



WatchBP[®] home N

Accurate home and nocturnal blood pressure measurements with the WatchBP home N.

Instruction Manual



EN → 1

microlife[®]

Microlife WatchBP Home N is the device designed to measure nocturnal blood pressure during sleep time. It strictly follows European Society of Hypertension (ESH)^{1,2} and American Heart Association (AHA)³ recommendations for home blood pressure measurement. Using the WatchBP Home N device helps you collect accurate home and nocturnal blood pressure measurements. This gives a good insight into your daily blood pressure pattern and therefore provides valuable information for your doctor. The WatchBP Home N device has been clinically validated according to the ESH protocol ⁴.

¹ O'Brien E, Asmar R, Beilin L, Imai Y, *et al.* European Society of Hypertension recommendations for conventional, ambulatory and home blood pressure measurement. European Society of Hypertension Working Group on Blood Pressure Monitoring. *J Hypertens* 2003;21:821-848.

² Stergiou GS, *et al.* A tool for reliable self-home blood pressure monitoring designed according to the European Society of Hypertension recommendations: The Microlife WatchBP Home monitor. *Blood press Monit.* 2007;12:127-131.

³ Pickering TG, Hall JE, Appel LJ, *et al.* 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. *Hypertension* 2005;45:142-161.

⁴ Stergiou GS, Giovas PP, Gkinos CP, Patouras JD. Validation of the Microlife WatchBP Home device for self home blood pressure measurement according to The International Protocol. *Blood Press Monit.* 2007;12(3):185-188.

Table of Contents

Before using WatchBP Home N for the first time

Product description	3-4
Activating the device	5
Selecting the correct cuff	6

Taking measurements using WatchBP Home N

«USUAL» Mode	8
«DIAG.» Mode	8-10
«NOCTURNAL» Mode	11

Storing measurement values and medication intake

Measurement values stored automatically	12
Recording medication intake	13-14

Eight steps for taking accurate blood pressure

Blood pressure measurement procedures	15-18
---	-------

Special function

Atrial Fibrillation Detection	19-20
-------------------------------------	-------

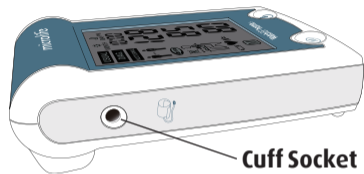
Viewing, deleting, and transferring measurement values

Viewing measurement values	21-22
Deleting measurement values	23-24
Transferring measurement values.....	25-26

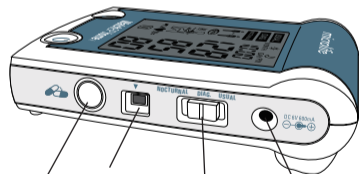
Appendix

Batteries and power adaptor	27-28
Safety, care, accuracy test and disposal	29-30
Error messages	31-32
Important facts	33-34
Technical specifications	31

WatchBP[®] home^N



Cuff Socket

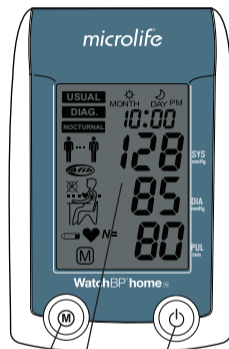


Medication Button

Serial Port

Mode Switch

Power Socket



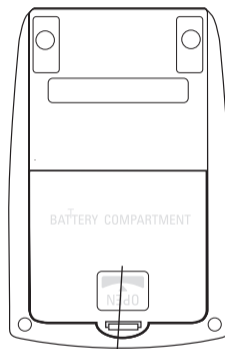
microlife

USUAL MONTH DAY PM
DIAG. 10:00
NOCTURNAL
128
85
80
SYS
DIA
PUL
WatchBP home[®]

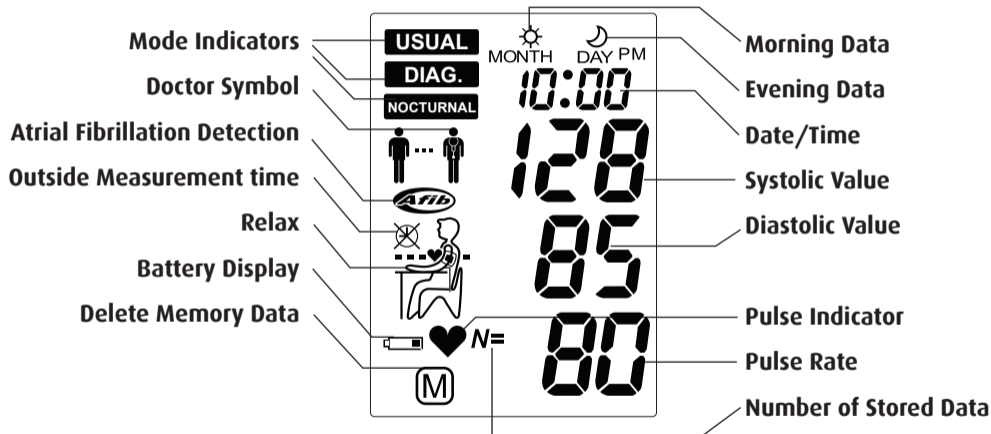
ON/OFF Button

Display

M Button (Memory)



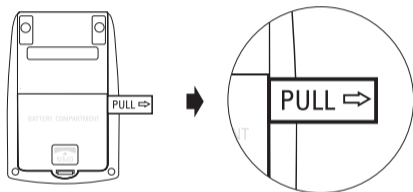
Battery Compartment



Before using WatchBP Home N for the first time

Activating the Device

Pull out the protective strip from the battery compartment to activate the device.

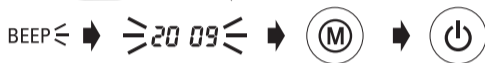


1) **Set the year** – Upon removing the protective strip or installing new batteries, the year number flashes in the display. Use the M button to select the year. Press the ON/OFF button to confirm the selection.



Press M button to select.

Press ON/OFF button to confirm.



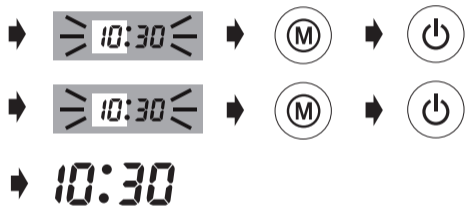
2) **Set the month** – Press the M button to select the month. Press the ON/OFF button to confirm.



3) **Set the day** – Press the M button to select the day. Press the ON/OFF button to confirm.



- 4) **Set the time** – Press the M Button to select the time. Press the ON/OFF button to confirm. When the date and time are set, the current time is displayed.

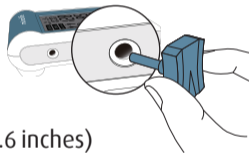


- 5) If you want to change the date and time, take out one battery from the battery compartment briefly and press ON/OFF button to turn off the device; then put it back. The year number will flash. Complete the process as described above.

Selecting the correct cuff

The WatchBP Home N device is available with different cuff sizes. If the cuff provided with the device is not the correct size, please consult your doctor.

✧ *please use only Microlife cuffs!*



M (Medium size)

22 - 32 cm (8.7 - 12.6 inches)

M is the correct size for most people.



L (Large size)

32 - 42 cm (12.6 - 16.5 inches)

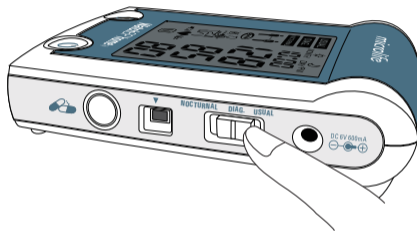
Taking measurements using WatchBP Home N

Prior to each measurement, use the Mode Switch on the right side of the device to select the proper measurement mode. There are three modes to be selected:

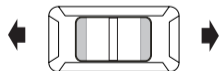
«**USUAL**» (Usual) mode,
for a regular single measurement.

«**DIAG.**» (Diagnostic),
for diagnosis or follow-up.

«**NOCTURNAL**» (Nocturnal) mode
for measurements of blood pressure during sleep.



NOCTURNAL **DIAG.** **USUAL**



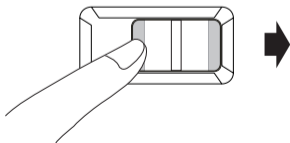
«USUAL» Mode

The «**USUAL**» mode should be selected when the measurement of blood pressure is recommended by guidelines. In «**USUAL**» mode, single measurements can be taken at any time, and the measurement values are automatically stored for later evaluation by your doctor.



Anytime

NOCTURNAL DIAG. **USUAL**

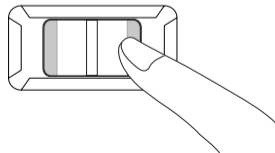


«DIAG.» Mode

The «**DIAG.**» mode should be selected as requested. The blood pressure can only be measured in accordance to the measurement schedule as prescribed by the European Society of Hypertension (ESH).



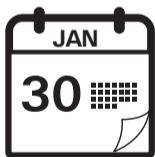
NOCTURNAL **DIAG.** USUAL



Taking measurements using WatchBP Home N (cont.)

No measurements on non-work days

In «**DIAG.**» mode, blood pressure measurements are taken **on 7 consecutive working days** (or normal week days). **Do not take measurements on «non-working» days** (or particularly relaxing days) in this mode!



7 working days

Two sets of measurements per day

ESH guidelines recommend one double measurement to be taken in the morning between 06:00 - 09:00 and one in the evening between 18:00 - 21:00. **Always take the measurements before taking your medication, unless otherwise directed by your doctor.**



ESH Guidelines



Extended Time

Extended measurement period

WatchBP Home N has an extended measurement period and allows morning measurements between 04:00 - 12:00 and evening measurements between 18:00 - 24:00.



If it is not in the measuring time period, the symbol will be displayed and the measurements can not be taken.



When measurements have been carried out for the full 7 days, the doctor symbol will flash on the screen.

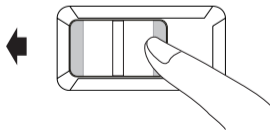
Taking measurements using WatchBP Home N (cont.)

«NOCTURNAL» Mode

The «**NOCTURNAL**» mode enables you to measure and record blood pressures during sleep time. It can be selected when requested by your doctor.



NOCTURNAL **DIAG.** **USUAL**



Three measurements during sleep time

Select «**NOCTURNAL**» mode while you are going to sleep. Press the start button for 3 seconds, the device will take one measurement automatically to activate the nocturnal procedure. It will take the first measurement two hours later; the second measurement one hour after the first measurement; and the third measurement one hour after the second measurement.



* The average blood pressure value of the 1st, 2nd and 3rd measurement will be calculated by the device.

Measurements stored automatically

In «USUAL» mode

250 measurements can be stored

❖ *When the memory of the device is full, each new measurement will automatically overwrite the first measurement.*

In «DIAG>» mode

28 measurements can be stored

In «NOCTURNAL» mode

84 measurements can be stored

❖ *Up to 21 cycles of nocturnal measurements can be stored.*

50 medication records can be stored

* *When the memory is full, the device will display "Full".*



«USUAL» mode



«DIAG>» mode



«NOCTURNAL» mode



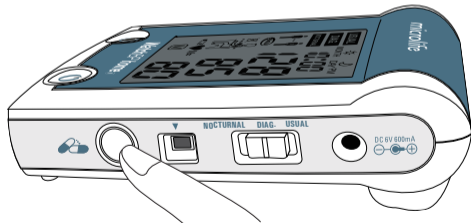
Medication

Recording medication intake

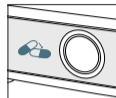
The patient can record the time of the medicine intake by pressing the Medication Button.

- 1) Press and hold the Medication Button for 2 seconds then release it, the Pill icon and the record number appear.
- 2) The Pill icon will flash alternately with the recorded time.
- 3) Medication record is saved .

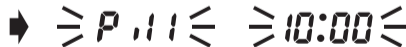
Delete stored medication records



※ Medication intake can be recorded in any of the three modes.

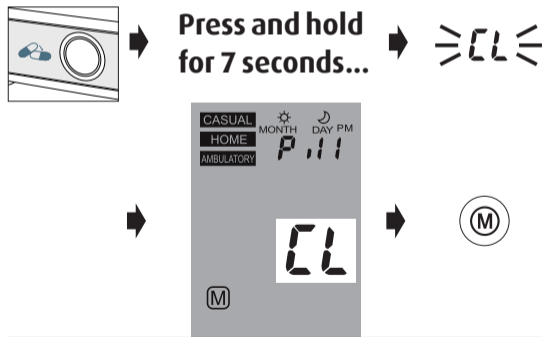


**Press and hold
for 2 Seconds...**



Saved

To clear the memory of all medication records, press and hold the Medication button for 7 seconds until the “CL” symbol flashes. Then press M to delete the memory or ON/OFF to cancel the deletion .



** Pressing the M Button to delete data will erase all medication recorded data in the selected mode.*

Eight steps for taking proper blood pressure

Step 1

Avoid taking measurements directly after eating, drinking or smoking. Allow at least one hour between these activities and measurement of your blood pressure.



1 Hour Before



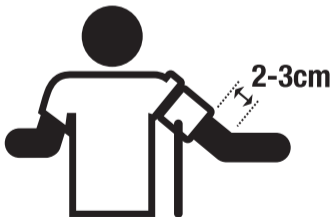
Step 2

Prepare a chair and table for the measurement. The chair should have a vertical back-rest and the table should allow your upper arm to rest at the same height as your heart.



Step 3

Remove all clothing covering or constricting the arm to be measured. Apply the cuff. Make sure the lower edge of the cuff is exactly 2–3 cm from the inner fold of your arm. The tube connecting the cuff to the device should be placed on the inside of the arm. *(Additional visual instruction can be found on the cuff)*



Step 4

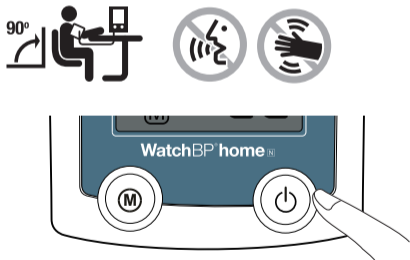
Sit down and relax for at least five minutes prior to the measurement.



Eight steps for taking proper blood pressure (cont.)

Step 5

Sit upright and lean comfortably against the chair's backrest. Press the start button, and the device will start to measure. During the measurement do not move, cross your legs, or tense your arm muscles. Breathe normally and do not talk.



Step 6

When the measurement is complete, the readings are stored for future reference by your doctor. If an error displays after the readings, please repeat the measurement procedure from step 1 to 5.



Automatically stored

Step 7 (in «DIAG.» mode)

In «**DIAG.**» mode, there is a 60 second countdown before the measurement starts. Two measurements will be performed subsequently. After the first measurement another 60 second countdown starts before the second measurement. Be relaxed and do not move during the countdown.



Step 8 (in «DIAG.» mode)

When seven days of measurements have been collected, the Doctor Symbol will flash on the display. Do not forget to take your WatchBP Home N device with you on your next visit to the doctor. (*Note: the doctor symbol is only displayed for measurements in «DIAG.» Mode.*)



Special Function

The atrial fibrillation indicator for early detection

The WatchBP Home N is designed to detect atrial fibrillation during blood pressure measurements in the «**USUAL**» Mode, «**DIAG.**» Mode and «**NOCTURNAL**» Mode. When atrial fibrillation is detected, the Afib icon is displayed. The device can detect atrial fibrillation with high accuracy (sensitivity of 95% and specificity of 86%)*. If the atrial fibrillation icon is displayed after the measurement, it is recommended to visit a doctor.

* Joseph Wiesel, Lorenzo Fitzig, Yehuda Herschman and Frank C. Messineo. *Detection of Atrial Fibrillation Using a Modified Microlife Blood Pressure Monitor.* *American Journal of Hypertension* 2009; 22, 8, 848–852. doi:10.1038/ajh.2009.98



- * Atrial fibrillation is a major cause of stroke which can be detected by this device. However, not all risk factors for stroke, including atrial flutter, may be detected by this device.
- * This device may not detect atrial fibrillation in people with pacemakers or defibrillators. People with pacemakers or defibrillators should therefore not use this device to detect atrial fibrillation.

About Atrial Fibrillation

Atrial fibrillation is a common heart rhythm problem. It affects more than 2 million people in North America. It is more common in older age and is found in 10% of people over 80 years old. It is a common cause of strokes. About 15% of all strokes are caused by atrial fibrillation.

The elderly or those with high blood pressure, diabetes or heart disease are more likely to get a stroke if they have atrial fibrillation.

Atrial fibrillation is a rhythm problem that can last from a few minutes, too days, weeks or even years. Atrial fibrillation can cause blood clots in the upper chambers of the heart (the atria). These clots can break off and flow to the brain causing a stroke.

The use of blood thinners, such as warfarin, can lower the risk of a stroke in patients with atrial fibrillation.

A doctor can confirm if atrial fibrillation is present by performing an ECG. Sometimes Atrial fibrillation is present incidentally. Therefore, a doctor may not see it on regularly scheduled visits.

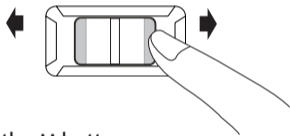
One method of detecting atrial fibrillation is by means of palpitations during blood pressure measurement. This method is not very reliable. Failure to detect Afib may in the end lead to the occurrence of a stroke; whereas early detection may lead to early treatment that can significantly reduce the chances of a stroke.

Viewing, deleting and transferring measurements

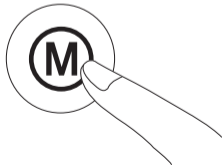
Viewing measurements

- 1) Use the Mode switch to first select the mode of measurements you want to view.

NOCTURNAL DIAG. USUAL

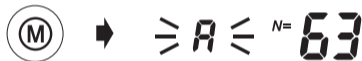


- 2) Then press the M button.



In «USUAL» Mode

- 1) When the M button is pressed, it briefly displays the total number of measurements stored, e.g. N=63, followed immediately by the average of all measurements stored in memory.

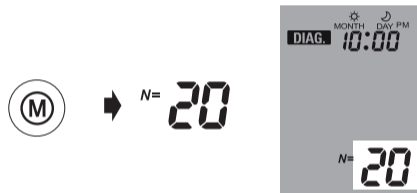


- 2) All individual readings can be viewed by repeatedly pressing the M button.



In «DIAG.» Mode

1) When the M button is pressed, it briefly displays the total number of measurements stored, e.g. N=20.



❖ «A» is displayed when the number shown is the average of all data.



❖ «- -» will display when the number of measurements is less than 12.



2) Pressing the M button again displays the average of all morning data.



3) Pressing M button once again shows the average of all evening data.



❖ All individual readings can be viewed by repeatedly pressing the M button.

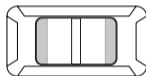
Viewing, deleting and transferring measurements (cont.)

Deleting measurements

All the data in different modes can be deleted.

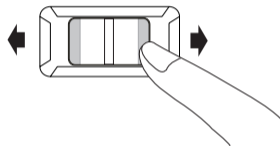
** Before deleting the data, be sure that the data are no longer needed.*

NOCTURNAL DIAG. USUAL



- 1) Use the Mode switch to select the mode of measurements you want to delete.

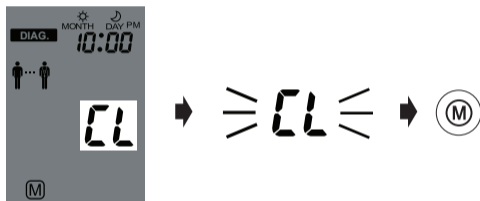
NOCTURNAL DIAG. USUAL



- 2) Press the M Button and hold it for 7 seconds until the delete symbol flashes.



- 3) Release the M Button and press it once more while the delete symbol flashes. The deleting is confirmed by the beep sound.



** Only measurements in the selected mode will be deleted. Measurement data in the other mode must be deleted independently.*

Viewing, deleting and transferring measurements (cont.)

Transferring measurements

Installation of the software program

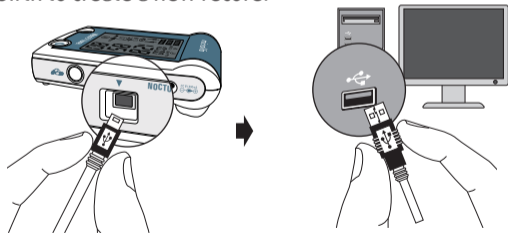
- 1) Put the CD in the CD-ROM drive of your computer.
Alternatively click on «**setup.exe**» in the CD's directory.
- 2) Follow the instructions provided in the installation window on the computer screen.
- 3) When installation is finished, be sure to restart the computer before you work with the program.



❖ *System Requirements: 550MHz CPU, 256MB Memory, 1024x768 pixel resolution, 256 color, CD-ROM drive, 1 free USB port, 40MB free hard disk space, Microsoft Windows 2000 / XP / Vista.*

Transferring data to the computer

- 1) Start the software program and connect the device to the computer using the cable supplied.
- 2) A successful connection is displayed by «**Connected**» on the computer screen.
- 3) Enter name, identity number (if required), and date of birth to create a new record.



Software commands	Refer to the software user manual for detailed information and instructions.
Transfer «DIAG.» mode data	Click «Download»
Corresponding value	You can remove the check mark and the corresponding value will not be used to calculate the average.
Store data	Click «Save», the file name is formed automatically from the patient's identity number and the suffix «Dmode.xls».
View the data	Click «Patient Files»
Store the «USUAL» mode data	Click «Download Usual Mode Data», the file name is formed automatically from the patient's identity number and the suffix «Umode.xls».
Print the data sheet	Click «Print»
Delete the memories	Click «Clear Memory»
Close the program	Click «Exit»

❖ Please store the data before using «Clear Memory» or «Exit».

Batteries and power adaptor

Battery indicator

When the batteries have $\frac{1}{4}$ power supply left, the Battery Symbol will flash each time the device is switched on.



Replacing low batteries

When the batteries need to be replaced, the Battery Symbol will flash each time the device is switched on.

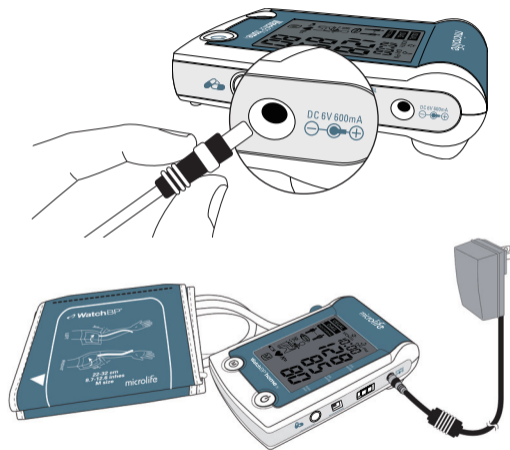
- 1) Open the battery compartment at the back of the device.
- 2) Replace the batteries – be sure to have the correct polarity as shown by the symbols in the compartment.
 - ✦ Use 4 new, long-life 1.5V, size AA batteries.
 - ✦ Do not use batteries out of date of expiration.
 - ✦ Remove batteries, if the device will not be used for a prolonged period.

Using a power adaptor

The WatchBP Home N device can also be operated using a Microlife power adaptor (DC 6V, 600mA).

❖ *Only use power adaptors supplied by Microlife.*

- 1) Plug the adaptor cable into the Power Plug of the WatchBP Home N device.
- 2) Plug the adaptor plug into the wall socket. When the power adaptor is connected, no battery power is consumed.



Safety, care, accuracy test and disposal

Safety and protection

This device may be used only for the purpose described in this booklet. The device comprises of sensitive components and must be treated with caution. The manufacturer cannot be held responsible for damage caused by incorrect application.



- Ensure that children do not use the device unsupervised; some parts are small enough to be swallowed.
- Only activate the pump when the cuff is installed.
- Do not use the device if you think it is damaged or if anything appears unusual.
- Read the further safety instructions in the individual sections of the instruction manual.
- Do not connect the device to a computer until prompted to do so by the computer software.

Observe the storage and operating conditions described in the “Technical specifications” section of this manual.



Protect the device from water and moisture



Protect the device from direct sunlight



Protect the device from extreme heat and cold



Avoid proximity to electromagnetic fields, such as those produced by mobile phones



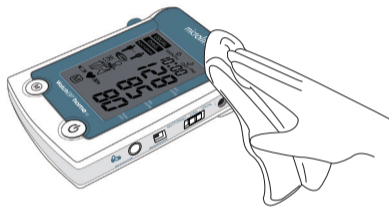
Never open device



Protect device from impact and drops

Device care

Clean the device with a soft, dry cloth.



Accuracy test

It is recommended the WatchBP Home N device be tested for accuracy every 2 years or after mechanical impact (e.g. being dropped). Please contact Microlife to arrange for an accuracy test.

Cuff care

DO NOT wash the cuff. DO NOT iron the cuff cover.



Do not wash the cuff!



Do not iron the cuff!

Disposal

Batteries and electronic instruments must be disposed of in accordance with the locally applicable regulations, and not as domestic waste.

Error messages

If an error occurs during measurement, the measurement is interrupted and an error message «Er» is displayed.



- *Please consult your doctor, if this or any other problem occurs repeatedly.*
- *If you think the results are unusual, please read through the information in this instruction manual carefully.*



Error	Description	Potential cause and remedy
«Er 1»	Signal too weak	The pulse signals on the cuff are too weak. Re-position the cuff and repeat the measurement.
«Er 2»	Error signal	During the measurement, error signals were detected by the cuff, caused for instance by movement or muscle tension. Repeat the measurement, keeping your arm still.

«Er 3»	No pressure in the cuff	An adequate pressure cannot be generated in the cuff. A leak may have occurred. Replace the batteries if necessary. Repeat the measurement.
«Er 5»	Abnormal result	The measuring signals are inaccurate and no result can therefore be displayed. Read through the checklist for performing reliable measurements and then repeat the measurement.

«HI»	Pulse or cuff pressure too high	The pressure in the cuff is too high (over 300 mmHg) OR the pulse is too high (over 200 beats per minute). Relax for 5 minutes and repeat the measurement.
«LO»	Pulse too low	The pulse is too low (less than 40 beats per minute). Repeat the measurement.

Important facts about blood pressure and home measurements

Are home blood pressure measurements valuable?

Yes. The American Heart Association and European Society of Hypertension have demonstrated that home blood pressure measurements are important in determining accurate blood pressure.

- **Blood pressure** is the pressure of the blood flowing in the arteries generated by the pumping of the heart. Two data readings, the **systolic** (upper) value and the

diastolic (lower) value, are always measured.

- The **pulse rate** is the number of heart beats per minute.
- **Permanently high blood pressure can damage your health and must be treated by your doctor!**
- Always discuss your home blood pressure measurement data with your doctor and tell him/her if you have noticed anything unusual or feel unsure. **Never rely on single blood pressure readings.**
- There are many causes of excessively **high blood pressure**. Your doctor can explain them in more detail and offer treatment where appropriate.
- Blood pressure is subject to wide fluctuations during the day, and can be influenced by emotions, physical exertion and other conditions .

Evaluating blood pressure data

The table on right classifies blood pressure data for adults in accordance to the guidelines of the European Society of Hypertension (ESH) in 2007. Data in mmHg.

The higher value is the one that determines the evaluation. Example: a readout value between **150/85** or **120/98** mmHg indicates «Grade 1 Hypertension».

Category	Systolic	Diastolic
Optimal	< 120	< 80
Normal	120 - 129	80 - 84
High normal	130 - 139	85 - 89
Grade 1 Hypertension	140 - 159	90 - 99
Grade 2 Hypertension	160 - 179	100 - 109
Grade 3 Hypertension	≥ 180	≥ 110
Isolated Systolic Hypertension	≥ 140	< 90

Technical specifications

Operating temp.:	• 10 to 40 °C (50 to 104 °F)
Storage temp.:	• -20 to 50 °C (-4 to 131 °F) • 15 - 90 % relative maximum humidity
Weight:	• 385 g (including batteries)
Dimensions:	• 150 x 100 x 50 mm
Measuring procedure:	• Oscillometric, corresponding to Korotkoff
Method:	• Phase I systolic, Phase V diastolic
Measurement range:	• 30 - 280 mmHg – blood pressure • 30 - 200 beats per minute – pulse
Cuff pressure display:	• Range: 0 - 299 mmHg • Resolution: 1 mmHg • Static accuracy: pressure within ± 3 mmHg • Pulse accuracy: ± 5 % of the readout value
Voltage source:	• 4 x 1.5 V Batteries; size AA • Mains adapter DC 6V, 600 mA (optional)

Reference to standards:	• Device standard: Device corresponds to the requirements of the standard for noninvasive blood pressure monitor. EN 1060-1 EN 1060-3 EN 1060-4 IEC 60601-1 IEC 60601-1-2
--------------------------------	---

Electromagnetic compatibility: • Device fulfills the stipulations of the standard IEC 60601-1-2.
CE 0044 The stipulations of the EU Directive 93/42/EEC for Medical Devices Class IIa have been fulfilled.



Type BF applied part



Reference number



Serial number



Manufacturer

Microlife reserves the right to alter technical specifications without prior written notice.

Guarantee card

This device is covered by a five-year guarantee from the date of purchase. This guarantee is valid only on presentation of the guarantee card completed by the owner confirming date of purchase or purchase receipt. Batteries, cuff and wearing parts are not covered by this guarantee.

Name: _____

Address: _____

Date: _____

Telephone: _____

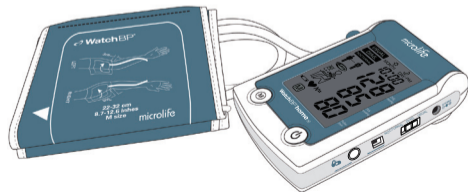
E-mail: _____



Product: WatchBP Home N

Product Number: BP 3MX1-4

Date:



Europe / Middle-East / Africa

Microlife WatchBP AG
Esenstrasse 139
9443 Widnau, Switzerland
Tel. +41 71 727 7000
Fax +41 71 727 7011
Email: watchbp@microlife.ch
www.watchbp.com

Asia

Microlife Corporation
9F, 431, RuiGang Road, NeiHu
Taipei, 114, Taiwan, R.O.C.
Tel. +886 2 8797 1288
Fax. +886 2 8797 1283
Email: watchbp@microlife.com.tw
www.watchbp.com

North / Central / South America

Microlife Medical Home Solutions, Inc.
2801 Youngfield St., Suite 241
Golden, CO 80401, USA
Tel. +1 303 274 2277
Fax +1 303 274 2244
Email: watchbp@mimhs.com
www.watchbp.com

CE0044



IM 04



Read the instructions carefully before using this device.

microlife

IB WatchBP Home N 3MX1-4 011109