Control Panel Operation Manual

Dual Voltage Simplex Pump Control Panel

Model: LE-4001 & LE-4003 | Part Numbers: CP-001-4-0001 & CP-001-4-0003

Document Version:	2.4	**Date:**	May 21, 2026
Prepared by:	LEGACY CONTROLS	**UL File Number:**	NITW/NITW7.E547664
Address:	Mims, Florida 32754		

Product Overview

Thank you for choosing the LE-4003 Dual Voltage Simplex Pump Control Panel from Legacy Controls. This panel is designed for reliable control of simplex (single) pump systems in wastewater, septic, and similar applications. It supports dual-voltage operation (120/240 VAC) via Quick Change Grouping Pins and offers flexible float configurations (3-float or 2-float) for installer convenience. The panel includes built-in visual and audible alarms for enhanced safety and monitoring.

IMPORTANT NOTICE – Segregated Control Power Circuit

This panel uses a segregated control power circuit. This circuit supplies power to every controlling function of the panel, including the logic relay, indicators, HOA switch, and alarm system. A separate conductor must be provided for this control power circuit, OR a wire jumper must be installed between Terminal 1 and Terminal 3. Without power to this circuit, the panel will not turn on and no control functions will operate. Always verify this connection during installation.

Important: This panel is UL Listed. Any alterations, modifications, or unauthorized repairs will void the UL certification, along with the warranty, and may introduce serious safety hazards such as electrical shock, fire, or system failure.

Table of Contents

1. Safety Instructions

WARNING: Risk of Electric Shock and Serious Injury

This control panel operates at 120 VAC or 240 VAC and contains both main power circuits and a segregated control power circuit. Improper handling can result in serious injury, death, electrical shock, fire, or equipment damage. Always follow these guidelines:

- Qualified Personnel Only: Installation and maintenance must be performed by licensed electricians familiar with local electrical codes (NEC) and UL standards.
- Power Off Procedures: Disconnect BOTH the main breaker and the segregated control power circuit feed before opening the panel. Use proper lockout/tagout procedures. The segregated control power circuit remains energized even when the main breaker is OFF. Always verify with a voltage tester.
- Voltage Configuration: Verify the Quick Change Grouping Pin setting (120V or 240V) before energizing. Factory default is 120V.
- Grounding: Ensure proper grounding to prevent shock hazards.
- Environmental Protection: Install in a location protected from direct weather. Enclosure is Type 4X rated.
- Overload Protection: All motors must include internal overload protection. Alarm circuit limited to 5A.
- Field Wiring: Use copper conductors rated minimum 60°C. Torque terminal screws to 4.425 in-lbs (0.5 N·m).
- Unauthorized Modifications: Do not modify the panel. Doing so voids the UL listing and warranty.

CAUTION: A main panel disconnect switch must be supplied and installed in the field. Always verify with a voltage tester before working inside the panel.

2. Specifications

Control Panel

- Voltage: 120/240 VAC, single-phase (field selectable via Quick Change Grouping Pin – factory default 120V)
- Pump Capacity: Up to 16 FLA (1 HP @ 120V / 2 HP @ 240V)
- Control System: 3-float level control (On, Off, High Water) – field configurable to 2-float via Quick Change Grouping Pins
- Alarm System: Integrated red globe (visual) + buzzer (audible, 85–95 dB), with test button and mute switch
- Controls: 3-position HOA switch (AUTO / OFF / ON), Pump Run green indicator, Alarm Test button, Alarm Buzzer ON/OFF switch
- Enclosure: Type 4X, lockable, suitable for indoor/outdoor use
- Wire Size: 26-10 AWG, 600V rated. Torque: 4.425 in-lbs
- Certifications: UL Listed (NITW/NITW7.E547664) per UL 508A
- Dimensions: Approx. 10.3" W × 13.28" H × 5.8" D

Float Configurations & Quick-Change Grouping Pins

This panel supports two field-configurable float setups using Quick Change Grouping Pins. All grouping pins are included with the panel. Changes must be made with power disconnected by qualified personnel only.

Configuration	Float Setup	Description
A (Default)	3-Float	Separate On, Off, and High Water Alarm floats. Factory default with two 2-pin grouping pins.
B	2-Float	Combined On/Off float + dedicated High Water Alarm float. Requires changing to a 3-pin jumper.

Configuration A – Factory Default (3-Float Operation)

- Two separate 2-pin grouping pins installed between terminals 7-8 and 8-9.
- On Float → Terminals 6 & 7
- Off Float → Terminals 8 & 9
- High Water Alarm (HWA) Float → Terminals 10 & 11

Configuration B – 2-Float Operation

- Remove the 2-pin jumper connecting terminals 7 & 8.
- Install a new 3-pin jumper bridging terminals 6, 7, and 8.
- On/Off Float (combined) → Terminals 8 & 9
- High Water Alarm (HWA) Float → Terminals 10 & 11

All floats are normally open (NO) type for Pump Down applications. Always verify the correct pin configuration after any changes and before restoring power.

3. Installation Instructions

1. Mounting: Secure the panel to a stable vertical surface using appropriate hardware. Ensure accessibility and visibility of controls. Maintain clearance for heat dissipation.
2. Voltage & Float Configuration: Set the Quick-Change Grouping Pins for desired voltage (120V default) and float configuration (3-float default) before wiring.
3. Segregated Control Power Circuit: Run a separate conductor for the control power circuit or install a wire jumper between Terminal 1 and Terminal 3. This circuit supplies power to all controlling functions of the panel. Without it, the panel will not turn on.
4. Float Installation: Position floats in the tank for Pump Down operation (Off lowest, On above Off, High Water highest). Use normally open (NO) floats.
5. Power Supply: Connect to a dedicated circuit with appropriate breaker. Install main disconnect switch upstream.
6. Grounding: Connect ground wire to the designated terminal.
7. Testing: After wiring, test all functions (pump, alarm, indicators) in a safe environment before commissioning.

4. Wiring and Connections

Refer to the included panel schematic (CP-001-4-0001 Line Drawing) and terminal connection diagram for complete wiring details. Your connection diagram may label the right-side terminals as “Separate Alarm Feed”. Legacy Controls standardizes on the term **segregated control power circuit** in this manual, as this feed supplies power to all controlling functions of the panel (logic relay, indicators, HOA switch, and alarm).

Incoming Power (120/240V):

- L1: Hot (Black) – Terminal group on left side
- L2/N: Hot/Neutral (White for 120V; Hot for 240V)
- Ground: Green

Note: For 240V operation, remove the grouping/jumper pin between Terminal 2 and Neutral. A neutral is still required for control circuits.

Segregated Control Power Circuit (Right-side terminals):

- A separate power feed (or wire jumper between Terminal 1 and Terminal 3) is required. This circuit supplies power to every controlling function of the panel.
- Without this circuit energized, the panel will not turn on and control functions (including alarm) will not operate.
- Alarm Float: Typically connected on the higher-numbered terminals in the segregated section (e.g., terminals 8–11 range per diagram).

Field Connections: Pump (terminals 4 & 5), Floats (On, Off, High Water), and alarm devices. All field wiring: 26-10 AWG copper, 600V, torque to 4.425 in-lbs.

WARNING: Verify all connections match the schematic before energizing. Incorrect wiring can cause faults or safety hazards. Always confirm the segregated control power circuit is live.

5. Operation

Startup: Set Pump Selector to AUTO. Ensure Alarm Buzzer is ON. Power on the panel (both main and alarm feed if separate).

Automatic Mode (AUTO): Pump activates when On Float closes and stops when Off Float opens. High Water Float triggers alarm (globe + buzzer).

Manual Mode (ON): Pump runs continuously (override). Use for testing only.

Off Mode: Pump disabled.

Alarm: High water activates red globe and buzzer. Press Alarm Test to verify. Rotate Alarm Buzzer switch to OFF to silence buzzer (globe stays lit until condition clears).

Pump Run Light: Green indicator illuminates when pump is running.

6. Maintenance and Troubleshooting

Recommended Service Interval

These panels are designed for long-term reliability with scheduled maintenance performed every six months (biannual), or immediately upon any alarm condition. Regular six-month service helps prevent unexpected failures and ensures continued safe, compliant operation. In harsh environments (high humidity, corrosive atmospheres, or heavy use), more frequent inspections are recommended.

Six-Month Maintenance Checklist

- Verify segregated control power circuit is properly connected and energized (check separate feed or jumper between Terminal 1 and Terminal 3).
- Test all float switches for proper operation (manually lift floats and observe pump and alarm response).
- Test the alarm system: Press the Alarm Test button and confirm both the red globe and buzzer activate.
- Verify the Alarm Buzzer ON/OFF switch functions correctly.
- Inspect all wiring connections for tightness and signs of corrosion or damage. Re-torque terminals to 4.425 in-lbs if needed.
- Check the Quick-Change Grouping Pin(s) for correct voltage and float configuration seating.
- Inspect the enclosure, door seal, latches, and conduit entries for damage or water intrusion.
- Confirm the Pump Run (green) indicator and all other lights function properly.
- Test manual pump operation (HOA switch in ON position) and verify it stops when returned to AUTO or OFF.
- Document all findings and any corrective actions taken.

Troubleshooting Guide

Preliminary Checks (Perform these first for most issues):

- Verify the segregated control power circuit is energized (separate feed or jumper between Terminal 1 and Terminal 3). This powers the relay logic (R1), indicators, HOA switch, and alarm functions.
- Check main power breakers (CB1 for pump, CB2 for control/alarm) and incoming voltage.
- Inspect for loose wires, burnt components, or damaged insulation on terminal blocks and relay bases.
- Confirm the Quick-Change Grouping Pin is correctly set for your supply voltage.

No Power / Panel Completely Dead

- Confirm segregated control power circuit and main power are both energized.
- Check for tripped breakers and measure voltage at incoming terminals.
- Verify voltage configuration pin matches supply (120V or 240V).
- Inspect terminal blocks and wiring for loose connections or damage.

Pump Will Not Start in AUTO Mode

- Verify segregated control power circuit is energized (powers R1 relay logic).
- Confirm HOA switch is in the AUTO position.
- Test On Float (should close to start) and Off Float (should be closed). Manually actuate and observe.
- Check that the contactor (M1) coil is receiving voltage from the control circuit when floats call for pump.
- Inspect float wiring and connections for breaks or loose terminals on the Off/On float circuit.

Pump Runs Continuously (Will Not Stop)

- Since the pump is running, the segregated control power circuit and main power are present. Focus on the stop circuit.
- Test the Off Float — it should open when the water level drops below the stop point. Manually lower/test the float.
- Confirm the HOA switch is not in the ON position.
- Check for a shorted or stuck On Float, or wiring short between the On Float terminals that keeps the run signal active.
- Inspect the R1 relay and its contacts — a failed relay could keep the run signal latched.

Alarm Does Not Activate on High Water

- Verify segregated control power circuit is energized (powers alarm logic and globe/buzzer).
- Test the High-Water Float — it should close on rising level. Manually actuate it.
- Press the Alarm Test button. If the globe and buzzer activate, the problem is in the High-Water Float circuit or its wiring to the alarm logic.
- Check Alarm Buzzer switch position and wiring to the globe and buzzer from the alarm output.

False or Nuisance Alarms

- Inspect High Water Float for proper positioning (not too low or affected by turbulence/waves).
- Check float cable for damage, chafing, or water intrusion that could cause intermittent shorts on the High-Water Float circuit.
- Verify correct 3-float vs 2-float configuration pin setting.
- Test the High-Water Float and alarm output wiring for proper isolation from other circuits.

Buzzer Will Not Silence

- Confirm the Alarm Buzzer (mute) switch is turned to the OFF position.
- If the globe remains lit but buzzer is silent when it should sound, check wiring and connections to the buzzer.
- Test by pressing Alarm Test — if buzzer still doesn't work, replace the buzzer.

Pump Run Light (Green) Not Illuminating When Pump Should Be Running

- Verify the pump is running (listen for contactor click and motor).
- Check the segregated control power circuit (powers the indicator circuit).
- Inspect wiring from the run signal (contactor auxiliary or R1) to the green Pump Running light.

If issues persist after following these steps, please contact the authorized dealer or distributor from whom you purchased the panel. They can assist with troubleshooting and coordinate with Legacy Controls Technical Support as needed. Provide the model number, observed symptoms, and steps already taken. Photos of the interior are also helpful.

7. Warranty

Definitions

For the purposes of this Limited Warranty: “Product” refers to the UL listed industrial control panel manufactured by Legacy Controls (Models LE-4001 and LE-4003), 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.

Coverage

If a Defect occurs during the Warranty Period, Legacy Controls or an Authorized Service Provider will, at its sole discretion: (1) Repair the defective Product or component using new, reconditioned, or equivalent parts; or (2) 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. 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; alterations, modifications, repairs, or servicing performed by any party other than Legacy Controls or an Authorized Service Provider (which may void this warranty and the UL listing); normal wear and tear, cosmetic damage, or deterioration due to environmental conditions; damage caused by external factors such as acts of God, fire, flood, lightning, pests, or third-party equipment not supplied or approved by Legacy Controls; products that have been disassembled, tampered with, or used in applications exceeding rated capacities or outside specified conditions; consequential, incidental, indirect, special, or punitive damages; products purchased from unauthorized sellers or through secondary markets; products used or installed outside the United States or in non-compliant electrical systems; or any issues arising from

software, firmware, or programming not provided by Legacy Controls. Legacy Controls makes no warranty regarding performance in combination with third-party components 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 damages arise from breach of warranty, negligence, or any other cause.

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.

Making a Warranty Claim

To initiate a warranty claim, please contact the authorized dealer or distributor from whom you purchased the Product. Provide proof of original purchase, model number (LE-4001 or LE-4003), serial number, and a detailed description of the issue (photographs or diagnostic data if requested). Your dealer will coordinate with Legacy Controls as needed. If further assistance is required, Support@Legacy-Controls.com may also be contacted. (2) If directed, return the Product (or defective component) to the designated Florida facility, shipping prepaid. Include all original accessories and documentation. (3) Legacy Controls will inspect the Product to verify the Defect and eligibility. (4) Legacy Controls will notify the Original Purchaser of the results and proposed resolution within a reasonable time, typically within thirty (30) days. Failure to follow this procedure may result in denial of the claim.

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.

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.