**WCU/WNI400 Series**

Walchem’s WCU410 Copper Controller and WNI Nickel Controller are optoelectronic on-line analyzers that measure the actual concentration of copper or nickel in solution. They are used in a variety of applications including electroless plating baths and microetch baths (including oxide-replacement types).

The WCU410 may be switched from electroless copper to microetch via the menu, eliminating the need for a second controller. It reduces the need for manual titration, improves yield, and in microetch applications improves productivity by reducing the frequency of bath change-outs.

The WNI410 is available as nickel-only, or with a pH control option which may be added in the field. Two separate pump outputs for nickel and reducer and another for pH are used, each of which is capable of totalizing either pump on-time, volume pumped, or metal turnovers.

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 copper or nickel measurements, and relay status. Download logs from the USB stick to a PC at your convenience. It couldn’t be easier!

**Summary of Key Benefits**

- **Concentration Read in Units**
  Selectable between grams per liter (g/L) or ounces per gallon (oz/gal). Backlit digital display also acts as a bar graph for a continuous “visual summary” of measurement versus set point.

- **Operator Adjustable**
  Concentration set point, alarm set points (high and low), dead band and pump on time are all easily adjustable. An interlock feature allows external devices (such as a flow switch) to interlock control relays.

- **Simple, Integrated Data Collection**
  Download stored data from the controller to a USB stick. Use the data to simply and easily validate system performance. The data and event logs show copper or nickel values, as well as accumulated chemical feed and relay activation times.

- **Four Separate Control Relays & Outputs (WCU)**
  May be used to add copper, caustic, formaldehyde or chelator/stabilizer chemistries. Each output has a replenishment totalizer which may be set in units of time or volume.

- **Optional pH Input Board (WNI)**
  May be used to add pH adjustment chemistry. Output has a replenishment totalizer which may be set in units of time or volume.
**Features**

**WCU/WNI410 Series | Electroless Copper & Nickel Controllers**

**Typical Electroless Copper Application**

**Typical Electroless Nickel Application without Degasser**

**USB Features**

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

**Specifications**

**Inputs**

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

- **Signals (optional)**
  - WCU: Isolated, dry contact closure required (i.e. flow, level)
  - WNI: pH - accepts preamplified pH signal and a Pt100 or Pt1000 RTD for temperature compensation

**Outputs**

- **Mechanical Relays (5)**
  - Internally powered relays switching line voltage
  - 6 A (resistive), 1/8 HP
  - All relays are fused together in one group, total current for this group must not exceed 6 A

- **4 - 20 mA (1 or 2 optional)**
  - Internally powered
  - Fully isolated
  - 600 Ohm max resistive load
  - Resolution: 0.01% of span
  - Accuracy ± 1% of reading

**Agency Certifications**

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

- **EMC**
  - IEC 61326-1:2005
  - EN 61326-1:2006

**Measurement Performance**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Range*</th>
<th>Resolution</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>WCU Concentration</td>
<td>0.01 to 5.5 g/L (0.001 to 0.73 oz/gal)</td>
<td>0.01 g/L (0.0001 oz/gal)</td>
<td>±0.01 g/L (±0.0001 oz/gal)</td>
</tr>
<tr>
<td>WNI Concentration</td>
<td>0.01 to 10 g/L (0.001 to 1.33 oz/gal)</td>
<td>0.01 g/L (0.0001 oz/gal)</td>
<td>±0.01 g/L (±0.0001 oz/gal)</td>
</tr>
<tr>
<td>pH</td>
<td>0 to 14 pH</td>
<td>0.001 pH</td>
<td>±0.01 pH</td>
</tr>
</tbody>
</table>

*(Note: The measurement range is the range of settings in the controller. Many factors in the chemical composition affect the absorbance, so Walchem cannot guarantee that every copper solution in this range can be measured.)*

**Mechanical**

- **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)
- **Storage Temperature**
  - -20 to 180°F (-29 to 80°C)
- **Solution Temperature**
  - WCU: 200°F (93°C) maximum
  - WNI: 212°F (100°C) maximum
- **Sensor cable**
  - 90 ft. maximum, 20 ft. standard
- **Shipping weight**
  - 18 lbs (8.2 kg) (approximately)
Features

WCU/WNI410 Series | Electroless Copper & Nickel Controllers

Typical Electroless Copper Application

Typical Electroless Nickel Application without Degasser

USB Features

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Specifications

Flow through sensor

Immersible sensor

Measurement Performance

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<td>WCU Concentration</td>
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</tr>
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</tr>
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Fuse: 1.0 amperes, 5 x 20 mm

Signals (optional)
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Internally powered relays switching line voltage 6 A (resistive), 1/8 HP
All relays are fused together in one group, total current for this group must not exceed 6A
4 - 20 mA 1 or 2 (optional)
Internally powered Fully isolated 600 Ohm max resistive load Resolution: 0.01% of span
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Agency Certifications


Agency Certifications

Note: For EN61000-4-6 and EN61000-4-3 the controller met performance criteria B.
Electroless Copper/Nickel Controllers

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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