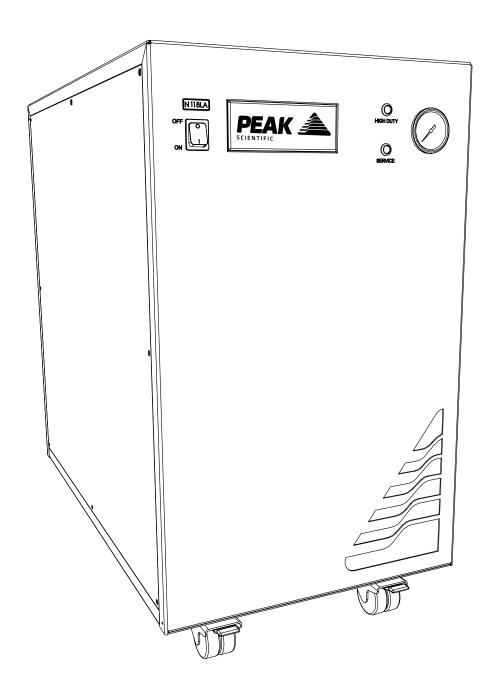
# Genius N118LA & N418LA

**User Manual** 





# **Contents**

Change History	3
How to use this Manual	3
Introduction	4
Warranties and Liabilities	5
Warranty & Liability Coverage	5
Safety Notices	7
Declaration of Conformity	8
Environmental Declaration	9
Technical Specification	10
Unpacking	11
Fittings Kit Contents	12
Installation	13
Generator Environment	13
Generator Overview	14
General Dimensions	14
Rear Connections	15
Electrical Connection	16
Drain Connection	16
Initial Purge Run	17
Connecting to the Application	17
Tubing Lengths	18
Normal Operation	19
On Demand Gas	19
Generator Cycling	19
Unusual Operation	19
Sleep Mode - N418LA Only	19
Service Requirements	20
Service Schedule	20
Peak Protected	21
Cleaning	22
Troubleshooting	27

# **Change History**

Rev	Comment	Name	Date

#### 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 Scientific to meet your gas generation needs, and 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.

#### Introduction

The Genius N118LA & N418LA nitrogen generators are designed specifically for use with LC/MS instruments.

This model provides a source of nitrogen gas with other features including:

- Confidence Designed and built around extensive tried and tested processes.
- Intelligent Self-diagnostic analysis to ensure trouble free operation.
- Independant No external compressor required
- Quiet Extremely quiet in operation with minimum vibration.
- Mobile Flexibility to position the generator where required
- Simple installation Generator designed as a plug and play system
- Economical More cost effective than any other gas supply method
- Convenient Gas on demand, no hazards, no need to worry about running out of gas

The Genius N118LA & N418LA are based on proven technology, and selectively remove oxygen, moisture and other gases to leave clean, dry, phthalate free nitrogen. Internal air compressors make these unit independent from in-house air supplies and fitted castors allow the user to easily position the unit in the lab.

To ensure these Generator models meet our high expectations with regards to reliability and performance, we have tested them extensively at our manufacturing plant and with end users around the world to ensure reliability and longevity of the system.

#### **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 series, 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 ISO 8573-1:2010 Class 1.2.1 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 to carry out.

### **Safety Notices**

Peak Scientific Instruments cannot anticipate every possible circumstance which may represent a potential hazard. The warnings detailed within this manual refer to the most likely 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 Scientific, 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.



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.



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 Generator. 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.



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

# **Declaration of Conformity**

We Peak Scientific Instruments Ltd.

Of Fountain Crescent, Inchinnan, Renfrewshire, PA4 9RE

Declare that:

Equipment: Nitrogen Gas Generator

Models: Genius N118LA & N418LA

To which this declaration relates, is in conformity with the applicable EC directives, harmonized standards, and other normative requirements.

• Low Voltage Directive 2014/95/EC EN 61010-1: 2010 Electrical Equipment for measurement, control and laboratory use.

CAN/CSA-C22.2 No.61010-1-04 Safety requirements for Electrical Equipment for Measurement, Control and Laboratory use, Part 1: General requirement.

- Electromagnetic Compatibility Directive 2014/30/EU EN 61326-1: 2013 Electrical Equipment for measurement, control and laboratory use.
- FCC47 CFR Part 15 Class B
  Unintentional radiators; Conducted and Radiated emissions limits.

All evaluation, testing and certification issued by:

#### Nemko Canada Inc.

303 River Road

Ottawa

Ontario

Canada

K1V 1H2

Signed: Name: Chris Pugh

Date: 06/03/2017 Position: Chief Techology Officer



# **Environmental Declaration**

We Peak Scientific Instruments Ltd.

Of Fountain Crescent, Inchinnan, Renfrewshire, PA4 9RE

Declare that:

Equipment: Nitrogen Gas Generator

Models: Genius N118LA & N418LA

Is fully compliant with the following Directives

• 2012/19/EU WEEE (Waste of Electrical and Electronic Equipment)

• 2011/65/EU RoHS 2 (Restriction of Hazardous Substance)

Peak Scientific Instruments Ltd fully complies with its obligations towards the European WEEE (Waste of Electrical and Electronic Equipment) Directive 2012/19/EU. These obligations are being met within the B2B compliance group.

Peak Scientific Instruments Ltd has developed all reasonable 'due diligence' controls to ensure that our products comply with the principles and requirements of the European recast RoHS (Restriction of Hazardous Substances) Directive 2011/65/EU. Similar directives in the United States and China, for example, have also been captured within this program.

Where a specific certificate of compliance is required, this can be requested, on a product serial number basis, directly from Peak Scientific Instruments Ltd, by contacting us through our website on www.peakscientific.com

Signed: Name: Chris Pugh

Date: 06/03/2017 Position: Chief Techology Officer





# **Technical Specification Genius N118LA & N418LA**

#### Environment

Minimum Operating Ambient Temperature	5°C (41°F)
Maximum Operating Ambient Temperature	25°C (77°F)
Maximum Altitude	2000 m
Maximum Relative Humidity	70%

<sup>\*</sup> NOTE. When taken out of storage the generator should be allowed to acclimatize at room temperature for a minimum of 3 hours before operation

#### **Generator Outlets**

Maximum Gas Output Pressure	6.9 bar (100 psi)
Maximum Outlet Flow Rate	18 L/min (0.64 cfm)
Particles	<0.01µm
Phthalates	NONE
Suspended Liquids	NONE
Gas Outlets	1 x 1/4" BSPP
Drain Outlets	1 x 1/4" BSPP
Pressure Gauges	1
Start-up Time	30 min

#### **Electrical Requirements**

Voltage	230 VAC ± 10%
Frequency	50/60 Hz
Current	3.6 Amps
Input Connection	C20 Plug
Power Cord (Supplied)	C19 socket to local connection (13A minimum)
Pollution Degree	2
Insulation Category	II

#### General

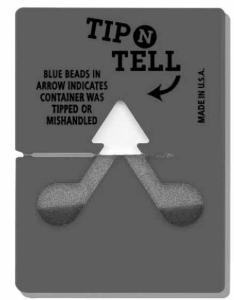
Dimensions cm (inches) WxDxH	40 x 70 x 71 (15.7 x 27.5 x 28)
Generator Weight Kg (lbs)	60 kg (132lb)
Shipping Weight Kg (lbs)	85 kg (187lb)

### **Unpacking**

Although Peak Scientific 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 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 to the desired location.

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

Note: Included with the generator is a "Fittings Kit" containing mains power leads for UK, EU & US and also all the required fittings and warranty registration card. Be careful not to discard these with the packaging.

# **Fittings Kit Contents**

Supplied in the Fittings Kit are all the fittings required to connect the generator to the application. The contents of the Fittings Kit are as follows:

1.	¼" Teflon Tubing	x 3m
2.	6mm PE Tubing	x 3m
3.	6mm Teflon Tubing	x 3m
4.	1/4" Compression Fitting	x 1
5.	6mm Push Fit Fitting	x 2
6.	UK Mains Power Cable	x 1
7.	EU Mains Power Cable	x 1
8.	US Mains Power Cable 230v	x 1
9.	8mm Hex Key	x 1

All of the generators output ports are located on the output panel at the rear of the unit.

#### Installation

#### **Generator Environment**

The generator is designed for indoor use only. It should be installed adjacent to the application(s) 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.

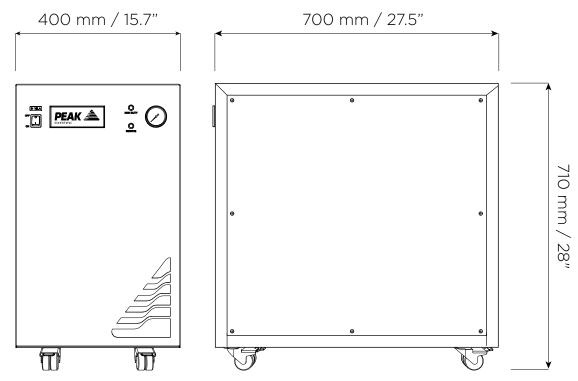
Performance of the generator (like all sophisticated equipment) is affected by ambient conditions. Note should also be taken to the proximity of Air Conditioning outlets. These can sometimes give rise to "pockets" of air with high relative humidity. Operation of the unit within such a pocket could adversely affect its performance. Consideration should also be given to the air flow around the unit. It is recommended that an air gap of 75mm (3") should be maintained down both sides and at the rear of the unit. Please refer to the drawing below for the general dimensions of the unit.

Minimum Operating Ambient Temperature: 5 °C (41 °F)

Maximum Operating Ambient Temperature: 25 °C (77 °F)

# **Generator Overview**

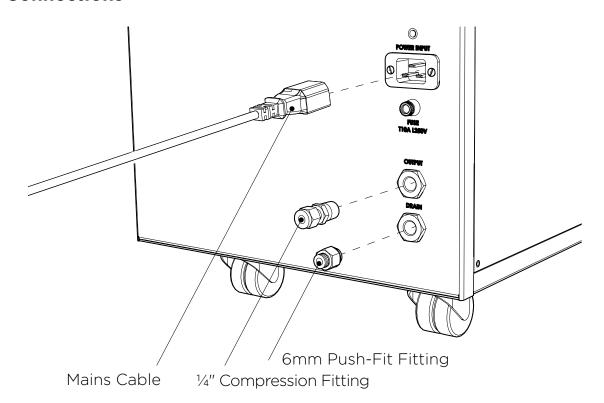
#### **General Dimensions**





The generator must always be placed on a flat, level surface. Failure to do so will affect the performance of the generator.

### **Rear Connections**



#### **Electrical Connection**

Connect the generator to an appropriate 110 or 230 volt single-phase supply, refer to the generator serial plate for input specification and ensure your supply matches the requirements.

If the appropriate power cord is not supplied; a new plug, rated to at least 12 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

Blue

Electrical requirements for 230V generators is 195V - 253V 50/60Hz. For 195V - 219V a 06-3200 Dual Tap Transformer is required.



Neutral (N):-

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

or

White

### **Drain Connection**

Please ensure that the drain port at the rear of the compressor is led to a suitable connection or container, It should be noted that the generator will expel considerable amounts of water from this port. If a container is used it should be emptied at regular intervals.

Note: The container must not have an airtight seal.

### **Initial Purge Run**



Before the Generator is connected to the application, the Generator should be operated in isolation (i.e. not connected to the application) for thirty minutes. This is to ensure any impurities present are purged from the system. failure to do this may harm the application.

Connect the Generator to the mains and switch on.

Pressure will start to build in the internal storage tanks which can be monitored by watching the output pressure gauge on the front panel. This will climb to the factory set pressure as noted in the specifications.

Once this pressure is reached, the compressor will continue to run until the internal tank upper pressure limit is reached and the compressor has run for a period of at least two and a half minutes.

The compressor will then rest until the internal tank lower pressure limits is reached. Once this limit is reached the compressor will switch back on again. This compressor cycling is normal and will continue throughout the operation of the Generator.

When the system has been operated for a period of 30 minutes, all the internal pipework and storage tanks will have been purged with Nitrogen.

The Generator is now purged and the tubes can be connected at the rear of the unit.

### **Connecting to the Application**

Once the initial purge run of 30 minutes has completed the Generator is now ready to be connected to the application.



The pressure in the internal storage tanks must be allowed to dissipate before connecting the Generator to the Mass Spectrometer

Depending on the size of the applications inlet, attach either the 6mm Push-Fit or  $\frac{1}{4}$ " Compression fitting to the outlet of the Generator. Using the appropriate sized Teflon tubing supplied, connect the outlet of the Generator to the inlet on the application.

If you require more tubing than is supplied please refer to the Tubing Lengths section.



Once the tubing is connected to the application, please ensure that it is thoroughly checked for leaks. Even the slightest leak in the gas supply between the Generator and the application can lead to a reduction in efficiency.

#### **Tubing Lengths**



The diameter of the tubing which will be connected to the gas outlet is important and is determined by the length of tubing required. Failure to follow these recommendations could lead to pressure between generator and application.

< 10 meters: Use 6/4 (6mm O/D, 4mm I/D) P.T.F.E. tubing.

> 10 - 40 meters: Use 10/8 (10mm O/D, 8mm I/D). Tubing and fittings not

supplied in the fittings kit.

> 40 metres: Please contact Peak Scientific with the relevant distance andwe

will calculate the flow resistance and the tubing size required.

A combination of 6/4 and 10/8 tubing may be used to ensure that there is no large diameter tubing within the lab (i.e. for the first 20 meters from the Generator use 10/8 and the final 10 meters to the application use 6/4 tubing). Keep the connections and bends to a minimum.

The imperial equivalents are: 6/4 = 1/4" O/D, 3/16" I/D.

10/8 = 3/8" O/D, 5/16" I/D.

### **Normal Operation**

The Genius N118LA & N418LA Gas Generators are designed specifically to minimize operator involvement. Given that the systems are 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 when it is required.

The Generator will automatically produce the factory set flow and pressure as detailed in the Technical Specifications.

#### On Demand Gas

The generator will produce nitrogen on demand. If the application is operating and requires a gas flow, the system it is connected to will supply this to suit the requirements of the application. If the application requirement for gas stops, the system will also stop, once it has reached its upper set limit in the internal storage tanks. If the demand from the application starts again, the system will detect the demand for gas and will automatically start again to suit the demand.

### **Generator Cycling**

The Generator is designed for the internal compressors to cycle. This cycling reduces the duty (run time) on the compressors. The rate at which they cycle will be dependent on the gas required to satisfy the demand of the application. If the application demands the maximum gas flow of the Generator, the compressor duty will be higher, (the rest period in the compressor cycle will be shorter). If the application demand is lower than the maximum gas flow, then the duty on the compressors will decrease, (the rest period in the compressor cycle will be longer). If the Generator is installed in an extreme environment or is subjected to low supply voltage or high altitude the compressors may undergo periods where they do not cycle.

### **Unusual Operation**

If at any time the generator begins to emit excessive noise or vibration, then it should be switched off and you should contact Peak Scientific or the Peak Partner from which the generator has been purchased.

### Sleep Mode - N418LA Only

The generator also includes an optional Sleep Mode function that will operate if the Instrument it is supplying goes into a standby or shutdown.

When enabled this function detects if the gas consumption rate falls below 2 I/min. If the consumption rate does fall below 2 I/min then it will drop the lower pressure set point from 110psi to 80psi. This allows the compressor to rest for longer periods of time, extending the life of the unit. Sleep mode is enabled as standard.

### **Service Requirements**

#### **Service Schedule**

Purchase Interval	Component	Visit
12 Months	Genius N*18LA Annual Maintenance Kit	www.peakscientific.com/ordering

#### **Service Indication**

The Generators service LED will illuminate when service is due.

If the service becomes overdue the LED will begin to flash.

# **High Duty Indication**

This indicator monitors the running condition of the internal compressor and illuminates when it has been operating continually for a period of 8 hours.

There are a number of extreme conditions that can affect the duty cycling of the compressor. These extremes include very high ambient temperatures, low supply voltages, a very high flow requirement and locations of high altitude. Any one of these or a combination of a number of these extremes can be evident in a customer site.

While the Generator is designed to operate fully in these conditions it should be noted that the effect of these extremes can force the compressors to run continually. The compressor is fully capable of running continually with no detrimental effect. However it should be noted that if this is the case it will increase the duty and it will reach the 3750 hour recommended service interval quicker.

#### **Peak Protected**

With Peak Scientific 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 laboratory workflow.

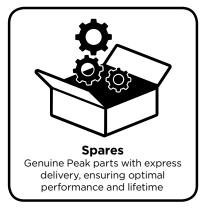
# [Peak Protected] can provide...













To find out more about protecting your investment visit: www.peakscientific.com/protected

# **Cleaning**

Clean the outside of the generator only using warm soapy water and a clean damp cloth. Ensure all excess fluid is thoroughly removed from the cloth prior to use.



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



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



Care should be taken with Leak Detections Liquids.

# **Troubleshooting**

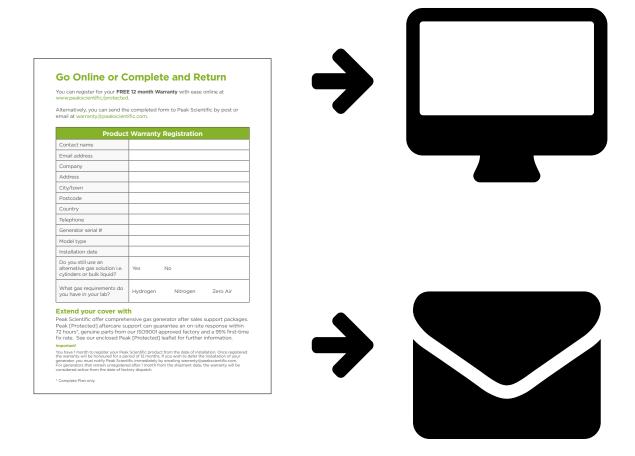
Problem	Possible Solution		
	Ensure power cord is plugged into the Generator and that the power socket is turned on.		
The Generator will not switch on and the power switch does not illuminate.	Check the fuse in the power cord plug.		
	Contact your service provider.		
The Generator will not switch on but the power switch is illuminated.	<ul> <li>Disconnect power cord from the rear of the Generator. Open the left hand panel are check that both circuit breakers are turned on (switch in the up position). Reconnect power cord.</li> <li>Contact your service provider.</li> </ul>		
Compressors are running but pressure is not building.	<ul> <li>Check pressure gauge is showing normal pressure.</li> <li>Contact your service provider.</li> </ul>		
The mass spec is reporting low pressure.	Contact your service provider.		
Yellow "SERVICE" LED on front panel is on constantly.	<ul> <li>A compressor(s) due for service. Contact your service provider.</li> <li>Refer to Service Indication section of this manual for further information.</li> </ul>		
Yellow "SERVICE" LED on front panel is flashing.	<ul> <li>A compressor(s) is overdue for service.         Contact your service provider urgently.</li> <li>Refer to Service Indication section of this manual for further information.</li> </ul>		

# **Go Online or Complete and Return**

We know that registering any of your recently purchased products is not the first thing on your mind- but it is very important to both of us. Not all warranties are alike and Peak Scientific stand out against other gas suppliers as we offer a comprehensive, quick response, on-site warranty. This means that in the very unlikely case that your gas generator develops a fault we have rapid support teams on-hand around the world who are able to come to your lab and get you back up and running in no time.

Register for your **comprehensive 12 month on-site warranty** with ease online at www.peakscientific.com/protected.

Alternatively, you can send the completed form to Peak Scientific by post or email at warranty@peakscientific.com.



#### Important!

You have **1 month to register** your Peak Scientific product from the date of installation. Once registered the warranty will be honoured for a period of 12 months. If you wish to defer the installation of your generator, you must notify Peak Scientific immediately by emailing **warranty@peakscientific.com**. For generators that remain unregistered after 1 month from the shipment date, the warranty will be considered active from the date of factory dispatch.

# [**PEAK** Protected]

Peak Scientific has highly trained, fully certified Field Service Engineers located in over 20 countries across every continent around the world. This allows us to provide an industry-leading rapid response service to our customers. With **[Peak Protected]**, your laboratory's productivity becomes our top priority.

To discuss Peak Protected generator cover and payment options speak to your local Peak Representative or for further information contact: protected@peakscientific.com

#### **Peak Scientific**

Fountain Crescent Inchinnan Business Park Inchinnan PA4 9RE Scotland, UK

**Tel:** +44 141 812 8100 **Fax:** +44 141 812 8200

For further information on any of our generator products please contact marketing@peakscientific.com

