

Measurement range

SpO ₂	0 - 100%
Pulse rate	30 - 240 bpm
Perfusion	0.5 - 20%
Haemoglobin	0 - 25% g/dl
Haematocrit	35 - 53% ¹
Methaemoglobin	0 - 10%

Accuracy

SpO ₂	60 - 100% $\pm 2 A_{RMS}^{2}$
Pulse rate	30 - 240 ± 2 bpm
Haemoglobin	8 - 20 g/dl $\pm 1 A_{RMS}^{2,3,4}$
Haematocrit	35 - 53% $\pm 2.9 A_{RMS}^{1,2,3,4}$
Methaemoglobin	0 - 10% $\pm 1 A_{RMS}^{2}$

Display**Features****Data displayed**

TFT colour display, 262,000 colours, 240 x 320 pixels
Multi-parameter monitor for SpO₂, non-invasive Haemoglobin (Hb), Methaemoglobin (MetHb),
Pulse rate (PR), Haematocrit (Hct), plethysmogram, bar graph

Indicators

Signal strength and signal quality, pulse amplitude, battery status, sensor disconnection

Environmental Conditions**Operating temperature**

-0 - 40°C, 15 - 95% RH (non-condensing), 800 - 1200 hPa⁵

Storage temperature

-30 - 70°C, 10 - 95% RH (non-condensing), 800 - 1200 hPa⁵

Regulatory Approvals**Standards**

CE Class IIb in accordance with MDD 93/42/EEC
IEC 60601-1:2005 (3rd edition), IEC 60601-1 (2nd edition),
IEC 60601-1-2 (3rd edition), EN ISO 80601-2-61:2011, EN ISO 9919:2009,
ISO 14971:2007, IEC 60601-1-6:2010, IEC 60601-1-11:2010
Class II, Type BF - Type and degree of protection against electrical shock

Safety**Assembly****Construction**

IP31 (with silicone protective cover)

Dimensions

155 mm (L) x 75 mm (W) x 35 mm (H)

Weight

Approximately 550g (including batteries)

Power Supply

90 - 260 V AC/6 V DC, 50 - 60 Hz, 4 x AA alkaline batteries, 2.5 Ah Li-Poly Battery

Battery Life

up to 300 spot check measurements at an ambient temperature of 25°C

PC interface

USB 2.0

Part Numbers

VM-2400 Haemoglobin monitor

0012400

Standard accessories included:

VM-2400 Haemoglobin monitor

VM-2400 sensor

VM-2400 Counter key (500 units)

USB Cable

Silicone Protective Cover

Power supply (EU and UK Plug)

4 x AA batteries

1 x Li-Poly rechargeable battery

Instruction Manual

Additional Accessories

Silicone Protective Cover

4420611

Universal Mounting Plate

4420601

Anti-stress ball

0022401

IR-A radiator Philips InfraCare® HP3621

0022402

Counter Key 500

0012406

Counter Key 2500

0012407

Counter Key 5000

0012408

¹ Calculated from Hb value (Hb [g/dl] * 2.94) | J.D. Bauer, P.G. Ackermann, G. Tori, Clinical laboratory methods. The C.V. Mosby Company, Saint Luis 1974, S. 156

² A_{RMS} $\pm 1 A_{RMS}$ represents approximately 68% of measurements

³ Preheated

⁴ Valid if SpO₂ > 89% and MetHb < 6%

⁵ With Li-Poly battery the conditions are reduced to: operating while charging at 0 - 40°C and 860 - 1060 hPa, storage (1 month) at -20 - 60°C and 860 - 1060 hPa

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Specifications subject to change

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Part Number: 0092640

Date: 11/15 v2

haemoglobin monitoring

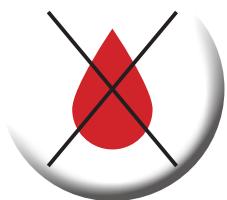


VM-2400

Haemoglobin Monitor

SpO₂, non-invasive Haemoglobin and Methaemoglobin multi-parameter monitor

- Simple and intuitive operation
- Fast measurement (approximately 40 seconds)
- Detection of unphysiological MetHb
- No bio-contaminated waste
- Pain-free
- Long battery life (up to 300 measurements)
- Storage of up to 12,000 measurements



The VM-2400 Haemoglobin monitor is particularly suitable for use in blood donation centres and eliminates the need for a finger prick test. The non-invasive procedure and short measurement time provides a convenient and more comfortable experience for the donor.

European Research Funding



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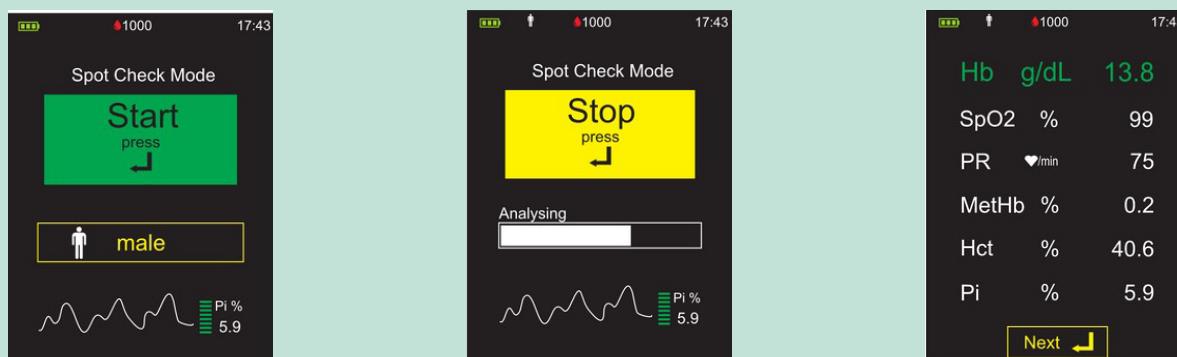
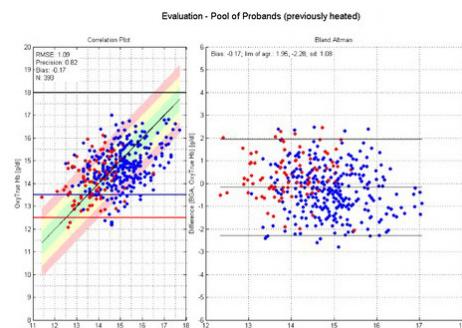
VM-2400 Multi-parameter Monitor for SpO₂, non-invasive Haemoglobin and Methaemoglobin

The SMARTsat SpO₂ technology platform was developed over the last few years in close co-operation with well-established research institutions and university hospitals.

The very latest and innovative signal processing technologies and algorithms enables the measurement of the following parameters:

- Hb (non-invasive Haemoglobin)
- SpO₂ (functional saturation)
- PR (pulse rate)
- MetHb (Methaemoglobin)
- Hct (Haematocrit)
- PI (perfusion index)

The VM-2400 Haemoglobin monitor and dedicated sensor have been evaluated and calibrated against reference measurements from clinical studies.





VM-2400 Multi-parameter Monitor for SpO₂, enables simple and fast measurements

The VM-2400 provides increased efficiency and reduced operating costs in comparison to conventional laboratory diagnostics.

The intuitive menu structure enables a fast measurement without the need for expert knowledge. With this non-invasive procedure the patient will experience a pain-free and stress-free blood analysis, without the risk of cross-contamination.

In addition, there are environment benefits from the reduction in contaminated bio-medical waste.



Counter Keys are easily connected to the device and provide either 500, 2500 or 5000 measurements.

The VM-2400's sensor is robust and can be comfortably used with a range of finger sizes

Methaemoglobin

MetHb is an abnormal haemoglobin which is not able to bind oxygen and reduced the oxygen uptake capacity. High and non-physiological MetHb values reduce the blood quality significantly and the donated blood should not be used for blood transfusions.

The formation of MetHb can be caused by local anaesthesia, several medications or drugs. Excluding blood donors with high MetHb concentrations can raise the quality of blood preservations.