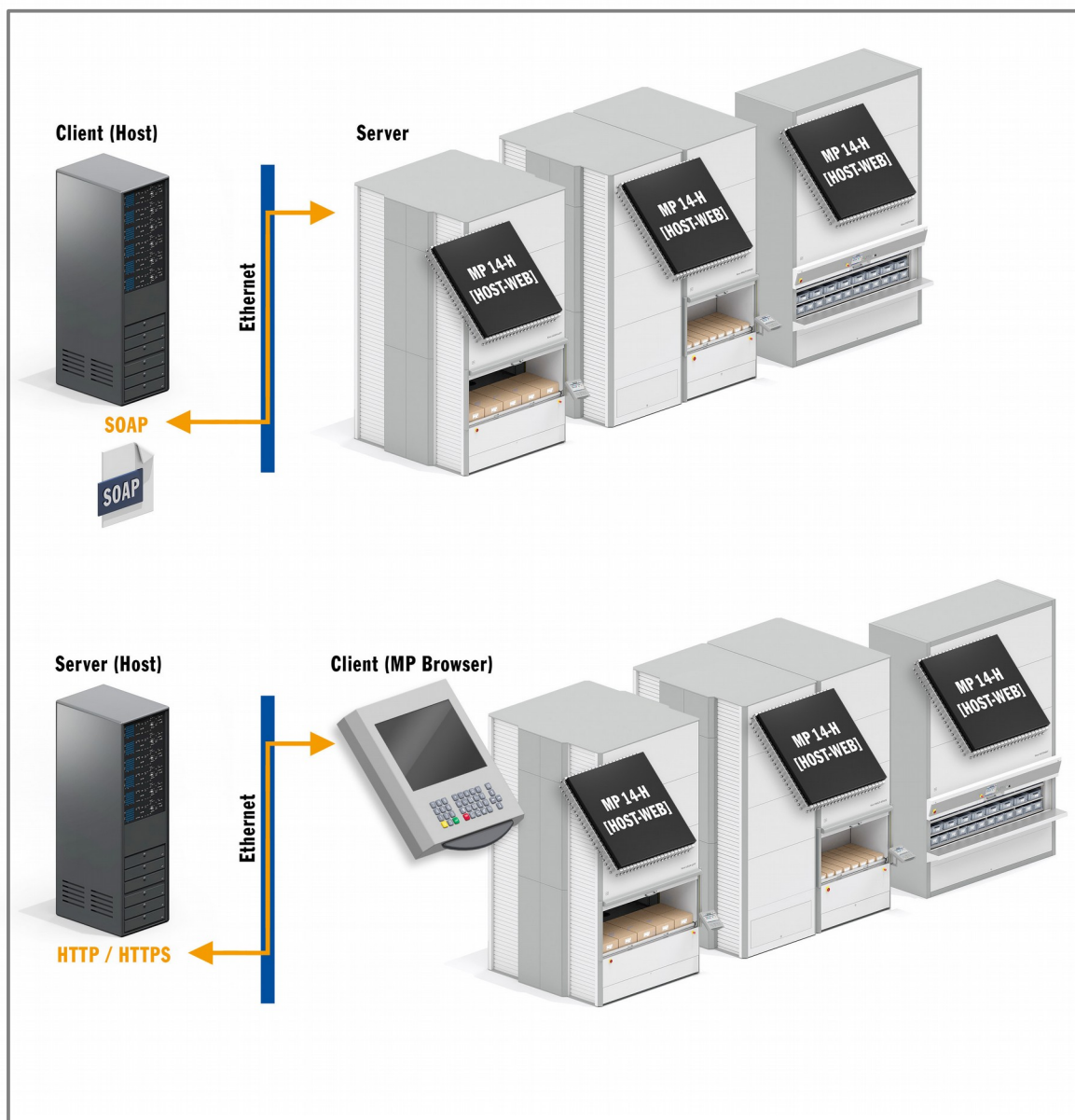


## User Guide for the HOST-WEB Program Version MP 14-H microprocessor control system

## Lean-Lift Multi-Space Rotomat





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## 1 Introduction

### 1.1 Basic information

1

**Contents** This document contains information about operating the microprocessor control system in the MP 14- H "HOST-WEB program version" and connecting it to the IT system.

**Target group** This document has been written for:

- ◆ Operating personnel
- ◆ IT specialists
- ◆ Installation personnel
- ◆ Supervisors, service and maintenance personnel

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**Validity** This document is valid for lifts/carousels of the following series:

Type: Lean-Lift, Multi-Space, Rotomat

Access points: See operating manual

Serial number: See type plate on the lift/carousel

Model year: See type plate on the lift/carousel

If the lift/carousel has multiple access points, the type plate is located at the first access point.

This document is valid for MP control systems with the following or later software versions:

|                  |                             |
|------------------|-----------------------------|
|                  | Printed circuit board S0861 |
| MP 14/12N SYSTEM | V 8.4                       |
| MP 14 CPU II     | V 5.6 STANDARD PACKAGE 4    |

**Keep in an accessible place as a complete document**

- ◆ This documentation is a part of the lift/carousel and must be stored in a location that is accessible to authorised personnel at all times.
- ◆ Chapters may never be removed from this document. If the documentation or any of its pages are lost or missing, they must be replaced immediately.

**Change service** This documentation is not subject to the change service of the manufacturer. Changes to this documentation may be made without further notification.

**Copyright** This documentation contains information that is protected by copyright. It may not, in whole or in part, be photocopied, duplicated, translated or stored to any electronic medium without prior consent.

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1

Introduction

1.2

Guide through the document

1

Symbols



Notes with this symbol warn you of a hazard caused by:

- possible severe injuries of a general nature, possibly including fatal injuries.



Here you will find important information and instructions that make using the lift/carousel easier.

Terms

- ◆ The microprocessor control system uses the term **shelf**. The term "shelf" corresponds to the following:
  - For the Lean-Lift and Multi-Space: **Containers**
  - For the Rotomat: **Carrier level**
  - For rack operation: **Shelf level**

Terms used

|      |                                 |
|------|---------------------------------|
| HTTP | Hyper Text Transfer Protocol    |
| HTML | Hyper Text Markup Language      |
| URL  | Uniform Resource Locator        |
| XML  | Extensible Markup Language      |
| AJAX | Asynchronous JavaScript and XML |
| CSS  | Cascading Style Sheets          |

Operator prompts

- ◆ The operator prompts include selection menus. There are two ways to select menu items:
  - 1) Select them using the **【↑】** / **【↓】** keys and then press the **【←】** key.
  - 2) Select them by pressing the key at the beginning of each menu item line. Press the **【CE】** key to exit selection menus.
- ◆ Depending on the initialisation, some menu items for selection menus may not be offered.

## 1 Introduction

### 1.3 Safety instructions

1



#### DANGER

All maintenance and repair work on Hänel lifts/carousel must be carried out by specially trained and authorised personnel only. Specially trained and authorised personnel are:

- Personnel who, because of their specialised education and special training in a Hänel factory, can provide proof of adequate skills and experience for these tasks and
- Who have received approval from the manufacturer or an agent authorised within the technical field to carry out these tasks and can carry out such tasks in a traceable manner.

#### SAFETY INSTRUCTION

Only specially trained and qualified personnel may operate the lift/carousel.

Operating personnel have to follow the lift/carousel user guide.

IT specialists have to follow the lift/carousel user guide and the lift/carousel operating manual.

Installation personnel have to follow the lift/carousel user guide and the lift/carousel operating manual as well as the installation instructions.

Supervisors, service and maintenance personnel have to follow the lift/carousel user guide and the lift/carousel operating manual.



#### SAFETY INSTRUCTION

Compliance with the following is mandatory:

- Safety Memorandum for Technical Field Staff
- Accident prevention regulation  
For all work, the legal accident prevention regulations applicable to the respective country of use always have overriding authority. Furthermore, the owner/operator may have additional special regulations that also have to be taken into consideration.

### 1.4 Supplementary documents

- The User Guide of the HOST-WEB Program Version does not describe operation in the embedded browser. The operation depends on the programming of the control computer (host). Therefore, a corresponding description must be created by the programmer of the control computer.
- Technical Description of the Microprocessor Control System MP 14 Lean-Lift and Multi-Space  
or
- Technical Description of the Microprocessor Control System MP 14 Rotomat
- Optional supplementary descriptions: See Chapter 14.1, page 140.

## 2 Overview of features

### 2.1 General

#### General

- ◆ The MP 14 is equipped with an Ethernet interface.
- ◆ The MP 14 provides an embedded browser on the TFT display.  
(Embedded browser resolution: 1024 x 648 pixels).
- ◆ When the lift is switched on, the initialised **start-URL** is loaded by the embedded browser.  
The initialised **base-URL** specifies the main directory of the Web application on the host side.

#### Activation of the lift/carousel via web service per SOAP protocol.

- ◆ The lift is controlled by calling up Web service methods. An HTML / SOAP interface including documentation is supplied. The WSDL file can be downloaded directly from the MP control system. Thus a connection can be programmed from every Web server supporting SOAP 1.1 Webservices as a client.
- ◆ The WSDL file (interface description in XML) enables automatic client proxy code generation.

#### Customer requirements

- ◆ Host Web server with Ethernet port for connecting the Hänel lifts.  
For complex applications, a Web application server may be more practical than a Web server.
- ◆ HTML pages must be available on the host Web server for the operator prompts that can be displayed on the embedded browser of the MP control system.
- ◆ If storage management is used, it is to be integrated by the customer via the host Web server.

#### Requirements for SAP connection to the SAP system.

- ◆ SAP eWM (Warehouse Management) >= V7.0 or  
SAP ERP (Enterprise Resource Planning) >= V6.0
- ◆ SAP NetWeaver ABAP >= V7.0 with the following integrated development tools:
  - Webservice Framework (SOAP ABAP client proxy class generator)
  - Visual Editor for ABAP Dynpro images
  - ABAP -> HTML generators, such as ITS Mobile, ...
- ◆ Alternatively, an SAP-Hänel interface from Viastore can be used for developing the Webservice interface.

## 2 Overview of features

### Embedded Browser QtWebKit (Safari) / QtWebengine (Chrome)

- ◆ The embedded browser resolution is 1024 x 648 pixels, including the border.  
The usable pixel resolution (without the border) is 1024 x 646 pixels.
- ◆ Specification of font size and font type is absolutely necessary in the HTML layout.  
Two Hänel fonts are available on the MP control system which cover the greater extent of the Unicode character set.

Chinese:        HaenelMonoAsia

All others:     HaenelPropBasic

- ◆ XML / HTML pages must not exceed 500kB.

#### **Note:**

Use of numerous Javascript libraries in the host application can lead to a drop in performance.

We recommend using a demo control system to test the host application.

## **2 Overview of features**

### **2.2 Extended functions with supplementary features**

To increase the standard scope of the software, supplementary features can be used in the carousel.

The range of functions offered by each supplementary feature is covered in a separate description.

Restrictions exist with regard to the possible combinations of supplementary features.

**2**

- ◆ High-speed door (Lean-Lift and Multi-Space)
- ◆ Pick-O-Light system (Lean-Lift and Multi-Space)
- ◆ Shelf weighing device (Lean-Lift and Multi-Space)
- ◆ Automatic sliding door (Lean-Lift and Rotomat)
- ◆ Automatic shelf ejection (only with Lean-Lift)
- ◆ Automatic shelf detent (only for Lean-Lift)
- ◆ Shelves with power socket (only for Lean-Lift)
- ◆ Signal column consisting of signal elements for operating commands (Lean-Lift, Multi-Space and Rotomat)
- ◆ Eco-Mode (Lean-Lift, Multi-Space and Rotomat)
- ◆ Requisition processing strip (Lean-Lift, Multi-Space and Rotomat)
- ◆ Supplementary feature for customer-side access code management:
  - Lift run with sliding door closed only (for access to the entire lift/carousel even when a sliding door is open)(Feature is possible only for a Rotomat with one access point)
  - Lift run with sliding door closed only

## 2 Overview of features

### 2.3 Extended functions with supplementary modules

To increase the standard scope of the software, supplementary modules can be purchased and activated.

The range of functions offered by each supplementary module is covered in a separate description.

Restrictions exist with regard to the possible combinations of supplementary modules.

- ◆ With add-on module 00) Remote-controlled lift operation (Lean-Lift, Multi-Space and Rotomat)

#### **Examples with special safety equipment**

- From a PC located between 2 carousels or near a lift group, for example, with the safety system set, a lift run can be carried out at one or more defined carousels without confirming the GREEN RETURN key.
- As long as the safety system is set, a lift run can be carried out at one or more lifts from one or more PDAs without confirming using the GREEN RETURN key.
- ◆ With add-on module 04) Storage location height management (Lean-Lift and Multi-Space)
- ◆ With add-on module 24) Adjustable shelf speed (Lean-Lift and Multi-Space)
- ◆ With add-on module 25) Shelf pre-positioning (Lean-Lift, Multi-Space and Rotomat)
- ◆ Module 28) Intermediate shelf buffer for job processing (Lean-Lift)
- ◆ With add-on module 29) Shelf transfer (Lean-Lift and Multi-Space)
- ◆ Module 30) Extractor park position (Lean-Lift and Multi-Space)

## 3 Operating elements / general operator advisories

### 3.1 Display / touchscreen

Graphical TFT module (thin-film transistor technology), is easily legible from any angle, with touchscreen

Size: 12.1" (30.7 cm)

Resolution: 1024 x 768 pixels



3

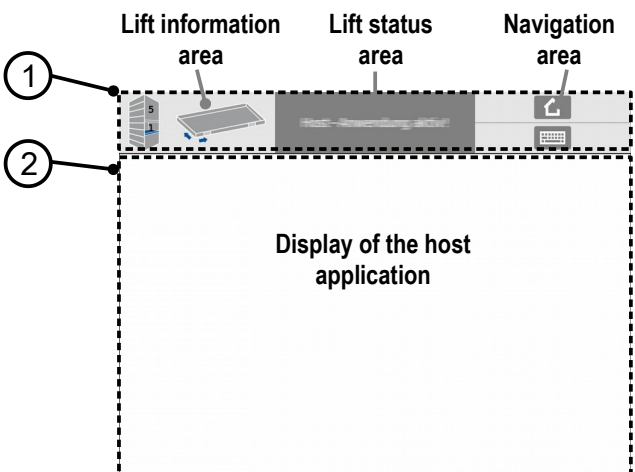
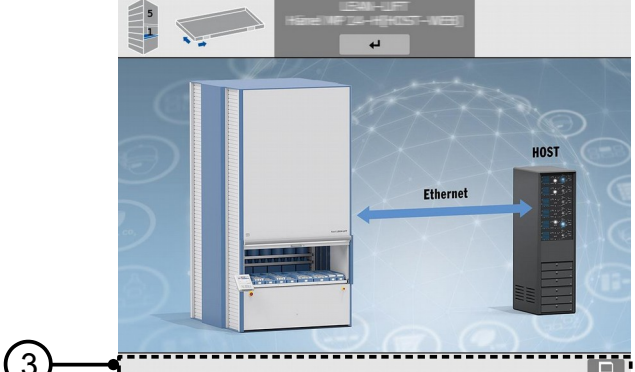


To prevent damage to the surface of the TFT display, touch it using your fingers or a blunt, non-smearing object only.

The buttons that appear in the corresponding menus must be touched just enough to visually indicate them as having been pressed on the screen.

## 3 Operating elements / general operator advisories

### 3.1.1 Division of the user interface

| Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Display                                                                              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| <p><b>① Title bar - Lift information area:</b><br/>The lift number and access point number are displayed within the lift/carousel icon. The shelf number is displayed within the shelf icon. The compartment and compartment depth numbers of the start-up storage location are also displayed at the two arrows on the shelf icon.<br/><br/>Note: This area is periodically superimposed with the STOP icon when multiple access points are being operated.</p> <p><b>Title bar - Lift status area:</b><br/>Display of error messages / display of messages during the lift run.</p> <p><b>Title bar - Navigation area:</b><br/>The home starting page and the touchscreen keyboard can be started via touchscreen.</p> |    |
| <p><b>② Display area for the host application</b><br/>The HTML pages of the host application are displayed in this area in an embedded browser window.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |
| <p><b>③ Taskbar:</b><br/>The "Lift/Carousel" menu item can be called up on the bottom right side after the MP control system boots. Additionally, another button appears in the "Lift/Carousel" menu item for quickly changing the language.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                      |

#### Note:

After a connection has been established with the host, the taskbar is superimposed by the host application.

The display area for the host application is superimposed with the lift run graphics during the lift run.

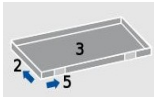
## 3 Operating elements / general operator advisories

### 3.1.2 Overview of available operating and display elements

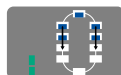
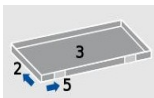
Elements of the title bar:



Lean-Lift:



Rotomat:



Lift information area:

- ◆ Display of lift/carousel and access point number.

Lift information area:

- ◆ Display of shelf number.
- ◆ Display of the compartment and compartment depth number of the storage location to be approached.

Lift information area:

- ◆ Operator information for maintenance mode.

Lift information area:

- ◆ Operator information for "Lift run is not possible", "Do not push shelf in".
- ◆ (A lift run for another access point is carried out or a shelf is located in another access opening).

Navigation area:

- ◆ Call up the starting page of the host application. The host web server start-URL for the starting page is set under the "Lift - Settings - Host parameters" menu item. See Chapter 4.1, page 32.

Navigation area:

- ◆ Call up the touchscreen keyboard.

Taskbar

- ◆ Calling up the "Lift/Carousel" menu item

Taskbar:

- ◆ Call up user settings / system services (service) with password prompt.  
Note: Only visible in the "Lift/Carousel" menu item.

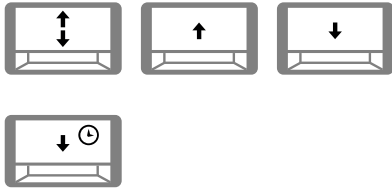
Navigation area:

- ◆ Calling up instructions for the safety inspection.

Taskbar:

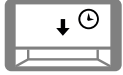
- ◆ The imbalance situation is displayed (only for Rotomat).  
Note: Only visible in the "Lift/Carousel" menu item.
- ◆ Symbols for the various imbalance situations. These range from "Rotomat is loaded optimally" to "Rotomat has high imbalance". (only for Rotomat).

## 3 Operating elements / general operator advisories



Taskbar:

- ◆ Symbols for "Open / close door", "Open door via touchscreen", "Close door via touchscreen" and "Door closes automatically after a specified time span" (only in conjunction with the supplementary feature "Automatic sliding door")



Taskbar:

- ◆ Calling up the settings for the display language.  
Note: Only visible in the "Lift/Carousel" menu item.



Taskbar:

- ◆ Release shelf detent (if enabled in the "System services run sequence" menu item, for Lean-Lift and Multi-Space).  
Note: Only visible in the "Lift/Carousel" menu item.



Taskbar:

- ◆ Symbol for "Activate display lock" and "Automatic activation of display lock after a specified time span".



Taskbar:

- ◆ Symbol for "Close/open the high-speed door" (only for Lean-Lift)  
(only when using the supplementary feature "High-speed door" and setting "Shelf change takes place with high-speed door open")

3

Operating elements / general operator advisories

3.2

Keyboard

3.2.1

Overview

1

Number block for entering article numbers, quantity etc.

2

Function keys for calling up individual functions

3

Navigation in input fields and tables / deleting characters in input fields.

4

Green LED illuminated  
-> Safety circuit set

5

Red LED illuminated  
-> Safety circuit interrupted  
Red LED flashes  
-> Safety circuit defective

3

3.2.2

Key functions

| Meaning for Rotomat                                                                                      | Meaning for Lean-Lift / Multi-Space | Key |
|----------------------------------------------------------------------------------------------------------|-------------------------------------|-----|
| Confirm entry<br>Set safety system<br><b>Start lift run!</b>                                             |                                     |     |
| Delete an entry,<br>Cancel a function<br>Acknowledge operator advisories and lift run error messages     |                                     |     |
| Stopping a lift run<br><b>To stop a lift run in hazardous situations, use the emergency stop switch!</b> |                                     |     |
| No function                                                                                              |                                     |     |
| No function                                                                                              |                                     |     |
| Call up "Lift" menu item                                                                                 |                                     |     |
| Manual shelf selection by sight ( <b>Start lift run!</b> )                                               | Bring shelf to access point         |     |

### 3 Operating elements / general operator advisories

| Meaning for Rotomat                                        | Meaning for Lean-Lift / Multi-Space                      | Key                                                                                   |
|------------------------------------------------------------|----------------------------------------------------------|---------------------------------------------------------------------------------------|
| Manual shelf selection by sight ( <b>Start lift run!</b> ) | Store shelf from access point ( <b>Start lift run!</b> ) |    |
| No function                                                | Adding a new shelf                                       |    |
| No function                                                | Removing a shelf                                         |    |
| No function                                                |                                                          |    |
| No function                                                |                                                          |   |
| Tab                                                        |                                                          |  |
| No function                                                |                                                          |  |
| No function                                                |                                                          |  |
| Call up the "System services" menu item                    |                                                          |  |
| Function key (no function)                                 |                                                          |  |
| Navigation upwards in the "System services" menu item      |                                                          |  |
| Navigation downwards in the "System services" menu item    |                                                          |  |
| Navigation in the input field to the right                 |                                                          |  |

3
Operating elements / general operator advisories

| Meaning for Rotomat                                | Meaning for Lean-Lift / Multi-Space | Key                                                                                                                                                                       |
|----------------------------------------------------|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Navigation in the input field to the left          |                                     |                                                                                        |
| Manual positioning to a shelf location to enter it | Optimisation run                    |                                                                                        |
| Delete characters in input fields (backspace)      |                                     |                                                                                        |
| Function keys F1 to F4: Reserve                    |                                     |     |
| Number keys 0-9                                    |                                     |   |

3

3

Operating elements / general operator advisories

3.3

Touchscreen keyboard

3.3.1

Overview

Description

The alphanumeric touchscreen keyboard consists of three rows and can, if necessary, be displayed in the lower area.  
It has a fixed height of 190 pixels.

1

Number block 0-9 with dot and comma key.

2

Alpha keys with Backspace, Return, Blank and Shift.

3

SHIFT key for the special characters.  
Navigation in input fields.  
Hide touchscreen keyboard.

Display

5

1

Host-Overriding active!

Home icon

Keyboard icon

Display of the host application

1

2

3

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |       |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-------|
| 7 | 8 | 9 | 0 | Q | W | E | R | T | Z | U | I | O | P | ⌫ | !,:;" |
| 4 | 5 | 6 | , | A | S | D | F | G | H | J | K | L | ↵ | ← | →     |
| 1 | 2 | 3 | . | ↑ | Y | X | ^ | C | V | B | N | M | ? | ⌵ | ⌨     |

3.3.2

Available characters

Description

Alphanumeric home page of the touchscreen keyboard.

Page 1 of the special characters

Page 2 of the special characters

Display

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |       |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-------|
| 7 | 8 | 9 | 0 | Q | W | E | R | T | Z | U | I | O | P | ⌫ | !,:;" |
| 4 | 5 | 6 | , | A | S | D | F | G | H | J | K | L | ↵ | ← | →     |
| 1 | 2 | 3 | . | ↑ | Y | X | ^ | C | V | B | N | M | ? | ⌵ | ⌨     |

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |         |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| 7 | 8 | 9 | 0 | ! | : | ; | " | ' | _ | / | \ |   | * | ⌫ | ABC 1/2 |
| 4 | 5 | 6 | , | ( | ) | [ | ] | { | } | « | » | # | ↵ | ← | →       |
| 1 | 2 | 3 | . | < | > | + | - | = | % | & | § | @ | ⌵ | ⌨ |         |

|   |   |   |   |   |   |                |   |   |   |   |   |   |   |   |         |
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| 7 | 8 | 9 | 0 | ^ | ~ | "              | " | " | ± | x | · | ÷ | % | ⌫ | ABC 2/2 |
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| 1 | 2 | 3 | . | μ | ¼ | ½              | ¾ | ° | ² | ³ | © | ® | ⌵ | ⌨ |         |

Special character, reachable by pressing and holding "e":

## 3 Operating elements / general operator advisories

### Description

The alphanumeric home page of the touchscreen keyboard features a few buttons with a small triangle in the top left corner.

Pressing and holding these buttons for a long time brings up special characters related to this character.

### Display



### Overview of special characters that are reachable by pressing and holding a character:

| Character | Special character (Unicode)                                                                    |
|-----------|------------------------------------------------------------------------------------------------|
| a         | ä (U+00E4), à (U+00E0), á (U+00E1), â (U+00E2), ã (U+00E3), â (U+00E5), æ (U+00E6), ą (U+0105) |
| e         | ë (U+00EB), è (U+00E8), é (U+00E9), ê (U+00EA), ě (U+0119), ě (U+011B)                         |
| i         | ï (U+00EF), ì (U+00EC), í (U+00ED), î (U+00EE)                                                 |
| o         | ö (U+00F6), ò (U+00F2), ó (U+00F3), ô (U+00F4), õ (U+00F5), œ (U+0153), ø (U+00F8)             |
| u         | ü (U+00FC), ù (U+00F9), ú (U+00FA), û (U+00FB), ů (U+016F)                                     |
| s         | ß (U+00DF), š (U+015B), š (U+015F), š (U+0161)                                                 |
| c         | ç (U+00E7), ć (U+0107), č (U+010D)                                                             |
| y         | ÿ (U+00FF), ý (U+00FD)                                                                         |
| n         | ñ (U+0144), ñ (U+0148), ñ (U+00F1)                                                             |
| d         | d' (U+010F)                                                                                    |
| g         | ğ (U+011F)                                                                                     |
| l         | ł (U+0142), ĺ (U+013A), ĺ (U+013E)                                                             |
| r         | ř (U+0159), ř (U+0155)                                                                         |
| t         | ť (U+0163), ř (U+0165)                                                                         |
| z         | ž (U+017A), ž (U+017C), ž (U+017E)                                                             |
|           |                                                                                                |
| A         | Ä (U+00C4), À (U+00C0), Á (U+00C1), Â (U+00C2), Ã (U+00C3), Å (U+00C5), Æ (U+00C6), Ą (U+0104) |
| E         | Ë (U+00CB), È (U+00C8), É (U+00C9), Ê (U+00CA), ě (U+0118), ě (U+011A)                         |
| I         | Ï (U+00CF), Ì (U+00CC), Í (U+00CD), Î (U+00CE)                                                 |
| O         | Ö (U+00D6), Ò (U+00D2), Ó (U+00D3), Ô (U+00D4), Õ (U+00D5), Œ (U+0152), Ø (U+00D8)             |
| U         | Ü (U+00DC), Ù (U+00D9), Ú (U+00DA), Û (U+00DB), ů (U+016E)                                     |
| S         | Š (U+015A), Š (U+015E), Š (U+0160)                                                             |
| C         | Ç (U+00C7), Ć (U+0106), Č (U+010C)                                                             |
| Y         | Ÿ (U+0178), Ý (U+00DD)                                                                         |
| N         | Ñ (U+0143), Ñ (U+0147), Ñ (U+00D1)                                                             |
| D         | Ď (U+010E)                                                                                     |
| G         | Ğ (U+011E)                                                                                     |

### 3 Operating elements / general operator advisories

|   |                                    |
|---|------------------------------------|
| L | Ł (U+0141), Ł (U+0139), Ĺ (U+013D) |
| R | Ř (U+0158), Ř (U+0154)             |
| T | Ť (U+0162), Ť (U+0164)             |
| Z | Ž (U+0179), Ž (U+017B), Ž (U+017D) |

## 3 Operating elements / general operator advisories

### 3.4 Switching on the lift

#### Description



- Switch on lift/carousel at the main switch.
- Wait for the MP control system to start up.
- The red LED in the **[STOP]** key lights up.

#### Display

Graphic while the control system starts up.



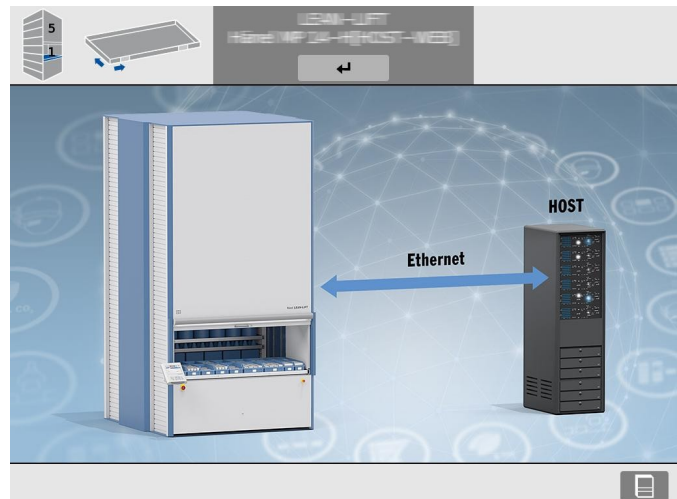
3

- The lift/carousel type and control system type appear on the display. The display text may vary depending on the configuration.
- Press the **[←]** key.

#### Note:

The taskbar provides the option of calling up the "Lift" menu item right after the start-up process (for more information, see Chapter 4.1, page 32).

Switch-on screen, example for Lean-Lift:



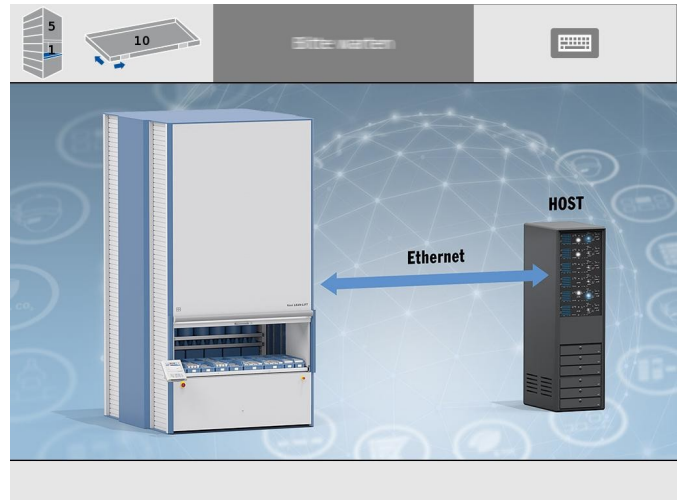
## 3 Operating elements / general operator advisories

### Description

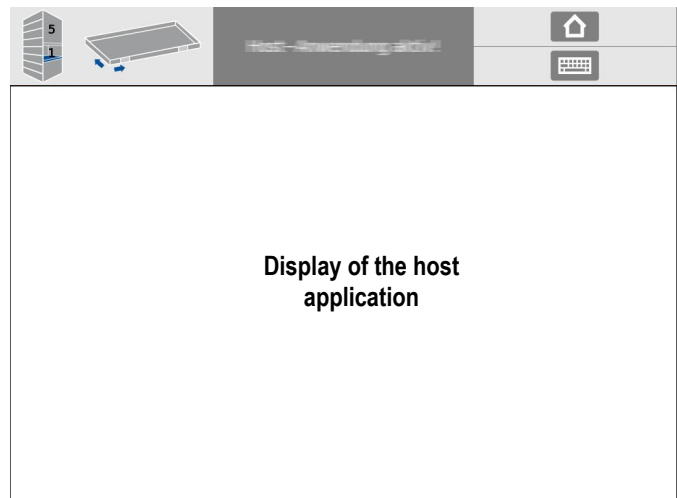
- The embedded browser on the control system tries to establish a connection with the host web server for about 20 seconds. The "Lift/Carousel status" area displays the text "Please wait".

### Display

Attempt to connect to the host.



- The connection to the host web server has been established.
- Display of the host application.
- If the attempt to connect to the host web server has failed, the "Lift" menu item is displayed to enable manual operation of the lift/carousel (for more information, see Chapter 4.1, page 32).



### **3 Operating elements / general operator advisories**

#### **3.5 Shelf division in compartment, compartment depth and container**

The front side of a lift/carousel is the side where access point 1 is located.

The storage location of an article is defined by:

- Lift number
- Shelf number
- Compartment number (consecutive from left to right from the viewpoint of the operator for the access point on the front side).
- Compartment depth number (consecutive from front to back from the viewpoint of the operator for the access point on the front side).

**3**

The storage location size of an article is defined by:

- Container size in the direction of compartments (number of compartments being used by the article in the direction of compartments)
- Container size in the direction of compartment depths (number of compartments being used by the article in the direction of compartment depths)
- Container size in height  
(only when using the supplementary module 04) Storage location height management)

The storage location can be displayed by:

- Compartment display without compartment depth display
- Compartment display with compartment depth display
- Compartment display with compartment depth display for container width (a maximum of 20 compartment displays are illuminated at the same time)
- Pick-O-Light system without display of the container size (fixed grid)
- Pick-O-Light system with display of the container size (fixed grid, up to 4 compartment emitters mark the corner points of the container)
- Pick-O-Light system (variable)

## 3 Operating elements / general operator advisories

### 3.6 Shelf detent (only for Lean-Lift and Multi-Space)

| Description                                                                       | Display                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p data-bbox="778 488 1011 519">Release of shelf detent:</p>  <p data-bbox="778 584 1428 701">When shelf detent is activated, the shelf is not pushed all the way into the access point. The horizontal movement stops before the extractor drive catches leave the guides in the shelf. This locks the shelf in place so that it cannot be moved.</p> <ul data-bbox="778 719 1444 1039" style="list-style-type: none"><li data-bbox="778 719 1385 779">x The shelf detent can be enabled or disabled in the "System services run sequence" menu item.</li><li data-bbox="778 786 1444 1039">x Shelf detent is possible only on lifts/carousels that are fitted with an incremental encoder for horizontal movement and that do <b>not</b> have the following supplementary features:<ul data-bbox="810 887 1412 1039" style="list-style-type: none"><li data-bbox="810 887 1007 913">– High-speed door</li><li data-bbox="810 916 1074 943">– Automatic shelf ejection</li><li data-bbox="810 945 1054 972">– Shelf weighing device</li><li data-bbox="810 974 1059 1001">– Automatic shelf detent</li><li data-bbox="810 1003 1412 1039">– Multiple access points with guide rails or transporter/trolley</li></ul></li></ul> |

## 3 Operating elements / general operator advisories

### 3.7 Operating multiple access points

#### 3.7.1 Lift/Carousel with guide rails (only for Lean-Lift and Multi-Space)

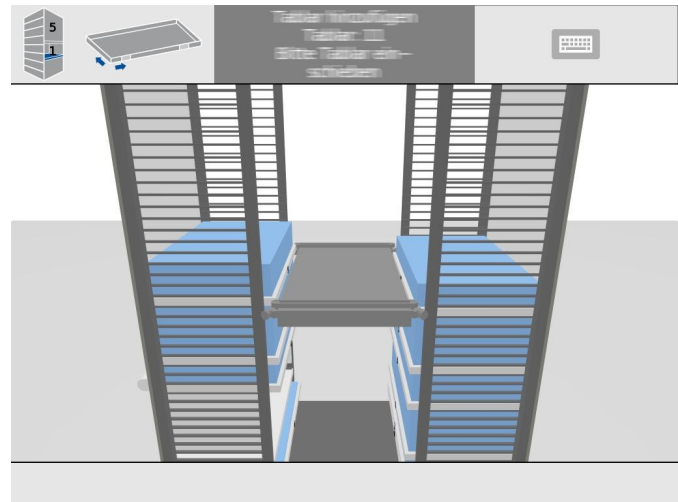
##### Description

When pushing the shelf into the access opening, please remember that:

- The shelf must not be pushed in as long as the STOP symbol is displayed in the lift/carousel information area.
- The shelf must be correctly positioned. It must cover the front and rear proximity switches of the access point simultaneously.

As long as a shelf is in the access point, no lift run is possible for another access point. Only after the shelf has been pulled completely onto the guide rails can a lift run be executed from another access point.

##### Display



3



- x When an access operation is completed, the accessed shelf should be pushed fully into the access point and stored in the lift/carousel from the access point. This allows the shelf to be accessed from another access point.
- x Moreover, an access point should never be left by the operator while an error message is displayed. In this case, the run at this access point is not concluded and access by the other access points is blocked.

#### 3.7.2 Lift run with sliding door closed only (only for Lean-Lift and Multi-Space)



- x Before each lift run, the sliding door must be closed. The door must be opened after accessing a storage location.
- x In the "Lift status" area, the operator is prompted to open or close the door.

#### 3.7.3 Lift/Carousel with high-speed door (only for Lean-Lift and Multi-Space)

- Refer to the "Supplementary Description of the High-speed Door Microprocessor Control System MP 14 Lean-Lift and Multi-Space"

### 3 Operating elements / general operator advisories

#### 3.7.4 Lift run only with access point open (only for Rotomat)

A lift run is possible only if the operator's own access point is open and all other access points are closed and locked. For this reason, the access doors should always be closed after S/R procedures. As soon as one access point is opened, all other access points are locked. This prevents interruptions of the lift run caused by opening other access points.



- x During emergency operation, a lift run can be carried out with the door closed. Emergency operation means that the lift/carousel can be operated with the doors closed if the safety light barriers or the safety rocker switches have failed. This feature is optional and is not available without additional modification to the electrical equipment. For activating emergency operation, refer to the "Technical Description of the Microprocessor Control System MP 14 for Rotomat".
- x Manual mode if the electronics fail:  
When access points are closed, the manual-automatic selector switch can be used to unlock the access point. Manual mode may always be selected at one access point only.
- x If the door is open for another access point, the door at this access point cannot be opened. The STOP symbol appears in the "Lift information" area.

3

#### 3.7.5 Lift run possible only when manually operated sliding doors are closed (for Rotomat only)



- x A lift run is possible only when all access points are closed and locked. For this reason, the access doors should always be closed after S/R procedures. As soon as one access point is opened, all other access points are locked.
- x If the door is open for another access point, the door at this access point cannot be opened. The STOP symbol appears in the "Lift information" area.

3

Operating elements / general operator advisories

3.8

Changing the language



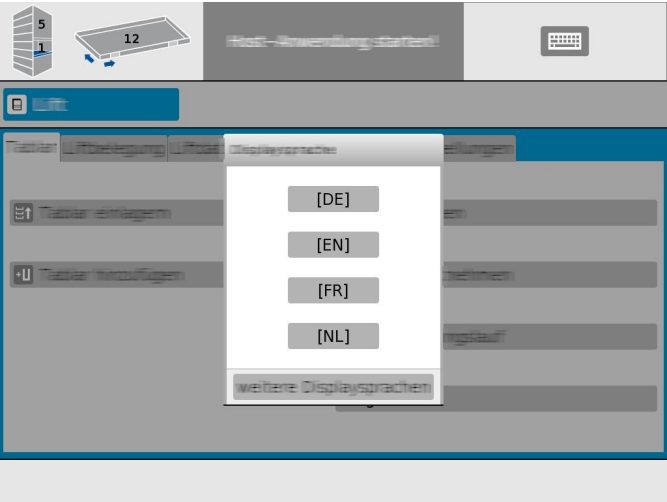
- x After the carousel is switched off and on again, the operator prompts are again displayed in the language configured in the initialisation.

Description

- ◆ The four last configured display languages appear as buttons in a dialogue for quick selection.

Display

Switching in the taskbar:



3



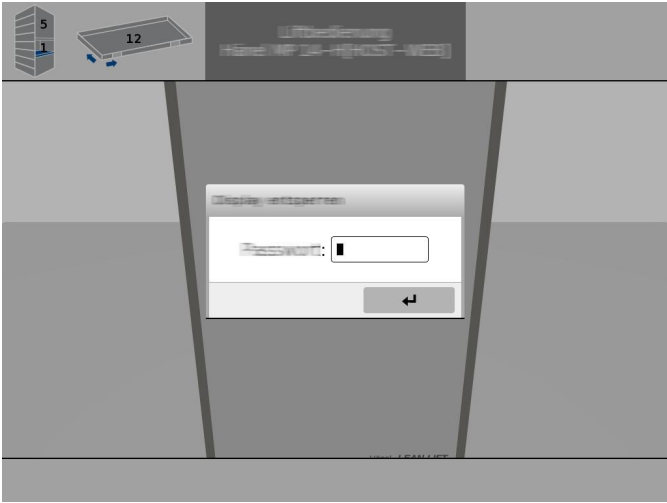
- x The language switchover pertains only to lift operation outside of the host application.
- x The language can be switched only in the "Lift/Carousel" menu item.

3

Operating elements / general operator advisories

3.9

Display lock

| Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Display                                                                                                                                                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <div>Enabling in the taskbar:</div> <div>  </div>                          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <div>Automatic activation after a specified time span:</div> <div>  </div> |
| <ul style="list-style-type: none"> <li>Under the "Lift" menu item there is a "Settings" function that can be used to enable the display lock and set its password. Optionally, the setting "Activate display lock after the time span" can be used to activate the display lock automatically.</li> <li>After the control system boots up or after manual or automatic enabling of the display lock, the user is prompted to enter a password as access protection.</li> </ul> | <div>  </div>                                                              |

## 3 Operating elements / general operator advisories

### 3.10 Load imbalance indicator (only for Rotomat)

In a Rotomat, a load that is not evenly distributed with regard to the weight of the load capacity can cause great load fluctuations. An unevenly distributed load is called a load imbalance. The load fluctuations caused by load imbalances can lead to an impermissible operating state and increased wear of the Rotomat. Therefore, if a high imbalance occurs, it should be reduced by relocation or consideration of storage recommendations. For a low or moderate imbalance, no relocation is necessary. The load imbalance indicator informs the operator of the current imbalance situation of the carousel and makes storage recommendations.



- x The load imbalance indicator is optional electrical equipment for the Rotomat.
- x The load imbalance indicator determines a storage recommendation. This storage recommendation is considered during automatic storage location assignment when a storage location is created.

3

#### 3.10.1 Display of the imbalance situation and the load imbalance recommendation (only for Rotomat)



The imbalance situation and the load imbalance recommendation can be queried by confirming the button in the taskbar in the "Lift" menu item.



#### Description

#### Example screenshot

- The Rotomat has an optimal load.
- The Rotomat has a low imbalance.
  - Display of a load imbalance recommendation for which shelf should receive the next storage operation.
- The Rotomat has a medium imbalance.
  - Display of a load imbalance recommendation for which shelf should receive the next storage operation.
- The Rotomat has a high imbalance.
  - Display of a load imbalance recommendation for which shelf should receive the next retrieval operation.
- The Rotomat has an impermissible imbalance.
  - In addition, an audible alarm sounds.
  - Only limited operation of the Rotomat is possible.
  - Display of a load imbalance recommendation for which shelf should receive the next retrieval operation.



3

Operating elements / general operator advisories

3.10.2 Limited operation with impermissible imbalance (not for Rotomat)

The limited operation begins with the next lift run after the impermissible imbalance is detected. From then on, each lift run is interrupted by the control system after every 4 carriers with the lift run error message described below:

| Description of possible operator advisories                                                                                                                                                                                                   | Display text in the "Lift/Carousel status" area                                                                                                                                                                                                                   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div><ul style="list-style-type: none"><li>Press the [↩] key.</li></ul><p>➔ The carousel continues moving for a maximum of 4 carriers.</p></div> <div></div> | <div>LIFT RUN FAULT :<br/>OVER IMBALANCE<br/>DETECTED<br/>-&gt; CE/↩</div> <div>The host application receives the storage recommendation in the response from the MP control system by using the "readStatusV02", "get_shelf" or "base_servicesV02" method.</div> |

3

3.10.3 Initialisation run

When an initialisation run is carried out, the load table in the memory is updated to reflect the current loaded state.

- An initialisation run should also be carried out after each time the load imbalance is formatted.  
During the formatting, the values in the load table are set to a default value. This default value is set to the actual power value by an initialisation run.
- An initialisation run should be carried out after storage or retrieval due to an impermissible imbalance.

During an initialisation run, the lift/carousel must carry out one full rotation in both run directions at a high speed. Rotation at fast speed is possible with the  and keys  , where the respective key must be pressed and held.

## 4 Lift/carousel operation

### 4.1 Lift menu item

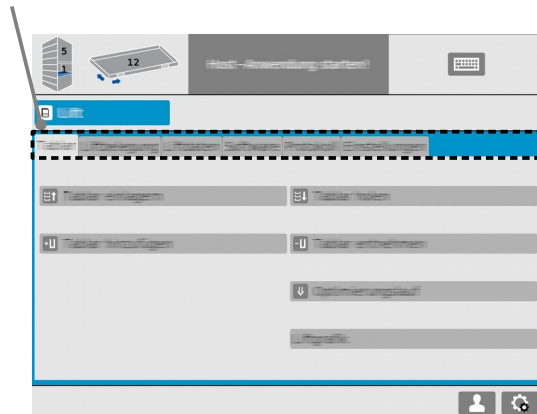
#### Description

##### Function bar - "Shelf" function:

-  • "Store shelf" button/key (for LL, MS)
  - The shelf in the access point is stored in the lift.
-  • "Get shelf" button/key (for LL, MS)
  - The entered shelf is brought to the access point. If the access point is occupied by another shelf, this is returned to storage in the lift first.
-  • "Add shelf" button (for LL, MS)
  - The MP control system receives notification of the shelf pushed into the access point. Articles can now be stored and registered in it.
-  • "Remove shelf" button/key (for LL, MS)
  - The entered shelf is brought to the access point if it is not there already. After the shelf has been pulled out of the access point, it is unregistered from the MP control system. Articles can now no longer be stored or registered in it.
-  • "Optimisation run" button/key (for LL, MS)
  - In an optimisation run according to access time, the MP control system calculates the most favourable position for shelves with a frequent access rate or high AP (AP = Access Priority). If it is possible to optimise the shelf positions, the shelves are relocated automatically. Moreover, gaps that have arisen between shelves as a result of constantly changing article heights are closed by re-sorting the shelves.
  - An optimisation run according to packing density closes all the gaps between shelves by re-sorting from the bottom up.

#### Display

##### Function bar for "Lift" menu item (blue)



-  • "Get shelf" button (for RO)
  - The entered shelf position is manually accessed.
-  • "Position shelf" button (for RO)
  - Depending on which key is pressed, the carousel moves upward or downward. Release the key to stop the carousel at the next shelf position. When the function is activated by touch, after the "Start lift run" window is confirmed, the carousel moves into the selected direction by only one shelf position.
- "Shelf weight measurement" button (for LL, MS) (only with shelf weighing device)
- "Position storage location" button (for RO)
  - After specifying the shelf, compartment, compartment depth and container, the entered shelf position is accessed manually and the compartment or compartment depth display is activated.

LL = Lean-Lift

MS = Multi-Space

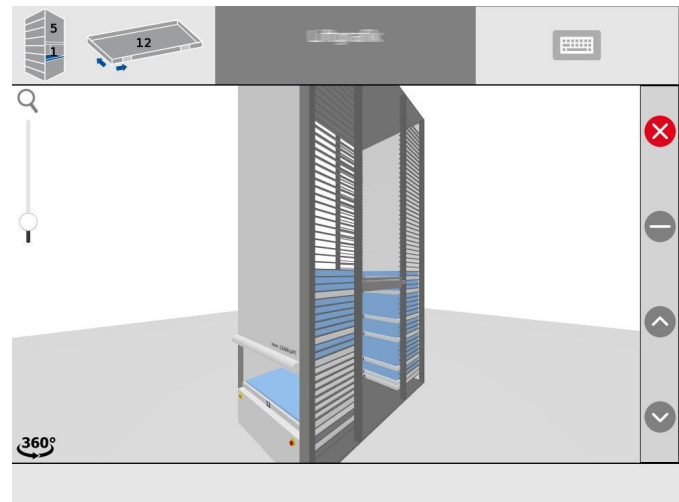
RO = Rotomat

## 4 Lift/carousel operation

### Description

- "Lift graphic" button (for LL, MS)
  - ➔ When not moving, the lift/carousel is portrayed based on a 3D model. The lift/carousel can be viewed from all sides using a three-dimensional view. The image size can be changed below the magnifying glass symbol.
  - In addition, the following functions are available via the right-hand taskbar:
    - a) Plus sign: View is closed.
    - b) Symbol with slash: Extractor can be hidden.
    - c) Upwards / downwards arrows: Exploring the lift/carousel vertically.
    - d) Left/right arrows (only for MS): The view point (camera position) can be changed horizontally.

### Display



## 4 Lift/carousel operation

### Description

#### Function bar - "Lift assignment" function:

Note. This menu item is displayed only for the Lean-Lift or Multi-Space version.

Shows a list in table form of the shelves present in the lift.

Table columns:

- Lift unit
  - is displayed only for the Multi-Space. Lift units are counted from left to right starting with "1" in relation to the side of the lift where access point 1 is found.
- Shelf
  - Shelf number
- Front carrier
  - is the side at which the operator is standing.
- Rear carrier
  - is the opposite side from the operator's viewpoint.
- Actual height
  - corresponds to the stored article height measured in carriers.
- Target height
  - appears only with supplementary module 04) "Storage location height management".
- Weight
  - is shown only if the supplementary module "Shelf weighing device" is installed.

#### Function bar - "Lift data" function:

Shows various lift/carousel parameters in table form (model year, lift number, access point number, number of compartments, number of compartment depths, etc.).

#### Function bar - "Software" function:

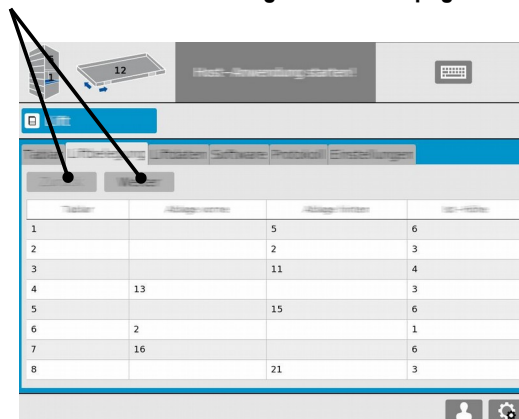
Shows the version statuses of the individual software modules.

#### Function bar - "Log" function:

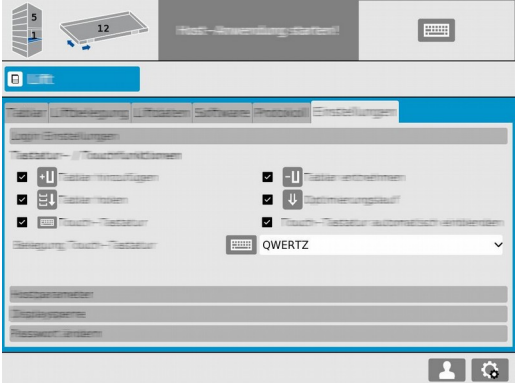
Shows the protocol (log) for safety inspection (date, technician/company carrying out the inspections, responsible employee of the owner/operator).

### Display

Back / Next button for scrolling between the pages



## 4 Lift/carousel operation

| Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Display                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                   |                       |                                                                                   |                          |                                                                                    |                       |                                                                                     |                        |                                                                                     |                                                   |                                                                                     |                      |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------|-----------------------------------------------------------------------------------|--------------------------|------------------------------------------------------------------------------------|-----------------------|-------------------------------------------------------------------------------------|------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------|-------------------------------------------------------------------------------------|----------------------|--|
| <b>Function bar - "Settings" function:</b><br>The following setting options are available.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                   |                       |                                                                                   |                          |                                                                                    |                       |                                                                                     |                        |                                                                                     |                                                   |                                                                                     |                      |  |
| <ul style="list-style-type: none"> <li>Login settings:                             <ul style="list-style-type: none"> <li>→ After a successful login (default setting: "22488"), changes in the setting screens can be made.</li> </ul> </li> <li>Keyboard/ touch functions:                             <ul style="list-style-type: none"> <li>→ The following key functions / touch functions can be disabled:</li> </ul> </li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                   |                       |                                                                                   |                          |                                                                                    |                       |                                                                                     |                        |                                                                                     |                                                   |                                                                                     |                      |  |
| <table border="0"> <tr> <td></td><td>Add shelf<br/>(LL, MS)</td></tr> <tr> <td></td><td>Remove shelf<br/>(LL, MS)</td></tr> <tr> <td></td><td>Get shelf<br/>(LL, MS)</td></tr> <tr> <td></td><td>Position shelf<br/>(RO)</td></tr> <tr> <td></td><td>Optimisation run (LL, MS),<br/>Position shelf (RO)</td></tr> <tr> <td></td><td>Touchscreen keyboard</td></tr> <tr> <td></td><td>Show touchscreen<br/>keyboard automatically</td></tr> </table> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  | Add shelf<br>(LL, MS) |  | Remove shelf<br>(LL, MS) |  | Get shelf<br>(LL, MS) |  | Position shelf<br>(RO) |  | Optimisation run (LL, MS),<br>Position shelf (RO) |  | Touchscreen keyboard |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Add shelf<br>(LL, MS)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                   |                       |                                                                                   |                          |                                                                                    |                       |                                                                                     |                        |                                                                                     |                                                   |                                                                                     |                      |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Remove shelf<br>(LL, MS)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                   |                       |                                                                                   |                          |                                                                                    |                       |                                                                                     |                        |                                                                                     |                                                   |                                                                                     |                      |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Get shelf<br>(LL, MS)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                   |                       |                                                                                   |                          |                                                                                    |                       |                                                                                     |                        |                                                                                     |                                                   |                                                                                     |                      |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Position shelf<br>(RO)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                   |                       |                                                                                   |                          |                                                                                    |                       |                                                                                     |                        |                                                                                     |                                                   |                                                                                     |                      |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Optimisation run (LL, MS),<br>Position shelf (RO)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                   |                       |                                                                                   |                          |                                                                                    |                       |                                                                                     |                        |                                                                                     |                                                   |                                                                                     |                      |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Touchscreen keyboard                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                   |                       |                                                                                   |                          |                                                                                    |                       |                                                                                     |                        |                                                                                     |                                                   |                                                                                     |                      |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Show touchscreen<br>keyboard automatically                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                   |                       |                                                                                   |                          |                                                                                    |                       |                                                                                     |                        |                                                                                     |                                                   |                                                                                     |                      |  |
| <ul style="list-style-type: none"> <li>→ The assignment of the touchscreen keyboard can be defined on a user-defined basis. Options: QWERTZ, QWERTY, AZERTY.</li> <li>Operator prompts                             <ul style="list-style-type: none"> <li>→ Setting option "Multilingual display language" (see Chapter 3.8, page 28).</li> <li>→ Setting option "GUI Style 2". This setting brings about a change of the design of the operator prompts.</li> </ul> </li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <ul style="list-style-type: none"> <li>Host parameters:                             <ul style="list-style-type: none"> <li>→ Specification of the host webserver start URL for the first connection / connection after pressing the Home button.</li> <li>→ Selection of the embedded browser: Webkit (Safari) or Webengine (Chrome)</li> <li>→ Selection of the type via web service: SOAP or REST</li> <li>→ Authentication activation (only REST web service): Definition of user name and password.<br/>For further information on authentication, see Chapter 12, subchapter 4, page 138 in the annex.</li> </ul> </li> <li>Display lock                             <ul style="list-style-type: none"> <li>→ Activation / deactivation of the display lock (see Chapter 3.9, page 29).</li> </ul> </li> <li>Change password                             <ul style="list-style-type: none"> <li>→ Defining the password for "Login settings" and for the "Display lock".</li> </ul> </li> </ul> |                                                                                   |                       |                                                                                   |                          |                                                                                    |                       |                                                                                     |                        |                                                                                     |                                                   |                                                                                     |                      |  |

LL = Lean-Lift  
MS = Multi-Space  
RO = Rotomat

## 4 Lift/carousel operation

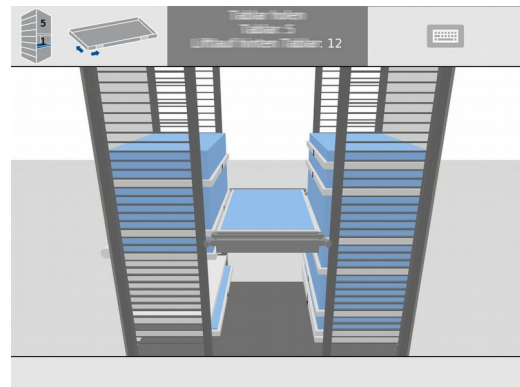
### 4.2 Lift run graphics

#### Description

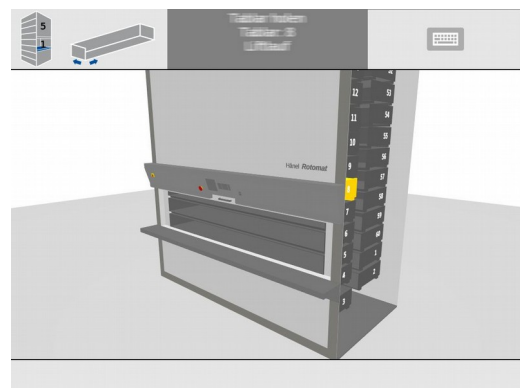
→ The lift run graphics are displayed during the lift run.

#### Display

Lift run graphics, example for Lean-Lift:



Lift run graphics, example for Rotomat:



4

### 4.3 Manual operation following electronics failure (only for Rotomat)

If the electronics fail, the carousel can be rotated with the manual/ auto mode selection switch. For this, the switch must be put into the left, non-locking manual operation position. The carousel then rotates slowly downward. The direction of rotation cannot be reversed.

5

Operation

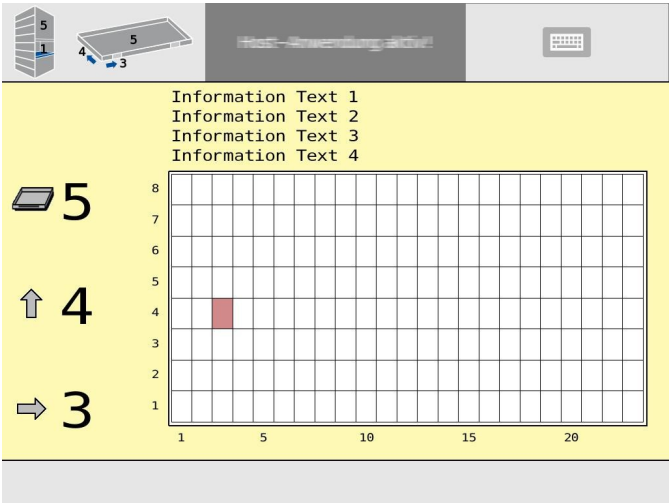
5.1

Operation with the host application

> The User Guide for HOST-WEB Program Version does not describe operation of the host application. The operation depends on the programming of the control computer (host). Therefore, a corresponding description must be created by the programmer of the control computer.

5.2

Operation without the host application

| Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Display                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>It is now possible to implement a simple operator interface even without customer-side operator prompts.</li> <li>By using the "getShelfV02" method, in addition to the graphic display of the storage location, it is possible to display up to 4 customer-specific strings with up to 30 characters per row.</li> <li>To delete the storage location display, the method "delete_comp_disp" can be used.</li> </ul>                                                            | <div>Operation of a display without the host application</div>  <div>           The screenshot shows a graphical user interface for a storage system. On the left, there is a vertical stack of storage locations with a '5' and a '1' next to it. Below this, there are three arrows pointing right, labeled '4', '3', and '5'. In the center, there is a large grid with a red square in the top-left corner. To the right of the grid, there are four lines of text: 'Information Text 1', 'Information Text 2', 'Information Text 3', and 'Information Text 4'. At the bottom, there is a row of buttons: 'CE', a left arrow, and a keyboard icon.         </div> |
| <ul style="list-style-type: none"> <li>If the method "confirmV01" is also sent after the method "getShelfV02", the prompt CE /  appears.</li> <li>→ This can be used to confirm a storage/retrieval operation by the operator on the lift/carousel. With the feedback of this confirmation, the customer-side storage management system is able to register the position in order to subsequently send the next position.</li> </ul> |  <div>           The screenshot shows a graphical user interface for a storage system. On the left, there is a vertical stack of storage locations with a '5' and a '1' next to it. Below this, there are three arrows pointing right, labeled '4', '3', and '5'. In the center, there is a large grid with a red square in the top-left corner. To the right of the grid, there are four lines of text: 'Information Text 1', 'Information Text 2', 'Information Text 3', and 'Information Text 4'. At the bottom, there is a row of buttons: 'CE', a left arrow, and a keyboard icon.         </div>                                                               |



- x For additional information about the SOAP methods, refer to Chapter 3.4, page 86, Chapter 3.9, page 94 and Chapter 3.19, page 110.
- x For use without host application, the start-URL specification must be empty.

6

System services

6.1

Overview



- x The system services can be called up in the "Lift" menu item using the  button.

| Menu item / Function                                        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| System services lift control                                | <ul style="list-style-type: none"><li>• Various system parameters of the lift/carousel control system can be configured in this menu.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| System services Run sequence<br>(Lean-Lift and Multi-Space) | <ul style="list-style-type: none"><li>• System parameters that influence the sequence of operations can be altered here.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| System services service functions                           | <ul style="list-style-type: none"><li>• The service functions are used to check the function of the lift/carousel during installation and service. Service functions are auxiliary equipment that can be used to locate faults in the lift/carousel quickly and easily.</li></ul> <p>➤ For further information, refer to the "Supplementary Description of the Service Functions for Microprocessor Control System MP 14 Lean-Lift, Multi-Space and Rotomat".</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Safety inspection log                                       | <div><div></div><div><div><b>SAFETY INSTRUCTION</b></div><p>The service functions are protected by the service password. The service functions are intended for specially and verifiably trained, authorised personnel only.</p><ul style="list-style-type: none"><li>• In this menu item, you can update log data for the safety inspection.</li><li>• The operator is reminded of the safety inspection annually.</li></ul><p>The information recorded in the MP control system is provided solely as an aid. The test book and test logs are authoritative. Refer to the operating manual.</p></div></div> <div><div></div><div><p>For additional information, see:</p><ul style="list-style-type: none"><li>➤ Technical Description of the Microprocessor Control System MP 14 Lean-Lift and Multi-Space</li><li>or</li><li>➤ Technical Description of the Microprocessor Control System MP 14 Rotomat</li></ul></div></div> |

7Operator advisories

7.1Safety inspection

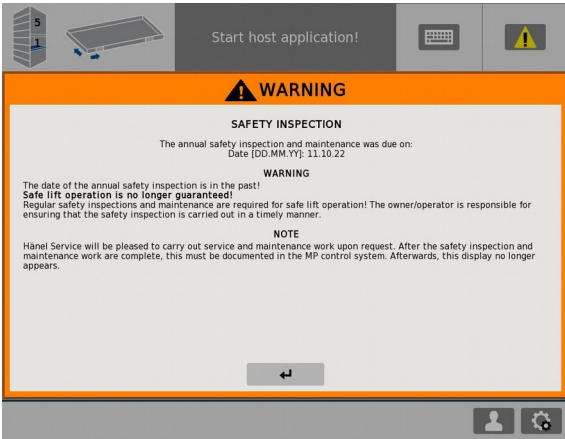
An annual lift/carousel safety inspection is necessary to ensure safe operation of the lift/carousel at all times.

The MP control system reminds the operator of the pending annual safety inspections based on the entries in the safety inspection log using a note listed in the display below.

The entries in the safety inspection log are listed in table form under the menu item "Lift - Log".

| Note | Cause                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Action                                                                                    |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
|      | <p>As long as the first safety inspection, i.e. the safety inspection during commissioning, has not yet been carried out / entered, this note appears.</p> <ul style="list-style-type: none"> <li>◆ The note is displayed every time the device is switched on.</li> <li>◆ In addition, a warning symbol is displayed below in the taskbar. The note appears again by touching the warning symbol.</li> </ul>                                                                                                                                                       | <ul style="list-style-type: none"> <li>• Have a safety inspection carried out.</li> </ul> |
|      | <p>As long as the pending safety inspections have not yet been carried out / entered, this note appears if the MP control is used in the period from 10 days before the due date to the due date.</p> <ul style="list-style-type: none"> <li>◆ The note is displayed once on the Lean-Lift and Rotomat.</li> <li>◆ On the Multi-Space, the note is displayed every time the device is switched on and every 24 hours.</li> <li>◆ In addition, a warning symbol is displayed below in the taskbar. The note appears again by touching the warning symbol.</li> </ul> | <ul style="list-style-type: none"> <li>• Have a safety inspection carried out.</li> </ul> |

## 7 Operator advisories

| Note                                                                               | Cause                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Action                                                                                    |
|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
|   | <p>As long as the pending safety inspection has not been carried out / entered, this note appears in the time period after up to 5 days before the due date.</p> <ul style="list-style-type: none"> <li>◆ The note is displayed once on the Lean-Lift and Rotomat if <b>no</b> work has been carried out on the MP control system and the due date is already exceeded as a result before the due date up until the due date in the time period after 10 days.</li> <li>◆ On the Multi-Space, the note is displayed every time the device is switched on and every 8 hours.</li> <li>◆ In addition, a warning symbol is displayed below in the taskbar. The note appears again by touching the warning symbol.</li> </ul> | <ul style="list-style-type: none"> <li>• Have a safety inspection carried out.</li> </ul> |
|  | <p>As long as no safety inspection has been carried out / entered, this note appears after the sixth day after the due date.</p> <ul style="list-style-type: none"> <li>◆ The note appears once.</li> <li>◆ In addition, a warning symbol is displayed below in the taskbar. The note appears again by touching the warning symbol.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                            | <ul style="list-style-type: none"> <li>• Have a safety inspection carried out.</li> </ul> |

## 7 Operator advisories

### 7.2 System

| Note                                                                                                                                                    | Cause                                                                                                                                                                                                                                                                         | Action                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| Only for multiple access points and only for Lean-Lift and Rotomat:<br><b>LIFT RUN FOR<br/>OTHER ACCESS POINT !<br/>(n)<br/>PLEASE WAIT</b>             | (n) = Access point number for multiple access points.<br><ul style="list-style-type: none"><li>An operation is currently in progress at access point (n).</li></ul>                                                                                                           | <ul style="list-style-type: none"><li>Wait until the lift run for access point (n) is completed.</li></ul> |
| Only for multiple access points and only for Lean-Lift and Multi-Space.<br><b>OPERATION IS BLOCKED<br/>OTHER ACCESS POINT<br/>ACCESS POINT!<br/>(n)</b> | (n) = Access point number for multiple access points.<br><ul style="list-style-type: none"><li>A lift run error message is pending at access point (n).</li></ul>                                                                                                             | <ul style="list-style-type: none"><li>Resume lift run at access point (n).</li></ul>                       |
| Only for multiple access points and only for Lean-Lift:<br><b>CANCELLING BLOCKS<br/>OTHER ACCESS POINTS!<br/>REALLY CANCEL?<br/>NO -&gt; ↑/↓/CE/←</b>   | <ul style="list-style-type: none"><li>The horizontal movement within the access point is not completed and the <b>[CE]</b> key was pressed for the lift run error message.</li></ul>                                                                                          | <ul style="list-style-type: none"><li>Confirm "NO" and exit the horizontal movement.</li></ul>             |
| Only with Lean-Lift:<br><...><br><b>LIFT RUN FRONT &lt;tt&gt;</b><br><...><br><...>                                                                     | <ul style="list-style-type: none"><li>Shelf &lt;tt&gt; is stored in the front lift unit. FRONT is the side at which the operator is standing.</li></ul>                                                                                                                       | <ul style="list-style-type: none"><li>Wait until the lift run is finished.</li></ul>                       |
| Only with Lean-Lift:<br><...><br><b>LIFT RUN BACK &lt;tt&gt;</b><br><...><br><...>                                                                      | <ul style="list-style-type: none"><li>Shelf &lt;tt&gt; is stored in the rear lift unit. REAR (BACK) is the side opposite the operator.</li></ul>                                                                                                                              | <ul style="list-style-type: none"><li>Wait until the lift run is finished.</li></ul>                       |
| Only with Multi-Space:<br><...><br><b>LIFT RUN FRONT &lt;tt&gt;</b><br><b>LIFT UNIT : &lt;n&gt;</b><br><...>                                            | <ul style="list-style-type: none"><li>Shelf &lt;tt&gt; is stored in front lift unit number &lt;n&gt;. FRONT is the side at which the operator is standing. Lift units are counted from left to right starting with "1" at the side where the type plate is located.</li></ul> | <ul style="list-style-type: none"><li>Wait until the lift run is finished.</li></ul>                       |
| Only with Multi-Space:<br><...><br><b>LIFT RUN BACK &lt;tt&gt;</b><br><b>LIFT UNIT : &lt;n&gt;</b><br><...>                                             | <ul style="list-style-type: none"><li>Shelf &lt;tt&gt; is stored in rear lift unit number &lt;n&gt;. REAR (BACK) is the side opposite the operator. Lift units are counted from left to right starting with "1" at the side where the type plate is located.</li></ul>        | <ul style="list-style-type: none"><li>Wait until the lift run is finished.</li></ul>                       |

## 7 Operator advisories

| Note                                                                                                                                                                                      | Cause                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Action                                                                                                                                                                                                                                                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>DO NOT INCREASE<br/>ARTICLE HEIGHT<br/>-&gt; CE/↵</p> <p>ARTICLE HEIGHT<br/>INCREASED ?<br/>YES<br/>-&gt; ↑/↓/CE/↵</p>                                                                 | <ul style="list-style-type: none"> <li>In the redundancy menu, the article height detection function or the monitoring of shelf management was deactivated. This necessitates a subsequent "Check article height" test run. As long as this test run has not been carried out, after a shelf is brought to the access point, the message "Do not increase article height" is displayed; when shelves are stored, the prompt "Article height increased?" is displayed.</li> </ul> | <ul style="list-style-type: none"> <li>Have the "Check article height" test run carried out by Hänel service department. Refer also to the Technical Description.</li> </ul>                                                                               |
| <p>REDUNDANCY SYSTEM<br/>FUNCTION IS NOT<br/>POSSIBLE AT PRESENT<br/>-&gt; CE</p>                                                                                                         | <ul style="list-style-type: none"> <li>In the redundancy menu, the article height detection function or the monitoring of shelf management was deactivated. This necessitates a subsequent "Check article height" test run. As long as this test run has not been carried out, this message will be displayed when the functions "Adding a new shelf" and "Start optimisation run" are called up.</li> </ul>                                                                     | <ul style="list-style-type: none"> <li>Have the "Check article height" test run carried out by Hänel service department. Refer also to the Technical Description.</li> </ul>                                                                               |
| <p>Only for lifts without shelf weighing device:<br/>SHELF NUMBER LIMIT<br/>EXCEEDED<br/><br/>-&gt; ↵<br/><br/>then<br/><br/>AVERAGE<br/>MAX.<br/>SHELF LOAD [KG]: xxx<br/>-&gt; CE/↵</p> | <ul style="list-style-type: none"> <li>The system has detected that the shelf number limit has been exceeded.<br/>Shelf number limit = max. total load / (max. shelf load + shelf empty weight)</li> </ul>                                                                                                                                                                                                                                                                       | <ul style="list-style-type: none"> <li>When the shelf number limit is exceeded, the average maximum shelf load capacity is reduced to the displayed value. This is checked when the unit is switched on and when shelves are added.</li> </ul>             |
| <p>Only for lifts without shelf weighing device:<br/>&lt; . . . &gt;<br/>LIFT RUNNING !<br/>DO NOT EXCEED<br/>MAXIMUM LIFT LOAD</p>                                                       | <ul style="list-style-type: none"> <li>This message is displayed for a lift run if the system has detected that the shelf number limit has been exceeded.<br/>Shelf number limit = max. total load / (max. shelf load + shelf empty weight)</li> </ul>                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                            |
| <p>INCREASED NO. OF<br/>SHELVES PERMITTED<br/><br/>-&gt; ↵<br/><br/>then<br/><br/>MAXIMUM<br/>SHELF LOAD<br/>[KG]:        xxx<br/>-&gt; CE/↵</p>                                          | <ul style="list-style-type: none"> <li>The system has detected that the permitted default number of shelves has been increased using a lift/carousel-specific enable code.</li> </ul>                                                                                                                                                                                                                                                                                            | <ul style="list-style-type: none"> <li>When the permitted standard shelf number is increased, the maximum shelf load capacity is reduced to the displayed value. This display is shown when the unit is switched on and when shelves are added.</li> </ul> |

## 8 Error messages during lift run

A lift run is possible only with the safety system set (green LED in the **【↵】** key is illuminated). In addition, the MP control system monitors the lift run. If the safety circuit is interrupted or the monitoring of the MP control system detects invalid statuses, the lift run stops. The red LED in the **【STOP】** key lights up and the error is listed in plain text on the display.

This chapter lists the errors that can be easily remedied from outside.

After the error is eliminated, the error message must be acknowledged with **【↵】**.

If the lift run was interrupted, it is now resumed.

If an error cannot be eliminated, you have to inform Hänel after-sales service immediately.

- For more details on error messages intended for specially trained and authorised personnel, refer to the "Technical Description of the Microprocessor Control System MP 14 Lean-Lift and Multi-Space" or "Technical Description of the Microprocessor Control System MP 14 Rotomat".

### 8.1 Error messages during lift run due to interruption of safety circuit

#### 8.1.1 Lean-Lift and Multi-Space

| Lift run error message                                                          | Cause                                                                                                                                               | Action                                                                                                                                                                                                                          |
|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LIFT RUN FAULT :<br>STOP BUTTON<br>PRESSED<br>-> CE/↵                           | <ul style="list-style-type: none"> <li>The red <b>【STOP】</b> key on the keyboard has been pressed.</li> </ul>                                       | <b>Caution: The <b>【↵】</b> key starts a lift run!</b> <ul style="list-style-type: none"> <li>Press the green <b>【↵】</b> key to continue the lift run. Press the <b>【CE】</b> key to cancel the lift run.</li> </ul>              |
| LIFT RUN FAULT :<br>EMERGENCY STOP [F7]<br><br>(n)                   -> CE/↵    | (n) = Access point number for multiple access points.<br><ul style="list-style-type: none"> <li>Emergency stop switch is pressed.</li> </ul>        | <b>Caution: The <b>【↵】</b> key starts a lift run!</b> <ul style="list-style-type: none"> <li>Disengage the emergency stop button.</li> </ul>                                                                                    |
| LIFT RUN FAULT :<br>SERVICE DOOR<br><br>-> CE/↵                                 | <ul style="list-style-type: none"> <li>Service door is not properly closed.</li> </ul>                                                              | <b>Caution: The <b>【↵】</b> key starts a lift run!</b> <ul style="list-style-type: none"> <li>Close service door correctly so that the door switch is actuated.</li> </ul>                                                       |
| LIFT RUN FAULT :<br>SECOND SERVICE<br>SERVICE DOOR<br>-> CE/↵                   | <ul style="list-style-type: none"> <li>Additional service door is not properly closed.</li> </ul>                                                   | <b>Caution: The <b>【↵】</b> key starts a lift run!</b> <ul style="list-style-type: none"> <li>Close additional service door correctly so that the door switch is actuated.</li> </ul>                                            |
| Only with Multi-Space:<br>LIFT RUN FAULT :<br>SERVICE DOOR<br>MOTORS<br>-> CE/↵ | <ul style="list-style-type: none"> <li>Additional service door for the vertical motor in the bottom front panel is not closed correctly.</li> </ul> | <b>Caution: The <b>【↵】</b> key starts a lift run!</b> <ul style="list-style-type: none"> <li>Close the additional service door for the vertical motor in the bottom front panel so that the door switch is actuated.</li> </ul> |

7-8

## 8 Error messages during lift run

| Lift run error message                                                                                                                                                                                                                  | Cause                                                                                                                                                                                                                                                                                                                                                                                    | Action                                                                                                                                                                                                                                                                                                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Only with Lean-Lift:<br>LIFT RUN FAULT :<br>MOTOR 1 TOO HOT<br><br>-> CE/↩                                                                                                                                                              | <ul style="list-style-type: none"> <li>Motor 1 (vertical drive) overheated.</li> </ul>                                                                                                                                                                                                                                                                                                   | <b>Caution: The [↩] key starts a lift run!</b> <ul style="list-style-type: none"> <li>Allow motor to cool down for about 10 min.</li> </ul>                                                                                                                                                                                                |
| Only with Lean-Lift:<br>LIFT RUN FAULT :<br>MOTOR 2 TOO HOT/<br>UPPER LIMIT SWITCH<br>-> CE/↩                                                                                                                                           | <ul style="list-style-type: none"> <li>Motor 2 (horizontal drive) overheated.</li> <li></li> </ul>                                                                                                                                                                                                                                                                                       | <b>Caution: The [↩] key starts a lift run!</b> <ul style="list-style-type: none"> <li>Allow motor to cool down for about 10 min.</li> <li></li> </ul>                                                                                                                                                                                      |
| LIFT RUN FAULT :<br>LIGHT BARRIERS<br><br>(n)           -> CE/↩                                                                                                                                                                         | <p>(n) = Access point number for multiple access points.</p> <ul style="list-style-type: none"> <li>Interruption of safety light barriers at access point due to protruding object.</li> <li>Safety light barrier is not yet set.</li> <li>After only a brief interruption of the safety circuit (e.g. emergency stop, frequency converter), light barrier remains triggered.</li> </ul> | <b>Caution: The [↩] key starts a lift run!</b> <ul style="list-style-type: none"> <li>Clear the area monitored by the light barriers and press the [↩] key for about 0.5 sec.</li> <li>Press the [↩] key for about 0.5 sec. to set the safety circuit.</li> <li>Press the [↩] key for about 0.5 sec. to set the safety circuit.</li> </ul> |
| Then (only with multiple access points with guide rails)<br><br>LIFT RUN FAULT :<br>ENABLE LIFT RUN<br>AT ACCESS POINT<br>(n)           -> CE/↩<br>then<br><br>LIFT RUN HAS BEEN<br>ENABLED<br>AT ACCESS POINT<br>(n)           -> CE/↩ | <ul style="list-style-type: none"> <li>The [↩] key has been pressed without correcting the light barrier interruption at access point (n).</li> <li>Interruption of safety light barriers at access point (n) has been corrected.</li> </ul>                                                                                                                                             | <ul style="list-style-type: none"> <li>Clear the area monitored by the light barriers at access point (n) and press the [↩] key for approx. 0.5 sec.</li> <li>Interruption of safety light barriers at access point (n) has been corrected.</li> </ul>                                                                                     |
| Only with multiple access points with guide rails:<br><br>LIFT RUN ENABLE<br>FOR ANOTHER<br>ACCESS POINT<br>WITH ↩                                                                                                                      | <ul style="list-style-type: none"> <li>Interruption of safety light barriers at this access point while lift run was carried out for other access point.</li> </ul>                                                                                                                                                                                                                      | <ul style="list-style-type: none"> <li>Clear the area monitored by the light barriers at access point and press the [↩] key for approx. 0.5 sec.</li> </ul>                                                                                                                                                                                |
| Only with Multi-Space:<br>LIFT RUN FAULT :<br>MOTOR 1.1 TOO HOT<br><br>-> CE/↩                                                                                                                                                          | <ul style="list-style-type: none"> <li>Motor 1.1 (vertical drive) is overheated.</li> </ul>                                                                                                                                                                                                                                                                                              | <b>Caution: The [↩] key starts a lift run!</b> <ul style="list-style-type: none"> <li>Allow motor to cool down for about 10 min.</li> </ul>                                                                                                                                                                                                |

## 8 Error messages during lift run

| Lift run error message                                                                           | Cause                                                                                          | Action                                                                                                                                      |
|--------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Only with Multi-Space:<br>LIFT RUN FAULT :<br>MOTOR 1.2 TOO HOT<br><br>-> CE/↩                   | <ul style="list-style-type: none"> <li>Motor 1.2 (vertical drive) is overheated.</li> </ul>    | <b>Caution: The [↩] key starts a lift run!</b> <ul style="list-style-type: none"> <li>Allow motor to cool down for about 10 min.</li> </ul> |
| Only with Multi-Space:<br>LIFT RUN FAULT :<br>MOTOR 2 TOO HOT/<br>MOVEM. LIMIT SWITCH<br>-> CE/↩ | <ul style="list-style-type: none"> <li>Motor 2 (horizontal drive) overheated.</li> </ul>       | <b>Caution: The [↩] key starts a lift run!</b> <ul style="list-style-type: none"> <li>Allow motor to cool down for about 10 min.</li> </ul> |
| Only with Multi-Space:<br>LIFT RUN FAULT :<br>MOTOR 3 TOO HOT/<br>LEFT LIMIT SWITCH<br>-> CE/↩   | <ul style="list-style-type: none"> <li>Motor 3 (movement unit) is overheated.</li> </ul>       | <b>Caution: The [↩] key starts a lift run!</b> <ul style="list-style-type: none"> <li>Allow motor to cool down for about 10 min.</li> </ul> |
| Only with Multi-Space:<br>LIFT RUN FAULT :<br>MOTOR 4 TOO HOT<br><br>-> CE/↩                     | <ul style="list-style-type: none"> <li>Motor 4 (movement unit) is overheated.</li> </ul>       | <b>Caution: The [↩] key starts a lift run!</b> <ul style="list-style-type: none"> <li>Allow motor to cool down for about 10 min.</li> </ul> |
| Only with Multi-Space:<br>LIFT RUN FAULT :<br>TEMP. PROTECTION<br>MOVEMENT UNIT<br>-> CE/↩       | <ul style="list-style-type: none"> <li>The movement unit motor monitor has tripped.</li> </ul> | <b>Caution: The [↩] key starts a lift run!</b> <ul style="list-style-type: none"> <li>Allow motor to cool down for about 10 min.</li> </ul> |

## 8 Error messages during lift run

### 8.1.2 Rotomat

| Lift run error message                                                                                                                                                                    | Cause                                                                                                                                                                                                      | Action                                                                                                                                                                                                                                                                                                                                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LIFT RUN FAULT :<br>STOP BUTTON<br>PRESSED<br>-> CE/↵                                                                                                                                     | <ul style="list-style-type: none"> <li>The red <b>[STOP]</b> key on the keyboard has been pressed.</li> </ul>                                                                                              | <b>Caution: The [↵] key starts a lift run!</b> <ul style="list-style-type: none"> <li>Press the green <b>[↵]</b> key to continue the lift run. Press the <b>[CE]</b> key to cancel the lift run.</li> </ul>                                                                                                                                     |
| LIFT RUN FAULT :<br>EMERGENCY STOP [F7]<br><br>(n) -> CE/↵                                                                                                                                | <p>(n) = Access point number for multiple access points.</p> <ul style="list-style-type: none"> <li>Emergency stop switch is pressed.</li> </ul>                                                           | <b>Caution: The [↵] key starts a lift run!</b> <ul style="list-style-type: none"> <li>Disengage the emergency stop button.</li> </ul>                                                                                                                                                                                                           |
| LIFT RUN FAULT :<br>CLOSE<br><br>(n) -> CE/↵<br>or<br>LIFT RUN FAULT :<br>UPPER DOOR<br><br>(n) -> CE/↵<br>or<br>LIFT RUN FAULT :<br>LOWER DOOR<br><br>(n) -> CE/↵                        | <p>n) = Access point number for multiple access points.</p> <ul style="list-style-type: none"> <li>Sliding doors not fully open.</li> <li>Safety rocker switch of upper or lower door actuated.</li> </ul> | <b>Caution: The [↵] key starts a lift run!</b> <ul style="list-style-type: none"> <li>Open sliding door fully.</li> <li>The safety rocker switches on the doors must move freely and be in the horizontal position. The metal fingers on the left and right of the rocker switches must be in contact with their fixed counterparts.</li> </ul> |
| LIFT RUN FAULT :<br>SERVICE DOOR<br><br>-> CE/↵<br>or<br>LIFT RUN FAULT :<br>SERVICE DOOR<br>LIMIT SWITCH<br>-> CE/↵<br>or<br>LIFT RUN FAULT :<br>SERVICE DOOR<br>LIMIT SWITCH<br>-> CE/↵ | <ul style="list-style-type: none"> <li>Lower service door or optional upper service door not correctly closed.</li> </ul>                                                                                  | <b>Caution: The [↵] key starts a lift run!</b> <ul style="list-style-type: none"> <li>Close the service door properly.</li> </ul>                                                                                                                                                                                                               |
| LIFT RUN FAULT :<br>MOTOR TOO HOT<br><br>-> CE/↵                                                                                                                                          | <ul style="list-style-type: none"> <li>Motor 1 or motor 2 overheated.</li> </ul>                                                                                                                           | <b>Caution: The [↵] key starts a lift run!</b> <ul style="list-style-type: none"> <li>Allow motor to cool down for about 10 min.</li> </ul>                                                                                                                                                                                                     |
| LIFT RUN FAULT :<br>FREQUENCY<br>CONVERTER<br>-> CE/↵                                                                                                                                     | <ul style="list-style-type: none"> <li>Frequency converter has switched off because of overload.</li> </ul>                                                                                                | <b>Caution: The [↵] key starts a lift run!</b> <ul style="list-style-type: none"> <li>Switch carousel off, then on again and allow frequency converter to cool down if necessary.</li> </ul>                                                                                                                                                    |

## 8 Error messages during lift run

| Lift run error message                                                      | Cause                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Action                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>LIFT RUN FAULT :<br/>LIGHT BARRIERS</b><br><br>(n)            -> CE/↵    | (n) = Access point number for multiple access points.<br><br><ul style="list-style-type: none"> <li>• Interruption of safety light barriers at access point due to protruding object.</li> <li>• Safety light barrier is not yet set.</li> <li>• After only a brief interruption of the safety circuit (e.g. emergency stop, safety rocker switch, frequency converter), the light barrier remains triggered.</li> <li>• Light barriers interrupted by dirt on Plexiglas screens on left and right of access opening.</li> </ul> | <b>Caution: The [↵] key starts a lift run!</b><br><br><ul style="list-style-type: none"> <li>• Clear the area monitored by the light barriers and press the [↵] key for about 0.5 sec.</li> <li>• Press the [↵] key for about 0.5 sec. to set the safety circuit.</li> <li>• Press the [↵] key for about 0.5 sec. to set the safety circuit.</li> <li>• Clean the screens.</li> </ul> |
| <b>LIFT RUN FAULT :<br/>MANUAL OPERATION<br/>ACTIVATED</b><br>-> CE/↵       | <ul style="list-style-type: none"> <li>• Manual/auto mode selection switch S5 is in centre position ○.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                | <b>Caution: The [↵] key starts a lift run!</b><br><br><ul style="list-style-type: none"> <li>• Turn the manual/auto mode selection switch to locking position ‡.</li> </ul>                                                                                                                                                                                                           |
| <b>LIFT RUN FAULT :<br/>CLOSE<br/>DOOR</b><br>-> CE/↵                       | <ul style="list-style-type: none"> <li>• If the system has a second safety circuit and emergency operation is activated. Light barriers are interrupted and door is not closed.</li> </ul>                                                                                                                                                                                                                                                                                                                                       | <b>Caution: The [↵] key starts a lift run!</b><br><br><ul style="list-style-type: none"> <li>• Close the door.</li> </ul>                                                                                                                                                                                                                                                             |
| <b>LIFT RUN FAULT :<br/>SENSOR TEST:<br/>OPEN AND CLOSE DOOR</b><br>-> CE/↵ | <ul style="list-style-type: none"> <li>• If there is one access point and a second safety circuit:<br/>Lift run when emergency operation activated requires that the door be opened and closed after a safety interruption.</li> </ul>                                                                                                                                                                                                                                                                                           | <b>Caution: The [↵] key starts a lift run!</b><br><br><ul style="list-style-type: none"> <li>• Open and close door.</li> </ul>                                                                                                                                                                                                                                                        |

## 8 Error messages during lift run

### 8.2 Error messages during the lift run due to software monitoring (Lean-Lift and Multi-Space)

| Lift run error message                                                                                                                                       | Cause                                                                                                                                                                 | Action                                                                                                                                                                                                                                                                                                                          |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LIFT RUN FAULT :<br>SHELF REMOVAL POS<br>TOO FAR INSIDE<br>(n) -> CE/↩                                                                                       | (n) = Access point number for multiple access points.<br>• The shelf is positioned too far towards the inside of the access point.                                    | <b>Caution: The [↩] key starts a lift run!</b><br>• Pull shelf back to end position.                                                                                                                                                                                                                                            |
| LIFT RUN FAULT :<br>SHELF REMOVAL POS<br>TOO FAR OUTSIDE<br>(n) -> CE/↩                                                                                      | (n) = Access point number for multiple access points.<br>• The shelf is positioned too far towards the outside of the access point.                                   | <b>Caution: The [↩] key starts a lift run!</b><br>• Push shelf fully into the access point.                                                                                                                                                                                                                                     |
| LIFT RUN FAULT :<br>MOTOR IS<br>OVERLOADED<br>7 -> CE                                                                                                        | • Motor is overloaded.                                                                                                                                                | • Reduce shelf load.                                                                                                                                                                                                                                                                                                            |
| LIFT RUN FAULT :<br>MOT.CURRENT TOO HIGH<br>RETRIEVE SHELF<br>x -> CE/↩<br>then<br>LIFT RUN FAULT :<br>MOT.CURRENT TOO HIGH<br>REMOVE ARTICLES!<br>x -> CE/↩ | x = 3 or 7 or 9<br><br>x = 3 or 7 or 9<br>• Motor is overloaded.                                                                                                      | <b>Caution: The [↩] key starts a lift run!</b><br>• Press the [↩] key to bring the shelf to the access point.<br><br>• Reduce shelf load.                                                                                                                                                                                       |
| LIFT RUN FAULT :<br>THE ARTICLE IS<br>TOO HIGH !<br>(n) -> CE/↩                                                                                              | (n) = Access point number for multiple access points.<br>• One or more storage articles is higher than the permitted max. storage article height at the access point. | <b>Caution: The [↩] key starts a lift run!</b><br>• Reduce the height of the stored articles.                                                                                                                                                                                                                                   |
| LIFT RUN FAULT :<br>STOR.ART.PROTRUDING<br>OVER SHELF AT REAR<br>1 (n) -> CE/↩                                                                               | (n) = Access point number for multiple access points.<br>• Stored articles are protruding over the rear edge of the shelf into the lift shaft.                        | <b>Caution: The [↩] key starts a lift run!</b><br>• Store articles so that they do not protrude over the edge of the shelf.                                                                                                                                                                                                     |
| LIFT RUN FAULT :<br>STOR.ART.PROTRUDING<br>OVER SHELF AT REAR<br>2 (n) -> CE/↩                                                                               | (n) = Access point number for multiple access points.<br>• The stored articles protrude over the front edge of the shelf.                                             | <b>Caution: The [↩] key starts a lift run!</b><br>• Store articles so that they do not protrude over the edge of the shelf.                                                                                                                                                                                                     |
| LIFT RUN FAULT :<br>LIFT IS FULL !<br><br>-> CE                                                                                                              | • A shelf cannot be stored away because of its article height.                                                                                                        | x Note: To save space, store articles in shelves so that packaging does not protrude at the top (e.g. lids of boxes, bags, etc.)<br>• Reduce article height on this shelf; carry out an optimisation run.<br>• Check lift for free space. It may be possible to create space by reducing the article height in several shelves. |

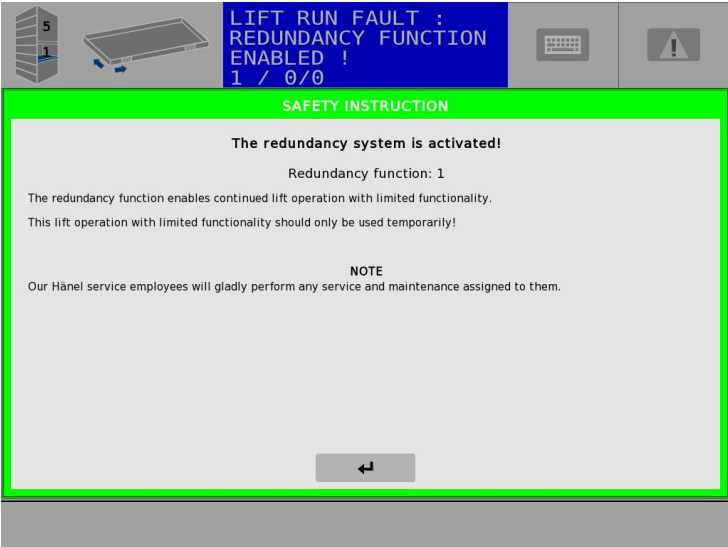
## 8 Error messages during lift run

| Lift run error message                                                               | Cause                                                                                                                                                                                                                                                             | Action                                                                                                                                                                                                                                                                                                      |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>LIFT RUN FAULT :<br/>SHELF EJECTION</b><br><br>x → CE/↵                           | x = cause of synchronisation run <ul style="list-style-type: none"> <li>The discrepancy between position values from front and rear position sensors is too great (mutual monitoring), or a position value at a carrier position slot is incorrect.</li> </ul>    | <b>Caution: The [↵] key starts a lift run!</b> <ul style="list-style-type: none"> <li>Pressing [↵] moves the extractor to the bottom reference position, after which the destination carrier is accessed. You can display the number of the carrier where the error took place by pressing [CE].</li> </ul> |
| <b>LIFT RUN FAULT :<br/>SHELF REMOVED<br/>BUT NOT REGISTERED</b><br>x → CE/↵         | x = Shelf number <ul style="list-style-type: none"> <li>A shelf was removed from the access point or pulled out onto the roller guide rails without being unregistered.</li> </ul>                                                                                | <b>Caution: The [↵] key starts a lift run!</b> <ul style="list-style-type: none"> <li>Push the shelf in question back into the access point or unregister it.</li> </ul>                                                                                                                                    |
| <b>LIFT RUN FAULT :<br/>REQUESTED SHELF IN<br/>OTHER ACCESS POINT<br/>(n)</b> → CE/↵ | (n) = Access point number for multiple access points. <ul style="list-style-type: none"> <li>The shelf has been brought to access point (n) and has not yet been put back into storage.</li> </ul>                                                                | <b>Caution: The [↵] key starts a lift run!</b> <ul style="list-style-type: none"> <li>Store shelf at access point (n).</li> </ul>                                                                                                                                                                           |
| <b>LIFT RUN FAULT :<br/>UNKNOWN SHELF<br/>IN ACCESS POINT !</b><br>→ CE/↵            | <ul style="list-style-type: none"> <li>A shelf was detected in the access point, although there should not have been one there.</li> <li>Shelf pushed into access point without being registered.</li> </ul>                                                      | <b>Caution: The [↵] key starts a lift run!</b> <ul style="list-style-type: none"> <li>Remove shelf from access point or register it.</li> </ul>                                                                                                                                                             |
| <b>LIFT RUN FAULT :<br/>REMOVE SHELF</b><br><br>→ CE/↵                               | <ul style="list-style-type: none"> <li>When a shelf is pushed out into an access point, the system detects that there is another shelf in the access point.</li> <li>Shelf was pushed into the access point manually.</li> </ul>                                  | <b>Caution: The [↵] key starts a lift run!</b> <ul style="list-style-type: none"> <li>Remove shelf from access point.</li> </ul>                                                                                                                                                                            |
| <b>LIFT RUN FAULT :<br/>CLOSE<br/>DOOR</b><br>→ CE/↵                                 | <ul style="list-style-type: none"> <li>With second safety circuit and lift run with safety light barrier disabled (redundancy system): light barriers are interrupted and door is not closed.</li> </ul>                                                          | <b>Caution: The [↵] key starts a lift run!</b> <ul style="list-style-type: none"> <li>Close the door.</li> </ul>                                                                                                                                                                                            |
| <b>LIFT RUN FAULT :<br/>OPEN<br/>DOOR</b><br>→ CE/↵                                  | <ul style="list-style-type: none"> <li>With one access point and second safety circuit: lift run with active safety light barriers is possible with door open only.</li> </ul>                                                                                    | <b>Caution: The [↵] key starts a lift run!</b> <ul style="list-style-type: none"> <li>Open door.</li> </ul>                                                                                                                                                                                                 |
| <b>LIFT RUN FAULT :<br/>SENSOR TEST:<br/>OPEN AND CLOSE DOOR</b><br>→ CE/↵           | <ul style="list-style-type: none"> <li>If there is one access point and a second safety circuit: lift run while the safety light barriers are deactivated (redundancy system) requires that the door be opened and closed after a safety interruption.</li> </ul> | <b>Caution: The [↵] key starts a lift run!</b> <ul style="list-style-type: none"> <li>Open and close door.</li> </ul>                                                                                                                                                                                       |

## 8 Error messages during lift run

| Lift run error message                                                                                                                                                                                                                                                       | Cause                                                                                                                                                                                                                                                     | Action                                                                                                                                                                                                                                                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Only with multiple access points:<br>LIFT RUN FAULT :<br>END LIFT RUN AT<br>OTHER ACCESS POINT<br>(n) -> CE/↩                                                                                                                                                                | (n) = Access point number for multiple access points.<br><br>The system has detected that a lift run at access point (n) has not ended.<br><br>• No lift run is carried out for this access point because the lift run at access point (n) has not ended. | <b>Caution: The [↩] key starts a lift run!</b><br><br>• Carry out lift run at access point (n).                                                                                                                                                                 |
| Only for lifts with multiple access points that do not have a safeguard between access point and extractor shaft (i. e. without high-speed door) and without lift run only with door closed:<br>LIFT RUN FAULT :<br>OTHER ACCESS POINT<br>OCCUPIED WITH SHELF<br>(n) -> CE/↩ | (n) = Access point number for multiple access points.<br><br>The system has detected that access point (n) is occupied with a shelf.<br><br>• No lift run is carried out for this access point because access point (n) is occupied with a shelf.         | <b>Caution: The [↩] key starts a lift run!</b><br><br>• Pull out the shelf at access point (n) onto the guide rails and continue at this access point using the [↩] key or interrupt the lift run at this access point and store the shelf at access point (n). |

8Error messages during lift run

| Lift run error message                                                                                                                            | Cause                                                                                                                                                                                                                                                                                                                      | Action                                                                                                                                                                                                                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>For active automatic redundancy function only:</p> <p>LIFT RUN FAULT :<br/>REDUNDANCY FUNCTION<br/>ENABLED !<br/>&lt; Code &gt; -&gt; CE/↵</p> | <p>&lt; Code &gt; = &lt;x&gt; / &lt;y&gt; / &lt;z&gt;</p> <p>The lift run error message with code &lt;Code&gt; has occurred. The redundancy function &lt;x&gt; has been activated.</p> <ul style="list-style-type: none"> <li>Limited lift operation is possible using redundancy and limited error monitoring.</li> </ul> | <p><b>Caution: The [↵] key starts a lift run!</b></p> <ul style="list-style-type: none"> <li>Continue the lift run using the [↵] key. Limited continued operation of the lift is possible.</li> <li>Contact the Hänel service department.</li> </ul> |
|                                                                 |                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                      |

## 9 TCP / IP connection via Ethernet

### 9.1 Terms used:

|                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>LL</b>                                                                           | Lean-Lift                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>MS</b>                                                                           | Multi-Space                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>RO</b>                                                                           | Rotomat                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>MP multi-unit network</b>                                                        | In the HOST-WEB program version, no communication link between the Hänel MP control systems is used. The IP address in the MP multi-unit network is used for service purposes only; therefore, it still has to be unique.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Company network</b>                                                              | All PCs, PDAs, DHCP / DNS servers, in a customer-side network or standalone, that are to be connected to the MP 14-H[HOST-WEB] via a network cable.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>DNS name / MP name</b>                                                           | <p>Name of the MP control system which can be used in alternative to the IP address to access the MP control system if a DNS server is in the corporate network.</p> <p>By default, the name of the MP control system consists of a prefix and the commission number of the MP 14-H[HOST-WEB].</p> <p>Prefix for MP 14: "mp14-"</p> <p>For the requisition number, some symbols are replaced to maintain a valid DNS name. These are "p" for ".", "s" for "/", "a" for "*".</p> <p>Example: mp14-322p128s1-2a1</p> <p>The MP name can be overwritten with a user-defined name.</p> <p>➤ Refer to the "Technical Description of the Microprocessor Control System MP 14", chapter "System services lift control" -&gt; "Setting interface parameters" -&gt; "ETHERNET CORPORATE NETWORK".</p> |
| <b>Switch</b>                                                                       | A switch (adapter / diverter) is a coupling element that interconnects network segments / network participants.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Ethernet patch cable</b>                                                         | Connecting cable between MP 14 (X12) and the corporate network or a unit with an Ethernet connection. In the base model "Cat. 5e patch cable (STP)". In the crossover model, as a point-to-point connection between the MP 14 and a unit with an Ethernet connection. In the standard model, as a connecting cable from the MP 14 to a switch.                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|  | Ethernet patch cables are not included in the scope of delivery and must be provided by the customer.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>IP addresses</b>                                                                 | <p>The 10 / 100 Mbit Ethernet connection of the MP 14 has 2 logical addresses.</p> <ol style="list-style-type: none"> <li>1. IP address for the connection to the MP multi-unit network (service computer)</li> <li>2. IP address for the connection to the corporate network (HOST)</li> </ol> <p>The MP 14 IP address for the corporate network is set by default to 0.0.0.0 and thus is disabled.</p> <p>Since the MP multi-unit network and the corporate network are physically in the same network, all participants must have unique IP addresses.</p>                                                                                                                                                                                                                                |
|  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

#### IP addresses in the Ethernet MP multi-unit network

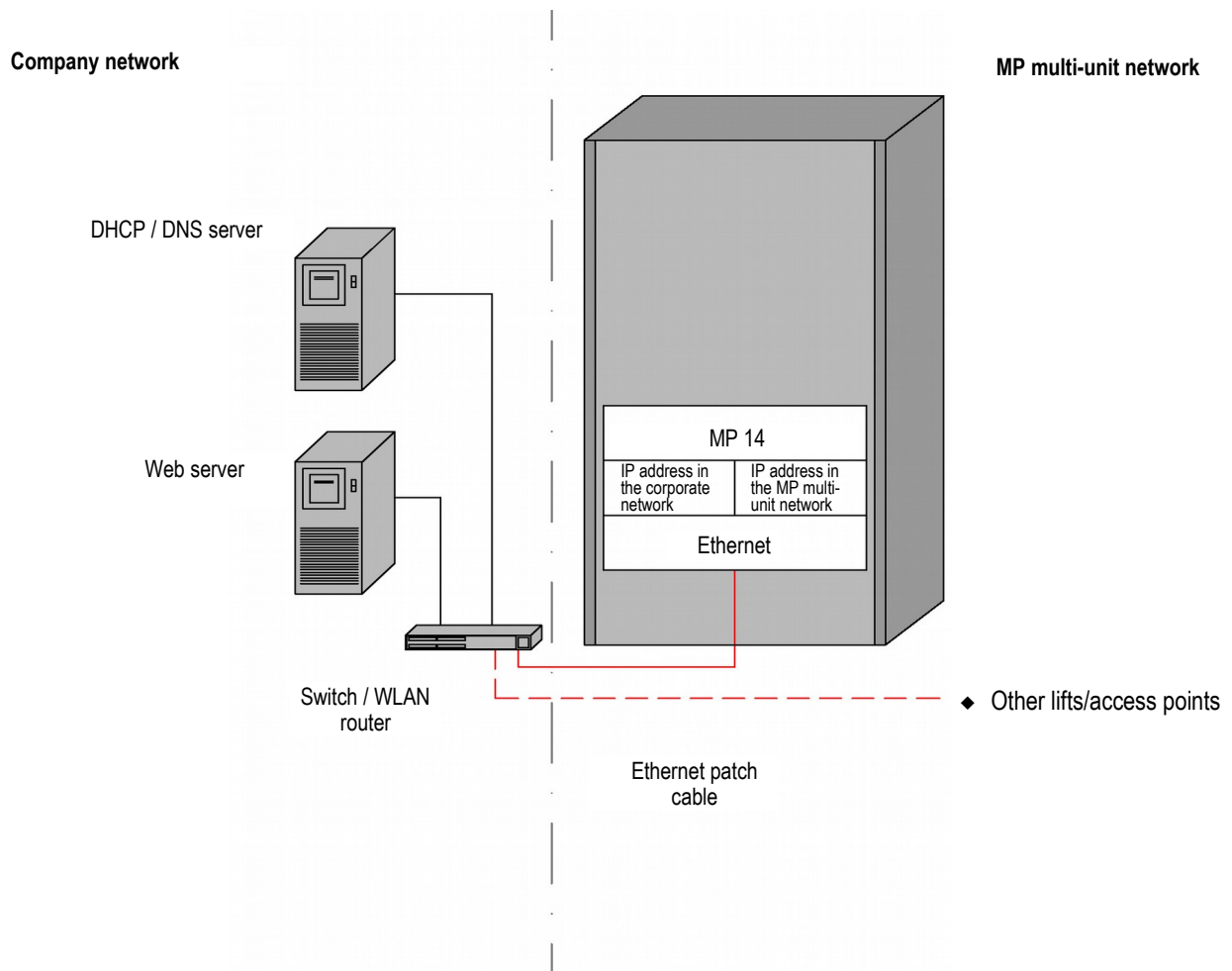
|         |                                                                                                                       |
|---------|-----------------------------------------------------------------------------------------------------------------------|
| MP 14   | 172.<IP address range>.<Access point number>.<Lift number><br>172.<IP address range>.<Access point number>.<Reserved> |
| Service | 172.<IP address range>.1.200                                                                                          |

|                       |                         |
|-----------------------|-------------------------|
| <IP address range>    | 16 - 31 (default is 16) |
| <Access point number> | 1 - 8                   |
| <Lift number>         | 1 - 99                  |
| <Reserved>            | 100 - 110               |

### 9 TCP / IP connection via Ethernet

#### 9.2 Integration into corporate network

##### 9.2.1 Schematic illustration



Operation takes place at the operating panel of the MP control system.



When connecting the MP control system to the Internet, an external firewall must be used.

## 9 TCP / IP connection via Ethernet

### 9.2.2 Procedure



- The following step-by-step procedure checks whether additional initialisation is necessary.
- A physical connection to the corporate network cannot be established until after the last step is completed.

#### 1st step:

##### Check and initialise the address range for the MP multi-unit network



The IP address of the MP 14 for the MP multi-unit network is in a Class B address range (subnet) 172.16.xxx.yyy to 172.31.xxx.yyy (subnet 172.16 - 172.31); see "IP addresses" on page 52.

##### By default, subnet 172.16 is configured for the MP 14.

An initialisation is required only if multiple lifts have to be connected to the corporate network and each lift has the same lift number (in this case, each MP multi-unit network needs its own address range) or if the IP addresses for the MP multi-unit network overlap with the IP addresses for the corporate network.

- Refer to the "Technical Description of the Microprocessor Control System MP 14", chapter "System services lift control" -> "Setting interface parameters" -> "ETHERNET MP MULTI-UNIT NETWORK".

#### 2nd step:

##### Integration into corporate network when a DHCP server is present (dynamic address allocation)



The MP 14 IP address for the corporate network is set by default to 0.0.0.0 and thus is disabled.

An initialisation of the IP address for the corporate network to DHCP is required.

- Refer to the "Technical Description of the Microprocessor Control System MP 14", chapter "System services lift control" -> "Setting interface parameters" -> "ETHERNET CORPORATE NETWORK".

##### Integration into corporate network when a DNS server with DNS UPDATE is present



If there is a DNS server in the corporate network which supports a dynamic update of the Domain Name System (DNS UPDATE) in accordance with RFC 2136 by the DHCP server, then the name of the MP 14 is passed on automatically to the DNS server. Thus the DNS name can be used instead of the IP address.

Initialisation is required only if another DNS name is to be assigned to the MP control system.

- Refer to the "Technical Description of the Microprocessor Control System MP 14", chapter "System services lift control" -> "Setting interface parameters" -> "ETHERNET CORPORATE NETWORK".

Then the MP control system can be physically integrated into the corporate network.

##### Integration into corporate network when a DNS server without DNS UPDATE is present



If there is a DNS server in the corporate network that does not support DNS UPDATE, the DNS server must be informed of the MAC address and the name of the MP 14 (system administrator).

- Refer to the "Technical Description of the Microprocessor Control System MP 14", chapter "System services lift control" -> "Setting interface parameters" -> "ETHERNET CORPORATE NETWORK".

Then the MP control system can be physically integrated into the corporate network.

## 9 TCP / IP connection via Ethernet

### Integration into corporate network if no DHCP server is present in the network (manual address allocation)

The MP 14 must be initialised to "GET IP ADDRESS FROM DHCP: NO". Then, initialise the IP address, subnet mask and standard gateway (information from system administrator).

- Refer to the "Technical Description of the Microprocessor Control System MP 14", chapter "System services lift control" -> "Setting interface parameters" -> "ETHERNET CORPORATE NETWORK".

Then the MP control system can be physically integrated into the corporate network.

### Connection to the Web server with the Web application

To establish a connection to the Web application, the **start-URL** and the **Embedded Browser** must be configured in the MP control system.

- See Chapter Lift menu item on page 32.

## 10 JavaScript key codes for the Hänel keyboard

### JavaScript keyboard query

The query takes place via the onkeypress event. The character code (event.charCode) corresponds to the decimal character displayable as a Unicode value. If the character code is '0', it is a special character that cannot be displayed. For these keys, the key code (event.keyCode) also has to be evaluated.

### Example: JavaScript query for the key codes (keyCode / characterCode)

```
<html>
<head>
<title>charCode example</title>

<script type="text/javascript">

function showCodes(e)
{
alert("keyCode: " + e.keyCode + "\n" + "charCode: " + e.charCode);
}
</script>
</head>

<body onkeypress="showCodes(event);">
<p>Press any 'Function / Character' type key.</p>
</body>
</html>
```



By default, these keys are used by the browser for navigating the scroll bars. This can lead to function overlap.

## 10 JavaScript key codes for the Hänel keyboard

### 10.1 Function key block and number block

| Key                                                                                 | JavaScript keyboard codes<br>Webkit (Safari) / Webengine<br>(Chrome)<br><br>Event:<br>onkeypress<br><br>Key code:<br>event.keyCode | JavaScript character codes<br>Webkit (Safari) / Webengine<br>(Chrome)<br><br>Event:<br>onkeypress<br><br>Key code:<br>event.charCode | JavaScript character codes<br>Webkit (Safari) / Webengine<br>(Chrome)<br><br>Event:<br>onkeyup<br><br>Key code:<br>event.keyCode |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
|    | 43 / 43                                                                                                                            | 43 / 43                                                                                                                              | 43 / 43                                                                                                                          |
|    | 45 / 45                                                                                                                            | 45 / 45                                                                                                                              | 45 / 45                                                                                                                          |
|   | 116 / 116                                                                                                                          | 0 / --                                                                                                                               | 116 / 116                                                                                                                        |
|  | 117 / 117                                                                                                                          | 0 / --                                                                                                                               | 117 / 117                                                                                                                        |
|  | 121 / 121                                                                                                                          | 0 / 0                                                                                                                                | 121 / 121                                                                                                                        |
|  | 122 / 122                                                                                                                          | 0 / 0                                                                                                                                | 122 / 122                                                                                                                        |
|  | 124 / 124                                                                                                                          | 0 / 0                                                                                                                                | 124 / 124                                                                                                                        |
|  | 120 / 120                                                                                                                          | 0 / 0                                                                                                                                | 120 / 120                                                                                                                        |
|  | 125 / 125                                                                                                                          | 0 / 0                                                                                                                                | 125 / 125                                                                                                                        |
|  | 123 / 123                                                                                                                          | 0 / 0                                                                                                                                | 123 / 123                                                                                                                        |
|  | 118 / 118                                                                                                                          | 0 / 0                                                                                                                                | 118 / 118                                                                                                                        |
|  | 119 / 119                                                                                                                          | 0 / 0                                                                                                                                | 119 / 119                                                                                                                        |
|  | 126 / --                                                                                                                           | 0 / --                                                                                                                               | 126 / 126                                                                                                                        |

## 10 JavaScript key codes for the Hänel keyboard

| Key                                                                                                                                                                     | JavaScript keyboard codes<br>Webkit (Safari) / Webengine<br>(Chrome)<br><br>Event:<br>onkeypress<br><br>Key code:<br>event.keyCode | JavaScript character codes<br>Webkit (Safari) / Webengine<br>(Chrome)<br><br>Event:<br>onkeypress<br><br>Key code:<br>event.charCode | JavaScript character codes<br>Webkit (Safari) / Webengine<br>(Chrome)<br><br>Event:<br>onkeyup<br><br>Key code:<br>event.keyCode |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
|                                                                                        | - / --                                                                                                                             | - / --                                                                                                                               | 9 / 9                                                                                                                            |
|                                                                                        | 8 <sup>1)</sup> / --                                                                                                               | 0 <sup>1)</sup> / --                                                                                                                 | 8 / 8                                                                                                                            |
|                                                                                        | 38 <sup>1)</sup> / --                                                                                                              | 0 <sup>1)</sup> / 0 <sup>1)</sup>                                                                                                    | 38 / 38                                                                                                                          |
|                                                                                       | 37 <sup>1)</sup> / --                                                                                                              | 0 <sup>1)</sup> / 0 <sup>1)</sup>                                                                                                    | 37 / 37                                                                                                                          |
|                                                                                      | 39 <sup>1)</sup> / --                                                                                                              | 0 <sup>1)</sup> / 0 <sup>1)</sup>                                                                                                    | 39 / 39                                                                                                                          |
|                                                                                      | 40 <sup>1)</sup> / --                                                                                                              | 0 <sup>1)</sup> / 0 <sup>1)</sup>                                                                                                    | 40 / 40                                                                                                                          |
|                                                                                      | 127 / --                                                                                                                           | 0 / 0                                                                                                                                | 127 / 127                                                                                                                        |
|                                                                                      | 112 / --                                                                                                                           | 0 / 0                                                                                                                                | 112 / 112                                                                                                                        |
|                                                                                      | 113 / --                                                                                                                           | 0 / 0                                                                                                                                | 113 / 113                                                                                                                        |
|                                                                                      | 114 / --                                                                                                                           | 0 / 0                                                                                                                                | 114 / 114                                                                                                                        |
|                                                                                      | 115 / --                                                                                                                           | 0 / 0                                                                                                                                | 115 / 115                                                                                                                        |
|   | 27 / --                                                                                                                            | 27 / 0                                                                                                                               | 27 / 27                                                                                                                          |
|                                                                                      | 13 / --                                                                                                                            | 13 / --                                                                                                                              | 13 / 13                                                                                                                          |

10
JavaScript key codes for the Hänel keyboard

| Key                                                 | JavaScript keyboard codes<br>Webkit (Safari) / Webengine<br>(Chrome)<br><br>Event:<br>onkeypress<br><br>Key code:<br>event.keyCode | JavaScript character codes<br>Webkit (Safari) / Webengine<br>(Chrome)<br><br>Event:<br>onkeypress<br><br>Key code:<br>event.charCode | JavaScript character codes<br>Webkit (Safari) / Webengine<br>(Chrome)<br><br>Event:<br>onkeyup<br><br>Key code:<br>event.keyCode |
|-----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| <div>0 → 9</div>                                    | 48 - 57                                                                                                                            | 48 - 57                                                                                                                              | 48-57                                                                                                                            |
| <sup>1)</sup> No acknowledgement in the input field |                                                                                                                                    |                                                                                                                                      |                                                                                                                                  |

## 10 JavaScript key codes for the Hänel keyboard

### 10.2 Virtual keyboard

| Character | JavaScript keyboard codes<br>Webkit (Safari) / Webengine<br>(Chrome)<br><br>Event:<br>onkeypress<br><br>Key code:<br>event.keyCode | JavaScript character codes<br>Webkit (Safari) / Webengine<br>(Chrome)<br><br>Event:<br>onkeypress<br><br>Key code:<br>event.charCode | JavaScript character codes<br>Webkit (Safari) / Webengine<br>(Chrome)<br><br>Event:<br>onkeyup<br><br>Key code:<br>event.keyCode |
|-----------|------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| .         | 46 / 46                                                                                                                            | 46 / 46                                                                                                                              | 46 / 46                                                                                                                          |
| ,         | 44 / 44                                                                                                                            | 44 / 44                                                                                                                              | 44 / 44                                                                                                                          |
| a         | 65 / 97                                                                                                                            | 97 / 97                                                                                                                              | 65 / 65                                                                                                                          |
| b         | 66 / 98                                                                                                                            | 98 / 98                                                                                                                              | 66 / 66                                                                                                                          |
| c         | 67 / 99                                                                                                                            | 99 / 99                                                                                                                              | 67 / 67                                                                                                                          |
| d         | 68 / 100                                                                                                                           | 100 / 100                                                                                                                            | 68 / 68                                                                                                                          |
| e         | 69 / 101                                                                                                                           | 101 / 101                                                                                                                            | 69 / 69                                                                                                                          |
| f         | 70 / 102                                                                                                                           | 102 / 102                                                                                                                            | 70 / 70                                                                                                                          |
| g         | 71 / 103                                                                                                                           | 103 / 103                                                                                                                            | 71 / 71                                                                                                                          |
| h         | 72 / 104                                                                                                                           | 104 / 104                                                                                                                            | 72 / 72                                                                                                                          |
| i         | 73 / 105                                                                                                                           | 105 / 105                                                                                                                            | 73 / 73                                                                                                                          |
| j         | 74 / 106                                                                                                                           | 106 / 106                                                                                                                            | 74 / 74                                                                                                                          |
| k         | 75 / 107                                                                                                                           | 107 / 107                                                                                                                            | 75 / 75                                                                                                                          |
| l         | 76 / 108                                                                                                                           | 108 / 108                                                                                                                            | 76 / 76                                                                                                                          |
| m         | 77 / 109                                                                                                                           | 109 / 109                                                                                                                            | 77 / 77                                                                                                                          |
| n         | 78 / 110                                                                                                                           | 110 / 110                                                                                                                            | 78 / 78                                                                                                                          |
| o         | 79 / 111                                                                                                                           | 111 / 111                                                                                                                            | 79 / 79                                                                                                                          |
| p         | 80 / 112                                                                                                                           | 112 / 112                                                                                                                            | 80 / 80                                                                                                                          |
| q         | 81 / 113                                                                                                                           | 113 / 113                                                                                                                            | 81 / 81                                                                                                                          |
| r         | 82 / 114                                                                                                                           | 114 / 114                                                                                                                            | 82 / 82                                                                                                                          |
| s         | 83 / 115                                                                                                                           | 115 / 115                                                                                                                            | 83 / 83                                                                                                                          |
| t         | 84 / 116                                                                                                                           | 116 / 116                                                                                                                            | 84 / 84                                                                                                                          |
| u         | 85 / 117                                                                                                                           | 117 / 117                                                                                                                            | 85 / 85                                                                                                                          |
| v         | 86 / 118                                                                                                                           | 118 / 118                                                                                                                            | 86 / 86                                                                                                                          |
| w         | 87 / 119                                                                                                                           | 119 / 119                                                                                                                            | 87 / 87                                                                                                                          |
| x         | 88 / 120                                                                                                                           | 120 / 120                                                                                                                            | 88 / 88                                                                                                                          |
| y         | 89 / 121                                                                                                                           | 121 / 121                                                                                                                            | 89 / 89                                                                                                                          |
| z         | 90 / 122                                                                                                                           | 122 / 122                                                                                                                            | 90 / 90                                                                                                                          |
| ?         | 63 / 63                                                                                                                            | 63 / 63                                                                                                                              | 63 / 63                                                                                                                          |

## 10 JavaScript key codes for the Hänel keyboard

| Character                   | JavaScript keyboard codes<br>Webkit (Safari) / Webengine<br>(Chrome) | JavaScript character codes<br>Webkit (Safari) / Webengine<br>(Chrome) | JavaScript character codes<br>Webkit (Safari) / Webengine<br>(Chrome) |
|-----------------------------|----------------------------------------------------------------------|-----------------------------------------------------------------------|-----------------------------------------------------------------------|
|                             | Event:<br>onkeypress<br><br>Key code:<br>event.keyCode               | Event:<br>onkeypress<br><br>Key code:<br>event.charCode               | Event:<br>onkeyup<br><br>Key code:<br>event.keyCode                   |
| Space                       | 32 / 32                                                              | 32 / 32                                                               | 32 / 32                                                               |
| Shift key pressed:          |                                                                      |                                                                       |                                                                       |
| A                           | 65 / 65                                                              | 65 / 65                                                               | 65 / 65                                                               |
| B                           | 66 / 66                                                              | 66 / 66                                                               | 66 / 66                                                               |
| C                           | 67 / 67                                                              | 67 / 67                                                               | 67 / 67                                                               |
| D                           | 68 / 68                                                              | 68 / 68                                                               | 68 / 68                                                               |
| E                           | 69 / 69                                                              | 69 / 69                                                               | 69 / 69                                                               |
| F                           | 70 / 70                                                              | 70 / 70                                                               | 70 / 70                                                               |
| G                           | 71 / 71                                                              | 71 / 71                                                               | 71 / 71                                                               |
| H                           | 72 / 72                                                              | 72 / 72                                                               | 72 / 72                                                               |
| I                           | 73 / 73                                                              | 73 / 73                                                               | 73 / 73                                                               |
| J                           | 74 / 74                                                              | 74 / 74                                                               | 74 / 74                                                               |
| K                           | 75 / 75                                                              | 75 / 75                                                               | 75 / 75                                                               |
| L                           | 76 / 76                                                              | 76 / 76                                                               | 76 / 76                                                               |
| M                           | 77 / 77                                                              | 77 / 77                                                               | 77 / 77                                                               |
| N                           | 78 / 78                                                              | 78 / 78                                                               | 78 / 78                                                               |
| O                           | 79 / 79                                                              | 79 / 79                                                               | 79 / 79                                                               |
| P                           | 80 / 80                                                              | 80 / 80                                                               | 80 / 80                                                               |
| Q                           | 81 / 81                                                              | 81 / 81                                                               | 81 / 81                                                               |
| R                           | 82 / 82                                                              | 82 / 82                                                               | 82 / 82                                                               |
| S                           | 83 / 83                                                              | 83 / 83                                                               | 83 / 83                                                               |
| T                           | 84 / 84                                                              | 84 / 84                                                               | 84 / 84                                                               |
| U                           | 85 / 85                                                              | 85 / 85                                                               | 85 / 85                                                               |
| V                           | 86 / 86                                                              | 86 / 86                                                               | 86 / 86                                                               |
| W                           | 87 / 87                                                              | 87 / 87                                                               | 87 / 87                                                               |
| X                           | 88 / 88                                                              | 88 / 88                                                               | 88 / 88                                                               |
| Y                           | 89 / 89                                                              | 89 / 89                                                               | 89 / 89                                                               |
| Z                           | 90 / 90                                                              | 90 / 90                                                               | 90 / 90                                                               |
| Backspace                   | 8 <sup>1)</sup> / --                                                 | 8 <sup>1)</sup> / 0                                                   | 8 / 8                                                                 |
| Return                      | 13 / --                                                              | 13 / --                                                               | 13 / 13                                                               |
| Special characters - page 1 |                                                                      |                                                                       |                                                                       |

## 10 JavaScript key codes for the Hänel keyboard

| Character                   | JavaScript keyboard codes<br>Webkit (Safari) / Webengine<br>(Chrome)<br><br>Event:<br>onkeypress<br><br>Key code:<br>event.keyCode | JavaScript character codes<br>Webkit (Safari) / Webengine<br>(Chrome)<br><br>Event:<br>onkeypress<br><br>Key code:<br>event.charCode | JavaScript character codes<br>Webkit (Safari) / Webengine<br>(Chrome)<br><br>Event:<br>onkeyup<br><br>Key code:<br>event.keyCode |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| !                           | 49 / 33                                                                                                                            | 33 / 33                                                                                                                              | 49 / 49                                                                                                                          |
| :                           | 58 / 58                                                                                                                            | 58 / 58                                                                                                                              | 58 / 58                                                                                                                          |
| ;                           | 59 / 59                                                                                                                            | 59 / 59                                                                                                                              | 59 / 59                                                                                                                          |
| "                           | 222 / 34                                                                                                                           | 34 / 34                                                                                                                              | 222 / 222                                                                                                                        |
| '                           | 222 / 39                                                                                                                           | 39 / 39                                                                                                                              | 222 / 222                                                                                                                        |
| _                           | 189 / 95                                                                                                                           | 95 / 95                                                                                                                              | 189 / 189                                                                                                                        |
| /                           | 47 / 47                                                                                                                            | 47 / 47                                                                                                                              | 47 / 47                                                                                                                          |
| \                           | 220 / 92                                                                                                                           | 92 / 92                                                                                                                              | 220 / 220                                                                                                                        |
|                             | 220 / 124                                                                                                                          | 124 / 124                                                                                                                            | 220 / 220                                                                                                                        |
| *                           | 56 / 42                                                                                                                            | 42 / 42                                                                                                                              | 56 / 56                                                                                                                          |
| (                           | 219 / 40                                                                                                                           | 40 / 40                                                                                                                              | 219 / 219                                                                                                                        |
| )                           | 41 / 41                                                                                                                            | 41 / 41                                                                                                                              | 41 / 41                                                                                                                          |
| [                           | 219 / 91                                                                                                                           | 91 / 91                                                                                                                              | 219 / 219                                                                                                                        |
| ]                           | 221 / 93                                                                                                                           | 93 / 93                                                                                                                              | 221 / 221                                                                                                                        |
| {                           | 219 / 123                                                                                                                          | 123 / 123                                                                                                                            | 219 / 219                                                                                                                        |
| }                           | 221 / 125                                                                                                                          | 125 / 125                                                                                                                            | 221 / 221                                                                                                                        |
| «                           | 171 / 171                                                                                                                          | 171 / 171                                                                                                                            | 171 / 171                                                                                                                        |
| »                           | 187 / 187                                                                                                                          | 187 / 187                                                                                                                            | 187 / 187                                                                                                                        |
| #                           | 51 / 35                                                                                                                            | 35 / 35                                                                                                                              | 51 / 51                                                                                                                          |
| <                           | 188 / 60                                                                                                                           | 60 / 60                                                                                                                              | 188 / 188                                                                                                                        |
| >                           | 190 / 62                                                                                                                           | 62 / 62                                                                                                                              | 190 / 190                                                                                                                        |
| +                           | 43 / 43                                                                                                                            | 43 / 43                                                                                                                              | 43 / 43                                                                                                                          |
| -                           | 45 / 45                                                                                                                            | 45 / 45                                                                                                                              | 45 / 45                                                                                                                          |
| =                           | 187 / 61                                                                                                                           | 61 / 61                                                                                                                              | 187 / 187                                                                                                                        |
| %                           | 53 / 37                                                                                                                            | 37 / 37                                                                                                                              | 53 / 53                                                                                                                          |
| &                           | 55 / 38                                                                                                                            | 38 / 38                                                                                                                              | 55 / 55                                                                                                                          |
| §                           | 167 / 167                                                                                                                          | 167 / 167                                                                                                                            | 167 / 167                                                                                                                        |
| @                           | 50 / 64                                                                                                                            | 64 / 64                                                                                                                              | 50 / 50                                                                                                                          |
| Special characters - page 2 |                                                                                                                                    |                                                                                                                                      |                                                                                                                                  |
| ^                           | 54 / 94                                                                                                                            | 94 / 94                                                                                                                              | 54 / 54                                                                                                                          |
| ~                           | 192 / 126                                                                                                                          | 126 / 126                                                                                                                            | 192 / 192                                                                                                                        |

## 10 JavaScript key codes for the Hänel keyboard

| Character | JavaScript keyboard codes<br>Webkit (Safari) / Webengine<br>(Chrome)<br><br>Event:<br>onkeypress<br><br>Key code:<br>event.keyCode | JavaScript character codes<br>Webkit (Safari) / Webengine<br>(Chrome)<br><br>Event:<br>onkeypress<br><br>Key code:<br>event.charCode | JavaScript character codes<br>Webkit (Safari) / Webengine<br>(Chrome)<br><br>Event:<br>onkeyup<br><br>Key code:<br>event.keyCode |
|-----------|------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| "         | 8222 / 8222                                                                                                                        | 8222 / 8222                                                                                                                          | 8222 / 8222                                                                                                                      |
| "         | 8220 / 8220                                                                                                                        | 8220 / 8220                                                                                                                          | 8220 / 8220                                                                                                                      |
| ”         | 8221 / 8221                                                                                                                        | 8221 / 8221                                                                                                                          | 8221 / 8221                                                                                                                      |
| ±         | 177 / 177                                                                                                                          | 177 / 177                                                                                                                            | 177 / 177                                                                                                                        |
| ×         | 215 / 215                                                                                                                          | 215 / 215                                                                                                                            | 215 / 215                                                                                                                        |
| ·         | 183 / 183                                                                                                                          | 183 / 183                                                                                                                            | 183 / 183                                                                                                                        |
| ÷         | 247 / 247                                                                                                                          | 247 / 247                                                                                                                            | 247 / 247                                                                                                                        |
| ‰         | 8240 / 8240                                                                                                                        | 8240 / 8240                                                                                                                          | 8240 / 8240                                                                                                                      |
| Ë         | 1025 / 1025                                                                                                                        | 1025 / 1025                                                                                                                          | 1025 / 1025                                                                                                                      |
| ë         | 1025 / 1105                                                                                                                        | 1105 / 1105                                                                                                                          | 1025 / 1025                                                                                                                      |
| №         | 8470 / 8470                                                                                                                        | 8470 / 8470                                                                                                                          | 8470 / 8470                                                                                                                      |
| €         | 8364 / 8364                                                                                                                        | 8364 / 8364                                                                                                                          | 8364 / 8364                                                                                                                      |
| ¢         | 162 / 162                                                                                                                          | 162 / 162                                                                                                                            | 17 / 162                                                                                                                         |
| £         | 163 / 163                                                                                                                          | 163 / 163                                                                                                                            | 17 / 163                                                                                                                         |
| Pts       | 8359 / 8369                                                                                                                        | 8369 / 8369                                                                                                                          | 8369 / 8369                                                                                                                      |
| ¥         | 165 / 165                                                                                                                          | 165 / 165                                                                                                                            | 18 / 165                                                                                                                         |
| ₩         | 8361 / 8361                                                                                                                        | 8361 / 8361                                                                                                                          | 8361 / 8361                                                                                                                      |
| μ         | 924 / 181                                                                                                                          | 181 / 181                                                                                                                            | 924 / 924                                                                                                                        |
| ¼         | 188 / 188                                                                                                                          | 188 / 188                                                                                                                            | 188 / 188                                                                                                                        |
| ½         | 189 / 189                                                                                                                          | 189 / 189                                                                                                                            | 189 / 189                                                                                                                        |
| ¾         | 190 / 190                                                                                                                          | 190 / 190                                                                                                                            | 190 / 190                                                                                                                        |
| °         | 176 / 176                                                                                                                          | 176 / 176                                                                                                                            | 176 / 176                                                                                                                        |
| ²         | 178 / 178                                                                                                                          | 178 / 178                                                                                                                            | 178 / 178                                                                                                                        |
| ³         | 179 / 179                                                                                                                          | 179 / 179                                                                                                                            | 179 / 179                                                                                                                        |
| ©         | 169 / 169                                                                                                                          | 169 / 169                                                                                                                            | 169 / 169                                                                                                                        |
| ®         | 174 / 174                                                                                                                          | 174 / 174                                                                                                                            | 174 / 174                                                                                                                        |

<sup>1)</sup> No acknowledgement in the input field



All other characters, which are accessible by pressing a character longer than normal, return the Unicode value of the upper-case letter as the value for "event.keyCode" and the Unicode value of the selected character as the value for "event.charCode".

## 11 Annex, variant I: Activation of the lift/carousel via SOAP web service (only for instructed installation and maintenance personnel as well as IT specialists)



This chapter is intended for instructed installation and maintenance personnel and IT specialists only.

|          |                                                                                                                                                                                    |           |
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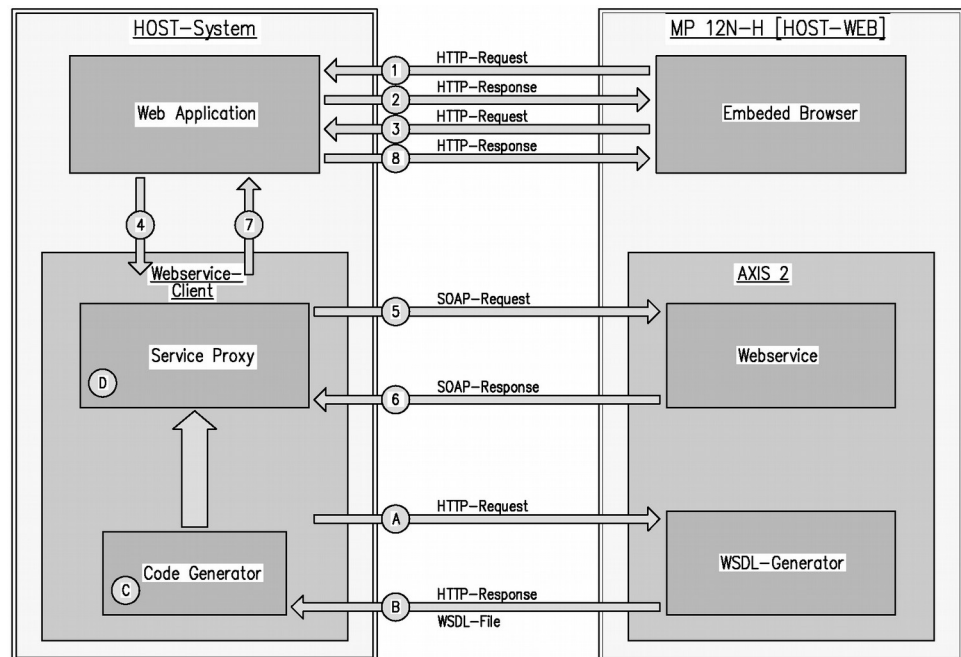
## 11 Annex, variant I: Activation of the lift/carousel via SOAP web service (only for instructed installation and maintenance personnel as well as IT specialists)

### 1 Webservice "Macro"

#### 1.1 Introduction to web service

- ◆ Within a Web application running on a host Web server it is possible to call up a Web service "Macro" on the MP control system in order, for example, to activate compartment LEDs, query carousel statuses and carry out lift runs.
- ◆ To call up this Webservice, a Webservice client has to be programmed first. To do so, you can use, for example, an Eclipse development environment with a Java EE IDE for WebDevelopers and an Axis2 runtime environment.
- ◆ Furthermore, a WSDL file is needed, which describes the interface between Webservice and a Webservice client in XML form. Via the WSDL file, a Web service client can now be generated automatically and regardless of programming language.
- ◆ In the customer-side Web application, the generated code has only to be integrated now at the corresponding position and the call and error handling have to be programmed.
- ◆ Lift runs always have to be initiated using the **【↔】** key on the MP control system. There is an exception only in conjunction with supplementary module "Remote-controlled Lift Operation with special safety equipment".

#### Overview of function



- ◆ Per selection (link, button, form etc.) or with JavaScript, a URL is sent from the browser to the Web application on the host Web server.
- ◆ The Web application calls up the method of a Webservice client class on the host Web server. The method call is sent to the web service as a SOAP message in XML form via HTTP protocol (Port 80) on the MP control system. There, the SOAP message is converted back into a method call and the code programmed there is executed.
- ◆ Parameters can be passed to a method call in the form of objects (for example, Java Beans). The return parameters of a method are also returned in the form of objects.

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### WSDL file

A WSDL file (WSDL1.1) can be downloaded via the MP control system. To do so, the following URL has to be entered in a Web browser connected to the MP control system:

*http://<IP-address-of-the-MP-control-system>/jwsmacro/services/Macro?wsdl*

Then the WSDL file is shown. The contents can be copied out and saved as a \*.wsdl file. Alternatively, the \*.wsdl file is provided in the documentation.

### Excerpt of the "Macro.wsdl" file

| Configuration of WSDL 1.1 | Contents                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| definitions               | <pre>&lt;?xml version="1.0" encoding="UTF-8"?&gt; &lt;wsdl:definitions targetNamespace="http://main.jws.com.hanel.de" xmlns:ns="http://main.jws.com.hanel.de" xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl" xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/" xmlns:http="http://schemas.xmlsoap.org/wsdl/http/" xmlns:ax21="http://main.jws.com.hanel.de/xsd" xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/" xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/" xmlns:soap12="http://schemas.xmlsoap.org/wsdl/soap12/"&gt; &lt;wsdl:documentation&gt;Web service on MP14-H[HOST-WEB]&lt;/wsdl:documentation&gt;</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| types                     | <pre>&lt;wsdl:types&gt; &lt;xs:schema attributeFormDefault="qualified" elementFormDefault="qualified" targetNamespace="http://main.jws.com.hanel.de/xsd"&gt; &lt;xs:complexType name="RequestGetShelf"&gt; &lt;xs:sequence&gt; &lt;xs:element minOccurs="1" name="pm01_shelfNumber" type="xs:int"/&gt; &lt;xs:element minOccurs="0" name="pm02_compartmentNumber" type="xs:int"/&gt; &lt;xs:element minOccurs="0" name="pm03_compartmentDepthNumber" type="xs:int"/&gt; &lt;xs:element minOccurs="0" name="pm04_containerWidthInCompartment" type="xs:int"/&gt; &lt;xs:element minOccurs="0" name="pm05_containerWidthInCompartmentDepth" type="xs:int"/&gt; &lt;xs:element minOccurs="0" name="pm10_compartmentNumberPickOLight" type="xs:int"/&gt; &lt;xs:element minOccurs="0" name="pm11_compartmentDepthNumberPickOLight" type="xs:int"/&gt; &lt;xs:element minOccurs="0" name="pm12_compartmentMMPickOLight" type="xs:int"/&gt; &lt;xs:element minOccurs="0" name="pm13_compartmentDepthMMPickOLight" type="xs:int"/&gt; &lt;xs:element minOccurs="0" name="pm15_shelfLocking" type="xs:int"/&gt; &lt;xs:element minOccurs="0" name="pm16_doorHeight" type="xs:int"/&gt; &lt;/xs:sequence&gt; &lt;/xs:complexType&gt; &lt;xs:complexType name="ResultGetShelf"&gt; &lt;xs:sequence&gt; &lt;xs:element minOccurs="0" name="accessNumber" type="xs:int"/&gt; &lt;xs:element minOccurs="0" name="imbalanceDirection" nillable="true" type="xs:string"/&gt; &lt;xs:element minOccurs="0" name="imbalanceShelf" type="xs:int"/&gt; &lt;xs:element minOccurs="0" name="LiftNumber" type="xs:int"/&gt; &lt;xs:element minOccurs="0" name="returnValue" type="xs:int"/&gt; &lt;xs:element minOccurs="0" name="shelfHeight" type="xs:int"/&gt; &lt;xs:element minOccurs="0" name="shelfInAccess" type="xs:int"/&gt; &lt;xs:element minOccurs="0" name="shelfWithHeight" type="xs:int"/&gt; &lt;/xs:sequence&gt; &lt;/xs:complexType&gt; .....&lt;/xs:schema&gt; &lt;xs:schema attributeFormDefault="qualified" elementFormDefault="qualified" targetNamespace="http://main.jws.com.hanel.de"&gt; &lt;xs:import namespace="http://main.jws.com.hanel.de/xsd"/&gt; &lt;xs:element name="get_shelf"&gt; &lt;xs:complexType&gt; &lt;xs:sequence&gt; &lt;xs:element minOccurs="0" name="param" nillable="true" type="ax21:RequestGetShelf"/&gt; &lt;/xs:sequence&gt; &lt;/xs:complexType&gt; &lt;/xs:element&gt; &lt;xs:element name="get_shelfResponse"&gt; &lt;xs:complexType&gt; &lt;xs:sequence&gt; &lt;xs:element minOccurs="0" name="return" nillable="true" type="ax21:ResultGetShelf"/&gt; &lt;/xs:sequence&gt; &lt;/xs:complexType&gt; &lt;/xs:element&gt; &lt;/xs:schema&gt; &lt;/wsdl:types&gt;</pre> |
| message                   | <pre>&lt;wsdl:message name="get_shelf_req"&gt; &lt;wsdl:part name="parameters" element="ns:get_shelf"&gt; &lt;/wsdl:part&gt; &lt;/wsdl:message&gt; &lt;wsdl:message name="get_shelf_res"&gt; &lt;wsdl:part name="parameters" element="ns:get_shelf_res"&gt; &lt;/wsdl:part&gt; &lt;/wsdl:message&gt;</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| portType                  | <pre>&lt;wsdl:portType name="MacroPortType"&gt; &lt;wsdl:operation name="get_shelf"&gt; &lt;wsdl:input message="ns:get_shelf_req" wsaw:Action="urn:get_shelf"&gt; &lt;/wsdl:input&gt; &lt;wsdl:output message="ns:get_shelf_res" wsaw:Action="urn:get_shelf_res"&gt; &lt;/wsdl:output&gt; &lt;/wsdl:operation&gt; &lt;/wsdl:portType&gt;</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

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|         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| binding | <pre>&lt;wsdl:binding name="MacroSoap11Binding" type="ns:MacroPortType"&gt;   &lt;soap:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/&gt;   &lt;wsdl:operation name="get_shelf"&gt;     &lt;soap:operation soapAction="urn:get_shelf" style="document"/&gt;     &lt;wsdl:input&gt;       &lt;soap:body use="Literal"/&gt;     &lt;/wsdl:input&gt;     &lt;wsdl:output&gt;       &lt;soap:body use="Literal"/&gt;     &lt;/wsdl:output&gt;   &lt;/wsdl:operation&gt; &lt;/wsdl:binding&gt;</pre> |
| service | <pre>&lt;wsdl:service name="Macro"&gt;   &lt;wsdl:port name="MacroHttpSoap11Endpoint" binding="ns:MacroSoap11Binding"&gt;     &lt;soap:address location="http://localhost:8080/JWSMacro/services/Macro.MacroHttpSoap11Endpoint/" /&gt;   &lt;/wsdl:port&gt; &lt;/wsdl:service&gt; &lt;/wsdl:definitions&gt;</pre>                                                                                                                                                                                                           |

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|                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SOAP message</b>                                                | The Webservice client generated from the WSDL file has to support SOAP 1.1. Method calls are implemented in SOAP requests. Return parameters are returned in SOAP responses. See the example below with the "read_status" method.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>SOAP request<br/>(Example)</b>                                  | <pre>&lt;soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/" xmlns:q0="http://com.hanel.de" xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"&gt;   &lt;soapenv:Body&gt;     &lt;q0:read_status/&gt;   &lt;/soapenv:Body&gt; &lt;/soapenv:Envelope&gt;</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>SOAP response<br/>(Example)</b>                                 | <pre>&lt;?xml version="1.0" encoding="http://schemas.xmlsoap.org/soap/envelope/" standalone="no"?&gt; &lt;soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"&gt;   &lt;soapenv:Body&gt;     &lt;ns:read_status_res xmlns:ns="http://com.hanel.de"&gt;       &lt;ns:return xmlns:ax21="http://com.hanel.de/xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:type="ax21:ResultReadStatus"&gt;         &lt;ax21:accessNumber&gt;1&lt;/ax21:accessNumber&gt;         &lt;ax21:accessSide&gt;0&lt;/ax21:accessSide&gt;         &lt;ax21:compDepths&gt;5&lt;/ax21:compDepths&gt;         &lt;ax21:compartments&gt;10&lt;/ax21:compartments&gt;         &lt;ax21:imbalanceDirection xsi:nil="true"/&gt;         &lt;ax21:imbalanceShelf&gt;0&lt;/ax21:imbalanceShelf&gt;         &lt;ax21:kompNumber &gt;123.456&lt;/ax21:kompNumber &gt;         &lt;ax21:liftNumber&gt;1&lt;/ax21:liftNumber&gt;         &lt;ax21:liftType&gt;4&lt;/ax21:liftType&gt;         &lt;ax21:returnValue&gt;0&lt;/ax21:returnValue&gt;         &lt;ax21:shelfInAccess&gt;0&lt;/ax21:shelfInAccess&gt;         &lt;ax21:shelfTable xsi:nil="true"/&gt;       &lt;/ns:return&gt;     &lt;/ns:read_statusResponse&gt;   &lt;/soapenv:Body&gt; &lt;/soapenv:Envelope&gt;</pre> |
| <b>Binding</b>                                                     | http://<IP-address-of-the-MP-control-system>/jwsmacro/services/<br>Macro.MacroHttpSoap11Endpoint                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>General<br/>information about<br/>the passed<br/>parameters</b> | A method can be called up with or without passed parameters. This depends on the selected method. For a method call with passed parameters, these are passed to the method in the form of an object (for example, Java Bean). All parameters do not always have to be used within an object. Whether a parameter has to be set and what value it has to have if inactive can be found in the tables of the chapter 3 Methods in the standard in the "Inactive" column. If a passed parameter is to be set, you can get information about its "Type" and the "Active value range" from the tables in the chapter 3 Methods in the standard.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

## 11 Annex, variant I: Activation of the lift/carousel via SOAP web service (only for instructed installation and maintenance personnel as well as IT specialists)

### General information about the return parameters

Each method returns its return parameters in the form of an object (for example, Java Bean).  
Unavailable parameters are returned with -1 (Int) or zero (String).  
Each return object has a "returnValue" parameter.

### General return values in the "returnValue" parameter

| "returnValue" | Meaning                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0             | OK, Webservice was executed correctly.<br>Remaining return parameters are valid                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 1             | Web service was not executed, as this is the first connection after the lift was switched on. (Serves to synchronise MP host)<br>Remaining return parameters are invalid.<br>Webservice call has to be repeated.                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 2             | Webservice was not executed, as a Webservice was already called up which still has not acknowledged. The acknowledgement must be waited for before a new Webservice call can be made.<br>An asynchronous call of the Webservice is not possible.<br>Remaining return parameters are invalid.                                                                                                                                                                                                                                                                                                                                                                    |
| 3             | Webservice was not executed due to a syntax error. Check log files and programming.<br>Remaining return parameters are invalid.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 4             | Webservice call was not accepted. A Webservice is not possible in this mode/combination. For example, for supplementary module "Remote-controlled Lift Operation and carousel features without special safety equipment".<br>Remaining return parameters are invalid.                                                                                                                                                                                                                                                                                                                                                                                           |
| 5             | Webservice was not executed, since a "RETURN" still has not been activated at the MP control system and/or no login data have been entered after switching on at the control system.<br>This can be the case for the following messages:<br>- Start-up message, safety inspection messages, login mask for the access lock or display lock<br>Notes:<br>The acknowledgement appears for the login mask for the access lock (Rotomat with electronic lock) during operation as well as after switching on.<br>The Webservice query can be cyclically repeated after this response until "RETURN" has been activated.<br>Remaining return parameters are invalid. |
| 6             | Internal error. Read out log files and consult Hänel.<br>Any other return parameters are invalid.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

**11 Annex, variant I: Activation of the lift/carousel via SOAP web service (only for instructed installation and maintenance personnel as well as IT specialists)**

**LL + MS**

- x If a lift run is being carried out for another access point, the "LIFT RUN FOR OTHER ACCESS POINT" or "OPERATION IS BLOCKED BY OTHER ACCESS POINT!" message is displayed during processing of the Webservice "Macro" (except during "read\_status") until the lift run is completed. Only then is the Webservice "Macro" processed.

**RO**

- x If a lift run is being carried out for another access point, the "LIFT RUN FOR OTHER ACCESS POINT !" message is displayed during execution of the Webservice "Macro" (except during "read\_status") until the other lift run has finished. Only then is the Webservice "Macro" processed.

## 11 Annex, variant I: Activation of the lift/carousel via SOAP web service (only for instructed installation and maintenance personnel as well as IT specialists)

### 1.2 WSDL - Examples for Webservice programming

#### 1.2.1 Example of the method call "get\_shelf" of the Webservice "Macro"

| SOAP 1.1 | Contents                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Request  | <pre>&lt;soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/" xmlns:q0="http://main.jws.com.hanel.de" xmlns:q1="http://main.jws.com.hanel.de/xsd" xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"&gt;   &lt;soapenv:Body&gt;     &lt;q0:get_shelf&gt;       &lt;q0:param&gt;         &lt;q1:pm01_shelfNumber&gt;2&lt;/q1:pm01_shelfNumber&gt;         &lt;q1:pm02_compartmentNumber&gt;4&lt;/q1:pm02_compartmentNumber&gt;         &lt;q1:pm03_compartmentDepthNumber&gt;5&lt;/q1:pm03_compartmentDepthNumber&gt;       &lt;/q0:param&gt;     &lt;/q0:get_shelf&gt;   &lt;/soapenv:Body&gt; &lt;/soapenv:Envelope&gt;</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Response | <pre>&lt;soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"&gt;   &lt;soapenv:Body&gt;     &lt;ns2:get_shelf_res xmlns:ns2="http://main.jws.com.hanel.de"&gt;       &lt;ns2:return&gt;         &lt;ns1:accessNumber xmlns:ns1="http://main.jws.com.hanel.de/xsd"&gt;1&lt;/ns1:accessNumber&gt;         &lt;ns1:imbalaceDirection xmlns:ns1="http://main.jws.com.hanel.de/xsd"&gt;i&lt;/ns1:imbalaceDirection&gt;         &lt;ns1:imbalaceShelf xmlns:ns1="http://main.jws.com.hanel.de/xsd"&gt;0&lt;/ns1:imbalaceShelf&gt;         &lt;ns1:liftNumber xmlns:ns1="http://main.jws.com.hanel.de/xsd"&gt;1&lt;/ns1:liftNumber&gt;         &lt;ns1:returnValue xmlns:ns1="http://main.jws.com.hanel.de/xsd"&gt;0&lt;/ns1:returnValue&gt;         &lt;ns1:shelfHeight xmlns:ns1="http://main.jws.com.hanel.de/xsd"&gt;3&lt;/ns1:shelfHeight&gt;         &lt;ns1:shelfInAccess xmlns:ns1="http://main.jws.com.hanel.de/xsd"&gt;2&lt;/ns1:shelfInAccess&gt;         &lt;ns1:shelfWithHeight xmlns:ns1="http://main.jws.com.hanel.de/xsd"&gt;1&lt;/ns1:shelfWithHeight&gt;       &lt;/ns2:return&gt;     &lt;/ns2:get_shelf_res&gt;   &lt;/soapenv:Body&gt; &lt;/soapenv:Envelope&gt;</pre> |

### 1.3 Integration examples for HTML / SOAP programming

|                                                                                     |                                                                                                                                                                                                                                         |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>The "read_status" method is used to read out the shelf table for Lean-Lift / Multi-Space.</p> <p>The "read_st_height" method is used to read out the height table for Supplementary module "Storage location height management".</p> |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

#### 1.3.1 Example of sequence "Get shelf"

| Se-<br>quence | HTML page<br>at the lift display | SOAP Webservice<br>at the lift control system |                 |                  | Event<br>Lift control |
|---------------|----------------------------------|-----------------------------------------------|-----------------|------------------|-----------------------|
|               |                                  | Method                                        | Passed object   | Parameters       |                       |
| 1             | Query of shelf number            |                                               |                 |                  |                       |
| 2             |                                  | get_shelf                                     | RequestGetShelf | pm01_shelfNumber | Lift run to shelf     |

**11 Annex, variant I: Activation of the lift/carousel via SOAP web service (only for instructed installation and maintenance personnel as well as IT specialists)**

**1.3.2 Example of sequence of a manual storage location assignment for compartment display with Compartment depth display**

| Se-<br>quence | HTML page<br>at the lift display | SOAP Webservice<br>at the lift control system |                 |                             | Event<br>Lift control   |
|---------------|----------------------------------|-----------------------------------------------|-----------------|-----------------------------|-------------------------|
|               |                                  | Method                                        | Passed object   | Parameters                  |                         |
| 1             | Query of shelf number            |                                               |                 |                             |                         |
| 2             |                                  | get_shelf                                     | RequestGetShelf | pm01_shelfNumber            | Lift run to shelf       |
| 3             | Query of compartment<br>number   |                                               |                 |                             |                         |
| 4             |                                  | get_shelf                                     | RequestGetShelf | pm01_shelfNumber            | Lift run to shelf       |
|               |                                  |                                               |                 | pm02_compartmentNumber      | Shows compartment       |
| 5             | Query of compartment<br>depth    |                                               |                 |                             |                         |
| 6             |                                  | get_shelf                                     | RequestGetShelf | pm01_shelfNumber            | Lift run to shelf       |
|               |                                  |                                               |                 | pm02_compartmentNumber      | Shows compartment       |
|               |                                  |                                               |                 | pm03_compartmentDepthNumber | Shows compartment depth |

**1.3.3 Example of sequence of a manual storage location assignment with Compartment depth display type II and type III or for fixed grid Pick-O-Light system and container prompt**

| Se-<br>quence | HTML page<br>at the lift display                      | SOAP Webservice<br>at the lift control system |                 |                                  | Event<br>Lift control                                 |
|---------------|-------------------------------------------------------|-----------------------------------------------|-----------------|----------------------------------|-------------------------------------------------------|
|               |                                                       | Method                                        | Passed object   | Parameters                       |                                                       |
| 1             | Query of shelf number                                 |                                               |                 |                                  |                                                       |
| 2             |                                                       | get_shelf                                     | RequestGetShelf | pm01_shelfNumber                 | Lift run to shelf                                     |
| 3             | Query of compartment<br>number                        |                                               |                 |                                  |                                                       |
| 4             |                                                       | get_shelf                                     | RequestGetShelf | pm01_shelfNumber                 | Lift run to shelf                                     |
|               |                                                       |                                               |                 | pm02_compartmentNumber           | Shows compartment;<br>compartment LED                 |
| 5             | Query of compartment<br>depth                         |                                               |                 |                                  |                                                       |
| 6             |                                                       | get_shelf                                     | RequestGetShelf | pm01_shelfNumber                 | Lift run to shelf                                     |
|               |                                                       |                                               |                 | pm02_compartmentNumber           | Shows compartment                                     |
|               |                                                       |                                               |                 | pm03_compartmentDepthNumber      | Shows compartment depth                               |
| 7             | Query of container in<br>direction of<br>compartments |                                               |                 |                                  |                                                       |
| 8             |                                                       | get_shelf                                     | RequestGetShelf | pm01_shelfNumber                 | Lift run to shelf                                     |
|               |                                                       |                                               |                 | pm02_compartmentNumber           | Shows compartment                                     |
|               |                                                       |                                               |                 | pm03_compartmentDepthNumber      | Shows compartment depth                               |
|               |                                                       |                                               |                 | pm04_containerWidthInCompartment | Shows container width in<br>direction of compartments |

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### 1.3.4 Example of sequence of a manual storage location assignment with fixed grid Pick-O-Light system and container prompt

| Se-<br>quence | HTML page<br>at the lift display                            | SOAP Webservice<br>at the lift control system |                 |                                       | Event<br>Lift control                                          |
|---------------|-------------------------------------------------------------|-----------------------------------------------|-----------------|---------------------------------------|----------------------------------------------------------------|
|               |                                                             | Method                                        | Passed object   | Parameters                            |                                                                |
| 1             | Query of shelf number                                       |                                               |                 |                                       |                                                                |
| 2             |                                                             | get_shelf                                     | RequestGetShelf | pm01_shelfNumber                      | Lift run to shelf                                              |
| 3             | Query of compartment<br>number                              |                                               |                 |                                       |                                                                |
| 4             |                                                             | get_shelf                                     | RequestGetShelf | pm01_shelfNumber                      | Lift run to shelf                                              |
|               |                                                             |                                               |                 | pm02_compartmentNumber                | Shows compartment                                              |
| 5             | Query of compartment<br>depth                               |                                               |                 |                                       |                                                                |
| 6             |                                                             | get_shelf                                     | RequestGetShelf | pm01_shelfNumber                      | Lift run to shelf                                              |
|               |                                                             |                                               |                 | pm02_compartmentNumber                | Shows compartment                                              |
|               |                                                             |                                               |                 | pm03_compartmentDepthNumber           | Shows compartment depth                                        |
| 7             | Query of container in<br>direction of<br>compartments       |                                               |                 |                                       |                                                                |
| 8             |                                                             | get_shelf                                     | RequestGetShelf | pm01_shelfNumber                      | Lift run to shelf                                              |
|               |                                                             |                                               |                 | pm02_compartmentNumber                | Shows compartment                                              |
|               |                                                             |                                               |                 | pm03_compartmentDepthNumber           | Shows compartment depth                                        |
|               |                                                             |                                               |                 | pm04_containerWidthInCompartment      | Shows container width in<br>direction of compartments          |
| 9             | Query of container in<br>direction of compartment<br>depths |                                               |                 |                                       |                                                                |
| 10            |                                                             | get_shelf                                     | RequestGetShelf | pm01_shelfNumber                      | Lift run to shelf                                              |
|               |                                                             |                                               |                 | pm02_compartmentNumber                | Shows compartment                                              |
|               |                                                             |                                               |                 | pm03_compartmentDepthNumber           | Shows compartment depth                                        |
|               |                                                             |                                               |                 | pm04_containerWidthInCompartment      | Shows container width in<br>direction of compartments          |
|               |                                                             |                                               |                 | pm05_containerWidthInCompartmentDepth | Shows container width in<br>direction of compartment<br>depths |

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#### 1.3.5 Example of sequence of a manual storage location assignment for variable Pick-O-Light system

##### 1.3.5.1 With uniform slot increments for all shelves

| Se-<br>quence | HTML page<br>at the lift display | SOAP Webservice<br>at the lift control system |                 |                             | Event<br>Lift control      |
|---------------|----------------------------------|-----------------------------------------------|-----------------|-----------------------------|----------------------------|
|               |                                  | Method                                        | Passed object   | Parameters                  |                            |
| 1             | Query of shelf number            |                                               |                 |                             |                            |
| 2             |                                  | get_shelf                                     | RequestGetShelf | pm01_shelfNumber            | Lift run to shelf          |
| 3             | Query of compartment<br>number   |                                               |                 |                             |                            |
| 4             | Query of compartment<br>depth    |                                               |                 |                             |                            |
| 5             |                                  | get_shelf                                     | RequestGetShelf | pm01_shelfNumber            | Lift run to shelf          |
|               |                                  |                                               |                 | pm02_compartmentNumber      | Shows compartment          |
|               |                                  |                                               |                 | pm03_compartmentDepthNumber | Shows compartment<br>depth |

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### 1.3.5.2 With a different slot increment for each shelf

| Se-<br>quence | HTML page<br>at the lift display | SOAP Webservice<br>at the lift control system |                 |                                       | Event<br>Lift control                        |
|---------------|----------------------------------|-----------------------------------------------|-----------------|---------------------------------------|----------------------------------------------|
|               |                                  | Method                                        | Passed object   | Parameters                            |                                              |
| 1             | Query of shelf number            |                                               |                 |                                       |                                              |
| 2             |                                  | get_shelf                                     | RequestGetShelf | pm01_shelfNumber                      | Lift run to shelf                            |
| 3             | Query of compartment<br>number   |                                               |                 |                                       |                                              |
| 4             | Query of compartment<br>depth    |                                               |                 |                                       |                                              |
| 5             |                                  | get_shelf                                     | RequestGetShelf | pm01_shelfNumber                      | Lift run to shelf                            |
|               |                                  |                                               |                 | pm02_compartmentNumber                | Shows compartment                            |
|               |                                  |                                               |                 | pm03_compartmentDepthNumber           | Shows compartment<br>depth                   |
|               |                                  |                                               |                 | pm10_compartmentNumberPickOLight      | Number of compartments<br>in the shelf       |
|               |                                  |                                               |                 | pm11_compartmentDepthNumberPickOLight | Number of compartment<br>depths in the shelf |

### 1.3.5.3 With non-uniform slot increments within the shelf

| Se-<br>quence | HTML page<br>at the lift display | SOAP Webservice<br>at the lift control system |                 |                                   | Event<br>Lift control                                                                                                                                     |
|---------------|----------------------------------|-----------------------------------------------|-----------------|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
|               |                                  | Method                                        | Passed object   | Parameters                        |                                                                                                                                                           |
| 1             | Query of shelf number            |                                               |                 |                                   |                                                                                                                                                           |
| 2             |                                  | get_shelf                                     | RequestGetShelf | pm01_shelfNumber                  | Lift run to shelf                                                                                                                                         |
| 3             | Query of compartment<br>number   |                                               |                 |                                   |                                                                                                                                                           |
| 4             | Query of compartment<br>depth    |                                               |                 |                                   |                                                                                                                                                           |
| 5             |                                  | get_shelf                                     | RequestGetShelf | pm01_shelfNumber                  | Lift run to shelf                                                                                                                                         |
|               |                                  |                                               |                 | pm12_compartmentMMPickOLight      | Positions the Pick-O-Light<br>system x mm away from<br>the left edge at the front<br>access point.<br>Rear access points are<br>automatically converted)  |
|               |                                  |                                               |                 | pm13_compartmentDepthMMPickOLight | Positions the Pick-O-Light<br>system x mm away from<br>the front edge at the front<br>access point<br>(Rear access points are<br>automatically converted. |

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### 2 Overview of the individual methods of the Macro Webservice

| Method                             |         | Description                                                                                                                                                              |                             |
|------------------------------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| read_status                        |         | Query status information (out-of-date)                                                                                                                                   | See Chapter 3.1, page 79    |
| readStatusV02                      |         | Query status information                                                                                                                                                 | See Chapter 3.2, page 81    |
| get_shelf                          |         | Get shelf with display of storage location                                                                                                                               | See Chapter 3.3, page 83    |
| getShelfV02                        |         | Get shelf with graphical display of the storage location and additional text                                                                                             | See Chapter 3.4, page 86    |
| store_shelf                        | LL + MS | Store shelf                                                                                                                                                              | See Chapter 3.5, page 89    |
| add_shelf                          | LL + MS | Add shelf                                                                                                                                                                | See Chapter 3.6, page 90    |
| remove_shelf                       | LL + MS | Remove shelf                                                                                                                                                             | See Chapter 3.7, page 92    |
| optimisation_run                   | LL + MS | Starting an optimisation run                                                                                                                                             | See Chapter 3.8, page 93    |
| delete_comp_disp                   |         | Clear storage location display                                                                                                                                           | See Chapter 3.9, page 94    |
| set_interface                      |         | Enable the interface for a peripheral device                                                                                                                             | See Chapter 3.10, page 95   |
| base_services                      |         | Call up basic functions                                                                                                                                                  | See Chapter 3.11, page 96   |
| base_servicesV02                   |         | Call up basic functions                                                                                                                                                  | See Chapter 3.12, page 99   |
| read_st_mp_mod                     |         | Query supplementary modules                                                                                                                                              | See Chapter 3.13, page 102  |
| readStMpModV02                     |         | Query supplementary modules                                                                                                                                              | See Chapter 3.14, page 103  |
| Read_st_lft_feat                   |         | Query supplementary features (out-of-date)                                                                                                                               | See Chapter 3.15, page 104  |
| readStLftFeatV02                   |         | Query supplementary features                                                                                                                                             | See Chapter 3.16, page 106  |
| set_start_url                      |         | Change the start-URL of the host Web server.                                                                                                                             | See Chapter 3.17, page 108  |
| confirmV01                         |         | Query confirmation key                                                                                                                                                   | See Chapter 3.19, page 110  |
| Methods for supplementary features |         | Description                                                                                                                                                              |                             |
| get_shelf                          | LL + MS | Get shelf with display of storage location (Pick-O-Light system (variable))                                                                                              | See Chapter 4.1.1, page 111 |
| getShelfV02                        | LL + MS | Get shelf with graphical display of the storage location and additional text (Pick-O-Light system (variable))                                                            | See Chapter 4.1.2, page 111 |
| get_shelf                          | RO      | Get shelf with display of storage location (Automatic sliding door with individual compartment doors and various door opening heights)                                   | See Chapter 4.2.1, page 111 |
| getShelfV02                        | RO      | Get shelf with graphical display of the storage location and additional text (Automatic sliding door with individual compartment doors and various door opening heights) | See Chapter 4.2.2, page 111 |

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| Methods for supplementary features |         | Description                                                                                                         |                             |
|------------------------------------|---------|---------------------------------------------------------------------------------------------------------------------|-----------------------------|
| close_door                         |         | Closing the automatic sliding door<br>(Automatic sliding door)                                                      | See Chapter 4.2.3, page 112 |
| set_signal                         |         | Activate signal elements of the signal column.<br>(Signal column)                                                   | See Chapter 4.3.1, page 113 |
| conf_req_ledge                     |         | Write to and query requisition processing strip<br>(requisition processing strip)                                   | See Chapter 4.4.1, page 114 |
| confReqLedgeV02                    |         | Write to and query requisition processing strip<br>(requisition processing strip)                                   | See Chapter 4.4.2, page 116 |
| readStatusV02                      | RO      | Query status information<br>(Access code management for the Rotomat)                                                | See Chapter 4.5.1, page 118 |
| readStLftFeatV02                   | RO      | Query supplementary features<br>(Access code management for the Rotomat)                                            | See Chapter 4.5.2, page 118 |
| get_shelf                          | RO      | Get shelf with display of storage location<br>(Access code management for the Rotomat)                              | See Chapter 4.5.3, page 118 |
| close_door                         | RO      | Manually closing the sliding door<br>(Access code management for the Rotomat)                                       | See Chapter 4.5.4, page 119 |
| Methods for supplementary modules  |         | Description                                                                                                         |                             |
| pre_pos_mode                       |         | Switch the shelf pre-positioning mode on/off<br>(Shelf pre-positioning)                                             | See Chapter 5.1.1, page 120 |
| read_st_height                     | LL + MS | Retrieve shelf target height and stored article height<br>(Storage location height management)                      | See Chapter 5.2.1, page 122 |
| edit_shelf_prop                    | LL + MS | Change the shelf target height of a shelf<br>(Storage location height management)                                   | See Chapter 5.2.2, page 124 |
| read_st_speed                      | LL + MS | Query shelf speed<br>(Adjustable shelf speed)                                                                       | See Chapter 5.3.1, page 126 |
| get_shelf                          | LL      | Get shelf with display of storage location<br>(Intermediate shelf buffer for job)                                   | See Chapter 5.4.1, page 128 |
| getShelfV02                        | LL      | Get shelf with graphical display of the storage location and additional text<br>(Intermediate shelf buffer for job) | See Chapter 5.4.2, page 128 |
| get_shelf_backgr                   | LL      | Get shelf in background to intermediate shelf buffer<br>(Intermediate shelf buffer for job)                         | See Chapter 5.4.3, page 128 |
| shelf_transfer                     | LL + MS | Start shelf transfer<br>(shelf transfer)                                                                            | See Chapter 5.5.1, page 130 |

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### 3 Methods in the standard

#### 3.1 Method "read\_status" - Query status information (out-of-date)

**Description** With this method, the host has the ability to query various status information.  
The method is not blocking.

**Passed message** Message type **Read\_status** Contains passed parameters

**Passed parameters** None

**Return message** Message type **Read\_status\_res** Contains return parameters

**Return parameters** Object type **ResultReadStatus**

| Parameters                      | Meaning                                                                                                                                                                                                                                                  | Type   | Area             |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|------------------|
| <b>returnValue</b>              | General return values                                                                                                                                                                                                                                    | Int    | 0-6              |
| <b>liftNumber</b>               | Lift number                                                                                                                                                                                                                                              | Int    | 1-99             |
| <b>accessNumber</b>             | Access point number                                                                                                                                                                                                                                      | Int    | 1-4              |
| <b>shelfInAccess</b>            | Shelf in the access point<br>(0 = no shelf in the access point)                                                                                                                                                                                          | Int    | 0-999            |
| <b>imbalanceDirection</b><br>RO | Store/retrieve<br>(i = store, o = retrieve)                                                                                                                                                                                                              | String | "i" or "o"       |
| <b>imbalanceShelf</b><br>RO     | Recommendation of load imbalance for<br>storage/retrieval of shelf number<br>(0 = no recommendation)                                                                                                                                                     | Int    | 0-999            |
| <b>shelfTable</b>               | Shelf table coded in hexadecimal<br>Example: "F31"<br>HEX code F 3 1<br>Binary code: 1 1 1 1 0 0 1 1 0 0 0 1<br>Shelf number: 4 3 2 1 8 7 6 5 12 11 10 9<br>1 = Shelf available<br>0 = Shelf not available<br>Shelves 1, 2, 3, 4, 5, 6, 9 are available. | String | 1-250 characters |

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|                                |                                                                                                                                                                                                              |        |                    |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------------------|
| <b>liftType</b>                | 0 = Rotomat<br>1 = Lean-Lift<br>2 = Rack operation<br>3 = Rotomat lift run simulation<br>4 = Lean-Lift lift run simulation<br>5 = Multi-Space<br>6 = Multi-space lift run simulation                         | Int    | 0-6                |
| <b>komNumber</b>               | Commission number of the lift                                                                                                                                                                                | String | Max. 16 characters |
| <b>compartments</b>            | Number of compartments (initialisation)                                                                                                                                                                      | Int    | 1-255              |
| <b>compDepths</b>              | Number of compartment depths (initialisation)                                                                                                                                                                | Int    | 1-99               |
| <b>accessSide</b>              | 0 = Access point is in front<br>1 = Access point is in back<br>(The front is the side where access point 1 is located. The type plate is located at access point 1)                                          | Int    | 0-1                |
| <b>browserVersion</b>          | 0 = Browser Embedded Konqueror 2.0<br>1 = Browser QT Webkit 2.0<br>2 = Browser QT Webkit 2.0 + Patch #1<br>3 = Browser QT Webkit 2.2<br>4 = Browser QT Webkit 5.6 / 5.212<br>5 = Browser QT Webengine 5.12.6 | Int    | 0-4                |
| <b>doorStatus</b><br><b>RO</b> | Door status with supplementary feature<br>Access code management for the Rotomat<br>0 = Door at access point is open<br>1 = Door at access point is closed                                                   | Int    | 0-1                |

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### 3.2 Method "readStatusV02" - Query status information

**Description** With this method, the host has the ability to query various status information.  
The method is not blocking.

**Passed message** Message type **ReadStatusV02** Contains passed parameters

**Passed parameters** None

**Return message** Message type **ReadStatusResV02** Contains return parameters

**Return parameters** Object type **ResultReadStatusV02**

| Parameters                      | Meaning                                                                                                                                                                                                                                                  | Type   | Area             |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|------------------|
| <b>returnValue</b>              | General return values                                                                                                                                                                                                                                    | Int    | 0-6              |
| <b>liftNumber</b>               | Lift number                                                                                                                                                                                                                                              | Int    | 1-99             |
| <b>accessNumber</b>             | Access point number                                                                                                                                                                                                                                      | Int    | 1-4              |
| <b>shelfInAccess</b>            | Shelf in the access point<br>(0 = no shelf in the access point)                                                                                                                                                                                          | Int    | 0-999            |
| <b>imbalanceDirection</b><br>RO | Store/retrieve<br>(i = store, o = retrieve)                                                                                                                                                                                                              | String | "i" or "o"       |
| <b>imbalanceShelf</b><br>RO     | Recommendation of load imbalance for<br>storage/retrieval of shelf number<br>(0 = no recommendation)                                                                                                                                                     | Int    | 0-999            |
| <b>shelfTable</b>               | Shelf table coded in hexadecimal<br>Example: "F31"<br>HEX code F 3 1<br>Binary code: 1 1 1 1 0 0 1 1 0 0 0 1<br>Shelf number: 4 3 2 1 8 7 6 5 12 11 10 9<br>1 = Shelf available<br>0 = Shelf not available<br>Shelves 1, 2, 3, 4, 5, 6, 9 are available. | String | 1-250 characters |

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|                                |                                                                                                                                                                                                              |        |                    |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------------------|
| <b>liftType</b>                | 0 = Rotomat<br>1 = Lean-Lift<br>2 = Rack operation<br>3 = Rotomat lift run simulation<br>4 = Lean-Lift lift run simulation<br>5 = Multi-Space<br>6 = Multi-space lift run simulation                         | Int    | 0-6                |
| <b>komNumber</b>               | Commission number of the lift                                                                                                                                                                                | String | Max. 16 characters |
| <b>compartments</b>            | Number of compartments (initialisation)                                                                                                                                                                      | Int    | 1-255              |
| <b>compDepths</b>              | Number of compartment depths (initialisation)                                                                                                                                                                | Int    | 1-99               |
| <b>accessSide</b>              | 0 = Access point is in front<br>1 = Access point is in back<br>(The front is the side where access point 1 is located. The type plate is located at access point 1)                                          | Int    | 0-1                |
| <b>browserVersion</b>          | 0 = Browser Embedded Konqueror 2.0<br>1 = Browser QT Webkit 2.0<br>2 = Browser QT Webkit 2.0 + Patch #1<br>3 = Browser QT Webkit 2.2<br>4 = Browser QT Webkit 5.6 / 5.212<br>5 = Browser QT Webengine 5.12.6 | Int    | 0-4                |
| <b>doorStatus</b><br><b>RO</b> | Door status with supplementary feature<br>Access code management for the Rotomat<br>0 = Door at access point is open<br>1 = Door at access point is closed                                                   | Int    | 0-1                |
| <b>mpControl</b>               | MP control system<br>0 = MP12N<br>1 = MP14                                                                                                                                                                   | Int    | 0-1                |

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### 3.3 Method "get\_shelf" - Get shelf with display of the storage location

**Description** With this method, the host has the ability to retrieve a shelf and to initiate simultaneously the storage location display, if available.  
The method is blocking until the desired shelf is in the access point or the lift run has been interrupted at the lift.  
➤ For examples, see Chap. 1.3 on page 72.

**Passed message** Message type **Get\_shelf** Contains passed parameters

**Passed parameters** Object **RequestGetShelf**

| Parameters                                              | Meaning                                                                                                                                                                                     | Type | Active area | Inactive           |
|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------------|--------------------|
| <b>pm01_shelfNumber</b>                                 | Shelf number                                                                                                                                                                                | Int  | 1-999       | Mandatory required |
| <b>pm02_compartmentNumber</b>                           | Compartment number (optional)                                                                                                                                                               | Int  | 1-255       | 0                  |
| <b>pm03_compartmentDepthNumber</b>                      | Compartment depth number (optional)                                                                                                                                                         | Int  | 1-99        | 0                  |
| <b>pm04_containerWidthInCompartment</b><br>LL + MS      | Container width in direction of compartments (optional for Compartment depth display type II, Compartment depth display type III and supplementary feature Pick-O-Light system, fixed grid) | Int  | 1-255       | 0                  |
| <b>pm04_containerWidthInCompartment</b><br>RO           | Container width in direction of compartments (optional for Compartment depth display type II, Compartment depth display type III)                                                           | Int  | 1-255       | 0                  |
| <b>pm05_containerWidthInCompartmentDepth</b><br>LL + MS | Container width in direction of compartment depths (optional for supplementary feature Pick-O-Light system, fixed grid)                                                                     | Int  | 1-99        | 0                  |
| <b>pm10_compartmentNumberPickOLight</b><br>LL + MS      | Number of compartments per shelf [optional for supplementary feature Pick-O-Light System (Variable)]                                                                                        | Int  | 1-255       | 0                  |
| <b>pm11_compartmentDepthNumberPickOLight</b><br>LL + MS | Number of compartment depths per shelf [optional for supplementary feature Pick-O-Light System (Variable)]                                                                                  | Int  | 1-99        | 0                  |

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|                                                                |                                                                                                                                                                                                                                           |     |        |   |
|----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|--------|---|
| <b>pm12_compartmentMM</b><br><b>PickOLight</b><br>LL + MS      | Position value of Pick-O-Light system in direction of compartments in the unit millimetres at a front access point. Automatic conversion for rear access point. (optional for Supplementary feature Pick-O-Light system (variable))       | Int | 1-9999 | 0 |
| <b>pm13_compartmentDept</b><br><b>hMMPickOLight</b><br>LL + MS | Position value of Pick-O-Light system in direction of compartment depths in the unit millimetres at a front access point. Automatic conversion for rear access point. (optional for Supplementary feature Pick-O-Light system (variable)) | Int | 1-9999 | 0 |
| <b>pm15_shelfLocking</b><br>LL + MS                            | Release shelf detent (optional with shelf detent activated)<br>(1 = Release shelf detent; in other words, do not fix shelf in place despite activated shelf detent)                                                                       | Int | 1      | 0 |
| <b>pm16_doorHeight</b><br>RO                                   | Door opening height (optional with Automatic sliding door with individual compartment doors, height 1 - 4 possible)                                                                                                                       | Int | 1-4    | 0 |

**Return message**      Message type      **Get\_shelf\_res**      Contains return parameters

**Return parameters**      Object type      **ResultGetShelf**

| Parameters                      | Meaning                                                                                                                       | Type   | Area                |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------|--------|---------------------|
| <b>returnValue</b>              | Return value<br>→ General return values<br>→ Lift run was interrupted at the lift.<br>(Remaining return parameters are valid) | Int    | 0-6/99<br>0-6<br>99 |
| <b>liftNumber</b>               | Lift number                                                                                                                   | Int    | 1-99                |
| <b>accessNumber</b>             | Access point number                                                                                                           | Int    | 1-4                 |
| <b>shelfInAccess</b>            | Shelf in the access point<br>(0 = no shelf in the access point)                                                               | Int    | 0-999               |
| <b>imbalanceDirection</b><br>RO | Store/retrieve<br>(i = store, o = retrieve)                                                                                   | String | "i" or "o"          |
| <b>imbalanceShelf</b><br>RO     | Recommendation of load imbalance for storage/retrieval of shelf number<br>(0 = no recommendation)                             | Int    | 0-999               |

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|                                   |                                                                                                                                                                         |     |       |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-------|
| <b>shelfWithHeight</b><br>LL + MS | Shelf for which the article height is in the parameter shelfHeight<br>(0 = no measurement was carried out)                                                              | Int | 0-999 |
| <b>shelfHeight</b><br>LL + MS     | Article height of the shelf from the shelfWithHeight parameter<br>(The stored article height is the number of carrier units occupied by the shelf with stored articles) | Int | 1-31  |

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### 3.4 Method "getShelfV02" - Get shelf with graphical display of the storage location and additional text

#### Description

This method is intended for applications that use the lift/carousel without web browser. This means that no start-URL is initialised.

When the start-URL is initialised, the function corresponds to the "get\_shelf" method.

With this method, the host has the ability to:

1. Get shelf and activate a storage location display (if present). In addition, a shelf grid is shown on which the storage location is displayed.
2. Display of a 4-line instruction text with up to 30 characters.

The method is blocking until the desired shelf is in the access point or the lift run has been interrupted at the lift.

➤ For examples, see Chap. 1.3 on page 72.

#### Passed message

Message type

**GetShelfV02**

Contains passed parameters

#### Passed parameters

Object

**RequestGetShelfV02**

| Parameters                                              | Meaning                                                                                                                                                                                     | Type   | Active area        | Inactive           |
|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------------------|--------------------|
| <b>pm01_shelfNumber</b>                                 | Shelf number                                                                                                                                                                                | Int    | 1-999              | Mandatory required |
| <b>pm02_compartmentNumber</b>                           | Compartment number (optional)                                                                                                                                                               | Int    | 1-255              | 0                  |
| <b>pm03_compartmentDepthNumber</b>                      | Compartment depth number (optional)                                                                                                                                                         | Int    | 1-99               | 0                  |
| <b>pm04_containerWidthInCompartment</b><br>LL + MS      | Container width in direction of compartments (optional for Compartment depth display type II, Compartment depth display type III and supplementary feature Pick-O-Light system, fixed grid) | Int    | 1-255              | 0                  |
| <b>pm04_containerWidthInCompartment</b><br>RO           | Container width in direction of compartments (optional for Compartment depth display type II, Compartment depth display type III)                                                           | Int    | 1-255              | 0                  |
| <b>pm05_containerWidthInCompartmentDepth</b><br>LL + MS | Container width in direction of compartment depths (optional for supplementary feature Pick-O-Light system, fixed grid)                                                                     | Int    | 1-99               | 0                  |
| <b>pm06_textLine1</b>                                   | Text line 1                                                                                                                                                                                 | String | 0-30 characters *) | 0                  |
| <b>pm07_textLine2</b>                                   | Text line 2                                                                                                                                                                                 | String | 0-30 characters *) | 0                  |

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|                                                             |                                                                                                                                                                                                                                           |        |                    |   |
|-------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------------------|---|
| <b>pm08_textLine3</b>                                       | Text line 3                                                                                                                                                                                                                               | String | 0-30 characters *) | 0 |
| <b>pm09_textLine4</b>                                       | Text line 4                                                                                                                                                                                                                               | String | 0-30 characters *) | 0 |
| <b>pm10_compartmentNumberPickOLight</b><br>LL + MS          | Number of compartments per shelf [optional for supplementary feature Pick-O-Light System (Variable)]                                                                                                                                      | Int    | 1-255              | 0 |
| <b>pm11_compartmentDepthNumberPickOLight</b><br>LL + MS     | Number of compartment depths per shelf [optional for supplementary feature Pick-O-Light System (Variable)]                                                                                                                                | Int    | 1-99               | 0 |
| <b>pm12_compartmentMillimetrePickOLight</b><br>LL + MS      | Position value of Pick-O-Light system in direction of compartments in the unit millimetres at a front access point. Automatic conversion for rear access point. (optional for Supplementary feature Pick-O-Light system (variable))       | Int    | 1-9999             | 0 |
| <b>pm13_compartmentDepthMillimetrePickOLight</b><br>LL + MS | Position value of Pick-O-Light system in direction of compartment depths in the unit millimetres at a front access point. Automatic conversion for rear access point. (optional for Supplementary feature Pick-O-Light system (variable)) | Int    | 1-9999             | 0 |
| <b>pm15_shelfLocking</b><br>LL + MS                         | Release shelf detent (optional with shelf detent activated)<br>(1 = Release shelf detent; in other words, do not fix shelf in place despite activated shelf detent)                                                                       | Int    | 1                  | 0 |
| <b>pm16_doorHeight</b><br>RO                                | Door opening height (optional with Automatic sliding door with individual compartment doors, height 1 - 4 possible)                                                                                                                       | Int    | 1-4                | 0 |

\*) for Chinese max. 20 characters

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Return message      Message type      **Get\_shelf\_res**      Contains return parameters

Return parameters      Object type      **ResultGetShelf**

| Parameters                        | Meaning                                                                                                                                                                          | Type   | Area                |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|---------------------|
| <b>returnValue</b>                | Return value<br>→ General return values<br>→ Lift run was interrupted at the lift.<br>(Remaining return parameters are valid)                                                    | Int    | 0-6/99<br>0-6<br>99 |
| <b>liftNumber</b>                 | Lift number                                                                                                                                                                      | Int    | 1-99                |
| <b>accessNumber</b>               | Access point number                                                                                                                                                              | Int    | 1-4                 |
| <b>shelfInAccess</b>              | Shelf in the access point<br>(0 = no shelf in the access point)                                                                                                                  | Int    | 0-999               |
| <b>imbalanceDirection</b><br>RO   | Store/retrieve<br>(i = store, o = retrieve)                                                                                                                                      | String | "i" or "o"          |
| <b>imbalanceShelf</b><br>RO       | Recommendation of load imbalance for<br>storage/retrieval of shelf number<br>(0 = no recommendation)                                                                             | Int    | 0-999               |
| <b>shelfWithHeight</b><br>LL + MS | Shelf for which the article height is in the<br>parameter shelfHeight<br>(0 = no measurement was carried out)                                                                    | Int    | 0-999               |
| <b>shelfHeight</b><br>LL + MS     | Article height of the shelf from the<br>shelfWithHeight parameter<br>(The stored article height is the number of<br>carrier units occupied by the shelf with stored<br>articles) | Int    | 1-31                |

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### 3.5 Method "store\_shelf" - Store shelf (LL + MS)

**Description** With this method, the host has the ability to store a shelf.  
The method is blocking until the desired shelf is removed from the access point and stored in the lift, or until the lift run has been interrupted at the lift.

**Passed message** Message type **Store\_shelf** Contains passed parameters

**Passed parameters** None

**Return message** Message type **Store\_shelf\_res** Contains return parameters

**Return parameters** Object type **ResultStoreShelf**

| Parameter value        | Meaning                                                                                                                                                                 | Type | Area                |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|---------------------|
| <b>returnValue</b>     | Return value<br>→ General return values<br>→ Lift run was interrupted at the lift.<br>(Remaining return parameters are valid)                                           | Int  | 0-6/99<br>0-6<br>99 |
| <b>liftNumber</b>      | Lift number                                                                                                                                                             | Int  | 1-99                |
| <b>accessNumber</b>    | Access point number                                                                                                                                                     | Int  | 1-4                 |
| <b>shelfInAccess</b>   | Shelf in the access point<br>(0 = no shelf in the access point)                                                                                                         | Int  | 0-999               |
| <b>shelfWithHeight</b> | Shelf for which the article height is in the parameter shelfHeight<br>(0 = no measurement was carried out)                                                              | Int  | 0-999               |
| <b>shelfHeight</b>     | Article height of the shelf from the shelfWithHeight parameter<br>(The stored article height is the number of carrier units occupied by the shelf with stored articles) | Int  | 1-31                |

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### 3.6 Method "add\_shelf" - Add shelf (LL + MS)

#### Description

With this method, the host has the ability to add a shelf.

The method is blocking until the shelf has been added and it has been confirmed at the lift that the shelf is already in the lift or a previously needed lift run for emptying the access point has been interrupted.

#### Passed message

Message type

**Add\_shelf**

Contains passed parameters

#### Passed parameters

Object type

**RequestAddShelf**

| Parameter value                  | Meaning                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Type | Active area | Inactive  |
|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------------|-----------|
| <a href="#">pm01_shelfNumber</a> | Shelf number                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Int  | 1-999       | Mandatory |
| <a href="#">pm02_shelfHeight</a> | Shelf height with supplementary module "Storage location height management".<br>In lifts without a "Fixed shelf height" and without "Shelf height monitor", the minimum value is "1" and the maximum value is "31".<br>In lifts with a "Fixed shelf height" or "Shelf height monitor", the minimum value and the maximum value for the shelf target height depends on the carrier increment:<br><ul style="list-style-type: none"> <li>For the 75/90/125 mm (2.952"/3.543"/4.921") slot increment, the minimum value is "1".</li> <li>For the 37.5 mm (1.48") slot increment, the minimum value is "2".</li> <li>For the 25 mm (0.984") slot increment, the minimum value is "3".</li> </ul> Maximum value:<br><ul style="list-style-type: none"> <li>For the 75/90/125 mm (2.952"/3.543"/4.921") slot increments, the maximum value is the "number of light barriers for the article height measurement".</li> <li>For 37.5 mm (1.48") slot increments, the maximum value is the "number of light barriers for article height measurement + 1".</li> <li>For the 25 mm (0.98") slot</li> </ul> | Int  | 1-31        | 0         |

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|                        |                                                                                                    |     |        |   |
|------------------------|----------------------------------------------------------------------------------------------------|-----|--------|---|
|                        | increment, the maximum value is the "number of light barriers for article height measurement + 2". |     |        |   |
| <b>pm03_shelfSpeed</b> | Shelf speed in % with supplementary module "Adjustable shelf speed"                                | Int | 50-100 | 0 |

**Return message**      Message type      **Add\_shelf\_res**      Contains return parameters

**Return parameters**      Object type      **ResultAddShelf**

| Parameter value        | Meaning                                                                                                                                                                                                    | Type | Area                      |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|---------------------------|
| <b>returnValue</b>     | Return value<br>→ General return values<br>→ Lift run was interrupted at the lift.<br>(Remaining return parameters are valid)<br>→ Shelf number already in lift<br>(Remaining return parameters are valid) | Int  | 0-6/99<br>0-6<br>99<br>99 |
| <b>liftNumber</b>      | Lift number                                                                                                                                                                                                | Int  | 1-99                      |
| <b>accessNumber</b>    | Access point number                                                                                                                                                                                        | Int  | 1-4                       |
| <b>shelfInAccess</b>   | Shelf in the access point<br>(0 = no shelf in the access point)                                                                                                                                            | Int  | 0-999                     |
| <b>shelfWithHeight</b> | Shelf for which the article height is in the parameter shelfHeight<br>(0 = no measurement was carried out)                                                                                                 | Int  | 0-999                     |
| <b>shelfHeight</b>     | Article height of the shelf from the shelfWithHeight parameter<br>(The stored article height is the number of carrier units occupied by the shelf with stored articles)                                    | Int  | 1-31                      |

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### 3.7 Method "remove\_shelf" - Remove shelf (LL + MS)

#### Description

With this method, the host has the ability to remove a shelf.

The method is blocking until the desired shelf is unregistered or a lift run for retrieving the shelf has been interrupted at the lift.

#### Passed message

Message type

**Remove\_shelf**

Contains passed parameters

#### Passed parameters

Object type

**RequestRemoveShelf**

Parameter value

Meaning

Type

Active area

Inactive

**pm01\_shelfNumber**

Shelf number

Int

1-999

Mandatory

#### Return message

Message type

**Remove\_shelf\_res**

Contains return parameters

#### Return parameters

Object

**ResultRemoveShelf**

Parameter value

Meaning

Type

Area

**returnValue**

Return value

Int

0-6/99

→ General return values

0-6

→ Lift run was interrupted at the lift.

99

(Remaining return parameters are valid)

→ Shelf number not in lift

99

(Remaining return parameters are valid)

**liftNumber**

Lift number

Int

1-99

**accessNumber**

Access point number

Int

1-4

**shelfInAccess**

Shelf in the access point

Int

0-999

(0 = no shelf in the access point)

**shelfWithHeight**

Shelf for which the article height is in the parameter shelfHeight

Int

0-999

(0 = no measurement was carried out)

**shelfHeight**

Article height of the shelf from the shelfWithHeight parameter

Int

1-31

(The stored article height is the number of carrier units occupied by the shelf with stored articles)

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### 3.8 Method "optimisation\_run" - Start an optimisation run (LL + MS)

#### Description

With this method, the host has the ability to start an optimisation run.

The start itself has to be acknowledged at the lift.

The method is blocking until the optimisation run has been completely carried out, or has been interrupted at the lift.

#### Passed message

Message type

**Optimisation\_run**

Contains passed parameters

#### Passed parameters

Object type

**RequestOptimisationRun**

Parameter value

Meaning

Type

Active area

Inactive

**pm01\_optimisationType**

Optimisation type  
0 = access time  
1 = packing density

Int

0-1

Mandatory

#### Return message

Message type

**Optimisation\_run\_res**

Contains return parameters

#### Return parameters

Object type

**ResultOptimisationRun**

Parameter value

Meaning

Type

Area

**returnValue**

Return value  
→ General return values  
→ Optimisation run was interrupted at the lift  
(Remaining return parameters are valid)

Int

0-6/99

0-6

99

**liftNumber**

Lift number

Int

1-99

**accessNumber**

Access point number

Int

1-4

11

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3.9

Method "delete\_comp\_disp" - Clear storage location display

Description

With this method, the host has the ability to clear the storage location display again, which was triggered using the "get\_shelf" method.  
The method is not blocking.

Passed message

Message type

Delete\_comp\_disp

Contains passed parameters

Passed parameters

None

Return message

Message type

Delete\_comp\_disp\_res

Contains return parameters

Return parameters

Object type

ResultDeleteCompDisp

| Parameter value | Meaning               | Type | Area |
|-----------------|-----------------------|------|------|
| returnValue     | General return values | Int  | 0-6  |
| liftNumber      | Lift number           | Int  | 1-99 |
| accessNumber    | Access point number   | Int  | 1-4  |

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#### 3.10 Method "set\_interface" - Activate interface for a peripheral device

**Description** With this method, the host has the ability to activate the interface for a peripheral device.  
The method is not blocking.

**Passed message** Message type **Set\_interface** Contains passed parameters

**Passed parameters** Object type **RequestSetInterface**

| Parameter value             | Meaning                                                                                                                | Type | Active area | Inactive  |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------|------|-------------|-----------|
| <a href="#">pm01_device</a> | Peripheral device selection<br>0 = no<br>1 = barcode reader<br>2 = badge reader / transponder<br>3 = piece count scale | Int  | 0-2         | Mandatory |

**Return message** Message type **Set\_interface\_res** Contains return parameters

**Return parameters** Object type **ResultSetInterface**

| Parameter value              | Meaning               | Type | Area |
|------------------------------|-----------------------|------|------|
| <a href="#">returnValue</a>  | General return values | Int  | 0-6  |
| <a href="#">liftNumber</a>   | Lift number           | Int  | 1-99 |
| <a href="#">accessNumber</a> | Access point number   | Int  | 1-4  |

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3.11

Method "base\_services" - Call up basic functions

Description

With this method, the host has the ability to call up a menu with the basic shelf functions, information services and system services.  
The method is blocking until the basic functions have been exited again at the lift via the [CE] key.

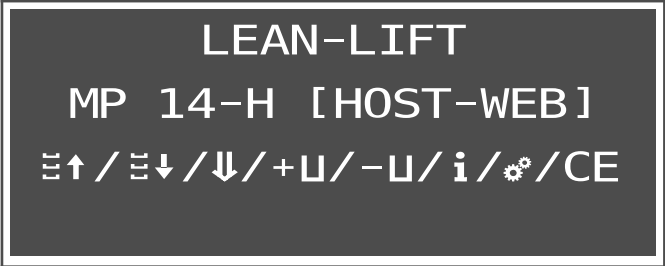


LL + MS

- x Using the [+U] key "Adding a new shelf" and the [-U] key "Removing a shelf", the shelf table can be modified. If the host uses the shelf table, it must update with the methods "read\_status", "read\_st\_height" and "read\_st\_speed".
- x Shelf properties can be changed using the [i] key, "System services". If the host uses these, it must update them using the "read\_st\_height" and "read\_st\_speed" methods.

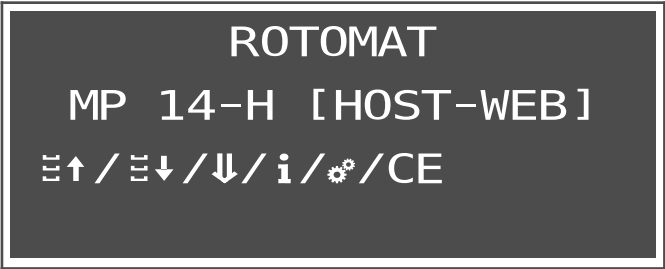
Example:

LL + MS



Example:

RO



|                   |              |                     |                            |
|-------------------|--------------|---------------------|----------------------------|
| Passed message    | Message type | Base_services       | Contains passed parameters |
| Passed parameters | Object type  | RequestBaseServices |                            |

When you specify "pm.. = 1", the corresponding function can be called up in the menu.  
When you specify "pm.. = 0" or nothing, the corresponding function cannot be called up in the menu.

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| Parameter value                                  | Meaning                                                                                                                                                                                                           | Type | Active area | Inactive |
|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------------|----------|
| <b>pm01_addShelf</b><br>LL + MS                  |  Adding a new shelf (optional)                                                                                                   | Int  | 1           | 0        |
| <b>pm02_removeShelf</b><br>LL + MS               |  Removing a shelf (optional)                                                                                                     | Int  | 1           | 0        |
| <b>pm03_getShelf</b><br>LL + MS                  |  Bring shelf to access point manually (optional)                                                                                 | Int  | 1           | 0        |
| <b>pm04_storeShelf</b><br>LL + MS                |  Store shelf from access point manually (optional)                                                                               | Int  | 1           | 0        |
| <b>pm05_startOptimisation Run</b><br>LL + MS     |  Start an optimisation run (optional)                                                                                            | Int  | 1           | 0        |
| <b>pm06_releaseShelfLocking</b><br>LL + MS       |  Release shelf detent (optional)                                                                                                | Int  | 1           | 0        |
| <b>pm11_manualShelfPositioningByNumber</b><br>RO |  Manual positioning to a shelf location to enter it (optional, evaluation only for Rotomat)                                    | Int  | 1           | 0        |
| <b>pm12_manualShelfSelectionBySight</b><br>RO    |  Manual shelf selection by sight (optional, evaluation only with Rotomat)                                                      | Int  | 1           | 0        |
| <b>pm22_systemServices</b>                       |  System services (optional)                                                                                                    | Int  | 1           | 0        |
| <b>pm23_slidingDoor</b>                          |  Opening and closing the automatic sliding door using the keyboard (optional for supplementary feature Automatic sliding door) | Int  | 1           | 0        |

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**Return message**      Message type      **Base\_services\_res**      Contains return parameters

**Return parameters**      Object type      **ResultBaseServices**

| Parameters                      | Meaning                                                                                              | Type   | Area       |
|---------------------------------|------------------------------------------------------------------------------------------------------|--------|------------|
| <b>returnValue</b>              | General return values                                                                                | Int    | 0-6        |
| <b>liftNumber</b>               | Lift number                                                                                          | Int    | 1-99       |
| <b>accessNumber</b>             | Access point number                                                                                  | Int    | 1-4        |
| <b>shelfInAccess</b>            | Shelf in the access point<br>(0 = no shelf in the access point)                                      | Int    | 0-999      |
| <b>imbalanceDirection</b><br>RO | Store/retrieve<br>(i = store, o = retrieve)                                                          | String | "i" or "o" |
| <b>imbalanceShelf</b><br>RO     | Recommendation of load imbalance for<br>storage/retrieval of shelf number<br>(0 = no recommendation) | Int    | 0          |

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3.12

Method "base\_servicesV02" - Call up basic functions

Description

With this method, the host has the ability to call up a menu with the basic shelf functions, information services and system services.  
The method is blocking until the basic functions have been exited again at the lift via the [CE] key.

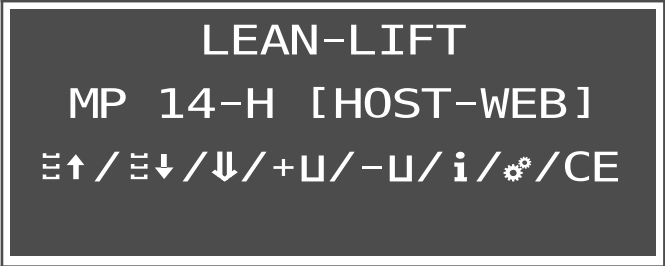


LL + MS

- x Using the [+U] key "Adding a new shelf" and the [-U] key "Removing a shelf", the shelf table can be modified. If the host uses the shelf table, it must update with the methods "read\_status", "read\_st\_height" and "read\_st\_speed".
- x Shelf properties can be changed using the [i] key, "System services". If the host uses these, it must update them using the "read\_st\_height" and "read\_st\_speed" methods.

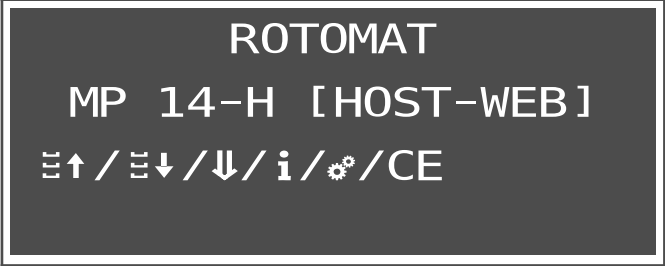
Example:

LL + MS



Example:

RO



|                   |              |                        |                            |
|-------------------|--------------|------------------------|----------------------------|
| Passed message    | Message type | Base_servicesV02       | Contains passed parameters |
| Passed parameters | Object type  | RequestBaseServicesV02 |                            |

When you specify "pm.. = 1", the corresponding function can be called up in the menu.  
When you specify "pm.. = 0" or nothing, the corresponding function cannot be called up in the menu.

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| Parameter value                                  | Meaning                                                                                                                                                                                                           | Type | Active area | Inactive |
|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------------|----------|
| <b>pm01_addShelf</b><br>LL + MS                  | <b>[+U]</b> Adding a new shelf (optional)                                                                                                                                                                         | Int  | 1           | 0        |
| <b>pm02_removeShelf</b><br>LL + MS               | <b>[-U]</b> Removing a shelf (optional)                                                                                                                                                                           | Int  | 1           | 0        |
| <b>pm03_getShelf</b><br>LL + MS                  | <b>[⇄]</b> Bring shelf to access point manually (optional)                                                                                                                                                        | Int  | 1           | 0        |
| <b>pm04_storeShelf</b><br>LL + MS                | <b>[⇄]</b> Store shelf from access point manually (optional)                                                                                                                                                      | Int  | 1           | 0        |
| <b>pm05_startOptimisation Run</b><br>LL + MS     | <b>[↓]</b> Start an optimisation run (optional)                                                                                                                                                                   | Int  | 1           | 0        |
| <b>pm06_releaseShelfLocking</b><br>LL + MS       |  Release shelf detent (optional)                                                                                                | Int  | 1           | 0        |
| <b>pm11_manualShelfPositioningByNumber</b><br>RO | <b>[↓]</b> Manual positioning to a shelf location to enter it (optional, evaluation only for Rotomat)                                                                                                             | Int  | 1           | 0        |
| <b>pm12_manualShelfSelectionBySight</b><br>RO    | <b>[⇄]</b> Manual shelf selection by sight (optional, evaluation only with Rotomat)                                                                                                                               | Int  | 1           | 0        |
| <b>pm22_systemServices</b>                       | <b>[⚙]</b> System services (optional)                                                                                                                                                                             | Int  | 1           | 0        |
| <b>pm23_slidingDoor</b>                          |  Opening and closing the automatic sliding door using the keyboard (optional for supplementary feature Automatic sliding door) | Int  | 1           | 0        |
| <b>pm24_shelfTransfer</b>                        | <b>[F4]</b> Shelf transfer (optional for supplementary module Shelf transfer)                                                                                                                                     | Int  | 1           | 0        |
| <b>pm25_runStorageLocation</b><br>RO             | Positioning to a storage location by specifying the shelf, compartment and compartment depth (optional, evaluation only for Rotomat)                                                                              | Int  | 1           | 0        |

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**Return message**      Message type      **Base\_services\_res**      Contains return parameters

**Return parameters**      Object type      **ResultBaseServices**

| Parameters                      | Meaning                                                                                              | Type   | Area       |
|---------------------------------|------------------------------------------------------------------------------------------------------|--------|------------|
| <b>returnValue</b>              | General return values                                                                                | Int    | 0-6        |
| <b>liftNumber</b>               | Lift number                                                                                          | Int    | 1-99       |
| <b>accessNumber</b>             | Access point number                                                                                  | Int    | 1-4        |
| <b>shelfInAccess</b>            | Shelf in the access point<br>(0 = no shelf in the access point)                                      | Int    | 0-999      |
| <b>imbalanceDirection</b><br>RO | Store/retrieve<br>(i = store, o = retrieve)                                                          | String | "i" or "o" |
| <b>imbalanceShelf</b><br>RO     | Recommendation of load imbalance for<br>storage/retrieval of shelf number<br>(0 = no recommendation) | Int    | 0          |

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### 3.13 Method "read\_st\_mp\_mod" - Query supplementary modules

**Description** With this method, the host has the ability to query the configured supplementary modules.  
The method is not blocking

**Passed message** Message type **Read\_st\_mp\_mod** Contains passed parameters

**Passed parameters** None

**Return message** Message type **Read\_st\_mp\_mod\_res** Contains return parameters

**Return parameters** Object type **ResultReadStMpMod**

| Parameter value                           | Meaning                                                                                                                                                                                                                                                                                                    | Type | Area |
|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|
| <b>returnValue</b>                        | General return values                                                                                                                                                                                                                                                                                      | Int  | 0-6  |
| <b>liftNumber</b>                         | Lift number                                                                                                                                                                                                                                                                                                | Int  | 1-99 |
| <b>accessNumber</b>                       | Access point number                                                                                                                                                                                                                                                                                        | Int  | 1-4  |
| <b>shelfPrePositioning</b>                | Supplementary module Shelf pre-positioning<br>(0 = No, 1 = Yes)                                                                                                                                                                                                                                            | Int  | 0-1  |
| <b>storageLocationHeight</b><br>LL + MS   | Supplementary module Storage location<br>height management<br>(0 = No, 1 = Yes)                                                                                                                                                                                                                            | Int  | 0-1  |
| <b>adjustableShelfSpeed</b><br>LL + MS    | Supplementary module Adjustable shelf<br>speed<br>(0 = No, 1 = Yes)                                                                                                                                                                                                                                        | Int  | 0-1  |
| <b>remoteControlling</b>                  | Supplementary module Remote-controlled Lift<br>Operation<br>(0 = No, 1 = Yes)                                                                                                                                                                                                                              | Int  | 0-1  |
| <b>intermediateShelfBuffer</b><br>LL + MS | Supplementary module Intermediate shelf<br>buffer<br>0 = no<br>1 = Yes, K12 is available; in other words, the<br>shelf is changed when the high-speed<br>door is closed (discontinued version)<br>2 = Yes, K12 is not present; in other words,<br>the shelf is changed when the high-speed<br>door is open | Int  | 0-1  |
| <b>shelfTransfer</b><br>LL + MS           | Supplementary module Shelf transfer<br>(0 = No, 1 = Yes)                                                                                                                                                                                                                                                   | Int  | 0-1  |

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### 3.14 Method "readStMpModV02" - Query supplementary modules

**Description** With this method, the host has the ability to query the configured supplementary modules.  
The method is not blocking

**Passed message** Message type **ReadStMpModV02** Contains passed parameters

**Passed parameters** None

**Return message** Message type **ReadStMpModResV02** Contains return parameters

**Return parameters** Object type **ResultReadStMpModV02**

| Parameter value                           | Meaning                                                                                                                                                                                                                                                                                                    | Type | Area |
|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|
| <b>returnValue</b>                        | General return values                                                                                                                                                                                                                                                                                      | Int  | 0-6  |
| <b>liftNumber</b>                         | Lift number                                                                                                                                                                                                                                                                                                | Int  | 1-99 |
| <b>accessNumber</b>                       | Access point number                                                                                                                                                                                                                                                                                        | Int  | 1-4  |
| <b>shelfPrePositioning</b>                | Supplementary module Shelf pre-positioning<br>(0 = No, 1 = Yes)                                                                                                                                                                                                                                            | Int  | 0-1  |
| <b>storageLocationHeight</b><br>LL + MS   | Supplementary module Storage location<br>height management<br>(0 = No, 1 = Yes)                                                                                                                                                                                                                            | Int  | 0-1  |
| <b>adjustableShelfSpeed</b><br>LL + MS    | Supplementary module Adjustable shelf speed<br>(0 = No, 1 = Yes)                                                                                                                                                                                                                                           | Int  | 0-1  |
| <b>remoteControlling</b>                  | Supplementary module Remote-controlled Lift<br>Operation<br>(0 = No, 1 = Yes)                                                                                                                                                                                                                              | Int  | 0-1  |
| <b>intermediateShelfBuffer</b><br>LL + MS | Supplementary module Intermediate shelf<br>buffer<br>0 = no<br>1 = Yes, K12 is available; in other words, the<br>shelf is changed when the high-speed<br>door is closed (discontinued version)<br>2 = Yes, K12 is not present; in other words,<br>the shelf is changed when the high-speed<br>door is open | Int  | 0-1  |
| <b>shelfTransfer</b><br>LL + MS           | Supplementary module Shelf transfer<br>(0 = No, 1 = Yes)                                                                                                                                                                                                                                                   | Int  | 0-1  |
| <b>ParkPositionExtraktor</b><br>LL + MS   | Extractor park position supplementary module<br>(0 = No, 1 = Yes)                                                                                                                                                                                                                                          | Int  | 0-1  |

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### 3.15 Method "read\_st\_lft\_feat" - Query supplementary features (out-of-date)

**Description** With this method, the host has the ability to query the used supplementary features.  
The method is not blocking.

**Passed message** Message type **Read\_st\_lft\_feat** Contains passed parameters

**Passed parameters** None

**Return message** Message type **Read\_st\_lft\_feat\_res** Contains return parameters

**Return parameters** Object type **ResultReadStLftFeat**

| Parameter value                        | Meaning                                                                                                                                                  | Type | Area |
|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|
| <b>returnValue</b>                     | General return values                                                                                                                                    | Int  | 0-6  |
| <b>liftNumber</b>                      | Lift number                                                                                                                                              | Int  | 1-99 |
| <b>accessNumber</b>                    | Access point number                                                                                                                                      | Int  | 1-4  |
| <b>pickOLightVariable</b><br>LL + MS   | Supplementary feature Pick-O-Light system (variable)<br>(0 = No, 1 = Yes)                                                                                | Int  | 0-1  |
| <b>automaticSlidingDoor</b><br>LL + MS | Supplementary feature Automatic sliding door<br>(0 = No, 1 = Yes)                                                                                        | Int  | 0-1  |
| <b>automaticSlidingDoor</b><br>RO      | Supplementary feature Automatic sliding door<br>(0 = No, 1 = Yes [without individual compartment doors],<br>2 = Yes [with individual compartment doors]) | Int  | 0-1  |
| <b>integratedSignalIndicators</b>      | Supplementary feature Signal column<br>(0 = No, 1 = Yes)                                                                                                 | Int  | 0-1  |
| <b>requisitionLedge</b>                | Supplementary features of the requisition processing strip<br>(0 = No, 1 = Yes)                                                                          | Int  | 0-1  |
| <b>numberOfConfirmation Modules</b>    | Supplementary features of the requisition processing strip, number of confirmation modules                                                               | Int  | 1-31 |
| <b>shelfLocking</b><br>LL + MS         | Shelf detent is activated<br>(0 = No, 1 = Yes)                                                                                                           | Int  | 0-1  |

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|                                               |                                                                                                                                                                                                                                                                                                                                  |     |     |
|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|
| <div>accessCodeManagement</div> <div>RO</div> | Supplementary feature Access code management for the Rotomat<br><br>(0 = No, 1 = Lift run with sliding doors closed only, 2 = Lift run with sliding doors closed only (with access to the entire carousel, with doors open, too), 3 = Lift run only for open, manually operated sliding door with door locking (electronic lock) | Int | 0-3 |
|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|

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### 3.16 Method "readStLftFeatV02" - Query supplementary features

**Description** With this method, the host has the ability to query the used supplementary features.  
The method is not blocking.

**Passed message** Message type **ReadStLftFeatV02** Contains passed parameters

**Passed parameters** None

**Return message** Message type **ReadStLftFeatResV02** Contains return parameters

**Return parameters** Object type **RetReadStLftFeatV02**

| Parameter value                        | Meaning                                                                                                                                                  | Type | Area |
|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|
| <b>returnValue</b>                     | General return values                                                                                                                                    | Int  | 0-6  |
| <b>liftNumber</b>                      | Lift number                                                                                                                                              | Int  | 1-99 |
| <b>accessNumber</b>                    | Access point number                                                                                                                                      | Int  | 1-4  |
| <b>pickOLightVariable</b><br>LL + MS   | Supplementary feature Pick-O-Light system (variable)<br>(0 = No, 1 = Yes)                                                                                | Int  | 0-1  |
| <b>automaticSlidingDoor</b><br>LL + MS | Supplementary feature Automatic sliding door<br>(0 = No, 1 = Yes)                                                                                        | Int  | 0-1  |
| <b>automaticSlidingDoor</b><br>RO      | Supplementary feature Automatic sliding door<br>(0 = No, 1 = Yes [without individual compartment doors],<br>2 = Yes [with individual compartment doors]) | Int  | 0-2  |
| <b>integratedSignalIndicators</b>      | Supplementary feature Signal column<br>(0 = No, 1 = Yes)                                                                                                 | Int  | 0-1  |
| <b>requisitionLedge</b>                | Supplementary features of the requisition processing strip<br>(0 = No, 1 = Yes)                                                                          | Int  | 0-1  |
| <b>numberOfConfirmation Modules</b>    | Supplementary features of the requisition processing strip, number of confirmation modules                                                               | Int  | 1-31 |
| <b>shelfLocking</b><br>LL + MS         | Shelf detent is activated<br>(0 = No, 1 = Yes)                                                                                                           | Int  | 0-1  |

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|                                                       |                                                                                                                                                                                                                                                                                                                                          |     |     |
|-------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|
| <p>accessCodeManagement</p> <p>RO</p>                 | <p>Supplementary feature Access code management for the Rotomat</p> <p>(0 = No, 1 = Lift run with sliding doors closed only, 2 = Lift run with sliding doors closed only (with access to the entire carousel, with doors open, too), 3 = Lift run only for open, manually operated sliding door with door locking (electronic lock))</p> | Int | 0-2 |
| <p>numberOfShelvesWithPowerSockets</p> <p>LL + MS</p> | <p>Number of electrical carriers</p>                                                                                                                                                                                                                                                                                                     | Int | 0-n |

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### 3.17 Method "set\_start\_url" - Change the start-URL of the host Web server

#### Description

With this method, the host has the ability to change the start-URL of the host Web server. The new start-URL is called up after touching the **Home** button or switching off/on. This can be used, for example, for switching between work system and test system.

After switching on, the **Home** button is visible as soon as a connection to the host is present.

The method is not blocking

#### Passed message

Message type

**Set\_start\_url**

Contains passed parameters

#### Passed parameters

Object type

**RequestSetStartUrl**

Parameter value

Meaning

**pm01\_startUrl**

Valid URL, which points to a server / application

#### Return message

Message type

**Set\_start\_url\_res**

Contains return parameters

#### Return parameters

Object

**ResultSetStartUrl**

Parameter value

Meaning

Type

Area

**returnValue**

General return values

Int

0-6

**liftNumber**

Lift number

Int

1-99

**accessNumber**

Access point number

Int

1-4

### 11 Annex, variant I: Activation of the lift/carousel via SOAP web service (only for instructed installation and maintenance personnel as well as IT specialists)

#### 3.18 Method "read\_start\_url" - Query start-URL of the host web server

**Description** With this method, the host has the ability to query the start-URL of the host web server.  
The method is not blocking

**Passed message** Message type **Read\_start\_url** Contains passed parameters

**Passed parameters** None

**Return message** Message type **Read\_start\_url\_res** Contains return parameters

**Return parameters** Object **ResultReadStartUrl**

| Parameter value              | Meaning                          | Type   | Area  |
|------------------------------|----------------------------------|--------|-------|
| <a href="#">returnValue</a>  | General return values            | Int    | 0-6   |
| <a href="#">liftNumber</a>   | Lift number                      | Int    | 1-99  |
| <a href="#">accessNumber</a> | Access point number              | Int    | 1-4   |
| <a href="#">StartUrl</a>     | Start-URL of the host web server | String | 0-255 |

## 11 Annex, variant I: Activation of the lift/carousel via SOAP web service (only for instructed installation and maintenance personnel as well as IT specialists)

### 3.19 Method "confirmV01" - Query confirmation key

#### Description

This method is intended for applications that use the lift/carousel without web browser. This means that no start-URL is initialised. With this method, the host has the ability to query a confirmation via keyboard/touchscreen.

Confirm: **【↵】** key / button

Cancel: **【CE】** key / button

This method is blocking until the **【CE】** or **【↵】** key / button was pressed.

Example:

Monitoring of remote-controlled lift operation if the supplementary module "00) Remote-controlled Lift Operation" is not available: A lift run can be requested within 3 seconds after pressing the green return key. If the 3 seconds are exceeded, the lift run has to be restarted for safety reasons with the **【↵】** key.

|                       |              |                   |                               |
|-----------------------|--------------|-------------------|-------------------------------|
| <b>Passed message</b> | Message type | <b>ConfirmV01</b> | Contains no passed parameters |
|-----------------------|--------------|-------------------|-------------------------------|

|                          |      |
|--------------------------|------|
| <b>Passed parameters</b> | None |
|--------------------------|------|

|                       |              |                      |                            |
|-----------------------|--------------|----------------------|----------------------------|
| <b>Return message</b> | Message type | <b>ConfirmResV01</b> | Contains return parameters |
|-----------------------|--------------|----------------------|----------------------------|

|                          |             |                         |
|--------------------------|-------------|-------------------------|
| <b>Return parameters</b> | Object type | <b>ResultConfirmV01</b> |
|--------------------------|-------------|-------------------------|

| Parameter value     | Meaning                  | Type | Area   |
|---------------------|--------------------------|------|--------|
| <b>returnValue</b>  | Return value             | Int  | 0-6/99 |
|                     | General return values    |      | 1-6    |
|                     | <b>【↵】</b> key / button  |      | 0      |
|                     | <b>【CE】</b> key / button |      | 99     |
| <b>liftNumber</b>   | Lift number              | Int  | 1-99   |
| <b>accessNumber</b> | Access point number      | Int  | 1-4    |

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**4 Methods for supplementary features**

**4.1 Supplementary feature Pick-O-Light system (variable) (LL + MS)**

**4.1.1 Method "get\_shelf" - Get shelf with display of the storage location**

➤ See Chapter 3.3, page 83.

**4.1.2 Method "getShelfV02" - Get shelf with graphical display of the storage location and additional text (LL + MS)**

➤ See Chapter 3.4, page 86.

**4.2 Supplementary feature Automatic sliding door**

**4.2.1 Method "get\_shelf" - Get shelf with display of the storage location (RO)**

➤ See Chapter 3.3, page 83.

**4.2.2 Method "getShelfV02" - Get shelf with graphical display of the storage location and additional text (RO)**

➤ See Chapter 3.4, page 86.



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### 4.3 Supplementary feature Signal column

#### 4.3.1 Method "set\_signal" - Activate signal elements of the signal column

**Description** With this method, the host has the ability to activate signal elements (indicator lamps or audible signal devices) of the signal column.  
The method is not blocking.

**Passed message** Message type **Set\_signal** Contains passed parameters

**Passed parameters** Object **RequestSetSignal**

| Parameter value              | Meaning                                        | Type | Active area | Inactive |
|------------------------------|------------------------------------------------|------|-------------|----------|
| <a href="#">pm01_signal1</a> | Signal element 1<br>0 = inactive<br>1 = active | Int  | 1           | 0        |
| <a href="#">pm02_signal2</a> | Signal element 2<br>0 = inactive<br>1 = active | Int  | 1           | 0        |
| <a href="#">pm03_signal3</a> | Signal element 3<br>0 = inactive<br>1 = active | Int  | 1           | 0        |

**Return message** Message type **Set\_signal\_res** Contains return parameters

**Return parameters** Object type **ResultSetSignal**

| Parameter value              | Meaning                                                                                                                 | Type | Area                |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------|------|---------------------|
| <a href="#">returnValue</a>  | Return value<br>→ General return values<br>→ Supplementary features inactive<br>(Remaining return parameters are valid) | Int  | 0-6/99<br>0-6<br>99 |
| <a href="#">liftNumber</a>   | Lift number                                                                                                             | Int  | 1-99                |
| <a href="#">accessNumber</a> | Access point number                                                                                                     | Int  | 1-4                 |

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4.4

Supplementary features of the requisition processing strip

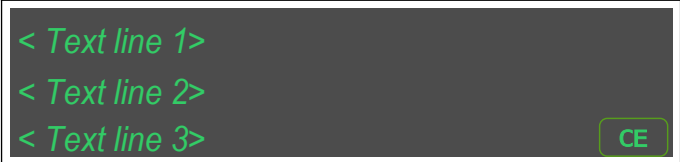
4.4.1

Method "conf\_req\_ledge" - Write to and query requisition processing strip

Description

With this method, the host has the ability to describe and query the requisition processing strip. The method is blocking until a confirmation or cancellation occurs.  
Confirmation: Press confirmation key.  
Cancel: Touch the **CE** button or press the **[CE]** key.  
Quantity correction: Touch the **+1**, **-1**, **+10**, **-10**, **+100**, **-100** buttons to correct the quantity.

Without quantity correction  
(**pm05\_quantity** inactive)



With quantity correction  
(**pm05\_quantity** active)



Passed message

Message type

Conf\_req\_ledge

Contains passed parameters

Passed parameters

Object type

RequestConfReqLedge

| Parameter value                 | Meaning                                                            | Type   | Active area                                                                                    | Inactive  |
|---------------------------------|--------------------------------------------------------------------|--------|------------------------------------------------------------------------------------------------|-----------|
| <b>pm01_confirmModuleNumber</b> | Number of confirmation module (1 - Number of confirmation modules) | Int    | 1-99                                                                                           | Mandatory |
| <b>pm02_textLine1</b>           | Text line 1 (optional, UTF-8 encoding)                             | String | 0-20 characters                                                                                | Zero      |
| <b>pm03_textLine2</b>           | Text line 2 (optional, UTF-8 encoding)                             | String | 0-20 characters                                                                                | Zero      |
| <b>pm04_textLine3</b>           | Text line 3 (optional, UTF-8 encoding)                             | String | <b>pm05_quantity</b> inactive: 0-20 characters<br><b>pm05_quantity</b> active: 0-11 characters | Zero      |
| <b>pm05_quantity</b>            | Specified quantity (optional)                                      | Int    | 0-99999999                                                                                     | -1        |

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**Return message**      Message type      **Conf\_req\_ledge\_res**      Contains return parameters

**Return parameters**      Object type      **ResultConfReqLedge**

| Parameter value     | Meaning                                                                                                                                                                                                                                                                      | Type | Area                               |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------------------------------------|
| <b>returnValue</b>  | Return value<br>→ General return values<br>→ Confirmation key has been pressed.<br>→ The <b>CE</b> button was touched or the <b>[CE]</b> key was pressed.<br>(Remaining return values are valid)<br>→ Supplementary features inactive<br>(Remaining return values are valid) | Int  | 0-6/99<br>1-6<br>0<br>99<br><br>99 |
| <b>liftNumber</b>   | Lift number                                                                                                                                                                                                                                                                  | Int  | 1-99                               |
| <b>accessNumber</b> | Access point number                                                                                                                                                                                                                                                          | Int  | 1-4                                |
| <b>corrQuantity</b> | Actual quantity (valid only if parameter <b>pm05_quantity</b> is active)                                                                                                                                                                                                     | Int  | 0-99999999                         |

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Annex, variant I: Activation of the lift/carousel via SOAP web service (only for instructed installation and maintenance personnel as well as IT specialists)

4.4.2

Method "confReqLedgeV02" - Write to and query requisition processing strip

Description

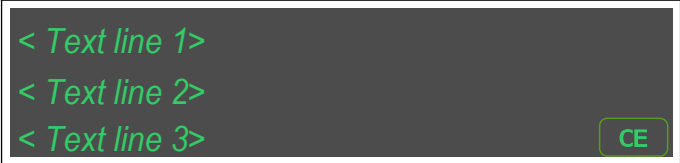
With this method, the host has the ability to describe and query the requisition processing strip.  
The method is blocking for `pm06_onlyText = 0`, until a confirmation or quit has taken place.  
The method is non-blocking for `pm06_onlyText = 1`. Only the text is displayed.  
Confirmation: Press confirmation key.  
Cancel: Touch the **CE** button or press the **[CE]** key.  
Quantity correction: Touch the **+1**, **-1**, **+10**, **-10**, **+100**, **-100** buttons to correct the quantity.

Only text display  
(`pm06_onlyText = 1`)



Text display until confirmation  
or quit has taken place  
(`pm06_onlyText = 0`)

Without quantity correction  
(`pm05_quantity` inactive)



With quantity correction  
(`pm05_quantity` active)



Passed message

Message type

ConfReqLedgeV02

Contains passed parameters

Passed parameters

Object type

RequestConfReqLedgeV02

| Parameter value                       | Meaning                                                            | Type   | Active area     | Inactive  |
|---------------------------------------|--------------------------------------------------------------------|--------|-----------------|-----------|
| <code>pm01_confirmModuleNumber</code> | Number of confirmation module (1 - Number of confirmation modules) | Int    | 1-99            | Mandatory |
| <code>pm02_textLine1</code>           | Text line 1 (optional, UTF-8 encoding)                             | String | 0-20 characters | Zero      |
| <code>pm03_textLine2</code>           | Text line 2 (optional, UTF-8 encoding)                             | String | 0-20 characters | Zero      |

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|                       |                                                                                                       |        |                                                                                                                  |      |
|-----------------------|-------------------------------------------------------------------------------------------------------|--------|------------------------------------------------------------------------------------------------------------------|------|
| <b>pm04_textLine3</b> | Text line 3<br>(optional, UTF-8 encoding)                                                             | String | <b>pm05_quantity</b><br>inactive:<br>0-20<br>characters<br><b>pm05_quantity</b><br>active:<br>0-11<br>characters | Zero |
| <b>pm05_quantity</b>  | Specified quantity<br>(optional)                                                                      | Int    | 0-99999999                                                                                                       | -1   |
| <b>pm06_onlyText</b>  | 1 = only text display<br>0 = text display until confirmation<br>or quit has taken place<br>(optional) | Int    | 0-1                                                                                                              | -1   |

**Return message**      Message type      **ConfReqLedgeResV02**      Contains return parameters

**Return parameters**      Object type      **ResultConfReqLedgeV02**

| Parameter value     | Meaning                                                                                                                                                                                                                                                                                                                            | Type | Area                                        |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|---------------------------------------------|
| <b>returnValue</b>  | Return value<br>→ General return values<br>→ Confirmation key has been pressed.<br>→ Only text display ( <b>pm06_onlyText</b> = 1)<br>→ The <b>CE</b> button was touched or the<br><b>[CE]</b> key was pressed.<br>(Remaining return values are valid)<br>→ Supplementary features inactive<br>(Remaining return values are valid) | Int  | 0-6/98/99<br>1-6<br>0<br>98<br>99<br><br>99 |
| <b>liftNumber</b>   | Lift number                                                                                                                                                                                                                                                                                                                        | Int  | 1-99                                        |
| <b>accessNumber</b> | Access point number                                                                                                                                                                                                                                                                                                                | Int  | 1-4                                         |
| <b>corrQuantity</b> | <b>Actual quantity (valid only if parameter<br/>pm05_quantity is active and<br/>pm06_onlyText = 0)</b>                                                                                                                                                                                                                             | Int  | 0-99999999                                  |

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**4.5 Supplementary feature Access code management for the Rotomat**

The following supplementary features are available for access code management for the Rotomat:

- Lift run with sliding door closed only
- Lift run with sliding doors closed only (with access to the entire carousel, with doors open, too)  
(This feature available only with one access point)
- Lift run only with open, manually operated sliding door with door locking (electronic lock).

The "readStLftFeatV02" method can be used to request the equipment package. The state of the sliding door (open/closed) can be requested using the "readStatusV02" method. The "close\_door" method can be used to prompt the operator to close the sliding door. According to the supplementary feature, the operator is prompted before the lift run by the "get\_shelf" method to open/close the sliding door. After the lift run, open the sliding door if necessary.

**4.5.1 Method "readStatusV02" - Query status information**

- See Chapter 3.2, page 81.

**4.5.2 Method "readStLftFeatV02" - Query supplementary features**

- See Chapter 3.16, page 106.

**4.5.3 Method "get\_shelf" - Get shelf with display of the storage location**

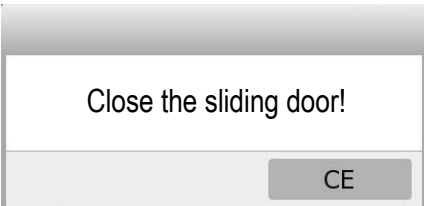
- See Chapter 3.3, page 83.

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4.5.4
Method "close\_door" - Close sliding door manually

Description

With this method, the host has the ability to prompt the operator to close the sliding doors.



Passed message

Message type

Close\_door

Contains passed parameters

Passed parameters

None

Return message

Message type

Close\_door\_res

Contains return parameters

Return parameters

Object type

ResultCloseDoor

| Parameter value | Meaning                                                                                                                                                                                                            | Type | Area                      |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|---------------------------|
| returnValue     | Return value<br>→ General return values<br>→ Door operation was interrupted at the lift<br>(Remaining return parameters are valid)<br>→ Supplementary features inactive<br>(Remaining return parameters are valid) | Int  | 0-6/99<br>0-6<br>99<br>99 |
| liftNumber      | Lift number                                                                                                                                                                                                        | Int  | 1-99                      |
| accessNumber    | Access point number                                                                                                                                                                                                | Int  | 1-4                       |

## 11 Annex, variant I: Activation of the lift/carousel via SOAP web service (only for instructed installation and maintenance personnel as well as IT specialists)

### 5 Methods for supplementary modules

#### 5.1 Supplementary module Shelf pre-positioning

##### 5.1.1 Method "pre\_pos\_mode" - Switch the shelf pre-positioning mode on/off



- x Shelf pre-positioning via the host without pressing the **[↔]** key is possible only if the access point is in shelf pre-positioning mode.  
The shelf pre-positioning is triggered by the method "get\_shelf" (see Chapter 3.3, page 83) and then the shelf pre-positioning mode is exited.

**Description** With this method, the host has the ability to switch the shelf pre-positioning mode on and off.  
The method is blocking until a shelf located in the access point has been stored.

**Passed message** Message type **Pre\_pos\_mode** Contains passed parameters

**Passed parameters** Object type **RequestPrePosMode**

| Parameter value        | Meaning                                                                                                                                                              | Type   | Active area         | Inactive  |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|---------------------|-----------|
| <b>pm01_prePosMode</b> | 0 = switch mode off<br>1 = switch mode on                                                                                                                            | Int    | 0-1                 | Mandatory |
| <b>pg03_cancelUrl</b>  | Leave URL after mode by the owner/operator (tap the button <b>CANCEL [CE]</b> or push the <b>[CE]</b> key).<br><b>http://&lt;Basis-URL&gt;&lt;pg03_cancelUrl&gt;</b> | String | Max. 100 characters | Mandatory |

**Return message** Message type **Pre\_pos\_mode\_res** Contains return parameters

**Return parameters** Object type **ResultPrePosMode**

| Parameter value      | Meaning                                                                                                                                                               | Type | Area                         |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------------------------------|
| <b>returnValue</b>   | Return value<br>→ General return values<br>→ Supplementary module inactive (Remaining return values are invalid)<br>→ Method quit (Remaining return values are valid) | Int  | 0-6/97/99<br>0-6<br>97<br>99 |
| <b>liftNumber</b>    | Lift number                                                                                                                                                           | Int  | 1-99                         |
| <b>accessNumber</b>  | Access point number                                                                                                                                                   | Int  | 1-4                          |
| <b>shelfInAccess</b> | Shelf in the access point<br>(0 = no shelf in the access point)                                                                                                       | Int  | 0-999                        |

## 11 Annex, variant I: Activation of the lift/carousel via SOAP web service (only for instructed installation and maintenance personnel as well as IT specialists)

### Description of the operator prompts

### Display

#### Switching on the shelf pre-positioning mode

- Call up method for switching on the mode.

*If there is a shelf in the access point of the Lean-Lift or Multi-Space:*

*If no [↵] key has been pressed:*

**LL + MS**

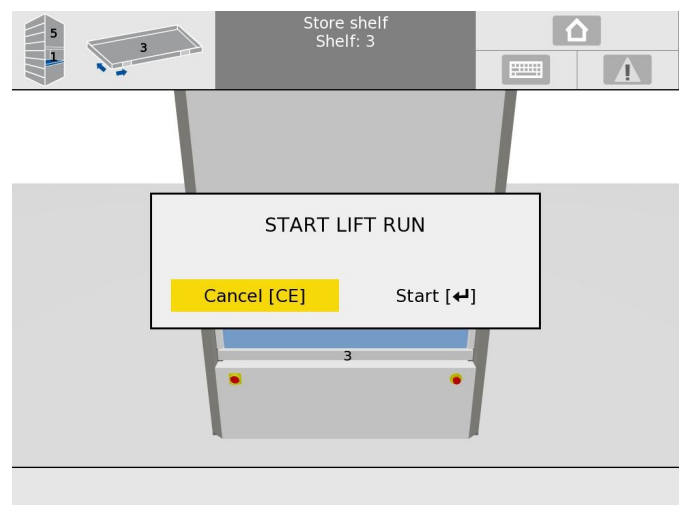
- Press the [↵] key.

**Caution: The [↵] key starts a lift run!**

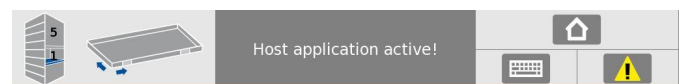
→ The shelf in the access point is stored in the lift.

*If the **CANCEL [CE]** button is touched or the [CE] key is pressed:*

→ Return value = 99



→ Shelf pre-positioning mode is switched on. The display appears for at least 3 seconds. Afterwards, any method calls that are present are processed



#### Switching off the shelf pre-positioning mode

*If you want the operator to exit this mode:*

- Touch the **CANCEL [CE]** button or press the [CE] key.

→ Browser calls up the following URL:

**[http://<base-URL><pg03\\_cancelUrl>](http://<base-URL><pg03_cancelUrl>)**

*If you want the host Web server to exit this mode:*

- Call up method for switching off the mode.

• Note:

The mode is exited even when calling up other methods.



HTML page, host Web server

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### 5.2 Supplementary module Storage location height management (LL + MS)

#### 5.2.1 Method "read\_st\_height" - Query shelf target height and article height

**Description** With this method, the host has the ability to query the shelf target height and the article height. The method is not blocking.

**Passed message** Message type **Read\_st\_height** Contains passed parameters

**Passed parameters** Object type **RequestReadStHeight**

| Parameter value          | Meaning                                                                                                                                                                                                                                                                                                                                                                                                     | Type | Active area | Inactive  |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------------|-----------|
| <b>pm01_stringNumber</b> | String number 1-4<br>Depending on the number of shelves in lift, this method has to be called up multiple times with this parameter and the values from 1 - 4.<br>String No. = 1 -> Shelves 1 - 254<br>String No. = 2 -> Shelves 255 - 508<br>String No. = 3 -> Shelves 509 - 762<br>String No. = 4 -> Shelves 763 - 999<br>The shelf numbers correspond only to the shelves which are actually in the lift | Int  | 1-4         | Mandatory |
| <b>pm02_typeOfHeight</b> | 0 = Query of shelf target height<br>1 = Query of article height                                                                                                                                                                                                                                                                                                                                             | Int  | 0-1         | Mandatory |

**Return message** Message type **Read\_st\_height\_res** Contains return parameters

**Return parameters** Object type **ResultReadStHeight**

| Parameter value     | Meaning                                                                                                                 | Type | Area                |
|---------------------|-------------------------------------------------------------------------------------------------------------------------|------|---------------------|
| <b>returnValue</b>  | Return value<br>→ General return values<br>→ Supplementary module inactive<br>(Remaining return parameters are invalid) | Int  | 0-6/99<br>0-6<br>99 |
| <b>liftNumber</b>   | Lift number                                                                                                             | Int  | 1-99                |
| <b>accessNumber</b> | Access point number                                                                                                     | Int  | 1-4                 |

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|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |        |       |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------|
| <b>stringNumber</b>       | String number 1-4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Int    | 1-4   |
| <b>stringOfHeight</b>     | <p>Height table with the requested information in <b>stringNumber</b>.</p> <p>The height table is encoded using ASCII strings. For each ASCII string, a maximum of 254 shelf target heights / article heights can be defined. One ASCII character is used per shelf. Only the shelf target heights / article heights of shelves that are actually present are transferred.</p> <p>'A' = height 1, 'B' = height 2 etc., up to max. '_' = height 31</p> <p>Example:</p> <p>String: "AB[D"</p> <p>The first present shelf has height 1<br/>The second present shelf has height 2<br/>The third present shelf has height 27<br/>The fourth present shelf has height 4</p> | String | 1-254 |
| <b>fixedShelfHeight</b>   | Fixed shelf height<br>(0 = No, 1 = Yes)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Int    | 0-1   |
| <b>ShelfHeightMonitor</b> | Shelf height monitor<br>(0 = No, 1 = Yes)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Int    | 0-1   |
| <b>minShelfHeight</b>     | Minimum value for shelf target height                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Int    | 1-3   |
| <b>maxShelfHeight</b>     | Maximum value for shelf target height                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Int    | 1-31  |
| <b>carrierIncrement</b>   | Spacing increment dimension<br>(0 = 37.5 mm (1.476"); 1 = reserved;<br>2 = 75 mm (2.952");<br>3 = 90 mm (3.543"); 4 = 125 mm (4.921");<br>5 = 25 mm (0.984"))                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Int    | 0-5   |

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### 5.2.2 Method "edit\_shelf\_prop" - Change the shelf target height of a shelf

**Description** With this method, the host has the ability to change the shelf target height of a shelf.  
The method is not blocking.

**Passed message** Message type **Edit\_shelf\_prop** Contains passed parameters

**Passed parameters** Object type **RequestEditShelfProp**

| Parameter value                        | Meaning                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Type | Active area | Inactive  |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------------|-----------|
| <a href="#">pm01_shelfNumber</a>       | Shelf number                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Int  | 1-999       | Mandatory |
| <a href="#">pm02_shelfTargetHeight</a> | <p>Target height for shelf <a href="#">pm01_shelfNumber</a>.</p> <p>The minimum value and the maximum value for the shelf target height is dependent on the carrier increment.</p> <p>Minimum value:</p> <ul style="list-style-type: none"> <li>For the 75/90/125 mm (2.952"/3.543"/4.921") slot increment, the minimum value is "1".</li> <li>For the 37.5 mm (1.48") slot increment, the minimum value is "2".</li> <li>For the 25 mm (0.984") slot increment, the minimum value is "3".</li> </ul> <p>Maximum value:</p> <ul style="list-style-type: none"> <li>For the 75/90/125 mm (2.952"/3.543"/4.921") slot increments, the maximum value is the "number of light barriers for the article height measurement".</li> <li>For 37.5 mm (1.48") slot increments, the maximum value is the "number of light barriers for article height measurement + 1".</li> <li>For the 25 mm (0.98") slot increment, the maximum value is the "number of light barriers for article height measurement + 2".</li> </ul> | Int  | 1-31        | Mandatory |

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|                   |              |                     |                            |
|-------------------|--------------|---------------------|----------------------------|
| Return message    | Message type | Edit_shelf_prop_res | Contains return parameters |
| Return parameters | Object type  | ResultEditShelfProp |                            |

| Parameter value | Meaning                                                                                                                 | Type | Area |
|-----------------|-------------------------------------------------------------------------------------------------------------------------|------|------|
| returnValue     | Return value<br>→ General return values<br>→ Supplementary module inactive<br>(Remaining return parameters are invalid) | Int  | 0-6  |
| liftNumber      | Lift number                                                                                                             | Int  | 1-99 |
| accessNumber    | Access point number                                                                                                     | Int  | 1-4  |

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### 5.3 Supplementary module Adjustable shelf speed (LL + MS)

#### 5.3.1 Method "read\_st\_speed" - Query shelf speeds

**Description** With this method, the host has the ability to query the shelf speeds.  
The method is not blocking.

**Passed message** Message type **Read\_st\_speed** Contains passed parameters

**Passed parameters** Object type **RequestReadStSpeed**

| Parameter value          | Meaning                                                                                                                                                                                                    | Type | Active area | Inactive  |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------------|-----------|
| <b>pm01_stringNumber</b> | String number 1-8<br>String No. = 1 -> Shelves 1 - 128<br>String No. = 2 -> Shelves 129 -254<br>...<br>The shelf numbers correspond only to the shelves which are actually in the lift in ascending order. | Int  | 1-8         | Mandatory |

**Return message** Message type **Read\_st\_speed\_res** Contains return parameters

**Return parameters** Object type **ResultReadStSpeed**

| Parameter value     | Meaning                                                                                                                 | Type | Area                |
|---------------------|-------------------------------------------------------------------------------------------------------------------------|------|---------------------|
| <b>returnValue</b>  | Return value<br>→ General return values<br>→ Supplementary module inactive<br>(Remaining return parameters are invalid) | Int  | 0-6/99<br>0-6<br>99 |
| <b>liftNumber</b>   | Lift number                                                                                                             | Int  | 1-99                |
| <b>accessNumber</b> | Access point number                                                                                                     | Int  | 1-4                 |
| <b>stringNumber</b> | String number 1-8                                                                                                       | Int  | 1-8                 |

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|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |        |       |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------|
| <b>stringOfSpeed</b> | <p>Speed table with the requested information in <b>stringNumber</b>.</p> <p>The speed table is encoded using ASCII strings. For each ASCII string, a maximum of 127 shelf speeds can be defined. Two ASCII characters are used per shelf (speed 1% -&gt; 01 up to speed 99% -&gt; 99, speed 100% -&gt; 00). Only the shelf speeds of shelves that are actually present are transferred.</p> <p>Example:<br/>Shelves 1, 3 and 4 are in the lift<br/>"007520"<br/>Shelf 1 has "00" -&gt; 100%<br/>Shelf 3 has "75" -&gt; 75%<br/>Shelf 4 has "20" -&gt; 20%</p> | String | 1-254 |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------|

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5.4

Supplementary module Intermediate shelf buffer for job (LL)

5.4.1

Method "get\_shelf" - Get shelf with display of the storage location

If a shelf is located in the access point and the upper intermediate shelf buffer is empty, the shelf is stored there. If the upper intermediate shelf buffer is not empty, the shelf is stored outside the intermediate shelf buffer. Then, the specified shelf is retrieved.

➤ See Chapter 3.3, page 83.

5.4.2

Method "getShelfV02" - Get shelf with graphical display of the storage location and additional text

If a shelf is located in the access point and the upper intermediate shelf buffer is empty, the shelf is stored there. If the upper intermediate shelf buffer is not empty, the shelf is stored outside the intermediate shelf buffer. Then, the specified shelf is retrieved.

➤ See Chapter 3.4, page 86.

5.4.3

Method "get\_shelf\_backgr" - Retrieve shelf in the background to the intermediate shelf buffer

Description

With this method, the host has the ability to retrieve a shelf in the background into the intermediate shelf buffer. The upper intermediate shelf buffer is emptied and the lower intermediate shelf buffer is filled with shelf <pm01\_shelfNumber>. This is done with the high-speed door closed, and therefore does not have to be started at the MP control system with the **[↔]** key.

The method is not blocking. The result is acknowledged immediately instead of at the end of the lift run.

|                   |                  |                       |                            |             |           |
|-------------------|------------------|-----------------------|----------------------------|-------------|-----------|
| Passed message    | Message type     | Get_shelf_backgr      | Contains passed parameters |             |           |
| Passed parameters | Object type      | RequestGetShelfBackgr |                            |             |           |
|                   | Parameter value  | Meaning               | Type                       | Active area | Inactive  |
|                   | pm01_shelfNumber | Shelf number          | Int                        | 1-999       | Mandatory |

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**Return message**      Message type      **Get\_shelf\_backgr\_res**      Contains return parameters

**Return parameters**      Object type      **ResultGetShelfBackgr**

| Parameter value     | Meaning                                                                                                                 | Type | Area                |
|---------------------|-------------------------------------------------------------------------------------------------------------------------|------|---------------------|
| <b>returnValue</b>  | Return value<br>→ General return values<br>→ Supplementary module inactive<br>(Remaining return parameters are invalid) | Int  | 0-6/99<br>0-6<br>99 |
| <b>liftNumber</b>   | Lift number                                                                                                             | Int  | 1-99                |
| <b>accessNumber</b> | Access point number                                                                                                     | Int  | 1-4                 |

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### 5.5 Supplementary module Shelf transfer (LL + MS)

#### 5.5.1 Method "shelf\_transfer" - Start the shelf transfer

|                          |                                                                                                                                                                              |                                                                                                                                                                         |                            |                     |           |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|---------------------|-----------|
| <b>Description</b>       | With this method, the host has the ability to send a shelf into another access point.<br>The method is blocking until the shelf has been pushed into the other access point. |                                                                                                                                                                         |                            |                     |           |
| <b>Passed message</b>    | Message type                                                                                                                                                                 | <b>Shelf_transfer</b>                                                                                                                                                   | Contains passed parameters |                     |           |
| <b>Passed parameters</b> | Object type                                                                                                                                                                  | <b>RequestShelfTransfer</b>                                                                                                                                             |                            |                     |           |
|                          | Parameter value                                                                                                                                                              | Meaning                                                                                                                                                                 | Type                       | Active area         | Inactive  |
|                          | <a href="#">pm01_destinationAccessNumber</a>                                                                                                                                 | Destination access point                                                                                                                                                | Int                        | 1-4                 | Mandatory |
| <b>Return message</b>    | Message type                                                                                                                                                                 | <b>Shelf_transfer_res</b>                                                                                                                                               | Contains return parameters |                     |           |
| <b>Return parameters</b> | Object type                                                                                                                                                                  | <b>ResultShelfTransfer</b>                                                                                                                                              |                            |                     |           |
|                          | Parameter value                                                                                                                                                              | Meaning                                                                                                                                                                 | Type                       | Area                |           |
|                          | <a href="#">returnValue</a>                                                                                                                                                  | Return value<br>→ General return values<br>→ Supplementary module inactive<br>(Remaining return parameters are invalid)                                                 | Int                        | 0-6/99<br>0-6<br>99 |           |
|                          | <a href="#">liftNumber</a>                                                                                                                                                   | Lift number                                                                                                                                                             | Int                        | 1-99                |           |
|                          | <a href="#">accessNumber</a>                                                                                                                                                 | Access point number                                                                                                                                                     | Int                        | 1-4                 |           |
|                          | <a href="#">shelfInAccess</a>                                                                                                                                                | Shelf in the access point<br>(0 = no shelf in the access point)                                                                                                         | Int                        | 0-999               |           |
|                          | <a href="#">shelfWithHeight</a>                                                                                                                                              | Shelf for which the article height is in the parameter shelfHeight<br>(0 = no measurement was carried out)                                                              | Int                        | 0-999               |           |
|                          | <a href="#">shelfHeight</a>                                                                                                                                                  | Article height of the shelf from the shelfWithHeight parameter<br>(The stored article height is the number of carrier units occupied by the shelf with stored articles) | Int                        | 1-31                |           |

**11 Annex, variant I: Activation of the lift/carousel via SOAP web service (only for instructed installation and maintenance personnel as well as IT specialists)**

**5.6 SOAP monitor**

For development purposes, a SOAP monitor is available. This SOAP monitor can be used to monitor the SOAP protocol between the Web application server and the MP control system.

Calling up in the PC browser via the URL:

"http://<IP address MP control system>/jwsmacro/SOAPMonitor"



The free demonstration software "IT Integration Tool" has an integrated SOAP monitor. This can be used to monitor the SOAP protocol between the web application server of the IT Integration Tool and the MP control system.

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Annex, variant II: Activation of the lift/carousel via REST web service (only for instructed installation and maintenance personnel as well as IT specialists)



This chapter is intended for instructed installation and maintenance personnel and IT specialists only.

|   |                                |     |
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| 3 | Overview of individual methods | 137 |
| 4 | Authentication                 | 138 |

**12 Annex, variant II: Activation of the lift/carousel via REST web service (only for instructed installation and maintenance personnel as well as IT specialists)**

**1 Introduction**

Using the REST-compliant "JRS" web service, various functions are possible on the MP control system, such as activating compartment LEDs, querying lift/carousel conditions or executing lift/carousel runs. The purpose of this web service is primarily machine-to-machine communication; it provides an alternative to the SOAP web service.

- ◆ Documentation is provided as an OpenAPI definition (see Chapter 2, page 134).
- ◆ The web service presents resources in the JSON format.
- ◆ The web service can be protected using the HTTP basic authentication process (see Chapter 4, page 138).
- ◆ Lift runs always have to be initiated using the **【↔】** key on the MP control system.  
There is an exception only in conjunction with supplementary module "Remote-controlled Lift Operation with special safety equipment".

**12 Annex, variant II: Activation of the lift/carousel via REST web service (only for instructed installation and maintenance personnel as well as IT specialists)**

**2 Interface description**

**OpenAPI definition**

The OpenAPI specification (OAS) defines a standardised, language-independent interface to HTTP APIs, which enables both humans as well as computers to discover and understand the skills of a service.

An OpenAPI definition may be used for the following purposes:

- For presenting documentation (e.g. Swagger Editor / UI)
- For programs for code generation
- For test programs

The OpenAPI definition can be downloaded via the MP control system. To do so, the following URL has to be entered in a Web browser connected to the MP control system:

***http://<IP address of the MP control system>/jrs/openapi.<Format>***

<Format>:

- yaml
- json

Depending on which format has been selected, the web browser used shows the OpenAPI definition (JSON) or starts to download it automatically (YAML).

Even though authentication is activated, the OpenAPI definition can be downloaded without entering login data.

## 12 Annex, variant II: Activation of the lift/carousel via REST web service (only for instructed installation and maintenance personnel as well as IT specialists)

### Excerpt from OpenAPI definition "openapi.yaml"

| Configuration of OAS 3.0.1 | Contents                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Info object                | <pre> info:   title: Hänel REST API   description:  -     Hänel REST API - HOST-WEB      Protected intellectual property. All rights reserved by Hänel® GmbH &amp; Co.KG    Terms used:     - `[LL]` = Lean-Lift     - `[MS]` = Multi-Space     - `[RO]` = Rotomat   version: 0.1.0 </pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Server object              | <pre> servers: - url: "{protocol}://mp14-xxxxxx/jrs"   variables:     protocol:       description: Application layer protocol       default: http       enum:         - http         - https </pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Tag object                 | <pre> tags: - name: Features   description: Methods for supplementary features - name: Modules   description: Methods for supplementary modules - name: Shelf   description: Shelf methods - name: Standard   description: Standard methods </pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Paths object               | <pre> paths:   /status:     get:       tags:         - Standard       summary: Query status information       description: "With this method, the host has the ability to query various status\         \ information. \n\nThe method is non-blocking."       operationId: hostweb/getStatus       responses:         "200":           description: Successful operation           content:             application/json:               schema:                 properties:                   code:                     type: integer                     format: int32                     example: 200                   data:                     \$ref: '#/components/schemas/ReadStatusRes'               allOf:                 - \$ref: '#/components/schemas/ApiResponse' </pre> |
| Components object          | <pre> components:   schemas:     ApiResponse:       type: object       properties:         code:           type: integer           description: HTTP status code           format: int32         status:           type: string           description: Status type of the response           enum:             - success             - fail             - error </pre>                                                                                                                                                                                                                                                                                                                                                                                                                   |

12 Annex, variant II: Activation of the lift/carousel via REST web service (only for instructed installation and maintenance personnel as well as IT specialists)

|  |                                                                                                                                                                                                                                                                                                                                                                  |
|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <pre>message:   type: string   description: "A meaningful, end-user-readable message, explaining what went\  \ wrong \n(set if status = 'error')\" data:   type: object externalDocs:   description: Documentation about the message format   url: https://github.com/omniti-labs/jsend ... securitySchemes:   BasicAuth:     type: http     scheme: basic</pre> |
|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## 12 Annex, variant II: Activation of the lift/carousel via REST web service (only for instructed installation and maintenance personnel as well as IT specialists)

### 3 Overview of individual methods

| Method                                                              |         | Description                                                                                      |
|---------------------------------------------------------------------|---------|--------------------------------------------------------------------------------------------------|
| GET /status                                                         |         | Query status information                                                                         |
| PUT /shelves/{shelfId}                                              |         | Get shelf with graphical display of the storage location and additional text                     |
| PUT /shelves/current                                                | LL + MS | Store shelf                                                                                      |
| GET /shelves                                                        | LL + MS | Query of shelf numbers of all existing shelves                                                   |
| POST /shelves                                                       | LL + MS | Add shelf                                                                                        |
| DELETE /shelves/{shelfId}                                           | LL + MS | Remove shelf                                                                                     |
| PUT /optimisation-run                                               | LL + MS | Starting an optimisation run                                                                     |
| PUT /location-indicator                                             |         | Clear storage location display                                                                   |
| PUT /peripherals/{deviceId}                                         |         | Enable the interface for a peripheral device                                                     |
| PUT /base-services                                                  |         | Call up basic functions                                                                          |
| GET /modules                                                        |         | Query supplementary modules                                                                      |
| GET /features                                                       |         | Query supplementary features                                                                     |
| PUT /start-url                                                      |         | Change the start-URL of the host Web server.                                                     |
| GET /start-url                                                      |         | Query start-URL of the host web server                                                           |
| GET /confirmation-key                                               |         | Query confirmation key                                                                           |
| <b>Methods for supplementary features and supplementary modules</b> |         | <b>Description</b>                                                                               |
| PUT /sliding-door                                                   |         | Closing the automatic sliding door<br>(Automatic sliding door), (Rotomat access code management) |
| PUT /signals/{signalId}                                             |         | Activate signal elements of the signal column.<br>(Signal column)                                |
| PUT /picking-displays/{displayId}                                   |         | Write to and query requisition processing strip<br>(requisition processing strip)                |
| PUT /pre-positioning                                                |         | Switch the shelf pre-positioning mode on/off<br>(Shelf pre-positioning)                          |
| GET /shelf-props/heights                                            | LL + MS | Retrieve shelf target height and stored article height<br>(Storage location height management)   |
| PUT /shelf-props/heights/{shelfId}                                  | LL + MS | Change the shelf target height of a shelf<br>(Storage location height management)                |
| GET /shelf-props/speeds                                             | LL + MS | Query shelf speed<br>(Adjustable shelf speed)                                                    |
| PUT /shelf-buffer                                                   | LL      | Get shelf in background to intermediate shelf buffer<br>(Intermediate shelf buffer for job)      |
| PUT /shelf-transfer                                                 | LL + MS | Start shelf transfer<br>(Shelf transfer)                                                         |

12 Annex, variant II: Activation of the lift/carousel via REST web service (only for instructed installation and maintenance personnel as well as IT specialists)

4 Authentication

**HTTP authentication mechanism**

RFC 7235 defines an HTTP authentication mechanism which can be used by a server to trigger a client authentication request and by a client to provide authentication information.

The authentication process between the client and server functions as follows:

1. The server answers a client with the status code 401 (Unauthorized) and supplies information regarding the authorization using the response header field "WWW-Authenticate".
2. The client authenticates itself to the server by adding the header field "Authorization" to the request, which contains the required login information.
3. After a successful check of the login information, the request is processed by the server. If the check fails, the request is answered with status code 401 (Unauthorized).

The generic HTTP authentication mechanism forms the basis for a range of authentication processes.

**Basic authentication process**

The basic authentication process is defined in RFC 7617. Here, the login information is transferred as a user ID/password pair in Base64 coding.

If the server answers with status code 401 (Unauthorized), the "WWW-Authenticate" header field is set up as follows:

HTTP/1.1 401 Unauthorized  
WWW-Authenticate: Basic realm="jrs", charset="UTF-8"

In order for verification to be successful, the client must fill in the "Authorization" header field with valid login information.

Scheme:            Authorization: Basic base64(<user ID>:<password>)

Example:           Authorization: Basic dXNlcjoyMWlzb25seWhhbGZ0aGV0cnV0aA==



**Caution:**

The basic authentication scheme that is used sends the login information in encoded form, not encrypted. For a secure exchange of login data, a connection using HTTPS/TLS is necessary.



For the definition of user and password, see Chapter 4.1, page 32 and on - "Settings - Host parameters" function

13 Customer form annex for integration into corporate network

Ethernet connection to corporate network

This form is to be filled in by the customer's IT specialists if the service has been ordered by "Integrating a web application into the MP 14-H[HOST-WEB] SOAP for host communication via HTML pages using the HTTP protocol and lift/carousel activation using a web service via SOAP protocol".

Please fill in this form and give it to the Hänel Service technician when the MP control system is connected to the company network.



The "Technical Description of the Microprocessor Control System MP 14 Lean-Lift and Multi-Space" or "Technical Description of the Microprocessor Control System MP 14 Rotomat" is the basis for the following tables to be filled in:

| MP 14-H-[HOST-WEB] - Connecting to a corporate network |                                                                                                                                                                                                                                                                            |
|--------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.                                                     | Lift number: _____<br>(Lift/carousel to be integrated into the corporate network)                                                                                                                                                                                          |
| 2.                                                     | Is the lift to receive the TCP/IP address via a DHCP server? <input type="checkbox"/> Yes<br><input type="checkbox"/> No                                                                                                                                                   |
| 3.                                                     | <div><div>x Fill in only if the answer to "2" was "No":</div><div>Which TCP/IP parameters should the lift receive?</div><div>TCP/IP address : _____</div><div>Sub-network mask : _____</div><div>Standard gateway : _____</div></div>                                      |
| 4.                                                     | <div>The lift uses another TCP/IP address internally for the MP multi-unit network. This is always active. It can be located in the B-class network in the address range 172.16.xxx.xxx to 172.31.xxx.xxx.</div> <div>Which address range is free: 172._____.xxx.xxx</div> |

Notes:

|       |       |
|-------|-------|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

## 14 Annex

### 14.1 Overview of optional supplementary descriptions

In the following list, the optional Supplementary Descriptions that have been included in the documentation folder are ticked. The list provides no information about possible applications and combinations of supplementary modules and supplementary features.

|  |                                                                                                                                       |                                                                                                                                                                                |
|--|---------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>Lift/carousel version according to order confirmation</b><br><b>Ausführung des Lifts gemäß Auftragsbestätigung</b>                 | <b>The marked (x) supplementary descriptions are part of the machine documentation</b><br><b>Markierte (x) Zusatzbeschreibungen sind Teil der Maschinendokumentation</b>       |
|  | Module 00) Remote-controlled Lift Operation (LL, MS, RO)<br><b>Modul 00) Ferngesteuerter Liftlauf (LL, MS, RO)</b>                    | <b>Supplementary Description of the Remote-controlled Lift Operation</b><br><b>Zusatzbeschreibung Ferngesteuerter Liftlauf</b><br>MP-BEDIENZ-FERN.MP_14                        |
|  | With add-on module 04) Storage location height management (LL, MS)<br><b>Modul 04) Verwaltung der Lagerorthöhe (LL, MS)</b>           | <b>Supplementary Description of the Storage Location Height Management</b><br><b>Zusatzbeschreibung Verwaltung der Lagerorthöhe</b><br>MP-BEDIENZ-HOEHE.MP_14                  |
|  | With add-on module 24) Adjustable shelf speed (LL, MS)<br><b>Modul 24) Einstellbare Tablargeschwindigkeit (LL, MS)</b>                | <b>Supplementary Description of the Adjustable Shelf Speed</b><br><b>Zusatzbeschreibung Einstellbare Tablargeschwindigkeit</b><br>MP-BEDIENZ-GESCHW.MP_14                      |
|  | With add-on module 25) Shelf pre-positioning by host (LL, MS, RO)<br><b>Modul 25) Tablarvorpositionierung durch Host (LL, MS, RO)</b> | <b>Supplementary Description of the Shelf Pre-positioning</b><br><b>Zusatzbeschreibung Tablarvorpositionierung</b><br>MP-BEDIENZ-PREPOS.MP_14                                  |
|  | With add-on module 28) Intermediate shelf buffer for job processing (LL)<br><b>Modul 28) Tablar Zwischenpuffer bei Auftrag (LL)</b>   | <b>Supplementary Description of the Intermediate Shelf Buffer for job processing</b><br><b>Zusatzbeschreibung Tablar Zwischenpuffer bei Auftrag</b><br>MP-BEDIENZ-TABPUF.MP_14 |
|  | With add-on module 29) Shelf transfer (LL, MS)<br><b>Modul 29) Tablartransport (LL, MS)</b>                                           | <b>Supplementary Description of the Shelf Transfer</b><br><b>Zusatzbeschreibung Tablartransport</b><br>MP-BEDIENZ-TABTRA.MP_14                                                 |
|  | Module 30) Extractor park position (LL, MS)<br><b>Modul 30) Park-Position Extraktor (LL, MS)</b>                                      | <b>Supplementary Description of Extractor Park Position</b><br><b>Zusatzbeschreibung Park-Position Extraktor</b><br>MP-BEDIENZ-PARKPOS.MP_14                                   |

LL = Lean-Lift  
MS = Multi-Space  
RO = Rotomat

14 Annex

|  |                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                   |
|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | Lift/carousel version according to order confirmation<br><b>Ausführung des Lifts gemäß Auftragsbestätigung</b>                                                                                                                                                                                                           | The marked (x) supplementary descriptions are part of the machine documentation<br><b>Markierte (x) Zusatzbeschreibungen sind Teil der Maschinendokumentation</b>                                                                                                 |
|  | With electrically opening sliding door (RO)<br><b>mit elektrisch öffnbarer Schiebetür (RO)</b>                                                                                                                                                                                                                           | Supplementary Description of the Automatic Sliding Door<br><b>Zusatzbeschreibung Automatische Schiebetüre</b><br>MP-BEDIENZ-AUTOSD.MP_14                                                                                                                          |
|  | With Automatically Lowering Front Edge of Shelf (RO)<br><b>mit automatisch absenkbarer Tablarvorderkante (RO)</b>                                                                                                                                                                                                        | Supplementary Description of the Lowerable Front Edge<br><b>Zusatzbeschreibung Absenkbare Vorderkante</b><br>MP-BEDIENZ-AVK.MP_14                                                                                                                                 |
|  | (RO)<br><b>(RO)</b>                                                                                                                                                                                                                                                                                                      | Supplementary Description of the Access Lock<br><b>Zusatzbeschreibung Zugangssperre</b><br>MP-BEDIENZ-CODE.MP_14                                                                                                                                                  |
|  | High-speed door between access opening and drive shaft (LL, MS)<br><b>Schnell-Lauftor zwischen Entnahmeöffnung und Fahrschacht (LL, MS)</b>                                                                                                                                                                              | Supplementary Description of the High-speed Door<br><b>Zusatzbeschreibung Schnell-Lauftor</b><br>MP-BEDIENZ-STOR.MP_14                                                                                                                                            |
|  | With automatically opening and closing sliding door (RO, LL)<br><b>mit automatisch öffnende und schließende Schiebetüre (RO, LL)</b>                                                                                                                                                                                     | Supplementary Description of the Automatic Sliding Door<br><b>Zusatzbeschreibung Automatische Schiebetüre</b><br>MP-BEDIENZ-AUTOSD.MP_14                                                                                                                          |
|  | Automatic extraction of container (LL)<br><b>automatischer Ein-/Ausschub eines Containers (LL)</b>                                                                                                                                                                                                                       | Supplementary Description of the Automatic Shelf Ejection<br><b>Zusatzbeschreibung Automatischer Tablarausschub</b><br>MP-BEDIENZ-ATA.MP_14                                                                                                                       |
|  | With container weighing device in the access point (LL, MS)<br><b>mit Container-Wiegeeinrichtung in der Entnahmestelle (LL, MS)</b>                                                                                                                                                                                      | Supplementary Description of the Shelf Weighing Device<br><b>Zusatzbeschreibung Tablarwiegeeinrichtung</b><br>MP-BEDIENZ-WEIGHT.MP_14                                                                                                                             |
|  | Special Access Point for Operation with Standard / High Lift Truck and Container in Dimensions ..., in Special Version for Barrier On All Sides (LL)<br><b>Sonderentnahmestelle für Bedienung mit Standard- / Hochhubwagen und Container in den Abmessungen ..., in Spezialausführung für umlaufende Begrenzung (LL)</b> | Supplementary Description of the Automatic Shelf Locking for Operation with High Lift Truck or Forklift Truck<br><b>Zusatzbeschreibung Automatische Tablarverriegelung für eine Bedienung mit Hochhubwagen oder mit Gabel-Hubwagen</b><br>MP-BEDIENZ-TABVER.MP_14 |
|  | Unit prepared for containers with power socket (LL)<br><b>Gerät vorbereitet für elektrifizierte Container (LL)</b>                                                                                                                                                                                                       | Supplementary Description of Shelves with Power Socket<br><b>Zusatzbeschreibung Elektrifizierte Tablare</b><br>MP-BEDIENZ-ELTAB.MP_14                                                                                                                             |

**14 Annex**

|  |                                                                                                                                                                        |                                                                                                                                                                          |
|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>Lift/carousel version according to order confirmation</b><br><b>Ausführung des Lifts gemäß Auftragsbestätigung</b>                                                  | <b>The marked (x) supplementary descriptions are part of the machine documentation</b><br><b>Markierte (x) Zusatzbeschreibungen sind Teil der Maschinendokumentation</b> |
|  | With camera holder and Hänel camera (LL, MS)<br><b>mit Kamerahalterung und Hänel Kamera (LL, MS)</b>                                                                   | <b>Supplementary Description of the Camera</b><br><b>Zusatzbeschreibung Hänel-Kamera</b><br>MP-BEDIENZ-CAM.MP_14                                                         |
|  | With Pick-O-Light system, moving in the access point (LL, MS)<br><b>mit Leuchtpunktanzeige, verfahren in der Entnahmestelle (LL, MS)</b>                               | <b>Supplementary Description of the Pick-O-Light system (variable)</b><br><b>Zusatzbeschreibung Leuchtpunktanzeige (verfahren)</b><br>MP-BEDIENZ-LPAVER.MP_14            |
|  | Requisition processing strip (LL, MS, RO)<br><b>Kommissionierleiste (LL, MS, RO)</b>                                                                                   | <b>Supplementary Description of the requisition processing strip</b><br><b>Zusatzbeschreibung Kommissionierleiste</b><br>MP-BEDIENZ-VFDLEISTE.MP_14                      |
|  | With demo function (with trade fair demo function lift run warning sign) (LL, MS, RO)<br><b>mit Messfunktion Demolauf (mit Warnschild Messe-Liftlauf) (LL, MS, RO)</b> | <b>Supplementary Description of the Demo Function</b><br><b>Zusatzbeschreibung Messfunktion</b><br>MP-BEDIENZ-DEMO.MP_14                                                 |

LL = Lean-Lift  
MS = Multi-Space  
RO = Rotomat

## **14 Annex**

### **14.2 Revision notes**

Last issue dated:

**2022-10-14**

- Complete revision starting from Chapter 9, extension of variant II: Activation of the lift/carousel via REST web service

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