



GEN2 NITROGEN GENERATOR USER GUIDE

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1. General Information

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Products: GEN2 - 1110, 2110, 3110, 2130, 3130, 4130, 6130, 8130, 10130, 12130

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1.1 Document Introduction

This manual provides factory prescribed installation and maintenance procedures for a nano-purification solutions GEN2 nitrogen generator. The procedures illustrated in this document are only to be performed by authorized personnel. For further information regarding the procedures outlined in this document contact your supplier before proceeding. Read this document carefully before attempting to install or operate the nitrogen generator. This document should be permanently available at the nitrogen generator installation site and be kept in an easily accessible place.

1.2 Support and Manufacturers details

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Annotations:



CAUTIONS: indicate any situation or operation that may result in potential damage to the product, injury to the user, or render the product unsafe.



NOTES: highlight important sections of information where particular care and attention should be paid.

1.3 Warranty Guidelines

All products are supplied with a 2 year manufacturer's warranty from the date of purchase and must be installed and maintained in accordance with the manufacturer's guidelines. Only genuine service parts should be used and no modifications made. For further information please contact your supplier.

2. General safety

2.1 Intended use of the Product

The generator is exclusively intended for the production of Nitrogen gas from compressed air, which is free from bulk water, oil and solid matter constituents.

The product should be sited within a building (see section 7.1 Site selection). The generator must be operated only in accordance with the data on the rating label and in accordance with the contractual conditions. Any operations that do not comply with those stated on the product rating label will render the warranty void.

No modifications must be made to the product. Any modifications may reduce the operational safety of the product and invalidate the manufacturer's warranty, potentially resulting in damage to the product and serious personal injury.

For your own safety, when carrying out work on this product, all relevant national safety regulations must be complied with relating to pressurized and electrical systems.



This product is only designed to operate at pressures of between 87 - 145 (6 - 10barg) or 232 psig (16 barg) dependant on the generator model.

2.2 Personnel

Only authorized, competent and trained personnel are permitted to work on the product. This user guide is intended solely for such personnel and is to be used only as a reference; it should not be used to replace conventional training.

2.3 Safe handling

Please ensure that relevant safe engineering practices and handling procedures are employed when handling, installing and operating the product. Ensure that the equipment is depressurized and electrically isolated, prior to carrying out any of the scheduled maintenance instructions specified within this user guide.



A suitable lifting aid must be used to minimize the risk of physical injury or damage to the product.

3. Product Description

The nitrogen generator operates on the Pressure Swing Adsorption (PSA) principle to produce a continuous stream of nitrogen gas from clean dry compressed air.

Pairs of dual chamber extruded aluminium columns, filled with Carbon Molecular Sieve (CMS), are joined via an upper and lower manifold to produce a two bed system. Compressed air enters the bottom of the 'online' bed and flows up through the CMS. Oxygen is preferentially adsorbed by the CMS, allowing nitrogen to pass through.

After a pre-set time the control system automatically switches the bed to equalization mode where the online bed pressure is equalized with the second regenerated bed. Once equalized the online bed is switched to regenerative mode and oxygen is vented from the CMS. A small portion of the outlet nitrogen gas is expanded into the bed to accelerate the regeneration. At the same instant the second bed comes on-line and takes over the separation process.

The CMS beds alternate between online equalization and regeneration modes to ensure continuous and uninterrupted nitrogen production.

When a generator is specified with an internal dryer, each CMS column has a unique adsorption media tube technology dryer fitted into the bottom of each column.

The unique integrated dryer does not require servicing and the life is aligned to the CMS material.

The integrated dryer reduces energy running costs by eliminating the additional external dryer purge (typically 20% of the dryer inlet air consumption) and the associated pressure loss across an external dryer. The compressed air requirement is also reduced accordingly.

The oxygen concentration in the nitrogen stream is monitored continuously on models fitted with an oxygen analyzer. If the outlet concentration exceeds the required production level, the nitrogen outlet is closed and the gas is vented to atmosphere. Normal operation will resume when the purity recovers.

3.1 Technical Specification

Parameter	Units	
Inlet Air Quality	ISO 8573.1:2010	Class 1.2.1 / Class 1.5.1 (when fitted with AMT integral dryer)
Minimum Inlet Pressure	Barg (psig)	6 (88)
Maximum Inlet Pressure	Barg (psig)	10 (145) or 16 (232)
Rated Inlet Temperature	°C (°F)	20-25 (68-77)
Minimum Inlet Temperature	°C (°F)	5 (41) - Subject to correction factor.
Maximum Inlet Temperature	°C (°F)	40 (104) - Subject to correction factor.
Supply Voltage	VAC (50/60Hz)	88-264 VAC
Input Current	Amps (VAC)	1.3 / 0.8 (110-230)
IP Rating		IP11 / NEMA 2
Noise	dB (A)	<90

4. Product Contents

1. GEN2 Series Nitrogen Generator

2. Documentation

- 1 x User Guide
- 1 x Declaration of Conformity

3. Packaging

- 1 x Generator support base and box cover

4.1 Packaging

All products are securely packaged in a specifically designed wooden packing box. The nitrogen generator will be held in a horizontal position by wooden struts used to secure the product to the box base. The box top cover can be removed by removing the screws and lifted off in multiple pieces.

Damage to Packaging

Check immediately to establish whether damage has occurred to the external packaging and if the damage extends to the product inside. If there is damage to a product, contact the relevant supplier immediately.



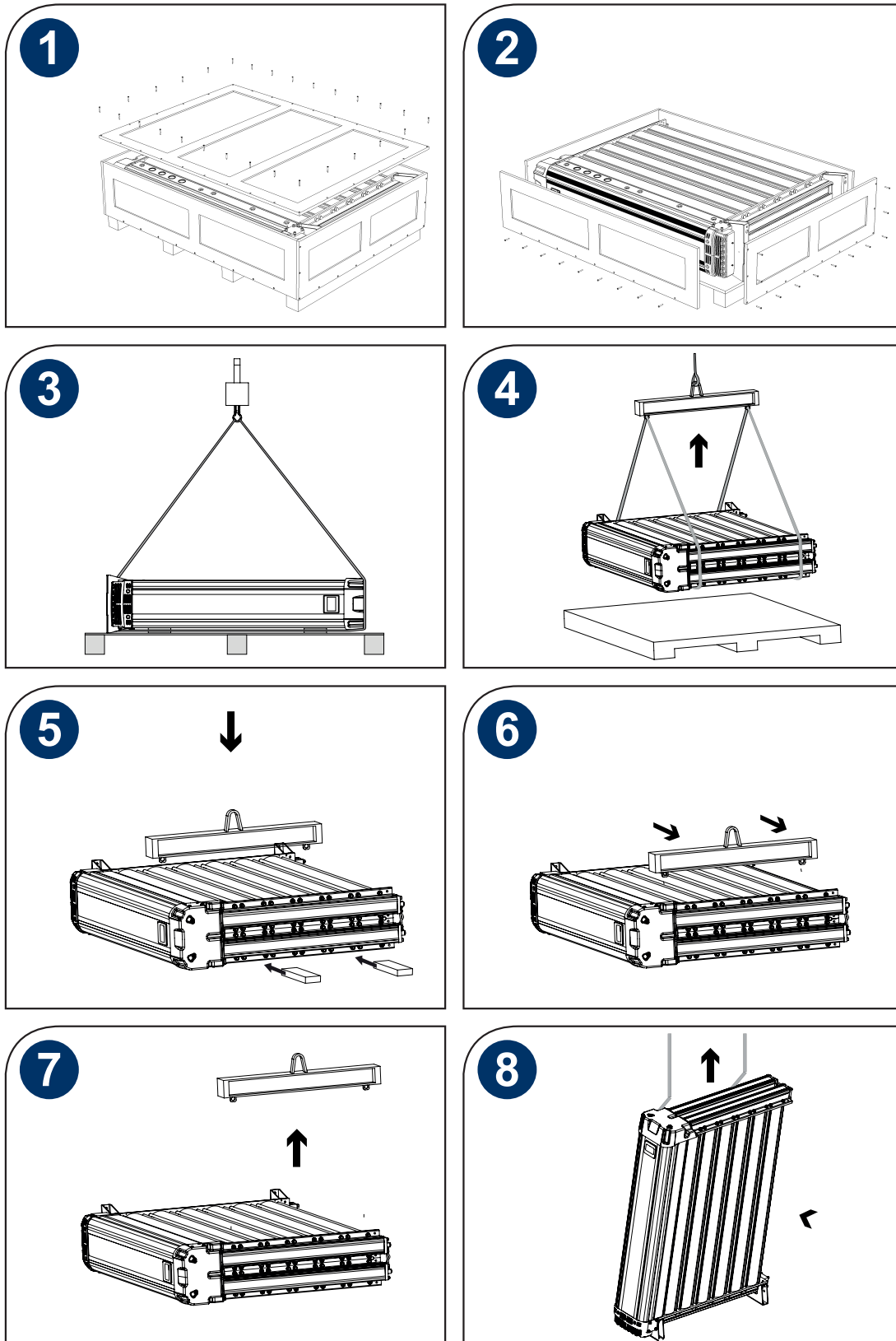
In no circumstances must a damaged product be used in operation. Using damaged products can lead to irreparable functional faults or cause serious physical harm.



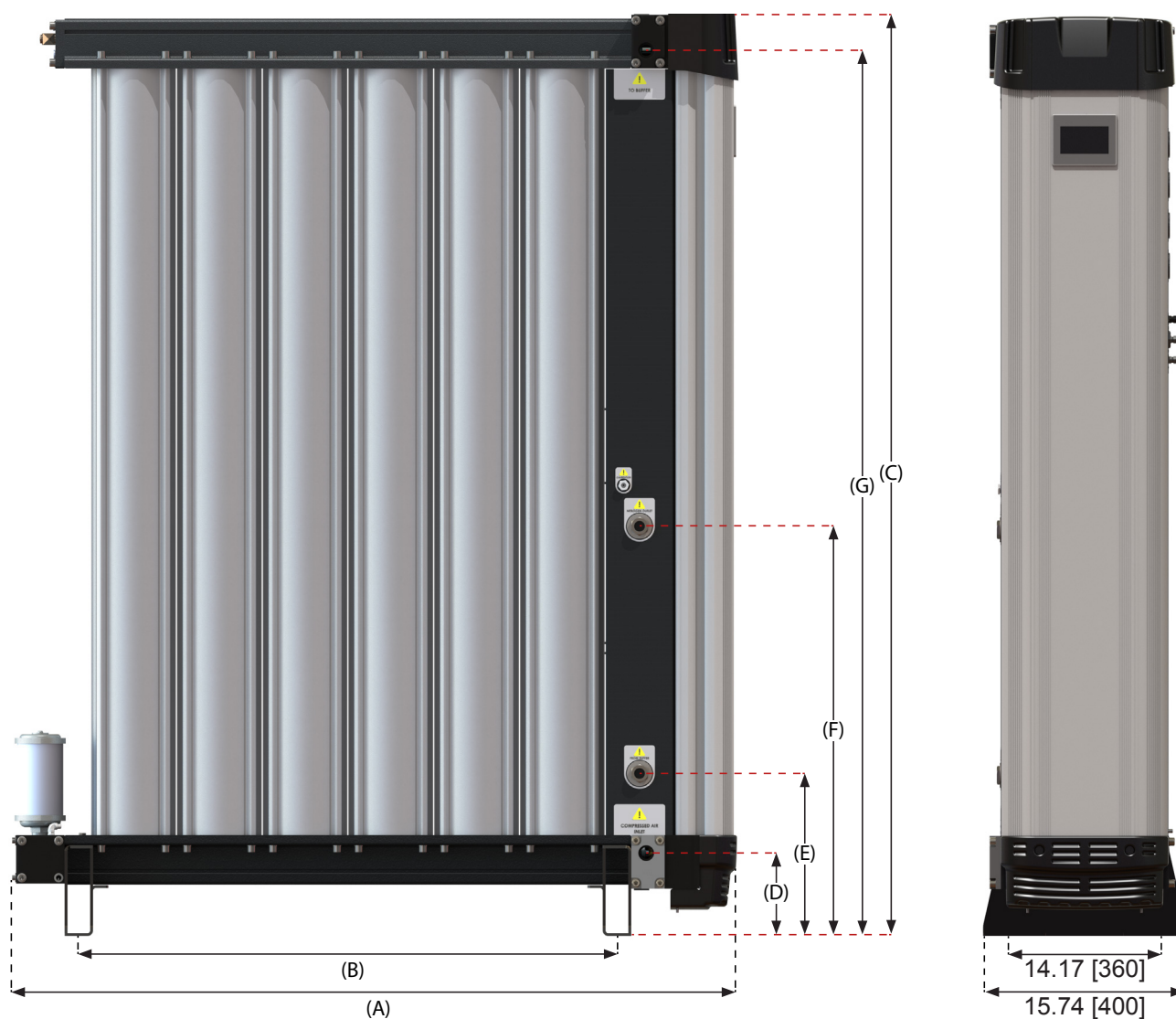
The support packing box permits longitudinal stacking; however the central section of the packing box should not be considered load bearing.

4.2 Unpacking the Equipment

The generator is supplied in a wooden crate. It is recommended that the crate be moved into position using a forklift truck or pallet truck. Remove the generator from the wooden crate using an overhead crane. Use the following illustrations for correct guidance on safe handling and lifting techniques.



5. Product Dimensions

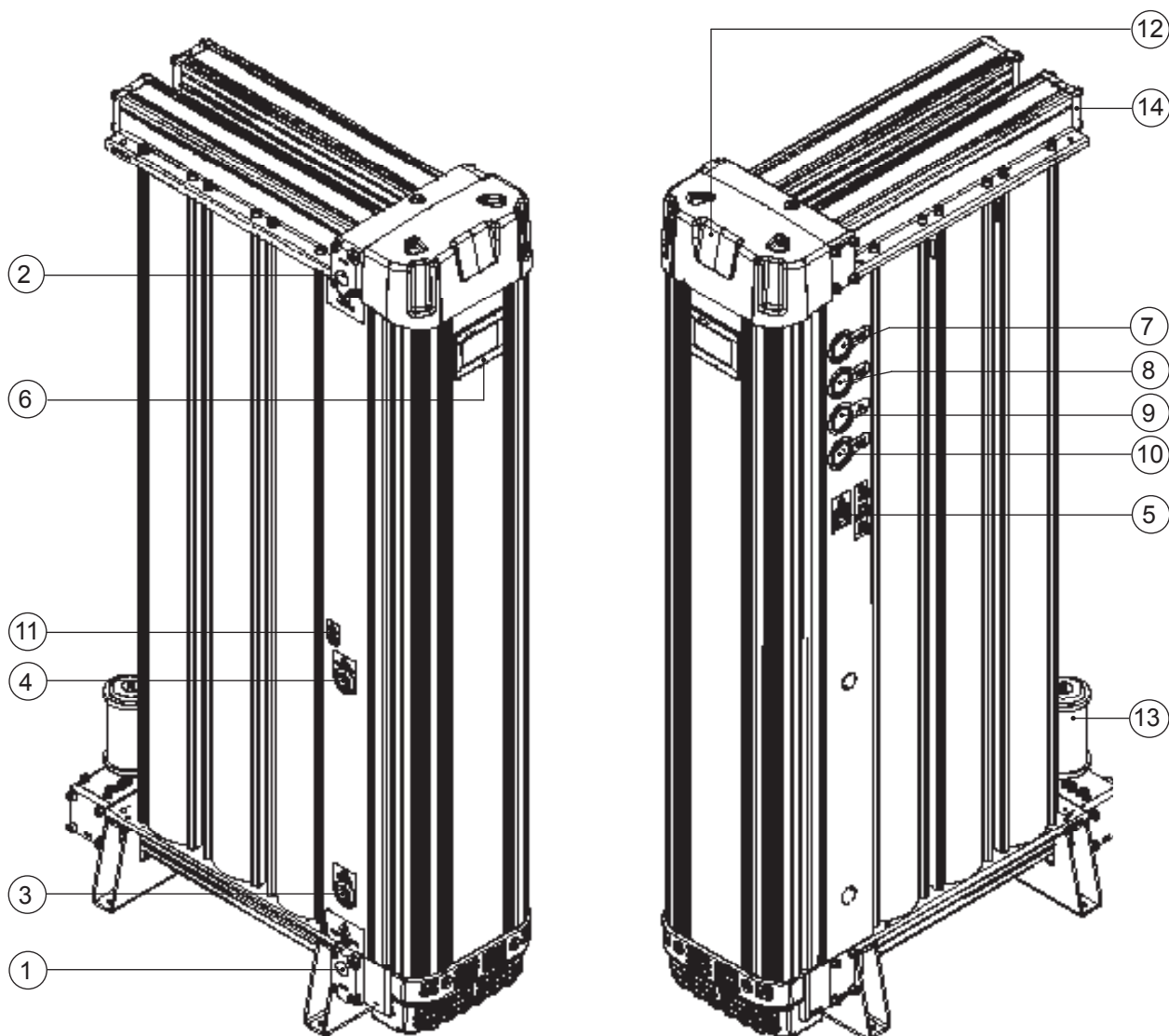


MODEL	INLET PORT SIZE	A		B		C		D		E		F		G	
		Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
GEN2-1110	1"	22.95	583	8.42	214	47.83	1215	6.37	162	9.92	252	15.43	392	44.58	1132.5
GEN2-2110	1"	29.56	751	15.03	382	47.83	1215	6.37	162	9.92	252	15.43	392	44.58	1132.5
GEN2-3110	1"	36.18	919	21.65	550	47.83	1215	6.37	162	9.92	252	15.43	392	44.58	1132.5
GEN2-2130	1"	29.56	751	15.03	382	71.33	1812	6.37	162	12.48	317	31.57	802	68.20	1732.5
GEN2-3130	1"	36.18	919	21.65	550	71.33	1812	6.37	162	12.48	317	31.57	802	68.20	1732.5
GEN2-4130	1"	42.79	1087	28.26	718	71.33	1812	6.37	162	12.48	317	31.57	802	68.20	1732.5
GEN2-6130	1"	55.90	1420	41.49	1054	71.33	1812	6.37	162	12.48	317	31.57	802	68.20	1732.5
GEN2-8130	1"	69.25	1759	54.72	1390	71.33	1812	6.37	162	12.48	317	31.57	802	68.20	1732.5
GEN2-10130	1"	82.42	2095	67.95	1726	71.33	1812	6.37	162	12.48	317	31.57	802	68.20	1732.5
GEN2-12130	1"	95.59	2428	81.18	2062	71.33	1812	6.37	162	12.48	317	31.57	802	68.20	1732.5

6. Equipment Overview

(GEN2 1110, 2110, 3110, 2130, 3130, 4130, 6130, 8130, 10130, 12130)

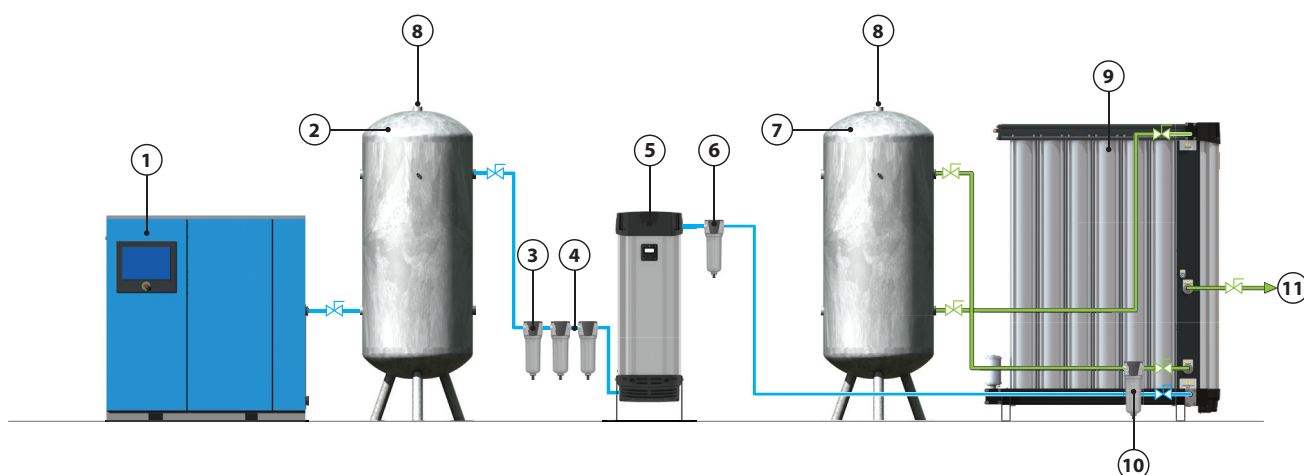
All connection points are clearly marked on the generator and are represented in the diagram below.



1	Air Inlet 'Dimension F' (1" Port)	6	HMI Screen Display	11	Sample Point (1/8" Port) External Sample Point Only Available on GEN2 2130-12130 Nitrogen Generators. Internal Sample Point Available on GEN2 1110-3110 Nitrogen Generators.
2	N2 To Buffer Tank 'Dimension I' (1" Port)	7	Column A pressure Gauge	12	Top Cover
3	N2 From Buffer Tank 'Dimension H' (1/2" Port)	8	Column B pressure Gauge	13	Silencers/Mufflers
4	N2 Outlet 'Dimension G' (1/2" Port)	9	Air inlet pressure Gauge	14	Purge adjustment
5	Main Power Inlet	10	N2 Outlet pressure Gauge		

7. System Layout

With External Desiccant Dryer



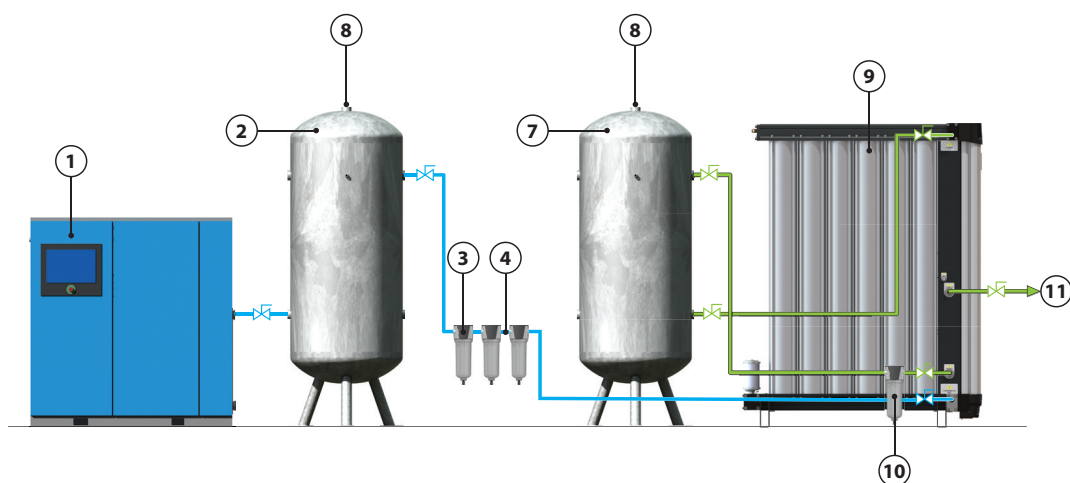
Ref	Description	Ref	Description
1	Compressor (Not Supplied)	7	Buffer Vessel
2	Wet Air Receiver (Not Supplied)	8	Pressure Relief Valve*
3	Pre-filtration (Water Separator)	9	N2 Generator
4	Pre-filtration (1 micron & 0.01 micron)	10	Dust Filter (1 micron)
5	Desiccant Air Dryer	11	Nitrogen Outlet
6	Dust Filter (1 micron)		N2 Storage (Optional)

(1) It is the customers responsibility to ensure pressure relief valves are fitted to the compressed air system. All vessels supplied by nano come with a pressure relief valves and pressure gauge as standard.

(2) Buffer vessel is used for mixing nitrogen gas, this is not to be used as downstream storage.

(3) Reference '1' & '2' are supplied separately.

With Integrated Dryer



*Note: For service details please see page 20.



Only personnel trained, qualified and approved by the supplier should perform installation, commissioning, service and repair procedures.



It is essential that the system into which the product is installed is fitted with a pressure limiting/relief device. This device should be between the compressor and the generator. The device must be set to prevent the maximum working pressure of 145psig (10 barg) or 232 psig (16 barg) from being exceeded.

7.1 Site Location

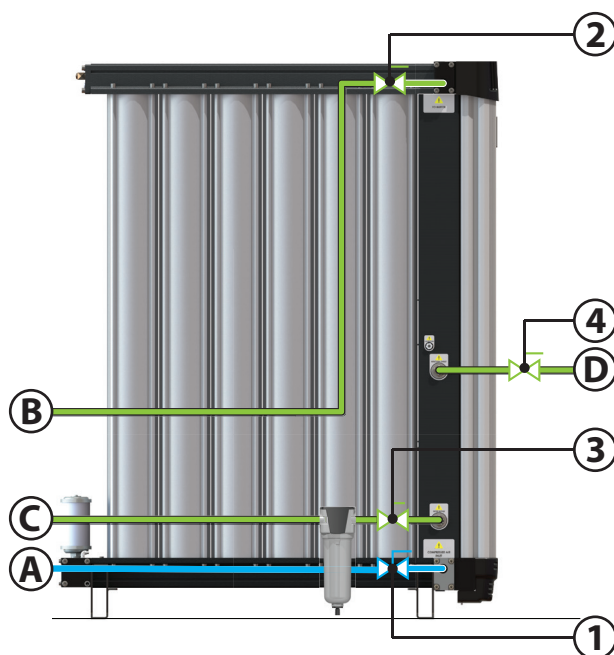
When selecting an installation site for the generator, ensure the following conditions are met:

- The site should be located indoors on a flat surface protected from weather and other harmful conditions.
- The ambient temperature must not drop below 41°F (+5°C) or exceed 122°F (+50°C).
- The installation site should be level and able to support the weight of the product.
- Ensure sufficient space around the product, we recommend at least 1m around the generator to allow access for operation and maintenance.
- Take into account the noise generated when in use when considering the final location.

Note: Due to the nature of operation there is a possibility of oxygen enrichment surrounding the generator. Ensure the area surrounding the generator is adequately ventilated.

7.2 Mechanical Installation

Once the generator has been located into position, install ball valves and the pipework ready for connection to the buffer vessel and compressed air supply. The diameter of the pipes must be sufficient to allow unrestricted inlet air supply to the generator and nitrogen supply to the applications shown in the table below.



Connection			
1	1" Ball Valve (All GEN2 Models)	3	1/2" Ball Valve (All GEN2 Models)
2	1" Ball Valve (All GEN2 Models)	4	1/2" Ball Valve (All GEN2 Models)

Pipe Work			
A	1" NB (All GEN2 Models)	C	1/2" NB (All GEN2 Models)
B	1" NB (All GEN2 Models)	D	1/2" NB (All GEN2 Models)

Ensure that all piping materials are suitable for the application, clean and debris free. All outlet piping must be solid and non-porous to minimize the ingress of oxygen. When routing the pipes ensure that they are adequately supported to prevent unnecessary strain which can lead to damage and leaks in the system. The nitrogen buffer vessel must be rated to at least the maximum operating pressure of the system and must be fitted with a suitable drain valve, pressure gauge and pressure relief valve.



It is recommended that the system be protected with suitably rated pressure relief valves upstream of the generator.

8. Electrical Control Panel

Main Power Connection

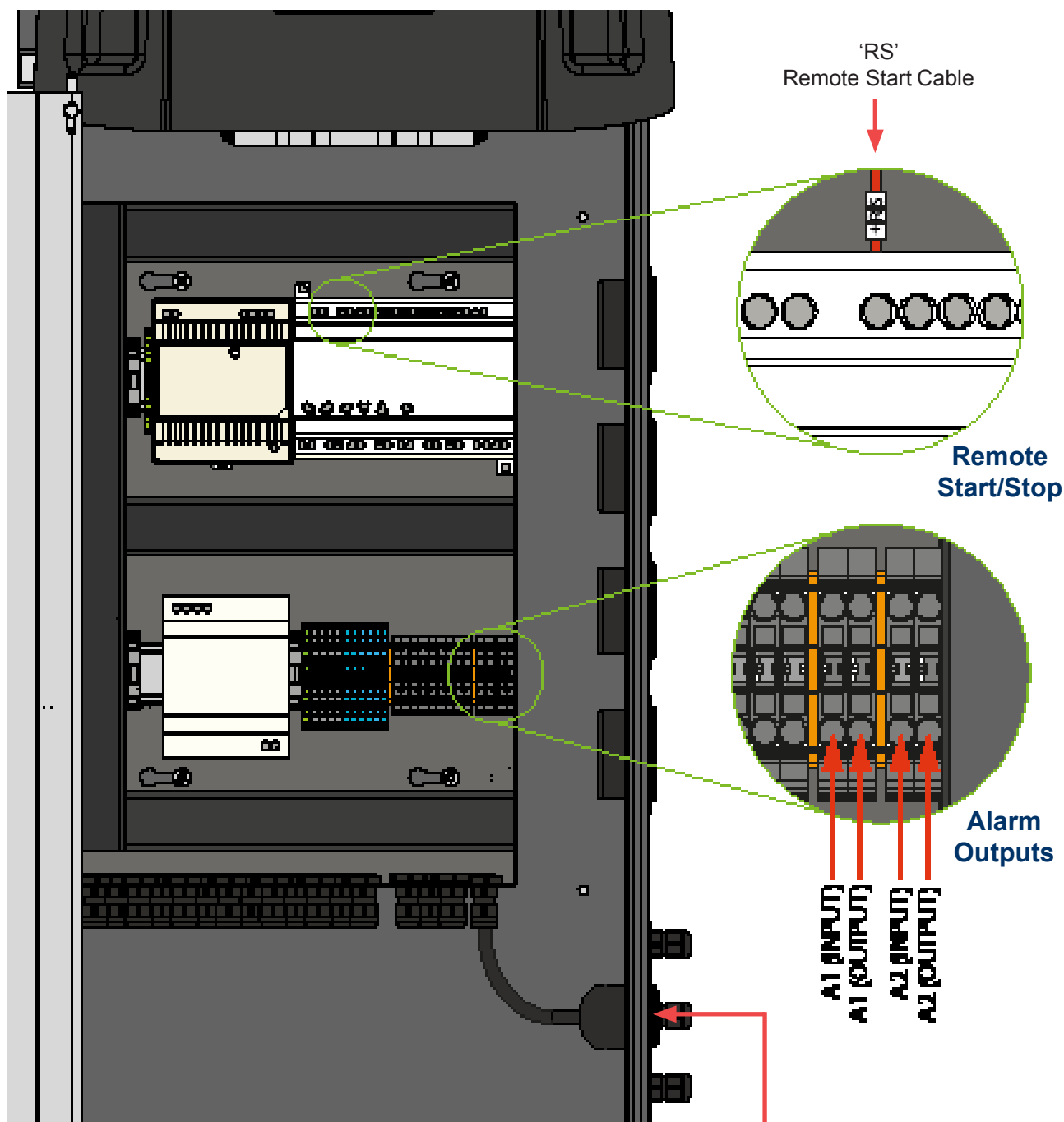
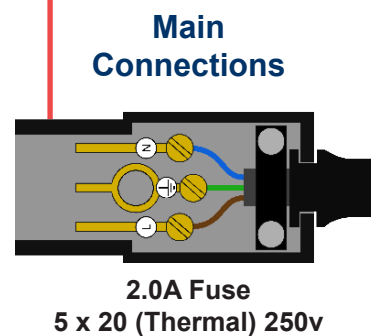


fig.1

Electrical Power Requirements

Supply: 88 - 264 VAC
47 - 63 Hz
Input Current: 1.3 / 0.8A
(115/230 VAC)



8.1 Remote Alarms

There are two seperate remote alarms for Pressure & Purity and a No volt / dryer control contact(see fig.1)

A1 Terminal : input (0-24v DC).

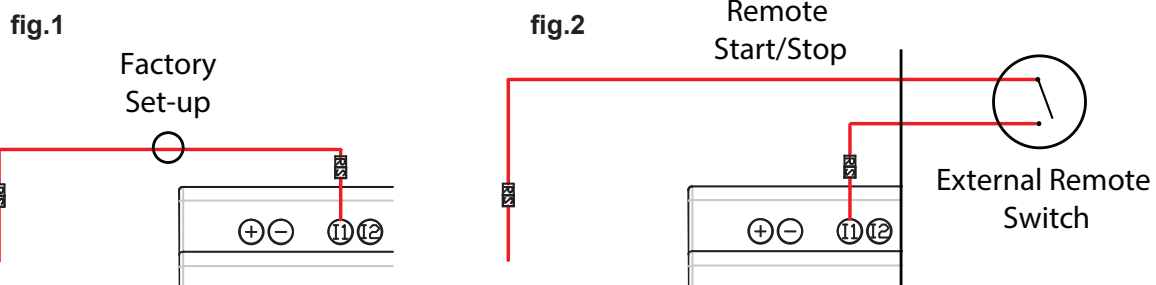
A1 Terminal : output (0-24v DC) common alarm output for pressure & purity.

A2 Terminal : input (0-24v DC).

A2 Terminal : output (0-24v DC) for dryer control only.

8.2 Remote Stop/Start

- To set up the remote stop start function, remove the link marked as 'RS' (remote start fig.1) between the live terminal and the PLC (see fig.1). A zero volt switch from the remote control needs to be installed in it's place (see fig.2).
- When the connection is made you can start the generator using the HMI screen, the generator will operate normally. If the connection is broken, i.e. the generator has been remotely switched off, the generator will commence shut down procedure, stop cycling and go into standby mode this can also be achieved by using the shutdown feature on the HMI screen, displaying "STANDBY" on the display once completed.
- Using remote stop / start ensures the correct shut-down sequence is implemented.



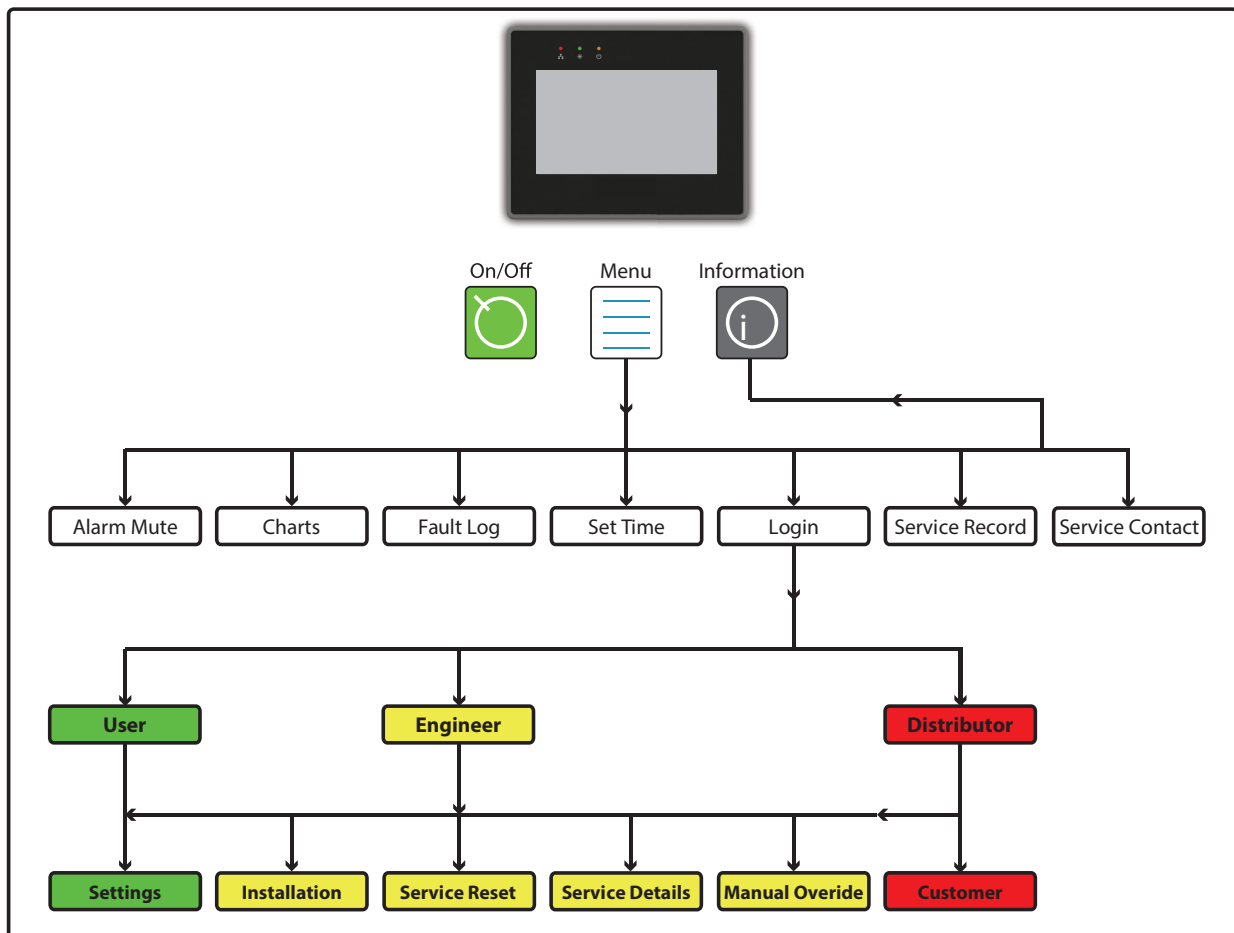
8.3 Start Up Procedure

- Ensure that all isolation valves are fully closed before operating.
- Hold down the Start/stop button located on the HMI Screen, this will start the generator.
- Slowly open the air inlet valve (page 11/12) and check for any leaks. Continue to open the air inlet valve until fully open.
- Allow the generator to cycle at least two times.
- Slowly open the 'To buffer tank' isolation valve (page 10/11) until the buffer tank is at full pressure (this will take a few cycles)
- Slowly open the 'From buffer tank' isolation valve (page 10/11). At this point the generator control system will be able to operate fully.



Beware, it can take up to two hours to clean the buffer tank.

8.4 HMI Screen Interface



Alarm Mute

The Alarm mute button will de-activate any active alarm (new alarms will activate independently). Once the current fault / Alarm has been rectified the mute function is re-set.

Charts

This screen shows the Current N2 Purity and Outlet Pressure in graph form indication (time req'd x hours on screen).

Fault Log

This screen offers read only access to the fault log.

Set Time

This screen allows the end user to enter the correct time and date.

Login

Access to the Menu structures (there are 3 levels of pass-code protection within the screen).

Service Record

This screen offers read only access to the generators service record.

Information

The Information screen indicates the current N2 purity, Outlet pressure, all generator detail & Commissioning data.

There are three levels of pass-code protection, these are User, Engineer and Distributor. To access Level 1 (User) select the menu button on the home screen, then select the login button. From there select 'User' from the drop down menu and enter password '1234'.

Settings (Level 1 Access - Pass-code '1234')

You are able to adjust the following:

- | | | |
|----------------------------------|--------------------|---------------------|
| - Purity Alarm | - Alarm Delay On | - Alarm Delay Off |
| - ES Pressure Low | - ES Pressure High | - ES Stage Duration |
| - Inlet Pressure Low Setpoint | - Alarm Delay On | - Alarm Delay Off |
| - Outlet Pressure Low Setpoint | - Alarm Delay On | - Alarm Delay Off |
| - Outlet Pressure Alarm (on/off) | | |
| - Pressure Units (bar/psi) | | |

Installation (Level 2 Access)

You are able to adjust the following:

- Installation date
- Commissioned by
- Company name of commissioning engineer
- Service interval

Service Details (Level 2 Access)

You are able to enter the following information:

- Contact name of preferred service provider
- Telephone number of preferred service provider
- Website of preferred service provider

Manual Override (Level 2 Access)

You are able to manually control the following valves:

- | | |
|-----------------|----------------------|
| - Inlet A | - Inlet B |
| - Exhaust A | - Exhaust B |
| - N2 Vent | - N2 Outlet |
| - O2 Isolate | - Equalization Valve |
| - Dryer Contact | |

Customer (Level 3 Access)

You are able to adjust the following:

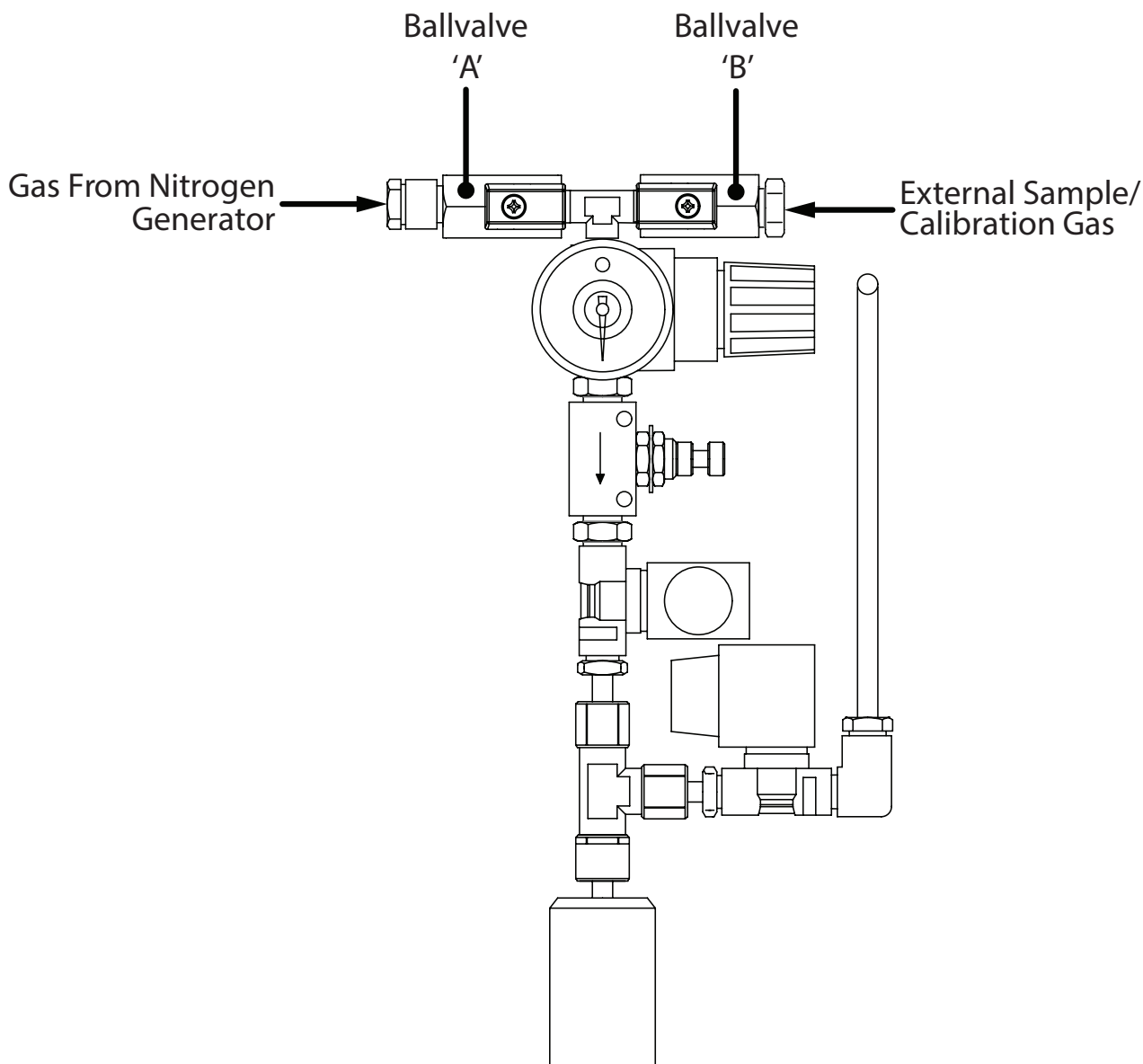
- Customer Name (Displayed on main screen)
- Purity Selection
- Replacement Build



Ensure the system is placed in to standby mode prior to entering the manual override menu.

9. Oxygen Analyzer Calibration

9.1 (GEN2 1110, 2110, 3110)



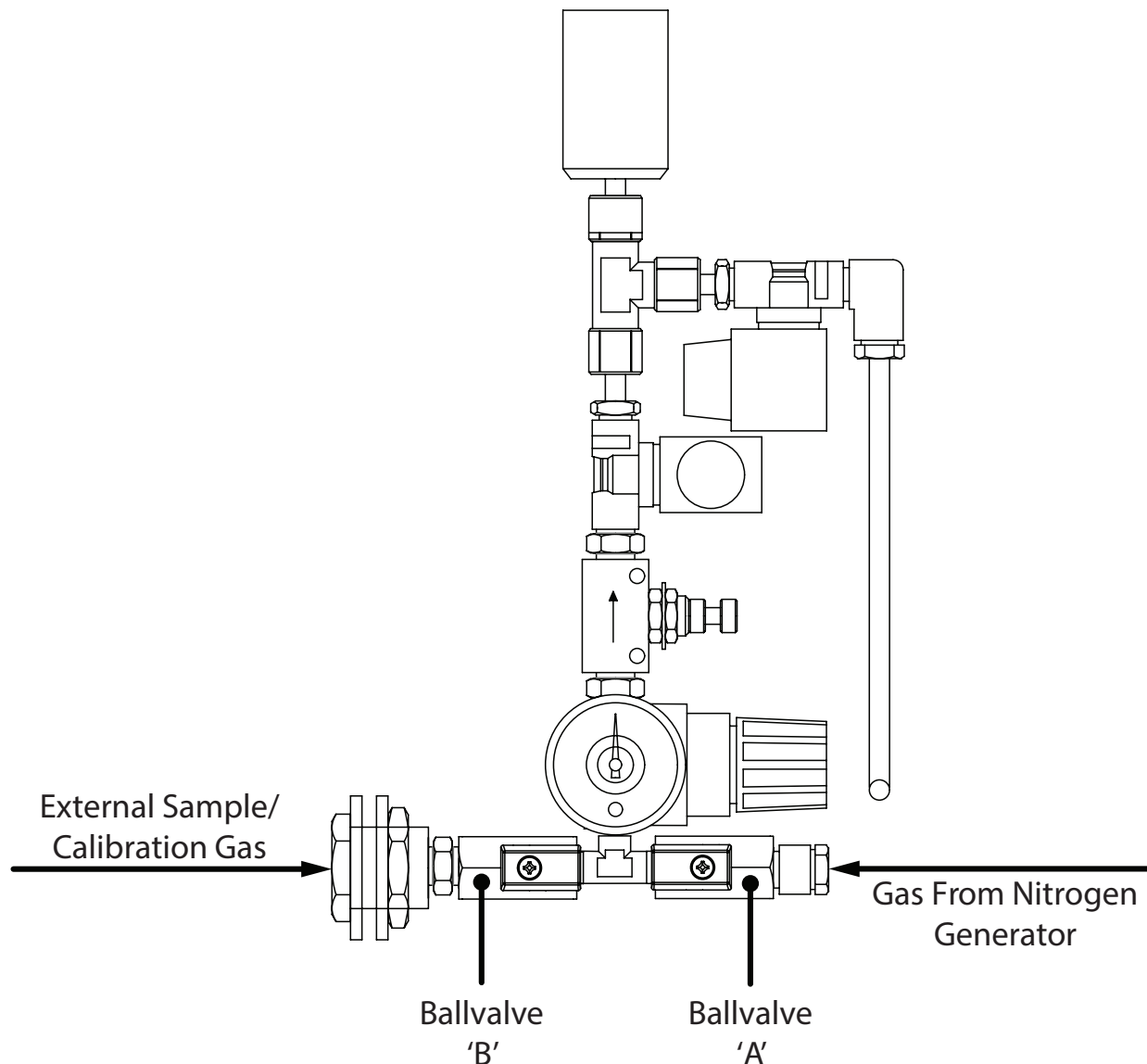
1. Close ball valve 'A' (this will stop gas flowing from the generator to the oxygen analyzer).
2. Allow the oxygen analyzer process arrangement to depressurize before introducing the calibration gas.
3. Once depressurized (this will be shown on the pressure gauge), connect your calibration gas to the sample point located on the enclosure (page 9). Once connected open ball valve 'B' and introduce calibration gas at 7.25 -145 psi (0.5 - 10 bar). Allow the display to stabilize before moving on to the next step.
4. Follow the Sensor Calibration Procedure (page 18).
5. Once calibrated, close ball valve 'B', remove the calibration gas and re-open ball valve 'A' allowing gas to flow from the generator.
6. Follow generator start up procedure (page 13)



O₂ Sensor (where fitted)

It is recommended that the O₂ sensor (if fitted) should be calibrated every 3 months or you should seek a local calibration authority to discuss further. (See pages 16 - 18 for instructions)

9.2 (GEN2 2130, 3130, 4130, 6130, 8130, 10130, 12130)



1. Close ball valve 'A' (this will stop gas flowing from the generator to the oxygen analyzer).
2. Allow the oxygen analyzer process arrangement to depressurize before introducing the calibration gas.
3. Once depressurized (this will be shown on the pressure gauge), connect your calibration gas to the sample point located on the enclosure (page 9). Once connected open ball valve 'B' and introduce calibration gas at 7.25 -145 psi (0.5 - 10 bar). Allow the display to stabilize before moving on to the next step.
4. Follow the Sensor Calibration Procedure (page 18).
5. Once calibrated, close ball valve 'B', remove the calibration gas and re-open ball valve 'A' allowing gas to flow from the generator.
6. Follow generator start up procedure (page 13)

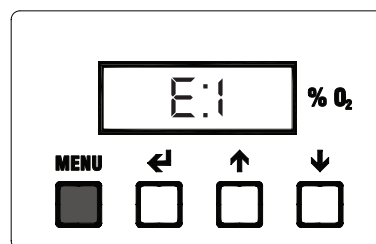


O₂ Sensor (where fitted)

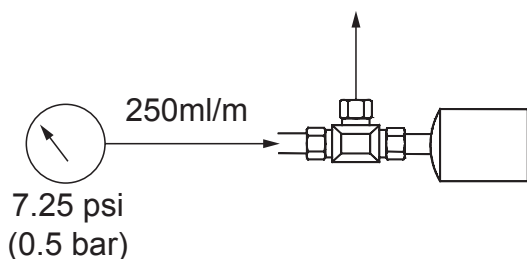
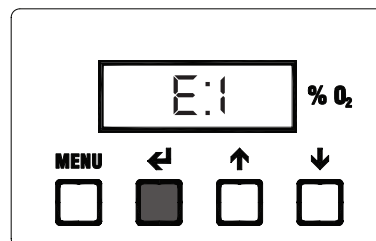
It is recommended that the O₂ sensor (if fitted) should be calibrated every 3 months or you should seek a local calibration authority to discuss further. (See pages 16 - 18 for instructions)

9.3 Sensor Calibration Procedure

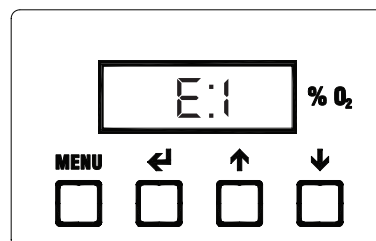
Press the Menu button (**MENU**)
Display should read E:1



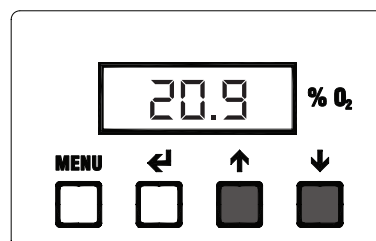
Press the Enter button ()



Using the Next (increment) button ()
and the Previous (decrement) button (),
set the display to that of the calibration
gas level.

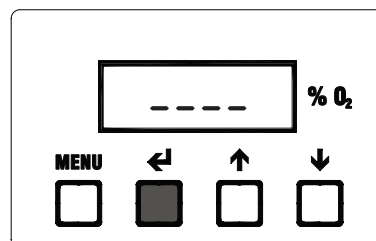


Using the Next (increment) button ()
and the Previous (decrement) button (),
set the display to that of the calibration
gas level.

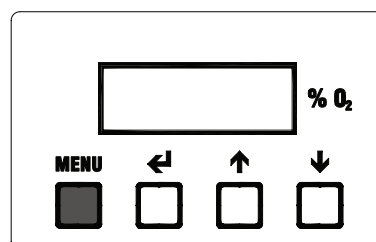


Press the Enter button (). This will
"Span" the Sensor.

The display will read (- - - -) to confirm
that the Sensor Span been successful



Press the Menu button (**MENU**) to close the
Menu system. The sensor will revert back to
normal monitoring mode.



10. Maintenance



Maintenance operations should only be carried out by authorized, competent and suitably trained personnel.

- Maintenance operations only to be conducted when the system has been shut down, fully depressurized and isolated completely from the compressed gas and electrical supply.



Beware a characteristic of the CMS could cause the vessel to repressurize slowly up to 2 barg.

- Ensure the system is in a safe condition for maintenance to be carried out.
- Dismantle and assemble with care, paying particular attention to the areas that become pressurized.
- Replace with new seals, all gaskets removed during maintenance operations.
- Do not modify or adjust the control settings.
- Only certified and approved replacement parts from the manufacturer are to be used.
- Always check all connections / sealing faces for cleanliness and secure seating prior to assembly.
- Ensure all components are refitted to the product before operation.
- Gradually build up pressure in the generator and check for any leaks.
- Ensure the generator is left operating in a safe working condition after completion of maintenance.

10.1 Daily checks

Visual and functional check of the generator should be carried out daily.

- Check the generator for correct operation, any external damage and leaks.

If defects found, immediately depressurize and isolate product until defects are rectified.

- If the service required display appears on the screen or the alarm signal activates, the generator must be serviced.

Contact your supplier and request a product service kit.

- Remove any loose dust or dirt from the product, clean with a damp cloth only, all surfaces that appear to have attracted unwanted contaminants.
- Ensure the generator is operating within the purity specification, parameters, pressure, temperature and flow rate.

10.2 Cleaning

Clean the equipment with a damp cloth only and avoid excessive moisture around any electrical sockets. If required you may use a mild detergent, however do not use abrasives or solvents as they may damage/degrade the warning labels on the equipment.

10.3 Service Schedule

Service	Recommended Service Intervals							
	12 Months (or 8,000 hours)	24 Months (or 16,000 hours)	36 Months (or 24,000 hours)	48 Months (or 32,000 hours)	60 Months (or 40,000 hours)	72 Months (or 48,000 hours)	84 Months (or 56,000 hours)	96 Months (or 64,000 hours)
A	✓	✓	✓	✓	✓	✓	✓	✓
B		✓		✓		✓		✓
C		✓		✓		✓		✓
D				✓				✓

	Oxygen Analyzer Recommended Service Intervals							
E Galvanic Cell		✓		✓		✓		✓
F Zirconian Cell					✓			

NITROGEN GENERATOR MODEL	SERVICE CODE						
	A		B	C	D	E	F
	6 - 10 barg [87 - 145 psig]	10.5 - 16 barg [152 - 232 psig]					
GEN2- 1110	A-BSP-110	A-BSP-130HP A-NPT-130HP	B-SSVK-130	C-PVSK-130	D-CVK-130	E-GCR-% E-GCR-PPM	F-ZCR-% F-ZCR-PPM
GEN2- 2110	A-NPT-110						
GEN2- 3110							
GEN2- 2130							
GEN2- 3130							
GEN2- 4130							
GEN2- 6130	A-BSP-130						
GEN2- 8130	A-NPT-130						
GEN2- 10130							
GEN2- 12130							

Service A (A-XXX-1X0): 1" External exhaust silencer/muffler (*Available in either BSP or NPT*)

Service A (A-XXX-130HP): 2" External exhaust silencer/muffler (*Available in either BSP or NPT*)

Service B (B-SSVK-130): O₂ Sensor Solenoid Valves (*2 required If fitted with a Galvanic Cell*)

Service C (C-PVSK-130): All piston valve seals are to be replaced

Service D (D-CVK-130): All control valves are to be replaced.

Service E (E-GCR-%): Replace % O₂ Sensor (Galvanic Cell)

Service E (E-GCR-PPM): Replace PPM O₂ Sensor (Galvanic Cell)

Service F (F-ZCR-%): Replace % O₂ Sensor (Zirconian Cell)

Service F (F-ZCR-PPM): Replace PPM O₂ Sensor (Zirconian Cell)



Note: The Serial/Part number of the nitrogen generator must be supplied when requesting any of the services listed above, this is to ensure the correct service parts are selected.

11. Troubleshooting

Problem	Problem Caused	Solution
Poor N2 purity or product performance	1. Insufficient inlet pressure 2. Electrical Fault 3. Moist or contaminated CMS 4. Too high air consumption 5. Excessive inlet air temperature 6. Insufficient purge air 7. Exhaust silencer blocked	1. Adjust inlet pressure settings. (check rating plate). 2. Ensure the power is on and the generator display panel is illuminated; check the generator is cycling correctly. 3. Eliminate the cause of contamination. Check external inlet filtration (inc. Water separator) for failed auto-drains or condensate build up. Replace inlet AMT dryer cartridges (where fitted) & CMS – do not re-use 4. Ensure the performance of the generator matches the system and required N2 outlet delivery. 5. Check against technical specification (Remove heat source). 6. Consult service personnel to adjust settings. 7. Replace silencer/muffler & Consult service personnel if problem persists.
Failure of generator to cycle	8. Controller not functioning correctly 9. Controller not illuminated 10. Insufficient inlet pressure 11. Failure to de-pressurize when cycling 12. Outlet flow stops	8. Ensure the controller is powered; check the on screen column status to ensure it is powering the solenoid valves. 9. Check power to unit & fuse. 10. Inlet pressure = min 88psig (6barg). If not adjust inlet pressure settings (check rating plate). 11. Solenoid valve not functioning correctly; if there is power to the coil, replace valve. A correctly working valve outputs an audible click when it energizes. 12. Check inlet air supply, purity valve & N2 purity. (check alarm status)
Constant depressurization	13. Failure to initialize Generator 14. Erratic air flow from exhaust	13. Switch off and restart generator. Ensure generator is pressurized before powering it to allow generator to initialize before commencing operation. 14. Faulty or damaged valve; service required.

Reference to known misuse

- **Opening the inlet valve too quickly**

Valve should be opened slowly allowing the pressure to build up gradually.

- **Inlet/outlet head pipe**

Pipe diameter too small or pipe work unsupported.

Inlet pipe work from low point in system, allowing bulk water to collect and enter generator.

- **Electrical controller**

Incorrect fuse fitted or fuse blown. Check the main I.E.C Connection for fuse (see page 16).

- **Additional Items**

Use of non-authorized components.

Untrained / unauthorized maintenance / installation personnel used.

Increase in nitrogen consumption without relation to the flow capacity of the product.

Purging the product with cleaning agents that could damage the components or the CMS.

Covers removed or loose during operation.

Failure to carry out a service when indicated by the product.

12. Warranty

All products are supplied with a 2 year manufacturer's warranty from the date of purchase. The generator should be installed, operated and maintained in accordance with the manufacturer's guidelines. Only genuine service parts should be used and no modifications made. For further information please contact your supplier.

CMS is expected to operate for 10 years or more without issue when high purity air is supplied to it. The integral dryers have a similar life expectancy. Provided the inlet air quality is maintained, the CMS and AMT dryers are warranted for 2 year. Care must be taken with air supplied from an oil lubricated compressor to keep its operating temperature low to minimize oil vapor. Where this is not possible an additional activated carbon adsorber must be used.

To claim under the warranty, the goods must have been installed and continually maintained in the manner specified in the User Guide. Our product support engineers are qualified and equipped to assist you in this respect. They are also available to make repairs that may become necessary in which event they will require an official order before carrying out the work. If such work is to be the subject of a warranty claim, the order should be endorsed for consideration under warranty.

13. Service Record

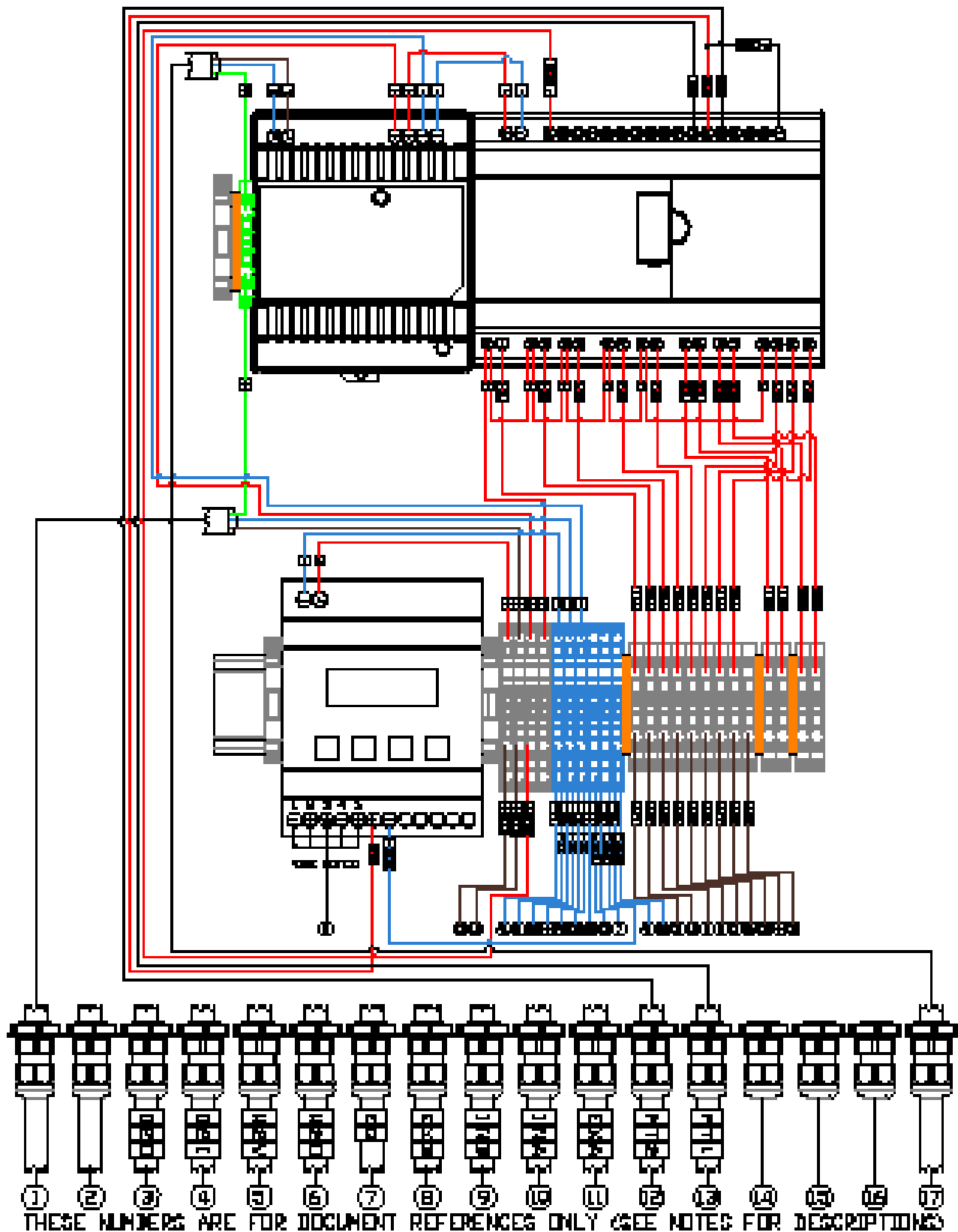
Installation Date:	
---------------------------	--

Carried out by:	
------------------------	--

GENERATOR SERVICE RECORD			
PRODUCT CODE:		PRODUCT SERIAL NO.	
.....			
HOURS SHOWN	DATE	SERVICED BY (PRINT/SIGN)	NOTES

14. Electrical Schematic

14.1. GEN2 1110, 2110, 3110, 2130, 3130, 4130, 6130, 8130, 10130, 12130



14.2. Notes : Electrical Schematic

THIS DRAWING IS NOT AN ACCURATE VISUAL REPRESENTATION AND SHOULD BE USED ONLY FOR WIRING INSTRUCTIONS.

FOR % ANALYSER (09-100-3047)

USE CONECTIONS 1, 2 & 3.
NEUTRAL (BLACK WIRE) TO TERMINAL 1.
LIVE (RED WIRE) TO TERMINAL 5.
EARTH (GREEN WIRE) TO TERMINAL 3.

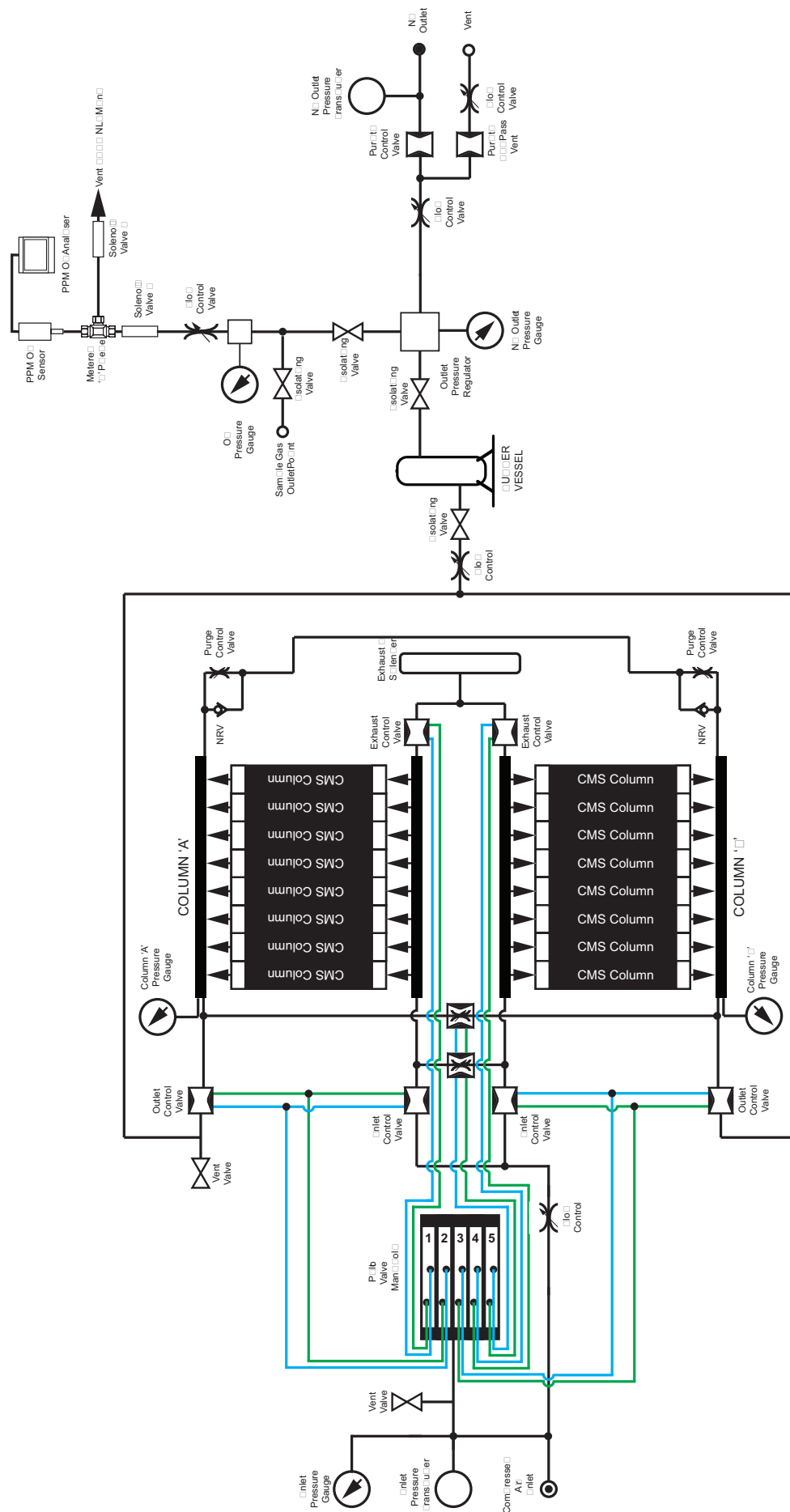
FOR PPM ANALYSER (09-100-3046)

USE CONNECTIONS 3, 4 & 5.
EARTH (GREEN WIRE) TO TERMINAL 3
NEUTRAL (BLACK WIRE) TO TERMINAL 4.
LIVE (RED WIRE) TO TERMINAL 5.

CABLE DESCRIPTIONS

1. HMI POWER LEAD
2. OXYGEN SENSOR (O2 CELL)
3. OXYGEN SENSOR OUTLET VALVE
4. OXYGEN SENSOR INLET VALVE
5. NITROGEN VENT
6. NITROGEN OUTLET
7. EQUALIZATION VALVE
8. EXHAUST VALVE B
9. INLET VALVE B
10. INLET VALVE A
11. EXHAUST VALVE A
12. PRESSURE TRANSDUCER 2
13. PRESSURE TRANSDUCER 1
14. 4 - 20mA RETRANSMISSION (OPTIONAL)
15. PRESSURE / PURITY ALARM OUTPUT
16. DRYER CONTACT
17. 110 - 240 VAC MAIN INLET.

15. Process & Instrumentation diagram



Notes:

[illegible]

Notes:

A series of horizontal dotted lines spanning the width of the page, intended as a guide for handwriting practice.



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