OVERVIEW

The WPH/WDP400 Series pH/ORP on-line process controllers are designed for a broad range of industrial, commercial, and municipal water treatment applications.   WPH/WDP 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

> **Dual Input Reduces Cost**
> Dual pH or ORP electrode inputs allow one controller to take the place of two, reducing cost and space requirements, and simplifying installation.

> **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.

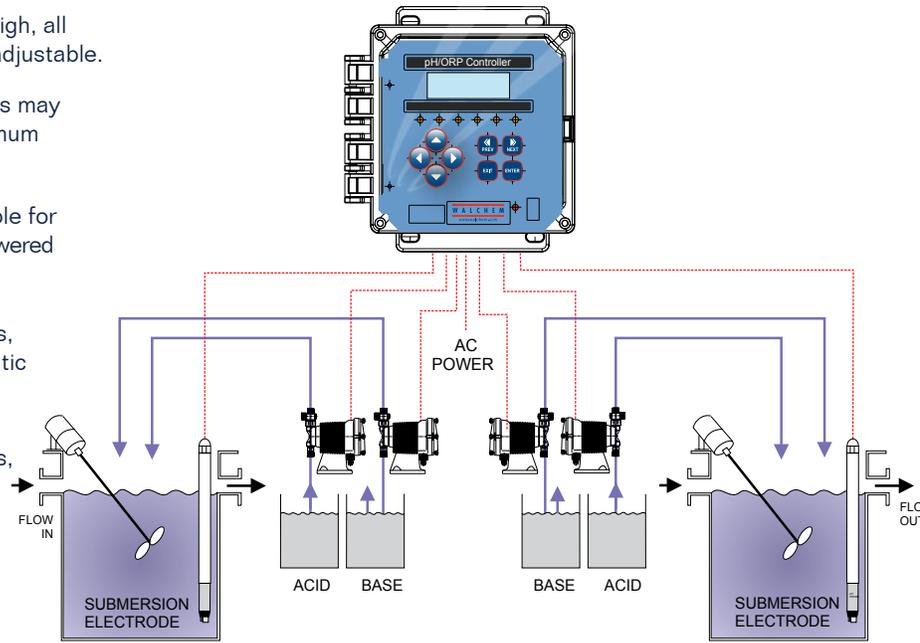> **Built-in Safety Features**
> Programmable output limit timers prevent run-away chemical addition. Digital Interlock Input may be used from a flow switch or level input to prevent chemical addition based on a stagnant sample, or control of an empty batch tank.

> **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** 4 control relays may be set as all high, all low or any combination. The control deadband is fully adjustable.

» **WPH420 Series** 2 pulse proportional control outputs may be set independently, enhanced by an adjustable minimum and maximum pulse per minute setting.

» **WDP410 Series** 4 powered relay outputs configurable for on/off control, alarms or automatic probe wash and 1 powered dedicated diagnostic alarm relay

» **WDP420 Series** 2 pulse proportional control outputs, 2 dry contact relay outputs for on/off, alarm or automatic probe wash and 1 dedicated dry contact alarm relay

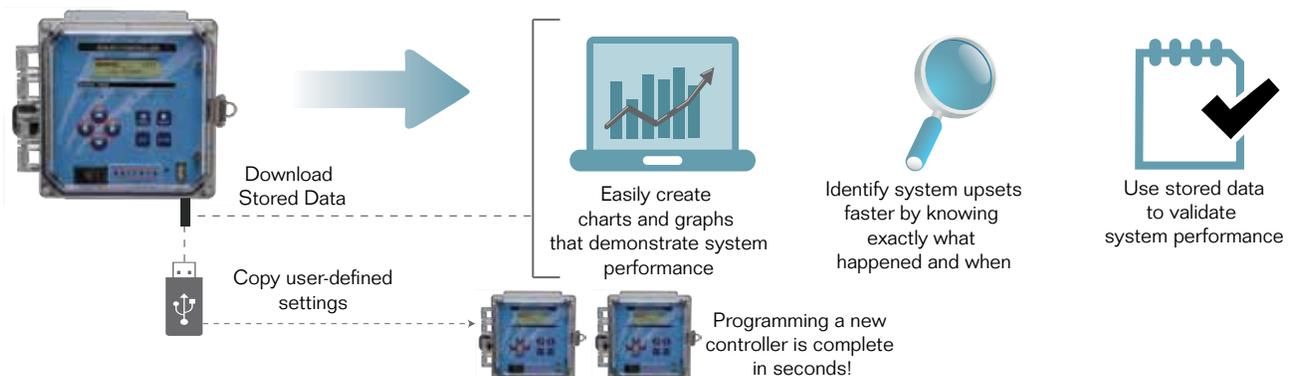» **WDP440 Series** 4 pulse proportional control outputs, and 1 dedicated dry contact diagnostic alarm relay
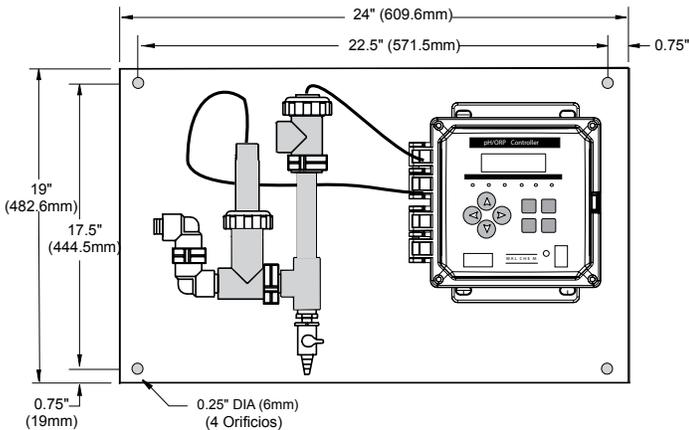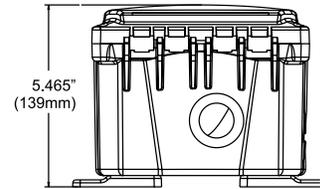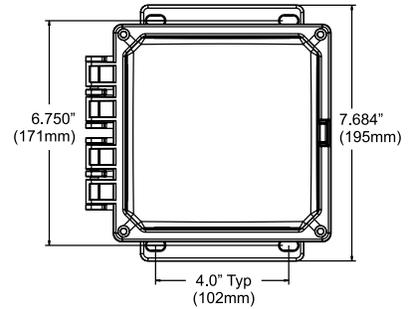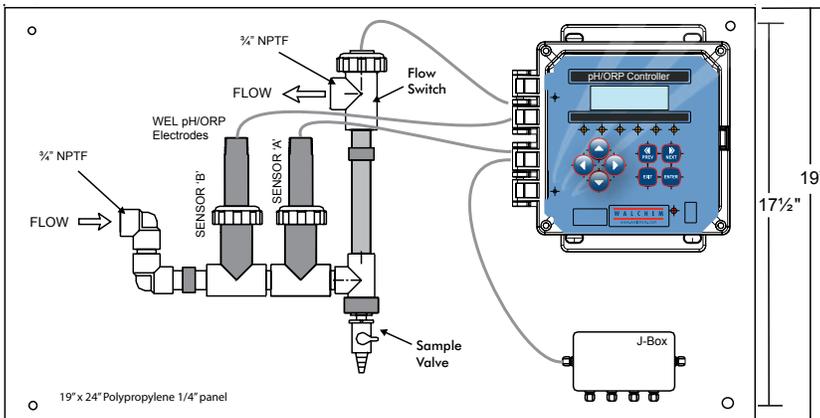

Standard Features

» **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 wtihout any tools.

USB Features

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

Download Stored Data

Copy user-defined settings

Easily create charts and graphs that demonstrate system performance

Identify system upsets faster by knowing exactly what happened and when

Use stored data to validate system performance

Programming a new controller is complete in seconds!

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.)

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)

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

Measurement Performance

Range	-2 to 16 pH
	±1500 mV (ORP)
Resolution	0.0015 pH units (.01 pH displayed)
	92 μV (1mV displayed) (ORP)
Accuracy (calibrated)	±0.01 pH
	±1mV (ORP)
Temperature Range	32 to 212°F (0 to 100°C)
Resolution	±0.09°F (.05°C)
Accuracy	±0.9°F (0.5°C)

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		
WDP410	Powered				
WPH/DP420	Pulse		Dry		
WDP440	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

ORDER INFORMATION

WPH4 ☐ 0 — ☐ ☐ ☐ ☐ U
WDP4

control   voltage   output   options   USB

CONTROL OUTPUTS

1 = WPH: 2 powered on/off relays & 2 on/off dry contact relays & 1 dry contact dedicated alarm
   WDP: 4 powered on/off relays & 1 powered dedicated alarm relay
2 = WPH & WDP: 2 pulse proportional relays & 2 on/off dry contact relays & 1 dry contact dedicated alarm
4 = WDP: 4 pulse proportional outputs & 1 dry contact dedicated alarm

VOLTAGE

1 = WPH/WDP410: 120 VAC, prewired, 6" pigtails to powered relays
   WPH/WDP420, WDP440: 20 ft. cables for E Class pumps
3 = WPH420: 120 VAC, prewired, 20 ft. cables with connectors for EW pumps
5 = Hardwired, cable glands

OUTPUT

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

WPH 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

WDP OPTIONS

2 = 2 WEL submersion style flat pH electrodes (without auto temp comp)
5 = 2 WEL submersion style ORP electrode
6 = 1 WEL submersion style flat pH electrode (without auto temp comp) & 1 WEL submersion ORP electrode
7 = 1 WEL in-line style flat pH electrode (without auto temp comp, tee included) & 1 WEL in-line ORP electrode (tee included)
8 = Flow switch manifold with 2 WEL in-line electrodes; 1 pH (without auto temp comp) & 1 ORP mounted on 19" x 24" polypropylene panel
8T= Identical to option #8 above, with auto temp comp

USB FEATURES

U = Integrated datalogging, event/reset logging, and configuration file import/export

Webmaster®ONE

WebMasterONE is the most advanced online cooling tower and boiler controller in the water treatment industry. The flexible multi-I/O platform allows you to control multiple cooling towers, boilers, closed loops, and condensate lines with just one controller. An extensive assortment of integrated communications and data handling features are included that enable water treatment professional to provide more effective water management services to their customers.

Metering Pumps

The E-Class is the most innovative and comprehensive metering pump product line in the world. Over 50 years of pump experience and a commitment to superior mechanical design has led to development of many industry firsts, including 360 stroke-per-minute technology, IP67 waterproof construction, and the world's highest capacity solenoid metering pumps.

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.

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.

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.gene-sea.com