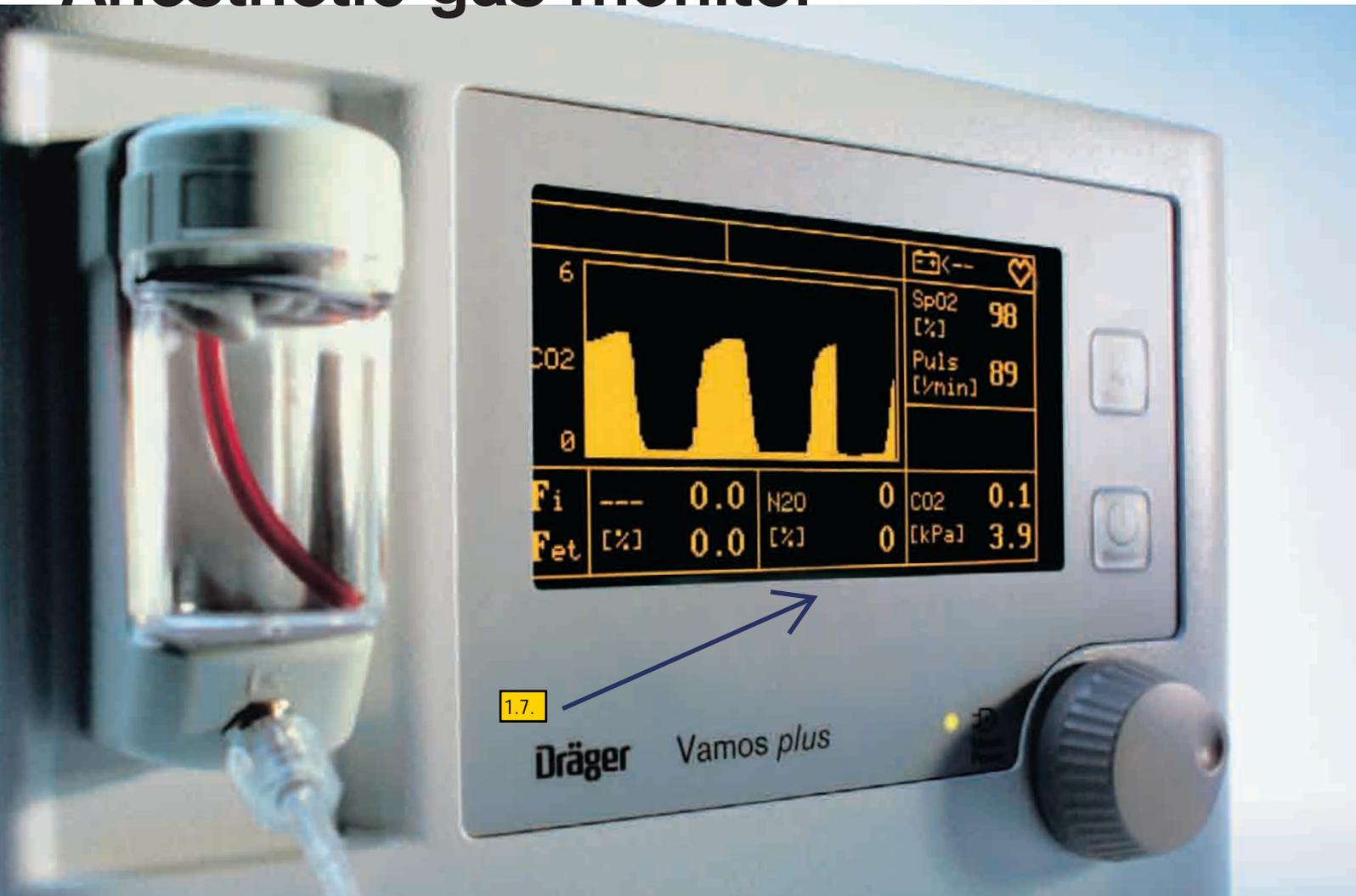


## Vamos/Vamos *plus* Anesthetic gas monitor



Scalable monitoring  
solution

# Technologically advanced



## Designed to grow with your needs

Vamos has the flexibility to meet your requirements both now and in the future. The Vamos can be configured with CO<sub>2</sub> and SpO<sub>2</sub> monitoring and upgraded in the future to include monitoring for all 5 anesthetic agents and N<sub>2</sub>O. The upgrade option can easily be installed on site to minimize any disruption. The Vamos can be configured to meet the following three specifications:

- CO<sub>2</sub> and SpO<sub>2</sub>
- Anesthetic agents, CO<sub>2</sub> and N<sub>2</sub>O
- Anesthetic agents, CO<sub>2</sub>, N<sub>2</sub>O and SpO<sub>2</sub>

Vamos *plus* offers automatic identification of the anesthetic agent and dual agent display when two agents are used. Vamos *plus* can be configured to meet the following two specifications:

- Anesthetic agents, CO<sub>2</sub> and N<sub>2</sub>O
- Anesthetic agents, CO<sub>2</sub>, N<sub>2</sub>O and SpO<sub>2</sub>

## Flexibility

1.1.

The SpO<sub>2</sub> option for the Vamos uses proven Nellcor® technology. This ensures compatibility with a wide range of pulse oximetry sensors and accessories. An optional battery backup is available for the Vamos, enabling the monitor to operate independently of the main power supply for at least an hour.

## Innovation

At the heart of the Vamos is a new gas sensor developed by Dräger which incorporates the very latest in innovative micro-optic technology. Because this sensor has no moving parts, it is particularly robust and reliable with just a small pump to maintain a constant flow of 200 mL/min for the sample gas. The sensor's performance reflects Dräger's core competence in infrared gas-detection technology with a design commitment to long-life components and quality.

The latest innovation in gas measurement technology has been integrated in Vamos *plus*. Anesthetic agent measurement and dual agent gas measurement is now possible with Vamos *plus*.

The Vamos anesthetic gas monitor is a compact, flexible solution to meet your respiratory gas monitoring needs. As your monitoring requirements change, the Vamos can be reconfigured to meet them, thereby reducing the risk of premature obsolescence. In addition to flexible design, the Vamos provides excellent long-term value through the use of the latest solid-state optical technology.





## ... in design, price and performance

### Ergonomics

Vamos is much more than just a flexible, affordable monitor. Its design fits into the current working environment.

A critical element of good monitoring is having the right information in the right place. The compact dimensions of the Vamos allow the monitor to be optimally positioned within the working field.

- 1.4. - A variety of attachment options including specially designed GCX arms and brackets, as well as a specially designed solution for Dräger's Fabius family of anaesthesia devices, help to optimize your workplace design. The GCX arm can also be attached to a wall mounted standard rail.

- 1.5. - A high-contrast electroluminescent display ensures that the monitored data is clearly visible even from acute angles

- To further enhance ease of use, the Vamos features Dräger's proven user interface with a self-explanatory menu-guided operation. This intuitive system eliminates the need for time-consuming training while the rotary knob and function keys enable users to quickly familiarize themselves with the operation of the Vamos.

### A safe investment

The Vamos provides a clear financial advantage. By empowering the customer to configure the monitor with just those monitoring parameters that are needed, Vamos reduces the initial cost while providing a secure investment due to the ability to upgrade the platform in the future.

# Versatility

| Technical data  |   |
|---|---|
| <b>General specifications</b>   |   |
| Measured parameters   | CO <sub>2</sub> , N <sub>2</sub> O, 5 anesthetic agents<br>SpO <sub>2</sub> (Nellcor)   |
| Gas measurement   | breath to breath resolution   |
| Rise time   | < 500 ms (agents), < 350 ms (CO <sub>2</sub> )  |
| Principle of measurement  | advanced infrared technology, sidestream sample principle <b>1.3.</b>   |
| Accuracy  | as per ISO 21647  |
| Sample flow rate  | 200 mL/min  |
| <b>Display</b>  |   |
| High-contrast amber electroluminescent display with excellent vertical and horizontal viewing angles. |   |
| Display size  | 5" diagonal 4.25" x 2.28"<br>(127 mm diagonal 108 x 58 mm)  |
| Graphic display of CO <sub>2</sub> waveform   | <b>1.6.</b>   |
| Numeric display   | Fractional inspiratory concentration (Fi) of CO <sub>2</sub> , N <sub>2</sub> O and of selected agent (Vamos) or identified agent (Vamos <i>plus</i> )<br><br>End-tidal concentration (Fet) of CO <sub>2</sub> , N <sub>2</sub> O and selected agent (Vamos) or identified agent (Vamos <i>plus</i> ) |
| Oxygen saturation (SpO <sub>2</sub> )   | ISO 9919  |
| Pulse rate  |   |
| <b>Technical features and performance data</b>  |   |
| Dimensions WxHxD  | 9.4" x 6.5" x 6.5" (240 x 166 x 165 mm)   |
| Weight  | 2.4 kg including the internal battery   |
| Power consumption   | peak consumption in the warm-up phase < 55 W<br>during operation < 45 W   |
| Operating voltage   | <b>1.1.</b> 100 - 240 V, 50/60 Hz<br>external power pack with country-specific connections  |
| Battery backup operation (optional)   | > 1 hour  |
| Outputs   | RS 232 Medibus<br>RS 232 (only for service)<br>Sample gas outlet (for sample gas supply to anesthetic gas scavenging system)  |

Europe, Middle East, Africa, Latin America, Asia, Pacific:

**Dräger Medical AG & Co. KG**  
Moislinger Allee 53-55  
23542 Lübeck  
GERMANY  
Tel: +49-451-882-0  
Fax: +49-451-882-2080  
E-mail: info@draeger.com

USA:

**Draeger Medical, Inc.**  
3135 Quarry Road  
Telford, PA 18969  
USA  
Tel: +1-215-721-5400  
Toll-free: +1-800-437-2437  
Fax: +1-215-723-5935  
E-mail: info.usa@draeger.com

Canada:

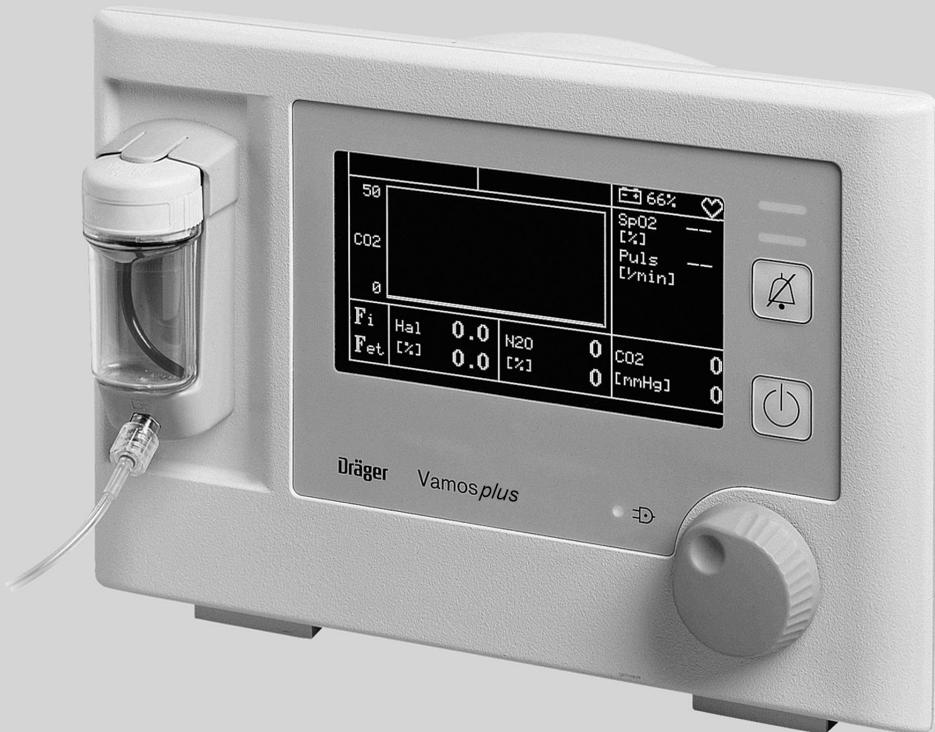
**Draeger Medical Canada Inc.**  
120 East Beaver Creek Road Suite 104  
Richmond Hill Ontario L4B 4V1  
CANADA  
Tel: +1-905-763-3702  
Toll-free: +1-866-343-2273  
Fax: +1-905-763-1890  
E-mail: Canada.Support@draeger.com

www.draeger.com

Manufacturer:  
Dräger Medical AG & Co. KG  
23542 Lübeck, Germany

The quality management system at Dräger Medical AG & Co. KG is certified according to ISO 13485, ISO 9001 and Annex II.3 of Directive 93/42/EEC (Medical devices).

## Instructions for Use **Vamos<sup>®</sup>/Vamos<sup>®</sup> plus**

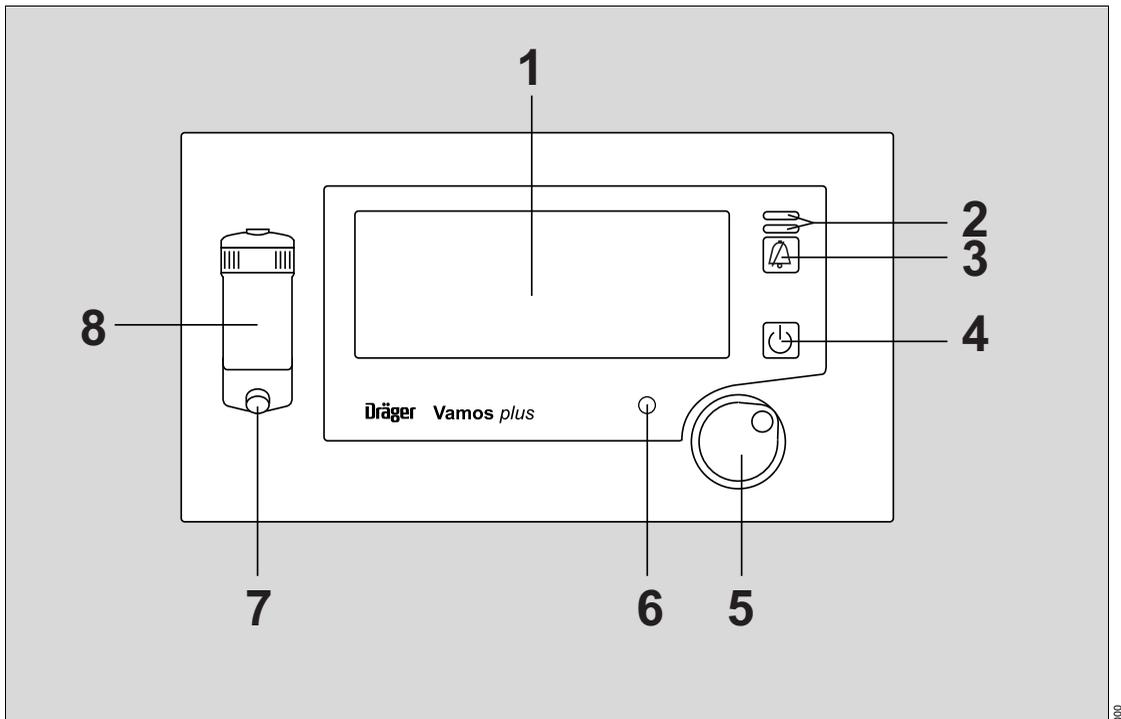


**WARNING!**  
For a full understanding of the performance characteristics of this device, the user should carefully read this manual before use of the device.

**Variable Anesthetic Gas Monitor  
Software 3.n**

# What is What

## Front View



- 1 Display screen
- 2 Indicator LED for alarm indication
- 3 Key »  « for suppressing the alarm tone for 2 minutes
- 4 Standby key »  «
- 5 Main rotary knob – for selection and confirmation of changes
- 6 Mains Power LED for controlling the power supply (mains or battery)
- 7 Connection for the sample line
- 8 Water trap WaterLock®

1.8.

## Setting the Alarm Limits 1.9.

When *Vamos/Vamos plus* is switched on for the first time, the default settings listed in the following table are active.

- ▼ = lower alarm limit
- ▲ = upper alarm limit
- = alarm monitoring inactive

| Alarm limits         | Default settings              | Setting range                                 |
|----------------------|-------------------------------|---|
| FiCO <sub>2</sub> ▲  | 5 mmHg<br>0.7 vol.%, 0.7 kPa  | --, 1 to 20 mmHg<br>--, 0.1 to 2.6 vol.%, kPa |
| FetCO <sub>2</sub> ▲ | 50 mmHg<br>6.6 vol.%, 6.6 kPa | --, 1 to 75 mmHg<br>--, 0.1 to 9.9 vol.%, kPa |
| ▼                    | --                            | --, 0 to 74 mmHg<br>--, 0 to 9.8 vol.%, kPa   |
| FiHal ▲              | 1.5 vol.%                     | 0.1 to 7.0 vol.%                              |
| FiEnf ▲              | 3.4 vol.%                     | 0.1 to 7.0 vol.%                              |
| Filso ▲              | 2.3 vol.%                     | 0.1 to 7.0 vol.%                              |
| FiSev ▲              | 3.4 vol.%                     | 0.1 to 9.9 vol.%                              |
| FiDes ▲              | 12.0 vol.%                    | 0.1 to 21.9 vol.%                             |
| FiHal ▼              | --                            | --, 0 to 6.9 vol.%                            |
| FiEnf ▼              | --                            | --, 0 to 6.9 vol.%                            |
| Filso ▼              | --                            | --, 0 to 6.9 vol.%                            |
| FiSev ▼              | --                            | --, 0 to 9.8 vol.%                            |
| FiDes ▼              | --                            | --, 0 to 21.8 vol.%                           |
| SpO <sub>2</sub> ▼   | 92 %                          | --, 50 to 99 %                                |
| Pulse ▲              | 150                           | --, 31 to 300                                 |
| ▼                    | 50                            | --, 30 to 299                                 |

After standby, the apnea alarm and the alarms for low and high gas concentrations are deactivated in measuring mode until *Vamos/Vamos plus* has detected the first complete breath.

After standby, the SpO<sub>2</sub> and pulse alarms are deactivated until *Vamos/Vamos plus* has detected a pulse with a pulse rate greater than 30 bpm at least 6 times. The »SpO<sub>2</sub> Sens.?!« and »SpO<sub>2</sub> INOP!« alarms are still active.