

Duplex Pump Control Panel — Three-Phase

230 VAC · 3-Phase | Duplex · Automatic Alternation | 3 HP · Float Control

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

DOCUMENT VERSION 1.1 (Full) — per Schematic Set Rev C
(As-Built)

DATE August 2026

MODEL LC-9100 · 9000 Series Three-Phase Duplex

UL FILE NUMBER E547664

PREPARED BY Legacy Controls · PO Box 457, Mims, FL
32754

COMPLIANCE UL 508A · NFPA 70

SOLD & SERVICED THROUGH Authorized Legacy Controls
Dealers

WEB Legacy-Controls.com

PRODUCT OVERVIEW

Designed and manufactured by Legacy Controls, the LC-9100 is a UL 508A Listed duplex pump control panel for two 3 HP, 230 V three-phase pumps in wastewater and onsite pump systems. A single 230 V three-phase feed powers both pump circuits; the 120 V control circuit is derived internally through a fused control transformer, so no incoming neutral is required. Four float switches govern operation — the lead pump starts on the On float and seals in for full drawdown to the Off float, the TELE E1ZMLA10 load alternator swaps the lead and lag designations after every pump-down cycle, the Both-Pump float runs both pumps together during high demand, and the High Water Alarm float drives the separately fused alarm circuit without calling any pump. Overload protection for each pump is provided inside the panel by an adjustable Class 10A thermal overload relay.

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.**

INSTALLED & SERVICED BY (COMPANY)

PHONE

INSTALLATION DATE

PANEL SERIAL NUMBER

Manufactured by Legacy Controls, Mims, Florida. If your dealer or installer cannot be reached, visit Legacy-Controls.com.

⚠ READ FIRST — 230 V 3-PHASE SUPPLY & CONTROL TRANSFORMER

This panel operates on 230 VAC three-phase power — three phase conductors plus equipment ground; no incoming neutral is required or provided for. The 120 V control circuit is derived inside the panel from control transformer T1, which must be configured for a 230 V primary (jumpers H1–H3 and H2–H4). Verify the transformer jumper configuration and confirm supply voltage with a voltage tester before energizing. **Verify pump rotation at commissioning before placing the panel in service.**

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1. SAFETY INSTRUCTIONS

WARNING **Risk of electric shock and serious injury.** This control panel operates at 230 VAC three-phase, with a 120 VAC control circuit derived internally. Improper handling can result in serious injury, death, electrical shock, fire, or equipment damage. Only qualified personnel familiar with local electrical codes (NEC), UL 508A standards, and onsite wastewater pump systems should install, operate, or maintain this panel.

Critical Safety Requirements

- **Power Off Procedures** — Disconnect power at the main panel disconnect switch and use proper lockout/tagout procedures before opening the panel or performing any wiring. Always verify all three phases are de-energized with a voltage tester.
- **Grounding** — Ensure proper grounding of the panel and all connected equipment per NEC requirements. The ground bus bonds to the enclosure plate; the control transformer secondary is bonded at the LV ground terminal.
- **Overload Protection** — Overload protection for each pump is provided inside this panel by an adjustable Class 10A thermal overload relay (9–12.5 A range). Verify each overload dial is set to the pump motor nameplate full-load current (3 HP pumps: 9.6 A) before energizing.
- **Pump Rotation** — Three-phase pumps run in either direction depending on phase sequence. Verify correct rotation for each pump at commissioning; reversed rotation reduces performance and can damage the pump.
- **High Water Alarm** — If the high water alarm activates, investigate immediately to prevent system backup or overflow. Never override or disable the High Water Alarm float.
- **PPE** — Wear insulated gloves, safety glasses, and appropriate protective clothing when working near electrical components or the pump station.
- **Field Wiring** — Use copper conductors rated 60 °C minimum. Torque DK4N field terminals to 5.3 in-lbs (0.6 N·m); torque the DK10N incoming power terminals to the value marked on the block.
- **Environmental Protection** — Verify all conduit entries are sealed to preserve the NEMA 4X rating. Keep the door closed and latched at all times.
- **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 & Electrical Ratings

PARAMETER	SPECIFICATION
Model / Retail	LC-9100 — 9000 Series Three-Phase Duplex
UL File Number	E547664
Supply	230 VAC, 60 Hz, 3-phase — three phase conductors + equipment ground (no neutral required; control power derived internally)
Pump Circuits	Two · 230 V 3 Φ · 3 HP, 9.6 FLA each — individual 30 A 3-pole branch breakers (CB1 · CB2)
Overload Protection	In-panel thermal overload relay per pump (OL1 · OL2) · 9–12.5 A range, Class 10A — set to 9.6 A motor FLA
Control Circuit	CB3 15 A 2-pole (legs 1 & 3) → F1/F2 1.25 A Bussmann CC time-delay primary fuses → T1 control transformer, 150 VA, 230/120 V (jumpers H1–H3 · H2–H4) → F4 2 A control branch
Alarm Circuit	Separately fused F3 2 A branch (also feeds the Both-Pump float) — red alarm globe + 95 dB piezo buzzer · press-to-test pushbutton · silence switch (buzzer only) · driven by the High Water Alarm float; calls no pump
Total FLA	[CONFIRM AT RELEASE — per UL 508A feeder calculation]
SCCR	[CONFIRM AT RELEASE — per lowest-rated device]
Feeder Protection (Field Supplied)	Upstream, at the feeder panel (not in this panel)
Controls & Indicators	Two 3-position HAND / OFF / AUTO pump selectors · two green pump-run indicators
Floats	Four 2-wire N.O. floats at 120 V — Off · On · Both-Pump · High Water Alarm
Enclosure	Polycase ZH-161407 · NEMA 4X polycarbonate
Field Wiring	Copper conductors, 60 °C minimum · DK4N field terminals 5.3 in-lbs (0.6 N·m) · DK10N power terminals per block marking
Compliance	UL 508A Listed · NFPA 70 (NEC)

Key Components

PARAMETER	SPECIFICATION
Motor Contactors (C1 · C2)	HIITIO HC5-16 — 3-pole contactors switch power to the pumps; NO auxiliary contact (13–14) drives each pump-run light
Overload Relays (OL1 · OL2)	9–12.5 A Class 10A thermal — NC trip contact (95–96) in series with its contactor coil drops the pump on trip
R1 — Float Relay (SPDT)	Dinkle cube relay — energized by the On float, seals in through its socket contact (pins 3→4, jumpered to coil A1), and holds the pump call until the Off float opens for full drawdown
R2 — Both-Pump Relay (DPDT)	Dinkle cube relay — picked by the Both-Pump float; its two contacts feed both AUTO legs so both pumps run together
R3 — TELE E1ZMLA10 Alternator	Load alternator — output transfers 18 ↔ 16 each time B1 is energized, so the lead pump swaps every pump-down cycle (see Section 6)
T1 — Control Transformer	Square D 9070T150D1, 150 VA — 230 V primary (jumpers H1–H3, H2–H4) to 120 V secondary; X2 to the neutral bank, bonded at the LV ground terminal
Fusing	F1/F2 — 1.25 A Bussmann CC time-delay, transformer primary · F3 — 2 A alarm branch (also feeds the Both-Pump float) · F4 — 2 A control branch
Off Float (N.O.)	Terminals 12–13 — lowest float; makes on rise to arm the pump call, and on fall shuts the pumps off
On Float (N.O.)	Terminals 10–11 — second up; picks R1, which seals in and starts the lead pump
Both-Pump Float (N.O.)	Terminals 14–15 — third up, fed from the F3 alarm branch (panel-side 16→15 jumper); picks R2 and runs Pump 1 and Pump 2 together regardless of which is lead
High Water Alarm Float (N.O.)	Terminals 16–17 — highest; lights the alarm globe and sounds the buzzer on the separately fused alarm branch. It calls no pump

PARAMETER	SPECIFICATION
Pump Selectors (SS1 · SS2)	3-position HAND / OFF / AUTO rotary switches (screws 1–2 HAND · 3–4 AUTO) for independent manual control of each pump
Alarm Devices	Ingram 25-LG red alarm globe · 95 dB piezo warble buzzer (120 V, 50 mA) · press-to-test pushbutton (alarm circuit only) · silence switch (buzzer only — globe stays lit)

3. INSTALLATION INSTRUCTIONS

WARNING Installation must be carried out by qualified personnel only. Follow local electrical codes (NEC) and consult the panel schematic sheets reproduced in Section 4.

1. **Mounting** — Secure the NEMA 4X enclosure to a stable vertical surface protected from direct weather and physical damage. Allow clearance for the door and service access.
2. **Power Supply** — Provide a 230 V three-phase feed on a dedicated circuit (feeder protection at the main panel — field supplied, not part of this panel). Install a field-supplied main disconnect switch upstream. No neutral conductor is required.
3. **Transformer Configuration** — Verify the T1 primary jumpers are configured for 230 V (H1–H3 and H2–H4) and that all fuses are installed: F1/F2 1.25 A time-delay primary, F3 2 A alarm, F4 2 A control.
4. **Overload Settings** — Set each overload relay dial to the pump motor nameplate full-load current (3 HP pumps: 9.6 A) before energizing.
5. **Field Wiring** — Use copper conductors rated 60 °C minimum and land all field devices exactly as shown on the terminal diagram (Figure 1). Torque DK4N field terminals to 5.3 in-lbs (0.6 N·m); torque the DK10N incoming power terminals to the value marked on the block.
6. **Float Installation** — Install the four N.O. floats positioned from lowest to highest: Off · On · Both-Pump · High Water Alarm. Terminal pairs: Off on 12 & 13 · On on 10 & 11 · Both-Pump on 14 & 15 · High Water Alarm on 16 & 17 — note the Off float (lowest) lands on the higher-numbered pair. Verify free float movement with no obstruction from cables, piping, or the basin wall.
7. **Sealing** — Verify all conduit entries are properly sealed to preserve the NEMA 4X rating.
8. **Rotation Check** — Bump each pump briefly in HAND and verify correct rotation. If rotation is reversed, de-energize, lock out, and swap any two phase conductors at that pump's load terminals — never at the incoming feed.
9. **Commissioning Test** — Set both pump selectors to AUTO. Cycle the On and Off floats and confirm the lead pump starts, seals in for full drawdown, and stops at the Off float — and that the lead/lag designation alternates after each cycle. Lift the Both-Pump float and confirm both pumps run. Lift the High Water Alarm float and confirm the globe and buzzer annunciate with no pump action. Verify the press-to-test pushbutton and the silence switch (buzzer silences, globe stays lit) before leaving the site.

4. WIRING AND CONNECTIONS

Refer to the LC-9100 Schematic Set, Sheets 1–5, Rev C (As-Built, reproduced on the following pages) for the complete terminal diagram, power circuit, 120 VAC control ladder with the full control wire schedule, and the device schedule.

Incoming Power

Connect the 230 V three-phase feed to the incoming DK10N terminal block: G (ground / PE), 1 (Leg 1), 2 (Leg 2), 3 (Leg 3). One feed powers both pump circuits and, through control breaker CB3 (legs 1 & 3) and fused transformer T1, the 120 V control and alarm circuits. No incoming neutral is used — the 120 V grounded conductor is derived from the T1 secondary (X2) onto the internal neutral bank, bonded at the LV ground terminal.

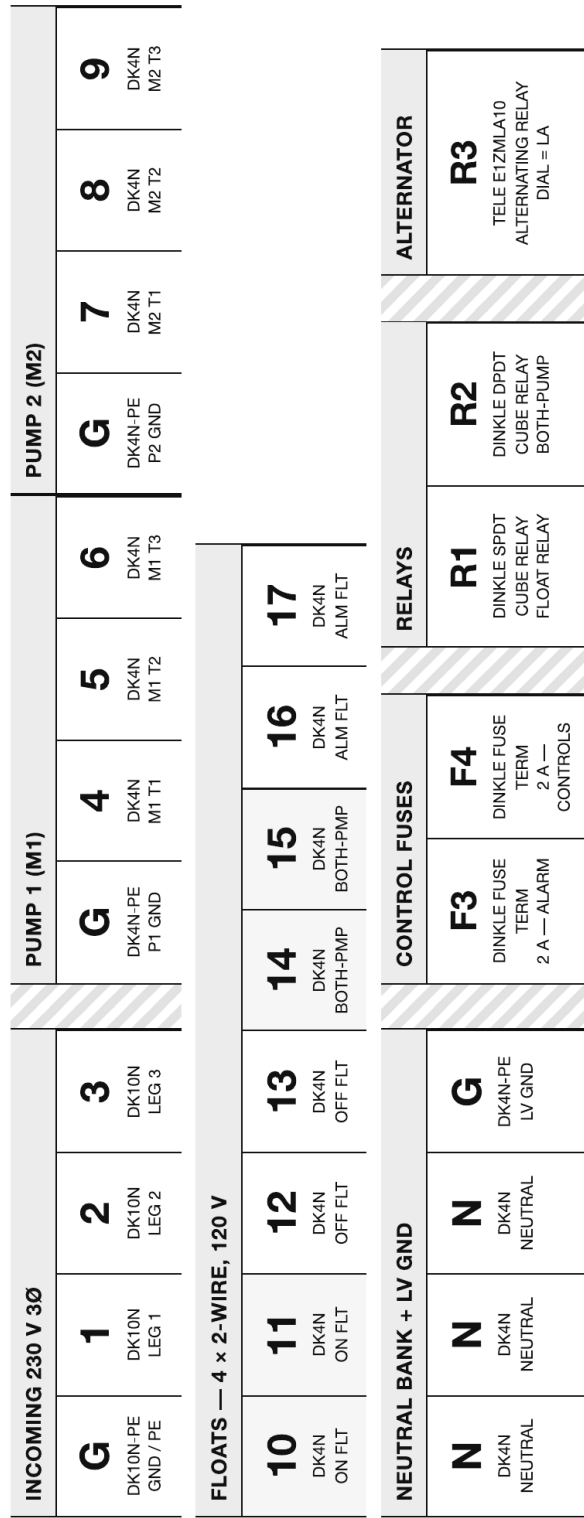
Field Connections

- **Pump 1 (M1)** — motor leads on terminals 4 (T1), 5 (T2), 6 (T3), plus the adjacent ground terminal.
- **Pump 2 (M2)** — motor leads on terminals 7 (T1), 8 (T2), 9 (T3), plus the adjacent ground terminal.
- **Off float** — terminals 12 & 13 (N.O., 2-wire).
- **On float** — terminals 10 & 11 (N.O., 2-wire).
- **Both-Pump float** — terminals 14 & 15 (N.O., 2-wire).
- **High Water Alarm float** — terminals 16 & 17 (N.O., 2-wire).
- **Grounds** — land the incoming equipment ground on the G terminal of the incoming block; pump grounds land on their adjacent G terminals.
- **Float wiring rule** — every float lands on its own pair of DK4N terminals; never piggyback float leads. The 12→11 and 16→15 jumpers are panel-side jumpers, not field leads.

WARNING Verify all connections match the schematic before energizing. Incorrect wiring, an incorrect transformer jumper configuration, or reversed phase rotation can cause faults, damage equipment, or create safety hazards.

LC-9100 DUPLEX PUMP PANEL — SCHEMATIC SET · TERMINAL DIAGRAM

SHEET 1 OF 5 · REV C (AS-BUILT)



N-N-N are jumpered as one bank and land the 120 V grounded conductor (T1 X2) plus the return leg of every control coil, the alarm globe and the buzzer. The DK4N-PE at the end of that bank bonds it to the main PE rail and takes the bonding conductor off the T1 core / casing. F1 / F2 (1.25 A Bussmann CC time-delay primary fuse terminals) mount with the transformer feeder — see section B.

FLOAT SEQUENCE — BOTTOM TO TOP

- 1. OFF float** → terminals **12 & 13** (13 = F4 hot). Lowest float. Makes on rise and arms the pump call and both-pump legs; on fall it is what shuts the pumps off.
- 2. ON float** → terminals **10 & 11** (11 jumpered from 12). Second up. Picks R1, R1 seals itself in through pins 3→4 and sends 120 V to R3 B1, which starts whichever pump the

alternator has as lead.

- 3. BOTH-PUMP float** → terminals **14 & 15** (15 jumpered from 16, alarm fuse F3). Third up. Picks R2; 11→14 and 21→24 feed both AUTO legs so pump 1 and pump 2 run together regardless of which one is lead.

- 4. ALARM float** → terminals **16 & 17**. Highest. Lights AL1 and sounds BZ1 on the separately fused alarm branch. It calls no pump.

FIGURE 1 — SCHEMATIC SET SHEET 1 OF 5 · TERMINAL DIAGRAM · REV C (AS-BUILT)

1 — POWER CIRCUIT · 230 VAC 3Ø 60 Hz

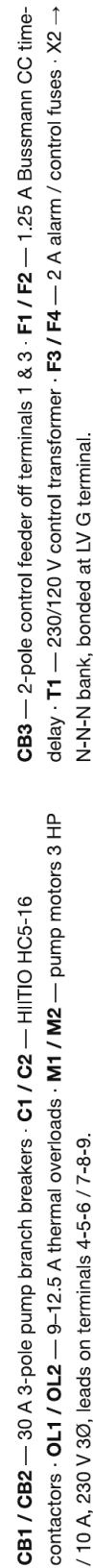


FIGURE 2 — SCHEMATIC SET SHEET 2 OF 5 · POWER CIRCUIT · REV C (AS-BUILT)

LC-9100 DUPLEX PUMP PANEL — SCHEMATIC SET · CONTROL LADDER — RUNGS 1-3

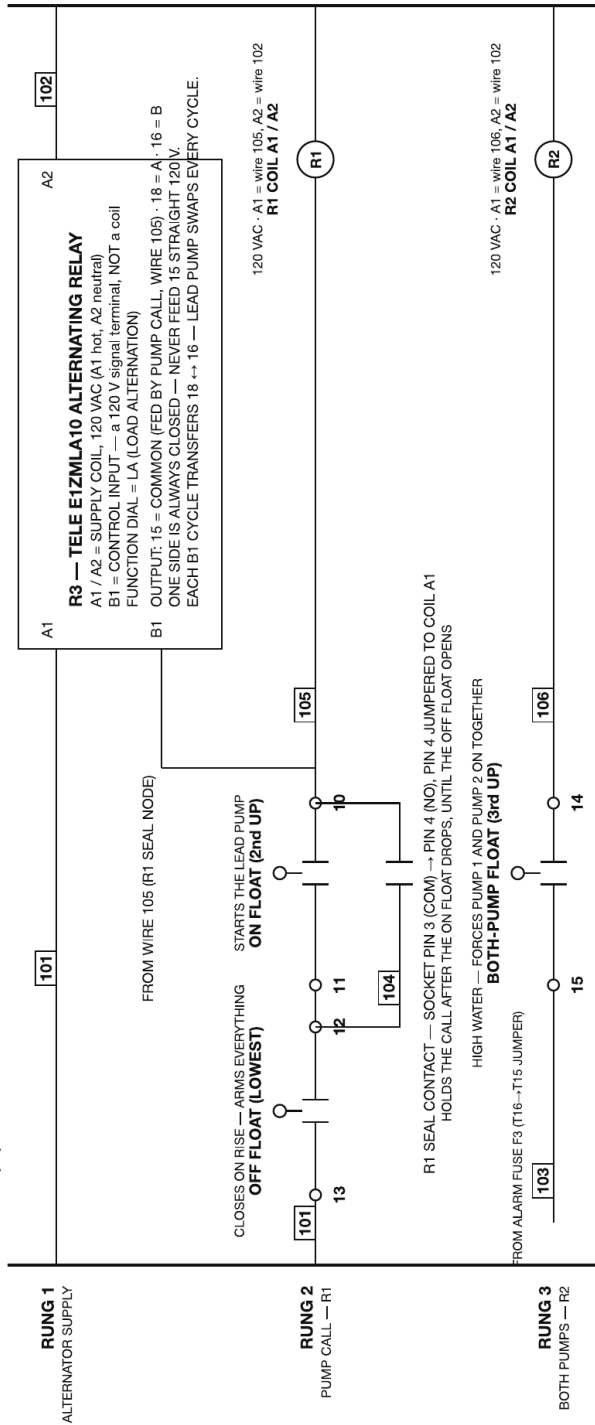
SHEET 3 OF 5 · REV C (AS-BUILT)

LEFT RAIL = WIRE 101 CONTROL HOT (F4) · RIGHT RAIL = WIRE 102 NEUTRAL N-N · ON FLOAT = 10/11 · OFF FLOAT = 12/13

C — 120 VAC CONTROL LADDER · ALL COIL AND CONTACT TERMINALS SHOWN

WIRE 101 · CONTROL HOT (F4)

WIRE 102 · NEUTRAL BANK N-N (X2)



CONTROL WIRE SCHEDULE — EVERY LANDING

- 101 Control hot (F4 load) — R3 A1 · R2 11 · R2 21 · SS1 scr 1 · SS2 scr 1 · C1 aux 13 · C2 aux 13 · **terminal 13**
- 102 Neutral bank N-N (T1 X2) — R1 A2 · R2 A2 · R3 A2 · C1 A2 · C2 A2 · PL1 neutral · PL2 neutral · AL1 neutral · BZ1 neutral
- 103 Alarm hot (F3 load) — **terminal 16** → **terminal 15** (jumper, feeds both-pump float) · PB1 scr 1
- 104 Off-float-made bus — **terminal 12** → **terminal 11** (jumper) · R1 pin 3
- 105 Pump call / R1 seal — **terminal 10** · R1 coil A1 · R1 pin 4 · R3 B1 · **R3 15**
- 106 Both-pump call — **terminal 14** · R2 coil A1
- 107 Pump 1 auto feed — R3 18 · SS1 scr 3
- 108 Pump 2 auto feed — R3 16 · SS2 scr 3
- 109 Pump 1 override — R2 14 · SS1 scr 3 (lands with wire 107)
- 110 Pump 1 coil feed — SS1 scr 2 · SS1 scr 4 · OL1 95
- 111 Pump 1 coil — OL1 96 · C1 A1
- 112 Pump 2 override — R2 24 · SS2 scr 3 (lands with wire 108)
- 113 Pump 2 coil feed — SS2 scr 2 · SS2 scr 4 · OL2 95
- 114 Pump 2 coil — OL2 96 · C2 A1
- 115 Alarm node — **terminal 17** · PB1 scr 2 · AL1 line · SS3 scr 1
- 116 Buzzer feed — SS3 scr 2 · BZ1 line
- 117 Pump 1 run light — C1 aux 14 · PL1 line
- 118 Pump 2 run light — C2 aux 14 · PL2 line

FIGURE 3 — SCHEMATIC SET SHEET 3 OF 5 · CONTROL LADDER RUNGS 1-3 · REV C (AS-BUILT)

LC-9100 DUPLEX PUMP PANEL — SCHEMATIC SET · CONTROL LADDER — RUNGS 4-8

SHEET 4 OF 5 · REV C (AS-BUILT)

LEFT RAIL = WIRE 101 CONTROL HOT; LOWER LEFT RAIL = WIRE 103 ALARM HOT (F3) · RIGHT RAIL = WIRE 102 NEUTRAL

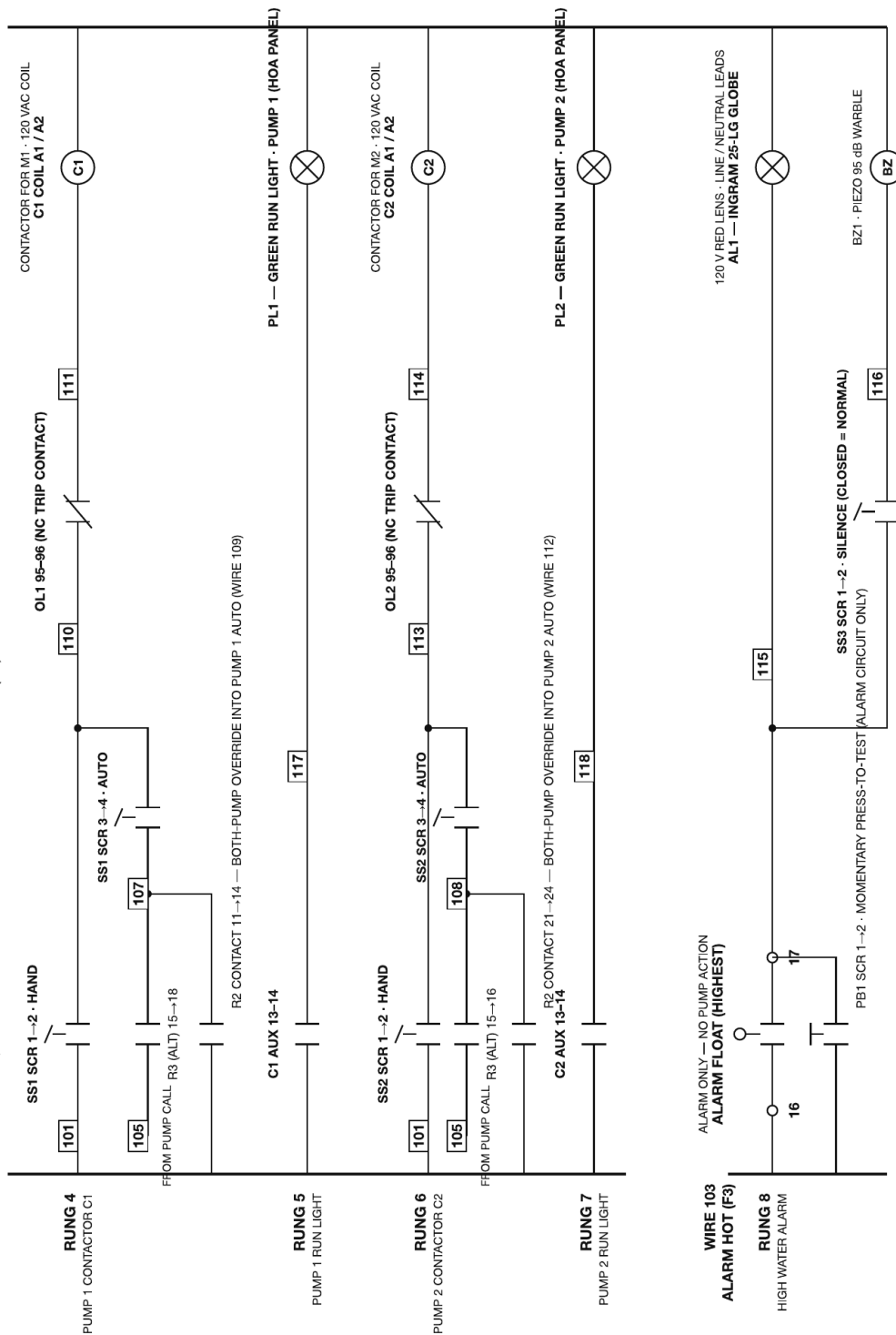


FIGURE 4 — SCHEMATIC SET SHEET 4 OF 5 · CONTROL LADDER RUNGS 4-8 · REV C (AS-BUILT)

DEVICE SCHEDULE — CONTROL CIRCUIT

CB3 — 2-pole breaker, control transformer feeder off terminals 1 & 3 (leg 1 / leg 3 of the utility service).

F1 / F2 — Dinkie fuse terminals on the T1 primary. 1.25 A Bussmann Class CC time-delay, one per leg.

T1 — control transformer, 230 V primary (H1/H2) / 120 V secondary (X1/X2). Casing bonded to the LV “G” terminal.

F3 — Dinkie fuse terminal, 2 A, alarm branch only (wire 103).

F4 — Dinkie fuse terminal, 2 A, control branch (wire 101).

R1 — float relay, Dinkie plug-in cube, **SPDT**. **Coil = A1** /

A2, 120 VAC. Seal contact = socket pins 3 (common) and 4 (NO); pin 4 jumpers to coil A1. Dry contact, not a coil terminal.

R2 — both-pump activating relay, Dinkie plug-in cube, **DPDT**. **Coil = A1 / A2, 120 VAC**. Pole 1 = 11 com / 12 NC / 14 NO; pole 2 = 21 com / 22 NC / 24 NO.

R3 — Tele E1ZMLA10 alternating relay. **A1 / A2 = 120 VAC supply coil**. **B1 = control input signal terminal** (it is fed 120 V, it is not a second coil). Output changeover contact 15 com / 18 A / 16 B — one side is ALWAYS closed, so 15 is fed from the pump call (wire 105), never from constant 120 V. Dial set to LA.

C1 / C2 — pump contactors for M1 / M2, 120 VAC coils on terminals A1 / A2. Aux contact 13–14 (NO) closes when the contactor pulls in.

PL1 / PL2 — green pilot lights on the HOA switch panel, 120 V. Lit through C1 / C2 aux 13–14 — ON = coil locked

in, pump running.

OL1 / OL2 — thermal overloads on M1 / M2. Only the 95–96 NC trip contact is used in the control circuit; 97–98 NO is spare.

SS1 / SS2 — 3-position HAND-OFF-AUTO rotary selectors, HBDY5-KW-11X/31/201, Yueqing Dahe Electric. Screws 1–2 = HAND, screws 3–4 = AUTO.

SS3 — 2-position alarm silence rotary, HBDY5-KW-11X/201, same maker. Screws 1–2 closed in NORMAL.

PB1 — momentary push button, HBDY5-KW-10/W/201, Yueqing Dahe Electric. NO contact, screws 1–2.

AL1 — Ingram 25-LG alarm globe, 120 V.

BZ1 — piezo buzzer alarm, 95 dB, 120 VAC, 50 mA max, warble tone.

NOTES

- Every float lands on its own pair of DK4N terminals — no piggybacking of float leads. The 12 → 11 jumper (wire 104) and 16 → 15 jumper (wire 103) are panel-side, not field leads.
- Jumper SS1 scr 2 to scr 4 (and SS2 scr 2 to scr 4) so HAND and AUTO share one output to the overload.
- Jumper R1 socket pin 4 back to coil terminal A1 to form the seal-in; the same node carries out to R3 B1 and R3 15.
- Wires 107 and 109 both land on SS1 scr 3 (108 and 112 on SS2 scr 3) — use a twin ferrule or a bridged pair.
- Set the E1ZMLA10 function dial to LA before energizing, or the outputs will not alternate.
- F3 keeps the alarm alive if F4 opens. Never fuse the grounded conductor on the N bank.
- SS3 silences BZ1 only — AL1 stays lit until the level drops off the alarm float.
- PB1 feeds wire 115 only; it cannot start a pump in any selector position.

FIGURE 5 — SCHEMATIC SET SHEET 5 OF 5 · DEVICE SCHEDULE & NOTES · REV C (AS-BUILT)

5. OPERATION

System Initialization

Verify all field wiring against the terminal diagram, the T1 jumper configuration, and the overload dial settings. Energize the feed, set both pump selectors to AUTO, and confirm the alarm circuit is armed. With no faults present, the alarm globe is off and both pumps are idle.

Normal Operation

The Off float makes first on a rising level and arms the pump call. When liquid reaches the On float, relay R1 energizes and seals in through its own contact, holding the call after the On float drops. The call drives the TELE E1ZMLA10 load alternator, which starts whichever pump currently holds the lead designation; the pump runs for full drawdown until the level falls below the Off float and the seal opens. Each time a pump-down cycle completes, the alternator transfers its output, so the lead pump swaps every cycle for balanced runtime and wear.

High Demand — Both-Pump Float

If the level keeps rising to the Both-Pump float, relay R2 picks and its contacts feed both AUTO legs — Pump 1 and Pump 2 run together, regardless of which one is lead, until the level drops. The override only reaches pumps whose selectors are in AUTO; a pump in HAND or OFF is not affected. The Both-Pump float is powered from the separately fused F3 alarm branch, so it stays live even if the control fuse F4 opens.

High Water Alarm

The High Water Alarm float is the highest float and drives the alarm circuit only — the red alarm globe lights and the buzzer sounds on the separately fused alarm branch. It calls no pump: pumping escalation is the job of the Both-Pump float below it.

Alarm & Response Behavior

CONDITION	DETECTED BY	PANEL RESPONSE
Normal demand	On / Off floats (N.O.)	Lead pump starts, seals in for full drawdown · alternator swaps lead/lag after each cycle
High demand	Both-Pump float (N.O.)	BOTH pumps run (AUTO only) until the level drops · no alarm
High water	High Water Alarm float (N.O.)	Alarm globe + buzzer annunciate on the separately fused alarm branch · no pump action
Overload trip	OL 95–96 opens	That pump's contactor drops out and the pump stops · rising level brings the Both-Pump float, then the alarm, into play
Alarm test	Press-to-test pushbutton	Alarm globe lights · buzzer sounds unless silenced (alarm circuit only)

ALARM SILENCE The silence switch interrupts the buzzer only — the red alarm globe remains lit until the alarm condition clears. Silence the buzzer only after acknowledging the condition, and investigate immediately.

Manual Control

Each pump selector provides HAND (pump forced on through its overload), OFF (pump disabled), and AUTO (normal float control with alternation and the both-pump override). HAND bypasses the alternator and both control relays but retains overload protection — an overload trip stops the pump in any mode. Use HAND only for testing and service; return both selectors to AUTO for normal operation.

6. COMPONENT PROGRAMMING

The TELE E1ZMLA10 load alternator ships factory-configured for standard duplex alternation. Verify the settings below at commissioning and after any component replacement.

TELE E1ZMLA10 Load Alternator — Pump Alternation

MANUFACTURER DOCUMENTATION TELE E1ZMLA10 Data Sheet

Scan for the official TELE data sheet with complete functions, time ranges, and wiring detail — tele-online.com/resources/data-sheets/en_e1zmla10.pdf



- Function** — Set the function selector (P1) to LA (Load Alternator) BEFORE energizing — the outputs will not alternate otherwise. Each time control input B1 is energized the output transfers 18 ↔ 16, so the lead pump swaps every pump-down cycle.
- Delay** — Turn both time knobs (P2 range, P3 value) fully counter-clockwise for the standard minimum ≈ 50 ms de-bounce delay.
- Verify** — Observe one full cycle with the floats: the green U/t LED confirms supply (flashing during delay); the yellow R LED illuminated indicates Pump 2 is the selected pump.

Worked Examples

- Standard alternation — P1 = LA, both time knobs at minimum: pumps alternate on every falling edge with ≈ 50 ms de-bounce
- 5-minute toggle delay — P1 = LA, P2 = 10 min, P3 = 0.50
- 60-second toggle delay — P1 = LA, P2 = 1 min, P3 = 1.00

Time Ranges

TIME RANGE	ADJUSTMENT RANGE
1 s	50 ms – 1 s
10 s	500 ms – 10 s
1 min	3 s – 1 min
10 min	30 s – 10 min
1 h	3 min – 1 h
10 h	30 min – 10 h
100 h	5 h – 100 h

MANUAL MODES & WIRING RULE The E1ZMLA10 selector also provides L1 (manual OFF — locks the relay off, disabling Pump 2) and L2 (manual ON — locks the relay on, disabling Pump 1). Use these only for service; return the selector to LA for automatic alternation. **One output side is always closed — the output common (15) is fed by the pump call, never from constant 120 V.**

7. MAINTENANCE

Recommended service intervals below, or immediately upon any alarm condition. Record all readings and adjustments on the maintenance log.

INTERVAL	TASK
Monthly	Test the alarm with the press-to-test pushbutton and silence switch · verify pump alternation with simulated float activations
Quarterly	Inspect all four floats and their cables · verify float switching by manual actuation
Biannually	Verify TELE E1ZMLA10 alternator operation · verify overload dial settings (9.6 A) · inspect enclosure seals and latches
Annually	Re-torque all terminal screws (DK4N 5.3 in-lbs / 0.6 N·m; DK10N per block marking) · inspect fuses F1–F4 and confirm spares on hand
Always	Keep the enclosure door closed and securely latched

OPERATOR NOTE Respond immediately to any audible or visual alarm, and silence the buzzer only after the condition has been acknowledged and addressed. Never override or disable the High Water Alarm float.

8. TROUBLESHOOTING

Preliminary checks: verify incoming three-phase power on all three legs, confirm the control circuit is live (CB3, primary fuses F1/F2, control fuse F4), confirm the alarm branch fuse F3, confirm both selectors are in AUTO, then work through the matrix below.

SYMPTOM	POSSIBLE CAUSE	ACTION
No lights, no pumps, no alarm	Loss of main power · CB3 off · primary fuse open	Verify the feeder breaker and all three incoming legs · check CB3 and the F1/F2 primary fuses
Controls dead, alarm still works	Control fuse F4 open	Replace F4 (2 A) — the alarm branch is fused separately on F3, so it stays live
Alarm dead, controls work	Alarm fuse F3 open	Replace F3 (2 A) and verify with the press-to-test pushbutton — F3 also feeds the Both-Pump float, so the high-demand override is lost while F3 is open
Pump stopped, no alarm	Overload relay tripped (95–96 open)	Identify and correct the cause — binding, low voltage, single-phasing, excess current — before resetting the overload
Pump hums or trips repeatedly	Single-phasing (lost leg) · low voltage · impeller binding	Verify voltage on all three legs at the pump terminals under load; inspect the pump
Pump runs backward / low flow	Phase rotation reversed	De-energize and lock out; swap any two phase conductors at that pump's load terminals
No pump alternation	E1ZMLA10 misconfigured or failed	Confirm the function selector is set to LA and both time knobs are fully counter-clockwise; replace the relay if necessary
Lead pump does not run	Selector, float, R1, or contactor	Verify the pump selector is in AUTO; check the On float (10 & 11) and Off float (12 & 13), relay R1 and its seal-in, wiring, and the contactor
Pump does not stop at drawdown	R1 seal-in stuck · Off float stuck closed	Verify the Off float opens at the stop level; check R1 and its pins 3→4 seal contact
Both pumps do not run on high demand	Both-Pump float (14–15) or R2 · F3 open · selectors not in AUTO	Verify the Both-Pump float and relay R2 wiring, and check alarm fuse F3 (it feeds this float); the override only reaches pumps in AUTO
Pumps run continuously	Float stuck closed or wiring short	Inspect and test all float switches; check for wiring shorts
Alarm globe on, no buzzer	Silence switch active · buzzer failed	Return the silence switch to normal (closed); verify with the press-to-test pushbutton
Buzzer will not silence	Silence switch wiring	Inspect the silence switch circuit — the globe staying lit is correct behavior

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.

9. WARRANTY

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 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. 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. If return of the Product or a component is directed, ship prepaid with all original accessories and documentation. 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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