

## 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.
- Easily integrates with 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 [AMI100D](#) or [HLT100C \(Rev 2\)](#).

**MP150 System:** Connect CBLNIBP100D-HD to [HLT100C \(Rev 1\)](#).

**MP36R System:** Add 4 x BSL-TC15 mod phone jack interface to connect CBLNIBP100D-HD to the CH ports on the front of the unit.


**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.
- To connect to the MP160/150 system via the AMI/HLT, BIOPAC recommends 4xINISOA for optically isolated connection (electrically safe inputs). Optionally, 4xCBL122 can be used when it is not necessary to provide electrically safe inputs (for example, when no participant is connected to the equipment at the same time via wired leads).
- 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.

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

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)
- **Continuous non-invasive blood pressure monitoring using concentrically interlocking control loops.** J. Fortin, W. Marte, R. Grüllenberger, A. Hacker, W. Habenbacher, A. Heller, CH. Wagner, P. Wach, F. Skrabal Computers in Biology and Medicine – September 2006 (Vol. 36, Issue 9, Pages 941-957, DOI: 10.1016/j.combiomed.2005.04.003)
- 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/cm<sup>5</sup>

**PPV:** 0-40%

**CI:** 0,0–99,9 l/min/m<sup>2</sup>

**SVI:** 0–500 ml/m<sup>2</sup>

**SVRI:** 0–9999 dyne\*s/cm<sup>5</sup>/m<sup>2</sup>

**SVV:** 0-40%