



Red Lion RL12G05-3W2V Submersible Deep Well Pump with Control Box Owner's Manual

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Red Lion RL12G05-3W2V Submersible Deep Well Pump with Control Box



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4-inch Deep Well Submersible Pump

This deep well submersible pump is ideal for the supply of fresh water to rural homes, farms, and cabins that have 4-inch diameter and greater drilled wells to depths of 250 feet. The RL-series offers 12 and 22 GPM models. The RS-series includes 5, 12, and 22 GPM models. All RL-series 3-wire ½, ¾, and 1 hp models include a control box.

This product is covered by a Limited Warranty for a period of 3 years from the date of original purchase by the consumer. For complete warranty information, refer to www.redlionproducts.com, or call Technical Support for a printed copy.



Specifications

RL-series Thermoplastic Discharge

| Model | Item Nu mber | Discharge (FNPT) | HP | Wire | Volts | Amps | Shut Off (ft / m) | Max Flow (G PM / LPM) |
|-------------------|-----------------|---------------------|----|------|-------|------|----------------------|--------------------------|
| RL12G05-2W 1V | 14942401 | 1 ¼ | ½ | 2 | 115 | 12 | 212 / 64.6 | 12 / 45.4 |
| RL12G05-2W 2V | 14942402 | | ½ | | 230 | 6 | 212 / 64.6 | |
| RL12G07-2W 2V | 14942403 | | ¾ | | | 8 | 333 / 101.5 | |
| RL12G10-2W 2V | 14942404 | | 1 | | | 10.4 | 434 / 132.3 | |
| RL12G05-3W 2V* | 14942405 | | 3 | ½ | | 6 | 212 / 64.6 | |
| RL12G07-3W 2V* | 14942406 | | | ¾ | | 8 | 333 / 101.2 | |
| RL12G10-3W 2V* | 14942407 | | | 1 | | 10.4 | 434 / 132.3 | |
| RL12G15-3W 2V | 14942408 | | | 1.5 | | 11.5 | 548 / 167.0 | |
| RL22G10-3W 2V* | 14942409 | | | 1 | | 10.4 | 260 / 79.2 | 22 / 83.3 |

*Includes control box

RS-series Stainless Steel Discharge

| Model | Item Number | Discharge (FNPT) | HP | Wire | Volts | Amps | Shut Off (ft / m) | Max Flow (GPM / LPM) |
|---------------|-------------|------------------|-----|------|-------|------|-------------------|----------------------|
| RS5G05-3W2 V | 14942373 | 1 1/4 | 1/2 | 3 | 230 | 6.0 | 305 / 92.9 | 7.5 / 28.3 |
| RS5G07-3W2 V | 14942374 | | 3/4 | | | 8.0 | 465 / 141.7 | |
| RS12G05-3W 2V | 14942377 | | 1/2 | | | 6.0 | 215 / 65.5 | 18 / 68.1 |
| RS12G07-3W 2V | 14942378 | | 3/4 | | | 8.0 | 285 / 86.8 | |
| RS12G10-3W 2V | 14942379 | | 1 | | | 10.4 | 400 / 121.9 | |
| RS12G15-3W 2V | 14942380 | | 1.5 | | | 11.5 | 520 / 153.4 | |
| RS22G07-3W 2V | 14942381 | | 3/4 | | | 8.0 | 175 / 53.3 | 32.5 / 123.0 |
| RS22G10-3W 2V | 14942382 | | 1 | | | 10.4 | 225 / 68.5 | |
| RS22G15-3W 2V | 14942383 | | 1.5 | | | 11.5 | 282 / 85.9 | |

Control Boxes

| Model | Item Number | HP |
|------------|-------------|-----|
| RLCB05-230 | 640189 | 1/2 |
| RLCB07-230 | 640190 | 3/4 |
| RLCB10-230 | 640191 | 1 |
| RLCB15-230 | 640222 | 1.5 |

SAFETY INSTRUCTIONS

This equipment should be installed and serviced by technically qualified personnel who are familiar with the correct selection and use of appropriate tools, equipment, and procedures. Failure to comply with national and local electrical and plumbing codes and within Red Lion recommendations may result in electrical shock or fire hazard, unsatisfactory performance, or equipment failure.

Know the product's application, limitations, and potential hazards. Read and follow instructions carefully to avoid injury and property damage. Do not disassemble or repair unit unless described in this manual.

Failure to follow installation or operation procedures and all applicable codes may result in the following hazards:



DANGER



Risk of death, personal injury, or property damage due to explosion, fire, or electric shock.

- Do not use in explosive atmospheres or hazardous locations as classified by the NEC, ANSI/NFPA70.
- Do not handle a pump or pump motor with wet hands or when standing on a wet or damp surface or in water until the unit is unplugged or electrically disconnected.
- Do not use to pump flammable, combustible, or explosive fluids such as gasoline, fuel oil, kerosene, etc.



WARNING



High voltages and system pressure capable of causing severe injury or death are present in this unit.

- Ground motor before connecting to power supply.
- To reduce risk of electrical shock, disconnect power before working on or around the system. More than one disconnect switch may be required to de-energize the equipment before servicing.
- Wire pump system for correct voltages. Follow wiring instructions in this manual when connecting motor to power lines.
- Check local electrical and building codes before installation. The installation must be in accordance with their regulations as well as the most recent National Electrical Code (NEC), Occupational Safety and Health Act (OSHA), and Canadian Electrical Code (CEC).
- This pump has not been investigated for use in swimming pool or marine areas.



CAUTION



Risk of bodily injury, electric shock, or equipment damage.

- This equipment must not be used by children or persons with reduced physical, sensory or mental abilities, or lacking in experience and expertise, unless supervised or instructed. Children may not use the equipment, nor may they play with the unit or in the immediate vicinity.
- Equipment can start automatically. Always unplug the pump power cord and disconnect the electrical power before servicing the pump or control.
- Operation of this equipment requires detailed installation and operation instructions provided in this manual for use with this product. Read entire manual before starting installation and operation. End User should receive and retain manual for future use.
- Do not wear loose clothing, jewelry, or anything that may be caught in the rotating parts. Tie up long hair and remove jewelry.
- Wear safety glasses while installing or performing maintenance on the pump.
- Keep safety labels clean and in good condition.
- Keep work area clean, well-lit, and uncluttered.

- This pump has been evaluated for use with water only.
- An acceptable motor control device shall be provided at the time of installation.

NOTICE

Risk of damage to pump or other equipment.

- Periodically inspect pump and system components. Regularly check piping for weakness or wear, making certain that all connections are secure.
- The motor on this pump is guaranteed by the manufacturer. In event of failure, it must be returned to an authorized product reseller for review and disposition. Product warranty is void if product is disassembled or reviewed by any other party.
- Install the pump in a properly developed well. Undeveloped well water often contains abrasives that can damage the pump.
- Check that the well is deep enough to allow the pump to be set at least 5 ft from the bottom.
- Do not set pump below the casing perforations or well screen unless there is an adequate flow of water over the motor for cooling purposes is ensured.
- Determine the correct pump setting from the driller's record, taking into account the static water level and the draw-down at the proposed pumping rate.
- Schedule and perform routine maintenance as required. Refer to "Maintenance".

INSTALLATION

Typical Installations

1. Service entrance
2. Air valve
3. Pressure tank
4. Service pipe
5. Pressure gauge
6. Pressure relief valve
7. Pressure switch
8. Circuit breaker or fused disconnect switch
9. Franklin control box
10. Frost line
11. Conduit for pump wiring
12. Ventilated well cap
13. Cable tie or tape
14. Discharge pipe
15. Poly safety rope
16. Torque arrestor
17. Well casing
18. Built-in check valve
19. Pump & motor

-
- Without a Pitless Adapter**
- With a Pitless Adapter**
- The diagram illustrates two methods of connecting a pitless adapter to a well. The left side, 'Without a Pitless Adapter', shows a well with a pump and a pitless adapter installed inside the well casing. The right side, 'With a Pitless Adapter', shows a well with a pump and a pitless adapter installed outside the well casing, connected to the main water line. Numbered callouts (1-25) identify various components like pipes, valves, and the pitless adapter itself.

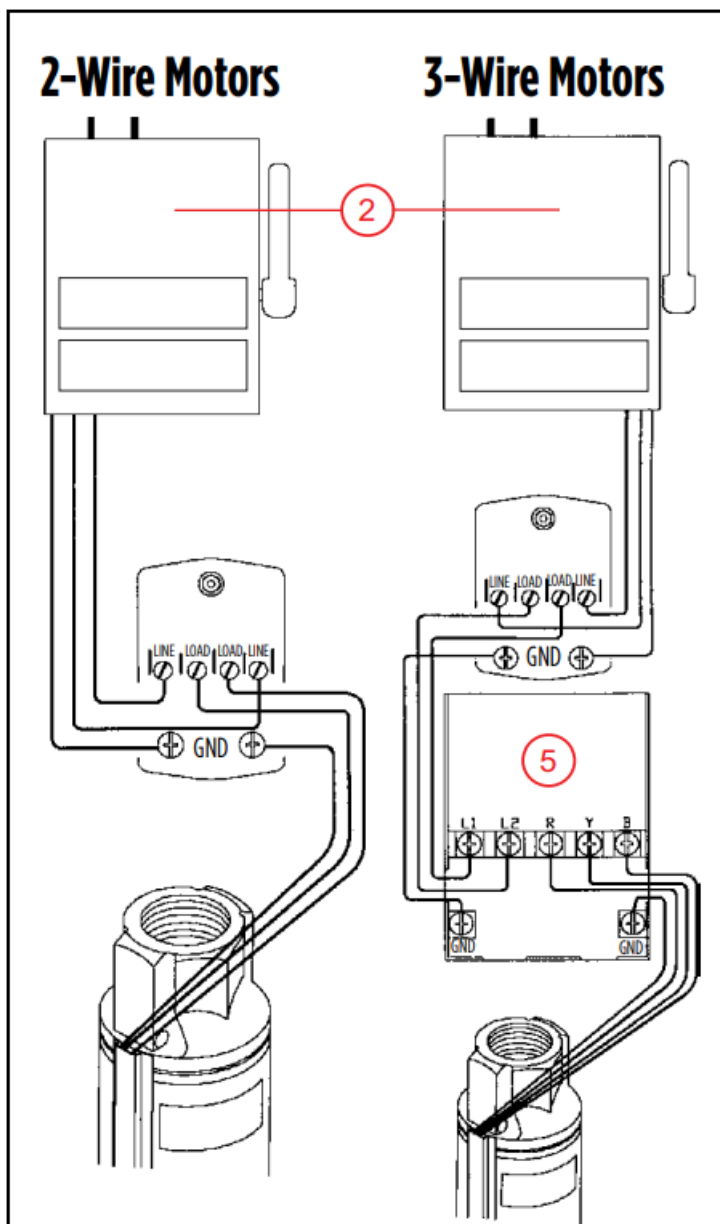
WARNING

Risk of severe injury or death by electrical shock, or damage to system.

- Always disconnect the electrical power before touching the pump.
- A ground fault circuit interrupter (GFCI) is required.
- If the power cord is damaged, it must only be replaced by qualified personnel.

Employ a licensed electrician or water systems contractor to ensure installation is done properly. Follow cable splicing kit instructions.

1. Make sure the supply voltage and current ratings correspond with the electrical ratings of the motor and control box.
2. Install a fused disconnect switch or circuit breaker.
3. Ground the pump and the distribution panel with the motor's green conductor.
4. For two-wire pumps, make wiring connections.
5. For three-wire, single-phase pumps, make wiring connections.
 - Install a magnetic contactor if the pressure switch is not sufficient to handle the motor's electrical rating. The pressure switch is then used as a pilot circuit to control the contactor.
6. For three-wire, single-phase pumps, install control boxes in accordance to the control box's manual and the electrical code.
 - Mount control boxes in an area protected from rain, snow, high temperatures, and temperatures below 14 °F (-10 °C).
7. For 3-phase pumps, install a magnetic starter equipped with quick-trip, ambient compensated heaters, electronic adjustable overload, soft start, or VFD of correct horsepower size.
8. For 3-phase motors, install a separate lightning arrestor close to the wellhead.
9. Test the unit. Brace pump shell and apply power momentarily.
10. For three phase motors, ensure pump rotation is counterclockwise when viewed from pump discharge.
 - Interchange any two leads at the magnetic starter to change rotation.
11. Place the motor and pump labels in the circuit breaker box for future reference.



Physical Installation

Refer to “Typical Installations”

1. Confirm the motor's lead wires are secure under the pump's lead guard.
2. Install a pressure tank per manufacturer's recommendations.
3. Attach a 3 /16-inch to 1 /4-inch diameter steel safety cable to pump.

IMPORTANT: If using a different type of cable, confirm the system weight does not exceed the limit.

4. Attach schedule 40 galvanized pipes to pump.
 - If using plastic pipe, refer to manufacturer's recommendations for depth and pressure.
 - Keep pipes clean and free from debris.
 - Use pipe sealant on all fittings.

5. Install system check valves.

IMPORTANT: Install only positive sealing check valves. Never use swing type check valves.

- For installations more than 200 feet (61 m), install check valves in the drop pipe at intervals of 200 feet (60 m) or as specified by the check valve manufacturer.

- Install an in-line check valve in the discharge line within 25 feet (7.6 m) of the pump and below the draw-down level of the water supply.
 - If permitted by local codes, install a relief valve between the wellhead and the pressure tank.
6. Install a torque arrestor just above the pump.
 7. Fasten the electrical cable to the drop pipe with clamps or appropriate tape every 10 feet (3 m).
 - Do not scrape or pinch the cable against the well casing.
 - Keep the cable slack when using plastic drop pipe to allow for stretching.
 - Check continuity and insulation resistance with an ohmmeter and megger.
 8. Lower pump to a minimum of 5 feet (1.5 m) from bottom of well and above well screen or casing perforations.
 9. Test the well. Refer to “Well Test” on page 6.
 10. Place a sanitary well seal or pit-less adapter over top of well per manufacturer’s recommendations.

Well Test

NOTICE

Risk of damage to pump or other equipment.

- Never run pump unless it is completely submerged in water to avoid pump and motor damage
 - Air drawn into the pump can cause an airlock under certain conditions.
1. Install a partially opened gate valve on the end of the pipe.
 2. Start the pump and slowly open valve to full flow.
 - If the discharge water is not clear within 30 minutes, stop pump and take necessary steps to correct.
 3. Adjust valve until maximum required system flow rate is obtained.
 4. Ensure the pump output is not greater than the yield of the well (low-yielding) by monitoring the well draw-down level at the maximum system flow rate.
 - Refer to “Low-Yielding Well” to correct issue.

Low-Yielding Well

1. Install a smaller pump.
 - Consult licensed water systems professional contractor for sizing.
2. Add additional length of drop pipe to place pump lower in well.
3. Install a Franklin Pumptec or similar electronic run-dry sensor.
4. Install a float-less liquid level control to work with the pressure switch.
5. Place a flow control valve in the discharge line upstream from the pressure switch to restrict output.
 - A pressure tank with a bonded diaphragm, air cell, or water bag is recommended.
6. Install a low-pressure cut-off switch.

MAINTENANCE

Check Valve Replacement

NOTICE

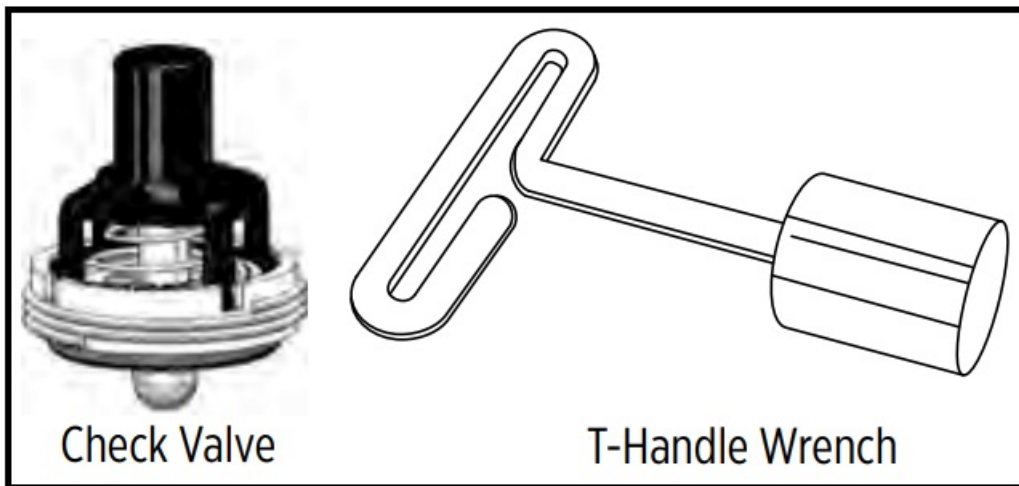
Risk of damage to pump or other equipment.

- Fluid draining back through the pump can cause the pump to rotate backwards. If pump/motor starts during this time, damage to the pump can occur.

Most 4-inch submersible pumps come standard with an internal check valve to prevent water back flow.

To remove:

1. If the pump discharge has a snap ring blocking the check valve, remove using a standard size snap ring tool.
2. Unscrew the check valve assembly (clockwise) using a T-handle wrench, sold separately.

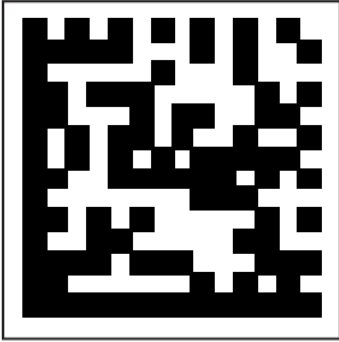


NOTE: Check valves are reverse (left-hand) threaded.
For reassembly, tighten the check valve to 15 inch-pounds.

Troubleshooting

| Problem | Probable Causes | Corrective Action |
|---|--|---|
| Pump fails to start | Electrical trouble | Call dealer or electrician |
| | Draw-down protection device has pump turned off | Make sure system check valves are correctly installed or uninst all draw-down protection device. Reset low pressure cutoff switch (if installed). |
| | Overload tripped | Reset overloads and low pressure cutoff switch (if installed). |
| Pump fails to deliver water or reduced output | Clogged intake screen | Clean intake screen. |
| | Insufficient well yield | Shut off system. Refer to "Low-Yielding Well". |
| | Worn pump | Replace pump. |
| | Low voltage | Make sure the power supply corresponds with the electrical rating of the motor. For 3-wire, single phase pumps, check the control box. |
| | Incorrect rotation (3-phase) | Interchange any two leads at the magnetic starter. |
| Pump cycles too frequently | Pressure drop between pressure switch and tank | Check system for a plumbing leak and correct as necessary. |
| | "Cut-in" or "Cut out" pressure too high | Follow manufacturer's instructions to properly set the on/ off cycle of the pressure switch. |
| | Waterlogged pressure tank | Follow manufacturer's instructions on resetting/establishing proper air pressure setting for the tank. |
| | Electrodes of float-less liquid level control too close together | Follow manufacturer's recommendation for installation of the electrodes on the level control. |
| | Tank too small | Install pressure tank with bonded diaphragm, air cell, or water bag. |
| Overloads trip | Electrical trouble | Call dealer or electrician. |
| Pressure switch cycles rapidly | Pressure switch too far from pressure tank | Adjust air charge of tank to manufacturer's recommendations. |
| Backspin | Failed or no check valve | Install new, non-swing type check valve(s). |
| Up-thrust | Check valve drilled | Install positive sealing check valves only. |
| Water Hammer | Lowest check valve leaks or is more than 30 ft above water | Shut system down and contact pump installer to correct issue. |
| | Check valve drilled | Install positive sealing check valves only. |

Customer Support

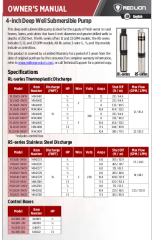


For technical assistance, parts, or repair, please contact: 888.885.9254 | redlionproducts.com

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Documents / Resources



[Red Lion RL12G05-3W2V Submersible Deep Well Pump with Control Box](#) [pdf] Owner's M anual

RL12G05-3W2V Submersible Deep Well Pump with Control Box, RL12G05-3W2V, Submersibl e Deep Well Pump with Control Box, Well Pump with Control Box, Pump with Control Box

References

-  [Red Lion Pump Products](#)
-  [Red Lion Pump Products](#)
- [User Manual](#)