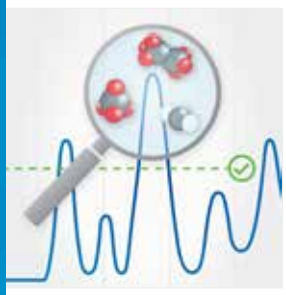
4000TOCe Sensor

THORNTON
Leading Pure Water Analytics

On-line TOC Sensor with Flow Control

For Pure Water Systems



Real-time Continuous TOC Monitoring

The 4000TOCe TOC analyzer with flow control uses proven ultraviolet oxidation with differential conductivity to effectively and continuously monitor total organic carbon concentrations. It is designed to maximize sample oxidation and minimize response times.

Simple Installation and Operation

The plug-and-measure sensor design of the 4000TOCe makes it easy to install and reduces initial setup time. Operations are simplified and operating costs reduced, as this TOC analyzer requires no gases or reagents to be handled, stored or replaced.

Supports Regulatory Programs

The 4000TOCe sensor complies with the ASTM D5173 standard testing method for online TOC monitoring. This is a total organic carbon analyzer that meets the global pharmacopeia requirements for implementation in the pharmaceutical industry.

Suitable for a Range of Water Projects

For system integrators working on water projects, the 4000TOCe is ideal for pharmaceutical-grade water, recycling and reclamation applications as well as make-up water treatment in the power industry. This is backed by METTLER TOLEDO's global support organization.

4000TOCe Sensor

Continuous, Fast and Reliable

The on-line 4000TOCe total organic carbon (TOC) sensor provides real-time monitoring of TOC levels in water systems. The wide dynamic operating range meets the needs of pure and ultrapure water applications, from reverse osmosis post-treatment to point-of-use. Continuous monitoring immediately indicates increasing TOC levels and allows for rapid response to excursions.

The 4000TOCe sensor combined with the menu-driven M300 transmitter provides an easy-to-use analytical package that enhances operational performance and offers extensive system diagnostics.

4000TOCe Technical Data

Measurement	
Measurement range	0.05 - 1000 ppbC (µgC/L)
TOC accuracy	± 0.1 ppbC for TOC < 2.0 ppb (for water quality > 15 MΩ-cm [0.067 µS/cm]) ± 0.2 ppbC for TOC > 2.0 ppb and < 10.0 ppb (for water quality > 15 MΩ-cm [0.067 µS/cm]) ± 5% of measurement for TOC > 10.0 ppb (for water quality 0.5 to 18.2 MΩ-cm [2.0 to 0.055 µS/cm])
Repeatability	± 0.05 ppbC < 5 ppb, ± 1.0% > 5 ppb
Resolution	0.001 ppbC (µgC/L)
Analysis time	Continuous
Initial response time	< 60 seconds
Limit of detection	0.025 ppbC
Conductivity accuracy	± 2%,0.02-20 µS/cm; Constant Sensor*
Cell constant accuracy	± 2%
Temperature sensor	Pt1000 RTD, Class A
Temperature accuracy	± 0.25°C
Sample Water Requirements	
Temperature	0 to 100 °C **
Particle size	<100 micron
Minimum water quality	≥ 0.5 MΩ–cm (≤ 2 µS/cm), pH < 7.5 ***
Flow rate	20 mL/min
Pressure	4 to 200 psig (0.3 bar(g) to 13.6 bar(g)) at sample inlet connection ****
General Specifications	
Case dimensions	11" [280 mm] W × 7.4" [188 mm] H × 5.25" [133 mm] D
Weight	5.0 lb. (2.3 kg)
Enclosure material	Polycarbonate plastic, flame retardant, UV and chemical resistant
Ambient temperature/ Humidity rating	5 to 50°C / 5 to 80% Humidity, non-condensing
Power requirements	100 - 130VAC or 200 - 240VAC, 50/60 Hz, 25W Maximum
Local indicators	Four LED lights for Fault, Error, Sensor Status and UV Lamp ON
Ratings/Approvals	CE Compliant, UL and cUL (CSA Standards) listed, Conductivity and temperature sensors traceable to NIST, ASTM D1125 and D5391. Meets ASTM D5173 Standard Test Method for On-Line Monitoring of Carbon Compounds in Water by UV Light Oxidation
Sample Connections	
Inlet connection	10-32 female threaded port (6' [2 m] FDA compliant PTFE tubing supplied)
Outlet connection	10-32 female threaded port (Fixed right angle 316SS drain tube provided)
Inlet filter	316SS, inline 60 micron
Wetted parts	316SS/Quartz/PEEK/Titanium/PTFE/EPDM/FFKM
Wall mount	Standard, mounting tabs provided
Pipe mount	Optional, with pipe-mount bracket accessory for nominal pipe sizes 1" [2.5 cm]
Maximum sensor distance	300 ft [91 m]

* Readout in equivalent S/m ranges selectable at M300TOC
** Temperature above 70°C requires Sample Conditioning Coil (included)
*** For power plant cycle chemistry samples, pH may be adjusted by measurement after cation exchange.
**** Process pressure above 85 psig (5.9 bar) requires optional High Pressure Regulator p/n 58091552.
Specifications subject to change without notice.