

# ENDODRY™

Storage & Drying System



## USER MANUAL

## ENDODRY™ STORAGE & DRYING SYSTEM

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## SYMBOLS AND SIGNAL WORDS

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### Symbols

Definitions of symbols which are affixed on the device:



**Caution! High Voltage!**



**Do not dispose of the ENDODRY™ Storage & Drying System as residual waste.**



**Before opening the control drawer, always disconnect the device from the main power supply.**



**Read instructions before using equipment!**

### Signal Words

The following signal words are used in this operating manual:



**CAUTION ! Indicates important and useful information.**



**WARNING ! SHOWS IMPORTANT INFORMATION ON SAFETY!**



**Note:** A note refers to important information to which you should pay special attention.



## NOTES

## SAFETY INSTRUCTIONS / INSTRUMENT SET-UP

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### About this Manual

This manual contains important information for the operation of the storage cabinet. It also explains the loading and unloading process for the endoscopes and the menu navigation.

This manual contains no references to current techniques of endoscopy reprocessing and must not be used as a teaching guide.

Reading this manual and observing the safety information is part of the obligations of the device operator.

Not following the manual might lead to injury of the patient or damaged endoscopes. If you still have any questions after reading this manual please do not hesitate to contact your local Cantel Office.

### Indications for Use

This storage cabinet is used for storing and drying flexible endoscopes which have been previously cleaned and high-level disinfected in a validated endoscope reprocessor.

The ENDODRY™ Storage and Drying System is compatible with Medivators Transport Cassettes and hookups for MEDIVATORS™ ADVANTAGE PLUS™ Automated Endoscope Reprocessor or MEDIVATORS DSD AERs.

Please also refer to the operating manuals of the endoscopes.



**WARNING ! ONLY USE ENDOSCOPES THAT HAVE BEEN PREVIOUSLY REPROCESSED OR CLEANED AND HIGH-LEVEL DISINFECTED!**

### User's Qualification

This storage cabinet may only be used by trained personnel. The user must have sufficient technical training regarding the usage of the instrument.

It is the user's responsibility to assure functional reliability and correct operation so that the instrument is safe and operates correctly before use.

### Equipment Combination

The ENDODRY Storage and Drying System is compatible with Medivators Transport Cassettes. The transport cassettes can additionally be used with ADVANTAGE PLUS Automated Endoscope Reprocessor.

### Contents

Remove the storage cabinet and the provided accessories from its packaging with care. Make sure that the supplied parts are complete and check for possible damages caused during transportation.



**CAUTION ! Please inspect the equipment upon arrival and check for any evidence of shipping damage. Any queries or complaints can be resolved immediately with the manufacturer or supplier. Please do not use faulty equipment!**

The packaging includes the following:

- 1x ENDODRY™ Storage and Drying System
- 1x barcode reader with cable and holder (2x barcode readers for two-sided version)
- 1x power cord
- 1x pneumatic tube with quick connector
- 1x operating manual
- 1x LAN cable

## Precautions



The device may only be transported in an upright position.

The alignment of the device at the installation site should be performed by at least two people. Place the equipment on solid and flat surface only. Remove the packaging with care!

The device may only be used in healthcare or decontamination facilities according to national recognised standards. Locate the device in a way that the electrical switch for the power supply is easy to reach. Removing the plug from the power supply serves as the means of isolation.

To avoid potential hazards the unit must be connected correctly. The unit must be connected using a power connection suitable for the power cord provided. The power cable cannot be replaced by inadequately sized power cable. The power connector may only be put into an electrical earth protection contact outlet. Operating the device in explosive areas is prohibited. Any additional electrical work should only be performed by a suitably qualified electrician.

## Hazards of Laser Radiation

To read the bar codes, a laser beam is used. Laser radiation can cause irreparable damage to the eyes and the skin. How to protect yourself from hazards in general:

- Do not look into the beam or reflections from shiny surfaces, even with optical instruments.
- Avoid long and direct radiation on your skin.
- Only actuate the storage cabinet if the laser scanner is fixed in its holder.



**WARNING! LASER RADIATION CAN CAUSE IRREPARABLE DAMAGE TO THE EYES AND THE SKIN!  
LASER CLASS 1: DO NOT LOOK INTO THE BEAM DIRECTLY!**

## Doors

The doors of the ENDODRY Storage and Drying System protect the endoscopes during the storage. The drying phase can only be started by closing the door. In the case of an opened door the drying phase is interrupted and the control switches to the storage phase.

In the two-sided version of the ENDODRY Storage and Drying System the doors cannot be opened simultaneously due to the opposing door lock.

## Air circulation

The drying of the endoscope's outer surface can be accelerated with the circulation of the air. To achieve this eight fans are placed inside the ENDODRY Storage and Drying System.



**WARNING! DO NOT PUT FINGERS INTO THE FAN! PROTECT FANS AND FILTERS AGAINST  
SPLASHING WATER!**

## Service, Repairs and Modifications

Annual preventative maintenance is recommended. For service information, please contact your local Cantel Office.



**NOTE:** Due to the special safety regulations for medical-technical appliances any servicing such as regular check-ups, repairs, modifications, calibrations etc. must only be conducted by the manufacturer or by persons explicitly authorised by the manufacturer.



**CAUTION!** Cantel does not assume liability for injuries or damages which result from repairs conducted by non-authorised staff.

## Liability

Cantel is only responsible for the effects on safety, reliability and functionality of the device if:

- The assembly, extension, readjustment, modifications or repairs are carried out by persons who are authorised by Cantel.
- The electrical configuration of the premise is in compliance with the specification of the respective country.
- The device is used in accordance with the operating instructions as advised in this manual.

## Rights

All rights to this manual in particular the right of reproduction and the right of publication as well as translation are reserved. No part of this manual may be copied in any way (duplicate, microfilm or other methods) or be copied/processed/distributed using electronic systems without prior written consent by the manufacturer.

The information in this manual is subject to change or extension without notice and does not represent a commitment by the manufacturer.

Errors and technical modifications excepted.

## Disposal

The storage cabinet is categorised as an electric device.

In accordance with Directive (European Union) 2002/96/EC on Waste Electrical and Electronic Equipment, this symbol indicates that the product must not be disposed of as unsorted municipal waste, but should be collected separately.



Contact your supplier for return of the device and/or an available recycling collection system in your country.

## NOTES

## TECHNICAL MANUAL

### Configurations

Various versions of the ENDODRY™ Storage and Drying System are available including systems designed to interface with ADVANTAGE PLUS™ Automated Endoscope Reprocessor, or MEDIVATORS DSD AER platform. Cabinets are also available as single-side or pass-through operation.

In the two-sided pass-through version there is a door, a display and a bar code reader on each side. This version separates the dirty (reprocessing) and the clean zone. The loading process of endoscopes will be carried out on the front side only whilst the unloading process can be performed on either side.

### Construction

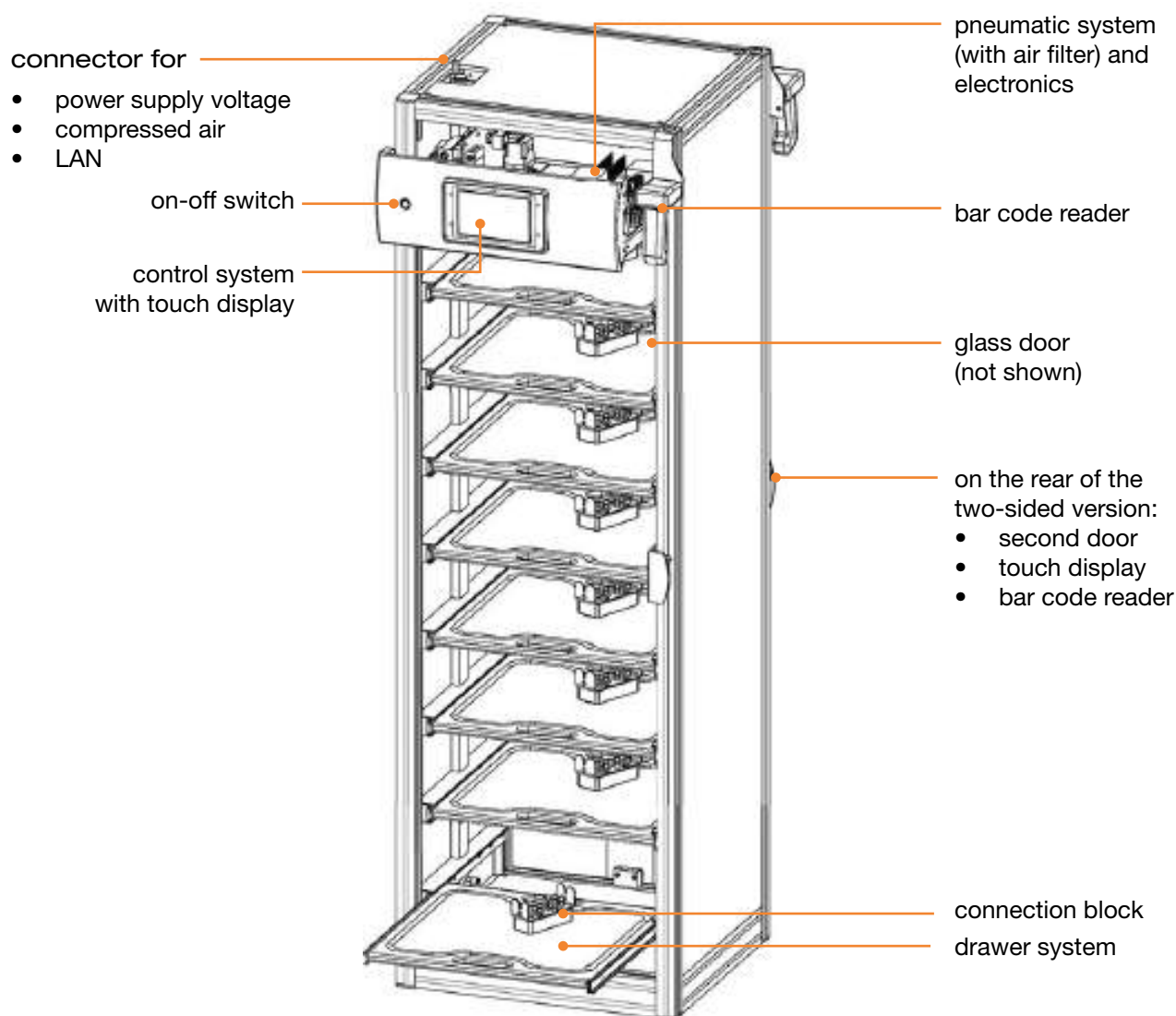


Figure 1. ENDODRY system without door

## Operation of the ENDODRY™ Storage and Drying System

The storage cabinet has the following main functions:

- Drying and Storage functions for endoscopes after reprocessing
  - horizontal storage of up to eight endoscopes
  - using additional transport cassette (sold separately)
  - circulation of filtered air through all channels of flexible endoscopes (e.g. biopsy, water, jet channel) of every manufacturer after reprocessing
  - circulation of filtered air around the interior space of the ENDODRY Storage and Drying System
  - control with up to three different air pressures
  - reduction of the air pressure after a minimum time of circulation
  - error message management
  - optional: interface between reprocessing and operating room (two-sided version)
- Documentation and visualisation of important information for the reprocessing room
  - user I.D. via barcode reader
  - endoscope I.D. and drawer placement via barcode reader
  - documentation of drying and storage time by endoscope position
  - recording and storage of all process data
  - warning in case of failure or exceeded storage time
- Simple and safe operation
  - touch display
  - door lock with user authorisation via barcode reader

## Optional Operations

To enhance the functionality of the ENDODRY Storage and Drying System the following add-ons are available to purchase:

- **SMART Light**

The storage cabinet is equipped with LED lights. The colour changes according to the storage status of the endoscopes.

- |       |                 |
|-------|-----------------|
| green | - storage phase |
| blue  | - drying phase  |
| red   | - failure       |



**NOTE:** Options are not available in all regions.

- **SMART Connect \***

In connection with an ADVANTAGE PLUS™ Endoscope Reprocessor : A security query, which verifies the correct reprocessing, runs if an endoscope is loaded.

The maximum time between reprocessing and loading an endoscope can be set (see *Chapter 6*). By loading an endoscope a warning appears if the reprocessing was faulty or the maximum transport time is exceeded. Furthermore, the user and endoscope information of an ADVANTAGE PLUS Reprocessor can be imported to the ENDODRY Storage and Drying System on demand (see *Chapter 6*) or automatically at up to three times per day (see *Chapter 6*).

- **HIS Interface \***

The HIS add-on releases process and master data from the ENDODRY Storage and Drying System to the hospital information system. Process data (loading and unloading information of each endoscope) is released permanently. The release of master data (saved user and endoscope data) can be set in the control panel (see *Chapter 6*).

- **Network Print**

All relevant process data can be printed on a controlled network printer after unloading an endoscope. An application runs on a desktop PC and controls the print process. The desktop PC and the network printer have to be provided by the operator.

A network connection between ENDODRY™ Storage and Drying System, desktop PC and network printer is required.

- **Label Printer**

All relevant process data can be printed on a label printer after unloading an endoscope.

A network connection between ENDODRY Storage and Drying System and label printer is required.

- **Sensors \***

Critical parameters such as temperature, humidity and air flow are controlled and recorded. In case of deviation of the adjustable limits a new or extended drying phase is initiated to return to the desired climatic state in the ENDODRY Storage and Drying System.

- **Multibox \***

For endoscopes with few channels it is possible to store more than one endoscope in the same cassette (e.g. bronchoscopes). This add-on enables the storage and recording of up to four endoscopes in one cassette.

- **Transfer \***

After storing an endoscope in centralised ENDODRY Storage and Drying System in the endoscopy area the storage process can be continued in a decentralized ENDODRY Storage and Drying System. The process steps in the different storage locations can be recorded completely.

## NOTES

## SYSTEM SET-UP

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**CAUTION!** Please carefully read the User Manual before operation!



**CAUTION!** All connections to the power supply and compressed air must be established before switching on the device!



**CAUTION!** To avoid the risk of electric shock, the device must be connected to the power supply with a protective earth conductor.



**WARNING! LASER RADIATION CAN CAUSE IRREPARABLE DAMAGE TO THE EYES AND SKIN!**  
**LASER CLASS 1: PREVENT DIRECT EYE EXPOSURE TO THE BEAM.**

### Power Supply

Use only the power cable supplied with the equipment for connecting the equipment to the power supply. Ensure to the correct power supply voltage is available and connect the device only to a earth grounded electrical outlet.

The power cable of the ENDODRY™ Storage and Drying System serves as a means of electrical isolation. If this is not easily accessible an additional electrical isolator must be installed by the operator (for example a central emergency stop).

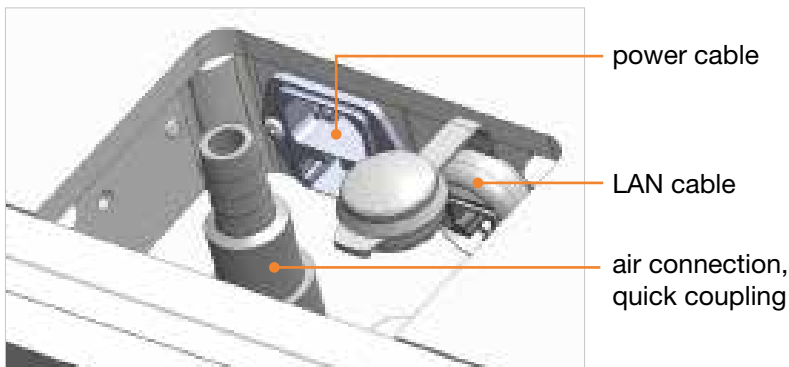
### Compressed Air Supply

A connection (inner diameter 6 mm) with quick connector establishes the compressed air supply to the ENDODRY Storage and Drying System.

The connection is allowed only to systems with filtered and compressed air specifications (see *Chapter 10*).



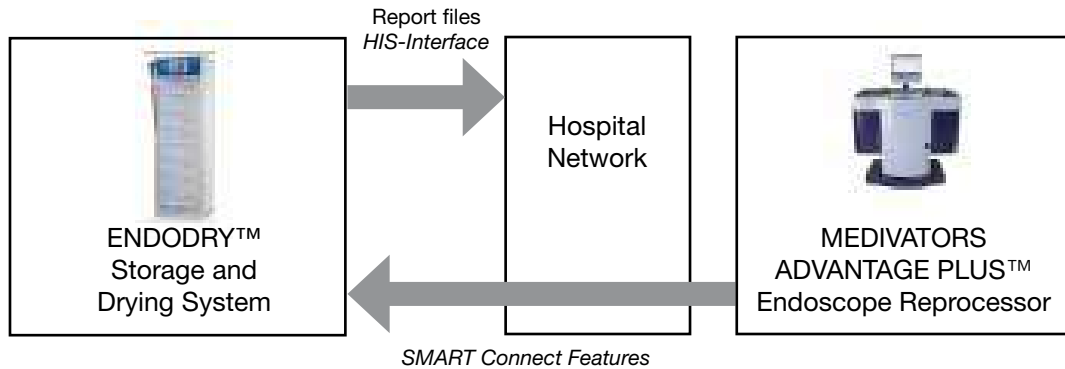
**WARNING! NOT FOLLOWING THE USER MANUAL MIGHT LEAD TO ERRORS IN THE CIRCULATIONS OF AIR!**



## Network Connection

The storage cabinet can be integrated into the hospital network via LAN connection (two LAN connections in two-sided version). This allows access to the report files and a software update by the service technician.

A LAN connection to the hospital network is necessary to use the operation of the add ons *SMART Connect*, *SMART Update* or *HIS interface*. The relevant peripheral devices must be integrated in the same network group.



## Check the flow of the channel connection port (only model ENDODRY™ Storage & Drying System and not ENDODRY™ Storage & Drying System one-click)

Before the first operation and during maintenance all seven channel connection ports for each drawer need to be checked for correct air flow.

Diagnostic			
Air pressure	0.50 bar		
Drying phase 1	Active		
Drying phase 2	Not active	On	
Storage phase	Not active	On	
Set air pressure	Not active	0.5 bar	
Air switch off	Not active	On	

To begin this, the drying phase of 0.5 Bars has to be activated in the diagnostic menu.

For the test an air flow tester is put on to every channel connection port while air pressure pin is pressed.

The float of the air flow tester needs to reach the red marked range completely.

To check the airflow of the air inlet connection port put the flow-meter on the connection port and press the pin.



**CAUTION!** Channel connection ports with low air flow deteriorate the drying results of endoscopes. It is recommended to change these parts with replacement equipment of the manufacturer.

## OPERATION OF THE UNIT

### Switching On/Off

After connecting power supply, air supply and LAN connection the device can be put into operation. Turn on the storage cabinet using the on/off switch on the front of the ENDODRY™ Storage and Drying System. The blue light within the switch lights up and the touch display shows various information (see *Chapter 3 and 5*).

In the version with two-sided design the displays are distinguished as follows:

- front side= with on-off switch
- back side = without on-off switch

### Information Screen

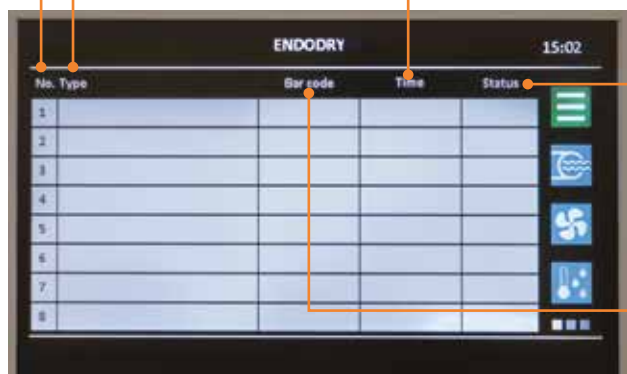
(in two-sided version: the same at front and back side)

The control panel with integrated touch display regulates all processes and visualises the operation. On the main screen the following information is displayed:

Drawer  
number

Stored endoscopes  
with type

Drying time: hh:mm



Status display

- free drawer
- drying progress
- channel drying complete
- warning/error

Barcode

Status display:



- free = free drawer



- in progress = endoscope has been loaded, drying of internal channels has been initiated



- channel drying complete = the set drying time has been reached for internal channels



- warning/error = maximum storage time is exceeded or pressure malfunction during storage has occurred

## Barcodes and Barcode Reader

Barcodes are used to identify users, endoscopes and drawers. These barcodes will be generated and delivered by Cantel. Barcodes for endoscopes and users must not be assigned twice.

Make sure that all endoscopes are prepared with different barcodes and all users are registered in the device. The ENDODRY™ Storage and Drying System must be operated by authorised and registered staff only.

Using the barcode reader the barcodes of users, endoscopes and drawers barcodes can be read and entered to the system.

## Process steps before storing an endoscope into the ENDODRY Storage and Drying System

To ensure the drying of the inner channels and the outer surfaces of an endoscope in the ENDODRY Storage and Drying System the following steps should be observed before storing:

- For an optimal drying process of the loaded endoscopes the relative humidity should not exceed 40%.
- The final step in reprocessing the endoscope should include purging the inner channels of the endoscope with filtered and compressed air.
- The endoscope has to be connected correctly to the Hookup (see User Manual according to the connector type)
- Large amounts of residual moisture on the endoscope surface or the cassette should be removed by shaking and/or placing of the cassette on an absorbent material.
- To reduce residual moisture in inaccessible spots on the outer surface of the endoscope, the endoscope and – if necessary – the cassette should be wiped of with a lint-free and highly- absorbent cloth before storing in the ENDODRY Storage and Drying System (for example, between the steering wheels and on the contact surface). Wearing of disposable gloves is recommended.
- The residual moisture in endoscope channels and on the outer surfaces should be less than 30 ml.

## Endoscope Loading (only possible on front side)



**WARNING! USE ONLY ENDOSCOPES WHICH HAVE BEEN REPROCESSED OR PREVIOUSLY CLEANED AND HIGH-LEVEL DISINFECTED!**



**CAUTION! THE DOOR WILL NOT OPEN UNTIL AN AUTHORISED USER IS LOGGED IN (VIA BAR CODE READER)!**



**CAUTION! THE TWO-SIDED VERSION, THE OPERATION CANNOT BE PERFORMED ON BOTH SIDES SIMULTANEOUSLY. THE UNUSED SIDE WILL DISPLAY A MESSAGE OF "SYSTEM BUSY".**



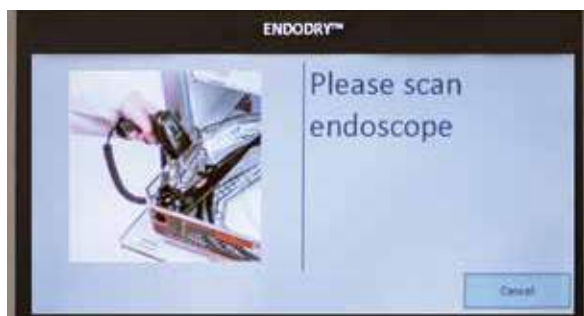
**CAUTION! DO NOT INSERT A TRANSPORT CASSETTE OR HOOKUP WITHOUT AN ENDOSCOPE INTO THE ENDODRY™ STORAGE & DRYING SYSTEM. EMPTY TRANSPORT CASSETTES INCREASE THE CONSUMPTION OF COMPRESSED AIR!**

### Procedural method: Loading an Endoscope

1. user logs in via barcode reader
2. open the door



3. scan the barcode of the endoscope which has been loaded



4. insert the endoscope (with transport cassette) into a free drawer and connect the appropriate hookup



5. Interlock the connection block

or connect CPC quick coupling as appropriate



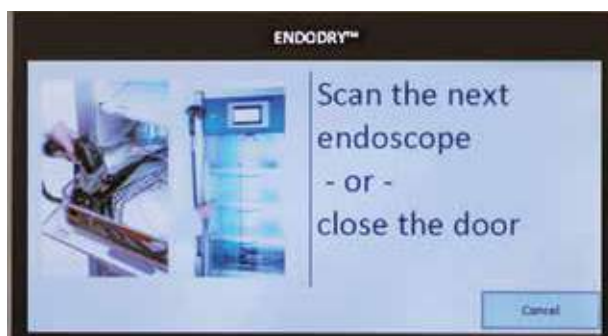
6. Scan the drawer



7. Slide the drawer in



8. "Scan the next endoscope or close the door" is displayed



- 9a. Scan the next endoscope →loading: repeat steps **3** to **8**  
 →unloading: see *Chapter 5* for additional information.
- 9b. If Cancel or close door →system starts the drying process  
 →the storage time begins
10. The information screen displays the drawers and loaded endoscopes with its type and storage status. See *Chapter 5* for additional information.

No.	Type	Barcode	Time	Status
1				
2				
3				
4				
5				
6				
7				
8				

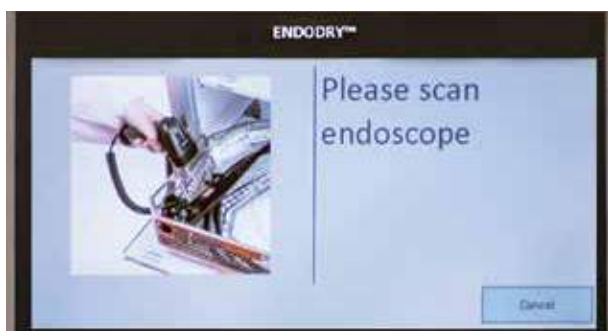
## Endoscope Loading with active SMART Connect-add-on (optional)

This function can be activated by an additional license key for the SMART Connect-add-on for the ENDODRY™ Storage and Drying System (see *Chapter 3* and *6*). This add-on only works in connection with the ADVANTAGE PLUS™ Endoscope Reprocessor.

The SMART Connect add-on not only includes the master data transfer (saved user and endoscope information), but also the security query: By inserting an endoscope, the ENDODRY Storage and Drying System checks whether the endoscope was previously reprocessed in the ADVANTAGE PLUS Endoscope Reprocessor correctly.

### Procedural method:

1. user logs in via barcode reader
2. open the door
3. scan the barcode of the endoscope which has been loaded



4. Database request to the reprocessor



5. The database request can yield three different results, which are described below:

5a. Endoscope passed a correct reprocessing cycle up to 30 minutes<sup>1</sup> before



→ Insert the endoscope into a free drawer, interlock the connection block and scan the drawer barcode (see *Chapter 5*).

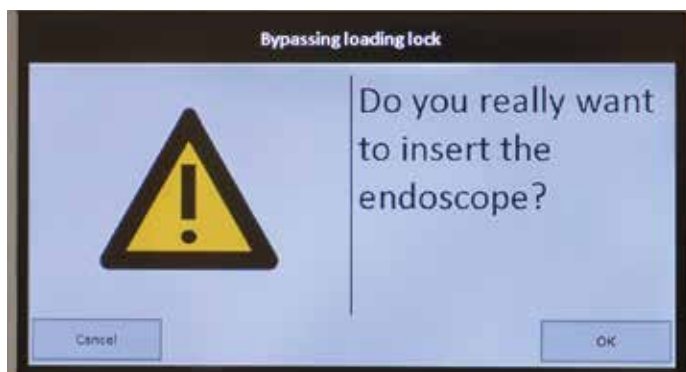
5b. Endoscope has not completed a successful reprocessing cycle:

- ➔ approval from the reprocessor server has not occurred for this endoscope for these possible reasons:
  - the endoscope was not high-level disinfected
  - successful reprocessing did not occur
  - reprocessing occurred more than 30 minutes<sup>1</sup> ago



OK button only with appropriate setting (see Chapter 6)

- ➔ Cancel endoscope loading process and start reprocessing again
- or (possible with appropriate setting)
- ➔ confirm the note by clicking OK
- ➔ Yes to confirm endoscope loading process and Cancel to cancel it
- or (possible with appropriate setting)
- ➔ confirm the note clicking OK



- ➔ Yes to confirm endoscope loading process and Cancel to cancel it



**WARNING!**

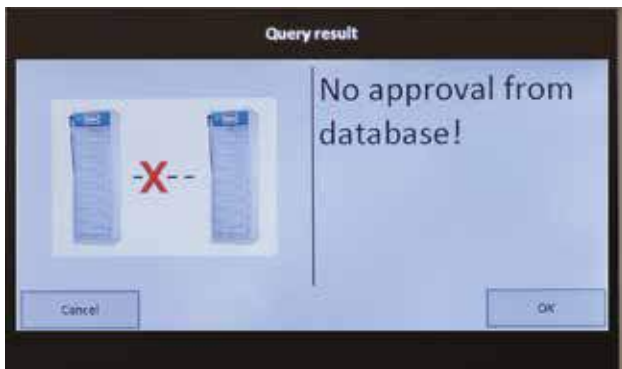
**IF THERE IS NO APPROVAL FROM THE REPROCESSOR TO LOAD THIS ENDOSCOPE, THE ENDOSCOPE MIGHT BE CONTAMINATED. PLEASE DO NOT INSERT THE ENDOSCOPE INTO THE ENDODRY™ CABINET BUT START THE REPROCESSING AGAIN!**

**IF ACCEPTING THE NOTE WITH OK THE ENDOSCOPE CAN STILL BE INSERTED. THE STEP WILL BE DOCUMENTED IN THE REPORT FILE (SEE CHAPTER 9).**

**THE STORING OF A POTENTIALLY CONTAMINATED ENDOSCOPE MAY RESULT IN HAZARD FOR THE PATIENT.**

<sup>1</sup>The maximum time between reprocessing and storage of an endoscope can be set (see Chapter 6).

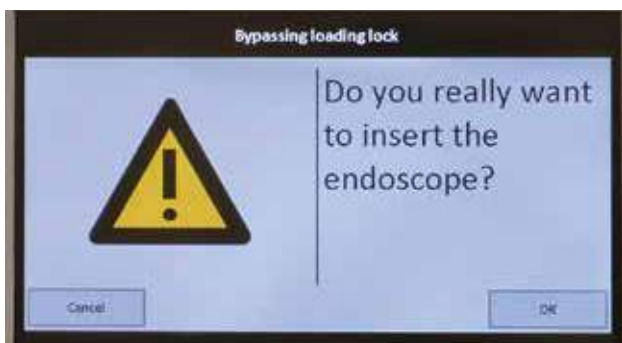
- 5c. No connection or access to the ADVANTAGE database  
 possible reasons:   - reprocessor or ENDODRY™ Storage and Drying System is not connected to the network  
                           - network failure



→ Cancel endoscope loading process and remove the failure (see Chapter 8)

or (possible with appropriate setting)

→ confirm the note clicking OK



→ Yes to confirm endoscope loading process and Cancel to cancel it



**WARNING!**

**IF THERE IS NO APPROVAL FROM THE REPROCESSOR TO LOAD THIS ENDOSCOPE. THE ENDOSCOPE MIGHT BE CONTAMINATED. PLEASE DO NOT INSERT THE ENDOSCOPE INTO THE ENDODRY™ CABINET BUT START THE REPROCESSING AGAIN!**

**IF ACCEPTING THE NOTE WITH OK THE ENDOSCOPE CAN STILL BE INSERTED. THE STEP WILL BE DOCUMENTED IN THE REPORT FILE (SEE CHAPTER 9).**

**THE STORING OF A POTENTIALLY CONTAMINATED ENDOSCOPE MAY RESULT IN HAZARD FOR THE PATIENT.**

**NETWORK FAILURE! → PLEASE INFORM INTERNAL INFORMATION TECHNOLOGIES PERSONNEL**

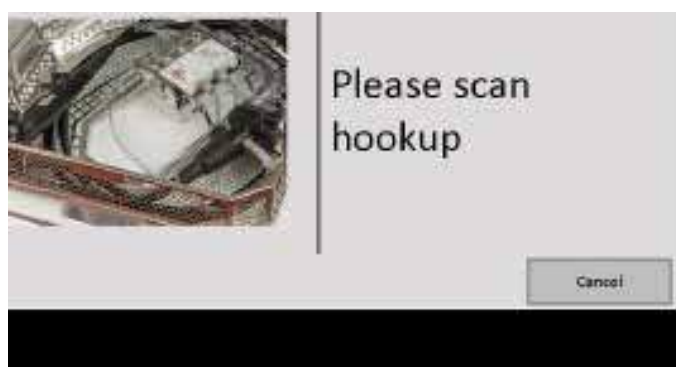
## Endoscope Loading with Active Multibox add-on (optional)

This function can be activated by an additional license key for the Multibox add-on for the ENDODRY™ Storage and Drying System (*Chapter 3 and Chapter 6*).

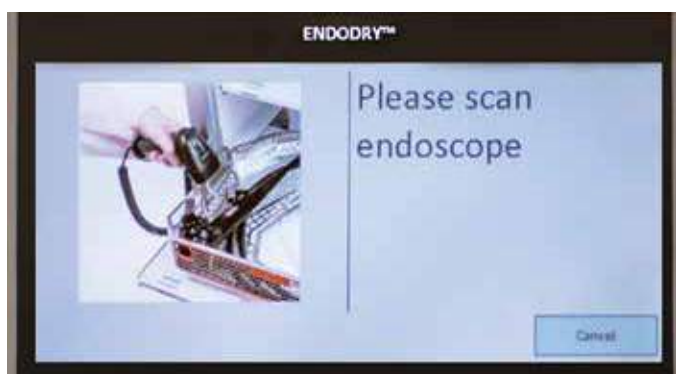
Using the Multibox add-on it is possible to insert up to four endoscopes (e.g. bronchoscopes) in the same cassette.

### Procedural method:

1. user logs in via barcode reader
2. open the door
3. scan the barcode of the hookup which has been loaded



4. scan the barcode of the endoscope



5. insert the endoscope (with transport cassette) into a free drawer



6. interlock connection block



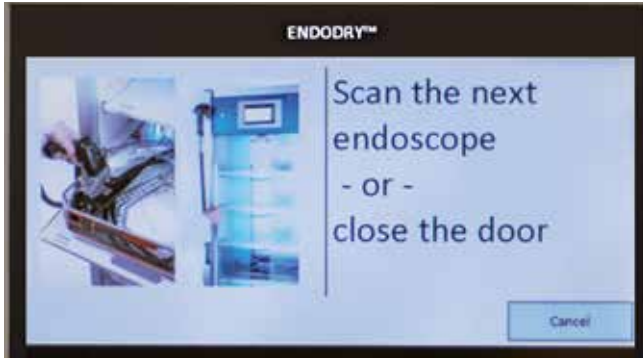
7. scan the drawer



8. slide the drawer in



9. “Scan next endoscope or close the door” is displayed



- 10a. Scan next endoscope → loading: repeat steps **3** to **10**  
 → unloading: see *Chapter 5* for additional information
- 10b. If Cancel or close door → system starts the drying process  
 → the storage time begins
11. The information screen displays the drawers and loaded endoscopes with its type and storage status. More information see *Chapter 5*.

 A screenshot of the ENDODRY™ control panel displaying an information screen. The screen shows a table with columns for "No.", "Type", "Bar code", "Time", and "Status". There are 8 rows, numbered 1 to 8. To the right of the table, there are four icons: a green menu icon (three horizontal lines), a blue icon of a water droplet, a blue icon of a fan, and a blue icon of a thermometer. The time "15:02" is displayed in the top right corner.
 

No.	Type	Bar code	Time	Status
1				
2				
3				
4				
5				
6				
7				
8				

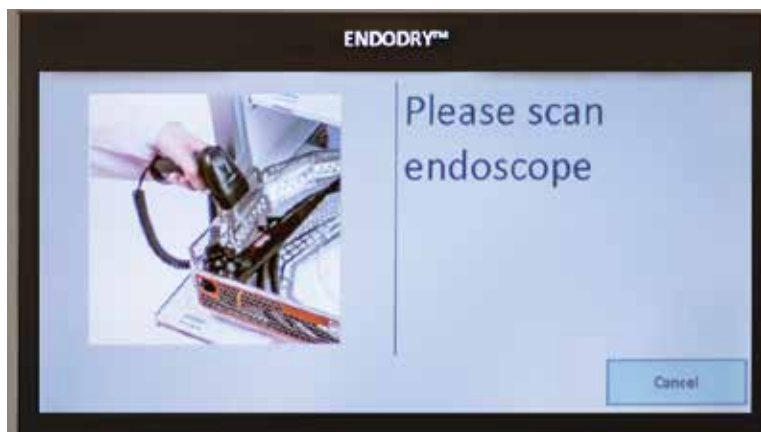
## Endoscope Loading with Active Transfer add-on (optional)

This function can be activated by an additional license key for the Transfer add-on for the ENDODRY™ Storage and Drying System (see *Chapter 3 and Chapter 6*).

The Transfer add-on includes a data request: During the loading process the ENDODRY Storage and Drying System check, whether this endoscope was previously stored in another ENDODRY Storage and Drying System.

### Procedural method:

1. user logs in via barcode reader
2. open the door
3. scan the barcode of the endoscope which has been loaded



4. Database request of the ENDODRY Storage and Drying System runs



5. The database request can yield three different results, which are described below:

5a. The unloading process from another ENDODRY™ Storage and Drying System is less than 30 minutes<sup>1</sup> ago:

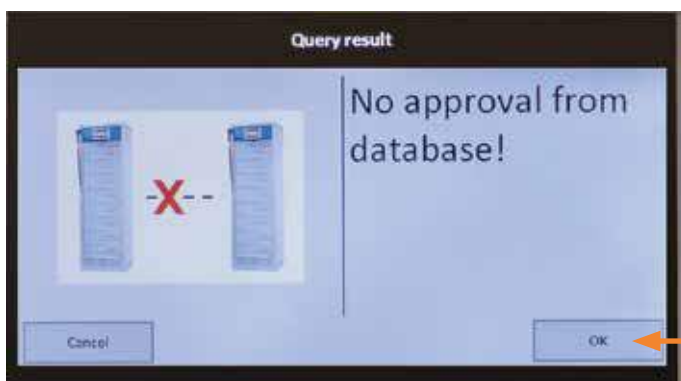


→ Insert the endoscope into a free drawer, interlock the connection block and scan the drawer barcode (see Chapter 5)

5b. Unapproved Transfer-database request:

possible reasons:

- reprocessing of the endoscope did not occur
- the last storage is more than 30 minutes<sup>1</sup> ago

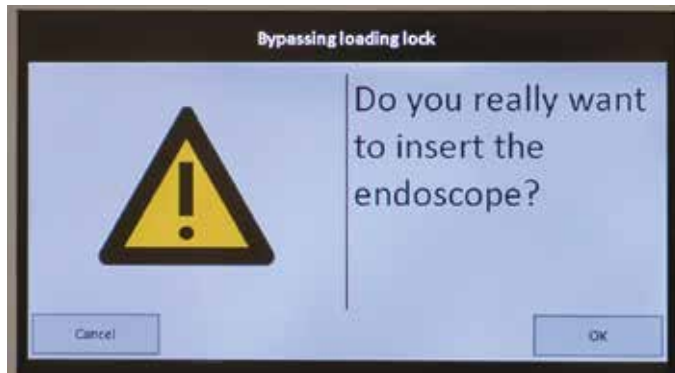


OK button only with appropriate setting (see Chapter 6)

→ Cancel the loading process and start a new reprocessing

<sup>1</sup>The maximum time between reprocessing and storage of an endoscope can be set (see Chapter 6).

or (possible with appropriate setting)  
 → confirm the note clicking OK



→ Yes to confirm endoscope loading process and Cancel to cancel it



**WARNING!**

**IF THERE IS NO APPROVAL FROM THE TRANSFER-DATABASE REQUEST TO LOAD THIS ENDOSCOPE, THE ENDOSCOPE MIGHT BE CONTAMINATED. PLEASE DO NOT INSERT THE ENDOSCOPE INTO THE ENDODRY™ STORAGE AND DRYING SYSTEM, BUT START THE REPROCESSING AGAIN!**

**IF ACCEPTING THE NOTE WITH OK THE ENDOSCOPE CAN STILL BE INSERTED. THE STEP WILL BE DOCUMENTED IN THE REPORT FILE (SEE CHAPTER 9).**

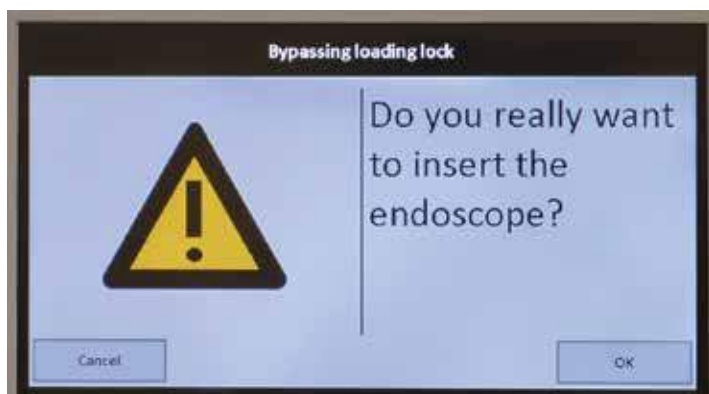
**THE STORING OF A POTENTIALLY CONTAMINATED ENDOSCOPE MAY RESULT IN HAZARD FOR THE PATIENT.**

- 5c. Failed connection to the ENDODRY Storage and Drying System  
 possible reasons:
- one of the ENDODRY Storage and Drying System is not connected to the network
  - network failure



→ Cancel loading process and remove the failure (see Chapter 8)

or  
 → confirm the note with OK (possible with appropriate setting)



→ Yes to confirm endoscope loading process and Cancel to cancel it



**WARNING!**

IF THERE IS NO APPROVAL FROM THE TRANSFER-DATABASE REQUEST TO LOAD THIS ENDOSCOPE. THE ENDOSCOPE MIGHT BE CONTAMINATED. PLEASE DO NOT INSERT THE ENDOSCOPE INTO THE ENDODRY™ STORAGE AND DRYING SYSTEM , BUT START THE REPROCESSING AGAIN!

IF ACCEPTING THE NOTE WITH OK THE ENDOSCOPE CAN STILL BE INSERTED. THE STEP WILL BE DOCUMENTED IN THE REPORT FILE (*SEE CHAPTER 9*).

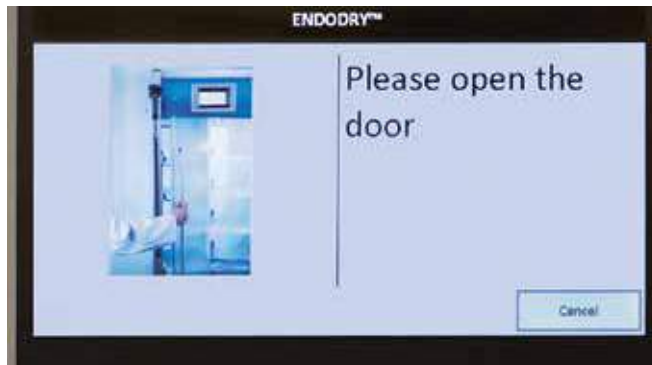
THE STORING OF A POTENTIALLY CONTAMINATED ENDOSCOPE MAY RESULT IN HAZARD FOR THE PATIENT.

**NETWORK FAILURE! → PLEASE INFORM INTERNAL IT PERSONNEL**

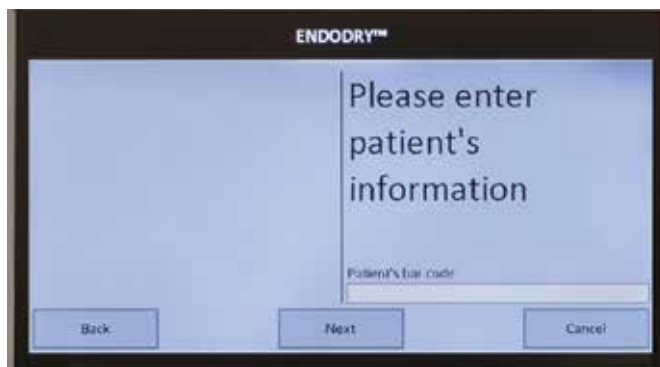
## Endoscope unloading (on front and back side)

### Procedural method:

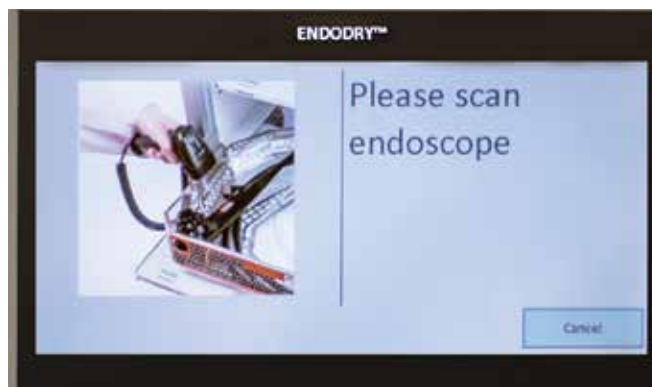
1. User logs in via barcode reader
2. Open the door



3. Scan the barcode on the endoscope the user wants to remove (with active Multibox add-on scan first Hookup bar code)

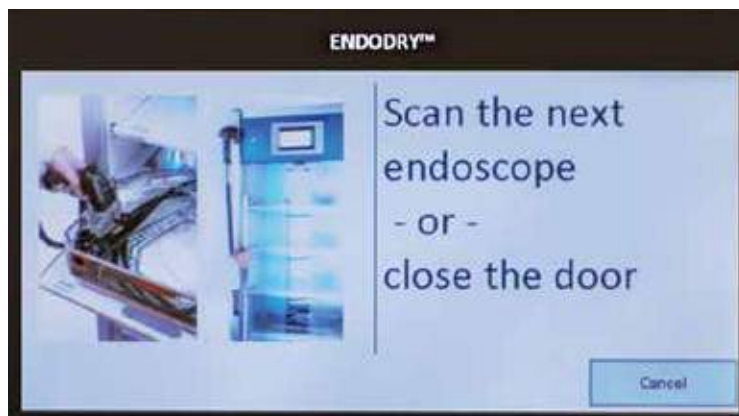


4. optional<sup>1</sup>: Enter or scan patient's data → confirm with Next. If no patient information is available only confirm with Next. Back → Repeat the scan of the endoscope's bar code. Cancel → Cancel the whole process and close the door.



<sup>1</sup> Message appears if Enter patient's information is active (see Chapter 6).

5. Disconnect the Hookup and unload the endoscope.
6. "Scan next endoscope or close the door" is displayed



- 6a. "Scan next endoscope or close the door" is displayed
  - loading: see *Chapter 5* (front side)
  - unloading: repeat steps **3** to **17**
- 6b. If Cancel or close the door
  - unloading process completed, drying phase or storage phase will be continued

The following messages may be displayed during endoscope unloading process:

- The maximum storage time is exceeded (see *Chapter 6*, settings). To unload the endoscope the message has to be accepted by selecting the button OK. It is recommended to start the reprocessing again.



**WARNING! IT IS RECOMMENDED TO START THE REPROCESSING AGAIN!**

- During the storage time of this endoscope there was a pressure malfunction. To unload the endoscope the message has to be accepted by selecting the button OK. It is recommended to start the reprocessing again.



**WARNING! IT IS RECOMMENDED TO START THE REPROCESSING AGAIN!**

## DISPLAY CONTROL SOFTWARE

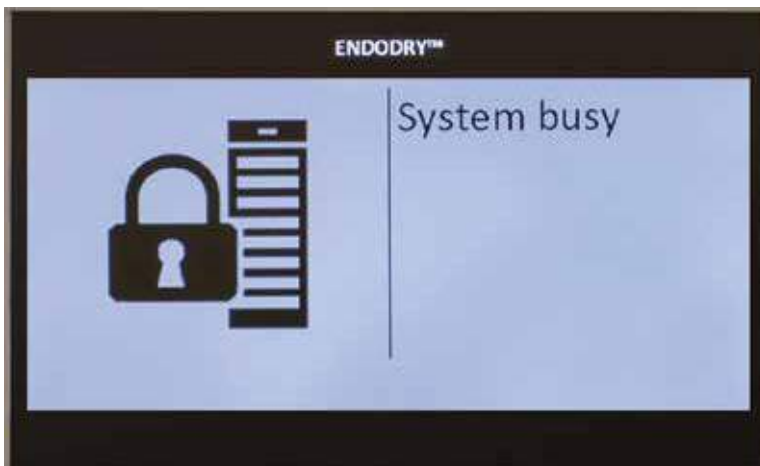
---

The ENDODRY™ Storage and Drying System is equipped with a control-software. Via touch display the software can be operated and different parameters can be adjusted.

In the two-sided version there is a second touch display on the back side. The two displays are distinguished as follows:

- front side (also named as Master or Operator)
- back side (also named as Slave or User)

If one of the two sides of the ENDODRY Storage and Drying System is operated, the opposite side is disabled. The following note is displayed:

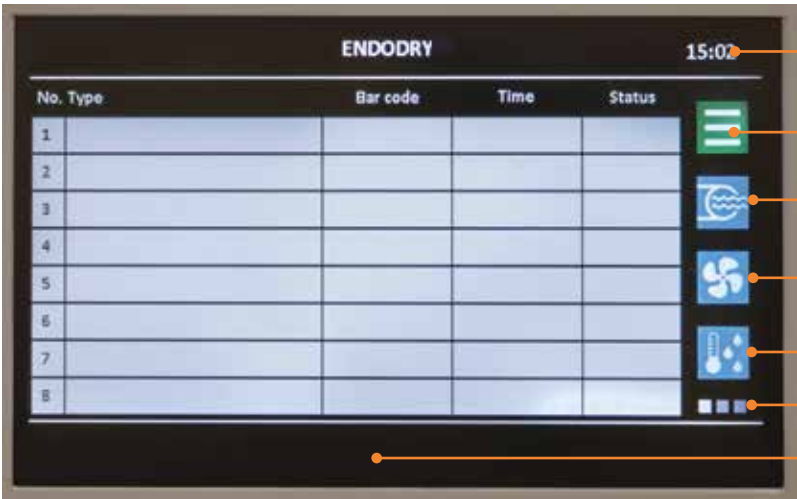


This chapter describes operation from the front side of the system. Operation from the back side is similar.

# General menu navigation

The operating interface of the ENDODRY™ Storage and Drying System can be divided in three levels: The main screen, the main menu and submenu items.

The main screen contains the information on the stored endoscopes and some buttons and screens:



The screenshot shows the 'ENDODRY' main screen. At the top right, the time is 15:02. Below the title, there is a table with columns: No., Type, Bar code, Time, and Status. The table has 8 rows, with the first row containing the number 1. To the right of the table is a vertical menu bar with several icons: a green menu icon, a blue icon with a wave, a blue fan icon, and a blue icon with a lightbulb. At the bottom of the screen is a message line.

No.	Type	Bar code	Time	Status
1				
2				
3				
4				
5				
6				
7				
8				

time

menu button


button of the process graphs (optional), see Chapter 6.

operating display: in operation of the endostore the white box changes

message line:  
By selecting the field, the display will switch to Errors/ Warnings, see Chapter 8.

In the main menu the buttons of the submenu are displayed on several pages. To navigate use the arrow keys to the left and right side.

Coloured buttons can be clicked. Grey buttons are not active, due to authorisation or available license codes.



The screenshot shows the 'Menu' screen. At the top right, the time is 14:33. The screen is divided into two main sections. The left section contains six buttons: 'Reset storage yards' (red with an X), 'Users' (green with a person icon), 'Endoscopes' (green with a scope icon), 'Standard settings' (orange with a gear icon), 'Process settings' (orange with a gear and arrows icon), and 'Network settings' (yellow with a network icon). The right section contains four buttons: 'Home' (green with a house icon), 'Info' (blue with an 'i' icon), 'Logout' (red with a lock icon), and 'Admin' (grey with a lock icon). At the bottom of the screen is a message line and a visualisation of the number of the page (displayed: 1 of 4).

time

back to main screen

information display

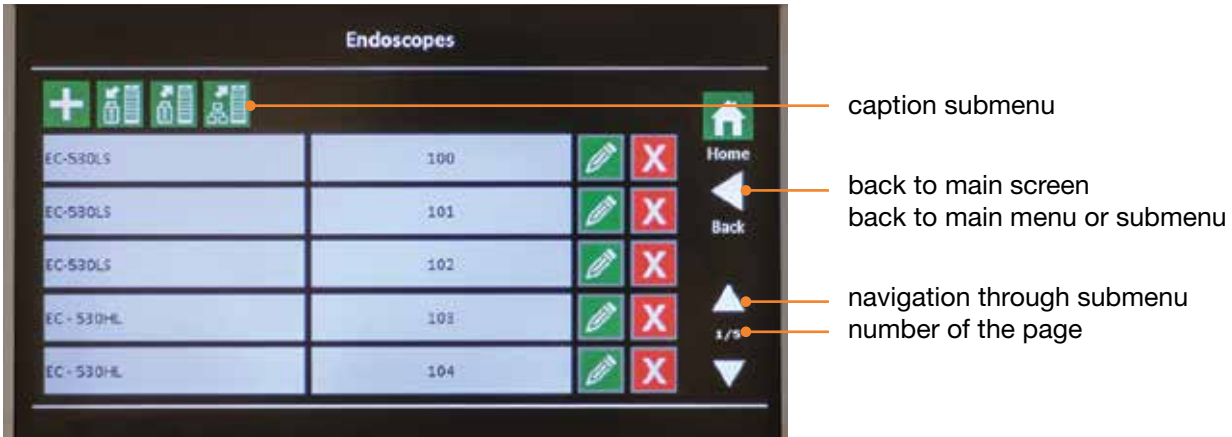
Login-/Logout button

login status

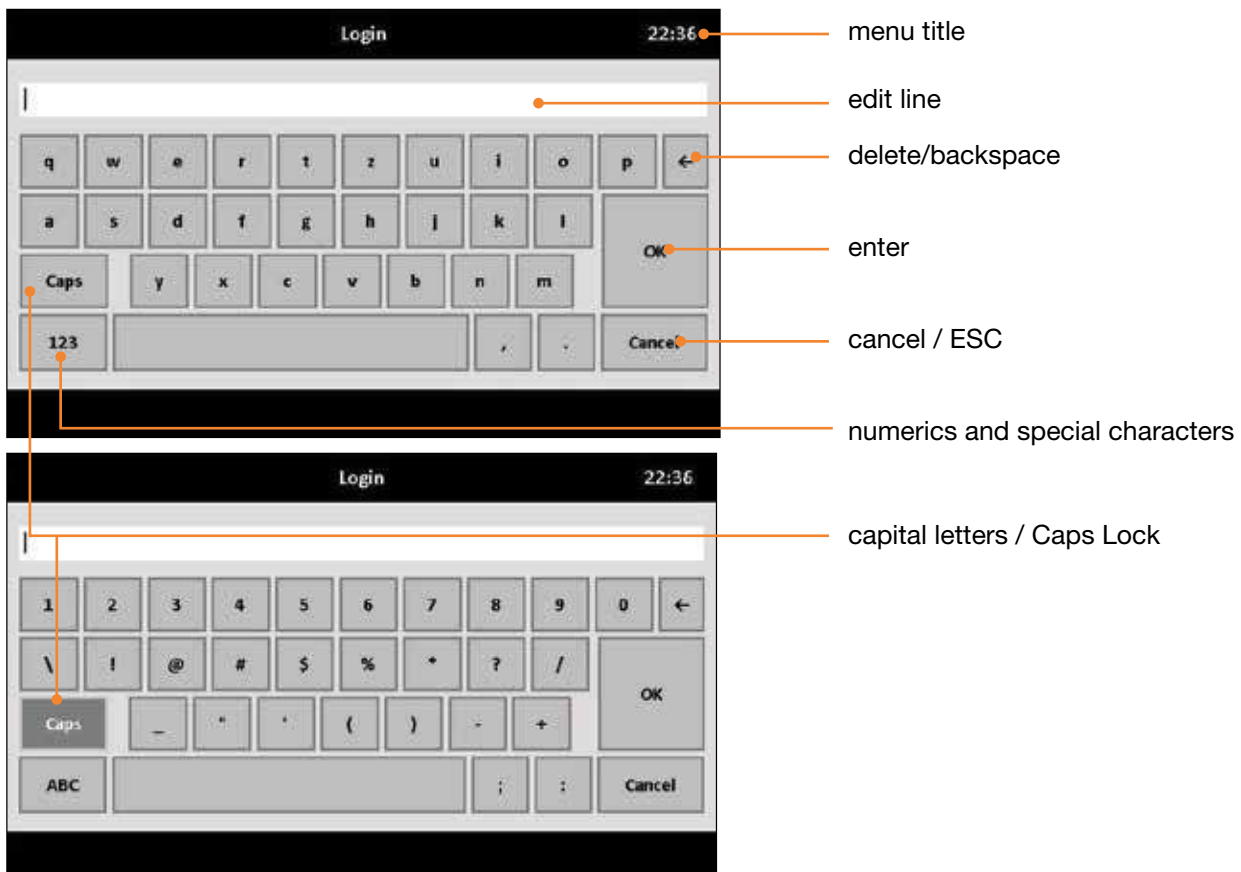
message line

Visualisation of the number of the page (displayed: 1 of 4)

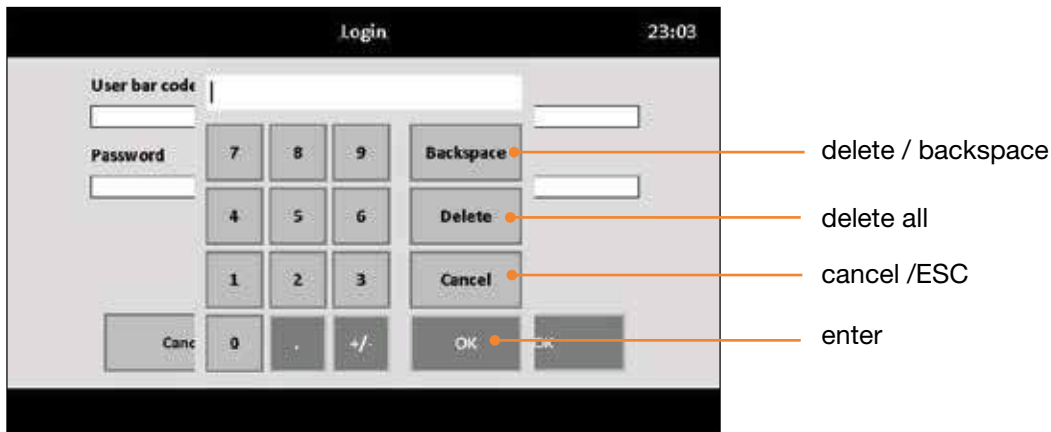
To navigate through the submenu, the smaller arrow keys (up and down) can be used.




## On-Screen Keyboard



Selecting the filed Password opens the keypad:



## User Rights


Via the **MENU** button  in the main screen the user enters the menu. Depending on the user's rights (authentication via login and password) different submenu items can be selected.

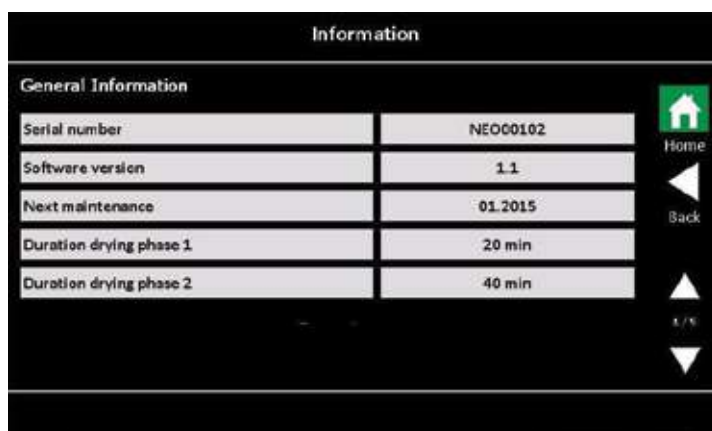
Rights for the following users:

- without login → system information
- User → loading and unloading process, reset of single drawers
- Admin → all rights, except Service setting and Error Log

The following sections describe the menu items and explain their function.

## System Information

General information is displayed by selecting the **INFO** button . By clicking the arrow keys, additional sites with add-on, manufacturer and software information will be shown. This information is available to all users.



The add-on information shows for which add-ons a license was acquired.

Information

Add-on information...

SMART Light	Licensed
SMART Connect	Licensed
HIS Interface	Licensed
Label printer	Licensed

Home  
 Back  
1 / 4

Information

Add-on information...

Network print	Licensed
Sensors	Licensed
Multibox	Licensed
Transfer	Licensed

Home  
 Back  
1 / 4

Information

Manufacturer information

ESCAD Medical GmbH  
  
Zur Ohndwiesen 5  
88633 Heiligenberg  
Germany  
  
phone +49 7554/9999-300  
fax +49 7554/9999-358  
info@escad-medical.de

Home  
 Back  
1 / 3

Information

Software information

IP address	192.168.50.166/24
MAC address	00:E0:71:1E:00:E7
Host name	endostore1D00E7

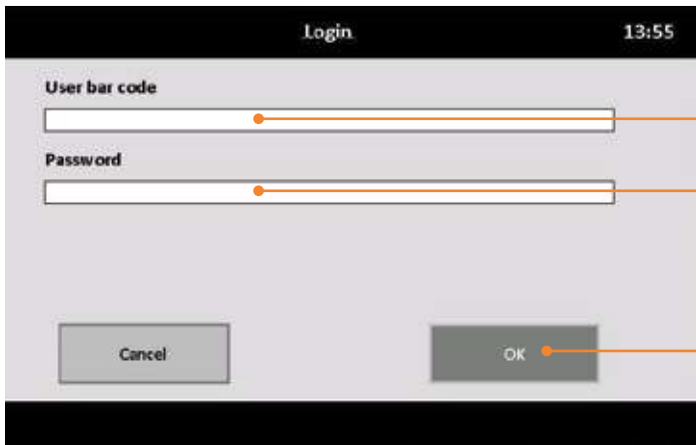
Home  
 Back  
1 / 3

## Login/Logout as User or Admin

The following sections describe the menu items and their function, which can be entered by a login as User or Admin.

To release these menu items, the user has to log in with a suitable user name and if applicable password.

Selecting the **LOGIN** button  the login screen appears.




The screenshot shows a 'Login' screen with a black header bar containing the title 'Login' and the time '13:55'. Below the header, there are two input fields: 'User bar code' and 'Password'. Each field has a small orange dot on its right side, with a line pointing to it from an annotation. Below the input fields are two buttons: 'Cancel' and 'OK'. The 'OK' button also has a small orange dot on its right side, with a line pointing to it from an annotation. The background of the screen is light gray.

- select the line or scan the bar code
- select the line (only Admin)
- Accept the entry via OK or cancel the process


Enter the user-number by scanning the user-barcode or selecting the user number. After selecting the edit line user- barcode, a keyboard window appears (See Chapter 6).



At the Login as Admin an extra password is required. By selecting the filed password, the keypad appears (See Chapter 6). Press the **OK** button the login process is accepted.

After the done settings or actions in the user- or Admin menu the user has to log off via the **LOGOUT** button . A return to the main screen or an inactivity in the menu within 10 minutes runs automatically to a logout.

## Reset Drawers

 Login as User or Admin required.

 Login as User or Admin required.


 When a drawer is mistakenly displayed as full, the occupancy information can be reset manually via the **DELETE** button .


Reset drawers					
1	EC-250W15	153	✓	✗	Home
2	EC-250W15	152	✓	✗	Back
3	11004BC1	162	✓	✗	
4				✗	
5				✗	1 / 2
6				✗	


Select a specific drawer  
and accept the entry


Reset drawers

7				X
8				X

  
Home

  
Back

  
2 / 2



Reset all drawers

only available with Admin. rights

## User



Login as Admin required.

The menu item user displays the list of saved or imported users with barcodes. New users can be saved, changed, deleted, imported and exported.

Users				
				Home Back 1 / 6
Jim	105			
Barry Reagan	171			
Buffie LaFollette	172			
Cliff Cole	164			
Conlita Coletta	173			



**WARNING! BARCODES MAY NOT BE ASSIGNED TO ENDOSCOPES OR USERS TWICE.**

## Save, change & delete users

By selecting the **ADD**-button an input screen appears for a new user. Selecting the edit line, a screen-keyboard appears (see *Chapter 6*). New users will default to user-rights unless Admin rights are selected.

Every bar code may be assigned only once.

Select the line

Select the line or scan the bar code

accept via OK the entry or cancel the process

The name, the bar code or the rights of an already available user can be changed. By selecting the **EDIT**- button an input screen appears.

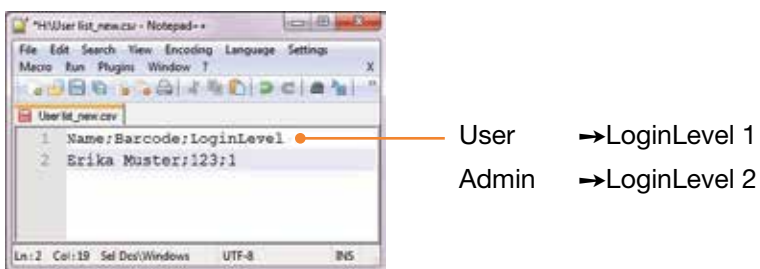
To remove the user, select the relevant **DELETE**-button and accept the process with OK.


## Import the user

User and endoscope lists can be updated in a variety of ways. Individual entries can be made from the touch screen display and/or full user lists can be imported. An import to the current user or endoscope lists will write over all existing data, including any manual entries. The last imported lists are saved as the backup files.

### User- import of an USB-stick

The user data can be imported from an USB-stick to the user-list of ENDODRY™ Storage and Drying System. During the data transmission the USB-stick can be connected at the bar code scanner port with an adapter from Cantel (Production) Germany GmbH. The imported file must be displayed in csv-format in UTF-8-coodination (e.g. via Notepad++ possible) and has the following structure:




After selecting the **USB-import** button  a Windows-window appears. By navigation to the folder Hard Disk you have access to the data of the inserted USB-device.



## User-import of the data base (optional)

The License for the add-on SMART Connect and network connection for the ADVANTAGE PLUS™ Endoscope Reprocessor is required.


The user data can be imported from the data base of the ADVANTAGE PLUS Reprocessor to the user list of the ENDODRY™ Storage and Drying System. After selecting the **DATA BASE-IMPORT**  button the import process starts.

Admin and user rights will be assigned to imported users as follows:

- {Engineering, Supplier} → Maintenance, Hospital
- {Production, Supplier} → Administrator, Hospital
- {Service, Supplier} → Supervisor, Hospital
- user groups with the tag “ENDODRY Storage and Drying System Admin”

Every other user group will be imported to the ENDODRY Storage and Drying System with user rights.

## Export the user data

The user data can be exported on a USB-stick. By selecting the **EXPORT**-button  the export process starts. Save the folder ExportData on the USB-device in that the file usersExportList.csv is saved. If a file is already available with a same name this will be written over.

## Updating Endoscope Lists



Login as Admin is required.

The menu item endoscope displays the list of saved or imported endoscopes with barcodes. Endoscopes can be saved, changed, deleted, imported and exported.




Users		
Jim	105	 
Barry Reagan	171	 
Buffie LaFollette	172	 
Cliff Cole	164	 
Conlita Coletta	173	 



**WARNING: BARCODES MAY NOT BE ASSIGNED TO ENDOSCOPES OR USERS TWICE**

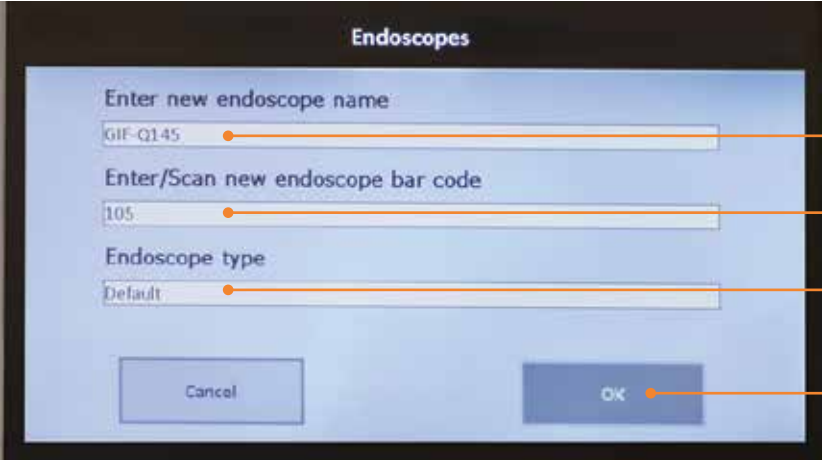
## Save, change & delete endoscopes

By selecting the **ADD**-button  an input screen appears for a new endoscope. Selecting the edit line, a screen-keyboard appears (see Chapter 6).

Every bar code may be assigned only once.

After selecting the edit line the endoscope can be determined through a drop down menu.

By the settings the maximum storage time, dependent on its type, can deviate from the standard value (see Chapter 6).




Select the line

Select the line or scan the bar code

Select the line and determine the type

Accept the entry OK or cancel the process

The name, the bar code or the type of an already available endoscope can be changed. By selecting the **EDIT**-button  an input screen appears.

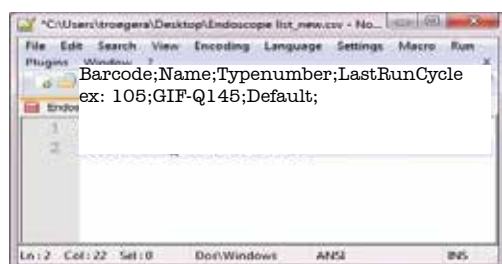
To remove the endoscope select the relevant **DELETE**-button  and accept the process with **OK**.

## Import the endoscope

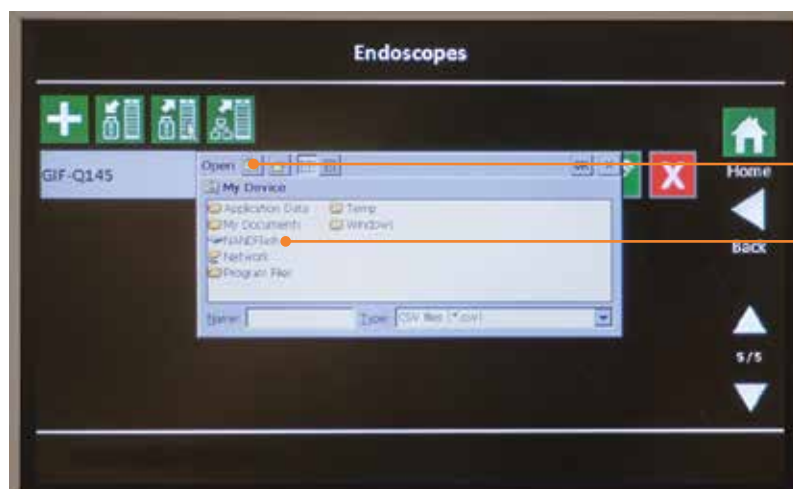
Importing endoscope lists will overwrite all existing data, including any manual entries made. Only the last imported list will be retained as a backup file. Backup files can be created at any time by exporting endoscope data to a USB stick.

## Endoscope-import of an USB-stick

The user data can be imported from an USB-stick to the user-list of ENDODRY™ Storage and Drying System. During the data transmission the USB-stick can be connected at the bushing of the bar code scanner with an adapter from your local Cantel office. The imported file must be displayed in csv-format in UTF-8-coodination (e.g. via Notepad++) and has the following structure:



After selecting the **USB-import** button , a Windows-window appears. By navigation to the folders on the Hard Drive you will have access to the data of the inserted USB-device.



Open the Folders by clicking twice on the computers Hard Drive

Select on the USB-device (example NANDFlash) and click OK or double-click


## Endoscope-import of a data base (optional)

The License for the add-on SMART Connect and network connection for the ADVANTAGE PLUS™ Endoscope Reprocessor is required.

The endoscope data can be imported from the data base of the ADVANTAGE PLUS Endoscope Reprocessor in the endoscope list of the ENDODRY™ Storage and Drying System. The import process starts after selecting the **DATA**

**BASE-IMPORT** button .

## Export the endoscope

The endoscope data can be exported to an USB-stick. By selecting the **EXPORT**-button  the export process starts. Save the folder ExportData on the USB-device in that the file usersExportList.csv is saved. If a file is already available with a same name this will be written over.

## Standard settings



Login as Admin required.

In the standard settings Date, Time and language can be set up.



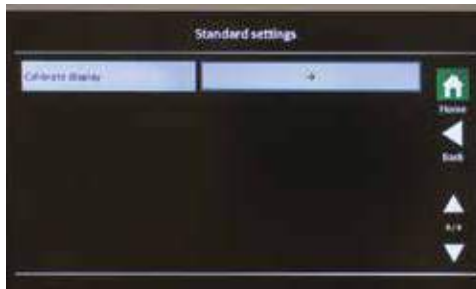
The change of date, time and time zone should be set using this menu item of the ENDODRY™ Storage and Drying System operating software. Furthermore, the access to the corresponding time server and open ports must be provided by the operator.

New statements to the operator can be made on the second page. These come in action for example by printing the unloading protocols (see *Chapter 6*).

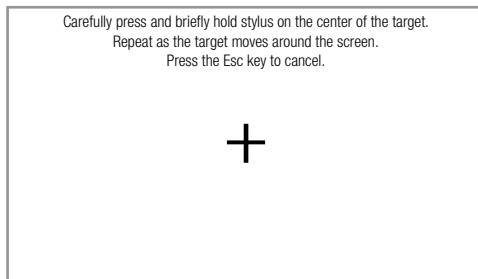


If the control of the separate buttons is not easy, a calibration of the screen can improve the service. After selecting the button Calibrate display the calibration restarts.

For the calibration the midpoint of the cross has to be touched for three seconds. This process repeats on more positions in the display-corner. Finally the operator has to touch the display for accepting the calibration.



Follow the instructions at the calibration:

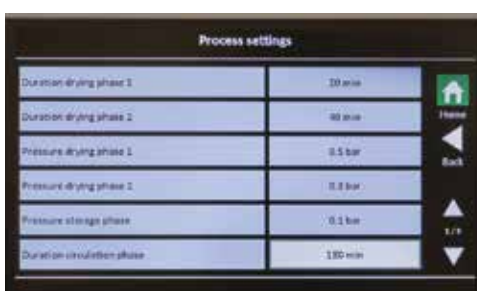


## Process settings



Login as Admin required.

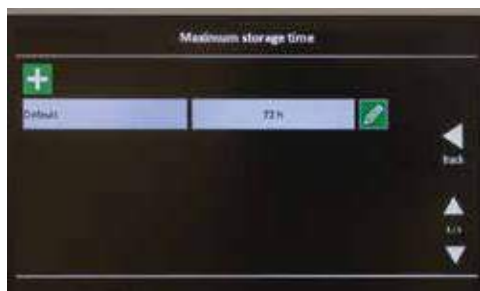
On the first side the process settings shows the parameter for the drying- and storage phase. Furthermore it shows the settings for the maximum storage time.




The factory set maximum storage time amounts 72 hours. The operator is responsible for changing the value or adding other endoscope-groups with another time. The maximum storage time shows the adjusted value for warnings at the endoscope-unloading (see *Chapter 5*).



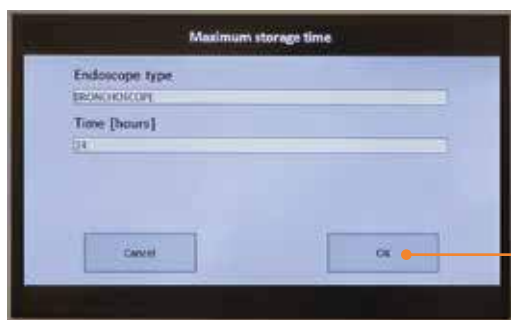
**WARNING: THE SETTING OF THE MAXIMUM STORAGE TIME TAKES INFLUENCE ON THE OUTPUT OF WARNING LABELS.**




By selecting the **ADD**-button  an input screen for a new endoscope type appears. Selecting the edit line a screen- keyboard appears (see *Chapter 6*). To use different storage times for different endoscope types, it is important to correctly write the endoscope type, (see *Chapter 6*).



**WARNING: IF IDENTICAL SPELLING IS NOT USED FOR THE ENDOSCOPE TYPE, THE DEFAULT VALUE WILL BE USED.**



Accept via OK or cancel the process

The name or the time of an already available endoscope-type can be changed. The default value can only be adapted at the time. By selecting the **EDIT**-button  the input screen opens behind the changed endoscope-type.

To remove a saved endoscope-type select the relevant **DELETE**-button  and accept the process with OK. Deleting the default value is not possible.

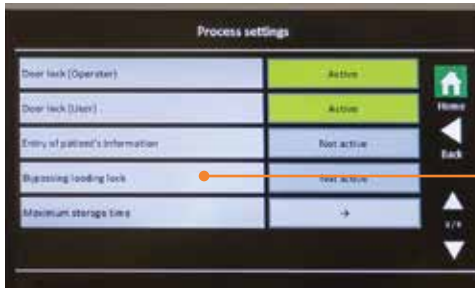
On the second page the user can deactivate the process settings on the front side (operator) and back side (user). The factory set door lock is active, so only after a successful authorisation via bar code the door can be opened.



**WARNING: DEACTIVATING THE DOOR LOCK ALLOWS UNAUTHORISED PEOPLE TO HAVE ACCESS TO THE ENDODRY CABINET AND THE STORED ENDOSCOPES**

The Entry of patient's information has to be activated, to enter information for the next patient at the unloading of an endoscope (see *Chapter 5*).

With activated bypassing loading lock, the loading process can continue despite a negative database retrieval. See add-on SMART Connect and Transfer (see *Chapter 3*). Accept the continuation via OK or cancel the process.

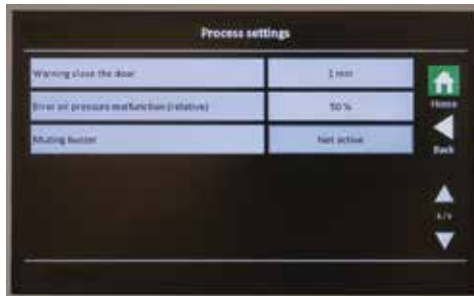


only at licensed Add-ons  
SMART connect or transfer



**WARNING: WHEN ALLOWING THE BYPASSSS LOADING LOCK, AN ENDOSCOPE CAN BE INSERTED INTO THE ENDODRY™ SYSTEM WITHOUT APPROVAL. PLEASE NOTE: THE ENDOSCOPE COULD BE CONTAMINATED.**

On the third page the times for the appearance from warnings are displayed. The setting of this time is only possible with a service technician.



## Network settings



Login as Admin required.

If ENDODRY Storage and Drying System connected in a network, the type of the integration or rather the IP-address can be determined in the network settings.

The changes only take effect after a restart of the ENDODRY Storage and Drying System.



## Default settings



Login as Admin required.

On the first page of the default settings a backup of the current settings can be generated and reproduced.

On the second page of the default settings the ENDODRY™ Storage and Drying System can be reset on standard settings.



**WARNING: THIS FUNCTION WILL RESET ALL SPECIFIC SETTINGS TO THE FACTORY CONFIGURATION.**



The following will be reset by activating the default settings:

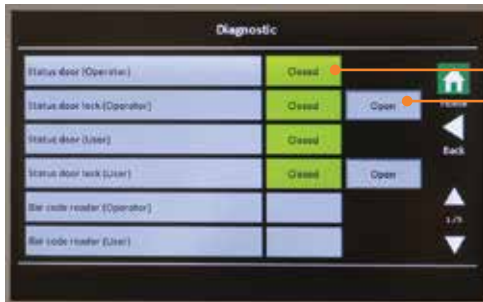
- serial number, data of operator (department, street, ...)
- drying phase 1 (0.5 Bar, 20 min, for ADVANTAGE PLUS™ Endoscope Reprocessor compatible systems 30 min, for DSD compatible systems.)
- drying phase 2 (0.3 Bar, 40 min, for ADVANTAGE PLUS Reprocessor compatible systems 60 min, for DSD compatible systems)
- storage phase (0.1 Bar)
- maximum storage time: only default value (72 h) is retained
- door lock (Operator and User) is active
- entry of patient's information and bypassing loading lock is not active
- warning close the door (2 min)
- error air pressure malfunction relative (50 %)
- all add-ons are not active
  - ✓ SMART Connect: time between reprocessing and ENDODRY Storage and Drying System (10 min)
  - ✓ SMART Connect: information entries of the data base
  - ✓ SMART Connect and HIS Interface: times 2 AM, 6 AM and 12 PM
  - ✓ Sensorik: Max./Min. values (2 °C, 1°C, 2 %, 1%)
  - ✓ Transfer: Max. transport time (10 min)

## Diagnostic



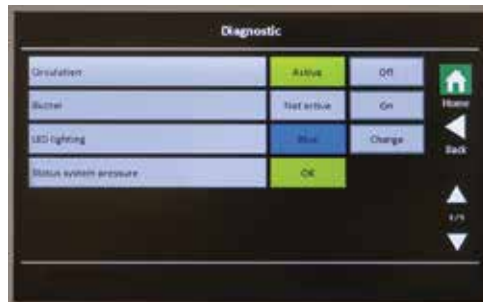
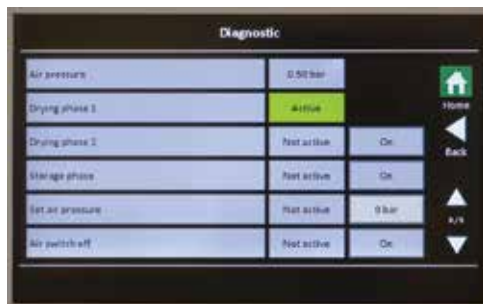
Login as Admin required.

In the diagnostic-menu the condition of each component of the ENDODRY™ Storage and Drying System can be verified. Furthermore the functions can be manually verified from the fastener, circulation, LED-lighting and drying phase.

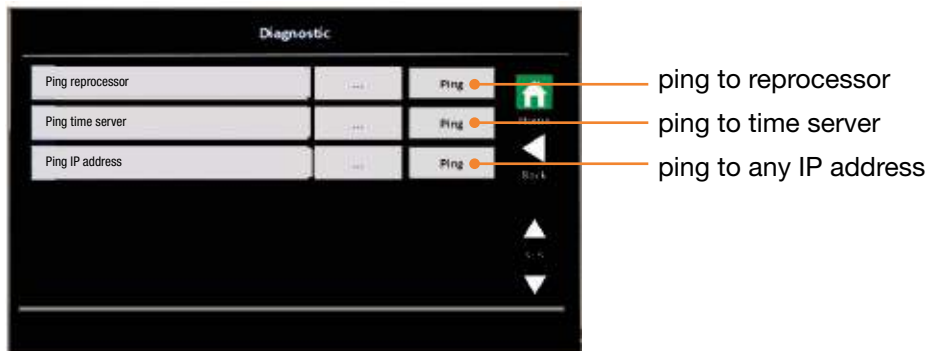


Screen of the condition

Switch over of the condition according to the inscription



To verify the server availability (e.g. time server, for SMART Connect add on or using a central data base) the ping console command can be performed at the last page in the menu item Diagnostic.



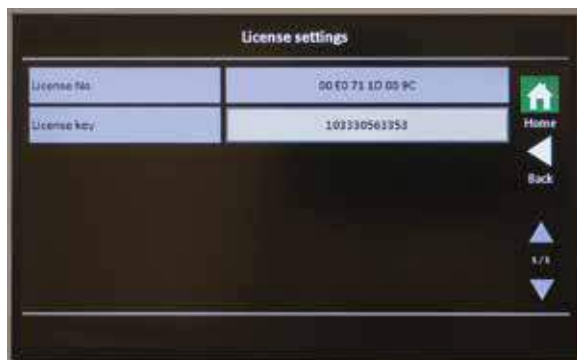
## License settings



Login as Admin required.

Via the license settings the additional Add-ons can be activated. The license-key is handed over from the manufacturer.

After a restart of the ENDODRY™ Storage and Drying System the done changes become required.

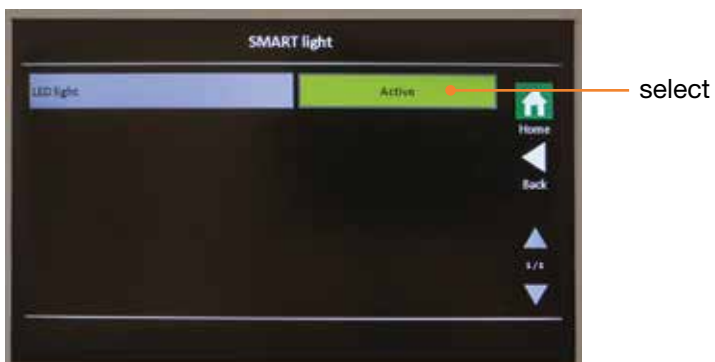


## SMART Light (optional)



Login as Admin required.

License for the Add-on SMART Light required.



## SMART Connect (optional)



Login as Admin required.

License for the Add-on SMART Connect and network connection required.

Via the activated security query the status and time of the last reprocessor cycle from the scanned endoscope can be controlled.

The maximum accepted time between the correct reprocessor cycles and the loading in the ENDODRY™ Storage and Drying System can be adapted.

By activation the SMART Connect Add-ons enter the necessary data for the connection to the data base.

SMART Connect	
Security query	Not active
Max. time: reprocessing - ENDODRY™	10 min
Database URL	192.168.156.126\ADVSQL
Login	advadmin
Password	*****

select

select and enter

The user- and endoscope data can be automatically imported.

SMART Connect	
Auto import user data	Active
Auto import instrument data	Active

The import-time has to be activated and determined.

SMART Connect		
Activate time 1	2:00 AM	On
Activate time 2	6:00 AM	On
Activate time 3	12:00 PM	On

## HIS Interface (optional)



Login as Admin required.

License for the Add-on HIS Interface and network connection required.

The activation of the HIS Interface forms an interface between the ENDODRY™ Storage and Drying System and HIS (HIS: Hospital Information System).

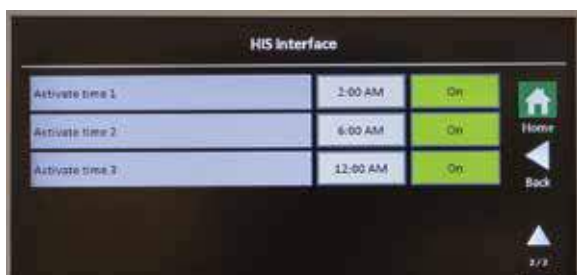
The following data are realised by the ENDODRY Storage and Drying System and saved in a XML-file:

1. Process data (loading and unloading information of each endoscope)
2. Master data (saved user and endoscope data)

The process data are permanently available for the hospital information by activating the HIS Interface. Permission for the database can be determined by activating the auto-export.



Activate and determine the permission-time.



## Network print (optional)



Login as Admin required.

License for the Add-on network printer, external PC and printer and network connection required. Using the menu item of the ENDODRY™ Storage and Drying System to activate. More settings are possible on user's PC.



## Label printer (optional)

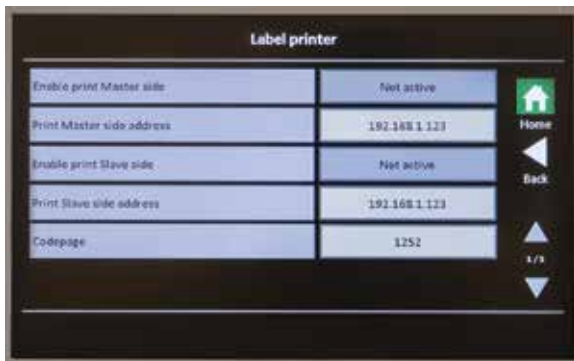


Login as Admin required.

License for the Add-on label printer and network connection required.

It is activated via this menu item of the ENDODRY Storage and Drying System. The print during the unloading of an endoscope can be performed via master/operator or slave/user side.

Furthermore enter IP address of the label printer. Please notice the accompanying documents.



## Sensors (optional)



Login as Admin required.

License for the Add-on Sensors required.

By activation of the controls the sensor values will be controlled.



When the maximum limit is exceeded, a new or extended drying phase will be introduced (raised airflow through endoscope canals and active air-circulation-module).

Reaching the minimum limit the associated phase (usually the storage) restarts.



With the active Sensor-Add-on three buttons can be selected. The process of the sensor-value can be separately displayed from the last 8 and 72 hours.

The air pressure process shows the output-value of the integrated flow sensor. Example: The value of the measurement at “1 hour” was registered 1 hour ago.

The climate monitoring shows two graphs (green and blue). The green graph illustrates the process of the relative humidity. The blue graph illustrates the temperature curve.

The phase monitoring shows the course of time from the different pressure phases, so the storage phase and the drying phase can be tracked back.

If the ENDODRY™ Storage and Drying System was switched off for a long time, the time interval is displayed with zero.

## Multibox (optional)



Login as Admin required.

License for the Add-on multibox required.

By activation of the multi box-query more endoscopes or bronchoscopes can be inserted in one drawer.



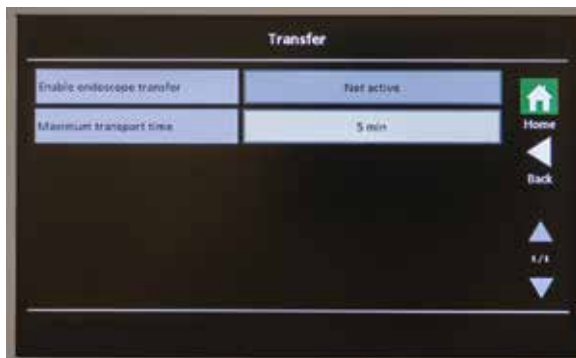
## Transfer (optional)



Login as Admin required.

License for the Add-on Transfer and network connection required.

Activating the endoscope Transfer endoscopes can be restored from a central ENDODRY™ Storage and Drying System in a decentralise ENDODRY Storage and Drying System.



## Finish the program



Login as Admin required.

By accepting the process the user interface or software of the ENDODRY Storage and Drying System is finished. The Windows-CE-screen is displayed.

The user interface can be restarted via the power on and off of the ENDODRY Storage and Drying System or via a double click on reboot-Icon.

**NOTE**

## SERVICING

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### Cleaning and Disinfection



**WARNING: FOR YOUR OWN SAFETY, UNPLUG THE POWER CORD BEFORE CLEANING THE APPLIANCE**

The cleaning and disinfection of the storage cabinet are the responsibility of the operator as same as the cleaning/ disinfection intervals.

The manufacturer recommends a continuous cleaning of the external and internal surfaces (e.g. once a week). Use only surface disinfectants which are appropriate for medical devices. They need to be compatible with polyethylene terephthalate, polyvinyl chloride (PVC), aluminium and stainless steel.

For cleaning, only use a lint-free cloth soaked in detergent or disinfectant. Avoid putting cleaner or disinfectant into the control drawer, the pneumatic system and the nozzles of the connection block.



**WARNING: AFTER CLEANING WITH INFLAMMABLE LIQUID, THE DEVICE MUST DRY FOR AT LEAST ONE HOUR OTHERWISE IT COULD LEAD TO AN EXPLOSION DUE TO EXPLOSIVE GAS MIXTURE**

### Service-interval

It is recommended that the equipment be checked annually for a secure mode of operation by authorised service staff or by your local Cantel field service team. See also in *Chapter 2* (Service, Repairs and Modifications) annual replacement of filters and O-rings is recommended.

### General Maintenance and Repair Information

The manufacturer does not assume any liability for maintenance work, repairs and modifications carried out by unauthorised staff.

To be in possession of the technical documentation of the device does not provide any authorisation by the manufacturer to technically trained staff to open or repair the device. In this manual described interventions are excluded from this regulation.

Please contact your local Cantel office for further information.

**NOTE**

## MESSAGES AND TROUBLESHOOTING

### Errors and warnings in the message line

By selecting the message line in the display-footer it runs to the information error/warning. All messages are displayed with time and error-number and can be removed after the troubleshooting via the button remove all. Advices to troubleshooting: *Chapter 8*



The following conditions are displayed:

- errors (red)
- warnings (orange)

### Troubleshooting

In this chapter the possible causes for failure of the ENDODRY™ Storage and Drying System are described. Use the suggested troubleshooting action to try and locate the cause and correct it if applicable. In case of reoccurring errors, please contact your Technical Service representative.

The following error messages are displayed:

Error	Possible causes	Troubleshooting
no image on the display	power cable is not connected	connect power cable
	device is not switched on	switch-on the device
	main fuse triggered	check or switch on the main fuse
	no power supply voltage	check the power supply
door cannot be opened	user is not logged in	scan user bar code or insert new user
	bar code reader does not work	connect or replace the bar code reader
system is not flushed with air	device is not connected to air supply	connect unit
	filter is polluted with particles (check at inspection glass)	contact service hotline

Displayed error messages or warnings: (acknowledgement on the display, if the cause has been resolved)		
Error / Warning	Possible causes	Troubleshooting
#001: Please close loading door	Door (operator/master) is opened too long.	Close the door.
#002: Please close unloading door	Door (user/slave) is opened too long.	Close the door.
#003: Failure input pressure	Air supply is interrupted.	Check connection.
	Inlet pressure too high/low.	Set inlet pressure to 5 Bar. Check dimensioning of compressed air system.
	Filter is polluted with particles.	Contact service hotline.
#004: Error during open database	Interrupted LAN connection.	Check connection.
	Access data is not correct	Check access data of the server.
	Database version incompatible.	Check version compatibility of the database.
#005: Error while writing to database	Interrupted LAN connection.	Check connection.
	Access data is not correct.	Check access data of the server.
	Database version incompatible.	Check version compatibility of the database.
#006: Power failure (start- end)	Power failure.	Check power cable.
	Fine-wire fuse (4 A) has blown.	Check or replace the fuse.
#007: Air pressure unstable (regulator)	Inlet pressure too low.	Check the stability of the inlet pressure with full load.
	Pressure regulator not calibrated.	Calibrate pressure regulator (Diagnostic Menu p. 6/6).
	Defective pressure regulator.	Replace pressure regulator.
#008: Flow unstable	Pressure regulator can't reach a stable state.	Check inlet pressure and function of pressure regulator.
#009: Flow too low - check connection	Not all endoscopes are connected correctly.	Check the connections to the cabinet and the endoscopes' valves.
	One of more endoscopes had no correct unloading process.	Check the number of endoscopes.
#010: Flow too high - check number of endoscopes	There are more endoscopes or connections in the cabinet than were loaded / scanned.	Check the number of connected endoscopes. Check the correct loading process of all loaded endoscopes. Do not store / connect unused connectors in the cabinet.
#011: Maintenance due! Please contact service technician.	Last maintenance >1 year ago.	Please contact service technician.
#012: DNS error label printer	No connection to the label printer.	Check LAN connection and IP settings, switch-on the printer.
#013: HIS data are not accessed	The provided HIS data are not collected correctly or are not deleted after collection.	Reestablish or correct the connection to the HIS. If necessary, disable the HIS Interface temporarily.
#014: Smart connect server not available	Interrupted LAN connection.	Check connection.
	Access data is not correct.	Check access data of the server.
	Database version incompatible.	Check version compatibility of the database.
#015: Labelprinter unreachable	No contact to the label printer	Check LAN-contact and IP-settings, switch-on the printer.
#016: SD card not available	Storage card (µSD) is not inserted or has been damaged.	Insert a (new) storage card (back side of Master panel).
#017: Error during auto import user data	Interrupted LAN connection.	Check connection.
	Access data is not correct.	Check access data of the server.
	Database version incompatible.	Check version compatibility of the database.
#018: Error during auto import instrument data	Interrupted LAN connection.	Check connection.
	Access data is not correct.	Check access data of the server.
	Database version incompatible.	Check version compatibility of the database.

## REPORTS

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All system activities of ENDODRY™ Storage and Drying Systems are documented in a report file. Reports are written by unloading an endoscope as xml file in the µSD card.

The following data are recorded:

- information of the ENDODRY Storage and Drying System
  - serial number, cabinet number, drawer number
- information of the endoscope
  - barcode, name, applicable maximum storage time
- information of the loading process
  - date, time, barcode and name of the operator/user
- information of the unloading process
  - date, time, barcode and name of the operator/user
- information of the drying and storage process
  - patients' information
  - result of the security query
    - 0 undefined
    - 1 no connection to the reprocessing machine
    - 2 correct reprocessing cycle and transport time
    - 3 no correct reprocessing cycle or exceeded transport time
    - 4 bypass of loading lock was used
    - 5 add-on not active
    - 6 no reprocessing cycle
  - process result
    - 1 warning
    - 0 in progress
    - 1 finished
  - last cycle in the ENDODRY Storage and Drying System
  - events during the process (e.g. air pressure or power failure)
- Extract from the flushing protocol of the reprocessor (with active SMART Connect add on)

Details to the unloading status of an endoscope and the result of the security query read up in chapter 0 and 5.6.

The report-file can be selected as follows:

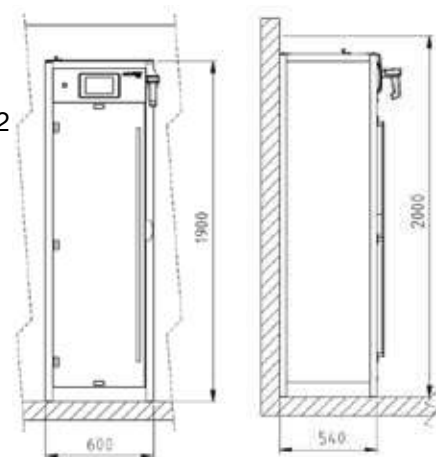
1. Open the explorer and enter the IP address of the ENDODRY Storage and Drying System:  
e.g. \\192.168.50.110
2. Enter user and password
3. In the opened windows select the register SD\_Memory
4. Select the register Reports

Alternatively via FTP access.

**NOTE**

## TECHNICAL DATA

Dimensions [cm]:	W: 60 H: 190 D: 54
Weight [kg]:	170
Operating conditions:	Temperature: 10 °C to 40 °C rel. humidity (air): 30 % to 75 %
Storing conditions:	Temperature: -10°C to 60°C rel. humidity (air): 10 % to 90 %
Interfaces:	Ethernet 1x RJ45 (10/100 Mbit)
Compressed air connection:	Pressure: 2 - 10 Bar (29 - 145 PSI) Demand: 100 l/min (ANR) , 17 lmin @ 5 Bar 3.5 SCFM, 0.6 CFM @ 72.5 PSI  Pressure one-click: 5-10 Bar (72.5 - 145 PSI) Demand one-click : 200 l/min (ANR) 33 l/min @ 5 Bar 7 SCFM 1.2 CFM @ 72.5 PSI  Diameter (DN): 6 (1/4") Quality: according to ISO 8573-1:2010 Class: 1.4.1
Recommended pressure:	5 Bar
Power supply voltage:	100-240 V AC, at 50/60 Hz
Connection:	Rubber connector C14 according IEC/EN 60320-1
Fuses:	Internal device: T4A Building: 16 A
Power input:	75 W
Heat emission:	Max. 75 W Max. 256 Btu/h
Average electrical consumption:	1 kWh /Tag
Display:	6" Colour touch screen
IP Code:	IP 20
Electrical protection class	I
EMC classification 5501:	1B referred to DIN EN 60601-1-2
Manufactured and tested according to:	EN 61010-1



NOTE

[illegible]

**NOTE**

### **Limited Warranty**

Subject to the terms below, Cantel Medical (the “Company”) warrants that its products (the “Products”) will conform to the Company’s written specifications (where applicable) and will be free from defects in material and workmanship under normal use and service for the following periods (the “Warranty Period”):

Endoscope reprocessors and associated equipment, and Irrigation Pumps: fifteen (15) months from date of shipment from the Company or one (1) year from the date of installation, whichever occurs first.

Consumables, accessories, and Product service parts, including, but not limited to, endoscope hook-ups, filters, printers, printer supplies, test strips, accessory bags, and service parts for products: ninety (90) days from the date of installation or one hundred and twenty (120) days from the date of shipment, whichever occurs first.

Disposable Products: warranted for single use. The Warranty Period will not in any case exceed the expiration date on the Product label.

The warranty does not cover, and the Company will have no warranty obligation whatsoever with respect to, any damage to a Product caused by or associated with: (i) external causes, including without limitation, accident, vandalism, acts-of-God, power failure or electric power surges, (ii) abuse, misuse or neglect of the Product by the customer or use of unauthorised third party filters or other consumables and accessories, (iii) usage not in accordance with product instructions, (iv) the customer’s failure to perform required preventive maintenance, or (v) servicing or repair not authorised by the Company.

### **Limitation of Remedy**

The warranty obligation of the Company hereunder is limited to (at its option) (i) the repair or replacement of the defective Products or any parts it deems defective, or (ii) a refund of the purchase price. This will be customer’s exclusive remedy for a covered defect.

In order to recover under the warranty, the customer must notify the Company in the state (if in the U.S.A.) or the country of installation, of the defect (describing the problem in reasonable detail) prior to the expiration of the Warranty Period and within thirty (30) days of discovery of the defect. Upon receiving the Company’s official “Returned Material Authorisation” (RMA), the customer must promptly return the defective part or Product to the Company (or the service center indicated on the RMA), freight and insurance prepaid. The Company will not be responsible for any damage during shipment.

### **Warranty Disclaimer**

THE WARRANTY ABOVE IS THE COMPANY’S ENTIRE WARRANTY OBLIGATION TO THE PURCHASER OF PRODUCTS. IT IS IN LIEU OF ALL OTHER WARRANTIES OF THE COMPANY, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND THE COMPANY DOES NOT REPRESENT OR WARRANT THAT ANY PRODUCT WILL MEET CUSTOMER’S REQUIREMENTS. THE COMPANY’S RESPONSIBILITY FOR DEFECTS IN A PRODUCT IS LIMITED SOLELY TO REPAIR, REPLACEMENT OR REFUND OF THE PURCHASE PRICE AS SET FORTH IN THIS WARRANTY STATEMENT.

TO THE EXTENT PERMITTED BY LAW, THE COMPANY SHALL NOT, UNDER ANY CIRCUMSTANCES, BE LIABLE TO CUSTOMER FOR CONSEQUENTIAL, INCIDENTAL, INDIRECT, PUNITIVE OR SPECIAL DAMAGES OR LOSSES, INCLUDING WITHOUT LIMITATION, DAMAGES ARISING OUT OF OR IN CONNECTION WITH ANY MALFUNCTIONS, DELAYS, LOSS OF PROFIT, INTERRUPTION OF SERVICE, OR LOSS OF BUSINESS OR ANTICIPATORY PROFITS, EVEN IF THE COMPANY HAS BEEN APPRISED OF THE LIKELIHOOD OF SUCH DAMAGES OCCURRING.

This Warranty gives the customer of Products specific legal rights, and customers may also have other rights which vary from jurisdiction to jurisdiction.

In no event shall the Company’s liability exceed the original purchase price of the covered Product.

No representative or agent of the Company has any authority to bind the Company to any other representation or warranty with respect to the Products, and the customer accepts the Products subject to all of the terms above.

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