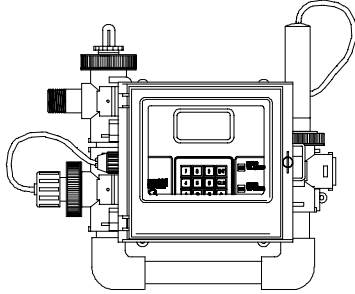


MODEL 2412 MICROPROCESSOR-BASED pH & CONDUCTIVITY COOLING TOWER CONTROLLER



LONWORKS® Technology is the latest in microprocessor capability that gives the user the highest level of application flexibility. A large graphic screen, multiple inputs and very easy setup with easy field upgrades characterize this new technology.

BENEFITS

- Multiple control options in a single economical package.
- Very accurate control of chemical feed and cycles of concentration.
- Very low maintenance.
- Tolerant to power surges and brownouts.
- Power cord, plug outlets and attached plumbing make installation easy. There is plenty of protected room inside the enclosure for electrician wiring.
- Very accurate monitoring of the evaporated water.
- Feeds chemical AFTER blowdown.
- Has expansion slots to add additional control, such as chiller loop monitor and cycles of concentration based on incoming makeup water.

FEATURES

- 4-electrode conductivity includes fouling compensation and alarm.
- Differential pH sensor with diagnostics indicate fouled reference or broken glass.
- Integral flowsight & flow switch lockout.
- Records both makeup (MTR1) and blowdown (MTR2) water meter totals.
- Configure blowdown water meter (MTR2) as second makeup meter.
- Blowdown Relay options:
 - Bleed x gallons for every x gallons makeup
 - Bleed x minutes for every x gallons of makeup
 - Bleed by setpoint
 - Bleed by cycles of concentration with **NCON/NCKT** Option
 - Bleed by multi-setpoint selected with **NCON/NCKT** Option
- Three user-selectable relay options (four additional with **NRLY**):
 - Feed by setpoint, direct or reverse; Water meter actuated feed. MTR1, MTR2 or sum;
 - Feed after blowdown by percent of bleed time; Feed by percentage of time; Schedule feed timer (**-RTC** Option); General alarm contact.
- Three security levels:
 - View only
 - Operator
 - Technician
- Four different languages.
 - English Spanish (standard)
 - English French (optional)
 - English German (optional)

SPECIFICATIONS

Inputs

Power	120/240 VAC 50/60 HZ
Sensor	4-electrode Conductivity, pH glass electrode, and reference electrode
Temperature comp.	Automatic
Flow switch	Dry contact
Water Meter Input	Two contacting head or open collector

Outputs

Relays	Four, 3 Amps @ 120 VAC
4-20 mA	Two, isolated w/-35L

Sensor/Plumbing

Pressure	140 psi (9.7 bar) @ 100°F (38°C)
Max. Temperature	140°F (60°C)
Min. Flow	1 gpm (3.8 Lpm)

Controller

Conductivity Range	0-5,000 μ S (other ranges optional)
Conductivity Accuracy	\pm 40 μ S
Conductivity Resolution	10 μ S
pH Range	0-14 pH
pH Accuracy	\pm 0.05 pH
pH Resolution	0.01 pH
Deadband	Adjustable
Setpoints	Direct or Reverse (configurable in the field)
Feed timer	Adjustable
Keypad	Numeric
Display	Illumin. 128x64 pixel LCD
Ambient Temperature	32-158°F (0-70°C)
Enclosure Rating	ABS Plastic UL and CSA listed

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ORDERING INFORMATION

2412 LONWORKS® Technology-based pH and conductivity controller with plumbing and flow switch. Four relays are integral to the system. One is dedicated to blowdown. The others may be configured for pH (acid or caustic), inhibitor feed on conductivity, water meter, percent of time or schedule feed. pH range is 0-14 and conductivity range is 0-5,000 µS.

CONTROLLER OPTIONS (optional, select no more than three)

-RTC Adds 24-hour clock and calendar to controller (required to configure relays to feed chemicals/biocides based on time of day and for data acquisition if using the **-RS2L** Option).

NOTE: ADDING AN -RTC card does not add relays.

-35L Two 4-20 mA outputs configurable for remote data acquisition of conductivity and pH.
-RS2L Communications node with shareware software. Requires **-RTC** Option.
-NIN Network interface node. Allows 2 **NRLY**, 1 **Makeup NCON**, 4 sensor nodes (**NpH** or **NCON**), 2 **N420I** and/or 2 **NDIG** to be added.

ENCLOSURE OPTIONS (optional)

-WP Enclosure without outlets or power cord. Comes with ½ inch conduit knockouts.

LANGUAGE OPTIONS (optional, choose one, English and Spanish Standard)

-EF English and French.
-EG English and German.

REMOTE NODE OPTIONS (optional, MUST purchase -NIN Option above)

NRLY Four additional relays with enclosure (2 per 2000 Series Controller).
NpH pH/ORP node for a pH or ORP sensor.
N420I 4-20 ma input node for up to 4 4-20 ma inputs.
NDIG Digital input node for up to 4 digital inputs.
NCON Conductivity node for makeup water or closed loop control (node only).
NCKT Conductivity node for makeup water or closed loop control with PVC sensor, tee and enclosure. Maximum water pressure and temperature is 100°F (38°C) @ 140 psi (9.7 bar).

NOTE: NOT FOR USE WITH MULTIPLE COOLING TOWERS.

SOFTWARE AND EXTERNAL MODEMS

LRWS Windows-based registered software for computer to communicate with 2000 Series Controllers.
MD4X High Baud modem in NEMA-4X enclosure ready to power.
MD High Baud modem for use with 2000 Series Controllers.