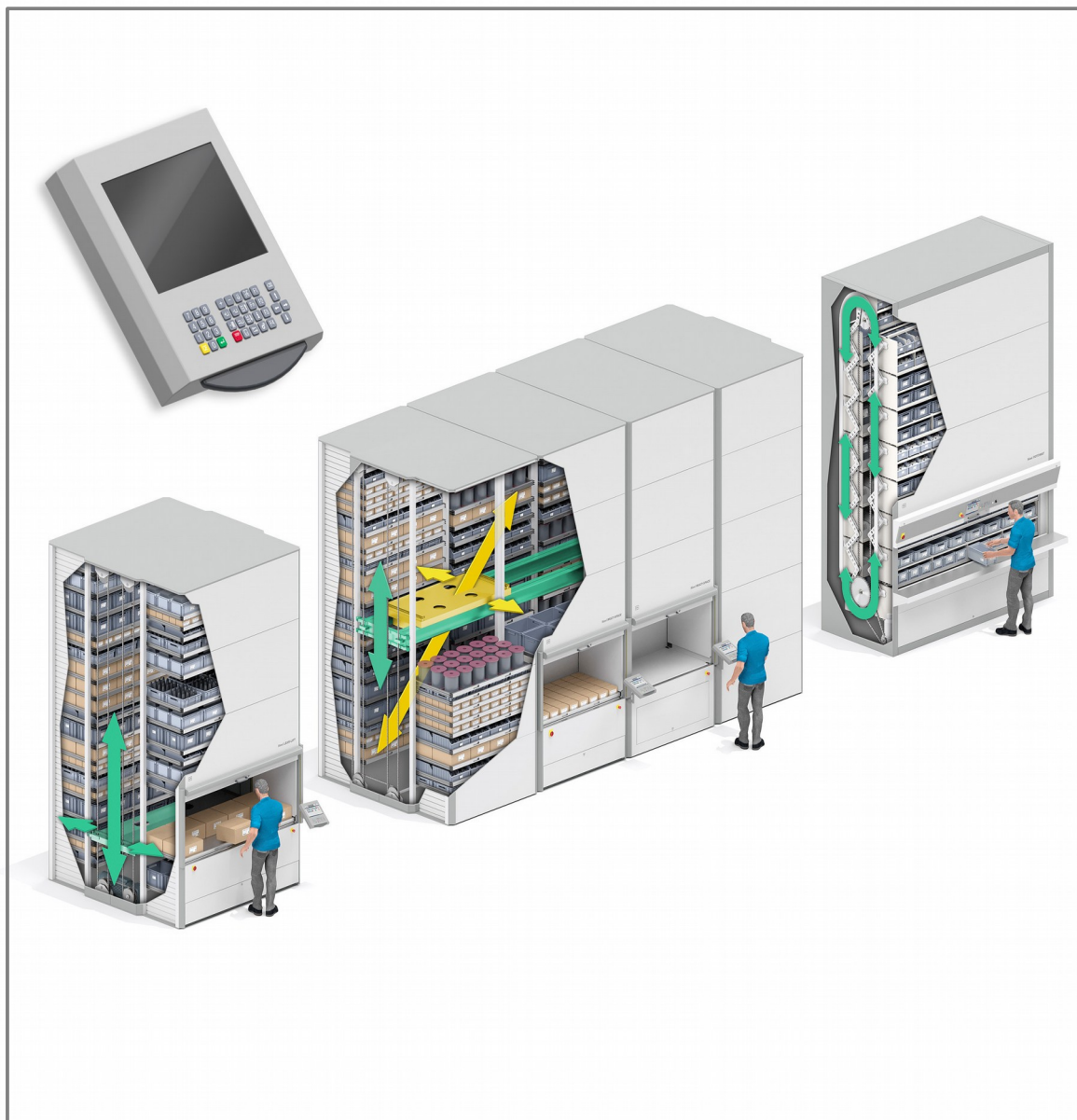


User Guide for the Article Storage Management Microprocessor control system MP 14-S / H[MP 14-S] / H[MP 100D-5]

Lean-Lift Multi-Space Rotomat



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1 Introduction

1.1 Basic information

1

Contents

This document contains information on operating the
MP 14-S / H[MP 14-S] / H[MP 100D-5] microprocessor control 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 of the following series:

Type: Lean-Lift, Multi-Space, Rotomat

Access points: See operating manual

Serial number: See type plate on the lift

Model year: See type plate on the lift

If the lift 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 7.3
MP 14 CPU II	V 5.4 STANDARD PACKAGE 5

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 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

- ◆ FIFO
- ◆ First In - First Out
If multiple storage locations exist for an article, during retrieval, the storage location created first is accessed first, and the storage location created last is accessed last.

1 Introduction

1.3 Safety instructions

1



DANGER

All maintenance and repair work on Hänel lifts 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 user guide and the lift operating manual as well as the installation instructions.

Supervisors, service and maintenance personnel have to follow the lift user guide and the lift 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

- 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
- Technical Description of the Microprocessor Control System MP 14-S / MP 100D-5 Server for Lean-Lift, Multi-Space and Rotomat
- Optional supplementary descriptions: see Overview of optional supplementary descriptions in the annex.

2 Overview of features

The storage management system with the MP 14-S microprocessor control system can manage a maximum of 2 lifts/carousels.

The storage management system with the MP 100D-5 central control system can manage a maximum of 99 lifts/carousels. Only CFast cards approved by Hänel can be used to save the storage management data.

CFast cards provide high data security and shock resistance, and they are insensitive to dust and dirt.

The article data and job data are automatically backed up to the CFast card. After a power outage, the memory contents always remain intact.

The index management system is created at program start. All articles and jobs stored in memory are sorted so as to keep access times to a minimum. If an error occurs in index management, the index table is regenerated.

-> Automatic error correction.

2

2.1 Article storage management

The article storage management system manages the article and storage location-related data. The article master data are stored on a CFast card.

Article-related data are:

- ◆ Article number (1 - 40 characters), alphanumeric
- ◆ Article name (0 - 40 characters), alphanumeric
- ◆ Special data fields article master data (H01 - H25) (0 - 40 characters), alphanumeric
The number of special data fields that can be configured depends on the number of characters they have and the supplementary modules used.
- For formulas, see the annex for the following descriptions
 - Technical Description of the Microprocessor Control System MP 14 Lean-Lift and Multi-Space
 - Technical Description of the Microprocessor Control System MP 14 Rotomat
- ◆ Minimum inventory (8 characters), numerical

Storage location-related data are:

- ◆ Storage location (carousel, shelf, compartment, compartment depth), numerical
- ◆ Container size in direction of compartments and direction of compartment depths, numerical
- ◆ Inventory at storage location (8 characters), numerical
- ◆ FIFO status, numerical

Functions:

- ◆ Article master data can be created, updated and deleted.
- ◆ Working with or without inventory control is possible.
- ◆ Quantity journal logging is supported.
- ◆ The order recommendation list based on the minimum inventory control is supported.
- ◆ An article can be stored in multiple lifts/carousels simultaneously.
- ◆ An article can be stored in different containers of different sizes.
- ◆ The storage location can be entered manually or by way of the automatic storage location assignment function.
- ◆ Differentiation between "FIFO storage management", "FIFO with re-store function" and "Random access storage" is possible in storage location management.

2 Overview of features

2.2 Job management

Job management manages the job-related data that consists of the job header and job items. The job data are stored on a CFast card.

Job header data are:

- ◆ Job number (1 - 40 characters), alphanumeric
- ◆ Priority (3 characters), numerical
- ◆ Job status (2 characters), numerical
- ◆ Special data fields for job header (C01 - C25) (0 - 40 characters), alphanumeric
The number of special data fields that can be configured depends on the number of characters they have and the supplementary modules used.
- For formulas, see the annex for the following descriptions
 - Technical Description of the Microprocessor Control System MP 14 Lean-Lift and Multi-Space
 - Technical Description of the Microprocessor Control System MP 14 Rotomat

Job item data are:

- ◆ Article number (1 - 40 characters), alphanumeric
- ◆ Operation (1 character)
- ◆ Special data fields for the job item (U01 - U25) (0 - 40 characters), alphanumeric
The number of special data fields that can be configured depends on the number of characters they have and the supplementary modules used.
- For formulas, see the annex for the following descriptions
 - Technical Description of the Microprocessor Control System MP 14 Lean-Lift and Multi-Space
 - Technical Description of the Microprocessor Control System MP 14 Rotomat
- ◆ Container (5-7 characters), numerical
- ◆ Quantity (8 characters), numerical
- ◆ Item status (2 characters), numerical

Functions:

- ◆ Processed jobs are acknowledged.
- ◆ The yellow LED of the 【↔■】 key lights up as soon as a job is available.
- ◆ Jobs can be created via the storage portal, either right at the control system or the PC browser.
- ◆ Jobs can also be transferred using host communication.
 - See "Technical Description of the Microprocessor Control System MP 14-S / MP 100D-5 Server for Lean-Lift, Multi-Space and Rotomat".

2 Overview of features

Job strategies

- ◆ Sequential:
Processing jobs in the order in which the individual list items were entered or transferred by the host.
- ◆ Path-optimised
Processing jobs sorted according to the storage locations in the lift/carousel.
There is still the option of processing jobs according to a path list in which the shortest physical distances between the lifts/carousels are entered during the "Multi-unit storage" configuration.
- ◆ Time-optimised
Based on path optimisation. A job reference strategy for distributing the sequence of lift/carousel references prevents congestion at the lifts/carousels. Another time optimisation is possible with the supplementary module "Shelf pre-positioning".
 - Refer to the "Supplementary Description of the Shelf Pre-positioning for Microprocessor Control System MP 14 Lean-Lift, Multi-Space and Rotomat".

2

2.3 Lift/Carousel information / User settings

- ◆ Display of the lift/carousel assignment
- ◆ Display of the lift data
- ◆ Display of the software versions
- ◆ Display and setting options in the area
 - Keyboard / touch functions
 - Operator prompts
 - Display lock
- ◆ Display of the log for safety inspections

2.4 System services / User settings

- ◆ Setting print reports, system clock, language, interface parameters, display etc.
- ◆ Activation of supplementary modules
- ◆ Printing out system information
- ◆ Activating and deactivating supplementary functions
- ◆ Initialising and formatting the storage management system
- ◆ Service functions
- ◆ Entering information in the log for safety inspections
- ◆ Settings for the run sequence (e.g. entering the AP factor)

2 Overview of features

2.5 Data screening / Print functions / Administration via the storage portal

- ◆ Data screening of articles, jobs, journal data, storage location data using the MP control system or an external PC browser
- ◆ Printing lists
(article list, order recommendation list, job list, journal data, shelf assignment)
- ◆ Information shown on the display
(e.g. article memory, job memory)
- ◆ Manually creating / editing / deleting jobs
- ◆ Manually editing article master data
- ◆ Manual deletion of journal data
- ◆ Setting options related to access protection for the storage portal
- ◆ For add-on module 02) Access code management (Lean-Lift, Multi-Space, Rotomat):
Manually creating / editing / deleting user data and user group data
- ◆ For add-on module 03) Article pool management (Lean-Lift, Multi-Space, Rotomat):
Manually creating / editing / deleting article pool data records
- ◆ With add-on module 05) Storage time management (Lean-Lift, Multi-Space, Rotomat):
Display of statistical information.
- ◆ For add-on module 08) Free location management (Lean-Lift, Multi-Space, Rotomat):
Initialisation of container types and allocation of container types to a storage location.
- ◆ With add-on module 21) Inventory function (Lean-Lift, Multi-Space, Rotomat):
Display of statistical information.
- ◆ With add-on module 26) Lending management (Lean-Lift, Multi-Space, Rotomat):
Manually creating / editing reservations and deleting reserved articles.
- ◆ With add-on module 35) Article images (Lean-Lift, Multi-Space, Rotomat):
Upload / download of article images, deleting article images, cleaning up memory to remove unused article images

2 Overview of features

2.6 Communication

- ◆ Network connection for the MP multi-unit network via GSC interface. Transmission speed 153.6 kBd, CSMA/CD protocol (collision detection)
 - ◆ Network connection for the MP multi-unit network via Ethernet
 - ◆ Connection of an external computer via Ethernet
 - ◆ Read-out of initialisation data
 - ◆ Read-in/out of article master data
 - ◆ Read-in/read-out/deletion of jobs
 - ◆ Read-in/read-out/deletion of article pool data
 - ◆ Read-out of a quantity/operations journal
 - ◆ Read-in/read-out of free location data
- Data are read in and out simultaneously to carousel communication.
Exception: read-in of article master data
- ◆ Connecting a printer for printing lists simultaneously to the carousel and PC communication via the Ethernet interface

2 Overview of features

2.7 Search functions

- ◆ Match code search for
 - Article number
 - Article name
 - Special data fields
(applies to searches in the article master data, article pool, quantity journal and operations journal)
- ◆ Match code search for
 - Job number
 - Special data fields
(applies to searches for jobs)
- ◆ The match code search is possible in case sensitive or non-case sensitive form.
- ◆ Automatic completion:
After entering two characters from the parameter to be subjected to a search, a search operation is started. If the number of the search result is between 1 and 5, a selection box appears below the input line. (is used to enter the article number and job number)

2

2.8 Limit values

Limit values in standard	MP 14-S	MP 100D-5
Carousels	2	99
Articles (with one storage location per article)	10.000	100.000
Different articles per storage location	255	255
Storage locations	100.000	400.000
Different storage locations per article	255	255
Jobs	1.000	4.000
Job items	25.000	100.000



- x The limit values are valid for max. 40-character article numbers, 40-character article names, 40-character job numbers, 10 H special data fields with up to 40 characters, 2 C special data fields with up to 40 characters and 3 U special data fields with up to 40 characters.
- If there are other conditions, use provided formulas. (See the Annex "Technical Description of the Microprocessor Control System MP 14N Lean-Lift and Multi-Space")

2 Overview of features

2.9 Lift control

Storage location displayed using:

- ◆ 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)

2x RS232 interfaces for:

- ◆ Barcode reader
- ◆ Piece count scale
- ◆ Badge reader/transponder
- ◆ Label printer

1x USB interface:

- ◆ Barcode reader

Display texts:

- ◆ All language versions are possible
- ◆ Display of operator advisories and lift run error messages in plain text

Optimisations:

- ◆ Automatic article height measurement, resulting in optimum utilisation of space
- ◆ Maximum utilisation of space and minimal access times made possible by optimisation run
- ◆ Minimisation of access time to shelves frequently accessed

Functions:

- ◆ Access to shelves by direct selection or by input of an article number
- ◆ Locking of individual functions or the entire keyboard to prevent unauthorised operation is possible
- ◆ External rack store management by rack operating control system

2.10 Storage management



- See "Technical Description of the Microprocessor Control System MP 14-S / MP 100D-5 Server for Lean-Lift, Multi-Space and Rotomat".

2 Overview of features

2.11 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 or information can be found in the Technical 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 (Lean-Lift)
- ◆ Automatic shelf locking (Lean-Lift)
- ◆ Shelves with power socket (Lean-Lift)
- ◆ Hänel Camera (Lean-Lift and Multi-Space)
- ◆ Signal column consisting of:
 - Audible signal device for "No match" for supplementary module 07) Barcode cross-check
(Lean-Lift, Multi-Space and Rotomat)
- ◆ Eco-Mode (Lean-Lift, Multi-Space and Rotomat)
- ◆ Requisition processing strip (Lean-Lift, Multi-Space and Rotomat)
- ◆ Access lock (Rotomat)

2 Overview of features

2.12 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, Rotomat)
- ◆ With add-on module 01) External shelf management (Lean-Lift and Multi-Space)
- ◆ With add-on module 02) Access code management (Lean-Lift, Multi-Space, Rotomat)
- ◆ With add-on module 03) Article pool management (Lean-Lift, Multi-Space, Rotomat)
- ◆ With add-on module 04) Storage location height management (Lean-Lift, Multi-Space, Rotomat)
- ◆ With add-on module 05) Storage time management (Lean-Lift, Multi-Space, Rotomat)
- ◆ With add-on module 06) Operations journal logging (Lean-Lift, Multi-Space, Rotomat)
- ◆ With add-on module 07) Barcode cross-check (Lean-Lift, Multi-Space, Rotomat)
- ◆ With add-on module 08) Free location management (Lean-Lift, Multi-Space, Rotomat)
- ◆ With add-on module 20) Shelf pre-positioning for job processing (Lean-Lift, Multi-Space, Rotomat)
- ◆ With add-on module 21) Inventory function (Lean-Lift, Multi-Space, Rotomat)
- ◆ With add-on module 23) Decimal input for quantities (Lean-Lift, Multi-Space, Rotomat)
- ◆ With add-on module 24) Adjustable shelf speed (Lean-Lift and Multi-Space)
- ◆ With add-on module 26) Lending management (Lean-Lift, Multi-Space, Rotomat)
- ◆ With add-on module 27) Label printing at access point (Lean-Lift, Multi-Space, Rotomat)
- ◆ With add-on module 28) Intermediate shelf buffer for job processing (Lean-Lift)
- ◆ With add-on module 29) Shelf transfer (Lean-Lift and Multi-Space)
- ◆ With add-on module 30) Extractor park position (Lean-Lift and Multi-Space)
- ◆ With add-on module 31) User management (Rotomat)
- ◆ With add-on module 32) Batch management (Lean-Lift, Multi-Space, Rotomat)
- ◆ With add-on module 33) Shelf pre-positioning for article / job (Lean-Lift, Multi-Space, Rotomat)
- ◆ With add-on module 34) Data field assignment by 1D/2D barcode (Lean-Lift, Multi-Space, Rotomat)
- ◆ With add-on module 35) Article image (Lean-Lift, Multi-Space, Rotomat)

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

① Title bar - Lift information area:

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.

Note: This area is periodically superimposed with the STOP icon when multiple access points are being operated.

Title bar - Lift status area:

Display of error messages / display of messages during lift run / display of shelf grid with display of the accessed storage location

Title bar - Navigation area:

The home start page, the storage area portal and the touchscreen keyboard can be started via touchscreen. Alternatively, the storage portal can be started with the [i] key.

② Menu bar:

Ability to toggle to the Article, Job and Lift/Carousel menu items.

③ Function bar:

Ability to call up the individual functions of a menu item.

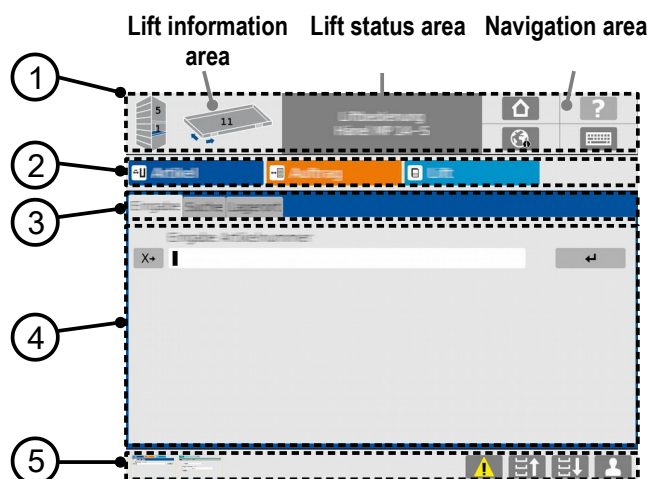
④ Interaction and display area:

This area is used to display information as well as user inputs.

⑤ Taskbar:

Display all open windows: Toggling between the open windows via touchscreen is possible. At the bottom right-hand side, additional instructions and control options are displayed depending on the menu and equipment features.

Display



3

Note:

The menu bar, function bar and interaction and display area are superimposed with the lift run graphics during the lift run. This also applies for the display of the storage portal.

In addition, after the article selection, the menu bar and the function bar have the interaction and display area superimposed.

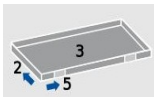
3 Operating elements / general operator advisories

3.1.2 Overview of available operating and display elements

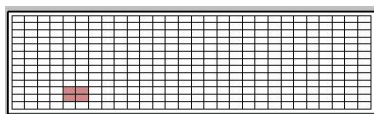
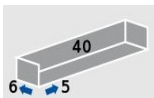
Elements of the title bar:



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).

Lift status area:

- ◆ Display of the storage location grid with marking of the storage location to be approached.

Navigation area:

- ◆ Configurable start page after switching on the lift/carousel. The menu item "Article", "Job" or "Lift" can be used as the start page (see menu item "Lift settings").

Navigation area:

- ◆ Currently has no function.

Navigation area:

- ◆ Calling up the storage portal. This is used for data screening and carrying out administrative settings, such as editing article master data or creating jobs manually.

The storage portal can also be represented by an external PC browser at the workstation.

Navigation area:

- ◆ Call up the touchscreen keyboard.

Taskbar:

- ◆ Toggle to the "Lift operation" window.

Taskbar:

- ◆ Toggle to the "Storage portal" window.

Taskbar:

- ◆ Call up user settings / system services (service) with password prompt.

3 Operating elements / general operator advisories



Taskbar:

- ◆ The shelf in the access point is stored in the lift (Lean-Lift, Multi-Space).
- ◆ Manual shelf selection by sight, movement direction upward (Rotomat).



Taskbar:

- ◆ After entering the shelf number, the corresponding shelf is brought to the access point (Lean-Lift, Multi-Space).
- ◆ Manual shelf selection by sight, movement direction downward. (Rotomat)



Taskbar:

- ◆ Manual positioning to a shelf location to enter it (Rotomat)



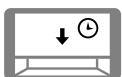
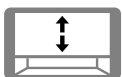
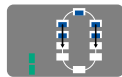
Taskbar:

- ◆ Calling up instructions for the safety inspection.



Taskbar:

- ◆ The imbalance situation is displayed (only for Rotomat).
- ◆ Symbols for the various imbalance situations. These range from "Rotomat is loaded optimally" to "Rotomat has high imbalance". (only for Rotomat).



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:

- ◆ The inventory is started manually (only when using supplementary module 21) Inventory function).



Taskbar:

- ◆ The articles with exceeded signal storage time are removed (only when using supplementary module 05) Storage location management).



Taskbar:

- ◆ Label printing is started. (only when using supplementary module 27) Label printing at the access point).



Taskbar:

- ◆ Call up the settings of the display language (if enabled in the "Lift - Settings" menu item).



Taskbar:

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

3 Operating elements / general operator advisories



Taskbar:

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



Taskbar:

- ◆ Symbol for "Lock access to the access point via touchscreen" and "Lock access to the access point automatically after a specified time span"

(only when using supplementary module 02) Access code management)



Taskbar:

- ◆ Symbol for "Switch from administrator mode to lending mode"

(only when using supplementary module 26) Lending management)



Taskbar:

- ◆ Symbol for "Switch from administrator mode to lending mode"

(only when using supplementary module 26) Lending management)



Taskbar:

- ◆ Symbol for "Opening and closing the high-speed door with the keyboard" (only for Lean-Lift)

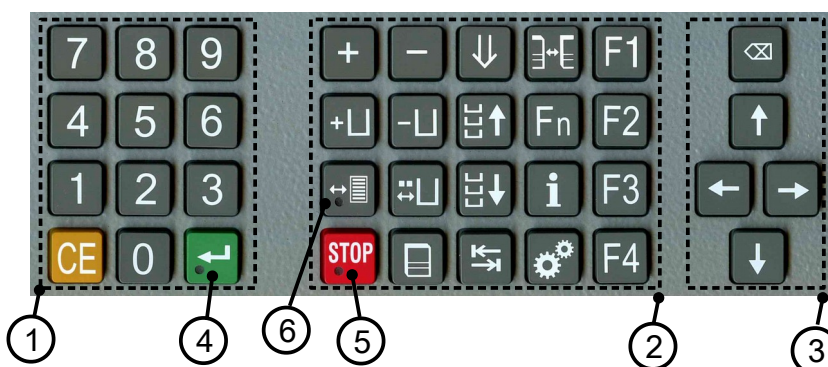
(only when using the supplementary feature "High-speed door" and setting "Shelf change takes place with high-speed door open")

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
- ⑥ Yellow LED illuminated
-> Job is present



3

3.2.2 Key functions

Meaning for Rotomat	Meaning for Lean-Lift / Multi-Space	Key
Confirm entry Set safety system Start lift run!		
Delete an entry, Cancel a function Acknowledge operator advisories and lift run error messages		
Stopping a lift run To stop a lift run in hazardous situations, use the emergency stop switch!		
Call up "Article" menu item		
Call up "Job" menu item		
Call up "Lift" menu item		
Manual shelf selection by sight (Start lift run!)	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 (Start lift run!)	Store shelf from access point (Start lift run!)	
Store an article with creation of a storage location	Adding a new shelf Store an article with creation of a storage location	
Delete a storage location (only for "without inventory control")	Removing a shelf / deleting a storage location (only for "without inventory control")	
Store an article		
Remove an article		
Tab		
Call up lift/carousel references		
Call up "Storage portal" menu item		
Call up the "System services" menu item		
Function key		
Make selection / table row selection upwards		
Make selection / table row selection downwards		
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 Automatic storage location assignment	Optimisation run Automatic storage location assignment	
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	Display
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.	

3.3.2

Available characters

Description	Display
Alphanumeric home page of the touchscreen keyboard.	
Page 1 of the special characters	
Page 2 of the special characters	

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), å (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), ũ (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	ń (U+0144), ñ (U+0148), ñ (U+00F1)
d	d' (U+010F)
g	ğ (U+011F)
l	ł (U+0142), í (U+013A), l' (U+013E)
r	ř (U+0159), r' (U+0155)
t	ţ (U+0163), t' (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), Ä (U+00C5), Æ (U+00C6), Å (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), Û (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	Ń (U+0143), Ñ (U+0147), Ñ (U+00D1)
D	Ď (U+010E)
G	Ğ (U+011E)
L	Ł (U+0141), Ĺ (U+0139), Ľ (U+013D)

3 Operating elements / general operator advisories

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

Switch-on screen after the lift run is completed.

Switch-on screen, example for Lean-Lift:



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)
- Container size by defined container types (only when using the supplementary module 08) Free location 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

Description



Display

Release of shelf detent:



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.

- x The shelf detent can be enabled or disabled with System services run sequence.
- x Shelf detent is possible only on lifts/carousels that are fitted with an incremental encoder for horizontal movement and that do **not** have the following supplementary features:
 - High-speed door
 - Automatic shelf ejection
 - Shelf weighing device
 - Automatic shelf detent
 - Multiple access points with guide rails or transporter/trolley

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)

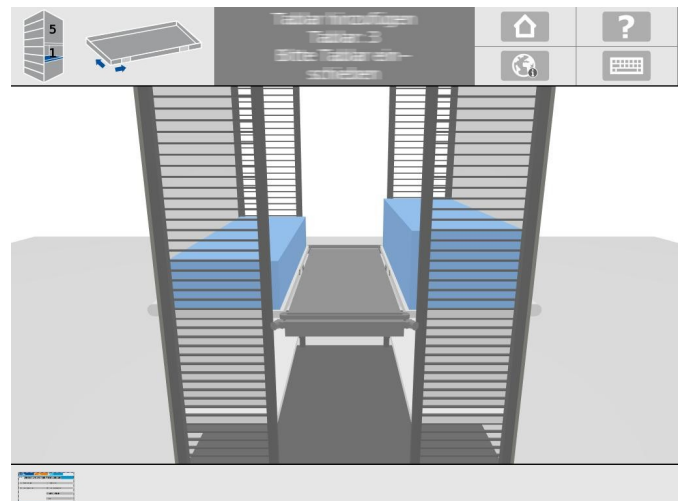
Description

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:





x The quick switchover of language during operation is possible only if the "Multilingual display language" function has been enabled under the menu item "Lift - Settings - Operator prompts".

3

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3 Operating elements / general operator advisories

3.9 Display lock

Description

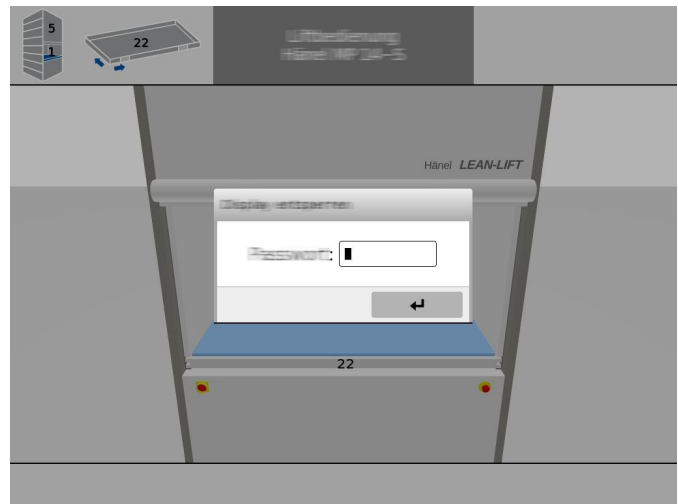
- Under the "Lift" menu item there is a "Settings" function that can be used to enable the display lock and set its password. Optionally, the setting "Activate display lock after the time span" can be used to activate the display lock automatically.
- After the control system boots up or after manual or automatic enabling of the display lock, the user is prompted to enter a password as access protection.

Display

Enabling in the taskbar:



Automatic activation after a specified time span:



3

3.10 Lift/carousel references in an MP multi-unit network

Calling up the reference memory:



If lifts/carousels are operating in an MP multi-unit network and the user wishes to access articles that are stored in another lift/carousel, a lift/carousel reference is issued. The control system differentiates between the following kinds of lift/carousel reference:

- Lift/carousel reference for direct storage and retrieval (Article menu)
- Lift/carousel reference for job processing (Job menu)

Up to 30 references can be stored in the other lift/carousel.

The reference selected is deleted immediately after it has been called. If a lift/carousel is switched off, all the references are deleted.

If the reference memory is full, the message "A reference is not possible" is displayed.



- x Pressing the reference button always calls up the reference memory of the active menu item.

3 Operating elements / general operator advisories

3.11 Match code search



- x The match code search is used in the Article menu item and in the Job menu item in the "Search" function.
- x The search windows within the storage portal also use the principle of the match code search.

The match code search function allows the user to look for data such as article data records, requisition data records and job data records in the memory according to various search criteria that can be applied to different data fields.

The search data field can be preset by setting a default match code search and remains active until the next time it is changed.

The search criterion is a character string (termed a match code) entered by the user. All the search data fields in the memory are searched for this string. All the data records that match the search criterion are shown on the display. The more characters contained in the match code, the narrower the search range will be and the fewer matching data records will be offered for selection.

3



- x The search for article number or job number always takes place in sorted form. The search for article name and special data fields takes place in sorted form only if there are no more than 200 hits.

3

Operating elements / general operator advisories

Possible match codes	Description
?	Use of the question mark. All the data records with the search data field are selected.
<Character string>?	A character string followed by a question mark. The system searches for data which start with this character string.
?<Character string>	Use of the question mark at the beginning, followed by a character string. The system searches for data which end with this character string.
?<Character string>?<Character string>?	Multiple character strings separated by question marks and with question marks at the beginning and end. The system searches for data which contain the various character strings in the search data field in the order specified.
	x Depending on the setting, the match code search is possible in case sensitive or non-case sensitive form. (Setting under the menu item "Lift - System services stor. management - System configuration - Supplementary functions - Match code search")

3 Operating elements / general operator advisories

3.12 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

3.12.1 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.



The button itself also indicates the imbalance situation.

Description

- 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.

Example screenshot



3

Operating elements / general operator advisories

3.12.2 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
Press the [↩] key. ➔ The carousel continues moving for a maximum of 4 carriers.	LIFT RUN FAULT : OVER IMBALANCE DETECTED -> CE/↩

3

3.12.3 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 operation

4.1 Lift menu item

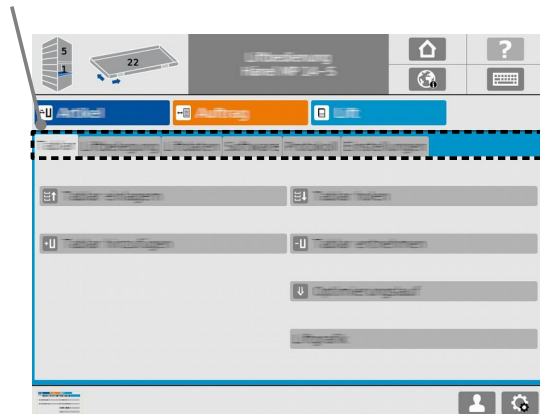
Description

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 (light blue)



-  • "Get shelf" button (for RO)
 - The entered shelf position is accessed manually and the compartment or compartment depth display is activated.
-  • "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)
- "Lift graphic" button (for LL, MS)
 - Displays the current lift status. The lift is displayed in three-dimensional form and can be viewed from all sides.

LL = Lean-Lift

MS = Multi-Space

RO = Rotomat

4 Lift 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 "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:

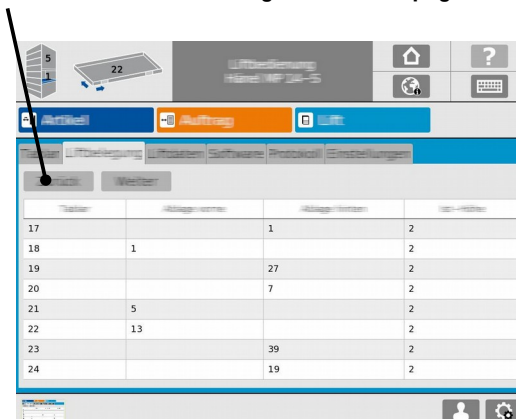
Shows the version statuses of the individual software modules.

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 operation

Description

Function bar - "Settings" function:

The following setting options are available.

- Login settings:
 - ➔ After a successful login (default setting: "22488"), changes in the setting screens can be made.
- Keyboard/ touch functions:
 - ➔ The following key functions can be disabled at the computer:

Add shelf
(LL, MS)

Remove shelf
(LL, MS)

Get shelf
(LL, MS)

Position shelf
(RO)

Optimisation run (LL, MS),
Position shelf (RO)

Menu item, Article

Menu item, Job

Job - Priority menu item

Storage portal

Create storage location

Store articles

- ➔ The assignment of the home button can be defined on a user-defined basis. Options:
Article menu, Job menu or Lift menu.
- ➔ The assignment of the touchscreen keyboard can be defined on a user-defined basis. Options: QWERTZ, QWERTY, AZERTY.

Display

- Operator prompts:
 - ➔ Setting options "Delete last storage location at zero inventory / do not delete / delete only after prompt".
 - ➔ Setting option "Automatically store shelf after direct storage/retrieval operation".
 - ➔ Setting option "Automatically store shelf after job processing".
 - ➔ Setting option "Multilingual display language" (see Chapter 3.8, page 33).
 - ➔ Setting option "Storage location creation only with mandatory container size entry" (LL, MS)
 - ➔ Setting option "GUI Style 2". This setting brings about a change of the design of the operator prompts.
- Display lock
 - ➔ Activation / deactivation of the display lock (see Chapter 3.9, page 34).
- Change password
 - ➔ Defining the password for "Login settings" and for the "Display lock".

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

4Lift operation

4.2Menu item, Article

Description	Display
Unscheduled storage/retrieval operations can be carried out in the Article menu item. New articles can be created and stored or existing articles stored and retrieved. You have the following options for selecting an existing article: 1) Direct input of the article number 2) Search function 3) Selecting the storage location 4) Selecting the storage location using a camera image (only in conjunction with the supplementary feature "Camera") 5) Applying the article number transferred from the reference (see Chapter 3.10, page 34). After selecting the article, the storage location is defined and the quantity is registered in the next operating steps.	

4 Lift operation

Description

Function bar - "Input" function:

- Article number is not available.
 - ➔ After entering the new article number, the Return button must be pressed and the storage location selected in the next windows.
- Article already exists.
 - ➔ After entering two characters from the article number to be subjected to a search, a search operation is started. If the number of the search result is between 1 and 5, a selection box appears below the input line. Then, an article can be searched for using a touchscreen or keyboard.
 - ➔ Press the Return button on the touchscreen or keyboard.

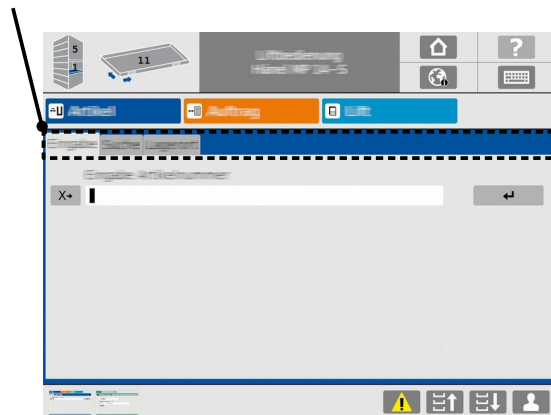
Note: When the "X→" button is pressed, a selection box appears below the input line that contains the last 5 user entries.

Function bar - "Search" function:

- A search operation can be run for the article number, the article name or user-defined H special data fields.
 - ➔ The search term is a character string (termed a match code) entered by the user. For this string, a search is conducted for all the search data fields in the memory.
- Note: For a more detailed description of using the match code search, see Chapter 3.11, page 35.
- ➔ The search result is shown in table form.
 - ➔ Select the article using touchscreen or keyboard.

Display

Function bar for the Article menu item (dark blue)



4 Lift operation

Description

Function bar - "Storage location" function:

- A graphic selection of the storage location is possible.
 - All articles that are already in the selected storage location are listed in table form.
 - Select the article using touchscreen or keyboard.

Function bar - "Camera" function:

Note: The menu item only appears in conjunction with the supplementary feature "Camera".

- A graphic selection of the article / storage location is possible using camera images.
 - All articles that are already in the selected storage location are listed in table form.
 - Select the article using touchscreen or keyboard.

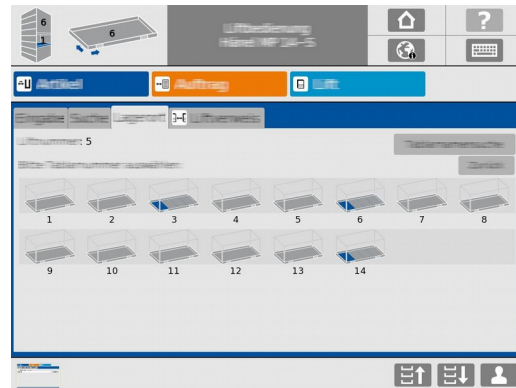
Function bar - "Reference" function:

Note: The menu item appears only with MP14-H [MP 14-S] or with MP14-H [MP 100D-5] with multiple lifts/carousels.

- All existing references are listed in table form.
- Select the reference using touchscreen or keyboard.
- Apply the article number from the reference.

Note: For additional information, see Chapter 3.10 "Lift/carousel references in an MP multi-unit network".

Display



4 Lift operation

4.3 Menu item, Job

Description

In the Job menu item, manually created jobs and jobs from higher-level systems (host) can be taken over and processed.

The jobs can be created manually, either right at the control system via the storage portal or via external access on the storage portal, using an integrate web server on the workstation of the PC browser.

Alternatively, jobs can be taken over via host communication from a host.

- Refer to Chapter 5 "Storage portal operation" or the Technical Description of the Microprocessor Control System MP 14-S / MP 100D-5 Server for Lean-Lift, Multi-Space and Rotomat.

After selecting the job, the individual job items are processed in the next operating steps.

Function bar - "Input" function:

- Jobs already exist
 - ➔ After entering two characters from the job number to be subjected to a search, a search operation is started. If the number of the search result is between 1 and 5, a selection box appears below the input line. Then, an article can be searched for using a touchscreen or keyboard.
 - ➔ Press the Return button on the touchscreen or keyboard.

Note: When the "X→" button is pressed, a selection box appears below the input line that contains the last 5 user entries.

Function bar - "Search" function:

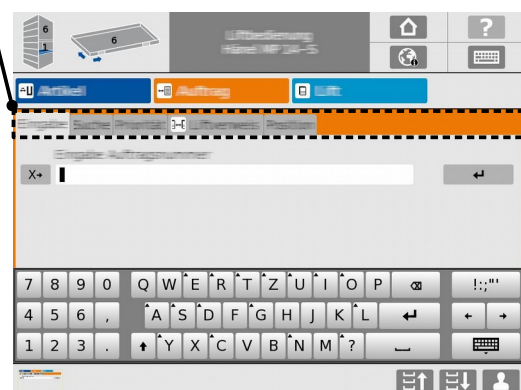
- A search operation can be run for the job number or user-defined C special data fields .
 - ➔ The search term is a character string (termed a match code) entered by the user. For this string, a search is conducted for all the search data fields in the memory.

Note: For a more detailed description of using the match code search, see Chapter 3.11, page 35.

- ➔ The search result is shown in table form.
- ➔ Select the job using a touchscreen or keyboard.

Display

Function bar for Job menu item (orange)



4 Lift operation

Description

Function bar - "Priority" function:

- When this function is actuated, processing of the job with the highest priority is started immediately.

Function bar - "Item" function:

Note: The menu item only appears when the supplementary function "Job item can be selected using the article number" is activated.

- After entering the article number, the system searches for items that contain this article number in all jobs. If there is exactly one suitable job, processing is started automatically. If several jobs are found, a selection list appears.

Function bar - "Reference" function:

Note: The menu item appears only with MP14-H [MP 14-S] or with MP14-H [MP 100D-5] with multiple lifts/carousels.

- All existing references are listed in table form.
 - Select the reference using touchscreen or keyboard.
 - Apply the job number from the reference.

Note: For additional information, see Chapter 3.10 "Lift/carousel references in an MP multi-unit network".

Function bar - "Shelf pre-positioning" function:

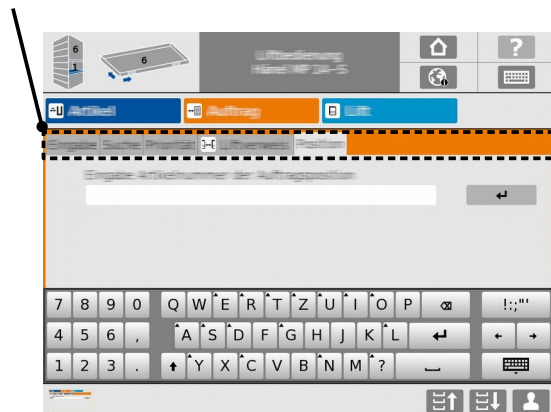
Note: The menu item only appears in conjunction with the supplementary module 20) "Shelf pre-positioning for jobs"

- For further information, refer to the additional description "Shelf pre-positioning for MP 14 Lean-Lift, Multi-Space and Rotomat".



Display

Function bar for Job menu item (orange)



- x If "Input of Uxx data fields for job processing" is also enabled in the supplementary function, up to 5 Uxx data fields can also be prompted when processing a job item. These are acknowledged in the processed job. When the operations journal is enabled, these are also entered there.
- x Processed jobs can be deleted automatically or read back from the host computer by data exchange.
- x The actual removed/stored quantity can be acknowledged.

4 Lift operation

Description



Display

- x In order to activate the supplementary functions of storage management, see the following:
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

4 Lift operation

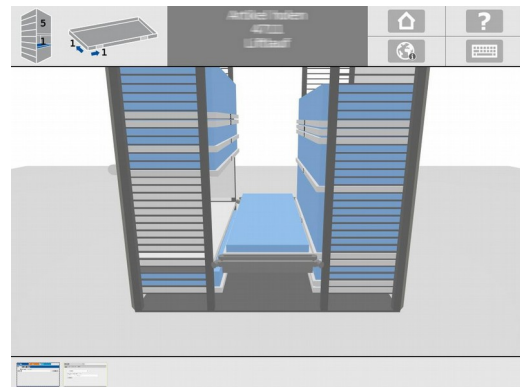
4.4 Lift run graphics

Description

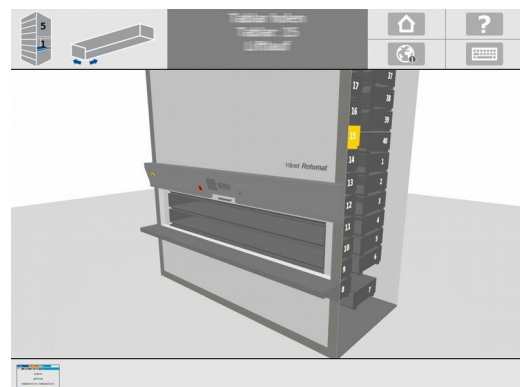
→ The lift run graphics are displayed during the lift run.

Display

Lift run graphics, example for Lean-Lift:



Lift run graphics, example for Rotomat:



4.5 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 Storage portal operation

5.1 Division of the user interface

Description

① Title bar - Navigation area:

After you press the button with the letter abbreviation [i] and the globe icon, the storage portal starts. Alternatively, it can also be started using the [i] key.

Note: Each time the button or key is pressed, the system switches between lift operation and storage portal.

After pressing the "Home" button the home page of the active storage portal is loaded again.

② Menu bar:

Ability to toggle to the Article, Job, Storage location and Settings menu items.

Note: An additional menu item, "User management", appears when using the supplementary module 02) "Access code management with integrated user management".

Note: An additional menu item, "Camera", appears in the storage portal application when accessing the integrated web server externally via the PC browser and the available additional feature "Camera".

③ Status bar:

Display in which the function of the users is currently located.

④ Interaction and display area:

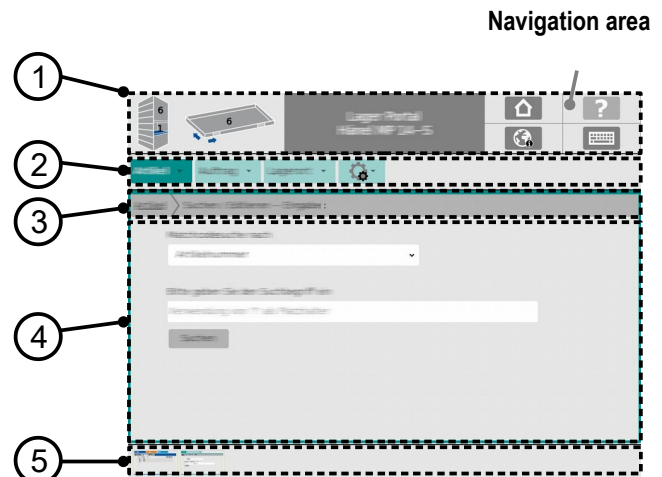
This area is used to display information as well as user inputs.

⑤ Taskbar:

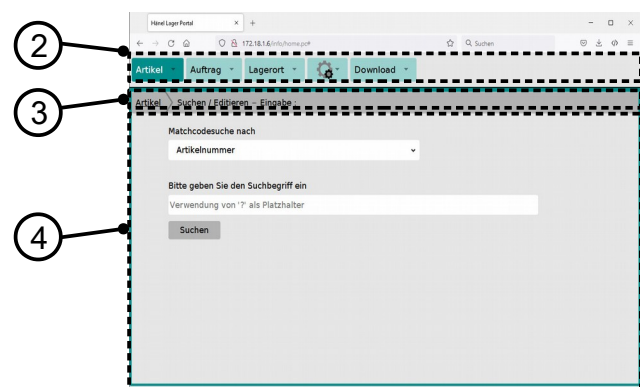
Display all open windows: Toggling between the open windows via touchscreen is possible. At the bottom right-hand side, additional instructions and control options are displayed depending on the menu and equipment features.

Display

Storage portal on the MP control system:



Storage portal via an external PC browser:



Note:

The title bar and the taskbar are not visible in the PC browser.

5

Storage portal operation

5.2

Overview of available functions in the menu bar



- x When using the print functions, a printer must be specified under the menu item "Lift - Settings - System services stor. management - Printout settings - Printer settings".
The printer is used to carry out an external call of the print functions using an integrate web server via the PC browser.
- x All articles with inventory levels that undershoot below the specified minimum inventory are included in the order recommendation list.
- x For a more detailed description of using the match code search, see Chapter 3.11, page 35.

5.2.1

Menu item, Article

Submenu / Function	Submenu / Function	Description
Search / Edit		• A search operation can be run for the article number, the article name or user-defined H special data fields. ➔ The search term is a character string (termed a match code) entered by the user. For this string, a search is conducted for all the search data fields in the memory. • The search result is shown in table form. ➔ Select the article for editing using a touchscreen or keyboard.
Order recommendation list (only for lifts with inventory control)		• A search operation can be run for the article number, the article name or user-defined H special data fields. ➔ The search term is a character string (termed a match code) entered by the user. For this string, a search is conducted for all the search data fields in the memory. • The status must be specified as another search criterion in a selection box (All, Ordered, Not ordered) ➔ The search result is shown in table form. Note: The printout process of the order recommendation list marks the printed articles with the status "Ordered". It is possible to use the PC browser to print out individual articles within the order recommendation list.

5 Storage portal operation

Submenu / Function	Submenu / Function	Description
Article pool management (only when using supplementary module 03) "Article pool management")	Search / Edit / Delete	- A search operation can be run for the article number, the article name or user-defined H special data fields. → The search term is a character string (termed a match code) entered by the user. For this string, a search is conducted for all the search data fields in the memory. - The search result is shown in table form. → Select the article pool data record for editing or deleting using the touchscreen or keyboard. Note: An article pool data record can only be deleted if no storage location exists yet for this data record.
	Create a data record	- To create an article pool data record, the user must specify at least one article number. Optionally, the article name, container size, minimum inventory and multiple user-defined H special data fields can be specified. → Press the "Create a data record" button.
Article images (only when using supplementary module 35) "Article image")	Delete	After the article number is entered/selected, the associated article image can be deleted from the article image memory of the MP control system.
	Delete all	All article images are deleted from the article image memory of the MP control system.
	Clean up	All article images for which no article number exists are deleted from the article image memory of the MP control system
Lending management (only when using supplementary module 26) "Lending management")	Lending list	- Search for lent articles. - Search for lent articles with lending time that has been exceeded.
	Reservation list	- Searching / editing / cancelling reserved articles. - Reserving articles.
Quantity journal (only for activated quantity journal during formatting)	Search	- A search operation can be run for the article number, the article name or user-defined H special data fields. → The search term is a character string (termed a match code) entered by the user. For this string, a search is conducted for all the search data fields in the memory. - The search result is shown in table form.
	Delete	- It is possible to delete the quantity journal. → Press the "Delete a quantity journal" button.

5 Storage portal operation

Submenu / Function	Submenu / Function	Description
Operations journal (only when using supplementary module 06) "Operations journal logging")	Search	- A search operation can be run for the article number, the article name, the date, the time or additional, activated, user-defined H / U special data fields. ➔ The search term is a character string (termed a match code) entered by the user. For this string, a search is conducted for all the search data fields in the memory. - Sorting must be specified as an additional criterion. Users can select between "Display old entries first" or "Display new entries first". - The search result is shown in table form.
	Delete	- It is possible to delete the operations journal. ➔ Press the "Delete operations journal" button.
Inventory function (only when using supplementary module 21) "Inventory function")	Statistics	Display of statistic data.
Storage time management (only when using supplementary module 05) "Storage time management")	Search	Search for articles with signal storage time that has been exceeded.
	Statistics	Display of statistic data.
Storage allocation	Article information	- Display of the following data: - Maximum number of data records - Number of occupied data records - Number of free data records - Number of different articles - Number of different articles in lift/carousel
	Article pool information (only when using supplementary module 03) "Article pool management")	- Display of the following data: - Number of article pool data records - Number of article pool data records with a storage location - Number of article pool data records without a storage location
	Quantity journal information (only for activated quantity journal during formatting)	- Display of the following data: - Number of quantity journal data records - Number of quantity journal data records with a storage location - Number of quantity journal data records without a storage location
	Operations journal information (only when using supplementary module 06) "Operations journal logging")	- Display of the following data: - Number of free operations journal data records - Number of occupied operations journal data records
	Information on article images (only when using supplementary module 35) "Article image")	- Display of the following data: - Number of stored article images - Occupied storage space - Free storage space

5 Storage portal operation

Submenu / Function	Submenu / Function	Description
Print	Article list / Sorted by number	• Sorting is done by article number. • It is possible to print out the complete article list. → Press the "Print complete article list" button. • Alternatively, the user can define the printout range by specifying values in the input fields "From article number" and "To article number". → Click the "Print" button.
	Article list / Sorted by location	• Sorting is done by storage location. • It is possible to print out the complete article list. → Press the "Print complete article list" button. • Alternatively, the user can define the printout range by specifying values in the input fields "From lift", "From shelf", "From compartment" and "To lift", "To shelf", "To compartment". → Click the "Print" button.
	Order recommendation list	• Printout of the complete order recommendation list. → Click the "Print" button.
	Quantity journal (only for activated quantity journal during formatting)	• Printout of the quantity journal → Click the "Print" button.
	Operations journal (only when using supplementary module 06) "Operations journal logging")	• Printout of the operations journal → Click the "Print" button.

5 Storage portal operation

5.2.2 Menu item, Job

Submenu / Function	Submenu / Function	Description
Search / Edit / Delete		- A search operation can be run for the job number or user-defined C special data fields. → The search term is a character string (termed a match code) entered by the user. For this string, a search is conducted for all the search data fields in the memory. - That status can be specified as an additional criterion. You can select from the following: - All jobs - Unprocessed jobs ("New" status) - Partially processed jobs ("Partially processed" status) - Jobs that are in progress ("In progress" status) - Processed jobs ("Processed" status) - The search result is shown in table form. → Select the job for editing / deleting using a touchscreen or keyboard. Note: Jobs with the status "New" can be edited or deleted.
Create		- To create a job manually, the user must enter the job header and at least one job item. → Click the "Save job" button.
Storage allocation		- Display of the following data: - Number of free jobs - Number of free job items - Number of stored jobs - Number of unprocessed jobs
Print	Job list	- It is possible to print out the complete job list. → Click the "Print" button.
	Job number	- It is possible to print out a job with associated job items. → Enter the job number → Click the "Print" button.
	Job list for rack operation (only for Rack operation mode)	- It is possible to print out the complete job list that is sorted by storage location after entering the job number and the parameters "From lift" and "To lift". → Click the "Print" button. Note: Using the list, it is possible to first remove or store all the job items in the rack store at once. When the operator subsequently processes the job, these items are then registered in the rack control system without the user having to go back and forth repeatedly between the rack control system and the storage location in the rack. This speeds up job processing in the rack area.

5 Storage portal operation

5.2.3 Storage location menu item

Submenu / Function	Submenu / Function	Description
Storage location assignment info		- A graphic selection of the storage location is possible. → All articles that are already in the selected storage location are listed in table form.
Print the shelf assignment		- It is possible to print out the shelf assignment after entering the lift number. → Click the "Print" button.
Free location management (only when using supplementary module 08) "Free location management")	Initialise	- After selecting the lift number, up to 15 container types can be assigned to "Size in direction of compartments" and "In the direction of compartment depths". - All container types are listed in table form. After making a selection using the touchscreen, the "Size in direction of compartments" or "Direction of compartment depth" can be changed graphically by swiping with your finger. Notes: - An allocation cannot be repeated within a lift/carousel. - If the formatting setting "Multi-unit storage" is activated, all lifts/carousels must have the same container types. Otherwise, each lift/carousel can initialise its own container types - A container type can only be changed if no storage location has been assigned to this type yet. - A container type is deleted by setting the "Size in compartments" and "Direction of compartment depth" to 0. This is only possible if no article has been stored with this container type yet.
	Assign / Delete	- After a graphic selection of the lift number and shelf number, a container type can be graphically assigned to a storage location or deleted. Assign: → Select the container type in the selection box → Use your finger to tap an open position on the shelf. → The container type is plotted in the shelf in a colour-coded system. Delete: → Use your finger to select an assigned, colour-coded container type, pressing and holding it. → A prompt appears asking whether you really want to delete the allocation. Note: An allocation to a storage location can only be deleted if no article has been stored in this storage location.
Storage allocation		- Display of the following data: - Number of storage locations in the lift - Number of free storage locations in the lift - Number of occupied storage locations in the lift

5Storage portal operation

5.2.4 User management menu item



x This menu item only appears when using the supplementary module 02) "Access code management with integrated user management"

Submenu / Function	Submenu / Function	Description
User group	Create	A new user group can be created without storage location rights.
	Edit / Delete	An available user group can be edited / deleted.
	Display users of a user group	All users that belong to the selected user group are shown in table form.
	Storage location rights	- For the selected user group, access rights can be created at a specific storage location, edited or deleted. - Information on the access rights at a specified storage location is also possible.
User	Create	A new user can be created when specifying an associated user group.
	Edit / Delete	An existing user can be edited or deleted.
	Display storage location rights	The storage location rights (access rights at a specific storage location) for a selected user can be displayed.
	Group allocation	- The group allocation of a user can be changed. A user can be assigned to a user group or deleted from a group. - Group allocation of a user to multiple user groups is possible.

5Storage portal operation

5.2.5Settings menu item



x The password for the individual functions under the menu item "Settings" is as follows: "22488". The password cannot be changed.

Submenu / Function	Submenu / Function	Description
Language setting (only for PC browser)		Language setting.
Access protection		- Activation / deactivation of the login prompt for the PC user of the storage portal (PC browser). - Activation / deactivation of the editing functions in the storage portal.
Column view	Article / article list Article / order recommendation list Optional: Article / article pool management Article / quantity journal Article / operations journal Job / job overview Job / job item	A list of article and job data records in table form can be changed individually. The operator themselves can determine which columns will be displayed and which ones will not be. The column sequence can also be defined. Exception: The column you are searching for always appears at the front (in the first column).
Delete all cookies (only with MP control system)		All stored settings (language, column view) are deleted.

5

Storage portal operation

5.2.6

Download menu item (only for PC browser)

Submenu / Function	Submenu / Function	Description
Article images (only with activated supplementary module 35) "Article image")		• Download all article images.
Article master data		• Download the article master data in csv format.
Order recommendation list		• Download the order recommendation list in csv format. (As a result of the download process, all articles of the order recommendation list are marked as "ordered".
Operations journal (only with activated supplementary module 06) "Operations journal")		• Download the operations journal in csv format.
Operations journal (journal is deleted after being read out) (only with activated supplementary module 06) "Operations journal")		• Download the operations journal in csv format. The journal is deleted after being read out.



- x The meaning of the individual columns in the CSV files is predefined by the names in the first row. The sequence of columns corresponds to a standard sequence.
 - x Using the configuration software of host communication, the sequence of columns can be changed individually and/or columns can be hidden.
- For additional information about the configuration software of host communication, see "Technical Description of the Microprocessor Control System MP 14-S / MP 100D-5 Server for Lean-Lift, Multi-Space and Rotomat".

6

System services



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

Menu item / Function	Description
System services lift control	• Various system parameters of the lift/carousel control system can be configured in this menu.
System services storage management	• In this menu, various system parameters of the storage management system can be configured.
System services Run sequence	• System parameters that influence the sequence of operations can be altered here.
System services service functions	• 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.



Safety inspection log



SAFETY INSTRUCTION

The service functions are protected by the service password. The service functions are intended for specially and verifiably trained, authorised personnel only.

- In this menu item, you can update log data for the safety inspection.
- The operator is reminded of the safety inspection annually.

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.



For additional information, see:

- 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

7 Operator advisories

7.1 Safety inspection

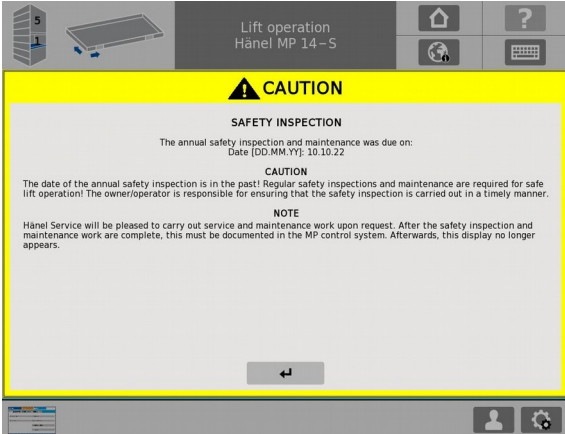
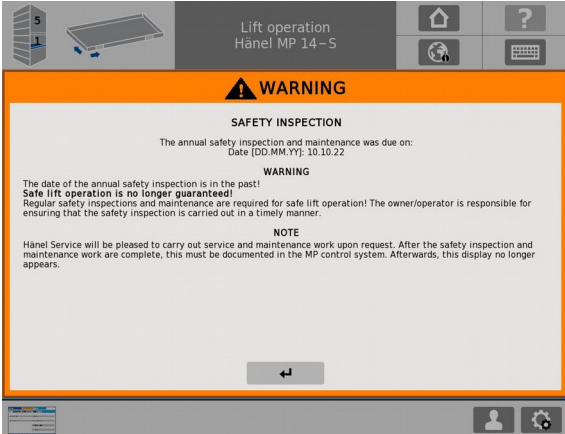
An annual lift/carousel safety inspection is necessary to ensure safe operation of the lift/carousel at all times.

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
	As long as the first safety inspection, i.e. the safety inspection during commissioning, has not yet been carried out / entered, this note appears. ◆ The note is displayed every time the device is switched on. ◆ In addition, a warning symbol is displayed below in the taskbar. The note appears again by touching the warning symbol.	• Have a safety inspection carried out.
	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. ◆ The note is displayed once on the Lean-Lift and Rotomat. ◆ On the Multi-Space, the note is displayed every time the device is switched on and every 24 hours. ◆ In addition, a warning symbol is displayed below in the taskbar. The note appears again by touching the warning symbol.	• Have a safety inspection carried out.

7 Operator advisories

Note	Cause	Action
 The screenshot shows the MP control system interface with a yellow CAUTION banner. The text reads: 'SAFETY INSPECTION The annual safety inspection and maintenance was due on: Date [DD.MM.YY]: 10.10.22'. Below this, it states: 'CAUTION The date of the annual safety inspection is in the past! Regular safety inspections and maintenance are required for safe lift operation! The owner/operator is responsible for ensuring that the safety inspection is carried out in a timely manner.' At the bottom, a NOTE says: 'Hänel Service will be pleased to carry out service and maintenance work upon request. After the safety inspection and maintenance work are complete, this must be documented in the MP control system. Afterwards, this display no longer appears.'	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. ◆ The note is displayed once on the Lean-Lift and Rotomat if no 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. ◆ On the Multi-Space, the note is displayed every time the device is switched on and every 8 hours. ◆ In addition, a warning symbol is displayed below in the taskbar. The note appears again by touching the warning symbol.	• Have a safety inspection carried out.
 The screenshot shows the MP control system interface with an orange WARNING banner. The text reads: 'SAFETY INSPECTION The annual safety inspection and maintenance was due on: Date [DD.MM.YY]: 10.10.22'. Below this, it states: 'WARNING The date of the annual safety inspection is in the past! Safe lift operation is no longer guaranteed! Regular safety inspections and maintenance are required for safe lift operation! The owner/operator is responsible for ensuring that the safety inspection is carried out in a timely manner.' At the bottom, a NOTE says: 'Hänel Service will be pleased to carry out service and maintenance work upon request. After the safety inspection and maintenance work are complete, this must be documented in the MP control system. Afterwards, this display no longer appears.'	As long as no safety inspection has been carried out / entered, this note appears after the sixth day after the due date. ◆ The note appears once. ◆ In addition, a warning symbol is displayed below in the taskbar. The note appears again by touching the warning symbol.	• Have a safety inspection carried out.

7 Operator advisories

7.2 System

Note	Cause	Action
STORAGE MANAGEMENT NOT YET READY!	Storage management cannot process the request at this time, as the internal start-up procedure is not yet completed.	Operation is possible again after a short wait.
FIND CONNECTION TO MP 100D-5 SERVER!	No data transfer between lift/carousel control system and central control system. - No supply voltage to MP 100D-5 because main switch of "SERVER MP100" is off or because F13 cut-out is triggered. - Lines connecting lift control system(s) and MP 100D-5 interrupted.	- Switch on main switch of "SERVER MP100" or set F13 cut-out. - Check connecting lines and replace if defective.
FIND CONNECTION TO MP 14-S SERVER!	No data transfer between lift control system and MP 14-S for two carousels. - No supply voltage to the MP 14-S due to main switch being switched off. - Lines connecting lift control system(s) and MP 14-S interrupted. - Ethernet MP multi-unit network	- Switch on the main switch. - Check connecting lines and replace if defective. - Check Ethernet parameters and initialisation of master lift/carousel.
Only for multiple access points and only for Lean-Lift: LIFT RUN FOR OTHER ACCESS POINT ! (n) PLEASE WAIT	(n) = Access point number for multiple access points. An operation is currently in progress at access point (n).	Wait until the lift run for access point (n) is completed.
Only with multiple access points: OPERATION IS BLOCKED BY OTHER ACCESS POINT! (n)	(n) = Access point number for multiple access points. A lift run error message is pending at access point (n).	Resume lift run at access point (n).
Only for multiple access points and only for Lean-Lift: CANCELLING BLOCKS OTHER ACCESS POINTS! REALLY CANCEL? NO -> ↑/↓/CE/↩	The horizontal movement within the access point is not completed and the [CE] key was pressed for the lift run error message.	Confirm "NO" and exit the horizontal movement.
Only with Lean-Lift: <...> LIFT RUN FRONT <tt> <...> <...>	Shelf <tt> is stored in the front lift unit. FRONT is the side at which the operator is standing.	Wait until the lift run is finished.

7 Operator advisories

Note	Cause	Action
Only with Lean-Lift: <...> LIFT RUN BACK <tt> <...> <...>	Shelf <tt> is stored in the rear lift unit. REAR (BACK) is the side opposite the operator.	Wait until the lift run is finished.
Only with Multi-Space: <...> LIFT RUN FRONT <tt> LIFT UNIT : <n> <...>	Shelf <tt> is stored in front lift unit number <n>. 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.	Wait until the lift run is finished.
Only with Multi-Space: <...> LIFT RUN BACK <tt> LIFT UNIT : <n> <...>	Shelf <tt> is stored in rear lift unit number <n>. 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.	Wait until the lift run is finished.
DO NOT INCREASE ARTICLE HEIGHT -> CE/↵ ARTICLE HEIGHT INCREASED ? YES -> ↑/↓/CE/↵	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.	Have the "Check article height" test run carried out by Hänel service department. Refer also to the Technical Description.
REDUNDANCY SYSTEM FUNCTION IS NOT POSSIBLE AT PRESENT -> CE	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.	Have the "Check article height" test run carried out by Hänel service department. Refer also to the Technical Description.

7 Operator advisories

Note	Cause	Action
Only for lifts without shelf weighing device: SHELF NUMBER LIMIT EXCEEDED ->  then AVERAGE MAX. SHELF LOAD [KG]: xxx -> CE/	The system has detected that the shelf number limit has been exceeded. Shelf number limit = max. total load / (max. shelf load + shelf empty weight)	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.
Only for lifts without shelf weighing device: < . . . > LIFT RUNNING ! DO NOT EXCEED MAXIMUM LIFT LOAD	This message is displayed for a lift run if the system has detected that the shelf number limit has been exceeded. Shelf number limit = max. total load / (max. shelf load + shelf empty weight)	
INCREASED NO. OF SHELVES PERMITTED ->  then MAXIMUM SHELF LOAD [KG]: xxx -> CE/	The system has detected that the permitted default number of shelves has been increased using a lift/carousel-specific enable code.	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.

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 : STOP BUTTON PRESSED -> CE/↵	The red [STOP] key on the keyboard has been pressed.	Caution: The [↵] key starts a lift run! Press the green [↵] key to continue the lift run. Press the [CE] key to cancel the lift run.
LIFT RUN FAULT : EMERGENCY STOP [F7] (n) -> CE/↵	(n) = Access point number for multiple access points. - Emergency stop switch is pressed.	Caution: The [↵] key starts a lift run! Disengage the emergency stop button.
LIFT RUN FAULT : SERVICE DOOR -> CE/↵	Service door is not properly closed.	Caution: The [↵] key starts a lift run! Close service door correctly so that the door switch is actuated.
LIFT RUN FAULT : SECOND SERVICE DOOR -> CE/↵	Additional service door is not properly closed.	Caution: The [↵] key starts a lift run! Close additional service door correctly so that the door switch is actuated.
Only with Multi-Space: LIFT RUN FAULT : SERVICE DOOR MOTORS -> CE/↵	Additional service door for the vertical motor in the bottom front panel is not closed correctly.	Caution: The [↵] key starts a lift run! Close the additional service door for the vertical motor in the bottom front panel so that the door switch is actuated.
Only with Lean-Lift: LIFT RUN FAULT : MOTOR 1 TOO HOT -> CE/↵	Motor 1 (vertical drive) overheated.	Caution: The [↵] key starts a lift run! Allow motor to cool down for about 10 min.

8 Error messages during lift run

Lift run error message	Cause	Action
Only with Lean-Lift: LIFT RUN FAULT : MOTOR 2 TOO HOT/ UPPER LIMIT SWITCH -> CE/↩	- Motor 2 (horizontal drive) overheated.	Caution: The [↩] key starts a lift run! - Allow motor to cool down for about 10 min.
LIFT RUN FAULT : LIGHT BARRIERS (n) -> CE/↩	(n) = Access point number for multiple access points. - Interruption of safety light barriers at access point due to protruding object. - Safety light barrier is not yet set. - After only a brief interruption of the safety circuit (e.g. emergency stop, frequency converter), light barrier remains triggered.	Caution: The [↩] key starts a lift run! - Clear the area monitored by the light barriers and press the [↩] key for about 0.5 sec. - Press the [↩] key for about 0.5 sec. to set the safety circuit. - Press the [↩] key for about 0.5 sec. to set the safety circuit.
Then (only with multiple access points with guide rails) LIFT RUN FAULT : ENABLE LIFT RUN AT ACCESS POINT (n) -> CE/↩ then LIFT RUN HAS BEEN ENABLED AT ACCESS POINT (n) -> CE/↩	- The [↩] key has been pressed without correcting the light barrier interruption at access point (n). - Interruption of safety light barriers at access point (n) has been corrected.	- Clear the area monitored by the light barriers at access point (n) and press the [↩] key for approx. 0.5 sec. - Interruption of safety light barriers at access point (n) has been corrected.
Only with multiple access points with guide rails: LIFT RUN ENABLE FOR ANOTHER ACCESS POINT WITH ↩	Interruption of safety light barriers at this access point while lift run was carried out for other access point.	Clear the area monitored by the light barriers at access point and press the [↩] key for approx. 0.5 sec.
Only with Multi-Space: LIFT RUN FAULT : MOTOR 1.1 TOO HOT -> CE/↩	Motor 1.1 (vertical drive) overheated.	Caution: The [↩] key starts a lift run! Allow motor to cool down for about 10 min.
Only with Multi-Space: LIFT RUN FAULT : MOTOR 1.2 TOO HOT -> CE/↩	Motor 1.2 (vertical drive) overheated.	Caution: The [↩] key starts a lift run! Allow motor to cool down for about 10 min.

8 Error messages during lift run

Lift run error message	Cause	Action
Only with Multi-Space: LIFT RUN FAULT : MOTOR 2 TOO HOT/ MOVEM. LIMIT SWITCH -> CE/↩	Motor 2 (horizontal drive) overheated.	Caution: The [↩] key starts a lift run! Allow motor to cool down for about 10 min.
Only with Multi-Space: LIFT RUN FAULT : MOTOR 3 TOO HOT/ LEFT LIMIT SWITCH -> CE/↩	Motor 3 (movement unit) is overheated.	Caution: The [↩] key starts a lift run! Allow motor to cool down for about 10 min.
Only with Multi-Space: LIFT RUN FAULT : MOTOR 4 TOO HOT -> CE/↩	Motor 4 (movement unit) is overheated.	Caution: The [↩] key starts a lift run! Allow motor to cool down for about 10 min.
Only with Multi-Space: LIFT RUN FAULT : TEMP. PROTECTION MOVEMENT UNIT -> CE/↩	The movement unit motor monitor has tripped.	Caution: The [↩] key starts a lift run! Allow motor to cool down for about 10 min.

8 Error messages during lift run

8.1.2 Rotomat

Lift run error message	Cause	Action
LIFT RUN FAULT : STOP BUTTON PRESSED -> CE/↩	The red [STOP] key on the keyboard has been pressed.	Caution: The [↩] key starts a lift run! Press the green [↩] key to continue the lift run. Press the [CE] key to cancel the lift run.
LIFT RUN FAULT : EMERGENCY STOP [F7] (n) -> CE/↩	(n) = Access point number for multiple access points. Emergency stop switch is pressed.	Caution: The [↩] key starts a lift run! Disengage the emergency stop button.
LIFT RUN FAULT : DOOR (n) -> CE/↩ or LIFT RUN FAULT : UPPER DOOR (n) -> CE/↩ or LIFT RUN FAULT : LOWER DOOR (n) -> CE/↩	n) = Access point number for multiple access points. - Sliding doors not fully open. - Safety rocker switch of upper or lower door actuated.	Caution: The [↩] key starts a lift run! - Open sliding door fully. - 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.
LIFT RUN FAULT : SERVICE DOOR -> CE/↩ or LIFT RUN FAULT : LOWER SERVICE DOOR -> CE/↩ or LIFT RUN FAULT : UPPER SERVICE DOOR -> CE/↩	Lower service door or optional upper service door not correctly closed.	Caution: The [↩] key starts a lift run! Close the service door properly.
LIFT RUN FAULT : MOTOR TOO HOT -> CE/↩	Motor 1 or motor 2 overheated.	Caution: The [↩] key starts a lift run! Allow motor to cool down for about 10 min.
LIFT RUN FAULT : FREQUENCY CONVERTER -> CE/↩	Frequency converter has switched off because of overload.	Caution: The [↩] key starts a lift run! Switch carousel off, then on again and allow frequency converter to cool down if necessary.

8 Error messages during lift run

Lift run error message	Cause	Action
LIFT RUN FAULT : LIGHT BARRIERS (n) -> CE/↵	(n) = Access point number for multiple access points. • Interruption of safety light barriers at access point due to protruding object. • Safety light barrier is not yet set. • After only a brief interruption of the safety circuit (e.g. emergency stop, safety rocker switch, frequency converter), the light barrier remains triggered. • Light barriers interrupted by dirt on Plexiglas screens on left and right of access opening.	Caution: The [↵] key starts a lift run! • Clear the area monitored by the light barriers and press the [↵] key for about 0.5 sec. • Press the [↵] key for about 0.5 sec. to set the safety circuit. • Press the [↵] key for about 0.5 sec. to set the safety circuit. • Clean the screens.
LIFT RUN FAULT : MANUAL OPERATION ACTIVATED -> CE/↵	• Manual/auto mode selection switch S5 is in centre position O.	Caution: The [↵] key starts a lift run! • Turn the manual/auto mode selection switch to locking position ‡.
LIFT RUN FAULT : CLOSE DOOR -> CE/↵	• If the system has a second safety circuit and emergency operation is activated. Light barriers are interrupted and door is not closed.	Caution: The [↵] key starts a lift run! • Close the door.
LIFT RUN FAULT : SENSOR TEST: OPEN AND CLOSE DOOR -> CE/↵	• If there is one access point and a second safety circuit: Lift run when emergency operation activated requires that the door be opened and closed after a safety interruption.	Caution: The [↵] key starts a lift run! • Open and close door.

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

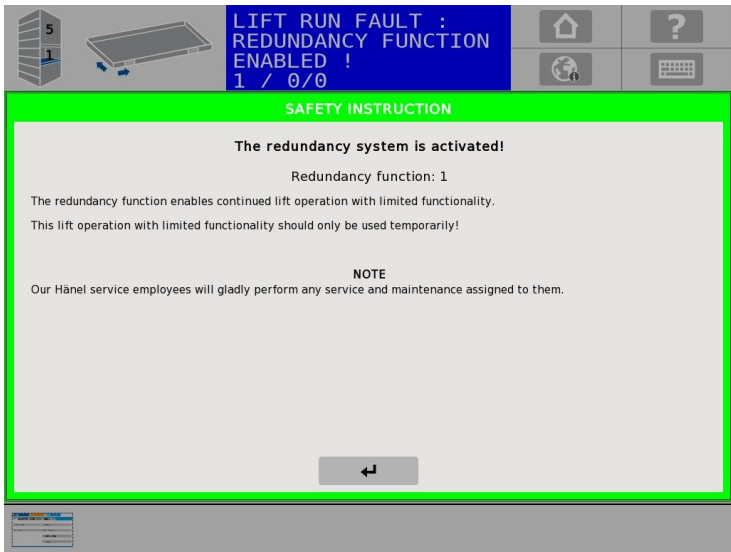
8 Error messages during lift run

Lift run error message	Cause	Action
LIFT RUN FAULT : SYNCHRO. RUN x → CE/↩	x = cause of synchronisation run 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.	Caution: The [↩] key starts a lift run! 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].
LIFT RUN FAULT : SHELF REMOVED BUT NOT REGISTERED x → CE/↩	x = Shelf number A shelf was removed from the access point or pulled out onto the roller guide rails without being unregistered.	Caution: The [↩] key starts a lift run! Push the shelf in question back into the access point or unregister it.
LIFT RUN FAULT : REQUESTED SHELF IN OTHER ACCESS POINT (n) → CE/↩	(n) = Access point number for multiple access points. The shelf has been brought to access point (n) and has not yet been put back into storage.	Caution: The [↩] key starts a lift run! Store shelf at access point (n).
LIFT RUN FAULT : UNKNOWN SHELF IN ACCESS POINT ! → CE/↩	- A shelf was detected in the access point, although there should not have been one there. - Shelf pushed into access point without being registered.	Caution: The [↩] key starts a lift run! Remove shelf from access point or register it.
LIFT RUN FAULT : REMOVE SHELF → CE/↩	- When a shelf is pushed out into an access point, the system detects that there is another shelf in the access point. - Shelf was pushed into the access point manually.	Caution: The [↩] key starts a lift run! Remove shelf from access point.
LIFT RUN FAULT : CLOSE DOOR → CE/↩	With second safety circuit and lift run with safety light barrier disabled (redundancy system): light barriers are interrupted and door is not closed.	Caution: The [↩] key starts a lift run! Close the door.
LIFT RUN FAULT : OPEN DOOR → CE/↩	With one access point and second safety circuit: lift run with active safety light barriers is possible with door open only.	Caution: The [↩] key starts a lift run! Open door.
LIFT RUN FAULT : SENSOR TEST: OPEN AND CLOSE DOOR → CE/↩	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.	Caution: The [↩] key starts a lift run! Open and close door.

8 Error messages during lift run

Lift run error message	Cause	Action
Only with multiple access points: LIFT RUN FAULT : END LIFT RUN AT OTHER ACCESS POINT (n) -> CE/↩	(n) = Access point number for multiple access points. The system has detected that a lift run at access point (n) has not ended. • No lift run is carried out for this access point because the lift run at access point (n) has not ended.	Caution: The [↩] key starts a lift run! • 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: LIFT RUN FAULT : OTHER ACCESS POINT OCCUPIED WITH SHELF (n) -> CE/↩	(n) = Access point number for multiple access points. The system has detected that access point (n) is occupied with a shelf. • No lift run is carried out for this access point because access point (n) is occupied with a shelf.	Caution: The [↩] key starts a lift run! • 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).

8 Error messages during lift run

Lift run error message	Cause	Action
For active automatic redundancy function only: LIFT RUN FAULT : REDUNDANCY FUNCTION ENABLED ! < Code > -> CE/↩	< Code > = <x> / <y> / <z> The lift run error message with code <Code> has occurred. The redundancy function <x> has been activated. Limited lift operation is possible using redundancy and limited error monitoring.	Caution: The [↩] key starts a lift run! - Continue the lift run using the [↩] key. Limited continued operation of the lift is possible. - Contact the Hänel service department.
		

9 Annex

9.1 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.

Lift version according to order confirmation Ausführung des Lifts gemäß Auftragsbestätigung	The marked (x) supplementary descriptions are part of the machine documentation Markierte (x) Zusatzbeschreibungen sind Teil der Maschinendokumentation
With add-on module 00) Remote-controlled lift operation (LL, MS, RO) Modul 00) Ferngesteuerter Liftlauf (LL, MS, RO)	Supplementary Description of the Remote-controlled Lift Operation Zusatzbeschreibung Ferngesteuerter Liftlauf MP-BEDIEN\Z-FERN.MP_14
With add-on module 01) External shelf management (LL, MS) Modul 01) Verwaltung externer Tablare (LL, MS)	Supplementary Description of External Shelf Management Zusatzbeschreibung Verwaltung externer Tablare MP-BEDIEN\Z-EXTTAB.MP_14
With add-on module 02) Access code management (LL, MS, RO) Modul 02) Zugangscodeverwaltung (LL, MS, RO)	Supplementary Description of the Access Code Management Zusatzbeschreibung Zugangscodeverwaltung MP-BEDIEN\Z-PVW.MP_14
With add-on module 03) Article pool management (LL, MS, RO) Modul 03) Artikelpoolverwaltung (LL, MS, RO)	Supplementary Description of the Article Pool Management Zusatzbeschreibung Artikelpoolverwaltung MP-BEDIEN\Z-APOOL.MP_14
With add-on module 04) Storage location height management (LL, MS, RO) Modul 04) Verwaltung der Lagerorthöhe (LL, MS, RO)	Supplementary Description of the Storage Location Height Management Zusatzbeschreibung Verwaltung der Lagerorthöhe MP-BEDIEN\Z-HOEHE.MP_14
With add-on module 05) Storage time management (LL, MS, RO) Modul 05) Verwaltung der Lagerzeit (LL, MS, RO)	Supplementary Description of the Storage Time Management Zusatzbeschreibung Verwaltung der Lagerzeit MP-BEDIEN\Z-LGZEIT.MP_14
With add-on module 06) Operations journal logging (LL, MS, RO) Modul 06) Bewegungsjournalführung (LL, MS, RO)	Supplementary Description of the Operations Journal Logging Zusatzbeschreibung Bewegungsjournalführung MP-BEDIEN\Z-J100D.MP_14
With add-on module 07) Barcode cross-check (LL, MS, RO) Modul 07) Barcode-Gegencheck (LL, MS, RO)	Supplementary Description of the Barcode Cross-check Zusatzbeschreibung Barcode-Gegencheck MP-BEDIEN\Z-BARCHK.MP_14

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	Lift version according to order confirmation Ausführung des Lifts gemäß Auftragsbestätigung	The marked (x) supplementary descriptions are part of the machine documentation Markierte (x) Zusatzbeschreibungen sind Teil der Maschinendokumentation
	With add-on module 08) Free location management (LL, MS, RO) Modul 08) Freiplatzverwaltung (LL, MS, RO)	Supplementary Description of the Free Location Management Zusatzbeschreibung Freiplatzverwaltung MP-BEDIENIZ-FREIPL.MP_14
	With add-on module 20) Shelf pre-positioning for job processing (LL, MS, RO) Modul 20) Tablarvorpositionierung bei Auftrag (LL, MS, RO)	Supplementary Description of the Shelf Pre-positioning Zusatzbeschreibung Tablarvorpositionierung MP-BEDIENIZ-PREPOS.MP_14
	With add-on module 21) Inventory function (LL, MS, RO) Modul 21) Inventurfunktion (LL, MS, RO)	Supplementary Description of Inventory Function Zusatzbeschreibung Inventurfunktion MP-BEDIENIZ-INVENT.MP_14
	With add-on module 23) Decimal input for quantities (LL, MS, RO) Modul 23) Dezimalstellen bei Mengeneingabe (LL, MS, RO)	Supplementary Description of Decimal Input for Quantities Zusatzbeschreibung Dezimalstellen bei Mengeneingabe MP-BEDIENIZ-DEZMEN.MP_14
	With add-on module 24) Adjustable shelf speed (LL, MS) Modul 24) Einstellbare Tablargeschwindigkeit (LL, MS)	Supplementary Description of the Adjustable Shelf Speed Zusatzbeschreibung Einstellbare Tablargeschwindigkeit MP-BEDIENIZ-GECHW.MP_14
	With add-on module 26) Lending management (LL, MS, RO) Modul 26) Ausleihverwaltung (LL, MS, RO)	Supplementary Description of Lending Management Zusatzbeschreibung Ausleihverwaltung MP-BEDIENIZ-AUSL.MP_14
	With add-on module 27) Label printing at access point (LL, MS, RO) Modul 27) Etikettendruck an Entnahme (LL, MS, RO)	Supplementary Description for Label Printing at Access Point Zusatzbeschreibung Etikettendruck an Entnahme MP-BEDIENIZ-EDRUCK.MP_14
	Module 28) Intermediate shelf buffer for job processing (LL) Modul 28) Tablarzwischenpuffer bei Auftrag (LL)	Supplementary Description of the Intermediate Shelf Processing for Job Zusatzbeschreibung Tablarzwischenpuffer bei Auftrag MP-BEDIENIZ-TABPUF.MP_14
	With add-on module 29) Shelf transfer (LL, MS) Modul 29) Tablartransport (LL, MS)	Supplementary Description of the Shelf Transfer Zusatzbeschreibung Tablartransport MP-BEDIENIZ-TABTRA.MP_14
	Module 30) Extractor park position (LL, MS) Modul 30) Park-Position Extraktor (LL, MS)	Supplementary Description of Extractor Park Position Zusatzbeschreibung Park-Position Extraktor MP-BEDIENIZ-PARKPOS.MP_14
	Module 31) User management (RO) Modul 31) Benutzerverwaltung (RO)	Supplementary Description of User Management Zusatzbeschreibung Benutzerverwaltung MP-BEDIENIZ-BENUTZER.MP_14

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	Lift version according to order confirmation Ausführung des Lifts gemäß Auftragsbestätigung	The marked (x) supplementary descriptions are part of the machine documentation Markierte (x) Zusatzbeschreibungen sind Teil der Maschinendokumentation
	Module 32) Batch management (LL, MS, RO) Modul 32) Chargenverwaltung (LL, MS, RO)	Supplementary Description of Batch Management Zusatzbeschreibung Chargenverwaltung MP-BEDIENIZ-CHARGE.MP_14
	With add-on module 33) Shelf pre-positioning for article / job (LL, MS, RO) Modul 33) Tablarvorpositionierung bei Artikel / Auftrag (LL, MS, RO)	Supplementary Description of the Shelf Pre-positioning for Article / Job Zusatzbeschreibung Tablarvorpositionierung bei Artikel / Auftrag MP-BEDIENIZ-PREPOS.ARTICLE_JOB.MP_14
	Module 34) Data field assignment by means of a 1D/2D barcode (LL, MS, RO) Modul 34) Datenfeldbelegung durch 1D/2D Barcode (LL, MS, RO)	Supplementary Description for Data field population by means of a 1D/2D barcode Zusatzbeschreibung Datenfeldbelegung durch 1D/2D Barcode MP-BEDIENIZ-BARCODE.MP_14
	Module 35) Article image (LL, MS, RO) Modul 35) Artikelbild (LL, MS, RO)	Supplementary Description of Article Image Zusatzbeschreibung Artikelbild MP-BEDIENIZ-ARTIKELBILD.MP_14

LL = Lean-Lift

MS = Multi-Space

RO= Rotomat

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	Lift version according to order confirmation Ausführung des Lifts gemäß Auftragsbestätigung	The marked (x) supplementary descriptions are part of the machine documentation Markierte (x) Zusatzbeschreibungen sind Teil der Maschinendokumentation
	High-speed door between access opening and drive shaft Schnell-Lauftor zwischen Entnahmeöffnung und Fahrschacht	Supplementary Description of the High-speed Door Zusatzbeschreibung Schnell-Lauftor MP-BEDIENZ-STOR.MP_14
	With automatically opening and closing sliding door mit automatisch öffnende und schließende Schiebetüre	Supplementary Description of the Automatic Sliding Door Zusatzbeschreibung Automatische Schiebetüre MP-BEDIENZ-AUTOSD.MP_14
	Automatic extraction of container automatischer Ein-/Ausschub eines Containers	Supplementary Description of the Automatic Shelf Ejection Zusatzbeschreibung Automatischer Tablarausschub MP-BEDIENZ-ATA.MP_14
	With container weighing device in the access point mit Container-Wiegeeinrichtung in der Entnahmestelle	Supplementary Description of the Shelf Weighing Device Zusatzbeschreibung Tablarwiegeeinrichtung 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 Sonderentnahmestelle für Bedienung mit Standard- / Hochhubwagen und Container in den Abmessungen ..., in Spezialausführung für umlaufende Begrenzung	Supplementary Description of the Automatic Shelf Locking for Operation with High Lift Truck or Forklift Truck Zusatzbeschreibung Automatische Tablarverriegelung für eine Bedienung mit Hochhubwagen oder mit Gabel-Hubwagen MP-BEDIENZ-TABVER.MP_14
	Unit prepared for containers with power socket Gerät vorbereitet für elektrifizierte Container	Supplementary Description of Shelves with Power Socket Zusatzbeschreibung Elektrifizierte Tablare MP-BEDIENZ-ELTAB.MP_14
	With camera connection for photographing the articles of a container mit Kameraanschluß zur Aufnahme des Lagergutes eines Containers	Supplementary Description of the Hänel Camera Zusatzbeschreibung Hänel-Kamera MP-BEDIENZ-CAM.MP_14
	With Pick-O-Light system, moving in the access point mit Leuchtpunktanzeige, verfahrend in der Entnahmestelle	Supplementary Description of the Pick-O-Light System (variable) Zusatzbeschreibung Leuchtpunktanzeige (verfahrend) MP-BEDIENZ-LPAVER.MP_14

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	Lift version according to order confirmation Ausführung des Lifts gemäß Auftragsbestätigung	The marked (x) supplementary descriptions are part of the machine documentation Markierte (x) Zusatzbeschreibungen sind Teil der Maschinendokumentation
	Requisition processing strip Kommissionierleiste	Supplementary Description of the Requisition Processing Strip Zusatzbeschreibung Kommissionierleiste MP-BEDIENIZ-VFDLEISTE.MP_14
	With demo function (with trade fair demo function lift run warning sign) mit Messefunktion Demolauf (mit Warnschild Messe-Liftlauf)	Supplementary Description of the Demo Function Zusatzbeschreibung Messefunktion MP-BEDIENIZ-DEMO.MP_14
	With Automatically Lowering Front Edge of Shelf mit automatisch absenkbarer Tablarvorderkante	Supplementary Description of the Lowerable Front Edge Zusatzbeschreibung Absenkbare Vorderkante MP-BEDIENIZ-AVK.MP_14
		Supplementary Description of the Access Lock Zusatzbeschreibung Zugangssperre MP-BEDIENIZ-CODE.MP_14

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

9 Annex

9.2 Revision notes

Last issue dated:

23.09.2019

- Chap. 5.2: Overview of available functions in the menu bar
- Chap. 4.1: Lift menu item
- Complete revision - redesign MP14

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