

Thornton Ozone Measurement Systems

Provide Accurate Response and Excellent Sensitivity

Thornton's dissolved ozone measurement systems show rapid and accurate response to ozone concentrations. The excellent sensitivity gives positive detection of zero ozone after destruction by UV light.

Measuring principles

Ozone passes through a gas-permeable reinforced membrane of exceptional durability producing an electrochemical reaction and current flow in direct proportion. Behind the membrane is the platinum cathode where ozone reacts to produce the measurement signal. The electrochemical reaction is completed at the silver anode. Full temperature compensation accounts for effects of both membrane permeability and solubility of ozone in water.

Important features of an ozone sensor

- Rapid, accurate response
- Positive zero detection
- Low maintenance with drop-in modular membrane

Transmitter selection

Thornton sensors are commonly used together with the M800 multiparameter transmitter and the M300 transmitter.

Ozone sanitization of pharmaceutical water systems

Complete sanitization is achieved by controlling ozonation downstream of the storage tank. A second ozone measurement guarantees the removal of all ozone downstream of UV destruction.

Ozone sanitization of semiconductor ultrapure water

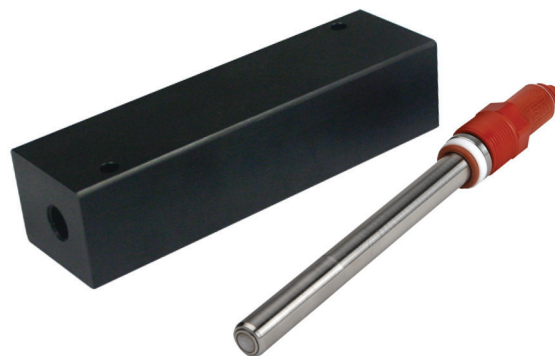
Ozone sanitization can be controlled by monitoring the ozone concentration downstream of the ozonator and UPW storage tank. To be sure all ozone has been decomposed after UV lights a second ozone measurement can confirm a zero level.

Ozone sanitation of bottled water

Continuous measurement and control to proper ozone levels of bottled water is a required quality practice that promotes consistent good taste and long shelf life.

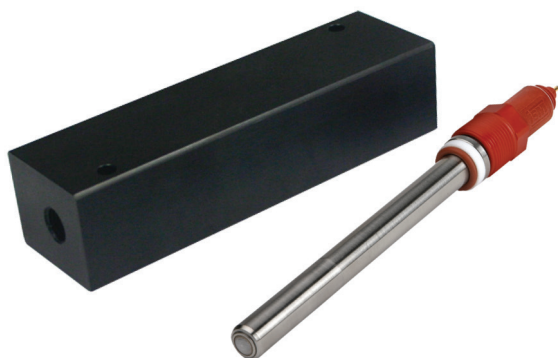
Ozone sanitization of beverage systems

Ozonated water is used in place of chemicals for CIP operations when changing between flavors. Ozone provides cleaning and disinfection without risk of objectionable residuals or byproducts.



Thornton Dissolved Ozone Sensor

Dissolved Ozone Sensors with ISM For Reliable Process Control



METTLER TOLEDO Thornton dissolved ozone measurement capability uses a proven sensor technology with ISM for rapid and accurate response to a wide range of ozone concentrations, providing reliable ozone measurement in conjunction with M800 and M300 ISM transmitters.

Intelligent sensor data is stored in memory, providing Plug and Measure simplicity with enhanced diagnostics capabilities. Robust sensor construction is coupled with a membrane cartridge which allows exceptionally fast and easy replacement of electrolyte and membrane when necessary

Specifications

Sample flowrate	200 to 500 ml/min with housing; 0.3 to 1 m/s (1 to 3 ft/s) without housing
Sample temperature	5 to 50 °C (41 to 122 °F) for measurement; probe can withstand 100 °C (212 °F)
Sample pressure	Normal operation, atmospheric; can withstand 3 bar(g) (45 psig)
Sample connections	1/4" NPT
Wetted materials	Polycarbonate or 316 stainless steel flow housing, 316 stainless steel probe, silicone rubber membrane
Cable lengths	1 to 10 m (3 to 33 ft) with cable
Weight	0.5 kg (1 lb) with flow chamber
Response time	90%* response in 30s
Operating range	0–5,000 ppb (mg/l); 0–5.0 ppm (mg/l) short term; 0–500 ppb (mg/l); 0–0.5 ppm (mg/l) continuous
System accuracy	± 4% of reading or 3ppb, whichever is greater; ± 0.5 °C
Included parts	Probe with spare electrolyte, polycarbonate or stainless steel flow housing and cable as specified (and preamp with 770MAX).

* Upscale response may be slower if sensor has recently been exposed to high ozone concentration

Features Overview

- Reinforced silicone membrane for exceptional durability
- Full temperature compensation accounts for effects of both membrane permeability and solubility of ozone in water
- Membrane cartridge provides easy replacement of electrolyte and membrane

Applications

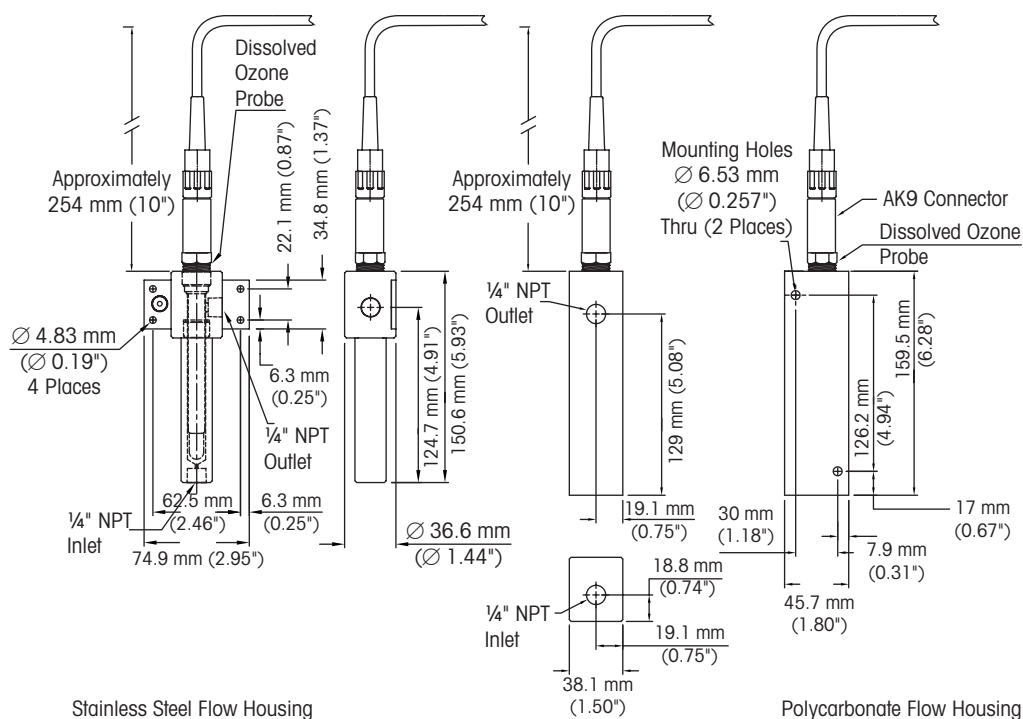
- **Pharmaceutical water systems**
Monitors sanitization levels and ensures removal of all ozone to satisfy the “no added substance” requirement
- **Semiconductor ultrapure water systems**
Monitors ozone concentration downstream of the ozonator and UPW storage tank
- **Bottled water systems**
Continuous ozone measurement is a key quality practice to provide good, consistent taste and long product shelf life
- **Beverage systems**
Ozone replaces caustic chemicals for clean-in-place operations, providing disinfection without objectionable byproducts

► www.mt.com/Thornton-Ozone

Ordering Information

6510i ISM Sensor with Polycarbonate (PC) and Stainless Steel (SS) Housings	Order Number
ISM Ozone sensor with PC housing, 1 m (3 ft) AK9 cable	58 041 436
ISM Ozone sensor with PC housing, 3 m (10 ft) AK9 cable	58 041 437
ISM Ozone sensor with PC housing, 5 m (16 ft) AK9 cable	58 041 438
ISM Ozone sensor with PC housing, 10 m (33 ft) AK9 cable	58 041 439
ISM Ozone sensor with SS housing, 1 m (3 ft) AK9 cable	58 041 446
ISM Ozone sensor with SS housing, 3 m (10 ft) AK9 cable	58 041 447
ISM Ozone sensor with SS housing, 5 m (16 ft) AK9 cable	58 041 448
ISM Ozone sensor with SS housing, 10 m (33 ft) AK9 cable	58 041 449
6510 Sensor with Polycarbonate (PC) and Stainless Steel (SS) Housings	
M300 Ozone sensor with PC housing, 1 m (3 ft) VP cable	58 041 236
M300 Ozone sensor with PC housing, 3 m (10 ft) VP cable	58 041 237
M300 Ozone sensor with PC housing, 5 m (16 ft) VP cable	58 041 238
M300 Ozone sensor with PC housing, 10 m (33 ft) VP cable	58 041 239
M300 Ozone sensor with SS housing, 1 m (3 ft) VP cable	58 041 246
M300 Ozone sensor with SS housing, 3 m (10 ft) VP cable	58 041 247
M300 Ozone sensor with SS housing, 5 m (16 ft) VP cable	58 041 248
M300 Ozone sensor with SS housing, 10 m (33 ft) VP cable	58 041 249
Spare Parts	
6510i/6510 Maintenance kit (4 membranes, electrolyte)	52 201 218
6500 Maintenance kit (4 membranes, electrolyte)	52 201 179
Interior Body for 6510i	30 013 674
Replacement Probe, 6510i	30 013 675
Replacement Probe, 6510/12/210	52 201 225
Replacement Probe, 6500	52 201 178
Soln, Ozone Electrolyte 6510 – 25mL	52 201 224
Ozone Sensor Simulator (for VP sensors)	52 201 197

Dimensions



Notes:

- Sensor/flow housing assembly must be in upright position as shown.
- Allow approximately 254 mm (10") clearance to remove sensor.