Genius 3010
User Manual

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Contents

Change History

Rev.	Comment	Name	Date
1	Technical Specification Altered	Liam Couttie	03/06/2011
2	Filter Element Change	Liam Couttie	18/07/2011
3	Updated Service Hours	Liam Couttie	14/02/2012
4A	Capacitor Change	Liam Couttie	30/01/2014
4B	Technical Specification Correction	Liam Couttie	16/02/2015

How to use this Manual

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

Users of a hard copy version can refer to the contents page to find the relevant information. Users of the soft copy version can use the hyperlinks from the contents page as well as the hyperlinks between sections.

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 Peak Partner from which you purchased your Generator.

Introduction

The Genius 3010 has been developed to cater for systems which require a Nitrogen gas supply.

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

- Quiet in operation – noise level of 54 db(A)
- 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 Genius 3010 based on proven technology, it selectively removes oxygen, moisture and other gases to leave clean, dry, phthalate free Nitrogen. Internal air compressors make this unit independent from in- house air supplies and fitted castors allow the user to easily position the unit in the lab.

To ensure this Generator model meets our high expectations with regards to reliability and performance, we have tested this new model extensively at our manufacturing plant and with end users around the world to ensure reliability and longevity of the system.

Safety Notices

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 Genius 3010 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.

Technical Specification

Environment

Minimum operating ambient temperature	5°C (41°F)
Maximum operating ambient temperature	35°C (95°F)
Maximum relative humidity	80% Non-Condensing
Maximum altitude	2000 meters
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.

Generator Outlets

Maximum Flow	64 L/min (2.26 cfm)
Maximum Pressure	6.90 bar (100 psi)
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	230 VAC ± 10%
Frequency	50/60 Hz
Current	12 Amps
Input connection	C20 Plug
Power cord (Supplied)	C19 socket to local connection (13A minimum)
Pollution degree	2
Installation category	II

General

Dimensions in cm (inches) W x D x H	60 x 85 x 133 (23.6 x 33.5 x 52.4)
Weight	189 kg (417 lb)
Shipping weight	265.5 kg (585 lb)
Noise level	54 dBA @1m

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

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

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

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

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

Installation

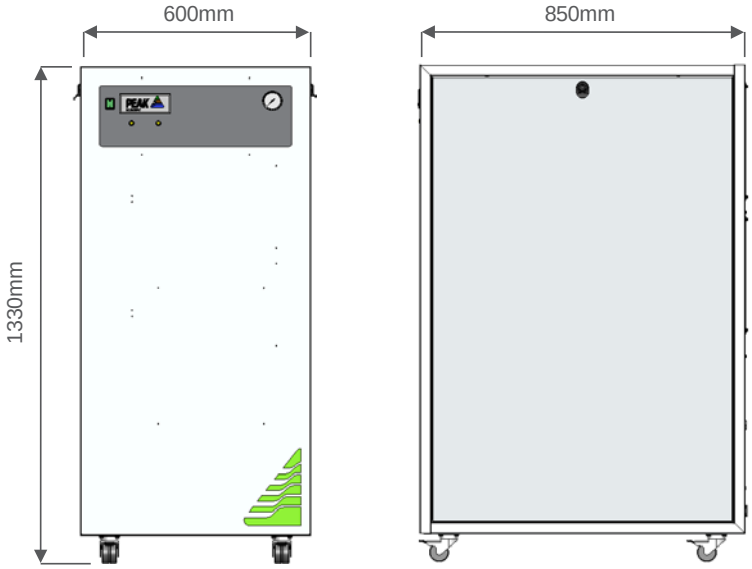
Generator Environment

The Generator is designed for indoor use only. 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. Please see the Tubing lengths section for further details.

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, at the rear and across the top of the unit. Please refer to the drawing below for the general dimensions of the unit.

Maximum Ambient Conditions: 35°C (dry bulb) 80%RH (Max) Non-Condensing

General Dimensions



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

Removal of Transit Brackets

The transit brackets must be removed prior to switching the unit on. Failure to do so will result in damage to the equipment. This will void the warranty on the Generator and will result in a chargeable repair.

1. Using the 8mm hex key from the Fittings Kit, remove the side covers from the cabinet ensuring that earth cables are disconnected.
2. Remove the four screws with a #3 Pozidrive Screwdriver.
3. Slide the transit bracket out from under the compressor by pulling it towards you.
4. Repeat this for the compressor on the other side of the Generator.
5. Retain the transit brackets as these must be refitted if the Generator is to be transported again.

Note. Do not re-fit door panels in preparation for Voltage Check

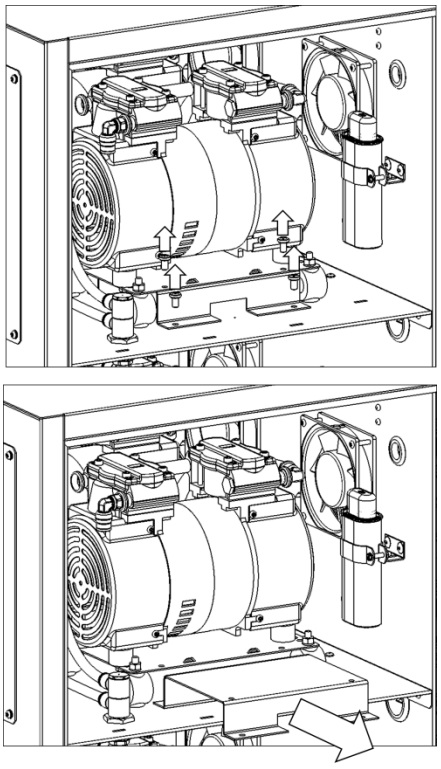


Figure 1: Remove the four screws

Unit Controls

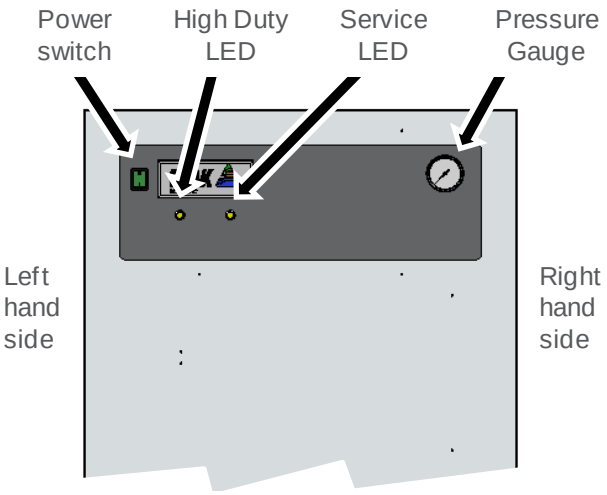


Figure 2: Unit Controls

Rear Connections

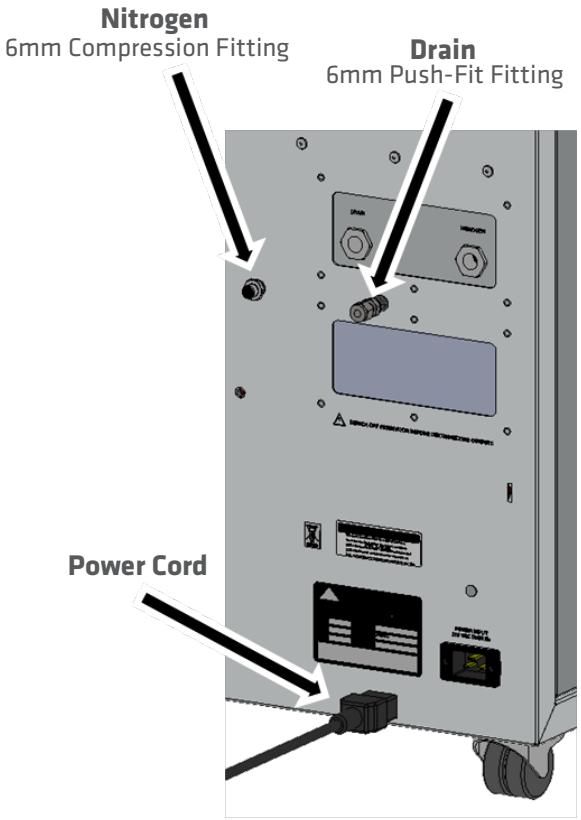


Figure 3: Rear Connections

Note: Do not fit the 6mm compression fitting until after the initial purge run.

Fittings Kit

Supplied in the Fittings Kit are all the fittings required to connect the Genius 3010 Generator to the application. The contents of the Fittings Kit are as follows:

1.	8mm Hex Key	× 1
2.	6mm Push Fit Tube Fitting	× 2
3.	¼" Compression Tube Fitting	× 1
4.	6mm Tubing	× 2m
5.	¼" Teflon Tubing	× 3m
6.	6mm Teflon Tubing	× 3m
7.	C19 Mains Cable (UK)	× 1
8.	C19 Mains Cable (Euro)	× 1
9.	C19 Mains Cable (US)	× 1
10.	Silencer Fitting	× 1
11.	Installation Guide – Genius 3010	× 1
12.	User Manual – Genius 3010	× 1

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

Drain Connection

Fit the 6mm push fit fitting (item 2 from fittings kit) to the drain port located on the output panel. Tighten using a 16mm or 5/8" spanner. Use the 6mm tubing (item 4 from fittings kit) 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 a 230 volt single-phase supply using the power cord provided. 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
Neutral (N):-	Blue	or	White

Our electrical requirements are 230VAC nominal +/- 10%. This means that the Generator can accommodate transients between 207VAC and 253VAC. However, running continuously at voltages less than 220V is not recommended and extended periods at these extremes can have a detrimental effect on the operation and life of the Generator.

To ensure that the correct voltage is being supplied to the Generator, the Genius 3010 comes equipped with an inbuilt voltmeter. This is located on the underside of the compressor compartment, Figure 4 below, and will measure and display the mains voltage that is being supplied to the Generator.

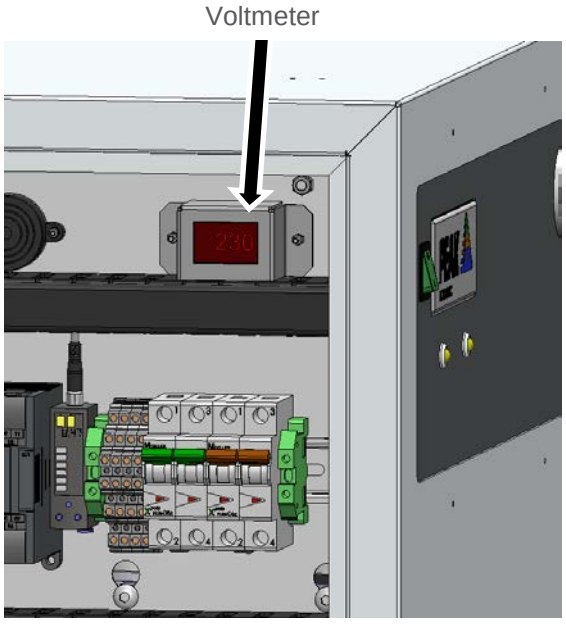


Figure 4: Voltmeter Location

The voltmeter should be checked prior to the initial purge of the system. To do this, with the doors remaining off and with the Generator still connected to the

230 volt single-phase supply, the unit should be powered ON using the power switch (identified by “I”).

Do not touch anything inside the Generator whilst the side panels are removed and the mains power is connected to the unit

When the Generator is switched on, the input voltage will be displayed on the voltmeter. If this reading is 219V or less, then we would highly recommend fitting a transformer. This can be ordered directly from Peak Scientific with the order number being as below.

Product Description	Part Number
Dual Tap Transformer 200V – 230V	06-3210

Table 1: Additional Transformer

On completing the voltage check, the Generator should be powered OFF using the switch on the front panel, the power cord removed from the rear of the generator and the door panels refitted.

Ensure the Earth wires are reconnected to the side covers when refitting.

Trouble Shooting

Problem	Possible Solution
The Generator will not switch on and the power switch does not illuminate.	• 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. 
The Generator will not switch on but the power switch is illuminated.	• 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. • Contact your service provider. 
Compressors are running but pressure is not building.	• Contact your service provider.
The mass spec is reporting low pressure.	• Check pressure gauges are showing normal pressure. • Contact your service provider.
Yellow "SERVICE" LED on front panel is on constantly.	• A compressor(s) due for service. Contact your service provider. • Refer to Service Indication section of this manual for further information.
Yellow "SERVICE" LED on front panel is flashing.	• A compressor(s) is overdue for service. Contact your service provider urgently. • Refer to Service Indication section of this manual for further information.
Yellow "HIGH DUTY" LED on front panel is on constantly.	• 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.

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