

# Porter MXR<sup>®</sup> Flowmeter Quick Start Guide

## 1. Pre-Check

**Note:** To perform these tests, gas supply cylinders or gas supply shutoff valves are required in order to isolate the gas supply from the device. Attempting to perform these tests with central pipeline supplied gas without a local shut off mechanism is not recommended.



**WARNING:** Proper inspection and maintenance of this device is essential to prevent gas leaks. All hoses, fittings, and connections should be inspected regularly, and all leaks should be repaired immediately.



**WARNING:** If precheck test cannot be executed successfully, do not use this device and contact distributor.

### Failsafe Test

1	Set Concentration Control Knob to 50% N <sub>2</sub> O.
2	Set Flow Control Knob to 5 LPM.
3	Shut off O <sub>2</sub> gas supply to MXR Flowmeter.
4	Confirm N <sub>2</sub> O Flowmeter Tube and O <sub>2</sub> Flowmeter Tube ball floats fall at the same rate.
5	If the flowmeter tubes ball floats do not fall at the same rate, contact your authorized distributor for service and troubleshooting.

### Concentration Control Knob Test:

1	Set <b>Concentration Control Knob</b> to 50%.
2	Set Flow Control Knob to 2 – 3 L/min. Ball indicators will be at about the same height.
3	If ball indicators are not at about the same height, contact your authorized distributor for service and troubleshooting.
4	Set Concentration Control Knob to 0% N <sub>2</sub> O. N <sub>2</sub> O flow rate should drop to zero.
5	If N <sub>2</sub> O flow rate does not drop to zero, contact your authorized distributor for service and troubleshooting.

### Non-Rebreathing Valve Test

1	Turn off flowmeter by pressing the <b>On/Off Switch</b> .
2	Connect a breathing circuit to the bag tee. Disconnect the nasal hood from the rest of Breathing Circuit.
3	Blow into the inhalation line of the breathing circuit, the breathing bag should not inflate.
4	If breathing bag inflates, contact your authorized distributor for service and troubleshooting.

### Calibration Test:

1	Set <b>Concentration Control Knob</b> to 50%
2	Set <b>Flow Control Knob</b> to 3 - 4 L/min. Ball indicators will be about the same height.
3	Confirm ball indicators are within 0.5 L/min of each other
4	If the ball indicators are not within 0.5 L/min, contact your authorized distributor for service and troubleshooting.

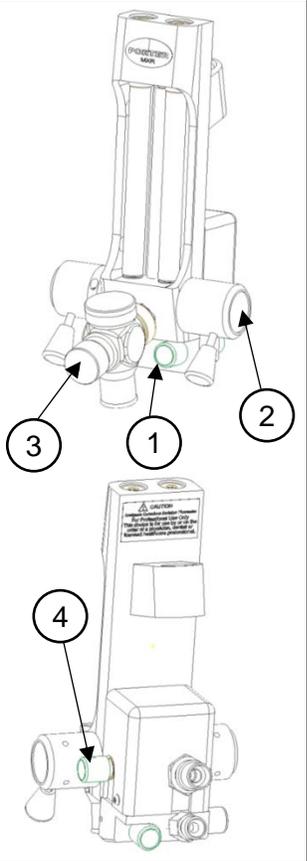
### Emergency Air Intake Valve Test:

1	Turn the flowmeter off by pressing the <b>On/Off Switch</b> .
2	Connect a breathing circuit to the bag tee. Disconnect the nasal hood from the rest of breathing circuit.
3	Remove the breathing bag from the bag tee and create a seal by placing hand over the bag port on the bag tee.
4	Inhale through the breathing circuit. Air intake valve should open allowing you to breath in room air.
5	If you can not breathing in room air, contact your authorized distributor for service and troubleshooting.

### O<sub>2</sub> Flush Test:

1	Disconnect Breathing Circuit from Bag Tee.
2	Set Concentration Control Knob to 0% N <sub>2</sub> O.
3	Set Flow Control Knob to 0 L/min
4	Block mixed gas outlet from Bag Tee
5	Press and hold <b>O<sub>2</sub> Flush Button</b> .
6	Observe that the breathing bag quickly inflates.
7	If the breathing bag does not fill, contact your authorized distributor for service and troubleshooting.

## 2. Instructions

1	Ensure the device is securely mounted and the gas supply hoses are connected to the correct fittings on the MXR Flowmeter	
2	Ensure the necessary prechecks have been performed, before using the MXR Flowmeter. The precheck instructions are described in <b>Section 1. Prechecks.</b>	
3	Turn on <b>On/Off Switch</b> (1).	
4	Rotate <b>Flow Control Knob</b> (2) fully counterclockwise.	
5	Rotate <b>Concentration Control Knob</b> (3) to 0% N <sub>2</sub> O position.	
6	Turn on the N <sub>2</sub> O and the O <sub>2</sub> gas supplies. If using gas cylinders, slowly open the <b>cylinder valves</b> . If connecting to a wall supply, connect the supply lines to the appropriate <b>outlet connections</b> .	
7	When using a compatible portable mounting accessory, supply pressure is preset by the manufacturer. When using a wall supply, ensure that the supply pressure is within specification, 50-55psi (344.7-503.3 kPa).	
8	Connect a compatible breathing circuit and breathing bag (as applicable).	
9	Adjust <b>Flow Control Knob</b> (2) to set the desired O <sub>2</sub> flow rate.	
10	Before the procedure starts, if desired, press the <b>O<sub>2</sub> Flush Button</b> (4) to pre-fill the breathing bag (if connected) with 100% O <sub>2</sub> ensuring the patient's first breath is not from an empty breathing bag.	
11	Place breathing circuit nasal hood on patient and instruct the patient to inhale through the nasal hood. Patient should also be instructed to exhale through the nasal hood to achieve effective scavenging.	
12	Adjust <b>Concentration Control Knob</b> (3) to set the desired concentration rate.	
13	When conditions call for the delivery of 100% O <sub>2</sub> : <b>a)</b> Increase the <b>Concentration Control Knob</b> to 0% N <sub>2</sub> O. <b>b)</b> If using a directional Y valve, rotate the lever to full-face mask line. <b>c)</b> Control the desired flow of 100% O <sub>2</sub> through the <b>Flow Control Knob</b> on the flowmeter. Confirm delivery of 100% O <sub>2</sub> by monitoring locations of ball floats in the flowmeter tubes.	
14	If patient shows signs or communicates conditions of over-sedation, empty the breathing bag by squeezing it and then press and hold <b>O<sub>2</sub> Flush Button</b> to quickly fill the breathing bag with 100% O <sub>2</sub> .	
15	At The completion of the procedure, remove the breathing circuit from the patient. Turn <b>Flow Control Knob</b> and <b>Concentration Control Knob</b> to zero, then press the <b>On/Off Switch</b> to turn the device off. Dispose of any single use items (such as nasal hood or breathing circuit).	
16	Always turn O <sub>2</sub> and N <sub>2</sub> O cylinders valves off (for cylinder gas supply configurations) or disconnect the supply lines from the appropriate outlet stations (for pipeline gas supply configurations) to avoid unintentionally depleting source gases.	

## 3. Cleaning

The MXR Flowmeter must be cleaned between each use in order to prevent the spread of infections. Cleaning the device has been validated with Super Sani-Cloth™ Germicidal wipes.

**WARNING:** The following warning applies to the device and any device's components and accessories:



- Do not spray directly with disinfecting chemicals.
- Do not immerse in water, sanitizer, cleaning solution, or any other liquid.
- Do not sanitize or wipe the inside of the fittings, gas supply hoses, or connection ports.
- Always ensure the device and device's components and accessories are completely dry before use.



**CAUTION:** The silver conical handles on the Concentration Control Knob and Flow Control Knob can be removed during cleaning. Never remove or adjust the black Control Knob components as doing so will affect the factory calibration of the device.

1	Disconnect and dispose of any single use breathing circuit and/or single use nasal hood (if attached). For cleaning instructions of re-useable breathing circuit and/or nasal hood refer to breathing circuit Instructions for Use.
2	Using a Super Sani-Cloth™ Germicidal wipe, thoroughly wipe down the MXR Flowmeter until all visible dirt and soil is removed. Take extra care to wipe the outside of the connection port area, Concentration Control Knob, and Flow Control Knobs as these are the most handled areas of the device. A soft bristled brush may be used to loosen any soil that is difficult to remove.
3	Using a Super Sani-Cloth™ Germicidal wipe, thoroughly wipe down the gas supply hoses and fittings until all visible dirt and soil is removed. Do not wipe the inside of the hoses or fittings as this may deposit cleaning agents into the breathing pathway of the device.
4	The <b>bag port, breathing circuit port, and emergency air intake valve</b> should not be exposed to the cleaners or wiped to prevent moisture from entering the device. Avoid wiping and applying cleaner to the inside of the ports and the valve.

#### 4. Safety Information



**WARNING:** This product can expose you to chemicals, including lead and formaldehyde, which are known to the State of California to cause cancer, birth defects, or other reproductive harm. For more information, go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).



**WARNING:** Do not use this device for the administration of general anesthesia or as part of, or in conjunction with, a general anesthesia administration system.



**WARNING:** Workers exposed to excessive N<sub>2</sub>O may suffer harmful effects. The healthcare professional is responsible for employing proper techniques, such as scavenging, room ventilation, system maintenance, and patient compliance to reduce exposure. (ACGIH recommends a Threshold Limit Value of 50 parts per million over an 8-hour time-weighted average).



**WARNING:** Always use clean, dry, medical grade gases and never oil or grease any part of the device.



**WARNING:** Do not change the connection fitting type or diameter of the supply hoses. The Diameter Indexed Safety System (DISS) is designed to prevent misconnection of N<sub>2</sub>O and O<sub>2</sub> supply lines.



**WARNING:** To minimize the risk of fire or explosion:

- Always ensure cylinder valves are clear of dust and dirt prior to connection. One method to clear dust and dirt is to briefly “crack” the cylinder valve open to blow out any debris in the line before installing the cylinder.
- Do not discharge the gas at any person or flammable material.
- Always turn on Cylinder Valves slowly and fully.



**WARNING:** The user should observe the patient to prevent over sedation in the event of an O<sub>2</sub> failsafe malfunction or a crossed lines situation. If a patient becomes overly sedated when being delivered 100% O<sub>2</sub>, immediately remove the mask and encourage mouth breathing. This is an indication of a failsafe malfunction or crossed lines. In this case, only deliver pure O<sub>2</sub> from an independent source.



**WARNING:** The MXR is used with the delivery of Oxygen (O<sub>2</sub>). Therefore, when these devices are used in conjunction with energy producing devices (such as lasers, radio frequency sources, or other heat sources), the user must adhere to the instructions for use of those devices to avoid ignition of combustible materials.



**WARNING:** Do not modify this equipment without authorization of the manufacturer



**WARNING:** Do not use or replace any components or accessories, except those specified in these instructions for use and installation guide.

### 5. Representation

	<b>Legal Manufacturer</b>	Parker Hannifin Corporation Precision Fluidics Division 245 Township Line Road Hatfield, PA 19440 USA Office: (215) 723-4000
	<b>European Communities Authorized Representative</b>	EMERGO Europe Westervoortsedijk 60 6827 AT Arnhem, The Netherlands Tel: +31 70 345 8570
	<b>Conformité Européenne (CE) Mark</b>	Compliance with conformity assessment on quality management system and technical documentation per Regulations (EU) 2017/745 for Medical Device, Annex IX Chapters I & III
	<b>Switzerland Authorized Representative</b>	Medenvoy Gotthardstrasse 28 6302 Zug Switzerland +41 41 562 01 42

Visit our website: <https://www.porterinstrument.com/> for additional information. To download Full Instructions for Use: visit <https://www.porterinstrument.com/dental-support> Choose "Flowmeters" from the dropdown within the "Product Download" section.

**Refer to FM-825 for complete instructions and safety information.**

