LEGACY CONTROLS

Control Panel Operation Manual

Dual Voltage Duplex Pump Control Panel

Model: CP-001-6-0001 & CP-001-6-0003
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Disclaimer: This manual is intended for qualified personnel only. Improper use may result in system failure or safety hazards. Always consult local regulations and a certified engineer for installation and maintenance.

System Overview

Thank you for choosing the CP-001-6-0001 and CP-001-6-0003 Dual Voltage Duplex Alternating Pump Control Panels from Legacy Controls. This panel is designed for reliable control of duplex (two-pump alternating) systems in wastewater, septic, or similar applications. It supports dual-voltage operation (120/240 VAC), features a TELE E1ZMLA10 alternating relay for automatic pump alternation, and includes built-in alarms for enhanced safety and monitoring.

This manual provides essential information on installation, operation, maintenance, and troubleshooting. Read it thoroughly before use. If you have questions, contact Legacy Controls support at support@legacy-controls.com or visit www.legacy-controls.com.

Key Features

- Integrated pump alternation with automatic lead/lag switching for balanced wear.
- Standard duplex pump control with high-water alarm.
- Optional HLLA float for lag-pump activation during high demand.
- Continuous monitoring via floats and relay logic.
- Simple, highly reliable, minimalist design.

This manual provides detailed instructions for safe installation, operation, and maintenance in compliance with applicable regulatory standards.

Intended Audience

This manual is intended for the following personnel:

- **Operators**: Personnel responsible for daily monitoring, alarm response, float replacement, and basic troubleshooting.
- **Engineers and Technicians**: Technical professionals performing installation, wiring, startup, and advanced maintenance.
- **Regulatory Authorities and Local Inspectors**: Officials verifying compliance with UL 508A and ensuring the panel's overall function meets design and local standards.

All users should possess basic knowledge of electrical systems and onsite wastewater pump processes.

Table of Contents

1. Introduction

This manual provides comprehensive instructions for the installation, operation, maintenance, and troubleshooting of the LEGACY CONTROLS Control Panel (Models CP-001-6-0001 and CP-001-6-0003). It is intended to assist qualified operators and engineers in ensuring the safe and efficient operation of duplex pump systems with automatic pump alternation and optional high-level lag activation. The manual details the panel's functionality and outlines compliance with applicable regulatory standards.

2. Safety Information

WARNING: Risk of Electric Shock: To ensure safe operation and maintenance of the control panel:

- **Electrical Safety:** Only qualified personnel should access the control panel. Ensure the main disconnect is OFF before performing maintenance or inspections.
- **Voltage Verification:** Always verify with a voltage tester.
- **Personal Protective Equipment (PPE):** Wear appropriate PPE when handling components or working near the pump station.
- **High Water Alarm:** If the high-water alarm float is engaged, immediately investigate the cause to prevent overflow.
- **Emergency Procedures:** In case of system failure, follow lockout procedures (Section 8.3) and contact your local service provider.

3. Regulatory Compliance

The LEGACY CONTROLS Control Panel (Models CP-001-6-0001 and CP-001-6-0003) is designed and manufactured in accordance with the following standards:

- **UL 508A**: Standard for Industrial Control Panels.
- **NFPA 70 (National Electrical Code)**: Applicable requirements for installation and wiring.
- **NEMA Standards**: Enclosure protection ratings suitable for wastewater and outdoor environments.

This panel meets or exceeds the requirements of these standards to ensure safety, reliability, and regulatory compliance. Certification documents are available upon request.

4. System Specifications Summary

- **Supply Current:** 120/240 VAC, 60 Hz, single-phase.
- **Total FLA:** 40 A total.
- **Pump Circuits:** 120/240 v, 2.5 HP max per pump (16 FLA each).
- **Largest Motor FLA:** 16 amps.
- **Interrupt/SCCR:** 5 kA.
- **Enclosure:** NEMA 4X polycarbonate.
- **Environmental Conditions:** Suitable for indoor or weatherproof outdoor enclosures
- **Alarm:** Red beacon + 95 dB horn, silence switch.
- **Operating Temperature:** –10 °C to 60 °C.

5. Installation Instructions

WARNING: Installation must be Performed by qualified personnel only. Disconnect and lock out all power sources before beginning work.

Refer to the supplied schematic (CP-001-6-0001) and terminal connection diagram.

1. Mount the panel in a location protected from direct weather exposure.
2. Route the 120/240 V feeder circuit into the panel.
3. Wire all field devices exactly as shown on the terminal connection diagram.
4. Torque all terminal blocks to 4–5 in-lbs.
5. Verify that all conduit entries are properly sealed.
6. Test all functions, including pump alternation, high-water alarm, and optional HLLA activation.

6. Process Description

6.1 Lead Pump Control

The lead pump, as determined by the alternating relay, activates when the On float switch closes in response to a rising liquid level. It deactivates when the Off-float switch opens as the liquid level drops. This sequence ensures efficient and reliable pump operation under normal conditions.

6.2 Lag Pump Control

The lag pump automatically alternates roles with the lead pump after each cycle to promote balanced wear and equal runtime. When the optional High Level Lag Activation (HLLA) float is installed, the lag pump will also activate during high-water conditions. In this mode, both the lead and lag pumps operate simultaneously until the liquid level falls below the HLLA float threshold. Once normal operating levels are restored, the system resumes standard single-pump operation with automatic alternation.

6.3 Alternation and Alarm

The TELE E1ZMLA10 alternating relay automatically switches the lead and lag pump designations at the completion of each pump cycle, triggered by the opening of the Off float switch.

Independently, the high-water float switch activates both the visual alarm (red beacon) and the audible alarm (buzzer) to alert operators of elevated liquid levels. Pump operation continues during the high-water alarm condition unless the optional HLLA feature is engaged.

7. Key Components and Functions

7.1 TELE E1ZMLA10 Alternating Relay

The TELE E1ZMLA10 alternating relay automatically switches the lead and lag pump designations after each cycle to ensure balanced runtime and wear. It is compatible with 24–240 V AC/DC.

7.2 Float Switches

Float switches provide primary control for pump start/stop functions and alarm activation. The standard configuration includes three floats: Off, On, and High Water. An optional fourth float (High Level Lag Activation – HLLA) can be added for enhanced system performance.

7.3 High Water Alarm Float

The high-water alarm float activates the high-water alarm circuit. When the optional HLLA feature is installed, this Normally Open (N.O.) float also engages the lag pump during high liquid levels.

7.4 Pump Selectors

Two 3-position rotary selector switches (AUTO / OFF / ON) allow independent manual control of each pump and selection of automatic operation mode.

7.5 Alarm Circuit

Consists of an integrated red beacon (visual alarm) and audible buzzer to alert operators of high-water conditions.

7.6 Motor Contactors and Overloads

Heavy-duty motor contactors switch power to the pumps. The system is designed to interface with pumps that include internal overload protection.

7.7 TELE E1ZMLA10 Relay Configuration (Alternation Function Only)

For proper automatic pump alternation:

- Set the function selector switch to **LA** (Load Alternator).
- Turn both **POT 1** and **POT 2** fully counter-clockwise to the minimum position.
- Alternation occurs on the falling edge of the control signal from the Off float.

` The selector switch also allows:

- **L1**: Manual OFF (locks the output relay off)
- **L2**: Manual ON (locks the output relay on)

Refer to the supplied schematic for correct wiring of terminals L1, LA, and L2.

8. Operating Procedure

8.1 System Initialization

1. Verify all field wiring against the terminal connection diagram.
2. Energize the 120/240 V power feed.
3. Set both pump selectors to AUTO.
4. Ensure the alarm buzzer is ON.
5. Confirm pumps alternate automatically on demand.
6. Test the alarm using the Test button.

8.2 Normal Operation

- Lead pump activates when the On float switch closes and deactivates when the Off float switch opens.
- Lag pump remains idle unless the optional HLLA float activates.
- Automatic alternation is performed by the TELE E1ZMLA10 relay.
- No red beacon or audible alarm is active.

8.3 Alarm Conditions & Lockout

- **High-Water Alarm**: Red beacon and buzzer activate; check float switches and pump operation.
- **No Alternation**: Verify TELE E1ZMLA10 relay operation.
- **Pump Fault**: Inspect overloads or wiring and reset as necessary.

9. Design Benefits

- Automatic pump alternation ensures balanced wear and extended pump life.
- Optional HLLA feature prevents overflow during high-demand conditions.
- Continuous float monitoring eliminates manual level checks.
- Simple relay logic provides extremely high reliability.
- Compact NEMA 4X enclosure with clear component labeling

10. Maintenance Guidelines

- Inspect floats and wiring quarterly.
- Clean enclosure exterior as needed.
- Test alarm and alternation monthly using the Test button and simulated float activations.
- Verify TELE E1ZMLA10 relay operation biannually.
- Inspect enclosure seals and latches biannually.

- Keep enclosure door closed and securely fastened at all times.

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11. Notes for Operators and Engineers

11.1 Operators

- Respond immediately to any audible or visual alarm.
- Silence the buzzer only after the alarm condition has been acknowledged and addressed.
- Never override or disable the high-water alarm under any circumstances.

11.2 Engineers

- All field modifications must maintain compliance with UL 508A standards.
- Use only approved, UL-listed components for replacements or repairs.
- Re-torque all terminal blocks annually to 4–5 in-lbs.

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12. Troubleshooting Matrix

Symptom	Possible Cause	Recommended Action
No lights, no pumps, no alarm	Loss of main power	Verify incoming breaker and 120/240 V at panel terminals.
Alarm active but pumps not running	Failed motor contactor or wiring	Inspect contactors, check coil voltage, and verify wiring per schematic.
No pump alternation	TELE E1ZMLA10 relay misconfigured or failed	Confirm function selector set to **LA**; verify POT 1 and POT 2 fully counter-clockwise; replace relay if necessary.
Lead pump does not run	Wiring issue, selector switch, float, or contactor	Verify pump selector in AUTO; check On/Off floats, wiring, and contactor.
Lag pump does not activate (with HLLA)	HLLA float not installed, faulty, or wiring issue	Verify HLLA float operation and wiring to R2 terminal.
Pumps run continuously	Float switch stuck closed or wiring short	Inspect and test all float switches; check for wiring shorts.
Buzzer will not silence	Silence switch wiring or alarm relay failure	Inspect silence switch wiring and alarm relay. Contact technical support if unresolved.

13. Component Substitution Policy

LEGACY CONTROLS reserves the right to substitute any component in the control panel with an alternative that meets or exceeds the original specifications for form, fit, function, performance, and regulatory compliance (including UL 508A).

In the event of such a substitution, LEGACY CONTROLS assumes full responsibility for the proper operation and compliance of the replacement component. This policy ensures timely product availability while maintaining the highest standards of quality and reliability.

14. Warranty and Liability

Definitions

For the purposes of this Limited Warranty:

- "Product" refers to the UL listed industrial control panel manufactured by Legacy Controls, including all components, assemblies, and associated hardware as originally supplied.
- "Defect" means a failure of the Product to conform to Legacy Controls' published specifications due to faults in materials or workmanship under normal use and service.
- "Authorized Service Provider" means Legacy Controls or its designated dealers, distributors, or repair facilities authorized in writing by Legacy Controls.
- "Original Purchaser" means the end-user who first purchases the Product from Legacy Controls or an authorized dealer/distributor for use, not resale.
- "Warranty Period" means the period of two (2) years commencing from the date of original purchase as evidenced by valid proof of purchase.

Warranty Statement

Legacy Controls warrants to the Original Purchaser that the Product will be free from Defects in materials and workmanship for the Warranty Period when used in accordance with the instructions provided in this operation manual, the accompanying panel schematic, and applicable UL standards (including UL 508A for industrial control panels). This Limited Warranty is non-transferable and applies only to the Original Purchaser. It does not extend to any subsequent owners or users.

This warranty reflects Legacy Controls' commitment to high-quality manufacturing and is provided in lieu of all other warranties, express or implied, except as expressly stated herein. Legacy Controls' Products are designed and certified to meet UL safety and performance standards, ensuring reliability in industrial applications.

Coverage

If a Defect occurs during the Warranty Period, Legacy Controls or an Authorized Service Provider will, at its sole discretion:

- Repair the defective Product or component using new, reconditioned, or equivalent parts; or
- Replace the defective Product or component with a new, reconditioned, or equivalent Product or component of equal or better quality and functionality.

All repairs or replacements shall meet or exceed the original specifications, performance standards, and UL certification requirements. At Legacy Controls' discretion, any component in the control panel may be replaced

with an equivalent component that meets or exceeds the original specifications and performance standards, thereby facilitating timely repairs and mitigating the impact of supply chain constraints on the repair process.
This Limited Warranty covers only:

- The cost of replacement parts.
- Diagnostic and inspection fees incurred by Legacy Controls' certified technicians.

Shipping costs to and from the repair facility are the responsibility of the Original Purchaser. Legacy Controls reserves the right to charge for services if the claim is determined to be invalid or excluded under this Limited Warranty.
Repaired or replaced Products or components are warranted for the remainder of the original Warranty Period or ninety (90) days from the date of repair or replacement, whichever is longer.

Exclusions

This Limited Warranty does not cover, and Legacy Controls shall have no liability for:

- Damage or failure resulting from misuse, abuse, negligence, accident, improper installation, operation, storage, or maintenance, including but not limited to failure to follow the instructions in this operation manual, the accompanying panel schematic, or applicable industry standards.
- Alterations, modifications, repairs, or servicing performed by any party other than Legacy Controls or an Authorized Service Provider, which may void this Limited Warranty and the Product's UL certification.
- Normal wear and tear, cosmetic damage (such as scratches, dents, or discoloration), or deterioration due to environmental conditions, including but not limited to excessive moisture, heat, cold, dust, corrosion, vibration, power surges, electrical fluctuations, or exposure to chemicals or incompatible substances.
- Damage caused by external factors, such as acts of God, fire, flood, lightning, pests, or third-party equipment/interfaces not supplied or approved by Legacy Controls.
- Products that have been disassembled, tampered with, or used in applications exceeding the rated capacities or outside the specified environmental conditions.
- Consequential, incidental, indirect, special, or punitive damages, including but not limited to loss of use, data, profits, revenue, business interruption, or damage to other property or equipment.
- Products purchased from unauthorized sellers, resellers, or through secondary markets.
- Products used or installed outside the United States or in non-compliant electrical systems.
- Any issues arising from software, firmware, or programming not provided by Legacy Controls, or from integration with incompatible systems.
- Consumable items, such as fuses, bulbs, or batteries, unless specifically included in the Product specifications.

Legacy Controls makes no warranty regarding the performance of the Product in combination with third-party components or systems unless expressly approved in writing.

Limitations of Liability

TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, LEGACY CONTROLS' TOTAL LIABILITY UNDER THIS LIMITED WARRANTY SHALL NOT EXCEED THE ORIGINAL PURCHASE PRICE OF THE PRODUCT. LEGACY CONTROLS SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, INDIRECT, SPECIAL, PUNITIVE, OR EXEMPLARY DAMAGES, WHETHER IN CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY, OR OTHERWISE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.
This limitation applies regardless of whether the damages arise from breach of warranty, negligence, or any other cause. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations may not apply to you.

Disclaimer of Other Warranties

EXCEPT AS EXPRESSLY PROVIDED IN THIS LIMITED WARRANTY, LEGACY CONTROLS DISCLAIMS ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED, STATUTORY, OR OTHERWISE, INCLUDING BUT NOT

LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE, AND NON-INFRINGEMENT. NO ORAL OR WRITTEN INFORMATION OR ADVICE PROVIDED BY LEGACY CONTROLS, ITS EMPLOYEES, AGENTS, OR AUTHORIZED SERVICE PROVIDERS SHALL CREATE ANY ADDITIONAL WARRANTY OR IN ANY WAY INCREASE THE SCOPE OF THIS LIMITED WARRANTY.
This disclaimer is made to the fullest extent permitted by law. In jurisdictions where implied warranties cannot be disclaimed, any such implied warranties are limited in duration to the Warranty Period.

Making a Warranty Claim

To initiate a warranty claim, the Original Purchaser must:

1. Contact Legacy Controls customer support within the Warranty Period at 321-284-8592 or via email at support@legacy-controls.com. Provide: o Proof of original purchase (e.g., receipt, invoice, or order confirmation). o Product model number (e.g., CP-001-4-0002) and serial number. o A detailed description of the issue, including photographs or diagnostic data if requested. o Evidence that the Product was installed and used in compliance with this manual and UL standards.
2. If directed by Legacy Controls, return the Product (or defective component) to the designated Florida facility, shipping prepaid by the Original Purchaser. Include all original accessories, documentation, and packaging to prevent further damage.
3. Upon receipt, Legacy Controls will inspect the Product to verify the Defect and eligibility under this Limited Warranty. Legacy Controls reserves the right to deny claims if exclusions apply or if the Product has been altered.
4. Legacy Controls will notify the Original Purchaser of the inspection results and proposed resolution (repair, replacement, or denial) within a reasonable time, typically within thirty (30) days of receipt.
5. For any replacement components, consult a Legacy Controls Authorized Service Provider to ensure compatibility, performance, and maintenance of UL compliance.

Failure to follow this procedure may result in denial of the claim. Legacy Controls is not responsible for lost or damaged items during shipping.

Governing Law and Dispute Resolution

This Limited Warranty shall be governed by and construed in accordance with the laws of the State of Florida, without regard to its conflict of laws principles. Any disputes arising out of or relating to this Limited Warranty shall be resolved exclusively in the state or federal courts located in Brevard County, Florida. The Original Purchaser agrees to submit to the personal jurisdiction of such courts.

Severability

If any provision of this Limited Warranty is held to be invalid or unenforceable by a court of competent jurisdiction, the remaining provisions shall remain in full force and effect.

Entire Agreement

This Limited Warranty constitutes the entire agreement between Legacy Controls and the Original Purchaser regarding the warranty for the Product and supersedes all prior or contemporaneous understandings, agreements, or representations, whether oral or written.
This Limited Warranty gives you specific legal rights, and you may also have other rights that vary by state or jurisdiction. For questions, assistance, or to obtain a copy of this Limited Warranty, visit www.legacy-controls.com or contact Legacy Controls directly at the provided support channels.

15. Glossary

- **TELE E1ZMLA10**: Alternating relay for automatic lead/lag pump switching and balanced operation.
- **HLLA**: High Level Lag Activation float (optional fourth float).
- **Duplex**: Dual-pump system with lead and lag operation and automatic alternation.
- **UL 508A**: Standard for Industrial Control Panels.

16. Revision History

Version	Date	Description
1.0	February 13, 2026	Initial release for Model CP-001-6-0001
1.1	February 24, 2026	Combined documentation for Models CP-001-6-0001 and CP-001-6-0003
1.2	March 26, 2026	Updated verbiage and technical parameters
1.3	March 31, 2026	Final Release (Formatting & Minor Edits)
1.4	April 13th, 2026	Updated Spec Details, Contact Info

17. Appendices

Appendix A: Schematic CP-001-6-0001 (Duplex Pump Control)

Appendix B: Terminal Connection Diagram CP-001-6-0001 (Connection Diagram)