

Technical Data

Measurement and Sample Preparation

Type of measurement:	thermal combustion at 1200°C
Measuring range:	20-2000 ppb
	0.1-10/20 ppm
	2-200 ppm, 5-1000 ppm
	500-20,000 ppm
Response time:	3-5 minutes (application dependent)
Reproducibility:	2% ± 10 ppb
Accuracy:	± 2%

Operation and Data Output

Graphic-LCD-screen, high resolution, back-lit
Autostart-function
Menu-guided operation including maintenance checklists and support
Industry-standard data interface

Connections

Sample water, in	stainless steel tube OD 6mm (Swagelok)
Sample water, drain:	PVC tube OD 8mm
Electrical power:	~115 / 230V, 50 / 60 Hz
Analog output:	0/4 - 20 mA
Serial interface:	RS 232 for remote control
Malfunction alarm, life-zero	
Status output:	4 relay contacts

Dimensions and Weight

Cabinet:	steel IP54 (NEMA 13)
Optional:	NEMA 4X (Class I Div 2), ATEX zone 1 and zone 2
Dimensions:	1060 x 600 x 520mm (H x W x D) ~(41.7 x 23.6 x 20.5 inches H x W x D)
Weight:	approx. 115 kg (254 lb)

The information and the illustrations in this brochure on appearance, service, measure, weight, consumption, maintenance times and so forth, are not binding and only an approximate description. It does not assure guaranteed qualities. This product description corresponds to the state of printing. Deviations in design, tint, as well as changes of the scope of delivery remain reserved.

If you require more information about our products (e.g. for online TN_b, COD, BOD or toxicity measurement), please call us.

... there's so much more !



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The Pure Solution to
On-line TOC Measurement!

QuickTOC[®] loop

Rapid, Continuous-batch
TOC Measuring System

- measures the real TOC in just minutes
- for drinking water, water for injection, ultra pure water, boiler condensate and much more
- accurate, fast and precise

Precise, continuous TOC analysis to the low ppb range for ultra pure and clean water applications

LAR's **QuickTOCloop** is an on-line measuring system for the determination of total carbon (TC), total organic carbon (TOC), total inorganic carbon (TIC) and dissolved organic carbon (DOC) according to DIN EN 1484, ISO 8254 and EPA 415.1.

As industries become increasingly dependent on pure water, on-line TOC analysis has become the preferred (and often required) method to validate purity and protect against contaminants that threaten expensive systems, public safety and product quality.

The **QuickTOCloop** easily satisfies the most stringent TOC monitoring requirements wherever pure water is produced or consumed. Some examples include Water for Injection (WFI) in biotechnology and pharmaceutical industry, boiler condensate reclaim in the power industry, RO and DI water for the microelectronics industry, and municipal drinking water treatment.

• Thermal combustion technology

The **QuickTOCloop** has been engineered to work without the aid of expensive catalysts by using temperatures of more than 1200°C, well in excess of the current state of the art for online thermal catalytic oxidation which uses temperatures of only 680° to 1000°C. Operating at these temperatures enables the **QuickTOCloop** to quickly, completely oxidise even difficult-to-combust compounds, regardless of their composition.

• Fast and precise measuring results

The **QuickTOCloop** operates in a continuous batch mode, producing results every three to five minutes. This guarantees the detection of even brief, transient peaks throughout the day.

FEATURES AND BENEFITS
● Catalyst-Free Technique
● Highest Temperature of Any Online Thermal Oxidation TOC Analyser
● Menu-Guided Operation
● Closed System Design Resists Sample Contamination
● Rapid Response-Time of 3 - 5 Minutes
● High Reproducibility
● Low Cost of Operation
● Infrared Detection
● Low Maintenance
● TN _b Detection Available
● Dual Channel Measurement Option



Principle of Operation

The **QuickTOCloop** is designed as a closed system to restrict environmental and other contaminants. This enables the **QuickTOCloop** to achieve measurements in the low ppb range.

The TOC is measured by injecting small amounts of sample into a stream of conditioned carrier gas that circulates continuously through a high-temperature furnace. The **QuickTOCloop** then measures the resulting CO₂.

The **QuickTOCloop** conditions the needed carrier gas from the ambient atmosphere, so no gas cylinders are required. The loop injection system is connected to the carrier gas circuit by a system of valves which are closed to the carrier gas lines, but open for the introduction of sample.

The sample is drawn, rather than pushed, by a vacuum pump into the loop sample injection line. The possibility of contamination from the pump is thus eliminated by placing it downstream from the measured sample.

The volume of the loop is a known constant, eliminating the possibility of inaccuracies resulting from incorrect dosing, and four different loop volumes are available to accommodate a variety of industrial applications.

Injection of the sample occurs when the valves are switched and the loop becomes a part of the carrier gas circuit. The sample is carried into a high temperature furnace where, at 1200°C, high temperature combustion converts all carbon-based compounds to CO₂. This enables the calculation of true TOC as TC - TIC. It is important to note that the closed system of the **QuickTOCloop** avoids the loss of VOCs, thus assuring complete measurements with no missing data that would make the measurement appear too low.

The measurement of inorganic compounds is performed in an additional reaction vessel, where a continuous stream of acidified water is injected with the sample and the evolved CO₂ is stripped by the carrier gas.

CATALYST-FREE



THERMAL OXIDATION