

# Surveyor™ S19 and S12 Patient Monitoring Systems

## Specifications

### Product Features

- **Modern and Flexible Patient Monitoring System** — Modern bedside monitoring platform offers a simple and intuitive touchscreen user interface, plus exceptional visibility.
- **Slim Design** — Slender and streamlined monitor design provides convenience and ease in crowded patient rooms.
- **Portable Solution** — Surveyor™ S12 monitor, with high-resolution 12" touchscreen display, state-of-the-art 5 GHz WLAN, extensive battery runtime and integrated handle, is an ideal portable monitoring solution.
- **High-Acuity Solution**— Surveyor S19 monitor, with high-resolution 19" touchscreen display, offers a comprehensive solution for advanced monitoring needs.
- **Impressive Flexibility** — Configurable display layouts, supporting up to 8 waveforms of data plus a 12-lead display format, enable users to customize their system.
- **Convenient ECG Options** — Use conventional patient cables for 3 and 5-lead ECGs, or pair a Surveyor monitor with our AM12™M acquisition module to add 12-lead diagnostic-quality interpretive ECG readings.
- **Multiple Printing Options** — Surveyor S12 monitor includes an integral thermal recorder. Surveyor S19 monitor offers the availability of an external thermal printing solution.
- **Comprehensive Central Monitoring Capabilities** — Communicate with the Surveyor Central system for a complete patient monitoring solution.
- **Streamlined Connectivity** — Surveyor patient monitors have the capability of interfacing with EHR systems to annotate real-time vital signs and waveforms in patient records.
- **Reliable Capnography Monitoring by Covidien®** — CO<sub>2</sub> monitoring with Covidien's unique Microstream® technology provides reliable waveform and numeric data through minimal patient sampling and efficient moisture filtering.
- **Specific for your patients** — Surveyor S12 monitor can be used on neonatal, pediatric and adult patients.



Surveyor S19 monitor wall mounted



Surveyor S12 monitor wall mounted or rolling stand

## Surveyor S19 and S12 Patient Monitoring Systems

Feature	Specification*
Instrument Type	Patient Monitor
Dimensions	S12: 315 mm W x 203 H x 125mm D (12.4 W x 8 H x 4.9" D) S19: 468 W x 289 H x 97mm D (18.4 W x 11.4 H x 3.8" D)
Weight	S12: 3 kg (6.6 lbs) standard configuration; includes battery and built-in recorder S19: 5 kg (11.2 lbs) standard configuration; includes battery, excludes recorder
Display Type	High-definition, antiglare 16:9 color TFT LCD with LED backlight and touch panel controls
Display Size	S12: 11.6" diagonal; 256mm x 144mm active area S19: 18.5" diagonal; 410mm x 230mm active area
Display Resolution	S12: 1366 x 768 pixels S19: 1366 x 768 pixels
Recorder Type	S12: Thermal; 2-trace; built-in S19: Thermal; 2-trace; external
Recorder Speed/Resolution	25mm/s, 200 (v) x 400 (h) dpi
Print Width/Paper Width	48mm/50mm
Print Formats	Strip chart printing of 2 user-selectable waveforms (ECG, IBP, SpO <sub>2</sub> , CO <sub>2</sub> )
<b>ECG</b>	
ECG Modes	Adult/Pediatric/Neonatal
Simultaneous Leads Available	3-lead patient cable: One of I, II, III 5-lead patient cable: I, II, III, aVR, aVL, aVF, and V AM12M: I, II, III, aVR, aVL, aVF, V1, V2, V3, V4, V5, V6 <b>Note:</b> 3-Wire ECG leadset and trunk cable available for Neonatal use. ST Analysis not indicated for Neonatal use.
Interpretation	Available with AM12M acquisition module
ECG Gain	2.5, 5, 10, or 20 mm/mV
Beat Recognition	Normal, ventricular, paced
HR Measurement Range	15 -300 bpm
Pacer Display/Analysis	User selectable
Arrhythmia Detection	VFib, Asystole, VTach, PVC Run, VRhythm, Couplet, Bigeminy, Sustained Tachycardia, Sustained Bradycardia, Irregular, PVC/m too high, Pause, Pacer Non-Capture
ST Segment Analysis	Sensing leads: any ECG lead available based on lead set used
<b>Respiration</b>	
Method 1	Capnography Range: 0 to 150 br/min
Method 2	Impedance Pneumography Via 3- or 5-lead patient cable Sensing lead II Range: 2 to 120 br/min
No Respiratory Effort Alarm	No Respiratory Effort available with Impedance Pneumography
No Respiratory Effort Measurement Settings	OFF, 6, 10, 15, 20, 25, 30 seconds
<b>Non-Invasive Blood Pressure</b>	
Measurement Method	Oscillometric
Input Connector	Single Lumen Hose (Quick-disconnect fitting)
NIBP Measurement Range	Systolic: 30 - 250 mmHg Mean: 20 - 230 mmHg Diastolic: 10 - 210 mmHg
Measurement Modes	Manual or interval (auto) measurement
Interval Measurement Settings	OFF, 3, 5, 10, 15, 30, 60 minutes
Pulse Rate Measurement Range	30 - 240 bpm

## Surveyor S19 and S12 Patient Monitoring Systems

Feature	Specification*
<b>Invasive Pressure</b>	
Measurement Range	-50 to 300 mmHg
Pulse Rate Measurement Range	30 - 250 bpm
<b>Pulse Oximetry</b>	
Measurement Method	Absorption - Spectrophotometric (dual wavelength) <b>Note:</b> Neonatal mode available only with Nellcor® OxiMax®
Technology	Nellcor OxiMax or Mortara SpO <sub>2</sub> <b>Note:</b> Neonatal mode only available with Nellcor SpO <sub>2</sub> technology.
Measurement Range	SpO <sub>2</sub> : 20 - 100%, calibrated range 70-100%
Pulse Rate Measurement Range	PR with Surveyor SpO <sub>2</sub> : 30 - 240 bpm PR with Nellcor SpO <sub>2</sub> : 25 - 250 bpm
<b>Temperature</b>	
Input Connector	2-pin connector
Temp Measurement Range	T1 & T2: 5.0 to 50.0°C (41.0 to 122.0°F) ΔT: 0.0 to 50.0°C (32.0 to 122.0°F)
Probe Compatibility	YSI 400-series probes
<b>Cardiac Output</b>	
Measurement Method	Thermodilution <b>Note:</b> Cardiac Output not cleared for use in Neonatal mode
CO Measurement Range	0.3 to 20.0 l/min
Measurement Start	Automatic, manual
CO Averaging	Up to 4
Blood Temperature Measurement Range	33.0 - 40.0°C
Injectate Temperature Measurement Range	0.0 - 40.0°C
Computation Constant Range	0.000 - 0.999
Hemodynamic Calculations	CO, CI, BSA, SV, SVI, SVR, SVRI, PVR, PVRI, LVSW, LVSWI, RCW, RCWI, RVSW, RVSWI, PAWP
<b>CO<sub>2</sub></b>	
Measurement Method	Side-stream (Non-dispersive IR absorption)
Technology	Covidien® Microstream®
Input Connector	FilterLine®
Measurement Range	etCO <sub>2</sub> : + FiCO <sub>2</sub> : 0 to 150 mmHg Resp: 0 to 150 bpm
<b>Trends</b>	
Trend Data	Up to 72 hours of parameter data
Trend Display Intervals	1 min, 5 min, 15 min, 1 hr, 4 hrs
<b>Power Requirements</b>	
Power Source	AC power/battery
AC Power Source	External AC power adapter 100 - 240 VAC; 1.2 A max; 50 - 60 Hz
Battery Type	Internal lithium-ion rechargeable
Battery Runtime	S12: 3 hrs S19: 2 hrs Run time based on continuous ECG, SpO <sub>2</sub> monitoring, and NIBP at 15-min intervals.
Battery Recharge Time	Powered off: 5 hrs maximum Powered on: S12: 7 hrs maximum S19: 20 hrs maximum

## Surveyor S19 and S12 Patient Monitoring Systems

### Parameter Availability by Patient Type

Parameter	Patient Mode Parameters		
	Adult	Pediatric	Neonate
ECG 3-Lead	✓	✓	✓
ECG 5-Lead	✓	✓	✓
ECG 12-Lead	✓	✓	✓
Resting 12-Lead Interpretation	✓	✓	✓
ST Segment Monitoring	✓	✓	NA
Respiration—Impedance	✓	✓	✓
Respiration—Capnography	✓	✓	✓
NIPB (Non-Invasive Blood Pressure)	✓	✓	NA
SpO <sub>2</sub> - Mortara	✓	✓	✓
SpO <sub>2</sub> - Nellcor OxiMax	✓	✓	✓
CO <sub>2</sub>	✓	✓	✓
IBP (Invasive Blood Pressure)	✓	✓	✓
Cardiac Output	✓	✓	NA
Temperature	✓	✓	✓
Arrhythmia Basic	✓	✓	✓
Arrhythmia Extended	✓	✓	✓

Specifications subject to change without notice.

For more information, contact your local Welch Allyn representative or visit [www.welchallyn.com](http://www.welchallyn.com).



With the industry's broadest range of diagnostic cardiology solutions, we help people get better care, inside and outside the hospital. Backed by **clinical excellence, connected solutions and continuous innovation**, Welch Allyn Cardiology is proud to be powered by Mortara.

Welch Allyn, Inc.  
4341 State Street Road  
Skaneateles Falls, NY 13153 USA  
(p) 800.535.6663 (f) 315.685.3361