

### OVERVIEW

The WCT/WDT Cooling Tower Controllers represent the latest in technological and innovative advancements from Walchem. All of the standard features you'd expect in a conventional cooling tower controller are included, plus simple-to-use information management tools that enable water treatment professionals to deliver more effective service to their customers.

The WCT/WDT controllers have the ability to store conductivity, pH/ORP, and temperature values, water usage, relay and flow switch status, and user settings. A USB memory stick is all that's needed to extract the information. Download logs from the USB stick to a PC at your convenience, or copy your preferred treatment program settings to another controller to speed start-up. It couldn't be easier!



### SUMMARY OF KEY BENEFITS

- **Ensures Optimal Performance and Maximum Efficiency**  
Precise control of conductivity and chemical feed reduces water consumption and inhibits corrosion, solids precipitation, scale build-up, and growth of algae or dangerous bacteria.

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- **More Informative Monthly Reports**  
Download stored data from the controller to a USB flash stick. Use the data to easily develop reports that show actual water usage, system conductivity, temperature, and more.

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- **Efficient Customer Service**  
Quickly identify system upsets by knowing exactly what happened and when. An event log can be downloaded to tell you precisely when pumps turned, valves opened, and when there was flow or no-flow.

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- **Validation and Verification Made Easy**  
Use stored data from the controller to simply and easily validate water treatment results. The data and event logs show water usage, system conductivity, and temperature, as well as accumulated chemical feed and bleed times.

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- **Save Time**  
Copy the user settings from your controller to a USB flash stick and upload to a new controller. Programming your new controller this way can be accomplished in seconds. It's that simple!



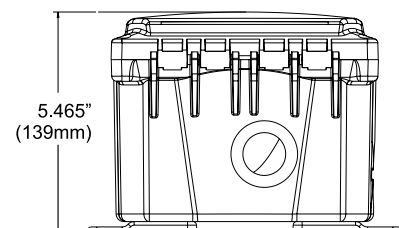
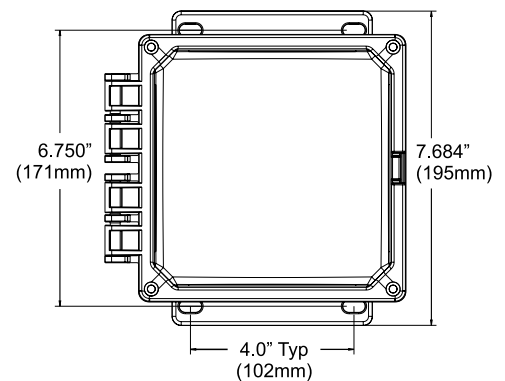
## WCT/WDT400 Series | Feed and Bleed Cooling Tower Controller

- » **Four chemical feed options**
  - Feed & bleed, with or without feed lockout timer
  - Feed after bleed has finished, as a percentage of time
  - Feed as a percentage of time elapsed
  - Feed as a percentage of make-up water
- » **Self-Diagnostics**
  - Software, electronics, and sensor are constantly monitored without having to take controller offline.
- » **Conductivity Electrodes**
  - Graphite or stainless steel
  - Low pressure or high pressure
  - In-line or submersion
- » **4-20mA Output**
  - Optional isolated 4-20mA output proportional to the conductivity reading.
- » **Flow Switch Manifolds**
  - Optional integrated flow switch manifold may be panel mounted for quick, professional installation with only two process connections.
- » **Flow Meter Input**
  - Accommodates a wide range of contacting and Hall Effect water meters
- » **USB Flashstick Support**
  - Standard for data logs, event/relay and reset logs, and user configuration file import/export

## WCT/WDT410 Series | Feed and Bleed Cooling Tower Controller with Dual Biocide Timers

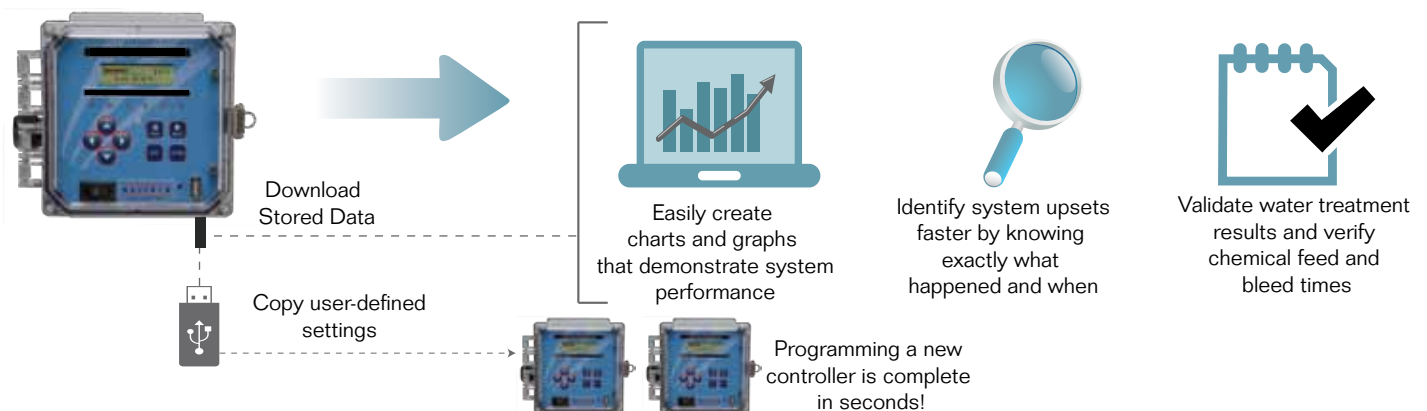
The 410 Series offers all of the 400 features as well as:

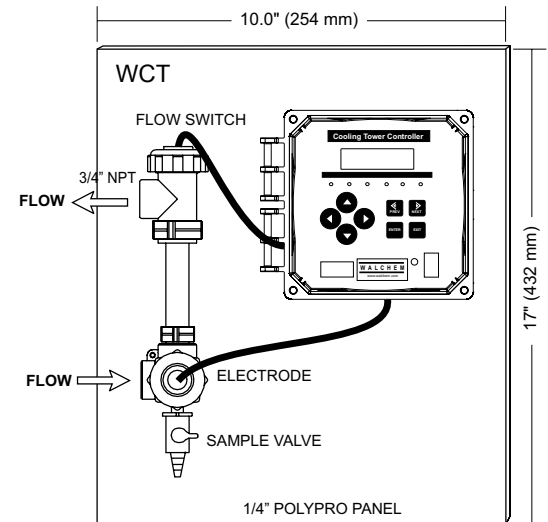
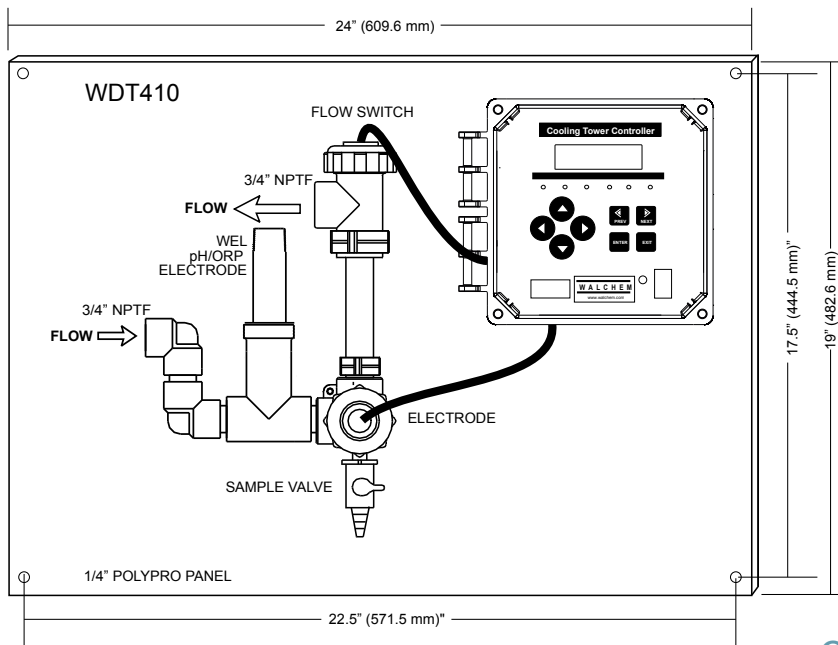
- » **Programmable Dual Biocide Timers**
  - Choice of 1, 7, 14, or 28-day cycles
  - Able to: add a single biocide at any time or dual alternating biocides, or dual independent biocides
- » **Alarm Output Relay**
  - Triggered by low conductivity, high conductivity, or no-flow conditions
- » **pH or ORP Control (WDT410 only)**
  - Choice of pH or ORP sensor for control of acid or chlorine/bromine addition.
- » **Ability to Bleed on Volumetric Cycles**
  - Ideal for systems with low conductivity makeup water



## 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

Cond Electrode: 1.0 cell factor, 10K thermistor  
pH/ORP: Requires a preamplified signal.  
(WDT410 only) Walchem WEL series recommended.  
±5V power available for external preamp  
Note: Temperature compensation for pH input is accomplished using the conductivity electrode temp element. ORP measurement does not use temp comp.

Flow Meter (optional): Isolated, dry contact closure required (i.e. relay, reed switch)

Flow Switch (optional): Isolated, dry contact closure required (i.e. reed switch)

	Cond Electrodes	Flow switch inputs	Flow meter inputs	pH/ORP inputs
WCT	1	1	2	
WDT400	2	2	2	
WDT410	1		2	1

## 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)  
Shipping weight 7 lbs (3 kg) (approximately)

## Flow switch manifold & sensor

Connections 3/4" NPTF  
Temperature 140°F (60°C)  
Pressure 150 psi up to 100°F (38°C), 50 psi at 140°F (60°C)

## Materials of Construction & Pressure Ratings

Standard electrode	150 psi (10 bars)	GFRPP, Graphite, FKM
pH/ORP electrode (WDT410 only)	100 psi (6.9 bars)	GFRPP, CPVC, HDPE, FKM, Glass, Platinum (ORP only), Titanium
High pressure electrode	300 psi (20 bars)	316SS, PVDF
Flow switch manifold	300 psi (20 bars)	GFRPP, PVC, Isoplast, FKM
PP/Stainless steel electrode	150 psi (10 bars)	GFRPP, 316SS, FKM
High pressure manifold	300 psi (20 bars)	Carbon steel, Steel

## Outputs

### Mechanical Relays

WCT400: Two powered relays (Bleed, Feed)  
WCT410: Five powered relays (Bleed, Feed, Bio1, Bio2, Alarm)  
WDT400: Five powered relays (Bleed & Feed for each tower, Diagnostic Alarm)  
WDT410: Six powered relays (Bleed, Feed, Bio 1, Bio 2, pH/ORP, Alarm)  
6 A (resistive), 1/8 HP  
All relays are fused together as one group, total current for this group must not exceed 6A

### 4 - 20 mA (0, 1 or 2 optional)

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

## Measurement Performance

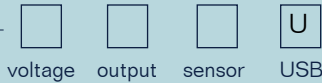
Conductivity Range 0-10,000 µS/cm  
Resolution 1 µS  
Accuracy 10-10,000 µS/cm ±1% of reading  
0-10 µS/cm ±20% of reading  
Temperature Range 32 to 158°F (0 to 70°C)  
Resolution 0.1 degree  
Accuracy ±1% of reading

### WDT410 only:

pH Range -2 to +16 pH units  
Resolution 0.01 pH units  
Accuracy (calibrated) ±0.01 pH units  
ORP Range ±1500 mV  
Resolution 1 mV  
Accuracy (calibrated) ±1 mV

## ORDER INFORMATION

WCT400  
WCT410  
WDT400  
WDT410



### VOLTAGE

1 = 120 VAC, prewired  
5 = 100-240 VAC, conduit

### OUTPUT

N = No data output  
4 = Single 4-20 mA output  
2 = Dual 4-20 mA output (WDT)

### SENSOR

N = No electrode

#### WCT400/410

- 1 = PP/Graphite electrode & tee, 20ft. (6.1m) cable (for in-line or submersion mounting)
- 2 = PP/Graphite electrode & flow switch manifold mounted on PP panel, 5 ft. (1.5m) cable
- 4 = High pressure electrode (up to 300 psi), 20 ft. (6.1m) cable
- 5 = High pressure electrode & flow switch manifold on PP panel, 5 ft. (1.5m) cable
- 6 = PP/SS electrode & tee, 20 ft. (6.1m) cable
- 7 = PP/SS electrode & flow switch manifold on PP panel, 5 ft. (1.5m) cable

#### WDT400

- 1 = Two graphite electrodes & tees, (inline or submersion) 20ft. (6.1m) cable
- 2 = Two graphite electrodes & flow switch manifolds, 20 ft. (6.1m) cable
- 4 = Two high pressure electrodes & glands, 10 ft.(3m) cable
- 5 = Two high pressure electrodes & flow switch manifolds 20 ft. (6.1m) cable
- 6 = Two SS electrodes & tees, 20 ft. (6.1m) cable
- 7 = Two SS electrode & flow switch manifolds on PP panel, 20 ft. (6.1m) cable

#### WDT410

- 1 = SS + pH electrodes & tees, (inline or submersion), 20ft. (6.1m) cable
- 2 = SS + ORP electrodes & tees (inline or submersion), 20 ft. (6.1m) cable
- 3 = SS + pH electrodes & flow switch manifold on PP panel, 5ft. (1.5m) cable
- 4 = SS + ORP electrodes & flow switch manifold on PP panel, 5ft. (1.5m) cable
- 6 = Graphite + pH electrodes & tees (inline or submersion), 20ft. (6.1m) cable
- 7 = Graphite + ORP electrodes, & tees (inline or submersion), 20ft. (6.1m) cable
- 7R = Graphite + ORP rod style electrode & tees, ft. (inline or submersion), 20ft. (6.1m) cable
- 8 = Graphite + pH electrodes & flow switch manifold on PP panel, 5ft. (1.5m) cable
- 9 = Graphite electrode, ORP electrode & flow switch manifold on PP panel, 5ft. (1.5m) cable
- 9R = Graphite + ORP rod style electrode & flow switch manifold on PP panel, 5ft. (1.5m) cable
- A = High pressure electrodes (Cond + pH) & flow switch manifold on PP panel, 5ft. (1.5m) cable
- B = High pressure electrodes (Cond + ORP) & flow switch manifold on PP panel, 5ft. (1.5m) cable

### 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 professionals 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.walchem.com](http://www.walchem.com)



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