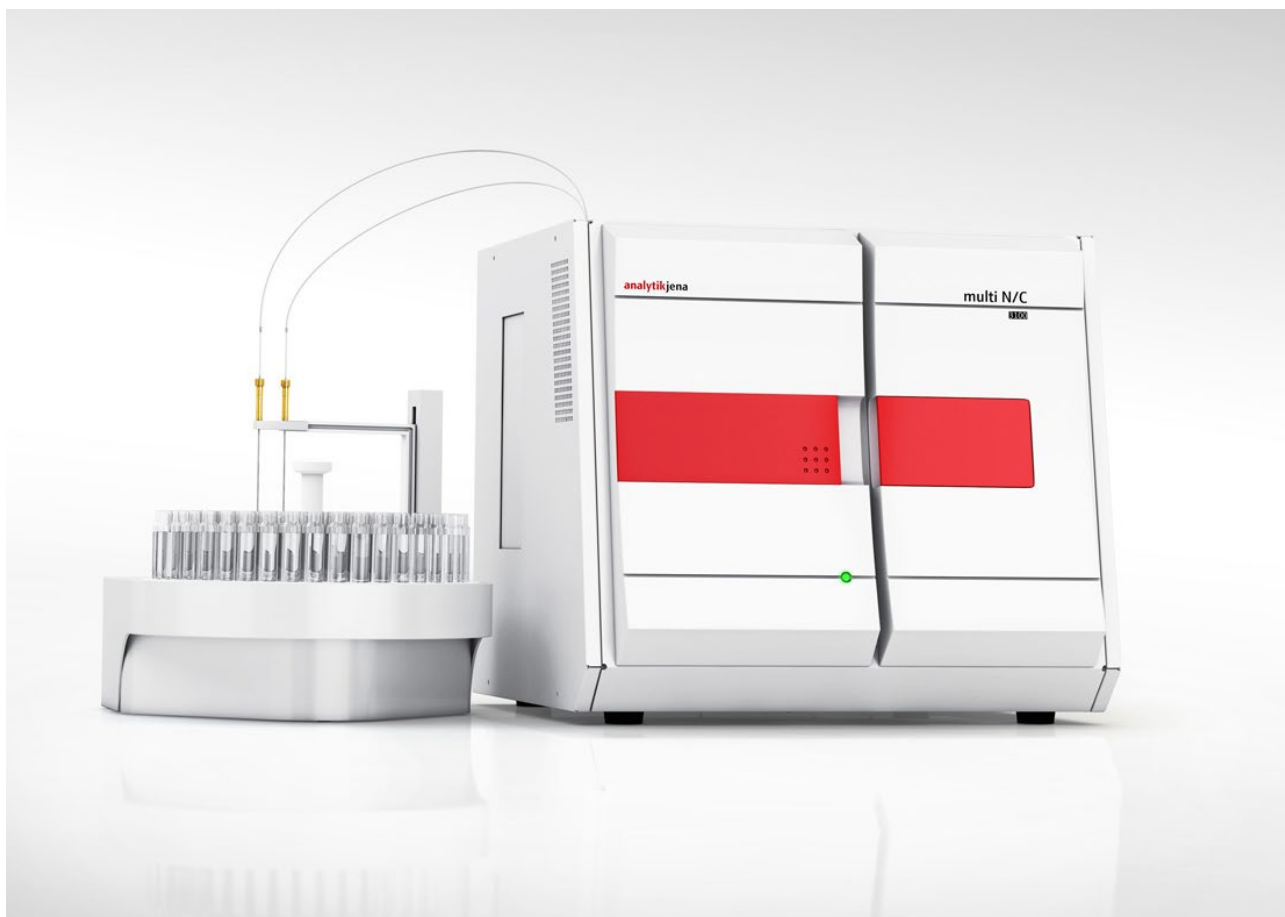


multi N/C Series TOC/TN_b Analyzers / multi N/C duo Systems



Product specifications

multi N/C Series

General

The multi N/C series offers a range of TOC analyzers for the determination of the parameters TOC, NPOC, TC, TIC and POC in aqueous samples. For TIC removal in NPOC determination the samples are acidified and purged. The automatic TIC control function ensures a complete elimination of the TIC.

The analyzers can optionally be upgraded for TN_b determination in aqueous samples and/or for TOC solids analysis.

Different TC/TOC/TIC solids options are available and a fully automated TC/TOC solids option with a robust catalyst-free combustion principle is provided by the multi N/C duo systems. multi N/C duo devices always consist of a combination of a multi N/C basic unit and a HT 1300 solids furnace, equipped with both, a high throughput liquid autosampler and a solids autosampler.

Unique features

- Maintenance-free, wide-range **Focus Radiation NDIR** detector for precise CO₂ detection, equipped with a pulsed, high-power IR radiation source, corrosion-free cell and highly sensitive micro detector. Covered by **10-year long-term warranty^{*)}**.
- **Highly durable furnace unit** for combustion temperatures up to 950°C for combustion-based multi N/C models, covered by **10-year long-term warranty^{*)}**.
- **High-Power Long-Life UV reactor** for models using wet-chemical digestion principle, covered by **3-year warranty^{*)}**.
- **VITA Flow Management System:** highest operating safety and reliable analysis results, also when injecting large sample volumes
- **Easy Cal:** easy calibration with long-term stability, e.g. multipoint calibration with a single standard using different injection volumes, automatic selection of the optimum calibration curve for sample measurements
- **Auto-protection:** protection of valuable system components thanks to effective drying of measuring gas without using desiccants and efficient measuring gas cleaning including monitoring
- **Self-Check System (SCS):** trouble-free operation and maximum uptime for high sample throughput thanks to automatic monitoring of all system parameters important for device safety and quality of the analysis results, including automatic and permanent system tightness check

^{*)} according to the specified warranty conditions on our website

Options to extend the analyzer's application range

TN_b analysis

- Upgrade for a simultaneous determination of the total bound nitrogen according to ISO 20236 or EN 12260 using chemiluminescence detector (CLD)
- **TN_b determination using maintenance-free solid-state chemo detector (ChD)** – no running costs, no additional gas consumption, no additional space requirements
- **Simultaneous TOC/TN determination** from a single injection using the same catalyst / combustion tube filling

Solid TOC analysis

- Determination of TC/TOC in solid samples with integrated double furnace technique or with additional high temperature solid module HT 1300
- **Double Furnace** for solid samples using **catalytic high-temperature combustion** up to **950 °C** in the quartz glass combustion tube of the T-furnace of the basic unit (only multi N/C 2100S) ensures complete oxidation of stable organic compounds
- **HT 1300** for **catalyst-free high-temperature combustion** of solid samples up to **1300 °C** in a robust high-temperature ceramic combustion tube (HTC technology) ensures complete oxidation of most complex matrices (organic / inorganic)
- Strongly extended range of solid applications, e.g. TC/TOC measurement in soil, sludge, sediments, waste, ash, slag, solid fuels, oil shale or renewable raw materials and biomasses
- **Sample weights** of up to **3 g** ensure representative results even for rather inhomogeneous samples
- HT 1300 furnace module in combination with multi N/C 3100 (duo) and multi N/C 2100S (duo) allows **fast switching between liquid and solid analysis** by just a few mouse clicks (built-in valve technology)
- **Fully automated solid analysis** with HT 1300 for up to 48 samples per sequence is available by multi N/C 3100 duo and multi N/C 2100S duo

Instrument Models

multi N/C 2100S

TOC analyzer applying direct injection principle for all TOC/TN_b applications in environmental monitoring, process effluent testing and academia

- Thermocatalytic oxidation up to 950 °C ensures complete digestion of stable compounds
- Wide measuring range from 50 µg/L up to 30,000 mg/L C – even without sample dilution
- Septum-free direct injection by micro liter syringe with wide-bore needles of 0.7 mm I.D. for outstanding particle handling capability (shortest way of sample transport and wide inner diameter)

Product specifications

multi N/C Series

- Bake-out of the injection needle and optimized rinse performance for carry-over-free sample dosing
- Upgradeable with autosampler for liquid samples with 60 or 112 positions
- Allows sampling from 2 mL HPLC vials by utilization of minimal sample volumes (min. 1 mL)

multi N/C 2100S duo

Fully automated liquid and solid TOC analyzer applying direct injection principle for all TOC/TN_b applications in environmental monitoring, process effluent testing and academia

- Thermocatalytic oxidation up to 950 °C for water-based samples ensures complete digestion of stable compounds
- Wide measuring range from 50 µg/L up to 30,000 mg/L C – even without sample dilution
- Septum-free direct injection by micro liter syringe with wide-bore needles of 0.7 mm I.D. for outstanding particle handling capability (shortest way of sample transport and wide inner diameter)
- Bake-out of the injection needle and optimized rinse performance for carry-over-free sample dosing
- Including an autosampler for up to 60 liquid samples, upgradeable for 112 positions
- Allows sampling from 2 mL HPLC vials by utilization of minimal sample volumes (min. 1 mL)
- Including automation for up to 48 samples in ceramic boats for catalyst-free high temperature analysis of solid samples at up to **1300 °C** in a robust high-temperature ceramic combustion tube (HTC technology)
- Maximum **sample amounts** of up to **3 g** ensure representative results even for rather inhomogeneous samples
- Extremely wide working range from 0 - 500 mg C absolute
- Ultra-fast switch-over from liquid to solid applications and vice versa by integrated valve technique (with just a few mouse clicks)

multi N/C 3100

Universally applicable TOC analyzer applying flow injection principle for TOC/TN_b applications – extremely robust and sensitive

- Thermocatalytic oxidation up to 950 °C ensures complete digestion of stable compounds
- Wide measuring range from 4 µg/L up to 30,000 mg/L C – even without sample dilution
- Robust flow injection from injection loop by ceramic valve technique and intelligent sample handling to prevent any carry-over
- Doubled sample throughput by parallel purging and analyzing in NPOC mode
- Wide tubing inner diameters of minimum 0,8 mm for optimum particle handling
- Upgradeable with a range of different autosampler for up to 146 liquid samples (AS 10, AS 21, AS vario, AS vario ER, EPA sampler)

Product specifications

multi N/C Series

- Automatic dilution (free selectable dilution factor up to 1:100) in combination with AS vario

multi N/C 3100 duo

Fully automated liquid and solid TOC analyzer applying flow injection principle for all TOC/TN_b applications
– extremely robust and sensitive

- Thermocatalytic oxidation up to 950 °C for water-based samples ensures complete digestion of stable compounds
- Wide measuring range from 4 µg/L up to 30,000 mg/L C – even without sample dilution
- Robust flow injection from injection loop by ceramic valve technique and intelligent sample handling to prevent any carry-over
- Doubled sample throughput by parallel purging and analyzing in NPOC mode
- Wide tubing inner diameters of minimum 0.8 mm for optimum particle handling
- Including AS vario ER for up to 146 liquid samples and most effective carry-over control
- Automatic dilution (free selectable dilution factor up to 1:100) in combination with AS vario ER
- Including automation for up to 48 samples in ceramic boats for catalyst-free high temperature analysis of solid samples at up to **1300 °C** in a robust high-temperature ceramic combustion tube (HTC technology)
- Maximum **sample amounts** of up to **3 g** ensure representative results even for rather inhomogeneous samples
- Extremely wide working range from 0 - 500 mg C absolute
- Ultra-fast switch-over from liquid to solid applications and vice versa by integrated valve technique (with just a few mouse clicks)

multi N/C UV HS

High sensitivity combined with best matrix tolerance regarding total dissolved solids and acids/alkalis

- Wet chemical sample digestion by hard UV radiation and supported with oxidation agent at increased temperature inside the High-Power Long-Life UV reactor
- Complete oxidation of stable compounds using two energy-rich wavelengths, 254 nm and 185 nm, enables UV-digestion without the use of blank-value prone oxidation agents for reliable ultra-pure water analyses (TOC <1 ppm)
- Sample feed by flow injection for variable, in particular very high injection volumes (up to 20 mL) for rather particle-free samples (preferably particle size < 0.45 µm)
- Wide measuring range from 1 µg/L up to 10,000 mg/L C – even without sample dilution
- Effective blank value reduction by means of automated purge of the reagents
- Upgradeable with a range of different autosampler for up to 146 liquid samples (AS 10, AS 21, AS vario, AS vario ER, EPA sampler)

Product specifications

multi N/C Series

- Doubled sample throughput by parallel purging and analyzing in NPOC mode
- Minimum operating costs – thanks to the use of a highly durable UV radiation source, self-made reagent preparation (according instructions) and minimal maintenance compared to high-temperature TOC analyzers

Software

- Intuitive user guidance by control and evaluation software multiWin in many different languages
- Fast access by big operation buttons
- Comprehensive user-oriented functions
 - User defined checklist for quick start of operation
 - Search, sort and filter functions for methods, calibration and result files
 - Freely selectable sample types (e.g. QC standards, daily factors, various blank types, etc.)
 - Sequences of mixed methods can be created
 - While running a sequence new samples can be added, results can be edited or printed
 - Sample ID's can be assigned automatically
 - Sequence templates can be created and re-used in routine analysis
 - Easy Cal – multi-point calibration from a single standard
 - Extension of existing calibration curves by simple adding of calibration points
 - Linking calibration curves with various methods
 - Up to 3 calibration ranges each parameter and method can be used
 - blank determination and automatic result correction possible
 - Recalculation of results
 - Free choice of results dimension
- Individual User Management (optional)
- Audit trail with filter/search functions (optional)
- Automatic monitoring of maintenance intervals
- Comfortable management and storage of data and parameters
- Automatic or manual data export (PDF, LIMS, CSV), freely editable
- Available as PC version or stand-alone software version for touch-screen operation (tablet PC)*

* only multi N/C 2100S and multi N/C 3100 (not for multi N/C UV HS or multi N/C duo devices)

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