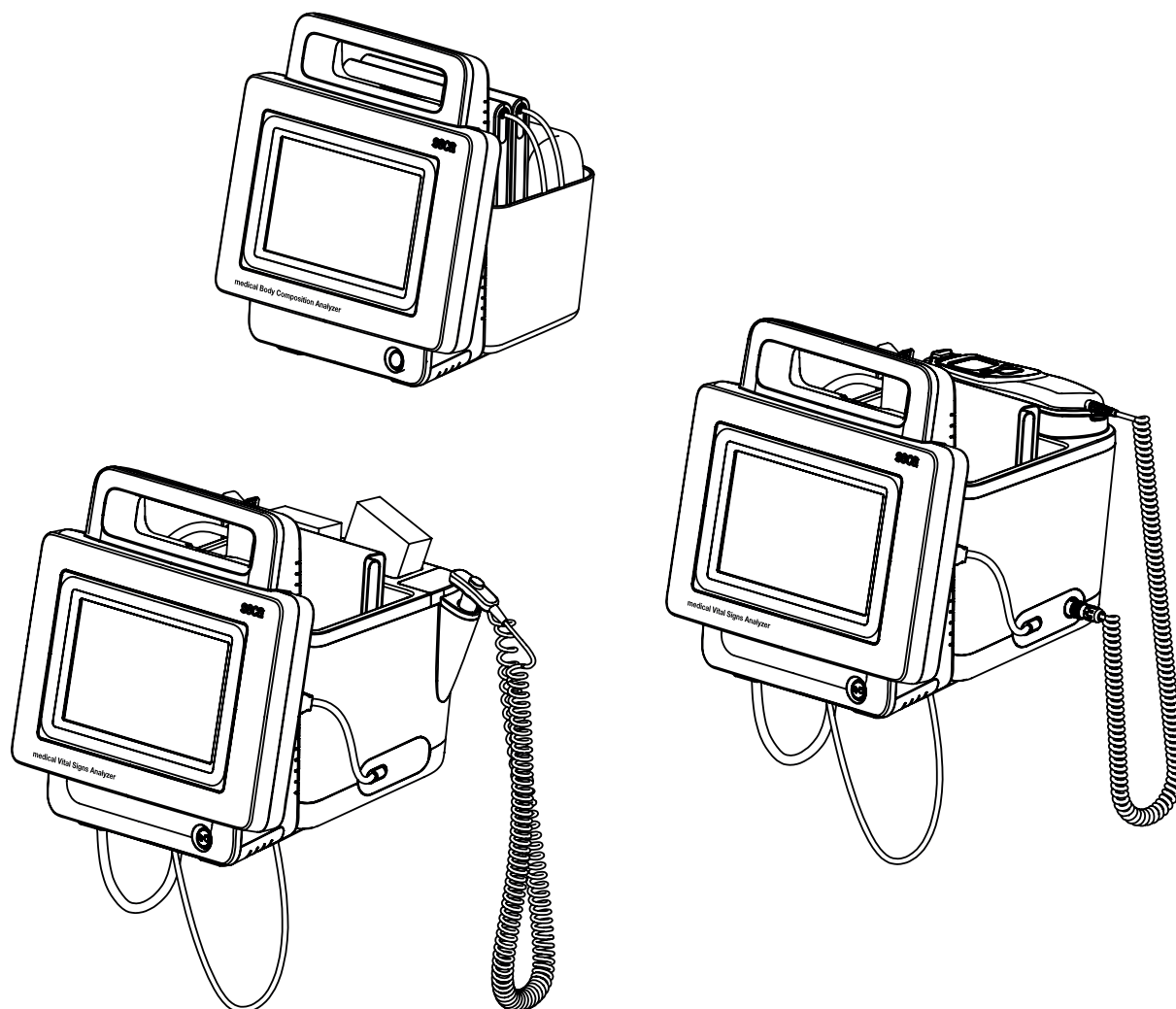


seca mVSA 535 **seca mBCA 525**

Instructions for use

Software version 1.0 from Build 1163

Art no: 17-10-05-353-002g_08-2020 B



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- [For administrators: Configuring seca mVSA 535 / seca mBCA 525](#)

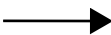
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1. ABOUT THIS DOCUMENT

NOTE

This document describes the maximal equipment of the **seca mVSA 535/seca mBCA 525** product family: measurement of blood pressure, temperature, oxygen saturation and bioimpedance. Depending on the actual equipment of your device, some of this information may not be relevant to your device. Pay attention to the information in this document which is relevant to your device.

Display conventions	
Symbol	Description
▶	Handling instruction
1. 2.	Handling instructions which have to be performed in the specified sequence
a) b)	Steps of a handling instruction which have to be performed in the specified sequence
• •	First level of a list
– –	Second level of a list
	Indicates points on the device or on device components which require particular attention
	Indicates areas on the display which require particular attention
	Indicates directions in overview graphics
	Correct handling method Correct handling result
	Incorrect handling method Incorrect handling result

2. DESCRIPTION OF DEVICE

- [Intended use for the seca mVSA 535](#)
- [Intended use for the seca mBCA 525](#)
- [Description of function](#)
- [User qualification](#)
- [Contraindications](#)

2.1 Intended use for the seca mVSA 535

The medical Vital Signs Analyzer **seca mVSA 535** is mainly used in inpatient facilities (hospitals, medical practices and care facilities) in accordance with national regulations.

The medical Vital Signs Analyzer **seca mVSA 535** is used for non-invasive, discontinuous determination of arterial blood pressure and/or non-invasive determination of oxygen saturation of arterial hemoglobin and/or determination of body temperature and pulse rate and determination of weight and height.

When the Bioimpedance analysis function is included, the medical device is also used to record bioelectric impedance measurements and to calculate automatically parameters such as fat-free mass (FFM) which can be derived from these measurements. The results are displayed in graphical form and assist the attending physician with the following medical issues:

- Determining energy expenditure and energy reserves as a basis for nutritional advice
- Assessing metabolic activity and the success of a training program, e.g. within the framework of rehabilitation or physiotherapy
- Determining a patient's fluids status

The medical Vital Signs Analyzer **seca mVSA 535** is intended for use in children 3 years and older and adults. The Bioimpedance analysis function is not intended for use on children.

2.2 Intended use for the seca mBCA 525

The medical Body Composition Analyzer **seca mBCA 525** is mainly used in inpatient facilities (hospitals, medical practices and care facilities) in accordance with national regulations.

The medical Body Composition Analyzer **seca mBCA 525** records weight, height and bioelectric impedance measurements and automatically calculates parameters such as fat-free mass (FFM) which can be derived from these measurements. The results are displayed in graphical form and assist the attending physician with the following medical issues:

- Determining energy expenditure and energy reserves as a basis for nutritional advice
- Assessing metabolic activity and the success of a training program, e.g. within the framework of rehabilitation or physiotherapy
- Determining a patient's fluids status

The device is **not** intended for use on children.

2.3 Description of function

- Device components
- Power supply
- Bioimpedance measurement
- Vital signs measurement
- Alarms
- Weight and height
- seca user accounts
- User IDs of EMR systems
- seca patient files
- Patient data from EMR systems
- Measuring results
- Data transmission and network functions
- Compatibility

Device components

The **seca mVSA 535** consists of a monitor and a SmartBucket.

The **seca mBCA 525** consists of a monitor and a storage compartment.

The monitor is for managing patient and user data and for preparing and analyzing measurements. The monitor is equipped with a touchscreen display.

The SmartBucket includes the measuring equipment for recording vital signs and storage facilities for the measuring accessories.

In the maximum configuration, the vital signs blood pressure, body temperature, pulse rate and oxygen saturation can be recorded and bioimpedance measurements performed. Your version of the device may have a more limited functional scope.

Power supply

The monitor is powered by a connection to the power supply. The monitor has a lithium-ion rechargeable battery to provide a mobile power supply.

The SmartBucket is supplied with power via a USB connection from the monitor.

Bioimpedance measurement

Bioimpedance measurement is performed with a measuring mat developed by seca.

Bioimpedance measurement is carried out with the patient lying down, using the 8-point method. The 4-point method (measuring the right half of the body) is likewise possible. The low alternating current is provided and impedance is measured by the electrode cables of the measuring mat. The electrode cables are connected to two pairs of electrodes for each half of the body. The electrodes are affixed to the patient's hands and feet.

Vital signs measurement

Blood pressure is measured non-invasively with seca measuring equipment and seca blood pressure cuffs.

Temperature is measured with COVIDIEN™ measuring equipment and, depending on the device version, as an oral/axillary (blue temperature probe), rectal (red temperature probe) or in-ear thermometer procedure.

On device versions without integrated temperature measurement, temperature values can be entered manually.

Depending on the device version, oxygen saturation is measured with Masimo SET® or with seca measuring equipment and with the corresponding SpO₂ sensors and patient cables.

Depending on device version, pulse rate is determined using either oxygen saturation or blood pressure.

Alarms

The device is intended for discontinuous measurement of vital signs, so it does **not** have an alarm function.

Weight and height

Scales and measuring rods from the **seca 360° wireless** system can transmit measuring results to the device wirelessly.

Scales and measuring rods with an internal interface module or a **seca 452** external interface module can transmit measuring results to the device via LAN or WiFi.

Alternatively, the patient's weight and height can be recorded manually.

seca user accounts

The user accounts for the device can be synchronized automatically with the seca user accounts of the **seca analytics 115** PC software. This allows access to both the device and the PC software with the same seca user account.

User IDs of EMR systems

If the device is connected to an EMR system via the **seca connect 103** software, the user IDs of the EMR system can be used for measurements. Local user accounts on the device are required for administration and service tasks.

seca patient files

seca patient files and seca patient databases contain exclusively data necessary for working with seca products or which were determined using seca products.

In standalone mode or when connected to the **seca analytics 115** PC software, measuring results are managed in seca patient files. seca patient files can be set up, edited, exported and deleted directly on the device.

The device can be configured so that the seca patient files of the device are automatically synchronized with the seca patient files of the **seca analytics 115** PC software.

Patient data from EMR systems

Depending on the EMR system in question, patient data from EMR systems may be used via the export and import functions of the **seca analytics 115** PC software or via a connection to the **seca connect 103** software.

Measuring results

Measured results for the vital signs blood pressure (NIBP), temperature (TEMP), pulse rate (PR) and oxygen saturation (SpO₂) are displayed in graphical form.

Bioimpedance measurements are analyzed in graphical form based on scientifically-validated formulas. In-house studies by seca generated predictive formulas for determining the parameters total body water (TBW), extracellular water (ECW), fat-free mass (FFM) and skeletal muscle mass (SMM) for arms, legs, torso and the whole body. Further studies generated normal ranges for the following parameters: Bioelectric impedance vector analysis (BIVA), mass indices (FMI, FFMI), phase angle (ϕ), fat mass (FM) and skeletal muscle mass (SMM).

Data transmission and network functions

The device can be integrated in a network via a LAN interface or via WiFi in order to use the following functions:

- Connection of the device to the **seca analytics 115** PC software available as an option: Communication with the databases of the **seca analytics 115** PC software and use of the **seca directprint** function
- Connection of the device to the **seca connect 103** software available as an option: Using the user and patient data of an EMR system and submitting measuring results to the EMR system

- **seca 360° proximity** connection: Receiving weight and height from scales and measuring rods with an internal interface module or a **seca 452** external interface module

Monitor and measuring mat – if there is one – communicate with each other via a WiFi direct connection or via an infrared interface.

Measuring results for the parameters blood pressure, body temperature, pulse rate and oxygen saturation are transmitted from the SmartBucket to the monitor via a USB connection.

The device has a **seca 360° wireless** module and can receive measuring results from compatible seca scales and measuring rods.

Compatibility

seca analytics 115 PC software

This device (software version 1.0, Build 1163 or higher) is only compatible with version 1.4 (Build 6657 or higher) of the **seca analytics 115** PC software. There is no downward compatibility with older versions of **seca analytics 115**.

seca connect 103 software

This device (software version 1.0, Build 1163 or higher) is only compatible with version 2.2 or higher of the **seca connect 103** software. There is no downward compatibility with older versions of the **seca connect 103** software.

Internal interface module/seca 452 interface module

This device (software version 1.0, Build 1163 or higher) is only compatible with interface modules on which firmware version Q2_2020_Build_615 or higher is installed.

seca mVSA 526 SmartBucket

medical Body Composition Analyzer **seca mBCA 525** from serial number 10000000090505 can be retrofitted with the SmartBucket **seca mVSA 526** (accessory kit for measuring vital signs).

2.4 User qualification

→ [Administration/network connection](#)

→ [Measuring mode](#)

Administration/network connection

The device may only be set up and incorporated in a network by experienced administrators or hospital technicians.

Measuring mode

The device may only be used by persons with sufficient expertise.

Basic knowledge required for measuring vital parameters is **not** the subject of these instructions for use.

Connecting the device to an EMR system affects the measuring sequence and operation of the device: → [Operation when connected to an EMR system](#). People operating the device must be informed about these effects.

2.5 Contraindications

The device is **not** intended for permanent monitoring of patients.

The device is **not** intended for patient monitoring during either transport (for example, in ambulances or helicopters) or transfer within an institution.

The device is **not** intended for operation in the vicinity of an MRI device or in a pressurized chamber.

The SpO₂ measuring function of the device is **not** intended for monitoring apneas, detecting arrhythmias or for use during defibrillation or electrocauterization.

This device is not suitable for persons with the following characteristics:

- Cramps
- Tremors

This device is **not** suitable for individuals who are connected to electronic life-support systems, for example, artificial heart/lung.

Bioimpedance measurements may **not** be performed on individuals exhibiting the following characteristics:

- electronic implants, e.g. cardiac pacemakers
- active prostheses

Bioimpedance measurements may **not** be performed on persons who are connected to one of the following devices:

- electronic life-support systems, e.g. artificial heart, artificial lung
- portable electronic medical devices, e.g. ECG devices or infusion pumps

Impedance measurements may only be performed on persons exhibiting the following characteristics after discussion with the attending physician:

- cardiac arrhythmias
- pregnancy

3. SAFETY PRECAUTIONS

→ [Safety precautions in these instructions for use](#)

→ [Basic safety precautions](#)

3.1 Safety precautions in these instructions for use



DANGER!

Used to identify an extremely hazardous situation. If you fail to take note of this information, serious irreversible or fatal injuries will occur.



WARNING!

Used to identify an extremely hazardous situation. If you fail to take note of this information, serious irreversible or fatal injuries may result.



CAUTION!

Used to identify a hazardous situation. If you fail to take note of this information, minor to moderate injuries may result.

NOTICE!

Used to identify possible incorrect usage of the device. If you fail to take note of this information, you may damage the device, or the measuring results may be incorrect.

NOTE

Includes additional information about use of the device.

3.2 Basic safety precautions

→ [Handling the device](#)

→ [Handling a wheeled stand](#)

→ [Preventing electric shock](#)

→ [Prevent injuries and infections](#)

→ [Preventing damage to device](#)

→ [Handling measuring results](#)

→ [Handling packaging material](#)

→ [Handling batteries and rechargeable batteries](#)

Handling the device

- ▶ Please take note of the information in these instructions for use.
- ▶ Keep the instructions for use in a safe place. The instructions for use are a component of the device and must be available at all times.
- ▶ In the interest of patient safety, you and your patients are obliged to report serious events that occur in connection with this product to the manufacturer and the authority responsible in your country.



DANGER!

Risk of explosion

Do not use the device in an environment in which one of the following gases has accumulated:

- ▶ oxygen
- ▶ flammable anesthetics
- ▶ other flammable substances/air mixtures

**CAUTION!****Patient hazard, damage to device**

- ▶ Additional devices which are connected to electrical medical devices must provide evidence of compliance with the relevant IEC or ISO standards (e.g. IEC 60950 for data-processing devices). Furthermore, all configurations must comply with the requirements of standards for medical systems (see IEC 60601-1-1 or Section 16 of edition 3.1 of IEC 60601-1, respectively). Anyone connecting additional devices to electrical medical devices is considered a system configurator and is therefore responsible for ensuring that the system complies with the requirements of standards for systems. Your attention is drawn to the fact that local laws take precedence over the above-mentioned requirements of standards. In the event of any queries, please contact your local specialist dealer or Technical Service.
- ▶ Please have servicing and measuring technology checks performed every two years.
- ▶ Technical modifications may not be made to the device. The device does not contain any parts for servicing by the user. Only have servicing and repairs performed by an authorized seca Service partner. You can find service partners in your area at www.seca.com or by sending an e-mail to service@seca.com.
- ▶ Only use original seca accessories and spare parts, otherwise seca will not grant any warranty.

**CAUTION!****Patient hazard, malfunction**

- ▶ Keep other electrical medical devices, e.g. high-frequency surgical devices, a minimum distance of approx. 1 meter away to prevent incorrect measurements or wireless transmission interference.
- ▶ Keep HF devices such as cell phones a minimum distance of approx. 1 meter away to prevent incorrect measurements or wireless transmission interference.
- ▶ The actual transmission output of HF equipment may require minimum distances of more than 1 meter. Details can be found at www.seca.com.

Handling a wheeled stand**WARNING!****Injury from falling, damage to device**

- ▶ When transporting the device on a wheeled stand, make sure that all cables and tubes are stowed properly directly on the machine or in the basket of the stand.

**CAUTION!****Damage to device**

- ▶ Do not pull on cables and tubes to move the equipment or wheeled stand.
- ▶ Do not move the wheeled stand when the power cord of the device is plugged into an electrical outlet.

Preventing electric shock



WARNING! **Electric shock**

- ▶ Set up devices which can be operated with the electricity supply so that the power supply socket is within easy reach and the power supply can be disconnected quickly.
- ▶ Ensure that your local power supply matches the details on the device.
- ▶ Connect this device only to a power supply with a protective earth facility.
- ▶ Do not connect the device to a power supply network if there is any uncertainty about whether the protective earth is functioning. In this case, use the device exclusively in rechargeable battery mode.
- ▶ Do not connect the device to sockets that are switched by an on/off switch or a dimmer.
- ▶ Never touch the power supply cable with wet hands.
- ▶ Do not use extension cables or power strips.
- ▶ Make sure that cables are not pinched or damaged by sharp edges.
- ▶ Make sure that cables do not come into contact with hot objects.
- ▶ Do not operate the device at an altitude of more than 3000 m above sea level.

Prevent injuries and infections



WARNING! **Injury from falls**

- ▶ Ensure that the device is positioned firmly and level.
- ▶ Route connecting cables (if present) in such a way that neither user nor patient can trip over them.



WARNING! **Risk of infection**

- ▶ Before and after every measurement, wash your hands to reduce the risk of cross-contamination and nosocomial infections.
- ▶ Hygienically reprocess the device regularly as described in the respective section in this document.
- ▶ Make sure that the patient has no infectious diseases.
- ▶ Make sure that the patient has no open wounds or infectious skin alterations, which may come into contact with the device.

Preventing damage to device

NOTICE!

Damage to device

- ▶ If liquids have penetrated the device, the device may not be operational for a short period. Allow the device to dry for an extended period (e.g. overnight), before starting it up again.
- ▶ Switch off the device before you take the power supply connector out of the power supply socket.
- ▶ If you are not going to use the device for an extended period, disconnect the power supply connector from the power supply socket and remove the rechargeable battery (if present and removable). Only then is the device de-energized.
- ▶ Make sure not to drop the device.
- ▶ Do not expose the device to any impacts or vibrations.
- ▶ Ensure that there is no heat source in the immediate vicinity. Do not expose to direct sunlight. The excessive temperature could damage the electronics.
- ▶ Ensure that the air openings of the device (if present) are not covered.
- ▶ Perform function controls regularly as described in the relevant section in this document. Do not operate the device if it is damaged or not working properly.
- ▶ Avoid rapid temperature fluctuations. When the device is transported so that a temperature difference of more than 20 °C occurs, it must stay turned off for at least 2 hours before it can be turned on again. Otherwise, condensation water will form which can damage the electronics.
- ▶ Use the device only in the intended ambient conditions.
- ▶ Store the device only in the intended storage conditions.
- ▶ Use only disinfectants free of chlorine and alcohol which are explicitly suitable for acrylic sheet and other sensitive surfaces (active ingredient: quaternary ammonium compounds, for example).
- ▶ Do not use aggressive or abrasive cleaning agents.
- ▶ Do not use organic solvents (e.g. white spirit or petroleum spirit).
- ▶ Use disinfectants including the active ingredient 70 % isopropanol only for measuring accessories for measuring vital signs.

Handling measuring results



CAUTION!

Patient hazard

In order to avoid misinterpretations, measuring results for medical use must be displayed and used in SI units (weight: kilogrammes, length: metres) only. Some devices offer the ability to display measuring results in other units. This is only an additional function.

- ▶ Use the results exclusively in SI units.
- ▶ The use of measuring results in non-SI units is the sole responsibility of the user.

NOTICE!

Inconsistent measuring results

- ▶ Before you electronically save measured values determined using this device and use them further (e.g. in seca PC software or in an EMR system), make sure that the measured values are plausible.
- ▶ If measured values are transmitted to seca PC software or an EMR system, make sure prior to further use that the measured values are plausible and are assigned to the correct patient.

NOTICE!**Results not comparable to other devices**

Results of bioelectric impedance measurements are not interchangeable with measurements obtained from different manufacturers' devices. Follow-up measurements not performed on a seca device may lead to inconsistent data and to misinterpreted measuring results.

- ▶ Ensure that follow-up measurements are also performed on a seca device.

NOTE

For an overview of the parameters which can be determined using this device, see the section entitled "Technical data\analysis parameters". If necessary, you can print out this overview and give it to your patients (print-out from the device not possible).

Handling packaging material**WARNING!****Risk of suffocation**

Packaging material made of plastic foil (bags) is a choking hazard.

- ▶ Keep packaging material out of reach of children.
- ▶ In the event that the original packing material may not be available anymore, only use plastic bags with security holes in order to reduce the risk of suffocation. Use recyclable materials if possible.

NOTE

Keep the original packing material for future use (e.g. returning for servicing).

Handling batteries and rechargeable batteries**WARNING!****Personal injury as a result of improper handling**

Batteries and rechargeable batteries contain harmful substances which may explode if not handled properly.

- ▶ Do not try to recharge batteries.
- ▶ Do not expose (rechargeable) batteries to heat.
- ▶ Do not burn (rechargeable) batteries.
- ▶ If acid is leaking out, avoid contact with the skin, eyes and mucous membranes. Rinse affected areas with plenty of clean water and seek medical help at once.

NOTICE!**Damage to device and malfunctions with improper handling**

- ▶ Only use the type of (rechargeable) battery specified in this document.
- ▶ When replacing (rechargeable) batteries, always replace a complete set at a time.
- ▶ Do not short-circuit (rechargeable) batteries.
- ▶ If you do not use the device for a long period of time, remove the batteries (incl. rechargeable batteries). This prevents acid from leaking into the device.
- ▶ If acid leaked into the device, discontinue use. Have the device checked by an authorised seca Service partner and repaired if necessary.

4. Device overview

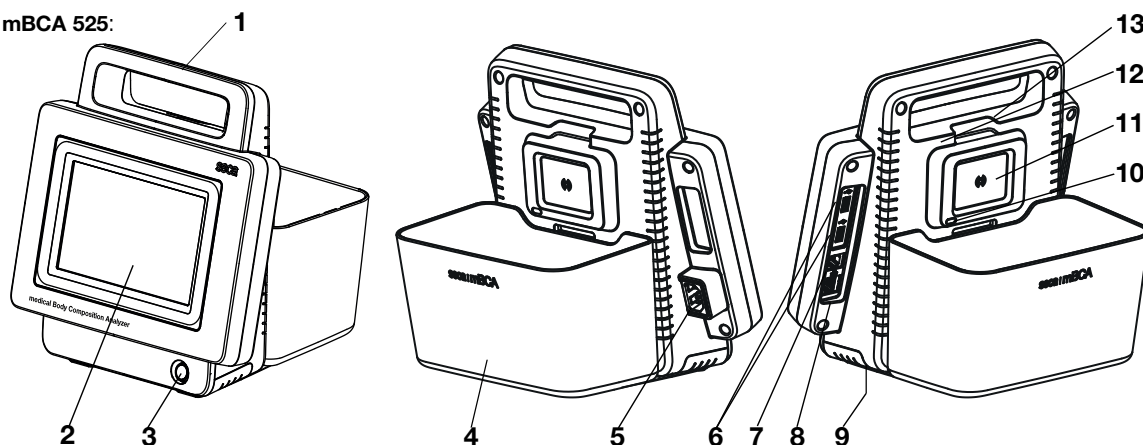
- Monitor controls for seca mVSA 535/seca mBCA 525
- In-ear thermometer controls
- Measuring mat controls (bioimpedance analysis)
- Fields in the touchscreen display
- Login/navigation: Buttons and symbols in the touchscreen display
- Operating state: Symbols
- Measuring: Buttons and symbols
- Unsubmitted measurements list: Symbols
- Markings on the device and on the type plate
- Markings on the blood pressure cuff
- Markings on the packaging

4.1 Monitor controls for seca mVSA 535/seca mBCA 525

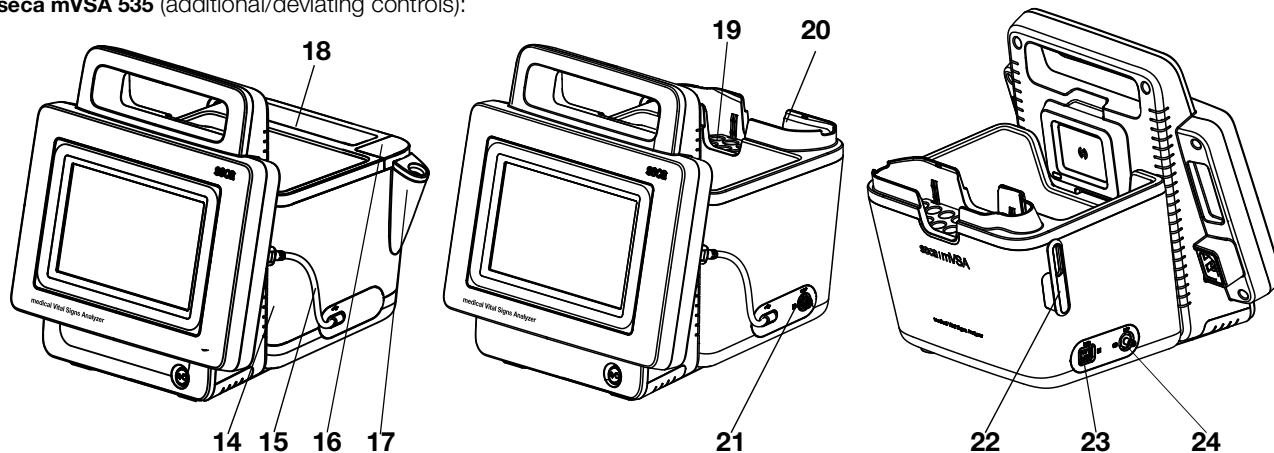
NOTE

This section shows product versions. The functional scope of your device may deviate from this.

seca mBCA 525:



seca mVSA 535 (additional/deviating controls):

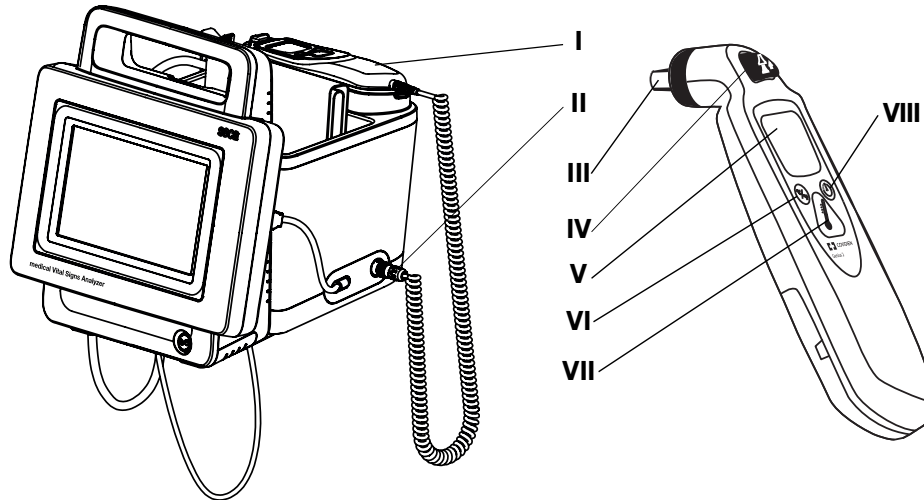


No.	Control	Function
1	Handle	Transporting the device
2	Touchscreen display	Central control/display element
3	ON/OFF button with LED	LED white: Device on LED green: Device on standby LED off: Device off
4	Storage compartment (seca mBCA 525 only)	Transporting/storing the measuring mat (bioimpedance analysis) Data transmission: Monitor/measuring mat Charge measuring mat rechargeable battery
5	Power supply connection socket	For connecting the power supply cable
6	USB interface, 2 pcs	For transmitting data via a USB memory stick For transmitting data between monitor and SmartBucket For supplying SmartBucket with power Connecting the scanner
7	ISIS interface	Advance feature for future system upgrade (currently no function)
8	LAN interface	For integrating the device in a network, using with the seca analytics 115 PC software or with the seca connect 103 software for connection to an EMR system
9	Rechargeable battery compartment	To take lithium-ion rechargeable battery supplied
10	Infrared interface	Automatic data transmission: Monitor/measuring mat (alternative if no WiFi available)
11	Inductive charging interface with magnetic catch	For charging measuring mat rechargeable battery (version-dependent)
12	seca 360° internal wireless module	For connecting scales and length measuring devices from the seca 360° wireless system
13	Internal WiFi module	- For integrating the device in a network (using with the seca analytics 115 PC software or with the seca connect 103 software for connection to an EMR system) - For automatic transmission of data, monitor/measuring mat
14	SmartBucket (seca mVSA 535 only)	For transporting/storing measuring equipment (bioimpedance analysis, vital signs) For storing consumables Data transmission: Monitor/measuring mat Charge measuring mat rechargeable battery
15	Connecting cable with USB connector	For power supply and data transmission between monitor and SmartBucket
16	Connection for temperature measurement	For COVIDIEN™ FILAC™ 3000 temperature probes - Blue: Oral/axillary measurement - Red: Rectal measurement
17	Probe holder	For COVIDIEN™ FILAC™ 3000 temperature probes - Blue: Oral/axillary measurement - Red: Rectal measurement
18	Storage compartment for probe covers	Capacity: 2 packs for COVIDIEN™ FILAC™ 3000
19	Removable magazine holder for probe covers	Capacity: 2 magazines for COVIDIEN™ GENIUS®3
20	Thermometer compartment	For COVIDIEN™ GENIUS®3 in-ear thermometer
21	Connection for temperature measurement	For COVIDIEN™ GENIUS®3 in-ear thermometer
22	Sensor holder	For SpO ₂ sensor
23	Connection for SpO ₂ measurement	Depending on version, to fit: - Masimo SET® patient cables and sensors (not illustrated) - seca patient cables and sensors (shown in illustration)
24	Connection for blood pressure measurement	For seca blood pressure cuffs

4.2 In-ear thermometer controls

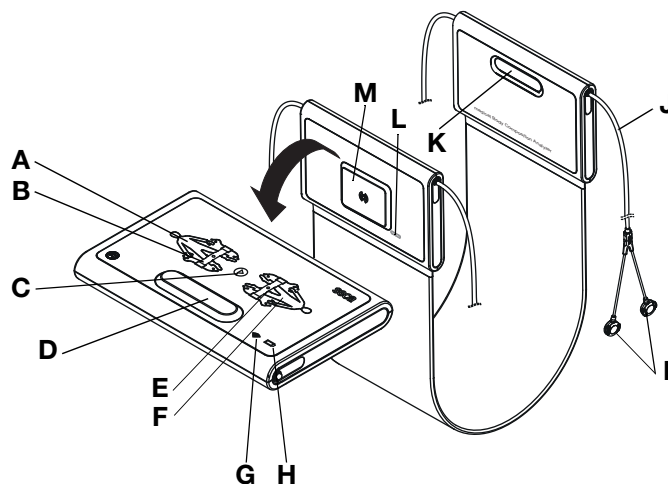
NOTE

The illustration shows one equipment example. The actual functional scope of your device may deviate from this.



No.	Control	Function
I	Thermometer	COVIDIEN™ GENIUS®3 in-ear thermometer
II	Connection for temperature measurement	For COVIDIEN™ GENIUS®3 in-ear thermometer
III	Measuring head	For measuring temperature in ear
IV	Discard button	Discard probe cover
V	In-ear thermometer display	Serves as a secondary display. seca mVSA 535 display takes priority
VI	Switch unit button	Switch between °C and °F
VII	Measure button	Press button to start measurement
VIII	Pulse timer button	Not relevant for seca mVSA 535 . Pulse rate is determined automatically by the seca mVSA 535

4.3 Measuring mat controls (bioimpedance analysis)



No.	Control	Function
A	LEDs, electrodes on left	LED green: Electrode contact good
		LED green, flashing: Measurement in progress
		LED red: Electrode contact poor
B	Button with LED, patient position left	Enter patient position
		LED green: seca patient file loaded, patient position selected
		LED green, flashing: Measurement stopped
		LED red: No seca patient file loaded
C	Start button	Start measurement
D, K	Magnetic catch	Fold up measuring mat for transport/storage
E	Button with LED, patient position right	Enter patient position
		LED green: seca patient file loaded, patient position selected
		LED green, flashing: Measurement stopped
		LED red: No seca patient file loaded
F	LEDs, electrodes on right	LED green: Electrode contact good
		LED green, flashing: Measurement in progress
		LED red: Electrode contact poor
G	LED, WiFi	LED green: WiFi connection to monitor OK
		LED green, flashing: WiFi connection being set up
		LED red: No WiFi connection to monitor
		LED off: WiFi deactivated
H	LED, charge status	LED green: Rechargeable battery full
		LED green, flashing: Rechargeable battery almost discharged, charge as soon as possible
		LED red: Rechargeable battery discharged
I	Electrode connections	Connect to electrodes
J	Electrode cables	Transmit signals from electrodes to the measuring mat
L	Infrared interface	Automatic data transmission: Monitor/measuring mat Alternative if no WiFi available
M	Inductive charging interface with magnetic catch	Charge measuring mat rechargeable battery

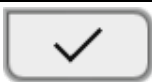
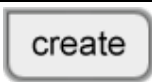
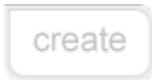
4.4 Fields in the touchscreen display



4.5 Login/navigation: Buttons and symbols in the touchscreen display

Button/symbol	Meaning
	Patient tab
	Vital signs tab
	BIA tab
	Analysis tab
	Open instructions for use
	Instructions for use: Return to section summary
	Enter text or numbers
	No input or input faulty
	Select user account
	Enter password

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Button/symbol	Meaning
	- Navigation: Confirm entry - Measuring: Save measurement procedure
	Process running
	Button available
	Button pressed
	Button not available
	Navigate to the left/right
	Navigate up/down
	One or more items from list selected/not selected
	Alternative from list selected/not selected
	Return to previous screen
Login	Log in user
Logout	Log out/switch user

4.6 Operating state: Symbols

→ [Operating state: Symbols in the touchscreen display](#)

→ [Operating state: Symbols on the measuring mat](#)

Operating state: Symbols in the touchscreen display

Symbol	Operating state
60 % 	Monitor: Controls permanently on: Rechargeable battery charge status (%) Controls flashing: Rechargeable battery charging
50 % 	Measuring mat: Controls permanently on: Rechargeable battery charge status (%) Controls flashing: Rechargeable battery charging

Symbol	Operating state
	Monitor: Controls permanently on: Rechargeable battery full Controls flashing consecutively: Rechargeable battery charging
	Monitor: Rechargeable battery discharged
	Measuring mat: Controls permanently on: Rechargeable battery full Controls flashing consecutively: Rechargeable battery charging
	Measuring mat: Rechargeable battery discharged
	LAN connection set up: on/off
	WiFi connection set up: on/off
	seca connect 103 (EMR)/seca analytics 115: connection active
	seca connect 103 (EMR)/seca analytics 115: connection interrupted
	Connection to seca analytics 115: Synchronization in progress
	Measuring mat detected
	Measuring mat not detected
	Pop-up window: Information for the user
	Pop-up window: Error message
	Pop-up window: Setting option for the user
	Error message during vital signs measurement

Operating state: Symbols on the measuring mat

Symbol	Operating state
	LED green: Rechargeable battery full Green, flashing: Charge rechargeable battery as quickly as possible
	LED red: Rechargeable battery discharged
	LED green: WiFi available Green, flashing: WiFi connection being set up
	LED red: WiFi not available LED off: WiFi deactivated

4.7 Measuring: Buttons and symbols

- [Patient tab](#)
- [Vital signs tab](#)
- [BIA tab](#)
- [Measuring mat](#)
- [Analysis tab](#)

Patient tab

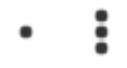
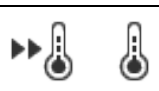


Button/symbol	Meaning
	Search for seca patient file
	Switch sorting direction
	Edit seca patient file
	Export seca patient file
	Delete seca patient file
	Weight (W)
	Height (H)
	Waist circumference (WC)
	Physical Activity Level (PAL)
	Adopt seca 360° wireless value

Button/symbol	Meaning
	Adopt value from previous measurement
	Close seca patient file, changes will not be saved

Vital signs tab



Button/symbol	Meaning
NIBP	Blood pressure measured non-invasively
	Start blood pressure measurement
	Blood pressure measurement in progress
1.447/77 2.116/63 3.123/80	Blood pressure: Multiple measurement: First measurement will be discarded
	Blood pressure: Multiple measurement: Waiting time until next part-measurement running
SYS/DIA	Blood pressure: Systolic/diastolic pressure
MAP	Blood pressure: Mean arterial pressure
	Blood pressure: Inflation, deflation
	Blood pressure: Single measurement, multiple measurement
TEMP	Temperature
	Temperature measuring mode: Predictive, direct
	Manual temperature input (Only for device versions without integrated temperature measurement)
	Temperature input, measuring method oral, axillary, rectal
	in-ear, on the skin, contactless
	COVIDIEN™ FILAC™ 3000 temperature probe Measuring position: Oral, axillary, rectal
	COVIDIEN™ GENIUS®3 in-ear thermometer Measuring position: in-ear

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Button/symbol	Meaning
PR	Pulse rate
	Measuring range for pulse rate: Standard, extended
SpO ₂	Oxygen saturation in %
PI	Devices with Masimo SET® measuring equipment: Perfusion index, information on the quality of perfusion (min: 0.02 %, max: 20 %)
	Devices with Masimo SET® measuring equipment, oxygen saturation measuring mode: Normal, APOD, maximum
	Devices with seca measuring equipment, oxygen saturation measuring mode: Stable, standard, sensitive
	Save measurement procedure
	Discard measurement

BIA tab



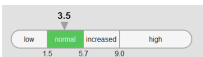
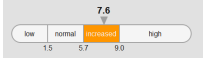
Button/symbol	Meaning
	Enter patient position
	Start measurement
	Measurement in progress
	Permanently on: Electrode OK Flashing: Measurement in progress
	Electrode not OK
	Measurement successful
	Write comment
	Save measurement procedure
	Discard measurement

Measuring mat

Button/symbol	Meaning
	Enter patient position LED green: seca patient file loaded, patient position selected LED green, flashing: Measurement stopped LED red: No seca patient file loaded
	Start measurement
	Electrode LEDs: LED green: Electrode OK LED green, flashing: Measurement in progress
	Electrode LEDs: LED red: Electrode not OK

Analysis tab



Button/symbol	Meaning
	View history
	Forward results report for printing (seca directprint : Function of the seca analytics 115 PC software)
	Position indicator for analysis modules, in this case: Second module of 5
	Position indicator for analysis parameters, in this case: Second analysis parameter of 4
	Detail view available for analysis parameter: Bar chart
	Detail view available for analysis parameter: Percentile curve
	Detail view available for analysis parameter: Tolerance ellipse
	Parameter-dependent symbols, red: Value outside normal range
	Parameter-dependent symbols, gray: Value within normal range
28.6 kg/m²	Text red: Value outside normal range
15.3 kg/m²	Text black: Value within normal range
	Green: Value within normal range
	Orange: Value elevated
	Red: Value outside normal range

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Button/symbol	Meaning
 Average (NIBP)	Blue marking: Mean value
	Male
	Female

4.8 Unsubmitted measurements list: Symbols

Button/symbol	Meaning
	Weight (W)
	Height (H)
	Waist circumference (WC)
	Physical Activity Level (PAL)
	Body mass index (BMI)
	Pulse rate (PR)
	Blood pressure (NIBP)
	Oxygen saturation (SpO ₂)
	Temperature (Temp)
 Average (NIBP)	Blue marking: Mean value
 FN222225852 FN222225852	Yellow marking (when connected to EMR system): Unconfirmed offline measurement

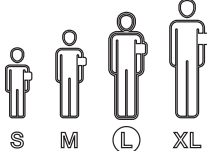
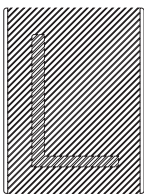
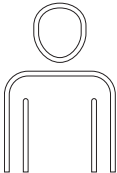
4.9 Markings on the device and on the type plate

Text/symbol	Meaning
	Name and address of manufacturer, date of manufacture
REF	Model number
SN	Serial number, consecutive
ProdID	Product identification number
Mat.No.	Variant number
	Follow Instructions for Use
	Do not use device on individuals with cardiac pacemakers or implanted defibrillators
	Medical electrical device, type BF
	Medical electrical device, type BF (defibrillation-protected)
	No alarm function
IP20	Type of protection in accordance with DIN EN 60 529: • Protection against ingress of solid foreign bodies with a diameter of over 12.5 mm • Protection against access with fingers • No protection against water
IP21	Type of protection in accordance with DIN EN 60 529: • Protection against ingress of solid foreign bodies with a diameter of over 12.5 mm • Protection against access with fingers • Protection against dripping water
IP22	Type of protection in accordance with DIN EN 60 529: • Protection against ingress of solid foreign bodies with a diameter of over 12.5 mm • Protection against access with fingers • Protection against dripping water when the housing is tilted up to 15°
IP44	Type of protection in accordance with DIN EN 60 529: • Protection against ingress of solid foreign bodies with a diameter of over 1.0 mm • Protection against access with wires • Protection against splashes from all directions
Li-ion	Lithium-ion rechargeable battery
 0123	Device complies with EU directives • 0123: appointed office for medical devices: TÜV SÜD Product Service

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Text/symbol	Meaning
	Symbol of the US Federal Communications Commission (FCC)
FCC ID	Device license number from the Federal Communications Commission (FCC)
IC	Device license number from Industry Canada
xxx-yyy V ~ min xx-yy Hz xx A	Type plate for power supply socket: • Permitted supply voltage • Permitted power supply frequency • Power consumption
	ON/OFF key
	Inductive charging interface
	LAN interface
	USB interface
NIBP	Connection of blood pressure cuff
TEMP	Connection of temperature sensor
SpO₂	Connection of SpO ₂ sensor
	Do not dispose of device with household waste

4.10 Markings on the blood pressure cuff

Text/symbol	Meaning
	Follow instructions for use
	Cuff size (here: L)
	Cuff suitable for specified arm size
	Artery position: These arrows must be on the brachial or femoral artery when blood pressure cuff is put on.
	Cuff end: These markings must be within the adjustment range when closing the blood pressure cuff.
	Adjustment range: The marking "Cuff end" must be in this range when closing the blood pressure cuff. This area also contains the cuff size (here: L).
	This side facing the patient
	Latex-free
	Name and address of manufacturer
	Date of manufacture
	Name and address of distributor
	Model number
	Lot number
	The blood pressure cuff complies with EU directives

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4.11 Markings on the packaging

Text/symbol	Meaning
	Protect from moisture
	Arrows indicate top of product Transport and store in an upright position
	Fragile Do not throw or drop
	Permitted min. and max. temperature for transport and storage
	Permitted min. and max. humidity for transport and storage
	Open packaging here
	Packaging material can be disposed of through recycling programs

4.12 Other symbols

Depending on device version, the symbols below may be applied to accessories and consumables and their packaging.

Text/symbol	Meaning
	Not sterile
	Do not reuse
	Small parts present a danger of suffocation if swallowed.
	Keep out of sunlight
	Only use indoors
	Non-ionizing radiation
	DEHP-free
	Latex-free
	Not resistant to magnetic resonance
	Do not use if packaging damaged
	Lot number
	Person with authority in the EU

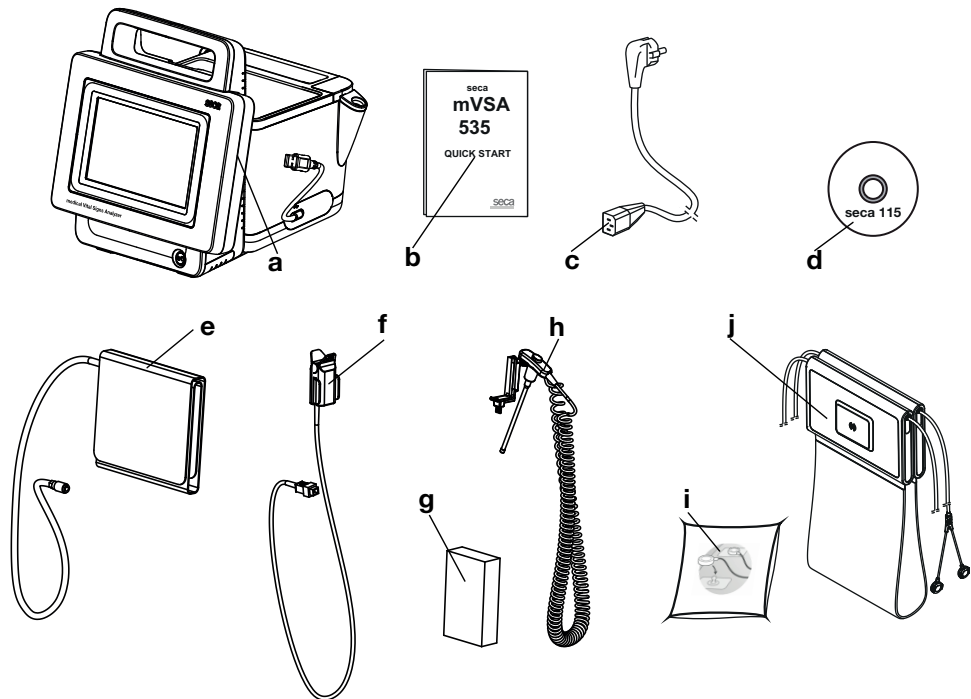
5. STARTING UP THE DEVICE

- Scope of delivery
- Setting up device
- Establishing a power supply
- Charging rechargeable batteries
- Setting the date and time
- Initial login
- Configuration options

5.1 Scope of delivery

NOTE

This section shows version 535-3110-001 by way of an example. The scope of delivery of your device may deviate from this. An overview of versions can be found at www.seca.com.



No.	Standard scope of delivery	Pcs.
a	Monitor to suit the version ordered	1
b	Quick Start brief instructions, printed	1
c	Power supply cable (country-specific)	1-3
-	Accessories to suit the version ordered	-

No.	Accessory for the version shown	Pcs.
d	DVD with seca analytics 115 PC software and license for one permanent workstation	1
e	seca blood pressure cuff, size M	1
f	• SpO₂ sensor (Masimo SET® or seca) • Patient cable (Masimo SET® or seca), not illustrated	1 1
g	COVIDIEN™ FILAC™ 3000 probe covers (pack of 20)	1

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No.	Accessory for the version shown	Pcs.
h	COVIDIEN™ FILAC™ 3000 temperature probe	1
i	Push-button electrodes for affixing to patient (pack of 100)	1
j	Measuring mat with rechargeable battery and electrode cables	1

5.2 Setting up device

- [Connecting the SmartBucket](#)
- [Connecting the blood pressure cuff](#)
- [Connecting the temperature probe](#)
- [Connecting the in-ear thermometer](#)
- [Connecting the seca SpO₂ sensor](#)
- [Connecting the Masimo SET® SpO₂ sensor](#)
- [Suspending the measuring mat in the magnetic catch](#)

NOTE

This section shows how to assemble all of the measuring accessories available for this device. The actual scope of delivery of your device may be less than this.

NOTICE!

Damage to device, malfunction

Excessive use of force may damage tubes and cables.

- ▶ In order to connect measuring accessories to the device or remove them from it, take hold of tubes only by the tube coupling.
- ▶ In order to connect measuring accessories to the device or remove them from it, take hold of cables only by the connectors.
- ▶ Use only measuring accessories which have no externally visible damage.

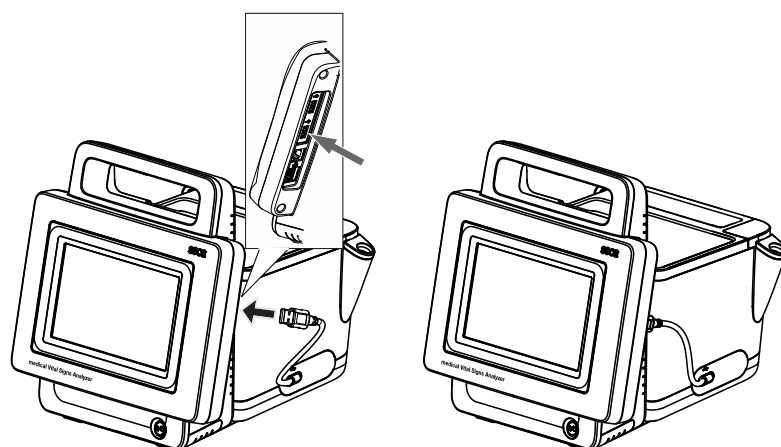
Connecting the SmartBucket

NOTICE!

Malfunction

The SmartBucket needs one of the USB interfaces for communication and power supply. If the USB connection is removed, no vital signs can be measured.

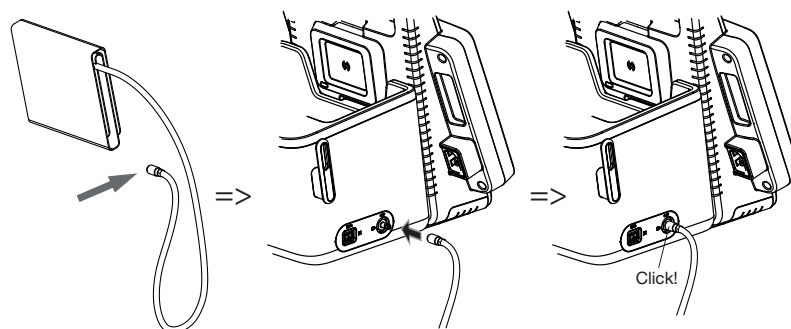
- ▶ Always keep the SmartBucket connected to the USB interface.
- ▶ Only connect accessories, for example a USB memory stick, to the other USB interface.



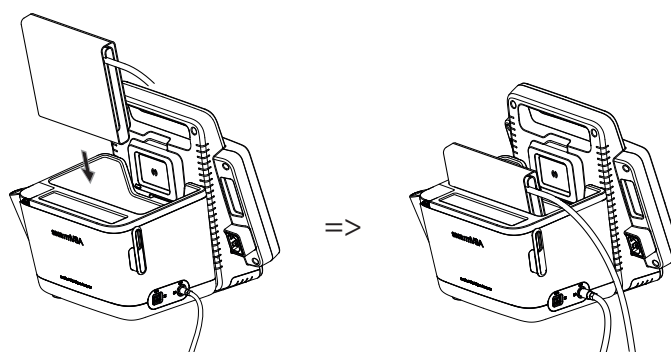
- ▶ Connect the USB cable of the SmartBucket to a free USB interface of the monitor.

Connecting the blood pressure cuff

1. Connect the tube coupling for the blood pressure cuff to the compressed air connection of the device until you hear the tube coupling engage.

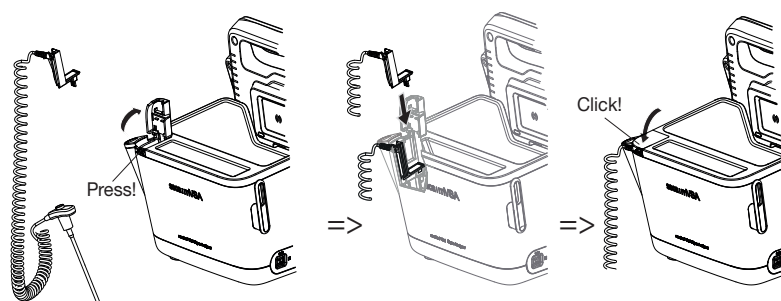


2. Stow the blood pressure cuff in the SmartBucket as shown in the illustration below.

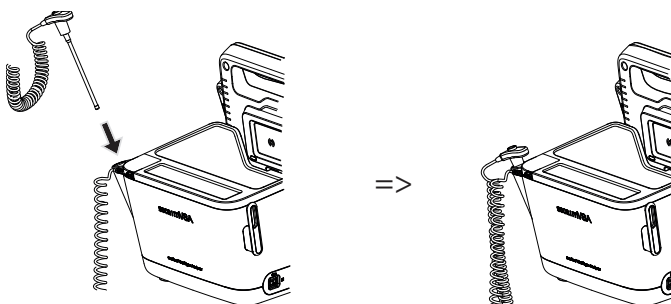


Connecting the temperature probe

1. Open the cover cap of the connection compartment.
2. Insert the connector for the temperature probe in the probe connection completely as shown in the illustration below.
3. Close the cover cap of the connection compartment.



4. Push the temperature probe into the probe holder completely as shown in the illustration below.



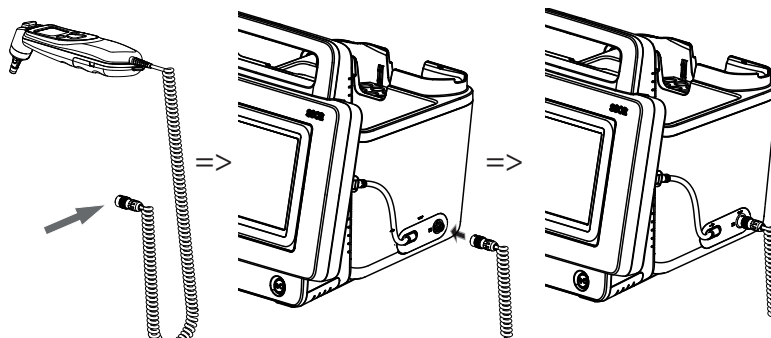
NOTICE!**Damage to device, malfunction**

The temperature probe can only be pushed right into the probe holder if it does not have a probe cover on.

- Ensure that there is no probe cover on the temperature probe.

NOTE

The storage compartment on the probe connection provides space for two packs of probe covers.

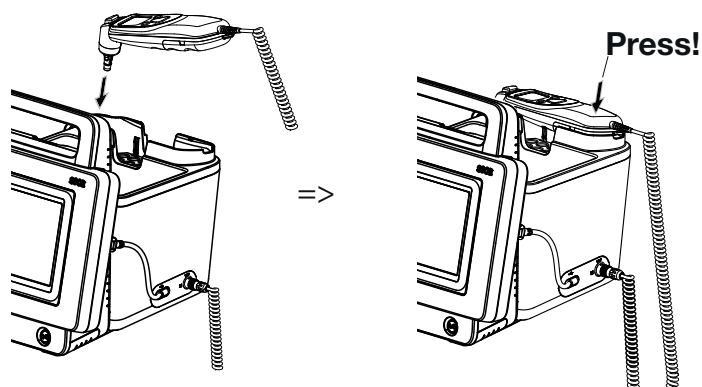
Connecting the in-ear thermometer

1. Put the connector for the in-ear thermometer in the socket on the Smart-Bucket until you feel the connector engage.

NOTE

The magazine holder in the thermometer compartment provides space for two probe cover magazines.

2. Place the in-ear thermometer in the thermometer compartment as shown in the illustration below.

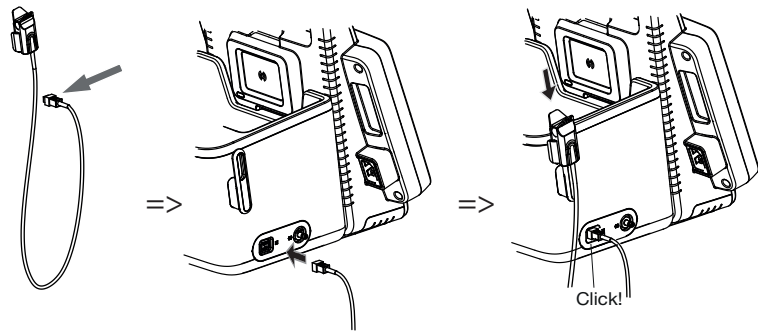
**Connecting the seca SpO₂ sensor****NOTICE!****Damage to device, malfunction**

The SpO₂ sensor must be compatible with the seca SpO₂ measuring equipment fitted.

- Ensure that the SpO₂ sensor is compatible with the SpO₂ measuring equipment fitted in your device → [Optional accessories and spare parts](#).
- Follow the user documentation from the sensor manufacturer.

1. If necessary, connect a patient cable to the SpO₂ sensor as described in the user documentation from the sensor manufacturer.

- Put the connector for the SpO₂ sensor/the patient cable in the socket on the SmartBucket until you feel the connector engage.



NOTE

The holder above the SpO₂ connection is for storing the SpO₂ sensor.

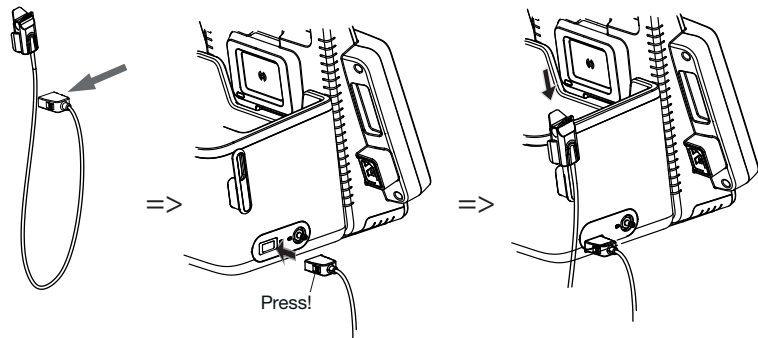
Connecting the Masimo SET® SpO₂ sensor

NOTICE!

Damage to device, malfunction

The SpO₂ sensor must be compatible with the SpO₂ measuring equipment fitted.

- ▶ Ensure that the SpO₂ sensor is compatible with the SpO₂ measuring equipment fitted in your device → [Optional accessories and spare parts](#).
 - ▶ Follow the user documentation from the sensor manufacturer.
- If necessary, connect a patient cable to the SpO₂ sensor as described in the user documentation from the sensor manufacturer.
 - Put the connector for the SpO₂ sensor/the patient cable in the socket on the SmartBucket until you feel the connector engage.



NOTE

The holder above the SpO₂ connection is for storing the SpO₂ sensor.

Suspending the measuring mat in the magnetic catch

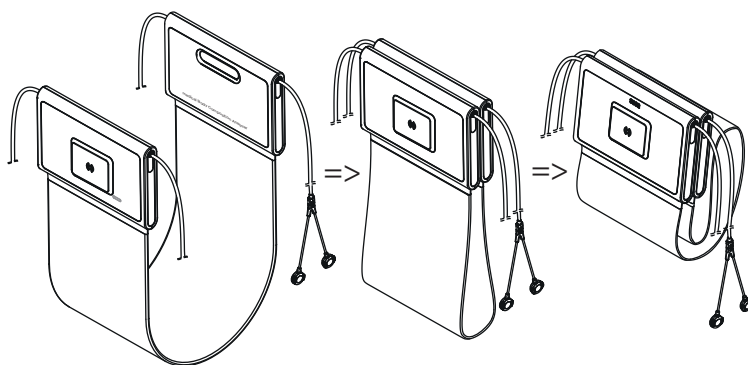
NOTICE!

Malfunction

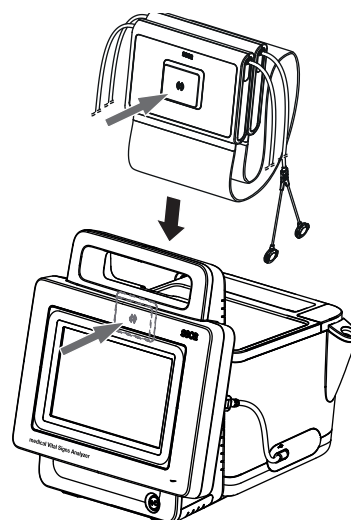
The measuring mat rechargeable battery is only charged via the inductive charging interface of the monitor.

- ▶ Ensure that the inductive charging interface is not covered by other measuring accessories such as a blood pressure cuff, for example.
- ▶ After every measurement, suspend the measuring mat back in the magnetic catch. This ensures that the measuring mat rechargeable battery is always adequately charged.

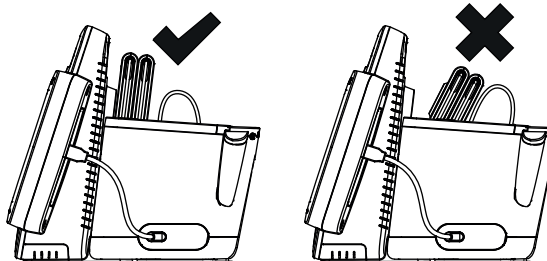
1. Fold up the measuring mat as shown in the illustration below.



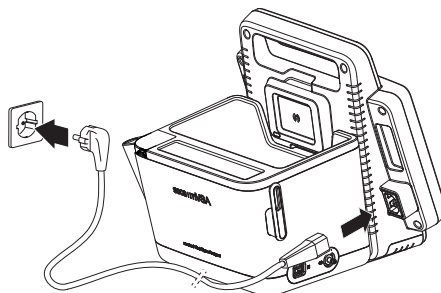
2. Suspend the measuring mat in the magnetic catch as shown in the illustration below.



3. Ensure that the measuring mat is correctly located in the magnetic catch of the monitor.



5.3 Establishing a power supply



1. Plug the device connector of the power supply cable into the connecting socket of the device.
2. Plug the power supply connector into a power supply socket.

5.4 Charging rechargeable batteries



Before you start up the device for the first time, the rechargeable batteries for the monitor and the measuring mat – if the measuring mat is present– must be fully charged.

1. Ensure that the measuring mat – if the measuring mat is present– is correctly suspended in the magnetic catch of the monitor → [Suspending the measuring mat in the magnetic catch](#).
2. Connect the device to the power supply → [Establishing a power supply](#).
3. Press the ON/OFF button of the monitor.
The LED of the ON/OFF button is white.
The charging process starts.
Current charge status is displayed for approx. 15 seconds:



50 % ■■■■■



60 % ■■■■■

After approx. 5 minutes, the device switches to standby.

The screen goes off.

The LED of the ON/OFF button flashes green.

When the rechargeable batteries are fully charged, the device switches off.

The LED of the ON/OFF button goes off.

NOTE

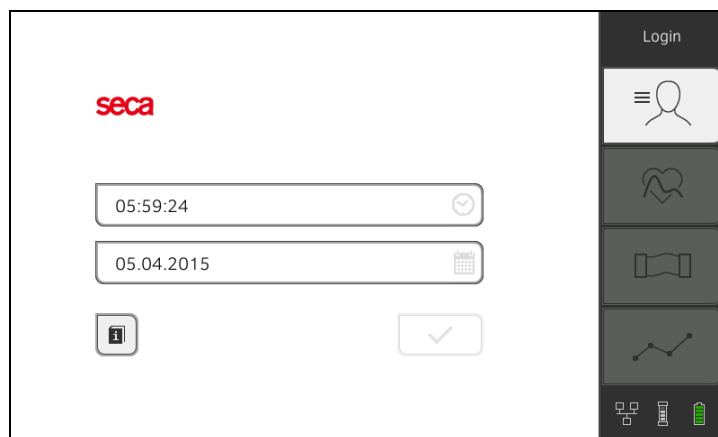
Leave the device connected to the power supply for approx. 4 hours when starting it up for the first time. This ensures that the rechargeable batteries for the monitor and the measuring mat are fully charged.

5.5 Setting the date and time



When you start up the device for the first time, you first need to set date and time.

1. Ensure that the measuring mat – if the measuring mat is present – is correctly suspended in the magnetic catch of the monitor → [Suspending the measuring mat in the magnetic catch](#).
2. Connect the device to the power supply.
3. Press the ON/OFF button of the monitor.
The LED of the button is white.
The initial start screen appears.



4. Enter the current date:

a) Press the  input field

b) Use the keypad : Enter current date

c) Press the  button: Confirm entry

5. Enter the current time:

a) Press the  input field

b) Use the keypad : Enter current time

c) Press the  button: Confirm entry

6. Press the  button.

7. Continue operating the device – you have the following options:

- ▶ Leave device switched on (recommended): → [Charging rechargeable batteries](#)
- ▶ Perform measurements using the power supply: → [Operation](#)
- ▶ Configure device using the power supply: → [For administrators: Configuring seca mVSA 535 /seca mBCA 525](#)

5.6 Initial login

The following user accounts are available on the device initially:

- Admin: Configure and manage device
- User: Perform and manage measurements
- Service: For authorized service technicians

On initial login, these user accounts must be activated and configured.

Additional user accounts can only be set up in the **seca analytics 115** PC software and must be synchronized with the device.

Further information is available here: → [For administrators: Configuring seca mVSA 535 /seca mBCA 525](#) → [User accounts](#)

5.7 Configuration options

The device can only be configured by users with administrator rights. Further information is available here: → [For administrators: Configuring seca mVSA 535 /seca mBCA 525](#)

6. OPERATION

- [Switching the system on/off](#)
- [Managing seca patient files](#)
- [Measuring vital signs](#)
- [Measuring bioimpedance](#)
- [Adding weight and height](#)
- [Analyzing measurement](#)

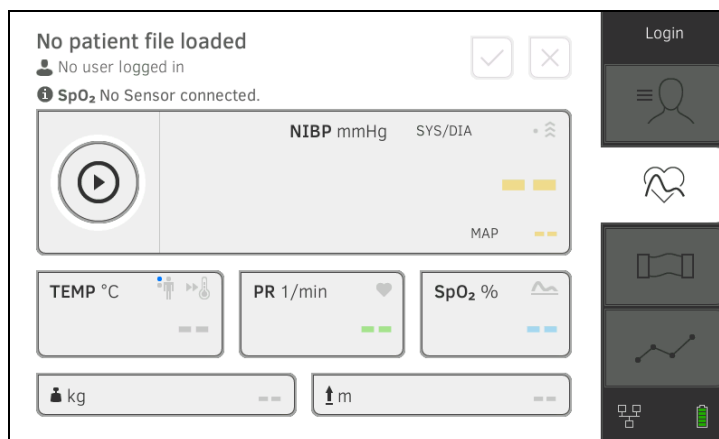
6.1 Switching the system on/off

- [Switching on](#)
- [Logging in](#)
- [Logging out/switching user](#)
- [Saving power/switching off](#)

Switching on



1. Ensure that the measuring mat – if the measuring mat is present – is correctly suspended in the magnetic catch of the monitor → [Suspending the measuring mat in the magnetic catch](#).
2. Press the ON/OFF button of the monitor.
The LED of the ON/OFF button is white.
The device starts up. This takes a few seconds.



The Vital signs tab is displayed.

The measuring mat – if there is one – switches on automatically.

You have the following options:

- ▶ Measure vital signs (without patient identification) → [Measuring vital signs](#)
- ▶ Use full functional scope: Log in → [Logging in](#)

Logging in

You must log in to the device if you want to do one of the following:

- Assign vital signs measurement to a seca patient file
- Perform a bioimpedance measurement
- Analyze measuring results
- Manage the system

1. Press the **Login** button.

The login window is displayed:



2. Press the  input field.
The list of user accounts is displayed.

NOTE

If you have no user account, please contact your administrator.

3. Press your user account.
Your user account is displayed in the input field.

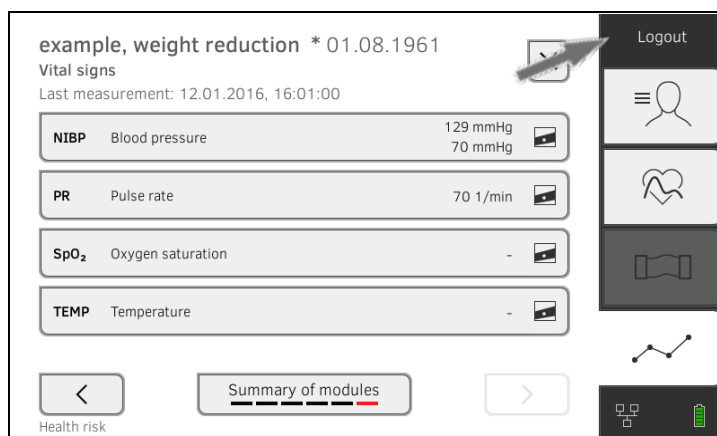
4. Press the  input field.

5. Enter your password using the keypad .
The Patient tab is displayed.

6. Continue with → [Managing seca patient files](#).

Logging out/switching user

- Press the **Logout** button.

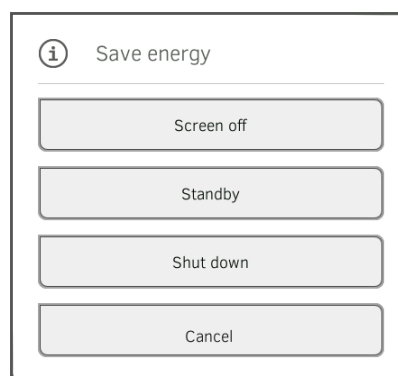


You will be logged out.
The login window is displayed.
Another user can log in → [Logging in](#).

Saving power/switching off



1. Briefly press the ON/OFF button of the monitor.
2. The **Save energy** dialog window appears.



3. Select an option in accordance with the table:

NOTE

The device automatically switches to standby/shuts down if it is not used for an extended period (phased by idle time)

Idle time button	Device characteristics	To remove setting
Screen off	• Display switches off • The LED of the ON/OFF button is white. • The measuring mat – if present – stays switched on • Entries are retained • User remains logged in • Patient file remains active • Measurements continue to run	Press screen
Standby 10 minutes	• Display switches off. • The LED of the ON/OFF button is green • Data which have not been saved are lost • User is logged out • Patient file is deactivated • The measuring mat – if there is one – switches off	Press screen

Idle time button	Device characteristics	To remove setting
Shut down 20 minutes	- Power supply operation: - The charging process for the rechargeable batteries for the device and the measuring mat – if the measuring mat is present – starts automatically - When the charging process is complete: Device shuts down and switches off - Rechargeable battery operation: - Device shuts down - The device switches off	Press the ON/OFF button

NOTE

If rechargeable battery charge status undershoots a preset limit value [%], the device shuts down and switches off. It behaves in this way regardless of the option you select in the **Save energy** dialog. The limit value for rechargeable battery charge status is specified by your administrator: → [Power management](#).

6.2 Managing seca patient files

- [Creating a seca patient file](#)
- [Calling up a seca patient file](#)
- [Editing a seca patient file](#)
- [Exporting a seca patient file](#)
- [Deleting a seca patient file](#)

NOTICE!

Inconsistent measuring results

If you create seca patient files several times, this can lead to incorrect assignment of measuring results and falsify the analysis.

- ▶ If there is no seca patient file on the device for a patient, check whether there is already a seca patient file in the **seca analytics 115** PC software.
- ▶ If a seca patient file for this patient exists in the **seca analytics 115** PC software, check the synchronization settings → [Activating automatic synchronization](#).
- ▶ Only create a new seca patient file on the device if you are sure that there is no seca patient file for the patient in the **seca analytics 115** PC software.

Creating a seca patient file

1. Log in → [Logging in](#).
2. Press the Patient tab.
The patient list is displayed.



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3. Press the **Create patient file** button.

NOTICE!

Restricted function

If you press the **Anonymous patient** field, the first input screen is skipped and an anonymous patient file is created. It is not possible to display **any** measured value graphs (histories) in anonymous patient files.

4. Enter the first name and surname of the patient:

- a) Press the  input field
- b) Use the keypad : Enter text
- c) Press the  button: Confirm entry

NOTICE!

Data access by unauthorized persons

If you do not enter an attending physician, the patient file is accessible to all physicians with access to the device.

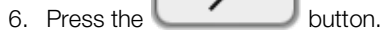
- Enter an attending physician to prevent access by unauthorized persons. If the attending physician has not been determined at the time of the measurement, make the entry as soon as possible afterwards.

5. Enter the attending physician:

- a) Press the  input field
- b) Press the name of the attending physician in the drop-down menu
- c) Enter patient ID

NOTE

You only need to assign a patient ID if a specific structure is provided for this in your institution. If you leave the **ID** input field empty, the device will automatically assign an ID when the data are saved.



7. Enter the date of birth:

- c) Press the button: Confirm entry

- The seca patient file has been created and is displayed.

You have the following options for continuing:

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Calling up a seca patient file

1. Log in → [Logging in](#).
2. Press the Patient tab.
The patient list is displayed.



3. Select a seca patient file:
 - ▶ Desired entry not visible: Continue at step 4.
 - ▶ Desired entry visible: Continue at step 5.
4. Search for the desired seca patient file in the list:

a) Press the  input field

b) Use the keypad : Patient name or ID

c) Press the  button: Confirm entry

A hit list is displayed.

5. Press the desired entry.
The selected seca patient file appears in the **Patient information** dialog field.
6. Press the **Confirm** button.
The seca patient file is opened.
You have the following options for continuing:
 - ▶ Measure vital signs: → [Measuring vital signs](#)
 - ▶ Measure bioimpedance: → [Measuring bioimpedance](#)

Editing a seca patient file

1. Call up a seca patient file → [Calling up a seca patient file](#).

2. Press the  button.
3. Edit the entries on the first page.

4. Press the  button.
5. Edit the entries on the second page.
6. Press the **Save** button.
The changes are saved.

Exporting a seca patient file

1. Connect a USB memory stick to the monitor.
2. Call up a seca patient file → [Calling up a seca patient file](#).



3. Press the button.
A confirmation dialog opens.
4. Press the **Confirm** button.
The patient file is exported.

Deleting a seca patient file

1. Call up a seca patient file → [Calling up a seca patient file](#).



2. Press the button.
A confirmation dialog opens.
3. Press the **Delete** button.
The patient file is deleted.

6.3 Measuring vital signs

- [Introduction](#)
- [Measuring blood pressure](#)
- [Measuring temperature, oral/axillary \(COVIDIEN™ FILAC™ 3000, blue\)](#)
- [Measuring temperature, rectal \(COVIDIEN™ FILAC™ 3000 red\)](#)
- [Measuring in-ear temperature \(COVIDIEN™ GENIUS®3\)](#)
- [Entering temperature manually](#)
- [Reading off pulse rate](#)
- [Measuring oxygen saturation \(SpO₂\)](#)
- [Stopping a measurement procedure](#)
- [Assigning anonymous measurement procedure to a seca patient file](#)



WARNING!

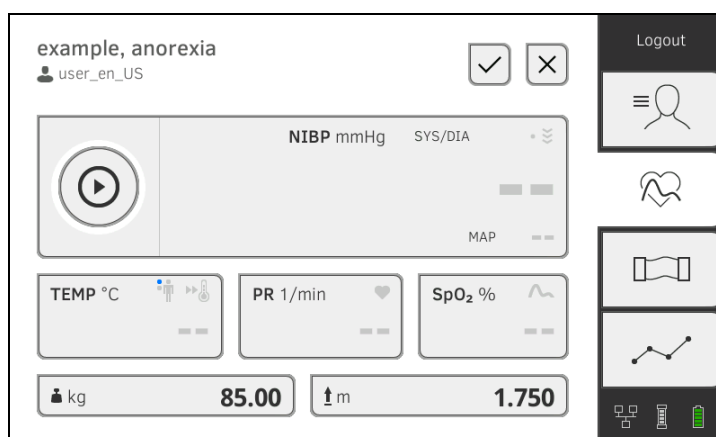
Hazard to patient, malfunction, damage to device

- ▶ Set up the device so that it cannot fall on patients.
- ▶ Route the cables and tubes of the measurement accessory so that the patient cannot become entangled or be strangled.
- ▶ The device has **no** alarm function. Never leave the patient unobserved during a measurement.
- ▶ Always connect only one individual patient to the device for each measurement procedure.

Introduction

The Vital signs measurement function is available after the device is switched on. You can perform measurements without login and without patient identification.

If you want to assign the measurement procedure to a patient file, we recommend calling up → [Calling up a seca patient file](#) or creating → [Creating a seca patient file](#) a patient file **before** the measurement. This applies in particular when repeat measurements for a patient are likely.



You can measure one or more vital signs in one measurement procedure. Measurement starts automatically after the measuring accessories have been attached to the patient (exception: blood pressure measurement and in-ear temperature measurement). Depending on device configuration, pulse rate is determined using either oxygen saturation or blood pressure.

Weight and height can be recorded by compatible seca measuring devices or entered manually: → [Adding weight and height](#).

Measuring blood pressure

- [Preparing the blood pressure measurement](#)
- [Starting a single measurement](#)
- [Starting a multiple measurement](#)
- [Modifying presets](#)



WARNING!

Hazard to patient

- ▶ Do not use luer lock adapter on the blood pressure measurement tubes. The use of luer lock adapters can lead to accidental connection of the blood pressure tubes to intravenous lines and thus lead to an infusion of air into the bloodstream of the patient.
- ▶ The decision to use this device with pregnant or preclampsic patients is the responsibility of the user.
- ▶ The device has **no** alarm function. Never leave the patient unobserved during a measurement.
- ▶ Frequent measurements may lead to perfusion disorders and consequently to severe harm to the patient.
- ▶ Route the compressed air tube so that it cannot kink. A kinked compressed air tube leads to sustained cuff pressure. This may lead to perfusion disorders and consequently to severe harm to the patient.
- ▶ Do not place the blood pressure cuff over open wounds. This may lead to further harm to the patient.
- ▶ Do not apply any external pressure onto the blood pressure measurement tubes or onto the blood pressure cuff.
- ▶ For patients with moderate to severe cardiac arrhythmias, inaccurate measurements may result with the blood pressure measurement.
- ▶ The following factors may affect the measurement result:
 - Measuring location (e.g. altitude)
 - Patient position (standing, sitting, lying)
 - Physiological state of the patient (e.g. exertion, movement, shaking, shivering)
 - Patient's age
 - Arteriosclerosis
 - Poor perfusion
 - Diabetes
 - Kidney disease
- ▶ If the measurements seem implausible, check and evaluate the vital signs of the patient using alternative means. Then check the measurement function of the device with the help of the section "Troubleshooting".



WARNING!

Patient hazard, incorrect measurement

- ▶ Do not place the blood pressure cuff on the arm on the side on which a mastectomy has been performed.
- ▶ Apply the blood pressure cuffs so that the blood circulation of the patient is not compromised.
- ▶ Do not apply the blood pressure cuffs on spots that have weak circulation or on extremities on which intravenous routes lie.
- ▶ High cuff pressures may be unpleasant for sensitive patients. Keep the patient's general condition under observation during the measurement.

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**WARNING!****Incorrect measurement**

- ▶ Inflating the blood pressure cuff may lead to occasional malfunctions of other medical electrical devices used on the same limb.
- ▶ Use only blood pressure cuffs from seca.
- ▶ Before every measurement, ensure that the blood pressure measurement tubes and connections are free of damage and airtight.
- ▶ Ensure that the arm on which the blood pressure cuff is attached does not move during the measurement.
- ▶ Ensure that the blood pressure cuff is applied according to the printed mark "Artery".

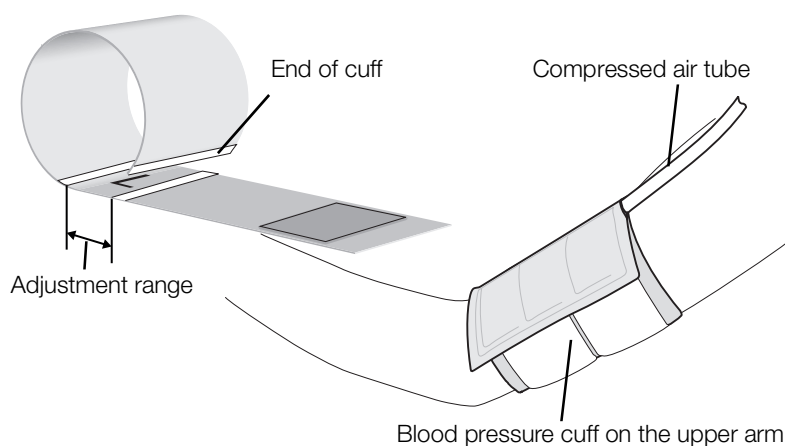
**CAUTION!****Incorrect measurement**

If the blood pressure cuff is too small, the measured blood pressure values will be too high. If the blood pressure cuff is too large, the measured blood pressure values will be too small.

- ▶ Always use a blood pressure cuff that is the correct size.

Preparing the blood pressure measurement

1. Ensure that the patient adopts the following position:
 - Sitting comfortably
 - Legs not crossed
 - Feet flat on the floor
 - Back and arm supported
2. Apply the blood pressure cuff to the patient's non-dominant arm as shown in the illustration below:
 - a) Note the labeling on the blood pressure cuff → [Markings on the blood pressure cuff](#)
 - b) Use correct size of blood pressure cuff: End of cuff inside the adjustment range when put on
 - c) Position the blood pressure cuff at the level of the right atrium
 - d) Ensure correct fit of the blood pressure cuff
 - e) Route compressed air tube so that it cannot kink



NOTE

Get the patient to sit quietly for 5 minutes before recording measured values. The patient should remain relaxed and not talk during the measurement.

You have the following options for continuing:

- ▶ → [Starting a single measurement](#)
- ▶ → [Starting a multiple measurement](#)

NOTICE!

Faulty operation, missing measuring results

Results from multiple measurements cannot be transmitted to EMR systems or the **seca analytics 115** PC software.

- ▶ Switch to Single measurement, if necessary, if you want to transmit blood pressure values to an EMR system or the **seca analytics 115** PC software → [Modifying presets](#).

NOTE

Your administrator will specify whether Single measurement or Multiple measurement is available when the device starts up. You can modify this and other presets for the current measurement procedure: → [Modifying presets](#). After this, the settings specified by the administrator will be active again.

Starting a single measurement

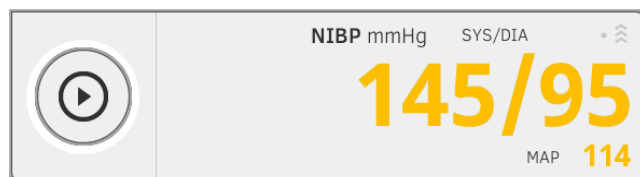
- ▶ Press the  button on the monitor.
Blood pressure measurement starts:



Current cuff pressure is displayed.

The symbols for measurement procedure and measuring mode flash (in this case: Single measurement, inflation).

Measurement stops automatically as soon as valid blood pressure values are detected.



The values for systolic/diastolic blood pressure **SYS/DIA** and mean arterial pressure **MAP** are displayed.

You have the following options for continuing:

- ▶ Measure more vital signs → [Measuring vital signs](#)
- ▶ Measure bioimpedance → [Measuring bioimpedance](#)
- ▶ Stop the measurement procedure → [Stopping a measurement procedure](#)

NOTE

- Using the Start button, you can cancel and restart blood pressure measurement at any time.

- If inflation fails to deliver a measured value, the device automatically switches to deflation. If necessary, the device re-pumps several times during the deflation (re-pumping: Increasing cuff pressure by approx. 50 mmHg followed by incremental releasing of that pressure). If no measured value is delivered even after several re-pumping steps, the procedure is canceled.

Starting a multiple measurement



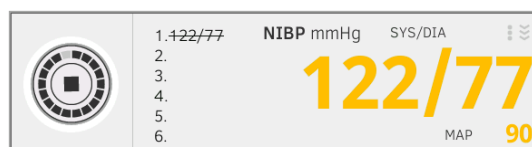
- Press the  button on the monitor.
The first part-measurement starts (in this case: 6 part-measurements).



Current cuff pressure is displayed.

The symbols for measurement procedure and measuring mode flash (in this case: Inflation).

The part-measurement stops automatically as soon as valid blood pressure values are detected.

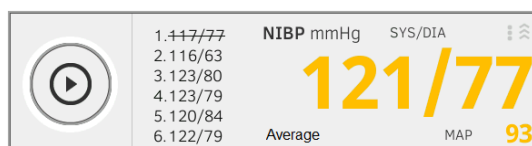


The values for systolic/diastolic blood pressure **SYS/DIA** and mean arterial pressure **MAP** are displayed.

The waiting time until the next part-measurement starts.

The next part-measurement starts automatically.

Once all part-measurements are present, mean blood pressure (mean value) is displayed.



Disregarded part-measurements are displayed struck through (in this case: Measurement 1).

You have the following options for continuing:

- Measure more vital signs → [Measuring vital signs](#)
- Measure bioimpedance → [Measuring bioimpedance](#)
- Stop the measurement procedure → [Stopping a measurement procedure](#)

NOTE

- Use the Start button to cancel the mean measurement and continue or to cancel and re-start.
- If inflation does not deliver a measured value, the device automatically switches to deflation.
- If necessary, the device re-pumps several times during the deflation (re-pumping: Increasing cuff pressure by approx. 50 mmHg followed by incremental releasing of that pressure). If no measured value is delivered even after several re-pumping steps, the procedure is canceled.

Modifying presets

NOTE

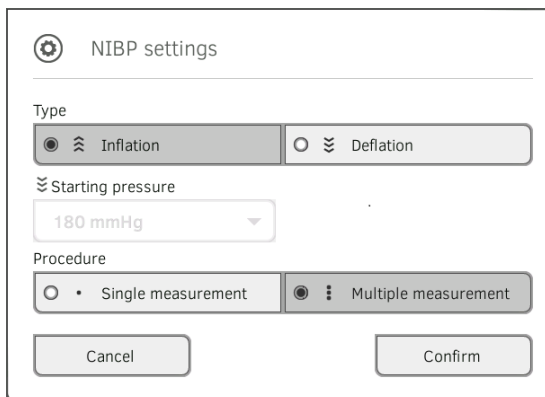
Your settings apply only to the current measurement procedure. If you stop the measurement procedure → [Stopping a measurement procedure](#), the presets defined by the administrator become active again.

1. Ensure that the blood pressure cuff is not applied.

2. Press the **NIBP** field.

The **NIBP settings** dialog window opens.

The presets are displayed.

The image shows a 'NIBP settings' dialog box. At the top, there is a gear icon and the title 'NIBP settings'. Below this, the 'Type' section has two radio buttons: 'Inflation' (selected) and 'Deflation'. The 'Starting pressure' section has a dropdown menu showing '180 mmHg'. The 'Procedure' section has two radio buttons: 'Single measurement' and 'Multiple measurement' (selected). At the bottom, there are 'Cancel' and 'Confirm' buttons.

3. Press the desired measurement method.

- Inflation, continue at step 5.
- Deflation, continue at step 4.

4. Adapt initial pressure if necessary.

5. Press the desired measuring sequence:

- Single measurement
- Multiple measurement or – if a measuring profile has been configured for the multiple measurement – name of the measuring profile

NOTE

If you have questions about configuring the multiple measurement, contact your administrator.

6. Press the **Confirm** button.

The dialog window closes.

Changed settings are adopted for the current measurement.

7. Start the blood pressure measurement as described in the section entitled → [Preparing the blood pressure measurement](#).

Measuring temperature, oral/ axillary (COVIDIEN™ FILAC™ 3000, blue)

→ [Starting an oral/axillary temperature measurement](#)

→ [Modifying presets](#)



WARNING!

Patient hazard, incorrect measurement

- ▶ The decision to use this device with children, pregnant or lactating patients is the responsibility of the user.
- ▶ Before every measurement, ensure that the measurement mode and the measuring method have been correctly selected.
- ▶ For each temperature measurement, use a new probe cover to reduce the risk of cross-contamination, nosocomial infections and implausible measurements.
- ▶ Only use probe covers that are approved for the thermometer being used.
- ▶ Always use the probe cover directly with the thermometer from the cover box on the device.
- ▶ Ensure that the probe covers engage correctly on the thermometer.
- ▶ Probe covers are only intended for an individual measurement, they are not reusable and not sterile. Do not disinfect or sterilize the probe covers. Dispose of the according to national regulations and the regulations of your institute.
- ▶ Only use properly functioning thermometers. If you find damage, do not use the thermometer. Use a suitable replacement.
- ▶ When not in use, store the thermometer in the corresponding holder on the machine.
- ▶ If the measurements seem implausible, check and evaluate the vital signs of the patient using alternative means. Then check the measurement function of the device with the help of the section "Troubleshooting".



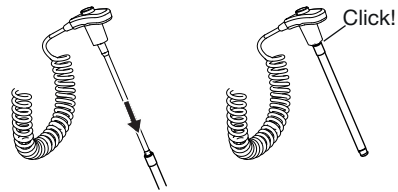
WARNING!

Patient hazard, incorrect measurement

- ▶ Ensure that in "Direct" measuring mode, oral temperature measurements do not last longer than 3 minutes and axillary measurements do not last longer than 5 minutes.
- ▶ Only perform oral/axillary measurement with devices that are equipped with a blue temperature probe and a blue probe holder.
- ▶ For devices with COVIDIEN™ FILAC™ 3000 measurement equipment, only use COVIDIEN™ temperature probes and probe covers.
- ▶ For axillary temperature measurements, ensure that the temperature probe, with probe cover, makes direct contact with the skin of the patient and does not come into contact with clothing or other objects.

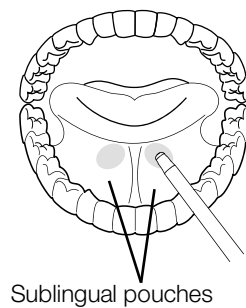
Starting an oral/axillary temperature measurement

1. Remove the temperature probe (blue) from the probe holder (blue).
2. Pick up a probe cover:

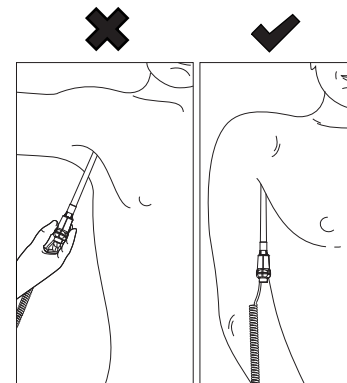


- a) Insert the probe in a probe cover in the pack
 - b) Allow the probe cover to engage audibly with the probe
 - c) Remove probe and probe cover from the pack
 - d) Ensure that the probe cover is undamaged
3. Position the temperature probe as shown in the illustration:

Oral measurement:



Axillary measurement:

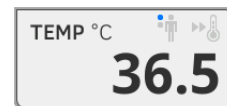


Measurement starts automatically.

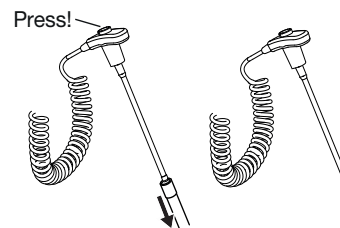
The measured value and the symbol for the measurement procedure (in this case: Predictive) flash until a valid measured value is obtained.



The temperature value is displayed until you stop the measurement procedure → [Stopping a measurement procedure](#).



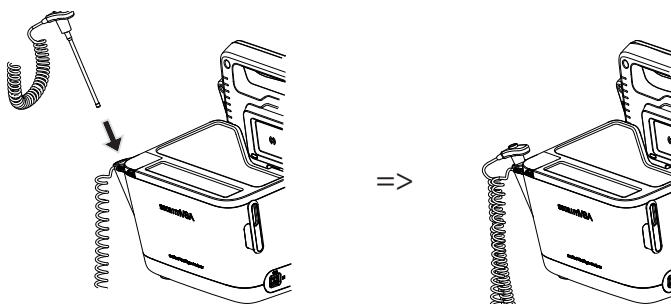
4. Discard the probe cover and dispose of it in line with your institution's policy.



NOTE

You can only perform a further temperature measurement if you discard the probe cover and push the temperature probe back into the probe holder completely.

5. Push the temperature probe into the probe holder completely.



You have the following options for continuing:

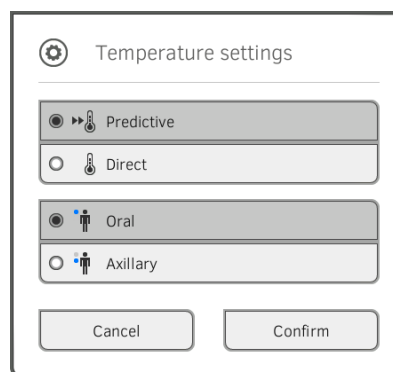
- ▶ Measure further vital signs → [Measuring vital signs](#)
- ▶ Measure bioimpedance → [Measuring bioimpedance](#)
- ▶ Stop the measurement procedure → [Stopping a measurement procedure](#)

Modifying presets**NOTE**

Your settings apply to the current measurement procedure. If you stop the measurement procedure → [Stopping a measurement procedure](#), the presets defined by the administrator become active again.

1. Ensure that the temperature probe is pushed into the probe holder completely.
2. Press the **TEMP** field.

The **Temperature settings** dialog window opens.
The presets are displayed.



3. Press the desired measurement method.
 - Predictive
 - Direct
4. Press the desired measuring position.
 - Oral
 - Axillary
5. Press the **Confirm** button.
The dialog window closes.
Changed settings are adopted for the current measurement.
6. Perform a temperature measurement as described in the section entitled → [Starting an oral/axillary temperature measurement](#).

Measuring temperature, rectal (COVIDIEN™ FILAC™ 3000 red)

→ [Starting a rectal temperature measurement](#)

→ [Modifying presets](#)



WARNING!

Patient hazard, incorrect measurement

- ▶ The decision to use this device with children, pregnant or lactating patients is the responsibility of the user.
- ▶ Before every measurement, ensure that the measurement mode and the measuring method have been correctly selected.
- ▶ For each temperature measurement, use a new probe cover to reduce the risk of cross-contamination, nosocomial infections and implausible measurements.
- ▶ Only use probe covers that are approved for the thermometer being used.
- ▶ Always use the probe cover directly with the thermometer from the cover box on the device.
- ▶ Ensure that the probe covers engage correctly on the thermometer.
- ▶ Probe covers are only intended for an individual measurement, they are not reusable and not sterile. Do not disinfect or sterilize the probe covers. Dispose of the according to national regulations and the regulations of your institute.
- ▶ Only use properly functioning thermometers. If you find damage, do not use the thermometer. Use a suitable replacement.
- ▶ When not in use, store the thermometer in the corresponding holder on the machine.
- ▶ If the measurements seem implausible, check and evaluate the vital signs of the patient using alternative means. Then check the measurement function of the device with the help of the section "Troubleshooting".



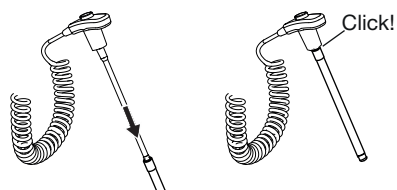
WARNING!

Patient hazard, incorrect measurement

- ▶ Ensure that rectal temperature measurements in "Direct" measuring mode do not last longer than 5 minutes.
- ▶ Only perform rectal measurement with devices that are equipped with a red temperature probe and a red probe holder.
- ▶ For devices with COVIDIEN™ FILAC™ 3000 measurement equipment, only use COVIDIEN™ temperature probes and probe covers.
- ▶ For rectal temperature measurement use some lubricant on the temperature probe. Too much lubricant can distort the measurement result.
- ▶ For rectal temperature measurements, do not insert the temperature probes deeper than about 19 mm (3/4 inch) for adults and about 13 mm (1/2 inch) for children.

Starting a rectal temperature measurement

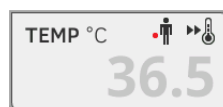
1. Remove the temperature probe (red) from the probe holder (red).
2. Pick up a probe cover:



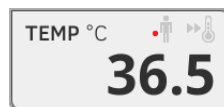
- a) Insert the probe in a probe cover in the pack
 - b) Allow the probe cover to engage audibly with the probe
 - c) Remove probe and probe cover from the pack
 - d) Ensure that the probe cover is undamaged
3. Apply a little lubricant.
 4. Guide the temperature probe into the patient's rectum:
 - ▶ For adults: 12 – 19 mm
 - ▶ For children: 6 – 13 mm

Measurement starts automatically.

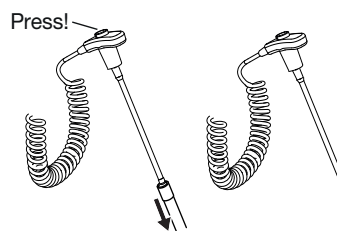
The symbol for the measurement procedure (in this case: Predictive) flashes until a valid measured value is obtained.



The temperature value is displayed until you stop the measurement procedure → [Stopping a measurement procedure](#).



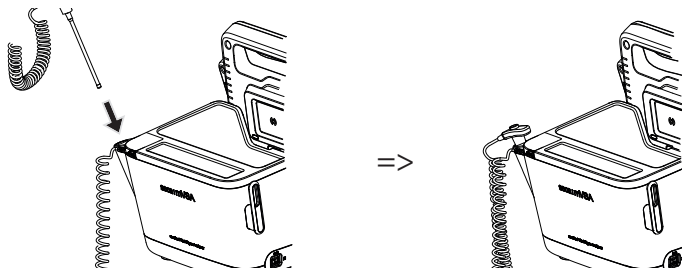
5. Discard the probe cover and dispose of it in line with your institution's policy.



NOTE

You can only perform a further temperature measurement if you discard the probe cover and push the temperature probe back into the probe holder completely.

6. Push the temperature probe into the probe holder completely.



You have the following options for continuing:

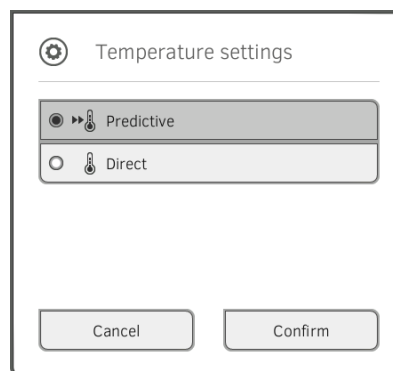
- ▶ Measure further vital signs → [Measuring vital signs](#)
- ▶ Measure bioimpedance → [Measuring bioimpedance](#)
- ▶ Stop the measurement procedure → [Stopping a measurement procedure](#)

Modifying presets

NOTE

Your settings apply to the current measurement procedure. If you stop the measurement procedure → [Stopping a measurement procedure](#), the presets defined by the administrator become active again.

1. Ensure that the temperature probe is pushed into the probe holder completely.
2. Press the **TEMP** field.
The **Temperature settings** dialog window opens.
The presets are displayed.



3. Press the desired measurement method.
 - Predictive
 - Direct
4. Press the **Confirm** button.
The dialog window closes.
The modified settings are adopted.
5. Start the temperature measurement as described in the section entitled → [Starting a rectal temperature measurement](#).

Measuring in-ear temperature (COVIDIEN™ GENIUS®3)



DANGER! **Patient hazard**

- ▶ Choking on probe covers can lead to serious injury.



WARNING! **Patient hazard, incorrect measurement**

- ▶ The decision to use this device with children, pregnant or lactating patients is the responsibility of the user.
- ▶ Before every measurement, ensure that the measurement mode and the measuring method have been correctly selected.
- ▶ For each temperature measurement, use a new probe cover to reduce the risk of cross-contamination, nosocomial infections and implausible measurements.
- ▶ Only use probe covers that are approved for the thermometer being used.
- ▶ Always use the probe cover directly with the thermometer from the cover box on the device.
- ▶ Ensure that the probe covers engage correctly on the thermometer.
- ▶ Probe covers are only intended for an individual measurement, they are not reusable and not sterile. Do not disinfect or sterilize the probe covers. Dispose of the according to national regulations and the regulations of your institute.
- ▶ Only use properly functioning thermometers. If you find damage, do not use the thermometer. Use a suitable replacement.
- ▶ When not in use, store the thermometer in the corresponding holder on the machine.
- ▶ If the measurements seem implausible, check and evaluate the vital signs of the patient using alternative means. Then check the measurement function of the device with the help of the section "Troubleshooting".



WARNING! **Patient hazard, incorrect measurement**

- ▶ If the thermometer is not placed in the auditory canal correctly, this may lead to permanent injury.
- ▶ Do not use the in-ear thermometer if the patient's auditory canal is blocked with blood, cerebrospinal fluid or other discharge.
- ▶ Do not use the in-ear thermometer if the patient's auditory canal is blocked with wax or a foreign body.
- ▶ Grommets or tympanostomy tubes have no negative impact on measuring accuracy. To prevent problems for the patient, do not resume in-ear temperature measurement any sooner than one week after an operation.
- ▶ Only use probe covers intended for your in-ear thermometer. Other probe covers may falsify the measuring results.
- ▶ Ensure that the probe tip seals the auditory canal. If this is not the case, measuring results will be falsified.
- ▶ Severe scarring of the eardrum may falsify the measurement, resulting in values which are too low being measured.

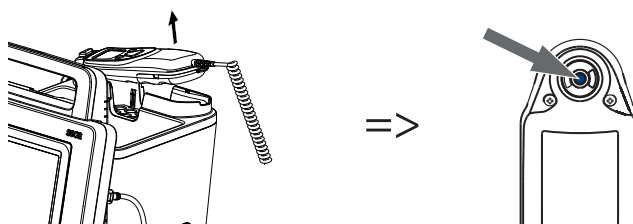


CAUTION!

Incorrect measurement

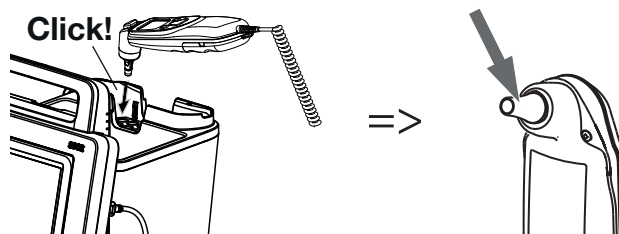
- ▶ Once there is a probe cover on the thermometer, do not point the probe tip at objects which generate heat – such as hands, computers or windows. This will lead to falsified measuring results.
- ▶ Use a new probe cover for every temperature measurement. The surface of the probe cover must be smooth, with no holes, cracks or creases.
- ▶ Using the thermometer without a probe cover will lead to falsified measuring results.
- ▶ Ensure that the measuring window of the ear thermometer is clean, dry and undamaged. Contamination, for example fingerprints, ear wax or dust will impair the transparency of the measuring window with the result that low values will be measured.
- ▶ Patients who wear removable hearing aids should remove them from the ear at least 10 minutes before the measurement. Implants do not generally have any effect on in-ear temperature.
- ▶ At low outdoor temperatures, the patient should wait at room temperature for a while before the measurement so as not to falsify the measuring results.
- ▶ If the thermometer has been stored outside the ambient temperature range quoted in the “Technical data” section, wait at least 30 minutes before using it until the thermometer has adapted to room temperature.
- ▶ Ear drops or other medications applied to the ear can falsify the measuring results. If possible, take the measurement on the other, non-treated ear.
- ▶ Temperature measurements on the left or right ear can lead to different results. Always perform follow-up measurements on the same ear.
- ▶ Wait at least two minutes before performing a follow-up measurement on the same ear.

1. Take the in-ear thermometer out of the SmartBucket.
2. Make sure that the lens of the measuring head is clean.

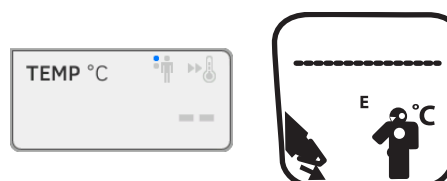


3. Press the  button to switch on the in-ear thermometer.

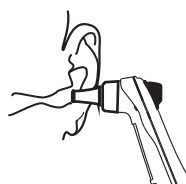
4. Pick up a probe cover:
 - a) Push the measuring head firmly into a probe cover in the magazine
 - b) Ensure that the probe cover engages audibly with the measuring head
 - c) Remove the probe cover and thermometer from the magazine
 - d) Ensure that the probe cover is undamaged



The system is ready to measure when the displays of both the monitor and the in-ear thermometer are showing dashes, the current measuring position and the thermometer icon as shown in the illustration below.



5. Introduce the measuring head into the patient's auditory canal as shown in the illustration.

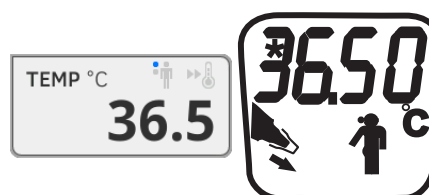


6. Measure the patient's temperature:

- a) Press the  button on the in-ear thermometer
- b) Wait until you hear a triple acoustic signal
- c) Take the measuring head out of the patient's ear

The monitor displays the temperature value.

The in-ear thermometer display likewise shows the temperature value and the Discard probe cover symbol.



The temperature value is displayed on the monitor until you stop the measurement procedure → [Stopping a measurement procedure](#).

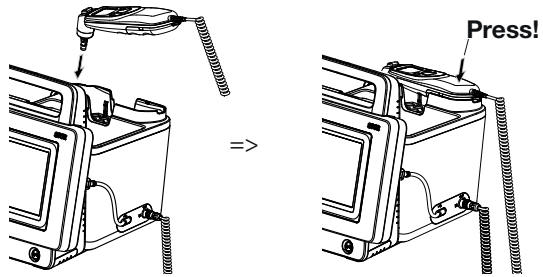
NOTE

The monitor always displays measured values in the unit set on the monitor. If required, the values submitted by the in-ear thermometer are converted automatically.

7. Press the  button to discard the probe cover.



8. Dispose of the probe cover in line with your institution's policy.
9. Press the in-ear thermometer into the SmartBucket holder until you feel it engage.



You have the following options for continuing:

- ▶ Measure further vital signs → [Measuring vital signs](#)
- ▶ Measure bioimpedance → [Measuring bioimpedance](#)
- ▶ Stop the measurement procedure → [Stopping a measurement procedure](#)

Entering temperature manually

NOTICE!

Faulty operation, missing measuring results

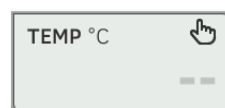
Manual temperature entries cannot be transmitted to the **seca analytics 115** PC software.

- Enter these values manually in the **seca analytics 115** PC software as well.

NOTE

- The option of entering temperatures manually is available ex works on device versions **without** integrated temperature measuring equipment. On other device versions, your administrator can deactivate the integrated temperature measuring equipment in order to allow manual temperature input.
- Follow the safety precautions in the instructions for use for your thermometer.

1. Measure body temperature as described in the instructions for use for your thermometer.
2. In the Vital signs tab, press the **TEMP** field:



The **Temperature: manual entry** dialog window is displayed:

3. State the measuring method:
 - a) Press the appropriate button
 - b) Press the **Confirm** button

A numerical keypad appears:

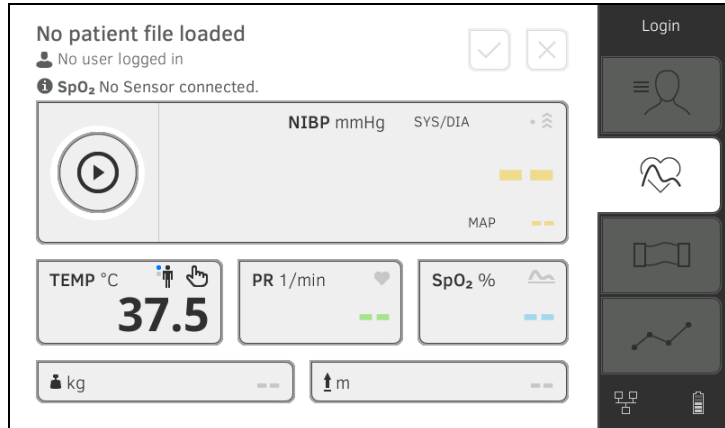
4. Enter body temperature:

a) Enter the value



b) Press the button: Confirm entry

The value entered appears in the **TEMP** field of the Vital signs tab.



You have the following options for continuing:

- ▶ Measure more vital signs → [Measuring vital signs](#)
- ▶ Measure bioimpedance → [Measuring bioimpedance](#)
- ▶ Stop the measurement procedure → [Stopping a measurement procedure](#)

Reading off pulse rate

→ [Interrogate pulse rate source](#)

→ [Modifying presets \(seca measuring equipment only\)](#)



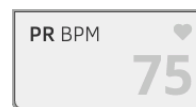
WARNING!

Patient hazard, incorrect measurement

A pulse rate determined on the basis of blood pressure or oxygen saturation is susceptible to artifacts.

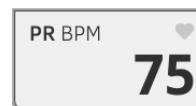
- ▶ To obtain an exact value, determine pulse rate by means of ECG or palpation.

Depending on device configuration, pulse rate is determined on the basis of blood pressure or oxygen saturation.



Pulse rate is displayed until you stop the measurement procedure

→ [Stopping a measurement procedure](#).



Interrogate pulse rate source

1. Press the **PR** field.

The **PR settings** dialog window opens.

The source of the pulse rate (NIBP or SpO₂) is displayed.

2. Press the **Confirm** button.

The dialog window closes.

Modifying presets (seca measuring equipment only)

NOTE

These settings apply to the current measurement procedure. If you stop the measurement procedure → [Stopping a measurement procedure](#), the presets defined by the administrator become active again.

1. Ensure that neither the blood pressure cuff nor the SpO₂ sensor are applied.
2. Press the **PR** field.
The **PR settings** dialog window opens.
The preset is displayed (in this case: Standard).



3. Press the desired measuring mode:

seca measuring equipment		
Mode	Measuring range	Motion tolerance
Standard	0 - 240 min ⁻¹	High
Sensitive	20 - 300 min ⁻¹	Low

4. Press the **Confirm** button.
The dialog window closes.
Changed settings are adopted for the current measurement.
5. Start a blood pressure measurement or an SpO₂ measurement as described in the sections entitled → [Preparing the blood pressure measurement](#) and → [Starting an SpO₂ measurement](#).

Measuring oxygen saturation (SpO₂)

→ Starting an SpO₂ measurement

→ Modifying presets



WARNING!

Patient hazard, incorrect measurement

- ▶ The device has **no** alarm function. Never leave the patient unobserved during a measurement.
- ▶ The pulse oximeter is not an apnea monitoring device.
- ▶ The pulse oximeter must not be used to analyze arrhythmia.
- ▶ Incorrectly-applied sensors may lead to injuries at the point of application. Follow the Instructions for Use from the sensor manufacturer.
- ▶ Apply the blood pressure cuff and SpO₂ sensor to different extremities to avoid falsifying measuring results.
- ▶ Apply the intravenous pressure catheter and SpO₂ sensor to different extremities to avoid falsifying measuring results.
- ▶ Red and infrared light at fixed wavelengths is used for SpO₂ measurement. These wavelengths can affect other optical applications. Information about the wavelengths used can be found in the Instructions for Use for the sensor used.
- ▶ As with all medical equipment, carefully route patient cabling to reduce the possibility of patient entanglement or strangulation.
- ▶ Do not place the pulse oximeter or accessories in any position that might cause it to fall on the patient.
- ▶ Do not start or operate the pulse oximeter unless the setup was verified to be correct.
- ▶ Do not use the pulse oximeter during magnetic resonance imaging (MRI) or in an MRI environment.
- ▶ Do not use the pulse oximeter if it appears or is suspected to be damaged.
- ▶ Explosion hazard: Do not use the pulse oximeter in the presence of flammable anesthetics or other flammable substance in combination with air, oxygen-enriched environments, or nitrous oxide.
- ▶ To ensure safety, avoid stacking multiple devices or placing anything on the device during operation.
- ▶ To protect against injury, follow the directions below:
 - Avoid placing the device on surfaces with visible liquid spills.
 - Do not soak or immerse the device in liquids.
 - Do not attempt to sterilize the device.
 - Use cleaning solutions only as instructed in this instructions for use.
 - Do not attempt to clean the device while monitoring a patient.
- ▶ To protect from electric shock, always remove the sensor and completely disconnect the pulse oximeter before bathing the patient.
- ▶ If any measurement seems questionable, first check the patient's vital signs by alternate means and then check the pulse oximeter for proper functioning. Follow the section entitled "Troubleshooting".
- ▶ Inaccurate SpO₂ readings may be caused by the following conditions:
 - Improper sensor application and placement
 - Elevated levels of COHb or MetHb: High levels of COHb or MetHb may occur with a seemingly normal SpO₂. When elevated levels of COHb or MetHb are suspected, laboratory analysis (CO-Oximetry) of a blood sample should be performed.
 - Elevated levels of bilirubin
 - Elevated levels of dyshemoglobin

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- Vasospastic disease, such as Raynaud's, and peripheral vascular disease
 - Hemoglobinopathies and synthesis disorders such as thalassemias, Hb s, Hb c, sickle cell, etc.
 - Hypocapnic or hypercapnic conditions
 - Severe anemia
 - Very low arterial perfusion
 - Extreme motion artifact
 - Abnormal venous pulsation or venous constriction
 - Severe vasoconstriction or hypothermia
 - Arterial catheters and intra-aortic balloon
 - Intravascular dyes, such as indocyanine green or methylene blue
 - Externally applied coloring and texture, such as nail polish, acrylic nails, glitter, etc.
 - Birthmark(s), tattoos, skin discolorations, moisture on skin, deformed or abnormal fingers. etc.
 - Skin color disorders
- ▶ Interfering substances: Dyes or any substance containing dyes that change usual blood pigmentation may cause erroneous readings.
 - ▶ The pulse oximeter should not be used as the sole basis for medical decisions. It must be used in conjunction with clinical signs and symptoms.
 - ▶ SpO₂ is empirically calibrated in healthy adult volunteers with normal levels of carboxyhemoglobin (COHb) and methemoglobin (MetHb).
 - ▶ Do not adjust, repair, open, disassemble, or modify the pulse oximeter or accessories. Injury to personnel or equipment damage could occur. Return the pulse oximeter for servicing if necessary.

**WARNING!****Patient hazard, damage to device**

- ▶ For devices equipped with Masimo SET® SpO₂ measurement equipment, only use Masimo sensors and patient cables.
- ▶ For devices equipped with seca SpO₂ measurement equipment, only use seca sensors and patient cables.

**CAUTION!****Patient hazard, incorrect measurement**

- ▶ Do not use damaged sensors or damaged patient cables, for example with exposed optics.
- ▶ Do not place the pulse oximeter where the controls can be changed by the patient.
- ▶ Electrical shock and flammability hazard: Before cleaning, always turn off the device and disconnect from any power source.
- ▶ When patients are undergoing photodynamic therapy they may be sensitive to light sources. Pulse oximetry may be used only under careful clinical supervision for short time periods to minimize interference with photodynamic therapy.
- ▶ Do not place the pulse oximeter on electrical equipment that may affect the device, preventing it from working properly.
- ▶ If SpO₂ values indicate hypoxemia, a laboratory blood sample should be taken to confirm the patient's condition.
- ▶ If the Low Perfusion or Low Signal Quality message is frequently displayed, find a better perfused monitoring site. In the interim, assess the patient and, if indicated, verify oxygenation status through other means.
- ▶ Change the application site or replace the sensor and/or patient cable when a "Replace sensor" and/or "Replace patient cable", or a persistent poor signal quality message (such as "Low SIQ") is displayed on the host monitor. These messages may indicate that patient monitoring time is exhausted on the patient cable or sensor.
- ▶ If using pulse oximetry during full body irradiation, keep the sensor out of the radiation field. If the sensor is exposed to the radiation, the reading might be inaccurate or the device might read zero for the duration of the active irradiation period.
- ▶ Variation in measurements may be profound and may be affected by sampling technique as well as the patient's physiological conditions. Any results exhibiting inconsistency with the patient's clinical status should be repeated and/or supplemented with additional test data. Blood samples should be analyzed by laboratory instruments prior to clinical decision making to completely understand the patient's condition.
- ▶ Do not submerge the pulse oximeter in any cleaning solution or attempt to sterilize by autoclave, irradiation, steam, gas, ethylene oxide or any other method. This will seriously damage the pulse oximeter.
- ▶ Electrical Shock Hazard: Carry out periodic tests to verify that leakage currents of patient-applied circuits and the system are within acceptable limits as specified by the applicable safety standards. The summation of leakage currents must be checked and in compliance with IEC 60601-1 and UL60601-1. The system leakage current must be checked when connecting external equipment to the system. When an event such as a component drop of approximately 1 meter or greater or a spillage of blood or other liquids occurs, re-test before further use. Injury to personnel could occur.
- ▶ To minimize radio interference, other electrical equipment that emits radio frequency transmissions should not be in close proximity to the pulse oximeter.
- ▶ Replace the cable or sensor when a replace sensor or when a low SIQ message is consistently displayed while monitoring consecutive patients after completing troubleshooting steps listed in this manual.

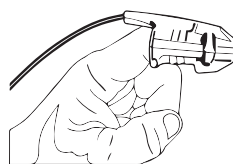
NOTE:

- A functional tester cannot be used to assess the accuracy of the pulse oximeter.

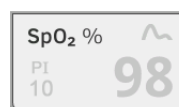
- High-intensity extreme lights (such as pulsating strobe lights) directed on the sensor, may not allow the pulse oximeter to obtain vital sign readings.
- When using the Maximum Sensitivity setting, performance of the "Sensor Off" detection may be compromised. If the device is in this setting and the sensor becomes dislodged from the patient, the potential for false readings may occur due to environmental "noise" such as light, vibration, and excessive air movement.
- Do not loop the patient cabling into a tight coil or wrap around the device, as this can damage the patient cabling.
- Additional information specific to the Masimo sensors compatible with the pulse oximeter, including information about parameter/measurement performance during motion and low perfusion, may be found in the sensor's directions for use (DFU).
- Cables and sensors are provided with X-Cal™ technology to minimize the risk of inaccurate readings and unanticipated loss of patient monitoring. Refer to the Cable or Sensor DFU for the specified duration of the patient monitoring time.

Starting an SpO₂ measurement

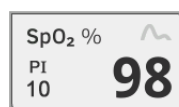
- Apply the SpO₂ sensor according to the sensor manufacturer's instructions for use.
 - a) Ensure that the SpO₂ sensor is the correct size
 - b) Prepare measuring point (e.g. remove jewelry or nail varnish)
 - c) Apply the SpO₂ sensor to the measurement point (in this case: Softclip sensor)



Measurement starts automatically.



The symbol for the measurement method flashes (in this case: Normal) until a valid measured value is obtained.



The SpO₂ value is displayed.

You have the following options for continuing:

- Measure more vital signs → [Measuring vital signs](#)
- Measure bioimpedance → [Measuring bioimpedance](#)
- Stop the measurement procedure → [Stopping a measurement procedure](#)

NOTE

If your device is equipped with Masimo SET® pulse oximetry, perfusion index (PI) is displayed in addition to oxygen saturation. This helps you assess perfusion at the measurement point and to find a better measurement point if necessary.

Modifying presets

NOTE

Your settings apply to the current measurement procedure. If you stop the measurement procedure → [Stopping a measurement procedure](#), the presets defined by the administrator become active again.

1. Ensure that no SpO₂ sensor has been applied to the patient.
2. Press the **SpO₂** field.

The **SpO₂ settings** dialog window opens.

The presets are displayed (in this case: Masimo SET® pulse oximetry).



3. Press the desired sensitivity:

Masimo SET® SpO ₂ module	
Mode	Indication
Normal	• Normal perfusion • Mild perfusion disorders
Adaptive Probe Off Detection (APOD)	Vigorous patient movements
Maximum	• Poor perfusion • Severely disrupted signal, for example due to indoor lighting or direct sunlight

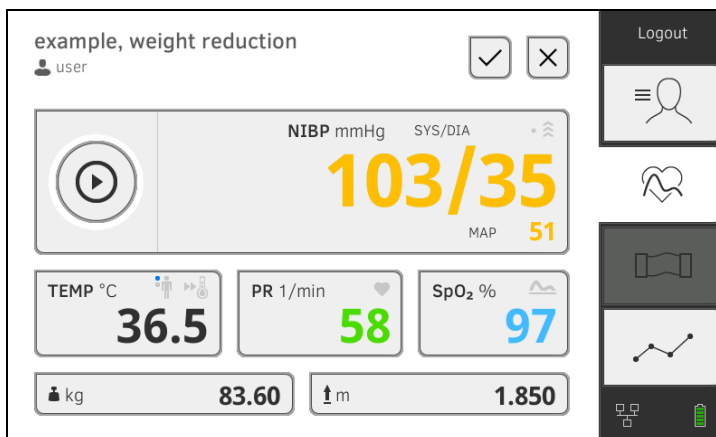
seca SpO ₂ module	
Mode	Motion tolerance
Stable	High
Normal	Normal
Sensitive	Low

4. Press the **Confirm** button.
The dialog window closes.
The changed settings are used for the current measurement.
5. Start the SpO₂ measurement as described in the section entitled → [Starting an SpO₂ measurement](#).

Weight and height

The device provides several options for adding the parameters weight and height. Your administrator specifies which of the options you can use. Further information is available here: → [Adding weight and height](#).

- Stopping a measurement procedure** ▶ Stop the current measurement procedure before you start a new one.



You have the following options:

- ▶ Press the  button: Save measurement procedure
- ▶ Assign anonymous measurement to a seca patient file: → [Assigning anonymous measurement procedure to a seca patient file](#)
- ▶ Press the  button: Discard measurement procedure

Assigning anonymous measurement procedure to a seca patient file

To assign an anonymous measurement procedure to a patient file, proceed as follows:

1. Log in → [Logging in](#).
2. Press the Patient tab.
You have the following options for continuing
 - → [Calling up a seca patient file](#)
 - → [Creating a seca patient file](#)
3. Confirm the **Assign measurement?** message.
The measurement procedure is assigned to the patient file.
4. Press the  button.
The measurement procedure is saved.

6.4 Measuring bioimpedance

- [Preparing a bioimpedance measurement](#)
- [Performing a measurement \(with WiFi direct connection to the measuring mat\)](#)
- [Performing a measurement \(without WiFi direct connection to the measuring mat\)](#)
- [Connecting the measuring mat](#)

**WARNING!****Hazard to patient, malfunction, damage to device**

- ▶ Set up the device so that it cannot fall on patients.
- ▶ Route the cables and tubes of the measurement accessory so that the patient cannot become entangled or be strangled.
- ▶ The device has **no** alarm function. Never leave the patient unobserved during a measurement.
- ▶ Always connect only one individual patient to the device for each measurement procedure.

Observe the points below in order to obtain meaningful and comparable bioimpedance measurements:

- Amount of time patient should lie **before** each measurement:
Approx. 10 minutes
- If possible, arrange follow-up measurements at the same time of day

Preparing a bioimpedance measurement



1. Ensure that the measuring mat is correctly suspended in the magnetic catch of the monitor → [Suspending the measuring mat in the magnetic catch](#).
2. Switch on the system: → [Switching on](#).
3. Log yourself in: → [Logging in](#)
4. Call up a patient file → [Calling up a seca patient file](#).



5. Add the basic parameters in the seca patient file by pressing the relevant button:

- ▶ Weight: → [Adding weight and height](#)
- ▶ Height: → [Adding weight and height](#)
- ▶ Waist circumference
- ▶ Physical Activity Level (PAL)

Once all the basic parameters have been added, the device submits the updated seca patient file to the measuring mat.

You have the following options for continuing:

- ▶ → [Performing a measurement \(with WiFi direct connection to the measuring mat\)](#)
- ▶ → [Performing a measurement \(without WiFi direct connection to the measuring mat\)](#)

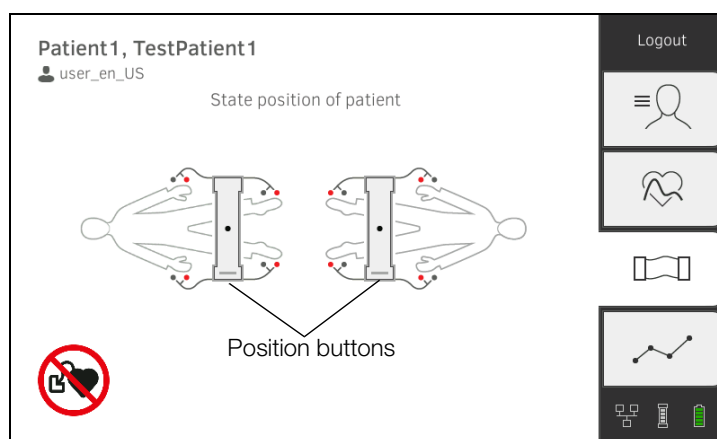
Performing a measurement (with WiFi direct connection to the measuring mat)

If a WiFi direct connection between the monitor and the measuring mat is **active**, the measuring mat and the monitor communicate continuously. As a result, some operating steps can be performed on both the monitor and the measuring mat.

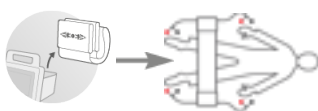
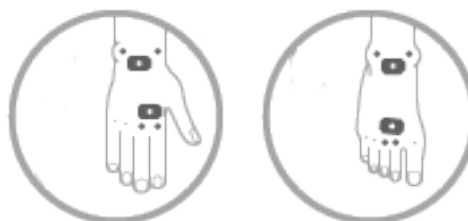
NOTE

If you are unsure whether the WiFi direct connection between the monitor and the measuring mat is active, contact your administrator.

1. Prepare the bioimpedance measurement: → [Preparing a bioimpedance measurement](#).
2. Press the BIA tab.
3. Wait until the position buttons on the monitor are active.



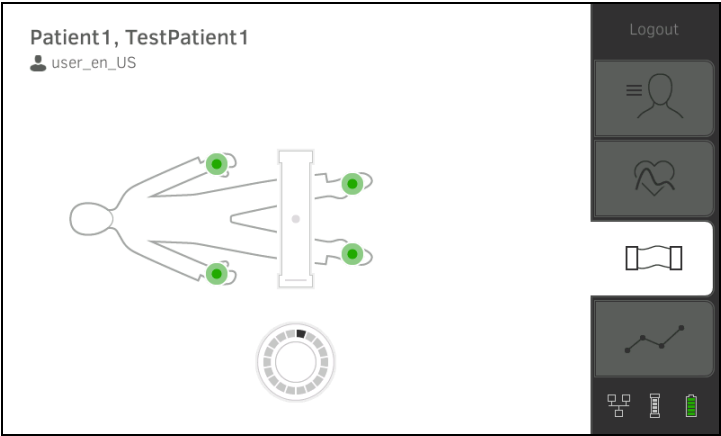
4. Attach the electrodes to the extremities as shown.



5. Take the measuring mat out of the magnetic catch on the monitor.
6. Connect the measuring mat to the electrodes → [Connecting the measuring mat](#).
7. Perform the following steps on the monitor or on the measuring mat:
 - a) Enter patient position: Press the relevant position button

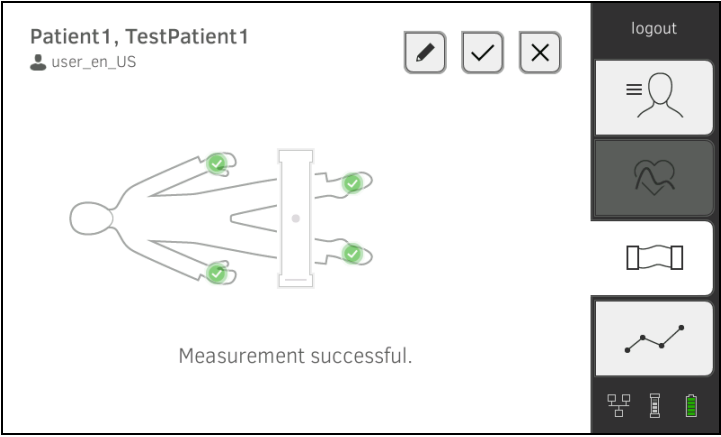
- b) Start the measurement procedure: Press the  button

8. Watch measurement progress on the monitor:



Monitor			
Measurement progress		Electrode symbol	Progress symbol
1.	Electrodes being tested		
2.	Measurement in progress Measuring results will be saved on the measuring mat		
3.	Measuring results will be submitted to the monitor		
4.	Measurement end: Measuring results have been submitted to the monitor		Off

The measurement procedure is complete when the **Measurement successful** message appears.



You have the following options for continuing:

- ▶ Press the  button: Add comment
- ▶ Press the  button: Save measurement
- ▶ Press the Analysis tab: → [Analyzing measurement](#)
- ▶ Press the Vital signs tab: → [Measuring vital signs](#)
- ▶ Press the  button: Discard measurement

9. Remove the electrode cables from the electrodes.

10. Remove the electrodes from the patient.

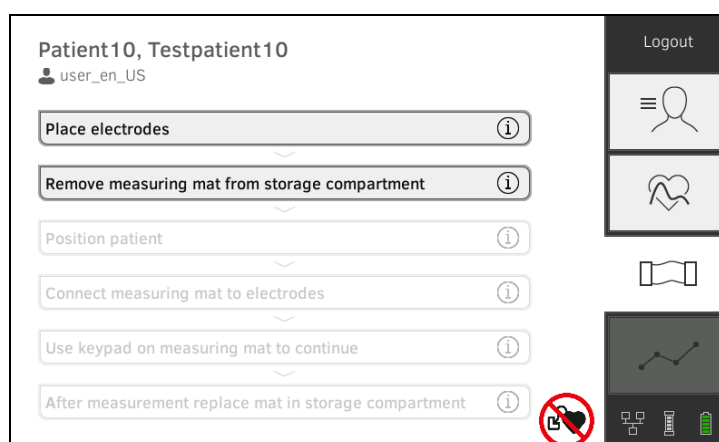
Performing a measurement (without WiFi direct connection to the measuring mat)

If **no** WiFi direct connection between the monitor and measuring mat is **active**, some operating steps can only be carried out on the measuring mat. Measuring mat and monitor communicate via an infrared connection. The measuring mat must be suspended in the magnetic catch of the monitor before and after a measurement to enable data to be transmitted.

NOTE

If you are unsure whether the WiFi direct connection between the monitor and the measuring mat is active, contact your administrator.

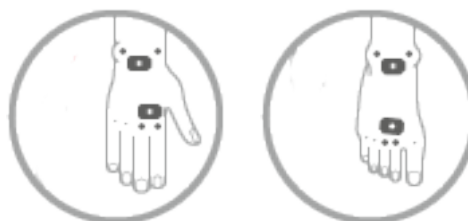
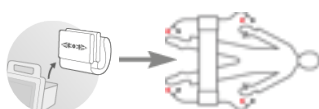
1. Prepare the bioimpedance measurement: → [Preparing a bioimpedance measurement](#).
2. Press the BIA tab.



NOTE

If you press the operating steps on the screen, additional information will be displayed to assist you with the bioimpedance measurement.

3. Attach the electrodes to the extremities as shown.



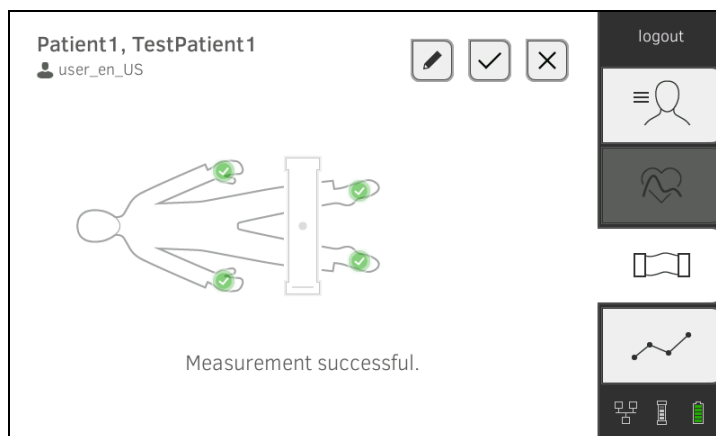
4. Take the measuring mat out of the magnetic catch.
5. Connect the measuring mat to the electrodes → [Connecting the measuring mat](#).

6. Use the keypad of the measuring mat for the following steps:
 - a) Enter patient position: Press the relevant position button
 - b) Press the  button: Start the measurement procedure
7. Observe measuring progress on the measuring mat:

Measuring mat			
Measurement progress		Electrodes	Position button
1.	• Patient position is given • Electrodes being tested	On	On
2.	• Measurement in progress • Measuring results will be stored on the measuring mat	Flashing	On
3.	Measurement end: Measuring results are stored on the measuring mat, waiting for transmission to the monitor	Off	Flashing



8. Remove the electrode cables from the electrodes.
9. Remove the electrodes from the patient.
10. Suspend the measuring mat in the magnetic catch of the monitor
 → [Suspending the measuring mat in the magnetic catch.](#)
 The updated seca patient file is transmitted to the monitor.
 The measurement procedure is complete when the **Measurement successful** message appears.



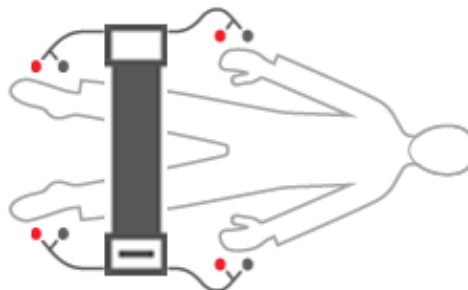
You have the following options for continuing:

- ▶ Press the  button: Add comment
- ▶ Press the  button: Save measurement
- ▶ Press the Analysis tab: → [Analyzing measurement](#)
- ▶ Press the Vital signs tab: → [Measuring vital signs](#)
- ▶ Press the  button: Discard measurement

Connecting the measuring mat

The measuring mat is intended for bioimpedance measurement by the 8-point method (measurement of the whole body) with the patient in a lying position. Measurement by the 4-point method (right half of the body) is likewise possible.

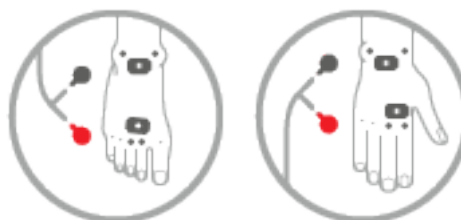
1. Lay the measuring mat on the patient's knees.
 - ▶ The side with the writing on it should be facing upwards
 - ▶ The keypad should be facing the user



NOTE

If you wish to measure using the 4-point method, attach the electrode cables on the keypad for the measuring mat to the hand and foot electrodes of the right half of the body.

2. Connect the measuring mat to the electrodes.
 - ▶ Arrange the electrode cables so that they do not cross over one another
 - ▶ Place the push-button adapter on the electrodes (black: Proximal, red: Distal)



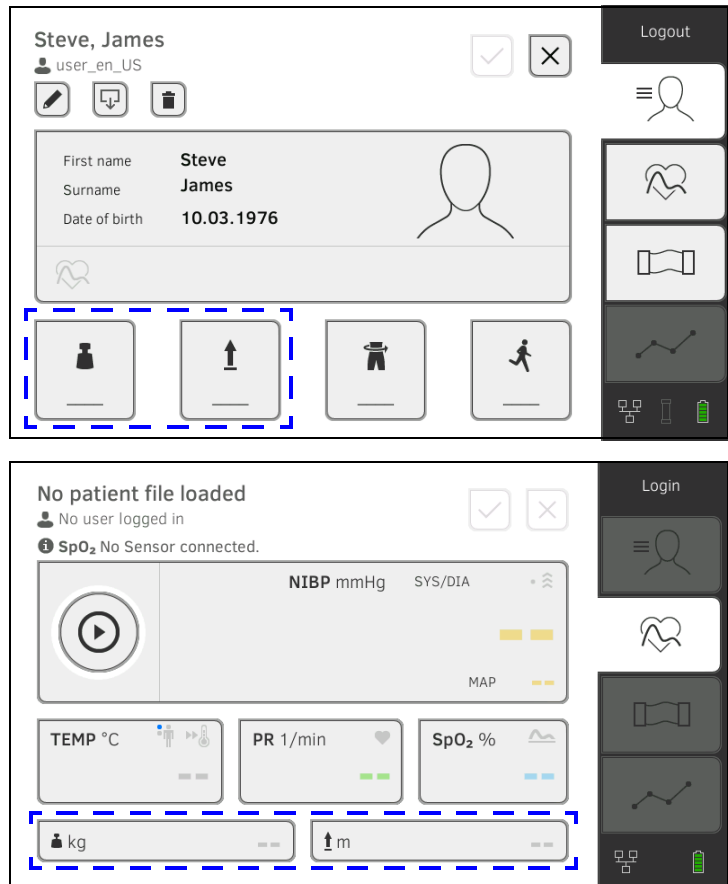
3. Ask the patient to do the following during the measurement:
 - ▶ Hold arms and legs away from the body
 - ▶ Lie still
4. Continue with the measurement as described in the relevant section:
 - ▶ Step 7. of the measurement with active WiFi direct connection
 - ▶ Step 6. of the measurement without active WiFi direct connection

6.5 Adding weight and height

- [Receiving weight and height \(seca 360° proximity\)](#)
- [Receiving weight and height \(seca 360° wireless\)](#)
- [Entering weight and height manually](#)

You can add the parameters weight  and height  as follows:

- In the Patient tab
- In the Vital signs tab



Your administrator can set up the device so that weight and height can be received by compatible seca measuring devices:

- ▶ → [Receiving weight and height \(seca 360° proximity\)](#)
- ▶ → [Receiving weight and height \(seca 360° wireless\)](#)

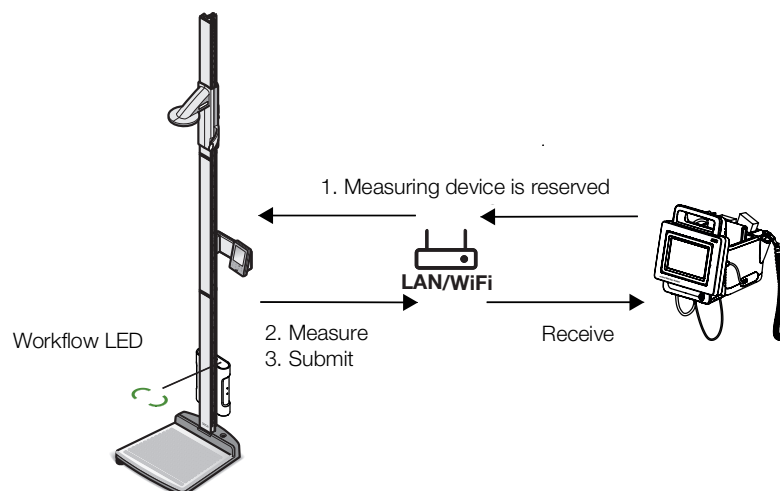
NOTE

If you are uncertain of which options you can use, contact your administrator.

You can also enter weight and height manually: → [Entering weight and height manually](#).

Receiving weight and height (seca 360° proximity)

If a corresponding network connection is set up, weight and height can be submitted from a seca measuring device via LAN or WiFi.



Example display:

seca 285 measuring station with **seca 452** interface module and **seca mVSA 535**

1. If you have not yet done so, call up a patient file: → [Calling up a seca patient file](#).
The measuring device preset by your administrator is reserved automatically.
The Workflow LED on the preset measuring device is green.
2. Measure the patient as described in the instructions for use for the measuring device.
3. Submit the measured values as described in the instructions for use for the measuring device.
The values appear on the **seca mVSA 535/seca mBCA 525** in the Weight and Height fields (in this case: Vital signs tab):

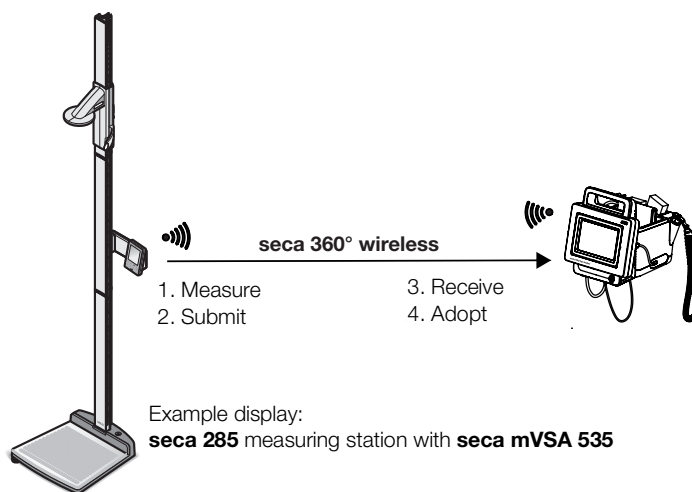
👤 kg	83.60	📏 m	1.850
------	--------------	-----	--------------

You have the following options for continuing:

- ▶ Measure more vital signs → [Measuring vital signs](#)
- ▶ Measure bioimpedance → [Measuring bioimpedance](#)
- ▶ Stop the measurement procedure → [Stopping a measurement procedure](#)

Receiving weight and height (seca 360° wireless)

If your seca scale or your seca length measuring device is equipped with a **seca 360° wireless** module you can transmit weight and height wirelessly.



1. Measure the patient as described in the instructions for use for the measuring device.
2. Submit the measured values as described in the instructions for use for the measuring device.
3. On the **seca mVSA 535/seca mBCA 525** press the Weight or Height field. A numerical keypad appears (in this case: Weight):

The value received appears in the **360°** field.

4. Adopt the value:

a) Press the **360°** field.

b) Press the  button.

The adopted values appear in the Weight and Height fields (in this case: Vital signs tab):

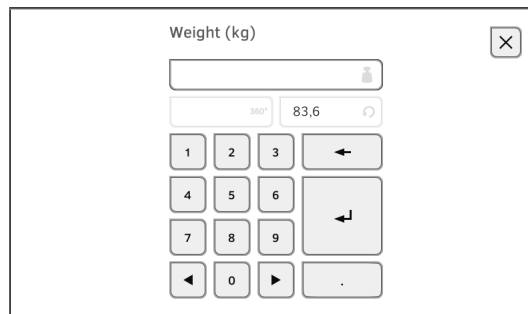
You have the following options for continuing:

- ▶ Measure more vital signs → [Measuring vital signs](#)
- ▶ Measure bioimpedance → [Measuring bioimpedance](#)
- ▶ Stop the measurement procedure → [Stopping a measurement procedure](#)

Entering weight and height manually

You can enter weight and height manually or adopt the values from the previous measurement.

1. Press the Patient tab.
 2. If you have not yet done so, select a patient file.
 3. Press the Weight or Height field.
- A numerical keypad appears (in this case: Weight):



You have the following options for entering a value:

- ▶ Use the keypad : Enter current value
- ▶ Press the  button: Adopt the value from the previous measurement of patient

4. Press the  button.

The values appear in the Weight and Height fields:



Patient tab



Vital signs tab

You have the following options for continuing:

- ▶ Measure more vital signs → [Measuring vital signs](#)
- ▶ Measure bioimpedance → [Measuring bioimpedance](#)
- ▶ Stop the measurement procedure → [Stopping a measurement procedure](#)

6.6 Analyzing measurement

- [Viewing current measuring results](#)
- [Analyzing vital signs \(history\)](#)
- [Analyzing a bioimpedance measurement](#)

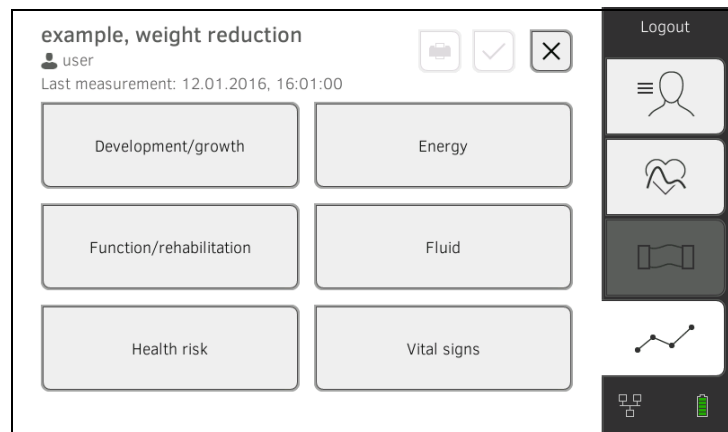
NOTE

- In order to be able to view analyses, you must assign the current measurement to a seca patient file → [Stopping a measurement procedure](#) or call up a seca patient file → [Calling up a seca patient file](#).
- This section is restricted to navigation in the Analysis tab. For details about analysis parameters and modules, see the sections entitled → [Analysis parameters](#) and → [Analysis modules](#).

Viewing current measuring results

In order to view a summary of the current measuring results, proceed as follows:

1. Press the Analysis tab.
The module overview is displayed.



You have the following options for continuing:

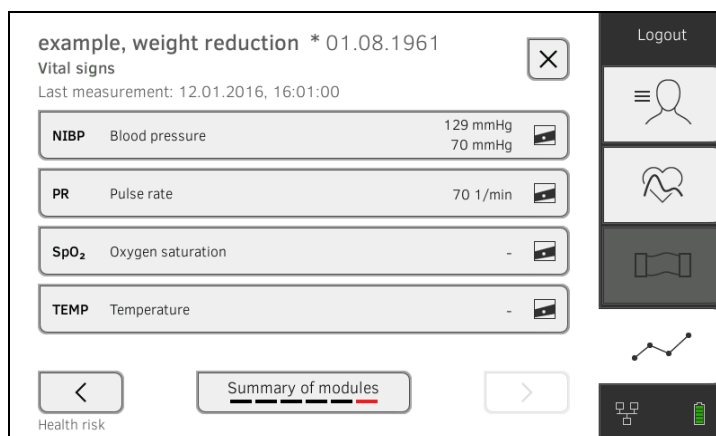
- ▶ To view an analysis module: continue at step 2.



- ▶ Press the  button: submit a results report to the **seca analytics 115** PC software for printing (**seca directprint** function of the **seca analytics 115** PC software)

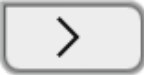
2. Press an analysis module.

A parameter overview of the current measuring results is displayed:



You have the following options for continuing:

- ▶ → [Analyzing vital signs \(history\)](#)
- ▶ → [Analyzing a bioimpedance measurement](#)

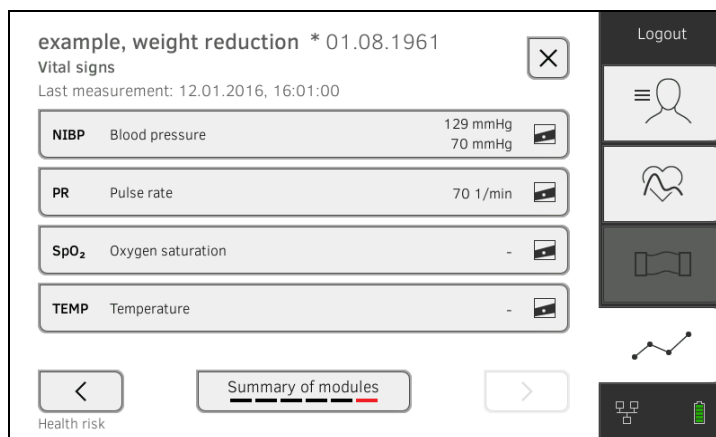
- ▶ Press the   buttons: View more analysis modules

- ▶ Press the  button: Return to the previous view

Analyzing vital signs (history)

To view the history of an analysis parameter, proceed as follows:

1. Call up a parameter overview → [Viewing current measuring results.](#)



- Press the parameter whose history you wish to view.
All measurements for the selected analysis parameter are displayed.
The latest measurement is selected automatically:

example, weight reduction * 01.08.1961

Vital signs NIBP

☐ Select all

☒	12.01.2016	16:01:00	129 mmHg 70 mmHg		
☐	12.12.2015	19:26:00	149 mmHg 91 mmHg		
☐	21.11.2015	17:14:00	135 mmHg 83 mmHg		
☐	03.10.2015	13:51:00	139 mmHg 89 mmHg		

History: 1 selected

You have the following navigation options:

- Press the drop-down menu: Filter measuring results by period. Then continue at step 5.
- To select values for the history individually: continue at step 4.

- Press the button: Add a comment

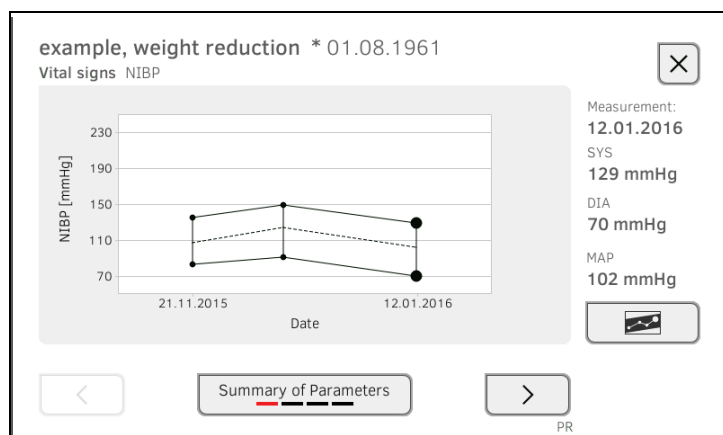
- Press the button: Return to the previous view

NOTE

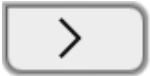
Just a single comment can be added to each measured result.
Existing comments will be overwritten.

- Press the ☐ checkboxes for all the measurements you want to look at in the history.

- Press the button.
The history is displayed (in this case three measurements)



You have the following navigation options:

- ▶ Press the  button: Select other values for history
- ▶ Press the   buttons: View more analysis parameters
- ▶ Press the  button: Return to the previous view

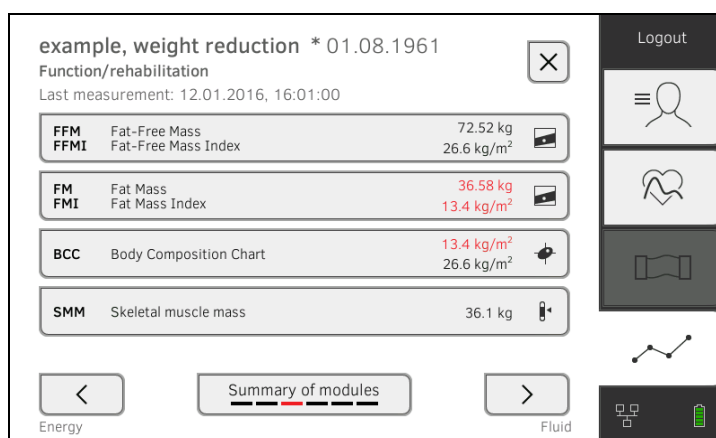
Analyzing a bioimpedance measurement

→ [Calling up detail view](#)

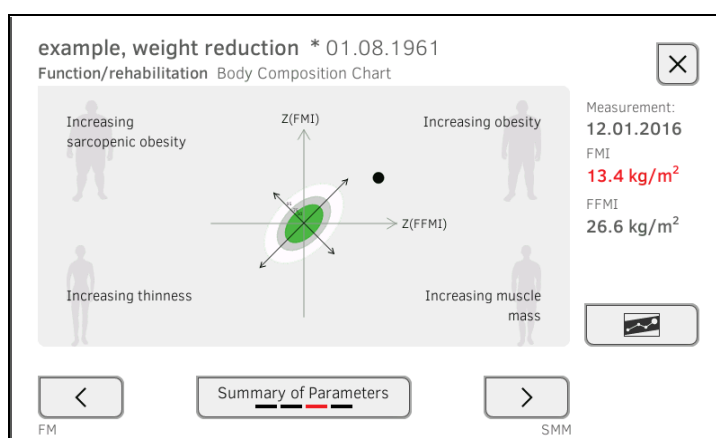
→ [Viewing the history of an analysis parameter](#)

Calling up detail view

1. Call up a parameter overview → [Viewing current measuring results](#).



2. In the parameter overview, press an analysis parameter. The detail view is displayed:



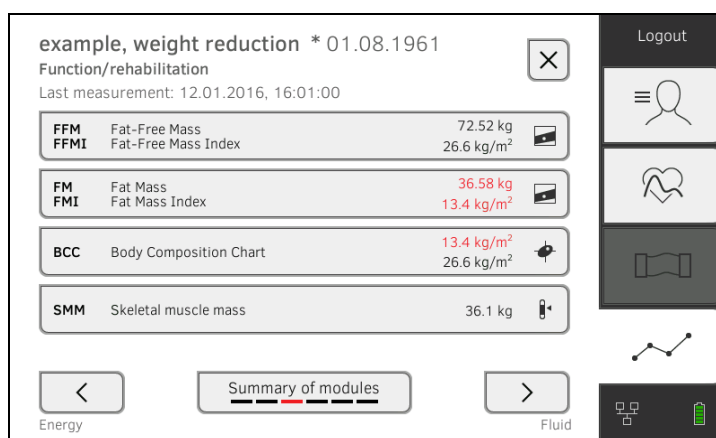
You have the following navigation options:

- ▶ Press the  button: → [Viewing the history of an analysis parameter](#)
- ▶ Press the   buttons: View more analysis parameters
- ▶ Press the  button: Return to the previous view

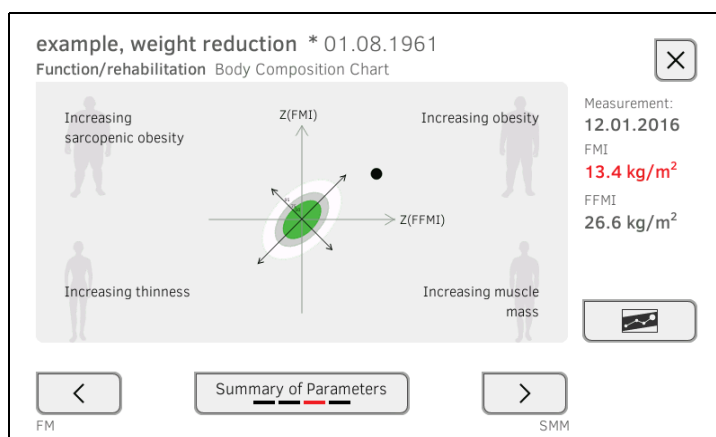
Viewing the history of an analysis parameter

To view the history of an analysis parameter, proceed as follows:

1. Call up a parameter overview → [Viewing current measuring results](#).



2. Press the parameter whose history you wish to view.
The detail view of the parameter is displayed:





3. Press the button.

All measurements for the selected analysis parameter are displayed.
The latest measurement is selected automatically.

example, anorexia * 27.04.1956

Health risk Body Composition Chart

Select all

☒	22.08.2012	10:18:00	2.9 kg/m ² 13.3 kg/m ²	
☐	25.05.2012	10:35:00	2.7 kg/m ² 13.2 kg/m ²	
☐	24.02.2012	11:40:00	1.6 kg/m ² 12.9 kg/m ²	
☐	11.01.2012	11:15:00	1.7 kg/m ² 12.9 kg/m ²	

History: 1 selected

You have the following options for continuing:

- ▶ Press the drop-down menu: Filter measuring results by period (a maximum of 5 measuring results are displayed). Then continue at step 5.
- ▶ To select values for the history individually: continue at step 4.



- ▶ Press the button: Add a comment



- ▶ Press the button: Return to the previous view

NOTE

Just a single comment can be added to each measured result.
Existing comments will be overwritten.



4. Press the checkboxes for all measurements (maximum: 5) which you want to look at in the history.



5. Press the button.

The history is displayed (in this case: three measurements)

example, weight reduction * 01.08.1961

Function/rehabilitation Body Composition Chart

Measurement: 12.01.2016
FMI 13.4 kg/m²
FFMI 26.6 kg/m²

Increasing sarcopenic obesity

Increasing obesity

Increasing thinness

Increasing muscle mass

Z(FMI)

Z(FFMI)

VAT

Summary of parameters

BIVA

You have the following options for continuing:

- ▶ Press the  button: select other values for the history
- ▶ Press the   buttons: View more analysis parameters
- ▶ Press the  button: Return to the previous view

7. OPERATION WHEN CONNECTED TO AN EMR SYSTEM

- [Switching on the device](#)
- [Measuring](#)
- [Logging in with EMR user ID](#)
- [Calling up patient data from the EMR system](#)
- [Saving measurements in the EMR system](#)

Your administrator can set up the device so that it communicates with your EMR system. In this case, the following additional functions are available:

- Log in with EMR user ID
- Call up patient data from EMR system on the device
- Submit measuring results to the EMR system

NOTICE!

Faulty operation, implausible measuring results

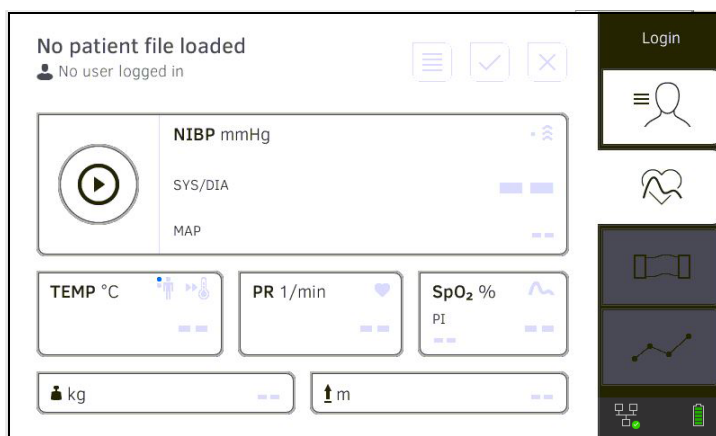
- ▶ Connection of the device to your EMR system is based on the technical and regulatory situation in your institution. In the individual case, this may lead to the device behaving differently to the way described in these instructions for use. If you have any questions, contact your administrator.
- ▶ The Measure bioimpedance function is not available if the device is connected to an EMR system.

7.1 Switching on the device

NOTE

To prevent faulty input, we recommend entering IDs with the aid of a barcode scanner; information about compatible barcode scanners can be found here: → [Optional accessories and spare parts](#).

1. Ensure that a barcode scanner is connected to the free USB interface of the device.
2. Press the ON/OFF button of the monitor.
The LED of the ON/OFF button is white.
3. Wait until the Vital signs tab is displayed:



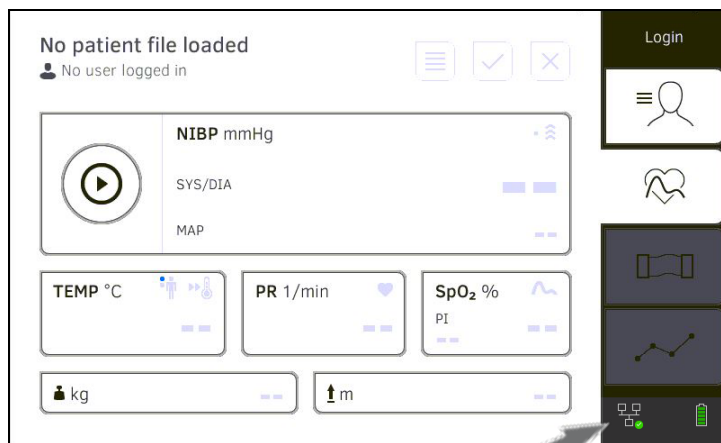
You have the following options for continuing:

- ▶ → [Measuring with an active connection to an EMR system](#)
- ▶ → [Measuring with an interrupted connection to an EMR system](#)

7.2 Measuring

- [Measuring with an active connection to an EMR system](#)
- [Measuring with an interrupted connection to an EMR system](#)

Measuring with an active connection to an EMR system



If the device has an active connection to the EMR system, proceed as described in the following sections:

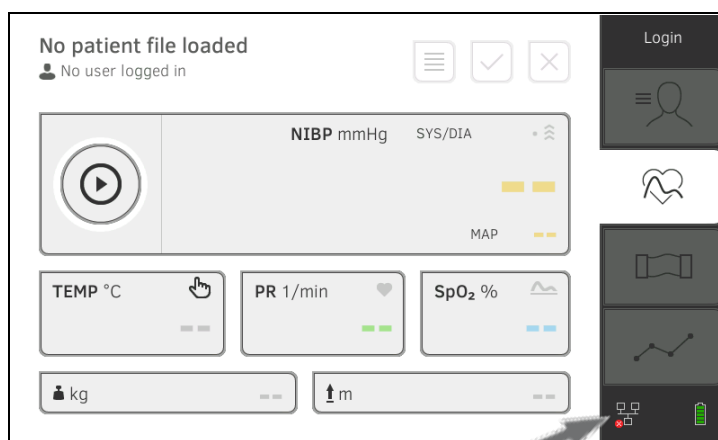
1. → [Scanning EMR user ID \(recommended\)](#)
2. → [Scanning patient ID \(recommended\)](#)
3. → [Measuring vital signs](#)
4. → [Adding weight and height](#)
5. → [Saving measurements in the EMR system](#)

Measuring with an interrupted connection to an EMR system

The device provides the option of performing measurements with an interrupted connection to the EMR system. The measurements are temporarily saved on the device and can be submitted as soon as the connection to the EMR system is active again.

NOTE

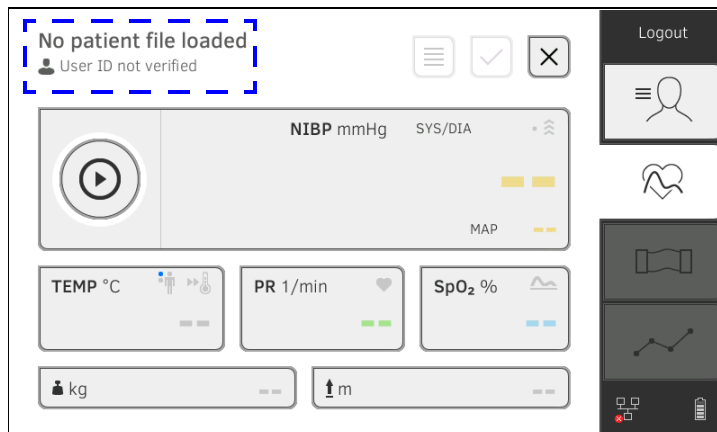
If you are not sure if this function is enabled, contact your administrator.



To perform a measurement with an interrupted connection to an EMR system, proceed as follows:

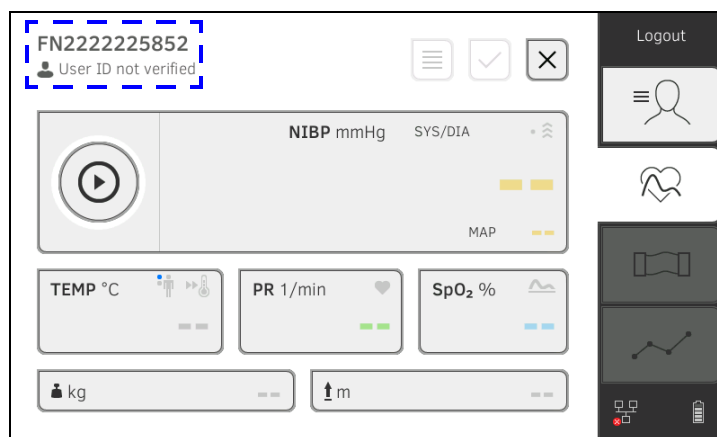
1. Log yourself in:
 - a) Scan EMR user ID
 - b) Confirm status message

The **User ID not verified** message appears.



2. Call up a patient file:
 - a) Scan patient ID
 - b) Confirm status message

The patient ID is displayed:



3. Perform the measurement as described in the following sections:
 - ▶ → [Measuring vital signs](#)
 - ▶ → [Adding weight and height](#)
 - ▶ → [Stopping a measurement procedure](#)

The measurement is saved in the **Unsubmitted measurements** list.

4. Log in again when the connection to the EMR system is active again.
5. Proceed as described in this section: → [Using the Unsubmitted measurements list](#).

7.3 Logging in with EMR user ID

If the device is connected to your EMR system, you must log in to the device using your EMR user ID. You have the following options:

- [Scanning EMR user ID \(recommended\)](#)
- [Entering EMR user ID manually](#)

Scanning EMR user ID (recommended)

1. Scan your EMR user ID.

Your EMR user ID is displayed in the  input field.

2. Enter your EMR system password.
The Vital signs tab is displayed.

You can call up patient data from the EMR system → [Calling up patient data from the EMR system](#).

Entering EMR user ID manually

1. Press the **Login** button.



The login window is displayed.

2. Enter your EMR user ID.

Your EMR user ID is displayed in the  input field:

3. Enter your EMR system password.
The Patient tab is displayed.

You can call up patient data from the EMR system → [Calling up patient data from the EMR system](#).

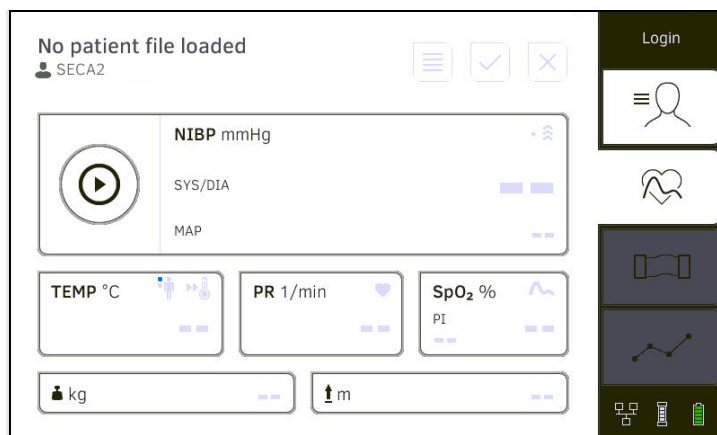
7.4 Calling up patient data from the EMR system

You have the following options for calling up patient data from the EMR system:

- [Scanning patient ID \(recommended\)](#)
- [Manually entering patient ID](#)

Scanning patient ID (recommended)

If you logged in from the Vital signs tab using a scanner (→ [Logging in with EMR user ID](#)), the Vital signs tab continues to be shown after login:



1. Scan the patient ID.
The patient data are shown in the **Patient information** dialog window.

i Patient information

First name
Albert

Surname
Normal

Date of birth: 02.01.1988
 Gender: Male
 Ethnicity: Caucasian
 Patient ID: FNSECA1

✓

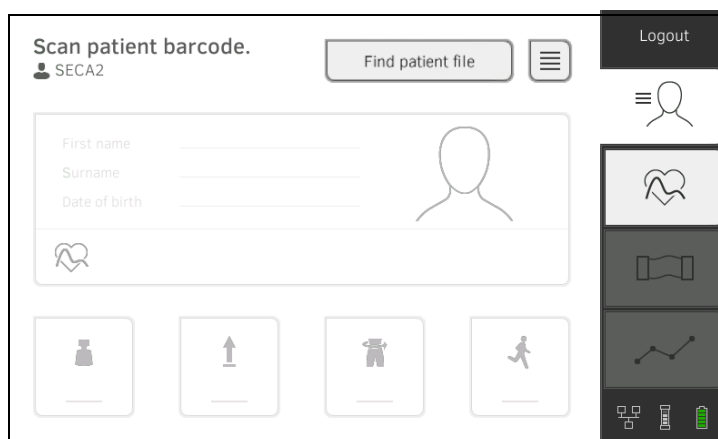
2. Ensure that the patient data displayed are correct.



3. Press the  button.
The patient data is transmitted to the device and displayed in the Vital signs tab.

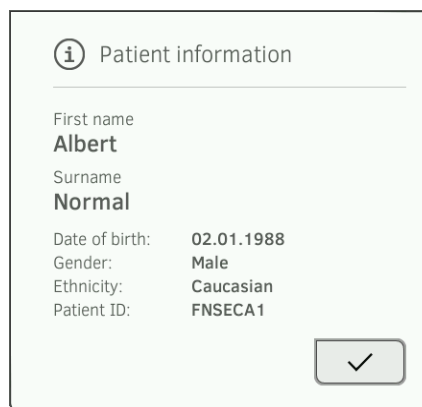
Manually entering patient ID

If you logged in using a keypad (→ [Entering EMR user ID manually](#)), the Patient tab is shown after login:



1. Press the **Find patient file** button.

2. Enter patient ID using the keypad .
The patient data are shown in the **Patient information** dialog window.



3. Ensure that the patient data displayed are correct.

4. Press the  button.
The patient data is transmitted to the device and displayed in the Vital signs tab.

7.5 Saving measurements in the EMR system

- [Submitting the measurement directly to the EMR system](#)
- [Saving measurement temporarily and submitting it later](#)
- [Using the Unsubmitted measurements list](#)

Submitting the measurement directly to the EMR system

To submit a measurement directly to the EMR system, proceed as follows:



1. In the Vital signs tab, press the  button.
2. In the dialog window, press the **Submit** button.

 Measurements

Save or submit measurement? "submit": Measurement will be submitted to your EMR. "save": Measurement will be saved on this device only, not sent.

The measurement is submitted to the EMR system and assigned to the EMR patient file.

The measurement procedure is complete.

The patient data are removed from the display.

Saving measurement temporarily and submitting it later

You can temporarily save a measurement on the device, for example to have the measuring results assessed by a third party. The measurement can then be submitted to the EMR system. This ensures that only plausible measuring results are saved in the EMR system.



1. In the Vital signs tab, press the  button.
2. In the dialog window, press the **Save** button.

 Measurements

Save or submit measurement? "submit": Measurement will be submitted to your EMR. "save": Measurement will be saved on this device only, not sent.

The measurement is assigned to the patient ID and saved temporarily on the device.

The measurement procedure is complete.

The measurement can be assessed in the Unsubmitted measurements list and submitted to the EMR system → [Using the Unsubmitted measurements list](#).

Using the Unsubmitted measurements list

- [Confirm offline measurement \(EMR system connection\)](#)
- [Viewing details](#)
- [Submitting the measurement](#)
- [Deleting a measurement](#)

In the **Unsubmitted measurements** list, you can view and assess the details of a measurement before submitting the measurement to the EMR system. The list is available in the Patient and Vital signs tabs.

A measurement appears in the list under the following conditions:

- In the **Measurements** dialog window, press the **Save** button → [Saving measurement temporarily and submitting it later](#).
- The measurement cannot be submitted because the connection to the EMR system is interrupted.

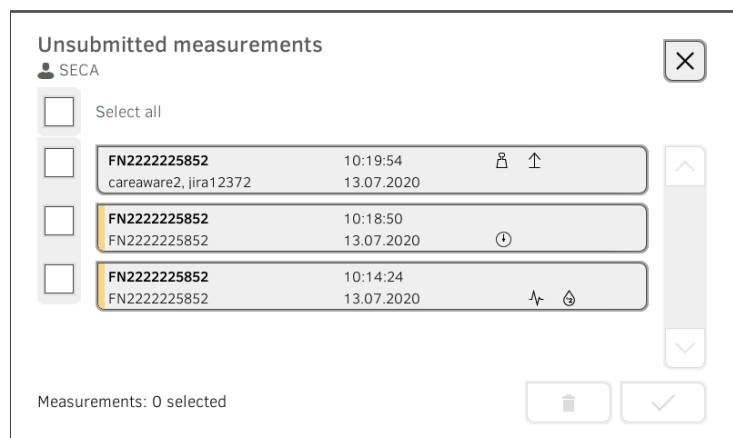
To open the **Unsubmitted measurements** list, proceed as follows:

1. Log in → [Scanning EMR user ID \(recommended\)](#).
2. Ensure that the Patient and Vital signs tabs are active.



3. Press the  button.

The **Unsubmitted measurements** list is displayed:



NOTE

Measurements marked yellow (offline measurement) contain unconfirmed patient data – because the connection to the EMR system was interrupted, for example.

Confirm offline measurement (EMR system connection)

Measurements marked yellow (offline measurement) contain unconfirmed patient data – because the connection to the EMR system was interrupted, for example. These measurements have to be confirmed before you can view details or submit the measurement to your EMR system.



1. Ensure that the connection to the EMR system is active.
2. Press an offline measurement (marked yellow).

Unsubmitted measurements

SECA

☐ Select all

FN2222225852 careaware2, jira12372	10:19:54 13.07.2020	👤 ⬆
FN2222225852 FN2222225852	10:18:50 13.07.2020	🕒
FN2222225852 FN2222225852	10:14:24 13.07.2020	📶 🗑

Measurements: 0 selected

🗑 ✓

The patient data are displayed in the **Patient information** dialog window.

Patient information

First name
Albert

Surname
Normal

Date of birth: **02.01.1988**

Gender: **Male**

Ethnicity: **Caucasian**

Patient ID: **FNSECA1**

✓

3. Ensure that the patient data displayed are correct.



4. Press the  button.
The measurement is confirmed.
The yellow marking is no longer displayed in the **Unsubmitted measurements** list.
The details of the measurement are displayed → [Viewing details](#).

Viewing details

1. Press a measurement.

The details of the measurement are displayed:

careaware2, jira12372

SECA

Measurement date: 13.07.2020 12:41:28

Result	Value	Unit
Average (NIBP)	120 SYS 100 MAP 92 DIA	mmHg
Pulse rate	86	1/min
SpO ₂	98	%
Temperature	37.0	°C

NOTE

Measurements marked blue contain mean values. If you press the measurement, you can view the individual results.

2. Press the button  to close Detail view.

Submitting the measurement

1. Ensure that the connection to the EMR system is active:



2. Press the checkboxes  of the measurements to be submitted:

Unsubmitted measurements

SECA

☐ Select all

☐

☐

☐

FN2222225852
careaware2, jira12372

10:19:54
13.07.2020

FN2222225852
FN2222225852

10:18:50
13.07.2020

FN2222225852
FN2222225852

10:14:24
13.07.2020

Measurements: 0 selected

3. Press the  button.
The measurements are submitted to the EMR system.
The measurements are deleted from the list.

NOTE

In the EMR system, measurements from the **Unsubmitted measurements** list are not assigned to the user who performed the measurements, but to the user who submitted them.

Deleting a measurement

1. Press the checkboxes  of the measurements to be deleted:

Unsubmitted measurements

SECA

☐ Select all

☐	FN2222225852 careaware2, jira12372	10:19:54 13.07.2020	⏏ ⬆
☐	FN2222225852 FN2222225852	10:18:50 13.07.2020	⌚
☐	FN2222225852 FN2222225852	10:14:24 13.07.2020	⚡ ⚡

Measurements: 0 selected




2. Press the  button.
The selected measurements are deleted.

8. HYGIENE TREATMENT

- Cleaning
- Disinfecting
- Sterilizing
- Removing/fitting probe holder (devices with temperature probe)
- Removing/fitting the magazine holder (devices with in-ear thermometer)



WARNING! **Electric shock**

The device is not de-energized when the on/off key is pressed and the display goes out. Use of fluids on the device may cause electric shock.

- ▶ Ensure that the device is switched off before performing any hygiene treatment.
- ▶ Disconnect the power supply connector before performing any hygiene treatment.
- ▶ Before each hygiene treatment, take the rechargeable battery out of the device (if present and removable).
- ▶ Ensure that no fluids penetrate the device.

NOTICE!

Damage to device

Inappropriate detergents and disinfectants may damage the sensitive surfaces of the device.

- ▶ Use only disinfectants free of chlorine and alcohol which are explicitly suitable for acrylic sheet and other sensitive surfaces (active ingredient: quaternary ammonium compounds, for example).
- ▶ Do not use caustic or abrasive detergents.
- ▶ Do not use organic solvents (e.g. white spirit or petroleum spirit).
- ▶ Use disinfectants including the active ingredient 70 % isopropanol only for measuring accessories for measuring vital signs.

8.1 Cleaning

- ▶ Clean the device and its accessories as described in the table:

Component (depending on version)	Interval	Cleaning
seca mBCA 525: Monitor with storage compartment seca mVSA 535: Monitor with SmartBucket	As required	1. Remove all the measuring accessories (measuring devices and consumables) from the device (depending on version) • → Removing the probe holder • → Removing the magazine holder 2. Moisten a soft cloth with a soap solution 3. Wipe over all surfaces 4. Allow to air-dry for approx. 30 minutes
Measuring mat and electrode cables	As required	1. Moisten a soft cloth with a mild soap solution 2. Clean measuring mat and electrode cables 3. Allow to air-dry for approx. 30 minutes
Blood pressure cuff and compressed air tube	As required	1. Moisten a soft cloth with a mild soap solution 2. Clean blood pressure cuff and compressed air tube 3. Rinse thoroughly with water 4. Allow to dry at room temperature

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Component (depending on version)	Interval	Cleaning
Temperature probe (red/blue) with cable	As required	1. Discard probe cover and dispose of it 2. Moisten a soft cloth with a mild soap solution 3. Clean temperature probe 4. Shake out temperature probe so that no liquid remains in it 5. Allow to air-dry for approx. 30 minutes
Probe holder (red/blue)	As required	1. → Removing the probe holder 2. Moisten a cotton bud with a mild soap solution 3. Wipe over all the surfaces of the probe holder
In-ear thermometer	After every use	In-ear thermometer and cable: 1. Do not discard probe cover 2. Moisten a soft cloth with a mild soap solution: Ratio of water to soap solution: 20:1, temperature: Max. 55 °C (130 °F) 3. Wring out the cloth so that no excess liquid can penetrate the in-ear thermometer 4. Wipe over in-ear thermometer and cable 5. Dry the in-ear thermometer and cable using a lint-free cloth 6. Discard probe cover
	As required	Measuring head and lens: 1. Carefully remove all foreign particles using a cloth moistened with alcohol (70 % isopropanol) 2. Wipe dry the lens at the tip of the measuring head with a lint-free cloth (e.g. spectacle-cleaning cloth) 3. Make sure that the lens at the tip of the measuring head does not have any fingerprints or marks on it 4. Allow the in-ear thermometer to dry completely in air
Magazine holder for probe covers (in-ear thermometer)	As required	1. → Removing the magazine holder 2. Moisten a soft cloth or cotton bud with a mild soap solution 3. Wipe over the surfaces of the magazine holder 4. Allow the magazine holder to dry completely in air
SpO ₂ sensor with cable	Follow the manufacturer's instructions for use	
Patient cable for SpO ₂ sensor	Follow the manufacturer's instructions for use	

8.2 Disinfecting

1. Follow the instructions for use for the disinfectant.
2. Disinfect the device and its accessories as described in the table:

Component (depending on equipment)	Interval	Disinfecting
seca mBCA 525: Monitor with storage compartment seca mVSA 535: Monitor with SmartBucket	As required	1. Remove all the measuring accessories (measuring devices and consumables) from the device (depending on version) • → Removing the probe holder • → Removing the magazine holder 2. Moisten a soft cloth with disinfectant (active ingredient: quaternary ammonium compounds) 3. Wipe over all surfaces 4. Allow to air-dry for approx. 30 minutes
Measuring mat and electrode cables	Before and after a measurement	1. Moisten a soft cloth with disinfectant (active ingredient: quaternary ammonium compounds) 2. Wipe over measuring mat and electrode cables 3. Allow to air-dry for approx. 30 minutes
Blood pressure cuff and compressed air tube	As required	1. Moisten a soft cloth with disinfectant (active ingredient: 70 % isopropanol) 2. Wipe over cuff and compressed air tube 3. Rinse thoroughly with water 4. Allow to dry at room temperature
Temperature probes (red/blue) with cable	As required	1. Discard probe cover and dispose of it 2. Moisten a soft cloth with disinfectant (active ingredient: 70 % isopropanol) 3. Wipe over temperature probe 4. Shake out temperature probe so that no liquid remains in it 5. Allow to air-dry for approx. 30 minutes
Probe holder (red/blue)	As required	1. → Removing the probe holder 2. Moisten a cotton bud with disinfectant (active ingredient: 70 % isopropanol) 3. Wipe over the inner surfaces of the probe holder 4. Allow to air-dry for approx. 30 minutes
In-ear thermometer, cable, measuring head and lens	As required	1. Discard probe cover and dispose of it 2. Wipe over in-ear thermometer several times with a cloth moistened with alcohol (70 % isopropanol) so that all surfaces are visibly moist for at least one minute 3. Make sure that the lens at the tip of the measuring head does not have any fingerprints or marks on it 4. Allow the in-ear thermometer to dry completely in air
Magazine holder for probe covers (in-ear thermometer)	As required	1. → Removing the magazine holder 2. Moisten a cotton bud with disinfectant (active ingredient: quaternary ammonium compounds) 3. Wipe over surfaces 4. Allow to air-dry for approx. 30 minutes
SpO ₂ sensor with cable	Follow the manufacturer's instructions for use	
Patient cable for SpO ₂ sensor	Follow the manufacturer's instructions for use	

8.3 Sterilizing

The device and accessories must not be sterilized.

8.4 Removing/fitting probe holder (devices with temperature probe)



WARNING!

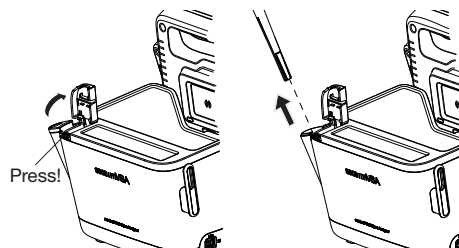
Patient hazard

The color of the probe holder indicates whether a device is intended for oral/axillary or rectal temperature measurement. This distinction can no longer be made once the probe holder has been removed. Confusing the probe holders can lead to cross-contamination.

- Ensure that the probe holder is fitted back in the device from which it was removed following a hygiene treatment.

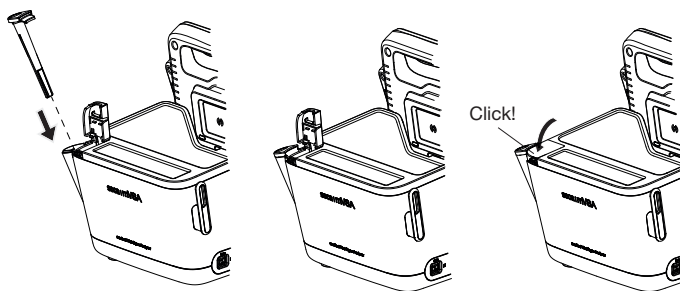
Removing the probe holder

1. Open the covering cap.
2. Remove the probe holder.



Fitting the probe holder

1. Insert the probe holder in the SmartBucket as shown in the illustration below.

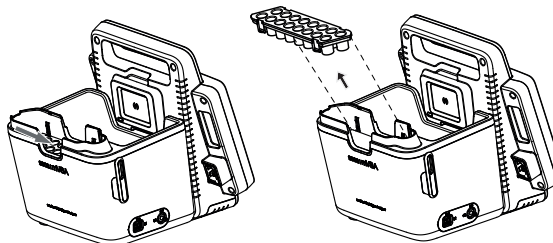


2. Close the cover cap until you hear it engage.

8.5 Removing/fitting the magazine holder (devices with in-ear thermometer)

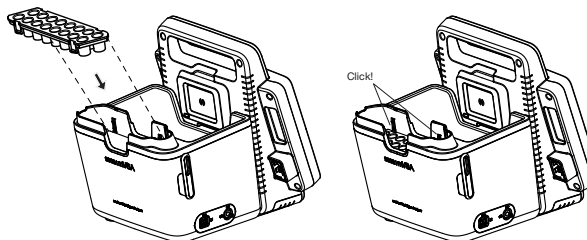
Removing the magazine holder

1. Lift the magazine holder with a finger until the magazine holder comes out of its catch.
2. Remove the magazine holder.



Fitting the magazine holder

1. Insert the magazine holder in the SmartBucket as shown in the illustration below.
2. Push down the magazine holder until you hear it engage.



9. FUNCTION CHECK

9.1 Device

- Perform a function check prior to each use.

A complete function check includes:

- visual inspection for mechanical damage
- checking the alignment of the device
- visual and function check of the display elements
- function check of all the controls shown in the section entitled "Overview"
- function check of optional accessories

If you notice any faults or deviations during the function check, first try to resolve the error with the aid of the section entitled "Troubleshooting" in this document.



CAUTION! **Personal injury**

If you notice any faults or deviations during the function check which cannot be resolved with the aid of the section entitled "Troubleshooting" in this document, you may not use the device.

- Have the device repaired by seca Service or by an authorized service partner.
- Follow the section entitled "Servicing" in this document.

9.2 COVIDIEN™ GENIUS®3 in-ear thermometer

For the COVIDIEN™ GENIUS®3 in-ear thermometer, the manufacturer CardinalHealth™ recommends a function check if one of the following situations applies:

- In-ear thermometer was not used in accordance with purpose
- In-ear thermometer was dropped
- In-ear thermometer was stored below -25 °C or above +55 °C

10. SERVICING

10.1 Device

The measuring technology of this device must be checked every two years. We recommend servicing the whole device as part of this check.

NOTICE!

Incorrect measurements as a result of poor servicing

- Have servicing and repairs carried out exclusively by seca Service or by an authorized service partner.
- You can find service partners in your area at www.seca.com or by sending an e-mail to service@seca.com.

10.2 COVIDIEN™ GENIUS®3 in-ear thermometer

For the COVIDIEN™ GENIUS®3 in-ear thermometer, the manufacturer CardinalHealth™ recommends calibrating regularly every 12 months. The COVIDIEN™ Genius Checker/Calibrator is required for calibration. If you do not have a COVIDIEN™ Genius Checker/Calibrator available, get in touch with your contact at CardinalHealth™.

11. TROUBLESHOOTING

- [Monitor](#)
- [Measuring mat](#)
- [Bioimpedance measurement](#)
- [Vital signs measurement](#)
- [Network connection](#)
- [Connection to the seca analytics 115 software](#)
- [EMR system connection via seca connect 103 software](#)
- [seca 360° proximity connection](#)

11.1 Monitor

Fault	Cause	Remedy
Monitor cannot be switched on	No power supply	Provide power supply
	Rechargeable battery discharged	Provide power supply and charge rechargeable battery
	Rechargeable battery faulty	Replace rechargeable battery
Touchscreen display remains off	Device on standby	• Touch the touchscreen display • Press the ON/OFF button
	Device not switched on	Switch on the device
	No power supply	Check whether power is being supplied
	Touchscreen display faulty	Inform seca Service
Touchscreen display not reacting	Device in undefined state following implausible input	• Switch off the device (press and hold the ON/OFF button for approx. 15 seconds) • Switch the device back on
Image on touchscreen display faulty	Touchscreen display faulty	Inform seca Service
Password not accepted	Password overwritten on last synchronization with the seca analytics 115 PC software	• Use the new password • If new password not known, contact administrator
	Following a backup, the old passwords are valid again	• Use the old password
		Administrator: • If you no longer know the old password, assign a new password • Have the administrator password reset by seca Service
The Vital signs tab is not active on a seca mVSA 535	USB connecting cable of the SmartBucket not connected to the monitor	• Connect the USB connecting cable of the SmartBucket to the monitor • Restart the device
	SmartBucket not activated	Administrator: Activate SmartBucket: → Managing system components in the administrator menu
The Vital signs tab is not active on a mBCA	The Vital signs tab is only displayed on a seca mVSA 535	Retrofit SmartBucket → Optional accessories and spare parts Note the serial number of your mBCA

Fault	Cause	Remedy
BIA tab not active	No seca patient file prepared	Prepare seca patient file → Preparing a bioimpedance measurement
	Measuring mat not activated	Administrator: Activate measuring mat: → Managing system components in the administrator menu
	No measuring mat present	Administrator, if desired: • Retrofit measuring mat • Activate measuring mat: → Managing system components in the administrator menu
Patient and user data can not be restored manually	USB stick contains several backup copies	Ensure that there is only one folder on the USB stick with the designation <ddMMyyyy_hhmm>_seca_monitor_b backup (if necessary, rename other folders)
	Backup copy on the USB stick has been renamed	Ensure that backup copies are saved in the folder with the designation <ddMMyyyy_hhmm>_seca_monitor_b backup (if necessary, rename folders)
Patient and user data cannot initially be encrypted after software update	There is not enough memory on the monitor for initial encryption	Initial manual encryption by administrator: → Exporting patient and user data manually → Resetting the device → Restoring patient and user data manually • If necessary, make previous device settings (for example, WiFi connection) manually

11.2 Measuring mat

Fault	Cause	Remedy
Measuring mat cannot be switched on	Rechargeable battery discharged	Suspend measuring mat in storage compartment of monitor and charge rechargeable battery
	Measuring mat faulty	Replace measuring mat
Charge status LED is red	Rechargeable battery discharged	Suspend measuring mat in storage compartment of monitor and charge rechargeable battery
	Rechargeable battery faulty	Replace measuring mat
	Inductive charging interface of monitor covered, e.g. by other measuring accessories	First suspend the measuring mat in the magnetic catch of the monitor, then stow other measuring accessories
	Inductive charging interface faulty	Inform seca Service
WiFi LED is red	No WiFi connection to monitor	Administrator: Check settings for WiFi connection and correct if necessary
	WiFi module of measuring mat faulty	Replace measuring mat
One or more Electrode contact LEDs are red	Electrode cables not connected to electrodes	Ensure that all electrode cables are engaged in the push-buttons of the electrodes
	Electrodes defective	Replace electrodes
	Electrode cables or measuring mat faulty	Replace measuring mat

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Fault	Cause	Remedy
One or more LEDs on the measuring mat not on	Measuring mat faulty	Replace measuring mat
seca patient files cannot be transmitted to the measuring mat	No WiFi connection	• Suspend the measuring mat in the storage compartment of the device • Call up seca patient file again, data will be transmitted via the infrared interface
	Infrared interface faulty	Inform seca Service
No WiFi connection	Distance between measuring mat and monitor is too big	• Reduce distance • → Performing a measurement (without WiFi direct connection to the measuring mat)

11.3 Bioimpedance measurement

Fault	Cause	Remedy
Bioimpedance measurement not available	BIA measuring mat deactivated	Administrator: Activate measuring mat: Further information is available here: → Retrofitting the measuring mat (seca mVSA 535 only)
	Device is connected to an EMR system via the seca connect 103 software	Not a malfunction. Bioimpedance measurement not possible when connected via seca connect 103
Results of bioimpedance measurement deviate significantly from expected results	Patient position set on device does not match actual patient position	Ensure that the patient position set on the device and the actual position match
	Patient moved during the measurement	Request the patient not to move during the measurement and repeat the measurement
	The patient's arms or legs are not held away from the body	Ask the patient to hold their arms and legs away from the body
	Electrode cables incorrectly assigned	Ensure that the electrode cables are connected to the correct electrodes to suit patient position
	Electrodes defective	Replace electrodes
	Electrode cables or measuring mat faulty	Replace measuring mat
	Incorrect seca patient file called up	Transmit measurement to seca analytics 115 PC software and assign to the correct seca patient file there
Some analysis modules are not shown in the Analysis tab	List of analysis modules which can be displayed has been restricted by administrator	Administrator: Modify the analysis modules which can be displayed
Value of an analysis parameter is shown in red	Value outside the normal range determined for that analysis parameter	• Repeat the measurement to rule out measurement error • If the value remains outside the normal range on a repeat measurement, take the measured value into account as the examination continues

11.4 Vital signs measurement

- [General](#)
- [Blood pressure measurement](#)
- [COVIDIEN™ FILAC™ 3000 temperature measurement](#)
- [COVIDIEN™ GENIUS®3 temperature measurement](#)
- [Manual temperature input](#)
- [SpO₂ measurement](#)

General

Fault	Cause	Remedy
Vital signs tab is not displayed	USB connecting cable of the SmartBucket not connected to the monitor	- Connect the USB connecting cable of the SmartBucket to the monitor - Restart the device
	SmartBucket not activated	Administrator: Activate SmartBucket: → Managing system components in the administrator menu
seca mVSA 535 is being operated on a wheeled stand: Measuring results for vital signs are implausible	- Original seca USB connecting cable not being used - USB extension cable also in use	- Use original seca USB connecting cable (in scope of delivery for the wheeled stand) - Do not use a USB extension cable

Blood pressure measurement

Fault	Cause	Remedy
Implausible measuring results	Excessive patient movement	Ask the patient to move as little as possible
	Incorrect blood pressure cuff used	- Use correct size of blood pressure cuff - Only use seca blood pressure cuffs
	Blood pressure cuff not applied correctly	Correctly apply blood pressure cuff, see instructions for use for blood pressure cuff
	Blood pressure cuff applied to an extremity to which there is intravenous access	Apply blood pressure cuff to a different extremity
Insufficient cuff pressure	Incorrect blood pressure cuff used	- Use correct size of blood pressure cuff - Only use seca blood pressure cuffs
	Blood pressure cuff or compressed air tube leaking	Dispose of blood pressure cuff, use replacement
	Pump in device faulty	Do not continue using device and have it repaired by seca Service
No option to select Multiple measurement in the NIBP settings dialog window	Administrator has configured a measuring profile. The name of the measuring profile is displayed.	Not a malfunction - Press the name of the measuring profile → Starting a multiple measurement.
Blood pressure values do not appear in the EMR system or in the seca analytics 115 PC software	Multiple measurement was performed	For current measurement: → Modifying presets and → Starting a single measurement Administrator: - Specify Individual measurement as preset → Presets for blood pressure

COVIDIEN™ FILAC™ 3000
 temperature measurement

Fault	Cause	Remedy
No temperature measurement possible	Temperature module of the SmartBucket not activated	Administrator: Activate temperature module: System\SmartBucket tab
Implausible measuring results, temperature measurement unsuccessful	Special patient condition, such as hypothermia	- Assess patient vital signs using alternative means - Switch from predictive measurement mode to direct mode
	Rectal measurement performed with blue temperature probe	Only perform rectal measurement with red temperature probe
	Oral/axillary measurement performed with red temperature probe	Only perform oral/axillary measurement with blue temperature probe
	Patient activity before oral temperature measurement: - Physical exertion - Eating/drinking - Brushing teeth - Smoking	Only perform oral temperature measurement about 20 minutes after any of these activities
	Set measuring position does not match actual measuring position	- Select measuring position to suit the probe used - Set correct measuring position on device
	No probe cover used	- Disinfect the temperature probe → Disinfecting - Use probe cover
	Temperature probe faulty	Dispose of temperature probe, use replacement
Temperature probe cannot be pushed completely into the probe holder	Probe cover not discarded	- Carefully withdraw temperature probe and probe cover from the probe holder - Discard probe cover - Push the temperature probe into the probe cover

COVIDIEN™ GENIUS®3 temperature
 measurement

Fault	Cause	Remedy
No temperature measurement possible	Temperature module of the SmartBucket not activated	Administrator: Activate temperature module: System\SmartBucket tab
	Patient temperature exceeds measuring range of in-ear thermometer	Assess patient vital signs using alternative means
	Patient temperature undershoots measuring range of in-ear thermometer	

Fault	Cause	Remedy
	Ambient temperature exceeds permitted range	• Modify ambient temperature • Perform measurement at a location with an ambient temperature within the permitted range
	Ambient temperature undershoots permitted range	
Measurement does not start	No probe cover used	• Disinfect the in-ear thermometer → Disinfecting • Use probe cover
	Probe cover not properly located on measuring head	Ensure that probe cover engages audibly with the measuring head
	Probe cover damaged	Dispose of damaged probe cover, use new one
	Temperature module of the SmartBucket not activated	Activate temperature module (administrator rights required): → Retrofitting the SmartBucket (seca mBCA 525 only)
Measured result unexpectedly high	Probe cover damaged	Dispose of damaged probe cover and use new one
Measured result unexpectedly low	• Lens of measuring head blocked • Opening in probe cover blocked	• Clean measuring head • Dispose of probe cover, use new one
	Patient's auditory canal blocked	Clean auditory canal
Implausible measuring results	Probe cover damaged	Dispose of damaged probe cover and use new one
	Measuring position on in-ear thermometer in wrong place	Correct setting on in-ear thermometer (see instructions for use for in-ear thermometer)
	In-ear thermometer faulty	Dispose of in-ear thermometer, use replacement
Different temperature units on monitor and display	Setting of unit on monitor and on in-ear thermometer is not synchronized automatically. If necessary, the monitor converts measuring results automatically.	• Press the °C/°F button on the in-ear thermometer • Change units on the monitor (administrator rights required)
	Internal memory: Checksum error	• Put on a new probe cover and repeat measurement. • If the error occurs again, contact seca Service
	Thermometer no longer calibrated	• Do not continue using device • Contact seca Service

Manual temperature input

Fault	Cause	Remedy
Manual temperature input not possible	Measured values outside permitted range	Observe permitted temperature range, Technical data: → Manual temperature input
	Device has integrated temperature measurement (probe or in-ear thermometer)	• Not a malfunction • Use the measuring equipment for the device
	Temperature module of the SmartBucket activated	Administrator: Deactivate temperature module: System SmartBucket tab
Manual temperature entries do not appear in the seca analytics 115 PC software	Manual temperature entries are not synchronized with the seca analytics 115 PC software	Not a malfunction • Enter values in the seca analytics 115 PC software manually

SpO₂ measurement

Fault	Cause	Remedy
Implausible measuring results	Intra-aortic balloon pump affecting pulse rate	Check pulse rate using ECG
	Sensor damp	• Dry sensor • Use dry sensor
	Sensor not applied correctly	Apply sensor correctly, see instructions for use for sensor
	Strong ambient light	Cover application site with opaque material
	Electromagnetic interference	• Switch off devices in proximity, isolate interfering device • Align interfering device differently or set up in a different location • Increase the distance between this device and the interfering device
	Poor perfusion	• Assess patient vital signs using alternative means • Apply blood pressure cuff to location with better perfusion
Measurement not possible	Masimo SET® only: Sensor service life expired	Use new Masimo SET® sensor.
	Sensor or patient cable defective	Dispose of sensor or patient cable, use spare part
Measurement not possible	Sensor or patient cable defective	Dispose of sensor or patient cable, use spare part
Pulse is not found or is lost	Sensor too rigid	• Use suitable size of sensor • Apply sensor to a different finger
	Strong ambient light	Cover application site with opaque material
	Poor perfusion	• Assess patient vital signs using alternative means • Apply sensor to a location with better perfusion

11.5 Network connection

Fault	Cause	Remedy
No WiFi connection	WiFi function of device is deactivated	Administrator: Activate WiFi
	Distance between monitor and WiFi router is too big	• Reduce distance • Transmit measuring results to seca analytics 115 PC software or seca connect 103 via LAN
	WiFi not available in your institution	Transmit measuring results to seca analytics 115 PC software or seca connect 103 via LAN
No network connection	Firewall: ports required are not enabled	Administrator: Enable required ports in firewall → Monitor interfaces and network ports
	Firewall/gateway configuration does not permit use of LAN and WiFi in parallel	Administrator: Deactivate one of the two transmission options on the device.

11.6 Connection to the seca analytics 115 software

Fault	Cause	Remedy
Data transmission cannot be set up between device and seca analytics 115	Software versions not compatible	Use a compatible version of seca analytics 115 → Compatibility
seca patient file not found when searching for a patient on the device	No seca patient file set up yet	Create seca patient file → Creating a seca patient file
	seca patient file is not assigned to the user in seca analytics 115	Check whether the seca patient file can be assigned to the user in seca analytics 115
	Windows firewall port-blocking is active, required ports are blocked	Administrator: Enable the ports required
No access to seca patient database of the seca analytics 115 PC software	No network connection set up between the device and the PC on which the seca analytics 115 PC software is installed	Administrator: → Setting up a LAN connection to the network (stationary operation) → Setting up a WiFi connection (mobile operation) → Setting up a connection to the seca analytics 115 PC software
	The PC on which the seca analytics 115 PC software is installed is not switched on	Switch on PC
	Automatic synchronization is deactivated on the device	Administrator: → Exporting patient and user data manually
Print function on device not available	Software versions not compatible	Use a compatible version of the seca analytics 115 PC software: 1.4 Build 6657 or higher
Results report not being printed	PC printer not switched on	Switch on PC printer
	The PC on which the seca analytics 115 PC software is installed is not switched on	Switch on PC
	No network connection set up between device and seca analytics 115 PC software	Administrator: Set up LAN connection
	No connection set up between seca analytics 115 PC software and PC printer	Administrator: Set up connection between seca analytics 115 PC software and PC printer
Blood pressure values do not appear in the seca analytics 115 PC software	Multiple measurement was performed	User: • → Modifying presets • → Starting a single measurement Administrator: • Specify Individual measurement as preset → Presets for blood pressure
Manual temperature entries do not appear in the seca analytics 115 PC software	Manual temperature entries are not synchronized with the seca analytics 115 PC software	Not a malfunction • Enter values in the seca analytics 115 PC software manually

11.7 EMR system connection via seca connect 103 software

For more information on using the **seca connect 103** software, see the **seca 103/452** system instructions for use.

Fault	Cause	Remedy
Data transmission cannot be set up between device and seca connect 103	Software versions not compatible	Administrator: Use a compatible version of the seca connect 103 software → Compatibility
	BIA measuring mat activated. EMR system connections are possible only with the BIA measuring mat deactivated	Deactivate measuring mat, more information is available here: → Retrofitting the measuring mat (seca mVSA 535 only)
Unable to find user ID	No connection to the server	Administrator: Check server connection
	User ID not recognized by the server	Ensure that user ID is valid
Unable to find patient ID	No connection to the server	Administrator: Check server connection
	Patient ID not recognized by the server	Ensure that patient ID is valid
Unable to scan IDs	Scanner not connected correctly	Ensure that the USB stick is correctly located in the USB interface
	Barcode scanner incompatible	Use compatible barcode scanner
	Scanner defective	Replace scanner
There is no request for a password following input of the EMR user ID. The Vital signs tab is displayed immediately	Not a malfunction: The device connection to the EMR system has been configured so that no password needs to be entered.	Administrator: Modify configuration if necessary → Making workflow settings
Unable to find EMR system patient data	No patient file available in the EMR system	Create patient file directly in the EMR system
	Error scanning patient ID	Scan patient ID again
	No network connection to the EMR system	Administrator: Check the network connection and set up again if necessary
Login using EMR user ID not possible	EMR system connection interrupted, device set up so that no measurements are possible	Administrator: If possible, allow measurements with the EMR system connection interrupted → Making workflow settings
Blood pressure values do not appear in the EMR system	Multiple measurement was performed	For current measurement: • → Modifying presets and → Starting a single measurement Administrator: • Specify Individual measurement as preset → Presets for blood pressure
Not possible to submit measuring results to the EMR system	Network cable not plugged in correctly	Check whether the network cable is connected correctly and that the connectors are firm in their sockets
	Network cable defective	Replace network cable
	Device outside WiFi range	Bring device into WiFi range
	No network connection to the EMR system	Administrator: Check the network connection and set up again if necessary
	Network connection interrupted	If network connection is active → Using the Unsubmitted measurements list

11.8 seca 360° proximity connection

Fault	Cause	Remedy
Weight or height values do not appear in the display	No seca 360° proximity connection set up	Administrator: → Setting up a seca 360° proximity connection
	Network connection interrupted	• LAN: Ensure that the network cable is correctly plugged in and is not damaged • WiFi: Reduce distance from router
	seca scale/measuring rod incorrectly configured	Administrator: Configure seca scale/measuring rod as follows: • Scan user ID: Required • Scan patient ID: Required • Confirmation of measurement on seca measuring device: Required • Port used: Port configured for communication with the seca connect 103 software (default: 22020) → Setting up a connection to the seca analytics 115 PC software • Follow seca 103/452 system instructions for use
	No measurement has yet been performed using the seca scale/measuring rod	Perform measurement as described in the instructions for use for the seca scale/seca measuring rod
	seca scale/measuring rod has not submitted a value	Submit value as described in the instructions for use for the seca scale/seca measuring rod
An error message appears in the Weight or Height field	An error occurred on the seca scale/measuring rod	• Eliminate error as described in the instructions for use for the seca scale/seca measuring rod. • Follow seca 103/452 system instructions for use • If you are unable to eliminate the error, contact seca Service.

11.9 seca 360° wireless connection

Fault	Cause	Remedy
Weight or height values do not appear in the display	seca 360° wireless wireless module of the connected scale/measuring rod not activated	Administrator: → Setting up a seca 360° wireless connection
	No seca 360° wireless wireless connection set up	
	Scale/measuring rod not wireless-capable (do not contain a seca 360° wireless wireless module)	Enter measured values manually: → Preparing a bioimpedance measurement

12. TECHNICAL DATA

- Monitor
- Monitor interfaces and network ports
- Measuring mat
- Bioimpedance measurement
- Vital signs measurement
- Analysis parameters
- Analysis modules
- Standards and directives

12.1 Monitor

Dimensions, weights	
Monitor with storage compartment (seca mBCA 525)	
Dimensions (seca mBCA 525)	
• Depth	230 mm
• Width	252 mm
• Height	262 mm
Net weight (seca mBCA 525)	approx. 2 kg
Monitor with SmartBucket (seca mVSA 535)	
Dimensions, empty (seca mVSA 535 for temperature probe)	
• Depth	278 mm
• Width	254 mm
• Height	262 mm
Dimensions, empty (seca mVSA 535 for in-ear thermometer)	
• Depth	278 mm
• Width	252 mm
• Height	262 mm
Net weight (seca mVSA 535)	approx. 3 kg
Further technical data (all models)	
Ambient conditions, operation	
• Temperature (with COVIDIEN™ FILAC™ 3000)	+10 °C to +40 °C (50 °F to 104 °F)
• Temperature (with COVIDIEN™ GENIUS®3)	+16 °C to +33 °C (60.8 °F to 91.4 °F)
• Air pressure	700 hPa – 1060 hPa
• Humidity	20 % – 80 %, non-condensing
Ambient conditions, storage	
• Temperature	-10 °C to +55 °C (14 °F to 131 °F)
• Air pressure	700 hPa – 1060 hPa
• Humidity	15 % – 95 %, non-condensing
Ambient conditions, transport	
• Temperature	-10 °C to +55 °C (14 °F to 131 °F)
• Air pressure	700 hPa – 1060 hPa
• Humidity	15 % – 95 %, non-condensing
Setup location, maximum altitude above mean sea level	3000 m
Display type	7" touchscreen display
Power supply for monitor, input	
• Type	Internal power supply unit, IEC 60320 C13
• Power supply voltage	100 V ~ to 240 V ~
• Power supply frequency	50 Hz – 60 Hz
• Current consumption	0.85 A
Mobile power supply	Lithium-ion battery
Voltage	11.25 V
Capacity	2950 mAh
Range (seca mVSA 535/seca mBCA 525): full brightness, new rechargeable battery)	approx. 5 h

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Further technical data (all models)	
Power consumption	
• Standby (touchscreen display off, ON/OFF button green)	< 5 W
• Operation (ON/OFF button white)	< 9 W
• Operation (charging rechargeable battery for monitor and measuring mat, on/off button is white)	< 35 W
Medical device in accordance with Directive 93/42/EEC	Class IIa
IEC 60601-1:	
Insulated device, protection class:	I
Type of protection seca mBCA 525	IP20
Type of protection seca mVSA 535	IP21
Duty cycle	Continuous duty
Interfaces	seca 360° wireless 2 x USB 2.0 (max 500 mA) LAN: Ethernet (10/100 Base-T) WiFi: 2.4 GHz (WPA, WPA2 PSK, WPA2 Enterprise PEAP RADIUS) Infrared Inductive charging of measuring mat rechargeable battery
Compatible printer	Microsoft® Windows®-compatible printer via seca analytics 115 PC software

12.2 Monitor interfaces and network ports

Interfaces and network ports

Interfaces	Protocol	Data transmission rate	Factory setting
WiFi:	IEEE 802.11 b/g/n	Up to 72.2 Mbps	Off
LAN:	IEEE 802.3u	100 Mbit/s	On
TCP port:	Transmission Control Protocol	n/a	20010, Off
UDP port:	User Datagram Protocol	n/a	20011
File Transfer port:	File Transfer Protocol	n/a	20012
seca connect 103 port:	Proprietary	n/a	22020
USB (2 ports):	USB 2.0	480 Mbit/s per port	On
seca 360° wireless:	Proprietary	50 kb/s	Off

Recommended WiFi settings

This table contains settings for optional WiFi performance.

Settings	Recommended settings	Consequences in the event of different settings
Authentication/encryption	- WPA2 Personal - WPA2 Enterprise (EAP-TLS)	No network connection, other encryption methods not supported
Frequency band	- Single band 2.4 MHz - IEEE 802.11 b/g/n	–
Data transmission rate	Up to 72.2 Mbps	–
Network configuration	- DHCP - UDP	–
Firewall/ports to be opened	- TCP port: 20010 - UDP port: 20011 - File transfer port: 20012 seca connect 103 port: 22020	No synchronization
Separate VLAN	No special requirements	–
QoS	No special requirements	–
VoiP	No special requirements	–
WiFi multimedia	No special requirements	–
Network latency	No special requirements	–
IT support	No special requirements	–

Settings	Recommended settings	Consequences in the event of different settings
Redundant power supply	No special requirements	–

12.3 Measuring mat

Measuring mat	
Dimensions	
• Depth	783 mm
• Width	170 mm
• Height	20 mm
Net weight	approx. 1 kg
Ambient conditions, operation	
• Temperature	+10 °C to +40 °C (50 °F to 104 °F)
• Air pressure	700 hPa – 1060 hPa
• Humidity	20 % – 80 %, non-condensing
Ambient conditions, storage	
• Temperature	-10 °C to +60 °C (14 °F to 140 °F)
• Air pressure	700 hPa – 1060 hPa
• Humidity	15 % – 95 %, non-condensing
Ambient conditions, transport	
• Temperature	-10 °C to +60 °C (14 °F to 140 °F)
• Air pressure	700 hPa – 1060 hPa
• Humidity	0 % – 95 %, non-condensing
Setup location, maximum altitude above mean sea level	3000 m
Power supply	Lithium-ion battery
Range (measurements)	approx. 5 h
Medical device in accordance with Directive 93/42/EEC	Class IIa
FDA classification	Class II Medical Device
IEC 60601-1: Medical electrical device, type BF	
Type of protection	IP44
Duty cycle	Continuous duty

12.4 Bioimpedance measurement

- [Measuring method](#)
- [Clinical studies](#)
- [Accuracy of predictive formulas](#)

Measuring method

Measuring method	
Measuring method	8-point bioimpedance measurement 4-point bioimpedance measurement (measure right half of body)
Measuring frequencies	1; 2; 5; 10; 20; 50; 100; 200; 500 kHz
Measured values	Impedance (Z), resistance (R), reactance (X _c), phase angle (φ)
Phase angle measuring range	0° to 20°
Impedance measuring range	10 Ω to 1000 Ω
Measuring segments	Right arm, left arm, right leg, left leg, right half of body, torso
Measuring current	100 µA (+20 %, -50 %)
Measuring time	max. 30 s

Measuring method	
Accuracy (8-point bioimpedance measurement, frequencies 5 kHz and 50 kHz Segments: Right half of body, left half of body) • Impedance (at phase angle 0°) • Phase angle (at phase angle 0°, impedance 200 Ω to 1000 Ω)	$\pm 5 \Omega$ 0.5°

Clinical studies

Clinical studies form the scientific basis for analyzing body composition using this device. The study results are integrated in the device software in the form of reference values.

For some analysis parameters, the reference used depends on the patient's ethnicity. The device automatically uses ethnicity-dependent references to suit the corresponding entry in the seca patient file → [Preparing a bioimpedance measurement](#).

Details about the clinical studies can be found on our website, www.seca.com.

Accuracy of predictive formulas

Standard deviation (SEE) for predictive formulas in this device ^a					
Ethnicity:	Caucasian	Afro-American	Asian	South and Central American	Other
Parameter	SEE	SEE	SEE	SEE	SEE
FFM	2.50 kg	2.21 kg	2.54 kg	2.62 kg	2.49 kg
TBW	2.0 l	1.8 l	1.4 l	1.4 l	1.7 l
ECW	1.1 l	0.9 l	0.9 l	0.7 l	0.9 l
SMM left arm	0.19 kg	0.28 kg	0.19 kg	0.16 kg	0.21 kg
SMM right arm	0.22 kg	0.30 kg	0.21 kg	0.17 kg	0.23 kg
SMM left leg	0.81 kg	0.71 kg	0.81 kg	0.83 kg	0.79 kg
SMM right leg	0.68 kg	0.66 kg	0.76 kg	0.71 kg	0.70 kg
SMM total	1.8 kg	2.0 kg	1.7 kg	1.7 kg	1.8 kg
VAT	0.5 l	0.6 l	0.6 l	1.2 l	0.8 l

a. In the USA, a study was conducted on 130 healthy adults of different ethnicities. The aim of the study was to validate the parameters determined using seca formulas against clinically established reference methods. The results of this comparative study are shown in the table above. The table shows the standard deviation (SEE) by ethnicity for the parameters determined using seca's in-house formulas.

12.5 Vital signs measurement

- Blood pressure measurement
- COVIDIEN™ FILAC™ 3000 temperature measurement
- COVIDIEN™ GENIUS®3 temperature measurement
- Manual temperature input
- Masimo SET® SpO₂ measurement
- seca SpO₂ measurement

Blood pressure measurement

seca blood pressure module	
Measuring method	• Oscillometric • Possible to switch between inflation and deflation • Single measurement • Multiple measurement can be configured: Max. 6 measurements in max. 30 minutes
Initial cuff pressure, deflation	Can be set: 80 mmHg – 280 mmHg (260 mmHg cannot be set)
Maximum cuff pressure	300 mmHg
Measuring range for blood pressure Inflation: • Systolic BP • Diastolic BP • Mean arterial pressure Deflation: • Systolic BP • Diastolic BP • Mean arterial pressure	77 mmHg – 200 mmHg 45 mmHg – 190 mmHg 56 mmHg – 193 mmHg 25 mmHg – 280 mmHg 10 mmHg – 220 mmHg 15 mmHg – 260 mmHg
Accuracy (under laboratory conditions, verified with CuffLink patient simulator from Fluke)	max. ± 3 mmHg / 2 %, the larger value in each case applies
Measuring accuracy for blood pressure (determined by the manufacturer of the measuring module in clinical trial in accordance with DIN EN ISO 81060) Inflation: • Mean deviation of systolic BP • Standard deviation of systolic BP • Mean deviation of diastolic BP • Standard deviation of diastolic BP Deflation: • Mean deviation of systolic BP • Standard deviation of systolic BP • Mean deviation of diastolic BP • Standard deviation of diastolic BP	0.36 mmHg 4.27 mmHg -0.12 mmHg 3.78 mmHg 0.10 mmHg 3.24 mmHg -0.20 mmHg 2.95 mmHg
Pressure transducer: • Accuracy • Resolution	± 1 mmHg 1 mmHg
• Leakage rate • Limit value for pressure • Switch off and release pressure at (first fault)	< 3 mmHg/min 300 mmHg > 330 mmHg
Measuring time for blood pressure: • Normal • Maximum (adults)	15 – 20 s 90 s

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seca blood pressure module	
Pulse rate: • Measuring range for inflation • Measuring range for deflation • Accuracy (under laboratory conditions, verified with CuffLink patient simulator from Fluke)	45 min ⁻¹ – 200 min ⁻¹ 30 min ⁻¹ – 240 min ⁻¹ max. ± 3 min ⁻¹ / 3 %, the larger value in each case applies
IEC 60601-1: Medical electrical device, type BF (defibrillation-protected)	

COVIDIEN™ FILAC™ 3000 temperature measurement

COVIDIEN™ FILAC™ 3000 temperature module	
Measurement modes	Direct, predictive
Measuring position: Blue probes Red probes	Oral, axillary Rectal
Measuring range • Direct mode • Predictive mode	30 °C – 43 °C (86 °F – 109.4 °F) 35.5 °C – 42 °C (95.9 °F – 107.6 °F)
Measuring time (following application at measuring position) Direct: • All measuring positions Predictive: • Oral, no fever • Oral, fever • Axillary • Rectal	60 – 120 sec 3 – 5 sec 8 – 10 sec 8 – 12 sec 10 – 14 sec
Switchover time from predictive mode to direct mode • Measuring position not detected (following removal from probe cover) • No stable temperature value obtained (following application)	60 sec 70 sec
Accuracy (water bath): • Direct mode • Predictive mode	± 0.1 °C (± 0.2 °F) ± 0.1 °C (± 0.2 °F)
IEC 60601-1: Medical electrical device, type BF	
Type of protection against ingress of liquids	IP21

Clinical accuracy ^{a b}			
Measuring position:	Oral	Axillary	Rectal
$\bar{d}$ (age group I)	-0.44	-0.01	0.09
L_A (age group I)	1.01	0.86	0.99
$\bar{d}$ (age group II)	-0.21	-0.04	0.12
L_A (age group II)	0.75	0.65	0.67
σ_r	0.34	0.28	0.28

a. The clinical accuracy of the COVIDIEN™ FILAC™ 3000 was determined in a clinical study in accordance with EN 80601-2-56. Clinical bias $\bar{d}$ and limits of agreement L_A are quoted for the age group and measuring position in question. Clinical repeatability σ_r is independent of age. The reference body sites of the reference thermometer used in the clinical study correspond to the measuring positions quoted.

b. The age of the test subjects in age group I is between 3 and 4 years. The age of the subjects in age group II is 5 and above.

COVIDIEN™ GENIUS®3 temperature measurement

COVIDIEN™ GENIUS®3 in-ear thermometer	
Measuring method	Direct mode
Measuring range (in-ear)	33 °C - 42 °C (91.4 °F - 107.6 °F)
Measuring time	Less than 2 sec
Resolution	0.1 °C; 0.1 °F
Accuracy	± 0.3 °C (± 0.5 °F)
- Ambient temperature: 16 °C - 33 °C (60.8 °F - 91.4 °F) - Target temperature: 33 °C - 42 °C (91.4 °F - 107.6 °F)	
EN 60601-1: Medical electrical device, type BF	
Type of protection against ingress of liquids	IP22

Manual temperature input

Manual temperature input	
Device versions	Versions without integrated temperature measurement
Measuring methods	Oral, axillary, rectal, in-ear, on the skin, contactless
Temperature range	32 °C - 44 °C (89.6 °F - 111.2 °F)

Masimo SET® SpO₂ measurement

General technical data

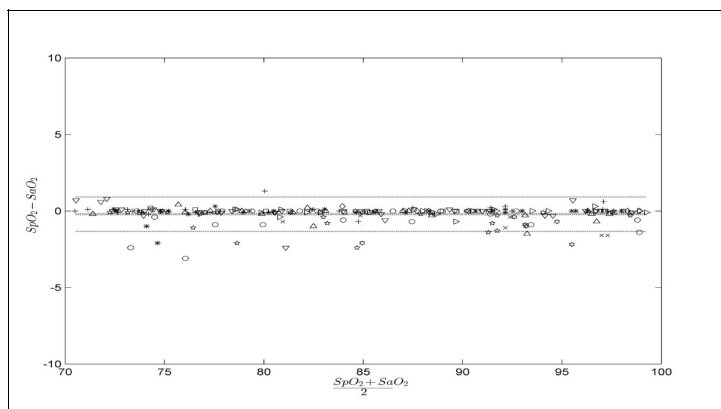
Masimo SET® SpO ₂ module ^{a b c d e f g}	
Measurement	Functional oxygen saturation
Measuring method	Spectrophotometry (red/infrared)
LED wavelength:	
Red	660 nm
Infrared	905 nm
Maximum light output	15 mW
This information may be of particular interest to clinicians	
Measuring time:	
• Device switched on, sensor not applied	≤ 12 sec
• Device switched off, sensor applied	≤ 8 sec
Measuring range:	
• SpO ₂	0 % - 100 %
• Pulse rate	25 min ⁻¹ - 240 min ⁻¹
• Perfusion index	0.02 % - 20 %
Measuring accuracy:	
• Measuring range	70 % - 100 %
• SpO ₂ (no patient movement)	70 % - 100 % ± 2 digits ^h
	0 % - 69 % not specified
• SpO ₂ (patient movement)	70 % - 100 % ± 3 digits
	0 % - 69 % not specified
• Pulse rate (no patient movement)	25 min ⁻¹ - 240 min ⁻¹ ± 3 digits
• Pulse rate (patient movement)	25 min ⁻¹ - 240 min ⁻¹ ± 5 digits
Low perfusion performance	
• Pulse amplitude	> 0.02 %
• Transmission	> 5 %
• Oxygen saturation (SpO ₂)	± 2 digits
• Pulse rate	± 3 digits
Resolution:	
• Oxygen saturation (SpO ₂)	1 %
• Pulse rate	1 min ⁻¹

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Masimo SET® SpO ₂ module ^{a b c d e f g}	
IEC 60601-1: Medical electrical device, type BF	

- a. The accuracy of the Masimo SET® technology with Masimo sensors was validated with no movement in human blood studies with induced hypoxia on healthy adult male and female volunteers with light to dark skin pigmentation in the range from 70 – 100 % for SpO₂ compared to a laboratory CO oximeter and ECG monitor. This fluctuation corresponds to ± 1 standard deviation. Plus or minus one standard deviation covers 68 % of the population.
- b. The accuracy of the Masimo SET® technology with Masimo sensors was validated with movement in human blood studies with induced hypoxia on healthy adult male and female volunteers with light to dark skin pigmentation, 2 to 4 Hz rubbing and tapping movements being performed at an amplitude of 1 to 2 cm and a non-repetitive movement being performed at 1 to 5 Hz at an amplitude of 2 to 3 cm in the range from 70 – 100 % for SpO₂ compared to a laboratory CO oximeter and ECG monitor. This fluctuation corresponds to ± 1 standard deviation and thus covers 68 % of the population.
- c. The accuracy of the Masimo SET® technology in the case of poor perfusion was validated on the test bench compared to a Biotek Index 2™ simulator and the Masimo simulator with signal strengths of over 0.02 % and a transmission of over 5 % for saturations in the range from 70 to 100 %. This fluctuation corresponds to ± 1 standard deviation. Plus or minus one standard deviation covers 68 % of the population.
- d. The accuracy of the pulse rate of the Masimo SET® technology with Masimo sensors was validated on the test bench for the range 25 -240 min⁻¹ compared to a Biotek Index 2™ simulator. This fluctuation corresponds to ± 1 standard deviation. Plus or minus one standard deviation covers 68 % of the population.
- e. The precise data can be found in the directions for use (DFU) for the sensors. Unless otherwise stated, the measuring position for reusable sensors should be changed at least every 4 hours and for adhesive sensors, at least every 8 hours.
- f. The sensor accuracy quoted applies in conjunction with the Masimo technology with a Masimo patient cable used for LNOP sensors, RD SET sensors, the LNCS sensors or the M-LNCS sensors. The numbers stand for ARMS (accuracy root mean square). Because pulse oximeter measurements are statistically distributed measuring procedures, only about two-thirds of the measurements are expected to be in a range of $\pm$ ARMS compared to the reference value. Unless stated otherwise, accuracy for SpO₂ of 70 % to 100 % is quoted. The accuracy of pulse rate is quoted from 25 to 240 min⁻¹.
- g. Masimo M-LNCS, LNOP, RD SET, and LNCS sensor types have the same optical and electrical properties and may differ only in application type (adhesive/non-adhesive/hook & loop), cable lengths, optical component locations (top or bottom of sensor as aligned with cable), adhesive material type/size, and connector type (LNOP 8-pin modular plug, RD 15-pin modular plug, LNCS 9-pin, cable-based, and M-LNCS 15-pin, cable-based). All sensor accuracy information and sensor application instructions are provided with the associated sensor directions for use.
- h. Digit: Numerical value by which the last place of a value displayed can deviate from the actual measured value; used to state the accuracy of a measuring device (example: displayed SpO₂ value 70 %, accuracy ± 2 digits; actual value is between 68 % and 72 %).

Accuracy of Masimo SET® DCI/DCIP sensors



Measured values	
Measuring range	A _{RMS}
90-100 %	0.60 %
80-90 %	0.54 %
70-80 %	0.67 %
Total value	
70-100 %	2 %

Masimo Patent Information

Masimo Patents: www.masimo.com/patents.htm

No Implied License Statement

Possession or purchase of this device does not convey any express or implied license to use the device with unauthorized sensors or cables which would, alone or in combination with this device, fall within the scope of one or more of the patents relating to this device.

seca SpO₂ measurement

seca SpO ₂ module ^{a b}	
Measurement Measuring method	Functional oxygen saturation Spectrophotometry (red/infrared)
LED wavelength: Red Infrared Maximum light output This information may be of particular interest to clinicians	660 nm 900 nm 5 mW
Measuring range: • SpO ₂ • Pulse rate (default) • Pulse rate (enhanced)	0 % – 100 % 30 min ⁻¹ – 240 min ⁻¹ 20 min ⁻¹ – 300 min ⁻¹
Measuring accuracy: • SpO ₂ (no patient movement) • SpO ₂ (patient movement) • Pulse rate (no patient movement) • Pulse rate (patient movement)	60 % – 70 % ± 3 A _{rms} 60 % – 100 % ± 2 A _{rms} <60 % not specified 70 % – 100 % ± 3 A _{rms} ^c <70 % not specified ≤ 2 min ⁻¹ -
Resolution: • Oxygen saturation (SpO ₂) • Pulse rate	1 % 1 min ⁻¹
IEC 60601-1: Medical electrical device, type BF	

a. Validated by clinical tests in which the sensor values measured were compared to those of the arterial CO oximetry of healthy adults over the specified range of functional oxygen saturation.

b. As the measurements of pulse oximeters are statistically distributed, only approximately two-thirds of these measurements will probably fall in the range from ± A_{RMS} (accuracy root mean square) of the value measured by CO oximeters.

c. Tested with a Fluke Index II Oximeter Tester (all movement patterns).

12.6 Analysis parameters

NOTE

These instructions for use describe the maximal available functional scope of the device. The actual functional scope of your device may be less than this.

Analysis parameter	Display	Analysis module
Bioimpedance vector analysis (BIVA)	• Normal range display of R and X_c in coordinate system in relation to height • 50 %, 75 %, 95 % percentiles in the form of tolerance ellipses	Fluid Health risk
Body mass index (BMI)	Absolute in kg/m ²	Development/growth
Extracellular water (ECW)	Absolute in l	Fluid
Fat-free mass (FFM)	Absolute in kg	Function/rehabilitation
Fat mass (FM)	• Absolute in kg • Relative to weight in %	Energy Function/rehabilitation
Total energy expenditure (TEE)	Absolute in MJ/d or kcal/d	Energy
Total body water (TBW)	Absolute in l	Fluid
Weight (W)	Absolute in kg	Development/growth
Height (H)	Absolute in m	Development/growth
Extracellular water (ECW)/total body water (TBW)	Relative in %	Fluid (international)
Energy stored in the body (E_{body})	Absolute in MJ or kcal	Energy
Body composition chart (BCC): Mass indices Fat-free mass index (FFMI) Fat mass index (FMI)	• Absolute in kg/m² • Normal range display • 50 %, 75 %, 95 % percentiles in the form of tolerance ellipses	Function/rehabilitation Health risk
Phase angle (ϕ)	• Absolute in degrees • Normal range display	Health risk
Reactance (X_c)	Absolute in ohms	Fluid Health risk
Resistance (R)	Absolute in ohms	Fluid Health risk
Resting energy expenditure (REE)	Absolute in MJ/d or kcal/d	Energy
Skeletal muscle mass (SMM)	• Absolute in kg • Normal range display	Function/rehabilitation
Visceral adipose tissue (VAT)	Absolute in l	Health risk
Blood pressure, non-invasive (NIBP)	Absolute in mmHg	Vital signs
Body temperature (TEMP)	Absolute in °C	Vital signs
Pulse rate (PR)	Absolute in min ⁻¹ (based on NIBP or SpO ₂)	Vital signs
Oxygen saturation (SpO ₂)	Relative in %	Vital signs

12.7 Analysis modules

NOTE

These instructions for use describe the maximal available functional scope of the device. The actual functional scope of your device may be less than this.

Analysis module	Description	Analysis parameter
Development/growth	Supports the monitoring of weight changes	• Weight • Height • Body mass index (BMI)
Energy	• Determination of energy expenditure and energy reserves • Required: Weight, height, PAL	• Fat mass (FM) • Energy stored in the body (E_{body}) • Resting energy expenditure (REE) • Total energy expenditure (TEE)
Function/rehabilitation	• Determining fitness level • Assessing the success of a training program • Required: Weight, height	• Fat-free mass (FFM) • Fat mass (FM) • Body composition chart (BCC) • Skeletal muscle mass (SMM)
Fluid	• Determination of fluid status • Required: Weight, height	• Total body water (TBW) • Extracellular water (ECW) ECW/TBW [%] • Bioimpedance vector analysis (BIVA)
Health risk	• Summary of body composition • Estimate of health risk • Required: Weight, height, waist circumference	• Phase angle (φ) • Visceral adipose tissue (VAT) • Bioimpedance vector analysis (BIVA) • Body composition chart (BCC)
Vital signs	Overview of vital signs to support a diagnosis	• Blood pressure (NIBP) • Body temperature (TEMP) • Pulse rate (PR) • Oxygen saturation (SpO_2)

12.8 seca 360° wireless system

seca 360° wireless	
Maximum number of wireless groups	3
Maximum configuration per wireless group	1 baby scale 1 measuring station (or 1 personal scale and 1 measuring rod) 1 mVSA/1 mBCA 1 PC with seca 360° wireless USB adapter 456 and seca analytics 115 PC software
Number of channels per wireless group	3
Type of channel assignment	Automatic (recommended) Manual
Channel numbers	0 - 99
Minimum spacing of channel numbers	30
• Frequency band • Transmission power • Maximum range	2.433 GHz - 2.480 GHz < 10 mW 10 m

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12.9 Standards and directives

This device complies with the following standards and directives:

- IEC 60601-1 (Medical electrical equipment – Part 1: General requirements for basic safety and essential performance)
- IEC 60601-1-2 (Medical Electrical Equipment – Part 1-2: General Requirements For Basic Safety And Essential Performance – Collateral Standard: Electromagnetic Compatibility – Requirements And Tests)
- ISO 80601-2-56 (Medical Electrical Equipment – Part 2-56: Particular Requirements For Basic Safety And Essential Performance Of Clinical Thermometers For Body Temperature Measurement.)
- IEC 80601-2-30 (Medical Electrical Equipment – Part 2-30: Particular Requirements For The Basic Safety And Essential Performance Of Automated Non-Invasive Sphygmomanometers)
- ISO 80601-2-61 (Medical Electrical Equipment – Part 2-61: Particular Requirements For Basic Safety And Essential Performance Of Pulse Oximeter Equipment)

13. OPTIONAL ACCESSORIES AND SPARE PARTS

Optional accessories and spare parts	Article number
SmartBucket seca mVSA 526 (mBCA seca mBCA 525 compatible from serial number 10000000090505)	Version overview at www.seca.com
Bioimpedance measurement: seca mBCA 531 measuring mat	531-20-00-001
Blood pressure measurement: • Cuff, size XS • Cuff, size S • Cuff, size M • Cuff, size L • Cuff, size XL • Cuff, size XXL • Extension for compressed air tube (1.5 m) • Extension for compressed air tube (3.0 m)	490-0024-001 490-0025-001 490-0026-001 490-0027-001 490-0028-001 490-0029-001 490-0033-001 490-0034-001
Masimo SET® SpO ₂ measurement: Sensors and patient cables from the Masimo RD SET® product line Not compatible: Sensors for neonates	Obtainable directly from the manufacturer, see www.masimo.com
seca SpO ₂ measurement: • Finger Clip SF7500 (adults) • Soft Sensor SC7500 (adults) • Soft Sensor SCM7500 (children) • Patient cable XT6500	490-0006-001 490-0007-001 490-0008-001 490-0012-001
Temperature measurement: • COVIDIEN™ FILAC™ 3000 blue for oral/axillary measurement • COVIDIEN™ FILAC™ 3000 red for rectal measurement • COVIDIEN™ GENIUS®3 in-ear thermometer	68-90-00-044-009 68-90-00-045-009 68-90-00-143-009
Push-button electrodes for affixing to patient: Pack of 100	68-90-00-043-009
Probe covers for COVIDIEN™ FILAC™ 3000: 100 packs, pack of 20 probe covers	490-0015-001
Probe covers for COVIDIEN™ GENIUS®3: 22 packs, pack of 6 magazines (16 probe covers per magazine)	490-0016-001
Software: • seca analytics 115 • seca connect 103	For details of application-specific license packages go to www.seca.com

Optional accessories and spare parts	Article number
seca 475 wheeled stand for seca mBCA 525	475-00-00-009
Holder for SmartBucket (retrofit for 475-00-00-009)	490-0017-009
seca 475 wheeled stand for seca mVSA 535	475-05-35-009
seca 432 carry case	432-00-00-009
Scanner (medical device): - Honeywell Xenon 1900H (2D) - Datalogic Gryphon I (GD4430 HC (2D)	Cannot be ordered through seca

14.COMPATIBLE SECA PRODUCTS

Product	seca 360° wireless [from serial number]	seca 360° proximity	Article number		
Measuring stations					
seca 285/seca 284 seca 287/seca 286	No restriction	Yes, with accessories ^a	For details of country-specific versions, go to www.seca.com		
seca 787 seca 797		Yes, with accessories ^a Yes			
Multifunctional scales					
seca 651 seca 650	No restriction	Yes	For details of country-specific versions, go to www.seca.com		
seca 655 seca 654	No restriction	Yes			
seca 635 seca 634	10000000026211 10000000027487	Yes, with accessories ^a			
seca 645 seca 644	10000000027015 10000000027016				
seca 657 seca 656	10000000021683 10000000026289				
seca 665 seca 664	10000000022821 10000000027014				
seca 677 seca 676	10000000020483 10000000024369				
seca 675 seca 674	10000000026776 10000000023806				
seca 685 seca 684	10000000017288 10000000017495				
Column scales					
seca 704 seca 703 ^b	5704209100721 5703209102764			Yes, with accessories ^a	For details of country-specific versions, go to www.seca.com
Chair scales ^b .					
seca 954 (1309007) seca 954 (1309377)	10000000005919 10000000011074	Yes, with accessories ^a		For details of country-specific versions, go to www.seca.com	
seca 959 (7021002) seca 959 (7021092)	10000000014301 10000000014426				
seca 963	10000000045451				

a. **seca 452** external interface module (firmware version Q2_2020_Build_615 or higher) required

b. **seca 452** external interface module can only be retrofitted by authorized service technicians

15. DISPOSAL

- [Measuring mat and device](#)
- [Batteries and rechargeable batteries](#)
- [Consumables](#)

15.1 Measuring mat and device



Do not dispose of the device with household waste. The device must be disposed of properly as electronic waste. Comply with the national provisions applicable in your country. For further information contact our service department at:

service@seca.com

15.2 Batteries and rechargeable batteries



Spent (rechargeable) batteries should not be discarded with household waste, regardless of whether they contain harmful substances or not. As a consumer you are obliged by law to dispose of (rechargeable) batteries via the collection points set up by the municipal authorities or the retail sector. Only discard (rechargeable) batteries when fully discharged.

15.3 Consumables



Do not dispose single-use items such as probe covers with household waste. Used probe covers must be treated as infectious biological waste. Comply with facility requirements and the national provisions applicable in your country.

16. WARRANTY

We offer a two-year warranty from the date of delivery for defects attributable to faulty material or poor workmanship. This excludes all moveable parts such as (rechargeable) batteries, cables, power supply units, etc. Defects which are covered by the warranty shall be rectified free of charge for customers on production of the sales receipt. No further claims can be accepted. The costs of shipment in both directions shall be borne by the customer where the device is not located at the customer's premises. In the event of any damage during shipment warranty claims can only be asserted where the complete original packaging was used for shipment and the device was secured inside in the same manner as in the original packaging. You should therefore keep all packaging.

The warranty shall become null and void where the device is opened by persons not expressly authorised to do so by seca.

In the event of a warranty issue, please contact your local seca office or the dealer from whom you ordered the product.

Details on the warranty for measuring accessories, such as blood pressure cuffs, SpO₂ sensors or thermometers, can be found at www.seca.com.

17.DECLARATION OF CONFORMITY



seca gmbh & co. kg hereby declares that the product meets the terms of the applicable European directives. The unabridged declaration of conformity can be found at: www.seca.com.

FOR ADMINISTRATORS: CONFIGURING seca mVSA 535 / seca mBCA 525

- [Preparing configuration](#)
- [User accounts](#)
- [Making settings for measuring mode](#)
- [Managing system components](#)
- [Setting up peripherals](#)
- [Connecting to an EMR system](#)
- [Factory settings](#)
- [Instructions for use for seca mVSA 535/seca mBCA 525](#)

NOTE

This document describes the maximal equipment of the **seca mVSA 535/seca mBCA 525** product family: measurement of blood pressure, temperature, oxygen saturation and bioimpedance. Depending on the actual equipment of your device, some of this information may not be relevant to your device. Pay attention to the information in this document which is relevant to your device.

NOTE

- This part of the user documentation contains information about configuring the device for measuring mode and for integrating it in a network.
- Integrating this device in a network containing other devices may lead to previously unknown risks to patients, operators or third parties. It is the responsibility of the operating company to determine, analyze, evaluate, and control these risks.
- The functions described in this part of the user documentation are accessible only to users with administrator rights.
- Follow the information in the instructions for use → [Instructions for use for seca mVSA 535/seca mBCA 525](#).

1. PREPARING CONFIGURATION

- [Administrator login](#)
- [Configuration options](#)

1.1 Administrator login

NOTICE!

Faulty configuration

For devices with bioimpedance measurement: During configuration, data are transmitted to the measuring mat via the infrared interface. The infrared interface is located in the magnetic catch of the monitor.

- ▶ Ensure that the measuring mat is correctly suspended in the magnetic catch of the monitor throughout the entire configuration process → [Suspending the measuring mat in the magnetic catch](#).

1. Switch on the device.
The measuring mat – if there is one – switches on automatically.
2. Log in as the administrator:
 - ▶ Initial login: → [Activating initial user accounts](#)
 - ▶ Log in routinely: continue at step 3.

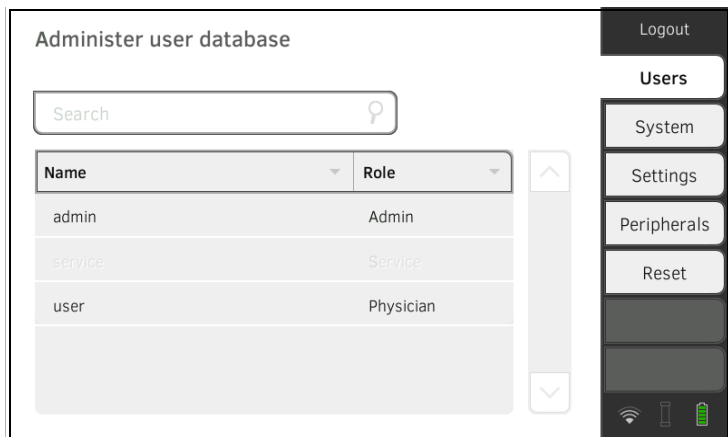
3. Press the **Login** button.



The login window is displayed.

4. Press the  input field.
The list of user accounts is displayed.
5. Press your user account.
Your user account is displayed in the input field.
6. Press the  input field.

7. Enter your password using the keypad .
The administrator area is displayed.



1.2 Configuration options

→ [Network functions](#)

→ [Overview of access rights](#)

Network functions

• = possible, - = not possible

Function	LAN	WiFi	seca 360° wireless	Infrared
Receiving patient weight from scale/measuring rod	• ^{a.}	• ^{a.}	•	-
Receiving patient height from measuring rod/measuring station	• ^{a.}	• ^{a.}	•	-
Communication between monitor/measuring mat	-	•	-	•
Using seca directprint (seca analytics 115 PC software function)	•	•	-	-
Synchronizing seca patient files and user accounts with the seca analytics 115 PC software	•	•	-	-
Connecting to the EMR system via the seca connect 103 software	•	•	-	-

a. **seca 360° proximity** connection: Available for seca measuring devices with an internal interface module or **seca 452** external interface module (firmware version Q2_2020_Build_615 or higher)

Overview of access rights

• = possible, - = not possible

Function	Administrator	User
Creating seca patient files	-	•
Calling up seca patient files	-	•
Entering basic parameters (weight, height, waist circumference, PAL)	-	•
Editing seca patient files	-	•
Deleting seca patient files	-	•
Exporting a seca patient file	-	•
Performing measurements	-	•
Viewing examination results	-	•
Printing examination results	-	•
Analysis parameters: Adding comments	-	•
Managing the patient database	-	•
Managing the user database	•	-
Modifying default settings (e.g. time, date)	•	-
Modifying units for measured values	•	-
Modifying analysis parameters which can be displayed	•	-
Setting up network connections	•	-
Configuring automatic database synchronization	•	-
Configuring automatic export	•	-
Importing backup from USB memory stick	•	-
Restoring factory settings	•	-
Resetting the user interface	•	-
Exporting backup to USB memory stick	•	-
Updating the monitor software	•	-

2. USER ACCOUNTS

→ [Activating initial user accounts](#)

→ [Working with user accounts](#)

2.1 Activating initial user accounts

The following user accounts are available on the device initially:

- Admin: (Configure and manage device)
- User: (Perform measurements and manage them).

The user accounts have to be activated in order to be able to use the device:

- → [Changing the password for the Admin user account](#)
- → [Assigning a password to the User user account](#)

Changing the password for the Admin user account

1. Press the **Login** button.
The login window is displayed.



2. Press the  input field.
The list of user accounts is displayed.
3. Press the Admin user account.
The account is displayed in the input field.

4. Press the  input field.
5. Enter the initial administrator password "1357".
You are prompted to change the password.
6. Enter a new administrator password.

NOTICE!

Data access by unauthorized persons

An insecure password may allow unauthorized persons to access patient data or device settings.

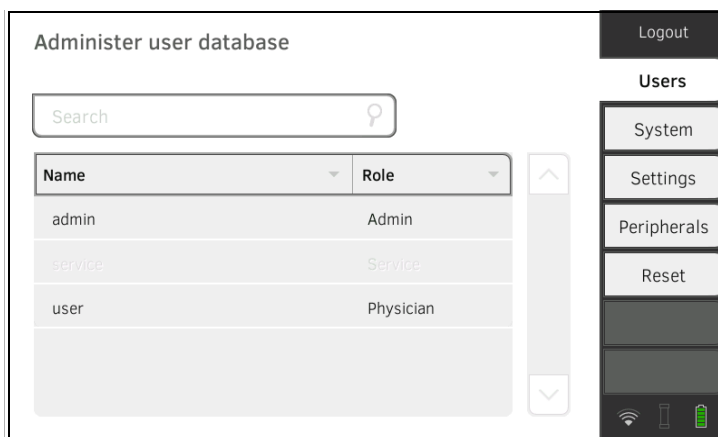
- Select a password to satisfy your institution's security requirements.

7. Enter the password again.
The login window is displayed.
8. Activate the User user account → [Assigning a password to the User user account](#).

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Assigning a password to the User user account

1. Log in using the Admin user account.
2. Press the **Users** tab.



3. Select the User user account.
4. Enter a password.

NOTICE!

Data access by unauthorized persons

An insecure password may allow unauthorized persons to access patient data or device settings.

- Select a password to satisfy your institution's security requirements.

5. Enter the password again.
6. Press the **Save** button.
The password has been saved.
The User user account can be used.
7. Configure the device as required for your specific situation → [For administrators: Configuring seca mVSA 535 /seca mBCA 525](#).

2.2 Working with user accounts

→ [Setting up user accounts](#)

→ [Editing user accounts](#)

→ [Deleting user accounts](#)

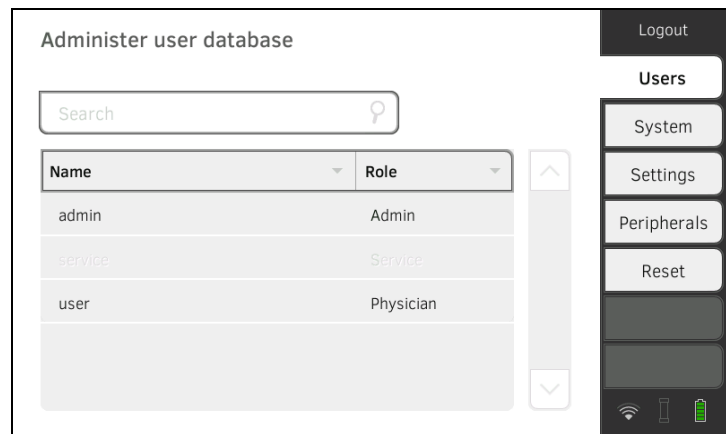
Setting up user accounts

User accounts can be created only in the **seca analytics 115** PC software. To make new user accounts available on the device, it must be synchronized with the PC software → [Activating automatic synchronization](#).

Editing user accounts

To edit a user account, proceed as follows:

1. Press the **Users** tab.



You have the following navigation options:

- ▶ Desired entry visible: Continue at step 3.
- ▶ Desired entry not visible: Continue at step 2.

2. Search for the desired user account in the list:

a) Press the  input field

b) Enter the user name using the keypad



A hit list is displayed.

3. Press the desired entry.
The selected user account is displayed.
4. Change the user data to the extent required by pressing the relevant input field:
 - ▶ Specify role
 - ▶ Change password
 - ▶ Select display language

NOTICE!**Data access by unauthorized persons**

An insecure password may allow unauthorized persons to access patient data or device settings.

- ▶ Select a password to satisfy your institution's security requirements.
- ▶ Use the user accounts without password protection only for special applications (e.g. configuring interfaces with EMR systems). seca Service will be pleased to assist if you have any questions relating to interface configuration.

NOTE

- Specification of the **Assistance** or **Physician** role is relevant for use of the user account in the **seca analytics 115** PC software. Details on this can be found in the administrator manual for the **seca analytics 115** PC software.
- The display language is specified for each user individually. If no user is logged in, the user interface is displayed in the system language
→ [Making regional settings](#).

5. Ensure that the **Password protected** field is activated (default setting).
6. Press the **Save** button.
The changes will be saved.
The user account is synchronized with the **seca analytics 115** PC software.

NOTE

If automatic synchronization is activated, changes you make to user accounts on the device are automatically adopted in the **seca analytics 115** PC software → [Activating automatic synchronization](#).

Deleting user accounts

User accounts can only be deleted in the **seca analytics 115** PC software. For deletion to take effect on the device, it must be synchronized with the PC software → [Activating automatic synchronization](#).

3. MAKING SETTINGS FOR MEASURING MODE

- [Making regional settings](#)
- [Setting display brightness and volume](#)
- [Calibrating the touchscreen display](#)
- [Setting units of measurement](#)
- [Deactivating analysis modules](#)
- [Making presets for vital signs measurement](#)

3.1 Making regional settings



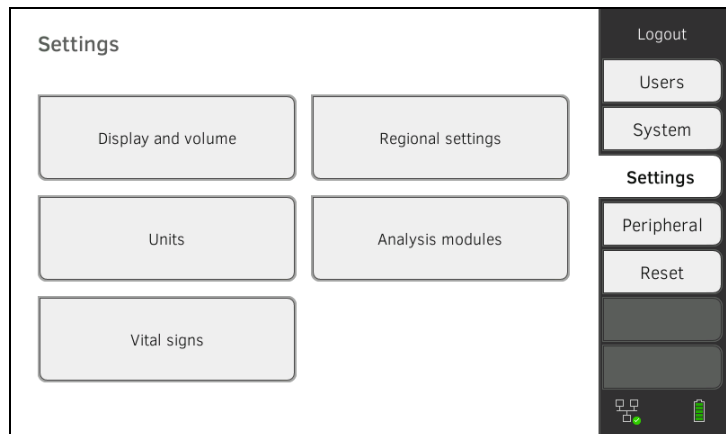
CAUTION!

Loss of data, misinterpretation of measurements

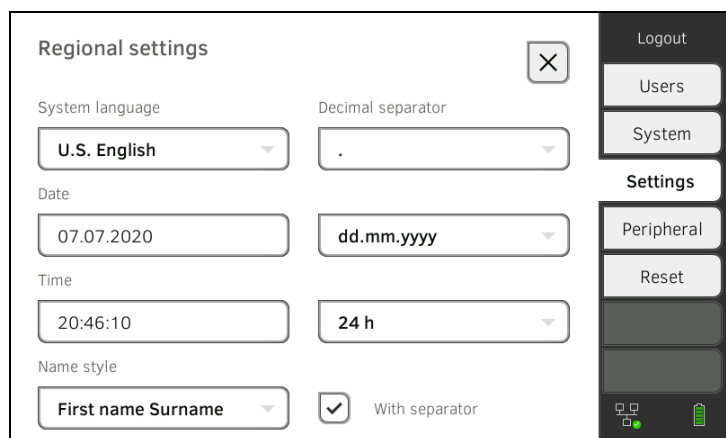
Incorrect settings for date and time can lead to misinterpretation of measurements.

- ▶ Standalone operation: Ensure that the date and time information on the device is correct.
- ▶ Network operation: Ensure that the date and time information in the seca PC software is correct. These settings are adopted by the device.

1. Press the **Settings** tab.



2. Press the **Regional settings** button.



3. Specify the regional settings by pressing the relevant input field:

- ▶ Select system language
- ▶ Select decimal separator
- ▶ Enter date
- ▶ Select date format
- ▶ Enter time
- ▶ Select time format
- ▶ Select naming convention
- ▶ Activate/deactivate name separator

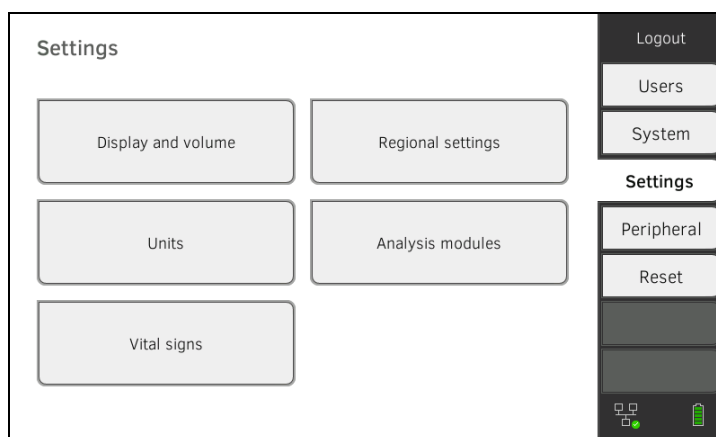
The measuring mat – if there is one – switches on automatically.

NOTE

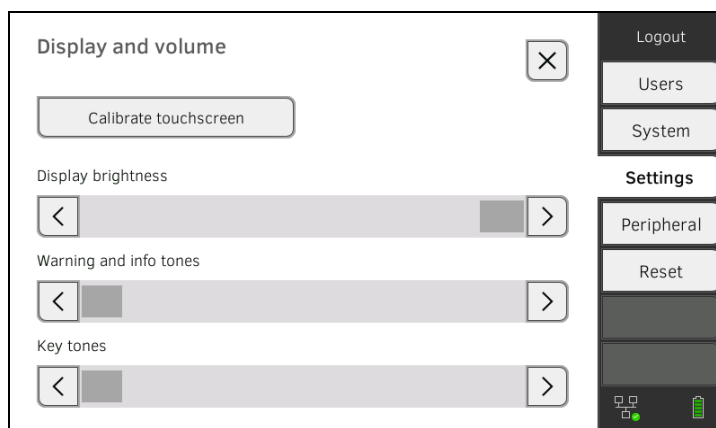
- The user interface is shown in the system language if no user is logged in to the device. If a user is logged in, the user interface is displayed in the individual display language → [User accounts](#).
- Settings you make in this tab are active directly. You do not need to save or confirm them.

3.2 Setting display brightness and volume

1. Press the **Settings** tab.



2. Press the **Display and volume** button.





3. Press the buttons as appropriate:

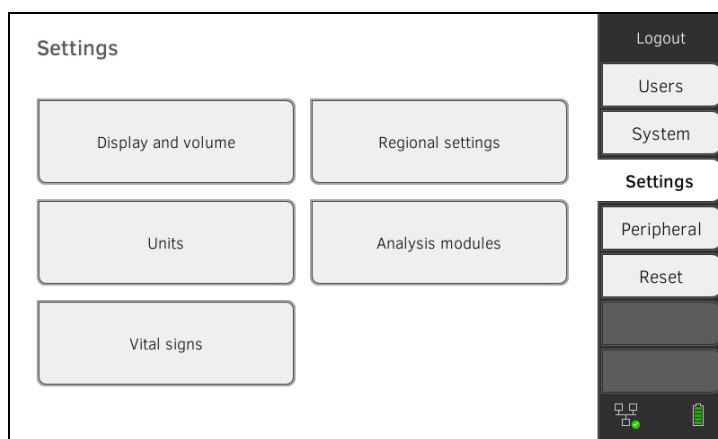
- ▶ Set display brightness
- ▶ Set volume for warning and information sounds
- ▶ Set volume for button sounds

NOTE

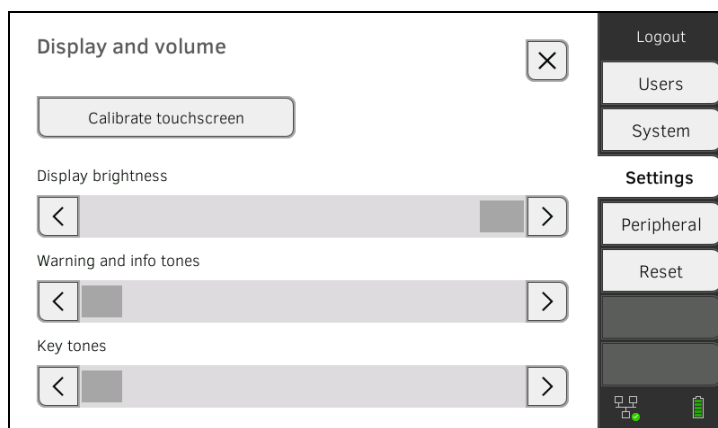
Amended settings can immediately be seen/heard each time a button is pressed. You do not need to save or confirm them.

3.3 Calibrating the touchscreen display

1. Press the **Settings** tab.



2. Press the **Display and volume** button.



3. Press the **Calibrate touchscreen** button.

4. Confirm that you wish to proceed.

The calibration display appears:



5. Press the  symbol.
The symbol changes position.

6. Press the  symbol again.
The symbol changes its position again.
7. Repeat step 6. until you get a request to confirm calibration.
8. Confirm calibration.
The touchscreen display is calibrated.

NOTE

If calibration is not confirmed, the procedure re-starts after a few seconds.

3.4 Setting units of measurement

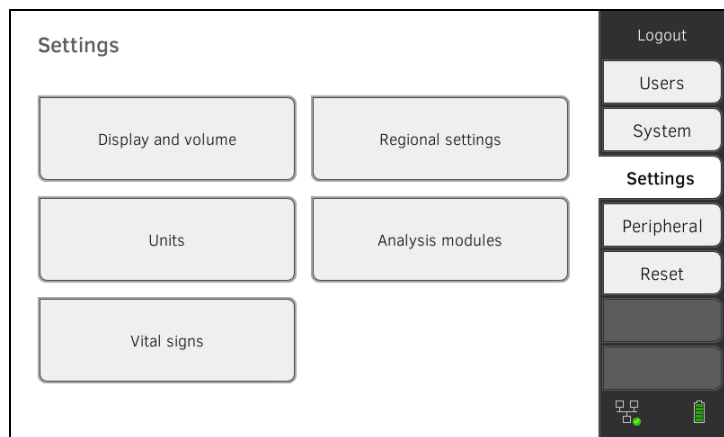


CAUTION! **Patient hazard**

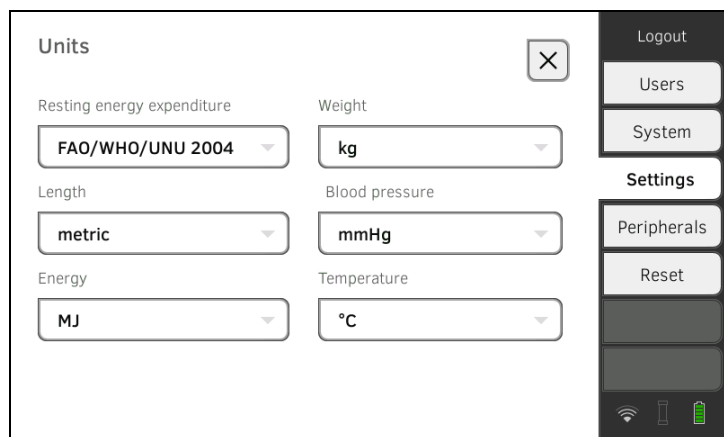
In order to avoid misinterpretations, measuring results for medical use must be displayed and used in SI units (weight: kilogrammes, length: metres) only. Some devices offer the ability to display measuring results in other units. This is only an additional function.

- ▶ Use the results exclusively in SI units.
- ▶ The use of measuring results in non-SI units is the sole responsibility of the user.

1. Press the **Settings** tab.



2. Press the **Units** button.



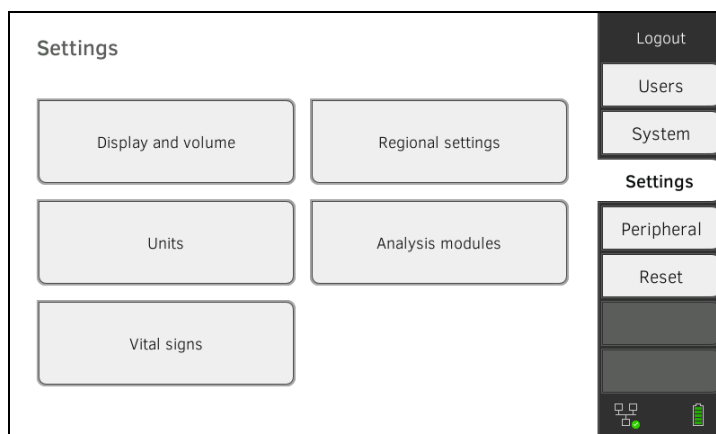
3. Make the desired settings:
 - ▶ Reference for resting energy expenditure
 - ▶ Unit for energy
 - ▶ Unit for weight
 - ▶ Unit for height
 - ▶ Unit for temperature
 - ▶ Unit for blood pressure

NOTE

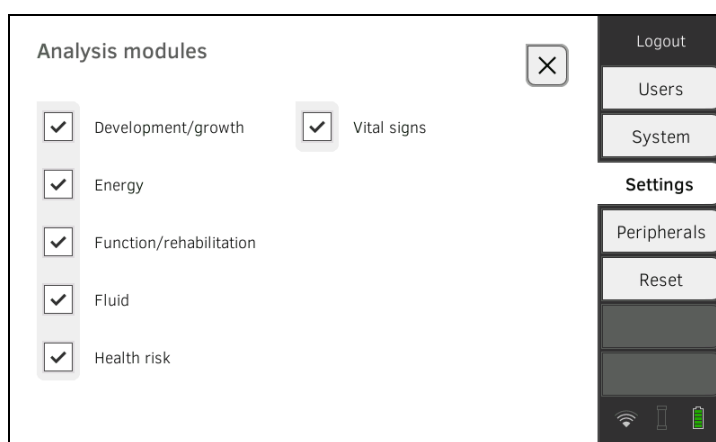
Settings you make in this tab are active directly. You do not need to save or confirm them.

3.5 Deactivating analysis modules

1. Press the **Settings** tab.



2. Press the **Analysis modules** button.



All analysis modules are activated at the factory.

3. Press the checkboxes  of all the analysis modules you would like to deactivate.

The deactivated analysis modules are no longer displayed in the analysis
→ [Analyzing measurement](#).

4. To reactivate analysis modules, press the checkboxes  of the deactivated analysis modules again.
The reactivated analysis modules will again be displayed in the analysis
→ [Analyzing measurement](#).

NOTE

- If the analysis modules **Energy** and **Health risk** are deactivated, the basic parameters **Waist circumference** and **Physical Activity Level** will not be interrogated → [Measuring bioimpedance](#).
- Settings you make in this tab are active directly. You do not need to save or confirm them.

3.6 Making presets for vital signs measurement

- [Presets for blood pressure](#)
- [Presets for pulse rate \(seca measuring equipment only\)](#)
- [Presets for SpO₂](#)
- [Presets for temperature \(COVIDIEN™ FILAC™ 3000 only\)](#)
- [Selecting color mode for Vital signs tab](#)

In the **Settings** tab, you can set up the settings for blood pressure, temperature and SpO₂ measurements preferred in your institution.

The user can modify the settings during a measurement procedure

→ [Measuring vital signs](#). The presets will be active again after the end of the measurement procedure.

For the Vital signs tab, you can select a color mode to enable the device to be read perfectly whatever the illumination conditions. This function is not available for other tabs. This setting cannot be changed during a measurement procedure.

Presets for blood pressure

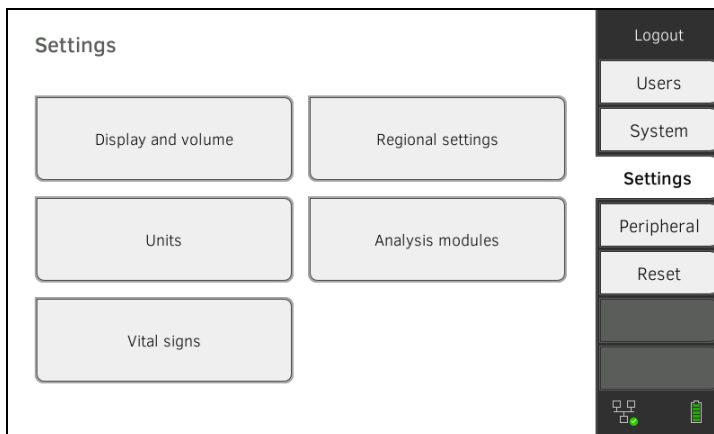
- [Making general settings](#)
- [Configuring multiple measurement](#)

NOTE

This is where to specify default settings which the user can modify for the respective current measurement procedure. The settings from the default settings then become active again.

Making general settings

1. Press the **Settings** tab.



2. Press the **Vital signs** button.

3. Press the **NIBP** button.
The presets are displayed.

4. Press the desired measurement method.
- Inflation, continue at step 6.
 - Deflation, continue at step 5.
5. Adapt Starting pressure if necessary.
6. Press the desired measuring sequence:
- Single measurement
 - Multiple measurement → [Configuring multiple measurement](#)

NOTICE!

Faulty operation, missing measuring results

Results from multiple measurements cannot be transmitted to EMR systems or the **seca analytics 115** PC software.

- Specify **Single measurement** as a preset if blood pressure values are to be transmitted to an EMR system or the **seca analytics 115** PC software.

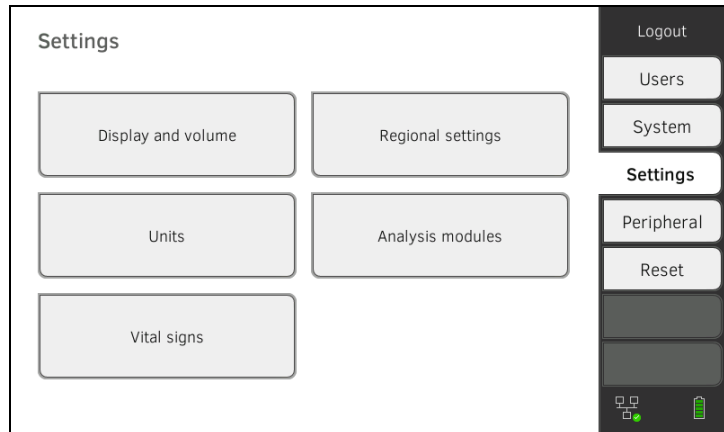
7. Press the **Confirm** button.
The dialog window closes.
The modified settings are adopted.

Configuring multiple measurement

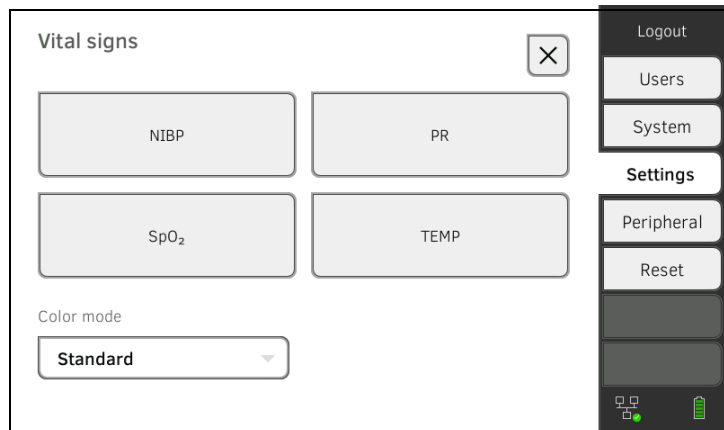
NOTE

Settings you make here can**not** be changed by the user.

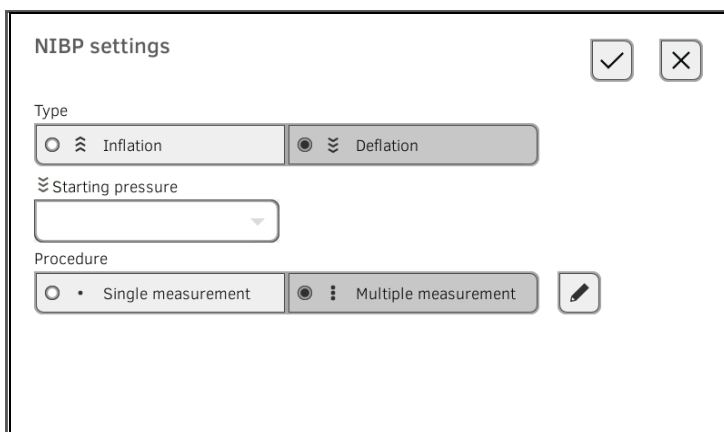
1. Press the **Settings** tab.



2. Press the **Vital signs** button.



3. Press the **NIBP** button.
The presets are displayed.





4. Press the  button.

The **Configure multiple measurement** dialog window appears:

Configure multiple measurement

☒
☐

Use measurements

1	☐	4	☒
2	☒	5	☒
3	☒	6	☒

Meas. profile (name)

Delay (minutes)

Interval (minutes)

Total (minutes): 30:00
Maximum total must not exceed 30 minutes.

5. Specify the number of part-measurements:

- Maximum six part-measurements
- Deactivated part measurements at the start and during the measuring sequence are performed but not used for forming the mean value
- Deactivated part-measurements at the end of the measuring sequence are not completed: The running time of the measurement is reduced.

Example	Measuring sequence
1 ☐ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒	Factory setting: 6 part-measurements Part-measurement 1 is discarded
1 ☐ 2 ☒ 3 ☒ 4 ☐ 5 ☐ 6 ☒	Example: 6 part-measurements Part-measurements 1, 4 and 5 are discarded
1 ☐ 2 ☒ 3 ☒ 4 ☒ 5 ☐ 6 ☐	Example: 4 part-measurements • Part-measurement 1 is discarded • Part-measurements 5 and 6 are not performed

6. Specify a start delay (waiting time before part-measurement 1):

- Format: mm:ss
- Min: 00:00, Max: 10:00

7. Specify the interval (waiting time between part-measurements)

- Format: mm:ss
- Min: 01:35, max: 14:15 minutes

- Assign a name to the measuring profile.

Configure multiple measurement

☒
☐

Use measurements

1 ☐

4 ☐

2 ☒

5 ☐

3 ☒

6 ☒

Meas. profile (name)

Example 1

Delay (minutes)

02:00

Interval (minutes)

04:00

Total (minutes): 23:30

Maximum total must not exceed 30 minutes.



- Press the  button.
The measuring profile is saved.
The name of the measuring profile appears in the **NIBP settings** dialog window instead of the text **Multiple measurement**.

Presets for pulse rate (seca measuring equipment only)

- Press the **Settings** tab.

Settings

Display and volume

Regional settings

Units

Analysis modules

Vital signs

Logout

Users

System

Settings

Peripheral

Reset

- Press the **Vital signs** button.

Vital signs

NIBP

PR

SpO₂

TEMP

Color mode

Standard

Logout

Users

System

Settings

Peripheral

Reset

- Press the **PR** button.



PR

Source: SpO₂

☒ Standard
☐ Sensitive

Cancel Confirm

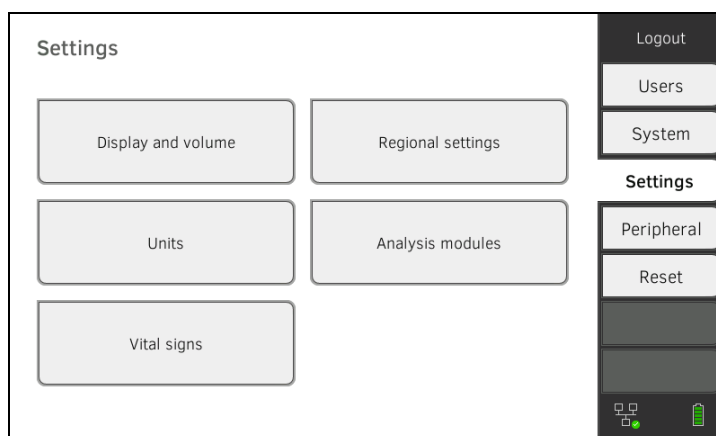
- Press the desired measuring mode (seca measuring equipment only):

seca measuring equipment		
Mode	Measuring range	Motion tolerance
Standard	0 - 240 min ⁻¹	High
Sensitive	20 - 300 min ⁻¹	Low

- Press the **Confirm** button.
The dialog window closes.
The modified settings are adopted.

Presets for SpO₂

- Press the **Settings** tab.



Settings

Display and volume Regional settings

Units Analysis modules

Vital signs

Logout

Users

System

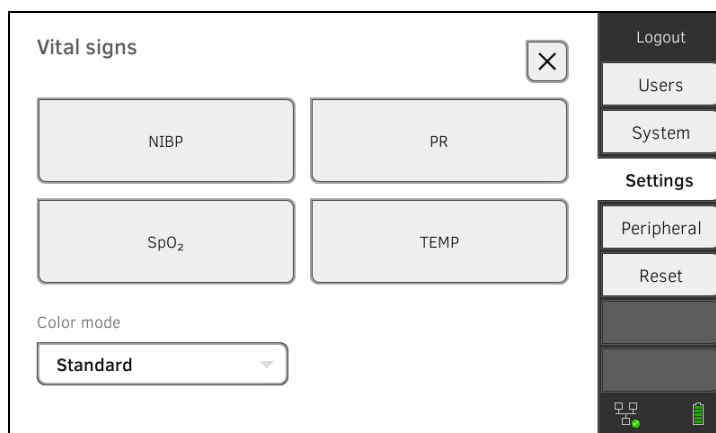
Settings

Peripheral

Reset

Settings menu sidebar icons: a grid of four squares, a battery icon, and a signal strength icon.

- Press the **Vital signs** button.



Vital signs

NIBP PR

SpO₂ TEMP

Color mode

Standard

Logout

Users

System

Settings

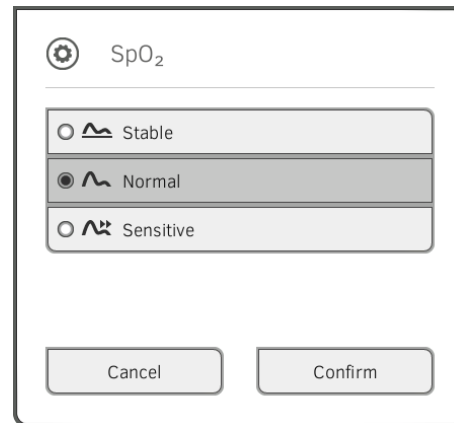
Peripheral

Reset

Vital signs settings sidebar icons: a grid of four squares, a battery icon, and a signal strength icon.

- Press the **SpO₂** button.

The presets are displayed (in this case: Masimo SET[®] pulse oximetry):



- Press the desired sensitivity:

NOTE

The Maximum setting (Masimo SET[®] pulse oximetry) is not available as a preset. Select this setting for each measurement directly
→ [Measuring oxygen saturation \(SpO₂\)](#).

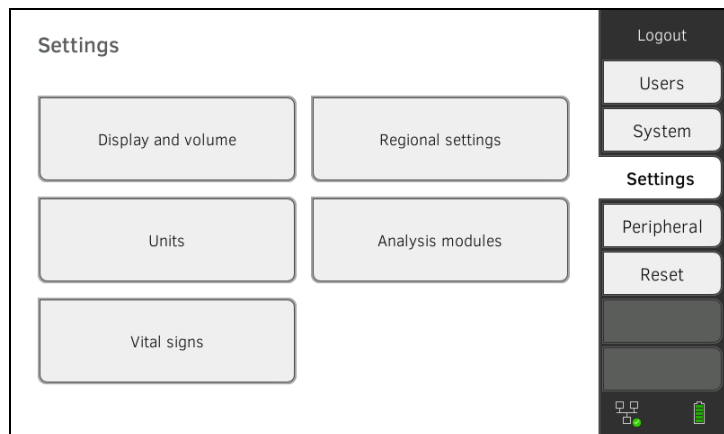
Masimo SET [®] SpO ₂ module	
Mode	Indication
Normal	• Normal perfusion • Mild perfusion disorders
Adaptive Probe Off Detection (APOD)	Vigorous patient movements
Maximum	• Poor perfusion • Severely disrupted signal, for example due to indoor lighting or direct sunlight

seca SpO ₂ module	
Mode	Motion tolerance
Stable	High
Normal	Normal
Sensitive	Low

- Press the **Confirm** button.
The dialog window closes.
The modified settings are adopted.

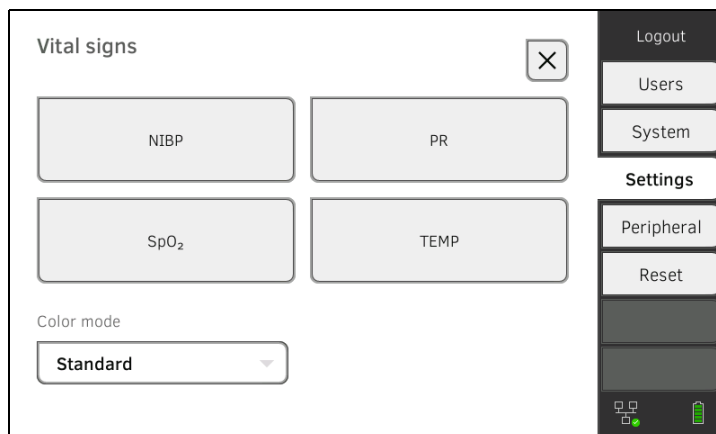
Presets for temperature (COVIDIEN[™] FILAC[™] 3000 only)

- Press the **Settings** tab.

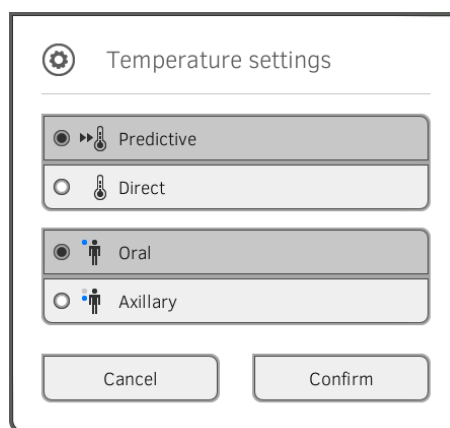


17-10-05-353-002g_08-2020 B

- Press the **Vital signs** button.



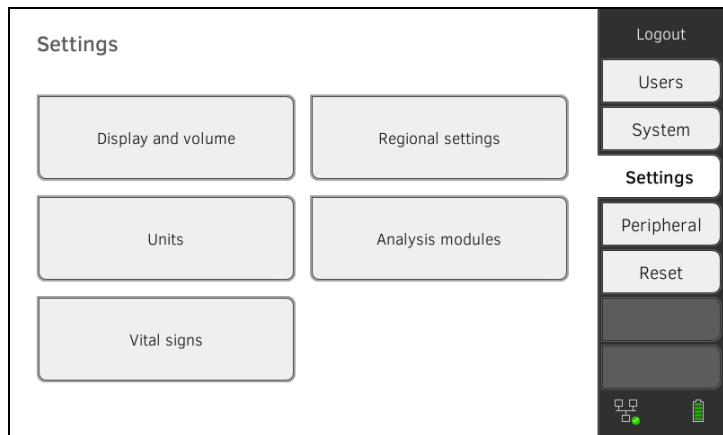
- Ensure that the temperature probe is pushed into the probe holder completely.
- Press the **TEMP** field.
The presets are displayed (in this case: COVIDIEN™ FILAC™ 3000 blue):



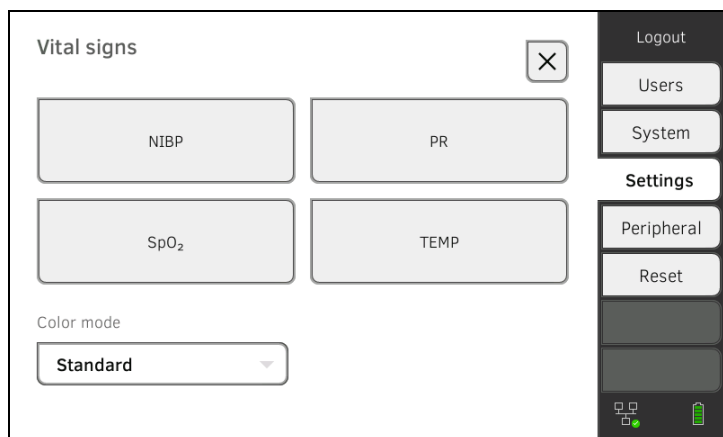
- Press the desired measurement method.
 - Predictive
 - Direct
- Press the desired measuring position (COVIDIEN™ FILAC™ 3000 blue only).
 - Oral
 - Axillary
- Press the **Confirm** button.
The dialog window closes.
The modified settings are adopted.

Selecting color mode for Vital signs tab

1. Press the **Settings** tab.



2. Press the **Vital signs** button.



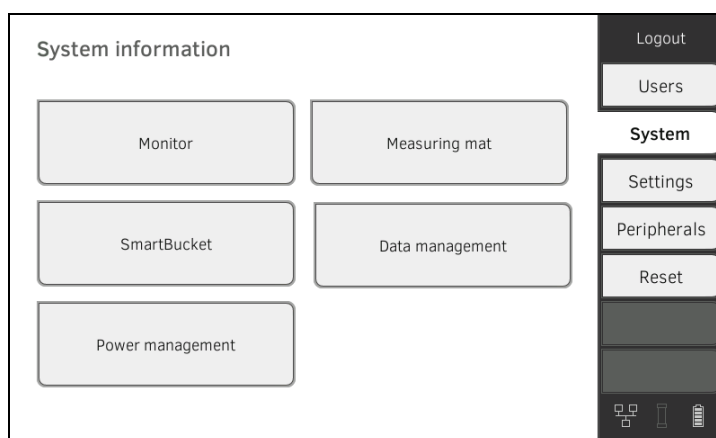
3. Press the **Color mode** input field.
4. Select a color mode.
 - **Standard**
 - **Color, day**
 - **Color, night**
5. Log off.
6. Press the Vital signs tab.
The Vital signs tab is displayed in the selected color mode.

4. MANAGING SYSTEM COMPONENTS

- [Viewing system information](#)
- [Updating the monitor software](#)
- [Updating the measuring mat software](#)
- [Retrofitting the SmartBucket \(seca mBCA 525 only\)](#)
- [Retrofitting the measuring mat \(seca mVSA 535 only\)](#)
- [Retrofitting the in-ear thermometer \(seca mVSA 535 only\)](#)
- [Data export and backup](#)
- [Power management](#)

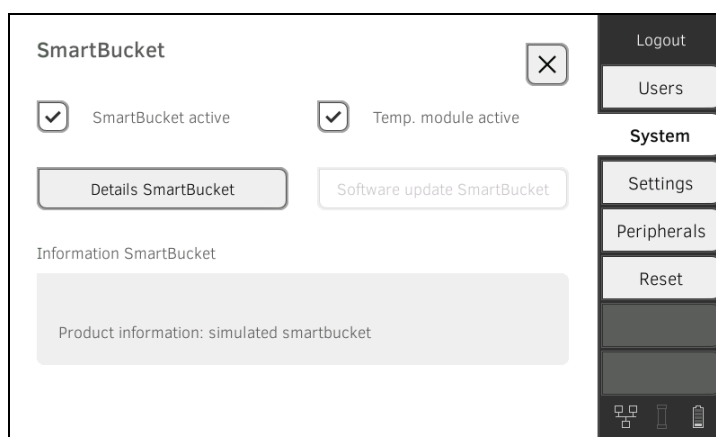
4.1 Viewing system information

1. Press the **System** tab.



2. Select a system component.

The system information for the selected system component is displayed (in this case: **SmartBucket**).



You have the following options:

- ▶ View details
- ▶ Perform software update (not for **SmartBucket**) → [Updating the monitor software](#)

4.2 Updating the monitor software

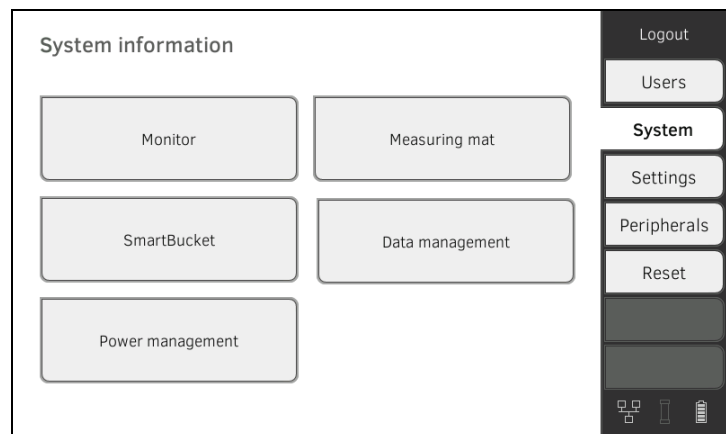
This function allows you to update the software of the device. Current software packages can be found at www.seca.com.

NOTICE!

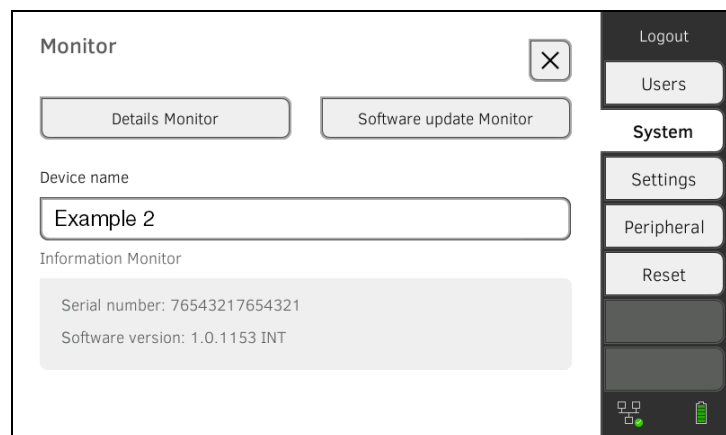
Data loss

- ▶ Export seca patient files and user accounts manually **before** updating the software (for operation without **seca analytics 115** PC software).
- ▶ **Before** updating the software, ensure that all the data on the device have been synchronized with the **seca analytics 115** PC software (for operation with **seca analytics 115** PC software).

1. Press the **System** tab.



2. Press the **Monitor** button.



3. Press the **Software update Monitor** button.
4. Select the source for the software update:
 - ▶ USB memory stick: continue at step 5.
 - ▶ Network: Continue at step 6.
5. Connect the USB memory stick to the monitor.
The software package is automatically transmitted to the device.
Following successful transmission, the **Start software update** button is active.
6. Press the **Start software update** button.
The software package will be installed.
Following successful installation, the device restarts automatically.

NOTE

The software package for the monitor also contains data for the measuring mat. If this data is more current than the software on the measuring mat, the corresponding message will appear on screen. Then proceed as described in the section entitled → [Updating the measuring mat software](#).

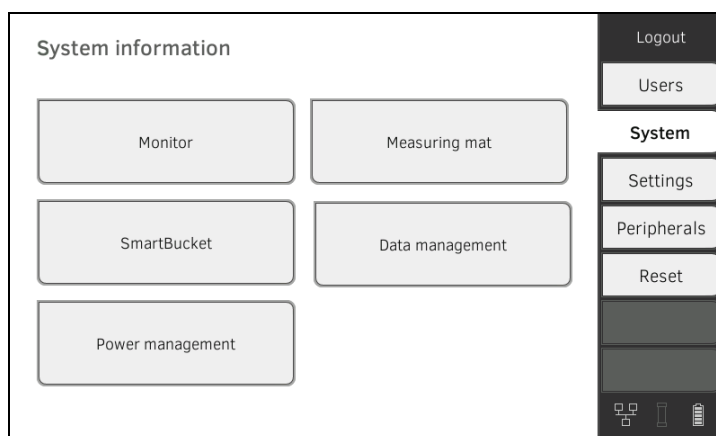
4.3 Updating the measuring mat software

In the following cases, it may be necessary to update the software of the measuring mat:

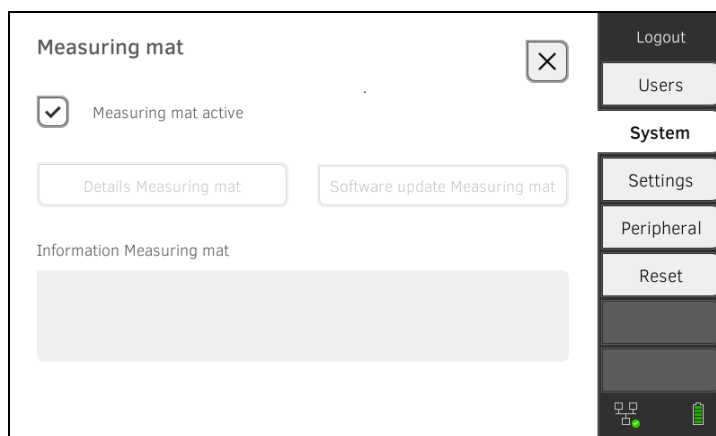
- Monitor software has been updated (**seca mVSA 535**, **seca mBCA 525**)
→ [Updating the monitor software](#)
- System has had a measuring mat added (**seca mVSA 535**)
→ [Retrofitting the measuring mat \(seca mVSA 535 only\)](#)
- Measuring mat has been replaced with a new one (**seca mVSA 535**, **seca mBCA 525**)

If the measuring mat software is out of date, the corresponding message will appear on the monitor. In this case, proceed as outlined below:

1. Press the **System** tab.



2. Press the **Measuring mat** button.

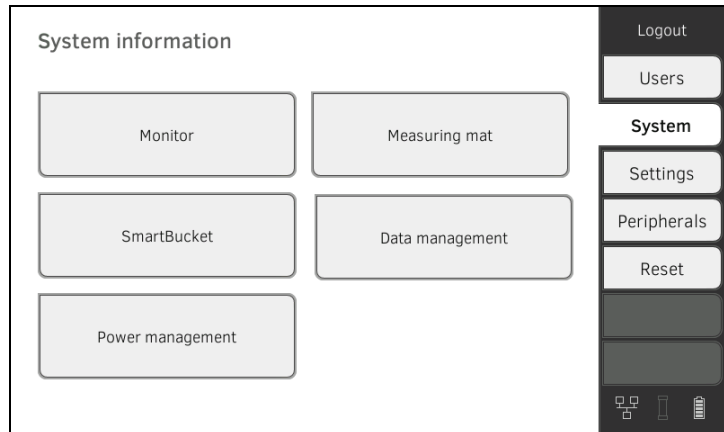


3. Press the **Software update Measuring mat** button.
4. Follow the on-screen instructions.
5. Press the **Start software update** button.
The software update will be installed.

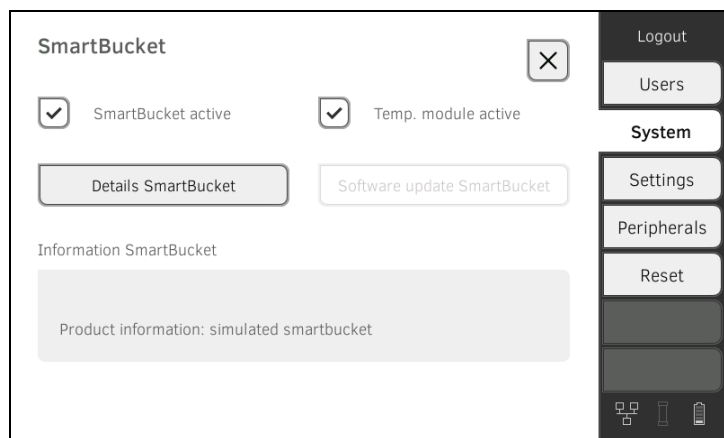
4.4 Retrofitting the SmartBucket (seca mBCA 525 only)

medical Body Composition Analyzer **seca mBCA 525** from serial number 10000000090505 can be retrofitted with the SmartBucket **seca mVSA 526** to measure vital signs → [Optional accessories and spare parts](#).

1. Retrofit the SmartBucket as described in the relevant assembly instructions.
2. Activate the SmartBucket in the device:
 - a) Press the **System** tab



- b) Press the **SmartBucket** button
- c) Activate the **SmartBucket active** checkbox
- d) If SmartBucket contains a temperature module: Activate the **Temp. module active** checkbox



3. Follow the on-screen instructions.

4.5 Retrofitting the measuring mat (seca mVSA 535 only)

NOTICE!

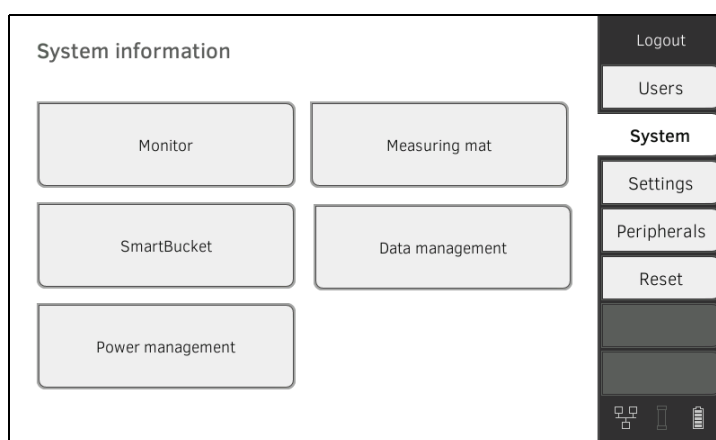
Malfunction

If your device is connected to an EMR system, the Measure bioimpedance function **cannot** be used.

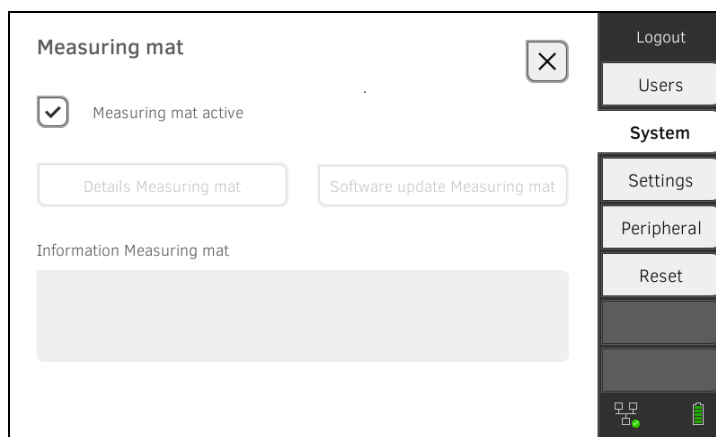
- ▶ Do not retrofit a measuring mat.
- ▶ Ensure that the **Measuring mat active** checkbox is deactivated.

seca mVSA 535 can be retrofitted with the **seca mBCA 531** measuring mat to perform bioimpedance measurements → [Optional accessories and spare parts](#).

1. Start up the measuring mat as described in the corresponding assembly instructions.
2. Activate the measuring mat in the device:
 - a) Press the **System** tab



- b) Press the **Measuring mat** button
- c) Activate the **Measuring mat active** checkbox

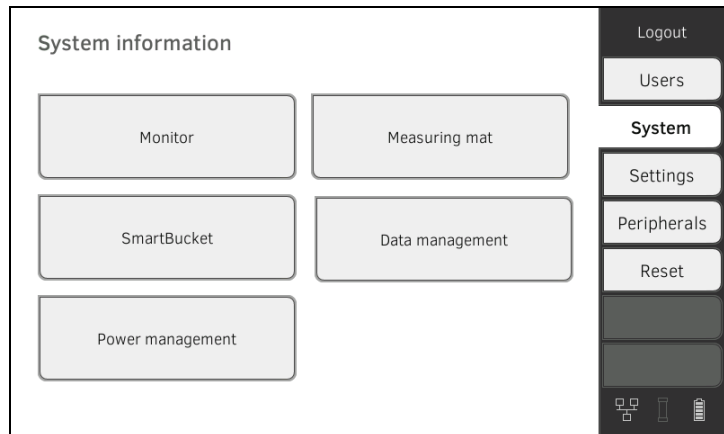


3. Follow the on-screen instructions.

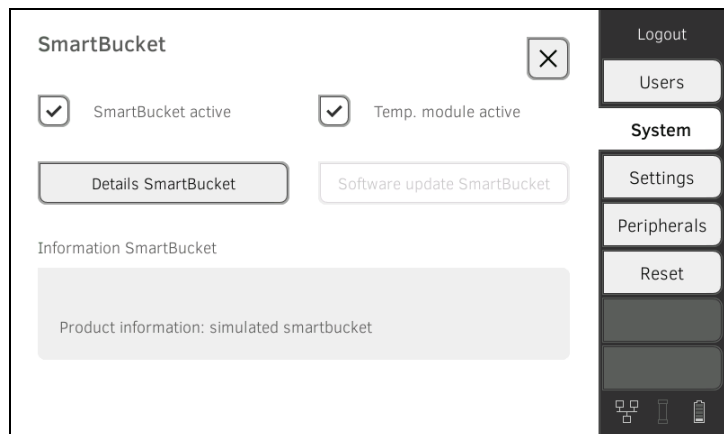
4.6 Retrofitting the in-ear thermometer (seca mVSA 535 only)

seca mVSA 535 without temperature measurement can be retrofitted with the COVIDIEN™ GENIUS®3 in-ear thermometer → [Optional accessories and spare parts](#).

1. Connect the in-ear thermometer as described in the section entitled → [Connecting the in-ear thermometer](#).
2. Activate the temperature module in the device:
 - a) Press the **System** tab



- b) Press the **SmartBucket** button
- c) Activate the **Temp. module active** checkbox



3. Follow the on-screen instructions.

4.7 Data export and backup

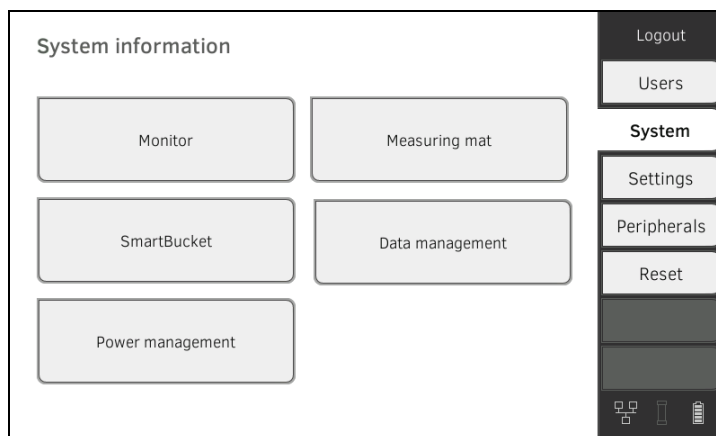
→ [Exporting patient and user data manually](#)

→ [Restoring patient and user data manually](#)

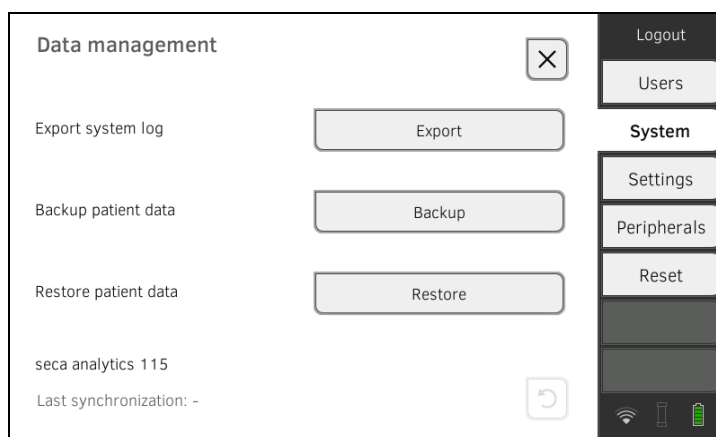
Exporting patient and user data manually

This function allows you to export seca patient files and user accounts in order to create a backup copy, for example.

1. Press the **System** tab.



2. Press the **Data management** button.



3. Connect a USB memory stick to the monitor.
4. Press the **Backup** button.
5. Enter a password to encrypt the data.

NOTICE!

Data access by unauthorized persons

An insecure password may allow unauthorized persons to access patient data.

- Select a password to satisfy your institution's security requirements.

6. Enter the password again to confirm it.
The data are exported to the USB memory stick.
7. Archive the data in line with your institution's policy.

Restoring patient and user data manually

This function allows you to restore externally backed-up seca patient files and user accounts.

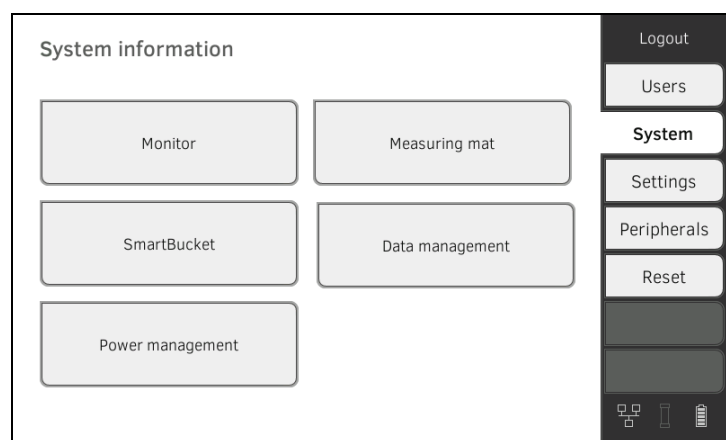
NOTICE!

Data loss

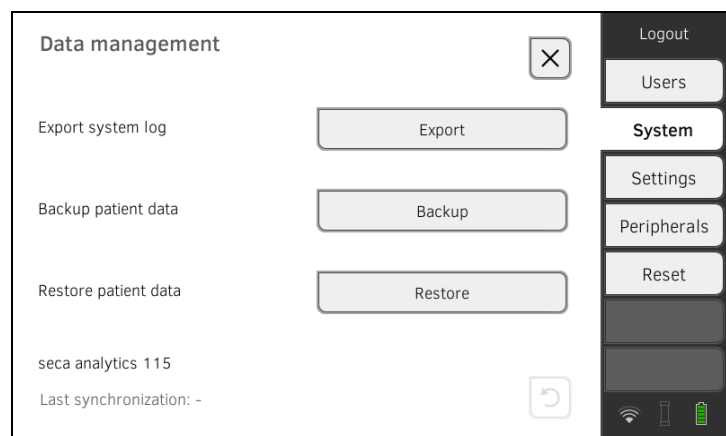
When you restore externally backed-up data, the current data on the device will be overwritten.

- ▶ Export seca patient files and user accounts manually **before** restoring older data manually (operation without **seca analytics 115** PC software).
- ▶ **Before** restoring manually, ensure that all the data on the device have been synchronized with the **seca analytics 115** PC software (operation with **seca analytics 115** PC software).

1. Load the archived seca patient files and user accounts onto a USB memory stick.
2. Press the **System** tab.



3. Press the **Data management** button.

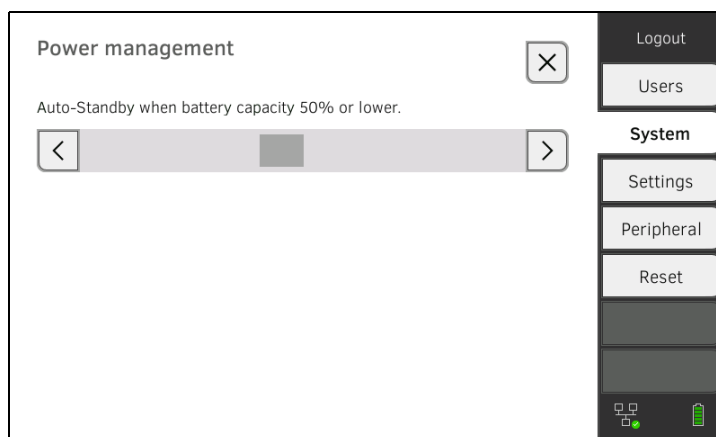


4. Connect the USB memory stick to the monitor.
5. Press the **Restore** button.
6. Enter the password you assigned on export to decrypt the data. The data will be imported.

4.8 Power management

You can specify from which battery charge status (in %) the device shuts down and switches off.

1. Press the **System** tab.
2. Press the **Power management** button.
The current setting is displayed (default setting: 50 %).



3. Set the desired battery charge status from which the device is to shut down and switch off.
 - ▶ Press the  button to switch off the device at a lower battery charge status (minimum: 10 %).
 - ▶ Press  to switch off the device at a higher battery charge status (maximum: 100 %).

5. SETTING UP PERIPHERALS

- Setting up a LAN connection to the network (stationary operation)
- Setting up a WiFi connection (mobile operation)
- Setting up a connection to the **seca analytics 115** PC software
- Setting up a connection to the **seca connect 103** software
- Setting up a **seca 360°** proximity connection
- Setting up a **seca 360°** wireless connection

5.1 Setting up a LAN connection to the network (stationary operation)

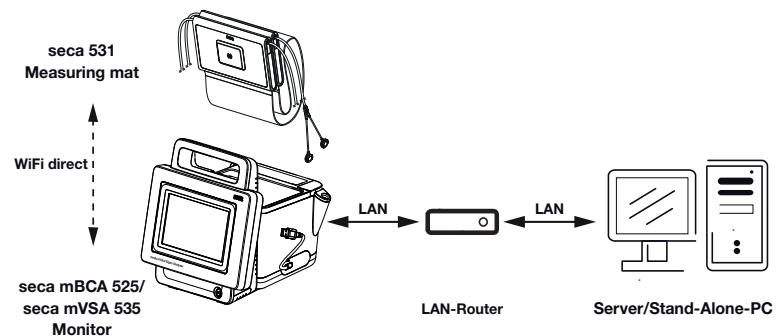
- Introduction
- Activating the LAN connection
- Deactivating the LAN connection

Introduction

For stationary use, for example in a treatment room at your practice, you can connect the monitor to your LAN network to exchange data with the **seca analytics 115** PC software or the **seca connect 103**.

A requirement for exchanging data with the **seca analytics 115** PC software is that the **seca analytics 115** PC software is installed on a server or stand-alone PC and the network configuration (UDP or DHCP) is known.

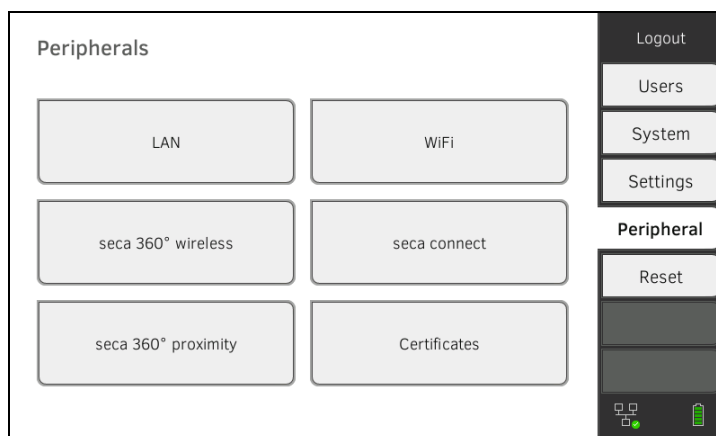
A requirement for exchanging data with the **seca connect 103** software is that the **seca connect 103** software is installed on a server and the configuration of the **seca connect 103** software (server IP and connect port) is known.



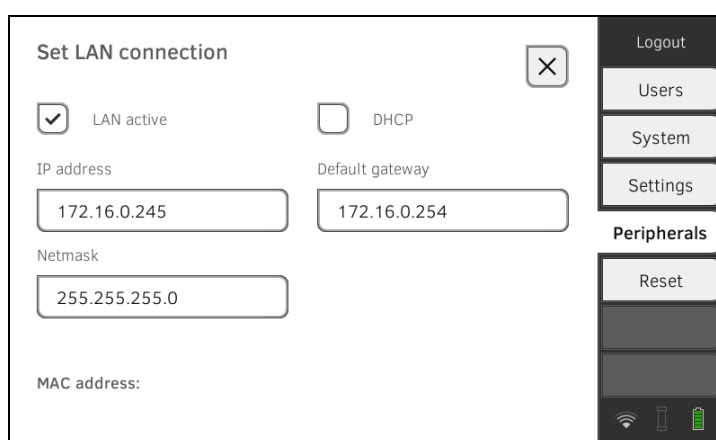
For devices with bioimpedance measurement: If you connect the device to your network via LAN cable, the measuring mat can communicate with the monitor via the factory-activated **WiFi direct (BIA mat)** connection. This allows data to be exchanged even when the measuring mat is not suspended in the magnetic catch of the monitor.

Activating the LAN connection

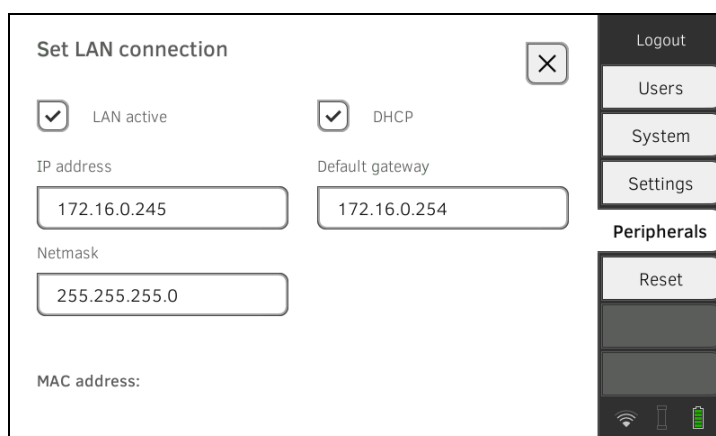
1. Press the **Peripherals** tab.



2. Press the **LAN** button.



3. Press the **LAN active** checkbox.
The LAN function is activated.
4. Make the setting applicable to your network:
 - ▶ To set up connection manually, continue at step 5.
 - ▶ To set up automatic connection: Press the **DHCP** button and continue with → [Setting up a connection to the seca analytics 115 PC software](#)



5. Make the settings relevant to your network:
 - ▶ Enter the IP address of the monitor (last three digits must be different from the PC address)
 - ▶ Enter netmask (must match the netmask of the PC)
 - ▶ Enter default gateway (if available)



The  symbol is displayed on the monitor.
The LAN connection is set up.

NOTE

Settings you make in this dialog window are active directly. You do not need to save or confirm them.

6. Continue based on your device variant:
 - ▶ For devices with bioimpedance measurement, continue at step 7.
 - ▶ For devices without bioimpedance measurement, continue at step 10.
7. Ensure that the measuring mat is correctly suspended in the magnetic catch of the monitor.
8. In the **Peripherals** tab, press the **WiFi** button.
9. In the **WiFi mode** drop-down menu, press the desired mode:
 - ▶ **WiFi direct (BIA mat)**: The monitor and the measuring mat communicate with one another via a direct WiFi connection
 - ▶ **WiFi off**: The monitor and the measuring mat communicate with one another via the infrared interface

NOTE

- If the **WiFi off** setting is selected, the measuring mat must be suspended in the magnetic holder of the monitor before and after every measurement so that data can be exchanged via the infrared interface.
- If a BIA measuring mat is communicating with the monitor in **WiFi direct (BIA mat)** mode, only the LAN connection is available for connection to the network.



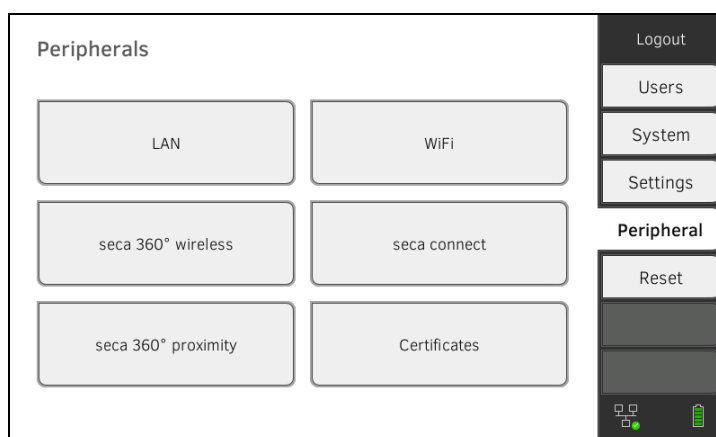
10. Press the  button to confirm your entry.

11. You have the following options for continuing:

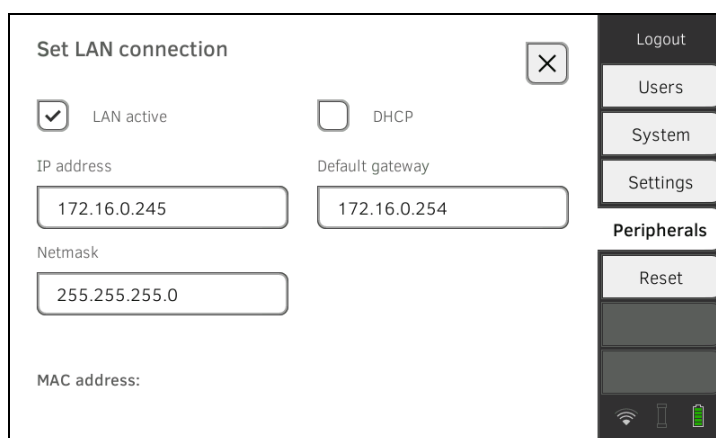
- ▶ → [Setting up a connection to the seca analytics 115 PC software](#)
- ▶ → [Setting up a connection to the seca connect 103 software](#)

Deactivating the LAN connection

1. Press the **Peripherals** tab.



2. Press the **LAN** button.



3. Press the **LAN active** checkbox.

The LAN function is deactivated.

The connection data are deleted.

4. To reactivate the LAN function, proceed as outlined below:

- Press the **LAN active** checkbox
- [Activating the LAN connection](#)

5.2 Setting up a WiFi connection (mobile operation)

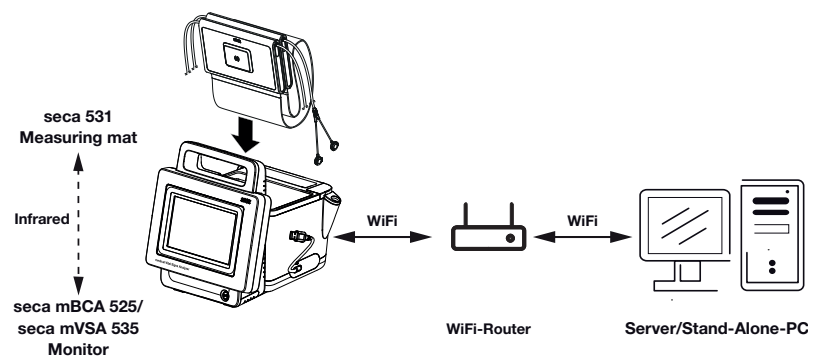
- [Introduction](#)
- [Activating the WiFi connection](#)
- [Deactivating the WiFi connection](#)

Introduction

For mobile use, for example on the ward of a hospital, you can integrate the device in your network as a WiFi client to exchange data with the **seca analytics 115** PC software or **seca connect 103**.

A requirement for exchanging data with the **seca analytics 115** software is that the **seca analytics 115** PC software is installed on a server or standalone PC and access data for your WiFi network are known.

A requirement for exchanging data with the **seca connect 103** software is that the **seca connect 103** software is installed on a server and the configuration of the **seca connect 103** software (server IP and connect port) is known.



For devices with bioimpedance measurement: If you integrate the device in your network via WiFi, the measuring mat can only communicate with the monitor via the infrared interface.

NOTICE!

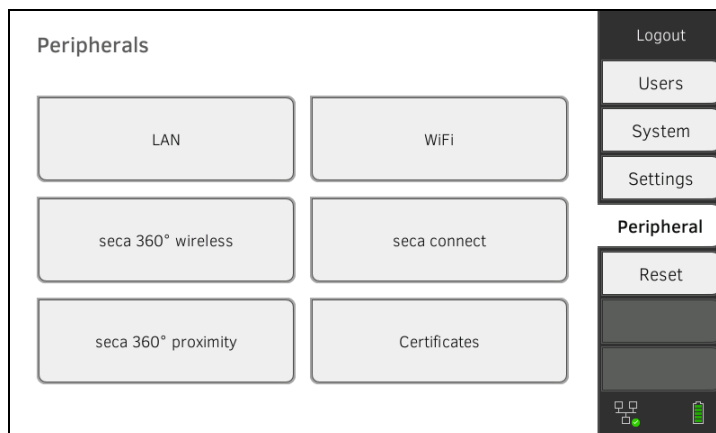
Malfunction

The measuring mat and the monitor can communicate via the infrared interface only when the measuring mat is suspended in the magnetic catch of the monitor.

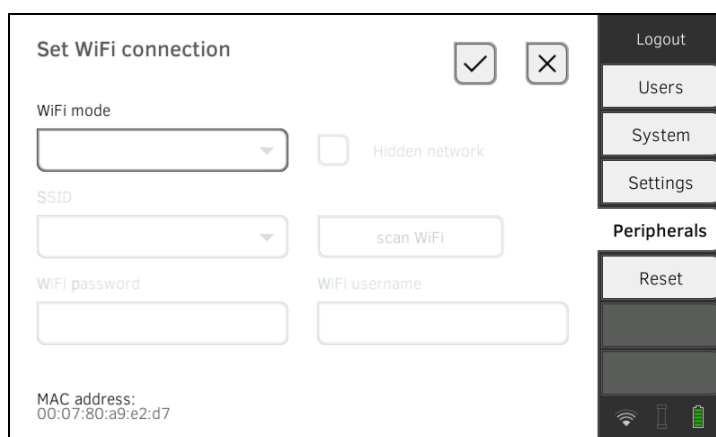
- Ensure that the measuring mat is suspended in the magnetic catch of the monitor before and after every measurement.

Activating the WiFi connection

1. Ensure that the measuring mat – if present – is correctly suspended in the magnetic catch of the monitor.
2. Press the **Peripherals** tab.



3. Make sure that the LAN connection to the network is **not** active
→ [Deactivating the LAN connection](#).
4. Press the **WiFi** button.



5. In the **WiFi mode** drop-down menu, press the **WiFi client (network)** setting.
6. Make the setting applicable to your WiFi network:
 - ▶ Visible network: Press the **Scan WiFi** button
 - ▶ Hidden network: Press the **Hidden network** button
7. Enter the SSID for your network:
 - ▶ Visible network: Select SSID from drop-down menu
 - ▶ Hidden network: Enter SSID manually
8. Enter the user name and password for the network.

NOTE

In some networks, no user name is required. In this case, the input field is grayed out.



9. Press the  button to confirm your entry.
The connection is established.
The settings will be transmitted to the measuring mat if present.

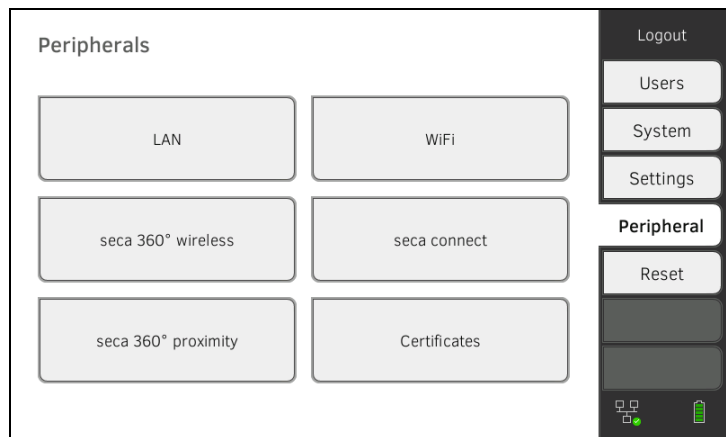


The symbol , if measuring mat is present, and  are displayed on the monitor.
The device is connected to your network via WiFi.

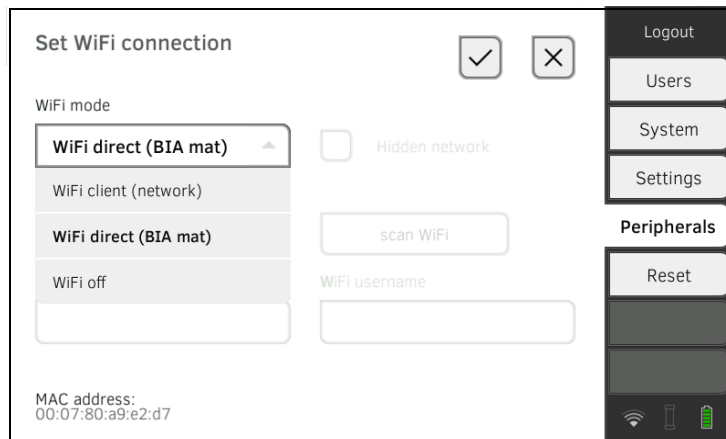
10. You have the following options for continuing:
 - ▶ → [Setting up a connection to the seca analytics 115 PC software](#)
 - ▶ → [Setting up a connection to the seca connect 103 software](#)

Deactivating the WiFi connection

1. Press the **Peripherals** tab.



2. Press the **WiFi** button.



3. In the **WiFi mode** drop-down menu, press the **WiFi off** setting.



4. Press the  button to confirm your entry.
The WiFi function is deactivated.
The connection data are deleted.

5.3 Setting up a connection to the seca analytics 115 PC software

- [Introduction](#)
- [Connecting the device automatically \(UDP\)](#)
- [Connecting the device manually \(TCP\)](#)
- [Exporting patient and user data manually](#)
- [Setting up automatic export](#)

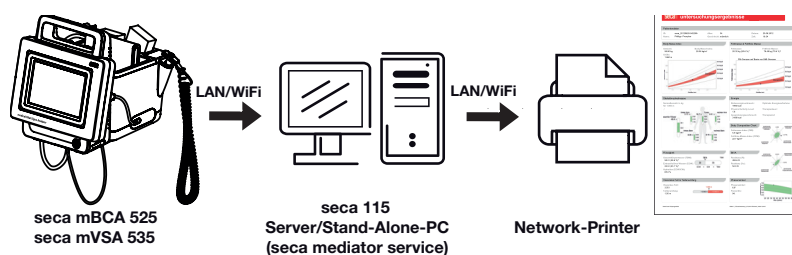
Introduction

If you connect the device to the **seca analytics 115** PC software, the following functions are available:

- Synchronize patient and user data automatically → [Exporting patient and user data manually](#).
- **seca directprint**: Issue results reports directly from the device on a network printer → [Viewing current measuring results](#).

A requirement is that the device is connected to the LAN or WiFi network of your institution.

- [Setting up a LAN connection to the network \(stationary operation\)](#)
- [Setting up a WiFi connection \(mobile operation\)](#)

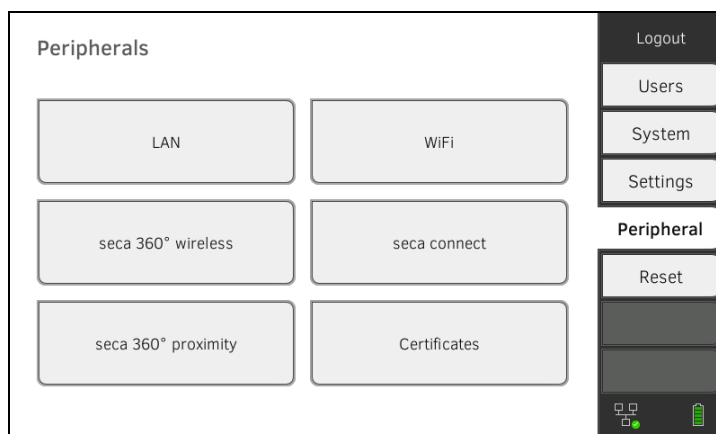


NOTE

- You specify the network printer for the **seca directprint** function directly in the **seca analytics 115** PC software.
- You should also follow the administrator manual for the **seca analytics 115** PC software.

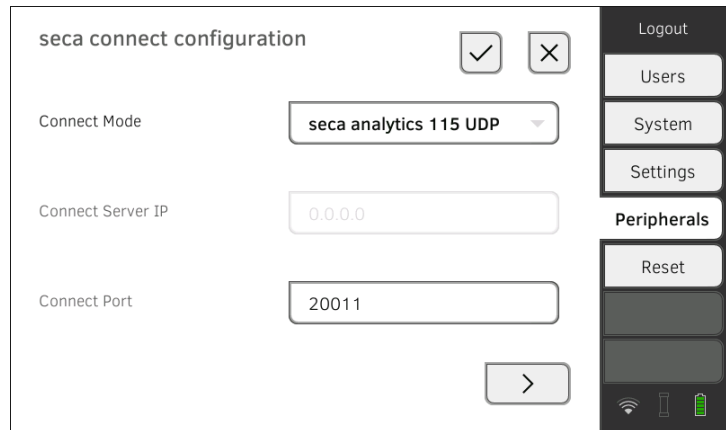
Connecting the device automatically (UDP)

1. Press the **Peripherals** tab.



2. Press the **seca connect** button.
The **seca connect configuration** dialog window opens.

- In the **Connect Mode** drop-down menu, select the option **seca analytics 115 UDP**.
The recommended presets are displayed.



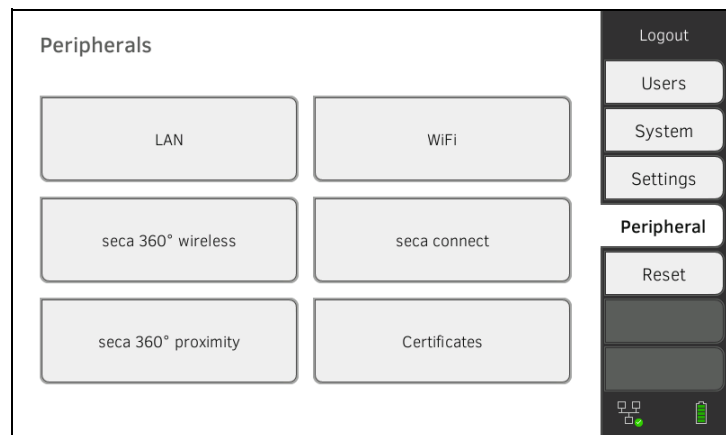
The image shows a 'seca connect configuration' dialog box. It has a title bar with a checkmark and an 'X' button. The main area contains three fields: 'Connect Mode' with a dropdown menu showing 'seca analytics 115 UDP', 'Connect Server IP' with a text input field containing '0.0.0.0', and 'Connect Port' with a text input field containing '20011'. At the bottom right is a right-pointing arrow button. To the right of the dialog is a sidebar with buttons for 'Logout', 'Users', 'System', 'Settings', 'Peripherals', and 'Reset'. At the bottom of the sidebar are icons for Wi-Fi, a smartphone, and a battery level indicator.

- Adapt the presets if necessary.
- Ensure these settings match those in the **seca analytics 115** PC software (menu: Extras\Settings\Synchronization).

- Press the  button to confirm the settings.
 - Press the  button:
→ [Activating automatic synchronization](#)
 - Press the  button:
Confirm settings, exit dialog

Connecting the device manually (TCP)

- Press the **Peripherals** tab.



The image shows the 'Peripherals' menu. It has a title bar with a checkmark and an 'X' button. The main area contains six buttons arranged in a 3x2 grid: 'LAN', 'WiFi', 'seca 360° wireless', 'seca connect', 'seca 360° proximity', and 'Certificates'. To the right of the menu is a sidebar with buttons for 'Logout', 'Users', 'System', 'Settings', 'Peripheral', and 'Reset'. At the bottom of the sidebar are icons for Wi-Fi, a smartphone, and a battery level indicator.

- Press the **seca connect** button.
The **seca connect configuration** dialog window opens.

3. In the **Connect Mode** drop-down menu, select the option **seca analytics 115 TCP**.
The recommended presets are displayed.

4. Adapt the presets if necessary.
5. In the **Connect Server IP** line, enter the appropriate IP address.

Configuration	IP address
seca analytics 115 PC software as client/server solution	The IP address of the PC on which the seca analytics 115 PC software was installed with the Server or Complete options
seca analytics 115 PC software as a standalone solution	IP address of the PC workstation

6. In the **Connect Port** line, enter the port of the PC selected under 5. (default setting: 20010).

You have the following options for continuing:

- Press the  button:
→ [Activating automatic synchronization](#)

- Press the  button:
Confirm settings, exit dialog

Activating automatic synchronization

If you are using the device in combination with the **seca analytics 115** PC software, you should activate automatic synchronization. The following data are then synchronized as soon as they are changed either on the device or in the PC software:

- seca patient files
- User accounts and passwords
- Automatic export settings

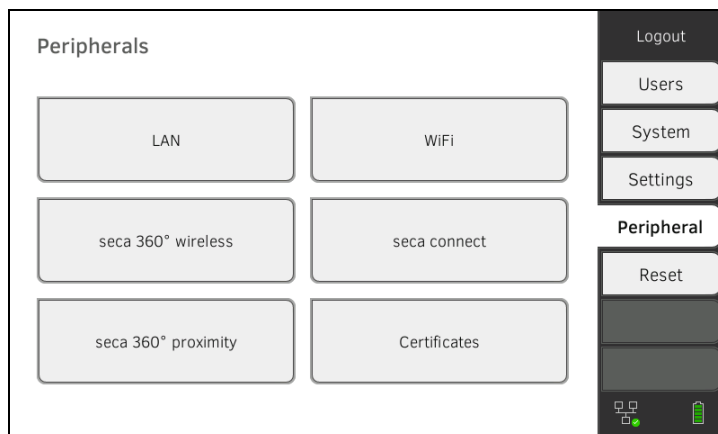
NOTICE!

Malfunction

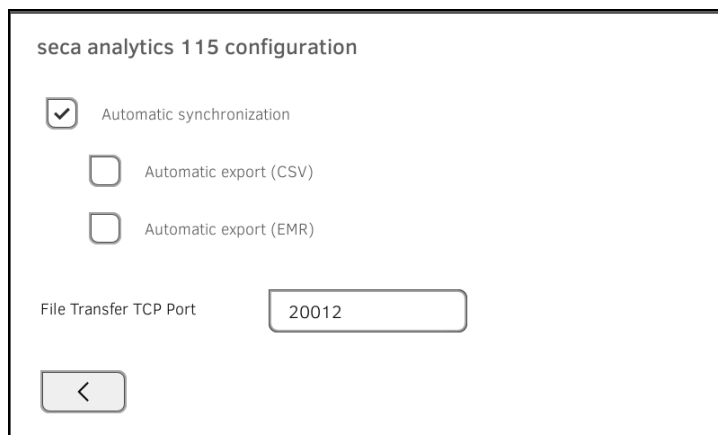
In order to be able to use automatic synchronization, a connection to the PC software must be set up → [Setting up a connection to the seca analytics 115 PC software](#).

- Ensure that the connection to the PC software is set up before you activate automatic synchronization.

1. Press the **Peripherals** tab.



2. Press the **seca connect** button.
3. In the **Connect Mode** drop-down menu, select the option **seca analytics 115 TCP** or **seca analytics 115 UDP**.
4. Press the  button to reach the **seca analytics 115 configuration** page.



5. Press the **Automatic synchronisation** checkbox. Automatic synchronization is activated.
6. To adopt the settings, proceed as follows:

a) Press the  button

b) Press the  button

The settings are adopted.

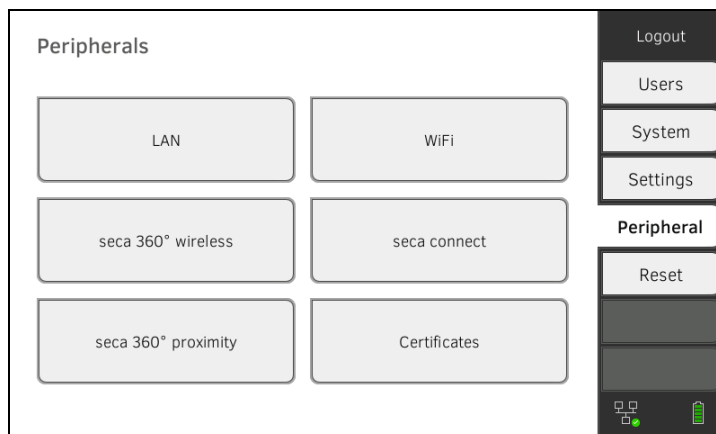
NOTE

- The data are synchronized as soon as they are changed either on the device or in the PC software. No further settings are required.
- In the event of conflicts during synchronization, the data of the **seca analytics 115** PC software take priority. The device data will be overwritten.

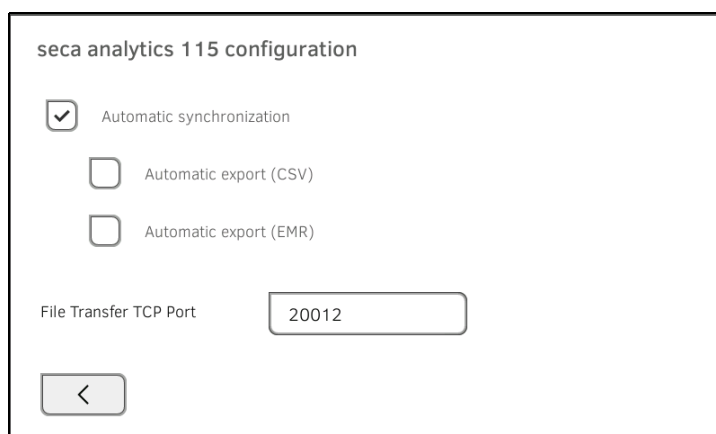
Setting up automatic export

This function allows you to transmit measuring results to an EMR system automatically. The export takes place as soon as data are generated or amended on the device. To be able to use this function, an interface to the **seca analytics 115** PC software must be set up in your EMR system.

1. Establish which data format your EMR system accepts.
2. Press the **Peripherals** tab.



3. Press the **seca connect** button.
4. In the **Connect Mode** drop-down menu, select the option **seca analytics 115 TCP** or **seca analytics 115 UDP**.
5. Press the  button.
The **seca analytics 115 configuration** page is displayed.



6. Ensure that the **Automatic synchronisation** checkbox is activated.
7. Press the desired export format.
 - **Automatic export (CSV)**
 - **Automatic export (EMR)**
8. To adopt the settings, proceed as follows:
 - a) Press the  button
 - b) Press the  button

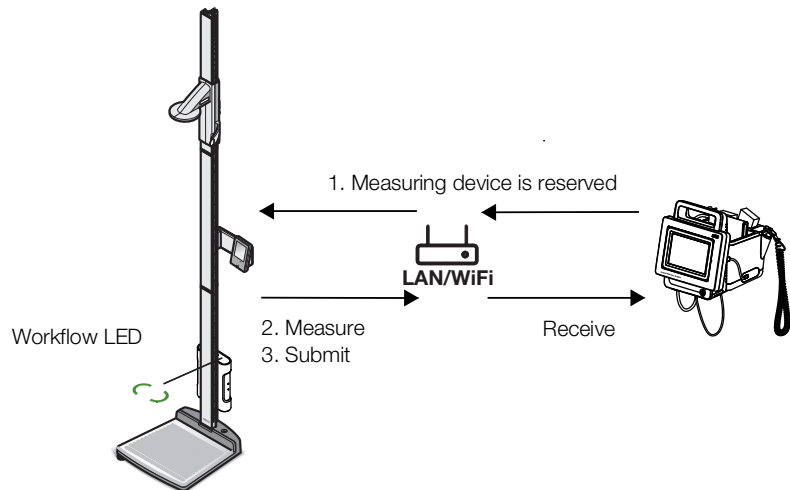
The settings are adopted.
9. Set up an interface to the **seca analytics 115** PC software in your EMR system.

NOTE

- Settings you make in this dialog window are transmitted to the **seca analytics 115** PC software → [Exporting patient and user data manually](#).
- Note the user documentation for the EMR system used.
- seca Service will be pleased to assist if you have any questions relating to interface configuration.

5.4 Setting up a seca 360° proximity connection

Use a **seca 360° proximity** connection to adopt measured values from compatible seca measuring devices (scale, measuring rod, measuring station).



Example display:

seca 285 measuring station with **seca 452** interface module and **seca mVSA 535**

The following requirements must be met in order to connect:

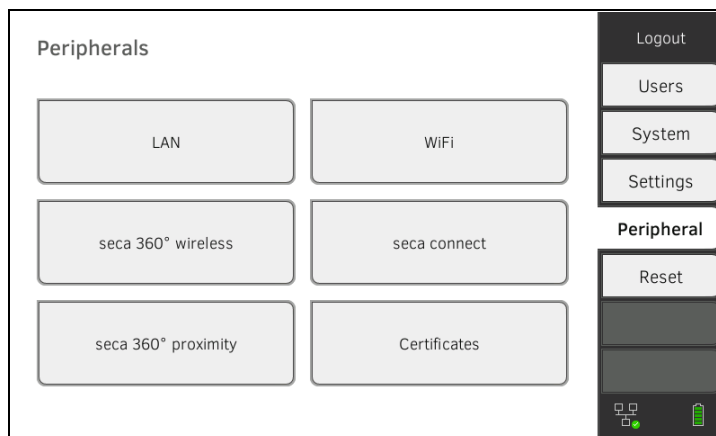
- The seca measuring device is equipped with either a **seca 452** external interface module or with an internal interface module (in each case firmware version Q2_2020_Build_615 or higher).
- The seca measuring device is connected to your LAN or WiFi network.
- The seca measuring device is configured as follows:
 - Scan user ID: Required
 - Scan patient ID: Required
 - Confirmation of measurement on seca measuring device: Required
 - Port used: Port configured for communication with the **seca connect 103** software (default: 22020) → [Setting up a connection to the seca connect 103 software](#)

NOTE

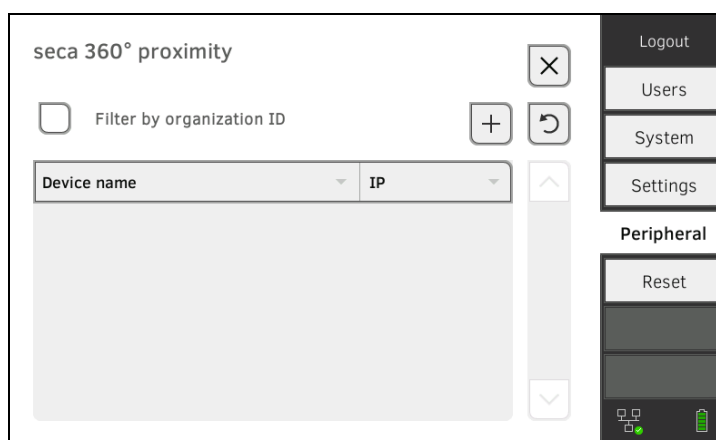
Information about how to configure your seca measuring device can be found in the **seca 103/452** system instructions for use.

Proceed as follows to connect the seca measuring device:

1. Press the **Peripherals** tab.



2. Press the **seca 360° proximity** button.
The **seca 360° proximity** dialog window opens

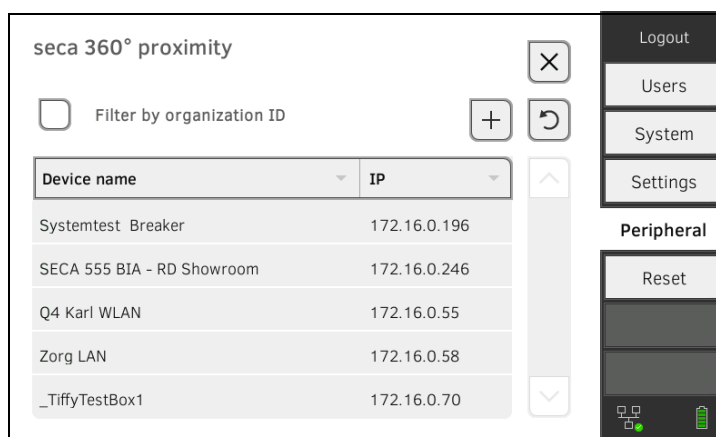


3. Search for available devices:

► Press the  button: Search for devices on the network

► Press the  button: Enter the IP address of a device

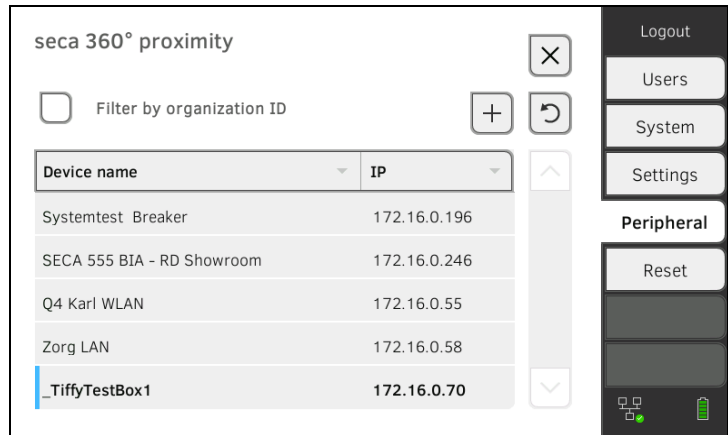
Available devices are displayed.



NOTE

- If you have assigned organization IDs to your devices, you can filter them accordingly and thus shorten the list of results.
- Information about how to assign organization IDs can be found in the **seca 103/452** system instructions for use.

4. Press the desired device in the list:



The device is shown blue in the list.

The connection is set up.

In measuring mode, the seca measuring device is reserved as soon as a patient file is called up. The device is released again once the measurement is stopped → [Receiving weight and height \(seca 360° proximity\)](#).

5.5 Setting up a seca 360° wireless connection

→ [Introduction](#)

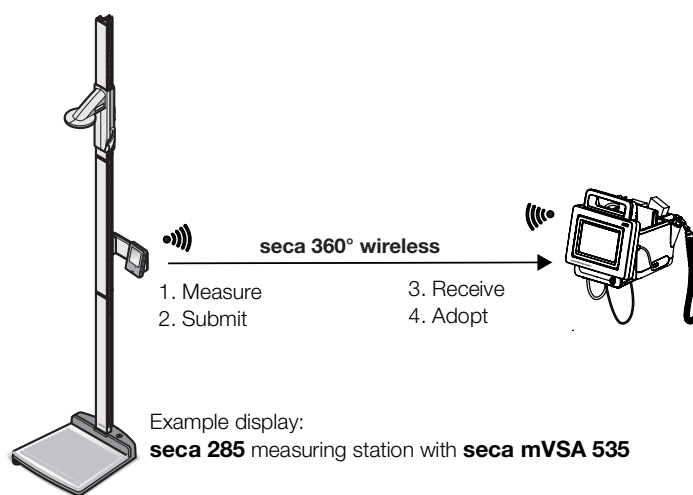
→ [Activating/deactivating the seca 360° wireless module](#)

→ [Setting up a seca 360° wireless connection](#)

Introduction

If you use devices from the **seca 360° wireless** system in your institution, e.g. a measuring station, you can connect them to the **seca mVSA 535/ seca mBCA 525**. You can submit the parameters height and weight directly to the device and adopt them in a seca patient file.

On the **seca mVSA 535**, the values also appear in the Vital signs tab.



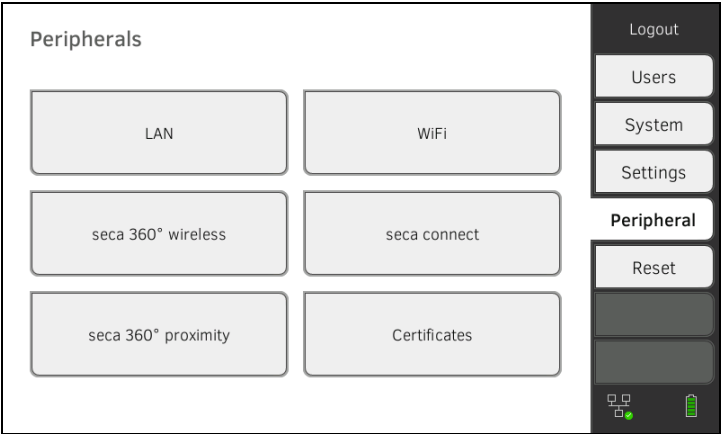
In order to be able to communicate with devices from the **seca 360° wireless** system, the **seca 360° wireless** module of the **seca mVSA 535/ seca mBCA 525** must be activated and a wireless group set up.

NOTE

- The device can only receive data, not transmit it, via the **seca 360° wireless** connection.
- Follow the instructions in this section to achieve a stable connection of the desired **seca 360° wireless** devices and to prevent the undesired integration of other devices.
- You should also follow the instructions for use for the **seca 360° wireless** system devices being used.

**Activating/deactivating the
seca 360° wireless module**

1. Press the **Peripherals** tab.



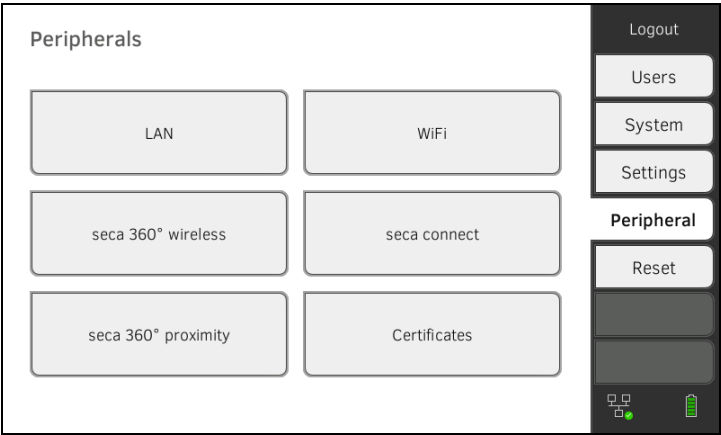
2. Press the **seca 360° wireless** button.



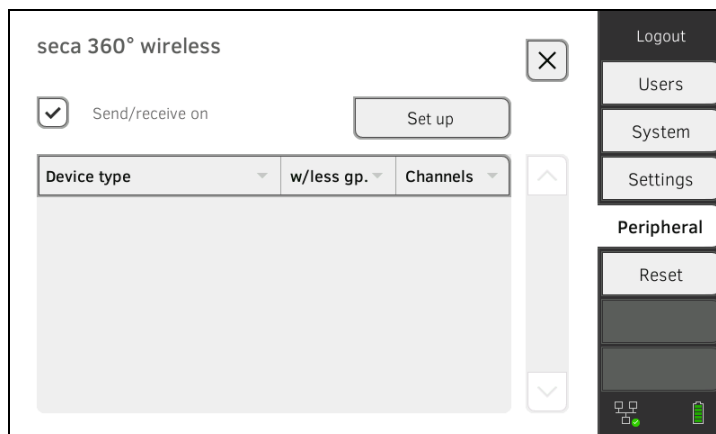
3. Press the **Send/receive on** checkbox.
The **seca 360° wireless** module is activated.
4. To deactivate the **seca 360° wireless** module, press the **Send/receive on** checkbox again.

**Setting up a seca 360° wireless
connection**

1. Ensure that the **seca 360° wireless** modules of the **seca mVSA 535/ seca mBCA 525** and of all devices you want to connect to the **seca mVSA 535/seca mBCA 525** are activated.
2. Switch off all the devices you want to connect to the **seca mVSA 535/ seca mBCA 525**.
3. Press the **Peripherals** tab.



4. Press the **seca 360° wireless** button.



5. Press the **Set up** button.
6. Press one of the three wireless groups.
- The device searches for **seca 360° wireless** devices which are switched on.
- The device will suggest three wireless channels.

NOTICE!

Incorrect device assignment

Only one example of a device category (e.g. personal scale or measuring rod) can be integrated in each wireless group.

- ▶ Take note of the Technical Data in the section entitled → [seca 360° wireless system](#) of the instructions for use.

NOTICE!

Data transmission interference

The proposed channel numbers can be edited. This function is intended purely for special reception situations. Devices may be assigned to the wrong wireless groups or unreliable wireless connections may arise.

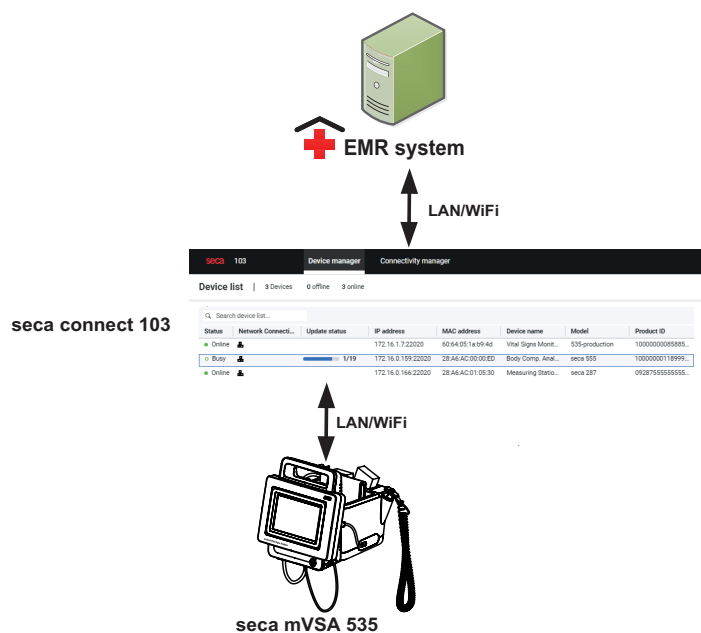
- ▶ Only change the channel numbers if the proposed channel numbers do not result in a reliable wireless connection.
 - ▶ Ensure that the new channel numbers are not being used for other wireless groups.
 - ▶ Ensure that the channel numbers are at least 30 apart from one another.
7. Switch on all **seca 360° wireless** devices you wish to incorporate in the wireless group.
- When devices are detected, a beep will be heard.
- Detected devices will be displayed on the monitor.
8. Press the **Finish** button once all **seca 360° wireless** devices have been detected.
- The **seca 360° wireless** connection is set up.

6. CONNECTING TO AN EMR SYSTEM

- Information about user and patient data
- Assigning a clear device name
- Setting up a connection to the seca connect 103 software
- Configuring data transfer to the EMR system
- Use of certificates
- Summary: Device characteristics when connected to EMR system

You can connect the device to compatible EMR systems via the **seca connect 103** software.

seca recommends performing this integration exclusively in collaboration with seca Service and the manufacturer of your EMR system.



The following functions are available when you connect to an EMR system:

- Log in to device with EMR user ID
- Call up EMR system patient data on the device
- Submit measuring results to the EMR system

Information about the measuring sequence when you connect to an EMR system can be found here: → [Operation when connected to an EMR system](#).

6.1 Information about user and patient data

When connecting to an EMR system, the following changes apply to the management of user and patient data:

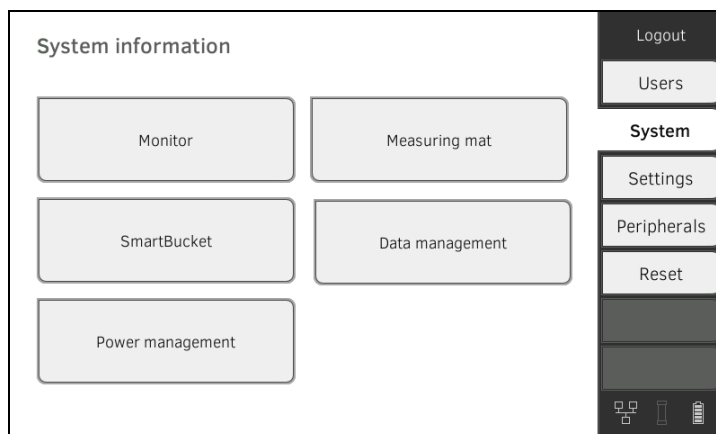
- User IDs for medical staff can only be set up in the EMR system.
- Patient files can only be managed in the EMR system.
- User IDs for administrators and service technicians can only be set up on the device.

6.2 Assigning a clear device name

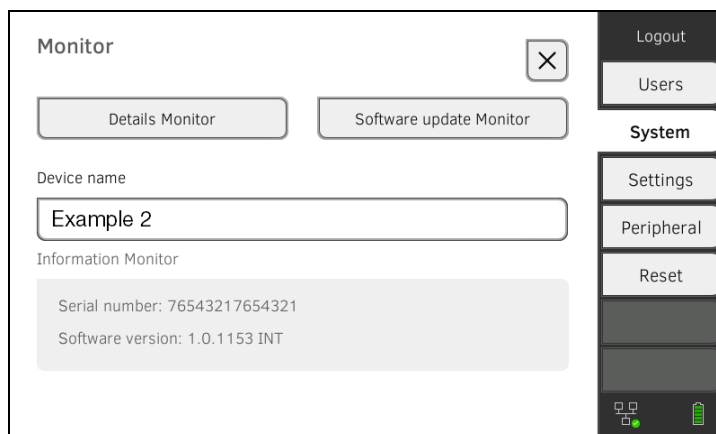
For the device to be connected to an EMR system, it needs to be assigned a clear device name. Under this device name, the device transmits a heartbeat to the network every 30 seconds.

To assign a device name, proceed as follows:

1. Log in as administrator.
2. Press the **System** tab.



3. Press the **Monitor** button.
The **Monitor** dialog window is shown:



4. Enter a clear device name in line with the naming conventions of your institution:

- a) Press the **Device name** input field

- b) Use the keypad : Enter the device name

- c) Press the  button: Confirm entry

6.3 Setting up a connection to the seca connect 103 software

→ [Setting up a seca 360° proximity connection](#)

→ [Making workflow settings](#)

The device must be connected to the **seca connect 103** software in order to be able to communicate with your EMR system.

The following requirements must be met for this:

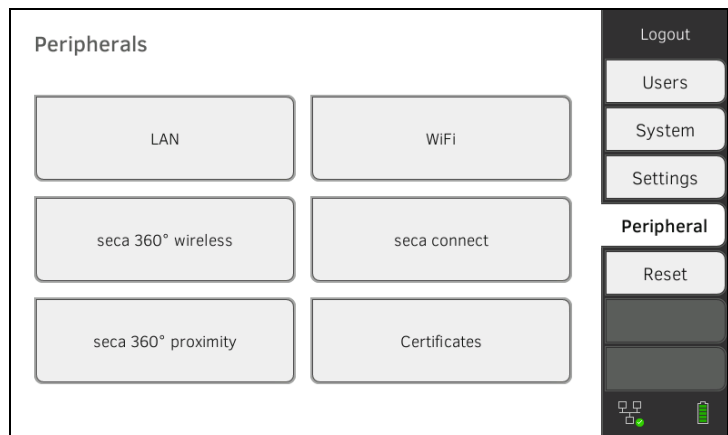
- The BIA measuring mat is deactivated → [Retrofitting the measuring mat \(seca mVSA 535 only\)](#)
- The device is connected to your LAN or WiFi network
- The server address and port for the **seca connect 103** are known
- The EMR system is connected to the **seca connect 103** software. Information on this can be found in the **seca 103/452** system instructions for use (from version 2.0 or higher)

NOTE

- Follow the information in this section of the document → [Monitor interfaces and network ports](#).
- Information on connecting the EMR system to the **seca connect 103** software can be found in the **seca 103/452** system instructions for use (from version 2.0 or higher)

Entering connection data

1. Press the **Peripherals** tab.



2. Press the **seca connect** button.
The **seca connect configuration** dialog window opens.

- In the **Connect Mode** drop-down menu, select the option **seca connect 103**.

- Enter the connection data for the **seca connect 103** software:
 - Enter the IP address of the server on which the **seca connect 103** is installed
 - Enter the port for the **seca connect 103** (recommended: 22020)

You have the following options for continuing:

- Press the  button: → [Making workflow settings](#)
- Press the  button: Adopt settings

Making workflow settings

You can specify the following settings for the measuring sequence and communication with the EMR system:

- Password settings for the user ID
- Scan sequence for user and patient ID
- Permit offline measurements if the EMR system connection is interrupted (recommended for mobile use or difficult WiFi reception conditions)
- Enter an organization ID – to assign the device to a department in your institution, for example

- Press the **Peripherals** tab.

- Press the **seca connect** button.
- Ensure that in the **Connect Mode** drop-down menu the option **seca connect 103** is selected.

4. Press the  button.
The **seca connect 103: Workflow** page is displayed.

seca connect 103: Workflow

☒ User/patient ID: permit any scan sequence

☒ Allow offline measurements

User ID

Organization ID



5. Specify the settings for the scan sequence for user and patient ID:

- ▶ ☐ Sequence for ID scan fixed: 1. User, 2. Patient
- ▶ ☒ Sequence for ID scan flexible

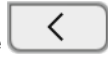
6. Specify whether measurements are to be possible even if the connection to the EMR system is interrupted (offline measurements):

- ▶ ☐ Do not allow offline measurement
- ▶ ☒ Allow offline measurements

NOTE

Offline measurements are temporarily saved in the **Unsubmitted measurements** list. When the connection to the EMR system is active again, the measurements can be called up, evaluated and submitted to the EMR system → [Using the Unsubmitted measurements list](#).

7. Under **User-ID**, specify whether a password is required for login:
- ▶ Password must be entered (recommended)
 - ▶ No password required
8. If desired, enter an **Organization ID** to assign the device to a department in your institution, for example.
9. Adopt the settings:

- a) Press the  button

- b) Press the  button

The settings are saved.

6.4 Configuring data transfer to the EMR system

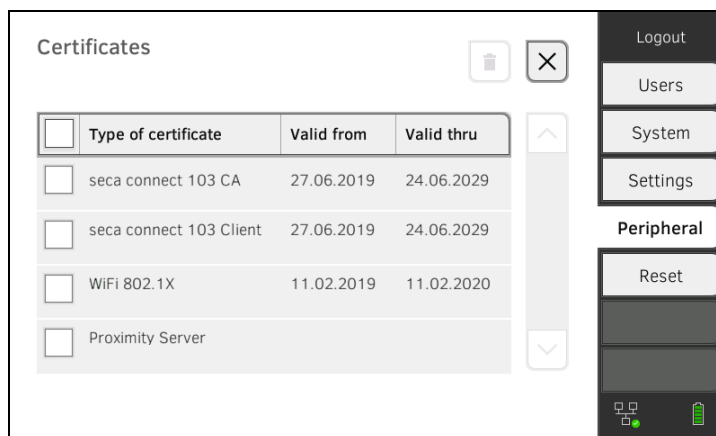
seca recommends performing the data transfer to the EMR system only in collaboration with seca Service and the manufacturer of your EMR system.

NOTE

More information on this can be found in the **seca 103/452** system instructions for use (from version 2.0 or higher).

6.5 Use of certificates

The device is prepared for the use of certificates. If you wish to use this function, please contact seca Service.



6.6 Summary: Device characteristics when connected to EMR system

Function	Standalone mode (factory setting)/ connection to seca analytics 115	Connection to EMR system via seca connect 103
User identification (measure)	seca user account, role: Physician	EMR user ID
User identification (manage)	seca user account, role: Admin	Device-specific user account, role: Admin
Login	Select from list	• Scan barcode • Manual
Password	Manual	Manual
Patient identification	Select from list	• Scan barcode • Enter manually
Source of patient data	• Device • seca analytics 115	EMR system
Create/edit patient data on device	Possible	Not possible
Storage location for measurements	• Device database • seca analytics 115	• Unsubmitted measurements list • EMR system
Unsubmitted measurements list	Not available	Available

7. FACTORY SETTINGS

- [Overview of factory settings](#)
- [Resetting the device](#)
- [Resetting the user interface](#)
- [Exporting the system log/audit trail](#)
- [Enabling VNC access](#)

7.1 Overview of factory settings

In the **Reset** tab, you can reset the device to the following factory settings:

Function	Setting
Administrator password	1357
Display language	English
Date format: International	dd.mm.yyyy
Time format: International	24 h
Naming convention: International	Surname, first name
Name separator	Decimal point
Display brightness	100 %
Volume for warning and information sounds	70 %
Volume for button sounds	70 %
Rechargeable battery capacity, automatic switch-off at:	≤ 50 %
Weight: International	kg
Height: International	m
Blood pressure: Unit Presets	mmHg Inflation, single measurement
Temperature: Unit COVIDIEN™ FILAC™ 3000 Blue Red	°C Oral measurement, predictive measurement Predictive measurement
Pulse rate: Unit Preset (seca measuring equipment only)	min ⁻¹ Default setting
Oxygen saturation: Unit Mode	% Normal
Decimal separator: International	Comma
Energy:	MJ
Reference resting energy expenditure:	FAO/WHO/UNU
LAN Connection data	On None

17-10-05-353-002g_08-2020 B

Function	Setting
WiFi client (device <-> network): Connection data	Off None
Direct WiFi (device <-> measuring mat): seca mBCA 525 seca mVSA 535	On Off
Device name	[serial number]
Integration mode	Standalone
seca 360° wireless: Connection data	Off None
seca software seca connect 103: Communication server IP Connect port	None 22020
seca software seca analytics 115: UDP Communication server IP TCP port UDP port File transfer port	Off Off None 20010 20011 20012
Active analysis modules seca mBCA 525 seca mVSA 535	All Vital signs

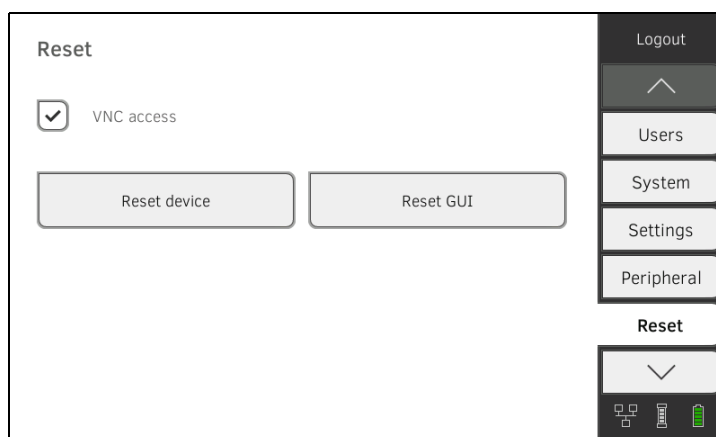
7.2 Resetting the device

Use the **Reset device** function to reset the device to factory settings (→ [Overview of factory settings](#)). seca patient files and user accounts are deleted from the device in this process.

NOTE

If seca patient files and user accounts are to be retained, proceed as described in the section entitled → [Resetting the user interface](#).

1. Press the **Reset** tab.



2. Ensure that seca patient files and user accounts have been exported or synchronized using the **seca analytics 115** PC software.
3. Press the **Reset device** button.
seca patient files and user accounts will be deleted.
The device will be reset to factory settings → [Overview of factory settings](#).

7.3 Resetting the user interface

Use the **Reset GUI** function to reset the user interface (GUI = Graphical User Interface) of the device to factory settings → [Overview of factory settings](#).
seca patient files and user accounts will be retained in this process.

NOTE

If all seca patient files and user accounts are to be removed from the device, proceed as described in the section entitled → [Resetting the device](#).

1. Press the **Reset** tab.

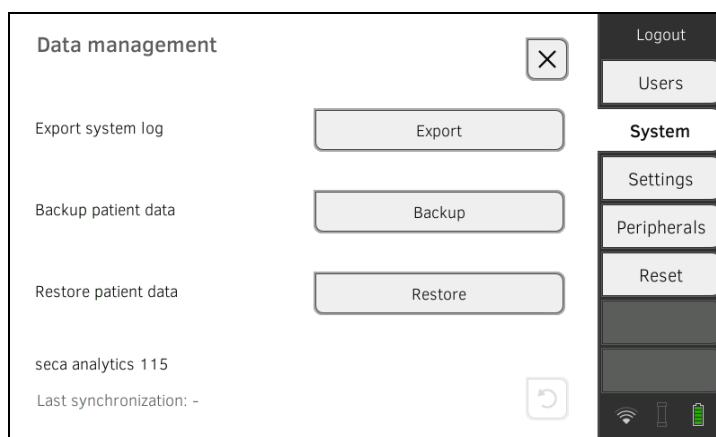


2. Press the **Reset GUI** button.
The user interface will be reset to factory settings → [Overview of factory settings](#).
seca patient files and user accounts will be retained.

7.4 Exporting the system log/audit trail

This function allows you to export the system log/the audit trail and make it available to seca Service for support purposes, for example.

1. Press the **System** tab.
2. Press the **Data management** button.



3. Press the **Export** button.
4. Select the export destination:
 - ▶ USB memory stick: continue at step 5.
 - ▶ Network: Continue at step 6.

5. Connect a USB memory stick to the monitor.
6. Press the **Export system log** button.
The system log/audit trail is exported.

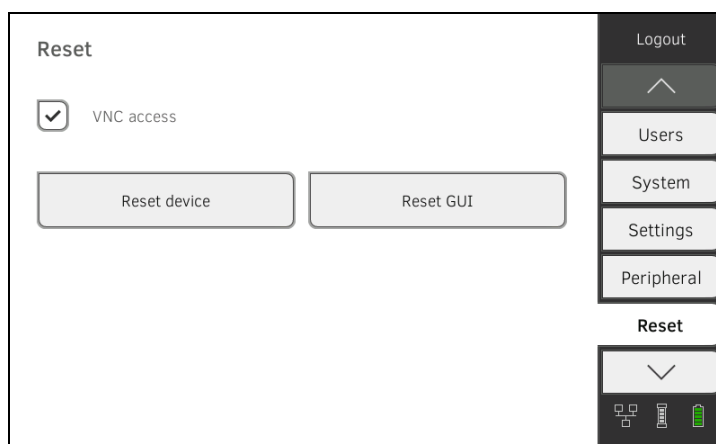
NOTE

If you have selected Network as the export destination, the system log in the installation directory of the **seca analytics 115** PC software (server or standalone PC) will be exported to the Program-Data\seca\LogExports folder.

7.5 Enabling VNC access

With a VNC connection, you can reproduce the user interface of the device on a PC screen and remotely control the device from the PC. The requirement is that a VNC viewer is installed on the PC.

1. Press the **Reset** tab.



2. Press the **VNC access** checkbox.
3. Restart the device.
The VNC service of the device will be started.
4. Set up the VNC connection using the VNC viewer of your PC.

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seca gmbh & co. kg
Hammer Steindamm 3–25
22089 Hamburg · Germany
T +49 40 20 00 00 0
F +49 40 20 00 00 50
E info@seca.com

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