

# *Infinity 1030 Series* *User Manual*



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## Change History

| Rev. | Comment   | Name         | Date       |
|------|---|--------------|------------|
| 1    | Added 1031 Hi-Flow Information & Content Update | Liam Couttie | 24/06/2014 |
| 2A   | Updated Fittings Kit                            | Liam Couttie | 01/10/2014 |
| 2B   | Technical Specification Update                  | Liam Couttie | 12/02/2015 |
| 3    | Technical Specification Update                  | Liam Couttie | 25/05/2016 |
| 4    | Technical Specification Update                  | Liam Couttie | 31/08/2016 |
| 5    | Technical Specification Update                  | Liam Couttie | 23/01/2018 |
| 6    | Service Kit Ordering Update                     | Liam Couttie | 23/03/2018 |
| 7    | Dimensions Update                               | Liam Couttie | 02/03/2020 |
| 8    | Declarations Update                             | Liam Couttie | 26/10/2021 |
| 9    | Declarations Update                             | Liam Couttie | 14/01/2022 |

## How to use this manual

This manual is intended for end users and has been written so that it can either be read as a step by step guide to installation and usage; or as a reference document where you can skip to the relevant information.

Please review each of the following sections carefully.

Thank you for selecting Peak Scientific to meet your Gas Generation needs, should you require any further assistance or support please do not hesitate to contact Peak Scientific or the Peak Partner from which you purchased your Generator.

## *Warranties and Liabilities*

1. The Company warrants that it has title to the Goods.
2. Subject to the provisions of this clause the Company warrants that the Goods shall comply in all material respects with any specification referred to in the Order Confirmation (as the same may be amended) and shall, subject thereto, be free from defects in material and workmanship for the lesser of a period of twelve months from the date of delivery or thirteen months from the date of dispatch from the factory.
3. Save as provided in this clause and except where the Goods are sold to a person dealing as a consumer (within the meaning of the Unfair Contract Terms Act 1977) all warranties, conditions or other terms implied by statute or common law are hereby expressly excluded save to the extent they may not be lawfully excluded. When the Goods are sold to a consumer within the meaning of the Unfair Contract Terms Act 1977 their statutory rights are not affected by the provisions of this clause.
4. In the event of the Customer making a claim in respect of any defect in terms of clause 2 hereof the Customer must.
  - 4.1. Reasonably satisfy the Company that the Goods have been properly installed, commissioned, stored, serviced and used and without prejudice to the generality of the foregoing that any defect is not the direct or indirect result of lack of repair and/or servicing, incorrect repair and/or servicing, use of wrong materials and/or incorrect spare parts
  - 4.2. Allow the company to inspect the Goods and/or any installation and any relevant packaging as and when reasonably required by the Company.
5. Subject to the Company being notified of any defect as is referred to in sub-clause 2 hereof within a reasonable time of it becoming apparent and subject always to the terms of sub-clause 4 hereof, the Company shall, in its option, replace or repair the defective Goods or refund a proportionate part of the Price. The Company shall have no further liability to the Customer (save as mentioned in sub-clause 6 hereof).
6. The Company shall be liable to indemnify the Customer in respect of any claim for death or personal injury to any person in so far as such is attributable to the negligence or breach of duty of the Company or any failure by the Company to comply with the provisions of sub-clause 2 hereof.
7. Save as provided in sub-clause 2 hereof the Company shall not be liable in respect of any claim by the Customer for costs, damages, loss or expenses (whether direct, indirect, consequential or otherwise) or indemnity in any respect howsoever arising including, but not by way of limitation, liability arising in negligence (other than pursuant to clause 6 above) that may be suffered by the Customer or any third party.

## Safety Notices

### Symbols

This manual uses the following symbols to highlight specific areas important to the safe and proper use of the Generator.



|   |   |
|---|---|
|  | A <i>WARNING</i> notice denotes a hazard. It calls attention to an operating procedure, process or similar, which if not correctly performed or adhered to, could cause personal injury or in the worst case death. Do not proceed beyond a <i>WARNING</i> notice until the indicated conditions are fully understood or met. |
|  | A <i>CAUTION</i> notice denotes a hazard. It calls attention to an operating procedure, process or similar, which if not correctly performed or adhered to, could cause damage to the Generator or the Application. Do not proceed beyond a <i>CAUTION</i> notice until the indicated conditions are fully understood or met. |

Table 1 - Safety Symbols

### Safety Notice to Users

These instructions must be read thoroughly and understood before installation and operation of your Peak Scientific Infinity 103\*. Use of the Generator in a manner not specified by Peak Scientific MAY impair the SAFETY provided by the equipment.

When handling, operating or carrying out any maintenance, personnel must employ safe engineering practices and observe all relevant local health and safety requirements and regulations. The attention of UK users is drawn to the Health and Safety at Work Act 1974, and the Institute of Electrical Engineers regulations.



*Nitrogen is not a poisonous gas, but if the concentration in the inhaled air becomes too high there will be a risk of asphyxiation.*

## Certificate of Compliance

We Peak Scientific Instruments Ltd.  
Of Fountain Crescent, Inchinnan, Renfrewshire, PA4 9RE

Hereby declare that:

Equipment Type: Nitrogen Gas Generator  
Model Designator: Infinity 103X

To which this certificate relates is not required to carry a CE or UKCA mark as they fall out with the scope of all relevant EU Directives and UK Regulations, due to their lack of electrical functionality and its operating pressure.

However the following can be stated :

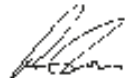
It is manufactured in a facility which is certified to and operates in accordance with the requirements of ISO9001:2015 .

All components used in its manufacture are RoHS III compliant in line with the requirements of EU Directive 2015/863.

Once disconnected from its air supply there are no specific disassembly or material hazards to be considered at end of life.

For and on behalf of Peak Scientific Instruments Ltd.,

Signed:



Name: Fraser Dunn

Position: Design Engineering Manager  
Peak Scientific Instruments Ltd,  
Inchinnan, Renfrew, Scotland, PA4 9RE, UK.

Date: 14th January 2022

## Technical Specifications

### Environment

|                                   | 1031                        | Hi-Flow | 1032 | 1033 | 1034 |
|-----------------------------------|-----------------------------|---------|------|------|------|
| Min/Max Air Operating Temperature | 5°C - 30°C / 41°F - 86°F    |         |      |      |      |
| Max Altitude                      | 2000 metres                 |         |      |      |      |
| Maximum Relative Humidity         | 70%                         |         |      |      |      |
| Min/Max Storage Temperature       | -20°C - 60°C / -4°F - 140°F |         |      |      |      |

### Inlet Conditions

|                                |                          |     |     |     |     |
|--------------------------------|--------------------------|-----|-----|-----|-----|
| Min/Max Air Inlet Pressure     | 8.3-10 bar / 120-145 psi |     |     |     |     |
| Minimum Air Inlet Flow (l/min) | 115                      | 115 | 240 | 340 | 475 |

### Outlet Gas

|                                    |              |          |          |          |           |
|------------------------------------|--------------|----------|----------|----------|-----------|
| Maximum Gas Output Pressure        | 110 psig     |          |          |          |           |
| Maximum Pressure Drop Outlet Inlet | 8 psig       |          |          |          |           |
| Max Curtain Gas Output Flow        | 19 l/min     | 10 l/min | 38 l/min | 57 l/min | 76 l/min  |
| Max Source Gas Output Flow         | 26 l/min     | 22 l/min | 52 l/min | 78 l/min | 104 l/min |
| Max Exhaust Gas Output Flow        | 25 l/min     | 10 l/min | 50 l/min | 75 l/min | 100 l/min |
| Dew Point                          | -11°C / 12°F |          |          |          |           |
| Particles                          | <0.01µm      |          |          |          |           |
| Phthalates                         | None         |          |          |          |           |
| Suspended Liquids                  | None         |          |          |          |           |
| Pressure Gauges                    | 3            |          |          |          |           |
| Start-Up Time                      | 30 minutes   |          |          |          |           |

### General

|                  | 1031          | Hi-Flow       | 1032          | 1033          | 1034          |
|------------------|---------------|---------------|---------------|---------------|---------------|
| Dimensions (cm)  | 37.1x20x76    | 37.1x20x76    | 42.8x25x73    | 42.8x25x73    | 36.9x25x96    |
| Dimensions (ins) | 14.5x7.9x29.9 | 14.5x7.9x29.9 | 16.8x9.8x28.7 | 16.8x9.8x28.7 | 14.5x9.8x37.8 |
| Generator Weight | 14/30.8       | 14/30.8       | 18/39.6       | 19.5/42.9     | 21/46.2       |
| Shipping Weight  | 17.5/38.5     | 17.5/38.5     | 21.5/47.3     | 23/50.6       | 25/55         |

## Introduction

The Peak Scientific Nitrogen Generator is designed specifically for use with Mass Spectrometer applications. The Generator has been designed to produce Nitrogen from an existing source of dry, oil free, compressed air in the laboratory.

## Unpacking and Installation

Although Peak Scientific take every precaution with safe transit and packaging, it is advisable to fully inspect the unit for any sign of transit damage.

Check 'SHOCKWATCH' label for signs of rough handling prior to un-packing –



Any damage should be reported immediately to the carrier and Peak Scientific or the Peak Partner from where the unit was purchased.

Follow the unpacking instructions posted on the side of the crate. It will require two people to remove the unit from the shipping crate and to manoeuvre the Generator onto the floor.

Please save the product packaging for storage or future shipment of the Generator.



*After unpacking and a visual inspection, the unit should be placed in a ventilated area away from direct sunlight. Care should be taken not to obstruct the ventilation holes on the side of the unit. The Generator should be placed on a steady and level base. The Infinity 103\* has been designed to fit under most workbenches. Alternatively, the unit may be wall mounted using the fixing slots provided.*



*Performance of the Generator (like all sophisticated equipment) is affected by ambient temperatures. Prolonged operation in temperatures exceeding 30°C will shorten the life of the unit.*



## Fittings Kit

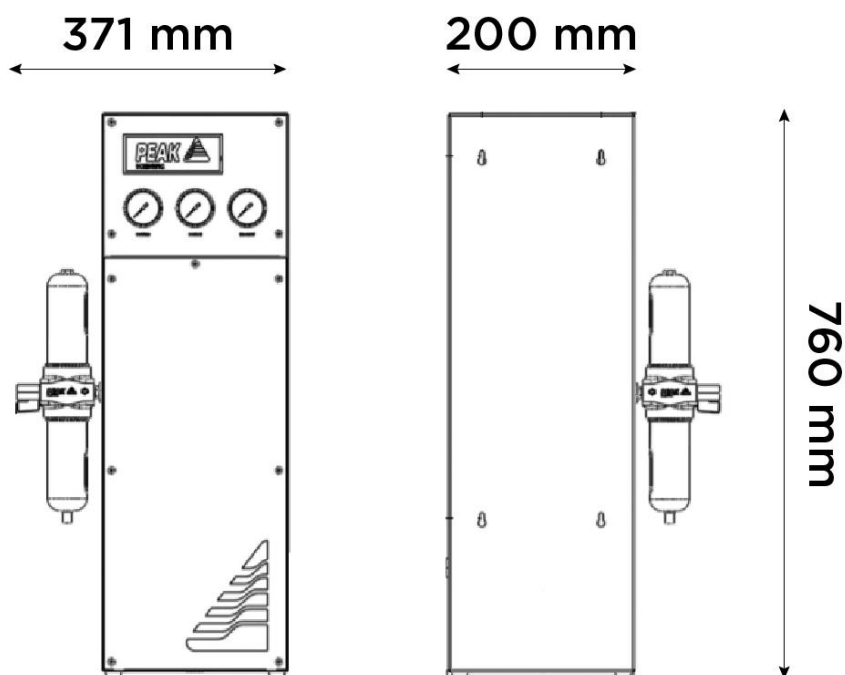
Supplied in the Fittings Kit are all the fittings required to connect the Infinity 103\* Generator to the application. The contents of the Fittings Kit are as follows:

- |                                     |       |
|-------------------------------------|-------|
| 1. ¼" Compression Fittings          | × 3   |
| 2. ¼" Teflon Tubing                 | × 12m |
| 3. Screw N8 x 1 ½ Supa Counter Sunk | × 4 * |
| 4. Raw-Plug for N8 Screw (521-3087) | × 4 * |
| 5. Installation Guide-Infinity 103X | × 1** |
| 6. User Manual CD- Infinity 103X    | × 1   |

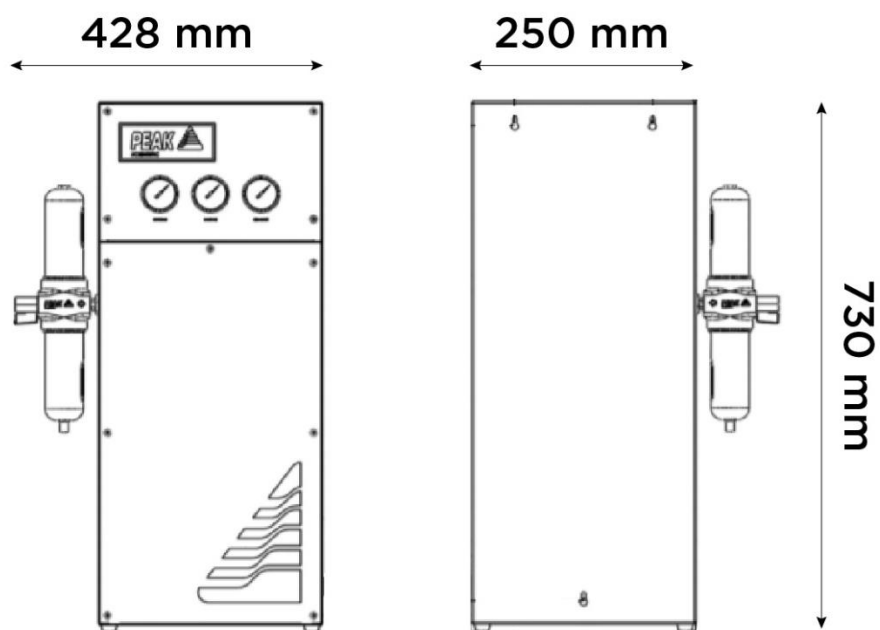
\* Note 1032 & 1033 will have 3 off items 3 and 4.

\*\* Installation guide will be corresponding to specific generator model.

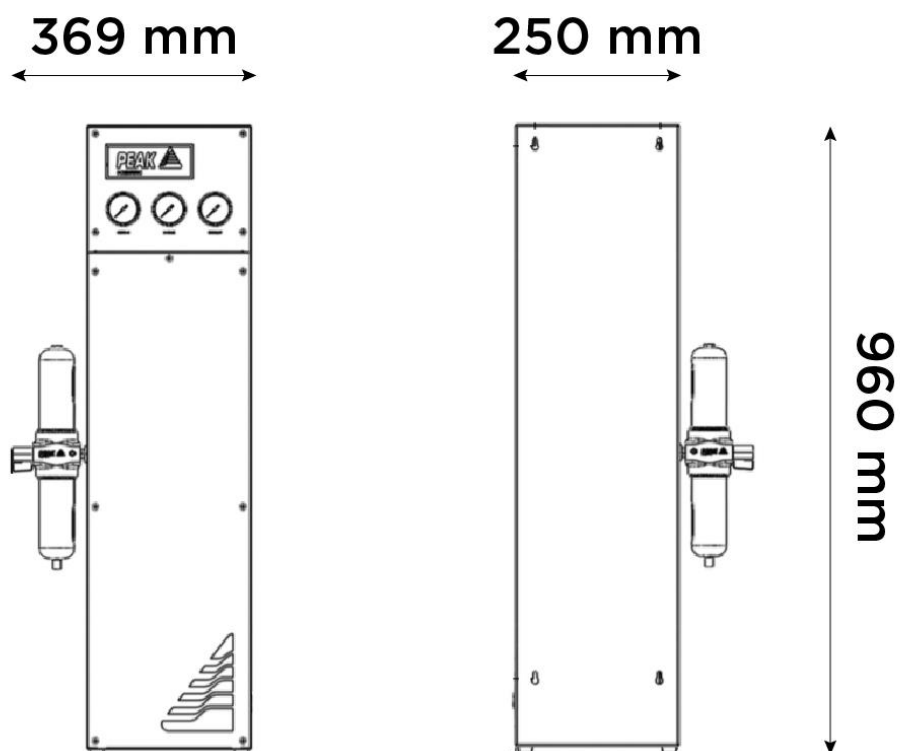
## General Dimensions



*Infinity 1031/Hi-Flow in mm*



*Infinity 1032 & 1033 in mm*



*Infinity 1034 in mm*

## Air Connection

Infinity 103\* Generator should be connected to a clean, dry, OIL - FREE source of compressed air. A minimum inlet pressure of 120 psig (8.3 barg) is required. Any doubts as to the suitability of your compressed air supply should be referred to Peak Scientific or any of their authorised partners.

The generator has a *Breathing Air Filter* with ¼" BSPT connection to the left side of the unit. The Compressed Air supply should be connected here. This filter will drain moisture and is equipped with an automatic drain. The drain should be led to a convenient place. There are 3-off ¼" BSPT Female bulkhead connections to the right of the unit. Fittings are provided to connect these ports to the gas connections of the Mass Spectrometer.

### *LC/MS with 3-off Connections (e.g. Api2000)*

Connect the 3-off gas ports at the right side of the generator to their respective ports on the Mass Spectrometer using the 3-off ¼" BSPT x ¼" Swagelok fittings. Use ¼" tubing throughout.

### *LC/MS with 4-off Connections (e.g. Api3000)*

Connect *Curtain Gas* and *Exhaust* to their respective ports using ¼" tubing as per above. The *Source Gas* will have to be split into *Gases 1 & 2* at the Mass Spectrometer. Connect *Gases 1 & 2* with 1/8" tubing to the ¼" Tee Piece with the 2-off ¼" BSPT x 1/8" Swagelok fittings. Connect the inlet branch of the tee to the *Source Gas* connection at the rear of the generator using ¼" tubing as above.

NB: - To minimize pressure losses position the Tee as close to the Mass Spectrometer as possible

## Commissioning

With the Generator installed (as described earlier), connect compressed air to the unit and open the air supply to the Unit. Disconnect the Outlet connections to allow the generator to vent to atmosphere until the unit is stabilised. The Generator has been pre-set in the factory to give the specified output flow-rate and pressure in line with known requirements. Once the Membranes reach the design pressures the Generator will stabilise and produce Nitrogen. Maximum purity will be achieved after approximately 30 minutes. The generator can then be re-connected to the application.

The design of the generator is such that it can deliver up to the supplies specified in the *Pressure & Flow Settings* table below. Should the demand for gasses be less than the rated output flow at any time, the demand will be determined by the consuming equipment. In circumstances of no demand, the Generator remains operational and will provide Nitrogen immediately as demand resumes.

## Pressure & Flow Settings

| Port    | Usage/Connection     | Flow/Pressure (l/min @ psi) |          |          |          |           |
|---------|----------------------|-----------------------------|----------|----------|----------|-----------|
|         |                      | 1031                        | Hi-Flow  | 1032     | 1033     | 1034      |
| Curtain | Curtain Gas          | 27 @ 80                     | 12 @ 80  | 52 @ 80  | 85 @ 80  | 110 @ 80  |
| Source  | Ion Source/Nebuliser | 46 @ 110                    | 26 @ 110 | 55 @ 110 | 85 @ 110 | 104 @ 110 |
| Exhaust | Exhaust Gas          | 23 @ 70                     | 16 @ 60  | 45 @ 70  | 60 @ 80  | 100 @ 70  |

The above settings should allow the Infinity 103\* to be operated with all standard configurations for the AB Sciex API range of LC/MS/MS instruments. Should the above settings not provide sufficient flow or pressure for your application please contact Peak Scientific for assistance.

## Cleaning

Clean the outside of the Generator only using warm soapy water and a clean damp cloth. Ensure the cloth is thoroughly rung out to remove excess fluid prior to use.



*Under no circumstances should any solvents or abrasive cleaning solutions be used as these can contain fumes that could be harmful to the Generator.*

## Maintenance



*Servicing and/or repair of the Generator should only be undertaken by a **TECHNICALLY COMPETENT PERSON** with the Generator in a safely isolated condition.*

Due to the simplicity of the design and the small number of moving parts, the Infinity 103\* Nitrogen Generator will have a long and trouble free life. However as with all scientific and technical equipment it should be regularly inspected and serviced as below.

Your Infinity 103\* Nitrogen Generator requires a service annually. A service kit is available from your service representative which includes all the consumables required to maintain your generator. The kit also offers a 10% discount over purchasing the components individually.

## Service Schedule

| Service interval | Component                               | Visit  | Qty. |
|------------------|---|--|------|
| 12 months        | Infinity 1030 Series Annual Service Kit | <a href="http://www.peakscientific.com/ordering">www.peakscientific.com/ordering</a> | 1    |

## Safely Isolated Condition

The unit is in a safely isolated condition when it is disconnected from its application and fully de-pressurised. Directions for isolating the Generator are shown below.



*Failure to place the Generator in a safely isolated condition when instructed to do so may lead to personal injury or injury to others and even death.*

- Disconnect from air supply.
- Ensure the output pressure gauge read zero. (If gauge does not fall to zero, loosen the outlet fitting slightly to allow trapped gas to escape).

Disconnect from the application.

## IMPORTANT DOCUMENTS



## Warranty Entitlement

To register your generator for your warranty entitlement, send the completed form to Peak Scientific by:

- *Email*     [warranty@peakscientific.com](mailto:warranty@peakscientific.com)
- *Online*    [http://www.peakscientific.com/service-and-support/warranty\\_registration](http://www.peakscientific.com/service-and-support/warranty_registration)
- *Phone*    +44 (0)141 530 4185
- *Fax*       +44 (0)141 812 8200

| PRODUCT WARRANTY REGISTRATION |  |
|-------------------------------|--|
| COMPANY:                      | CONTACT NAME:                          |
| ADDRESS:                      |  |
|                               | EMAIL ADDRESS:                         |
|                               |  |
| CITY/TOWN:                    | <b>GENERATOR SERIAL NUMBER:</b>        |
| POSTCODE:                     |  |
| COUNTRY:                      | MODEL TYPE:                            |
| TELEPHONE:                    | <b>INSTALLATION DATE (DD/MM/YYYY):</b> |
|                               |  |

### *Important Please Note:*

You have 1 month to register your Peak Scientific product from the date of shipment.

If you wish to defer installation of your generator you must notify Peak Scientific within 1 month of the shipment date. This can be done by emailing [warranty@peakscientific.com](mailto:warranty@peakscientific.com) Once registered the warranty will be honoured for a period of 12 months after the installation date.

*For any generators that remain unregistered the warranty will begin from date of shipment.*

Thank you on behalf of Peak Scientific.

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