner of the unit, turns green when the unit is powered on.

The Sensor light, located between the power light and fill light, turns amber when water is NOT touching the sensor tips.

The Fill light is located to the right of the sensor light. It turns green 20 seconds after the unit begins filling and turns off 20 seconds after the water hits the sensor, indicating that the pool is filled. If the unit takes longer than its set limit to fill (20 to 60 minutes), the fill light will turn red. This indicates that the unit has gone into a Lock-out Safety Mode.

The Lock-out Safety Mode shuts the unit down for 24 hours or until the unit is powered down and back up to reset the filling time. When the unit goes into lock-out, it indicates a possible problem with the unit or a leak in the water feature. The 24-hour window provides time to find and fix the problem.

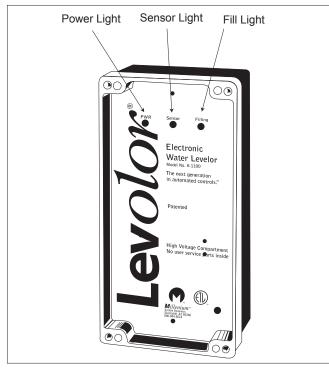


Figure 23. K-1100 Controller Lights

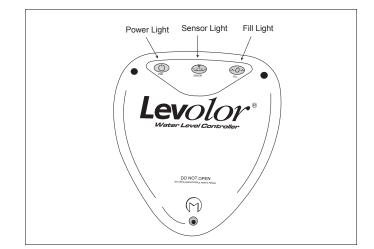


Figure 24. LX2 Controller Lights

4.2 Levolor[®] II, Model K-2300

The controller for the K-2300 (See Figure 25) has five (5) lights.

The Power light turns green when the unit is on.

The Level 1 Sensor Activated light turns amber when water is not touching the sensor tips in the first unit. The Level 1 Fill Activated light turns green when the first unit is filling, turns off when it is filled, and turns red when the unit goes into Lock-out Safety Mode.

The Level 2 Sensor Activated light turns amber when water is not touching the sensor tips in the second unit. The Level 2 Fill Activated light turns green when the second unit is filling, turns off when it is filled, and turns red when the unit goes into Lock-out Safety Mode.

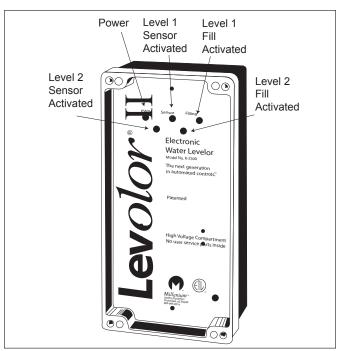


Figure 25. K-2300 Controller Lights

4.3 Sensor Override Lock-out System

All three (3) models described in this manual are equipped with a lock-out sequence. This means that if the Levolor[®] sensor has not been touched by water within the pre-set time lock-out time period, the controller turns the valve off for 24 hours and changes the fill light from green to red.

The pre-set factory lock-out period is 20 minutes. This lock-out period can be field modified by cutting the jumpers as follows:

Model K-1100 and LX2:

Cut Jumper	Lock-out
Jumper A or B	40 minute lock-out
Jumpers A and B	60 minute lock-out
Jumper S-1	Lockout disabled

The jumper cables for the K-1100 are located near the top left of the circuit board, and the jumper cables for the LX2 are located near in the middle left of the circuit board. See Figures 26 and 27.

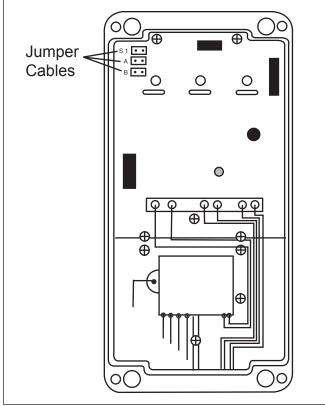
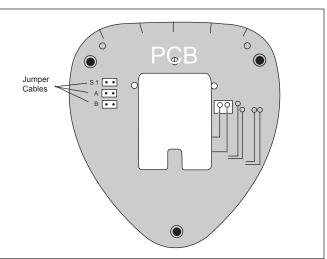
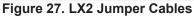


Figure 26. K-1100 Jumper Cables



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Model K-2300:

Cut Jumper	Lock-out
Jumper A or B	40 minute lock-out for Sensor/Valve 1
Jumpers A and B	60 minute lock-out for Sensor/Valve 1
Jumper S-1	Lock-out for Sensor/Valve 1 Disabled
Jumper C or D	40 minute lock-out for Sensor/Valve 2
Jumpers C and D	60 minute lock-out for Sensor/Valve 2
Jumper S-2	Lock-out for Sensor/Valve 2 Disabled

The jumpers for the K-2300 are located at the top left of the circuit board, as shown in Figure 28.

NOTE For all models, the wire to the sensors must be continuous.

4.4 Manual Valve Override

There is a manual ON/OFF lever located just below the solenoid. If you are having a problem with the system and want to override the electronic water Levolor[®], you can manually open the valve by putting the lever in the up position \uparrow (12 o'clock). See Figure 11.

During normal operation, the lever must be in the horizontal position \rightarrow (3 o'clock).

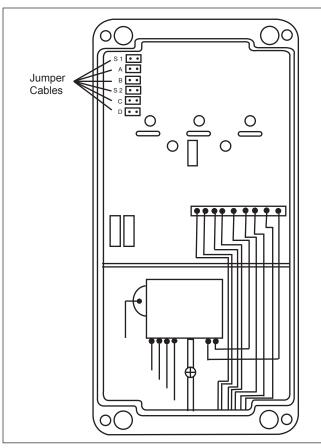


Figure 28. K-2300 Jumper Cables

Section 5. Troubleshooting

5.1 Levolor[®] Models K-1100 and LX2 Fill Only

Make these initial observations when at the jobsite.

- 1. Proper wire usage between the controller and the valve. (Direct burial-style polypropelene jacketed wire solid at least 18-gauge wire.) (Same wire as the sensor wire.)
- 2. Proper wire nuts at the valve connection. (Greasefilled wire nuts or gel caps. Conventional wire nuts filled with silicone will not work since some silicones have acids that degrade copper wires.)
- 3. Sensor wire must be continuous and not spliced. (No splices between the tips and the controller.)
- 4. Proper use of appropriate sensor. (Slip style for static pipes or half-moon for skimmer mounts where there is no water in transit from fountains, etc.)
- 5. Proper power input voltage to the box.

5.2 Test Operation of Control Unit

- 1. Shut power off to the control box for all models: K-1100, LX2 and K-2300.
- 2. Disconnect the sensor from the sensor wires:

a. Models K-1100 and LX2: Disconnect the sensor from the orange wires in the control box.

b. Model K-2300: Disconnect the level 1 sensor from the yellow wire with the blue stripe and the yellow common wire in the control box. Disconnect the level 2 sensor from the yellow wire with the red stripe and the yellow common wire in the control box.

3. Disconnect the valve from the valve wires:

a. Models K-1100 and LX2: Disconnect the valve from the blue wires in the control box.

b. Model K-2300: Disconnect valve 1 from theblue wires in the control box and disconnect valve2 from the red wires in the control box.

- Restore power to the control box and observe the operation. The control box is working if steps 5 9 occur.
- 5. The power light turns green
- 6. The sensor light turns amber.
- 7. Voltage is sent to the valve(s).

a. Models K-1100 and LX2: Twenty seconds after the sensor light turns amber, the fill light turns green, sending 24VAC to the valve on the blue wires.

b. Model K-2300: Twenty seconds after the sensor light turns amber, the fill 1 activated light turns green, sending 24VAC to valve 1 on the blue wires. The fill 2 activated light turns green, sending 24VAC to valve 2 on the red wires.

c. Use a volt meter to confirm 24VAC at wires in the control box.

8. Sensor wires are connected:

a. Models K-1100 and LX2: Connect the orange wires in the control box together and the amber sensor light will turn off.

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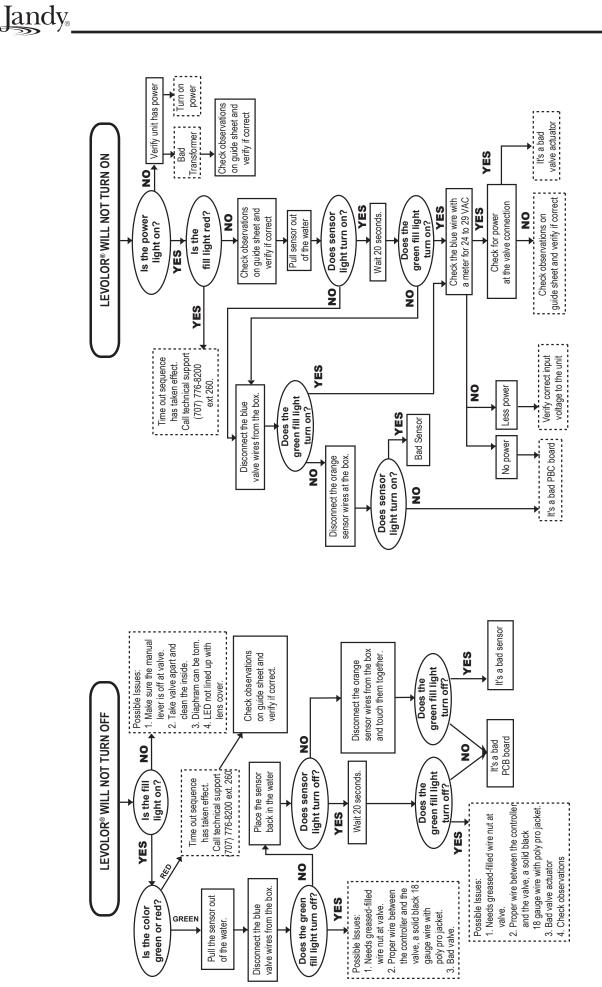
b. Model K-2300: Connect the yellow wire with the blue stripe for sensor 1 and the yellow common wire in the control box. Twenty seconds later, the green fill valve 1 activated light will turn off. Connect the yellow wire with the red stripe for sensor 2 and the yellow common wire in the control box. Twenty seconds later the fill 2 valve activated light will turn off.

9. After the green fill activated light turns off, use a voltmeter to confirm the following:

a. Models K-1100 and LX2: 0 voltage at the blue wires in the control box.

b. Model K-2300: 0 voltage at the blue wires for valve 1 and the red wires for valve 2.

Use the troubleshooting flow chart on the following page to find and fix problems.



Notes

Notes

Jandy

LIMITED WARRANTY

Thank you for purchasing Jandy[®] pool and spa products. Jandy Pool Products, Inc. warrants all parts to be free from manufacturing defects in materials and workmanship for a period of one (1) year from the date of retail purchase, with the following exceptions:

- AquaLink[®] RS units installed with Jandy Surge Protection Kits will be covered for two (2) years.
- Never Lube[®] valves are warranted for the life of pool and/or spa on which they were originally installed.
- AquaPure[®] Electronic Chlorine Generator Electrolytic Cells carry a five (5) year limited warranty on a prorated basis.

This warranty is limited to the first retail purchaser, is not transferable, and does not apply to products that have been moved from their original installation sites. The liability of Jandy Pool Products, Inc. shall not exceed the repair or replacement of defective parts and does not include any costs for labor to remove and reinstall the defective part, transportation to or from the factory, and any other materials required to make the repair. This warranty does not cover failures or malfunctions resulting from the following:

- 1. Failure to properly install, operate or maintain the product(s) in accordance with our published Installation, Operation and Maintenance Manuals provided with the product(s).
- 2. The workmanship of any installer of the product(s).
- 3. Not maintaining a proper chemical balance in your pool and/or spa [pH level between 7.2 and 7.8, Total Alkalinity (TA) between 80 to 120 ppm, Total Dissolved Solids (TDS) less than 2000 not including salt ppm].
- 4. Abuse, alteration, accident, fire, flood, lightning, rodents, insects, negligence or acts of God.
- 5. Scaling, freezing, or other conditions causing inadequate water circulation.
- 6. Operating the product(s) at water flow rates outside the published minimum and maximum specifications.
- 7. Use of non-factory authorized parts or accessories in conjunction with the product(s).
- 8. Chemical contamination of combustion air or improper use of sanitizing chemicals, such as introducing sanitizing chemicals upstream of the heater and cleaner hose or through the skimmer.
- 9. Overheating; incorrect wire runs; improper electrical supply; collateral damage caused by failure of O-Rings, DE grids, or cartridge elements; or damage caused by running the pump with insufficient quantities of water.

LIMITATION OF LIABILITY:

This is the only warranty given by Jandy Pool Products, Inc. No one is authorized to make any other warranties on behalf of Jandy Pool Products, Inc. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE AND MERCHANTABILITY. JANDY POOL PRODUCTS, INC. EXPRESSLY DISCLAIMS AND EXCLUDES ANY LIABILITY FOR CONSEQUENTIAL, INCIDENTAL, INDIRECT OR PUNITIVE DAMAGES FOR BREACH OF ANY EXPRESSED OR IMPLIED WARRANTY. This warranty gives you specific legal rights. You may also have other rights that vary by state or province.

WARRANTY CLAIMS:

For prompt warranty consideration, contact your dealer and provide the following information: proof of purchase, model number, serial number and date of installation. The installer will contact the factory for instructions regarding the claim and to determine the location of the nearest designated service center. If the dealer is not available, you can locate a service center in your area by visiting www.jandy.com or by calling our technical support department at (707) 776-8200 extension 260. All returned parts must have a Returned Material Authorization number to be evaluated under the terms of this warranty.





ETL LISTED CONFORMS TO UL STD 1563 CERTIFIED TO CAN/CSA C22 2 NO. 218 1

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