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Liberty Pumps AE24L=4

Liberty Pumps AE24L=4 Duplex Control Panel

Instruction Manual

Model: AE24L=4 | Brand: Liberty Pumps

1. INTRODUCTION

The Liberty Pumps AE24L=4 Duplex Control Panel is designed for reliable alternating operation of two pumps in residential or commercial installations. This panel provides automatic override control and is suitable for both indoor and outdoor use. It features a four-float system for precise control of pump stop, lead pump start, lag pump start, and high-level alarm functions.

This manual provides essential information for the safe installation, operation, and maintenance of your AE24L=4 control panel. Please read it thoroughly before installation or use.

1.1 Key Features

- Magnetic motor contactors for enhanced durability.
- Easy wiring terminal blocks for simplified installation.
- Integrated visual and audible alarm for high-level conditions.
- Includes four pilot-duty floats for comprehensive level sensing.
- HOA (Hand-Off-Auto) switches (internal) for manual control or automatic operation.
- Green pump run indicators (internal) to show pump status.
- Control ON/OFF switch (internal) for system power management.
- Control/Alarm power-on indicator (internal) for system status.
- Circuit breakers for overcurrent protection.
- Auxiliary contacts for external connections.

1.2 Applications

The AE24L=4 control panel is suitable for various applications, including:

- Sump basins
- Effluent or sewage pump chambers
- Lift stations



Figure 1: Liberty Pumps AE24L=4 Duplex Control Panel. This image displays the control panel enclosure with four attached floats, illustrating the primary components of the system.

2. SAFETY INFORMATION

WARNING: Risk of electric shock. This product must be installed by a qualified electrician in accordance with all national and local electrical codes.

- Always disconnect power at the circuit breaker before installing, servicing, or performing any maintenance on the control panel or connected pumps.
- Ensure proper grounding of the control panel and all connected equipment.
- Do not operate the control panel with damaged wiring or components.
- Keep hands and tools clear of moving parts and electrical connections.
- This control panel is designed for specific pump amp ratings. Ensure the panel's amp rating matches that of the pumps it will control.
- Do not use this product for purposes other than its intended application.

3. PACKAGE CONTENTS

Upon unpacking, verify that all components are present and undamaged. The package should contain:

- 1x Liberty Pumps AE24L=4 Duplex Control Panel
- 4x Pilot-duty floats (pre-wired or to be connected as per instructions)
- Instruction Manual (this document)

If any items are missing or damaged, contact your supplier immediately.

4. INSTALLATION AND SETUP

Installation of the AE24L=4 control panel requires electrical expertise. It is strongly recommended that installation be performed by a qualified and licensed electrician.

4.1 Mounting the Control Panel

1. Select a suitable location for mounting the control panel. The location should be easily accessible for maintenance and inspection, and protected from direct physical damage.
2. Ensure the mounting surface is flat and capable of supporting the panel's weight (approximately 22 pounds).
3. Use appropriate fasteners (not included) to securely mount the panel to the wall or support structure.

4.2 Electrical Connections

CAUTION: All wiring must comply with local and national electrical codes. Incorrect wiring can lead to equipment damage, fire, or personal injury.

1. **Power Supply:** Connect the main power supply to the designated terminals within the control panel. Ensure

the voltage and phase match the panel's requirements.

2. **Pump Connections:** Connect the power cables from Pump 1 and Pump 2 to their respective terminals inside the panel.
3. **Float Connections:** Connect the four pilot-duty floats to the designated terminals. The floats are typically labeled for their function:
 - **Stop Float:** Deactivates both pumps.
 - **Lead Start Float:** Activates the lead pump.
 - **Lag Start Float:** Activates the lag pump (second pump).
 - **High Level Alarm Float:** Triggers the alarm.
4. **Grounding:** Ensure all components are properly grounded according to electrical codes.

4.3 Float Adjustment

The proper spacing and positioning of the floats are critical for correct system operation. Refer to the pump manufacturer's recommendations for optimal float settings for your specific application.

1. Position the floats in the basin or chamber, ensuring they can move freely without obstruction.
2. Adjust the tether lengths to achieve the desired activation levels for stop, lead start, lag start, and high-level alarm.
3. Test the float operation by manually raising and lowering them to confirm correct pump activation and alarm functions.

5. OPERATION

Once installed and powered, the AE24L=4 control panel operates automatically to manage the two connected pumps.

5.1 Powering On

1. Ensure all wiring is complete and secure.
2. Turn on the main power supply to the control panel at the circuit breaker.
3. Inside the panel, verify the "Control/Alarm power-on indicator" is illuminated.
4. Set the internal "Control ON/OFF switch" to the ON position.

5.2 Automatic Alternating Operation

The control panel is designed to alternate the lead pump with each cycle, ensuring even wear and extending pump life. The sequence of operation is as follows:

- When the liquid level rises and activates the **Lead Start Float**, the designated lead pump will start.
- If the liquid level continues to rise and activates the **Lag Start Float**, the second pump (lag pump) will also start, operating in conjunction with the lead pump.
- If the liquid level reaches the **High Level Alarm Float**, the visual and audible alarms will activate, indicating a potential overflow condition.
- As the liquid level drops and deactivates the floats, the pumps will turn off in reverse order. When the **Stop Float** is deactivated, both pumps will stop.
- In the next cycle, the control panel will automatically switch the lead pump, ensuring balanced operation.

5.3 HOA Switches (Hand-Off-Auto)

The internal HOA switches allow for manual control or disabling of individual pumps for testing or maintenance:

- **HAND:** Forces the pump to run continuously, bypassing float controls. Use with caution and only for testing.
- **OFF:** Disables the pump, preventing it from running.
- **AUTO:** Allows the pump to operate automatically based on float signals. This is the normal operating mode.

Always return HOA switches to the AUTO position for normal, unattended operation.

6. MAINTENANCE

Regular maintenance ensures the longevity and reliable operation of your control panel. Always disconnect power before performing any maintenance.

- **Monthly Inspection:**
 - Visually inspect the control panel for any signs of damage, corrosion, or loose connections.
 - Check the floats for free movement and ensure they are clean and free of debris.
 - Test the high-level alarm by manually raising the alarm float.
- **Annual Inspection:**
 - Have a qualified electrician inspect all electrical connections for tightness and integrity.
 - Verify the functionality of circuit breakers.
- **Cleaning:** Keep the exterior of the control panel clean. Do not use harsh chemicals or abrasive cleaners.

7. TROUBLESHOOTING

This section provides solutions to common issues. For problems not listed here, contact Liberty Pumps technical support.

Problem	Possible Cause	Solution
Panel has no power.	Main circuit breaker tripped; internal ON/OFF switch is OFF; loose wiring.	Check and reset circuit breaker. Ensure internal ON/OFF switch is ON. Inspect wiring connections.
Pump not starting when float activates.	HOA switch in OFF position; pump circuit breaker tripped; faulty float; pump issue.	Set HOA switch to AUTO. Check and reset pump circuit breaker. Inspect float for damage. Check pump operation independently.
High-level alarm activates frequently.	Pumps not keeping up; floats incorrectly set; pump malfunction.	Check pump capacity and condition. Verify float settings. Inspect pumps for blockages or failure.
Pumps not alternating.	Internal control issue; wiring error.	Verify wiring. Contact technical support if issue persists.

8. SPECIFICATIONS

Attribute	Detail
Model Number	AE24L=4

Attribute	Detail
Brand	Liberty Pumps
Part Number	AE24L=4
Item Weight	22 pounds
Style	Duplex Control Panel (Submersible application context)
Power Source	Corded Electric
Item Package Quantity	1
Batteries Included?	No
Batteries Required?	No
ASIN	B009PRSEY8
Date First Available	October 12, 2012
UPC	671812106985

8.1 Compatible Liberty Pumps

This control panel is compatible with the following Liberty Pumps models:

- FL102M-2
- LE41M, LE41M-2
- LE51M, LE51M-2, LE52M, LE52M-2
- LE71M2, LE71M2-2, LE71M3, LE71M3-2, LE72M2, LE72M2-2, LE72M3, LE72M3-2
- LE102M2, LE102M2-2, LE102M3, LE102M3-2, LEH102M, LEH102M2-2, LEH102M3, LEH102M3-2
- PRG101M, PRG101M-2, PRG102M, PRG102M-2

A control panel must be ordered with the proper amp rating matching that of the pump.

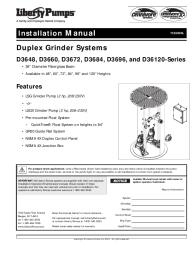
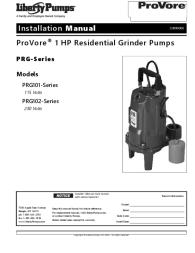
9. WARRANTY AND SUPPORT

Liberty Pumps products are manufactured to high-quality standards and are backed by a manufacturer's warranty. For specific warranty terms and conditions, please refer to the documentation provided with your purchase or visit the official Liberty Pumps website.

For technical assistance, troubleshooting beyond this manual, or to inquire about replacement parts, please contact Liberty Pumps customer support directly. Contact information can typically be found on the product packaging or the manufacturer's website.

When contacting support, please have your model number (AE24L=4) and purchase date available.

Related Documents - AE24L=4

	<p>SX-SERIES Simplex Pump Controls - Liberty Pumps</p> <p>Detailed specifications and features for Liberty Pumps' SX-SERIES Simplex Pump Controls, designed for reliable single-pump control in residential and commercial applications. Includes NEMA 1 and NEMA 4X enclosure options, model specifications, and switch details.</p>
	<p>Liberty Pumps Duplex Grinder Systems Installation Manual</p> <p>Comprehensive installation manual for Liberty Pumps D3648, D3660, D3672, D3684, D3696, and D36120-Series Duplex Grinder Systems, covering safety, installation, specifications, and warranty.</p>
	<p>Liberty Pumps ProVore® 1 HP Residential Grinder Pump Installation Manual</p> <p>Comprehensive installation manual for Liberty Pumps ProVore® 1 HP Residential Grinder Pumps (PRG-Series). Covers safety precautions, general information, pump design, installation, operation, maintenance, troubleshooting, and warranty.</p>
	<p>Liberty Pumps 450 Series Submersible Sump Pumps</p> <p>Detailed specifications and features of the Liberty Pumps 450 Series submersible sump pumps, including performance data, materials, and model variations.</p>
	<p>Liberty Pumps LGV, LGH, XLGV, XLGH Series Installation Manual</p> <p>Comprehensive installation manual for Liberty Pumps LGV, LGH, XLGV, and XLGH Series submersible grinder pumps. Covers safety precautions, general information, wiring, installation, operation, maintenance, and troubleshooting for both ordinary and hazardous locations.</p>
	<p>Liberty Pumps LNV75 Sump and Sewage Pump Battery Backup Installation Manual</p> <p>Installation manual for the Liberty Pumps LNV75, a 12-volt battery backup system designed to power sump and sewage pumps during power outages. Includes safety precautions, system components, installation, testing, maintenance, and warranty information.</p>