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Quick Start Guide
VM-2500 Capnograph

This quick start guide details the steps to successfully commence usage of the VM-2500. The full User Instructions can be found on the CD included with the unit. If you do not have access to a PC, and require a hard copy of these instructions to be sent, please contact Viamed on +44 (0)1535 634542.

1 Product overview

1.1 Available models

Mainstream Capnograph/Pulse Oximeter - VM-2500-M

The VM-2500-M is used together with an IRMA™ CO_2 analyzer, an IRMA™ airway adapter and an application appropriate SpO_2 sensor. Mainstream CO_2 monitoring is performed with the IRMA™ CO_2 analyzer.

Sidestream Capnograph/Pulse Oximeter - VM-2500-S

The VM-2500-S monitor is used together with a Nomo Adapter, a suitable sampling line configuration (e.g. sampling line, airway adapter, nasal/oral sampling) and an application appropriate SpO_2 sensor. Sidestream CO_2 monitoring is performed with the ISA™ CO_2 analyzer incorporated in the VM-2500-S.

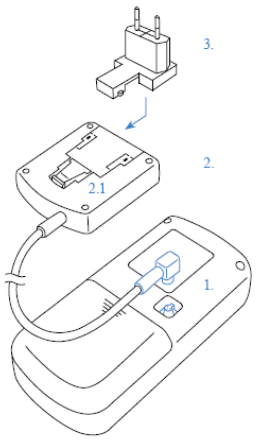
2 Preparation for Use

2.1 Selecting Power Supply

Power is supplied to the monitor either via external power supply, rechargeable Li-ion battery, or 4 x AA alkaline batteries.

2.1.1 Power Supply

The external power supply (100-240V AC / 50-60Hz, Model No. FW 7660M/06) is used for continuous operation of the monitor and to charge the Li-ion battery.



1. To operate by mains, connect the power supply cable into the power input socket located at the back of the device.
2. Ensure that the correct power supply plug is connected to the power supply. It can be exchanged by pressing the release button (2.1) on the power supply. As standard the device is supplied with a European and United Kingdom plug. Additional plugs are available upon request.
3. Connect the power supply to an AC outlet.

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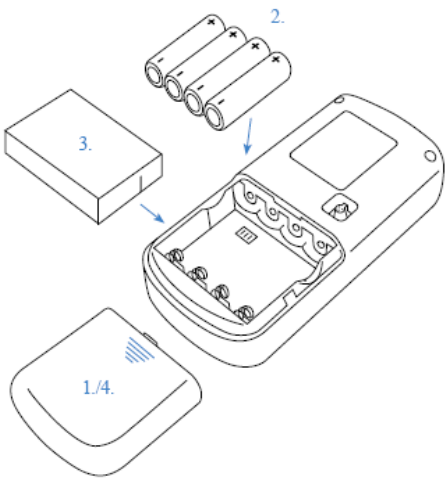
2.1.2 Li-ion Battery or AA Alkaline Batteries

For convenient monitoring in emergency medicine or during patient transport the monitor can be powered by the rechargeable Li-ion battery (3.7 V / 2500 mAh, Model No. CT-2500), or with 4 x AA alkaline batteries.

When the device is connected to an AC outlet the Li-ion battery will begin recharging. This is represented by the three segments of the battery level indicator illuminating in sequence. When the Li-ion battery is completely recharged the three segments of the battery level indicator will be displayed fully.

Note: The charging function is not available at the battery contacts of the 4 x AA alkaline batteries.



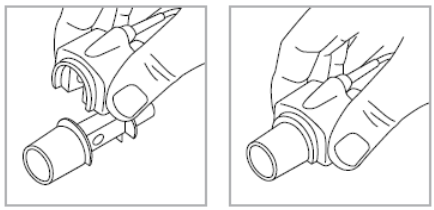
1. Slide down the cover of the battery compartment on the rear panel of the device.
2. Insert four alkaline batteries (1.5V, AA), ensuring the correct orientation in accordance with the polarity markings.
3. Alternatively, insert the rechargeable Li-ion battery (Model No. CT-2500), orientated according to the guiding grooves.
4. Slide the battery-compartment cover back into its initial position to close.

2.2 Connecting Sensors / Sampling Line Configurations to the VM-2500

2.2.1 IRMA™ CO_2 Analyzer (mainstream)

For CO_2 mainstream capnography with the VM-2500-M inspect the IRMA™ CO_2 analyzer and connector cables for any external damage.

Insert the connector of the IRMA™ CO_2 analyzer into the CO_2 Mainstream port located on the top edge of the VM-2500-M. Secure the IRMA™ CO_2 analyzer on top of the IRMA™ airway adapter. It will click into place when correctly seated.



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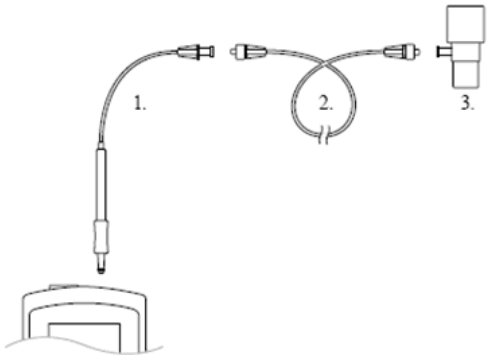
2.2.2 Nomo technology sampling line configuration (sidestream)

For CO_2 sidestream capnography with the VM-2500-S inspect the Nomo Adapter and the selected sampling line assembly for any external damage.

a) Insert the Nomo Adapter head into the CO_2 sidestream inlet port (LEGI™) located on the top edge of the VM-2500-S.

b) Now connect the selected sampling line assembly to the female Luer Lock connection at the Nomo Adapter. A typical sampling line assembly for intubated patients consists of a sampling line and a sidestream airway adapter. For non-intubated patients, a sampling line configuration with nasal and/or oral sampling is typical.



1. Reusable Nomo Adapter
2. Disposable sampling line
3. Sidestream airway adapter

Nomo Adapter with sampling line configuration for intubated patients

2.2.3 SpO_2 Sensor

Inspect the SpO_2 sensor and connector cables for any external damage.

Insert the SpO_2 sensor cable into the SpO_2 sensor port located on the top edge of the device, ensuring correct orientation of the sensor connector and the port.

2.3 Visual Check

Before commencing operation, ensure that the device, power supply, sensors or sampling line configurations are not damaged.

During the visual check of the VM-2500-S sidestream device, ensure that the gas outlet located at the rear part of the device is clear of any obstruction.

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2.4 Switching on the Device

Press and hold the ON/OFF button ⏻ briefly until an opening "welcome screen" appears. The power-on self-test is successfully completed after a single loud tone sounds.

2.5 Connecting Sensors / Sampling Line Configurations to the Patient

2.5.1 IRMA™ CO_2 Analyzer (mainstream)

A green LED indicates that the IRMA™ CO_2 Analyzer is powered and ready for use.

Perform the following tests prior to connecting the IRMA™ CO_2 Analyzer to the patient circuit:

1. Breath into the airway adapter and check that valid CO_2 waveforms and values are displayed by the monitor.
2. Remove the airway adapter and wait for 5 seconds.
3. Check that the airway adapter alarm is displayed and that the LED at the IRMA™ CO_2 Analyzer shows a flashing red light.

Now connect the IRMA™ airway adapter to the patient circuit:

1. Connect the 15 mm male connector of the IRMA™ airway adapter to the breathing circuit Y-piece.

2. Connect the 15 mm female connector of the IRMA™ airway adapter to the endotracheal tube with or without an angled connector.

Alternatively, connect a HME (Heat Moisture Exchanger) between the patient's endotracheal tube and the IRMA™ CO_2 analyzer. Placing a HME in front of the IRMA™ CO_2 analyzer protects the airway adapter from secretions and effects of water vapour and eliminates the need of changing the adapter. It allows free positioning of the IRMA™ CO_2 analyzer as well.

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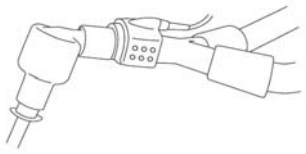
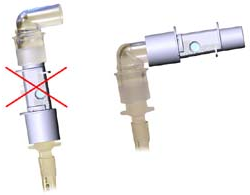


3. Perform the tightness check of the patient circuit with the IRMA™ CO_2 analyzer connected on the airway adapter.

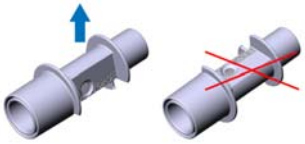
Warning:

Do not place the IRMA™ airway adapter between the endotracheal tube and an elbow as this may allow patient secretions to block the adapter windows and result in incorrect operation.



Warning:

To keep secretions and moisture from pooling on the windows, always position the IRMA™ CO_2 analyzer in a vertical position.



Warning: *Replace the adapter if condensation occurs inside the airway adapter.*

2.5.2 Nomo Technology sampling line configuration (sidestream)

A constant green light at the Light Emitting Gas Inlet (LEGI™) at the VM-2500-S indicates that the system is working correctly.

Perform the following tests prior to connecting the assembled sampling line configuration to the patient circuit:

1. Breath into the sampling line configuration and check that valid CO_2 waveforms and values are displayed on the VM-2500-S.
2. Occlude the sampling line with a fingertip and wait for 10 seconds.
3. Check that an occlusion alarm is displayed and that the LED shows a flashing red light.

Now connect the selected sampling line configuration to the patient circuit:

A. In the case of intubated patients

The sidestream airway adapter is connected to the tubing of the patient circuit.

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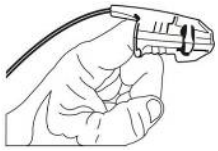
- First connect the male connector of the sidestream airway adapter to the breathing circuit Y-piece.
- Now connect the female connector of the sidestream airway adapter to the endotracheal tube with or without an angled connector.

B. In the case of non-intubated patients

The nasal or oral sampling configuration is directly connected to the nose or mouth respectively.

2.5.3 SpO_2 Sensor

1. Refer to the sensor 'Instructions for Use' to determine if an appropriate sensor is being used, and if it is applied correctly.



Adult

Paediatric

Neonatal

2. Confirm that all connections have been made correctly by verifying an actual SpO_2 waveform on the monitor display.

2.6 Commencing Monitoring

Once the sensors / sidestream sampling line configuration is connected and correctly positioned on the patient, monitoring begins automatically.

An audiovisual alarm appears, if any of the sensors or the Nomo Adapter is disconnected from the device.

2.7 Switching off the Device

Press and hold the on/off button ⏻ for approx. 3 seconds to switch off the device. The VM-2500 will also power off automatically after 5 minutes when not in use.