

# HospEC Touchscreen

Operating and annunciator panel with touch function



## Product information

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1.3	19.08.2019	1.3.0	Extended switch selection in the trade Lighting

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## 1 Purpose of use

The HospEC Touchscreen (Touch) is produced and configured according to the customer-specific requirements.

The basic component of the Touch includes a panel housing and the therein installed touchscreen. The Touchscreen displays the graphic user interface of the Touch application.

The Touch is used for monitoring of power supply systems in medical locations according to DIN VDE 0100-710 (VDE 0100 Part 710). It is for displaying operating and error messages of the field devices from the system HospEC of ESA-Grimma, e. g. of the device types SPR/ILT/UEI-710. All used field devices communicate with each other via the standard fieldbus CAN (CAN bus). The messages are marked with a time stamp by means of the integrated buffered real time clock.

In addition, the Touch enables the triggering of the test function of connected IT system monitoring devices, e. g. on ILT devices.

The Touch can also receive information of two physically separated CAN bus segments as CAN router. These are designated with CAN0 and CAN1. The information (telegrams) can be routed specifically to a special bus segment (CAN0 or CAN1).

Messages and values of external devices/systems are received and displayed by the Touch via MPM devices of ESA-Grimma. Control commands and values of the Touch can also be transmitted to these external devices/systems. The communication is realised via Modbus or via CAN bus.

## 2 Scope of delivery

The following components are part of the scope of delivery of a single or spare device:

- 1 x HospEC Touchscreen
- 1 x operating manual

The Touch may only be installed and commissioned by trained expert personnel. Please inform the manufacturer/distribution partner immediately of defects.

### 3 Overview HospEC Touchscreen

#### 3.1 Device view



Fig. 1: Device view HospEC Touchscreen

#### 3.2 Device dimensions

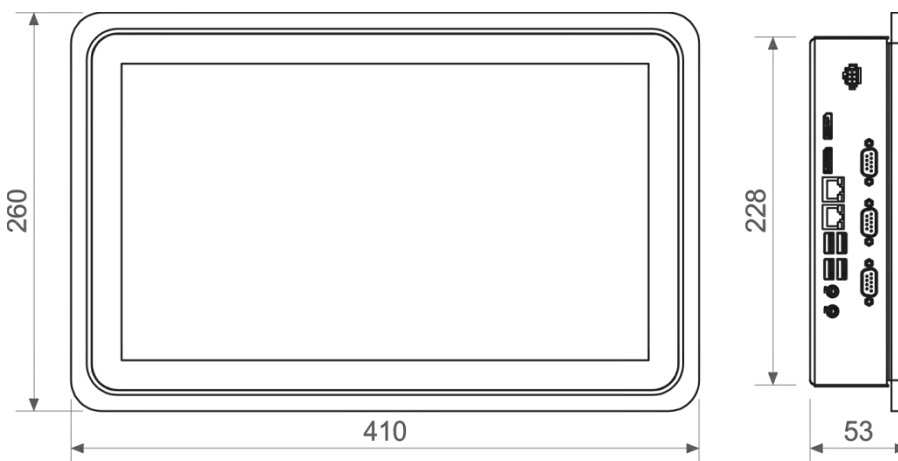


Fig. 2: Device dimensions (touchscreen housing) in mm

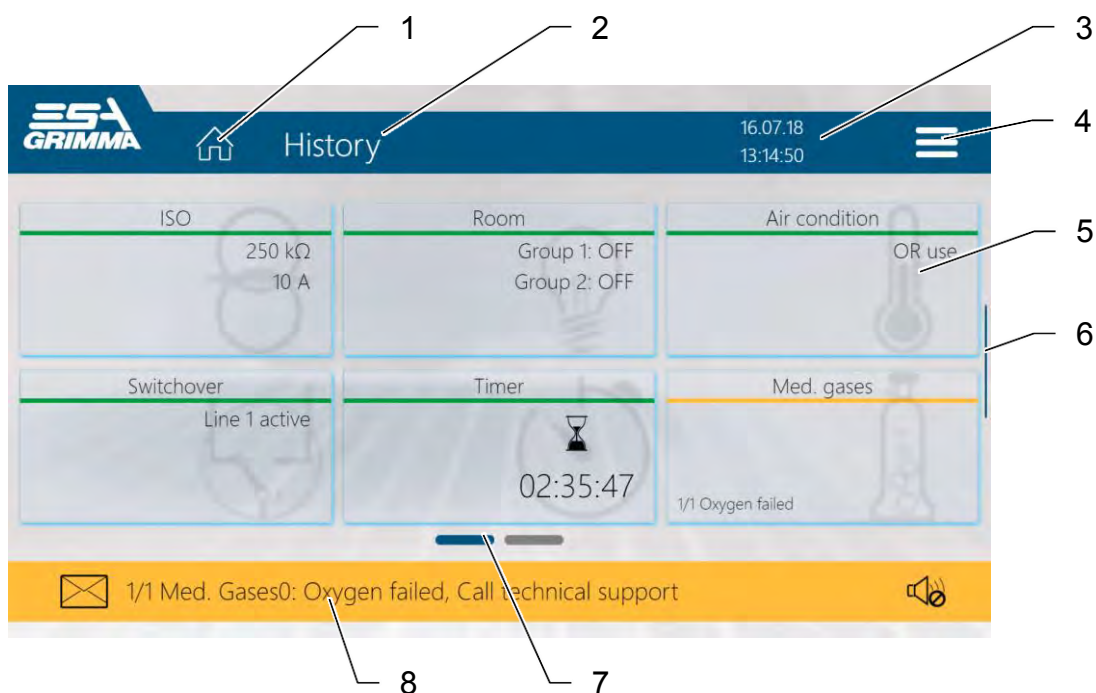
The Touch is installed as panel. The size and the format of the panel are project-specific.

### 3.3 Labelling

There is a label on the rear side of the Touch with the following information:

- manufacturer
- device type
- serial and article number
- technical data (in short)

### 3.4 User interface of the application



**Fig. 3:** Main overview (theme “light”) with an active warning message

- |                                |  |
|--------------------------------|--|
| 1 Home button                  | 6 Lateral menu button                                  |
| 2 Title                        | 7 Page display   |
| 3 Date and time                | 8 Footer with information about pending error messages |
| 4 Menu button                  |  |
| 5 Tile (here: trade “climate”) |  |

The home page (main overview) of the touch application displays up to three pages with up to six tiles each. One trade is displayed within one tile. An overview (trade overview) of all projected devices, facilities, systems or rooms (sources) can be displayed within one trade. The “trade view” contains detailed information about the individual sources. An overview of the individual trades can be found in chapter 5.1 from page 9 onwards.

Besides the trades, there is a main menu where settings for the Touch can be changed as well as a lateral menu where the group buttons are contained.

Title, date and time are displayed in the header of the main overview. Additionally, there are buttons in the header which lead to the contents main overview and main menu.

Text messages of pending errors and warnings are displayed in the footer of the main overview.

## 4 User software “Customer App”

The user software “Customer App” enables the individual adjustment of the message and additional texts. All projected message texts are provided in English as first language. The translation into the second language can be set individually by means of the “Customer App”.

## 5 Functions

The main functions of the Touch are:

- Main overview: displaying of messages and values from different sources (devices, facilities and systems)
- Trade overview and trade view: messages, values and settings
  - Insulation monitoring
  - Changeover monitoring
  - Battery-supported power supply (BSP)
  - Lighting (incl. blends as well as X-ray and laser preparation)
  - Air-conditioning system
  - Medical gases
- Different display of message types
- Communication via CAN bus and Modbus
- Triggering of external insulation tests
- Stopwatch and countdown function (timer)
- Project-specific configuration
- Device monitoring
- Routing function (gateway function)
- Display language selectable

## 5.1 Displaying of messages and values

The Touch shows measurements of the field devices of ESA-Grimma connected in the CAN bus. If the Modbus interface is used, values can also be displayed by devices using the Modbus-RTU protocol (e. g. air conditioning systems). The projected sources are assigned to the different trades according to their functions. The trades are displayed as tiles in the main overview:

- Designation of the trade
- State banner of the trade:
  - Red = error
  - Yellow = warning
  - Green = normal operation
- Symbol of the trade (in the background)
- Measurements and operating states of the projected sources (max. 3 lines)
- Active warnings and error messages of the trade

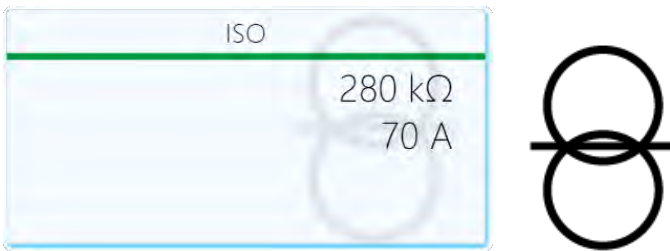


**Fig. 4:** Displaying of messages in the main overview

All designations, displayed trades and measurements as well as messages are part of the project configuration. Individual message texts can be created additionally with the user software "Customer App".

Measurements and operating states of several sources of one group (e. g. ILT devices, SPR devices) are displayed as summary within one trade ("trade overview"). Detailed information about the individual sources are provided in the respective "trade view".

### 5.1.1 Insulation monitoring (ISO)



**Fig. 5:** left: view trade “insulation monitoring” in the main overview  
right: trade symbol “insulation monitoring”

All devices and systems which measure, calculate and/or monitor the insulation resistance in an IT system are summarised in the trade “insulation monitoring (ISO)”. Names, measurements and messages of the projected ILT devices can be listed in the trade overview and in the trade view.

In addition, there is the possibility in the trade overview as well as in the trade view to trigger an insulation test (“ISO-Test”) on the individual ILT devices if the projected ILT devices have this function.



**Fig. 6:** left: trade overview “insulation monitoring”  
right: trade view “insulation monitoring”

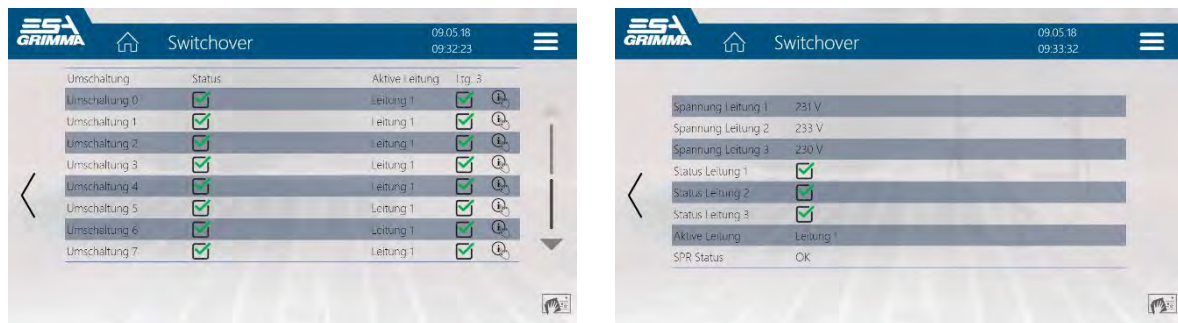
### 5.1.2 Switchover monitoring



**Fig. 7:** left: view trade “switchover monitoring” in the main overview  
right: trade symbol “switchover monitoring”

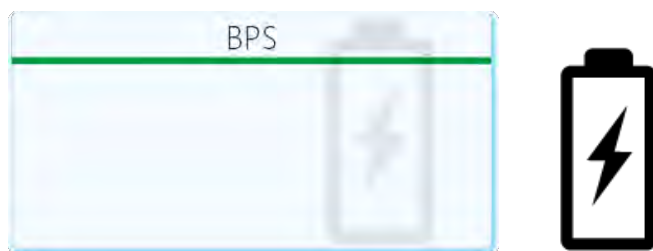
All devices and systems which measure, calculate or monitor voltages are summarised in the trade “switchover monitoring”. If necessary, they trigger automatically a switchover between the general power supply (GS) and the safe power supply (SS). Names,

measurements and messages of the projected SPR devices can be displayed in the trade overview and in the trade view.



**Fig. 8:** left: trade overview “switchover monitoring”  
right: trade view “switchover monitoring”

### 5.1.3 Battery-supported power supply (BPS)



**Fig. 9:** left: view trade “battery-supported power supply” in the main overview  
right: trade symbol “battery-supported power supply”

Data points of all projected devices with digital inputs processing information of systems for battery-supported power supply (BPS systems) are summarised in the trade “battery-supported power supply (BPS)”. MPM devices of ESA-Grimma can be used as devices with digital inputs. Names and messages of the projected BPS systems can be displayed in the trade overview and in the trade view.



**Fig. 10:** left: trade overview “battery-supported power supply”  
right: trade view “battery-supported power supply”

### 5.1.4 Lighting



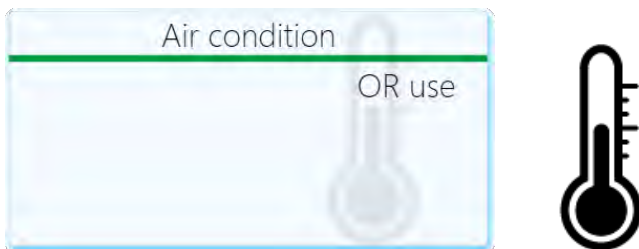
**Fig. 11:** left: view trade “lighting” in the main overview  
right: trade symbol “lighting”

All projected MPM devices controlling the lighting of the rooms are summarised in the trade “lighting”. Several MPM devices can be projected within one room. Names and settings of the rooms can be displayed in the trade overview and in the trade view. Up to eight control elements can be used within the trade view for adjusting the settings. The control elements are divided into three types (single, double and combined switch).



**Fig. 12:** left: trade overview “lighting”  
right: trade view “lighting” with all available control elements

### 5.1.5 Air condition system



**Fig. 13:** left: view trade “air condition system” in the main overview  
right: trade symbol “air condition system”

All projected MPM devices as well as CAN bus and Modbus capable systems controlling the artificially created relation between temperature and air humidity in a room are summarised in the trade “air condition”.

Names, measurements (actual values), settings (set values) and messages of the projected systems can be displayed in the trade overview and in the trade view. Up

to six control elements can be used within the trade view for the displaying and adjustment of the measurements and settings.



**Fig. 14:** left: trade overview “air condition system”  
right: trade view “air condition system” with all available control elements

### 5.1.6 Medical gases



**Fig. 15:** left: view trade “medical gases” in the main overview  
right: trade symbol “medical gases”

Data points of all projected devices with digital inputs processing status information of the medical gas systems are summarised in the trade “medical gases”. MPM devices of ESA-Grimma can be used as devices with digital inputs. Names and messages of the projected systems can be displayed in the trade overview and in the trade view.



**Fig. 16:** left: trade overview “medical gases”  
right: trade view “medical gases”

## 5.2 Different displaying of message types

The Touch distinguishes three message types according to the respective priority and highlights them in different colours, see Fig. 4 on page 9:

- Error = red
- Warning = yellow
- Information = none

The Touch receives the messages of the projected devices by two CAN bus interfaces and one Modbus interface. In addition, device errors and error messages of the Touch can be displayed. Messages of the type information are only displayed in the history.

### 5.2.1 Messages in the footer of the display

Pending messages are displayed as banner in the footer of the display:

- Continuous number of the text message/number of all active text messages
- Source of the message (e. g. switchover 0)
- Text message (e. g. failure line 2)
- Additional message (e. g. call technician)
- Acknowledgement button

If there are several messages occurring at the same time, they are displayed alternately. In case of one or more active warning messages, the banner is yellow. If there is at least one error message, the banner is red. The banner is displayed permanently until the cause for the message is eliminated.

The messages can only be acknowledged in the banner.

### 5.2.2 List of current messages

Active messages can be displayed in a list. The list of current messages comprises information about the source of the message as well as the time of the occurring and acknowledging of the message.

### 5.2.3 Messages in the trades

Only the messages of which the reason is in the projected sources of the respective trade are displayed in the trades:

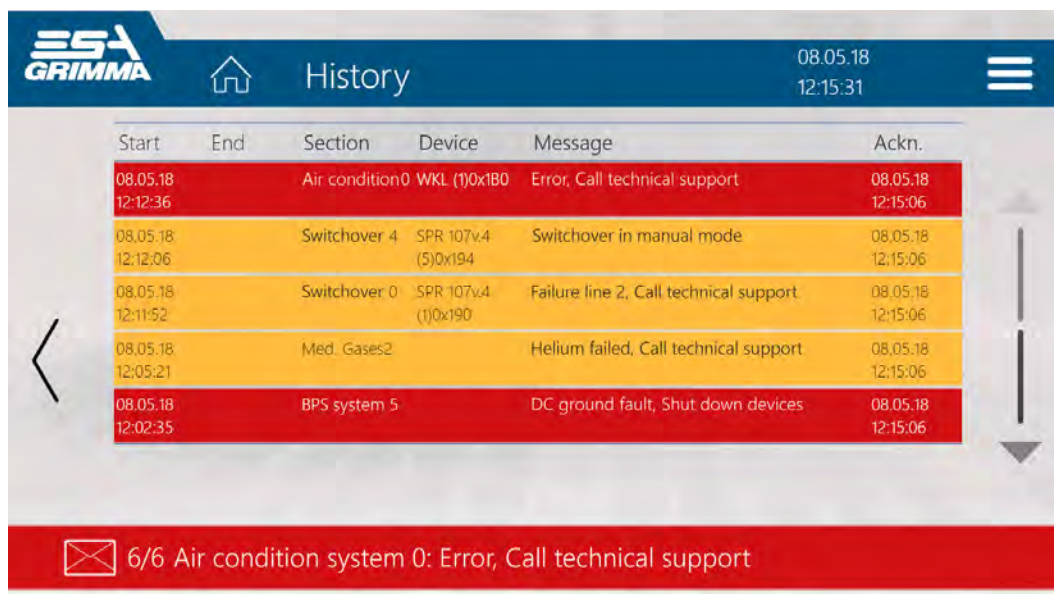
- Continuous number of the text message/number of all active text messages of the trade
- Text message

If there are several messages occurring at the same time, they are displayed alternately. In case of one or more active warning messages, the state banner of the trade

or the respective line is yellow. If there is at least one error message, the state banner or the line is red. No messages can be displayed in the trade “lighting”.

## 5.2.4 History

The latest 1,000 messages are listed in the history of the Touch. Older messages are stored in the Touch but not displayed. They can be exported to a USB data carrier and evaluated by means of the user software “Customer App”. The list of the history comprises information about the source and about the course of the message. In addition to warnings and errors, the history also contains messages without priority (“information”, e. g. “insulation test triggered”) besides the warnings and errors.



Start	End	Section	Device	Message	Ackn.
08.05.18 12:12:36		Air condition0	WKL (1)0x1B0	Error, Call technical support	08.05.18 12:15:06
08.05.18 12:12:06		Switchover 4	SPR 107v.4 (5)0x194	Switchover in manual mode	08.05.18 12:15:06
08.05.18 12:11:52		Switchover 0	SPR 107v.4 (1)0x190	Failure line 2, Call technical support	08.05.18 12:15:06
08.05.18 12:05:21		Med. Gases2		Helium failed, Call technical support	08.05.18 12:15:06
08.05.18 12:02:35		BPS system 5		DC ground fault, Shut down devices	08.05.18 12:15:06

6/6 Air condition system 0: Error, Call technical support

**Fig. 17:** Displaying of messages in the history

## 5.3 Communication interfaces

The Touch receives the messages of the projected devices by two CAN bus interfaces and one Modbus interface. External insulation tests can also be triggered on projected devices via the communication interfaces if the devices have the respective function.

## 5.4 Group buttons

Up to five group buttons can be configured for the Touch application. Specific actions (steps) are summarised in one group button and executed automatically one after another.

The following actions can be combined arbitrarily and added to one group button:

- Lighting control
  - Switch lighting on an off
  - Dim lighting
  - Selection of a light scene
- Air-condition system control
  - Temperature setting
  - Air humidity setting
  - Selection of the operation scope
  - Selection of the duty-type
- Triggering of insulation test

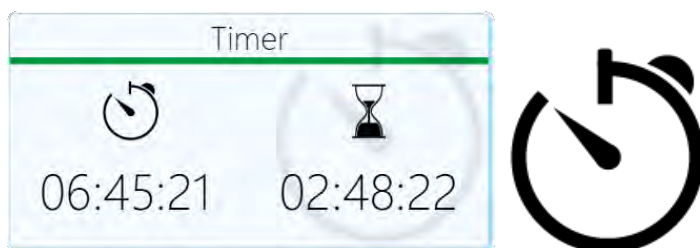


Lateral menu

Group buttons are displayed in the lateral menu (right hand side).

## 5.5 Timer

The timer can be displayed in the main overview in form of the trades as tile. It comprises a stopwatch, a countdown and a timer overview. The recent states are displayed in the main overview during the time measurement.



**Fig. 18:** left: view “timer” in the main overview  
right: symbol “timer”

## 5.6 Project-specific configuration of the Touch application

The Touch application gets a project configuration according to the customer’s requirements. Settings and data can be pre-parameterised in the configuration:

- Messages
  - Source of the messages, e. g. devices or interfaces
  - Priority of the messages (operation/warning/error)
  - Selection of the messages to be displayed
  - Message texts (English and a second language)
- Displays
  - Source of the display
  - Names
- Trades
  - Number and order of the trades (max. 3 x 6 trades)
  - Name of the trades
  - Selection of the values to be displayed in the main overview
- Communication interfaces
  - Registry of the devices/facilities/systems to be monitored
  - Assignment of the addresses (CAN bus address, Modbus address)
- Group button
  - Number of group buttons (max. 5 group buttons)
  - Names of the group buttons
  - Selection of the actions to be executed
- all further settings which can also be set in the main menu

Message texts can be adapted individually. The user software “Customer Application” required for this is stored in the Touch and can be loaded onto a USB data carrier if necessary.

## **5.7 Device monitoring**

The devices can monitor themselves mutually when several Touch panels are used in one bus segment. If one device fails, it is reported by the other Touch panels. The Touch is also able to monitor other field devices for proper functioning on the CAN bus and report their failure (“life sign monitoring”).

## **5.8 Routing function**

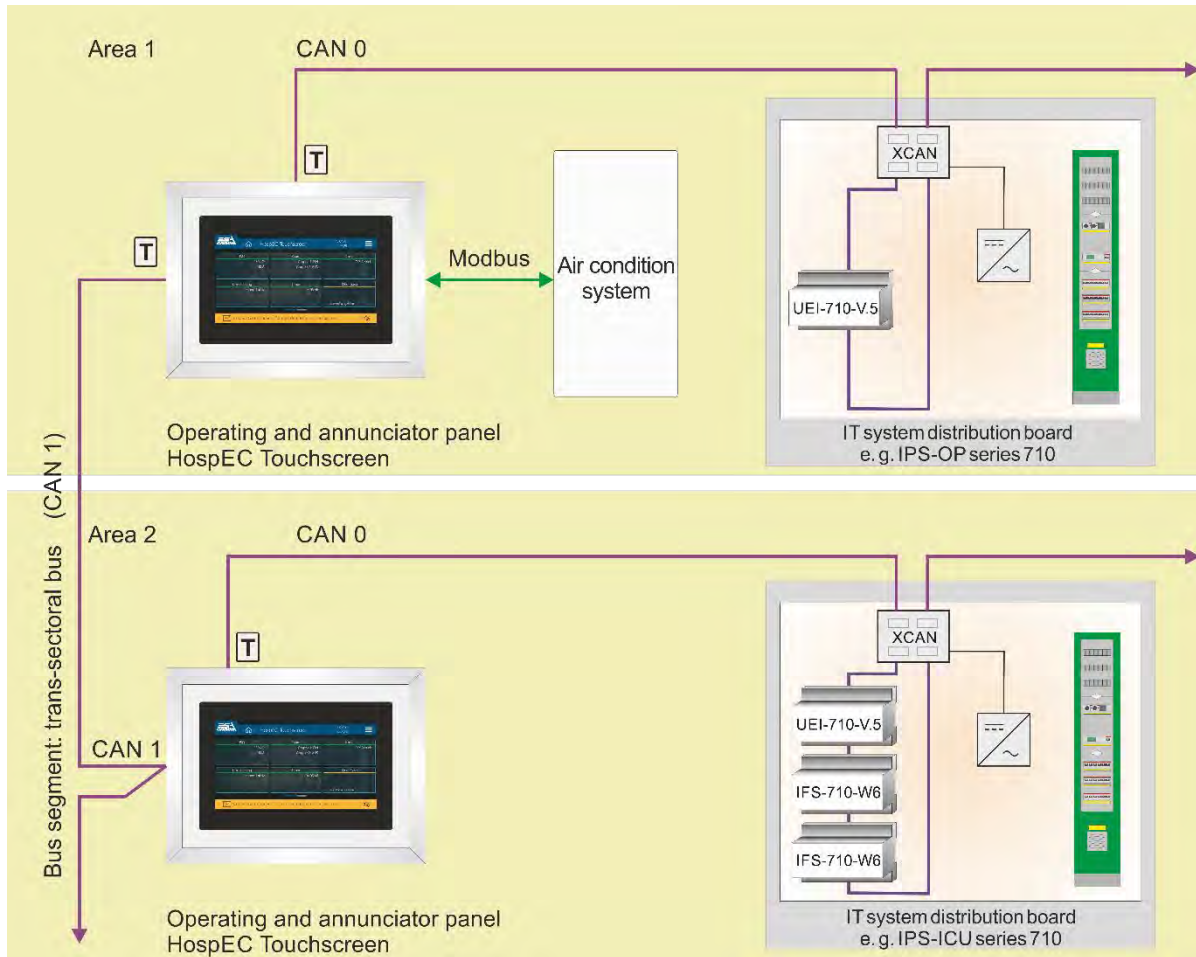
The Touch can also receive information (telegrams) of two physically separated CAN bus segments (CAN0 and CAN1) as CAN router and route these telegrams precisely to a special CAN bus segment (CAN0 or CAN1).

## **5.9 Display language**

The display language of the Touch application can be changed in the settings (menu).

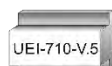
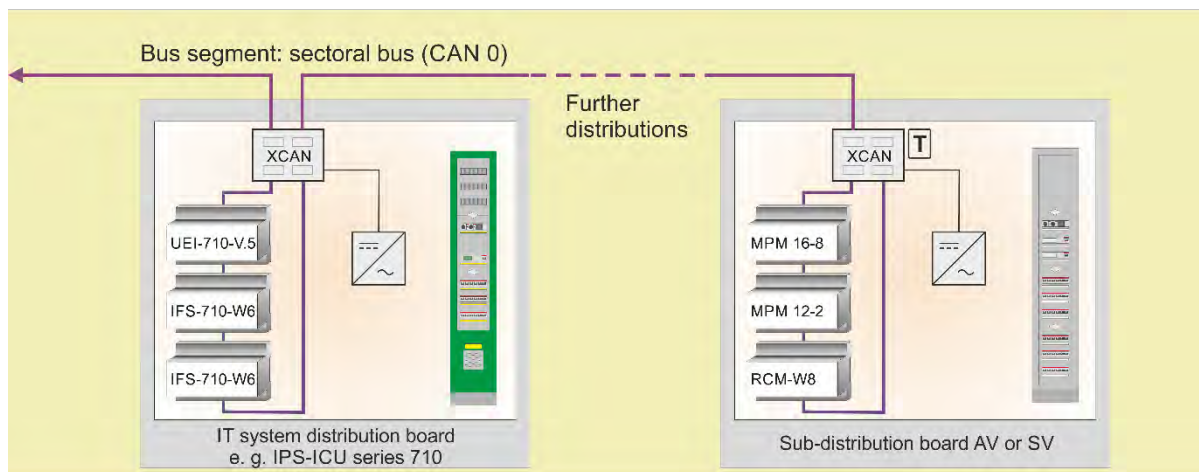
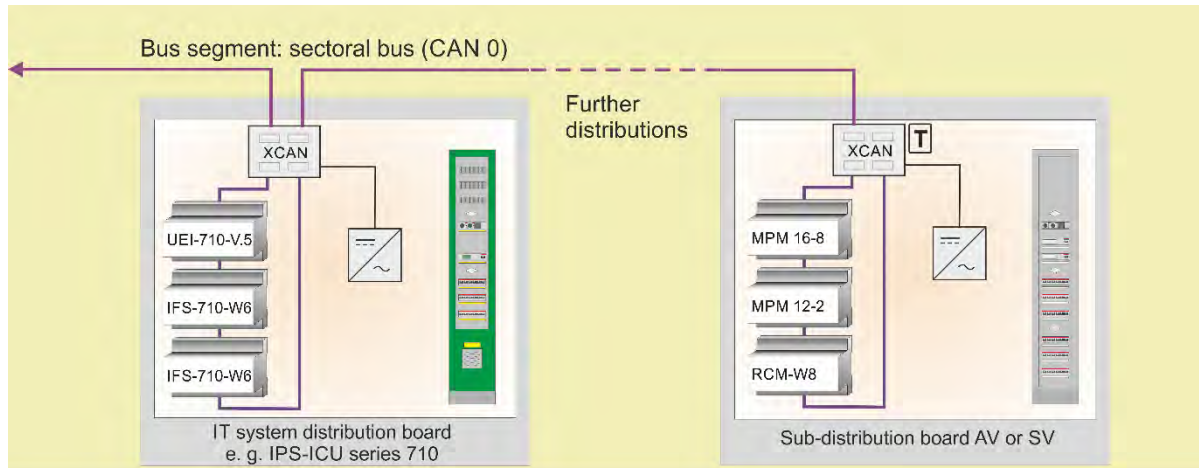
## 6 Application examples

### 6.1 Monitoring of an IT system



**Fig. 19:** Use in the hospital

The application example shows the Touch when it is used in a hospital in combination with other field devices of ESA-Grimma (system HospEC).



CAN bus field device (ESA-Grimma) with device name



Terminal adapter XCAN (in every distribution board) with connectible terminating resistor for termination



Termination is set, terminations in distribution boards must always be set on the XCAN terminal adapter.



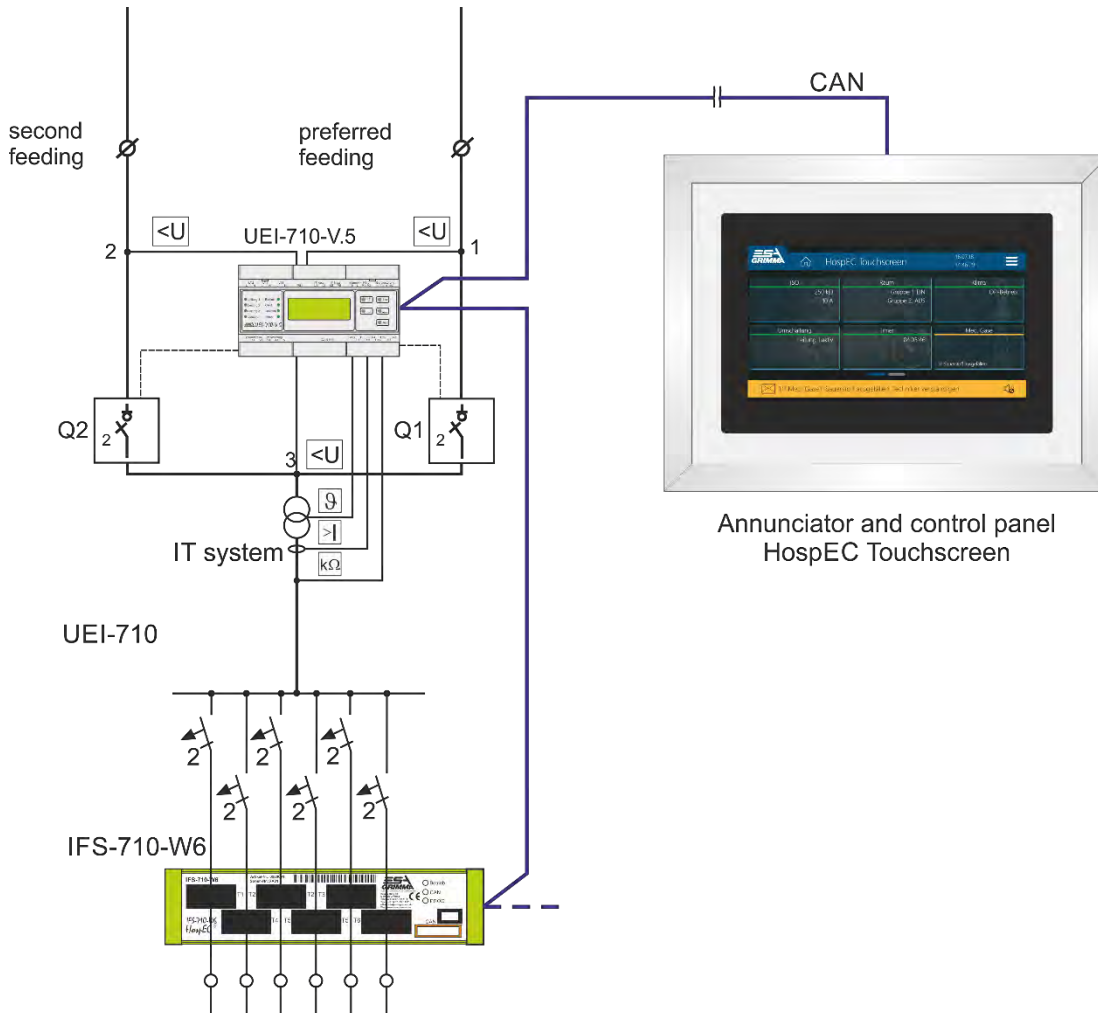
Power supply unit DC 24 V in the distribution board for power supply of the devices and their CAN controllers, further power supply units for devices connected to the bus (e. g. BMTI 5) must be used if necessary, panels have their own power supply unit.

CAN 0 Abbreviation for bus segment "sectoral bus"

CAN 1 Abbreviation for bus segment "trans-sectoral bus"

## 6.2 Insulation fault detecting system

The application example shows the Touch when it is used in an insulation fault detecting system in combination with the multi-functional changeover and monitoring device UEI-710-V.5 and the insulation fault detecting device IFS-710-W6.



**Fig. 20:** Insulation fault detecting system with HospEC Touchscreen as peripheral displaying device

## 6.3 Lighting control

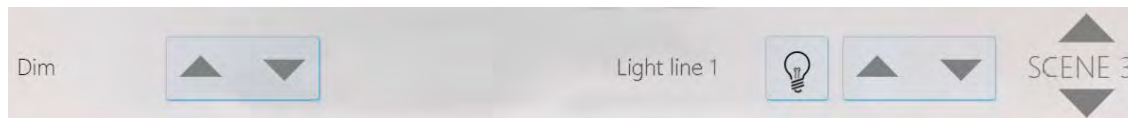
The example shows the lighting control in an operating room equipped with the Touch.

**Room light:** Switching on resp. off of the groups.



If the group is switched on, it is signalled by the changed symbol and the blue switch background.

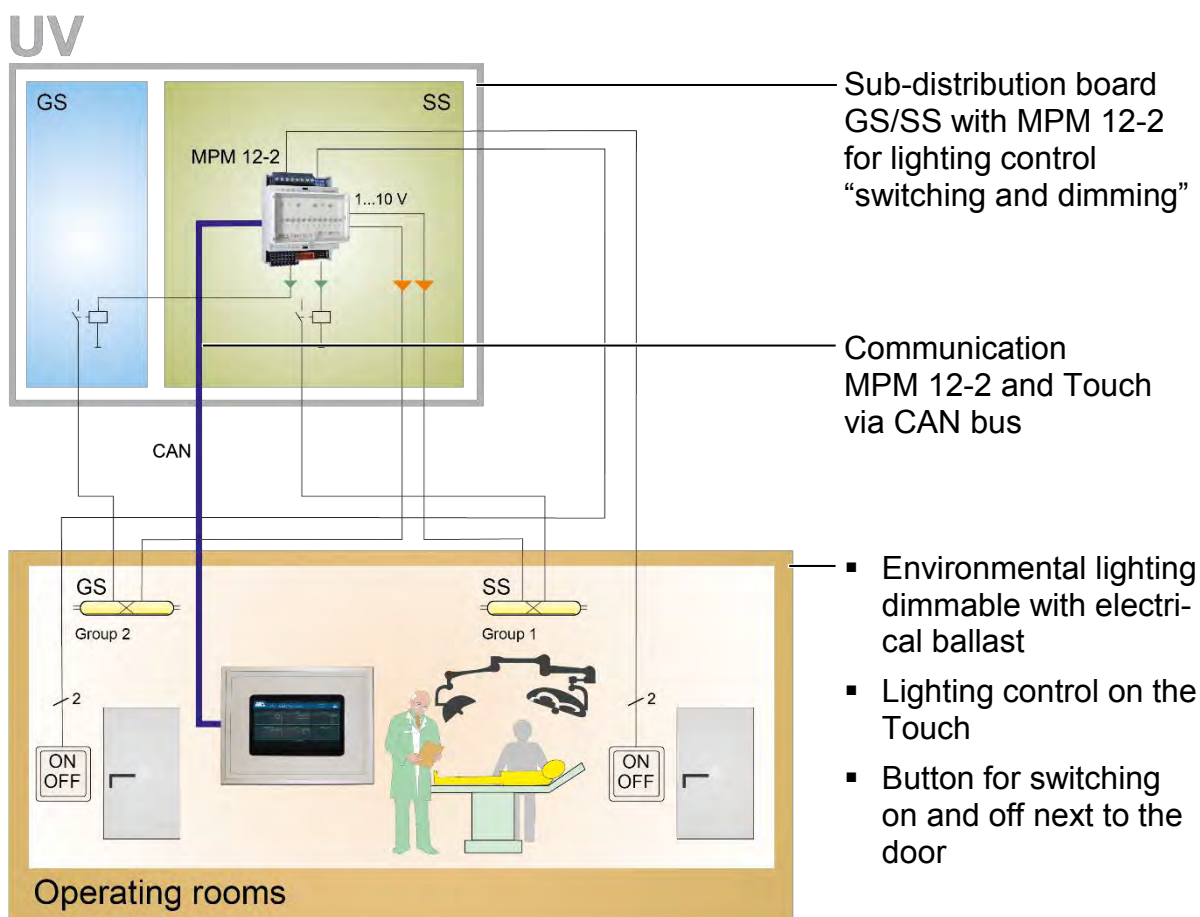
**Dimming:** Dimming of the groups.



The dimming affects both light groups at the same time and in parallel even if, for example, “Group 2 – SS” is not operating. If this group is switched on, the dimming value set for “Group 1 – GS” is adapted for “Group 2 – SS”.

**Light scene:** Calling of stored dimming values.

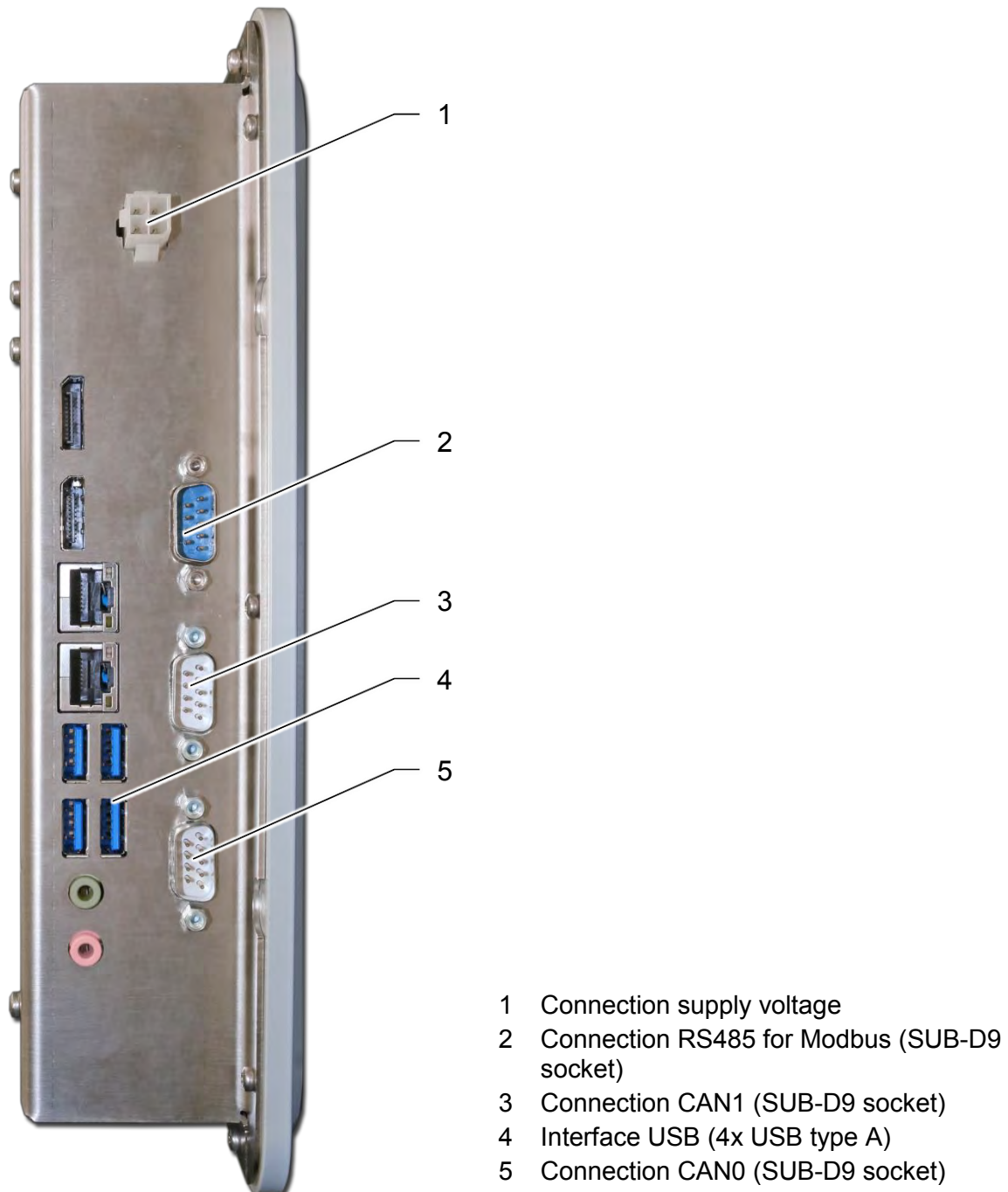
The selection of the light scene (stored dimming values), e. g. “SCENE 3” affects both light groups. Up to four light scenes can be stored in an MPM 12-2. The switches for the control of the room light and the dimming enable the change of the preset dimming values by the user without changing the light scene permanently.



**Fig. 21:** Lighting controls in operating rooms

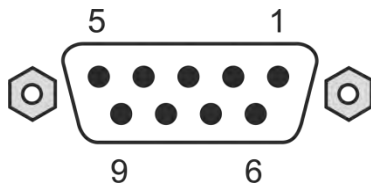
## 7 Connection assignment

### 7.1 Circuit diagram



**Fig. 22:** Circuit diagram HospEC Touchscreen

## 7.2 Pin assignment











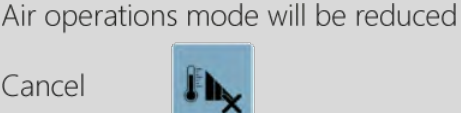
**Fig. 23:** Pin assignment of the SUB-D9 socket

<b>Connection assignment CAN bus (CAN0/CAN1), parallel design</b>	
<b>9-pole SUB-D plug</b>	
1 ( <i>top right</i> )	-
2	CAN low
3	GND
4	-
5	-
6	GND
7	CAN high
8	-
9	-
<b>Connection assignment Modbus (RS485 interface)</b>	
<b>9-pole SUB-D plug</b>	
1 ( <i>top right</i> )	DATA +
2	DATA -
3	-
4	-
5	GND
6	-
7	-
8	-
9	-

**Tab. 1:** Connection assignment CAN bus and Modbus

## 8 Displaying and operating elements

Representation	Name	Function
<b>Navigation</b>		
	Horizontal page navigation	Scroll between the pages in the main overview; the recent page is represented in blue.
	Menu button	Open main menu.
	Home button	Display main overview.
	Detail button	Open trade view.
	Back arrow	Display superior level.
	Arrow buttons	Trade overview: <ul style="list-style-type: none"> <li>• scroll pages;</li> </ul> Trade view and main menu: <ul style="list-style-type: none"> <li>• rise or lower the values step by step and</li> <li>• select list entry.</li> </ul> If the arrow button cannot be used (e. g. the upper limit value is reached), it is represented in dark grey.
<b>Buttons in the menu</b>		
	Button „OK“	Execute action.
	Button „Cancel“	Cancel action without saving.
	Button „Apply“	Save changes.
<b>Other buttons</b>		
	Acknowledgement button	Acknowledge message.
	Cleaning mode button	Start cleaning mode.
	Group button	Execute all actions configured for the respective group.

Representation	Name	Function
<b>Control of lighting (in the trade lighting)</b>		
	single switch	Light(s) off/light(s) on, X-ray device inactive / X-ray device active, Laser inactive/laser active, Lighting element off / lighting element on
	double switch	Adjust lighting step by step, e. g. dim lights or move blends
	combined switch	Selection of a projected light scene (only available for device type MPM 12-2)
<b>Control of the air conditioning system (in the trade air condition system)</b>		
		Setting of the desired temperature
		Setting of the desired air humidity
		Operating range of the air conditioning system
		Operation mode of the air conditioning system
		Visible, while air-conditioning system is in heating operation.
		Visible, during a time period defined by the manufacturer before the air conditioning system is shutdown automatically or goes into sleep mode.

**Tab. 2:** Buttons of the HospEC Touchscreen

## 9 Declaration of conformity

Product name: Operating and annunciator panel with touch function

Type: HospEC Touchscreen



The device has the CE mark and fulfils the low-voltage directive 2014/35/EU and the EMC directive 2014/30/EU (considered standards see chap. 10 on page 27).

The complete draft of the declaration of conformity can be requested from ESA Elektroschaltanlagen Grimma GmbH.

## 10 Technical Data

General technical data	
Supply voltage $U_s$	DC 24 V ( $\pm 15\%$ , PELV)
Current consumption	appr. 1,67 A
Power dissipation (power consumption)	appr. 40 W
Operating mode	continuous operation
Operating and displaying elements	
Touch-sensitive full-graphic display	15.6 inch, 1920 x 1080 pixels (Full HD)
Other signals	acoustical (horn)
User interface (mechanical)	cleaning according to the "Liste der vom Robert-Koch-Institut geprüften und anerkannten Desinfektionsmittel und -verfahren" (list of disinfecting agents and methods appr. and accepted by the Robert Koch Institute)
Messages	
Displaying of messages/values	single-line, max. 140 characters
Assigning of message priorities	warning/error/information
Displaying of message priorities	colour coding (Yellow/Red)
Message texts	default: English 2 <sup>nd</sup> language acc. to customer's requirements (adjustment by customer possible)
Adjustments of the message texts	user software "Customer App", transmission via USB interface
Message history	theoretically unlimited (more than 700 million messages)

Source of the messages	devices of the system HospEC/ external systems
Menu languages	default: English 2 <sup>nd</sup> language acc. to customer's requirements
<b>CAN bus interfaces</b>	
Interfaces	2 x CAN bus (CAN0 and CAN1)
Protocol	ESA-CAN
<b>Modbus interfaces</b>	
Interfaces	RS485
Protocol	Modbus-RTU (Touch as Slave)
<b>Further interfaces</b>	
USB interface	4 x USB3.0 (type A)
<b>Mechanical characteristics</b>	
Weight	Touch housing Panel appr. 4200 g project-specific
Device dimensions in mm (W x H x D)	Touch housing Panel 410 x 260 x 53 project-specific
Installation	in the panel
<b>Environmental conditions</b>	
Ambient temperature (during operation)	+5 ... +40 °C
Storage temperature	±0 ... +60 °C
Relative air humidity (during operation)	10 ... 90 %
Installation in max. height	up to 2000 m
Installation position	horizontally
<b>Standards and directives</b>	
<i>The HospEC Touchscreen fulfils the requirements according to:</i>	
DIN VDE 0100-710 (VDE 0100 Part 710)	"Requirements for special installations or locations - Medical locations"
DIN EN 60601-1:2013 (Ed. 3.1)	"Medical electrical equipment, General requirements for basic safety and essential performance"
DIN EN 60601-1-2:2016 (Ed. 4)	"Medical electrical equipment, electromagnetic compatibility"
Directive 2011/65/EU	"Restriction of the use of certain hazardous substances in electrical and electronic equipment"
<b>Order data (Art. no.)</b>	
HospEC Touchscreen (basic version)	ESA.0080328

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**HospEC Touchscreen**

Operating and annunciator panel with  
touch function

Product information

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