

Technical Data

Measurement and Sample Preparation

Type of measurement:	Thermal combustion at 1,200°C (TOC and TN _b) UV- Persulfate digestion (TP) COD by correlation
Measuring range:	0,1 - 200 mg/l (ppm) (TN _b) 0,1 - 200 mg/l (ppm) (TOC) 0,01 - 10 mg/l (ppm) (TP) 1 - 800 mg/l (ppm) (COD)
Response time:	2 - 3 minutes (TN _b) (application dependent) 10 -15 minutes (TP)
Measurement frequency:	1 - 3 minutes
Reproducibility:	± 2%

Operation and Data Output

Graphic-LCD-screen, high resolution, back-lit
Autostart-function
Self-explanatory software
USB-port
Industry-standard data interface

Connections

Sample water, in:	Prene tube 3.2 x 1.6mm
Sample water, drain:	PVC tube 12 x 2mm
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 relais contacts (programmable)
Remote control:	via TCP/ IP protocol (internet)

Dimensions and Weights

Cabinet:	steel IP 54
Option:	stainless steel, IP 65 ATEX Zone 1 and Zone 2
Dimensions:	1,060 x 600 x 520 mm (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. Version 201

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

We are happy to advise you!

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TOC, TN_b, TP and COD
in one analyser

QuickTOC_{NPO}

4 parameters on-line
at the plant's effluent

- Determines the TOC, TN_b, TP and COD within minutes
- Number of parameters are selectable
- Lowest maintenance

The Accurate Solution to Online TOC, TN_b and TP Measurement

The **QuickTOC_{NPO}** is an on-line measuring system for the determination of total organic carbon (TOC) according to DIN EN 1484, ISO 8245 and EPA 415-1, of total nitrogen (TN_b) according to DIN 38409 part 27, ENV 12260 and ISO-TR11905-2, total phosphorus (TP) according to DIN EN ISO 6878:2004, DIN EN ISO 15681-1:2004 and DIN EN ISO 15681-2:2004 and of chemical oxygen demand (COD) by correlation to organic carbon.

The **QuickTOC_{NPO}** is suitable for almost every TOC, TN_b, TP and COD measurement in process control or sewage and industrial waste water application. Typical on-line applications are control and monitoring of the effluent of both industrial and municipal waste water treatment plants (WWTP), of water and of industrial process water.

Thermal Combustion Technology for TOC, TN_b and COD

The **QuickTOC_{NPO}** has been engineered to work without the aid of expensive catalysts by using temperatures of more than 1,200°C. Conventional thermal catalytic methods use temperatures between 680° to 1,000°C. With these high working temperature, difficult to combust compounds are oxidised effectively and rapidly, regardless of their composition.

• UV/Persulfate Digestion Method for TP

Simultaneously to the TN_b measurement the untreated sample is mixed with the oxidation reagent (sodium persulfate) and then conveyed through the UV reactor.

• Fast and Precise Measuring Results

The **QuickTOC_{NPO}** is designed to operate in a batch mode. Every 1-3 minutes the T₁₀₀ values are measured. This guarantees the precise determination of short and transient peaks throughout the day.

FEATURES AND BENEFITS
● Highest Combustion Temperature (1,200°C) for TOC and TN _b
● Highest Reproducibility
● Lowest Maintenance Efforts
● Lowest Operational Costs
● Self- Explanatory Software
● ECD for TN _b Measurement (CLD optional)
● Photometric Molybdenum Blue Method for TP Measurement
● Measurement Frequency: 1 - 3 Minutes (TN) 2 - 3 Minutes (TOC and TN _b) 10 - 15 Minutes (TP)
● Response Time: 1 - 3 Minutes (TN) 2 - 3 Minutes (TOC and TN _b); 5 - 15 Minutes (TP)
● Easiest Operation
● No Filtration Necessary at the Effluent

CATALYST-FREE



THERMAL OXIDATION



• Measurement Principle

TOC and TN_b

The analytical part for the TOC and TN_b measurement is a closed system and consists - apart from the well proved and very reliable combustion unit - of a low-maintenance and simple injection system and robust gas detectors. This enables the **QuickTOC_{NPO}** to perform precise measurements in the low mg/l (ppm) range.

A small and well-defined sample is taken and injected into the carrier gas. The stream of carrier gas is continually directed through the high temperature combustion furnace, where all water contained within the stream is vaporised and all compounds are safely converted to carbon dioxide (CO₂) and nitrogen oxide (NO).

The carrier gas then transports the CO₂ and NO to an electrochemical detector (ECD), alternative to a chemiluminescence detector (CLD) and then to an infrared detector, depending on the application.

Various loop volumes are available, with which, together with variable injection frequencies and different injection volumes, the **QuickTOC_{NPO}** can be adjusted to different industrial and municipal effluent conditions.

As an option, the **QuickTOC_{NPO}** can be additionally equipped to purify ambient air for use as carrier gas, in order to cut costs on bottled gas or instrument air, which then will not be needed.

TP

To measure the TP (total phosphorus) content of the sample stream the sample flows continuously into the TP part of the analyser. In the first step the sample is mixed with concentrated persulfate and sulphuric acid.

This mixture is then pumped into the reactor where it is exposed to ultra violet light. The UV radiation together with the concentrated persulfate completely oxidises the phosphorus compounds into phosphate (PO₄³⁻).

Upon leaving the reactor the sample stream is measured with the molybdenum blue method for phosphate with a batch-type photochemical system.

COD

The chemical oxygen demand will be measured by correlation with the assistance of a factor to the organic carbon.

Data Processing

With the parameters obtained, the built-in personal computer (equipped with a customised and user-friendly software) calculates the actual concentration of TOC, TN_b, TP and COD in the sample.