LINET®

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# *LINIS* ***Safety****Port*

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

## Instructions for Use and Technical Description

D9U001SW2-0110

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**LINIS SafetyPort**
System for automated transfer and visualisation of various data from LINET® beds
Release date: 31.10.2024

Author: LINET spol. s r. o.
Link: www.linet.com

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# Table of Contents

# 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 Patents and Trade Marks

| The following Trademarks are registered Trademarks in U.S.A.: |
| --- |
| LINET® |
| LINIS SafetyPort® |

**Link to the list of registered Trademarks and Patents:**

https://www.linetamericas.com/en-US/about-us/list-of-patents

## 1.5 Product Symbols

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

## 1.6 Visual Signalization

| Datapoints (monitored statuses) | Visual Signalization | Meaning |
|---|---|---|
| **Bed Monitoring Status** | ON-INNER | Monitoring is set in Inner zone. When bed is set in this more sensitive mode - bed exit alarm on the bed is triggered when a patient moves from the centre of bed (e.g. intends to stand) and red figure appear on dashboard. |
| | ON-OUTER | Monitoring is set in Outer zone. When bed is set in this mode - bed exist alarm on the bed is triggered when a patient completely leaves the bed and red figure appear on dashboard. |
| | OFF | Bed Exit Event has been turned OFF on bed where patient was marked with low Fall risk. |
| | OFF | Bed Exit Event is OFF and patient marked with high Fall risk is in bed. |
| | PAUSE | Bed Exit Event is PAUSED and patient is out of bed. |
| **Out of Bed Status** |  | Bed Exit Event is ON, patient is IN bed. |
| |  | Bed exit event is OFF, patient marked with low fall risk is IN bed. |
| |  | Bed exit event is OFF, patient marked with high fall risk is IN bed. |
| |  | Bed Exit Event is ON, patient is moving or out of bed. |
| |  | Bed Exit Event is OFF, patient is moving or out of bed. |
| **Safety Position** |  | Safety Position monitoring is activated. |
| |  | Safety Position monitoring is turned off. |
| **Siderails** |  | All siderails are up. |
| |  | Left head siderail and right siderail are down. |
| |  | All siderails up (Applies on Eleganza 3 (US), 3XC and 4 bed equipped with PB 43). |
| |  | Any siderail down (Applies on Eleganza 3 (US), 3XC and 4 bed equipped with PB 43). |

| Datapoints (monitored statuses) | Visual Signalization | Meaning |
|---|---|---|
| **Brakes** |  | Brakes are locked. Bed is braked. |
| |  | Brakes are unlocked. Bed is unbraked. |
| **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** |  | 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** |  | 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** | *Opticare -X/Opticare / Symbioso / -* | Indicates if any active mattress is connected to the bed. |
| **Location is unknown** | *Location is unknown* | Bed is online, but it is not localize by any type of localization. Bed is online, but it is not localize by any type of localization. |

| Datapoints (monitored statuses) | Visual Signalization | Meaning |
|---|---|---|
| **Bed Type** | MC, MCLE, MCX, E5, E4, E3, E3XC | Value is inserted by the technician during the installation process. |
| **Bed is used by another unit** | *Bed is used by another unit* | When the bed is localized by on parking places of different units and option shows all beds are ON on Dashboard. |
| **Communication Offline** | *Communication Offline* | If the bed is disconnected/ not sending data, there will be no data shown in the table and whole row will be covered by “Communication Offline” overlay. Only the last location, name and note are persisted. |
| **Unplugged** |  | Bed is not powered, but connected to server (Value of datapoints are not displayed). |
| **Plugged** |  | Bed is plugged into the mains and powered. |
| **Session ID** | e.g. 815 | Shows the number of session. |
| **Session Started** | e.g. 10/22/2020 | Indicates the date sesssion was started. |
| **Tag Battery Charge Status** |  Unknown | Unknown charge level (information is not available). |
| |  Low - Replace! | Low charge level (1% -29% battery capacity). Replace the battery with a new one! |
| |  Medium | Medium charge level (30% - 69% battery capacity). |
| |  High | High charge level (70%-100% battery capacity). |
| **Bed Battery Charging** |  | Bed is charging. |
| |  | Bed is not charging. |
| **Bed Battery Failure** |  | Battery is OK. |
| |  | Battery absence or failure condition. |

## 1.7 Definition

| | |
|---|---|
| **Alarm** | Bed Exit Event (alarm signal)<br>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 |

## 1.8 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:**

| Parameter | Value |
|---|---|
| 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.

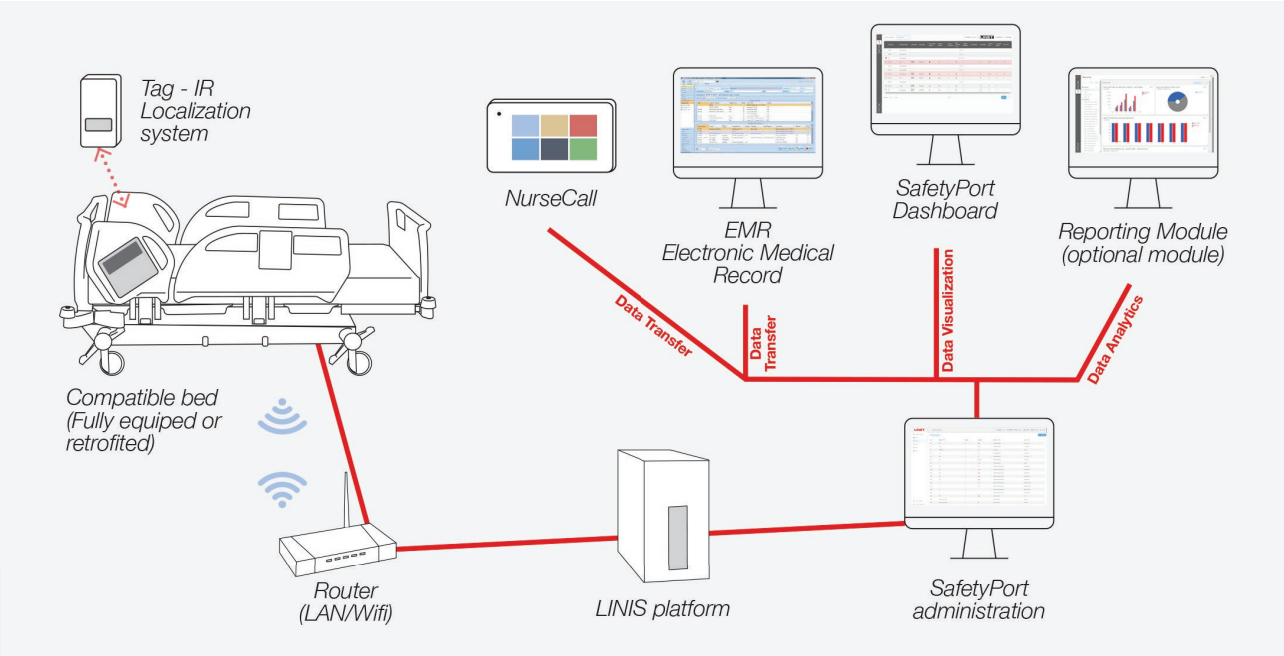


*Fig. LINIS SafetyPort system connection diagram*

## 4.1 Module of the product

The complete SafetyPort solution consists of two sections - administration interface served for application setup, data transfer and troubleshooting, clinical dashboard for data visualization and operation management, which can be extended by optional module dedicated to reporting purposes enabled data analysis.

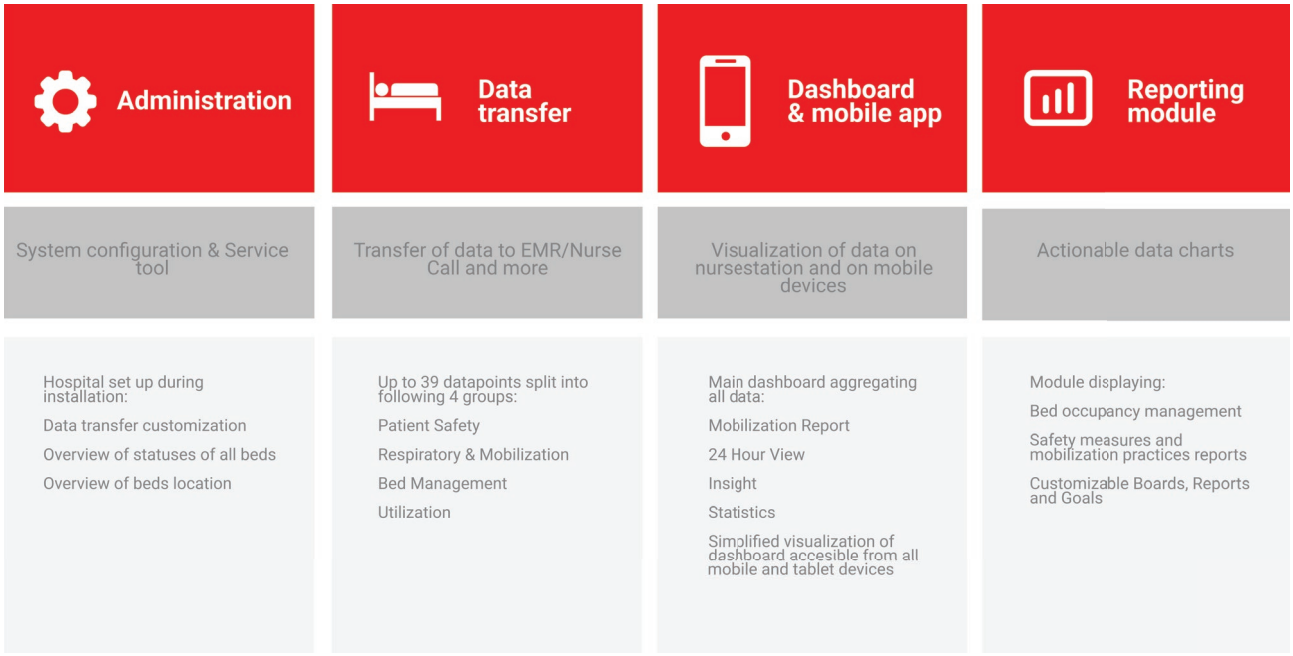


*Fig. LINIS SafetyPort solution overview*

### 4.1.1 Data transfer

The main purpose of the administration interface of Safety Port is to set up data transfer. Data transfer helps 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.

It consist of four groups of data points:

**a) Patient Safety Module** - Set of 16 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 a detailed overview of clinical practice at the facility and compare it with department standards.

### 4.1.2 Clinical Dashboard

Web-based application and also mobile application visualizing 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 mobilization techniques, positioning of the bed and its usage.

### 4.1.3 Reporting module

Reporting module is a tool for analysis of trends and statistics in key parameters to help you measure progress, track quality of execution of established procedures related to beds and thus keep it under control.It serves for all users from chief nurse officer, hospital management to biomeds and helps them efficiently manage their responsibilities and fulfill their goals. Main topics of interest can be data about availability of bed capacities, bed connectivity, patient safety, patient mobilization etc.

### 4.1.4 Administration interface

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.

Further information to be found in ”11.5 Administration Interface” on the page 24.

# 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*** <br>■ 128kbit/s (upload) per 100 beds <br>■ 400kbit/s (upload) per 100 beds in the graphical interface <br>■ 32kbit/s (upload) per 100 beds with export of data to the hospital system (HIS) |
| **Minimal server requirements** | ■ CPU: 4 core, 3 GHz <br>■ Memory: 8 GB RAM <br>■ Storage: 10 GB (Applications) + 40 MB for 1 days of data per single bed |
| **Server operating system** | **Supported** <br>■ Ubuntu 20.04.1 <br>■ Windows 8.1 Pro <br>■ Windows 10, Version 1903, Build 18362 (and higher) <br>**Supported with major difficulties** <br>■ Windows Server 2019 |
| **Data format for export to the HIS** | HL7 v2 |
| **Computer network according to standards** <br>**LAN** <br>**WLAN** <br>**standards** | IEEE 802.3 <br>IEEE802.11 (802.11b/g, WPA/WPA2) <br>IM v1 supports Wi-Fi 3 <br>IM v1 with 5ghz module Wi-Fi 4 |
| **Graphical interface for display at the nurse station** | **Recommended (full support):** Google Chrome (Version 91 or higher), Microsoft Edge (Version 94 or higher), Safari (Version 14 or higher) <br>**Limited support:** Firefox (Version 92 or higher) <br>**Not supported:** Internet Explorer, Opera |
| **Required ports** | ■ bed ⟶ LINIS SafetyPort server: 10180, LINIS SafetyPort server ⟶ bed: 10180 or any <br>■ user workstation ⟷ LINIS SafetyPort server: 8888, 3600, 3306 <br>■ 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

Generally we use synchronous hl7 communication in SP (each message has to be acknowledged) because it more commonly used by other vendors. However we support both synchronous and asynchronous mode.

- **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 pre ferred, since data don't get delayed and eventually lost.

# 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)**<br>**Votage**<br>**Capacity**<br>**Maximum power input** | <br>3V<br>200 mAh<br>Max. 0.15 W |
| **Tag lithium battery (CP752425)**<br>**Votage**<br>**Capacity** | <br>3V<br>900 mAh |
| **Ingress protection** | IP54 |

## 6.2 Electronic Compatibility

| Parameter | Value |
|---|---|
| Control unit:<br>Multicare X<br>Eleganza 5<br>Multicare<br>Multicare LE<br>Eleganza 4<br>Eleganza 3XC<br>Eleganza 3 (US version) | <br>PB46.13 (8211-4613 and higher)<br>PB46.12 (8211-4612F and higher)<br>PB46.12 (8211-4612F and higher)<br>PB46.12 (8211-4612F and higher)<br>PB43 RED (8211-44xB and higher) |
| Scales module | 8300-0694C or 8300-0695C or 8300-696B |
| iBoard Standard:<br>Eleganza 5 | iBS (8213-48xxB and higher) |
| iBoard Basic:<br>Eleganza 4 | iBB (S6016631B and higher) |
| Multicare X:<br>Multiboard X | 8213-4640 and higher (left version)<br>8213-4650 and higher (right version) |
| Multiboard:<br>Multicare | 8213-4620H and higher (left version)<br>8213-4630H and higher (right version) |
| Multiboard:<br>Multicare LE | 8213-4721D and higher (left US version without mattress)<br>8213-4723D and higher (left US version with Symbioso)<br>8213-4731D and higher (right US version without mattress)<br>8213-4733D and higher (right US version with Symbioso) |
| Integration module | IM (S6017678) |
| Localisation receiver | S6013858C and higher |
| Sensor Preparation for LINIS products:<br>Eleganza 5<br>Eleganza 4<br>Eleganza 3XC<br>Eleganza 3 (US version)<br>Multicare<br>Multicare LE<br>Multicare X | CE06 |
| Complete hardware for LINIS products<br>(Sensor & Hardware):<br>Eleganza 5<br>Eleganza 4<br>Eleganza 3XC*<br>Eleganza 3 (US version) *<br>Multicare<br>Multicare LE | CE31 |
| Tag | 4CES6015169E and higher |

*as only the retrofit option

# 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 Safety Position Preset Settings

Safety Position parameters including Backrest angle, Lowest position, Brakes Engaged, Position of Siderail, can be pre-set during installation or set later using the Admin interface.

**Backrest Angle Safety Position can be set:**
- between 0-90 degrees

**Lowest Position can be set to be:**
- ON
- OFF

**Brakes Engaged can be set to be:**
- ON
- OFF

**Position of siderails can be set to:**
- All up
- Any one down
- One head down
- One bottom down
- Whole side down

## 7.3 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

### 7.3.1 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 centimeters 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.

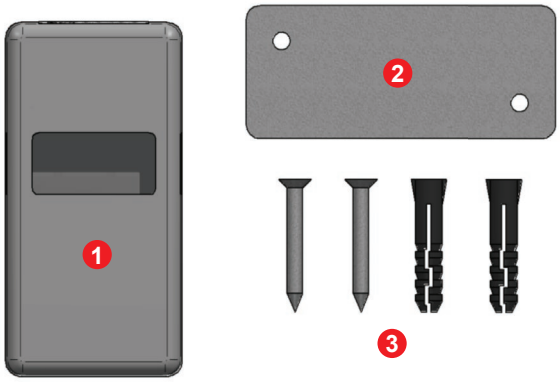


*Fig. Contents of the Tag box*

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


*Fig. Bottom of the Tag box (serial number)*

**The lifetime of Tag battery is approximately 2 years.**
**For its replacement, contact LINET service department.**

### 7.3.2 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 retreive 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 Event Monitoring is switched ON on the iBoard or on the Multiboard if the Bed Exit Event Monitoring status data should be transfered.
- ► 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 lenght 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 User Roles

When creating a profile for each user in the LINIS SafetyPort, the role assigned to their account is selected. Each role has predefined permissions and access rights.

The individual roles are:

- CLINICAL: access to Clinical Dashboard
- SERVICE: access to Service Dashboard and Admin
- ADMIN: access to all above + Settings in Admin
- DEMO: to be set before installation, additional Virtual beds

## 11.5 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 structure by creating FACILITY, UNITS, ROOMS and PARKING PLACES based on the actual set up of the LINIS SafetyPort system in the facility
- setting up parking places 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, if the beds physically are at the assigned parking place or not and how bed is connected to the parking place

### 11.5.1 Software version

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


*Fig. Software version number in the Administration interface*

### 11.5.2 LOGIN

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

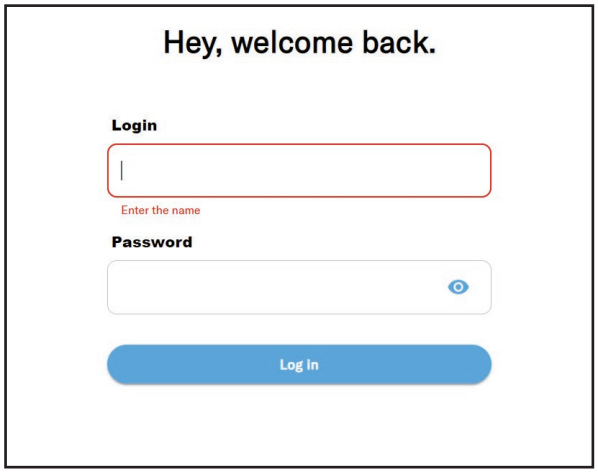


*Fig. Login window*

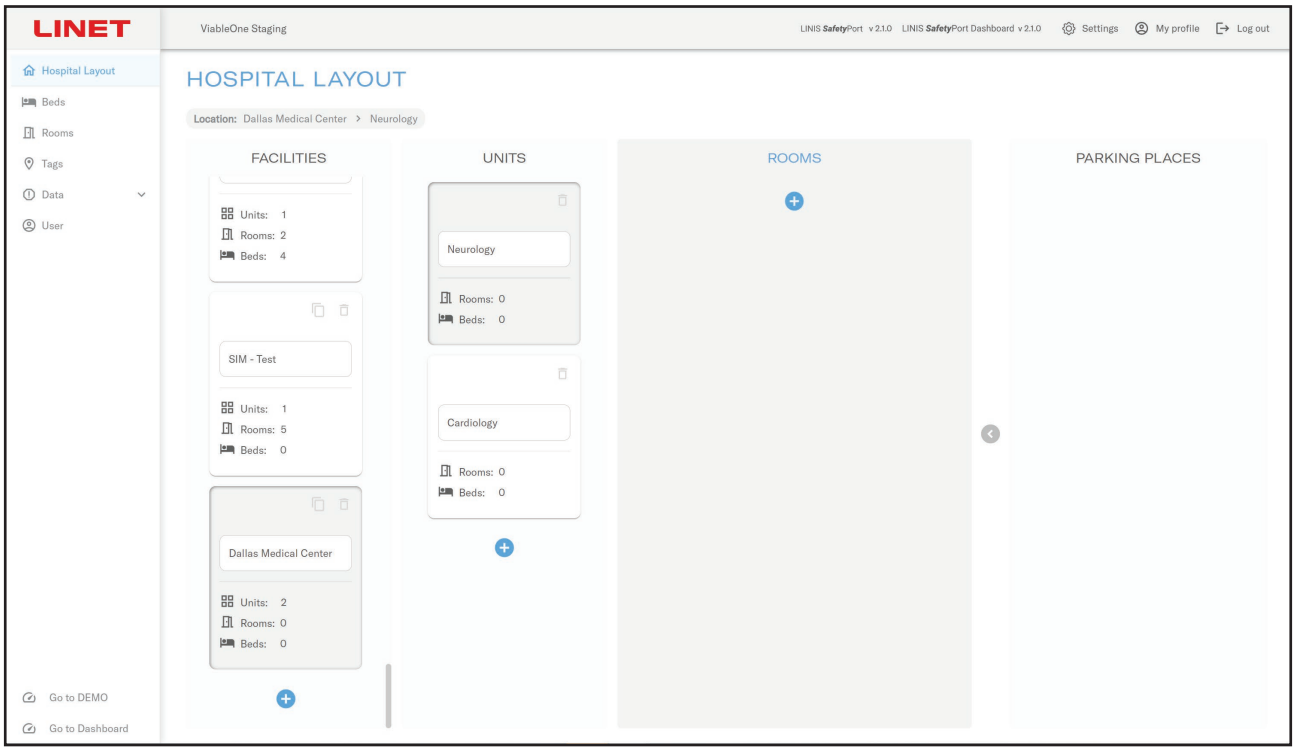


*Fig. Main Administration page*

**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 some categories:

- hospital layout
- beds
- rooms
- tags
- data
- users

**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 or user
- Account - email, login information and possibility to change password
- Linis Setup Kit Settings (for admin)
- Location - to assigned admin and user to department where should have an access

**LOG OUT button**
By clinking the LOG OUT button, login administration page appears.

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

### 11.5.3 SETTINGS

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

- ► General
- ► SafetyPort Data Transfer
- ► Clinical Dashboard


*Fig. Settings*

**GENERAL**

The GENERAL section is used to enter the Hospital name, set up the metric system, upload a custom logo of the hospital and display/provide server IP.

**SP DATA TRANSFER**

The Data Transfer Settings section is used to add connection and 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 choose the synchronous communication mode, you can also see the length of the data queue waiting to be accepted by the endpoint here.

**Below there are 5 data message groups divided into:**

- ► CONNECTION DETAIL
- ► PATIENT SAFETY
- ► RESPIRATORY & MOBILIZATION
- ► BED MANAGEMENT
- ► UTILIZATION

**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 - e.g. 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 sent only if the change is at least 2 units, i.e. it won't send the change from 135 to 136.

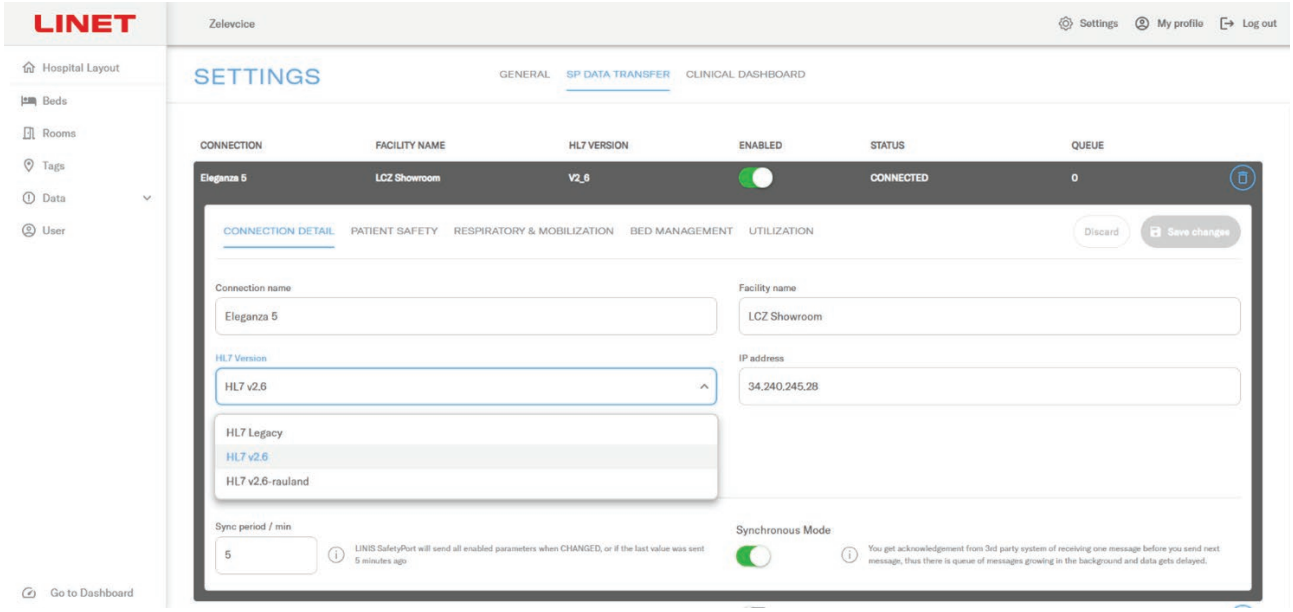


*Fig. Settings for SP DATA TRANSFER*

**Newly, for each Facility (Connection) there is a choice between 3 versions of the HL7 standards:**

- ► HL7 Legacy
- ► HL7 v2.6
- ► HL v2.6-rauland

## CLINICAL DASHBOARD

► Clinical Dashboard Settings

Use sessions: Sessions can be disabled/enabled (ON/OFF) globally here in the Clinical Dashboard. So there is a choice whether the dashboard will use sessions or not. If TURNED OFF LINIS SafetyPort will continuously record data regardless of patient admission/discharge or change.

► Safety Position Preset Settings

All created safety position presets are visible in this section.

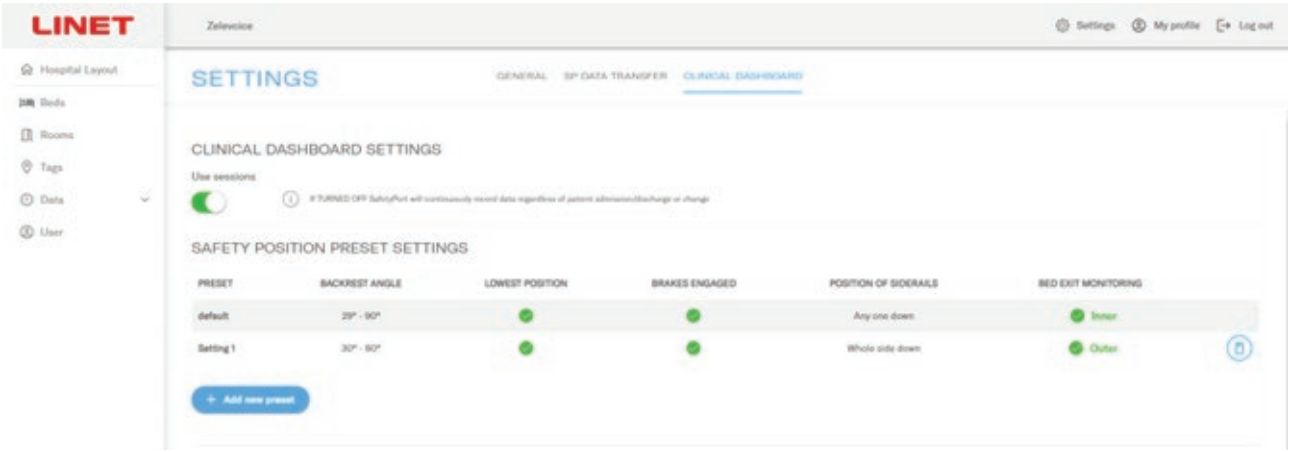


*Fig. Settings for Clinical Dashboard*

► Safety position presets can be selected for each unit and can be used for the entire unit and can be set by users on the dashboard or for individual patients. When a preset is selected for a bed, it is used instead of the preset selected for all units. It is possible to change the safety position definition and create safety position presets to change them during a session as well. There is also a default preset that cannot be deleted to prevent unintentional system errors.

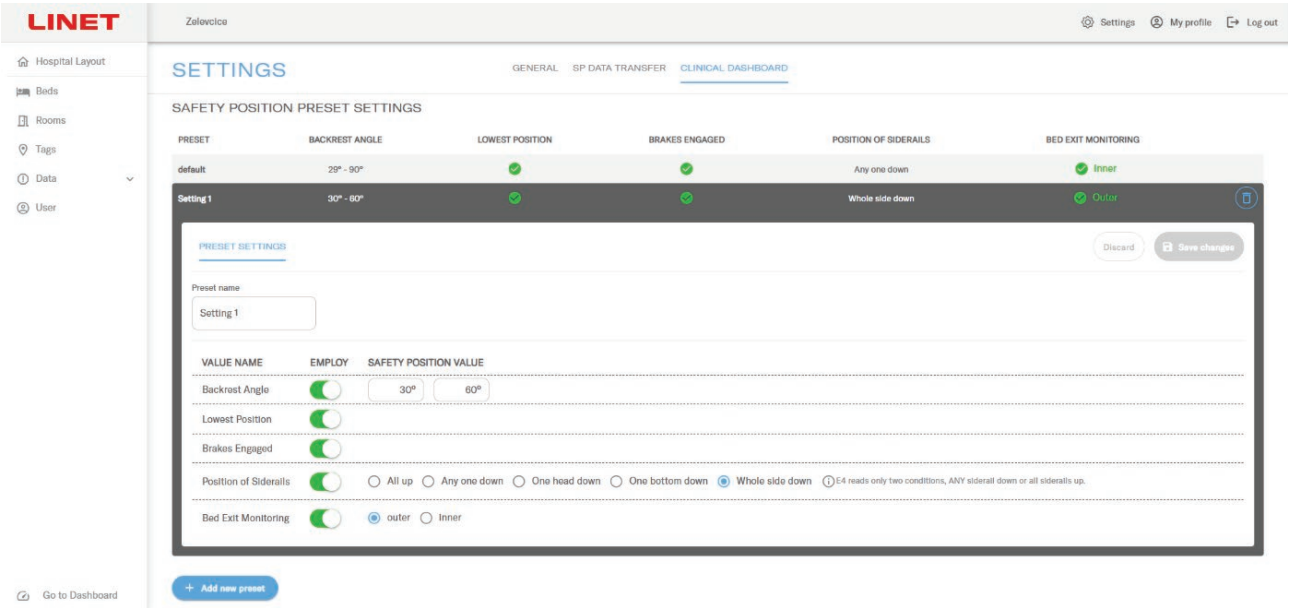


*Fig. Safety Position Preset Settings within the Clinical Dashboard Settings*

► This section also allows choosing Care note editability period in minutes.

### 11.5.4 HOSPITAL LAYOUT

HOSPITAL LAYOUT section of the main menu consists of four levels:

- Facilities
- Units
- Rooms
- Parking places

**HOSPITAL LAYOUT**

The hospital layout section is used to create the structure of the hospital within UNITS, ROOMS, PARKING PLACES, which should be monitored.

**To Create a new HOSPITAL LAYOUT:**

1. FACILITY is created by clicking on the blue plus button in the box FACILITIES.
2. Name of a new facility.
3. When a new FACILITY is created, new UNITS have to be added. Continue by adding new UNITS.
4. Select facility under should be placed UNITS and by clicking on blue plus button in box UNITS create new UNIT and name it.
5. When a new UNIT is created, a new ROOM has to be added. Continue by adding a new ROOM.
6. Select facility, unit under should be placed ROOMS and by clicking on blue plus button in box ROOMS create new ROOM and name it.
7. When a new ROOM is created, new PARKING PLACE have to be added. Continue by adding a new PARKING PLACE.
8. Select facility, unit, room under should be placed PARKING PLACE and by clicking on blue plus button in box PARKING PLACE create new PARKING PLACE and name it.
9. When a new PARKING PLACE is created, a BED has to be added.

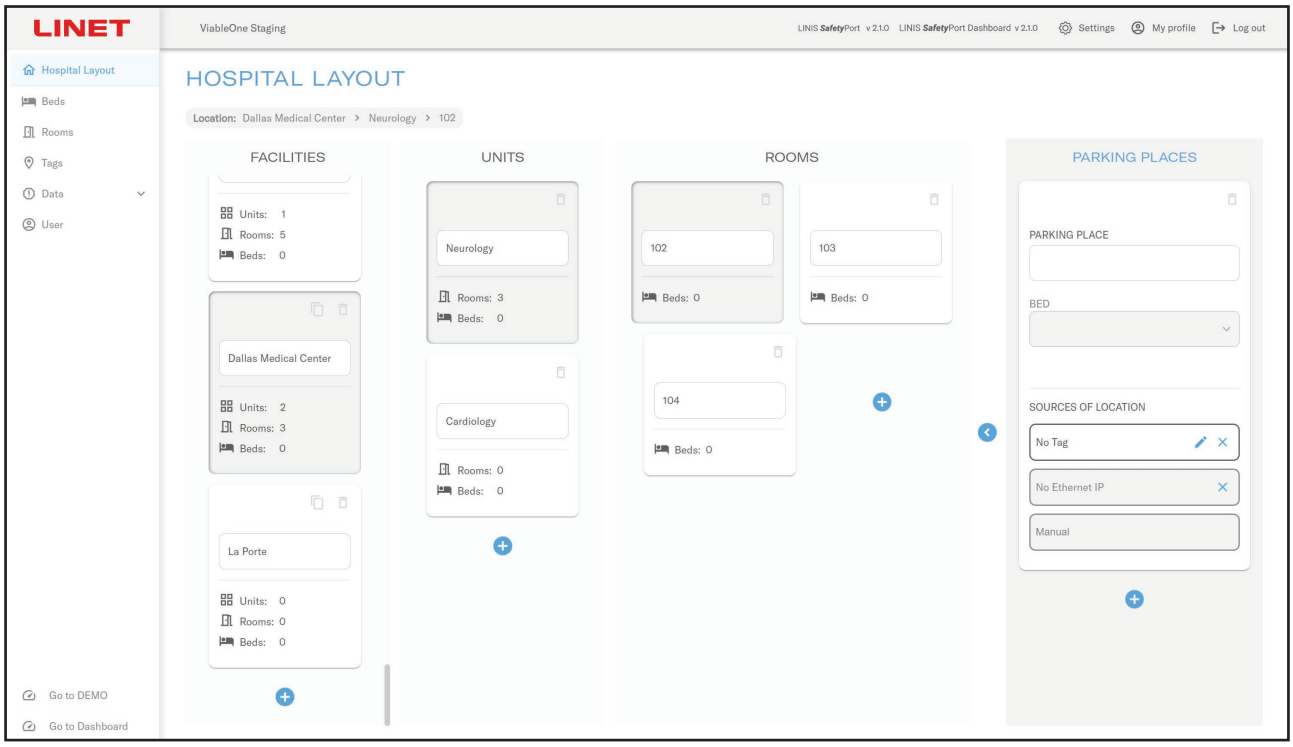


*Fig. Creating a new workspace*

**There is a three option how to localized bed:**

**AUTOMATIC LOCALIZATION**

By using the AUTOMATIC Localization, 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 localization in all patient rooms with the exception of rooms that are intended to be used by service personnel (thus not used by patients).

**ETHERNET LOCALIZATION**

Localization by ethernet cable is an option for departments where they usually don‘t manipulate beds and want to avoid drop on/drop off issues. Bed connectivity may be changed  in the Facility layout section or directly in the Parking place section under the specific room. Bed location will be assigned by static IP address assigned to specific plug (bed connected by ethernet cable will be assigned to pp where IP address is setup).

**MANUAL LOCALIZATION**

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

**To edit and delete HOSPITAL LAYOUT:**
FACILITY, UNITS, ROOMS, PARKING PLACES can be edited by clicking on the field or deleted by clicking on the trash icon.

### List of ROOMS

Rooms can be filtered by Name, Facility and Unit in the bottom of the table. 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 arrows:

- **ID**: room number
- **NAME**: 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
- **FACILITY**: it shows a specific workspace a room belongs to
- **UNIT**: it shows a specific ward a room belongs to

By clicking on the selected room, its parking places are opened.

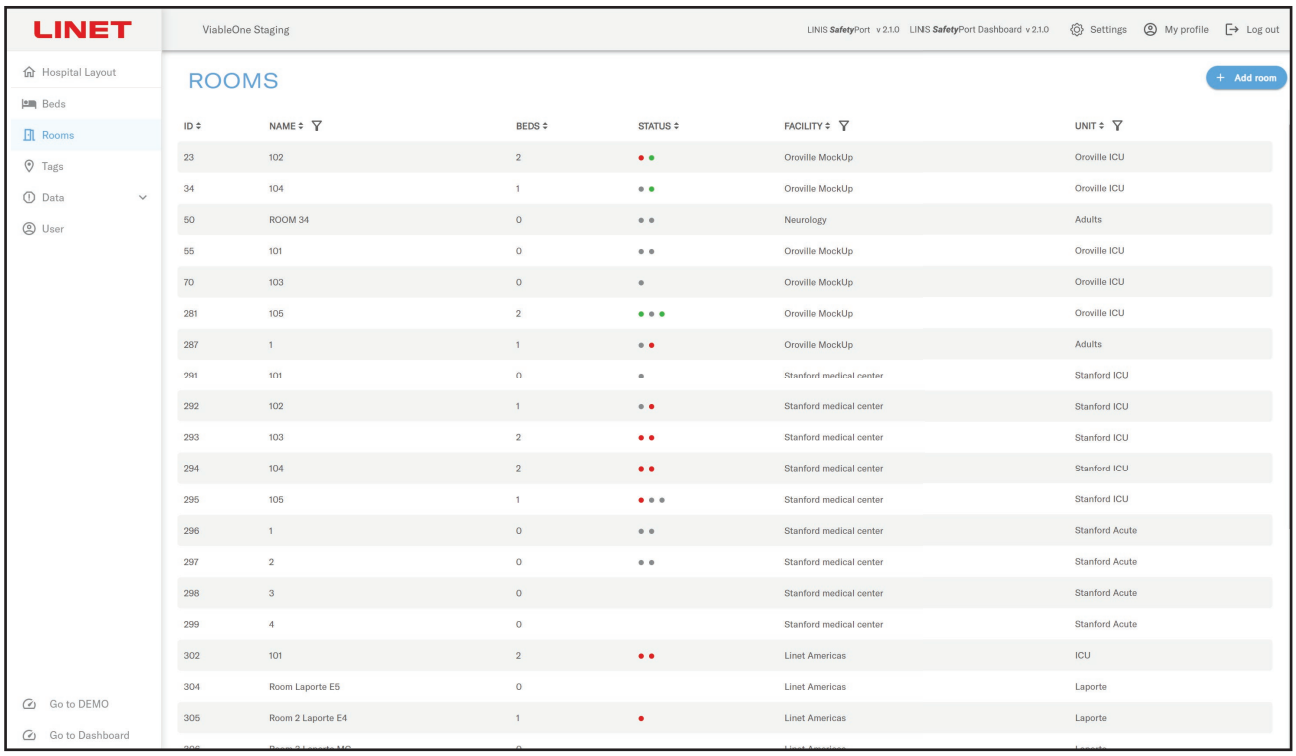


*Fig. Rooms*

### List of BEDS

BEDS can be searched and filtered by Bed name, Facility, Unit, Room, Integration module, location source and network status in the bottom of the table. 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 arrows.

- **BED NAME**: can be used for hospital identificator
- **FACILITY**: name of workspace the bed is part of
- **UNIT**: name of the ward the bed is part of
- **ROOM**: name of the room
- **LOCATION SOURCE:** type of localization source - manual / IP-Ethernet / Tag
- **INTEGRATION MODULE ID**: identification of integration module/bed
- **NETWORK:** information if bed is online or offline
- **HL7 LOG:** shortcut to HL7 LOG of last 2 hours with predefined selected bed
- **INSIGHT:** shortcut to INSIGHT of last 4 hours with predefined selected bed

In case of need, there is an option to export selected beds with all detailed information into excel file.

### BED DETAIL

After clicking on some bed in the bed list, the bed detail is opened. The bed detail is used to visualize all beds created and detailed information about each BED including:

- **General** - bed name, type of bed, technical information related to bed, IP or ethernet address
- **Owner** - unit which own this bed
- **Location** - where bed is located
- **Place and source of location** - bed connectivity information

**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 “Save changes”.

**To delete an offline bed:**

- 1. In the main menu, click on BEDS.
- 2. Select a particular bed by click on box next to bed or click on top box for bundle selection.
- 3. Click on delete button displayed on the top of all the boxes.

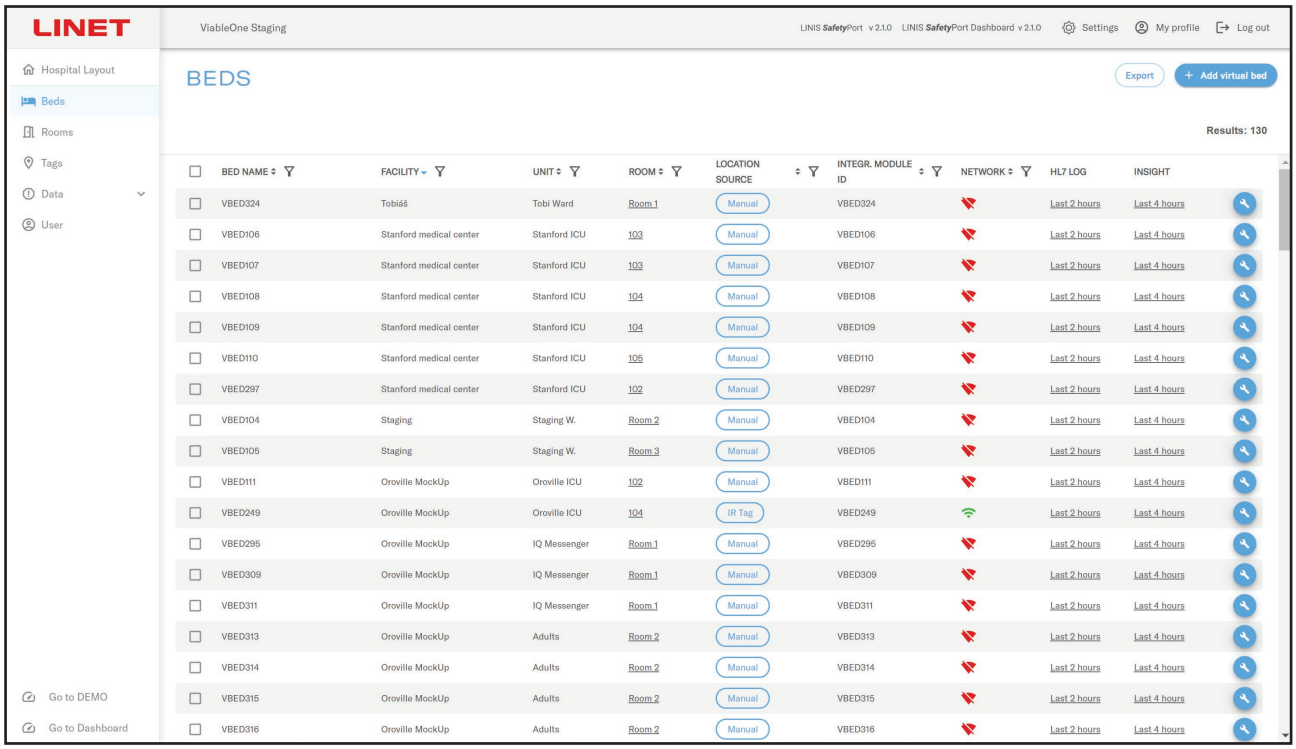


*Fig. Beds*

### List of TAGS

Tags can be filtered by the number, room, bedname, Facility and Unit in the bottom of the table. The list of rooms can be arranged (top or bottom) by clicking on arrows.

- **TAG:** tag number
- **ROOM:** room where it is placed
- **BED NAME:** it represents number of monitored beds present in each room
- **FACILITY:** it shows a facility where tag is placed
- **UNIT:** it shows a unit where tag is placed
- **BATTERY STATUS:** it informs about tag battery status

### 11.5.5 DATA

## INSIGHT

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

- **INTEGRATION MODULE ID:** identification number of integration module
- **PARAMETER:** name of the value
- **VALUE:** value out of value range
- **TIMESTAMP:** when the value change occurred

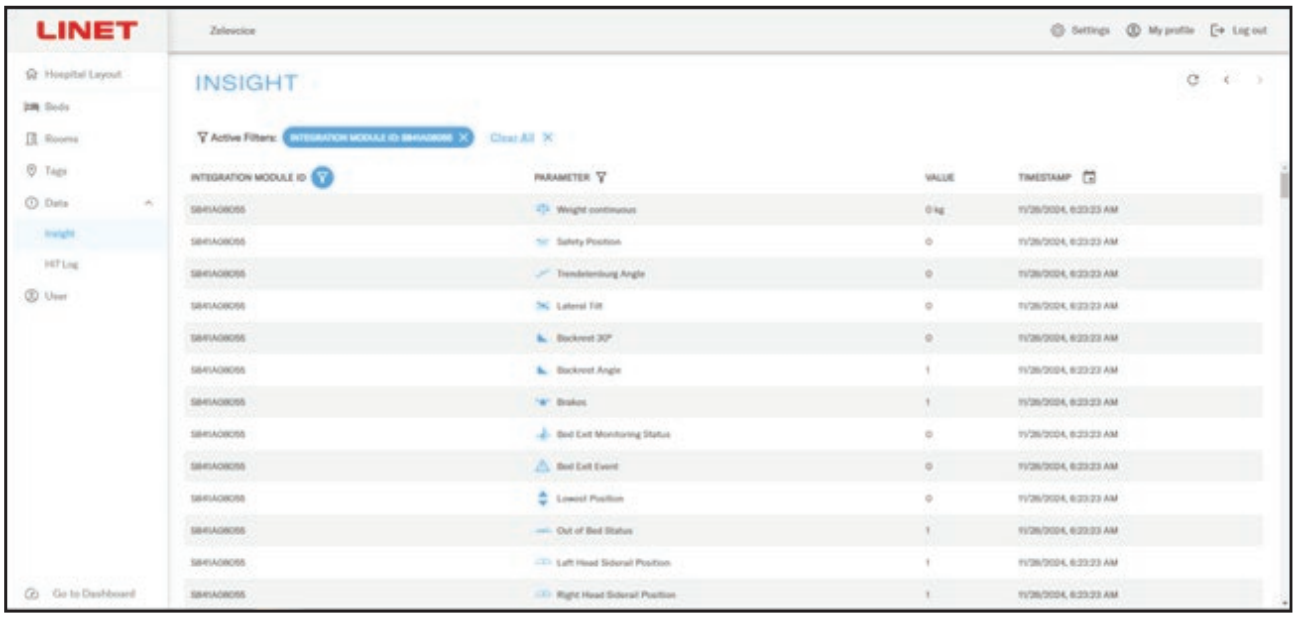


*Fig. Insight*

## 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. 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:

- **INTEGRATION MODULE ID:** identification number 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 uncon-firmed by the endpoint
- **CONNECTION:** connected system where the message is transferred

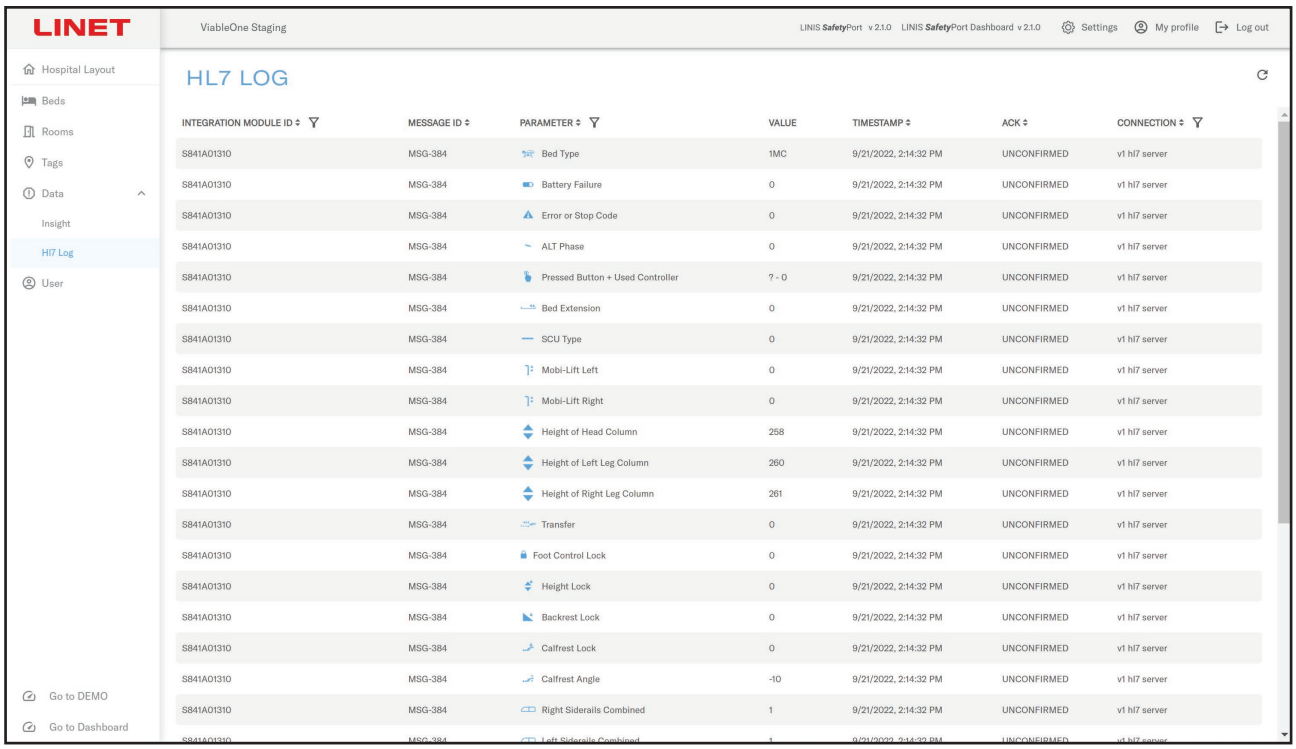


*Fig. HL7 Log*

### 11.5.6 USER

Creating/adding new users and editing existing ones is possible using KEYCLOAK (Open Source Identity and Access Management) or Microsoft Entra ID enabling Single Sign On service. Thanks to this solution, it is possible to log into the LINIS SafetyPort with the same login credentials (Username and Password) as to your internal hospital system. More details can be found in the document with Technical requirements.

This procedure is provided by your IT department.

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

- **ID:** system ID
- **NAME:** name of user
- **SURNAME:** surname of user
- **LOGIN:** login name
- **E-MAIL:** email address
- **LAST ONLINE:** date and time of last login
- **FACILITY & UNIT:** where user belong

**To create a new USER:**

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

- Personal – name and surname, language
- Account – user role, email, login and password, give an access
- Linis SetupKit Settings (for admin users)
- Location – facility and unit

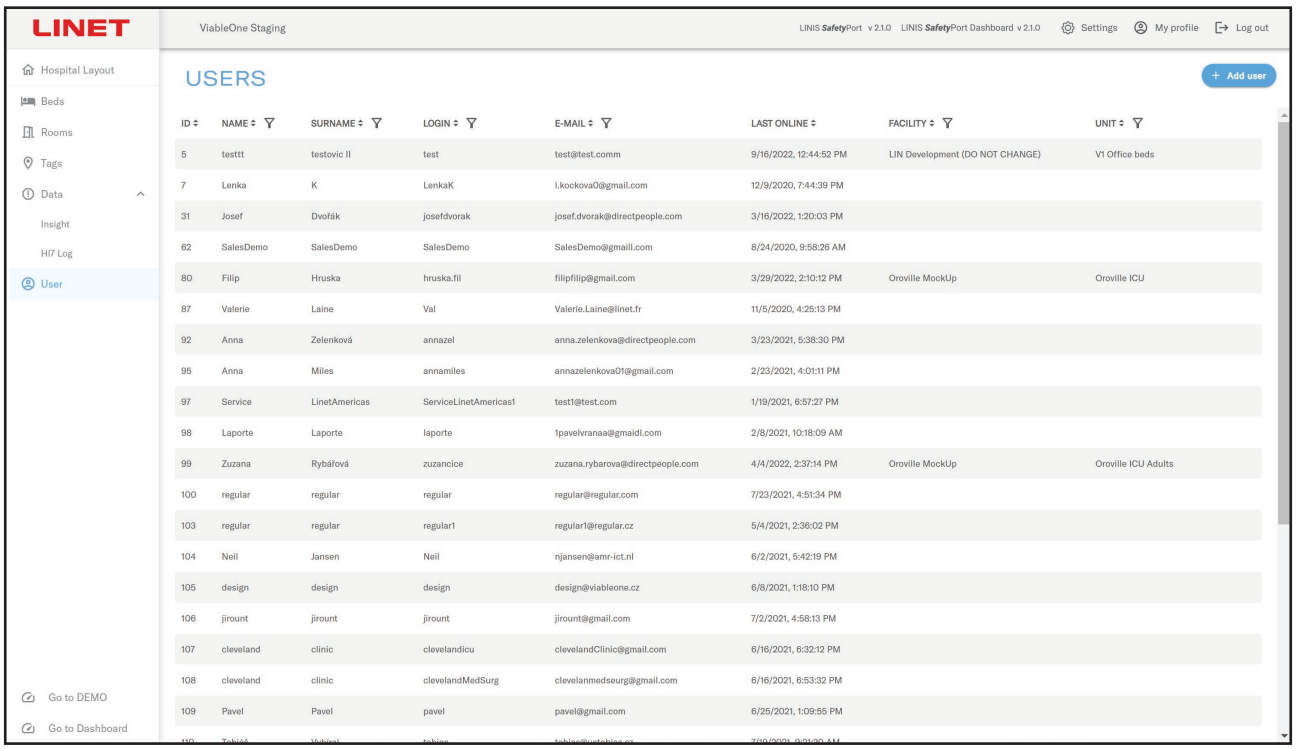


*Fig. Users*

**To edit USER:**

1. Click on the selected user.
2. Edit information or reset password.
3. Save or discard.

## 11.6 Dashboard (User Interface)

The Dashboard is divided into 3 main sections. You can find them in the left navigation bar of this Dashboard:

- **Clinical Dashboard**
- **Service Dashboard**
- **Reporting**

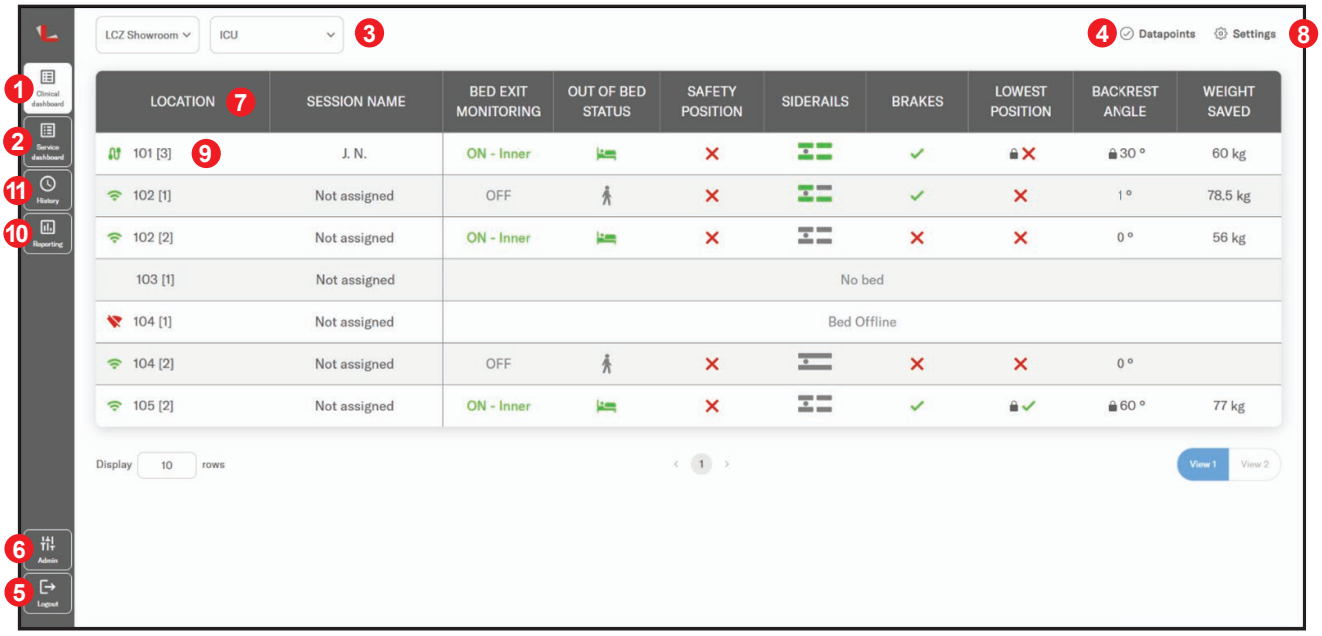


*Fig. Dashboard Page (User Interface)*

1. **Clinical dashboard**
   Displays a dashboard with all beds from the unit with data points that have clinical relevance from the patient's perspective.
2. **Service dashboard**
   Displays a dashboard with all beds from the unit with data points that have technical relevance from the bed's perspective.
3. **Unit name**
   Displays the name of the unit where all beds are being monitored. An administrator is able to switch between different wards and workspaces on SafetyPort Dashboard.
4. **Datapoints**
   Allows you to add datapoint columns on the dashboard for view 1 and 2 and order them in the way you want.
5. **Log out button**
   Allows you to log out from LINIS 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. **Settings**
   Allows you to switch between night and day mode, setup font size, switch on/off anonymized patient weight, show all beds or select safety position preset.
9. **Unknown status**
   Indicates that the bed was taken out of the tag and has an unknown location.

10 **Reporting module**
Allows you to enter to reporting module.

11 **History module**
Allows you to enter to history module.

The Dashboard is therefore a User Interface and, depending on the role of the logged-in user, individual sections are available there according to the specification in chapter ”11.4 User Roles” on the page 23.

Clinical Dashboard is the inferface for clinical hospital personnel who have been trained according to these instructions for use.

Service Dashboard is the inferface for technical hospital personnel who have been trained according to these instructions for use.

Both mentioned sections 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.

**REPORTING is a section for creating:**

- ► Boards
- ► Reports
- ► Goals

### 11.6.1 Clinical Dashboard

As mentioned above, this dashboard is primarily intended for the hospital's clinical staff. It is the main section of the LINIS SafetyPort, where medical staff can conveniently and effectively monitor the patient and bed status in relation to clinical and safety impacts on the patient's condition.

**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 change start date of session:**

1. Go to the session detail
2. Click on Edit details
3. Click on Session started and edit date and time.
4. Confirm with the ok button and Save.

**To change dashboard / data points:**

Go to Datapoints in the right upper corner (no.**4**).

### 11.6.2 Datapoints Settings

The Datapoints modal window is the place where you can customize the Datapoints View 1 and Dashboard View 2 by choosing relevant datapoints to be displayed in columns of the table, changing their order, unchecking the irrelevant ones.

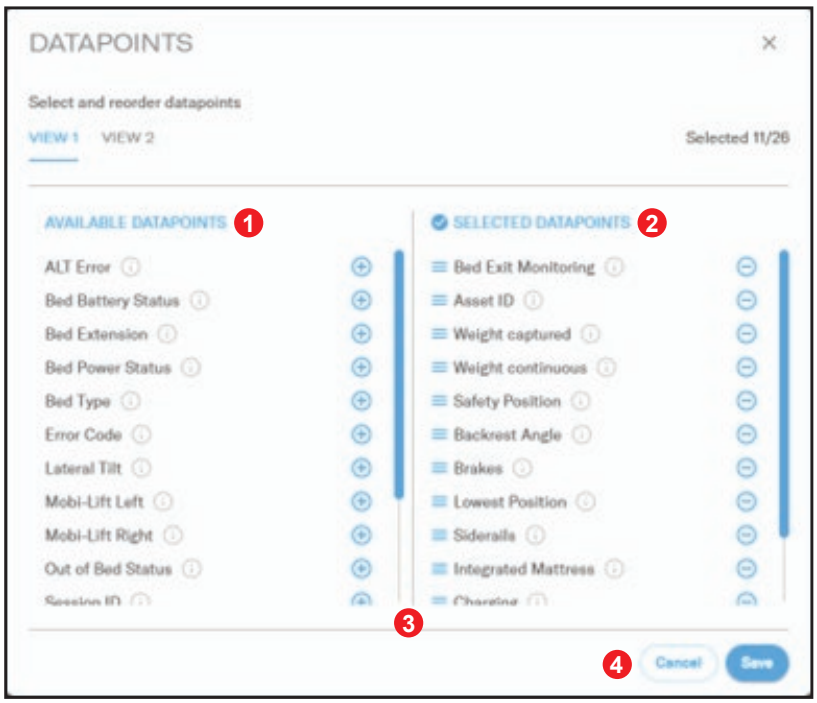


*Fig. Datapoints View 1*

1. **Available data points**
   Displays 38 available datapoints. Press PLUS icon to add a selected datapoint between the selected datapoints.
2. **Selected datapoints**
   Indicates the chosen datapoints.
3. **Drag and drop button**
   Allows you to drag and drop the chosen datapoints to order them in the way you want.
4. **Save and cancel button**
   Allows you to save or cancel the changes in Datapoints View 1.

**To select available datapoint:**

1. Select relevant data points you would like to see on the dashboard by click on plus and it appears on the right side in cloumn selected datapoints.
2. Drag and order selected data points by clicking on the burger menu which is positioned on the left side of each datapoint.
3. Unselect any datapoint by click on minus positioned on the right 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.

**To customize font size:**

1. By clicking on the box, the drop-down menu will open and the user can select the font size from small, medium and large options.
2. After size is chosen, font size is changed on the dashboard.

**To apply on anonymized weight:**

When the switch is in the right position, the name of column with weight is not visible on dashboard and it displays only the weight value.

**To select preset of Safety position:**

By clicking on the box, the drop-down menu will open and the user can select one of the presets which will be valid for all the beds under this unit if there is no preset that is not applied to a specific bed.

**To show/hide all beds:**

When the switch is in the right position, all the beds owned by this unit are displayed on the dashboard, even though beds are not placed on this unit at this moment.

**Add the number of rows/beds:**

Allows you to choose how many beds you can see on each screen of dashboard.

### 11.6.3 Dashboard Settings

The Datapoints modal window is the place where you can customize the Datapoints View 1 and Dashboard View 2 by choosing relevant datapoints to be displayed in columns of the table, changing their order, unchecking the irrelevant ones.

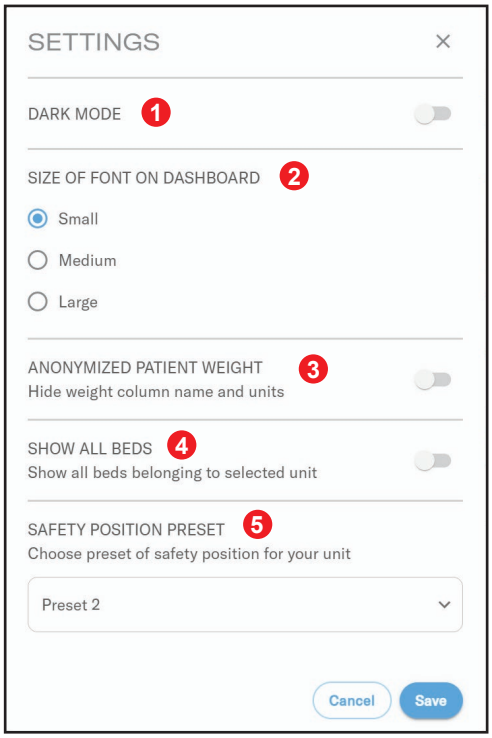


*Fig. Dashboard View 2*

1. **Day/Night mode**
   Allows you to switch between night and day mode of LINIS SafetyPort Dashboard.
2. **Customize font on Dashboard**
   Allows you to choose size of column name.
3. **Anonymized weight**
   Allows you to anonymise patient's weight.
4. **Show all beds**
   Displays all beds belonging to selected unit.
5. **Safety Position Settings**
   Allows you to choose preset of safety position for your unit.

### 11.6.4 Session Detail

By clicking on an individual Session that has a specific bed assigned to it, you can view its details. If the Session option is currently in use and then disabled in the Clinical Dashboard settings, these details will disappear, discharging the patient from the bed and ending the session.

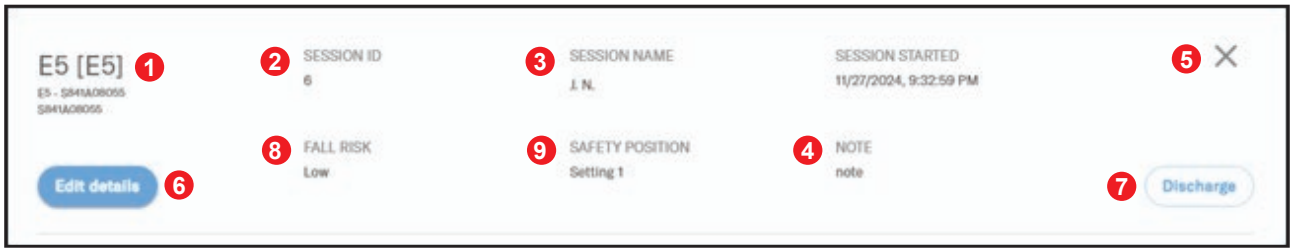


*Fig. Session Detail*

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. **Fall risk**
   Displays fall risk category of the patient. There are 2 options, high and low.
9. **Safety position**
   Displays presetting  of safety parameters.

**To edit session:**

Press the "Edit details button" (no.**6**) and edit the patient's name, note about him or Safety Position preset and confirm by pressing the "**Save**" button.

### 11.6.5 Weight Report Section


*Fig. Weight Report*

1. **Weight table**
   Visualizes the development of the patient's weight based on individual saved values using the Saved Weight button.
2. **Time filter**
   Allows you to pick any week from the session by opening a calendar where you can select it.
3. **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.
4. **Timeline**
   You can move the slider to jump between 12 hour segments.
5. **Export button**
   Allows you to export all data from tabs and store patient data in other systems/on paper.

### 11.6.6 Mobilization Report Section


*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°, Backrest 60°.
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 (ALT, Mattress, Mobi-Lift, Trendelenburg, Lateral tilt, Backrest 30° and Backrest 45°, Backrest 60°) 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.**3**)

### 11.6.7 Statistics Section

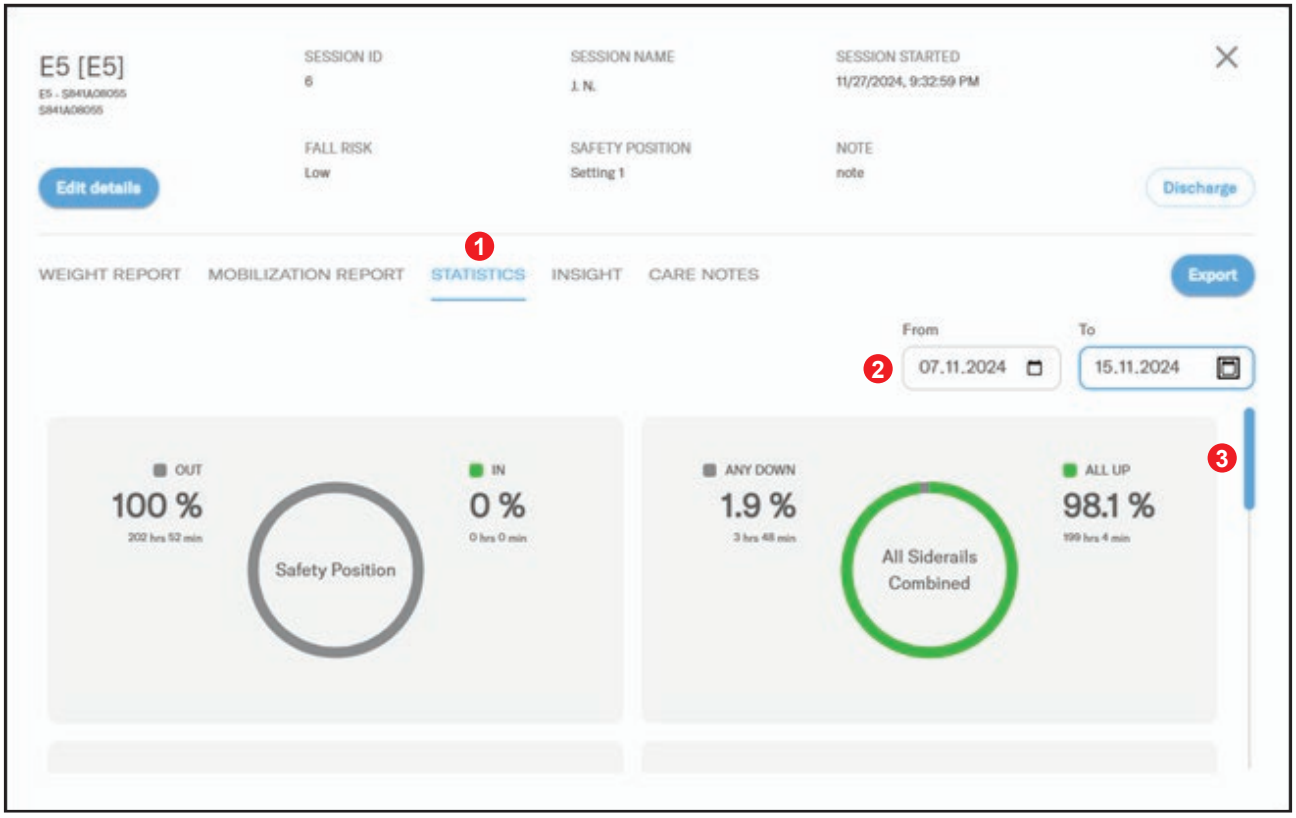


*Fig. Statistics Section*

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.

### 11.6.8 Insights Section

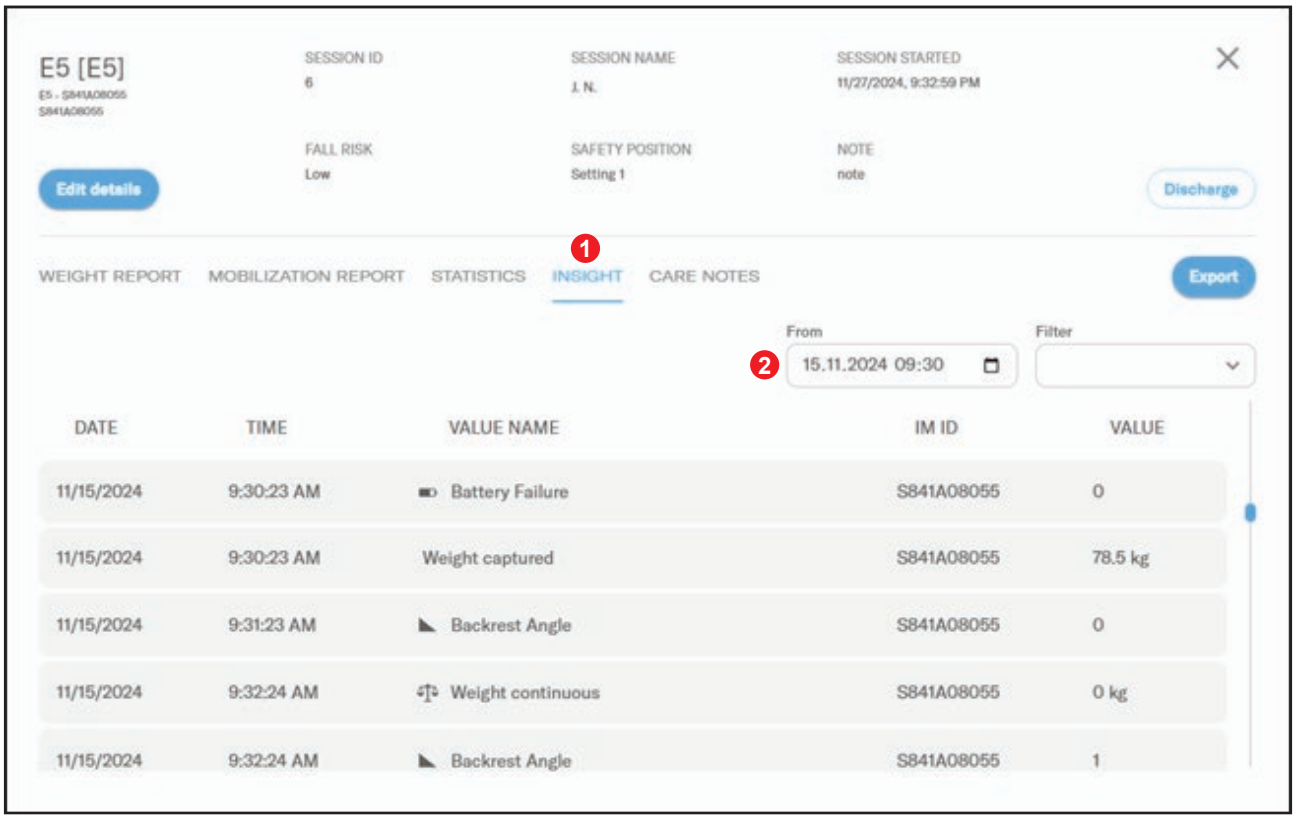


*Fig. Insights Section*

1 **Insight tab**
Displays list of all incoming messages chronologically from the latest.

2 **Time filter**
Allows you to select dates in order to evaluate data history for the chosen period of time.

### 11.6.9 Care Notes

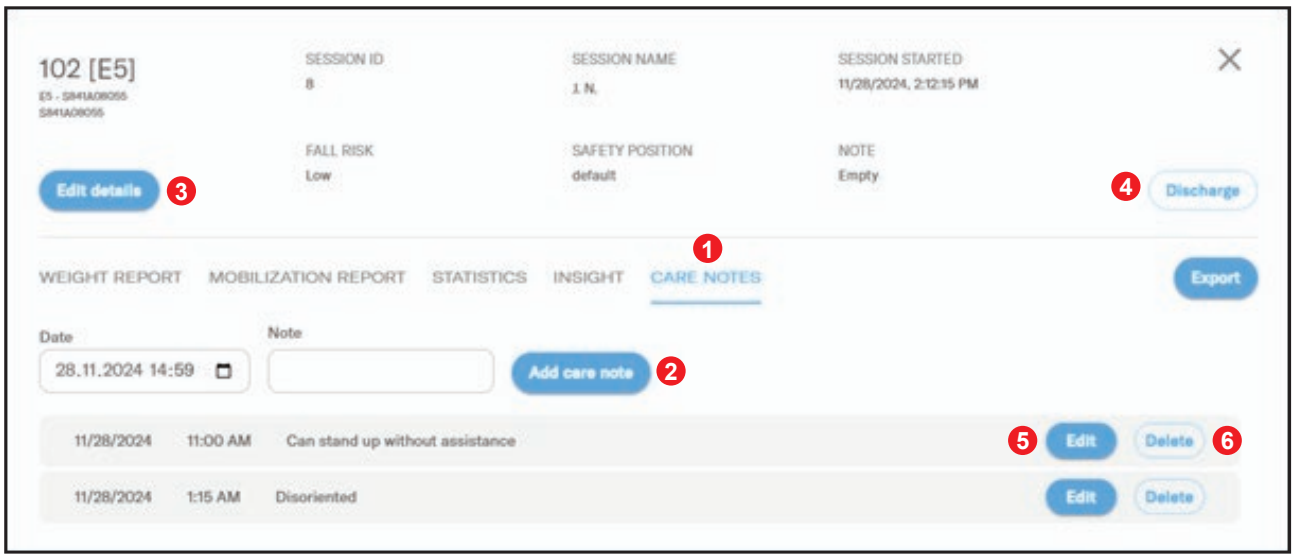


*Fig. Care Notes*

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 details**
   Allows you to edit the session in case you want to change details.
4. **Discharge**
   Allows you to delete the session.
5. **Edit care note**
   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.
6. **Delete care note**
   Allows you to delete care notes. The timeframe for erasing care notes can be changed in admin settings.

**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.

### 11.6.10 Data export

**To export data:**

1. Press the “**Export** button” (no.**12**) 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 move in timeline:**
When you move the slider (no.**11**), the timeline moves by 12 hours.

**To filter timeline:**
Rewrite the date or click on the calendar icon to choose the day you want to see (no.**9**).

## 11.6.11 Ending session

**Discharge pop up window**
Indicates that you pressed the discharge button and verifies your action.

**To end session:**

1. Go to the details of the session, press the “Discharge” button.
2. Enter the discharge date and press the “Confirm” button.

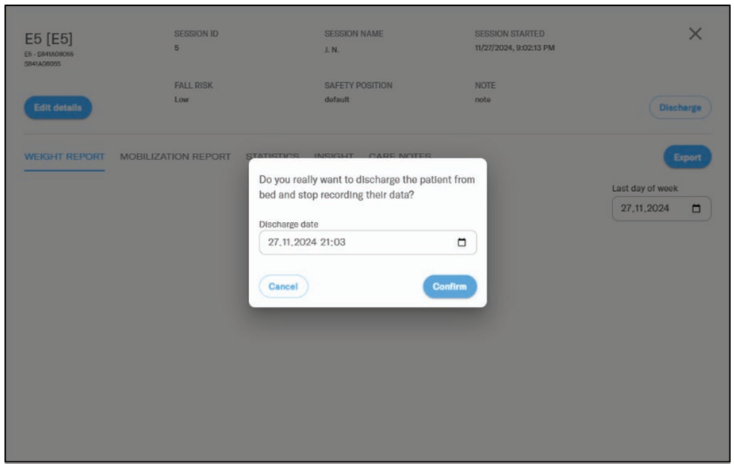


*Fig. Discharge pop up window*

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.

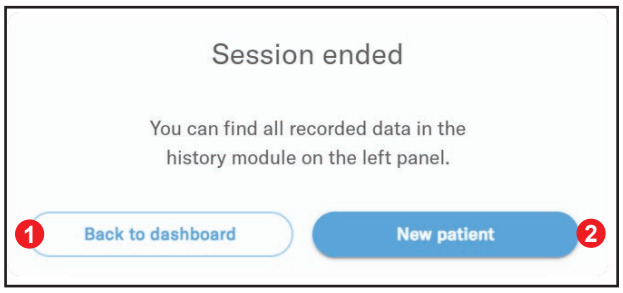


*Fig. Session ended pop up window*

1. **Back to dashboard - button**
   Allows you to return back to the dashboard.
2. **New patient - button**
   Allows you to start a new session on this bed.

## 11.6.12 Service Dashboard

This dashboard is primarily intended for hospital technical staff. It is the main section of the LINIS SafetyPort, where service technicians can conveniently and effectively monitor the status of the bed. Predefined Data Points are: 1. Location, 2. Asset ID, 3. Bed type, 4. Bed power status, 5. Bed battery status (renamed from battery failure), 6. Tag battery status, 7. Error code (renamed from error and stop code) and 8. Patient presence. Thanks to individual information, they can effectively detect possible causes of possible incorrect bed behavior.

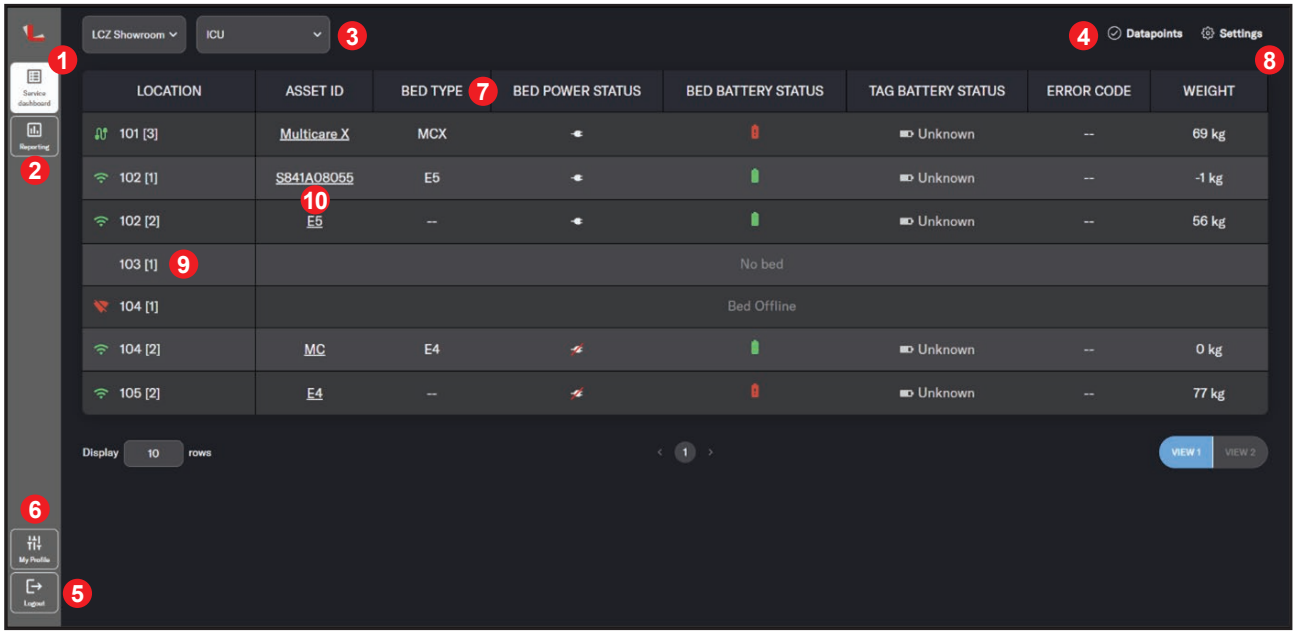


*Fig. Service Dashboard*

1. **Service Dashboard**
   Displays a dashboard with all beds from the unit with data points that have technical relevance from the bed's perspective.
2. **Reporting module**
   Allows you to enter to reporting module.
3. **Unit name**
   Displays the name of the unit where all beds are monitored. An administrator can switch between different wards and workspaces on LINIS SafetyPort Dashboard.
4. **Datapoints**
   Allows you to add datapoint columns on the dashboard for view 1 and 2 and order them in the way you want.
5. **Log out button**
   Allows you to log out from LINIS SafetyPort Dashboard.
6. **My Profile**
   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. **Settings**
   Allows you to switch between night and day mode, setup font size, switch on/off anonymized patient weight, show all beds or select safety position preset.
9. **Unknown status**
   Indicates that the bed was taken out of the tag and has an unknown location.
10. **Click through to the administrator's bed list**
    By clicking on the asset ID, it is possible to quickly move to the administrator section for bed settings.

### 11.6.13 History module

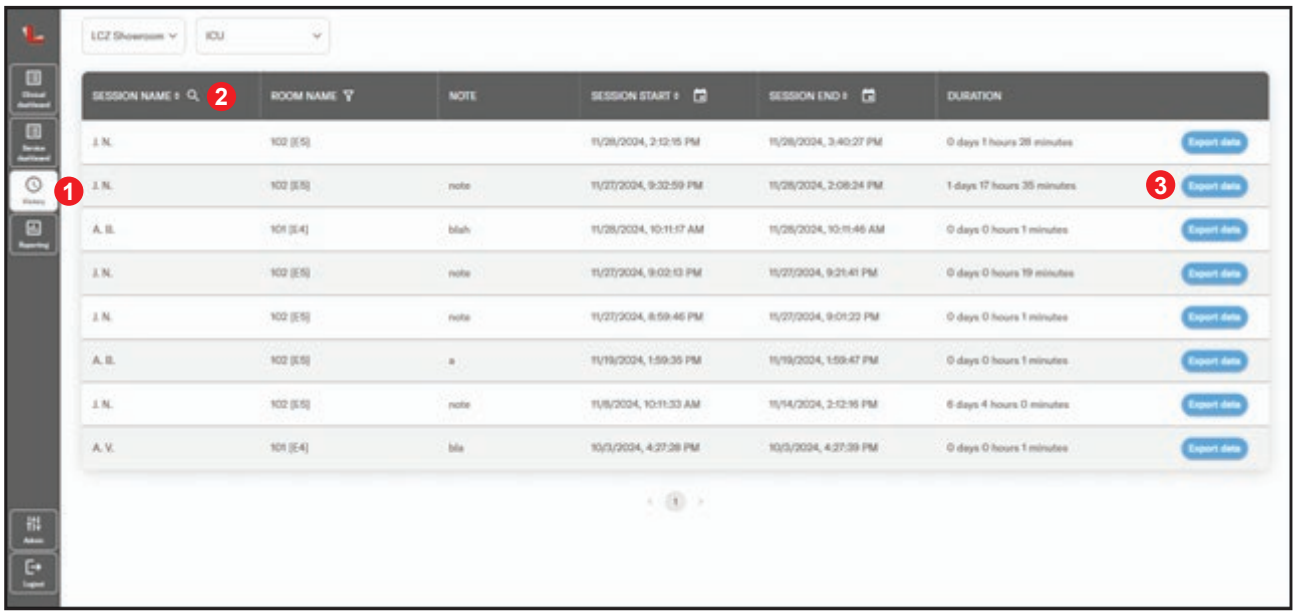


*Fig. History of all sessions*

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 by filters**
   Allows you to search for ended session by session name or by applied filters - room name, note or time period.
3. **Export data 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 particular filter and search based on session name, room name, note or time period.

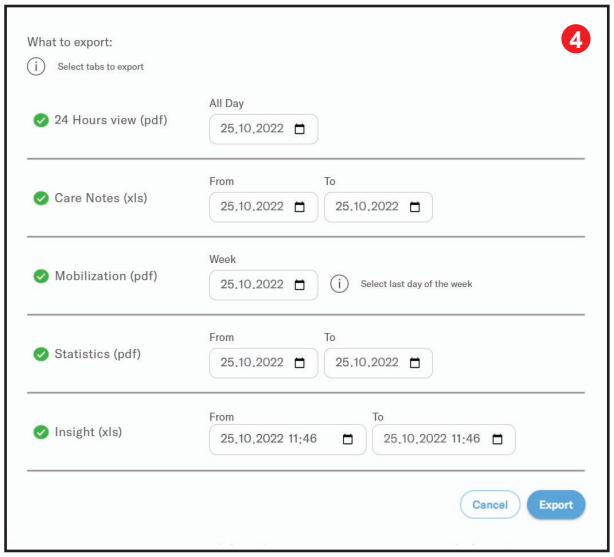


*Fig. Data export pop up window*

**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.

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**).

### 11.6.14 Reporting Module

The Reporting module is a tool for analyzing trends and statistics in key parameters that will help you measure progress, monitor the quality of implementation of established procedures related to patients and beds, and keep it under control. Trends can be evaluated through the Boards, Reports and Goals sections.

The Boards section is divided into 2 parts. The first of them is predefined by default and contains the Boards: Falls Prevention, Pressure Injury Prevention, Improve Pulmonary Outcomes, Early Mobilization, and Safe Patient Handling. The second part is Custom Boards. Here, users can create a wide range of other Boards based on their parameters and use different perspectives on data - time, unit, bed. They can also define resulting goals. Reports and Goals can also be defined with the same parameters.

Reports and goals can be selected and placed on Boards, where they will be displayed together. Boards can provide you with a quick and convenient overview of the key statistics and indicators that interest you most often. The data is continuously updated, so every time you look at the dashboard, you will see the current status and take action.

The Reporting module is an optional section used for data analysis.

All reports, dashboards and goals are shared between users from the device.

### 11.6.15 Reports

After user chooses to create new Report, new New report screen will open and new report appears in the structure of the left bar menu.

**Reports enable user to:**

- fill report name field,
- define conditions from drop down menu,
- add/delete condition, choose graph/chart type,
- add to dashboard by selection from list of dashboard from drop down menu,
- export report (.xlsx/csv/pdf),
- save or cancel report (in case of new report),
- save, save as new, discharge changes (when editing report),
- change view I., view II. from drop down menu (or in condition)

### 11.6.16 Goals

**Goals enable user to:**

- fill goal name,
- choose Facility, Unit, parameter, Add/delete condition
- choose metric,
- select duration from calendar, select interval (daily, weekly, monthly…)
- add to dashboard,
- see on which dashboard this goals was added,
- add value,
- save, cancel, delete,
- export (.pdf/xlsx/csv)
- rename goal, change fields

After user clicks on save, newly created goal appears on right side of the screen as a graph or score card with predefined parameter and predefined value goal.

### 11.6.17 Boards

**Boards enable user to:**

- name report,
- delete board,
- edit report visible on a board directly by click on pencil (afterwards save, save as a new, cancel can follow)
- drag and drop (order graphs),
- export (.pdf)

## 11.7 Data visualization - SafetyPort mobile application

For nurses and caregivers who are running around there is a mobile version of Safety Port Dashboard containing simplified visualization of actual data.

**Access and log in**
To access this mobile version, the user opens an internet browser and uses the same website address and credentials as the Safety Port dashboard.

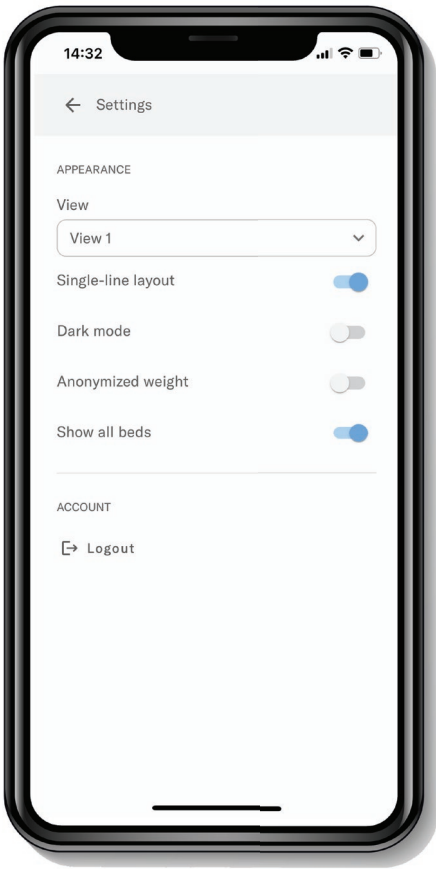


*Fig. SafetyPort Mobile Application Settings*

**Settings**

- Select View 1 or View 2.
- Single-line layout
- Users can select from standard layout with three datapoints (bed exit monitoring, out of bed status, weight) visible or single-line layout with just one data point visible (Out of bed status).
- Night Mode
- Same as in dashboard, day or night mode can be chosen.
- Anonymized weight
- Same as in the dashboard, it is possible to display weight anonymously.

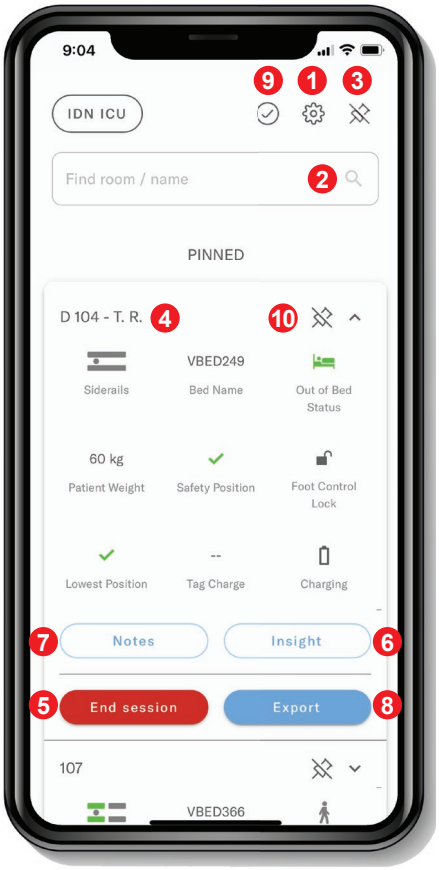


*Fig. Session view in SafetyPort mobile application*

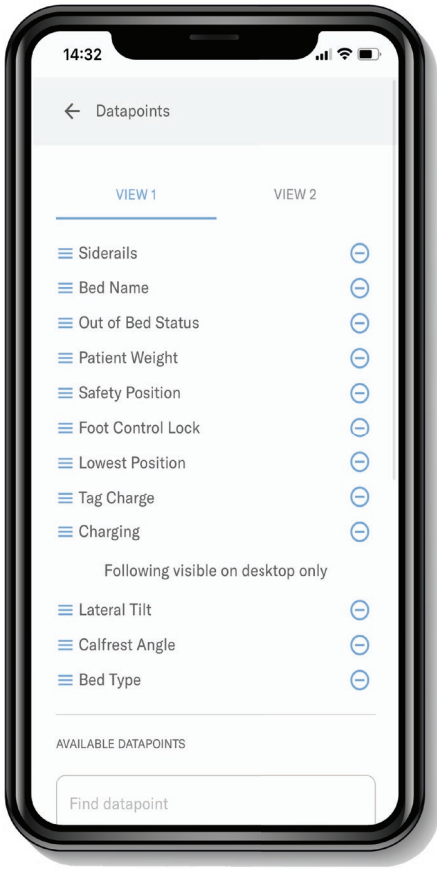


*Fig. Datapoints selection in SafetyPort mobile application*

1. **Settings**
   Section enables setting of mobile dashboard.
2. **Search field**
   Enable to search specific bed or room.
3. **Pin icon**
   To divide dashboard to pinned to unpinned beds. For easier orientation within the mobile dashboard, users can pin/unpin the bed to the bottom part by clicking on the pin icon. Once bed is pinned, after user click on pin icon on the top, list of beds are divided into to part PINNED and UNPINNED.
4. **Bed detail**
   When user roll out single line layout bed.
5. **End session**
   When a patient is discharged from hospital, it can be easily unsigned from Safety Port too.
6. **Insight**
   For each bed can be displayed a list of insight by time period.
7. **Notes**
   For selected beds can be displayed care notes and create a new note.
8. **Export**
   For selected beds can be exported 24 hour view(pdf), Care notes (xls), Mobilization (pdf), Statistics (pdf), Insight (xls).
9. **Datapoints**
   Select and order datapoints for View 1 and View 2.
10. **Pin the selected bed**
    Press this icon to pin the selected bed.

# 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 | 1. Wi-Fi failure<br>2. System is incorrectly set<br>3. The VPN was removed during a firewall upgrade | Are the other beds connected? If yes, than the problem is on server side. Check the Wi-Fi availability (mobile phone, PC).<br>Call hospital IT department.<br><br>If only one bed is not connected, contact service department approved by the manufacturer. |
| System doesn´t register bed settings changes | 1. Wi-Fi failure<br>2. Incorrect configuration of LAN | Is the bed connected to the mains? Connect bed to the mains.<br>Call hospital IT department.<br><br>If this failure remains, contact service department approved by the manufacturer. |
| System doesn´t show Administration interface | 1. LINIS SafetyPort is switched off / has a failure<br>2. wrong address is set<br>3. network failureserver failure | 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. |
| System doesn´t register siderail status on a single bed | 1. Network failure<br>2. Siderail end switch(es) is (are) defective or disconnected<br>3. IM is defective<br>4. Wrong server settings<br>5. Control Unit is defective | Contact service department approved by the manufacturer. |
| System doesn´t register change of brakes status on a single bed | 1. Network failure<br>2. Brake sensor is defective or disconnected<br>3. IM is defective<br>4. Wrong server settings<br>5. Undercarriage module is defective or disconnectedControl Unit is defective | Contact service department approved by the manufacturer. |
| System doesn´t register change of backrest angle on a single bed | 1. Network failure<br>2. Backrest angle sensor is defective or disconnected<br>3. IM is defective<br>4. Wrong server settings<br>5. Control Unit is defective | Contact service department approved by the manufacturer. |

| Failure | Probable cause | Solution |
|---|---|---|
| System doesn´t register change of bed height | 1. Network failure<br>2. Column is defective or disconnected<br>3. IM is defective<br>4. Wrong server settings<br>5. Control Unit is defective | Contact service department approved by the manufacturer. |
| System doesn´t register Bed Exit Monitoring | 1. Network failure<br>2. IM is defective<br>3. Wrong server settings<br>4. Control Unit is defective<br>5. Scales module is defective<br>6. Tensometer is defective<br>7. Bed is not equipped with scales | Contact service department approved by the manufacturer. |
| System doesn´t register localisation | 1. IM is defective<br>2. TAG is defective<br>3. Localisation is defective<br>4. Server problem | Park the bed to another parking position and check if it is localized.<br>If yes, then the problem is in TAG.<br>Contact service department approved by the manufacturer. |
| System doesn´t register lateral tilt | 1. Network failure<br>2. IM is defective<br>3. Wrong server settings<br>4. Control Unit is defective<br>5. Potentiometer is defective<br>6. Bed is not equipped with lateral tilt positioning | Check the angle on iBoard or Multiboard or Multiboard X.<br>Contact service department approved by the manufacturer. |
| System doesn´t register scales | 1. Network failure<br>2. IM is defective<br>3. Wrong server settings<br>4. Control Unit is defective<br>5. Scales module is defective<br>6. Tensometer is defective<br>7. Bed is not equipped with scales | Check the weight value on iBoard or Multiboard or Multiboard X.<br>Contact service department approved by the manufacturer. |

## 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 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-, polychorinated 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.linet.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 and its conditions depend on the agreement between the buyer and the seller, in addition to the legal minimum guarantee provided by law.**

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.