GL Sciences

High Performance Mutimode Inlet for Gas Chromatography

OPTIC-4 ¼"

4th generation OPTIC

OPTIC-4 is the ultimate among high performance inlet systems 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 ¼ inch version is made to be used with the industry standard thermal desorption tubes tubes (¼ inch OD x 3½ inch long).

One inlet, more analytical options

The patented low thermal mass design of the inlet body together with direct resistive heating provide fast linear temperature programming up to 600 °C at rates as high as 30 °C/s. 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.




Why OPTIC-4 ¼ Inlet?

- Works from cryogenic temperatures (-180 °C) to very high temperatures (600 °C)
- Heats up quickly with the ramp rate ranging from 0.1 °C/sec to 30 °C/sec
- Cools quickly with any of the three available cooling options - less than 100 sec from 600 °C down to 40 °C
- Has uniform temperature profile
- Allows up to nine temperature and flow steps to be programmed
- Accommodates injections of a wide range of sample volumes
- Shows no discrimination up to C100
- Inert, shows minimal decomposition or degradation of labile compounds
- Offers full electronic pressure/flow control including septum purge flow
- Supports direct (in-inlet) sampling techniques like pyrolysis, thermochemolysis and thermal desorption (single and multi-shot)
- Equipped with special solvent sensor in the split line for automated solvent venting
- Offers cryotrap option with quick cooling and heating ramp rates (up to 60 °C/sec)
- Offers automated liner exchange option
- Provides multiple cooling options for inlet and cryogenic trap (compressed air, liquid CO2 and liquid N2)
- Compatible with most makes of GC's and autosamplers
- Compatible with 11 mm septa, Merlin Microseal™

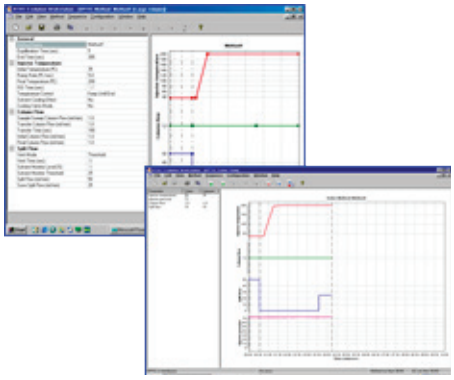
Thermal Desorption on top of the column

The advantage of the OPTIC-4 ¼ inch version is that for thermal desorption there is no transfer line at all. The thermal desorption happens on top of the column so compounds are transferred from tube to the column in a very fast way. The fast transfer, results in better peak shapes and the absence of a transfer line helps to transfer active compounds.

It is possible to introduce an internal standard with a PAL System. The PAL System injects an liquid internal standard into the TD tube and the solvent will be vent away. Once the solvent is gone the TD tube is heated and the compounds will move from the sorbent to the analytical column.

Control software

Evolution Workstation software offers state of the art OPTIC inlet control in a user-friendly way. Based on years of experience it extends OPTIC-4 features and optimizes the analytical output.



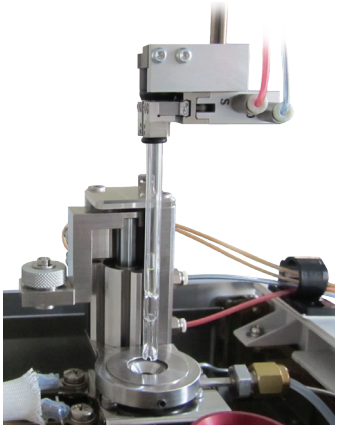
- Standard supplied with every OPTIC-4
- Complete status information at any moment during run or standby state
- Real-time graphical run-time parameters display
- Multiple columns configuration can be set
- Easy, on-click analytical method definition and development
- Automatic generation of a method optimisation sequence
- Possibility to save the run-time data for every injection
- Direct control of the instrument in standby state
- Up to 9 steps for both pressure or flow programming
- System and method log files
- Password protection with two access levels
- Build in column flow/pressure calculator
- Modulator control for GCxGC
- Deans' Switch control
- Windows 7, 8, 10 compatibility
- Integration into Master Lab, Chemstation, MassHunter, Clarity, Analyst, EZChrom and Xcalibur by the Chronos master software
- Integration into Shimadzu GCMS Solution (contact Shimadzu)
- Free updates

Automated Liner Exchanger Option (LINEX)

LINEX can be used for automated Direct Thermal Desorption. Liners or TD tubes are transported between tray and inlet by the CTC PAL Systems equipped with a gripper. Any of the OPTIC liners can be handled by LINEX.

With LINEX it is also possible to store the liner with caps, the caps are removed by the capping/de-capping station and placed into the OPTIC inlet. Next could be a liquid injection of an internal standard. The solvent of the standard will be vented away and the TD tube will be heated.

More informaton about LINEX.



LINEX, Automatic liner exchanger

CryoTrap option

Cryogenic cold trapping is frequently used for narrowing the chromatographic band and improving the detection limit. The cryotrap uses LN2 or CO2 for cooling, due to our low thermal mass the cooling is really fast. The CryoFocus has direct heating of the cooling chamber, resulting in very fast heating of the trap.
After trapping the analytes must be released from the cryotrap using a highly accurate and very fast heating ensuring that they are introduced onto the column in a very sharp band. With a fast heating cryo-trap better detection limit and better resolution can been seen on the detector.

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: up to 600 °C at a GC oven temperature of 35 °C
- Cooling: air (down to 35 °C), LCO2 (down to -50 °C), LN2 (down to -180 °C)
- Temperature ramp rates: 0.1 - 30 °C/sec
- Up to nine temperature program ramps including negative

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

Software
- Method and sequence definition and development
- Real-time system status display
- Automatically generated optimization sequences
- Direct control of the instrument in Standby mode
- System run log file
- Password protection with two access levels

Cryogenic Trap Option
- Operating temperature range : -150 °C to +350 °C
- Temperature ramp rates: 1 - 60 °C/sec
- Cooling: LN2 from pressurized (150 -200 kPa) vessel

Contact

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