Hänel Büro- und Lagersysteme

User Guide for the HOST-COM Program Version Microprocessor Control System MP 12N

Lean-Lift Multi-Space

Contents

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1 Introduction

1.1 Basic information

Contents

This document contains information about operating the microprocessor control system in the "HOST-COM 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

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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
MP 12N SYSTEM:	V 3.6, V 3.3/6, V 3.2/6, V 3.1/6 (using printed circuit board S0849)

Keep in an accessible place as a complete document

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

Change service

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

Copyright

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.
- ✗ 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

TCP / IP Transmission Control Protocol / Internet Protocol

Operator prompts

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

1 Introduction

1.3 Safety instructions

DANGER

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

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

SAFETY INSTRUCTION

Only specially trained and qualified personnel may operate the lift.

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 for HOST-COM 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.
- Technical Description of the Microprocessor Control System MP 12N Lean-Lift and Multi-Space.
- For optional Supplementary Descriptions, refer to the "Annex" chapter.

2 Overview of features

2.1 General

- The MP 12N is equipped with an Ethernet interface.
- Data transmission takes place via a TCP/IP connection.
- The MP 12N is the TCP server and uses port 2200. The host is the TCP client. As such, the host initialises the connection.

  For the lift, common parameters for a TCP/IP interface must be configured (IP address, subnet mask, standard gateway). It is also possible to have a DHCP server assign the addresses.
- For host applications with the supplementary module "Remote-controlled Lift Operation" without special safety equipment, only request telegrams from the initialised host MAC address and host IP address will be accepted.

2.2 Application

- Customer-side storage management system.
- User prompts from customer-side host / PC / PDA.
- Initiating a lift run from the customer-side software.
- Confirming the lift run at the GREEN RETURN key at the lift.
  - Without confirming the lift run, refer also to the extended function with add-on module 00) Remote-controlled lift operation.

2 Overview of features

2.3 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 Overview of features

2.4 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

  Example without special safety equipment
  - The operating personnel may perform a remote-controlled lift run from an external control device (PC / barcode reader) under the following conditions only:
    - The external control device must be located immediately at the access point and have a fixed cable connection (not wireless, not pick-by-voice).
    - The operator of the external control device must have full view of the access point being operated.
    - The operator must maintain sole, direct control of the lift run and operation at this access point.
    - There must not be anyone located within the danger zone.
    - All personnel who work at the lift or in its vicinity must be instructed and understand that, with regard to "remote-controlled lift operation", the lift run may begin unexpectedly even though all safety precautions are in place.

  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
  - Definition of fixed shelf heights, even if the shelves are empty.
  - Monitoring the shelf heights for heights exceeding the shelf target height.
- With add-on module 24) Adjustable shelf speed
  - Reduced shelf speed for sensitive articles.
  - Reduced maximum speed for reduced running noises.
- 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
  - See Lean-Lift
- With add-on module 24) Adjustable shelf speed
  - See Lean-Lift
- 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

Size:	8.4" (21.3 cm)
Resolution:	800 x 600 pixels
Text:	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

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.

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.

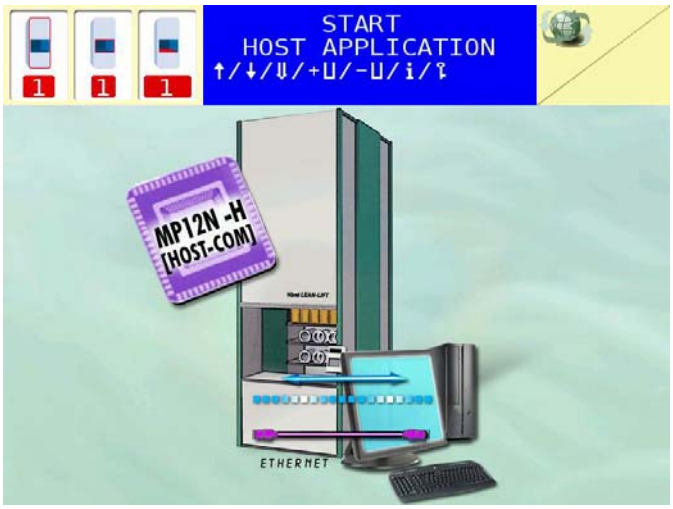
Upper right window (yellow background):

Switching between camera / browser if camera is present.

Lower window:

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

Display

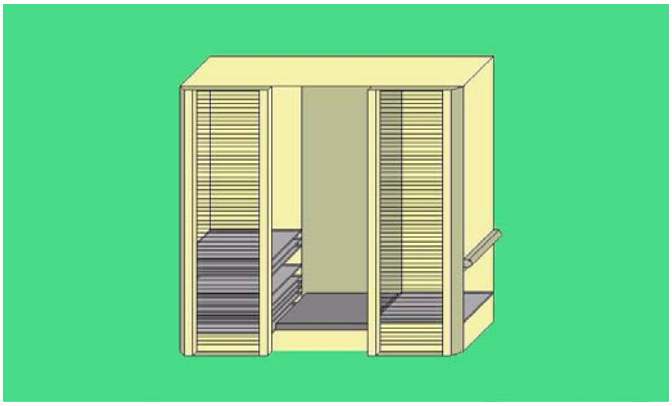


3 Description of the hardware components

3.1.1 Lift run graphics

✗ You can enable or disable the lift run graphics under "SET DISPLAY".

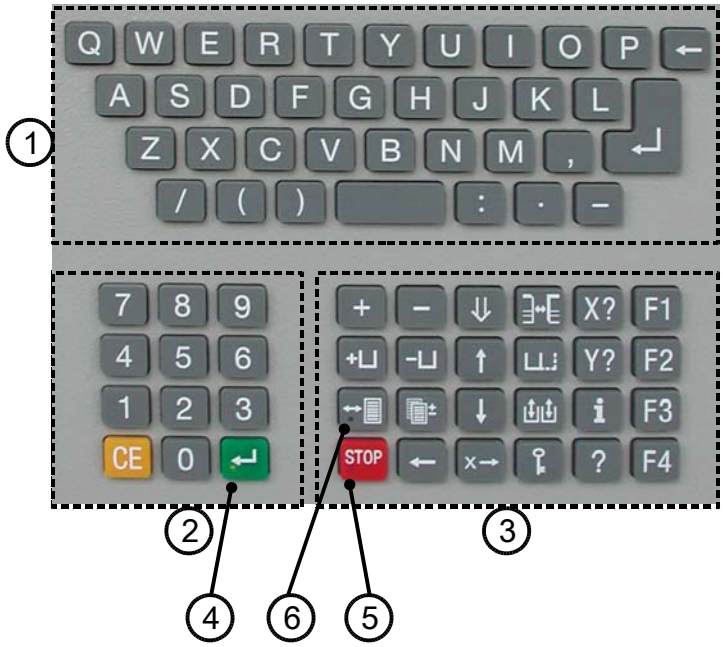
Also refer to:
[ ] key ->
1 SYSTEM SERVICES LIFT CONTROL ->
8 SET DISPLAY

Description	Example screenshot
➔ The lift run graphics are displayed during the lift run.	

3 Description of the hardware components

3.2 Keyboard

3.2.1 Overview



1 Main key block for entering characters and letters

2 Number block for entering article numbers, shelf numbers, quantity, article names etc.

3 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

6 Yellow LED
-> Reserved

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	
Stopping a lift run To stop a lift run in hazardous situations, use the emergency stop switch!	
Delete the character last entered	
Store shelf from access position (start lift run!) Select menu items, make selection	
Bring shelf to access position Select menu items, make selection	
Optimisation run	
Adding a new shelf	
Removing a shelf	
Activate information and service programs	
Activate system services	
Language switchover	
Open and close door (only with automatic sliding door) Unlock door (only with manual doors and lift run only with door closed)	

3 Description of the hardware components

Fast keylock function (if activated)

Release shelf locking (if activated)
request weight (only with shelf weighing device)

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

4 General operating instructions

4.1 Switching on the lift

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.

➔ The green LED is illuminated.

The following functions are possible:

Function	Description	Chapter	Page
i	Information services	6	39
ɻ	System services	7	47

4 General operating instructions

Description of the operator prompts

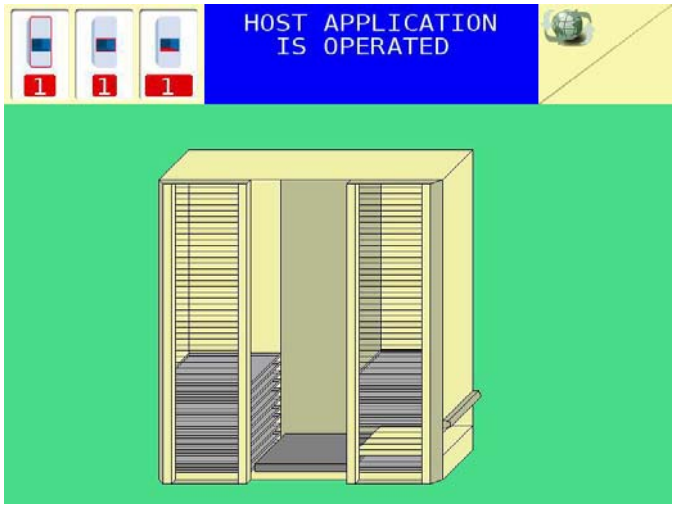
➔ Display until a connection to the host is established.

Display

The following functions are possible:

Function	Description	Chapter	Page
↑	Store shelf from access point manually	4.2.4	28
↓	Bringing a shelf to the access point manually	4.2.3	27
⇓	Starting an optimisation run	4.2.5	29
+⊔	Adding a new shelf	4.2.1	22
-⊔	Removing a shelf	4.2.2	25
i	Information services	6	39
?	System services	7	47
?	Changing the language	4.4	36
F1	Opening and closing the automatic sliding door using the keyboard	Refer to the 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	Refer to the Supplementary Description of the Shelf Transport	

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.	

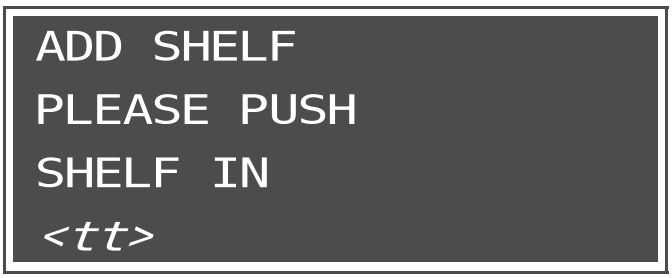
4 General operating instructions

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

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

Description of the operator prompts	Example screenshot
Add shelf • Press the **[+␣]** key. *If there is an already registered shelf in the access point:* • Press the **[↵]** key. Caution: The **[↵]** key starts a lift run! ➔ 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.	

4 General operating instructions

➔ As soon as the MP control system detects the new shelf by means of the proximity switches, the shelf is registered as present. The MP control system goes 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 assigned.	ADD SHELF SHELF ALREADY EXISTS -> CE
Enter the shelf number "0".	ADD SHELF INPUT ERROR -> CE 0
All available shelf numbers are assigned. (1 - 254 for Lean-Lift, 1 - 999 for Multi-Space)	ADD SHELF NO FREE SHELF NUMBER FOUND -> CE
A shelf number is entered that is too high. (> 254 for Lean-Lift)	ADD SHELF SHELF NUMBER TOO HIGH -> CE
The key is locked using the keylock function.	+␣ FUNCTION DISABLED -> 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.	REDUNDANCY SYSTEM FUNCTION IS NOT POSSIBLE AT PRESENT -> CE

4 General operating instructions

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

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 **[-U]** 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.	REMOVE SHELF SHELF NUMBER ? <tt>
• Pull shelf from the access point.	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>

4 General operating instructions

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.	-␣ FUNCTION DISABLED -> CE

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.

✗ The [↓] key can be locked using the keylock function.

Description of the operator prompts

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. If the access point is occupied by another shelf, this is returned to storage in the lift first.

Example screenshot

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 DISABLED -> CE

4 General operating instructions

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	Example screenshot

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
There is no shelf in the access point.	STORE SHELF NO SHELF IN ACCESS POINT -> CE

4 General operating instructions

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/↵]
```

4 General operating instructions

- Press the **[↵]** key.
  Caution: The **[↵]** key starts a lift run!

➔ The optimisation run starts.

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	Display texts
The key is locked using the keylock function.	⇓ FUNCTION DISABLED -> 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.	REDUNDANCY SYSTEM FUNCTION IS NOT POSSIBLE AT PRESENT -> CE

4 General operating instructions

4.2.6 Release shelf locking

F3

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.

- ✗ 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	Example screenshot

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.

4 General operating instructions

4.3 Operating multiple access points

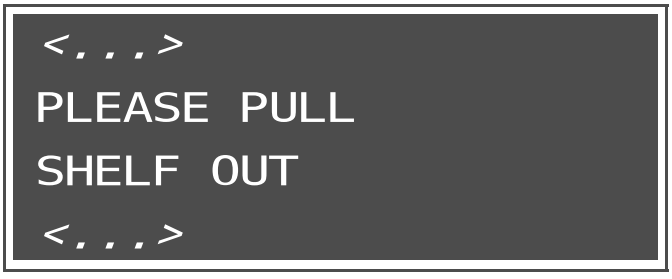
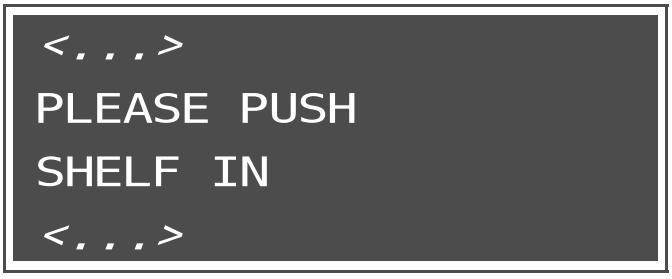
4.3.1 Lean-Lift with guide rails

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	Example screenshot
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.	
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.	

4 General operating instructions

Description of the operator prompts	Example screenshot
• Press the [↵] key. Caution: The [↵] key starts a lift run! ➔ The shelf in the access point is stored in the lift.	

Description	Example screenshot
The <STOP> 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	Example screenshot
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.	LIFT RUN FAULT : REQUESTED SHELF IN OTHER ACCESS POINT (n) -> CE/↵
No lift run is carried out for this access point because access point (n) is occupied with a shelf.	LIFT RUN FAULT : OTHER ACCESS POINT OCCUPIED WITH SHELF (n) -> CE/↵
The MP control system must wait until access point (n) has ended its lift run.	LIFT RUN FOR OTHER ACCESS POINT (n) PLEASE WAIT
A lift run error message is pending at access point (n).	OPERATION IS BLOCKED BY OTHER ACCESS POINT (n)

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 General operating instructions

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
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.	

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"

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 initialisation.

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.

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	Example screenshot

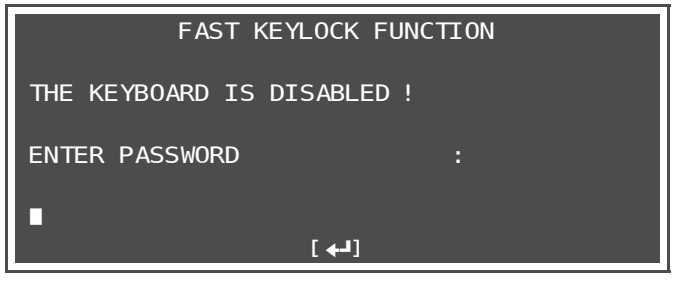
Starting the fast keylock function

- Press the **[F2]** key.

➔ Keyboard is locked.

- Enter password.
- Press the **[↵]** key.

➔ Keyboard is no longer locked.



5 Using the host application

- The User Guide for HOST-COM 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.

6 Information services

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

Description of the operator prompts

Call up Information services

- Press the **[i]** key.

➔ The information services selection menu is displayed.

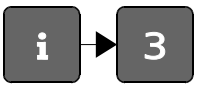
Example screenshot

```
          INFORMATION SERVICES

3 STORAGE LOCATION MANAGEMENT
5 SOFTWARE VERSIONS
7 LIFT DATA
0 IP ADDRESS CORPORATE NETWORK

                [↑/↓/CE/↵]
```

Menu item	See Chapter	Page
3	6.1	40
5	6.2	43
7	6.3	44
0	6.4	45

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.

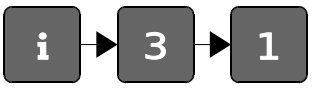
➔ The information services for storage location management selection menu is displayed.

```
        STORAGE LOCATION MANAGEMENT

 1 INFO ON STORAGE LOCATION MEMORY
 2 INFO ON LIFT ASSIGNMENT




                  [↑/↓/CE/↵]
```

Menu item	See Chapter	Page
1	6.1.1	41
2	6.1.2	42

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:

<ll> = Lift number
<tt> = No. of shelves
<ff> = No. of comps.
<tf> = Number of compartment depths
<aa> = Number of unassigned carriers in the lift

```
     INFO ON STORAGE LOCATION MEMORY

LIFT NUMBER                : <ll>
NUMBER OF SHELVES          : <tt>
NUMBER OF COMPARTMENTS     : <ff>
NUMBER OF COMP. DEPTHS     : <tf>
NUMBER OF FREE CARRIERS    : <aa>
-> CE/↵
```

- Press the **[↵]** key.

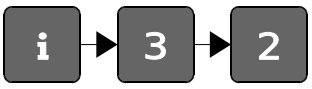
<n4> = Percentage allocation of the carriers of the lift

```
     INFO ON STORAGE LOCATION MEMORY

CARRIER ASSIGNMENT LEVEL : <n4>%




-> CE/↵
```

- Press the **[↵]** key.

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.

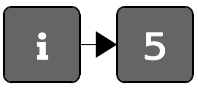
```
          INFO ON LIFT ASSIGNMENT
          CARRIER       HEIGHT    WEIGHT
TAB. LU FRONT/REAR  ACTUAL/NOMINAL   [KG]
 1    1   1            1
 2    2        3       3
 3    1   15           1
 4    4        31      2
                 [↑/↓/CE]
```

- ✗ 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.
- ✗ 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

6.2 Software versions



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.

```
            SOFTWARE VERSIONS

MP 12D/N CPU I       : < Version >
MP 12N CPU II        : < Version >




                  [CE/↵]
```

➔ Press the **[↵]** key.

```
            SOFTWARE VERSIONS


MP 12N SYSTEM        : < Version >
MP 12N KEYBOARD      : < Version >


                  [CE/↵]
```

➔ Press the **[↵]** key.

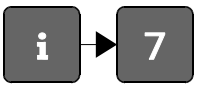
```
            SOFTWARE VERSIONS

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.

✗ 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 initialisation, the presence of the "MP 12 EXT" board(s) has been configured.

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 type plate are displayed.

- Press the **[↵]** key.

```
                LIFT DATA
          < Lift commission number >

MOTOR OPERATING TIME  : < hh.mm.ss >
-> [HH.MM.SS]
NUMBER OF LIFT RUNS   : <xxxx>
MODEL YEAR            : < Model year >
                [CE/↵]
```

➔ The energy consumed is displayed.

For Lean-Lift in EcoDrive version:

➔ The recovered energy is displayed.

- Press the **[↵]** key.

```
                LIFT DATA
          < Lift commission number >

ENERGY CONSUMED   [KWH]: <yyyy>
ENERGY RETURNED   [KWH]: <zzzz>


                [CE/↵]
```

Show safety inspection log

➔ The safety inspections are displayed in succession. The oldest safety inspection is always the commissioning with safety inspection.

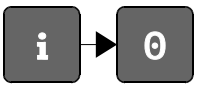
```
             SAFETY INSPECTION
                < Number >
DATE [DD.MM.YY]         : <dd.mm.yy>
INSPECTING
TECHNICIAN/COMP.        : < Technician/comp. >
RESPONSIBLE EMPLOYEE
OF OWNER/OPERATOR       : < Owner/operator >
                [CE/↵]
```

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.

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

Various system parameters can be configured in this menu.

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

Description of the operator prompts

Call up System services

- Press the [🔧] key.

➔ The system services selection menu is displayed.

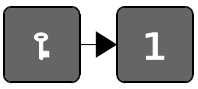
Example screenshot

```
              SYSTEM SERVICES

■1 SYSTEM SERVICES LIFT CONTROL
 4 SYSTEM SERVICES RUN SEQUENCE
 5 SYSTEM SERVICES SERVICE FUNCTIONS
 6 SAFETY INSPECTION LOG

                 [↑/↓/CE/↵]
```

Menu item	See Chapter	Page
1	7.1	48
4	7.2	49
5	7.3	50
6	7.4	51

7 System services

7.1 System services lift control



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

- ✗ 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.

Description of the operator prompts	Example screenshot

Call up System services lift control

- Press the **[⚷]** key and the **[1]** key.

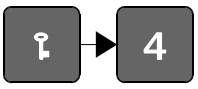
```
      SYSTEM SERVICES LIFT CONTROL

1 INTERFACE ASSIGNMENT S1-4
2 SETTING INTERFACE PARAMETERS
4 KEYLOCK FUNCTION
5 SUPPLEMENTARY MODULES
7 SYSTEM CLOCK SETTING
                [↑/↓/CE/↵]
```

```
      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 System services

7.2 System services Run sequence



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

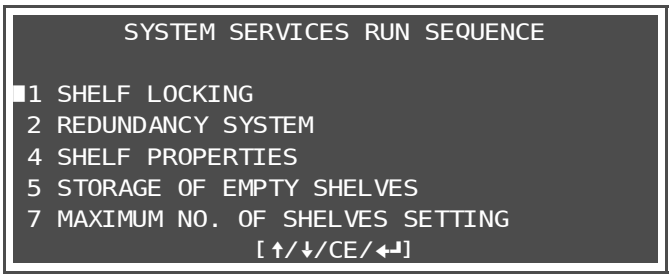
✗ If you select menu item 2, a password prompt appears.

Description of the operator prompts	Example screenshot

Call up system services run sequence

- Press the **[⇧]** key and the **[4]** key.

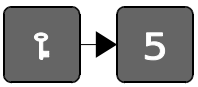
➔ The system services run sequence selection menu is displayed.



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

7 System services

7.3 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.

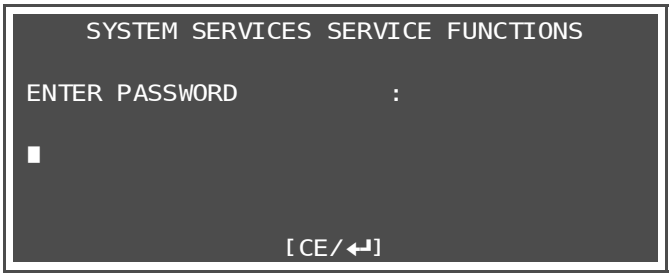
The service functions are intended for specially and verifiably trained, authorised personnel only.

Description of the operator prompts

Call up System services service functions

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

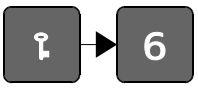
Example screenshot



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

7 System services

7.4 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.

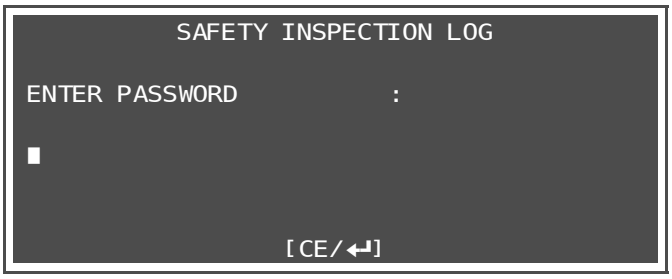
The information recorded in the MP control system is provided solely as an aid.
The test book and test logs are authoritative. Refer to the operating manual.

Description of the operator prompts

Enter the safety inspection log

- Press the **[⚷]** key and the **[6]** key.
- Enter password.

Example screenshot



➢ 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>* [↵] then SAFETY INSPECTION OUR HÄNEL AFTER-SALES SERVICE WILL BE PLEASED TO CARRY OUT SERVICE AND MAINTENANCE WORK UPON REQUEST [↵]	• 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.
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 [↵] then SAFETY INSPECTION OUR HÄNEL AFTER-SALES SERVICE WILL BE PLEASED TO CARRY OUT SERVICE AND MAINTENANCE WORK UPON REQUEST [↵]	• 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.

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)* = 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/↵`	• The horizontal movement within the access point is not completed and the **[CE]** key was pressed for the lift run error message.	• Confirm "NO" and exit the horizontal movement.
Only with Lean-Lift: `<...> LIFT RUN FRONT <tt> <...> <...>`	• Shelf <tt> is stored in the front lift unit. FRONT is the side at which the operator is standing.	• Wait until the lift run is finished.
Only with Lean-Lift: `<...> LIFT RUN BACK <tt> <...> <...>`	• Shelf <tt> is stored in the rear lift unit. REAR (BACK) is the side opposite the operator.	• Wait until the lift run is finished.
Only with Multi-Space: `<...> LIFT RUN FRONT <tt> LIFT UNIT : <n> <...>`	• Shelf <tt> is stored in front lift unit number <n>. FRONT is the side at which the operator is standing. Lift units are counted from left to right starting with "1" at the side where the type plate is located.	• Wait until the lift run is finished.
Only with Multi-Space: `<...> LIFT RUN BACK <tt> LIFT UNIT : <n> <...>`	• Shelf <tt> is stored in rear lift unit number <n>. REAR (BACK) is the side opposite the operator. Lift units are counted from left to right starting with "1" at the side where the type plate is located.	• Wait until the lift run is finished.

8 Operator advisories

Note	Cause	Action
DO NOT INCREASE ARTICLE HEIGHT -> CE/↵ ARTICLE HEIGHT INCREASED ? YES -> ↑/↓/CE/↵	• In the redundancy menu, the article height detection function or the monitoring of shelf management was deactivated. This necessitates a subsequent "Check article height" test run. As long as this test run has not been carried out, after a shelf is brought to the access point, the message "Do not increase article height" is displayed; when shelves are stored, the prompt "Article height increased?" is displayed.	• Have the "Check article height" test run carried out by Hänel service department. Refer also to the Technical Description.
REDUNDANCY SYSTEM FUNCTION IS NOT POSSIBLE AT PRESENT -> CE	• In the redundancy menu, the article height detection function or the monitoring of shelf management was deactivated. This necessitates a subsequent "Check article height" test run. As long as this test run has not been carried out, this message will be displayed when the functions "Adding a new shelf" and "Start optimisation run" are called up.	• Have the "Check article height" test run carried out by Hänel service department. Refer also to the Technical Description.
Only for lifts without shelf weighing device: SHELF NUMBER LIMIT EXCEEDED -> ↵ then AVERAGE SHELF LOAD MAXIMUM [KG]: xxx -> CE/↵	• 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 -> ↵ then AVERAGE SHELF LOAD MAXIMUM [KG]: xxx -> CE/↵	• 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.

9 Error messages during lift run

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

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

After the error is eliminated, the error message must be acknowledged with **[↵]**. If the lift run was interrupted, it is now resumed.
If an error cannot be eliminated, you have to inform Hänel after-sales service immediately.

- For more details on error messages intended for specially trained and authorised personnel, refer to the "Technical Description of the Microprocessor Control System MP 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.

9 Error messages during lift run

Lift run error message	Cause	Action

Only with Lean-Lift:
`LIFT RUN FAULT :`
`MOTOR 2 TOO HOT/`
`UPPER LIMIT SWITCH`
`-> CE/↵`
	• Motor 2 (horizontal drive) overheated.
	•
		Caution: The **[↵]** key starts a lift run!
		• Allow motor to cool down for about 10 min.
		•

`LIFT RUN FAULT :`
`LIGHT BARRIERS`
`(n) -> CE/↵`
	(n) = Access point number for multiple access points.
	• Interruption of safety light barriers at access point due to protruding object.
	• Safety light barrier is not yet set.
	• After only a brief interruption of the safety circuit (e.g. emergency stop, frequency converter), light barrier remains triggered.
		Caution: The **[↵]** key starts a lift run!
		• Clear the area monitored by the light barriers and press the **[↵]** key for about 0.5 sec.
		• Press the **[↵]** key for about 0.5 sec. to set the safety circuit.
		• Press the **[↵]** key for about 0.5 sec. to set the safety circuit.

Then (only with multiple access points with guide rails)
`LIFT RUN FAULT :`
`ENABLE LIFT RUN`
`AT ACCESS POINT`
`(n) -> CE/↵`
then
	• 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:
`LIFT RUN FAULT :`
`MOTOR 1.1 TOO HOT`
`-> CE/↵`
	• Motor 1.1 (vertical drive) overheated.	Caution: The **[↵]** key starts a lift run!
		• Allow motor to cool down for about 10 min.

Only with Multi-Space:
`LIFT RUN FAULT :`
`MOTOR 1.2 TOO HOT`
`-> CE/↵`
	• Motor 1.2 (vertical drive) overheated.	Caution: The **[↵]** key starts a lift run!
		• Allow motor to cool down for about 10 min.

9 Error messages during lift run

Lift run error message	Cause	Action

Only with Multi-Space:
`LIFT RUN FAULT :`
`MOTOR 2 TOO HOT/`
`MOVEM. LIMIT SWITCH`
`-> CE/↵`
	• Motor 2 (horizontal drive) overheated.	Caution: The [↵] key starts a lift run!
		• Allow motor to cool down for about 10 min.

Only with Multi-Space:
`LIFT RUN FAULT :`
`MOTOR 3 TOO HOT/`
`LEFT LIMIT SWITCH`
`-> CE/↵`
	• Motor 3 (movement unit) is overheated.	Caution: The [↵] key starts a lift run!
		• Allow motor to cool down for about 10 min.

Only with Multi-Space:
`LIFT RUN FAULT :`
`MOTOR 4 TOO HOT`
`-> CE/↵`
	• Motor 4 (movement unit) is overheated.	Caution: The [↵] key starts a lift run!
		• Allow motor to cool down for about 10 min.

Only with Multi-Space:
`LIFT RUN FAULT :`
`TEMP. PROTECTION`
`MOVEMENT UNIT`
`-> CE/↵`
	• The movement unit motor monitor has tripped.	Caution: The [↵] key starts a lift run!
		• Allow motor to cool down for about 10 min.

9 Error messages during lift run

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.	Caution: The [↵] key starts a lift run! • Push shelf fully into the access point.
LIFT RUN FAULT : MOTOR IS OVERLOADED 7 -> CE	• Shelf is overloaded.	• Reduce shelf load.
LIFT RUN FAULT : MOT.CURRENT TOO HIGH RETRIEVE SHELF x -> CE/↵ then LIFT RUN FAULT : MOT.CURRENT TOO HIGH REMOVE ARTICLES! x -> CE/↵	x = 3 or 7 or 9 x = 3 or 7 or 9 • Shelf is overloaded.	Caution: The [↵] key starts a lift run! • Press the [↵] key to bring the shelf to the access point. • Reduce shelf load.
LIFT RUN FAULT : THE ARTICLE IS TOO HIGH (n) -> CE/↵	*(n)* = Access point number for multiple access points. • One or more storage articles is higher than the permitted max. storage article height at the access point.	Caution: The [↵] key starts a lift run! • Reduce the height of the stored articles.
LIFT RUN FAULT : STOR.ART.PROTRUDING OVER SHELF AT REAR 1 (n) -> CE/↵	*(n)* = Access point number for multiple access points. • Stored articles are protruding over the rear edge of the shelf into the lift shaft.	Caution: The [↵] key starts a lift run! • Store articles so that they do not protrude over the edge of the shelf.
LIFT RUN FAULT : STOR.ART.PROTRUDING OVER SHELF AT 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.

9 Error messages during lift run

Lift run error message	Cause	Action
LIFT RUN FAULT : SYNCHRO. RUN x -> CE/↵	*x* = cause of synchronisation run • The discrepancy between position values from front and rear position sensors is too great (mutual monitoring), or a position value at a carrier position slot is incorrect.	Caution: The **[↵]** key starts a lift run! • Pressing **[↵]** moves the extractor to the bottom reference position, after which the destination carrier is accessed. You can display the number of the carrier where the error took place by pressing **[CE]**.
LIFT RUN FAULT : SHELF REMOVED BUT NOT REGISTERED x -> CE/↵	*x* = Shelf number • A shelf was removed from the access point or pulled out onto the roller guide rails without being unregistered.	Caution: The **[↵]** key starts a lift run! • Push the shelf in question back into the access point or unregister it.
LIFT RUN FAULT : REQUESTED SHELF IN OTHER ACCESS POINT (n) -> CE/↵	*(n)* = Access point number for multiple access points. • The shelf has been brought to access point (n) and has not yet been put back into storage.	Caution: The **[↵]** key starts a lift run! • Store shelf at access point (n).
LIFT RUN FAULT : UNKNOWN SHELF IN 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.

9 Error messages during lift run

Lift run error message	Cause	Action

Only with load measurement via frequency converter:
`LIFT RUN FAULT :`
`EXTRACTOR`
`OVERLOADED ?`
`-> CE/↵`
then
`LIFT RUN FAULT :`
`PLEASE CHECK`
`-> CE/↵`
	The load measurement system has detected that the maximum permitted shelf load has been exceeded.
	• Shelf is overloaded
		• Press the **[↵]** key.
		Caution: The **[↵]** key starts a lift run!
		• Reduce shelf load.

Only with load measurement via frequency converter:
`LIFT RUN FAULT :`
`TOTAL LOAD`
`EXCEEDED ?`
`-> CE/↵`
then
`LIFT RUN FAULT :`
`PLEASE CHECK`
`-> CE/↵`
	The load measurement system has detected that the maximum permitted total load has been exceeded.
	• The lift is overloaded at the front or rear.
		• Press the **[↵]** key.
		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/↵`
	< Code > = <x> / <y> / <z>
	The lift run error message with code <Code> has occurred. The redundancy function <x> has been activated.
	• Limited lift operation is possible using redundancy and limited error monitoring.
		Caution: The **[↵]** key starts a lift run!
		• Continue the lift run using the **[↵]** key. Limited continued operation of the lift is possible.
		• Contact the Hänel service department.

10 Annex: integration into the IT system (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

The IP address in the MP multi-unit network is used for inspection purposes to verify intended use and 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-COM] 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-COM].
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 / PC / PDA)
The MP 12N IP address for the corporate network is set by default to 0.0.0.0 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 Ethernet MP multi-unit network

MP 12N	172.<IP address range>.<Access point number>.<Lift number> 172.<IP address range>.<Access point number>.<Reserved>
Service	172.<IP address range>.1.200

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

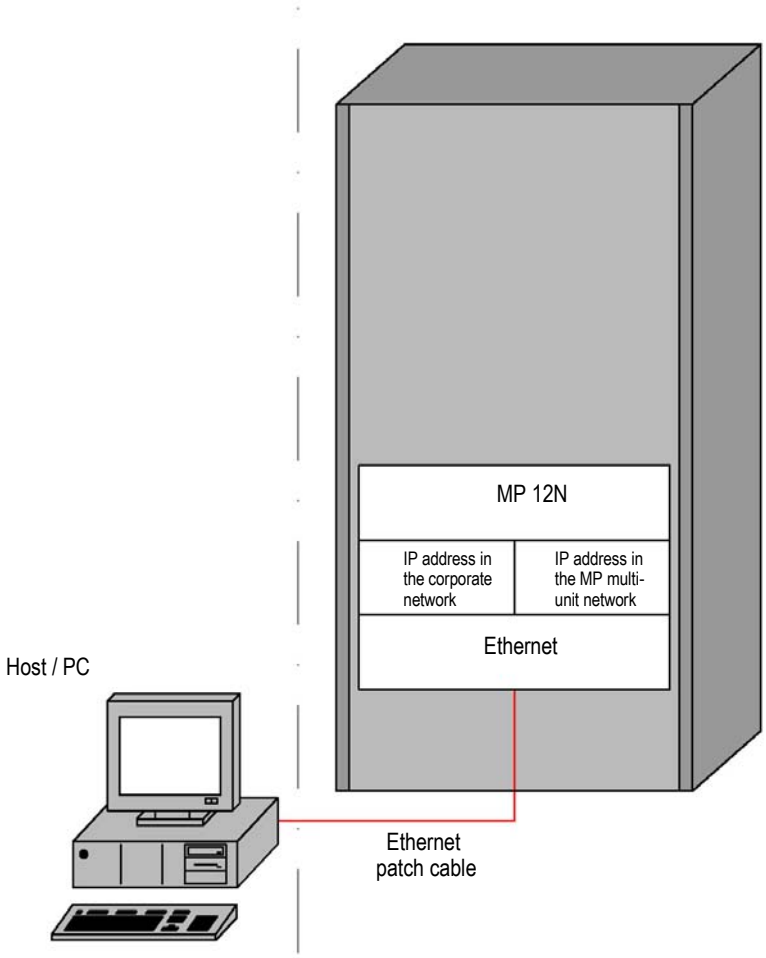
10 Annex: integration into the IT system (only for installation and maintenance personnel and IT specialists)

1.2 Connection to host systems

1.2.1 Connection to host / PC when using supplementary module Remote-controlled lift operation without special safety equipment

➢ Only when using the supplementary module "Remote-controlled lift operation without special safety equipment".

1.2.1.1 Schematic illustration



Operation takes place on the PC using customer-side software.

From the software of the PC, macros can be sent to the lift/access point, e.g. to trigger a lift run. If the safety system on the lift is set, a lift run is possible without pressing the GREEN RETURN key.

The PC must be located immediately at the access point and have a fixed cable connection (not wireless).

The operator must operate the PC using the keyboard or using a cabled barcode reader connected to the PC.

The operator must have full view of the access point being operated.

The PC must not be able to initiate operation of any other access point.

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1.2.1.2 Procedure

- The following step-by-step procedure checks whether additional initialisation is necessary.
- A physical connection to the host/PC 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 in the Ethernet MP multi-unit network on page 65.
By default, subnet 172.16 is configured for the MP 12N.

An initialisation is required only if the IP address in the MP multi-unit network overlaps with the IP address of the host/PC.

- 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".

Connection to host / PC (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.

For each lift/access point, only one host/PC may be connected that is located directly at the access point, controls this access point only and from which the operator has a full view of the access point being operated.
For this purpose, the MAC address of the host/PC must be initialised in the MP control system.

- See "Supplementary Description of the Remote-controlled Lift Operation" -> "Initialisation" -> "HOST MAC ADDRESS".

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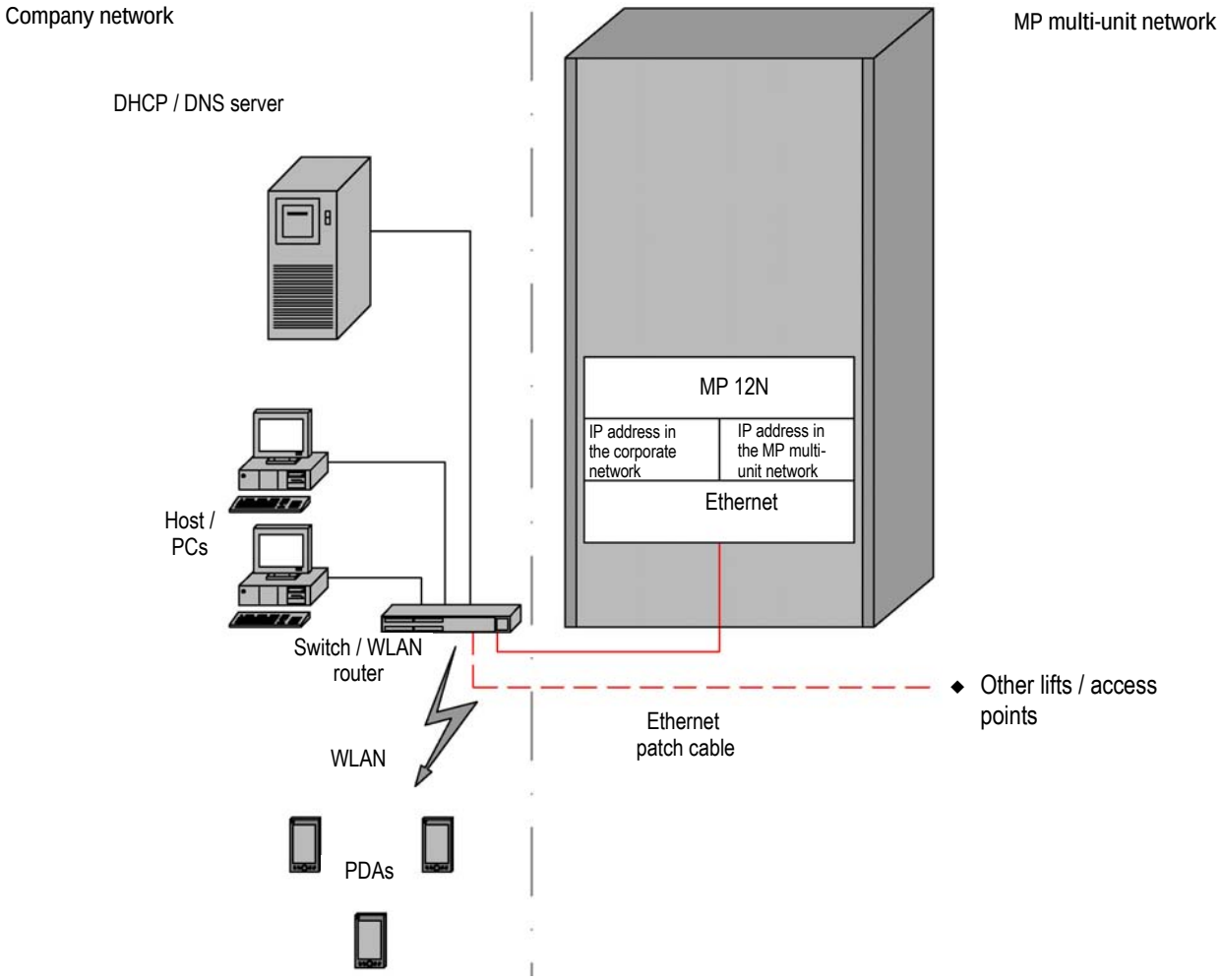
1.2.2 Connection to host / PC when using supplementary module Remote-controlled lift operation with special safety equipment or without supplementary module Remote-controlled lift operation

➢ Only when using supplementary module "Remote-controlled lift operation with special safety equipment" or without the supplementary module Remote-controlled lift operation.

1.2.2.1 Schematic illustration



The operation takes place on the PC/PDA via customer-side software.

From the software of the PC/PDA, macros can be sent to the lift/access point, e.g. to trigger a lift run.

Theoretically, one PC/PDA can activate multiple lifts/access points.

Without supplementary module Remote-controlled Lift Operation	Each lift run macro of the PC / PDA must be confirmed on the lift using the GREEN RETURN key.
With supplementary module Remote-controlled lift operation with special safety equipment	When the safety circuit on the lift is set, a lift run is possible without pressing the GREEN RETURN key on the lift.

10 Annex: integration into the IT system (only for installation and maintenance personnel and IT specialists)

1.2.2.2 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 in the Ethernet MP multi-unit network on page 65.
By default, subnet 172.16 is configured for the MP 12N.

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

- Refer to the "Technical Description of the Microprocessor Control System MP 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)

The MP 12N IP address for the corporate network is set by default to 0.0.0.0 and thus is disabled.

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

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

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

If there is a DNS server in the 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).

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- 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 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.

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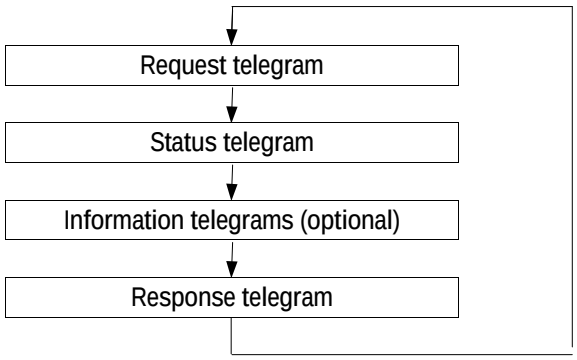
2 Interface description

2.1 General macros

- The MP control system is equipped with an Ethernet interface.
- Data transmission takes place via a TCP/IP connection.
  For the lift, common parameters for a TCP/IP interface must be configured (IP address, subnet mask, standard gateway). It is also possible to have a DHCP server assign the addresses.
- The MP control system is the TCP server and uses port 2200. The host is the TCP client. As such, the host initialises the connection.
- General sequence for each MP control system if macro has been accepted

  1) Request telegram with macro from the host
  2) Status telegram from the MP control system
  3) Information telegrams from the MP control system (optional)
  4) Response telegram from the MP control system



- Using the request telegrams, the host is able to control compartment LEDs, request lift states, query confirmation key, call up basic functions and execute lift runs.
- For host applications without the supplementary module "Remote-controlled lift operation", all lift runs must be started at the MP control system with the [↵] key.
- For host applications with the supplementary module "Remote-controlled Lift Operation" without special safety equipment, only request telegrams from the initialised host MAC address and host IP address will be accepted.

- ✗ The MP control system will only accept one request command at a time. Other request telegrams are ignored until the present command is completed.
- ✗ Each request telegram is answered with a status telegram.
- ✗ The TCP / IP connection must be open at least long enough for the response telegram to be received.
- ✗ Only one connection can be open at a time. If a new connection is opened, the MP control system closes any existing connection and accepts the new connection.
  If status, information and response telegrams are pending and there is no connection, these are lost.
  If status, information and response telegrams from the old connection are pending, these are sent via the new connection. A unique allocation is possible via the consecutive sequence number from the host *zzz* .

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✗ Lifts with multiple access points:
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 other lift run has finished. Only then is the macro processed.

Terms used

- *xxx* = Lift number
- *y* = Access point number
- *zzz* = Consecutive sequence number from the host (000-999, 999 is followed by 000). The host increments the sequence number with each new request telegram. The status and the response telegram of the lift contain the same sequence number as the request telegram. Thus the status or response telegram can be allocated to the request telegram.
- *CRLF* = Carriage Return (ASCII 13) and Line Feed (ASCII 10)

Request telegram with macro from host

*G*xxxy* :2301$U XR$*zzz*$macro=<macro name>$PM1=<value>$PM2=<value>...$*CRLF*

Status telegrams from the MP control system

The macro was accepted and is being processed. A response telegram follows as soon as processing of the macro has been completed.	*G2301:*xxxy*$V XS$*zzz*$E00$*CRLF*
Macro was not accepted, as this is the first connection after the lift was switched on.	*G2301:*xxxy*$V XS$*zzz*$E01$*CRLF*

➔ MP control system has booted up after being switched on. **[↵]** key has been pressed. Information for the host that the connection is the first connection. Send the macro again. See Chap. 4.1, page 19.

Macro has not been accepted because a macro is still being processed.	*G2301:*xxxy*$V XS$*zzz*$E02$*CRLF*
The macro has not been accepted because a syntax error has been found in the telegram header (*G*xxxy*:2301$U XR$*zzz*$).	*G2301:*xxxy*$V XS$*zzz*$E03$*CRLF*

For supplementary module "Remote-controlled lift operation" and lift features without special safety equipment:

Macro was not accepted.	*G2301:*xxxy*$V XS$*zzz*$E04$<x>$*CRLF*

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The following message then appears on the display:

```
PC COMMUNICATION
ERROR
E50/<x>
-> CE
```

<x>	Reason
1	Host MAC address does not match the initialised host MAC address.
2	Host IP address does not match the initialised Host IP address.
3	Host MAC address and host IP address do not match the initialised host MAC address and host IP address.
4	Host MAC address is initialised for multiple MP control systems.
5	Host IP address is initialised for multiple MP control systems.
6	Host MAC address and host IP address initialised for multiple MP control systems.

Macro was not accepted as MP control system is not ready.

*G2301:*xxxy*$V XS$*zzz*$E05$*CRLF*

➔ MP control system has booted up after being switched on. **Press the [↵]** key. See Chap. 4.1, page 19.

✗ The information telegrams can be activated for the get_shelf, store_shelf, add_shelf, remove_shelf, optimisation_run macros via the <pm14> parameter.

Information telegrams from the MP control system (optional)

*G2301:*xxxy*$V XI$*zzz*$ER=01&L=<l>&E=<e>$*CRLF*	Lift run has started.
*G2301:*xxxy*$V XI$*zzz*$ER=02&L=<l>&E=<e>$*CRLF*	The "START LIFT RUN" message is displayed at the access point. Lift run has to be started with the **[↵]** key. (Safety system is not set or the supplementary module "Remote-controlled Lift Operation" is not available)
*G2301:*xxxy*$V XI$*zzz*$ER=03&L=<l>&E=<e> &C=<c>$*CRLF*	A lift run error message is displayed at the access point. After the error is eliminated, the error message must be acknowledged with **[↵]** . If the lift run was interrupted, it is now resumed.
*G2301:*xxxy*$V XI$*zzz*$ER=04&L=<l>&E=<e> &N=<n>$*CRLF*	The "LIFT RUN FOR OTHER ACCESS POINT" message is displayed at the access point. As soon as "Lift run for other access point" is finished, the lift run is started. (Only with multiple access points)

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*G2301:*xxxy*$V XI$*zzz*$ER=05&L=<l>&E=<e> &N=<n>$*CRLF*	The "OPERATION IS BLOCKED BY OTHER ACCESS POINT" message is displayed at the access point. Operation at other access point is required. (Only with multiple access points)
*G2301:*xxxy*$V XI$*zzz*$ER=06&L=<l>&E=<e>$*CRLF*	The "CLOSE DOOR" message is displayed at the access point. Manually operated sliding door has to be closed. (only for optional electrical equipment, lift run possible only when manually operated sliding doors are closed)
*G2301:*xxxy*$V XI$*zzz*$ER=07&L=<l>&E=<e>$*CRLF*	The "OPEN DOOR" message is displayed at the access point. Manually operated sliding door has to be opened. (only for optional electrical equipment, lift run possible only when manually operated sliding doors are closed)
*G2301:*xxxy*$V XI$*zzz*$ER=08&L=<l>&E=<e>$*CRLF*	The "PLEASE PUSH SHELF IN" message is displayed at the access point. Shelf has to be pushed into the access point.
*G2301:*xxxy*$V XI$*zzz*$ER=09&L=<l>&E=<e>$*CRLF*	The "PLEASE PULL SHELF OUT" message is displayed at the access point. Shelf has to be pulled out of the access point.
*G2301:*xxxy*$V XI$*zzz*$ER=10&L=<l>&E=<e> &X=<x>$*CRLF*	An operator advisory is displayed at the access point.

Parameter value	Meaning	Max. number of characters
<l>	Lift number	2
<e>	Access point number	1
<c>	Code part of the lift run error message In the Technical Description, a code is assigned to the lift run error messages. The code part "<y>" is transferred from the code "<x> / <y> / <z>" in the <c> data field for more exact identification.	8
<n>	Access point number which carries out lift run	1
<x>	1 = macro "add_shelf" message "SHELF ALREADY EXISTS".	2

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✗ For macros that trigger a lift run, the response telegram is sent after the lift run; for the base_services and confirm macros, after keyboard operation by the operator; for the confirm_requisition_ledge macro, after operating the confirmation module of the requisition processing strip.

Response telegram from the MP control system	Macro execution successful:	*G2301:*xxxy*$V XA$*zzz*$ER=00&L=<l>&E=<e>...$*CRLF*
	Macro execution interrupted:	*G2301:*xxxy*$V XA$*zzz*$ER=99&L=<l>&E=<e>...$*CRLF*

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2.2 Overview of individual macros

Macros	Description	
read_status	Query status information	See Chapter 2.3.1, page 78.
get_shelf	Get shelf with display of storage location	See Chapter 2.3.2, page 80.
store_shelf	Store shelf	See Chapter 2.3.3, page 83.
add_shelf	Add shelf	See Chapter 2.3.4, page 84.
remove_shelf	Remove shelf	See Chapter 2.3.5, page 86.
optimisation_run	Starting an optimisation run	See Chapter 2.3.6, page 87.
delete_comp_display	Clear storage location display	See Chapter 2.3.7, page 88.
confirm	Query confirmation key	See Chapter 2.3.8, page 89.
base_services	Call up basic functions	See Chapter 2.3.9, page 90.
read_status_mp_modules	Query supplementary modules	See Chapter 2.3.10, page 92.
read_status_lift_features	Query supplementary features	See Chapter 2.3.11, page 93.

Macros for supplementary features	Description	
get_shelf	Get shelf with display of storage location (Pick-O-Light system (variable))	See Chapter 10, page 94.
close_door	Close automatic sliding door (Automatic sliding door)	See Chapter 10, page 94.
set_signal	Activate signal elements of the signal column. (Signal column)	See Chapter 10, page 95.
confirm_requisition_ledge	Describe and query requisition processing strip (requisition processing strip)	See Chapter 10, page 96.

Macros for supplementary modules	Description	
read_status_height	Retrieve shelf target height and stored article height (Storage location height management)	See Chapter 10, page 98.
edit_shelf_properties	Change the shelf target height of a shelf (Storage location height management)	See Chapter 10, page 99.
read_status_speed	Query shelf speed (Adjustable shelf speed)	See Chapter 10, page 101.
get_shelf	Get shelf with display of storage location Intermediate shelf buffer for requisition/job processing	See Chapter 10, page 102.

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Macros for supplementary modules	Description	
get_shelf_background	Get shelf in background to intermediate shelf buffer Intermediate shelf buffer for requisition/job processing	See Chapter 10, page 102.
shelf_transfer	Start shelf transfer (Shelf transfer)	See Chapter 10, page 103.

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2.3 Standard version macros

2.3.1 Macro "read_status" - Query status information

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

Request telegram with macro from host

*G*xxxy*:2301$U XR$*zzz*$macro=read_status$*CRLF*

Status telegram from the MP control system

*G2301:*xxxy*$V XS$*zzz*$E00$*CRLF*

➢ Possible status telegrams, see Chapter 2.1 Page 72.

Response telegram from the MP control system

Macro execution successful:

*G2301:*xxxy*$V XA$*zzz*$ER=00&L=<l>&E=<e>&T=<t>
&U=<u_1><u_2>&Y=<y>&A=<a>&B=<b>&C=<c>&D=<d>
&F=<f>$G=<g>$*CRLF*

Parameter value	Meaning	Max. number of characters
<l>	Lift number	2
<e>	Access point number	1
<t>	Shelf in the access point (0 = no shelf in the access point)	3
<u_1>	i (reserved for Rotomat)	1
<u_2>	000 (reserved for Rotomat)	3
<y>	Shelf table coded in hexadecimal Example: <y> = F31 HEX code F 3 1 Binary code: 1 1 1 1 0 0 1 1 0 0 0 1 Shelf number: 4 3 2 1 8 7 6 5 12 11 10 9 1 = Shelf available 0 = Shelf not available Shelves 1, 2, 3, 4, 5, 6, 9 are available.	250
<a>	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	1
<b>	Commission number of the lift	16
<c>	Number of compartments (initialisation)	3

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<d>	Number of compartment depths (initialisation)	2
<f>	0 = Access point is at the front 1 = Access point is at the rear (The front is the side where access point 1 is located. The type plate is located at access point 1.)	1
<g>	1 (reserved for program version H[HOST-WEB])	1
<h>	0 (reserved for program version H[HOST-WEB])	1

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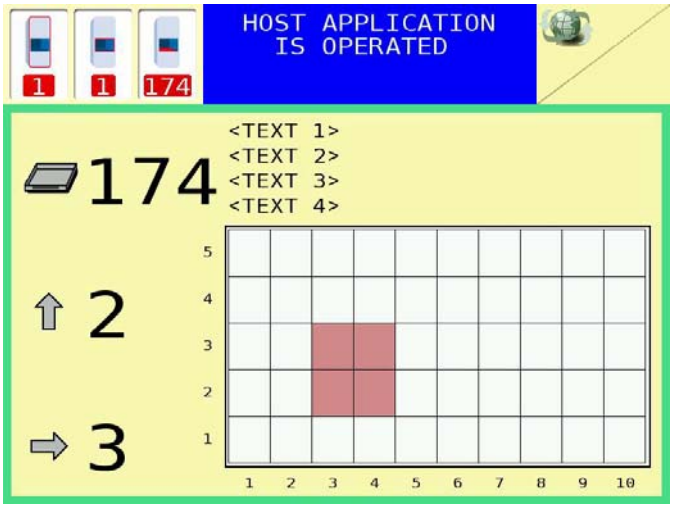
2.3.2 Macro "get_shelf" - Get shelf with display of the storage location

With this macro, the host has the ability to retrieve a shelf and to initiate simultaneously the storage location display, if available. The storage location display is deleted using the macro "delete_comp_display".

✗ The instruction text is not displayed for Remote-controlled lift operation **without** special safety equipment.

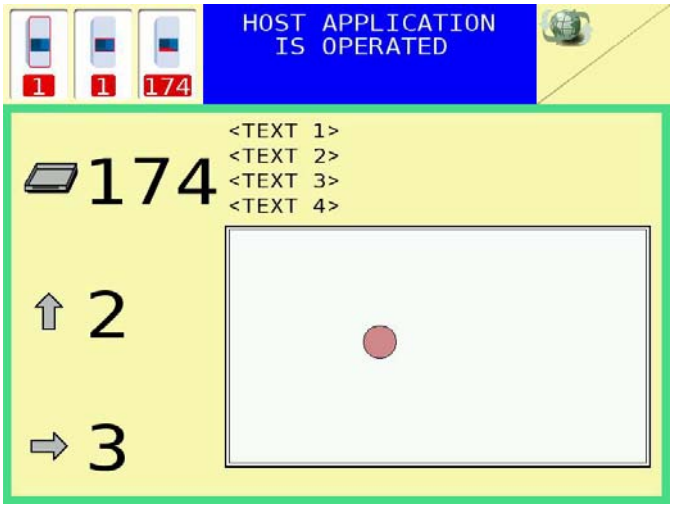
Example:

– Storage location shelf 174, compartment 3, number of compartments of the shelf 10, compartment depth 2, number of compartment depths of the shelf 5, container width in direction of compartments 2, container width in direction of compartment depths 2
– 4-line instruction text



Example for Pick-O-Light system (variable):

– Storage loc. shelf 174, Compartment 3, Compartment depth 2
– 4-line instruction text



Request telegram with macro from host

*G*xxxy*:2301$U XR$*zzz*$macro=get_shelf$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>$*CRLF*

Parameter value	Meaning	Max. number of characters
<pm1>	Shelf number	3
<pm2>	Compartment number (optional)	3

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<pm3>	Compartment depth number (optional)	2
<pm4>	Container width in direction of compartments (optional)	3
<pm5>	Container width in direction of compartment depths (optional)	2
<pm6>	Instruction text 1 (optional, UTF-8 encoding)	30 characters can be displayed (Chinese language 20 characters can be displayed)
<pm7>	Instruction text 2 (optional, UTF-8 encoding)	30 characters can be displayed (Chinese language 20 characters can be displayed)
<pm8>	Instruction text 3 (optional, UTF-8 encoding)	30 characters can be displayed (Chinese language 20 characters can be displayed)
<pm9>	Instruction text 4 (optional, UTF-8 encoding)	30 characters can be displayed (Chinese language 20 characters can be displayed)
<pm10>	Number of compartments of the shelf (optional)	3
<pm11>	Number of compartment depths of the shelf (optional)	2
<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>	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>	Activate information telegrams from the MP control system (optional) (1 = active)	1
<pm15>	Release shelf locking (optional if shelf locking is activated) (1 = Release shelf locking, that is, do not lock shelf, despite activated shelf locking)	1
<pm16>	(reserved for Rotomat)	1

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Status telegram from the MP control system

*G2301:*xxxy*$V XS$*zzz*$E00$*CRLF*

➢ Possible status telegrams, see Chapter 2.1 Page 72.

Information telegrams from the MP control system, if activated by <pm14>

➢ See Chapter 2.1, page 73.

Response telegram from the MP control system

Macro execution successful:

*G2301:*xxxy*$V XA$*zzz*$ER=00&L=<l>&E=<e>&T=<t> &U=<u_1><u_2>$I=<i>&J=<j>$*CRLF*

Macro execution interrupted:

*G2301:*xxxy*$V XA$*zzz*$ER=99&L=<l>&E=<e>&T=<t> &U=<u_1><u_2>$I=<i>&J=<j>$*CRLF*

Parameter value	Meaning	Max. number of characters
<l>	Lift number	2
<e>	Access point number	1
<t>	Shelf in the access point (0 = no shelf in the access point)	3
<u_1>	i (reserved for Rotomat)	1
<u_2>	000 (reserved for Rotomat)	3
<i> <j>	Shelf <i> has article height <j>. (0 = No measurement was carried out) (The article height is the number of occupied carrier units through the shelf with a stored article)	3

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2.3.3 Macro "store_shelf"

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

Request telegram with macro from host

*G*xxxy*:2301$U XR$*zzz*$macro=store_shelf$PM14=<pm14>$*CRLF*

Parameter value	Meaning	Max. number of characters
<pm14>	Activate information telegrams from the MP control system (optional) (1 = active)	1

Status telegram from the MP control system

*G2301:*xxxy*$V XS$*zzz*$E00$*CRLF*

➢ Possible status telegrams, see Chapter 2.1 Page 72.

Information telegrams from the MP control system, if activated by <pm14>

➢ See Chapter 2.1, page 73.

Response telegram from the MP control system

Macro execution successful:

*G2301:*xxxy*$V XA$*zzz*$ER=00&L=<l>&E=<e>&T=<t>
$I=<i>&J=<j>$*CRLF*

Macro execution interrupted:

*G2301:*xxxy*$V XA$*zzz*$ER=99&L=<l>&E=<e>&T=<t>
$I=<i>&J=<j>$*CRLF*

Parameter value	Meaning	Max. number of characters
<l>	Lift number	2
<e>	Access point number	1
<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 article height is the number of occupied carrier units through the shelf with a stored article)	3

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2.3.4 Macro "add_shelf"

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

Request telegram with macro from host

*G*xxxy*:2301$U XR$*zzz*$macro=add_shelf$PM1=<pm1>$PM2=<pm2>$PM3=<pm3> $PM14=<pm14>$*CRLF*

Parameter value	Meaning	Max. number of characters
<pm1>	Shelf number	3
<pm2>	Shelf target height with supplementary module "Storage location height management". In lifts without a "Fixed shelf height" or "Monitoring of shelf height", 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".	2
<pm3>	Shelf speed with supplementary module "Adjustable shelf speed"	3
<pm14>	Activate information telegrams from the MP control system (optional) (1 = active)	1

Status telegram from the MP control system

*G2301:*xxxy*$V XS$*zzz*$E00$*CRLF*

➢ Possible status telegrams, see Chapter 2.1 Page 72.

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Information telegrams from the MP control system, if activated by <pm14>

➢ See Chapter 2.1, page 73.

Response telegram from the MP control system

Macro execution successful:

*G2301:*xxxy*$V XA$*zzz*$ER=00&L=<l>&E=<e>&T=<t>
$I=<i>&J=<j>$*CRLF*

Macro execution interrupted:

*G2301:*xxxy*$V XA$*zzz*$ER=99&L=<l>&E=<e>&T=<t>
$I=<i>&J=<j>$*CRLF*

Parameter value	Meaning	Max. number of characters
<l>	Lift number	2
<e>	Access point number	1
<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 article height is the number of occupied carrier units through the shelf with a stored article)	3

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2.3.5 Macro "remove_shelf"

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

Request telegram with macro from host

*G*xxxy*:2301$U XR$*zzz*$macro=remove_shelf$PM1=<pm1>$PM14=<pm14>$*CRLF*

Parameter value	Meaning	Max. number of characters
<pm1>	Shelf number	3
<pm14>	Activate information telegrams from the MP control system (optional) (1 = active)	1

Status telegram from the MP control system

*G2301:*xxxy*$V XS$*zzz*$E00$*CRLF*

➢ Possible status telegrams, see Chapter 2.1 Page 72.

Information telegrams from the MP control system, if activated by <pm14>

➢ See Chapter 2.1, page 73.

Response telegram from the MP control system

Macro execution successful:

*G2301:*xxxy*$V XA$*zzz*$ER=00&L=<l>&E=<e>&T=<t>
$I=<i>&J=<j>$*CRLF*

Macro execution interrupted:

*G2301:*xxxy*$V XA$*zzz*$ER=99&L=<l>&E=<e>&T=<t>
$I=<i>&J=<j>$*CRLF*

Parameter value	Meaning	Max. number of characters
<l>	Lift number	2
<e>	Access point number	1
<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 article height is the number of occupied carrier units through the shelf with a stored article)	3

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2.3.6 Macro "optimisation_run" - Start an optimisation run

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

Request telegram with macro from host

*G*xxxy*:2301$U XR$*zzz*$macro=optimisation_run$PM1=<pm1>$PM14=<pm14>$*CRLF*

Parameter value	Meaning	Max. number of characters
<pm1>	Optimisation type 0 = access time 1 = packing density	1
<pm14>	Activate information telegrams from the MP control system (optional) (1 = active)	1

Status telegram from the MP control system

*G2301:*xxxy*$V XS$*zzz*$E00$*CRLF*

➢ Possible status telegrams, see Chapter 2.1 Page 72.

Information telegrams from the MP control system, if activated by <pm14>

➢ See Chapter 2.1, page 73.

Response telegram from the MP control system

Macro execution successful:

*G2301:*xxxy*$V XA$*zzz*$ER=00&L=<l>&E=<e>$*CRLF*

Macro execution interrupted:

*G2301:*xxxy*$V XA$*zzz*$ER=99&L=<l>&E=<e>$*CRLF*

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

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2.3.7 Macro "delete_comp_display" - Clear storage location display

With this macro, the host has the ability to clear the storage location display triggered using the "get_shelf" macro. The storage location shown on the display is also cleared.

Request telegram with macro from host

*G*xxxy*:2301$U XR$*zzz*$macro=delete_comp_display$*CRLF*

Status telegram from the MP control system

*G2301:*xxxy*$V XS$*zzz*$E00$*CRLF*

➢ Possible status telegrams, see Chapter 2.1 Page 72.

Response telegram from the MP control system

Macro execution successful:

*G2301:*xxxy*$V XA$*zzz*$ER=00&L=<l>&E=<e>$*CRLF*

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

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2.3.8 Macro "confirm" - Query confirmation key

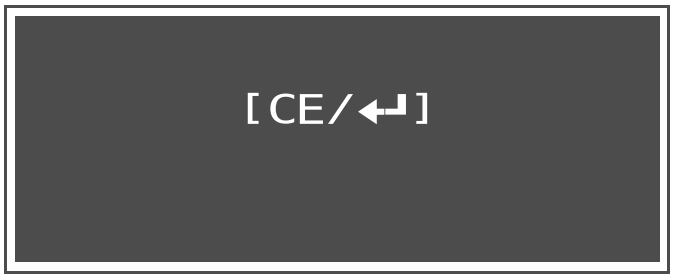
With this macro, the host has the ability to query a confirmation via keyboard.

Confirm: **[↵]** key

Cancel: **[CE]** key

- ✗ This macro can be used with the following lifts:
  - – The supplementary module "00) Remote-controlled Lift Operation" is not available
  - – The supplementary module "00) Remote-controlled Lift Operation with special safety equipment" is available

  In other words, this macro cannot be used for lifts with the supplementary module "00) Remote-controlled Lift Operation without special safety equipment".
- ✗ Monitoring of remote-controlled lift operation if the supplementary module "00) Remote-controlled lift operation" is not present:
  A lift run can be requested within 3 seconds after actuating the **[↵]** key. If the 3 seconds are exceeded, for security reasons the lift run has to be restarted with the **[↵]** key.



Request telegram with macro from host

*G*xxxy*:2301$U XR$*zzz*$macro=confirm$*CRLF*

Status telegram from the MP control system

*G2301:*xxxy*$V XS$*zzz*$E00$*CRLF*

➢ Possible status telegrams, see Chapter 2.1 Page 72.

Response telegram from the MP control system

Macro execution successful:

*G2301:*xxxy*$V XA$*zzz*$ER=00&L=<l>&E=<e>$*CRLF*

➔ **[↵]** key has been pressed.

Macro execution interrupted:

*G2301:*xxxy*$V XA$*zzz*$ER=99&L=<l>&E=<e>$*CRLF*

➔ **[CE]** key has been pressed.

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

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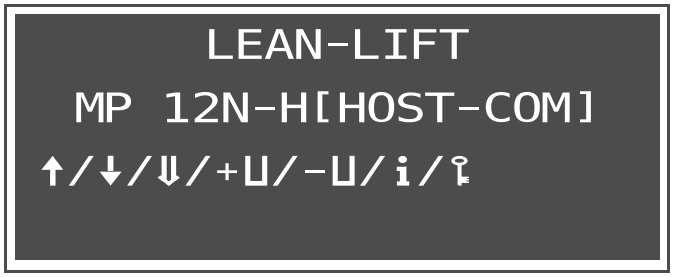
2.3.9 Macro "base_services" - Call up basic functions

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

- ✗ Using the [+⊔] key "Adding a new shelf" and the [−⊔] 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 [⇞] key, "System services". If the host uses these, it must update them using the "read_status_height" and "read_status_speed" macros.

Example:



Request telegram with macro from host

*G*xxxy*:2301$U XR$*zzz*$macro=base_services$PM1=<pm1>$PM2=<pm2>$PM3=<pm3> $PM4=<pm4>$PM5=<pm5>$PM6=<pm6>$PM11=<pm11>$PM12=<pm12>$PM21=<pm21> $PM22=<pm22>$PM23=<pm23>$PM24=<pm24>$*CRLF*

When you specify "<pm...> = 1", the corresponding function can be called up in the menu.

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

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

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<pm22>	[↕]	System services (optional)	1
<pm23>		Reserve	1
<pm24>	[F4]	Shelf transfer (optional for supplementary module Shelf transfer)	1

Status telegram from the MP control system

*G2301:*xxxy*$V XS$*zzz*$E00$*CRLF*

➢ Possible status telegrams, see Chapter 2.1 Page 72.

Response telegram from the MP control system

Macro execution successful:

*G2301:*xxxy*$V XA$*zzz*$ER=00&L=<l>&E=<e>&T=<t> &U=<u_1><u_2>$*CRLF*

Macro execution interrupted:

*G2301:*xxxy*$V XA$*zzz*$ER=99&L=<l>&E=<e>&T=<t> &U=<u_1><u_2>$*CRLF*

Parameter value	Meaning	Max. number of characters
<l>	Lift number	2
<e>	Access point number	1
<t>	Shelf in the access point (0 = no shelf in the access point)	3
<u_1>	i (reserved for Rotomat)	1
<u_2>	000 (reserved for Rotomat)	3

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2.3.10 Macro "read_status_mp_modules" - Query supplementary modules

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

Request telegram with macro from host

*G*xxxy*:2301$U XR$*zzz*$macro=read_status_mp_modules$*CRLF*

Status telegram from the MP control system

*G2301:*xxxy*$V XS$*zzz*$E00$*CRLF*

➢ Possible status telegrams, see Chapter 2.1 Page 72.

Response telegram from the MP control system

Macro execution successful:

*G2301:*xxxy*$V XA$*zzz*$ER=00&L=<l>&E=<e>&A=<a>&B=<b> &C=<c>&D=<d>&F=<f>&G=<g>&H=<h>$*CRLF*

Parameter value	Meaning	Max. number of characters
<l>	Lift number	2
<e>	Access point number	1
<a>	Reserve	1
<b>	Supplementary module Storage location height management (0 = No, 1 = Yes)	1
<c>	Supplementary module Adjustable shelf speed (for Lean-Lift and Multi-Space) (0 = No, 1 = Yes)	1
<d>	Reserve	1
<f>	Supplementary module Remote-controlled Lift Operation (0 = No, 1 = Yes)	1
<g>	Supplementary module Intermediate shelf buffer 0 = no 1 = Yes K12 is present, that is, the shelf is changed when the high-speed door is closed (discontinued version) 2 = Yes K12 is not present, that is, the shelf is changed when the high-speed door is open	1
<h>	Supplementary module Shelf transfer (0 = No, 1 = Yes)	1

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2.3.11 Macro "read_status_lift_features" - Query supplementary features

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

Request telegram with macro from host

*G*xxxy*:2301$U XR$*zzz*$macro=read_status_lift_features$*CRLF*

Status telegram from the MP control system

*G2301:*xxxy*$V XS$*zzz*$E00$*CRLF*

➢ Possible status telegrams, see Chapter 2.1 Page 72.

Response telegram from the MP control system

Macro execution successful:

*G2301:*xxxy*$V XA$*zzz*$ER=00&L=<l>&E=<e>&A=<a>
&B=<b>&C=<c>&D=<d>&F=<f>&G=<g>$H=<h>$*CRLF*

Parameter value	Meaning	Max. number of characters
<l>	Lift number	2
<e>	Access point number	1
<a>	Reserve	1
<b>	Supplementary feature Pick-O-Light system (variable) (0 = No, 1 = Yes)	1
<c>	Supplementary feature Automatic sliding door (0 = No, 1 = Yes)	1
<d>	Supplementary feature Signal column (0 = No, 1 = Yes)	1
<f>	Supplementary features of the requisition processing strip (0 = No, 1 = Yes)	1
<g>	Number of confirmation modules for supplementary features of the requisition processing strip	2
<h>	Shelf locking activated (0 = No, 1 = Yes)	1
<i>	(reserved for Rotomat)	1

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2.4 Macros for supplementary features

2.4.1 Supplementary feature Pick-O-Light system (variable)

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

➢ See Chapter 2.3.2, page 80.

2.4.2 Supplementary feature Automatic sliding door

2.4.2.1 Macro "close_door" – Close automatic sliding door

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

Request telegram with macro from host

*G*xxxy*:2301$U XR$*zzz*$macro=close_door$*CRLF*

Status telegram from the MP control system

*G2301:*xxxy*$V XS$*zzz*$E00$*CRLF*

➢ Possible status telegrams, see Chapter 2.1 Page 72.

Response telegram from the MP control system

Macro execution successful:

*G2301:*xxxy*$V XA$*zzz*$ER=00&L=<l>&E=<e>$*CRLF*

Macro execution interrupted:

*G2301:*xxxy*$V XA$*zzz*$ER=99&L=<l>&E=<e>$*CRLF*

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

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2.4.3 Supplementary feature Signal column

2.4.3.1 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.

Request telegram with macro from host

*G*xxxy*:2301$U XR$*zzz*$macro=set_signal$PM1=<pm1>$PM2=<pm2>$PM3=<pm3>$*CRLF*

Parameter value	Meaning	Max. number of characters
<pm1>	Signal element 1 0 = inactive 1 = active	1
<pm2>	Signal element 2 0 = inactive 1 = active	1
<pm3>	Signal element 3 0 = inactive 1 = active	1

Status telegram from the MP control system

*G2301:*xxxy*$V XS$*zzz*$E00$*CRLF*

➢ Possible status telegrams, see Chapter 2.1 Page 72.

Response telegram from the MP control system

Macro execution successful:

*G2301:*xxxy*$V XA$*zzz*$ER=00&L=<l>&E=<e>$*CRLF*

Macro execution interrupted:

*G2301:*xxxy*$V XA$*zzz*$ER=99&L=<l>&E=<e>$*CRLF*

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

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2.4.4 Supplementary features of the requisition processing strip

2.4.4.1 "confirm_requisition_ledge" macro – Describing and querying the requisition processing strip

With this macro, the host has the ability to describe and query the requisition processing strip.

Confirmation : Confirmation key

Quit: CE button or **[CE]** key

✗ Monitoring of remote-controlled lift operation:
A lift run can be requested within 3 seconds after actuating the confirmation key. If the 3 seconds are exceeded, for security reasons the lift run has to be started with the **[↵]** key.

Request telegram with macro from host

*G*xxxy*:2301$U XR$*zzz*$macro=confirm_requisition_ledge$PM1=<pm1>$PM2=<pm2>$PM3=<pm3>$PM4=<pm4>$*CRLF*

Parameter value	Meaning	Max. number of characters
<pm1>	Number of confirmation module (1 – Number of confirmation modules)	2
<pm2>	Text line 1 (optional, UTF-8 encoding)	20 characters can be displayed
<pm3>	Text line 2 (optional, UTF-8 encoding)	20 characters can be displayed
<pm4>	Text line 3 (optional, UTF-8 encoding)	20 characters can be displayed

Status telegram from the MP control system

*G2301:*xxxy*$V XS$*zzz*$E00$*CRLF*

➢ Possible status telegrams, see Chapter 2.1 Page 72.

Response telegram from the MP control system

Macro execution successful:

*G2301:*xxxy*$V XA$*zzz*$ER=00&L=<l>&E=<e>$*CRLF*

➔ Confirmation key has been pressed.

Macro execution interrupted:

*G2301:*xxxy*$V XA$*zzz*$ER=99&L=<l>&E=<e>$*CRLF*

➔ The CE button was touched or the **[CE]** key was pressed.

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

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2.5 Macros for supplementary modules

2.5.1 Supplementary module Storage location height management

2.5.1.1 "read_status_height" macro – Querying shelf target height and article height

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

Request telegram with macro from host

*G*xxxy*:2301$U XR$*zzz*$macro=read_status_height$PM1=<pm1>$PM2=<pm2>$*CRLF*

Parameter value	Meaning	Max. number of characters
<pm1>	String number 1-4	1
<pm2>	0 = Query of shelf target height 1 = Query of article height	1

Status telegram from the MP control system

*G2301:*xxxy*$V XS$*zzz*$E00$*CRLF*

➢ Possible status telegrams, see Chapter 2.1 Page 72.

Response telegram from the MP control system

Macro execution successful:

*G2301:*xxxy*$V XA$*zzz*$ER=00&L=<l>&E=<e>&X<pm1>=<x>$*CRLF*

Macro execution interrupted:

*G2301:*xxxy*$V XA$*zzz*$ER=99&L=<l>&E=<e>$*CRLF*

Parameter value	Meaning	Max. number of characters
<l>	Lift number	2
<e>	Access point number	1
<x>	Height table<pm1> = 1-4 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	254

10 Annex: integration into the IT system (only for installation and maintenance personnel and IT specialists)

2.5.1.2 "edit_shelf_properties" macro – Changing the shelf target height of a shelf

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

Request telegram with macro from host

*G*xxxy*:2301$U XR$*zzz*$macro=edit_shelf_properties$PM1=<pm1>$PM2=<pm2>$*CRLF*

Parameter value	Meaning	Max. number of characters
<pm1>	Shelf number	3
<pm2>	Target height for shelf <pm1>. 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".	3

Status telegram from the MP control system

*G2301:*xxxy*$V XS$*zzz*$E00$*CRLF*

➢ Possible status telegrams, see Chapter 2.1 Page 72.

Response telegram from the MP control system

Macro execution successful:

*G2301:*xxxy*$V XA$*zzz*$ER=00&L=<l>&E=<e>$*CRLF*

Macro execution interrupted:

*G2301:*xxxy*$V XA$*zzz*$ER=99&L=<l>&E=<e>$*CRLF*

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

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2.5.2 Supplementary module Adjustable shelf speed

2.5.2.1 Macro "read_status_speed" - query shelf speeds

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

Request telegram with macro from host

*G*xxxy*:2301$U XR$*zzz*$macro=read_status_speed$PM1=<pm1>$*CRLF*

Parameter value	Meaning	Max. number of characters
<pm1>	String number 1-8	1

Status telegram from the MP control system

*G2301:*xxxy*$V XS$*zzz*$E00$*CRLF*

➢ Possible status telegrams, see Chapter 2.1 Page 72.

Response telegram from the MP control system

Macro execution successful:

*G2301:*xxxy*$V XA$*zzz*$ER=00&L=<l>&E=<e>&S<pm1>=<s>$*CRLF*

Macro execution interrupted:

*G2301:*xxxy*$V XA$*zzz*$ER=99&L=<l>&E=<e>$*CRLF*

Parameter value	Meaning	Max. number of characters
<l>	Lift number	2
<e>	Access point number	1
<s>	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.	254

10 Annex: integration into the IT system (only for installation and maintenance personnel and IT specialists)

2.5.3 Supplementary module Intermediate shelf buffer for requisition/job processing (only for Lean-Lift)

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

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

➢ See Chapter 2.3.2, page 80.

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

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.

Request telegram with macro from host

*G*xxxy*:2301$U XR$*zzz*$macro=get_shelf_background$PM1=<pm1>$*CRLF*

Parameter value	Meaning	Max. number of characters
<pm1>	Shelf number	3

Status telegram from the MP control system

*G2301:*xxxy*$V XS$*zzz*$E00$*CRLF*

➢ Possible status telegrams, see Chapter 2.1 Page 72.

The response telegram from the MP control system is sent immediately, rather than at the end of the lift run.

Response telegram from the MP control system

Macro execution successful: *G2301:*xxxy*$V XA$*zzz*$ER=00&L=<l>&E=<e>$*CRLF*

Macro execution interrupted: *G2301:*xxxy*$V XA$*zzz*$ER=99&L=<l>&E=<e>$*CRLF*

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

10 Annex: integration into the IT system (only for installation and maintenance personnel and IT specialists)

2.5.4 Supplementary module Shelf transfer

2.5.4.1 "shelf_transfer" macro – Starting the shelf transfer

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

Request telegram with macro from host

*G*xxxy*:2301$U XR$*zzz*$macro=shelf_transfer$PM1=<pm1>$PM14=<pm14>$*CRLF*

Parameter value	Meaning	Max. number of characters
<pm1>	Destination access point	1
<pm14>	Activate information telegrams from the MP control system (optional) (1 = active)	1

Status telegram from the MP control system

*G2301:*xxxy*$V XS$*zzz*$E00$*CRLF*

➢ Possible status telegrams, see Chapter 2.1 Page 72.

Information telegrams from the MP control system, if activated by <pm14>

➢ See Chapter 2.1, page 73.

Response telegram from the MP control system

Macro execution successful:

*G2301:*xxxy*$V XA$*zzz*$ER=00&L=<l>&E=<e>&T=<t>
$I=<i>&J=<j>$*CRLF*

Macro execution interrupted:

*G2301:*xxxy*$V XA$*zzz*$ER=99&L=<l>&E=<e>&T=<t>
$I=<i>&J=<j>$*CRLF*

Parameter value	Meaning	Max. number of characters
<l>	Lift number	2
<e>	Access point number	1
<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 article height is the number of occupied carrier units through the shelf with a stored article)	3

11 Annex

11.1 Overview of optional supplementary descriptions

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

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

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

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

11 Annex

11.2 Revision notes

Last issue dated: 2011-07-28

- Supplementary features of the requisition processing strip
- Adapted term (in German)
  NOT-AUS -> NOT-HALT
- Chapter 2.1 improved
- Information telegram added in the Annex: Integration into the IT system.
- "get_shelf" macro Release shelf locking added in the Annex: Integration into the IT system.
- "get_shelf", "store_shelf", "add_shelf", "remove_shelf" macro measured article height added in the Annex: Integration into the IT system.
- New macro "edit_shelf_properties", and "read_status_hight" expanded in the Annex: Integration into the IT system.
- "read_status", "read_status_mp_modules" and "read_status_lift_features" macros expanded in the Annex: Integration into the IT system.
- Explanation of term MP multi-unit network improved in the Annex: Integration into the IT system.
- Reference to Technical Description improved in the Annex: Integration into the IT system."Lean-Lift and Multi-Space" or "Rotomat".
- "10/100 Mbit Ethernet connection" changed to "100 Mbit Ethernet connection" in the Annex: Integration into the IT system.
- Integration into corporate network when a DNS server with DNS UPDATE "(e.g. in the URL of the browser)" removed in the Annex: Integration into the IT system
- Interface description of macro generally improved in the Annex: Integration into the IT system.

12 Keyword index

User Guide for HOST-COM Program Version Microprocessor Control System MP 12N

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