

Thermo Scientific TriPlus 300 Headspace Autosampler

The Thermo Scientific™ TriPlus™ 300 Headspace valve-and-loop autosampler offers quick start-up and enables reliable, unattended high throughput operations with expanded sample capacity.

The Thermo Scientific TriPlus 300 Headspace autosampler offers a comprehensive, flexible solution compatible with standard gas chromatographs (GC) and GC/MS systems, including those using packed and capillary columns, accelerating your organic volatiles determination workflow while minimizing down-time. The autosampler enables users to analyze a larger number of samples more quickly and achieve unparalleled productivity with enhanced sample tray and incubation oven capacity.

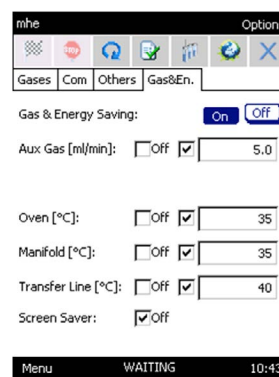
The superior sample integrity and traceability, sample path inertness, seamless integration into multiple chromatography data systems, and immediate local user interface further expand the reliability, flexibility and applicability of the autosampler. The ability to fully comply with existing methods in pharmaceutical, forensic and environmental laboratories makes this autosampler the product of choice for automated and dependable organic volatiles determinations.

The wide range of settable temperatures for the entire sample path enables the TriPlus 300 HS autosampler to be delicate with biological samples and labile analytes and to be suitable for the fastest growing high-temperature headspace applications.

Flexibility is maximized when the TriPlus 300 Headspace autosampler is used with Thermo Scientific™ TRACE™ 1300 Series GC instruments. The modularity of the latter lets the user move the autosampler from one GC to another in minutes, without modifying the GC pneumatics. This can be used to start a new application on a different GC, obtain confirmation on a GC-MS system, or just quickly satisfy incremental workloads. Priority samples can be placed at any sample tray position to rapidly answer urgent analysis needs.



To minimize environmental impact, the TriPlus 300 Headspace autosampler offers automatic and complete deactivation or user-selectable reduction of settings, including temperature, gases, and touch screen intensity.



The TriPlus 300 Headspace autosampler offers controls to reduce energy use.

Analytical Performance	
Typical area repeatability:	<1% RSD*
System Operation	
Sample handling system	Three-axis robot autosampler
Vial size	Without the use of any vial-height adapter, TriPlus 300 Headspace autosampler is compatible with 10, 20, and 22 mL headspace vials with crimped or screwed magnetic caps with flat or rounded bottom style
Vial capacity	120 positions standard. Optional cooled tray for 120 positions, which requires an external circulator bath; optional tray for 60 vials positions.
Oven capacity	18-place electrically driven carousel
Sample overlapping	Yes, with up to 18 vials; timing automatically optimized to keep the equilibration time constant, maximizing throughput. Sample overlapping works also on non-consecutive vial positions of the sample tray.
Operational Settings	
Oven	Temperature: OFF or from 30 °C to 300 °C, settable in 1 °C increments, and with 0.1 °C read out
Equilibration time	0 to 999 min, increment 0.01 min
Vial shaking	None, slow, medium, high
Switching valve	6 ports, electrically actuated; Temperature: OFF or from 30 °C to 300 °C, settable in 1 °C increments, and with 0.1 °C read out
Transfer line temperature	OFF or from 30 °C to 300 °C, settable in 1 °C increments and with 0.1 °C read out
Timing	Pressure equilibration time: User settable up to 5 minutes Vial equilibration time: Up to 999 minutes Loop fill time: Up to 5 minutes Loop equilibration time: Up to 999 minutes Injection time: Up to 999 minutes GC time: Up to 999 minutes
Priority vials and sequences	Yes, indefinite number
Vial pressurization modes	Standard, Pressure, Flow, Volume. All are fully controlled by the auxiliary gas electronic flow control on the unit
Loop fill modes	Standard, Pressure, Custom. All are fully controlled by the auxiliary gas electronic flow control on the unit
Purging	Automated purging of vent and sample paths, fully controlled by the auxiliary gas electronic flow control on the unit. User-selectable settings for time and purge flow
Sample Path	
Loop	Stainless steel coated with inert material (SilcoNert™2000)
Standard loop	1 mL; optional loops: 0.5, 3 and 5 mL
Sample pathway and needle	All sample flow path is stainless steel coated with chemically inert material (SilcoNert 2000)
Transfer line	Stainless steel internally coated with inert material (SilcoNert 2000) Inner diameter: 1.00 mm Length: 80 cm standard; optional extended 1.05 meter transfer line
Pneumatics	

* Analyzing ethanol in water on a TriPlus 300 HS autosampler and TRACE 1300 Series GC with SSL and FID detection. Results could vary with different samples or matrices.

Features

Injection Modes

- STANDARD: Optimized to maximize vial overlapping to ensure the highest throughput
- MHE (Multiple Headspace Extraction): Single and multiple puncture, with up to 100 extractions from a single vial
- MHI (Multiple Headspace Injection): Up to 100 extractions for vial; GC run is started after the last injection
- MDO (Method Developing Optimization): To optimize a headspace method, automatically incrementing one of the following parameters: oven temperature, thermostating time, vial shaking level, number of MHI injections

Other Injection Features

- Automatic vial leak check; does not require calibrations and does not extend analysis time
- Method actions: Skip, pause, continue, ignore, fake injection commands available for leak test, missing vial, wrong vial size and GC not ready
- Automatic hardware diagnostic page, always showing system status logs and alarms for every vial.
- Sound buzzer available to alert operator of sequence events or system error status.
- Gas and Energy Saving becomes active after 10 minutes of complete inactivity when selected; automatic complete deactivation or user-selectable reduction of settings (temperature, gases and touch screen intensity) to reduce the environmental impact.
- Clock Events function allows the scheduling of unattended events (load a method, start a sequence, gas and energy saving) once, daily, weekly, or at a selectable date and time.
- Automatic conditioning capabilities: User-settable time for conditioning heated zones, in order to obtain a higher temperature stability before a vial is loaded.

Pneumatics

- Equipped with two separate inlets on the rear for carrier gas and auxiliary gas
- Carrier gas can be regulated by three different systems: Gas chromatograph, TriPlus 300 HS autosampler, or both of them.

Barcode Reader Option

- Barcode reader with support for checksums and following fonts: Code 128; 3 of 9; Matrix 2 of 5; Standard 2 of 5; Interleaved 2 of 5; UPC-A; EAN/JAN 13; EAN/JAN 8; UPC-E; QR Code (2D)

Communications

- Seamless integration in Thermo Scientific GC and GC/MS software like Thermo Scientific™ Dionex™ Chromeleon™ Chromatography Data System, Xcalibur™, ChromQuest™ and ChromCard. Control drivers available for various third party CDS systems.
- Oven unit communications ports include LAN, USB, and two RS232. Also start-out contact closure and ready-in contact closure.
- One RS232 autosampler port, 1 start-out signal, and 1 ready-in signal

Safety and Regulatory Certifications

TriPlus 300 Headspace autosampler is in compliance with the following applicable directives and product standards:

- Electromagnetic Compatibility Directive 2004/108/EC
- Low Voltage Directive 2006/95/EC
- EMC EN 61326-1: 2006
- EN 550141: 2009, Class A Group 1
- IEC 61326-1: 2005
- CSPR 11: 2009, Class A Group 1
- Title 47 Communication FCC Part 15 (2007), Class Digital Device
- EN 61010-1:2001 (2nd Edition)
- IEC 61010-1:2001 (2nd Edition)
- CAN/CSA –c22.2 No. 61010.1–04
- UL Std. No. 61010-1 (2nd Edition)
- Designed and manufactured under a quality system registered to ISO 2001

Declaration of conformity available

Specifications

Compatible carrier gas:	Hydrogen, helium, nitrogen	
Auxiliary gas	User-selectable: helium and nitrogen	
Auxiliary gas electronic flow control	Flow rate:	10 to 300 mL/min
	Precision:	+/- 0.1 mL/min
	Safety control:	On auxiliary gas presence
	Maximum inlet pressure:	9 bar
	Vial pressure:	Up to 4 bar
Pressure settings	bar, psi, kPa	
Vial vent	Residual headspace vial pressure optionally eliminated via a "vent" port which can be connected to a trap or a fume hood if needed.	
Carrier gas electronic control option	Pressure range:	0–120 psi
	Carrier gas flow rate:	max 1000 mL/min (He)
	Compatible gas types:	He, N ₂ , H ₂ , Ar, Ar+5%CH ₄
	Compatible columns:	Packed columns, wide-bore and capillary columns
	Operation modes:	TriPlus 300 HS control (direct control), TriPlus 300 HS +GC mode (additional flow)
	Pressure/flow programming:	Constant or programmed flow, constant or programmed pressure.
	Flow programming:	24 ramps
	Pressure programming:	24 ramps
	Pressure setpoint increment:	0.01 psi
	Flow setpoint increment:	0.1 mL/min
	Atmospheric pressure and temperature compensation:	Yes
	Synchronization with GC oven:	Up to 25 oven ramps and 26 isotherms

Touch Screen Graphic User Interface

Display	LCD TFT, 5.7"
Resolution	240 × 320 pixels
Colors	65,536
Methods	Up to 100 methods can be stored directly on the TriPlus 300 Headspace autosampler GUI together with 5 different sequences with 25 lines each
Password control	Lock/Unlock password-assisted controls for configuration changes or maintenance activities

Power Supply

Oven unit	100–120/ 200–240 V~(±10% max), 50/60 Hz, 1300 VA
Autosampler	85–264 V (autoranging)

Dimensions and Mass

TriPlus Headspace	Depth		Width		Height		Mass	
	cm	in	cm	in	cm	in	kg	lbs
	55	22	82	32	73	29	63	139

Environmental Conditions

Operating temperature range	0 °C to 40 °C
Relative humidity range	5 to 95% (without condensation)
Operating altitude	Up to 3500 m above sea level

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Africa-Other +27 11 570 1840
Australia +61 3 9757 4300
Austria +43 1 333 50 34 0
Belgium +32 53 73 42 41
Canada +1 800 530 8447
China +86 10 8419 3588
Denmark +45 70 23 62 60

Europe-Other +43 1 333 50 34 0
Finland/Norway/Sweden
+46 8 556 468 00
France +33 1 60 92 48 00
Germany +49 6103 408 1014
India +91 22 6742 9434
Italy +39 02 950 591

Japan +81 45 453 9100
Latin America +1 561 688 8700
Middle East +43 1 333 50 34 0
Netherlands +31 76 579 55 55
New Zealand +64 9 980 6700
Russia/CIS +43 1 333 50 34 0
South Africa +27 11 570 1840

Spain +34 914 845 965
Switzerland +41 61 716 77 00
UK +44 1442 233555
USA +1 800 532 4752

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