

**LIVINGSTONE**

# Automatic Digital Blood Pressure Monitor

99  
Memory  
+  
Average  
+  
Date/Time






LIVHEM7322

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## Important Notes

1. Only a physician is qualified to interpret changes in your blood pressure. This device is not intended to replace regular medical examinations. It is recommended that your physician review your procedure for using this monitor. Never make adjustments to your medication unless it is the advice of a physician.
2. This Blood Pressure Monitor is intended for use by adults. Children should not use this monitor unless it is under the supervision of an adult.
3. Don't instead other vendors cuff, Since these will affect Measurement accuracy.
4. Please read the entire instructions carefully before using this Blood Pressure Monitor.
5.  Warning Symbol
6.  Type B Symbol
7.  Class II Symbol

## Measurement Accuracy

The blood pressure measuring device bears the CE (conformity) label "CE 0086". The quality of the device has been verified and conforms to the provisions of the EC council directive 93/42/EEC of 14 June 1993 on medical devices, as well as the EMC directive 89/336/EEC:

EN 1060-1

Non-invasive blood pressure measuring equipment  
General requirements

EN 1060-3

Non-invasive blood pressure measuring equipment  
Supplementary requirements for electro-mechanical  
blood pressure measuring systems

EN 60601-1

Safety requirements for medical electrical equipment

EN 60601-1-2

Electromagnetic compatibility and safety for medical  
electrical equipment

EN 14971

Risk analysis for medical devices

# Helpful Information

## What Is Blood Pressure?

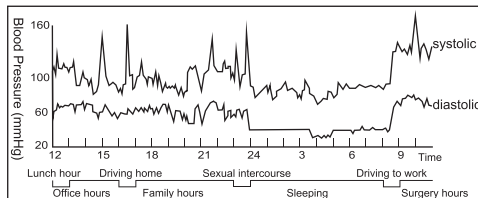
Blood pressure is the force that blood exerts on the arteries. This force is constantly changing as the heart beats. When the heart contracts, blood pressure reaches its highest value. This is called systolic blood pressure. When the heart relaxes between beats, the value of blood pressure is lower. This is called the diastolic blood pressure. The device of measure for blood pressure is the millimeter of mercury, abbreviated mmHg.

For example, an individual's blood pressure may be measured as 120 mmHg (systolic) and 80 mmHg (diastolic). This would be spoken as "120 over 80" and written as "120/80".

Remember that blood pressure varies throughout the day. Food intakes, smoking, time of day, stress, level of exercise and many other factors can affect it.

## Typical daily blood pressure fluctuations

(Example : 35-year-old male)



## What is High Blood Pressure?

Hypertension, or high blood pressure, is a condition where an individual's blood pressure remains high over a long period of time. Untreated, hypertension can cause many serious medical problems including strokes and heart attacks. To control hypertension, the American Heart Association recommends that you not smoke, reduce fat and salt intake, maintain proper weight, exercise and get regular physical check-ups.



## Blood Pressure Classifications

Category	Systolic (mmHg)		Diastolic (mmHg)
Normal*	less than 120	and	less than 80
Pre-hypertension	120-139	or	80-89
<b>Hypertension</b>			
Stage 1	140-159	or	90-99
Stage 2	160 or higher	or	100 or higher

\* Unusually low readings should be evaluated for clinical significance.

(From the Seventh Report of the Joint National Committee on Detection, Evaluation, and Treatment of High Blood Pressure)

## Why Is It Important to Measure Your Blood Pressure at Home?

Having your blood pressure taken at the doctor's office may cause you to become nervous, thus artificially raising your reading. Having the ability to take your blood pressure at home makes it easy to record a log of your daily readings.

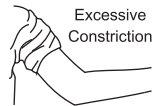
This will help you gain a greater understanding of your blood pressure reading and the factors that affect it. Be sure that you share your information with your physician.

## Hints for Accurate Measurement

1. Relax and try to remain still for 5 to 10 minutes before a measurement.
2. Remove any clothing on the upper arm so that the cuff can be placed directly on the skin.

Constriction of the upper arm caused by rolling up a shirt sleeve may cause an inaccurate reading.

Avoid this condition by completely removing the garment causing the Constriction.



3. Refrain from eating, smoking, and drinking (especially alcoholic beverages) before a measurement since these activities can affect your blood pressure.
4. Remember that blood pressure varies continuously throughout the day. Try to take your blood pressure at the same time each day.
5. Do not be concerned with the results of one measurement. Many measurements, recorded over a long period of time, will provide a better indication of your blood pressure.

# Correct Method of Measurement

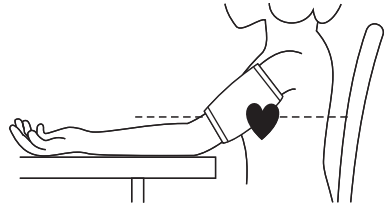
6. Please relax for 5 to 10 minutes before taking another measurement.
7. Many factors can affect your blood pressure such as exercising, eating, talking, moving, nervousness, environment and temperature changes. Emotional stress can cause an increase in blood pressure. Daily fluctuations of 25 to 50 mmHg are common.

## Please note :

Some individuals with hypertension, diabetes, kidney disorders, arteriosclerosis or poor circulation may see a significant difference in blood pressure readings taken from the wrist as compared to readings from the upper arm. It is recommended that you consult with your physician concerning the use of this monitor.

To obtain the most accurate blood pressure measurement, please follow these important directions.

1. Be seated in a chair with back support.
2. Rest your arm on a table so the cuff is at the same level as your heart.
3. Place both feet on the ground.

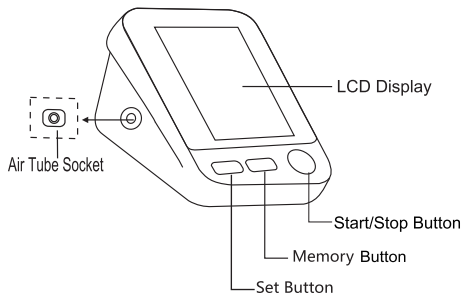


## IMPORTANT :

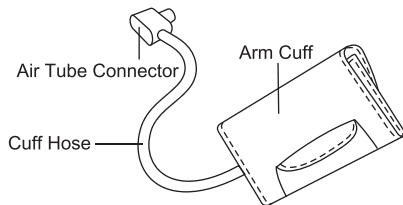
The arm cuff must be at the same level as your heart, or accurate measurement will not be possible. (Your heart is located slightly below your left armpit.)

## Parts Identification

### • Monitor:



### • Accessories:



## Description of Display Marks



Inflating



Deflating



Measurement Error



Measuring



Battery Display



Arrhythmia



Voice function

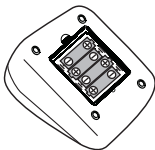
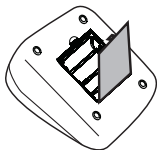


User

# Preparation before Taking a Measurement

## Battery Installation / Replacement

1. Slide the battery cover off in the direction of the arrow.
2. Install or replace the four alkaline "AAA" batteries, noting the proper orientation of positive (+) and negative (-) terminals of the batteries in the battery compartment.
3. Replace the battery cover.
4. If the Low Battery Symbol appears on the display, replace both batteries.
5. Remove the batteries if the device will not be used for an extended period of time.

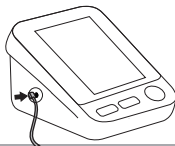
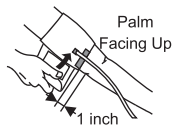
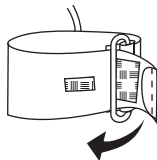
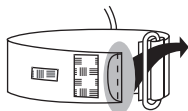


**Note** Batteries are hazardous waste. Do not dispose them together with the household garbage.



## How to Apply the Arm Cuff (Preferably the left arm.)

1. Insert the end of the cuff through the D-Ring to make a loop. (Make sure that the Velcro stays outside when it is done.)
2. Wear the arm cuff with the hose downward. Pull the end of the cuff and secure it snugly with the Velcro.
3. Adjust the cuff that the bottom edge is about 1 inch above the elbow on the inside of the left arm. Please mind the colored area on the cuff covers the brachia artery.
4. Plug in the air tube connector into the monitor.



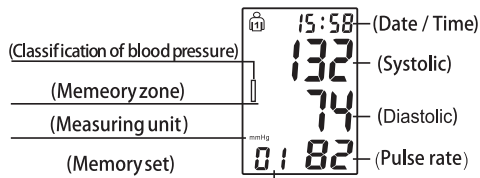
# Taking a Measurement

Please review the previous sections on proper placement of the cuff and proper arm position.

1. After the cuff has been properly placed on the arm , press the “**START/STOP**” button to start the measurement.
2. After the display reads “▲”, the cuff will automatically inflate to an appropriate pressure. The low battery symbol appears at this time if the low power is detected before the inflation. After the inflation, it slowly deflates to take the measurement. The heart mark “♥” will appear indicating that measurement is in progress. The cuff will be quite snug for a short while; this is normal. Try to remain relaxed, refrain from talking, and be as still as possible during the measurement.

**Note:** If the device determines that the initial inflation pressure was insufficient, it will re-inflate to a higher pressure.

3. The device will completely deflate when measurement is finished. The systolic and diastolic pressure and pulse rate will be displayed.



To end a measurement for any reason, just press Start/Stop button to turn off the unit and release the cuff pressure.






If during a measurement the power drops to an insufficient level, the device will end the measurement and display the low battery symbol. Please replace the batteries and repeat the measurement.

If the device cannot detect your pulse, it will end the measurement attempt. Wait a few minutes, make sure that the cuff is positioned properly, and try again.

The device will automatically shut off 1 minutes following a reading, or it can be turned off manually by pressing the Start/Stop button.

## Setting Date and Time

To set Date and Time after proper battery installation or replacement.

1. After the batteries have been properly installed, the screen displays “” and the icon blinks.
2. Press the “**SET**” button repeatedly, the individual figure will start blinking sequentially from year, month, date, hour, minute, , mmHg  
: voice function ( : Turn on the sound ;  
: turn off the sound)
3. After you have selected particular figure, press the “**MEM**” button to make adjustment.  
Note: Pressing the button once will cause the display to advance by one digit.
4. After you have done the adjustment, press the “**SET**” button to save your settings.

## Memory Function

### Memory Input

When a valid measurement is made, the result (systolic, diastolic, pulse rate, date and time) will be stored in the memory automatically as soon as the device is turned off, or when another measurement is initiated.

The device is capable to store 2X99 readings, and also computes averages of readings. When more than 99 readings are recorded into memory, the oldest ones will be deleted.

### Memory Recall

Press “**MEM**” button to read the memory data of the current user. “**AUG**” means the average of the last three times.

Now press the “**MEM**” button, which is your last reading recorded readings in the memory. Press the button repeatedly, the records will be displayed sequentially. Press the “**START/STOP**” button to exit the memory function.

# Err Indicators / Troubleshooting

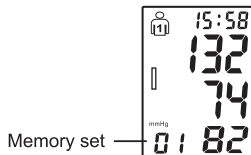
## Memory Erase

### (A)Erase single memory:

Press the “**MEM**” button to select the single data you want to delete, then press and hold the “**SET**” button until the top right corner of the screen shows “DEL”. press the “**MEM**” button to confirm and erase single memory.

### (B)Erase all memory of current user

Press and hold the “**MEM**” button, the screen displays the current user, and at the same time press and hold the “**SET**” button until the screen displays “ALL/EE”, then release the button to complete the erase.



## Error Indicators

Error indicator	Possible sources of errors
$Err_1$	Cause: The rate of gas leakage is too fast or the pulse is too weak. Correction: Reposition the cuff and measure again.
$Err_2$	Cause: Because there is too much noise, it can not measure blood pressure. Correction : Remove noise and measure again.
$Err_3$	Cause: The result of the measurement is abnormal. Correction: Reposition the cuff and measure again.
$Err_P$	Cause: Cuff get loose during the inflation, the cuff inflation failed. Correction : Check and reposition the cuff and measure again
$Err_H$	Cause: The inflation pressure is greater than $307 \pm 8 \text{ mmHg} (41 \text{ kPa} \pm 1 \text{ kPa})$ . Correction: Reposition the cuff and measure again.



Batteries are exhausted. Replace with four new alkaline "AAA" batteries.

## Troubleshooting

Problem	Recommended Action
Nothing appears in display	<ul style="list-style-type: none"><li>· Make sure that the batteries are installed in the proper direction. (Polarity matches to the indications in the battery case.)</li></ul>
No measurement occurs	<ul style="list-style-type: none"><li>· Check that the cuff is positioned properly.</li><li>· Go over the measurement procedure again.</li></ul>
Blood pressure readings are too high or low	<ul style="list-style-type: none"><li>· Check if the arm is positioned properly.</li><li>· Position your arm, so the cuff is at the same level as your heart.</li><li>· Remain seated during the entire measurement period.</li><li>· Refrain from hand and body movements during measurement.</li></ul>
Blood pressure readings are variable	<ul style="list-style-type: none"><li>· Your blood pressure can fluctuate considerably through out the day. All of the following factors can influence your blood pressure:<ul style="list-style-type: none"><li>· Emotional state</li><li>· Daily activities or exercise</li><li>· Smoking</li><li>· Drinking alcoholic beverages</li><li>· Eating</li><li>· Taking certain medications</li></ul></li></ul>



## Sensor Calibration Mode

You need proper equipment to calibrate this device; therefore, do not attempt to do this by yourself. You may damage the device.

If by accident, Press the “**Start/Stop**” button for 3 seconds and then press the “**Recall**” key at the same time. you will see CAL appear in the LCD, Press the “Start/Stop” button to exit the calibration mode.

## Care and Maintenance

- Keep the device away from high temperature or high humidity, and direct sunlight.
- Keep sharp objects away from the cuff.
- Do not press the “ **START/STOP** ” button without the cuff around your arm to avoid excess pressure build up that may damage the cuff.
- Use the device at a sufficient distance from devices with strong electrical fields, such as television, microwave oven, X-ray equipment, etc.
- Do not subject the device to strong impacts or drop it on the floor.
- Do not disassemble or modify the device or the cuff.
- Remove the batteries when the device is to be stored for extended periods of time.
- Use only a soft dry cloth to clean the unit. Do not use solvents or other petroleum based cleaners.
- Circuit diagram and repairable part can be provided if it's necessary.

# Specifications

Model:	LIVHEM732 2
Measuring method:	Oscillometric
Memory function:	Storage and recall of 2X99 measurements with average
Display:	Digital LCD
Measuring range:	Pressure: 0 - 280 mmHg (0-37.3kPa)    Pulse: 40 - 199 /minute
Sensor accuracy:	Pressure: $\pm 3$ mmHg    Pulse: $\pm 5\%$
Inflation system:	Electro-pneumatic pump
Arm size ranges:	22 - 33 cm ( 9 - 13 inches)
Batteries:	1.5V alkaline (LR6/AAA) x 4
Automatic power-off:	Approx. 1 minute after measurement
Weight:	Approx. 405g (without batteries)
Storage and transport condition:	-10°C ~ +60°C, 10% ~ 95% RH
Operating condition:	+10°C ~ +40°C, 10% ~ 85% RH
Standard cited	EN 1060-1    EN 1060-3 EN 60601-1    EN 60601-1-2 EN 14971

# Blood Pressure Log

Date	1/1	1/1	1/1							
Time	7:00	13:30	20:00							
mmHg	240									
	220									
	200									
	180									
	160									
	140									
	120	128	134	123						
	100									
	80	84	90	76						
	60									
Pulse	70	73	69							
Body Condition										

