

GAS GENERATORS FOR WATERS INSTRUMENTS

Waters

THE SCIENCE OF WHAT'S POSSIBLE.™



THE PARTNERSHIP THAT
KEEPS THE GAS FLOWING



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F-DGSI, LEADER IN THE MANUFACTURE AND SALE OF GAS GENERATORS

Founded in 2006 in Evry, France, where its headquarters and research and development centre is based, F-DGSI is a family-owned, dynamic and innovative company in the gas generator sector, the benchmark in design, manufacture and technical assistance in gas generators for many years.

F-DGSI has a Global presence in the market with 1000s of installations.

F-DGSI offers a complete range of gas generators (Hydrogen, Zero Air, Nitrogen) and accessories that meet the needs of all laboratory analysers, including gas chromatography (GC / GCMS) and liquid chromatography-mass spectrometry (LC-MS).



Our compact size and innovative exclusive features include remote monitoring, diagnostics, remote start-stop through our intelligent touch screen controls.

Our primary objective is to continuously improve the services we offer our clients, just like our credo: always one step ahead of the competition.

Our asset: service is at the heart of our business, and we have you covered across the world.

Thanks to our years of experience, F-DGSI has an extensive knowledge of laboratories and their applications. Our highly qualified staff provides expert technical advice to our customers and offers them the best possible solution according to their needs.

All facets of our organization have for common goal the customers satisfaction. Our technical support provides our clients with highly specialized information and advice more than 50 countries around the world thanks to our dedicated service personnel and our wide distributors network.

Should you need it, F-DGSI's-based certified field service engineers will ensure that your F-DGSI generator will remain in top operating condition during and post-warranty. Every F-DGSI Gas Generator comes with a comprehensive one year on-site warranty. Post-warranty service contracts are available.

OUR PRODUCTION FACILITY

Following extensive market research and technical development, the **F-DGSI range of generators** incorporates the **latest technologies available**, in a sleek and appealing design.

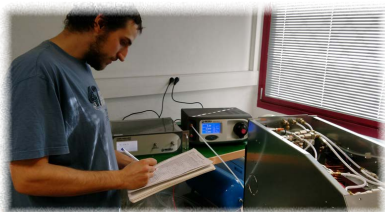
Our emphasis is on the development of turnkey solutions to provide benefits to our customers by meeting their gas supply requirements in a easy to use, safe and cost-effective manner

All F-DGSI laboratory gas generators are manufactured and tested in accordance with EC directives.

All our products comply with current EN 61326-1 (EMC) and EN 61010-1 (LVD) standards for electrical and electromagnetic laboratory equipment.

The law imposes a CE marking on products sold in the European Union.

This marking ensures full compliance of all our products with all European regulations and directives.



PROTECTING YOUR PRODUCTIVITY

This is enhanced by our world-class **[Gold Service]** generator care, providing preventative maintenance, priority breakdown cover and on-going product upgrades. This ensures unhindered productivity and hassle-free, long life-time operation. The quality of our service is assured the world over with our partners presence in over 50 countries. Our service is regarded as exceptional within the gas generator marketplace.

OUR PRODUCT FAMILY

F-DGSI lab gas generators offer the user more functionality in control than anything else on the market.

We have implement a series of Unique features like remote monitoring, diagnostics, remote start-stop through our intelligent touch screen controls and end user benefits, making our range, the most complete and the best in the market.

CALYPSO, STREAM and TORNADO Series nitrogen generators for LC/MS applications :

On-site nitrogen generation with the **CALYPSO and STREAM Series** replaces traditional gas sources such as cylinders, dewars, or bulk gas supply which incur on-going delivery, administrative and rental costs, all of which impact on business revenue or facility budgets.

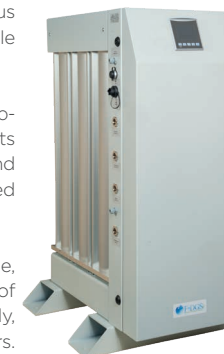
The **CALYPSO Series** is designed primarily for LC-MS applications. It is a self-contained system featuring integrated compressors that deliver laboratory-grade Nitrogen at various pressures and flow rates as required by a large spectrum of LC-MS instruments available on the market.



The **STREAM Series** are silent-running compressor-free systems for laboratories with an in-house supply of clean, dry air for LC-MS instruments including Agilent, Bruker, Perkin Elmer, Shimadzu, Thermofisher and Waters. Producing laboratory grade nitrogen using tried and tested membrane technology.

For very high N2 flow, our **TORNADO Series** offer to you a unique, innovative solution to Nitrogen gas supply. A reliable, secure source of Nitrogen can be produced from your existing compressed air supply, eliminating the need for liquid Nitrogen or high pressure gas cylinders.

All three of them deliver Nitrogen at a wide range of flow rates including models to satisfy more demanding applications such supplying multiple LC-MS or other laboratory applications such as sample evaporation and glove boxes.



Our Modular Gas generators series for GC/GCMS Applications :

The modular System is the right solution for your GC detector and carrier gas supply, providing Hydrogen, High purity Nitrogen, Zero Air, in a sleek and appealing design, increasing Productivity, Safety, Efficiency, Convenience

F-DGSI stackable solution

- Allows you to add multiple generators as your gas and analysis demands change
- The system's internal self-diagnostic features, high visibility lighted display, internal/external leak detection and intelligent remote control and safety alarm capabilities increase lab safety and productivity.
- The flexibility of the F-DGSI stackable solution offers you a Standard Gas Generator as well as a Sensitive Gas Generator to suit your needs, depending on the limit of detection you are looking for in your GC results.



INNOVATIVE GAS SOLUTION FOR WATERS INSTRUMENTS

LC-MS, ELSD INSTRUMENTS - APPLICATION LIST

F-DGSI has developed Innovative gas generators to fulfil the requirements for the Waters's range of LC-MS & ELSD instruments.

F-DGSI GAS GENERATORS FOR WATERS LC-MS			
MASS DETECTION		SINGLE INSTRUMENTS	TWO INSTRUMENTS
QDA	No compressor	CALYPSO.35/0 or STREAM.40	CALYPSO.64/0 or STREAM.80
	Built in compressor	CALYPSO.35/1	CALYPSO.64/1 or CALYPSO.DUO.32/1
SINGLE QUADS		SINGLE INSTRUMENTS	TWO INSTRUMENTS
SDQ2 SQ Detector 3100 Mass Detector ZQ	No compressor	CALYPSO.35/0 or STREAM.40	CALYPSO.64/0 or STREAM.80
	Built in compressor	CALYPSO.35/1	CALYPSO.64/1 or CALYPSO.DUO.32/1
TANDEM QUADS		SINGLE INSTRUMENTS	TWO INSTRUMENTS
Xevo TQD Xevo TQD-S Micro Xevo TQD-S Xevo TQD-XS Xevo TQ-MS Quattro Micro API Quattro Micro GC	No compressor	CALYPSO.35/0 or STREAM.40	CALYPSO.64/0 or STREAM.80
	Built in compressor	CALYPSO.35/1	CALYPSO.64/1 or CALYPSO.DUO.32/1
TOF		SINGLE INSTRUMENTS	TWO INSTRUMENTS
Xevo G2-XS Tof Xevo G2-S Tof Xevo G2 Tof Xevo Tof	No compressor	CALYPSO.35/0 or STREAM.40	CALYPSO.64/0 or STREAM.80
	Built in compressor	CALYPSO.35/1	CALYPSO.64/1 or CALYPSO.DUO.32/1
QTOF		SINGLE INSTRUMENTS	TWO INSTRUMENTS
Xevo G2-XS QToF Xevo G2-S QToF Xevo G2 QToF Xevo QToF	No compressor	CALYPSO.35/0 or STREAM.40	CALYPSO.64/0 or STREAM.80
	Built in compressor	CALYPSO.35/1	CALYPSO.64/1 or CALYPSO.DUO.32/1
ION MOBILITY		SINGLE INSTRUMENTS	TWO INSTRUMENTS
Vion G2-XS QToF Synapt G2-Si Synapt G2-S Synapt G2 Synapt	No compressor	CALYPSO.35/0 or STREAM.40	CALYPSO.64/0 or STREAM.80
	Built in compressor	CALYPSO.35/1	CALYPSO.64/1 or CALYPSO.DUO.32/1
ION SOURCES		SINGLE INSTRUMENTS	TWO INSTRUMENTS
APGC	No compressor	NESO.1/0	
	Built in compressor	NESO.1/1	

LC DETECTORS		SINGLE INSTRUMENTS	TWO INSTRUMENTS
2424 ELSD ACQUITY ELSD 2420 ELSD	No compressor	TELESTO.6/0 or TELESTO.8/0	TELESTO.15/0
	Built in compressor	TELESTO.6/1 or TELESTO.8/1	TELESTO.15/1



LC-MS INSTRUMENTS

STREAM SERIES - NITROGEN FROM 40 TO 120 L/MIN

The STREAM N2 generators have been engineered for the requirements of various of Waters LC-MS instruments, when a suitable source of external compressed air is available.

With no moving parts and no need of electricity, the STREAM series generators is a durable solution that can run 24 hours a day with minimal maintenance.

KEY FEATURES

- Flow rate available : 40, 80, 120 L/min
- Low pressure loss : max 1 bar (14 psi)
- Wall mounted installation : save space in the lab
- No noise : no mechanical parts moving
- No need of electricity supply
- Low maintenance : only to replace the filters once per year
- Gas saving mode : the unit stops automatically when Nitrogen is not required



MODELS	STREAM.40	STREAM.80	STREAM.120
Flow rate	40 L/min	80 L/min	120 L/min
Max outlet pressure	7 bar (101.5 psi)		
Air flow rate required @ 8 bar (116 psi)	140 L/min	280 L/Min	420 L/min
Dimensions (W x H x D)	38 x 120 x 22.5 cm (15" x 47" x 9")		
Application	Designed to supply various LCMS instruments		

CALYPSO SERIES - UP TO 64 L/MIN NITROGEN

LC-MS analysers do not all share the same requirements in terms of flow rate, pressure and purity of the gases needed for their operation. The CALYPSO.35/1 is the most popular in its series as it is suitable for most LCMS instruments. The CALYPSO.64/1 is designed to supply two LC-MS instruments with a requirement for a higher Nitrogen flow of 64 L/min.

KEY FEATURES

- Intelligent color touch screen to provide simple and user friendly management of all functions of the unit
- Fully regenerative PSA technology
- High Nitrogen pressure up to 8 bar (116 psi)
- With integral oil free air compressor
- Quiet thanks to the Soundproofed compressor box and anti-vibration features
- Auto start
- Audible alarm display and Visual maintenance indication with history log
- Outlet flow indicator
- Energy Saving Technology (EST) :
 - Switch off the compressor when gas supply is not required
 - Allowing low energy consumption and increasing durability of the compressor
- Remote PC monitoring and diagnostic analysis via USB to interface the unit with customer's PC software (allow to carry out checks and maintenance effectively, only via a remote connection)
- Compact design
- Fit with wheels



MODELS	CALYPSO.15		CALYPSO.35		CALYPSO.64	
Compressor	0 (Without)	1 (With)	0 (Without)	1 (With)	0 (Without)	1 (With)
Flow rate	15 L/min		35 L/min		64 L/min	
Max Nitrogen pressure	8 bar (116 psi)					
Inlet Air flow required @ 9 bar (130.5 psi)	53 L/min	N/A	109 L/min	N/A	145 L/min	N/A
Noise level @ 1M	53 dB (A)					
Dimensions (W x H x D)	47.5 x 66.2 x 79 cm (18.7" x 26" x 31")				47.5 x 100 x 79 cm (18.7" x 39" x 31")	
Application	Suitable for most LCMS instruments				Designed to supply 2 x LCMS instruments	

CALYPSO DUO - UP TO 2 X 32 L/MIN NITROGEN @ HIGH PRESSURE 116 PSI

Combining the capacity of two separate CALYPSO.35/1 Nitrogen generator systems into one fully integrated system to supply two Waters LC-MS instruments Q-Exactive.

KEY FEATURES

- Intelligent color touch screen to provide simple and user friendly management of all functions of the unit
- Fully regenerative PSA technology
- Combines two CALYPSO units into one
- High Nitrogen pressure up to 8 bar (116 psi)
- With integral oil free air compressor
- Quiet thanks to the Soundproofed compressor box and anti-vibration features
- Auto start
- Audible alarm display and Visual maintenance indication with history log
- Outlet double flow indicator
- Energy Saving Technology (EST) :
 - Switch off the compressor when gas supply is not required
 - Allowing low energy consumption and increasing durability of the compressor
- Remote PC monitoring and diagnostic analysis via USB to interface the unit with customer's PC software (allow to carry out checks and maintenance effectively, only via a remote connection)
- Compact design
- Fit with wheels



MODEL	CALYPSO.DUO.32/1
Compressor	1 (With)
Flow rate	2 x 32 L/min
Max Nitrogen pressure	8 bar (116 psi)
Noise level @ 1M	53 dB (A)
Dimensions (W x H x D)	47.5 x 100 x 79 cm (18.7" x 39" x 31")
Application	Designed to supply two LCMS instruments

ELSD INSTRUMENTS

TELESTO SERIES - UP TO 15 L/MIN NITROGEN

The TELESTO Series N2 generator produce high purity nitrogen gas at various flows and purities for ELSD application and is built in with/without air compressor.

KEY FEATURES

- Intelligent color touch screen to provide simple and user friendly management of all functions of the unit
- Fully regenerative PSA technology
- Without or with integral oil free air compressor
- Quiet thanks to the Soundproofed compressor box and anti-vibration features
- Auto start
- Audible alarm display and Visual maintenance indication with history log
- Outlet flow indicator
- Energy Saving Technology (EST) :
 - Switch off the compressor when gas supply is not required
 - Allowing low energy consumption and increasing durability of the compressor
- Remote PC monitoring and diagnostic analysis via USB to interface the unit with customer's PC software (allow to carry out checks and maintenance effectively, only via a remote connection)
- Compact design
- Fit with wheels



MODELS	TELESTO.6		TELESTO.8		TELESTO.15	
	0 (Without)	1 (With)	0 (Without)	1 (With)	0 (Without)	1 (With)
Compressor						
Flow rate	6 L/min		8 L/min		15 L/min	
Max Nitrogen pressure	6 bar (87 psi)					
Nitrogen purity	99.5%					
Inlet Air flow required @ 8 bar (116 psi)	21 L/min	N/A	28 L/min	N/A	52 L/min	N/A
Noise level @ 1M	25 dB (A)	50 dB (A)	25 dB (A)	52 dB (A)	25 dB (A)	52 dB (A)
Dimensions (W x H x D)	47.5 x 66.2 x 65 cm (18.7" x 26" x 25.6")			47.5 x 66.2 x 79 cm (18.7" x 26" x 31")		
Application	ELSD instruments					

ION SOURCES AND API GAS FOR THE SYNAPT ETD OPTION

NESO SERIES - UP TO 1 L/MIN NITROGEN

The Nitrogen generators are available with or without air compressor and generate nitrogen on demand

KEY FEATURES

- Intelligent color touch screen to provide simple and user friendly management of all functions of the unit
- Fully regenerative PSA technology
- Without or with integral oil free air compressor
- Quiet thanks to the Soundproofed compressor box and anti-vibration features
- Option :
 - Oxygen sensor : Online N2 Purity monitoring capability
- Auto start
- Fast start-up purity < 60 min
- Audible alarm display and Visual maintenance indication with history log
- Outlet flow indicator
- Energy Saving Technology (EST) :
 - Switch off the compressor when gas supply is not required
 - Allowing low energy consumption and increasing durability of the compressor
- Remote PC monitoring and diagnostic analysis via USB to interface the unit with customer's PC software (allow to carry out checks and maintenance effectively, only via a remote connection)
- Compact design
- Fit with wheels



MODEL	NESO.1	
Compressor	0 (Without)	1 (With)
Flow rate	1 L/min	
Max Nitrogen pressure	6 bar (87 psi)	
Noise level @ 1M	25 dB (A)	50 dB (A)
Dimensions (W x H x D)	47.5 x 66.2 x 65 cm (18.7" x 26" x 25.6")	
Application	Ion sources and API gas for the Synapt ETD option	



GOLD SERVICE, A CUSTOMER SERVICE OF EXCELLENCE !

BY INVESTING IN A F-DGSI GAS GENERATOR, YOU BUY MORE THAN JUST A GENERATOR AND START A LONG PARTNERSHIP WITH F-DGSI.

F-DGSI IS PROUD TO OFFER A VERY HIGH QUALITY CUSTOMER SERVICE, WHEREVER YOUR LABORATORY IS LOCATED.

THE F-DGSI GOLD SERVICE AFTER-SALES SERVICE NOT ONLY KEEPS YOUR GENERATORS IN GOOD WORKING ORDER, IT ALSO GUARANTEES OUTSTANDING PERFORMANCE THROUGHOUT THEIR LIFE CYCLE.

WITH GOLD SERVICE, YOU ARE ENTITLED TO AN ANNUAL REVIEW OF ALL YOUR DEVICES AND PRIORITY ACCESS TO THE SERVICES OF CERTIFIED ENGINEERS CAPABLE OF IMMEDIATE REPAIR 9 TIMES OUT OF 10 AND WITHIN 48 HOURS. *

IN CASE OF MALFUNCTION OF YOUR GENERATOR, F-DGSI IS NEVER FAR AWAY. THANKS TO OUR NETWORK OF AUTHORIZED DISTRIBUTORS DEPLOYED IN MORE THAN 50 COUNTRIES, WE CAN QUICKLY ATTEND YOUR LABORATORY TO CARRY OUT REPAIRS SO THAT YOU CAN RESUME YOUR ACTIVITIES AS SOON AS POSSIBLE.

WITH PRIORITY ON-SITE REPAIRS AND SCHEDULED MAINTENANCE ARRANGED TO SUIT YOU, OUR GOLD SERVICE 48H CONTRACT HELPS YOU REDUCE INTERRUPTIONS IN LAB OPERATIONS AND IMPROVE EFFICIENCY AND PRODUCTIVITY WITH NO HIDDEN OR UNFORESEEN COSTS.

GOLD SERVICE BENEFITS

THE "GOLD SERVICE" SERVICE CONTRACTS OF F-DGSI OFFER YOU :

PEACE OF MIND

- Prompt on-site intervention guaranteed within 48 hours
- Discounted original F-DGSI parts
- F-DGSI service engineers able to solve up to 97% of problems first time
- Access to the full history of interventions
- Your equipment is integrated in our database so maintenance can be carried out at the same time each year

REDUCED DOWNTIME

- One preventive maintenance visit per year (or more) based on the number of hours per year. This is planned in advance at a convenient time to reduce the risk of breakdowns and downtime
- Priority customer status for all calls concerning curative repairs with intervention in 48 hours maximum
- 24-hour priority access to the hotline support team for remote troubleshooting
- A program of upgrading and technical improvement to increase the life and performance of the devices

COST CONTROL

- Say goodbye to unexpected expenses and control the cost of use over the life of the device
- No additional fees for interventions, travel, labor and repair parts
- 15% discount on all the preventive parts included in the contract
- A reduction in hourly rate for maintenance activities
- Improved efficiency and reduced energy consumption costs
- Integral management of interventions, freeing up valuable time for your team
- Different payment methods

Register your equipment on our website to benefit from the guarantee on the date of installation and not on the date of delivery.

www.f-dgs.com/en/guarantees/

You have up to three months after the delivery date to register your hardware warranty so that it can start on the date of installation.

Note that for H2 generators, it is imperative that it is installed within three months after the delivery date, or the hardware warranty may be cancelled.

In the case of a problem under warranty, our team of Service Engineers and / or our network of authorised distributors in the world.

INSTALLATION & RELOCATION

INSTALLATION

F-DGSI has its own Authorized Service Engineers and more than 50 distributors worldwide to install our gas generators in your environment.

During the installation process, we will ensure that the product works as designed to meet your needs.

Contact us for more information.

RELOCATION

We can help with relocation for all instruments that it has installed or provided.

Occasionally, clients move to expand and / or reduce their lab ; F-DGSI can support uninstallation, re-installation and performance.

VERIFICATION

We can also advise you on the specifications required for the design of your new laboratory, e.g. space to be allocated, gas supply, gas filtration, power outlets, environmental conditions and consumables. Call us directly to discuss your needs and receive a quote.

FOUR Q VALIDATION

F-DGSI can offer you the delivery of a 4Q certificate to prove compliance on all its devices.

It is specific to each gas generator and this document validates the device, its installation, operation and performance on the device of the client on which it is connected.

This certificate is established by performing a series of tests on the gas generator using calibrated measuring devices with a certificate of calibration.

Conception Qualification (CQ)
Installation Qualification (IQ)
Operational Qualification (OQ)
Performance Qualification (PQ)

RENTAL

F-DGSI, offers the rental of a wide range of equipment. .If you need equipment over a short period or if you do not have the investment budget rental is a good solution, or we can provide long term rental avoiding depreciation or capital budget expenditure.

Contact us for more information.



LAB GAS GENERATORS

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