Hänel Büro- und Lagersysteme



User Guide for the HOST-WEB Program Version Microprocessor Control System MP 12N Lean-Lift Multi-Space



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1

Introduction 1.1 **Basic information** Contents This document contains information about operating the microprocessor control system in the "HOST-WEB program version" and connecting it to the IT system. Target group This document has been written for: Operating personnel IT specialists Installation personnel Supervisors, service and maintenance personnel Manufacturer Hänel Büro- und Lagersysteme Postfach 11 61 D-74173 Bad Friedrichshall Tel. 0049 (0) 7136/27725 Fax 0049 (0) 7136/27741 http://www.hanel.de Validity This document is valid for lifts of the following series: Type: Lean-Lift, Multi-Space 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 program versions: MP 12N CPU II: V 2.9 UPGRADEABLE V 3.6, V 3.3/6, V 3.2/6, V 3.1/6 (using printed circuit board S0849) MP 12N SYSTEM: Keep in an accessible place This documentation is a part of the lift and must be stored in a location that is as a complete document 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. This documentation is not subject to the change service of the manufacturer. Change service 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

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.

- Action: You are prompted to carry out an operating step.
- → Result: You are told the outcome of your operating step.
- x Tip: You are given helpful hints and comments.
- > See: You are given references to other documents.

Terms	 The microprocessor control system uses the term shelf. Shelf corresponds to the term container. 		
Terms used	HTTP	Hyper Text Transfer Protocol	
	HTML	Hyper Text Markup Language	
	URL	Uniform Resource Locator	
	XML	Extensible Markup Language	
	AJAX	Asynchronous JavaScript and XML	
	CSS	Cascading Style Sheets	
Operator prompts	 The operative items: 	erator prompts include selection menus. There are two ways to select menu	
	1) Sele 2) Sele Press th	 Select them using the [↑]/[↓] keys and then press the [↓] key. Select them by pressing the key at the beginning of each menu item line. Press the [CE] key to exit selection menus. 	
	 Depend offered. 	ing on the initialisation, some menu items for selection menus may not be	

1 Introduction

1.3 Safety instructions



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:

DANGER

- 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.

Operating personnel have to follow the lift user guide.

IT specialists have to follow the lift user guide and the lift 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

- The User Guide of the HOST-WEB Program Version does not describe operation in the embedded browser. The operation depends on the programming of the control computer (host). Therefore, a corresponding description must be created by the programmer of the control computer.
- Technical Description of the Microprocessor Control System MP 12N Lean-Lift and Multi-Space.
- > For optional Supplementary Descriptions, refer to the "Annex" chapter.

2.1 General

General

- The MP 12N is equipped with an Ethernet interface.
- The MP 12N provides an embedded browser on the TFT display. (Embedded browser resolution: 800 x 480 pixels).
- When the lift is switched on, the initialised start-URL is loaded by the embedded browser.

The initialised base-URL specifies the main directory of the Web application on the host side.

Variant I: Activation of the lift via macros integrated into the HTML page.

- The control of the lift takes place via macros that are integrated in the HTML page.
- The base-URL is prefixed to every URL call via the MP control system after the macro execution.

Variant II: Activation of the lift via Webservice per SOAP protocol.

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

Customer requirements

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

Requirements for SAP connection to the SAP system.

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

Embedded browser (QtWebKit 2.0)

- The resolution for the embedded browser is 800 x 480, including the border. The usable pixel resolution (without the border) is 796 x 472 pixels.
- Specification of font size and font type is absolutely necessary in the HTML layout. Two Hänel fonts are available on the MP control system which cover the greater extent of the Unicode character set.

Chinese: HaenelMonoAsia

All others: HaenelPropBasic

• XML / HTML pages must not exceed 500kB.

2.2 Extended functions with supplementary features

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

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

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

Lean-Lift

- High-speed door
- Pick-O-Light system
- Shelf weighing device
- Automatic shelf pre-positioning
- Automatic sliding door
- Signal column consisting of signal elements for operating commands
- Eco-Mode
- Requisition processing strip

Multi-Space

- High-speed door
- Pick-O-Light system
- Shelf weighing device
- Signal column consisting of signal elements for operating commands
- ♦ Eco-Mode
- Requisition processing strip

2.3 Extended functions with supplementary modules

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

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

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

Lean-Lift

- With add-on module 00) Remote-controlled lift operation
 Examples with special safety equipment
 - From a PC located between 2 lifts or near a lift group, for example, with the safety system set, a lift run can be carried out at one or more defined lifts without confirming the GREEN RETURN key.
 - As long as the safety system is set, a lift run can be carried out at one or more lifts from one or more PDAs without confirming using the GREEN RETURN key.
- With add-on module 04) Storage location height management
- With add-on module 24) Adjustable shelf speed
- With add-on module 25) Shelf pre-positioning
- With add-on module 28) Intermediate shelf buffer for requisition/job processing
- With add-on module 29) Shelf transfer

Multi-Space

- With add-on module 00) Remote-controlled lift operation
 - ◆ See Lean-Lift
- With add-on module 04) Storage location height management
- With add-on module 24) Adjustable shelf speed
- With add-on module 29) Shelf transfer

3 Description of the hardware components

3.1 Display / touchscreen

Graphical TFT (Thin Film Transistor technology) module with touchscreen

8.4" (21.3 cm)

Size:	
Resolution.	

Text:

800 x 600 pixels 4 x 20 or 8 x 40 characters for operator prompts (depending on current menu item) and 11 x 60 characters for additional information



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.

Description of the operator prompts

Display

Upper left window (yellow background):

At the upper left, the lift number, the access point number and the shelf number of the shelf in the access point are displayed.

The start-URL is called up by touching the Home touchscreen button.

For operation with multiple access points, this window is sometimes covered by the <STOP> symbol.

Upper centre window (blue background):

The operator prompts are displayed.

Upper right window (yellow background): Unused.

Lower window:

Operator prompts from host application.

The lift run graphics are superimposed over this window during the lift run.



3 Description of the hardware components

3.1.1 Lift run graphics



Description

Example screenshot

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



Lean-Lift Multi-Space

- 3 Description of the hardware components
- 3.2 Keyboard
- 3.2.1 Overview



- Main key block for entering characters and letters
- Number block for entering article numbers, shelf numbers, quantity, article names etc.
- Function keys for calling up individual functions and navigating in input fields.
- 4 Green LED illuminated -> Safety circuit set
- 5 Red LED illuminated -> Safety circuit interrupted Red LED flashes -> Safety circuit defective
- <u>6</u>

(1)

2

3

Yellow LED -> Reserved

Lean-Lift Multi-Space

3 Description of the hardware components

3.2.2 Key functions

Confirm entry, set safety system Start lift run!	-
Delete an entry, Cancel a function Acknowledge operator advisories and lift run error messages	CE
Stopping a lift run To stop a lift run in hazardous situations, use the emergency stop switch!	STOP
Delete the character last entered	+
Store shelf from access position (start lift run!) Select menu items, make selection	1
Bring shelf to access position Select menu items, make selection	ł
Optimisation run	U
Adding a new shelf	+Ц
Removing a shelf	-Ц
Activate information and service programs	i
Activate system services	ĩ
Language switchover	?
Open and close door (only with automatic sliding door) Unlock door (only with manual doors and lift run only with door closed)	F1

module "Adjustable shelf speed").

3 Description of the hardware components

 Fast keylock function (if activated)
 F2

 Release shelf locking (if activated)
 F3

 request weight (only with shelf weighing device)
 F3

 Shelf transport (only with multiple access points with high-speed door or lift run only with door closed, if activated)
 F4

 Activate/deactivate speed reduction (only with supplementary
 F4

Lean-Lift **Multi-Space**

General operating instructions Switching on the lift 4.1 Description of the operator prompts Display Lift control system start-up message • Switch on lift at the main switch. • Wait for the MP control system to start up. → The red LED in the [STOP] key lights up.

- → The lift type and control system type appear on the display. The display text may vary depending on the configuration.
- Press the [+] key.

4

→ The green LED is illuminated.

LEAN-LIFT (信) MP WEB1 12N-H[HOST 1 **+**[⊥]/i/μ HTTP ETHERNET

The following functions are possible:

Function	Description	Chapter	Page
i	Information services	6	41
î	System services	7	49

Lean-Lift Multi-Space

4 General operating instructions

Description of the operator prompts

Display

 \rightarrow Display until a connection to the host is established.



The following functions are possible:

Function	Description	Chapter	Page
t	Store shelf from access point manually	4.2.4 28	
÷	Bringing a shelf to the access point manually	4.2.3 27	
ţ	Starting an optimisation run	4.2.5	29
+U	Adding a new shelf	4.2.1	22
-U	Removing a shelf	4.2.2	25
i	Information services	6	41
î	System services	7	49
?	Changing the language	4.4 36	
F1	Opening and closing the automatic sliding door using the keyboard	See Supplementary Description of the Automatic Sliding Door	
	Unlock door with manual doors and electrical equipment for "Lift run only with door closed"		
F2	Fast keylock function	4.5	36
F3	Release shelf locking	4.2.6 31	
	Request weight	refer to the Supplementary Description of the Shelf Weighing Device	
F4	Shelf transfer	see Suppl Descriptio Shelf Tran	ementary n of the sfer

Lean-Lift Multi-Space

4 General operating instructions

Description of the operator prompts

Display

➔ Display as soon as a connection to the host exists and no lift run is carried out.



4.2 Basic shelf functions

The basic shelf functions are called up from the main menu of the MP control system.

4.2.1 Adding a new shelf





- *x* It is advisable to label the shelves with the shelf number at the front and rear.
- x The [+U] key can be locked using the keylock function.

Example screenshot

Description of the operator prompts

Add shelf

- Press the [+U] key.
- If there is an already registered shelf in the access point:
- Press the [←] key. Caution: The [←] key starts a lift run!
- \rightarrow The shelf is stored in the lift.



- → The MP control system automatically suggests the smallest free shelf number as the default.
- Enter the shelf number or keep the suggested number.
- Press the [+] key.
- Push the new shelf into the access point.



Lean-Lift Multi-Space

4 General operating instructions → As soon as the MP control system detects the new ADD SHELF shelf by means of the proximity switches, the shelf is registered as present. The MP control system goes IS REGISTERED SHELF into the main menu. Articles can now be stored and registered in it. <++> Description of possible operator advisories **Display texts** A shelf number is entered that has already been ADD SHELF assigned. SHELF ALREADY EXISTS -> CE Enter the shelf number "0". ADD SHELF INPUT ERROR -> CE 0 All available shelf numbers are assigned. ADD SHELF (1 - 254 for Lean-Lift, 1 - 999 for Multi-Space) NO FREE SHELF NUMBER FOUND -> CE A shelf number is entered that is too high. ADD SHELF (> 254 for Lean-Lift) SHELF NUMBER TOO HIGH -> CE The key is locked using the keylock function. +LI FUNCTION DISABLED -> CE In the redundancy menu, the article height detection REDUNDANCY SYSTEM function or the monitoring of shelf management was FUNCTION IS NOT deactivated. This necessitates a subsequent POSSIBLE AT PRESENT "Check article height" test run. As long as this test run -> CE has not been carried out, this message will be displayed when the functions "Adding a new shelf" and

"Start optimisation run" are called up.

4 General operating instructions Description of possible operator advisories Display texts Only for lifts without shelf weighing device: SHELF NUMBER LIMIT No shelf can be added, as the shelf number limit has REACHED been reached and, in addition, the max. shelf load is greater than 500 kg (1102 lbs.) or the lift height is greater -> CE than 15 meters (590.55"). Only for lifts without shelf weighing device: MAXIMUM NUMBER OF SHELVES No shelf can be added, as the maximum number of REACHED shelves is reached. -> CE

Lean-Lift Multi-Space

4 General operating instructions

4.2.2 Removing a shelf

The [-U] key can be locked using the keylock function.

Description of the operator prompts

Example screenshot

Remove shelf

- Press the [-L] key.
- → The MP control system automatically suggests the shelf currently in the access point as the default.
- Enter the shelf number or keep the suggested number.
- Press the [+] key.
 Caution: The [+] key can start a lift run!
- → The entered shelf is brought to the access point if it is not there already. If the access point is occupied by another shelf, this is returned to storage in the lift first.
- Pull shelf from the access point.

REMOVE SHELF

SHELF NUMBER ?

<tt>

REMOVE SHELF PLEASE PULL SHELF OUT

<tt>

→ As soon as the MP control system detects the removal of the shelf by means of the proximity switches, the shelf is unregistered. The MP control system goes into the main menu.

REMOVE SHELF REMOVAL OF SHELF REGISTERED

<tt>



Description of possible operator advisories	Display texts
A shelf number is entered that has not been assigned.	REMOVE SHELF SHELF NOT FOUND -> CE
The key is locked using the keylock function.	-U FUNCTION DISABLED -> CE

4 General operating instructions	4 General operating instructions			
4.2.3 Bringing a shelf to the access point manually				
	If no shelf number or shelf number "0" is entered, the shelf that is currently on the extractor is brought to the access point.			
	x The [+] key can be locked using the keylock function.			
Description of the operator prompts	Example screenshot			
Get shelf				
 Press the [+] key. 				
 Enter the shelf number. Press the [←] key. Caution: The [←] key can start a lift run! The entered shelf is brought to the access point. 	GET SHELF			
If the access point is occupied by another shelf, this is returned to storage in the lift first.	SHELF NUMBER ? ■			
Description of possible operator advisories	Display texts			
A shelf number is entered that has not been assigned.	GET SHELF SHELF NOT FOUND -> CE			
The key is locked using the keylock function.	↓ FUNCTION			

I NE KEY IS locked using the keylock function.

↓ FUNCTION
DISABLED
-> CE

4.2.4 Store shelf from access point manually



The position of the shelf when it is stored in the lift depends on the free storage locations, the article height, the access frequency and the AP (Access Priority) factor.

Shelves with a frequent access rate or a high AP factor are stored closer to the access point than shelves with a less frequent access rate or lower AP factor if space in the lift permits.

Description of the operator prompts

Store shelf

- Press the [+] key.
 Caution: The [+] key can start a lift run!
- → The shelf in the access point is stored in the lift.



Description of possible operator advisories

Display texts

Example screenshot

There is no shelf in the access point.

STORE SHELF NO SHELF IN ACCESS POINT -> CE

4.2.5 Starting an optimisation run



During standard operation, the MP control system registers the frequency with which individual shelves are accessed. Shelves with a frequent access rate or a high AP (Access Priority) factor are stored close to the access point if space in the lift permits.

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 factor. 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.

For lifts designed for earthquake-prone areas or with floor anchorage provided by customer, relocation takes place in the lower area for partially filled lifts, even if access points are in the upper area.

An optimisation run according to packing density closes all the gaps between shelves by re-sorting from the bottom up.



The **[!**] key can be locked using the keylock function.

Description of the operator prompts

Example screenshot

Starting an optimisation run

- Press the [#] key.
- Press the [+] / [+] keys to select between optimisation according to "Access time" and "Packing density".
- Press the [+] key.

OPTIMISATION RUN OPTIMISE ACC. TO ■ACCESS TIME [↓/↑/CE/←]

OPTIMISATION RUN OPTIMISE ACC. TO ■PACKING DENSITY [↓/↑/CE/←J]

- Press the [←] key. Caution: The [←] key starts a lift run!
- ➔ The optimisation run starts.



OPTIMISATION RUN

LIFT RUNNING

LIFT RUN

ℯ┛

Cancelling the optimisation run

- Press the [STOP] key.
- ➔ The lift run error message "STOP BUTTON PRESSED" is displayed.
- Press the [CE] key.
- → The optimisation run is cancelled.

Description of possible operator advisories

The key is locked using the keylock function.

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. Display texts

↓ FUNCTION
DISABLED
-> CE

REDUNDANCY SYSTEM FUNCTION IS NOT POSSIBLE AT PRESENT -> CE

> © Hänel Büro- und Lagersysteme B-12NLL.HOST-WEB.EN

4.2.6 Release shelf locking



The shelf locking can be released in the main menu and during quantity input in article management, requisition management and job management.

When shelf locking 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 locking can be enabled or disabled with System services run sequence.
- Shelf locking is possible only on lifts 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 pre-positioning
 - Multiple access points with guide rails or transporter/trolley

Description of the operator prompts

Release shelf locking

- Press the [F3] key.
- Press the [←] key. Caution: The [←] key starts a lift run!
- → The shelf is pushed all the way into the access point. The extractor drive catches leave the guides in the shelf.



Example screenshot

4.3 Operating multiple access points

4.3.1 Lean-Lift with guide rails

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

- The shelf must not be pushed in as long as the <-STOP-> message is displayed.
- 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.



- When an access operation is completed, the accessed shelf should be pushed fully into the access opening and put into storage from the access point. This allows the shelf to be accessed from another access point.
- 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.

Description of the operator prompts

Pull shelf onto the guide rails

- · Pull the shelf onto the guide rails.
- ➔ The message disappears as soon as the shelf has been pulled fully onto the guide rails.

Example screenshot

<...> PLEASE PULL SHELF OUT

Store shelf from the guide rails

- · Push shelf into the access point.
- ➔ The message disappears automatically as soon as the shelf is pushed in fully.

<...> PLEASE PUSH SHELF IN <...>

Lean-Lift Multi-Space

4 General operating instructions

Description of the operator prompts

- Press the [←] key. Caution: The [←] key starts a lift run!
- \rightarrow The shelf in the access point is stored in the lift.



Description

The <STOP> message/symbol is shown in graphic form at the top left of the display. The <STOP> symbol has the following meaning:

Lift run not possible, do not push the shelf in.

(Lift run for another access point is carried out or a shelf is located in another access opening).



Description of possible operator advisories

Access to a shelf that is in access point (n). The shelf must be pushed in at access point (n), then stored in the lift.

No lift run is carried out for this access point because access point (n) is occupied with a shelf.

The MP control system must wait until access point (n) has ended its lift run.

A lift run error message is pending at access point (n).

Example screenshot

Example screenshot

Example screenshot

LIFT RUN FAULT : REQUESTED SHELF IN OTHER ACCESS POINT (n) -> CE/+

LIFT RUN FAULT : OTHER ACCESS POINT OCCUPIED WITH SHELF (n) -> CE/+J

LIFT RUN FOR OTHER ACCESS POINT (n) PLEASE WAIT

OPERATION IS BLOCKED BY OTHER ACCESS POINT (n) (n)

Lean-Lift Multi-Space

4 General operating instructions

Description of possible operator advisories

Example screenshot

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.

CANCELLING BLOCKS OTHER ACCESS POINTS! REALLY CANCEL? NO -> ↑/↓/CE/←

4.3.2 Lean-Lift with lift run with sliding door closed only

Before each lift run, the sliding door must be closed. The door must be opened after accessing a storage location.

Description of the operator prompts

Example screenshot

OPEN

DOOR

After lift run to storage location

- Open door
- → The message is cleared automatically as soon as the door is opened.

Request lift run

- Close the door.
- → The message is cleared automatically as soon as the door is closed all the way.

CLOSE DOOR

4.3.3 Lift with high-speed door

Refer to the "Supplementary Description of the High-speed Door Microprocessor Control System MP 12N Lean-Lift and Multi-Space"

Lean-Lift Multi-Space

4 General operating instructions	
4.4 Changing the language	?
	The function is called up from the main menu of the MP control system.
	 After the lift is switched off and on again, the operator prompts are again displayed in the language configured in the initialization.
Description of the operator prompts	Example screenshot
 Changing the language Press the [?] key. Press the [↑] / [↓] key to select the desired language. Press the [↓] key. Once you have done so, the operator prompts will be displayed in the new language you have chosen. 	SELECT LANGUAGE ■ENGLISH [↓/↑/CE/←-]
4.5 Fast keylock function	F2
	The function is called up from the main menu of the MP control system.
	The fast keylock function can be activated via the keylock function.
	 When the fast keylock function is activated, the keyboard is always locked after the lift is switched on.

Description of the operator prompts

Starting the fast keylock function

- Press the **[F2]** key.
- → Keyboard is locked.
- Enter password.
- Press the [←] key.
- → Keyboard is no longer locked.



Example screenshot
General operating instructions

Keyboard assistant

4

4.6

Lean-Lift

F1

Multi-Space

4 General operating instructions

4.6.2 Insert lower-case letters



For entries, you can switch between upper and lower case by pressing the **[F4]** key. Upper case is enabled by default.

Upper case active

HOST WEB SERVER ACTIVE [F4] -> abc... HOST WEB SERVER ACTIVE

[F4] -> ABC...

Lower case active

Characters that can be entered for lower case

Characters that can be

entered for upper case

0123456789abcdefghijklmnopgrstuvwxyz,/():.+- Blank space

0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ,/():.+-Blank space

5 Using the host application

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

Lean-Lift Multi-Space

Information services 6 x Depending on the initialisation, some menu items may not be offered. Description of the operator prompts Example screenshot Call up Information services • Press the [i] key. → The information services selection menu is displayed. INFORMATION SERVICES ■3 STORAGE LOCATION MANAGEMENT 5 SOFTWARE VERSIONS 7 LIFT DATA IP ADDRESS CORPORATE NETWORK 0 [↑/↓/CE/←┛] Menu item See Chapter Page 3 6.1 42 5 6.2 45 7 46 6.3 0 6.4 47

Lean-Lift Multi-Space

6 Information services

6.1 Storage location management

Description of the operator prompts

Example screenshot

Call up information services for storage location management

- Press the [i] key and then the [3] key.
- → The information services for storage location management selection menu is displayed.

	STORAGE LOCATION MANAGEMENT	
1 INFC 2 INFC	D ON STORAGE LOCATION MEMORY D ON LIFT ASSIGNMENT	
	[↑/↓/CE/ ←]]	



Menu item	See Chapter	Page
1	6.1.1	43
2	6.1.2	44

Lean-Lift Multi-Space

6 Information services

6.1.1 Info on storage location memory

Description of the operator prompts

Example screenshot

Info on storage location memory

- Press the [i] key, the [3] key and then the [1] key.
- ➔ The assignment of the storage location memory is displayed:

<//>
<//>
Lift number

- <tt>= No. of shelves
- <*ff>* = No. of comps.
- <t/><tf>=Number of compartment depths
- <a>= Number of unassigned carriers in the lift
- Press the [+] key.

INFO ON STORAGE	LOCATION MEMORY
I TET NUMBER	• <115
NUMBED OF SHELVES	. ~
NUMBER OF SHELVES	. <i>\[[/</i> TC · <i>/ff</i> \
NUMBER OF COMPARTMEN	
NUMBER OF COMP. DEPTI	
	EKS : <i><dd></dd></i>
-> (E/ 🗗	

Lean-Lift Multi-Space

6 Information services

6.1.2 Info on lift assignment

Description of the operator prompts



Example screenshot

Info on lift assignment

- Press the [i] key, the [3] key and then the
 [2] key.
- → The assignment of the lift is displayed.
- Press the [↑] / [↓] key to scroll forwards or backwards page by page.

		INFO	ON LI	IFT ASSIGNMENT
		CARRI	ER	HEIGHT WEIGHT
TAB.	LU F	RONT/R	EAR	ACTUAL/NOMINAL [KG]
1	1	1		1
2	2		3	3
3	1	15		1
4	4		31	2
			[†	/↓/CE]



- x SHELF = Shelf number
- × LU = Lift unit

LU 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.

- x CARRIER FRONT is the side at which the operator is standing.
- ACTUAL HEIGHT corresponds to the stored article height measured in carriers.
- HEIGHT NOMINAL is shown only if the supplementary module "Storage location height management" is installed.
- WEIGHT is shown only if the supplementary module "Shelf weighing device" is installed.

6

Information services

Lean-Lift **Multi-Space**

6.2 Software versions	i → 5
Description of the operator prompts	Example screenshot
Call up information services for software versions	
Press the [i] key and then the [5] key.	
 → The software versions used are displayed. • Press the [←] key. 	SOF TWARE VERSIONS MP 12D/N CPU I : < Version > MP 12N CPU II : < Version > [CE/+]
 Press the [←] key. 	SOF TWARE VERSIONS MP 12N SYSTEM : < Version > MP 12N KEYBOARD : < Version > [CE/+]
• Press the [←] key.	SOFTWARE VERSIONS FIRMWARE FC U1 : < Version > FIRMWARE FC U2 : < Version > < Frequency converter parameter file name > < Parameter set > RESULTING DRIVE TYPE : < Drive type > [CE/+]
	 Some items may not be displayed, depending on the configuration.

x Depending on the "CPU I" hardware, the name "MP 12D/N CPU I (EXT)" may be displayed instead of "MP 12D/N CPU I". "MP 12D/N CPU I (EXT)" means that an "MP 12D/N CPU I" has been built into the lift and that, during initialization, the presence of the "MP 12 EXT" board(s) has been configured.

Lean-Lift Multi-Space

6 Information services 6.3 Lift data Description of the operator prompts Example screenshot Call up Information services for lift data Press the [i] key and then the [7] key. → The lift data and model year of the lift according to the LIFT DATA type plate are displayed. < Commission number of lift > • Press the [+] key. MOTOR OPERATING TIME : < hh.mm.ss > -> [HH.MM.SS] NUMBER OF LIFT RUNS : <*xxxx>* MODEL YEAR < Model year > [CE/**←**] → The energy consumed is displayed. LIFT DATA For Lean-Lift in EcoDrive version: < Commission number of lift > → The recovered energy is displayed. ENERGY CONSUMED [KWH]: <yyyy> • Press the [+] key. ENERGY RETURNED [KWH]: <zzzz> [CE/**←**] Show safety inspection log SAFETY INSPECTION < Number > → The safety inspections are displayed in succession. DATE [DD.MM.YY] : <dd.mm.yy> The oldest safety inspection is always the INSPECTING commissioning with safety inspection. TECHNICIAN/COMP. < Technician/comp. > RESPONSIBLE EMPLOYEE OF OWNER/OPERATOR : < Owner/operator > [CE/←] 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 lift

operating manual.

Multi-Space".

For additional information, refer to the "Technical Description for Microprocessor Control System MP 12N Lean-Lift and

Lean-Lift Multi-Space

6 Information services

6.4 Corporate network IP address



Description of the operator prompts

Example screenshot

Call up the corporate network IP address

- Press the [i] key and then the [0] key.
- → The IP address of the corporate network of the <MP control system> (MP 12N CPU 2 or MP 100D) is displayed.

IP ADDRESS CORPORATE NETWORK < MP control system > < Requisition number of MP control system > IP ADDRESS : < IP address > -> [0.0.0.0 = NOT AVAILABLE]

[CE/**←**]

7 System services



A

x Depending on the initialisation, some menu items may not be offered.

Various system parameters can be configured in this menu.



Example screenshot

6

Call up System services

- Press the [1] key.
- \rightarrow The system services selection menu is displayed.

SYSTEM	SERVICES

- 1 SYSTEM SERVICES LIFT CONTROL 3 SYSTEM SERVICES HOST
- 4 SYSTEM SERVICES RUN SEQUENCE 5 SYSTEM SERVICES SERVICE FUNCTIONS
 - SAFETY INSPECTION LOG
 - [↑/↓/CE/**↓**]



Menu item	See Chapter	Page
1	7.1	50
3	7.2	51
4	7.3	53
5	7.4	54
6	7.5	55

7 System services

7.1 System services lift control



Various system parameters of the lift control system can be configured in this menu.

- x A password prompt appears if you select menu items 1, 2, 4 or 5.
- For menu items 1, 2, 4, 5 and 8, after you enter the data, a prompt at the end of the submenu asks whether you wish to save the data.

Example screenshot

Description of the operator prompts

Call up System services lift control

• Press the [1] key and the [1] key.

SYSTEM SERVICES LIFT CONTROL

- 1 INTERFACE ASSIGNMENT S1-4
- 2 SETTING INTERFACE PARAMETERS
- 4 KEYLOCK FUNCTION
- 5 SUPPLEMENTARY MODULES
 - SYSTEM CLOCK SETTING
 - SYSTEM SERVICES LIFT CONTROL

8 SET DISPLAY

[↑/↓/CE/**←**]

For additional information, refer to the "Technical Description for Microprocessor Control System MP 12N Lean-Lift and Multi-Space".

7

l ean-l ift

Multi-Space

System services 7.2 System services Host Description of the operator prompts Display Call up system services host Press the [1] key and the [3] key. Enter the password (default setting is "22488"). HOST PARAMETERS • Press the [+] key. ENTER PASSWORD [CE/**←**] · Enter the start-URL of the host Web server. HOST PARAMETERS If necessary, press the [F4] key to switch between upper-case and lower-case letters. If necessary, select the special character with the [F1] key and confirm with the [+] key. HOST WEBSERVER START-URL : Press the [+] key. http:// [F1/F4/CE/+1 → When the lift is switched on, the initialised start-URL OST PARAMETERS is loaded by the embedded browser. The initialised base-URL specifies the main directory of the Web application on the host side. With Variant I: Activation of the lift via macros HOST WEBSERVER START-URL integrated into the HTML page, this base-URL is prefixed to every URL call via the MP control system after the macro execution. → Press the [+] key. HOST WEBSERVER BASE-URL

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[CE/+1]

7 System services

Description of the operator prompts

Display

- Press the [+] / [+] key to select "YES".
- Press the [←] key.
- → The host parameters are saved.

ALL ENTRIES CORRECT ? -> DATA BEING SAVED

∎N0

[+/+/+]

HOST PARAMETERS

7 System services

7.3 System services Run sequence



System parameters that influence the sequence of operations can be altered here.



x If you select menu item 2, a password prompt appears.

Description of the operator prompts

Call up system services run sequence

- Press the [1] key and the [4] key.
- → The system services run sequence selection menu is displayed.

Example screenshot

SYSTEM SERVICES RUN SEQUENCE 1 SHELF LOCKING 2 REDUNDANCY SYSTEM 4 SHELF PROPERTIES 5 STORAGE OF EMPTY SHELVES

- 7 MAXIMUM NO. OF SHELVES SETTING
 - [↑/↓/CE/**←**]
- For additional information, refer to the "Technical Description for Microprocessor Control System MP 12N Lean-Lift and Multi-Space".

7 System services

7.4 System services service functions



The service functions are used to check the function of the lift during installation and service. Service functions are auxiliary equipment that can be used to locate faults in the lift quickly and easily.



SAFETY INSTRUCTION

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

Description of the operator prompts

Example screenshot

Call up System services service functions

- Press the [1] key and the [5] key.
- Enter password.



For further information, refer to the "Supplementary Description of the Service Functions for Microprocessor Control System MP 12N Lean-Lift and Multi-Space".

7 System services

7.5 Safety inspection log



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.

Description of the operator prompts

Example screenshot

Enter the safety inspection log

- Press the [1] key and the [6] key.
- Enter password.

SAFETY INSPECTION LOG ENTER PASSWORD : [CE/+]

For additional information, refer to the "Technical Description for Microprocessor Control System MP 12N Lean-Lift and Multi-Space".

8 Operator advisories

8.1 Safety inspection

Note	Cause	Action
SAFETY INSPECTION THE ANNUAL SAFETY INSPECTION MUST BE CARRIED OUT NO LATER THAN : DATE [DD.MM.YY] : <dd.mm.yy></dd.mm.yy>	• The MP control system reminds the operator once of the annual safety inspection. The reminder appears no earlier than 5 days before the due date.	Have a safety inspection carried out.
[++]		
then		
SAFETY INSPECTION		
OUR HÄNEL AFTER-SALES SERVICE WILL BE PLEASED TO CARRY OUT SERVICE AND MAINTENANCE WORK UPON REQUEST		
[++]		
SAFETY INSPECTION THE ANNUAL SAFETY INSPECTION MUST BE CARRIED OUT NO LATER THAN : DATE [DD.MM.YY] : <dd.mm.yy> -> THE DATE OF THE ANNUAL SAFETY INSPECTION HAS PASSED [+]</dd.mm.yy>	 The MP control system reminds the operator once of the annual safety inspection. The reminder appears no later than 5 days after the due date. 	Have a safety inspection carried out.
INEN SAFETY INSPECTION		
OUR HÄNEL AFTER-SALES SERVICE WILL BE PLEASED TO CARRY OUT SERVICE AND MAINTENANCE WORK UPON REQUEST		
[هم]		

8 Operator advisories

8.2 System

Note	Cause	Action
Only with multiple access points: 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)	 (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 with multiple access points: CANCELLING BLOCKS OTHER ACCESS POINTS! REALLY CANCEL? NO -> †/↓/CE/←J	 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> <> <></tt>	 Shelf <tt> is stored in the front lift unit. FRONT is the side at which the operator is standing.</tt> 	Wait until the lift run is finished.
Only with Lean-Lift: <> LIFT RUN BACK <tt> <> <></tt>	 Shelf <tt> is stored in the rear lift unit. REAR (BACK) is the side opposite the operator.</tt> 	Wait until the lift run is finished.
Only with Multi-Space: <> LIFT RUN FRONT <tt> LIFT UNIT : <n> <></n></tt>	 Shelf <tt> is stored in front lift unit number <n>. FRONT is the side at which the operator is standing.</n></tt> 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> <></n></tt>	 Shelf <tt> is stored in rear lift unit number <n>. REAR (BACK) is the side opposite the operator.</n></tt> 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/ +J ARTICLE HEIGHT INCREASED ? YES -> †/ ↓ /CE/ +J	 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.

8 Operator advisories

Note	Cause	Action
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.
Only for lifts without shelf weighing device: SHELF NUMBER LIMIT EXCEEDED -> ← I then AVERAGE SHELF LOAD MAX. [KG]: xxx -> CE/←I	 The system has detected that the shelf number limit has been exceeded. Shelf number limit = max. total load / (max. shelf load + empty weight of shelf) 	 When the shelf number limit is exceeded, the average 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 + empty weight of shelf) 	
Only for lifts without shelf weighing device: INCREASED NO. OF SHELVES PERMITTED -> ←	The system has detected that the permitted default number of shelves has been exceeded and increased using the lift-specific enable code.	• When the permitted standard shelf number is exceeded, the average shelf load capacity is reduced to the displayed value. This is checked when the unit is switched on and when shelves are added.
then AVERAGE SHELF LOAD MAX. [KG]: xxx -> CE/+		

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 12N for Lean-Lift and Multi-Space".

9.1 Error messages during lift run due to interruption of safety circuit

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.

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) = Access point number for multiple access points.	Caution: The [←] key starts a lift run!
(n) -> CE/←	 Interruption of safety light barriers at access point due to protruding object. 	 Clear the area monitored by the light barriers and press the [+] key for about 0.5 sec.
	Safety light barrier is not yet set.	 Press the [+] key for about 0.5 sec. to set the safety circuit.
	 After only a brief interruption of the safety circuit (e.g. emergency stop, frequency converter), light barrier remains triggered. 	 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/	 The [+] key has been pressed without correcting the light barrier interruption at access point (n). 	 Clear the area monitored by the light barriers at access point (n) and press the [+] key for approx. 0.5 sec.
LIFT RUN HAS BEEN ENABLED AT ACCESS POINT (n) -> CE/+	 Interruption of safety light barriers at access point (n) has been corrected. 	 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:		Caution: The [+] key starts a lift run!
LIFT RUN FAULT : MOTOR 1.1 TOO HOT	Motor 1.1 (vertical drive) overheated.	Allow motor to cool down for about 10 min.
-> CE/ ←		
Only with Multi-Space:		Caution: The [+] key starts a lift run!
LIFT RUN FAULT : MOTOR 1.2 TOO HOT	Motor 1.2 (vertical drive) overheated.	Allow motor to cool down for about 10 min.
-> CE/ ←		
Only with Multi-Space:		Caution: The [+] key starts a lift run!
LIFT RUN FAULT : MOTOR 2 TOO HOT/ MOVEM. LIMIT SWITCH -> CE/+	Motor 2 (horizontal drive) overheated.	Allow motor to cool down for about 10 min.

Lift run error message	Cause	Action
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.

9.2 Error messages during lift run due to software monitoring

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. Shelf is overloaded. 	 Caution: The [+] key starts a lift run! Push shelf fully into the access point. Reduce shelf load. 	
7 -> CE LIFT RUN FAULT : MOT.CURRENT TOO HIGH RETRIEVE SHELF x -> CE/+-1 then	x = 3 or 7 or 9	 Caution: The [←] key starts a lift run! Press the [←] key to bring the shelf to the access point. 	
LIFT RUN FAULT : MOT.CURRENT TOO HIGH REMOVE ARTICLES! x -> CE/+	x = 3 or 7 or 9Shelf is overloaded.	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 FRONT 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. 	 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. 	
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 error message	Cause	Action
LIFT RUN FAULT : SHELF REMOVED BUT NOT REGISTERED X -> CE/+1	 <i>x</i> = 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 THE 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.
Only with load measurement via frequency converter: LIFT RUN FAULT : EXTRACTOR OVERLOADED ? -> CE/+- then	The load measurement system has detected that the maximum permitted shelf load has been exceeded.	• Press the [←] key.
LIFT RUN FAULT : PLEASE CHECK -> CE/	Shelf is overloaded	Caution: The [←] key starts a lift run! Reduce shelf load.

Lift run error message	Cause	Action	
Only with load measurement via frequency converter: LIFT RUN FAULT : TOTAL LOAD EXCEEDED ? -> CE/+- then	The load measurement system has detected that the maximum permitted total load has been exceeded.	• Press the [←] key.	
LIFT RUN FAULT : PLEASE CHECK -> CE/+	The lift is overloaded at the front or rear.	 Caution: The [+] key starts a lift run! Unload lift at the front or rear. 	
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). 	
For active automatic redundancy function only: LIFT RUN FAULT : REDUNDANCY FUNCTION ACTIVATED ! < Code > -> CE/+J	< 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.</x></code></z></y></x>	 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. 	

User Guide for the HOST-WEB Program Version Lean-Lift Microprocessor Control System MP 12N Multi-Space

10 Annex: Integration into the IT system, Variant I: Activation of the lift via macros integrated into the HTML page (only for installation and maintenance personnel and IT specialists)



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

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1 TCP / IP connection via Ethernet

1.1 Terms used

MP multi-unit network	In the HOST-WEB program version, no communication link between the Hänel MP control systems is used. The IP address in the MP multi-unit network is used for service purposes only; therefore, it still has to be unique.			
Company network	All PCs, PDAs, DHCP / DNS servers, in a customer-side network or standalone, that are to be connected to the MP 12N-H[HOST-WEB] via a network cable.			
DNS name / MP name	Name of the access the M By default, t number of th Prefix for MF For the com name. Thes Example: m The MP nam > Refer to f Lean-Lift "Setting i	Name of the MP control system which can be used in alternative to the IP address to access the MP control system if a DNS server is in the corporate network. By default, the name of the MP control system consists of a prefix and the commission number of the MP 12N-H[HOST-WEB]. Prefix for MP 12N: "mp12n-" For the commission number, some symbols are replaced to maintain a valid DNS name. These are "p" for ".", "s" for "/", "a" for "*". Example: mp12n-322p128s1-2a1 The MP name can be overwritten with a user-defined name. > Refer to the "Technical Description of the Microprocessor Control System MP 12N Lean-Lift and Multi-Space", chapter "System services lift control" -> "Setting interface parameters" -> "ETHERNET CORPORATE NETWORK".		
Switch	A switch (adapter / diverter) is a coupling element that interconnects network segments / network participants.			
Ethernet patch cable	Connecting cable between MP 12N (X12) and the corporate network or a unit with an Ethernet connection. In the base model "Cat. 5e patch cable (STP)". In the crossover model as a point-to-point connection between the MP 12N and a unit with an Ethernet connection. In the standard model as a connecting cable from the MP 12N to a switch.			
	Ethernet patch cables are not included in the scope of delivery and must be provided by the customer.			
IP addresses	The 100 Mbit Ethernet connection of the MP 12N has 2 logical addresses. 1. IP address for the connection to the MP multi-unit network (service computer) 2. IP address for the connection to the corporate network (HOST) The MP 12N IP address for the corporate network is set by default to 0.0.0 and thus is disabled.			
	Since the MP multi-unit network and the corporate network are physically in the same network, all participants must have unique IP addresses.			
IP addresses in the	MP 12N 172. <ip address="" range="">.<access number<="" point="" td=""><td>ess point number>.<lift number=""></lift></td></access></ip>		ess point number>. <lift number=""></lift>	
network		172. <ip address="" range="">.<acce< td=""><td colspan="2">Access point number>.<reserved></reserved></td></acce<></ip>	Access point number>. <reserved></reserved>	
	Service	172. <ip address="" range="">.1.200</ip>		
	<ip address<="" td=""><td>s range></td><td>16 - 31 (default is 16)</td></ip>	s range>	16 - 31 (default is 16)	
	Access pc	int number>	1 - 8	

<Lift number>

<Reserved>

1 - 99

100 - 110

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- 1.2 Integration into corporate network
- 1.2.1 Schematic illustration



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1.2.2 Procedure



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

1st step:

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



The IP address of the MP 12N for the MP multi-unit network is in a Class B address range (subnet) 172.16.xxx.yyy to 172.31.xxx.yyy (subnet 172.16 - 172.31); see Chapter IP addresses on page 69. By default, subnet 172.16 is configured for the MP 12N.

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

Refer to the "Technical Description of the Microprocessor Control System MP 12N Lean-Lift and Multi-Space", Chapter "System services lift control" -> "Setting interface parameters" -> "ETHERNET MP MULTI-UNIT NETWORK".

2nd step:

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

Integration into corporate

with DNS UPDATE is

present

network when a DNS server



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

 Refer to the "Technical Description of the Microprocessor Control System MP 12N Lean-Lift and Multi-Space", Chapter "System services lift control" -> "Setting interface parameters" -> "ETHERNET CORPORATE NETWORK".

If there is a DNS server in the company network which supports a dynamic update of the Domain Name System (DNS UPDATE) in accordance with RFC 2136 by the DHCP server, then the name of the MP 12N is passed on automatically to the DNS server. Thus the DNS name can be used instead of the IP address.

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

Refer to the "Technical Description of the Microprocessor Control System MP 12N Lean-Lift and Multi-Space", chapter "System services lift control" -> "Setting interface parameters" -> "ETHERNET CORPORATE NETWORK".

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

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



If there is a DNS server in the corporate network that does not support DNS UPDATE, the DNS server must be informed of the MAC address and the name of the MP 12N (system administrator).

Refer to the "Technical Description of the Microprocessor Control System MP 12N Lean-Lift and Multi-Space", chapter "System services lift control" -> "Setting interface parameters" -> "ETHERNET CORPORATE NETWORK".

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

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Integration into corporate network if no DHCP server is present in the network (manual address allocation) The MP 12N must be initialised to "GET IP ADDRESS FROM DHCP: NO". Then, initialise the IP address, subnet mask and standard gateway (information from system administrator).

Refer to the "Technical Description of the Microprocessor Control System MP 12N Lean-Lift and Multi-Space", Chapter "System services lift control" -> "Setting interface parameters" -> "ETHERNET CORPORATE NETWORK".

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

Connection to the Web server with the Web application

To establish a connection to the Web application, the start-URL and the base-URL must be configured.

> See Chapter 7.2 on page 51.
- 10 Annex: Integration into the IT system, Variant I: Activation of the lift via macros integrated into the HTML page (only for installation and maintenance personnel and IT specialists)
- 2 General macros
- Using the following macros, the host is able to control compartment LEDs, request lift states and execute lift runs.
- The macros are embedded in the HTML code of the transmitted pages.
- ◆ Lift runs always have to be initiated using the [←] key on the MP control system.





- Per selection (link, button, form etc.) or with JavaScript, a URL is activated in the browser.
- The URL is either forwarded to the host Web server directly or contains a macro that begins with \$macro=, in which case it is forwarded by the embedded browser to the MP control system and then executed.
- The MP control system carries out the desired function based on the macro name and the passed parameter. If the function is carried out successfully, the MP control system returns the URL in \$PG1= with parameter ER=00 directly to the host Web server. If the function is interrupted or executes with error, the MP control system returns the URL in \$PG2= with parameter ER=99. This allows control of subsequent operating sequences using the MP control system.

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General structure of a URL with integrated macro.	<pre>\$macro=<macro_name>\$PM1=<pm1>\$PM2=<pm2>\$PG1=<pg1>\$PG2=<pg2>\$</pg2></pg1></pm2></pm1></macro_name></pre>		
	\$macro=	Identifier for the embedded browser indicating that this is a URL with integrated macro	
	<macro_name></macro_name>	Name of the macro	
	\$PM1=, \$PM2= etc.	Parameter passed to the MP control system	
	\$PG1=	Passed parameter for URL to be called after successful macro execution.	
	\$PG2=	Passed parameter for URL to be called after cancelled macro execution.	
General structure of a URL after macro execution.	If macro execution has completed successfully:	http:// <base-url><pg1>?ER=00<parameter-mp></parameter-mp></pg1></base-url>	
If macro execution http:// <base-url>< has been interrupted.</base-url>		http:// <base-url><pg2>?ER=99<parameter-mp></parameter-mp></pg2></base-url>	
	http://	URL start ID. HTTP (Hyper Text Transfer Protocol) indicates the protocol type.	
	<base-url></base-url>	Address of the directory of the Web application on the host (configuration in System services - Host parameters)	
		This part of the URL is added as prefix automatically by the MP control system	
	<pg1>, <pg2></pg2></pg1>	URL to be called after macro execution.	
	?	Separator between URL and parameter	
	ER=00	Macro execution completed successfully	
	ER=99	Macro execution was interrupted	
	<parameter-mp></parameter-mp>	Return parameter from the MP control system (depending on the macro used)	
		Example: &L= <i>&E=<e>&T=<t>&U=<u_1><u_2></u_2></u_1></t></e></i>	

If a lift run is being carried out for another access point, the "LIFT RUN FOR OTHER ACCESS POINT" or "OPERATION IS BLOCKED BY OTHER ACCESS POINT!" message is displayed during execution of the macros (except during "read_status") until the lift run is completed. Only then is the macro processed.

10 Annex: Integration into the IT system, Variant I: Activation of the lift via macros integrated into the HTML page (only for installation and maintenance personnel and IT specialists)

3 Overview of individual macros

Macros	Description	
read_status	Query status information	See Chapter 4.1, page 77.
get_shelf	Get shelf with display of storage location	See Chapter 4.2, page 79.
store_shelf	Store shelf	See Chapter 4.3, page 81.
add_shelf	Add shelf	See Chapter 4.4, page 82.
remove_shelf	Remove shelf	See Chapter 4.5, page 84.
optimisation_run	Starting an optimisation run	See Chapter 4.6, page 85.
delete_comp_display	Clear storage location display	See Chapter 4.7, page 86.
set_interface	Enable the interface for a peripheral device	See Chapter 4.8, page 87.
base_services	Call up basic functions	See Chapter 4.9, page 88.
read_status_mp_modules	Query supplementary modules	See Chapter 4.10, page 90.
read_status_lift_features	Query supplementary features	See Chapter 4.11, page 91.
set_start_url	Change the start-URL of the host Web server.	See Chapter 4.12, page 92.
Macros for supplementary features	Description	
get_shelf	Get shelf with display of storage location (Pick-O-Light system (variable))	See Chapter 5.1.1, page 93.
close_door	Close automatic sliding door (Automatic sliding door)	See Chapter 5.2.1, page 93.
set_signal	Activate signal elements of the signal column. (Signal column)	See Chapter 5.3.1, page 94.
confirm_requisition_ledge	Write to and query requisition processing strip (requisition processing strip)	See Chapter 5.4.1, page 95.
Macros for supplementary modules	Description	
pre_pos_mode	Switch shelf pre-positioning mode on/off (Shelf pre-positioning)	See Chapter 6.1.1, page 97.
read_status_height	Retrieve shelf target height and stored article height	See Chapter 6.2.1, page 99.
	(Storage location height management)	
edit_shelf_properties	Change the shelf target height of a shelf (Storage location height management)	See Chapter 6.2.2, page 100.
read_status_speed	Query shelf speed (Adjustable shelf speed)	See Chapter 6.3.1, page 101.

Macros for supplementary modules	Description	
get_shelf	Get shelf with display of storage location (Intermediate shelf buffer for requisition/job processing)	See Chapter 6.4.1, page 102.
get_shelf_background	Get shelf in background to intermediate shelf buffer	See Chapter 6.4.2, page 102.
	(Intermediate shelf buffer for requisition/job processing)	
shelf_transfer	Start shelf transfer (shelf transfer)	See Chapter 6.5.1, page 103.

- 10 Annex: Integration into the IT system, Variant I: Activation of the lift via macros integrated into the HTML page (only for installation and maintenance personnel and IT specialists)
- 4 Standard version macros
- 4.1 Macro "read_status" Query status information

With this macro, the host has the ability to query various status information.

URL with integrated macro	<pre>\$macro=read_status\$PG1=<pg1>\$</pg1></pre>		
	Parameter value	Meaning	Max. number of characters
	<pg1></pg1>	URL after successful macro execution.	100
URL after macro execution	Macro execution successful:	http:// <base-url><pg1>?ER=00&L=<l>&E= &U=<u_1><u_2>&Y=<y>&A=<a>&B=&C &G=<g></g></y></u_2></u_1></l></pg1></base-url>	= <e>&T=<t> =<c>&D=<d>\$F=<f></f></d></c></t></e>
	Parameter value	Meaning	Max. number of characters
	< ! >	Lift number	2
	<e></e>	Access point number	1
	<t></t>	Shelf in the access point	3
		(0 = no shelf in the access point)	
	<u_1></u_1>	i (reserved for Rotomat)	1
	<u_2></u_2>	000 (reserved for Rotomat)	3
	< y >	Shelf table coded in hexadecimal	250
		Example: <y> = F31</y>	
		HEX code F 3 1	
		Binary code: 1111 0011 0001	
		Shelf number: 4321 8765 1211 109	
		1 = Shelf available	
		0 = Shelf not available	
		Shelves 1, 2, 3, 4, 5, 6, 9 are available.	
	<a>	0 = Rotomat	1
		1 = Lean-Lift	
		2 = Rack operation	
		3 = Rotomat lift run simulation	
		4 - Lean-int intrum simulation5 = Multi-Space	
		6 = Multi-space lift run simulation	
		Commission number of the lift	16

<c></c>	Number of compartments (initialisation)	3
<d></d>	Number of compartment depths (initialisation)	2
<f></f>	0 = Access point is in front 1 = Access point is in back	1
	(The front is the side where access point 1 is located.The type plate is located at access point 1.)	
<g></g>	0 = Embedded browser version 1.0 1 = Embedded browser version 2.0	1
<h></h>	(reserved for Rotomat)	1

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4.2 Macro "get_shelf" - Get shelf with display of the storage location

With this macro, the host has the ability to retrieve a shelf and to initiate simultaneously the storage location display, if available.

 $\label{eq:url} URL with $$macro=get_shelf$PM1=<pm1>$PM2=<pm2>$PM3=<pm3>$PM4=<pm4>$PM5=<pm5>$PM6=<pm6>$PM7=<pm7>$PM8=<pm8>$PM9=<pm9>$PM10=<pm10>$PM11=<pm11>$PM12=<pm12>$PM13=<pm13>$PM14=<pm14>$PM15=<pm15>$PM16=<pm16>$PG1=<pg1>$PG2=<pg2>$$$$

Parameter value	Meaning	Max. number of characters
<pm1></pm1>	Shelf number	3
<pm2></pm2>	Compartment number (optional)	3
<pm3></pm3>	Compartment depth number (optional)	2
<pm4></pm4>	Container width in direction of compartments (optional for Compartment depth display type II, Compartment depth display type III and supplementary feature Pick-O-Light system, fixed grid)	3
<pm5></pm5>	Container width in direction of compartment depths (optional for supplementary feature Pick-O-Light system, fixed grid)	2
<pm6></pm6>	Reserve	20
<pm7></pm7>	Reserve	20
<pm8></pm8>	Reserve	20
<pm9></pm9>	Reserve	20
<pm10></pm10>	Number of compartments per shelf [optional for supplementary feature Pick-o-Light System (Variable)]	3
<pm11></pm11>	Number of compartment depths per shelf [optional for supplementary feature Pick-O-Light System (Variable)]	2
<pm12></pm12>	Position value of Pick-O-Light system in direction of compartments in the unit millimetres at a front access point. Automatic conversion for rear access point. (optional for Supplementary feature Pick-O-Light system (variable))	4
<pm13></pm13>	Position value of Pick-O-Light system in direction of compartment depths in the unit millimetres at a front access point. Automatic conversion for rear access point. (optional for Supplementary feature Pick-O-Light system (variable))	4
<pm14></pm14>	Reserve	1

	<pm15></pm15>	Release shelf locking (optional with shelf locking activated) (1 = Release shelf locking; in other words, do not fix shelf in place despite activated shelf locking)	1
	<pm16></pm16>	(reserved for Rotomat)	1
	<pg1></pg1>	URL after successful macro execution.	100
	<pg2></pg2>	URL after cancelled macro execution.	100
URL after macro execution	Macro execution successful: Macro execution	http:// <base-url><pg1>?ER=00&L=<i>&E= &U=<u_1><u_2>&I=<i>&J=<j> http://<base-url><pg2>?ER=99&L=<i>&E=</i></pg2></base-url></j></i></u_2></u_1></i></pg1></base-url>	<e>&T=<t> <e>&T=<t></t></e></t></e>
	interrupted:	&U= <u_1><u_2>&I=<i>&J=<j></j></i></u_2></u_1>	
			1
	Parameter value	Meaning	Max. number of characters
	< >	Lift number	2
	<e></e>	Access point number	1
	<t></t>	Shelf in the access point	3
		$(0 = n_0 \text{ shelf in the access point})$	
	<u_1></u_1>	i (reserved for Rotomat)	1
	<u_1> <u_2></u_2></u_1>	i (reserved for Rotomat) 000 (reserved for Rotomat)	1 3
	<u_1> <u_2> <i> <j></j></i></u_2></u_1>	i (reserved for Rotomat) 000 (reserved for Rotomat) Shelf <i> has article height <j>.</j></i>	1 3 3
	<u_1> <u_2> <i> <j></j></i></u_2></u_1>	 i (reserved for Rotomat) 000 (reserved for Rotomat) Shelf <i> has article height <j>.</j></i> (0 = no measurement was carried out) 	1 3 3

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4.3 Macro "store_shelf"

With this macro, the host has the ability to store a shelf.

URL with integrated macro

URL after macro execution

\$macro=store_shelf\$PM14=<pm14>\$PG1=<pg1>\$PG2=<pg2>\$

Parameter value	Meaning	Max. number of character	
<pm14></pm14>	Reserve 1		
<pg1></pg1>	URL after successful macro execution. 100		
<pg2></pg2>	URL after cancelled macro execution. 100		
Macro execution successful:	http:// <base-url><pg1>?ER=00&L=<i>&E=</i></pg1></base-url>	≪e>&T= <t>&I=<i>&J=<j></j></i></t>	
Macro execution interrupted:	http:// <base-url><pg2>?ER=99&L=<i>&E=<e>T=<t>&I=<i>&J=<j></j></i></t></e></i></pg2></base-url>		
Parameter value	Meaning	Max. number of characte	
< >	Lift number	2	
<e></e>	Access point number	1	
<t></t>	Shelf in the access point	3	
	(0 = no shelf in the access point)		
<i> <j></j></i>	Shelf <i> has article height <j>.</j></i>	3	
	(0 = no measurement was carried out)		
	(The stored article height is the number of carrier units occupied by the shelf with stored		

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4.4 Macro "add_shelf"

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

URL with \$macro=add_shelf\$PM1=<pm1>\$PM2=<pm2>\$PM3=<pm3>\$PM14=<pm14>\$PG1=<pg1>\$P G2=<pg2>\$

Parameter value	Meaning	Max. number of characters
<pm1></pm1>	Shelf number	3
<pm2></pm2>	Shelf height with supplementary module "Storage location height management".	2
	For lifts without a "Fixed shelf height" and without "Shelf height monitor", the minimum value is "1" and the maximum value is "31".	
	In lifts with a "Fixed shelf height" or "Shelf height monitor", the minimum value and the maximum value for the shelf target height depends on the carrier increment:	
	 For the 75/90/125 mm (2.952"/3.543"/4.921") slot increment, the minimum value is "1". 	
	 For the 37.5/45 mm (1.476"/1.772") slot increment, the minimum value is "2". 	
	 For the 25 mm (0.984") slot increment, the minimum value is "3". 	
	Maximum value:	
	 For the 75/90/125 mm (2.952"/3.543"/4.921") slot increments, the maximum value is the "number of light barriers for the article height measurement". 	
	 For 37.5/45 mm (1.476"/1.772") slot increments, the maximum value is the "number of light barriers for article height measurement + 1". 	
	 For 25 mm (0.984") slot increments, the maximum value is the "number of light barriers for article height measurement + 2". 	
<pm3></pm3>	Shelf speed with supplementary module "Adjustable shelf speed"	3
<pm14></pm14>	Reserve	1
<pg1></pg1>	URL after successful macro execution.	100
<pg2></pg2>	URL after cancelled macro execution.	100

URL after macro execution	Macro execution successful:	http:// <base-url><pg1>?ER=00&L=<i>&E=<e>&T=<t>&I=<i>&J=<j></j></i></t></e></i></pg1></base-url>		
	Macro execution interrupted:	http:// <base-url><pg2>?ER=99&L=<l>&E=<</l></pg2></base-url>	:// <base-url><pg2>?ER=99&L=<i>&E=<e>&T=<t>&I=<i>&J=<j></j></i></t></e></i></pg2></base-url>	
	Parameter value	Meaning	Max. number of characters	

Parameter value	Meaning	Max. number of characters
<l></l>	Lift number	2
<e></e>	Access point number	1
<t></t>	Shelf in the access point	3
	(0 = no shelf in the access point)	
<i> <j></j></i>	Shelf <i> has article height <j>.</j></i>	3
	(0 = no measurement was carried out)	
	(The stored article height is the number of carrier units occupied by the shelf with stored articles)	

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4.5 Macro "remove_shelf"

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

URL with integrated macro

\$macro=remove_shelf\$PM1=<pm1>\$PM14=<pm14>\$PG1=<pg1>\$PG2=<pg2>\$

Parameter value	Meaning	Max. number of characters
<pm1></pm1>	Shelf number	3
<pm14></pm14>	Reserve	1
<pg1></pg1>	URL after successful macro execution.	100
<pg2></pg2>	URL after cancelled macro execution.	100

URL after macro execution

Macro execution

Macro execution

successful:

interrupted:

http://<base-URL><pg1>?ER=00&L=<l>&E=<e>&T=<t>&I=<i>&J=<j>

http://<base-URL><pg2>?ER=99&L=<I>&E=<e>&T=<t>&I=<i>&J=<j>

Max. number of characters Parameter value Meaning Lift number 2 <|> Access point number 1 <e> 3 <t> Shelf in the access point (0 = no shelf in the access point) 3 <i> <j> Shelf <i> has article height <j>. (0 = no measurement was carried out) (The stored article height is the number of carrier units occupied by the shelf with stored articles)

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4.6 Macro "optimisation_run" - Start an optimisation run

<pg2>

With this macro, the host has the ability to initiate the optimisation run.

URL with integrated macro

 Parameter value
 Meaning
 Max. number of characters

 <pm1>
 Optimisation type 0 = access time 1 = packing density
 1

 <pm14>
 Reserve
 1

 <pg1>
 URL after successful macro execution.
 100

\$macro=optimisation_run\$PM1=<pm1>\$PM14=<pm14>\$PG1=<pg1>\$PG2=<pg2>\$

Macro execution successful:	http:// <base-url><pg1>?ER=00&L=<l>&E=<e></e></l></pg1></base-url>
Macro execution interrupted:	http:// <base-url><pg2>?ER=99&L=<l>&E=<e></e></l></pg2></base-url>

URL after cancelled macro execution.

Parameter value	Meaning	Max. number of characters
< >	Lift number	2
<e></e>	Access point number	1

100

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4.7 Macro "delete_comp_display" - Clear storage location display

With this macro, the host has the ability to delete the storage location display.

URL with integrated macro	<pre>\$macro=delete_comp_display\$PG1=<pg1>\$</pg1></pre>		
	Parameter value	Meaning	Max. number of characters
	<pg1></pg1>	URL after successful macro execution.	100
URL after macro execution	Macro execution successful:	http:// <base-url><pg1>?ER=00&L=<l>&E=<e></e></l></pg1></base-url>	
	Parameter value	Meaning	Max. number of characters
	< >	Lift number	2
	<e></e>	Access point number	1

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4.8 Macro "set_interface" - activate interface for a peripheral device

With this macro, the host has the ability to activate the interface for a peripheral device.

URL with integrated macro	<pre>\$macro=set_interface\$PM1=<pm1>\$PG1=<pg1>\$PG2=<pg2>\$</pg2></pg1></pm1></pre>		
	Parameter value	Meaning	Max. number of characters
	<pm1></pm1>	Peripheral device selection	1
		0 = no	
		1 = barcode reader	
		2 = badge reader / transponder	
	<pg1></pg1>	URL after successful macro execution.	100
	<pg2></pg2>	URL after cancelled macro execution.	100
URL after macro execution	Macro execution successful:	http:// <base-url><pg1>?ER=00&L=<i>&E=</i></pg1></base-url>	<e></e>
	Macro execution interrupted:	http:// <base-url><pg2>?ER=99&L=<i>&E=</i></pg2></base-url>	<e></e>
	Parameter value	Meaning	Max. number of characters
	< >	Lift number	2
	<e></e>	Access point number	1

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- 4.9 Macro "base_services" - Call up basic functions

With this macro, the host has the ability to call up a menu with the basic shelf functions, Information services and system services.



- x Using the [+U] key "Adding a new shelf" and the [-U] key "Removing a shelf", the shelf table can be modified. If the host uses the shelf table, it must update with the macros "read status", "read status height" and "read status speed".
- x Shelf properties can be changed using the [1] key, "System services". If the host uses these, it must update them using the "read_status_height" and "read_status_speed" macros.



URL with \$pmacro=base services\$PM1=<pm1>\$PM2=<pm2>\$PM3=<pm3>\$PM4=<pm4>\$PM5=<pm5> integrated macro \$PM6=<pm6>\$PM11=<pm11>\$PM12=<pm12>\$PM21=<pm21>\$PM22=<pm22> \$PM23=<pm23>\$PM24=<pm24>\$PG1=<pq1>\$

When you specify "= 1", the corresponding function can be called up in the menu. When you specify "= 0" or do not specify anything, the corresponding function cannot be called up in the menu.

Parameter value	Meaning		Max. number of characters
<pm1></pm1>	[+U]	Adding a new shelf (optional)	1
<pm2></pm2>	[-U]	Removing a shelf (optional)	1
<pm3></pm3>	[+]	Bring shelf to access point manually (optional)	1
<pm4></pm4>	[†]	Store shelf from access point manually (optional)	1
<pm5></pm5>	[#]	Start an optimisation run (optional)	1
<pm6></pm6>	[F3]	Release shelf locking (optional)	1
<pm11></pm11>		(reserved for Rotomat)	1
<pm12></pm12>		(reserved for Rotomat)	1
<pm21></pm21>	[i]	Information services (optional)	1

Example:

	<pm22></pm22>	[1] System services (optional)	1
	<pm23></pm23>	LF11 Opening and closing the automatic sliding door using the keyboard (optional for supplementary feature Automatic sliding door)	1
		[F1] Unlock door with manual doors and electrical equipment for "Lift run only with door closed"	
	<pm24></pm24>	[F4] Shelf transfer (optional for supplementary module Shelf transfer)	1
	<pg1></pg1>	URL after successful macro execution.	100
URL after macro execution	Macro execution successful:	http:// <base-url><pg1>?ER=00&L=<l>&E= &U=<u_1><u_2></u_2></u_1></l></pg1></base-url>	= <e>&T=<t></t></e>
URL after macro execution	Macro execution successful: Parameter value	http:// <base-url><pg1>?ER=00&L=<l>&E= &U=<u_1><u_2> Meaning</u_2></u_1></l></pg1></base-url>	<e>&T=<t> Max. number of characters</t></e>
URL after macro execution	Macro execution successful: Parameter value	http:// <base-url><pg1>?ER=00&L=<l>&E= &U=<u_1><u_2> Meaning Lift number</u_2></u_1></l></pg1></base-url>	<pre>e>&T=<t> Max. number of characters 2</t></pre>
URL after macro execution	Macro execution successful: Parameter value <l> <e></e></l>	http:// <base-url><pg1>?ER=00&L=<l>&E= &U=<u_1><u_2> Meaning Lift number Access point number</u_2></u_1></l></pg1></base-url>	Max. number of characters
URL after macro execution	Macro execution successful: Parameter value <l> <e> <t></t></e></l>	http:// <base-url><pg1>?ER=00&L=<l>&E= &U=<u_1><u_2> Meaning Lift number Access point number Shelf in the access point</u_2></u_1></l></pg1></base-url>	Max. number of characters 2 1 3
URL after macro execution	Macro execution successful: Parameter value <l> <e> <t></t></e></l>	http:// <base-url><pg1>?ER=00&L=<i>&E= &U=<u_1><u_2> Meaning Lift number Access point number Shelf in the access point (0 = no shelf in the access point)</u_2></u_1></i></pg1></base-url>	Wax. number of characters 2 1 3
URL after macro execution	Macro execution successful: Parameter value <l> <e> <t> <t> <u_1></u_1></t></t></e></l>	http:// <base-url><pg1>?ER=00&L=<l>&E= &U=<u_1><u_2> Meaning Lift number Access point number Shelf in the access point (0 = no shelf in the access point) i (reserved for Rotomat)</u_2></u_1></l></pg1></base-url>	Max. number of characters 2 1 3 1

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4.10 Macro "read_status_mp_modules" - Query supplementary modules

With this macro, the host has the ability to query the configured supplementary modules.

URL with integrated macro	<pre>\$macro=read_status_mp_modules\$PG1=<pg1>\$</pg1></pre>		
	Parameter value	Meaning	Max. number of characters
	<pg1></pg1>	URL after successful macro execution.	100
URL after macro execution	Macro execution successful:	http:// <base-url><pg1>?ER=00&L=<l>&E= &C=<c>&D=<d>&F=<f>&G=<g>&H=<h></h></g></f></d></c></l></pg1></base-url>	<e>&A=<a>&B=</e>
	Parameter value	Meaning	Max. number of characters
	<l></l>	Lift number	2
	<e></e>	Access point number	1
	<8>	Supplementary module Shelf pre-positioning (0 = No, 1 = Yes)	1
		Supplementary module Storage location height management (0 = No, 1 = Yes)	1
	<c></c>	Supplementary module Adjustable shelf speed (0 = No, 1 = Yes)	1
	<d></d>	Reserve	1
	<f></f>	Supplementary module Remote-controlled Lift Operation (0 = No, 1 = Yes)	1
	<g></g>	Supplementary module Intermediate shelf buffer 0 = no 1 = Yes, K12 is available; in other words,	1
		 the shelf is changed when the high-speed door is closed (discontinued version) 2 = Yes, K12 is not present; in other words, the shelf is changed when the high-speed door is open 	
	<h></h>	Supplementary module Shelf transfer (0 = No, 1 = Yes)	1

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4.11 Macro "read_status_lift_features" - Query supplementary features

With this macro, the host has the ability to query the supplementary features used.

URL with integrated macro	<pre>\$macro=read_status_lift_features\$PG1=<pg1>\$</pg1></pre>		
	Parameter value	Meaning	Max. number of characters
	<pg1></pg1>	URL after successful macro execution.	100
URL after macro execution	Macro execution successful:	http:// <base-url><pg1>?ER=00&L=<i>&E= &C=<c>&D=<d>&F=<f>&G=<g>&H=<h></h></g></f></d></c></i></pg1></base-url>	<e>&A=<a>&B=</e>
	Parameter value	Meaning	Max. number of characters
	< >	Lift number	2
	<e></e>	Access point number	1
	<a>	Reserve	1
		Supplementary feature Pick-O-Light system (variable) (0 = No, 1 = Yes)	1
	<c></c>	Supplementary feature Automatic sliding door (0 = No, 1 = Yes)	1
	<d></d>	Supplementary feature Signal column (0 = No, 1 = Yes)	1
	<f></f>	Supplementary features of the requisition processing strip (0 = No, 1 = Yes)	1
	<g></g>	Supplementary features of the requisition processing strip, number of confirmation modules	2
	<h></h>	Shelf locking is activated (0 = No, 1 = Yes)	1
	<i></i>	(reserved for Rotomat)	1

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4.12 Macro "set_start_url" - Change the start-URL of the host Web server

With this macro, the host has the ability to change the start-URL and therefore also the base-URL of the host Web server. The new base-URL is already used in the URL after macro execution. The new start-URL is called up after switching off/on. This can be used, for example, for switching between work system and test system.

URL with integrated macro	<pre>\$macro=set_start_url\$PM1=<pm1>\$PG1=<pg1>\$PG2=<pg2>\$</pg2></pg1></pm1></pre>		
	Parameter value	Meaning	Max. number of characters
	<pm1></pm1>	New start-URL	100
	<pg1></pg1>	URL after successful macro execution.	100
	<pg2></pg2>	URL after cancelled macro execution.	100
URL after macro execution	Macro execution successful: Macro execution interrupted:	http:// <base-url><pg1>?ER=00&L=<l>&E= http://<base-url><pg2>?ER=99&L=<l>&E=</l></pg2></base-url></l></pg1></base-url>	- <e></e>
	Parameter value	Meaning	Max. number of characters
	< >	Lift number	2
	<e></e>	Access point number	1

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- 5 Macros for supplementary features
- 5.1 Supplementary feature Pick-O-Light system (variable)
- 5.1.1 Macro "get_shelf" Get shelf with display of the storage location

➢ See Chapter 4.2, page 79.

- 5.2 Supplementary feature Automatic sliding door
- 5.2.1 Macro "close_door" Close automatic sliding door

With this macro, the host has the ability to close automatic sliding doors.

URL with integrated macro	<pre>\$macro=close_door\$PG1=<pg1>\$PG2=<pg2>\$</pg2></pg1></pre>		
	Parameter value	Meaning	Max. number of characters
	<pg1></pg1>	URL after successful macro execution.	100
	<pg2></pg2>	URL after cancelled macro execution.	100
URL after macro execution	Macro execution successful: Macro execution interrupted:	http:// <base-url><pg1>?ER=00&L=<l>&E=<e> http://<base-url><pg2>?ER=99&L=<l>&E=<e></e></l></pg2></base-url></e></l></pg1></base-url>	
	Parameter value	Meaning	Max. number of characters
	< >	Lift number	2
	<e></e>	Access point number	1

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- 5.3 Supplementary feature Signal column
- 5.3.1 Macro "set_signal" - Activate signal elements of the signal column

With this macro, the host has the ability to activate signal elements (indicator lamps or audible signal devices) of the signal column.

URL with integrated macro

```
$macro=set_signal$PM1=<pm1>$PM2=<pm2>$PM3=<pm3>$PG1=<pg1>$PG2=<pg2>$
```

Parameter value	Meaning	Max. number of characters
<pm1></pm1>	Signal element 1	1
	0 = inactive	
	1 = active	
<pm2></pm2>	Signal element 2	1
	0 = inactive	
	1 = active	
<pm3></pm3>	Signal element 3	1
	0 = inactive	
	1 = active	
<pg1></pg1>	URL after successful macro execution.	100
<pg2></pg2>	URL after cancelled macro execution.	100

URL after macro execution

http://<base-URL><pg1>?ER=00&L=<l>&E=<e> Macro execution

Macro execution http://<base-URL><pq2>?ER=99&L=<l>&E=<e> interrupted:

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Parameter value	Meaning	Max. number of characters
< >	Lift number	2
<e></e>	Access point number	1

successful:

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- 5.4 Supplementary features of the requisition processing strip
- Macro "confirm_requisition_ledge" Write to and query requisition processing strip 5.4.1

With this macro, the host has the ability to write to and query the requisition processing strip. Confirmation key Confirmation:

Quit:

CE button or [CE] key



x Monitoring remote-controlled lift operation: After actuating the confirmation key, a lift run can be requested within 3 seconds. If the 3 seconds are exceeded, for security reasons the lift run has to be started with the [+] key.





URL with integrated macro \$macro=confirm_requisition_ledge\$PM1=<pm1>\$PM2=<pm2>\$PM3=<pm3>\$PM4=<pm4>\$ PG1=<pg1>\$PG2=<pg2>\$

Parameter value	Meaning	Max. number of characters
<pm1></pm1>	Number of confirmation module (1 - Number of confirmation modules)	2
<pm2></pm2>	Text line 1 (optional, UTF-8 encoding)	20 characters can be displayed
<pm3></pm3>	Text line 2 (optional, UTF-8 encoding)	20 characters can be displayed
<pm4></pm4>	Text line 3 (optional, UTF-8 encoding)	20 characters can be displayed
<pg1></pg1>	URL after successful macro execution.	100
<pg2></pg2>	URL after cancelled macro execution.	100

URL after macro execution	Macro execution successful:	http:// <base-url><pg1>?ER=00&L=<i>&E=<e></e></i></pg1></base-url>	
		➔ Confirmation key has been pressed.	
	Macro execution interrupted:	http:// <base-url><pg2>?ER=99&L=<i>&E=<e></e></i></pg2></base-url>	
		→ The CE button was touched or the [CE] key was pressed.	
	Parameter value	Meaning	Max. number of characters
	< >	Lift number	2
	<e></e>	Access point number	1

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- Macros for supplementary modules 6
- 6.1 Supplementary module Shelf pre-positioning

<t>

Macro "pre_pos_mode" - switch the shelf pre-positioning mode on/off 6.1.1



- x Shelf pre-positioning via the host without pressing the [+] key is possible only if the access point is in shelf pre-positioning mode.
- *x* The asynchronous control via the host is made possible with AJAX.

With this macro, the host has the ability to switch the shelf pre-positioning mode on and off.

URL with	
integrated macro	

\$macro=pre_pos_mode\$PM1=<pm1>\$PG1=<pg1>\$PG2=<pg2>\$PG3=<pg3>\$

	Parameter value	Meaning	Max. number of characters
	<pm1></pm1>	0 = switch mode off	1
		1 = switch mode on	
	<pg1></pg1>	URL after successful macro execution.	100
	<pg2></pg2>	URL after cancelled macro execution.	100
	<pg3></pg3>	URL after mode cancelled using Quit button / [CE] key	100
URL after macro execution	Macro execution successful:	http:// <base-url><pg1>?ER=00&L=<i>&E=</i></pg1></base-url>	- <e>&T=<t></t></e>
	Macro execution interrupted:	http:// <base-url><pg2>?ER=99&L=<i>&E=</i></pg2></base-url>	: <e>&T=<t></t></e>
	Mode interrupted:	http:// <base-url><pg3>?ER=98&L=<i>&E=</i></pg3></base-url>	<e>&T=<t></t></e>
	Parameter value	Meaning	Max. number of characters
	< >	Lift number	2
	<e></e>	Access point number	1

Shelf in the access point

(0 = no shelf in the access point)

3

Lean-Lift Multi-Space

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Display

Switching on the shelf pre-positioning mode

• Activate the macro for switching on the mode.

Description of the operator prompts

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

If no [+] key has been pressed.:

- Press the [←] key. Caution: The [←] key starts a lift run!
- → The shelf in the access point is stored in the lift.

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

→ URL after cancelled macro execution is triggered. http://<base-URL><pg2>?ER=99&L=<I>&E=<e> &T=<t>



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

Switching off the shelf pre-positioning mode

If you want the operator to exit this mode:

- Touch the **QUIT [CE]** button or press the **[CE]** key.
- → URL after mode cancelled is triggered. http://<base-URL><pg3>?ER=98&L=<I>&E=<e> &T=<t>

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

- Activate the macro for switching off the mode.
- → Note:

The mode is exited even when calling up other macros.



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- 6.2 Supplementary module Storage location height management

Macro execution

Macro execution interrupted:

successful:

6.2.1 Macro "read_status_height" - Query shelf target height and article height

With this macro, the host has the ability to query the shelf target height and the article height.

URL with

\$macro=read_status_height\$PM1=<pm1>\$PM2=<pm2>\$PG1=<pg1>\$PG2=<pg2>\$

integrated macro

Parameter value	Meaning	Max. number of characters
<pm1></pm1>	String number 1-4	1
<pm2></pm2>	0 = Query of shelf target height	1
	1 = Query of article height	
<pg1></pg1>	URL after successful macro execution.	100
<pg2></pg2>	URL after cancelled macro execution.	100

URL after macro execution

http://<base-URL><pq1>?ER=00&L=<l>&E=<e>&X<pm1>=<x>

http://<base-URL><pg2>?ER=99&L=<l>&E=<e>

Parameter value	Meaning	Max. number of characters
< >	Lift number	2
<e></e>	Access point number	1
<x></x>	Height table <pm1> = 1-4</pm1>	254
	The height table is encoded using ASCII strings. For each ASCII string, a maximum of 254 shelf target heights can be defined. One ASCII character is used per table. Only the shelf target heights of shelves that are actually present are transferred. "A" = height 1, "B" = height 2 etc., up to max. "-" = height 31	
	Example:	
	String: AB[D	
	The first present shelf has height 1	
	The second present shelf has height 2	
	The third present shelf has height 27	
	The fourth present shelf has height 4	

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Macro "edit_shelf_properties" - Change the shelf target height of a shelf 6.2.2

With this macro, the host has the ability to change the shelf target height of a shelf.

URL with integrated macro \$macro=edit_shelf_properties\$PM1=<pm1>\$PM2=<pm2>\$PG1=<pg1>\$PG2=<pg2>\$

	Parameter value	Meaning	Max. number of characters
	<pm1></pm1>	Shelf number	3
	<pm2></pm2>	Target height for shelf <pm1>.</pm1>	3
		 The minimum value and the maximum value for the shelf target height is dependent on the carrier increment. Minimum value: For the 75/90/125 mm (2.952"/3.543"/4.921") slot increment, the minimum value is "1". 	
		 For the 37.5/45 mm (1.476"/1.772") slot increment, the minimum value is "2". 	
		 For the 25 mm (0.984") slot increment, the minimum value is "3". 	
		Maximum value:	
		 For the 75/90/125 mm (2.952"/3.543"/4.921") slot increments, the maximum value is the "number of light barriers for the article height measurement". For 37.5/45 mm (1.476"/1.772") slot increments, the maximum value is the 	
		"number of light barriers for article height measurement + 1".	
		 For 25 mm (0.984") slot increments, the maximum value is the "number of light barriers for article height measurement + 2". 	
	<pg1></pg1>	URL after successful macro execution.	100
	<pg2></pg2>	URL after cancelled macro execution.	100
macro	Macro execution successful:	http:// <base-url><pg1>?ER=00&L=<i>&E=</i></pg1></base-url>	<e></e>
	Macro execution interrupted:	http:// <base-url><pg2>?ER=99&L=<i>&E=</i></pg2></base-url>	<e></e>
	Parameter value	Meaning	Max. number of characters
	< >	Lift number	2
	<e></e>	Access point number	1

URL after execution

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6.3 Supplementary module Adjustable shelf speed

6.3.1 Macro "read_status_speed" - query shelf speeds

With this macro, the host has the ability to query the shelf speeds.

URL with integrated macro

\$macro=read_status_speed\$PM1=<pm1>\$PG1=<pg1>\$PG2=<pg2>\$

3			
	Parameter value	Meaning	Max. number of characters
	<pm1></pm1>	String numbers 1-8	1
	<pg1></pg1>	URL after successful macro execution.	100
	<pg2></pg2>	URL after cancelled macro execution.	100
URL after macro execution	Macro execution successful:	http:// <base-url><pg1>?ER=00&L=<l>&l</l></pg1></base-url>	E= <e>&S<pm1>=<s></s></pm1></e>

Macro execution interrupted:

http://<base-URL><pg2>?ER=99&L=<I>&E=<e>

Parameter value	Meaning	Max. number of characters
<l></l>	Lift number	2
<e></e>	Access point number	1
<\$>	Speed table <pm1> = 1-8 The speed table is encoded using ASCII strings. For each ASCII string, a maximum of 127 shelf speeds can be defined. Two ASCII characters are used per table (speed 1 % -> 01 up to speed 99 % -> 99, speed 100 % -> 00). Only the shelf speeds of shelves that are actually present are transferred.</pm1>	254

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- 6.4 Supplementary module Intermediate shelf buffer for requisition/job processing (only for Lean-Lift)
- Macro "get_shelf" Get shelf with display of the storage location 6.4.1

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

➤ See Chapter 4.2, page 79.

Macro "get_shelf_background" - Retrieve shelf in the background to the intermediate shelf buffer 6.4.2

With this macro, the host has the ability to retrieve a shelf in the background into the intermediate shelf buffer. The upper intermediate shelf buffer is emptied and the lower intermediate shelf buffer is filled with shelf <pm1>. This is done with the high-speed door closed, and therefore does not have to be started at the MP control system with the [+] key.

URL with integrated macro

\$macro=get_shelf_background\$PM1=<pm1>\$PG1=<pg1>\$PG2=<pg2>\$

Parameter value	Meaning	Max. number of characters
<pm1></pm1>	Shelf number	3
<pg1></pg1>	URL after successful macro execution.	100
<pg2></pg2>	URL after cancelled macro execution.	100



The URL after macro processing is sent immediately, rather than at the end of the lift run.

URL after macro execution	Macro execution successful:	http:// <base-url><pg1>?ER=00&L=<l>&E=<e></e></l></pg1></base-url>
	Macro execution interrupted:	http:// <base-url><pg2>?ER=99&L=<l>&E=<e></e></l></pg2></base-url>

Parameter value	Meaning	Max. number of characters
<l></l>	Lift number	2
<e></e>	Access point number	1

10 Annex: Integration into the IT system, Variant I: Activation of the lift via macros integrated into the HTML page (only for installation and maintenance personnel and IT specialists)

- 6.5 Supplementary module Shelf transfer
- 6.5.1 Macro "shelf_transfer" Start the shelf transfer

With this macro, the host has the ability to send a shelf into another access point.

URL with integrated macro	<pre>\$macro=shelf_transfer\$PM1=<pm1>\$PM14=<pm14>\$PG1=<pg1>\$PG2=<pg2>\$</pg2></pg1></pm14></pm1></pre>		
	Parameter value	Meaning	Max. number of characters
	<pm1></pm1>	Destination access point	1
	<pm14></pm14>	Reserve	1
	<pg1></pg1>	URL after successful macro execution.	100
	<pg2></pg2>	URL after cancelled macro execution.	100
URL after macro execution	Macro execution successful: Macro execution interrupted:	http:// <base-url><pg1>?ER=00&L=<i>&E=<e>&T=<t>&I=<i>&J=<j> http://<base-url><pg2>?ER=99&L=<i>&E=<e>T=<t>&I=<i>&J=<j></j></i></t></e></i></pg2></base-url></j></i></t></e></i></pg1></base-url>	

Parameter value	Meaning	Max. number of characters
< >	Lift number	2
<e></e>	Access point number	1
<t></t>	Shelf in the access point	3
	(0 = no shelf in the access point)	
<i> <j></j></i>	Shelf <i> has article height <j>.</j></i>	3
	(0 = no measurement was carried out)	
	(The stored article height is the number of carrier units occupied by the shelf with stored articles)	

- 10 Annex: Integration into the IT system, Variant I: Activation of the lift via macros integrated into the HTML page (only for installation and maintenance personnel and IT specialists)
- 7 JavaScript key codes for the Hänel keyboard





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

Hänel keys and number block

Кеу	Key code as decimal value
+	43
-	45
ŧ	116
€	117
X?	118
Y?	119
Ц	120
+U	121
-U	122
1	38
+	40
←	37



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Keypad

Кеу	Key code as decimal value
A → Z	65-90
~	8
	13
,	44
	47
(219
	41
	32
:	58
	46
-	45

1

- 10 Annex: Integration into the IT system, Variant I: Activation of the lift via macros integrated into the HTML page (only for installation and maintenance personnel and IT specialists)
- 8 HTML example for macro programming
- 8.1 Example using the "get_shelf" macro

Description of the HTML example

- Touch selection of button/link
- The "get_shelf" macro is sent to the MP control system with parameters PM1=5, PM2=1, PM3=1, PM4=1, pg1 and pg2.

HTML screenshot

WEB SERVER

HOST



→ To start the lift run, the return key must be pressed

→ The shelf in the access point is stored and the shelf with number 5 is retrieved. The display for compartment 1 and compartment depth 1 is activated with container size 1 in direction of compartments.

➔ If the macro is executed successfully, the HTML page is called with the URL "get_shelf_ok.html" (pg1). If the macro is interrupted, the URL "get_shelf_error.html" is called (pg2).

HTML source code

Using a button:

Alternative: using a link:

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html><head>
<title>get_shelf_link</title>
<meta http-equiv="Content-Type" content="text/html; charset=ISO-8859-1">
</head><body>
<a href="$macro=get_shelf$PM1=5$PM2=1$PM3=1$PM4=1$PG1=get_shelf_ok.html$PG2=get_shelf_erro
r.html$'">send macro</a><br>
</body></html>
```

Lean-Lift Multi-Space

10 Annex: Integration into the IT system, Variant I: Activation of the lift via macros integrated into the HTML page (only for installation and maintenance personnel and IT specialists)



- Recommendation: using the Enter key in conjunction with a button
- Advantage: the lift run does not have to be confirmed again using the Return key.

Description of the HTML example

- Press the Enter key
- The "get_shelf" macro is sent to the MP control system with parameters PM1=5, PM2=1, PM3=1, PM4=001, pg1 and pg2.
- The lift run is started.
- The shelf in the access point is stored and the shelf with number 5 is retrieved. The display for compartment 1 and compartment depth 1 is activated with container size 1 in direction of compartments.
- If the macro execution is successful, the HTML page is called using the URL "get_shelf_ok.html" (pg1).
- If the macro execution is interrupted, the HTML page is called using the URL "get_shelf_error.html" (pg2).



HTML source code

Using the Enter key in conjunction with a button

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html><head>
<title>get_shelf_enter</title>
<meta http-equiv="Content-Type" content="text/html; charset=ISO-8859-1">
</head><body>
<script type="text/javascript">
<!-- check the pressed keys with the function keypress()-->
document.onkeypress=keypress;
function keypress(e)
  e = e ? e : ((event) ? event : null);
   if(e)
        if(e.keyCode == 13)
   {
        document.getElementById("button").click();
        showTarget(e);
   }
}
</script>
<input type="button" id="button" name="send button" value="send macro"
onclick="window.location='$macro=get_shelf$PM1=5$PM2=1$PM3=1$PM4=1$PG1=get_shelf_ok.html$P
G2=get_shelf_error.html$'">
</body></html>
```
- 10 Annex: Integration into the IT system, Variant I: Activation of the lift via macros integrated into the HTML page (only for installation and maintenance personnel and IT specialists)
- 8.2 Example using the "read_status" macro

Description of the HTML example

- Touch selection of button/link
- → The "read_status" macro is sent to the MP control system with the parameter pg1.
- ➔ If the macro execution is successful, the HTML page is called using the URL "read_status_ok.html" (pg1).



HTML source code

Using a button:

Alternative: using a link:

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html><head>
<title>read_status_link</title>
<meta http-equiv="Content-Type" content="text/html; charset=ISO-8859-1">
</head><body>
<a href="$macro=read_status$PG1=read_status_ok.html$'">send macro</a><br>
</body></html>
```

11 Annex: Integration into the IT system, Variant II: Activation of the lift via Webservice per SOAP protocol (only for installation and maintenance personnel and IT specialists)



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

Variant II: Activation of the lift via Webservice per SOAP protocol is possible only as of MP 12N SYSTEM: V 4.0, in other words, printed circuit board S0859 is used.

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- 11 Annex: Integration into the IT system, Variant II: Activation of the lift via Webservice per SOAP protocol (only for installation and maintenance personnel and IT specialists)
- 1 TCP / IP connection via Ethernet
- 1.1 Terms used

MP multi-unit network	In the HOST-WEB program version, no communication link between the Hänel MP control systems is used. The IP address in the MP multi-unit network is used for service purposes only; therefore, it still has to be unique.			
Company network	All PCs, PD, that are to b	All PCs, PDAs, DHCP / DNS servers, in a customer-side network or standalone, hat are to be connected to the MP 12N-H[HOST-WEB] via a network cable.		
DNS name / MP name	 Name of the MP control system which can be used in alternative to the IP address to access the MP control system if a DNS server is in the corporate network. By default, the name of the MP control system consists of a prefix and the commission number of the MP 12N-H[HOST-WEB]. Prefix for MP 12N: "mp12n-" For the commission number, some symbols are replaced to maintain a valid DNS name. These are "p" for ".", "s" for "/", "a" for "*". Example: mp12n-322p128s1-2a1 The MP name can be overwritten with a user-defined name. > Refer to the "Technical Description of the Microprocessor Control System MP 12N Lean-Lift and Multi-Space", chapter "System services lift control" -> "Setting interface parameters" -> "ETHERNET CORPORATE NETWORK". 			
Switch	A switch (adapter / diverter) is a coupling element that interconnects network segments / network participants.			
Ethernet patch cable	Connecting cable between MP 12N (X12) and the corporate network or a unit with an Ethernet connection. In the base model "Cat. 5e patch cable (STP)". In the crossover model as a point-to-point connection between the MP 12N and a unit with an Ethernet connection. In the standard model as a connecting cable from the MP 12N to a switch.			
	Ethernet patch cables are not included in the scope of delivery and must be provided by the customer.			
IP addresses	 The 100 Mbit Ethernet connection of the MP 12N has 2 logical addresses. 1. IP address for the connection to the MP multi-unit network (service computer) 2. IP address for the connection to the corporate network (HOST) The MP 12N IP address for the corporate network is set by default to 0.0.0 and thus is disabled. 			
	Since the MP multi-unit network and the corporate network are physically in the same network, all participants must have unique IP addresses.			
IP addresses in the	MP 12N 172. <ip address="" range="">.<access number="" point="">.<lift number=""></lift></access></ip>			
network	172. <ip address="" range="">.<access number="" point="">.<reserved></reserved></access></ip>			
	Service 172. <ip address="" range="">.1.200</ip>			
	<ip addres<="" td=""><td>s range></td><td>16 - 31 (default is 16)</td></ip>	s range>	16 - 31 (default is 16)	
	<access po<="" td=""><td>pint number></td><td>1 - 8</td></access>	pint number>	1 - 8	

<Lift number>

<Reserved>

1 - 99

100 - 110

- 11 Annex: Integration into the IT system, Variant II: Activation of the lift via Webservice per SOAP protocol (only for installation and maintenance personnel and IT specialists)
- 1.2 Integration into corporate network
- 1.2.1 Schematic illustration



11 Annex: Integration into the IT system, Variant II: Activation of the lift via Webservice per SOAP protocol (only for installation and maintenance personnel and IT specialists)

1.2.2 Procedure



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

1st step:

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



The IP address of the MP 12N for the MP multi-unit network is in a Class B address range (subnet) 172.16.xxx.yyy to 172.31.xxx.yyy (subnet 172.16 - 172.31); see Chapter Fehler: Referenz nicht gefunden on page Fehler: Referenz nicht gefunden. By default, subnet 172.16 is configured for the MP 12N.

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

Refer to the "Technical Description of the Microprocessor Control System MP 12N Lean-Lift and Multi-Space", Chapter "System services lift control" -> "Setting interface parameters" -> "ETHERNET MP MULTI-UNIT NETWORK".

2nd step:

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

Integration into corporate

with DNS UPDATE is

present

network when a DNS server





If there is a DNS server in the company network which supports a dynamic update of the Domain Name System (DNS UPDATE) in accordance with RFC 2136 by the DHCP server, then the name of the MP 12N is passed on automatically to the DNS server. Thus the DNS name can be used instead of the IP address.

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

Refer to the "Technical Description of the Microprocessor Control System MP 12N Lean-Lift and Multi-Space", chapter "System services lift control" -> "Setting interface parameters" -> "ETHERNET CORPORATE NETWORK".

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

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



If there is a DNS server in the corporate network that does not support DNS UPDATE, the DNS server must be informed of the MAC address and the name of the MP 12N (system administrator).

Refer to the "Technical Description of the Microprocessor Control System MP 12N Lean-Lift and Multi-Space", chapter "System services lift control" -> "Setting interface parameters" -> "ETHERNET CORPORATE NETWORK".

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

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Integration into corporate network if no DHCP server is present in the network (manual address allocation) The MP 12N must be initialised to "GET IP ADDRESS FROM DHCP: NO". Then, initialise the IP address, subnet mask and standard gateway (information from system administrator).

Refer to the "Technical Description of the Microprocessor Control System MP 12N Lean-Lift and Multi-Space", Chapter "System services lift control" -> "Setting interface parameters" -> "ETHERNET CORPORATE NETWORK".

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

Connection to the Web server with the Web application

To establish a connection to the Web application, the start-URL and the base-URL must be configured.

> See Chapter 7.2 on page 51.

- 11 Annex: Integration into the IT system, Variant II: Activation of the lift via Webservice per SOAP protocol (only for installation and maintenance personnel and IT specialists)
- 2 Webservice "Macro"

Overview of

function

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



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

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WSDL file	A WSDL file (WSDL1.1) can be downloaded via the MP control system. To do so, the following URL has to be entered in a Web browser connected to the MP control system: http:// <ip-address-of-the-mp-control-system>/jwsmacro/services/Macro?wsdl Then the WSDL file is shown. The contents can be copied out and saved as a *.wsdl file. Alternatively, the *.wsdl file is provided in the documentation.</ip-address-of-the-mp-control-system>
SOAP message	The Webservice client generated from the WSDL file has to support SOAP 1.1. Method calls are implemented in SOAP requests. Return parameters are returned in SOAP responses. See the example below with the "read_status" method.
SOAP request (Example)	<soapenv:envelope <br="" xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/">xmlns:q0="http://com.hanel.de" xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <soapenv:body> <q0:read_status></q0:read_status> </soapenv:body> </soapenv:envelope>
SOAP response (Example)	<pre><?xml version="1.0" encoding="http://schemas.xmlsoap.org/soap/envelope/" standalone="no"?> <soapenv:envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"> <soapenv:body> <ns:read_statusresponse xmlns:ns="http://com.hanel.de"> <ns:read_statusresponse xmlns:ns="http://com.hanel.de"> <ns:retum xmlns:ax21="http://com.hanel.de/xsd" xmlns:xsi="http://www.w3.org/2001/XML Schema-instance" xsi:type="ax21:ResultReadStatus"> <ax21:accessnumber>0</ax21:accessnumber> <ax21:accessside>0</ax21:accessside> <ax21:compdepths>0 <ax21:compdepths>0</ax21:compdepths> <ax21:imbalancedirection xsi:nil="true"></ax21:imbalancedirection> <ax21:imbalanceshelf>0</ax21:imbalanceshelf> <ax21:liftnumber>0</ax21:liftnumber> <ax21:lifttype>0 <ax21:shelfinaccess>0</ax21:shelfinaccess> <ax21:shelfinaccess>0</ax21:shelfinaccess> <ax21:shelfinaccess>0</ax21:shelfinaccess> <ax21:shelfinaccess> <ax21:shelfinac< td=""></ax21:shelfinac<></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:shelfinaccess></ax21:lifttype></ax21:compdepths></ns:retum></ns:read_statusresponse></ns:read_statusresponse></soapenv:body></soapenv:envelope></pre>
Binding	http:// <ip-address-of-the-mp-control- system>/jwsmacro/services/Macro.MacroHttpSoap11Endpoint</ip-address-of-the-mp-control-

11 Annex: Integration into the IT system, Variant II: Activation of the lift via Webservice per SOAP protocol (only for installation and maintenance personnel and IT specialists)

General information about the passed parameters are passed to the method in the form of an object (for example, Java Bean). All parameters do not always have to be used within an object. Whether a parameter has to be set and what value it has to have if inactive can be found in the tables of the chapter 4 Methods in the standard in the "Inactive" column. If a passed parameter is to be set, you can get information about its "Type" and the "Active value range" from the tables in the chapter 4 Methods in the standard.

Unavailable parameters are returned with -1 (Int) or zero (String).

Each return object has a "returnValue" parameter.

Each method returns its return parameters in the form of an object (for example, Java Bean).

General information about the return parameters

General return values in the "returnValue" parameter

	1
"returnValue"	Meaning
0	OK, Webservice was executed correctly.
	Remaining return parameters are valid
1	Webservice was not executed, as this is the first connection after the lift was switched on.(Serves to synchronise MP host)
	Remaining return parameters are invalid.
	Webservice call has to be repeated.
2	Webservice was not executed, as a Webservice was already called up which still has not acknowledged. The acknowledgement must be waited for before a new Webservice call can be made.
	An asynchronous call of the Webservice is not possible.
	Remaining return parameters are invalid.
3	Webservice was not executed due to a syntax error. Check log files and programming.
	Remaining return parameters are invalid.
4	Webservice call was not accepted. A Webservice is not possible in this mode/combination. For example, for supplementary module "Remote-controlled Lift Operation and lift features without special safety equipment".
	Remaining return parameters are invalid.
5	Webservice was not executed, since a "RETURN" still has not been activated at the MP control system.
	-> "RETURN" has to be activated at the MP control system.
	The Webservice query can be cyclically repeated after this response until "RETURN" has been activated.
	Remaining return parameters are invalid.
6	Internal error. Read out log files and consult Hänel.
	Remaining return parameters are invalid.

- 11 Annex: Integration into the IT system, Variant II: Activation of the lift via Webservice per SOAP protocol (only for installation and maintenance personnel and IT specialists)
 - If a lift run is being carried out for another access point, the "LIFT RUN FOR OTHER ACCESS POINT" or "OPERATION IS BLOCKED BY OTHER ACCESS POINT!" message is displayed during processing of the Webservice "Macro" (except during "read_status") until the lift run is completed. Only then is the Webservice "Macro" processed.

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Method	Description	
read_status	Query status information	See Chapter 4.1, page 123.
get_shelf	Get shelf with display of storage location	See Chapter 4.2, page 124.
store_shelf	Store shelf	See Chapter 4.3, page 126.
add_shelf	Add shelf	See Chapter 4.4, page 127.
remove_shelf	Remove shelf	See Chapter 4.5, page 129.
optimisation_run	Starting an optimisation run	See Chapter 4.6, page 130.
delete_comp_disp	Clear storage location display	See Chapter 4.7, page 131.
set_interface	Enable the interface for a peripheral device	See Chapter 4.8, page 131.
base_services	Call up basic functions	See Chapter 4.9, page 132.
read_st_mp_mod	Query supplementary modules	See Chapter 4.10, page 134.
read_st_lift_feat	Query supplementary features	See Chapter 4.11, page 135.
set_start_url	Change the start-URL of the host Web server.	See Chapter 4.12, page 136.
Methods for supplementary features	Description	
get_shelf	Get shelf with display of storage location (Pick-O-Light system (variable))	See Chapter 5.1.1, page 137.
close_door	Close automatic sliding door (Automatic sliding door)	See Chapter 5.2.1, page 137.
set_signal	Activate signal elements of the signal column. (Signal column)	See Chapter 5.3.1, page 138.
conf_req_ledge	Write to and query requisition processing strip (requisition processing strip)	See Chapter 5.4.1, page 139.
Methods for supplementary modules	Description	
pre_pos_mode	Switch shelf pre-positioning mode on/off (Shelf pre-positioning)	See Chapter 6.1.1, page 140.
read_st_height	Retrieve shelf target height and stored article height (Storage location height management)	See Chapter 6.2.1, page 142.

3 Overview of the individual methods of the Macro Webservice

edit_shelf_prop

read_st_speed

Change the shelf target height of a shelf

(Storage location height management)

Query shelf speed

(Adjustable shelf speed)

See Chapter 6.2.2, page 144.

See Chapter 6.3.1, page 146.

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get_shelf	Get shelf with display of storage location (Intermediate shelf buffer for requisition/job processing)	See Chapter 6.4.1, page 148.
get_shelf_backgr	Get shelf in background to intermediate shelf buffer	See Chapter 6.4.2, page 148.
	(Intermediate shelf buffer for requisition/job processing)	

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- 4 Methods in the standard
- 4.1 Method "read_status" Query status information

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

Passed parameters

Return parameters C

Object

None

ResultReadStatus

Parameters	Meaning	Туре	Area
returnValue	General return values	Int	0-6
liftNumber	Lift number	Int	1-99
accessNumber	Access point number	Int	1-4
shelfInAccess	Shelf in the access point (0 = no shelf in the access point)	Int	0-999
imbalanceDirec tion	i (reserved for Rotomat)	String	"j"
imbalanceShelf	0 (reserved for Rotomat)	Int	0
shelfTable	Shelf table coded in hexadecimal	String	1-250 characters
	Example: "F31"		
	HEX code F 3 1		
	Binary 1111 0011 0001 code:		
	Shelf 4 3 2 1 8 7 6 5 12 11 10 9 number: 1 = Shelf available 0 = Shelf not available Shelves 1, 2, 3, 4, 5, 6, 9 are available.		
liftType	0 = Rotomat 1 = Lean-Lift 2 = Rack operation 3 = Rotomat lift run simulation 4 = Lean-lift lift run simulation 5 = Multi-Space 6 = Multi-space lift run simulation	Int	0-6
komNumber	Commission number of the lift	String	Max. 16 characters

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compartments	Number of compartments (initialisation)	Int	1-255
compDepths	Number of compartment depths (initialisation)	Int	1-99
accessSide	0 = Access point is in front	Int	0-1
	1 = Access point is in back		
	(The front is the side where access point 1 is located.The type plate is located at access point 1)		

4.2 Method "get_shelf" - Get shelf with display of the storage location

 Description
 With this method, the host has the ability to retrieve a shelf and to initiate simultaneously the storage location display, if available.

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

Passed parameters Object RequestGetShelf

Parameters	Meaning	Туре	Active Area	Inactive
pm01_shelfNumber	Shelf number	Int	1-999	Mandatory
pm02_compartmentNu mber	Compartment number (optional)	Int	1-255	0
pm03_compartmentDep thNumber	Compartment depth number (optional)	Int	1-99	0
pm04_containerWidthIn Compartment	Container width in direction of compartments (optional for Compartment depth display type II, Compartment depth display type III and supplementary feature Pick-O-Light system, fixed grid)	Int	1-255	0
pm05_containerWidthIn CompartmentDepth	Container width in direction of compartment depths (optional for supplementary feature Pick-O-Light system, fixed grid)	Int	1-99	0
pm_10_compartmentNu mberPickOLight	Number of compartments per shelf [optional for supplementary feature Pick-O-Light System (Variable)]	Int	1-255	0
pm11_compartmentDep thNumberPickOLight	Number of compartment depths per shelf [optional for supplementary feature Pick-0-Light System (Variable)]	Int	1-99	0

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pm12_compartmentMM PickOLight	Position value of Pick-O-Light system in direction of compartments in the unit millimetres at a front access point. Automatic conversion for rear access point. (optional for Supplementary feature Pick-O-Light system (variable))	Int	1-9999	0
pm13_compartmentDep thMMPickOLight	Position value of Pick-O-Light system in direction of compartment depths in the unit millimetres at a front access point. Automatic conversion for rear access point. (optional for Supplementary feature Pick-O-Light system (variable))	Int	1-9999	0
pm15_shelfLocking	Release shelf locking (optional with shelf locking activated) (1 = Release shelf locking; in other words, do not fix shelf in place despite activated shelf locking)	Int	1	0
pm16_doorHeight	(reserved for Rotomat)	Int	1-4	0

Return parameters

Object

ResultGetShelf

Parameters	Meaning	Туре	Area
returnValue	Return value	Int	0-6/99
	→ General return values		0-6
	→ Lift run was interrupted at the lift.		99
	(Remaining return parameters are valid)		
liftNumber	Lift number	Int	1-99
accessNumber	Access point number	Int	1-4
shelfInAccess	Shelf in the access point	Int	0-999
	(0 = no shelf in the access point)		
imbalanceDirection	i (reserved for Rotomat)	String	"j"
imbalanceShelf	0 (reserved for Rotomat)	Int	0
shelfWithHeight	Shelf for which the article height is in the parameter shelfHeight	Int	0-999
	(0 = no measurement was carried out)		
shelfHeight	Article height of the shelf from the shelfWithHeight parameter	Int	1-31
	(The stored article height is the number of carrier units occupied by the shelf with stored articles)		

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4.3 Macro "store_shelf"

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

Passed parameters None

Return parameters 0

Object

ResultStoreShelf

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

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- 4.4 Method "add_shelf"

Description With this method, the host has the ability to add a shelf. The method is blocking until the shelf has been added and it has been confirmed at the lift that the shelf is already in the lift or a previously needed lift run for emptying the access point has been interrupted.

Passed parameters	Object	RequestAddShelf			
	Parameter value	Meaning	Туре	Active area	Inactive
	pm01_shelfNumber	Shelf number	Int	1-999	Mandatory
	pm02_shelfHeight	Shelf height with supplementary module "Storage location height management".	Int	1-31	0
		For lifts without a "Fixed shelf height" and without "Shelf height monitor", the minimum value is "1" and the maximum value is "31".			
		In lifts with a "Fixed shelf height" or "Shelf height monitor", the minimum value and the maximum value for the shelf target height depends on the carrier increment:			
		 For the 75/90/125 mm (2.952"/3.543"/4.921") slot increment, the minimum value is "1". 			
		 For the 37.5/45 mm (1.476"/1.772") slot increment, the minimum value is "2". 			
		 For the 25 mm (0.984") slot increment, the minimum value is "3". 			
		Maximum value:			
		 For the 75/90/125 mm (2.952"/3.543"/4.921") slot increments, the maximum value is the "number of light barriers for the article height measurement". 			
		 For 37.5/45 mm (1.476"/1.772") slot increments, the maximum value is the "number of light barriers for article height measurement + 1". 			

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	 For 25 mm (0.984") slot increments, the maximum value is the "number of light barriers for article height measurement + 2". 			
pm03_shelfSpeed	Shelf speed in % with supplementary module "Adjustable shelf speed"	Int	50-100	0

Return parameters

Object

ResultAddShelf

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

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4.5 Method "remove_shelf"

Description	With this method, the host has the ability to remove a shelf. The method is blocking until the desired shelf is unregistered or a lift run for retrieving the shelf has been interrupted at the lift.				
Passed parameters	Object	RequestRemoveShelf			
	Parameter value	Meaning	Туре	Active area	Inactive
	pm01_shelfNumber	Shelf number	Int	1-999	Mandatory

Return parameters

Object

ResultRemoveShelf

Parameter value	Meaning	Туре	Area
returnValue	Return value	Int	0-6/99
	→ General return values		0-6
	→ Lift run was interrupted at the lift.		99
	(Remaining return parameters are valid)		
	→ Shelf number not in lift		99
	(Remaining return parameters are valid)		
liftNumber	Lift number	Int	1-99
accessNumber	Access point number	Int	1-4
shelfInAccess	Shelf in the access point	Int	0-999
	(0 = no shelf in the access point)		
shelfWithHeight	Shelf for which the article height is in the parameter shelfHeight	Int	0-999
	(0 = no measurement was carried out)		
shelfHeight	Article height of the shelf from the shelfWithHeight parameter	Int	1-31
	(The stored article height is the number of carrier units occupied by the shelf with stored articles)		

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4.6 Method "optimisation_run" - Start an optimisation run

Description	With this method, the host has the ability to start an optimisation run. The start itself has to be acknowledged at the lift. The method is blocking until the optimisation run has been completely carried out, or has been interrupted at the lift.					
Passed parameters	Object	RequestOptimisationRun				
	Parameter value	Meaning	Туре	Active area	Inactive	
	pm01_optimisationType	Optimisation type	Int	0-1	Mandatory	
		0 = access time				
		1 = packing density				
Return parameters	ers Object ResultOptimisationRun					
	Parameter value	Meaning		Туре	Area	
	returnValue	Return value		Int	0-6/99	
		→ General return values			0-6	
		→ Optimisation run was interrupted	at the lift		99	
		(Remaining return parameters a	re valid)			
	liftNumber	Lift number		Int	1-99	
	accessNumber	Access point number		Int	1-4	

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- 4.7 Method "delete_comp_disp" Clear storage location display

Description	With this macro, the host has the ability to clear the storage location display again, which was triggered using the "get_shelf" method. The method is not blocking.				
Passed parameters	None				
Return parameters	Object	ResultDeleteCompDisp			
	Parameter value	Meaning	Туре	Area	

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

4.8 Method "set_interface" - Activate interface for a peripheral device

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

Passed parameters	Object	RequestSetInterface			
	Parameter value	Meaning	Туре	Active area	Inactive
	pm01_device	Peripheral device selection 0 = no 1 = barcode reader 2 = badge reader / transponder	Int	0-2	Mandatory

Return parameters

Object

ResultSetInterface

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

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- 4.9 Method "base_services" Call up basic functions

Object

Description

With this method, the host has the ability to call up a menu with the basic shelf functions, information services and system services. The method is blocking until the basic functions have been exited again at the lift via the **ICE1** key.



- Using the [+U] key "Adding a new shelf" and the [-U] key "Removing a shelf", the shelf table can be modified. If the host uses the shelf table, it must update with the macros "read_status", "read_status_height" and "read_status_speed".
- Shelf properties can be changed using the [1] key, "System services". If the host uses these, it must update them using the "read_status_height" and "read_status_speed" macros.

Example:



Passed parameters

RequestBaseServices

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

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Parameter value	Meanir	ng	Туре	Active area	Inactive
pm01_addShelf	[+U]	Adding a new shelf (optional)	Int	1	0
pm02_removeShelf	[-U]	Removing a shelf (optional)	Int	1	0
pm03_getShelf	[+]	Bring shelf to access point manually (optional)	Int	1	0
pm04_storeShelf	[†]	Store shelf from access point manually (optional)	Int	1	0
pm05_startOptimisation Run	[#]	Start an optimisation run (optional)	Int	1	0
pm06_releaseShelfLocki ng	[F3]	Release shelf locking (optional)	Int	1	0
pm11_manualShelfPosit ioningByNumber		(reserved for Rotomat)	Int	1	0
pm12_manualShelfSelec tionBySight		(reserved for Rotomat)	Int	1	0
pm21_infoServices	[i]	Information services (optional)	Int	1	0
pm22_systemServices	[1]	System services (optional)	Int	1	0
pm23_slidingDoor	[F1]	Opening and closing the automatic sliding door using the keyboard (optional for supplementary feature Automatic sliding door)	Int	1	0

Return parameters

Object

ResultBaseServices

Parameters	Meaning	Туре	Area
returnValue	General return values	Int	0-6
liftNumber	Lift number	Int	1-99
accessNumber	Access point number	Int	1-4
shelfInAccess	Shelf in the access point	Int	0-999
	(0 = no shelf in the access point)		
imbalanceDirection	i (reserved for Rotomat)	String	"i"
imbalanceShelf	0 (reserved for Rotomat)	Int	0

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4.10 Method "read_st_mp_mod" - Query supplementary modules

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

Passed parameters None

Return parameters C

Object

ResultReadStMpMod

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

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4.11 Method "read_st_lift_feat" - Query supplementary features

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

Passed parameters

None

Return parameters

Object

ResultReadStLiftFeat

Parameter value	Meaning	Туре	Area
returnValue	General return values	Int	0-6
liftNumber	Lift number	Int	1-99
accessNumber	Access point number	Int	1-4
pickOLightVariable	Supplementary feature Pick-O-Light system (variable)	Int	0-1
	(0 = No, 1 = Yes)		
automaticSlidingDoor	Supplementary feature Automatic sliding door (0 = No, 1 = Yes)	Int	0-1
integratedSignalIndicato rs	Supplementary feature Signal column (0 = No, 1 = Yes)	Int	0-1
requisitionLedge	Supplementary features of the requisition processing strip (0 = No, 1 = Yes)	Int	0-1
numberOfConfirmation Modules	Supplementary features of the requisition processing strip, number of confirmation modules	Int	1-31

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4.12 Method "set_start_url" - Change the start-URL of the host Web server

Description	With this method, the host has the ability to change the start-URL of the host Web server. The new start-URL is called up after touching the Home button or switching off/on. This can be used, for example, for switching between work system and test system. After switching on, the Home button is visible as soon as a connection to the host is present. The method is not blocking					
Passed parameters	Object	RequestSetStartUrl				
	Parameter value	Meaning				
	pm01_startUrl	Valid URL, which points to a server / application				
Return parameters	Object	ResultSetStartUrl				
	Parameter value	Meaning	Туре	Area		
	returnValue	General return values	Int	0-6		
	liftNumber	Lift number	Int	1-99		
	accessNumber	Access point number	Int	1-4		

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- 5 Methods for supplementary features
- 5.1 Supplementary feature Pick-O-Light system (variable)
- 5.1.1 Method "get_shelf" Get shelf with display of the storage location
 - See Chapter 4.2, page 124.
- 5.2 Supplementary feature Automatic sliding door
- 5.2.1 Method "close_door" Close automatic sliding door

Description With this method, the host has the ability to close the automatic sliding door. The method is blocking until the automatic sliding door is closed, or the door operation has been interrupted at the lift.

Passed parameters None

Object

ResultCloseDoor

Return parameters

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

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- 5.3 Supplementary feature Signal column
- 5.3.1 Method "set_signal" Activate signal elements of the signal column

accessNumber

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

Passed parameters	Object	RequestSetSignal			
	Parameter value	Meaning	Туре	Active area	Inactive
	pm01_signal1	Signal element 1 0 = inactive 1 = active	Int	1	0
	pm02_signal2	Signal element 2 0 = inactive 1 = active	Int	1	0
	pm03_signal3	Signal element 3 0 = inactive	Int	1	0

Return parameters	Object	ResultSetSignal		
	Parameter value	Meaning	Туре	Area
	returnValue	Return value	Int	0-6/99
		→ General return values		0-6
		→ Supplementary features inactive		99
		(Remaining return parameters are valid)		
	liftNumber	Lift number	Int	1-99

Access point number

1 = active

1-4

Int

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- 5.4 Supplementary features of the requisition processing strip
- 5.4.1 Method "conf_req_ledge" Write to and query requisition processing strip

Description With this method, the host has the ability to describe and query the requisition processing strip. The method is blocking until a confirmation key has been activated, or a lift has been interrupted. Confirmation: Confirmation key

Quit: CE button or [CE] key



RequestConfReqLedge



Passed parameters

Parameter value	Meaning	Туре	Active area	Inactive
pm01_confirmModuleNu mber	Number of confirmation module (1 - Number of confirmation modules)	Int	1-99	Mandatory
pm02_textLine1	Text line 1 (optional, UTF-8 encoding)	String	0-20 characters	Zero
pm03_textLine2	Text line 2 (optional, UTF-8 encoding)	String	0-20 characters	Zero
pm04_textLine3	Text line 3 (optional, UTF-8 encoding)	String	0-20 characters	Zero

Return parameters

Object

Object

ResultConfReqLedge

Parameter value	Meaning	Туре	Area
returnValue	Return value	Int	0-6/99
	 → General return values → Confirmation key has been pressed. → The CE button was touched or the 		1-6 0 99
	(Remaining return values are valid)		
	→ Supplementary features inactive (Remaining return values are valid)		99
liftNumber	Lift number	Int	1-99
accessNumber	Access point number	Int	1-4

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- 6 Methods for supplementary modules
- 6.1 Supplementary module Shelf pre-positioning
- 6.1.1 Method "pre_pos_mode" Switch the shelf pre-positioning mode on/off



Shelf pre-positioning via the host without pressing the [+] key is possible only if the access point is in shelf pre-positioning mode.

Description With this method, the host has the ability to switch the shelf pre-positioning mode on and off. The method is blocking.

Passed parameters	Object	RequestPrePosMode			
	Parameter value	Meaning	Туре	Active area	Inactive
	pm01_prePosMode	0 = switch mode off 1 = switch mode on	Int	0-1	Mandatory

Return	parameters	С
		-

Object

ResultPrePosMode

Parameter value	Meaning	Туре	Area
returnValue	Return value	Int	0-6/97/98/99
	→ General return values		0-6
	→ Supplementary module inactive		97
	(Remaining return values are invalid)		
	→ Mode cancelled using Quit button / [CE] key		98
	→ Method quit		99
	(Remaining return values are valid)		
liftNumber	Lift number	Int	1-99
accessNumber	Access point number	Int	1-4
shelfInAccess	Shelf in the access point	Int	0-999
	(0 = no shelf in the access point)		

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Description of the operator prompts

Display

Switching on the shelf pre-positioning mode

· Call up method for switching on the mode.

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

If no [+] key has been pressed.:

- Press the [←] key. Caution: The [←] key starts a lift run!
- \rightarrow The shelf in the access point is stored in the lift.

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

→ Return value = 99



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

Switching off the shelf pre-positioning mode

If you want the operator to exit this mode:

- Touch the **QUIT [CE]** button or press the **[CE]** key.
- → Return value = 98

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

· Call up method for switching off the mode.



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6.2 Supplementary module Storage location height management

Passed parameters

- 6.2.1 Macro "read_st_height" Query shelf target height and article height
 - Description With this method, the host has the ability to query the shelf target height and the article height. The method is not blocking.

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

Return parameters	Object	ResultReadStHeight		
	Parameter value	Meaning	Туре	Area
	returnValue	Return value	Int	0-6/99
		→ General return values		0-6
		→ Supplementary module inactive		99
		(Remaining return parameters are invalid)		
	liftNumber	Lift number	Int	1-99
	accessNumber	Access point number	Int	1-4
	stringNumber	String number 1-4	Int	1-4

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stringOfHeight	Height table with the requested height string in stringNumber.	String	1-254
	The height table is encoded using ASCII strings. For each ASCII string, a maximum of 254 shelf target heights / article heights can be defined. One ASCII character is used per table. Only the shelf target heights / article heights of shelves that are actually present are transferred.		
	"A" = height 1, "B" = height 2 etc., up to max. "-" = height 31		
	Example:		
	String: "AB[D]"	AB[D]	
	The first present shelf has height 1 The second present shelf has height 2 The third present shelf has height 27		
	The fourth present shelf has height 4		

11 Annex: Integration into the IT system, Variant II: Activation of the lift via Webservice per SOAP protocol (only for installation and maintenance personnel and IT specialists)

6.2.2 Method "edit_shelf_prop" - Change the shelf target height of a shelf

Object

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

RequestEditShelfProp

Passed parameters

Parameter value	Meaning	Туре	Active area	Inactive
pm01_shelfNumber	Shelf number	Int	1-999	Mandatory
pm02_shelfTargetHeight	Target height for shelf pm01_shelfNumber.	Int	1-31	Mandatory
	 The minimum value and the maximum value for the shelf target height is dependent on the carrier increment. Minimum value: For the 75/90/125 mm (2.952"/3.543"/4.921") slot increment, the minimum value is "1". For the 37.5/45 mm (1.476"/1.772") slot increment. 			
	 the minimum value is "2". For the 25 mm (0.984") slot increment, the minimum value 			
	IS 3. Maximum value:			
	 For the 75/90/125 mm (2.952"/3.543"/4.921") slot increments, the maximum value is the "number of light barriers for the article height measurement". 			
	 For 37.5/45 mm (1.476"/1.772") slot increments, the maximum value is the "number of light barriers for article height measurement + 1". For 25 mm (0.984") slot increments, the maximum value is the "number of light 			
	barriers for article height measurement + 2".			
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11 Annex: Integration into the IT system, Variant II: Activation of the lift via Webservice per SOAP protocol (only for installation and maintenance personnel and IT specialists)

Return parameters Object

ResultEditShelfProp

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

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6.3 Supplementary module Adjustable shelf speed

Object

6.3.1 Method "read_st_speed" - Query shelf speeds

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

Passed parameters

RequestReadStSpeed

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

Object

Return parameters

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ResultReadStSpeed

Parameter value	Meaning	Туре	Area
returnValue	Return value	Int	0-6/99
	→ General return values		0-6
	→ Supplementary module inactive		99
	(Remaining return parameters are invalid)		
liftNumber	Lift number	Int	1-99
accessNumber	Access point number	Int	1-4
stringNumber	String numbers 1 - 8	Int	1-8
stringOfSpeed	Speed table with the instringNumber requested height string	String	1-254
	The speed table is encoded using ASCII strings. For each ASCII string, a maximum of 127 shelf speeds can be defined. Two ASCII characters are used per table (speed 1 % -> 01 up to speed 99 % -> 99, speed 100 % -> 00). Only the shelf speeds of shelves that are actually present are transferred.		
	Example:		
	Shelves 1, 3 and 4 are in lift		
	"007520"		
	Shelf 1 has "00" -> 100 %		
	Shelf 3 has "75" -> 75 %		
	Shelf 4 has "20" -> 20 %		

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- 6.4 Supplementary module Intermediate shelf buffer for requisition/job processing (only for Lean-Lift)
- 6.4.1 Method "get_shelf" Get shelf with display of the storage location

accessNumber

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

> See Chapter 4.2, page 124.

6.4.2 Method "get_shelf_backgr" - Retrieve shelf in the background to the intermediate shelf buffer

Description With this method, the host has the ability to retrieve a shelf in the background into the intermediate shelf buffer. The upper intermediate shelf buffer is emptied and the lower intermediate shelf buffer is filled with shelf <pm01_shelfNumber>. This is done with the high-speed door closed, and therefore does not have to be started at the MP control system with the [] key. The method is not blocking. The result is acknowledged immediately instead of at the end of the lift run.

Passed parameters	Object	RequestGetShelfBackgr		
	Parameter value	Meaning Type	Active area	Inactive
	pm01_shelfNumber	Shelf number Int	1-999	Mandatory
Return parameters	Object Parameter value	ResultGetShelfBackgr Meaning	Туре	Area
	returnValue	Return value	Int	0-6/99
		→ General return values		0-6
		→ Supplementary module inactive		99
		(Remaining return parameters are invalio	I)	
	liftNumber	Lift number	Int	1-99

Access point number

1-4

Int

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- 7 JavaScript key codes for the Hänel keyboard





→

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

Hänel keys and number block

Кеу	Key code as decimal value
+	43
-	45
ŧ	116
€	117
X?	118
Y?	119
Ц	120
+U	121
-U	122
•	38
+	40
←	37

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Keypad

Кеу	Key code as decimal value
	65-90
←	8
	13
,	44
	47
(219
	41
	32
:	58
•	46
-	45

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- 11 Annex: Integration into the IT system, Variant II: Activation of the lift via Webservice per SOAP protocol (only for installation and maintenance personnel and IT specialists)
- 8 WSDL Examples for Webservice programming

8.1 Excerpt of the "Macro.wsdl" file

Configuration of WSDL 1.1	Contents
definitions	<pre><?xml version="1.0" encoding="UTF-8"?> <wsdl:definitions targetnamespace="http://main.jws.com.haneL.de" xmlns:ax21="http://main.jws.com.haneL.de/xsd" xmlns:http="http://schemas.xmlsoap.org/wsdl/http/" xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/" xmlns:ms="http://schemas.xmlsoap.org/wsdl/mime/" xmlns:ns="http://main.jws.com.haneL.de" xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/" xmlns:soap12="http://schemas.xmlsoap.org/wsdl/soap/" xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl" xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/" xmlns:xs="http://www.w3.org/2001/XMLSchema" xwdl:documentation=""> Webservice on MP12N-H[HOST-WEB] </wsdl:definitions></pre>
types	<pre>cussoftypes> cussion=matributeformDefault="qualified" elementFormDefault="qualified" targetNamespace="http://main.jws.com.hanel.de/xsd"> cussicsequence></pre>
message	<pre><wsdl:message name="get_shelf_reg"></wsdl:message></pre>
portType	<pre><wsdl:porttype name="MacroPortType"> <wsdl:porttype name="get_shelf"> <wsdl:operation name="get_shelf_req" wsaw:action="urn:get_shelf"> <wsdl:input message="ns:get_shelf_req" wsaw:action="urn:get_shelf"> </wsdl:input> </wsdl:operation></wsdl:porttype></wsdl:porttype></pre>

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binding	<pre><wsdl:binding name="MacroSoap11Binding" type="ns:MacroPortType"> <soap:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"></soap:binding> <wsdl:operation name="get_shelf"> <soap:operation soapaction="urn:get_shelf" style="document"></soap:operation> <wsdl:input> <soap:body use="literal"></soap:body> <soap:body use="literal"></soap:body> <!--/wsdl:output--> <!--/wsdl:output--></wsdl:input></wsdl:operation></wsdl:binding></pre>
service	<pre><wsdl:service name="Macro"></wsdl:service></pre>

8.2 Example of the method call "get_shelf" of the Webservice "Macro"

SOAP 1.1	Contents
Request	<pre><soapenv:envelope <br="" xmlns:q0="http://main.jws.com.hanel.de" xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/">xmlns:q1="http://main.jws.com.hanel.de/xsd" xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <soapenv:body> <q0:get_shelf> <q0:get_shelf> <q1:pm01_shelfnumber>2</q1:pm01_shelfnumber> <q1:pm02_compartmentnumber>4</q1:pm02_compartmentnumber> <q0:param> </q0:param></q0:get_shelf> <q0:param> </q0:param></q0:get_shelf> </soapenv:body> </soapenv:envelope></pre>
Response	<pre><soapenv:envelope xmlns:soapenv="http://schemas.xmLsoap.org/soap/envelope/"> <soapenv:eody> <ns2:get_shelf_res xmlns:ns2="http://main.jws.com.hanel.de"> <ns2:return> <ns1:accessnumber xmlns:ns1="http://main.jws.com.hanel.de/xsd">1</ns1:accessnumber> <ns1:accessnumber xmlns:ns1="http://main.jws.com.hanel.de/xsd">1</ns1:accessnumber>11<</ns2:return></ns2:get_shelf_res></soapenv:eody></soapenv:envelope></pre>

9 Integration examples for HTML / SOAP programming

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

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

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

11 Annex: Integration into the IT system, Variant II: Activation of the lift via Webservice per SOAP protocol (only for installation and maintenance personnel and IT specialists)

3	Query of compartment number				
4		get_shelf	RequestGetShelf	pm01_shelfNumber	Lift run to shelf
				pm02_compartmentNumber	Shows compartment
5	Query of compartment depth				
6		get_shelf	RequestGetShelf	pm01_shelfNumber	Lift run to shelf
				pm02_compartmentNumber	Shows compartment
				pm03_compartmentDepthNumber	Shows compartment depth

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

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

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

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

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3	Query of compartment number				
4		get_shelf	RequestGetShelf	pm01_shelfNumber	Lift run to shelf
				pm02_compartmentNumber	Shows compartment
5	Query of compartment depth				
6		get_shelf	RequestGetShelf	pm01_shelfNumber	Lift run to shelf
				pm02_compartmentNumber	Shows compartment
				pm03_compartmentDepthNumber	Shows compartment depth
7	Query of container in direction of compartments				
8		get_shelf	RequestGetShelf	pm01_shelfNumber	Lift run to shelf
				pm02_compartmentNumber	Shows compartment
				pm03_compartmentDepthNumber	Shows compartment depth
				pm04_containerWidthInCompartment	Shows container width in direction of compartments
9	Query of container in direction of compartment depths				
10		get_shelf	RequestGetShelf	pm01_shelfNumber	Lift run to shelf
				pm02_compartmentNumber	Shows compartment
				pm03_compartmentDepthNumber	Shows compartment depth
				pm04_containerWidthInCompartment	Shows container width in direction of compartments
				pm05_containerWidthInCompartmentDepth	Shows container width in direction of compartment depths

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

9.4.1 With uniform slot increments for all shelves

Se- quen-	HTML page at the lift display	SOAP Webs at the lift cor	ervice ntrol system	Event Lift control system	
UL		Method	Passed object	Parameters	
1	Query of shelf number				
2		get_shelf	RequestGetShelf	pm01_shelfNumber	Lift run to shelf
3	Query of compartment number				
4	Query of compartment depth				
5		get_shelf	RequestGetShelf	pm01_shelfNumber	Lift run to shelf
				pm02_compartmentNumber	Shows compartment
				pm03_compartmentDepthNumber	Shows compartment depth

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Se- quen-	HTML page at the lift display	SOAP Webse	Event		
		at the lift con	trol system	Lift control system	
00		Method	Passed object	Parameters	
1	Query of shelf number				
2		get_shelf	RequestGetShelf	pm01_shelfNumber	Lift run to shelf
3	Query of compartment number				
4	Query of compartment depth				
5		get_shelf	RequestGetShelf	pm01_shelfNumber	Lift run to shelf
				pm02_compartmentNumber	Shows compartment
				pm03_compartmentDepthNumber	Shows compartment depth
				pm10_compartmentNumberPickOLight	Number of compartments in the shelf
				pm11_compartmentDepthNumberPickOLight	Number of compartment depths in the shelf

9.4.2 With a different slot increment for each shelf

9.4.3 With non-uniform slot increments within the shelf

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

12.1 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	The marked (x) supplementary descriptions are part of the machine documentation
Ausführung des Lifts gemäß Auftragsbestätigung	Markierte (x) Zusatzbeschreibungen sind Teil der Maschinendokumentation
With add-on module 00) Remote-controlled lift operation	Supplementary Description of the Remote-controlled Lift Operation
Markierte (x) Zusatzbeschreibungen sind Teil der Maschinendokumentation	Zusatzbeschreibung Ferngesteuerter Liftlauft
	MP-BEDIEN\Z-FERN
With add-on module 04) Storage location height management	Supplementary Description of the Storage Location Height Management
Modul 04) Verwaltung der Lagerorthöhe	Zusatzbeschreibung Verwaltung der Lagerorthöhe
	MP-BEDIEN\Z-HOEHE
With add-on module 24) Adjustable shelf speed	Supplementary Description of the Adjustable Shelf Speed
Zusatzbeschreibung Verwaltung der Lagerorthöhe	Zusatzbeschreibung Verwaltung der Lagerorthöhe
	MP-BEDIEN\Z-GESCHW
With add-on module 25) Shelf pre-positioning by host (only for Lean-Lift)	Supplementary Description of the Shelf Pre-positioning
Modul 25) Tablarvorpositionierung durch Host (nur bei Lean-Lift)	Zusatzbeschreibung Tablarvorpositionierung
	P-BEDIEN\Z-PREPOS
With add-on module 28) Intermediate shelf buffer for requisition/job processing (only for Lean-Lift)	Supplementary Description of the Intermediate Shelf Buffer for Requisition/Job Processing
Modul 28) Tablar Zwischenpuffer bei Kommission / Auftrag (nur bei Lean-Lift)	Zusatzbeschreibung Tablar Zwischenpuffer bei Kommission / Auftrag
	MP-BEDIEN\Z-TABPUF
With add-on module 29) Shelf transfer	Supplementary Description of the Shelf Transfer
Modul 29) Tablartransport	Zusatzbeschreibung Tablartransport
	MP-BEDIEN/Z-TABTRA

Lift version according to order confirmation	The marked (x) supplementary descriptions are part of the machine documentation
Ausführung des Lifts gemäß Auftragsbestätigung	Markierte (x) Zusatzbeschreibungen sind Teil der Maschinendokumentation
High-speed door between access opening and drive shaft	Supplementary Description of the High-speed Door
Schnell-Lauftor zwischen Entnahmeöffnung und	Zusatzbeschreibung Schnell-Lauftor
Fanrschacht	MP-BEDIEN\Z-STOR
With automatically opening and closing sliding door	Supplementary Description of the Automatic Sliding Door
mit automatisch öffnende und schließende Schiebetüre	Zusatzbeschreibung Automatische Schiebetüre
	MP-BEDIEN\Z-AUTOSD
Automatic extraction of container	Supplementary Description of the Automatic Shelf Ejection
automatischer Ein-/Ausschub eines Containers	Zusatzbeschreibung Automatischer Tablarausschub
	MP-BEDIEN\Z-ATA
With container weighing device in the access point	Supplementary Description of the Shelf Weighing Device
mit Container-Wiegeeinrichtung in der Entnahmestelle	Zusatzbeschreibung Tablarwiegeeinrichtung
	MP-BEDIEN\Z-WEIGHT
Special Access Point for Operation with Standard / High	Supplementary Description of the Automatic Shelf
Container in Dimensions, in Special Version for Barrier On All Sides	Locking
Sonderentnahmestelle für Bedienung mit Standard- / Hochhubwagen und Container in den Abmessungen in Spezialausführung	Zusatzbeschreibung Automatische Tablarverriegelung
für umlaufende Begrenzung	
	MP-BEDIEN\Z-TABVER
Unit prepared for containers with power socket	Supplementary Description of Shelves with Power Socket
Gerät vorbereitet für elektrifizierte Container	Zusatzbeschreibung Elektrifizierte Tablare
	MP-BEDIEN\Z-ELTAB
With camera connection for photographing the articles of a container	Supplementary Description of the Camera
mit Kameraanschluß zur Aufnahme des Lagergutes eines Containers	Zusatzbeschreibung Kamera
	MP-BEDIEN\Z-CAM
With Pick-o-Light system, moving in the access point	Supplementary Description of the PICK-O-LIGHT SYSTEM (VARIABLE)
mit Leuchtpunktanzeige, verfahrend in der Entnahmestelle	Zusatzbeschreibung Leuchtpunktanzeige (verfahrend)
	MP-BEDIEN\Z-LPAVER
Requisition processing strip	Supplementary Description of the requisition processing strip
Kommissionierleiste	Zusatzbeschreibung Kommissionierleiste
	MP-BEDIEN\Z-VFDLEISTE

Lift version according to order confirmation	The marked (x) supplementary descriptions are part of the machine documentation		
Ausführung des Lifts gemäß Auftragsbestätigung	Markierte (x) Zusatzbeschreibungen sind Teil der Maschinendokumentation		
With demo function (with trade fair demo function lift run warning sign)	Supplementary Description of the Demo Function		
mit Messefunktion Demolauf (mit Warnschild Messe-Liftlauf)	Zusatzbeschreibung Messefunktion		
	MP-BEDIEN\Z-DEMO		

12.2 Revision notes

Last issue dated:

2012-09-14

 Annex: Integration into the IT system, Activation of the lift via Webservice per SOAP protocol.

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