

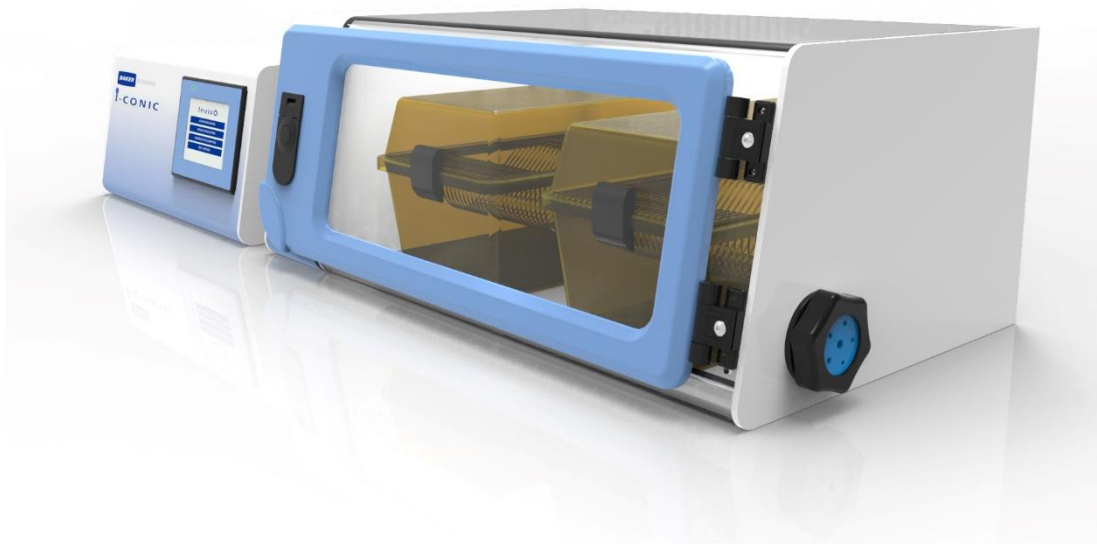
BAKER

RUSKINN

Installation Manual IM-022

VelO₂x

Physiological Oxygen Workstation



VelO₂x System



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The logo for Baker, featuring the word "BAKER" in white, bold, uppercase letters inside a blue rounded rectangle.The logo for Ruskinn, featuring the word "RUSKINN" in blue, italicized, uppercase letters.

INTRODUCTION

Please read this manually carefully before use and familiarise yourself with all aspects of using the VelO₂x system. The Baker Company and Ruskinn Technology Ltd do not accept any responsibility for accidents to personnel or damage to the VelO₂x system resulting from incorrect use.

The many unique features of the VelO₂x system are covered in detail in this manual and the User Manual. It is recommended that all installation / service engineers be fully conversant with these instructions and familiarise themselves with all aspects and functions of the VelO₂x system before it is commissioned such that optimum performance of the workstation is achieved.

Reference Documents:

UM-0xx – VelO₂x User Manual

SAFETY INSTRUCTIONS

Baker and/or Ruskinn do not take any responsibility for damages caused by using the equipment for other purposes than described in this installation manual.

- The mains appliance coupler and plug are the AC mains supply isolation device and must be easily accessible when installed.
- In case of emergency disconnect the VelO₂x from the AC Mains Outlet.
- Ensure that the connecting cable is not squeezed or bent when the unit is being installed or moved.
- All installation work and adjustments to the unit must be carried out by qualified personnel. Work performed by persons with insufficient technical knowledge may adversely affect the performance of the unit or cause physical injury or damage to the equipment.
- All servicing and repairs must be carried out by a qualified customer service engineer. Only genuine spare parts must be used.
- In case of damage to the VelO₂x disconnect the System from the mains outlet and contact your local distributor.
- All covers and lids must only to be removed by a qualified service engineer.
- Nothing should be placed on the top of the ICONIC.
- A power cord is supplied with the VelO₂x system and should be used to connect to the mains outlet. If a replacement is required it must be adequately rated for the application.
- All cables and pipes should be routed to ensure that they do not pose a trip hazard.
- Mains supply Voltage fluctuation must not exceed $\pm 10\%$ of the nominal Voltage.
- Gas regulators must be used for each gas supply. A 2 stage regulator is recommended. Over pressure could damage the VelO₂x system.
- Only the gases specified in this user manual may be used.
- All gas bottles must be adequately secured before connection to the ICONIC.
- The end user is responsible for all materials and equipment places inside the Culture Chamber.
- The VelO₂x system must not be operated at an ambient temperature over 30°C.
- The cooling fan covers and cooling vents must not be covered or blocked.
- The weight limit for the Culture Chamber internal floor is 30kg and must be evenly distributed.
- There should be no naked flames close to the VelO₂x System.
- The use of radioactive materials if strictly prohibited.

CAUTION: Asphyxiation Risk

The VelO₂x uses Nitrogen (N₂) as part of normal use with the volume released externally is inconsequential. In the event of a leak or malfunction this gas release may become excessive. **DO NOT OPERATE** this unit in a **SMALL ENCLOSURE** such as a small room or a closed cabinet. An accidental release of Nitrogen could create an asphyxiating atmosphere in a small space.

If the equipment is not use in a manor specified by the manufacturer, the protection provided by the equipment may be impaired.

Failure to adhere to these safety instructions could cause serious injury and will invalidate the VelO₂x system warranty. Ruskinn Technology limited accepts no responsibility for any accident, injury or loss caused by unsafe operation of the VelO₂x system.

Symbols

Before using the VelO₂x, please ensure that you are familiar with the symbols.










Symbol	Meaning
	Refer to user manual.
~	Alternating current
○	Off
⏻	On
	Primary Earth Connection
	Protective Earth Connection
	Caution, do not remove covers. No end user serviceable parts behind covers. Please refer to this manual in all cases where this symbol appears, in order to find out the nature of the Potential Hazard and actions to be taken in order to avoid the Hazard.
	Warning, this equipment contains high voltage circuitry.
	Contains material or substances that may be hazardous to human health. Please refer to your local biohazardous material handling procedure for further advice on the handling and disposal of these items.
	VelO ₂ x system contains hazardous components and must not be disposed of at a household waste site. Instead it should be taken to the appropriate collection point for the recycling of electrical and electronic equipment.
	USB socket
	Date of manufacture in format YYYY MM

Table 1: List of Symbols

TRANSPORT AND STORAGE

When not in use, the VelO₂x system must only be stored under the following environmental conditions:

- Temperature – Between 0°C and 30°C

Storage outside of this range may damage the VelO₂x System.

LOCATION AND HANDLING OF THE VELO₂X SYSTEM

Location

Ruskinn Technology Ltd recommends the VelO₂x system be situated on a suitably constructed level work floor that is clear of all obstructions.

In particular, it is important to ensure that the system is:

- Kept out of drafts, i.e. opening / closing of doors and windows, air conditioning vents
- Kept out of direct sunlight
- Kept away from refrigerators and / or freezers

It is recommended that 300mm should be allowed on each side of the system to enable suitable access to the unit for daily use, maintenance and service requirements.

Please note: the above does not cater for gas supply as these are dependent on end user applications (either gas bottle supply and/or piped supply)

Environmental Operating Conditions

The VelO₂x System should only be operated under the following environmental conditions:

- Temperature – Between 15°C and 30°C
- Humidity – Between ambient and 90% RH, Non-Condensing

The workstation must be located in a well-ventilated area.

Handling

It is recommended that the customer and installer pays close consideration to the weights and dimensions of the unit to ensure safe and secure handling of the equipment at all times. Due consideration MUST be made to the following handling and lifting instructions.

Please take IMPORTANT note of the unit weight and ENSURE ADEQUATE HANDLING AND LIFTING IS CONSIDERED. IT IS THE STRICT RESPONSIBILITY OF THE END USER AND DISTRIBUTOR TO ENSURE THE UNIT CAN BE SAFELY POSITIONED AT THE DESIRED LOCATION.

Failure to comply with these instructions could lead to personal injury and irreparable damage to the VeIO₂x System.

	ICONIC	Culture Chamber	Unit
Width of Unit (side to side)	462	622	mm
Height of Unit	232	350	mm
Depth of Unit	411	474	mm
Weight (Approx.)	13	10	kg's

Unpacking the VelO₂x System

The system will be delivered in a rigid wooden crate with forklift handling access to the base of the crate. Before unpacking the unit it is advised that the wooden crate be visually inspected for signs of damage and that the shock-watch is inspected. Any damage should be reported to the handling company, Approved Baker Ruskinn Distributor or Ruskinn Technology Ltd. Supporting photographs should be taken if appropriate.

To un-pack the system please use the following instructions:

- Remove the lid of the wooden crate and place to one side
- Remove any accessories stored in the crate
- Remove the sides and rear panel to leave the system on the crate base
- Inspect the shock-watch attached to the system for any damage.
- It is recommended the system be transported as close as possible to its final location before.
- When lifting the unit into position please observe your handling procedure for the size and weight of the unit

The ICONIC and Culture Chamber should be kept level when lifted into position.

CONNECTION OF POWER AND GASES

Electrical Supply Requirements

The ICONIC must be connected to a mains power supply. A power cord is supplied to connect the ICONIC to the mains supply. If an alternative power cord is used it must be rated appropriately for the power requirements of the workstation, refer to Table 2. The workstation must be connected to a protective earth.

To ensure safe operation of the VelO₂x system, it must be connected to a supply of the correct voltage and frequency as stated on the rating label shown at the rear of the unit. The mains supply voltage fluctuations must not exceed +/- 10% of the nominal mains voltage. The input voltage and frequency for the VelO₂x system are:

Voltage Range	Frequency	Nominal Power	Rated Current	Rated Power
220 to 240 Vac	50/60Hz	35W	0.5A	115W
110 to 120 Vac	50/60Hz	35W	1.0A	115W
100 Vac	50/60Hz	35W	1.15A	115W

Table 2: Electrical Service Requirements

Please note that the applicable ratings for the ICONIC configuration are detailed in the labelling at the rear of the product as shown in Figure 1.

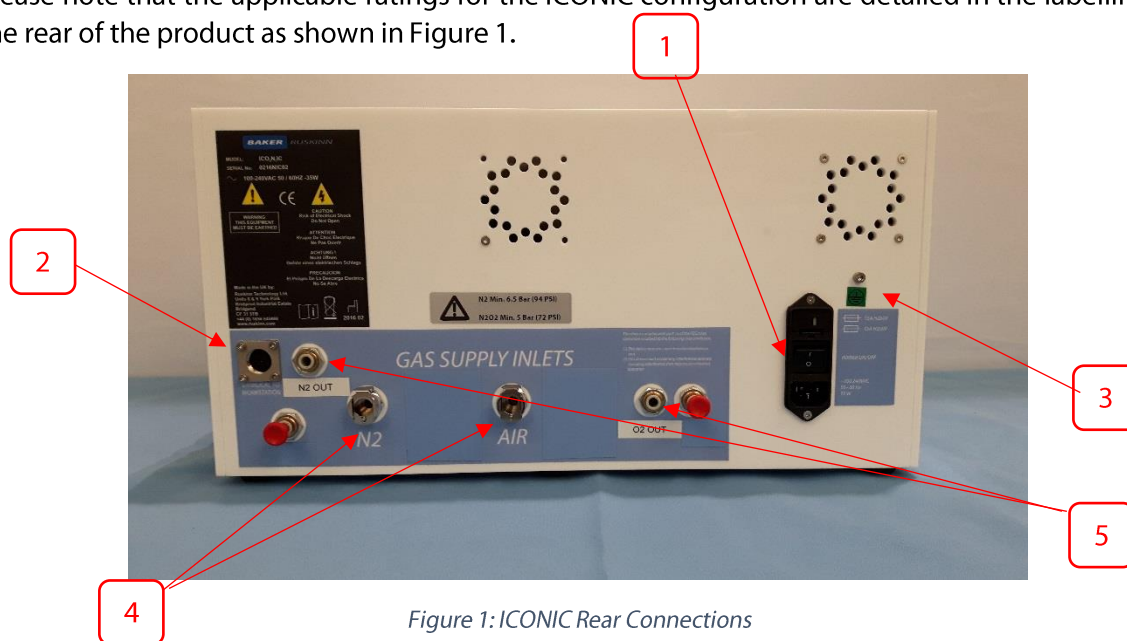


Figure 1: ICONIC Rear Connections

1. Mains Input Connector (C13)
2. Culture Chamber Electrical Connector
3. External Earth Point
4. Input Gas Connections
5. Culture Chamber Gas Connectors

The Workstation is double pole fused (Live and Neutral) for protection against over current draw. The fuses fitted are based on the voltage range applicable, see Table 3 for details:

Voltage Range	Mains Input Fusing
220-240 Vac	T5A H250V
100 Vac, 110-120 Vac	T5A H250V

Table 3: Fuse Ratings

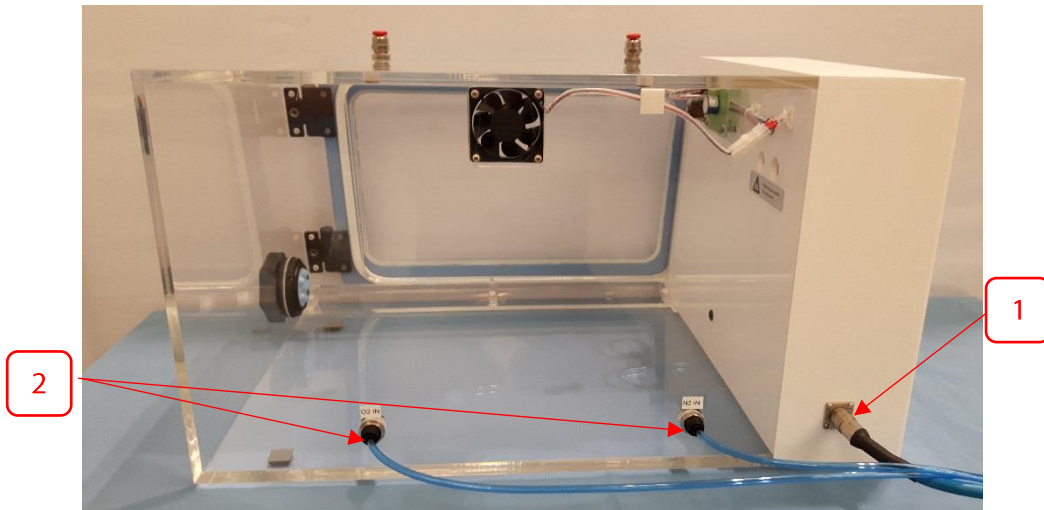


Figure 2: Culture Chamber Rear Connections

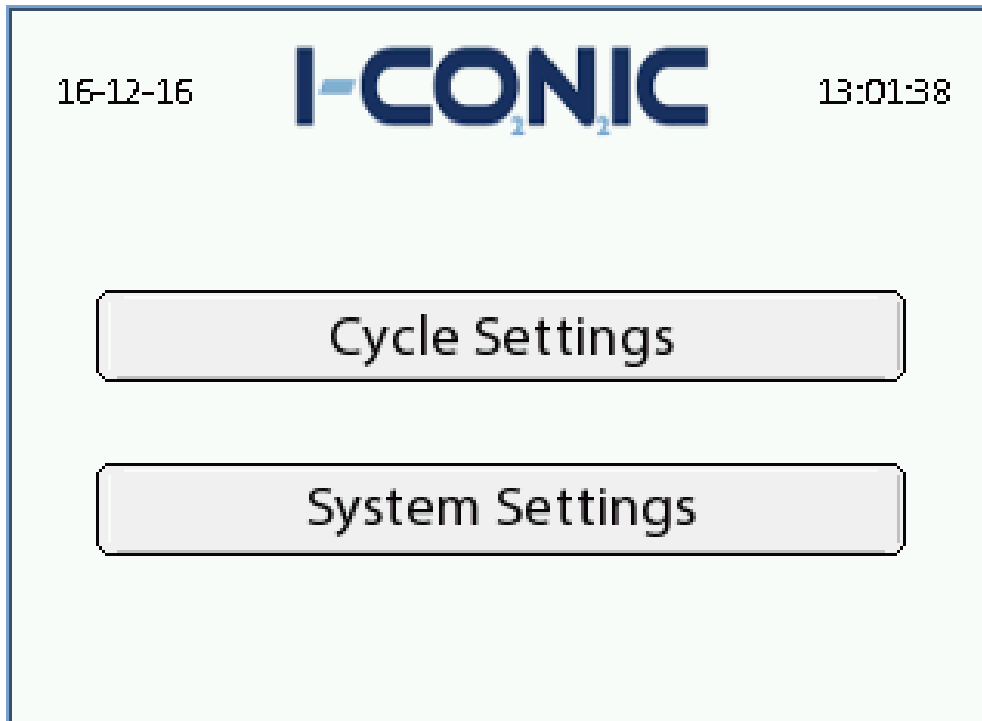
1. ICONIC Electrical Connector (C13)
2. ICONIC Gas Connectors

Gas Supply Requirements

Please refer to the Addendum attached to the User Manual for the gas supply requirements as these are specific to each VeLO₂x system.

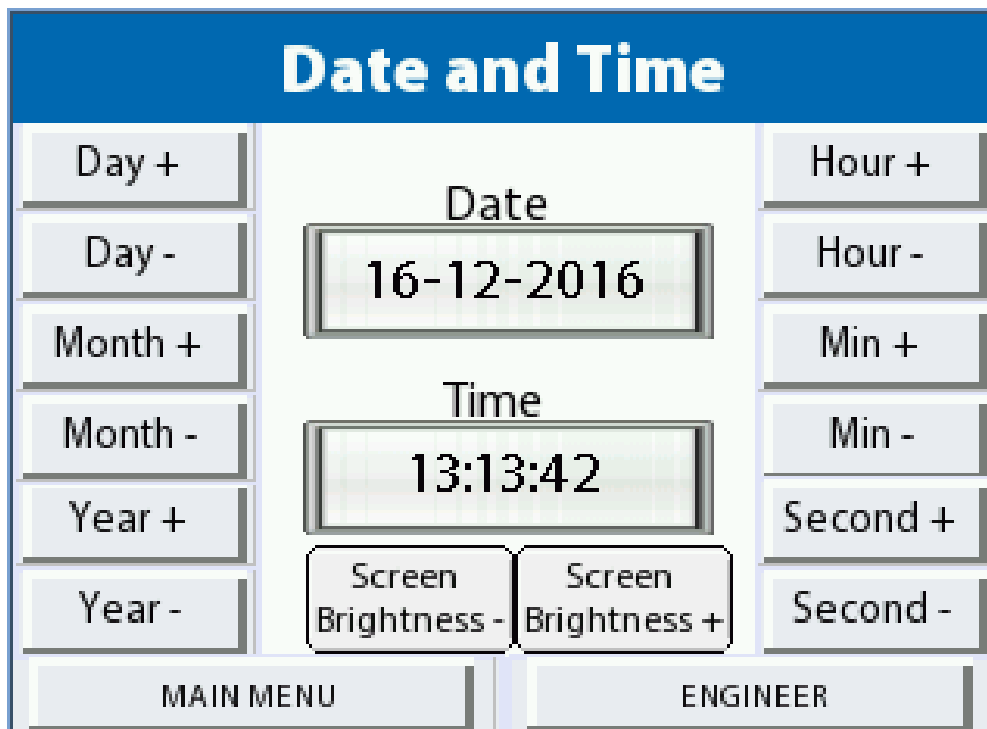
POWERING UP THE VELO₂X SYSTEM

Once the services have been connected to the ICONIC and the connections between the ICONIC and the Culture Chamber have been fitted then turn the wall socket on and the ICONIC will load up to the main menu screen:



Screen 1: Main Menu

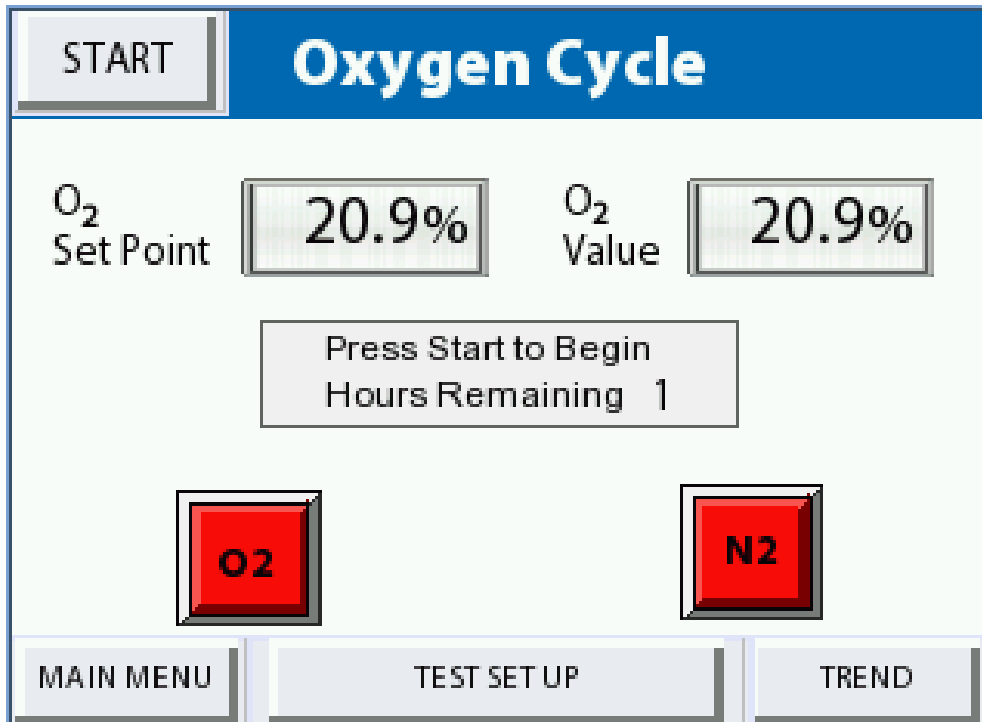
Select the Help / Settings screen:



Screen 2: System Settings

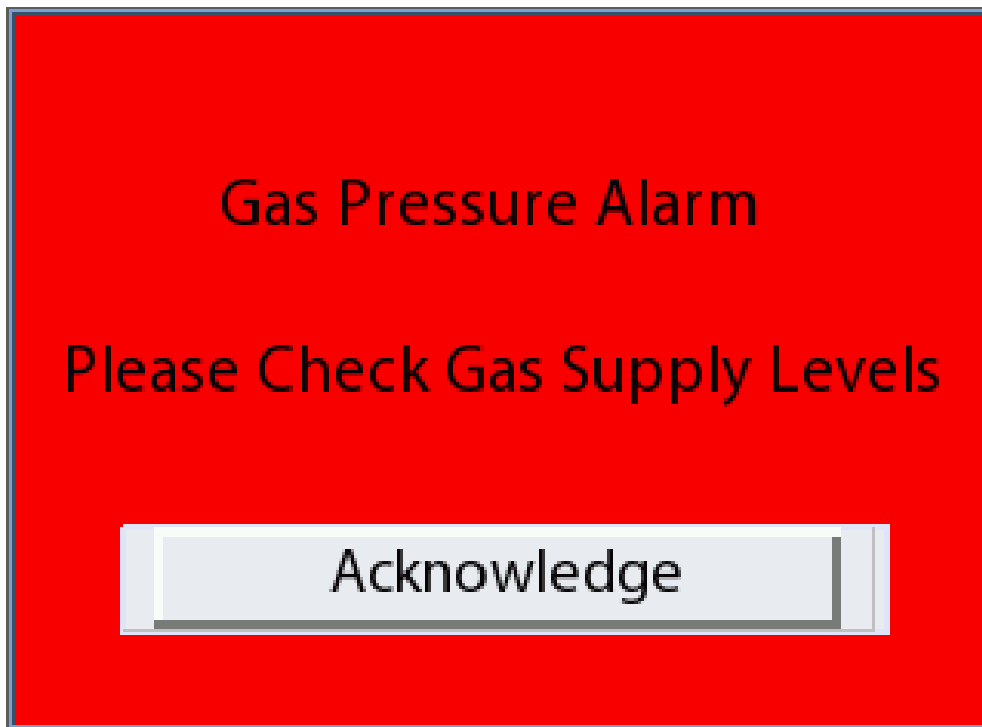
Check that the time and date are correct and adjust as required.

Return to the main menu and enter the Cycle Settings, Screen 3: Oxygen Cycle:



Screen 3: Oxygen Cycle

Disconnect each gas line in turn and check that the low pressure alarm activates:



Screen 4: Input Gas Pressure Alarm

Press the Test Set-Up button to open Screen 5:

Test Parameters

Timer Step 1 6.0 % 1 Secs.
8 : 30 Step 2 20.9% 1 Secs.
OFF Step 3 6.0 % 1 Secs.
 Final Set Point 20.9%

 Time 1 Hours
 Test Duration 1 Days

RETURN TO PREVIOUS SCREEN

Screen 5: Test Parameters (1)

Check with the end user the cycle parameters that they are looking to use and enter them in here.

If the cycle running time required is in minutes then pressing the seconds text on this screen will toggle them to minutes as shown in Screen 6:

Test Parameters

Timer Step 1 6.0 % 1 Mins
8 : 30 Step 2 20.9% 1 Mins
OFF Step 3 6.0 % 1 Mins
 Final Set Point 20.9%

 Time 1 Hours
 Test Duration 1 Days

RETURN TO PREVIOUS SCREEN

Screen 6: Test Parameters (2)

Note: each "mins / secs" toggle individually so to change them all you will have to press each of them.

Each of the step Oxygen set-points can be set between 0.1% and 20.9%, and the times can be set from 0 to 99999 seconds or minutes. This "mins / secs" is the dwell time after the system has achieved the Oxygen set-point. For Continual ramping set the time to 1 second.

If only 1 or 2 steps are required then set the duration of the step to 0 and the set-point to the same as the previous step and the ICONIC will skip the step.

The time settings defines how long the cycling should run for in hours; at the end of the time the system will then control to the Final Set Point. The Hours can be set from 0 to 23.

The Test Duration sets how many days cycles are required from 1 to 99999.

The timer function allows the user to set a start time for the first cycle of the run. This can be toggled on / off by pressing the button.

Once the settings are entered the system should be operational for the end user.

Run an initial cycle to ensure that the system achieves the set-points in the required time. If it is not able to achieve the required timings check that there are no pressure drops on the gas lines that are affecting the flow rate to the system.

CLEANING AND SERVICE REQUIREMENTS

Service and Cleaning Overview

To maintain optimal performance of the chamber it must be serviced at regular intervals. Lists the servicing requirements, intervals and persons capable of performing the service are detailed in Table 4.

Action	Frequency	By
Clean chamber	After each use	End User
Deep clean chamber	3-6 months	End User

Table 4: Cleaning and Service Details

The correct cleaning agents must be used to clean the chamber. The use of incorrect cleaning agents will damage the chamber and invalidate the warranty. The following cleaning agents are permitted:

- Ethanol, laboratory grade at a maximum concentration of 70% by volume ethanol in distilled water.
- Isopropanol, laboratory grade at a maximum concentration of 70% by volume Isopropanol in distilled water.
- Tristel Fuse Sachet, 1 sachet diluted in 3 litres of distilled water, or Tristel Duo Foamer. Tristel Fuse Sachets and Duo Foamer are available from Ruskinn.
- Ruskinn anti-static cleaner.
- Distilled or de-ionised water.

No other cleaning agents are permitted.

The use of UV light is prohibited in the chamber as it will cause permanent damage. The use of UV Light within the chamber will invalidate the warranty.

Cleaning procedure – during and after each use

During use, clean any spills immediately using paper towels soaked in an appropriate cleaning agent. Wipe dry using a dry paper towel.

After each use;

- Remove all waste materials from the chamber.
- Wipe the chamber floor using paper towels soaked an appropriate cleaning agent and squeezed to remove excess fluid.
- Wipe the chamber floor clean using paper towels to dry.

Cleaning procedure – deep clean

Preparation:

- Open the main door.
- Remove any cells / media / samples etc... and store in an appropriate location.
- Switch off the System by disconnecting the mains power cord from either the rear of the unit or from the wall socket.
- Remove any other equipment installed from the chamber.

Cleaning:

- The components that require cleaning are;
 - Chamber floors.
 - Chamber side walls.
 - Chamber ceiling.
 - Front Door.
- For all chamber components, wipe with a paper towel soaked in an appropriate cleaning agent and squeezed to remove excess liquid. Take care not to get cleaning agents on the fans or the sensors on the inner walls.
- Wipe dry using paper towels.
- For the front door ensure that both sides are cleaned.
- Clean any other equipment placed in the chamber following the manufacturer's instructions.

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