

## Introduction

Dear customer,

Thank you for your decision to use the Qiu. With the Qiu you have purchased a future-oriented medical device, developed by medical doctors over years of research. This manual contains some important information. Please read it carefully before you begin using the device and keep it safe for later reference.

### Purpose

The Qiu is a medical biofeedback device to enhance neurocardial and autonomic regulation and to improve your ability to relax. The device can be used as a supportive tool for many disorders, whenever improvement of autonomic regulation can advance the healing process. The Qiu can also be used by people with occupational stress as a stress-relieving tool, and by athletes for effective mental training. No matter what your purpose for using the Qiu, please use it according to the instructions of your therapist.

### Contraindications

The Qiu is not suitable for patients suffering from severe heart rhythm disorders, because in such patients the heart rate does not sufficiently reflect the activity of the autonomic nervous system. In such cases, effective biofeedback training is not possible. However, occasional ectopic beats do not represent a contraindication. If you are in doubt, please ask your therapist.

Use in combination with drugs

Qiu can be used together with prescribed medication without the risk of impairing the drug's efficacy. In combination with blood pressure-lowering drugs, it is recommended that you measure your blood pressure regularly. HRV biofeedback itself can have a mild antihypertensive effect, and an adjustment of the medication dosage might be necessary.

Some drugs, such as antidepressants, can lead to a decrease in the patient's heart rate variability (HRV). In such cases it makes sense to reduce the exercise level in order to ensure that the patient can still gain positive biofeedback results. If you are taking any medications, please ask your therapist whether your HRV is affected by the drugs and how to adjust your Qiu accordingly.

Mode of action

The Qiu is a modern biofeedback device. Biofeedback is a medical treatment, in which a normally unrecognizable physiological signal is measured and displayed to the patient audio-visually. The objective is to shift the physiological signal in a certain direction. Subjects voluntarily and/or involuntarily do what is required to obtain positive feedback, resulting in a positive change in the physiological signal, i.e., a movement towards improved health. Biofeedback has been used successfully in different areas of medicine (e.g. neurofeedback using the EEG signal, EMG biofeedback, and others). At present, the exact mechanism of the biofeedback's action is still unknown, but a vast number of therapeutic biofeedback studies impressively confirm the efficacy of this therapeutic approach.

Heart rate variability (HRV) is the term for fluctuations of heart rate, which are always present in healthy people. These oscillations reflect the permanent regulation of the heart rate by the autonomic nervous system (ANS). The ANS and its two branches, the sympathetic and the parasympathetic branch, control all the essential adjustment processes inside the body. The parasympathetic system (our 'inner brake') is linked to rest and regeneration, whereas the sympathetic system (our 'accelerator') increases its activity when energy has to be directed toward the environment (e.g., mental or physical efforts).

When the influence of the sympathetic system persists for too long, adverse effects on the body can occur, e.g. elevated blood pressure or, ultimately, coronary heart disease. Too much sympathetic activity also impairs the regeneration process in diseases or injuries and has a negative effect on mental performance.

The Qiu measures a special kind of HRV, the so-called respiratory sinus arrhythmia, which is specifically mediated by the parasympathetic branch of the ANS. The term rhythmization is used for the respiratory sinus arrhythmia in the description below. The actual size of your rhythmization is presented by the Qiu as a color-coded biofeedback signal in real time. This allows you to use this biofeedback to specifically train your 'inner brake' – the parasympathetic system – and shift the balance between the two branches towards a parasympathetic state, improving regeneration, health and mental performance.

Qiu – FAQ (frequently asked questions)

Frequently asked questions and their answers can be found on our homepage at:

Qiu-> FAQ (frequently asked questions)

or with this direct link:

<http://www.biosign.de/qiu-faq/?lang=en>

## Qiu software

You can download the myQiu software from the internet. Please visit the BioSign website and move to the Qiu download area.

[www.biosign.de](http://www.biosign.de)

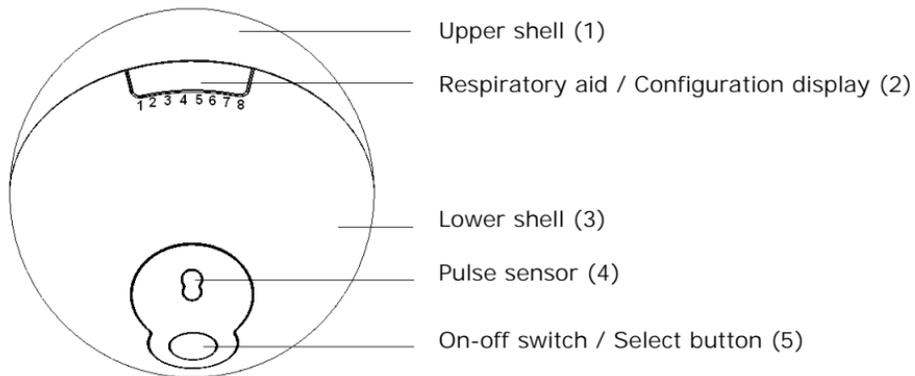
You can download the software also directly from the internet by using the following link:

[http://www.biosign.de/download\\_Qiu/myQiu\\_Setup.exe](http://www.biosign.de/download_Qiu/myQiu_Setup.exe)

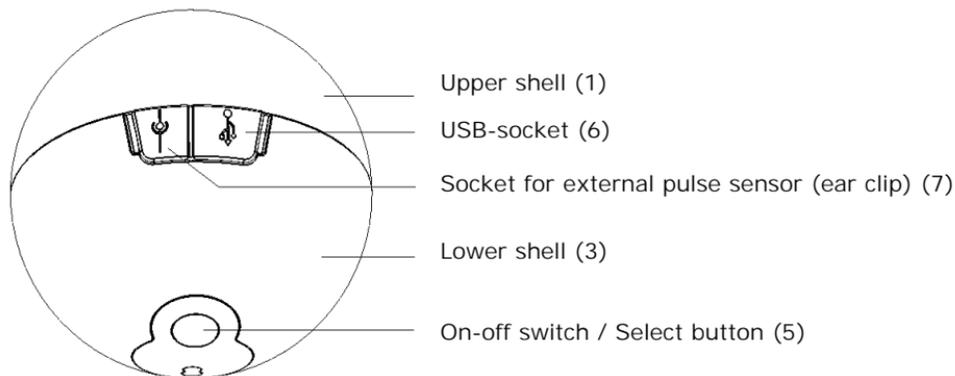
Start the myQiu\_Setup.exe file in order to begin the installation. The setup will also install the Qiu driver needed for USB communication. If you have problems connecting the Qiu successfully to your PC, please find additional information on the download page of the Qiu website. In order to ensure, that you have always the actual myQiu software installed, please enable the auto-update-function in the system settings of the myQiu software. The software will then search automatically for new updates.

## Description

### Front view



## Rear view



### Important note!

The socket for the external pulse sensor (ear clip) is labeled with the symbol shown to the left. You must not connect a charger or a power supply to this socket! This would cause damage to the Qiu.

## Biofeedback

Principally, you should use the Qiu according to the instructions of your therapist. Here you will find some hints to help to obtain the best possible results.

### The correct body position

Use the Qiu in muted lighting conditions so that you can see the optical biofeedback signal clearly. Take a calm, seated body position and hold the Qiu comfortably. Place your hand with the Qiu just below heart level, e.g. on your thigh. This increases your pulse signal and allows the Qiu to detect your heart beat more easily.

### Switching on the Qiu

Press the on-off switch (5), until the Qiu lights up brightly for one second. If the Qiu blinks red, the battery power is low. Usually, it is possible to continue with the exercises for a few more sessions, but it is recommended that you keep new batteries available. If the Qiu blinks red three times, the batteries are too low and the Qiu will turn off. In this case, please change the batteries as soon as possible (see battery change).

Note: If you hold down the on-off switch (5) for longer, the Qiu switches into the configuration mode, where you can adjust the settings (see Qiu configuration).

### The correct hand position

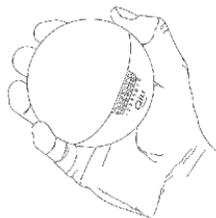


The Qiu is fitted with a sensitive pulse sensor (4). Put the Qiu in your hand in such a way that the sensor is placed on areas with high blood flow. Among these are, for instance, the thenar and the tips of your thumb, index finger and middle finger. If your blood pressure is rather low or you have cold hands, it is better to use the fingertips instead of the thenar. Hold the Qiu comfortably with only light contact pressure. Pressing too hard will reduce the blood flow, which makes measurement more difficult.

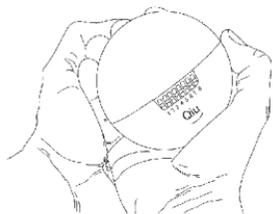
to 20 seconds.

Note: You can increase the blood flow if you rub the skin area where you want to place the sensor with the thumb of the other hand for about 10

### Examples of reliable hand positions



a) Sensor position: thenar



b) Sensor position: thenar with two hands



c) Sensor position: thumb



d) Sensor position: index finger, the wrist is slightly angled in order to provide a full view of the respiration aid (2)

## Detecting the pulse

When you start the biofeedback exercise, the Qiu first searches for your pulse. The actual pulse signal is displayed by a pulsating blue light which is synchronized with your heart beat during the pulse search. After about 10 seconds, when the pulse is being recorded properly, the Qiu starts the biofeedback. If you haven't yet seen the blue pulsations after 20 seconds, or if the Qiu does not switch from the blue pulsations into biofeedback mode, the sensor position is not optimal. Please adjust the sensor position or choose another hand position.

### Biofeedback exercise

As soon as the Qiu turns from pulse detection into biofeedback mode, you can start with your exercise.

Note! Please conduct your biofeedback training according to the instructions of your therapist.

Breathe calmly and regularly along with the rhythm displayed by the respiratory aid (2). Relax and observe the biofeedback signal of the Qiu. Try to keep the color of the biofeedback in the green range, but avoid getting stressed by the exercise. Do not be anxious if you are not successful immediately. With more training you will find it increasingly easy to obtain a positive result.

### Complete the exercise

When the exercise time has expired, the green diode of the Qiu blinks twice and turns off automatically. If you want to cancel an exercise, please press and hold the off-button (5) until the Qiu turns off. Put the Qiu on its holder to keep it safe.

## Configuration

Press and hold the on-off switch (5) until the initializing sequence of the blue LEDs (2) has been completed. The Qiu is now in the first menu of the configuration mode. The configuration mode comprises the following four menus:

menu 1: Target rhythmization

menu 2: Brightness

menu 3: Breathing settings

menu 4: Exercise length

In order to switch to the next menu, hold the button (5) down until all the blue LEDs (5) light up. All menus can be identified by their own initial combination of lit LEDs. If you want to leave the configuration mode, press and hold the button (5) until the Qiu turns off. There is a maximum of 8 different settings per menu. The actual chosen setting is indicated by the number of blue LEDs that are lit(2).

At the start of each menu the blue LEDs, which ordinarily set the breathing rhythm during biofeedback, light up in a certain pattern. The pattern indicates which menu you are currently in.

### Target rhythmization

The target rhythmization determines the sensitivity of the biofeedback. The higher the target rhythmization, the higher your HRV has to be in order to achieve positive biofeedback. The biofeedback light changes on a scale ranging from red to green, with the shading corresponding to the set target rhythmization.

A single blue LED (2) displays the actual target rhythmization. The set level is indicated by the corresponding number of LEDs. Press the button (5) in order to increase the target rhythmization by a step.

Press and hold the button (5) for a few seconds until all blue LEDs (2) light up in order to enter the next menu.

### Brightness

You may wish to adjust the brightness of the biofeedback light. You can choose between 7 brightness levels (LED numbers 1 to 7) for the red / green biofeedback. Step 8 activates an intensity-coded (light/dark) biofeedback condition. In this condition, low HRV is indicated by no or a weak white light, and high HRV is indicated by a stronger white light.

This menu can be identified by the green biofeedback light, which changes from low to high intensity. Press the button (5) to increase the brightness by a step.

## Breathing

In this menu you can adapt the breathing rhythm to your personal requirements. The intro sequence of this menu is a single blue light (2), which runs from left to right and back. Use the button (5) to change the breathing rhythm. The actual setting is indicated by the corresponding number of a single blue LED. You can select from the following settings:

- 1: Respiration aid is turned off
- 2: A special breathing pattern can be programmed and stored in the Qiu by means of the PC configurator. This allows different times for breathing in and breathing out and the inclusion of a pause between inhalation and exhalation. If this setting is activated, the breathing rhythm that is programmed from the PC will be used.
- 3: No function
- 4: No function
- 5: 5 breathing cycles per minute
- 6: 6 breathing cycles per minute
- 7: 7 breathing cycles per minute (exactly: 6.6 /min)
- 8: 8 breathing cycles per minute (exactly: 8.5 /min)

## Exercise length

In this menu you can determine the duration of the biofeedback exercise. When the time has expired, the Qiu will automatically stop the biofeedback. All recorded data will be stored and can be analyzed on the PC afterwards. The menu is introduced by an increasing and decreasing column of lit blue LEDs (2). There is a choice of the following exercise durations:

- 1: 1 minute
- 2: 2 minutes
- 3: 3 minutes
- 4: 4 minutes
- 5: 5 minutes
- 6: 10 minutes
- 7: 15 minutes
- 8: 20 minutes

Note:

If you press the button (5) until all blue LEDs are lit, you will enter the first menu again. In order to finish the configuration, please press the button (5) until the Qiu turns off. The Qiu turns off automatically if no key is pressed for more than one minute.

### myQiu-Software

You can also use the myQiu PC-software to configure the Qiu. More information about the software and its manual are provided in the file 'Qiu\_Software\_manual.pdf' and. Please note that only a CE approved PC may be connected to the Qiu. You can download the myQiu software from the internet (for more infos, please go to page 4).

## Battery change

Discharged batteries are indicated by three red blinks of the biofeedback light. You should change discharged batteries as soon as possible, because otherwise this may lead to errors in the system's recording of date and time.

Before changing the batteries, switch off the Qiu or unplug the USB connector, if the Qiu is connected to the PC. Hold the Qiu in one hand with the upper shell (1) pointing upwards and turn the upper shell a few millimeters counterclockwise until the latching mechanism releases. Take off the upper shell and open the battery compartment. Remove the batteries, applying light pressure against the spring-suspended side. Dispose of the empty batteries according to your local regulations. Recharging discharged batteries is strictly prohibited! Please use 1.5 V batteries type 'AAA', 'LR3' or 'Micro'. If you wish to use rechargeable batteries instead of batteries, please use 1.2 NiMH accumulators. Rechargeable batteries and charger are not included with the Qiu as delivered. Please pay attention to the correct polarity when inserting the new batteries. Close the battery compartment and re-affix the upper shell. Turn it clockwise until the latching mechanism locks.

### Note:

- Remove the batteries, when the Qiu is not being used for a longer period of time
- Do not insert batteries that are obviously damaged
- Do not recharge discharged batteries

## Cleaning

Disconnect the Qiu from the PC and switch it off before cleaning. Use only a moist cloth (water or mild soapy water). Prevent water or cleanser from entering the device.

## Accessory

 An external pulse sensor (ear clip) can be plugged into the sensor socket (7). The sensor socket is labeled with the symbol on the left. Ask BioSign for appropriate sensors.

Note: You must not connect a charger or a power supply to this sensor socket! This would inevitably damage the Qiu.

## Notes on using the ear clips as external sensor with the Qiu

Please note that the ear clip must always be plugged in before turning on the Qiu. The Qiu searches during power-up for external sensors. In case no external sensor is found, the integrated sensor will be used, even if an ear clip is plugged in later.

Tip: To improve the signal quality, we recommend to rub the earlobe between your thumb and index finger before applying the ear clip.

## Malfunction

If you detect an obvious malfunction of the Qiu, please switch it off, remove the batteries and contact BioSign or your local dealer.

## Copyright

This publication and its contents are protected by copyright and are only intended for customers, to provide information about the use of the Qiu. The contents of this manual must not be used for other purposes without prior written consent from BioSign. Reproduction and any other form of publication are strictly prohibited. BioSign is allowed to change the content of this publication without any prior notification.

## Trademarks

Qiu and BioSign are registered trademarks of BioSign GmbH. Other product or company names are trademarks of their corresponding owners.

## Patent

This product is protected by patents, patent applications and design patents.

## Guarantee

If the Qiu shows defects in materials or manufacturing, BioSign will, at its own discretion, warrant free repair, including costs for spare parts, within two years from the purchase date. This guarantee applies only to the first-time buyer and comprises only manufacturing or material defects which occur in the course of the intended use of the product during the guarantee period. The guarantee does not apply to batteries, errors or damages caused by accidents, negligence, misuse, or modifications to the product carried out by the user. Nor does this guarantee cover malfunctions resulting from non-approved use or other causes that are not covered by the guarantee. There are no guarantees other than the above-mentioned.

## Service

In order to make a warranty claim it is necessary that you send back the Qiu along with prepayment of the delivery charges. Please state your name, address, a description of the malfunction and a receipt. The or the replacement will be completed within a timeframe deemed suitable by BioSign, provided the required parts are in stock.

## Exclusion of liability

BioSign GmbH shall not be liable for direct or indirect damage resulting from the use of or the inability to use the Qiu. BioSign GmbH shall not assume responsibility for losses or charges by a third party, which might occur through the use of or the inability to use the Qiu.

## Disposal

When its life cycle has expired, the Qiu must be disposed according to local regulations. The batteries must be removed before disposal.



## Technical data

Manufacturer:	BioSign GmbH Brunnenstraße 21 D-85570 Ottenhofen Germany
Type:	HRV biofeedback device
Model:	Qiu
Serial-Nr.:	Provided on the type label
Measurement- Method:	Infrared pulse plethysmography
Power supply:	2 x 1.5 V Alkaline Batteries Type AAA/LR03
Battery lifetime:	approx. 100 Biofeedback-exercises lasting 3 Minutes
Memory:	128 kB; sufficient for 500 Biofeedback exercises
Working conditions:	+10°C to +40°C with a rel. humidity from 20% to 85%
Transport- and stor- age conditions:	-20°C to +60°C with a rel. humidity from 10% to 95%
Dimensions:	Diameter 90mm
Weight:	about 150 g (without batteries)
Protection class:	Device with internal power supply
Applied part:	Type B
Classification:	Class I according to EG-guideline 93/42/EWG

Norms:

The device fulfills the requirements of the EG guideline 93/42/EWG

The requirements of the following norms are fulfilled:

Medical electrical equipment - Part 1: General requirements for basic safety and essential performance (c:2005); German Version EN 60601-1:2006

Symbols:



Please follow the instructions in the manual!



Applied part Type B



Dispose of as electronic waste



Conformity with related EU-guidelines