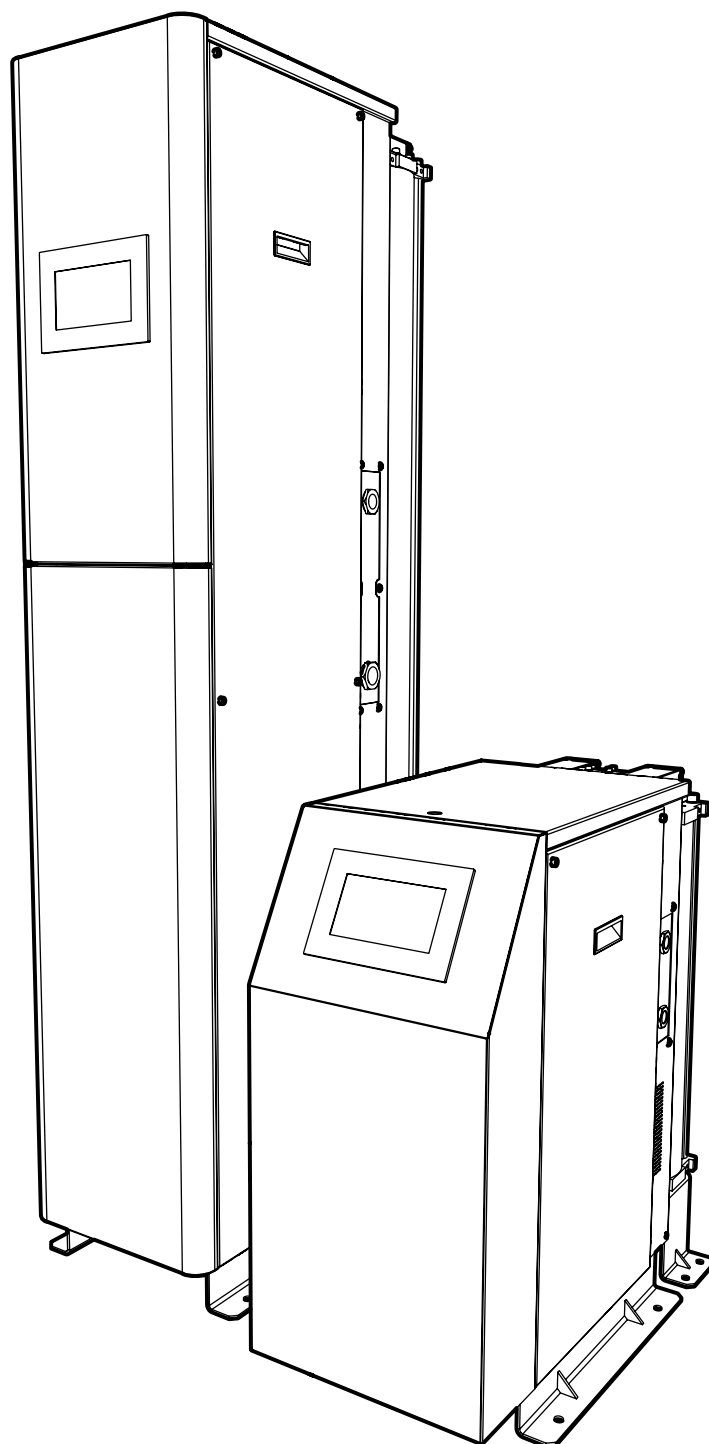


# i-Flow 7000 Series N2 Generators

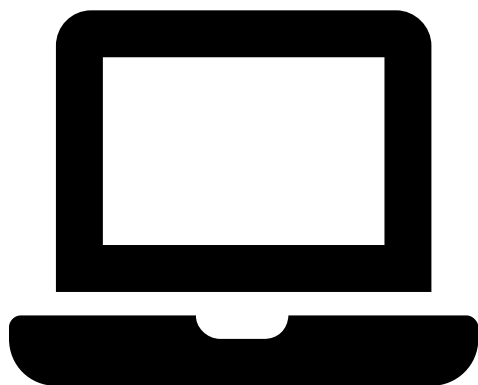
## User Manual



# Register Product to Operate

To begin operation you will need to register your generator. You can do so by **visiting [www.peakscientific.com/activate](http://www.peakscientific.com/activate)** or by **downloading the Peak Genius App**.

Registering will activate your **2 year warranty\*** - covering every single component in your generator.

A screenshot of a web registration form titled 'New Product'. It contains various input fields for user details and company information, with a green 'Save' button at the bottom.A screenshot of the Peak Scientific mobile app registration form, showing fields for user and company details on a smartphone screen.

## Important!

You must register your generator before nitrogen generation can commence. In order to be eligible for warranty your generator must be registered to the end user (not a reseller or distributor) and must have a paid annual preventative maintenance arranged within 13 months of the installation date & carried out by a Peak approved Field Service Engineer. Once registered the warranty will be honoured for a period of 24 months.\*\*

\* 2nd year warranty subject to completion of preventative maintenance visit arranged within 13 months of installation. For terms and conditions please visit [www.peakscientific.com/warranty-statement/](http://www.peakscientific.com/warranty-statement/)

\*\* Call out and labour charges may apply where generator was not purchased directly from Peak

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## Change History

Rev	Comment	Name	Date
3	Flow Updates	L. Couttie	05/09/2023
4	Declarations Update	L. Couttie	03/10/2023
5	Text Update	L. Couttie	09/11/2023
6	Valve + weight edits	C.Denholm	10/01/2023

## How to use this Manual

This manual is intended for end users and has been written as a reference document where you can skip to the relevant information.

Users can refer to the contents page to find the relevant information.

Please review each of the following sections carefully.

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

# Introduction

The Peak Gas Generation i-Flow 7000 Series Nitrogen Generators are designed to cater for a wide variety of industrial and scientific applications. The range consists of 2 generator size variants - namely, the N2 Mini & N2 Prime. Your generator will have been carefully selected to meet your specific pressure, flow, and purity requirements, that were specified at time of initial scoping & subsequently agreed upon. if you have any questions regarding the specifications of your system please do not hesitate to contact Peak Gas Generation or the Peak Partner from which you purchased your Generator.

Peak Gas Generation is a Trading Name of Peak Scientific Instruments Ltd. All Peak Gas Generation products are manufactured by Peak Scientific Instruments Ltd.

# Technical Description

## Basic Concept

i-Flow N2 Mini & N2 Prime are a range of modular nitrogen gas generators, that operate based on the latest Pressure Swing Adsorption (PSA) technology, utilising a Carbon Molecular Sieve (CMS) to extract nitrogen from air, at the specified flow, purity & pressure. This process essentially requires two separate columns or “beds” of granular carbon pellets of suitable grade.

A unit requires a compressed air supply to operate and ultimately works on very similar principles to many standard air filtration / drying products. The inlet compressed air is passed into the first carbon “bed”, as the air passes across the carbon bed the oxygen is adsorbed, allowing the nitrogen to carry on through for collection and further use. After a certain time the online carbon bed will become saturated with oxygen so the control system will operate various valves to bring the second carbon bed online. Whilst the second bed comes online, the first bed is safely vented to atmosphere to release the adsorbed oxygen and regenerate the bed in preparation for the next cycle. This will continue to alternate and repeat until the user stops consuming nitrogen.

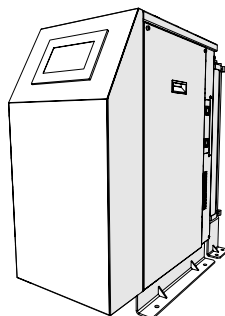
Should the demand for nitrogen be less than the rated output flow, or indeed should the demand stop, the generator will automatically go into Standby Mode and this will be indicated on the front HMI screen. In Standby mode the changeover of the columns is suspended which will stop the consumption of inlet compressed air. The control system will automatically detect when the demand resumes and the generator will start to produce nitrogen again.

## General Construction

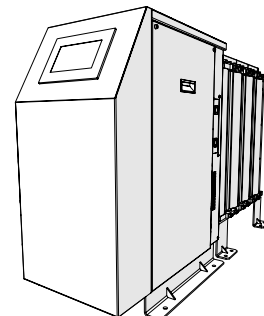
The range consists of 14 different product sizes, demonstrated below:

### i-Flow N2 Mini

Base unit with minimum single bank of dual CMS columns.

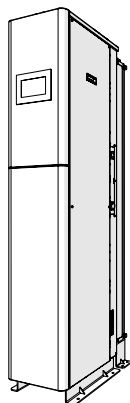


Base unit with maximum 4 banks of dual CMS columns

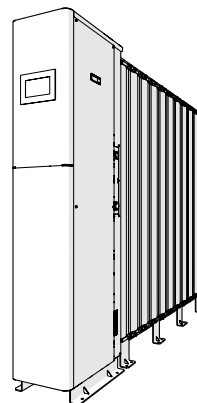


## i-Flow N2 Prime

Base unit with minimum single bank of dual CMS columns.

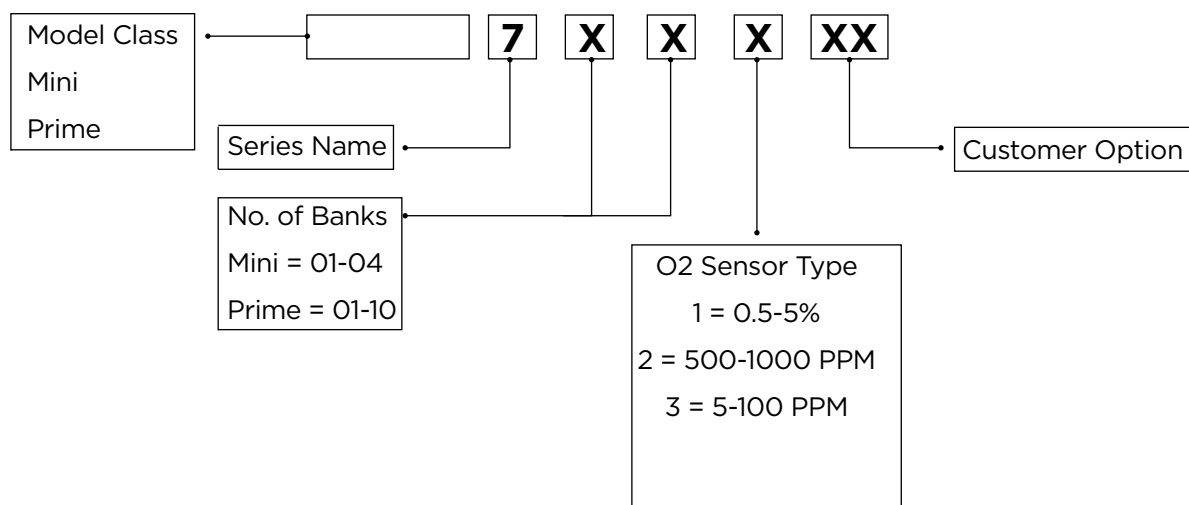


Base unit with maximum 10 banks of dual CMS columns



The front end cabinet, control system and valves are consistent across the entire range. To increase the outlet capacity, as you go up the range of generators, additional banks of CMS columns can be added. (Note: Mini models with 3-4 & Prime models with 5-10 banks require additional vent valves & silencers fitted to the rear of CMS column assembly).

## i-Flow 7000 Series Model Number Breakdown



# Warranties and Liabilities

## Warranty & Liability Coverage

1. Peak warrants that, subject to the provisions in this statement, purchased Peak generators, whether purchased directly from Peak or indirectly via an approved, certified and trained distributor or partner (referred to hereafter as a "Peak Partner") will comply in all material respects with any specifications referred to in your customer order confirmation and, subject to installation and operational guidelines being followed as described in applicable product manuals, shall be free from any defects in quality of materials or workmanship for a period of one year from the date of installation, provided this takes place within 3 months of factory dispatch.
2. Where the purchased generator is from the Precision Hydrogen series, Peak further warrants that, subject to installation and operational guidelines being followed as described in applicable product manuals, the hydrogen cell shall be free from any defects in quality of materials or workmanship for a total period of three years (inclusive of warranty period specified in clause 1) from date of installation, provided this takes place within 3 months of factory dispatch.
3. Where the purchased generator is from the i-Flow 6000, 7000, 8000 or 9000 series and /or i-Flow skidded solution, Peak further warrants that, subject to installation and operational guidelines being followed as described in applicable product manuals, the generator shall be free from any defects in quality of materials or workmanship for a total period of two years (inclusive of warranty period specified in clause 1) from the date of installation, provided this takes place within 3 months of factory dispatch and the following provisions have also been met:
  - a. you must purchase a service plan, ensuring the generator is serviced by Peak or a Peak Partner on or before the end of the first 12 months of your ownership, and serviced at least once during each subsequent 12 month period thereafter;
  - b. the generator (and any associated equipment) must have been commissioned by Peak or a Peak Partner;
  - c. the feed air or inlet air supply to the generator must comply with the minimum ISO 8573-1:2010 air class, as specified within relevant product user manual, at all times;
  - d. your air compressor, dryer, filtration and oil removal systems must be deemed suitable for use by Peak or a Peak Partner, and must be changed and serviced regularly, in line with the equipment manufacturer's recommended guidelines; and
  - e. any generator failure or fault that is deemed to have been caused by the failure of any upstream equipment, component, part or system (such as air compressor, air treatment or filtration) will be excluded from the warranty described herein.
4. Peak also warrants that any replacement parts whether purchased (directly from Peak, or via a Peak Partner) or supplied as part of any remedial action undertaken in line with the provisions of clauses 12 and 13, shall be free from any defects in quality of materials or workmanship for a period of 180 days from the date of factory dispatch, provided its installation is performed by Peak or a Peak Partner.
5. This warranty does not exclude Peak's liability in respect of any claim for death or personal injury to any person, in so far as such can be attributed to negligence or breach of duty of care directly resulting from failure of Peak to comply with the provisions in clauses 1, 2, 3 & 4.

## Exclusions & Limitations

6. This warranty does not cover:
  - a. damage, deterioration or malfunction resulting from an alteration or modification to a generator which has not been carried out by Peak or a Peak Partner;
  - b. damage, deterioration or malfunction resulting from what Peak reasonably believes to be abuse, or misuse of a generator by you or any third party;
  - c. liability for accident or neglect (other than pursuant to clause 5);
  - d. maintenance or repairs which have not been carried out by Peak or a Peak Partner;
  - e. operation of a generator or exposure of a generator to environmental conditions that fall out-with operational guidelines as specified in the applicable product user manual; and
  - f. lightning, power surges or any other acts of God or nature.
7. This warranty is non-transferrable. Only the original owner of the generator may benefit from the terms within this statement.



8. Peak shall not be liable in respect of any claim made for costs, damages, losses or expenses (whether consequential, direct, indirect or otherwise) or in any respect howsoever arising including, but not limited to, liability from accident or negligence (other than pursuant to clause 5) that may be suffered by you or any third party.
9. No person or entity is authorised to change the terms and conditions outlined in this warranty statement in any respect, or to create any additional obligations or liabilities for any party involved.
10. This warranty statement supersedes any and all prior warranty agreements between the parties and constitutes the complete, final and exclusive understanding of the parties with respect to the subject matter. All prior negotiations, representations, or promises, whether oral or written, of either party shall be deemed to have been merged herein.
11. If any part of this warranty statement is invalidated, for whatever reason, such part will be deleted and the rest shall remain unaffected, continuing to be in full force and effect.

### **Delivery of Warranty Service**




12. Subject to clause 13, and:
  - a. Peak being notified by you, within the duration of the applicable warranty period, of any defect that you think is subject to any warranty valid under clauses 1, 2, 3 or 4; and
  - b. Peak being permitted to inspect the generators, parts and their installation (along with any relevant packaging)Peak shall at its option repair or replace defective generators or parts (including, if necessary, any moving parts and irrespective of runtime). No additional charges will apply, for parts or delivery and, where applicable, labour or travel. Peak will endeavour to deliver this service within 3 working days of your notification.
13. Where, in Peak's reasonable opinion, a defect is subject to an exclusion described in clause 6, Peak reserves the right to charge for parts or delivery and, where applicable, you may also be charged by Peak for call out, labour or travel in respect of any repair or replacement which you authorize Peak, or a Peak approved partner to carry out.

# Safety Notices

Peak Gas Generation cannot anticipate every possible circumstance which may represent a potential hazard. The warnings detailed within this manual detail the most known potential hazards, but by definition cannot be all inclusive. If the user employs an operating procedure, item of equipment or a method of working which is not specifically recommended by Peak, the user must ensure that the equipment will not be damaged or become hazardous to persons or property.

## Symbols

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

 WARNING	A WARNING 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 WARNING notice until the indicated conditions are fully understood or met.
 CAUTION	A CAUTION 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 CAUTION notice until the indicated conditions are fully understood or met.
	Caution, risk of electric shock. Ensure power to the Generator has been removed before proceeding.

## Safety Notice to Users



These instructions must be read thoroughly and understood before installation and operation of your Peak i-Flow 7000 Series Gas Generator. Use of the Generator in a manner not specified by Peak Gas Generation MAY impair the built in SAFETY features of 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.



If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.



Nitrogen is not a poisonous gas, but if its concentration in breathed air becomes too high, there will be a risk of asphyxiation. Ensure that adequate ventilation is provided for the surrounding area, (depending on the operating specification and model selected the generator can produce up to a maximum nitrogen flow of 5,590 L/min)

# EU Declaration of Conformity

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

Hereby declare that, this declaration of conformity is issued under the sole responsibility of the manufacturer.

Equipment Type: Nitrogen Generator  
Model Designator: i-Flow 7000 & 9000 Series  
PED Module B Certificate No : CE 744518  
PED Module D Certificate No : CE 608103

Pressure assembly consisting of the following key parts :

Piping Spec or Description	Fluid	Phase	PED Hazard Cat.			Quality Module
			Fluid	Chart	Cat	
600mm Column Assembly (1 to 10 Model Dependant)	Air/N <sub>2</sub>	Gas	2G/1G	2/1	II	B+D
1700mm Column Assembly (1 to 6 model dependant)	Air/O <sub>2</sub>	Gas	2G/1G	2/1	II	B+D
Output Pressure Relief Valve	Air/N <sub>2</sub> /O <sub>2</sub>	Gas	2G/1G	2/1	IV	B+D
Front End Control Cabinet inc. associated valves & piping	Air/N <sub>2</sub> /O <sub>2</sub>	Gas	2G/1G	2/1	SEP	Not Applicable

To which this declaration relates, is in conformity with the following applicable EU Directives, harmonized standards, and other normative requirements.

- **Low Voltage Directive 2014/35/EU**  
EN 61010-1: 2010/ A1:2019 Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use.
- **Electromagnetic Compatibility Directive 2014/30/EU**  
EN 61326-1: 2013 Electrical Equipment for Measurement, Control and Laboratory Use – EMC Requirements. (Class A)
- **Pressure Equipment Directive 2014/68/EU**  
Design and Construction Standards applied: ASME Section VIII Division 1 2019 Edition and BS EN12392:2016. Conformity Assessment Procedure: B+D
- **Restriction on the use of certain hazardous substances in electronic equipment (RoHS) Directive 2011/65/EU as amended by EU 2015/863.**

Signed for and on behalf of Peak Scientific by

Signed:



Name: Fraser Dunn

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

Date: 1st June 2022

Page 11

Name and address of Notified body conducting the PED conformity assessment :

BSI Group The Netherlands B.V.  
Say Building, John M Keynesplein 9,  
1066 EP , Amsterdam,  
Netherlands  
EC Number - 2797

# UKCA Declaration of Conformity

We Peak Scientific Instruments Ltd.  
Of Fountain Crescent, Inchinnan, Renfrewshire, PA4 9RE  
Hereby declare that, this declaration of conformity is issued under the sole responsibility of the manufacturer.

Equipment Type: Nitrogen Generator  
Model Designator: i-Flow 7000 & 9000 Series  
PED Module B Certificate No : UKCA 753392  
PED Module D Certificate No : UKCA 753395

Pressure assembly consisting of the following key parts :

Piping Spec or Description	Fluid	Phase	PED Hazard Cat.			Quality Module
			Fluid	Chart	Cat	
08-0700 CMS Assemblies (1 to 10 Model Dependant)	Air/N <sub>2</sub>	Gas	2G/1G	2/1	II	B+D
3303560 Sieve Assemblies (1 to 6 model dependent)	Air/O <sub>2</sub>	Gas	2G/1G	2/1	II	B+D
Output Pressure Relief Valve	Air/N <sub>2</sub> /O <sub>2</sub>	Gas	2G/1G	2/1	IV	B+D
Front End Control Cabinet inc. associated valves & piping	Air/N <sub>2</sub> /O <sub>2</sub>	Gas	2G/1G	2/1	SEP	Not Applicable

To which this declaration relates, is in conformity with the following applicable EU Directives, harmonized standards, and other normative requirements.

- **The Electrical Equipment (Safety) Regulations 2016 (SI 2016 / 1101) as amended.**  
BS61010-1:2010 / A1:2019 Safety Requirements for Electrical Equipment for Measurement Control and Laboratory Use.
- **The Electromagnetic Compatibility Regulations 2016 (SI 2016 / 1091) as amended.**  
BS61326-1:2013 Electrical Equipment for Measurement, Control and Laboratory Use - EMC Requirements.
- **The Pressure Equipment (safety) Regulations 2016 (SI 2016 / 1105) as amended.**  
Design and Construction Standards applied: ASME Section VIII Division 1 2019 Edition and BS EN12392:2016. Conformity Assessment Procedure: B+D
- **The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012 (SI 2012 / 3032) as amended.**

Signed for and on behalf of Peak Scientific by

Signed:



Name: Fraser Dunn

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

Date: 1st June 2022

Page 12

Name and address of Notified body conducting the PED conformity assessment :

BSI Assurance UK Ltd  
Kitemark Court Davy Avenue Knowlhill  
Milton Keynes MK5 8PP  
United Kingdom  
UKMCAB Number - 0086

# CSA Compliance Statement

CSA Group (Canadian Standards Authority) is a Nationally Recognised Testing Laboratory (NRTL), headquartered in Toronto Canada.

They are authorised to evaluate product to both their own and Underwriters Laboratory (UL) standards and certify the product to be in compliance to the relevant standards.

Peak products are certified to the current in force revision of the following standards in order to cover both Canadian and United States requirements for “Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory use, Part 1: general Requirements”.

Canada: CAN/CSA C22.2 No 61010-1-12

United States: UL 61010-1

As a result the products covered by this statement are certified and listed by CSA accordingly and are entitled to carry the CSA mark with both Canadian and United States subscripts, as shown below on the product rating label.



# WEEE Compliance Statement

The Waste Electrical and Electronic Equipment (WEEE) Regulations SI 2013 No 3113 and or the Waste Electrical and Electronic Equipment (WEEE) Directive 2012/19/EU apply to all electrical and electronic equipment placed on the market in the UK and EU covered by the scope of regulations which can be found in the Government Guidance Notes (PDF) produced by the Department for Business Innovation and skills for the UK and here for Europe.

All PEAK products that are subject to the WEEE directive are compliant with the WEEE marking requirement. Such products are marked with the “crossed-out wheellie bin” symbol (shown below) in accordance with European standard EN50419. All old electrical equipment can be recycled. Please do not dispose of any electrical equipment (including those marked with this symbol) in general rubbish bins. Please contact your dealer or distributor for clarity.



# **EMC Class A Compliance Statements**

## **European Union (EU) and United Kingdom (UK) Class A Compliance statement**

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

## **FCC Class A Compliance Statement**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.



## **Industry Canada Class A emission compliance statement**

This ISM device complies with Canadian ICES-001 (A).

Cet appareil ISM est conforme à la norme NMB-001 (A) du Canada.

## **Korea Communications Commission (KCC) statement**

이 기기는 업무용(A급)으로 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다.

(This is electromagnetic wave compatibility equipment for business (Type A). Sellers and users need to pay attention to it. This is for any areas other than home.)

# Technical Specification

## Environment

Minimum Operating Ambient Temperature	+5°C (41°F)
Maximum Operating Ambient Temperature	+50°C (122°F)
Maximum Altitude	3000m
Maximum Relative Humidity	80% non-condensing

When taken out of storage, the Generator should be allowed to acclimatize at room temperature for a minimum of 3 hours before operation.

## Compressed Air Supply

Depending on your specific application, the pressure and flow required from the compressed air supply to the generator will vary. For your specific requirements please refer to your quotation documents, or contact Peak Gas Generation for further information. However all installations must meet the following conditions:

Minimum Air Quality	ISO 8573-1:2010 class 2.4.1
Minimum Inlet Air Pressure	87 psig (6barg)
Maximum Inlet Air Pressure	145 psig (10.0 barg)
Minimum Inlet Air Temperature	+5°C (41°F)
Maximum Inlet Air Temperature	+45°C (113°F)



WARNING

If you are in any doubt over the quality of your inlet compressed air DO NOT CONNECT to the generator, and contact Peak Gas Generation or the Peak Partner from which you purchased your Generator. Peak Gas Generation can offer a full range of compressors and air preparation equipment if required, which can be backed up by our global service support network. If incorrect air quality is used, resulting in damage to the generator, the warranty becomes void.

It is the User / Installer's responsibility to ensure the generator is connected to a suitably rated air supply, the air supply must also provide suitable protection to prevent over pressurization of the Nitrogen Gas Generator.

## Electrical Requirements

Voltage	100 - 240 VAC $\pm$ 10%
Frequency	50/60 Hz
Current	2.0 - 1.0 A
Input connection	C20 Plug
Power cord (Supplied)	C19 socket to local connection
Pollution degree	2
Means of Protection	Class I Protection
Installation / Transient Overvoltage Category	Category II



## General

<b>i-Flow Mini</b>	1 Bank	2 Banks	3 Banks	4 Banks
Width mm(in)	418 (16.5)			
Height mm(in)	853 (33.6)			
Depth mm(in)	830 (32.7)	992 (39.1)	1154 (45.4)	1316 (51.8)
Weight kg(lbs)	96 ( 211)	132 (291)	178 (392)	214 (471)
Shipping weight kg(lbs)	144 (317)	184 (405)	240 (528)	280 (616)
Noise level	59 dBA @ 1m			

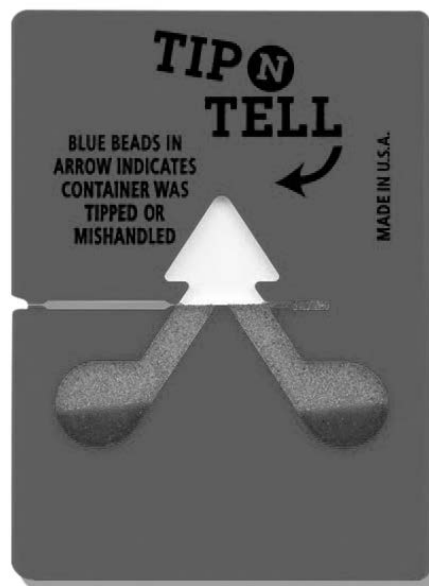
<b>i-Flow Prime</b>	1 Bank	2 Banks	3 Banks	4 Banks	5 Banks
Width mm(in)	418 (16.5)				
Height mm(in)	1953 (76.9)				
Depth mm(in)	730 (28.7)	892 (35.1)	1054 (41.5)	1216 (47.9)	1378 (54.3)
Weight kg(lbs)	183 (403)	268 (590)	353 (777)	438 (964)	523 (1151)
Shipping weight kg(lbs)	245 (539)	330 (726)	425 (935)	510 (1122)	655 (1441)
Noise level	<80 dBA @ 1m				

<b>i-Flow Prime</b>	6 Bank	7 Banks	8 Banks	9 Banks	10 Banks
Width mm(in)	418 (16.5)				
Height mm(in)	1953 (76.9)				
Depth mm(in)	1540 (60.6)	1702 (67.0)	1864 (73.4)	2026 (79.8)	2188 (86.1)
Weight kg(lbs)	608 (1338)	693 (1525)	778 (1712)	863 (1899)	948 (2086)
Shipping weight kg(lbs)	740 (1628)	825 (1815)	930 (2046)	1015 (2233)	1110 (2442)
Noise level	<80 dBA @ 1m				

## Unpacking

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

Check 'SHOCKWATCH' and 'TIP-N-TELL' labels for signs of rough handling prior to unpacking.



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

# Installation



It is the user/installer's responsibility to ensure that the generator is located and protected against any external influences such as vibration, shock, wind, snow loading, earthquake or fire. The installation should conform to all local regulations and should be leak tight and completed by technically competent personnel.

Final Location of the generator should be carefully considered, the largest model in the range will weigh 891 kg / 1920 lbs. Equipment is only to be installed on floor with a weight rating of min 1200kg/m<sup>2</sup> or 245lbs per Sq.ft.

Once in position the foot plate of the generator must be bolted to the floor using fixings suitable for the material construction of the floor. 13mm diameter holes are provided to allow the unit to be fixed to the floor. Depending on the generator model you will have 4 or 8 fixing positions. Typically 10mm or 3/8" floor fixings approx. 75mm or 3" in length will be suitable on most concrete floors.

The generator should be situated in a well ventilated environment and should be positioned such that it can be easily disconnected from the mains supply if required.

Taking into account the required Inlet air filtration and outlet buffer tank, expected enclosed room size should not be less than 2.5 x 3.0 x 2.5 M or 18.75 cubic meters. Depending on the required outlet purity & pressure the generator can produce anything between 11 and 5,590 l/min of Nitrogen. To ensure adequate ventilation the air flow through the room in which the generator is installed should as a minimum match the output of the installed generator in ltr/min.

This is a heavy item a minimum of 2 people are required to unpack and handle it and appropriate safe handling practise and equipment should be used when unpacking and moving to its final install location.

## Generator Environment



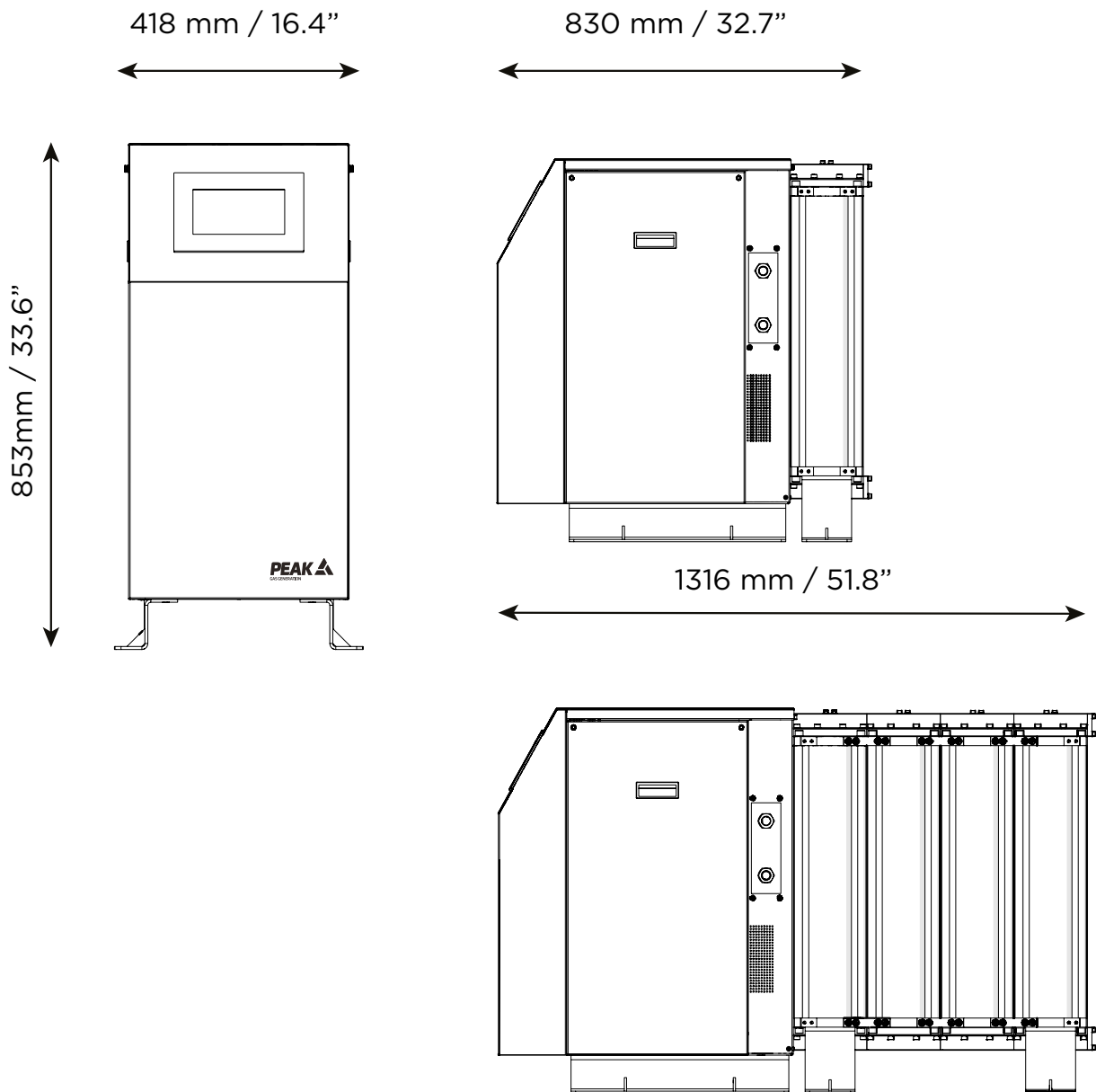
The Generator is designed for indoor use or can be housed in a suitable weatherproof enclosure. It should be installed adjacent to the application it is supplying. If this is not convenient then the unit can be sited elsewhere, however, consideration should be made of the lengths of pipe runs as pressure drops can result from extended runs of pipe.



Consideration should be given to the location of the generator to ensure it is protected from extreme fluctuations in ambient temperature. Ensure that adequate ventilation is provided for the surrounding area, (depending on the operating specification and model selected the generator can produce up to a maximum flow of 5,590 L/min). Installation in a confined space or poorly ventilated space is not recommended, however if you choose to do so ambient oxygen monitoring equipment is recommended.

# Generator Overview

## i-Flow Mini General Dimensions



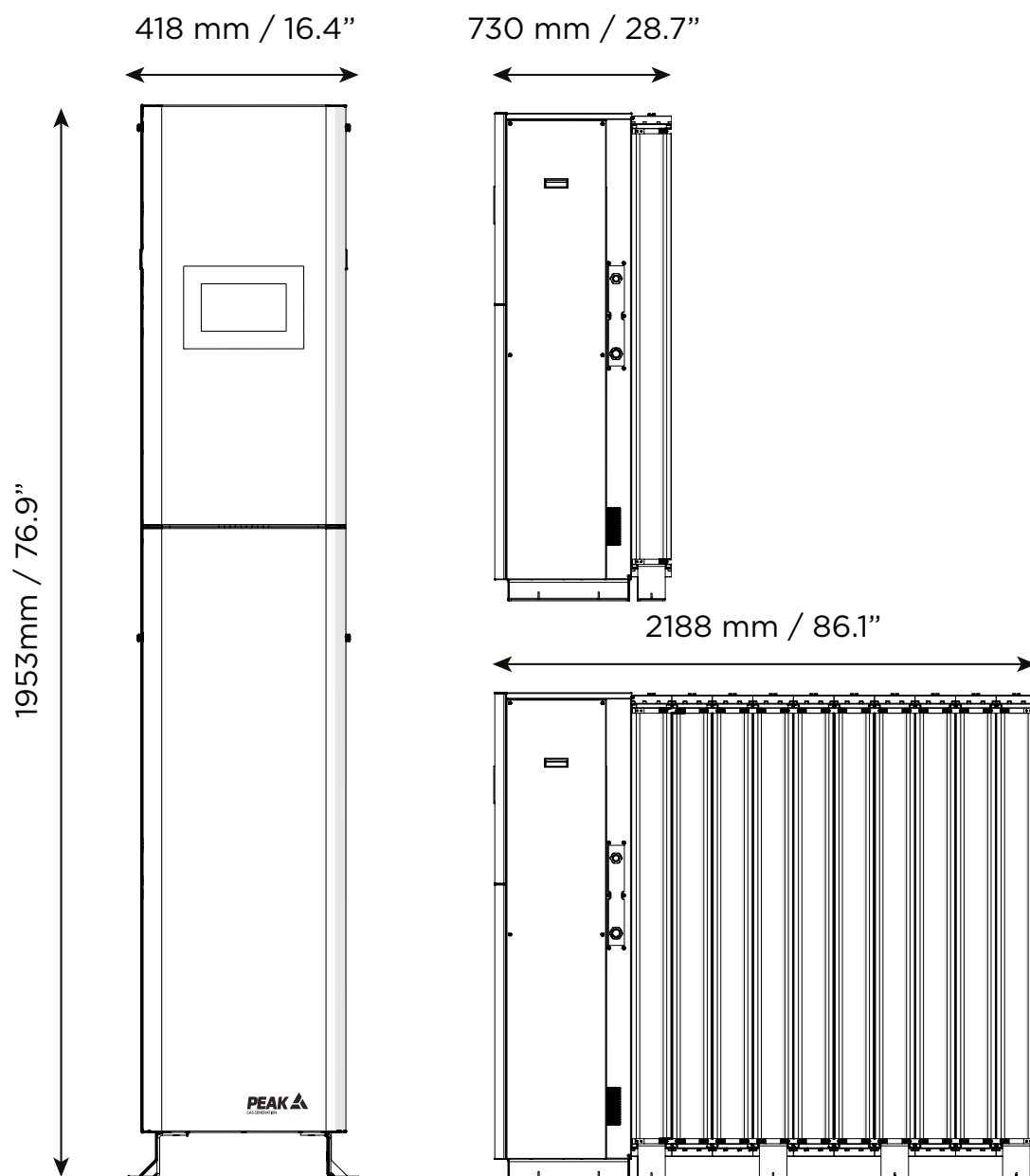
**Note:** Each additional bank assembly = 162mm / 6.4"



The Generator must always be placed on a level surface. Failure to do so will affect the stability of the Generator.

# Generator Overview

## i-Flow Prime General Dimensions



**Note:** Each additional bank assembly = 162mm / 6.4"

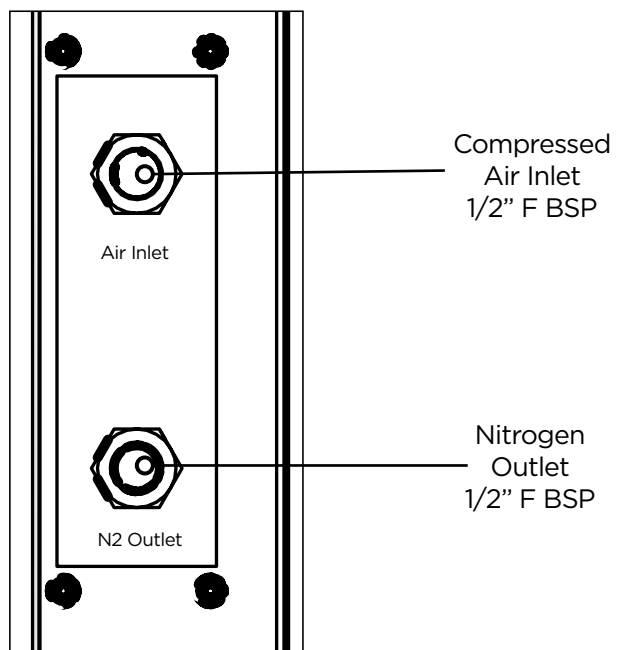


The Generator must always be placed on a level surface. Failure to do so will affect the stability of the Generator.

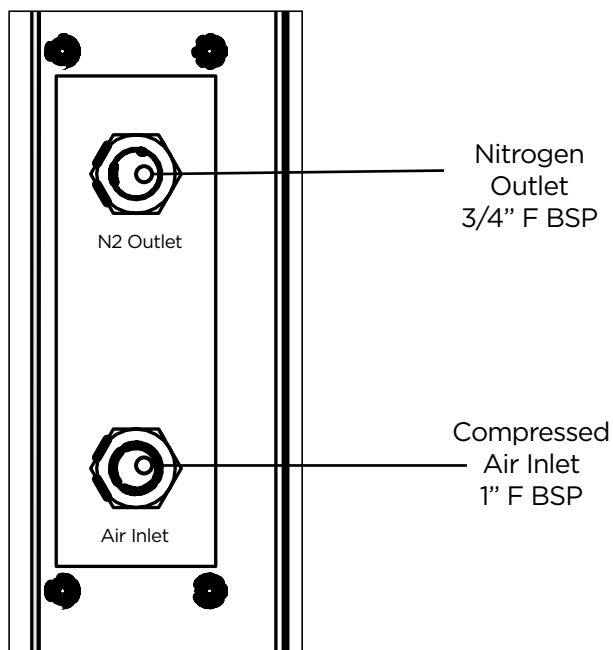
## Inlet / Outlet Connections

The i-Flow 7000 Series generators can be piped (air inlet and gas outlet) from either side to suit site/ location. The unit will be supplied with two blanking plugs which can be installed in either the left or right hand ports to allow the opposite side to be used.

### i-Flow Mini

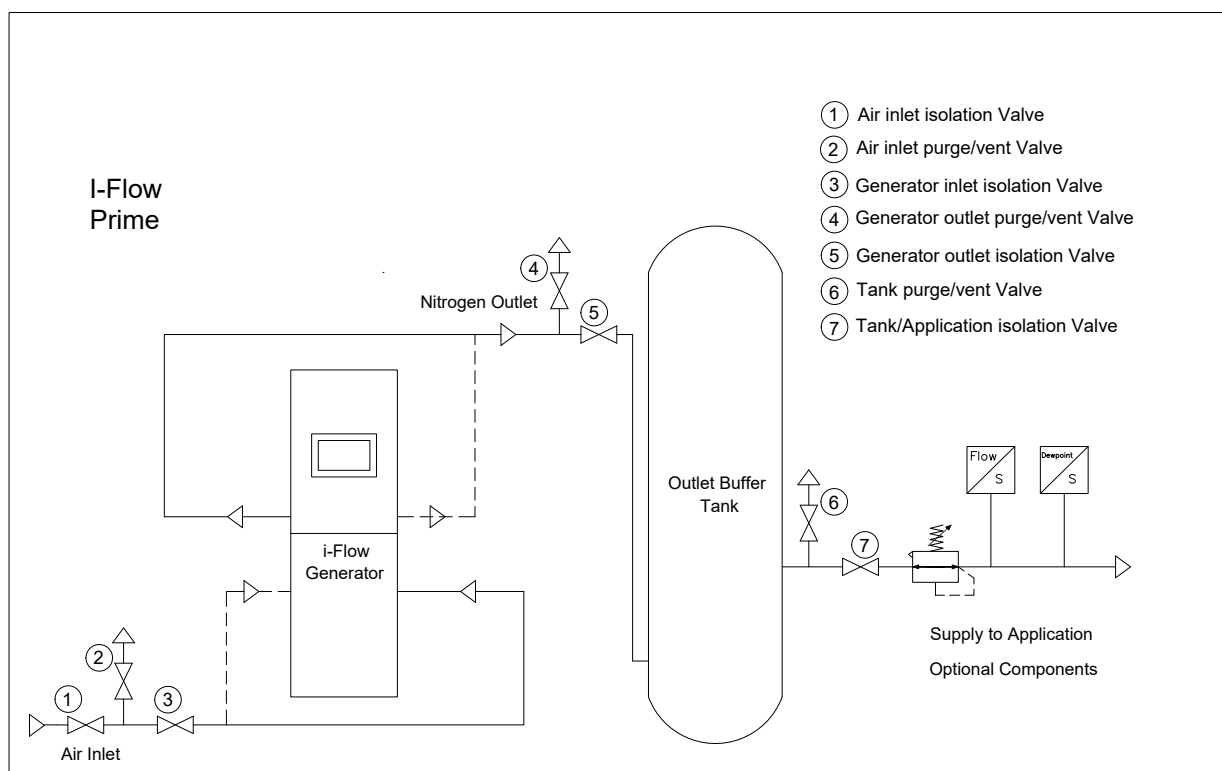
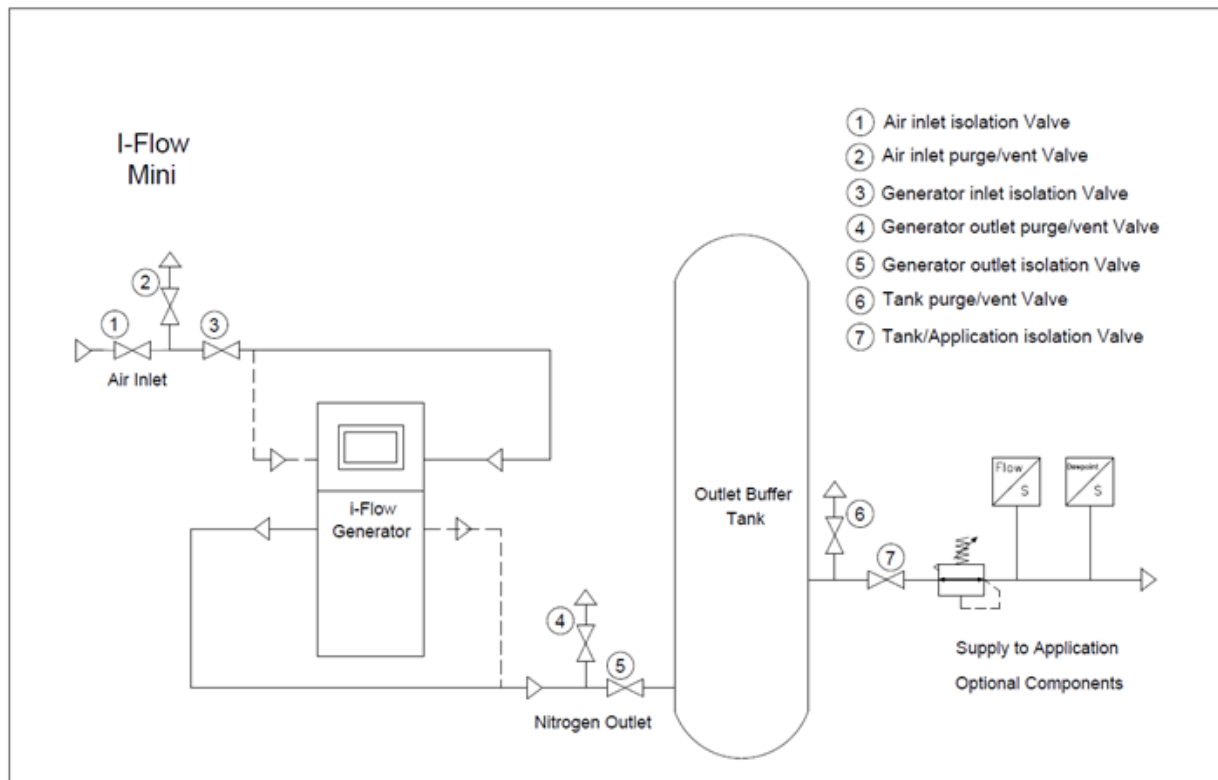


### i-Flow Prime



# Recommended Piping Layout

To allow for proper operation and commissioning of the generator it is important to include isolation and vent valves at the locations displayed below, the i-Flow 7000 Series generators can be piped (air inlet and gas outlet) from either side to suit site/location. Please see below for recommended piping layout.



# Compressed Air Quality

i-Flow 7000 series nitrogen generators are air purification systems & don't generate any gas pressure themselves. Gas pressure is created and supplied to the generator by the user's compressed air system. It is the user / installer's responsibility to ensure that all components connected to the gas generator comply with local health and safety regulations and that the compressed air system is suitably protected from over pressure, including appropriately sized safety relief devices for both the compressed air and nitrogen process tanks.



No pressure greater than 10 barg should be applied to the inlet of the i-Flow N2 generator. If incorrect air quality is used, resulting in damage to the generator, the warranty becomes void.

i-Flow 7000 series nitrogen generators will typically be the last stage in a complete air compression and filtration system, the inlet air quality must meet a minimum of ISO 8573-1:2010 class 2.4.1 or higher. Class 2.4.1 is defined as.

## Class 2 – Particulate

Per cubic meter of air the particulate count should not exceed <400,000 particles in the 0.1 to 0.5 micron range, <6000 particles in the 0.5 to 1 micron range and <100 particles in the 1 to 5 micron range.

## Class 4 – Water

A minimum pressure dewpoint (PDP) of +3°C is required, no liquid water is permitted.

## Class 1 – Oil

Per cubic meter of air the maximum permissible oil content is 0.01mg, total level for liquid, aerosol and vapor.

A typical installation could consist of the following items:

- Oil-Free / Oil-Lubricated Air Compressor
- Wet Air Receiver (with condensate drain)
- Water separator
- Bulk liquid / Particulate Filter
- Refrigerant Air Dryer
- Desiccant Air Dryer (optional)
- Activated Carbon Tower (optional)
- In Line Filtration (coalescing / aerosol / oil vapour)
- i-Flow Nitrogen Gas Generator
- Nitrogen gas receiver/storage tank

Sizing of all components in this line will have a critical effect on the performance of the Nitrogen Gas Generator. Please refer to your quotation documents for details of the items we have recommended to meet your specific requirements. Should you require any further assistance or support please do not hesitate to contact Peak Gas Generation or the Peak Partner from which you purchased your Generator. A full installation and commissioning service can be provided through the Peak Global Service network.



# Electrical Connection

Connect the Generator to a single-phase AC voltage supply using the power cord provided. The generator is fitted with an internal transformer that can accept any supply from 100 to 240 volts AC. If the appropriate power cord is not supplied; a new plug, rated to at least 5 amps, can be fitted by a qualified electrician.



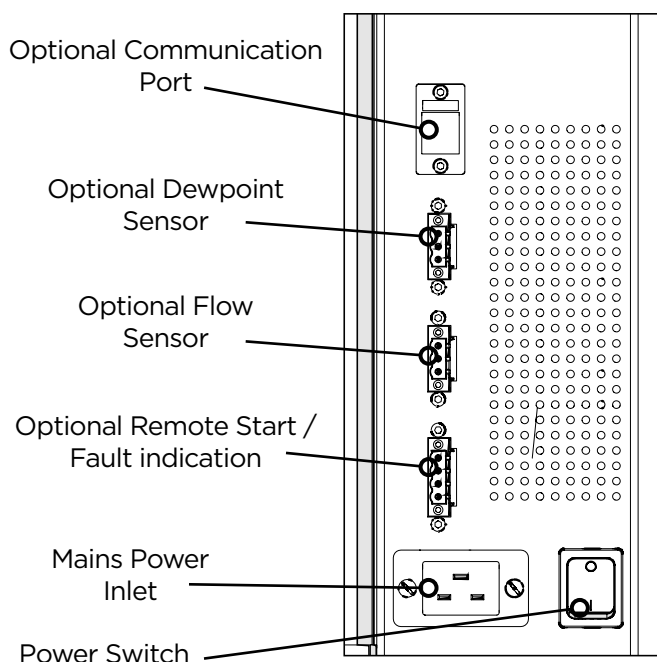
This unit is classified as SAFETY CLASS 1. THIS UNIT MUST BE EARTHED. Before connecting the unit to the mains supply, please check the information on the serial plate. The mains supply must be of the stated AC voltage and frequency.

EARTH/GROUND (E):-	Green & Yellow	or	Green
LIVE (L):-	Brown	or	Black
Neutral (N):-	Blue	or	White



If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment maybe impaired. If an appropriate mains power cords is not supplied or a substitute one is used then ensure that all components of it the plug, cord and connector have adequate ratings for the generator and appropriate approvals for the country of use. Failure to do so could cause damage to the generator or risk overloading of the power cord.

## Electrical Connections



# Product Registration

Before the generator will start up for the first time the user must enter a unique 4-digit PIN code.

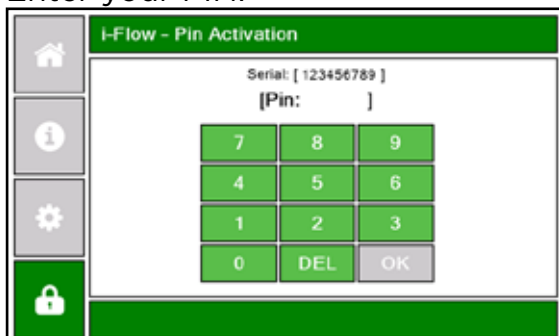
To receive your generator's unique PIN code, please register on the Peak website [www.peakscientific.com/activate](http://www.peakscientific.com/activate) or download the Peak mobile app from the Google Play Store or Apple App Store. A PIN code may also be requested by phoning the Peak helpdesk.

This code is only required on the initial start-up of the unit.

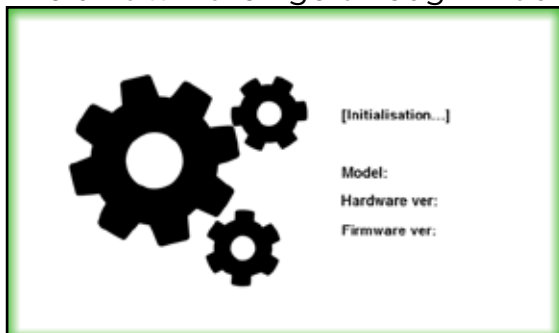
1. Press the 'I've got my pin' icon on the screen on the front of the generator.



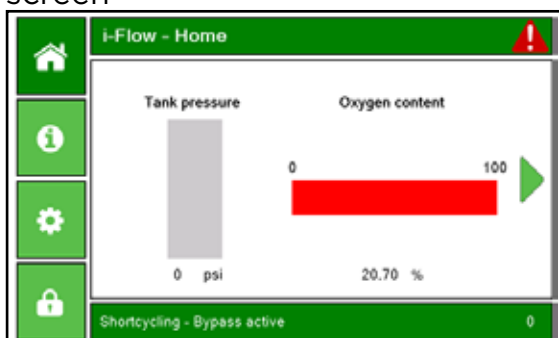
2. Enter your PIN.



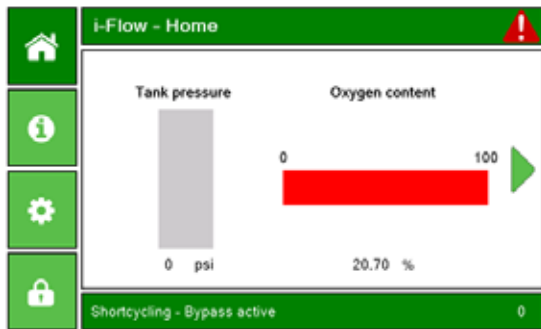
3. The unit will then go through initialisation.



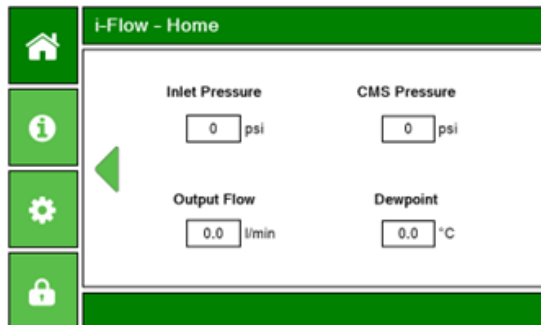
4. Upon completion of the initialisation phase, the screen will display the below, Home screen



# Home Screen

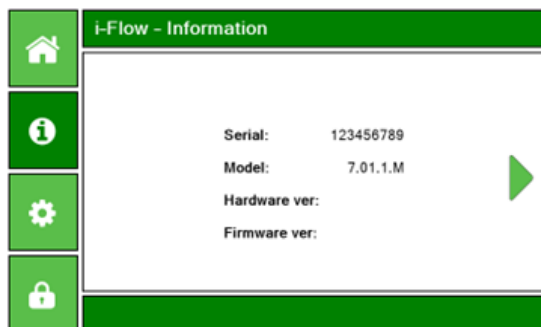


This is the Main Home page screen at first startup of the system. Error Icon in the top right of the screen is Normal, as pressure will be low and O2 content will be high. Touching the red triangle icon, will take you to the error page. In the bottom green bar the system status will be shown on the left side and the current cycle time on the right side.

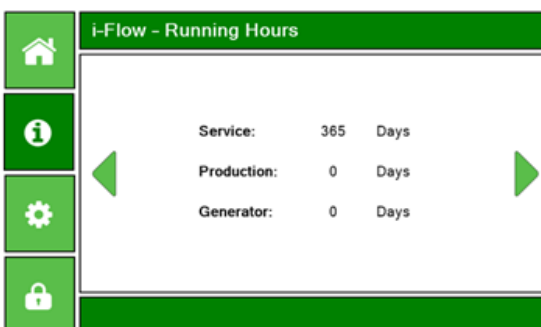


This is the second page of the home screen, showing the additional and optional sensor readings. This screen is accessed by the green arrow on the right hand side of the main Home Screen, to return press the green arrow on the left hand side of this screen.

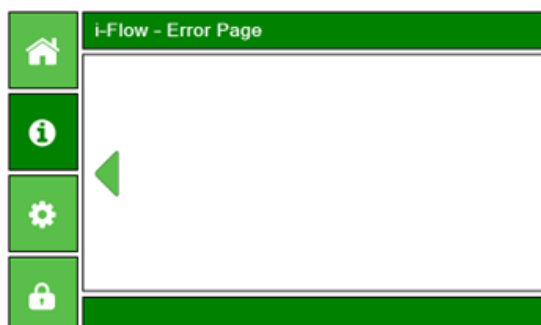
## Information Screen



This is the Main Information Screen showing the information specific to this system, pressing the green arrow on the right takes you to the second page.

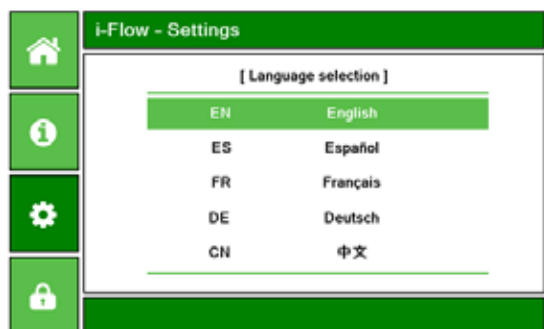


This is the second Information Screen showing the Running hours:  
Service: the number of days till the next service is due to be completed. Starting at 365 and counting down to 0.  
Production: the number of days of Gas production i.e. power ON and NOT in Standby.  
Generator: Generator age in days regardless of operating mode.



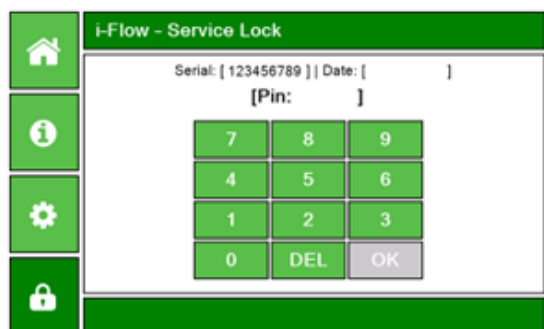
This is the third Information Screen showing the Active Error messages, if no Errors are currently Active, this page will be blank.

## Settings Screen



This is the Settings Screen where displayed language can be selected.

## Service Screen

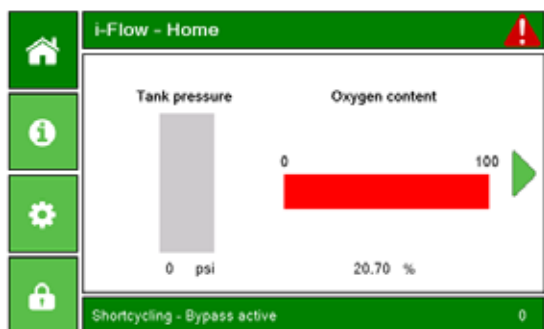


This is the Service Lock Screen – only trained and authorised engineers will have the ability to enter a PIN code and access generator settings and parameters. If the wrong PIN is entered too many times the screen will lock.

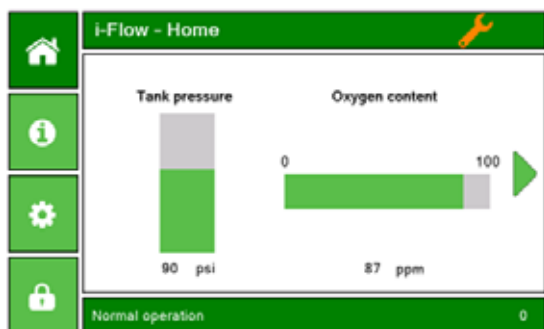


If the incorrect PIN has been entered to many times the screen will lock for 10min, operation of the system will continue during this period.

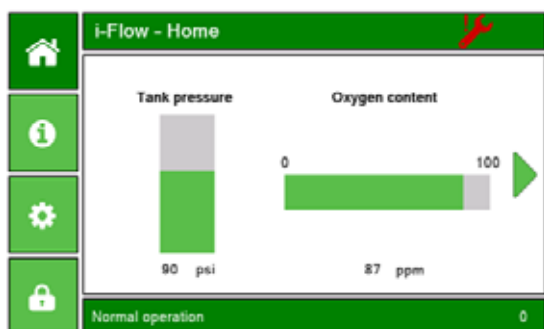
## Screen Warning Icons



The Red warning triangle in the top right corner of the screen, indicates a fault condition is active on the system. Pressing the icon will take you to the Error page which will include a full description of the fault.



The Yellow Spanner in the top right corner of the screen, indicates that the system is due to be serviced in the next 30days, an early warning to allow you time to schedule a visit with your trained and authorised service provider. Pressing the Spanner icon will take you to the Running Hours screen where you can see the actual number of days remaining.



The Red Spanner in the top right corner of the screen, indicates that the system is overdue service. Please schedule a visit with your trained and authorised service provider as soon as possible to ensure continuous trouble free operation.

# Commissioning & Safe Start-Up Sequence



Note: The side panels of the generator should not be removed during operation unless you have received training and are technically competent to manage the potential risks present. Located inside the cabinet are the vent silencers and safety relief valve, which periodically release gas at pressure and could cause injury.



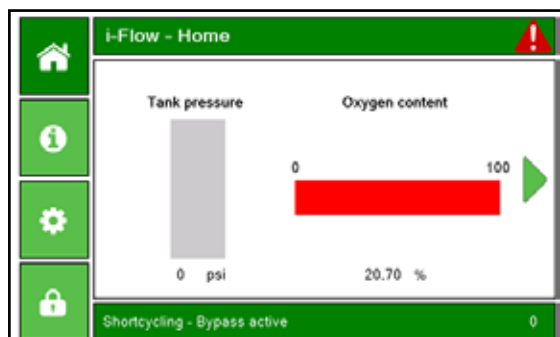
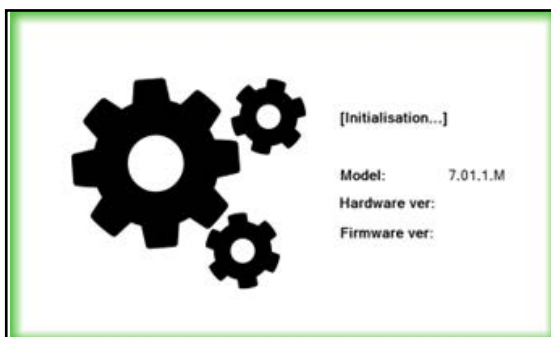
Blank plugs are fitted to the inlet and outlet service ports on the sides of the generator which are not connected by pipework, these must NOT be removed. If removed while the system is under pressure the pressure will be released violently and cause injury.

With reference to the diagram in the Recommended Piping Layout section.

Once the generator has been installed ensure valves (1,2,3,4,6 & 7 on piping diagram) are in the CLOSED position, Valve 5 only should be in the OPEN position. Note: if you are re-starting the system after routine service, there should be pressure in the outlet tank and valve 5 should be opened slowly.

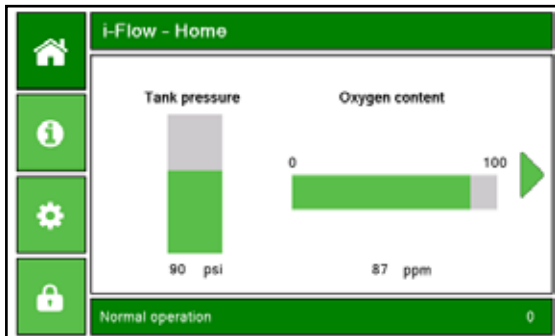
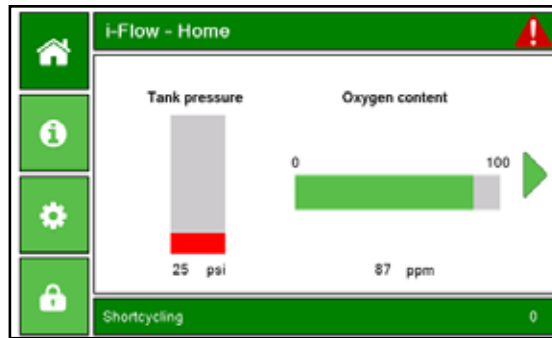
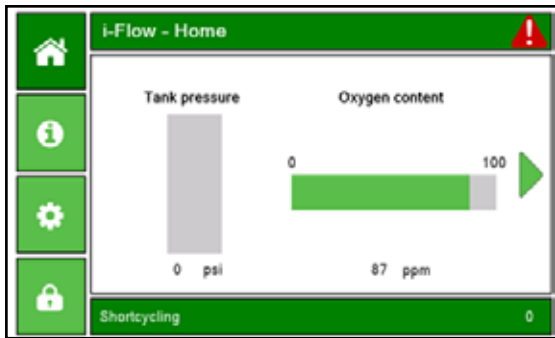
Open Air inlet isolation valve (1) and slightly open Air inlet purge/vent valve (2) to allow the compressed air to sufficiently purge any moisture from the newly installed pipework. (if this is the first operation of the compressed air supply, it is recommended that the air be vented for a minimum of 30mins to allow the air filtration and dryer to stabilise). Once the inlet pipework has been purged, the Air inlet purge/vent valve (2) can be closed and the pressure gradually introduced to the generator by slowly opening the Generator inlet isolation Valve (3). Switch the generator ON using the power switch at the bottom of the left hand side of the generator.

The first screen that will be displayed is the 'Peak' logo followed by an initialisation screen:

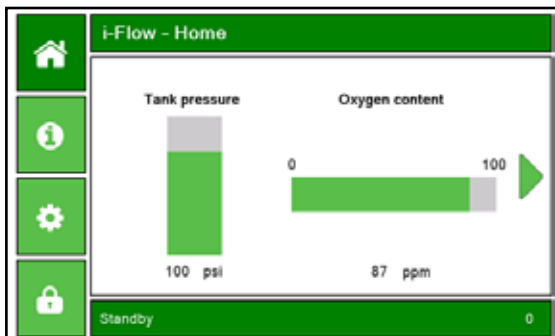


Initially, the generator should show 0 pressure in the tank, and nominal 20.7% ambient O<sub>2</sub> content, at this point the system will be shortcycling, automatic bypass feature will be active, and the generator will be internally venting "bad" gas:

Once the desired Oxygen content has been achieved (approx. 30min). the system will automatically close the bypass valve, stop internally venting and begin to fill the outlet buffer tank.



Once the desired tank pressure has been achieved, the system will automatically exit the “Shortcycle” mode and begin “Normal Operation”.



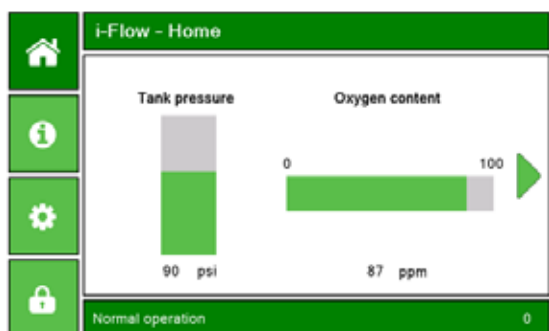
The system will continue to produce Gas until the Standby pressure is reached, at which point the generator will enter the “Standby” mode.

Once in “Standby” mode, the generator will pause the normal cycle and stop consuming air.

Slightly open Tank Purge/Vent valve (6) to allow any residual oxygen to be purged from the tank, as pressure in the tank falls, the generator will automatically resume Normal Operation again. If the pressure falls too low, Shortcycle mode will become active, if this happens slightly close the Tank Purge/Vent valve (6) as you have exceeded the capacity of the system. After approx 30min purging, the Tank Purge/Vent valve (6) can be closed, the Tank/Application Isolation valve (7) can now be opened slowly and the downstream system pressurised. If downstream volume is large and you open the valve too fast allowing the pressure in the outlet tank to drop too far, then the sytem will automatically return to Shortcycling mode. Allow the downstream system to fully fill and stabilise before starting to consume gas.

# Normal Operation

i-Flow 7000 series gas generators are designed specifically to minimize operator involvement. As long as the system is installed as described in earlier sections and is serviced in accordance with the specified maintenance recommendations (see Service Requirements), then it should simply be a matter of turning the Generator on. Note: the generator will only produce nitrogen gas based on demand, so should typically be left in a powered state with live compressed air supply. If the system is shutdown, or suffers a power failure, it will restart automatically. However, if left without inlet air pressure for a prolonged period and the Nitrogen tank is allowed to vent all pressure, then the commissioning process above should be repeated to purge the oxygen from the system before high quality nitrogen gas can be produced again. There are several “Modes” of operation for this system, the current system Mode can be seen in the bottom green bar on the left side of the Home Page.



Shortcycling - Bypass Active	Tank pressure is low and the gas purity is out of specification. Gas will be internally vented until desired purity is achieved.
Shortcycling	Tank pressure is too low, the system will limit the max flow to the tank to preserve gas quality, if the demand from the system is too high it must be reduced to allow the tank pressure to recover and the system to automatically exit Shortcycling.
Normal Operation	System is operating with in specification, columns are cycling and gas is being produced.
Standby	Demand on the system is Low / stopped. The system will automatically detect this and pause the cycle to reduce air consumption.
Refreshing - Bypass Active	If the system is in Standby mode for a prolonged period, gas purity may rise out of specification, Refresh mode will force the columns to cycle and internally vent “bad” gas to recover purity, so it is ready for use when demand resumes.



## Safe Isolation Process

With reference to the diagram in the Recommended Piping Layout section.

To shut the system down, first close the Tank/Application isolation Valve (7) and the Generator outlet isolation Valve (5), this will isolate and preserve the gas within the Nitrogen receiver/storage/buffer tank. **NOTE: This will “lock” pressure in the outlet buffer tank, if the tank needs to be moved or inspected, it should first be de-pressurised by slowly opening the Tank purge/vent valve (6).** Then close the Air inlet isolation Valve (1) and slightly open the Air inlet purge/vent Valve (2) and the Generator outlet purge/vent valve (4) to allow the generator pressure to vent to atmosphere. Once the sound of dissipating pressure has stopped and the ‘Tank pressure indication dial’ on the Home screen reads ‘Zero’ (0) fully open these vent valves (2 and 4), turn off the power to the generator via the power switch and remove the mains cord from the generator (located next to the power switch).

Note: Vent valves (2 and 4) should remain open for the full duration of the service allowing the CMS (Carbon molecular sieve) to release oxygen and prevent the pressure from building back up again.

Once service operations have been completed, the generator can be re-connected to the mains supply and the start-up process described in earlier sections should be repeated.

# Service Requirements

Due to the simplicity of the design and the small number of moving parts the i-Flow N2 Nitrogen Generators will have a long and trouble free life. However as with all technical equipment it should be regularly inspected and serviced as below.

## Service Schedule

Purchase Interval	Unit	Part No.
12 months	i-Flow Mini 701X – 702X (All purities)	3304731
	i-Flow Mini 7033 – 7043 (All purities)	3304732
	i-Flow Prime 7011 – 7021 (5%)	3304728
	i-Flow Prime 7031 – 7041 (5%)	3305384
	i-Flow Prime 7051 – 7101 (5%)	3305385
	i-Flow Prime 7011 – 7031 (0.5%-4%)	3304728
	i-Flow Prime 7041 (0.5%-4%)	3305384
	i-Flow Prime 7051 – 7101 (0.5%-4%)	3305385
	i-Flow Prime 7012 – 7042 (500ppm-1000ppm)	3304728
	i-Flow Prime 7052 (500ppm-1000ppm)	3304729
	i-Flow Prime 7062 – 7102 (500ppm-1000ppm)	3305385
	i-Flow Prime 7013 – 7043 (5ppm-100ppm)	3304728
	i-Flow Prime 7053 – 7063 (5ppm-100ppm)	3304729
	i-Flow Prime 7073 – 7103 (5ppm-100ppm)	3305385
48 months	O2 Analyser %*	3304725
	O2 Analyser PPM (500-1000ppm)	3304724
	O2 Analyser PPM (5-100ppm)	3305021

\*Analyzer service is dependent on selected model.

# Service Indication

The generator will notify the user of the service interval for the filter elements. The generator has the following Service Indication Stages:-

## Stage 1

When less than 30 days are remaining on the service counter the Service Due icon will show in the top right corner of the Home Screen.

This is to make the user aware that a service of the generator is due and should be planned at the earliest convenience. The generator will continue to operate as normal with the service indicator on.

## Stage 2

Once the Service counter has reached 0, the Service Overdue icon will be displayed in the top right corner of the Home screen.

This is to make the user aware that the service of the generator is now overdue and must be completed immediately to ensure the continuous trouble free operation of the generator.

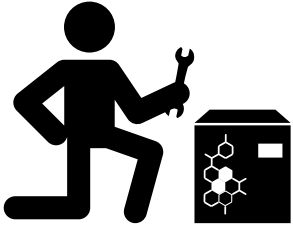


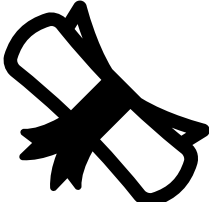
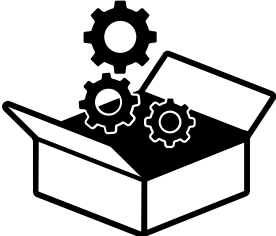

## Service Indication Reset

Once the service has been completed the Service Indication can be reset through the service interface. This will be performed by the Peak Service Engineer or trained service representative that completes the service operation.

## Peak Protected

With Peak Gas Generation you invest in not only a product but peace of mind. With a network of certified Peak engineers stationed throughout the globe, Peak's rapid response team are never far away and our commitment is to keep your generator running day in, day out, protecting your productivity.

**[Peak Protected]** can provide...

 <p><b>Installation</b> A dedicated Peak engineer will visit your site to install and setup your generator</p>	 <p><b>Complete plan</b> Swift response by a Peak Service Engineer within 72 hours &amp; planned preventative maintenance</p>	 <p><b>Premium Protected</b> Guaranteed rapid on-site response within 24 hours &amp; planned preventative maintenance</p>
 <p><b>IQ/OQ</b> Certified assurance for applications requiring documented qualification</p>	 <p><b>Spares</b> Genuine Peak parts with express delivery, ensuring optimal performance and lifetime</p>	 <p><b>Technical Support Hotline</b> Around the clock support by phone or online with our global technical helpdesk</p>

To find out more about protecting your investment visit: [www.peakscientific.com/protected](http://www.peakscientific.com/protected)

## 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. Do not use decontamination or cleaning agents that could cause a HAZARD as a result of a reaction with parts of the Generator or material contained within it. If there is any doubt about the compatibility of decontamination or cleaning agents please contact your Peak Gas Generation representative.



Cleaning should only be undertaken with the power switched off and the power cord removed from the rear of the generator.



CAUTION

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

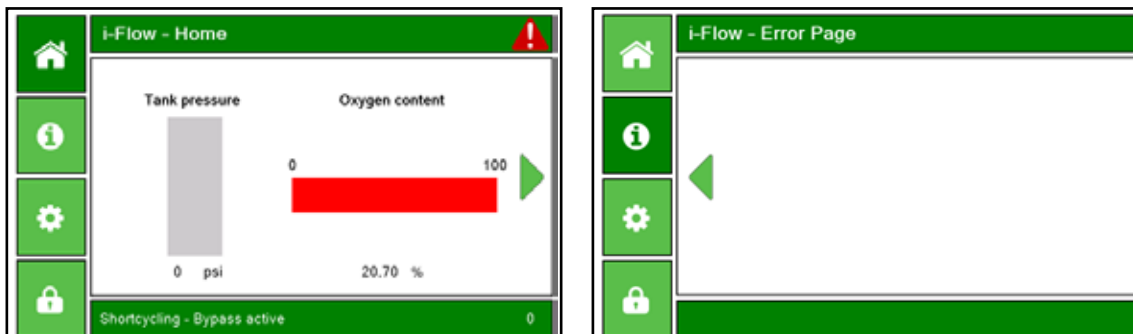


CAUTION

Care should be taken with Leak Detections Liquids.

## Error Messages


In the event of a fault condition on the system the RED warning triangle will be displayed in the top right corner of the Home Screen, pressing the Icon will take you to the Error Page. Please note that upon start-up, the RED warning triangle is normal (refer to P26 of the user manual)



If no faults are currently active the Error Page will be blank, possible Error Messages are:

Service Due	When less than 30 days remaining on service counter, this error will be active. Yellow Spanner Icon on Home page. Please schedule a visit with your trained and authorised service provider.
Service Overdue	System is overdue service. Please schedule a visit with your trained and authorised service provider as soon as possible to ensure continuous trouble free operation.
Low Inlet Pressure	Air Supply to system is compromised, please investigate and contact your local service provider.
Low Tank Pressure	Outlet buffer tank pressure is low, typically if no other errors are present, then this is likely to be excess demand on the system, or a gas leak on the tank / application, please investigate and contact your local service provider.
O2 Alarm Comms Failure	The communication signal has been lost between the generator and it's O2 analyser and the reading on the screen is not correct, please contact your local service provider.
Output flow too high (requires optional flow sensor)	Excess demand on the system, or a gas leak on the tank / application, please investigate and contact your local service provider.
Dewpoint too high (requires optional dewpoint sensor)	Excess demand on the system, or a gas leak on the tank / application, please investigate and contact your local service provider.

# Troubleshooting

Problem	Possible Solution
The generator will not switch on and the power switch does not illuminate.	<ul style="list-style-type: none"> <li>• Ensure power cable is plugged into the generator and that the socket is turned on</li> <li>• Check the fuse in the power cable plug (if fitted)</li> <li>• Contact your service provider</li> </ul> 
The application is reporting low pressure.	<ul style="list-style-type: none"> <li>• Check pressure readings on the display are showing normal pressure.</li> <li>• Ensure that the system is leak free and all vent valves are closed.</li> <li>• Ensure isolation valves between the generator, tank and application are fully open.</li> <li>• Contact your service provider.</li> </ul>
Service indicator on the screen is active.	<ul style="list-style-type: none"> <li>• The generator is due for a service. Contact your service provider.</li> <li>• Refer to Service Indication section of this manual for further information</li> </ul>
Overdue service indicator on the screen is active.	<ul style="list-style-type: none"> <li>• The generator is overdue for service.</li> <li>• Contact your service provider urgently.</li> <li>• Refer to Service Indication section of this manual for further information</li> </ul>
Generator displays an error message.	<ul style="list-style-type: none"> <li>• Ensure there is a complete, leak tight connection between the generator and the application</li> <li>• Ensure the flow demand on the tank is within rated limits</li> <li>• Ensure the isolation valves on both inlet and outlet sides of the generator are fully open</li> <li>• Contact your service provider.</li> </ul>
Tank pressure is low.	<ul style="list-style-type: none"> <li>• Ensure that the system is leak free and all vent valves are closed.</li> <li>• Ensure the flow demand on the tank is within rated limits</li> <li>• Ensure isolation valves between the generator and the tank are fully open</li> <li>• Contact your service provider.</li> </ul>

# [**PEAK Protected**]<sup>TM</sup>

Peak Gas Generation gas generators define the benchmark in reliability, convenience and performance in facilities around the world, and come backed by a 12 month on-site warranty. Beyond this period however you can ensure that your investment continues to be **[Protected]** by our comprehensive generator care cover.

Our world-class aftercare support packages deliver a program of scheduled preventative maintenance whilst giving you the reassurance of instant access to worldwide technical support and priority on-site response in the untimely event of a breakdown.

## **Peak Gas Generation**

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For further information on any of our generator products please contact  
**[contact@peakgas.com](mailto:contact@peakgas.com)**

