

DE **RBP-100 Blutdruckmonitor**
Gebrauchsanweisung

EN **RBP-100 Bloodpressure Monitor**
Instructions for use

FR **RBP-100 Pression artérielle Moniteur**
Mode d'emploi

IT **RBP-100 Monitor di pressione sanguigna**
Istruzioni per l'uso

ES **RBP-100 Monitor de presión arterial**
Instrucciones de uso

PL **RBP-100 Monitor ciśnienia krwi**
Instrukcje użytkowania

SE **RBP-100 Blodtrycksmätare**
Bruksanvisning

NO **RBP-100 Blodtrykksmonitor**
Bruksanvisning

CE
0124

Riester

DE 04

EN 38

FR 72

IT 106

ES 140

PL 174

SE 208

NO 240

DIGITAL BLOOD PRESSURE MONITOR



EN

RBP-100 Bloodpressure Monitor
Instructions for use

CE
0124

Riester

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1. Introduction

1.1 Important information read prior to start-up!

You have purchased a high quality **Riester RBP**-100, which has been manufactured according to the Directive 93/42 EEC and is subject to the strictest quality controls at all times. Read these instructions for use carefully before putting the unit into operation and keep them in a safe place. If you should have any questions, we are available to answer queries at all times. Our address can be found in these instructions for use. The address of our sales partner will be given upon request. Please note that all instruments described in these instructions for use are only to be used by suitably trained personnel. The perfect and safe functioning of this instrument is only guaranteed when original parts and accessories from **Riester** are used.

1.2 Safety information and electrogamnetic compatibility

Symbol	Explanation
	Follow the instructions in this manual
	**Warning!** The general warning sign indicates a potentially dangerous situation that could result in serious injury.
	**Caution!** The caution symbol indicates a potentially hazardous situation that could result in minor or moderate injury. It can also be used to warn against unsafe practices.
	**Attention!** The attention symbol indicates a potentially dangerous situation that could cause the device to malfunction.
	**Note:** Important notes in this manual provide additional information. Notes indicate safe handling practices.
	Type BF applied part
	Class II isolation equipment
	Make sure that children do not use this device unsupervised.
LOT	LOT number / batch number

REF	Reference number
SN	Manufacturers serial number
°C °F	Temperature for transport / storage conditions
%	Relative humidity for transport / storage conditions
	Manufacturer
CE 0124	CE marking
MD	Medical device
SYS mmHg	Systole
DIA mmHg	Diastole
PULSE /min	Beats per minute
	USB connector, only **RBP**-100 USB
I O	On / Off
	Connection for cuff
− • +	Positive polarity power adapter socket
LATEX	Latex free
	Washable cuff, hand wash only
	Instructions for use
	Artery symbol! Must be over the artery to properly apply the cuff
	Used electrical and electronic devices should not be disposed of with normal household waste, but should be disposed of separately in accordance with national or EU directives.
	Non-ionizing radiation

1.3 Packaging symbols

Symbol	Note
	Fragile. This symbol indicates that the contents of the transport packaging are fragile and should therefore be handled with care.
	Keep the package away from moisture.
	Up. The symbol indicates the correct position for transporting the package.
	Protect from sunlight
	"Green Dot" (country-specific)

The instrument satisfies the requirements for electromagnetic compatibility. Please note that under the influence of unfavorable field strengths, e.g. during the operation of wireless telephones or radiological instruments, adverse effects on function cannot be excluded. The electromagnetic compatibility of this device has been verified by test according to the IEC 60601-1-2 / DIN EN 60601-1 requirements.

1.4 Intended use

This oscillometric blood pressure monitor is intended for measuring non-invasive blood pressure in people aged 3 years or older. It is clinically validated in patients with hypertension, hypotension, diabetes, pregnancy, pre-eclampsia, atherosclerosis, end-stage renal disease, obesity and the elderly. This device is intended to be operated by trained personnel only.
Examples of trained operators include professional clinical and healthcare personnels.

1.5 User resposibility

Your **Riester RBP**-100 product is designed to perform in conformity with the description contained in this operation manual and accompanying labels and inserts, when assembled, operated, maintained and repaired in accordance with the instructions provided.

Note:

It is your responsibility to:

- Check calibration of the device every two years.
- Never knowingly use a defective device.
- Immediately replace parts that are broken, worn, missing, incomplete, damaged or contaminated.
- Contact the nearest factory approved service center should repair or replacement become necessary.
- Further, the user of the device bears sole responsibility for any malfunction that results from improper use, faulty maintenance, improper repair, damage or alteration by anyone other than **Riester** or authorized service personnel.

1.6 Warnings and Contraindications

Warning!

There is a danger of life-threatening electrical shock.
For electrically isolating the device from supply mains pull the plug from the socket outlet. Unplug the instrument before cleaning!

At the proposed **RBP**-100 location the power plug must be accessible.

Do not use this device on pediatric patients under 3 years old, infants, or neonates.

The **Riester RBP**-100 is not intended for continuous monitoring. Do not leave the device unattended while taking measurements on a patient.

Do not operate the **Riester RBP**-100 near flammable anesthetics or volatile vapors. An explosion may result.

Do not use the device if it has failed its diagnostic self test or if it displays a greater than zero pressure with no cuff attached.

Do not make repairs yourself. Equipment must be returned to **Riester** or authorized service personnel for repairs. Substitution of a component different from that supplied may result in measurement error.

The **Riester RBP**-100 is not intended for patients connected to a cardiopulmonary bypass machine.

If Luer Lock connectors are used in the constructions of tubing, there is a possibility that they might be inadvertently connected to intravascular fluid systems, allowing air to be pumped into a blood vessel.

The **Riester RBP**-100 must be charged before using it for the first time.

Caution!

The **Riester RBP**-100 must be charged before using it for the first time.

For accurate blood pressure measurements, ensure that the circumference of the arm fits within the range markings on the cuff.

Only use such accessories as are recommended for use with this device.

Compressing the pneumatic tubing may cause system errors.

Prevent water or other fluids from entering any connectors or vents on the device. Should this happen, all connectors should be dried with warm air. Then check the calibration of the device and operating functions before reusing.

If the **Riester RBP**-100 is dropped or mishandled, please have it checked by a authorized service center before bringing it back into use.

At least every three months, inspect cords and accessories for fraying or other mechanical damage. Replace as necessary.

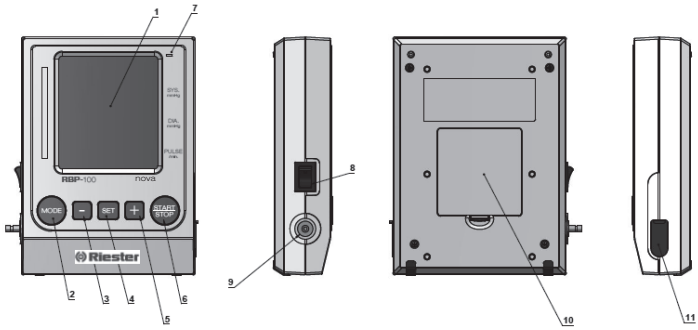
Check the calibration of your **Riester RBP**-100 at least once every two years.

2. Using the device for the first time

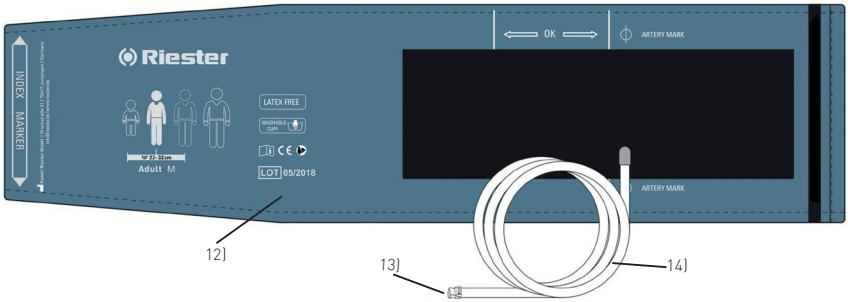
2.1 Scope of supply

1 pc soft cuff size M (22 - 32 cm / 8.7 - 12.6 inches)
1 pc soft cuff size L - XL (32 - 52 cm / 12.6 - 20.5 inches)
1 pc 2.5 m air tube with metal connector
1 pc AC/DC Adapter 7.5 V / 2.0 A
1 pc Ni-MH AA 4.8 V / 2400 mAh rechargeable battery-pack
1 pc instruction booklet

2.2 Device function

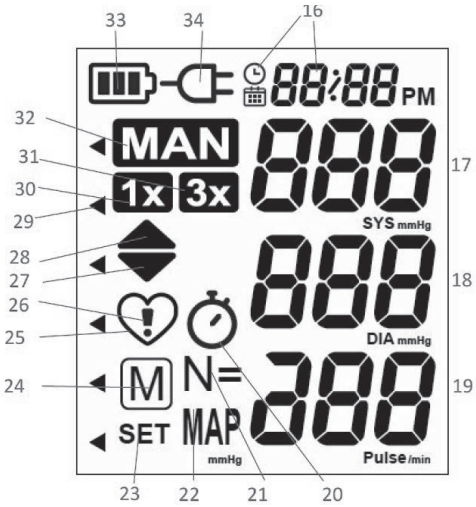


Cuff



1) Display
2) Mode button
3) Start/Stop button
4) SET button (settings)
5) Plus button (+)
6) Minus button (-)
7) LED battery indicator
8) Power switch
9) Cuff socket
10) Battery compartment
11) Mains adapter socket
12) Cuff
13) Cuff connector
14) Cuff tube

Display



16) Date and time
17) Systole
18) Diastole
19) Pulse rate
20) Interval time symbol (3x measurement)
21) Number of stored data
22) Mean Arterial Pressure (MAP)
23) Settings
24) Memory
25) Pulse indicator
26) Irregular Heartbeat (IHB)
27) Cuff deflation
28) Cuff inflation
29) Blood pressure classification (WHO)
30) Standard BP measurement (1x) mode
31) Triple BP measurement (3x) mode
32) Auscultatory / Manual BP measurement (MAN) mode
33) Battery display
34) Mains adaptor symbol

2.3 Inserting the battery pack

1. Open the battery compartment (10) on the backside of the device.
2. Connect the cable of the rechargeable battery pack with the cable, that is inside of the battery compartment.
3. Insert the battery pack and close the battery compartment.
4. Plug in the mains adapter into the mains adapter socket (11) and fully charge the batterypack until the LED battery indicator (7) is lightning in green.
5. Switch the power switch (8) on.
   - When you press a button, the backlight is active for 10 seconds. Without further operation, after 10 seconds the backlight automatically turns off.

2.4 Setting date and time

1. To adjust date and time, press the SET button (4) once to enter the settings menu; cycle between different adjustments using "+"(5) and "-"(6) buttons until SET (23), and the clock /calendar icons (16) appears in the display.
2. Press the SET button (4) to enter date and time adjustment. Upon entering date and time adjustment, year will blink.
3. Press the "+" (5) and/or "-"(6) buttons to adjust the year; press the SET button to confirm the adjustment. The next adjustment – month – will appear and blink.
4. Follow the instructions above to adjust the settings of month, day, hour, and minute. Press and hold "+" (5) or "-" (6) button for fast increment and decrement.
5. Once you have set the minutes and pressed the SET button, the device moves back to Stand-by Mode.
   - Press the Start/Stop button (3), if you want to abort the time adjustment and return to stand-by mode.

2.5 Setting the time format (12 h or 24 h time format)

1. To set the time format, press the SET button (4) once to enter the settings menu; cycle between different adjustments using "+"(5) and "-"(6) buttons until SET (23), the clock icon and "PM" (16) appears in the display.
2. Press SET button (4) again to enter time format adjustments; SET (23) and current time format (24H: 18:00 or 12H: 06:00 PM) will appear.
3. You can now select between 12h and 24h time format by pressing the "+" (5) and "-" (6) buttons.2.5.4 Confirm the selected time format by pressing the SET button. To exit without making changes, press "Start/Stop" button (3).
   - The device is delivered with default setting of 24 h time format.

2.6 Setting interval times for triple BP measurements (3x)

1. To change the interval time settings, press the SET button (4) once to enter the settings menu, then cycle between different adjustments using "+"(5) and "-"(6) buttons.
2. Press the SET button (4) when the symbols for triple BP measurement (30), interval symbol (20) and SET (23) appear in the display, to enter interval time adjustment.
3. You can now choose between different interval times of 15 seconds, 30 seconds, 45 seconds or 60 seconds by pressing repeatedly the "+" or "-" buttons (5/6).
4. Confirm your selection by pressing the SET button while the selected interval time is shown on the display. To exit without making changes, press "Start/Stop" button (3).
   - The device is delivered with default setting of 15 seconds interval time.

2.7 Deactivation of beeper

During blood pressure measurements, the pulse indicator (25) flashes in the display and a beep sounds every time a heartbeat is detected.

1. To deactivate the beeper, press the SET button (4) once to enter the settings menu, then cycle between different adjustments using "+"(5) and "-"(6) buttons.
2. Press the SET button (4) when 'BEEP" and SET (23) appear in the display, to enter beeper adjustment.
3. Select „Off" or „On" by pressing the "+" (5) or "-" (6) buttons.
4. Confirm your selection by pressing the SET button. To exit without making changes, press "Start/Stop" button (3).
   - The device is delivered with default setting activated beeper.

3. Before each measurement

3.1 Selecting the correct cuff

Riester offers different cuff sizes. Select the cuff size to match the circumference of your patients upper arm (measured by close fitting in the centre of the upper arm).

Cuff size	For circumference of upper arm
S (optional)	14 - 22 cm (5,5 - 8,7 inches)
M	22 - 32 cm (8,7 - 12,6 inches)
L - XL	32 - 52 cm (12,6 - 20,5 inches)

1. Always ensure that the correct cuff size is used (size markings on the cuff)
2. Contact your local **Riester** service if the enclosed cuffs (12) do not fit.
3. Connect the cuff to the device by clicking the cuff connector (13) on to the cuff socket (8).

Caution!
Only use **Riester** cuffs.

3.2 Fitting the cuff

1. Remove close-fitting garments from the upper arm of the patient. To avoid constriction, shirt sleeves should not be rolled up - they do not interfere with the cuff if they are laid flat.
2. Position the cuff on the upper arm (right or left), so that the tube points in the direction of the lower arm.
3. The artery mark on the cuff must lie over the artery which runs down the inner side of the arm.
4. Make sure that the cuff is positioned 2 - 3 cm above the elbow.
5. Secure the cuff with the Velcro and make sure the cuff is comfortably attached and not too tight.
6. Lay the arm of the patient on the table (palm upwards), so that the cuff is at the same height as the heart.
7. Make sure that the tube is not kinked.

3.3 Selecting the measurement mode

This device allows you to measure in three different measurement modes. Select between Standard BP Measurement 1x (30), Triple BP Measurement 3x (31) and Manual BP Measurement (32) by pressing repeatedly the Mode button (2). The current set measurement mode is on the display shown by the related symbol.

4. Measuring blood pressure in different modes

4.1 Standard blood pressure measurement (1x)

1. Select the standard BP measurement mode by pressing repeatedly the Mode button (2) until 1x (30) appears on the display.
2. Press the Start/Stop button (3) to start the measurement.
3. The cuff will now pump up automatically. The inflation is indicated by the blinking cuff inflation symbol (28). The patient should relax, should not move and should not tense his arm muscles until the measurement result is displayed. He should breathe normally and not talk.
4. When the correct pressure is reached, the pumping stops and the pressure falls gradually. The deflation is indicated by the blinking cuff deflation symbol (27). If the required pressure was not reached, the device will automatically pump some more air into the cuff.
5. During the measurement, the pulse indicator (25) flashes in the display and a beep sound appears each time a heartbeat is detected.
6. The result, comprising the systolic (17) and the diastolic (18) blood pressure, pulse rate (19) and mean arterial pressure (MAP) (22). The results of pulse rate and mean arterial pressure alternating appear on the display every 2 seconds.
7. When the device has finished measuring, remove the cuff.
8. Switch off the device (The monitor does switch off automatically after approx. 1 min.).

Note:

- Manual inflation: If the systolic blood pressure of a patient is known to be very high, it is possible to set the pressure individually. Press the Plus button (5) after the monitor has been pumped up to a level of approx. 30 mmHg (shown on the display). Keep the button pressed until the pressure is about 40 mmHg above the expected systolic value – then release the button.
- Manual rapid cuff deflation: Press and hold the Minus button (6) when you want to deflate the cuff rapidly.
- You can stop the measurement at any time by pressing the ON/OFF button (e.g. if your patient feel uneasy or an unpleasant pressure sensation).

4.2 Triple blood pressure measurement (3x)

1. Select the triple BP measurement mode by pressing repeatedly the Mode button (2) until3x (31) appears on the display.
2. Press the Start/Stop button (3) to start the measurement.
3. There is an interval between measurements. A count down indicates the remaining time, then the device repeats the measurement. If beeper is activated beep will sound when count down reaches 5 seconds.
4. After the result of the second measurement is displayed, the device performs again a countdown and again repeats the measurement.
5. When the whole triple BP measurement episode is completed, the average is calculated. The display then shows the average result, comprising the systolic (17) and the diastolic (18) blood pressure, pulse rate (19) and mean arterial pressure (MAP) (22). The results of pulse rate and mean arterial pressure alternating appear on the display every 2 seconds.

Note:

- To skip an interval count down, press the Start/Stop button (3) during count down. Measurement will be initiated immediately.
- The bottom hand section of the display shows "N= "1, 2 or 3 to indicate which of the 3 measurements is currently being taken.
- If one of the individual measurements was questionable, a fourth one is automatically taken.
- Do not remove the cuff between measurements.
- The length of the interval time between the measurements can be adjusted (see chapter 2.5)
- Manual inflation: If the systolic blood pressure of a patient is known to be very high, it is possible to set the pressure individually in each measurement. Press the Plus button (5) after the monitor has been pumped up to a level of approx. 30 mmHg (shown on the display). Keep the button pressed until the pressure is about 40 mmHg above the expected systolic value – then release the button.
- Manual rapid cuff deflation: Press and hold the Minus button (6) when you want to deflate the cuff rapidly.
- You can stop the measurement at any time by pressing the ON/OFF button (e.g. if your patient feel uneasy or an unpleasant pressure sensation).

4.3 Auscultatory/manual blood pressure measurement (MAN)

1. Select the manual BP measurement mode by pressing repeatedly the Mode button (2) until MAN (32) appears on the display.
2. Briefly press the Start/Stop button (3) to start the automatic inflation of the cuff (28). The cuff will be inflated automatically to 30 - 40mmHg above systole. Alternatively, press and hold "+" (5) button after cuff pressure reaches 40 mmHg to manually inflate the cuff to pressure of your choice; release "+" (5) button to stop manual inflation.
3. Once peak pressure is reached, the cuff will deflate at 3 mmHg per second. The deflation is indicated by the cuff deflation symbol (27).
4. Determine now the Systole by listening to the Korotkoff sounds with a stethoscope. To mark and save the Systole, press briefly the SET button (4) as soon as you heard the Systole sound.

Note:

- To rapidly deflate the cuff between systole and diastole, press and hold "-" (6) button.
- Release the "-" button to stop manual rapid deflation.

5. To mark and save the Diastole, press again the SET button (4) as soon as you heard the Korotkoff sound of the Diastole.

Note:

- When Systole or Diastole have not been marked during the measurement, the reading is considered as incomplete and not stored in the memory.
- Manual cuff re-inflation: when you notice the pressure is in the cuff is not high enough, you can re-inflate the cuff by pressing and holding the "+" button (5)
- Manual rapid cuff deflation: Press and hold the Minus button (6) when you want to deflate the cuff rapidly.
- You can stop the measurement at any time by pressing the ON/OFF button (e.g. if your patient feel uneasy or an unpleasant pressure sensation).

5. After the measurement

5.1 Blood pressure classification

The triangle on the left-hand edge of the traffic light display (27) show you the range within which range the measured blood pressure value lies. Depending on the height of the triangle, the readout value is either within the normal (green), borderline (yellow) or danger (red) range.

Table for classifying blood pressure values in adults in accordance with the World Health Organisation (WHO) in 2003. Data in mmHg.

	Range	**Systolic**	**Diastolic**
1	Blood pressure optimal	↓ 120	↓ 80
2	Blood pressure normal	120 - 129	80 - 84
3	Blood pressure high normal	130 - 139	85 - 89
4	Blood pressure Grade 1 hypertension (mild)	140 - 159	90 - 99
5	Blood pressure Grade 2 hypertension (moderate)	160 - 179	100 - 109
6	Blood pressure Grade 3 hypertension (severe)	180 ↑	110 ↑

The higher value is the one that determines the evaluation. Example: a readout value between 150/85 or 120/98 mmHg indicates «blood pressure too high».

5.2 Irregular heartbeat

This device is an oscillometric blood pressure monitor that also analyses irregular heartbeats during measurement. The irregular heartbeat symbol (26) is displayed after the measurement if irregular heartbeats occur during measurement. This device does not replace a cardiac examination, but helps to detect heartbeat irregularities at an early stage.

Note:

- When you manually re-inflate the cuff, irregular heartbeats are not detected.
- When you manually deflate the cuff rapidly, irregular heartbeats are not detected.

6. Memory

6.1 Viewing stored values

Press the "+" (5) or "-" (6) buttons briefly when in standby mode. "M" (24) indicates that you are in the memory mode. The display shows «N=» (21) and a value, e.g. «N=17». This means that there are 17 values in the memory. The reading with the highest memory number is the latest performed measurement. Pressing the "+" (5) or "-" (6) buttons repeatedly enables you to move from one stored value to another.

Note:

- "0 0 0" is displayed when no measurement data in device memory.
- Each stored reading shows the Systole (17) , Diastole (18), pulse rate (19), Mean Arterial Pressure (MAP) (22), measurement mode, time and date. The pulse rate and the MAP alternate on the display every two seconds.
- When an irregular heartbeat was detected during a measurement, this symbol (26) is additionally shown in the stored value.
- Press and hold the "+" (5) or "-" (6) buttons when you want to rapidly move through the stored values.

6.2 Viewing individual values performed in triple BP measurement mode

1. Press the plus button (5) for at least 3 seconds while the device is in standby-mode until a short beep appears.
2. The device will now show you each single measurement result with the operation of measurement 1, measurement 2 and measurement 3.

Note:

- The bottom hand section of the display shows with "N= "1, 2 or 3 which of the 3 measurements is currently shown.
- Individual BP readings of triple BP measurements are not stored individually in the memory. Only the average is stored.
- Individual BP readings of triple BP measurements are erased when a new triple BP measurement is performed.

6.3 Clearing the memory

1. Press the Plus button (5) to enter the memory.
2. Press and hold the SET button (4) for more than 5 seconds until "M" (24) and "CL" appears on the display.
3. Confirm clearing the memory by pressing again the SET button. "CL" starts to flash while the memory is being deleted.

Note:

Cancel deletion: press the Start/Stop button (3) while «CL» is flashing.

7. Battery indicator and battery pack charging

7.1 Low or empty battery pack

The device features a built-in, rechargeable Ni-MH battery pack that devlisers up to 1.000 measurement cycles. The battery can be reacharged between uses with the power adaptor provided. Battery charging indicator is displayed when the rechargeable battery is being charged.

When the battery pack is approximately ¾ empty the battery symbol (32) appears (partly filled battery displayed). Although the device will continue to measure reliably, you should obtain to charge the device soon.

When the battery pack is flat, the battery symbol (32) will flash as soon as the device is switched on (flat battery displayed). You cannot take any further measurements and you firstly must recharge the device with the delivered mains adapter.

Note:

- The memory retains all stored values.
- It takes approximately 6 hours to fully recharge the battery pack. Note that as battery pack ages the recharge time will increase.

7.2 Mains adapter

You can charge this device by using the **Riester** mains adapter (AC/DC 7.5 V / 2.0 A). Additionally, the mains adapter also enables to use the blood pressure monitor without inserted battery pack.

1. Plug the adapter cable into the mains adapter socket (11) in the blood pressure monitor.
2. Plug the adapter plug into the wall socket.
3. The mains adaptor symbol appears (33) and the LED battery indicator (7) turns orange while the battery pack is being recharged.
   - The LED battery indictor turns green as soon as the battery pack is fully recharged.

Note:

- Only use the **Riester** mains adapter available as an original accessory appropriate for your supply voltage.
- Ensure that neither the mains adapter nor the cable are damaged.

8. Error messages

If an error occurs during the measurement, the measurement is interrupted and an error message, e.g. «ERR 3», is displayed.

Error	Description	Potential cause and remedy
«ERR 1»	Signal to weak	The pulse signals on the cuff are too weak. Re-position the cuff and repeat the measurement.
«ERR 2»	Error signal	During the measurement, error signals were detected by the cuff, caused for instance by movement or muscle tension. Repeat the measurement, pay attention the patient is keeping his arm still.
«ERR 3»	Abnormal cuff pressure / inflation / deflation	An adequate pressure cannot be generated in the cuff. A leak may have occurred. Check that the cuff is correctly connected and is not too loose. Replace the batteries if necessary. Repeat the measurement.
«ERR 5»	Abnormal result	The measuring signals are abnormal 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 299 mmHg) OR the pulse is too high (over 200 beats per minute). The patient needs to relax for 5 minutes and then repeat the measurement.
«LO»	Pulse too low	The pulse is too low (less than 40 beats per minute). Repeat the measurement.

Note:

- When an error occurred during the measurement, the reading is not stored in the memory.
- Irregular heartbeat detection is inactivated when pulse is below this limit.

9. Safety, care, accuracy testing and disposal

9.1 Safety and protection

1. Follow instructions for use. This document provides important product operation and safety information regarding this device. Please read this document thoroughly before using the device and keep for future reference.
2. This device may only be used for the purposes described in these instructions. The manufacturer cannot be held liable for damage caused by incorrect application.
3. This device comprises sensitive components and must be treated with caution. Observe the storage and operating conditions described in the «Technical Specifications» section.
4. Protect it from:
   - water and moisture
   - extreme temperatures
   - impact and dropping
   - contamination and dust
   - direct sunlight
   - heat and cold
5. The cuffs are sensitive and must be handled with care.
6. Do not exchange or use any other kind of cuff or cuff connector for measuring with this device.
7. Only pump up the cuff once fitted.
8. Do not use this device close to strong electromagnetic fields such as mobile telephones or radio installations. Keep a minimum distance of 3.3 m from such devices when using this device.
9. Do not use this device if you think it is damaged or notice anything unusual.
10. Never open this device.
11. If the device is not going to be used for a prolonged period the batteries should be removed.
12. Read the additional safety information provided within the individual sections of this instruction manual.


Ensure that children do not use this device unsupervides; some parts are small enough to be swallowed. Be aware of the risk strangulation in case this device is supplied with cables or tubes.

9.2 Device care

Cleaning and disinfection of medical products are meant to protect patients, users, and third persons and lead to value retention of medical products. Due to product design and materials used, there is no possibility to define the maximum limit of re-processing cycles. Lifetime of medical products is determined by its function and gentle use. Before sending back defective products for repair, the described re-processing cycles have to be applied and followed.

Use a soft cloth and follow one of the methods listed for cleaning the exterior of the device:

1. Mild soap and water
2. Hydrogen perxodie solution (3 % diluted with water)
3. Sodium hypochlorite solution (1:10 dilution of household chlorite bleach in water).

Note:
To prove if all display segments and the display illumination unit are working correctly, press and hold the "+" (5) or "-" (6) buttons. All display segments appear and the display illumination should activate.

9.3 Cleaning the cuff

Carefully remove spots on the cuff with a damp cloth and soapsuds.

Caution!
Do not wash the cuff in a washing machine or dishwasher!

9.4 Accuary test

We recommend that this device is tested for accuracy every 2 years or after mechanical impact (e.g. being dropped). Please contact your local **Riester** Service to arrange the test.

Monitoring of instruments
All countries:
The respective legal provisions apply for all countries, except for Germany. The reference manometer, which is used for calibration, must be traceable to national and international measurement standards.

It is not allowed to make changes to the device!

9.4.1. Verification of calibration (static)

Test equipment:
Equipment required:

1. Calibrated reference manometer (1) or equivalent (pressure reference).
2. 500 ml volume (3).
3. Hand Inflation Bulb (4) with Bleed valve (pressure control).
4. Blood pressure device (2) to be tested.

To perform Calibration Verification, proceed as follows:

5. Make the necessary connections using the materials listed in the Equipment Required list. See Figure 1 for pneumatic connections.
6. Enter the calibration verification mode at the **RBP**-100:
   The device must be switched off Press the Start / Stop button and turn on the power switch at the same time.

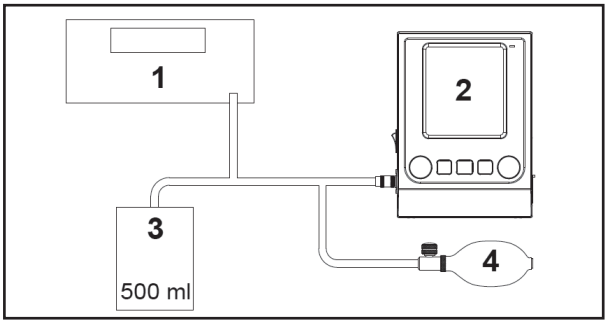
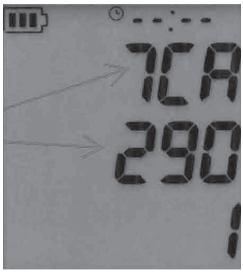


Figure 1: Pneumatic connections for verifying BP calibration.

3. Please wait until this ad appears.



4. Example for the correct value reading.



5. Pump via the Hand Inflation Bulb (4) with Bleed valve the pressure to 300 mmHg. Compare the pressure displayed on the screens of the device and the calibrated reference manometer.
6. Then carefully release the air via the Hand Inflation Bulb (4) with Bleed valve and stop at the value of 250 mmHg. Compare the pressure displayed on the screens of the evice and the calibrated reference manometer. Note the displayed value on the **RBP**-100. Note the displayed value at the calibrated reference manometer.
7. Please repeat these steps at the values of 200-150-100-50-0 mmHg. Note the displayed value on the **RBP**-100. Note the displayed value at the calibrated reference manometer.
8. Please check the readings on the **RBP**-100 against the value according to the manometer values shown in Table 1 below.

Table 1: Pressure Verification Table

Pressure (mmHg on calibrated reference manometer)	Pressure (mmHg as read by **RBP**-100)
250	247 - 253
200	197 - 203
150	147 - 153
100	97 - 103
50	47 - 53
0	0 - 3

9. If the difference between the calibrated manometer and the **RBP**-100 is < 3 mmHg for all manometer values, the BP module is calibrated correctly for operation.
10. If the difference is > 3 mmHg for any manometer value, then the **RBP**-100 needs to be calibrated. Contact an authorized service center (see point 13).
11. Press the Start / Stop button to exit the calibration verification mode.

9.4.2. Verification of Calibration (Dynamic)

Note:
For dynamic testing of the **RBP**-100 we recommend the Fluke (Biomedical) ProSim 8P Vital Signs Simulator.

9.5 Spare Parts

Art.-No.:	Description
162	Cuff size S 14 - 22 cm (5,5 - 8,7 inches)
163	Cuff size M 22 - 32 cm (8,7 - 12,6 inches)
164	Cuff size L - XL 32 - 52 cm (12,6 - 20,5 inches)
10697	Air tube with connectors 2,5 m
10696	Ni-MH Battery Pack 4,8 V / 2400 mAh
904784	AC/DC Adapter 7.5 V / 2.0 A (EU, US, UK, Austr.)

9.6 Disposal

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

10. Technical Specifications

Operating conditions:	10 °C - 40 °C (50 °F - 104 °F) 15 - 95 % relative maximum humidity 760 - 1060 hPa
Storage conditions:	-20 bis +55 °C / -4 bis +131 °F 15 - 95 % relative maximum humidity 760 - 1060 hPa
Weight:	510 g (including batteries)
Dimensions:	170 x 135 x 41 mm
Measuring procedure:	oscillometric, corresponding to Korotkoff method: Phase I systolic, Phase V diastolic
Measurement range:	60 - 255 mmHg - systolic blood pressure 30 - 200 mmHg - diastolic blood pressure 40 - 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:	Ni-MH Battery pack, 4.8 V / 2400 mAh Mains adapter DC 7,5 V / 2.0 A
Battery lifetime:	approx. 1.000 measurements (after the battery pack is fully charged)
IP Class:	IP 20
Reference to standards:	IEC 60601-1 IEC 60601-1-2 (EMC) DIN EN ISO 81060-2 IEC 80601-2-30

12. EMC

Guidance and manufacturer's declaration on electromagnetic emissions		
The **RBP**-100 Blood Pressure Monitor and the **RBP**-100 USB Blood Pressure Monitor is intended for use in the electromagnetic environment specified below. The customer of the user of the **RBP**-100 Blood Pressure Monitor and the **RBP**-100 USB Blood Pressure Monitor should assure that it is used in such an environment.		
Emission test	**fulfill-ment**	**Electromagnetic environment - Guidelines**
HF Emission CISPR 11	Groupe 1	The **RBP**-100 Blood Pressure Monitor and the **RBP**-100 USB Blood Pressure Monitor RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
HF Emission CISPR 11	Classe B	The **RBP**-100 Blood Pressure Monitor and the **RBP**-100 USB Blood Pressure Monitor is suitable for use in all establishments, other than domestic and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonics IEC 61000-3-2	N / A	
Voltage fluctuations / Flicker emissions IEC 61000-3-3	N / A	

Instructions and manufacturer's declaration on electromagnetic immunity			
The **RBP**-100 Blood Pressure Monitor and the **RBP**-100 USB Blood Pressure Monitor is intended for use in the electromagnetic environment specified below. The customer or the user of **RBP**-100 Blood Pressure Monitor and the **RBP**-100 USB Blood Pressure Monitor should assure that it is used in such an environment.			
Immunity test	**IEC 60601 Test level**	**Fulfillment level**	**Electromagnetic environment - Guidelines**
Electrostatic discharge (ESD) IEC 61000-4-2	Contact discharge: ± 8 kV Air discharge: ± 15 kV	Contact discharge: ± 8 kV Air discharge: ± 15 kV	Floors should be made of wood, concrete, or ceramic tiles. If floors are covered with synthetic materials, the relative humidity should be at least 30 %.
Electrical fast interference signal/burst IEC 61000-4-4	N / A	N / A	Mains power quality should be that of a typical commercial or hospital environment.
Overvoltage IEC 61000-4-5	N / A	N / A	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions, and voltage fluctuations on power supply lines IEC 61000-4-11	N / A	N / A	If the user of the **RBP**-100 Blood Pressure Monitor or the **RBP**-100 USB Blood Pressure Monitor requires continued operation during a power outage, it is recommended that the **RBP**-100 Blood Pressure Monitor or the **RBP**-100 USB Blood Pressure Monitor be powered by an uninterruptible power supply or a battery.
Power frequency (50 Hz/60 Hz) magnetic field IEC 61000-4-8	30 A/m	30 A/m	Power frequency magnetic fields should be at levels characteristic of a typical commercial or hospital environment.
Note: U_T is the AC mains voltage before applying the test level.			

Instructions and manufacturer's declaration on electromagnetic immunity

The **RBP**-100 Blood Pressure Monitor and the **RBP**-100 USB Blood Pressure Monitor is intended for use in the electromagnetic environment specified below. The customer or the user of the **RBP**-100 Blood Pressure Monitor and the **RBP**-100 USB Blood Pressure Monitor should assure that it is used in such an environment.

Immunity test	**IEC 60601 Testlevel**	**Fulfillment level**	**Electromagnetic environment - Guidelines**
HF-Leitung IEC 61000-4-6	Fulfilled	Fulfilled	Portable and mobile RF communications equipment should be used no closer to any part of the **RBP**-100 Blood Pressure Monitor and the **RBP**-100 USB Blood Pressure Monitor, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance d= 1.2√P 150 KHz - 80 MHz d= 1.2√P 80 MHz - 800 MHz d= 2.3√P 800 MHz - 2,7 GHz Where P is the maximum output power of the transmitter in watts (W) according to the transmitter manufacturer, and the recommended separation distance in meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, should be less than the compliance level in each frequency range. Interference may occur in the vicinity of equipment marked with the following symbol:
RF radiation IEC 61000-4-3	3 V/m 80 MHz - 2,7 GHz	3 V/m	
Ambient fields from wireless radio communication devices	Fulfilled	Fulfilled	

Note 1: At 80 MHz and 800 MHz the higher frequency range applies.
Noze2: These guidelines may not apply in all situations.
Electromagnetic propagation is affected by absorption and reflection from buildings, objects, and people.

a. Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast, and TV broadcast cannot be predicted with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic sitesurvey should be considered. If the measured field strength in the location in which the **RBP**-100 Blood Pressure Monitor and the **RBP**-100 USB Blood Pressure Monitor is used exceeds the applicable RF compliance level above, the **RBP**-100 Blood Pressure Monitor and the **RBP**-100 USB Blood Pressure Monitor should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the **RBP**-100 Blood Pressure Monitor and the **RBP**-100 USB Blood Pressure Monitor.
b. In the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

Recommended separation distances between portable and mobile RF communications equipment and the ri-thermo® fastPRObe Thermometer

The **RBP**-100 Blood Pressure Monitor and the **RBP**-100 USB Blood Pressure Monitor is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the **RBP**-100 Blood Pressure Monitor and the **RBP**-100 USB Blood Pressure Monitor can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the **RBP**-100 Blood Pressure Monitor and the **RBP**-100 USB Blood Pressure Monitor as recommended below, according to the maximum output power of the communications equipment.

Rated maximum output power of the transmitter (W)	**Separation distance according to the frequency of the transmitter (m)**		
	150 kHz - 80 MHz	**80 MHz - 800 MHz**	**800 MHz - 2,7 GHz**
0,01	**0,12**	**0,12**	**0,23**
0,1	**0,38**	**0,38**	**0,73**
1	**1,2**	**1,2**	**2,3**
10	**3,8**	**3,8**	**7,3**
100	**12**	**12**	**23**

For transmitters rated at a maximum output power not listed above, the recommended minimum separation distance d in meters (m) can be calculated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

Note 1:
At 80 MHz and 800 MHz, the distance applies to the higher frequency range.

Note 2:
These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from buildings, objects, and people.

11. Garantie

Limited Warranty
This product has been manufactured under the strictest quality standards and has undergone a thorough final quality check before leaving our factory. We are therefore pleased to be able to provide a warranty of 2 years from the date of purchase on all defects, which can verifiably be shown to be due to material or manufacturing faults. A warranty claim does not apply in the case of improper handling.
All defective parts of the product will be replaced or repaired free of charge within the warranty period. This does not apply to wearing parts.
Please remember that all warranty claims have to be made during the warranty period.
We will, of course, be pleased to carry out checks or repairs after expiry of the warranty period at a charge.
You are also welcome to request a provisional cost estimate from us free of charge.

In case of a warranty claim or repair, please return the **Riester** product with the completed description of the failure, serial number, purchasing information to the following address:

Rudolf Riester GmbH
Abt. Repairs RR
Bruckstr. 31
72417 Jungingen
Germany

Warranty card

Serial number or batch number:

_____

Date, signature and stamp of the dealer:

_____

Rudolf Riester GmbH
Bruckstraße 31 | 72417 Jungingen
Tel: (+49) 7477-9270-0 | Fax: (+49) 7477-9270-70
info@riester.de | www.riester.de

905150 Rev. 1 auf 2025-09-17 • Änderungen vorbehalten • Subject to alterations • Sous réserve de modifications • Soggetto a modifiche • Sujeto a modificaciones • Z zastrzeżeniem zmian • Med reservation för ändringar • Med forbehold om endringer