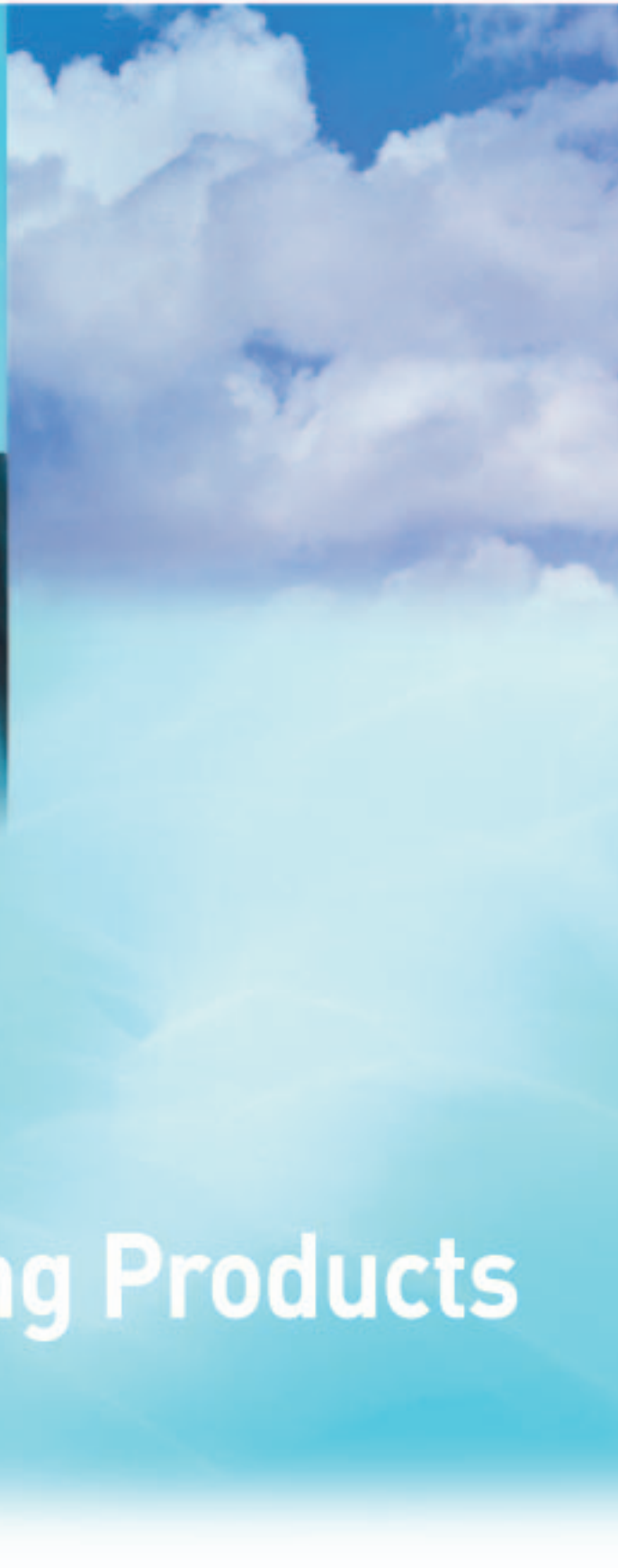


smiths



# Sleep Monitoring Products

# Patient Monitoring Products for the Sleep Market



Quiet System monitors ETCO<sub>2</sub> and SpO<sub>2</sub> without disturbing sleep study patients.

## Capnocheck® Sleep Capnograph/Oximeter

- Quiet System minimizes monitor noise
- Patented technology reliably measures SpO<sub>2</sub>
- Breath-by-breath CO<sub>2</sub> detection allows rapid response to patient changes
- Disappearing display and no audible alarms or pulse tones in sleep mode minimize patient disturbance
- 4-channel analog output capability offers versatile room and sleep lab set-up
- Perform non-lab or preliminary sleep studies via PC analysis software
- Incorporates economical sidestream sampling technology
- Full range of capnography accessories available



Convenient, SpO<sub>2</sub> monitoring in one compact, cost-effective sleep screening system.

## FingerPrint® Sleep Hand-Held Pulse Oximeter

- Integrated printer provides immediate hard-copy documentation of Desaturation Summary Report
- Easy-to-use, 2-key operation
- 3-mode versatility: spot checking, data collection, and data transfer
- Display disappears during data collection, conserving power and reducing patient disturbances
- Download an entire 8-hour study to a PC in a matter of minutes
- View desaturation and heart rate data via optional PC data management software
- Economically download and print 2 full overnight sleep screens on one set of 4 "AA" alkaline batteries
- Genuine BCI® reusable and disposable sensors available



Exceptional flexibility from the hand-held pulse oximetry leader.

## BCI® 3303 Hand-Held Pulse Oximeter

- 3 operating modes enhance user convenience
- Easily adjust LED display brightness to optimize viewing
- Pulse strength bar on screen
- Adjustable alarm limits for SpO<sub>2</sub> and pulse rate
- Instantly distinguish between audible patient alarms and system alerts
- View patient history on-screen; recall up to 99 patient SpO<sub>2</sub> and pulse rate readings with 24-hr memory
- Protective rubber boot included
- Pole mount available
- Internal rechargeable NiMH battery
- Genuine BCI® reusable and disposable sensors available



Pulse Oximetry with Serial Autocorrelation (SAC) Technology.

### MiniCorr Hand-Held Pulse Oximeter

- Reliably measure SpO<sub>2</sub>, Pulse Rate and Pulse Strength
- SAC technology informs operator of excess artifacts and improper sensor positioning
- Easy-to-use, 5-key operation
- Infrared link to printer
- Lightweight for easy transport
- Battery power or battery bypass
- Protective rubber boot available
- Genuine BCI® reusable and disposable sensors available



Serial Autocorrelation (SAC) Technology takes cost-effective pulse detection to another level.

### Autocorr® Digital Pulse Oximeter

- Reliably measure SpO<sub>2</sub>, Pulse Rate and Pulse Strength
- Uses refined hardware and a patented algorithm to identify pulse detection artifact
- Analyses digitized signal at a rate of 120 times per second, creating dynamic templates to validate latest signals
- Digital, analog and nurse call output via optional cables
- Real time or trend printouts available when used with a computer and printer
- Remote alarm function available
- Internal rechargeable battery
- Genuine BCI® reusable and disposable sensors available



A clear plus for you... artifact-indicating SAC Pulse Oximetry Technology with 3- or 5-lead ECG versatility.

### Autocorr® Plus Pulse Oximeter/ECG Monitor

- Patented Serial Autocorrelation (SAC) Technology identifies pulse detection artifact
- Analyses digitized signal at a rate of 120 times per second, creating dynamic templates to validate latest signals
- Features 3- or 5-lead ECG with pacemaker detect/reject and respiration rate
- Bright, dual trace electroluminescent display
- Optional recorder provides crisp, high-resolution printing
- Optional mounting assemblies enhance system flexibility
- Genuine BCI® reusable and disposable sensors available

## Specifications/Technical Data

	Capnocheck® Sleep	FingerPrint® Sleep	BCI® 3303	MiniCorr	Autocorr®	Autocorr® Plus
<b>Displays &amp; Indicators</b>	<ul style="list-style-type: none"> <li>Vacuum fluorescent</li> <li>Alarm, charge, silenced indicators</li> <li>Factory; user select trends</li> <li>CO<sub>2</sub>; CO<sub>2</sub>/pleth waveform</li> </ul>	<ul style="list-style-type: none"> <li>LED numeric: SpO<sub>2</sub>, pulse rate</li> <li>8-segment bar graph; pulse strength</li> <li>Keys: ON and OFF</li> </ul>	<ul style="list-style-type: none"> <li>LED numeric: SpO<sub>2</sub>, pulse rate</li> <li>8-segment bar graph; pulse strength</li> <li>LED flashes low battery, alarm silence, sensor</li> <li>Keys: ON and OFF</li> </ul>	<ul style="list-style-type: none"> <li>LED numeric: SpO<sub>2</sub>, pulse rate</li> <li>8-segment bar graph; pulse strength</li> <li>LED lights: low battery, audio disabled, sensor, artifact, power</li> <li>Keys: ON and OFF</li> </ul>	<ul style="list-style-type: none"> <li>3-digit LED: SpO<sub>2</sub>, pulse rate</li> <li>8-segment bar graph; pulse strength</li> <li>LED flashes: low battery, alarm silence, sensor, lost pulse alarm</li> <li>Light indicates: search, artifact, power</li> </ul>	<ul style="list-style-type: none"> <li>Electroluminescent waveforms, graphic trends</li> <li>3-digit LED: SpO<sub>2</sub>, pulse rate/heart rate (ECG) &amp; respiration</li> <li>LED flashes: asystole, lost pulse alarms</li> <li>10-segment bar graph: pulse strength</li> <li>Message lights: low battery, audio disabled, sensor, artifact, ECG/lead fail, charge, pace detect</li> </ul>
<b>Alarms</b>	Adjustable	—	Adjustable	Adjustable	Adjustable	Adjustable
<b>Flow Rate</b>	150 ml/min, ±20	—	—	—	—	—
<b>CO<sub>2</sub></b>	<ul style="list-style-type: none"> <li>Measurement: non-dispersive IR absorption</li> <li>Measurement Range: 0-10%</li> <li>Display Range: 0-100mmHg or 0-10.0% CO<sub>2</sub> or 0-13.3 kPa</li> <li>Accuracy: greater of ±2 mmHg; ±0.3%; ±0.3 kPa or 4% of reading</li> </ul>	—	—	—	—	—
<b>Respiration Rate</b>	<ul style="list-style-type: none"> <li>Range: 0-150 bpm</li> <li>Averaging: 4 breath avg</li> <li>Accuracy: ±1 bpm</li> </ul>	—	—	—	—	<ul style="list-style-type: none"> <li>5 to 150 breaths/min impedance pneumography</li> <li>Accuracy: ±2 bpm</li> </ul>
<b>SpO<sub>2</sub></b>	<ul style="list-style-type: none"> <li>Range: 0-100%</li> <li>Accuracy: ±2% at 70-100%; &lt;70% unspecified</li> <li>Averaging: 2,4,8,16 beats</li> </ul>	<ul style="list-style-type: none"> <li>Range: 0-99%</li> <li>Accuracy: ±2% at 70-99%; &lt;70% unspecified</li> <li>Averaging: 4 beats</li> </ul>	<ul style="list-style-type: none"> <li>Range: 0-100%</li> <li>Accuracy: ±2% at 70-100%; ±3% at 50-69%</li> <li>Averaging: 4,8,16 beats</li> </ul>	<ul style="list-style-type: none"> <li>Range: 0-99%</li> <li>Accuracy: ±2% at 70-99%; ±3% at 50-69%</li> <li>Averaging: 4,8,16 beats</li> </ul>	<ul style="list-style-type: none"> <li>Range: 0-100%</li> <li>Accuracy: ±2% at 70-100%; ±3% at 50-69%</li> <li>Averaging: 4,8,16 beats</li> </ul>	<ul style="list-style-type: none"> <li>Range: 0-100%</li> <li>Accuracy: ±2% at 70-100%; ±3% at 50-69%</li> <li>Averaging: 4,8,16 beats</li> </ul>
<b>Pulse Rate</b>	<ul style="list-style-type: none"> <li>Range: 30-254 bpm</li> <li>Accuracy: greater of ±2 bpm or ±2%</li> <li>Averaging: 8 sec</li> </ul>	<ul style="list-style-type: none"> <li>Range: 30-254 bpm</li> <li>Accuracy: greater of ±2 bpm or ±2%</li> <li>Averaging: 8 sec</li> </ul>	<ul style="list-style-type: none"> <li>Range: 30-254 bpm</li> <li>Accuracy: ±2% at 30-254 bpm</li> </ul>	<ul style="list-style-type: none"> <li>Range: 30-254 bpm</li> <li>Accuracy: ±2% at 30-254 bpm</li> <li>Averaging: 8, or 16 sec</li> </ul>	<ul style="list-style-type: none"> <li>Range: 30-254 bpm</li> <li>Accuracy: ±2% at 30-254 bpm</li> <li>Averaging: 8, 16 sec</li> </ul>	<ul style="list-style-type: none"> <li>Range: 30-254 bpm</li> <li>Accuracy: greater of ±2 bpm or ±2%</li> <li>Averaging: 8, or 16 sec</li> </ul>
<b>Trend Storage</b>	<ul style="list-style-type: none"> <li>10 hours at 4 sec intervals</li> <li>16 hours at 12 sec intervals</li> </ul>	12 hours at 4 second intervals of SpO <sub>2</sub> , pulse rate and relative time	Up to 99 patients and 24 hours of run time 12 hours at 4 second intervals in Sleep Mode	Up to 90 hours of SpO <sub>2</sub> , pulse rate and relative time	Data saved every 4 to 30 seconds user selectable	21 hours at 30 second intervals
<b>Power Requirements</b>	<ul style="list-style-type: none"> <li>AC Charger</li> <li>NiCAD (Nickel Cadmium) battery</li> </ul>	(4) "AA" alkaline batteries	NiMH (Nickel Metal Hydride) internal rechargeable (not user replaceable)	(6) "AA" alkaline batteries or optional external 12 VDC power supply	<ul style="list-style-type: none"> <li>AC charger</li> <li>Lead-acid battery (not user replaceable)</li> </ul>	<ul style="list-style-type: none"> <li>AC charger</li> <li>Lead-acid battery (not user replaceable)</li> </ul>
<b>Analog Output</b>	Any 4 of: CO <sub>2</sub> waveform, pleth, ETCO <sub>2</sub> , resp rate, inspired CO <sub>2</sub> , %SpO <sub>2</sub> , pulse rate, 0V and 1V Cal Signal	Integrated printer: 1-inch wide thermal printer paper 15 characters/line	—	—	SpO <sub>2</sub> and pulse rate, 0 and 1 VDC cal signal	SpO <sub>2</sub> , pulse rate, respiration, ECG, Pleth, 0 and 1 VDC cal signal
<b>Serial Output</b>	RS232C & Sleep Study	RS232C	RS232C	RS232C	RS232C	RS232C
<b>Dimensions</b>	3.5H x 10.0W x 5.5D in 8.9 x 25.4 x 13.9 cm	6.6H x 2.75W x 1.43D in 16.7 x 7.0 x 3.6 cm	7.25H x 3.3W x 1.85D in 18.4 x 8.4 x 4.7 cm	6.6H x 2.75W x 1.43D in 16.7 x 7.0 x 3.6 cm	3.24H x 8.5W x 5.5D in 21.6 x 8.2 x 14.0 cm	3.5H x 10.0W x 5.5D in 8.89 x 25.4 x 13.97 cm
<b>Weight</b>	4.8 pounds (2.2kg)	13 oz (369 grams) with batteries	19 oz (539 grams)	16 oz (454 grams) with batteries	30 oz (850 grams)	5 pounds (2.27 kg)
<b>Regulatory Compliance</b>	CE0473	CE0473	CE0473	CE0473	CE0473	CE0473
<b>Catalog Numbers</b>	9004-050: Capnograph 9004-051: Capnograph/Oximeter	3403	3303	3402	3304	3404-001: SpO <sub>2</sub> /ECG/Resp 3404-000: SpO <sub>2</sub> only



## BCI® Oximetry Data Management Program

The software will analyze, calculate, and print statistical parameters from the downloaded data according to the FingerPrint® Sleep or MiniCorr sleep screening specification.

### Main Menu Functions

- Patient Database
- Current Case Information
- Download
- Print Report
- And more...



## Accessories

Smiths Medical PM, Inc. offers a complete range of accessories specially designed to help you make the most of your technology investment. Our genuine accessories ensure that clinicians get the practical performance they want while patients receive the exceptional standard of care they deserve.

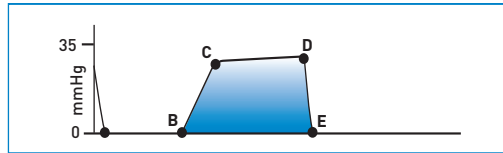


“Capnography is useful in the assessment of apnea, hypoventilation, hypopnea and rebreathing of CO<sub>2</sub>.”

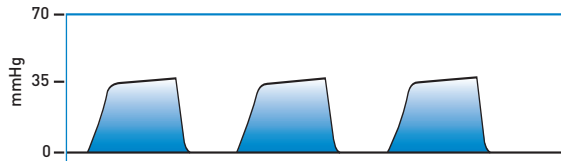
– Association of Polysomnographic Technologists Capnography in Polysomnographic Technology

- Smiths Medical PM, Inc. capnography offers rapid identification of desaturation events
- Direct indicator of ventilation and perfusion
- Allows faster response to sudden desaturations
- Offers breath-by-breath analysis of EtCO<sub>2</sub>
- Easy 0-1 VDC calibration

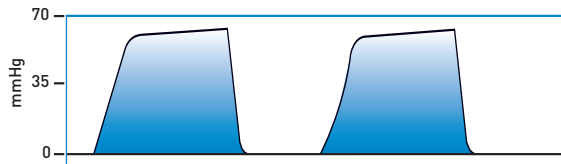
## What the Capnogram tells us...



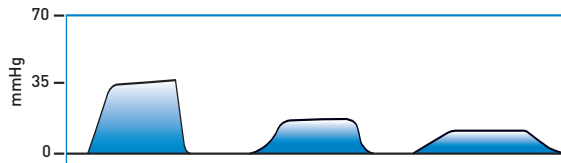
A-B = Beginning of exhalation: zero baseline  
 B-C = Rapid, sharp rise in CO<sub>2</sub> concentration  
 C-D = Alveolar plateau  
 D = ETCO<sub>2</sub> (peak concentration of CO<sub>2</sub> occurring at the end of expiration)  
 D-E = Inspiration: rapid, sharp down stroke in CO<sub>2</sub> concentration



Normal Capnogram



Hypoventilation



Airway Obstruction

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

PLEASE READ THE INSTRUCTIONS FOR USE SUPPLIED WITH THE PRODUCT FOR DETAILED INSTRUCTIONS, WARNINGS, AND CAUTIONS.

Q-Line for U.S.A. Customers call 1-800-348-1842 for emergency and clinical application information 24 hours a day, 365 days a year.

For further information, please call Smiths Medical PM, Inc. Patient Monitoring and Ventilation at 262-542-3100 or 800-558-2345 or your Smiths Medical distributor.

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The products described are covered by one or more of the following U.S. Patent Nos. 5,386,833; 5,437,275; 5,558,096; 5,615,091

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