

# Accutorr<sup>®</sup> 3

## Quick Reference Guide







**Note:** The Accutorr 3 Quick Reference Guide is not intended as a replacement to the Operating Instructions. Prior to operating the equipment, the user must be familiar with the Operating Instructions Manual contents. This document is a guideline only to be used as an aid to comprehensive Inservice Training.

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**KEYS**

	<p><b>Power ON/OFF Switch</b></p> <ul style="list-style-type: none"> <li>• Press this key to turn the monitor on.</li> <li>• If no parameter is being measured, press this key to enter Standby mode.</li> <li>• When the monitor is on, press and hold this key for more than 2 seconds to turn the monitor off.</li> </ul> <p>An indicator is built into this switch. It turns green when the monitor is on, it turns yellow when the monitor enters Standby mode, and it turns off when the monitor is off.</p>
	<p><b>Clear Key</b></p> <ul style="list-style-type: none"> <li>• In the Measurement mode, press this key to clear current parameter value and error codes.</li> <li>• In the Measurement mode, press and hold this key for more than 2 seconds to access Parameter Setup mode.</li> <li>• To enter the Maintenance mode, turn the power on. At the first audible beep, press and hold the <b>Clear</b> key.</li> </ul>
	<p><b>NIBP Start/Stop Key</b></p> <ul style="list-style-type: none"> <li>• In the Measurement mode, press this button to start or stop NIBP measurement.</li> </ul>
	<p><b>Patient Category Key</b></p> <ul style="list-style-type: none"> <li>• In the Measurement mode, press this key to toggle between adult, pediatric and neonate.</li> </ul>

**PATIENT SIZE**

The Accutorr 3 monitor allows the clinician to adjust patient size.

To adjust patient size, press the  hardkey.

**Note:**

Adjusting patient size restores the monitor to the default (preconfigured) settings but does not clear patient information or data.

## **NIBP**

### **Factors that Affect Blood Pressure Measurement Accuracy**

The accuracy of non-invasive blood pressure (BP) measurement has been shown to be affected by numerous factors. Some of the more important aspects (based on published literature) to consider while measuring BP are:

- The cuff should fit snugly, but with enough room for two fingers to be placed between the cuff and the patient's arm (on adults), and loosely on neonates with little or no air present within the cuff.
- Use the Guidance Table provided to select the proper size cuff. Too small a cuff has been shown to result in the overestimation of BP (systolic and diastolic) while too large a cuff results in the underestimation of BP. Errors in the 10 to 40 mmHg range can occur.

Ensure that the cuff is wrapped directly over the patient's skin. BP measurement could be 10 to 40 mmHg higher or lower than actual when the cuff is applied over clothing.

- The cuff should be applied so that the center of the bladder in the cuff is over the brachial artery. Use the reference marker for this.
- For best results, the cuff should be placed on the arm at heart level and the lower arm supported passively. Published data indicates that BP can increase about 2 mmHg for every inch that the cuff is below heart level and decrease by the same amount if above heart level.
- Avoid compression or restriction of the pressure hose. Do not place the NIBP cuff on a limb that is being utilized for any other medical procedure, for example, an I.V. catheter.
- Have the patient sit quietly for several minutes before BP measurement and remain still during measurement to avoid unnecessary motion artifact. If the patient has not rested before measurement, BP could be elevated by 10 to 20 mmHg.
- Do not talk to the patient during BP measurement as talking has been shown to result in a 10 to 15 mmHg overestimation of BP.
- The patient's back and feet should be properly supported with the legs kept uncrossed. Unsupported back and feet could increase BP by up to 15 mmHg, while crossed legs could result in a 4 to 12 mmHg increase.

- Other factors that have been shown to result in an overestimation of BP are labored breathing (5 to 8 mmHg), full bladder (10 to 15 mmHg), pain (10 to 30 mmHg).


**Guidance Table**

Cuff Description	Limb Circumference
Child	10 - 19 cm
Small Adult	18 - 26 cm
Adult	25 - 35 cm
Large Adult	33 - 47 cm
Thigh	46 - 66 cm
Adult Long	25 - 35 cm
Large Adult Long	33 - 47 cm

**References:**

1. American Association on Critical-Care Nurses (AACN): **Practice Alert, Non-Invasive Blood Pressure Monitoring** (April 2010)- <http://www.aacn.org/wd/practice/docs/practicealerts/non-invasive-bp-monitoring.pdf?menu=aboutus>
2. Pickering Thomas G, Hall John E, Appel Lawrence J, Falkner Bonita E, Graves John, Hill Martha N, Jones Daniel W, Kurtz Theodore, Sheps Sheldon G, Roccella Edward J. **Recommendations for blood pressure measurement in humans and experimental animals: Part 1: Blood pressure measurement in humans: A statement for professionals from the Subcommittee of Professional and Public Education of the American Heart Association Council on High Blood Pressure Research.** J Hypertens 2005; 45: 142-161.
3. O'Brien Eoin, Asmar Roland, Beilin Lawrie, Imai Yutaka, Mallion Jean-Michel, Mancina Giuseppe, Mengden Thomas, Myers Martin, Padfield Paul, Palatini Paolo, Parati Gianfranco, Pickering Thomas, Redon Josep, Staessen Jan, Stergiou George, Verdecchia Paolo. **European Society of Hypertension recommendations for conventional, ambulatory and home blood pressure measurement.** J Hypertens 2003; 21: 821-848.

## Initiate/Stop A Non-Invasive Blood Pressure Measurement (NIBP)

To initiate or stop a NIBP measurement on a patient on the Accutorr 3 monitor, press the  hardkey on the monitor's front panel.

## ALTERNATE OPERATING MODES


The Accutorr 3 has different operating modes.

### Measurement Mode

The monitor will automatically enter measurement mode after power on. Monitor mode is intended for continuously monitoring vital signs.

### Parameter Setup Mode

The Parameter Setup mode is intended for adjusting monitor settings.

To enter the Parameter Setup mode on the Accutorr 3 monitor, press and hold the  hardkey for more than 2 seconds.

To resume monitoring on the Accutorr 3 monitor, press and hold the  hardkey for more than 2 seconds.

### Standby Mode

In Standby mode, monitoring for current patient is paused, but the monitor is still powered on.

To enter the Standby mode on the Accutorr 3 monitor:


- a. Press the  hardkey.
- b. Select **Yes** to confirm.


To resume monitoring on the Accutorr 3 monitor, select any key on the Accutorr 3 monitor.

## LOAD DEFAULT (PRESET) SETTINGS

The Accutorr 3 monitors settings are automatically restored when the patient size is adjusted.

A clinician may restore default settings on a patient currently being monitored on the Accutorr 3 monitor by:

- a. Enter Maintenance mode.
- b. Press the  hardkey to access the default factory setup screen.

- c. Press the  hardkey to switch between **ON** or **OFF**.
  - **ON** – to load the default settings.
  - **OFF** – to retain the current settings.

## **CLEANING/DISINFECTING**

### **Cleaning**

Clean your equipment on a regular basis. Before cleaning, consult your hospital's regulations for cleaning the equipment.

The following table lists approved cleaning agents.

<b>Product Name</b>	<b>Product Type</b>	<b>Ingredients</b>
Sodium hypochlorite bleach	Liquid	Sodium hypochlorite 10%
Isopropanol	Liquid	Isopropanol 70%

Note:

1. Refer to the Operating Instructions for important notes about cleaning.
2. The "\*" symbol indicates a cleaning solution should be prepared according to the concentration directed by the accompanying instructions for use.

To clean the equipment:

- a. Shut down the monitor and disconnect it from AC power.
- b. Clean the display screen using a soft, clean cloth dampened with a cleaning agent.
- c. Clean the exterior surface of the equipment using a soft cloth dampened with a cleaning agent.
- d. Wipe off all the cleaning solution with a dry cloth after cleaning if necessary.
- e. Dry your equipment in a ventilated, cool place.



**Disinfecting**

Disinfect your equipment as required in your hospital's servicing schedule. Cleaning equipment before disinfecting is recommended.

The following table lists approved disinfectants.

<b>Product Name</b>	<b>Product Type</b>	<b>Ingredients</b>
Sodium hypochlorite bleach	Liquid	Sodium hypochlorite 10%
Isopropanol	Liquid	Isopropanol 70%
Perform®	Powder	Used as 1% solution*  100g contains 45g Pentapotassium bis (peroxymonosulphate) bis (sulphate).  5 % to 15% anionic surfactants; <5% non-ionic surfactants; <5% soap and phosphonates, perfumes

Note:

1. Refer to the Operating Instructions for important notes about disinfecting.
2. The "\*" symbol indicates a disinfectant should be prepared according to the concentration directed by the accompanying instructions for use.

**STERILIZATION**

Sterilization is not recommended for this equipment, related products, accessories, or supplies unless otherwise indicated in the Instructions for Use that accompany the products, accessories or supplies.

**ERROR CODE**

Code	Description	Solution
01	NIBP overrange	Contact Mindray's Technical Service department.
02	NIBP module error	Restart the monitor. If the error persists, contact Mindray's Technical Service department.
03	NIBP comm. error	
04	NIBP air pressure error	Check for loose cuff or pinched hose. Restart the monitor and retry. If the error persists, contact Mindray's Technical Service department.
05	NIBP weak signal	Check the patient's condition and change the cuff application site. If the error persists, replace the cuff.
06	NIBP excessive motion	Check the patient's condition and reduce patient motion.
07	NIBP cuff overpressure	Check for kinked hose or excessive patient movement. Restart the monitor and try again.
08	NIBP illegally reset	Contact Mindray's Technical Service department.
09	NIBP timeout	Check the patient's condition and NIBP connections, or replace the cuff.
10	NIBP cuff type wrong	Verify the patient size and use the appropriate cuff.
11	NIBP air leak	Ensure the cuff is applied correctly and check the fittings for leaks. If the problem persists, contact Mindray's Technical Service department.
17	SpO2 board fault (Masimo)	Discontinue monitoring SpO <sub>2</sub> and contact Mindray's Technical Service department.
18	SpO2 module error	Restart the monitor. If the error persists, contact Mindray's Technical Service department.
19	PR overrange	Contact Mindray's Technical Service department.
20	SpO2 low perfusion	Move the sensor to a site with better perfusion.

<b>Code</b>	<b>Description</b>	<b>Solution</b>
26	Temp module error	Restart the monitor. If the error persists, contact Mindray's Technical Service department.
27	Temp probe error	Verify that the probe is in the probe well, or cool the probe and re-insert into the probe well.
28	Ambient temp overrange	Change or cool the environment and retry.
29	Temp overrange	Contact Mindray's Technical Service department.
40	Power board comm. error	Restart the monitor. If the problem persists, contact Mindray's Technical Support department.

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