

# capnography



## VM-2500-MG

# Multigas/SpO<sub>2</sub> Monitor

High performance and versatile anaesthetic agent monitoring

- Innovative micro-optic technology.
- Direct mainstream measurement without time delay.
- Warm-up time: < 20 seconds to full specification.
- Maintenance and calibration-free technology.
- Colour OLED display.
- Application range from neonates to adults.



VM-2500-MG

The ultra-compact, light and easy to handle design of the Capnograph Multigas Monitor is the perfect flexible and mobile monitor for identifying and quantifying the five most important anaesthetic agents as well as other gases and parameter.

- Halothane, Isoflurane, Enflurane, Sevoflurane and Desflurane.
- N<sub>2</sub>O
- etCO<sub>2</sub>, FiCO<sub>2</sub>
- Oxygen saturation
- Respiration and Pulse Rate

By direct measurement in the mainstream, there is no time delay in the measuring data.

Carrying case  
also available  
in various  
colours and with  
embroidery\*



VIAMED

# VM-2500-MG Multigas/SpO<sub>2</sub> Monitor

## Technical Data

### Display

Parameters displayed

Numerical	End-tidal (et) CO <sub>2</sub> , N <sub>2</sub> O- and agent concentrations, inspired (Fi) CO <sub>2</sub> , N <sub>2</sub> O-, and agent concentrations, oxygen saturation (SpO <sub>2</sub> ), Respiration Rate (RR), Pulse Rate (PR).
Graphical Indicators	Capnogram and trends of numerical data (15 min/1 hour/6 hours) Signal strength and signal quality, pulse amplitude, battery status, alarm mute, pulse tone mute, storage status, real-time mode, neonatal mode, time.

Characteristics

Active OLED colour display, 262,000 colours, 240 x 320 pixel (42 mm x 56 mm)

### Capnography and Anesthetic agent measurement specifications

Measurement Range	etCO <sub>2</sub> and FiCO <sub>2</sub> 0 - 15% FiN <sub>2</sub> O 0 - 100% Hal, Iso, Enf 0 - 8% Sev 0 - 10% Des 0 - 22%
Accuracy	etCO <sub>2</sub> and FiCO <sub>2</sub> 0 - 150 1/min ± (0.2 Vol % + 2% of reading) ± (0.3 Vol % + 4% of reading) including interfering gases N <sub>2</sub> O ± (2 vol % + 2% of reading) ± (2 vol % + 5% of reading) including interfering gases Hal/Iso/Enf/Sev/Des ± (0.15 Vol % + 5% of reading) ± (0.2 Vol % + 10% of reading) including interfering gases Respiration Rate ± 1 digit < 20 seconds to full specification
Warm-up time	

### Pulse Oximetry Specifications

Measurement Range	SpO <sub>2</sub> 0 - 100%
Accuracy	Pulse Rate 20 - 300 1/min SpO <sub>2</sub> ± 2% (70 to 100%) Pulse Rate ± 1 digit (up to 100 1/min) or ± 1% (> 100 1/min)

### Trend Information

Long term trend	up to 150 hours
Short term trend	15 min/1 hour/6 hour

### Alarms

Limits	Adjustable limits for all numerical parameters except for MAC
Alarms	Audible and visual alarms (complies with EN 60601-1-8)

### Storing Data

Communication Interface	USB 2.0
Data Memory Capacity	up to 150 hours
Real-time mode	Visualisation and storage of numerical parameters on a computer every 4 seconds
Computer software	Capnograph MG PC Software for data download and real-time mode

### Power Supply

Battery	Working time with full functionality approximately 4.5 hours, 4 alkaline batteries (AA/LR6/AM3/MN1500/Mignon, 1.5V)
Li-Poly battery	Working time with full functionality approximately 7 hours, Li-Poly battery, Model No. CT-2500, 3.7V, 2500 mAh, charging time approx 5 hours.
AC power supply	Model No. FW 7660M/06, medical power supply, input: 90 - 260V AC/50 - 60 Hz/ 250 mA, output: 6V DC/1.4A.

### Environmental conditions

Operation	10 - 40°C, 15 - 95% RH (non-condensing), 60 - 120 kPa (excluding Li-Poly battery)
Storage	- 20 - 70°C, 10 - 95% RH (non-condensing), 60 - 120 kPa (excluding Li-Poly battery)

### Classification

Class	IIb (according to MDD 93 / 42 / EEC)
Safety	Class of protection II/Type BF - Type and degree of protection against electrical shock
Construction	IPX1 (with silicone protection cover)
Standards	EN 60601-1:1988; IEC 60601-1-2:2007; IEC 60601-1-4:2000; IEC 60601-8:2006; ISO 21647:2004; ISO 9919:2005; ISO 5356-1:2004; DIN EN 1789:2007; EN864:1996.

### Dimensions and Weight

150 (L) x 75 (W) x 35 (D) mm, < 400g (complete device with batteries)
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### Part Numbers

VM-2500-MG	Capnograph Multigas	4410550
Language Package: Central European, including: English, Dutch, German, Spanish, French, Italian, Swedish and Russian		

**NB. When ordering either the VM-2500-M or VM-2500-S please select from the following reusable sensor styles:  
Soft Sensor (Adult or Paediatric), Finger Sensor, Silicone Wrap Sensor, Ear Sensor and indicate at the time of ordering.  
Autoclavable sensors are available.**

\* Subject to quantities

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BS EN ISO 9001:2008  
ISO 13485:2003



Part Number: 0092190  
Date: 03/11

FS 26344 MD 78787

**The ultra-compact, ergonomic design of the Capnograph MG combines outstanding performance and reliability in pulse oximetry and mainstream monitoring of anaesthetic agents and CO<sub>2</sub>.**

## Standard Package

- Capnograph Multigas Monitor.
- IRMA™ AX+ Analyser.
- IRMA™ Airway adapter (Adult/Paiatric)
- Reusable SpO<sub>2</sub> sensor\*
- USB data cable.
- Power supply (FW7660M/06).
- Power supply (EU and UK plug).
- 4 x AA batteries.
- 1 x Li-Poly battery (CT-2500).
- Silicone protective cover.
- PC software.
- Instruction manual on CD.

N.B. Please select from the following sensor styles:

Silicone Soft Sensor (Adult or Paediatric), Finger Sensor, Silicone Wrap Sensor or Ear Sensor, and indicate at the time of ordering.



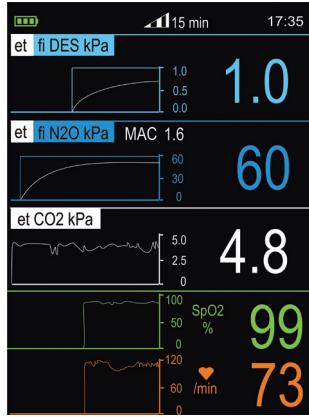
## Reliable automatic agent identification and quantification

The **IRMA AX+ Analyser** is equipped with state-of-the-art NDIR technology with up to 9-channel gas type analysis in the 4 - 10 µm range and offers reliable agent identification and quantification even in gas mixtures. The **IRMA AX+ Analyser** is lightweight, small and shock-resistant. It weighs less than 25g.

## Key features of the Capnograph MG

- Innovative micro-optic technology.
- Direct mainstream measurement without time delay.
- Compact, robust and ultra-light multigas analyser.
- Warm-up time: < 20 seconds to full specification.
- Maintenance and calibration-free technology.
- Self-explanatory, ergonomic operating functions facilitate intuitive operation.
- The Colour OLED information display, as well as the simple information structure, support quick decisions and a rapid user reaction in critical situations.
- Lead-edge power management with standard alkaline batteries or Li-Poly batteries or medical power supply (or combined).
- Application range from neonates to adults.

## Screen Display Options



Multi Trend - 15 minutes



Numerical  
1 Anaesthetic Agent



Standard  
1 Anaesthetic Agent



Standard  
2 Anaesthetic Agent



## Key Technology Accessories

### SpO<sub>2</sub> Sensors

The Capnograph MG provides leading technology sensors and accessories.

A wide range of flexible, robust and hygienic paediatric and adult SpO<sub>2</sub> sensors are available, as well as disposable sensors for use on adults through to neonates.

With the Silicone Finger Sensors, it is now possible for the first time to autoclave SpO<sub>2</sub> sensors at 134°C, and to significantly reduce the risk of nosocomial infections caused by pathogenic microrganisms or multi-resistant germs.



### Available Sensors



Adult Soft Sensor



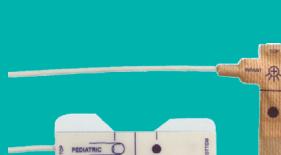
Paediatric Soft Sensor



Finger Sensor



Silicone Wrap Sensor



Disposable Sensors



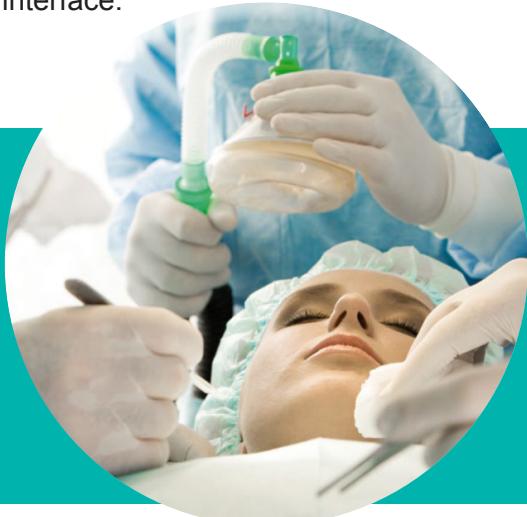
Ear Sensor



## Powerful Capnograph MG PC Software

With the convenient Capnograph MG PC Software all measuring values, selected alarm limits and alarm messages can be transferred to the computer via the USB interface. The data can be viewed on the computer and patient information added. The PC software enables basic statistical evaluation of the stored data.

The software can also be used to display and store the measurement values and alarm messages on the computer in parallel to ongoing measurements. This function is activated by setting the real-time mode of the Capnograph MG. When this mode is activated, the device transfers the actual measurement values for the anaesthetic agents,  $\text{N}_2\text{O}$ ,  $\text{etCO}_2$ ,  $\text{FiCO}_2$ ,  $\text{SpO}_2$ , Respiration and Pulse Rate to the computer via the USB interface.



## Capnograph MG Multigas Analyser

The company **IRMA AX+ Multigas Analyser** which weights just 25g, sets new standards in mainstream anaesthetic agent monitoring and provides reliable and comprehensive monitoring of  $\text{CO}_2$ ,  $\text{N}_2\text{O}$ , Halothane, Isoflurane, Enflurane, Sevoflurane and Desflurane through direct measurement without time delay.

- 9-channel NDIR gas type analysis (4 - 10  $\mu\text{m}$ ).
- Calibration and maintenance-free.
- Compact and shock-resistant design.
- Plug-and-measure technology.

The **IRMA Airway Adapter** with low dead space volumes and supplied in two versions for adult/paediatric and infant applications.

- Adult/Paediatric version: dead space volume 6ml.
- Infant version: dead space volume 1ml.
- Innovation non-condensing light transmission XTP™ window.

## Applications

Capnograph MG is well suited for monitoring  $\text{CO}_2$ ,  $\text{N}_2\text{O}$  and oxygen saturations as well as the anaesthetic agents Halothane, Isoflurane, Enflurane, Sevoflurane and Desflurane during anaesthesia and mechanical ventilation.

Capnograph MG can be used from adults to infants in hospitals and mobile operating rooms, recovery rooms, intensive care units and emergency care departments