Fact Sheet

Sievers M9 Turbo Analyzers

Laboratory, Portable and On-Line

Overview

With an analysis time of 4 seconds, a response time of 3.25 minutes, and an unprecedented analytical range of 0.20 parts per billion (ppb) to 10 parts per million (ppm) of total organic carbon (TOC), the Sievers* M9 Series Turbo TOC Analyzers provide the most accurate TOC data across the widest range, and provide it faster than any other TOC analyzer. Originally designed for on-line continuous reclaim monitoring, the M9 Series of Turbo TOC Analyzers from GE Analytical Instruments now are capable of fast analysis in grab sample or Autosampler mode.

Applications

Microelectronics

For over a decade, the Sievers brand has provided the water reclaim industry with the only TOC analyzer that continuously and accurately measures TOC, even in the presence of interfering compounds such as Urea and TMAH (tetramethyl ammonium hydroxide). The Turbo membrane technology has been evaluated in two separate studies conducted by Sematech, a leading semiconductor research consortium, and recommended for the recycle role as a result of documented analytical performance[1]. The M9 Series Turbo TOC Analyzers offer an unparalleled combination of low-level sensitivity and high-level response while still improving analytical accuracy and precision.

Pharmaceutical

The M9 Series Turbo Analyzers are ideal for use in compendia testing, water system troubleshooting, and cleaning validation applications that require both fast and accurate TOC analysis. To support these applications, GE Analytical Instruments also offers a M9 Turbo Validation Support Package (VSP) addendum that helps verify operational and performance parameters in Turbo mode.

Water System Diagnostics

The M9 Turbo TOC Analyzers are the optimum solution for diagnosing water system problems. Because of their rapid analysis time, they can be useful in identifying periodic TOC spikes as well as other general water system TOC problems.

Options and Accessories

Turbo in the M9 Lab, Portable and On-Line Analyzer

The M9 Turbo is available across all three configurations of the instrument (laboratory, portable, on-line). The robust M9 On-Line Turbo is housed in a rugged IP-45 rated enclosure. The compact, lightweight M9 Portable Turbo is designed for maximum mobility in diagnostic applications, yet still capable of on-line measurements. Finally, the M9 Laboratory Turbo brings speed and accuracy to the benchtop.

Inorganic Carbon Remover (ICR)

The integrated Inorganic Carbon Remover (ICR*) reduces inorganic carbon levels in sample streams with high IC/TOC ratios to produce more accurate TOC results.

Sample Conductivity

Measure and report sample conductivity for pharmaceutical applications in discrete grab samples.

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M-Series Turbo Specifications

Operating Specifications[2]	
Range	0.20 ppb to 10 ppm
Precision	2% RSD
Accuracy	± 10% or ±10 ppb whichever is greater
Display Readout	3 significant digits
Calibration	Typically stable for 12 months
Analysis Time	4 seconds
Response Time	3.25 Minutes
Sample Temperature[3]	5–95° C (41–203° F) – withstands short-term steam exposure
Ambient Temperature	10–40° C (50–104° F)
Sample Pressure[3]	Up to 100 psi (online and portable)
Instrument Sample Flow Rate	1.1 mL/min

Analyzer Specifications	Laboratory	On-Line	Portable
Outputs	USB device port (1), USB host ports (3); Modbus TCP/IP	4-20 mA outputs (3); alarm outputs (4); binary input (1); USB device port (1), USB host ports (2);Modbus TCP/IP	
Display	7" WVGA 800x480 pixel, Color LCD w/touch-screen		
Power	100 – 240 V~, 50 – 60 Hz, 100 VA		
Fuses	Replace with same type and size fuse: T 1.6 A 350 VAC Fuse (Slow Blow), size 5 x 20 mm appliance inlet		
Dimensions	H: 42.2 cm (16.6 in.); W: 24.6 cm (9.7 in); D: 40.0 cm (15.8 in)	H: 54.9 cm (21.6 in); W: 45.0 cm (17.7 in); D: 26.5 cm (10.4 in)	H: 39.5 cm (15.4); W: 22.9 cm (9.0 in); D: 46.4 cm (18.3 in)
Weight	9.4 kg (20.6 lb)	15.8 kg (34.9 lb)	9.4 kg (20.8 lb)
Enclosure Rating	n/a	IP-45	IP-21
Safety Certifications	ETL. CE		

Consumables	
UV Lamp	6 months
Acid Reagent	As needed, typically for 3 months (285 mL)
Oxidizer Reagent	As needed, typically 3-month stability; available in 150- or 300-mL cartridge

[1] *Ultrapure Water*, February 1999 and March 1999.

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

[3] If the sample temperature is above 60° C (140° F) , an optional PVDF iOS is required.

For more information, visit:

www.geinstruments.com/M9

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