CNAP® Monitor 500
Sold as NIBP100D

Continuous and Noninvasive
Blood Pressure Control
Hemodynamic Optimization
RESEARCH SYSTEM FEATURES

NBP Cuff
> Automated scaling to brachial pressure (gold standard) at start of measurement and user programmable
> Variety of sizes to fit pediatric thru large adult

Double finger cuffs
> Quick and error-free application
> System includes 3 cuff sizes (small/medium/large)
> Long-term recording (24 hrs per hand)
> User selectable rotation interval up to 60 min. per finger

Continuous waveform
> Calibrated pulse waveform
> Continuous tracing of hemodynamic changes without interruptions to recalibrate
> Beat-to-beat systolic, diastolic, mean BP values

Connectivity
> Plug & play integration into all common data acquisition systems and patient monitors

Data storage and analysis
> Unlimited data storage via USB interface
> Data format (*.csv) for import into all common data analysis software packages (e.g. AcqKnowledge®, Matlab, MS Excel, SPSS, etc.)

Accuracy
> Reliably equivalent to invasive blood pressure (IBP) 1,2

APPLICATIONS IN RESEARCH

> Physiology
> Psychophysiology
> Autonomic Function
> Cardiology
> Neurology
> Psychology
> Sports / Exercise Physiology
> Pharmacology

SPECIFICATIONS

<table>
<thead>
<tr>
<th>Sample rate</th>
<th>100 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage data format</td>
<td>*.csv (BP waveform; beat values, NBP)</td>
</tr>
<tr>
<td>Interfaces</td>
<td>AUX (non isolated): -5V to 5V BP Wave Out (isolated): 5μV/V/mmHg</td>
</tr>
<tr>
<td>Adult &amp; Pediatric</td>
<td>~ 4 years (&gt; 20 kg)</td>
</tr>
<tr>
<td>Language Options</td>
<td>multilingual display</td>
</tr>
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</table>
RESEARCHERS COUNT ON CNAP® TECHNOLOGY TO...

...study the influence of slow pressure oscillations on self-paced movements.³

...study the correlation between stroke severity and autonomic dysfunction.⁴

...study the effects of mainstream media on women's physiological and psychological functioning.⁵

...study the detection of deception by use of continuous blood pressure.⁶

...develop an automated closed-loop double-vasopressor system to treat hypotension during spinal anesthesia for cesarean section.⁷

...study the relationship between cerebral perfusion during heat stress and the tolerance to a stimulated hemorrhage.⁸

"Hemo"- dynazize your research work with CNAP®!

BENEFITS FOR RESEARCH

> Reliable & accurate noninvasive beat-to-beat measurements

> Good for short & long-term monitoring

> Gets running quickly: fast set up & calibration

> Consistent results due to reliable system design

> Easy connection to 3rd party data acquisition systems

> Reusable CNAP® double finger sensors

CNAP® Monitor 500
Continuous, noninvasive blood pressure control - reliable and safe, quick and easy, cost efficient

CNAP® BRIDGES THE GAP BETWEEN
UPPER ARM NBP AND INVASIVE MEASUREMENT

<table>
<thead>
<tr>
<th></th>
<th>continuous BP control</th>
<th>ease of use</th>
<th>risk free</th>
<th>pain free</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arterial Line</td>
<td>✓</td>
<td>×</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>Upper Arm NBP</td>
<td>×</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>CNAP®</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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</tbody>
</table>

BENEFITS

Early detection of blood pressure changes
> Detects blood pressure changes without delay and allows for immediate response
> Helps identifying hemodynamic instabilities
> Direct tracking of the effects of medication and fluid
> Useful in situations where continuous blood pressure is appreciated and an invasive method not applicable or indicated

Accuracy
> Continuity, accuracy and waveform dynamics are equivalent to intra-arterial measurement. 1,2

Comfort and safety for the patient
> Painless, stress-free and without any risk to the patient

Saves time and cost
> Quick setup and error-free application for everyday use
> Minimum training requirement
> Reusable CNAP® double finger cuff

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Continuous blood pressure control with CNAP®

Early detection of blood pressure changes with CNAP®-noninvasively

**CNAP® MONITOR 500**

**KEY FEATURES**

- Stand-alone blood pressure monitor with 2 hrs battery
- Easy interfacing with external devices:
  - Analog output signal sharing
  - Integration in all standard patient monitors
- USB data recording
- Easy menu navigation through click-wheel
- Software/display: Beat-to-beat readout, trend over the time, numerical values, waveform analysis
- Intervention marker (customized)
- Integrated printer
- Optional cart for convenient operation

**PARAMETERS**

- Hemodynamics
  - Continuous noninvasive blood pressure waveform
    - Sys, Dia, Mean, Pulse
  - Upper arm NBP
    - Sys, Dia
    - Automatic scaling to brachial artery

- Fluid-management
  - PPV
    - Dynamic fluid status

**FIELDS OF APPLICATION**

- Anesthesia Monitoring
- Goal Directed Therapy
- Emergency Medicine
- PACU/IMCU
- Cardiology/Electrophysiology
- Neurology/Psychology
- Research
**TECHNICAL SPECIFICATIONS**

**CNAP® — CONTINUOUS NONINVASIVE ARTERIAL PRESSURE**

- **Measuring range**
  - Sys: 40 - 250 mmHg
  - Dia: 30 - 210 mmHg
  - Mean: 35 - 230 mmHg
  - Pulse rate: 30 - 200 bpm

- **Additional NBP — oscillometric blood pressure**: automatic scaling to brachial pressure (upper arm)

- **Degree of protection**: BF

**NBP — OSSCLOMETRIC BLOOD PRESSURE**

- **Measuring range**
  - Adult: 40 - 260 mmHg, Pediatric: 40 - 160 mmHg
  - Dia: Adult: 20 - 200 mmHg, Pediatric: 20 - 120 mmHg

- **Accuracy**

- **Degree of protection**: BF

**CNAP® PPV — FLUID RESPONSIVENESS**

- **Measuring range**: 0.2 - 40 %

**ELECTRICAL**

- **Nominal voltage**: 100 - 240 VAC
- **Supply frequency**: ~50/60 Hz
- **Battery**: sealed lead-acid, operating time: 2 hours (fully charged battery)

**PHYSICAL**

- **Weight**: 7.5 kg (16.6 lb) including accessories and cables
- **Dimensions**: 280 x 270 x 250 mm (11 x 10.6 x 9.8 inch)

**VIRONMENTAL**

- **Temperature**
  - Operation: 0°C - 40°C (50°F - 104°F)
  - Storage: 0°C - 40°C (32°F - 104°F)
- **Humidity**
  - Operation: 30% - 85%, non condensing
  - Storage: 30% - 95%, non condensing, wrapped
- **Altitude**
  - Operation: 647 - 1059 hPa
  - Storage: 500 - 1059 hPa

**SCREEN**

- **Type**: TFT-LCD, 800 x 600 pixel
- **Size**: 8.4 inch diagonally

**USER INTERFACE**

- **Controls**: click-wheel control, fast access keys
- **Indicators**: visual and audible alarm indication, battery status, printer status, power LED
- **Display**: customizable configuration: numeric, graphic, alarm history

**ADJUSTABLE ALARMING SYSTEM**

- **Alarms**: physiological: red priority
  - Technical: yellow priority

**CONNECTIVITY**

- **BP Wave Out**: easy integration in all standard patient monitoring systems (2 - 10 VDC supply voltage)
- **AUX Analog Out (optional)**: analog output of calibrated continuous blood pressure waveform (-5V to 5V)

**USB PORT**

- **Version**: USB 1.1 (bandwidth 12 MB/s)

**PRINTER**

- **Type**: integrated thermal printer, 58 mm

**COMPLIANCE AND APPROVALS**

- **Safety class II (IEC 60601)**
  - EN 60601-1
  - EN 60601-1-6
  - EN 60601-1-8
  - EN 1060-1
  - EN 1060-3

- **Class II b (93/42/ECC)**
  - EN 60601-1-2
  - EN 60601-2-30

- **Patient applied part type BF**
  - EN 60601-1-4

- **Patents**
  - US 6,669,643
  - EP 1 608 261
  - US 8,114,025
  - EP 1 675 507
  - US 2011/0105918

**INTELLECTUAL PROPERTY**

- **EU 2493373**

The CNAP® Monitor 500 is CE and FDA approved. The parameter CNAP® PPV is currently not available for use in the U.S. or in clinical environments under FDA control.

**CNAP® — Setting a new standard for continuous and noninvasive blood pressure measurement.**