

Nothing is more personal than the labor and delivery experience. The monitor you choose must support you in delivering the individualized care your patients expect. For antepartum monitoring through labor, delivery and recovery, the compact and easy-to-use Corometrics® 250cx Series monitor is among the most comprehensive maternal/fetal monitors available today.

The Corometrics 250cx Series monitor allows you to address the monitoring needs for both the mother and the fetus. Begin by using the external monitoring modes and add non-invasive blood pressure, fetal ECG, IUP, maternal ECG, and maternal pulse oximetry as the patients' needs change, without switching to another monitor or external device. The optional 15" color VGA Extend-A-View™ Remote Display provides the clinician with access to the same maternal and fetal vital parameters as displayed on the bedside maternal/fetal monitor. This display may be conveniently located on the opposite side of the labor-room bed or on the anesthesia cart in the OR. Optional maternal temperature may be interfaced with an Exergen TemporalScanner™ TAT-5000.



## Corometrics 250cx Series Maternal/Fetal Monitors

Features of the Corometrics 250cx include:

- Smart BP™ works with DINAMAP® SuperSTAT non-invasive blood pressure (NIBP) technology to automatically delay blood pressure measurement during contractions. These patented technologies keep the patient more comfortable and help ensure faster, more meaningful diagnostic data.
- Heart Beat Coincidence Recognition provides visual indications when it detects synchronous fetal and/or maternal heart rate signals, indicating that you may be monitoring a duplicate signal. The monitor compares up to three heart rates and provides an overlapping heart symbol for clear visual recognition and documentation.
- The ChartLight™ feature allows the clinician to easily read the fetal strip, while patients remain relaxed in their low-light setting. Backlit keys help caregivers work comfortably without additional illumination and optional remote display provides further convenience.
- Song Player allows you to celebrate the birth with a choice of three songs.
- Fetal heart rate high/low alarms provide both audible and visual alerts if the fetal heart rate (FHR) is outside of the user-defined high/low range. Optional unique Spectra Alerts™ transform the powerful Corometrics 250cx Series into a "smart" monitor complete with alert functions. You can simultaneously analyze FHR and uterine activity (UA), and notify clinicians of deviations from the norm.
- Selectable 3-lead maternal ECG with pacemaker detection and rejection generates maternal heart rate, QRS waveform display and a six-second snapshot printout when requested.
- Maternal Vital Signs History documents up to eight hours of maternal parameters, displaying the results in a flowchart summary format for easy charting and reference during recovery.



## Model comparison

	256cx	259cx
Twins (US)	•	•
FECG	•	•
TOCO/IUP	•	•
NIBP		•
MSpO <sub>2</sub>		•
MECG		•

Additional device and software options available

## Performance specifications

### Ultrasound mode

Technique	Pulsed Doppler with autocorrelation processing
Transducer type	9-crystal
Pulse reception frequency	Single ultrasound mode: 4 kHz Dual ultrasound mode: 2 kHz
Pulse duration	92 µs
Transmitter frequency	1.151 MHz
Intensity	
Spatial-average temporal average intensity	Isata <5 mW/cm <sup>2</sup>
Spatial-peak temporal average intensity	Ispta <10 mW/cm <sup>2</sup>
Peak instantaneous intensity	1.8 mW/cm <sup>2</sup>
Heart rate counting range	50-210 BPM
Leakage current	<10 µA at 120-240 VAC, isolated by transducer

### FECG mode

Technique	Peak detecting, beat-to-beat cardiometer
Heart rate counting range	30-240 BPM
Heart rate resolution	±1 BPM
Artifact elimination	Switch selectable, +25 BPM artifact rejection
Countable input signal range	15 µV to 2 mV peak-to-peak
Common mode rejection	
Balanced	>120 dB at mains frequency, with patient cable
Unbalanced	5 kΩ RA or LA: >110 dB at mains frequency
Leakage current	60 µA at 254 VAC, electrically isolated
Isolation, mains-to-patient	>4 KVAC

## Fetal alarms (for ultrasound or FECG modes)

Audio	Alternating 1.5 second chimes (773 Hz and 523 Hz)
Visual	Flashing heart rate numerics or message
Limits	User-selectable high and low fetal heart rate
Technical	Signal quality
Tachycardia response time	5 minutes at 100% limit violation
Bradycardia response time	30 seconds at 100% limit violation
Signal quality response time	100% Signal loss: 1.25 minutes; 70% Signal loss: 5 minutes; 65% Signal loss: 10 minutes

### Uterine activity mode

	Strain gauge	Tocotransducer
Range	0-100 mmHg	0-100 relative units
Bandwidth	DC to 0.5 Hz	DC to 0.5 Hz
Resolution	1 mmHg	1 relative unit
Excitation voltage	+4.0 Vdc	
Zero set temperature drift	<0.1 mmHg/°C (0.013 kPa/°C), excluding transducer	
Leakage current	<60 µA at 254 VAC, electrically isolated	

### Maternal blood pressure mode

Technique	Oscillometric w/DINAMAP SuperSTAT algorithm
Blood pressure range	Systolic 30-290 mmHg, Diastolic 10-220 mmHg, Mean arterial pressure 20-260 mmHg
Pulse rate range	30-200 BPM
Blood pressure accuracy	±5 mmHg with a standard deviation no greater than 8 mmHg
Pulse rate accuracy	±2 BPM or ±2% (whichever is greater)
Cuff inflation	Initial inflation to 135 mmHg; user selectable from 100 to 250 mmHg. Subsequent inflation approximately 10 mmHg greater than previous systolic pressure.
Cuff deflation	Automatic
Safety features	Automatic cuff deflation if pressure exceeds 315 mmHg, or max. measurement time exceeded (AAMI SP10 limit of 180 sec; set to 120 sec). Safety timer detects microprocessor failure.  Auto mode minimum 30-second delay from the end of one determination to the beginning of another to allow for venous return, indicated by WAIT on user interface in lieu of auto-mode timer.
Display/record	Systolic, diastolic, mean pressure and pulse rate

### Alarms (audible and visual)

Audio	Alternating 1.5 second chimes (773 Hz and 523 Hz)
Visual	Flashing pressure numerics, or message
Limits	User-selectable high and low systolic, diastolic and mean pressures; user-selectable high and low pulse rate
Technical	Cuff/hose errors, connection errors, insufficient signal, excessive inflation/motion or determination times, overpressure, communication problem or self-test failure

### Maternal blood oxygen saturation

#### Nellcor OxiMax Oximetry

Sensor brand	Nellcor® Puritan Bennett
Sensor type	OxiMax® DS-100A, MAX-A
Saturation range	1-100%
Pulse rate range	30-250 BPM
Saturation accuracy	±2 digits from 70-100% (adults) ±2 digits from 70-100% (low perfusion) Unspecified 0-69%
Pulse rate accuracy	±3 digits from 20 to 250 BPM
Alarms	Visual: Flashing percent SpO <sub>2</sub> numeric or message; Audible: Alternating 1.5 second chimes
Limits	User-selectable high and low SpO <sub>2</sub> ; high and low pulse rate

#### Masimo SET Oximetry

Sensor brand	Masimo SET®
Sensor type	LNOP® DC-I, Adt
Saturation range	1-100%
Saturation accuracy	±2 digits from 70-100% (no motion) ±3 digits from 70-100% (motion) ±2 digits from 70-100% (low perfusion) Unspecified from 0% SpO <sub>2</sub> to 69% SpO <sub>2</sub>
Pulse rate range	25-240 BPM
Pulse rate accuracy	±3 digits; ±5 digits in the presence of motion
Alarms	Visual: Flashing percent SpO <sub>2</sub> numerics or message; Audible: Alternating 1.5 second chimes
Limits	User-selectable high and low SpO <sub>2</sub> ; high and low pulse rate

### MECG mode

Maternal ECG electrode type	Medtronic 1700-003 or equivalent
Leads available	I, II and III
Heart rate counting range	30-240 BPM
Heart rate resolution	±1 BPM
Heart rate averaging	1 second average
Countable input signal range	0.5 mV to 5 mV peak-to-peak
Common mode rejection	Balanced: >80 dB at mains frequency, with patient cable Unbalanced 5K RA or LA: >50 dB at mains frequency
Leakage current	60 µA at 254 VAC, with cable electrically isolated
Alarms	
Audio	Alternating 1.5 second chimes
Visual	Flashing heart rate numeric or message
Limits	User-selectable high and low maternal heart rate
Technical	Leads-off
Tachycardia response time	<8 seconds
Isolation	Mains-to-patient: >4 kVAC
Leads-off detection	DC current <0.1 µA
Maternal/vital signs history	Storage/recall (8 hrs maximum)
Pacemaker detection/rejection	
Input voltage range	±2.5 mV to ±700 mV
Input pulse width	0.1 to 2 ms
Pulse rise/fall time	<10% of pulse width; not greater than 100 µS
Over-under-shoot	2 mV
Baseline drift	0.5V with a ±700 mV, 2 ms pacemaker pulse applied
Caution	Excessive overshoot time of pacemaker pulse may cause false QRS detection

## Strip chart recorder

<b>Heart rate scale</b>	<i>Domestic</i>	<i>International</i>
Chart width	7 cm	8 cm
Scaling	30 BPM/cm	20 BPM/cm
Range	30-240 BPM	50-210 BPM
Resolution	1 BPM	1 BPM

<b>Uterine activity scale</b>	<i>Strain gauge</i>	<i>Tocotransducer</i>
Chart width	4 cm	4 cm
Scaling	25 mmHg/cm	25 relative units/cm
Range	0-100 mmHg	0-100 relative units
Resolution	1 mmHg	1 relative unit

<b>Pulse oximetry % SpO<sub>2</sub> scale</b>	<i>Domestic</i>	<i>International</i>
Chart width	4 cm	4 cm
Scaling	10%/cm or 25%/cm	2.5%/cm or 25%/cm
Range	60-100% or 0-100%	50-100% or 0-100%
Resolution	1%	1%

## Recorder drive

Speeds	1, 2 and 3 cm/min
Speed accuracy	±1%

## Environmental specifications

<b>Strip chart paper</b>	<i>Operating</i>	<i>Storage</i>
Ambient temperature <sup>1</sup>	50°F to 104°F (10°C to 40°C)	<80°F (<26.5°C)
Relative humidity	30% to 70%, non-condensing	45% to 65%, non-condensing
Atmospheric pressure	700-1060 mbar (525-795 mmHg)	700-1060 mbar (525-795 mmHg)

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<b>Monitor(s)</b>	<i>Operating</i>	<i>Storage</i>
Ambient temperature <sup>1</sup>	50°F to 104°F (10°C to 40°C)	14°F to 131°F (-10°C to 55°C)
Relative humidity	10% to 95%, non-condensing	0% to 95%, non-condensing
Atmospheric pressure	700-1060 mbar (525-795 mmHg)	700-1060 mbar (525-795 mmHg)

## Power requirements

Nominal line voltage	100-120, 220-240 VAC
Line frequency	50/60 Hz
Power consumption	100 W/0.4 A maximum

## Physical specifications

Height	6.7 in (17.0 cm)
Width	16.5 in (41.9 cm)
Depth	17.3 in (43.9 cm)
Weight	24 lbs (10.9 kg) approx.

## Certifications

ANSI/AAMI EC 13-1992 – Complies with all areas except those listed below:

- 3.1.2.1e: Heart rate meter accuracy and response to irregular rhythm (not tested)
- 3.2.6.1: Range of QRS wave amplitude and duration
- 3.2.7: Range and Accuracy of Heart Rate Meter, (4.2.7f – Input of 300BPM)
- 3.2.8.1: Lower alarm limit (the lowest alarm limit on the 250 Series is 35 BPM)
- 3.2.9.8c: Impulse response
- 4.2.9.7: Output Display, a) Channel Width

ANSI/AAMI SP 10-1992

- The blood pressure module complies with the American National Standard for Electronic or Automated Sphygmomanometers (AAMI/ANSI SP10-1992)

UL-2601-1

- Designed to meet UL-2601-1 Medical electrical equipment classified by Underwriter's Laboratories, Inc. with respect to fire, shock and mechanical hazards in accordance with UL-2601-1

EN1060-1

- Non-Invasive Sphygmomanometers – 1995, Part I: General Requirements

## Limited Warranty

Standard limited warranty is one year.

<sup>1</sup> Operating environmental specifications for paper are for a period of less than one month. Storage environmental specifications are for extended periods of time.