

CLYR POOL AUTOMATION

CLYR+

Owner's Manual for High-Voltage Pool Automation Cabinet



FCC AND WIRELESS COMMUNICATIONS

FCC and Wireless Communications

Clyr+ contains a main control PCB and a standard Waveshare touchscreen assembly. Wireless identification and antenna instructions must match the actual radio hardware installed in both assemblies.

ASSEMBLY	IDENTIFICATION REFERENCE
Main CLYR V5.0 PCB	The v21 assembly BOM identifies an Espressif ESP32-WROOM-32U-N16 module. Confirm the installed module label and antenna before applying a regulatory identifier.
Integrated screen	Waveshare ESP32-S3-Touch-LCD-4.3B-BOX. Its radio hardware is separate from the main PCB; retain the supplied screen documentation.
Product regulatory label	Use the identifiers on the installed product and its verified module records. Do not transfer an FCC ID from a different Clyr controller or radio module.

FCC Part 15 Operating Conditions

For equipment authorized under FCC Part 15, operation is subject to these conditions: this device may not cause harmful interference, and this device must accept any interference received, including interference that may cause undesired operation.

Unauthorized Changes

Changes or modifications to the wireless radio, antenna, enclosure, shielding, firmware radio parameters, or approved module configuration that are not expressly approved by the party responsible for compliance may void the user's authority to operate the equipment.

Antenna and RF Exposure

The wireless module must be used only with the antenna configuration approved for the installed module. Do not modify the antenna, add an external antenna, relocate the radio module, or change RF shielding unless the revised configuration is reviewed for regulatory compliance.

Regulatory identification: Confirm the complete installed radio configuration and required host notices with Clyr. Module identifiers must match the installed hardware. [Espressif module-identification reference](#).

READ FIRST

Document Information

Installation, operation, and service information for the Clyr+ high-voltage pool automation cabinet.

FIELD	VALUE
Product	Clyr+
Hardware Version	Version 1; CLYR V5.0 PCB (engineering revision v21)
Configuration	One Clyr+ version; Waveshare ESP32-S3-Touch-LCD-4.3B-BOX screen (SKU 28141) included as standard. The screen is an RS-485 slave interface; the main PCB runs control functions independently. Dimming leaves screen electronics powered.
Cabinet Type	High-voltage pool automation cabinet; nonmetallic enclosure with equipment grounding bar
Control-Power Supply	120 VAC or 240 VAC, 50/60 Hz; dedicated branch circuit
Intended Environment	Outdoor installation with direct rain exposure; complete enclosure rating remains to be verified.
Intended Operating Ambient	Complete-cabinet ambient range: pending thermal review. The screen assembly is specified for 0°C to 65°C (32°F to 149°F); this component range does not establish the cabinet ambient rating. Dimming the screen does not extend the operating limits.
UL Documentation Status	Documentation for UL evaluation is in progress. UL certification or listing is not claimed.
Document Type	Owner's Manual / Installation and Operation Reference
Document Edition	October 2026
Document Date	October 3, 2026

Match this manual to your equipment. This edition covers Clyr+ Version 1. Verify installed labels, supply configuration and connected-equipment instructions before wiring. Where a rating or pin assignment is not specified, obtain confirmation from Clyr before making that connection. Component ratings do not establish a rating or certification for the complete cabinet.

NAVIGATION 1 OF 3

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01

Safety Symbol Key

Clyr+ is a high-voltage pool automation cabinet used in a pool equipment environment. The controller may be installed near pumps, heaters, salt systems, relay cabinets, water lines, chemical feeders, and outdoor branch circuits. Understand these symbols before proceeding.



Warning

Indicates a hazardous situation that could result in injury, equipment damage, loss of water containment, or unsafe pool operation if ignored.



Important Information

Identifies setup details that affect reliable operation, including network selection, port selection, sensor configuration, or cloud connectivity.



Electrical Voltage

Identifies wiring, terminals, power supplies, or nearby equipment that may expose the installer to hazardous voltage or damaging miswiring.



Water and Weather Exposure

Identifies areas where moisture control, enclosure sealing, drip loops, cable gland tightening, or outdoor-rated accessories are required.



Prohibited Action

Identifies actions that should not be performed, such as energizing equipment with covers removed, mixing control buses incorrectly, or running valves without the proper 24 VAC valve supply.

Critical Electrical Warnings



HIGH-VOLTAGE CABINET: Clyr+ is a high-voltage pool automation cabinet. Disconnect every incoming supply and verify absence of voltage before opening or servicing. The dedicated control-power circuit and separate relay-load circuits can be energized independently. Keep internal barriers and mains/low-voltage separation intact.



Risk of electric shock, fire, or death: Pool pads often contain 120/240 V AC equipment. Always turn off the appropriate breakers before removing pump covers, heater panels, salt-cell power-center covers, relay cabinet covers, or any enclosure that may contain line voltage.

Qualified Installation

- Use a certified electrician when working inside any line-voltage panel, relay cabinet, pump power compartment, heater compartment, salt-cell power center, or outdoor receptacle.
- Verify power is off using proper test equipment before touching conductors or terminals in equipment cabinets.
- Do not assume a breaker label is correct. Confirm the actual circuit is de-energized.
- Do not install the controller where local code requires a different enclosure, disconnect, GFCI protection, bonding method, conduit method, or weatherproofing practice.

Low-Voltage Wiring Limits

The Clyr+ uses low-voltage control and communication wiring, but those wires may enter cabinets that also contain high-voltage equipment. Keep low-voltage conductors separated from line-voltage conductors as required by code and by the equipment manufacturer.

AREA	OWNER / INSTALLER ACTION
Cabinet and controller power	Use the documented 120 VAC or 240 VAC control-power configuration. Internal supplies provide separate 24 VDC controller power and 24 VAC valve power. Verify final cabinet ratings before selecting branch protection or conductors.
Valve actuators	Confirm the internal transformer and valve-power harness are connected before expecting actuator movement. The 24 VDC supply cannot substitute for 24 VAC.
Auxiliary relays	Retain factory AUX1–AUX3 coil harnesses. Use the specified Clyr jumpers for AUX4/AUX5 external 24 VDC relay coils; qualified personnel must wire mains load circuits.
RS485	Do not connect RS485 A/B conductors to line voltage, relay load terminals, heater fireman circuits, or actuator power terminals.

Outdoor, Water, and Enclosure Warnings

Clyr+ is intended for outdoor pool-pad installation with direct rain exposure. Mount the cabinet upright with the cover closed and latched, the gasket correctly seated, and all cable glands, conduit fittings and unused openings sealed. Weather protection depends on the complete installed enclosure and its entries; see Document Information for rating status.

Sealing and Service

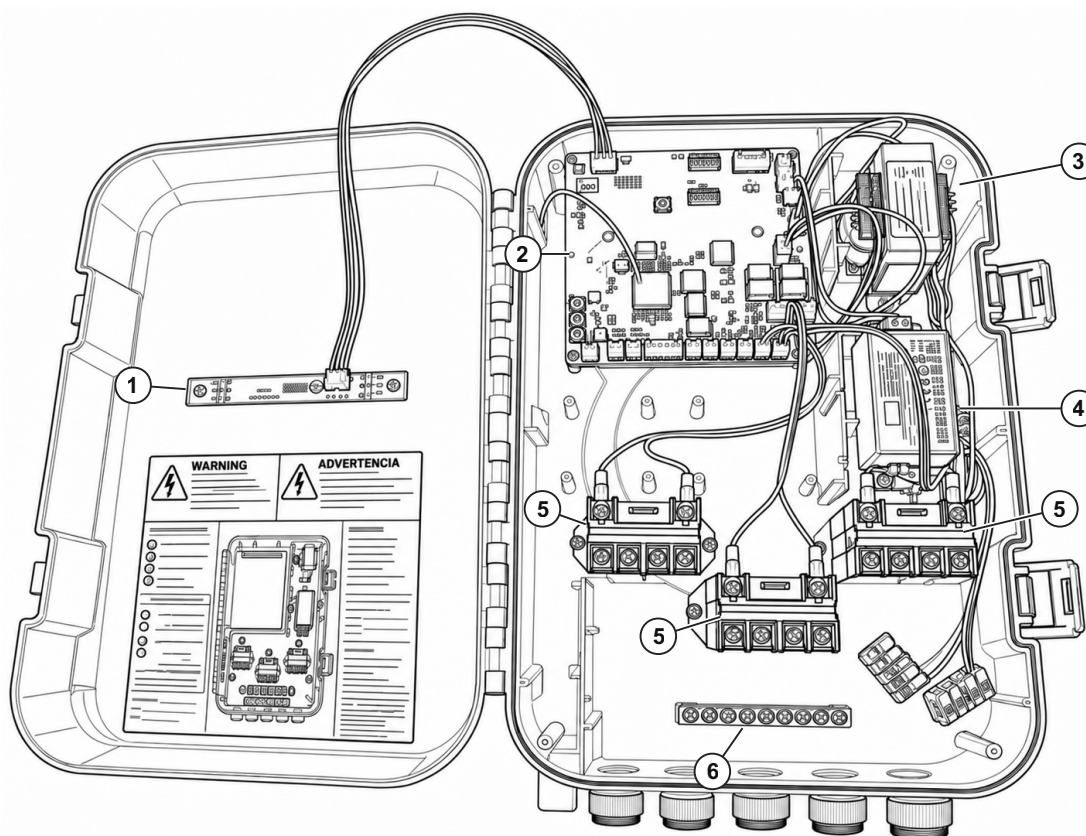
- Inspect the enclosure gasket before closing the lid.
- Tighten cable glands around the outer cable jacket, not around loose individual wires.
- Never leave unused openings unsealed.
- Close and latch the cover after setup, commissioning, and service.

Moisture warning: Water inside the controller is abnormal. Water inside an electronics enclosure can corrode terminals, interfere with sensor readings, cause communication failures, or damage the controller. If moisture is found inside, de-energize the system and correct the water-entry path before returning the controller to service.

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Controller Overview

Clyr+ is a high-voltage pool automation cabinet. The illustration below identifies the main components inside the lid and cabinet.



Clyr+ with the lid open. Each of the three high-voltage relays is marked with number 5.

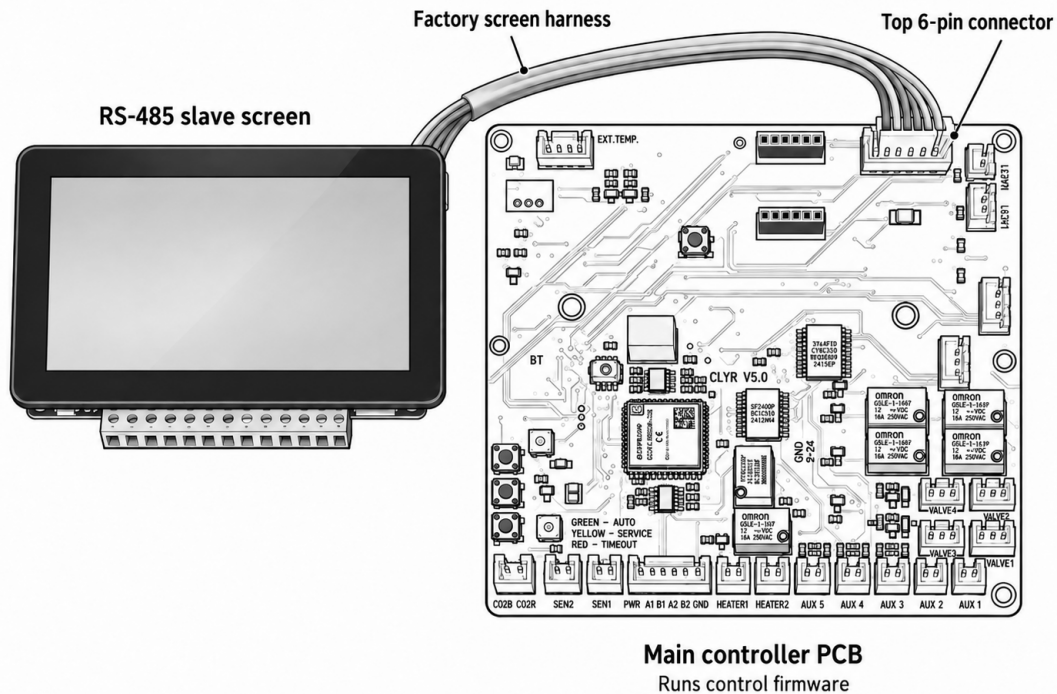
Main Components

NO.	COMPONENT	LOCATION / IDENTIFICATION
1	Alert light	Left panel. Green: Auto mode. Yellow: Service mode.
2	Controller PCB	Main control board in the upper-left area of the cabinet.
3	24 VAC transformer	Upper-right area of the cabinet, beside the PCB.
4	24 VDC power supply	Below the 24 VAC transformer.
5	High-voltage relays (3)	Three relays arranged across the middle of the cabinet.
6	Equipment grounding bar	Schneider/Square D PK7GTA, along the cabinet bottom below the relays.

05

Screen & PCB Connection

The integrated touchscreen is an **RS-485 slave**. Its factory harness connects to the **six-pin connector at the top of the main PCB**. This connection is installed before the cabinet ships.



Screen and PCB shown separately for clarity. Connector-level overview of the factory harness; individual pin assignments are not shown.

Main PCB runs the controls

The main PCB contains the control firmware and operates the controller's functions independently of the screen. The touchscreen provides a local interface for status and commands.

Factory-connected screen

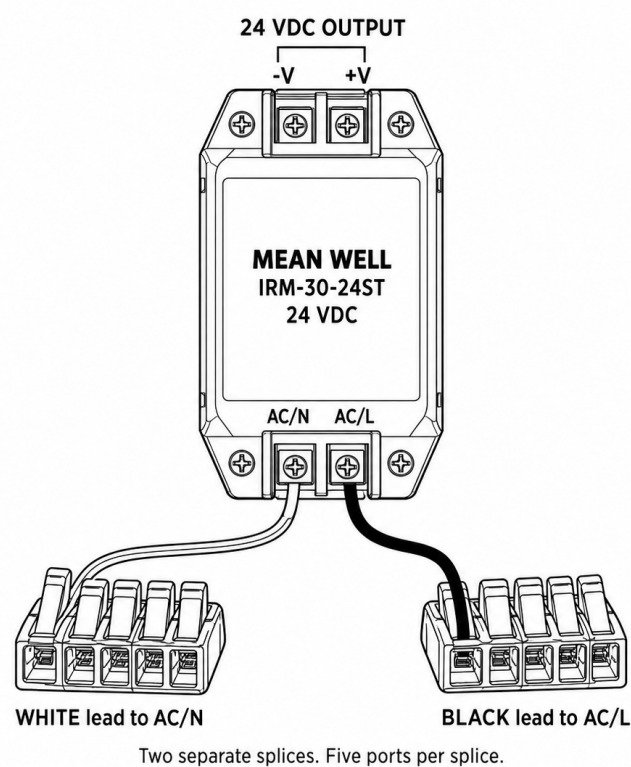
Retain the supplied harness in the top six-pin connector. The screen receives cabinet low-voltage power from the 24 VDC supply through the factory wiring; no separate installer screen-power feed is needed.

A dimmed screen is still powered. Blanking or dimming the display does not disconnect the screen electronics or stop the main PCB. Before servicing this harness, isolate all cabinet supplies and verify absence of voltage.

The screen connector is separate from the equipment RS-485 connector on the PCB's bottom edge. Use the factory harness; do not infer a pinout from connector size or appearance.

24 VDC Power Supply

The pictured cabinet uses a Mean Well IRM-30-24ST to convert AC mains power to 24 VDC for the controller. Its black and white AC leads terminate in two separate WAGO 221-415 five-port lever connectors.



Component identification. Match terminal markings on the installed supply.

SUPPLY CONNECTION	120 VAC INSTALLATION	240 VAC INSTALLATION
BLACK lead → AC/L	Line (L)	Line 1 (L1)
WHITE lead → AC/N	Neutral (N)	Line 2 (L2), a live conductor
Output +V / -V	24 VDC, polarity-sensitive	24 VDC, polarity-sensitive

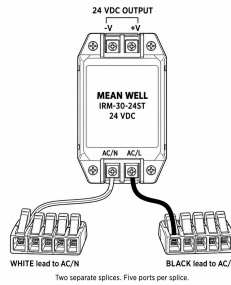
No voltage selector on this Mean Well model. Its component AC input range is 85–305 VAC. **Clyr+ supports nominal 120 VAC or 240 VAC at 50/60 Hz only; 208 VAC is not supported.** The component range does not expand the cabinet’s supported supplies. Match the cabinet, transformer tap, protection and connected equipment to the supply.

Manufacturer reference: [Mean Well IRM-30 datasheet](#), IRM-30-24 and screw-terminal “ST” version. The AC/N marking remains unchanged when used on L2.



WAGO Splices & Grounding

The mains-input splices are **WAGO 221-415** five-port lever connectors. Use one connector per electrical node; all five ports within one connector are electrically common. Transformer BLACK (COM) and Mean Well WHITE (AC/N) intentionally share connector B; connector A remains separate.



A and B below are diagram identifiers, not factory connector markings.

NODE	CONDUCTORS JOINED BY THAT SPLICE
A — L / L1	Supply line + Mean Well BLACK (AC/L) + the ONE selected transformer voltage tap.
B — N / L2	Supply return + Mean Well WHITE (AC/N) + transformer BLACK (COM).
PE — ground bar	Incoming equipment grounding conductor and required equipment grounds. Separate from A, B and DC negative.

Prepare and terminate with all power disconnected

1. Isolate every supply entering the cabinet, including separate relay load feeds. Verify absence of voltage with a suitable tester before touching conductors; Auto/Service is not a disconnect.
2. Use copper conductors within the **221-415 range: 24–12 AWG**, solid, stranded or fine-stranded. Select the actual branch-circuit wire size for its load, protection and installation conditions; connector capacity is not a wire-sizing instruction. **10 AWG is outside the 221-415 range.**
3. **Strip 11 mm (0.43 in)**, using the connector's gauge. Lift the lever, insert one conductor per port fully, then close the lever. Check through the housing and pull-check each wire. The lever clamp has no tightening screw or torque setting.
4. Connect PE to the **Schneider/Square D PK7GTA** ground bar. Use the wire-screw torque table below for one copper conductor per terminal. Retain the factory ground-bar mounting; do not add a neutral or DC-negative bond. Keep neutral separate from PE.

ONE COPPER CONDUCTOR PER TERMINAL	WIRE-SCREW TORQUE
14–10 AWG	20 lb-in (2.26 N·m)
8 AWG	25 lb-in (2.82 N·m)
6–4 AWG	35 lb-in (3.95 N·m)

PK7GTA accepts solid or stranded copper, 14–4 AWG. These are wire-terminal values, not mounting-screw torque. Size the equipment grounding conductor for its circuit. Multiple conductors require the specific manufacturer-approved combination.

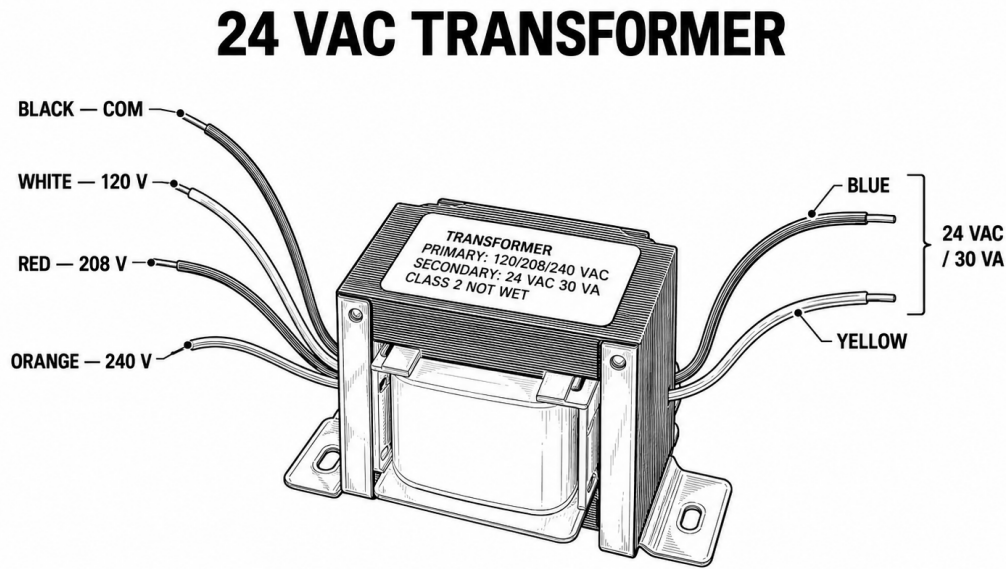
Never put L and N, or L1 and L2, into the same five-port connector. The supply-only diagrams use three occupied ports per splice. Do not use spare ports on WAGO A or B to supply relay-switched loads. Feed relay load contacts from separately protected subpanel circuits, on breakers separate from the Clyr+ control-power breaker.

Connector references: [WAGO 221-415; handling instructions](#). [Schneider PK ground-bar wire/torque data](#). Relay terminals have separate requirements.

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24 VAC Transformer Taps

The transformer uses BLACK (COM) plus exactly one voltage tap on its primary. BLUE and YELLOW are the separate 24 VAC secondary leads for the valve-power circuit.



Primary: COM plus one selected voltage tap.

Lead identification follows the photographed transformer label. The RED 208 V tap is unused in Clyn+.

MEASURED SUPPLY / SELECTED TAP	PRIMARY PAIR USED	INDIVIDUALLY INSULATE UNUSED TAPS
120 VAC	BLACK COM + WHITE 120 V	RED and ORANGE
240 VAC	BLACK COM + ORANGE 240 V	WHITE and RED

Read the installed transformer label before wiring. The pictured unit is marked **RED = 208 V** and **ORANGE = 240 V**; it has no 220 V tap. If the installed label differs, use that unit's approved wiring information. COM identifies the transformer's common primary lead. In this cabinet, BLACK COM joins Mean Well WHITE (AC/N): neutral at 120 VAC or live L2 at 240 VAC. It is never an equipment-ground or DC-negative connection.

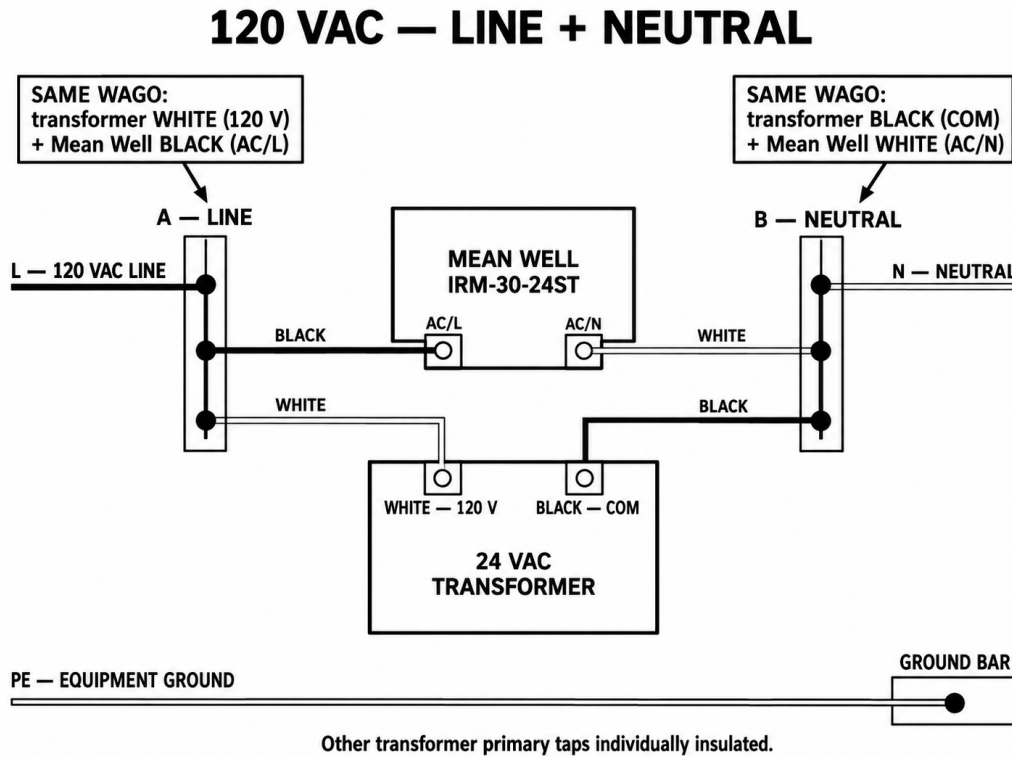
Insulate each unused primary lead separately with a voltage-rated connector or cap and secure it. Do not join unused taps together or connect them to ground. Unused taps can be energized whenever the primary is energized.

Clyn+ supports 120 VAC or 240 VAC, 50/60 Hz. Keep the RED 208 V tap individually insulated in both configurations. Secondary label: 24 VAC, 30 VA; verify the actuator load budget.

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120 VAC Cabinet Input

This arrangement uses line, neutral and equipment ground. Both internal supplies connect across L and N; the transformer uses its WHITE 120 V primary tap.



Each outlined vertical bus represents one WAGO splice. Dots show joined conductors; A and B remain separate. Layout is functional, not a physical terminal-position diagram.

NODE	CONNECT THESE CONDUCTORS ONLY
A — LINE	Incoming L + Mean Well BLACK / AC/L + transformer WHITE / 120 V.
B — NEUTRAL	Incoming N + Mean Well WHITE / AC/N + transformer BLACK / COM.
GROUND BAR	Incoming PE and required equipment grounds; no neutral bond.

Connection sequence

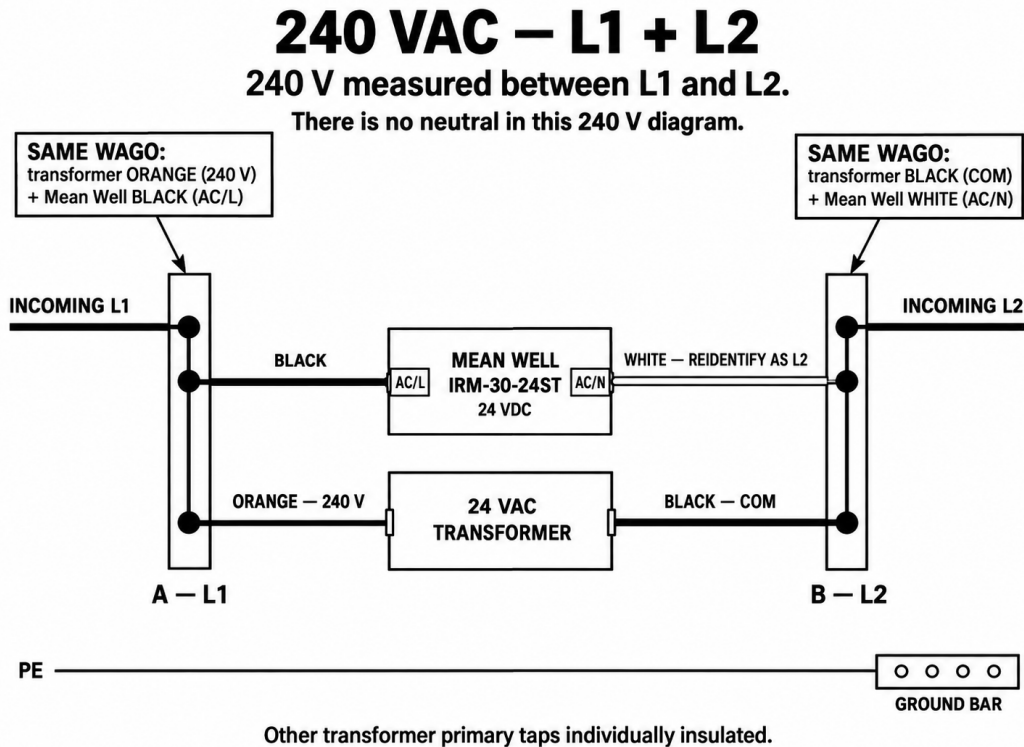
1. With all feeds isolated and verified dead, identify L, N and PE from the supply documentation and confirm the cabinet is configured for 120 VAC.
2. Terminate A, B and PE as listed. Individually insulate the unused transformer RED and ORANGE primary leads.
3. Check each termination, the factory low-voltage harnesses and the selected tap before closing the cabinet and commissioning.

BLACK-to-WHITE is intentional. Transformer **BLACK (COM)** and Mean Well **WHITE (AC/N)** share WAGO B with neutral. Transformer **WHITE (120 V)** and Mean Well **BLACK (AC/L)** share WAGO A with line. Match each wire's function, not its color.

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240 VAC Cabinet Input

This arrangement uses two live conductors, L1 and L2, with 240 VAC between them, plus equipment ground. The two internal supplies shown do not require neutral.



Each outlined vertical bus represents one WAGO splice. Dots show joined conductors; A and B remain separate. Layout is functional, not a physical terminal-position diagram.

NODE	CONNECT THESE CONDUCTORS ONLY
A — L1	Incoming L1 + Mean Well BLACK / AC/L + transformer ORANGE / 240 V.
B — L2	Incoming L2 + Mean Well WHITE / AC/N + transformer BLACK / COM.
GROUND BAR	Incoming PE and required equipment grounds; never use PE as L2.

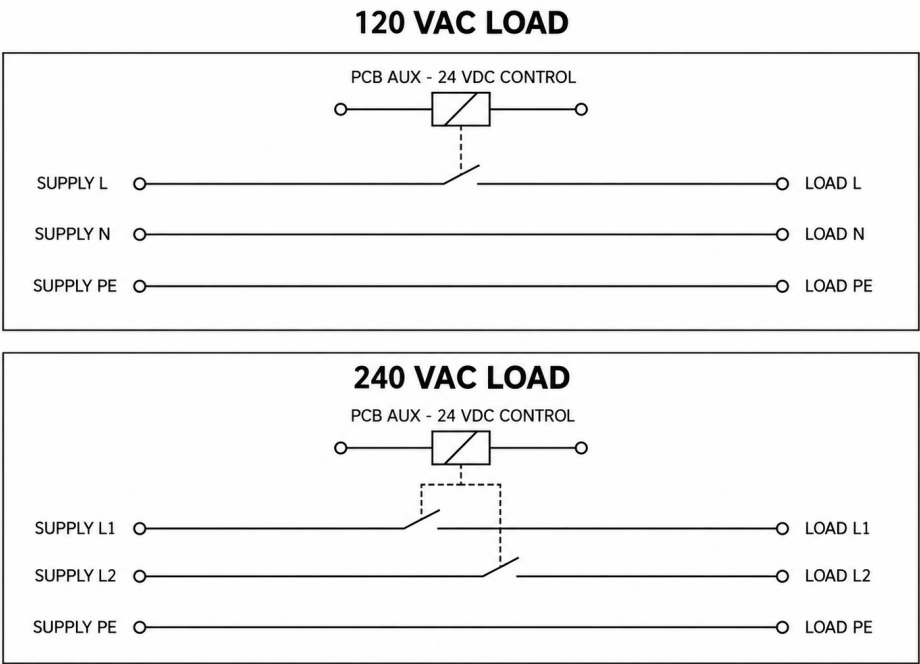
BLACK-to-WHITE is intentional. Transformer **BLACK (COM)** and Mean Well **WHITE (AC/N)** share WAGO B with **live L2**. Transformer ORANGE (240 V) joins Mean Well BLACK (AC/L) on WAGO A with L1. Identify the Mean Well WHITE lead as L2 by the method permitted for the installation; it is not neutral here.

With all feeds isolated, make the listed connections and individually insulate the transformer WHITE and RED taps. Use the required disconnect and overcurrent protection for both live conductors. Confirm 240 V is the actual line-to-line supply and match all equipment ratings before energizing.

Manufacturer guidance: Mean Well — supplying a rated AC input from two live conductors.

Relay Control & Load Wiring

The cabinet uses three Omron **G7L-2A-BUBJ-CB-IN DC24** relays, with **24 VDC coils** and two normally open load poles (DPST-NO). Coil control and load contacts are electrically separate. Verify the installed relay markings before landing conductors.



Functional circuits only - match actual relay terminal markings.

Dashed lines represent mechanical linkage, not wires. Contact symbols are open. For pump-specific two-pole examples and grounding, see [pages 13–14](#).

CIRCUIT	CONNECTION RULE
24 VDC coil control	Default wiring, facing the open cabinet: left relay → AUX3; middle → AUX2; right → AUX1 . Retain each two-wire factory coil harness and follow coil polarity markings.
120 VAC load	The single-pole illustration applies only when the equipment instructions permit it. For a pump requiring both power terminals switched, use the linked L-and-N arrangement on page 13 .
240 VAC load	Switch L1 and L2 through two mechanically linked poles of a suitably rated relay. Keep the two live paths separate.
Equipment ground	Carry PE continuously to the load; do not switch PE or connect it to a relay coil.

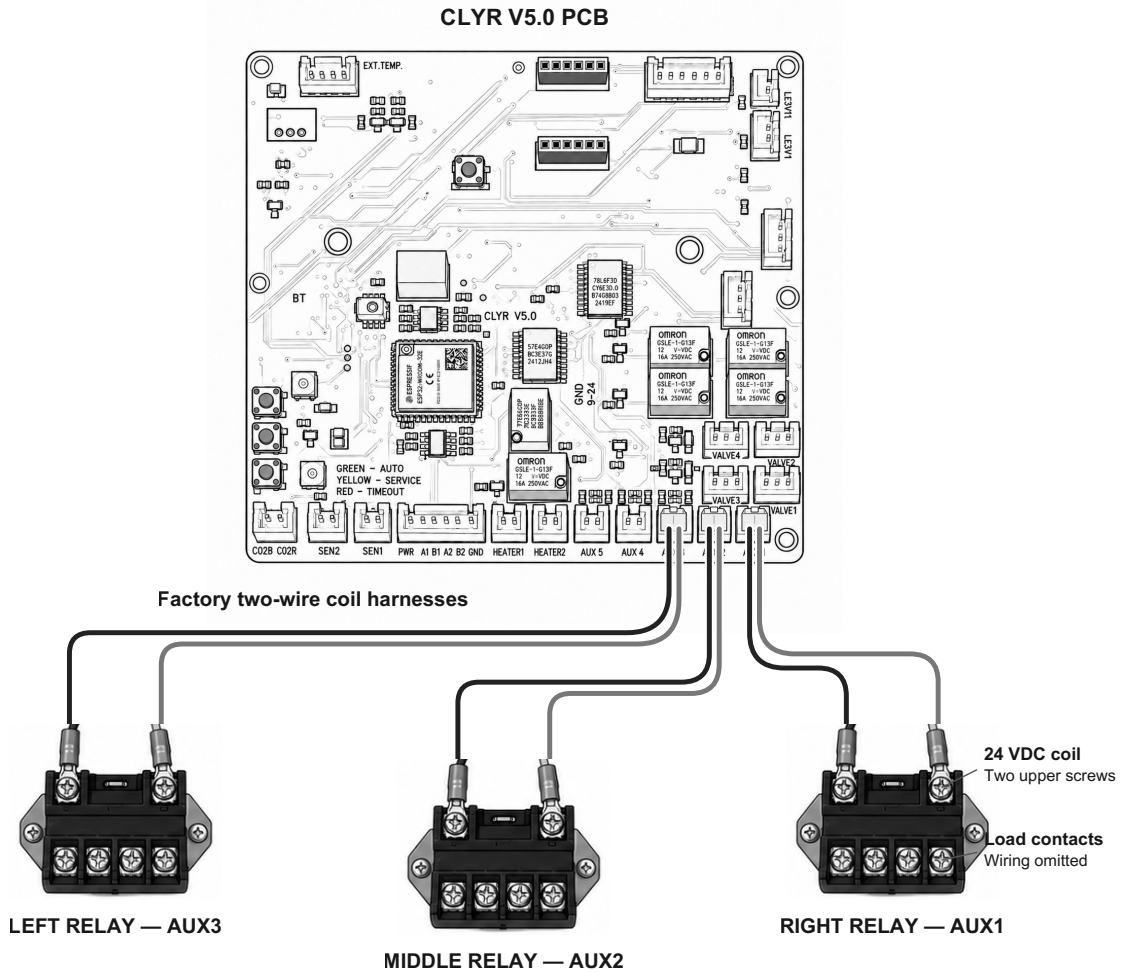
Match the relay and the load. Verify coil voltage, contact identification, load type/rating, wire size, terminal torque and branch protection from installed equipment markings. These functional diagrams do not assign screw positions or establish relay ratings. Relay-switched loads must use separately protected subpanel circuits, on breakers separate from the control-power breaker. Do not bridge WAGO A or B to relay load contacts or power a mains load from an AUX port.

Heater supply switching: Use a relay to switch a heater’s 120/240 VAC supply only where the heater manufacturer permits it and the complete relay circuit is rated for that load. This is separate from the low-voltage HEATER enable connection described later.

Connection topology redrawn from the “Cabinet Wiring” slide deck, slides 2 and 4. Separate feeds can remain live after controller power is disconnected; isolate and verify every circuit before service.

Factory Relay-Coil Wiring

The three internal **24 VDC relay coils** arrive connected to the main PCB. Each AUX output uses its own **two-wire factory harness**, with one conductor connected to each of the relay's two upper coil screws.



View facing the open cabinet. Components spaced apart and other wiring omitted for clarity. Harness routes are illustrative; retain the factory routing and terminations.

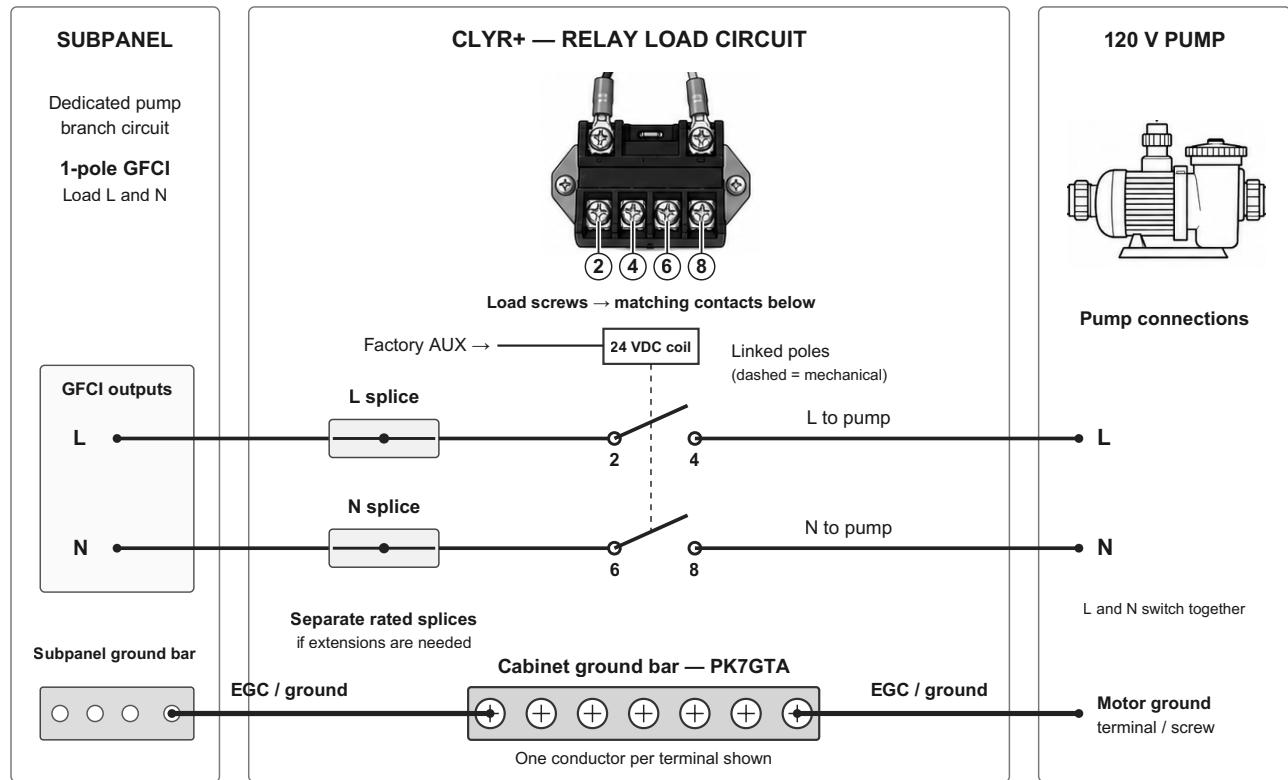
PCB OUTPUT	RELAY POSITION	FACTORY CONNECTION
AUX1	Right relay	Two-wire harness → two upper coil screws
AUX2	Middle relay	Two-wire harness → two upper coil screws
AUX3	Left relay	Two-wire harness → two upper coil screws

Coil control and load wiring are separate. The four lower load terminals belong to the relay's two switched mains poles. Complete the protected equipment circuits using [Relay Control & Load Wiring](#); never apply mains voltage to an AUX connector or coil harness.

Keep the factory plugs, crimp terminals and coil polarity intact. This overview does not assign individual pin polarity. Isolate all incoming supplies and verify absence of voltage before inspecting or servicing connections.

120 VAC Pump: Power & Ground

Example for a 120 V pump whose instructions call for both power terminals to be switched. Use one dedicated GFCI-protected pump branch, separate from the Clyr+ control-power breaker. The same relay switches line and neutral together.



Ground bypasses the relay. Keep neutral separate from the ground bar.

External pump bonding is a separate required connection; see the instructions below.

Numbers beside the relay's load screws match the contact paths below: 2-4 and 6-8, following Omron's G7L-2A-BUBJ top view. Verify installed markings; wire routing is functional. Pump artwork is illustrative. Control-power feed and panel supply-neutral connection omitted.

Splices and separate feeds. Optional splices extend this pump branch only. Use connectors rated for the actual conductors, current, voltage and location. Keep the two power splices separate; never connect them to control-power WAGO A/B or bridge different breakers. Route N through this GFCI's load-neutral terminal; do not bypass it or share neutral with another branch. Keep the two poles mechanically linked; never switch neutral independently. Connect the breaker's supply neutral as its manufacturer specifies.

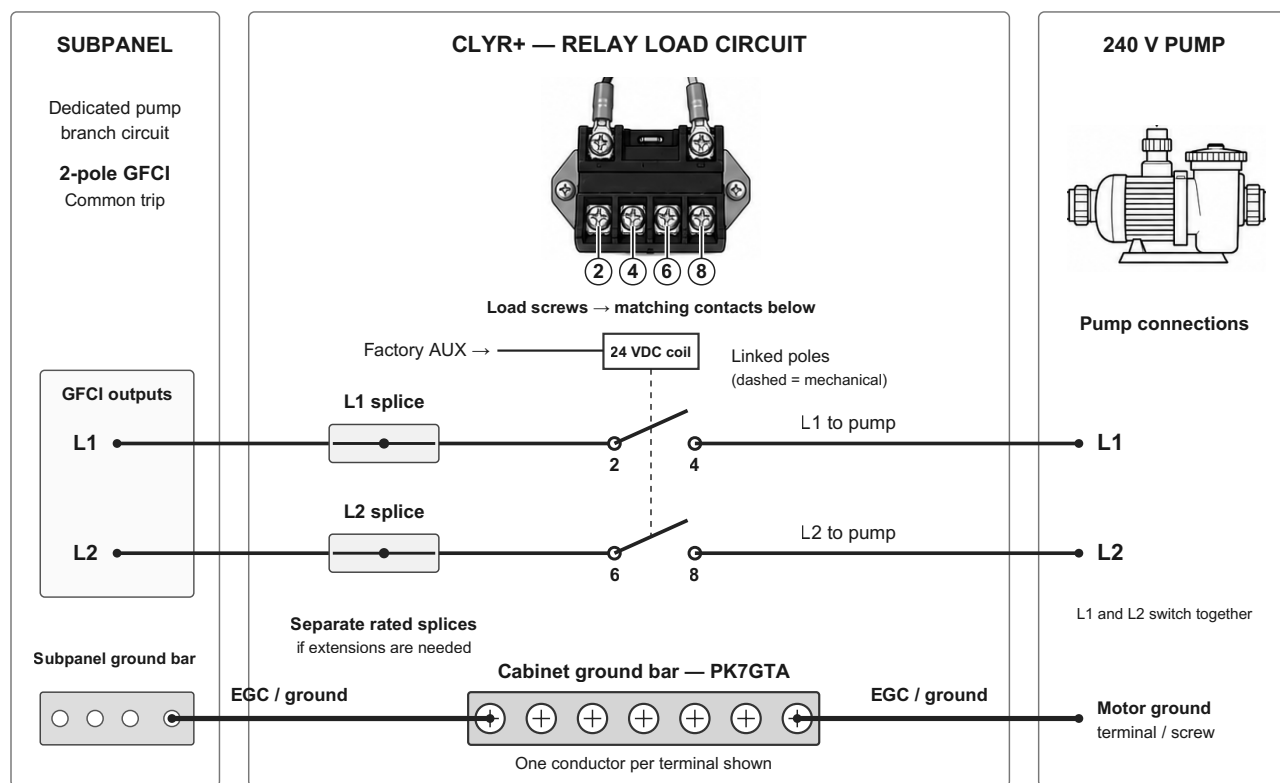
Grounding and bonding. Connect each incoming circuit EGC and each outgoing equipment EGC to the cabinet ground bar; follow [page 7](#) for wire range and torque. Connect the pump's external bonding lug to the required pool bonding system per its instructions and local code; this is separate from the motor's equipment ground.

Before installation: A qualified installer must isolate every supply, verify absence of voltage, and match pump voltage, relay motor-load rating, protection, wire size and terminal torque. Retain factory coil wiring. A relay or app command is not a service disconnect.

References: [Omron G7L terminal diagram](#); [Pentair SuperFlo: electrical installation, p. 3](#); [Schneider: 240 V GFCI neutral connection](#). Follow the installed pump's instructions.

240 VAC Pump: Power & Ground

Example for a 240 V pump with two power conductors and no load neutral. Use a dedicated common-trip, two-pole GFCI breaker, separate from the Clyr+ control-power breaker. The same relay switches L1 and L2 together.



Ground bypasses the relay. Keep neutral separate from the ground bar.

External pump bonding is a separate required connection; see the instructions below.

Numbers beside the relay's load screws match the contact paths below: 2-4 and 6-8, following Omron's G7L-2A-BUBJ top view. Verify installed markings; wire routing is functional. Pump artwork is illustrative. Control-power feed and panel supply-neutral connection omitted.

Splices and separate feeds. Optional splices extend this pump branch only. Use connectors rated for the actual conductors, current, voltage and location. Keep the two power splices separate; never connect them to control-power WAGO A/B or bridge different breakers. No neutral runs to this 240 V-only load. A GFCI breaker may still require a supply-neutral connection inside the subpanel; follow its instructions.

Grounding and bonding. Connect each incoming circuit EGC and each outgoing equipment EGC to the cabinet ground bar; follow [page 7](#) for wire range and torque. Connect the pump's external bonding lug to the required pool bonding system per its instructions and local code; this is separate from the motor's equipment ground.

Before installation: A qualified installer must isolate every supply, verify absence of voltage, and match pump voltage, relay motor-load rating, protection, wire size and terminal torque. Retain factory coil wiring. A relay or app command is not a service disconnect.

References: [Omron G7L terminal diagram](#); [Pentair SuperFlo: electrical installation, p. 3](#); [Schneider: 240 V GFCI neutral connection](#). Follow the installed pump's instructions.

Supported Equipment Overview

The Clyr+ is designed to integrate with major pool equipment families across pumps, salt systems, heaters, lights, relays, heat pumps, and dosing equipment. Supported models and protocols may depend on controller generation, installed modules, wiring, and app configuration.

Hayward

- TriStar pumps using both the TriStar protocol and the Hayward universal protocol.
- AquaRite salt systems through v2 of the salt-cell protocol.
- Hayward heaters using supported heater control wiring.
- Hayward ColorLogic and other click-style lights through relay control.
- Hayward smart relay control.

Jandy

- FloPro pump.
- ePump.
- Jandy AquaPure salt system.
- Jandy heaters using the dry-contact switch.

Pentair

- WhisperFlo pump.
- IntelliFlo VSF, IntelliFlo VS, and IntelliFlo3 pumps.
- IntelliChlor salt system.
- Pentair heaters using the dry-contact switch.

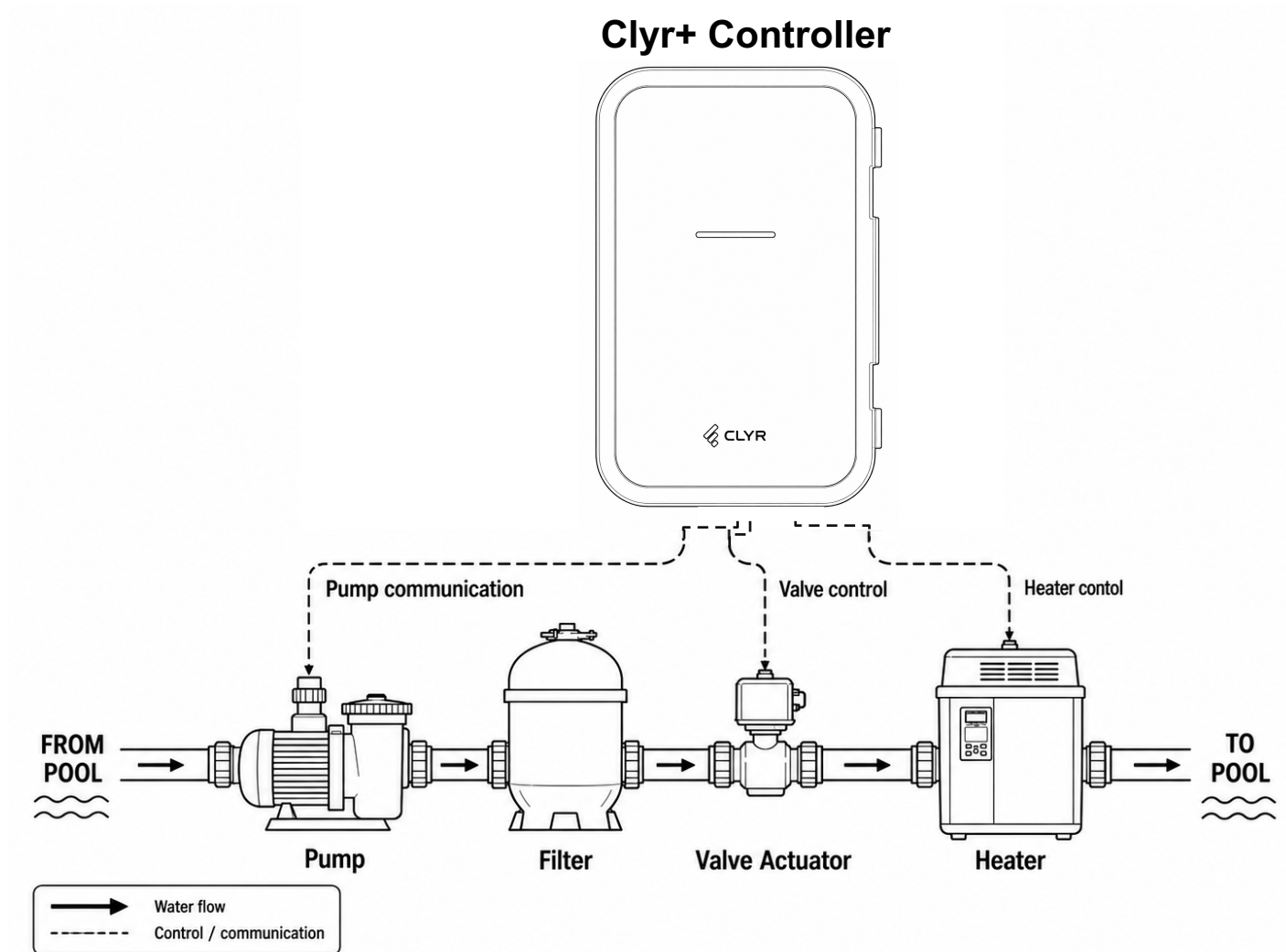
Other Supported Equipment

- Waterway Power Defender series pumps.
- Black and Decker pumps.
- MadiMack InverFLOW pump.
- MadiMack InverCHLOR salt cell.
- MadiMack heat pumps via RS-485.
- MadiMack peristaltic pump.

Compatibility note: Equipment support is tied to the controller software, selected network, physical wiring, and exact equipment revision. Confirm the selected equipment profile in the Clyr app before commissioning.

Reference Controller Architecture

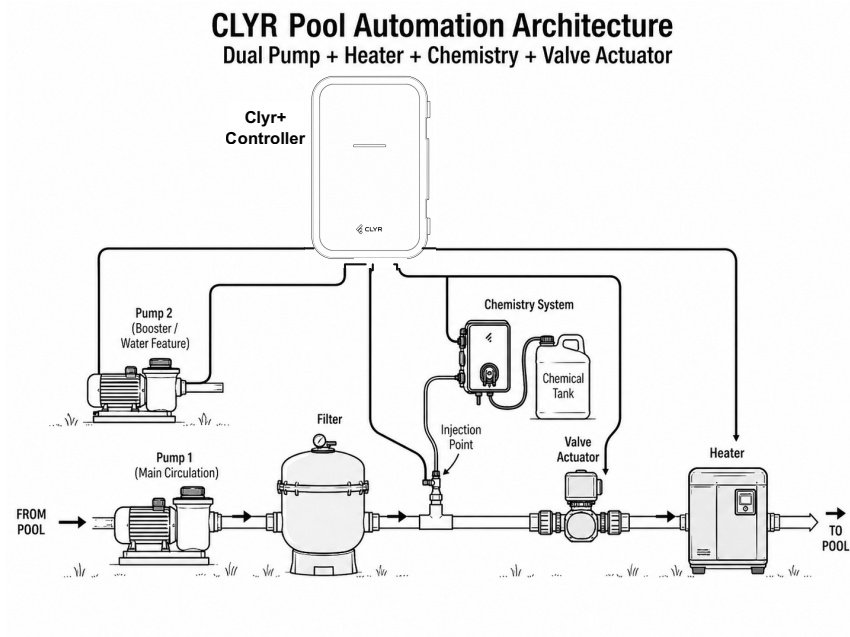
Example installation architecture for a single-pump pool using the Clyr+ for pump communication, valve actuator control, and heater control.



Single pump + heater + valve actuator reference architecture. Solid arrows show water flow; dashed lines show control and communication. Entry details are omitted; see page 31 for the five Clyr+ cabinet entries.

Reference Controller Architecture

Example installation architecture for a larger pool equipment pad using the Clyn+ with dual pumps, heater control, chemistry injection, and valve actuator control.



Dual pump + heater + chemistry + valve actuator reference architecture. Entry details are omitted; see page 31 for the five Clyn+ cabinet entries.

Before You Begin

Open the package and confirm the included items before mounting or wiring the controller. Clyr+ is a high-voltage cabinet; do not begin installation until the missing accessories, site wiring, and required tools are available.

Package Contents

- Clyr+ Version 1 cabinet with integrated screen, controller PCB, three internal relays and ground bar.
- Factory-installed internal harnesses and power-supply WAGO connectors; matching twist-connect wall-mount parts.
- Internal 24 VDC Mean Well supply and separate 24 VAC transformer.
- Two 8 ft external relay jumpers for AUX4 and AUX5.

Not Included

- Additional RS-485 wiring.
- Incoming mains, equipment grounding and relay-load conductors; suitable field connectors and unused-tap insulating caps.
- Ethernet cable.
- Field branch-circuit protection, disconnect and equipment wiring as required by the installation.
- Wall anchors and screws selected for the mounting surface.

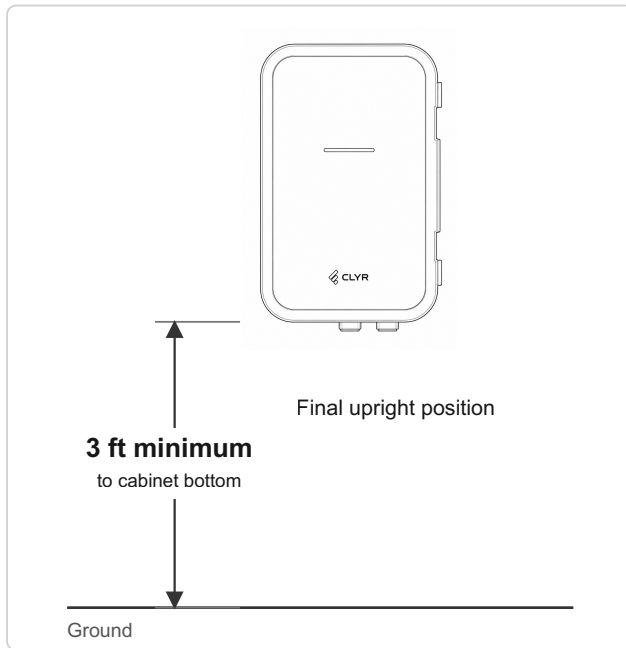
Tools Needed

TOOL	USE
Phillips and flathead screwdrivers	Open equipment covers, secure terminals, and support controller installation.
Wire cutters and wire strippers	Prepare low-voltage field wiring.
Drill and drill bits	Prepare the wall-mount holes; do not drill through the cabinet body.
Pliers	Assist with routing, gripping, and low-voltage wire handling.
Level	Mount the enclosure squarely and vertically.

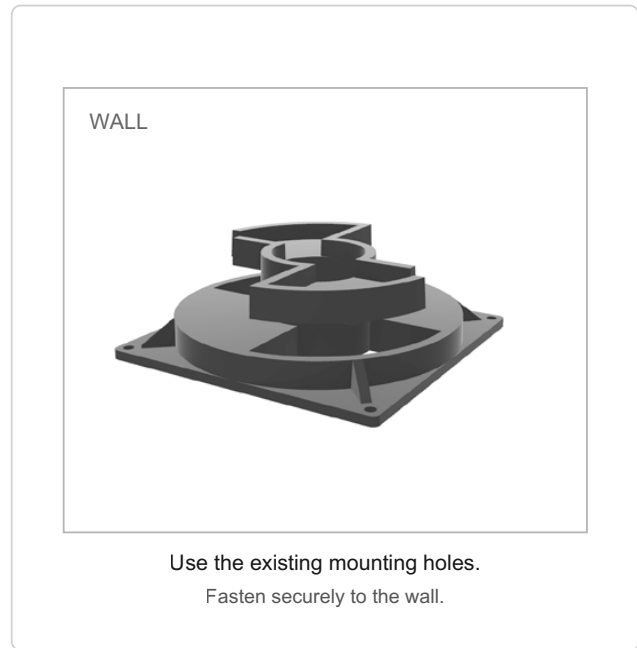
Before wiring: The internal Mean Well provides 24 VDC controller power. The separate internal transformer provides 24 VAC valve power. Match its primary tap to the supply and keep these two outputs separate.

Mounting: Install the Wall Mount

Install the black twist-connect wall mount before lifting the cabinet into place. Choose the mounting height so the bottom of the upright cabinet will be at least **3 feet above the ground**.



1 Choose the mounting height



2 Attach the wall mount

1 · Mark the Mounting Position

Choose a solid vertical surface that can support the cabinet. Allow room for the cabinet to rotate into position and for the door to open fully after installation.

Hold the cabinet upright at the intended location and check the distance from the ground to the bottom of the cabinet. Use the actual rear mounting connection to locate the wall mount; do not use the mount's center as the 3-foot measurement point.

Set the cabinet down securely. Hold the wall mount in its installation position, check its alignment, and mark the existing mounting holes on the wall.

2 · Secure the Wall Mount

Prepare the marked holes and install anchors if needed for the wall material. Fasten the mounting piece through its existing mounting holes with fasteners suitable for the surface and cabinet weight.

Check that the wall mount is firmly attached and does not move. Keep the circular mating connection clear so the cabinet can engage it.

Height check: At least 3 feet from the ground to the bottom of the cabinet in its final upright position.

Mounting: Tilt, Turn & Lock

Face the front of the cabinet. Tilt its top to your left by **45° counterclockwise**, engage the wall mount, then turn it **clockwise** until it clicks into the vertical position.



3 Tilt 45° counterclockwise and engage



4 Turn clockwise until upright and locked

3 • Tilt 45° Counterclockwise and Engage

With the door closed, support the cabinet with both hands. Looking at its front, tilt the whole cabinet sideways so the top leans **45° to the left**. The cabinet rotates in the plane of the wall.

While holding that angle, align the rear mounting connection with the installed wall mount and bring the cabinet onto the mount. Keep supporting its weight.

4 • Turn Clockwise Until It Clicks

With the mounting parts engaged, turn the cabinet **clockwise toward upright**. Continue until it **clicks into place and is vertical**. Keep both hands on the cabinet throughout the turn.

5 • Check the Locked Position

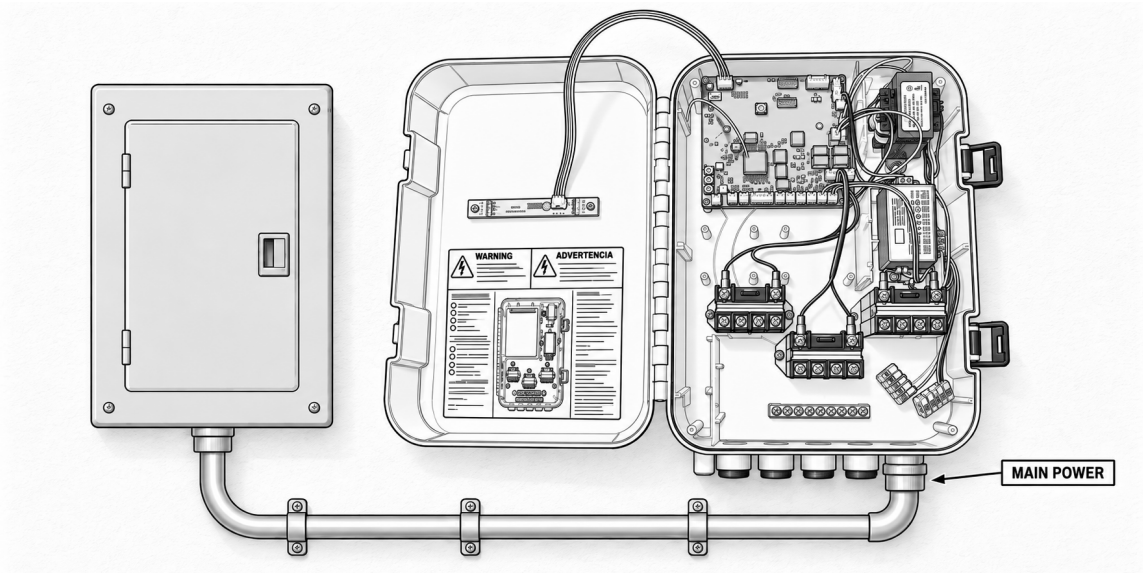
Before letting go, confirm the cabinet is upright, fully seated, and retained by the mount. While still supporting it, gently check that it does not pull away. Do not release an unsecured cabinet.

Confirm the bottom of the cabinet remains at least 3 feet above the ground and that the door opens and closes freely. Complete these checks before starting the wiring.

Viewed from the front: Tilt left 45° to engage → turn right until it clicks → finish vertical.

Subpanel Power Architecture

Provide a separate pool equipment subpanel for this Clyr+ installation. It supplies protected branch circuits to the cabinet and controlled equipment. An existing compliant pool subpanel may serve this purpose if its capacity, protection and location are suitable.



Main power: fifth / far-right bottom entry, viewed from the front. All five entries are shown. Cabinet open for identification; feeder and other load circuits omitted.

CIRCUIT	WHAT IT SUPPLIES
Service → subpanel	Feeder protection and conductors sized for the calculated equipment load. A typical U.S. 120/240 V feeder has L1, L2, neutral (N) and an equipment grounding conductor (EGC).
Subpanel → Clyr+	A dedicated, protected 120 VAC or 240 VAC, 50/60 Hz control-power branch supplies both internal supplies. Clyr+ does not support 208 VAC.
Subpanel → equipment	Relay-switched equipment must use protected circuits on subpanel breakers separate from the Clyr+ control-power breaker. Do not feed relay load contacts from WAGO A or B.
Inside Clyr+	The transformer creates 24 VAC for valve power. The Mean Well creates 24 VDC for the PCB. These are separate circuits.

Keep neutral and equipment ground separate downstream of the service bonding point. At this subpanel, isolate the neutral bar from the enclosure and bond the equipment ground bar to the enclosure. Do not add a neutral-to-ground bond in Clyr+. The EGC provides the fault-return path; a ground rod does not replace it.

Nonmetallic conduit connection. Use listed electrical PVC conduit or liquidtight flexible nonmetallic conduit (LFNC), with compatible nonmetallic fittings, where permitted for the circuit and location. PEX plumbing tubing is not electrical conduit. Connect main power at the **larger far-right bottom entry, viewed from the front**, using the matching male NPT fitting. Follow fitting instructions for sealing and tightening; support the conduit and seal unused entries. Run the required equipment grounding conductor to the cabinet ground bar. Metallic conduit connections are outside this installation scope.

References: [Schneider: service versus subpanel neutral bonding](#); [Pool inspection guidance: grounding and bonding](#); [nVent: conduit fittings and enclosure ratings](#). Apply the locally adopted code and the installed equipment instructions.

Subpanel Installation Requirements

A qualified electrician must design and install the supply under the locally adopted NFPA 70 / National Electrical Code (NEC), local amendments and the authority having jurisdiction (AHJ). Confirm permits and required inspection before energizing.

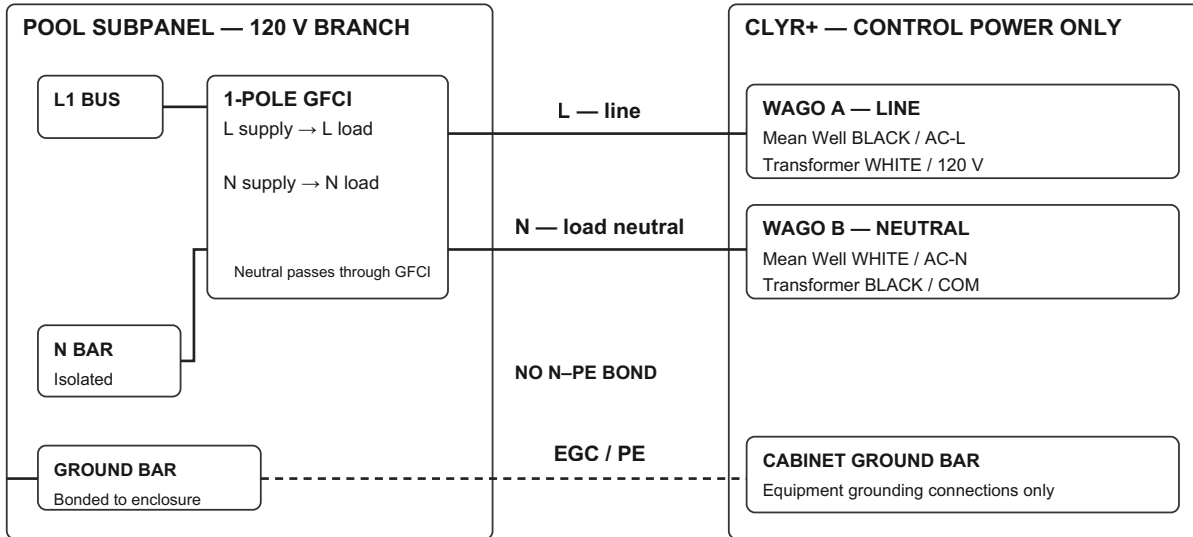
CHECK	REQUIRED INSTALLATION CONDITION
Listed equipment & ratings	Use a panelboard listed for its application (UL 67) and identified compatible breakers (UL 489). Match voltage, current and enclosure ratings; confirm interrupting ratings and short-circuit ratings against available fault current. Physical fit alone does not establish breaker compatibility. [1]
Feeder & branch sizing	Calculate the connected load and apply conductor ampacity, temperature, adjustment and overcurrent rules. Use a dedicated control-power breaker and separate breakers for relay load circuits. Size each branch for its verified equipment ratings; component ratings alone do not establish the complete Clyr+ supply rating.
Neutral & EGC	On a downstream subpanel, keep neutral insulated from the enclosure and ground bar; install the approved ground bar bonded to the enclosure. Run the required equipment grounding conductor with the circuit. Apply pool feeder rules, including insulated EGC requirements where applicable (NEC 250 and 680.25). [2, 4]
Pool bonding	Maintain the pool equipotential bonding system required by NEC 680.26. Bond required conductive pool equipment and parts. This bonding system and the circuit EGC have different functions; one does not replace the other. [4]
GFCI protection	Apply both general and pool-specific GFCI requirements (NEC 210.8 and Article 680), including hardwired loads where required. The following examples show Class A personnel GFCI protection (UL 943); equipment ground-fault protection alone is not a substitute. Follow each load's instructions. [3]
Location & disconnects	Maintain NEC 110.26 working space and access. Locate disconnects within sight where required by 680.12. Plan at least 5 ft horizontally from the inside pool wall for controls/disconnects; verify the applicable 680.12/680.22 rule, permitted barrier exceptions and equipment instructions. Disconnect all ungrounded conductors and identify every supply. [4, 5]
Outdoor wiring & entries	Use wiring methods permitted for the pool location, with wet-location conductors and fittings where required. Preserve the enclosure's environmental rating, secure entries and strain relief, and maintain the required separation of mains, control and communications wiring. [4, 5]
Terminations & closeout	Use terminals only for their marked wire type, size and conductor count; follow neutral-terminal restrictions. Tighten to marked torque with the specified tool. Restore covers, barriers and filler plates, label circuits, test GFCIs per their instructions, and complete the required inspection. [1, 3]

Confirm the actual ratings before wiring. These drawings do not specify a breaker amperage, wire gauge or terminal torque for Clyr+. Use verified cabinet and equipment markings plus the site design. UL component markings do not establish certification of the complete cabinet; see Document Information.

[1] [UL Panelboard Application Guide](#). [2] [Schneider neutral bonding instructions](#). [3] [2023 NEC 680.5 licensed excerpt and UL GFCI guidance](#). [4] [Pool electrical inspection guidance](#). [5] [UL Pool & Spa Equipment Guide](#). Section references are a planning aid; verify the locally adopted edition and amendments. Research checked October 3, 2026.

120 VAC: Subpanel to Clyr+

Use a 120 V line-to-neutral branch only when the complete cabinet is approved for that supply. This example shows a one-pole Class A GFCI breaker with line, load neutral and equipment ground routed to Clyr+.



GFCI line-neutral connection follows its instructions. Do not bypass the GFCI with the load neutral.

Functional connections only. Terminal locations vary by breaker. A and B identify the cabinet splices; they are not factory labels. Dashed EGC is a continuous conductor.

With every supply disconnected and absence of voltage verified

FROM THE SUBPANEL	TO THE CABINET
GFCI L / load hot	WAGO A: incoming line + Mean Well BLACK (AC/L) + transformer WHITE (120 V) .
GFCI N / load neutral	WAGO B: incoming neutral + Mean Well WHITE (AC/N) + transformer BLACK (COM) .
Equipment ground bar	Cabinet ground bar: incoming EGC and required equipment grounds. Do not join it to either WAGO or DC negative.

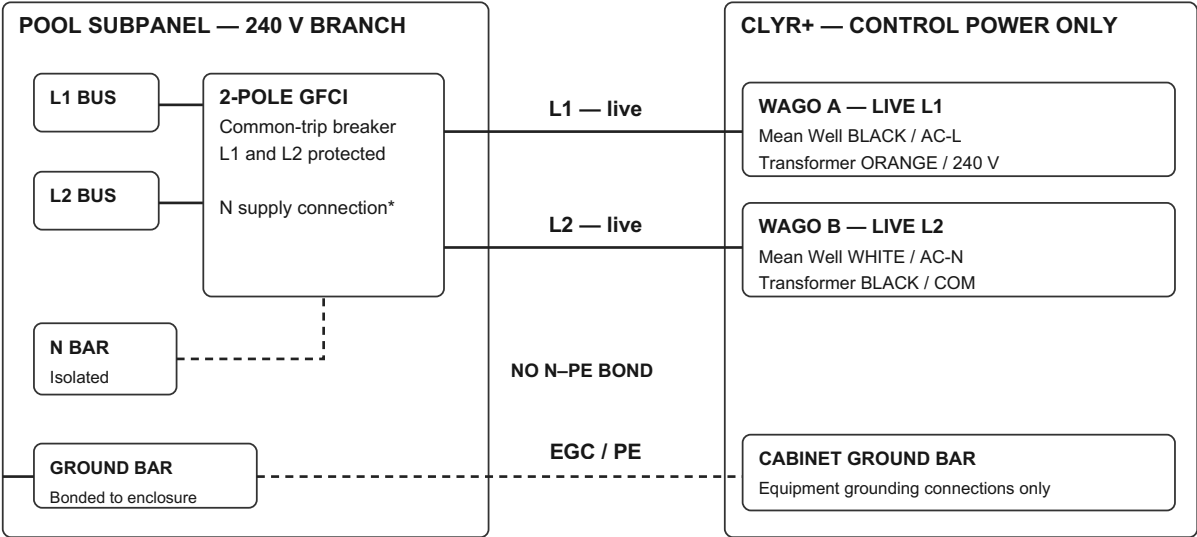
The BLACK / WHITE connection is intentional. Transformer BLACK is its primary COM lead and joins the Mean Well WHITE AC/N lead at WAGO B. All occupied ports of that connector are electrically joined; this is not an unconnected crossing.

1. Connect the breaker's supply neutral to the isolated panel neutral using its specified pigtail or compatible plug-on-neutral arrangement. Land this branch's neutral on the breaker's **load-neutral terminal**; do not bypass the GFCI or share its load neutral with another circuit.
2. Use transformer WHITE 120 V with BLACK COM. Individually insulate the unused RED 208 V and ORANGE 240 V taps. Verify the installed transformer label before changing taps.
3. Check all terminations, barriers and entry seals, then test the GFCI according to its instructions. Supply relay loads from separate subpanel breakers; never bridge their feeds from control-power WAGO A or B. Isolate every feed before service.

References: [ABB: one-pole GFCI wiring instructions](#); [NEC pool GFCI provisions](#). Apply the locally adopted code and the installed equipment instructions.

240 VAC: Subpanel to Clyr+

For an approved 240 V cabinet installation on a U.S. 120/240 V split-phase system, supply L1 and L2 through a common-trip two-pole breaker. This Class A GFCI example has two live conductors and an equipment ground.



*Connect the breaker’s supply neutral if its manufacturer requires it; no neutral goes to this 240 V control feed.

Dedicated control-power branch only. Relay loads require separate subpanel breakers. These two AC input devices need no neutral at 240 V; separate load circuits may need one.

FROM THE SUBPANEL	TO THE CABINET
GFCI L1 / load	WAGO A: incoming L1 + Mean Well BLACK (AC/L) + transformer ORANGE (240 V) .
GFCI L2 / load	WAGO B: incoming L2 + Mean Well WHITE (AC/N) + transformer BLACK (COM) . All are live at this node.
Equipment ground bar	Cabinet ground bar. The EGC remains separate from both live splices and continues to equipment requiring grounding.

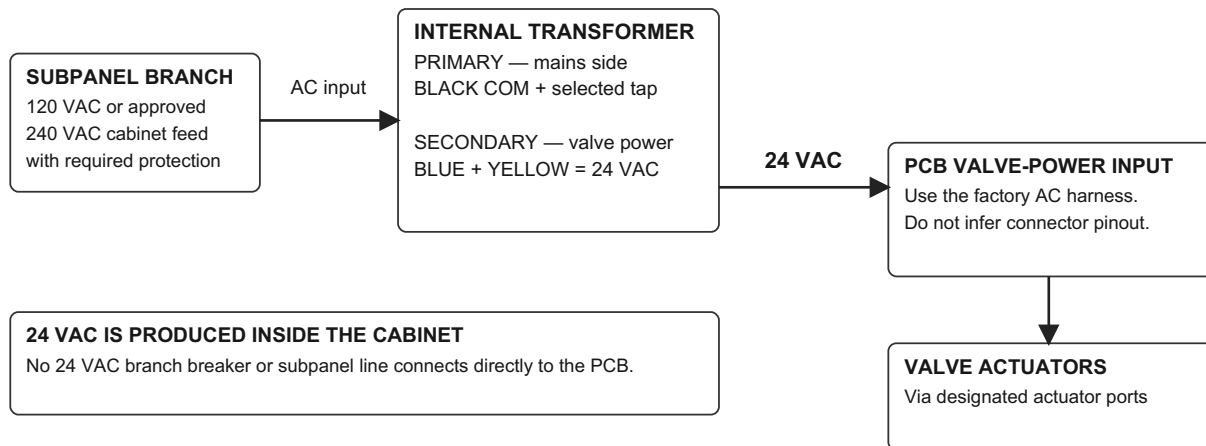
WHITE AC/N does not mean neutral in this 240 V configuration. The factory Mean Well WHITE lead and transformer BLACK COM share live L2 at WAGO B. Identify field conductors for their actual function under the applicable code; do not rely on factory lead color to identify a safe or grounded conductor.

1. Disconnect every cabinet supply and verify absence of voltage. Use transformer ORANGE 240 V with BLACK COM; individually insulate unused WHITE 120 V and RED 208 V taps. Confirm the actual transformer and complete cabinet ratings.
2. Connect the GFCI breaker’s supply-neutral connection when its manufacturer requires it, even with no neutral to the 240 V load. Follow the specific breaker diagram; do not omit its neutral merely because the load uses L1 and L2.
3. Use the required GFCI protection, torque, labeling and final inspection. A two-pole breaker must disconnect both live conductors; a single-pole device on only one leg is unsuitable.

References: [Schneider: 240 V GFCI without a load neutral](#); [NEC pool GFCI provisions](#). Apply the locally adopted code and the installed equipment instructions.

24 VAC: Transformer to Valve Power

24 VAC is the internal transformer output, not the incoming 240 VAC supply. The subpanel supplies the transformer primary through the protected cabinet branch. The transformer secondary supplies the designated valve-power circuit through the factory harness.



BLUE / YELLOW secondary wiring stays separate from the mains taps and the Mean Well 24 VDC output.

Functional power path. Use the installed transformer label and verified harness identification; this diagram does not assign PCB pins or connector positions.

CIRCUIT	CONNECTION AND PURPOSE
Transformer primary	120 VAC: BLACK COM + WHITE 120 V. 240 VAC: BLACK COM + ORANGE 240 V, only on a cabinet approved for that supply. Individually insulate unused taps.
Transformer secondary	BLUE + YELLOW = 24 VAC on the pictured transformer. Retain the factory secondary harness to pins 1 and 3 of the upper right-side 3-pin JST. Leave pin 2 (common) unconnected. This is AC; neither wire is DC positive or negative.
PCB / valve circuit	Use the designated actuator connections and the verified pinout. Keep total valve load within the installed transformer's 30 VA rating and all board/output limits.
Mean Well output	Separate 24 VDC power for the controller. Do not connect the AC secondary to the Mean Well output or substitute AC for a DC input.

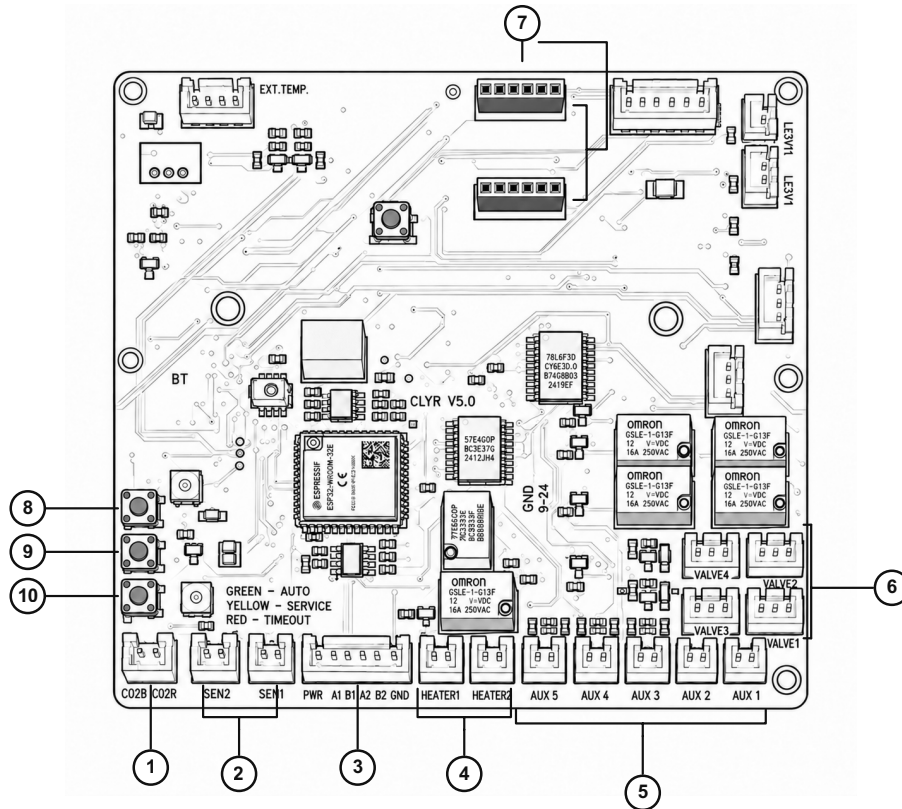
Never connect subpanel mains directly to a PCB low-voltage input. Preserve the factory barriers and separation from mains and relay load wiring. A nominal 24 V output does not, by itself, establish a Class 2 circuit or an exemption from pool electrical requirements.

With all supplies isolated, verify harness identification and secure terminations before closing the cabinet. Do not add a secondary-to-neutral or secondary-to-ground connection unless the approved equipment wiring instructions specifically require it. Supply and output ratings must be confirmed on the installed hardware before energizing.

References: [Pool low-voltage exceptions are equipment-specific](#); [Mean Well IRM-30 DC output specification](#). Apply the locally adopted code and the installed equipment instructions.

CLYR V5.0 PCB Architecture

Clyr+ Version 1 uses the CLYR V5.0 PCB shown here. Match numbered callouts to the table. Bottom-edge ports run left to right; left-side buttons run top to bottom.



NO.	PORT / CONTROL	CONNECTION / LOCATION	RATING AND SPECIFICATION
1	CO ₂ plug	Leftmost bottom connector	CO ₂ control connection. Output voltage/current: to be confirmed .
2	SEN1 / SEN2	2 sensor plugs	Air and water temperature sensors. Port assignment and sensor specification: to be confirmed .
3	Power + RS-485	1 six-pin connector	Two RS-485 networks; labels PWR, A1, B1, A2, B2, GND. Cabinet DC feed uses the separate right-side 2-pin input; see page 33.
4	HEATER1 / HEATER2	2 dry-contact outputs	Dry-contact heater control. Maximum contact voltage/current: to be confirmed .
5	AUX1-AUX5	5 powered outputs	24 VDC relay-coil control . AUX1-3 serve the internal relays; AUX4-5 support external relays. Per-port and combined current limits: to be confirmed .
6	VALVE1-VALVE4	4 actuator connectors	Four 24 VAC actuator connections share the internal 30 VA / 1.25 A source. Maximum two commanded movements; connected actuator loads must remain within the verified system limits.
7	Ethernet connection	2 parallel female headers	Both headers at the top center connect the Ethernet module.
8	Bluetooth button	Top button of left stack	Bluetooth control.
9	Reset button	Middle button of left stack	Restarts firmware, WiFi/cloud connections and pump priming.
10	Auto / Service button	Bottom button of left stack	Selects Auto / Service mode.

Specifications pending confirmation: Obtain Clyr confirmation before using a connection whose rating or pin assignment is marked “to be confirmed”. Callouts identify port groups; they do not define connector pin polarity.

Powering the Controller

Complete the cabinet input wiring and inspection before applying power. AUX1–AUX3 are factory-connected to the relay coils, and the transformer BLUE/YELLOW secondary is already connected to the PCB. Internal power-supply wiring has WAGO connectors; only the transformer primary taps are supplied loose, with tinned ends. Select the correct primary tap and individually insulate unused taps. Incoming supply, equipment ground and relay-load connections still require installation.

Before energizing

1. Confirm the incoming supply, selected transformer tap and cabinet configuration agree. Use the 120 VAC or 240 VAC connection page for the pictured hardware.
2. Verify A and B remain separate and PE is connected. Insulate each unused transformer tap separately using an installer-supplied cap or connector identified for insulating one conductor of the actual wire type and size, with suitable voltage and temperature ratings. Never join unused taps together in a common connector. Check every connection for secure retention and no exposed conductor.
3. Check that factory DC polarity is correct and the transformer secondary remains on the designated valve-power input. Never apply AC mains directly to the PCB.
4. Inspect relay load feeds, circuit protection, strain relief and separation between mains and low-voltage wiring. Keep tools and loose strands out of the cabinet.
5. Restore barriers and covers and close the cabinet before energizing. Keep all controlled equipment clear of people and ready for possible automatic operation.

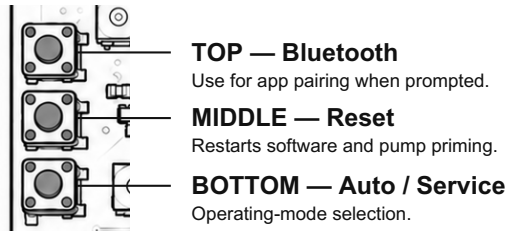
Initial powered checks

CHECK	EXPECTED RESULT
Controller	Powers from the internal 24 VDC supply. No pump-supplied DC connection is required for this cabinet arrangement.
Valve circuit	The internal transformer supplies nominal 24 VAC. A powered PCB alone does not prove valve power is present.
AUX / relay assignment	Each configured output operates only its intended relay and load; confirm one circuit at a time.
Fault response	If protection trips, a supply is incorrect or equipment behaves unexpectedly, disconnect all feeds and correct the cause before trying again.

Measurements inside an energized cabinet are for qualified personnel using appropriate procedures and instruments. Check AC and DC on the correct meter ranges. Turning off a relay in the app does not isolate its incoming load terminals.

Pairing, WiFi, and Cloud Connectivity

After wiring power, the controller is paired through the Clyr app. Use the **top button in the PCB's left-side stack for Bluetooth pairing**. The **middle button is Reset**. Use the app and screen for connectivity status. The cabinet alert light indicates operating mode: green for Auto and yellow for Service.



Reset restarts pump priming. The middle button restarts firmware from the beginning, similar to power-on. WiFi and cloud connections disconnect and reconnect. Pump priming state is not retained; a new prime cycle starts. Ensure the pump is ready to prime before resetting. During startup and pump priming, the software coordinates relay control and the priming sequence to keep heating and chemical dosing off. The priming sequence completes after an elapsed-time delay, **adjustable in the app with a default of 5 minutes**. Completion of this timer does not confirm water flow. Chemical dosing also requires a pressure reading **greater than 3 psi**; a reading of exactly 3 psi does not meet this requirement.

1. Install the app and sign in to the correct pool location.
2. Confirm the controller has power and shows the expected powered setup state.
3. In the app, go to the location, then Settings, Devices, Add, and choose Clyr+.
4. When prompted, press the **top Bluetooth button** in the PCB's left-side stack to activate pairing. The middle button is Reset.
5. Select the discovered controller in the app.
6. Choose the WiFi network and enter the password.
7. Wait for registration to complete and confirm the device is online in the app and on the screen.

CHECK	CLYR+ INDICATION / ACTION
Green cabinet alert light	Auto mode. Confirm WiFi/cloud status separately in the app or screen.
Yellow cabinet alert light	Service mode. This does not disconnect electrical supplies.
Controller not discovered	Follow the app Bluetooth prompt, confirm phone permissions and remain near the cabinet.
Controller appears offline	Check the selected WiFi network, password and internet connection using the app or screen.

Chemical, Sensor, and Pressure Warnings

Chemical Handling

When the controller is used with CO₂, liquid chlorine, or other dosing equipment, follow all chemical supplier instructions and pool equipment manufacturer instructions. Wear appropriate eye and hand protection when handling chemical containers, tubing, regulators, injectors, or chemical feed pumps.

- Never mix chemicals in tubing, containers, fittings, or injection lines.
- Label each feed line and verify flow direction before enabling a dosing output.
- Do not install injection points before equipment that is prohibited by the chemical or equipment manufacturer.

Pressurized Water

Pressure sensors, flow cells, tubing, saddle clamps, tees, and injection points may be connected to pressurized pool plumbing. Shut off the pump and relieve pressure before opening a line, removing a gauge, drilling pipe, or changing fittings.

- Turn the pump breaker off before plumbing work.
- Release filter pressure before removing gauges or plugs.
- Leak-test fittings before leaving the site.

Sensor Accuracy and Pool Safety

Continuous monitoring improves visibility, but the controller is not a substitute for responsible pool maintenance. Verify readings during commissioning and after sensor replacement, calibration, plumbing changes, or unusual pool conditions. Do not rely on a sensor reading that conflicts with observed unsafe water conditions, chemical odor, cloudy water, or equipment alarms.

Do not bypass normal safety checks: Keep pump priming, heater flow, salt-cell flow, valve position, chemical storage, and manual water testing practices aligned with the equipment maker's requirements.

Display and Controls

Every Clyr+ includes an integrated screen as standard. This manual covers the Clyr+ Version 1 high-voltage cabinet.

Integrated Display

The display provides local visibility and touch navigation for controller status, WiFi setup, service status and equipment screens. Use the display during installation to check controller status alongside the app.

- Check operating mode and cloud/WiFi status.
- View device information and setup screens.
- Access local equipment controls.

App and Cabinet Controls

Use the app and the controller's display, buttons and alert light together when setting up and operating the system. Follow the dedicated pairing and operating-mode instructions in this manual.

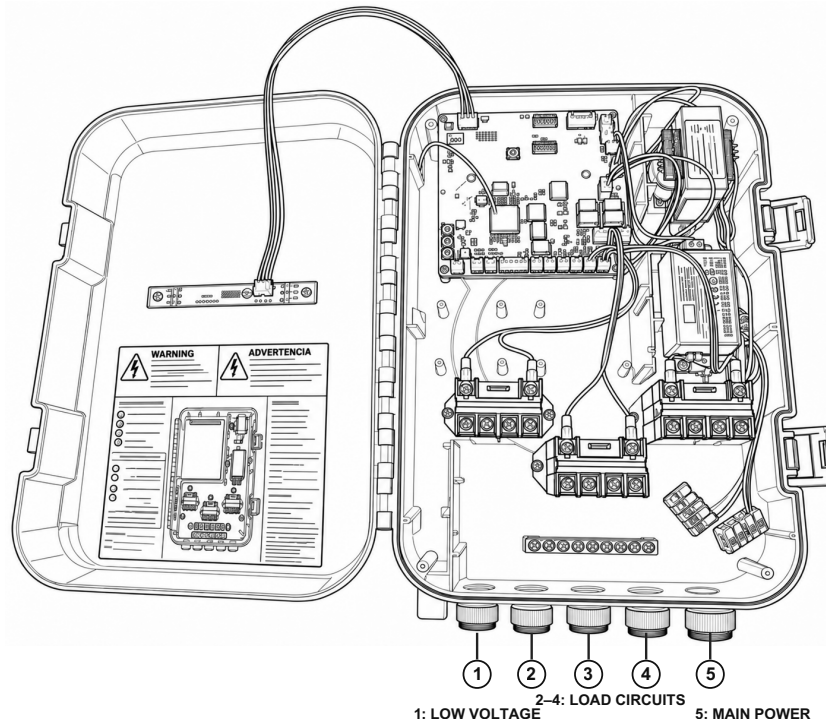
- Complete app pairing and equipment configuration.
- Confirm the displayed mode and actual equipment response during commissioning.
- Use the printed board labels and cabinet wiring pages to identify electrical connections.

Before service: Display, app and Auto/Service controls do not disconnect electrical supplies. Isolate the control-power branch and every separate relay-load feed, and verify absence of voltage before opening or servicing the cabinet.

31

Cabinet Entries & Wire Routing

Clyr+ has **five threaded bottom entries**. Viewed from the front, keep low-voltage wiring at the far left, relay-load circuits in the three middle entries, and main control power at the larger far-right entry.



Entry positions viewed from the front. The cabinet is open for identification; restore barriers and close the cover before operation.

ENTRY	USE AND ROUTING
1 • Far left	Low-voltage communication, sensor, heater-control, valve and accessory wiring. AUX4/AUX5 jumpers use this entry and the left low-voltage corridor.
2-4 • Middle	Separately protected relay-load circuits. Keep mains wiring in the load-wiring area, away from PCB/control harnesses. Pool-light direct entry remains subject to the requirements on page 48.
5 • Far right	Dedicated 120/240 VAC control-power branch from the subpanel. Match the fitting to the larger installed NPT opening.

Seal and support every entry

1. Isolate every incoming supply and verify absence of voltage before routing wires.
2. Use compatible listed nonmetallic electrical conduit/fittings for the circuit and outdoor location. Thread the matching male NPT fitting into the designated cabinet entry; support conduit independently and follow its sealing/tightening instructions.
3. Where a cable gland is used, select it for the cable diameter and seal on the outer jacket. Provide drip loops on exposed cables. Do not clamp a gland onto individual conductors.
4. Seal unused openings with suitable plugs. Keep the gasket clean and seated, preserve wire bend space, then restore barriers and latch the door.

Power Architecture

Clyr+ has two internal low-voltage power paths. The Mean Well makes 24 VDC for electronics and control; the transformer makes 24 VAC for valve actuators.

DC path

AC input splices → Mean Well IRM-30-24ST → 24 VDC
factory harness → controller PCB and compatible control circuits.

Observe +V / -V polarity. DC negative is a circuit return and is not an equipment grounding terminal.

AC valve path

AC input splices → selected transformer primary tap →
BLUE / YELLOW secondary → designated PCB valve-power
input → actuator ports.

The pictured transformer is marked 24 VAC, 30 VA. Confirm
the approved actuator load budget before adding equipment.

PATH	SOURCE	KEEP SEPARATE FROM
PCB and sensor power	Mean Well 24 VDC output via shared low-voltage WAGOs	AC transformer output and mains voltage
Valve actuator power	Internal 24 VAC transformer secondary	Mean Well DC output and transformer primary taps
Relay coil control	Assigned PCB AUX output / factory harness	Relay load-contact conductors
Relay load power	Approved protected equipment branch circuit	PCB power, AUX and communication terminals
PE / equipment ground	Supply equipment grounding conductor	Neutral and DC negative

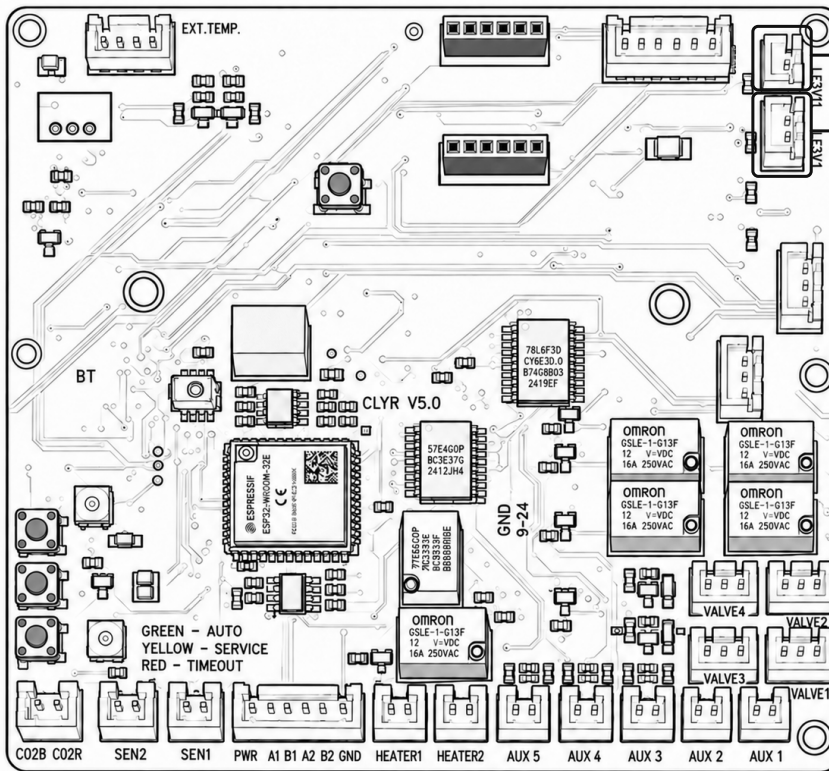
The wide input range applies to the Mean Well only. The transformer still requires the correct tap, and the full cabinet and each connected circuit must be rated for the actual supply. See the wiring pages following Controller Overview.

Keep factory power paths intact

Do not add a second DC source from a pump, bridge AC and DC outputs, or change PCB power connectors based on a similar-looking board. Follow the installed board labels and the cabinet wiring documentation.

CLYR V5.0 Power Connections

Clyr+ Version 1 uses separate right-side inputs on the CLYR V5.0 board. The internal Mean Well supplies 24 VDC; the transformer supplies 24 VAC for valves.



24 VDC input

2-pin connector
Top pin: V+ (+24 VDC)
Bottom pin: V- (DC return).

24 VAC input

Upper of two 3-pin JSTs
Pins 1 and 3: 24 VAC
Pin 2 (common): no wire
Transformer BLUE / YELLOW

AC and DC use separate inputs.
Do not use the lower 3-pin JST
for the transformer feed.

SOURCE

PCB CONNECTION / CHECK

Mean Well +V / -V
24 VDC

Through the shared low-voltage WAGOs to the **2-pin connector immediately above the upper 3-pin JST**. Viewed from the component side with the long connector row at the bottom: **top pin V+ (+24 VDC); bottom pin V- (DC return)**. The bottom six-pin connector is not the cabinet's factory DC input connection.

Transformer BLUE / YELLOW
24 VAC

Upper of the two right-side 3-pin JST connectors: pins 1 and 3 receive 24 VAC. Pin 2 (common) is left unconnected. Retain the BLUE/YELLOW factory harness; do not use the lower 3-pin JST.

PCB AUX outputs

Default, facing the open cabinet: **AUX1 → right relay; AUX2 → middle; AUX3 → left**. Coil harnesses carry low-voltage control power; load current stays on separate contacts.

Keep AC and DC separate. Disconnect all cabinet and relay-load feeds and verify absence of voltage before wiring. Retain factory harness placement. Never connect mains to this PCB or use the AC valve input for DC power.

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CLYR V5.0 Connector Pinouts

Clyr+ Version 1 uses the CLYR V5.0 board and connector layout shown here. View the component side with the long connector row along the bottom, as on the PCB Architecture page.

Bottom Row — Left to Right

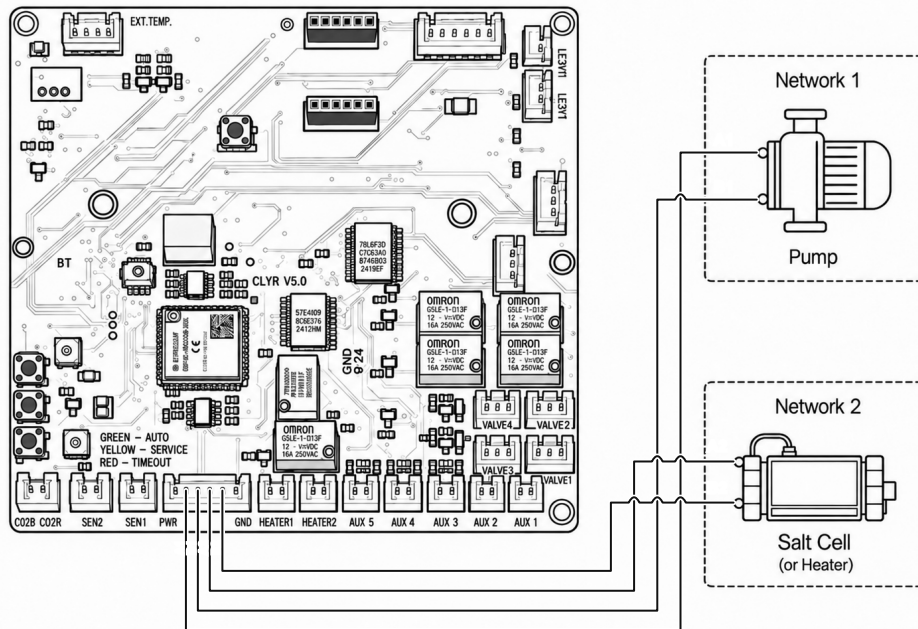
CO₂ CO ₂ B · CO ₂ R	SEN2 2 pins	SEN1 2 pins	Power / RS-485 PWR · A1 · B1 · A2 · B2 · GND	HEATER1 2 pins	HEATER2 2 pins	AUX5 2 pins	AUX4 2 pins	AUX3 2 pins	AUX2 2 pins	AUX1 2 pins
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CONNECTOR	PINS	PIN LABELS / LOCATION	FUNCTION AND RATING
CO ₂	2	CO ₂ B / CO ₂ R	Dedicated CO ₂ control plug. Output rating to be confirmed.
SEN2	2	Sensor input	Air or water temperature sensor; assignment and sensor specification to be confirmed.
SEN1	2	Sensor input	Air or water temperature sensor; assignment and sensor specification to be confirmed.
Power / RS-485	6	PWR · A1 · B1 · A2 · B2 · GND	Left to right: PWR; network 1 A/B; network 2 A/B; GND. Cabinet DC feed uses the separate right-side 2-pin input. Do not add another supply here.
HEATER1	2	Dry-contact pair	Heater 1 control. Contact voltage/current rating to be confirmed.
HEATER2	2	Dry-contact pair	Heater 2 control. Contact voltage/current rating to be confirmed.
AUX5 (X13)	2	24 VDC relay control	Pin 2: supply positive. Pin 1: switched return. External relay via 8 ft jumper; current limit to be confirmed.
AUX4 (X12)	2	24 VDC relay control	Pin 2: supply positive. Pin 1: switched return. External relay via 8 ft jumper; current limit to be confirmed.
AUX3	2	24 VDC output	Default: left cabinet relay , facing open cabinet. Current limit and individual pin polarity to be confirmed.
AUX2	2	24 VDC output	Default: middle cabinet relay , facing open cabinet. Current limit and individual pin polarity to be confirmed.
AUX1	2	24 VDC output	Default: right cabinet relay , facing open cabinet. Current limit and individual pin polarity to be confirmed.
VALVE4	3	Upper-left valve plug	Valve actuator connection. Individual pin functions/current rating to be confirmed.
VALVE2	3	Upper-right valve plug	Valve actuator connection. Individual pin functions/current rating to be confirmed.
VALVE3	3	Lower-left valve plug	Valve actuator connection. Individual pin functions/current rating to be confirmed.
VALVE1	3	Lower-right valve plug	Valve actuator connection. Individual pin functions/current rating to be confirmed.
24 VAC input	3	Upper of two right-side 3-pin JSTs	Transformer feeds pins 1 and 3 . Pin 2 (common) left unconnected.
24 VDC input	2	Immediately above the upper 3-pin JST	Mean Well via shared DC WAGOs: top pin V+ (+24 VDC) ; bottom pin V- (DC return) , in the board view shown.
Ethernet	2 headers	Parallel female headers at top center	Ethernet module connection; module header pin assignments to be confirmed.

Pin assignments pending confirmation: Unconfirmed individual pin functions and polarity are marked in the table. The board-view order is not a view into the mating cable plug. The combined AUX current budget remains to be confirmed.

RS485 Equipment Networks

RS485 is the controller's communication path for compatible pool equipment. On the V5 board, Network 1 uses A1 / B1 and Network 2 uses A2 / B2. The equipment selected in the app must match the physical network where the wires are landed.



V5 RS485 wiring example: A1 / B1 route to Network 1 equipment such as a pump; A2 / B2 route to Network 2 equipment such as a salt cell or heater. Wire crossings with bridges are not connections.

Network 1

A1 / B1 is commonly used for the primary controlled equipment bus. The example shows A1 and B1 connected to a pump on Network 1.

Network 2

A2 / B2 can be used for a separated equipment bus. The example shows A2 and B2 connected to a salt cell or heater on Network 2.

Network Planning Rules

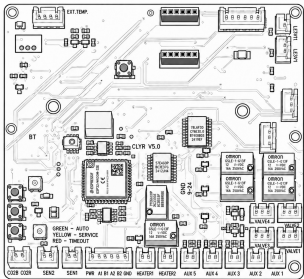
- Use Network 1 for the first controlled equipment bus unless the installation plan requires separation.
- Use Network 2 when sensors or equipment should be isolated from the primary equipment bus.
- Select the same network in the app that was used at the six-pin plug connector.
- For equipment with special isolation requirements, keep it on its own network.

App location: Network selection is typically found while adding or configuring equipment in the Clyr app under advanced options. If no change is made, controller setup typically defaults equipment to Network 1.

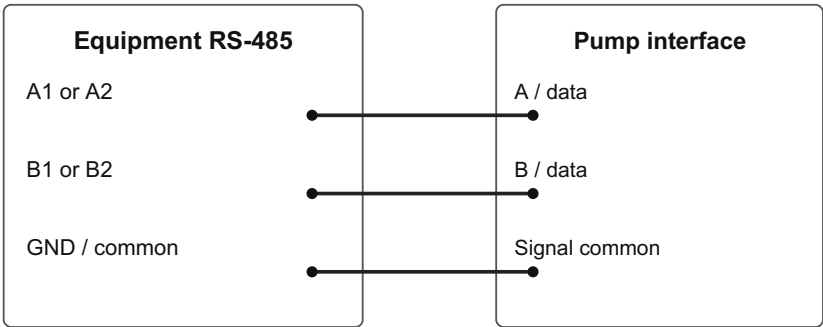
Hayward Variable Speed Pump Wiring

Use this page when wiring a compatible Hayward variable speed pump, including Hayward TriStar-style RS485 control. The Clyr RS485 network selected in the app must match the physical A/B terminal pair used at the controller.

CLYR+ · MAIN PCB



Original CLYR V5.0 board
Factory cabinet power retained



Route through the far-left low-voltage entry.

Signal common is not the cabinet equipment ground bar.

Functional connections only. Verify the installed equipment terminal labels and instructions.

Clyr+ pump communication uses the selected A/B pair and signal common. Signal common is not the cabinet equipment ground bar; pump mains and equipment ground remain separate.

PUMP INTERFACE FUNCTION	CLYR+ CONNECTION
RS485 data A	A1 for Network 1 or A2 for Network 2; verify the exact pump's terminal mapping.
RS485 data B	B1 for Network 1 or B2 for Network 2; use the matching pair.
Signal common / reference	PCB communication GND, where required by the pump interface. Not the equipment grounding bar. Do not identify terminals by wire color alone.

Hookup and App Setup

1. Isolate Clyr+ and pump supplies; verify absence of voltage before opening either wiring compartment.
2. Use the exact pump model's communication diagram to connect data A/B and signal common. Route the link through Clyr+'s far-left low-voltage entry; do not connect a pump power output to Clyr+.
3. Restore the pump and Clyr+ covers, then restore their supplies.
4. In the Clyr app, open Settings > Devices > Add Pool Equipment > Pump, then select Hayward TriStar.
5. Select Network 1 if the pump is wired to A1 / B1, or select Network 2 if the pump is wired to A2 / B2.
6. Follow the remaining app steps to add the pump.
7. Confirm the pump appears in the app and responds to basic control.

Network match required: If the pump is wired to A1 / B1 but added as Network 2, or wired to A2 / B2 but added as Network 1, the pump will not communicate correctly.

Hayward AquaRite Salt Cell Wiring

Use this page when wiring a compatible Hayward AquaRite V2 salt cell controller for RS485 communication. Clyr+ uses its own internal 24 VDC supply; the salt system does not power the Clyr+ cabinet. Match the app network to the physical A/B pair.

Low-Voltage RS485 Link

Clyr+ RS485 network ↔ salt-system communication interface

Clyr+ supplies the communication interface from its 24 VDC supply through the red power lead, with a DC/common return. The salt cell retains its manufacturer-specified main power source. Match the exact interface voltage rating and data terminals before connection.

CONNECTION	WIRING RULE
RS485 data pair	Use A1/B1 for Network 1 or A2/B2 for Network 2. Verify the equipment-side data polarity and terminal mapping for the exact model; wire colors are not universal.
Communication common	Connect the reference/common conductor as required by the approved interface wiring. Communication common is not protective earth.
Interface power	Clyr+ 24 VDC positive → red interface-power lead; DC return → interface common. Use only a salt interface approved for this voltage and wiring. Do not connect a salt-system power output to the Clyr+ supply.

Hookup and App Setup

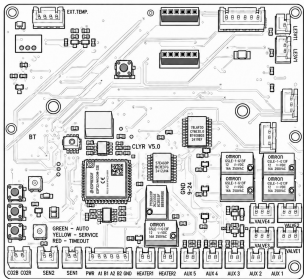
1. Isolate all supplies to Clyr+ and the salt system and verify absence of voltage before opening wiring compartments.
2. Verify that the exact salt interface accepts the Clyr+ 24 VDC feed. Connect the matched RS485 data pair, common and red interface-power lead using the approved model-specific wiring. Do not apply 24 VDC to a lower-rated input.
3. Restore all covers and turn the breaker back on.
4. Open the Clyr app.
5. Go to Settings > Devices > Add Pool Equipment > Salt Cell > Hayward AquaRite.
6. Select Network 1 if the salt cell is wired to A1 / B1, or select Network 2 if it is wired to A2 / B2.
7. Click Activate Salt Cell.
8. Follow the remaining app steps to complete setup and confirm the controller can communicate with the salt cell.

Network match required: The salt cell network selected in the app must match the Clyr A/B terminals used for the physical wiring.

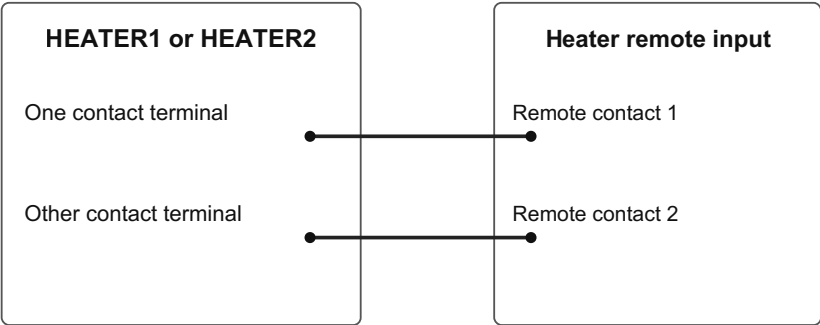
Hayward Heater Dry-Contact Wiring

Use this page when wiring a compatible Hayward heater through the Clyr dry-contact heater circuit. The Clyr+ does not supply heater power through these terminals; it closes a dry-contact loop to request heat.

CLYR+ · MAIN PCB



Original CLYR V5.0 board
Factory cabinet power retained



Route through the far-left low-voltage entry.

Use both terminals of ONE heater port; never mix HEATER1 and HEATER2.

Functional connections only. Verify the installed equipment terminal labels and instructions.

Use both contacts of one Clyr+ HEATER1 or HEATER2 port. Route through the far-left low-voltage entry; the heater retains its separate mains supply.

HAYWARD HEATER CONNECTION	CLYR CONNECTION	PURPOSE
Fireman switch / remote two-wire terminal 1	Either terminal of selected HEATER1 or HEATER2 port	One side of the dry-contact heater request loop.
Fireman switch / remote two-wire terminal 2	Other terminal of that same port	Other side of the dry-contact heater request loop.

Hookup and App Setup

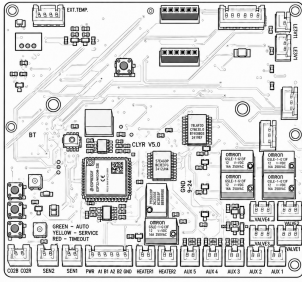
1. Isolate Clyr+ and heater supplies; verify absence of voltage before opening either cabinet.
2. Locate the two-wire fireman switch or remote-control terminals inside the heater.
3. Route the two dry-contact conductors from the heater back to both contacts of the selected Clyr+ HEATER1 or HEATER2 connector.
4. Use the heater manufacturer's designated low-voltage remote input and contact-rating limits. The two-wire dry contact is not polarity-sensitive; do not mix terminals from different HEATER ports.
5. Restore covers and turn the breaker back on.
6. Open the Clyr app and go to Settings > Devices > Add Pool Equipment > Heaters.
7. Name the heater clearly and follow the remaining setup steps.
8. Test heat request only after pump flow and temperature readings are confirmed.

Temperature accuracy note: Configure the supported Clyr water-temperature sensor and compare its reading with a reliable reference before automatic heater control.

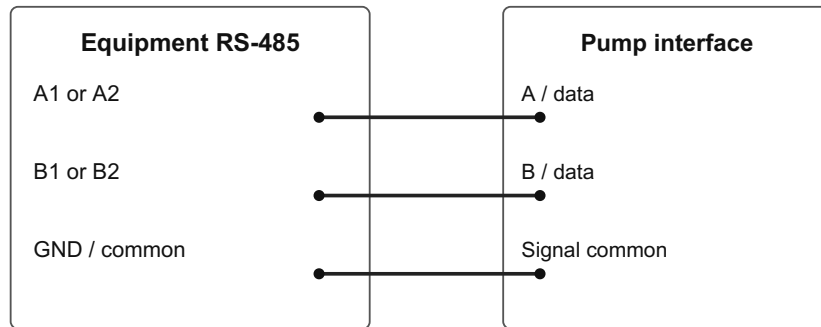
Jandy Flow Pro / ePump Wiring

Use this page when wiring a compatible Jandy variable speed pump, including Flow Pro or ePump RS485 control. The Clyr RS485 network selected in the app must match the physical A/B terminal pair used at the controller.

CLYR+ · MAIN PCB



Original CLYR V5.0 board
Factory cabinet power retained



Route through the far-left low-voltage entry.

Signal common is not the cabinet equipment ground bar.

Functional connections only. Verify the installed equipment terminal labels and instructions.

Clyr+ pump communication uses the selected A/B pair and signal common. Signal common is not the cabinet equipment ground bar; pump mains and equipment ground remain separate.

PUMP INTERFACE FUNCTION	CLYR+ CONNECTION
RS485 data A	A1 for Network 1 or A2 for Network 2; verify the exact pump's terminal mapping.
RS485 data B	B1 for Network 1 or B2 for Network 2; use the matching pair.
Signal common / reference	PCB communication GND, where required by the pump interface. Not the equipment grounding bar. Do not identify terminals by wire color alone.

Hookup and App Setup

1. Isolate Clyr+ and pump supplies; verify absence of voltage before opening either wiring compartment.
2. Use the exact pump model's communication diagram to connect data A/B and signal common. Route the link through Clyr+'s far-left low-voltage entry; do not connect a pump power output to Clyr+.
3. Restore the pump and Clyr+ covers, then restore their supplies.
4. In the Clyr app, open Settings > Devices > Add Pool Equipment > Pump, then select Jandy Flow Pro or Jandy ePump.
5. Select Network 1 if the pump is wired to A1 / B1, or select Network 2 if the pump is wired to A2 / B2.
6. Follow the remaining app steps to add the pump.
7. Confirm the pump appears in the app and responds to basic control.

Network match required: If the pump is wired to A1 / B1 but added as Network 2, or wired to A2 / B2 but added as Network 1, the pump will not communicate correctly.

Jandy AquaPure Salt Cell Wiring

Use this page when wiring a compatible Jandy AquaPure salt cell controller for RS485 communication. Clyr+ uses its own internal 24 VDC supply; the salt system does not power the Clyr+ cabinet. Match the app network to the physical A/B pair.

Low-Voltage RS485 Link

Clyr+ RS485 network ↔ salt-system communication interface

Clyr+ supplies the communication interface from its 24 VDC supply through the red power lead, with a DC/common return. The salt cell retains its manufacturer-specified main power source. Match the exact interface voltage rating and data terminals before connection.

CONNECTION	WIRING RULE
RS485 data pair	Use A1/B1 for Network 1 or A2/B2 for Network 2. Verify the equipment-side data polarity and terminal mapping for the exact model; wire colors are not universal.
Communication common	Connect the reference/common conductor as required by the approved interface wiring. Communication common is not protective earth.
Interface power	Clyr+ 24 VDC positive → red interface-power lead; DC return → interface common. Use only a salt interface approved for this voltage and wiring. Do not connect a salt-system power output to the Clyr+ supply.

Hookup and App Setup

1. Isolate all supplies to Clyr+ and the salt system and verify absence of voltage before opening wiring compartments.
2. Verify that the exact salt interface accepts the Clyr+ 24 VDC feed. Connect the matched RS485 data pair, common and red interface-power lead using the approved model-specific wiring. Do not apply 24 VDC to a lower-rated input.
3. Restore all covers and turn the breaker back on.
4. Open the Clyr app.
5. Go to Settings > Devices > Add Pool Equipment > Salt Cell > Jandy AquaPure.
6. Select Network 1 if the salt cell is wired to A1 / B1, or select Network 2 if it is wired to A2 / B2.
7. Click Activate Salt Cell.
8. Follow the remaining app steps to complete setup and confirm the controller can communicate with the salt cell.

Network match required: The salt cell network selected in the app must match the Clyr A/B terminals used for the physical wiring.

Pentair IntelliChlor Salt Cell Wiring

Use this page when wiring a compatible Pentair IntelliChlor system, including the IC40, for RS485 communication. Clyr+ uses its own internal 24 VDC supply; the salt system does not power the Clyr+ cabinet. Match the app network to the physical A/B pair.

Low-Voltage RS485 Link

Clyr+ RS485 network ↔ salt-system communication interface

Clyr+ supplies the communication interface from its 24 VDC supply through the red power lead, with a DC/common return. The salt cell retains its manufacturer-specified main power source. Match the exact interface voltage rating and data terminals before connection.

CONNECTION	WIRING RULE
RS485 data pair	Use A1/B1 for Network 1 or A2/B2 for Network 2. Verify the equipment-side data polarity and terminal mapping for the exact model; wire colors are not universal.
Communication common	Connect the reference/common conductor as required by the approved interface wiring. Communication common is not protective earth.
Interface power	Clyr+ 24 VDC positive → red interface-power lead; DC return → interface common. Use only a salt interface approved for this voltage and wiring. Do not connect a salt-system power output to the Clyr+ supply.

Hookup and App Setup

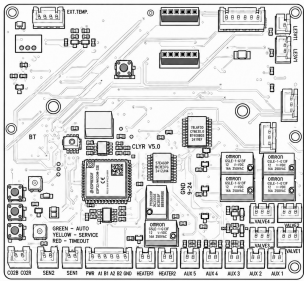
1. Isolate all supplies to Clyr+ and the salt system and verify absence of voltage before opening wiring compartments.
2. Verify that the exact salt interface accepts the Clyr+ 24 VDC feed. Connect the matched RS485 data pair, common and red interface-power lead using the approved model-specific wiring. Do not apply 24 VDC to a lower-rated input.
3. Restore all covers and turn the breaker back on.
4. Open the Clyr app.
5. Go to Settings > Devices > Add Pool Equipment > Salt Cell > Pentair IntelliChlor.
6. Select Network 1 if the salt cell is wired to A1 / B1, or select Network 2 if it is wired to A2 / B2.
7. Click Activate Salt Cell.
8. Follow the remaining app steps to complete setup and confirm the controller can communicate with the salt cell.

Network match required: The salt cell network selected in the app must match the Clyr A/B terminals used for the physical wiring.

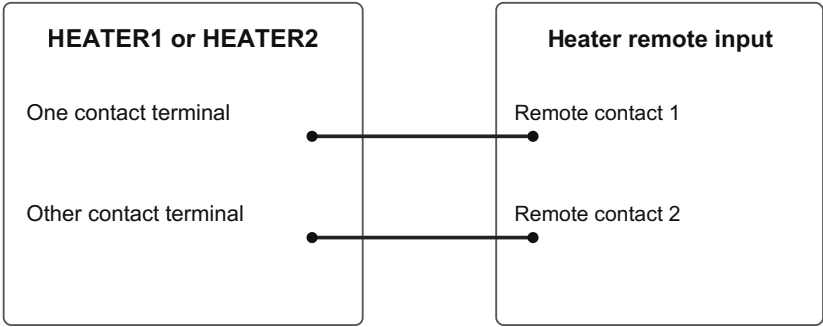
Jandy Heater Dry-Contact Wiring

Use this page when wiring a compatible Jandy heater through the Clyr dry-contact heater circuit. The Clyr+ does not supply heater power through these terminals; it closes a dry-contact loop to request heat.

CLYR+ · MAIN PCB



Original CLYR V5.0 board
Factory cabinet power retained



Route through the far-left low-voltage entry.

Use both terminals of ONE heater port; never mix HEATER1 and HEATER2.

Functional connections only. Verify the installed equipment terminal labels and instructions.

Use both contacts of one Clyr+ HEATER1 or HEATER2 port. Route through the far-left low-voltage entry; the heater retains its separate mains supply.

JANDY HEATER CONNECTION	CLYR CONNECTION	PURPOSE
Fireman switch / remote two-wire terminal 1	Either terminal of selected HEATER1 or HEATER2 port	One side of the dry-contact heater request loop.
Fireman switch / remote two-wire terminal 2	Other terminal of that same port	Other side of the dry-contact heater request loop.

Hookup and App Setup

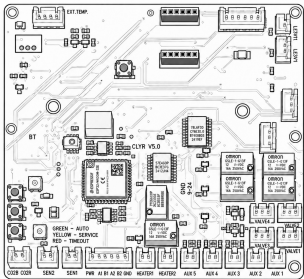
1. Isolate Clyr+ and heater supplies; verify absence of voltage before opening either cabinet.
2. Locate the two-wire fireman switch or remote-control terminals inside the heater.
3. Route the two dry-contact conductors from the heater back to both contacts of the selected Clyr+ HEATER1 or HEATER2 connector.
4. Use the heater manufacturer's designated low-voltage remote input and contact-rating limits. The two-wire dry contact is not polarity-sensitive; do not mix terminals from different HEATER ports.
5. Restore covers and turn the breaker back on.
6. Open the Clyr app and go to Settings > Devices > Add Pool Equipment > Heaters.
7. Name the heater clearly and follow the remaining setup steps.
8. Test heat request only after pump flow and temperature readings are confirmed.

Temperature accuracy note: Configure the supported Clyr water-temperature sensor and compare its reading with a reliable reference before automatic heater control.

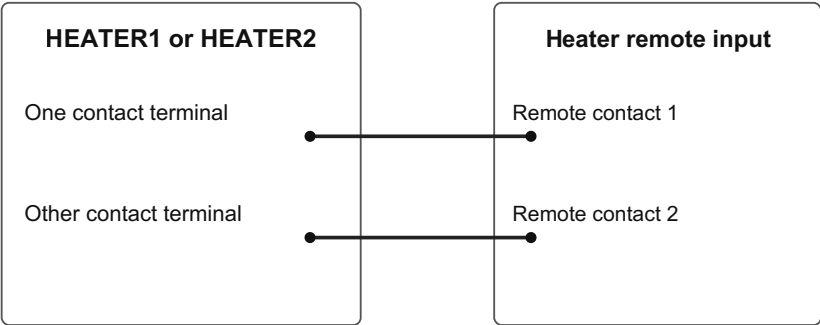
Pentair Heater Dry-Contact Wiring

Use this page when wiring a compatible Pentair heater through the Clyr dry-contact heater circuit. The Clyr+ does not supply heater power through these terminals; it closes a dry-contact loop to request heat.

CLYR+ · MAIN PCB



Original CLYR V5.0 board
Factory cabinet power retained



Route through the far-left low-voltage entry.

Use both terminals of ONE heater port; never mix HEATER1 and HEATER2.

Functional connections only. Verify the installed equipment terminal labels and instructions.

Use both contacts of one Clyr+ HEATER1 or HEATER2 port. Route through the far-left low-voltage entry; the heater retains its separate mains supply.

PENTAIR HEATER CONNECTION	CLYR CONNECTION	PURPOSE
Fireman switch / remote two-wire terminal 1	Either terminal of selected HEATER1 or HEATER2 port	One side of the dry-contact heater request loop.
Fireman switch / remote two-wire terminal 2	Other terminal of that same port	Other side of the dry-contact heater request loop.

Hookup and App Setup

1. Isolate Clyr+ and heater supplies; verify absence of voltage before opening either cabinet.
2. Locate the two-wire fireman switch or remote-control terminals inside the heater.
3. Route the two dry-contact conductors from the heater back to both contacts of the selected Clyr+ HEATER1 or HEATER2 connector.
4. Use the heater manufacturer's designated low-voltage remote input and contact-rating limits. The two-wire dry contact is not polarity-sensitive; do not mix terminals from different HEATER ports.
5. Restore covers and turn the breaker back on.
6. Open the Clyr app and go to Settings > Devices > Add Pool Equipment > Heaters.
7. Name the heater clearly and follow the remaining setup steps.
8. Test heat request only after pump flow and temperature readings are confirmed.

Temperature accuracy note: Configure the supported Clyr water-temperature sensor and compare its reading with a reliable reference before automatic heater control.

pH, ORP, and Temperature Sensor Setup

The Clyr 3-in-1 sensor provides pH, ORP, and temperature readings through a flow-cell installation and RS485 wiring. The public setup guide places the flow cell after the filter and before the heater, with approximately one foot of straight pipe for the saddle clamps.

Installation Flow

1. Power and pair the controller before adding sensors.
2. Turn off the pump breaker before drilling or opening plumbing.
3. Locate straight pipe after the filter and before the heater.
4. Install saddle clamps and flow-cell tubing so water flows gently through the cell.
5. Wire the sensor to the selected RS485 network and low-voltage power as instructed for the sensor cable.
6. Add pH and ORP as separate components in the app, using the same network selected at the terminal block.
7. Refresh the water quality page and verify values appear.

Do not install the bypass after the chlorinator or salt cell. The sensor flow path should reflect representative filtered water and follow Clyr installation guidance.

APP ITEM	WHY IT IS SEPARATE	OWNER CHECK
pH Sensor	Reports acidity / basicity trend	Add as pH and select the wired network
ORP Sensor	Reports oxidation-reduction potential	Add separately as ORP and select the same wired network
Temperature	Included in the 3-in-1 sensor data path	Confirm reading appears with water quality data

Controller Wiring

SENSOR WIRE	CONNECTION / FUNCTION
Red	Shared low-voltage WAGO: +24 VDC
Green	A1 or A2
White	B1 or B2
Black	Shared low-voltage WAGO: DC return (GND / -)

Use A1/B1 for Network 1 or A2/B2 for Network 2, then choose the same network in the app. The shared low-voltage WAGOs distribute 24 VDC power to the sensors and connect to the PCB. Keep positive and return in separate splices. These are not mains-input WAGOs A/B. Do not use 24 VAC or protective earth (PE) for sensor power.

Pressure Sensor Setup

The Clyr pressure sensor measures pressure for filter and equipment monitoring. Install its 1/4-inch NPT connection at the equipment's approved wet-side drain-plug or equivalent pressure port. Follow the dedicated Clyr Pressure Sensor manual and equipment instructions for the selected location.

Plumbing Steps

1. Turn off the pump breaker.
2. Relieve filter pressure.
3. Identify the approved wet-side pressure port and remove its plug only after depressurizing.
4. Use the specified thread sealant and any required compatible fitting; do not force mismatched threads.
5. Install the pressure sensor without twisting its cable. Retain the equipment's required analog gauge and relief devices.
6. Leak-test after restoring flow.

Controller Wiring

SENSOR WIRE	CONNECTION / FUNCTION
Red	Shared low-voltage WAGO: +24 VDC
Green	A1 or A2
White	B1 or B2
Black	Shared low-voltage WAGO: DC return (GND / -)

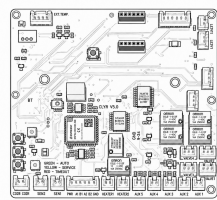
Use A1/B1 for Network 1 or A2/B2 for Network 2, then choose the same network in the app. The shared low-voltage WAGOs distribute 24 VDC power to the sensors and connect to the PCB. Keep positive and return in separate splices. These are not mains-input WAGOs A/B. Do not use 24 VAC or protective earth (PE) for sensor power.

Sensor range note: The Clyr pressure setup guide identifies the pressure sensor as a 0-50 PSI sensor. Use it where that range is appropriate for the monitored pool pad location. **Dosing permission requires pressure greater than 3 psi**, in addition to completion of the priming delay. Dosing stops if pressure falls to 3 psi or below, or if the pressure sensor stops reporting. Shutdown can take up to 20 seconds.

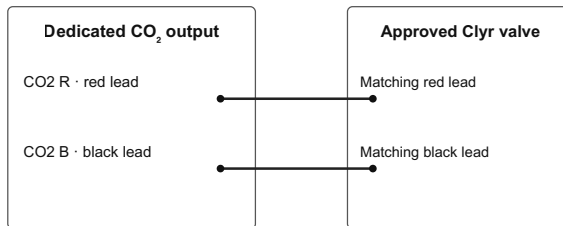
CO2 and Low-Voltage Dosing Outputs

The controller includes a dedicated CO₂-labeled output for approved Clyr CO₂ dosing control. CO₂ dosing lowers pH by introducing carbon dioxide into the return line through a regulator, smart ball valve, tubing, and injection point.

CLYR+ · MAIN PCB



Original CLYR V5.0 board
Factory cabinet power retained



Route through the far-left low-voltage entry.

Use the approved accessory harness; keep electrical leads separate from CO₂ tubing.

Functional connections only. Verify the installed equipment terminal labels and instructions.

Electrical connection only: the dedicated CO₂ port controls the approved Clyr dosing valve. Install the separate tank, regulator, tubing and return-line injection point using the dosing kit instructions.

Owner-Supplied CO₂ Tank

The CO₂ tank is not included with the controller. Use the tank and regulator specified for the approved dosing kit. Secure the cylinder and follow the gas supplier's storage, ventilation and handling instructions.

Why CO₂

The approved CO₂ system lowers pH under chemistry and pressure control. Correct regulator settings, tubing, injection placement and verified sensor readings are required; follow the dosing kit's installation instructions.

Accessory compatibility required: Do not connect an unapproved solenoid, pump, regulator, or chemical feeder directly to the CO₂ terminal. Use the approved CO₂ dosing assembly and confirm voltage, current, polarity, and installation instructions before wiring.

Setup Steps

1. With all cabinet feeds isolated and absence of voltage verified, take the approved harness's red and black CO₂ dosing wires and land them on the red and black designated CO₂ terminals on the Clyr board.
2. Open the Clyr app and go to Settings > Devices > Add Pool Equipment > CO₂ Dosing, then add the dosing device.
3. Go to Settings > Auto Pilot > Auto Dosing and set the desired pH target.
4. Complete the CO₂ dosing details in Auto Dosing, including the required pressure sensor. Dosing requires completion of the priming delay and a pressure reading **greater than 3 psi**.
5. Complete the chemistry sensor details in Auto Dosing so the controller has the pH feedback needed for dosing decisions.
6. Verify tubing direction, injection point location, regulator installation, and leak checks before enabling automatic dosing.

REQUIRED ITEM	PURPOSE	SETUP CHECK
CO ₂ dosing assembly	Controls CO ₂ flow from the tank to the injection point	Red and black wires landed on the matching Clyr CO ₂ terminals.
Pressure sensor	Confirms operating conditions required for dosing	Requires >3 psi . Stops within 20 seconds at ≤3 psi or if sensor reporting stops.
Chemistry sensor	Provides pH feedback for dosing decisions	Verify pH readings before enabling automatic dosing.
Owner-supplied CO ₂ tank	Provides the CO ₂ source	Tank filled, regulator attached, and connections leak-checked.

Valve Actuator Connections

Clyr+ has four valve outputs. Firmware limits commanded movement to a maximum of two actuators at a time. The outputs share the internal **24 VAC, 30 VA transformer**. Four available ports do not establish that every four-actuator combination fits the power budget; verify the exact actuator models and their combined demand.

Critical: Valve actuators require the internal 24 VAC transformer and its factory valve-power harness to be correctly connected and powered. The controller's DC power supply is not a substitute for actuator 24 V AC.

Combined load: the transformer's rated secondary capacity is **1.25 A total** ($30\text{ VA} \div 24\text{ VAC}$), shared by all valve loads. Account for simultaneous movement and starting/stalled demand, plus PCB and harness limits. The two-actuator movement limit does not override this shared electrical limit. Exact supported models and allowable combinations remain to be established.

Installation Sequence

1. Complete controller commissioning and pairing, then disconnect all cabinet and equipment feeds before actuator wiring.
2. Verify absence of voltage and confirm the pump cannot start during valve installation.
3. Confirm the internal transformer primary tap matches the incoming supply.
4. Retain the transformer BLUE / YELLOW secondary harness on the designated 24 VAC valve-power input. Follow the installed PCB labels; do not infer pin positions from wire colors.
5. Plug the actuator into Valve 1, Valve 2, Valve 3, or Valve 4. Follow the keyed connector orientation and actuator instructions; do not force the plug.
6. Use the actuator's manual switch to move to the desired default position.
7. After wiring inspection, restore covers and power. Add the valve in the app, name it, label its positions, and set the default direction.
8. Test movement with a schedule or command after power is restored and wiring is checked.

VALVE FIELD	RECOMMENDED NAMING
Pre-pump valve	Suction, Pool/Spa Suction, Cleaner Suction
Post-pump valve	Return, Pool/Spa Return, Bubbler, Water Feature
Default direction	The physical position the valve should use when the system is off or state is unknown

AUX and Relay Connections

The current controller layout for this manual includes five AUX relay ports. These are low-voltage control outputs. Three high-voltage relays are installed. Facing the open cabinet, the default coil connections are **left AUX3, middle AUX2, right AUX1**; retain their factory harnesses. They do not replace proper relay load wiring for line-voltage equipment.

Pool-light load configurations

LIGHTING SYSTEM	WHAT THE RELAY SWITCHES
120 VAC underwater lights	The separately supplied 120 VAC lighting circuit, using the light manufacturer's required protection and junction arrangement.
Low-voltage pool lights	The primary supply of a separate transformer listed for the pool-light application. Its secondary supplies the lights at their specified voltage.

Other relay-controlled loads include pumps, blowers and water features within the verified cabinet and relay ratings.

Setup Procedure

1. Identify the intended AUX output and relay, then isolate all controller and relay load feeds and verify absence of voltage.
2. Retain the factory relay-power configuration; do not add jumpers based on another PCB revision.
3. Verify the default coil harnesses: AUX1 to the right relay, AUX2 to the middle relay, AUX3 to the left relay. Select the corresponding AUX port in the app.
4. Connect only to the identified coil terminals, following installed relay markings. Keep load conductors on their separate contacts.
5. Inspect the wiring, restore barriers and covers, then restore power. Add an Auxiliary Relay in the app and select the same AUX port.
6. Name the relay by the load it controls.
7. Test for relay click and correct load behavior.

Default factory mapping — facing the open cabinet

LEFT RELAY	MIDDLE RELAY	RIGHT RELAY
AUX3	AUX2	AUX1

Match the app's AUX selection to the installed coil harness. Use AUX4 or AUX5 for an external 24 VDC relay through an 8 ft Clyr jumper. Route it down the left low-voltage corridor and out the far-left bottom entry; see page 49.

Line-voltage relay loads require qualified wiring. The AUX port is the controller signal path. The cabinet relay load contacts carry separately supplied mains power. Follow the dedicated relay wiring pages and installed equipment instructions.

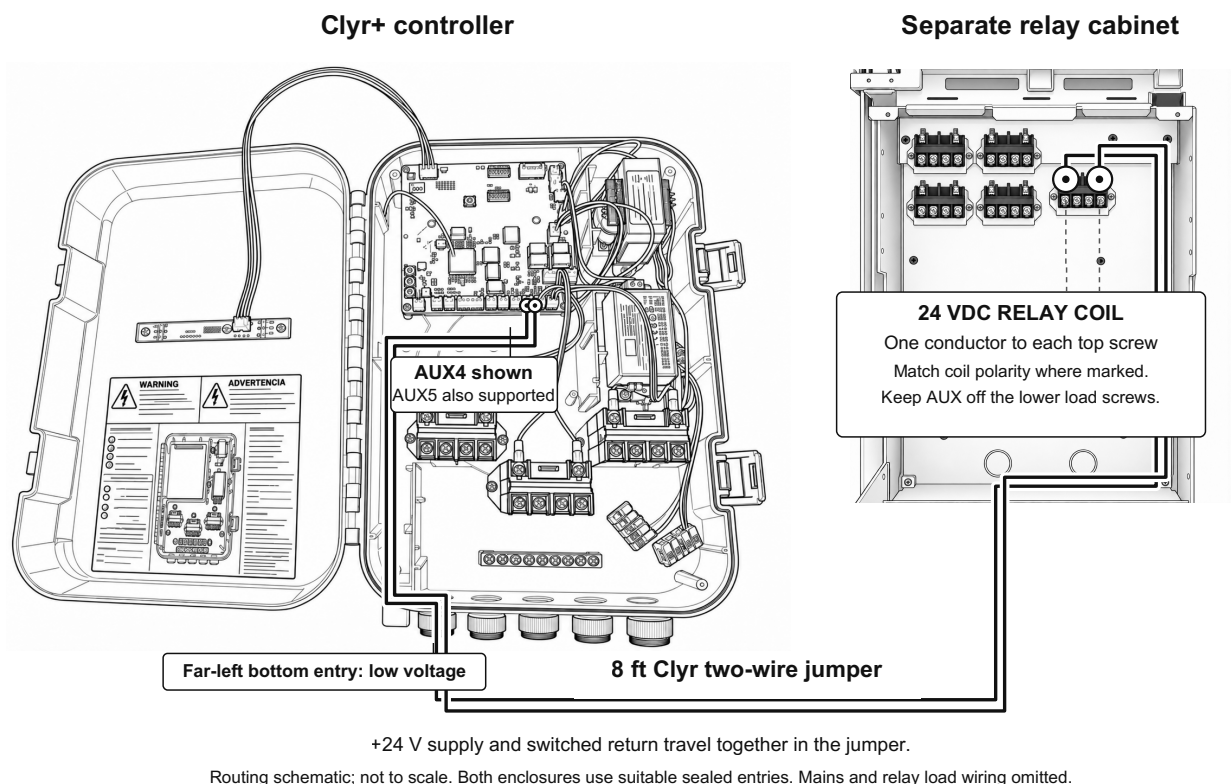
Keep lighting power separate from control power. Neither the internal 24 VAC valve transformer nor the 24 VDC AUX output supplies pool lights. When a 120 VAC underwater-light circuit connects directly to Clyr+, **every incoming mains feed must be GFCI-protected**, including control power and all relay-load feeds. Retain their separate branch breakers. Follow the light, transformer and relay grounding and wiring instructions.

Lighting entry selection: use a ½-inch NPT entry in the line-voltage area—any of the three middle bottom entries, viewed from the front. **Do not use the far-left low-voltage entry.** Keep the far-right entry reserved for main power.

Direct pool-light conduit connection is intended for UL evaluation. Entry suitability and markings, cord termination, grounding and protective-circuit routing require review before use.

External Relay Wiring

AUX4 and AUX5 control external 24 VDC relay coils using the **8 ft Clyr two-wire jumper**. AUX1–3 remain connected to the three internal relays.



Routing schematic; not to scale. Both enclosures use suitable sealed entries. Mains and relay load wiring omitted.

1. **Isolate every supply.** Turn off Clyr+, the separate relay cabinet and the controlled load; verify absence of voltage.
2. **Connect AUX4 or AUX5.** Use the Clyr 8 ft jumper. Keep both conductors in the left low-voltage area identified on the inside-cover sticker, away from the relay load contacts and mains wiring.
3. **Exit the far-left bottom entry** when facing the cabinet. Use suitable sealing and strain relief at both enclosures. Keep unused entries sealed.
4. **Connect only to the 24 VDC coil terminals.** For the illustrated relay these are the two top screws, one conductor per screw. Verify the actual relay markings and polarity; load power uses separate contacts.
5. Inspect terminations, restore barriers and covers, then power on. Select the same AUX4 or AUX5 port in the app and verify relay operation.

How the output works: the positive lead supplies 24 VDC; a low-side switch controls the return. Connect the coil across both jumper leads. Do not bypass the switched return with ground or connect an external supply to the AUX output.

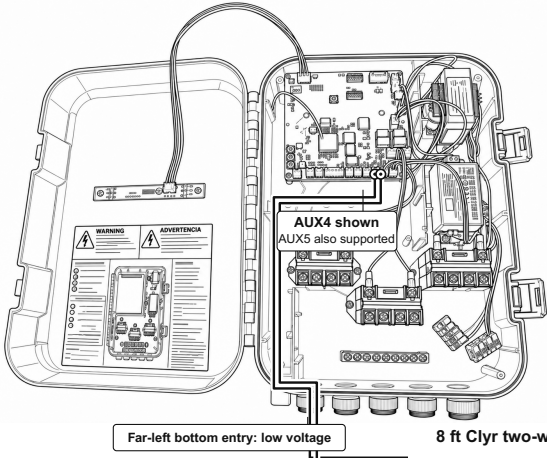
Intended relays: Omron G7L 24 VDC or compatible existing pool-cabinet 24 VDC relays. Verify coil current and polarity. Per-port current limits, shared supply budget and model compatibility remain to be finalized.

Hayward Relay Light Wiring

For an external relay installation, use this page when a Hayward relay-controlled pool light is switched by an external relay cabinet and the Clyr+ provides the low-voltage AUX relay signal.

Using a built-in Clyr+ relay instead? Follow page 48 and select its factory AUX1, AUX2 or AUX3 assignment in the app. The AUX4/ AUX5 jumper instructions below apply only to a separate external relay.

Clyr+ controller

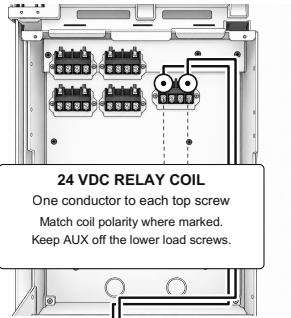


AUX4 shown
AUX5 also supported

Far-left bottom entry: low voltage

8 ft Clyr two-wire jumper

Separate relay cabinet



24 VDC RELAY COIL
One conductor to each top screw
Match coil polarity where marked.
Keep AUX off the lower load screws.

+24 V supply and switched return travel together in the jumper.
Routing schematic; not to scale. Both enclosures use suitable sealed entries. Mains and relay load wiring omitted.

Two AUX wires → two top coil screws. One conductor connects to each top 24VDC coil screw. Use AUX4 or AUX5 and the far-left low-voltage entry. Lighting load wiring and supply protection are omitted.

FIELD CONNECTION	CLYR CONNECTION	PURPOSE
8 ft Clyr relay jumper cable	AUX4 or AUX5 (external relay)	24VDC coil-control output from the Clyr+.
Two top relay screws (24VDC coil)	Two conductors from the selected AUX port	One conductor to each top coil screw. Use the coil terminals, not the four lower load screws.
Pool light load wiring	Existing relay load terminals, not the Clyr board	Switch the 120 VAC light circuit or a separate pool-light transformer primary; see page 48.

Hookup and App Setup

1. Isolate every Clyr+, external relay-cabinet and pool-light supply; verify absence of voltage before opening either enclosure.
2. Plug the Clyr relay cable into AUX4 or AUX5. Follow the far-left low-voltage entry route on page 49.
3. Route the 8 ft jumper cable to the existing cabinet where the relay is mounted and the light is connected to the relay.
4. Connect the two AUX cable conductors to the **two screws on top of the relay**, one conductor per screw. These are the illustrated relay's **24VDC coil terminals**; verify the relay markings and follow the cabinet instructions.
5. Restore covers and power after wiring is complete and inspected.
6. Open the Clyr app and go to Settings > Devices > Add Pool Equipment > Relay Light.
7. Select Hayward as the relay light manufacturer.
8. Select the same AUX port used on the Clyr+ and click Add.
9. Confirm the relay light appears in the app and test on/off control.

Clyr+ is a high-voltage cabinet. Verify the external relay's 24 VDC coil, polarity and permitted load ratings. Follow page 49 for jumper routing; final AUX current limits remain to be confirmed.

Jandy Relay Light Wiring

For an external relay installation, use this page when a Jandy relay-controlled pool light is switched by an external relay cabinet and the Clyr+ provides the low-voltage AUX relay signal.

Using a built-in Clyr+ relay instead? Follow page 48 and select its factory AUX1, AUX2 or AUX3 assignment in the app. The AUX4/ AUX5 jumper instructions below apply only to a separate external relay.

Clyr+ controller

AUX4 shown
AUX5 also supported

Far-left bottom entry: low voltage

8 ft Clyr two-wire jumper

Separate relay cabinet

24 VDC RELAY COIL
One conductor to each top screw
Match coil polarity where marked.
Keep AUX off the lower load screws.

+24 V supply and switched return travel together in the jumper.
Routing schematic; not to scale. Both enclosures use suitable sealed entries. Mains and relay load wiring omitted.

Two AUX wires → two top coil screws. One conductor connects to each top 24VDC coil screw. Use AUX4 or AUX5 and the far-left low-voltage entry. Lighting load wiring and supply protection are omitted.

FIELD CONNECTION	CLYR CONNECTION	PURPOSE
8 ft Clyr relay jumper cable	AUX4 or AUX5 (external relay)	Low-voltage relay-control signal from the controller.
Relay low-voltage control side	Other end of the Clyr relay jumper	Allows Clyr to command the existing relay.
Pool light load wiring	Existing relay load terminals, not the Clyr board	Switch the 120 VAC light circuit or a separate pool-light transformer primary; see page 48.

Hookup and App Setup

1. Isolate every Clyr+, external relay-cabinet and pool-light supply; verify absence of voltage before opening either enclosure.
2. Plug the Clyr relay cable into AUX4 or AUX5. Follow the far-left low-voltage entry route on page 49.
3. Route the 8 ft jumper cable to the existing cabinet where the relay is mounted and the light is connected to the relay.
4. Wire the jumper cable to the low-voltage side of the relay according to the relay cabinet instructions.
5. Restore covers and power after wiring is complete and inspected.
6. Open the Clyr app and go to Settings > Devices > Add Pool Equipment > Relay Light.
7. Select Jandy as the relay light manufacturer.
8. Select the same AUX port used at the controller and click Add.
9. Confirm the relay light appears in the app and test on/off control.

Clyr+ is a high-voltage cabinet. Verify the external relay's 24 VDC coil, polarity and permitted load ratings. Follow page 49 for jumper routing; final AUX current limits remain to be confirmed.

Pentair Relay Light Wiring

For an external relay installation, use this page when a Pentair relay-controlled pool light is switched by an external relay cabinet and the Clyr+ provides the low-voltage AUX relay signal.

Using a built-in Clyr+ relay instead? Follow page 48 and select its factory AUX1, AUX2 or AUX3 assignment in the app. The AUX4/ AUX5 jumper instructions below apply only to a separate external relay.

Clyr+ controller

Separate relay cabinet

8 ft Clyr two-wire jumper

+24 V supply and switched return travel together in the jumper.
Routing schematic; not to scale. Both enclosures use suitable sealed entries. Mains and relay load wiring omitted.

Two AUX wires → two top coil screws. One conductor connects to each top 24VDC coil screw. Use AUX4 or AUX5 and the far-left low-voltage entry. Lighting load wiring and supply protection are omitted.

FIELD CONNECTION	CLYR CONNECTION	PURPOSE
8 ft Clyr relay jumper cable	AUX4 or AUX5 (external relay)	Low-voltage relay-control signal from the controller.
Relay low-voltage control side	Other end of the Clyr relay jumper	Allows Clyr to command the existing relay.
Pool light load wiring	Existing relay load terminals, not the Clyr board	Switch the 120 VAC light circuit or a separate pool-light transformer primary; see page 48.

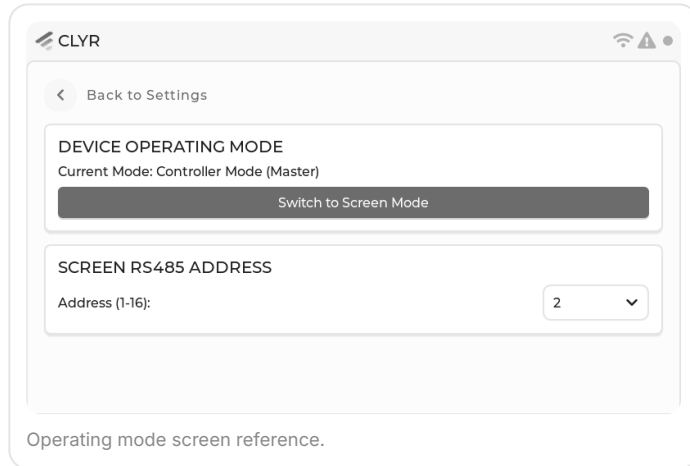
Hookup and App Setup

1. Isolate every Clyr+, external relay-cabinet and pool-light supply; verify absence of voltage before opening either enclosure.
2. Plug the Clyr relay cable into AUX4 or AUX5. Follow the far-left low-voltage entry route on page 49.
3. Route the 8 ft jumper cable to the existing cabinet where the relay is mounted and the light is connected to the relay.
4. Wire the jumper cable to the low-voltage side of the relay according to the relay cabinet instructions.
5. Restore covers and power after wiring is complete and inspected.
6. Open the Clyr app and go to Settings > Devices > Add Pool Equipment > Relay Light.
7. Select Pentair as the relay light manufacturer.
8. Select the same AUX port used at the controller and click Add.
9. Confirm the relay light appears in the app and test on/off control.

Clyr+ is a high-voltage cabinet. Verify the external relay's 24 VDC coil, polarity and permitted load ratings. Follow page 49 for jumper routing; final AUX current limits remain to be confirmed.

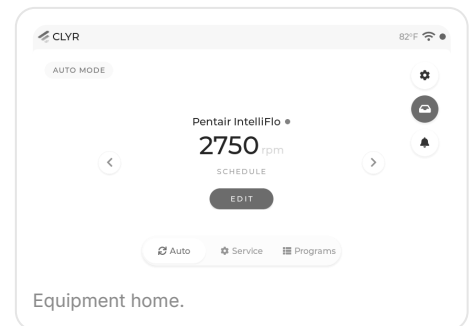
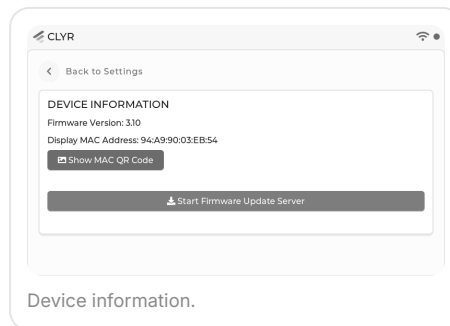
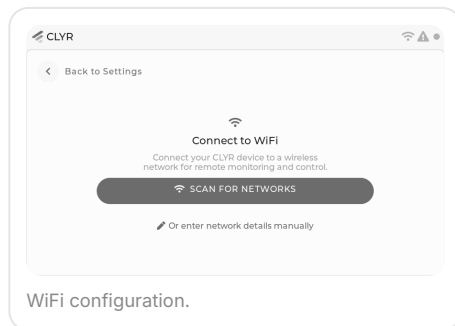
Using the Integrated Screen

The Clyr+ integrated display provides status and setup context. The screen does not remove the need for correct wiring, app configuration, or cloud pairing; it provides local visibility during setup and operation.



Common Screens

- **Auto:** Shows the controller in normal automated operation.
- **Service:** Used for service workflows and local checks.
- **Programs:** Provides access to configured one-time operating events.
- **WiFi:** Shows network setup and connection state.
- **Device Info:** Displays identification and setup details.



Adding Equipment in the App

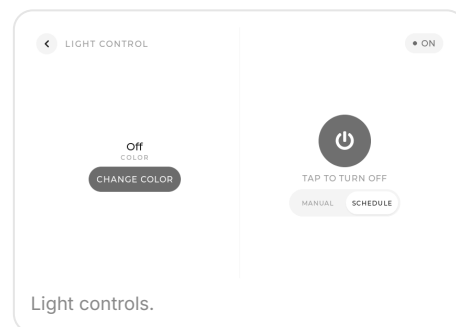
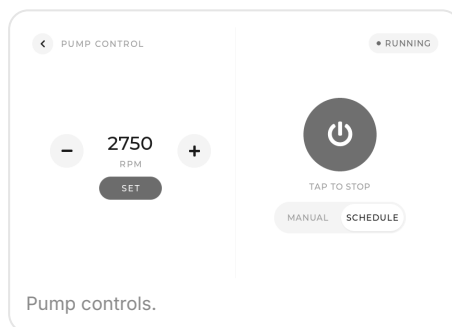
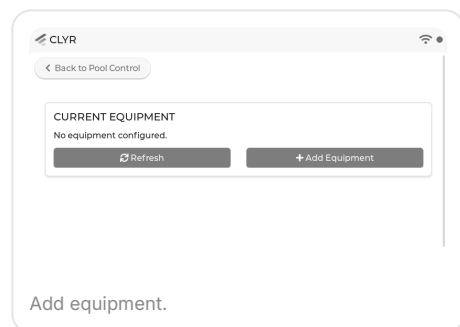
Equipment must be added in the app after wiring. The app configuration must match the physical port or RS485 network used during installation.

Typical Add Path

1. Open the correct pool location.
2. Go to Settings.
3. Open Devices.
4. Select Add.
5. Choose Pool Equipment.
6. Select the equipment type.
7. Name the equipment clearly.
8. Select network, port, or advanced options to match the wiring.
9. Save and test.

Configuration Must Match Wiring

WIRED ITEM	APP CHOICE
Valve 1-4	Valve Actuator, matching valve port
AUX 1-5	Auxiliary Relay, matching AUX port
A1/B1	Network 1
A2/B2	Network 2



Schedules, Programs, and Autopilot

Schedules, programs, and autopilot determine how equipment runs after setup. These features should only be used after wiring, app configuration, and individual equipment tests are complete.

Schedules

Schedules are time-based and accessed from the home page. Use schedules for routine hourly operation such as daily pump runtime, light timing, or repeated auxiliary actions.

Programs

Programs are one-time run events. A common example is spa mode, where pump, heater, valves, and other equipment may need to change together.

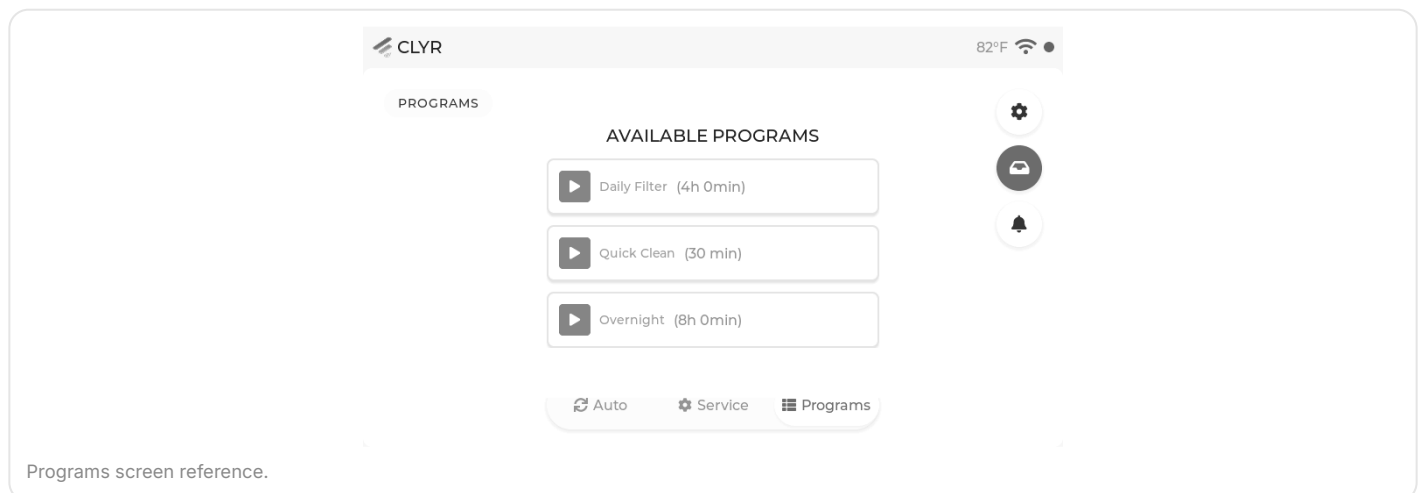
Autopilot

Autopilot lets Clyr automation attempt to run equipment to maintain pool health according to configured logic, available sensors, and enabled equipment.

Priority hierarchy: Public Clyr documentation describes Programs as overriding Autopilot and Schedules, and Autopilot as overriding Schedules.

Recommended Owner Routine

1. Verify all equipment has been individually tested.
2. Create basic schedules for equipment with predictable daily operation.
3. Create programs for special operating modes such as spa mode or water feature mode.
4. Enable autopilot only after sensors are verified and equipment behavior is understood.
5. Review activity after the first day, first week, and after seasonal changes.



Commissioning Checklist

Complete this checklist before leaving the pool pad. The goal is to prove that the physical installation, app configuration, and owner-facing operation all match.

- Controller enclosure is mounted vertically and securely.
- Gasket is clean, seated, and undamaged.
- Threaded conduit fittings are compatible, sealed and supported; any cable glands grip the outer cable jackets.
- Unused openings are sealed.
- Control-power and relay-load breakers are separate, identified, and recorded.
- Relay load contacts have no supply bridge from WAGO A or B.
- All feeds are isolated and verified dead before inspection; DC polarity is checked.
- Controller LED or screen confirms power.
- Controller is paired to the correct pool location.
- WiFi network and cloud status are confirmed.
- Each RS485 device uses the matching app network.
- A/B polarity is checked at both ends of each communication cable.
- Sensors show fresh readings in the app.
- Pressure sensor fittings are leak-tested.
- pH/ORP/temp flow cell has gentle flow.
- Factory 24 VAC valve supply and harness are intact; actuator models and simultaneous demand fit the shared 30 VA limit.
- Each actuator reaches its configured positions and the maximum-two movement rule is verified.
- Each AUX relay controls the intended load; verify default right AUX1, middle AUX2, left AUX3 against installed wiring and app selection.
- No equipment is controlled by two automation systems at once.
- All high-voltage covers are reinstalled.
- Programs and schedules are reviewed with the owner.
- Owner understands that Reset restarts firmware, reconnects WiFi/cloud and starts a new pump-prime cycle.
- Owner knows how to identify offline state and call for support.

Installation Record

Record the installed controller, network assignments, and equipment ports before the installation is closed. This page should stay with the pool equipment records for future service.

RECORD ITEM	FILL IN
Pool location name	
Controller serial / device ID	
Control-power breaker / input voltage / transformer tap	
AUX1 / right relay: load, breaker, voltage	
AUX2 / middle relay: load, breaker, voltage	
AUX3 / left relay: load, breaker, voltage	
WiFi network	
Network 1 devices	
Network 2 devices	
Valve ports used	
AUX ports used	
Installer / service contact	

Owner handoff: Show the owner all supply breakers: switching off control power does not isolate relay load feeds. Confirm the app, equipment assignments, and service contact.

Troubleshooting and Maintenance

SYMPTOM	LIKELY CAUSE	RECOMMENDED CHECK
Controller never powers on	Control-power feed off or fault in internal DC power path	Qualified personnel: isolate all feeds, then inspect the dedicated control branch and factory power harness
WiFi setup fails in app or screen	Wrong network/password or weak signal	Retry setup close to the router or improve pool-pad WiFi
Device appears offline in app or screen	Cloud path unavailable	Check network/internet status; green cabinet light identifies Auto mode, not cloud connectivity
Equipment does not communicate	A/B swapped, wrong app network, loose conductor	Check A/B at both ends, tug-test terminals, confirm network selection
Sensor has no readings	No power to sensor or wrong network	Have qualified personnel verify 24 VDC and correct polarity across red/black; confirm the app network selection
Valve does not move	No transformer 24 VAC output, wrong valve port, actuator switch off	Verify 24 V AC supply, port selection, and manual switch operation
AUX relay does not click	Wrong app AUX selection, loose harness or missing coil-control power	Qualified personnel: isolate all feeds and check the assigned factory harness; do not add a board jumper
Moisture inside enclosure	Loose gland, damaged gasket, unsealed opening, water spray	De-energize, dry, repair sealing path, and inspect for corrosion

Software Reset and Pump Priming

The middle PCB button restarts firmware from the beginning, similar to power-on. WiFi and cloud connections disconnect and reconnect, so the controller will temporarily appear offline. Pump priming also starts again; ensure the pump is ready for a new prime cycle before using Reset. After restart, confirm WiFi/cloud connectivity, pump operation and equipment status. Reset does not isolate electrical power; use the identified supply breakers before electrical service.

During startup and pump priming, the software coordinates relay control and the priming sequence to keep heating and chemical dosing off. The priming sequence completes after an elapsed-time delay, **adjustable in the app with a default of 5 minutes**. Completion of this timer does not confirm water flow. Chemical dosing also requires a pressure reading **greater than 3 psi**; a reading of exactly 3 psi does not meet this requirement.

Dosing stops if pressure falls to 3 psi or below, or if the pressure sensor stops reporting. Shutdown can take up to 20 seconds.

Owner Maintenance

- Inspect the enclosure monthly for damage, cracked plastic, loose latches, or water intrusion.
- Check conduit fittings, cable glands, plugs and gasket sealing after service visits.
- Review app status after storms, power outages, router changes, and pool-equipment service.
- Verify sensor values after cleaning filters, replacing sensors, changing plumbing, or performing chemical corrections.
- Keep the area around the controller free of chemical containers, loose cords, and standing water.

Closing Notes and Support

Before handing over Clyr+ Version 1, complete the commissioning checklist and installation record. Show the owner the app, integrated screen, operating modes and all supply disconnects.

Before You Leave the Equipment Pad

- Confirm the controller is online in the Clyr app.
- Confirm each pump, heater, salt cell, valve, relay light, AUX relay, sensor, and dosing device is assigned to the same network or port used in the wiring.
- Confirm cabinet wiring, installed ratings and connected-equipment instructions agree; resolve unspecified ratings or connections with Clyr before use.
- Confirm conduit fittings, any cable glands, gasket, unused entries and latches are secure and sealed.
- Review schedules, programs, Auto Pilot settings, and service mode behavior with the owner.

Keep this manual with the pool equipment records. Future service work is faster and safer when the installer, owner, or service company can reference the controller wiring, network assignments, AUX ports, and commissioning record.

Support Information

ITEM	RECORD
Pool location name	
Clyr+ serial / device ID	
Installer or service company	
Installer phone / email	
Installation date	
Notes for future service	