

PLC Drip Nitrogen Reduction Control Panel — Troubleshooting

120 VAC · Single Phase | Siemens LOGO! PLC Control | Drip Dispersal · Nitrogen Reduction

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

GUIDE VERSION **1.0**

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PANEL **CP-001-1-0002 · MCP-LV120-15A-PLCFS-1P-R1.0**

UL FILE NUMBER **E547664**

REFERENCE DRAWINGS **Line Drawing V4.8.1 · Connection Diagram V4.8.1**

COMPANION **Operation Manual v1.0 · Spec Sheet v1.0**

BEFORE YOU OPEN THE PANEL

This panel is fed by TWO separate 120 V circuits — main power on terminal 1 and a dedicated alarm / control feed on terminal 3. The alarm feed keeps annunciation live when main power is lost, so terminal 3 REMAINS ENERGIZED with the main feed off. Disconnect both circuits before opening the panel. The remote alarm circuit must not exceed 5 A.

FAULT ISOLATION BY DEVICE CLASS

CLASS	SYMPTOM	PROBABLE CAUSE	ACTION
Power	Nothing runs, no alarm	Loss of main power feed	Verify the feeder breaker and voltage at terminal 1. Terminal 3 is a separate circuit and may still be live.
Power	Alarm dead, motors running	Loss of the alarm / control feed	Check voltage at terminal 3. The alarm circuit is fed separately by design.
PLC	No dose cycles at all	Drip enable float open, or PLC not receiving power	Confirm the drip enable float at terminal 15 against floats common (14). Verify L and N at the PLC and that the input LED for that channel follows the float.
PLC	Dosing at the wrong interval	Schedule altered	Dose ON is 12 minutes and dose OFF is 1.75 hours as specified. Compare against the PLC display before changing anything.
PLC	Override count climbing	Persistent high inflow or a stuck override float	The PLC counts every override by design. A rising count is data, not a fault — investigate inflow, then verify the override float at terminal 16.
PLC	An output will not energize	PLC output, interposing relay, or the motor branch	Watch the PLC output LED. Lit with no motor means the fault is downstream at the M relay or the branch protection; not lit means the fault is upstream in the logic or its input.
Dosing	Dose pump will not run in HAND	B4 hand control, M relay, or branch protection	HAND bypasses the schedule but not the motor branch. Check CB and the M relay contacts.
Dosing	Dose pump runs but no field pressure	Airlock, closed valve, or field solenoid not opening	Confirm the field flush solenoid at terminal 10 and check pressure switch 1.

CLASS	SYMPTOM	PROBABLE CAUSE	ACTION
Flush	Filter never backflushes	Filter solenoid or PLC output	Verify the filter flush solenoid at terminal 11, then exercise it from B3 in HAND.
Flush	Field flush will not run	Field solenoid or PLC output	Verify the field flush solenoid at terminal 10, then exercise it from B5 in HAND.
Recirculation	Recirculation will not start	Recirculation float open	Check the float across terminals 12 and 13.
Motors	A motor trips repeatedly	Motor overload, or a mechanical fault	The overload is integral to the motor — this panel contains none. Allow it to cool, then confirm running current against the load table.
Alarm	High-water alarm active	Excessive tank level	Investigate influent restriction. High water annunciates only — it never stops the dosing or treatment functions.
Alarm	Horn will not silence	B1 rotary or the R1 relay	Check B1 and the R1 contacts. Silence only after acknowledging the condition.
Alarm	Remote alarm dead	Alarm signal circuit	Verify terminal 19 against 18. The remote alarm circuit must not exceed 5 A.

ALARM-ONLY BY DESIGN High water annunciates and never interrupts dosing, recirculation, mixing or aeration on this panel. If treatment stops during a high-water event, look for a separate fault — not the float.

COMPLETE PANEL DOCUMENTATION Scan for the current Operation Manual, Specification Sheet, Quick Start Guide and drawings.



www.legacy-controls.com/
panels/CP-001-1-0002/