i-FlowLab

Scalable, high-flow, high-purity nitrogen gas solution for laboratories

www.peakscientific.com
i-FlowLab is a modular & scalable nitrogen generation system that is capable of producing a continuous supply of nitrogen gas at a stable purity to meet the full and varying demands of your research facility. Harnessing the latest in gas purification technologies, i-FlowLab is the most cost effective, efficient and economical nitrogen gas generation system available on the market. It is capable of delivering nitrogen at a wide range of purities and flow rates that can be pre-configured depending on your laboratory’s needs. i-FlowLab can supply your entire laboratory to provide gas for LC-MS, gloveboxes, GC, sample preparation, headspace and many other applications.

i-FlowLab is the culmination of Peak Scientific’s innovation and technological expertise. It builds upon two decades of experience as industry leading gas generation specialists for laboratory applications. Designed & engineered in the UK by an ISO 9001 accredited manufacturer, i-FlowLab utilizes the latest pressure swing adsorption (PSA) technologies, optimized for maximum energy efficiency, with over 100 preconfigured flow rates (2l - 4253 l/min) and purities (up to 99.9995%) specifications.

Our expert consultants design systems around your facility’s needs, ensuring supply meets demands effectively, whilst leaving room for future expansion with the addition of Peak CMS banks or generator modules.

i-FlowLab offers a complete nitrogen gas solution for facilities with high flow & high purity requirements, replacing the need for bulk delivery with consistent & convenient on-demand nitrogen generation that is far safer as well as more cost effective in the long run.

**Key Features**

- **Consistent & Convenient** - Constant, reliable, stable & on-demand gas supply that eliminates the inconvenience of changing cylinders or dewars.
- **Economical & Sustainable** - A cost effective & total laboratory nitrogen gas supply solution that eliminates the need for bulk delivery.
- **Expandable & Scalable** - i-FlowLab has the capacity to meet and exceed your current gas demands with the ability to expand as your laboratory grows.
- **Energy Efficient** - An innovative ‘Eco-mode’ ensures the lowest running costs by automatically managing production based on your daily demands.
- **Safe Supply** - Eliminate the handling of cylinders or storage of highly pressurized gases.
- **Verified Compliance** - Exceeds standards of EIGA, EC Food Grade, European Pharmacopoeia, JEFCA and US Food & Drug Administration (CFR Title 21). Peak IQ/OQ certification also available.
- **High Quality Engineering** - Peak is an ISO 9001 certified manufacturer and i-FlowLab is expertly engineered to ensure performance and reliability.
Beyond the highly variable cost of laboratory gas, there are a number of hidden costs associated with cylinders or dewars, which are not only economic, but also impact on laboratory work flow.

**Added costs**
- Cylinder or dewar rental & supply delivery charges
- Bulk liquid storage planning permission, installation, rental & upkeep
- Multi-year purchase contract commitments, with long notice periods

**Logistics & safety**
- Frequent hazardous truck deliveries to facility
- High pressure storage, with risk of explosive decompression or leaks
- Heavy manual handling of cylinders or dewars
- Potential danger of large volume leak of nitrogen which can be a health hazard to staff

**Product losses & wastage**
- Unpredictable supply timescales
- Bulk supply needs frequent changing & monitoring of supply lines
- 10% gas returned to supplier & 20% lost to ‘off-gassing’
- Downtime = lost productivity

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**Why buy bulk nitrogen gas when you can make your own?**

**Convenience**
- Gas on-demand, no cylinders to change or supply stocks to maintain

**Consistency**
- Consistent gas quality and supply, no impurities or running out of gas

**Economy**
- Eliminate on-going costs of cylinders, manage lifetime running costs

**Safety**
- No pressurized compressed gas cylinders in your lab

**Green**
- No repeated gas deliveries, energy efficient

**Protected**
- Comprehensive on-site warranty & service contracts

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**Global leader**
Peak is the leading global manufacturer of nitrogen generators, with nearly two decades of experience creating gas generation systems.

**Turnkey solutions**
Our team of highly experienced consultants are experts in designing solutions that meet the complete gas demands of your laboratory.

**Expertise and support**
Our vast industry and technological expertise, coupled with world-class aftercare support means we define the benchmark for customer service, innovation, quality and product reliability.

**Project management**
Our project teams manage every stage of the process, through initial consultation, system design, procurement, installation, commissioning and ensure you are kept fully informed at each step.

**Global partnerships**
Together with our industry leading partners in compression & filtration technologies, we offer the best and most diverse mix of technological solutions available on the market.
Typical installation

Reliable and robust technology

Based on the latest Pressure Swing Adsorption (PSA) technology that utilizes a Carbon Molecular Sieve (CMS), i-FlowLab is optimized with the capacity to deliver a continuous supply of nitrogen gas to applications, whilst maximizing its energy efficiency with an innovative ‘Eco-mode’.

High purity nitrogen

Our CMS banks are packed using a ‘snowstorm’ filling technique, allowing for around 18% more carbon to be compacted into the carbon bed. This ultimately prevents gas channeling and ensures i-FlowLab can deliver maximum levels of nitrogen purity (up to 99.9995% or 5 ppm oxygen*). Furthermore, integrating i-FlowLab with our compressed air pre-filtration system, PureAir, guarantees the highest quality output by cleaning air before it enters the generator.

*Over 100 flow-rate and purities available, depending on system design requirements and commissioned specifications.

High flow-rates

i-FlowLab’s highly robust PSA system generates nitrogen gas using simple principle methods. Compressed air is fed into the dual pressure CMS vessels and undergoes a cycle of compression & decompression, where oxygen is adsorbed and nitrogen is passed downstream. This not only delivers continuous nitrogen gas flow-rates on a large scale (21 - 4503 l/min*), it also guards against abrasive breakdown, preventing gas supply contamination and ensures a CMS lifespan of around 20 years.

*Over 100 flow-rate and purities available, depending on system design requirements and commissioned specifications.

Ideal flow rates for multiple analytical, discovery and research instruments running simultaneously. Maximize your facility productivity with i-FlowLab
Adaptable, future-proof design

Peak Scientific’s i-FlowLab nitrogen generation systems are designed to be a future-proof, space-saving and sustainable solution. To accommodate the full and varying future demands of your research facility, i-FlowLab can be scaled out retrospectively, with additional Peak CMS banks or modular units. This offers your facility the flexibility to adapt with changing demands, instead of being limited by increasingly expensive & inconvenient method of nitrogen gas supply.

Consultative design & project management

Alongside technological innovation and expertise, Peak also provide an industry-leading, wrap around consultative system design and project management service. Peak Scientific’s highly trained and dedicated specialists are experts at designing turnkey solutions that perfectly meet current and future needs.

Our project teams professionally manage each step of the process, including:

- Consultation
- System design
- Procurement
- Installation & commission

Coupled with Peak’s world-class aftercare service [Peak Protected] and an ongoing commitment to a global & local technical support, ensures customers experience minimum downtime in the unlikely event of breakdown, with engineers capable of being on-site in under 72 hours.

Modular

Multiple units can be synchronized to meet demands based on application flow-rates and purity requirements (more units = greater flow-rates at specified purity).

95 - 99.9995% purity 21 - 4253 l/min

Scalable

Up to ten CMS column banks can be added to each single i-FlowLab unit in less than a day, increasing nitrogen production capacity with minimal downtime.
Typical applications

Peak Scientific nitrogen generators are being used in laboratories across the globe to supply numerous analytical, discovery & research instruments. Below are just some of the applications that i-FlowLab can offer a combined gas supply solution for, whilst helping to maximize workflow efficiencies and increase productivity.

LC-MS (Multiple)

Liquid chromatography-mass spectrometry (LC-MS) is used within various industries, such as Food & Beverage, Pharmaceuticals, Oil & Gas for compound detection and mass analysis. i-FlowLab is capable of meeting the demands of several LC-MS instruments running simultaneously, delivering high volume nitrogen gas and helping to maximize workflow.

Glovebox

When working with hazardous substances, such as infectious diseases or radioactive materials, gloveboxes require N2 to provide an O2-free environment. i-FlowLab is capable of meeting the demands of multiple instruments running side by side, ensuring a consistent nitrogen supply is always available on-demand.

Sample Evaporators

Depending on workflow requirements, evaporators can consume a large quantity of nitrogen when concentrating compound samples in preparation for further analysis. i-FlowLab can easily meet the needs of multiple evaporators running simultaneously with other gas hungry instruments in your lab.

Fume Hoods

Built-in N2 gas taps allow the supply of gas to instruments within the fume hoods. i-FlowLab’s high flow production capabilities are ideal for ensuring a consistent and convenient gas supply is available on tap for multiple units.

NMR Spectroscopy

With large quantities of nitrogen required during Nuclear Magnetic Resonance spectroscopy, i-FlowLab is the perfect solution for meeting the high volume demands of your analysis, delivering a highly cost effective solution.

Technical specifications

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Dimensions

| Width mm (inch) | 500 (19.68) |
| Height mm (inch) | 1738 (68.42) |
| Depth mm (inch) | 920 (36.22) |
| Weight kg (lbs) | 197 (433) |
| Shipping weight kg (lbs) | 277 (609) |
| Noise Level | 59dBA @ 1m |

*Performance data is based on 7 bar (G) inlet air pressure and 20 - 25 deg C ambient temperature.
(Flow reference conditions, 20 deg C, 1013 millibar (a), 0% Relative Humidity)

Find out how Peak Scientific’s i-FlowLab nitrogen generation system can deliver massive cost & efficiency benefits, enhancing your organisation’s productivity, and helping you meet the future demands of your lab.
Peak Scientific has experienced & fully certified Field Service Engineers, located in over 20 countries in every continent across the globe. This further highlights our commitment to providing local sales & service support to customers worldwide. Coupled with industry-leading service response times, Peak Scientific can demonstrate that protecting your organization’s productivity is our top priority.