NIBP100D-HD NONINVASIVE BLOOD PRESSURE SYSTEM WITH HEMODYNAMICS

The NIBP100D-HD is a stand-alone noninvasive blood pressure monitoring system that provides a continuous, beat-to-beat, blood pressure signal recorded from the fingers of a subject. Simple and noninvasive finger sensor provides accurate & immediate feedback: arterial BP, cardiac output, fluid and hemodynamic status.

- Measure noninvasive BP parameters (BP, sBP, dBP, mBP, and PR) plus hemodynamic parameters (PPV, SVV, CO, CI, SV, SI, SVR, and SVRI).
- 2 analog output channels: BP waveform, MAP.
- Comfortable & user-friendly.
- Simple setup & quick calibration.
- Plug & play integration into all common data acquisition systems and subject monitors.
- AcqKnowledge software displays the blood pressure signal, plus systolic, diastolic, mean blood pressure and heart rate. It will also provide a detailed beat-to-beat analysis of the blood pressure signal.

The NIBP100D-HD noninvasive blood pressure system is part of a complete research system, interfacing with the MP160/MP150 data acquisition and analysis platform and AcqKnowledge software, allowing advanced research for multiple applications.

SET-UP: SIMPLE AND QUICK

- One finger sensor provides all parameters noninvasively—no placing of catheter or additional electrodes.
- Comfortable for subjects in short or long-term studies.

The NIBP100D-HD system is very user friendly and the initial setup and calibration period takes less than three minutes that time includes placing the cuff around the upper arm and the sensor on the fingers. Placing the finger sensor is as simple as sliding the subject’s fingers through the two cuffs.

RECORDING: IMMEDIATE FEEDBACK

- Real-time, continuous, noninvasive blood pressure displayed only shortly after startup.
- Enables accurate & immediate feedback on BP, PR.
- Proven solution for consistent, repeatable results.

INTERFACE: EASY DATA TRANSFER AND ANALYSIS WITH NIBP100D-HD

Interface with BIOPAC’s MP160, MP150, or MP36R data acquisition systems or a third-party data acquisition system.

Interface cable CBLNIBP100D-HD is included with every NIBP100D-HD System.

- One end of the CBLNIBP100D-HD cable connects to the AUX port on the right side of the NIBP100D-HD unit.
- The other end terminates in 4 x 3.5 mm male connectors, labeled CH 1 BP, CH 2 MAP, CH 3 CO, and CH 4 Pulse, compatible with firmware version 5.2. (Cables shipped prior to June 2016 are labeled BP, MAP, CO, and PPV, and are compatible with NIBP firmware 5.0).
**MP160 System:** Connect CBLNIBP100D-HD to **HLT100C (Rev 2):** optionally, add 4 x INISO for isolated (electrically safe) inputs.

**Important!** HLT100C Rev # is indicated on the part#/barcode label: Rev 2 units ship with MP160 Systems and cannot physically be used with an MP150+UIM; older Rev 1 units shipped with MP150 Systems.

**MP150 System:** Connect CBLNIBP100D-HD to **HLT100C (Rev 1):** optionally, add 4 x INISO for isolated (electrically safe) inputs.

**MP36R System:** Add 4 x BSL-TCI5 mod phone jack interface to connect CBLNIBP100D-HD to the CH ports on the front of the unit.

**Safety Note:** When connecting this system to an A/D system, be aware that the outputs are NOT electrically isolated and will need to be isolated before going into the A/D system. This will keep the subject electrically safe. This is especially important when connecting electrically via ECG, EMG, EDA, EEG, etc. to the subject.

<table>
<thead>
<tr>
<th>CNAP® NIBP100D-HD Monitor Software Version</th>
<th>v3.7.2 and earlier</th>
<th>v5.0.x</th>
<th>v5.2.x and later1,2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Channel 1</strong></td>
<td>BP waveform 0 – 500 mmHg 0 to 5V reference</td>
<td>BP waveform 0 – 500 mmHg</td>
<td>BP waveform 0 – 500 mmHg</td>
</tr>
<tr>
<td><strong>Channel 2</strong></td>
<td>BP waveform 0 – 500 mmHg -5 to 5V reference</td>
<td>MAP 0 – 500 mmHg</td>
<td>selectable MAP 3 0 – 300 mmHg Pulse 0 – 200 bpm</td>
</tr>
<tr>
<td><strong>Channel 3</strong></td>
<td>-</td>
<td>CO 1 – 100 l/min</td>
<td>selectable CO 2 0 – 30 l/min SV 0 – 200 ml SVR 0 – 5000 dyn*s/cm²</td>
</tr>
<tr>
<td><strong>Channel 4</strong></td>
<td>-</td>
<td>PPV 0 – 40 %</td>
<td>selectable PPV 0 – 40 % SVV 0 – 40 % Pulse 3 0 – 200 bpm</td>
</tr>
</tbody>
</table>

1. Starting from version 5.0.x the output voltage range (reference voltage) can be selected by the user between 0 to 5 V (default) and -5 to 5V (see operator’s manual chapter 4.6.1).

2. Since version 5.2.x the parameter output on channel 2, 3 and 4 can be configured by the user in the menu Setup | Measurement | Output Options.

3. Default setting.

*See also:*

- Continuous non-invasive arterial pressure shows high accuracy in comparison to invasive intra-arterial blood pressure measurement (Sackl-Pietsch E., Department of Anesthesiology, Landeskrankenhaus Bruck an der Mur, Austria)


- BIOPAC blog: Ensuring Error-Free NIBP Measurements and Data

- BIOPAC blog: Noninvasive Hemodynamic Monitoring in Research

- BIOPAC NIBP Free Webinar
NIBP100D-HD Specifications

Parameter classification: Sys, Dia, Mean [mmHg] | Pulse [bpm]

Inflation pressure: Typical 120 mmHg (16 kPa) | Min. 30 mmHg (4 kPa) | Max. 300 ±10 mmHg (41.3 kPa ±1.3 kPa)

Measuring range: Systolic 40–250 mmHg (5.3–33.3 kPa) | Diastolic 3–210 mmHg (4–28 kPa) | Mean 35–230 mmHg (4–30.6 kPa)

Heart rate indication range: 30-200 bpm

Excess pressure limit: 300 ±10 mmHg (40 kPa ±1.3 kPa)

Response time: < 3 sec.

Deflation time: < 15 sec

Protection against electric shock: Type BF

Display resolution: 1 mmHg (0.1 kPa)

Measuring ranges:

CO: 0,0–99,9 l/min
SV: 0–500 ml
SVR: 0–9999 dyne*s/cm²
PPV: 0-40%
CI: 0,0–99,9 l/min/m²
SVI: 0–500 ml/m²
SVRI: 0–9999 dyne*s/cm²/m²
SVV: 0-40%