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Change History

Rev.	Comment	Name	Date
1	Initial release	T.G.	19.07.07
2	Added details for AD1010L	T.G.	06.03.08
3	Format Update	Liam Couttie	14.04.11
4	Filter Info Update	Liam Couttie	19.11.12
5	Update to Technical Specification	Liam Couttie	04.03.20

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 Air Dryer Range. Enclosed in this manual you will find the information required to ensure that your Dryer is operated according to our recommended guidelines which will prepare you for long and trouble free life.

Attachable to any compressed air source, Peak Scientific's Air Dryers offer a compact and light weight must-have for any modern laboratory. The Air Dryers 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.

Technical Specification

Environment

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

Inlet Conditions

Min/Max Air Inlet Pressure	6.90 bar (100 psi) – 8.60 (125 psi)			
Minimum Air Inlet Flow Rate	AD70L	AD140L	AD302L	AD1010L
	90 l/min	185 l/min	375 l/min	1220 l/min
Oil Content	<5mg 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	AD70L	AD140L	AD302L	AD1010L
	70 l/min	140 l/min	302 l/min	1010 l/min
Pressure	5 psi Below Inlet Pressure			
Pressure Dewpoint	-70°C (100°F)			
Particles	0.01 um			

Electrical Requirements

AD70/140/302L Fully Pneumatic Option Available	None
AD 70/140/302L 100-240 VAC 50/60Hz	80mA
AD1010L 110 VAC 50/60Hz	100mA
AD1010L 230 VAC 50/60Hz	100mA
Fuse Rating	6.3Amps
Electrical Connection	IEC Euro Connector

General

Dimensions in cm (inches) W x D x H	AD70L - 25(9.8) x 16(6.3) x 66(26)
	AD140L - 25(9.8) x 16(6.3) x 66(26)
	AD302L - 25(9.8) x 16(6.3) x 90(35.4)
	AD1010L -32(12.6) x 22(8.7) x 102.5(40.1)
Shipping weight	AD70L - 18.5 kg (41 lb)
	AD140L - 19.0 kg (42 lb)
	AD302L - 20.5 kg (45.1 lb)
	AD1010L - 36.0 kg (79 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.

Installation

Generator Environment



The Air Dryer is designed for indoor use only. The unit can be free standing, in which case it must be placed on a steady and level surface.

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.

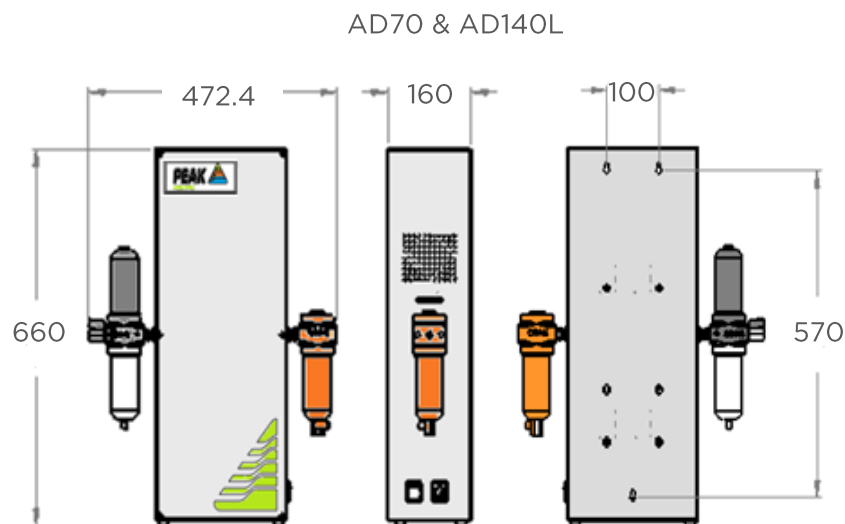
Voltage and Power



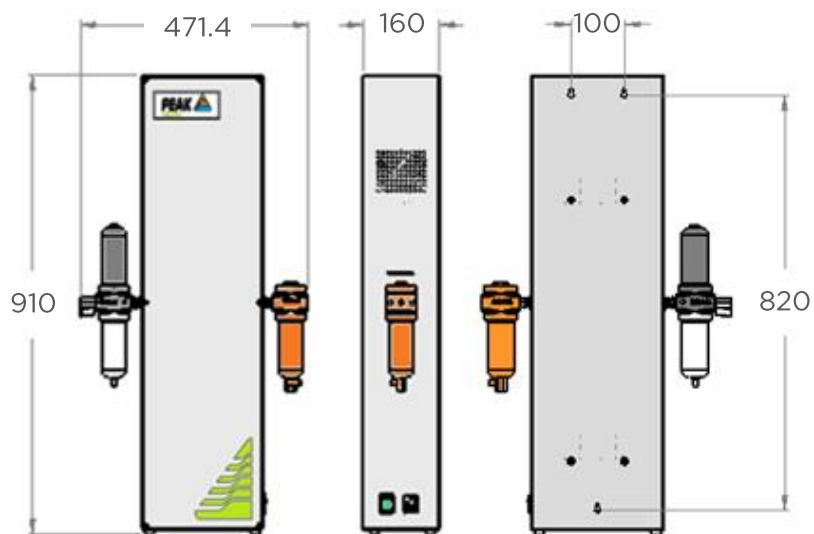
The AD70/140/302 are fitted with an internal switch mode power supply that will accept a power inlet from 100VAC - 240VAC, 50/60HZ. The current consumption is 80 mA.

The AD1010L will accept a power inlet of 110 VAC, 50/60HZ or 230 VAC, 50/60HZ. The current consumption is 100mA. The AD1010L is not available with pneumatic control.

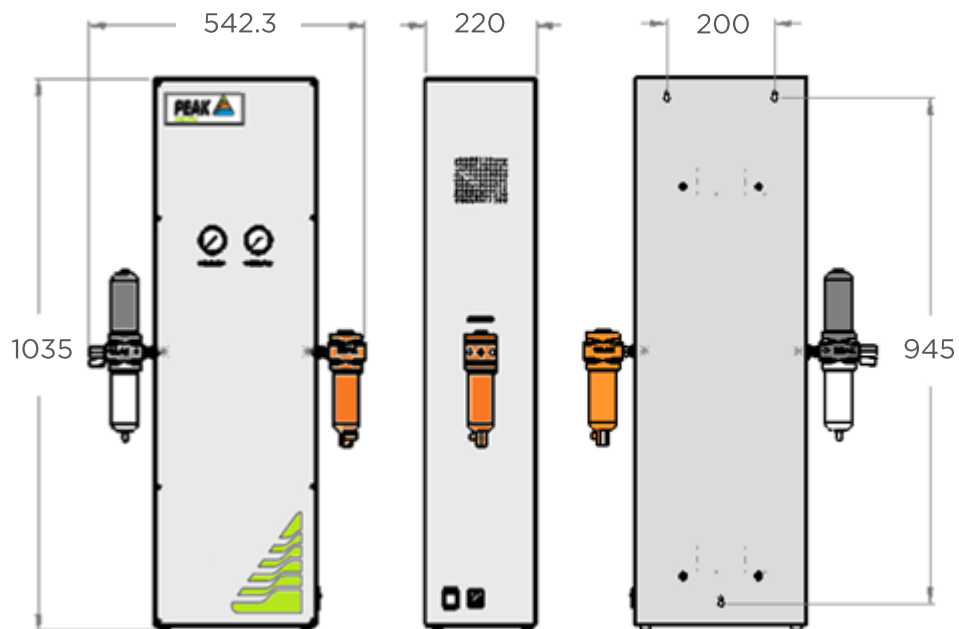
General Dimensions



AD302L



AD1010L



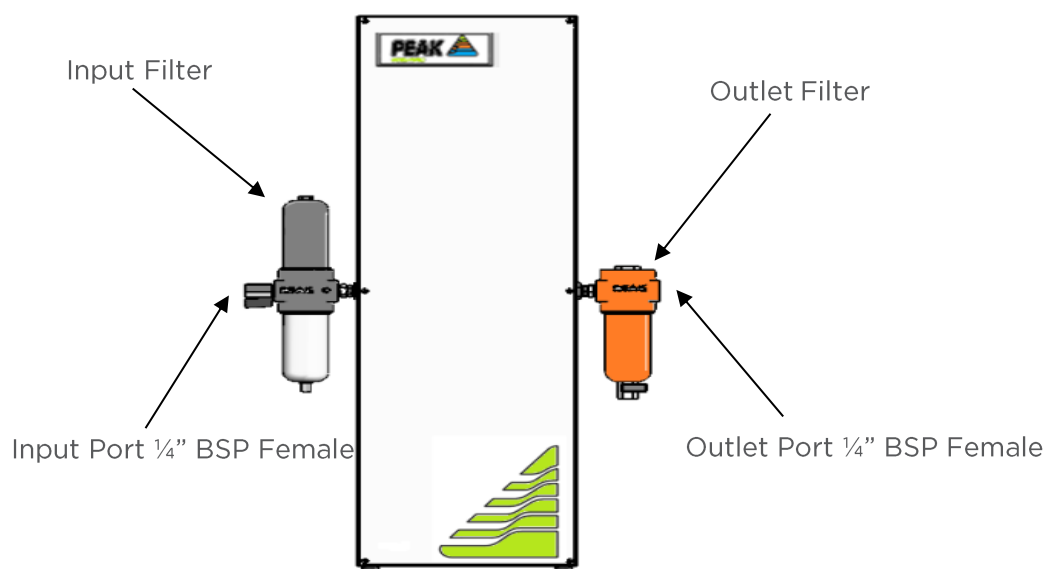
External Connections

Connect the unit to a suitable electrical supply (N/A for Pneumatic system). Attach the input filter supplied to the input port of the unit (on the left hand side of the unit).

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

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

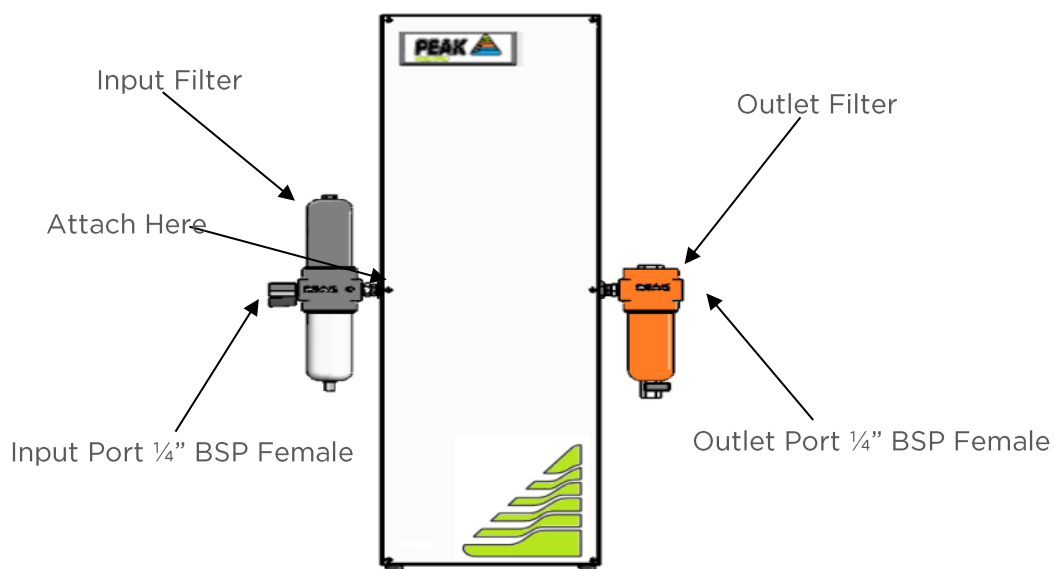
Attach the outlet of the purifier to your instrument and ensure that you do not draw any more than the specified amount of purified air from the system.



Start up Procedure

Connect fitting to the input of the filter on the generator and connect up to in house Air supply. Restrict output to the Manufacturer specification. Ensure that the power to the Air Dryer 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.



IMPORTANT DOCUMENTS



Warranty Entitlement

To register your generator for your warranty entitlement, send the completed form to Peak Scientific by:

- *Email* warranty@peakscientific.com
- *Online* http://www.peakscientific.com/service-and-support/warranty_registration
- *Phone* +44 (0)141 530 4185
- *Fax* +44 (0)141 812 8200

PRODUCT WARRANTY REGISTRATION	
COMPANY:	CONTACT NAME:
ADDRESS:	
	EMAIL ADDRESS:
CITY/TOWN:	GENERATOR SERIAL NUMBER:
POSTCODE:	
COUNTRY:	MODEL TYPE:
TELEPHONE:	INSTALLATION DATE (DD/MM/YYYY):

Important Please Note:

You have 1 month to register your Peak Scientific product from the date of shipment.

If you wish to defer installation of your generator you must notify Peak Scientific within 1 month of the shipment date. This can be done by emailing warranty@peakscientific.com Once registered the warranty will be honoured for a period of 12 months after the installation date.

For any generators that remain unregistered the warranty will begin from date of shipment.

Thank you on behalf of Peak Scientific.



Normal Operation

Principal of Operation

The Air Dryer works on the principle of Pressure Swing Adsorption (PSA).

This is where gases and moisture can be selectively adsorbed from compressed air into a porous crystalline sieve material. The adsorption process is aided by the electrostatic interaction between the adsorbate sieve material and the gases to be adsorbed.

The sieve material used in the Air Dryer is a specially developed Mol sieve compound, utilising the Skarstrom process of pressure swing adsorption where there are two columns of sieve material utilised alternately as described below.

The inlet air to the Dryer passes through a pre-filtration process where it undergoes particulate removal (≈ 0.01 micron) and bulk moisture removal (by a coalescing element). The air is then passed to the sieve columns.

AD70L, AD130L & AD302L

The air is fed at pressure into one of the columns and the outlet air from this column is split into two paths. Part of the air is directed to the outlet of the Dryer for use by the consuming instrument and the other part is 'blown' back down the other unused column (open to atmosphere) to purge out the adsorbed impurities. After specified time period the columns swap over to ensure that any adsorbed impurities are purged out before they can build up to saturation point within the adsorbate material.

In this way each column repetitively adsorbs impurities and then releases them to atmosphere assisted by the purge of dried air that is 'blown' through it.

AD1010L

In this model, the valving is configured so that the column that is being purged is pressurized before it swaps over to the other column. This prevents pressure fluctuations in the output.

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	AD1010L- Annual Service Kit	08-8223	1
	AD70-302L- 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

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