

OVERVIEW

The WPH410/420 Series pH/ORP on-line process controllers are designed for a broad range of industrial, commercial, and municipal water treatment applications. WPH controllers are easily configured to accurately measure pH or mV (ORP) values from Walchem's WEL and WDS differential combination electrodes, or any conventional combination electrode.

A versatile output configuration allows you to program up to four outputs in a variety of control modes. Select from on/off mechanical relays or pulse proportional control for direct connection to metering pumps. The easy-to-use menu format and pre-wired, pre-mounted panel system options make set-up and installation quick and simple.

Integrated datalogging is available to validate system performance. A USB memory stick is all that's needed to extract data and event logs that include electrode measurements, temperature and relay status. Download log files from the USB stick to a PC at your convenience. It couldn't be easier!



SUMMARY OF KEY BENEFITS



Versatility for a Broad Range of Applications

Select from pH or ORP measurements and from five output options. Use *In-Range* to control a solenoid valve to dump a batch treatment tank when measurement value is within limits, or program for *Out-of-Range Alarm* in waste treatment applications when the measurement value is too high or low.



Ideal for Harsh Environments

The NEMA 4X enclosure, combined with Walchem's WEL and WDS electrodes, provides a waterproof system with no BNC connectors exposed to wet or corrosive environments.



Built-in Safety Features

Programmable output limit timers prevent run-away chemical addition. Digital Interlock Input may be used from a flow switch or level input to prevent chemical addition based on a stagnant sample, or control of an empty batch tank.



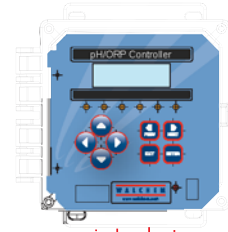
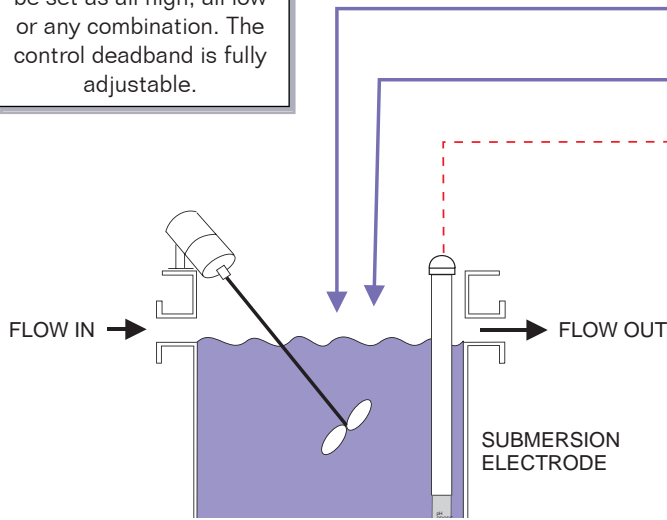
Simple, Integrated Data Collection

Download stored data from the controller to a USB stick with the press of a button. Use the data to simply and easily validate system performance, document compliance, and reduce liability. The data and event logs show pH/ORP and temperature values, as well as accumulated chemical feed and relay activation times.



**WPH410 Series
On/Off Control**

Four control relays may be set as all high, all low or any combination. The control deadband is fully adjustable.



**WPH420 Series
Pulse Proportional Control**

Two pulse outputs that may be set independently, enhanced by an adjustable minimum and maximum pulse per minute setting.

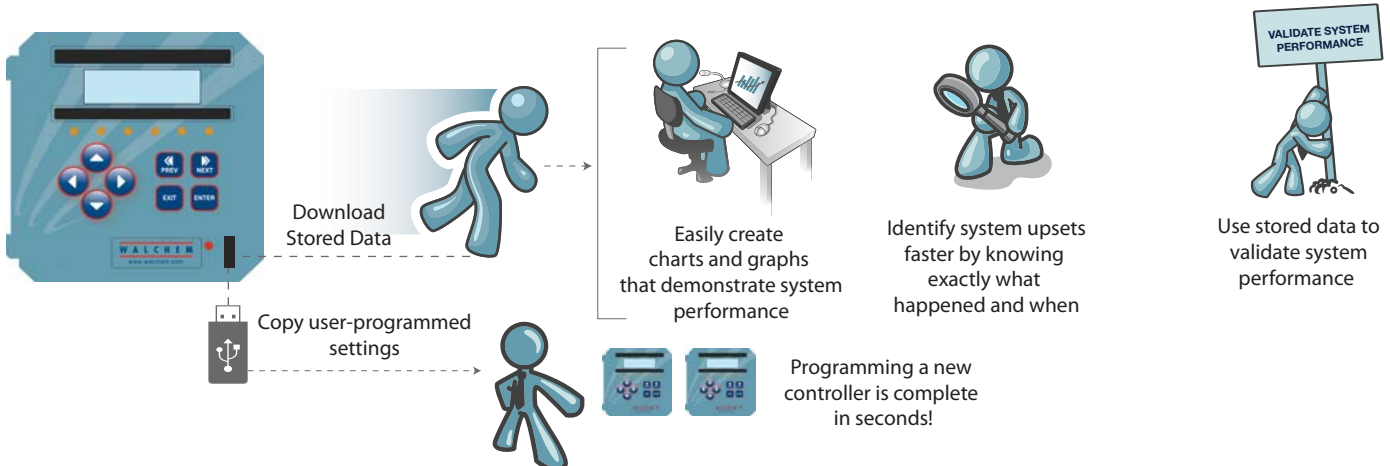
WPH410/420 Series | Standard Features

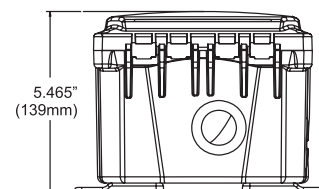
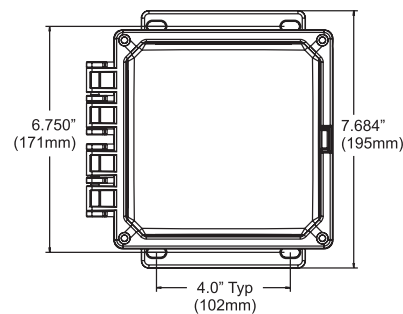
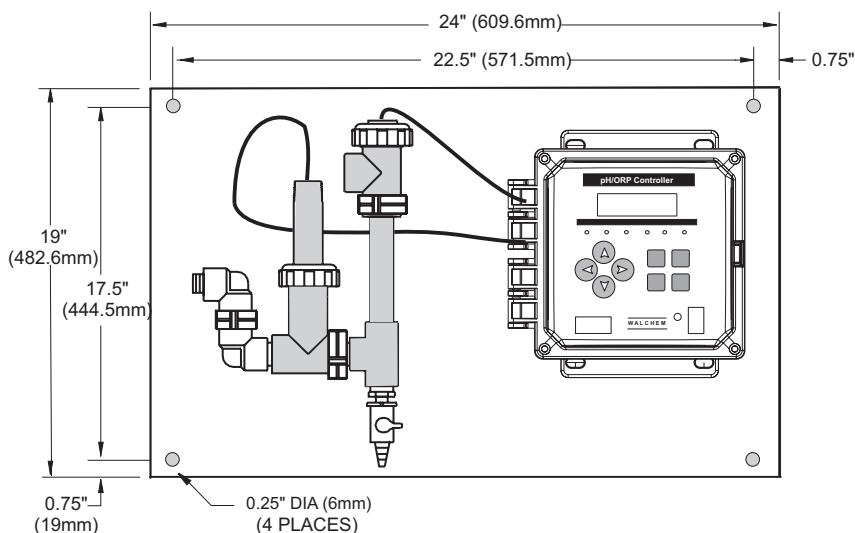
- » **pH or ORP Measurement**
 - Configurable via a software menu setting.
 - Reduces inventory requirements.
- » **Versatile relay configuration**
 - Control outputs can be set as high or low set points via keypad. Auxiliary outputs can be set as:
 - High alarm
 - Low alarm
 - In-range output
 - Out-of-range alarm
 - Probe wash
- » **Probe wash feature**
 - For applications that require frequent electrode cleaning, automatic probe wash stretches out reliable measurement life between maintenance interruptions.
- » **4-20mA Output**
 - Internally powered and fully isolated, for connection to WebAlert, PLC or other devices.
- » **Self diagnostics**
 - Software and electronics are constantly monitored without having to take the controller off-line.
- » **Auto buffer recognition**
 - Software selectable for U.S. or European calibration standards.
- » **Self test**
 - Menu selectable self-test simulates pH and temperature signals, allowing for quick diagnostics of sensor or controller problems.
- » **Differential pH**
 - WDP and WPH Series controllers are a perfect match with Walchem's WEL pH/ORP sensors - offering an extremely reliable differential measurement technique immune to any possible ground loop problems. Together, they provide a true NEMA 4X system with no BNC connector exposed to wet or corrosive conditions. WEL pH/ORP electrodes are easily removed and replaced without any tools.



Optional USB Features

- » Integrated datalogging collects analytical measurements at 10 minute intervals and captures all relay activations.





Inputs

Power

100-240 VAC, 50/60 Hz, 8A
Fuse: 1.0 ampere, 5 x 20 mm

Signals

pH/ORP: ±1500 mV

Temperature compensation

(optional, pH only): Pt100 or Pt1000

Interlock (optional):

Isolated, dry contact closure required (i.e. flow, level, etc.)

Measurement Performance

Range

-2 to 16 pH
±1500 mV (ORP)

Resolution

0.0015 pH units (.01 pH displayed)
92 µV (1 mV displayed) (ORP)

Accuracy (calibrated)

±0.01 pH
±1mV (ORP)

Temperature Range

32 to 212°F (0 to 100°C)

Resolution

±0.09°F (0.05°C)

Accuracy

±0.9°F (0.5°C)

Mechanical (controller)

Enclosure

Polycarbonate

NEMA Rating

NEMA 4X (IP65)

Display

2 x 16 character backlit
liquid crystal

Ambient

Temperature

32 to 122°F (0 to 50°C)

Shipping weight

7 lbs (3 kg) (approximately)

Agency Certifications

UL ANSI/UL 61010-1:2004, 2nd Edition*
CAN/CSA C22.2 No.61010-1:2004 2nd Edition*
CE Safety EN 61010-1 2nd Edition (2001)*
CE EMC EN 61326 :1998 Annex A*

Note: For EN61000-4-6,-3 the controller met performance criteria B.

*Class A equipment: Equipment suitable for use in establishments other than domestic, and those directly connected to a low voltage (100-240 VAC) power supply network which supplies buildings used for domestic purposes.

Outputs

Powered Relays

Internally powered relays switching line voltage
6A (resistive), 1/8 HP
All relays are fused together as one group, total current for this group must not exceed 6A

Pulse Outputs

Opto-isolated, Solid state relay
150 mA, 40 VDC Max.
VLOWMAX = .13V @ 18 mA

Dry contact relays

6 A (resistive), 1/8 HP
Dry contact relays are not fuse protected

	CTRL1	CTRL2	CTRL3	CTRL4	ALARM
WPH410	Powered		Dry		
WPH420	Pulse		Dry		

4 - 20 mA 1 or 2 (optional)

Internally powered
Fully isolated
600 Ohm max resistive load
Resolution .001% of span
Accuracy ± 1% of reading

pH/ORP Preamp Power

±5 VDC, 5mA

WEL pH/ORP Electrode (optional)

Temperature Range

50 to 158°F (10 to 70°C)

Operating Pressure

0 to 100 psi

Materials of construction

Electrode body CPVC
Electrode reference HDPE
O-rings FKM
Electrode Glass (pH) Platinum (ORP)
Optional ground rod Titanium
1" NPTM pipe submersion connection
3/4" threaded NPTF tee in-line connection

ORDER INFORMATION

WPH4 0 —
control voltage output options USB

CONTROL OUTPUTS

- 1 = Two powered, three dry contact relays
- 2 = Two proportional relays, three dry contact relays

VOLTAGE

- 1 = 120 VAC, prewired, 6" pigtails (WPH410) or 10 ft. cables (WPH420 only)
- 3 = 120 VAC, prewired, 10 ft. cables with connectors for EW pumps
- 5 = Hardwired, cable glands

OUTPUT

- N = No data output
- 4 = Isolated 4-20 mA output
- 2 = Two isolated 4-20 mA outputs

OPTIONS

- 1 = Prewired preamp with 10 ft. cable (electrode not included. Electrode should have BNC connector)
- 2 = Submersion flat pH electrode w/integral preamp (WEL-PHF-21)
- 3 = In-line flat pH electrode w/integral preamp (WEL-PHF-22) includes 3/4" NPTF mounting tee
- 4 = In-line flat pH electrode w/integral preamp (WEL-PHF-22) includes 3/4" flow switch manifold & 'U' adapter mounted on polypro panel
- 4T = In-line flat pH electrode with ATC and integral preamp (WEL-PHF-12), 3/4" flow switch manifold & 'U' adapter mounted on polypro panel
- 5 = Submersion ORP electrode w/integral preamp (WEL-MVF-21)
- 6 = In-line ORP electrode w/integral preamp (WEL-MVF-22), includes 3/4" NPTF mounting tee
- 6R = In-line rod style ORP electrode w/integral preamp (WEL-MVR-22), includes 3/4" NPTF mounting tee
- 7 = In-line ORP electrode w/integral preamp (WEL-MVF-22), 3/4" flow switch manifold and 'U' adapter mounted on polypro panel
- 7R = In-line rod style ORP electrode w / integral preamp (WEL-MVR-22), 3/4" flow switch manifold and 'U' adapter mounted on polypro panel

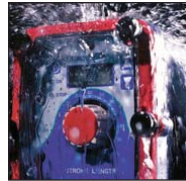
USB FEATURES

- N = Software upgrade capability only
- U = Integrated datalogging, event/reset logging, and configuration file import/export



WebmasterONE®

WebMasterONE is the most powerful online cooling tower/boiler controllers in the water treatment industry. WebMasterONE couples a multi-I/O platform with Walchem's analytical sensors and extensive communications technologies. The result is the ability to remotely monitor and control your process from any computer, anywhere in the world, with just a standard web browser.



Metering Pumps

Walchem and Iwaki combined their talents to design the most innovative and comprehensive metering pump product line in the world. With over 50 years of combined pump experience, in an array of different markets, the Iwaki-Walchem partnership leverages our strengths to exceed even our toughest customer expectations. Committed to new product development, our pumps are innovative and revolutionary.



WIND WebMaster Industrial Water Controllers

Walchem's WebMaster® Industrial (WIND) Controller sets a new standard for Industrial Water Treatment Controllers. WIND has a flexible multi-I/O platform, a wide range of analytical sensor measurement capabilities, and an extensive assortment of integrated communications and data handling features.



WebAlert Remote Monitor

Walchem's WebAlert is the first stand alone remote monitoring device that can web enable your installed equipment without having to replace or upgrade it.

ABOUT US

Walchem integrates its advanced sensing, instrumentation, fluid pumping and communications technologies to deliver reliable and innovative solutions to the global water treatment market

Our in-house engineering is driven by quality, technology and innovation. For more information on the entire Walchem product line, visit: www.walchem.com



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