

# PEGASUS<sup>®</sup> BT 4D

## System Performance Sheet



### Analytical Performance GCxGC

Detection Limit	Signal to noise $\geq 10$ for injection of 10 fg of OFN @ 200 spectra/sec
IDL	< 5 fg for 8 replicate injections of 10 fg of OFN
Spectral Acquisition Rate	Up to 500 spectra/sec
Linear Dynamic Range	$\geq 4$ orders
Minimum Peak Width, FWHH*	60 ms
Typical Peak Width, FWHH*	60-200 ms
Second Dimension Retention Time Reproducibility, St Dev	10 ms
Column Flow Compatibility	Direct (no split)
Flow Rate	Recommended 1 to 2.0 mL/min of He
Peak Tailing Factor of Methyl Undecanoate	< 1.5
Hydrogen Carrier Gas GCxGC	Yes
LN <sub>2</sub> Modulator Volatility Range	C <sub>4</sub> to C <sub>40</sub>
Cryogen-Free Modulator Volatility Range	C <sub>8</sub> to C <sub>40</sub> n-alkane

### Software Functionality

Fully integrated to include all acquisition, GCxGC control, data processing and reporting; ChromaTOF brand software (v 5.x)

Automated Deconvolution of GCxGC data

Variable Modulation (within run)

Fast Target Analyte Peak Finding (TAF)

Fully integrated GCxGC hardware support for liquid nitrogen and cryogen free modulation

3D GCxGC views (contour, wireframe, and surface)

Simply GCxGC™ and GCxGC Column Calculator

Classify regions on 3D GCxGC views and by mass filters

General Application Column Set and starting method provided

Easily switch to 1D mode while in 2D setup

\*Depends on 2nd dimension column and conditions

## Thermal Modulators (Dual Stage, Quad Jet)

Coolant	
LN <sub>2</sub> Modulator	Liquid nitrogen
Cryogen-Free Modulator	Immersion Cooler
Minimum Temperature	GC oven temperature +3 °C above the GC oven temperature for ambient-cooled GC ovens, typical +30 °C
Maximum Temperature	400 °C
Maximum Heating Rate	40 °C/minute
LN <sub>2</sub> Modulator Cold Jet Flow, Gas Pressure	~6 lpm/30 psi (2.07 bar), dry nitrogen (dew point < -50 °C) with periodic defrosting as needed
Cryogen-Free Modulator Cold Jet Flow, Gas Pressure	~10 lpm/30 psi (2.07 bar), dry air (dew point < -50 °C) with periodic defrosting as needed
Hot Jet Flow, Gas Pressure	~20 lpm/30 psi (2.07 bar), dry air
Modulation Periods	1 to 65 seconds
Hot Pulse	Minimum, 100 ms; 400 ms typical

### Secondary Oven

Minimum Temperature	GC oven temperature +5 °C above ambient-cooled GC ovens
Maximum Temperature	400 °C
Heating Rate, Maximum	40 °C per minute
Cooling Gas, Flow Pressure	Air, ~180 lpm/30 psi (2.07 bar) (same source as hot jets)

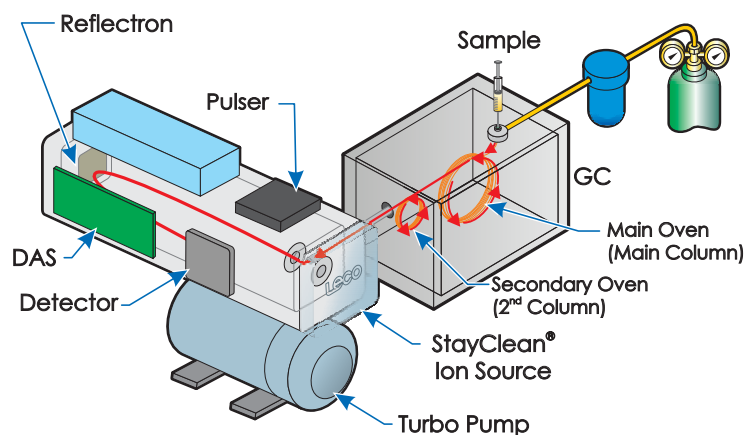
### Liquid Nitrogen Dewar (LN<sub>2</sub> Modulator only)

Volume	Approximately 2 liters
Usage for Single Fill	Approximately 1 hour per fill, depending on modulation parameters
Usage for 160 L Tank	Approximately 48 hours, depending on operating parameters
Liquid Nitrogen Source	Fill GCxGC dewar from low-pressure (typically 22 psi [1.52 bar]) liquid nitrogen dewar

### Compatible Autosamplers

Agilent 7650 Autoinjector; Agilent 7693A Autoinjector (Large sample tray compatible)
LECO L-PAL3 Liquid/HS/SPME/ITEX and Automatic Tool Exchange (ATX) Autosampler
Other autosamplers can be used via contact closure and 3rd party software control

## GCxGC-TOFMS Diagram



For theory of operation, refer to the GCxGC Spec Sheet (209-184-001).

For analytical parameters for the Pegasus BT, refer to the Pegasus BT Spec Sheet (209-251-001).

Patents  
US Pat. No. 9,123,521; US Pat. No 7,501,621; PRC Invention Patent ZL201380021654.6  
PATENT PENDING

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