



# Xoto® CAM 1.3 Manual

**Version 1.5**

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File name	20200204_Handbuch XotoCAM_V1.5_English (UK)_final.docx		
Number of pages	31	Xoto® Technology GmbH	

### Version history

Version	Date	Author	Reason for changes/remarks
1.0	16/06/2018	HK	Creation
1.2	10/07/2018	HK	Image corrections
1.3	25/07/2018	HK	Corrections
1.4	23/12/2019	S.Spindler	Corrections
1.5	04/02/2020	S.Spindler	Corrections

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## 2 Safety instructions

### 2.1 General safety instructions

- If the device is operated with defects or with a missing safety device, the operator is at severe risk. Therefore, the device may only be used in accordance with the regulations specified in the manual and in perfect condition
- The camera or docking station must not be operated if the cables are defective
- The cable must not be routed over sharp edges or hot spots and the cable must not be bent sharply in any place
- The device must not be opened by unauthorised persons. The device should only be operated by qualified personnel.
- Only the manufacturer itself or technicians authorised by the manufacturer may carry out internal work on the device
- Furthermore, the device complies with the essential requirements for medical devices in accordance with EN 60601-1-2.
- Nevertheless, interference from other devices that generate higher electromagnetic interference levels cannot be excluded. Malfunctions of this type can lead to the temporary limitation of the full functionality of the device, but do not pose any risks to the patient or operator
- Annual maintenance and inspection is recommended, which can be carried out in conjunction with the "inspection of work equipment" in accordance with German Industrial Safety Regulations (BGV A2 to VDE 0751).
- The manufacturer recommends a general overhaul of the devices at the end of a service life cycle of 5 years.

### 2.2 Warranty

The manufacturer's warranty shall be deemed void in the following cases:

- If modifications, new settings, upgrades, repairs or installations are carried out by unqualified personnel
- If the electrical installation of the respective room does not meet IEC requirements
- If the device is not used in accordance with the user manual
- Repairs or overhauls are carried out without using original spare parts supplied by Xoto® Technology GmbH

## **2.3 Accessories**

A charging cable is included.

## 3 Introduction

### 3.1 Application area

The Xoto® CAM 1.3 can be used in all hospital or clinical areas.

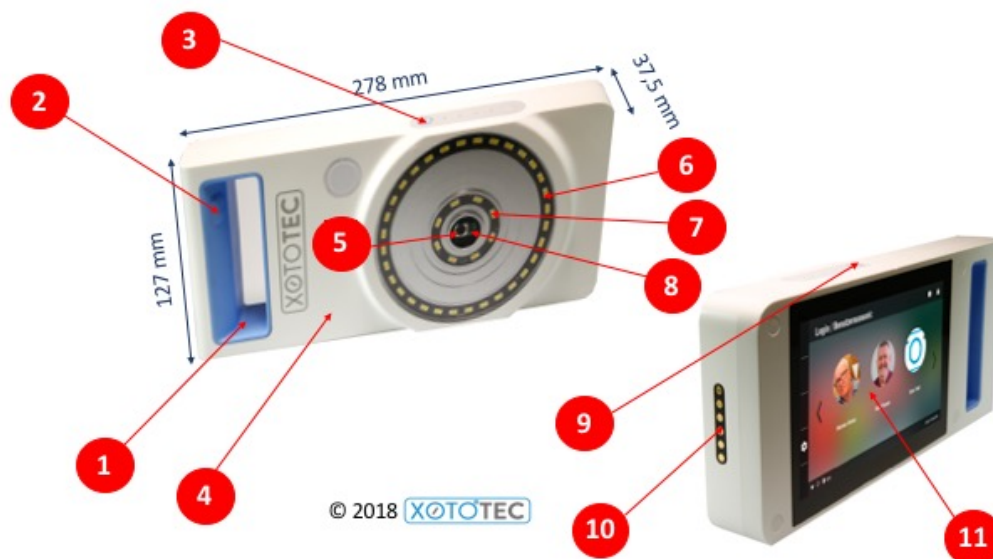
The device meets the basic requirements for medical products in accordance with 93/42/EEC. The Xoto® CAM 1.3 is a safe medical device, the manufacturer guarantees compliance with all applicable medical standards.

In accordance with Directive 93/42/EEC Annex XI, the Xoto® CAM 1.3 is a classified Class I device. As a medical device, the device may only be used for its intended purpose.

### 3.2 Intended use & application

The Xoto® CAM 1.3 is a new, innovative medical camera for mobile photo and wound documentation. It is intended for use in the patient's direct vicinity.

### 3.3 Operating elements and displays



Number	Element	Description
1	Handle	Secure non-slip camera handling
2	Shutter release	Press to take a photo

	button	
3	On/off-button	Press and hold briefly to switch on/off
4	Case	Can be fully disinfected
5	ToF Sensor	Enables accurate wound measurement
6	Large LED ring	Illuminates large surfaces
7	Small LED ring	Illuminates deep objects
8	Lens	
9	Battery charge indicator	Displays current battery status
10	Connections	Pin connector for charging and data transmission
11	Display	User interface for input and interaction

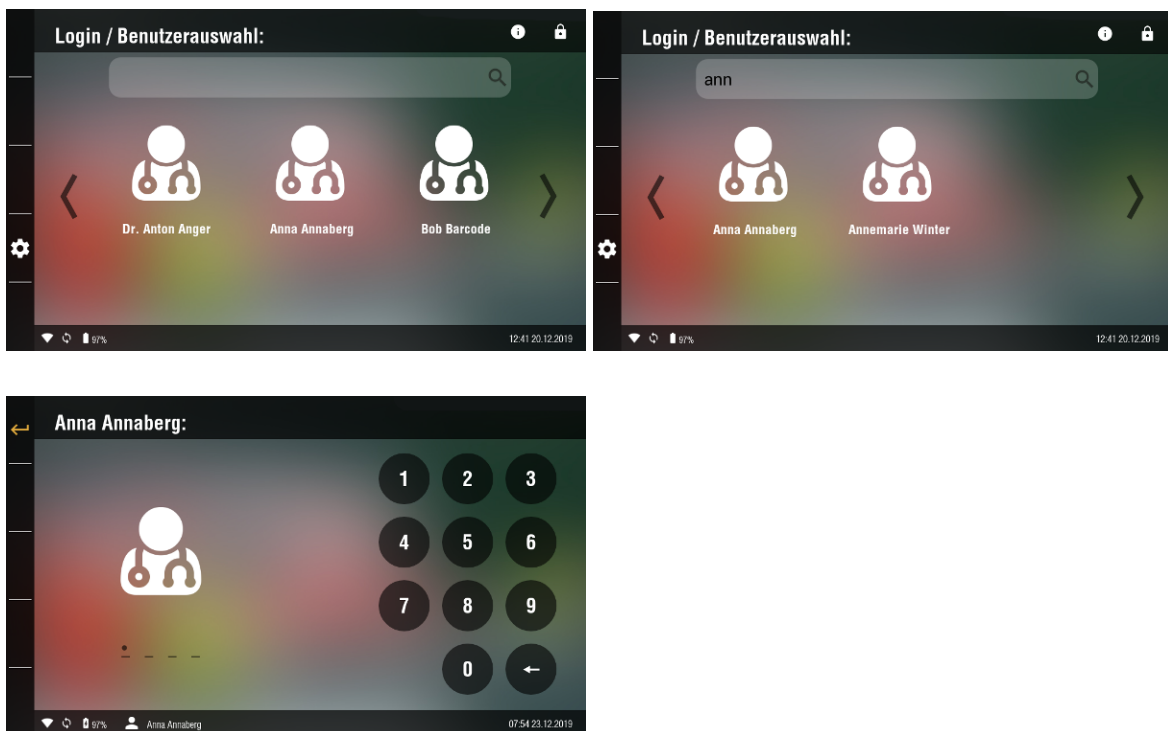
## 4 User and patient selection

### 4.1 Starting up the device

The Xoto® CAM 1.3 is supplied with the required operating voltage by pressing the On/Off button on top of the case. The battery status of the device should be checked beforehand by pressing the battery charge level indicator to ensure that power is available.

### 4.2 User selection


After starting the Xoto® CAM 1.3 the user interface will display a list of available users. A search function is provided to assist user selection. Once the desired user has been selected, unblocking is carried out using a password.

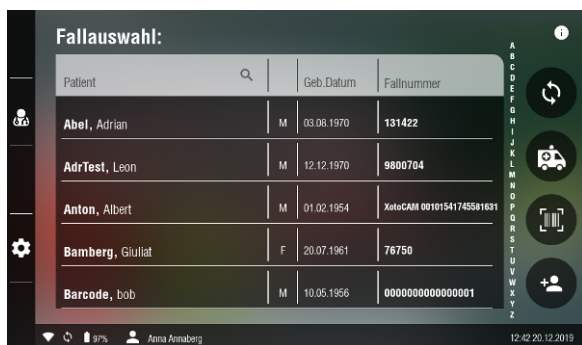


### 4.3 Case selection

Existing cases can be selected directly from the list or by scanning a barcode.

A new case can be created either via barcode, manual entry or automatically via the emergency button.

 Synchronise case list



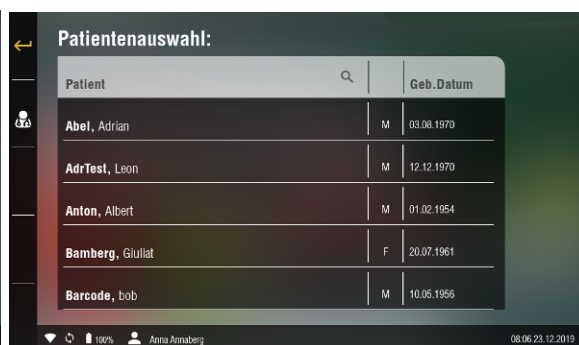
Create emergency case and emergency patient



Create new case



Confirm entries - Create case



Patient selection



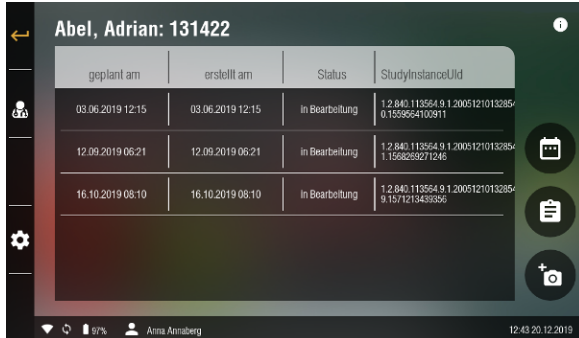
Confirm entries - Create case or patient

When scanning a barcode, the case number is transferred automatically. The patient is selected using the patient selection screen.

All other information can also be entered manually if the patient does not yet exist. Finally, the creation of a new case or patient is confirmed by clicking the checkbox.

## 5 Study selection

Planned or unfinished studies can be selected from a list for the previously selected case. It is also possible to create a new study.



geplant am	erstellt am	Status	StudyInstanceUId
03.06.2019 12:15	03.06.2019 12:15	In Bearbeitung	1.2.840.113554.9.1.2005121013285/0.1559564100911
12.09.2019 06:21	12.09.2019 06:21	In Bearbeitung	1.2.840.113554.9.1.2005121013285/1.15595639271246
16.10.2019 08:10	16.10.2019 08:10	In Bearbeitung	1.2.840.113554.9.1.2005121013285/9.1571213433936



Create current therapy



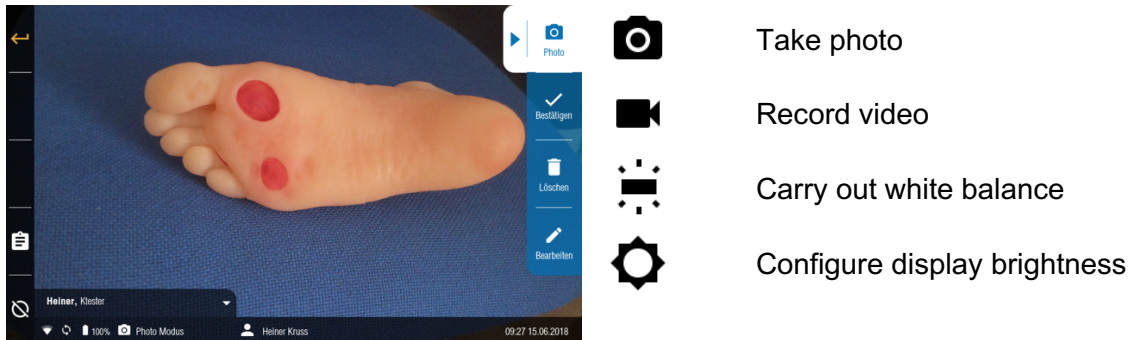
Edit exported wound documentation



Create new study

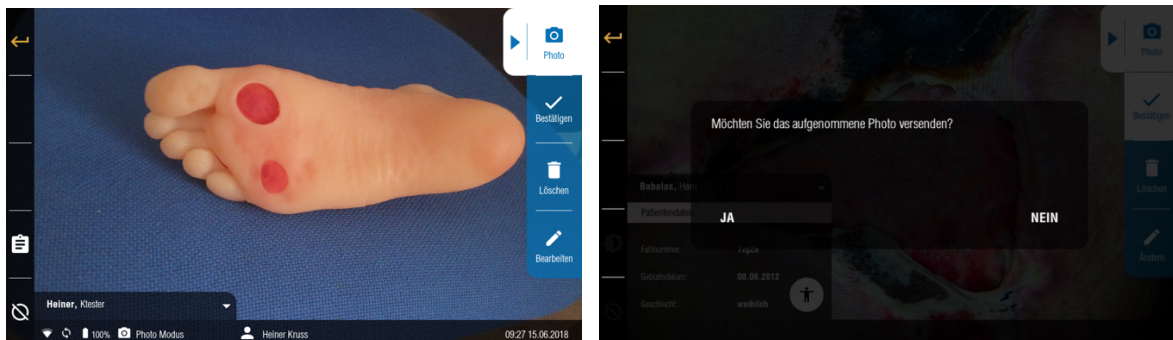
## 6 Photo documentation

Once a patient is selected it is possible to record a video or take a photo. The mode highlighted in white with a red frame is the currently selected mode.



### 6.1 Take photo

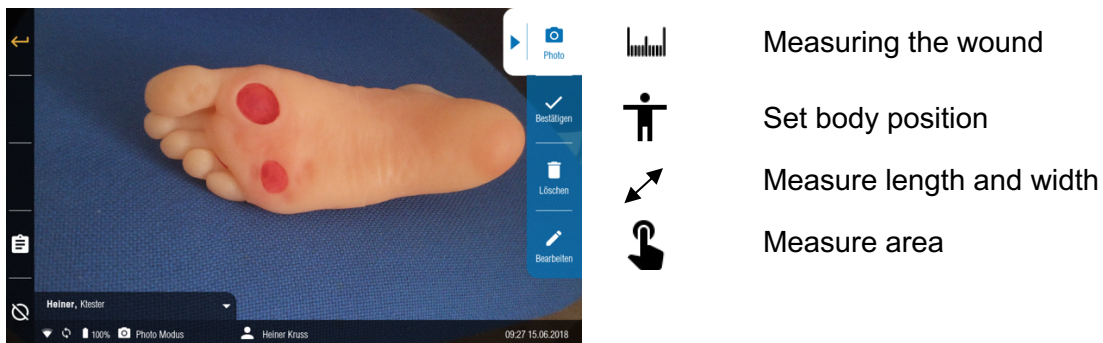
The Xoto® CAM should always be held horizontally in relation to the wound. Once a photo has been taken, it can either be edited or directly saved in an encrypted format. After this, it is possible to continue taking photos.



- ✓ Confirm - Save photo
- 🗑 Delete - Discard photo and take a new photo
- ✎ Edit - Edit photo
- 🔒 Switch off LED rings overriding automatic mode
- ↶ Undo changes

## 6.2 Edit photo

Various editing operations can be carried out on the photo. When the photo is sent to the hospital information system, it is transferred once without any editing and once with any editing applied. Once the processing is complete, the image is sent to the hospital information system after clicking the "Accept" button.



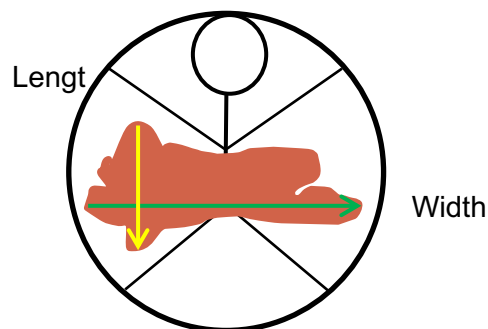
### 6.2.1 Measure wound size

The measurement of the wound is carried out under the menu item Measurements.

In order to clearly determine the position of the wound, the patient's body position can be defined. If this is carried out, the measurements of the wound are automatically transferred to the wound log. To do this, the graphic shown below is aligned in relation to the body axis via a rotational movement. Subsequently, a yellow and a green line will be displayed. The green line represents the width of the wound, the yellow line represents its length. The wound size is measured using the endpoint markers.

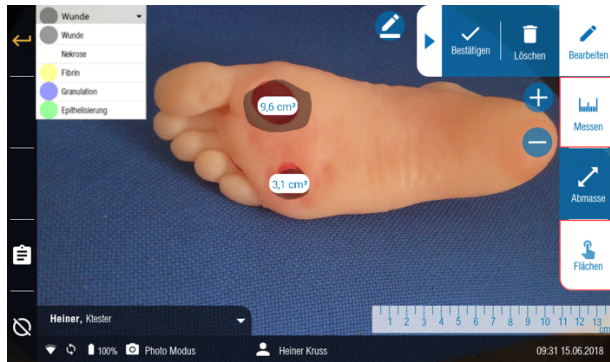
 Switch line orientation

 Hide lines



## 6.2.2 Measuring area & wound healing phases

Using the menu on the upper left-hand side of the screen, you can select whether you want to mark the total area of the wound or the respective wound healing phase. Necrosis, fibrin, epithelisation and granulation are available for wound healing phase selection.



Select wound area/healing phase

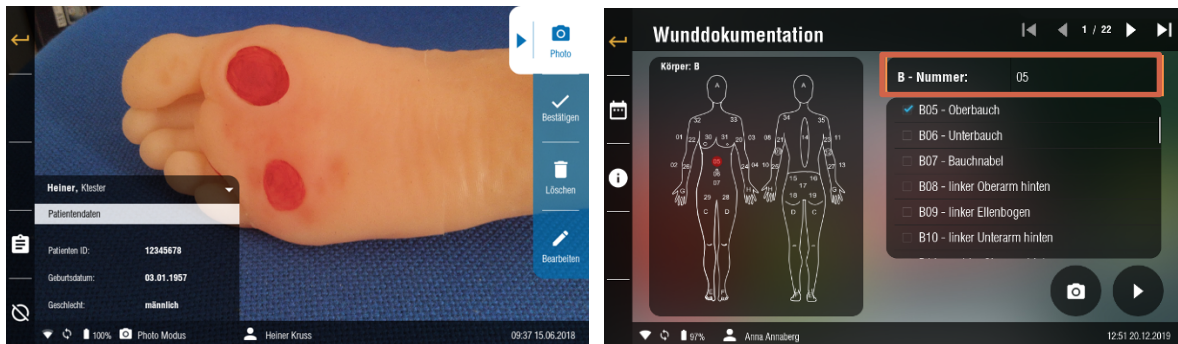
Add area

Subtract area

Frame the area with dots

## 7 Wound log

The wound log can be accessed via the  button. This displays the wound log where all the necessary data can be entered.




 Next page


 Previous page

 Final page

 First page

 Photo mode

 Wound log

 Create current therapy

Wound log data entry can be operated intuitively by pressing the respective buttons. Depending on the selection field, a number field or a QWERTY keyboard will be displayed when necessary. To complete the wound log press the tick symbol on the last page.

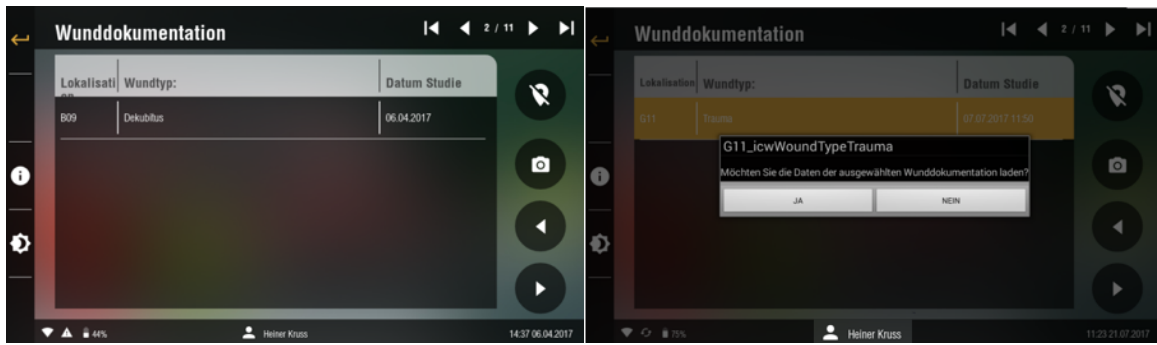
The choice of localisation is made by selecting the corresponding localisation number on the right-hand side of the image, which causes it to appear on a red background in the image on the left.


The regions of the head (A), legs (C and D), feet (E and F) and hands (G and H) will be displayed in more detail when pressed.

The desired number can be entered directly in the **“Letter” - number** field.

### 7.1 Load previous wound log

Following the localisation, a prompt will appear asking whether an old wound log should be loaded. Click on the corresponding row to select the desired wound log. If you do not wish to load a wound log, navigate to the next page using the arrow



 Display all patient wound logs

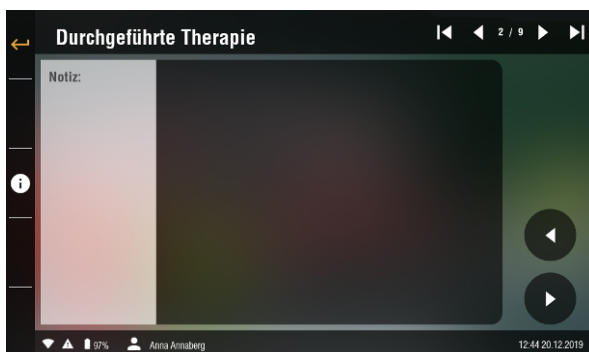
## 8 Create current therapy

A current therapy can be created for this case following case selection.

The corresponding wound log must be selected before a current therapy can be created.



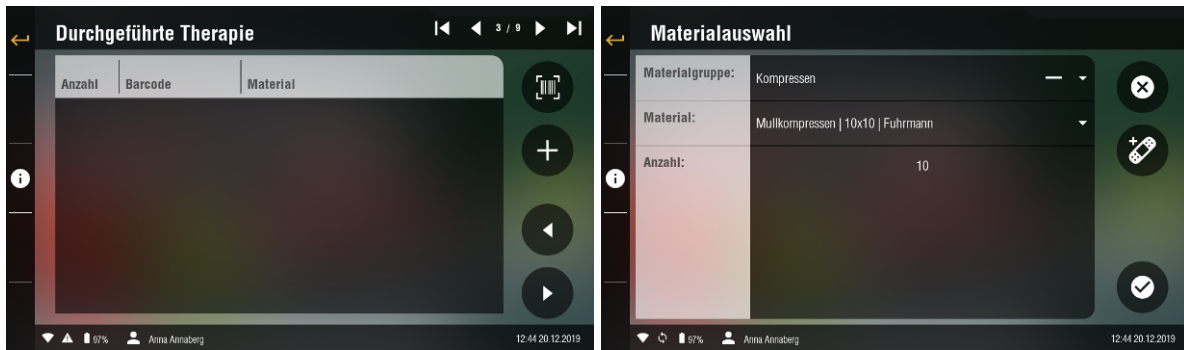
Create current therapy



- ▶ Next page
- ▶| Final page
- ◀ Previous page
- ◀| First page

Current therapy data entry can be operated intuitively by pressing the respective buttons. Depending on the selection field, a number field or a QWERTY keyboard will be displayed when necessary. To complete the current therapy section press the tick symbol on the last page.

The therapy suggestions previously entered in the wound log are automatically added to the current therapy section.



Read barcode



Add material



Next page



Previous page



Reset material group



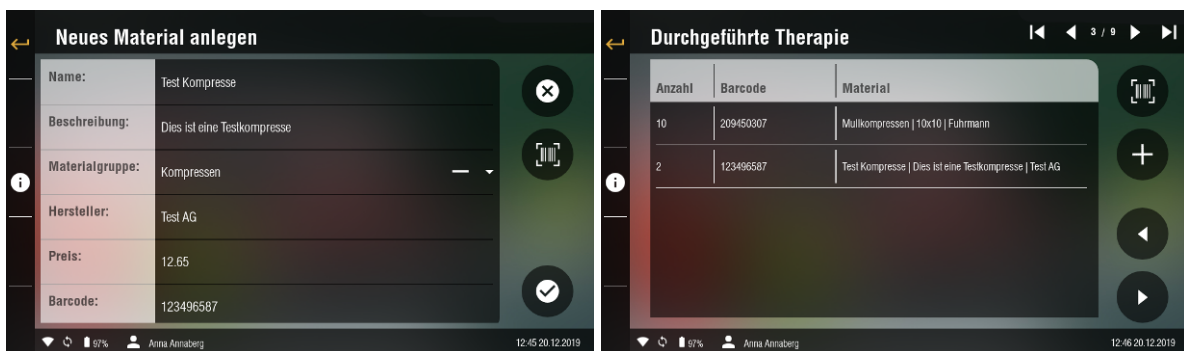
Cancel



Create new material



Confirm



Cancel



Read barcode



Reset material group



Confirm

It is possible to document the material used in the current therapy section. There are three possibilities for selecting the material. The material's barcode can be scanned or the material can be selected from a list, furthermore, it is also possible to create a new material.


After selecting the material used, the quantity can also be entered. If no number is entered, the material will be added only once. If a material has already been selected, the new number will be added to the previous one.

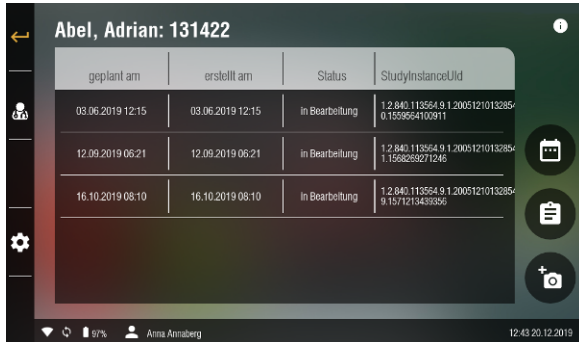
The materials used are displayed in a clearly arranged list.

## 9 Editing exported wound logs

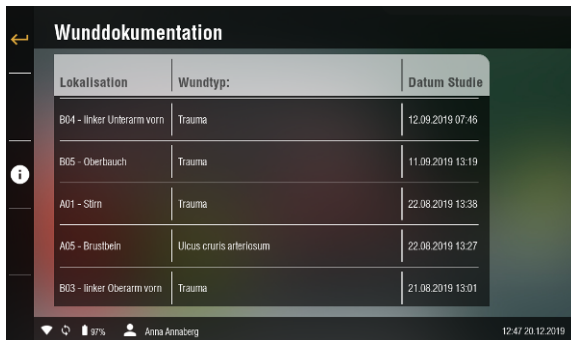
It is possible to edit a complete wound log. However, this is only possible after the wound log has been exported to the client's system.

To edit a wound log, first, the desired case must be selected.

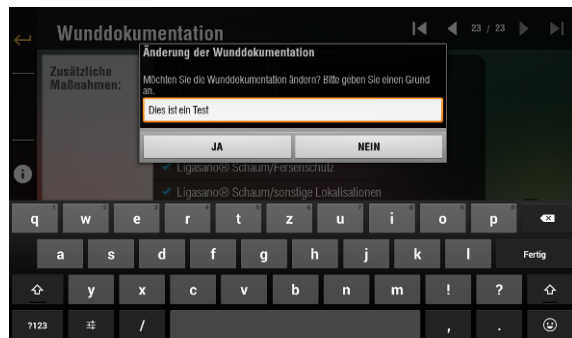
 Edit wound log



geplant am	erstellt am	Status	StudyInstanceUid
03.06.2019 12:15	03.06.2019 12:15	In Bearbeitung	1.2.840.113554.9.1.20051210132857-0.1559654100911
12.09.2019 06:21	12.09.2019 06:21	In Bearbeitung	1.2.840.113554.9.1.20051210132857-1.156269271246
16.10.2019 08:10	16.10.2019 08:10	In Bearbeitung	1.2.840.113554.9.1.20051210132857-9.1571013433365



Lokalisation	Wundtyp:	Datum Studie
B04 - linker Unterarm vorn	Trauma	12.09.2019 07:46
B05 - Oberbauch	Trauma	11.09.2019 13:19
A01 - Stirn	Trauma	22.08.2019 13:38
A05 - Brustbein	Ulcus cruris arteriosum	22.08.2019 13:27
B03 - linker Oberarm vorn	Trauma	21.08.2019 13:01



Änderung der Wunddokumentation

Möchten Sie die Wunddokumentation ändern? Bitte geben Sie einen Grund an.

Dies ist ein Test

JA NEIN

Zusätzliche Maßnahmen:

- Ligasano® Schaum/Farsenschutz
- Ligasano® Schaum/sonstige Lokalisationen

The wound log requiring edits must be chosen from a list.

A reason for the changes must be provided to be able to save any changes.

## 10 Charging guidelines

The Xoto® CAM can be charged in two ways:

- Using the supplied power cable to connect the device to the power outlet. (Only with version 1.1)
- Placing the Xoto® CAM in the XotoDOCK charging station with the contact strip facing down. (Charging only possible via the docking station from version 1.3 onwards)

If no WLAN is available, data transmission is only possible using the docking station.

## 11 Status check and settings

Xoto® CAM's various parameters can be configured in the Settings.

### 11.1 Status check

The status check is accessed via the i symbol in the top right-hand corner of the screen. The window that appears contains the following information:

- Xoto® CAM Version
- Free storage space
- Images/studies/wound logs/current therapy data that has not yet been transferred/  
Therapy
- Last connection to XotoGATE
- Operating time
- WLAN information
- Current IP address
- MAC address
- Android build version
- Reset last update timestamp

### 11.2 User settings

User settings can be accessed via the gear symbol in the menu on the left side.

1. During user selection
2. During case selection
3. During study selection

The window that appears contains the following settings.

- LED settings
- Display brightness
- Sleep mode
- Ask for more studies?
- Show save dialogue box?
- Language

### 11.3 Settings

Settings can be accessed via the lock symbol.

1. On the top right of the home screen
2. On the top right of the user selection screen

### 11.3.1 WIFI settings

This is where a connection to a W-LAN network can be established. Airplane mode must be deactivated.

Press the desired network to open a dialogue box requesting a W-LAN password. As soon as a connection has been established, the connection icon will turn green.



### 11.3.2 XotoGATE IP

Enter XotoGATE's IP address here.

### 11.3.3 XotoGate port

The XotoGATE port is: 8443.

### 11.3.4 Camera settings

Selection	Description
RAW picture format	
Picture size	When taking photos it is possible to choose between 8 megapixels and 1 megapixel
Jpeg compression	Specify the image compression
Camera opening angle	Camera aperture angle
Video resolution	When recording video it is possible to choose between Full HD and HD resolution
Camera upside down	If the camera is held upside down, confirming this setting allows the screen display to be rotated 180°.
Capture timer	Activate/deactivate the countdown before taking a photo
ToF settings	Determine minimum and maximum permissible clearance.
Camera parameters	Configure camera settings
Alternative camera parameters	Configure secondary camera settings

#### 11.3.4.1.1 Camera parameters

Optimal shooting parameters can be set using the sliders. To do this, the respective slider can be moved to the left or right. Caution! These settings can significantly affect image quality.

Selection	Description
Brightness compensation	Configure brightness
Exposure compensation	Configure exposure
Saturation compensation	Configure saturation
Hue compensation	Configure colour tone
Contrast compensation	Configure contrast
Sharpness compensation	Configure sharpness
Exposure mode	Configure exposure
White balance mode	Configure white balance
Focus mode	Focus Mode
ROI Focus mode	Set focus on a specific area (only works if auto-mode has been previously activated).
ROI Exposure mode	Set exposure to a specific region (works only with previous auto-mode in the settings)

### 11.3.5 Customer settings

Selection	Description
LED settings	LED ring settings
Measure	Activate/deactivate thin line indicators during measurement
Watermark in picture	Insert watermark into image, available for selection: <ul style="list-style-type: none"> <li>• Patient name</li> <li>• Patient ID</li> <li>• Study ID</li> </ul>
Select type	The following options can be selected: <ul style="list-style-type: none"> <li>• Visit - Selection via visit no.</li> <li>• Patient – Selection via patient</li> </ul>
Use numeric patient/visit no.	If this setting is activated, the patient/case numbers shall be entered numerically. Leading zeros in the barcode will be

	ignored.
Select user via barcode	Activate/deactivate patient selection via barcode
Patient select/add	The following options are available for selecting or creating a patient: <ul style="list-style-type: none"> <li>• List</li> <li>• Add patient</li> <li>• Barcode</li> </ul>
Display timeout	The time until the display switches off can be set in the range of 15 seconds to 30 minutes
Show save file dialogue	Activate/deactivate the dialogue box which is displayed after confirming the image.
Take videos	Activate/deactivate the video recording function
ICW Woundmeasurement	Activates wound height and width measurement
Woundhealingphases	Activates wound healing phase area measurement
Wounddocumentation	Activate/deactivate the wound log
Wounddocumentation standards	Selection of the wound log type - available for selection: <ul style="list-style-type: none"> <li>• ICW Standard</li> <li>• Brilon</li> </ul>
Edit old wounddocumentation	Activate the option to edit exported wound logs
Therapy	Activate current therapy
DICOM Worklist	Must be activated when using DICOM worklist

#### 11.3.5.1.1 LED settings

Selection	Description
Test LED Ring	Test LED ring functionality
LED shut-off delay	Set the time before the LED rings switch off automatically, the time range is configurable between 10-50 secs
Outer LED ring mode	Selection of which LED will be designated as the outer LED
Outer LED ring brightness	Configure outer LED ring brightness. This can be configured between the levels 1-4
Inner LED ring brightness	Configure inner LED ring brightness. This can be configured between the levels 1-4

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LED ring automatic	Select whether the LED ring is on when the camera is in use. You can subsequently select whether Full or Half mode should be used.
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### 11.3.6 Regional settings

Selection	Description
Language	Selection of the menu language, the following languages are available: <ul style="list-style-type: none"><li>• English</li><li>• French</li><li>• Chinese</li><li>• German</li></ul>
Use 24-hour format	Time display selection: <ul style="list-style-type: none"><li>• European time format (24h)</li><li>• American time format (12h am/pm)</li></ul>
Date format	Date display selection: <ul style="list-style-type: none"><li>• dd.mm.yyyy</li><li>• dd/mm/yyyy</li><li>• dd-mm-yyyy</li><li>• yyyy-mm-dd</li></ul>

### 11.3.7 Admin settings

Selection	Description
System information	System information
Initialise Xoto® CAM	Deletes all existing data from the Xoto® CAM. The initialisation must be started from XotoGATE beforehand.
Admin PW	A settings password can be configured here.
Ethernet settings	If no W-LAN connection is preferred, it is possible to transfer data via Ethernet. The necessary settings can be found under this menu item.
Reset settings	Deletes all configurations made in the settings and resets to default status. The app will restart.
Uninstall Xoto® CAM updates	Resets the app version to the original version. Use only for update errors.
OTA Server	Provides the option to update the Android image
Restart Xoto® CAM	Restarts the Xoto® CAM

#### 11.3.7.1.1 Ethernet settings

Selection	Description
Ethernet IP	A fixed IP address can be assigned here
Subnetmask	The subnet mask can be assigned here
Gateway	The gateway can be assigned here
Use DHCP	Activate/deactivate DHCP

#### 11.3.7.1.2 OTA Server

Selection	Description
System update	Update the system
OTA Server IP/ Name	Enter the IP address of the server that hosts the update
OTA Server port	Enter the port via which the update will be downloaded.

### 11.3.7.1.3 System information

Selection	Description
Build Number	Operating system version number
Xoto® CAM Version	Xoto® CAM app version
IP address	Xoto® CAM IP address
MAC Adress wifi	Wifi MAC Address
MAC Adress Ethernet	Ethernet MAC Address

## 12 General information

### 12.1 Opening the device:

The Xoto® CAM 1.3 may only be opened by the manufacturer themselves or by specialist personnel authorised by the manufacturer.

### 12.2 Storage and transport

The Xoto® CAM 1.3 is generally transported in serviceable condition. Therefore, without exception, transport ex works takes place in the packaging provided for this purpose. This packaging is also required for return shipments.

Approved ambient conditions for operation/storage and transport:

Temperature:           +5°C to +50°C Storage and transport  
                              +10°C to +50°C Operation

Relative humidity:   30% to 70%, condensation-free

Please note: The Xoto® CAM 1.3 contains hazardous substances such as a lithium battery on the central board as well as a variety of electronic components. Improper disposal can lead to environmental pollution.

The manufacturer undertakes to take back the device at the end of its useful life in accordance with the Ordinance on Waste Electrical and Electronic Equipment and will ensure that it is disposed of properly in accordance with the Ordinance on Electronic Scrap. (WEEE-Reg.-No. DE 47577222)

### 12.3 Cleaning and disinfection

Since the housing has no ventilation slots, it is rustproof, splash-proof and can be completely disinfected.

Cleaning should be continuous. Please ensure that the substances used for cleaning are scratch-free and non-abrasive. To preserve the hygienic surface, soft materials such as rags, cloths and chamois leathers are suitable for cleaning.

For example, a soft cloth can also be moistened with an alcohol-based cleaning agent.

The following substances must never be used for cleaning:

- Acids
- Strong alkaline washing solutions
- Cleaning agents containing fluoride
- Fabrics with interwoven metal threads
- Coarse cleaning products such as scouring agents, steel wool, blades, scouring sponges etc.

The operator shall determine the means to be used to disinfect the equipment, the procedure to be followed and the intervals at which disinfection is to be carried out. A disinfectant must be specified in accordance with the valid disinfectant list of the German Society for Hygiene and Microbiology (DGHN).

We recommend an aldehyde mixture for disinfection, which can be applied using mild pressure in sufficient quantities to rub it off.

## 13 Technical data

### 13.1 Brief technical description

The Xoto® CAM 1.3 is designed as follows:

### 13.2 Manufacturer' specifications

Mark of origin	:	Xoto® Technology
Device type	:	Xoto® CAM 1.3
Classification	:	Class I in accordance with RL 93/42/EEC
Input voltage	:	230V / 50 Hz
WEEE-Reg.No.	:	DE 47577222
Protection type	:	IP64
Manufacturer	:	Xoto® Technology GmbH Otto-Hahn-Strasse 12 42579 Heiligenhaus
		Tel.: +49 (0) 151 12 04 80 55
		E-mail: <a href="mailto:info@xototechnology.com">info@xototechnology.com</a>
		Internet: <a href="http://www.xototechnology.com">www.xototechnology.com</a>

### 13.3 Service information

In case of urgent service requests you can reach Xoto® Technology GmbH at the following number: +49 (0 ) 151 12 04 80 55

Or via e-mail:

[technik@xototechnology.com](mailto:technik@xototechnology.com)