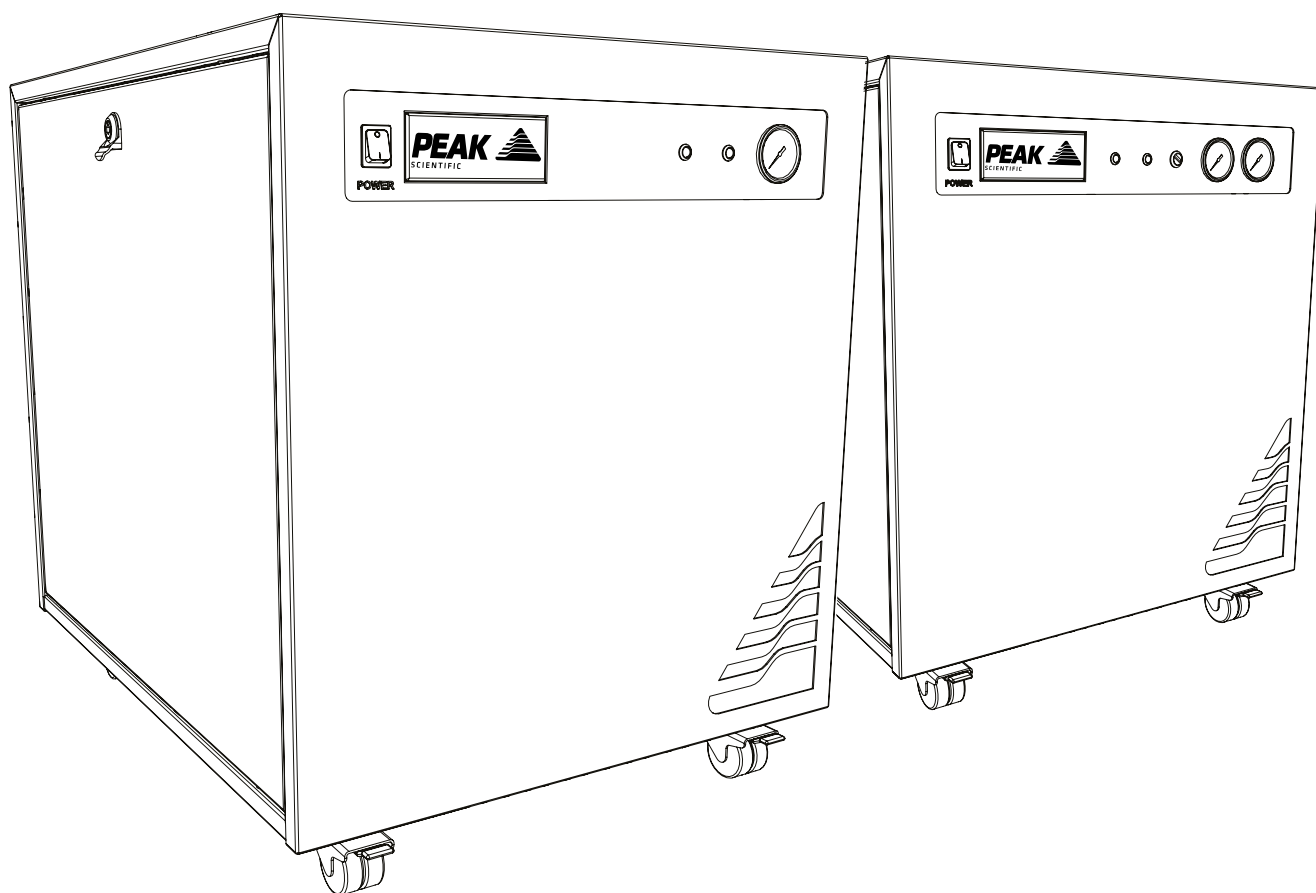


Genius 105X Series

User Manual



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Change History

Rev	Comment	Name	Date
2	Service Kit Ordering Update	Liam Couttie	23/03/2018
3	Declarations Update	Liam Couttie	24/04/2018
4	Genius 1053 Update	Liam Couttie	15/05/2018
5	Tech Spec Update	Liam Couttie	21/08/2019
6	Updates to incorporate CSA feedback	Liam Couttie	10/07/2020
7	Power Cord Update	Liam Couttie	18/12/2020
8	Genius 1053 Purity Figure Update	Liam Couttie	08/03/2021
9	Declarations Update	Liam Couttie	15/11/2021
10	Declarations Update	D lai	7/7/2022

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 1050, 1051, 1052 & 1053 have been developed to cater for the gas requirements of specific LCMS, and other applications, models.

Depending on model, these generators provide a source of nitrogen gas or nitrogen and dry air with other features including:

- Small in size - fits under a standard lab bench
- Anti- vibration - maximum reduction of vibration
- Service indication - allowing you to plan your maintenance and keep your application uptime at a maximum
- Improved drainage - reduction of moisture carry over and thus increased reliability
- Re- heat technology - improves membrane performance and reliability
- Robust control system - improves safety and reliability of units

With the generators based on proven technology, they selectively remove oxygen, moisture and other gases to leave clean, dry, phthalate free nitrogen gas or nitrogen and dry air (depending on model). Two internal air compressors make these units independent from in- house air supplies and fitted castors allow the user to easily position the units in the lab.

To ensure the 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




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.
 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
 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

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.

 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 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.

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 Gas Generator Genius
Model Designator: 1050, 1051, 1052 & 1053

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 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)
- **Restriction on the use of certain hazardous substances in electronic equipment (RoHS) Directive 2011/65/EU as amended by EU 2015/863.**
- **FCC 47 CFR Part 15 class A**
Unintentional radiators; Conducted and Radiated emissions limits.

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: 16th August 2021



UK 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 Gas Generator
Model Designator: Genius 1050, 1051, 1052 & 1053

To which this declaration relates, is in conformity with the following applicable UK Statutory Instruments, Standards and other normative requirements.

- **The Electrical Equipment (Safety) Regulations 2016 (SI 2016 / 1101) as amended.**
BS61010-1:2010 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 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: 16th August 2021



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.



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.



Technical Specification

Genius 1050

Environment

Minimum Operating Ambient Temperature	5°C (41°F)
Maximum Operating Ambient Temperature	35°C (95°F)
Maximum Altitude	3000 m
Maximum Relative Humidity	80% Non-Condensing
Minimum Storage Temperature*	-20°C (-4°F)
Maximum Storage Temperature*	60°C (140°F)

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

Please ensure generator is situated in a well-ventilated environment

Generator Outlets

Maximum Gas Output Pressure	6.9 bar (100 psi)
Maximum Outlet Flow Rate	32 L/min (1.13 cfm)
Maximum Dewpoint	≤-50°C (-58°F)
N2 Purity	≤5%
Particles	<0.01µm
Phthalates	NONE
Suspended Liquids	NONE
Gas Outlets	1 x ¼" BSPP
Drain outlet	1 x ¼" BSPP
Pressure gauges	1

Electrical Requirements

Voltage	220-240 VAC +/- 10%
Frequency	50/60 Hz
Current	7 Amps
Input Connection	C20 Plug
Power Cord	C19 socket to local connection (10A minimum)
Pollution Degree	2
Installation / overvoltage category	II

General

Dimensions cm (inches) WxDxH	60 x 75 x 71.2 (23.6 x 29.5 x 28)
Generator Weight Kg (lbs)	112 (246)
Shipping Weight Kg (lbs)	134 (295)

Technical Specification

Genius 1051

Environment

	Genius 1051
Minimum Operating Ambient Temperature	5°C (41°F)
Maximum Operating Ambient Temperature	35°C (95°F)
Maximum Altitude	3000 m
Maximum Relative Humidity	80% Non-Condensing
Minimum Storage Temperature*	-20°C (-4°F)
Maximum Storage Temperature*	60°C (140°F)

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

Please ensure generator is situated in a well-ventilated environment

Generator Outlets

Maximum Gas Output Pressure	6.9 bar (100 psi)
Maximum Nitrogen Outlet Flow Rate with	25 L/min (0.88 cfm) with 0 L/min Dry Air**
Maximum Dry Air Outlet Flow Rate	25 L/min (0.88 cfm) with 0 L/min Nitrogen**

** up to 25LPM of Air & Nitrogen

Maximum Dewpoint	-50°C (-58°F) N2 / -20°C (-4°F) Dry Air
N2 Purity	≥97%
Particles	<0.01µm
Phthalates	NONE
Suspended Liquids	NONE
Gas Outlets	2 x ¼" BSPP
Drain outlet	1 x ¼" BSPP
Pressure gauges	2
Air shut-off switch	Yes

Electrical Requirements

Voltage	220-240 VAC +/-10%
Frequency	50/60 Hz
Current	7 Amps
Input Connection	C20 Plug
Power Cord	C19 socket to local connection (10A minimum)
Pollution Degree	2
Installation / overvoltage category	II

General

Dimensions cm (inches) WxDxH	60 x 75 x 71.2 (23.6 x 29.5 x 28)
Generator Weight Kg (lbs)	115 (253)
Shipping Weight Kg (lbs)	136 (299)

Technical Specification

Genius 1052

Environment

Minimum Operating Ambient Temperature	5°C (41°F)
Maximum Operating Ambient Temperature	35°C (95°F)
Maximum Altitude	3000 m
Maximum Relative Humidity	80% Non-Condensing
Minimum Storage Temperature*	-20°C (-4°F)
Maximum Storage Temperature*	60°C (140°F)

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

Please ensure generator is situated in a well-ventilated environment

Generator Outlets

Maximum Heating Outlet Flow Rate	20L/min (0.703cfm) @ 3.1 bar (45psi)
Maximum Cooling Outlet Flow Rate	12L/min (0.424cfm) @ 2.07 bar (30psi)
Maximum Dewpoint	≤-50°C (-58°F)
N2 Purity	≤5%
Particles	<0.01µm
Phthalates	NONE
Suspended Liquids	NONE
Gas Outlets	2 x ¼" BSPP
Drain outlet	1 x ¼" BSPP
Pressure gauges	1

Electrical Requirements

Voltage	220-240 VAC +/- 10%
Frequency	50/60 Hz
Current	7 Amps
Input Connection	C20 Plug
Power Cord	C19 socket to local connection (10A minimum)
Pollution Degree	2
Installation / overvoltage category	II

General

Dimensions cm (inches) WxDxH	60 x 75 x 71.2 (23.6 x 29.5 x 28)
Generator Weight Kg (lbs)	112 (246)
Shipping Weight Kg (lbs)	137 (301)

Technical Specification

Genius 1053

Environment

Minimum Operating Ambient Temperature	5°C (41°F)
Maximum Operating Ambient Temperature	35°C (95°F)
Maximum Altitude	3000 m
Maximum Relative Humidity	80% Non-Condensing
Minimum Storage Temperature*	-20°C (-4°F)
Maximum Storage Temperature*	60°C (140°F)

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

Please ensure generator is situated in a well-ventilated environment

Generator Outlets

Maximum Gas Output Pressure	690 kPa (100 psi)
Maximum Outlet Flow Rate	up to 20 L/min (0.70 cfm)
Maximum Dewpoint	≤-50°C (-58°F)
N2 Purity	20L/min @ 99.3% 15L/min @ 99.7% 10L/min @ 99.98% 5L/min @ 99.998%
Particles	<0.01µm
Phthalates	NONE
Suspended Liquids	NONE
Gas Outlets	1 x ¼" BSPP
Drain outlet	1 x ¼" BSPP
Pressure gauges	1

Electrical Requirements

Voltage	220-240 VAC +/-10%
Frequency	50/60 Hz
Current	7 Amps
Input Connection	C20 Plug
Power Cord	C19 socket to local connection (10A minimum)
Pollution Degree	2
Installation / overvoltage category	II

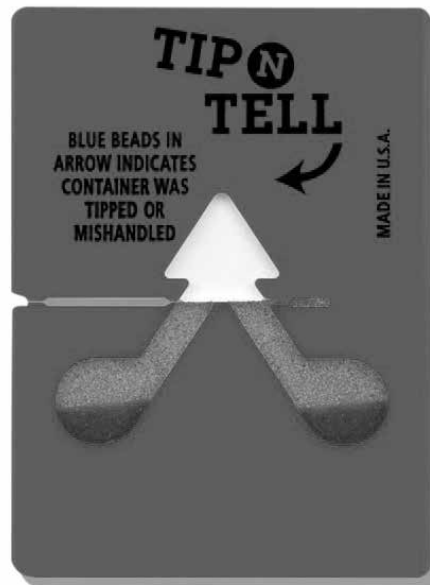
General

Dimensions cm (inches) WxDxH	60 x 75 x 71.2 (23.6 x 29.5 x 28)
Generator Weight Kg (lbs)	111 (244)
Shipping Weight Kg (lbs)	133 (293)

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.

Ensure castors are locked once Generator is in desired position.

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. 6mm Teflon Tubing*	x 3m
2. ¼" Teflon Tubing**	x 3m
3. 6mm PE Tubing	x 3m
4. ¼" Compression Fitting***	x 1
5. 6mm Push-Fit Fitting****	x 2
6. Flow Control Silencer*****	x 1
7. 8mm Hex Key	x 1
8. UK Mains Power Cable*****	x 1
9. EU Mains Power Cable*****	x 1
10. US Mains Power Cable 230v*****	x 1
11. JP Mains Power Cable 100v*****	x 1

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

* x6m with Genius 1051 & 52

** Genius 1050 & 53 Only, x6m with Genius 1052

*** Genius 1050 & 53 Only, x2 with Genius 1052

**** x3 with Genius 105, x4 with Genius 1052

***** x2 with Genius 1051 & 52

***** Genius 1050, 51, 52 & 53 Only

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.

The generator should be situated in a well ventilated environment, with at least a 75mm (3") air gap all around it and should be positioned such that it can be easily disconnected from the mains supply if required

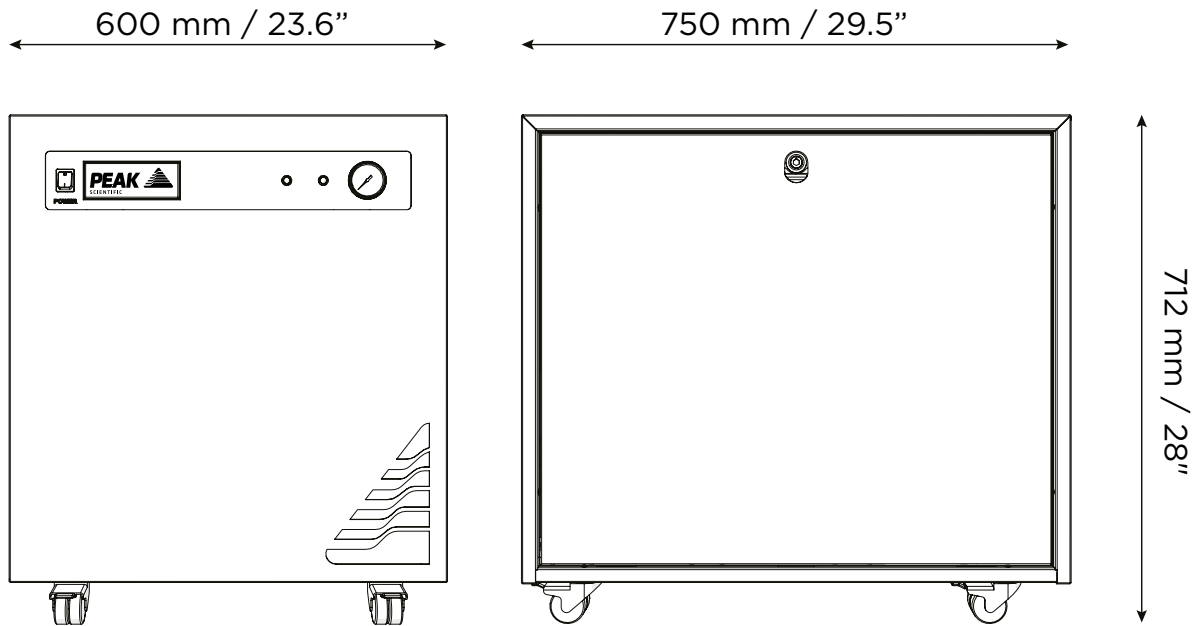
Performance of the generator (like all sophisticated equipment) is affected by ambient conditions. Note should also be taken to the proximity of Air Conditioning outlets. These can sometimes give rise to "pockets" of air with high relative humidity. Operation of the unit within such a pocket could adversely 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 on the following page for the general dimensions of the unit.

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

Maximum Operating Ambient Temperature: 35 °C (95 °F)

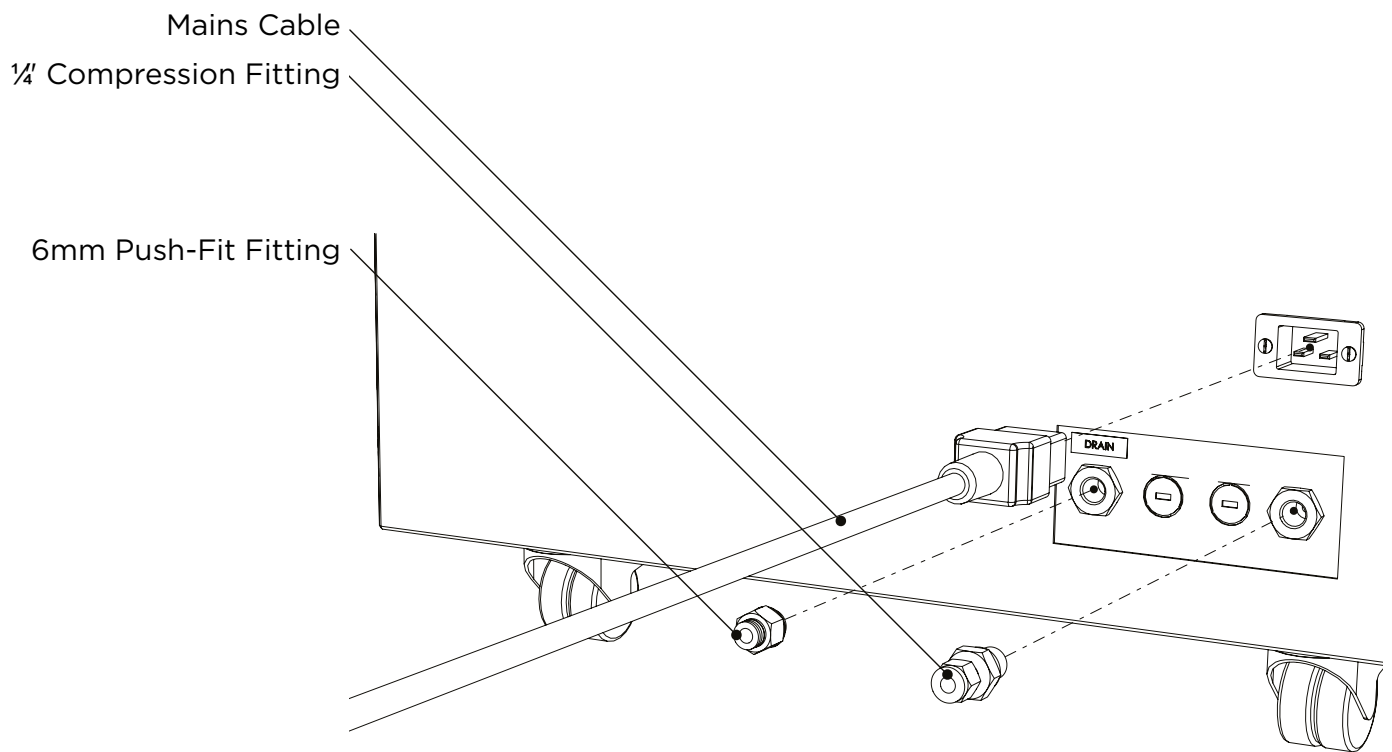
Generator Overview

General Dimensions

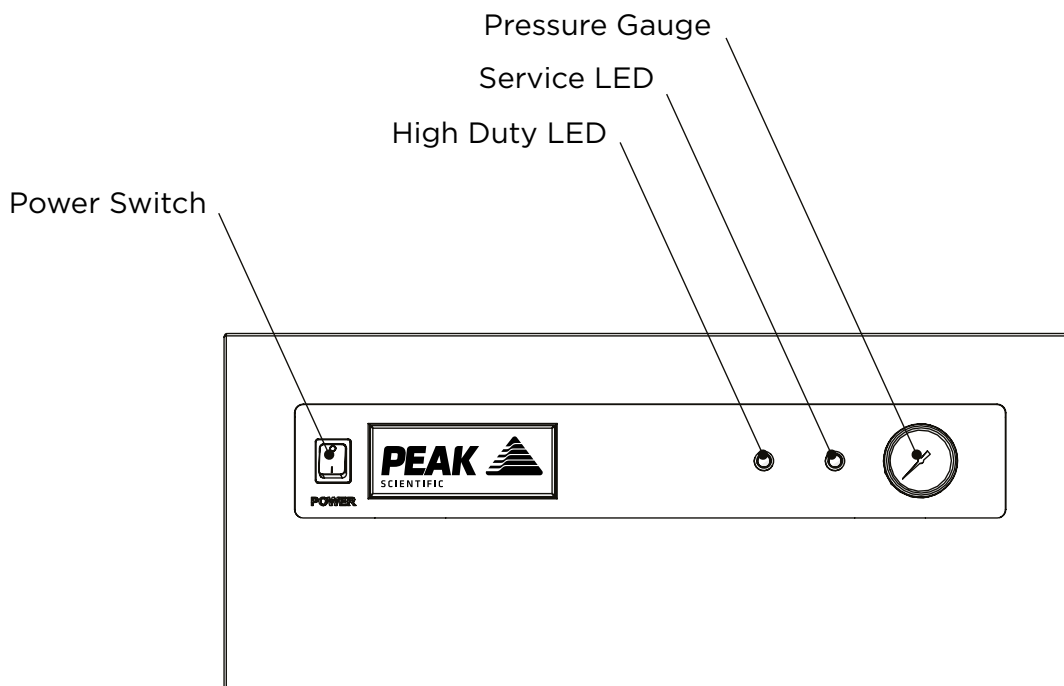


The generator must always be placed on a flat, level surface. Failure to do so will affect the performance of the generator.

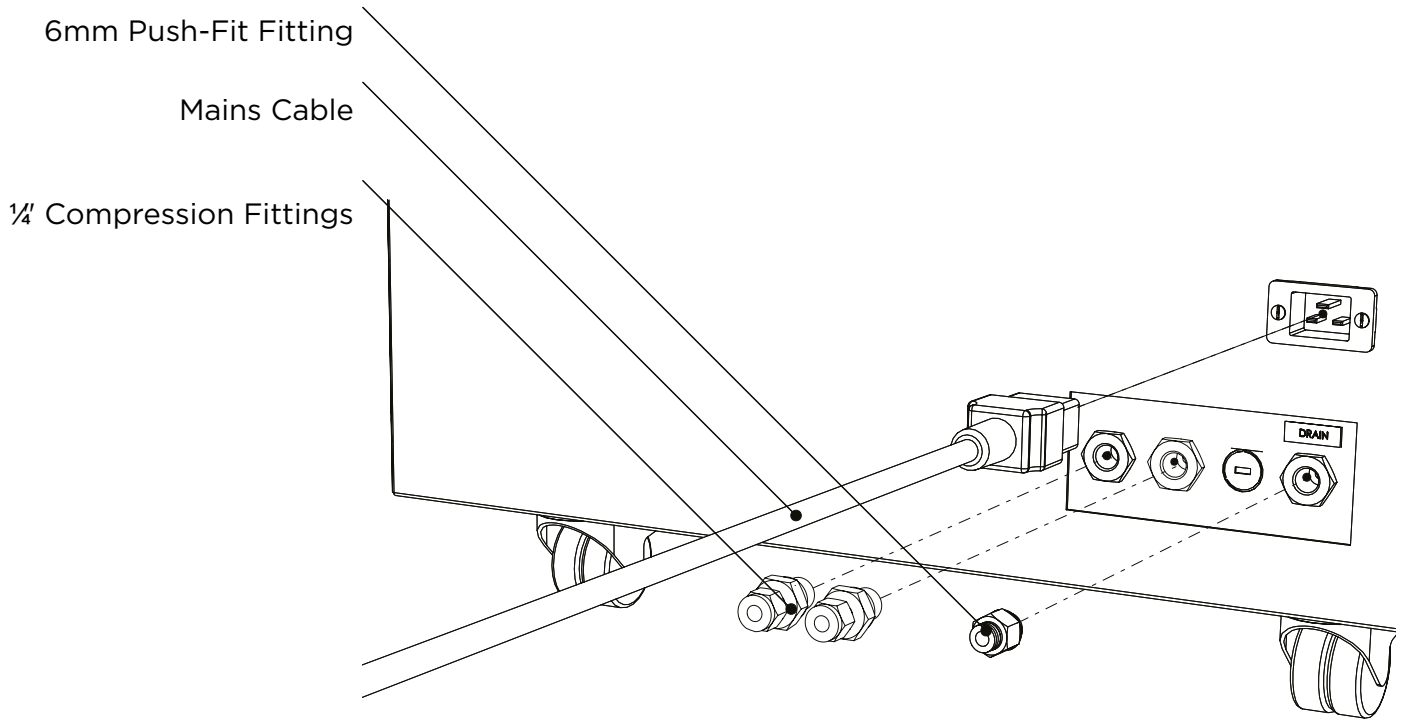
Genius 1050 & 1053 Rear Connections



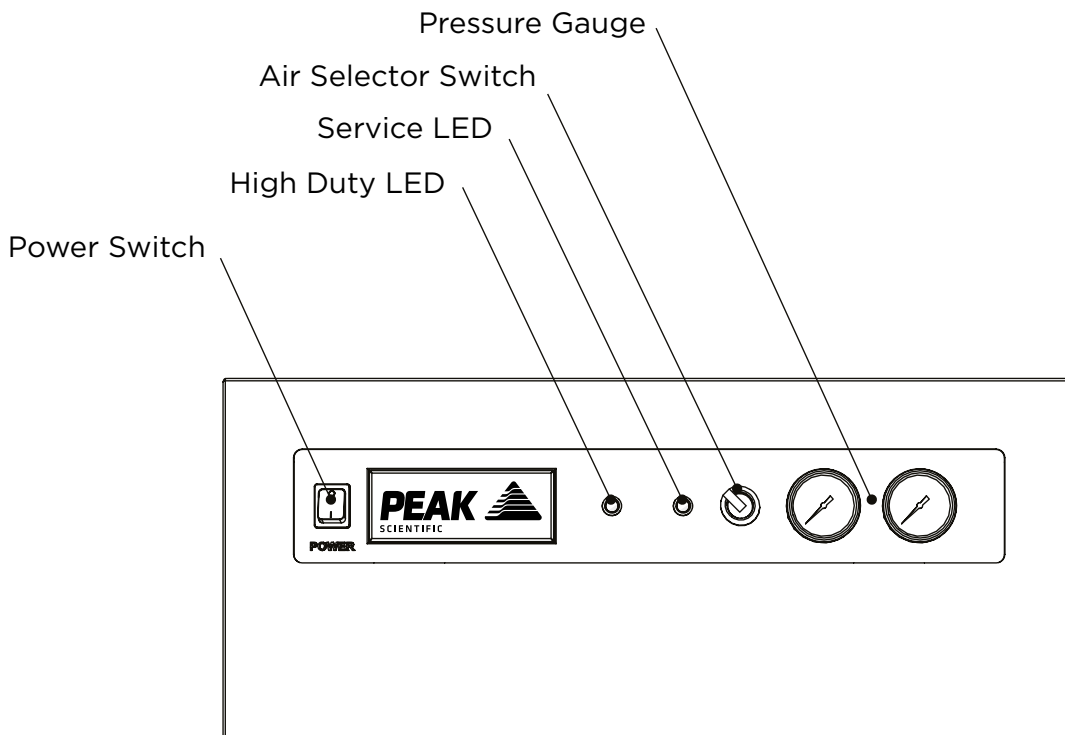
Genius 1050, 1052 & 1053 Unit Controls



Genius 1051 & 1052 Rear Connections



Genius 1051 Unit Controls



Ensure all inlets and outlets are connected to correct sources and applications



Generator must be switched off and unplugged prior to any cleaning or maintenance operations



All Connections should only be carried out by trained personnel

Drain Connection

Fit the 6mm push fit fitting to the drain port located on the output panel. Tighten using a 16mm or 5/8" spanner. Use the 6mm tubing to connect this to a suitable drain connection or container. It should be noted that the Generator can expel a considerable amount of water from this (dependant on ambient humidity).



If a container is used it should be emptied at regular intervals. The container must NOT have an air tight seal as water and air are expelled at pressure.

Electrical Connection

Connect the generator to an appropriate 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 with correct rating can be fitted by a qualified electrician. If an appropriate mains power cord 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



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

Electrical requirements are 230VAC nominal +/- 10% depending on chosen model. However, running continuously at voltages outwith this is not recommended. Extended periods at extremes can have a detrimental effect on the operation and life of the generator.



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

To ensure that the correct voltage is being supplied to the generator, the generator comes equipped with an inbuilt voltmeter. This is located on the underside of the compressor compartment, and will measure and display the mains voltage that is being supplied to the generator.

The voltmeter should be checked prior to the initial purge of the system.

If the reading is 195V to 219V, then we would highly recommend fitting a **Dual Tap Transformer 06-3200**. This can be ordered directly from Peak Scientific.

Start-Up Sequence



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.

Before re-connecting the Generator to the mains and switching it on for the isolation run, it is necessary to fit the silencer to the outlet port of the output panel.

Once this is done, the Generator can be re-connected to the mains and switched 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 compressors 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 compressors will then rest until the internal tank lower pressure limits is reached. Once this limit is reached the compressors 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 pipe-work and storage tanks will have been purged with Nitrogen or Nitrogen and Dry Air.

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, and the generator has been running for 1 hour, (required to reach purity for the application) it is ready to be connected to the application(s)



The pressure in the internal storage tanks must be allowed to dissipate before connecting the generator to the application(s)

Attach the appropriate fitting(s) to the outlet(s) of the generator. Using the tubing supplied, connect the outlet(s) of the generator to the inlet(s) 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 being leak-tight. 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 $\frac{1}{4}"/\frac{3}{16}$ " ($\frac{1}{4}$ " O/D, $\frac{3}{16}$ " I/D) P.T.F.E. tubing.
- > 10 - 40 meters: Use $\frac{3}{8}"/\frac{5}{16}$ " ($\frac{3}{8}$ " O/D, $\frac{5}{16}$ " I/D). Tubing and fittings not supplied in the fittings kit.
- > 40 metres: Please contact Peak Scientific with the relevant distance and we will calculate the flow resistance and the tubing size required.

A combination of $\frac{1}{4}"/\frac{3}{16}$ " and $\frac{3}{8}"/\frac{5}{16}$ " 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 $\frac{3}{8}"/\frac{5}{16}$ " and the final 10 meters to the application use $\frac{1}{4}"/\frac{3}{16}$ " tubing). Keep the connections and bends to a minimum.

Genius 1051 Gas Flow Combinations

The Genius 1051 are configured in such a way that it is possible to change the flow ratio of nitrogen and dry air.

The system is capable of providing a variety of nitrogen and dry air combinations, the table below illustrates some typical flow combinations.

Typical Flow	Dry Air (Lpm)	N2 (Lpm)	Combined (Lpm)
1	0	25	25
2	5	20	25
3	10	15	25
4	15	10	25
5	20	5	25

The figures shown above should be viewed as an approximation, in that, so long as the combined sum results in a total of 25Lpm, the combinations are numerous.

The gas flow ratios are automatically controlled by the demand requirements of the instrument being supplied.

Air Selector Switch

The Genius 1051 generators come fitted with an Air Selector Switch on the front panel of the unit. If the switch is in the OFF position, this will produce a nitrogen supply only. Turning the switch to the ON position will result in a combination of dry air and nitrogen, at levels specified by the customer's instrument.

Normal Operation

The generator is designed specifically to minimize operator involvement. Given that 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 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 produces gas on demand. If the application is operating and requires a gas flow, the generator will supply this to suit the requirements of the application. If the application requirement for gas stops, the generator 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 generator 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 (see High Duty Indication).

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.

Service Requirements

Service Schedule

Purchase Interval	Component	Visit	Qty.
12 Months	Genius 1050 & 1053 Annual Filter Service Kit	www.peakscientific.com/ordering	1
	Genius 1051 Annual Filter Service Kit		1
	Genius 1052 Annual Filter Service Kit		1
	Compressor Assembly 1050/1051/1052/1053		2
Alternative to Compressor Assembly *	Compressor Re-Fit Kit		2

* Compressors can be re-fitted as an alternative to replacement up to a maximum of 3 times, this is a more cost effective solution, however a degree of technical expertise is required and can be time consuming.

Please contact your service provider for more information.

Service Indication

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

Stage 1

Once either compressor requires a service the LED indicator (yellow) on the front of the generator will illuminate.

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 LED on.

Stage 2

If the service is not completed the generator will continue to run. After 2 weeks, the service LED indicator (yellow) will start to flash.

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 LED can be reset in the main control PLC. This will be performed by the Peak Service Engineer or trained service representative that completes the service operation.


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...



Installation
A dedicated Peak engineer will visit your lab to install and setup your generator



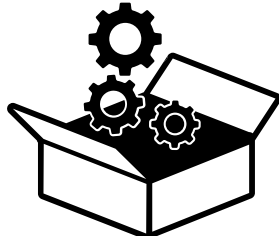
Complete plan
Swift response by a Peak Service Engineer within 72 hours & planned preventative maintenance



Premium Protected
Guaranteed rapid on-site response within 24 hours & planned preventative maintenance



IQ/OQ
Certified assurance for applications requiring documented qualification



Spares
Genuine Peak parts with express delivery, ensuring optimal performance and lifetime



Technical Support Hotline
Around the clock support by phone or online with our global technical helpdesk

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 Detection Liquids.

High Duty Indication

The generator has a 'HIGH DUTY' indicator on the front panel. This indicator monitors the running condition of the internal compressors and illuminates when they have been operating continually for a period of 8 hours.

There are a number of extreme conditions that can affect the duty cycling of the compressors inside the generator. 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 compressors are fully capable of running continually with no detrimental effect.

High Duty Indication Reset

If the compressors have been operating continually for a period of 8 hours the indicator light will be illuminated. Once the compressors return to a cycling mode the indicator light will automatically switch off. There is no manual intervention required.


Indication of Fault

In most installations the 'HIGH DUTY' indicator will never be illuminated. If your generator has been operating for a significant period of time, then suddenly develops a 'HIGH DUTY' indication with no apparent change in environmental conditions or flow requirements, it may be indicative of a problem with the system such as an external leak or imminent compressor failure.

If this is the case you should contact Peak Scientific or your service provider.

It should be noted that the generator will continue to operate so long as it can maintain pressure during this indication.

Troubleshooting

Problem	Possible Solution
<p>The generator will not switch on and the power switch does not illuminate.</p>	<ul style="list-style-type: none"> • Ensure power cord is plugged into the generator and that the power socket is turned on. • Check the fuse in the power cord plug. • Contact your service provider. 
<p>Compressors are running but pressure is not building.</p>	<ul style="list-style-type: none"> • Contact your service provider.
<p>The mass spec is reporting low pressure.</p>	<ul style="list-style-type: none"> • Check pressure gauges are showing normal pressure. • Contact your service provider.
<p>Yellow “SERVICE” LED on front panel is on constantly.</p>	<ul style="list-style-type: none"> • A compressor(s) due for service. Contact your service provider. • Refer to Service Indication section of this manual for further information.
<p>Yellow “SERVICE” LED on front panel is flashing.</p>	<ul style="list-style-type: none"> • A compressor(s) is overdue for service. Contact your service provider urgently. • Refer to Service Indication section of this manual for further information.
<p>Yellow “HIGH DUTY” LED on front panel is on constantly.</p>	<ul style="list-style-type: none"> • A compressor(s) has not cycled for a period of 8 hours. Refer to the High Duty Indication section of this manual. • Ensure ambient temperatures are within the specification. • Ensure there are no leaks between the Generator and the mass spec.

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.

Go Online or Complete and Return

You can register for your **FREE 12 month 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.

Product Warranty Registration			
Contact name			
Email address			
Company			
Address			
City/town			
Postcode			
Country			
Telephone			
Generator serial #			
Model type			
Installation date			
Do you still use an alternative gas solution i.e. cylinders or bulk liquid?	Yes	No	
What gas requirements do you have in your lab?	Hydrogen	Nitrogen	Zero Air

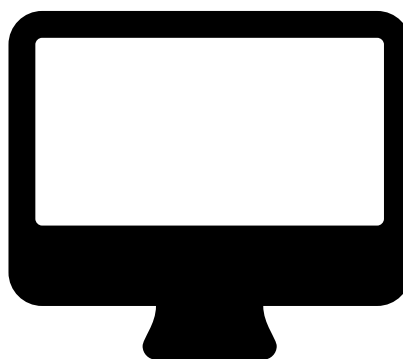
Extend your cover with

Peak Scientific offer comprehensive gas generator after sales support packages. Peak [Protected] aftercare support can guarantee an on-site response within 72 hours*, genuine parts from our ISO9001 approved factory and a 95% first-time fix rate. See our enclosed Peak [Protected] leaflet for further information.

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.

* Complete Plan only



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[**PEAK Protected**]TM

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

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