Quick Start Guide
VM-2500-MG Multigas Capnograph

This quick start guide details the steps to successfully commence usage of the VM-2500-MG. 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

Multigas Capnograph - VM-2500-MG

The VM-2500-MG is used together with an IRMA™ AX+ analyzer, an IRMA™ airway adapter and an application appropriate SpO$_2$ sensor. Mainstream AX+ monitoring is performed with the IRMA™ AX+ analyzer.
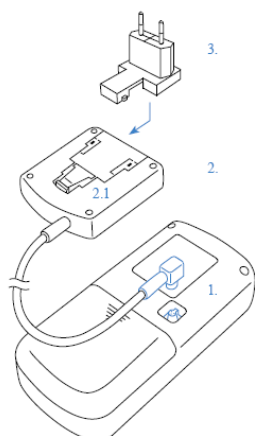
2   Preparation for Use

2.1   Selecting Power Supply

Power is supplied to the monitor either via external power supply, rechargeable Li-Poly 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-Poly 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.

2.1.2   Li-Poly Battery or AA Alkaline Batteries

For convenient monitoring in emergency medicine or during patient transport the monitor can be powered by the rechargeable Li-Poly 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-Poly battery will begin recharging. This is represented by the three segments of the battery level indicator illuminating in sequence. When the Li-Poly 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.
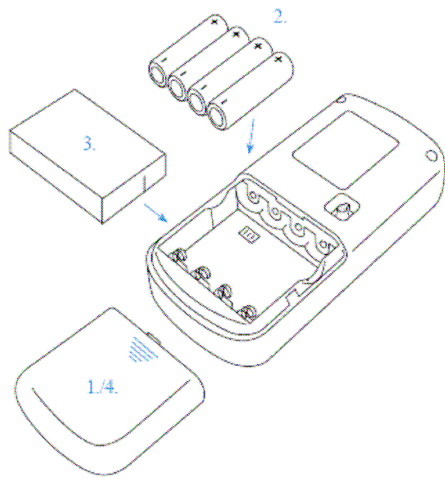
1. Slide down the cover of the battery compartment on the rear panel of the device.
2. Insert four alkaline batteries (1.5V, AA), ensuring the correct orientation in accordance with the polarity markings.
3. Alternatively, insert the rechargeable Li-Poly battery (Model No. CT-2500), orientated according 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-MG

2.2.1   IRMA™ AX+ Analyzer

Inspect the IRMA™ AX+ analyzer and connector cables for any external damage.

Insert the connector of the IRMA™ AX+ analyzer into the Multigas Mainstream port located on the top edge of the VM-2500-MG. Secure the IRMA™ AX+ analyzer on top of the IRMA™ airway adapter. It will click into place when correctly seated.
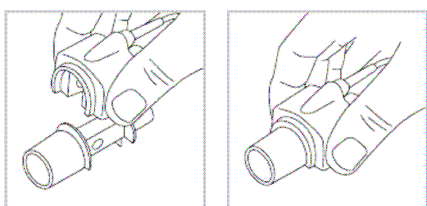
2.2.2   SpO$_2$ Sensor

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 its power supply and sensors are not damaged.

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 to the Patient
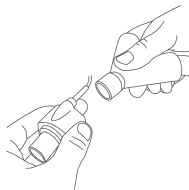
2.5.1   IRMA™ AX+ Analyzer

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

Perform the following tests prior to connecting the IRMA™ AX+ 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™ AX+ Analyzer shows a flashing red light.
4.   Connect a new airway adapter to the IRMA™ AX+ Analyzer.

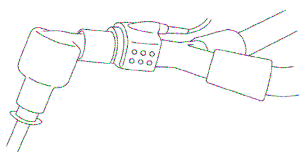Now connect the IRMA™ airway adapter to the patient circuit:

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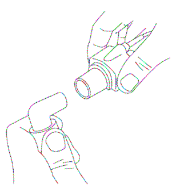
Alternatively, connect a HME (Heat Moisture Exchanger) between the patient's endotracheal tube and the IRMA™ AX+ analyzer. Placing a HME in front of the IRMA™ AX+ analyzer protects the airway adapter from secretions and effects of water vapour and eliminates the need of changing the adapter. It allows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

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

4. When connecting the IRMA™ AX+ adapter to an infant patient circuit it is important to avoid a direct contact between the analyser and the body. If, for whatever reason, the IRMA™ AX+ adapter is in direct contact with any part of the body an insulation material shall be placed between the analyser and the body.
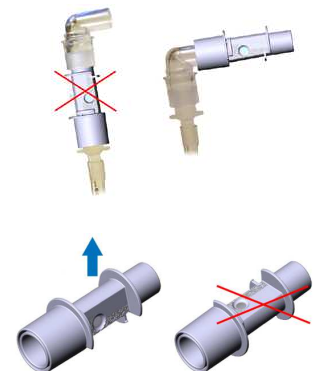
⚠️ **Warning:**

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.
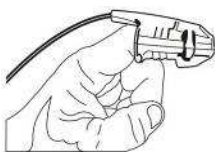
⚠️ **Warning:**

To keep secretions and moisture from pooling on the windows, always position the IRMA™ AX+ analyzer in a vertical position.
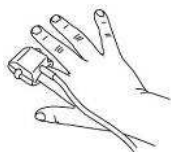
⚠️ **Warning:** *Replace the adapter if condensation occurs inside the airway adapter.*
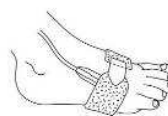
2.5.2   SpO₂ Sensor

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 are 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. The VM-2500-MG can be reset to the start-up configuration by resetting the alarms.

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-MG will also power off automatically after 5 minutes when not in use.