

End Case NO ALARMS

Patient Select

Modes

Gas Mix: O<sub>2</sub> + Air

Volume Pressure Spont Alarm Settings Flow Cal Screen Volume Time Engineer Settings

Rate BPM 30

12

I:E Ratio 1:2.0

Time 6-09 23:06 NBP 123/86(90) PR 60 HR 61 RR 16 TEMP1 36.6 TEMP2 37.2 X2

TEMP 1/2 36.5 / 37.2

MONITOR

000001

Push Display, changing interface

100 % HIGH

MODE CAL

62 % OXYGEN

19 % LOW

AP

O<sub>2</sub> L/MIN

N<sub>2</sub>O L/MIN

10 8 6 4 2 0 0.2 0.4 0.6 0.8 1.0 1.2

TEMP

WARNINGS

CLAMP FLOWMETER TUBING AFTER USE

RELIEF

DO NOT SQUEEZE BAG

RESERVOIR BAG

1.5 1.0 0.5 OFF

OUTPUT ISOFLURANE

FILL ONLY WITH ISOFLURANE IN OFF POSITION



Gradian Health Systems

OXYGEN

NITROUS OXIDE

NITROUS OXIDE

UAM Universal Anesthesia Machine



## Reliable And Accurate Anaesthesia

The Universal Anaesthesia Machine (UAM) delivers safe anaesthesia in any hospital, including those where shortages of compressed medical gases and unreliable electricity disable conventional machines. Using a low-resistance vaporizer and operating at ambient pressure, the UAM automatically matches patient demand to the supply of anaesthetic gas. It generates its own oxygen using an integrated oxygen concentrator delivering up to 10 litres per minute. In addition, the UAM provides standard connectors and flow control for cylinder and pipeline oxygen, and can also connect to a portable source of oxygen. If no source of oxygen is available the UAM automatically draws in room air to meet patient demand. A real-time monitor displays the oxygen content of inspired air, adding a crucial layer of safety.



## **No Compressed Gas Or Electricity Required**

A built-in oxygen concentrator provides up to ten litres per minute of oxygen. Standard cylinder and pipeline connections are included. If power and compressed gases are unavailable the UAM draws-in room air, continually delivering safe anaesthesia. The ventilator is electrically-driven, features a six hour battery backup, and does not require compressed gas to function.

## **Integrated Safety**

The oxygen monitor displays inspired oxygen and runs up to ten hours on battery backup. The ventilator alarms include out of range volume and pressure readings and breathing circuit disconnect. The patient monitor features standard vital signs alarms.

## **Commitment to Training and Service**

Every UAM comes with on-site clinical and biomedical training. Regional service engineers, spare parts and Internet and phone support are available to keep your UAM calibrated and operational.

The optional ventilator provides IPPV automatically. It is electrically-driven and does not require compressed gas. Internal batteries provide up to six hours of backup operation. The ventilator operates in volume and pressure control modes and can be used during spontaneous ventilation to display pressure and flow measurements.

A vital signs monitor measuring pulse oximetry, ECG, blood pressure and temperature is also available. The UAM is CE-certified and manufactured in an ISO-qualified factory. It is compatible with standard anaesthesia accessories such as breathing circuits and gas scavenging systems.



The UAM comes with a two year warranty, and is designed for easy maintenance and field service. Gradian provides on-site biomedical technician training, access to in-country biomedical engineers and rapid access to spare parts and accessories. We maintain regional spare parts depots and a network of local, factory-certified engineers to ensure a fast response to any problem. All of our user manuals and service documentation are published on-line as part of our commitment to keeping your UAM in excellent working condition.



For more information:

Visit [www.gradianhealth.org](http://www.gradianhealth.org) or email us at [info@gradianhealth.org](mailto:info@gradianhealth.org).

## Product Specifications

- Integrated oxygen concentrator produces 10 litres per minute
- Concentrator delivers up to 95% O<sub>2</sub> depending on environment
- Accepts all standard paediatric and adult breathing systems
- Seamless transition to room air when compressed oxygen is unavailable
- Accurate, low resistance vaporizers work with and without compressed gas
- Built-in oxygen monitor displays O<sub>2</sub> concentration of inspired gas
- Automatic shut-off of nitrous oxide if hypoxic mixture is detected
- Official CE mark awarded by independent certifying agency



The Universal Anaesthesia Machine

## Physical And Electrical

- Compact, rugged design
- UAM Dimensions: 146cm x 53cm x 69cm; 130kg
- Ventilator Dimensions: 44cm x 28cm x 30cm; 18kg
- Aluminum frame with four heavy duty casters – front two lockable
- Mains power supply: 220V, 50-60Hz
- Removable stainless steel instrument tray
- Supplies drawer

## Oxygen Supply And Monitoring

- Integrated oxygen concentrator with dual filters
- O<sub>2</sub> flow rate: 0.1 to 10 LPM
- Maximum O<sub>2</sub> concentration: 95% depending upon environment
- Integrated inspiratory oxygen monitoring system
- O<sub>2</sub> monitor has ten hour battery backup, trickle charge from mains
- Connections for cylinder, pipeline and portable oxygen sources
- Glass flow rotameters accurate to +/- 2.5%
- Adjustable minimum and maximum O<sub>2</sub> alarms

## Ventilator

- Electrically-driven – needs no compressed oxygen or air to operate
- Six hour battery backup if mains power fails
- Large color touch screen
- Volume and pressure control modes
- Tidal Volume: 50 to 1000 ml
- Minute Volume: 1 to 10 litres per minute
- Pressure control: 10 to 30cmH<sub>2</sub>O
- I:E ratio: 1:1 to 1:3
- Rate: 5-30 breaths per minute
- Displays: Flow and pressure versus time and compliance loops
- Alarms: Volume, Pressure, Breathing Circuit Disconnect
- Manual backup bellows always available on UAM
- Accepts fixed and variable PEEP valves
- Supplies drawer and removable stainless steel instrument tray



## Optional Nitrous Oxide

- Differentiated flow control knob
- Automatic shut off if O<sub>2</sub> falls below 25%

## Vaporizers

- Separate units for isoflurane and halothane
- 120ml capacity

## Rear Panel Connections

- Mains isolator switch, 2 UK style power sockets
- Oxygen and nitrous cylinder and pipeline connections
- Multi-diameter external oxygen hose connector

## Vital Signs Monitor

- Pulse oximetry, ECG, blood pressure and temperature
- Six hour battery backup if mains power fails

Gradian Health Systems equips hospitals to deliver anaesthesia safely and economically by providing technology, training and service. We are a non-profit social enterprise collaborating with partners in clinical medicine, national health systems, medical technology and philanthropy to improve access to safe surgery. Gradian designs and builds equipment used worldwide in hospitals ranging from world-renown academic centers to resource-constrained district facilities.



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