

High Performance Mutimode Inlet (MMI) for Gas Chromatography

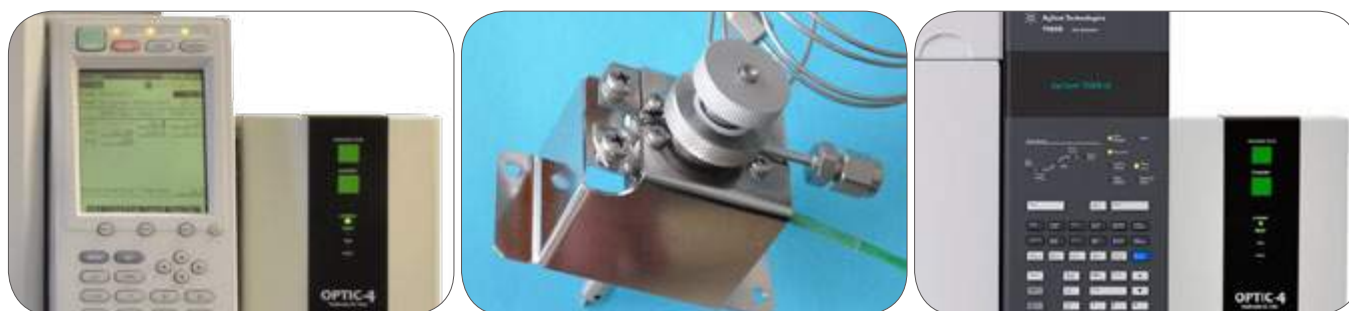
OPTIC-4



OPTIC-4, fourth Generation Multimode Inlet (MMI)

OPTIC-4 is a high performance inlet system for gas chromatography. Designed to be installed easily onto virtually any make or model of gas chromatograph, OPTIC-4 offers the widest range of injection modes for a vast array of sample types.

The patented low thermal mass design of the OPTIC-4 inlet body combined with direct resistive heating technique provides rapid linear temperature programming up to 600 °C at rates as high as 60 °C/sec. In addition to standard sampling modes, the programmable inlet can operate effectively with Large Volume Injections, Cold Injections, Pyrolysis or Thermal Desorption sample introduction. With the options for sub-ambient cooling, cryogenic trapping and automated liner exchange, OPTIC-4 is the world's most versatile inlet for Gas Chromatography.



Control software

Method development

The OPTIC control software - Evolution Workstation - gives the user maximum flexibility with method development. When creating a new method, there is a choice of standard method templates like Split, Splitless, Large Volume Injections, etc. Each method can be converted to an Expert type, when maximum flexibility is needed. The method graphical display is very helpful for rapid method development.

Method optimization feature

With a special feature in Evolution Workstation, a step-based sequence can be generated to examine the best settings of almost any method parameter. This optimization feature is very useful when developing a method.

Run-time data

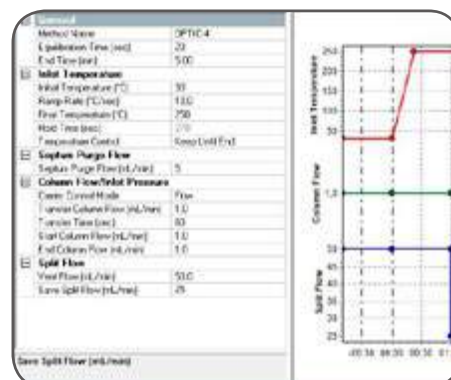
The method run-time data can be stored for future reference and audit purposes.

Column flow/pressure calculator

With the build-in flow/pressure calculator, different, single and multi-column configurations can be set up in no-time. This is especially useful when developing a 2DGC or GCxGC methods.

Software integration

The Evolution Workstation can be integrated into Master Lab, Chemstation, MassHunter, Clarity, Analyst, EZChrom, Xcalibur and GCMS Solution. The integration is provided either directly or via Chronos software.



Specifications

General

- Dimensions: 34 cm x 14 cm x 34 cm (h x w x d), weight: 6.7 kg (controller)
- Ambient operating temperature range: 18 – 40 °C, ambient operating humidity: 40 – 70 %
- Mains power: 100 - 240 VAC, 50-60 Hz
- Typical power consumption: 150 W, maximum power consumption: 450 W

Inlet

- Full electronic pressure/flow control
- Maximum operating temperature: 600 °C
- Cooling: air (down to 35 °C), LCO₂ (down to -50 °C), LN₂ (down to -150 °C)
- Temperature ramp rates: 0.1 - 60 °C/sec
- Works with SPME arrow
- Two available liner types: ¼ inch and 5 mm O.D.

EFC

- Full electronic control of column, split and septum purge flows
- Pressure range: 7 -700 kPa
- Total flow range: 5 - 500 ml/min He (main channel), 1 - 100 ml/min He (aux. channel)
- Pressure sensor: accuracy : ± 1 % full scale, repeatability: ± 0.2 % full scale
- Flow sensors: accuracy : ± 1 % full scale, repeatability: ± 0.2 % of full scale
- He, N₂ or H₂ as carrier gas at a maximum pressure of 700 kPa
- Solvent sensor in the split line

Interfaces

- LAN and USB
- Four auxiliary relay outputs (30 V/500 mA max.)
- Remote start/stop to GC and autosampler

Options

Cryogenic Trap

Cryogenic cold trapping is frequently used for narrowing the chromatographic band and improving the detection limit. The OPTIC-4 cryotrap uses either liquid Nitrogen (LN₂) or CO₂ for cooling. Due to low thermal mass of the trap, the cool-down time is very short. After trapping, the analytes are released from the trap using highly accurate and very rapid heating. This ensures that trapped analytes are transferred into the column in a narrow chromatographic band.



LINEX

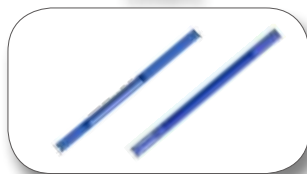
LINEX is the automated liner exchanger option for the OPTIC-4. LINEX can be used for different analytical techniques, including direct, inlet Thermal Desorption (TD). Liners are transported between tray and inlet using PAL autosampler. For typical TD applications, a liner filled with Tenax can be used. A liner that can hold a micro-vial can be used for automated pyrolysis of liquids and solids.

GC Consumables by GL Sciences B.V.

InertCap® GC Columns



Liners



LD239 - Leak Detector



Why you need OPTIC-4:

Temperature Range

The patented low thermal mass design of the OPTIC-4 inlet body combined with direct resistive heating technique provides rapid linear temperature programming up to 600 °C at rates as high as 60 °C/sec.

Solvent Monitoring

The electronic gas control of the OPTIC is equipped with a sensor in the split line. This solvent monitor can be used with large volume injections to check if most of the solvent has been removed. The sensor is a unique solution for large volume injections.

Thermal Desorption

The OPTIC-4 can be used for thermal desorption of solid samples as well as samples adsorbed on Tenax. A standard, 5 mm or ¼-inch OD Tenax-packed liner or liner with a solid sample can be placed in a cold inlet for subsequent TD analysis.



Large Volume Injections

By increasing sample injection volume from 1 to 100 µL, analytical sensitivity can be greatly enhanced for analytes with low concentrations.

Volatiles & Non-Volatiles

Most of the standard GC inlet systems are not capable of proper, satisfactory transfer of both volatiles and non-volatiles to the GC column. This is due to poor temperature profile of such standard inlets. With OPTIC-4, it is possible to perform a cold injection. Due to excellent temperature control and perfect inlet temperature profile, the analytes are not lost on their way to the column.

Pesticide Analysis Applications

Pesticide recoveries are a lot better with OPTIC-4 compare to other inlet systems due to excellent temperature profile and ultra-inert liners. This is conform US EPA method 8270.

Pyrolysis Application

The OPTIC-4 is often used for pyrolysis applications with both liquid and solid samples. It offers several pyrolysis modes: single shot, multistep programmed pyrolysis, sample cup or micro-vial, Evolved Gas Analysis (EGA) and reactive pyrolysis.

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