

Connex Spot Monitor

Launch Pack

June 2015



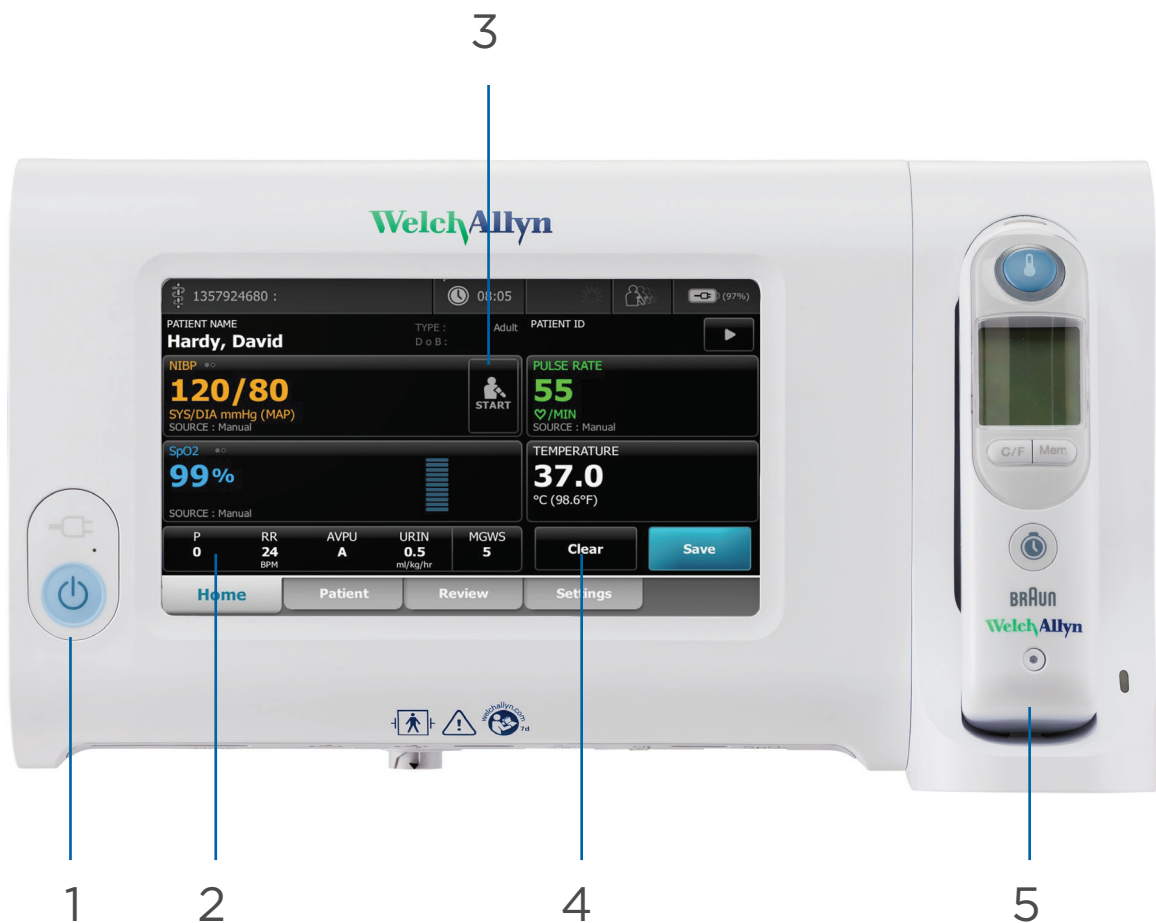
Welch Allyn Portfolio

Multi-parameter Vital Signs Devices



	Spot	Spot LXi	Connex® Spot Monitor (CSM)	Connex Vital Signs Monitor (CVSM)
Workflows	Spot	Spot	Spot Intervals Office	Spot Intervals Office Continuous
Device Type	Basic	Basic	Advanced	Advanced
Patient Populations	Adult Paediatric	Adult Paediatric	Adult Paediatric Neonatal	Adult Paediatric Neonatal
Monitoring			Intervals	Continuous
Device Alarms			Yes	Yes
3rd Party Alarm Notification				Yes
Parameters	Blood Pressure Temperature SpO ₂	Blood Pressure Temperature SpO ₂	Blood Pressure Temperature SpO ₂	Blood Pressure Temperature SpO ₂ etCO ₂
SureBP® (15-sec)		Yes	Yes	Yes
Blood Pressure Averaging			Yes	Yes: 6300 Models
Contact-Free Monitoring				Respiration Bed Exits Turn Reminders
Diagnostic Handles				
SpO ₂ Options	Nellcor Masimo	Nellcor Masimo	Nellcor Masimo Nonin	Nellcor Masimo
Integrated Temperature Options	SureTemp	SureTemp Plus Braun PRO4000	SureTemp Plus Braun PRO6000	SureTemp Plus
External Temperature Options				Braun PRO4000
Early Warning Scoring			Up to 3 protocols	1 protocol
Custom Documentation Fields			Up to 20	Up to 20
Wireless Connectivity			WiFi	WiFi
Wired Connectivity		USB	USB Ethernet	USB Ethernet
EMR Client Support		Thin Thick	Thin Thick	Thin Thick
Display	LED	LCD Monochrome	7" Colour LCD Touchscreen	8.9" Colour LCD Touchscreen
Cleaning Agent Compatibility Coverage	Low	Low	High	Medium
Mounting Options	Basic Stand	Basic Stand	Power Mgmt Stand Classic Stand Wall Channel Wall Mount	Cable Mgmt Stand Basic Stand Wall Channel
Accessory Options		Scales, Barcode	Barcode	Scales, Barcode
Memory (# Readings)	1	50	400	400
Launch Year	2001	2006	2015	2010

CSM Device Overview



Important features

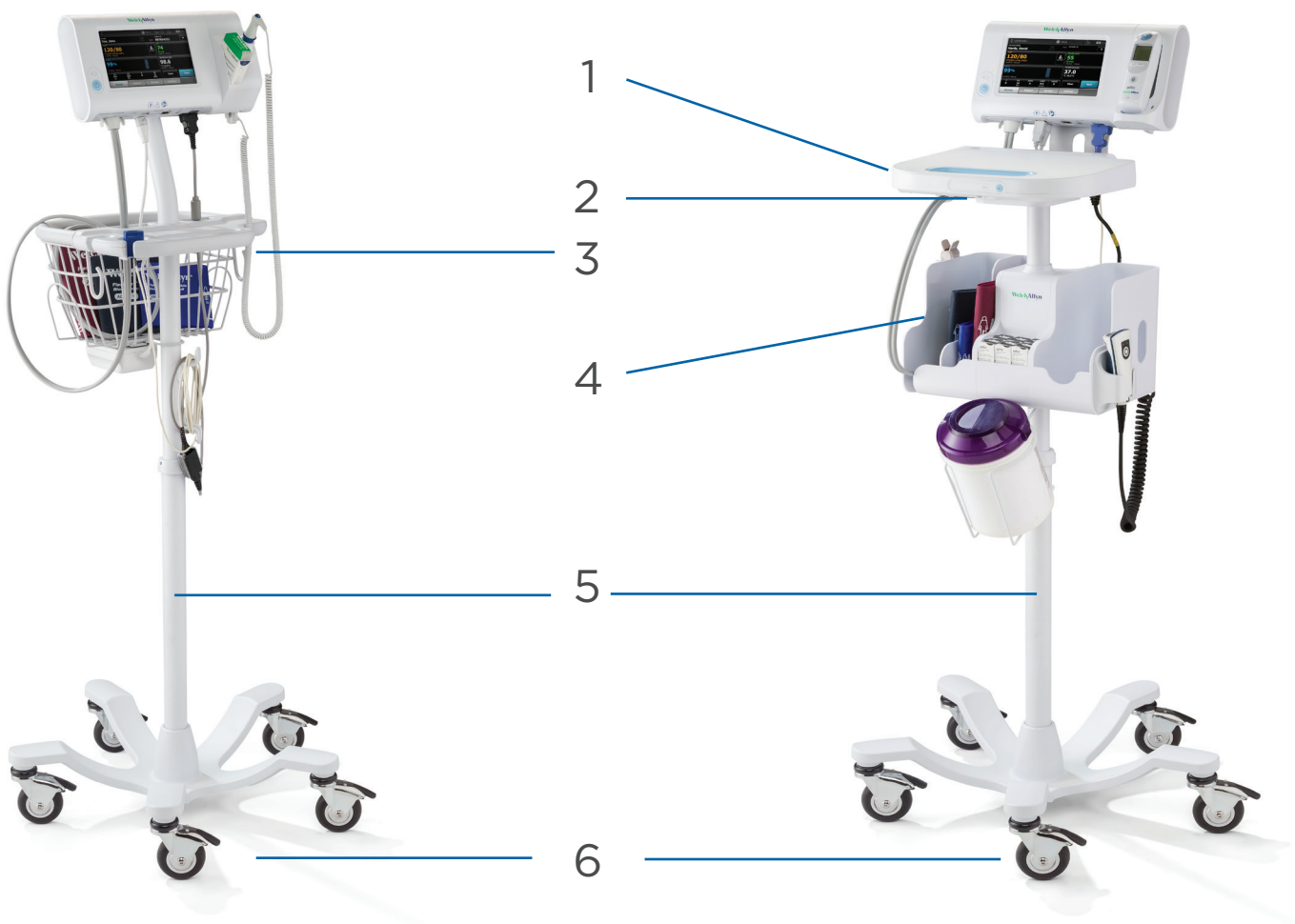
1. On/Off Button
2. Early Warning Scores Tile
3. SureBP Blood Pressure Start Button
4. Clear Results Button
5. Optional Integrated Pro6000 or SureTemp Plus Thermometry

For full details please refer to the CSM Training Pack

CSM Roll Stands Overview

Classic Stand

Advanced Power Management Stand



1. Worksurface with an additional battery, provides 17 hours of operation
2. LED night light
3. Cable management features
4. Advanced storage and cable management
5. Stand can be disassembled easily
6. Unique, quiet Whisperdrive wheels

Key Customer Benefits

Key clinical points:

- BHS A/A validated SureBP® technology takes BP in 15 seconds
- Create up to 3 customised Early Warning Scores in the same device - such as EWS, PEWS, etc.
- Supports adult, paediatric and neonatal patients
- New blood pressure averaging (to help mitigate the effect of white coat hypertension)
- Optional SpO2, thermometry, barcode scanner & wireless connectivity
- A central point of data entry for up to 20 patient observations
- Configuration tool – centrally control how all devices behave
- Highly resistant to cleaning agents including Clinell
- Up to 17 hours of operation with the Advanced Power Management Stand

Key technical points:

- Available wireless ready or upgrade later
- Easy to use vivid touchscreen display
- Made with materials highly resistant to cleaning agents, including Clinell®
- Connex range has proven integration with more than 90 leading EMRs including Epic, Meditech and Cerner
- Upgradeable design to help protect investment
- Most advanced wireless security protocols
- Up to 17 hours of operation with the optional Advanced Power Management Stand
- Configuration tool – centrally control how all devices behave
- Customise devices at time of purchase – ready to go out of the box

For full details please
refer to the CSM
Training Pack



Configuration Options & Accessories

CONNEX SPOT MONITOR	7100	7400	7500
Parameters			
SureBP® NIBP	●	●	●
SureTemp® Plus Thermometry	○	○ ↑	○ ↑
Braun PRO 6000 Ear Thermometry	○	○ ↑	○ ↑
Masimo or Nellcor OxiMax® SpO ₂		●	●
Nonin SpO ₂	○		○
Communications			
WiFi		↑	●
USB, Ethernet	●	●	●
Accessories			
Classic Stand	○	○	○
APM Stand	○	○	○
GCX Wall Channel	○	○	○
Barcode Scanner	○	○	○

● Included

○ Optional

↑ Upgradeable

ACCESSORIES

7000-APM	Connex Spot Accessory Power Management Stand
7000-MS3	Connex Spot Classic Mobile Stand
7000-GCX	Connex Spot GCX VESA Wall Channel
6000-NC	VSM 6000 Nurse Call Cable
7000-916HS	HS1 2D Barcode Scanner
106275	Connectivity Accessory Kit USB Cable
6000-50	VSM 6000 USB Configuration Memory Stick
7000-PS	Power Supply (required if not ordering a stand or wall mount)
BATT22	CSM Lithium-Ion Battery
BATT99	APM Stand Lithium-Ion Battery
4500-35	Blood Pressure Hose with FlexiPort (10 ft)
7000-33	Neonatal Blood Pressure Hose (10 ft)
LNCS-DCIP	Masimo Pediatric Reusable Finger Sensor
D-YS	Nellcor Dura-Y® Sensor
D-YSPD	Nellcor PediCheck® Pediatric Finger Sensor (Requires D-YS)
2360-010	Nonin Reusable Pediatric Sensor (2m)
S1-CSM-5	CSM, Comprehensive Partner Programme, 5 years
S2-CSM-5	CSM, Biomed Partner Programme, 5 years
S4-CSM-5	CSM, Warranty Extension, 5 years

One- and two-year service plans also available.

Ordering Information

Understanding Order Codes for the Connex Spot Monitor

MODEL	PULSE OXIMETRY	TEMPERATURE	PART NUMBER
BASE MODELS (NOT UPGRADEABLE TO WIFI)			
7100	X= None	X= None	71XX-4
		T= Sure Temp	71XT-4
	W= Nonin	X= None	71WX-4
		T= Sure Temp	71WT-4
STANDARD HOSPITAL MODELS (UPGRADEABLE TO WIFI)			
7400	C= Covidien	X=None T= SureTemp	74CX-4 74CT-4
	M= Masimo	X=None T= SureTemp	74MX-4 74MT-4
WIRELESS HOSPITAL MODELS (WIFI RADIO INCLUDED)			
7500	W= Nonin	X=None T= SureTemp	75WX-4 75WT-4
	C= Covidien	X=None T= SureTemp	75CX-4 75CT-4
	M= Masimo	X=None T= SureTemp	75MX-4 75MT-4

Box Contains:

- CSM Device
- BP Hose & 2 Flexiport Cuffs
 - Adult (REUSE-11)
 - Large Adult (REUSE-12)
- Calibration Certificate
- Mains Power Cable
- Direction for Use & Service Manual CD
- Optional - SpO2 Sensor (Nellcor, Masimo or Nonin)
- Optional - SpO2 Interface Cable (Nellcor, Masimo or Nonin)
- Optional - Thermometer probe/Pro6000 thermometer

For pricing please
refer to the separate
Price List

PLEASE NOTE: The CSM does not ship with a Power Supply (p/n:7000-PS), this is shipped with the Roll Stands and Wall Mount. A Power Supply must be ordered separately if purchasing a CSM without a Roll Stand or Wall Mount.

CSM Specifications

Physical specifications

Protection classifications, all monitor configurations

Characteristic	Specification
Electrical rating	100 – 240 V AC, 50 – 60 Hz, 0.8X– 1.5 A
Duty cycle	Continuous operation
Type of protection against electric shock	Class I internally powered
Degree of protection against electric shock, for parts applied to patients	Type BF defibrillator proof IEC EN 60601-1, 2nd and 3rd Editions
Recovery time following defibrillator discharge	Less than or equal to 10 seconds

Flammable anesthetics



WARNING Not suitable for use with flammable anesthetics.

Degree of protection provided by the enclosure with respect to harmful ingress of liquids
IPX1 Protection against vertically falling drops of water

Height	Standard chassis: 6.3 in. (16.1 cm) Extended chassis: 6.5 in. (16.6 cm) with Braun Extended chassis: 6.4 in. (16.6 cm) with SureTemp
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Width	Standard chassis: 9.2 in. (23.4 cm) Extended chassis: 11.7 in. (29.8 cm) with Braun Extended chassis: 11.7 in. (29.8 cm) with SureTemp
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Depth	Standard chassis: 2.3 in. (5.8 cm) Extended chassis: 4.4 in. (11.0 cm) with Braun Extended chassis: 4.2 in. (10.6 cm) with SureTemp
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For full details please refer to the CSM Directions For Use

Protection classifications, all monitor configurations

Graphical display resolution

Dimensional outline	6.5 in. (W) x 4.1 in. (H) x 0.13 in. (D) (164.9 mm [H] x 103.8 mm [W] x 3.40 mm [D])
Active area	6.1 in. (W) x 3.4 in. (H) (154.08 mm [W] x 85.92 mm [H])
Resolution	800 x 480 pixels
Pixel arrangement	RGB (red, green, blue)
Pixel size	63.2 μ m (W) x 179 μ m (H)
Luminance	530 cd/m ²

Speaker volume

Minimum Output sound pressure	60 dB at 1.0 meter
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Alarm and pulse tones

Pulse frequency (f_0)	150 – 1000 Hz
Number of harmonic components in the range 300 Hz to 4000 Hz	minimum of 4
Effective pulse duration (t_d)	high priority: 75 – 200 ms medium and low priority: 125 – 250 ms
Rise time (t_r)	10 – 20% of t_d
Fall time ¹ (t_f)	$t_f \leq t_s - t_r$

Note The range of the relative sound pressure level of the harmonic components should be between a minimum of at least 53 dBa and a maximum of at least 80 dBa at the pulse frequency.

¹Prevents overlap of pulses

Battery specifications

2 Cell battery specifications ¹	Hours of use
Continuous run time (Nellcor)	5.22
6 patients/hour - 41 patient cycles (Nellcor)	6.83
8 patients/hour - 54 patient cycles (Nellcor)	6.78
8 patients/hour - 55 patient cycles (Nonin)	6.90

2 Cell battery specifications ¹	Hours of use
Acute care continuous 10 minute cycles - 49 patient cycles - BP, temp, SpO2, no radio, no scanner (Nellcor)	8.22
Acute care continuous 10 minute cycles - 50 patient cycles - BP, temp, SpO2, no radio, no scanner (Nonin)	8.37
Acute care continuous 10 minute cycles - 49 patient cycles - BP, temp, SpO2, no radio, no scanner (Masimo)	8.29
Acute care continuous 10 minute cycles - 41 patient cycles - BP, temp, SpO2, radio, scanner (Nellcor)	6.84
Acute care continuous 10 minute cycles - 41 patient cycles - BP, temp, SpO2, radio, scanner (Nonin)	6.96
Acute care continuous 10 minute cycles - 41 patient cycles - BP, temp, SpO2, radio, scanner (Masimo)	6.90

¹ Nellcor is the default for these examples.

Nurse Call specifications

Nurse Call connection specifications	
Nurse Call	25 V AC or 60 V DC maximum at 1A maximum

NIBP specifications

NIBP specifications	
Cuff pressure range	Meets or exceeds IEC/ISO 80601-2-30 standards for cuff pressure range
Systolic range	Adult: 30 to 260 mmHg (StepBP, SureBP) Pediatric: 30 to 260 mmHg (StepBP, SureBP) Neonate: 20 to 120 mmHg (StepBP)
Diastolic range	Adult: 20 to 220 mmHg (StepBP, SureBP) Pediatric: 20 to 220 mmHg (StepBP, SureBP) Neonate: 10 to 110 mmHg (StepBP)
Cuff Inflation Target	Adult: 160 mmHg (StepBP) Pediatric: 140 mmHg (StepBP) Neonate: 90 mmHg (StepBP)
Maximum Target Pressure	Adult: 280 mmHg (StepBP, SureBP) Pediatric: 280 mmHg (StepBP, SureBP) Neonate: 130 mmHg (StepBP)

NIBP specifications

Blood pressure determination time	Typical: 15 seconds Maximum: 150 seconds
Blood pressure accuracy	Meets or exceeds ANSI.AAMI SP10:2002 standards for noninvasive blood pressure accuracy (± 5 mmHg mean error, 8 mmHg standard deviation)
Mean Arterial Pressure (MAP) range The formula used to calculate MAP yields an approximate value.	Adult: 23 to 230 mmHg (StepBP, SureBP) Pediatric: 23 to 230 mmHg (StepBP, SureBP) Neonate: 13 to 110 mmHg (StepBP)
Pulse rate range (using blood pressure determination)	Adult: 30 to 200 bpm (StepBP, SureBP) Pediatric: 30 to 200 bpm (StepBP, SureBP) Neonate: 35 to 220 bpm (StepBP)
Pulse rate accuracy (using blood pressure determination)	$\pm 5.0\%$ (± 3 bpm)
Overpressure cutoff	Adult: 300 mmHg ± 15 mmHg Pediatric: 300 mmHg ± 15 mmHg Neonate: 150 mmHg maximum

SureTemp Plus temperature module specifications

SureTemp Plus temperature module specifications

Temperature range	80°F to 110°F (26.7°C to 43.3°C)
Calibration accuracy	$\pm 0.2^\circ\text{F}$ ($\pm 0.1^\circ\text{C}$) (Direct mode)

Braun ThermoScan Pro 6000 specifications

Braun ThermoScan PRO 6000 thermometer specifications (refer to Braun ThermoScan Pro 6000's directions for use for additional information)

Temperature range	68°F to 108°F (20°C to 42.2°C)
Calibration accuracy	<ul style="list-style-type: none"> $\pm 0.4^\circ\text{F}$ ($\pm 0.2^\circ\text{C}$) for temperatures ranging from 95.9°F to 107.6°F (35.5°C to 42°C) $\pm 0.5^\circ\text{F}$ ($\pm 0.25^\circ\text{C}$) for temperatures outside of this range
Display resolution	0.1°F or °C

SpO2 specifications

Refer to sensor manufacturer's directions for use for additional information.



WARNING Functional testers cannot be used to assess the accuracy of a pulse oximeter monitor.

While functional testers may be useful for verifying that the pulse oximeter sensor, cabling, and monitor are functional, they are incapable of providing the data required to properly evaluate the accuracy of a system's SpO2 measurements. Fully evaluating the accuracy of the SpO2 measurements requires, at a minimum, accommodating the wavelength characteristics of the sensor and reproducing the complex optical interaction of the sensor and the patient's tissue. These capabilities are beyond the scope of known bench-top testers. SpO2 measurement accuracy can only be evaluated in vivo by comparing pulse oximeter readings with SaO2 measurements obtained from simultaneously sampled arterial blood made using a laboratory CO-oximeter.

Note Contact the sensor manufacturer for further SpO2 clinical testing information.

Note Refer to sensor manufacturers' directions for use for further accuracy information.

SpO2 specifications

SpO2 performance measurement range	1 to 100%
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Masimo SpO2 specifications

Accuracy specified when used with Masimo SET pulse oximetry monitors or with licensed Masimo SET pulse oximetry modules using PC series patient cables, during no motion. Numbers present ± 1 standard deviation. Plus or minus one standard deviation represents 68% of the population.

Perfusion	0.02 % to 20 %
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Pulse rate	25 to 240 beats per minute (bpm) No motion: ± 3 digits Motion: ± 5 digits
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Saturation	60% to 70% Adults, Neonates: ± 3 digits
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Note Saturation accuracy varies by sensor type. Refer to the sensor *Directions for use* for additional accuracy information.

Nellcor sensor accuracy guide^{1, 2}

SpO2 measurement accuracy can only be evaluated in vivo by comparing pulse oximeter readings with SpO2 measurements obtained from simultaneously sampled arterial blood made using a laboratory CO-oximeter. SpO2 accuracy was validated through breathe-down-equivalent testing by Covidien using electronic measurements to prove equivalence to the Nellcor N600x predicate device. The Nellcor N600x predicate device was validated by performing human-subject, "breathe-down" clinical trials.

SpO2 specifications			
Pulse rate		25 to 240 beats per minute (bpm) ± 3 digits (no motion)	
Saturation		70% to 100%	
Note	Saturation accuracy varies by sensor type.	Adult, neonate: ± 3 digits	
		Low Perfusion: 0.02 % to 20 % ± 2 digits	
Detected pulse rate		20 to 250 beats per minute (bpm) ± 3 digits	
Nonin sensor accuracy guide		SpO2 accuracy testing is conducted during induced hypoxia studies on healthy, non-smoking, light-to-dark-skinned subjects during motion and no-motion conditions in an independent research laboratory. The measured arterial hemoglobin saturation value (SpO2) of the sensors is compared to arterial hemoglobin oxygen (SaO2) value, determined from blood samples with a laboratory co-oximeter. The accuracy of the sensors in comparison to the co-oximeter samples measured over the SpO2 range of 70 – 100%. Accuracy data is calculated using the root-mean-squared (A _{rms} value) for all subjects, per ISO 9919:2005, Standard Specification for Pulse Oximeters for Accuracy.	
Perfusion		40–240 BPM. Adult/Ped = +/- 3 digits; Neonate = +/- 3 digits	
Pulse rate		18 to 321 beats per minute (bpm) No motion (18 to 300 bpm): ± 3 digits Motion (40 to 240 bpm): ± 5 digits	
Saturation		70% to 100%	70% to 100%
Note	Saturation accuracy varies by sensor type.	Adult/Pediatrics	Neonates
		No Motion	No Motion
		Finger Clip: ± 2 digits	Finger Clip: ± 3 digits
		Flex: ± 3 digits	Flex: ± 3 digits
		Soft Sensor: ± 2 digits	Soft Sensor: N/A
		8000R: ± 3 digits	8000R: N/A
		8000 Q: ± 4digits	8000 Q: N/A
		Motion	Motion
		Finger Clip: ± 2 digits	Finger Clip: ± 3 digits
		Flex: ± 3 digits	Flex: ± 4 digits
Soft Sensor: ± 3 digits	Soft Sensor: ± 4 digits		
Low Perfusion	Low Perfusion		
All Sensors: ± 2 digits	All Sensors: ± 3 digits		

¹Some models of commercially available bench-top functional testers and patient simulators can be used to verify the proper functionality of Nellcor pulse oximeter sensors, cables and monitors. See the individual testing device's operator's directions for use for the procedures specific to the model of tester being used.

²Many functional testers and patient simulators have been designed to interface with the pulse oximeter's expected calibration curves and may be suitable for use with Nellcor monitors and/or sensors. Not all such devices, however, are adapted for use with the Nellcor OXIMAX digital calibration system. While this will not affect use of the simulator for verifying system functionality, displayed SpO2 measurement values may differ

SpO2 specifications

from the setting of the test device. For a properly functioning monitor, this difference will be reproducible over time and from monitor to monitor within the performance specifications of the test device.

Environmental specifications

Operating temperature	50°F to 104°F (10°C to 40°C)
Storage temperature	-4°F to 122°F (-20°C to 50°C)
Operating altitude	-1250 to 10,000 ft. (-381 m to 3,048 m)
Operating humidity	15% to 90% noncondensing
Storage humidity	15% to 95% noncondensing

Monitor radio

The monitor's radio operates on 802.11 networks.

Wireless network interface	IEEE 802.11 a/b/g/n	
Frequency	2.4 GHz frequency bands	5 GHz frequency bands
	2.4 GHz to 2.483 GHz	5.15 GHz to 5.35 GHz, 5.725 GHz to 5.825GHz
Channels	2.4 GHz channels	5 GHz
	Up to 14 (3 non-overlapping); country-dependent,	Up to 23 non overlapping; country-dependent
Authentication/Encryption	Wireless Equivalent Privacy (WEP, RC4 Algorithm); Wi-Fi Protected Access (WPA); IEEE 802.11i (WPA2); TKIP, RC4 Algorithm; AES, Rijndael Algorithm; Encryption Key Provisioning; Static (40-bit and 128-bit lengths); PSK; Dynamic; EAP-FAST; EAP-TLS; EAP-TTLS; PEAP-GTC ¹ PEAP-MSCHAPv2; PEAP-TLS;	
Antenna	Ethertronics WLAN_1000146	
Wireless data rates	802.11a (OFDM): 6, 9, 12, 18, 24, 36, 48, 54 Mbps	
	802.11b (DSSS, CCK): 1, 2, 5.5, 11 Mbps	
	802.11g (OFDM): 6, 9, 12, 18, 24, 36, 48, 54 Mbps	
	802.11n (OFDM,HT20,MCS 0-7): 6.5,13,19.5, 26, 39,52, 58.5, 72.2 Mbps	
Agency approvals	US: FCC Part 15.247 Subpart C, FCC Part 15.407 Subpart E	
	Europe: EN 300 328 (EDR) (v1.8.1), EN 300 328 (LE) (v1.8.1), EN 301 489-1 (v1.9.2), EN 301 489-17 (v2.2.1), EN 301 489-17 (v2.2.1), EN 62311:2008, EN 60950-1	
	Canada: (IC) RSS-210 standard. IC 3147A-WB45NBT based on FCC testing	
	Singapore: Complies with IDS standard	

Protocols	UDP, DHCP, TCP/IP
Data transfer protocols	UDP/TCP/IP
Output power	39.81mW typical, country-dependent
Ancillary IEEE standards	802.11d, 802.11e, 802.11h, 802.11i, 802.1X

¹One time passwords are not supported.

Channel restrictions in the 5-GHz band are determined by country.

To ensure compliance with local regulations, be sure the correct country in which the access point is installed is selected. This product can be used with the following restriction(s):

Norway - Does not apply for the geographical area within a radius of 20 km from the center of Ny-Ålesund.

France - Outdoor use is limited to 10 mW EIRP within the band 2454 to 2483.5 MHz.

Note Effective Isotropic Radiated Power (EIRP).

Note Some countries restrict the use of 5-GHz bands. The 802.11a radio in the monitor uses only the channels indicated by the access point with which the radio associates. The hospital IT department must configure access points to operate with approved domains.