CL4R EQUIPMENT MONITORING

PRESSURE SENSOR

Owner's Manual for RS-485 Digital Pressure Monitoring and Drain-Plug Installation

0-50 PSI	RS-485	1/4 NPT	STAINLESS
Pool equipment pressure trend monitoring	Digital four-wire communication to Clyr	Threaded wet-side pressure connection	Industrial pressure transmitter construction

01

Document Information

This manual covers the Clyr Pressure Sensor, basic RS-485 wiring, recommended installation at the wet side of the drain plug, app setup, owner operation, and routine service checks.

WATER PRESSURE AND ELECTRICAL SAFETY WARNING

Clyr pressure readings are helpful tools for understanding equipment trends. Any equipment decision, service action, or decision to follow a recommendation is made entirely at the operator's risk.

- The operator is responsible for confirming the system is shut down, electrically isolated, and de-pressurized before opening plumbing or removing a drain plug.
- The operator is responsible for confirming the sensor is threaded into the correct wet-side location, sealed correctly, wired correctly, and leak checked after startup.
- Pool pumps, filters, heaters, and plumbing can contain hazardous pressure. Do not loosen fittings, drain plugs, or sensor threads while the pump is running or while pressure remains in the system.
- Do not rely on pressure data as the only basis for pump, filter, heater, or plumbing safety decisions. Follow equipment manuals, local codes, and qualified pool-service guidance.

ITEM	DETAIL
Document Type	Owner's Manual / Installation and Operation Reference
Product	Clyr RS-485 Digital Pressure Sensor
Revision	Rev A Draft
Document Date	April 2026
Intended Controller	Clyr Lite Controller or Clyr Controller with an available RS-485 network
Image Status	Generated grayscale cover and installation reference images included; final production imagery may replace them later.

> **Important:** This manual does not replace local codes, pool equipment manufacturer instructions, plumbing best practices, pressure-vessel safety guidance, or licensed electrical work where required.

How to Use This Manual

- Read all safety pages before opening plumbing, removing a drain plug, wiring terminals, or restoring pump power.
- Use the installation pages as a sequence: site confirmation, drain-plug wet-side installation, wiring, app setup, and commissioning.
- Use the operation pages to understand what pressure readings can and cannot tell you about filter and pump performance.
- Keep the installation record and service log with the pool equipment records.

02

Table of Contents

03

Safety Symbol Key

Warning

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

Important Information

Identifies setup details that affect reliable operation, including pressure-port location, sealing, network selection, sensor power, or app configuration.

Electrical Voltage

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

Water Pressure

Identifies pump, filter, heater, and plumbing steps where de-pressurizing, leak checks, and pressure containment are required.

Prohibited Action

Identifies actions that should not be performed, such as removing a drain plug under pressure, wiring to high-voltage circuits, or installing the sensor in a dry or isolated port.

04

Pressure, Water, and Electrical Warnings

Pressurized Water

Turn off the pump breaker and relieve pressure before removing a drain plug, installing the sensor, tightening fittings, or checking the pressure port.

Sensor Data Is Not a Gauge

The sensor provides digital trend data for Clyr monitoring. Owners should still inspect the equipment pad and follow manufacturer service guidance.

Low-Voltage Wiring

Only connect the sensor to the controller terminals specified for low-voltage RS-485 sensor wiring. Do not connect sensor wires to pump, light, heater, or relay circuits.

Leak Risk

An incorrectly sealed 1/4 inch NPT connection can leak, draw air, or damage equipment. Use appropriate thread sealant and verify the connection under normal pump operation.

> **Never remove the sensor or drain plug while the system is pressurized.** Stop the pump, disconnect power where required, open the air-relief valve or drain path as directed by the equipment manufacturer, and confirm pressure is released before service.

Owner Responsibility

- Keep the sensor cable away from rotating equipment, hot surfaces, chemical splash, and sharp cabinet edges.
- Do not use pressure readings as the only basis for swimming safety, pump safety, or filter safety decisions.
- Inspect the sensor and drain-plug connection after freezing weather, pump service, filter cleaning, and plumbing work.
- Contact a pool professional if readings are erratic, if the equipment pad leaks, or if equipment pressure is outside the expected range for the system.

05

Sensor Overview

The Clyr Pressure Sensor is a digital 0-50 PSI pressure transmitter for pool equipment monitoring. It threads into a 1/4 inch NPT wet-side pressure port and sends readings to a Clyr controller over a four-wire RS-485 connection.

0-50 PSI

Equipment Trend

Tracks pressure so owners and service teams can see filter loading, flow changes, and equipment behavior over time.

1/4 NPT

Wet-Side Port

Installs in a threaded wet-side drain-plug location or equivalent pressure port approved by the equipment layout.

RS-485

Digital Data

Uses a four-wire connection for low-voltage power, ground, and Modbus-style RS-485 communication.

Clyr pressure sensor reference. Production appearance may vary by cable length and supplied connector.

System Components

COMPONENT	PURPOSE	OWNER NOTE
Digital pressure sensor	Measures water pressure at the wet-side port	Do not twist the cable or over-tighten the sensor body.
1/4 inch NPT pressure thread	Provides the water-pressure connection	Use compatible thread sealant and avoid cross-threading.
RS-485 cable	Provides power and digital communication	Network selection in the app must match the A/B terminals used.
Clyr controller	Reads sensor data and sends it to the app	A Clyr or Clyr+ controller is required.

06

Specifications

The Clyr Pressure Sensor is a white-labeled industrial pressure transmitter configured for pool pressure monitoring over RS-485.

SPECIFICATION	CLYR PRESSURE SENSOR	OWNER / INSTALLER NOTE
Pressure range	0-50 PSI	Use within the normal operating pressure of the pool equipment system.
Pressure connection	1/4 inch NPT male thread	Install into the wet side of the drain plug or an equivalent wet-side 1/4 inch NPT pressure port.
Output	RS-485 digital communication	Four-wire low-voltage sensor wiring to Clyr controller.
Power	Controller-supplied low-voltage DC	Lefoo-style RS-485 variants support 10-30 VDC; Clyr wiring uses the controller sensor-power terminal.
Construction	Stainless steel pressure transmitter body	Keep thread and cable strain relief protected during service.
Accuracy	Industrial transmitter accuracy class	Reference sensor SKU and purchase documentation for final accuracy tolerance.
Ingress protection	Industrial sealed sensor body	Do not submerge cable splices or leave wiring exposed to standing water.
Required controller	Clyr or Clyr+ controller	Requires an available RS-485 network and app setup.

Recommended Use

- Monitor filter pressure trends and identify when pressure rises above the pool's clean-filter baseline.
- Identify abnormal changes after pump speed changes, filter cleaning, valve changes, or equipment service.
- Support service review by keeping a digital pressure history in the Clyr system.

> **Pressure baseline:** Normal pressure varies by pump speed, filter type, plumbing layout, heater status, valve position, and filter cleanliness. Record a clean-filter baseline after commissioning.

07

Before You Begin

Package Contents

- Clyr 0-50 PSI RS-485 pressure sensor
- Attached low-voltage sensor cable
- 1/4 inch NPT threaded pressure connection
- Documentation or quick-start reference supplied with the kit

Tools and Supplies

- Appropriate wrench for the sensor hex fitting
- Compatible thread sealant or PTFE tape for NPT threads
- Flathead screwdriver for controller terminal blocks
- Clean towel for water at the drain-plug area
- Optional multimeter for low-voltage checks

Pre-Installation Checks

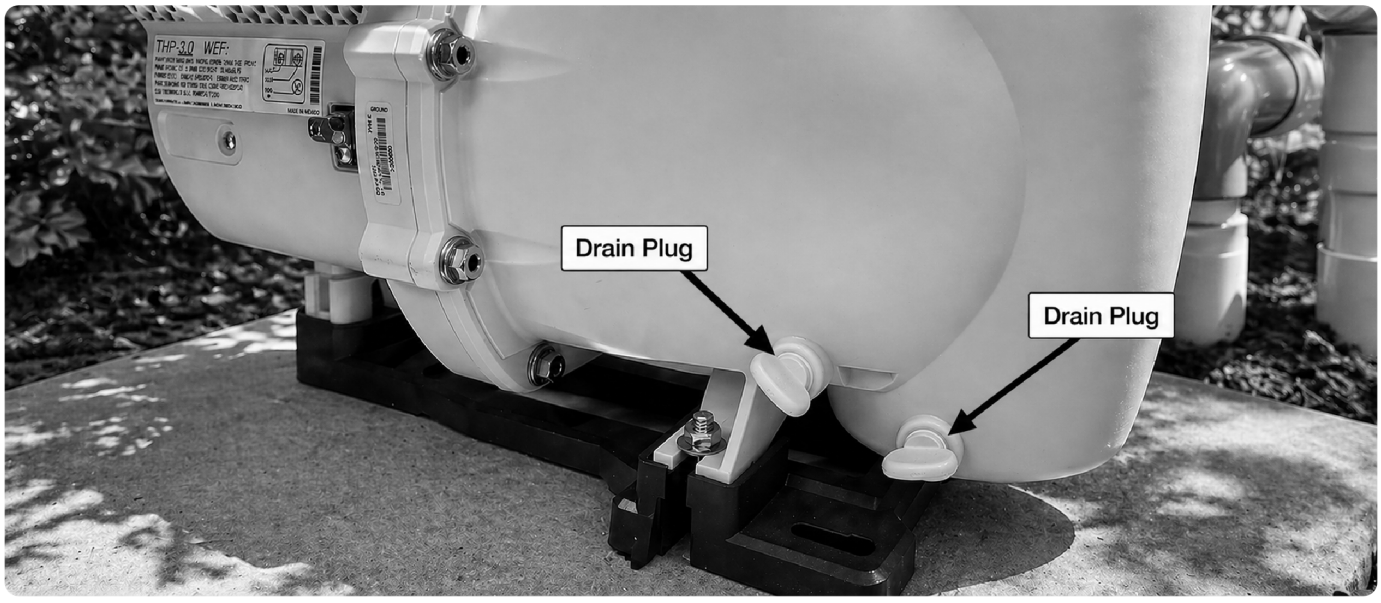
1. Confirm the controller is online and assigned to the correct pool location in the Clyr app.
2. Confirm an RS-485 network is available for the sensor: Network 1 uses A1/B1 and Network 2 uses A2/B2.
3. Identify the pump, strainer housing, filter, heater, valves, and existing pressure gauge locations before choosing the sensor port.
4. Confirm the selected drain-plug location is on the wet side and will see representative system pressure when the pump is running.
5. Plan cable routing so the sensor cable has a drip loop and cannot be pulled tight during pump-basket or filter service.

> **Do not install into a dry or isolated plug.** The sensor must thread into the wet side of the drain plug or an equivalent water-filled pressure port. A dry-side or dead-ended location will not report useful pressure.

08

Mounting Location: Wet Side of Drain Plug

The recommended setup is to screw the pressure sensor into the wet side of the drain plug area. This gives the sensor direct access to the water side of the pump or strainer housing while keeping the installation compact and serviceable.



Drain-plug reference: install the pressure sensor at a wet-side drain-plug pressure location approved for the pump or strainer housing.

Location Rules

RULE	REASON
Use wet-side access	The sensor must contact water pressure from the system. A dry-side plug cannot provide a usable pressure signal.
Keep service access	Leave enough room to remove the pump basket lid, service the drain plug area, and inspect for leaks.
Protect the cable	Route the cable away from motor heat, lid clamps, unions, rotating equipment, and chemical splash.
Use thread sealant	NPT threads seal by taper and thread engagement. Use compatible sealant and avoid over-tightening.

Installer note: Some equipment layouts may require an adapter or alternate pressure port. Use only a water-filled pressure location approved by the equipment layout and local service practice.

09

Install the Sensor

Install the pressure sensor only after the pump is off, power is isolated where required, and the plumbing is fully de-pressurized.

1. Turn off the pump breaker or the required service disconnect. Do not rely only on app commands or schedules.
2. Relieve system pressure according to the pump, filter, and equipment manufacturer instructions.
3. Place a towel below the selected drain-plug area and remove the existing drain plug or adapter.
4. Confirm the port is wet-side and clear of debris, damaged threads, or obstructions.
5. Apply compatible thread sealant or PTFE tape to the sensor's 1/4 inch NPT male threads. Keep sealant out of the pressure opening.
6. Thread the sensor by hand until it seats cleanly. If resistance appears immediately, stop and check for cross-threading.
7. Tighten using the sensor hex fitting. Do not twist the cable or use the cable strain relief as a handle.
8. Route the cable with a drip loop and strain relief so future pump-basket or filter service cannot pull on the sensor body.
9. Restore pump operation and check the fitting for leaks at startup and again after several minutes of normal pressure.

> **Do not over-tighten.** Over-tightening tapered threads can crack plastic equipment housings, distort fittings, or damage the sensor. Tighten only enough to seal under normal operating pressure.

Leak Check

CHECK	EXPECTED RESULT	ACTION IF FAILED
Startup leak check	No water appears around sensor threads	Stop pump, de-pressurize, remove, reseal, and reinstall.
Air draw check	Pump basket remains normally primed	Inspect drain plug area and other suction-side connections.
Cable strain check	Cable has slack and drip loop	Re-route and secure cable away from service points.

10

RS-485 Wiring

The Clyr Pressure Sensor uses the same four-wire digital connection pattern as the Clyr chemistry sensors: power, ground, and RS-485 A/B communication.

12V	A1 or A2	B1 or B2	GND

SENSOR WIRE	CLYR TERMINAL	FUNCTION
Red	12V	Low-voltage sensor power
Green	A1 or A2	RS-485 A on selected network
White or Yellow	B1 or B2	RS-485 B on selected network
Black	GND	Low-voltage ground

Wiring Procedure

1. Turn off power to the controller before landing or moving wires.
2. Strip only enough insulation for the terminal block. Do not leave bare copper exposed.
3. Land the red and black conductors on 12V and GND.
4. Land green and white/yellow on A1/B1 for Network 1 or A2/B2 for Network 2.
5. Tug-test each conductor and confirm no strands bridge adjacent terminals.
6. Record the selected network in the installation record.

> **Minimum power check:** If readings do not appear, verify low-voltage power across red and black at the sensor connection path and confirm the correct RS-485 network in the app.

11

App Setup

After the sensor is installed, wired, and leak checked, add it as a pressure sensor in the Clyr app. The app network selection must match the controller terminals used for A/B wiring.

1. Open the Clyr app and go to the correct pool location.
2. Go to Settings, Devices, Add, then Pool Equipment.
3. Select Pressure Sensor and keep or edit the default name.
4. Choose Network 1 or Network 2 to match the wiring at the controller terminal block.
5. Save the pressure sensor and confirm it appears on the devices or monitoring page.
6. Refresh readings after the pump is running at a known speed and the sensor has reported data.

APP ITEM	SETUP DETAIL	OWNER CHECK
Pressure Sensor	Add as pressure and select the wired network	Pressure card appears in monitoring
Network	Network 1 uses A1/B1; Network 2 uses A2/B2	App network matches terminal block
Clean-filter baseline	Record pressure after filter cleaning at normal pump speed	Baseline entered in service notes

> **Baseline first:** Pressure is most useful when compared to a known clean-filter baseline at the same pump speed and valve position.

12

Pressure Readings

When the sensor is installed, powered, and configured, pressure readings are available in the Clyr app. Use the readings to understand equipment behavior over time, not as a replacement for equipment inspection.

What to Expect

OBSERVATION	POSSIBLE CONTEXT	OWNER ACTION
Pressure rises over days or weeks	Filter loading, debris, valve restriction, or changed pump speed	Compare to clean-filter baseline and follow filter maintenance guidance.
Pressure suddenly drops	Low water level, air leak, pump speed change, open bypass, or loss of prime	Inspect pump basket, skimmer level, valves, and visible leaks.
Pressure changes with pump speed	Normal variable-speed pump behavior	Compare readings only at the same pump speed and valve state.
Pressure is zero while pump is running	Wrong port, no water at sensor, wiring issue, app setup issue, or sensor issue	Confirm wet-side port, wiring, selected network, and pump operation.

Owner Interpretation

- Record a clean-filter baseline after the filter is cleaned and the pump is running at the normal monitored speed.
- Do not compare pressure across different pump RPMs unless the Clyr view is specifically showing the same operating state.
- If pressure data conflicts with visible equipment behavior, inspect the equipment pad and use manufacturer service procedures first.

13

Commissioning Checklist

- Controller is powered, paired, online, and assigned to the correct pool location.
- Selected drain-plug or pressure-port location is wet-side and water-filled during pump operation.
- Pump breaker was turned off before removing the drain plug or installing the sensor.
- System pressure was relieved before opening plumbing.
- Sensor threads were sealed with compatible thread sealant or PTFE tape.
- Sensor was threaded by hand first and was not cross-threaded.
- Sensor was tightened using the hex fitting, not the cable.
- Drain-plug area shows no leaks at startup or after several minutes of running.
- Sensor cable has a drip loop and strain relief.
- Red wire is landed on 12V.
- Black wire is landed on GND.
- Green and white/yellow are landed on A1/B1 or A2/B2 as selected.
- Terminals are tug-tested and no strands bridge adjacent terminals.
- Pressure Sensor is added in the app on the correct network.
- App refresh returns a pressure reading while the pump is running.
- Clean-filter baseline is recorded at the normal monitored pump speed.
- Owner understands that pressure data supports, but does not replace, normal equipment inspection.

> **Leave the equipment serviceable:** The finished installation should allow pump-basket access, filter cleaning, drain-plug inspection, and cable service without pulling on the sensor body.

14

Owner Maintenance

The pressure sensor is a water-contact device installed at the equipment pad. Good maintenance keeps the pressure port sealed, the cable protected, and the data useful.

INTERVAL	MAINTENANCE ITEM	OWNER ACTION
Weekly	Pressure review	Compare pressure to the clean-filter baseline at the same pump speed.
Monthly	Visual inspection	Check the sensor threads, drain-plug area, cable, and controller terminal area for leaks or damage.
After filter cleaning	Baseline check	Record the clean-filter pressure at the normal monitored pump speed.
After service	Configuration check	Verify readings after pump work, plumbing changes, controller service, or sensor removal.
Seasonal	Freeze and weather review	Inspect for cracked housings, cable damage, or water intrusion after freeze risk or severe weather.

Care Guidelines

- Do not pull or lift the sensor by the cable.
- Do not scrape the pressure opening with metal tools.
- Do not leave cable splices or exposed conductors in standing water.
- Do not paint, wrap, or bury the sensor in a way that hides leaks or traps water around the cable entry.
- Use service practices recommended by Clyr or a qualified pool professional for removal, resealing, and replacement.

15

Troubleshooting

SYMPTOM	LIKELY CAUSE	RECOMMENDED CHECK
No pressure data	No sensor power, loose wire, wrong network, or app item missing	Verify red/black power, terminal seating, Pressure Sensor app entry, and selected RS-485 network.
Pressure reads zero	Pump off, dry port, wrong port, no water at sensor, or communication issue	Confirm pump operation, wet-side location, wiring, and app network selection.
Pressure seems too high	Dirty filter, restricted valve, high pump speed, clogged plumbing, or wrong baseline	Compare at the same pump speed and follow equipment service guidance.
Pressure seems too low	Low pump speed, air leak, low water level, open bypass, loss of prime, or sensor port issue	Inspect water level, pump basket, valves, visible leaks, and sensor installation point.
Readings jump or drop out	A/B swapped, wrong RS-485 bus, damaged cable, water in splice, or shared-bus conflict	Check green and white/yellow positions, network selection, cable path, and terminal tightness.
Drain-plug area leaks	Insufficient sealant, damaged threads, over-tightening, cracked housing, or cross-threading	Stop pump, de-pressurize, remove, inspect, reseal, and reinstall or use qualified service.
Pressure changes after filter cleaning	Normal baseline reset condition	Record the new clean-filter baseline at the same pump speed.

Do not keep running against questionable pressure behavior. If pressure data conflicts with visible equipment behavior, stop and inspect the equipment pad before relying on the app reading.

16

Installation Record

ITEM	RECORD
Pool location name	
Controller model	
Controller serial / device ID	
Pressure sensor serial / lot ID	
RS-485 network used	Network 1 A1/B1 / Network 2 A2/B2
Installation point	Wet side of drain plug / pressure port location:
Installer or service company	
Installer phone / email	
Installation date	
Normal pump speed for baseline	
Clean-filter baseline pressure	
Notes for future service	

Service Log

DATE	SERVICE PERFORMED	PRESSURE / RESULT	TECHNICIAN

17

Closing Notes and Support

A successful Clyr Pressure Sensor installation leaves the owner with a sealed wet-side pressure connection, a protected sensor cable, matching RS-485 app configuration, and a useful clean-filter pressure baseline.

Before You Leave the Equipment Pad

- Confirm the sensor is installed in a wet-side drain-plug or equivalent pressure-port location.
- Confirm the fitting has no leaks with the pump running.
- Confirm the sensor cable has a drip loop and is protected from service movement.
- Confirm Pressure Sensor is added in the app on the same wired network.
- Confirm the app returns a pressure value while the pump is running.
- Record the network, installation date, pump speed, and clean-filter baseline pressure.

> **Keep this manual with the pool equipment records.** Future service work is faster when the installer, owner, or service company can reference the pressure-port location, RS-485 network, commissioning checklist, and service log.

Support Information

ITEM	RECORD
Pool location name	
Clyr controller device ID	
Clyr account email	
Installer or service company	
Support notes	

For support, contact Clyr through the normal support channel for the pool account. Include the controller device ID, sensor network, installation location, and current pressure behavior.