

Dual Voltage Simplex Time Dose Pump Control Panel

120/240 VAC · Field Selectable | 3-Float Time-Dose Control | UL 508A Listed

DESIGNED & MANUFACTURED BY LEGACY CONTROLS · MIMS, FLORIDA · UL 508A LISTED

DOCUMENT VERSION **3.2 (Full)**

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PART NUMBERS **CP-001-4-0002 & 4-0004 · Retail LE-4002 / LE-4004**

UL FILE NUMBER **E547664**

PREPARED BY **Legacy Controls · 6200 FL-46, Mims, FL 32754**

COMPLIANCE **UL 508A Listed**

SOLD & SERVICED THROUGH **Authorized Legacy Controls Dealers**

WEB **Legacy-Controls.com**

Designed and manufactured by Legacy Controls, this UL Listed simplex control panel provides reliable time-dose (cyclic timing) control of a single pump with dual-voltage flexibility — 120 or 240 VAC, field selectable by grouping pin. A 3-float system with the Elko CRM-2H_UNI asymmetrical timer delivers timed dosing, high-inflow override, and high-water alarm protection in a Type 4X indoor/outdoor enclosure. Retail model LE-4002 supplies the panel only; LE-4004 includes the float switch set.

SERVICE & SUPPORT — CONTACT YOUR DEALER FIRST This control panel is sold and serviced through authorized dealers and installers. For all technical support, service calls, alarm response, and warranty claims, contact the dealer or installer who supplied your system. Manufactured by Legacy Controls, Mims, Florida. If your dealer or installer cannot be reached, visit Legacy-Controls.com.

READ FIRST — 120/240 V VOLTAGE SELECTION

This panel ships configured for 120 V with a factory-installed grouping pin between Terminal 2 and Neutral. For 240 V operation, **remove the grouping pin** and verify the configuration with a multimeter before energizing. A neutral conductor is required even for 240 V installations — the alarm and control devices operate at 120 V.

TABLE OF CONTENTS

- 1 Safety Instructions
- 2 Specifications
- 3 Installation Instructions
- 4 Wiring and Connections
- 5 Operation
- 6 Elko CRM-2H Timer — Programming
- 7 Maintenance and Troubleshooting
- 8 Warranty

1. SAFETY INSTRUCTIONS

WARNING Electrical hazard. This panel operates at 120 V or 240 V AC. Improper handling can result in serious injury, death, electrical shock, fire, or equipment damage. Only qualified personnel familiar with local electrical codes (NEC) and UL 508A standards should install, operate, or maintain this panel.

Critical Safety Requirements

- **Power Off Procedures** — disconnect all power sources before opening the panel or performing any wiring. Use proper lockout/tagout procedures and verify with a voltage tester.
- **Voltage Verification** — check the schematic and confirm the voltage configuration (120 V or 240 V) before energizing. Factory default is 120 V AC via the grouping pin between Terminal 2 and Neutral.
- **Neutral** — a neutral conductor is required even in 240 V installations — the alarm and control devices operate at 120 V. Land the neutral on the panel's neutral terminals per the connection diagram.
- **Grounding** — ensure proper grounding of the panel and all connected equipment. All grounding terminals, including the rail, are bonded via pass-through terminals.
- **Overload Protection** — overload protection is integral to the pump motors — this panel contains no overload devices. The alarm circuit is limited to 5 A.
- **Environmental Protection** — the Type 4X enclosure is rated for indoor/outdoor use but must be protected from direct water exposure. Install in a non-hazardous location.
- **Field Wiring** — use copper conductors rated 60 °C minimum. Torque all terminal screws to 0.79 N·m (7.0 in-lbs).
- **Unauthorized Modifications** — any alteration, modification, or unauthorized repair will void the UL listing, the manufacturer's warranty, and may create serious safety hazards.

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

Panel Identification & Ratings

PARAMETER	SPECIFICATION
Part Numbers / Models	CP-001-4-0002 & CP-001-4-0004 · Models LE-4002 / LE-4004 (LE-4002 panel only · LE-4004 includes floats)
UL File Number	E547664
Voltage	Dual — 120 VAC (factory default; grouping pin between Terminal 2 and Neutral) or 240 VAC (remove pin)
Pump Capacity	Single pump, up to 20 FLA — 1 HP @ 120 VAC or 2 HP @ 240 VAC
Supply Circuit	30 A minimum supply circuit ampacity — 25 A pump branch + 5 A alarm & control circuit branch · single feed · field-supplied feeder breaker and disconnect
Control System	3-float level control (On · Override · High Water) with Elko CRM-2H_UNI asymmetrical timer for time-dose operation
Alarm System	Red globe (visual) + buzzer (85–95 dB audible) · alarm test push button · buzzer ON/OFF switch · alarm circuit limited to 5 A
Protection	25 A MCB for pump + IEC installation contactor · 5 A MCB for alarm and control circuits
Enclosure	Type 4X polycarbonate, indoor/outdoor · 10 × 8.4 × 5.2 in · approx. 7 lbs
Field Wiring	Copper, 60 °C minimum, 26–10 AWG, 600 V · terminal torque 0.79 N·m (7.0 in-lbs)
Environment	0 °C to 40 °C (32–104 °F) · up to 95% humidity, non-condensing

Controls & Indicators

PARAMETER	SPECIFICATION
Pump Selector (HOA)	3-position rotary: AUTO — float/timer controlled · OFF — pump disabled · ON — manual override (testing only)
Pump Run Indicator	Green pilot light — illuminates whenever the pump is running
Alarm Test	22 mm push button — tests the alarm globe and buzzer
Alarm Buzzer Switch	2-position rotary: ON — buzzer enabled · OFF — buzzer silenced (globe remains lit until the condition clears)

3. INSTALLATION INSTRUCTIONS

WARNING Installation must be carried out by qualified personnel only. Follow local electrical codes (NEC) and consult the panel schematic and connection diagram.

1. **Mounting** — secure the panel to a stable vertical surface using appropriate hardware. Ensure accessibility for maintenance, visibility of controls, and clearance for ventilation.
2. **Voltage Configuration** — for 120 V: leave the factory-installed grouping pin between Terminal 2 and Neutral. For 240 V: remove the grouping pin. Verify with a multimeter before powering on.
3. **Float Installation** — position the floats per the table in Section 5: On Float lowest, Override Float middle, High Water Float highest. All floats must be normally open (NO) type.
4. **Power Supply** — connect to a dedicated circuit providing a 30 A minimum supply circuit ampacity — 25 A pump branch + 5 A alarm & control circuit branch — this is feeder protection at the main panel, not part of this panel. Install a field-supplied main disconnect switch upstream.
5. **Grounding** — connect the ground wire to the designated terminal. All other grounding terminals, including the rail, are bonded via pass-through terminals.
6. **Timer Programming** — set the Elko CRM-2H_UNI timer per the site design flow before commissioning (Section 6).
7. **Testing** — after wiring, test all functions — timed dosing, override, high-water alarm, and alarm test button — in a safe environment before commissioning.

4. WIRING AND CONNECTIONS

Refer to the CP-001-4-0002/0004 Line Drawing v2.8 and Connection Diagram v2.3 (reproduced on the following pages for reference) for complete wiring details.

Incoming Power (120/240 V)

- **L1** — Hot (black), Terminal 1
- **L2 / N** — Hot or Neutral (white for 120 V; hot for 240 V), Terminal 2
- **Ground** — Green, to the designated grounding terminal
- **Grouping Pin** — between L2 and Neutral for 120 V (factory installed); remove for 240 V

NEUTRAL REQUIRED This panel requires a neutral conductor even in 240 VAC installations — the alarm and control circuits operate at 120 V.

Field Connections

Pump connections on terminals 3 & 4 (pump black and white wires); float connections (On Float · Override Float · High Water Float) per the connection diagram; alarm devices per the connection diagram. Power feeds through the terminals to relay T1 for pump control (M1). Wire gauge 26–10 AWG copper, 600 V · torque 0.79 N·m (7.0 in-lbs).

WARNING Verify all connections match the schematic before energizing. Incorrect wiring can cause faults or create safety hazards.

5. OPERATION

Float Switch System

FLOAT	FUNCTION	POSITION / EFFECT
On Float (Timer Enable)	Activates the Elko CRM-2H_UNI asymmetrical timer	Lowest — starts the timed dosing cycle
Override Float	Bypasses the timer for immediate pump run	Middle — forces continuous pumping during high inflow
High Water Float	Alarm activation only	Highest — alarm only; no pump control

Operating Modes

Startup: set the Pump Selector to AUTO and the Alarm Buzzer switch to ON, then power on the panel.

AUTO: the On Float activates the Elko CRM-2H_UNI asymmetrical timer, which runs the pump for the set dose duration and rests it for the set pause — dividing the daily flow into even doses. The Override Float bypasses the timer and runs the pump continuously during high inflow. The High Water Float activates the alarm only.

ON (Manual): the pump runs continuously, overriding floats and timer — use for testing only. OFF: the pump is disabled.

Alarm Operation

A high-water condition activates the red globe and buzzer. Rotate the Alarm Buzzer switch to OFF to silence the buzzer; the globe remains lit until the condition is resolved. Press the Alarm Test button to verify both. The green Pump Run light illuminates whenever the pump is active. The panel is designed for unattended operation but requires the periodic checks in Section 7.

6. ELKO CRM-2H TIMER — PROGRAMMING

TIMER PROGRAMMING ASSISTANCE Need more detail on the Elko CRM-2H_UNI? Scan the QR code to open the manufacturer's official instruction manual — including time-range selection, potentiometer fine adjustment, wiring functions, and all operating modes. A dedicated Legacy Controls quick programming guide is also supplied with this panel. — ELKO CRM-2H



The Elko CRM-2H_UNI asymmetrical timer automatically runs the pump ON for a set time, then OFF for a different set time — but only while the On Float (timer enable) is up. The timer stays off when the float is down, preventing dry running. Four front-panel potentiometers set the cycle.

How to Program (P1 · P2 · P3 · P4)

- ON time (Impulse)** — set P1 (Impulse Range) to the required range (example: “1 min”), then set P2 (Impulse) to the listed value — 0 = shortest time, 1 = the full range time.
- OFF time (Pause)** — set P3 (Pause Range) to the required range (example: “10 min”), then set P4 (Pause) to the listed value — 0 = shortest rest, 1 = the full range time.

Common Ranges

PARAMETER	SPECIFICATION
1 min range	0 to 60 seconds
10 min range	0 to 600 seconds (10 minutes)

Example Settings

PARAMETER	SPECIFICATION
Example 1	P1 = 1 min + P2 at 1.00 = 60 seconds ON P3 = 10 min + P4 at 0.95 = 570 seconds OFF
Example 2	P1 = 1 min + P2 at 0.50 = 30 seconds ON P3 = 10 min + P4 at 1.00 = 600 seconds OFF
Example 3	P1 = 1 min + P2 at 1.00 = 60 seconds ON P3 = 10 min + P4 at 0.50 = 300 seconds OFF

Quick Check

- Green LED — power on
- Red LED, fast flash — pump running (ON period)
- Red LED, slow flash — pump resting (OFF period)

Watch one full cycle (with the On Float up) to confirm the times — including after any power interruption — and slightly adjust the potentiometers if needed.

SAFETY REMINDER Qualified personnel only. Turn power off before adjusting timer settings — wrong settings can damage the pump or cause an overflow — and verify the configuration by observing a complete cycle before leaving the site.

7. MAINTENANCE AND TROUBLESHOOTING

Maintenance Schedule

INTERVAL	TASKS
Biannually	Test the alarm globe and buzzer using the Alarm Test button
Biannually	Inspect floats, cables, and wiring connections; manually actuate each float and verify correct response
Biannually	Verify timer settings against the site design flow (Section 6) · check terminal torque 0.79 N·m (7.0 in-lbs) · inspect enclosure seals
As Required	Clean the enclosure · replace components only with manufacturer-approved parts

Troubleshooting

ISSUE	POSSIBLE CAUSE	RESOLUTION
No power	Breaker off, loose connections, wrong voltage configuration	Check the feeder breaker, connections, and grouping-pin configuration
Pump won't start	Floats, timer settings, selector position, or motor overload	Verify floats and timer (Section 6); selector in AUTO or ON; check the pump's integral overload
Alarm not activating	High-water float or test circuit fault	Manually lift the high-water float; press the Alarm Test button
Buzzer not silencing	Buzzer switch position	Check the Alarm Buzzer ON/OFF switch

A complete device-classified troubleshooting reference — the CP-001-4-0002/0004 Troubleshooting Guide — is supplied with this panel.

IF ISSUES PERSIST Contact your authorized dealer or installer with the model and serial number — their information is recorded on the Service & Support card at the front of this manual. If your dealer cannot be reached, visit [Legacy-Controls.com](https://www.legacy-controls.com).

8. WARRANTY

Definitions

“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 connection diagram, 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.

Coverage

If a Defect occurs during the Warranty Period, Legacy Controls or an Authorized Service Provider will, at its sole discretion, repair or replace the defective Product or component. 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 & Limitations

This Limited Warranty does not cover damage or failure resulting from misuse, abuse, negligence, improper installation or maintenance, alterations by unauthorized parties, normal wear and tear, cosmetic damage, environmental deterioration, external factors, or products purchased from unauthorized sellers. Consumable items such as fuses and bulbs are excluded unless the defect is due to manufacturing workmanship. The High Water Float provides alarm notification only; Legacy Controls shall not be liable for overflow, discharge, or resulting damage occurring during an alarm condition. Liability is limited to the original purchase price. TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, LEGACY CONTROLS SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, INDIRECT, SPECIAL, PUNITIVE, OR EXEMPLARY DAMAGES.

Making a Warranty Claim

All warranty claims must be submitted through the authorized dealer or distributor from whom the Product was purchased, with proof of original purchase, the model number, and a detailed description of the issue. The dealer will coordinate the claim with Legacy Controls. The Product will be inspected to verify the Defect and eligibility, and the Original Purchaser will be notified of the results and proposed resolution within a reasonable time, typically within thirty (30) days of receipt.

Component Substitution

Legacy Controls reserves the right to substitute any control panel component with an alternative meeting equivalent specifications, including identical operational parameters and performance standards. Legacy Controls assumes full responsibility for the functional performance of any such substitution and for its continued compliance with all applicable regulatory and operational requirements.

Governing Law

This Limited Warranty shall be governed by the laws of the State of Florida. Any disputes shall be resolved exclusively in the state or federal courts located in Brevard County, Florida.

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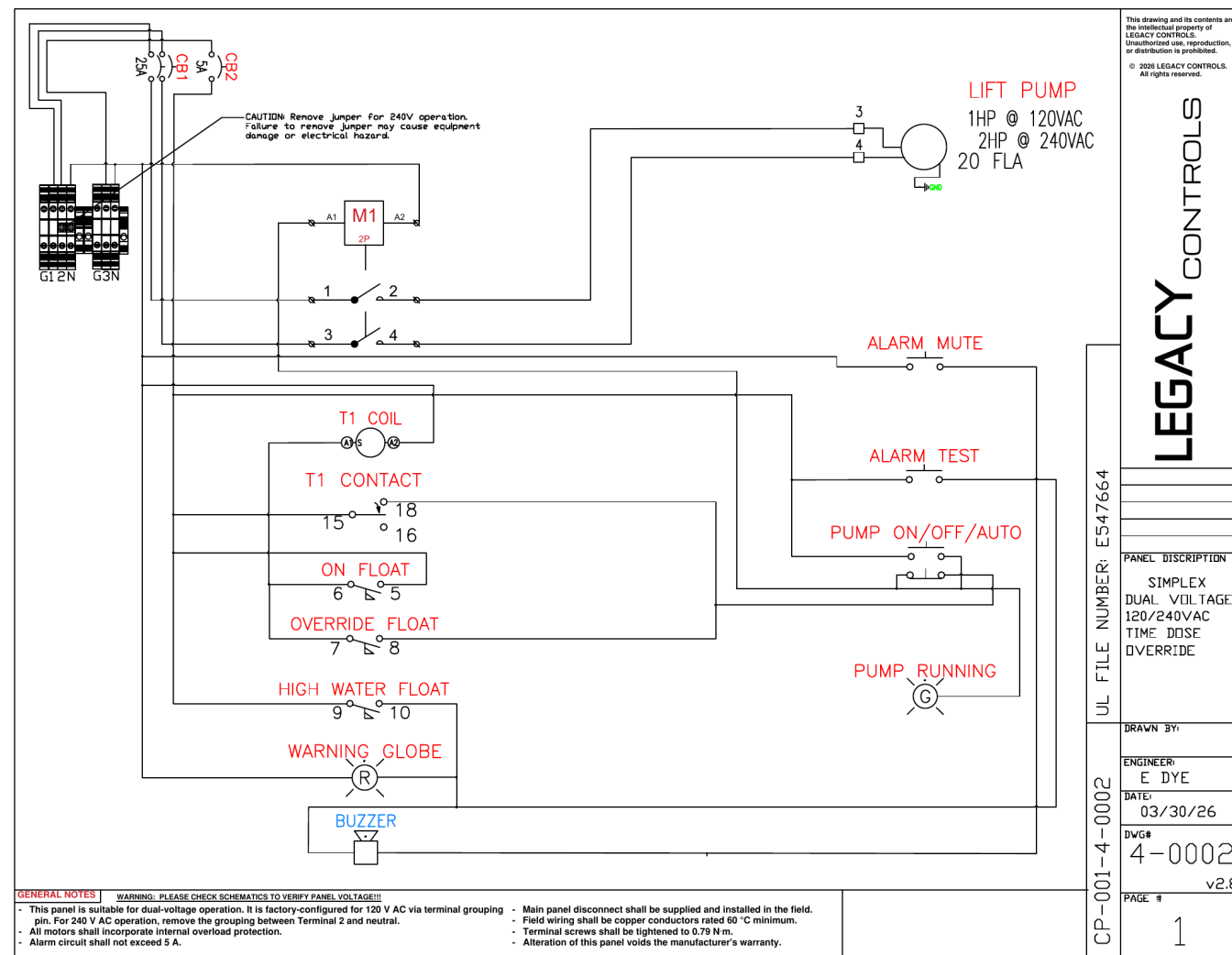
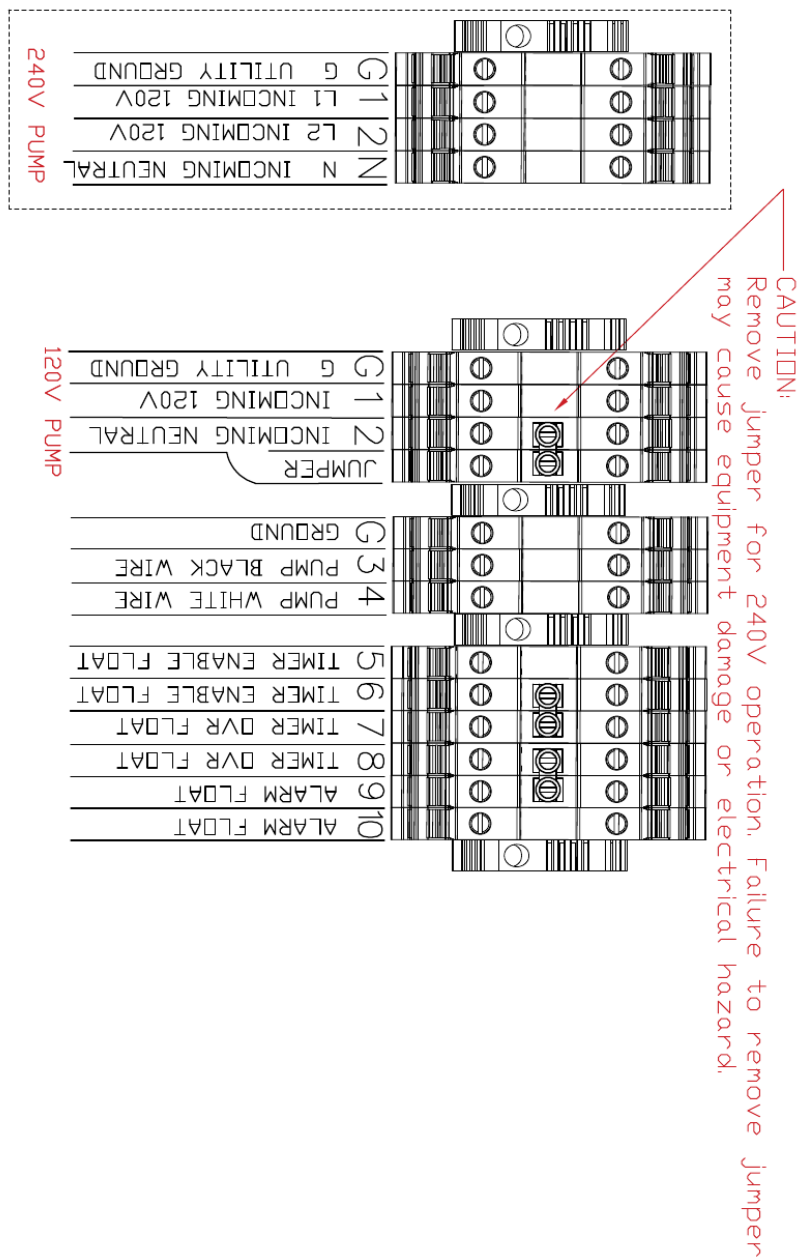


FIGURE 1 — LINE DRAWING V2.8 (REFERENCE)

TIGHTENING TORQUE FOR TERMINAL BLOCKS IS 4.425 in-lbs.

PANEL MODEL #
CP-001-4-0002
v2_3



TERMINAL CONNECTION DIAGRAM
TERMINAL BLOCKS PINOUT DIAGRAM 26-10 AWG, 600V, 60C
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FIGURE 2 — CONNECTION DIAGRAM V2.3 (REFERENCE)