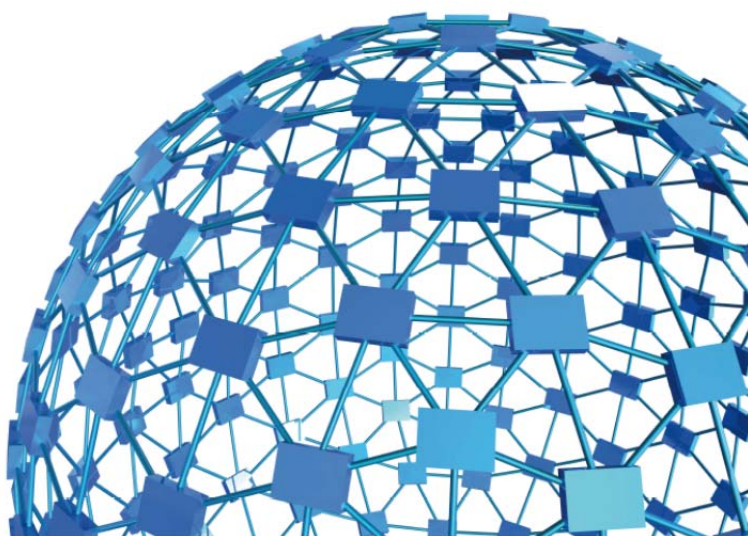




# instruction manual

**Gas Anesthesia System**  
**Cat. No. 21100 / 22100**



**UGO BASILE S.R.L.**

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## **instruction manual**

**Gas Anesthesia System**  
**Cat. No. 21100 / 22100**

**Serial No.**

# **SAFETY CONSIDERATIONS**

ALTHOUGH THIS INSTRUMENT HAS BEEN DESIGNED WITH INTERNATIONAL SAFETY STANDARD, THIS MANUAL CONTAINS INFORMATION, CAUTIONS AND WARNINGS WHICH MUST BE FOLLOWED TO ENSURE SAFE OPERATION AND TO RETAIN THE INSTRUMENT IN SAFE CONDITIONS.

SERVICE AND ADJUSTMENTS SHOULD BE CARRIED OUT BY QUALIFIED PERSONNEL, AUTHORIZED BY UGO BASILE ORGANIZATION.

ANY ADJUSTMENT, MAINTENANCE AND REPAIR OF THE OPENED INSTRUMENT UNDER VOLTAGE SHOULD BE AVOIDED AS MUCH AS POSSIBLE AND, WHEN INEVITABLE, SHOULD BE CARRIED OUT BY A SKILLED PERSON WHO IS AWARE OF THE HAZARD INVOLVED.

CAPACITORS INSIDE THE INSTRUMENT MAY STILL BE CHARGED EVEN IF THE INSTRUMENT HAS BEEN DISCONNECTED FROM ITS SOURCE OF SUPPLY.

# Gas Anesthesia Systems

Cat. No. 21100

## General

The Ugo Basile New Gas Anesthesia is a compact, modular and reasonably-priced system, intended to match the highest technical requirements of animal labs that do not compromise on quality.

A wide range of options and accessories are available, most of which can be added in a scalable manner, making the system modular and with an excellent value for price!

Typical anesthesia procedures involve an induction phase and a maintenance phase, which require at least:

- Flow-meter and anesthetic Vaporizer
- Induction box and/or mask with breathing circuit
- Scavenger or flow hood (for gas anesthetic removal)

The Ugo Basile New Gas Anesthesia system include all of the above! ... and much more!



**Portable**

**Modular**

- **THE IDEAL MATCH  
TO UGO BASILE LINE  
OF VENTILATORS**

## Main Features

- Digital Flowmeter with wide range (up to 16 litres per minute) for multiple animal delivery
- Up to six Animals with one Station
- Manifold for mask/induction-box switch and full range of accessories
- NEW Tec3 Vaporizers (non-refurbished)

**Ugo Basile: more than 10,000 citations**

## CHECK-LIST ANESTHESIA SYSTEM

- |   |  |
|---|--|
| <input type="checkbox"/> 21100 Single-Output Anesthesia System              | <input type="checkbox"/> 22100 O2/N2O Single-Output Anesthesia   |
| <input type="checkbox"/> 21200 Double-Output Anesthesia System              | <input type="checkbox"/> 22200 O2/N2O Double-Output Anesthesia   |
| <input type="checkbox"/> 21400 Multiple-Output (4) Animal Anesthesia System | <input type="checkbox"/> 22400 O2/N2O Multiple-Output Anesthesia |
| <input type="checkbox"/> 21600 Multiple-Output (6) Animal Anesthesia System |  |

CLIENTE / CUSTOMER \_\_\_\_\_ Ordine No./Order No. \_\_\_\_\_ Data/ Date \_\_\_\_\_

Cat.No.	21100	21200	21400	21600	22100	22200	22400	DESCRIPTION
	Q.ty	Q.ty	Q.ty	Q.ty	Q.ty	Q.ty	Q.ty	
21050	1	1	1	1				Basic Single Output Anesthesia System
22050					1	1	1	O2/N2O Single-Output Anesthesia System
PS-0582	1	2	4	6	1	2	4	Evac Tubing for Canister 1,8m
PS-0581-00	2	4	8	12	2	4	8	F/air filter (activated charcoal canister)
PS-0581-01								F/air filter (activated charcoal canister, pkg of 8)
PS-0529-02		1				1		Dual Diverter Manifold with humidifier
PS-30-456								Multiple Delivery System with 2 Flowmeters
PS-30-458			1				1	Multiple Delivery System with 4 Flowmeters
PS-30-459				1				Multiple Delivery System with 6 Flowmeters

### MASKS

Cat. No	Q.ty	✓	DESCRIPTION
PS-0525-A			Nose-Cone/Mask for Small Mice with Inlet Adaptor
PS-0305-A			Nose-Cone/Mask for Large Mice with Inlet Adaptor (Diameter 3.0cm)
PS-0306-A			Nose-Cone/Mask for Small Rats with Inlet Adaptor (Diameter 4.5cm)
PS-0307-A			Nose-Cone/Mask for Medium Rats with Inlet Adaptor (Diameter 5.0cm)
PS-0308-A			Nose-Cone/Mask for Large Rats with Inlet Adaptor (Diameter 5.5cm)

### ACCESSORIES / OPTIONAL

Cat. No	Q.ty	✓	DESCRIPTION
PS-0581-01			F/air filter (activated charcoal canister), package of 8
PS-0950			Fill Device for Isoflurane
7900			Induction box, small
7910			Induction box, large
21100-790			Induction Box for small rodents (mice and rats). Airtight model, with latch
7025-150			Connection Kit for Anesthesia System to Ventilator 7025
6025-150			Connection Kit for Anesthesia System to Ventilator 6025
28025-150			Connection Kit for Anesthesia System to Ventilator 28025

DATE    /    /	Serial No.	IMBALLATO DA / PACKED BY
----------------	------------	--------------------------

### IMPORTANT/IMPORTANTE:

Check the shipment for completeness immediately after receipt: should you find any discrepancy, please fill in the following part and transmit it to our fax no. +39 0332 745488 Al ricevimento della merce controllate che la spedizione sia completa: in caso di discrepanza, completate il formulario di seguito riportato ed inviatelo al nostro fax no. 0332 745488

FROM: Name	Company/Institution
DATE	REF.

NOTE

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# Anesthesia System

Cat. 21100 / 22100

## 1 GENERAL

The Ugo Basile Gas Anesthesia system has been especially designed for inhalation of anesthetic agents to laboratory animals.

It is a small weight, compact and robust device. It can be used either on a rail mount system or as a standalone unit on a table. As this device is transportable, it can be moved from one place to another in no time and can be immediately operational.

The system is available in different configurations but in general it is composed of a Digital Flow-meter, a precision Vaporizer, an activated charcoal filter, a breathing circuit with nose-cone/mask and an induction box.

More complex systems and additional accessories are also available and are described in this guide within the appropriate sections.

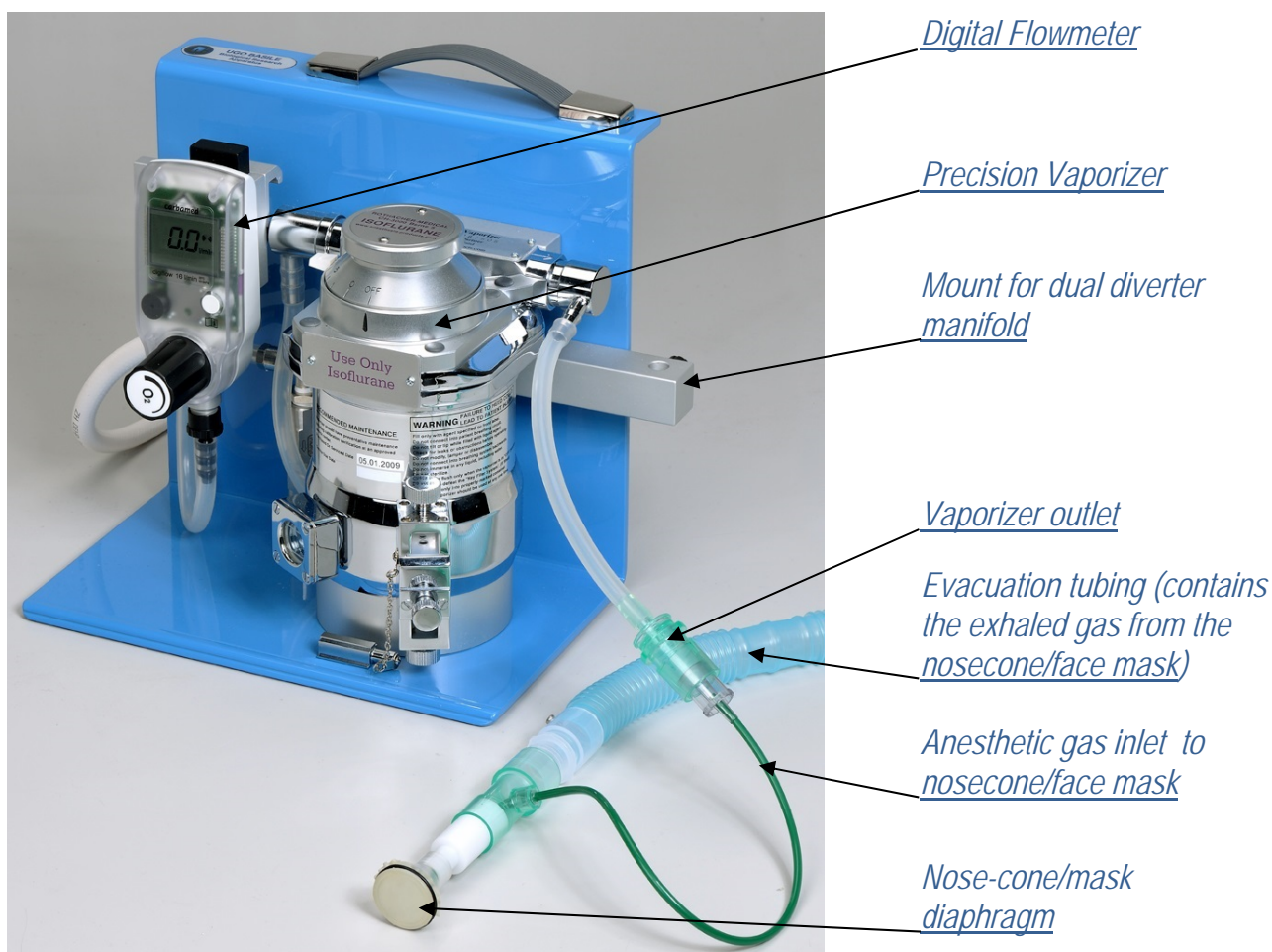


Figure 1 "Basic Anesthesia System with Mouse Nosecone/Face Mask"

## 1.1 System Configurations

An ample selection of modular components and accessories enables the researcher to customize the most suitable system for any specific procedure.

To ease the configuration process, we offer the following complete turn-key systems:

**21050 Basic Single-Output Anesthesia System**, including Digital Flowmeter (for O<sub>2</sub> or Medical Air) and TEC-3 vaporizer for Isoflurane (vaporizers for other anesthetic agents are available on request)

**21100 Single Output Anesthesia System**, including:

- No. 1 **21050** Basic Single-Output Anesthesia System
- No. 1 **PS-0582** Evac Tubing for Canister 1,8m (19mm male x 22mm female)
- No. 2 **PS-0581-00** F/air filter (activated charcoal canister)

To complete the system, order also

- No. 1 Nose-Cone/Mask chosen from the available sizes and/or
- Induction Box
- Fill Device

(see paragraph 8.1-Delivery System (Masks & Induction Boxes):

**21200 Double-Output Anesthesia System**, complete with:

- No. 1 **21050** Basic Single-Output Anesthesia System
- No. 2 **PS-0582** Evac Tubing for Canister 1,8m (19mm male x 22mm female)
- No. 4 **PS-0581-00** F/air filter (activated charcoal canister)
- No. 1 **PS-0529-02** Dual Diverter Manifold with humidifier

To complete the system, order also

- No. 2 **Nose-Cone/Mask** chosen from the available sizes and/or
- Induction Box
- Fill Device

(see paragraph 8.1-Delivery System (Masks & Induction Boxes):

**21400 Multiple-Animal (4) Anesthesia System**, complete with:

- No. 1 **21050** Basic Single-Output Anesthesia System
- No. 4 **PS-0582** Evac Tubing for Canister 1,8m (19mm male x 22mm female)
- No. 1 **PS-0581-01** F/air filter (activated charcoal canister), package of 8
- No. 1 **PS-30-458** Multiple Delivery System with 4 Flowmeters

To complete the system, order also:

- No. 4 **Nose-Cone/Mask** chosen from the available sizes and/or
- Induction Box
- Fill Device

(see paragraph 8.1-Delivery System (Masks & Induction Boxes):



**21600 Multiple-Animal (6) Anesthesia System**, complete with:

- No. 1 **21050** Basic Single-Output Anesthesia System
- No. 6 **PS-0582** Evac Tubing for Canister 1,8m (19mm male x 22mm female)
- No.12 **PS-0581-00** F/air filter (activated charcoal canister)
- No. 1 **PS-30-459** Multiple Delivery System with 6 Flowmeters

To complete the system, order also:

- No. 6 **Nose-Cone/Mask** chosen from the available sizes and/or
- Induction Box
- Fill Device

(see paragraph 8.1-Delivery System (Masks & Induction Boxes):

All parts and accessories are also available separately.

The researcher can customize and expand the gas anaesthesia system upgrading from a basic (flow-meter and vaporizer) to a full system (with induction boxes, masks of any size, switch valves, multiple animal delivery option, active and passive scavengers, etc.); see paragraph 8-ORDERING INFORMATION and **ask our expert for advice!**

## 2 INSTALLATION

### 2.1 Unpacking & Preliminary Check

Check the contents of the shipment for completeness, packing list to hand, and visually inspect the instrument as soon you take it out of the packaging. Use the supplied **Check List**.

If the instrument is damaged, inform the carrier immediately, notifying our company. If after having tested it, the Anestehsia System fails to meet rated performances, please contact our after sales service, see paragraph 5.5-Customer Support.



### *Protect the environment!*

Dispose of packaging properly, according to existing and applicable waste management rules and regulations.

### 2.2 Notes on the Instruction Manual

The 21100 Instruction Manual included in the package (on the USB drive) is necessary for the correct installation and operation of the instrument.

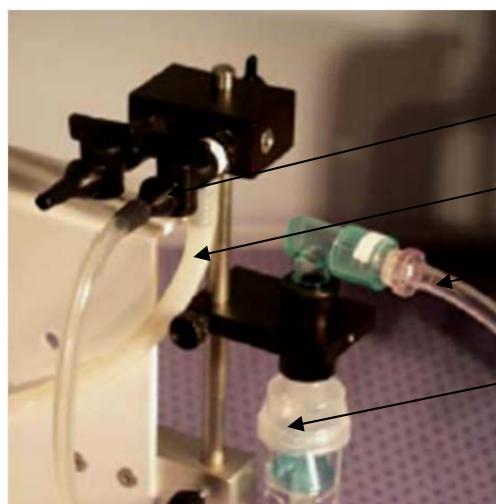
We recommend reading the manual with attention, as it is essential for the correct installation and operation of the instrument.

Please save the manual, ready to be consulted by the qualified personnel who use the instrument. Print it, only if necessary.

Our Instruction Manuals are available as free download on our web. For any additional information and/or assistance, you are welcome to contact our Service Department 5.5-Customer Support specifying serial number of the instrument.

## 2.3 Assembling the System

- A. Connect the white Oxygen tube to the Oxygen supply in use (a cylinder or the oxygen main line, if present)
- B. Connect the other end of the Oxygen tube to the left side of the flow-meter (flow-meter inlet)
- C. Connect the outlet of the vaporizer to the anesthetic device in use, which can be the nose-cone/face mask, the induction box, the dual diverter manifold or a Multiple Delivery System.
- D. If the Dual Diverter Manifold is installed in the system, connect the outlet of the vaporizer to the input of the manifold and the 2 outlets of the manifold to the devices in use (typically an induction box and a nosecone/facemask).
- E. In Figure 2, the dual diverter manifold is shown with the humidifier accessory. In this case one of the outlets of the dual diverter (in the figure it is the right one) would be connected to the input of the humidifier and the outlet of the humidifier would be connected to the nosecone/face mask.



*Double outlet of the dual diverter manifold outlet*

*Inlet of the dual diverter manifold*

*Outlet from humidifier (to nosecone /facemask)*

*Humidifier*

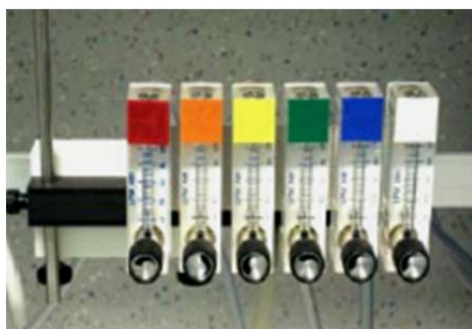
*The manifold outlet on the left is disconnected and the right outlet is connected to the humidifier*

**Figure 2 "Dual Diverter Manifold with Humidifier"**

- F. If the Multiple Delivery System option is present in the system, connect the output of the vaporizer to the input of the multiple delivery system. See Figure 3: "Multiple Delivery System for 6 Animals"

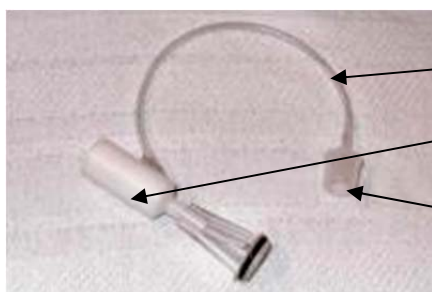
Each flow-meter is regulated independently.

Refer to the specific section of the manual for details on use of the Multiple Delivery System).



*Figure 3: "Multiple Delivery System for 6 Animals"*

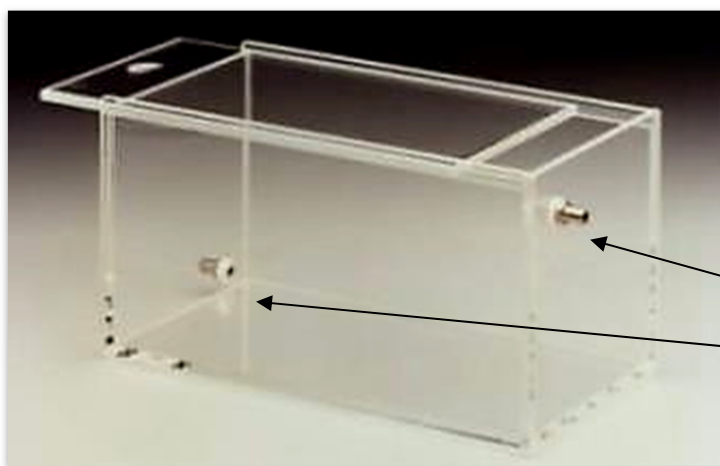
- G.** Connect the activated charcoal canister (or the input of the active scavenging system, if present) to the exhalation side of the nosecone/facemask or to the lower port (*i.e.* the outlet) of the induction box.



*Anesthetic inlet (from the vaporizer)*

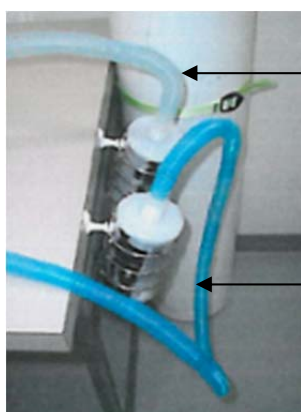
*Exhaled outlet (to the scavenger)*

*Animal nose/face diaphragm*



*Anesthetic inlet (from the vaporizer) and outlet to the scavenger*

*Figure 4: "Nose-Cone/Face Mask (above) and Induction Box (below)"*



*Scavenger to collect exhaust from the induction box*

*Scavenger to collect exhaust from the Nose-Cone/Face mask*

*Figure 5: "Double Scavenging System with 2 Activated Charcoal Canisters"*

The activated charcoal filters absorb the anesthetic agent. Their weight will increase with use and will need to be changed when the weight is increased by 50 grams (after 14-15 hours of use).



*Figure 6: "Activated Charcoal Canister"  
Weighted to Assess if it needs to be changed*



**The use of scavenging canisters is compulsory**, unless the anesthesia system is connected to a flow hood or another scavenging system is in use.

## 2.4 Safety Consideration

- A. Check all connections and parts before use, make sure there is no leakage
- B. Use original accessories and spare parts only, see also paragraph 8-ORDERING INFORMATION
- C. Immediately replace a damaged parts.
- D. Do not operate in hazardous environments or outside prescribed environmental limitations.
- E. The use of a scavenging system is compulsory

**UGO BASILE DOES NOT ACCEPT ANY RESPONSIBILITY FOR PROBLEMS OR HARM CAUSED TO THINGS OR PERSONS, ARISING FROM:**

- incorrect electrical supply;
- incorrect installation procedure;
- incorrect or improper use or, in any case, not in accordance with the purpose for which the instrument has been designed and the warnings stated in the instruction manual supplied with the instrument;
- replacement of original components, accessories or parts with others not approved by the manufacturer;
- servicing carried out by unauthorized personnel

see also paragraph 5-MAINTENANCE.

## 2.5 Intended Use

The Anesthesia Machine is intended for investigation use on **laboratory animals only**.

### 3 OPERATION

Before operating the machine, **read all manuals** (including the ones for Vaporizer and Flow-meter) included.

The following is an **example procedure** to help the user familiarize with the equipment.

It assumes that a **mouse** is to be anesthetized using a **21200** Ugo Basile Gas Anesthesia system, which includes:

- Tec3 Key-fill Isoflurane Vaporizer
- dual diverter manifold with humidifier
- nose-cone/face mask and induction box
- 2 activated charcoal canisters as scavengers

For other systems, the procedure may be slightly different, although the main steps will be the same.

Proceed as follows:

- 1) Check all connections and parts before use
- 2) Turn on the oxygen supply and regulate the flow-meter to the desired setting. Commonly used flow rates vary between 1 and 4 LPM, but the appropriate flow rate depends on the aim of the procedure, the species, etc.
- 3) Do not turn on the vaporizer yet.
- 4) Fill the vaporizer by first opening the scroll and then taking away the metal rectangle.



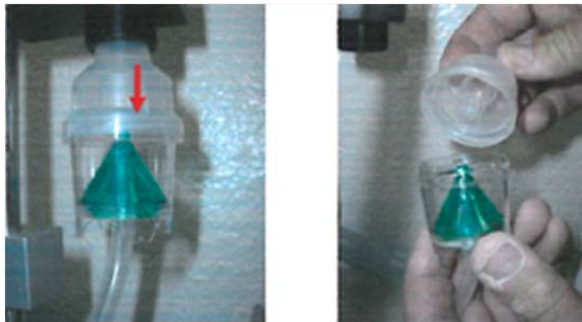
Figure 7: "Filling a Key-Fill Vaporizer"



**IF ANY SPILLAGE ACCIDENTALLY OCCURS, IMMEDIATELY OPEN ALL WINDOWS AND DO NOT USE THE ROOM UNTIL THE ENVIRONMENT IS SAFE AGAIN.**

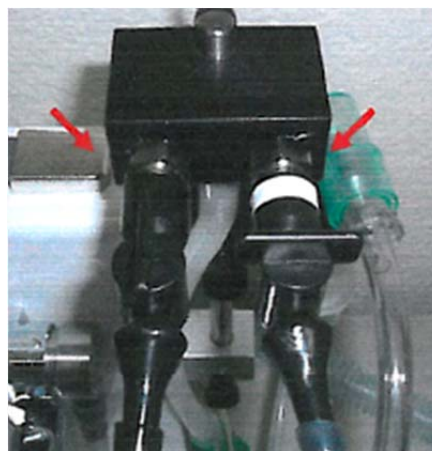


- 5) Fill-in the humidifier system, which is connected to one of the outlets of the dual diverter manifold



*Figure 8: "Filling the Humidifier with water"*

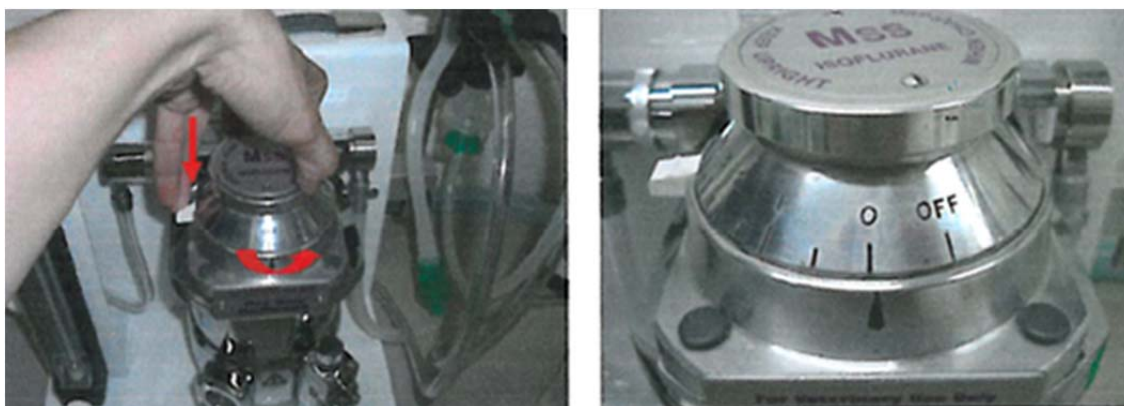
- 6) Make sure that the output of the dual diverter that connects to the induction box is open and that the one that connects to the nose-cone/facemask is closed.



*Figure 9: "Dual Diverter Manifold with the Left Output Open"*

- 7) Turn on the vaporizer to the desired concentration (usually about 4-5% for the induction phase in the box and then 1.5-2% for the maintenance phase with the nose-cone/facemask).

To turn the vaporizer dial, press the button and turn until the zero value is reached. At that point, the dial can be turned without any further pressure of the button.



*Figure 10: "Turning on the Vaporizer"*

- 8) Quickly put the mouse in the induction chamber and close the box properly. Wait for the mouse to be fully anesthetized (this will occur quite quickly) and

then gently shake the box to check if it is asleep. If a mouse is asleep, it will fall on the side, without trying to recover its sternal recumbence.

- 9) If fully anesthetized, take the mouse out of the box, position it with its nose into the nosecone/face mask and verify that it is still sleeping by toe clipping (softly press the toes between two fingers; if the mouse does not take off its leg, it is asleep).



*Figure 11: "Checking by Toe-Clipping that the Mouse is Deeply Anesthetized"*

- 10) Quickly close the output of the manifold connected to the induction box and open the output connected to the nosecone/face mask.
- 11) Lower the concentration of anesthetic to 1.5-2% (this is a common concentration for the maintenance phase, but it may vary according to the specific protocol and animal model in use).
- 12) When finished, turn off the vaporizer (setting the dial to off); the animal will receive pure oxygen and it could help to wake up and recover more quickly.
- 13) Turn off the oxygen source and turn off the flow-meter to zero LPM.
- 14) Disinfect the induction box, the operation table, etc. with 70% Ethanol and rinse with water.

### 3.1 Setting Up A Multiple Delivery System

All of the Multiple Delivery Systems (for 3, 4 and 6 animals) must be used with an anesthesia machine that has a 0-12 liter per minute Oxygen flow-meter with a pressure relief valve. The version of the Multiple Delivery System for 2 animals can be used also without the pressure relief valve.

The pressure relief valve is necessary to avoid damage to the anesthetic vaporizer as carrier gas delivery systems can reach pressures as high as 50 psi. Use of the Multiple Delivery System with carrier gases other than Oxygen is strongly discouraged due to the risk of gas escaping into the work area from the pressure relief valve.

- 1) Connect the common input of the Multiple Delivery System to the output of the Anesthesia Machine (*i.e.* to the outlet of the Vaporizer).
- 2) Connect the anesthetic delivery devices to be used in the experiment (e.g. induction box, nose-cone/face mask) to the Multiple Delivery System flow-meters.
- 3) Attach all waste gas evacuation tubing to the devices to be used.
- 4) Turn off any flow-meter that is not in use.

- 5) Turn on the digital flow-meter of anesthesia machine to approximately the flowrate equal to the estimated combined flow of the devices to be used. Do not turn on the vaporizer at this point.
- 6) Adjust the flow-meters to the adequate flow for the devices attached to each flow-meter. It may be necessary to increase or decrease the flow rate on the master flow-meter to bring all of the devices in balance.
- 7) Turn on the vaporizer to the desired concentration of anesthetic.
- 8) Notice that this is the level of anesthetic that will be delivered to all of the devices attached to the Multiple Delivery System. Therefore, if it is necessary to run a high concentration level of anesthetic (e.g. 4-5% to an induction box), no other device requiring a lower concentration of anesthetic (e.g. a nosecone/face mask) should be turned on until the vaporizer setting can be reduced to a maintenance level.
- 9) When an experiment is completed, turn off the vaporizer, turn off the master digital flow-meter, then turn off the individual flow-meters on the Multiple Delivery System and disconnect the Multiple Delivery System from the vaporizer.
- 10) While using the Multiple Delivery System, if the sound of gas escaping from the pressure relief valve is heard, this means that either the setting on the master digital flow-meter is too high or that the flow-meters have been adjusted to a very low setting or turned off completely. Flow adjustments should be made to bring the system into balance. In any case, there is no risk of anesthetic gas escaping through the pressure relief valve as the carrier gas pressure is higher than the pressure in the vaporizer and this will not allow anesthetic to escape into the work area.

## 4 NOSE-CONE/FACE MASK INSTRUCTIONS

### 4.1 General Information

Since rodents are obligatory nose breathers in the sternal recumbence, it is sufficient to insert only the subject's nose into the fresh gas reservoir.

The diaphragm can be cut appropriately using a pair of delicate sharp/sharp scissors (see following section for details).

A circular hole has to be cut in the diaphragm and it needs to be small enough such that the diaphragm forms a tight seal around the subject's muzzle.



Figure 12: "Nose-Cone/FaceMask"



**IMPORTANT: do not cut a cross “+” or an “X” in the diaphragm** for the subject’s nose because diaphragm will not seal properly around the subject’s muzzle and anesthetic gases will escape into work space.

Just cut a circular hole.

If the rodent is in the dorsal recumbence, it is recommended that the subject’s nose and mouth be inside the fresh gas reservoir, because in this position there is a risk of the subject breathing through its mouth. If the mouth is outside the fresh gas reservoir and the subject is allowed to breath room air through its mouth, the level of anesthetic will be diluted with room air and the subject may not be sufficiently anesthetized.

## 4.2 Replacing the “0” Ring and the Diaphragm

The silicone “0” ring holds the diaphragm material in place on the nosecone/face mask fresh gas reservoir. Silicon is more resistant to photo degradation and oxidation than latex. However, when it becomes cracked or broken and will no longer hold the diaphragm material in place, it is time to change the “0” ring.

An extra “0” ring comes with each kit. Additional “0” rings can be purchased separately. To replace a defective diaphragm material, follow the steps below:

Roll the “0” ring out of the groove of the nosecone/face mask

- 1) Discard the flawed diaphragm material
- 2) Stretch the new diaphragm material over the end of the nosecone/face mask, by holding the new latex diaphragm material with thumb and forefinger of one hand
- 3) Reinstall the “0” ring over the new diaphragm material and allow in to the rest in the groove in the fresh gas reservoir. Make sure that there is no gap around the periphery of the diaphragm where trace anesthetic gases might escape
- 4) Pull the diaphragm material around the edges to smooth out the diaphragm and create a slight tension on the diaphragm
- 5) Using a pair of delicate sharp/sharp scissors, cut off the excess diaphragm material from around the “0” ring. Save the rest of the new diaphragm material for subsequent diaphragm replacements
- 6) Using delicate sharp/sharp scissors cut a circular hole in the diaphragm the appropriate size of the subject’s nose and /or nose and mouth. Position the circular hole in the diaphragm such that when the subject’s nuzzle is placed in the diaphragm, the subjects head is relatively level with its body. The fresh gas reservoir can be rotated on its axis to ensure that the orifice in the diaphragm is in the proper position.

## 5 MAINTENANCE

While any service of the instrument is to be carried out by Ugo Basile personnel or by qualified personnel, authorized by UGO BASILE organization, this section of the instruction manuals describes normal maintenance procedures which can be carried out at the customer's facilities.

### 5.1 Cleaning

Disinfect the induction box, the operation table, etc. with 70% Ethanol and rinse with water.

### 5.2 Vaporizer Service

Due to the permanent usage it is important to maintain regular servicing of the vaporizer to avoid malfunctioning. Deposits can affect seriously the function and concentration delivery.

Vaporizers must be disassembled for servicing. This should be done only by a certified service center with proper test equipment. When assembling, it is necessary to replace some spare parts to secure longevity of vaporizers. Finally, the Vaporizer goes through a strictly defined test program with concentration examinations under different temperature and flow conditions and thermostat must, if necessary, re-calibrated.

For Vaporizer maintenance please contact us, see paragraph 5.5-Customer Support.

### 5.3 Digital Flowmeter

The device does not contain any repairable elements. The device is calibrated during production. Open the device only to the extent required to replace the battery. Any attempt to further dismantle the device will affect its accuracy.

#### 5.3.1 Replacing the Battery



If the display shows «low batt» or if is blank, it is necessary to replace the battery.



Remove 4 screws (Torx screwdriver, size TX 8), then push back cover carefully backwards.







Open back cover and remove battery.

If the battery contacts are fouled or corroded, clean with a dry paper towel. Replace the battery with a Lithium, AA, 3.6 V one.

Insert new battery observing the + and – symbols in the battery compartment.

The device is activated automatically.

Installation is the reverse of the disassembly procedure.

Finally perform a function check.

**Disposal:** Ensure that the battery is properly disposed. Observe the disposal regulations applicable in your country!

## 5.4 Long Inactivity

The instrument does not require any particular maintenance after long inactivity, except cleaning.

Before putting your system in operation again, first check all connections and parts to make sure there is no leakage.

## 5.5 Customer Support

For any further information you may desire concerning the use and/or maintenance of the Anesthesia System and accessories, please do not hesitate to contact our **service department** (or our local distributor) either directly or via our support page <http://www.ugobasile.com/support.html> :



**UGO BASILE s.r.l.**

Via G. Di Vittorio 2  
21036 GEMONIO – Varese, ITALY



**Phone : +39 0332 744574**



**service@ugobasile.com**  
**logistics@ugobasile.com**  
**sales@ugobasile.com**

**Before sending any instrument to our factory for repair**, please contact our logistics department to obtain a return authorization number (RMA) and shipping/packing instructions.

We may not be held responsible for damages during transport due to poor packing; whenever possible, please use the original packing.

## 7 SYSTEM SPECIFICATIONS

### Anesthesia Systems 21100

Dimensions	cm 26 (w) x 18 (d) x 26 (h)
Total Weight	9Kg
Shipping Weight	12Kg approx.
Packing Dimensions	40x39x30cm

### O2/N2O Anesthesia Systems 22100

Dimensions	cm 40 (w) x 18 (d) x 26 (h)
Total Weight	11Kg
Shipping Weight	15Kg approx.
Packing Dimensions	67x42x53cm

### Warranty

Warranty	Anesthesia System is covered by a 24-month warranty
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## 8 ORDERING INFORMATION

See also paragraph 1.1-System Configurations.

- 21050 Basic Single-Output Anesthesia System**, including Digital Flowmeter (for O2 or Medical Air) and TEC-3 vaporizer for Isoflurane (vaporizers for other anesthetic agents are available on request)
- 21100 Single-Output Anesthesia System**, including Basic Single-Output Anesthesia System, scavenger (Activated Charcoal Canister), evac tubing
- 21200 Double-Output Anesthesia System**, including 21050, scavenger (Activated Charcoal Canister), evac tubing and dual diverter manifold, for simultaneous connection of nose-cone/mask and induction box
- 21400 Multiple-Animal Anesthesia System**, including 21050, scavenger (Activated Charcoal Canister), evac tubing and Multiple Delivery System, for 4 animals
- 21600 Multiple-Animal Anesthesia System**, including 21050, scavenger (Activated Charcoal Canister), evac tubing and Multiple Delivery System, for 6 animals

According to your experimental needs and to your animal model, select from the following accessories:

### 8.1 Delivery System (Masks & Induction Boxes)

- PS-0525-A **Nose-Cone/Mask for Small Mice**, with diaphragm and Inlet Adaptor
- PS-0305-A **Nose-Cone/Mask for Large Mice**, as above, 3cm diam
- PS-0306-A **Nose-Cone/Mask for Small Rats**, as above, 4.5cm diam

- PS-0307-A **Nose-Cone/Mask for Medium Rats**, as above, 5cm diam.  
 PS-0308-A **Nose-Cone/Mask for Large Rats**, as above, 5.5cm diam.  
 7900 **Induction Box for small rodents** (mice and rats), 25x13x13 (h) cm  
 7910 **Induction Box, large size**, 40x22x21 (h) cm  
 21100-790 **Induction Box for small rodents** (mice and rats) 25x13x13(h) cm

## 8.2 Multiple-Output Delivery Systems

- PS-0529-02 **Dual Diverter Manifold** with humidifier  
 PS 30-456 **Multiple-Animal** Delivery System, with **2 Flowmeters**  
 PS 30-457 **Multiple-Animal** Delivery System, with **3 Flowmeters**  
 PS 30-458 **Multiple-Animal** Delivery System, with **4 Flowmeters**  
 PS 30-460 **Multiple-Animal** Delivery System, with **5 Flowmeters**  
 PS 30-459 **Multiple-Animal** Delivery System, with **6 Flowmeters**

## 8.3 Anesthetic Scavenger and Evacuation

- PS-0581-00 **F/air filter** (activated charcoal canister)  
 PS-0581-01 **F/air filter** (activated charcoal canister), **pkg. of 8**  
 PS-0582 **Evac Tubing for F/air**, 1.8m with 19mm male x 22m female adaptor  
 PS-0833 **Active Scavenger**, to remove the anesthetic agent by applying negative pressure (can also be connected to an activated charcoal canister)

## 8.4 Heating Pads

**Rodent Warmer**, to monitor and maintain animal temperature during surgery:

- 21100-800M Rodent Warmer with 21100-810 **Mouse** Heating Pad  
 21100-800R Rodent Warmer with 21100-812 **Rat** Heating Pad  
 21100-800C Rodent Warmer with 21100-814 **Cage** Heating Pad  
 21100-304 Rectal Thermal Probe

See the detailed leaflets.



PS-0811 **Delta-Phase Iso-therm Heating Pads** (pkg of 3), 20x20x0,65cm. Maintains animal body temperature near 37°C up to several hours. Ideal for NMR

## 8.5 Other Accessories

PS-0950 **Fill Device** for Isoflurane

PS-0949 **Fill Device** for Halothane

PS-0951 **Fill Device** for Sevoflurane



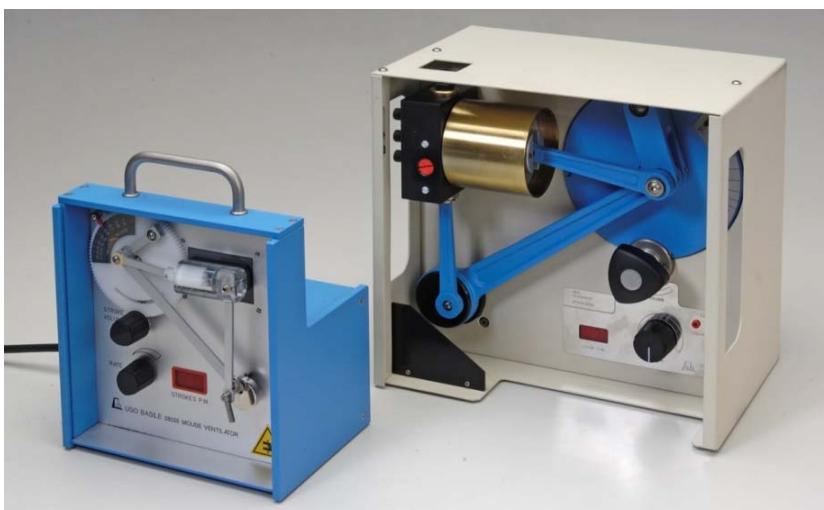
## 8.6 Special Systems with N2O

**22100 O<sub>2</sub>/N<sub>2</sub>O Anesthesia System**, complete with 2 Analog Flowmeters, TEC-3 vaporizer for Isoflurane (*vaporizers for other anesthetic agents are available on request*), scavenger (Activated Charcoal Canister), tubing.

## 9 To Complete Your Equipment...

We also offer a complete line of Ventilators, which includes models for Mouse, Rats, Cat/Rabbit.

**See the detailed leaflets.**



**28025** Mouse Ventilator, complete with 1ml or 0.5ml (model 28025-5) cylinder/piston assembly & standard accessories. Universal input 85-264 VAC, 50-60Hz

**28025-150** Connection Kit for Anesthesia System to Ventilator 28025

**7025** Rodent Ventilator, complete with 10ml, 30ml (7025-30) or 5ml (7025-5) cylinder/piston assembly and standard accessories. Universal input 85-264 VAC, 50-60Hz

**7025-150** Connection Kit for Anesthesia System to Ventilator 7025

**6025** Cat/Rabbit Ventilator, complete with 50ml or 100ml (6025-100) cylinder/piston assembly and standard accessories. Universal input 85-264 VAC, 50-60Hz

**6025-150** Connection Kit for Anesthesia System to Ventilator 6025

All ventilators are available with suitable circuit & BNC connector for synchronized START/STOP.



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## CE CONFORMITY STATEMENT

Manufacturer **UGO BASILE srl**  
Address Via G. di Vittorio, 2 – 21036 Gemonio, VA, ITALY  
Phone n. +39 0332 744574  
Fax n. +39 0332 745488

*We hereby declare that*

Instrument. **GAS ANESTHESIA SYSTEM for veterinary use**  
Catalog number **21050**

*meets the provisions of the European Directive 93/42/EEC on medical device.*

Account Manager

Adriano Basile

Nome / Name

April 2014

Date

  
Firma / Signature