Operation Manual GB

Donaldson®
Ultrafilter

Nitrogen Generators

Nitropac N01x – N06x

CE

Donaldson.

Contents

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. However, please note that this manual includes important safety information for how to install and operate the system properly.

Please review each of the following sections carefully.

Thank you for selecting Donaldson to meet your Gas Generation needs, should you require any further assistance or support please do not hesitate to contact Donaldson.

Introduction

The Donaldson Nitropac Generator is designed to cater for a wide variety of industrial and scientific applications. Your generator will have been carefully selected to meet your specific pressure, flow, and purity requirements, if you have any questions regarding the sizing of your system please do not hesitate to contact Donaldson.

Technical Description

Basic concept

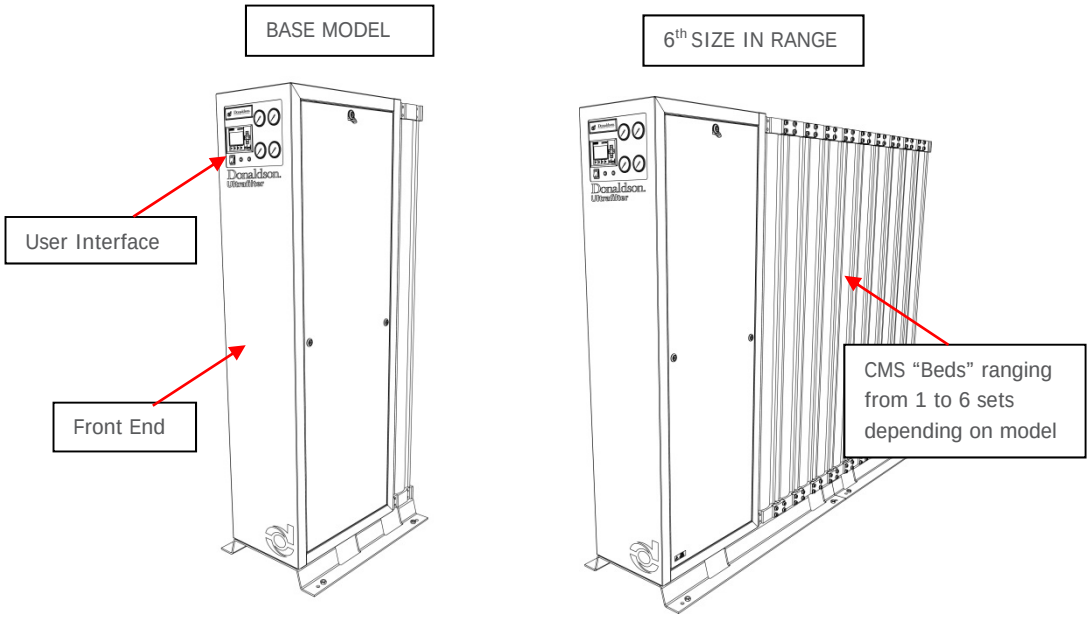
A modular range of Carbon Molecular Sieve (CMS) nitrogen gas generators. The generators operate using Pressure Swing Adsorption (PSA). This is where the product contains two separate containers or “beds” of granular carbon pellets.

The unit requires a compressed air supply to operate, ultimately it is akin to many standard air filtration / drying products. The inlet compressed air is passed into the first “bed”, as the air passes across the carbon bed the oxygen is adsorbed, allowing the nitrogen in the compressed air to carry on through the bed for collection and further use. After a certain time the online bed of carbon will become saturated with oxygen. At this point in time, the control system will operate various valves to bring the second bed of carbon on line. As the second bed comes on line the first bed is vented to atmosphere to release the adsorbed oxygen and regenerate the bed ready to be re-used again. This cycle will continue to repeat until the user stops consuming nitrogen.

Should the demand for Nitrogen be less than the rated output flow, or indeed should the demand stop the generator will automatically go into ECO Mode and the front panel LED will illuminate. In ECO mode the changeover of the columns is suspended which will stop the consumption of inlet compressed air. The control system will automatically detect when the demand for Nitrogen resumes and the generator will start to produce Nitrogen again.

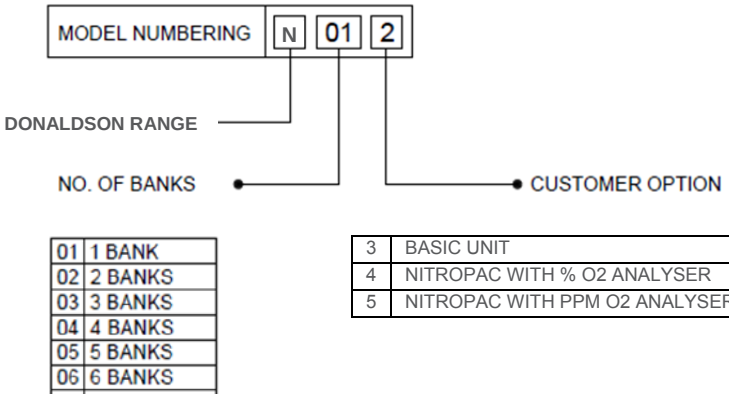
General construction

The range will consist of 6 different sizes of the product. A 3D Cad image can be seen below:



The front end cabinet, control system and valves are consistent across the range. To increase the outlet capacity as you go up the range of generators additional banks of CMS beds will be added. (Note: for 5 to 6 column sets additional vent valves and silencers are required and are fitted to the rear of the CMS columns)

Nitropac model number breakdown



01	1 BANK
02	2 BANKS
03	3 BANKS
04	4 BANKS
05	5 BANKS
06	6 BANKS

3	BASIC UNIT
4	NITROPAC WITH % O2 ANALYSER
5	NITROPAC WITH PPM O2 ANALYSER

Warranties and Liabilities

Claims for warranty and liability concerning personal injury or material damage become void if caused by one or more of the following reasons:

- Inappropriate use or application of the unit.
- Incorrect installation, start-up, operation and maintenance of the unit.
- Operation of a noticeably defective unit
- Failure to follow operation manual procedures regarding concerning transport, storage, installation start-up and maintenance of the unit.
- Implementing constructional modifications to the unit.
- Inadequate monitoring of parts on the unit that are subject to wear
- Improper repairs
- Use of non-original parts

Please also note the general warranty conditions for products of the manufacturer.

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.

Table 1 - Safety Symbols

Safety Notice to Users

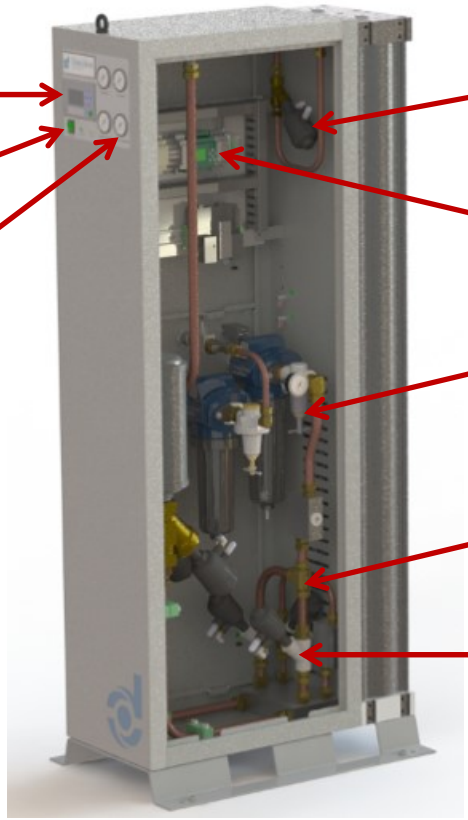
These instructions must be read thoroughly and understood before installation and operation of your Donaldson Nitropac. Use of the Generator in a manner not specified by Donaldson MAY impair the SAFETY provided by the equipment.

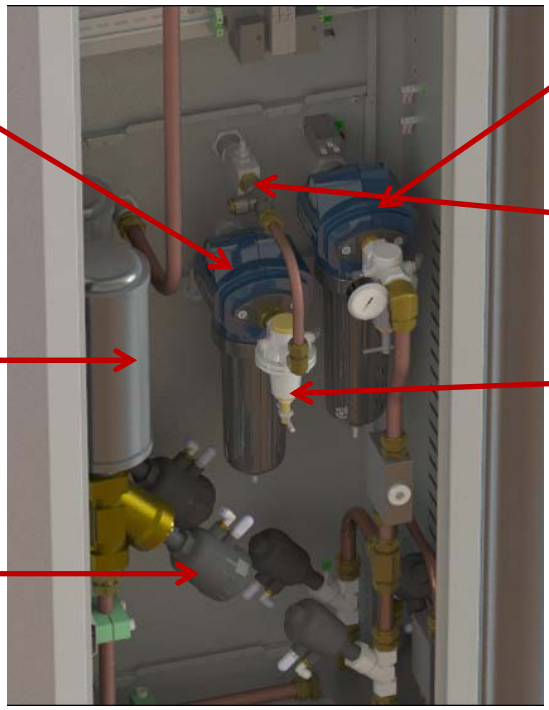
When handling, operating or carrying out any maintenance, personnel must employ safe engineering practices and observe all relevant local health and safety requirements and regulations.

Nitrogen is not a poisonous gas, but if the concentration in the inhaled air becomes too high there will be a risk of asphyxiation.

Ensure that adequate ventilation is provided for the surrounding area, (depending on the operating specification and model selected the generator can produce up to a maximum flow of 2,556 L/min)

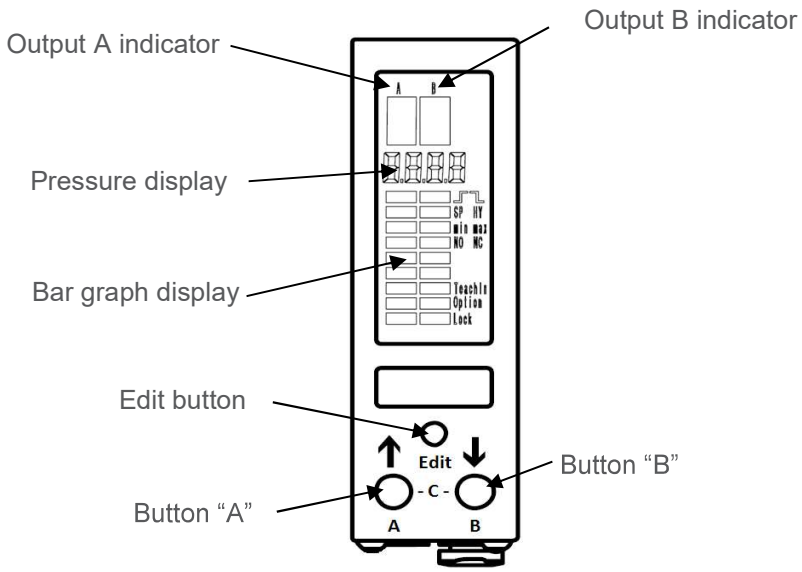
Product Overview





Pressure Switch Overview

There are two possible versions of pressure switch, pre-2016 units will have Black FESTO pressure switches as below:



The pressure switch has two channels:

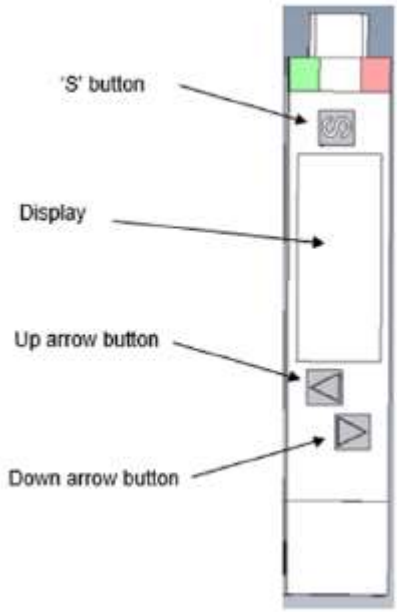
Channel A is used to trigger ECO mode
Channel B is used to trigger low pressure alarm

Setting Channel A (ECO mode)
Press edit once
Press up arrow to select channel A
Press edit
Press edit again to show SP
Using up or down arrows adjust to 0.05bar less than inlet pressure.
Press edit again to show HY (hysteresis)
Using up or down arrows adjust to 0.2bar
Press edit
Using up and down arrows set to NO (Normally open)
Press edit to save and exit

NOTE: The pressure switch is for indication only. Calibration is not required.

Pressure switch is pre-set at the factory, no adjustment should be required. The above is for information only.

Post 2016 units will have the new White SMC Pressure switch, both perform the same function and are fully interchangeable, setup instructions for SMC are as follows:



Again, the pressure switch has two channels:

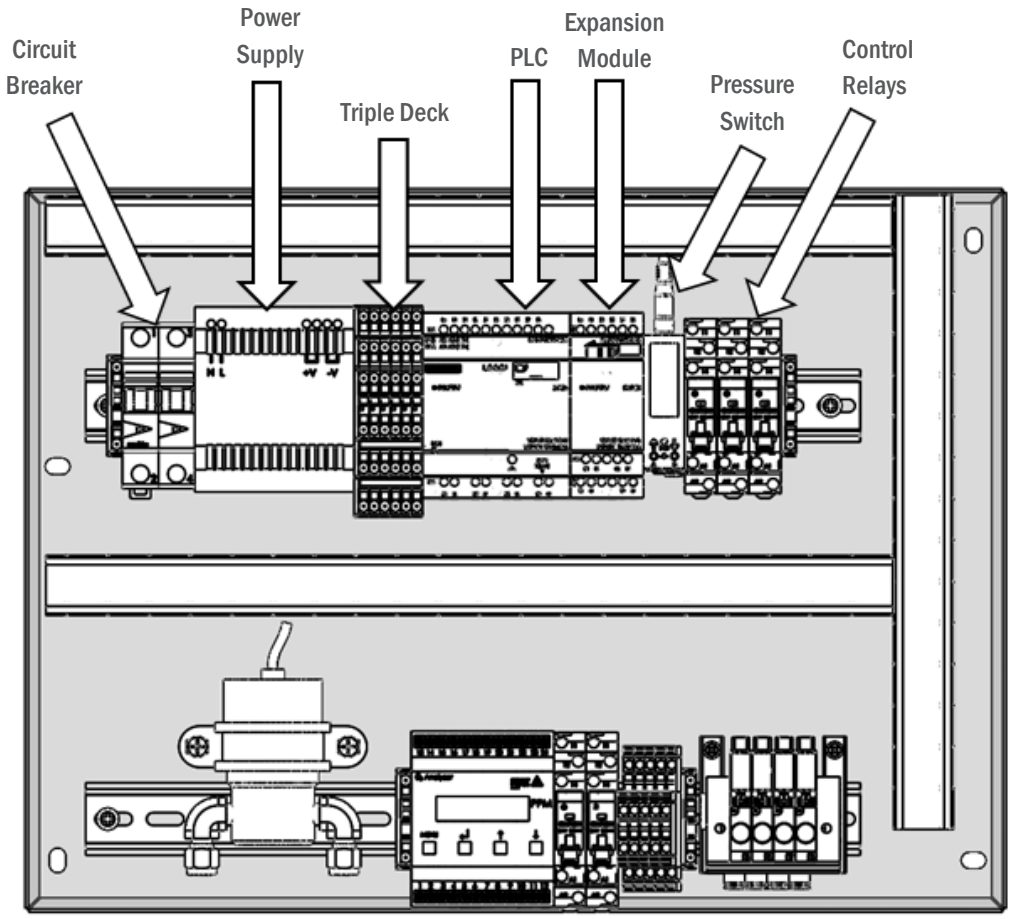
Channel F1 is used to trigger ECO mode
Channel F2 is used to trigger low pressure alarm
F0 is used to set the switch pressure unit.

SMC Pressure Switch Settings

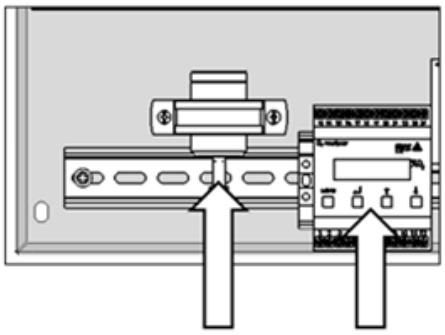
Press and hold S	
F_0	
Press S	
Uni	Set to BAR
Press S	
F_0	
Press ↑	
F_1	
Press S	
oU1	Set to HYS
Press S	
1ot	Set to 1N
Press S	
n_1	Set to -0.30 below INLET PRESSURE
Press S	
H_1	Set to 0.25 BAR
Press S	
F_1	

Check QD09 to see if F2 is required to be set. If yes then continue if not then Press and hold S to complete	
Press ↑	
F_2	
Press S	
oU2	Set to HYS
Press S	
2ot	Set to 2_P
Press S	
P_2	Set to -2.10 below INLET PRESSURE
Press S	
H_2	Set to 0.05
Press S	
F_2	
Press and hold S	

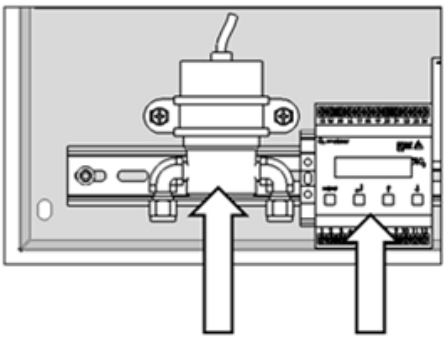
Electrical Panel Layout



% Variant



PPM Variant



Technical Specification

Environment

Minimum Operating Ambient Temperature	+5°C (41°F)
Maximum Operating Ambient Temperature*	+50°C (122°F)
Maximum Relative Humidity	80% (non-condensing)
Maximum Altitude	2000m

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

Compressed Air Supply

Depending on your specific application, the pressure and flow required from the compressed air supply to the generator will vary. For your specific requirements please refer to your quotation documents, or contact Donaldson for further information. However all installations must meet the following conditions:

Minimum Air Quality	ISO 8573-1:2010 class 2.2.1
Minimum Inlet Air Pressure	6 barg (87 psig)
Maximum Inlet Air Pressure	10 barg (145 psig)
Minimum Inlet Air Temperature	+5°C (41°F)
Maximum Inlet Air Temperature	+35°C (95°F)

If you are in any doubt over the quality of your inlet compressed air **DO NOT CONNECT** to the generator, and contact Donaldson. Donaldson can offer a full range of compressors and air preparation equipment if required, which can be backed up by our global service support network.

It is the User / Installer's responsibility to ensure the generator is connected to a suitably rated air supply, the air supply must also provide suitable protection to prevent over pressurization of the Nitrogen Gas Generator.

Electrical Requirements

Voltage	100 - 240 VAC ±10%
Frequency	50/60 Hz
Current	2.0 – 1.0 A
Input connection	C20 Plug
Power cord (Supplied)	C19 socket to local connection
Pollution degree	2
Installation category	Class I Protection
Transient Overvoltage	Category II

General

Model	N01*	N02*	N03*	N04*	N05*
Width mm(in)	500 (19.68)				
Height mm(in)	1738 (68.42)				
Depth mm(in)	760(29.92)	920(36.22)	1080(42.52)	1240(48.82)	1400(55.12)
Weight kg(lbs)	197(433)	282(620)	367(807)	452(994)	537(1181)
Shipping weight kg(lbs)	277(609)	364(801)	451(992)	538(1184)	625(1375)
Noise level	59 dBA @ 1m				

Model	N06*
Width mm(in)	500 (19.68)
Height mm(in)	1738 (68.42)
Depth mm(in)	1560(61.42)
Weight kg(lbs)	622(1368)
Shipping weight kg(lbs)	712(1566)
Noise level	59 dBA @ 1m

Installation

It is the user/installer's responsibility to ensure that the generator is located and protected against any external influences such as vibration, shock, wind, snow loading, earthquake or fire. The installation should conform to all local regulations and should be leak tight and completed by technically competent personnel.

Final Location of the generator should be carefully considered, the largest model in the range will weight 622 kg / 1368 lbs. Equipment is only to be installed on floor with a weight rating of min 1000kg/m^2 or 200 lbs per Sq.ft.

Once in position the foot plate of the generator should be secured to the floor with fixings suitable to the materials of construction of the floor. 13mm diameter holes are provided adjacent to the levelling bolts to allow the unit to be fixed to the floor. Depending on the generator model you will have 4 or 8 fixing positions. Typically 10mm or 3/8" floor fixings approx. 75mm or 3" in length will be suitable on most concrete floors.

Generator Environment

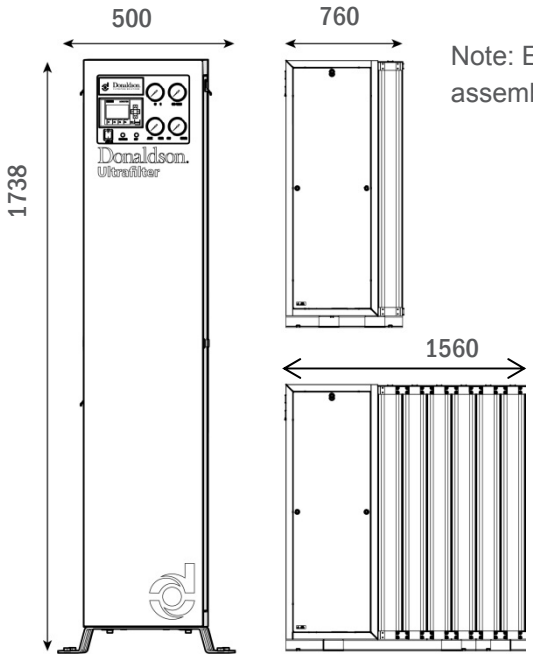
The Generator is designed for indoor use only. It should be installed adjacent to the application it is supplying. If this is not convenient then the unit can be sited elsewhere, however, consideration should be made of the lengths of pipe runs as pressure drops can result from extended runs of pipe.

Consideration should be given to the location of the generator to ensure it is protected from extreme fluctuations in ambient temperature. Ensure that adequate ventilation is provided for the surrounding area, (depending on the operating specification and model selected the generator can produce up to a maximum flow of 2,556 L/min). Installation in a confined space or poorly ventilated space is not recommended, however if you choose to do so ambient oxygen monitoring equipment is recommended.

Please refer to the drawing below for the general dimensions of the unit.

Maximum Ambient Conditions: +50°C (dry bulb) 80%RH (Max) Non-Condensing

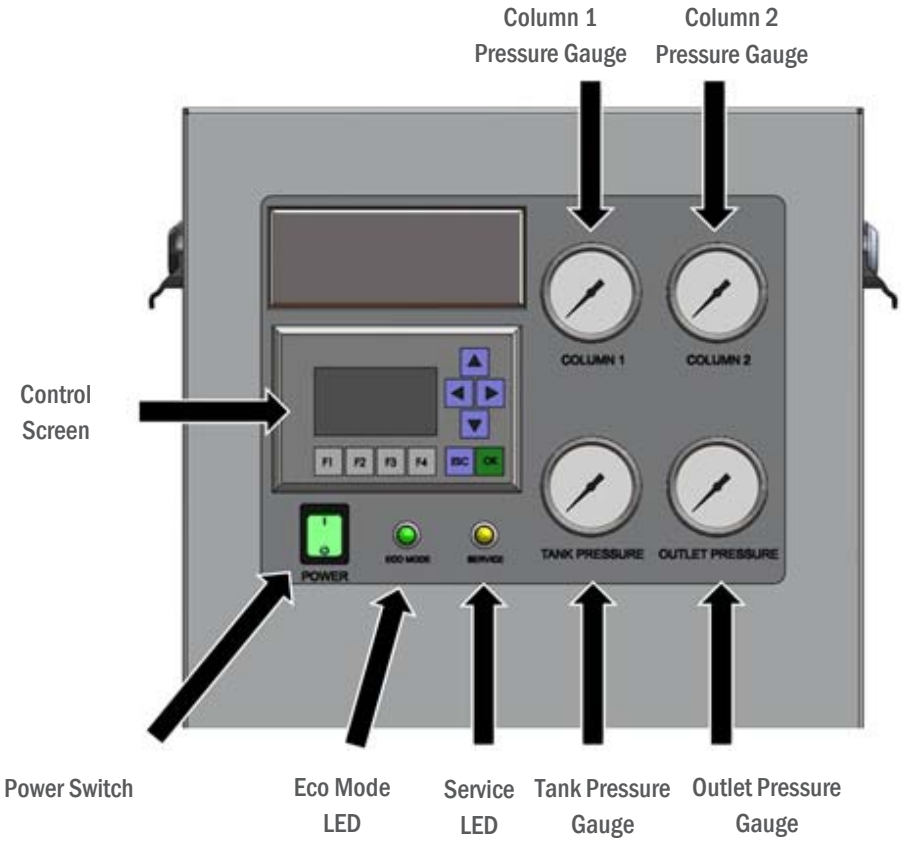
General Dimensions



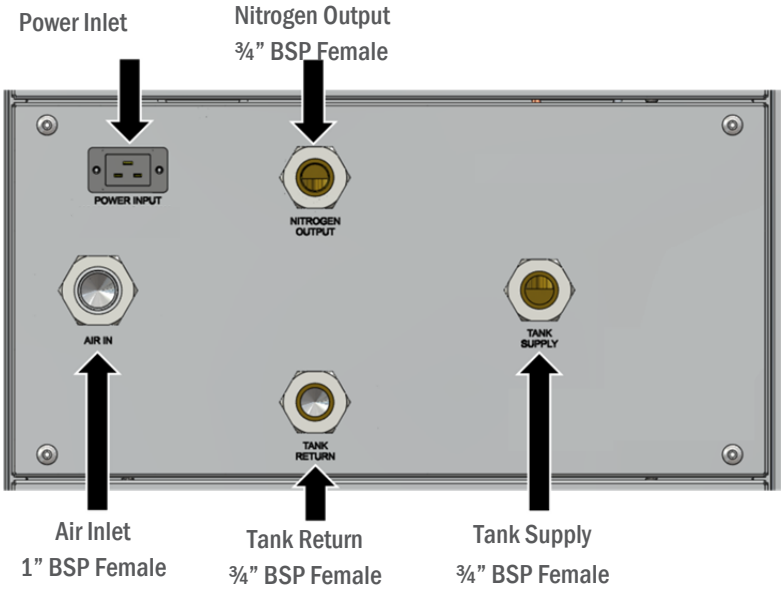
Note: Each additional tank assembly = 160mm

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

Unit Controls



Inlet / Outlet Connections



All of the Generator output ports are located on the output panel on the Left hand side of the Generator. See below for recommended piping layout

Compressed Air Quality

The Nitropac Generator is an air purification system; it does not generate any gas pressure. Gas pressure is created and supplied to the generator by the user's compressed air system. It is the user / installer's responsibility to ensure that all components connected to the gas generator comply with local health and safety regulations and that the compressed air system is suitably protected from over pressure, including appropriately sized safety relief devices for both the compressed air and nitrogen process tanks.

No pressure greater than 10 barg should be applied to the inlet of the Nitropac product.

The Nitropac Generator will typically be the last stage in a complete air compression and filtration system, the inlet air quality must meet a minimum of IS0 8573-1:2010 class 2.2.1. Class 2.2.1. is further defined as:

Class 2 – Particulate

Per cubic meter of air the particulate count should not exceed 400,000 particles in the 0.1 to 0.5 micron range, 6000 particles in the 0.5 to 1 micron range and 100 particles in the 1 to 5 micron range.

Class 2 – Water

A minimum pressure dewpoint (PDP) of -40^{o}degC (-40^{o}degF) is required, no liquid water is permitted.

Class 1 – Oil

Per cubic meter of air the maximum permissible oil content is 0.01mg, total level for liquid, aerosol and vapor.

A typical installation will consist of the following items:

- Air Compressor (Oil-Free or Oil Lubricated)
- Compressed Air Storage Tank (with automatic condensate drain)
- Oil/Water Separator
- Pre-filter
- Active Carbon Filter
- Line Air Regulator
- Desiccant Air Dryer
- Dust Filter
- Active Carbon Tower
- Dust Filter
- Nitropac Nitrogen Generator
- Nitrogen Process Gas Tank

Sizing of all components in this line will have a critical effect on the performance of the Nitrogen Gas Generator, in particular the Nitrogen process Gas Tank. Please refer to your quotation documents for details of the items we have recommended to meet your specific requirements.

Should you require any further assistance or support please do not hesitate to contact Donaldson. A full installation and commissioning service can be provided through the Donaldson.

Electrical Connection

Connect the Generator to a single-phase AC voltage supply using the power cord provided. The generator is fitted with an internal transformer that can accept any supply from 100 to 240 volts AC. If the appropriate power cord is not supplied; a new plug, rated to at least 5 amps, can be fitted by a qualified electrician.

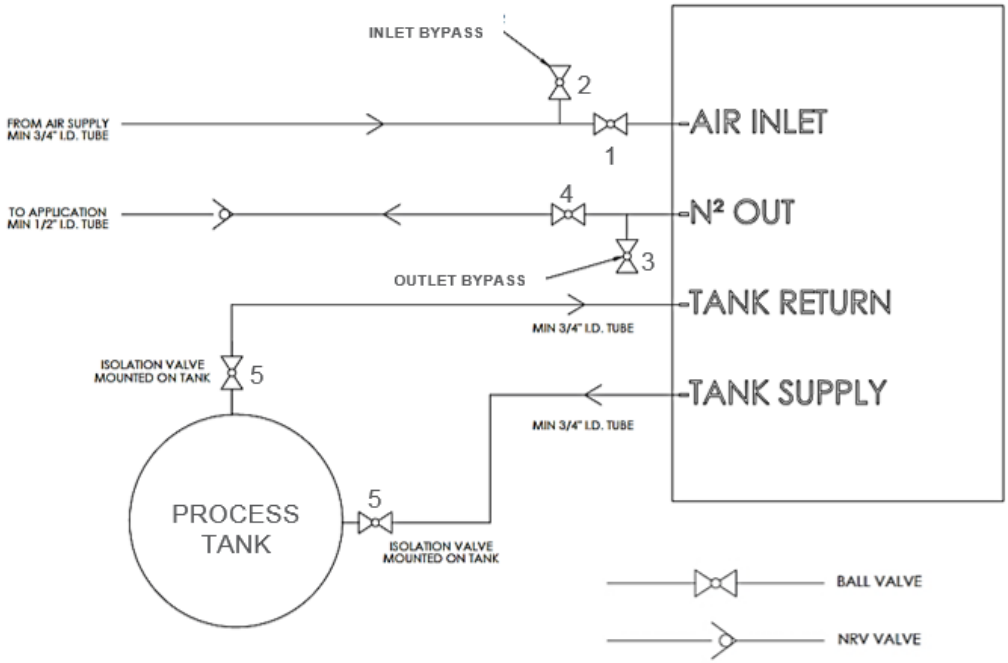
DO NOT USE inadequately rated detachable Mains cords.

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

Recommended Piping Layout

To allow proper operation and commissioning of the generator it is important to include bypass valves at the generator inlet / nitrogen outlet of the system. It is also recommended that a Non-return valve be fitted on the exit of the system to prevent downstream pressure from returning to the system and damaging the generator. Please see below for recommended piping layout.



Commissioning / Safe Start-Up Procedure

With reference to the diagram above in “Recommended Piping Layout” section.

Once the generator has been installed, DO NOT Switch on the power immediately. It is recommended that the inlet compressed air supply valve (1) remains closed, and that the inlet bypass valve (2) is opened slightly to sufficiently allow the inlet compressed air to vent and purge any remaining moisture from the newly installed pipework (if this is the first operation of the compressed air supply, it is recommended that the air be vented for a minimum of 2hrs to allow the air filtration and dryer to stabilise). Once the inlet pipework has been purged, the inlet bypass valve (2) can then be closed and the pressure gradually introduced to the generator by slowly opening the compressed air inlet (1) valve. The outlet bypass valve (3) should now be open to atmosphere, and the delivery valve (4) to the customer application should be closed. Ensure that both Process Tank Isolation valves (5) are both fully open. The power can then be turned on. On first start up air will be introduced to Column 1 and the front panel gauge will slowly start to rise. The front panel display will show a message “COLUMN 1” and a timer counting up. After approx. 30 to 80 seconds (timing will vary depending on your specific performance requirements) the front panel display will briefly show an “EQUALIZING” message and the pressure on Column 1 and 2 gauges should level out. Column1 will then vent rapidly to zero and column 2 will continue to rise slowly. During this process the TANK pressure gauge should continue to slowly rise. Allow the Nitrogen Process Gas Tank to reach pressure, then continue to vent the outlet gas through the bypass valve (3) for a minimum of 4 hours (ideally this should be done overnight to fully purge all the remaining oxygen/moisture in the system). The Generator has been pre-set in the factory to give the specified output flow-rate and pressure. Failure to achieve the factory specification after maintenance may be as a result of an incorrect service procedure, please review any maintenance carried out. If unable to achieve specification contact Donaldson for further assistance. After this time the outlet bypass valve (3) can be closed, and the delivery valve (4) to the customer application should be slowly opened to pressurise the line.

The design of the generator is that it will deliver up to your specific output pressure and flow of Nitrogen. Should the demand for Nitrogen be less than the rated output flow, or indeed should the demand stop the generator will automatically go into ECO Mode and the front panel LED will illuminate. In ECO mode the changeover of the columns is suspended which will stop the consumption of inlet compressed air. The control system will automatically detect when the demand for Nitrogen resumes and the generator will start to produce Nitrogen again.

Normal Operation

The Nitropac Gas 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. Note: the generator will only produce Nitrogen on demand. It should typically be left in a powered state, with compressed air supply live. If the system is shutdown, or suffers a power failure, it will restart automatically. However, if left without inlet air pressure for a prolonged period and the Nitrogen Process tank is allowed to vent all pressure, then the commissioning process above should be repeated to purge the oxygen from the system before good quality gas can be produced again.

The Generator will automatically produce the factory set flow and pressure.

Note: The side panels of the generator should not be removed during operation unless you have received training and are technically competent to manage the potential risks present. Located inside the cabinet are the Vent silencers and Safety Relief valve, these will periodically release gas at pressure, and could cause injury.

On the rear and top of the generator are located inspection plugs. These plugs must **NOT** be removed whilst the system is under pressure. If removed, it is likely that pressure will be released, violently and cause injury.

Cleaning

Clean the outside of the Generator only using warm soapy water and a clean damp cloth. Ensure the cloth is thoroughly rung out to remove excess fluid prior to use. Do not use decontamination or cleaning agents that could cause a HAZARD as a result of a reaction with parts of the Generator or material contained within it. If there is any doubt about the compatibility of decontamination or cleaning agents please contact your Donaldson representative.

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

Service Requirements

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

Safe Isolation Process

To shut the system down, close the inlet air supply valve (1), BUT leave the electrical power on to the generator. Close the Nitrogen outlet valve (4) to the application, and slowly open the bypass / commissioning valve (3) to allow the Nitrogen product gas to vent to atmosphere. NOTE: do not isolate the Process Tank valves (5) as this will trap pressure in the tank. For the product to be completely safe to work on ALL pressure must be fully dissipated. Ensure ALL front panel gauges read zero before turning off the power on the front panel and removing the mains cord from the left hand side of the generator before proceeding. Note: Due to the nature of the Carbon Sieve it could take considerable time for the generator to release all the trapped oxygen. The bypass valve (3) should remain open at all times, as the CMS can release oxygen and pressure can build again if closed.

Once service operations have been completed the generator can be re-connected to the mains supply and the Commissioning process described in earlier sections should be repeated.

Due to the simplicity of the design and the small number of moving parts the Industrial Nitropac Series Nitrogen Generators will have a long and trouble free life. However as with all technical equipment it should be regularly inspected and serviced as below.

Service Schedule

Service interval	Component	Qty.	
		N01x to N05x	N06x
12 months	Vent Silencer Element	2	4
	Pneumatic Valve Exhaust Silencer	5	7
	N_2 Supply NRV	2	2
48 months	O_2 Analyser % (#)	1	1
48 months	O_2 Analyser PPM (#)	1	1
12 months	DF Pre-filter	1	1
12 months	DF After-filter	1	1

Note # - Analyser service is dependent on selected model.

Service Counter Reset

The generators service hour counter counts the remaining time till service is due, starting at 8760hrs counting down to Zero. Once zero is reached the Service LED will illuminate, the generator will continue to function, but should not be operated for prolonged periods without carrying out the required maintenance. Once the required maintenance has been carried out the counter can be reset through the front panel PLC Interface by following the procedure below.

In order to access the reset function, the engineer must follow the instructions below:

1. Press the ▼ button 3 or 4 times (depends if startup timer is active) until time date screen is displayed, and then press **ESC.**
2. Press ▼ to highlight **LOGO! Settings**, then press **ENTER**.
3. Press ▼ to highlight **Program**, then press **ENTER**.
4. Press ▼ to highlight **Set Parameter**, then press **ENTER**, parameter list will be displayed.
5. Press ▼ until **S_HRS-RESET** is reached, then press **ENTER**. S-HRS RES is displayed and switch should be highlighted as **off**.
6. Press **ENTER** and off will flash, press ▼ to change off to on, then press **ENTER**
7. Switch will flash back to off again, automatically**.**
8. Press the **ESC** button 5 times till time date screen is displayed.
9. Press ▲until Service Due screen is displayed, and confirm service due is now shown as 8760 HRS.

The service counter has now been successfully reset.

PLC Settings

In the Set Parameters menu of the PLC program there are 19 adjustable parameters. These will be set during manufacture; however they can be changed to meet site and customer requirements. The following explains the function of each parameter:

To gain access to set parameters from the main screen,

1. Press the ▼ button 3 or 4 times (depends if startup timer is active) until time date screen is displayed, and then press ESC.
2. Press ▼ to highlight LOGO! Settings, then press ENTER.
3. Press ▼ to highlight Program, then press ENTER.
4. Press ▼ to highlight Set Parameter, then press ENTER, parameter list will be displayed.

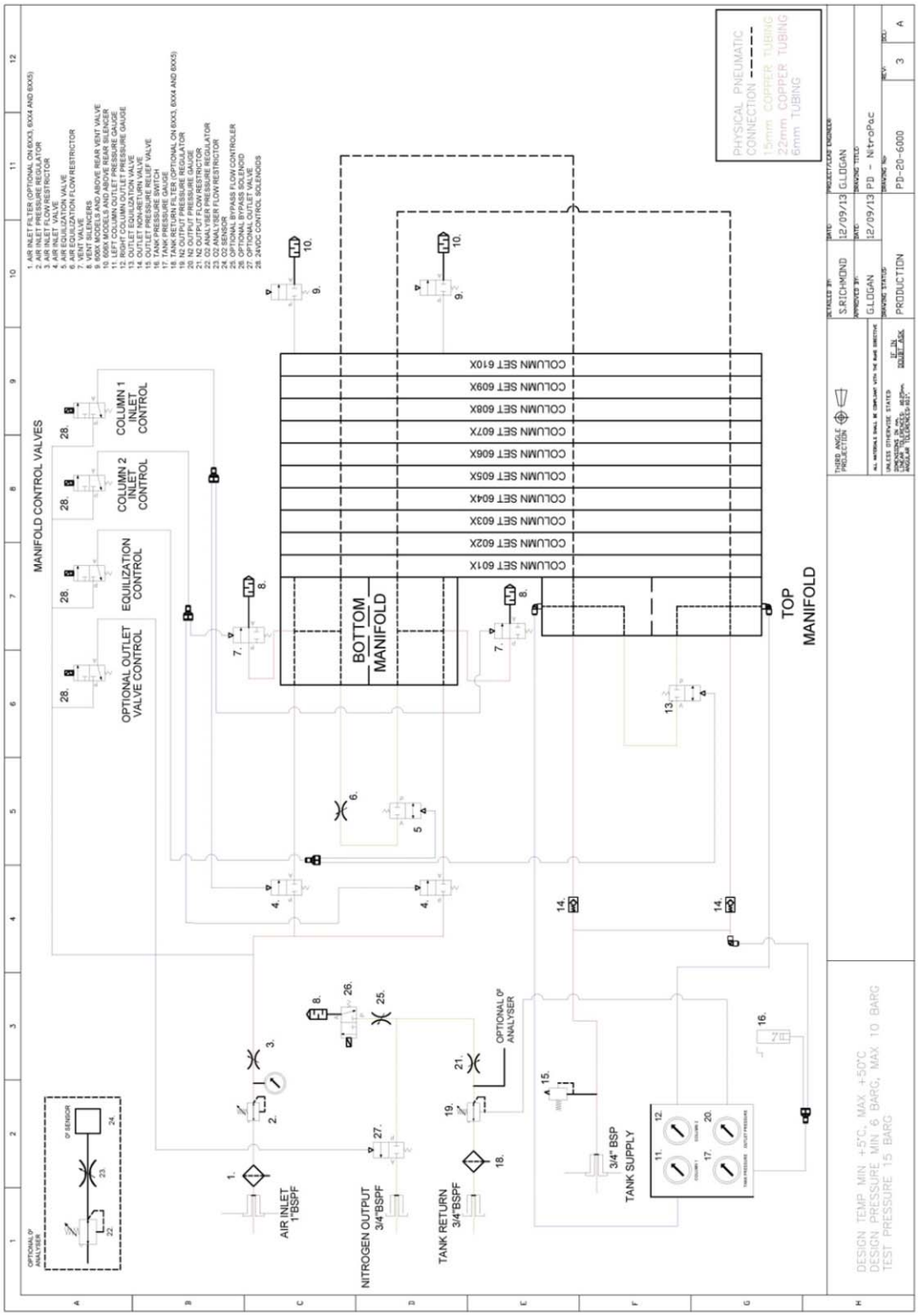
The parameters will appear in the following order:

1. **CYCLE TIMER** - Main PSA change over timer do not alter without factory approval.
2. **RE_START_EN –** Remote Start Enable, only possible with optional factory configuration, do not alter without factory approval.
3. **START TIMER** – From power switch on, the time in which the PLC will ignore High O_2 content and low pressure alarms to allow the generator to reach required O_2 content and pressure.
4. **TEST-ECO LED** – Enables test of ECO mode indication LED.
5. **TEST-SER LED** – Enables test of Service Due indication LED.
6. **RGEN-INTERVL** – When the generator has been in ECO mode for set time the PLC will ignore pressure switch and force the generator to run to maintain required O_2 content.
7. **RGEN BLOCK** – Set time for the PLC to ignore pressure switch before returning to ECO mode.
8. **BPASS-Timer –** If optional Bypass valve is fitted, this controls the time the bypass feature can operate before a high O2 fault is triggered.
9. **ECO-DELAY** – Once pressure switch upper setting is reached time delay before generator is switched into ECO mode.
10. **ECO-BLOCK** – Set to ON prevents ECO mode Function.
11. **S_HRS-RESET** – Service hour counter reset back to 8760 hours.
12. **OV.LO-O.RIDE –** If optional outlet valve is fitted, this allows you to override it and force it open.
13. **BPASS-O.RIDE -** If optional bypass valve is fitted, this allows you to override it and force it closed.
14. **OP.OVALVE_EN –** Set to on if outlet valve fitted.
15. **OP.BYPASS_EN –** Set to on if Bypass valve fitted.
16. **ANALYSER-NIL –** Set to on if no O2 Analyser is fitted.
17. **ANALYSER-PPM –** Set to on if PPM O2 Analyser is fitted.
18. **ANALYSER-% –** Set to on if percentage O2 Analyser is fitted.
19. **SHUT-BLOCK** – When an alarm condition happens with shutdown block switched off, generator will shut down. When shutdown block is on, generator will continue to run with an alarm condition (low pressure and high O_2 content alarms).

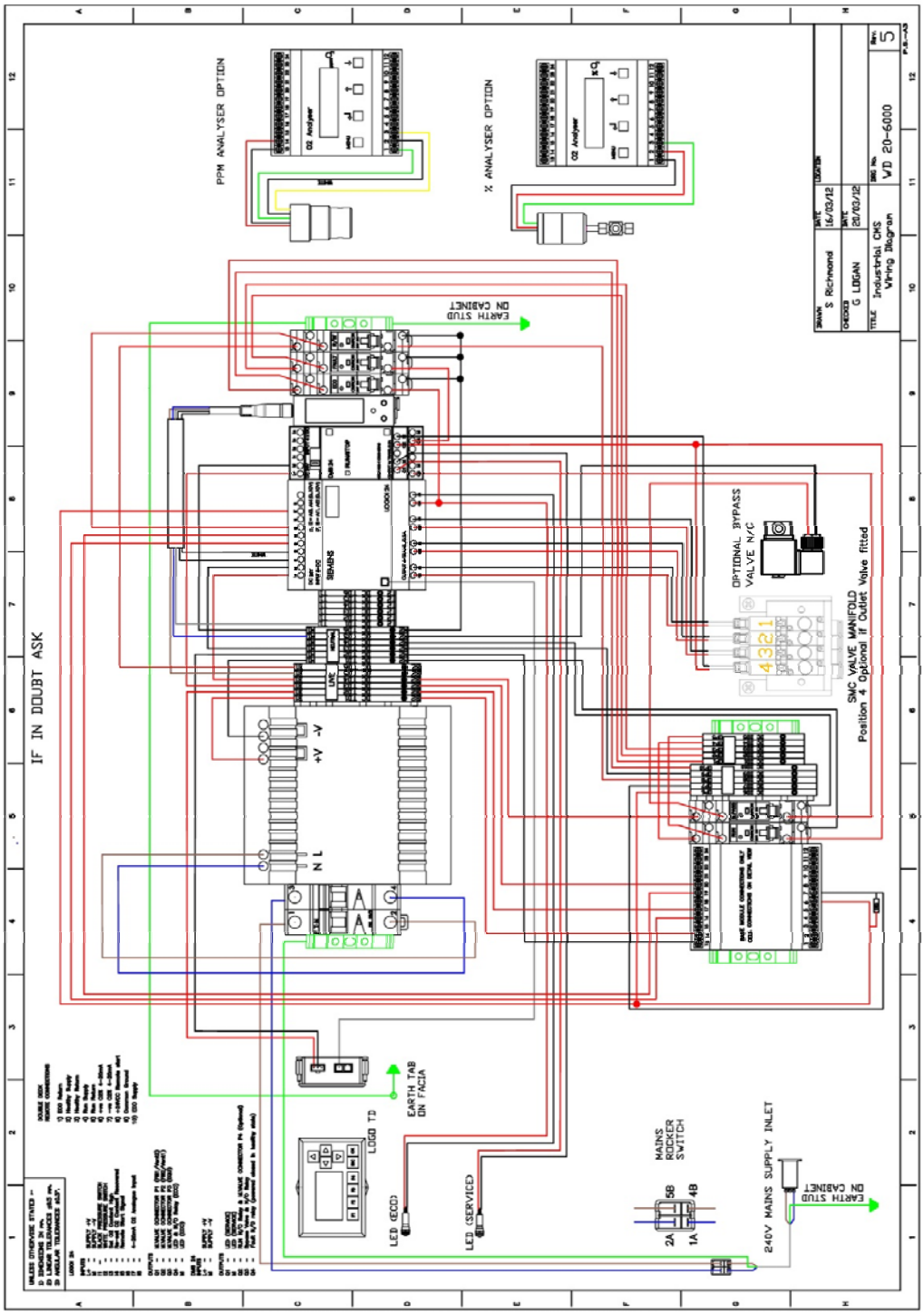
Troubleshooting

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. • Check for any disconnected terminals at power socket connected at inside rear of unit. • Check for loose connections at inside of power switch located on front of Generator. • Check for 100-240VAC going into DC power supply. • Check for 24VDC coming from power supply. • Check circuit breakers are ON – switched up • Contact Donaldson Technical Help. 
The Generator will not switch on but the power switch is illuminated.	• Disconnect power cord from the rear of the Generator and open LH panel: • Check that the circuit breaker is turned on (switch in the up position). Reconnect power cord. • Check PLC for loose wires. • Check pressure switch for loose wires. • Connect power cord and power up Generator and open LH panel: • Check for 24V coming out of power supply. • Check pressure switch LED is lit. • Check PLC to ensure RUN light is illuminated. • Contact Donaldson Technical Help. 
Compressed air is on but pressure is not building in system.	• Check Generator has power ON. • Check inlet pressure regulator. • Check for leaks in system. • Contact Donaldson Technical Help. 

Pneumatic Schematic - Rev 2A



Electrical Schematic – Rev 3



Donaldson Filtration Deutschland GmbH
Industrial Filtration Solutions
Büssingstraße 1
D-42781 Haan, Deutschland

Tel. +49 (0) 21 29/5 69-0
Fax +49 (0) 21 29/5 69-1 00
Internet: www.donaldson.com
E-Mail CAP-de@donaldson.com

EU Declaration of Conformity

We hereby declare that the products indicated hereafter comply with the stipulations of the relevant guide lines and technical standards. This declaration only refers to products in the condition in which they have been placed into circulation. Parts which have not been installed by the manufacturer and / or modifications which have been implemented subsequently remain unconsidered.

Product designation / series:	**Nitropac**
Type:	N013, N023, N033, N043, N053, N063 N014, N024, N034, N044, N054, N064 N015, N025, N035, N045, N055, N065
Serial number:	see type plate
Product description and function:	Pressure Swing Adsorption N_2 Gas Generator

Low-Voltage Directive 2014/35/EU

Applied standards and technical specifications:	: EN61010-1:2010 Safety requirements for electrical equipment for measurement, control, and laboratory use

The devices with a supply voltage of 24 V DC do not come under the scope of application of the Low-Voltage Directive.

EMC Directive 2014/30/EU

Applied standards and technical measurement, specifications:	EN 61326-1:2013 Electrical Equipment for control and laboratory use.

Pressure Equipment Directive 2014/68/EU

Fluid group acc. to Art. 13:	Group 2
Applied rules, standards and technical specifications:	ASME Section VIII Division 1 and BS EN 12392:2000. Conformity Assessment Procedure: B + D

Pressure Assembly Consisting of the following key parts:

Tag No. or Line No.	Piping Spec or Description	Fluid	Phase	TS degC	PS bar	DN mm	V litres	PS.DN PS.V	PED Hazard Cat. Fluid	Chart	Cat	Quality Module
1	Front End Control Cabinet inc. associated valves & piping	Air / N2	Gas	50	10.00	25	-	-	2G	2	SEP	A
-	08-0700 CMS Assemblies (1 to 10 Model dependent)	Air / N2	Gas	50	10.00	-	50.96	509.6	2G	2	II	B+D
15	Output Pressure Relief Valve	Air / N2	Gas	50	10.00	20	-	-	2G	2	IV	B+D

PED Notified Body, responsible for monitoring of Module D Quality Assurance System:	BSI Assurance UK Ltd Kitemark Court Knowlhill Milton Keynes MK5 8PP EC Number: 0086

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Fax +49 (0) 21 29/5 69-1 00
Internet: www.donaldson.com
E-Mail CAP-de@donaldson.com

Name and address of person, authorized to compile the technical file and documents:

Wolfgang Bongartz
Büssingstrasse 1
42781 Haan
Germany

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Haan, 27.06.2017
Place and date of issue

Authorized Person
Wolfgang Bongartz
Engineering Manager Industrial

Technical alterations reserved!

Technische Änderungen vorbehalten • Sous réserve de modifications technicques • Technische gereserveerde wijzigingen • Alterazioni tecniche riservate • Alteraciones técnicas reservadas • As alterações técnicas reservaram • Ret til tekniske ændringer forbeholdes • Reserverade tekniska förändringar • Oikeudet teknisiin muutoksiin pidätetään • Αλλαγές που διατηρούνται τεχνικές • Technické změny vyhrazeny • Jätame endale õiguse teha tehnilisi muudatusi • Műszaki módosítások joga fenntartva • Pasiliekame teisę daryti techninio pobūdžio pakeitimų • Lespējamas tehniskas izmaiņas • Zmiany techniczne zastrzeżone • Tehnične spremembe pridržane • Technické zmeny vyhradené • Ne rezervăm dreptul de a efectua modificări tehnice • Запазваме си правото на технически промени • Teknik değişiklikler saklı tutulur

Donaldson
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D-42781 Haan, Germany

www.donaldson.com