

Nitrogen Reduction Control Panel — Quick Start

Timer-Based Process Control | 120 VAC · Single Phase | UL 508A Listed

ENGINEERED & MANUFACTURED FOR AKHA MANUFACTURING, LLC · HYDRO-ACTION® SYSTEMS

GUIDE VERSION 1.1

DATE August 2026

MODEL / PANEL REVISION CP-001-1-0001 · Rev v6.1

UL FILE NUMBER E547664

FULL DOCUMENTATION Operation Manual v4.3 · Spec Sheet v2.2 · Troubleshooting Guide v2.2

SUPPORT & WARRANTY AKHA Manufacturing · 800-370-3749

IMPORTANT NOTICE — SUPPORT & WARRANTY ADMINISTRATION This control panel is manufactured by Legacy Controls for AKHA Manufacturing, LLC and is intended for use with Hydro-Action wastewater treatment systems. **ALL technical support, warranty claims, service questions, callbacks, and customer communications must be directed to AKHA Manufacturing, LLC.** AKHA Manufacturing, LLC · 2055 Pidco Dr. / P.O. Box 640, Plymouth, Indiana 46563 · Toll Free 800-370-3749 · Phone (574) 936-2542 · Fax 574-936-2298 · hydro-action.com. Legacy Controls provides manufacturing and warranty support to AKHA Manufacturing, LLC and does not accept direct inquiries or claims from end users or installers for this product line.

READ FIRST — ISOLATED CONTROL CIRCUIT

This panel ships from the factory with the control circuit **COMBINED** with main power via a jumper installed between terminals 1 and 2. If a separate (isolated) power feed is required, remove the jumper and provide a dedicated feed — a separate feed remains energized when the main feed is off. **Disconnect ALL power sources and verify with a voltage tester before opening the panel.**

1. BEFORE YOU ENERGIZE

- Mount** — secure the Type 1 enclosure to a stable vertical surface — weatherproof location outdoors or well-ventilated indoors.
- Power supply** — 120 VAC single-phase on a dedicated circuit, 30 A minimum supply circuit ampacity, with a field-supplied main disconnect upstream.
- Control circuit** — factory jumper between terminals 1 and 2 stays in for combined power. For an isolated feed, remove the jumper and land a dedicated conductor — neutrals from both feeds on the same neutral bus in the feeder panel.
- Land the field devices** — pumps (M1 recirculation · M2 mixing · M3 demand dose), both floats, the pressure switch, and alarm devices exactly per the connection diagram. Overloads are integral to the pump motors — no overload devices in this panel. Torque 0.79 N·m (7.0 in-lbs).
- Set the floats** — recirculation enable float lowest · high-water float highest.
- Set the timers FIRST** — T1 and T2 per the GPD tables in Operation Manual Section 6 — before applying power.

2. START-UP & FUNCTIONAL TEST

- Energize** — with timers preset, the panel alarms until the recirculation enable float rises — that is normal.
- Synchronize** — once the enable float activates T1, press the Pump Test button to cycle the system and bring T1/T2 into sequence.
- Verify supervision** — watch one recirculation cycle — M1 runs on T1's schedule and the CS (PRI-32) holds T2 reset while current flows.
- Test the lockouts** — drop the air pressure — alarm + demand dose (M3) lockout; simulate a recirculation failure — alarm + M3 lockout. Both must release when the condition clears.
- Test high water** — lift the high-water float — alarm only; M3 keeps running by design.

3. ALARMS & LOCKOUTS

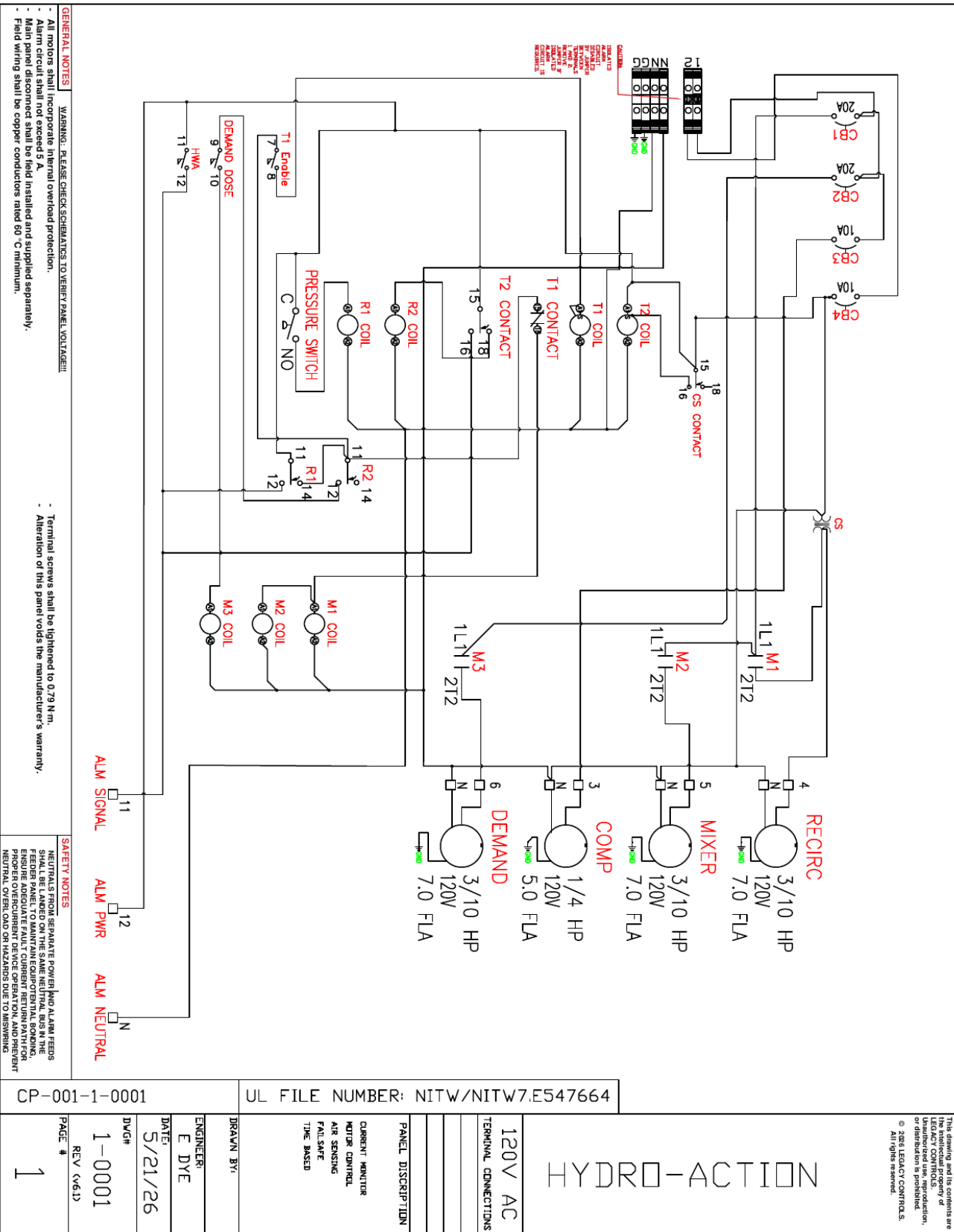
- **Low air pressure** — alarm + demand dose (M3) lockout until pressure returns.
- **Recirculation failure (CS / T2 timeout)** — alarm + demand dose (M3) lockout — the PRI-32 or the T2 countdown caught a missed cycle.
- **High water** — alarm ONLY — the demand dose pump is not keeping up, and shutting it off is the last thing the system needs. M1/M2 remain float-protected; M3 is the only output that ever locks out.

4. FACTORY SETTINGS — QUICK CHECK

- **T1 · Elko CRM-2H** — top pots = ON duration, bottom pots = OFF duration — set per the GPD cheat sheet (450–1,100 GPD) in Manual Section 6.
- **T2 · Elko CRM-183J/UNI** — off-delay countdown set longer than T1's OFF time — 30 min range at 1.0 per the tables.
- **CS · Elko EP PRI-32** — trip threshold at the pump's normal running draw (~6–8 A) — adjust only after pump or relay replacement.

5. SERVICE & SUPPORT

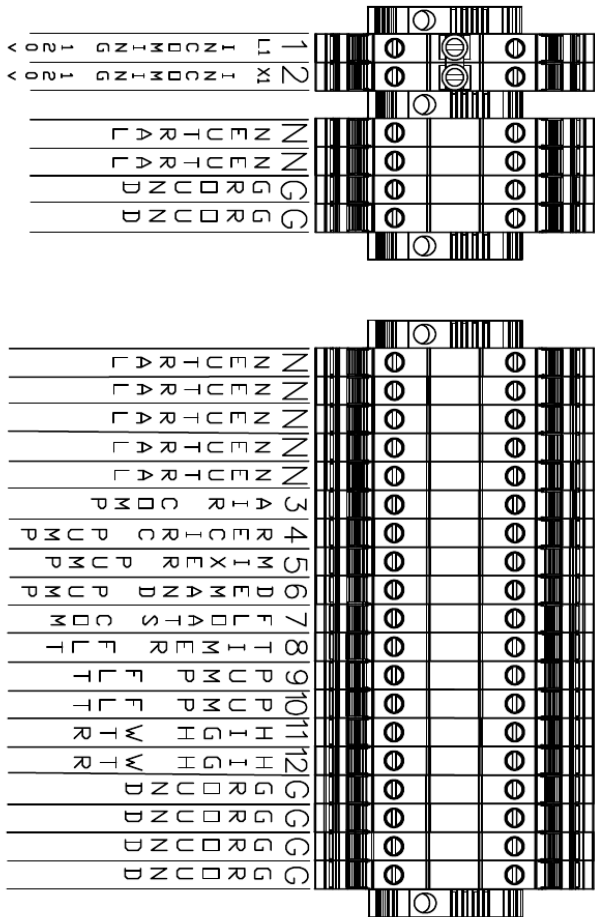
IF ISSUES PERSIST Contact AKHA Manufacturing, LLC with the model and serial number — Toll Free 800-370-3749 · Phone (574) 936-2542 · hydro-action.com



LINE DRAWING V6.1 — CP-001-1-0001

TIGHTENING TORQUE FOR TERMINAL BLOCKS IS 4.425 in-lbs.

PANEL MODEL #
CP-001-1-0001
v6.2



TERMINAL CONNECTION DIAGRAM

TERMINAL BLOCKS
PINOUT DIAGRAM
26-10 AWG, 600V, 60C

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CONNECTION DIAGRAM V6.2 — CP-001-1-0001