



Trace Elemental
Instruments



// XPERT-TOC/TN_b

//XPERT-TOC/TN_b Elemental Combustion Analyzer

The XPERT-TOC/TN_b analyzer represents the ultimate combination of robustness, accurate sample analysis and user convenience. A single injection provides Total Organic Carbon by High Temperature Catalytic Oxidation and Total-Bound Nitrogen results within minutes. Controlled by TEIS Analytical software™ and fully compliant with all relevant standards and norms.



- The XPERT is available as combined TOC/TN_b analyzer or single parameter TOC or TN_b

The Combustion XPERTS

TE Instruments has a rich history in the development and production of countless elemental combustion solutions. Since 1993 our home base in Delft, the Netherlands, facilitates a strong network of well-integrated departments such as Application Development, R&D and in-house Glass Manufacturing and Production, allowing us to quickly respond to our customer needs. TE Instruments controls the entire production process of its analyzers, starting from the fundamental research up to the warehouse. We are fully dedicated to the development of elemental combustion solutions; this is and remains our core business.

Decades of experience have been deployed to create our next innovative solution: the XPERT-TOC/TN_b analyzer. TE Instruments offers targeted solutions, along with the quality you expect and the attention you deserve. Run your TOC applications with ease and report accurate results. Discover the quality of the innovative XPERT analyzer.



All-In-One Footprint

TE Instruments designed the XPERT in a unique way by integrating the liquids auto sampler into the footprint of the analyzer. By default, the sampler is included with every XPERT. No need for purchasing additional sampling modules which could increase the footprint. Achieve ultimate sample control with this intelligent sampling system:

- Maximize your productivity with 65 sample positions
- Create a calibration line from a single standard
- Integrated stirring device for each sample position
- Removable sample tray to prepare samples wherever you like

The XPERT enables its user to measure Total Organic Carbon (TOC) and Total Bound Nitrogen (TN_b) concentrations simultaneously out of a single injection. Made possible by the implementation of a high quality NDIR detector and robust TN-CLD detector, that has proven to be extremely accurate in our XPLORER systems. When the XPERT is configured as a combined TOC/TN_b analyzer, the TN detector is included in the exact same footprint. Once again, no separate detection module and no footprint expansion. The XPERT proves to be a true All-In-One Footprint solution, saving valuable bench space.



"The XPERT proves to be a true All-In-One Footprint solution."

Eliminates Carry-Over and Memory Effect

The XPERT-TOC/TN_b analyzer is characterized by its versatility. The unit enables operators to measure high and low sample concentrations in sequence, without range selection or hardware adjustments. In this context, the XPERT's way of sample introduction is a key element. The sample introduction design ensures a complete transfer of the sample into the furnace without getting in contact with any valve. Due to this unique introduction technique the complete sample will be transferred directly into the hot zone of the furnace, eliminating any memory effect.

- Valve-less sample introduction eliminates carry over, even of particle-containing samples
- Extended lifetime sample introduction port of up to 10.000 injections
- Switch from high ppm's to low ppb's in a single run



Complete Sample Combustion

After sample introduction, the organic phase reaches the hot zone of the robust and long-lasting furnace, covered by a lifetime warranty. The furnace heats the ProCAT™ combustion tube towards 680 °C – 720 °C, ensuring the complete catalytic oxidation of all your samples into CO₂ and NO. The ProCAT™ combustion tube guarantees optimal temperature distribution and protects the catalyst at the same time. This results in an extended lifespan of the catalytic material and extremely accurate results. Decades of combustion experience were utilized to create this unique combustion tube.



- The ProCAT™ combustion tube guarantees a complete conversion towards CO₂ and NO
- The ProCAT™ combustion tube extends lifetime of the catalyst
- Robust furnace with lifetime warranty



All-In-One Footprint

The XPERT-TOC/TN_b analyzer features several smart solutions to execute TOC applications with ease. Embedded sensors continuously monitor parameters like pressure, flow and temperature. When a sensor is triggered, the system immediately responds by notifying its user.

- Real time flow monitoring - immediately detects a loss of flow and warns the operator
- Reagent level monitoring – never run out of reagents during a sample queue
- Auto detection sample tray – incorrect positioning of sample tray is indicated
- Auto recognition of incorporated devices

The instrument design offers easy access to all hardware components. The halogen scrubber, humidifier, filter and IC vessel can be removed and re-installed by a simple 'click-on, click-off' principle. No tools or clamps required. The ProCAT™ combustion tube can be exchanged within 1 minute for catalyst refill.



TEIS Software

TE Instruments considers software as one of the most important features of an elemental analyzer. TEIS Analytical Software™ enables smooth instrument control and application handling. The intuitive user interface hardly needs any explanation. Modify sample lists, evaluate data and create calibration lines in a few clicks. Results can be displayed in customized reports or exported in a variety of data formats. Sensor readings and generated log files help the user to handle day to day operation in the most convenient and efficient way.

- **Auto-Cal function**
- **Method Manager**
- **Visual Devices**
- **Sample Manager**
- **Task Manager**
- **Database Manager**

- Calibration out of a single standard
- Use default methods or create perfect application settings
- Status overview of every device
- Drag & drop the columns you want to see
- Prepare sample queues easily
- Import and Export your data



International Standards

The XPERT-TOC/TN_b is a fully automatic Total Organic Carbon and Total Bound Nitrogen analyzer following the high temperature with catalyst combustion test methods.

TOC	TN _b
ASTM D7573	ASTM D8083
ISO/CEN EN 1484	ISO 11905-2
EPA 415.1	
EPA 9060	
ISO 8245	
ISO 20236	
SM 5310B	



ASTM INTERNATIONAL



Performance

Model	XPERT-TOC	XPERT-TOC/TN _b	XPERT-TN _b
Destruction	680 °C catalytic combustion	720 °C catalytic combustion	
Detection technique	TOC: NDIR (non-dispersive infrared detection) TN: Chemiluminescence		
Detection limit	TC, TOC, NPOC: 50 µg/L TN: 20 µg/L		
Measuring range	TC, TIC, NPOC: 0 to 30,000 mg/L TN: 0 to 10,000 mg/L		
Repeatability	TC, TIC, NPOC: CV <1% at ≥5 mg/L TN: CV <1% at ≥5 mg/L		
Catalyst	Pt plated AlO ₃	n.a.	n.a.
Particle Compatibility	900 µm		
Analysis time	3 min.	4 min.	3 min.

Sampling

Model	XPERT-TOC	XPERT-TOC/TN _b	XPERT-TN _b
Sampler	By default integrated, stirring device for each sample position		
Type of injection	Direct injection (into the furnace or IC-port)		
Sample injection volume	10 to 1000 µL (default: 100 µL)		
IC removal	Automatic by addition of acid by sampler and sparging		

Specifications

Model	XPERT-TOC	XPERT-TOC/TN _b	XPERT-TN _b
Dimensions (W x H x D)	38 x 44 ^A x 70 (cm) 15.0 x 17.4 ^A x 27.6 (inch)		
Weight	Approx. 31 kg	Approx. 32 kg	Approx. 29 kg
Gases	Oxygen, 5.0 Synthetic air, 5.0		
Gas consumption	150 mL/min ^B	200 mL/min ^B	200 mL/min
Power ^C	100 – 240 V AC, 50 – 60 Hz, 16 A with safety ground, one wall mount, 750 W		

^A Maximum height with sampler arm fully extended

^B When the samples are purged for NPOC an extra 300 mL/min is consumed during purging.

^C Excluding PC, monitor and printer



* Used images are examples of configurations which may deviate from ordered configurations.