NitroGen Series	
NG CASTORE XS iQ **NGA CASTORE XS iQ**	**20** **40** **70** **SHI**
Operating manual LNI Swissgas	10/2021 V2

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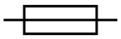
Table of contents

1 General informations

1.1 Symbols and terminology

In the unit and in this manual are used some symbols to signal to the user one or more information.
Consult the user manual in all cases where this symbol is marked on the equipment in order to find out the nature of the potential hazard and any actions which have to be taken to avoid them.

	**Warning/caution.** Used in this manual to signal to pay particular attention to the operation in progress. Failure to heed the warnings/cautions given may cause severe personal injuries and material damage. In this manual with this symbol there is a message showing the relative type of warning.
	**Warning/caution – unit labels.** When present in the generator in a certain place, it signals a specific warning: • data plate – to avoid electrical problems and for correct power supply of the unit, the general line must be sized in accordance with the data indicated (power supply, frequency and power). • label with fuses rating – when replacing one or more fuses, use only fuse/s that comply with the specifications indicated.
	**Warning – Mechanical moving parts.** Indicated in the unit (on the compressor protective panel) to signal to pay particular attention to the mechanical moving parts contained in the unit. To avoid any possible personal damage/injuring, be sure the unit is completely stopped and electrically isolated before performing any service operations involving the internal parts of the unit.
	**Fuse.** Used to signal the presence of fuse/s
	**Grounding point.** Indicated in the unit to signal the presence of the protective conductor terminal
	**Indoor facilities.** Used to indicate the unit has been engineered to be stored and used only in indoor facilities
	**Disposal.** Used to indicate to not dispose the unit as a common material but only following the defined local regulations

This manual contains also technical terminology. The meaning of specific terms that may not be commonly understood are described below.

- **Set point**: defines a certain value that the system aims to reach

1.2 General warnings

Before using the appliance, users must read and understand the contents of every section of this manual

- The descriptions, drawings and photographs contained in this manual are purely indicative and in some cases may not reflect the actual appliance purchased
- The transfer to third parties and reproduction of all or part of this manual is prohibited without the written authorisation of the manufacturer and/or the reseller
- The manufacturer and/or the reseller accepts no liability for injuries, production downtime or other expenses due to errors or omissions in this manual
- This manual is an integral part of the appliance; consequently, it must be kept throughout the life of the appliance in a safe place that is accessible and known to all users of the appliance
- The manufacturer reserves the right to make any modifications that it considers useful for the improvement of its products at any time
- Failure to heed the warnings given in this manual may cause severe personal injuries and material damage
- Contact the manufacturer and/or the reseller if you find a problem that you cannot solve with this manual.

1.3 Safety information

Nitrogen build-up may lead to a lack of oxygen and therefore create the risk of asphyxia.

- Do not use the appliance until the safety information and instructions in this manual have been read and understood.
- Using the appliance in a manner not specified in this document may compromise the protection provided by the generator and could lead to an unexpected release of pressure, which may cause serious personal injury or damage
- When handling, installing or operating this appliance, personnel should adopt correct procedures and comply with all local health and safety regulations and legal safety requirements.
- Only competent and suitably trained people may carry out the commissioning, maintenance and repair of the appliance
- Ensure equipment is electrically isolated and depressurised before performing any routine maintenance specified inside this user manual. Most accidents that occur during the operation and maintenance of machines are the result of failure to comply with basic safety procedures.

It is impossible to anticipate every possible circumstance that may constitute a potential danger. The warnings in this manual cover the most known potential dangers.

1.4 Intended use

The nitrogen generator is designed to produce nitrogen for laboratory use. The appliance must only be used for this purpose, in compliance with the specifications and instructions described in this manual. In particular, special attention must be paid to the following warnings:

- Do not use the appliance outdoors
- Do not use the appliance in temperature and humidity conditions outside of the limits specified for operation (*see 2.3)*
- Use a source of air with suitable characteristics (*see 2.3.2)*
- Do not use the appliance in rooms with aggressive and polluting atmospheres
- Make sure that the room where the appliance will be installed has suitable ventilation
- Unplug the appliance from the mains power supply before accessing the inside of the appliance
- Only use the original spare parts specified in this manual

1.5 Improper use

- Improper use of the appliance is considered as the failure to observe the data on the rating plate, the technical and safety specifications indicated in this manual, and the general standards in force
- Improper use of the appliance may involve risks for the user
- The appliance must only be repaired or serviced by the manufacturer and/or reseller's Technical Service
- The appliance must under no circumstances be modified or tampered with, to avoid creating situations of danger, in which case the manufacturer declines all liability for any resulting damage
- The manufacturer and/or reseller are in no way liable for any damage due to improper use of the appliance.

1.6 Reference directives

The requirements of the following directives and technical standards have been applied during the design and construction of the appliance described in this manual:

- Directive 2014/35/UE (Low voltage directive);
- Directive 2014/30/UE (Electromagnetic compatibility);
- Directive 2011/65/CEE (RoHS);
- Directive 2012/19/UE on waste disposal (Waste Electrical and Electronic Equipment – WEEE);

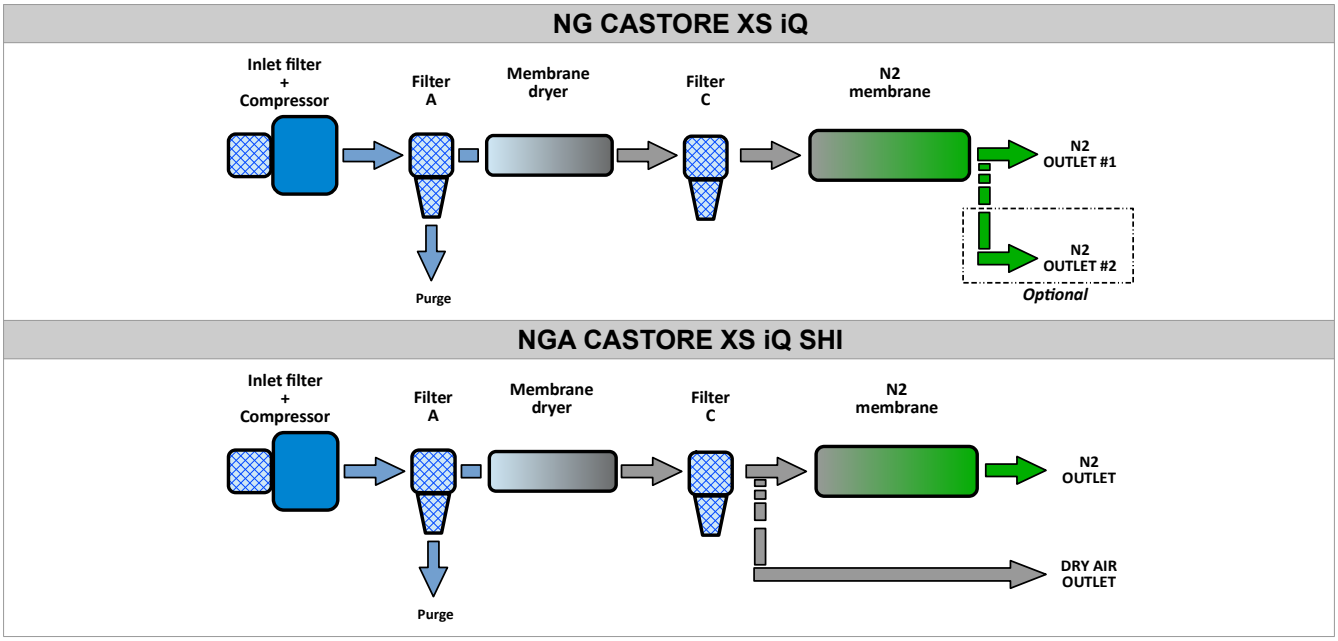
1.7 Disposal

In relation to European Directive 2012/19/UE (WEEE), disposal of the appliance is regulated by the following requirements:

- Waste Electrical and Electronic Equipment (WEEE) cannot be disposed of as municipal waste. Public or private waste collection systems must be used, in accordance with local regulations
- The appliance can be returned to the reseller at the end of its working life when buying a new appliance
- The appliance may contain dangerous substances: improper use or incorrect disposal of such substances may cause damage to human health and the environment
- In the event of illegal disposal of waste electrical and electronic equipment, the penalties are defined by local waste disposal regulations.

2 Description of the appliance

2.1 Operating principle



The nitrogen generators described in this manual, thanks to its built in scroll-compressor, are able to provide by itself the necessary quantity of compressed air to supply the N2 Membrane section and produce a stable and safe flow of pure nitrogen at a setted pressure.
NGA CASTORE XS iQ SHI is also able to produce Dry Air combined with Nitrogen up to 40 l/min.
The appliances can be used in laboratories and/or light industrial environments.

2.2 Identification of the models

This manual refers to the following models of the appliance:

6920.80.18	**NG CASTORE XS iQ 18**	*220-240 VAC models*
6920.80.24	**NG CASTORE XS iQ 24**	
6920.80.36	**NG CASTORE XS iQ 36**	
6920.80.18.1	**NG CASTORE XS iQ 18**	*FULL RANGE power supply voltage*
6920.80.24.1	**NG CASTORE XS iQ 24**	
6920.80.36.1	**NG CASTORE XS iQ 36**	
6920.80.37	**NGA CASTORE XS iQ SHI**	*220-240 VAC models*

Some parts of this manual refer to just one or some of these models.
The model is identified on the product label applied to the rear of the appliance, as shown in the figure below:

Identification label

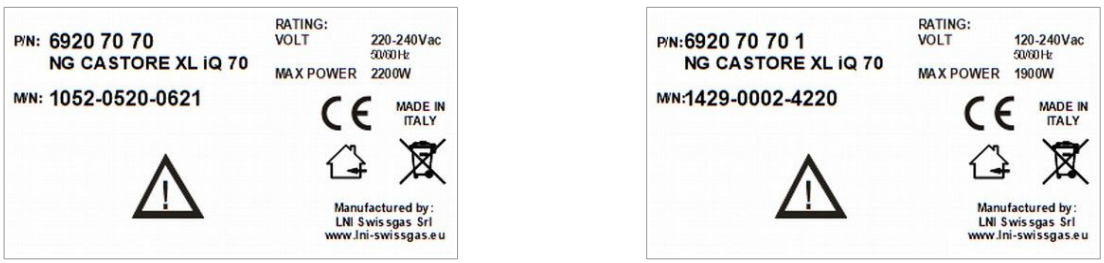


Figure 1: Identification label

2.3 Technical specifications

2.3.1 Operating and storage conditions

Operating and storage conditions	
Operating temperature	5-35°C (41-95°F)*1
Storage temperature	1-40°C (33.8-104°F)
Humidity (max, non-condensing)	80% [5-35°C (41-95°F)]
Noise	< 50dB(A)
Over-voltage category	II
Pollution degree rating	2 (with no aromatic compounds)
IP	IP20
Altitude	< 2000m

*1 – Min temperature > 10°C to have best performance on O_2 residual content

Table 1: General technical specifications

2.3.2 NG CASTORE XS iQ – *220-240 VAC*

Models: NG CASTORE XS iQ	18	24	36
N2 outlet			
Flow rate (Max)	18 l/min	24 l/min	36 l/min
Outlet pressure (Max)	8 Bar (116 psi)		
Nitrogen purity	LCMS grade (up to 99.9%*1)		
Dew point *2	< -60°C (-76°F)		
Communication			
LCD with touch screen	Standard		
RS485	Standard		
RS232	For service		
General data			
Power supply voltage (min-Max)	220-240 Vac (±10%) 50/60 Hz		
Connection type	IEC C20		
Nominal power (Max)	1.3 KW	1.4 KW	1.8 KW
Net weight	135 kg		
Noise level	< 48 dB	< 50 dB	
Unit fuse F1 (10x38mm)	15A (600Vac – T – class CC)		
Unit fuse F2 (10x38mm)	6A (600Vac – T – class CC)		
Main-board fuse F5 (5x20mm)	3.15A (250Vac – T – class CC)		
Heat value (BTU)	4440	4800	6150
Dimensions (W x D x H)	51 x 85 x 69 cm		
Connections			
N2 outlet port(s)	¼" BSPP female		
Drain port	¼" BSPP female		

*1 The purity refers to the residual oxygen, depends on flow and working pressure
*2 Atmospheric Dew Point (ADP)

Table 2: NG CASTORE XS iQ – 220-240 Vac

2.3.3 NG CASTORE XS iQ – *FULL RANGE power supply voltage*

Models: NG CASTORE XS iQ	18	24	36
N2 outlet			
Flow rate (Max)	18 l/min	24 l/min	36 l/min
Outlet pressure (Max)	8 Bar (116 psi)		
Nitrogen purity	LCMS grade (up to 99.9%*1)		
Dew point *2	< -60°C (-76°F)		
Communication			
LCD with touch screen	Standard		
RS485	Standard		
RS232	For service		
General data			
Power supply voltage (min-Max)	115-240 Vac (±10%) 50/60 Hz		
Connection type	IEC C20		
Nominal power (Max)	1.2 KW	1.3 KW	1.5 KW
Main fuse F1(10x38mm)	15A (600Vac – T – class CC)		
Inverter protection fuses F3 - F4 (10x38mm)	15A (300Vdc – T – class CC)		
Main-board fuse F5 (5x20mm)	3.15A (250Vac – T – class CC)		
Net weight	145 kg		
Noise level	< 48 dB	< 50 dB	
Heat value (BTU)	4100	4440	5130
Dimensions (W x D x H)	51 x 85 x 69 cm		
Connections			
N2 outlet port(s)	¼" BSPP female		
Drain port	¼" BSPP female		

*1 The purity refers to the residual oxygen, depends on flow and working pressure
*2 Atmospheric Dew Point (ADP)

Table 3: NG CASTORE XS iQ – Full range power supply voltage

2.3.4 NGA CASTORE XS iQ SHI – *220-240 VAC*

Models: NGA CASTORE XS iQ	SHI
N2 outlet	
Flow rate (Max)	40 l/min Air & N2 combined
Outlet pressure (Max)	8 Bar (116 psi)
Nitrogen purity[*1]	LC-MS grade (up to 99,9%)
Dew point [*2]	< -30°C (<-22°F)
Communication	
LCD with touch screen	Standard
RS485	Standard
RS232	For service
WiFi	Optional
General data	
Power supply voltage (min-Max)	220-240 Vac (±10%) 50/60 Hz
Connection type	IEC C20
Nominal power	1.5 KW
Unit fuse F1 (10x38mm)	15A (600Vac – T – class CC)
Unit fuse F2 (10x38mm)	6A (600Vac – T – class CC)
Main-board fuse F5 (5x20mm)	3.15A (250Vac – T – class CC)
Noise level	< 50 dB
Heat value (BTU)	5130
Dimensions (W x D x H)	51 x 85 x 69 cm
Connections	
N2 outlet port	¼" BSPP female
Dry Air outlet port	¼" BSPP female
Drain port	¼" BSPP female

[*1] – The purity refers to the residual oxygen, depends on flow and working pressure
[*2] – Atmospheric Dew Point (ADP)

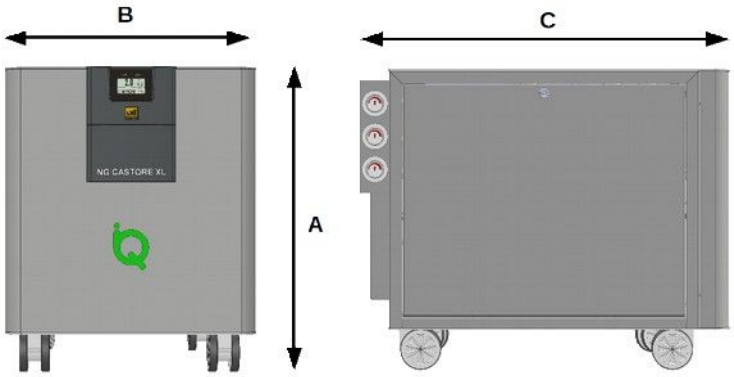
2.4 Weight and dimensions

2.4.1 Weight

Model	Net weight (kg)	Gross weight (kg)
220-240 VAC		
NG CASTORE XS iQ	135	155
NGA CASTORE XS SHI	135	155
Full range power supply voltage		
NG CASTORE XS iQ	145	165

Table 4: Weight of the various models

2.4.2 Dimensions



A =	69 cm	27.2”
B =	51 cm	20“
C =	85 cm	33.5“

Table 5: Dimensions

2.5 Overview of the appliance

NG(A) CASTORE XS iQ

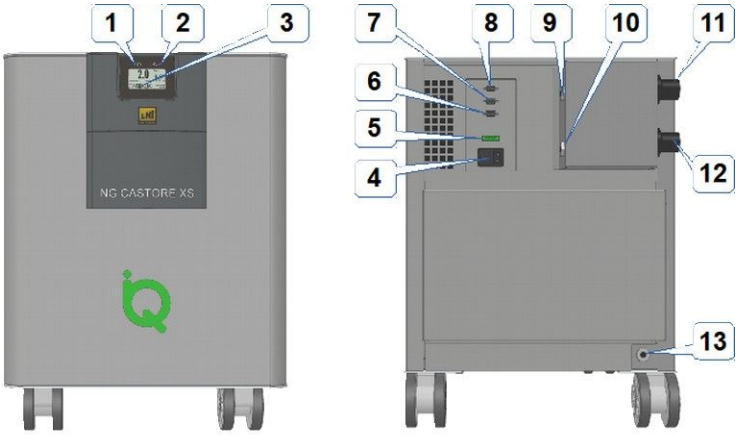


Figure 1: Overview of the appliance

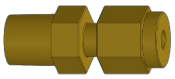
#	Description
1	Green operating status LED
2	Red alarm or pre-alarm signal LED
3	128x64 pixel LCD touch-screen with START/STOP button
4	Power connector and switch
5	I/O connector for remote control
6	RS232 serial communication port
7	RS485 #2 serial communication port
8	RS485 #1 serial communication port *(RESERVED)*
9	N2 outlet #1
10	N2 outlet #2 (optional)
	Dry Air in NGA CASTORE XS iQ SHI models
11	N2 outlet #1 pressure regulator and gauge
12	N2 outlet #1 pressure regulator and gauge
	Dry Air outlet pressure regulator in NGA CASTORE XS iQ SHI models
13	Condensate drain

3 Receiving the appliance

On receiving the appliance, carefully check all the parts to ensure that no damage has occurred during transport.
Any damage found must be reported to the carrier, specifying the type of damage on the delivery documents.
Any claims must be received in writing within eight (8) days from the date of receipt of the goods.

3.1 Packing list

The nitrogen generator is shipped together with the following material:

Quantity	Description	Picture
1	Schuko power supply cable (IEC320-C19)	
1	USB key containing user manuals *(electronic format, requires a PC with PDF reader)*	
1	Key to open the side panels *(e.g. service operations)*	
1	Compression fitting(s) 1/4” BSPP for tube 1/4” *(one fitting for each N2 outlet)*	
1	Quick fitting 1/4” BSPP tube 6mm *(to convey condensate drain outlet)*	
1	2 meters PTFE tube 6mm *(to convey condensate drain outlet)*	
1	Generator test report *(paper format)*	
1	Quick start guide *(paper format)*	

IMPORTANT: keep the original packaging used to deliver the generator. This may be useful if needing to transport the appliance at a later date (e.g. return for service).

4 Available accessories *(not included, to be requested separately)*

In this section will be described some accessories useful for a safety and convenient utilisation of **NG-CASTORE-XS-iQ.**

All these parts are not included by default
They can be order and installed later by the operator when their function is considered more suitable and convenient.
They have been designed for an easy and quick installation and operation.

4.1 Purge tank

For **NG-CASTORE-XS-iQ** series is available a special tank kit useful to contain the waste water due from the water condensing inside the generator during operation.

This kit is composed by:

- 1 x tank 5 litres with a 90° Quick fitting for tube 6mm installed
- 5 meters of tube Diameter 6mm
- 1 x fitting (1 x 1/4" BSPP male threaded) to connect the tube Diameter 6mm from generator to purge tank

4.2 Pressure regulators box

For **NG-CASTORE-XS-iQ** series have been developed two regulators boxes:

- **6920.71.30** → Box with two pressure regulators *(N2 outlet and Dry-Air outlet)*
- **6920.71.40** → Box with three pressure regulators *(N2 outlet, Dry-Air outlet 1 and Dry-Air outlet 2)*

These accessories are useful when the application is more than 5 meters farther from the gas source (NG-CASTORE-XS-iQ).
Using them, with a suitable installation, the operator reduces the pressure loss due to the tubes length and has the advantages of a convenient access to pressure control.

6920.71.30	6920.71.40
	

These accessories allow the control of the outlet pressures (N2 and Dry-Air) in a place with convenient access.

6920.71.30 is a useful tool to put control of outlet pressures in a comfortable position
6920.71.40 has the same characteristics of **6920.71.30** with, in addition, the capacity to divide the single Dry-Air outlet into two pressure regulated Dry-Air outlets.

Box regulators are provided with the following material:

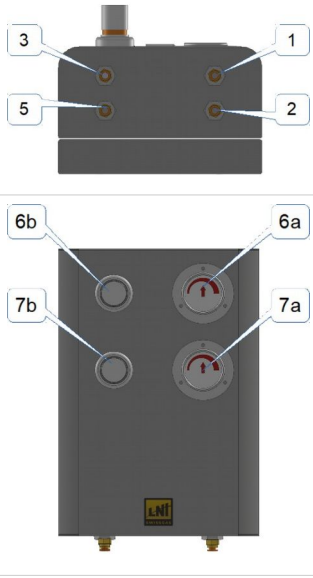
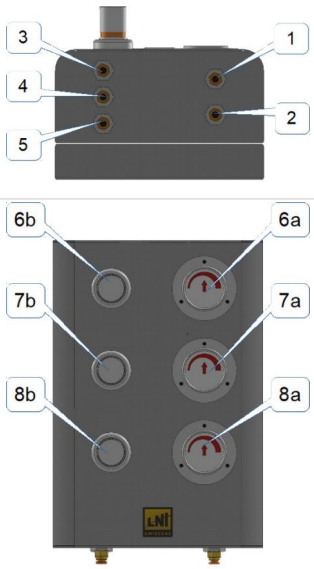
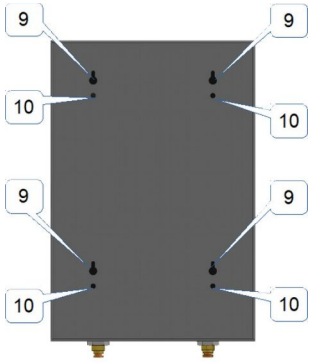
For **6920.71.30**:

- 1 x fitting for tube Diameter 1/4" (1/8" BSPP male threaded)

For **6920.71.40**:

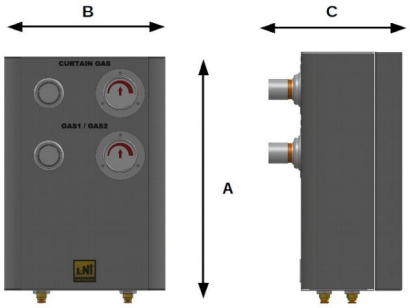
- 2 x fittings for tube Diameter 1/4" (1/8" BSPP male threaded)

Overview

6920.71.30	6920.71.40	
		

#	Description
1	Dry-Air inlet
2	N2 inlet
3	Dry-Air Outlet 1 *(GAS1 / GAS2)*
4	Dry-Air Outlet 2 *(EXHAUST)*
5	N2 Outlet
6a	Dry-Air 1 pressure gauge *(GAS1 / GAS2)*
6b	Dry-Air 1 pressure regulator *(GAS1 / GAS2)*
7a	Dry-Air 2 pressure gauge *(EXHAUST)*
7b	Dry-Air 2 pressure regulator *(EXHAUST)*
8a	N2 pressure gauge
8b	N2 pressure regulator
9	Holes to hang up the regulator box on hooks
10	Holes to fix the regulator box to a wall

Weight and dimensions



Dimensions		
A	30.5 cm	12”
B	20.5 cm	8.07”
C	17.0 cm	6.69”
Weight		
6920.71.30	3.5 kg	
6920.71.40	4 kg	

Regulator box positioning

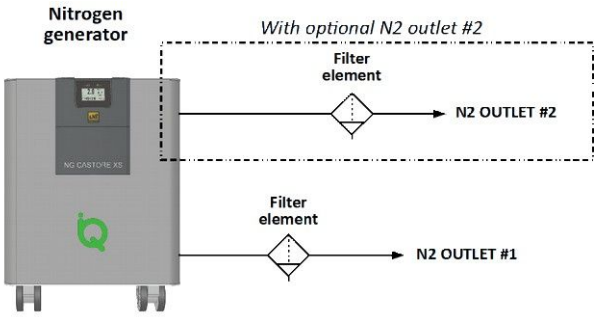
Regulator boxes are designed to be wall mounted using the holes (**9**) or (**10**).
The generator must be installed on a flat surface/wall that is able to withstand a weight of more than 6 kg.
If mounting the appliance on a wall, use brackets/fixings that are able to withstand a weight of at least 6 kg each.

5 Installation

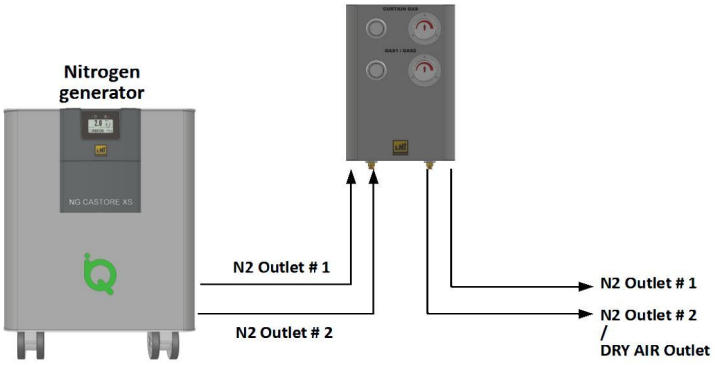
5.1 Installation layout

The generator has been designed to avoid excess pressure being created at the outlet; nonetheless, below there is a suggested installation layout.

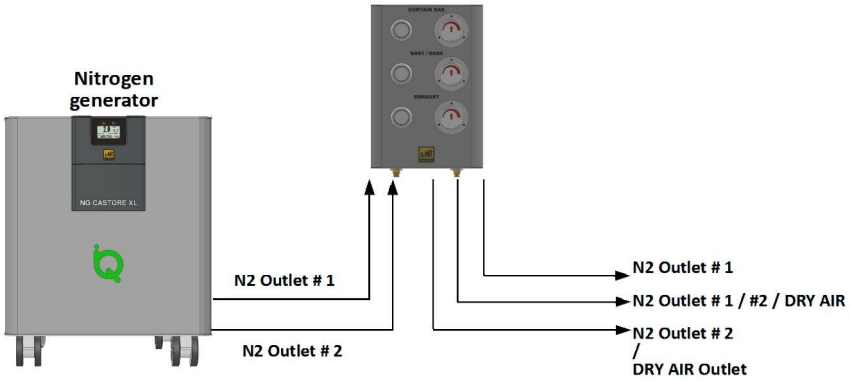
Basic installation



Basic installation using Regulator Box 6920.71.30 *(2 outlets)*



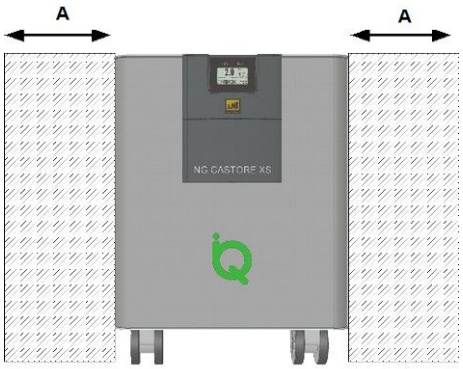
Basic installation using Regulator Box 6920.71.40 *(3 outlets)*



Pressure regulators boxes are useful when the application is more than 5 meters farther from the gas source (NG-CASTORE-XS-iQ).
Using them, with a suitable installation, the operator reduces the pressure loss due to the tubes length and has the advantages of a convenient access to pressure control.

5.2 Positioning

Nitrogen build-up may lead to a lack of oxygen and therefore create the risk of asphyxia. Always make sure all of the openings of the unit are kept clean and free of obstructions. Keep the generator away from heat and flames.



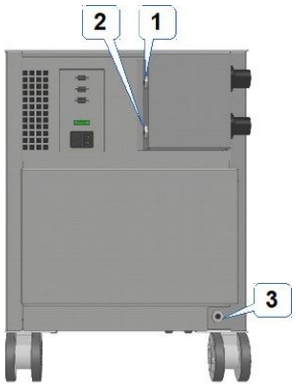
- The generator must be stored, installed and used only indoor
- The generator should be positioned on a flat surface able to withstand a weight greater than 200 kg and not exposed to vibrations.
- Once positioned, lock the wheels using their locking systems to secure the unit in its position and prevent possible movement
- Do not position the generator near naked flames or other sources of heat
- Always leave sufficient clearance for the circulation of air around the appliance, as shown below:

  A >= 10 cm

  If the unit is positioned under a laboratory desk leave sufficient clearance al the sides and leave clearance at the rear to permit a good air circulation
- Place the unit in a position that allows a comfortable access to the mains plug or the mains connector placed at the back side of the unit in order to easily disconnect the unit from the supply mains
- Do not use the generator in a sealed environment or without suitable ventilation
- Do not use the appliance in temperature and humidity conditions outside of the limits specified for operation (*see 2.3)*
- These generators must be installed in an environment capable of disposing of the heat produced (see heat value 2.3)

To perform maintenance operations involving parts inside the generator, the operator needs to access to the removable side panels and/or the top panel. Place the generator in a space that allows a comfortable access for maintenance operations.

5.3 Pneumatic connections



The pneumatic connections must be completed with suitable fittings, with the following characteristics:

No.	Type of fitting	Description
1	1/4” BSPP male threaded fitting	N2 outlet #1
2	1/4” BSPP male threaded fitting	N2 outlet #2 *(optional)* / Dry Air outlet *(NGA-SHI models)*
3	1/4” BSPP male threaded fitting	Condensate drain outlet

For the condensate drain **(3)** it is recommended to connect it to a container to collect the waste water.

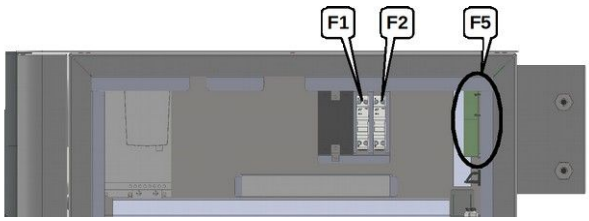
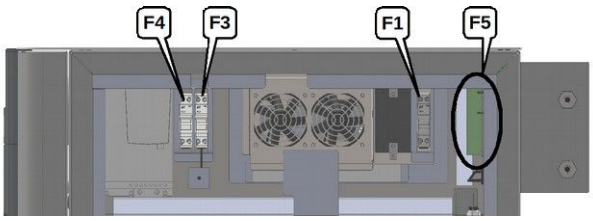
Keep the tubes as short as possible to minimize the pressure loss.

5.4 Electrical connection

All operations involving the electrical parts must only be performed with the unit disconnected and electrically isolated from the power supply.
These operations must only be carried out by trained personnel in full compliance with all safety standards.

- Make sure that the characteristics of the mains power supply are adequate for the power ratings indicated in the table of technical specifications
- Power to the appliance must be turned on only after installation work has been completed (gas connections).
- The power line should be fitted upstream with a suitable device to protect against short-circuits and earth leakage and isolate the appliance from other equipment
- Use cables with double insulation, in accordance with the standards in force in the country concerned.
- Use only power cords with adequate specifications and rating
- The appliance must be earthed
- The manufacturer is not liable for any damage caused by failure to earth the appliance.
- The unit power supply must be protected by the following devices:
  Magneto-thermic switch >=20A;
  Class A differential Switch;
- **The appliance must only be powered on once it has been placed in position and the required air connections have been completed.**

Fuse specifications and replacement warnings

220-240 Vac units	FULL RANGE power supply voltage units
	

Fuse	Description	Note
F1	15A (600Vac – class CC) (10x38mm)	Unit fuse
F2	6A (600Vac – class CC) (10x38mm)	
F3	15A (300Vdc – class CC) (10x38mm)	Inverter protection fuse
F4	15A (300Vdc – class CC) (10x38mm)	
F5	3.15A (250Vac – class CC) (5x20mm)	Main-board fuse (installed in the main-board)

Fuse replacing operations:

- Disconnect power cord before replacing fuse
- To avoid electric shock the power cord protective grounding conductor must be connected to ground
- Replace fuse as specified
- For continued fire protection no operator serviceable components inside
- Refer servicing to qualified personnel

6 Commissioning

6.1 Starting the appliance the first time

Make sure that all of the instructions regarding positioning, air and electrical connections have been followed.

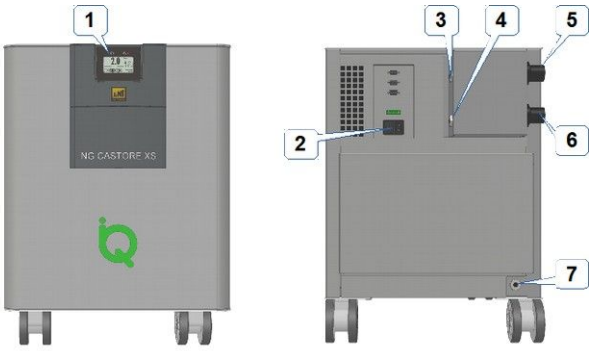


Figure 2: Start-up operations

Operations list to start the nitrogen generator the first time:

- Connect the N2 outlet #1 (**3**)
- Connect the N2 outlet #2 / Dry Air outlet (*if featured **4**)*
- Connect the condensate drain (**7**)
- Connect power cable and switch ON the unit (**2**)
- Set the working pressure (*see 8.1)*
- Adjust the pressure using the pressure regulator(s) (N2 outlet #1 and N2 outlet #2 / Dry Air outlet *if featured*) (**5 – 6**)
  The pressure gauges show the current outlet pressure
- Start production pressing **START/STOP** or from the control screen (**1**) *(the display will show* **WORKING**)

NOTE: The generator is setted by default to produce Nitrogen at a pressure of 7bar (101.5psi).
To change this setting see 8.1

6.2 Shutting down

List of operations to be performed before powering off the generator at the power switch:

- Switch the generator **OFF** by pressing **START/STOP** or from the control screen **(1)**
- Wait until it will be completely still and depressurise
- Unplug the power cable **(2)**

6.3 Returning the appliance for service and/or repairs

List of operations to be performed before packaging the appliance and sending it to service:

- Switch the generator **OFF** by pressing **START/STOP** or from the control screen **(1)**
- Wait until it will be completely stop and depressurise
- Switch OFF the unit and unplug the power cable **(2)**
- Disconnect the nitrogen outlet tubing(s) **(3** *and* ***4)***
- Disconnect the condensate drain pipe **(7)**
- Place the generator in the original packing.

7 Operation

The following descriptions may refer to just one or some of the models specified in this manual. In such cases, the applicable model/models are indicated in brackets. To identify your model of generator, see the identification label affixed to the rear of the appliance.

7.1 User interface

Users can interact with the system using the 128x64 pixel resistive touch-screen display.

Users can scroll the various menus displayed on the touch-screen as follows:

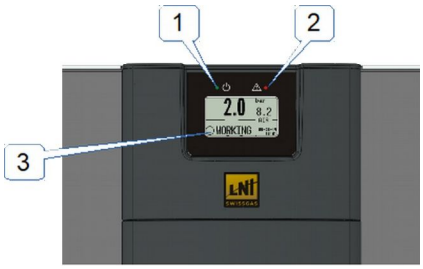
- swipe to the right or left to select the various options in the current menu level
- press any point (half a second) to access the current menu or set a value
- swipe down to go back up one menu level, or exit a setting without saving the changes
- at the bottom of each menu there is a bar highlighting the position of the selected item with reference to all of the items in the current menu
- the colour of the display may change, depending on operating status:
  - when **OFF** (no production) the **STATUS LED** (green) is off
  - in normal operation **WORKING** (production) the **STATUS LED** (green) is on steady
  - when an **alarm** is in progress (nitrogen production stopped), the **display and the ALARM LED** (red) flash quickly
  - when a pre-alarm is signalled (production continues), the **display and the ALARM LED** flash slowly

Do not use tools or other objects (e.g. screwdrivers) to operate the touch-screen.

7.2 Summary screen

Normally, the display shows the summary screen, where users can monitor the most important system values: system status, working pressure, current pressure

Swiping to the right or left directly accesses the two diagnostics screens.
Pressing any point on the screen for at least half a second accesses the main menu.



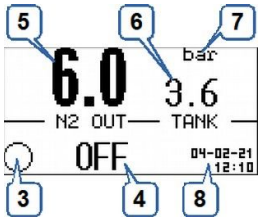
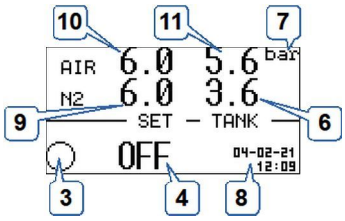
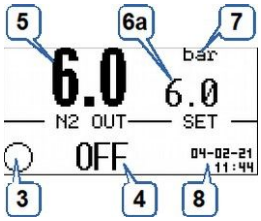
NG CASTORE XS iQ	NGA CASTORE XS iQ SHI
	
	

Figure 3: Summary screen

#	Description
1	*Production status LED*
2	*Pre-alarm / alarm signal LED*
3	*START/STOP button*
4	*System status and pre-alarm messages*
5	Nitrogen outlet pressure *(effective N2 outlet value only with pressure sensor installed)*
6	Nitrogen internal tank pressure
6a	Setted Nitrogen pressure *(only with N2 outlet pressure sensor installed)*
7	Unit of measure
8	Date-time
9	Nitrogen outlet pressure setted
10	Dry Air pressure setted
11	Dry Air internal tank pressure

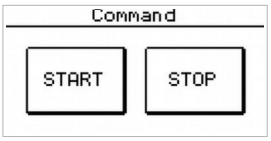
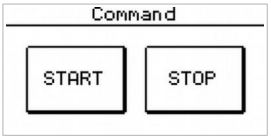
7.2.1 System status

Signal	Description
OFF	The system is off and not in gas production state
WORKING	The system is in gas production state
ALARM	The system has detected an operating error and has stopped the gas production
PRE-ALARM	The system has detected an error that does not affect gas generation, and the generator continues the gas production

Table 6: System status

7.3 Starting and stopping nitrogen production

When display shows the summary screen, pressing **START/STOP** displays the following control screen. To access the screen, swipe to the right or left.

Control screen	Description
	*Press **START** to begin nitrogen production and set the generator to **WORKING***
	Press **STOP** to stop nitrogen production and set the generator **OFF**

7.4 Serial communication and connections

7.4.1 Digital I/Os

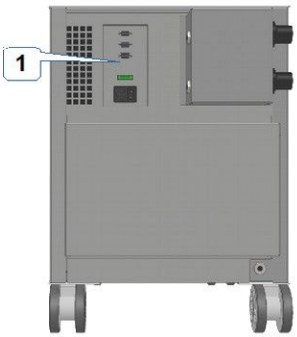
Attention, every external device connected to the generator must respect the SELV[1] directives.

The appliance can be managed and/or monitored via a remote connection. The appliance is fitted with several connectors, with the following functions:

- **RS485**: used for communication with other units
- **RS232**: used for local control via PC or for service operations.
- **I/Os:** Opto-isolated input that allows the compressor to be switched on/off via remote control; Voltage free output for signalling the system status: Off, On, Alarm

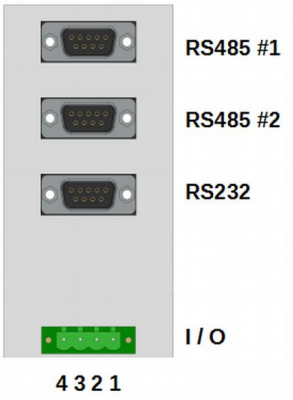
Contact the reseller and/or the manufacturer for further information.

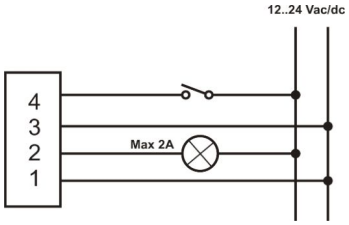
7.4.2 Auxiliary connections



At the rear of the generator are located the serial communication ports **RS232, RS485** and a **Digital I/O** input useful for remote control of the unit (see 2.5).

I/O connector





Pin	Description
1	Voltage-free contact (max 2A, 24Vac/dc) N.C.
2	Voltage-free contact (max 2A, 24Vac/dc) N.C.
3	Opto-isolated digital input (12-24Vac/dc)
4	Opto-isolated digital input (12-24Vac/dc)

NOTE: *The RS485 #1 port is reserved and not usable*

[1]**SELV - Safety (Separated) Extra-Low-Voltage**
Extra-Low-Voltage system (i.e. normally not exceeding 50 Vac or 120 V ripple-free d.c.) which is electrically separated from earth and from other systems in such a way that a single fault cannot give rise to an electric shock.

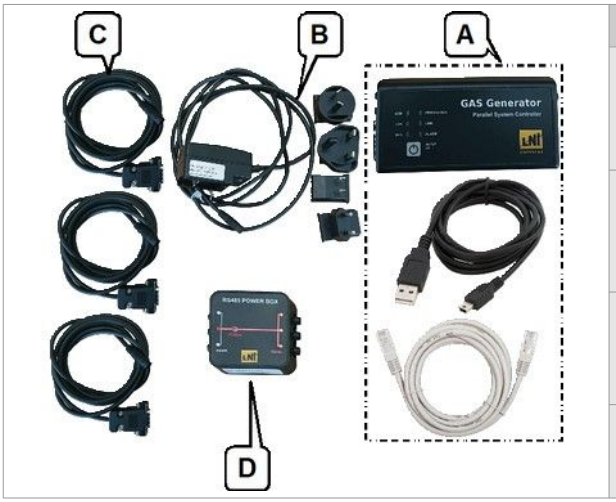
7.5 Parallel Mode

7.5.1 Introduction

Parallel Mode is a function used to combine the flow from multiple generators on a single line, in which each appliance contributes in proportion to its capacity. A maximum of 10 appliances can be connected together.

7.5.2 Kit Parallel system control box with LAN, kit (P/N: 6920.71.60)

The kit **6920.71.60** includes following items:



#	Qty.	Description
A	**1**	Gas generator Parallel system controller with LAN port + *USB cable Male (A/mini B) + LAN cable 1.8mt length*
B	**1**	Power supply for parallel controller box (with plug adapters)
C	**3**	Cable 4 poles to DB9 Male (2mt length)
D	**1**	Split for parallel controller box

The parallel BOX controller LAN acts as the master and controls all the generators connected to it.

The parallel BOX features 3 functioning LEDs and one button.

The meaning of the LEDs is specified in the following table.

Green LED PRODUCTION	Yellow LED LINK	Red LED ALARM	Description
OFF	OFF	OFF	OFF (no power supply)
OFF	OFF	ON	Communications failure or no generators connected
OFF	ON	OFF	Configuration procedure running
ON or OFF	ON	ON	No Master flow
ON or OFF	Regular FLASHING	ON or OFF	Normal communication
ON or OFF	Random FLASHING	ON or OFF	Noisy communication
ON or OFF	ON or OFF	Fast FLASHING	One or more generators has an alarm or is offline
ON or OFF	ON or OFF	Slow FLASHING	One or more generators has a pre-alarm or is offline
ON	ON or OFF	ON or OFF	Production in progress
FLASHING	ON or OFF	ON or OFF	System ready (pressurised with outlet valve closed)

Table 7: Meaning of LEDs on the Parallel BOX controller

All LEDs blink when the Parallel BOX LAN controller cannot communicate with the generators connected to it (Slaves).
Pressing the START/STOP button activates or stops production.

7.5.3 Electrical connection

Power up the Parallel BOX controller with its power supply adapter.
Connect the RS485 port on the spilt box for parallel box controller LAN with RS485 # 2. Perform this operation for each generator.

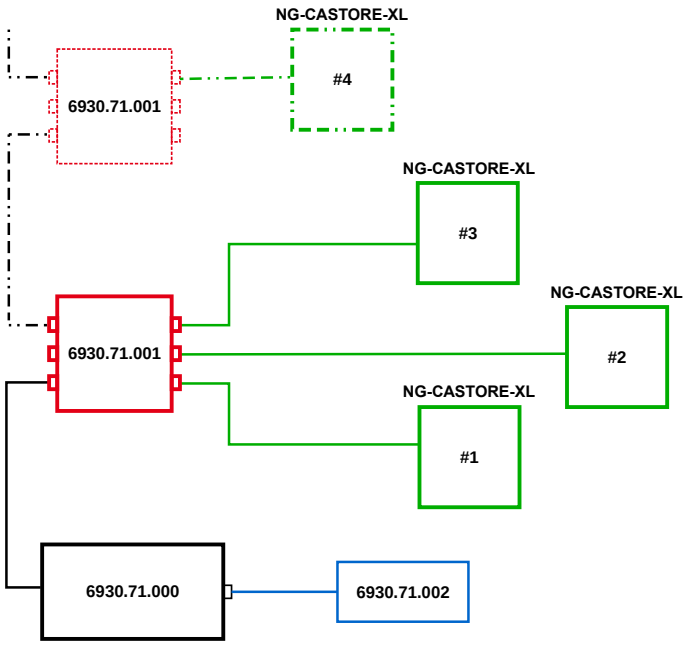


Figure 14: Electrical connection diagram between multiple generators

7.5.4 Installation with multiple generators

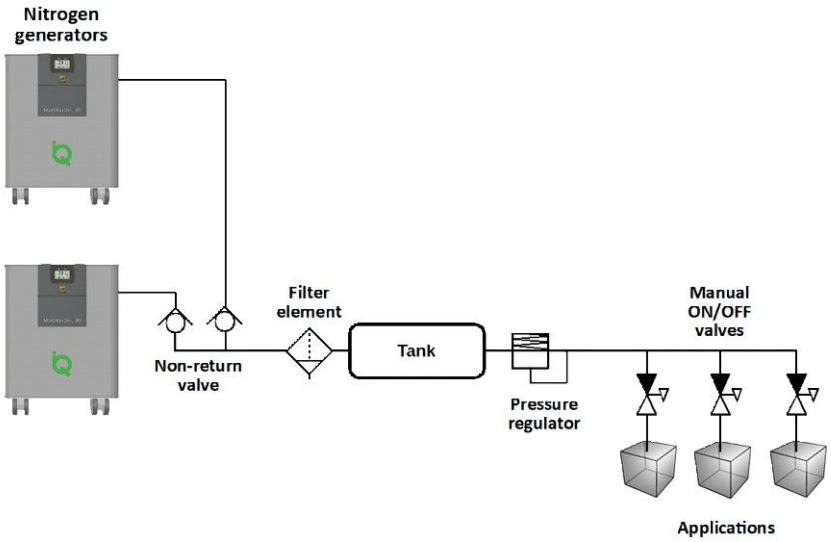
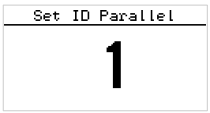


Figure 15: Multiple generators connection

7.5.5 System ID setting

In order for the a correct operation of the system, a unique number (ID) must be assigned to each generator. To do this, proceed as follows:

Screen	Procedure
	Manually set the unit ID for each Generator (every Generator must have a consecutive number). To set the ID see 8.2.2 and relatives *(Identifier parameter)* Hold pressed the button on the BOX controller for more than 10 seconds to start the searching procedure for the generators connected to it. The parallel box scans every connected generator and recognise their ID previously setted.

7.5.6 System status

The following functions are available on all of the connected generators:

- start/stop production
- open or close the outlet valve
- set working pressure
- monitor the status of each generator connected to the system

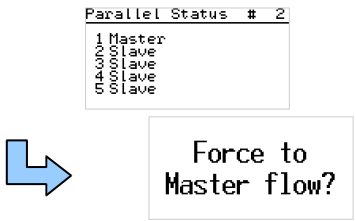
To access the status screen, simply scroll the touch screen from right to left or vice-versa.
The following data are displayed for each of the generators:

Master	Generator that reads and controls line pressure (Master flow controller)
Slave	Generator connected to the system as slave
Out line	Generator offline: communication with controller interrupted
Alarm	Generator alarm
Pre-Alarm	Generator pre-alarm

***NOTE**: the slave generators may display different pressures; if this difference is less than 1 bar, the situation is normal.*

7.5.7 Master flow controller

Normally, the system chooses the generator with ID 1 as the "master flow controller", that is the appliance designated to read and control line pressure.
To force the system to use a different generator, press the touch screen for half a second to display the status screen.



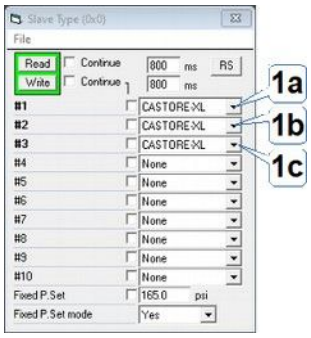
Press the touch screen for half a second

To confirm, press the touch screen for half a second again

7.5.8 Configuration

- Once connected the parallel Box to the generator, connect it to the PC via USB cable;
- If necessary, install the driver to enable the communication vis USB, running the follow program.

CDM v2.10.00 WHQL Certified.exe

	Start the program: ***PBOX.LAN-configuration-V10.exe***
	Set in the table the same generators number as the ones setted before in the unit and press the button ***Write*** to confirm the operation.”**1a**” “**1b**” “**1c**” “**1..**”

8 Menu

The touch-screen offers the possibility to access some of the parameters that manage appliance operation via a series of menus. For a detailed description on how to use the touch-screen, see 7.1.

To access the main menu, simply touch any point on the touch-screen for half a second when the summary screen is displayed. The main menu includes the following options:

Adjust Set Pressure
Setup
History
Diagnostics
Counters
Maintenances

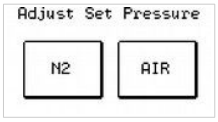
- To scroll between the various options, simply swipe the screen to the right or left
- To access the selected menu, press the screen (half a second)
- To return up a menu level, simply swipe the screen from top to bottom

8.1 Adjust Set Pressure

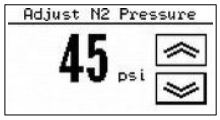
The generator is setted by default to produce at a pressure of 7bar (101.5psi).

To change this, set the desired pressure value:

The first item in the menu is Adjust Set Pressure.



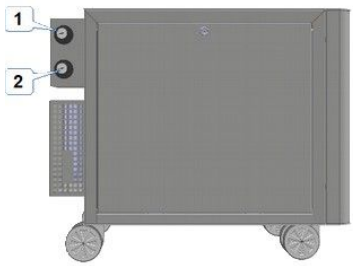
From this page is possible to adjust the needed N2 pressure (or AIR).
Press the button for at least half a second to enter in the setting screen.
To cancel the changes, swipe the screen from the top down



Touch the arrow keys to modify the N2 pressure value. To confirm the settings, simply press the centre of the screen for at least half a second. To cancel the changes, swipe the screen from the top down

Only in NGA models

Touch the arrow keys to modify the AIR pressure value. To confirm the settings, simply press the centre of the screen for at least half a second. To cancel the changes, swipe the screen from the top down



The following operation is valid for both outputs: N2 outlet #1 **(1)** and N2 outlet #2 (or Air outlet in NGA series) **(2)**:

Unlock the Outlet pressure regulator **(1)** (pulling its knob upwards) then set the desired pressure. It is possible to see the pressure increasing/decreasing from the pressure gauge in its knob.
Once reached the desired pressure secure again the pressure regulator knob.

To correctly perform this operation the Outlet must be connected to an application to avoid pressure loss.

All of the operations that involve handling parts inside the unit must only be carried out by suitably trained personnel and in full compliance with all safety standards.

8.2 Setup

8.2.1 Parameter

From the **Setup** submenu, a series of system parameters can be accessed (swiping to the right or left).

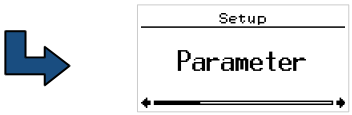
8.2.2 List of user parameters

Name	Description	Value 1	Default value	UOM
Identifier	Identifies the logical address if connecting the unit via an RS485 communication bus	*1 : 255*	240	
Auto Run	Set to "**Yes**", when power is restored after a blackout, the system restarts and goes into the same operating mode as prior to the blackout (**OFF** or **WORKING**). Set to "No", when power is restored after a blackout, the system stays OFF	*Yes* *No*	Yes	-
Pressure Unit	Defines the pressure unit of measure	-	Bars	Bars Psi
Temperature Unit	Defines the temperature unit of measure	-	°C	°C °F
External Tank	Defines the capacity of the external tank in litres	*0.0 : 250.0*	0.0	l
Enable beeper	Allows to enable/disable the LCD beeper	*Yes* *No*	Yes	-
Remote contact	Define the working mode of the remote contact related to the unit status. (Table 8)	*On/Ready : ON* *Alarm : INT* *Alarm : INT* *On/Ready : ON* *On : ON* *Ready : OFF* *Alarm : ON* *Prealarm : INT*	On/Ready : ON Alarm : INT	-
Enable Stand-by	Allows to enable/disable the stand-by status of the unit	*Yes* *No*	Yes	-
Power Limit	Allows to limit the compressor power	*50 to 120*	100	%
Motor Speed to Stand-by	Allows to set the motor speed until the unit reaches the stand-by mode	*50 to 100*	50	%
Min Working Flow	Allows to set the unit in Stan-by when the flow go below the setted threshold. Available only with UEO module.	*0 to 100*	5	l/min

Table 7: User parameters

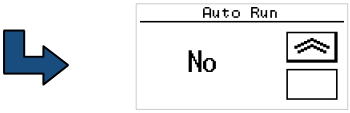
8.2.3 Auto Run

*From the main menu, scroll the screens to the left or right until displaying the Setup submenu. Press the touch-screen for half a second. The **Parameter** submenu will be displayed.*



From the Parameter submenu, press the touch-screen for half a second to access the individual parameters (see Table 4: User parameters).

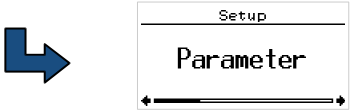
Swipe to the right or left to select the desired parameter. Press the screen for half a second to set the parameter.



Touch the arrow keys to modify the value. To confirm, press the centre of the screen for at least half a second. To cancel the changes and go back up a level, swipe the screen from top to bottom.

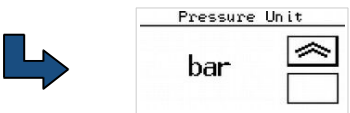
8.2.4 Pressure Unit

*From the main menu, scroll the screens to the left or right until displaying the Setup submenu. Press the touch-screen for half a second. The **Parameter** submenu will be displayed.*



From the Parameter submenu, press the touch-screen for half a second to access the individual parameters (see Table 4: User parameters).

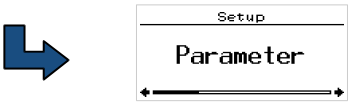
Swipe to the right or left to select the desired parameter. Press the screen for half a second to set the parameter.



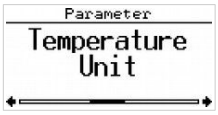
Touch the arrow keys to modify the value. To confirm, press the centre of the screen for at least half a second. To cancel the changes and go back up a level, swipe the screen from top to bottom.

8.2.5 Temperature Unit

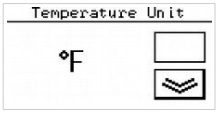
*From the main menu, scroll the screens to the left or right until displaying the Setup submenu. Press the touch-screen for half a second. The **Parameter** submenu will be displayed.*



From the Parameter submenu, press the touch-screen for half a second to access the individual parameters (see Table 4: User parameters).



Swipe to the right or left to select the desired parameter. Press the screen for half a second to set the parameter.



Touch the arrow keys to modify the value. To confirm, press the centre of the screen for at least half a second. To cancel the changes and go back up a level, swipe the screen from top to bottom.

8.2.6 Remote contact

The following table shows the operation of the contact based on the working status of the generator

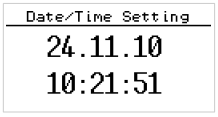
Setted parameter	Generator status			
	ON	**STAND-BY**	**Pre-Alarm**	**Alarm**
On/Ready : ON Alarm : INT	ON	ON	-	Intermittent
Alarm : INT	-	-	-	Intermittent
On/Ready : ON	ON	ON	-	-
On : ON Ready : OFF	ON	-	-	-
Alarm : ON PreAlarm : INT	-	-	Intermittent	ON

Table 8: Remote contact

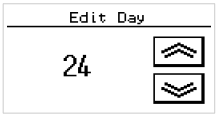
8.3 Date/Time Setting

From the main menu, scroll the screens to the left or right until displaying the Setup submenu. Press the touch-screen for half a second. Scroll to the right or left until the Date/Time Setting submenu is displayed

Touching this item for half a second accesses the screen for setting the system date/time



Touch the required field for half a second to access the corresponding setting.



Touch the arrow keys to modify the value. To confirm the settings, simply press the centre of the screen for at least half a second. To cancel the changes and go back up a level, swipe the screen from top to bottom.

8.4 Backlight Time

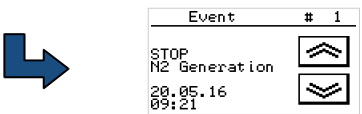
*From the main menu, scroll the screens to the left or right until displaying the Setup submenu. Press the touch-screen for half a second. Scroll to the right or left until the **Backlight Time** submenu is displayed*

Touching this item for half a second accesses the screen for setting the display backlight time

The time is expressed in minutes. Touch the arrow keys to modify the value. To confirm the settings, simply press the centre of the screen for at least half a second. To cancel the changes and go back up a level, swipe the screen from top to bottom.

8.5 History

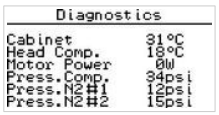
*From the main menu, scroll the screens to the left or right until displaying the **History** submenu. Press the touch-screen for half a second to access the pages that showing all the events of the system*



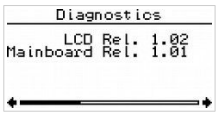
Press the arrows to view the pages with the events of the system

8.6 Diagnostics

*From the main menu, scroll the screens to the left or right until displaying the **Diagnostics** submenu. Press the touch-screen for half a second to access the 3 diagnostics pages, showing all the values controlled/acquired by the system*



***Cabinet:** Cabinet internal temperature (°C, °F)*
***Head comp:** Internal compressor's head temperature (°C, °F)*
***Motor power:** Compressor's motor power consumption (W)*
***Press. Comp.**: Internal compressor generated pressure (psi, bar)*
***Press. N2 #1**: N2 #1 outlet pressure (psi, bar)*
***Press. N2 #2:** N2 #2 outlet pressure (psi, bar)*
or
***Press. AIR**: Dry Air outlet pressure (psi, bar)*



- Firmware version of the LCD
- Firmware version of the main board

If enabled, in Diagnostic pages are available some data about the UEO module enabled to measure the N2 outlet flow:

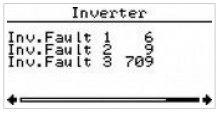
***N2 Out Pres:** Value of pressure measured (psi, bar)*

***N2 Flow:** Value of flow measured (l/min)*

***O2 Residual:** N2 purity referred to the percentage of O2 residual (%)*

If this function has not been activated by the manufacturer or is not available, the display shows the message "***Disabled***"

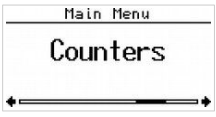
If enabled, in Diagnostic pages are also available some data about the Inverter enabled to show its last three faults:



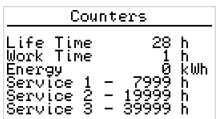
***Inv. Fault 1 (2 or 3):** with value "0" there are no errors detected. With a value different than "0" the system is signalling the type of error*

If this function has not been activated by the manufacturer or is not available, the display shows the message "***Disabled***"

8.7 Counters



*From the main menu, scroll the screens to the left or right until displaying the **Counters** submenu. Press the touch-screen for half a second to access a page displaying the system counters*



***Life Time**: Generator life time*
***Work Time**: Total generator production timed*
***Energy:** Energy consumed*
***Service 1**: number of hours remaining until the next "7999" service 1*
***Service 2**: number of hours remaining until the next "19999" service 2*
***Service 3**: number of hours remaining until the next "39999" service 3*

9 Maintenances

All of the maintenance operations that involve handling parts of the unit must only be carried out by suitably trained personnel and in full compliance with all safety standards.
Moreover, these operations must only be carried out with the unit off, unplugged and electrically isolated.

All the described intervals are intended with a use and storage in an environment with features like ones described in 2.3

Always follow the maintenances intervals described in this manual.
Not respect them may result in an incorrect operation of the unit and any damage will not covered by warranty.

This section describes some checks, cleaning and maintenance operations required to ensure correct operation of the appliance.
In these cases, the system activates pre-alarm messages (nitrogen production still continues) to remind the user to complete the maintenance operation.
The described intervals refers to the unit usage with general specification related to the ones described in the table (2.3.2) and operation at 80% of its maximum power.

For any other maintenance and/or service operations, contact the reseller and/or manufacturer.

9.1.1 Preventive checks and maintenances

Operation	Description	Interval
Check	Check the condensate drain system	24 hours
Check	Check for abnormal noise and vibrations	24 hours
Check/ Maintenance	Check the air intake filter and clean if necessary	After the first 400 hours / 2 months. Subsequently every 2500 hours / 1 year

Use only genuine spare parts indicated in this manual.
The use of parts not mentioned in this manual will invalidate the warranty.

9.2 NG CASTORE XS iQ *(working @ 80% of its maximum power)*

Message displayed	Type of maintenance	Operation to be performed	Interval	Spare part numbers
#5 Service 1	Replacement / Maintenance / Check	Check/clean the cabinet fans ***1***	Every 4000 hours / 1 year ***2***	**6930.00.170**
		Replace the air intake filter cartridge		
		Replace the 2 air filter cartridges		
#6 Service 2	Replacement / Maintenance / Check	Check/clean the cabinet fans ***1***	Every 20000 hours / 2 years and 6 months	**6930.00.102**
		Check correct motor insulation		
		Check/clean the compressor head fan ***1***		
		Check the motor/compressor coupling status		
		Replace the Tip seal set of compressor head		
		Grease the compressor head ***(see 9.2.1)***		
		Replace the rubber element of motor/compressor coupling		
		Replace the anti-vibration mounts		
#7 Service 3	Replacement / Maintenance / Check	Check/clean the cabinet fans ***1***	Every 40000 hours / 5 years	**6930.00.103**
		Check correct motor insulation		
		Replace the compressor head ***1***		
		Replace the rubber element of motor/compressor coupling		
		Replace the anti-vibration mounts		

Table 9: List of routine maintenance operations

1 *Clean these parts blowing compressed air carefully. Pay attention to not damage the components.*

2 *In case of installation in environments with an aggressive atmosphere and in presence of dust, it is suggested to perform the requested maintenance after 4000h (or in any case at the latest after 1 year)*

9.2.1 Note:

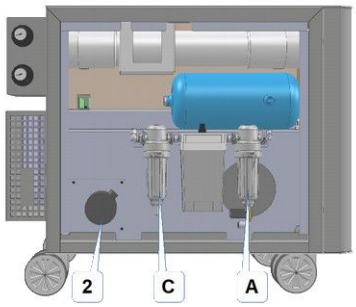
Material needed to perform the greasing operations:
6950.92.064 Grease cartridge + grease gun for Scroll Head

9.2.2 Replace the Compressor air intake filter and N2 stage filters

All of the maintenance operations that involve handling parts of the unit must only be carried out by suitably trained personnel and in full compliance with all safety standards.
Moreover, these operations must only be carried out with the unit off, unplugged and electrically isolated.

After 1 year (8000 hours) the needed maintenance is to replace all of generator filter cartridges:

- Compressor air intake filter **(2)**;
- N2 stage filters **(A)** and **(C);**



WARNING: Part number *6930.00.170* is a kit comprising the compressor inlet filter cartridge and two cartridges for N2 stage.
These two cartridges are different and are marked with different label to identify the filter and relative cartridge *(FILTER A, FILTER C)*. Each cartridge must be installed in the filter with the same code.
To ensure the correct installation in each filter there is a label indicating the filter code *(FILTER A and FILTER C).*

It is recommended to replace one cartridge at a time with a new one with the same code.

To replace the **cartridge of compressor air intake filter**:

- Using the provided key, unlock and remove the side panel **(1)**
- Remove the cover from the cartridge, releasing the catches, and remove the filter body **(2)**
- Install the new filter body and close the cover back on the cartridge **(2)**

To replace the **cartridge of N2 stage filters**:

- *Replace the cartridges inside the two N2 filters **(A)** and **(C)** (***Pay attention to the cartridge code***)
- Reposition and secure the side panel **(1)** by closing the locks

*The filter cartridges should be replaced as follows:
- Rotate the filter housing to release it and then slide it downwards to remove it
- Slide the filter cartridge downwards and remove it
- Insert the new filter cartridge (***Pay attention to the cartridge code***)
- ***Fully insert the filter housing to the top and turn until it is secured to the filter body***

*Once having completed the operation, close and secure the panel (**1**).*

9.3 Service Menu

The **Service Menu** is reserved for authorised personnel only. Access to the menu is password-protected.

10 Alarms and pre-alarms

During operation, the system carries out several automatic checks. In the event of serious anomalies, the display and the red LED flash quickly, the buzzer sounds rapidly and intermittently, an alarm message is displayed that identifies the problem, and nitrogen production is suspended.
In the event of minor anomalies, the display and the red LED flash slowly, the buzzer emits a sound every 5 seconds, and pre-alarm messages are displayed.

10.1 Reset pre-alarm #5-Service 1

Once all of the operations have been completed**,** proceed as follows to confirm maintenance ***(Service 1)***:

This operation resets the corresponding pre-alarm and counter for future service warnings.

*From the main menu, scroll to the right or left until the **Maintenances** submenu is displayed. Press the touch-screen for half a second. Scroll the screens to the left or right until displaying the Service 8000 submenu*

Touching this item for half a second accesses the confirmation screen

Press YES to confirm that service has been completed

*Follow the same operations described to reset the pre-alarm for **Service 2** and **Service 3**.*

10.2 Pre-alarms

Pre-alarm messages help the operator try to solve any problems before an alarm is activated and nitrogen production stops. To mute the buzzer, simply swipe the touch-screen from the top down.

#	Message displayed	Cause	Solution
1	**Head Temp. Too High**	Compressor head temperature value over the allowed limit.	If the pre-alarm persists, contact service
2	**Air Temp. Sens. damage**	Malfunction in air temperature sensor	If the pre-alarm persists, contact service
3	**Air Temp too high**	Internal air temperature over the threshold	If the pre-alarm persists, contact service
4	**Cabinet Temp. Too High**	Cabinet temperature value the over the allowed limit.	If the pre-alarm persists, contact service
5	**Service 1**	Routine maintenance operation Service 1 reminder	Carry out required maintenance
6	**Service 2**	Routine maintenance operation Service 2 reminder	Carry out required maintenance
7	**Service 3**	Routine maintenance operation Service 3 reminder	Carry out required maintenance
8	**Check Air Leaks**	Leaks in the Air line	Check for any leaks in the line, if the problem persists contact service
9	**Inverter Link Fault**	Fault communication with internal Inverter	If the pre-alarm persists, contact service
10	**Air Press. Too Low**	Air pressure does not reach the setted pressure from at least 60 seconds	Check for any leaks in the line, if the problem persists contact service
11	**N2 Press. Too Low**	N2 pressure does not reach the setted pressure from at least 60 seconds	Check for any leaks in the line, if the problem persists contact service
12	**Dew-point Temp. High**	Dew-point temperature measured over the threshold	If the pre-alarm persists, contact service
13	*NOT USED*	*NOT USED*	-
14	*NOT USED*	*NOT USED*	-
15	*NOT USED*	*NOT USED*	-
16	*NOT USED*	*NOT USED*	-
17	**Cascading Not Link**	Communication error with the cascading controller	If the pre-alarm persists, contact service
18	**Check Filters**	N2 outlet pressure over the allowed threshold	Check for any leaks in the line, if the problem persists contact service
19	**Inverter V. Bus Too Low**	Value red at the inverter bus under the allowed threshold	Check the correct connection of the power supply cables. If the pre-alarm persists, contact service
20	**Head Temp. Sensor Damage**	Fault reading the compressor head temperature	Try restarting the system **ONCE ONLY**, if the problem persists contact service
21	**UEO Press. Sens. Damage**	Fault reading the value of the pressure sensors connected to the UEO module	Try restarting the system **ONCE ONLY**, if the problem persists contact service

Table 10: Pre-alarms

10.3 Alarms

In the event of serious anomalies, nitrogen production stops, the display and the ALARM LED (red) flash quickly and the buzzer sounds intermittently until the alarm is acknowledged by the user.
To mute the buzzer, simply swipe the touch-screen from the top down, or press the START/STOP button.

#	Message displayed	Cause	Solution
1	**Memory data**	Error reading the user parameters	Check the user parameters and try restarting the system, **ONCE ONLY**, if the problem persists contact service
2	**Memory damage**	Error reading the configuration parameters	Try restarting the system, **ONCE ONLY**, if the problem persists contact service
3	**Inverter**	Fault in the device that controls the motor	Try restarting the system **ONCE ONLY**, if the problem persists contact service
4	*NOT USED*	*NOT USED*	-
5	**Air Pressure Sensor Damage**	Fault reading the internal tank pressure	Try restarting the system **ONCE ONLY**, if the problem persists contact service
6	**Head Temp. Too High**	Compressor head temperature value over the allowed limit.	Try restarting the system **ONCE ONLY**, if the problem persists contact service
7	**Over Pressure**	Internal pressure value over the allowed limit.	Try restarting the system **ONCE ONLY**, if the problem persists contact service
8	**Air Leaks**	The compressor motor has worked for four hours consecutively without interruption -Probables leak in the air circuit	Check for any leaks in the line, if the problem persists contact service
9	**Inverter link fault**	Fault communication with internal inverter	Try restarting the system **ONCE ONLY**, if the problem persists contact service
10	**Cabinet Temp. Too High**	Probable temperature sensor damaged	Try restarting the system **ONCE ONLY**, if the problem persists contact service
11	**Dew-point temp High**	Dew-point temperature measured over the threshold	Try restarting the system **ONCE ONLY**, if the problem persists contact service
12	**Dew-point Sens. damage**	Fault reading the dew-point value	Try restarting the system **ONCE ONLY**, if the problem persists contact service
13	**UEO link fault**	Fault communication with UEO module	Try restarting the system **ONCE ONLY**, if the problem persists contact service
14	**N2 Press. Too Low**	The internal pressure does not reach the threshold value for more than 1 minute	Check for any leaks in the line, if the problem persists contact service

Table 11: Alarms

11 How to request service

To request service and/or for any further information on operation of the appliance, please contact your local reseller.