

PHILIPS

EarlyVue

VS30 vital signs
monitor



Early detection.
Intelligent intervention.

EarlyVue VS30 vital signs monitor technical data sheet



Specs that matter, clinical **benefits that count**

Simplify your workflow

- **Task Light:** illuminates area below the monitor
- **Dark/Light Display:** helps avoid screen glare
- **QuickCheck**
 - Caregiver authentication at the bedside
 - Patient ID and/or record validation at the bedside
 - Patient record export via native HL7 to EHR
- **QuickCapture**
 - Customize up to 40 parameters and observations entries for full documentation at the bedside
- **QuickAlerts**
 - Supports customizable EWS protocols
 - Configurable EWS; auto-calculates at the bedside
 - Compatible with Philips Central Stations (IGS or PIC iX)
- **QuickNBP**
 - Provides faster NBP measurements
 - One-touch NBP on/off button
- **SpO₂**
 - Choice of Philips SpO₂ or Masimo rainbow SET™
- **SpHb and RRa options**
 - Enabled with Masimo rainbow SET
- **Microstream™ etCO₂ option**
 - Includes Integrated Pulmonary Index (IPI)
- **Temperature choices**
 - Welch Allyn® Predictive or Exergen® Temporal
- **Biomedical and IT device maintenance tool kit**
 - Philips Device Management Dashboard, Rev A.02
- **Dual purpose barcode scanners**
 - Support consistent and reliable patient and user ID entry
- **Other benefits**
 - 10.1" color touch screen with dark or light display toggle
 - Uses same supplies as many other Philips monitors
 - Time-sync with hospital or network clock
 - Stores up to 1,000 patient records
 - Programmable auto-delete and auto-hide records
 - Confirmation of exported record status - green oval
 - LAN/WLAN/serial data export in HL7 format
 - Internal WiFi – 802.11 a/b/g/n option
 - USB ports for easy software upgrades and config settings
 - Lithium ion, 9-cell smart battery
 - Battery management, includes visible icon to show device is plugged in and charging
 - Interoperability with Philips Central Stations (IGS or PIC iX)





Side panel fixed key

- On/standby
- AC power LED
- Charging LED

Alarms

- Three alarm severity levels (high, medium, low) that determine the monitor's visual and audio response
- Visual alarm indicators, including flashing numeric panes, alarm messages, alarm icons and 360° alarm light
- Audible alarms configurable for volume, tone, and silence
- Configurable alarm limits
- Ability to latch all physiological alarms
- Automatically set alarm limits based on the patient's current vital sign values

Device connections

- USB ports for software upgrades, barcode scanner connection, or serial interface adapter connection
- Ethernet port for exporting HL7 data
- Nurse call connector for alarm output to a nurse call system
 - Connector 3.5 mm phone jack, N.O and N.C contacts
 - Contact rating $\leq 1\text{ A @ } <25\text{ VAC, } <60\text{ VDC}$
 - Isolation 1.5 kV
 - Delay time $<1\text{ sec}$
- Wireless data export

Standards

- IEC 60601-1, IEC 60601-1-2, IEC 60601-1-6, IEC 60601-1-8, IEC 80601-2-30, IEC 60601-2-49, ISO 80601-2-55, ISO 80601-2-56, ISO 80601-2-61
- Protection class: Class I, internally powered equipment, per IEC 60601-1
- Degree of protection: Type CF defibrillator-proof: per IEC 60601-1
- Ingress of liquids: IPX2
- Protection against hazards of ignition of flammable anaesthetic mixtures: equipment is not suitable for use in the presence of a flammable anaesthetic mixture with air or oxygen or nitrous oxide, per IEC 60601-1

Wireless radio compliance standards

- ETSI: EN 300 328, EN 301 489-1, EN 301 489-17, EN 301 893, EN 60950-1
- FCC Regulatory Domain: Part 15.247 Subpart C, Part 15.407 Subpart E
- Industry Canada: RSS-210/RSS-Gen Issue 2

Physical (not to exceed) specifications

- Width: 33 cm
- Height: 23 cm
- Depth: 23 cm
- Weight: 5 kg or less, fully optioned and battery inserted

Display

- Screen type: 10.1 in LCD with 5-wire resistive touchscreen
- Refresh frequency: 60 Hz
- Resolution: 1280 active pixels/line, 800 active lines/frame
- Screen active area: 216.96 mm x 135.6 mm
- Pixel Pitch: 0.1695 mm x 0.1695 mm
- Viewing angle: $\pm 85^\circ$

Recorder

- Recorder type: thermal
- Paper width: 58 mm
- User selectable speeds: 6.25, 12.5, 25, and 50 mm/sec



Environmental specifications

Complies with mechanical shock and vibration requirements in IEC 80601-2-30, ISO 80601-2-55, 80601-2-56 and, 80601-2-61 standards for use within a professional health care facility.

Shock

Peak acceleration	150m/s ² (15g)
Duration	11 ms
Pulse shape	Half sine
Number of shocks	3 shocks per direction per axis (18 total)

Vibration

Frequency range	10 Hz to 2000 Hz
Resolution	10 Hz
Acceleration amplitude	10 Hz to 100 Hz: 1.0 (m/s ²) ² /Hz 100 Hz to 200 Hz: -3.0 dB/octave 200 Hz to 2000 Hz: 0.5 (m/s ²) ² /Hz
Duration	10 minutes per each perpendicular axis (3 total)

Thermal

Operating temperature	10°C to 40°C (50°F to 104°F) monitor 16°C to 40°C (60°F to 104°F) monitor with temporal thermometer
Storage	-20°C to 50°C (-4°F to 122°F) monitor -20°C to 40°C (-4°F to 104°F) monitor with accessories

Humidity, operating, and storage

10% to 90% RH (non-condensing) for monitor
10% to 80% RH for monitor with recorder and paper

Electrical specifications

Battery	Lithium ion, smart battery 11.1 V 7800 mAh
Battery operating time (new, fully charged battery)	At least 6 hours of monitoring SpO ₂ continuously and NBP measured every 15 minutes
Battery charge time to 90%	<4 hours when unit is in suspend and with supported battery
Internal power supply	100 VAC to 240 VAC
Maximum output power consumption	60 W
Frequency	50/60 Hz

Non-invasive blood pressure (NBP)

Technique	Oscillometric using stepwise deflation pressure
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Subsequent cuff inflation (in NBP Interval mode only)	Determined automatically depending on the previous measurement and patient type
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Adult range

Systolic	30 mmHg to 270 mmHg
Diastolic	10 mmHg to 240 mmHg
MAP	20 mmHg to 250 mmHg
Pulse rate range	40 bpm to 300 bpm

Pediatric range

Systolic	30 mmHg to 180 mmHg
Diastolic	10 mmHg to 150 mmHg
MAP	20 mmHg to 160 mmHg
Pulse rate range	40 bpm to 300 bpm

Neonatal range

Systolic	30 mmHg to 130 mmHg
Diastolic	10 mmHg to 100 mmHg
MAP	20 mmHg to 120 mmHg
Pulse rate range	40 bpm to 300 bpm

BP accuracy

Maximum standard deviation	8 mmHg
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Maximum mean error	±5 mmHg
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Pulse rate accuracy

40 bpm to 100 bpm	±5 bpm
101 bpm to 200 bpm	±5% of reading
201 bpm to 300 bpm	±10% of reading

Initial inflation pressure (factory default settings)

Adult	160 mmHg (21.3 kPa)
Pediatric	140 mmHg (18.7 kPa)
Neonatal	100 mmHg (13.3 kPa)

NBP interval choices

Automatic measurements at configured interval of Off, 1, 2, 3, 5, 10, 15, 30, 60, 90 or 120 minutes or STAT

Up to five interval programs can be defined



Predictive temperature

Measurement range	Monitored mode 26.7°C to 43.3°C (80.1°F to 109.9°F) Predictive mode (Adult and pediatric) Oral 35.6°C to 40.5°C (96.1°F to 104.9°F) Axillary 34.5°C to 40.5°C (94.0°F to 104.9°F) Rectal 29.0°C to 42.0°C (84.1°F to 107.9°F)
Accuracy	±0.1°C (±0.2°F) Monitored mode
Measurement time	4-6 seconds Oral <16 seconds Axillary and rectal
Resolution	0.1°C (0.1°F)

Temporal temperature

Measurement range	16°C to 43°C (60.8°F to 109.4°F)
Accuracy	±0.1°C (±0.2°F) per ASTM E1112
Measurement time	≤ 1 second
Arterial heat balance range for body temperature	34.5°C to 43°C (94°F to 110°F) Normal range is defined as 35.9°C to 37.5°C (96.6°F to 99.5°F) with mean of 37°C (98.6°F).
Resolution	0.1°F or 0.1°C on probe or on monitor

Masimo rainbow™ measurements

SpHb Accuracy	±1 g/dl (1.0 mmol/l); range 8 g/dl - 17 g/dl
RRa Accuracy	±1 breath per min.; range 4 - 70 breaths/min.

Total Hemoglobin (SpHb) and Acoustic Respiration (RRa), enabled with Masimo rainbow, is only supported on Adult (>30 kg) and Pediatric patients (>10 kg).

Philips FAST SpO₂

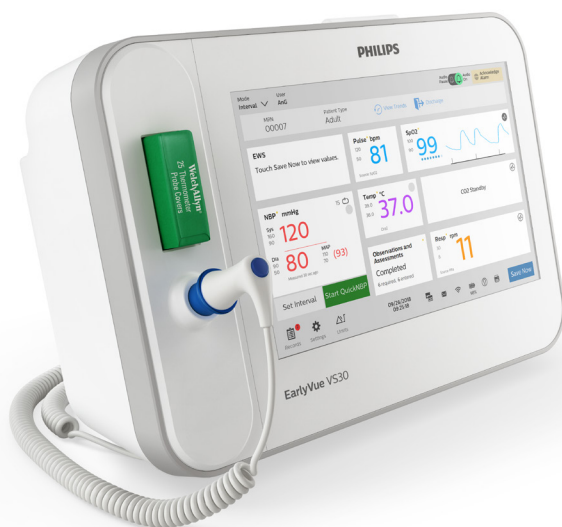
Measurement range	0% to 100%
Accuracy	70% to 100% ±2% to 4% for all approved sensors
Pulse rate	30 bpm to 300 bpm
Pulse rate accuracy	Within 2% or 1 bpm, whichever is greater
Wavelength range	500 nm to 1000 nm for all specified sensors

Masimo rainbow SET™ SpO₂

Measurement range	0% to 100%
Accuracy – Adults, pediatrics, infants, and neonates	Motion 70% to 100% ± 3% Low perfusion 70% to 100% ± 2%
Accuracy – Adults, pediatrics, infants	No motion 60% to 80% ± 3% 70% to 100% ± 2%
	No motion 70% to 100% ± 3% (neonates only)
Pulse rate	25 bpm to 240 bpm
Pulse rate accuracy – Adults, pediatrics, infants, and neonates	No motion ±3 bpm Motion ±5 bpm Low perfusion ±3 bpm
Wavelength range	500 nm to 1400 nm for all specified sensors

CO₂

Measurement range	0 mmHg to 150 mmHg
Sampling flow rate	50 ml/min, (+15 ml/min, -7.5 ml/min) flow measured by volume
CO ₂ reporting resolution	0.1 mmHg
etCO ₂ and imCO ₂ displayed resolution	1 mmHg
Initialization time	40 seconds (typical), maximum 3 minutes
Total response time for adults/pediatrics	3.9 seconds, for 10% to 90% changes in CO ₂ concentration
Maximum CO ₂ response time (with a standard-length FilterLine™)	5.3 seconds (typical)
Calibration interval	Initially 1,200 hours or one year (whichever comes first). Thereafter, once per year or 4,000 hrs (whichever comes first)
Accuracy (for breath rates up to 80 rpm)	0 mmHg to 38 mmHg: ±2 mmHg 39 mmHg to 99 mmHg: ± (5% of reading + 0.08% for every 1 mmHg above 38 mmHg) 100 mmHg to 150 mmHg: ± (0.43% of ambient pressure + 8% of reading)
Respiration rate accuracy	±1 rpm in the range of 0 rpm to 70 rpm ±2 rpm in the range of 71 rpm to 120 rpm ±3 rpm in the range of 121 rpm to 150 rpm



Wireless

Networking standards IEEE 802.11a, 802.11b, 802.11d, 802.11e, 802.11g, 802.11h, 802.11i, 802.11n

WiFi transmit power settings

802.11a	6 Mbps 15 dBm (32 mW) 54 Mbps 12 dBm (16 mW)
802.11b	1 Mbps 16 dBm (40 mW) 11 Mbps 16 dBm (40 mW)
802.11g	6 Mbps 16 dBm (40 mW) 54 Mbps 12 dBm (16 mW)
802.11n (2.4 GHz)	6.5 Mbps (MCS0) 16 dBm (40 mW) 65 Mbps (MCS7) 12 dBm (16 mW)
802.11n (5 GHz)	6.5 Mbps (MCS0) 15 dBm (32 mW) 65 Mbps (MCS7) 12 dBm (16 mW)

Security standards

WEP, WPA, and WPA2

802.11X Extensible Authentication Protocol Type:
EAP-TLS, EAP-TTLS, PEAP-MSCHAPv2

WiFi certified

Cisco compatible

Typical receiver sensitivity¹

802.11a	6 Mbps -90 dBm 54 Mbps -73 dBm (PER ≤10%)
802.11b	1 Mbps -89 dBm 11 Mbps -82 dBm (PER ≤10%)
802.11g	6 Mbps -85 dBm 54 Mbps -68 dBm (PER ≤10%)
802.11n (2.4 GHz)	MCS0 Mbps -86 dBm MCS7 Mbps -65 dBm
802.11n (5 GHz)	MCS0 Mbps -90 dBm MCS7 Mbps -70 dBm

Note: All values nominal, +/-3 dBm.


Antenna test specifications

Type	Dipole
Maximum 2.4 GHz gain	2 dBi
Maximum 5.6 GHz gain	4.0 dBi



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