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Turnkey Laboratories Solutions

Analytical®
Technologies Limited

GC-MS-3068
Gas Chromatograph
Mass Spectrometer 3068

- High performance, high reliabillity
- Low cost for customers of all types
- Holding multiple patents

EPC / PRODUCTS / APPLICATION / SOFTWARE / ACCESSORIES / CONSUMABLES / SERVICES

Analytical Technologies Limited

An ISO 9001 Certified Company

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GC-MS-3068

Gas Chromatograph - Mass Spectrometer 3068

GCMS 3068 -- High performance-to-price ratio

Introduction:

ATL'S new generation Gas Chromatograph mass spactrometer (GC-MS) system offers high performance, high reliability, and low cost for customers of all types. Holding multiple patents, ATL manufactures high quality GC-MS 3068 which is widely used in industrical inspection, food safety, environmental protection, etc.

Hardware:

Electronic pressureflow control system (EPC/EFC) on GC 3068improves baseline stability and sensitivity.
Patented EI filaments provide high efficiency of electron emission.
Pre-quad removes undesirable contamintion before the main analytical quadrupote and decreases cleaning frequency
High quility vacuum system combined with high energy dynode (HED) electron multiplier (EM) offer magnificent sensitivity
Self-protevtor safeguards the system against the situations, which would normally damage expensive components and require significant repair.
Advanced digital compensation technology on Radio Frequency (RF) power supply guarantees satisfactory sensivity and resolution over full mass range.

Analchrom is the workstation software for GC-MS 3068 it features
a user-friendly interface to simultaneously control autosampler, chromatograph and mass spectrometer. Using high speed net card. Software have Security, Audit trail, System check, Software integrity and system Suitability test should as standard functions. Flexible report Format for Method, chromatogram, Mass Spectrum, Peak table, Quantitation result, calibration curve, Status Log, texts, graphics. Automated tuning & File management functions with Library Search facility.

In INDIA, ATL has been the only authorized distributor of NIST database (induding retention time, molecular Structure. ctc). which is the most popular for mass spectral seach and examination of unknowns and target compounds in qualitative and quantitative analysis.
Complete Software control of vacuum system with Auto Start-up / Shut-down and vacuum protection against Power Failures.

Specification:

Temperature program steps	24 steps
Heating zone	6
Display	Graphical user interface with large LCD display
Capability to control electronically	16 channels for gas
Capability to install	5 detectors +1 MS detector + 3 sample injectors with independent temperature control
Channel analysis	3
Data acquisition speed	≤ 3ms (250Hz) for all modules
Pressure and detector gas	digitally controlled
Memory	able to store 14 methods
Safety feature	Memory Protection When Power Off, Leakage Detection, Power line Failure
Self diagnostic	provided
Pressure	0 to 150 PSI
Operating Temperature range of inlet	50°C to 450°C in 1°C increments
Injection volume	Up to 150 µL
Retention time repeatability	<0.0008 min
Peak area repeatability	<1 % RSD

Injection Port :

Independently temperature controlled injector units are provided Injection port unit: Split/split less injection unit provided as standard injection ports shall be heated simultaneously

Oven Specfications

Temperature range Ambient +4°C ~ 450°C	
Column oven dimension	278x310x165mm=15L; accommodate up to 2pcs 105m x 0.53mm ID capillary column
Oven volume:	15 Liters
Temperature calibration at	0.04°C
Temperature variation coefficient:	0.040°C/0°C
Programming rate setting:	130°C/min
Cooling rate:	450°C to 50°C within 1 minute
Temp. accuracy	0.1°C
Oven temperature programmed rate setting range	-250 to 250°C.
Total system time:	~9999.99 min
Temperature set point resolution:	≤0.1°C
Temperature deviation:	≥ 2°C
Ramp rate	120°C/min
Heating ramp	20 ramps
Negative ramps are allowed	

Mass Spectrometry Specifications

Mass range:	M/z 1 to 1300
Mass Stability	±0.1 amu / 48 hours
Resolution:	R=1M (FWHM)
Scan rate:	20000 amu/sec max.
Direct connection with capillary column	
Temperature:	room temperature to 450°C
Ion source:	up to 450°C
Dynamic range :	10e6
Maximum flow of He to MS :	18 ml/min
Stabilizer :	0.1 amu/48 hour
Temperature:	50 ~ 450°C
Filament	Dual
Sensitivity (Signal/Noise)	EI scan: 2000:1 S/N for 1 pg OFN
MDL	8 sequential 10 fg OFN Split less injections monitored, chromatographic peak area with 99% confidence interval: IDL ≤ 5 fg
Electron Ionization Voltage	10-200 eV
Electron Ionization Current	5-250 µA
Detector	Electron Multiplier
Ionization Mode	Electron Ionization

Detectors:

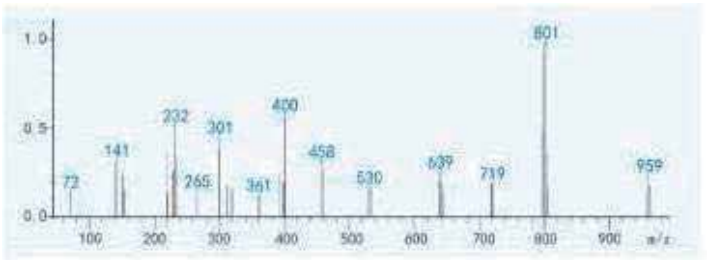
Detector	Max operating temp.	Limit of detection	Baseline noise	Baseline drift (after 2hrs stabilization)	Linear dynamic range
FID	450°C	≤1.4 pgC/s	<2 x 10^{-14} A	5 x 10^{-14} A/30min	≥10^{7}
ECD	450°C	≤3 x 10^{-14} pg/ml	<20uV	< 50uV /30min	≥10^{4}

Application:

Industrial Inspection
Food safety and hygiene
Enviromental Protection
Pharmaceutical development
Criminal investigation/Forensics

Example:

Poly Brominated Biphenyis (PBBs)/Poly Brominated Diphenyl Ethers (PBDEs)



Mass spectrum of deca polytrominated biphemyl ethers

Auto sampler:

- Vial capacity: 2 mL (Optional micro-volume vials: 300 µL)
- Big displayer with double -tower automatic injection;
- Tray vial quantity: 16 or 150;
- Injection volume: 0.1-100uL;
- Sampling accuracy:+0.01uL;
- Injection Port: split/splitless capillary
- **Sample injection method: Liquid sample injection**
- Injection needle: 5, 10, 50, 100uL;
- Injection loop: multiport(0.25ml, 0.5ml and 1ml)
- Injection repeatability: <0.5%
- Maximum Temperature: 450°C
- Cross contamination: Less than 10^{-4}
- Temperature control range: RT+5°C~ 450°C (0.1°C)
- Maximum Pressure: 0-150 psi (with EPC)
- Vial volume: 10 ml to 22 ml
- Transfer line based with loop system for precise quantification
- Transfer Line to the GC temperature range: 50 to 200 Degree
- Automatic leak check and gas saving facility
- System heating up to 200°C or better in increments of 1°C with shaker
- 100 sample vial capacity

Libraries:

Latest NIST Library, Wiley, Pesticide Library, FFNSC Library etc.

Split/Split less:

Packed purge injection port (PPIP)
Split/splitless capillary port (S/SL)
1) Max Temperature: 450"
2) Split ratio: 12500:1
3) Gas saver mode to reduce gas consumption without compromising performance
4) Electronic septum purge flow control to eliminate carry-over
5) User-installable within a few minutes.

Regulatory compliances

Corporate Social Responsibility

Analytical Foundation is a Nonprofit Organization (NGO) found for the purpose of:

1.Research & Innovation Scientist's awards / QC Professional Award : Quality life is possible by innovation only and the innovation is possible by research only, hence ANALYTICAL FOUNDATION is committed to identify such personallities for their contributions across various field of Science and Technology and awarding them yearly. To participate for award, send us your details of research / testing / publication at info@analyticalfoundation.org

2. Improving quality of life by offering YOGA Training courses, Work shops / Seminars etc.

3. ANALYTICAL FOUNDATION aims to DETOXIFY human minds, souls and body by means of Yoga, Meditation, Ayurveda, Health Care, Awards, Media, Events, Camps etc.

Reach us @

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