



LINIS SafetyPort

**System for automated transfer
and visualisation of various data
from LINET® beds**

**Instructions for Use
and Technical Description**

D9U001SW2-0110

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1 Symbols and Definitions

1.1 Warning Notices

1.1.1 Types of Warning Notices

Warning notices are differentiated according to the type of hazard using the following signal words:

- **CAUTION** warns of the risk of material damage.
- **WARNING** warns of the risk of personal injury.
- **DANGER** warns of the risk of fatal injury.

1.1.2 Warning Structure

 SIGNAL WORD!
Type and source of danger!
↻ Precautions to avoid danger.

1.2 Instructions

Instruction structure:

- ▶ Perform this step.
Results, if necessary.

1.3 Lists

Bulleted list structure:

- Level 1 list
 - Level 2 list
 - Level 3 list

1.4 Product Symbols

	<p>Read the Instructions for Use</p>
	<p>Warning</p>
	<p>CE marking in accordance with EU regulations</p>
	<p>Appliance for use indoors</p>
	<p>Protection from electric current – type B applied parts</p>
	<p>WEEE symbol Recycle as electronic waste! Do not put into the household waste!</p>
	<p>Reference number (product type dependent on configuration)</p>
	<p>Serial number</p>
	<p>Eleganza 5 bed or Eleganza 4 bed is connected to server via LAN/WLAN. This is one condition of data sending but not the sufficient one!</p>
	<p>Eleganza 5 bed or Eleganza 4 bed is not connected to server via LAN/WLAN.</p>
	<p>Multicare bed is connected to server via LAN/WLAN. This is one condition of data sending but not the sufficient one!</p>
	<p>Multicare bed is not connected to server via LAN/WLAN.</p>

1.5 Visual Signalization

Datapoints (monitored statuses)	Visual Signalization	Meaning
Bed Monitoring Status	ON - Inner	The patient moves on the bed.
	ON - Outer	The patient left the bed.
	OFF	The Bed Exit Alarm has been turned OFF.
Out of Bed Status		Bed Exit Alarm is ON, patient is IN bed.
		Bed Exit Alarm is OFF, patient is IN bed.
		Bed Exit Alarm is ON, patient is OUT of bed.
		Bed Exit Alarm is OFF, patient is OUT of bed.
Safety Position		Safety Position monitoring is activated.
		Safety Position monitoring is turned off.
Siderails		All siderails are up.
		Left head siderails and right siderail are down.
		Any siderail down. (Applies on Eleganza 4 bed equipped with PB 43)
Brakes		Brakes are locked. Bed is braked.
		Brakes are unlocked. Bed is unbraked.

Datapoints (monitored statuses)	Visual Signalization	Meaning
Lowest position + Heightlock		Lowest position is ON.
		Lowest position is OFF.
		Lowest position is ON, Heightlock is activated.
		Lowest position is OFF, Heightlock is activated.
Backrest Angle + Lock	 20°	Shows the current angle of Backrest in degrees and if locked, then it shows a lock next to the angle
Trendelenburg	ATX 15°	Shows the current longitudinal tilt - values: TX angle value (e.g. TX 10 meaning 10 degrees angle, feet higher than head) / ATX angle value (e.g. ATX 15 meaning 15 degrees angle, head higher than feet)
Lateral tilt	L 10°	Shows the current lateral tilt - values: R angle value (e.g. R 15, patient tilted 15 degrees to the right) / L angle value (e.g. L10 patient tilted 10 degrees to the left)
Patient weight	120 lbs/Kg	Current weight of the patient.
Calfrest Angle + lock	 20*	Shows the current angle of calfrest in degrees and if locked, then it shows a lock next to the angle.
Foot Control Lock		Icons of open and closed lock based on whether the Foot Control is locked or not.
Integrated Mattres	<i>Opticare -X/Opticare / Symbioso / -</i>	Indicates if any active mattress is connected to the bed.
Bed Type	MC, MCLE, MCX, E5, E4, E3, E3XC	Value is inserted by the technician during the installation process.
Disconnected	<i>Disconnected</i>	If the bed is disconnected/ not sending data, there will be no data shown in the table and whole row will be covered by "disconnected" overlay. Only the last location, name and note are persisted.

Datapoints (monitored statuses)	Visual Signalization	Meaning
Session ID	e.g. 815	Shows the number of session.
Session Started	e.g. 10/22/2020	Indicates the date session was started.

1.6 Definition

Alarm	Bed Exit Alarm (alarm signal) melody: 3 beeps, pause, 2 beeps, longer pause, 3 beeps, pause, 2 beeps
Alert	Information signal (other than alarm signal)
Datapoint	Monitorable status of a compatible bed connected to the LINIS SafetyPort system
LINIS server	Place where the LINIS SafetyPort system is installed (LINIS server belongs to customer.)
Session	Item in the LINIS SafetyPort system that contains all records of monitored statuses connected with one patient

1.7 Abbreviations

EMC	Electromagnetic compatibility
EMR	Electronic Medical Record
HIS	Hospital Information System
HL7	Health Level Seven (international standards for transfer of clinical and administrative data)
IM	Integration Module
LAN	Local Area Network
NDA	Non-Disclosure Agreement
OFF	Turned off
ON	Turned on
SW	Software
VPN	Virtual Private Network
WEEE	Waste electrical and electronic equipment
WLAN	Wireless Local Area Network
IOT	Internet of things

2 Safety Instructions

WARNING!

Manufacturer does not determine how to use data received in the hospital information system!

- ➔ The customer is responsible for setting which data will be received in the hospital information system and for using this data anyhow he/she wants.

WARNING!

Operation of the Medical Device Data System in IT web could lead to the previously not identified risks for patients, users and any third party!

- ➔ It is recommended for each customer to identify, analyse and manage these risks.

WARNING!

Additional changes of IT web could lead to the occurrence of new risks! These changes could require an additional analysis!

- ➔ The customer cannot upgrade or migrate the server without the assistance of LINET's service department and IT department!

WARNING!

If a network failure occurs, the data is not received and is irretrievably lost!

WARNING!

LINIS SafetyPort system sends data only if the bed is connected to the mains power!

2.1 Safety Guidelines

Before use:

- ▶ Before using the system, please familiarise yourself with the Instructions for Use and carry out all operations in accordance with them.
- ▶ These instructions provide the information necessary for the safe operation of LINIS SafetyPort. Please read the instructions carefully and in full. If any part is not clear to you, please contact the manufacturer's Service Department for clarification.
- ▶ These instructions should serve as a supplementary document on the LINIS SafetyPort system and are not meant to replace staff training.
- ▶ These instructions must be available at every LINIS SafetyPort system and users must know where they are kept.
- ▶ A bed equipped with LINIS SafetyPort should be used only when it is in perfect condition.
- ▶ Use only LINET® power supply and accessories.
- ▶ Never use damaged equipment. Using damaged equipment may result in malfunctions or system errors.
- ▶ If the Instructions for Use are not followed, this could cause injury to the patient, damage to the bed, the inaccurate display of information or a system malfunction.

3 Intended Use

LINIS SafetyPort is intended to be used to increase efficiency of healthcare personnel workflows by saving their time spent on documentation and eliminating errors. This is achieved by automated recording of different parameters of medical beds and their subsequent transfer to various hospital systems in HL7 format.

Optional feature LINIS SafetyPort Dashboard is intended to save time the healthcare personnel spends on checking different beds at their workspace and to provide them with both near real-time data and their aggregation to be able to check the history of provided care.

LINIS SafetyPort may be used in various healthcare environments, including both intensive and non-intensive care units as well as units providing speciality care to a broad population of patients. The product is intended to be used by variety of healthcare personnel who have the cognitive skills to operate the product and are trained to use the product.

3.1 Application Environment

- ▶ medical facilities

3.2 Compatibility

The LINIS SafetyPort system can be used only with the following beds:

- ▶ Multicare X
- ▶ Multicare
- ▶ Multicare LE
- ▶ Eleganza 5
- ▶ Eleganza 4
- ▶ Eleganza 3XC
- ▶ Eleganza 3

3.3 Contraindications

The system LINIS SafetyPort is contraindicated for the following use:

- ▶ Use for any bed other than Multicare X, Multicare, Multicare LE, Eleganza 4, Eleganza 5, Eleganza 3XC, Eleganza 3.

3.4 User population

- ▶ Hospital personnel that is responsible for HIS (Hospital Information System) management and integration, who was trained to use the Administration interface.

3.5 Personal Data Protection

The records are completely anonymous and the system does not work with the patient's name or identification number.

3.6 Ambient Conditions

The LINIS SafetyPort system must be used and stored under the following conditions:

Ambient temperature	10 °C – 35 °C
Relative humidity	30% to 75%
Atmospheric pressure	795 – 1060 hPa
Environmental conditions	2011/65/EU (RoHS), 2002/96/EC (WEEE)
Electromagnetic compatibility	CISPR 11:2015

The system is not suitable for:

- ▶ Environments containing flammable gases (except oxygen).

3.7 Storage Conditions

1 week -20 °C – 45 °C

1 month -20°C – 35°C

4 Product Description

LINIS SafetyPort is a medical device data system for capturing and transferring data from LINET beds into SafetyPort Dashboard and third party systems, including nurse calls, EHR and digital whiteboards. Through automation and digitalization of hospital processes, LINIS SafetyPort helps to prevent and eliminate human mistakes, increases efficiency of healthcare personnel workflows and provides evidence of the care provided.

Due to LINET's unique sensors and technology, monitored values can be collected and sent via wired or wireless connection for further processing. For the data transfer between the LINET software application and the third party software, LINET is using the HL7 international standard. Data collection and evaluation takes place at one central location for all beds connected to the system simultaneously. The records are completely anonymous and the system does not work with any personally identifiable information. The customer can decide which data will be sent to the 3rd party system and adjust their sending period.

LINIS SafetyPort Dashboard web application is an optional feature of LINIS SafetyPort, displaying real time data coming from Linet beds as well as their trends, history and aggregation in graphs and charts. These help the healthcare personnel to assess various aspects of care provided including the use of mobilisation techniques, positioning of the bed and its usage.

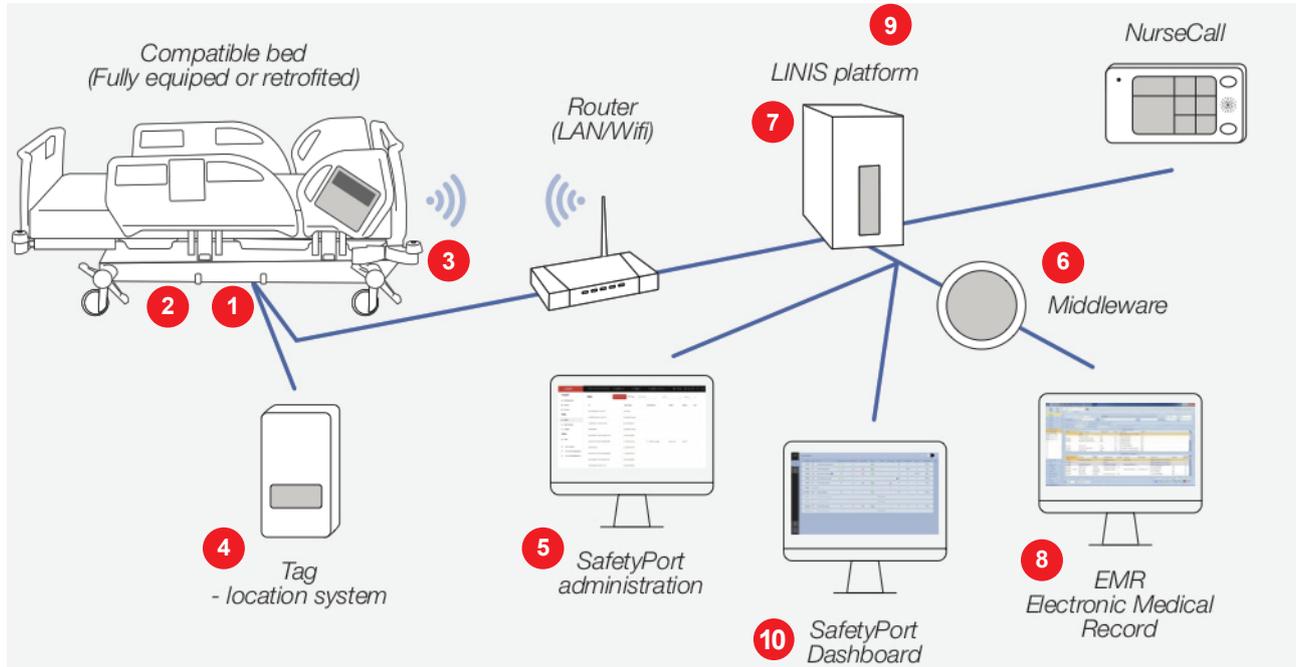
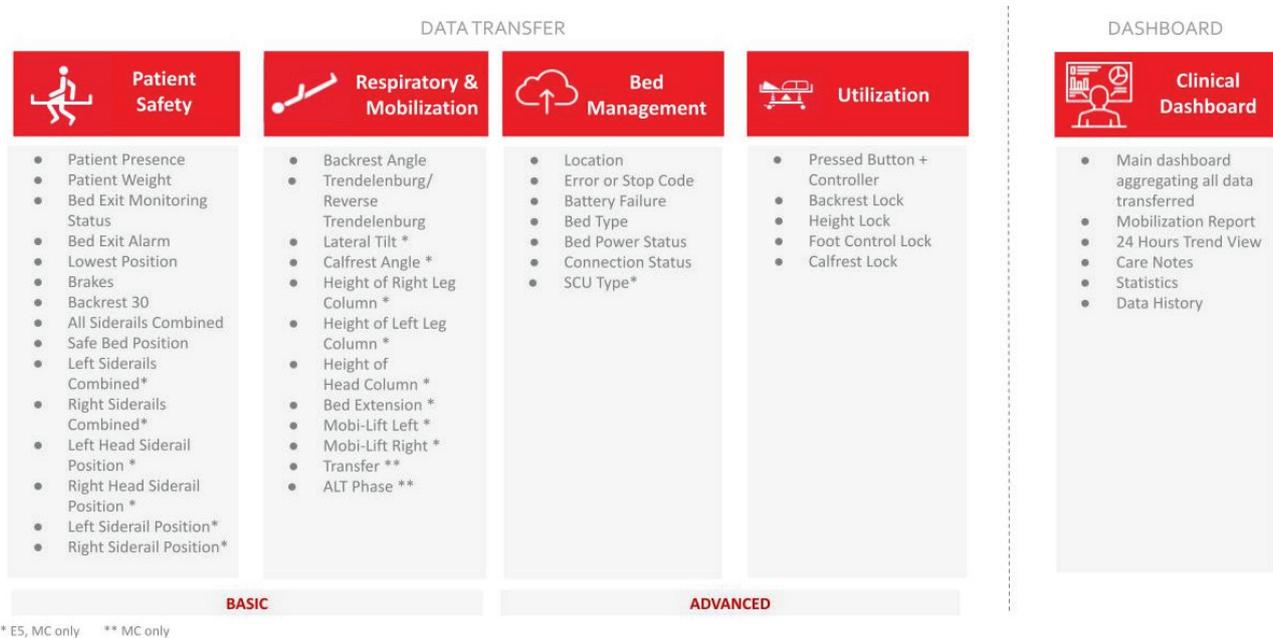


Fig. LINIS SafetyPort system connection diagram

4.1 Modules of the product

The complete SafetyPort solution consists of 5 different modules - 4 of them represented by different groups of data to be transferred into hospital systems and the fifth - SafetyPort Dashboard which enables their visualisation in real time for clinical purposes. Each module can be purchased separately or combined with others in a bundle for a discounted price. For more information, please contact your reseller.



4.1.1 Data Transfer Modules

Data Transfer modules help to save time your personnel spend on manually filling in the information from medical devices by implementing automatic transfer of various data from beds to EMR/Nursecalls

a) Patient Safety Module - Set of 15 data points providing a basic overview of parameters regarding the patient on the bed and their safety.

b) Respiratory & Mobilization Module - Set of 12 data points keeping track of how often a patient was mobilized and what types of positioning was used to reduce time spent in hospital and minimize the risk of hospital-acquired conditions (pressure ulcers, respiratory infections)

c) Bed Management Module - Set of 7/7 data points meant primarily to make the technicians' job easier by localizing the bed, identifying its current status, possible problems and malfunctions in real time and sending them to the system.

d) Utilization Module - Set of 5 data points documenting the utilization of each bed in the system to identify whether the bed is being used to its full potential. In combination with the previous modules, hospital management can gain detailed overview of clinical practice at the facility and compare it with department standards.

4.1.2 Clinical Dashboard Module

Web-based application visualising above mentioned data in real time on a screen at the nursing station or anywhere else where a quick overview of the workspace is needed. This helps the healthcare personnel get a status overview of all the beds at the unit without being interrupted by alarms and assess various aspects of care provided in the past including the use of mobilisation techniques, positioning of the bed and its usage.

5 Technical Description

Accuracy varies by display delay. The traffic delay between the bed and LINIS SafetyPort server, technical time it takes for the LINIS SafetyPort server to process the data and current server load.

The traffic delay between the LINIS SafetyPort server and the third party server, technical time it takes for the third party server to process the data and current server load.

The traffic delay can normally reach up to 5 to 15 seconds.

5.1 Technical Requirements on the Part of the Customer

Internet connectivity	Secure connection* <ul style="list-style-type: none"> 128kbit/s (upload) per 100 beds 400kbit/s (upload) per 100 beds in the graphical interface 32kbit/s (upload) per 100 beds with export of data to the hospital system (HIS)
Minimal server requirements	Dual-core CPU 3GHz, 4GB RAM, 100GB HDD
Server operating system	Linux OS (preferred), Windows server (2016, 2019 and later versions)
Data format for export to the HIS	HL7 v2, xml, webservice
Computer network according to standards LAN WLAN standards	IEEE 802.3 IEEE802.11 (802.11b/g, WPA/WPA2-PSK)
Graphical interface for display at the nurse station	Microsoft Edge, Mozilla Firefox, Google Chrome, Opera, Safari
Required ports	<ul style="list-style-type: none"> bed → LINIS SafetyPort server: 10180, LINIS SafetyPort server → bed: 10180 or any user workstation ↔ LINIS SafetyPort server: 8888, 3600, 3306 LINIS SafetyPort server ↔ third party server (e.g: HIS): based on third party server requirements (1337 typically)
Number of the beds connectable to the LINIS SafetyPort system	500 beds

* - A secure connection is not a condition on the part of the customer. However, without a secure connection, LINET® is unable to provide remote installation support in case of complications.

5.2 Mode of sending messages

Currently we use asynchronous communication in SafetyPort as well according to HL7 standard. However using the HL7 standard enables two modes of sending messages.

- **synchronous** - you get acknowledgement from 3rd party system of receiving one message before you send next message, thus there is queue of messages growing in the background and data gets delayed
- **asynchronous** - your system is sending different messages once they come and gets acknowledgement once they come, so there is no waiting and no delays. In the IOT world, asynchronous communication is always preferred, since data don't get delayed and eventually lost.

We do recommend to use asynchronous data in order to avoid message delaying and eventually loss. In case you need to use synchronous data contact us on : service@linetgroup.com

5.3 Transferable Status Data

Parameter	HL7 OBX ID	Value	Description	MC	E5	E4	E3/ E3XC
Patient Weight	0001^LINIS	-1000–1000	Patient weight based on primary display scale value, if the weight is stable.	1	1	1	1
Safety Position	0002^LINIS	0	Not in safety position.	1	1	1	1
		1	Bed is in safety position (siderails up, lowest position, backrest upper than 30°, breaks on).				
Trendelenburg Angle	0003^LINIS	-13–16	In degrees, when value is lower than 0, foot part is higher than head part.	1	1	0.1	0.1
Lateral Tilt	0004^LINIS	-30–30	When value is lower than 0, bed is tilted to the left side.	1	1	0	0
All Siderails Combined	0005^LINIS	0	Any Siderail is DOWN.	1	1	1	1
		1	All Siderails are UP.				
Backrest 30°	0006^LINIS	0	Backrest <30°	1	1	1	1
		1	Backrest >=30°				
Backrest Angle	0007^LINIS	-15–75	Angle between floor and backrest, in degrees.	1	1	1	1
Brakes	0008^LINIS	0	Bed is not braked	1	1	1	1
		1	Bed is braked.				
Bed Exit Monitoring Status	0009^LINIS	0	Bed exit not activated.	1	1	1	1
		1	Outer bed exit monitoring is active.				
		2	Inner bed exit monitoring is active.				
Bed Exit Alarm	0010^LINIS	0	No alarm.	1	1	1	1
		1	Bed exit alarm occurred.				
Lowest Position	0011^LINIS	0	Not in lowest position.	1	1	1	1
		1	Bed frame is in lowest position.				
Out of Bed Status	0012^LINIS	0	Patient on the bed (actual weight >=35kg).	1	1	1	1
		1	No patient on the bed (actual weight is <35kg).				
Location	0013^LINIS	work-space^ward^room^tag	Bed is localized at this specific parking space.	1	1	1	1
		^^^	Bed is not localized:				
Left Head Siderail Position	0014^LINIS	0	Left Head Siderail is DOWN.	1	1	0	0
		1	Left Head Siderail is UP.				
Right Head Siderail Position	0015^LINIS	0	Right Head Siderail is DOWN.	1	1	0	0
		1	Right Head Siderail is UP.				
Left Siderail Position	0016^LINIS	0	Left Siderail is DOWN.	1	1	0	0
		1	Left Siderail is UP.				
Right Siderail Position	0017^LINIS	0	Right Siderail is DOWN.	1	1	0	0
		1	Right Siderail is UP.				
Bed Power Status	0018^LINIS	0	Bed is not plugged into outlet.	1	1	1	1
		1	Bed is plugged into outlet.				
		2	Bed is plugged into outlet and battery is charging.				
Connection Status	0019^LINIS	0	Bed is offline.	1	1	1	1
		1	Bed is online.				
Left Siderails Combined	0020^LINIS	0	At least one left siderail is DOWN.	1	1	0	0
		1	Both left siderails are UP.				

Parameter	HL7 OBX ID	Value	Description	MC	E5	E4	E3/ E3XC
Right Siderails Combined	0021^LINIS	0	At least one right siderail is DOWN.	1	1	0	0
		1	Both right siderails are UP.				
Calfrest Angle	0022^LINIS	-60 – +40	Angle between calfrest and ground.	1	1	0	0
Calfrest Lock	0023^LINIS	0	Calfrest lock not activated.	1	1	1	1
		1	Calfrest lock activated / Calfrest locked.				
Backrest Lock	0024^LINIS	0	Backrest lock not activated.	1	1	1	1
		1	Backrest lock activated / Back rest locked.				
Height Lock	0025^LINIS	0	Height lock not activated.	1	1	1	1
		1	Height lock activated/Height locked.				
Foot Control Lock	0026^LINIS	0	Foot Control Lock not activated.	1	1	1	1
		1	Foot Control Lock activated / Foot control locked.				
Transfer	0028^LINIS	0	Transfer mode not activated - you cannot use a lateral tilt function and put a siderail on the same side of the bed down at the same time	1	0	0	0
		1	Transfer mode activated - you can activate a lateral tilt and put a siderail on the same side of the bed down at the same time to transfer the patient				
Height of Right Leg Column	0030^LINIS	0-645	Height of the column, the higher the number, the higher the bed is. Zero means the bed is in lowest position, the value of highest position varies depending on a specific bed.	1	1	0	0
Height of Left Leg Column	0031^LINIS	0-645	Height of the column, the higher the number, the higher the bed is. Zero means the bed is in lowest position, the value of highest position varies depending on a specific bed.	1	1	0	0
Height of Head Column	0032^LINIS	0-645	Height of the column, the higher the number, the higher the bed is. Zero means the bed is in lowest position, the value of highest position varies depending on a specific bed.	1	1	0	0
Mobi-Lift Right	0033^LINIS	0	No button pressed.	1	1	0	0
		20	Height up.				
		22	Height down.				
Mobi-Lift Left	0034^LINIS	0	No button pressed.	1	1	0	0
		20	Height up.				
		22	Height down.				
SCU Type	0035^LINIS	0	No integrated mattress	1	1	1	1
		50	Symbioso (older version)				
		51	S200 (Symbioso)				
		52	S300 (OptiCare mattress)				
		53	S300-X (OptiCare-X or alternating mattress)				
Bed Extension	0036^LINIS	0	Default length of the bed.	1	1	0	0
		1	Bed extended.				

Parameter	HL7 OBX ID	Value	Description		MC	E5	E4	E3/ E3XC		
Pressed Button + Used Controller	0037^LINS	Controller ID - Button	Controllers		1	1	1	1		
			?	no controller						
			0	Screen integrated in the right head section						
			1	Screen integrated in the left head section						
			4	Foot Controller						
			5	Additional Supervisor Panel + Handset						
			6	Right Digital Siderail						
			7	Left Digital Siderail						
			10	Mobi-Lift Right						
			11	Mobi-Lift Left						
			Buttons						PB46 ENG	PB43 ENG
			0	No function is activated					No function is activated	
			1	CalfRest - Up					Foot Control Height Adjustment - Down	
			2	Autocontour - Down					Autocontour - Down	
			3	Lock Button					Lock Button	
			4	Examination Position					Examination Position	
			5	Leg Lock					Leg Lock	
			6	Central Lock					Foot Control Examination Position	
			7	Backrest Lock					Backrest Lock	
			8	Height Adjustment Lock					Height Adjustment Lock	
			9	Foot Control Lock					Foot Control Lock	
			10	Thigh Rest - Up					Thigh Rest Up	
			11	Calf Rest - Down					Foot Control Height - Up	
			12	Thigh Rest - Down					Thigh Rest - Down	
			13	Trendelenburg					Trendelenburg	
			14	Backrest to 30°						
			15	Backrest - Up					Backrest - Up	
			16	CPR Position					CPR Position	
			17	Backrest - Down					Backrest - Down	
			18	Anti-Trendelenburg					Anti-Trendelenburg	
			19	Mobilisation Position					Mobilisation Position	
			20	Height Adjustment - Up					Height Adjustment - Up	
			21	Cardiac Chair Position					Cardiac Chair Position	
			22	Height Adjustment - Down					Height Adjustment - Down	
23	GO	GO								
24	GO - supervisor control panel	GO								
25	Lateral Tilt - Left									
26	Emergency Trendelenburg	Emergency Trendelenburg								
27	Lateral Tilt - Right									
28	Mattress Platform - Extension									
29	Mattress Platform - Shortening	Low Position								
30	Autocontour - Up	Autocontour - Up								
31	Ineffective function (e.g.: two buttons pressed at once)	Ineffective function (e.g.: two buttons pressed at once)								
32	Simultaneous GO	Simultaneous GO								
33	Straightening therapy									
34	ALT Therapy test									

Parameter	HL7 OBX ID	Value	Description	MC	E5	E4	E3/ E3XC		
Error or Stop Code	0041^LINIS	Controllers							
		0	Inactive						
		1	Going to the initial position						
		2	Ongoing Settings of angles and time in different positions						
		3	Going from the neutral position to first left position						
		4	Standing still the first left position (when going to the left)						
		5	Going from the first left position to second left position						
		6	Standing still in the second left position						
		7	Going from the second left position back to first left position						
		8	Standing still in the first left position (when going to the right)						
		9	Going from the first left position back to the neutral position						
		10	Standing still in the neutral position in the middle of the cycle						
		11	Going from the neutral position to the first right position						
		12	Standing still in the first right position (when going to the right)						
		13	Going from the first right position to the second right position						
		14	Standing still in the second right position						
		15	Going from the second right position back to the first right position						
		16	Standing still in the first right position (when going back to neutral)						
		17	Going from the first right right position back to the neutral position						
		18	Standing still in the neutral position in the end of the cycle						
				PB43	PB46				
				1	Unexpected lateral tilt detected by main control box motherboard accelerometer.				
				2	Foot control pressed after STOP.				
				3	Display button pressed after stop.				
				4	Two buttons pushed simultaneously longer than 1 second.				
				5	Keyboard not released after system start.				
				6	Main control box temperature exceeded.				
				7	Column current overload 0.				
				8	Column current overload 1.	1	1	1	1
				9	Column current overload 2.				
				10	Actuator current overload – backrest.				
				11	Actuator current overload – thighrest.				
				12	Stopped due to resistance on the same function.				
				13	Short circuit on analog control (RC detection).				
				101	GO button not active.				
				102	Locked function.				
				103	X-ray cassette inserted incorrectly.				
				104	Siderails folded down during lateral tilt.				
				105	Backrest angle greater than 30° during lateral tilt.				
				106	Lateral tilt stopped at 15° when using foot control.				
				111	Function blocked during one fault state.				
				112	Function blocked during active ALT.				
				113	Stopped due to risk of collision when bed is tilted.				
				114	Stopped in zero position.				
				115	Collision when exceeding threshold limit of calfrest and footrest.				
				116	Scale overload – tilt only to 15°.				
				121	Column potentiometer defect.				
		122	Stopped at 15° during lateral movement patient transfer.						
		123	Absolute scale overload.						
		124	Starting or running ALT on battery.						
		125	Use manual mattress CPR (not stopping, only pop up).						
		126	Safestop						

Parameter	HL7 OBX ID	Value	Description	MC	E5	E4	E3/ E3XC
Battery Failure	0042^LINIS	0	Battery OK.				
		1	Battery absence or failure condition (battery is connected incorrectly, line between the power supply and battery is broken or battery fuses are faulty); contact service department of the manufacturer in case of such signalisation.	1	1	1	1
Bed Type	0045^LINIS	1GV	E3XC	1	1	1	1
		1GZ	E3				
		1GE4	E4				
		1GE5	E5				
		1MC	Multicare				
		1MC5	Multicare LE				
		1MCX	Multicare X				

6 Electrical Specifications

⚠ DANGER!

Fatal electric shock danger!

➡ Please ensure that servicing and maintenance of the system are carried out only by a qualified and certified service organisation when the system is connected to the mains power.

6.1 Electrical Specifications

Parameter	Value
Integration module lithium battery (CR2032)	
Voltage	3V
Capacity	200 mAh
Maximum power input	Max. 0.15 W
Tag lithium battery (CP752425)	
Voltage	3V
Capacity	900 mAh
Ingress protection	IP54

6.2 Electronic Compatibility

Parameter	Value
Control unit: Multicare X Eleganza 5 Multicare Multicare LE Eleganza 4 Eleganza 3XC Eleganza 3 (US version)	PB46.13 (8211-4613 and higher) PB46.12 (8211-4612F and higher) PB46.12 (8211-4612F and higher) PB46.12 (8211-4612F and higher) PB43 RED (8211-44xB and higher)
Scales module	8300-0694C or 8300-0695C or 8300-696B
iBoard Standard: Eleganza 5	iBS (8213-48xxB and higher)
iBoard Basic: Eleganza 4	iBB (S6016631B and higher)
Multicare X: Multiboard X	8213-4640 and higher (left version) 8213-4650 and higher (right version)
Multiboard: Multicare	8213-4620H and higher (left version) 8213-4630H and higher (right version)
Multiboard: Multicare LE	8213-4721D and higher (left US version without mattress) 8213-4723D and higher (left US version with Symbioso) 8213-4731D and higher (right US version without mattress) 8213-4733D and higher (right US version with Symbioso)
Integration module	IM (S6017678)
Localisation receiver	S6013858C and higher
Sensor Preparation for LINIS products: Eleganza 5 Eleganza 4 Eleganza 3XC Eleganza 3 (US version) Multicare Multicare LE	CE06
Complete hardware for LINIS products (Sensor & Hardware): Eleganza 5 Eleganza 4 Eleganza 3XC Eleganza 3 (US version)	CE31
Tag	S6013854B and higher

7 Installation

The LINIS SafetyPort system is installed by LINET. The standard installation is performed using remote access, that is provided by the customer (VPN). VPN provision is a required and installation cannot be completed unless it is provided. VPN access shall be handled by a separate NDA (provided by a customer).

7.1 Ports required for communication

- bed → LINIS SafetyPort server: 10180, LINIS SafetyPort server → bed: 10180 or any
- user workstation ↔ LINIS SafetyPort server: 8888, 3600, 3306
- LINIS SafetyPort server ↔ third party server (e.g: HIS): based on third party server requirements (1337 typically)

7.2 Installation steps

Installation prerequisites:

- Functional internet infrastructure
- Functional hospital information system
- Opened required ports
- Stable display monitor to open Administration interface and/or SafetyPort Dashboard
- Ready to install LINIS server
- Remote access to the server
- Installation of beds

Installation steps:

- LINIS server installation
- Communication of Multicare beds or Multicare LE beds or Eleganza 5 beds or Eleganza 4 or Eleganza 3XC or Eleganza 3 (US version) beds with LINIS server
- Localisation system installation (LINIS SafetyPort bed + Tag)
- SafetyPort installation
- Test of the functional connection of bed, server and 3rd party software (HIS)
- Technical training

7.2.1 Tag Installation

⚠ CAUTION!

The Tag box must be installed upright (1). The distance between the bottom edge of Tag and the floor must be 17 cm!

- ➔ If the distance from the floor to the bottom edge or to the upper edge or to the Tag window is smaller or larger, the proper function of the system cannot be guaranteed and the bed can be displayed in a position other than the one it is actually in!

⚠ CAUTION!

Every Tag has its serial number!

- ➔ Make a note of the serial numbers of the installed Tags along with their positions! Tag serial number and Tag ID are listed on the bottom of the Tag box.

Tag installation steps:

- ▶ Specify the Tag position on the wall. Tag must be placed on the wall directly in the middle of the bed's parking position. The distance between two Tags must be at least 2.2 meters. The Tag bottom edge must be just 17 centimetres above the floor.
- ▶ Remove Tag from the box (1).
- ▶ Glue Tag to the correct position on the wall. If it is necessary to adjust the wall so Tag holds reliably, use dowels and screws (3) to attach a tin plate to the correct position on the wall (2), to which Tag is then glued.



Fig. Bottom of the Tag box (serial number)

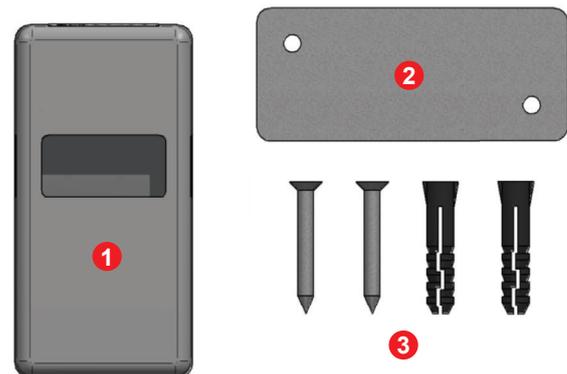


Fig. Contents of the Tag box

- 1 Tag box
- 2 Tin plate for Tag box
- 3 Dowels and screws for fixing the tin plate

7.2.2 Transporting the Bed

⚠ CAUTION!

Damage to the system due to incorrect preparation before moving!

- ➔ The bed may be moved only after the Ethernet cable has been disconnected from the local computer network (if it is connected to the local network with cables) and after the bed has been disconnected from the electricity.

When moving the bed (e.g., from one room to another, from room to operating theatre, etc.), it is essential to disconnect the bed from the local computer network (if cable connection is used) and the network cable from the electricity.

8 Uninstallation

Uninstallation is not required and if a customer decides to discontinue using the system, it is possible to delete the server instance without any previous steps. If the uninstallation is done, LINET is not able to retrieve any data or undo the installation with the original hospital set up. However, the customer is required to notify LINET about the fact that the system has been uninstalled.

If an uninstallation is needed to be performed by LINET, the customer shall contact LINET who will uninstall the software and delete the server (subject of an additional fee).

9 Putting into Service

Setting up the hospital in LINIS SafetyPort Administration interface and selecting the data to be transferred and the data sending regime:

- ▶ Verify a bed is connected to the mains power.
- ▶ Verify Bed Exit Alarm Monitoring is switched ON on the iBoard or on the Multiboard if the Bed Exit Alarm Monitoring status data should be transferred.
- ▶ Verify the sending of selected data is enabled in Administration interface.
- ▶ Verify the HIS is receiving the data sent.

10 System Notifications

10.1 Notification after expiration of the license based on the length of licence agreement

If a licence expired and wasn't prolonged, the Administration interface of the LINIS SafetyPort notifies about the fact that the licence has to be prolonged and recommends to contact the LINET customer service via system message.

11 Using the system

11.1 Conditions of Use

 **WARNING!**

The system LINIS SafetyPort cannot be used if there is no connectivity between the bed and the LINIS SafetyPort server or/and LINIS SafetyPort server and third party software (e.g: HIS).

 **WARNING!**

The system LINIS SafetyPort cannot be used with beds that are not supported.

11.2 Known Technical Problems

Problems in case of an unstable network leading to instability of the connection of beds causing outages in reading the data from beds and their interpretation.

11.3 Security

The interface is secured by a username and password.
All the data is stored on the LINIS server belonging to the customer.

11.4 Administration Interface

⚠ WARNING!

LINIS SafetyPort system does not sent any data if not enabled in the Administration interface and if the beds are not connected to the mains power.

Administration interface is used to set up a LINIS SafetyPort system during the installation or if any changes to the current set up need to be done afterward.

The main features include:

- setting up a hospital, creating WORKSPACES, WARDS, ROOMS based on the actual set up of the LINIS SafetyPort system in the facility
- setting up parking spaces in the ROOMS and connecting compatible beds with the system
- enabling the transfer of data and setting up the data types to be transferred to HIS, specifically choosing which data (out of the 39 different types) should be sent and how often
- data history to view the history of the data sent
- the view if the LINET beds connected to the LINIS SafetyPort system are offline or online and if the beds physically are at the assigned parking place or not

11.4.1 Software version

Software version number is displayed on the top bar in the Administration interface.



Fig. Software version number in the Administration interface

11.4.2 LOGIN

In order to LOGIN into ADMINISTRATION interface, admin login account is required.

Hey, welcome back.

Login

Password

 [Show password](#)

Log in

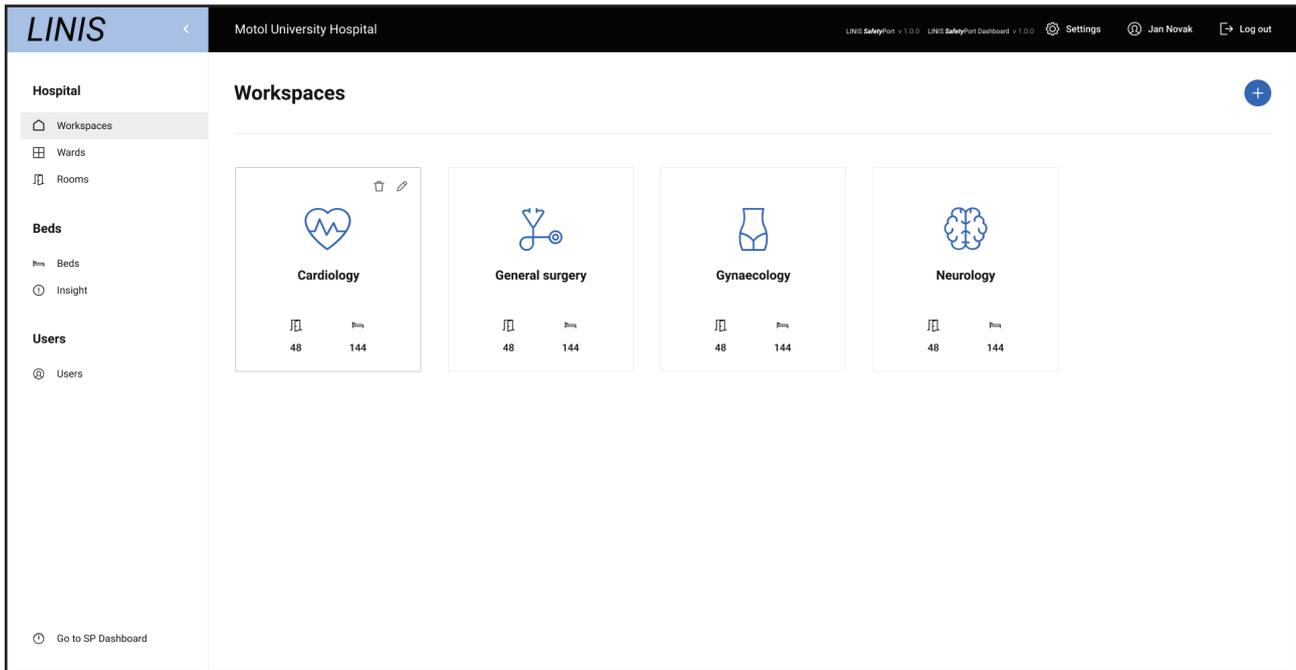


Fig. Main Administration page

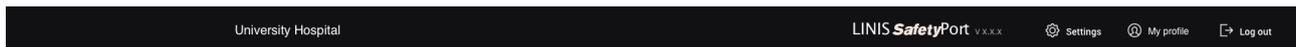
MAIN MENU

MAIN MENU is the main control panel of the administration interface. Main menu is located on the left side of the screen and consists of 3 categories:

- Hospital
- Beds
- Users

The Main menu can be hidden or displayed by clicking on the main menu (hamburger) button  .

TOP BAR



The TOP BAR navigation consists of three buttons:

MY PROFILE button

By clicking on the PROFILE button, the following can be set:

- Personal – name of admin
- Account – email and login information of admin
- Language – English or Czech

LOG OUT button

By clicking the LOG OUT button, login administration page appears.

SETTINGS button

By clicking on the SETTINGS button, the Settings screen appears.

11.4.3 SETTINGS

The **SETTINGS** section consists of three subsections:

- ▶ General
- ▶ SafetyPort Data Transfer Settings
- ▶ SafetyPort Dashboard setting

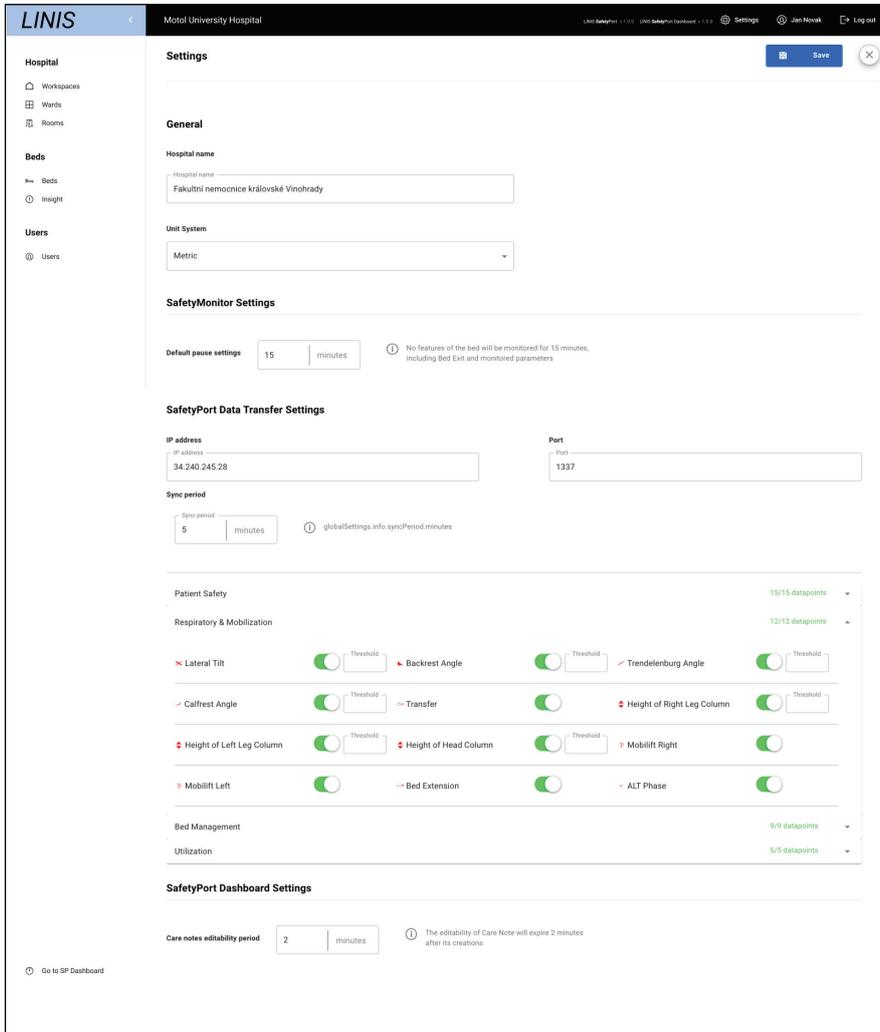


Fig. Settings

GENERAL

The GENERAL section is used to enter the Hospital name and set up the metric system.

Data transfer SETTINGS

The Data Transfer Settings section is used to enter the IP Address number, Port number and Sync Period in minutes. This means LINIS SafetyPort will send data to the dedicated IP address and Port if CHANGED from last value, or if the last value was sent x minutes(sync period) ago.

In case you chose the synchronous communication mode, you can also see the length of the data queue waiting to be accepted by the endpoint here.

Below are 4 data messages groups divided into:

- ▶ Patient & safety
- ▶ Respiratory & Mobilization
- ▶ Bed management
- ▶ Utilization

If there is a lock icon next to some of them, you either do not have the group activated or your licence expired. In both cases, you can contact your reseller to activate them.

Within these groups, you can:

- ▶ enable/disable sending of individual parameters
- ▶ set a change threshold for some of them (some parameters may change their values periodically - eg. the height of a column may oscillate between two values even if there seems to be no movement. Therefore it is possible to set a change threshold for 2 units meaning the parameter will be send only if the change is at least 2 units, i.e. it won't send the change from 135 to 136.

SafetyPort dashboard SETTINGS

The SafetyPort Dashboard settings section allows choosing Care note editability period in minutes.

11.4.4 HOSPITAL

HOSPITAL section of the main menu consists of three subsections.

- **Workspaces**
- **Wards**
- **Rooms**

WORKSPACES

The WORKSPACES section is used to create, delete or edit a workspace. Icons can be assigned to the WORKSPACES. Each WORKSPACE represents a nurse station (the number of workspaces is equal to the number of nurse stations). Each WORKSPACE shows how many rooms and beds are monitored.

To Create a new WORKSPACE:

1. WORKSPACES are created by clicking on the red plus button in the upper right corner.
2. Select an icon and a name of a new nurse station.
3. When a new WORKSPACE is created, new WARDS have to be added. Continue by adding new WARDS.
4. Workspace can be edited by clicking on the pencil icon or deleted by clicking on the trash icon.

To edit a WORKSPACE:

1. In the main menu click on WORKSPACES.
2. Hover with a mouse over a WORKSPACE you would like to edit and click on the pencil icon.
3. Edit an icon or a name of WORKSPACE.
4. Click on the red button Save workspace.

To delete a WORKSPACE:

1. In the main menu click on WORKSPACES.
2. Hover with a mouse over a WORKSPACE you would like to delete and click on the trash button.

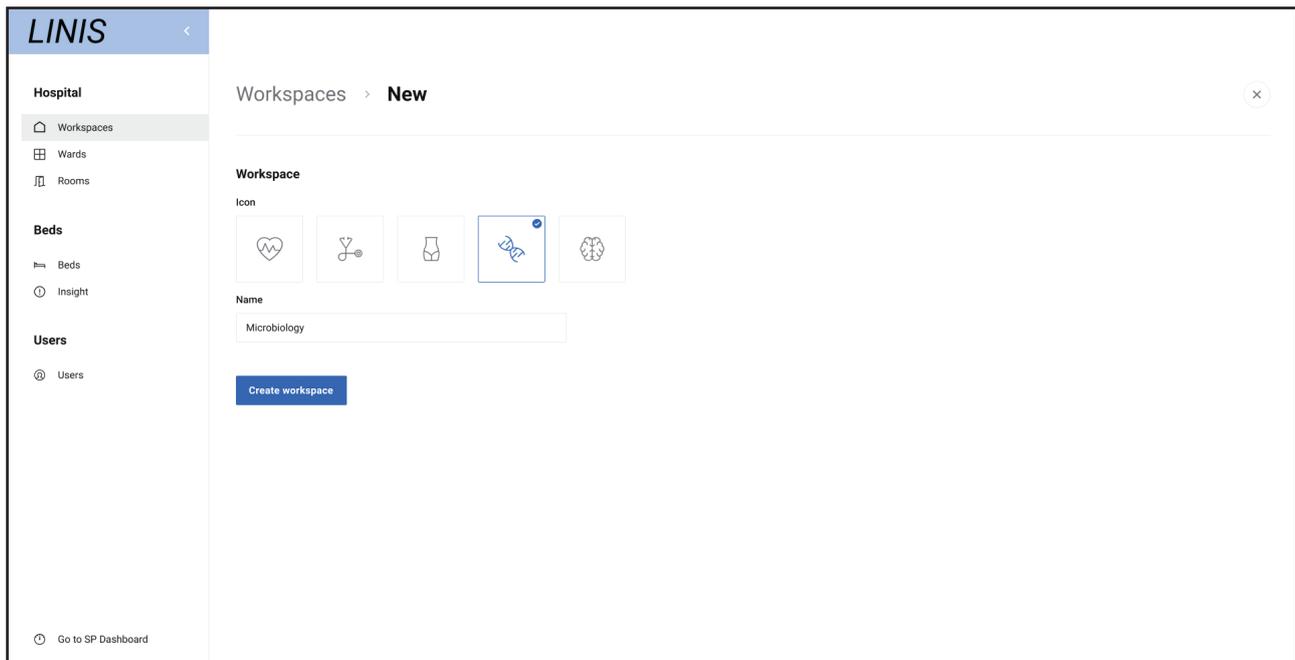


Fig. Creating a new workspace

WARDS

The WARDS section is used to create, delete or edit WARDS. In this section, all created WARDS are divided into specific workspaces. New WARDS can be added and existing WARDS can be edited or deleted within each workspace category.

To Create a new WARD:

1. In the Main menu click on WARDS.
2. Click on the red plus button on the right side of each Workspace.
3. Fill in name of a new WARD.

To edit a WARD:

1. In the main menu click on WARDS.
2. Hover with a mouse over a WARD you would like to edit and click on the pencil icon.
3. Edit a name of WARD.
4. Press enter.

To delete a WARD:

1. In the main menu click on WARDS.
2. Hover with a mouse over a WARD you would like to delete and click on the trash icon.

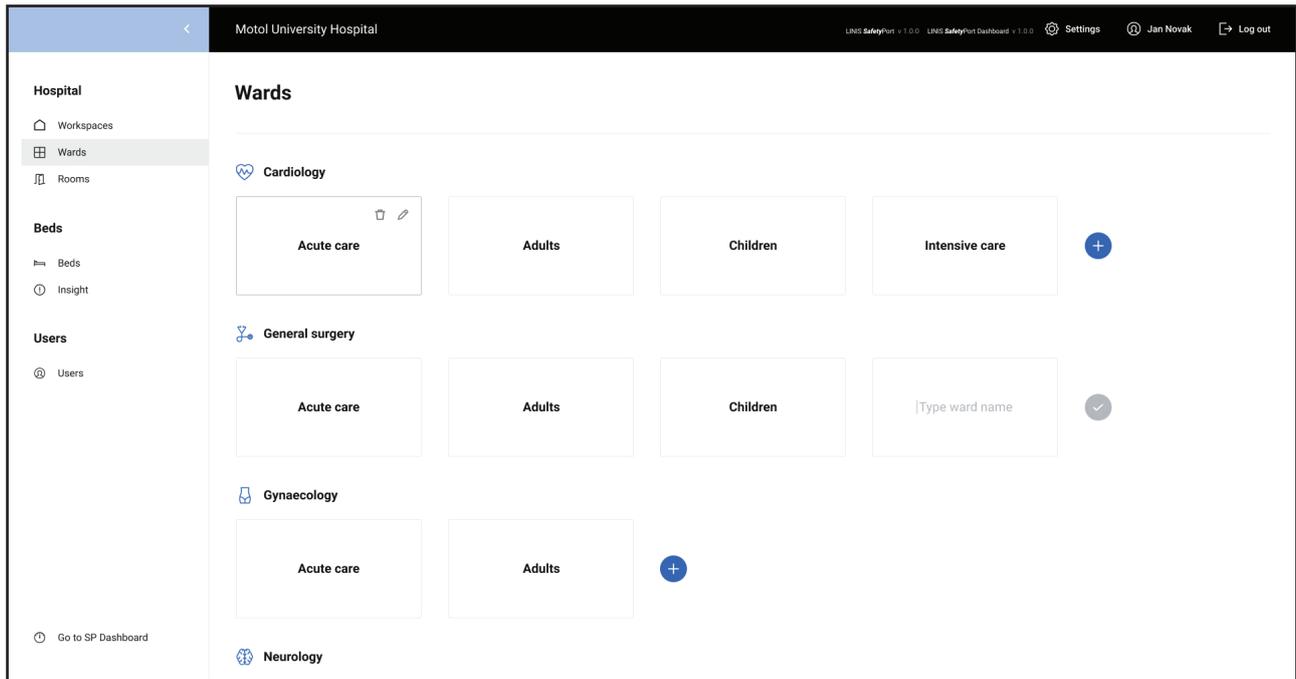


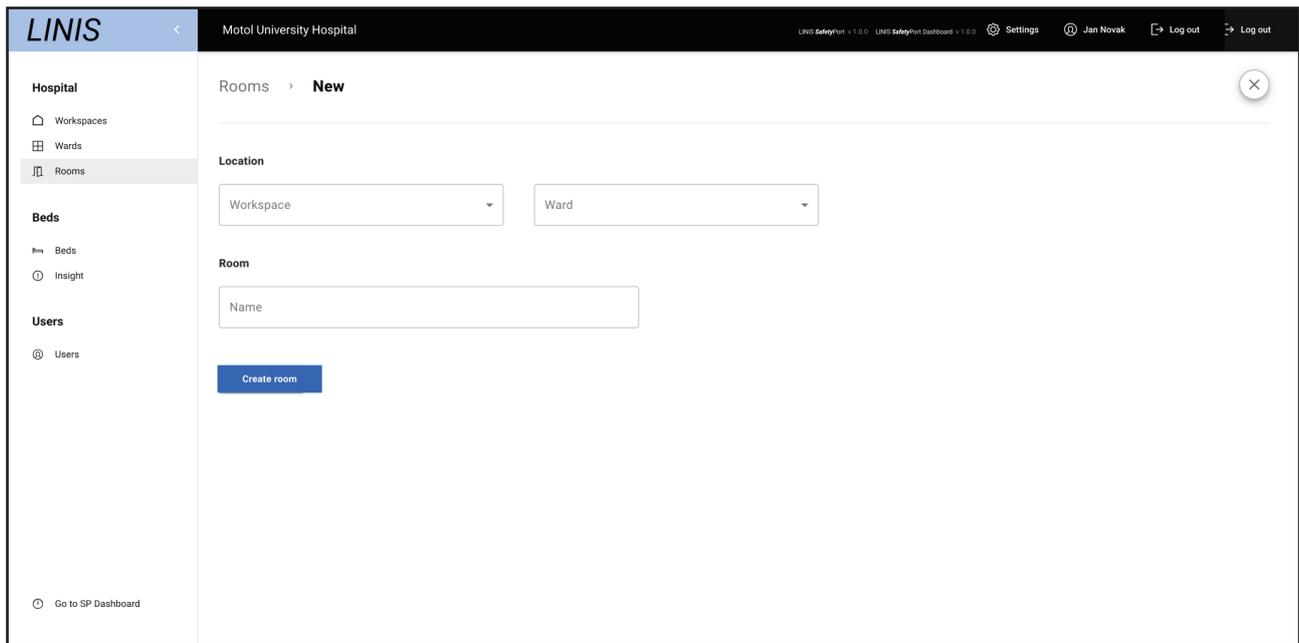
Fig. Wards

ROOMS

The ROOMS section is used to visualize all ROOMS created and detailed information regarding each ROOM, including ID, number of beds in each ROOM, LINIS SafetyPort status, workspace and ward the room belongs to. New ROOMS can be added and existing can be filtered and arranged as desired using several filters.

To create a new ROOM:

1. In the main menu, click on ROOMS.
2. Click on the red plus button in the upper right corner.
3. Fill in the information required:
 - **Location**
 - Select a workspace
 - Select a ward
 - **Room**
 - Fill in the room name
4. Click on the red button Create room.



Hospital

- Workspaces
- Wards
- Rooms

Beds

- Beds
- Insight

Users

- Users

Go to SP Dashboard

Motol University Hospital

LINIS SafetyPort v 1.0.0 LINIS SafetyPort Dashboard v 1.0.0 Settings Jan Novak Log out

Rooms > **New**

Location

Workspace Ward

Room

Name

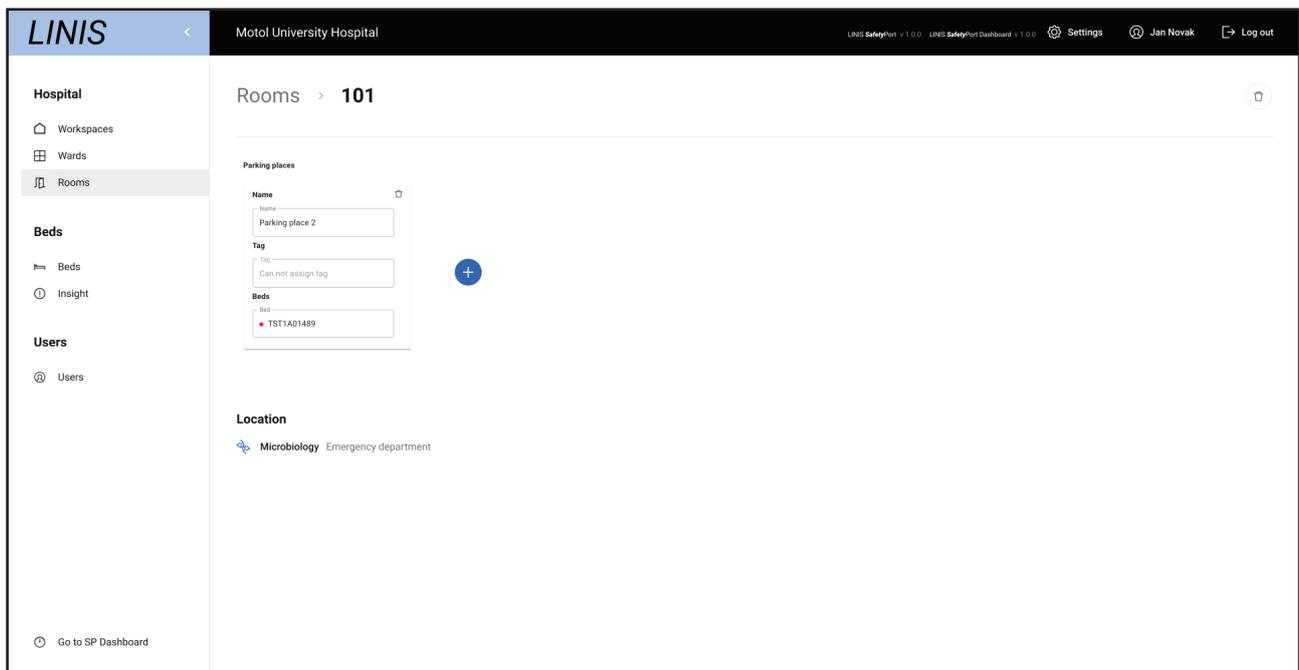
Create room

Fig. Creating a new room

5. In the next step, fill in information regarding parking places of each bed in the ROOM.

■ **Parking places**

- Name: name a parking space (e.g: by the window / by the door) and add last four digits of TAG's serial number (e.g: by the door – 0517)
- Tag: fill in last four digits of TAG's serial number for automatic localisation (find out more about localisation of beds in BEDS section)
- Bed: number of the bed (integration module) will automatically appear when parked at the position



Hospital

- Workspaces
- Wards
- Rooms

Beds

- Beds
- Insight

Users

- Users

Go to SP Dashboard

Motol University Hospital

LINIS SafetyPort v 1.0.0 LINIS SafetyPort Dashboard v 1.0.0 Settings Jan Novak Log out

Rooms > **101**

Parking places

Name
Parking place 2

Tag
Can not assign tag

Beds
TST1A01489

Location

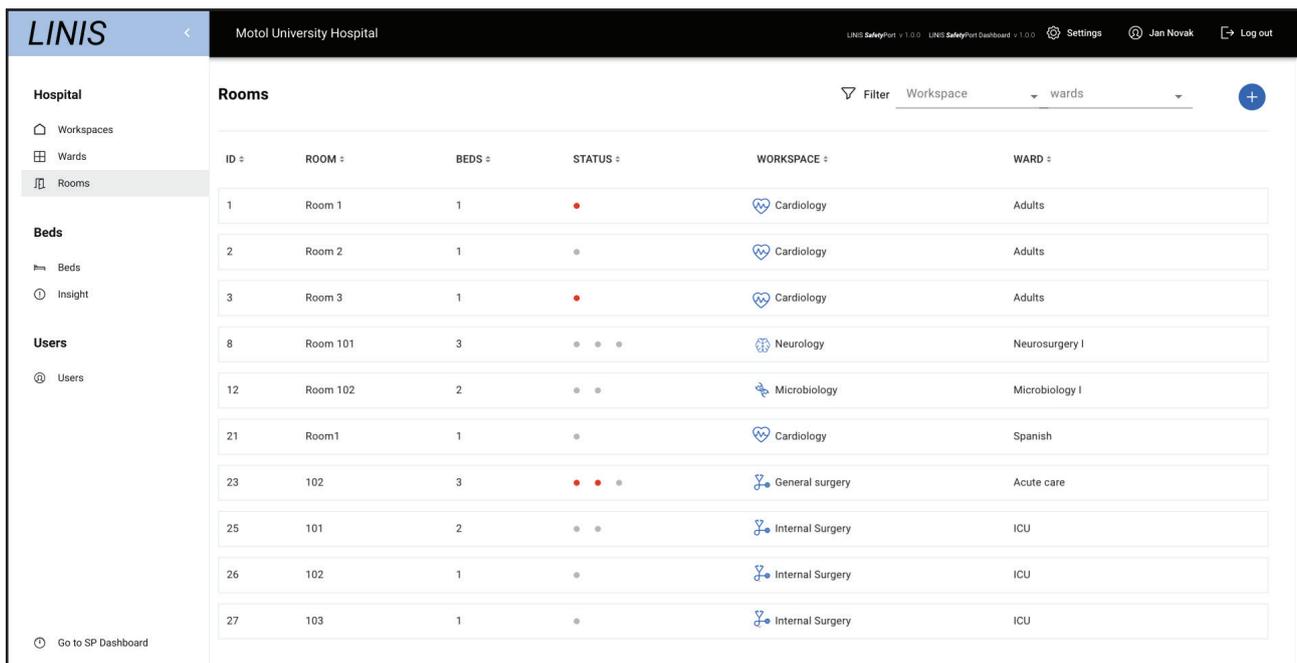
Microbiology Emergency department

Fig. Creating a new parking place

List of ROOMS

Rooms can be filtered by Workspace and Wards in the upper right corner. By clicking on the specific room from the list, detailed information regarding parking places appears. The list of rooms can be arranged (top or bottom) by clicking on following:

- **ID:** room number
- **ROOM:** room name
- **BEDS:** it represents number of monitored beds present in each room
- **STATUS:** green dots indicate the bed is ONLINE
: red dots indicate the bed is OFFLINE
: grey dot indicates there is no bed at the parking place
- **WORKSPACE:** it shows a specific workspace a room belongs to
- **WARD:** it shows a specific ward a room belongs to



ID	ROOM	BEDS	STATUS	WORKSPACE	WARD
1	Room 1	1	●	Cardiology	Adults
2	Room 2	1	●	Cardiology	Adults
3	Room 3	1	●	Cardiology	Adults
8	Room 101	3	● ● ●	Neurology	Neurosurgery I
12	Room 102	2	● ●	Microbiology	Microbiology I
21	Room1	1	●	Cardiology	Spanish
23	102	3	● ● ●	General surgery	Acute care
25	101	2	● ●	Internal Surgery	ICU
26	102	1	●	Internal Surgery	ICU
27	103	1	●	Internal Surgery	ICU

Fig. Rooms

11.4.5 BEDS

BEDS section of the main menu consists of two subsections.

- Beds
- Event history

BEDS

The BEDS section is used to visualize all beds created and detailed information about each BED including ID, name of the bed, serial number of the bed, workspace, ward and room it belongs to and a TAG that the BED is connected with. New BEDS can be added and existing BEDS can be filtered as desired using several filters. However, new BEDS are created under Rooms section, by creating a new parking space and filling in information regarding a new bed.

To create a new parking space

1. In the main menu, click on ROOMS (beds are created under each ROOM).
2. Select a ROOM in which the BED should be created.
3. Click on the red plus button to add a new parking place.
4. Fill in the information required:
 - Name: name a parking space (e.g: by the window / by the door) and add last four digits of TAG's serial number (e.g: by the door – 0517)
 - Tag: fill in last four numbers of the TAG's serial number for automatic localisation
 - Bed: number of the bed (integration module) will automatically appear when parked at the position.

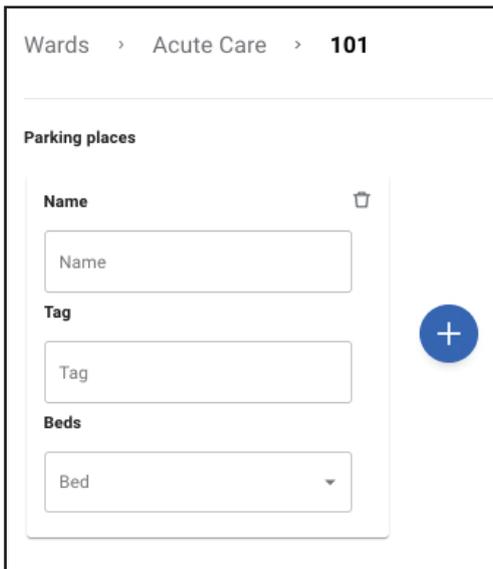
Automatic localisation

By using the AUTOMATIC Localisation, the bed can be automatically moved whenever it is within range of any working TAG. Working tag means it is visible in the beds section in the right column. This is accomplished by inserting the last three numbers of its serial number.

In order for the system to function properly, it is required to use automatic localisation in all patient rooms with the exception of rooms that are intended to be used by service personnel (thus not used by patients).

Manual localisation

MANUAL Localisation is used solely for service rooms (intended to be used by service personnel, thus not used in rooms with patients). By using the MANUAL Localisation, the bed is permanently displayed on a selected position. This is accomplished by filling in a serial number of integrational module while leaving the TAG number empty.



Wards > Acute Care > 101

Parking places

Name 

Name

Tag 

Tag

Beds

Bed

To edit a parking place:

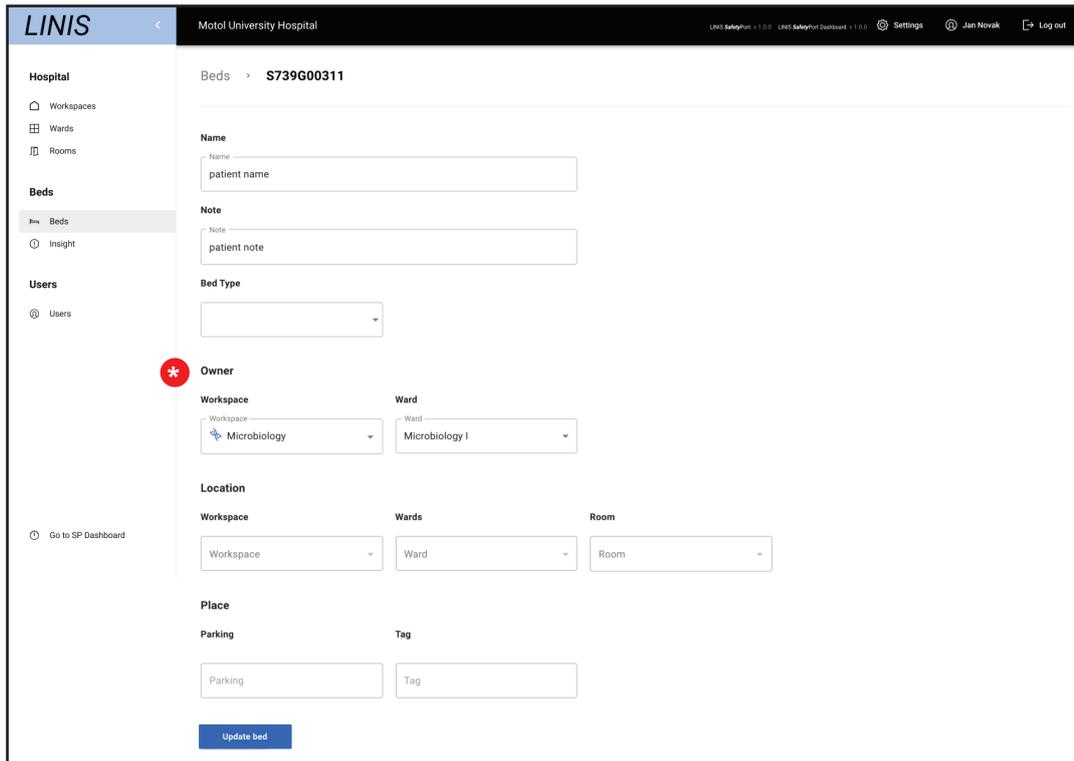
1. In the main menu click on Rooms.
2. Select a Room the parking place you would like to edit belongs to.
3. Edit a specific PARKING PLACE.

To delete a parking place:

1. In the main menu click on Rooms.
2. Select a Room the parking place belongs to.
3. Hover with a mouse over a PARKING PLACE and click on the trash icon.

To fill in information about the bed (check-in / check-out patient):

1. In the main menu, click on BEDS.
2. Select a bed you would like to fill in new information about.
3. Fill in the following information:
 - Name: Patient's name
 - Note: Patient note (e.g: diabetic)



Hospital Motel University Hospital

Beds > S739G00311

Name
Name
patient name

Note
Note
patient note

Bed Type
[Dropdown]

Owner *

Workspace [Dropdown: Microbiology] **Ward** [Dropdown: Microbiology I]

Location

Workspace [Dropdown: Workspace] **Wards** [Dropdown: Ward] **Room** [Dropdown: Room]

Place

Parking [Text: Parking] **Tag** [Text: Tag]

[Update bed]

* Ownership applies only to SafetyPortDashboard module. By setting the ownership you ensure the visibility of the bed on the dashboard even when it's not present at the ward at the moment.

To edit a bed:

1. In the main menu, click on BEDS.
2. Select a bed that should be edited.
3. Edit information about the BED.
4. Click on a red button "Update bed".

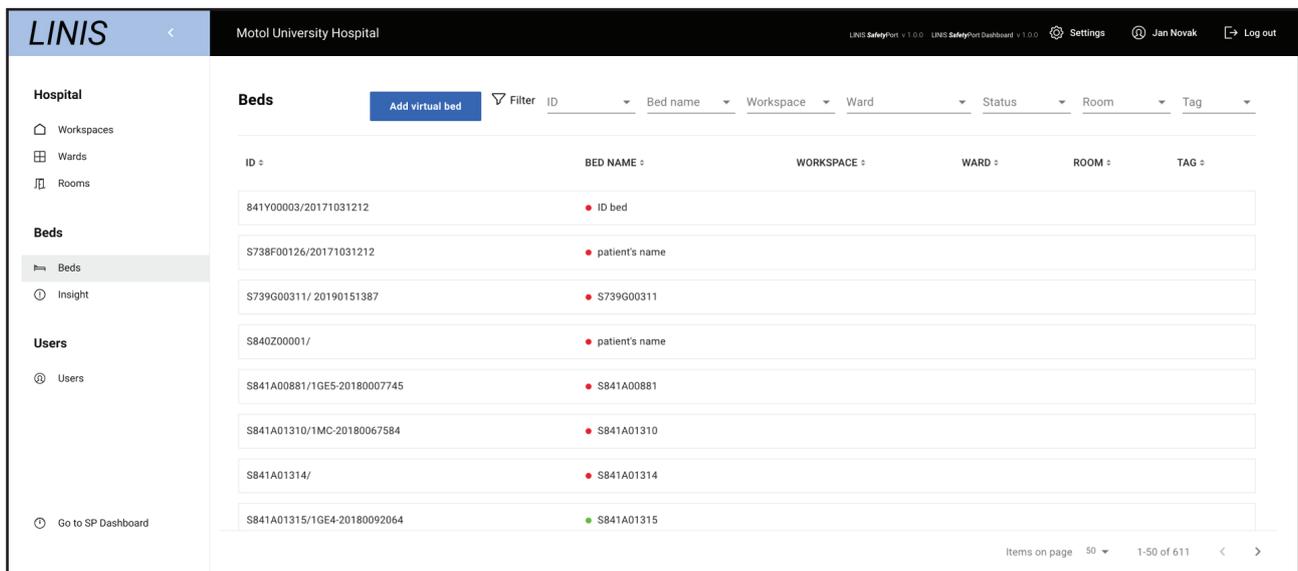
To delete an offline bed:

1. In the main menu, click on BEDS.
2. Select a bed that should be deleted.
3. Click on the trash button in the upper right corner.

List of BEDS

BEDS can be filtered by Workspace, Wards and Status in the upper right corner. By clicking on the specific BED from the list, detailed information regarding the BED appears. The list of rooms can be arranged (top or bottom) by clicking on following:

- **ID:** ID of integration module / ID of bed
- **BED NAME:** name of the patient
 - : red dot indicates the bed is offline
 - : green dot indicates the bed is online
- **WORKSPACE:** name of workspace the bed is part of
- **WARD:** name of the ward the bed is part of
- **ROOM:** name of the room
- **TAG:** number of a tag the bed is assigned to



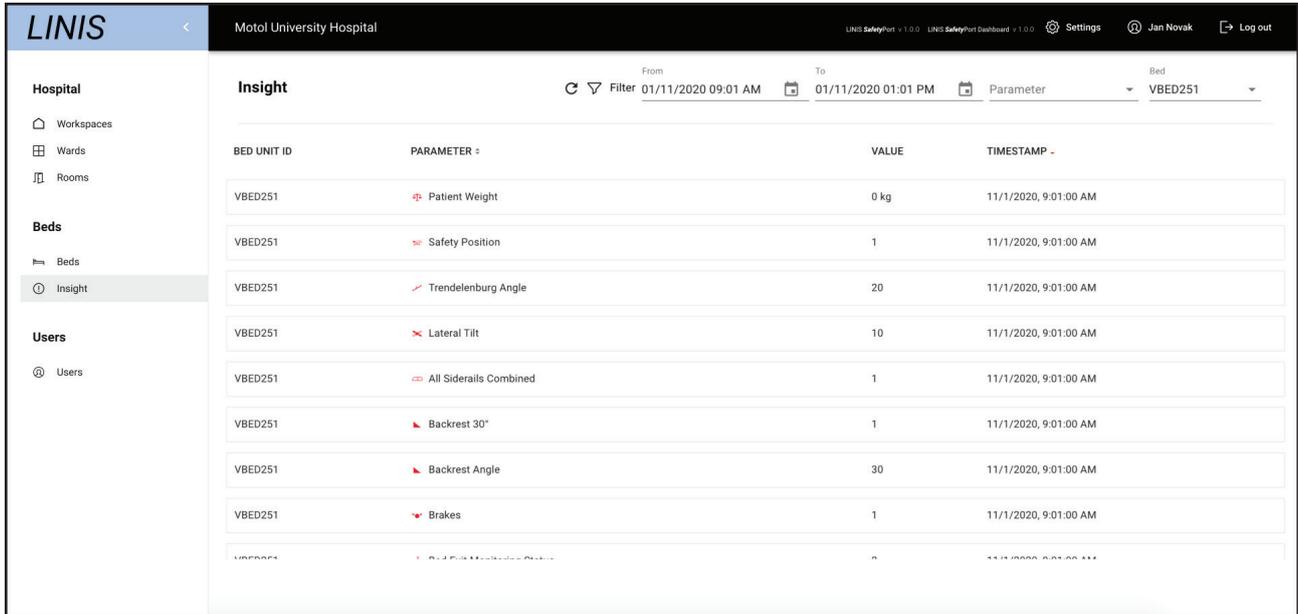
ID	BED NAME	WORKSPACE	WARD	ROOM	TAG
841Y00003/20171031212	● ID bed				
S738F00126/20171031212	● patient's name				
S739G00311/ 20190151387	● S739G00311				
S840Z00001/	● patient's name				
S841A00881/1GE5-20180007745	● S841A00881				
S841A01310/1MC-20180067584	● S841A01310				
S841A01314/	● S841A01314				
S841A01315/1GE4-20180092064	● S841A01315				

Fig. Beds

INSIGHT

This section contains list of DATA changes coming from the bed:

- **BED UNIT ID:** ID of integration module
- **PARAMETER:** name of the value
- **VALUE:** value out of value range
- **TIMESTAMP:** when the value change occurred



The screenshot shows the LINIS Insight dashboard for Motol University Hospital. The main content area displays a table of data changes for bed unit VBED251. The table has four columns: BED UNIT ID, PARAMETER, VALUE, and TIMESTAMP. The data is filtered for the date 01/11/2020. The parameters listed include Patient Weight, Safety Position, Trendelenburg Angle, Lateral Tilt, All Siderails Combined, Backrest 30°, Backrest Angle, and Brakes.

BED UNIT ID	PARAMETER	VALUE	TIMESTAMP
VBED251	Patient Weight	0 kg	11/1/2020, 9:01:00 AM
VBED251	Safety Position	1	11/1/2020, 9:01:00 AM
VBED251	Trendelenburg Angle	20	11/1/2020, 9:01:00 AM
VBED251	Lateral Tilt	10	11/1/2020, 9:01:00 AM
VBED251	All Siderails Combined	1	11/1/2020, 9:01:00 AM
VBED251	Backrest 30°	1	11/1/2020, 9:01:00 AM
VBED251	Backrest Angle	30	11/1/2020, 9:01:00 AM
VBED251	Brakes	1	11/1/2020, 9:01:00 AM

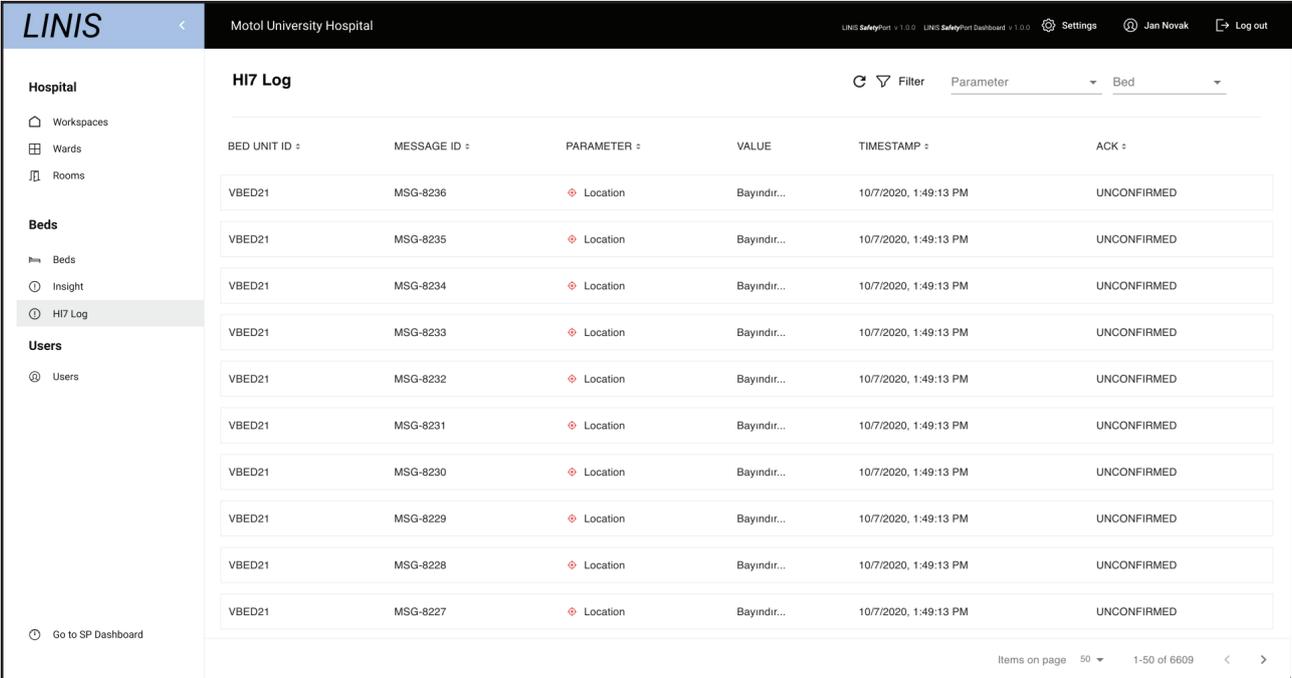
Fig. Insight

HL7 LOG

This section may or may not appear in the menu depending on the settings of your environment. It serves primarily for testing and troubleshooting purposes. It contains the history and status of messages sent via HL7 by the SafetyPort Data Transfer product. This section may be remotely turned on and off by a member of LINET staff.

HL7 messages can be filtered by Parameter and Bed in the upper right corner. The list of messages can be arranged by clicking on the arrows (up or down) next to following:

- **BED UNIT ID:** ID of integration module
- **MESSAGE ID:** ID of a specific message
- **PARAMETER:** name of the value
- **VALUE:** value out of value range
- **TIMESTAMP:** when the value change occurred
- **ACK:** acknowledgment - information stating whether the reception of the message was confirmed or unconfirmed by the endpoint



The screenshot shows the LINIS interface for Motol University Hospital. The main content area displays the 'HL7 Log' with a table of messages. The table has the following columns: BED UNIT ID, MESSAGE ID, PARAMETER, VALUE, TIMESTAMP, and ACK. The messages listed are all from VBED21 and have a status of UNCONFIRMED.

BED UNIT ID	MESSAGE ID	PARAMETER	VALUE	TIMESTAMP	ACK
VBED21	MSG-8236	Location	Bayindir...	10/7/2020, 1:49:13 PM	UNCONFIRMED
VBED21	MSG-8235	Location	Bayindir...	10/7/2020, 1:49:13 PM	UNCONFIRMED
VBED21	MSG-8234	Location	Bayindir...	10/7/2020, 1:49:13 PM	UNCONFIRMED
VBED21	MSG-8233	Location	Bayindir...	10/7/2020, 1:49:13 PM	UNCONFIRMED
VBED21	MSG-8232	Location	Bayindir...	10/7/2020, 1:49:13 PM	UNCONFIRMED
VBED21	MSG-8231	Location	Bayindir...	10/7/2020, 1:49:13 PM	UNCONFIRMED
VBED21	MSG-8230	Location	Bayindir...	10/7/2020, 1:49:13 PM	UNCONFIRMED
VBED21	MSG-8229	Location	Bayindir...	10/7/2020, 1:49:13 PM	UNCONFIRMED
VBED21	MSG-8228	Location	Bayindir...	10/7/2020, 1:49:13 PM	UNCONFIRMED
VBED21	MSG-8227	Location	Bayindir...	10/7/2020, 1:49:13 PM	UNCONFIRMED

Fig. HL7 Log

11.4.6 USERS

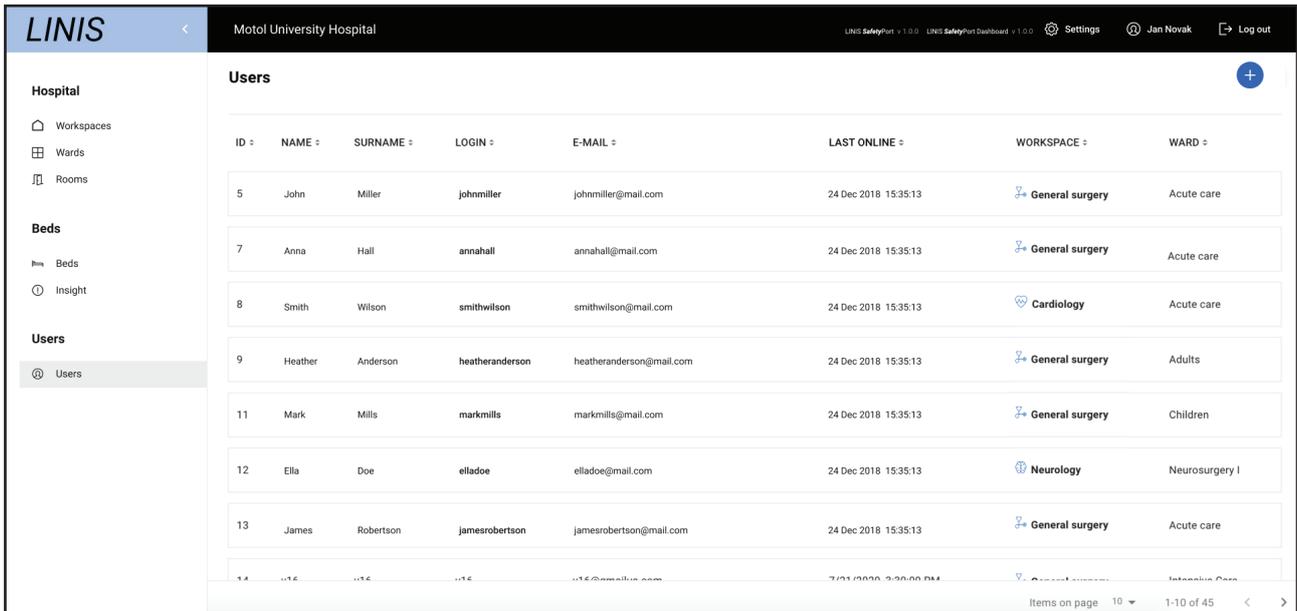
This section contains all the users of the LINIS SafetyPort system. New users can be added and existing users can be edited.

- NAME
- SURNAME
- LOGIN
- E-MAIL
- LAST ONLINE
- WORKSPACE & WARD

To create a new USER:

1. Click on USERS in the main menu.
2. Click on the red plus button in the upper right corner.
3. Fill in following:

- Personal – name and surname, language
- Account – user role, email, login and password
- Location – workspace and ward



ID	NAME	SURNAME	LOGIN	E-MAIL	LAST ONLINE	WORKSPACE	WARD
5	John	Miller	johnmiller	johnmiller@mail.com	24 Dec 2018 15:35:13	General surgery	Acute care
7	Anna	Hall	annahall	annahall@mail.com	24 Dec 2018 15:35:13	General surgery	Acute care
8	Smith	Wilson	smithwilson	smithwilson@mail.com	24 Dec 2018 15:35:13	Cardiology	Acute care
9	Heather	Anderson	heatheranderson	heatheranderson@mail.com	24 Dec 2018 15:35:13	General surgery	Adults
11	Mark	Mills	markmills	markmills@mail.com	24 Dec 2018 15:35:13	General surgery	Children
12	Ella	Doe	elladoe	elladoe@mail.com	24 Dec 2018 15:35:13	Neurology	Neurosurgery I
13	James	Robertson	jamesrobertson	jamesrobertson@mail.com	24 Dec 2018 15:35:13	General surgery	Acute care
14

Fig. Users

11.5 Dashboard (User Interface)

The Dashboard is the User Interface for qualified hospital personnel who have been trained according to these instructions for use. The Dashboard section can be customized by choosing relevant data points to be displayed in columns of the table, changing their order, deleting the irrelevant ones as well as choosing the number of rows per user.



The screenshot shows the LINET Dashboard interface. At the top, it displays 'Acute care' (3) and the version 'v 2.0.13' (4). The main area is a table with columns: LOCATION, NAME, NOTE (9), OUT OF BED STATUS, BED EXIT MONITORING, SIDERAILS, LATERAL TILT, PATIENT WEIGHT, BRAKES, TRENDLENBURG ANGLE, BACKREST ANGLE, SESSION STARTED, and SESSION ID. The table contains 12 rows of data, with some rows marked as 'Disconnected' (10) or 'Not assigned' (11). On the left side, there are navigation buttons: 'All beds' (1), 'History' (2), 'Admin' (6), and 'Logout' (5). A settings gear icon is in the top right corner.

LOCATION	NAME	NOTE	OUT OF BED STATUS	BED EXIT MONITORING	SIDERAILS	LATERAL TILT	PATIENT WEIGHT	BRAKES	TRENDELNBURG ANGLE	BACKREST ANGLE	SESSION STARTED	SESSION ID
101 [A]	K. Smith	After surgery, latex allergy		ON - Inner		R 10 °	91 kg		ATX 7 °	23 °	10/27/2020	596
101 [B]	A. Mills	Patient needs assistance		CFF		R 30 °	0 kg		ATX 20 °	30 °	10/27/2020	597
102 [A]	P. Hall	Paralyzed below waist		ON - Inner		L 20 °	60 kg		ATX 30 °	30 °	10/27/2020	591
102 [B]	Not assigned		No bed									
102 [C]	L. Miller	Inspect skin hourly		CFF		0 °	0 kg		0 °	34 °	10/29/2020	600
102 [D]	A. Wilson	Chronic cough		ON - Inner		0 °	78 kg		0 °	30 °	10/29/2020	605
104 [A]	P. Anderson		Disconnected									
104 [B]	J. Moore	Fall risk		ON - Outer		R 20 °	90 kg		ATX 10 °	30 °	10/29/2020	603
104 [C]	D. Scott	Extreme obesity		ON - Outer		R 10 °	198 kg		0 °	0 °	10/29/2020	602
Unknown	P. Bells	Stroke		ON - Inner		R 10 °	0 kg		ATX 20 °	30 °	10/29/2020	601

Fig. Dashboard Page (User Interface)

- 1 All beds**
Displays the dashboard with all beds from the unit.
- 2 History of all sessions**
Displays the history of all sessions.
- 3 Unit name**
Displays the name of the unit where all beds are being monitored.
- 4 Day/Night mode**
Allows you to switch between night and day mode of SafetyPort Dashboard.
- 5 Log out button**
Allows you to log out from SafetyPort Dashboard.
- 6 Admin tab.**
Allows you to switch to the admin section.
- 7 Datapoints title**
Displays the title of each datapoint column, the row allows 13 data points in total, 2 of them are in default settings (location and name).
- 8 Columns settings**
Allows you to add datapoint columns on the dashboard and order them in the way you want.
- 9 Unplugged icon**
Indicates that the bed was unplugged from electricity.
- 10 Disconnected status**
Displays disconnected status when the bed is unplugged longer than 5 minutes.
- 11 Unknown status**
Indicates that the bed was taken out of the tag and has an unknown location.
- 12 Not assigned status**
Indicates that there is no session started on the bed.

To add new session:

1. Click on the empty row (“Not Assigned”) which will take you to detail of the bed.
2. Press the “New Session” button and fill the details about the patient.
3. Confirm the details by pressing the “Start Session” button.

To end session:

1. Go to the details of the session, press the “Discharge” button.
2. Message ensuring your action pops up, press the “Confirm” button.
3. Session has ended, you can either press the “New patient” button in order to start a new session or press the “Back to Dashboard” button to return back to the Dashboard.

To change dashboard / data points:

Go to Column settings by clicking on the settings icon on the right upper corner. (no.8)

11.5.1 Column Settings

The Column Settings pop up window is the place where you can customize the dashboard by choosing relevant data points to be displayed in columns of the table, changing their order, unchecking the irrelevant ones as well as choosing the number of rows per user.

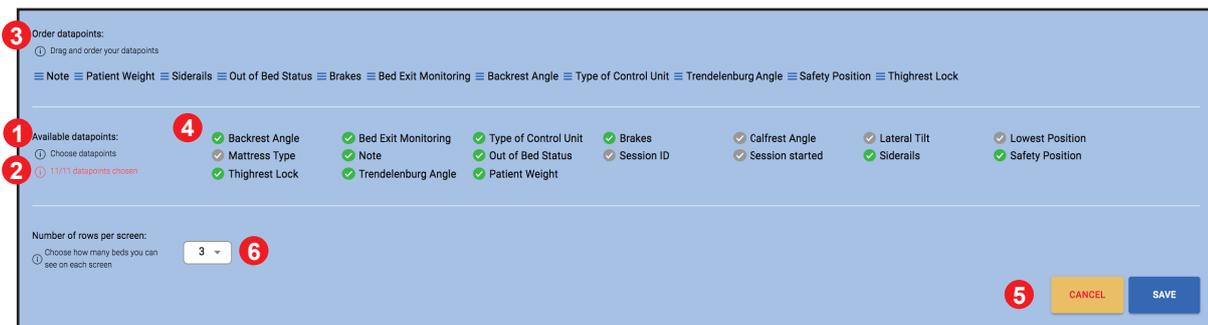


Fig. Column Settings

- 1 Available data points**
Displays 17 available data points, green colour indicates it has been selected for the dashboard, grey that it is not displayed on the dashboard.
- 2 11/11 datapoints chosen**
Indicates that the maximum amount of data points has been chosen.
- 3 Order datapoints message**
Instructs you to drag chosen data points and order them in the way you want.
- 4 Drag and drop button**
Allows you to drag and drop the chosen data point.
- 5 Save and cancel button**
Allows you to save or cancel the changes in column settings.
- 6 Add the number of rows/beds button**
Allows you to choose how many beds you can see on each screen of dashboard.

To select available datapoint:

1. Select relevant data points you would like to see on the dashboard. When the check box of datapoint turns green it appears on the right side of the datapoint row. (no.4).
2. Drag and order selected data points by clicking on the burger menu which is positioned on the left side of each data point.
3. Unselect any datapoint by unchecking the icon positioned on the left side of each data point.
4. After you select or unselect relevant data point and place them preferred order and click on the “Save” button. In case you want to leave without saving the changes, click the “Cancel” button.

Rows per screen:

1. Type number of rows you want to see on the dashboard screen.
2. After selection, click on the **“Save”** button, in case you want to leave without saving the changes, click the **“Cancel”** button.

11.5.2 Session Detail

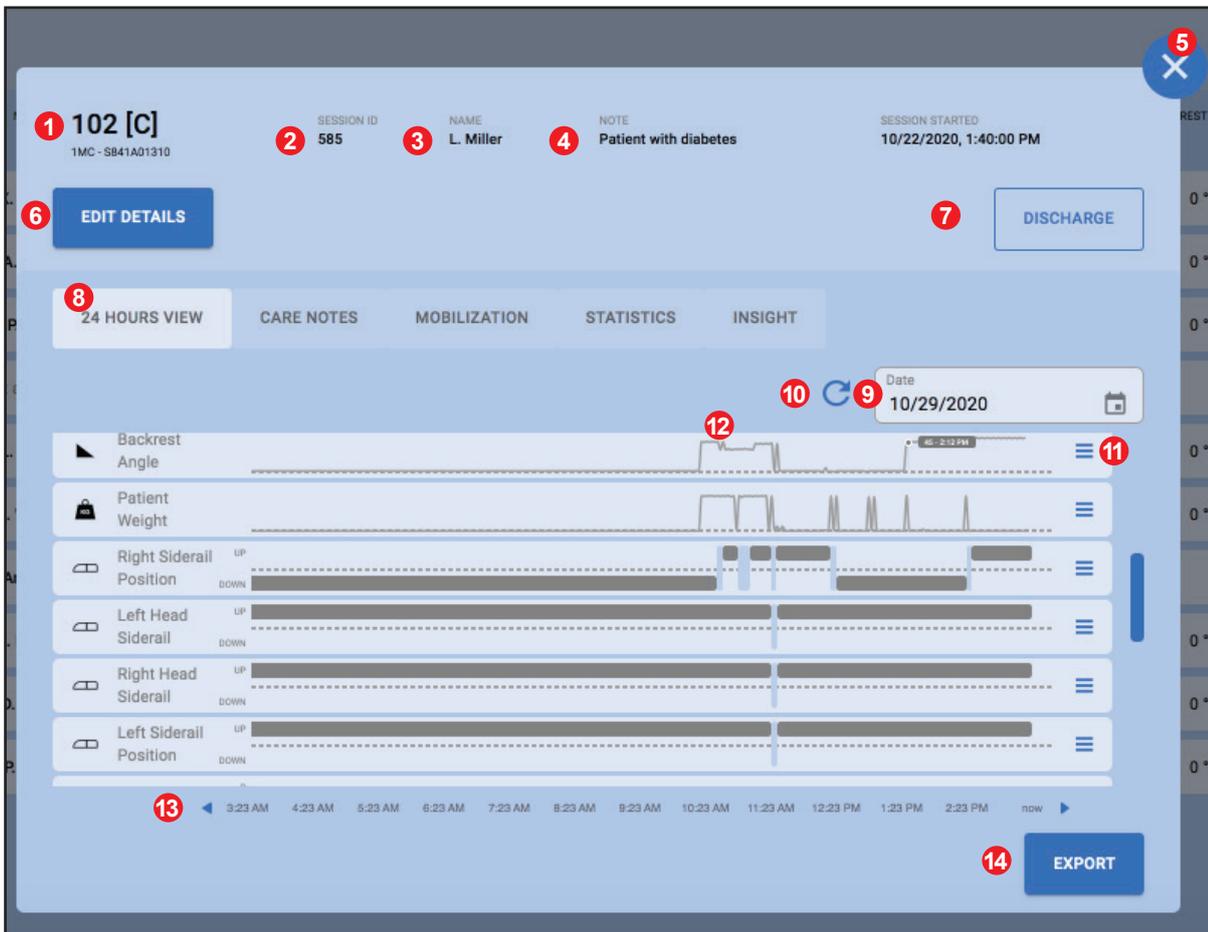


Fig. Session Detail

- 1 Location of bed**
Displays the exact location of the bed.
- 2 Session ID**
Displays the session ID.
- 3 Name**
Displays the First initial and surname of the patient on the bed.
- 4 Note**
Displays editable note about the patient written by a nurse.
- 5 Cancel button**
Allows you to close the detail of the session so you can return back to the main dashboard with all beds.
- 6 Edit details button**
Allows you to edit the patient’s name and a note about him.
- 7 Discharge button**
Allows you to end the session once the patient is being removed from the bed.
- 8 24 hours view tab**
Displays last 24 hours view of all data points.

- 9 Time filter**
Allows you to pick any 24 hours from the session.
- 10 Refresh button**
Allows you to refresh the 24 hours view page and have the most up to date information.
- 11 Drag and drop button**
Allows you to prioritize chosen data points in the order you want.
- 12 Timeline - hover on datapoint**
Allows you to hover on any data point on the timeline and see the exact value at that moment (5 minutes slot). After you click on it, you are taken to the INSIGHT tab to see the detail.
- 13 Timeline**
Allows you to move with the arrows from the beginning of 24 hours view to the end by one hour.
- 14 Export button**
Allows you to export all data from tabs and store patient data in other systems/on paper.

To edit session:

Press the “Edit details button” (no.6) and edit the patient’s name and note about him and confirm by pressing the “Save” button.

To export data:

1. Press the “Export button” (no.14) and choose what tabs to export.
2. On the pop-up screen, click on checkmarks next to the data you want to export and choose the dates you need to export.
3. Confirm by pressing the “Export button”, each tab will be downloaded automatically as a separate file.

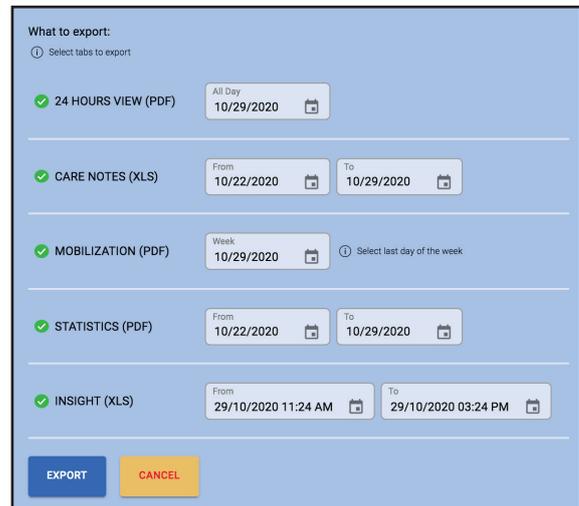


Fig. Data Export

To prioritize chosen data points:

Drag the datapoint on the right side where hamburger menu is and drop at the wanted position. (e.g. from third to the first one.)

To move in timeline:

When you click on an arrow the timeline moves by one hour. When you move scroll bar from top to down, you will see one datapoint more by small movement.

To filter timeline:

Rewrite the date or click on the calendar icon to choose the day you want to see.(no.9)

11.5.3 Care Notes

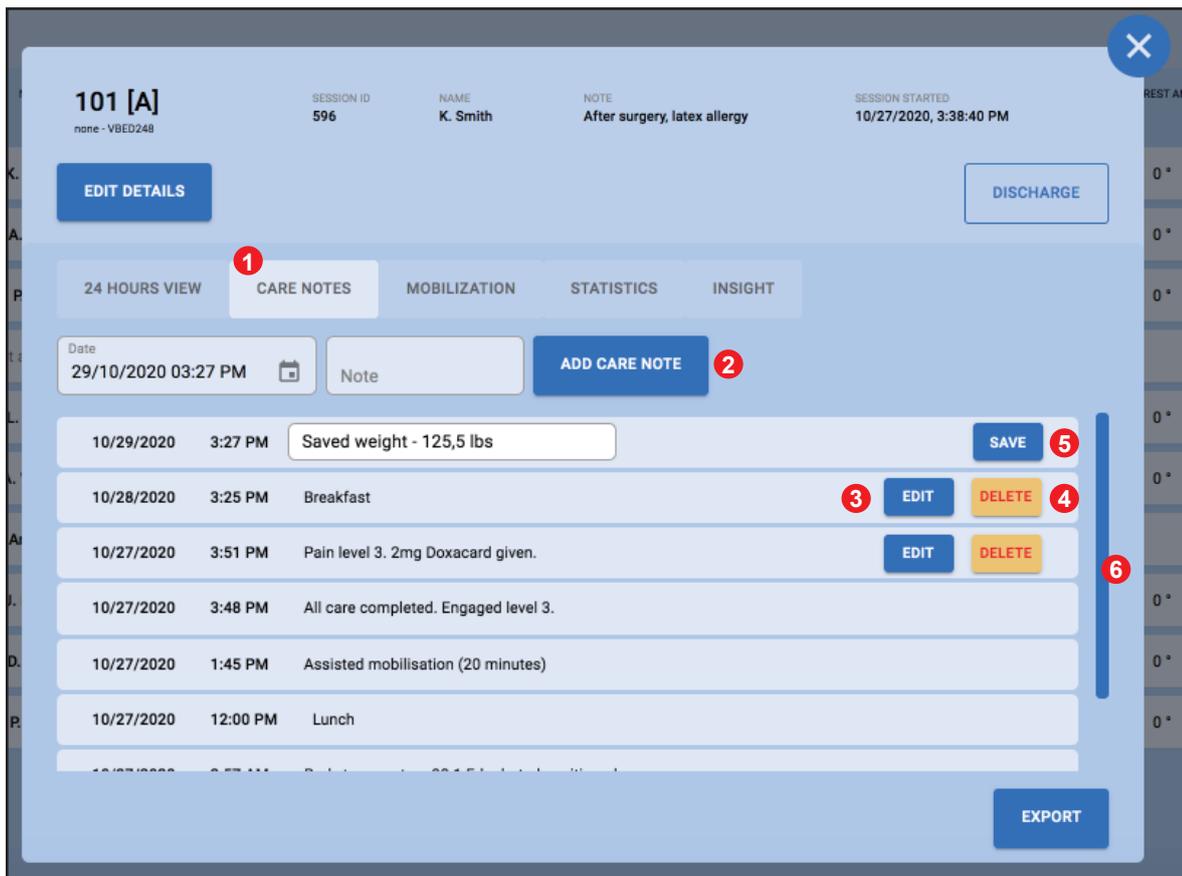


Fig. Care Notes

- 1 Care Notes tab**
Allows you to document and see the care you provided to the patient.
- 2 Add care note**
Allows you to add a new care note.
- 3 Edit button**
Allows you to edit the latest care notes in case you want to add more details of the care you provided. The timeframe for editing care notes can be changed in admin settings.
- 4 Delete button**
Allows you to delete care notes. The timeframe for erasing care notes can be changed in admin settings.
- 5 Save button**
Allows you to save care notes after you edit them.
- 6 Scroll function**
Allows you to scroll and see all care notes created within this session.

To add new care note:

Fill in the time and note and click on the „Add Care Note“ button. (no 2.)

To edit care note:

After adding a care note, the new note appears on the first place in the CareNotes tab. Click on edit and edit the text of the note (time is not editable). After editing the text field click on the „Save“ button.

To delete care note:

After adding a care note, the new note appears on the first place in the CareNotes tab. Click on delete. A Pop-up with “Are you sure to delete this Care Note?” appears with „Confirm and Cancel buttons. Click on the “Confirm” button.

11.5.4 Mobilization Overview

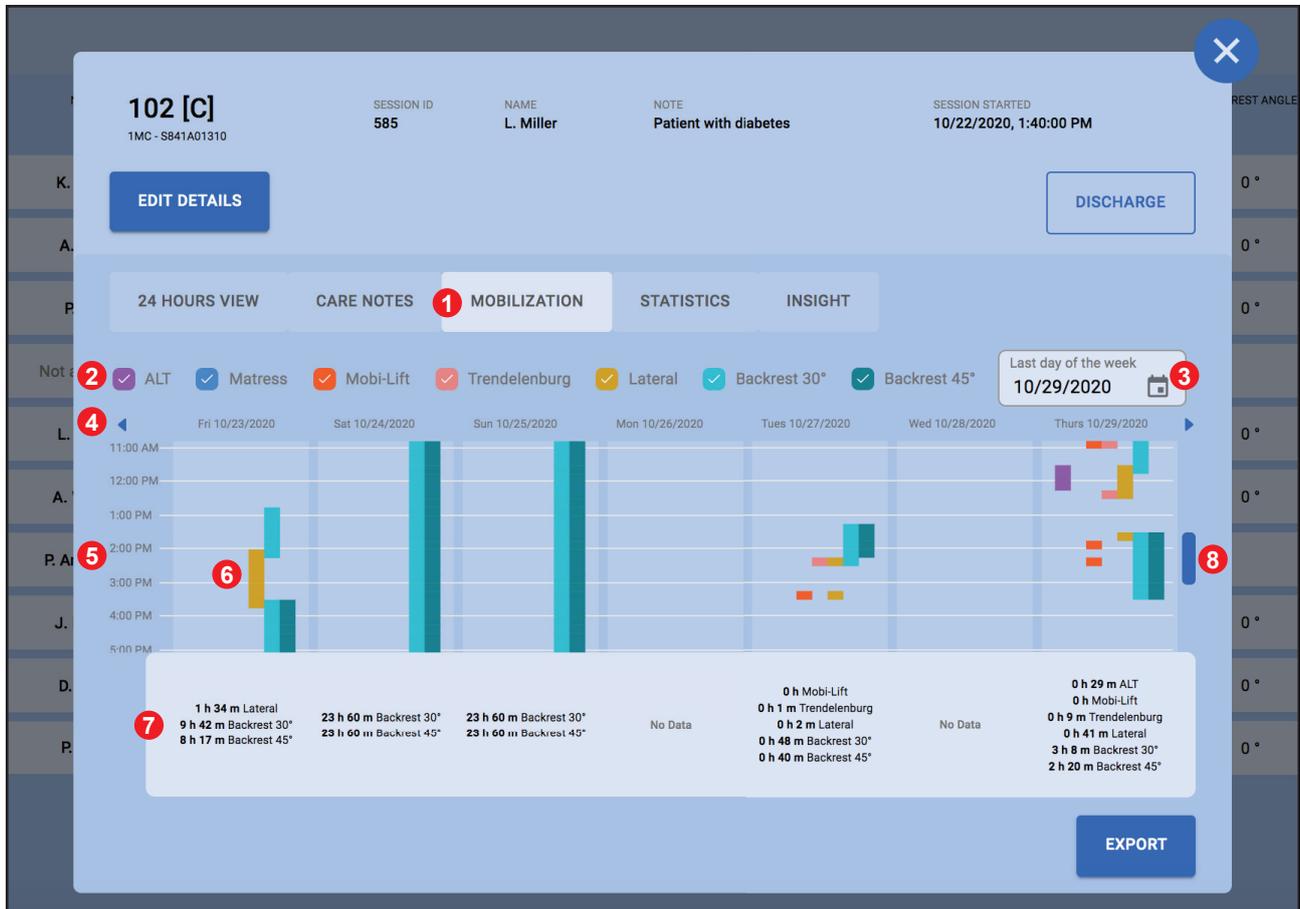


Fig. Mobilization Overview

- 1 Mobilization tab**
Displays an overview of mobilization changes in time for the last week.
- 2 Selection of mobilization datapoints**
Allows you to select and unselect mobilization data points you want to see in the week overview. The following data points you can select are: ALT, Mattress, Mobi-Lift, Trendelenburg, Lateral tilt, Backrest 30° and Backrest 45°.
- 3 Time filter**
Allows you to pick any week from the session by opening a calendar where you can select it.
- 4 Week navigation**
Allows you to move in mobilization tab day by day so you can compare notes across days.
- 5 Time**
Displays the last 6 hours of the day.
- 6 Time indicator**
Displays the actual time of the day you are at in order to easily navigate in the mobilization calendar.
- 7 A daily summary of mobilization data points**
Displays a summary of all mobilization data points from the day.
- 8 Scroll function**
Allows you to scroll within the mobilization and see the whole day.

To select/unselect data points in mobilization overview:

Select or unselect the box next to any datapoint (Backrest 30, Backrest 45, Mattress, Lateral Tilt, Trendelenburg, Mobilift, ALT) then data point change appears (disappear) in overview.

To filter timeline:

Rewrite the date or click on the calendar icon to choose the day you want to see. (no.4)

11.5.5 Statistics Section

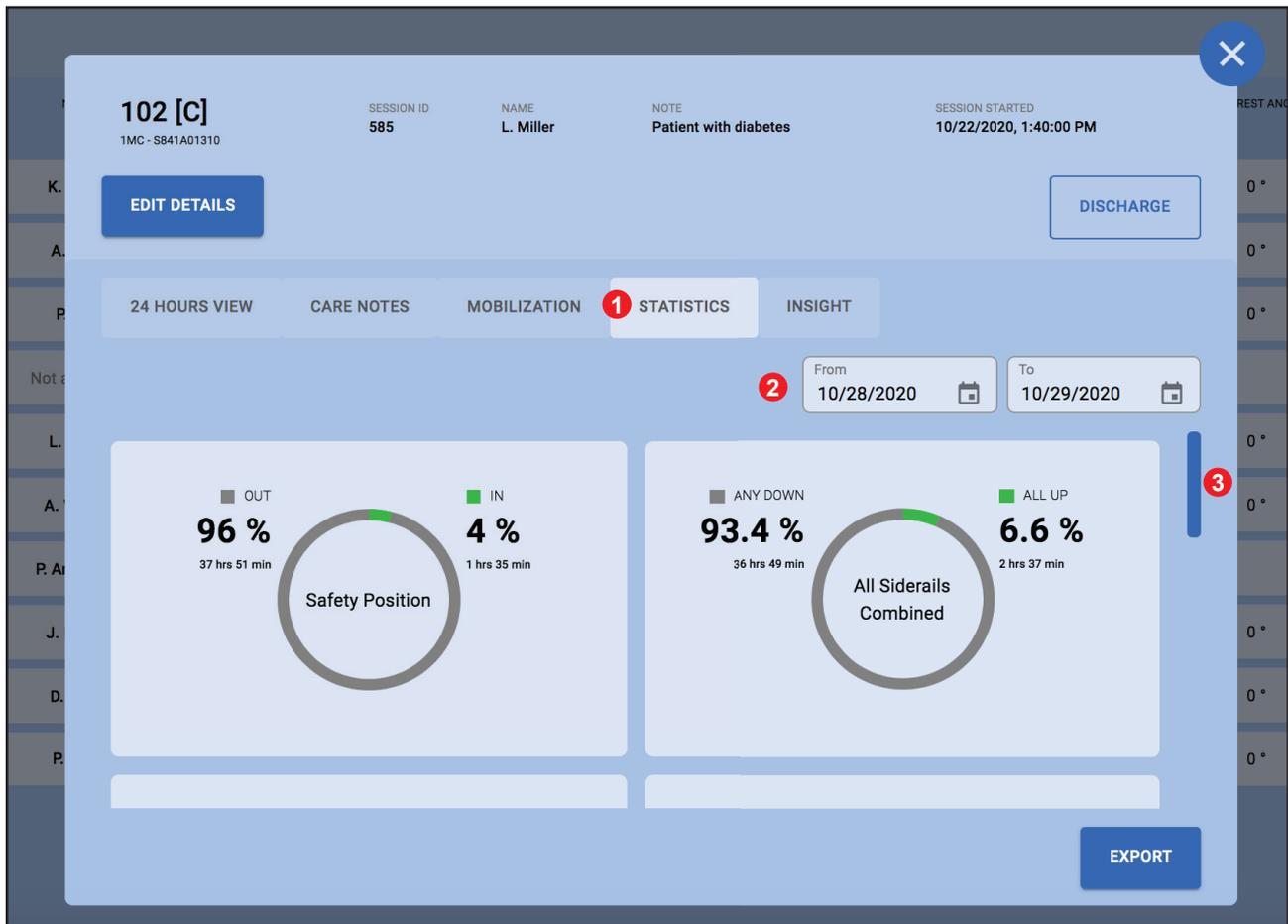


Fig. Mobilization Overview

- 1 Statistics tab**
Displays statistics piecharts of patients which evaluates how long he's been in each position.
- 2 Time filter**
Allows you to select dates in order to evaluate piechart for the chosen period of time.
- 3 Scroll function**
Allows you to scroll within the Statistics section and see all the piecharts.

11.5.6 Insights Section

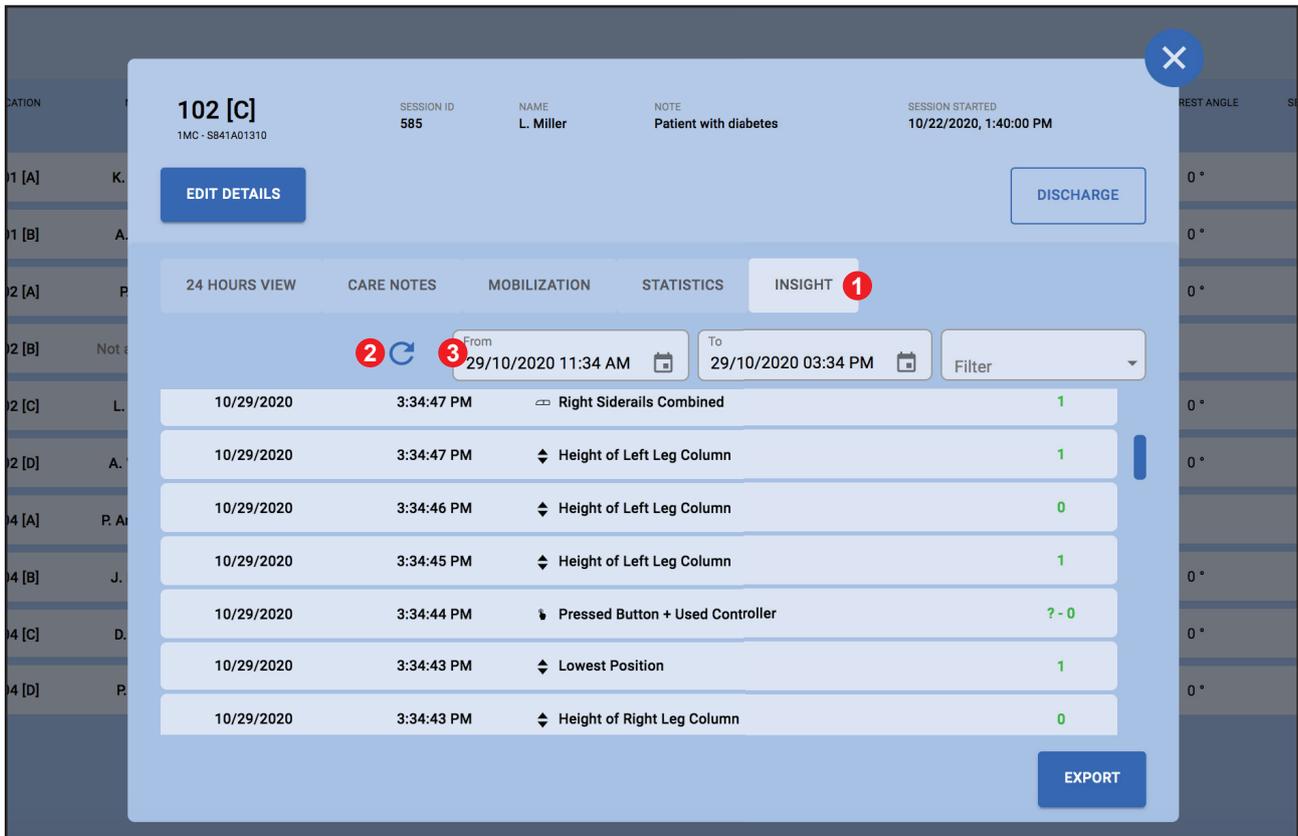


Fig. Insights Section

- 1 Insight tab**
Displays list of all incoming messages chronologically from the latest.
- 2 Refresh button**
Allows you to refresh the page.
- 3 Time filter**
Allows you to select dates in order to evaluate data history for the chosen period of time.

11.5.7 Ending session

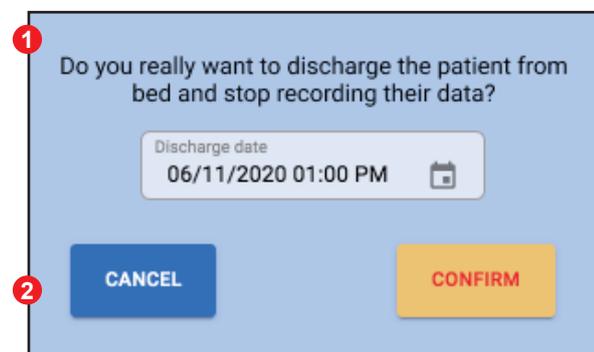
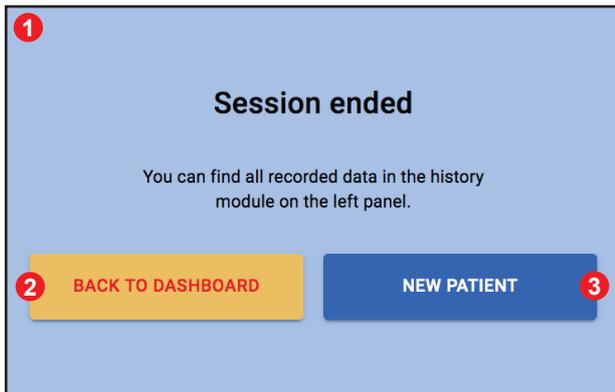


Fig. Discharge pop up window

- 1 Discharge pop up window**
Indicates that you pressed the discharge button and verifies your action.
- 2 Cancel and Confirm button**
Allows you to either confirm or cancel the action above.



- 1 The session ended - pop up window**
Indicates that the session ended.
- 2 Back to dashboard - button**
Allows you to return back to the dashboard.
- 3 New patient - button**
Allows you to start a new session on this bed.

Fig. Session ended pop up window

11.5.8 History of all sessions

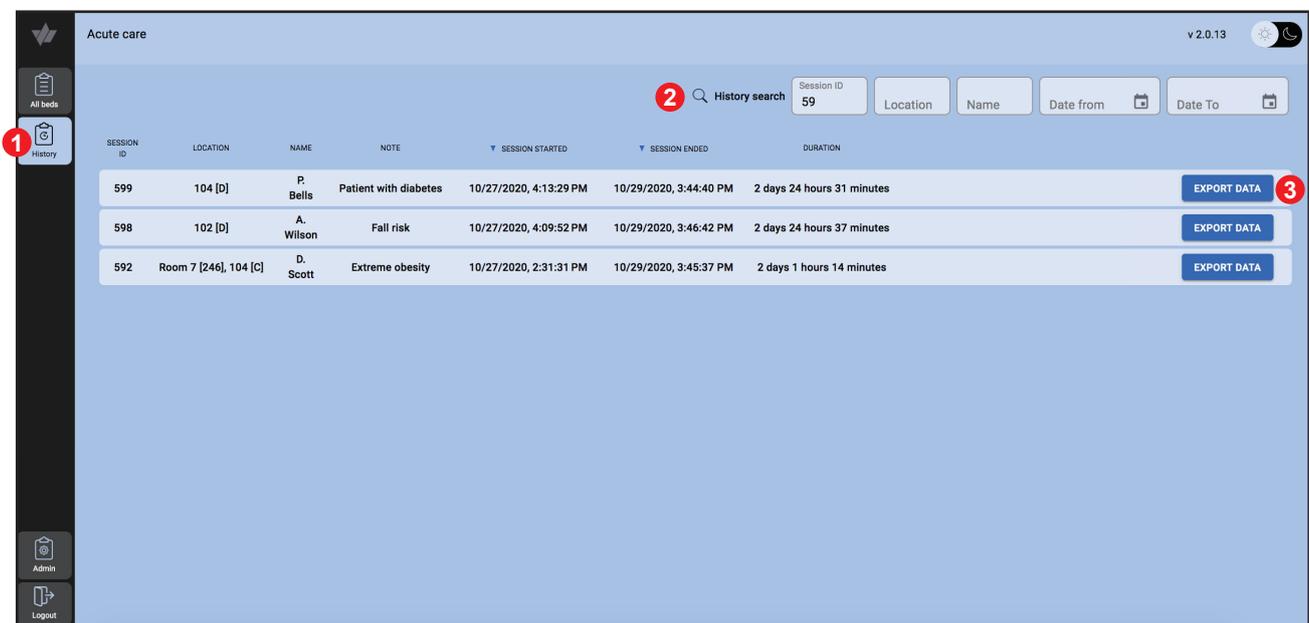


Fig. History of all sessions

- 1 History of all sessions**
Displays a list of ended sessions during the last 48 hours and allows you to export data from each session.
- 2 History search**
Allows you to search for ended sessions by session ID, location, name of the patient or dates.
- 3 Export button**
Allows you to export the whole session.
- 4 Export pop up window**
Allows you to select any tabs from the ended session and export it.

To search for ended session:

Click on "History search" (no.2) and search based on session ID, location, name, date.

4 What to export:

① Select a date to export

24 Hours view (pdf) All day

Care Notes (xls) From To

Mobilization (pdf) From To

Statistics (pdf) From To

Data History (xls) All day

Fig. Data Export

To export data:

1. Press the "Export button" and choose what tabs to export.
2. On the pop-up screen, click on checkmarks next to the data you want to export and choose the dates you need to export.
3. Confirm by pressing the "Export" button, each tab will be downloaded automatically as a separate file.

11.5.9 Detail of ended session

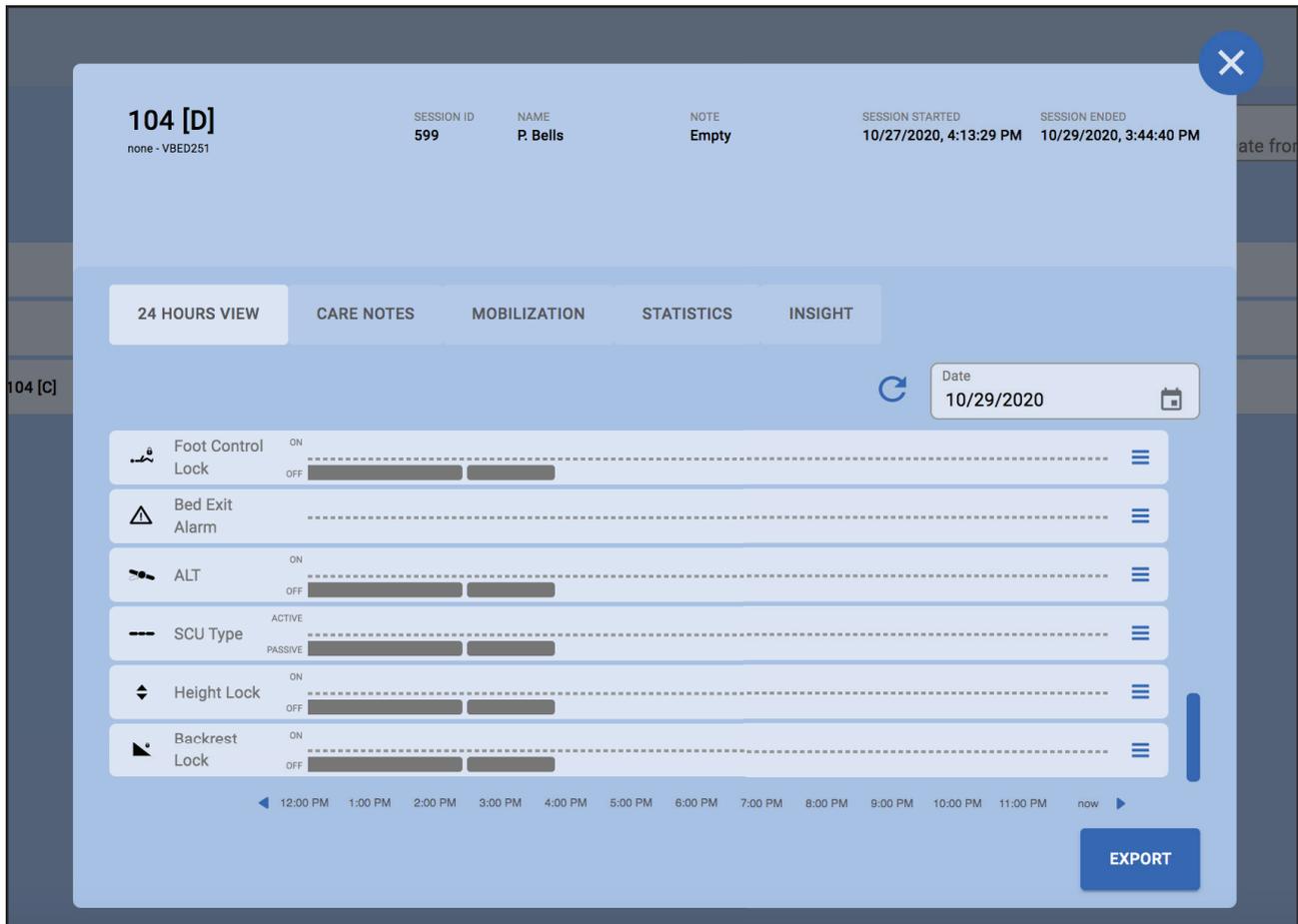


Fig. Detail of ended session

Detail of ended session:

Details of the ended session are designed the same as the ongoing session, except on the upper right corner there is an exact date when session started (no.1) and when session ended (no.2).

12 Malfunctions and Troubleshooting

⚠ DANGER!

Danger of fatal electric shock!

- ➡ If a malfunction occurs, the power supply or other electric components may be repaired exclusively by qualified staff.
- ➡ Never open the power supply protective covers.

Failure	Probable cause	Solution
Impossible to connect bed to network	<ol style="list-style-type: none"> 1. Wi-Fi failure 2. System is incorrectly set 3. The VPN was removed during a firewall upgrade 	<p>Are the other beds connected? If yes, than the problem is on server side. Check the Wi-Fi availability (mobile phone, PC). Call hospital IT department.</p> <p>If only one bed is not connected, contact service department approved by the manufacturer.</p>
System doesn't register bed settings changes	<ol style="list-style-type: none"> 1. Wi-Fi failure 2. Incorrect configuration of LAN 	<p>Is the bed connected to the mains? Connect bed to the mains. Call hospital IT department.</p> <p>If this failure remains, contact service department approved by the manufacturer.</p>
System doesn't show Administration interface	<ol style="list-style-type: none"> 1. LINIS SafetyPort is switched off / has a failure 2. wrong address is set 3. network failureserver failure 	<p>Make sure that monitor runs correctly. Make sure that you have a correct URL address. In case that monitor runs correctly and URL address is correct, contact hospital IT department.</p>
System doesn't register siderail status on a single bed	<ol style="list-style-type: none"> 1. Network failure 2. Siderail end switch(es) is (are) defective or disconnected 3. IM is defective 4. Wrong server settings 5. Control Unit is defective 	<p>Contact service department approved by the manufacturer.</p>
System doesn't register change of brakes status on a single bed	<ol style="list-style-type: none"> 1. Network failure 2. Brake sensor is defective or disconnected 3. IM is defective 4. Wrong server settings 5. Undercarriage module is defective or disconnectedControl Unit is defective 	<p>Contact service department approved by the manufacturer.</p>
System doesn't register change of backrest angle on a single bed	<ol style="list-style-type: none"> 1. Network failure 2. Backrest angle sensor is defective or disconnected 3. IM is defective 4. Wrong server settings 5. Control Unit is defective 	<p>Contact service department approved by the manufacturer.</p>

Failure	Probable cause	Solution
System doesn't register change of bed height	<ol style="list-style-type: none"> 1. Network failure 2. Column is defective or disconnected 3. IM is defective 4. Wrong server settings 5. Control Unit is defective 	Contact service department approved by the manufacturer.
System doesn't register Bed Exit Monitoring	<ol style="list-style-type: none"> 1. Network failure 2. IM is defective 3. Wrong server settings 4. Control Unit is defective 5. Scales module is defective 6. Tensometer is defective 7. Bed is not equipped with scales 	Contact service department approved by the manufacturer.
System doesn't register localisation	<ol style="list-style-type: none"> 1. IM is defective 2. TAG is defective 3. Localisation is defective 4. Server problem 	<p>Park the bed to another parking position and check if it is localized.</p> <p>If yes, then the problem is in TAG.</p> <p>Contact service department approved by the manufacturer.</p>
System doesn't register lateral tilt	<ol style="list-style-type: none"> 1. Network failure 2. IM is defective 3. Wrong server settings 4. Control Unit is defective 5. Potentiometer is defective 6. Bed is not equipped with lateral tilt positioning 	<p>Check the angle on iBoard or Multi-board or Multiboard X.</p> <p>Contact service department approved by the manufacturer.</p>
System doesn't register scales	<ol style="list-style-type: none"> 1. Network failure 2. IM is defective 3. Wrong server settings 4. Control Unit is defective 5. Scales module is defective 6. Tensometer is defective 7. Bed is not equipped with scales 	<p>Check the weight value on iBoard or Multi-board or Multiboard X.</p> <p>Contact service department approved by the manufacturer.</p>

12.1 Contact on Customer Service

In case of forgotten password or user changes such as deletion, blocking, transcription, own permissions or other relevant questions, please contact the customer service on: service@linetgroup.com

13 Maintenance

WARNING!

Risk of injury when working on the bed!

- Check that the bed is disconnected from the electricity before carrying out assembly, disassembly and maintenance.
- Check that the bed's wheel-brakes have been applied before carrying out assembly, disassembly and maintenance.
- Ensure that all features are locked on the Control Panel during installation, maintenance and cleaning.

WARNING!

A defective system could cause injury!

- A defective system must be repaired by a qualified service organisation without delay.
- If it is not possible to repair the fault, do not use the system.

CAUTION!

Incorrect maintenance could result in damage to the system or the bed!

- Make sure that only the manufacturer's customer service is performing maintenance.

13.1 System Maintenance

- ▶ Servicing of any sort may be carried out only by qualified and certified persons or service organisations certified by LINET®. For information on servicing or service documentation and electrical wiring schematics, please contact the manufacturer.
- ▶ Ensure that programmed maintenance is carried out a minimum of once every 12 months.
- ▶ Given the battery life, have Tag replaced every 5 years.
- ▶ Given the battery life, have the integration module replaced every 10 years.
- ▶ The manufacturer certifies service organisations qualified to carry out servicing and maintenance on LINET® beds and systems.
- ▶ Do not use a faulty or defective system. Contact the manufacturer or a service organisation certified by the manufacturer immediately.

13.2 Spare Parts

The product serial labels contain information for claims and ordering spare parts.

14 Disposal

14.1 Environmental Protection

LINET® is aware of the importance of protecting the environment for future generations.

Materials used in this product will not endanger the environment. They do not contain any cadmium-, mercury-, asbestos-, polychlorinated biphenyl- or CFC-based substances. Noise emissions and vibrations conform with the regulations valid in the place of use.

All waste packaging resulting from bringing the product into operation is labelled in accordance with applicable packaging regulations. After installing the beds, the LINET® service company will sort all packaging waste according to the graphic symbols listed and will dispose of them via the approved company for waste disposal. Please contact your Sales Representative or LINET® service technician for free packaging return options via the approved company for waste disposal. See www.linnet.cz for more information.

The product contains recycled steel, plastic and electronic components – for optimum recycling possibilities when the product has come to the end of its useful life, please separate the individual components so that the raw materials from which the product was made can be used further.



14.2 Disposal within Europe



Disposal of devices:

- ❖ Do not dispose of any devices in domestic waste.
- ❖ Send them to a collection point dealing with recycling electrical devices.

Materials used in this device are reusable. Reusing, material recycling or other ways of making use of used appliances all make an important contribution to protecting our environment.

You can obtain information about suitable collection points from the competent environmental protection bodies. Based on a decision by the Czech Ministry of the Environment, hospital beds with electric controls are not considered electrical or electronic devices within the meaning of the Law on Waste Disposal. The symbol listed on the product or in the accompanying documents means that any used electrical or electronic components (waste electrical and electronic equipment = WEEE) may not be discarded (disposed of) in municipal waste. In order to dispose of the entire product correctly, please take WEEE to the places dedicated to this purpose by specialised companies, where they will be accepted free of charge.

Tag contains lithium battery!



14.3 Disposal outside Europe

- ▶ Please dispose of the bed or its components in accordance with local regulations and provisions:
 - After using the bed.
 - After installing and maintaining.
- ▶ For the purposes of disposal, please order the services of an approved company specialising in waste disposal.

15 Warranty

LINET® is liable only for the safety and reliability of products which undergo regular maintenance and which are used in accordance with the safety instructions.

If a serious fault occurs which cannot be repaired during standard maintenance:

- ▶ do not use the system again

The warranty on this product covers a period of 24 months. The product warranty begins with the delivery date of the LINET® product to the end user. The warranty covers all faults and defects in materials or manufacture. The warranty does not cover failures and faults caused by incorrect use or external errors. Legitimate complaints will be rectified free of charge during the warranty period. Proof of purchase giving a purchase date is a pre-requisite for all service under warranty. Our general terms and conditions apply.