

## Specification Sheet

# GCMS-TQ8050 NX

Gas Chromatograph Mass Spectrometer



Equipped with a new, highly efficient detector and three forms of noise-reduction technologies, the GCMS-TQ8050 NX is capable of performing unprecedented quantitative analyses of ultra-trace amounts, down to the femtogram level.

Moreover, with its ultra-high sensitivity and high mass resolution, a whole new realm of quantitative analysis is offered, with reduced long-term operational costs and greater uptime.

### Gas Chromatograph

Model	Nexis™ GC-2030	Injection Port Temperature	Ambient to 450 °C
Oven Temperature	Ambient + 2 to 450 °C	AFC Pressure Range	0 to 1035 kPa
Retention Time Repeatability	<0.0008min*1	Peak Area Repeatability	<1% RSD*1
Flow Control	Constant flow, constant pressure, constant liner velocity	Oven Ramp Rate	Max 120°C/min*2

### Mass Spectrometer

#### GCMS Interface

Type	Direct connection with capillary column
Temperature	50 to 350 °C

#### Ion Source

Type	Front access for easy maintenance
Ionization	EI (standard) EI, PCI, NCI (optional)
Filament	Dual, automatic switching with shield placed between filament and source box (patented)
Electron Energy	10 to 200 eV
Emission Current	5 to 250 μA

#### Vacuum System

Main Pump	Dual inlet turbo molecular pump 190 L/second + 170 L/second (He)
Fore Pump	Oil rotary pump, 30 L/minute (60 Hz) (Oil free pump, 110 L/minute (60 Hz))
Column Flow	10 mL/minute (He)

#### DI Probe (Option)

Temperature	Room temperature to 500 °C
-------------	----------------------------

#### Mass Analyzer and Detector

Mass Analyzer	Metal quadrupole mass filter with pre-rods
Collision Cell	UFSweeper™, 0 to 60 eV Argon collision gas
Mass Range	<i>m/z</i> 10 to 1090
Mass Resolution	0.4 to 3.0 u (FWHM)
Mass Axis Stability	±0.1 u/48 hours (under specified conditions)
High-speed Scan Control	ASSP™: Advanced Scanning Speed Protocol
Scan Rate	20000 u/second
Minimum Event Time	3 msec (maximum 333 scans/second)
Maximum Transitions	16 transitions/event
Maximum Events	2048 Events
Minimum Dwell Time	< 0.5 msec
Maximum MRM Speed	800 MRM transitions/second
Detector	Secondary electron multiplier with patented Overdrive Lens and conversion dynode 8 × 10 <sup>6</sup> dynamic range

## Software

[GCMSsolution™ Ver. 4]

Operation Modes:	Q1 Scan, Q3 Scan, Product Ion scan, Precursor Ion scan, Neutral Loss scan, Q1 SIM, Q3 SIM, MRM, Scan/SIM and Scan/MRM FASST (simultaneous Scan/SIM measurements)
Energy Savings:	Ecology mode
Insert Replacement:	Easy sTop
Method Wizard:	Smart MRM/SIM* <sup>3</sup> (Automatic SIM, MRM table creation) AART (Automatic Adjustment of Retention Time)
Library Search:	Similarity searches using retention indices (Compatible with multiple retention index groups) Up to 10 libraries can be configured
Instrument Tuning:	Automatic (EI, CI, NCI)
Quality Control:	Accuracy control QA/QC function, instrument control system check function, user control security function
Measurement Data Control:	Optimal compound structure format for GLP
Maintenance Support:	MSNAVIGATOR
Report:	Flexible report creation, templates
Multisample Quantitation Assistance:	LabSolutions Insight™
Library (optional):	NIST, Wiley, FFNSC Library (Flavor and Fragrance)
Database (optional):	Smart Pesticides Database™ Smart Forensic Database™ Smart Metabolites Database™ Smart Environmental Database™
Semi-quantitative database (optional):	Quick-DB™ for residual pesticide analysis Quick-DB™ for forensic toxicological analysis Off-Flavor Analyzer
Composition Estimation (optional):	MassWorks

\*<sup>1</sup> Auto Injector AOC-20i Plus; FID as the detector; tetradecane (2.5 ng to the column) split injection.  
\*<sup>2</sup> 230V type.  
\*<sup>3</sup> Smart SIM uses Excel®.

GCMS-TQ, Nexis, UFSweeper, ASSP, GCMSsolution, Smart MRM, Smart SIM, LabSolutions Insight, Smart Pesticides Database, Smart Environmental Database, Smart Metabolites Database, Smart Forensic Database, Quick-DB and AOC are trademarks of Shimadzu Corporation.  
Excel is either registered trademarks or trademarks of Microsoft Corp. in the United States and/or other countries.

## Demonstration of Performance

### EI MRM IDL:

2 fg Octafluoronaphthalene  $m/z$  272 → 222 IDL ≤ 0.5 fg

- IDL (Instrument Detection Limit) is statistically calculated from peak area repeatability of 8 times sequential analyses at 99% confidence level.
- Demonstration of Performance can be confirmed at installation upon request. IDL will be tested only with the auto injector.

## Installation Checkout Criteria

### EI Scan S/N:

1 pg Octafluoronaphthalene  $m/z$  272 S/N ≥ 2000

### EI MRM S/N:

100 fg Octafluoronaphthalene  $m/z$  272 → 222 S/N ≥ 40000

### CI MRM S/N:

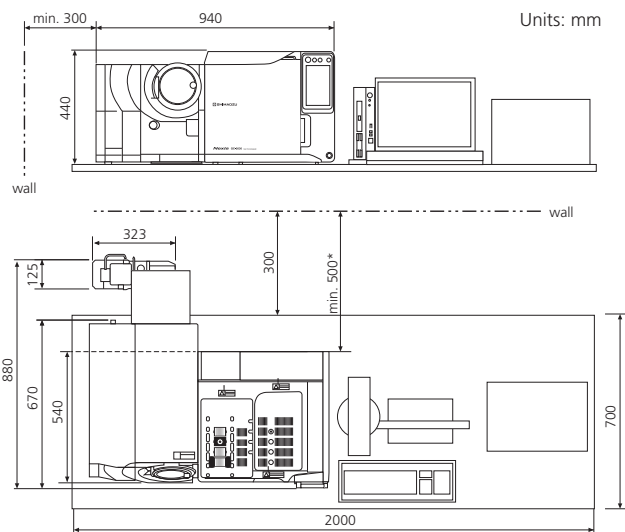
1 pg Benzophenone-*d*<sub>10</sub>  $m/z$  193 → 110 S/N ≥ 5000

### NCI SIM S/N:

100 fg Octafluoronaphthalene  $m/z$  272 S/N ≥ 10000

## Typical Installation

Weight: GC-MS unit 110 kg and auxiliary pump 10 kg



Shimadzu Corporation

[www.shimadzu.com/an/](http://www.shimadzu.com/an/)

### For Research Use Only. Not for use in diagnostic procedures.

This publication may contain references to products that are not available in your country. Please contact us to check the availability of these products in your country.

Company names, products/service names and logos used in this publication are trademarks and trade names of Shimadzu Corporation, its subsidiaries or its affiliates, whether or not they are used with trademark symbol "TM" or "®".

Third-party trademarks and trade names may be used in this publication to refer to either the entities or their products/services, whether or not they are used with trademark symbol "TM" or "®".

Shimadzu disclaims any proprietary interest in trademarks and trade names other than its own.

Shimadzu does not assume any responsibility or liability for any damage, whether direct or indirect, relating to the use of this publication.