

Vamos/Vamos *plus* Anesthetic gas monitor

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 CO₂ and SpO₂ monitoring and upgraded in the future to include monitoring for all 5 anesthetic agents and N₂O. The upgrade option can easily be installed on site to minimize any disruption.



The Vamos can be configured to meet the following three specifications:

- CO₂ and SpO₂
- Anesthetic agents, CO₂ and N₂O
- Anesthetic agents, CO₂, N₂O and SpO₂

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, CO₂ and N₂O
- Anesthetic agents, CO₂, N₂O and SpO₂

FLEXIBILITY

The SpO₂ 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.



Vamos *plus*



New Waterlock

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.

- 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.
- 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.



Dräger Vamos on Dräger Fabius Tiro

TECHNICAL DATA

General specifications

Measured parameters	CO ₂ , N ₂ O, 5 anesthetic agents SpO ₂ (Nellcor)
Gas measurement	breath to breath resolution
Rise time	< 500 ms (agents), < 350 ms (CO ₂)
Principle of measurement	advanced infrared technology, sidestream sample principle
Accuracy	as per ISO 21647
Sample flow rate	200 mL/min

Display

High-contrast amber electroluminescent display with excellent vertical and horizontal viewing angles.	
Display size	5" diagonal 4.25" x 2.28" (127 mm diagonal 108 x 58 mm)
Graphic display of CO ₂ waveform	
Numeric display	Fractional inspiratory concentration (Fi) of CO ₂ , N ₂ O and of selected agent (Vamos) or identified agent (Vamos plus)
	End-tidal concentration (Fet) of CO ₂ , N ₂ O and selected agent (Vamos) or or identified agent (Vamos plus)
Oxygen saturation (SpO ₂)	ISO 9919
Pulse rate	

Technical features and performance data

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 during operation < 45 W
Operating voltage	100 - 240 V, 50/60 Hz
	external power pack with country-specific connections
Battery backup operation (optional)	> 1 hour
Outputs	RS 232 Medibus RS 232 (only for service) Sample gas outlet (for sample gas supply to anesthetic gas scavenging system)

HEADQUARTERS

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

Instructions for Use Vamos[®]/Vamos[®] *plus*



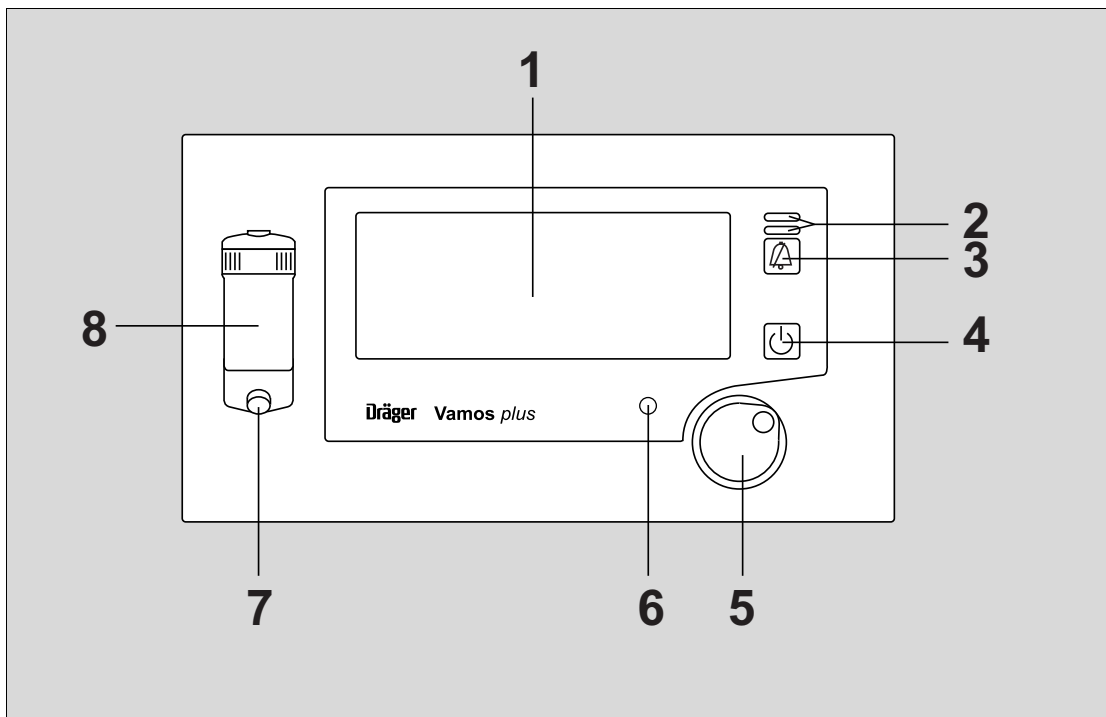
WARNING!

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®

1.9.

Setting the Alarm Limits 1.8.

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 ₂ ▲	5 mmHg 0.7 vol.%, 0.7 kPa	--, 1 to 20 mmHg --, 0.1 to 2.6 vol.%, kPa
FetCO ₂ ▲	50 mmHg 6.6 vol.%, 6.6 kPa	--, 1 to 75 mmHg --, 0.1 to 9.9 vol.%, kPa
▼	--	--, 0 to 74 mmHg --, 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 ₂ ▼	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 SpO₂ 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 »SpO₂ Sens.?!« and »SpO₂ INOP!« alarms are still active.