

GB Instruction manual
Upper arm blood pressure measuring device MTP PRO

Device and controls



- 1 Upper arm cuff with hose
- 2 Socket for mains adaptor
- 3 Connector for the hose
- 4 **START** button
- 5 Display
- 6 **MEMORY** button
- 7 **TIMER** button
- 8 Time / Date
- 9 Display of systolic pressure
- 10 Display of diastolic pressure
- 11 Countdown symbol
- 12 Display of pulse rate
- 13 Batteries low - please replace batteries
- 14 User memory 1 / 2
- 15 Memory symbol
- 16 Unit has detected irregular heartbeat
- 17 Symbol for 3MAM mode
- 18 Pulse symbol
- 19 Blood pressure bar display

Explanation of symbols

This instruction manual belongs to this device. It contains important information about starting up and operation. Read the instruction manual thoroughly. Non-observance of these instructions can result in serious injury or damage to the device.

WARNING
These warning notes must be observed to prevent any injury to the user.

CAUTION
These notes must be observed to prevent any damage to the device.

NOTE
These notes give you useful additional information on the installation or operation.

Classification: Type BF applied part

LOT number

Manufacturer

Date of manufacture

Items supplied and packaging

Please check first of all that the device is complete and is not damaged in any way. In case of doubt, do not use it and contact your dealer or your service centre.

The following parts are included:

- 1 **medisana** Blood pressure monitor **MTP Pro**
- 1 Cuff with air hose
- 1 Storage bag
- 1 Instruction manual
- 4 Batteries (AA type, LR 6) 1.5V
- 1 Blood pressure pass

The packaging can be reused or recycled. Please dispose properly of any packaging material no longer required. If you notice any transport damage during unpacking, please contact your dealer without delay.

GB Safety Information

Read the instruction manual carefully before using this device, especially the safety instructions, and keep the instruction manual for future use. Should you give this device to another person, it is vital that you also pass on these instructions for use.

- Irregularity of pulse or arrhythmia can lead to difficulties in recording a correct reading when measurements are taken using oscillometric blood pressure devices. This device is electronically equipped to detect irregular heartbeat and indicate this with a symbol in the display.
- If you should suffer from conditions such as arterial occlusive disease, please consult your doctor before using the unit.
- The unit may not be used to check the heart rate of patients with a pacemaker.
- Pregnant patients should take their own personal state of health into consideration and take all necessary precautions before using the unit. If in doubt, consult your doctor.
- Should you experience discomfort or other complaints during measurement, for example pain in the upper arm, please take the following action: Press the **START** button to deflate the cuff immediately. Loosen the cuff and remove it from your arm. Please contact either your dealer or **medisana** directly.
- Patients with a weak pulse wave should raise their arm and open and close their hand around 10 times before taking a reading. This exercise optimizes the pulse wave and the measuring process.
- The unit is only to be used for the specific purpose described in this instruction manual.
- Any misuse will void the warranty.
- On the rare occasion of a fault causing the cuff to remain fully inflated during measurement, open the cuff immediately.
- Do not use the unit near to equipment emitting a strong electric or magnetic field, such as radios. This may impair the correct functioning of the unit.
- This device is not designed to be used by persons (including children) with limited physical, sensory or mental abilities, or by persons with insufficient experience and/or knowledge, unless under observation by a person responsible for their safety, or unless they have been instructed in the use of the device.
- Children must be supervised to ensure that they do not play with the device.
- If a fault occurs, do not try to repair the unit yourself. Attempts to do so will void the warranty. Refer all servicing to authorized service personnel.
- Protect the unit from moisture. Should moisture enter the unit, remove the batteries and stop using it immediately. In this case, please contact either your dealer. You can find details of how to contact us on the address page.

WARNING
Do not take any therapeutic measures based on your own measurements! Never change the quantity of medication prescribed by your doctor!
Please ensure that the polythene packing is kept away from the reach of children! Risk of suffocation!

BATTERY SAFETY INFORMATION

- Do not disassemble batteries!
- Clean the battery and device contacts if necessary before putting in the batteries!
- Remove discharged batteries from the device immediately!
- Increased risk of leakage, avoid contact with skin, eyes and mucous membranes! If battery acid comes in contact with any of this parts, rinse the affected area with copious amounts of fresh water and seek medical attention immediately!
- If a battery has been swallowed seek medical attention immediately!
- Replace all of the batteries simultaneously!
- Only replace with batteries of the same type, never use different types of batteries together or used batteries with new ones!
- Insert the batteries correctly, observing the polarity!
- Remove the batteries from the device if it is not going to be used for an extended period!
- Keep batteries out of children's reach!
- Do not attempt to recharge these batteries! **There is a danger of explosion!**
- Do not short circuit! **There is a danger of explosion!**
- Do not throw into a fire! **There is a danger of explosion!**
- Keep unused batteries in their packaging away from metal objects in order to prevent short circuiting!
- Do not throw used batteries into the household refuse; put them in a hazardous waste container or take them to a battery collection point, at the shop where they were purchased!

How is blood pressure measured?

The **MTP Pro** is a blood pressure unit which is used to measure blood pressure at the upper arm. The measurement is carried out by a microprocessor, which, via a pressure sensor, measures the vibrations resulting from the inflation and deflation of the cuff over the artery.

Why should you take your blood pressure at home?

One strong argument in favour of taking blood pressure at home is the fact that the readings are taken in familiar surroundings under relaxed conditions. The most important reading is the so-called „baseline value“, the one taken before breakfast, directly after getting up in the morning. As far as it is possible, you should always try to take your blood pressure at the same time and under the same conditions each day. This ensures comparable results and helps in detecting the first signs of high blood pressure. If high blood pressure remains undetected, it increases the risk of further cardiovascular diseases.

THEREFORE WE RECOMMEND:
Take a blood pressure reading daily and on a regular basis, even if you are experiencing no apparent complaints.

Blood pressure classification

systolic mmHg	diastolic mmHg		Bloodpressure Indicator
≥ 180	≥ 110	serious hypertension	red
160 - 179	100 - 109	medium hypertension	orange
140 - 159	90 - 99	mild hypertension	yellow
130 - 139	85 - 89	high-normal blood pressure	green
120 - 129	80 - 84	normal blood pressure	green
< 120	< 80	optimal blood pressure	green

WARNING
Blood pressure that is too low represents just as great a health risk as blood pressure that is too high! Fits of dizziness may lead to dangerous situations arising (e.g. on stairs or in traffic)!

Influencing and evaluating readings

- Measure your blood pressure several times, then record and compare the results. Do not draw any conclusions from a single reading.
- Your blood pressure readings should always be evaluated by a doctor who is also familiar with your personal medical history. When using the unit regularly and recording the values for your doctor, you should visit the doctor from time to time to keep him updated.
- When taking readings, remember that the daily values are influenced by several factors. Smoking, consumption of alcohol, drugs and physical exertion influence the measured values in various ways.
- Increase your blood pressure before meals
- Before taking readings, allow yourself at least five minutes rest.
- If the systolic and diastolic readings seem unusual (too high or too low) on several occasions, despite correct use of the unit, please inform your doctor. This also applies to the rare occasions when an irregular or very weak pulse prevents you from taking readings.

Getting started

Inserting / removing batteries

Insertion: Open the battery compartment on the underside of the unit by exerting gentle pressure in the direction indicated by the arrow, and insert the four batteries included with the unit (alkaline batteries, AA type, LR 6). Remember to insert the batteries as indicated in the diagram in the battery compartment. Replace the lid, pressing it until it snaps into place.

Removal: When the battery symbol appears in the display, please replace the batteries with new ones. Should the used batteries be jammed in the compartment, use a pointed instrument, such as a ballpoint pen, to carefully prise them out. The display showing the year will flash after inserting the batteries for the first time. Set the date and time as described in „Set Date and Time“.

Please note that the date and time will have to be reset each time new batteries are inserted. Previously stored results will be lost.

Using a mains adaptor

Alternatively, you can use the unit with a special mains adaptor (**medisana** Art.-No. 51036) This connects to the socket provided at the back of the unit. In this case the batteries remain in the unit. Inserting the connector into the back of the blood pressure monitor switches the batteries off mechanically. It is necessary, therefore, to plug the mains adaptor into the mains socket first of all and then to connect it to the blood pressure monitor. If the blood pressure monitor is no longer being used, first remove the connector from the blood pressure monitor and then pull the mains adaptor out of the mains socket. Doing this means that the date and time will not have to be reset each time.

Set Date and Time

To set date and time press and hold the **TIMER** button for several seconds. The symbol for the memory selected starts flashing. Now press the **TIMER** button again briefly. The year is now shown in the display and starts flashing. Press the **MEMORY** button to change the year. Press the **TIMER** button to go to month, day and time. Press the **MEMORY** button to change the values.

Setting up the user memory

The **MTP Pro** gives you the opportunity to assign readings to one of two user memories, each of which provides 99 memory slots. Press and hold the **TIMER** button for several seconds. The symbol for memory (USER) 1 in the display starts flashing. You can switch between USER 1 and USER 2 by pressing the **MEMORY** button.

Fitting the cuff

First attach the free end of the cuff's air tube to the designated connector on the unit. Open up the cuff to a ring and slip it over the bare left upper arm just above the elbow region. If wearing tight clothing, ensure that the circulation in the arm is not impaired when rolling up the sleeve. Please ensure that the cuff buckle is never positioned directly over the artery, as this can result in an incorrect blood pressure reading. The tube should run along the center of the inner arm towards the palm of the hand. Ensure that the cuff itself is not twisted in any way. Fasten the pressure cuff in such a way that it fits tightly but does not constrict the arm. Do this by passing the end through the buckle, pulling it tight and attaching it to the Velcro fastener.

Correct position for taking readings

- Take readings while in a seated position.
- Relax your arm and rest it lightly on a surface such as a table. Relax during the measuring process: do not move or talk, as this can affect the results.

Taking blood pressure readings - Single reading

- Press the **START** button.
- All the display symbols will appear for approx. two seconds.
- The cuff will then inflate. The increasing pressure is displayed numerically.
- Pressing the **START** button during inflation will stop the inflation process. The unit switches off and the cuff deflates.

- The measuring process begins automatically when inflation is complete by releasing the pressure built up in the cuff. The display shows the current pressure in the cuff.

Initially, deflation occurs at a constant speed. As soon as the pulse can be determined, deflation is synchronised with the beating of the heart until the measurement ends. This procedure is accompanied by a beep and the heart symbol flashes at the same time. The measurement is complete when the cuff suddenly deflates and readings are displayed next to **SYS**, **DIA** and **PUL**, together with the blood pressure bar display. If the unit detects an irregular heartbeat during the measuring process, the symbol will flash while the reading is displayed.

Taking blood pressure readings - 3MAM measuring method

(3 consecutive measurements to calculate an average value)

Selecting the 3MAM measuring method:

With the **MTP Pro**, you can choose between two measuring modes.

- Single reading
 - 3 consecutive readings (Measurement Average Mode = 3/MAM-mode)
- In the case of a single reading, just one blood pressure reading is taken and stored. The 3/MAM-mode is to be recommended if you suffer from severely fluctuating blood pressure. 3 successive readings are taken at 15 second intervals, thus eliminating widely varying readings. In the case of serious deviations a 4th reading may be taken. From these three measurements, a weighted average value is calculated, displayed and stored in the selected memory. A reading taken in this way is indicated in the memory by an. The 3/MAM procedure greatly minimizes the risk of an incorrect reading.
- To activate the 3/MAM procedure, press and hold the **TIMER** button for several seconds. The symbol for the selected memory begins to flash. Now press the **TIMER** button shortly again and a flashing „OFF“ along with an appears in the display. Press the **MEMORY** button to switch the 3/MAM mode on or off. Confirm your selection by pressing the **START** button. If the 3/MAM procedure is activated, an appears in the display.

3 consecutive measurements to calculate an average value

- Press the **START** button. The device carries out a self test. Once this is complete, " " appears on the display. 5 short beeps sound during the procedure. On the display, you can see (average) and "1" for the first measurement.
- Next, the cuff automatically inflates until the pressure required for a measurement has been reached. Alternatively, you can create this pressure manually by pressing and holding the **START** button after the device has automatically reached a pressure of at least 30 mmHg. When you think that the device has reached the ideal starting pressure for a measurement, release the **START** button. The increasing pressure is displayed numerically.
- The measuring process begins automatically when inflation is complete by releasing the pressure built up in the cuff. The display shows the current pressure in the cuff.
- Initially, deflation occurs at a constant speed. The pulse symbol appears on the display. As soon as the pulse can be determined, deflation is synchronised with the beating of the heart until the measurement ends. The device beeps for each heartbeat during this procedure. At the same time, the pulse symbol flashes.
- The first measurement ends when the pressure has been completely discharged from the sleeve during a 15 second countdown. The countdown symbol flashes during this process. Beeps sound during the last seconds.
- Instead of "1", the display now shows "2" for the second measurement. The second measurement proceeds in the same way as the first (see points 2 - 5).
- Instead of "2", the display now shows "3" for the third measurement. The third measurement proceeds in the same way as the first (see points 2 - 4).
- Once the 3/MAM measurement has been taken, the cuff suddenly deflates and a longer beep sounds.
- The measured values **SYS**, **DIA** and **PUL** are shown on the display, together with the blood pressure bar display. At the same time, a longer beep sounds.
- If the unit detects an irregular heartbeat during the measuring process, the symbol will flash eight times while the reading is displayed. You may also hear 8 short beeps; these warn the user of an irregular heartbeat.
- If you do not press any buttons for approx. 1 minute, the device automatically switches to standby mode.

Note
When the device is used, the errors Err 1, 2, 3, 5, 6 can occur in the integrated circuit. Err 6 can only occur in 3MAM mode. In 3MAM mode, errors Err 1, 2, 3, 5 do not cause the measurement to be cancelled, unless they occur twice in succession. The error display is always accompanied by 3 short beeps.

Storing results

This unit features 2 separate memories, each with a capacity of 99 memory slots. Results are automatically stored in the memory selected by the user. When the memory is full, the oldest reading is always the first to be deleted.

Displaying stored results

Press the **MEMORY** button to display the stored readings. First, an average value of all the measurements in the selected memory is displayed. This average is indicated by "R".

When the **MEMORY** button is pressed again, the individual readings (switching between systolic, diastolic, pulse and date/time) of the last measurement stored are displayed. If this measurement was taken in the 3/MAM procedure, is displayed. If an irregular heartbeat was detected during the measuring process, the symbol will be displayed, but not flashing. Press the **MEMORY** button again to move backwards through the stored readings. If you do not press any buttons for approx. 1 minute, the device automatically switches back to standby mode.

Deleting memory

The data can be deleted from the memory selected by pressing and holding the **MEMORY** button for about 7 seconds. After 7 seconds, the display shows "CL" (CLEAR) which indicates that all data have been deleted.

Switching off the unit

The unit switches off automatically after about 1 minute, if no button is pressed during this period. It can also be switched off by pressing the **START** button. The time and the personal memory selected are constantly shown in the display.

Troubleshooting

Err 1: Measurement of the systolic blood pressure was completed. Either the connection with the hose has been interrupted or no pulse could be determined. Check the connections between the cuff and the main unit.

Err 2: Non-physiological pressure has been detected. Cause: the arm was moved during the measurement. Repeat the measurement, keeping your arm still.

Err 3: If the cuff takes too long to inflate, it is possible that the cuff is incorrectly positioned or that the connection with the hose is not airtight. Check the connections and repeat the measurement. If the same error occurs repeatedly with further readings, please contact **medisana**.

Err 5: An average value could not be calculated due to unstable conditions while the readings were being taken. Repeat the measuring process, keeping your arm still and not speaking.

Err 6: There were too many errors during the measurement in MAM mode, making it impossible to obtain a final result. Read through the checklist for performing reliable measurements and then repeat the measurement.

H! 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: The pulse is too low (less than 40 beats per minute). Repeat the measurement.

Care and maintenance

- Remove the batteries before cleaning the unit.
- Never use strong detergents or hard brushes.
- Clean the unit with a soft cloth, moistened with mild soapy water. Do not let water enter the unit. After cleaning, only use the unit when completely dry.
- Remove the batteries from the unit if you do not wish to use it for an extended period of time, otherwise there is a risk of battery leakage.
- Do not expose the unit to direct sunlight, and protect it from dust and moisture.
- Only inflate the cuff when it is in position around the upper arm.
- Service and calibration: The unit has been calibrated by the manufacturer for a period of two years' use. In the case of commercial use, the unit must be serviced and recalibrated at least once every two years. This calibration will be charged for and can be carried out by an appropriate authority or an authorised service centre - in accordance with the regulations for users of medical equipment.

Disposal

This product must not be disposed of together with domestic waste. All users are obliged to hand in all electrical or electronic devices, regardless of whether or not they contain toxic substances, at a municipal or commercial collection point so that they can be disposed of in an environmentally acceptable manner.

Please remove the battery before disposing of the device/unit. Do not dispose of old batteries with your household waste, but at a battery collection station at a recycling site or in a shop. Consult your municipal authority or your dealer for information about disposal.

Directives / Norms

This blood pressure monitor meets the requirements of the EU standard for non-invasive blood pressure monitors. It is certified in accordance with EC Guidelines and carries the CE symbol (conformity symbol) "CE 0297". The blood pressure monitor corresponds to European standards EN 60601-1, EN 60601-1-2, EN 80601-2-30, EN 1060-1/3, EN ISO 14971 and EN 15223-1. The specifications of EU Guideline "93/42/EEC of the Council Directive dated 14 June 1993 concerning medical devices" are met.

Clinical trial results: Clinical trial for this unit was carried out in England according to the BHS protocol and according to the AAMI – Standard (US).

Intended use: This unit is suitable for non-invasive blood pressure measurement in adults (i.e., suitable for external use).

Electromagnetic compatibility: (see attached leaflet)

Technical specifications

Name and model: **medisana** Upper arm blood pressure monitor **MTP Pro**
Display system: Digital display
Memory slots: 2 x 99
Measuring technique: Oscillometric
Power supply: 6 V = , 4 x 1.5 V Mignon AA LR 6, Alkaline
Blood pressure measuring range: 30 – 280 mmHg
Pulse measuring range: 40 – 200 beats / min.
Maximum error tolerance for static pressure: ± 3 mmHg
Maximum error tolerance for pulse rate: ± 5 % of the value
Pressure generation: Automatic, using micro pump
Deflation: Automatic
Automatic switch-off: After approx. 1 minute
Operating conditions: + 10 °C to + 40 °C, 15 - 85 % humidity
Storage conditions: - 5 °C to + 50 °C
Dimensions: ca. 120 mm x 163 mm x 66 mm
Cuff size: 22 – 32 cm Adult cuff for average upper arm circumference
Weight: approx. 480 g incl. batteries
Article number: 51090
EAN number: 40 15588 51090 8
Accessories: Mains adapter, Art.-No. 51036; Cuff, large 32 - 42 cm for adults with upper arm of large circumference, Art.-No. 51037 Cuff 22 - 32 cm for adults with average upper arm circumference, Art.-No. 51038

In accordance with our policy of continual product improvement, we reserve the right to make technical and optical changes without notice.

The current version of this instruction manual can be found under www.medisana.com

Warranty and repair terms

Please contact your supplier or the service centre in case of a claim under the warranty. If you have to return the unit, please enclose a copy of your receipt and state what the defect is. The following warranty terms apply:

- The warranty period for **medisana** products is 10 years from date of purchase. In case of a warranty claim, the date of purchase has to be proven by means of the sales receipt or invoice.
- Defects in material or workmanship will be removed free of charge within the warranty period.
- Repairs under warranty do not extend the warranty period either for the unit or for the replacement parts.
- The following is excluded under the warranty:
 - All damage which has arisen due to improper treatment, e.g. nonobservance of the user instructions.
 - All damage which is due to repairs or tampering by the customer or unauthorised third parties.
 - Damage which has arisen during transport from the manufacturer to the consumer or during transport to the service centre.
 - Accessories which are subject to normal wear and tear.
- Liability for direct or indirect consequential losses caused by the unit are excluded even if the damage to the unit is accepted as a warranty claim.

