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NIM-NIBPS-2 Blood Pressure Simulator



NIM-NIBPS-2

The blood-pressure simulator is a standard device for sphygmomanometer calibration. It integrates both pressure generation and measurement functions. It converts pressure into electrical signals for amplitude measurement, and calibrates indicators including static-pressure range and error, simulated blood-pressure range, blood-pressure indication repeatability, pulse-rate error and air-tightness of sphygmomanometers.

Model NIM-NIBPS-2 can calibrate commercially available devices with blood-pressure simulation capability, such as electronic sphygmomanometers, multi-parameter patient monitors (invasive / non-invasive blood-pressure modules), ambulatory blood-pressure monitors and pressure sensors. It complies with relevant technical requirements of JJF 1626-2017 *Calibration Specification for Blood Pressure Simulators*.

NIM-NIBPS-2 integrates a Class-0.05 pressure transmitter and high-precision pressure-generating mechanism. No external standard pressure gauge is required for sphygmomanometer verification, delivering more convenient and efficient calibration operations

Technical Features

✓ Intelligent operating system and control software greatly improve usability and working efficiency.

✓ Adopts all-in-one design with simultaneous pressure generation and measurement; capable of testing and verifying pressure points specified in standards or user- defined points.

✓ Provides multiple blood- pressure simulation parameters and supports user- defined configuration.

✓ Supports air-tightness and deflation- rate verification functions.

✓ Built-in over-pressure protection.

✓ Suitable for calibrating electronic sphygmomanometers, multi- parameter patient monitors (invasive / non-invasive blood-pressure modules) and ambulatory blood-pressure monitors.

Technical Specifications

1. Built-in Class-0.05 pressure transmitter
2. Static Pressure Measurement
2.1 Units: kPa, mmHg, cmH_2O, PSI
2.2 Measuring range: (0 ~ 60) kPa [(0 ~ 450) mmHg]
2.3 Resolution: 0.01 kPa / 0.1 mmHg
2.4 Accuracy: ±0.75 mmHg (±0.1 kPa)
3. Pressure Output (Pressure Source)
3.1 Output range: (0 ~ 60) kPa [(0 ~ 450) mmHg]
3.2 Pressure-control accuracy: 0.025 %FS
3.3 Internal cuff air-tightness: ＜2 mmHg/min (＜0.27 kPa/min)
3.4 Air-tightness verification: Pre-configured test workflow in accordance with specification requirements. System pressure values are read at 1-minute and 5-minute intervals; air-tightness is calculated automatically.
3.5 Pneumatic-circuit leakage compensation: Automatic pneumatic-circuit compensation during pressure holding when the leakage rate of the device under test ≤ 0.8 kPa (6 mmHg).
4. Blood-Pressure Simulation (Dynamic)
4.1 Systolic pressure range: (20 ~ 300) mmHg [(2.7 ~ 40.0) kPa]
4.2 Diastolic pressure range: (10 ~ 250) mmHg [(1.3 ~ 33.3) kPa]
4.3 Blood- pressure indication repeatability: ±0.75 mmHg (±0.1 kPa)
4.4 Heart-rate range: (30 ~ 250) bpm
-Note: Maximum heart rate limited to 200 bpm when pulse volume ＞2.00 cc.
4.5 Heart-rate accuracy:
- Normal mode: ±1 bpm
- Patient conditions (weak pulse, tachycardia, obesity, elderly): ±(1 % of nominal value + 1) bpm
- Moderate exercise: ±(1.5 % of nominal value + 1) bpm
- Strenuous exercise: ±(3 % of nominal value + 1) bpm
- Pulse volume: (0.10 ~ 2.40) cc, increment: 0.01 cc
4.6 Cuff: Internal cuff (adult mode: 290 cc; neonatal mode: 20 cc)
5. Battery: 10000 mAh lithium- ion battery

Product Configuration： Main unit, metal pneumatic volume chamber, data cable, user manual