

Thermo Scientific TRACE 1300 Series Gas Chromatograph

The Thermo Scientific TRACE 1300 Series Gas Chromatograph is the latest technology breakthrough conceived to substantially elevate performance in QA/QC and routine laboratories. Engineered around newly developed proprietary injectors and detectors, available as user-exchangeable, instant connect modules, these GC platforms offer greater flexibility over previous instrumentation at a lower cost of ownership.

Productivity Solution for your Needs

The TRACE™ 1300 Series GC consists of two models designed to meet the specific needs of all laboratories. The TRACE 1310 GC features a complete icon-driven touch-screen user interface ideal for direct instrument control in larger routine and method development laboratories. The TRACE 1300 GC is the budget-conscious investment for the basic routine laboratory looking for an intuitive single-button system, that provides ease of use with minimal instrument interaction. Both instruments offer the same user-exchangeable, instant connect injector and detector modules and fast oven performance with exceptional retention time stability to reach an incredibly high lab productivity at reduced cost of ownership.



TRACE 1300 GC



TRACE 1310 GC

“Instant Connect” Injector and Detector Modules

User-exchangeable miniaturized, plug-in injectors and detectors redefine usability in routine and high throughput laboratories. In two minutes, without special training or tools, the user can change the instrument configuration to respond to a specific work load by simply swapping injector and detector modules. This unique “Instant Connect” capability also offers a way to dramatically reduce any maintenance downtime by using back-up modules.

Powerful Breakthroughs for Ultimate Productivity

Increased injector robustness enables the GC to handle dirtier matrices and reduce sample preparation, resulting in an increased savings of time and money.

A complete new range of micro volume GC detectors guarantees higher sensitivity to limit sample re-concentration requirements or reduce injected sample amount. Fast peak detection and wide response linearity complement sensitivity to further boost laboratory performance.

Product Specifications

Performance Specifications

- Typical Retention Time Repeatability: <0.0008 min
- Typical Peak Area Repeatability: <0.5 % RSD

Oven Specifications

- Column Oven (H × W × D): 27 × 27 × 17.7 cm; 12.9 L
- Operating Temperature Range: ambient +3 °C to 450 °C
- Cryogenic Option Minimum Temperature: -100 °C with liquid Nitrogen; -50 with liquid CO₂
- Temperature Set Point Resolution: 0.1 °C
- Number of Ramps/Plateaus: 32/33
- Maximum Heating Rate: 125 °C/min

T Range °C	Heating Rate °C/min	
	Model: 220 Volts	Model: 110 Volts
50 to 70	125	90
70 to 115	100	65
115 to 175	80	50
175 to 300	50	30
300 to 450	35	20

- Oven Cool-Down (22 °C ambient): 450 °C to 50 °C in <4 minutes
- Ambient Rejection: <0.01 °C per 1 °C

IEC (Integrated Electronic Control) Gas Specification

- Up to 18 channels of integrated electronic gas control
- Pressure Set Points Minimum Increments: 0.01 kPa-0.001 psi in all ranges

Carrier Gas Control Common to all Injectors

- Split Ratio: Up to 12500:1
- Pressure Range: 0–1000 kPa (0–145 PSI)
- Modes: Constant and programmed pressures and flows
- Total Flow Setting:
 - Control of split flow in 1 mL/min from 0 to 1250 mL/min
 - Purge flow from 0 to 50 mL/min

Optional Instant Connect Auxiliary Gas Module

- Allows for the control of three additional gas channels

Injectors

- Maximum Number Injectors Installed: 2
- Available as Instant Connect, user-exchangeable modules

Instant Connect Split/Splitless

- Suitable for all capillary columns (50 µm to 530 µm i.d.)
- Compatible with 1/8" and 1/16" packed column using adapters. Supports P&T/TD/HS by special adapter. Compatible Merlin Microseal™ septum.
- Dedicated split/splitless injector with integrated backflush capabilities
- Maximum Temperature: 400 °C

Instant Connect Programmable Temperature Vaporizer

- Supports hot/cold split and splitless modes as well as large volume injections (solvent split) and On Column (TPOC). Compatible Merlin Microseal septum.
- Dedicated PTV injector with integrated backflush capabilities
- Temperature Range: Air forced cooling to ambient +5 °C up to 450 °C
- Cryogenic Option Minimum Temperature: -100 °C with liquid nitrogen; -50 °C with CO₂
- Temperature programming of up to 3 ramps at up to 870 °C/min

Detectors

- Detectors Available: Flame Ionization Detector, Thermal Conductivity Detector, Electron Capture Detector, Nitrogen Phosphorus Detector, full range of Thermo Scientific mass spectrometers
- Available as Instant Connect, user-exchangeable modules
- Maximum number Installed: 3 including a mass spectrometers on the same oven
- Fast Data Acquisition Rate: up to 300 Hz for FID, TCD, ECD, and NPD

Instant Connect Flame Ionization Detector

- Capillary column optimized compatible with 1/8" and 1/16" packed column
- Flameout detection and automatic re-ignition
- MDL: <1.8 pg C/s
- Sensitivity: >0.03 Coulombs/gC
- Linear Dynamic Range: >10⁷ (±10%)
- Maximum Temperature: 450 °C in steps of 0.1 °C
- IEC:
 - Air: 0–500 mL/min in 0.1 steps
 - H₂: 0–100 mL/min in 0.1 steps
 - Makeup gas (N₂ or He) 0–50 mL/min in 0.1 steps

Instant Connect Thermal Conductivity Detector

- Capillary column optimized (micro TCD) compatible with 1/8" and 1/16" packed column
- Maximum Temperature: 400 °C in steps of 0.1 °C
- MDL: <400 pg tridecane/mL with He carrier or <20 pg tridecane/s with a total flow through the cell of 3 mL/min
- Linear Dynamic Range: 10⁵

Instant Connect Electron Capture Detector

- Radioactive Source: 370 MBq equal to 10 mCi, ⁶³Ni
- MDL: <6 fg/s lindane
- Linear Dynamic Range: >10⁴ with lindane
- Maximum Temperature: 400 °C in 0.1 °C steps
- IEC: 0 to 500 mL/min makeup in 0.1 steps
- Make-up Gas: Nitrogen or 95% argon/5% methane

Instant Connect Nitrogen Phosphorus Detector

- NPD available with ceramic beads and compatible with element-specific sources
- MDL: <20 fg P/s and <100 fg N/s with standard ceramic bead
- Selectivity: gP/gC = 200000; gN/gC = 80000
- Linear Dynamic Range: 10⁴
- Maximum Temperature: 450 °C in steps of 0.1 °C
- IEC:
 - Air: 0–500 mL/min in 0.1 steps
 - H₂: 0–10 mL/min in 0.1 steps
 - Makeup gas (Nitrogen): 0–50 mL/min in 0.1 steps

General Specifications

- Heated Zones: Up to 7
- Time Events: 63. Support up to 8 valves
- Operating Altitude: Up to 3500 m above sea level
- Dimensions (H × W × D): 45 × 44 × 67 cm
- Weight (Kg): 35 Kg main unit plus 0.8 Kg each module

Certifications

Conforms to the following safety standards:

- International Electrotechnical Commission (IEC):
61010-1:2001 - 61010-2-010:2003 - 61010-2-081:2001 + A1:(2003)
- CAN/CSA C22.2 No. 61010-1 and UL 61010-1
- EuroNorm (EN): 61010-1:2001 - 61010-2-010:2004 - 61010-2-081:2002

Conforms to the following regulations on Electromagnetic Compatibility (EMC) and Radio Frequency Interference (RFI):

- CISPR 11/EN 55011: Group 1 Class A
- IEC/EN 61326-1:2006

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