www.sieversinstruments.com

Water Technologies & Solutions

Sievers* 500 RL

On-Line TOC Analyzer — Base Model

ready for the resource revolution

suez

overview

The Sievers 500 RL On-Line Total Organic Carbon (TOC) Analyzer provides continuous monitoring of organics in ultrapure water for pharmaceutical and power applications. The reagentless 500 RL provides the superior analytical accuracy and performance found in all Sievers TOC Analyzers, and offers a range of options meet specific customer needs.

features and benefits

Science-based Design

The Sievers membrane conductometric design eliminates false positive and false negative readings to which other technologies are susceptible. Additionally, the Sievers' technology ensures accurate recovery of all classes of organic compounds commonly found in UPW waters. In a process capability study comparing on-line TOC analyzers,[1] the Sievers 500 RL was the only analyzer that demonstrated a meaningful statistical process capability, making it the only on-line TOC analyzer providing confidence that UPW processes are fully protected.

Ease of Use

The 500 RL is exceptionally easy to install, operate, and maintain. It includes a large color touch-screen display, intuitive menu interface, on-screen consumables status indicators with maintenance prompts, and advanced auto-zero features for improved low- level performance.

pharmaceutical applications

The Sievers 500 RL is designed to deliver science-based risk management capability to the production floor. The ability to be fully validated to the standards of ICHQ2(R1) enables the 500RL to be the instrument of record for Real Time Release Testing. It provides on-line TOC analysis for compliance with US Pharmacopeia (USP) <643>, European Pharmacopeia (EP) 2.2.44 Total Organic Carbon, Indian Pharmacopeia (IP) 2.4.30, Chinese Pharmacopeia (CP) Appendix VIII R, and the Japanese Pharmacopeia 16 (JP16) 2.59 monographs for Purified Water and Water for Injection.

upgrade options

The 500 RL base model can be configured or upgraded with a variety of hardware and software options at any time. Two options are available for introducing calibration and system suitability grab samples: the standard single-port iOS (Integrated On-line Sampling System) and the automated four-port Super iOS.

In addition to the Super iOS, options specifically for pharmaceutical customers include USP Chapter <645> conductivity measurement, automated USP system suitability, linearity functionality, and Sievers DataGuard for facilitating 21 CFR Part 11 compliance. The optional DataShare 500 enables all customers to view, share and create reports from the 500 RL's encrypted data USB output.

technical support and services

Sievers provides ongoing technical support, as well as on-site installation, maintenance, calibration, and training services that together assure optimal performance from Sievers instruments. For more information, visit www.sieversinstruments.com.

Sievers Super iOS

system specifications[2]

total organic carbon	
Linear Range	0.03 to 2,500 ppb as C
Accuracy	± 5% of measurement
Precision	< 1% RSD or 0.03 ppb as C, whichever is greater
Analysis Modes	On-Line, On-Line Averaged, On-Line Timed
Analysis Time	Continuous mode: 6 minutes
	Average and timed modes: 0.5, 1, 4, 8, or 24 hours
Ozone Compatibility[3]	Maximum 200 ppb as O3
External Flow Rate	Minimum 50 mL/min
Sample Temperature	1° C to 95° C (34° F to 203° F)
Sample Pressure	Up to 100 psig
Interferences	Insensitive to organic heteroatoms
Calibration Stability	Typically stable for 12 months
Display Readout	3 significant digits

conductivity	
Raw Conductivity Range[4]	0.01 to 35 µS/cm
Conductivity Accuracy[3,4]	± 0.005 µS/cm or ± 1%, whichever is greater
Conductivity Precision	< 0.25% RSD
Maximum Sample Conductivity	25 µS/cm at neutral pH

instrument	
Power	100–240 ±10% VAC, 50 W, 50/60 Hz
Normal Operating Environment, Intended for indoor use only	
Ambient Temperature	10° C to 40° C (50° F to 104° F)
Maximum Relative Humidity	Up to 95%, noncondensing
Maximum Altitude	2,300 m (7,546 ft)
Inputs	One isolated binary input
Outputs	Three isolated 4-20mA outputs, one Serial (RS-232), one USB port,
	one parallel printer port, four alarm outputs, and one Ethernet port
Installation/Overvoltage	Category II (protects against transients present in Category II power)
Safety Certifications	ETL, CE
Pollution Degree	2 (normally only non-conductive pollution)
Display	Backlit Quarter-VGA touchscreen display
Dimensions	H: 41.9 cm (16.5 in); W: 48.3 cm (19 in); D: 27.4 cm (10.8 in)
Weight	16.9 kg (37.2 lb)
IP Rating	Environmental Enclosure: IP 45

References

1. Godec, Rick, "A Science-Based On-Line TOC Performance Comparison," GE Analytical Instruments, 2006.
2. Stated analytical performance is achievable under controlled laboratory conditions that minimize operator and standards errors.
3. Ozone: 50 ppb continuous, conductivity accuracy ±0.02 µS/cm < 1.0 µS/cm, ±2% >1.0 µS/cm; 200 for 2 hours once/day, conductivity readings not within spec, recovery time to in-spec readings: 2 hours
4. With optional USP <645> conductivity measurement

Hg The UV lamp inside this product contains mercury and must be recycled or disposed of in accordance with local, state, and federal laws.

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