**Agency Certifications**

**Safety**
- UL 61010-1:2012 3rd Ed.
- CSA C22.2 No. 61010-1:2012 3rd Ed.
- IEC 61010-1:2010 3rd Ed.
- EN 61010-1:2010 3rd Ed.

**EMC**
- IEC 61326-1:2005
- EN 61326-1:2005

**Safety**
- EN 61010-1:2012 3rd Ed.

**UL 61326-1:2006**

**IEC 61326-1:2005**

**EN 61010-1:2010 3rd Ed.**

**UL 61010-1:2012 3rd Ed.**

**Safety**

**Certification**

**Summary of Key Benefits**

- **Dual Input Reduces Cost**
  Dual pH/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.

**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

**18045P May 2014**

Walchem America Inc.
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Phone: 508-429-1110  www.walchem.com
Identify system upsets

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

**USB Features**

- **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 Outputs: Internally powered and fully isolated, for connection to WebAlert, PLC or other devices.

**WPH Series**

- **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.

**Dedicated Diagnostic Alarm Relay**

- **WDP410 Series**: Dedicated diagnostic alarm relay
- **WDP440 Series**: Dedicated diagnostic alarm relay

**4 Pulse Proportional Control Outputs**

- **WPH410 Series**: 4 pulse proportional control outputs, 4 powered relay outputs configurable for on/off, alarm or automatic probe wash and 1 dedicated dry contact diagnostic alarm relay.
- **WPH420 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.
- **WPH440 Series**: 4 pulse proportional control outputs and 1 dedicated dry contact diagnostic alarm relay.

**Integrated Datalogging**

- Collects analytical measurements at 10 minute intervals and captures all relay activations.

**WebAlert, PLC or Other Devices**

- For applications that require frequent electrode cleaning, automatic probe wash stretches out reliable measurement life between maintenance interruptions.

**Reduces Inventory Requirements**

- 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

**USB Features**

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

**Specifications**

- **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**: 22 lbs (10 kg) (approximately)

- **Measurement Performance**
  - **pH/ORP**:
    - Range: 0 to 16 pH
    - Resolution: 0.0015 pH units (.01 pH displayed)
    - Accuracy (Calibrated): ± 0.1 pH
  - **Temperature**:
    - Range: 32 to 122°F (0 to 100°C)
    - Resolution: ±0.9°F (0.5°C)

- **Inputs**
  - **Power**: 100-240 VAC, 50/60 Hz, 8A
  - **Fuse**: 1.0 ampere, 5 x 20 mm
  - **Signals**:
    - One each for WPH, 2x for WDP pH/ORP, ±1500 mV
    - Temperature compensation (optional, pH only): Pt100 or Pt1000
  - **Interlock (optional):**
    - Opto-isolated, Solid state relay
    - VLOMAX = .13V @ 18 mA
    - Dry contact relays are not fuse protected

- **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
    - VLOMAX = .13V @ 18 mA
    - Dry contact relays are not fuse protected

- **WPH410**
  - **Powered**: Dry
  - **WPH420**
  - **Pulse**: Dry
  - **WPH440**
  - **Pulse**: Dry

- **WEL pH/ORP Electrode (optional)**
  - **Temperature Range**: 50 to 118°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
    - **NPTM pipe connection**: 1" threaded NPTM tee in-line connection

- **Copy user-defined settings**

- **Download Stored Data**

- **Easily create charts and graphs that demonstrate system performance**

- **Identify system spikes better by knowing exactly what happened and when**

- **Use stored data to validate system performance**

- **Configure 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

- **WPH410 Series**
  - **Control relays**: 4 powered relay outputs configurable for on/off, alarm or automatic probe wash and 1 dedicated dry contact diagnostic alarm relay.
  - **WPH420 Series**
  - **Pulse proportional control outputs**: 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.
  - **WPH440 Series**
  - **Pulse proportional control outputs**: 4 pulse proportional control outputs and 1 dedicated dry contact diagnostic alarm relay.

- **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 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.

- **4-20mA Outputs**
  - Internally powered and fully isolated, for connection to WebAlert, PLC or other devices.

- **WPH/DP420 Pulse Dry**
  - **Pulse**: Dry
  - **Pulse**: Dry

- **WPH440 Pulse Dry**
  - 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

- **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 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.

- **4-20mA Outputs**
  - Internally powered and fully isolated, for connection to WebAlert, PLC or other devices.

- **WPH440 Pulse Dry**
  - 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

- **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 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.

- **4-20mA Outputs**
  - Internally powered and fully isolated, for connection to WebAlert, PLC or other devices.

- **WPH440 Pulse Dry**
  - 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

- **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 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.
Features

**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.

**USB Features**

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

**Datalogging**

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

- **USB Features**
  - **Standard Features**
    - Dedicated diagnostic alarm relay
    - On/off control, alarms or automatic probe wash and 1 powered WDP410 Series
    - 4 powered relay outputs configurable for
    - WDP440 Series
    - 4 pulse proportional control outputs, 2 dry contact relay outputs for on/off, alarm or automatic probe wash and 1 dedicated dry contact alarm relay

**Measurement Performance**

- **Inputs**
  - Power: 100-240 VAC, 50/60 Hz, 6A
  - Fuse: 1.0 ampere, 5 x 20 mm
  - Signals: One each for WPH, Two for WDP, pH/ORP: ±1500 mV
  - Temperature compensation (optional, pH only): Pt100 or Pt1000
  - Interlock (optional):
    - Isolated, dry contact closure required (i.e. flow, level, etc.)

- **WEL pH/ORP Electrode (optional)**
  - Temperature Range: 50 to 118°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: 1” NPTM pipe connection
  - Pressure: 600 psi.

**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
  - VLOMWAX = .13V @ 18 mA

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

**Specifications**

- **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**: 22 lbs (10 kg) (approximately)
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IEC 61010-1:2010 3rd Ed.
EN 61010-1:2010 3rd Ed.
EMC
IEC 61326-1:1995
IEC 61326-1:2006
Note: For EN61000-4-6 & EN61000-4-3 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.

WPH/WDP400 Series

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/WPD 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 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.

ABOUT US

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