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Change History

Rev.	Comment	Name	Date
1	Initial release	Tracy Grierson	19/07/2007
2	Added details for PG85L	Tracy Grierson	06/03/2008
3	Content Update	Liam Couttie	01/05/2013
4A	Format Update	Liam Couttie	18/11/2014
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6	Content Update	Liam Couttie	07/08/2017
7	Chassis Updates	Liam Couttie	07/11/2017
8	Updates to incorporate CSA feedback	Liam Couttie	22/11/2017
9	Technical Correction	Liam Couttie	25/04/2018
10	Technical Correction	Liam Couttie	03/03/2021

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 the Peak Partner from which you purchased your Generator.

Introduction

Welcome to the User Manual for the Peak Scientific Purge Gas Range. Enclosed in this manual you will find the information required to ensure that your Purge Gas Generator is operated according to our recommended guidelines which will prepare you for a long and trouble free life.

Attachable to any compressed air source, Peak Scientific's Purge Gas Generator offers a compact and lightweight must-have for any modern laboratory. The Purge Gas Generators come with just a few moving parts and are very sturdy products - ideal to prevent moisture contamination of any of your applications.

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

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.

EU Declaration of Conformity

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

Declare that:

Equipment: Dry Air Purge Gas Generators
Model: PG14L & PG28L

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

- **Low Voltage Directive 2014/35/EU**
EN 61010-1: 2010 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.

Year CE mark was first affixed 2017

All evaluation, testing and certification issued by:

York EMC Services Ltd
Unit 1, Grangemouth Technology Park,
Earls Rd, Grangemouth
FK3 8UZ

Signed:  Name: Chris Pugh
Date: 14th November 2017 Position: Chief Technology Officer



Environmental Declaration

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

Declare that:

Equipment: Dry Air Purge Gas Generators
Model: PG14L & PG28L

Is fully compliant with the following Directives and Regulations:

- **2012/19/EU WEEE (Waste Electrical and Electronic Equipment)**
- **2011/65/EU RoHS (Restriction of Hazardous Substances in Electrical Equipment)**

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 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 By : 

Name: Chris Pugh

Position: Chief Technology Officer

Location: Peak Scientific Instruments Ltd, Inchinnan, Scotland. PA49RE

Date : 14th November 2017

Technical Specification

Environment

	PG14L	PG28L
Min/Max operating ambient temperature	5°C (41°F) - 25°C (77°F)	
Maximum relative humidity	70%	

Inlet Conditions

Min/Max Air Inlet Pressure	100psi/6.9bar-120psi/8.3 bar	
Minimum Air Inlet Flow Rate	26 l/min	53 l/min
Oil Content	<0.01mg per cubic meter	
Min/Max Inlet Air Temperature	5°C (41° F)* - 25°C (77°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.

Outlet Gas

Maximum Flow	14 l/min	28 l/min
Max Pressure	100psi/6.9 bar	
Pressure Dewpoint	-70 °C / -94 °F	
Particles	0.01 um	
Start-up Time	16 hours	

Electrical Requirements

PG14/28L Electrical Requirements	Universal 120 / 240 VAC - 50/60 Hz - 0.8A
Electrical Connection	IEC Euro Connector
Pollution Degree	2
Insulation Category	II
Replacement Fuse (UK only)	5A

General

Generator weight	PG14L - 14.4 kg (31.7 lb)
	PG28L - 18.6 kg (41.0 lb)
Shipping weight	PG14L - 15.9 kg (35.0 lb)
	PG28L - 20.1 kg (44.3 lb)

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.

Contents

Each shipping box should contain the following: -

PG Generator
Mains Cable
Installation Guide

Unpacking Instructions

The PG 14L and 28L generator weigh approximately 14.4 and 18.6 Kg, respectively, and as such should only be lifted using safe lifting practice.

1. Open packaging, and remove foam.
2. Next, position your hands underneath the unit on either side, ready to lift.
3. Ensuring your knees are bent and your back is straight, lift the unit to the desired location.

PG Range User Manual

Installation

Generator Environment



The Purge Gas Generator is designed for indoor use only. For safety reasons, the unit requires to be wall mounted on a steady and level surface. Please see enclosed Installation Guide in the product packaging for correct installation instructions.

The minimum and maximum ambient operating temperatures are 5°C and 25°C. Keep the unit in a well ventilated site away from direct sunlight.

Voltage and Power

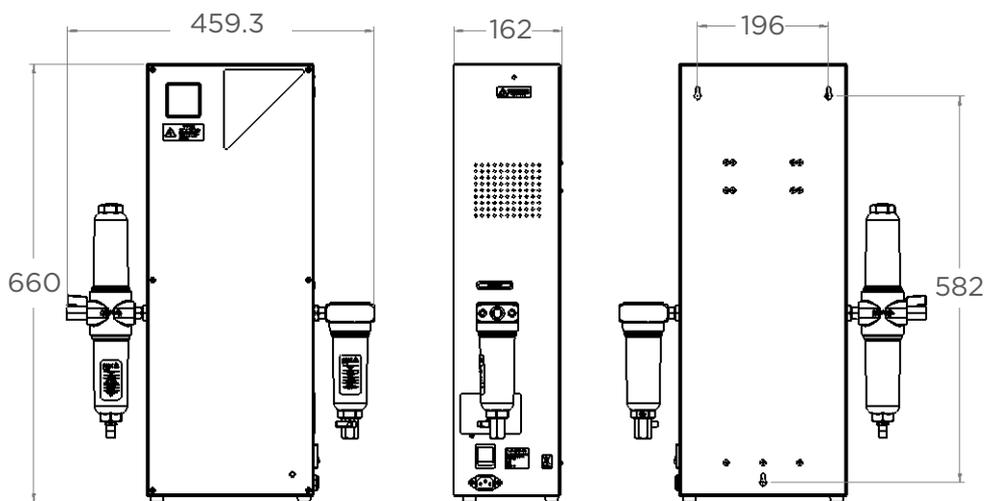


The PG14/28L are fitted with an internal switch mode power supply that will accept a power inlet from 100VAC - 240VAC, 50/60HZ. The current consumption is 80 mA.

Please ensure generator is positioned so as to permit easy disconnection if required.

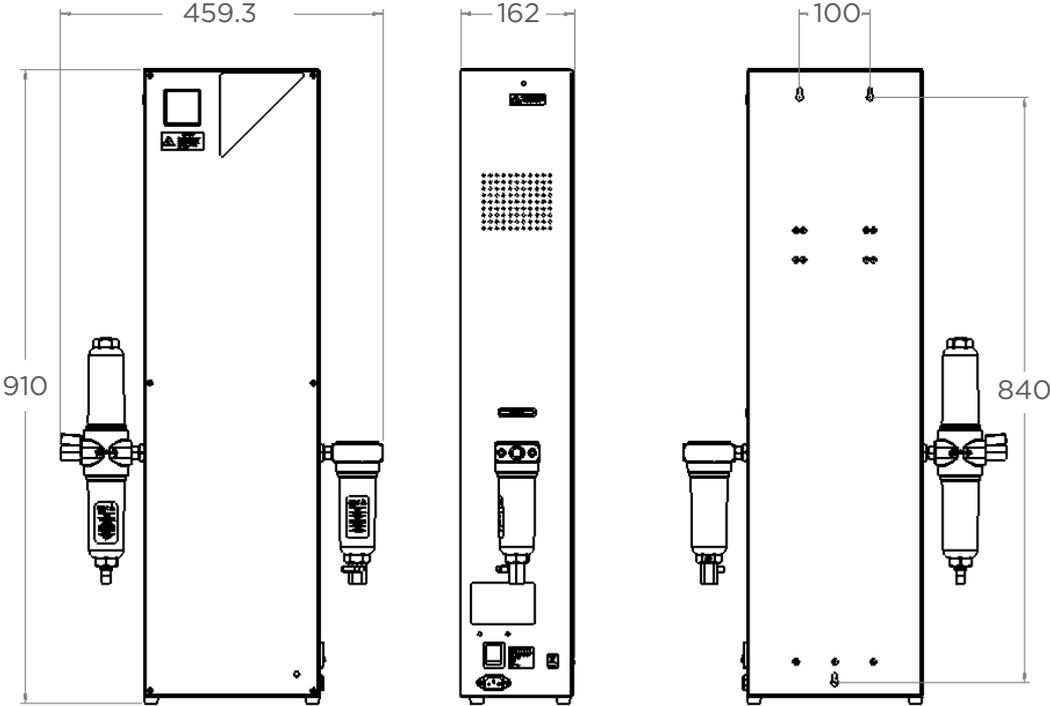
General Dimensions

PG14L



PG Range User Manual

PG28L



PG Range User Manual

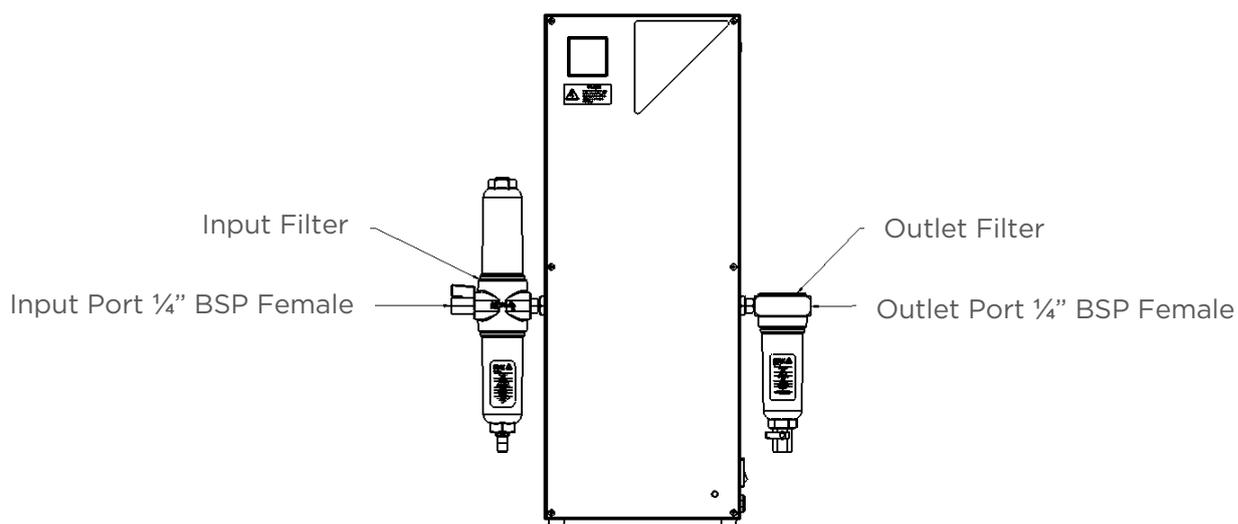
External Connections

Connect the unit to a suitable electrical supply.

Attach a suitable air supply to the inlet port of the filter.

Note that the inlet and outlet air connections are ¼" BSP Female.

Attach the outlet of the generator to your instrument and ensure that you do not draw any more than the specified amount of purified air from the system.



Electrical Connection

Connect the Generator to an appropriate 110 - 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)/PHASE (P):-	Brown	or	Red
Neutral (N):-	Blue	or	Black

Electrical requirements are 110 - 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 a substitute main supply cord is used, ensure that it has an adequate rating. Failure to do so could cause damage to the generator.

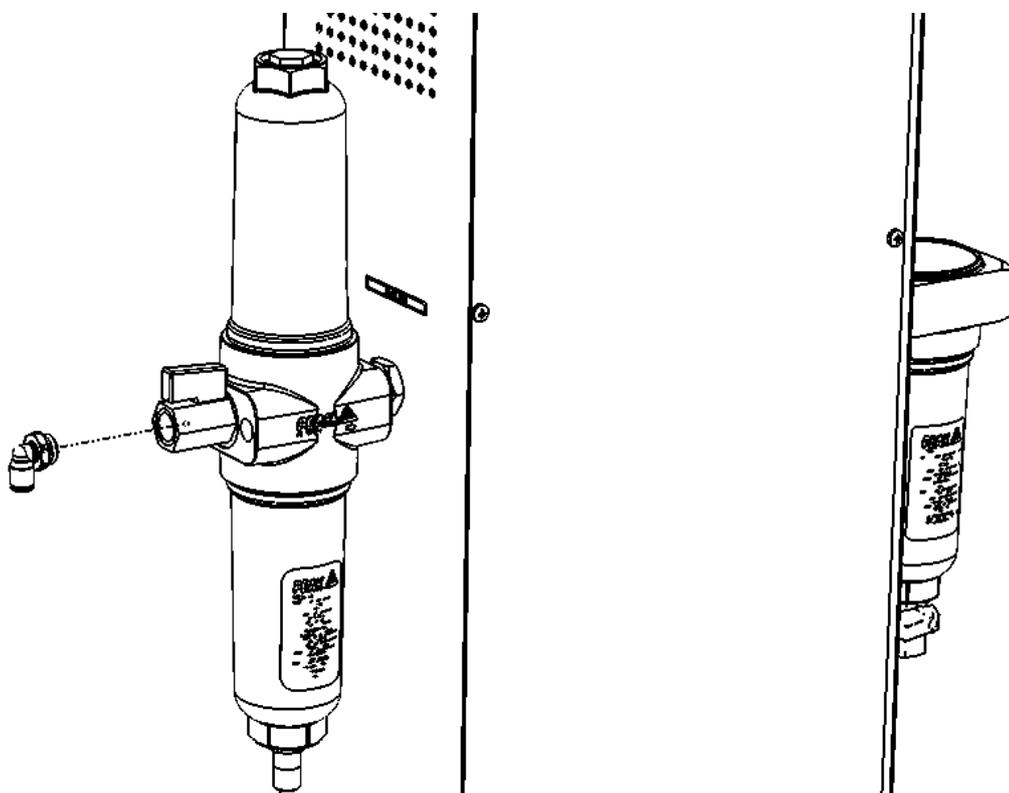


The PG14/28L are fitted with an internal switch mode power supply that will accept a power inlet from 100VAC - 240VAC, 50/60HZ. The current consumption is 80 mA.

Start-up Procedure

Connect the fitting to the input of the filter on the generator and connect to your in house air supply. Restrict output to the manufacturer specification. Ensure that the power to the Purge Gas Generator is turned on before starting the air supply. Gradually introduce air pressure to the unit until the recommended pressure has been reached. Allow unit to vent to atmosphere for 16 hours before connecting to any equipment.

The system is now operational and requires no further intervention.



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/register.

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.

Normal Operation

Principal of Operation

The Purge Gas Generator works using Pressure Swing Adsorption (PSA).

PSA works on the principle that an adsorbent (such as the activated alumina used in the PG series) has a differential adsorbing capacity at high and low pressure. The Purge Gas Generator consists of two columns of adsorbent, one at high pressure which adsorbs CO₂ and moisture from compressed air, and another at low pressure. The low-pressure column is fed with a slipstream of the moisture and CO₂-free air, known as the purge flow. This purge flow assists in the regeneration of the adsorbent. After a fixed time, known as the “swing time”, the high-pressure column depressurises and the pressure increases in the low-pressure column. What was the low-pressure, regenerating column, then assumes the role of the high-pressure adsorbing column, with the high pressure column adopting the role of the low pressure, regenerating column. This reversal of the roles of the columns can continue indefinitely rendering the adsorbent columns maintenance free.

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.



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.

Service Requirements

Routine Maintenance



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



Safely Isolated Condition; The unit is in a Safely Isolated Condition when it is disconnected from its application, fully de-pressurised and isolated from the Electrical Supply. Directions for isolating the generator are shown below.

Isolating the Generator

- a. Switch off the unit.
- b. Disconnect the unit from the mains supply.
- c. Disconnect from the application.

Service Schedule

Service Interval	Component	Part No.	Qty.
12 Months	Inlet/Outlet Coalescer Filter Element	00-4424	2
	Inlet RAC Filter Element	00-4427	1
	Exhaust Silencers	02-1033	1

As an alternative to purchasing the 12 month service items individually an Annual Service Kit is available as one part number. This contains all the filters required for this Generator and offers a cost saving over buying the components separately.

Purchase Interval	Component	Part No.	Qty.
12 months	PG14-28L- Annual Service Kit	08-8222	1

Service Plans

Peak Scientific offer two service plans. The Complete Service Plan, specifically designed for Generators operated in critical environments, also includes full breakdown cover, guaranteed response times and Generator upgrades if available. Our Standard Service Plan, covering the basic needs of our Generators, features special deals on spare parts and breakdowns.

If you want to know more about our Service Plan options and how we ensure that your instrument can run with the maximum uptime and performance, please contact us at maintenance@peakscientific.com

Peak Scientific UK

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

Tel: +44 (0)141 812 8100
Fax: +44 (0)141 812 8200

Peak Scientific Germany

Herriotstrasse 1
60528 Frankfurt

Germany

Tel: +49 (0)69 677 33 490
Fax: +49 (0)69 677 33 200

Peak Scientific Taiwan

4F.-6, No.736
Zhongzheng Rd.
Zhonghe Dist.
New Taipei City

Tel: +886 2 8226 2383
Fax: +886 2 8226 9499

Peak Scientific North America

19 Sterling Road
Suite #1
Billerica, MA 01862

USA

Tel: +1 866 647 1649
Fax: +1 978 608 9503

Peak Scientific China

Room 606 Building 1
Lane 2277 Zuchongzhi Road
Pudong New Area
Shanghai
201203, China

Tel: +86 21 5079 1190
Fax: +86 21 5079 1191

Peak Scientific Brazil

Peak Scientific Brasil
Av. Quieroz Filho
1700 - torre Sunny-Conj. 602
São Paulo SP Brasil

Tel: +1 866 647 1649

Peak Scientific India

202, Amsri Shamira
Old Lancer Line
Opp. St. Mary's Degree College
S.D. Road Secunderabad
500 025, India

Tel: +91 40 2780 0663
Fax: +91 40 2780 0663

Peak Scientific Mexico

Solon 352
Col. Los Morales Polanco
11530 Mexico, D.F.

Mexico

Tel: +1 866 647 1649
Fax: +1 978 608 9503

Peak Scientific Japan K.K.

2-7-56, 2F Fuji Building 28
Kita Aoyama, Minato-Ku
Tokyo, Japan
107-0061

Tel: +81 3-6864-0468

Peak Scientific Africa

PO Box 478
Somerset Mall
7137

South Africa

Tel: +27 (0)2185 16542
Fax: +27 (0)8654 64473

Peak Scientific Australia

PO Box 65
Belmont
Victoria 3216

Australia

Tel: +61 1300 965 352

Peak Scientific Singapore

3 Science Park Drive
#03-14 The Franklin
Science Park Drive 1
Singapore, 118223

Tel: +65-6777 1966
Fax: +65-6777 1978