

Sievers

5310 C On-Line TOC Analyzer

Overview

The Sievers* 5310 C On-Line Total Organic Carbon (TOC) Analyzer was designed specifically for the municipal drinking water market for continuous monitoring of raw, finished and plant process waters. It offers superior accuracy and precision across a dynamic operating range of 4 parts per billion (ppb) to 50 parts per million (ppm) TOC.

The 5310 C On-Line Analyzer was engineered for ease of use and cost-effective operation. It simplifies monitoring and enhances productivity with automated procedures such as calibration, verification, reagent adjustment, and percent removal calculation. The low-maintenance 5310 C needs no external reagents or gas supplies, and offers 12-month calibration stability.

The Analyzer has a dust-resistant and spray-proof IP-45 rated enclosure for demanding water environments. It runs in continuous analysis mode, and can also accept discrete grab samples and standards at any time through the patented Sievers Integrated On-Line Sampling System (iOS System*).

Municipal Water Applications

The Sievers 5310 C On-Line Analyzer monitors raw and finished water TOC for plant optimization, USEPA compliance reporting, and distribution security monitoring applications. The 5310 C On-Line Analyzer recovers the most difficult-to-oxidize organic compounds by combining UV/persulfate oxidation with the proven Sievers Membrane Conductometric Detection Technology, a USEPA-approved methodology under Standard Methods 5310 C and USEPA Method 415.3. The 5310 C specifically calculates Percent TOC Removal in both the grab and on-line mode¹ to support Disinfectant and Disinfection Byproducts Rule (D/DBPR) compliance.



The 5310 C offers great flexibility. It can be used for continuous on-line measurement, or to analyze water samples with different sample matrices and concentrations from various points in a plant's treatment process with the highest efficiency and accuracy.

The patented conductometric measurement technique allows for a single calibration curve with exceptional accuracy across a wide analytical range, eliminating the need for multiple calibrations and multiple ranges. This feature, together with the Autoreagent mode, causes all samples—regardless of concentration—to be fully oxidized without user intervention.

Key Benefits

The 5310 C On-line TOC Analyzer features best-of-class ease of use in set-up, operation, and maintenance.

Low Maintenance Requirements

The 5310 C prompts users automatically to perform preventive maintenance—typically only a few hours per year. The convenient modular design facilitates fast consumables replacement and preventive maintenance.

Self-Contained Enclosure

The 5310 C Analyzer requires no external reagents or gas supplies, saving valuable time and money. The Analyzer utilizes self-contained internal reagent packs that can be installed in minutes and last up to three months, depending on the application. The rugged IP-45 rated enclosure withstands demanding environments in a treatment plant or remote distribution or feed location.



Extended 12-Month Calibration Stability

Unlike many TOC analyzers that require monthly, weekly or even daily calibration, the 5310 C On-line TOC Analyzer offers 12-month calibration stability. Users follow on-screen prompts to select from a variety of single- and multi-point calibration routines. For added convenience, the Analyzer automatically performs calibration calculations, verifies calibration (cal check) and updates constants automatically.



Integrated On-Line Sampler (iOS)

On-Line and Grab Sampling

The patented iOS System provides an easy way to test external samples and standards. Users can introduce calibration, verification, and other water samples directly without removing the Analyzer from the continuous sample source or changing the sample inlet configuration.

Advanced Productivity and Efficiency

Automated operations, such as calibration, calibration verification, and Percent TOC Removal calculation, combine with a four-minute analysis time for the most productive TOC analyzer available. Automatic reagent adjustment eliminates the time-consuming process of manually adjusting reagent flow rates so the analysis can run unattended.

Reliability

The 5310 C On-Line Analyzer delivers superior reliability. Its innovative design and carefully selected materials and components ensure maximum uptime.

Intuitive Menu-driven, Touch-screen Interface

A large, color touch-screen display simplifies setting up instrument parameters. The screen displays trend data in tabular or graphical form for monitoring in real time or over user-defined time periods. At the end of the analysis, it shows individual sample statistics in tabular format. A wizard-style guide walks users through the short calibration and verification procedures.

Expanded Data Access

In addition to providing standard analog and serial outputs, the Sievers 5310 C On-line TOC Analyzer uses a USB

port for transferring data from the Analyzer to a USB drive without interrupting analysis. Data files can be opened directly in Microsoft® Excel.

Accessories and Options

Dual Stream Compatibility and Percent TOC Removal (On-Line)

The 5310 C can report TOC values for two streams,¹ and offers the option of automatically calculating a TOC Percent Removal based upon a user-selected lag time between each stream. Individual reagent flow rates for each stream allow the analyzer to fully oxidize all samples, even if the streams vary remarkably.

Automatic Determination of Percent TOC Removal (Grab)

If the user selects this mode, the 5310 C Analyzer prompts the user to insert influent or effluent grab samples. It then automatically reports Percent TOC Removal with the individual TOC results for each vial.

Grab Mode Alphanumeric Labeling

This feature allows users to individually label each grab sample for easy recall of specific samples in the data history or when viewing data on the Analyzer's screen.



Grab Mode Alphanumeric Labeling Screen Shot

900 Inorganic Carbon Remover (ICR*)

The Sievers 900 Inorganic Carbon Remover (ICR*) complies with USEPA-approved methodology for IC removal, and continuously and reliably removes IC from incoming samples. No manual acidification/sparging is necessary and no additional work by the analyst is required. The quiet, compact ICR fits within the Analyzer's enclosure.

Specifications

Operating Specifications²

Range	4 ppb to 50 ppm
Precision	< 1% RSD
Accuracy	± 2% or ± 0.5 ppb, whichever is greater
Sample Type	On-line continuous or discrete grab sample
Display Readout	3 significant digits
Calibration	Typically stable for 12 months
Analysis Time	4 minutes
Sample Temperature ³	1–95° C (34–203° F)
Ambient Temperature	10–40° C (50–104° F)
Sample Pressure ³	Up to 250 psi
Required Sample Line Flow Rate	50–300 mL/min (for on-line mode)
Instrument Sample Flow Rate	0.5 mL/min

Analyzer Specifications

Outputs	4–20mA output (1); alarm outputs (2); binary output (1); Serial (RS-232) output (1); USB port (1); parallel printer port (1)
Display	Quarter-VGA, color, touch-sensitive LCD
Power	Universal Power Supply: 100–240 ±10% VAC, 100 W, 50/60 Hz
Dimensions	H: 62.4 cm (24.6 in); W: 45.2 cm (17.8 in); D: 26.4 cm (10.4 in)
Weight	16.9 kg (37.2 lb)
Safety Certifications	ETL, CE
Enclosure Rating	IP-45

Consumables

UV Lamp	6 months
Acid Reagent	As needed, typically 3 months with an ICR or 6 months without an ICR
Oxidizer Reagent	As needed, typically 3-month stability; available in 150- or 300-mL cartridge
Pump Tubing	12 months
Resin Bed	12 months
Capsule Filter	As needed, up to 12 months on finished drinking water

* Trademark of General Electric Company; may be registered in one or more countries.

¹ External multi-stream device required.

² Stated analytical performance is achievable under controlled laboratory conditions that minimize operator and standards errors.

³ The sample temperature and pressure should not simultaneously exceed 60° C and 100 psi.

The Sievers 900 Series TOC Analyzers are protected by one or more of the following US and foreign patents: US 7247498; US 6271043; US 6228325; US 5976468; US 5902751; US 5837203; US 5820823; US 5798271; US 5750073; US 5443991; US 5132094; EP 0897530; FR 0897530; GB 0897530; DE 69702516.0-08; EP 0471067. Other patents pending.



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