HospEC®

BMTI 5 s
Operating and annunciator terminal

BMTI S s   HospEC®

	10:14
load UEI-710	4 A ↑
insualtion UEI-710	5,3MΩ 🔒
volt. line 1	235 V ↵
volt line 2	234 V ↓

ISO TEST   enter   esc

Product Information

ESA GRIMMA
ESA ELEKTROSCHALTANLAGEN GRIMMA GmbH
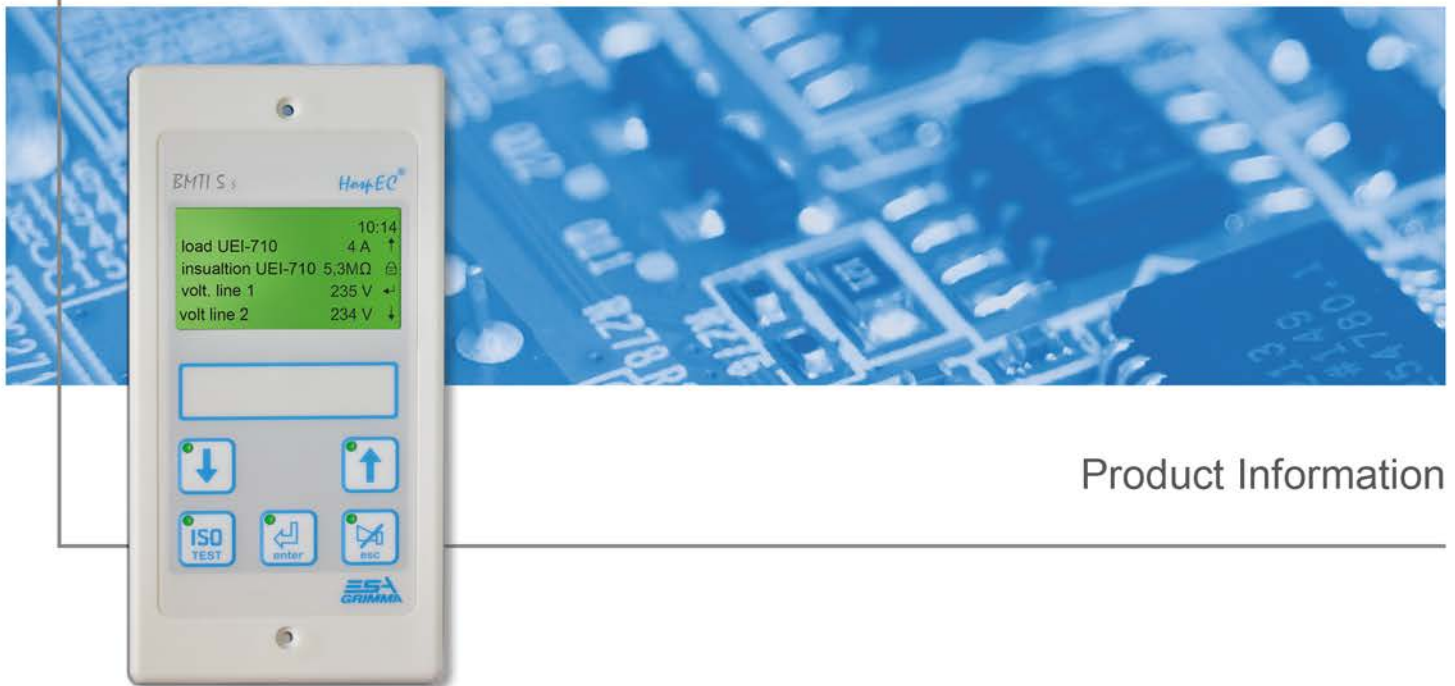
HospEC®

Document type:	Product information
Device:	BMTI 5 s
Firmware version:	2.5.x.x
Art. no. of the manual:	ESA.0500145
Version:	1.0
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Brand certificate

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1   Purpose of use

This device is used for displaying operational and error messages of monitored power supply systems of medical facilities in accordance with DIN VDE 0100-710 (VDE 0100 part 710) (device type SPR/ILT/UEI-710) and other devices of the HospEC[®1] system. Furthermore, the device can also trigger the test function of connected IT system monitoring devices (e.g. device type ILT/UEI-710). Communication takes place via the standard CAN fieldbus.

In addition, the device is meant to display messages and values of other CAN bus-compatible devices of ESA Elektroschaltanschlagen Grimma GmbH (ESA-Grimma). These are, for example, residual and operating current monitoring devices of the RCM series. Important settings and default values of these devices can also be changed using BMTI 5 s[2].

Messages and values can directly be received from external devices/systems[3] and be displayed by optionally installing an additional printed circuit board. Similarly, messages, control commands and values from BMTI 5 s can be transferred to these external devices/systems (Modbus[®]/via digital inputs/outputs).

The device has the functionality of a CAN Modbus[®] Gateway. Data (messages, measured values, statuses) from the series CAN bus used by ESA-Grimma, can be converted to the standardized Modbus[®] RTU protocol (Application Protocol Specification V1.1). The conversion can be done in both directions.

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[1] The HospEC[®] control and test system of ESA Grimma GmbH is a complete system solution for power supply of medical facilities. All system devices used, communicate with each other via the standard CAN fieldbus.

[2] The BMTI 5 s is used in the web-based monitoring system WebVisEC[®] of ESA-Grimma for on-site display and reporting.

[3] External devices are devices of other manufacturers and not in the CAN bus of ESA-Grimma. External systems, for example, in context with the HospEC[®] system: heaters, ventilation systems and air conditoners, fire alarm systems, lighting systems, building services control systemor medical gas supply in hospitals.

2 Functions of the device

2.1 Displaying the messages

Messages are shown on the display (LCD) in the clear text format and by changing the display color. Besides, they are triggered acoustically with an acoustic signal ("horn"). A maximum of 1000 different messages can be displayed.

Incoming messages are displayed as text. This message text can be made up of up to 1000 self-edited single line texts. All messages are stored with date and time in a zero-voltage-proof message memory.
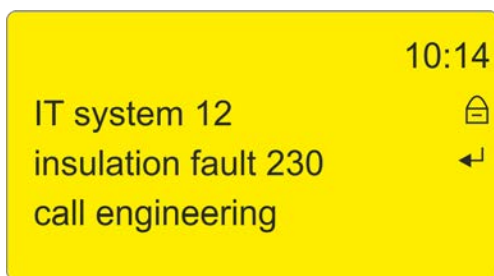
The example shows the message of an insulation fault (230 V level) from a monitored IT system.

Source of the message is the device UEI-710-V.5.

Figure 1: Example of a message (warning message)

Individual message texts can be comfortably created using a PC planning software and transferred to the BMTI 5 s via a microSD card or a CAN bus.

The priority of each message can be viewed at a glance thanks to the changing color of the display. Three priorities can be assigned to the messages: "In operation", "Warning" and "Fault". The priority of each individual message is defined in parametrization of the BMTI 5 s.

Display color	Meaning - priority
Green	normal operation, no faults
Yellow	warning message (medium priority)
Red	fault message (high priority)

The following figure shows the BMTI 5 s when used in the HospEC® control and monitoring system. The example shows the sources of messages that are displayed on the BMTI 5 s. For this purpose, a few devices from the HospEC® system are spezified with their functionalities (the device series is specified).

Functionality	Functionality	Messages on BMTI 5 s for: (examples)
Protocol implementation e.g. CAN Modbus®, both directions	MPG-CAN	Malfunctioning of air conditioner
Multichannel residual and operating current monitoring	RCM	Exceeding of warning or response thresholds
Connecting and disconnecting digital signals, logical connection	MPM	Disturbance due to medicinal gases
IT system monitoring (insulation resistance/ load current/ transformer temperature)	ILT	Exceeding threshold values
Switching control of IT system monitoring (switching / service monitoring / load current/ transformer temperature/ insulation resistance)[1]	UEI-710	Disturbance due to switching equipment, exceeding threshold values
Notifying, displaying values, Iso test in IT systems, parameterising the device series RCM[2], protocol implementation of CAN Modbus®[1], connecting and disconnecting digital signals[1]	BMTI 5 s	Disturbance due to medicinal gases / Malfunctioning of air conditioner

[1] with additional board BMTI 5 s 16E/A / RS485
[2] changing of chosen parameters

Figure 2: Sources of the messages in the HospEC® system (examples)

2.2   Displaying the values

The BMTI 5 s can display measured values from devices of ESA-Grimma connected to the CAN bus, for example the values originating from the devices of the UEI-710 or the RCM series. If an additional printed circuit board is used (with an RS485 interface) even values of the devices that use the Modbus$^®$ RTU protocol (e.g. air conditioners) can be displayed.

The following figure shows the display of values from a switchover and monitoring device of type UEI-710 (with the UEI-710-V.5 device).

Load current IT system isolating transformer	load UEI-710 4 A
Insulation resistance in the IT system	insulation UEI-710 5,3MΩ
Voltage on line 1	volt. line 1 235 V
Voltage on line 2	volt. line 2 234 V
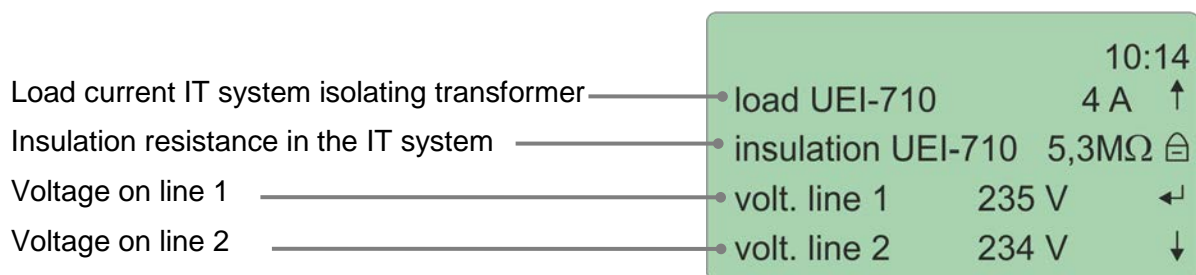
Figure 3:   Example of values displayed

2.3   Test function for "ISO test" IT systems

The test function of connected IT system monitoring devices can be triggered on BMTI 5 s (device type ILT/UEI-710). The correct function of the insulation monitoring is tested here. Its procedure is described in section 7.4 on page 22.

2.4   Parameterization of monitoring devices (RCM device series)

The parameterization of residual and operating current monitoring devices connected to the CAN bus can be changed using the BMTI 5 s (RCM device series of ESA-Grimma).

2.5 Settings of the air conditioners

The setpoint values for temperature and relative humidity can be set for a maximum of 8 air conditioners. In addition, current values (actual values) can be displayed and further settings can be configured. The air conditioners are connected to the BMTI 5 s either via CAN Modbus® gateways (type MPG-CAN-xx) and the CAN bus or directly connected to the BMTI 5 s (additional printed circuit board with an RS485 interface).

2.6 Device monitoring and common message acknowledgement

The devices can monitor each other if several BMTI 5 s, BMTI 5 or annunciator and control panels are used in one bus segment. If one device fails, it is reported by the remaining BMTI 5 s devices. Similarly, BMTI 5 s can monitor other CAN field bus devices for proper functioning on the CAN bus and report their failure ("sign of life monitoring"). The essential information for this is defined when creating a project (section 4, page 13).

Furthermore, messages that are signalled on several BMTI 5 s, BMTI 5 devices, or annunciator and control panels in one bus segment are acknowledged on every desired device. It can be defined as to which devices can commonly acknowledge the message.

2.7 Gateway functionality

If an additional printed circuit board (with an RS485 interface) is used, the BMTI 5 s possesses the functionality of a CAN Modbus® gateway (BMTI 5 s as a slave). Data (messages, measured values, statuses) from the series CAN bus used by ESA-Grimma can be converted to the standardized Modbus® RTU protocol (Application Protocol Specification V1.1). The conversion can be done in both directions. The essential information for this is defined when creating a project (section 4, page 13).

3 Application examples

3.1 Use in medical facilities
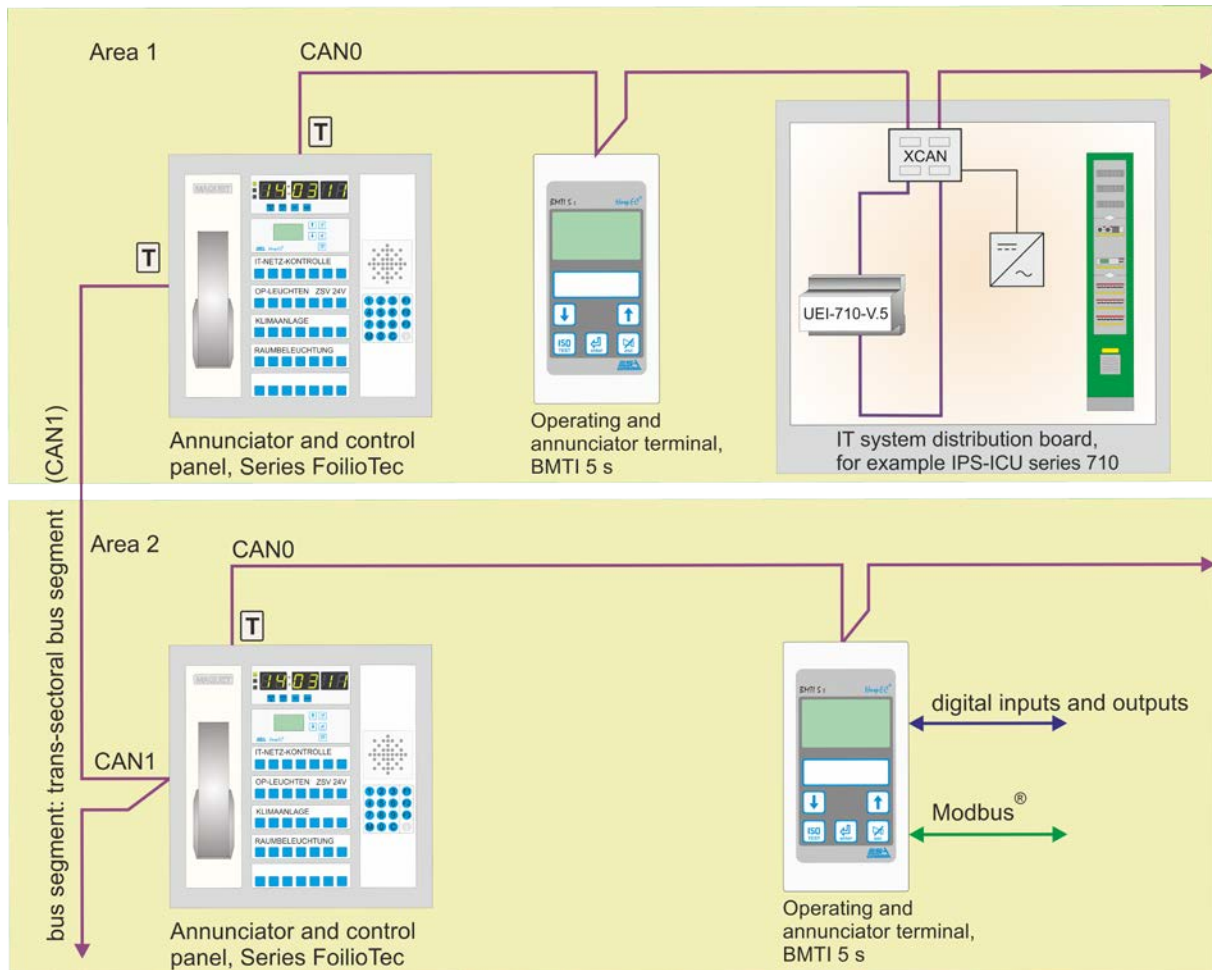
Figure 4: Application example – use in hospitals

The application example shows the BMTI 5 s when it is used in hospitals in combination with other CAN bus field devices of ESA-Grimma (HospEC® system). Typical installation locations of the BMTI 5 s are, for instance, the nurses' stations.

The image again illustrates the necessary termination (terminating resistor) of the data lines CAN-Low and CAN-High at the beginning and at the end of each bus segment.

bus segment: sectoral bus (CAN0)

other distributions

XCAN

UEI-710-V.5

IFS-710-W6

IFS-710-W6

IT system distribution board, for example IPS-ICU series 710

XCAN [T]

MPM 16-8

MPM 12-2

RCM-W8

Sub-distribution GS or SS

bus segment: sectoral bus (CAN0)

other distributions

XCAN

UEI-710-V.5

IFS-710-W6

IFS-710-W6

IT system distribution board, for example IPS-ICU series 710

XCAN [T]

MPM 16-8

MPM 12-2

RCM-W8

Sub-distribution GS or SS

UEI-710-V.5	CAN bus field device (of ESA Grimma GmbH) with device name
XCAN	Terminal adapter XCAN (in every distribution) with connectible terminating resistor for termination
[T]	Termination is connected, terminations must always be carried out on XCAN terminal adaptors in the distribution.
(power supply symbol)	Power supply unit 24 V DC in the distribution for power supply to the devices and their CAN controllers. If needed, other power supply units must be installed on devices located on the bus (e.g. BMTI 5). Operating panels have their own power supply unit.
CAN0	Abbreviation for bus segment "sectoral bus"
CAN1	Abbreviation for bus segment "trans-sectoral bus"
GS	General power supply
SS	Safety power supply

3.2   Use in residual and operating current monitoring

The example shows the BMTI 5 s in interplay with residual and operating current monitoring devices (RCM device series of ESA-Grimma).

Typical installation locations of the BMTI 5 s are doors of switchboards (with standard cavity wall/in-wall installation cabinet).

Functions of the BMTI 5 s:

- displaying of measured values

- displaying of warning and triggering messages on exceeding the threshold values

- changing of parameters (setting) of monitoring devices (the monitoring devices must have been parameterized completely in advance)

Residual and operating current monitoring with multi-channel
power monitoring devices (selection)

Figure 5:   Application example - use in residual and operating current monitoring

> **Note**
>
> The BMTI 5 s is used in the web-based monitoring system WebVisEC® of ESA-Grimma for on-site display and reporting.

In all, a maximum of 16 devices of the RCM-W6/-W8/-W8-AB types or 5 devices of the RCM-W24 type can be evaluated by one BMTI 5 s.

The use of different types (RCM) is possible but note that one RCM-W24 always reduces the possible total number (of 16) by 3 devices of the RCM-W6/-W8/-W8-AB types.

4 Adapting the BMTI 5 s for an application

The BMTI 5 s must be adapted according to the type of use. For this purpose, a project file (project) is generated using a PC projection software[1] in the factory and loaded into the device. This project is created as per your requirements. If nothing else is explicitly desired, the usual method is followed.

The project file is also stored on the microSD card[2] provided with the device and inserted in it. If you want more changes to be made to the project later, please contact ESA-Grimma.

The projects essentially contain the following settings and data:

- source of messages (devices/interfaces used)
- definitions: which messages are displayed/signalled
- priority of messages (in operation/warning/fault)
- freely editable message texts
- source of values to be displayed (devices/interfaces used)
- selection and definition of CAN fieldbus devices for device monitoring ("sign of life monitoring")
- settings for the Modbus® connection (e.g. air conditioners)[3]
- settings for gateway functionalities (CAN-Modbus®)[3]
- configuration/use of digital inputs or outputs[3]
- parts of device parameterization (can be changed using the menu on the BMTI 5 s)

Creating projects in the BMTI 5 s on your own

You can use the menu of the device to create and load a project. The available selection options allow creating the so-called "standard projects". These cover frequent but less complex use cases.

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[1] The software can be procured from ESA-Grimma, if necessary. Creating a project however requires extensive knowledge and understanding of partly complex correlations regarding the peri-pherals of BMTI 5 s. ESA-Grimma will offer training on request.

[2] Only if the SD card is delivered on request.

[3] Only if the additional board is used.

5 Overview BMTI 5 s

5.1 Terminal layout BMTI 5 s - motherboard
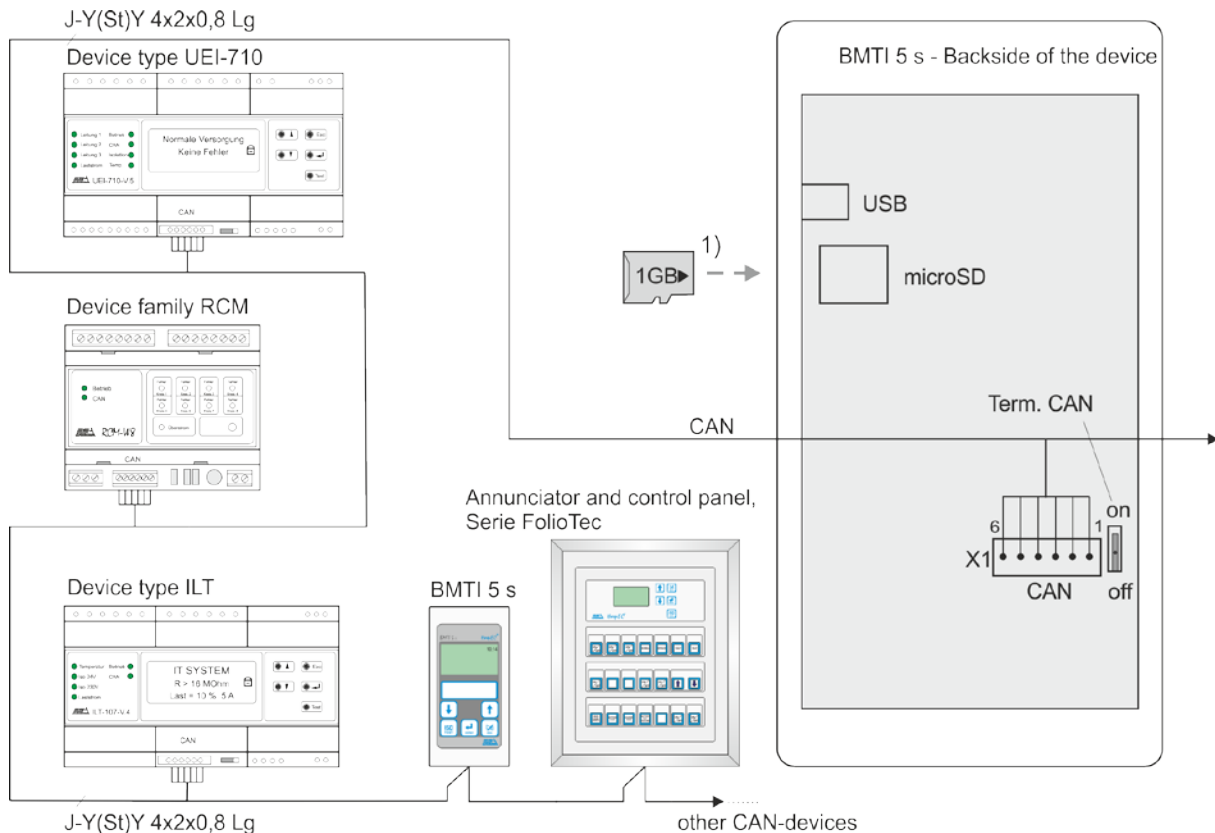
[1] Only if the micro SD card is delivered on request.

Figure 6: BMTI 5 s view – motherboard and CAN bus connection principle

The CAN-Low/CAN-High data lines of a bus segment must always be provided with a terminating resistor (120 Ohm/0.25 W) at the start and at the end to avoid reflections (termination). For this purpose, also follow the application example in section 3 on page 10.

> **NOTE**
>
> The microSD card is inserted in the slot and provided with a cap. If the cap is damaged, your guarantee claims shall be void.

Name	Description/connector type/configuration/note		
X1 - CAN	CAN bus connection 6-pole series connector, Weidmüller, type SL 3.50/6/180G		
	1: GND (Us)	2: CAN-Low	3: Screen
	4: CAN-High	5: DC 24 V (Us)	6: Screen
	The power is normally supplied to the BMTI 5 s via CAN (X1: PIN 1 and PIN 5).		
Term. CAN	terminating resistance that can be actuated CAN bus (termination)		
USB	Mini-USB port (only used by trained service technician)		
microSD	microSD card slot (e.g. for installing projects or additional languages in BMTI 5 s, for firmware updates, to store content of the message memory)		

Table 1:   Terminal layout BMTI 5 s - motherboard

5.2 Terminal layout of the additional printed circuit board
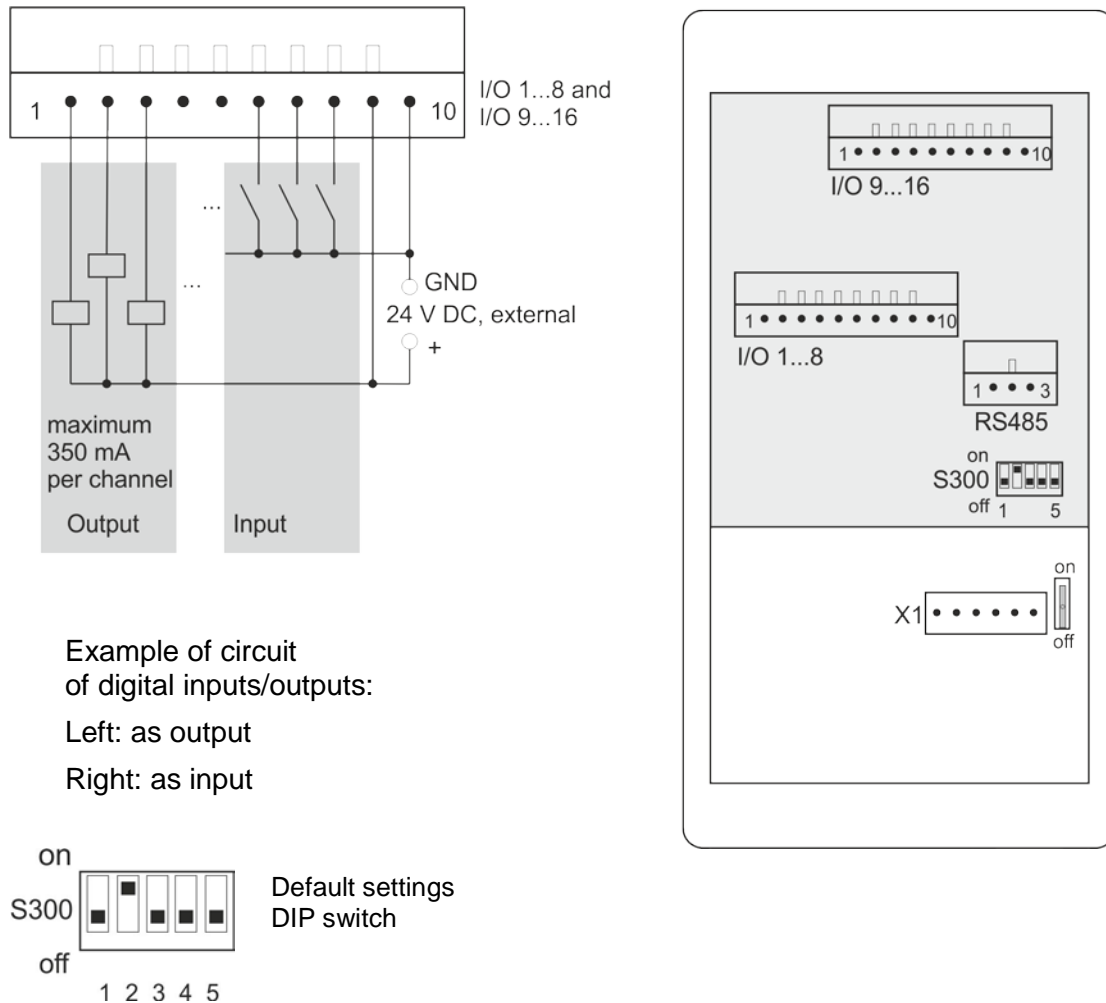
Figure 7: View of the additional printed circuit board

Each of the 16 digital input/output channels (I/O 1 to 16) can be parameterized ran-domly as an input or an output. In each case, an external power supply of 24 V DC is required. The maximum current per channel, as an output in the circuit, is 350 mA and must not be exceeded.

> **WARNING**
>
> Outputs must not be connected in parallel. Only one consumer (relay) must always be connected to one output. If freewheeling diodes are present, check for correct polarity.

Name	Description/connector type/configuration/note		
I/O 1…8	Digital inputs/outputs (I/O), randomly parameterizable as input or output[1] 10-pole series connector, Weidmüller, type - SL 3.50/10/135F		
	1: I/O Channel 1	2: I/O Channel 2	3: I/O Channel 3
	4: I/O Channel 4	5: I/O Channel 5	6: I/O Channel 6
	7: I/O Channel 7	8: I/O Channel 8	9: DC +24 V (external)
	10: DC 24 V GND		
I/O 9…16	Digital inputs/outputs (I/O), randomly parametrizable as input or output[1] 10-pole series connector, Weidmüller, type - SL 3.50/10/135F		
	1: I/O Channel 9	2: I/O Channel 10	3: I/O Channel 11
	4: I/O Channel 12	5: I/O Channel 13	6: I/O Channel 14
	7: I/O Channel 15	8: I/O Channel 16	9: DC +24 V (external)
	10: DC 24 V GND		
RS485	RS485 interface Modbus® (BMTI 5 s as a slave)[1] 3-pole series connector, Weidmüller, type - SL 3.50/3/135F		
	1: B (D-)	2: A (D+)	3: GND
S300	DIP switch, settings for RS485 interface, Specifications for settings if switch is (on):		
	1: Full duplex (not supported)		2: Semi-duplex (default)
	3: Pull-down resistance connected for B (D-)		4: Pull-down resistance connected for A (D+)
	5: Termination		
X1 - CAN	Terminal layout/description see Table 1 on page 15.		

[1] The configuration/application is specified when creating projects (section 4, p. 13).

Table 2: Terminal layout of the additional printed circuit board (16E/A/RS485)

5.3   Device dimensions

Model
Cavity wall/in-wall

Cut-out in the wall for cavity wall installation:
161 mm x 76 mm

On-wall model
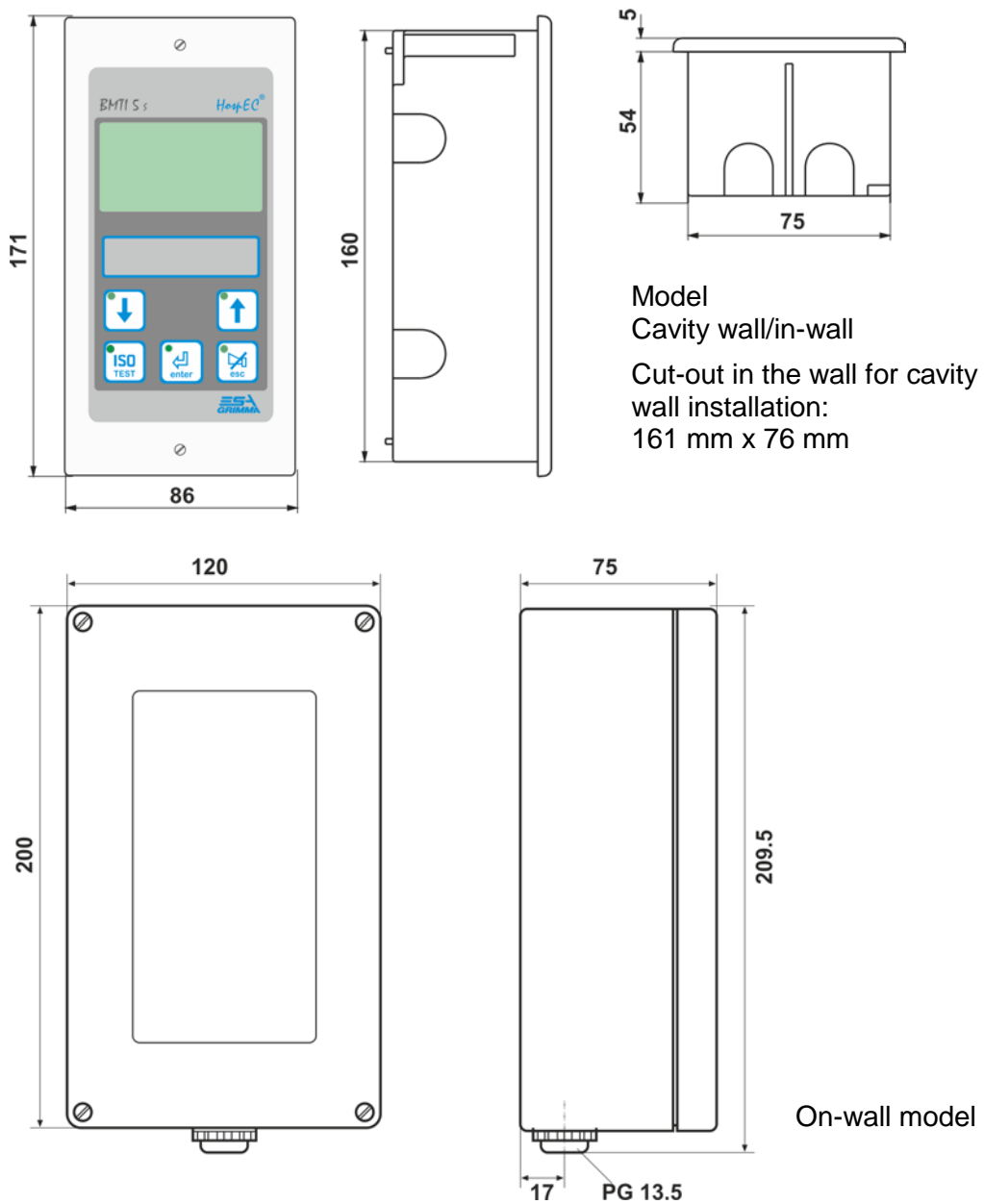
All measurements in mm

Figure 8:   Device dimensions

6 Connection, installation and commissioning

> ⚠️ **WARNING**
>
> Only a qualified electrician may install, connect, commission and test the device by adhering to the existing safety regulations and standards.

7 Operation

7.1 Display and buttons
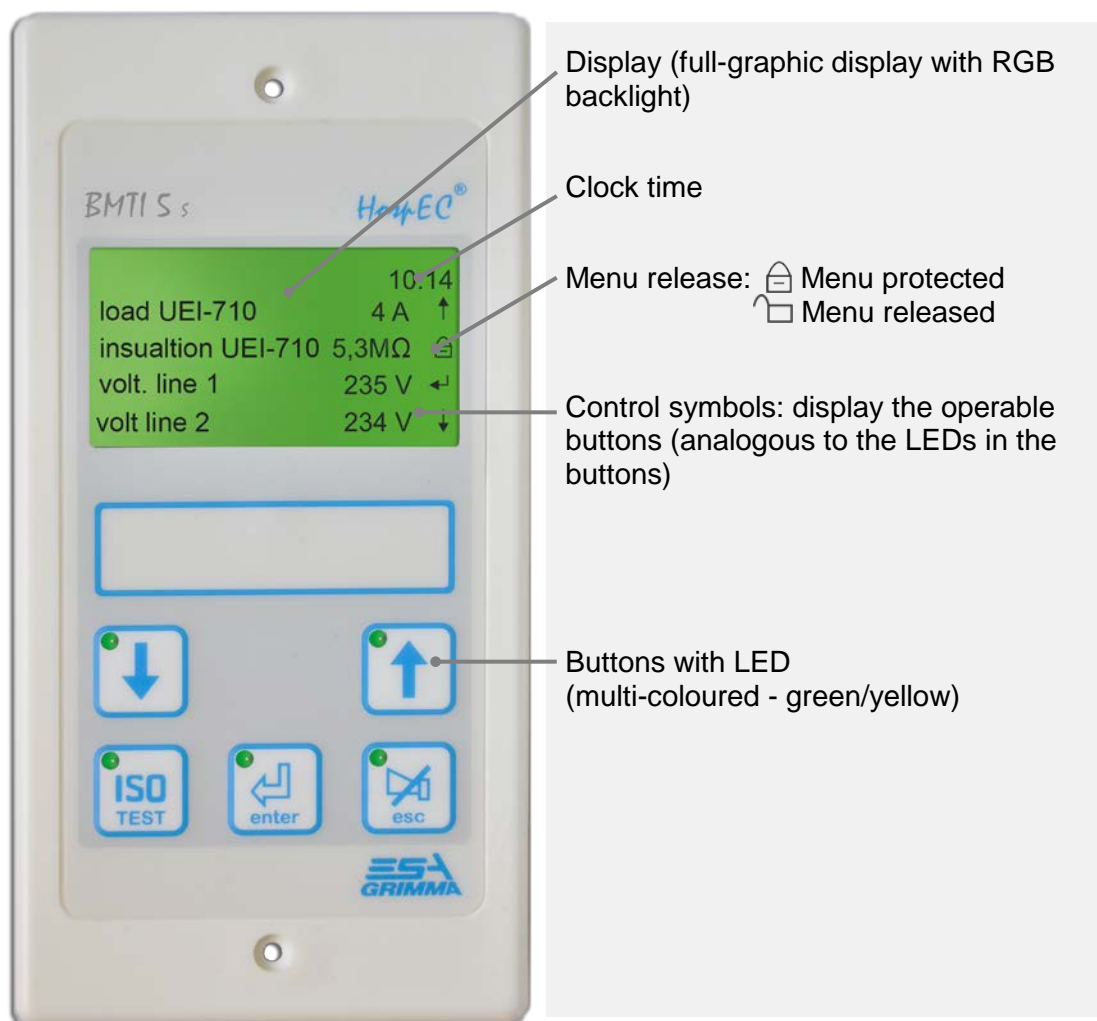
Figure 9: Front view of BMTI 5 s (there are no messages)

7.1.1 Meaning of the LEDs in the buttons

Green LEDs in the buttons display its momentary operability. If protected menu items are enabled by entering a password for operation, the color changes to yellow.

The *ESC* button LED blinks yellow if messages are pending for acknowledgement. If the message is acknowledged and is still pending, the LED lights up in yellow continuously.

7.1.2 Functions of buttons

Button	Representation	Function
Down		▪ **Changing the display pages (for displaying the values)** ▪ *Scroll downwards in menu items* ▪ *Reducing numerical values in the menu*
Up		▪ **Changing the display pages (for displaying the values)** ▪ *Scroll upwards in menu items* ▪ *Increasing numerical values in the menu*
ISO-Test		▪ **Triggering the "Insulation monitoring" test function** *of all connected and parameterized (planned) IT system monitoring devices - "ISO-Test"*
Enter		▪ **Calling the main menu/opening sub-menus** ▪ *Selection and confirmation function in the menu*
ESC		▪ **Acknowledging messages/horn off** ▪ **Toggling between the display of messages and values** ▪ **Test of LED and horn ("Lamp test")** ▪ *Exiting menu items without changes* ▪ *Exiting the menu/sub-menus*

The function of the buttons in the menu are shown in *italic*.

Table 3: Functions of buttons

7.2   Messages and acoustic alarm

If there are no warning or fault messages, the display color is green. The blinking colon of the clock or the blinking "star" symbol signals the function-readiness of the device. Messages are displayed with the "In operation" priority depending on the setting of the BMTI 5 s (e.g. "Ready for operation") or the values are displayed.

Incoming messages are displayed as text. The color of the display signals the priority of the message (see Table 4, page 22). An acoustic alarm is additionally sounded ("horn").

If several message are in the queue, these are displayed consecutively with an interval of one second.

Each message is provided with a date and time and saved in the message memory. Similarly, the time of acknowledging the message is saved.

The example shows the message of an increased residual current in a monitored current circuit.

Source of the message is the device RCM-W24.
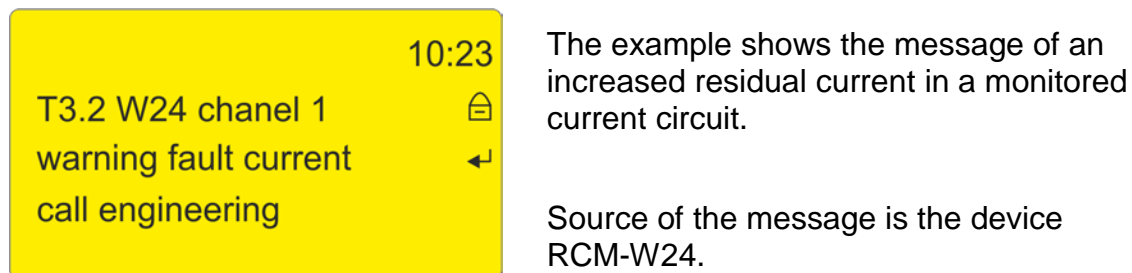
Figure 10:   Example of a message (warning message)

Meaning of the display color and signal sound ("horn")

Display color	Meaning - priority	Signal sound
green-continuous	normal operation, no faults	
yellow/blue-blinking	warning message given, message not acknowledged	interval sound
yellow-continuous	warning message was acknowledged, message is still in the queue	
red/blue-blinking	fault message given, message not acknowledged	continuous sound
red-continuous	fault message was acknowledged, message is still in the queue	

Table 4: Meaning of the display color and signal sound ("horn")

7.3 Displaying the values

If the BMTI 5 s has been parameterized for displaying the values, the display shows the values up to a maximum of 192 lines (48 display pages). Incoming messages automatically hide the display of values. Messages are then displayed.

10:19	The example shows display of measured values.
T1.1 W8 channel1 42 A ↑	
T1.1 W8 channel2 14 A ⊟	Residual and operating current monitoring devices of the RCM series are the sources of values.
T3.2 W24 channel1 93 mA ↵	
T3.2 W24 channel2 140 mA ↓	
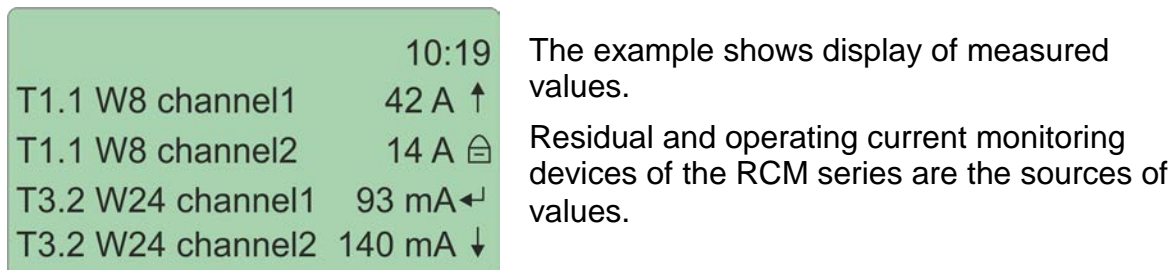
Figure 11: Example of the display of values

7.4 Test function "ISO-Test" for IT systems

By pressing the *ISO test button*, the test function of **all** connected and parameterized (planned) IT system monitoring devices is triggered (device type ILT/UEI-710). The correct function of the insulation monitoring is tested here.

The IT system monitoring devices report an insulation error for proper functioning. The relevant messages are displayed on the BMTI 5 s.This test function must be triggered at regular time intervals;

ESA-Grimma recommends conducting this test **daily.**

8 Data and settings for the Modbus® connection

You can find all the related information in separate documentation "Operating instructions for BMTI 5 s - data and settings for the Modbus® connection".

9 Declaration of conformity

Product name: Operating and annunciator terminal

Type: BMTI 5 s

CE The device has the CE mark and fulfils the low-voltage directive 2014/35/EU and the EMC directive 2014/30/EU.

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

10 Technical data

10.1 General technical data

General operating data

Voltage supply Us	(via CAN) DC 24 V (PELV)
Operating range	20 to 28 V
Power consumption	max. 100 mA
Intrinsic consumption	appr. 2.5 W
Power dissipation	appr. 2.5 W

Operating and display elements

Fully graphic display (LCD) with RGB backlighting	64 x 128 Pixel
Operating elements	5 buttons (membrane buttonpad) with integrated LED multi-colored)
Other signal generators	acoustic (horn)
User interface (mechanical)	closed multi-layered foil surface, resistant to cleaning and disinfecting agents

Displays and messages

Display of messages/values	of maximum 4-line, 4 x 20 characters
Number of different messages	1000
Allocation of message priorities	operation/warning/fault
Display of message priorities	change in color of the LC display (green/yellow/red)
Message texts	individual texts
Individual line texts that can be planned (line texts that can be combined)	1000
History	maximum 1000 messages (the last), zero voltage safe Content of the history can be saved on the microSD card [1]
Source of messages	devices from the HospEC® system/external systems
Number of representable devices (sources of messages)	see section 10.2
Menu languages other languages downloadable from the microSD card [1]	Standard: German/English Turkish, French, Hungarian Polish, Russian, more on request
Date and time	with RTC, buffered in case of power failure (24 h)

Parameterization/adaptation of the device (message/message texts)

complete parameterization/customized project	ex works
on device	using menu (projects: only default projects)
with PC planning software	taking over from the microSD card
Firmware update (optional)	from microSD card
(card: Industry standard, formatted FAT16/32, maximum 1 GB, file name system 8.3)	

Communication interfaces/protocol

Interface/protocol.. CAN/CAN 2.0 (according to ISO 11898)

maximum number of BMTI 5 s for every bus segment.. 32

Bus address of BMTI 5 s ....1 to 32

with additional printed circuit board:

Interface/protocol......................................1x RS485/Modbus®-RTU (BMTI 5 s as slave),

....(Modbus®-RTU Application Protocol Specification V1.1)

Digital inputs/outputs (I/O)

on the additional printed circuit board

Number.. 16 channels

Function.......................................optionally paramaterizable individually as input or output

External voltage source ....DC 24 V (PELV)

.... Performance depending on circuit of outputs

Input (Low-active):

External circuit... logic signals or switching contact

.... (also installation button/switch)

Input level "On" (logical high)*...< 5 V

Input level "Off" (logical low)* ....> 16 V

Input current (logical high) ....1.5 mA

* not defined between them

Output (open collector):

External circuit...relay

Maximum output current/channel..350 mA

Test of electromagnetic compatibility (EMC)

according to EN 55011:2007 + A2:2007, EN 61000-6-2:2005 (interference immunity)

Interference emission according to EN 60601-1-2:2007 (limit value class B)

Ambient conditions

Ambient temperature (during operation) ....0 °C ... +50 °C

Storage temperature...-25 °C ... +70 °C

Climatic classes according to IEC 60721

Stationary use (operation) 3K5

Installation conditions/general data

Operating mode...continuous operation

Installation position ....any

Installation ....in cavity walls/flush-mounted or surface-mounted

Device dimensions in mm...........................see dimensional drawings section 5, page 14

Cavity wall /flush-mounted installation (H x W x D) .... 171 x 86 x 59

Surface-mounted installation with housing (H x W x D)............................. 210 x 120 x 75

Cutout measurements for cavity wall (H x W) ....161 x 76

Connection type...bushing plug with screwed connection

Single wire/fine wire connection cross section .... 0.2 ... 1.5 mm^2 (AWG 24-15)

Connection cross section (for ferrule with plastic collar)..............................0.2 ... 1.5 mm^2

Type of plug connector ....see section 5.1 and 5.2

IP code according to DIN EN 60529 for front panel/terminals (installation housing)
....IP54/IP20

IP code according to DIN EN 60529 (device in surface-mounting housing) IP54

Flammability rating UL94V-0

Weight ....appr. 190 g

Standards

BMTI 5 s fulfils the requirements of
DIN VDE 0100-710 (VDE 0100 Part 710) and IEC 60364-7-710.

Ordering information

BMTI 5 s
including installation housing cavity wall/flush-mounted...................art. no.: ESA.0080262

BMTI 5 s E/A with additional printed circuit board (16x E/A, RS485)
including installation housing cavity wall/flush-mounted...................art. no.: ESA.0080272

microSD card available on request[1], card as part of accessories
BMTI 5 SD card 1 GB incl. card case and adapter..........................art. no.: ESA.0080273

Surface-mounting housing for BMTI 5 s................................. art. no.: BOP.63221000.01

Table 5:   Technical data

[1] BMTI 5 s is available with microSD card on request. The microSD card is inserted in the slot and contains the project file that is already loaded in the device, firmware and if necessary, the file with the language for menu text (apart from German or English since these languages are included by default).

10.2 Maximum number of sources for messages and displays

The maximum number of devices whose messages or values can be signalized or displayed on the BMTI 5 s or whose test function (ISO test) can be triggered is mainly decided on the following parameters:

- address range of a device type (decides the maximum number of this device type in a CAN bus segment); in all, a maximum of 128 devices,
- maximum number of possible messages of the BMTI 5 s (1000),
- type and number of interfaces of the BMTI 5 s (CAN0), with additional printed circuit board: Modbus® and 16 digital inputs/outputs and
- load factor of a CAN bus (bus load) for routing CAN/ Modbus®.

An example for devices from the HospEC® system:

Configuration: BMTI 5 s with a motherboard. Table 6 shows the principally representable number of devices from the HospEC® system. However, the sum of **all** the messages may not exceed 1000.

Device type	Maximum number of a device type in the bus segment/messages <u>per</u> device
	CAN/messages
ILT-…	16/6
SPR-…	16/5
…-PSG	16/122[2]
or – in place of the aforementioned device types [1]:	
UEI-710-…	16/107**[2]**

Table 6: Maximum number of representable devices from the HospEC® system

[1] The multifunctional switching and monitoring device UEI-710-V.5 has all the functionalities of the ILT/SPR and PSG types. Multiple uses are possible; but always keep in mind: A UEI-710-V.5 reduces the possible total number (of 16 UEI-710-V.5 per bus segment) to three devices (one device each of type ILT-../SPR../..-PSG).

[2] A test signal generator (type.-PSG/ contained in UEI-710-..) can monitor a maximum of 20 (type UEI-710-..: 16) insulation diagnostic devices of type IFS-710-W6 and in the process generate 120 (UEI-710-..: 96) messages (that correspond to 120 (type UEI-710-..: 96) monitored circuits).

10.3   Data content of the microSD card

Table 7 shows the data content of the microSD card at the time of delivery of the device [1].

Important note: The microSD card[1] is inserted in the slot and provided with a cap. If the cap is damaged, your guarantee claims shall be void, see page 16.

Index	▪ Content at the time of delivery ▪ Example of files saved on it ▪ Refer to the description in the menu
FIRMWARE	▪ Firmware ▪ File: >uhu_FX.mhx<
HISTORY	▪ >>>empty<<< (when used: content of the message memory subsequently saved by the user) ▪ Example of a file: >130529_1.HIS<
LANGUAGE	▪ Language for the menu text (if not German or English) ▪ Example of a file: >lang_PL.bin<
PROJECT	▪ The current and loaded project (and when used: projects subsequently saved by the user) ▪ Example of a file: >130429_1.PRO<

Table 7:   Content of the microSD card at the time of delivering the device

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[1] Only if the microSD card is delivered on request or for subsequent delivery.

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