



The **Philips SureSigns Vm4** is a portable patient monitor that can also monitor vital signs. The SureSigns VM4 monitor measures ECG, SpO2, non-invasive blood pressure, Hear rate, arrhythmia, pulse rate, temperature, and respiration. The monitor comes with an 8-inch color display screen that can display up to 3 waveforms at once. The patient monitor can store up to 96 hours of trending data. The Philips SureSign VM4 offers 6 hours of continuous battery life before needing to be charged.

## Features

- 8 inch, bright, backlit Led display screen
- Audible and visual alarms with nurse call output
- 4 Display Modes: Numeric, Numeric with waveforms, Tabular Trent, Graphical Trend
- Stores up to 96 hours of trending data



# Specifications

## Dimensions

Height: 8.6 in ( 22 cm)

Width: 10.2 in ( 26 cm)

Diameter: 5.7 in ( 14.5 cm)

Weight: 3.0 kg (6.6 lbs) excluding optional recorder and temperature module

## Physical Specifications

Screen type: 21.3 cm (8.4") SVGA TFT-AM LCD display

Display resolution: 800 active pixels/line, 600 active lines/frame

Screen active area: 170.4 mm x 127.8 mm (6.71" x 5.03")

Screen refresh frequency: 60 Hz

Pixel size: 0.213 mm (inch)

Viewing angle: approx. 60 °

Alarm Audio Range: 45 - 85 dB

System Response Time: 1 sec

## Electrical Specifications

Internal battery: Lithium ion, Smart battery 10.9 V to 11.1 V, 7200 mAh

Battery operating time (new, fully charged): 4 hr

Battery charge time: <lt/>4 hr

Internal power supply: 100 to 240 VAC

Power consumption: 72 W

Frequency: 50/60 Hz

## ECG

Heart rate range: 15 to 300 beats per minute

Heart rate accuracy: Greater of  $\pm 10\%$  or  $\pm 5$  bpm

Bandwidth (normal monitoring): 0.67 to 40 Hz

Bandwidth (filtered monitoring): 0.67 to 20 Hz

Leads: 3-lead

Display sweep speeds: 12.5, 25, and 50 ml/s

Pacemaker detection: Indicator on waveform display (user-selectable)

ECG size (sensitivity): 2.0, 1.0, 0.5 or 0.25 cm/mV or Auto

Lead Off condition: Detected and displayed

Input impedance: Signal reduction is less than 20% in the 0.67 to 40 Hz bandwidth

Input signal range:  $\pm 5$  mV

## Environmental Specifications

Operating temperature: 10 to 40 °C (50 to 104 °F)

Storage temperature (device): -20 to 50°C (-4 to 122 °F)

Storage temperature (device plus accessories): -20 to 40°C (-4 to 104 °F)

Operating humidity: Up to 80% RH, non-condensing

Storage humidity: Up to 90% RH, non-condensing

Altitude: Up to 3000 meters above sea level

# Specifications

## Temperature Measurements

Measurement range - monitored mode: 26.7 to 43.3 °C (80 to 110 °F)  
 Measurement range - predictive mode: 34.4 to 40.6 °C (93.9 to 105 °F)  
 Accuracy (monitored mode):  $\pm 0.1$  °C ( $\pm 0.2$  °F)  
 Heating/Cooling transient response time:  $\leq 150$  sec  
 Measurement time: 4 s (Oral);  $< 16$  s (Axillary and rectal) sec  
 Resolution: 0.1 °C (0.2 °F)

## SpO2

Measurement range: 0 to 100 %  
 Pulse rate: 30 to 300 beats per minute  
 SpO2 accuracy: 70 to 100% (exact accuracy depends on sensor) %  
 Pulse rate accuracy: Greater of 2% or  $\pm 1$  bpm  
 Wavelength range: 500 to 1000 nm for all specified sensors nm  
 Maximum optical output power:  $\leq 15$  mW for all specified sensors mW

## Non-invasive Blood Pressure

Technique: Oscillometric using stepwise deflation pressure  
 Adult measurement range - systolic: 30 mmHg to 270 mmHg (4.0 kPa to 36.0 kPa)  
 Initial cuff inflation - Adult: 160 mmHg (21.3 kPa)  
 Adult measurement range - diastolic: 10 mmHg to 245 mmHg (1.3 kPa to 32.7 kPa)  
 Adult measurement range - MAP: 20 mmHg to 255 mmHg (2.7 kPa to 34.0 kPa)  
 Adult measurement range - pulse rate: 40 to 300 beats per minute  
 Pediatric measurement range - systolic: 30 mmHg to 180 mmHg (4.0 kPa to 24.0 kPa)  
 Pediatric measurement range - diastolic: 10 mmHg to 150 mmHg (1.3 kPa to 20.0 kPa)  
 Initial cuff inflation - Pediatric: 140 mmHg (18.7 kPa)  
 Pediatric measurement range - MAP: 20 mmHg to 160 mmHg (2.7 kPa to 21.3 kPa)