



## Technical Description of the Microprocessor Control System MP 12N

## Lean-Lift Multi-Space Rotomat





## Contents

<b>1</b>	<b>Introduction</b>	<b>9</b>
1.1	Basic information.....	9
1.2	Guide through the document.....	10
1.3	Safety instructions.....	11
1.4	Supplementary documents.....	12
1.5	Terms used for the "File management" and "Tool storage management" storage management packet (only for MP 12N-S/H [MP 100D]).....	13
<b>2</b>	<b>Initialisation</b>	<b>15</b>
2.1	Initialisation mode.....	15
2.2	Language.....	16
2.3	Start initialisation of other access points (only with multiple access points).....	16
2.4	Operating mode.....	17
2.5	Number of lift units (only for Multi-Space).....	18
2.6	Program version.....	19
2.7	Storage management packet (only for MP 12N-S/H[MP 100D]).....	20
2.8	Number of access points (not with rack operation).....	22
2.9	Multi-unit network (not with MP 12N-H[HOST-WEB]).....	23
2.10	Master unit.....	23
2.11	Alternating-side requisition (only for Multi-Space with multiple access points).....	24
2.12	Lift number.....	24
2.13	Sensor type (only for Rotomat).....	25
2.14	Compartment display (not with rack operation).....	26
2.15	Lift data.....	27
2.16	Load imbalance indicator (only with Rotomat).....	28
2.17	Lift run only with door closed (not for Multi-Space or rack operation).....	33
2.18	Second safety circuit (not for Multi-Space with multiple access points or rack operation).....	34
2.19	Safety circuit monitors.....	34
2.20	Main switch with undervoltage trip (only for Lean-Lift).....	35
2.21	Safety light curtain (not for Multi-Space or rack operation).....	36
2.22	Start and stop time (only for Rotomat).....	37
2.23	MP 12 EXT board.....	38
2.24	Error messages due to interruption of the safety circuit (not with rack operation).....	39
2.25	Format shelf memory (only for Lean-Lift and Multi-Space).....	41
2.26	Inventory control (only for MP 12N-S/H[MP 100D]).....	42
2.27	Storage location management (only for MP 12N-S/H[MP 100D]).....	43
2.28	Ending initialisation.....	44
2.29	Initialisation of other access points.....	45
2.29.1	Initialise other access points for the Lean-Lift .....	45
2.29.2	Initialise other access points for the Multi-Space.....	48
2.29.3	Initialise other access points for the Rotomat.....	50
<b>3</b>	<b>Positioning</b>	<b>53</b>
3.1	Activate initialisation mode of the positioning system.....	53
3.2	Positioning in Lean-Lift mode.....	54

### Contents

3.3	Positioning in Multi-Space mode.....	76
3.4	Positioning in the Rotomat operating mode with position sensor .....	91
3.4.1	Quick positioning - Positioning of a single carrier.....	94
3.4.2	Individual positioning - Positioning all shelf levels.....	97
3.4.2.1	Create new values [delete old values].....	99
3.4.2.2	Accept old values.....	102
3.4.3	Retrofitting intermediate shelf levels in the Rotomat.....	104
3.5	Positioning in Rotomat mode with relative sensor.....	105
3.6	Positioning in the Rotomat operating mode with binary code sensor.....	107
<b>4</b>	<b>System services</b> .....	<b>109</b>
4.1	System services lift control.....	110
4.1.1	Interface assignment S1-4.....	111
4.1.2	Setting interface parameters.....	113
4.1.3	Select function.....	116
4.1.4	Keylock function.....	120
4.1.5	Supplementary modules.....	122
4.1.5.1	Program version MP 12N-S/H[MP100D].....	122
4.1.5.2	Program version MP 12N-H[HOST-DATA].....	123
4.1.5.3	Program version MP 12N-H[HOST-WEB].....	123
4.1.6	System clock setting.....	124
4.1.7	Display configuration (only with TFT display).....	125
4.1.8	Screensaver (only with VFD display).....	127
4.1.9	Emergency operation (only with Rotomat).....	128
4.2	Enable system services storage management for MP 12N-S/H[MP 100D].....	129
4.2.1	Printout setting.....	130
4.2.2	System clock setting (only for MP 12N-H[MP 100D]).....	138
4.2.3	Language setting.....	139
4.2.4	Setting the interface parameters (only with MP 12N-H[MP 100D]).....	140
4.2.5	Print system information.....	143
4.2.5.1	Print storage management formatting.....	144
4.2.5.2	Print storage management installation.....	145
4.2.5.3	Print storage management settings.....	146
4.2.6	System configuration.....	147
4.2.6.1	System formatting.....	148
4.2.6.2	System installation.....	157
4.2.6.3	Access control to storage management.....	159
4.2.6.4	Path list for requisition/job processing.....	161
4.2.6.5	Setting supplementary functions.....	164
4.3	System services host with MP 12N-H[HOST-WEB].....	167
4.4	System services run sequence (only for Lean-Lift and Multi-Space).....	168
4.4.1	Shelf locking (only with incremental encoder).....	169
4.4.2	REDUNDANCY SYSTEM.....	170
4.4.3	Shelf properties.....	176
4.4.3.1	Display parameters.....	177

### Contents

4.4.3.2	Change parameters.....	178
4.4.3.3	Change parameters of all shelves.....	179
4.4.4	Storage of empty shelves.....	180
4.5	System services Service functions.....	181
4.6	Safety inspection log.....	182
<b>5</b>	<b>Program version MP 12N-S/H[MP 100D]</b>	<b>183</b>
5.1	Web server.....	183
5.2	Host communication through file transfer.....	183
<b>6</b>	<b>Program version MP 12N-H[HOST-DATA]</b>	<b>185</b>
6.1	Overview of features.....	185
6.2	Data record buffer host communication through file transfer.....	187
6.2.1	Function.....	187
6.2.2	Software requirement.....	188
6.2.3	General data record conventions.....	189
6.2.4	Hänel MP format (standard).....	189
6.2.5	CSV format (conversion to Hänel MP format).....	189
6.2.6	Data fields.....	190
6.2.7	File transfer.....	192
6.2.7.1	Send data to the MP control system MP 12N-H[HOST-DATA].....	192
6.2.7.2	Read out data from the MP control system MP 12N-H[HOST-DATA].....	192
6.2.7.3	Delete data from the MP control system MP 12N-H[HOST-DATA].....	192
6.2.8	File types.....	193
6.2.8.1	Data record buffer file.....	193
6.2.8.2	Request file.....	194
6.2.8.3	Response file.....	194
6.2.9	Data conversion.....	195
6.2.10	Error codes of the MP 12N-H [HOST-DATA] host communication.....	195
6.3	Configuration software for the host communication.....	199
6.3.1	Features.....	199
6.3.2	Installation.....	199
6.3.3	General.....	200
6.3.4	"Transfer" menu.....	201
6.3.5	"Communication" menu.....	202
6.3.6	"File types" menu.....	204
6.3.6.1	Data record buffer file.....	204
6.3.6.2	Request file.....	205
6.3.6.3	Response file.....	206
6.3.6.4	Log file.....	207
6.3.7	"Buffer data" menu.....	208
6.3.7.1	Data field name configuration.....	208
6.3.7.2	Buffer data conversion.....	209
6.3.8	"File transfer" menu.....	212
6.3.8.1	Send (import).....	213

## Contents

6.3.8.2	Read (export).....	214
6.3.9	"Log" menu.....	214
6.3.10	"Info" menu.....	214
6.3.11	Send configuration to MP control system.....	215
<b>7</b>	<b>Program version MP 12N-H[HOST-WEB]</b>	<b>217</b>
7.1	Overview of features.....	217
7.2	Switching on the lift/carousel.....	218
7.3	Host communication through commands.....	220
7.3.1	\$E11\$: Activate compartment / compartment depth display.....	221
7.3.2	\$E12\$: Query whether a shelf is in the access point.....	222
7.3.3	\$E17\$: Request the load imbalance recommendation (only for Rotomat with load imbalance indicator).....	223
7.3.4	\$E20\$: Start lift/carousel run and activate compartment/compartment depth display.....	224
7.3.5	\$E20\$J0\$: Close sliding door.....	226
7.3.6	\$E20\$J1\$: Open sliding door .....	227
7.3.7	\$E23\$: Request open/closed status of sliding door .....	228
7.3.8	\$E24\$: Start shelf transfer (only for Lean-Lift and Multi-Space with multiple access points).....	229
7.3.9	\$E40\$: Request whether shelf is present in lift.....	230
7.3.10	\$E42\$: Request AP factor of a shelf (only for Lean-Lift and Multi-Space).....	231
7.3.11	\$E42\$: Enter AP factor of a shelf (only for Lean-Lift and Multi-Space).....	232
7.3.12	\$E42\$: Request lift assignment (only for Lean-Lift and Multi-Space).....	233
7.3.13	\$E44\$: Start optimisation run (only for Lean-Lift and Multi-Space).....	234
7.3.14	\$E46\$: Remove shelf (only for Lean-Lift and Multi-Space).....	235
7.3.15	\$E47\$: Add shelf (only for Lean-Lift and Multi-Space).....	236
7.3.16	\$E48\$: Read next shelf (only for Lean-Lift and Multi-Space).....	238
7.3.17	\$E49\$: Read previous shelf (only for Lean-Lift and Multi-Space).....	239
7.3.18	\$E50\$: Read shelf data (only for Lean-Lift and Multi-Space).....	240
7.3.19	\$E60\$: Read Hänel commission (order) number from lift/carousel.....	241
7.3.20	\$E70\$: Activate indicator lamp or audible signal.....	242
7.4	Host communication by HTTP protocol.....	243
<b>8</b>	<b>Ethernet connection to corporate network</b>	<b>245</b>
8.1	Installation for MP 12N-H[MP 100D].....	245
8.2	Installation for MP 12N-S, MP 12N-H[HOST-DATA] and MP 12N-H[HOST-WEB].....	245
8.2.1	Installing network functions without integration into a company network.....	246
8.2.2	Installation of network function with integration into a company network.....	247
<b>9</b>	<b>Connection of peripheral devices</b>	<b>249</b>
9.1	Barcode reader.....	249
9.2	Scales.....	250
9.3	Network printer.....	250
9.4	Badge reader (only with access code management or lending management).....	251
9.5	Transponder (only with access code management or lending management).....	252

### Contents

<b>10</b>	<b>Error messages</b>	<b>253</b>
10.1	Internal system errors.....	253
10.2	Data record errors or data record transfer errors.....	257
10.3	Initialisation and formatting errors (only with MP 12N-S/H[MP 100D]).....	258
10.4	Critical errors (lift/carousel run errors due to the safety circuit monitor).....	263
10.4.1	Safety circuit monitor on the board.....	263
10.4.2	Safety circuit monitor at terminal 810-816.....	265
10.5	Lean-Lift and Multi-Space error messages during lift run.....	268
10.5.1	Error messages during lift run due to interruption of safety circuit.....	268
10.5.2	Error messages during lift run due to software monitoring.....	278
10.6	Rotomat error messages during carousel run.....	298
<b>11</b>	<b>Service notes</b>	<b>307</b>
11.1	Software update MP 12N.....	307
11.2	Software update MP 100D.....	308
11.3	IP addresses for Ethernet multi-unit network.....	309
11.4	Test runs.....	310
11.5	Load imbalance indicator (only with Rotomat).....	310
11.5.1	Measuring and assigning the power values.....	310
11.5.2	Notes about the current sensor.....	310
11.5.3	Notes about the temperature sensor.....	310
<b>12</b>	<b>Annex</b>	<b>311</b>
12.1	Configuration settings.....	311
12.2	Revision notes.....	316
	<b>Keyword index</b>	<b>317</b>





## 1 Introduction

### 1.1 Basic information

Contents	This document contains information for configuring the MP 12N microprocessor control system and integrating it into the IT system.												
Target group	<p>This document has been written for:</p> <ul style="list-style-type: none"><li>◆ Trained and instructed installation and maintenance personnel who are responsible for all matters related to technical support of the lift.</li><li>◆ IT specialists assigned the task of connecting the MP control system to the customer's IT system.</li></ul>												
Manufacturer	<p>Hänel Büro- und Lagersysteme Postfach 11 61 D-74173 Bad Friedrichshall Phone: +49 7136/27725 Fax: +49 7136/27741 <a href="http://www.hanel.de">http://www.hanel.de</a></p>												
Validity	<p>This document is valid for lifts/carousels of the following series:</p> <table><tr><td>Type:</td><td>Lean-Lift, Multi-Space, Rotomat</td></tr><tr><td>Access points:</td><td>unlimited</td></tr><tr><td>Serial number:</td><td>see type plate on the lift/carousel</td></tr><tr><td>Year of construction:</td><td>see type plate on the lift/carousel</td></tr></table> <p>If the lift/carousel has multiple access points, the type plate is located at the first access point.</p> <p>This document is valid for MP control systems with the following or later program versions:</p> <table><tr><td>MP 12D CPU II:</td><td>V 2.4 (W,X,Y are language versions of V)</td></tr><tr><td>MP 12N CPU II:</td><td>V 2.4</td></tr></table>	Type:	Lean-Lift, Multi-Space, Rotomat	Access points:	unlimited	Serial number:	see type plate on the lift/carousel	Year of construction:	see type plate on the lift/carousel	MP 12D CPU II:	V 2.4 (W,X,Y are language versions of V)	MP 12N CPU II:	V 2.4
Type:	Lean-Lift, Multi-Space, Rotomat												
Access points:	unlimited												
Serial number:	see type plate on the lift/carousel												
Year of construction:	see type plate on the lift/carousel												
MP 12D CPU II:	V 2.4 (W,X,Y are language versions of V)												
MP 12N CPU II:	V 2.4												
Keep in an accessible place as a complete document	<ul style="list-style-type: none"><li>◆ This documentation is a part of the lift and must be stored in a location that is accessible to authorised personnel at all times.</li><li>◆ 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.</li></ul>												
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	<p>This documentation contains information that is protected by copyright. It may not, in whole or in part, be photocopied, duplicated, translated or stored to any electronic medium without prior consent.</p> <p>All other rights reserved.</p>												

## 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/carousel easier.

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

#### Terms

The microprocessor control system uses the term **shelf**.  
The term shelf corresponds to the following:

- For the Lean-Lift and Multi-Space: Containers
- For the Rotomat: Carrier level
- For rack operation: Shelf level

#### Operator prompts

- ◆ The operator prompts in all display variants differ only in minor details.
- ◆ Placeholders are sometimes used in messages that appear on the display. These placeholders are enclosed in angle brackets and appear in italics. For space reasons, abbreviations are used for the following placeholders.

<i>&lt;tt&gt;</i>	For shelf
<i>&lt;ff&gt;</i>	For compartment
<i>&lt;tf&gt;</i>	For compartment depth
<i>&lt;tt ff tf&gt;</i>	For shelf compartment compartment depth
<i>&lt;gg&gt;</i>	For total inventory
<i>&lt;bb&gt;</i>	For inventory at storage location
<i>&lt;qq&gt;</i>	For quantity
<i>&lt;ll&gt;</i>	For Lift
- ◆ 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 button 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/carousels may be carried out by trained and authorised personnel only. Authorised personnel are defined as follows:

- Personnel who, because of their specialised education and qualified training (for example, from the manufacturer), 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 trained and qualified personnel may operate the lift/carousel.

Operators have to follow the lift user guide.

Installation and maintenance personnel have to follow the lift/carousel user guide and the lift/carousel operating manual.

## 1 Introduction

### 1.4 Supplementary documents

#### Lean-Lift and Multi-Space

- User Guide for the Article Storage Management Microprocessor Control System MP 12N Lean-Lift and Multi-Space.
- User Guide for the File Management Microprocessor Control System MP 12N Lean-Lift and Multi-Space.
- User Guide for the Tool Storage Management Microprocessor Control System MP 12N Lean-Lift and Multi-Space.
- Technical Description of the Microprocessor Control System MP 12N-S / MP 100D Server for Lean-Lift, Multi-Space and Rotomat.
- For the optional supplementary descriptions, refer to the User Guide for the Microprocessor Control System MP 12N.

#### ROTOMAT

- User Guide for the Article Storage Management Microprocessor Control System MP 12N Rotomat.
- User Guide for the File Management Microprocessor Control System MP 12N Rotomat.
- User Guide for the Tool Storage Management Microprocessor Control System MP 12N Rotomat.
- Technical Description of the Microprocessor Control System MP 12N-S / MP 100D Server for Lean-Lift, Multi-Space and Rotomat.
- For the optional supplementary descriptions, refer to the User Guide for the Microprocessor Control System MP 12N.

### 1 Introduction

#### 1.5 Terms used for the "File management" and "Tool storage management" storage management packet (only for MP 12N-S/H [MP 100D])

This description uses the operator prompts for the "Article storage management" storage management packet.

For tool storage management, tool storage terms are used in place of article storage terms.

For file management, file terms are used in place of file terms.

Article storage terms	Tool storage terms	File terms
ARTICLE	TOOL	FILE
ARTICLE NUMBER	TOOL NUMBER	FILE NUMBER
ARTICLE MASTER DATA	TOOL MASTER DATA	FILE MASTER DATA
ARTICLE LIST	TOOL LIST	FILE LIST
ARTICLE NAME	TOOL NAME	FILE NAME
ARTICLE STORAGE MANAGEMENT	TOOL STORAGE MANAGEMENT	FILE MANAGEMENT
ARTICLE MEMORY	TOOL MEMORY	FILE MEMORY
ARTICLE DATA	TOOL DATA	FILE DATA
ARTICLE SEARCH	TOOL SEARCH	FILE SEARCH
ARTICLE POOL MANAGEMENT	TOOL POOL MANAGEMENT	FILE POOL MANAGEMENT
REQUISITION	EQUIPMENT LIST	LIST
REQUISITION LIST	EQUIPMENT LIST	LIST
REQUISITION NUMBER	EQUIPMENT LIST NO.	LIST NUMBER
REQUISITION MANAGEMENT	EQUIPMENT LIST MANAGEMENT	LIST MANAGEMENT
REQUISITION MEMORY	EQUIPMENT LIST MEMORY	LIST MEMORY
REQUISITION OVERVIEW	EQUIPMENT LIST OVERVIEW	LIST OVERVIEW



## 2 Initialisation

Various important system-specific data are defined in this menu.

Before a lift/carousel is put into service, the MP 12N microprocessor control system must be initialised.



- x The initialisation must be started at access point 1.
- x The first initialisation of the control system must be followed by positioning of the lift/carousel.
- x Only when the lift/carousel has been correctly positioned can other access points be initialised.
- x After each change of the initialisation data, the other access points must be reinitialised.

### 2.1 Initialisation mode

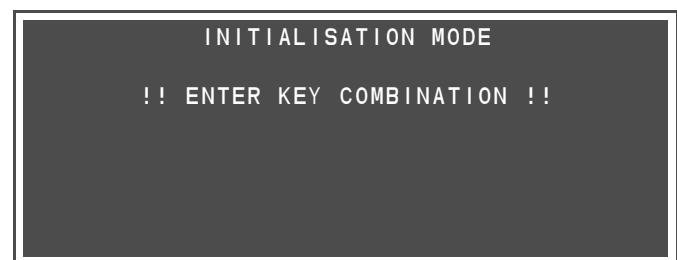
#### Description of the operator prompts

##### Activate initialisation mode

- Switch on the lift/carousel.
- Press the **[CE]** key at access point 1 until "Initialisation mode" is displayed.
- Press the following keys:



#### Display



## 2 Initialisation

### 2.2 Language



- x Since the technician and operator may be of different nationalities, the languages for initialisation mode and normal operating mode can be set separately.

#### Description of the operator prompts

##### Set language

- Press the [↑] / [↓] key to select the language for initialisation.
  - Press the [↵] key.
- 
- Press the [↑] / [↓] key to select the language for standard operation.
  - Press the [↵] key.

#### Display

```
INITIALISATION MODE

SELECT LANGUAGE
FOR INITIALISATION :

█<Local language>
<Language code>

[↑/↓/CE/↵]
```

```
INITIALISATION MODE

SELECT LANGUAGE
FOR STANDARD OPERATION :

█<Local language>
<Language code>

[↑/↓/CE/↵]
```

### 2.3 Start initialisation of other access points (only with multiple access points)



- x This prompt is displayed only for lifts/carousels with multiple access points.  
When all the initialisation parameters have been stored at access point 1, the other access points must be initialised.

#### Description of the operator prompts

##### Start initialisation of other access points

- Press the [↑] / [↓] key to select "YES" or "NO".
- Press the [↵] key.

#### Display

```
INITIALISATION MODE

DO YOU WANT TO INITIALISE ANOTHER
ACCESS POINT NOW ?

█NO

[↑/↓/CE/↵]
```



- x For other operator prompts, refer the chapter on 2.29 on page 45.



2

Initialisation

2.4

Operating mode

Description of the operator prompts	Display								
<p>Set operating mode</p> <ul style="list-style-type: none"><li>Press the [↑] / [↓] key to select the operating mode.</li><li>Press the [↵] key.</li></ul>	<div><div>INITIALISATION MODE</div><div>OPERATING MODE :</div><div> ROTOMAT</div><div>[↑/↓/CE/↵]</div></div> <table><tr><th>Options</th></tr><tr><td>◆ ROTOMAT</td></tr><tr><td>◆ LEAN-LIFT</td></tr><tr><td>◆ RACK OPERATION</td></tr><tr><td>◆ ROTOMAT LIFT RUN SIMULATION (password-protected)</td></tr><tr><td>◆ LEAN-LIFT LIFT RUN SIMULATION (password-protected)</td></tr><tr><td>◆ MULTI-SPACE</td></tr><tr><td>◆ MULTI-SPACE LIFT RUN SIMULATION (password-protected)</td></tr></table>	Options	◆ ROTOMAT	◆ LEAN-LIFT	◆ RACK OPERATION	◆ ROTOMAT LIFT RUN SIMULATION (password-protected)	◆ LEAN-LIFT LIFT RUN SIMULATION (password-protected)	◆ MULTI-SPACE	◆ MULTI-SPACE LIFT RUN SIMULATION (password-protected)
Options									
◆ ROTOMAT									
◆ LEAN-LIFT									
◆ RACK OPERATION									
◆ ROTOMAT LIFT RUN SIMULATION (password-protected)									
◆ LEAN-LIFT LIFT RUN SIMULATION (password-protected)									
◆ MULTI-SPACE									
◆ MULTI-SPACE LIFT RUN SIMULATION (password-protected)									

2

Initialisation

2.5

Number of lift units (only for Multi-Space)



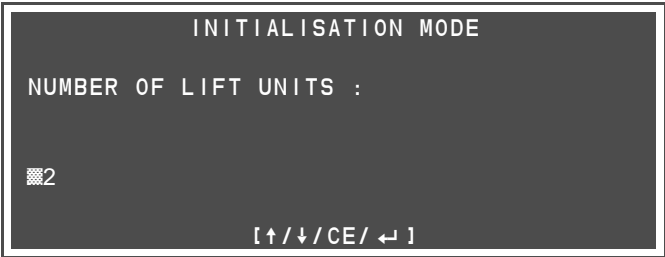
x This prompt is displayed only for the Multi-Space.

Description of the operator prompts

Set number of lift units

- Press the [↑] / [↓] key to select the number of lift units.
- Press the [↵] key.

Display



Options	
◆ 2	◆ 5
◆ 3	◆ 6
◆ 4	

2

Initialisation

2.6

Program version

Description of the operator prompts	Display										
<div>Set program version</div> <ul style="list-style-type: none"><li>Press the [↑] / [↓] key to select the program version.</li><li>Press the [↵] key.</li></ul>	<div><div><div>INITIALISATION MODE</div><div>SELECT PROGRAM VERSION :</div><div>S / H[MP 100D]</div><div>[↑/↓/CE/↵]</div></div><table><tr><th colspan="2">Options / description</th></tr><tr><td>◆ S / H [MP 100D]</td><td>S: MP 12N-S for one lift/carousel (standalone, i.e. data flash card is plugged in).  H[MP 100D]: Connection to MP 100D or connection to MP 12N-S for one lift/carousel with multiple access points.</td></tr><tr><td>◆ H[HOST-DATA]</td><td>Data record buffer host communication.</td></tr><tr><td>◆ H[HOST-WEB]</td><td>Host communication by commands / HTTP protocol.</td></tr><tr><td>◆ S / H[MP 12N-S]</td><td>S: MP 12N-S for two lifts/carousels (standalone, i.e. data flash card is plugged in).  H[MP 12N-S]: Connection to MP 12N-S for two lifts/carousels or connection to MP 12N-S for two lifts/carousels with multiple access points.  In the description, H[MP 100D] also stands for H[MP 12N-S].</td></tr></table></div>	Options / description		◆ S / H [MP 100D]	S: MP 12N-S for one lift/carousel (standalone, i.e. data flash card is plugged in).  H[MP 100D]: Connection to MP 100D or connection to MP 12N-S for one lift/carousel with multiple access points.	◆ H[HOST-DATA]	Data record buffer host communication.	◆ H[HOST-WEB]	Host communication by commands / HTTP protocol.	◆ S / H[MP 12N-S]	S: MP 12N-S for two lifts/carousels (standalone, i.e. data flash card is plugged in).  H[MP 12N-S]: Connection to MP 12N-S for two lifts/carousels or connection to MP 12N-S for two lifts/carousels with multiple access points.  In the description, H[MP 100D] also stands for H[MP 12N-S].
Options / description											
◆ S / H [MP 100D]	S: MP 12N-S for one lift/carousel (standalone, i.e. data flash card is plugged in).  H[MP 100D]: Connection to MP 100D or connection to MP 12N-S for one lift/carousel with multiple access points.										
◆ H[HOST-DATA]	Data record buffer host communication.										
◆ H[HOST-WEB]	Host communication by commands / HTTP protocol.										
◆ S / H[MP 12N-S]	S: MP 12N-S for two lifts/carousels (standalone, i.e. data flash card is plugged in).  H[MP 12N-S]: Connection to MP 12N-S for two lifts/carousels or connection to MP 12N-S for two lifts/carousels with multiple access points.  In the description, H[MP 100D] also stands for H[MP 12N-S].										

## 2 Initialisation

### 2.7 Storage management packet (only for MP 12N-S/H[MP 100D])



x This prompt appears only with program version MP 12N-S/H[MP 100D].

#### Description of the operator prompts

##### Set storage management packet

- Press the [↵] key.

#### Display

```

INITIALISATION MODE

STORAGE MANAGEMENT PACKET :

■ARTICLE STORAGE MANAGEMENT

[CE/↵]
    
```

#### Options

- ◆ ARTICLE STORAGE MANAGEMENT
- ◆ FILE MANAGEMENT  
(code-protected)
- ◆ TOOL STORAGE MANAGEMENT  
(code-protected)

*If file management has been selected:*

Code prompt for switch from "NO" to "YES"

- ➔ Requisition (order) number of the lift/carousel is displayed as shown on the type plate.
- Enter the code specific to the lift/carousel.  
The activation code for the supplementary module is kept in the documentation folder "Hänel Rotomat / Lean-Lift / Multi-Space Technical Documentation".
- Press the [↵] key.

```

INITIALISATION MODE

FILE MANAGEMENT : YES

COM. NO. : <Requ. no. of lift/carousel>
CODE : ■
-> DOCUMENTATION FOLDER

[CE/↵]
    
```

*If tool storage management has been selected:*

Code prompt for switch from "NO" to "YES"

- ➔ Requisition (order) number of the lift/carousel is displayed as shown on the type plate.
- Enter the code specific to the lift/carousel.  
The activation code for the supplementary module is kept in the documentation folder "Hänel Rotomat / Lean-Lift / Multi-Space Technical Documentation".
- Press the [↵] key.

```

INITIALISATION MODE

TOOL STORAGE MANAGEMENT : YES

COM. NO. : <Requ. no. of lift/carousel>
CODE : ■
-> DOCUMENTATION FOLDER

[CE/↵]
    
```

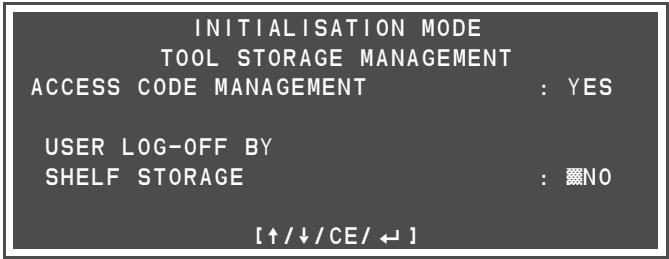
2

Initialisation

Description of the operator prompts

Display

*Only for Lean-Lift or Multi-Space:*



Description
The prompt for access authorisation does not appear again until a shelf is stored by pressing the [↑] key or if no access authorisation has been granted.

2

Initialisation

2.8

Number of access points (not with rack operation)

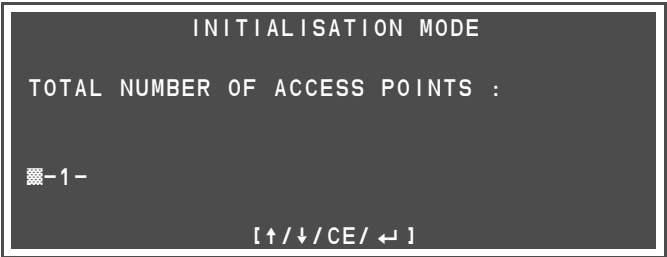


x This prompt does not appear in "Rack operation" operating mode.

Description of the operator prompts

- Set number of access points
- Press the [↑] / [↓] key to select the number of access points.
  - Press the [↵] key.

Display



Options	
◆ -1-	◆ -5- (not for Rotomat)
◆ -2-	◆ -6- (not for Rotomat)
◆ -3-	◆ -7- (not for Rotomat)
◆ -4-	◆ -8- (not for Rotomat)

## 2 Initialisation

### 2.9 Multi-unit network (not with MP 12N-H[HOST-WEB])



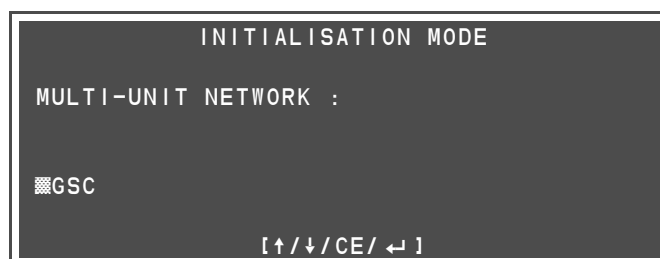
- x This prompt does not appear for the following :
- ◆ MP 12N-H[HOST-WEB]  
(each access point is triggered via Ethernet)
  - ◆ Lifts/carousels with optional feature "Camera"  
(Ethernet network is mandatory)
  - ◆ MP 12N-S with one access point  
(no network)

#### Description of the operator prompts

##### Configure networking for multi-unit network

- Press the [↑] / [↓] key to configure the networking of the multi-unit network.
- Press the [↵] key.

#### Display



#### Options / description

- ◆ GSC  
Internal Hänel interface for the multi-unit network.
- ◆ ETHERNET

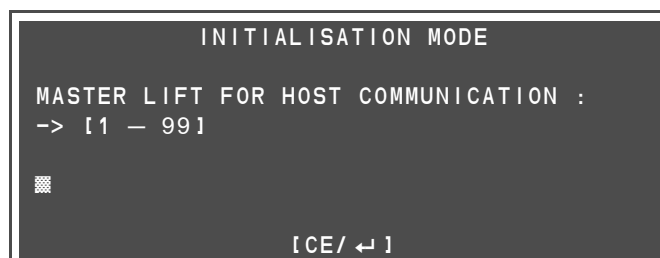
### 2.10 Master unit



- x This prompt appears only for the following :
- ◆ MP 12N-H[HOST-DATA]  
(At the master unit, the customer's FTP server is connected via Ethernet).
  - ◆ MP 12N-H[MP 12N-S] with networking of multi-unit network via Ethernet.  
(The master unit is the MP 12N-S).

##### Enter master lift for host communication

- Enter the lift/carousel number.
- Press the [↵] key.



## 2 Initialisation

### 2.11 Alternating-side requisition (only for Multi-Space with multiple access points)



- x This prompt is displayed only for Multi-Space lifts with multiple access points.
- x The alternating-side requisition always involves two access points.
- x The access points at which alternating-side requisition processing is to take place must be immediately adjacent and at the same height.

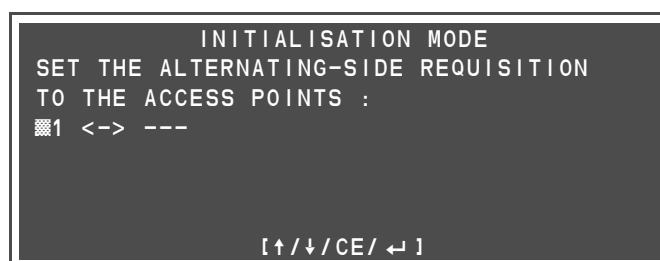
#### Description of the operator prompts

##### Set alternating-side requisition

For each access point:

- Press the [↑] / [↓] key to select the partner access point.
- Press the [↔] key.

#### Display



#### Options / description

- ◆ <n> <-> ---  
No partner access point exists for access point <n>.
- ◆ <n1> <-> <n2>  
A partner access point, <n2>, exists for access point <n2>.

### 2.12 Lift number

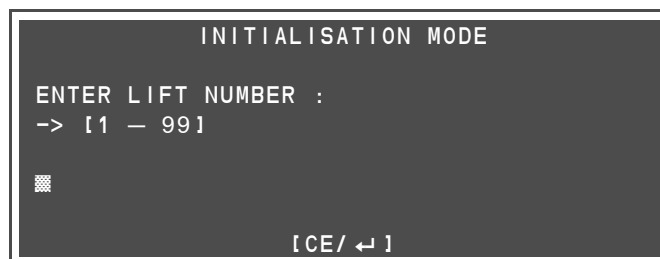
#### Description of the operator prompts

##### Set lift/carousel number

The lift/carousel can be assigned a number between 1 and 99. Each lift/carousel number may occur only once in the multi-unit network.

- Enter the lift/carousel number.
- Press the [↔] key.

#### Display





2

Initialisation

2.13

Sensor type (only for Rotomat)



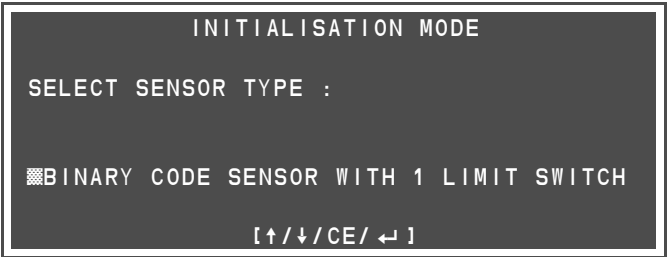
x This prompt appears in "Rotomat" operating mode only.

Description of the operator prompts

Set sensor type

- Press the [↑] / [↓] key to select the sensor type.
- Press the [↵] key.

Display



Options
◆ BINARY CODE SENSOR WITH 1 LIMIT SWITCH (old type)
◆ BINARY CODE SENSOR WITH 2 LIMIT SWITCH (old type)
◆ BINARY CODE SENSOR WITH 3 LIMIT SWITCH (old type)
◆ BINARY CODE SENSOR WITH 4 LIMIT SWITCH (old type)
◆ 1 POSITIONING SENSOR
◆ 2 POSITIONING SENSOR (only with multiple access points)
◆ RELATIVE SENSOR (1 LEVEL)
◆ RELATIVE SENSOR (2 LEVELS)
◆ RELATIVE SENSOR (3 LEVELS)
◆ RELATIVE SENSOR (4 LEVELS)

2

Initialisation

2.14

Compartment display (not with rack operation)



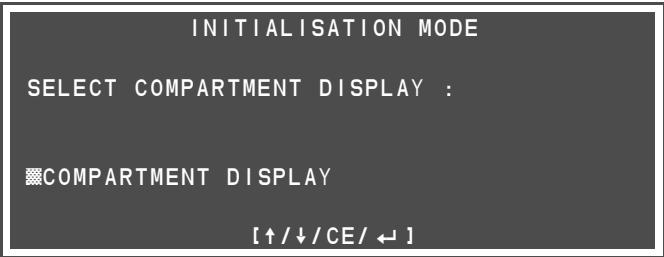
x This prompt does not appear in "Rack operation" operating mode.

Description of the operator prompts

Set compartment display

- Press the [↑] / [↓] key to select the compartment display.
- Press the [↵] key.

Display



Options	Compartments	Compartment depths
◆ COMPARTMENT DISPLAY <ul style="list-style-type: none"><li>– Without compartment display distributor</li><li>– With compartment display distributor</li></ul>	1 - 79  1 - 239	
◆ COMPARTMENT DEPTH DISPLAY	1 - 99	1 - 9
◆ COMPARTMENT DEPTH DISPLAY TYPE 2 (Container width display)	1 - 99	1 - 9
◆ COMPARTMENT DEPTH DISPLAY TYPE 3 (Container width display)	1 - 99	1 - 99
◆ ---	1 - 255	1 - 99

2

Initialisation

2.15

Lift data

Description of the operator prompts	Display										
<div>Enter lift/carousel data</div> <p>You must not exceed the maximum values when entering these lift/carousel-specific data.</p> <ul style="list-style-type: none"><li>• Enter the number of carriers.</li><li>• Press the [↵] key.</li><li>• Enter the number of compartments.</li><li>• Press the [↵] key.</li><li>• Enter the number of compartment depths.</li><li>• Press the [↵] key.</li></ul> <p>➔ If invalid figures are entered, an error message is displayed and the input must be repeated.</p>	<div><div>INITIALISATION MODE ENTER LIFT DATA  NO. OF CARRIERS 1) : ■ NO. OF COMPARTMENTS : NO. OF COMPARTMENT DEPTHS :  [CE/↵]</div><div><p>1) Prompt not applicable to Lean-Lift or Multi-Space. For rack operation, the prompt is "NUMBER OF SHELF LEVELS".</p><table><tr><th>Parameters</th><th>Area</th></tr><tr><td>CARRIERS (Rotomat)</td><td>1 - 64</td></tr><tr><td>SHELVES (Lean-Lift)</td><td>1 - 254</td></tr><tr><td>SHELVES (Multi-Space)</td><td>1 - 999</td></tr><tr><td>SHELF LEVELS (rack operation)</td><td>1 - 254</td></tr></table></div></div>	Parameters	Area	CARRIERS (Rotomat)	1 - 64	SHELVES (Lean-Lift)	1 - 254	SHELVES (Multi-Space)	1 - 999	SHELF LEVELS (rack operation)	1 - 254
Parameters	Area										
CARRIERS (Rotomat)	1 - 64										
SHELVES (Lean-Lift)	1 - 254										
SHELVES (Multi-Space)	1 - 999										
SHELF LEVELS (rack operation)	1 - 254										

## 2 Initialisation

### 2.16 Load imbalance indicator (only with Rotomat)



- x These prompts appear only in "Rotomat" operating mode, and only if the optional electrical equipment "Load imbalance indicator" is present.

In a Rotomat, a load that is not evenly distributed with regard to the weight of the load capacity causes great load fluctuations.

An unevenly distributed load is called a load imbalance. The load fluctuations caused by load imbalances can lead to an impermissible operating state and increased wear of the Rotomat.

The load imbalance indicator informs the operator of the current imbalance situation of the lift/carousel and makes storage or removal recommendations to reduce the imbalance.

The load imbalance indicator determines a storage recommendation. This storage recommendation is considered during automatic storage location assignment when a storage location is created.

#### Description of the operator prompts

##### Disable load imbalance indicator

- Press the [↵] key.

*If the MP 12D CPU I ROTOMAT board with equipped load imbalance indicator has to be used without the load imbalance indicator function (true for replacement parts only):*

- Press the [↑] / [↓] key to select "YES".
- Press the [↵] key.

*If "YES" has been selected.*

- Enter password (service password).
- Press the [↵] key.

#### Display

```
INITIALISATION MODE

DISABLE LOAD IMBALANCE INDICATOR :

■ NO

[↑/↓/CE/↵]
```

```
INITIALISATION MODE

DISABLE LOAD IMBALANCE INDICATOR :

YES
ENTER PASSWORD : ■

[CE/↵]
```

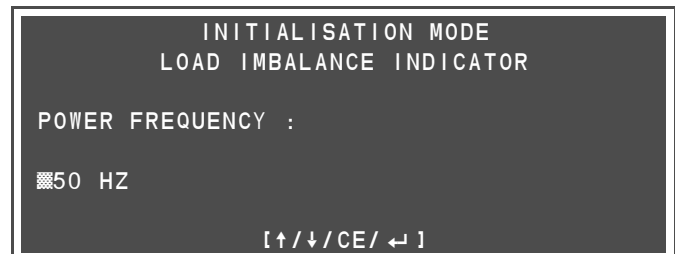
## 2 Initialisation

### Description of the operator prompts

#### Set power frequency

- Press the [↑] / [↓] key to select the power frequency.
- Press the [↵] key.

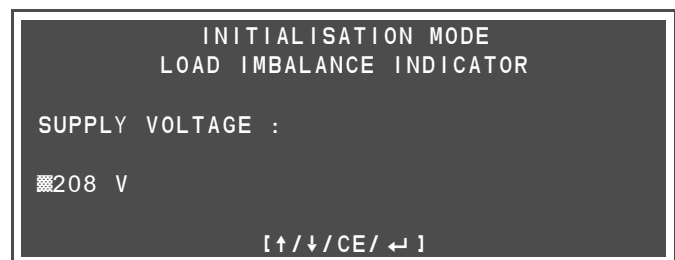
### Display



Options	Description
◆ 50 Hz	The configured power frequency must match the value of the local mains power supply.
◆ 60 Hz	

#### Set supply voltage

- Press the [↑] / [↓] key to select the supply voltage.
- Press the [↵] key.



Options	Description
◆ 208 V	The configured supply voltage must match the value of the local mains power supply.
◆ 230 V	
◆ 400 V	
◆ 480 V	

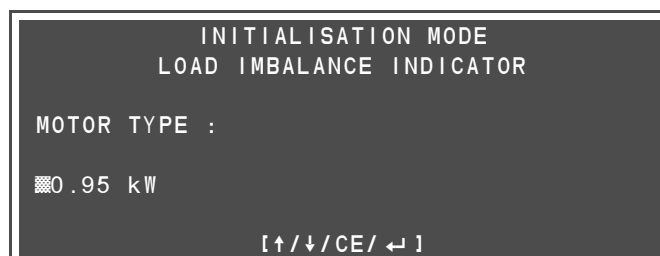
## 2 Initialisation

### Description of the operator prompts

#### Set motor type

- Press the [↑] / [↓] key to select the motor type.
- Press the [←] key.

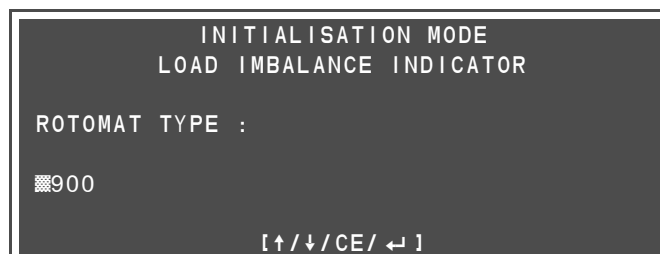
### Display



Options	Description
◆ 0.95 kW	The value for the setting must match the specifications on the motor's type plate. For pole-changing motors (two-speed motors), use the number that follows the slash.
◆ 1.1 kW	
◆ 1.3 kW	
◆ 1.5 kW	
◆ 1.6 kW	
◆ 2.2 kW	

#### Set the Rotomat type

- Press the [↑] / [↓] key to select the Rotomat type.
- Press the [←] key.



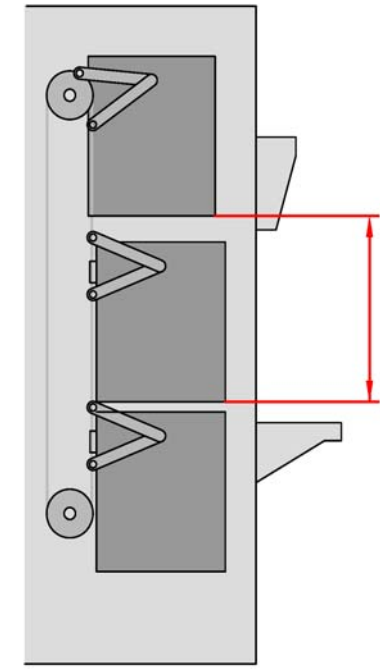
Options	Description
◆ 900	The correct Rotomat type is found on the carousel's type plate or in the corresponding order confirmation.
◆ 936	
◆ 946	
◆ 950	
◆ 956	
◆ 970	
◆ 980	
◆ 985	
◆ 990	
◆ 995	
◆ 300 to 800	

### 2 Initialisation

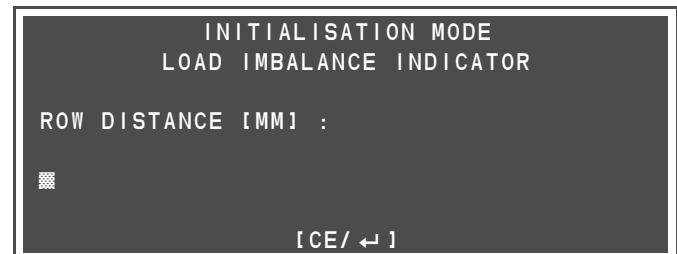
#### Description of the operator prompts

##### Enter row distance

- Enter the distance between two carriers (refer to sketch).
- Press the [↵] key.



#### Display



#### Description

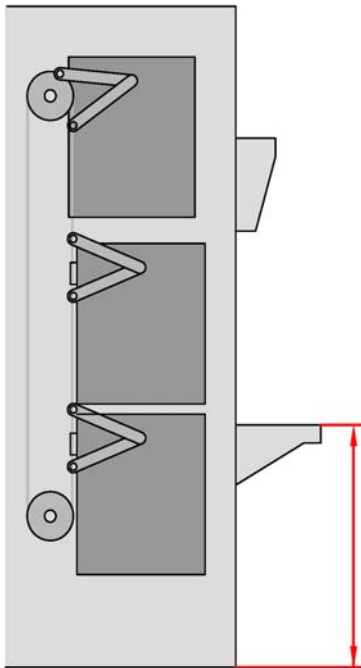
Enter the row distance between two consecutive carriers here. You can take the measurement from the corresponding order confirmation or measure it yourself on the carousel.

## 2 Initialisation

### Description of the operator prompts

Enter distance between worktop - footprint of the carousel

- Enter the distance between worktop and footprint of the carousel (refer to sketch).
- Press the [↵] key.



### Display

```
INITIALISATION MODE
LOAD IMBALANCE INDICATOR

WORK TOP [MM] :

█

[CE/↵]
```

### Description

Enter the distance between the worktop (access point 1) and the footprint of the carousel here. You can take the distance from the corresponding order confirmation or measure it yourself on the carousel.

### Format imbalance

- Press the [↑] / [↓] key to select "YES" or "NO".
- Press the [↵] key.

```
INITIALISATION MODE
LOAD IMBALANCE INDICATOR

FORMAT IMBALANCE :

█YES

[↑/↓/CE/↵]
```

### Description

The formatting resets all power values in the memory to default values. An initialisation run in both run directions is also required after each formatting.

- For information on the initialisation run, refer to the User Guide for the Microprocessor Control System MP 12N Rotomat.



## 2 Initialisation

### 2.17 Lift run only with door closed (not for Multi-Space or rack operation)



x This prompt does not appear in the "Multi-Space" or "Rack operation" operating mode.

#### Description of the operator prompts

Initialise the optional electrical equipment "Lift run only with door closed"

- Press the [↑] / [↓] key to select "YES" or "NO".
- Press the [←] key.

#### Display

```

INITIALISATION MODE
OPTIONAL ELECTRICAL EQUIPMENT

LIFT RUN ONLY WITH CLOSED
DOOR :

NO

[↑/↓/CE/←]
```



x The following prompt appears only on Rotomat systems having the optional electrical equipment "Lift run only with closed door".

Initialise individual compartment doors

- Press the [↑] / [↓] key to select "YES" or "NO".
- Press the [←] key.

```

INITIALISATION MODE
OPTIONAL ELECTRICAL EQUIPMENT

INDIVIDUAL COMPARTMENT DOORS
PRESENT :

NO

[↑/↓/CE/←]
```

#### Description

The compartment display is triggered after the carousel run, since door locking is triggered simultaneously with the compartment display.

The operator prompting and unlocking only work if the door position switches are working properly.

"COMPARTMENT DEPTH DISPLAY TYPE 2" or "COMPARTMENT DEPTH DISPLAY TYPE 3" must be set as the compartment displays.

The locking magnets for the individual compartment doors are activated after the lift/carousel run via the relay card, in the same way as the compartment display.

Manual shelf selection on sight ([↑] / [↓] keys) is not possible with individual compartment doors.

2

Initialisation

2.18

Second safety circuit (not for Multi-Space with multiple access points or rack operation)



x This prompt does not appear in the "Multi-Space" operating mode with multiple access points or in "Rack operation".

Description of the operator prompts	Display
<p>Initialise the optional electrical equipment "Second safety circuit"</p> <ul style="list-style-type: none"><li>Press the [↑] / [↓] key to select "YES" or "NO".</li><li>Press the [↵] key.</li></ul>	<div><div>INITIALISATION MODE OPTIONAL ELECTRICAL EQUIPMENT  SECOND SAFETY CIRCUIT :   NO  [↑/↓/CE/↵]</div></div>

2.19

Safety circuit monitors

Description of the operator prompts	Display
<p>Initialise safety circuit monitors</p> <ul style="list-style-type: none"><li>Press the [↑] / [↓] key to select "YES" or "NO".</li><li>Press the [↵] key.</li></ul>	<div><div>INITIALISATION MODE MP 12D/N CPU 1  SAFETY MONITORS TERMINALS 810-816 :   NO  [↑/↓/CE/↵]</div><div><div>Description</div><div>With the MP 12 D/N CPU I board, the "Emergency stop" safety circuit switches, the service door switches and the run contactors can be monitored using terminals 810 to 816.  The safety circuit monitors must be replaced if the electrical wiring is not equipped with these monitoring devices (for example, when the MP 12 D CPU I board is replaced).  Otherwise, the safety circuit monitors must be activated.</div></div></div>

2

Initialisation

2.20

Main switch with undervoltage trip (only for Lean-Lift)

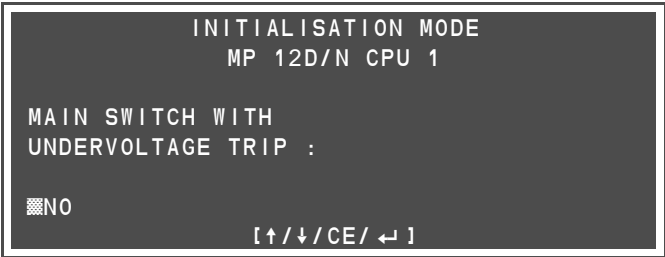


x This prompt does not appear in "Lean-Lift" operating mode.

Description of the operator prompts

- Initialise main switch with undervoltage trip
- Press the [↑] / [↓] key to select "YES" if the main switch of the lift/carousel is equipped with undervoltage trip.
  - Press the [←] key.

Display



Description
If the power supply of the lifts/carousels is interrupted by opening a service door, an error message appears if the undervoltage trip is faulty and the service door is open.

## 2 Initialisation

### 2.21 Safety light curtain (not for Multi-Space or rack operation)



x This prompt does not appear in the "Multi-Space" or "Rack operation" operating mode.

#### Description of the operator prompts

##### Initialise safety light curtain

- Press the [↑] / [↓] key to select "YES" if the safety light curtain is present at the access point.
- Press the [←] key.

- Press the [↑] / [↓] key to select "YES" or "NO".
- Press the [←] key.

#### Display

```
INITIALISATION MODE  
  
SAFETY LIGHT CURTAIN : NO  
  
[↑/↓/CE/←]
```

```
INITIALISATION MODE  
  
SAFETY LIGHT CURTAIN : YES  
  
AT ACCESS POINT <Access point no.> : NO  
  
[↑/↓/←]
```

2


Initialisation

2.22

Start and stop time (only for Rotomat)



x This prompt appears in "Rotomat" operating mode only.

Description of the operator prompts	Display			
<p>Set start and stop time</p> <ul style="list-style-type: none"><li>• Enter the start time.</li><li>• Press the [↵] key.</li><li>• Enter the stop time.</li><li>• Press the [↵] key.</li></ul>	<div><p>INITIALISATION MODE</p><p>ENTER START TIME : </p><p>-&gt; [ 1 — 25 ]</p><p>ENTER STOP TIME :</p><p>-&gt; [ 0 — 25 ]</p><p>[CE/↵]</p></div> <table><tr><th>Parameters / description</th></tr><tr><td><p>START TIME</p><p>When the Rotomat is started up the motor starts slowly and then switches to a higher speed. The start time is the duration of the low-speed phase.</p></td></tr><tr><td><p>STOP TIME</p><p>Before a selected shelf position is reached, the motor is switched to a low speed The carousel brings the storage location into position slowly. The deceleration time, or stop time as it is called, begins exactly one carrier distance before the selected shelf position. At the end of the stop time, the motor switches to slow speed.</p></td></tr></table>	Parameters / description	<p>START TIME</p> <p>When the Rotomat is started up the motor starts slowly and then switches to a higher speed. The start time is the duration of the low-speed phase.</p>	<p>STOP TIME</p> <p>Before a selected shelf position is reached, the motor is switched to a low speed The carousel brings the storage location into position slowly. The deceleration time, or stop time as it is called, begins exactly one carrier distance before the selected shelf position. At the end of the stop time, the motor switches to slow speed.</p>
Parameters / description				
<p>START TIME</p> <p>When the Rotomat is started up the motor starts slowly and then switches to a higher speed. The start time is the duration of the low-speed phase.</p>				
<p>STOP TIME</p> <p>Before a selected shelf position is reached, the motor is switched to a low speed The carousel brings the storage location into position slowly. The deceleration time, or stop time as it is called, begins exactly one carrier distance before the selected shelf position. At the end of the stop time, the motor switches to slow speed.</p>				

## 2 Initialisation

### 2.23 MP 12 EXT board

#### Description of the operator prompts

##### Initialising the MP 12 EXT board

The MP12 EXT boards can be used to control other access points or supplementary features.

- Press the [↑] / [↓] key to select "YES" if the MP 12 EXT board is present.
- Press the [←] key.

#### Display

```

INITIALISATION MODE
MP 12D/N CPU I

IS THE MP12 EXT BOARD (S0819XX)
PRESENT :

[ ] NO

[↑/↓/CE/←]
```



- x The following prompt appears only for the Lean-Lift and only if the MP12 EXT board is present.

- Press the [↑] / [↓] key to select "YES" if the connections of access point 1 are located at an additional MP 12 EXT board.
- Press the [←] key.

```

INITIALISATION MODE
MP 12 EXT

IF ACCESS POINT 1 CONNECTIONS ARE
CONNECTED TO AUXILIARY BOARD
MP12 EXT :

[ ] NO

[↑/↓/CE/←]
```

#### Description

Select "YES" if the connections of access point 1 (compartment displays, access point proximity switches, article height detection, MP 12N CPU II) are not connected to the MP 12D/N CPU I, but to an auxiliary MP 12 EXT board.

This is the case in the following instances:

- Lift/carousel version with position of access point 1 in special height.
- Narrow lifts/carousels in which, for space reasons, parts of the electrical equipment are in an additional access point tray.

## 2 Initialisation

### 2.24 Error messages due to interruption of the safety circuit (not with rack operation)



x This prompt does not appear in "Rack operation" operating mode.

Safety-related operating states are monitored in a HÄNEL lift/carousel by a safety circuit and are shown on the display.

If one of these safety switches is triggered, the lift/carousel is stopped. The control system establishes which safety switch has been triggered by means of signal inputs at terminal 7 <nn> and displays the error message assigned to it.

Consequently, the signal inputs must have the correct error message texts assigned to them. The assignment of signal inputs terminal 7 <nn> to the designation of the respective safety switches is shown in the drawing "Control component circuit diagram" in the lift/carousel documentation.

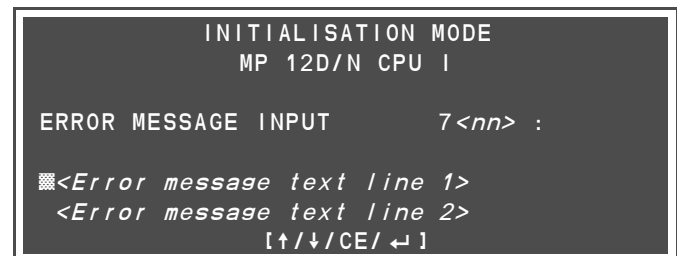
#### Description of the operator prompts

Select error messages following interruption of the safety circuit

For each prompt:

- Press the [↑] / [↓] key to select an error message text (see drawing "Control component circuit diagram" in the lift/carousel documentation).
- Press the [←] key.

#### Display



<nn> = 01 -12 / 18 for terminal 701- 712 / 718

For the Lean-Lift and Multi-Space, the MP 12D/N CPU I has terminals 701 to 718 as signal inputs. For the Rotomat, it is terminals 701 to 712.

### 2 Initialisation



- ✗ The following prompt appears only if there is more than one access point and if the MP 12 EXT board is present.

The MP 12 EXT (board S8-19) has terminals 701 to 706 as signal inputs.

Consequently, the signal inputs must have the correct error message texts assigned to them. The assignment of signal inputs terminal 7<nn> to the designation of the respective safety switches is shown in the drawing "Control component circuit diagram" in the lift/carousel documentation.

#### Description of the operator prompts

For each prompt:

- Press the [↑] / [↓] key to select an error message text (see drawing "Control component circuit diagram" in the lift/carousel documentation).
- Press the [←] key.

#### Display

```
INITIALISATION MODE
MP 12 EXT

ERROR MESSAGE INPUT      7<nn> :

■<Error message text line 1>
  <Error message text line 2>
                        [↑/↓/CE/←]
```

<nn>= 01 - 06 for terminals 701 - 706



## 2 Initialisation

### 2.25 Format shelf memory (only for Lean-Lift and Multi-Space)



- x This prompt appears only in the "Lean-Lift" and "Multi-Space" operating modes.
- x Formatting of the shelf memory is mandatory when a Lean-Lift or Multi-Space is first put into service.
- x In the positioning, after the shelf memory has been formatted, all the shelves still in the lift can be read in using the "READ IN SHELF POSITIONS" function. Shelf numbers are assigned to the shelves in the order in which they are read in.
- x The shelf numbers can be assigned by the user using the service function "CHECK SHELF POSITIONS".



#### CAUTION! Danger of loss of data!

It is absolutely necessary to read out the shelf data to an external computer and back them up before the shelf memory is formatted.

#### Description of the operator prompts

##### Format shelf memory

- Press the [↑] / [↓] key to select "YES".
- Press the [↵] key.

- Enter password.
- Press the [↵] key.
- Press the [↑] / [↓] key to select the millimetres for the slot increment unit.
- Press the [↵] key.

#### Display

```

INITIALISATION MODE

FORMAT SHELF MEMORY ?
CAUTION - LOSS OF SHELF DATA !
■ NO

SLOT INCREMENT          [MM]: 75/90/125
                        [↑/↓/CE/↵]
    
```

```

INITIALISATION MODE

FORMAT SHELF MEMORY
CAUTION - LOSS OF SHELF DATA !
ENTER PASSWORD          : ■

SLOT INCREMENT          [MM]: 75/90/125
                        [↑/↓/CE/↵]
    
```

#### Options

- ◆ 75/90/125
- ◆ 37.5
- ◆ 25

2

Initialisation

2.26

Inventory control (only for MP 12N-S/H[MP 100D])



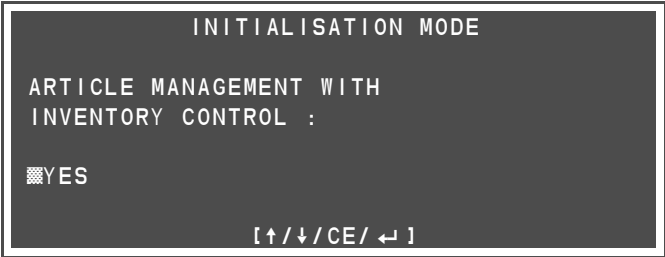
- x This prompt appears only with program version MP 12N-S/H[MP 100D].
- x This prompt does not appear with the "File management" storage management packet.
- x This prompt does not appear with the "Tool storage management" storage management packet.

Description of the operator prompts

Set article management with inventory control

- Press the [↑] / [↓] key to select "YES" or "NO".
- Press the [←] key.

Display



Description
If "Article management with inventory control" is set, a quantity is requested when articles are stored or retrieved, and the current inventory is stored in memory.

## 2 Initialisation

### 2.27 Storage location management (only for MP 12N-S/H[MP 100D])



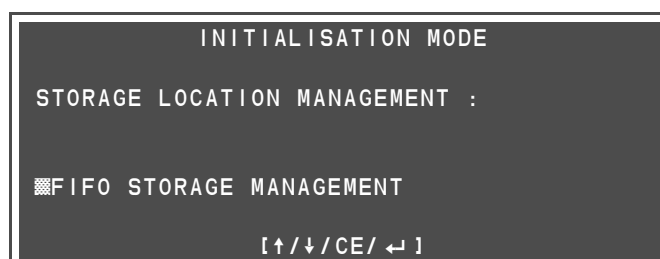
- x This prompt appears only with program version MP 12N-S/H[MP 100D].
- x This prompt does not appear with the "File management" storage management packet.
- x This prompt does not appear with the "Tool storage management" storage management packet.

#### Description of the operator prompts

##### Select storage location management

- Press the [↑] / [↓] key to select storage location management.
- Press the [←] key.

#### Display



#### Options / description

##### ◆ FIFO STORAGE MANAGEMENT

If an article is stored in multiple locations (termed a storage location chain) retrievals are always made from the oldest storage location and incoming goods always stored in the newest one. When inventory control is initialised, storage locations arranged in a chain can also be automatically deleted with the function key [←] when a retrieval operation leaves "0" inventory in this location and there is still another storage location containing articles.

##### ◆ FIFO WITH RESTORE FUNCTION

Multiple storage locations are created for an article. At one location the entire package for this article was removed and the storage location automatically deleted. If the user does not require all the items in the removed package, the remaining items can be re-stored by creating a new storage location. The newly created storage location is marked as the oldest location by the re-store function. When the next retrieval operation is carried out, the system automatically accesses the opened package stored here.

##### ◆ RANDOM ACCESS STORAGE

When a storage location chain has been set up, locations for storage and retrieval operations can be freely selected. Storage locations in a chain that have zero inventory can only be deleted with the function key [←U].

## 2 Initialisation

### 2.28 Ending initialisation

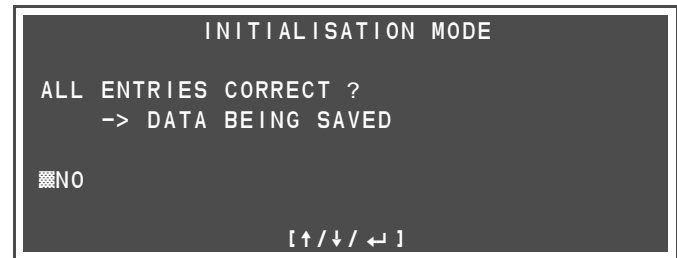
#### Description of the operator prompts

##### Ending initialisation

- Press the [↑] / [↓] key to select "YES".
- Press the [↵] key.
- Initialisation data are saved.

- Switch off the lift/carousel.

#### Display



## 2 Initialisation

### 2.29 Initialisation of other access points

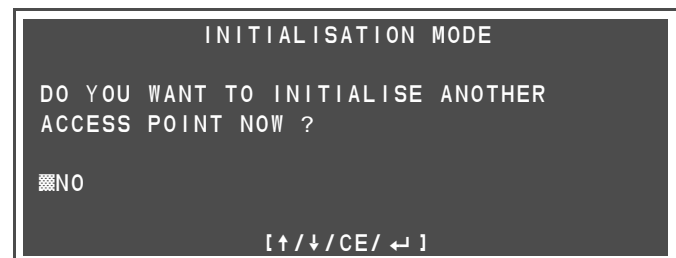
#### Description of the operator prompts

- Enable initialisation mode at access point 1 and answer prompts until the following display appears. Refer also to Chapter 2.3 on page 16.

#### Start initialisation of other access points

- Press the [↑] / [↓] key to select "YES".
- Press the [←] key.

#### Display



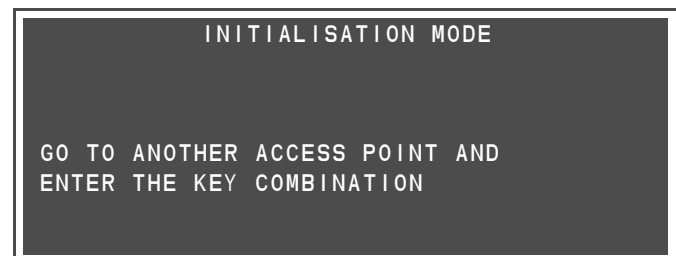
#### 2.29.1 Initialise other access points for the Lean-Lift

#### Description of the operator prompts

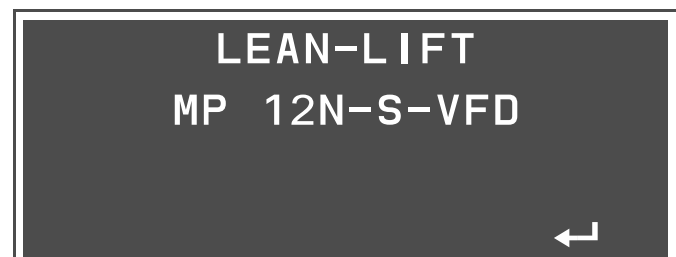
#### Initialise other access point for the Lean-Lift

- Go to the other access point.

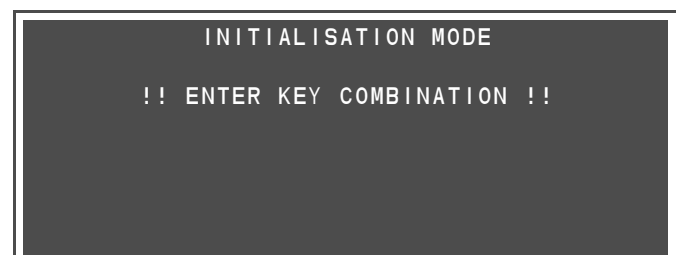
#### Display



- Press the [←] key.
- ✗ The display text may vary depending on the configuration.



- Press the following keys:



### 2 Initialisation

#### Description of the operator prompts

→ The complete settings are transferred from access point 1 to the other access point.

- Enter the access point number.
- Press the [↵] key.

- Press the [↑] / [↓] key to select "YES" if the access point is at the rear.  
The front side is the side where access point 1 is located. The rear side is the opposite side.
- Press the [↵] key.

- The carrier number of the access point is displayed.
- Press the [↑] / [↓] key to select "YES" if you want to change the settings.
- Press the [↵] key.

- Press the [↑] / [↓] key to move the extractor onto the access carrier.
- Press the [↵] key.
  - <x> = "F" for access point on the front side
  - <x> = "R" for access point on the rear side
  - <aaa> = carrier number
  - <ppp> = position value

→ The accessed carrier number is accepted.

#### Display

```
INITIALISATION MODE

PLEASE WAIT
```

```
INITIALISATION MODE

ACCESS POINT NUMBER      [2-8] : █

[CE/↵]
```

```
INITIALISATION MODE

ACCESS POINT NUMBER      [2-8] : <n>
ACCESS POINT AT REAR     : █NO

[↑/↓/CE/↵]
```

```
INITIALISATION MODE

ACCESS POINT NUMBER      [2-8] : <n>
ACCESS POINT AT REAR     : NO
CARRIER NUMBER AT ACCESS POINT : <a>

CHANGE SETTING          : █NO

[↑/↓/↵]
```

```
INITIALISATION MODE
LEAN-LIFT POSITIONING SYSTEM

CARRIER NUMBER AT ACCESS POINT : <a>
[POSITIONING WITH ↑↓]

-> ↑/↓/↵/CE/F1 <x>:<aaa>:<ppp>
```

## 2 Initialisation

### Description of the operator prompts



- Press the [↑] / [↓] key to select "YES".
  - Press the [↵] key.
- ➔ The data are saved. The other access point has been initialised.

*If you want to initialise the other access point:*

- Go to the other access point.
- Repeat the above steps, beginning with entering the key combination.

*If you do not want to initialise another access point:*

- Switch off the lift/carousel.

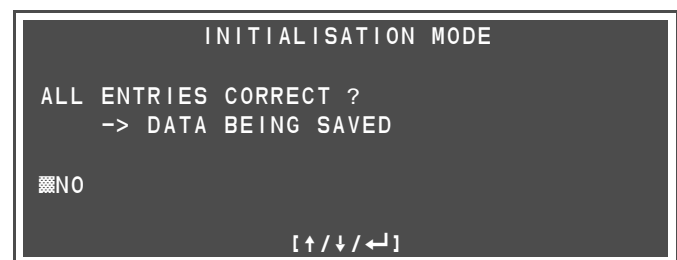
### Display

Note on optional electrical equipment "Lift run only with door closed"

- x Since a carousel can only run when the sliding door is closed, the sliding door must be closed during the initialisation.
- x The [F1] key can be used to open the door in order to check the positioning.

Note on optional electrical equipment "High-speed door":

- x Since a vertical lift/carousel run is possible only when the high-speed door is closed, the high-speed door must be closed during initialisation.
- x The [F1] key can be used to open and close the high-speed door in order to check the positioning.



### 2 Initialisation

#### 2.29.2 Initialise other access points for the Multi-Space

##### Description of the operator prompts

##### Initialise other access point for the Multi-Space

- Go to the other access point.

- Press the [↵] key.
- x The display text may vary depending on the configuration.

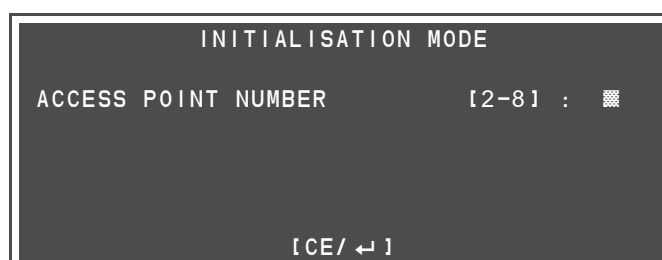
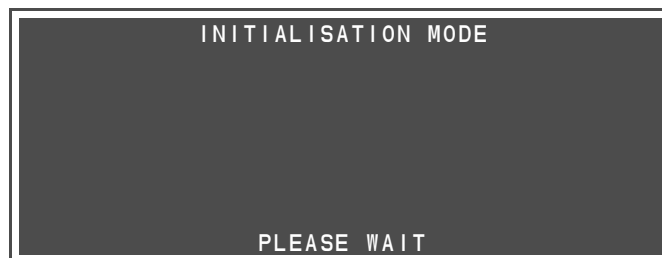
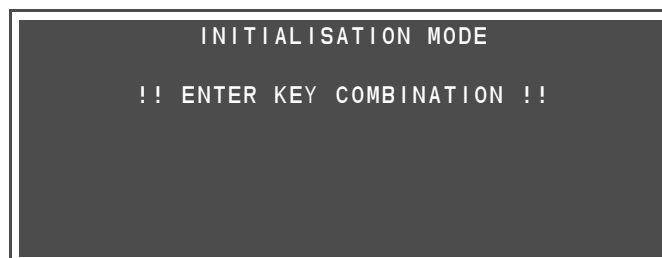
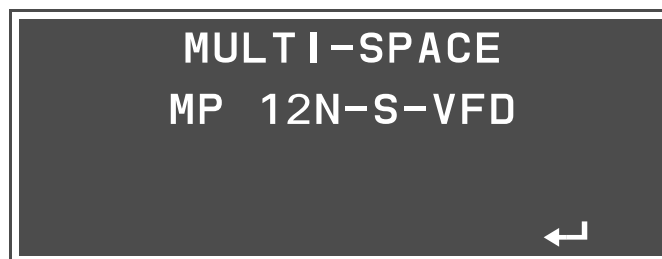
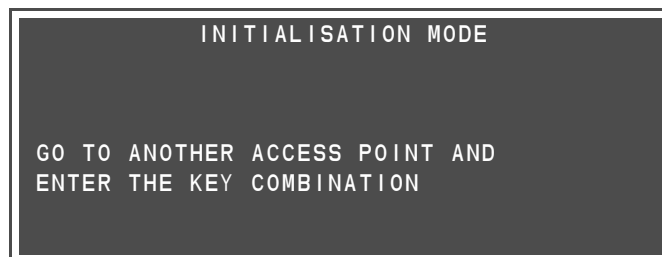
- Press the following keys:



- ➔ The complete settings are transferred from access point 1 to the other access point.

- Enter the access point number.
- Press the [↵] key.

##### Display





## 2 Initialisation

### Description of the operator prompts

- Press the **[↑] / [↓]** key to select "YES" if the access point is at the rear.

The front side is the side where access point 1 is located. The rear side is the opposite side.

- Press the **[←] / [→]** key.

### Display

```

INITIALISATION MODE

ACCESS POINT NUMBER      [2-8] : <n>
ACCESS POINT AT REAR    : ☐ NO

[↑/↓/CE/←/→]
    
```

- The number of the lift/carousel unit *<e>* and carrier number of the access point *<a>* are displayed.
- Press the **[↑] / [↓]** key to select "YES" if you want to change the settings.
- Press the **[←] / [→]** key.

```

INITIALISATION MODE

ACCESS POINT NUMBER      [2-8] : <n>
ACCESS POINT AT REAR    : NO
LIFT UNIT NO. AT ACCESS POINT : <e>
CARRIER NUMBER AT ACCESS POINT : <a>
CHANGE SETTING          : ☐ NO

[↑/↓/←/→]
    
```

- Press the **[↑] / [↓]** key to move the extractor vertically onto the access carrier.
- Press the **[+] / [-]** key to move the extractor horizontally onto the access carrier.
- Press the **[←] / [→]** key.
  - <x>* = "F" for access point on the front side
  - <x>* = "R" for access point on the rear side
  - <aaa>* = carrier number
  - <ppp>* = position value

- The accessed carrier number is accepted.

```

INITIALISATION MODE
MULTI-SPACE POSITIONING SYSTEM

CARRIER NUMBER AT ACCESS POINT : <a>

↑/↓/+/−/←/→/CE/F1 <x>:<aaa>:<ppp> H:<hhh>
    
```

- Press the **[↑] / [↓]** key to select "YES".
- Press the **[←] / [→]** key.
- The data are saved. The other access point has been initialised.

```

INITIALISATION MODE

ALL ENTRIES CORRECT ?
-> DATA BEING SAVED

☐ NO

[↑/↓/←/→]
    
```

*If you want to initialise the other access point:*

- Go to the other access point.
- Repeat the above steps, beginning with entering the key combination.

*If you do not want to initialise another access point:*

- Switch off the lift/carousel.

```

INITIALISATION MODE

GO TO ANOTHER ACCESS POINT OR
SWITCH LIFT OFF AND ON AGAIN !
    
```

### 2 Initialisation

#### 2.29.3 Initialise other access points for the Rotomat

##### Description of the operator prompts

##### Initialise other access point for the Rotomat

- Close the door.
- Go to the other access point.

- Press the [↵] key.
- x The display text may vary depending on the configuration.

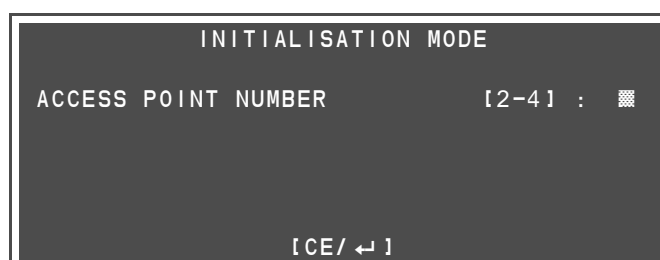
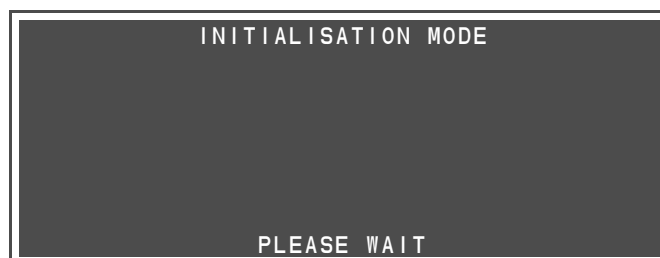
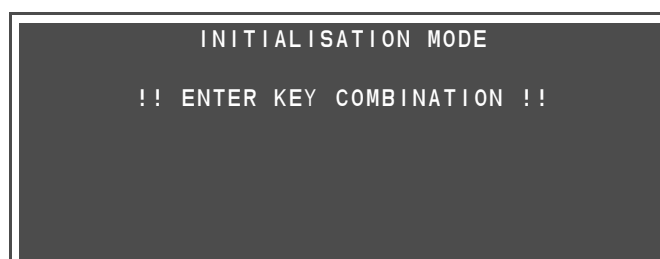
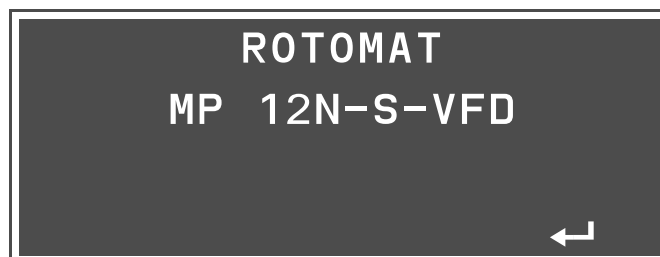
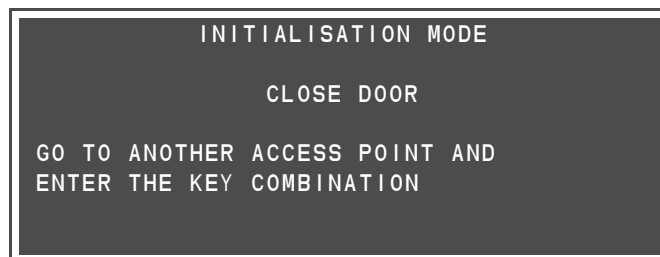
- Press the following keys:



- ➔ The complete settings are transferred from access point 1 to the other access point.

- Enter the access point number.
- Press the [↵] key.

##### Display



## 2 Initialisation

### Description of the operator prompts

- Press the **[↑] / [↓]** key to select "YES" if the access point is at the rear.  
The front side is the side where access point 1 is located. The rear side is the opposite side.
- Press the **[←]** key.



- Enter carrier displacement **<t>**.  
The carrier displacement is entered as a whole number denoting carriers (not shelf levels) and is always counted upwards from access point 1 to the next access point.
- Press the **[←]** key.



- Press the **[↑] / [↓]** key to select "YES".
- Press the **[←]** key.

- Press the **[↑] / [↓]** key to position the level.
  - Press the **[←]** key.
- ➔ The displayed position data, consisting of the carrier number **<xxx>** and position value **<yyy>** (should be greater than 5), are assigned to the level and saved.

### Display

```

INITIALISATION MODE

ACCESS POINT NUMBER      [2-4] : <n>
ACCESS POINT AT REAR    : ☐ NO

[↑/↓/CE/←]
```

- x This prompt is displayed only for any of the following:
  - 1 positioning sensor
  - Relative sensor
  - Binary code sensor

```

INITIALISATION MODE

ACCESS POINT NUMBER      [2-4] : <n>
ACCESS POINT AT REAR    : NO
CARRIER DISPLACEMENT  : ☐ <t>
-> [ACCESS 1 -> ACCESS X]

[CE/←]
```

- x The following prompt appears only with 2 positioning sensors.

```

INITIALISATION MODE

ACCESS POINT NUMBER      [2-4] : <n>
ACCESS POINT AT REAR    : NO
SET ACCESS DISPLACEMENT : ☐ NO

[↑/↓/CE/←]
```

```

INITIALISATION MODE
POSITIONING SYSTEM ROTOMAT

LEVEL POSITIONING      : 1

POSITION LEVEL WITH ↑/↓

↑/↓/←/F1          <xxx> : <yyy>
```

### 2 Initialisation

#### Description of the operator prompts



- Press the [↑] / [↓] key to select "YES".
- Press the [←] key.

*If you want to initialise the other access point:*

- Go to the other access point.
- Repeat the above steps, beginning with entering the key combination.

*If you do not want to initialise another access point:*

- Switch off the lift/carousel.
- ➔ The other access point has been initialised.

#### Display

Note on optional electrical equipment "Lift run only with door closed"

- x Since a carousel can only run when the sliding door is closed, the sliding door must be closed during the initialisation.
- x The [F1] key can be used to open the door in order to check the positioning.

```
INITIALISATION MODE

ALL ENTRIES CORRECT ?
-> DATA BEING SAVED

NO

[↑/↓/←]
```

```
INITIALISATION MODE

GO TO ANOTHER ACCESS POINT OR
SWITCH LIFT OFF AND ON AGAIN !
```

### 3 Positioning

The positioning defines all the values and settings required for the lift/carousel run functions.



- x The positioning must be started at access point 1.
- x The first initialisation of the control system must be followed by positioning of the lift/carousel.
- x Only when the lift/carousel has been correctly positioned can other access points be initialised.
- x The lift/carousel can be registered with the storage management system only after the positioning is completed.
- x The positioning must also be carried out after replacing the MP 12D/N CPU I without data transfer (EEPROM).

#### 3.1 Activate initialisation mode of the positioning system

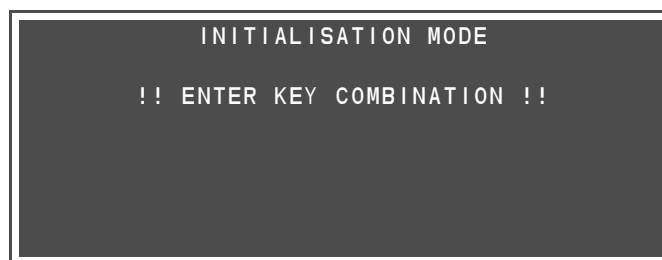
##### Description of the operator prompts

Activate initialisation mode of the positioning system

- Switch on the lift/carousel.
- Press the **[CE]** key until "Initialisation mode" is displayed.
- Press the following keys:

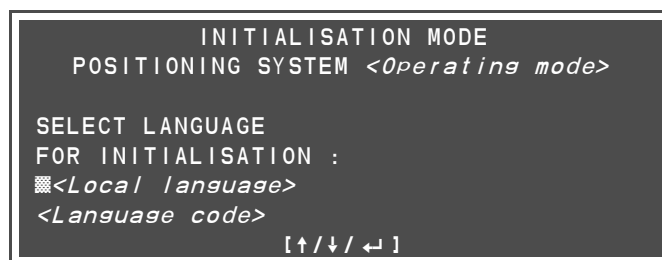


##### Display



##### Select language

- Press the **[↑] / [↓]** key to select the language for positioning system initialisation.
- Press the **[↵]** key.



The rest of the menu prompts depend on the operating mode selected in initialisation mode (see Chapter 2).

Operating mode	See Chapter	Page
LEAN-LIFT	3.2	54
MULTI-SPACE	3.3	76
ROTOMAT with positioning sensor	3.4	91
ROTOMAT with relative sensor	3.5	105
ROTOMAT with binary code sensor	3.6	107

### 3 Positioning

#### 3.2 Positioning in Lean-Lift mode

##### Description of the operator prompts

##### Select main switch type

- Press the [↑] / [↓] key to select the main switch type.
- Press the [←] key.

x For the main switch, see access point 1.

##### Display

```

INITIALISATION MODE
LEAN-LIFT POSITIONING SYSTEM

MAIN SWITCH TYPE :
■ SIEMENS MAIN SWITCH SIGN (GREEN-WHITE)
-> WITH ADDITIONAL BLOCKED CARRIER
BELOW THE ACCESS POINT
[↑/↓/←]
    
```

##### Options

- ◆ SIEMENS MAIN SWITCH SIGN (GREEN-WHITE)  
-> WITH ADDITIONAL BLOCKED CARRIER  
BELOW THE ACCESS POINT
- ◆ KRAUS & NAIMER MAIN SWITCH SIGN, YELLOW  
-> WITHOUT ADDITIONAL BLOCKED CARRIER  
BELOW THE ACCESS POINT  
(Main switch runs out)

##### Select the drive type

- Press the [↑] / [↓] key to select the drive type.
- Press the [←] key.

x For the drive type, see "Type" on the lift type plate.

```

INITIALISATION MODE
LEAN-LIFT POSITIONING SYSTEM

DRIVE TYPE :
-> SEE TYPE PLATE

■ ---
[↑/↓/←]
    
```

→ Example for option "---":

Type LEAN-LIFT      2300-825

→ Example for option "HS21":

Type LEAN-LIFT      2300-825      HS21

##### Options

◆ --- (old type plate)	◆ HS51
◆ HS21	◆ ES11
◆ HS22	◆ ES21
◆ HS23	◆ ES22
◆ HS24	◆ ES31
◆ HS31	◆ ES32
◆ HS32	◆ ES41
◆ HS33	◆ ES51

### 3 Positioning

#### Description of the operator prompts



#### Initialise incremental encoder

- Press the [↑] / [↓] key to select "YES" or "NO".
- Press the [←] key.

*If "Incremental encoder present" has been initialised to "NO":*

#### Select horizontal drive

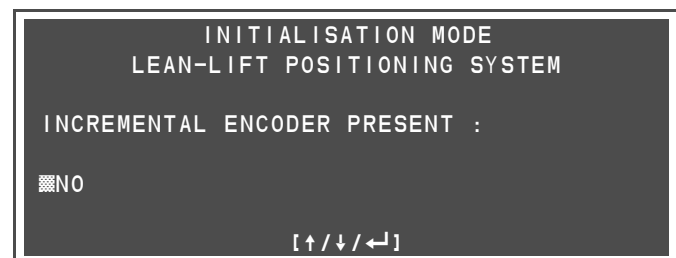
- Press the [↑] / [↓] key to select the horizontal drive.
- Press the [←] key.

x For the horizontal drive, see "Vertical/Horizontal Motor Type" on lift type plate.



#### Display

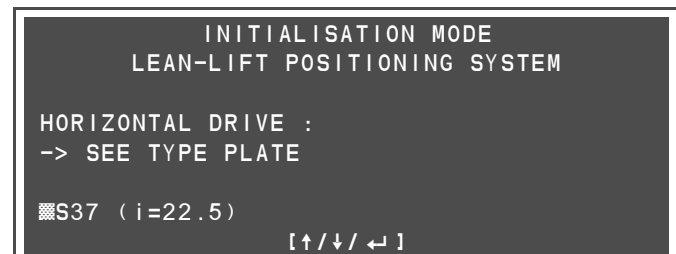
- x When the incremental encoder is activated, the horizontal drive of the extractor must be in basic position, i.e. proximity switches B10 and B11 must switch, or the "Drive extractor to home position" function must subsequently be called up.



#### Description

There are lifts that are fitted with an incremental encoder for horizontal movement.

The incremental encoder is present in lifts of the "HS" (HIGH SPEED) version or in lifts with the option "Partially redundant control" (corresponds to "Equipment for emergency operation").



#### Options

- ◆ S37 (i=22.5)
- ◆ MB2201 (i=20) / S37 (i=19...)  
"/" = or

- x If the horizontal movement is too fast, the horizontal drive "MB2201 (i=20) / S37 (i=19...)" must be selected.
- x If the horizontal movement is too slow, the horizontal drive "S37 (i=22.5)" must be selected.

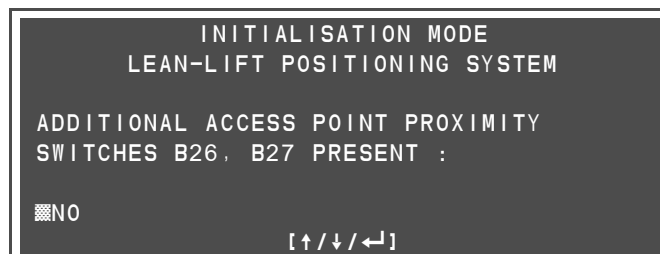
## 3 Positioning

### Description of the operator prompts

Initialise access proximity switches B26, B27

- Press the [↑] / [↓] key to select "YES" or "NO".
- Press the [←] key.

### Display



### Description

There are lifts that are fitted with additional proximity switches B26 and B27 (redundancy for B20 and B21) in the access point. This equipment provides increased availability without waiting for the service personnel.

The deactivation of a pair of proximity switches in the redundancy system means that in the event of a failure, the lift can continue to be operated without any restrictions.

The additional proximity switches B26 and B27 are present for lifts with the option "Partially redundant control" (corresponds to "Equipment for emergency operation").

### Description of the operator prompts



### Display

x The following prompt appears only with the Mitsubishi drive.

There are lifts with a frequency converter that has an RS485 interface to the control system. Thus the following functions are possible:

- ◆ Frequency converter parameters can be displayed and changed.
- ◆ Error messages of the frequency transformer can be retrieved.
- ◆ Shelves are brought to the access point in case of overload.
- ◆ Reference values of the lift load can be determined.



## 3 Positioning

### Description of the operator prompts

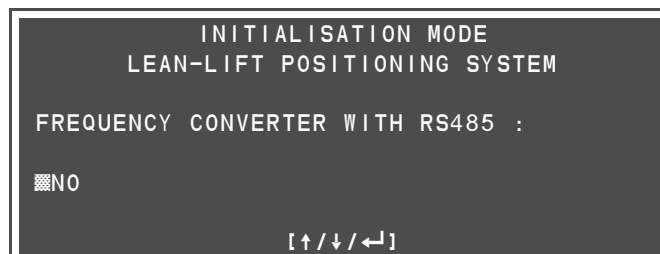
#### Frequency converter with RS485 connection

- Press the [↑] / [↓] key to select the frequency converter connection.
- Press the [↵] key.

→ If "YES [...]" is selected, the RS485 connection is tested.

In case of an error, the error message "SYSTEM ERROR RS485" is displayed.

### Display



#### Options / description

◆ NO

◆ YES [WITHOUT LOAD MEASUREMENT]

◆ YES [WITH LOAD MEASUREMENT]

If "load measurement" is used, reference values are determined for the shelf and lift load. To do so, during an ascending run, the motor torque is polled via the RS485 interface of the frequency converter. Shelves above the access point are measured when products are loaded for storage. Shelves below the access point are measured when products are retrieved from storage. For shelves close to the access point, the distance of travel is too short; therefore, no reference values for the load of these shelves can be determined.

Note: When activating load measurement for the first time, a zero calibration of this system must be carried out (refer to the end of this chapter); then, the "Check load" test run must be carried out (refer to the "Service notes" in the Annex).

Load values provide guideline values for the approximate load distribution in the lift. These values are not absolute weight values. They cannot be used to draw conclusions about the stored weights!



- x The following prompt appears only if the shelf memory is empty. This is the case when the unit is first put into service, after the shelf memory is formatted or if all shelves have been removed.
- x The extractor must also be driven to home position when first put into service and after replacing the MP 12D/N CPU I without data transfer (EEPROM). Even if the extractor is already in basic position, this must be done in order to reset the internal run status.
- x Caution: A shelf can be pushed out only if the extractor is standing at a free carrier position.

3

Positioning

Description of the operator prompts	Display
<div>Drive extractor to basic position</div> <ul style="list-style-type: none"><li>Press the [↑] / [↓] key to select "YES" or "NO".</li><li>Press the [←] key.</li></ul>	<div><div>INITIALISATION MODE LEAN-LIFT POSITIONING SYSTEM  DRIVE EXTRACTOR TO HOME POSITION : <input type="checkbox"/>NO  [↑/↓/←]</div><div><div>Description</div><p>The extractor is the transport unit in the lift shaft. It consists of a drive unit, drive chains and drive catches, among other components. When the extractor is in the basic position, the drive catches on the left and right horizontal chain on the extractor must be pointing to the respective side walls of the lift and be positioned exactly above the proximity switches B10/B11 on one side.</p></div></div>
<div>Move shelf out forward</div> <ul style="list-style-type: none"><li>Press the [↑] / [↓] key to select "YES" or "NO".<div>The front is the side where access point 1 is located. The right-hand drive side moves counter-clockwise as seen from above if "YES" is selected, and clockwise if "NO" is selected.</div></li><li>Press the [←] key.</li></ul>	<div><div>INITIALISATION MODE LEAN-LIFT POSITIONING SYSTEM  DRIVE EXTRACTOR TO HOME POSITION : YES MOVE SHELF OUT FORWARD : <input checked="" type="checkbox"/>NO  [↑/↓/←]</div><div><div>Description</div><p>This prompt determines the direction in which the extractor drive catches run to the basic position. This allows a shelf that happens to be on the extractor to be pushed into a carrier. The direction must be selected so that a shelf is pushed into a free carrier, or so that if the extractor is empty the drive catches cannot bump into a shelf at the same height or an access point.</p></div></div>

3
Positioning

Description of the operator prompts	Display				
<p>Select safeguard between access point and extractor shaft</p> <ul style="list-style-type: none"><li>Press the [↑] / [↓] key to select the safety device.</li><li>Press the [←] key.</li></ul>	<div><div>INITIALISATION MODE LEAN-LIFT SUPPLEMENTARY FEATURES</div><div>SAFEGUARD BETWEEN ACCESS POINT AND EXTRACTOR SHAFT :</div><div><div><div></div><div>---</div></div><div>[↑/↓/←]</div></div></div>				
	<table><tr><th>Options / description</th></tr><tr><td><div>◆ ---</div><div>No safeguard between access point and extractor shaft present.</div></td></tr><tr><td><div>◆ SHUTTERS</div><div>The shutters are used to close off the rear opening of the access point to the shaft, in which the extractor moves vertically. (old version)</div></td></tr><tr><td><div>◆ HIGH-SPEED DOOR</div><div>The high-speed door is used to close off the rear opening of the access point to the shaft, in which the extractor moves vertically.</div></td></tr></table> <div><div>➤ For further details on the shutters, see the "Supplementary Description of the Automatic Shutters, Microprocessor Control System MP 12D / N Lean-Lift with Optional Feature".</div><div>➤ For further details on the high-speed door, see the "Supplementary Description of the High-speed Door, Microprocessor Control System MP 12D / N Lean-Lift with Optional Feature".</div></div>	Options / description	<div>◆ ---</div> <div>No safeguard between access point and extractor shaft present.</div>	<div>◆ SHUTTERS</div> <div>The shutters are used to close off the rear opening of the access point to the shaft, in which the extractor moves vertically. (old version)</div>	<div>◆ HIGH-SPEED DOOR</div> <div>The high-speed door is used to close off the rear opening of the access point to the shaft, in which the extractor moves vertically.</div>
Options / description					
<div>◆ ---</div> <div>No safeguard between access point and extractor shaft present.</div>					
<div>◆ SHUTTERS</div> <div>The shutters are used to close off the rear opening of the access point to the shaft, in which the extractor moves vertically. (old version)</div>					
<div>◆ HIGH-SPEED DOOR</div> <div>The high-speed door is used to close off the rear opening of the access point to the shaft, in which the extractor moves vertically.</div>					

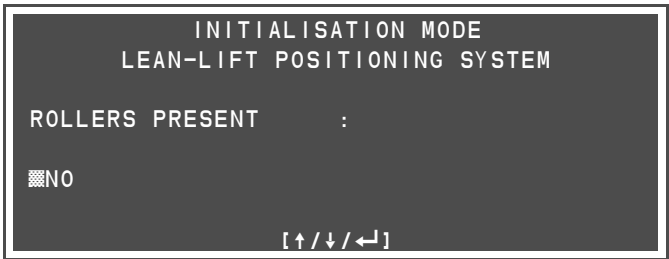
3

Positioning

Description of the operator prompts

Display

- Initialise access point rollers
- Press the [↑] / [↓] key to select "YES" or "NO".
  - Press the [↔] key.



Options / description
◆ NO No access point rollers present.
◆ YES [MAX. SHELF LOAD <= 500 KG / 1103 LBS] -> SEE TYPE PLATE If rollers are present in the access points, "YES" must be selected. The extractor is then positioned higher in the access point than for the other carriers.
◆ YES [MAX. SHELF LOAD > 500 KG / 1103 LBS] -> SEE TYPE PLATE If rollers are present in the access points, "YES" must be selected. The extractor is then positioned higher in the access point than for the other carriers.



- x The horizontal drive of the access point must be in the basic position at the time, i.e. proximity switches B10 and B11 must switch and there must be no shelf on the extractor.
- x Before the access position is initialised, a synchronisation run is carried out.

Synchronisation run

The extractor first drives down to a reference position. Then, it moves upwards until the second-to-next carrier position on the front and rear sides of the lift is detected. The positioning system synchronises itself by these carrier positions.

### 3 Positioning

#### Description of the operator prompts

##### Initialise access position

- Press the [↑] / [↓] key to select "YES" or "NO".
- Press the [←] key.

#### Display

```

INITIALISATION MODE
LEAN-LIFT POSITIONING SYSTEM

INITIALISE ACCESS POSITION :

■ NO

[↑/↓/←]
    
```

#### Description

By driving to the access position, the position of the access point (number of the vertical carrier and position value) is determined. This enables exact positioning of the extractor for the front carrier positions.



Note on positioning using the [↑] / [↓] keys:

- x The extractor must not actuate the limit switches on the top and bottom ends of the lift. If it does, the extractor can only resume travel when the actuated switch has been bypassed.

- Press the [↑] / [↓] key to move the extractor vertically onto the access carrier.  
The shelf slide rails or shelf rollers on the extractor must be at the same height as the carrier slide rail or the rollers in the access point to which it drives.
- Press the [←] key.
- The vertical position to which the extractor is driven is assigned to the access point and saved.

```

INITIALISATION MODE
LEAN-LIFT POSITIONING SYSTEM

INITIALISATION OF ACCESS POSITION
-> MOVE EXTRACTOR TO
ACCESS CARRIER

↑/↓/←/CE/F1      <aaa>: <ppp>
    
```

<aaa> = Front vertical carrier number

<ppp> = Front vertical position value



Note on optional electrical equipment "High-speed door":

- x The high-speed door must be closed for a vertical run to be possible.
- x The [F1] key can be used to open the high-speed door in order to check the positioning of the extractor.

Note on optional electrical equipment "Lift run only with door closed"

- x The sliding door must be closed for a lift run to be possible.
- x The [F1] key can be used to open the sliding door in order to check the positioning of the extractor.

### 3 Positioning

#### Description of the operator prompts

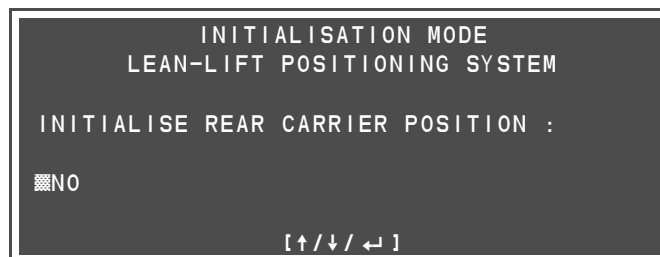


#### Initialise rear carrier position

- Press the [↑] / [↓] key to select "YES" or "NO".
- Press the [←] key.

#### Display

- x The horizontal drive of the access point must be in the basic position at the time, i.e. proximity switches B10 and B11 must switch and there must be no shelf on the extractor.



#### Description

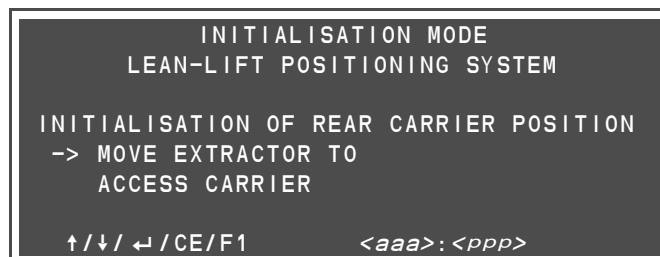
Driving to the rear carrier position enables exact positioning of the extractor for the rear carrier positions.



Note on positioning using the [↑] / [↓] keys:

- x The extractor must not actuate the limit switches on the top and bottom ends of the lift. If it does, the extractor can only resume travel when the actuated switch has been bypassed.

- Press the [↑] / [↓] key to move the extractor vertically onto the access carrier.  
The shelf slide rails or shelf rollers on the extractor must be at the same height as the carrier slide rail or the rollers in the access point to which it drives.
  - Press the [←] key.
- ➔ The rear vertical position to which the extractor has been driven is accepted.



<aaa> = Rear vertical carrier number

<ppp> = Rear vertical position value



Note on optional electrical equipment "High-speed door":

- x The high-speed door must be closed for a vertical run to be possible.
- x The [F1] key can be used to open the high-speed door in order to check the positioning of the extractor.

Note on optional electrical equipment "Lift run only with door closed"

- x The sliding door must be closed for a lift run to be possible.
- x The [F1] key can be used to open the sliding door in order to check the positioning of the extractor.

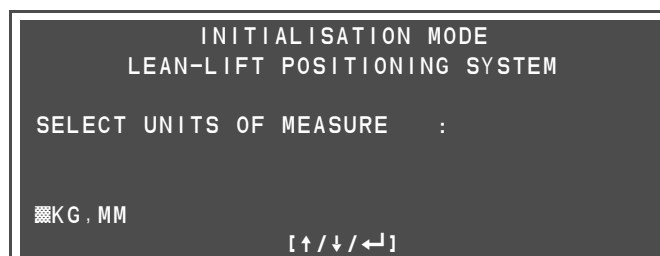
### 3 Positioning

#### Description of the operator prompts

##### Select units of measure

- Press the [↑] / [↓] key to select the unit of measure.
- Press the [←] key.

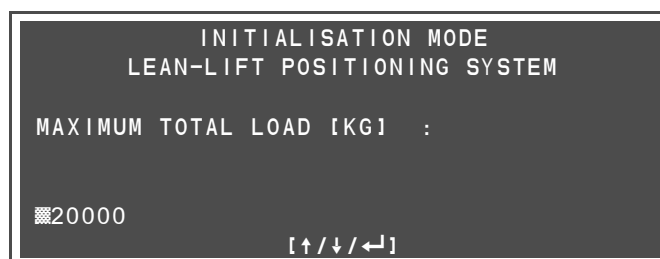
#### Display



Options	Description
◆ KG, MM	All weights and measures are then displayed and entered in the units selected.
◆ LBS, INCH	

##### Select maximum total load

- Press the [↑] / [↓] key to select the maximum total load.
- Press the [←] key.



Options	Description
◆ 20000 KG or 44052 LBS	Lean-Lifts with a total load capacity of more than 20,000 kg (44,092 lbs.) have a cross bracket at the top end to reinforce the lift. This means the uppermost carrier cannot be occupied by a shelf or storage articles. It must be blocked from use. If the setting is 30,000 / 40,000 / 60,000 kg (66,139/88,185/132,277 lbs.) this carrier is blocked automatically.
◆ 30000 KG or 66079 LBS	
◆ 40000 KG or 88105 LBS	
◆ 60000 KG or 132158 LBS	

### 3 Positioning

It is possible to block individual carriers in the Lean-Lift or areas consisting of several adjoining carriers so that shelves cannot be stored there. Up to 12 carrier areas can be blocked.

It may be necessary to block carriers for the following reasons:

- ◆ The wiring cabinet is located inside the usable carrier area, in contrast to the standard arrangement. Five adjoining carriers on one side need to be blocked for this purpose. The standard location for the wiring cabinet is below the usable area on the front side of the lift.
- ◆ Greater lift heights require cross-bracing for structural strength. Two adjoining carriers on each side need to be blocked for this purpose.
- ◆ A notice attached to the inside of the wiring cabinet draws attention to blocked carriers in the Lean-Lift. The carriers actually blocked must correspond to the details on the notice.

Exceptions:

- Lifts with lift heights above 6 m (19.69 ft).
- Lifts with a maximum total load over 20,000 kg (44,092 lbs.).
- Lifts designed for earthquake-prone areas.
- Lifts designed with floor anchorage provided by customer.

The lifts require cross-bracing at the top carrier for structural strength. These carriers are automatically blocked by the lift control system. Manual blocking of this top carrier is not necessary in this case.

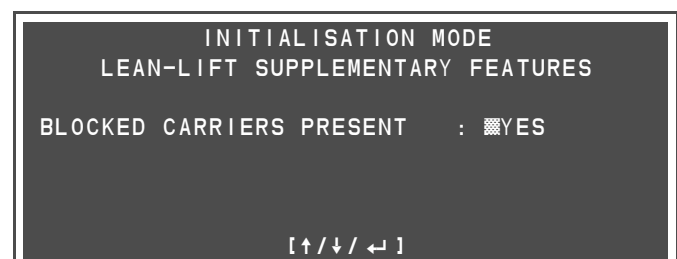
#### Description of the operator prompts

##### Initialise blocked carriers

- Press the [↑] / [↓] key to select "YES" or "NO".
- Press the [←] key.



#### Display



- x The entry of blocked carriers always relates to the 75/90/125 mm (29.53"/35.43"/49.21") increments and not the 37.5 or 25 mm (14.56" or 9.84") increments.



### 3 Positioning

#### Description of the operator prompts

Initialise lifts designed for earthquake-prone areas or lifts designed with floor anchorage provided by customer

- Press the **[↑] / [↓]** key to select "YES" or "NO".  
(see specification on the type plate)
- Press the **[←] / [→]** key.

#### Display

```

INITIALISATION MODE
LEAN-LIFT SUPPLEMENTARY FEATURES

LIFTS DESIGNED FOR EARTHQUAKE-
PRONE AREAS OR WITH FLOOR
ANCHORAGE PROVIDED BY CUSTOMER : ☒ NO

[↑/↓/←/→]
    
```

#### Description

Lean-Lifts in this version have a cross bracket at the top end to reinforce the lift. This means the uppermost carrier cannot be occupied by a shelf or storage articles. It must be blocked from use. This carrier is blocked automatically if "YES" is selected. In addition, up to 8 carrier areas can be blocked instead of up to 12 carrier areas.

For each carrier area  $<x> = 1 - 8/12$ :

- Press the **[↑] / [↓]** key to select "YES" for the "CHANGE SETTING" prompt.
- Press the **[←] / [→]** key.

```

BLOCKED CARRIER AREA <x>
CARRIER BLOCK : <yyy>
LOWEST CARRIER : <n1>
NO. OF CARRIERS : <n2>

CHANGE SETTING : ☒ NO

[↑/↓/←/→]
    
```

- Enter the password (default setting is "22488").
- Press the **[←] / [→]** key.

```

BLOCKED CARRIER AREA <x>
CARRIER BLOCK : <yyy>
LOWEST CARRIER : <n1>
NO. OF CARRIERS : <n2>

CHANGE SETTING : YES
PASSWORD : ☒
    
```


3

Positioning

Description of the operator prompts	Display				
<ul style="list-style-type: none"><li>• Press the [↑] / [↓] key to select the type of carrier blocking.</li><li>• Press the [←] key.</li><li>• Enter the number of the bottom carrier.</li><li>• Press the [←] key.</li><li>• Enter the number of blocked carriers.</li><li>• Press the [←] key.</li></ul>	<div><div>BLOCKED CARRIER AREA &lt;x&gt; CARRIER BLOCK : █&lt;yyy&gt; LOWEST CARRIER : &lt;n1&gt; NO. OF CARRIERS : &lt;n2&gt;  [↑/↓/←]</div><table><tr><th>Parameters / description</th></tr><tr><td>CARRIER BLOCK The following settings &lt;yyy&gt; are possible:<ul style="list-style-type: none"><li>◆ FRONT (the side at which access point 1 is located.)</li><li>◆ REAR</li><li>◆ BOTH SIDES</li><li>◆ NONE (if you want to cancel an area that was previously blocked, select "NONE".)</li></ul></td></tr><tr><td>LOWEST CARRIER At this point, enter the lowest carrier &lt;n1&gt; at which the blocked carrier area is to begin. The carriers are numbered from "1" upwards at the front and rear. Carrier 1 is always the lowest usable carrier.</td></tr><tr><td>NO. OF CARRIERS At this point, enter the number of adjoining carriers &lt;n2&gt; of the blocked area.</td></tr></table></div>	Parameters / description	CARRIER BLOCK The following settings <yyy> are possible: <ul style="list-style-type: none"><li>◆ FRONT (the side at which access point 1 is located.)</li><li>◆ REAR</li><li>◆ BOTH SIDES</li><li>◆ NONE (if you want to cancel an area that was previously blocked, select "NONE".)</li></ul>	LOWEST CARRIER At this point, enter the lowest carrier <n1> at which the blocked carrier area is to begin. The carriers are numbered from "1" upwards at the front and rear. Carrier 1 is always the lowest usable carrier.	NO. OF CARRIERS At this point, enter the number of adjoining carriers <n2> of the blocked area.
Parameters / description					
CARRIER BLOCK The following settings <yyy> are possible: <ul style="list-style-type: none"><li>◆ FRONT (the side at which access point 1 is located.)</li><li>◆ REAR</li><li>◆ BOTH SIDES</li><li>◆ NONE (if you want to cancel an area that was previously blocked, select "NONE".)</li></ul>					
LOWEST CARRIER At this point, enter the lowest carrier <n1> at which the blocked carrier area is to begin. The carriers are numbered from "1" upwards at the front and rear. Carrier 1 is always the lowest usable carrier.					
NO. OF CARRIERS At this point, enter the number of adjoining carriers <n2> of the blocked area.					

3

Positioning

Description of the operator prompts	Display
<div>Initialise lift height</div> <div><div>→ The number of rear carriers &lt;xxx&gt; is displayed.</div><div>→ The initialisation of the lift height cannot be carried out until the position sensors have been correctly adjusted.</div><div><div>• Press the <b>[↑]</b> / <b>[↓]</b> key to select "YES" or "NO".</div><div>• Press the <b>[↵]</b> key.</div></div></div>	<div><div><div>INITIALISATION MODE LEAN-LIFT POSITIONING SYSTEM</div><div>NUMBER OF REAR CARRIERS : &lt;xxx&gt;</div><div>INITIALISE LIFT HEIGHT :  NO</div><div>[↑/↓/↵]</div></div></div> <div><div>Parameters / description</div><div>INITIALISE LIFT HEIGHT</div><div>The control system measures the height of the lift by sending the extractor down and up the lift automatically.</div><div>If "YES" is selected, the extractor first travels downwards to carrier "1" and then upwards to the uppermost carrier. At the same time, the positioning sensor system is tested over the entire height of the lift. If the positioning sensors are not mounted correctly on the extractor, a synchronisation run is started.</div><div>Lean-Lifts with a height of 6 m (19.69 ft) or more have a cross bracket at the top end to reinforce the lift. This means the uppermost carrier cannot be occupied by a shelf or storage articles. It must be blocked from use. This carrier is blocked automatically.</div></div>

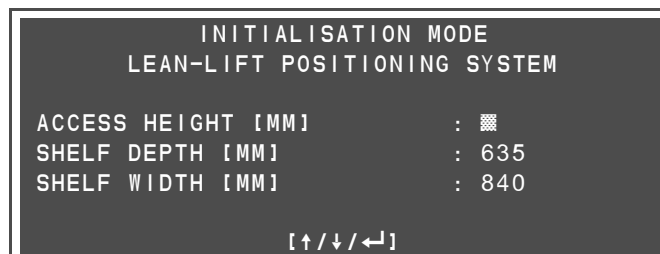
### 3 Positioning

#### Description of the operator prompts

Set the access height, shelf depth and width

- Enter the access height.
- Press the [↵] key.
- Press the [↑] / [↓] key to select the shelf depth.
- Press the [↵] key.
- Press the [↑] / [↓] key to select the shelf width.
- Press the [↵] key.

#### Display



#### Parameters / description

##### ACCESS HEIGHT

The access height is the distance between the lower and upper edge of the access opening. The default value is 900 mm or 283 inch/8.

##### SHELF DEPTH

The following shelf depths can be set:

- ◆ 635 mm or 200 inch/8
- ◆ 825 mm or 260 inch/8
- ◆ 1270 mm or 400 inch/8
- ◆ 1047 mm or 330 inch/8

Caution: If you select a shelf depth that is too large, this could cause faulty positioning of the horizontal drive and shelf collisions. If you select a shelf depth that is too small, the horizontal shelf positioning is slowed down.

##### SHELF WIDTH

The following shelf widths can be set:

- ◆ 840 mm or 265 inch/8
- ◆ 1300 mm or 410 inch/8
- ◆ 1640 mm or 515 inch/8
- ◆ 2060 mm or 650 inch/8
- ◆ 2300 mm or 725 inch/8
- ◆ 2460 mm or 775 inch/8
- ◆ 2860 mm or 900 inch/8
- ◆ 3260 mm or 1025 inch/8
- ◆ 1860 mm or 585 inch/8
- ◆ 3060 mm or 965 inch/8

Note: If a shelf width is not available, the next largest shelf width must be selected.

### 3 Positioning

#### Description of the operator prompts

Set the type and number of light barriers of the article height measurement system

- Press the [↑] / [↓] key to select the type.
- Press the [←] key.
- Enter the number of light barriers.
- Press the [←] key.

#### Display

```

INITIALISATION MODE
LEAN-LIFT POSITIONING SYSTEM

ARTICLE HEIGHT DETECTION
TYPE                               : ▣LVH800
NO. OF LIGHT BARRIERS             : 10

[↑/↓/←]
```

#### Parameters / description

##### TYPE

The following types can be set:

- ◆ LVH800 (old type)
- ◆ OBJECTC 100F

##### NO. OF LIGHT BARRIERS

A vertical, multi-beam light barrier system at the crossover point from the access opening to the extractor shaft measures the article height.

The number of light barrier pairs is on a sticker on the light barrier cables in the wiring cabinet.

**Caution:** The DIP switches of height detection system B1 must be set according to the slot increment and number of light barriers.

The number of light barrier pairs actually present or a lower number must be entered. The maximum stored article height can be further limited if you enter a lower number.

**Caution:** The number entered must never be greater than the number of light barrier pairs actually present.

#### Plausibility check of number of light barriers for article height detection in relation to access height

Based on the access height and the slot increment, the number of light barriers entered for article height measurement is checked for plausibility.

→ In case of a conflict, the message to the right appears on the display.

- Check the entries.

```

INITIALISATION MODE
LEAN-LIFT POSITIONING SYSTEM

ARTICLE HEIGHT DETECTION
NUMBER OF LIGHT BARRIERS
CONFLICTS WITH ACCESS HEIGHT

[CE]
```

3

Positioning

Description of the operator prompts	Display
<p>Initialising the supplementary feature "Shelf ejection"</p> <ul style="list-style-type: none"> <li>Press the <b>[↑]</b> / <b>[↓]</b> key to select "YES" or "NO".</li> <li>Press the <b>[↵]</b> key.</li> </ul>	<div> <div> <div>INITIALISATION MODE</div> <div>LEAN-LIFT SUPPLEMENTARY FEATURES</div> <div>AUTOMATIC SHELF EJECTION :</div> <div><input checked="" type="checkbox"/>NO</div> <div>[↑/↓/↵]</div> </div> <div> <p>➤ See the "Supplementary Description of the Automatic Shelf Ejection Microprocessor Control System MP 12D/N Lean-Lift".</p> </div> </div>
<p>Initialise the supplementary feature "Carriers with power socket" and "Double access"</p> <p>For each prompt:</p> <ul style="list-style-type: none"> <li>Press the <b>[↑]</b> / <b>[↓]</b> key to select "YES" or "NO".</li> <li>Press the <b>[↵]</b> key.</li> </ul>	<div> <div> <div>INITIALISATION MODE</div> <div>LEAN-LIFT SUPPLEMENTARY FEATURES</div> <div>CARRIERS WITH POWER SOCKET : <input checked="" type="checkbox"/>NO</div> <div>DOUBLE ACCESS PRESENT : NO</div> <div>[↑/↓/↵]</div> </div> <div> <p>➤ See the "Supplementary Description of the Shelves With Power Supply Microprocessor Control System MP 12D/N Lean-Lift".</p> <p>➤ See the "Supplementary Description of the Double Access Microprocessor Control System MP 12D/N Lean-Lift".</p> </div> </div>
<p>Initialise supplementary feature "Guide rails" (only with multiple access points) and "Shelf weighing device"</p> <p>For each prompt:</p> <ul style="list-style-type: none"> <li>Press the <b>[↑]</b> / <b>[↓]</b> key to select "YES" or "NO".</li> <li>Press the <b>[↵]</b> key.</li> </ul>	<div> <div> <div>INITIALISATION MODE</div> <div>LEAN-LIFT SUPPLEMENTARY FEATURES</div> <div>GUIDE RAILS AVAILABLE : <input checked="" type="checkbox"/>NO</div> <div>SHELF WEIGHING DEVICE AVAILABLE : NO</div> <div>[↑/↓/↵]</div> </div> <div> <div>Description</div> <div> <p>GUIDE RAILS AVAILABLE</p> <p>Guide rails allow the shelves to be pulled out of the access point. In a Lean-Lift with multiple access points, they enable articles to be stored in or retrieved from a shelf that has been pulled out while a lift run is executed at the same time for another access point.</p> <p>For safety reasons,it is not possible to execute a lift run if a shelf is located in another access point.</p> </div> <div> <p>➤ Refer to the "Supplementary Description of the Shelf Weighing Device Microprocessor Control System MP 12D/N Lean-Lift and Multi-Space".</p> </div> </div> </div>

### 3 Positioning

#### Description of the operator prompts

##### Enter maximum shelf load and shelf empty weight

- Enter maximum shelf load (see specification on type plate).  
<xxx>: 1 - 1000 KG or 2203 LBS
- Press the [ ← ] key.
- Enter the shelf empty weight (see Power supply and foundation plan).  
<yyy>: 1 - 255 KG or 562 LBS
- Press the [ ← ] key.
- Check entries and unit of measure and correct if necessary.
- Press the [ ← ] key.



##### Plausibility check for total load

The blocked carrier input undergoes a plausibility check based on the maximum total load, the lift height and the maximum shelf load.

- ➔ In case of a conflict, the message to the right appears on the display.
- Re-enter the data.

#### Display

```

INITIALISATION MODE
LEAN-LIFT SUPPLEMENTARY FEATURES

MAXIMUM SHELF LOAD [KG]      : <xxx>
SHELF EMPTY WEIGHT [KG]     : <yyy>

[ ← ]
    
```

```

INITIALISATION MODE
LEAN-LIFT SUPPLEMENTARY FEATURES

MAXIMUM SHELF LOAD [KG]      : <xxx>
SHELF EMPTY WEIGHT [KG]     : <yyy>

ALL ENTRIES CORRECT ?
-> CE/ ←
    
```

- x On lifts without the supplementary feature "Shelf weighing device," these entries are used to monitor the shelf number limit.  

$$\text{Shelf number limit} = \frac{\text{Max. total load capacity}}{(\text{Max. shelf load} + \text{Shelf empty weight})}$$
- x If a figure that is too large is entered, the message "ENTRY IS INVALID -> CE" is displayed.
- x The message "ENTRY IS INVALID -> CE" is also displayed if a frequency converter with RS485 is installed and the max. shelf load conflicts with the power category of the frequency converter and the shelf size.

```

INITIALISATION MODE
LEAN-LIFT POSITIONING SYSTEM

MAXIMUM TOTAL LOAD
CONFLICTS WITH
BLOCKED CARRIERS

[ CE ]
    
```

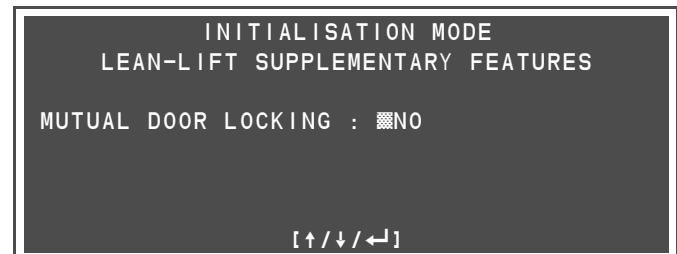
### 3 Positioning

#### Description of the operator prompts

Initialise supplementary feature "Mutual door locking" (only with 2 access points)

- Press the [↑] / [↓] key to select "YES" or "NO".
- Press the [↵] key.

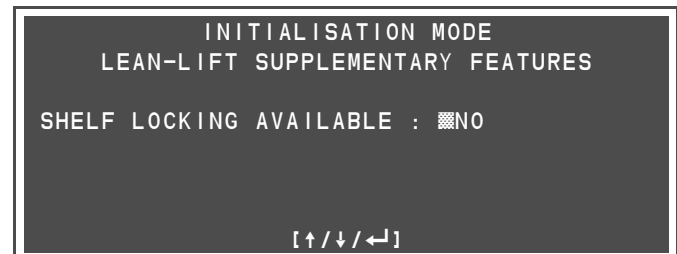
#### Display



- See the "Supplementary Description of the Mutual Door Locking Microprocessor Control System MP 12D/N Lean-Lift".

Initialising the supplementary feature "Shelf locking"

- Press the [↑] / [↓] key to select "YES" or "NO".
- Press the [↵] key.



- See the "Supplementary Description of the Automatic Shelf Locking for Operation with High Lift Truck or Forklift Truck Microprocessor Control System MP 12D/N Lean-Lift"



### 3 Positioning

#### Description of the operator prompts

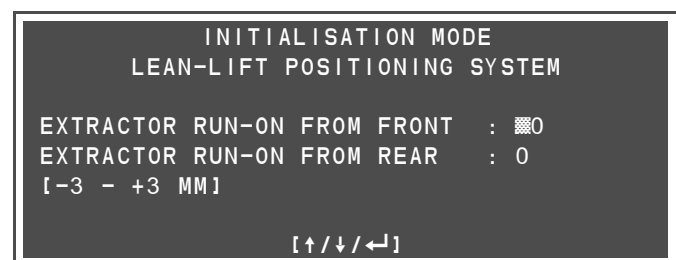


#### Set extractor run-on

- Press the [↑] / [↓] key to select extractor run-on from the front.
- Press the [←] key.
- Press the [↑] / [↓] key to select extractor run-on from the rear.
- Press the [←] key.

#### Display

- x This prompt is displayed only if one of the following is true:
  - Shutters are present.
  - A high-speed door is present.
  - An extractor run-on is set that does not equal "0".
  - An incremental encoder is present.
  - The [F1] key has been pressed.



#### Description

It is possible to set the run-on when a shelf is pulled onto the extractor so that the shelf is accurately centred on the extractor when the extractor has stopped.

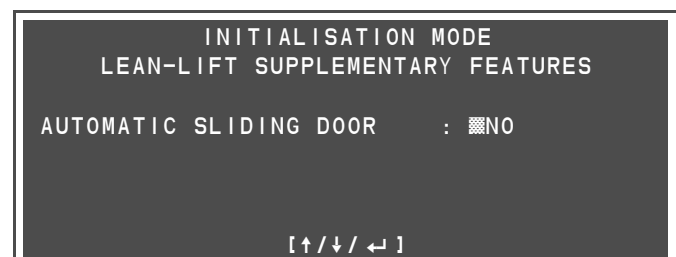
The run-on can be set separately for the front and the rear. The front is the side where access point 1 is located.

The following values can be set:

- ◆ -3
- ◆ -2            -: When pulling onto the extractor, it stops earlier
- ◆ -1
- ◆ 0
- ◆ +1            +: When pulling onto the extractor, it stops later
- ◆ +2
- ◆ +3

#### Activate automatic sliding door

- Press the [↑] / [↓] key to select "YES" or "NO".
- Press the [←] key.



- See the "Supplementary Description of the Automatic Sliding Door Microprocessor Control System MP 12D/N Lean-Lift and Rotomat"

### 3 Positioning

#### Description of the operator prompts



#### Display

- x The following prompt appears only if the shelf memory is empty. This is the case when the unit is first put into service, after the shelf memory is formatted or if all shelves have been removed.

When the automatic shelf read-in function has been executed, the shelf numbers in the shelf data memory no longer agree with the shelf numbers of any article data records that already exist.



#### Recommended:

Read out the shelf data and edit the shelf numbers so that they agree with the article master data.

#### Read in shelf positions

- Press the [↑] / [↓] key to select "YES" or "NO".
- Press the [←] key.

INITIALISATION MODE  
LEAN-LIFT POSITIONING SYSTEM

READ IN  
SHELF POSITIONS ? : ☐ NO

[↑/↓/←]

#### Description

For carrier slot increment 75/90/125 mm (2.95/3.54/4.92"):

The extractor drives all the way up the lift from the bottom and tries to pull a shelf out of each carrier. The shelves in the access points are detected by proximity switches B20, B21.

The control system notes the shelf position and assigns a shelf number from "1" upwards.

For carrier slot increments 37.5 and 25 mm (1.48" and 0.98"):

The extractor drives all the way up the lift from the bottom and stops at each slot. The proximity switches B14 and B15 detect if there is a shelf present. The top shelves at the front and rear are detected by pulling them out. When they are pulled out, it is possible for the drive catch to be blocked if the shelf is stored one slot lower. This is monitored by a timer. The shelves in the access points are detected by proximity switches B20, B21.

The control system notes the shelf position and assigns a shelf number from "1" upwards.

### 3 Positioning

#### Description of the operator prompts

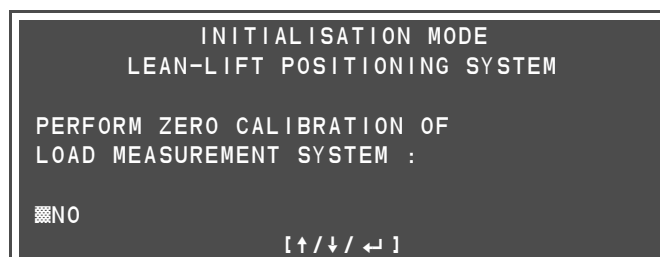


#### Zero calibration of load measurement

- Press the [↑] / [↓] key to select "YES" or "NO".
  - Press the [←] key.
- ➔ If this is set to "YES": If a shelf is in the access point or on the extractor, the shelf is stored. Then, multiple vertical runs are carried out at different speeds with the extractor empty.

#### Display

- x The prompt appears only with a RS485 connection to the frequency converter and the load measurement.



#### Description

Zero calibration is the determination of the torque when the extractor is empty. This compensates for influences such as those due to different extractor dimensions.

This zero calibration must be carried out when activating load measurement for the first time.

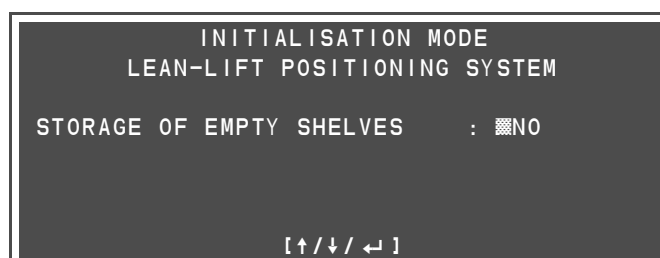


#### Note about periodic zero calibration:

- x To compensate for changes that occur over time such as diminished lubrication, a zero calibration is carried out after 60 days or after the lift has been switched on 60 times. This is done automatically when storing or retrieving with the extractor empty.

#### Store empty shelves

- Press the [↑] / [↓] key to select "YES" or "NO".
  - Press the [←] key.
- ➔ If this is set to "YES", the control system returns to the main menu. From now on, any shelves in the access point will be stored in a carrier far from the access point. This is also possible with shelves that are already stocked. Once the lift has been switched off and on again, shelves are again stored close to the access point.



#### Description

To ensure that empty shelves do not block the areas close to the access points which have short access times, these shelves can be stored further away from the access points.

3

Positioning

3.3

Positioning in Multi-Space mode

Description of the operator prompts	Display
<p>Initialise access proximity switches B26, B27</p> <ul style="list-style-type: none"><li>Press the [↑] / [↓] key to select "YES" or "NO".</li><li>Press the [←] key.</li></ul>	<div><div>INITIALISATION MODE MULTI-SPACE POSITIONING SYSTEM  ADDITIONAL ACCESS POINT PROXIMITY SWITCHES B26, B27 PRESENT :  NO  [↑/↓/←]</div><div><div>Description</div><div><p>There are lifts that are fitted with additional proximity switches B26 and B27 (redundancy for B20 and B21) in the access point. This equipment provides increased availability without waiting for the service personnel.</p><p>The deactivation of a pair of proximity switches in the redundancy system means that in the event of a failure, the lift can continue to be operated without any restrictions.</p><p>The additional proximity switches B26 and B27 are present for lifts with the option "Partially redundant control" (corresponds to "Equipment for emergency operation").</p></div></div></div>

### 3 Positioning

#### Description of the operator prompts



#### Display

- x The following prompt appears only if the shelf memory is empty. This is the case when the unit is first put into service, after the shelf memory is formatted or if all shelves have been removed.
- x The extractor must also be driven to home position when first put into service and after replacing the MP 12D/N CPU I without data transfer (EEPROM). Even if the extractor is already in basic position, this must be done in order to reset the internal run status.
- x Caution: A shelf can be pushed out only if the extractor is standing at a free carrier position.

#### Drive extractor to basic position

- Press the [↑] / [↓] key to select "YES" or "NO".
- Press the [←] key.

```

INITIALISATION MODE
MULTI-SPACE POSITIONING SYSTEM

DRIVE EXTRACTOR TO
HOME POSITION                : ☐ NO

[↑/↓/←]
    
```

#### Description

The extractor is the transport unit in the lift shaft. It consists of a drive unit, drive chains and drive catches, among other components. When the extractor is in the basic position, the drive catches on the left and right horizontal chain on the extractor must be pointing to the respective side walls of the lift and be positioned exactly above the proximity switches B10/B11 on one side.

#### Move shelf out forward

- Press the [↑] / [↓] key to select "YES" or "NO".  
The front is the side where access point 1 is located. The right-hand drive side moves counter-clockwise as seen from above if "YES" is selected, and clockwise if "NO" is selected.
- Press the [←] key.

```

INITIALISATION MODE
MULTI-SPACE POSITIONING SYSTEM

DRIVE EXTRACTOR TO
HOME POSITION                : ☒ YES
MOVE SHELF
OUT FORWARD                 : NO

[↑/↓/←]
    
```

#### Description

This prompt determines the direction in which the extractor drive catches run to the basic position. This allows a shelf that happens to be on the extractor to be pushed into a carrier. The direction must be selected so that a shelf is pushed into a free carrier, or so that if the extractor is empty the drive catches cannot bump into a shelf at the same height or an access point.

### 3 Positioning



- ✗ The horizontal drive of the access point must be in the basic position at the time, i.e. proximity switches B10 and B11 must switch and there must be no shelf on the extractor.
- ✗ Before the access position is initialised, a synchronisation run is carried out.

#### Synchronisation run

First, the movement unit is synchronised forwards and back. This process of moving the movement unit forwards and back determines the centre position based on switches S22 and S23. Thus the adjustment of switches S22 and S23 defines the middle position of the movement unit.

Next, vertical synchronisation takes place. To do so, the base carrier drives down to the lower protection zone. Then, it moves upwards until the second-to-next carrier position is detected for all vertical sensors. These positions define the absolute positions of the individual vertical sensors.

Then, the horizontal left/right sensor system is synchronised. To do so, the extractor first moves to the left limit switch S24, then right until the fork light barrier B31 on the rear left extractor switches. This position defines the absolute position of the left/right sensor system.

Finally, the carrier positions of the individual front and rear lift units are defined. To do so, horizontal and vertical runs are carried out to read out the positions of the interruption angles on the individual lift units via the fork light barriers B28 to B31.

The carrier positions can be modified subsequently by correcting the interruption angle on the corresponding lift unit, then carrying out a synchronisation run in the service functions.

3

Positioning

Description of the operator prompts

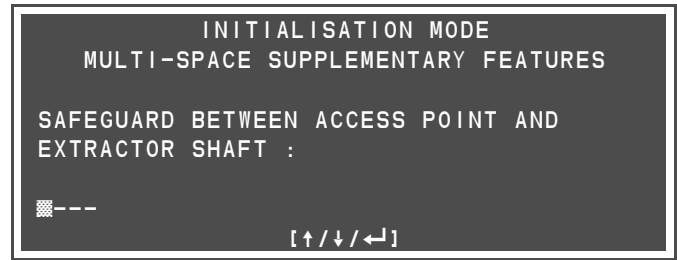
Display



Select safeguard between access point and extractor shaft

- Press the [↑] / [↓] key to select the safety device.
- Press the [←] key.

x The following prompt appears only with one access point. For multiple access points, a high-speed door is always present.



Options / description
◆ --- No safeguard between access point and extractor shaft present.
◆ HIGH-SPEED DOOR The high-speed door is used to close off the rear opening of the access point to the shaft, in which the extractor moves vertically.

➤ For further details on the high-speed door, see the "Supplementary Description of the High-speed Door, Microprocessor Control System MP 12D / N Lean-Lift with Optional Feature".

### 3 Positioning

#### Description of the operator prompts

##### Initialise access position

- Press the [↑] / [↓] key to select "YES" or "NO".
- Press the [←] key.

#### Display

```

INITIALISATION MODE
MULTI-SPACE POSITIONING SYSTEM

INITIALISE ACCESS POSITION :

[ ] NO

[↑/↓/←]
    
```

#### Description

By driving to the access position, the position of the access point (number of the lift unit and number of the vertical carrier) is determined. The exact stop positions for the access points and carriers, however, are determined by the adjustment of the interruption angles, which are read in for the service functions when carrying out a synchronisation run.



Note on positioning using the [↑] / [↓] / [←] / [→] keys:

- x The extractor must not actuate the limit switches at the top, bottom, left or right ends of the lift. If it does, the extractor can only resume travel when the actuated switch has been bypassed.

- Press the [↑] / [↓] key to move the extractor vertically onto the access carrier.
- Press the [←] / [→] key to move the extractor horizontally onto the access carrier.
- Press the [F1] key to open or close the high-speed door.

The shelf slide rails or shelf rollers on the extractor must be at the same height as the carrier slide rail or the rollers in the access point to which it drives.

- Press the [←] key.
- ➔ The lift unit and vertical carrier to which the extractor is driven is assigned to the access point and saved.

```

INITIALISATION MODE
MULTI-SPACE POSITIONING SYSTEM

INITIALISATION OF ACCESS POSITION
-> MOVE EXTRACTOR TO
ACCESS CARRIER

↑/↓/←/→/CE/F1 F:<aaa>:<ppp> H:<hhh>
    
```

<aaa> = Vertical carrier number

<ppp> = Vertical position value

<hhh> = Left/right horizontal position value



3

Positioning

Description of the operator prompts	Display					
<p>Select units of measure</p> <ul style="list-style-type: none"><li>Press the [↑] / [↓] key to select the unit of measure.</li><li>Press the [↵] key.</li></ul>	<div><p>INITIALISATION MODE MULTI-SPACE POSITIONING SYSTEM</p><p>SELECT UNITS OF MEASURE :</p><p>■KG , MM</p><p>[↑/↓/↵]</p></div> <table><thead><tr><th>Options</th><th>Description</th></tr></thead><tbody><tr><td>◆ KG, MM</td><td rowspan="2">All weights and measures are then displayed and entered in the units selected.</td></tr><tr><td>◆ LBS, INCH</td></tr></tbody></table>	Options	Description	◆ KG, MM	All weights and measures are then displayed and entered in the units selected.	◆ LBS, INCH
Options	Description					
◆ KG, MM	All weights and measures are then displayed and entered in the units selected.					
◆ LBS, INCH						
<p>Select maximum total load</p> <ul style="list-style-type: none"><li>Press the [↑] / [↓] key to select the maximum total load.</li><li>Press the [↵] key.</li></ul>	<div><p>INITIALISATION MODE MULTI-SPACE POSITIONING SYSTEM</p><p>MAXIMUM TOTAL LOAD [KG] :</p><p>■40000</p><p>[↑/↓/↵]</p></div> <table><thead><tr><th>Description</th></tr></thead><tbody><tr><td>The maximum total load pertains to the entire lift and not the individual lift units.</td></tr></tbody></table>	Description	The maximum total load pertains to the entire lift and not the individual lift units.			
Description						
The maximum total load pertains to the entire lift and not the individual lift units.						

### 3 Positioning

It is possible to block individual carriers in the Multi-Space or areas consisting of several adjoining carriers so that shelves cannot be stored there. Up to 8 carrier areas can be blocked.

It may be necessary to block carriers for the following reasons:

- ◆ The wiring cabinet is located inside the usable carrier area, in contrast to the standard arrangement.
- ◆ Certain lift heights require cross-bracing for structural strength. Two adjoining carriers on each side have to be blocked for this purpose over the entire width of the lift.
- ◆ A notice attached to the inside of the wiring cabinet draws attention to blocked carriers in the Multi-Space. The carriers actually blocked must correspond to the details on the notice.

#### Description of the operator prompts

##### Initialise blocked carriers

- Press the [↑] / [↓] key to select "YES" or "NO".
- Press the [←] key.



For each carrier area <x> = 1 - 8:

- Press the [↑] / [↓] key to select "YES" for the "CHANGE SETTING" prompt.
- Press the [←] key.

- Enter the password (default setting is "22488").
- Press the [←] key.

#### Display

```

INITIALISATION MODE
MULTI-SPACE SUPPLEMENTARY FEATURES

BLOCKED CARRIERS PRESENT : ☒ NO

[↑/↓/←]
```

- x The entry of blocked carriers always relates to the 75/90/125 mm (29.53"/35.43"/49.21") increments and not the 37.5 or 25 mm (14.56" or 9.84") increments.

```

BLOCKED CARRIER AREA <x>
CARRIER BLOCK      : <y y y>
LOWEST CARRIER     : <n1>
NO. OF CARRIERS     : <n2>
FROM LIFT UNIT      : <n3>
NUMBER OF LIFT UNITS : <n4>
CHANGE SETTING     : ☒ NO

[↑/↓/←]
```

```

BLOCKED CARRIER AREA <x>
CARRIER BLOCK      : <y y y>
LOWEST CARRIER     : <n1>
NO. OF CARRIERS     : <n2>
FROM LIFT UNIT      : <n3>
NUMBER OF LIFT UNITS : <n4>
CHANGE SETTING     : NO
PASSWORD           : ☒
```

## 3 Positioning

### Description of the operator prompts

- Press the [↑] / [↓] key to select the type of carrier blocking.
- Press the [←] key.
- Enter the number of the bottom carrier.
- Press the [←] key.
- Enter the number of blocked carriers.
- Press the [←] key.
- Enter the lift unit.
- Press the [←] key.
- Enter the number of lift units.
- Press the [←] key.

### Display

```

BLOCKED CARRIER AREA <x>
CARRIER BLOCK          : █<yyy>
LOWEST CARRIER         : <n1>
NO. OF CARRIERS         : <n2>
FROM LIFT UNIT          : <n3>
NUMBER OF LIFT UNITS    : <n4>

[↑/↓/←]
    
```

#### Parameters / description

##### CARRIER BLOCK

The following settings <yyy> are possible:

- ◆ FRONT (the side at which access point 1 is located.)
- ◆ REAR
- ◆ BOTH SIDES
- ◆ NONE (if you want to cancel an area that was previously blocked, select "NONE".)

##### LOWEST CARRIER

At this point, enter the lowest carrier <n1> at which the blocked carrier area is to begin. The carriers are numbered from "1" upwards at the front and rear. Carrier 1 is always the lowest usable carrier.

##### NO. OF CARRIERS

At this point, enter the number of adjoining carriers <n2> of the blocked area.

##### FROM LIFT UNIT (left lift unit as seen from access point 1)


At this point, enter the number of the lift unit <n3> at which the blocked carrier area is to begin.

##### NUMBER OF LIFT UNITS

At this point, enter the number of adjoining lift units <n4> of the blocked area.

3

Positioning

Description of the operator prompts	Display
<div>Initialise lift height</div> <div><div>→ The number of rear carriers &lt;xxx&gt; is displayed.</div><div>→ The initialisation of the lift height cannot be carried out until the position sensors have been correctly adjusted.</div><div><div>• Press the [↑] / [↓] key to select "YES" or "NO".</div><div>• Press the [↵] key.</div></div></div>	<div><div><div>INITIALISATION MODE MULTI-SPACE POSITIONING SYSTEM</div><div>NUMBER OF REAR CARRIERS : &lt;xxx&gt;</div><div>INITIALISE LIFT HEIGHT :  NO</div><div>[↑ / ↓ / ↵]</div></div></div> <div><div>Parameters / description</div><div>INITIALISE LIFT HEIGHT</div><div>The control system measures the height of the lift by sending the extractor down and up the lift automatically.</div><div>If "YES" is selected, the extractor first travels downwards to carrier "1" and then upwards to the uppermost carrier. At the same time, the positioning sensor system is tested over the entire height of the lift. If the positioning sensors are not mounted correctly on the extractor, a synchronisation run is started.</div></div>

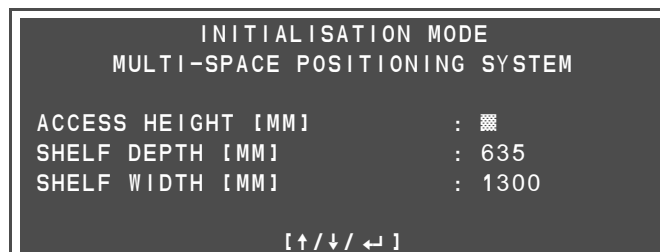
### 3 Positioning

#### Description of the operator prompts

Set the access height, shelf depth and width

- Enter the access height.
- Press the [↵] key.
- Press the [↑] / [↓] key to select the shelf depth.
- Press the [↵] key.
- Press the [↑] / [↓] key to select the shelf width.
- Press the [↵] key.

#### Display



#### Parameters / description

##### ACCESS HEIGHT

The access height is the distance between the lower and upper edge of the access opening. The default value is 900 mm or 283 inch/8.

##### SHELF DEPTH

The following shelf depths can be set:

- ◆ 635 mm or 200 inch/8
- ◆ 825 mm or 260 inch/8
- ◆ 1270 mm or 400 inch/8
- ◆ 1047 mm or 330 inch/8

Caution: If you select a shelf depth that is too large, this could cause faulty positioning of the horizontal drive and shelf collisions. If you select a shelf depth that is too small, the horizontal shelf positioning is slowed down.

##### SHELF WIDTH

The shelf width determines the horizontal stop position of the extractor.

The following shelf widths can be set:

- ◆ 1300 mm or 410 inch/8
- ◆ 1640 mm or 515 inch/8
- ◆ 2060 mm or 650 inch/8
- ◆ 2460 mm or 775 inch/8
- ◆ 1860 mm or 585 inch/8

### 3 Positioning

#### Description of the operator prompts

Set the number of light barriers of the article height measurement system

- Enter the number of light barriers.
- Press the [↵] key.

#### Display

```
INITIALISATION MODE
MULTI-SPACE POSITIONING SYSTEM

ARTICLE HEIGHT DETECTION

NO. OF LIGHT BARRIERS      : ■
[↑/↓/↵]
```

#### Description

A vertical, multi-beam light barrier system at the crossover point from the access opening to the extractor shaft measures the article height.

The number of light barrier pairs is on a sticker on the light barrier cables in the wiring cabinet.

**Caution:** The DIP switches of height detection system B1 must be set according to the slot increment and number of light barriers.

The number of light barrier pairs actually present or a lower number must be entered. The maximum stored article height can be further limited if you enter a lower number.

**Caution:** The number entered must never be greater than the number of light barrier pairs actually present.

#### Plausibility check of number of light barriers for article height detection in relation to access height

Based on the access height and the slot increment, the number of light barriers entered for article height measurement is checked for plausibility.

- ➔ In case of a conflict, the message to the right appears on the display.
- Check the entries.

```
INITIALISATION MODE
MULTI-SPACE POSITIONING SYSTEM

ARTICLE HEIGHT DETECTION
NUMBER OF LIGHT BARRIERS
CONFLICTS WITH ACCESS HEIGHT

[CE]
```

### 3 Positioning

#### Description of the operator prompts

Initialising the supplementary feature "Shelf weighing device"

- Press the [↑] / [↓] key to select "YES" or "NO".
- Press the [↵] key.

#### Display

```

INITIALISATION MODE
MULTI-SPACE SUPPLEMENTARY FEATURES

SHELF WEIGHING DEVICE AVAILABLE : NO

[↑/↓/↵]
```

- Refer to the "Supplementary Description of the Shelf Weighing Device Microprocessor Control System MP 12D/N Lean-Lift and Multi-Space".

Enter maximum shelf load and shelf empty weight

- Enter maximum shelf load (see specification on type plate).  
<xxx>: 1 - 1000 KG or 2203 LBS
- Press the [↵] key.
- Enter the shelf empty weight (see Power supply and foundation plan).  
<yyy>: 1 - 255 KG or 562 LBS
- Press the [↵] key.

```

INITIALISATION MODE
MULTI-SPACE SUPPLEMENTARY FEATURES

MAXIMUM SHELF LOAD [KG]      : <xxx>
SHELF EMPTY WEIGHT [KG]     : <yyy>

[↵]
```

- Check entries and unit of measure and correct if necessary.
- Press the [↵] key.

```

INITIALISATION MODE
MULTI-SPACE SUPPLEMENTARY FEATURES

MAXIMUM SHELF LOAD [KG]      : <xxx>
SHELF EMPTY WEIGHT [KG]     : <yyy>

ALL ENTRIES CORRECT ?
-> CE/↵
```



- x On lifts without the supplementary feature "Shelf weighing device," these entries are used to monitor the shelf number limit.  
Shelf number limit =  $\frac{\text{Max. total load capacity}}{(\text{Max. shelf load} + \text{Shelf empty weight})}$
- x If a figure that is too large is entered, the message "ENTRY IS INVALID -> CE" is displayed.

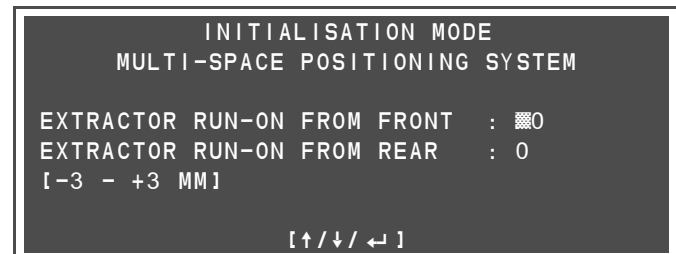
### 3 Positioning

#### Description of the operator prompts

##### Set extractor run-on

- Press the [↑] / [↓] key to select extractor run-on from the front.
- Press the [←] key.
- Press the [↑] / [↓] to select extractor run-on from the rear.
- Press the [←] key.

#### Display



#### Description

It is possible to set the run-on when a shelf is pulled onto the extractor so that the shelf is accurately centred on the extractor when the extractor has stopped.

The run-on can be set separately for the front and the rear. The front is the side where access point 1 is located.

The following values can be set:

- ◆ -3
- ◆ -2            -: When pulling onto the extractor, it stops earlier
- ◆ -1
- ◆ 0
- ◆ +1            +: When pulling onto the extractor, it stops later
- ◆ +2
- ◆ +3



### 3 Positioning

#### Description of the operator prompts



#### Display

- x The following prompt appears only if the shelf memory is empty. This is the case when the unit is first put into service, after the shelf memory is formatted or if all shelves have been removed.

When the automatic shelf read-in function has been executed, the shelf numbers in the shelf data memory no longer agree with the shelf numbers of any article data records that already exist.



#### Recommended:

Read out the shelf data and edit the shelf numbers so that they agree with the article master data.

#### Read in shelf positions

- Press the [↑] / [↓] key to select "YES" or "NO".
- Press the [←] key.

INITIALISATION MODE  
MULTI-SPACE POSITIONING SYSTEM

READ IN  
SHELF POSITIONS ? : ☐ NO

[↑/↓/←]

#### Description

**For carrier slot increment 75/90/125 mm (2.95/3.54/4.92"):**

The extractor drives all the way up the lift from the bottom in the individual lift units and tries to pull a shelf out of each carrier. The shelves in the access points are detected by proximity switches B20, B21.

The control system notes the shelf position and assigns a shelf number from "1" upwards.

**For carrier slot increments 37.5 and 25 mm (1.48" and 0.98"):**

The extractor drives all the way up the lift from the bottom in the individual lift units and stops at each slot. The proximity switches B14 and B15 detect if there is a shelf present. The top shelves at the front and rear are detected by pulling them out. It is possible for the drive catches to lock if a shelf is stored one slot lower. This is monitored by a timer. The shelves in the access points are detected by proximity switches B20, B21.

The control system notes the shelf position and assigns a shelf number from "1" upwards.

3

Positioning

Description of the operator prompts	Display
<div>Store empty shelves</div> <ul style="list-style-type: none"><li>• Press the [↑] / [↓] key to select "YES" or "NO".</li><li>• Press the [↵] key.</li></ul> <p>➔ If this is set to "YES", the control system returns to the main menu. From now on, any shelves in the access point will be stored in a carrier far from the access point. This is also possible with shelves that are already stocked. Once the lift has been switched off and on again, shelves are again stored close to the access point.</p>	<div><div><div>INITIALISATION MODE MULTI-SPACE POSITIONING SYSTEM  STORAGE OF EMPTY SHELVES : <input type="checkbox"/> NO  [↑/↓/↵]</div></div><div><div>Description</div><div>To ensure that empty shelves do not block the areas close to the access points which have short access times, these shelves can be stored further away from the access points.</div></div></div>

### 3 Positioning

#### 3.4 Positioning in the Rotomat operating mode with position sensor



- x The following prompts appear only if the sensor type used is the "MFPS (multifunction positioning system)".
- x It is possible to correct the stop positions of individual shelves or all shelves in the carousel even if the carousel is already registered with storage management as long as the number of shelves is not changed.

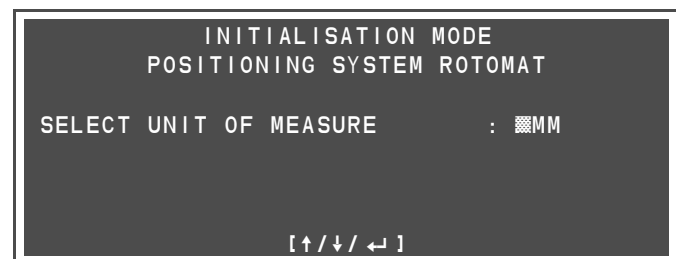
In the positioning mode, each shelf level available is given an individual stop position.

##### Description of the operator prompts

###### Select unit of measure

- Press the [↑] / [↓] key to select the unit of measure.
  - Press the [↔] key.
- ➔ The selected unit of measure is used for the reflective strip length.

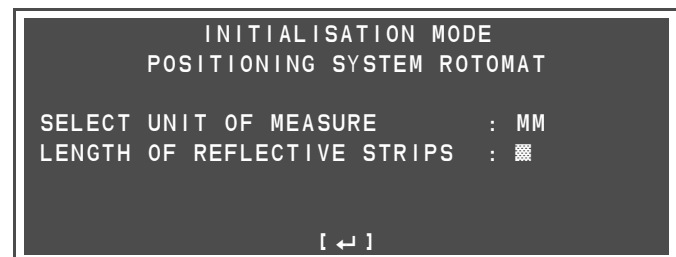
##### Display



Options	Description
◆ MM	Millimetre is unit
◆ INCH	Inch is unit

###### Enter reflective strip length

- Enter length of reflective strips.
  - Press the [↔] key.
- ➔ The reflective strip length is saved in the selected unit of measure.



##### Description

Reflective strips are glued to the side walls of the carriers. All reflective strips must be of the same length.

- See also drawing S920001.dwg "Positioning sensor installation".

### 3 Positioning

The control system stores a value for each carrier denoting the necessary run-on in order to reach the ideal stop position.

At first initialisation or if the sensor type is changed, the run-on is automatically reset. After this, the run-on is updated for the accessed stop position at each carousel run.

Optimum positioning accuracy is only obtained when the stop position has been accessed several times.

#### Description of the operator prompts

##### Reset extractor run-on

- Press the [↑] / [↓] key to select "YES" or "NO".
- Press the [←] key.
- If you select "YES", the run-on is reset.

#### Display

```
INITIALISATION MODE
POSITIONING SYSTEM ROTOMAT

RUN-ON NEW                : ■NO

[↑/↓/←]
```

##### Set startup monitoring

- Press the [↑] / [↓] key to select "YES" or "NO".
- Press the [←] key.
- If you select "YES", an error message ("LIFT TOO SLOW") is displayed if the preset start-up time is exceeded. In addition, an error message ("WRONG DIRECTION") is displayed if the direction of rotation is incorrect. An initialisation run is required.

```
INITIALISATION MODE
POSITIONING SYSTEM ROTOMAT

RUN-ON NEW                : NO
STARTUP MONITORING        : ■NO

[↑/↓/←]
```

##### Set run monitoring

- Press the [↑] / [↓] key to select "YES" or "NO".
- Press the [←] key.
- If you select "YES", an error message ("LIFT TOO SLOW"; "LIFT TOO FAST") is displayed if the values fall below or exceed the limits. An initialisation run is required.

```
INITIALISATION MODE
POSITIONING SYSTEM ROTOMAT

RUN-ON NEW                : NO
STARTUP MONITORING        : NO
LIFT RUN MONITORING       : ■NO

[↑/↓/←]
```

### 3 Positioning

#### Description of the operator prompts

##### Execute an initialisation run

- Press the [↑] / [↓] key to select "YES" or "NO".
  - Press the [↵] key.
- If you select "YES", the initialisation run is executed. The average speed of the lift/carousel in fast mode is calculated.
- It is mandatory to carry out the initialisation run if "STARTUP MONITORING" or "RUN MONITORING" is activated.
- If the initialisation run is not carried out, an error message is displayed: ("NO INITIAL. RUN")

#### Display

```

INITIALISATION MODE
POSITIONING SYSTEM ROTOMAT

INITIALISATION RUN      : ☐ NO

[↑/↓/↵]
```

##### Define positioning type

- Press the [↑] / [↓] key to select the positioning type.
- Press the [↵] key.

```

INITIALISATION MODE
POSITIONING SYSTEM ROTOMAT

DEFINE POSITION VALUES :

☒ QUICK POSITIONING [1 CARRIER]

[↑/↓/↵]
```

#### Options / description

##### ◆ QUICK POSITIONING [1 CARRIER]

(See Chapter 3.4.1.)

Only the first carrier with all its shelf levels is positioned and these position values are then applied to all the other shelf levels.

This assumes, however, that all the carriers are identical in their subdivisions. They must have the same number of shelf levels and the same distances between the shelf levels. Up to 8 shelf levels can be positioned per carrier.

##### ◆ INDIVIDUAL POSITIONING [ALL LEVELS]

(See Chapter 3.4.2.)

Each individual shelf level in the carousel must be positioned with the arrow keys and stored in memory. This procedure must be used if the carriers have different divisions and numbers of shelf levels.

### 3 Positioning

#### 3.4.1 Quick positioning - Positioning of a single carrier

In this type of positioning, only the first carrier is positioned with all of its shelf levels. The control system then applies the position values to all the other carriers.

##### Description of the operator prompts

###### Define number of shelf levels per carrier

- Enter the shelf levels per carrier.
- Press the [↵] key.

##### Display

```
INITIALISATION MODE
POSITIONING SYSTEM ROTOMAT

SHELF LEVELS PER CARRIER      : █1
-> [1 - 8]

[↵]
```

###### Activate positioning

- Press the [↑] / [↓] key to select "YES".
  - Press the [↵] key.
- ➔ All shelf levels of carrier no. 1 must now be positioned, one after the other, starting with the lowest shelf level.

```
INITIALISATION MODE
POSITIONING SYSTEM ROTOMAT

SELECT POSITIONING VALUES ?

█NO

[↑/↓/↵]
```

- Enter the number of the shelf level.  
Recommendation:  
Begin with "1" and continue in sequence until the number of shelf levels <n>.
- Press the [↵] key.

```
INITIALISATION MODE
POSITIONING SYSTEM ROTOMAT

ENTER NO. OF SHELF LEVEL      : █
-> [1 - <n>]

[↵]
```

### 3 Positioning

#### Description of the operator prompts



##### Position shelf level

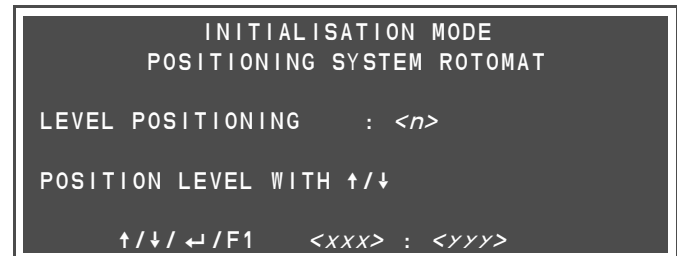
- Press the **↑** / **↓** key to move shelf level  $<n>$  to the desired position (e. g. to worktop height).
- ➔ The current position data are displayed in the bottom display line.
  - $<xxx>$ : Number of the carrier currently at the sensor.
  - $<yyy>$ : Position value of the carrier at the sensor (should be greater than 5).
- Press the **↔** key.
- ➔ The displayed position data ( $<xxx>$ ,  $<yyy>$ ) are assigned to the shelf level and saved.



#### Display

Note on the stop positions:

- x Select the stop positions such that the positioning sensor is on the reflective strip.
- x For drawers, troughs and hanging frames, there must always be a safety gap of at least 25 mm (0.98") between the lower edge of the drawer and the worktop.
- x The carrier floor must be flush with the worktop.
- x Hinged front walls must lie flat on the worktop when dropped.



Note about positioning sensor adjustment:

- x Set the position sensor so that the same carrier number is stored in memory for all the shelf levels in the carrier.

Note on optional electrical equipment "Automatic sliding door":

- x The **F1** key can be used to open the sliding door in order to check the positioning of the shelf level.

Note on optional electrical equipment "Lift run only with door closed"

- x Since a carousel can only run when the sliding door is closed, the sliding door must be closed during the positioning.
- x The **F1** key can be used to open the sliding door in order to check the positioning of the shelf level.

### 3 Positioning

#### Description of possible operator advisories



##### Perform synchronisation run

- Press the [↑] / [↓] key to move carrier 1 past the positioning sensor.  
For carrier 1, the reflective strip is inverted.
- ➔ To ensure that the positioning counter is counting correctly, check the position display <yyy>.
- ➔ The message is cleared after the synchronisation at carrier 1.

#### Display

- x The following message is displayed only if the positioning sensor is not synchronised.

```

INITIALISATION MODE
POSITIONING SYSTEM ROTOMAT

PERFORM SYNCHRONISATION RUN
--> CARRIER NO. 1 MUST BE MOVED
    PAST THE SENSOR

↑/↓/↵/F1          <xxx> : <yyy>
    
```

#### Description of the operator prompts

##### Position other shelf levels

- Press the [↑] / [↓] key to select "YES" or "NO".
- Press the [↵] key.
- If you select "YES": Repeat the steps in the "Position shelf level" section.
- ➔ If you select "NO": The position values of the shelf levels in carrier 1 are now applied to all the other carriers and stored in memory. Positioning at access 1 is now concluded.

#### Display

```

INITIALISATION MODE
POSITIONING SYSTEM ROTOMAT

ANOTHER SHELF LEVEL ?      :

■ YES

[↑/↓/↵]
    
```

##### Activate automatic sliding door

- Press the [↑] / [↓] key to select "YES" or "NO".
- Press the [↵] key.

```

INITIALISATION MODE
POSITIONING SYSTEM ROTOMAT

AUTOMATIC SLIDING DOOR      : ■ NO

[↑/↓/↵]
    
```

- See the "Supplementary Description of the Automatic Sliding Door Microprocessor Control System MP 12D/N Lean-Lift and Rotomat"



### 3 Positioning

#### 3.4.2 Individual positioning - Positioning all shelf levels

With this type of positioning, each individual shelf level in the carousel must be brought to the desired stop position and stored in memory.

This positioning procedure can also be selected if the shelf levels were previously positioned in the "Quick positioning" mode and you wish to add more shelf levels.



Note on the stop positions:

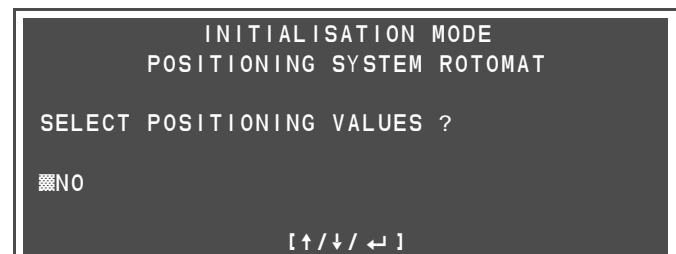
- x Select the stop positions such that the positioning sensor is on the reflective strip.
- x For drawers, troughs and hanging frames, there must always be a safety gap of at least 25 mm (0.98") between the lower edge of the drawer and the worktop.
- x The carrier floor must be flush with the worktop.
- x Hinged front walls must lie flat on the worktop when dropped.

### 3 Positioning

#### Description of the operator prompts

- Press the [↑] / [↓] key to select the positioning type.
- Press the [←] key.

#### Display



#### Options / description

- ◆ CREATE NEW VALUES [DELETE OLD VALUES]  
Each individual level must be positioned and stored in memory. Any existing values are deleted after a delete confirmation.
- ◆ ACCEPT OLD VALUES  
This option can only be selected if the shelf levels have already been positioned and stored once. The existing position data are then accepted and no further steps need to be taken in terms of manual positioning, even if the previous positioning was done in the "Quick positioning" mode.  
To ensure that the stop positions are correct, you can access the shelf levels and modify the position. A corresponding prompt is displayed.  
Additional shelf levels can be inserted at any point in the carousel by specifying additional shelf level numbers, e.g. for multifunction carriers.  
For additional information, refer to the "Perform positioning check" section on page 100.
- ◆ NO  
The position memory remains unchanged; the old values are retained. It is not possible to modify the position data.

### 3 Positioning

#### 3.4.2.1 Create new values [delete old values]

##### Description of the operator prompts

##### Create new values [delete old values]

All the levels in the carousel must now be positioned, one after the other, starting with the lowest level in carrier no. 1.

- Press the **↑** / **↓** key to move shelf level to the desired position (e. g. to worktop height).
- ➔ The current position data are displayed in the bottom display line.
  - <xxx>: Number of the carrier currently at the sensor.
  - <yyy>: Position value of the carrier at the sensor (should be greater than 5).
- Press the **↵** key.
- ➔ The displayed position data (<xxx>, <yyy>) are assigned to the shelf level and saved.
- Position the next highest level as described.
- ➔ The control system offers the number of the shelf level as the default until at least one stop position has been stored at each carrier in the carousel. Watch the position display carefully to ensure that no carrier is skipped.



##### Display

```
INITIALISATION MODE
POSITIONING SYSTEM ROTOMAT

LEVEL POSITIONING      : <n>

POSITION LEVEL WITH ↑/↓

↑/↓/↵/F1  <xxx> : <yyy>
```

Note on optional electrical equipment "Lift run only with door closed"

- x Since a carousel can only run when the sliding door is closed, the sliding door must be closed during the positioning.
- x The **↵** key can be used to open the door in order to check the positioning of the shelf level.

### 3 Positioning

#### Description of possible operator advisories



#### Perform synchronisation run

- Press the [↑] / [↓] key to move carrier 1 past the positioning sensor.  
For carrier 1, the reflective strip is inverted.  
To ensure that the positioning counter is counting correctly, check the position display <yyy>.
- ➔ The message is cleared after the synchronisation at carrier 1.

#### Display

- x The following message is displayed only if the positioning sensor is not synchronised.

```

INITIALISATION MODE
POSITIONING SYSTEM ROTOMAT

PERFORM SYNCHRONISATION RUN
--> CARRIER NO. 1 MUST BE MOVED
    PAST THE SENSOR

↑/↓/↵/F1    <xxx> : <yyy>
    
```

#### Description of the operator prompts

#### Position another shelf level

When at least one position has been stored at all carriers, a prompt appears asking whether you want to position another shelf level.

- Press the [↑] / [↓] key to select "YES" or "NO".
- Press the [↵] key.
- If you select "YES": Repeat the steps in the "Create new values" section on page 99.

#### Display

```

INITIALISATION MODE
POSITIONING SYSTEM ROTOMAT

ANOTHER SHELF LEVEL ?      :

■ YES

[↑/↓/↵]
    
```

#### Perform position check

- Press the [↑] / [↓] key to select "YES" or "NO".
- Press the [↵] key.
- ➔ For the rest of the process, refer to Chapter 3.4.2.2.

```

INITIALISATION MODE
POSITIONING SYSTEM ROTOMAT

PERFORM POSITIONING CHECK ?

■ NO

[↑/↓/↵]
    
```

#### Description

In the positioning check the shelf positions stored in the system can be checked by moving the shelf levels into position; they can then be corrected if necessary.

In this way, either the stop positions of all the shelf levels can be checked in turn, or a spot check can be carried out on individual shelf levels.

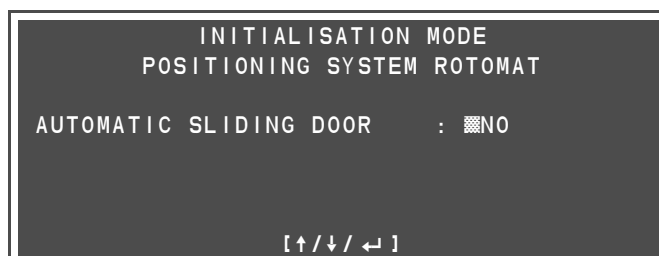
### 3 Positioning

#### Description of the operator prompts

##### Activate automatic sliding door

- Press the [↑] / [↓] key to select "YES" or "NO".
- Press the [←] key.

#### Display



- See the "Supplementary Description of the Automatic Sliding Door Microprocessor Control System MP 12D/N Lean-Lift and Rotomat"

### 3 Positioning

#### 3.4.2.2 Accept old values

##### Description of the operator prompts

##### Accept old values

- Enter the number of the shelf level or keep the suggested number.
- Press the [↵] key.
- The selected shelf level is accessed.

##### Display

```

INITIALISATION MODE
POSITIONING SYSTEM ROTOMAT

ENTER NO. OF SHELF LEVEL : █

[↑/↓/↵]
```

##### Correct shelf position

- Press the [↑] / [↓] key to move shelf level to the desired position (e. g. to worktop height).
- The current position data are displayed in the bottom display line.
  - <xxx>: Number of the carrier currently at the sensor.
  - <yyy>: Position value of the carrier at the sensor (should be greater than 5).
- Press the [↵] key.
- The displayed position data (<xxx>, <yyy>) are assigned to the shelf level and saved.

```

INITIALISATION MODE
POSITIONING SYSTEM ROTOMAT

LEVEL POSITIONING          : <n>

POSITION LEVEL WITH ↑/↓

↑/↓/↵/F1      <xxx> : <yyy>
```

##### Position another shelf level

- Press the [↑] / [↓] key to select "YES" or "NO".
  - Select "YES" to access and correct further shelf levels.
- Press the [↵] key.
- If you select "YES": Position other shelf levels as described previously.
- If you select "NO": The position data of the shelf level have been saved. Positioning is terminated.

```

INITIALISATION MODE
POSITIONING SYSTEM ROTOMAT

ANOTHER SHELF LEVEL ?    :

█YES

[↑/↓/↵]
```



- x If the carousel has more than one access point, the carrier displacement is automatically added onto the position data of the other access points and stored.
- x Consequently, it is not necessary to carry out any further positioning at other access points.

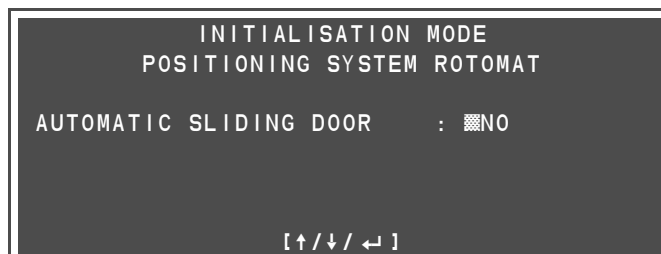
### 3 Positioning

#### Description of the operator prompts

##### Activate automatic sliding door

- Press the [↑] / [↓] key to select "YES" or "NO".
- Press the [←] key.

#### Display



- See the "Supplementary Description of the Automatic Sliding Door Microprocessor Control System MP 12D/N Lean-Lift and Rotomat"

### 3 Positioning

#### 3.4.3 Retrofitting intermediate shelf levels in the Rotomat

If shelf levels are retrofitted in one or more carriers (multifunction carriers) the following points should be observed:

- ◆ The change means that the number of storage locations in the carousel is increased. The central control system and inventory control computer must be informed of this change so that the added levels can be included in management.
- ◆ To allow consecutive shelf numbering to be retained, the article master data for the carousel in question must be updated manually with respect to the shelf number.



##### Procedure for consecutive numbering of shelf levels:

Before modifying the positioning, read out the data using the "JUMP" service software and back them up (e.g. article master data, requisition data and job data).

- ◆ The carousel must be completely repositioned. This inevitably shifts the shelf numbers in the carousel. These no longer agree with the shelf numbers in master data that have been saved.
- ◆ The master data read out must now be edited.  
Caution: the shelf number must only be updated in the data records of the carousel concerned. It is useful to draw up a list beforehand comparing old and new shelf numbers.
- ◆ The memory of storage management must be formatted.
- ◆ All the connected carousels must be registered again with storage management.
- ◆ You can then read the modified master data back into the control system using the "JUMP" service software (e.g. article master data, requisition data and job data).

##### Procedure for non-consecutive numbering of shelf levels:

- ◆ Shelf levels added to the carousel at random positions are assigned numbers following what was originally the highest shelf number in the carousel.
- ◆ Procedure as above. It is not necessary to edit the shelf numbers in the article master data.



### 3 Positioning

#### 3.5 Positioning in Rotomat mode with relative sensor



- x The following prompts appear only if the sensor type used is the "Relative sensor".

The control system stores a value for each carrier denoting the necessary run-on in order to reach the ideal stop position.

At first initialisation or if the sensor type is changed, the run-on is automatically reset. After this, the run-on is updated for the accessed stop position at each carousel run.

Optimum positioning accuracy is only obtained when the stop position has been accessed several times.

#### Description of the operator prompts

##### Reset extractor run-on

- Press the [↑] / [↓] key to select "YES" or "NO".
- Press the [←] key.
- ➔ If you select "YES", the run-on is reset.

##### Set startup monitoring

- Press the [↑] / [↓] key to select "YES" or "NO".
- Press the [←] key.
- ➔ If you select "YES", an error message ("LIFT TOO SLOW") is displayed if the preset start-up time is exceeded. In addition, an error message ("WRONG DIRECTION") is displayed if the direction of rotation is incorrect. An initialisation run is required.

##### Set run monitoring

- Press the [↑] / [↓] key to select "YES" or "NO".
- Press the [←] key.
- ➔ If you select "YES", an error message ("LIFT TOO SLOW"; "LIFT TOO FAST") is displayed if the values fall below or exceed the limits. An initialisation run is required.

#### Display

```
INITIALISATION MODE
POSITIONING SYSTEM ROTOMAT

RUN-ON NEW                : NO

[↑/↓/←]
```

```
INITIALISATION MODE
POSITIONING SYSTEM ROTOMAT

RUN-ON NEW                : NO
STARTUP MONITORING        : NO

[↑/↓/←]
```

```
INITIALISATION MODE
POSITIONING SYSTEM ROTOMAT

RUN-ON NEW                : NO
STARTUP MONITORING        : NO
LIFT RUN MONITORING       : NO

[↑/↓/←]
```

### 3 Positioning

#### Description of the operator prompts

##### Activate post-positioning

- Press the [↑] / [↓] key to select "YES" or "NO".
  - Press the [↵] key.
- ➔ If you select "YES", the stop position is readjusted if the ideal position is not reached when the carousel stops.

#### Display

```
INITIALISATION MODE
POSITIONING SYSTEM ROTOMAT

POST-POSITIONING      : ☒ NO
INITIALISATION RUN    : NO

[↑/↓/↵]
```

##### Execute an initialisation run

- Press the [↑] / [↓] key to select "YES" or "NO".
  - Press the [↵] key.
- ➔ If you select "YES", the initialisation run is executed. The average speed of the lift/carousel in fast mode is calculated.
- It is mandatory to carry out the initialisation run if "STARTUP MONITORING" or "RUN MONITORING" is activated.
- If the initialisation run is not carried out, an error message is displayed: ("NO INITIAL. RUN")

```
INITIALISATION MODE
POSITIONING SYSTEM ROTOMAT

POST-POSITIONING      : NO
INITIALISATION RUN    : ☒ NO

[↑/↓/↵]
```

##### Activate automatic sliding door

- Press the [↑] / [↓] key to select "YES" or "NO".
- Press the [↵] key.

```
INITIALISATION MODE
POSITIONING SYSTEM ROTOMAT

AUTOMATIC SLIDING DOOR : ☒ NO

[↑/↓/↵]
```

- See the "Supplementary Description of the Automatic Sliding Door Microprocessor Control System MP 12D/N Lean-Lift and Rotomat"

### 3 Positioning

#### 3.6 Positioning in the Rotomat operating mode with binary code sensor



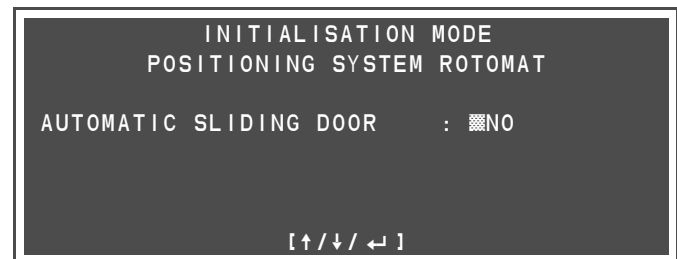
- x The following prompts appear only if the sensor type used is the "Binary code sensor".
- x The sensor type "Binary code sensor" is outdated and no longer being shipped.

##### Description of the operator prompts

###### Activate automatic sliding door

- Press the [↑] / [↓] key to select "YES" or "NO".
- Press the [←] key.

##### Display



- See the "Supplementary Description of the Automatic Sliding Door Microprocessor Control System MP 12D/N Lean-Lift and Rotomat"



4 System services



Various system parameters can be configured in this menu.



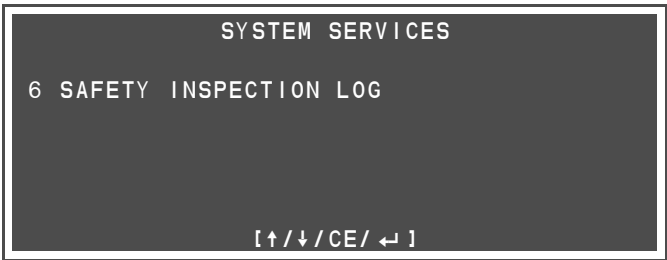
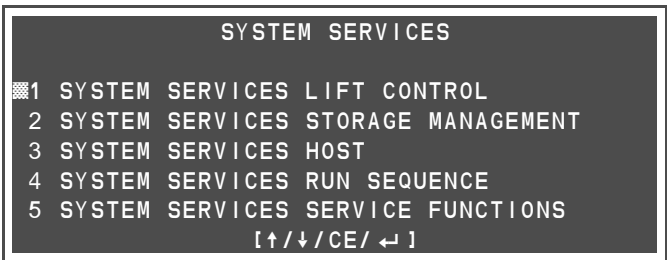
- x Depending on the initialisation, some menu items may not be offered.
- x The password "22488" is factory-assigned for all password prompts (except for the service functions).

Description of the operator prompts

Call up system services

- Press the **[ F1 ]** key.
- ➔ The "System services" menu is displayed.

Display



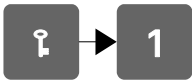
Menu item	See Chapter	Page
1	4.1	110
2	4.2	129
3	4.3	167
4	4.4	168
5	4.5	180
6	4.6	181

4

System services

4.1

System services lift control



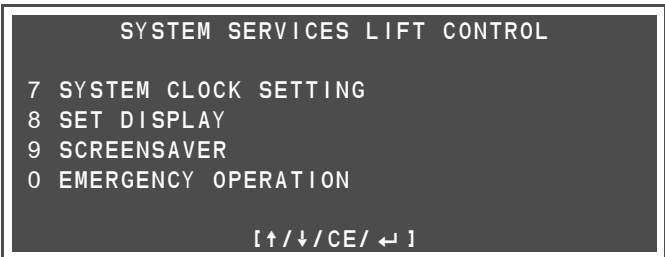
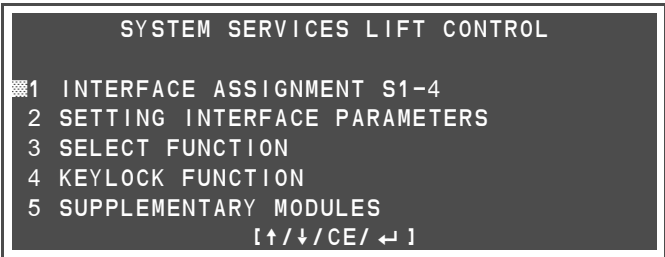
Various system parameters of the lift/carousel control system can be configured and retrieved in this menu.

Description of the operator prompts

Call up system services lift control

- Press the [ F1 ] key and the [ 1 ] key.
- The "System services lift control" menu is displayed.

Display



Menu item	See Chapter	Page
1	4.1.1	111
2	4.1.2	113
3	4.1.3	116
4	4.1.4	120
5	4.1.5	122
7	4.1.6	124
8	4.1.7	125
9	4.1.8	127
0	4.1.9	128

### 4 System services

#### 4.1.1 Interface assignment S1-4



Data can also be read in by connected peripheral devices as an alternative to keyboard input. To allow the control system to record and process these inputs correctly, a connected peripheral device must have the correct interface assigned to it.



##### x Lean-Lift and Multi-Space:

At access point 1, all interfaces in the base panelling of the lift are led to the outside.

At the other access points, only interface S2 is led to the outside under the operating console.

Refer also to drawing "LL-PERIP".

##### x Rotomat:

At each access point, all interfaces below the worktop are led to the outside.

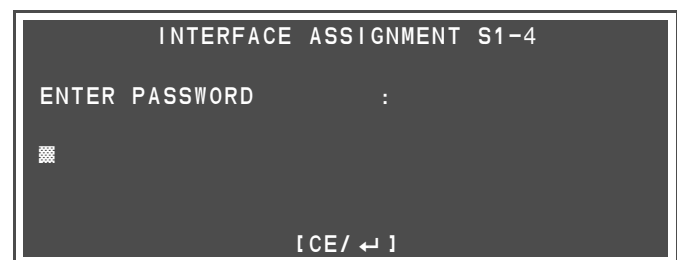
Refer also to drawing "RO-PERIP".

#### Description of the operator prompts

##### Interface assignment

- Press the [ F1 ] key, the [ F1 ] key and then the [ F1 ] key.
- Enter the password (default setting is "22488").
- Press the [ CE / ← ] key.

#### Display



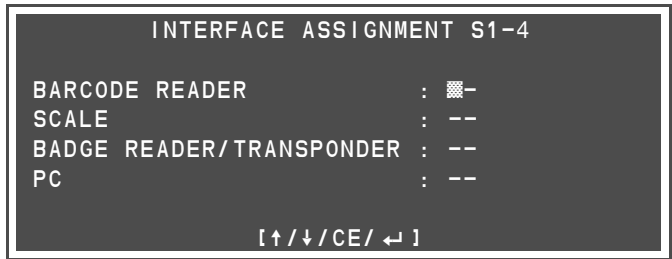
4

System services

Description of the operator prompts

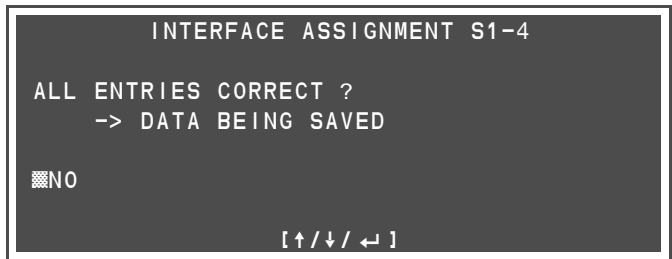
- For each prompt:
- Press the [↑] / [↓] key to select the interface.
  - Press the [↵] key.
- Each interface can be used only once.

Display



Options	Description
◆ --	Peripheral device does not exist
◆ S1	Interface S1
◆ S2	Interface S2
◆ S3	Interface S3
◆ S4	Interface S4

- Press the [↑] / [↓] key to select "YES".
  - Press the [↵] key.
- ➔ The interface assignment is saved.





4

System services

4.1.2

Setting interface parameters



The transmission parameters of serial interfaces "S1" - "S5" can be set in this menu.

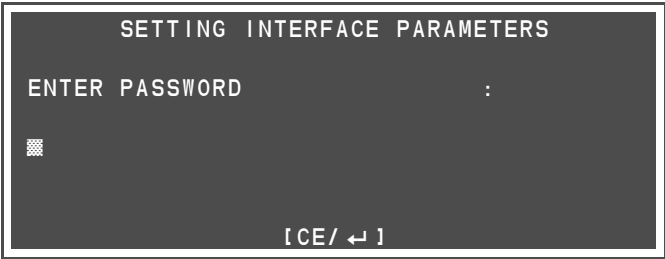
x Interface S5 is reserved.

Description of the operator prompts

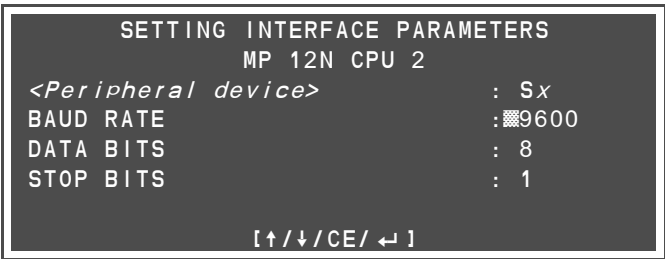
Set interface parameters S1-5

- Press the [ F1 ] key, the [ 1 ] key and then the [ 2 ] key.
- Enter the password (default setting is "22488").
- Press the [ ← ] key.

Display



- Interface assignment *Sx* to *<Peripheral device>* see Chapter 4.1.1, e.g. printer: S1.
- The user is prompted to enter the interface parameters in sequence for each interface.
- Press the [ ↑ ] / [ ↓ ] key to select the baud rate.
  - Press the [ ← ] key.
  - Press the [ ↑ ] / [ ↓ ] key to select the data bits.
  - Press the [ ← ] key.
  - Press the [ ↑ ] / [ ↓ ] key to select the stop bits.
  - Press the [ ← ] key.



Parameters	Options	
BAUD RATE	◆ 1200 ◆ 2400 ◆ 4800 ◆ 9600 ◆ 19200	◆ 38400 ◆ 57600 ◆ 76800 ◆ 115200
DATA BITS	◆ 7	◆ 8
STOP BITS	◆ 1	◆ 2

## 4 System services



- x For how to proceed, see the Chapter entitled "Ethernet connection to corporate network".
- x The network administrator for the corporate network must define the parameters to be set.

### Description of the operator prompts

#### Ethernet multi-unit network

→ The IP address is displayed.

- Press the [↑] / [↓] key to select the IP address range.

The default setting is "172.16". This value must only be changed if:

- There is overlap with the IP address range of the corporate network.
- More than one MP 12N-S is incorporated in the corporate network, if more than one MP 12N-S have the same lift number.
- If, for the MP 12N-H[MP 100D], the MP 100D is in another address range.
- Press the [↵] key.

#### Ethernet corporate network with DHCP

→ The corporate network must have a DHCP server and the MP 12N is authorised to have an IP address assigned by the DHCP. If no DHCP server is found when the unit is put into service, however, no IP address is assigned for the corporate network.

- Press the [↑] / [↓] key to select "YES".
- Press the [↵] key.

→ The IP address, MAC address and current DNS name of the MP 12N are displayed.

- If necessary, change the DNS name.
- Press the [↵] key.

### Display

```

SETTING INTERFACE PARAMETERS
MP 12N CPU II
ETHERNET MULTI-UNIT NETWORK
IP ADDRESS      : 172.<xx>.<ee>.<ll>
IP ADDRESS RANGE : 172.<xx>
                  -> 16 - 31
                  [↑/↓/CE/↵]
    
```

<xx> = IP address range

<ee> = Access point number

<ll> = Lift number

```

SETTING INTERFACE PARAMETERS
MP 12N CPU II
ETHERNET CORPORATE NETWORK
GET IP ADDRESS FROM DHCP : ☒ YES
                  [↑/↓/CE/↵]
    
```

```

SETTING INTERFACE PARAMETERS
MP 12N CPU II
ETHERNET CORPORATE NETWORK
IP ADDRESS      : ☒xx.xxx.xxx.xxx
MAC ADDRESS     : xx:xx:xx:xx:xx:xx
MP NAME         : mp12n-xxxxxx
                  [CE/↵]
    
```

### 4 System services

#### Description of the operator prompts

##### Ethernet corporate network without DHCP

- ➔ The corporate network does not have a DHCP server or it is to work with static IP addresses.
- Press the [↑] / [↓] key to select "NO".
- Press the [↵] key.
- Enter the IP address.  
(Entering the IP address "0.0.0.0" deactivates this.)
- Press the [↵] key.
- Enter the subnet mask.
- Press the [↵] key.
- Enter the standard gateway, if necessary.
- Press the [↵] key.

- ➔ The MAC address and current DNS name of the MP 12N are displayed here.
- If necessary, change the DNS name.
- Press the [↵] key.

##### End setting

- Press the [↑] / [↓] key to select "YES".
- Press the [↵] key.
- ➔ The interface parameter settings are saved.

#### Display

```
SETTING INTERFACE PARAMETERS
MP 12N CPU II
ETHERNET CORPORATE NETWORK
GET IP ADDRESS FROM DHCP : NO
IP ADDRESS                : ■■■.■■■.■■■.■■■
SUB-NETWORK MASK          : ■■■.■■■.■■■.■■■
STANDARD GATEWAY          : ■■■.■■■.■■■.■■■
                           [CE/↵]
```

```
SETTING INTERFACE PARAMETERS
MP 12N CPU II
ETHERNET CORPORATE NETWORK

MAC ADDRESS                : ■■■:■■■:■■■:■■■:■■■:■■■
MP NAME                    : ■■■mp12n-■■■■■■■■
                           [↵]
```

```
SETTING INTERFACE PARAMETERS
MP 12N CPU II
ALL ENTRIES CORRECT ?
-> DATA BEING SAVED

■■■NO
                           [CE/↵]
```

4

System services

4.1.3

Select function



The range of functions for the control system can be adapted in this menu.

Description of the operator prompts

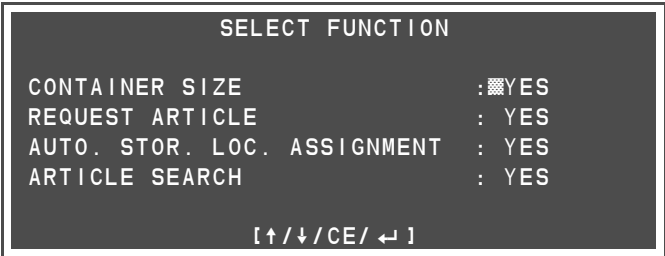
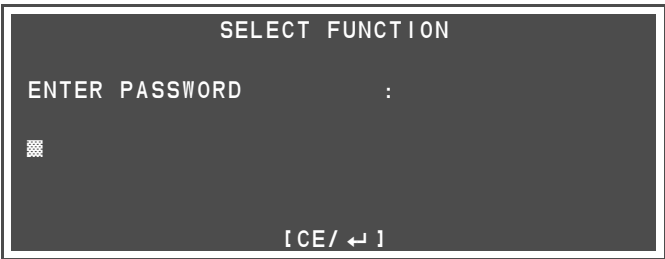
Adapt range of functions

- Press the [ F1 ] key, the [ F1 ] key and then the [ F3 ] key.
- Enter the password (default setting is "22488").
- Press the [ Enter ] key.

Display

For each prompt:



- Press the [ ↑ ] / [ ↓ ] key to select "YES" or "NO".
- Press the [ Enter ] key.



Parameters / description
CONTAINER SIZE A compartment or container size is included in the article data records; a compartment can be created with the [ F1 ] key.
REQUEST ARTICLE Access to an article is possible by entering an article number.
AUTO. STOR. LOC. ASSIGNMENT When creating a storage location, allow the control system to assign a free location by pressing the [ F1 ] key.
ARTICLE SEARCH The article search function can be activated with the [ X? ] or [ Y? ] key.

4

System services

Description of the operator prompts	Display
<ul style="list-style-type: none"> <li>Press the <b>[↑] / [↓]</b> key to select "YES".</li> <li>Press the <b>[←]</b> key.</li> </ul>	<div> <div> <div>SELECT FUNCTION</div> <div> <div>STORAGE LOCATION CREATION ONLY WITH</div> <div>MANDATORY CONTAINER SIZE ENTRY : </div> </div> <div> <div>[↑/↓/CE/←]</div> </div> </div> </div> <div> <div>Parameters / description</div> <div> <div>STORAGE LOCATION CREATION ONLY WITH</div> <div>MANDATORY CONTAINER SIZE ENTRY</div> <div>If you select "YES", storage locations can be created only using the <b>[↓]</b> key (creating a storage location with container size). The <b>[+↓]</b> key (creating a storage location without container) then no longer appears.</div> </div> </div>
<p>For each prompt:</p> <ul style="list-style-type: none"> <li>Press the <b>[↑] / [↓]</b> key to select "YES" or "NO".</li> <li>Press the <b>[←]</b> key.</li> </ul>	<div> <div> <div>SELECT FUNCTION</div> <div> <div>PROCESS REQUISITIONS : </div> <div>CREATE REQUISITIONS : YES</div> <div>DELETE REQUISITIONS : YES</div> <div>QUANTITY FACTOR FOR REQ. : YES</div> </div> <div> <div>[↑/↓/CE/←]</div> </div> </div> </div> <div> <div>Parameters / description</div> <div> <div>PROCESS REQUISITIONS</div> <div>A stored requisition can be processed by pressing the <b>[±]</b> key.</div> <div>CREATE REQUISITIONS</div> <div>A requisition can be entered at the keyboard with the <b>[±]</b> key.</div> <div>DELETE REQUISITIONS</div> <div>A requisition can be deleted manually with the <b>[1] -&gt; [2] -&gt; [4]</b> keys.</div> <div>QUANTITY FACTOR FOR REQ.</div> <div>A quantity factor is requested when a requisition is processed.</div> </div> </div>

### 4 System services

#### Description of the operator prompts

For each prompt:

- Press the **[↑]** / **[↓]** key to select "YES" or "NO".
- Press the **[←]** key.

#### Display

```

SELECT FUNCTION

MATCH CODE SRCH FOR:
ARTICLE NUMBER      : ☒ YES
ARTICLE NAME        : YES
REQUISITION NUMBER  : YES
SPECIAL DATA FIELD : YES
[↑/↓/CE/←]
    
```

#### Parameters / description

##### MATCH CODE SEARCH

The match code search function can be activated using the **[X?]** or **[Y?]** key.

→ Prompt is displayed only with FIFO storage management.

- Press the **[↑]** / **[↓]** key to select "YES" or "NO".
- Press the **[←]** key.

```

SELECT FUNCTION

DELETE LAST STORAGE LOCATION
AUTOMATICALLY AT ZERO INVENTORY : ☒ NO
[↑/↓/CE/←]
    
```

#### Parameters / description

##### DELETE LAST STORAGE LOCATION AUTOMATICALLY AT ZERO INVENTORY

If it is set to "YES", the last storage location is deleted at zero inventory during retrieval with **[−]**.

- Press the **[↑]** / **[↓]** key to select "YES" or "NO".
- Press the **[←]** key.

```

SELECT FUNCTION

DELETE REQUISITION AUTOMATICALLY
AFTER IT IS PROCESSED           : ☒ NO
[↑/↓/CE/←]
    
```

#### Parameters / description

##### DELETE REQUISITION AUTOMATICALLY AFTER IT IS PROCESSED

Once all items of a requisition are processed, the requisition is deleted.

4

System services

Description of the operator prompts	Display
<ul style="list-style-type: none"><li>Press the [↑] / [↓] key to select "YES" or "NO".</li><li>Press the [↵] key.</li></ul>	<div><div>SELECT FUNCTION</div><div>QUICK SELECTION JOB PROCESSING BY PRIORITY : <input type="checkbox"/> NO</div><div>[↑/↓/CE/↵]</div></div>
	<div><div>Parameters / description</div><div>QUICK SELECTION JOB PROCESSING BY PRIORITY Press the [↵] key to start processing the job with the highest priority immediately. Otherwise, pressing the [↵] key displays the job with the highest priority. You can either accept the job, enter a new job manually, or select a job by performing a match code search ([X?] key).</div></div>
<ul style="list-style-type: none"><li>Press the [↑] / [↓] key to select "YES".</li><li>Press the [↵] key.</li></ul> <p>➔ The "Select function" settings are saved.</p>	<div><div>SELECT FUNCTION</div><div>ALL ENTRIES CORRECT ? -&gt; DATA BEING SAVED</div><div><input type="checkbox"/> NO</div><div>[↑/↓/↵]</div></div>

### 4 System services

#### 4.1.4 Keylock function



The keyboard of the microprocessor control system MP 12N can be secured from unauthorised operation.

The entire keyboard or individual functions can be locked.

The password for the keylock function can be changed. The factory default password is "22488".

#### Description of the operator prompts

##### Set keylock function

- Press the [ F ] key, the [ 1 ] key and then the [ 4 ] key.
- Enter the password (default setting is "22488").
- Press the [ ↵ ] key.

#### Display

```

KEYLOCK FUNCTION

ENTER PASSWORD      :
█
[ CE / ↵ ]
  
```

→ Prompt does not appear with program version MP 12N-H[HOST-DATA].

For each prompt:

- Press the [ ↑ ] / [ ↓ ] key to select "YES" or "NO".
- Press the [ ↵ ] key.

```

KEYLOCK FUNCTION
DISABLE FUNCTION

[ + ]  STORE ARTICLE           : █ NO
[ + U ] CREATE STORAGE LOCATION : NO
[ - U ] DELETE STORAGE LOCATION : NO

[ ↑ / ↓ / CE / ↵ ]
  
```

→ The following prompt is displayed only for the Lean-Lift and Multi-Space.

For each prompt:

- Press the [ ↑ ] / [ ↓ ] key to select "YES" or "NO".
- Press the [ ↵ ] key.

```

KEYLOCK FUNCTION
DISABLE FUNCTION

[ + U ] ADD SHELF               : █ NO
[ - U ] REMOVE SHELF           : NO
[ ↓ ]   GET SHELF               : NO
[ ↓ U ] OPTIMISATION RUN       : NO

[ ↑ / ↓ / CE / ↵ ]
  
```



### 4 System services

#### Description of the operator prompts

→ Prompt is displayed only for the Rotomat.

For each prompt:

- Press the [↑] / [↓] key to select "YES" or "NO".
- Press the [↵] key.

- Press the [↑] / [↓] key to select "YES" or "NO".
- Press the [↵] key.
- Press the [↑] / [↓] key to select "YES" or "NO".
- Press the [↵] key.
- Enter password.
- Press the [↵] key.

- Press the [↑] / [↓] key to select "YES".
  - Press the [↵] key.
- The keylock function settings are saved.

#### Display

```

KEYLOCK FUNCTION
DISABLE FUNCTION

[↓/↑] LIFT RUN BY SIGHT      : NO
[↓]   MANUAL OPERATION      : NO

[↑/↓/CE/↵]
```

```

KEYLOCK FUNCTION

DISABLE ALL KEYS             : NO
FAST KEYLOCK FUNCTION        : NO
CURRENT PASSWORD             : 22488

[↑/↓/CE/↵]
```

#### Parameters / description

##### DISABLE ALL KEYS

Entire keyboard is locked except: [F1], [CE], [↵] and, for Lean-Lift and Multi-Space, [↑].

##### FAST KEYLOCK FUNCTION

In the basic state, press the [F2] key to lock the keyboard until the correct password is entered. Also, the password prompt for the keylock function appears when the lift/carousel is switched on.

##### CURRENT PASSWORD

Change password

```

KEYLOCK FUNCTION

ALL ENTRIES CORRECT ?
-> DATA BEING SAVED

NO

[↑/↓/↵]
```

### 4 System services

#### 4.1.5 Supplementary modules



Supplementary modules can be configured in this menu.



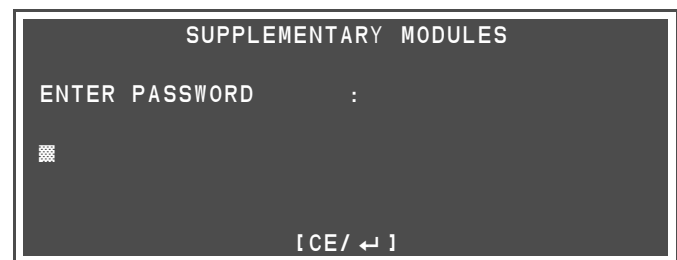
- x Separate descriptions are available for the individual supplementary modules.
- x The Annex of the operating manual contains a list of all the separate descriptions for the options for the lift/carousel.

#### Description of the operator prompts

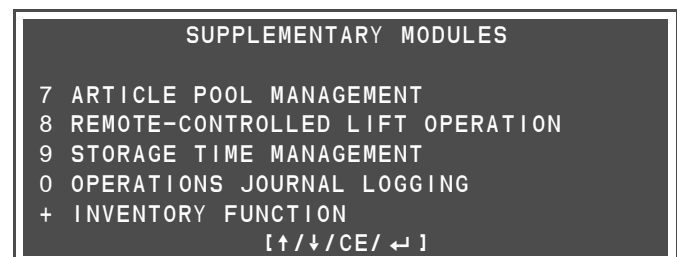
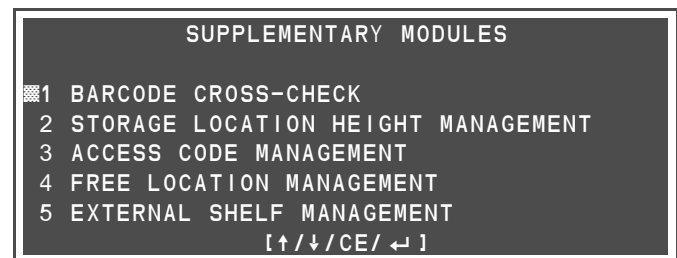
##### Set supplementary modules

- Press the [ ? ] key, the [ 1 ] key and then the [ 5 ] key.
- Enter the password (default setting is "22488").
- Press the [ ← ] key.

#### Display



##### 4.1.5.1 Program version MP 12N-S/H[MP100D]



### 4 System services

#### Description of the operator prompts

#### Display

```
SUPPLEMENTARY MODULES

- ADJUSTABLE SHELF SPEED
↓ SHELF PRE-POSITIONING
+U LENDING MANAGEMENT
-U LABEL PRINTING AT ACCESS POINT

[↑/↓/CE/↵]
```

#### 4.1.5.2 Program version MP 12N-H[HOST-DATA]

```
SUPPLEMENTARY MODULES

■2 STORAGE LOCATION HEIGHT MANAGEMENT
- ADJUSTABLE SHELF SPEED
↓ SHELF PRE-POSITIONING

[↑/↓/CE/↵]
```

#### 4.1.5.3 Program version MP 12N-H[HOST-WEB]

```
SUPPLEMENTARY MODULES

■2 STORAGE LOCATION HEIGHT MANAGEMENT
3 ACCESS CODE MANAGEMENT
6 AUTOMATIC SLIDING DOOR
7 AUTOMATIC SHELF EJECTION

[↑/↓/CE/↵]
```

```
SUPPLEMENTARY MODULES

- ADJUSTABLE SHELF SPEED
↓ SHELF PRE-POSITIONING

[↑/↓/CE/↵]
```

## 4 System services

### 4.1.6 System clock setting



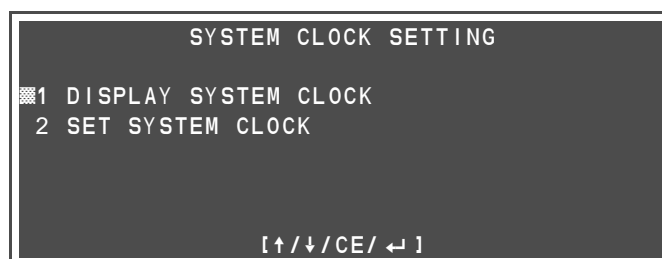
The internal system clock can be displayed and set in this menu.

#### Description of the operator prompts

##### Call up system clock setting

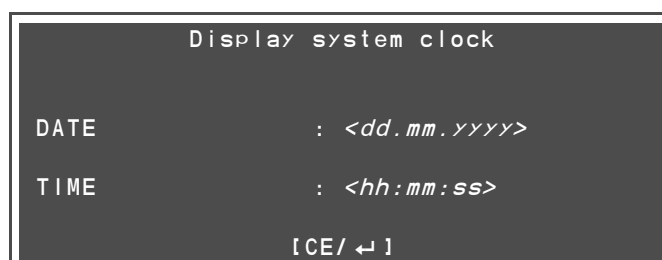
- Press the [F1] key, the [1] key and then the [7] key.
- The "System clock setting" menu is displayed.

#### Display



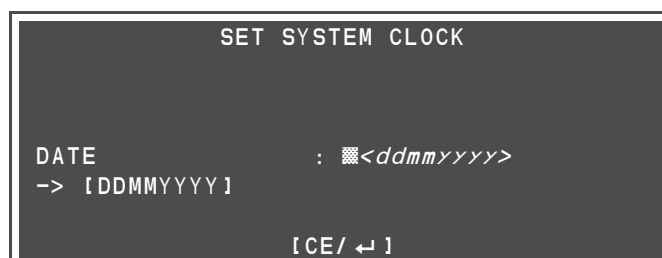
##### Display system clock

- The date and time are displayed.

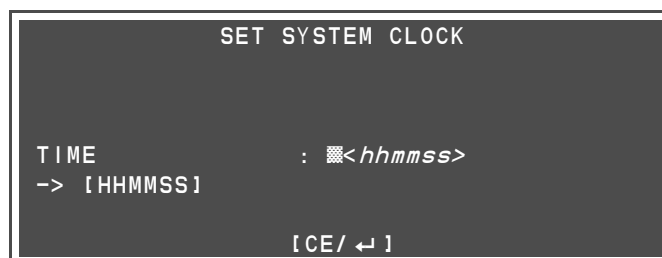


##### Set system clock

- Enter the date.
- Press the [←] key.



- Enter the time.
- Press the [←] key.



4

System services

4.1.7

Display configuration (only with TFT display)



Display-specific settings can be configured in this menu.



x This menu appears only if a TFT display is installed.

Description of the operator prompts

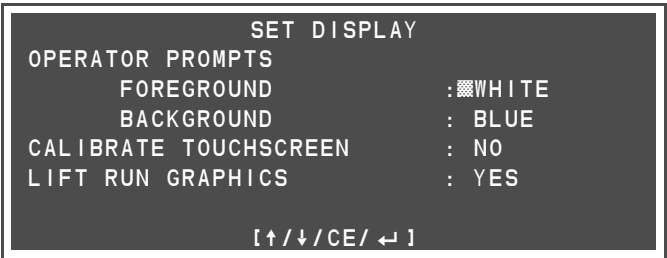
Configure TFT display

- Press the [↑] / [↓] key to select the foreground colour for the operator prompts.
- Press the [←] key.
- Press the [↑] / [↓] key to select the background colour for the operator prompts.
- Press the [←] key.
- Press the [↑] / [↓] key to select "YES" or "NO" for the calibration of the touchscreen.  
  
If you select "YES", the touchscreen is calibrated the next time the touchscreen is switched on.
- Press the [←] key.
- Press the [↑] / [↓] key to select "YES" or "NO" for the lift/carousel run graphics.
- Press the [←] key.

For Lean-Lift and Rotomat:

- Press the [↑] / [↓] key to select the lift/carousel colour for the lift/carousel run graphics.
- Press the [←] key.

Display



Colour options:	
◆ white	◆ red
◆ black	◆ magenta
◆ blue	◆ yellow
◆ green	



Lean-Lift options	Rotomat options
◆ grey	◆ grey
◆ mint green	◆ mint green
◆ blue	◆ blue
◆ bordeaux	◆ bordeaux
◆ silver	
◆ anthracite	

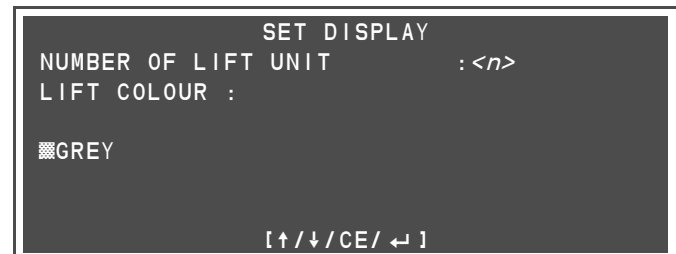
### 4 System services

#### Description of the operator prompts

For the Multi-Space:

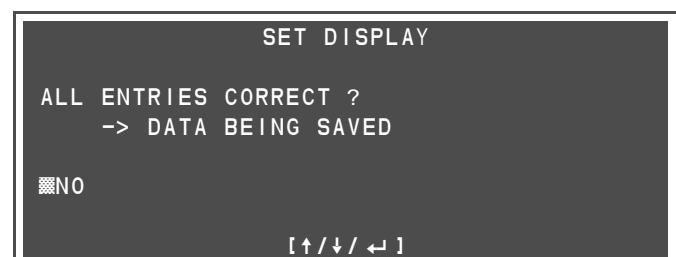
- Press the [↑] / [↓] key to select the lift/carousel colour for the lift/carousel run graphics.
  - Press the [←] key.
- A lift/carousel colour is assigned to each lift/carousel unit <n>.

#### Display



Options	
◆ grey	◆ silver
◆ mint green	◆ anthracite
◆ blue	◆ light blue
◆ bordeaux	◆ red

- Press the [↑] / [↓] key to select "YES".
  - Press the [←] key.
- The display-specific settings are saved.



### 4 System services

#### 4.1.8 Screensaver (only with VFD display)



A customer-specific text can be integrated into the screensaver in this menu.



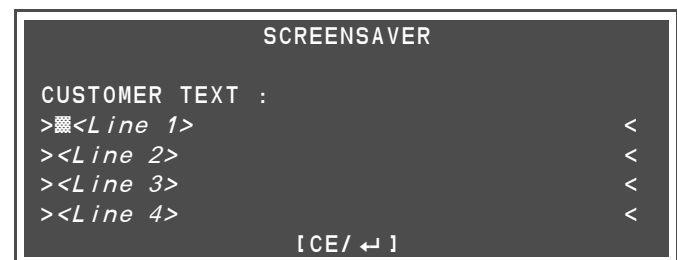
x This menu appears only on VF displays.

#### Description of the operator prompts

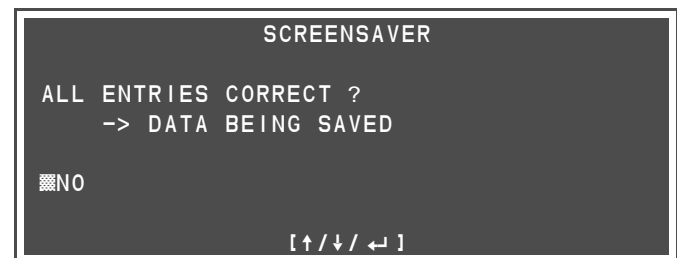
##### Enter screensaver

- Press the [F1] key, the [1] key and then the [9] key.
  - Enter text line 1.
  - Press the [↵] key.
  - Enter text line 2.
  - Press the [↵] key.
  - Enter text line 3.
  - Press the [↵] key.
  - Enter text line 4.
  - Press the [↵] key.
- x A maximum of 20 characters can be entered per page.

#### Display



- Press the [↑] / [↓] key to select "YES".
  - Press the [↵] key.
- ➔ Customer-specific text for screensaver is saved.



### 4 System services

#### 4.1.9 Emergency operation (only with Rotomat)



You can enable or disable emergency operation in this menu item.  
Enabling emergency operation means: the carousel can be operated with the doors closed if the safety light barriers or the safety rocker switches have failed.



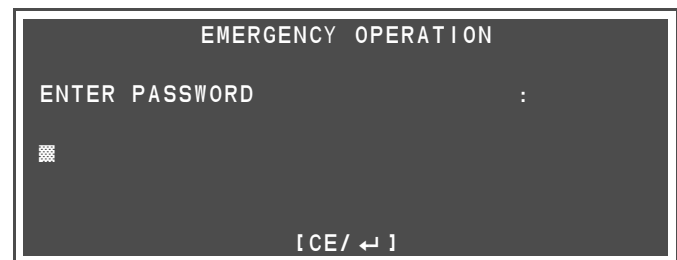
- x This menu item appears only on Rotomat systems having the optional electrical equipment "Second safety circuit".
- x After the carousel is switched off, emergency operation is deactivated again.

#### Description of the operator prompts

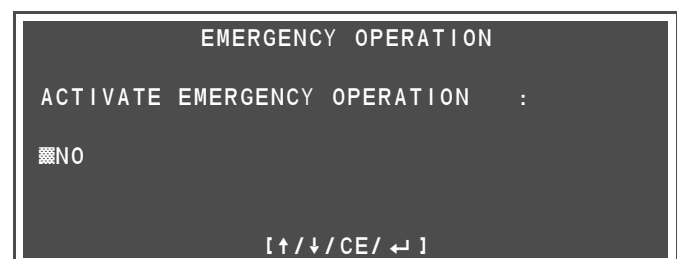
##### Enable or disable emergency operation

- Press the [ F1 ] key, the [ F1 ] key and then the [ 0 ] key.
- Enter password.
- Press the [ ← ] key.

#### Display



- Press the [ ↑ ] / [ ↓ ] key to select "YES".
- Press the [ ← ] key.



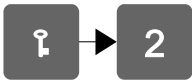


4

System services

4.2

Enable system services storage management for MP 12N-S/H[MP 100D]



System parameters of the storage management system can be configured in this menu.



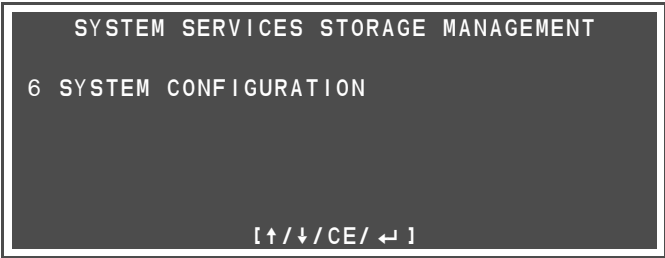
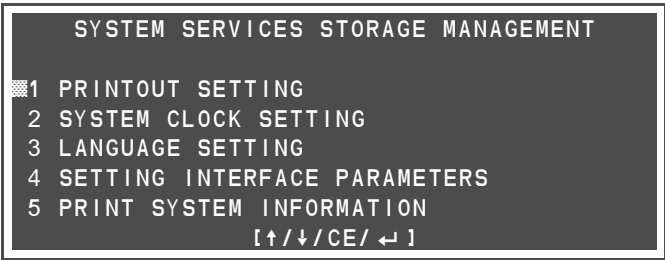
x For MP 12N-S, menu items "2" and "4" are omitted.

Description of the operator prompts

Call up system services storage management

- Press the [ F1 ] key and the [ 2 ] key.
- ➔ The "System services storage management" menu is displayed.

Display



Menu item	See Chapter	Page
1	4.2.1	130
2	4.2.2	138
3	4.2.3	139
4	4.2.4	140
5	4.2.5	143
6	4.2.6	147

### 4 System services

#### 4.2.1 Printout setting



Parameters for printing out lists can be configured in this menu. You can customise the layout of a printout by enabling or disabling individual data fields.



- x Frequently, there are more data fields available than can be accommodated by the width of the paper.
- x For a printout with more than 80 characters/line, it is necessary to have a printer that supports condensed printing mode or landscape format. The storage management system does not automatically switch to condensed printing mode or landscape format.
- x For MP 12N-S, menu items "+", "-", and "?" are omitted.
- x Depending on the initialisation, some menu items and parameters may not be offered.

#### Description of the operator prompts

##### Call up printout setting

- Press the [F1] key, the [F2] key and then the [F3] key.
- ➔ The "Printout setting" menu is displayed.

#### Display

```

PRINTOUT SETTING

█1 GENERATE ARTICLE LIST
2 GENERATE REQUISITION OVERVIEW LIST
3 GENERATE REQUISITION LIST
4 GENERATE REQUISITION LIST FOR RACK

[↑/↓/CE/↵]
  
```

```

PRINTOUT SETTING

5 GENERATE QUANTITY JOURNAL LIST
6 GENERATE OPERATIONS JOURNAL LIST
8 GENERATE ORDER RECOMMENDATION LIST
+ GENERATE JOB OVERVIEW LIST

[↑/↓/CE/↵]
  
```

```

PRINTOUT SETTING

- GENERATE JOB LIST
? GENERATE JOB LIST FOR RACK
9 PRINTER SETTINGS

[↑/↓/CE/↵]
  
```

### 4 System services

#### Description of the operator prompts

##### Saving printout setting

This prompt appears before saving the settings of each menu item.

- Press the [↑] / [↓] key to select "YES".
- Press the [←] key.
- The printout settings are saved.

#### Display

```

PRINTOUT SETTING

ALL ENTRIES CORRECT ?
-> DATA BEING SAVED

NO

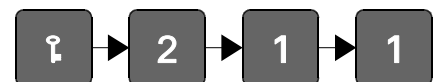
[↑/↓/CE/←]
    
```

##### Generate article list

- Press the [F1] key, the [2] key, the [1] key and then the [1] key.
- All the printable data fields for an article list are shown on the display.

For each prompt:

- Press the [↑] / [↓] key to select "YES" or "NO".  
If you select "NO", the data field is not printed.
- Press the [←] key.



```

GENERATE ARTICLE LIST

ARTICLE NUMBER      : YES
ARTICLE NAME        : NO
LIFT                 : YES
SHELF                : YES
COMPARTMENT          : YES

[↑/↓/CE/←]
    
```

```

GENERATE ARTICLE LIST

COMPARTMENT DEPTH    : YES
INVENTORY            : YES
TOTAL INVENTORY      : YES
MINIMUM INVENTORY    : YES
CONTAINER SIZE       : YES

[↑/↓/CE/←]
    
```

```

GENERATE ARTICLE LIST

JOURNAL IN           : NO
JOURNAL OUT          : NO
FIFO                 : YES

[↑/↓/CE/←]
    
```

4

System services

Description of the operator prompts

Display

Generate requisition overview list

- Press the **[ F1 ]** key, the **[ F2 ]** key, the **[ F1 ]** key and then the **[ F2 ]** key.

→ All the printable data fields for a requisition overview list are shown on the display.

For each prompt:

- Press the **[ ↑ ]** / **[ ↓ ]** key to select "YES" or "NO".  
If you select "NO", the data field is not printed.
- Press the **[ ← ]** key.

F1

2

1

2

GENERATE REQUISITION OVERVIEW LIST

REQUISITION NUMBER : YES

STATUS : YES

[↑/↓/CE/←]

Generate requisition list

- Press the **[ F1 ]** key, the **[ F2 ]** key, the **[ F1 ]** key and then the **[ F3 ]** key.

→ All the printable data fields for a requisition list are shown on the display.

For each prompt:

- Press the **[ ↑ ]** / **[ ↓ ]** key to select "YES" or "NO".  
If you select "NO", the data field is not printed.
- Press the **[ ← ]** key.

F1

2

1

3

GENERATE REQUISITION LIST

ARTICLE NUMBER : YES

ARTICLE NAME : NO

GOODS IN/OUT : YES

QUANTITY : YES

CONTAINER SIZE : YES

[↑/↓/CE/←]

GENERATE REQUISITION LIST

STATUS : YES

[↑/↓/CE/←]

### 4 System services

#### Description of the operator prompts

##### Generate requisition list for rack

- Press the **[ F1 ]** key, the **[ 2 ]** key, the **[ 1 ]** key and then the **[ 4 ]** key.
- ➔ All the printable data fields for a requisition list for rack are shown on the display.
- For each prompt:
- Press the **[ ↑ ]** / **[ ↓ ]** key to select "YES" or "NO".  
If you select "NO", the data field is not printed.
- Press the **[ ← ]** key.

#### Display



GENERATE REQUISITION LIST FOR RACK

ARTICLE NUMBER	: <input checked="" type="checkbox"/> YES
ARTICLE NAME	: NO
LIFT	: YES
SHELF	: YES
COMPARTMENT	: YES

[↑/↓/CE/←]

GENERATE REQUISITION LIST FOR RACK

COMPARTMENT DEPTH	: <input checked="" type="checkbox"/> YES
GOODS IN/OUT	: YES
QUANTITY	: YES
CONTAINER SIZE	: YES

[↑/↓/CE/←]

##### Generate quantity journal list

- Press the **[ F1 ]** key, the **[ 2 ]** key, the **[ 1 ]** key and then the **[ 5 ]** key.
- ➔ All the printable data fields for a quantity journal list are shown on the display.
- For each prompt:
- Press the **[ ↑ ]** / **[ ↓ ]** key to select "YES" or "NO".  
If you select "NO", the data field is not printed.
- Press the **[ ← ]** key.



GENERATE QUANTITY JOURNAL LIST

ARTICLE NUMBER	: <input checked="" type="checkbox"/> YES
ARTICLE NAME	: NO
TOTAL INVENTORY	: YES
MINIMUM INVENTORY	: YES
JOURNAL IN	: YES

[↑/↓/CE/←]

GENERATE QUANTITY JOURNAL LIST

JOURNAL OUT	: <input checked="" type="checkbox"/> YES
-------------	---

[↑/↓/CE/←]

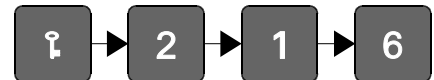
### 4 System services

#### Description of the operator prompts

#### Display

##### Generate operations journal list (supplementary module)

- Press the **[F1]** key, the **[F2]** key, the **[F1]** key and then the **[F6]** key.
- See "Supplementary Description of the Operations Journal Logging Microprocessor Control System MP 12D/N-S / H (MP 100D) Lean-Lift, Multi-Space and Rotomat".



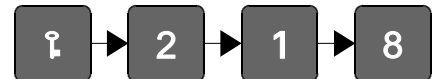
##### Generate order recommendation list

- Press the **[F1]** key, the **[F2]** key, the **[F1]** key and then the **[F8]** key.

➔ All the printable data fields for an order recommendation list are shown on the display.

For each prompt:

- Press the **[↑]** / **[↓]** key to select "YES" or "NO".  
If you select "NO", the data field is not printed.
- Press the **[←]** key.



GENERATE ORDER RECOMMENDATION LIST	
ARTICLE NUMBER	: <input checked="" type="checkbox"/> YES
ARTICLE NAME	: NO
TOTAL INVENTORY	: YES
MINIMUM INVENTORY	: YES
[↑/↓/CE/←]	

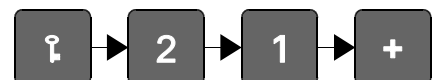
##### Generate job overview list

- Press the **[F1]** key, the **[F2]** key, the **[F1]** key and then the **[F+]** key.

➔ All the printable data fields for a job overview list are shown on the display.

For each prompt:

- Press the **[↑]** / **[↓]** key to select "YES" or "NO".  
If you select "NO", the data field is not printed.
- Press the **[←]** key.



GENERATE JOB OVERVIEW LIST	
JOB	: <input checked="" type="checkbox"/> YES
STATUS	: YES
PRIORITY	: YES
DATE	: YES
TIME	: YES
[↑/↓/CE/←]	

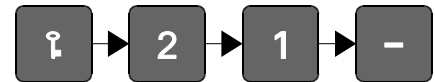
### 4 System services

#### Description of the operator prompts

##### Generate job list

- Press the **[F1]** key, the **[F2]** key, the **[F1]** key and then the **[F-]** key.
- ➔ All the printable data fields for a job list are shown on the display.
- For each prompt:
  - Press the **[↑]** / **[↓]** key to select "YES" or "NO".  
If you select "NO", the data field is not printed.
  - Press the **[←]** key.

#### Display

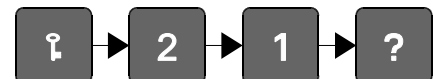


GENERATE JOB LIST	
ARTICLE NUMBER	: <input checked="" type="checkbox"/> YES
ARTICLE NAME	: NO
GOODS IN/OUT	: YES
QUANTITY	: YES
CONTAINER SIZE	: YES
[↑/↓/CE/←]	

GENERATE JOB LIST	
STATUS	: <input checked="" type="checkbox"/> YES
AC. QUANT	: YES
[↑/↓/CE/←]	

##### Generate job list for rack

- Press the **[F1]** key, the **[F2]** key, the **[F1]** key and then the **[F?]** key.
- ➔ All the printable data fields for a job list or rack are shown on the display.
- For each prompt:
  - Press the **[↑]** / **[↓]** key to select "YES" or "NO".  
If you select "NO", the data field is not printed.
  - Press the **[←]** key.



GENERATE JOB LIST FOR RACK	
ARTICLE NUMBER	: <input checked="" type="checkbox"/> YES
ARTICLE NAME	: NO
LIFT	: YES
SHELF	: YES
COMPARTMENT	: YES
[↑/↓/CE/←]	

GENERATE JOB LIST FOR RACK	
COMPARTMENT DEPTH	: YES
GOODS IN/OUT	: YES
QUANTITY	: YES
CONTAINER SIZE	: YES
AC. QUANT	: YES
[↑/↓/CE/←]	

4

System services

Description of the operator prompts	Display			
<div>Set printer</div> <ul style="list-style-type: none"><li>Press the [ F1 ] key, the [ 2 ] key, the [ 1 ] key and then the [ 9 ] key.</li><li>Enter the printed lines per page.</li><li>Press the [ ↵ ] key.</li><li>Press the [ ↑ ] / [ ↓ ] key to select the printer port.</li><li>Press the [ ↵ ] key.</li></ul>	<div><div><div><div>F1</div><div>2</div><div>1</div><div>9</div></div></div><div><div>PRINTER SETTINGS</div><div>NUMBER OF PRINTED LINES PER PAGE: 63</div><div>PRINTER PORT : NETWORK</div><div>[ CE / ↵ ]</div></div></div> <div><table><tr><th>Parameters / description</th></tr><tr><td>NUMBER OF PRINTED LINES PER PAGE The number of printed lines can be set to up to 90 lines. The default value for DIN A4-sized paper is "63".</td></tr><tr><td>PRINTER PORT The following printer connections can be selected:<ul style="list-style-type: none"><li>NETWORK</li></ul></td></tr></table></div>	Parameters / description	NUMBER OF PRINTED LINES PER PAGE The number of printed lines can be set to up to 90 lines. The default value for DIN A4-sized paper is "63".	PRINTER PORT The following printer connections can be selected: <ul style="list-style-type: none"><li>NETWORK</li></ul>
Parameters / description				
NUMBER OF PRINTED LINES PER PAGE The number of printed lines can be set to up to 90 lines. The default value for DIN A4-sized paper is "63".				
PRINTER PORT The following printer connections can be selected: <ul style="list-style-type: none"><li>NETWORK</li></ul>				



### 4 System services



- x The network administrator for the corporate network must define the parameters to be set.

#### Description of the operator prompts

##### Set printer emulation of printer port for network

- Press the [↑] / [↓] key to select the printer emulation.
  - Press the [↵] key.
- Changes to the printer emulation do not become effective until after the MP control system is switched off, then on again.

#### Display

```

PRINTER SETTINGS

NUMBER OF PRINTED LINES PER PAGE: 63
PRINTER PORT      : NETWORK
PRINTER EMULATION : LINEPRINTER

[↑/↓/CE/↵]
    
```

#### Options

- ◆ LINEPRINTER
- ◆ POSTSCRIPT  
Postscript printer emulation enables printouts in non-Roman alphabets such as Russian and Chinese.

##### Printer port for network with DHCP/DNS

- Press the [↑] / [↓] key to select "YES". Select "YES" if the network printer gets its IP address from the DHCP/DNS server.
  - Press the [↵] key.
  - Enter the printer name.
  - Press the [↵] key.
- Changes to the printer name do not become effective until after the MP control system is switched off, then on again.

```

PRINTER SETTINGS

NUMBER OF PRINTED LINES PER PAGE: 63
PRINTER PORT      : NETWORK
PRINTER EMULATION : LINEPRINTER
GET IP ADDRESS FROM DHCP : YES
PRINTER NAME      : HAENELPRINTER

[↑/↓/CE/↵]
    
```



- x The network administrator for the corporate network must define the parameters to be set.

##### Printer port for network without DHCP

- Press the [↑] / [↓] key to select "NO".  
Select "NO" if the network printer does not get its IP address from the DHCP/DNS server.
- Press the [↵] key.
- Enter the IP address.
- Press the [↵] key.

```

PRINTER SETTINGS

NUMBER OF PRINTED LINES PER PAGE: 63
PRINTER PORT      : NETWORK
PRINTER EMULATION : LINEPRINTER
GET IP ADDRESS FROM DHCP : NO
IP ADDRESS        : XXXX.XXX.XXX.XXX

[↑/↓/CE/↵]
    
```

### 4 System services

#### 4.2.2 System clock setting (only for MP 12N-H[MP 100D])



The internal system clock can be displayed and set in this menu.



x This menu appears only with MP 12N-H[MP 100D].

#### Description of the operator prompts

##### Call up system clock setting

- Press the [F1] key, the [F2] key and then the [F2] key.
- The "System clock setting" menu is displayed.

#### Display

```

SYSTEM CLOCK SETTING

1 DISPLAY SYSTEM CLOCK
2 SET SYSTEM CLOCK

[↑/↓/CE/←]
  
```

##### Display system clock

- The date and time are displayed.

```

Display system clock

DATE           : <dd.mm.yyyy>
TIME           : <hh:mm:ss>

[CE/←]
  
```

##### Set system clock

- Enter the date.
- Press the [F1] key.

```

SET SYSTEM CLOCK

DATE           : █<ddmmyy>
-> [DDMMYY]

[CE/←]
  
```

- Enter the time.
- Press the [F1] key.

```

SET SYSTEM CLOCK

TIME          : █<hhmmss>
-> [HHMMSS]

[CE/←]
  
```

### 4 System services

#### 4.2.3 Language setting



The language for the printer output and host communication can be set in this menu.

##### Description of the operator prompts

Set the language for printer/host communication

- Press the [1] key, the [2] key and then the [3] key.
- Enter the password (default setting is "22488").
- Press the [↵] key.

##### Display

```
LANGUAGE SETTING
-> PRINTER / HOST COMMUNICATION
ENTER PASSWORD

█

[↑/↓/CE/↵]
```

- Press the [↑]/[↓] key to select the language.
- Press the [↵] key.

```
LANGUAGE SETTING
-> PRINTER / HOST COMMUNICATION
SELECT LANGUAGE

█<Local language>
<Language code>

[↑/↓/CE/↵]
```

- Press the [↑]/[↓] key to select "YES".
  - Press the [↵] key.
- ➔ The language setting for printer/host communication is saved.

```
LANGUAGE SETTING
-> PRINTER / HOST COMMUNICATION
ALL ENTRIES CORRECT ?
-> DATA BEING SAVED

█NO

[↑/↓/CE/↵]
```

## 4 System services

### 4.2.4 Setting the interface parameters (only with MP 12N-H[MP 100D])



Interface parameters of the MP 100D can be set in this menu.



- x This menu appears only with MP 12N-H[MP 100D].
- x For procedures for Ethernet connection to corporate network, see the "Technical Description of the Microprocessor Control System MP 12N-S / MP 100D Server for Lean-Lift, Multi-Space and Rotomat".
- x The network administrator for the corporate network must define the parameters to be set.

#### Description of the operator prompts

##### Set interface parameters

- Press the [ F1 ] key, the [ F2 ] key and then the [ F4 ] key.
- Enter the password (default setting is "22488").
- Press the [ CE/↵ ] key.

#### Display

```
SETTING INTERFACE PARAMETERS
MP 100D

ENTER PASSWORD

█

[CE/↵]
```

##### Ethernet multi-unit network

- ➔ The IP address is displayed.
- Enter the IP address range.  
Default setting is "172.016". This value must only be changed if:
  - There is overlap with the IP address range of the corporate network.
  - More than one MP 100D is incorporated in the corporate network. Each MP 100D needs its own address range.
- Press the [ CE/↵ ] key.

```
SETTING INTERFACE PARAMETERS
MP 100D
ETHERNET MULTI-UNIT NETWORK
IP ADDRESS      : 172 . xxx . 001 . 254
IP ADDRESS RANGE : 172 . █xx
-> 016 - 031

[CE/↵]
```

### 4 System services

#### Description of the operator prompts

##### Ethernet corporate network with DHCP

→ The corporate network must have a DHCP server and the MP 100D is authorised to have an IP address assigned by the DHCP. If no DHCP server is found when the unit is put into service, however, no IP address is assigned for the corporate network.

- Press the [↑] / [↓] key to select "YES".
- Press the [↵] key.

→ The IP address, MAC address and current DNS name of the MP 100D are displayed.

- If necessary, change the DNS name.
- Press the [↵] key.

#### Display

```

SETTING INTERFACE PARAMETERS
MP 100D
ETHERNET CORPORATE NETWORK
GET IP ADDRESS FROM DHCP : ☒ YES

[↑/↓/CE/↵]
```

```

SETTING INTERFACE PARAMETERS
MP 100D
ETHERNET CORPORATE NETWORK
IP ADDRESS      : xxx.xxx.xxx.xxx
MAC ADDRESS     : xx:xx:xx:xx:xx:xx
MP100D NAME     : ☒ MP100D-xxxxxx

[CE/↵]
```

##### Ethernet corporate network without DHCP

→ The corporate network does not have a DHCP server or it is to work with static IP addresses.

- Press the [↑] / [↓] key to select "NO".
- Press the [↵] key.
- Enter the IP address of the MP100D Web Server.
- Press the [↵] key.
- Enter the subnet mask.
- Press the [↵] key.
- Enter the standard gateway, if necessary.
- Press the [↵] key.

```

SETTING INTERFACE PARAMETERS
MP 100D
ETHERNET CORPORATE NETWORK
GET IP ADDRESS FROM DHCP : NO
IP ADDRESS      : ☒ xxx.xxx.xxx.xxx
SUB-NETWORK MASK : xxx.xxx.xxx.xxx
STANDARD GATEWAY : xxx.xxx.xxx.xxx

[CE/↵]
```

→ The MAC address and current DNS name of the MP 100D are displayed here.

- If necessary, change the DNS name.
- Press the [↵] key.

```

SETTING INTERFACE PARAMETERS
MP 100D
ETHERNET CORPORATE NETWORK

MAC ADDRESS     : xx:xx:xx:xx:xx:xx
MP100D NAME     : ☒ MP100D-xxxxxx

[↵]
```

### 4 System services

#### Description of the operator prompts

##### Remote maintenance via ISDN (optional)

The remote maintenance is set to "NO" by default. As an option, an additional ISDN hardware module can be used for remote maintenance. If this module is installed, the number of the ISDN line must also be entered.

- Press the **[↑]** / **[↓]** key to select "YES".
- Press the **[←]** key.
- Enter the ISDN phone number.
- Press the **[←]** key.

##### End setting

- Press the **[↑]** / **[↓]** key to select "YES".
  - Press the **[←]** key.
- ➔ The interface parameter settings are saved.

#### Display

```
SETTING INTERFACE PARAMETERS
MP 100D
REMOTE MAINTEN.      : ☒ YES
ISDN PHONE NO.       : xxxxxxxx

[CE/ ←]
```

```
SETTING INTERFACE PARAMETERS
MP 100D
ALL ENTRIES CORRECT ?
-> DATA BEING SAVED

☒ NO

[CE/ ←]
```

### 4 System services

#### 4.2.5 Print system information



In this menu, you can print out lists that contain information about the formatting, installation and settings for storage management. This information is helpful for service purposes.

#### Description of the operator prompts

##### Print system information

- Press the [ F1 ] key, the [ F2 ] key and then the [ F5 ] key.
- The "Print system information" menu is displayed.

#### Display

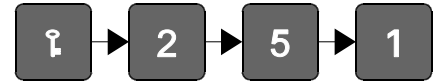
```
PRINT SYSTEM INFORMATION

1 PRINT STORAGE MANAGEMENT FORMATTING
2 PRINT STORAGE MANAGEMENT INSTALLATION
3 PRINT STORAGE MANAGEMENT SETTINGS

[ ↑ / ↓ / CE / ← ]
```

### 4 System services

#### 4.2.5.1 Print storage management formatting



All the format settings of storage management are printed out.

#### Example printout:

```

Storage management formatting                                     Page: 1
Date   : 2006-03-20      Time : 09:45
*****
Data field   Name                                               No. of characters
*****
S            Article number                                     20
N            Article name                                       20
L            Carousel                                           2
T            Shelf                                              3
F            Compartment                                         3
O            Comp-D                                             2
B            Inventory                                           8
P            T-Inv.                                              8
R            M-Inv.                                              8
K            Requisition                                         20
V            I/O                                                 1
Q            Quantity                                            8
G            Cont                                                5
Z            Additions                                           8
A            Retrievals                                          8
I            Fifo                                                3
W            Status                                              2

Program version          V 5.0
File management          No
Customer management      No
Lending management       No
Date format              -> [ddmmyy]
Quantity journal logging No
Operat. journal logging  No
Access code management   No
Storage location height management No
Storage time management  No
External shelf management No
Article pool management  No
Storage location chain monitoring No
Multi-unit storage       No
Requisition processing    -> Path-optimised
Control of quantity factor for requisition processing No
***** End of list *****
  
```

#### Abbreviations:

Comp-D	Compartment depth
T-Inv.	Total inventory
M-Inv.	Minimum inventory
Cont	Container size

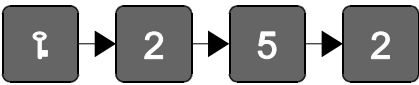


4

System services

4.2.5.2

Print storage management installation



All the lifts/carousels registered in storage management are printed out with their storage location configurations.

The printout also shows the total number of storage locations of all registered lifts/carousels.

Example printout:

Storage management lift installation

Page: 1

Date : 2006-03-20Time : 09:45

\*\*\*\*\*

Lift number	Number of shelves	Number of compartments	No. of comp-d	Storage locations
*****	*****	*****	*****	*****
1	30	12	4	1440
2	26	40	1	1040
3	52	8	1	1416
				2896
***** End of list *****				

Abbreviations:

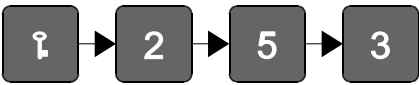
No. of comp-d    Number of compartment depths

4

System services

4.2.5.3

Print storage management settings



All the system settings of storage management are printed out.  
The printout contains the following:

- Current settings of the system clock and language
- Configuration of the interfaces
- Configuration of the printouts

Example printout:

Storage management settingsPage: 1

Date : 2006-03-20Time : 09:45

\*\*\*\*\*

\*\*\*\*\*

Language : English

Interface parameters COM 1Interface parameters COM 2

Baud rate : 9600Baud rate : 9600

Data bits : 8Data bits : 8

Stop bits : 1Stop bits : 1

Interface parameters COM 3

Baud rate : 9600

Data bits : 8

Stop bits : 1

Article listRequisition overview list

Article number : YesRequisition number : Yes

Article name : NoStatus : No

Lift : Yes

Shelf : Yes

Compartment : Yes

Compartment depth : Yes

Inventory : Yes

Total inventory : Yes

Minimum inventory : Yes

Container size : Yes

Journal in : No

Journal out : No

FIFO : No

Requisition listStorage/retrieval list

Article number : YesArticle number : Yes

Article name : NoArticle name : No

Operation : YesLift : Yes

Quantity : YesShelf : Yes

Container size : YesCompartment : Yes

Status : YesCompartment depth : Yes

Operation : Yes

Quantity : Yes

Container size : Yes

Quantity journal listOrder recommendation list

Article number : YesArticle number : Yes

Article name : YesArticle name : No

Total inventory : YesTotal inventory : Yes

Minimum inventory : YesMinimum inventory : Yes

Journal in : Yes

Journal out : Yes

\*\*\*\*\* End of list \*\*\*\*\*

Abbreviations:

No. of comp-d

Number of compartment depths

4

System services

4.2.6

System configuration



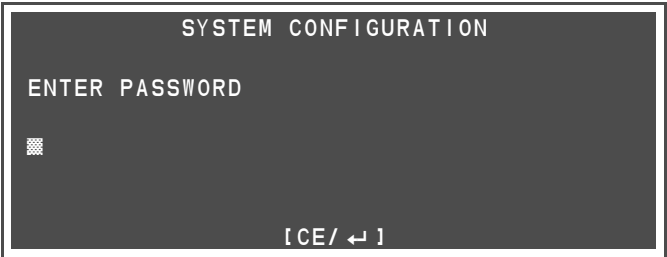
All the important system parameters for storage management and the multi-unit network can be configured in this menu.

Description of the operator prompts

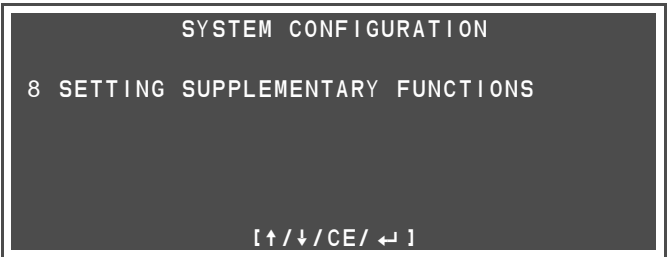
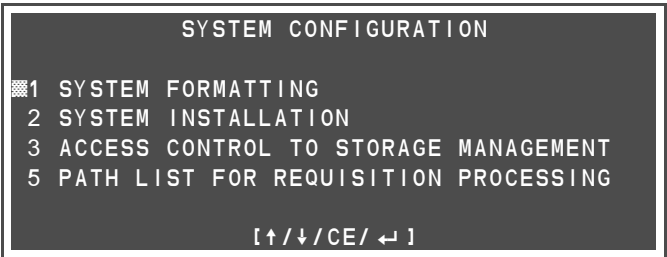
Call up system configuration

- Press the [ F1 ] key, the [ 2 ] key and then the [ 6 ] key.
- Enter the password (default setting is "22488").
- Press the [ ← ] key.

Display



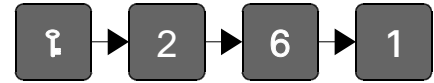
→ The "System configuration" menu is displayed.



Menu item	See Chapter	Page
1	4.2.6.1	148
2	4.2.6.2	157
3	4.2.6.3	159
5	4.2.6.4	161
8	4.2.6.5	164

### 4 System services

#### 4.2.6.1 System formatting



All the important system-specific data for storage management can be configured in this menu.



- x The storage management system must be formatted:
  - Before commissioning of a multi-unit network
  - When replacing the data flash cards.
- x For the MP 12D-H[MP 100D], the display texts change as follows:
  - "REQUISITION NUMBER" -> "REQUISITIONS/ JOBS"
  - "REQUISITION HEADER" -> "REQ/JOB HEADER".
- x Note about maximum number of characters:
  - A maximum of 40 characters are possible.
  - If there are more than 20 characters, output is in condensed script (40 column mode).



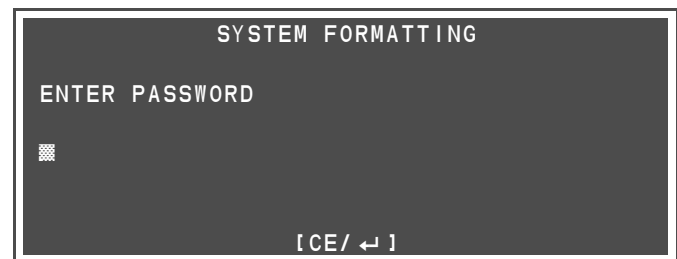
All article, requisition and job data are deleted.

#### Description of the operator prompts

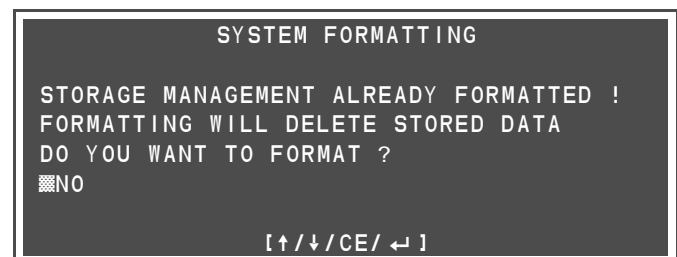
##### System formatting

- Press the [ F1 ] key, the [ F2 ] key and then the [ F6 ] key.
- Enter the password (default setting is "22488").
- Press the [ ← ] key.
- Press the [ F1 ] key.
- Enter the password (default setting is "22488").
- Press the [ ← ] key.

#### Display



- Press the [ ↑ ] / [ ↓ ] key to select "YES".
- Press the [ ← ] key.



### 4 System services

#### Description of the operator prompts

##### Set formatting to default values

- Press the [↑] / [↓] key to select "YES" or "NO".  
Selecting "YES" resets the control system to the basic configuration.
- Press the [↵] key.

##### Storage management packet

- Press the [↑] / [↓] key to select the storage management packet.
- Press the [↵] key.

##### Maximum number of characters for article number

- Enter the number of characters.
- Press the [↵] key.

##### Maximum number of characters for article name

- Enter the number of characters.  
if the setting is "0", no article name is recorded in the data record of the storage management system.
- Press the [↵] key.

##### Maximum number of characters for requisition numbers

- Enter the number of characters.
- Press the [↵] key.

#### Display

```

SYSTEM FORMATTING

SET FORMATTING TO DEFAULT VALUES?

NO

[↑/↓/CE/↵]
    
```

```

SYSTEM FORMATTING

STORAGE MANAGEMENT PACKET

ARTICLE STORAGE MANAGEMENT

[↑/↓/CE/↵]
    
```

#### Options

- ◆ ARTICLE STORAGE MANAGEMENT
- ◆ FILE MANAGEMENT
- ◆ TOOL STORAGE MANAGEMENT

```

SYSTEM FORMATTING

ENTER MAXIMUM NUMBER OF CHARACTERS
FOR ARTICLE NUMBERS
-> [1-40]
20

[CE/↵]
    
```

```

SYSTEM FORMATTING

ENTER MAXIMUM NUMBER OF CHARACTERS
FOR ARTICLE NAMES
-> [0-40]
20

[CE/↵]
    
```

```

SYSTEM FORMATTING

ENTER MAXIMUM NUMBER OF CHARACTERS
FOR REQUISITION NUMBERS
-> [1-40]
20

[CE/↵]
    
```

### 4 System services

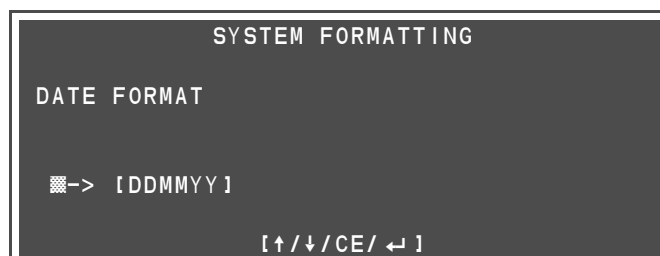
#### Description of the operator prompts

##### Set date format

When article lists are printed out or when the journal is read out with a PC (-> operations journal), the date appears in the configured format.

- Press the [↑] / [↓] key to select the date format.
- Press the [←] key.

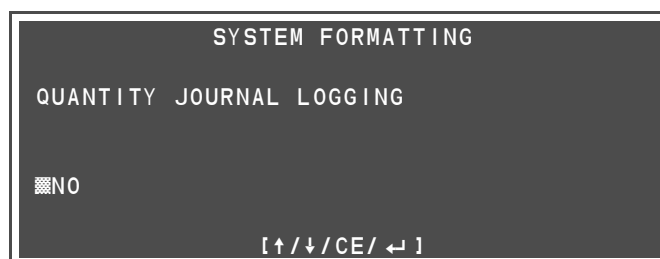
#### Display



Options	Description
◆ [DDMMYY]	DD = calendar day, 2-digit
◆ [MMDDYY]	MM = month, 2-digit
	YY = year, 2-digit

##### Quantity journal

- Press the [↑] / [↓] key to select "YES" or "NO".
- Press the [←] key.



Description
<p><b>QUANTITY JOURNAL LOGGING</b></p> <p>All incoming and outgoing quantities of articles in storage are listed separately.</p> <p>Article data relating to articles that have already been deleted remain in memory until the quantity journal has been deleted.</p> <p>It can be printed out and manually deleted. The quantity journal can also be read out to a PC as a file, after which it is automatically deleted.</p>

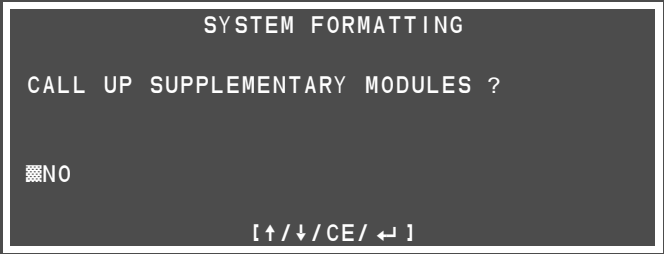
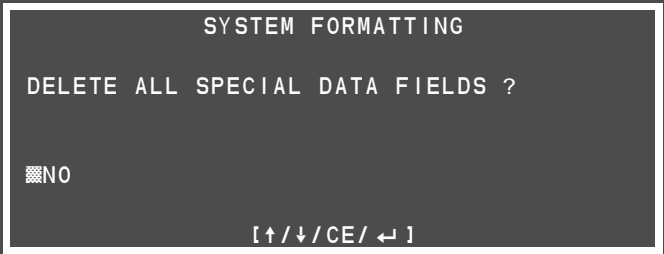


When storage management is formatted with quantity journal logging, the maximum number of storable articles is reduced.

	Memory size of data flash card	Max. number of articles
MP 100D	16 / 32 / 64 MB	89041
MP 12N	16 / 32 / 64 MB	8730

4

System services

Description of the operator prompts	Display
<p>Call up supplementary modules</p> <p>Special storage management functions can be activated in the form of supplementary modules.</p> <ul style="list-style-type: none"> <li>➤ Refer to the supplementary description of the optional module in question.</li> <li>• Press the [↑] / [↓] key to select "YES".</li> <li>• Press the [↵] key.</li> </ul>	
<p>Delete special data fields</p> <ul style="list-style-type: none"> <li>• Press the [↑] / [↓] key to select "YES". If you select "YES", all the special data fields from earlier formatting are deleted.</li> <li>• If you select "NO", all the special data fields from earlier formatting are retained.</li> <li>• Press the [↵] key.</li> </ul>	 <div> <div>Description</div> <div> <p><b>SPECIAL DATA FIELDS</b></p> <p>Special data fields are necessary if additional prompts for the operator at the lift/carousel are to be incorporated over and above the standard program sequence.</p> <p>Depending on the program step in the operating sequence, special data are entered in a special data field for article master data, requisition header or requisition item.</p> <p>A separate special data field must be defined for each additional prompt in the program sequence. It does not matter if no data are produced for them initially; they are simply carried along as empty data fields.</p> </div> </div>

4

System services

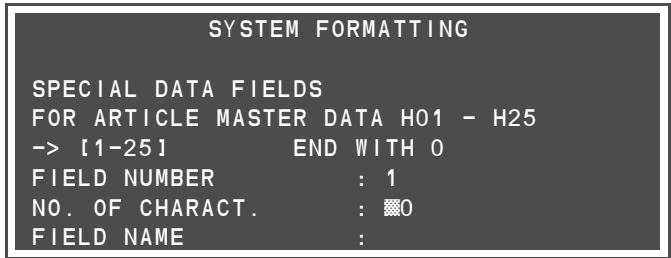
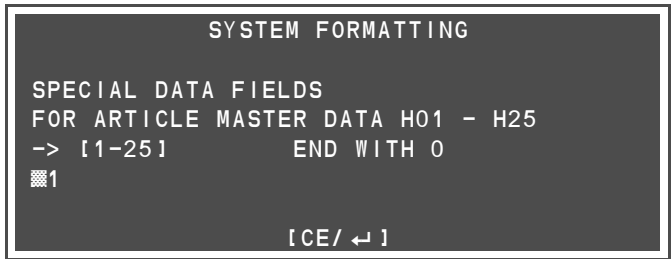
Description of the operator prompts

Display

Create special data fields for article master data (H01-H25)

This data field type is available for special data that can arise with article movements.

- Enter the field number or keep the suggested number.
  - Press the [↵] key.
  - Press the [0] key and the [↵] key to end input.
- 
- Enter the number of characters.
  - Press the [↵] key.
  - Enter the field name.
  - Press the [↵] key.



Parameters / description	
FIELD NUMBER	The field number can be from 1 - 25.
NUMBER OF CHARACTERS	A maximum of 40 characters are possible.
FIELD NAME	The field name (max. 10 characters) is printed in the header for printer output.



4

System services

Description of the operator prompts	Display				
<p>Create special data fields for the requisition/job header (C01-C25)</p> <p>This data field type is available for special data that may arise when a requisition/job is created or called.</p> <ul style="list-style-type: none"><li>• Enter the field number or keep the suggested number.</li><li>• Press the [↵] key.</li><li>• Press the [0] key and the [↵] key to end input.</li></ul>	<div><div>SYSTEM FORMATTING</div><div>SPECIAL DATA FIELDS FOR REQUISITION/JOB HEADER C01 - C25 -&gt; [1-25]           END WITH 0 █1</div><div>[CE/↵]</div></div>				
<ul style="list-style-type: none"><li>• Enter the number of characters.</li><li>• Press the [↵] key.</li><li>• Enter the field name.</li><li>• Press the [↵] key.</li></ul>	<div><div>SYSTEM FORMATTING</div><div>SPECIAL DATA FIELDS FOR REQUISITION/JOB HEADER C01 - C25 -&gt; [1-25]           END WITH 0 FIELD NUMBER       : 1 NO. OF CHARACT.    : █0 FIELD NAME         :</div></div>				
	<table><tr><th>Parameters / description</th></tr><tr><td>FIELD NUMBER The field number can be from 1 - 25.</td></tr><tr><td>NUMBER OF CHARACTERS A maximum of 40 characters are possible.</td></tr><tr><td>FIELD NAME The field name (max. 10 characters) is printed in the header for printer output.</td></tr></table>	Parameters / description	FIELD NUMBER The field number can be from 1 - 25.	NUMBER OF CHARACTERS A maximum of 40 characters are possible.	FIELD NAME The field name (max. 10 characters) is printed in the header for printer output.
Parameters / description					
FIELD NUMBER The field number can be from 1 - 25.					
NUMBER OF CHARACTERS A maximum of 40 characters are possible.					
FIELD NAME The field name (max. 10 characters) is printed in the header for printer output.					

4
System services

Description of the operator prompts	Display
<p>Special data fields for requisition/job items (U01-U25)</p> <p>This data field type is available for special data that may arise when a requisition list item is entered or processed.</p> <ul style="list-style-type: none"> <li>Enter the field number or keep the suggested number.</li> <li>Press the [↵] key.</li> <li>Press the [0] key and the [↵] key to end input.</li> </ul>	<div> <div>SYSTEM FORMATTING</div> <div> SPECIAL DATA FIELDS  FOR REQUISITION/JOB ITEM U01-U25  -&gt; [1-25]           END WITH 0  █1 </div> <div>[CE/↵]</div> </div>
<ul style="list-style-type: none"> <li>Enter the number of characters.</li> <li>Press the [↵] key.</li> <li>Enter the field name.</li> <li>Press the [↵] key.</li> </ul>	<div> <div>SYSTEM FORMATTING</div> <div> SPECIAL DATA FIELDS  FOR REQUISITION/JOB ITEM U01-U25  -&gt; [1-25]           END WITH 0  FIELD NUMBER       : 1  NO. OF CHARACT.   : █0  FIELD NAME         : </div> </div> <div> <div>Parameters / description</div> <div> <div>FIELD NUMBER</div> <div>The field number can be from 1 - 25.</div> </div> <div> <div>NUMBER OF CHARACTERS</div> <div>A maximum of 40 characters are possible.</div> </div> <div> <div>FIELD NAME</div> <div>The field name (max. 10 characters) is printed in the header for printer output.</div> </div> </div>

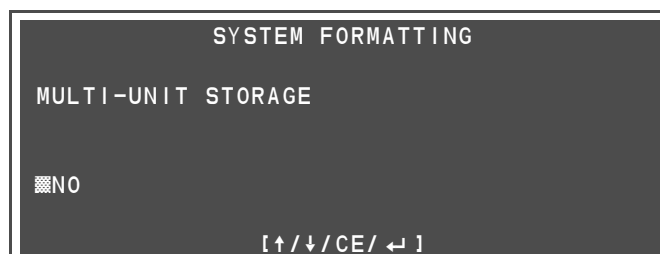
### 4 System services

#### Description of the operator prompts

##### Multi-unit storage (only for MP 12N-H[MP 100D])

- Press the [↑] / [↓] key to select "YES".
- Press the [↵] key.

#### Display



#### Description

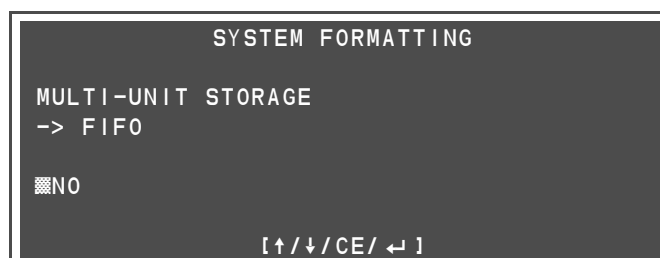
##### MULTI-UNIT STORAGE

Multi-unit storage allows simultaneous storage of an article in different lifts/carousels.

However, the following restrictions: all lifts/carousels connected to the storage management system "with inventory control" or "without inventory control".

##### Multi-unit storage FIFO (only for MP 12N-H[MP 100D])

- Press the [↑] / [↓] key to select "YES".
- Press the [↵] key.



#### Description

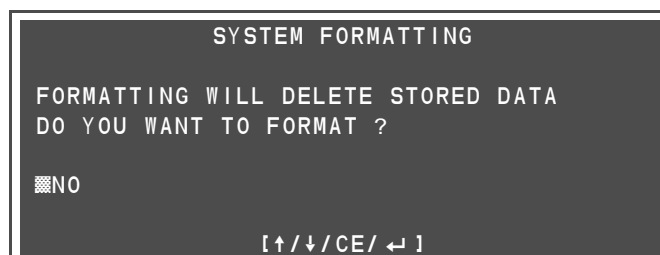
##### MULTI-UNIT STORAGE FIFO

If you select "YES", storage and retrieval operations are carried out strictly according to the FIFO principle. This may mean longer routes for the operating personnel or more frequent alternating between the lifts/carousels.

If you select "NO", storage and retrieval operations are first carried out at the lift/carousel where the procedure was started. Lift/carousel references to the lift/carousel with the lowest FIFO identifier for this article are then issued.

##### Initiate formatting

- Press the [↑] / [↓] key to select "YES".
- Press the [↵] key.



### 4 System services

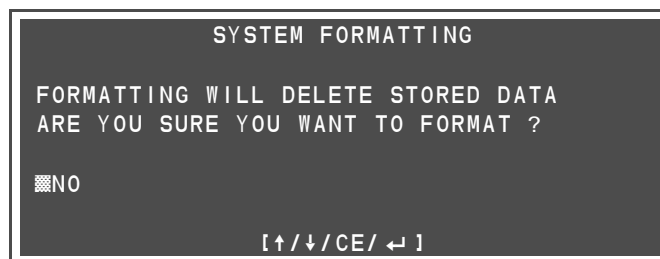
#### Description of the operator prompts

#### Display



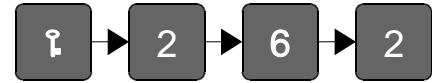
All article, requisition and job data are deleted in the process and the new settings defined previously are accepted.

- Press the [↑] / [↓] key to select "YES".
  - Press the [←] key.
- ➔ The storage management system is reformatted.



### 4 System services

#### 4.2.6.2 System installation



In this menu, lifts/carousels can be registered and unregistered and the shelf table can be updated.



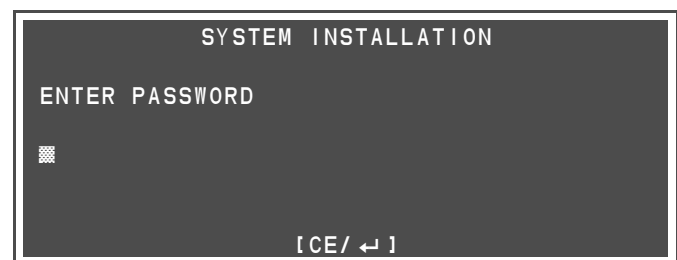
- x Lift/carousel initialisation and positioning must be completed before the lift/carousel is registered.
- x When a lift/carousel is registered, storage management takes over the lift/carousel-specific initialisation data.
- x Only when the lift/carousel has been registered can stored articles be registered and the full functionality of the storage management system be used on this lift/carousel.
- x A lift/carousel can only be unregistered when no more article data are contained in memory for this lift/carousel.

#### Description of the operator prompts

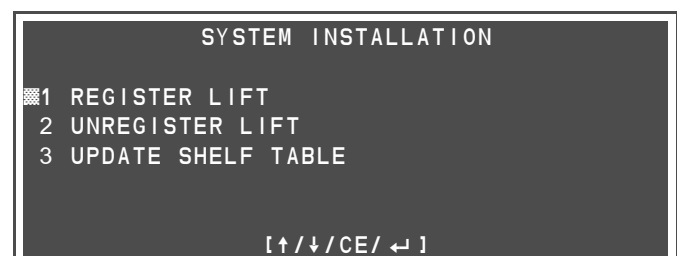
##### System installation

- Press the [ F1 ] key, the [ F2 ] key and then the [ F6 ] key.
- Enter the password (default setting is "22488").
- Press the [ ← ] key.
- Press the [ F2 ] key.
- Enter the password (default setting is "22488").
- Press the [ ← ] key.

#### Display



→ The "System installation" menu is displayed.



### 4 System services

#### Description of the operator prompts

##### Register lift/carousel

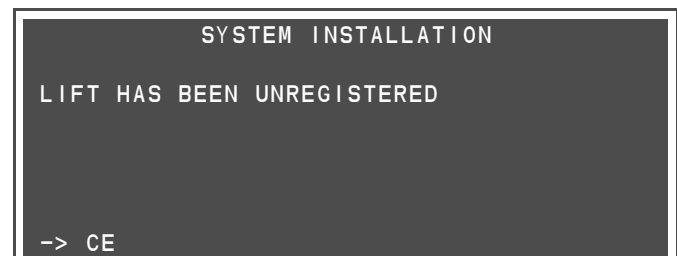
- Lift/carousel initialisation and positioning must be completed before the lift/carousel is registered.

#### Display



##### Unregister lift/carousel

- A lift/carousel can only be unregistered when no more article data are contained in memory for this lift/carousel.



##### Update shelf table (only for Lean-Lift and Multi-Space)

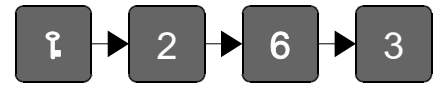
- Inconsistencies between the shelf tables contained in the lift control and storage management can be corrected here.
- Press the [↑] / [↓] key to select "YES".
  - Press the [←] key.



Article data can be deleted.

### 4 System services

#### 4.2.6.3 Access control to storage management



This menu allows the passwords of all password-protected functions in storage management to be changed.



x The factory default password is "22488".

#### Description of the operator prompts

##### Change passwords of storage management system

- Press the [ F1 ] key, the [ 2 ] key and then the [ 6 ] key.
- Enter the password (default setting is "22488").
- Press the [ ← ] key.
- Press the [ 3 ] key.
- Enter the password (default setting is "22488").
- Press the [ ← ] key.

#### Display

- The "Access control to storage management" menu is displayed.
- Select the desired function.

```
ACCESS CONTROL TO STORAGE MANAGEMENT

ENTER PASSWORD

[CE/ ←]
```

```
ACCESS CONTROL TO STORAGE MANAGEMENT

1 SYSTEM FORMATTING
2 SYSTEM INSTALLATION
3 ACCESS CONTROL TO STORAGE MANAGEMENT
5 PATH LIST FOR REQUISITION/JOB

[↑/↓/CE/ ←]
```

```
ACCESS CONTROL TO STORAGE MANAGEMENT

6 SYSTEM CONFIGURATION
7 LANGUAGE
8 INTERFACE PARAMETERS
- PC BROWSER

[↑/↓/CE/ ←]
```

### 4 System services

#### Description of the operator prompts

→ Depending on the previously selected *<Function>*, e.  
g. "System installation", the following prompt appears:

- Press the [↑] / [↓] key to select "YES".
- Press the [↵] key.

#### Display

```
ACCESS CONTROL TO STORAGE MANAGEMENT

<Function>
CHANGE PASSWORD ?

■ NO

[↑/↓/CE/↵]
```

- Enter the new password (max. 8 characters).
- Press the [↵] key.

```
ACCESS CONTROL TO STORAGE MANAGEMENT

<Function>

CURRENT PASSWORD      : ■ <Password>

[CE/↵]
```

- Press the [↑] / [↓] key to select "YES".
- Press the [↵] key.

```
ACCESS CONTROL TO STORAGE MANAGEMENT

CHANGE ANOTHER PASSWORD ?

■ NO

[↑/↓/CE/↵]
```

- Press the [↑] / [↓] key to select "YES".
  - Press the [↵] key.
- The storage management passwords are saved.

```
ACCESS CONTROL TO STORAGE MANAGEMENT

ALL ENTRIES CORRECT ?
-> DATA BEING SAVED

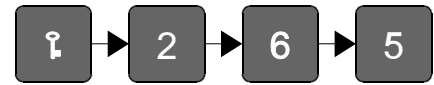
■ NO

[↑/↓/CE/↵]
```



### 4 System services

#### 4.2.6.4 Path list for requisition/job processing



In this menu, the path list of multiple lifts/carousels for time-optimised and path-optimised requisition processing can be defined.

A path list can be defined for two or more registered lifts/carousels.

The default path corresponds to the sequence in which the lifts/carousels were registered in the storage management system.

If this sequence does not agree with the route-optimised sequence (shortest distances between the lifts/carousels, taking the location of the lifts/carousels into consideration), the path list can be defined manually.

If there are multiple access points in a lift/carousel, a different path list can be entered for each access point.

Example:

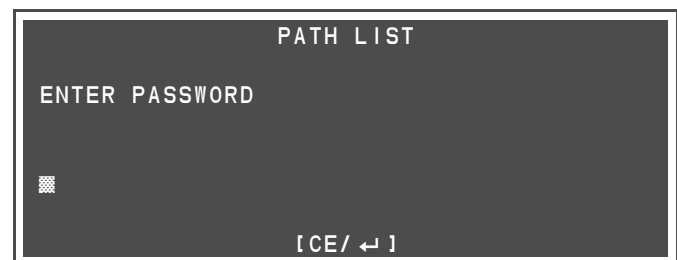
--> Lift 4    --> Lift 1    --> Lift 3    --> Lift 2    --> ...    --> Lift n

#### Description of the operator prompts

##### Defining the path list

- Press the [ F1 ] key, the [ F2 ] key and then the [ F6 ] key.
- Enter the password (default setting is "22488").
- Press the [ ← ] key.
- Press the [ F5 ] key.
- Enter the password (default setting is "22488").
- Press the [ ← ] key.

#### Display



→ The "Path list" menu is displayed.



### 4 System services

#### Description of the operator prompts

##### Default assignment

- Press the **[↑]** / **[↓]** key to select "YES".
  - Press the **[↵]** key.
- Set path list to default values (lift/carousel numbers in ascending order).  
Example:  
-> Lift 1 -> Lift 2 -> Lift 3 -> Lift 4 -> ... -> Lift n

#### Display

```

                                PATH LIST

DEFAULT ASSIGNMENT DELETES PATH LIST
ACTIVATE DEFAULT ASSIGNMENT ?

█ NO

                                [↑/↓/CE/↵]
    
```

##### Manual input

- Enter the lift/carousel number.
- Press the **[↵]** key.

```

                                ENTER PATH LIST
LIFT : █                      ACCESS POINT :

                                ENTER LIFT NUMBER [↵]
    
```

- Enter the access point number.
- Press the **[↵]** key.

```

                                ENTER PATH LIST
LIFT : <Lift>                ACCESS POINT : █

                                ENTER ACCESS POINT NUMBER [↵]
    
```

- Press the **[↑]** / **[↓]** key to select "YES".
  - Press the **[↵]** key.
- If you select "YES" the default settings for lift/carousel and access point are selected.

→ If you select "NO", the following prompt appears:

```

                                ENTER PATH LIST
LIFT : <Lift>                ACCESS POINT : <Access point>

ACTIVATE DEFAULT ASSIGNMENT ?

█ NO

                                [↑/↓/CE/↵]
    
```

- The sequence of entries corresponds to the sequence of processing the lifts/carousels. If more than 5 lifts/carousels are registered, the entries are shown page by page.
- Press the **[↑]** / **[↓]** key to select the lift to be changed.
  - Press the **[↵]** key.

```

                                ENTER PATH LIST
LIFT : <Lift>                ACCESS POINT : <Access point>
█ 3                          1
4                            1
5                            1
1                            1
2                            1

                                [↑/↓/CE/↵]
    
```

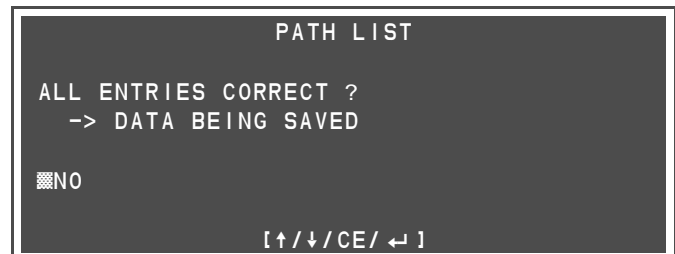
### 4 System services

#### Description of the operator prompts

##### Save change

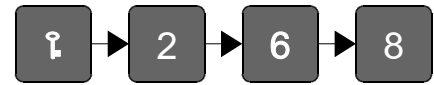
- Press the [↑] / [↓] key to select "YES".
  - Press the [←] key.
- The path list is saved.

#### Display



### 4 System services

#### 4.2.6.5 Setting supplementary functions



Supplementary functions of the storage management system can be configured in this menu.

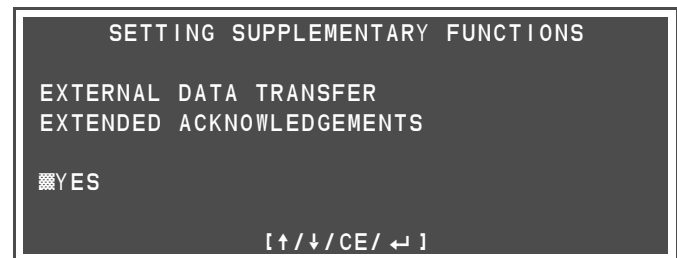
#### Description of the operator prompts

##### Call up setting supplementary functions

- Press the [↑] key, the [2] key and then the [6] key.
- Enter the password (default setting is "22488").
- Press the [←] key.
- Press the [8] key.

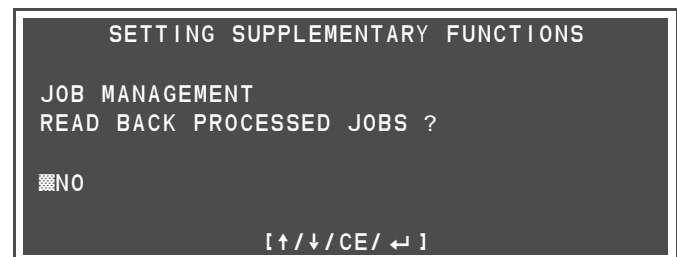
##### External data transfer

- Press the [↑] / [↓] key to select "NO".  
If you select "YES", detailed error codes for the external data transfer are activated.
- Press the [←] key.



##### Job management

- Press the [↑] / [↓] key to select "YES".  
If you select "YES", a processed job must be read back before it is deleted.  
If you select "NO", the completed job is deleted immediately.
- Press the [←] key.



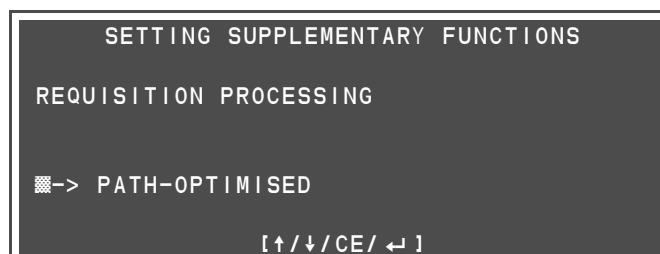
### 4 System services

#### Description of the operator prompts

##### Requisition processing

- Press the [↑] / [↓] key to select requisition processing.
- Press the [←] key.

#### Display



#### Options / description

- ◆ SEQUENTIAL  
Sequence in which the individual items are created in the requisition.
- ◆ PATH-OPTIMISED  
The sequence optimised according to path or route. The sequence of lifts/carousels can be defined by a path list.
- ◆ TIME-OPTIMISED  
Time optimisation is based on path optimisation. The system does not refer the user to a lift/carousel at which work is already being carried out. The requisition lists currently being processed are examined for frequency of access to the lifts/carousels, and the lift/carousel references are optimally distributed.



#### Note on "time-optimised":

- ✗ Further optimisations are possible with the supplementary module "Shelf pre-positioning". Observe restrictions with regard to lift/carousel features.
- Refer to the "Supplementary Description of the Shelf Pre-positioning for Microprocessor Control System MP 12D/N Lean-Lift, Multi-Space and Rotomat"

4

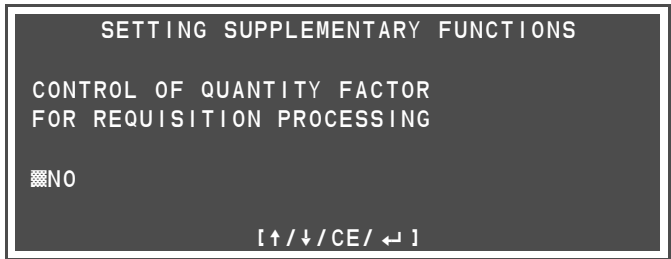
System services

Description of the operator prompts

Display

Control of quantity factor for requisition processing

- Press the [↑] / [↓] key to select "YES".
- Press the [←] key.



Description
When a quantity factor is entered, this function allows the inventory of list items to be checked before requisition processing. The prerequisite is that all registered lifts/carousels have to be initialised for "Article management with inventory control" and "Quantity factor for requisitions".

### 4 System services

#### 4.3 System services host with MP 12N-H[HOST-WEB]



System parameters for the host can be configured in this menu.



x This menu appears only with MP 12N-H[HOST-WEB].

#### Description of the operator prompts

##### Call up system services host

- Press the [ F1 ] key and the [ 3 ] key.
  - Enter the password (default setting is 22488).
  - Press the [ CE / ↵ ] key.
- 
- Enter the URL of the web server. If necessary, press the [ F1 ] key to switch between upper-case and lower-case letters.
  - Press the [ CE / ↵ ] key.
- 
- Enter the host MAC address.
  - Press the [ CE / ↵ ] key.
- 
- Press the [ ↑ ] / [ ↓ ] key to select "YES".
  - Press the [ CE / ↵ ] key.
- ➔ The host parameters are saved.

#### Display

```

HOST PARAMETERS

ENTER PASSWORD :

█

[ CE / ↵ ]
    
```

```

HOST PARAMETERS

HOST WEB SERVER URL :

HTTP://█
[ F1 ] -> abc ..xyz

[ CE / ↵ ]
    
```

```

HOST PARAMETERS

HOST MAC ADDRESS :
-> AA:BB:CC:DD:EE:FF

█

[ CE / ↵ ]
    
```

```

HOST PARAMETERS

ALL ENTRIES CORRECT ?
-> DATA BEING SAVED

█NO

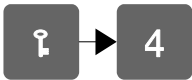
[ ↑ / ↓ / ↵ ]
    
```

4

System services

4.4

System services run sequence (only for Lean-Lift and Multi-Space)



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



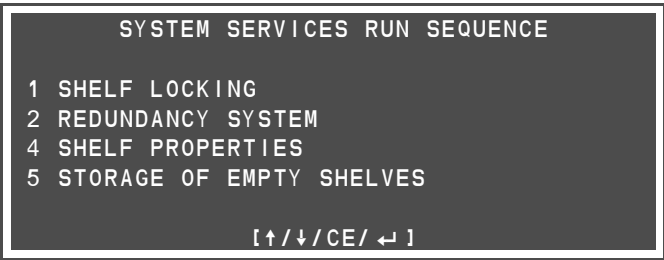
x This menu is displayed only for the Lean-Lift and Multi-Space.

Description of the operator prompts

Call up system services run sequence

- Press the [ F1 ] key and the [ 4 ] key.
- ➔ The "System services run sequence" menu is displayed.

Display



Menu item	See Chapter	Page
1	4.4.1	169
2	4.4.2	170
4	4.4.3	175
5	4.4.4	179



### 4 System services

#### 4.4.1 Shelf locking (only with incremental encoder)



When shelf locking is activated, the shelf is not pushed completely 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. When shelf locking is activated, a locked shelf can be released with the **【F3】** key.



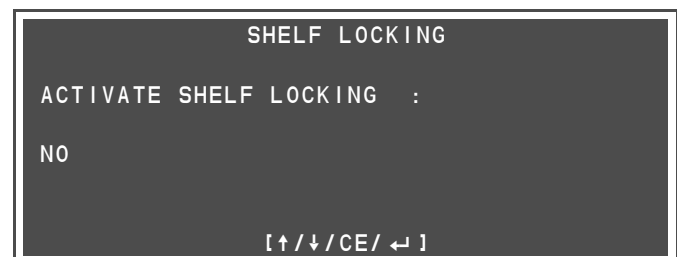
- x This menu appears only for lifts with incremental encoder and without the supplementary features listed below.
- x The incremental encoder is a sensor for measuring the horizontal movement.
- x Shelf locking is possible only on lifts that are fitted with an incremental encoder and that do *not* have the following supplementary features:
  - Automatic shutters
  - High-speed door
  - Automatic shelf ejection
  - Shelf weighing device
  - Automatic shelf pre-positioning
  - Double access
  - Multiple access points with guide rails or transporter/trolley

#### Description of the operator prompts

##### Activate shelf locking

- Press the **【?】** key, the **【4】** key and then the **【1】** key.
- Press the **【↑】** / **【↓】** key to select "YES".
- Press the **【←】** key.

#### Display



### 4 System services

#### 4.4.2 Redundancy system



In this menu, restricted lift operation can be activated even if certain control elements fail.

This made possible by redundancy and restrictions to the error supervision system.



x All system elements are active after the lift is switched off and on again.

#### Redundancy system activation for command line programming

- 1.) Disconnect lift from the host (for example, by switching off the host).
- 2.) Switch lift off, then on again.
- 3.) Carry out a lift run in "SWITCH ON HOST" mode. This causes the defective system element to generate a lift run error.
- 4.) In "SWITCH ON HOST" mode, you can then deactivate the defective system element using the [ ? ] key in the redundancy system.
- 5.) Establish connection to the host.

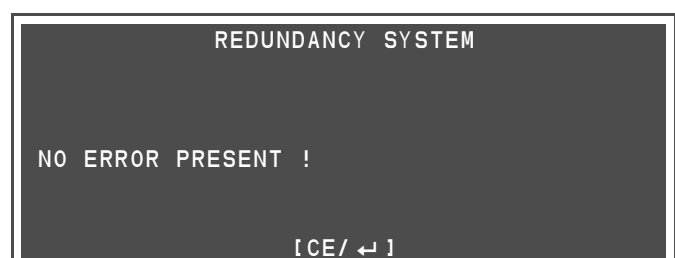
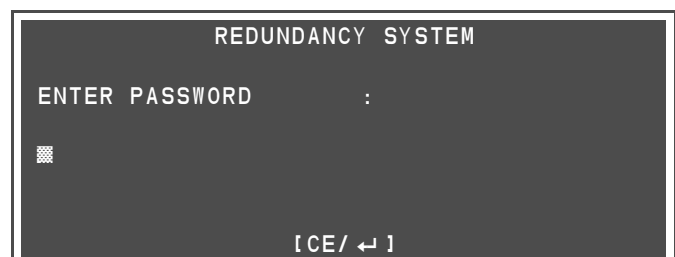
#### Description of the operator prompts

##### Activate redundancy system

- Press the [ ? ] key, the [ 4 ] key and then the [ 2 ] key.
- Enter the password (default setting is "22488").
- Press the [ ← ] key.

No error has occurred. No system element for deactivation is displayed.

#### Display



### 4 System services

#### Description of the operator prompts



Possible system elements that can be deactivated if errors occur

→ Only system elements in which an error has occurred can be deactivated. Other system elements are not displayed.

For each system element:

- Press the [↑] / [↓] key to select "YES".
- Press the [↵] key.

#### Display

If a system element needs to be deactivated because of a fault, call the Hänel Service department to rectify the fault.

x For a description of the system elements, refer to the table on page 173.

```

REDUNDANCY SYSTEM
DEACTIVATION OF SYSTEM ELEMENTS
DOUBLE VERT. POSIT. SYSTEM      : NO
LOWER PROTECTION ZONE          : NO
UPPER PROTECTION ZONE          : NO
VERT. RUN DIRECTION MONITORING  : NO

[↑/↓/CE/↵]
```

```

REDUNDANCY SYSTEM
DEACTIVATION OF SYSTEM ELEMENTS
VERT. RUN SPEED MONITORING      : NO
SAFETY LIGHT BARRIERS          : NO
ARTICLE HEIGHT DETECTION        : NO

[↑/↓/CE/↵]
```

```

REDUNDANCY SYSTEM
DEACTIVATION OF SYSTEM ELEMENTS
SHELF MANAGEMENT MONITORING    : NO
SHELF EXTRACTOR FRONT MONITORING : NO
SHELF EXTRACTOR REAR MONITORING  : NO
DOUBLE HORIZ. ABSOLUTE POSIT.   : NO

[↑/↓/CE/↵]
```

```

REDUNDANCY SYSTEM
DEACTIVATION OF SYSTEM ELEMENTS
DOUBLE HORIZ. POSIT. DETECTION  : NO
HORIZ. DIRECTION MONITORING     : NO
ACCESS PROXIM. SWITCHES B20, B21 : NO
ACCESS PROXIM. SWITCHES B26, B27 : NO

[↑/↓/CE/↵]
```

### 4 System services

#### Description of the operator prompts



- Press the [↑] / [↓] key to select "YES".
- Press the [↵] key.

#### Display

- x The following prompt appears only if the system element "Article height detection" has been deactivated.

```

REDUNDANCY SYSTEM
DEACTIVATION OF SYSTEM ELEMENTS

DEACTIVATION MAKES TEST RUN NECESSARY
CHECK ARTICLE HEIGHT !
ARTICLE HEIGHT DETECTION           : NO

[↑/↓/CE/↵]
    
```



- Press the [↑] / [↓] key to select "YES".
- Press the [↵] key.

- x The following prompt appears only if the system element "Shelf management monitoring" has been deactivated.

```

REDUNDANCY SYSTEM
DEACTIVATION OF SYSTEM ELEMENTS

DEACTIVATION MAKES TEST RUN NECESSARY
CHECK ARTICLE HEIGHT !
SHELF MANAGEMENT MONITORING       : NO

[↑/↓/CE/↵]
    
```



- Press the [↵] key.
- Start a "Check article height" test run in the service functions.
- When the "Check article height" test run has been completed, the display no longer appears and operation can continue as normal. Only then can the article heights of the shelves be increased again, shelves added and optimisation runs carried out.

- x When the system elements "Article height detection" or "Shelf management monitoring" have been deactivated, the following display appears when the lift is switched on:

```

REDUNDANCY SYSTEM

INCREASE IN ARTICLE HEIGHTS,
ADDITION OF SHELVES AND OPTIMISATION
RUNS NOT POSSIBLE UNTIL ARTICLE
HEIGHT HAS BEEN CHECKED.

[CE/↵]
    
```

### 4 System services

Error	System element	Explanation	Comments
Synchronisation run	Double vertical positioning system	If one of the two vertical position detection systems fails, the lift can continue to be operated with the position detection system that is still functioning.	If both positioning systems fail, lift operation is no longer possible. If shelves are loaded unevenly, running may be blocked when shelves are pushed in. In this case, bring the shelf to the access point again and load it evenly. The horizontal driving speed is reduced.
System error 13	Lower protection zone	In the lower vertical running area (lower protection zone), the downward running speed is reduced. If the protection zone is detected at the wrong height, this error message is displayed.	If the lower protection zone monitoring is deactivated, the vertical driving speed is reduced.
System error 14	Upper protection zone	In the upper vertical running area (upper protection zone), the upward running speed is reduced. If the protection zone is detected at the wrong height, this error message is displayed.	If there is an error in the protection zone monitoring or the upper protection zone monitoring is deactivated, the vertical driving speed is reduced.
System error 2	Vertical run direction monitoring	This error message is displayed if the wrong vertical run direction is detected.	If direction monitoring is deactivated, the vertical driving speed is reduced.
System error 3	Vertical run speed monitoring	This error message is displayed if the vertical run speed is detected as being too high.	The vertical driving speed is reduced.
Light barriers	Safety circuit light barriers	The light barriers safeguard the access area. If the lift is fitted with a second safety circuit, the light barriers are bypassed when the sliding door is closed.	The lift must be equipped and initialised with the optional electrical equipment "Second safety circuit". Before the lift starts to run, the sliding door must be closed.
System error 15, Article protruding, Article too high, Lift is full	Article height detection	When shelves are put into storage, the height of the storage article is detected by light barriers. If article height detection is deactivated, shelves are always put back into storage in the place from which they were retrieved. This presupposes that the article height has not been changed.	If article height detection is deactivated, the height of the storage articles must not be increased! Otherwise the articles will collide with shelves when put into storage. Shelves can be retrieved, stored and removed, but not added. Nor is it possible to execute an optimisation run.  When the error in article height detection has been removed, the "Check shelf positions" test run must be executed, in which all the shelves are brought to the access point and the article heights read in again.  Only then may the article heights of the shelves be increased again, shelves added and optimisation runs carried out.

### 4 System services

Error	System element	Explanation	Comments
System error 1, System error 7, System error 8, Motor overloaded 7	Monitoring of shelf management	These error messages occur when there is an error in shelf management. If this error monitoring function is deactivated, shelves are always put back into storage in the place from which they were retrieved. This presupposes that the article height has not been changed.	If this error monitoring function is deactivated, the height of the storage articles must not be increased! Shelves can be retrieved, stored and removed, but not added. Nor is it possible to execute an optimisation run.  When the error in shelf management has been removed, the "Check shelf positions" test run must be executed, in which all the shelves are brought to the access point and the article heights read in again.  Only then may the article heights of the shelves be increased again, shelves added and optimisation runs carried out.
System error 17	Direction monitoring for the horizontal drive	This error message appears if the wrong horizontal run direction is detected.	If run direction monitoring is deactivated, the horizontal driving speed is reduced.
System error 18	Duplicated absolute position detection of the horizontal drive	This error message appears if there is a fault in the horizontal absolute position detection (B10 or B11).	If the duplicated absolute position detection system of the horizontal drive is deactivated, the horizontal driving speed is reduced.
System error 19	Duplicated position detection of the horizontal drive	This error message appears if there is a fault in the horizontal position detection system.	If the duplicated position detection system is deactivated, the horizontal driving speed is reduced.
System error 9 System error 12	Shelf detected on the front of the extractor	This error message appears when a shelf is erroneously detected on the front of the extractor (B12).	If the system element is deactivated, the vertical driving speed is reduced.
System error 10 System error 11	Shelf detected on the back of the extractor.	This error message appears when a shelf is erroneously detected on the back of the extractor (B13).	If the system element is deactivated, the vertical driving speed is reduced.
Shelf incorrectly positioned (3) Shelf incorrectly positioned (5) Unknown shelf in the access point No shelf in access point Shelf removed without being registered	Monitoring of the position of the shelf in the access point	The positions of the shelves in the access point are detected by proximity switches. This ensures, for example, that shelves are standing correctly in the access opening before being put into storage and that shelves are not jutting out into the lift shaft during vertical runs.	When the proximity switches in the access point are duplicated and are initialised, the lift can continue to be operated without restriction after faulty proximity switches are deactivated.

4

System services

4.4.3

Shelf properties



Shelf properties can be configured in this menu.



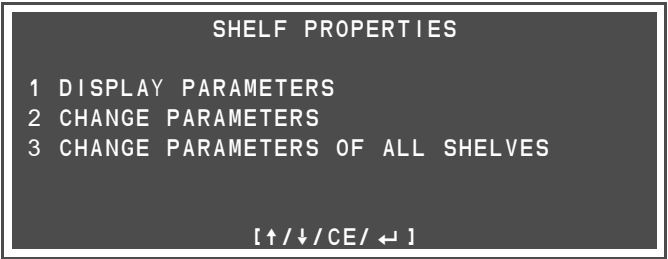
- x With the supplementary module "Adjustable shelf speed", each shelf can be assigned an individual speed as a percentage of the maximum speed.
- x With the supplementary module "Management of storage location height", each shelf can be assigned a desired (target) height.

Description of the operator prompts

Call up shelf properties

- Press the [ ? ] key, the [ 4 ] key and then the [ 4 ] key.
- ➔ The "Shelf properties" menu is displayed.

Display



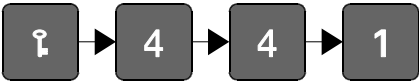
Menu item	See Chapter	Page
1	4.4.3.1	176
2	4.4.3.2	177
3	4.4.3.3	178

4

System services

4.4.3.1

Display parameters



- x The display of shelf speed ("SPEED") appears with the supplementary module "Adjustable shelf speed" only.
- x The display of shelf target height ("TARG.HEIGHT") appears with the supplementary module "Storage location height management" only.

Description of the operator prompts

Display shelf parameters

- Press the **[ F1 ]** key, the **[ 4 ]** key, the **[ 4 ]** key and then the **[ 1 ]** key.
- Press the **[ ↑ ]** / **[ ↓ ]** key to display other shelves.
- Press the **[ CE ]** key to exit the display.

Display

SHELF PROPERTIES			
SHELF	AP	FACTOR	SPEED TARG.HEIGHT
1		1	
2		3	
3		2	
4		1	
5		2	
[ ↓ / CE ]			

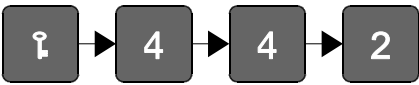


4

System services

4.4.3.2

Change parameters



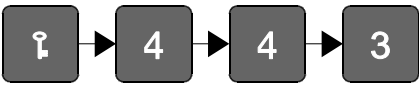
Description of the operator prompts	Display
<p>Change shelf parameters</p> <ul style="list-style-type: none"> <li>Press the <b>[ F1 ]</b> key, the <b>[ 4 ]</b> key, the <b>[ 4 ]</b> key and then the <b>[ 2 ]</b> key.</li> <li>Enter the shelf number or select it using the <b>[ ↑ ]</b> / <b>[ ↓ ]</b> key.</li> <li>Press the <b>[ ← ]</b> key.</li> </ul>	<div> <div>SHELF PROPERTIES</div> <div> <div>SHELF NUMBER : ▣&lt;Shelf&gt;</div> <div>AP FACTOR [1-3] : &lt;AP factor&gt;</div> </div> <div>[↑/↓/CE/←]</div> </div>
<ul style="list-style-type: none"> <li>Enter the AP factor.</li> <li>Press the <b>[ ← ]</b> key.</li> </ul>	<div> <div>SHELF PROPERTIES</div> <div> <div>SHELF NUMBER : &lt;Shelf&gt;</div> <div>AP FACTOR [1-3] : ▣&lt;AP factor&gt;</div> </div> <div>[CE/←]</div> </div>
	<div> <div>Parameters / description</div> <div> <div>AP FACTOR [1-3]</div> <div> <p>The time taken to access individual shelves on the Lean-Lift and Multi-Space can be influenced by an AP factor of 1 - 3 (AP = Access Priority).</p> <p>Shelves with a high AP factor are stored close to the access opening to reduce the access time.</p> </div> </div> </div>

4

System services

4.4.3.3

Change parameters of all shelves



- x The display of shelf speed appears with the supplementary module "Adjustable shelf speed" only.
- x The display of the shelf target height appears with the supplementary module "Storage location height management" only.

Description of the operator prompts	Display
<p>Change shelf parameters for all shelves</p> <ul style="list-style-type: none"><li>Press the [F1] key, the [F4] key, the [F4] key and then the [F3] key.</li></ul> <p>→ The "Change parameters of all shelves" menu is displayed.</p>	<div><p>CHANGE PARAMETERS OF ALL SHELVES</p><p>1 AP FACTOR 2 SHELF SPEED 3 SHELF TARGET HEIGHT</p><p>[↑/↓/CE/↵]</p></div>
<ul style="list-style-type: none"><li>Enter the AP factor.</li><li>Press the [↵] key.</li></ul>	<div><p>SHELF PROPERTIES CHANGE PARAMETERS OF ALL SHELVES</p><p>AP FACTOR [1-3] : █&lt;AP factor&gt;</p><p>[CE/↵]</p></div>
	<div><p>Description</p><p>The time taken to access individual shelves on the Lean-Lift and Multi-Space can be influenced by an AP factor of 1 - 3 (AP = Access Priority). Shelves with a high AP factor are stored close to the access opening to reduce the access time.</p></div>
<ul style="list-style-type: none"><li>Press the [↵] key.</li></ul> <p>→ The AP factor entered is stored for all shelves.</p>	<div><p>SHELF PROPERTIES CHANGE PARAMETERS OF ALL SHELVES</p><p>AP FACTOR [1-3] : &lt;AP factor&gt;</p><p>ALL ENTRIES CORRECT ? -&gt; CE/↵</p></div>

4

System services

4.4.4

Storage of empty shelves



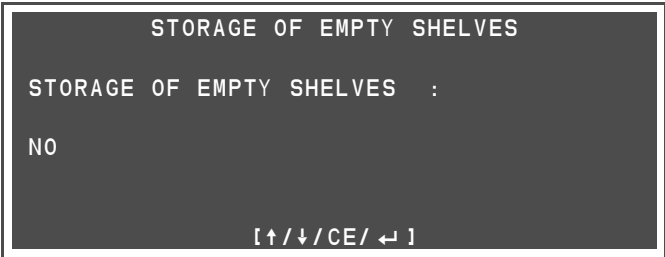
In this menu, the shelf in the access point can be stored far from the access point.

Description of the operator prompts

Store empty shelves

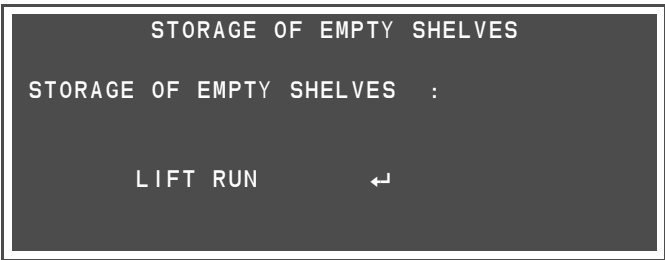
- Press the [ F1 ] key, the [ 4 ] key and then the [ 5 ] key.
  - Press the [ ↑ ] / [ ↓ ] key to select "YES".
  - Press the [ ← ] key.
- 
- Press the [ ← ] key.
- ➔ The shelf is stored far removed from the access point.

Display



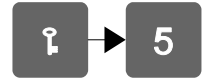
Description

If you select "YES", the shelf in the access point is stored in a shelf that is far removed from the access point. This can, for example, prevent empty shelves from occupying areas with short access times (areas close to the access point).



### 4 System services

#### 4.5 System services Service functions



The service functions are used to check the function of the lift/carousel during installation and service. Tools are provided to allow faults in the lift/carousel to be located quickly and easily.



#### SAFETY INSTRUCTION

The service functions are for authorised personnel only and are protected by the service password.

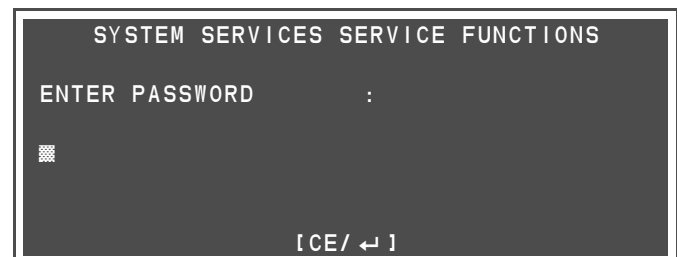
Authorised personnel are those who have proof of sufficient qualification and training for these tasks.

#### Description of the operator prompts

Call up system services service functions

- Press the [ F1 ] key and the [ 5 ] key.
  - Enter password. (Service password)
  - Press the [ ← ] key.
- ➔ The "System services service functions" menu is displayed.

#### Display



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

### 4 System services

#### 4.6 Safety inspection log



In this menu item, you can update log data for the safety inspection.



The information recorded in the control system is provided solely as an aid.

The test book and test logs are authoritative. Refer to the lift operating manual.

- x The data are deleted when the requisition number of the lift/carousel is entered/modified. The data can also be deleted with the password "74173". The data are stored on the MP 12D/N CPU I board.

#### Description of the operator prompts

##### Call up system services safety inspections

- Press the [ F1 ] key and the [ 6 ] key.
- Enter the password (default setting is "22488").
- Press the [ ← ] key.
- ➔ The "System services safety inspections" menu is displayed.

#### Display

```

SAFETY INSPECTION LOG

ENTER PASSWORD      :
█
[ CE / ← ]
    
```

- Enter the date.
- Press the [ ← ] key.
- Enter the technician and company carrying out the safety inspection.
- Press the [ ← ] key.
- Enter the responsible employee of the owner/operator.
- Press the [ ← ] key.

```

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

- Press the [ ↑ ] / [ ↓ ] key to select "YES".
- Press the [ ← ] key.
- ➔ The entries are saved.

```

SAFETY INSPECTION LOG

ALL ENTRIES CORRECT ?
-> DATA BEING SAVED

NO

[ ↑ / ↓ / ← ]
    
```



### 5 Program version MP 12N-S/H[MP 100D]

#### 5.1 Web server

- Refer to the Technical Description of the Microprocessor Control System MP 12N-S / MP 100D Server for Lean-Lift, Multi-Space and Rotomat.

#### 5.2 Host communication through file transfer

- Refer to the Technical Description of the Microprocessor Control System MP 12N-S / MP 100D Server for Lean-Lift, Multi-Space and Rotomat.







### 6 Program version MP 12N-H[HOST-DATA]



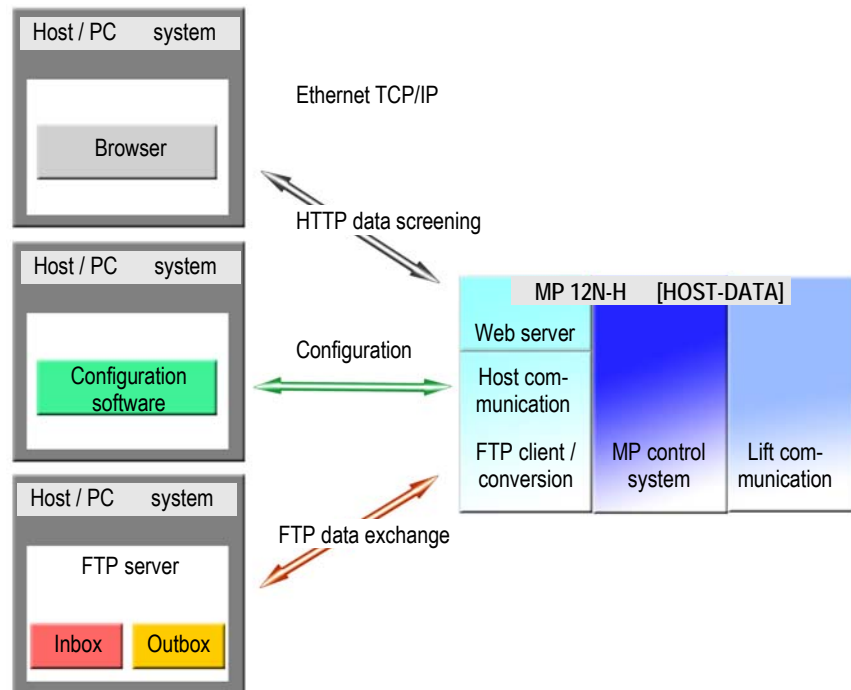
- x Data record buffer host communication is possible only with the microprocessor control system MP 12N-H[HOST-DATA]).

#### 6.1 Overview of features

- ◆ In the program version MP 12N-H[HOST-DATA], data records can be written to a buffer. The yellow LED on the  key of the lift/carousel indicates the presence of a data record. The data record is called up by pressing the  key.
- ◆ The microprocessor control system MP 12N-H[HOST-DATA] is equipped with a data record buffer memory that holds 500 data records.  
Using data record transfer via Ethernet, data records can be transferred to the buffer memory and processed data records can be returned. In this process, each data record corresponds to exactly one operation (storage or retrieval)
- ◆ There is no article/storage management in the microprocessor control system.
- ◆ The structure of the data records from the host computer determines the sequence of processing (operator prompts/quantity correction/display of information fields/query of special data fields etc.) However, the scope depends on the display (VF / TFT display) used.
- ◆ If there are multiple lifts/carousels in a multi-unit network, the data records for all lifts/carousels are stored in lift/carousel 1, access point 1. All other lifts/carousels and access points retrieve their data records from there during processing and, if initialised accordingly, store their processed data records there. Thus the host computer only has to exchange data with lift/carousel 1.
- ◆ The mandatory specification of lift/carousel and shelf number guarantees the minimum necessary specification for accessing a storage location.
- ◆ Integrated web server: a host/PC system with web browser can be connected to the MP 12N -H [HOST-DATA] via Ethernet. Buffer data can be visually displayed in the browser.
- ◆ An FTP client in the control system transfers the data records in the form of ASCII files via FTP file transfer.
- ◆ FTP file transfer requires a customer-side FTP server.
- ◆ Data records can be sent in Hänel MP format or CSV format (comma-separated files) with subsequent conversion.
- ◆ Configuration software for MP 12N-H [HOST-DATA] host communication: operating system-independent Java program used to adapt the host communication to the customer's management system.

### 6 Program version MP 12N-H[HOST-DATA]

Function diagram



## 6 Program version MP 12N-H[HOST-DATA]

### 6.2 Data record buffer host communication through file transfer

#### 6.2.1 Function

- ◆ The MP 12N-H [HOST-DATA] communicates as a FTP client with a customer-side FTP server on the host/PC system. One input and one output directory on the FTP server is used as a transfer interface
- ◆ **Importing data to the MP 12N-H[HOST-DATA]:**  
individual data records are saved in ASCII files. These must be copied to the output directory of the FTP server. After importing by the control system, the control system writes a response file with status information into the input directory of the FTP server.  
The following file type can be imported:
  - Data record buffer file with unprocessed data records.
- ◆ **Exporting data from the MP 12N-H[HOST-DATA]:**  
This requires copying a request file with a corresponding command into the output directory of the FTP server. As a result, the MP control system places the requested file in the input directory of the FTP server. As confirmation, a response file with status information is written into the input directory of the FTP server.  
The following file type can be exported:
  - Data record buffer file with processed data records.
  - Data record buffer file with unprocessed data records.
- ◆ **Acknowledgements about the transactions in a response file:**  
acknowledgements are machine-readable and can be provided with plain text messages (configurable).
- ◆ **Internal log file for fault analysis**
- ◆ **Definition of conversion filters for every data type for importing CSV files (comma-separated files).** Most databases and spreadsheets offer CSV files as an import and export format.
- ◆ Request and data files are expected as ISO 8859-1 encoded files.
- ◆ As an alternative for languages not supported by the ISO 8859-1 character set, response and log files can be output as "UTF-8" encoded files.

### 6 Program version MP 12N-H[HOST-DATA]

#### 6.2.2 Software requirement

##### 1. FTP server

- ◆ On the host / PC system, the customer must have an FTP server installed. The installation instructions for the respective software must be observed. Furthermore, one input and one output directory must be created in the file system of the FTP server.
- ◆ The input directory (later also referred to as the inbox) serves as a target directory for data files sent from the MP 12N-H [HOST-DATA].
- ◆ The output directory (later also referred to as the outbox) serves as a source directory from which the FTP client of the MP 12N-H [HOST-DATA] can read its files.
- ◆ The following default user must be created on the FTP server.
  - User: MP100D
  - Password: 22488

These are factory settings of the MP 12N-H[HOST-DATA] and can be modified as desired (see Login to FTP server, page 203).

- ◆ Furthermore, the following access authorisations must be granted:
  - Writing, reading, deleting and adding rights.
  - Access to the inbox
  - Access to the outbox

##### 2. Configuration software for MP 12N-H configuration software for MP 12N-H[HOST-DATA] host communication

- ◆ The configuration software is a Java program. This program can be used to set the parameters for the FTP server connection, including the parameters for the data transfer and data conversion. See Chapter 6.3 "Configuration software" on page 199.

### 6 Program version MP 12N-H[HOST-DATA]

#### 6.2.3 General data record conventions

Characters which can be used	<ul style="list-style-type: none"> <li>◆ The data record buffer file must contain at least 1 data record (item).</li> <li>◆ The data record buffer file must not contain more data records than available buffer storage locations. Otherwise, all data records are refused. The response file contains corresponding information.</li> <li>◆ Data fields which are transferred to the MP control system must contain the following alphanumerical characters only: 0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ / ( ) : . + - , blank</li> <li>◆ The following special characters can be displayed, but not entered: ! " # % &amp; * ; &lt; = &gt; [ ] Ä Ö Ü Ø ß</li> <li>◆ If small letters are sent to the MP control system (e.g. article designation), the MP control system converts them to capital letters, i.e. they appear as capital letters when exported.</li> </ul>
Data record closure	<ul style="list-style-type: none"> <li>◆ All data records end with "CRLF " (Carriage Return ASCII 13 and Line Feed ASCII 10).</li> </ul>

#### 6.2.4 Hänel MP format (standard)

In Hänel MP format, "\*" is used as a start character and "\$" is used as a separator between the data fields and at the end of a data record. A letter is positioned before the data field contents as a data field code. The data fields may be in any sequence.

Example:                      \*\$S.....\$L.\$F..\$T..\$B....\$G...\$R.....\$O.\$N.....\$U01..\$

#### 6.2.5 CSV format (conversion to Hänel MP format)

The data record buffer file must contain at least 1 data record (item).  
Most databases and spreadsheets offer CSV files as an export format. In CSV format, individual data fields are separated by field separators (e.g. " ; "). In the case of text fields, a distinction can be made between an alphanumeric text and a numeric text. The alphanumeric text is separated by text separators (e.g. " " ").  
However, the data fields cannot contain both data fields. Otherwise these separators are not subject to any further restrictions. The assignment to the Hänel MP data fields is configured separately.  
The files can be transferred either in Hänel MP format or in CSV format.

Example:                      120087;1;2;2;100;1;101;10;1;"NAME"

### 6 Program version MP 12N-H[HOST-DATA]

#### 6.2.6 Data fields

Code	Name	No. of characters	Contents	MP12N-VFD	MP12N-TFT	Comment
L	Lift (storage location)	1 - 2	1 - 99	Z	Z	The lift/carousel number defines the lift/carousel at which the data record is to be processed.
T	Shelf (storage location)	1 - 3	1 - 255	Z	Z	Defines the number of the lift/carousel at which a lift/carousel run is to be carried out.
E	Access point	1	1 - 8	O	O	If the data field E is not transferred or has the value "0" as its contents, the data record can be retrieved at all access points; otherwise, it can be retrieved at the transferred access point only.
F	Shelf (storage location)	1 - 3	1 - 255	O	O	If transferred, the compartment number of the storage location is displayed after the shelf is positioned.
O	Compartment depth (storage location)	1 - 2	1 - 99	O	O	If transferred, the compartment depth number of the storage location is displayed after the shelf is positioned.
G	Container	FFFOO	00101 - 25599	-	O	If transferred, the container size (storage location size in the direction of compartments and compartment depths) is displayed after the shelf is positioned.
K	Job	1 - 40	alphanumeric	O	O	Job number allocated to the data record. Appears in the first line of the display during transfer.
S	Article number	1 - 40	alphanumeric	O	O	Article number of the data record. Appears in the second line of the display during transfer.
N	Name	1 - 40	alphanumeric	O	O	Article name of the data record. Appears in the third line of the display during transfer.
V	Goods in/out	1	"+" "-"	O	O	If transferred, the operation is displayed to the operator after the shelf is positioned. "+" = Store articles, "-" = Retrieve articles
Q	Specified quantity	1 - 8	0 - 99999999	O	O	If transferred, the quantity to be stored/removed from storage is displayed to the operator after the shelf is positioned.
M	Actual quantity	1 - 8	0 - 99999999	O	O	Can be transferred together with the data field Q only. If it is transferred with "0" as its contents, the nominal quantity can be corrected when the data record is processed. The corrected actual quantity is returned in data field I.
B	Inventory	1 - 8	0 - 99999999	-	O	If transferred, the inventory at storage location is displayed after positioning to the storage location and until the data record is acknowledged.

### 6 Program version MP 12N-H[HOST-DATA]

Code	Name	No. of characters	Contents	MP12N-VFD	MP12N-TFT	Comment
P	Total inventory	1 - 8	0 - 99999999	-	O	If transferred, the total inventory is displayed after positioning to the storage location and until the data record is acknowledged.
R	Minimum inventory	1 - 8	0 - 99999999	-	O	If transferred, the minimum inventory is displayed after positioning to the storage location and until the data record is acknowledged.
p	Priority	1 - 3	1 - 255	O	O	If transferred, each data record is assigned the corresponding priority. Data records with higher priority are given preference to those with lower priority. With the MP 12N-TFT, the priority is displayed after positioning to the storage location and until the data record is acknowledged.  1 -> low priority 255 -> high priority If no priority field is transferred, "100" is assumed.
d	Date	6	ddmmyy	O	O	If this data field is transferred with the contents '0', the date of processing is also returned in this data field after the data record is acknowledged.
u	Time	4	hhmm	O	O	If this data field is transmitted with the contents "0", the time of processing (accurate to the minute) is also returned after the data record is acknowledged.
W	Status	2	00 - 02	O	O	For transfer and reading back: 00 -> New data record For reading back: 01 -> Data record processed 02 -> Storage location not found
U01 - U10	Special data Uxx	1 - 40	alphanumeric	-	O	If transferred, these data fields are displayed.
e	Properties	1 - 40	alphanumeric	-	O	Example: data record ..\$eU01U05\$.. Data fields U01 and U05 are requested on the display and must be entered on the keyboard.

Remark:

O = Optional data field.

**Z = Transfer of this data field is mandatory.**

- = Data field is not supported.

### 6 Program version MP 12N-H[HOST-DATA]

#### 6.2.7 File transfer

- ◆ The software requirements described in Chapter 6.2.2 must be fulfilled. Refer also to chapter 6.3.8 "File transfer" on page 212.
- ◆ The FTP client polls the host FTP server (outbox) for files. Following file transfer, the MP control system generates a response file with status return messages in the inbox of the FTP server.
- ◆ Additional status messages are appended to an existing response file.

##### 6.2.7.1 Send data to the MP control system MP 12N-H[HOST-DATA]

- ◆ The file to be transferred must be copied into the outbox.
- ◆ When the polling cycle is complete, the file is picked up by the MP 12 N-H[HOST-DATA] and deleted in the outbox.
- ◆ The file is converted (only if configured) and imported to the MP 12N-H [HOST-DATA] data record buffer.
- ◆ A line with a status message is written into the response file, which is then copied to the inbox.
- ◆ If a file is copied to the outbox once again before the outbox has been picked up by the control system and deleted, it will be overwritten. However, if it has already been picked up, the file will be transferred once again. The MP control system writes a status message into the response file and copies it to the inbox.

##### 6.2.7.2 Read out data from the MP control system MP 12N-H[HOST-DATA]

- ◆ Request file (control file with command to read data) has to be copied into the outbox.
- ◆ When the polling cycle is complete, the request file is picked up by the MP 12 N-H[HOST-DATA] and deleted in the outbox.
- ◆ The command is decoded and executed.
- ◆ The file to be exported is copied into the inbox.
- ◆ A line with a status message is written into the response file, which is then copied to the inbox.

##### 6.2.7.3 Delete data from the MP control system MP 12N-H[HOST-DATA]

- ◆ Request file (control file with command to delete data) has to be copied into the outbox.
- ◆ When the polling cycle is complete, the request file is picked up by the MP 12 N-H[HOST-DATA] and deleted in the outbox.
- ◆ The command is decoded and executed.
- ◆ A line with a status message is written into the response file, which is then copied to the inbox.



### 6 Program version MP 12N-H[HOST-DATA]

#### 6.2.8 File types

##### 6.2.8.1 Data record buffer file

Data records can be transferred in one data record buffer file or split into multiple data record buffer files. If no priority is specified, all data records are processed in the order in which they were received and assigned to the corresponding lifts/carousels.

Therefore, the lift/carousel number and shelf number are the minimum information that must always be transmitted so that when the item is called up, a storage location can be positioned. Transfer of all other data fields is optional (for data fields, see Chapter 6.2.6 on page 190).

In all languages, the data record buffer file must be encoded in the ISO 8859-1 character set.

	Command in request file	Explanation
Read out all unprocessed buffer data	<b>READ BUFFER &lt;filename&gt;</b>	<ul style="list-style-type: none"> <li>◆ READ = read data</li> <li>◆ BUFFER = data record buffer</li> <li>◆ &lt;filename&gt; = specify the file name here in which the unprocessed data records will later be located. A file name extension is added automatically by the MP 12N-H [HOST-DATA]. It depends on the configuration of the MP control system.</li> <li>◆ Reading out has no effect on processing.</li> </ul>
	Example: <b>READ BUFFER backupfile</b>	Unprocessed buffer data are read out to the "backupfile.buf" file in the inbox.
Read out all processed data records	<b>READ BUFFPROC &lt;filename&gt;</b>	<ul style="list-style-type: none"> <li>◆ READ = read data</li> <li>◆ BUFFER = acknowledgement buffer with processed data records</li> <li>◆ &lt;filename&gt; = specify the file name here in which the buffer data will later be located. A file name extension is added automatically by the MP 12N-H [HOST-DATA]. It depends on the configuration of the MP control system.</li> <li>◆ After being read out, the acknowledgement buffer is deleted automatically.</li> </ul>
	Example: <b>READ BUFFERPROC test</b>	Processed buffer data are read out to the "test.buf" file and copied to the inbox.
Delete all unprocessed data records	<b>DELETE BUFFER</b>	<ul style="list-style-type: none"> <li>◆ DELETE = delete job</li> <li>◆ BUFFER = data record buffer</li> <li>◆ All unprocessed data records are deleted.</li> </ul>

### 6 Program version MP 12N-H[HOST-DATA]

#### 6.2.8.2 Request file

Request files are files which contain commands for the MP 12N-H[HOST-DATA].

They are used to read or delete data from the MP control system.

One line is used per command. A "!" at the start of the line indicates a user-defined comment.

Several commands can be combined in one request file.

The command sequence in the request file corresponds to the processing sequence.

In all languages, the request file must be encoded in the ISO 8859-1 character set.

#### Overview of commands

Command	Goods in/out
<b>READ BUFFER</b> <filename>	◆ Read all unprocessed data records
<b>READ BUFFPROC</b> <filename>	◆ Read all processed data records
<b>DELETE BUFFER</b> <filename>	◆ Read all processed data records

The file names are always specified without a file name extension. See Chapter 6.3.6 "File types" on page 204.

#### 6.2.8.3 Response file

Response files are automatically copied by the MP 12N-H[HOST-DATA] into the inbox of the FTP server.

They contain status acknowledgements to commands from a request file and status acknowledgements to transmission of buffer data.

If there is no request file in the inbox, the MP control system will create one in the inbox of the FTP server, or the file will be extended.

The response file is encoded by default in the ISO 8859-1 character set. For languages not supported by the ISO 8859-1 character set, UTF-8 encoding is possible.

### 6 Program version MP 12N-H[HOST-DATA]

#### 6.2.9 Data conversion

An import/export converter can be defined for data records. This converter enables comma-separated files (CSV files) to be sent directly to the MP control system (import) or read out from the MP control system (export).

See Chapter 6.3.7.2 "Buffer data conversion" on page 209.

#### 6.2.10 Error codes of the MP 12N-H [HOST-DATA] host communication

JACOM = MP 12N-H [HOST-DATA] host communication software

These error codes appear in the response file and the host communication log.

Error code	Source	Description	Action
E300	MP host communication	Host communication cannot be started.	Internal error.
E301	MP host communication	Default initialisation cannot be written in file.	Internal error.
E302	MP host communication	Unknown host.	Check TCP/IP address.
E303	MP host communication	Host cannot be reached/timeout.	Check TCP/IP address.
E304	MP host communication	Host FTP server not responding.	Activate host FTP server.
E305	Host FTP server	Error in connection setup.	Check FTP server settings.
E306	Host FTP server	Unknown user name.	User / FTP server: check rights.
E307	Host FTP server	Incorrect password.	Password / FTP server; check rights.
E308	Host FTP server	Error in changing directories.	FTP server: check rights.
E309	Host FTP server	Directory could not be listed.	Directory / FTP server: check rights
E310	Host FTP server	File could not be downloaded.	Directory / FTP server: check rights.
E311	Host FTP server	Error in closing the download connection.	Internal error.
E312	Host FTP server	File could not be deleted.	Directory / FTP server: check rights.
E313	MP host communication	JACOM upload source directory not found.	Check the directory.
E314	Host FTP server	Host FTP server file could not be uploaded.	Directory / FTP server: check rights.
E315	Host FTP server	Host FTP server error in closing the upload connection	Internal error.
E316	Host FTP server	Host FTP server does not support PASSIVE MODE.	Check FTP server.

### 6 Program version MP 12N-H[HOST-DATA]

Error code	Source	Description	Action
E317	Host FTP server	Host FTP server: unknown response.	Check FTP server.
E318	MP host communication	JACOM download target directory not found.	Check the directory.
E319	MP host communication	JACOM conversion source directory not found.	Check the directory.
E320	MP host communication	JACOM conversion target directory not found.	Check directory.
E322	MP host communication	JACOM directory not found	Check the directory.
E323	MP host communication	MP-JACOM connection could not be set up.	Start MP control system.
E326	MP host communication	JACOM host FTP server communication incorrect.	TCP/IP connection error.
E327	Host FTP server	Host FTP server error in reading download file.	TCP/IP connection error.
E330	MP host communication	JACOM WebComServer could not be started.	Internal error.
E331	MP host communication	JACOM WebComServer connection refused.	Internal error.
E334	MP host communication	Host request file command unknown	Check syntax.
E337	MP host communication	Command is not supported.	Check syntax.
E352	MP host communication	Error in data transfer host-JACOM.	See system protocol.
E353	MP host communication	Host FTP server disconnected.	FTP server inactive.
E362	MP host communication	Error when converting the buffer data.	Check conversion parameters.
E363	MP host communication	Buffer data not accepted.	Total number of buffer data records greater than 500. Transfer buffer data again later.
E370	MP host communication	General syntax error.	Check buffer data record.
E371	MP host communication	Syntax error in data field 'K'.	Check data field 'K'.
E372	MP host communication	Syntax error in data field 'S'.	Check data field 'S'.
E373	MP host communication	Syntax error in data field 'N'.	Check data field 'N'.

### 6 Program version MP 12N-H[HOST-DATA]

Error code	Source	Description	Action
E374	MP host communication	Syntax error in data field 'L'.	Check data field 'L'.
E375	MP host communication	Syntax error in data field 'E'.	Check data field 'E'.
E376	MP host communication	Syntax error in data field 'T'.	Check data field 'T'.
E377	MP host communication	Syntax error in data field 'F'.	Check data field 'F'.
E378	MP host communication	Syntax error in data field 'O'.	Check data field 'O'.
E379	MP host communication	Syntax error in data field 'G'.	Check data field 'G'.
E380	MP host communication	Syntax error in data field 'R'.	Check data field 'R'.
E381	MP host communication	Syntax error in data field 'P'.	Check data field 'P'.
E382	MP host communication	Syntax error in data field 'P'.	Check data field 'B'.
E383	MP host communication	Syntax error in data field 'V'.	Check data field 'V'.
E384	MP host communication	Syntax error in data field 'Q'.	Check data field 'Q'.
E385	MP host communication	Syntax error in data field 'M'.	Check data field 'M'.
E386	MP host communication	Syntax error in data field 'W'.	Check data field 'W'.
E387	MP host communication	Syntax error in data field 'p'.	Check data field 'p'.
E388	MP host communication	Syntax error in data field 'd'.	Check data field 'd'.
E389	MP host communication	Syntax error in data field 'u'.	Check data field 'u'.
E390	MP host communication	Syntax error in data field 'U01'.	Check data field 'U01'.
E391	MP host communication	Syntax error in data field 'U02'.	Check data field 'U02'.
E392	MP host communication	Syntax error in data field 'U03'.	Check data field 'U03'.
E393	MP host communication	Syntax error in data field 'U04'.	Check data field 'U04'.

### 6 Program version MP 12N-H[HOST-DATA]

Error code	Source	Description	Action
E394	MP host communication	Syntax error in data field 'U05'.	Check data field 'U05'.
E395	MP host communication	Syntax error in data field 'U06'.	Check data field 'U06'.
E396	MP host communication	Syntax error in data field 'U07'.	Check data field 'U07'.
E397	MP host communication	Syntax error in data field 'U08'.	Check data field 'U08'.
E398	MP host communication	Syntax error in data field 'U09'.	Check data field 'U09'.
E399	MP host communication	Syntax error in data field 'U10'.	Check data field 'U10'.
E400	MP host communication	Unknown data field.	Check buffer data record.

### 6 Program version MP 12N-H[HOST-DATA]

#### 6.3 Configuration software for the host communication

##### 6.3.1 Features

The following settings are possible using the configuration software:

- ◆ Configuration of the MP 12N-H[HOST-DATA] host communication
- ◆ Defining the host connection parameters
- ◆ Enabling/disabling the data exchange
- ◆ Defining the data conversion of data files
- ◆ Display of the log file
- ◆ Export and local saving of the parameters

##### 6.3.2 Installation

Prerequisites for operating the configuration software

- ◆ Windows NT / 2000 / XP/ Vista
- ◆ At least 20 MB of available hard disk space

Installation on the service or customer computer

- x A pre-installed JRE (Java Runtime Environment) is not necessary.
- x The configuration software is on the service CD, and can also be downloaded online from [www.service-hanel.de](http://www.service-hanel.de).
- To install, double-click the file "jacm\_vxx\_vm.exe".
- Select the installation directory (default is "C:\jacomman").
- ➔ The installation files are unpacked. After the installation, a separate JRE file, "jacomman.jar" (Java Archive), and resources and text files are in the installation directory.
- Double-click the file "jacomman.bat" in the installation directory.
- ➔ The configuration software is started. After the software is called up for the first time, a window opens automatically for displaying the operating mode.
- Select MP 12N-H[HOST-DATA].  
The selection can be reversed. To do so, set the parameter "MODE = 0" in the file "manage.props".
- x If there are problems, open the file "jacomman.bat" in the installation directory and check the directory paths. See the example below.

Contents of  
"jacomman.bat" (example)

```
PATH = .\jre\1.5.0_06\bin c:\programme\javasoft\
jre\1.5.0\bin;%JAVA_HOME%
java -cp .\;\jacomman.jar; de.hanel.manage.JacomMan
```






6
Program version MP 12N-H[HOST-DATA]

6.3.3
General

The program contains the following menus:

Menu	See Chapter	Page
Transfer	6.3.4	201
Communication	6.3.5	202
File types	6.3.6	204
Buffer data	6.3.7	208
File transfer	6.3.8	212
Log	6.3.9	214

The program offers the following basic functions:

Symbol	Function
<div> Right arrow button  </div>	Go to next page
<div> Left arrow button  </div>	Go to previous page
<div> Help button  </div>	Call up help
<div> Hand button   </div>	Adoption of the settings on a page <div> x If you click the hand button, the hand becomes a fist. This indicates that the settings on the current page have been accepted. </div>



## 6 Program version MP 12N-H[HOST-DATA]

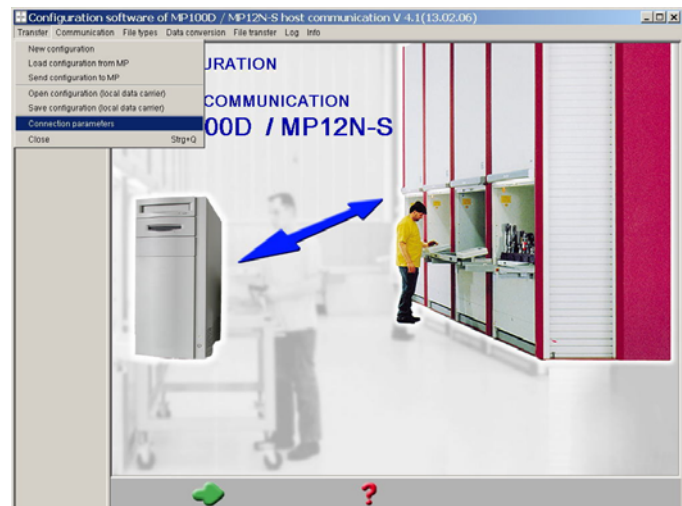
### 6.3.4 "Transfer" menu

#### Description of the operator prompts

The following functions are possible in the "transfer" menu:

- ◆ **New configuration:** The factory settings are loaded into the configuration software.
- ◆ **Load configuration from MP:** The current settings of the MP control system are loaded into the configuration software.
- ◆ **Send configuration to MP:** The settings loaded in the configuration software are transferred to the MP control system.
- ◆ **Open configuration (local data carrier):** A configuration file (\*.prop) is loaded by a local data carrier.
- ◆ **Save configuration (local data carrier):** The settings loaded in the configuration software are saved on a local data carrier.
- ◆ **Connection parameters:**
  - With DHCP / DNS operation:  
Enter MP name, e.g. mp12n-58p320s7-9
  - Without DHCP / DNS operation:  
Enter the IP address of the MP control system, e.g. 192.168.1.1 (network administrator).
  - x From the service computer, for example, access is possible with the IP address 172.16.1.1 for MP 12N-H[HOST-DATA] and lift 1, access point 1. See Chapter 6.3.2 on page 199.
- ◆ **Close:** The configuration software is closed.

#### Display



## 6 Program version MP 12N-H[HOST-DATA]

### 6.3.5 "Communication" menu

The Hänel multi-unit network is connected to the corporate Ethernet via the MP control system from access point 1 of the master lift/carousel. The master lift/carousel is configured in the initialisation. By means of a cyclical query of the FTP server by the MP control system, data are transferred to the MP control system. See Chapter 6.2.7.1 on page 192.

After every data transfer, the MP control system responds with a response file.

See Chapter 6.3.6.3 on page 206.

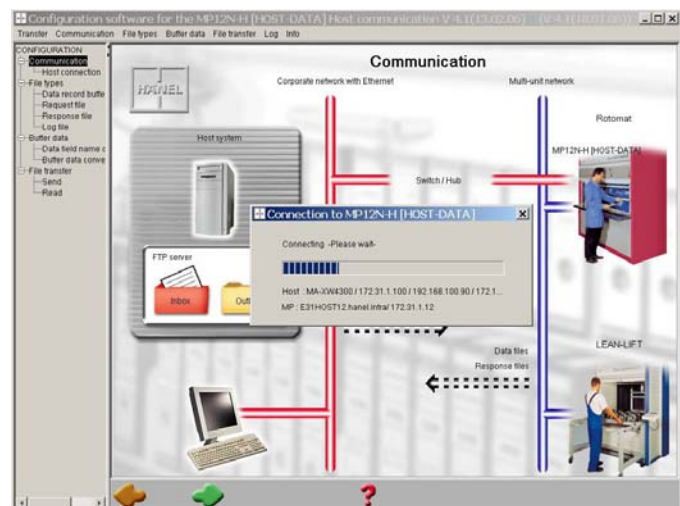
Commands are sent to the MP control system with request files. See Chapter 6.3.6.2 on page 205.

### Description of the operator prompts

#### Establish connection to MP control system

- After the program start, click the right arrow button.
- ➔ The configuration software attempts to establish a connection to the MP control system and load the configuration data.
- ✗ If you want to load these data again, you can do so in the menu "Transfer" -> "Load configuration from MP".

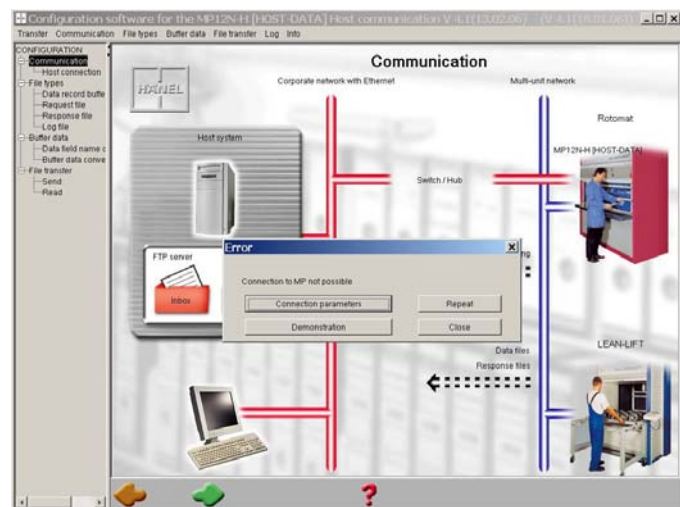
### Display



- ➔ If no connection can be established with the MP control system, the message to the right appears.

The following functions are now possible:

- ◆ **Connection parameters:** You can change the name or IP address of the MP control system here.
- ◆ **Demonstration:** A demo version of the configuration software is started here. No connection to the MP control system is necessary to do so.
- ◆ **Repeat:** Another attempt is made to establish a connection to the MP control system.
- ◆ **Close:** The configuration software is closed.



## 6 Program version MP 12N-H[HOST-DATA]

### Description of the operator prompts

### Display

#### Define parameters for host communication

- In the "Communication" menu, select the "Host connection" menu item.
- Set the parameters.

##### Active / inactive:

- If set to "active": The MP control system attempts to log into the FTP server. After logging in successfully, the MP control system begins its cyclic FTP polling.  
See Chapter 6.2.7 on page 192.
- If set to "inactive": The MP control system does not attempt to log into the FTP server.

##### MP 12N-H[HOST-DATA]:

The IP in the multi-unit network and the IP in the corporate network are displayed for informational purposes.

##### Host / PC system (FTP server):

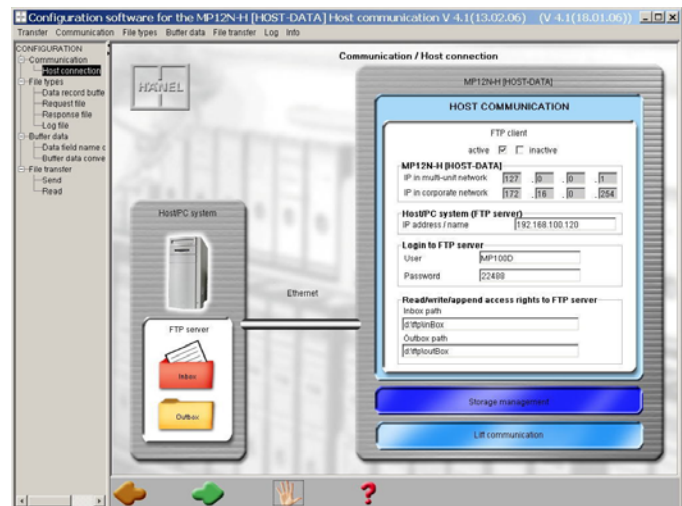
You have to enter the IP address of the host / PC system on which the FTP server is installed.  
See Chapter 6.2.2 on page 188.

##### Login to FTP server:

The values configured here for "User" and "Password" are factory settings. They can be changed as desired. When doing this, you must ensure that these settings match those of the FTP server. The FTP server may restrict the number of characters or the type (numeric or alphanumeric) of characters used here.  
See Chapter 6.2.2 on page 188.

##### Read /write /append rights to FTP server:

Here, specify the corresponding path and name of the directory for the inbox and outbox.  
See Chapter 6.2.2 on page 188.



## 6 Program version MP 12N-H[HOST-DATA]

### 6.3.6 "File types" menu

Through the configuration of the file types, the MP 12N-H[HOST-DATA] host communication receives information on the type of file, the time sequence of transfer and the structure of the file.

In the "File types" menu, certain parameters have to be assigned to the file types:

- ◆ **File name extension:**  
File names must have the form *<filename>.<ext>*. *<ext>* is the file name extension.  
File name extensions can be selected as desired. However, different file types must also be assigned different extensions.
- ◆ **Polling cycle of the FTP client:**  
The polling cycle determines the time which elapses before the MP control system polls the output box of the host FTP server for a specific file type.  
The polling cycle can be set separately for the data record buffer file and the request file (1-360 sec.).

#### 6.3.6.1 Data record buffer file

Only one data file type (data record buffer file) is available in HOST-DATA operating mode:

#### Description of the operator prompts

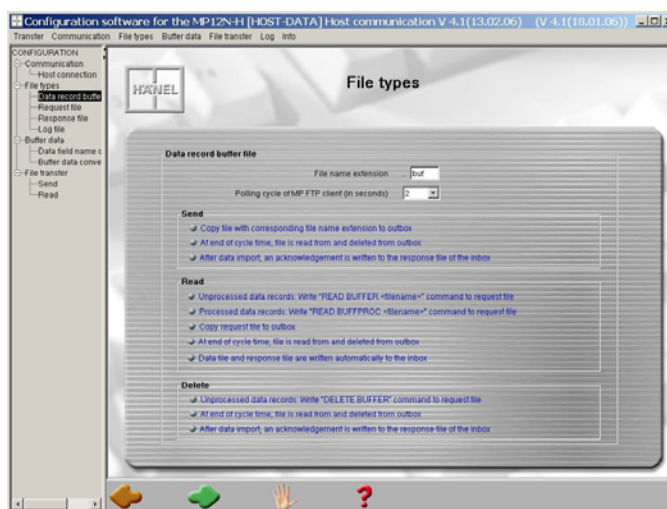
##### Configure data record buffer file

- Select the file type "Data record buffer file" in the navigation bar.
- Enter the file name extension.
- Select polling cycle.

Default setting:

File type	File name extension	Polling cycle (sec.)
Data record buffer	.buf	2

#### Display



## 6 Program version MP 12N-H[HOST-DATA]

### 6.3.6.2 Request file

The request file contains commands instead of data.  
See Chapter 6.2.8.2 on page 194.

#### Description of the operator prompts

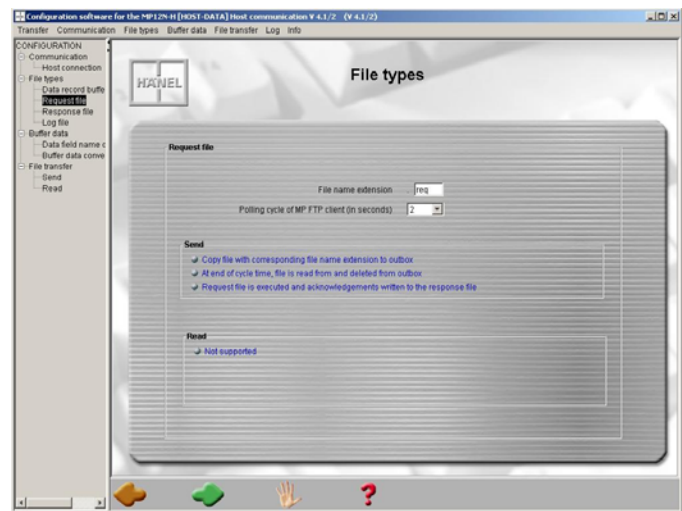
#### Display

#### Configure request file

- Select the file type "Request file" in the navigation bar.
- Enter the file name extension.
- Select polling cycle.

Default setting:

File type	File name extension	Polling cycle (sec.)
Request	.req	2



## 6 Program version MP 12N-H[HOST-DATA]

### 6.3.6.3 Response file

Acknowledgements from the MP control system are saved in the inbox as a status line in the response file.  
See Chapter 6.2.8.3 on page 194.

The response file format can be configured.

#### Structure of the file name

The file name of the response file has the following default structure:  
yyymmmtt-hhmmss.res

yyyy = year                      hh = hour  
mm = month                      mm = minute  
tt = day                          ss = second

- x Depending on the host system, however, it is possible that only file names with what is known as "8.3 notation" are permitted. In this case, the file is saved in the form "yyymmmtt.res".



### Description of the operator prompts

#### Configure response file

- Select the file type "Response file" in the navigation bar.
- Enter the file name extension.
- If necessary, enable the tick box next to "(8.3) Notation".
- Adapt the file structure if necessary.

##### Move field:

- Left-click one of the grey fields, such as Date, Time, Function etc. and hold the mouse button down.
- Move the field towards the left or right into the desired position.
- ➔ The field sequence of the subsequent response file has been defined.

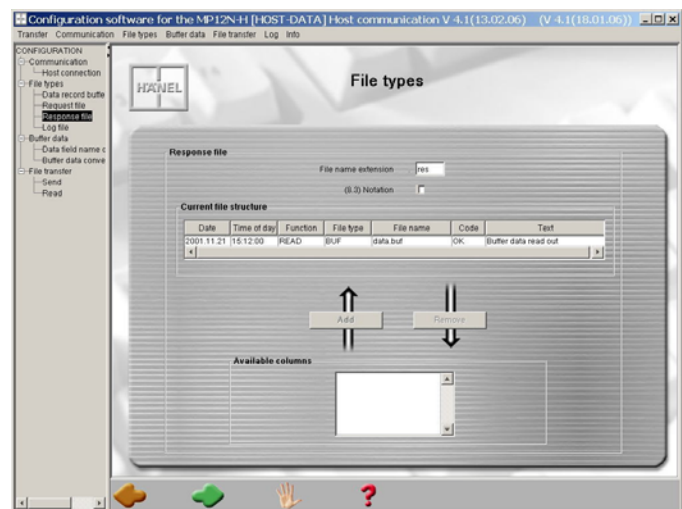
##### Remove field from file structure:

- Left-click one of the white fields.
- ➔ The selected field is marked.
- Click the **Remove** button.
- ➔ The selected field has been moved from "Current file structure" to the "Available columns" selection list.

##### Add field to file structure:

- Select the field in the "Available columns" selection list and click the **Add** button.
- ➔ The selected field has been added to the rear in "Current file structure".

### Display





## 6 Program version MP 12N-H[HOST-DATA]

### 6.3.6.4 Log file



The log file records the communication between the FTP server and FTP client or the storage management system. The data record structure of the log file can be configured.

- x The file name extension is set by default to "log" and cannot be changed.

#### Description of the operator prompts

#### Display

##### Configure log file

- Select the file type "Log file" in the navigation bar.
- Adapt the file structure if necessary.

##### *Move field:*

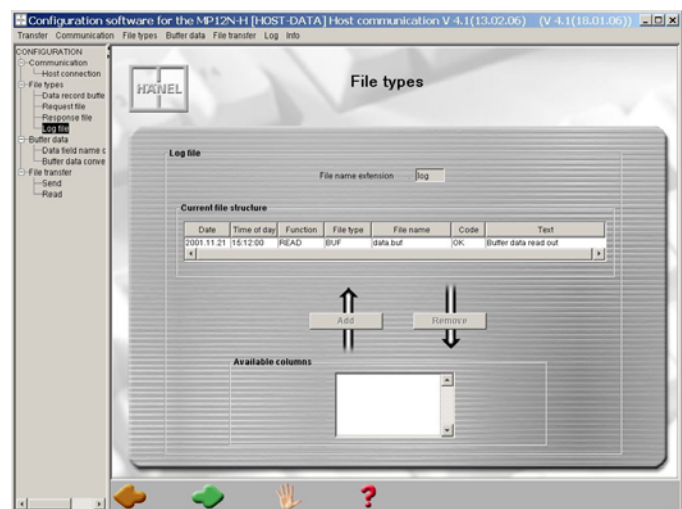
- Left-click one of the grey fields, such as Date, Time, Function etc. and hold the mouse button down.
  - Move the field towards the left or right into the desired position.
- The sequence of the subsequent log file has been defined.

##### *Remove field from file structure:*

- Left-click one of the white fields.
- The selected field is marked.
- Click the **Remove** button.
- The selected field has been moved from "Current file structure" to the "Available columns" selection list.

##### *Add field to file structure:*

- Select the field in the "Available columns" selection list and click the **Add** button.
- The selected field has been added to the rear in "Current file structure".



- x The log file can be exported via the configuration software, or via the "JUMP" service software.
- x The response file is ISO 8859-1 encoded by default. For languages not supported by the ISO 8859-1 character set, UTF-8 encoding is possible.

## 6 Program version MP 12N-H[HOST-DATA]

### 6.3.7 "Buffer data" menu

#### 6.3.7.1 Data field name configuration

The basic configuration includes the definition of the transferred data fields.

A user-defined name for each data field used can be entered here. Only data fields for which a name has been entered appear as fields for the conversion of the buffer data.

### Description of the operator prompts

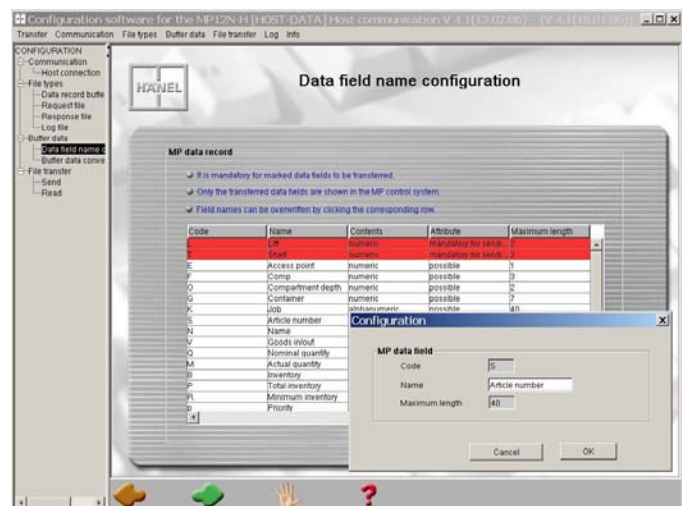
#### Enter/change data field names

- Select the buffer data "Data field name configuration" in the navigation bar.
  - Select data field.
  - The "Configuration" window opens.
  - Enter/change user-defined names, e.g. ID number.
- For alphanumeric data fields:
- Enter the maximum length of the data field contents.

#### Delete data field

- For data fields that are not to appear in the display, delete the data field name.

### Display





## 6 Program version MP 12N-H[HOST-DATA]

### 6.3.7.2 Buffer data conversion

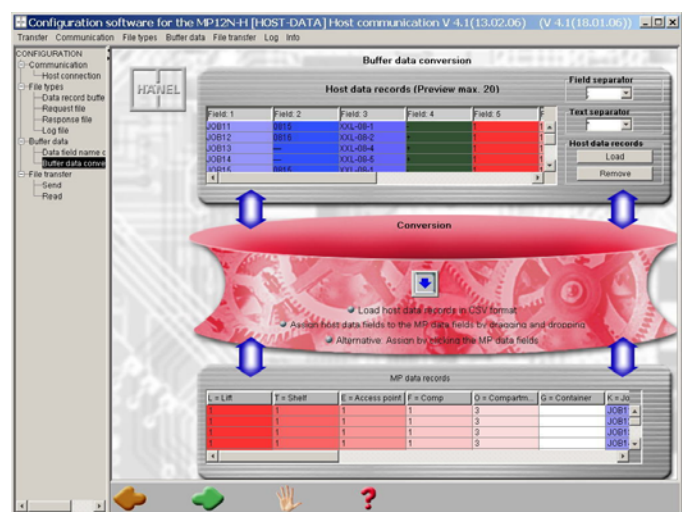
The import/export converter of the MP control system can be configured such that comma-separated files (CSV files) can be sent to the MP control system (import) or read out from the MP control system (export).

#### Description of the operator prompts

##### Set delimiter

- Select the buffer data "Buffer data configuration" in the navigation bar.
- Enter or select the field separator.  
Depending on how the user has created the file, a field separator for the individual fields must be selected here.  
The following characters in brackets can be selected:  
(:), (,), (:), (SPACE), (TAB).  
However, it is also possible to enter characters manually. When doing this, these characters must not have already been used in the data fields to be transferred.
- Enter or select the text separator.  
A few programs export alphanumeric data fields in text separators.  
The following characters in brackets can be selected:  
('), (' '), ('").  
However, characters can also be entered manually.  
When doing this, these characters must not have already been used in the data fields to be transferred.

#### Display



##### Preview host data records

Requirements: The field and text separators are configured and the file to be loaded is adapted correspondingly.

- Select a test file using the **Load** button.
- ➔ The data in this file are taken over as host data records.
- ➔ The data are written into the fields corresponding to the field separators defined for this file. A maximum of 20 data records are displayed in a preview. Errors can be detected and corrected immediately.
- Delete the test file from the view using the **Remove** button.

## 6 Program version MP 12N-H[HOST-DATA]

### Description of the operator prompts

### Display

Assign host data records corresponding MP data fields

There are three options for selecting the fields of the host data records:

1. Use drag and drop to copy the entire column from the host data records into the MP data records.
2. Double-click the column of the desired field of the host data record.
3. Double-click the desired column of the field of the MP data record.

→ The "Configuration" window opens.

- x All settings made here apply to sending to the MP control system (import) and to reading from the MP control system (export). See Chapter 6.2.7 on page 192.
- Select or enter the parameters for the data record buffer file to be transferred.

#### Host data field:

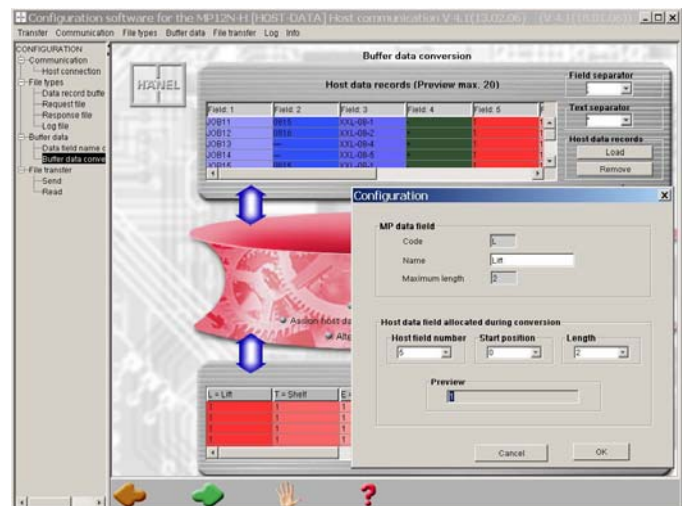
The host data fields are specified in detail here.

- **Host field number:** Specifies which field (1) of the host data record is to be defined. (Only applies to Send and Read).
- **Start position:** Here you have to set the position (0) of the host data field at which conversion is to start. (Only applies to Send. Settings are ignored for Read.)
- **Length:** The number of digits for this data field must be defined here. (Only applies to Send. Settings are ignored for Read.)

#### MP data field:

The data field of the MP 12N-H[HOST-DATA] (e.g.: S = article number) that is to correspond to this host data field must now be specified here.

- Click the OK button.
- Host data field has been assigned to an MP data field and is highlighted in colour.
- Repeat steps for additional host data fields to be converted.
- Click the hand button to accept the settings.

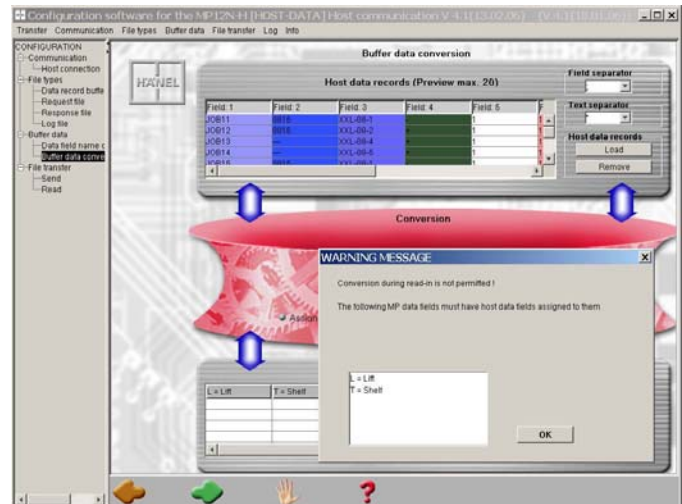


## 6 Program version MP 12N-H[HOST-DATA]

### Description of the operator prompts

- x It is mandatory for the lift and shelf number to be transferred.
- If one of these fields is not defined and you click the hand button, a warning appears. Only when all mandatory data fields have been assigned is the warning cleared, and conversion during sending is permitted.

### Display



### 6 Program version MP 12N-H[HOST-DATA]

#### 6.3.8 "File transfer" menu

The communication between the host and the MP control system is by means of an automated data exchange between the host FTP server and the MP 12N FTP client.

After a defined polling cycle (see Chapter 6.3.6 on page 204) the FTP client polls the outbox of the FTP server for files.

If there is a file in the output box of the FTP server which has one of the file name extensions defined in the configuration software, the file is transferred to the MP control system and deleted in the outbox.

If a data record buffer file has been recognised, an attempt is made to enter this file into the MP control system. As feedback, a status line is placed in a response file in the FTP server inbox. If the response file already exists, the status feedback is added to the existing contents.

If a request file has been recognised, the commands are evaluated and executed. Following this, status feedback is also placed in a response file in the FTP server inbox.

Depending on the command or quantity of the sent or requested data, the entry into the response file may require a significant amount of time.

If an error occurs during file transfer or import/export to the storage management system, this error is written into the response file immediately after it occurs.

If the MP control system is switched off during a file transfer / conversion, the relevant file must be sent once again.  
See Chapter 6.2.7 on page 192.

## 6 Program version MP 12N-H[HOST-DATA]

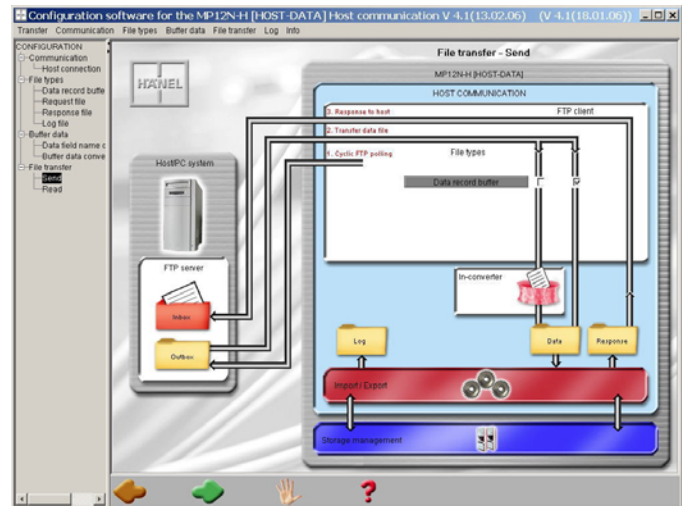
### 6.3.8.1 Send (import)

#### Description of the operator prompts

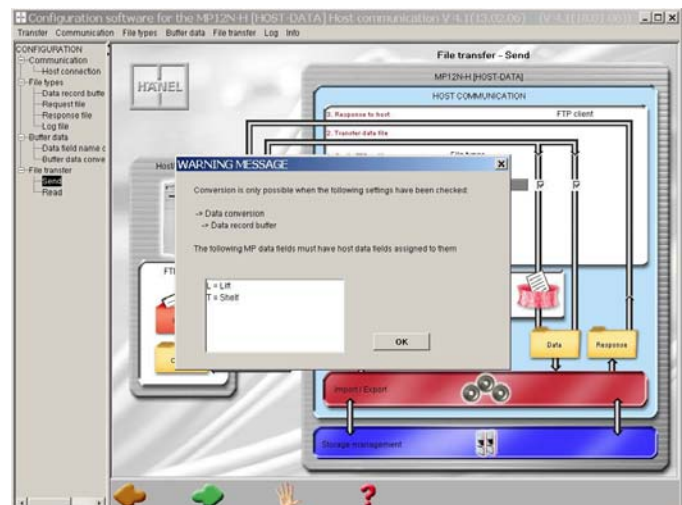
#### Display

#### Activate with conversion / without conversion

- ➔ Under "File types", there is a list of files that can be sent. In this operating mode, this is only the data record buffer file.
- ➔ Two white tick boxes appear to the right of the possible file types.
  - Enable the left tick box if the file is to be converted. Here, the MP data fields must have already been assigned corresponding host data fields. See Chapter 6.3.7 on page 208.
  - Enable the right tick box if the file is to be sent directly to the MP control system.



- ➔ The error message to the right appears if the MP data fields have not yet been assigned host data fields. See Chapter 6.3.7 on page 208.



## 6 Program version MP 12N-H[HOST-DATA]

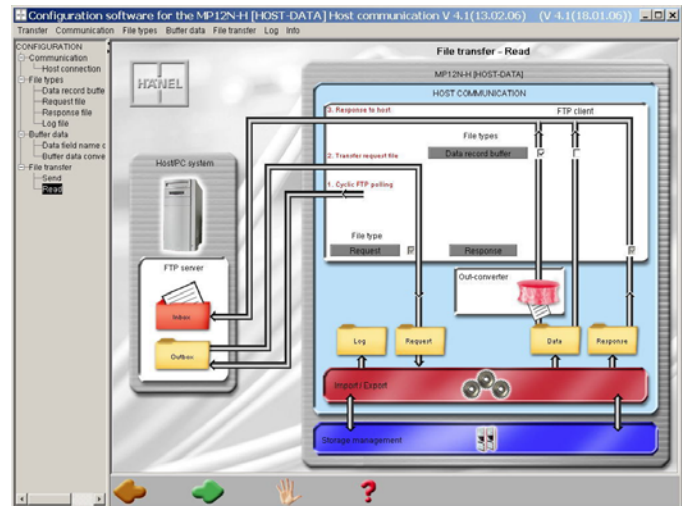
### 6.3.8.2 Read (export)

#### Description of the operator prompts

##### Activate with conversion / without conversion

- ➔ Under "File types", there is a list of files that can be read. In this operating mode, this is only the data record buffer file.
- ➔ Two white tick boxes appear to the right of the file types.
- Enable the left tick box if the file is to be converted. See Chapter 6.3.7 on page 208.
- Enable the right tick box if the file is to be sent directly from the MP control system in the Hänel MP data record format.
- ➔ Using the request file, commands for exporting are sent to the MP control system. The MP control system now sends the requested data as a file to the inbox of the FTP server. The file name is based on the request file. Furthermore, a response is written into the response file.

#### Display



### 6.3.9 "Log" menu

In the "Log" menu, the internal log file can be deleted or displayed. When the log file is displayed, all saved log entries are shown in a separate window. The form of the log entries can be configured. See Chapter 6.3.6.4 on page 207.

### 6.3.10 "Info" menu

You can select the language for the configuration software and the font in the "Info"-> "Settings" menu.

## 6 Program version MP 12N-H[HOST-DATA]

### 6.3.11 Send configuration to MP control system

#### Description of the operator prompts

#### Send configuration data to MP control system

Requirements: All settings have been configured.

- Click the right arrow button.

or

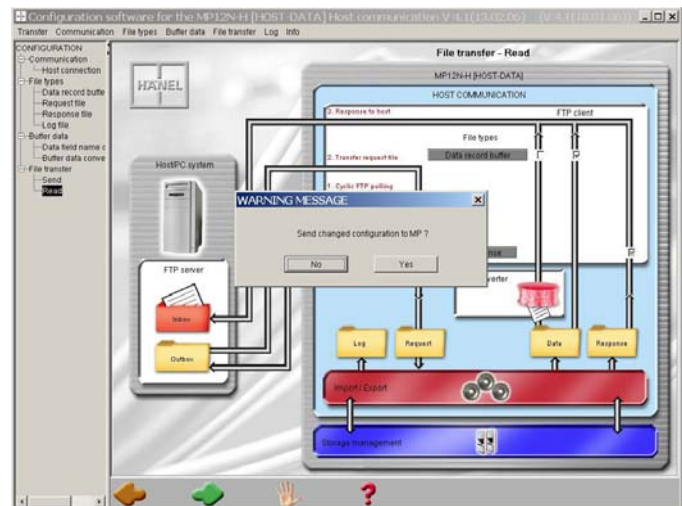
- In the "Transfer" menu, select the "Send configuration to MP" menu item.

➔ The window to the right opens.

- Click the Yes button.

➔ Configuration settings are sent to the MP control system.

#### Display



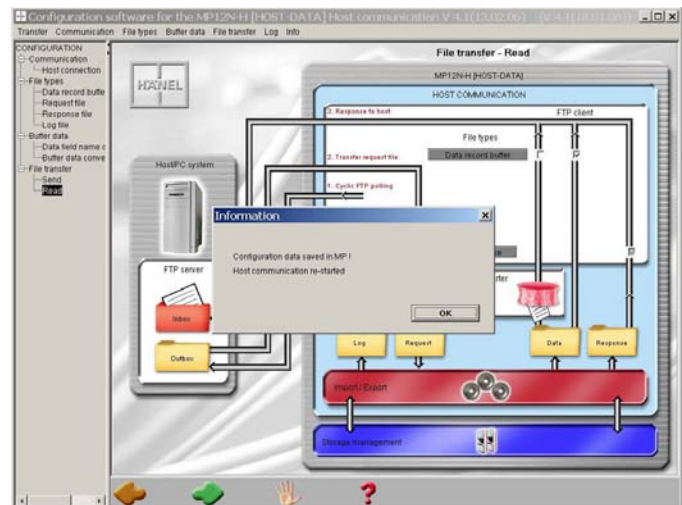
#### Send configuration data to MP control system when exiting the program

Requirements: All settings have been configured and accepted using the hand button.

➔ After the program is closed or cancelled, the window to the right is opened.

- Click the OK button.

➔ The changes in the MP control system become active only after the export, and the program is automatically restarted.







### 7 Program version MP 12N-H[HOST-WEB]



- x Host communication by commands / HTTP protocol is possible with the MP 12N-H[HOST-WEB] microprocessor control system only.



#### SAFETY INSTRUCTION

Compliance with the following is mandatory:

- Specific regulations of the respective country, e.g. in Germany, for example, the guidelines of the trade associations in Germany, the guidelines of the SUVA in Switzerland
- Safety Memorandum for Technical Field Staff
- Special operating, control, order and safety regulations of the customer

#### 7.1 Overview of features

- ◆ The host is connected to the Ethernet interface of the MP 12N.
- ◆ Data transmission takes place via a TCP/IP connection.
- ◆ The host communication by commands and the host communication by HTTP protocol can be combined.

Host communication by commands:

- ◆ 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/carousel, common parameters for a TCP/IP interface must be configured (IP address, subnet mask, default gateway). It is also possible to have a DHCP server assign the addresses.
- ◆ The MAC address of the host also has to be specified.
- ◆ The host can start lift/carousel runs and request status via control commands. Only the control commands coming from the initialised host MAC address are accepted.

Host communication by HTTP protocol (only with TFT display):

- ◆ The MP 12N is the web client with an embedded browser.
- ◆ The host provides the web server and the web server application.
- ◆ The host parameters specify the home page of the web server, which is then loaded by the embedded browser after the lift/carousel is switched on.

The Hänel User Guide for the Microprocessor Control System does not describe operation in the MP 12N-H[HOST-WEB] mode.

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.

### 7 Program version MP 12N-H[HOST-WEB]

#### 7.2 Switching on the lift/carousel

##### Description of the operator prompts

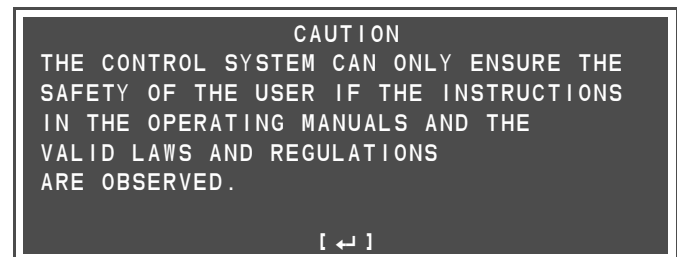
##### Lift/carousel control system start-up message

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

##### Display



- Press the [↩] key.



##### For the Lean-Lift and Multi-Space:

- Display as long as no connection to the host existed yet.



Function	Description
↑	Storing a shelf from the access point manually
↓	Bringing a shelf to the access point manually
+□	Adding a new shelf
-□	Removing a shelf
⇓	Starting an optimisation run
i	Information services
?	System services

7

Program version MP 12N-H[HOST-WEB]

Description of the operator prompts

Display

For the Rotomat:

➔ Display as long as no connection to the host existed yet.



Function	Description
↑	Manual shelf selection by sight upward
↓	Manual shelf selection by sight downward
⇓	Manual shelf selection after entering a shelf number
i	Information services
⌘	System services

➔ Example of display as soon as a connection to the host existed and no carousel run is carried out.



### 7 Program version MP 12N-H[HOST-WEB]

#### 7.3 Host communication through commands

- ◆ Using the following commands, the host is able to control compartment LEDs, request lift states and execute lift runs.
- ◆ The control system will only accept one command at a time. Other commands are ignored until the present command is completed.
- ◆ The control system accepts only those commands that are sent by the host with the configured host MAC address.
- ◆ Lift runs always have to be initiated using the **I ↵ I**-key on the control system.

#### Terms used

- ◆ MP = MP control system
- ◆ xxx= Lift number
- ◆ y = Access point number
- ◆ *CRLF* = Carriage Return (ASCII 13) and Line Feed (ASCII 10)

#### Status acknowledgements of the MP 12N

- MP: \*G2301:xxxY\$P XS\$E00\$*CRLF*      The command was accepted and is being processed. An acknowledgement follows as soon as processing of the command has been completed.
- MP: \*G2301:xxxY\$P XS\$E02\$*CRLF*      The command has not been accepted because a command is still being processed.
- MP: \*G2301:xxxY\$P XS\$E03\$*CRLF*      The command has not been accepted because a syntax error has been found in the command header (\*GxxxY:2301\$M XR\$Enn\$).
- MP: \*G2301:xxxY\$P XS\$E04\$*CRLF*      The command was not accepted because the host MAC address is not correct.  
The following message appears on the screen:  
PC COMMUNICATION  
ERROR E50  
-> CE
- x If a lift run is being carried out for another access point, all commands (except E60) result in the display of the "LIFT RUN FOR OTHER ACCESS POINT" message until the other lift run has finished. Only then is the sent command processed.
- x Unknown commands (nn) are answered with E100.
- Host: \*GxxxY:2301\$M XR\$Enn\$*CRLF*
- MP: \*G2301:xxxY\$P XS\$E00\$*CRLF*
- MP: \*G2301:xxxY\$P XA\$Ann\$E100\$*CRLF*

### 7 Program version MP 12N-H[HOST-WEB]

#### 7.3.1 \$E11\$: Activate compartment / compartment depth display



x This command is not possible for rack operation.

With this command, the host has the ability to display a storage location.

Depending on the hardware, the storage location can be displayed as follows:

- ◆ Compartment display (only compartment is displayed)
- ◆ Compartment depth display (compartment and single-digit compartment depth are displayed)
- ◆ Compartment depth display, type 2 (compartment, single-digit compartment depth and container width are displayed)
- ◆ Compartment depth display, type 3 (compartment, two-digit compartment depth and container width are displayed)

Host: \*G<sub>xxx</sub>y:2301\$M XR\$E11\$F\_\_\_\$O\_\_\$H\_\_\$CRLF

F: Compartment number  
("0"= delete compartment  
display / compartment depth  
display)

O: Compartment depth number  
(only necessary for  
compartment depth display)  
"0" or empty data field deletes  
the compartment depth.

H: Container width 01 - 20 (only  
for compartment depth display  
type 2 or type 3. If the data  
field is empty, the value "1" is  
assigned automatically)

MP: \*G2301:xxx\$P XS\$E00\$CRLF

Command was accepted.

MP: \*G2301:xxx\$P XA\$A11\$E00\$CRLF

Command was executed.

or

\*G2301:xxx\$P XA\$A11\$E95\$CRLF

Contents of data field F or O or H  
not permitted.

or

\*G2301:xxx\$P XA\$A11\$E97\$CRLF

Data field F is missing.

or

\*G2301:xxx\$P XA\$A11\$E98\$CRLF

Command is not possible with:  
– Rack operation

### 7 Program version MP 12N-H[HOST-WEB]

#### 7.3.2 \$E12\$: Query whether a shelf is in the access point



x This command is not possible for rack operation.

With this command, the host has the ability to query the MP control system about whether a shelf is in the access point.

Host: \*G<sub>xxx</sub>y:2301\$M XR\$E12\$ CRLF

MP: \*G2301:xxx\$P XS\$E00\$ CRLF Command was accepted.

MP: \*G2301:xxx\$P XA\$A12\$E00\$T\_\_\$ CRLF

Command was executed.  
(Rotomat, Lean-Lift, Multi-Space)  
T: Shelf number

or

\*G2301:xxx\$P XA\$A12\$E01\$ CRLF

No shelf in the access point.  
(Lean-Lift, Multi-Space)

or

\*G2301:xxx\$P XA\$A12\$E03\$ CRLF

Unknown shelf in the access point.  
(Lean-Lift, Multi-Space)

or

\*G2301:xxx\$P XA\$A12\$E04\$ CRLF

Shelf data field T removed without  
being registered.  
(Lean-Lift, Multi-Space)

or

\*G2301:xxx\$P XA\$A12\$E06\$ CRLF

Shelf in access point is incorrectly  
positioned.  
(Lean-Lift, Multi-Space)

or

\*G2301:xxx\$P XA\$A12\$E07\$ CRLF

Access points not initialised.  
(Lean-Lift, Multi-Space)

or

\*G2301:xxx\$P XA\$A12\$E12\$ CRLF

Carousel is not at end position.  
(Rotomat)

or

\*G2301:xxx\$P XA\$A12\$E98\$ CRLF

Command is not possible with:  
– Rack operation

### 7 Program version MP 12N-H[HOST-WEB]

#### 7.3.3 **\$E17\$**: Request the load imbalance recommendation (only for Rotomat with load imbalance indicator)



x This command is possible only for the Rotomat with imbalance indicator.

With this command, the host has the ability to query the carousel for the imbalance situation of the carousel.

Host: \*G<sub>xxx</sub>y:2301\$M XR\$E17\$CRLF

MP: \*G2301:xxx\$P XS\$E00\$CRLF Command was accepted.

MP: \*G2301:xxx\$P XA\$A17\$E00\$V\_\$T\_\_\$CRLF

Command was executed.

V: Operation sign

"-" Remove articles on shelf T

"+" Store articles on shelf T

T: Shelf number

or

\*G2301:xxx\$P XA\$A17\$E98\$CRLF

Command is not possible with:

- Rack operation
- Lean-Lift
- Multi-Space
- Rotomat without load imbalance indicator

### 7 Program version MP 12N-H[HOST-WEB]

#### 7.3.4 \$E20\$: Start lift/carousel run and activate compartment/compartment depth display

With this command, the host has the ability to start a lift/carousel run and activating the compartment display.



When the supplementary module "Automatic sliding door" is used:

- Refer also to the "Supplementary Description of the Automatic Sliding Door Microprocessor Control System MP 12D/N Lean-Lift, Multi-Space and Rotomat".

When the supplementary module "Automatic sliding door" is used:

- For further information, see the "Supplementary Description of the Automatic Shelf Ejection Microprocessor Control System MP 12D/N Lean-Lift and Multi-Space".

Host: \*G<sub>xxx</sub>y:2301\$M XR\$E20\$T\_\_\_\$F\_\_\_\$O\_\_\_\$H\_\_\_\$Z\_\$M\_\$CRLF

T	Shelf number (0 = Store shelf for Lean-Lift and Multi-Space) For "Store shelf", compartment indicator / compartment depth indicator is <i>not</i> activated.
F	Compartment number (0 = delete compartment display / compartment depth display)
O	Compartment depth number
H	Container width 01 - 20
	The data fields F, O and H are used to control the compartment/compartment depth display. If one of these data fields is not available, the value 1 is automatically assigned to the data field. Refer also to the command ..\$E11\$..
Z	1 = Store shelf during this lift run in a carrier that is further away from the access point (only for Lean-Lift, Multi-Space).
C	1 = Despite activated shelf locking, the shelf is pushed completely into the access point.

MP: \*G2301:xxx\$P XS\$E00\$CRLF

Command was accepted.

MP: \*G2301:xxx\$P XA\$A20\$E00\$CRLF

Command was executed.  
(Rotomat, Lean-Lift, Multi-Space))

or

\*G2301:xxx\$P XA\$A20\$E01\$CRLF

No shelf in the access point.  
(Lean-Lift, Multi-Space)

or

\*G2301:xxx\$P XA\$A20\$E02\$CRLF

Lift is full.  
(Lean-Lift, Multi-Space)



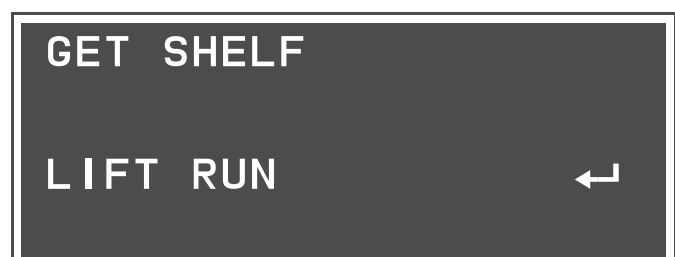
### 7 Program version MP 12N-H[HOST-WEB]

or		
*G2301:xxxxy\$P XA\$A20\$E03\$CRLF		Unknown shelf in the access point. (Lean-Lift, Multi-Space)
or		
*G2301:xxxxy\$P XA\$A20\$E04\$T___\$CRLF		Shelf data field T removed without being registered. (Lean-Lift, Multi-Space)
or		
*G2301:xxxxy\$P XA\$A20\$E05\$CRLF		Shelf not found. (Lean-Lift, Multi-Space)
or		
*G2301:xxxxy\$P XA\$A20\$E95\$CRLF		Contents of data field T, F, O or H not permitted. (Rotomat, Lean-Lift, Multi-Space)
or		
*G2301:xxxxy\$P XA\$A20\$E97\$CRLF		Data field T is missing. (Rotomat, Lean-Lift, Multi-Space)
or		
*G2301:xxxxy\$P XA\$A20\$E98\$CRLF		"Automatic sliding door" or "Automatic shelf ejection" is present, but the supplementary module is not activated. (Rotomat, Lean-Lift, Multi-Space)
or		
*G2301:xxxxy\$P XA\$A20\$E99\$CRLF		Lift/carousel run command was cancelled. (Rotomat, Lean-Lift, Multi-Space)

Display for Lean-Lift, Multi-Space



Display for Lean-Lift, Multi-Space



### 7 Program version MP 12N-H[HOST-WEB]

Display for Rotomat



#### 7.3.5 \$E20\$J0\$: Close sliding door

With this command, the host has the ability to close the sliding door.



This command is possible only if the supplementary module "Automatic sliding door" is used.

- For further information, see the "Supplementary Description of the Automatic Sliding Door Microprocessor Control System MP 12D/N Lean-Lift and Rotomat".

Host: \*G<sub>xxx</sub>y:2301\$M XR\$E20\$J0\$ CRLF

MP: \*G2301:xxx\$P XS\$E00\$ CRLF Command was accepted.

MP: \*G2301:xxx\$P XA\$A20\$E00\$ CRLF Command was executed.

or

\*G2301:xxx\$P XA\$A20\$E95\$ CRLF Contents of data field J not permitted.

or

\*G2301:xxx\$P XA\$A20\$E98\$ CRLF No automatic sliding door present or supplementary module not activated.

or

\*G2301:xxx\$P XA\$A20\$E99\$ CRLF "Close sliding door" was cancelled.

### 7 Program version MP 12N-H[HOST-WEB]

#### 7.3.6 \$E20\$J1\$: Open sliding door

With this command, the host has the ability to open the sliding door.



This command is possible only if the supplementary module "Automatic sliding door" is used.

- For further information, see the "Supplementary Description of the Automatic Sliding Door Microprocessor Control System MP 12D/N Lean-Lift and Rotomat".

Host: \*G<sub>xxx</sub>y:2301\$M XR\$E20\$J1\$ CRLF

MP: \*G2301:xxx\$P XS\$E00\$ CRLF Command was accepted.

MP: \*G2301:xxx\$P XA\$A20\$E00\$ CRLF Command was executed.

or

\*G2301:xxx\$P XA\$A20\$E95\$ CRLF Contents of data field J not permitted.

or

\*G2301:xxx\$P XA\$A20\$E98\$ CRLF No automatic sliding door present or supplementary module not activated.

or

\*G2301:xxx\$P XA\$A20\$E99\$ CRLF "Open sliding door" was cancelled.

### 7 Program version MP 12N-H[HOST-WEB]

#### 7.3.7 \$E23\$: Request open/closed status of sliding door

With this command, the host has the ability to request the open/closed status of the sliding door.



This command is possible only if the supplementary module "Automatic sliding door" or "Access code management" is used.

- For further information, see the "Supplementary Description of the Automatic Sliding Door Microprocessor Control System MP 12D/N Lean-Lift and Rotomat".
- Refer also to the "Supplementary Description of the Access Control System Microprocessor Control System MP 12D/N Lean-Lift, Multi-Space and Rotomat".

Host: \*G<sub>xxx</sub>y:2301\$M XR\$E23\$ CRLF

MP: \*G2301:xxx\$P XS\$E00\$ CRLF Command was accepted.

MP: \*G2301:xxx\$P XA\$A23\$E00\$P\_\$ CRLF

Command was executed.

Rotomat:

P = 0: Sliding door is not completely closed.

P = 1: Sliding door is completely closed.

Lean-Lift:

P = 0: Sliding door is in intermediate position.

P = 1: Sliding door is completely closed.

P = 2: Sliding door is completely open.

or

\*G2301:xxx\$P XA\$A23\$E95\$ CRLF

Contents of data field J not permitted.

or

\*G2301:xxx\$P XA\$A23\$E98\$ CRLF

No automatic sliding door present or supplementary module not activated.

### 7 Program version MP 12N-H[HOST-WEB]

#### 7.3.8 \$E24\$: Start shelf transfer (only for Lean-Lift and Multi-Space with multiple access points)

With this command, the host has to send the shelf in the access point to another access point. "Get shelf" from another access point is not possible.



This command is possible only if the Lean-Lift or Multi-Space has multiple access points and one of the following equipment features:

- ◆ Optional electrical equipment "Lift run only with door closed"
- ◆ Supplementary feature "High-speed door"

Host: \*G *xxxxy*:2301\$M XR\$E24\$Z\_\$CRLF Z: Destination access point

MP: \*G2301:*xxxxy*\$P XS\$E00\$CRLF Command was accepted.

MP: \*G2301:*xxxxy*\$P XA\$A24\$E00\$CRLF Command was executed.

or

\*G2301:*xxxxy*\$P XA\$A24\$E01\$CRLF No shelf in the access point.

or

\*G2301:*xxxxy*\$P XA\$A24\$E95\$CRLF Contents of data field Z not permitted.

or

\*G2301:*xxxxy*\$P XA\$A24\$E97\$CRLF Data field Z is missing.

or

\*G2301:*xxxxy*\$P XA\$A20\$E98\$CRLF No Lean-Lift or Multi-Space with more than one access point and one of the listed equipment features.

or

\*\*G2301:*xxxxy*\$P XA\$A20\$E99\$CRLF Lift run command was cancelled.

### 7 Program version MP 12N-H[HOST-WEB]

#### 7.3.9 \$E40\$: Request whether shelf is present in lift

With this command, the host has the ability to query the MP control system about whether a certain shelf is in the lift.

Host: \**xxxy*:2301\$M XR\$E40\$T\_\_\_\$CRLF

T: Shelf number

MP: \*G2301:*xxxy*\$P XS\$E00\$CRLF

Command was accepted.

MP: \*G2301:*xxxy*\$P XA\$A40\$E00\$CRLF

Shelf found.

or

\*G2301:*xxxy*\$P XA\$A40\$E05\$CRLF

Shelf not found.

or

\*G2301:*xxxy*\$P XA\$A40\$E95\$CRLF

Contents of data field T not permitted.

or

\*G2301:*xxxy*\$P XA\$A40\$E97\$CRLF

Data field T is missing.

### 7 Program version MP 12N-H[HOST-WEB]

#### 7.3.10 \$E42\$: Request AP factor of a shelf (only for Lean-Lift and Multi-Space)



- x This command is possible only for the Lean-Lift and Multi-Space.

With this command, the host has the ability to request the AP factor.

- x The AP factor specifies how often a shelf has been accessed. This shelf is then stored correspondingly near to the access point to reduce access times.
- x AP = Access Priority

Host: \*G<sub>xxx</sub>y:2301\$M XR\$E42\$T\_\_\_\$P0\$ CRLF

T: Shelf number

MP: \*G2301:<sub>xxx</sub>y\$P XS\$E00\$ CRLF

Command was accepted.

MP: \*G2301:<sub>xxx</sub>y\$P XA\$A42\$E00\$P\_\$ CRLF

Command was executed.

P: AP factor (1-3)  
3 means fast access

or

\*G2301:<sub>xxx</sub>y\$P XA\$A42\$E05\$ CRLF

Shelf not found.

or

\*G2301:<sub>xxx</sub>y\$P XA\$A42\$E95\$ CRLF

Contents of data field T or P not permitted.

or

\*G2301:<sub>xxx</sub>y\$P XA\$A42\$E97\$ CRLF

Data field T or P is missing.

or

\*G2301:<sub>xxx</sub>y\$P XA\$A42\$E98\$ CRLF

Command is not possible with:  
– Rack operation  
– Rotomat

### 7 Program version MP 12N-H[HOST-WEB]

#### 7.3.11 \$E42\$: Enter AP factor of a shelf (only for Lean-Lift and Multi-Space)



x This command is possible only for the Lean-Lift and Multi-Space.

With this command, the host has the option to change the time taken to access individual shelves by assigning an AP factor from 1 - 3 (AP = Access Priority). Shelves that are assigned a high AP factor are, if possible, stored close to the access opening (if free slots are available there) to shorten the access time.

Host: \*G<sub>xxx</sub>y:2301\$M XR\$E42\$T\_\_\_\$P\_\$CRLF

T: Shelf number

P: AP factor (1-3)

3 means fast access

MP: \*G2301:xxx\$P XS\$E00\$CRLF

Command was accepted.

MP: \*G2301:xxx\$P XA\$A42\$E00\$CRLF

Command was executed. AP factor saved.

or

\*G2301:xxx\$P XA\$A42\$E05\$CRLF

Shelf not found.

or

\*G2301:xxx\$P XA\$A42\$E95\$CRLF

Contents of data field T or P not permitted.

or

\*G2301:xxx\$P XA\$A42\$E97\$CRLF

Data field T or P is missing.

or

\*G2301:xxx\$P XA\$A42\$E98\$CRLF

Command is not possible with:

- Rack operation
- Rotomat



### 7 Program version MP 12N-H[HOST-WEB]

#### 7.3.12 \$E42\$: Request lift assignment (only for Lean-Lift and Multi-Space)



x This command is possible only for the Lean-Lift and Multi-Space.

With this command, the host has the ability to query the number of shelves in the lift and the percentage allocation. The assignment percentage indicates the percentage of carriers in the lift which are filled with shelves or product.

Host: \*G<sub>xxx</sub>y:2301\$M XR\$E42\$T0\$ CRLF

MP: \*G2301:xxx\$P XS\$E00\$ CRLF Command was accepted.

MP: \*G2301:xxx\$P XA\$A42\$E00\$T\_\_\$R\_\_\$ CRLF

Command was executed.

T: Number of shelves

R: Percentage allocation

or

\*G2301:xxx\$P XA\$A42\$E95\$ CRLF

Contents of data field T or P not permitted.

or

\*G2301:xxx\$P XA\$A42\$E97\$ CRLF

Data field T or P is missing.

or

\*G2301:xxx\$P XA\$A42\$E98\$ CRLF

Command is not possible with:

- Rack operation
- Rotomat

### 7 Program version MP 12N-H[HOST-WEB]

#### 7.3.13 \$E44\$: Start optimisation run (only for Lean-Lift and Multi-Space)



x This command is possible only for the Lean-Lift and Multi-Space.

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

Host: \*G<sub>xxx</sub>y:2301\$M XR\$E44\$R\_\$CRLF R 0 = Optimise according to access time.  
1 = Optimise according to packing density.

MP: \*G2301:xxx\$P XS\$E00\$CRLF Command was accepted.

MP: \*G2301:xxx\$P XA\$A44\$E00\$CRLF Command was executed.

or

\*G2301:xxx\$P XA\$A44\$E02\$CRLF Lift is full.

or

\*G2301:xxx\$P XA\$A44\$E95\$CRLF Contents of data field R not permitted.

or

\*G2301:xxx\$P XA\$A44\$E97\$CRLF Data field R missing

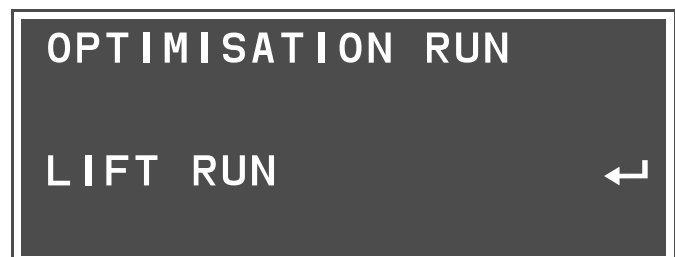
or

\*G2301:xxx\$P XA\$A44\$E98\$CRLF Command is not possible with:  
– Rack operation  
– Rotomat

or

\*G2301:xxx\$P XA\$A44\$E99\$CRLF Lift/carousel run command was cancelled.

Display



### 7 Program version MP 12N-H[HOST-WEB]

#### 7.3.14 \$E46\$: Remove shelf (only for Lean-Lift and Multi-Space)



x This command is possible only for the Lean-Lift and Multi-Space.

With this command, the host has the ability to remove a shelf from the lift.

Host: \*G<sub>xxx</sub>y:2301\$M XR\$E46\$T\_\_\_\$CRLF

T: Shelf number

MP: \*G2301:xxx\$P XS\$E00\$CRLF

Command was accepted.

MP: \*G2301:xxx\$P XA\$A46\$E00\$CRLF

Command was executed. Shelf was unregistered.

or

\*G2301:xxx\$P XA\$A46\$E05\$CRLF

Shelf not found.

or

\*G2301:xxx\$P XA\$A46\$E07\$CRLF

Access point not initialised.

or

\*G2301:xxx\$P XA\$A46\$E09\$CRLF

Shelf not in access point.

or

\*G2301:xxx\$P XA\$A46\$E95\$CRLF

Contents of data field T not permitted.

or

\*G2301:xxx\$P XA\$A46\$E97\$CRLF

Data field T is missing.

or

\*G2301:xxx\$P XA\$A46\$E98\$CRLF

Command is not possible with:  
– Rack operation  
– Rotomat

### 7 Program version MP 12N-H[HOST-WEB]

#### 7.3.15 \$E47\$: Add shelf (only for Lean-Lift and Multi-Space)



- ✗ This command is possible only for the Lean-Lift and Multi-Space.  
When the supplementary module "Storage Location Height Management" is used:
- Refer also to the "Supplementary Description of the Storage Height Management Microprocessor Control System MP 12D/N Lean-Lift, Multi-Space and Rotomat".

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

Host: \*G<sub>xxx</sub>:2301\$M XR\$E47\$T\_\_\$H\_\_\$CRLF

T: Shelf number  
H: Shelf target height 1 to 31  
(only with supplementary module "Storage location height management")  
In lifts/carousels with "Fixed shelf height" or "Shelf height monitor" and a slot increment of 37.5 / 45 mm (1.456"/1.772"), the minimum value for the shelf target height is "2".

MP: \*G2301:xxx\$P XS\$E00\$CRLF

Command was accepted.

MP: \*G2301:xxx\$P XA\$A47\$E00\$CRLF

Command was executed. Shelf was registered.

or

\*G2301:xxx\$P XA\$A47\$E07\$CRLF

Access point not initialised.

or

\*G2301:xxx\$P XA\$A47\$E08\$CRLF

– Shelf already exists.

or

– Shelf number is invalid.

or

– Another shelf is already registered in the access point and not yet stored.

or

\*G2301:xxx\$P XA\$A47\$E11\$CRLF

No unknown shelf in access point.

or

\*G2301:xxx\$P XA\$A47\$E12\$CRLF

System error No. of shelves.  
(Contact the Hänel service department.)

or

### 7 Program version MP 12N-H[HOST-WEB]

\*G2301:xxx\$P XA\$A47\$E13\$CRLF The shelf number limit has been exceeded.

or

\*G2301:xxx\$P XA\$A47\$E95\$CRLF – Contents of data field T not permitted.  
or  
– Storage location height management is activated and data field H is not permitted.

or

\*G2301:xxx\$P XA\$A47\$E97\$CRLF – Data field T is missing.  
or  
– Storage location height management is activated and data field H missing.

or

\*G2301:xxx\$P XA\$A47\$E98\$CRLF Command is not possible with:  
– Rack operation  
– Rotomat

### 7 Program version MP 12N-H[HOST-WEB]

#### 7.3.16 \$E48\$: Read next shelf (only for Lean-Lift and Multi-Space)



x This command is possible only for the Lean-Lift and Multi-Space.

With this command, the host has the ability to query the next highest shelf number in the lift.

Host: \*G<sub>xxx</sub>y:2301\$M XR\$E48\$T\_\$\_\$CRLF T: Shelf number

MP: \*G2301:xxx\$P XS\$E00\$CRLF Command was accepted.

MP: \*G2301:xxx\$P XA\$A48\$E00\$T\_\$\_\$CRLF  
Command was executed.  
T: Next highest shelf number

or

\*G2301:xxx\$P XA\$A48\$E05\$CRLF No other shelf found.

or

\*G2301:xxx\$P XA\$A48\$E95\$CRLF Contents of data field T not permitted.

or

\*G2301:xxx\$P XA\$A48\$E97\$CRLF Data field T is missing.

or

\*G2301:xxx\$P XA\$A48\$E98\$CRLF Command is not possible with:  
– Rack operation  
– Rotomat

### 7 Program version MP 12N-H[HOST-WEB]

#### 7.3.17 \$E49\$: Read previous shelf (only for Lean-Lift and Multi-Space)



x This command is possible only for the Lean-Lift and Multi-Space.

With this command, the host has the ability to query the next higher shelf number in the lift.

Host: \*G<sub>xxx</sub>y:2301\$M XR\$E49\$T\_\$\_\$CRLF T: Shelf number

MP: \*G2301:<sub>xxx</sub>y\$P XS\$E00\$CRLF Command was accepted.

MP: \*G2301:<sub>xxx</sub>y\$P XA\$A49\$E00\$T\_\$\_\$CRLF  
Command was executed.  
T: Next lowest shelf number

or

\*G2301:<sub>xxx</sub>y\$P XA\$A49\$E05\$CRLF No other shelf found.

or

\*G2301:<sub>xxx</sub>y\$P XA\$A49\$E95\$CRLF Contents of data field T not permitted.

or

\*G2301:<sub>xxx</sub>y\$P XA\$A49\$E97\$CRLF Data field T is missing.

or

\*G2301:<sub>xxx</sub>y\$P XA\$A49\$E98\$CRLF Command is not possible with:  
– Rack operation  
– Rotomat

### 7 Program version MP 12N-H[HOST-WEB]

#### 7.3.18 \$E50\$: Read shelf data (only for Lean-Lift and Multi-Space)



✗ This command is possible only for the Lean-Lift and Multi-Space.

When the supplementary module "Storage Location Height Management" is used:

➤ Refer also to the "Supplementary Description of the Storage Height Management Microprocessor Control System MP 12D/N Lean-Lift, Multi-Space and Rotomat".

When the supplementary module "Adjustable shelf speed" is used:

For further information, see the "Supplementary Description of the Adjustable Shelf Speed Microprocessor Control System MP 12D/N Lean-Lift and Multi-Space".

With this command, the host has the ability to read out shelf data (e.g. shelf number, carrier number, AP factor etc.).

Host: \*G<sub>xxx</sub>y:2301\$M XR\$E50\$T\_\$CRLF T: Shelf number

MP: \*G2301:xxx\$P XS\$E00\$CRLF Command was accepted.

MP: \*G2301:xxx\$P XA\$A50\$E00\$T\_\_\$M\_\_\$X\_\_\$P\_\_\$D\_\_\$E\_\_\$Y\_\_\$G\_\_\$V\_\_\$CRLF

Command was executed.

For data fields, refer to Table 1

or

\*G2301:xxx\$P XA\$A50\$E05\$CRLF Shelf not found.

or

\*G2301:xxx\$P XA\$A50\$E95\$CRLF Contents of data field T not permitted.

or

\*G2301:xxx\$P XA\$A50\$E97\$CRLF Data field T is missing.

or

\*G2301:xxx\$P XA\$A50\$E98\$CRLF Command is not possible with:  
– Rack operation  
– Rotomat

Table 1: Data fields in command line \*G2301:xxx\$P XA\$A50\$E00\$..\$CRLF

T	Shelf number	3-digit	001 to 254
M	Carrier number	4-digit	Rear: 0001 to 1000 Front: 1001 to 2000
X	Article height measured in carriers	2-digit	
P	AP factor	2-digit	00 to 03



### 7 Program version MP 12N-H[HOST-WEB]

D	Access counter 1	5-digit	00000 to 01000
E	Access counter 2	5-digit	00000 to 01000
Y	Shelf height (only with supplementary module "Storage location height management")	2-digit	01 to 31
G	Total shelf weight (only with shelf weighing device)	5-digit	00000 to 65535
V	Shelf speed as a percentage (only with supplementary module "Adjustable shelf speed").	3-digit	000 to 100

#### 7.3.19 \$E60\$: Read Hänel commission (order) number from lift/carousel

With this command, the host has the ability to read the Hänel commission (order) number from the lift/carousel.

Host: \*G<sub>xxx</sub>y:2301\$M XR\$E60\$CRLF

MP: \*G2301:x<sub>xy</sub>\$P XS\$E00\$CRLF Command was accepted.

MP: \*G2301:x<sub>xy</sub>\$P XA\$A60\$E00\$K..\$CRLF

Command was executed.

K: Hänel commission (order)  
number for the unit (max.  
18 positions)

### 7 Program version MP 12N-H[HOST-WEB]

#### 7.3.20 \$E70\$: Activate indicator lamp or audible signal

With this command, the host has the ability to activate indicator lamps or audible signal devices.

Host: \*Gxxxy:2301\$M XR\$E70\$Dvvvvvvvvvvv\$CRLF

v: 0 = off; 1 = on;  
2 = unchanged

x Note on "v":

- Digit 1: LED of the [STOP] key
- Digit 2: LED of the [←] key
- Digit 3: LED of the [→] key
- Digit 4: Indicator lamp for access point 1
- Digit 5: Indicator lamp for access point 2
- Digit 6: Indicator lamp for access point 3
- Digit 7: Indicator lamp for access point 4
- Digit 8: Indicator lamp for access point 5
- Digit 9: Indicator lamp for access point 6
- Digit 10: Indicator lamp for access point 7
- Digit 11: Indicator lamp for access point 8

All 11 positions must be specified.  
Alternatively, an acoustic signal  
can also be connected instead of  
the indicator lamp.

For the "Activate indicator lamp"  
function, compartment depth  
indicator type 2 or type 3 must be  
set in the initialisation.

MP: \*G2301:xxxy\$P XS\$E00\$CRLF

Command was accepted.

MP: \*G2301:xxxy\$P XA\$A70\$E00\$CRLF

Command was executed.

or

\*G2301:xxxy\$P XA\$A70\$E95\$CRLF

Contents of data field D not  
permitted.

or

\*G2301:xxxy\$P XA\$A70\$E97\$CRLF

Data field D missing.

or

\*G2301:xxxy\$P XA\$A70\$E98\$CRLF

Command is not possible with:  
– Rack operation  
– Compartment depth display  
type 2 or type 3 not initialised.

### 7 Program version MP 12N-H[HOST-WEB]

#### 7.4 Host communication by HTTP protocol

When a TFT display is used, the embedded browser of the lift/carousel control system can be used to access a host-side web server. The following requirements must be considered when creating a web application:

- ◆ The pixel resolution for the info browser is 800 x 480, including the border. The usable pixel resolution (without the border) is 796 x 472 pixels.
- ◆ HTTP protocols 1.0 and 1.1 can be used.
- ◆ HTML 4 syntax is supported to a large extent.
- ◆ Cookies are supported through the browser.
- ◆ The control system supports the "Arial" font. Text can appear "normal" or "bold". Front sizes from 10px to 34px, in increments of two, are possible. (px = pixels)
- ◆ It is mandatory to specify the font size in the HTML layout.
- ◆ CSS (Cascading Style Sheets) is supported to a large extent.

The following are supported:

- Inline styles
- Embedded style sheets
- External style sheets

The following CSS attributes are not supported:

- display
- visibility
- overflow
- content
- clip
- empty-cells
- max-height
- max-width
- min-height
- min-width
- quotes

The following CSS attributes are not supported for external style sheets:

- background-color

- ◆ Java-Script is not supported.
- ◆ Applets are not supported.
- ◆ Plugins are not supported.



### 8 Ethernet connection to corporate network

#### 8.1 Installation for MP 12N-H[MP 100D]

- Refer to the "Technical Description of the Microprocessor Control System MP 12N-S / MP 100D Server for Lean-Lift, Multi-Space and Rotomat."

#### 8.2 Installation for MP 12N-S, MP 12N-H[HOST-DATA] and MP 12N-H[HOST-WEB]

There are two different ways of installing the MP 12N-S and the MP 12N-H[HOST-DATA]:

1. With network functions such as data sorting using a browser, FTP file transfer, network printer, **without** integration into an existing corporate network.
2. With network functions such as data sorting using a browser, FTP file transfer, network printer, **with** integration into an existing corporate network (Ethernet).



An installation support for items 1 and 2, separated according to FTP file transfer and/or data screening using a browser, can be ordered from Hänel at an extra charge.

There are two different ways of installing the MP 12N-H[HOST-WEB]:

1. Network functions **without** integration into an existing company network.
2. Network functions **without** integration into an existing company network (Ethernet).

### 8 Ethernet connection to corporate network

#### 8.2.1 Installing network functions without integration into a company network.

Always applicable:

- ◆ Setting the network parameters:  
see Chapter 4.1.2 "Setting interface parameters S1-5" on page 113.
- ◆ The default settings of the MP control system regarding the IP addresses in the corporate network can be taken over.
- ◆ All "IP addresses in the multi-unit network" must have a unique static definition before the components are linked.

If several devices are to be connected per Ethernet to the MP control system, this can be carried out via a 10/100 Mbps hub/switch. "Cat. 5 patch cables (STP)" are used to do this.

If only one device is to be connected to the MP control system, a "Cat. 5 patch cable (STP/crossover)" can be used to connect the device to the MP 12N (X12) directly.



Cat.5 patch cables and 10/100 Mbps Ethernet hub/switches are standard bought-in parts. These are not included in the scope of delivery and must be provided by the customer.

- ◆ The following applies for MP 12N-S and MP 12N-H[HOST-DATA]:
  - One or more host / PC systems with browser (max. 8) can be connected per Ethernet to the MP control system.  
These systems should normally be set to the following parameters:  
multi-unit network  
IP address: 172.16.1.242-249  
sub-network mask: 255.255.0.0
  - A host / PC system with FTP server for host communication can be connected via Ethernet to the MP control system.  
This system should normally be set to the following parameters:  
multi-unit network  
IP address: 172.16.1.251  
sub-network mask: 255.255.0.0
- ◆ A service computer can be connected via Ethernet to the MP control system.  
The service computer should normally be set to the following parameters:  
multi-unit network  
IP address: 172.16.1.200  
sub-network mask: 255.255.0.0

### 8 Ethernet connection to corporate network

#### 8.2.2 Installation of network function with integration into a company network

Always applicable:

- ◆ Setting the network parameters:  
see Chapter 4.1.2 "Setting interface parameters S1-5" on page 113.
- ◆ The following applies for MP 12N-S and MP 12N-H[HOST-DATA]:
  - The network components such as browser, FTP server and network printer already exist in the corporate network.
  - Before connecting the MP control system to an existing corporate network, coordination is required with or by the network administrator of the customer's network.  
See "Customer form for integration into corporate network, Part I".
- ◆ The following applies for MP 12N-H[HOST-WEB]:
  - See Chapter "System services host (only for MP 12N-H[HOST-WEB])" on page .



Cat.5 patch cables and 10/100 Mbps Ethernet hub/switches are standard bought-in parts. These are not included in the scope of delivery and must be provided by the customer.

#### Procedure

- Set the MP control system "IP address in multi-unit network" to an available B-class address range 172.16. -172.32. (default is 172.16.).

With multiple MP control systems in the corporate network:

- Set each MP control system to a different available address in the multi-unit network.  
See chapter "System services" -> "Setting interface parameters S1-5".

For DHCP in corporate network (dynamic address allocation):

The MP control system automatically obtains its "IP address for the corporate network" from the DHCP server (default setting).

- If no DHCP server is present in the corporate network or the IP address is to be assigned statically, then set the prompt "GET IP ADDRESS FROM DHCP" in the MP control system to "NO". See chapter "System services" -> "Setting interface parameters S1-5".

With DNS server in the corporate network:

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

The name of the MP 12N is composed of the prefix "mp12n-" and the commission (order) number of the MP 12N.

Example: <http://mp12n-258p320s7-9>

("p" stands for ".", "s" stands for "/" and "a" stands for "").

With the MP 12 N-S, the prefix is "mp12n-". See chapter "System services" -> "Setting interface parameters S1-4".

- If there is a DNS server in the corporate network that does not support DNS servers, the MP control system must be informed of the MAC address of the name of the MP control system (network administrator). See chapter "System services" -> "Setting interface parameters S1-5".

No DNS server in the corporate network:

- If there is no DNS server in the corporate network, the MP control system cannot be addressed by its name, but only by its IP address.  
Example URL: <http://192.168.1.100>





9
Connection of peripheral devices

The following peripheral devices can be connected to a lift/carousel:

- Barcode reader
- Scales
- Network printer
- Badge reader
- Transponder

9.1
Barcode reader

Data such as article numbers, requisition list numbers or quantities can be transferred to the control system by barcode reader as well as by keyboard input. Interfaces S1-S4 can be used for this.

For additional information, refer to Chapter 4.1.1, "Interface assignment S1-4" on page 111 and Chapter 4.1.2, "Setting interface parameters S1-5" on page 113.



The barcode reader may only be used if the operator has a clear view of the access point.

The maximum number of characters that has been set cannot be exceeded. It is possible to enter fewer characters, however.  
The article number and requisition number can contain alphanumeric characters. The quantity input may contain numeric characters only. The data record must be terminated with *CRLF* (Carriage Return ASCII 13 and Line Feed ASCII 10).

Numeric characters

0123456789

Character set
Alphanumeric characters

Standard0123456789ABCDEFGHI JKLMNOPQRSTUVWXYZ , / ( ) : . + -Blanks

Example:

01003021*CRLF*

01003021

### 9 Connection of peripheral devices

#### 9.2 Scales

The quantity can be read in via the scales as well as by keyboard input. Interfaces S1-S4 can be used for this.

The weight is transmitted by pressing a foot switch or pushbutton on the scale unit. For additional information, refer to Chapter 4.1.1, "Interface assignment S1-4" on page 111 and Chapter 4.1.2, "Setting interface parameters S1-5" on page 113.

##### Data record structure

A data record has the following structure:

<Identification block><Data block><Blank><Units block> *CRLF*

<Identification block> = 3 space characters

<Data block> = 9 characters, ASCII numeric, unused positions are transmitted as blanks, right-justified

<Space> = 1 space character (ASCII 32)

<Units block> = PCS

Example:

\_\_\_\_\_500\_PC*CRLF*

#### 9.3 Network printer

- Refer to the Technical Description of the Microprocessor Control System MP 12N-S / MP 100D Server for Lean-Lift, Multi-Space and Rotomat.

### 9 Connection of peripheral devices

#### 9.4 Badge reader (only with access code management or lending management)



- x The badge reader can be used in conjunction with the supplementary modules "Access code management or "Lending management".

Interfaces S1-S4 can be used for this.

For additional information, refer to Chapter 4.1.1, "Interface assignment S1-4" on page 111 and Chapter 4.1.2, "Setting interface parameters S1-5" on page 113.

The maximum number of characters that has been set cannot be exceeded. It is possible to enter fewer characters, however.

Alphanumeric characters may be transmitted. The data record must be terminated with *CRLF* (Carriage Return ASCII 13 and Line Feed ASCII 10).

Alphanumeric characters:

0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ,/():-blank

Example:

ID NUMBER*CRLF*

### 9 Connection of peripheral devices

#### 9.5 Transponder (only with access code management or lending management)



- x The transponder can be used only in conjunction with the supplementary modules "Access code management or "Lending management".

Interfaces S1-S4 can be used for this.

For additional information, refer to Chapter 4.1.1, "Interface assignment S1-4" on page 111 and Chapter 4.1.2, "Setting interface parameters S1-5" on page 113.

The maximum number of characters that has been set cannot be exceeded. It is possible to enter fewer characters, however.

Alphanumeric characters may be transmitted.

Alphanumeric characters:

0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ,/():-blank

#### Data record structure

A data record has the following structure:

<STX><Data block><ETX><CRC><CR>

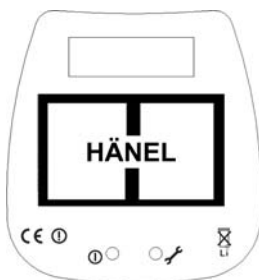
<STX>	= 1 byte (ASCII 2)
<Data block>	= 10 bytes, ASCII, alphanumeric
<ETX>	= 1 byte (ASCII 3)
<CRC>	= 1 byte (XOR calculation of <STX> to <ETX>)
<CR>	= 1 byte (ASCII 13)

#### Example:

02	42	30	30	30	35	35	44	34	30	30	03	03	0D
STX	B	0	0	0	5	5	D	4	0	0	ETX	CRC	CR

ID number: 00 4D 55 00 0B

#### Note



The transponder reader supplied by Hänel works at a baud rate of 9600 bits per second.

The transponder has one green LED and one red one. The green LED flashes in short intervals when entering the field, and indicates the transmission of the transponder when everything is operating properly. The red LED flashes at short intervals when entering the field if a change of battery is necessary.

### 10 Error messages

#### 10.1 Internal system errors

Internal system errors in the MP 12D microprocessor system.



- x If these errors recur even after the system has been switched off and on again several times, contact the Hänel service department.

Boards mentioned in the error messages:

Name	Number (VV = Version)
MP 12D/N CPU I (for Lean-Lift and Multi-Space lift)	S8-45-VV
MP 12D/N CPU I (for Rotomat)	S8-47-VV
MP 12N CPU II	S8-46-VV
MP 12D TASTAC	S7-18-VV
MP 12D TASTA	S7-19-VV
MP 100D GSC	S8-87-VV

### 10 Error messages

Error	Cause	Action
<b>&lt;xxx&gt; WRONG PROGRAM VERSION -&gt; CE            &lt;yyy&gt;</b>	<b>&lt;xxx&gt;, &lt;yyy&gt; =</b> MP 100; NET; MP 12D/N CPU I MP 12D/N CPU I (EXT) MP 12N CPU II MP 12N TFT  <b>&lt;yyy&gt;</b> reports that the software version of <b>&lt;xxx&gt;</b> is not compatible.	<ul style="list-style-type: none"> <li>Perform a software update as described in document "V-SHWARE".</li> </ul>
Only for Lean-Lift and Multi-Space: <b>SHELF TABLE CANNOT BE UPDATED</b>	There is an inconsistency between the lift control system and the storage management in the number or numbering of registered shelves. <ul style="list-style-type: none"> <li>The lift contains other shelves of which storage management is not yet aware.</li> <li>Shelves in the lift are missing for which article numbers are still stored in the storage management system.</li> </ul>	<ul style="list-style-type: none"> <li>Update shelf table. See Chapter 4.2.6.2 on page 157.</li> <li>Update shelf table. See Chapter 4.2.6.2 on page 157.</li> </ul>
Only for Lean-Lift and Multi-Space: <b>SYSTEM ERROR RS485</b>	<ul style="list-style-type: none"> <li>Could not establish connection to frequency converter via RS485.</li> </ul>	<ul style="list-style-type: none"> <li>Check initialisation of "Frequency converter with RS485".</li> <li>Check interface parameters of frequency converter.</li> <li>Check cable.</li> </ul>
Only with Lean-Lift: <b>FREQUENCY CONVERTER PARAMETERS NOT SET</b>	<ul style="list-style-type: none"> <li>No parameter file or an incorrect parameter file has been read into the frequency converter via the MP control system using the "JUMP" service program.</li> </ul>	<ul style="list-style-type: none"> <li>Read correct "FREQUEN1.FRA" parameter file into frequency converter via MP control system using the "JUMP" service.</li> </ul>
Only with Lean-Lift: <b>AUTOMATIC SETTING FOR VERTICAL MOTOR NOT CARRIED OUT</b>	<ul style="list-style-type: none"> <li>The system has determined that the automatic setting of motor data was not carried out when it was first put into service.</li> </ul>	<ul style="list-style-type: none"> <li>Carry out "Automatic setting of motor data" in the service functions for the vertical motor.</li> </ul>
Only for Lean-Lift and Multi-Space: <b>SYSTEM ERROR NUMBER OF SHELVES</b>	<ul style="list-style-type: none"> <li>The message appears when adding a shelf, if doing so causes the maximum number of shelves to be exceeded.</li> </ul>	<ul style="list-style-type: none"> <li>Contact the Hänel service department.</li> </ul>
<b>INCORRECT LIFT INITIALISATION MP12D/N CPU 1&lt;-&gt;MP12N CPU 2 xxx CHECK SETTING ! -&gt; CE</b>	<ul style="list-style-type: none"> <li>Differing initialisation data recognised in the MP 12D/N CPU I and the MP 12N CPU II. xxx = internal identifier</li> </ul>	<ul style="list-style-type: none"> <li>Carry out initialisation and positioning.</li> </ul>
<b>SYSTEM ERROR &gt;62&lt;  --&gt; SWITCH OFF</b>	Read/write error on access to the EEPROM by the MP 12D/N CPU I board. <ul style="list-style-type: none"> <li>EEPROM on the MP 12D/N CPU I board is missing.</li> <li>MP 12D/N CPU I board is defective.</li> </ul>	<ul style="list-style-type: none"> <li>Switch lift off, then on again. A synchronisation run then takes place.</li> <li>Mount EEPROM on the MP 12D/N CPU I board and initialise control system.</li> <li>Replace MP 12D/N CPU I board if defective.</li> </ul>

### 10 Error messages

Error	Cause	Action
<b>SYSTEM ERROR</b> <b>&gt;95&lt;</b>  <b>--&gt; SWITCH OFF</b>	Error when storing the current position data after disconnection of supply voltage. <ul style="list-style-type: none"> <li>Faulty line shielding.</li> <li>Short-circuit of the MP 12D/N CPU I board due to faulty line.</li> <li>MP 12D/N CPU I board is defective.</li> </ul>	<ul style="list-style-type: none"> <li>Switch lift off, then on again. A synchronisation run then takes place.</li> <li>Check line shielding as well as shielding of keyboard housing (if applicable).</li> <li>Check circuitry.</li> <li>Replace MP 12D/N CPU I board if defective.</li> </ul>
<b>SYSTEM ERROR</b> <b>&gt;96&lt;</b>  <b>--&gt; SWITCH OFF</b>	Error during program execution of the MP 12D/N CPU I board due to external influences. <ul style="list-style-type: none"> <li>Faulty line shielding.</li> <li>MP 12D/N CPU I board is defective.</li> </ul>	<ul style="list-style-type: none"> <li>Switch lift off, then on again.</li> <li>Check line shielding as well as shielding of keyboard housing (if applicable).</li> <li>Replace MP 12D/N CPU I board if defective.</li> </ul>
<b>SYSTEM ERROR</b> <b>&gt;97&lt;</b>  <b>--&gt; SWITCH OFF</b>	Software of MP 12D/N CPU I detects that switch-off was too short. <ul style="list-style-type: none"> <li>Switch-off too short.</li> <li>Faulty voltage supply.</li> </ul>	<ul style="list-style-type: none"> <li>Switch off lift/carousel for a longer time.</li> <li>Increase transformer output voltage to the control systems.</li> </ul>
<b>SYSTEM ERROR</b> <b>HARDWARE (3)</b>  <b>--&gt; SWITCH OFF</b>	MP 12D/N CPU I does not respond to request from the MP 12N CPU II . <ul style="list-style-type: none"> <li>Lift/carousel was switched off only briefly and then switched on again.</li> <li>Jumper J3 MP 12D/N CPU I closed.</li> <li>No software present on MP 12D/N CPU I.</li> <li>Connecting cable defective.</li> <li>MP 12D/N CPU I board is defective.</li> <li>MP 12N CPU II board is defective.</li> </ul>	<ul style="list-style-type: none"> <li>Switch off lift/carousel for a longer time.</li> <li>Open jumper J3 MP 12D/N CPU I.</li> <li>Carry out software update with jumper J3 set.</li> <li>Replace connecting cable if defective.</li> <li>Replace MP 12D/N CPU I board if defective.</li> <li>Replace the MP 12N CPU II board if defective.</li> </ul>
<b>STOR. MGMT. ERROR</b> <b>- FLASH ERROR</b> <b>-&gt; SWITCH OFF</b> <b>-&gt; CE</b>	With MP 12N-S: <ul style="list-style-type: none"> <li>The data flash card for the MP 12 N CPU II board is not present, not correctly mounted, defective or has the wrong memory size.</li> </ul> With MP 12N-H[MP 100D]: <ul style="list-style-type: none"> <li>The data flash card for the MP 100 D CPU II GSC board is not present, not correctly mounted, defective or has the wrong memory size.</li> </ul>	<ul style="list-style-type: none"> <li>Check the data flash card on the MP 12N CPU II board and replace it if necessary.</li> <li>Check the data flash card on the MP 100D GSC board and replace it if necessary.</li> </ul>

### 10 Error messages

Error	Cause	Action
<b>STOR. MGMT. ERROR</b> <b>- READ / WRITE</b> <b>ERROR</b> <b>-&gt; SWITCH OFF</b>	<p>Following a program replacement from a standard program to a special program or vice versa, an incompatibility has arisen between the special program and the stored data format.</p> <p><b>With MP 12N-S:</b></p> <ul style="list-style-type: none"> <li>• Data flash card partially not writeable/readable.</li> <li>• Data are partially incorrect.</li> </ul> <p><b>With MP 12N-H[MP 100D]:</b></p> <ul style="list-style-type: none"> <li>• Data flash card partially not writeable/readable.</li> <li>• Data are partially incorrect.</li> </ul>	<ul style="list-style-type: none"> <li>• The MP 100D / MP 12N-S must be formatted. Back up data to PC first.</li> <li>• Check the data flash card on the MP 12N CPU II board and replace it if necessary.</li> <li>• Contact the Hänel service department.</li> <li>• Check the data flash card on the MP 100D GSC board and replace it if necessary.</li> <li>• Contact the Hänel service department.</li> </ul>



### 10 Error messages

#### 10.2 Data record errors or data record transfer errors

Errors in data record structure or transmission errors during data exchange between central control system or computer and the microprocessor control system MP 12N.

These errors are displayed by texts with E numbers and must be acknowledged with the **[CE]** key.

Check the connection between the central control system/computer and the lift/carousel (or multi-unit network) as well as the connection between the individual lifts/carousels.

Error	Cause	Action
<b>LIFT COMMUNICATION ERROR</b> E44	<ul style="list-style-type: none"> <li>An error occurred during transmission via the GSC interface.</li> </ul>	<ul style="list-style-type: none"> <li>Check cabling and shielding of the multipoint transmission line.</li> </ul>
<b>LIFT COMMUNICATION ERROR</b> E45	<ul style="list-style-type: none"> <li>An error occurred while receiving via the GSC interface.</li> </ul>	<ul style="list-style-type: none"> <li>Check cabling and shielding of the multipoint transmission line.</li> </ul>
<b>LIFT COMMUNICATION ERROR</b> E46	<ul style="list-style-type: none"> <li>GSC interface cannot transmit. Line A (PIN 6) has short-circuit after 0 V Line B (Pin 1) has short-circuit after Vcc</li> <li>GSC bus is connected with 120 Ohm on both ends.</li> </ul>	<ul style="list-style-type: none"> <li>Check multipoint transmission line against installation drawing.</li> </ul>
<b>PC COMMUNICATION ERROR</b> E50	<ul style="list-style-type: none"> <li>When host communication by commands is used, a command was not accepted because the host MAC address was not correct.</li> </ul>	<ul style="list-style-type: none"> <li>Set the correct host MAC address at the lift control system.</li> </ul>
<b>ERROR IN DATA RECORD STRUCTURE</b> E110 / xxx	<ul style="list-style-type: none"> <li>Internal error xxx when processing the data fields.</li> <li>x Note xxx: Lower case letters are shown on the display in upper case.</li> </ul>	<ul style="list-style-type: none"> <li>If this error recurs, contact the Hänel service department.</li> </ul>

### 10 Error messages

#### 10.3 Initialisation and formatting errors (only with MP 12N-S/H[MP 100D])



x Initialisation and formatting errors are detected only if the microprocessor control system MP 12N-S/H[MP 100D] is used.

Error	Cause	Action
<b>STORAGE MANAGEMENT NOT FORMATTED</b>	<ul style="list-style-type: none"> <li>• A new data flash card has been installed.</li> <li>• Due to an external fault, the data flash card contains incorrect information which prevents access to stored data.</li> <li>• Data flash card or software version have different data formats following a replacement.</li> <li>• During formatting of the storage management system, the power supply was interrupted.</li> </ul>	<ul style="list-style-type: none"> <li>• Format storage management.</li> <li>• If the data flash card was not formatted, the data on the flash card can be recovered by the HÄNEL factory.</li> <li>• Put back the old card/version, read out the data and format the storage management system.</li> <li>• Repeat the formatting.</li> </ul>
<b>LIFT IS NOT REGISTERED</b>	<ul style="list-style-type: none"> <li>• A new lift/carousel has not yet been registered or the storage management system has been formatted.</li> <li>• The lift/carousel number was changed at the lift/carousel during initialisation.</li> </ul>	<ul style="list-style-type: none"> <li>• Register the lift/carousel.</li> <li>• Change lift/carousel number back to the old number or register the lift/carousel.</li> </ul>
<b>DATA FIELD LENGTHS EXCEEDED</b>	<ul style="list-style-type: none"> <li>• During formatting of storage management, the total of the data field lengths for &lt;S&gt; &lt;N&gt; &lt;Hxx&gt; &lt;Cxx&gt; &lt;Uxx&gt; is too large.</li> </ul>	<ul style="list-style-type: none"> <li>• Check and reduce the length of the data fields.</li> </ul>
<b>DATA FIELD NAMES TOO LONG</b>	<ul style="list-style-type: none"> <li>• During formatting of storage management, the total length of the data field names &lt;Hxx&gt; &lt;Cxx&gt; &lt;Uxx&gt; is too long.</li> </ul>	<ul style="list-style-type: none"> <li>• Check and reduce the length of the data field names.</li> </ul>
<b>INCORRECT LIFT INITIALISATION CHECK NO. OF SHELVES ! -&gt; SWITCH OFF LIFT</b>	<ul style="list-style-type: none"> <li>• The number of shelves was modified at a lift that is already registered.</li> </ul>	<ul style="list-style-type: none"> <li>• Undo the change.</li> <li>or</li> <li>• Read out the master data of the storage management system (e.g. article data, requisition data and job data) and format. Register the lifts/carousels and read the data back in.</li> </ul>
<b>INCORRECT LIFT INITIALISATION CHECK NUMBER OF COMPARTMENTS</b>	<ul style="list-style-type: none"> <li>• At an already registered lift/carousel, the number of compartments was modified.</li> </ul>	<ul style="list-style-type: none"> <li>• Undo the change.</li> <li>or</li> <li>• Read out the master data of the storage management system (e.g. article data, requisition data and job data) and format. Register the lifts/carousels and read the data back in.</li> </ul>

### 10 Error messages

Error	Cause	Action
<b>INCORRECT LIFT INITIALISATION CHECK NUMBER OF COMPARTMENT DEPTHS</b>	<ul style="list-style-type: none"> <li>At an already registered lift/carousel, the number of compartment depths was modified.</li> </ul>	<ul style="list-style-type: none"> <li>Undo the change.</li> </ul> or <ul style="list-style-type: none"> <li>Read out the master data of the storage management system (e.g. article data, requisition data and job data) and format. Register the lifts/carousels and read the data back in.</li> </ul>
<b>INCORRECT LIFT INITIALISATION CHECK NUMBER OF ACCESS POINTS</b>	<ul style="list-style-type: none"> <li>At an already registered lift/carousel, the number of access points was modified.</li> </ul>	<ul style="list-style-type: none"> <li>Undo the change.</li> </ul> or <ul style="list-style-type: none"> <li>Read out the master data of the storage management system (e.g. article data, requisition data and job data) and format. Register the lifts/carousels and read the data back in.</li> </ul>
<b>INCORRECT LIFT INITIALISATION CHECK OPERATION MODE</b>	<ul style="list-style-type: none"> <li>At an already registered lift/carousel, the operating mode (Lean-Lift, Multi-Space, Rotomat or rack operation) was changed.</li> </ul>	<ul style="list-style-type: none"> <li>Undo the change.</li> </ul> or <ul style="list-style-type: none"> <li>Read out the master data of the storage management system (e.g. article data, requisition data and job data) and format. Register the lifts/carousels and read the data back in.</li> </ul>
<b>INCORRECT LIFT INITIALISATION CHECK NUMBER OF ACCESS POINTS</b>	<ul style="list-style-type: none"> <li>At an already registered lift/carousel, the setting "Double access YES/NO" was modified.</li> </ul>	<ul style="list-style-type: none"> <li>Undo the change.</li> </ul> or <ul style="list-style-type: none"> <li>Read out the master data of the storage management system (e.g. article data, requisition data and job data) and format. Register the lifts/carousels and read the data back in.</li> </ul>
<b>INCORRECT LIFT INITIALISATION CHECK INVENTORY CONTROL</b>	<ul style="list-style-type: none"> <li>At an already registered lift/carousel, the setting "Inventory control YES/NO" was modified.</li> <li>The "Inventory control YES/NO" setting does not match that of the other lifts/carousels.</li> </ul>	<ul style="list-style-type: none"> <li>Undo the change.</li> </ul> or <ul style="list-style-type: none"> <li>Read out the master data of the storage management system (e.g. article data, requisition data and job data) and format. Register the lifts/carousels and read the data back in.</li> <li>Adapt the initialisation of the lifts/carousels to be registered. In the case of multi-unit storage, all lifts/carousels must be set for operation either "with inventory control" or "without inventory control". Adapt initialisation of the lift/carousel you wish to register.</li> </ul>

### 10 Error messages

Error	Cause	Action
<b>INCORRECT LIFT INITIALISATION ALTERNATING-SIDE REQUISITION CHECK SETTING !</b>	<ul style="list-style-type: none"> <li>Access points at which alternating-side requisition processing is to take place are not immediately adjacent.</li> </ul>	<ul style="list-style-type: none"> <li>Check the initialisation of "Alternating-side requisition" and positioning of the access points.</li> </ul>
<b>INCORRECT LIFT INITIALISATION FIFO STORAGE MANAGEMENT RANDOM ACCESS STORAGE CHECK SETTING !</b>	<ul style="list-style-type: none"> <li>At an already registered lift/carousel, the setting "FIFO storage management/random access storage" was modified.</li> <li>The setting "FIFO storage management/random access storage" in this lifts/carousels/carousel does not match that of the other carousels.</li> </ul>	<ul style="list-style-type: none"> <li>Undo the change.</li> <li>or</li> <li>Read out the master data of the storage management system (e.g. article data, requisition data and job data) and format. Register the lifts/carousels and read the data back in.</li> <li>Adapt the initialisation of the lifts/carousels to be registered. In the case of multi-unit storage, all lifts/carousels must be set for operation either "with inventory control" or "without inventory control". Adapt initialisation of the lift/carousel you wish to register.</li> </ul>
<b>INCORRECT LIFT INITIALISATION FILE MANAGEMENT CHECK SETTING !</b>	<ul style="list-style-type: none"> <li>At an already registered lift/carousel, the "File management" setting was modified.</li> </ul>	<ul style="list-style-type: none"> <li>Undo the change.</li> <li>or</li> <li>Read out the master data of the storage management system (e.g. article data, requisition data and job data) and format. Register the lifts/carousels and read the data back in.</li> </ul>
<b>INCORRECT LIFT INITIALISATION SUPPLEMENTARY MODULES FREE LOCATION MANAGEMENT CHECK SETTING !</b>	<ul style="list-style-type: none"> <li>The setting of the supplementary module in the lift/carousel control system differs from that in the earlier registration in the storage management system.</li> </ul>	<ul style="list-style-type: none"> <li>Set the supplementary module in the lift/carousel control system according to the earlier registration at the storage management system.</li> </ul>
<b>INCORRECT LIFT INITIALISATION FREE LOCATION MANAGEMENT MULTI-UNIT STORAGE CHECK SETTING !</b>	<ul style="list-style-type: none"> <li>In the case of multi-unit storage, an attempt was made to register lifts/carousels having different settings for the supplementary module "Free location management" (yes or no).</li> </ul>	<ul style="list-style-type: none"> <li>Set the supplementary module "Free location management" for all lifts/carousels to either "YES" or "NO".</li> </ul>
<b>INCORRECT LIFT INITIALISATION SUPPLEMENTARY MODULES STORAGE LOC. HEIGHT MANAGEMENT CHECK SETTING !</b>	<ul style="list-style-type: none"> <li>The setting of the supplementary module in the lift/carousel control system differs from that in storage management.</li> </ul>	<ul style="list-style-type: none"> <li>Configure supplementary modules for lift/carousel control system and storage management with identical settings.</li> </ul>
<b>INCORRECT LIFT INITIALISATION SUPPLEMENTARY MODULES Access code management CHECK SETTING !</b>	<ul style="list-style-type: none"> <li>The setting of the supplementary module in the lift/carousel control system differs from that in storage management.</li> </ul>	<ul style="list-style-type: none"> <li>Configure supplementary modules for lift/carousel control system and storage management with identical settings.</li> </ul>

### 10 Error messages

Error	Cause	Action
<b>INCORRECT LIFT INITIALISATION SUPPLEMENTARY MODULES OPERATIONS JOURNAL LOGGING CHECK SETTING !</b>	<ul style="list-style-type: none"> <li>The setting of the supplementary module in the lift/carousel control system differs from that in storage management.</li> </ul>	<ul style="list-style-type: none"> <li>Configure supplementary modules for lift/carousel control system and storage management with identical settings.</li> </ul>
<b>INCORRECT LIFT INITIALISATION SUPPLEMENTARY MODULES Article pool management CHECK SETTING !</b>	<ul style="list-style-type: none"> <li>The setting of the supplementary module in the lift/carousel control system differs from that in storage management.</li> </ul>	<ul style="list-style-type: none"> <li>Configure supplementary modules for lift/carousel control system and storage management with identical settings.</li> </ul>
<b>INCORRECT LIFT INITIALISATION SUPPLEMENTARY MODULES EXTERNAL SHELF MANAGEMENT CHECK SETTING !</b>	<ul style="list-style-type: none"> <li>The setting of the supplementary module in the lift/carousel control system differs from that in storage management.</li> </ul>	<ul style="list-style-type: none"> <li>Configure supplementary modules for lift/carousel control system and storage management with identical settings.</li> </ul>
<b>INCORRECT LIFT INITIALISATION SUPPLEMENTARY MODULES STORAGE TIME MANAGEMENT CHECK SETTING !</b>	<ul style="list-style-type: none"> <li>The setting of the supplementary module in the lift/carousel control system differs from that in storage management.</li> </ul>	<ul style="list-style-type: none"> <li>Configure supplementary modules for lift/carousel control system and storage management with identical settings.</li> </ul>
<b>INCORRECT LIFT INITIALISATION SUPPLEMENTARY MODULES INVENTORY FUNCTION CHECK SETTING !</b>	<ul style="list-style-type: none"> <li>The setting of the supplementary module in the lift/carousel control system differs from that in storage management.</li> <li>Lift/carousel control system has been initialised without inventory control.</li> </ul>	<ul style="list-style-type: none"> <li>Configure supplementary modules for lift/carousel control system and storage management with identical settings.</li> <li>Initialise inventory control in lift/carousel control system.</li> </ul>
<b>INCORRECT LIFT INITIALISATION SUPPLEMENTARY MODULES SHELF PRE-POSITIONING CHECK SETTING !</b>	<ul style="list-style-type: none"> <li>The setting of the supplementary module in the lift/carousel control system differs from that in storage management.</li> </ul>	<ul style="list-style-type: none"> <li>Configure supplementary modules for lift/carousel control system and storage management with identical settings.</li> </ul>
<b>INCORRECT LIFT INITIALISATION SUPPLEMENTARY MODULES LENDING MANAGEMENT CHECK SETTING !</b>	<ul style="list-style-type: none"> <li>The setting of the supplementary module in the lift/carousel control system differs from that in storage management.</li> </ul>	<ul style="list-style-type: none"> <li>Configure supplementary modules for lift/carousel control system and storage management with identical settings.</li> </ul>
<b>INCORRECT LIFT INITIALISATION LENDING MANAGEMENT MULTI-UNIT STORAGE CHECK SETTING !</b>	<ul style="list-style-type: none"> <li>In the case of multi-unit storage, an attempt was made to register lifts/carousels having different settings (yes or no) for the supplementary module "Lending management".</li> </ul>	<ul style="list-style-type: none"> <li>In the case of multi-unit storage, the setting for the supplementary module "Lending management" must be either "YES" or "NO" for all lifts/carousels.</li> </ul>
<b>INCORRECT LIFT INITIALISATION LENDING MANAGEMENT RANDOM ACCESS STORAGE CHECK SETTING !</b>	<ul style="list-style-type: none"> <li>An attempt was made to register a lift/carousel with the supplementary module "Lending management" but without "Random access storage".</li> <li>At an already registered lift/carousel, the "Random access storage" setting was modified.</li> </ul>	<ul style="list-style-type: none"> <li>Configure "Random access storage" with the supplementary module "Lending management".</li> <li>Undo the change.</li> </ul>

### 10 Error messages

Error	Cause	Action
<b>INCORRECT LIFT INITIALISATION TOOL STORAGE MANAGEMENT CHECK SETTING !</b>	<ul style="list-style-type: none"> <li>An attempt was made to register a lift/carousel with the storage management packet "Tool storage management" but without formatting tool storage management.</li> <li>At an already registered lift/carousel, the storage management packet "Tool storage management" was modified.</li> </ul>	<ul style="list-style-type: none"> <li>Configure the lift/carousel without "Tool storage management", or read out the master data for storage management (such as article data, requisition data and job data), format with tool storage management. Register the lifts/carousels and read the data back in.</li> <li>Undo the change.</li> </ul>
<b>INCORRECT LIFT INITIALISATION TOOL STORAGE MANAGEMENT MULTI-UNIT STORAGE CHECK SETTING !</b>	<ul style="list-style-type: none"> <li>In the case of multi-unit storage, an attempt was made to register lifts/carousels having different settings for the storage management packet.</li> </ul>	<ul style="list-style-type: none"> <li>Configure the same storage management packet at all lifts/carousels.</li> </ul>
<b>INCORRECT LIFT INITIALISATION TOOL STORAGE MANAGEMENT RANDOM ACCESS STORAGE CHECK SETTING !</b>	<ul style="list-style-type: none"> <li>An attempt was made to register a lift/carousel with the storage management packet "Tool storage management" but without "Random access storage".</li> <li>At an already registered lift/carousel, the "Random access storage" setting was modified.</li> </ul>	<ul style="list-style-type: none"> <li>Configure "Random access storage" with the storage management packet "Tool storage management".</li> <li>Undo the change.</li> </ul>
<b>INCORRECT LIFT INITIALISATION S / H[MP 100D]I &lt;-&gt; S / H[MP 12N-S] CHECK SETTING !</b>	<ul style="list-style-type: none"> <li>An attempt has been made to register a lift with program version S / H[MP 12N-S] at an MP 100D.</li> <li>An attempt has been made to register a lift with program version S / H[MP 100D] at an MP 12N-S.</li> <li>At an already registered lift/carousel, the program version was modified.</li> </ul>	<ul style="list-style-type: none"> <li>Change the program version on the S / H[MP 100D] and register the lift.</li> <li>Change the program version on the S / H[MP 12N-S] and register the lift.</li> <li>Undo the change.</li> </ul>
<b>INCORRECT LIFT INITIALISATION NUMBER OF LIFTS WOULD BE TOO LARGE CHECK SETTING !</b>	<ul style="list-style-type: none"> <li>An attempt was made to register a third lift at an MP 12N-S .</li> </ul>	<ul style="list-style-type: none"> <li>Register lift is not possible.</li> </ul>

### 10 Error messages

#### 10.4 Critical errors (lift/carousel run errors due to the safety circuit monitor)



#### SAFETY INSTRUCTION

Only authorised personnel are allowed to carry out work within the carousel. Authorised personnel are those who have proof of sufficient qualification and training for these tasks.

Always observe the safety instructions in the lift/carousel instruction manual!

The error message texts must agree with the actual switching of input terminals 701-712/718 and 810-816 through the safety switches.

Terminals 501-511, 701-712/718 and 810-816 are located on the MP 12D/N CPU I board.

➤ Refer also to the "Safety component" and "Control component" circuit diagrams and "Initialisation of error message inputs".

If an error message is displayed for an error that can be resolved easily from outside of the machine, correct the problem. Otherwise, contact Hänel service.

Press the **[CE]** key to cancel the operation.

Boards mentioned in the error messages:

Name	Number (VV = Version)
MP 12D/N CPU I (for Lean-Lift and Multi-Space)	S8-45-VV
MP 12D/N CPU I (for Rotomat)	S8-47-VV
MP 12 EXT	S8-19-VV

##### 10.4.1 Safety circuit monitor on the board

After a critical error, this error message appears until the lift is switched off.

Lift/carousel run status	Lift/carousel run error	Cause	Action
S05025	<b>CRITICAL ERROR : RUN RELAY</b>  ( x )      -> CE	An error of one of the run relays, REL1 (x=1) to REL5 (x=5), has been detected.  • MP 12D/N CPU I board is defective.	• Replace MP 12D/N CPU I board if defective.

### 10 Error messages

Lift/carousel run status	Lift/carousel run error	Cause	Action
S05028	Only with Lean-Lift: <b>CRITICAL ERROR : UNDERVOLTAGE TRIP -&gt; CE</b>	For lifts with main switch and undervoltage trip, the lift has not been switched off although the service door is open. <ul style="list-style-type: none"><li>Service door switch or main switch is defective.</li><li>Error in the undervoltage trip wiring.</li></ul>	<ul style="list-style-type: none"><li>Check switches according to circuit diagram "Service access door for multiple lifts side-by-side" and replace if defective.</li><li>Check wiring according to circuit diagram "Service access door for multiple lifts side-by-side".</li></ul>
S05026	<b>CRITICAL ERROR : SAFETY CIRCUIT SWITCH x ( x ) -&gt; CE</b>	An error of the safety circuit monitor was detected at terminals 810 to 815. x = 1: Error at terminals 810, 811 (error at MP 12D/N CPU I terminals or at MP 12 EXT terminals of the other access points). x = 2: Error at terminals 812, 813 x = 3: Error at terminals 814, 815 <ul style="list-style-type: none"><li>Line break or short circuit of the line at terminals 810 to 815.</li><li>For lifts without safety circuit monitoring: incorrect switching of terminals 810 to 816.</li></ul>	<ul style="list-style-type: none"><li>Check lines.</li><li>Check connection of terminals 810-817, 811-817, 812-817, 813-817, 814-817, 815-817 according to "Safety component I" and "Control component" circuit diagrams.</li></ul>



### 10 Error messages

#### 10.4.2 Safety circuit monitor at terminal 810-816

The critical errors listed below are detected only if the prompt "Safety monitor terminals 810-816" is set to "YES" during initialisation. Deactivation is permitted for lifts without safety circuit monitor wiring only.

After a critical error, this error message appears until the lift is switched off.

Lift/carousel run status	Lift/carousel run error	Cause	Action
S05021	<b>CRITICAL ERROR : EMERGENCY STOP [F7]</b>  x      -> CE	Defective emergency stop switch at access point x or external voltage in safety circuit downline of emergency stop switch or incorrect signals at terminal 810 or 811. <ul style="list-style-type: none"> <li>Emergency stop switch is defective.</li> <li>External voltage in safety circuit downline of emergency stop switch.</li> <li>Line break or short circuit of the line at terminal 810 or 811.</li> <li>Incorrect initialisation of the 7xx safety tap "Emergency stop/F7".</li> <li>For lifts without safety circuit monitoring: incorrect initialisation.</li> </ul>	<ul style="list-style-type: none"> <li>Check switch and replace if defective.</li> <li>Check safety circuit for external voltage.</li> <li>Check lines.</li> <li>Check initialisation.</li> <li>For lifts without safety circuit monitoring: check to ensure that the setting "Safety monitors terminals 810-816" has been deactivated in accordance with the "Safety component I" circuit diagram.</li> </ul>
S05022	<b>CRITICAL ERROR : SERVICE DOOR</b>  -> CE	Defective switch on the service door or external voltage in safety circuit downline of service door switch or incorrect signals at terminal 812 or 813. <ul style="list-style-type: none"> <li>Switch on the service door is defective.</li> <li>External voltage in safety circuit downline of service door switch.</li> <li>Line break or short circuit of the line at terminal 812 or 813.</li> <li>Incorrect initialisation of the 7xx safety tap "Service door".</li> <li>For lifts without safety circuit monitoring: incorrect initialisation.</li> </ul>	<ul style="list-style-type: none"> <li>Check switch and replace if defective.</li> <li>Check safety circuit for external voltage.</li> <li>Check lines.</li> <li>Check initialisation.</li> <li>For lifts without safety circuit monitoring: check to ensure that the setting "Safety monitors terminal 810-816" has been deactivated in accordance with the "Safety component I" and "Control component" circuit diagrams.</li> </ul>

### 10 Error messages

Lift/carousel run status	Lift/carousel run error	Cause	Action
S05023	Only for Rotomat: <b>CRITICAL ERROR : LOWER SERVICE DOOR -&gt; CE</b>	Defective switch on the lower service door or external voltage in safety circuit downline of lower service door switch or incorrect signals at terminal 812 or 813. <ul style="list-style-type: none"><li>Switch on the lower service door is defective.</li><li>External voltage in safety circuit downline of lower service door switch.</li><li>Line break or short circuit of the line at terminal 812 or 813.</li><li>Incorrect initialisation of the 7xx safety tap "Lower service door".</li><li>For lifts without safety circuit monitoring: incorrect initialisation.</li></ul>	<ul style="list-style-type: none"><li>Check switch and replace if defective.</li><li>Check safety circuit for external voltage.</li><li>Check lines.</li><li>Check initialisation.</li><li>For lifts without safety circuit monitoring: check to ensure that the setting "Safety monitors terminal 810-816" has been deactivated in accordance with the "Safety component I" and "Control component" circuit diagrams.</li></ul>
S05024	Only for Rotomat: <b>CRITICAL ERROR : UPPER SERVICE DOOR -&gt; CE</b>	Defective switch on the upper service door or external voltage in safety circuit downline of upper service door switch or incorrect signals at terminal 814 or 815. <ul style="list-style-type: none"><li>Switch on the upper service door is defective.</li><li>External voltage in safety circuit downline of upper service door switch.</li><li>Line break or short circuit of the line at terminal 814 or 815.</li><li>Incorrect initialisation of the 7xx safety tap "Upper service door".</li><li>For lifts without safety circuit monitoring: incorrect initialisation.</li></ul>	<ul style="list-style-type: none"><li>Check switch and replace if defective.</li><li>Check safety circuit for external voltage.</li><li>Check lines.</li><li>Check initialisation.</li><li>For lifts without safety circuit monitoring: check to ensure that the setting "Safety monitors terminal 810-816" has been deactivated in accordance with the "Safety component I" and "Control component" circuit diagrams.</li></ul>

### 10 Error messages

Lift/carousel run status	Lift/carousel run error	Cause	Action
S05029	<b>CRITICAL ERROR : SECOND SERVICE DOOR</b> -> CE	<p>Defective second service door switch or external voltage in safety circuit downline of second service door switch or incorrect signals at terminal 814 or 815.</p> <ul style="list-style-type: none"> <li>Second service door switch is defective.</li> <li>External voltage in safety circuit downline of second service door switch.</li> <li>Line break or short circuit of the line at terminal 814 or 815.</li> <li>Incorrect initialisation of the 7xx safety tap "Second service door".</li> <li>For lifts without safety circuit monitoring: incorrect initialisation.</li> </ul>	<ul style="list-style-type: none"> <li>Check switch and replace if defective.</li> <li>Check safety circuit for external voltage.</li> <li>Check lines.</li> <li>Check initialisation.</li> <li>For lifts without safety circuit monitoring: check to ensure that the setting "Safety monitors terminal 810-816" has been deactivated in accordance with the "Safety component I" and "Control component" circuit diagrams.</li> </ul>
S05027	<b>CRITICAL ERROR : DRIVE CONTACTOR</b> -> CE	<p>Incorrect signal at terminal 816. The system detects welding together of the drive contactors via this terminal.</p> <ul style="list-style-type: none"> <li>Contactor welded.</li> <li>Switching error at terminal 816.</li> <li>For lift without monitoring of the drive contactors: incorrect initialisation.</li> </ul>	<ul style="list-style-type: none"> <li>Check contactor and replace if defective.</li> <li>Check wiring.</li> <li>Check to ensure that the setting "Safety monitors terminals 810-816" has been deactivated in accordance with the "Safety component I" and "Control Component" circuit diagrams.</li> </ul>

### 10 Error messages

#### 10.5 Lean-Lift and Multi-Space error messages during lift run



#### SAFETY INSTRUCTION

Only authorised personnel are allowed to carry out work within the carousel. Authorised personnel are those who have proof of sufficient qualification and training for these tasks.

Always observe the safety instructions in the lift/carousel instruction manual!

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

The error message texts must agree with the actual switching of input terminals 701-718 through the safety switches.

Terminals 501-511, 701-718 are located on the MP 12D/N CPU I board.

- Refer also to the "Safety component" and "Control component" circuit diagrams and "Initialisation of error message inputs".

If an error message is displayed for an error that can be resolved easily from outside of the machine, correct the problem. Otherwise, contact Hänel service.

Press the [ ← ] key to continue the interrupted lift run. Press the [ CE ] key to cancel the operation.

Boards mentioned in the error messages:

Name	Number (VV = Version)
MP 12D/N CPU I	S8-45-VV
MP 12 EXT	S8-19-VV

#### Notes on documents

- For wiring, refer to the "Power component", "Safety components I+II" and "Control component" circuit diagrams, the electronics diagram general plan, and the distribution box drawing.
- For the Lean-Lift frequency converter, refer to the document "FREQUEN1".
- For the Multi-Space frequency converter, refer to the document "FREQUEN2".
- For the Lean-Lift light barriers, refer to the document "LICHTSC5".



- x The access point number "(x)" is specified in the error messages only if multiple access points are present.

### 10 Error messages

Lift/carousel run status	Carousel run error Lean-Lift, Multi-Space	Cause	Action
S03103	<b>SAFETY NOT CLEAR</b>	<ul style="list-style-type: none"> <li>No voltage at input terminal 503. All error message inputs (terminals 701-718) that are initialised, however, have voltage.</li> </ul>	<ul style="list-style-type: none"> <li>Check initialisation of error message inputs.</li> <li>Check to see if one of the safety switches (emergency stop, upper/lower limit switches, service door switches, thermal cut-out for motor, frequency converter, light barriers, etc.) has been triggered.</li> <li>Trace the signal against the "Safety components I+II" and "Control component" circuit diagrams. K6, K7, B0 may be defective.</li> </ul>
S03008	<b>STOP BUTTON PRESSED</b>	<p>Interruption between terminals 511 and 510 during a carousel run.</p> <ul style="list-style-type: none"> <li><b>STOP</b> key has been pressed.</li> <li>Defective relay (contact interrupted) on MP 12D/N CPU I board.</li> </ul>	<ul style="list-style-type: none"> <li>Press the <b>STOP</b> key.</li> <li>If the <b>STOP</b> key was not pressed, check against the "Safety component I" diagram whether 24V AC is being switched through from terminal 511 to 510. If the <b>STOP</b> key is pressed, the voltage at terminal 510 must drop off. Replace MP 12D/N CPU I board.</li> </ul>
S03095	<b>EMERGENCY STOP (F7) (X)</b>	<p>No voltage at safety input S4 at access point (x).</p> <ul style="list-style-type: none"> <li>The emergency stop button has been pressed.</li> <li>Safety cut-out F7 has been triggered or is defective. (Applies to access point 1 only)</li> <li>Line interrupted.</li> <li>Short-circuit in safety circuit.</li> </ul>	<ul style="list-style-type: none"> <li>Check emergency stop switch and unlock if necessary.</li> <li>Cut-out F7 in the electrical drawer must be checked by qualified personnel.</li> <li>Trace signal "S4" against the "Safety component I" and "Control component" circuit diagrams.</li> <li>Check the safety circuit against the "Safety component I" and "Control component" circuit diagrams.</li> </ul>
S03116	<b>SERVICE DOOR</b>	<p>No voltage present at safety input S3.</p> <ul style="list-style-type: none"> <li>Service door not correctly closed.</li> <li>Service door switch defective or power supply line interrupted.</li> </ul>	<ul style="list-style-type: none"> <li>Close service door correctly so that the service door switch is actuated.</li> <li>Check the switch and trace signal "S3" against the "Safety component I" and "Control component" circuit diagrams.</li> </ul>

### 10 Error messages

Lift/carousel run status	Carousel run error Lean-Lift, Multi-Space	Cause	Action
S03030	<b>SECOND SERVICE DOOR</b>	<p>No voltage present at safety input S30.</p> <ul style="list-style-type: none"> <li>Service door not correctly closed.</li> <li>Service door switch defective or power supply line interrupted.</li> </ul>	<ul style="list-style-type: none"> <li>Close service door correctly so that the service door switch is actuated.</li> <li>Check the switch and trace signal "S30" against the "Safety component I" and "Control component" circuit diagrams.</li> </ul>
S03140	Only with Multi-Space: <b>SERVICE DOOR MOTORS</b>	<p>No voltage present at safety input S31.</p> <ul style="list-style-type: none"> <li>Service door for vertical motors M 1.1 and M 1.2 in the bottom front panel is not closed correctly.</li> <li>Service door switch defective or power supply line interrupted.</li> </ul>	<ul style="list-style-type: none"> <li>Close service door correctly so that the service door switch is actuated.</li> <li>Check the switch and trace signal "S31" against the "Safety component I" and "Control component" circuit diagrams.</li> </ul>
S03108	<b>LOWER LIMIT SWITCH</b>	<p>No voltage present at safety input S2.</p> <ul style="list-style-type: none"> <li>Limit switch defective or power supply line interrupted.</li> <li>Lower limit switch S2 actuated. Positioning data for the access position and carrier position at the rear and for lift height may have been lost as a result of an external fault.</li> </ul>	<ul style="list-style-type: none"> <li>Check the switch and trace signal "S2" against the "Safety component I" and "Control component" circuit diagrams.</li> <li>Have qualified personnel bypass the output terminals for S1 or S2 in the electrical drawer according to the "Safety component I" and "Control component" circuit diagrams. Then, drive the extractor to the access point and carry out positioning of the access position and the rear carrier position. Caution: check the direction in which the extractor runs.</li> </ul>
S03113	Only with Lean-Lift: <b>MOTOR 1 TOO HOT</b>	<p>No voltage present at safety input B6.</p> <ul style="list-style-type: none"> <li>Motor 1 (vertical drive) overheated.</li> <li>Thermal cut-out in motor defective or power supply lines interrupted.</li> <li>Vertical lift run blocked.</li> </ul>	<ul style="list-style-type: none"> <li>Allow motor to cool down for about 10 min.</li> <li>Check thermal cut-out B6 and its power supply lines against the "Safety component I" and "Control component" circuit diagrams. If the thermal cut-out is defective, replace the corresponding motor.</li> <li>Contact the Hänel service department.</li> </ul>

### 10 Error messages

Lift/carousel run status	Carousel run error Lean-Lift, Multi-Space	Cause	Action
S03127	Only with Lean-Lift: <b>MOTOR 2 TOO HOT/ UPPER LIMIT SWITCH</b>	<p>No voltage present at safety input B7/S1.</p> <ul style="list-style-type: none"> <li>• Motor 2 (horizontal drive) overheated.</li> <li>• Thermal cut-out in motor defective or power supply lines interrupted.</li> <li>• Limit switch defective or power supply line interrupted.</li> <li>• Upper limit switch S1 actuated by extractor located at the very top, limit switch S1 defective, or power supply line interrupted.</li> <li>• Horizontal lift run blocked.</li> </ul>	<ul style="list-style-type: none"> <li>• Allow motor to cool down for about 10 min.</li> <li>• Check thermal cut-out B7 and its power supply lines against the "Safety component I" and "Control component" circuit diagrams. If the thermal cut-out is defective, replace the corresponding motor.</li> <li>• Check the cut-out and trace signal "S1" against the "Safety component I+II" and "Control component" circuit diagrams.</li> <li>• Have qualified personnel bypass the output terminals for "S1" in the electrical drawer according to the "Safety component I" circuit diagram. Then, drive the extractor to the access point and carry out positioning of the access position and the rear carrier position. <b>Caution:</b> check the direction in which the extractor runs.</li> <li>• Contact the Hänel service department.</li> </ul>

### 10 Error messages

Lift/carousel run status	Carousel run error Lean-Lift, Multi-Space	Cause	Action
S03122	Only with Lean-Lift: <b>FREQUENCY CONVERTER</b> >x<	<p>No voltage present at safety input U1.</p> <ul style="list-style-type: none"> <li>Frequency converter with RS485 connection reports error &gt;x&lt;</li> <li>Frequency converter signals error.</li> <li>Abruptly stopping a vertical lift run, for example by pressing <b>! STOP 1</b> or <b>EMERGENCY STOP</b>, leads to brief overload of the frequency converter U1.</li> <li>Phase failure at input or output of frequency converter U1.</li> <li>Interruption/short-circuit of the braking resistor R1.</li> <li>Contactors K8 defective.</li> <li>Contactors K1 or K2 defective.</li> <li>Frequency converter U1 incorrectly set or defective.</li> <li>Extractor blocked in the vertical direction, possibly by protruding shelf.</li> </ul>	<p>Refer to operating instructions of the frequency converter for meaning of LEDs or display on the operating device of U1.</p> <ul style="list-style-type: none"> <li>Decode error &gt;x&lt; by referring to the configuration of the frequency converter.</li> <li>Decode error in "Frequency converter configuration for Lean-Lift" (document "FREQUEN1").</li> <li>Switch off lift for about 5 sec.</li> <li>Measure phases and check wiring against "Power component" circuit diagram.</li> <li>Check brake resistor R1 against "Power component" circuit diagram.</li> <li>Check that contactor K8 pulls up and switches as in "Power component" and "Control component" circuit diagrams.</li> <li>Check that contactors K1 and K2 are functioning (main contacts, auxiliary contacts, actuation) using the "Power component", "Safety component II" and "Control component" circuit diagrams.</li> <li>Check setting of frequency converter U1 against "Frequency converter configuration for Lean-Lift" (document "FREQUEN1") and replace if defective. For a Mitsubishi frequency converter, remeasure motor.</li> <li>Push shelf fully into carrier, then check that extractor is horizontal; if necessary, contact HÄNEL service department.</li> </ul>



### 10 Error messages

Lift/carousel run status	Carousel run error Lean-Lift, Multi-Space	Cause	Action
S03089	<b>LIGHT BARRIERS (X)</b>	<p>No voltage present at safety input nB0.</p> <ul style="list-style-type: none"> <li>• Interruption of safety light barriers at access opening (x) due to protruding object.</li> <li>• Safety light barrier is not yet set.</li> <li>• After only a brief interruption of the safety circuit (e.g. EMERGENCY STOP, frequency converter), light barrier remains triggered.</li> <li>• Transmitters and receivers of light barriers not aligned correctly.</li> <li>• Control system of safety light barrier defective or transmitter/receiver defective.</li> </ul>	<ul style="list-style-type: none"> <li>• Clear the area monitored by the light barriers and press the [↵] key for about 0.5 sec.</li> <li>• Press the [↵] key for about 0.5 sec. to set the safety circuit.</li> <li>• Press the [↵] key for about 0.5 sec. to set the safety circuit.</li> <li>• Realign light barriers according to "Installation instructions for light barrier" (document "LICHTSC5").</li> <li>• Replace part.</li> </ul>
S03089	<p>Only for Lean-Lift with multiple access points and guide rails:</p> <p><b>LIGHT BARRIERS (X)</b></p> <p>then</p> <p><b>ENABLE LIFT RUN AT ACCESS POINT (X)</b></p> <p>then</p>	<p>No voltage at safety input nB0/x</p> <ul style="list-style-type: none"> <li>• Interruption of safety light barriers at access opening (x).</li> <li>• Transmitters and receivers of light barriers not aligned correctly.</li> <li>• Control system of safety light barrier defective or transmitter/receiver defective.</li> <li>• The [↵] key has been pressed without correcting the light barrier interruption at access opening (x).</li> </ul>	<ul style="list-style-type: none"> <li>• Clear the area monitored by the light barriers at access opening (x) and press the [↵] key for approx. 0.5 sec.</li> <li>• Realign the light barriers as described in the operating instructions.</li> <li>• Replace part.</li> <li>• Clear the area monitored by the light barriers at access opening (x) and press the [↵] key for approx. 0.5 sec.</li> </ul>
S03031	<b>LIFT RUN HAS BEEN ENABLED AT ACCESS POINT (X)</b>	<ul style="list-style-type: none"> <li>• Interruption of safety light barriers at access opening (x) has been corrected.</li> </ul>	<ul style="list-style-type: none"> <li>• Press the [↵] key for approx. 0.5 sec.</li> </ul>
	<p>Only for Lean-Lift with multiple access points and guide rails:</p> <p><b>LIFT RUN ENABLE FOR ANOTHER ACCESS POINT WITH ↵</b></p>	<ul style="list-style-type: none"> <li>• Interruption of safety light barriers at this access opening while lift run was carried out for other access opening.</li> </ul>	<ul style="list-style-type: none"> <li>• Clear the area monitored by the light barriers at the access opening and press the [↵] key for approx. 0.5 sec.</li> </ul>

### 10 Error messages

Lift/carousel run status	Carousel run error Lean-Lift, Multi-Space	Cause	Action
	<b>SYSTEM ERROR SAFETY CIRCUIT DEFECTIVE --&gt; SWITCH OFF</b>	<p>Signal detected at input terminal 503 when control system switched on.</p> <ul style="list-style-type: none"> <li>Defective component in safety circuit or wiring error.</li> <li>Only the MP control system was switched off and on again via the integrated safety switch.</li> <li>MP 12D/N CPU I board is defective.</li> </ul>	<ul style="list-style-type: none"> <li>Check safety circuit (contactors K5, K6, K7) against "Safety component II" circuit diagram, replace defective component.</li> <li>Switch lift off, then on again.</li> <li>Replace MP 12D/N CPU I board if defective.</li> </ul>
S03014	Only with Multi-Space: <b>VERTICAL FREQUENCY CONVERTER</b>	<p>No voltage present at safety input U1.</p> <ul style="list-style-type: none"> <li>Frequency converter signals error.</li> </ul>	<p>Refer to operating instructions of the frequency converter for meaning of LEDs or display on the operating device of U1.</p> <ul style="list-style-type: none"> <li>Decode the error in "Frequency Converter configuration for Multi-Space" (document "FREQUEN2") and remedy the corresponding error option.</li> <li>Switch off lift for about 5 sec.</li> </ul>
S03015	Only with Multi-Space: <b>HORIZONTAL FREQ. CON./HI- SP.DR.</b>	<p>No voltage present at safety input U2.</p> <ul style="list-style-type: none"> <li>Frequency converter signals error.</li> </ul>	<p>Refer to operating instructions of the frequency converter for meaning of LEDs or display on the operating device of U2.</p> <ul style="list-style-type: none"> <li>Decode the error in "Frequency Converter configuration for Multi-Space" (document "FREQUEN2") and remedy the corresponding error option.</li> <li>Switch off lift for about 5 sec.</li> </ul>
S03137	Only with Multi-Space: <b>MOTOR 1.1 TOO HOT</b>	<p>No voltage present at safety input B6.1.</p> <ul style="list-style-type: none"> <li>Motor M1.1 (left vertical drive) overheated.</li> <li>Thermal cut-out in motor M1.1 defective or power supply lines interrupted.</li> <li>Vertical lift run blocked.</li> </ul>	<ul style="list-style-type: none"> <li>Allow motor to cool down for about 10 min.</li> <li>Check thermal cut-outs B6.1 and their power supply lines against the "Safety component I" and "Control component" circuit diagrams. If the thermal cut-out is defective, replace the corresponding motor.</li> <li>Contact the Hänel service department.</li> </ul>

### 10 Error messages

Lift/carousel run status	Carousel run error Lean-Lift, Multi-Space	Cause	Action
S03138	Only with Multi-Space: <b>MOTOR 1.2 TOO HOT</b>	<p>No voltage present at safety input B6.2.</p> <ul style="list-style-type: none"> <li>• Motor M1.2 (right vertical drive) overheated.</li> <li>• Thermal cut-out in motor M1.2 defective or power supply lines interrupted.</li> <li>• Vertical lift run blocked.</li> </ul>	<ul style="list-style-type: none"> <li>• Allow motor to cool down for about 10 min.</li> <li>• Check thermal cut-outs B6.2 and their power supply lines against the "Safety component I" and "Control component" circuit diagrams. If the thermal cut-out is defective, replace the corresponding motor.</li> <li>• Contact the Hänel service department.</li> </ul>
S03009	Only with Multi-Space: <b>MOTOR 2 TOO HOT</b>	<p>No voltage present at safety input B7.</p> <ul style="list-style-type: none"> <li>• Motor M2 (horizontal drive) overheated.</li> <li>• Thermal cut-out in motor M2 defective or power supply lines interrupted.</li> <li>• Horizontal lift run blocked.</li> </ul>	<ul style="list-style-type: none"> <li>• Allow motor to cool down for about 10 min.</li> <li>• Check thermal cut-outs B7 and their power supply lines against the "Safety component I" and "Control component" circuit diagrams. If the thermal cut-out is defective, replace the corresponding motor.</li> <li>• Contact the Hänel service department.</li> </ul>
S03017	Only with Multi-Space: <b>MOTOR 3 TOO HOT/ LEFT LIMIT SWITCH</b>	<p>No voltage present at safety input B8.</p> <ul style="list-style-type: none"> <li>• Motor M3 (movement unit) overheated.</li> <li>• Thermal cut-out in motor M3 defective or power supply lines interrupted.</li> <li>• Left/right horizontal drive driven over left end position.</li> </ul>	<ul style="list-style-type: none"> <li>• Allow motor to cool down for about 10 min.</li> <li>• Check thermal cut-out B8 and their power supply lines against the "Safety component I" and "Control component" circuit diagrams. If the thermal cut-out is defective, replace the corresponding motor.</li> <li>• Have qualified personnel bypass the output terminals for S18 in the electrical drawer according to the "Safety component I" and "Control component" circuit diagrams. Then, in positioning mode, drive the extractor to home position. Caution: check run direction of the left-right horizontal drive.</li> <li>• Contact the Hänel service department.</li> </ul>

### 10 Error messages

Lift/carousel run status	Carousel run error Lean-Lift, Multi-Space	Cause	Action
S03107	Only with Multi-Space: <b>UPPER LIMIT SWITCH</b>	<ul style="list-style-type: none"> <li>Vertical drive driven over end position.</li> </ul>	<ul style="list-style-type: none"> <li>Have qualified personnel bypass the output terminals for "S1" in the electrical drawer according to the "Safety component I" circuit diagram. Then, drive the extractor to the access point and carry out positioning of the access position and the rear carrier position. Caution: check run direction of the vertical motors.</li> <li>Contact the Hänel service department.</li> </ul>
S03006	Only with Multi-Space: <b>UPPER LIMIT SWITCH</b>	<ul style="list-style-type: none"> <li>Horizontal drive driven over right end position.</li> <li>Horizontal lift run left-right blocked.</li> </ul>	<ul style="list-style-type: none"> <li>Have qualified personnel bypass the output terminals for S19 in the electrical drawer according to the "Safety component I" and "Control component" circuit diagrams. Then, in positioning mode, drive the extractor to home position. Caution: check run direction of the left-right horizontal drive.</li> <li>Contact the Hänel service department.</li> </ul>
S03048	Only with Multi-Space: <b>MOTOR 4 TOO HOT</b>	<p>No voltage present at safety input B9.</p> <ul style="list-style-type: none"> <li>Motor M4 (right/left horizontal drive) overheated.</li> <li>Thermal cut-out in motor M4 defective or power supply lines interrupted.</li> </ul>	<ul style="list-style-type: none"> <li>Allow motor to cool down for about 10 min.</li> <li>Check thermal cut-out B9 and its power supply lines against the "Safety component I" and "Control component" circuit diagrams. If the thermal cut-out is defective, replace the corresponding motor.</li> <li>Contact the Hänel service department.</li> </ul>
S03139	Only with Multi-Space: <b>TEMP. PROTECTION MOVEMENT UNIT</b>	<p>Bimetal trip F30 has been triggered.</p> <ul style="list-style-type: none"> <li>Bimetal trip for motor M3 (movement unit) detects that the motor current is too high.</li> <li>Frequency converter U1 operates motor M3 with incorrect parameter set.</li> </ul>	<ul style="list-style-type: none"> <li>Allow motor to cool down for about 10 min.</li> <li>Check setting value of bimetal trip F30 against "Movement unit power component" circuit diagram.</li> <li>Check motor current using tong-type ammeter and current display on frequency converter U1.</li> <li>Check parameter switchover of frequency converter U1.</li> <li>Check that frequency converter U1 is set according to "Frequency converter configuration for Multi-Space" (document "FREQUEN2").</li> <li>Contact the Hänel service department.</li> </ul>

### 10 Error messages

Lift/carousel run status	Carousel run error Lean-Lift, Multi-Space	Cause	Action
S03142	Only with Multi-Space: <b>BRAKING RESISTOR R1</b>	Bimetal trip F31 has been triggered. <ul style="list-style-type: none"> <li>• Bimetal trip for braking resistor R1 detects that the current is too high.</li> </ul>	<ul style="list-style-type: none"> <li>• Check setting value of bimetal trip F31 against "Power component" circuit diagram.</li> <li>• Check the duty cycle of braking resistor R1. Check that frequency converter U1 is set according to "Frequency converter configuration for Multi-Space" (document "FREQUEN2").</li> <li>• Check connection and resistance value of braking resistor R1 against "Power component" circuit diagram.</li> <li>• Check current through braking resistor R1 using tong-type ammeter. Current must flow downwards during the vertical run only.</li> <li>• Contact the Hänel service department.</li> </ul>

### 10 Error messages

#### 10.5.2 Error messages during lift run due to software monitoring

The following error messages are displayed if an input condition is not fulfilled in the task scheduler or if data required for continued operation are not available.

If an error message is displayed for an error that can be resolved easily from outside of the machine, correct the problem. Otherwise, contact Hänel service.

Press the [↩] key to continue the interrupted lift run. Press the [CE] key to cancel the operation.

Boards mentioned in the error messages:

Name	Number (VV = Version)
MP 12D/N CPU I	S8-45-VV
MP 12 EXT	S8-19-VV
MP 12 KVLL	S8-17-VV
MP 12 PLUS	S8-48-VV
MP 12 KVEX	S8-22-VV

#### Notes on documents

- For wiring, refer to the "Power component", "Safety components I+II" and "Control component" circuit diagrams, the electronics diagram general plan, and the distribution box drawing.
- For cable routing, see documents "CABLELL1", "CABLELL2", "CABLELL3", "CABLELL4", "CABLELL5".
- For shielding of control line X82, refer to the document "LL-SPIRA" or "TROMMEL1".
- For earthing of keyboard console, refer to document "TAST".
- For the current hardware version, refer to the document "V-SHWARE".
- For shielding of data transmission cable, refer to document "S90007".
- For installation/alignment of position sensor, refer to document "POSIEINS".
- For installation/alignment of proximity switch, refer to documents "NSEINS" and "NSEINS2".

Lift run status	Lift run error Lean-Lift, Multi-Space	Cause	Action
S04118	<b>SYSTEM ERROR</b> >1< / x	Move command to an invalid carrier position at the height of the access area or to a number higher than the maximum carrier number. x = invalid carrier number	<ul style="list-style-type: none"> <li>Switch lift off, then on again. If the error recurs, inform the Hänel service department.</li> </ul>
S04118	<b>SYSTEM ERROR</b> >2<	Extractor detected as running in the wrong vertical direction.	<ul style="list-style-type: none"> <li>Switch lift off, then on again. If the error recurs, inform the Hänel service department.</li> </ul>

### 10 Error messages

Lift run status	Lift run error Lean-Lift, Multi-Space	Cause	Action
S04118	<b>SYSTEM ERROR</b> >3<	During a vertical lift run, the extractor was detected as moving too fast.	<ul style="list-style-type: none"> <li>Switch lift off, then on again. If the error recurs, inform the Hänel service department.</li> </ul>
S04118	<b>SYSTEM ERROR</b> >5<	<p>No signal from proximity switches B12/B13 immediately before or after a horizontal run, although there is a shelf on the extractor.</p> <p>On lifts with incremental encoder T01, signal B10/B11 immediately before or after a horizontal lift run when there is a shelf on the extractor.</p>	<ul style="list-style-type: none"> <li>Switch lift off, then on again. If the error recurs, inform the Hänel service department.</li> <li>Check function, alignment and power supply lines at terminals 773, 774 of B12, B13.</li> <li>Check function, alignment and power supply lines at terminals 771, 772 of B10, B11.</li> </ul>
S04118	<b>SYSTEM ERROR</b> >6<	<p>Incorrect signal or no signal from proximity switches B10/B11 during a lift run.</p> <p>While the lift/carousel height is being initialised in the positioning system, there is a shelf on the extractor.</p>	<ul style="list-style-type: none"> <li>Switch lift off, then on again. If the error recurs, inform the Hänel service department.</li> <li>Check function, alignment and power supply lines at terminals 771, 772 of B10, B11.</li> <li>Bring shelf to access point or store it first.</li> </ul>
S04118	<b>SYSTEM ERROR</b> >7< / x	<p>Error in shelf management. There is an inconsistency between the shelf data stored in memory and the carrier table.</p> <p>x = Incorrect carrier</p>	<ul style="list-style-type: none"> <li>Switch lift off, then on again. If the error recurs, inform the Hänel service department.</li> </ul>
S04118	<b>SYSTEM ERROR</b> >8<	Carrier to which a shelf is to be stored is already occupied by a shelf.	<ul style="list-style-type: none"> <li>Switch lift off, then on again. If the error recurs, inform the Hänel service department.</li> </ul>
S04118	<b>SYSTEM ERROR</b> >9<	No signal from proximity switch B12 when a shelf is pulled in from a front carrier.	<ul style="list-style-type: none"> <li>Switch lift off, then on again. If the error recurs, inform the Hänel service department.</li> <li>Check function, alignment and power supply lines at terminal 773 of B12.</li> </ul>
S04118	<b>SYSTEM ERROR</b> >10<	<p>When a shelf is pulled in from a front carrier, only a signal from proximity switch B12 is detected. This disappears again before B13 switches.</p> <p>When a shelf is pulled in from a front carrier, only a signal from proximity switch B13 is detected.</p>	<ul style="list-style-type: none"> <li>Switch lift off, then on again. If the error recurs, inform the Hänel service department.</li> <li>Check function, alignment and power supply lines at terminals 773, 774 of B12, B13.</li> </ul>
S04118	<b>SYSTEM ERROR</b> >11<	No signal from proximity switch B13 when a shelf is pulled in from a rear carrier.	<ul style="list-style-type: none"> <li>Switch lift off, then on again. If the error recurs, inform the Hänel service department.</li> <li>Check function, alignment and power supply lines at terminal 774 of B13.</li> </ul>

### 10 Error messages

Lift run status	Lift run error Lean-Lift, Multi-Space	Cause	Action
S04118	<b>SYSTEM ERROR</b> >12<	When a shelf is pulled in from a rear carrier, only a signal from proximity switch B13 is detected. This disappears again before B12 switches.  When a shelf is pulled in from a rear carrier, if B13 gives no signal.	<ul style="list-style-type: none"> <li>Switch lift off, then on again. If the error recurs, inform the Hänel service department.</li> <li>Check function, alignment and power supply lines at terminals 773, 774 of B12, B13.</li> </ul>
S04118	<b>SYSTEM ERROR</b> >13<	Error signalled from lower protection zone.	<ul style="list-style-type: none"> <li>Switch lift off, then on again. If the error recurs, inform the Hänel service department.</li> <li>Check function, alignment and power supply lines at terminal 779 of B18.</li> </ul>
S04118	<b>SYSTEM ERROR</b> >14<	Error signalled from upper protection zone.	<ul style="list-style-type: none"> <li>Switch lift off, then on again. If the error recurs, inform the Hänel service department.</li> <li>Check function, alignment and power supply lines at terminal 780 of B19.</li> </ul>
S04118	<b>SYSTEM ERROR</b> >15<	No response from height detection system B1.	<ul style="list-style-type: none"> <li>It is still possible to get and unregister shelves.</li> <li>Switch lift off, then on again. If the error recurs, inform the Hänel service department.</li> </ul>
S04055	<b>SYSTEM ERROR</b> >17<	Only on lifts with horizontal position detection by incremental encoder T01: System has detected that the extractor drive is running in the wrong horizontal direction.	<ul style="list-style-type: none"> <li>Check connection of extractor motor.</li> <li>Check whether connections of incremental encoder T01 (terminals 777 and 778) are inverted.</li> </ul>
S04055	<b>SYSTEM ERROR</b> >18<	Only on lifts with horizontal position detection by incremental encoder T01: Faulty absolute position detection of horizontal extractor drive.	<ul style="list-style-type: none"> <li>Check functioning of proximity switches B10 and B11 (terminals 771 and 772).</li> </ul>
S04055	<b>SYSTEM ERROR</b> >19<	Only on lifts with horizontal position detection by incremental encoder T01: Faulty position detection of horizontal drive.	<ul style="list-style-type: none"> <li>Check functioning of incremental encoder T01 (terminals 777 and 778).</li> </ul>
S04055	<b>SYSTEM ERROR</b> >20<	Error in redundancy system. Shelf cannot be returned to its old storage location.  <ul style="list-style-type: none"> <li>Shelf was newly added before activation of the redundancy system.</li> </ul> or <ul style="list-style-type: none"> <li>The old storage location has since been occupied by a different shelf stored at another access point before the redundancy system was activated.</li> </ul>	<ul style="list-style-type: none"> <li>Unregister shelf or operate the lift from another access point until the redundancy system has been deactivated.</li> </ul>



### 10 Error messages

Lift run status	Lift run error Lean-Lift, Multi-Space	Cause	Action
S04055	Only with Multi-Space: <b>SYSTEM ERROR</b> >22<	Wrong direction of rotation of movement unit detected.	<ul style="list-style-type: none"> <li>• Check connection of motor M3 (movement unit).</li> <li>• Check whether connections (terminals 740 and 741) of incremental encoder T02 are inverted.</li> </ul>
S04055	Only with Multi-Space: <b>SYSTEM ERROR</b> >23<	Neither of the two position switches of movement unit S22, S23 switch.	<ul style="list-style-type: none"> <li>• Check function, alignment and power supply lines of S22, S23.</li> <li>• Check function of movement unit incremental encoder T02.</li> </ul>
S04055	Only with Multi-Space: <b>SYSTEM ERROR</b> >24<	Front position switch of movement unit S22 does not switch after forward movement.	<ul style="list-style-type: none"> <li>• Check function, alignment and power supply lines of S22.</li> <li>• Check function of movement unit incremental encoder T02.</li> </ul>
S04055	Only with Multi-Space: <b>SYSTEM ERROR</b> >25<	Rear position switch of movement unit S23 does not switch after forward movement.	<ul style="list-style-type: none"> <li>• Check function, alignment and power supply lines of S23.</li> <li>• Check function of movement unit incremental encoder T02.</li> </ul>
S04055	Only with Multi-Space: <b>SYSTEM ERROR</b> >26<	Both position switches of movement unit S22, S23 do not switch after movement towards the centre.	<ul style="list-style-type: none"> <li>• Check function, alignment and power supply lines of S22, S23.</li> <li>• Check function of movement unit incremental encoder T02.</li> </ul>
S04055	Only with Multi-Space: <b>SYSTEM ERROR</b> >27<	Lift run of the extractor to an invalid lift unit has been requested.	<ul style="list-style-type: none"> <li>• Check the initialisation of "Number of lift units".</li> <li>• Check shelf table for incorrect carrier values.</li> </ul>
S04055	Only with Multi-Space: <b>SYSTEM ERROR</b> >28<	Extractor is moving in the wrong direction. (Movement direction right/left)	<ul style="list-style-type: none"> <li>• Check connection of motor M4 (right/left horizontal drive).</li> <li>• Check whether connections (terminals 737 and 738) of incremental encoder T03 are inverted.</li> </ul>
S04055	Only with Multi-Space: <b>SYSTEM ERROR</b> >29<	Forward/backward extractor run is not possible, as extractor is not positioned at the lift unit.	<ul style="list-style-type: none"> <li>• Check function/position value of the right/left drive.</li> </ul>
S04055	Only with Multi-Space: <b>SYSTEM ERROR</b> >30<	When a shelf is pushed out towards the front, the 45 mm (1.77") movement unit is not at the front end position.	<ul style="list-style-type: none"> <li>• Check connection of motor M3 (movement unit).</li> <li>• Check function, alignment and power supply lines of S22, S23.</li> <li>• Check function of movement unit incremental encoder T02.</li> </ul>
S04055	Only with Multi-Space: <b>SYSTEM ERROR</b> >31<	When a shelf is pushed out towards the rear, the 45 mm (1.77") movement unit is not at the rear end position.	<ul style="list-style-type: none"> <li>• Check connection of motor M3 (movement unit).</li> <li>• Check function, alignment and power supply lines of S22, S23.</li> <li>• Check function of movement unit incremental encoder T02.</li> </ul>

### 10 Error messages

Lift run status	Lift run error Lean-Lift, Multi-Space	Cause	Action
S04055	Only with Multi-Space: <b>SYSTEM ERROR</b> >33<	While the carrier positions are determined during a synchronisation run, fork light barrier B28 does not switch correctly.	<ul style="list-style-type: none"> <li>Check function, alignment and power supply lines at terminal 746 of B28.</li> <li>Check adjustment of the corresponding interruption angle and alignment of the extractor.</li> </ul>
S04055	Only with Multi-Space: <b>SYSTEM ERROR</b> >34<	While the carrier positions are determined during a synchronisation run, fork light barrier B29 does not switch correctly.	<ul style="list-style-type: none"> <li>Check function, alignment and power supply lines at terminal 747 of B29.</li> <li>Check adjustment of the corresponding interruption angle and alignment of the extractor.</li> </ul>
S04055	Only with Multi-Space: <b>SYSTEM ERROR</b> >35<	While the carrier positions are determined during a synchronisation run, fork light barrier B30 does not switch correctly.	<ul style="list-style-type: none"> <li>Check function, alignment and power supply lines at terminal 748 of B30.</li> <li>Check adjustment of the corresponding interruption angle and alignment of the extractor.</li> </ul>
S04055	Only with Multi-Space: <b>SYSTEM ERROR</b> >36<	While the horizontal right/left sensor system is synchronised or the carrier positions are synchronised during a synchronisation run, fork light barrier B31 does not switch correctly.	<ul style="list-style-type: none"> <li>Check function, alignment and power supply lines at terminal 749 of B31.</li> <li>Check adjustment of the corresponding interruption angle and alignment of the extractor.</li> </ul>
S04055	Only with Lean-Lift: <b>SYSTEM ERROR</b> >38<	The last synchronisation run has detected that the vertical speed is too high for the initialised drive type.	<ul style="list-style-type: none"> <li>Check the initialisation of the "Drive type".</li> </ul>
S04055	Only with Multi-Space: <b>SYSTEM ERROR</b> >39<	While a shelf is ejected towards the front or rear, an incorrect left/right position value is detected.	<ul style="list-style-type: none"> <li>Check function/position value of the right/left drive.</li> </ul>
S04110	<b>SHELF INCORRECTLY POSITIONED</b> >1<	<p>Simultaneous signals from proximity switches B10+B11+B12 or B13.</p> <ul style="list-style-type: none"> <li>Shelf was pushed onto the extractor manually.</li> <li>Fault signalled by proximity switches B10/B11, B12/B13.</li> </ul>	<ul style="list-style-type: none"> <li>Pull shelf back into the access point or carrier manually.</li> <li>Check function, alignment and power supply lines of terminal 771, 772, 773, 774 of B10, B11, B12, B13</li> </ul>
S04110	<b>SHELF INCORRECTLY POSITIONED</b> >2<	<p>No signal from proximity switches B12/B13 before or during a vertical lift run, although there is a shelf on the extractor.</p> <ul style="list-style-type: none"> <li>Proximity switches B12/B13 are incorrectly aligned or are defective.</li> <li>Control cable X82 to extractor faulty.</li> </ul>	<ul style="list-style-type: none"> <li>Check installation dimension according to "Setting instructions for proximity switch" (document "NSEINS" or "NSEINS2").</li> <li>Check function at terminal 773, 774, replace if defective.</li> <li>Check control cable X82 between board and extractor.</li> </ul>

### 10 Error messages

Lift run status	Lift run error Lean-Lift, Multi-Space	Cause	Action
S04110	<b>SHELF INCORRECTLY POSITIONED</b> >4<	<p>A horizontal run was not completed and consequently, no vertical motion is possible.</p> <ul style="list-style-type: none"> <li>• Error in the sequence control system.</li> <li>• Before the service functions were called, a lift run was interrupted; drive catches are not in the end position.</li> </ul>	<ul style="list-style-type: none"> <li>• In the service functions, execute function "Bring shelf onto extractor".</li> <li>• Complete horizontal run, for example using function "Store shelf", "Get shelf". Wait until it is completed before calling up the service functions.</li> </ul>
S04110	<b>SHELF REMOVAL POS TOO FAR INSIDE (n)</b>	<p>No signal from proximity switch B20 when there is a shelf in the access point (n).</p> <ul style="list-style-type: none"> <li>• The shelf is positioned too far towards the inside of access point (x).</li> <li>• Proximity switch B20 is incorrectly aligned or defective.</li> </ul> <p>Signal from proximity switch B21 when there is no shelf in the access point (n).</p> <ul style="list-style-type: none"> <li>• Proximity switch B21 is incorrectly aligned or defective.</li> </ul>	<ul style="list-style-type: none"> <li>• Pull shelf back to end position.</li> <li>• Check installation dimension according to "Setting instructions for proximity switches" (document "NSEINS" or "NSEINS2"); check function of B20 at terminal 877 of the MP 12D/N CPU I board, replace if defective.</li> <li>• Check installation dimension according to "Setting instructions for proximity switches" (document "NSEINS" or "NSEINS2"); check function of B21 at terminal 878 of the MP 12D/N CPU I board, replace if defective.</li> </ul> <p>If additional access point proximity switches B26, B27 are present:</p> <ul style="list-style-type: none"> <li>• Check B26 at terminal 879 and B27 at terminal 880.</li> </ul>

### 10 Error messages

Lift run status	Lift run error Lean-Lift, Multi-Space	Cause	Action
S04110	<b>SHELF REMOVAL POS TOO FAR OUTSIDE (n)</b>	<p>No signal from proximity switch B21 when there is a shelf in access point (n).</p> <ul style="list-style-type: none"> <li>• The shelf is positioned too far towards the outside of access point (n).</li> <li>• Proximity switch B21 is incorrectly aligned or defective.</li> </ul> <p>Signal from proximity switch B20 when there is no shelf in the access point (n).</p> <ul style="list-style-type: none"> <li>• Proximity switch B20 is incorrectly aligned or defective.</li> </ul>	<ul style="list-style-type: none"> <li>• Push shelf fully into access point (n).</li> <li>• Check installation dimension according to "Setting instructions for proximity switches" (document "NSEINS" or "NSEINS2"); check function of B21 at terminal 878, replace if defective.</li> <li>• Check installation dimension according to "Setting instructions for proximity switches" (document "NSEINS" or "NSEINS2"); check function of B20 at terminal 877 of the MP 45D/N CPU I board, replace if defective.</li> </ul> <p>If additional access point proximity switches B26, B27 are present:</p> <ul style="list-style-type: none"> <li>• Check B26 at terminal 879 and B27 at terminal 880.</li> </ul>

### 10 Error messages

Lift run status	Lift run error Lean-Lift, Multi-Space	Cause	Action
S04115	<b>MOTOR IS OVERLOADED</b> >3<	<p>MP control system does not detect a change in position, though a move command has been issued. (Movement direction vertical)</p> <ul style="list-style-type: none"> <li>Shelf is overloaded.</li> <li>Mitsubishi frequency converter U1 is in PU mode.</li> <li>No drive signals at input of frequency converter U1.</li> <li>Drive contactor K1 defective.</li> </ul> <p>For the Lean-Lift:</p> <ul style="list-style-type: none"> <li>Motor brake of vertical motor M1 does not release.</li> <li>Position sensor systems without supply voltage; line interrupted.</li> </ul> <p>For the Multi-Space:</p> <ul style="list-style-type: none"> <li>Motor brake of vertical motor M1.1 or M1.2 does not release.</li> <li>Position sensor systems without supply voltage; line interrupted.</li> </ul>	<ul style="list-style-type: none"> <li>Remove articles from shelf.</li> <li>Set external mode at control unit.</li> <li>Check 24V DC drive signals from terminal 782 of board MP 12D/N CPU I via K6, K7, MP 12D/N CPU I board terminal 504, 505/506 to terminal STR, STF against "Control component" circuit diagram.</li> <li>Check contactor K1 and replace if defective.</li> <li>Check brake activation of motor M1.</li> <li>Check activation of contactor K91 and voltage at rectifier V1.</li> <li>Carry out current measurement in the DC circuit of the motor brake.</li> <li>Measure voltage between terminal 767 (+5V) and terminal 768 (GND).</li> <li>Check control cable between MP 12D/N CPU I board in the electrical drawer and extractor board MP 12 KVLL.</li> <li>Check brake activation of motor M1.1 or M1.2.</li> <li>Check activation of contactor K91 and voltage at rectifier V1.1 and V1.2.</li> <li>Carry out current measurement in the DC circuit of the motor brake.</li> <li>Measure voltage between terminal 767 (+5V) and terminal 768 (GND).</li> <li>Check control cable between MP 12D/N CPU I board in the electrical drawer and extractor board MP 12 KVG1.</li> </ul>

### 10 Error messages

Lift run status	Lift run error Lean-Lift, Multi-Space	Cause	Action
S04115	<b>MOTOR IS OVERLOADED</b> >7<	<p>MP control system does not detect a change in position, though a move command has been issued. (Movement direction of extractor drive catch horizontal)</p> <ul style="list-style-type: none"> <li>Shelf is overloaded.</li> <li>Carrier friction too severe.</li> <li>Drive contactor K2 defective.</li> <li>Motor brake of horizontal motor M2 does not release.</li> </ul> <p>For the Lean-Lift:</p> <ul style="list-style-type: none"> <li>Mitsubishi frequency converter U1 is in PU mode.</li> <li>No drive signals at input of frequency converter U1.</li> </ul> <p>For the Multi-Space:</p> <ul style="list-style-type: none"> <li>Mitsubishi frequency converter U2 is in PU mode.</li> <li>No drive signals at input of frequency converter U2.</li> </ul>	<ul style="list-style-type: none"> <li>Remove articles from shelf.</li> <li>Clean and lubricate carrier.</li> <li>Check contactor K2 and replace if defective.</li> <li>Check brake activation of motor M2.</li> <li>Check activation of contactor K92 and voltage at rectifier V2.</li> <li>Carry out current measurement in the DC circuit of the motor brake.</li> <li>Set external mode at control unit.</li> <li>Check 24V DC drive signals from terminal 782 of board MP 12D/N CPU I via K6, K7, MP 12D/N CPU I board terminal 504, 505/506 to terminal STR, STF against "Control component" circuit diagram.</li> <li>Set external mode at control unit.</li> <li>Check 24V DC drive signals from terminal 782 of MP 12 PLUS board via K6, K7, MP 12 PLUS board terminal 504, 505/506 to terminal STR, STF against "Control component" circuit diagram.</li> </ul>

### 10 Error messages

Lift run status	Lift run error Lean-Lift, Multi-Space	Cause	Action
S04115	Only with Multi-Space: <b>MOTOR IS OVERLOADED</b> >8<	<p>MP control system does not detect a change in position, though a move command has been issued. (Movement direction of movement unit forward/backward)</p> <ul style="list-style-type: none"> <li>Mitsubishi frequency converter U1 is in PU mode.</li> <li>Position sensor systems without supply voltage; line interrupted.</li> <li>Drive contactor K3z defective.</li> <li>Motor brake of movement unit M3 does not release.</li> </ul>	<ul style="list-style-type: none"> <li>Set external mode at control unit.</li> <li>Measure voltage between terminal 781 (0V) and terminal 782 (24V).</li> <li>Check control cable between MP 12D/N CPU I board in the electrical drawer and extractor board MP 12 KVEX.</li> <li>Check contactor K3z and replace if defective.</li> <li>Check brake activation of motor M3.</li> <li>Check activation of contactor K94 and voltage at rectifier V3.</li> <li>Carry out current measurement in the DC circuit of the motor brake.</li> </ul>
S04115	Only with Multi-Space: <b>MOTOR IS OVERLOADED</b> >9<	<p>MP control system does not detect a change in position, though a move command has been issued. (Movement direction of extractor towards the right/left)</p> <ul style="list-style-type: none"> <li>Mitsubishi frequency converter U2 is in PU mode.</li> <li>Position sensor systems without supply voltage; line interrupted.</li> <li>Drive contactor K4 defective.</li> <li>Horizontal motor M4 defective.</li> <li>Motor brake of horizontal drive right/left M4 does not release.</li> </ul>	<ul style="list-style-type: none"> <li>Set external mode at control unit.</li> <li>Measure voltage between terminal 781 (0V) and terminal 782 (24V).</li> <li>Check control cable between MP 12D/N CPU I board in the electrical drawer and extractor board MP 12 KVEX.</li> <li>Check contactor K4 and replace if defective.</li> <li>Check motor M4 and replace if defective.</li> <li>Check brake activation of motor M4.</li> <li>Check activation of contactor K92 and voltage at rectifier V4.</li> <li>Carry out current measurement in the DC circuit of the motor brake.</li> </ul>

### 10 Error messages

Lift run status	Lift run error Lean-Lift, Multi-Space	Cause	Action
S04109	<b>THE ARTICLE IS TOO HIGH (X)</b>	<p>The value received from the height detection system during storage of a shelf (at access x) is too high.</p> <ul style="list-style-type: none"> <li>• The storage items are higher than the permitted max. storage article height.</li> <li>• Height detection disturbed by dirt or incorrect adjustment.</li> <li>• Control device B1 of height detection not correctly adjusted (jumpers).</li> <li>• Max. article height incorrectly initialised.</li> <li>• The article height was increased during the function "Check shelf positions - Check article heights".</li> <li>• Height detection system is defective.</li> <li>• Supply voltage for height detection system is not stable; it may drop briefly below 19V DC.</li> <li>• In the redundancy menu, the article height detection function or the monitoring of shelf management was deactivated.</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce the height of the stored articles.</li> <li>• Check to see if height detection system is dirty or incorrectly adjusted; for control purposes, switch on buzzer using switch on control device B1.</li> <li>• Check setting of jumper according to the specifications on the housing cover of control device B1.</li> <li>• Check the article height setting in positioning mode.</li> <li>• Reduce stored article height to previous value.</li> <li>• Check transmitters, receivers, and the control device of height detection system and replace if defective.</li> <li>• Check transformer voltage 24V AC and set higher if necessary.</li> <li>• Perform a "Check article height" test run.</li> </ul>
S04120	<b>STORAGE ARTICLES PROTRUDING &gt;1&lt;</b>	<p>When a shelf is being stored, a value is received from the height detection system at the same time as a signal from proximity switch B20.</p> <ul style="list-style-type: none"> <li>• Stored articles are protruding over the rear edge of the shelf into the lift shaft.</li> <li>• Erroneous signal from the height detection system caused by dirt, incorrect adjustment, or defect.</li> <li>• Proximity switch B20 gives a signal even when not actuated by shelf.</li> </ul>	<ul style="list-style-type: none"> <li>• Store articles so that they do not protrude over the edge of the shelf.</li> <li>• Check error signal from height detection system for dirt, incorrect adjustment or defect. To check it, switch on the buzzer using the switch on control device nB1.</li> <li>• Check installation dimension according to "Setting instructions for proximity switches" (document "NSEINS" or "NSEINS2"); check function of B21 at terminal 877, replace if defective.</li> </ul>



### 10 Error messages

Lift run status	Lift run error Lean-Lift, Multi-Space	Cause	Action
S04120	<b>STORAGE ARTICLES PROTRUDING &gt;2&lt;</b>	<p>When a shelf is being stored, a value is received from the height detection system at the same time as a signal from proximity switch B21.</p> <ul style="list-style-type: none"> <li>• A storage article is protruding over the front edge of the shelf into the access point while the shelf is positioned fully on the extractor.</li> <li>• Erroneous signal from the height detection system caused by dirt, incorrect adjustment, or defect.</li> <li>• Proximity switch B21 is incorrectly aligned or defective.</li> <li>• Extractor position is too high, resulting in tipping of shelf and unsafe switching of B21.</li> </ul>	<ul style="list-style-type: none"> <li>• Store articles so that they do not protrude over the edge of the shelf.</li> <li>• Check error signal from height detection system for dirt, incorrect adjustment or defect. To check it, switch on the buzzer using the switch on control device nB1.</li> <li>• Check installation dimension according to "Setting instructions for proximity switches" (document "NSEINS" or "NSEINS2"); check function of B21 at terminal 878, replace if defective.</li> <li>• Check access position in positioning mode and position extractor lower if necessary.</li> </ul>
S04128	<b>LIFT IS FULL</b>	<p>A shelf cannot be stored away because of its article height.</p> <ul style="list-style-type: none"> <li>• No free, adjoining carriers available in the numbers required for this article height.</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce article height on this shelf; carry out an optimisation run.</li> <li>• Check lift for free space. It may be possible to create space by reducing the article height in several shelves.</li> </ul> <p>x Note: To save space, store articles in shelves so that packaging does not protrude at the top (e.g. lids of boxes, bags, etc.)</p>

### 10 Error messages

Lift run status	Lift run error Lean-Lift, Multi-Space	Cause	Action
S02000	<b>SYNCHRONISATION RUN</b> ← x	<p>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. x = cause of synchronisation run (see Page 291)</p> <ul style="list-style-type: none"> <li>Fault at positioning rail or sensor caused by dirt or damage</li> <li>Position sensor not correctly aligned.</li> <li>Line interrupted 761/762/763 front, 764/765/766 rear or 767(+5V)/768(GND). Voltage drop on supply voltage lines for the position sensor in control cable X82 is too great.</li> <li>Positioning sensor S09-05a or S09-05b defective.</li> <li>Access position or rear carrier position was initialised inaccurately or not at all.</li> </ul>	<ul style="list-style-type: none"> <li>Press the [ ← ] key. The extractor moves to the bottom reference position, after which the destination carrier is accessed.</li> </ul> <p>or</p> <ul style="list-style-type: none"> <li>Press the [ CE ] key. The number of the carrier where the error took place is displayed.</li> <li>Check positioning rails and sensors for dirt (lint, dust, grease, etc.) or for damage.</li> <li>Check adjustment according to "Installation instructions for Lean-Lift position sensor" (document "POSIEINS").</li> <li>Check control cable between board S8-40 of the electrical drawer and extractor board S8-17.</li> <li>Check positioning sensor and replace if defective.</li> <li>Reinitialise the access position and the rear carrier position in positioning mode.</li> </ul>

### 10 Error messages

Lift run status	Lift run error Lean-Lift, Multi-Space	Cause	Action
	<p>x = cause of synchronisation run</p> <p>1 The position value does not match the carrier positioning hole on the positioning rail.</p> <p>2 The carrier positioning hole on the positioning rails was not detected.</p> <p>3 The deviation of the position values between the front and rear position sensor is too great.</p> <p>4 The position value is too great.</p> <p>5 During the synchronisation run, the carrier positioning hole on the positioning rails was not detected.</p> <p>6 During the synchronisation run, the deviation of the position values between the front and rear position sensors is too great.</p> <p>7 The synchronisation run has been requested using the "Synchronisation run" menu item in the service functions.</p> <p>8 "Initialise access position" has been activated.</p> <p>9 The synchronisation run has been triggered using the "Bring shelf onto extractor" menu item in the service functions.</p> <p>10 The position data were stored incorrectly when the lift was switched off.</p> <p>11 System error 95 has occurred.</p> <p>12 System error 96 has occurred.</p> <p>13 The double vertical position detection in the redundancy system has been activated.</p> <p>14 The lift has been switched off with the double vertical position detection in the redundancy system deactivated.</p> <p>15 Shelf width or number of lift units for Multi-Space were changed.</p> <p>16 Error in right/left sensor for Multi-Space.</p> <p>17 The drive type is not correctly initialised.</p> <p>18 The lift has been switched off during a lift run.</p>		
	<p><b>SENSOR ERROR AT CARRIER FRONT</b> xx or <b>SENSOR ERROR AT CARRIER REAR</b> xx or <b>SENSOR ERROR AT CARRIER</b> xx</p>	<p>A carrier number xx is displayed when [CE] is pressed after SYNCHRONISATION RUN ↔. A synchronisation run was triggered in the area around this carrier. For lifts with intermediate shelf increment carriers, the carrier number is related to the intermediate increments 37.5 mm (1.46") or 25 mm (0.98").</p> <ul style="list-style-type: none"> <li>If the same or neighbouring carrier numbers are always displayed at further synchronisation runs: fault at the positioning rail.</li> <li>If different carrier numbers are always displayed at further synchronisation runs: fault in the front or rear positioning sensor, or line interrupted at 761/762/763 front, 764/765/766 rear or 767(+5V)/768(GND).</li> </ul>	<ul style="list-style-type: none"> <li>Press the [↔] key. The destination carrier is accessed.</li> <li>Check the positioning rails at the carrier indicated for dirt (lint, dust, grease etc.) or for damage.</li> <li>Check alignment according to "Installation Instructions for Lean-Lift Position Sensor" (document "POSIEINS") check control cable between board S08-45 in the electrical drawer and board S08-17 on the extractor, as well as amplifier S08-19a/b.</li> </ul>

### 10 Error messages

Lift run status	Lift run error Lean-Lift, Multi-Space	Cause	Action
S04105	For Lean-Lift: <b>BRAKE IS NOT CORRECT</b> >x<	<p>The extractor overshoots the stop position vertically up/down (x=1) or horizontally forwards/back (x=3), even after repositioning.</p> <p>The vertical braking distance is too large after a safety circuit interruption (x=2).</p> <ul style="list-style-type: none"> <li>• (X=1) Brake rectifier V1 incorrectly poled or brake relay of terminal 752, 753 of MP 12D/N CPU I board inverted.</li> <li>• (X=1) Brake relay of MP 12D/N CPU I board defective.</li> <li>• (X=2) Brake Y1 worn or incorrectly set.</li> <li>• (X=3) Contactor K92 defective.</li> </ul>	<ul style="list-style-type: none"> <li>• Check connection against "Power component" circuit diagram.</li> <li>• Replace MP 12D/N CPU I board if defective.</li> <li>• Check condition of brake Y1. -&gt; Refer to the Lean-Lift operating manual.</li> <li>• Check contactor K92 and replace if defective.</li> </ul>
S04105	For the Multi-Space: <b>BRAKE IS NOT CORRECT</b> >x<	<p>The extractor overshoots the stop position vertically up/down (x=1), horizontally forwards/back (x=3), or horizontally left/right (x=4), even after repositioning.</p> <p>The vertical braking distance is too large after a safety circuit interruption (x=2).</p> <ul style="list-style-type: none"> <li>• (X=1) Brake rectifier V1.1 / V1.2 incorrectly poled or brake relay of terminal 750, 751 / 752, 753 of MP 12 PLUS board inverted.</li> <li>• (X=1) Brake relay of MP 12 PLUS board defective.</li> <li>• (X=2) Brake Y1.1 / Y1.2 worn or incorrectly set.</li> <li>• (X=3) Contactor K92 defective.</li> <li>• (X=4) Brake rectifier V4 incorrectly poled or brake relay of terminal 752, 753 of MP 12D/N CPU I board inverted.</li> <li>• (X=4) Brake relay of MP 12D/N CPU I board defective.</li> </ul>	<ul style="list-style-type: none"> <li>• Check connection against "Power component" circuit diagram.</li> <li>• Replace the MP 12 PLUS board if defective.</li> <li>• Check the condition of brake Y1.1 / Y1.2. -&gt; Refer to the Multi-Space operating manual.</li> <li>• Check contactor K92 and replace if defective.</li> <li>• Check connection against "Power component" circuit diagram.</li> <li>• Replace MP 12D/N CPU I board if defective.</li> </ul>
S04111	<b>ADJUST POSITIONING SENSOR</b>	<p>No position data or invalid position data from the access or carrier position.</p> <ul style="list-style-type: none"> <li>• In positioning mode, the function "Initialise the access and rear carrier position" was not carried out.</li> </ul>	<ul style="list-style-type: none"> <li>• Initialise the access position and one rear carrier position in positioning mode and save them.</li> </ul>

### 10 Error messages

Lift run status	Lift run error Lean-Lift, Multi-Space	Cause	Action
S04117	<b>ACCESS POINTS ARE NOT INITIALISED</b>	<p>Initialisation and position data for access point(s) absent or invalid.</p> <ul style="list-style-type: none"> <li>Positioning of the lift not yet carried out.</li> <li>Initialisation of additional access points not carried out (may also occur after a modification of positioning at access 1)</li> </ul>	<ul style="list-style-type: none"> <li>Carry out positioning. Then initialise any other access points that are present.</li> <li>Initialise other access points.</li> </ul>
	<b>CHECK ACCESS POINT NUMBERS</b>	<p>Error in addressing the access points at a Lean-Lift with multiple access points.</p> <ul style="list-style-type: none"> <li>The same access point number was used for more than one access point.</li> <li>Hardware fault due to external influences.</li> </ul>	<ul style="list-style-type: none"> <li>Reinitialise control system and assign a different number to each access point.</li> <li>Check line shielding.</li> </ul>
S04114	<b>NO SHELF IN ACCESS POINT or SHELF REMOVED BUT NOT REGISTERED</b>	<p>No signal from proximity switches B20+B21.</p> <ul style="list-style-type: none"> <li>There was no shelf in the access point when the function "Store shelf" was called.</li> <li>A shelf was removed from the access point or pulled out onto the roller guide rails without being unregistered.</li> <li>Proximity switches B20+B21 are incorrectly adjusted or defective, or power supply line interrupted.</li> </ul>	<ul style="list-style-type: none"> <li>Push shelf into the access point.</li> <li>Push the shelf in question back into the access point or unregister the shelf.</li> <li>Check installation measurements, functioning and power supply for terminals 877+878 of proximity switches B20+B21.</li> </ul> <p>If additional access point proximity switches B26, B27 are present:</p> <ul style="list-style-type: none"> <li>Check B26 at terminal 879 and B27 at terminal 880.</li> </ul>
S04069	<b>REQUESTED SHELF IN OTHER ACCESS POINT (X)</b>	<p>The shelf that is to be brought to the user is in access point (x).</p> <ul style="list-style-type: none"> <li>The shelf has been brought to access point (x) and has not yet been put back into storage.</li> </ul>	<ul style="list-style-type: none"> <li>Store shelf at access point (x).</li> </ul>

### 10 Error messages

Lift run status	Lift run error Lean-Lift, Multi-Space	Cause	Action
S04112	<b>UNKNOWN SHELF IN ACCESS POINT</b>	<p>A shelf was detected in the access point, although there should not have been one there.</p> <ul style="list-style-type: none"> <li>Shelf pushed into access point without being registered.</li> <li>Incorrect signal from proximity switches B20+B21.</li> <li>Access carrier incorrectly positioned.</li> <li>Incorrect signal from proximity switch B22 (automatic shelf ejection).</li> </ul>	<ul style="list-style-type: none"> <li>Remove shelf from access point or register it.</li> <li>Check installation measurements, functioning and power supply for terminals 877+878 of proximity switches B20+B21, (check for metal shavings, dirt).</li> <li>Position the access point.</li> <li>Check installation measurements, function and power supply for terminal 877 on the MP 12 EXT board of proximity switch B22.</li> </ul> <p>If additional access point proximity switches B26, B27 are present:</p> <ul style="list-style-type: none"> <li>Check B26 at terminal 879 and B27 at terminal 880.</li> </ul>
	<b>LIFT RUN FOR OTHER ACCESS POINT</b>	Another access point is being used at a lift with multiple access points.	<ul style="list-style-type: none"> <li>Wait until the lift run for the other access point is completed.</li> </ul>
	<b>LIFT RUN TO : t t</b>	<p>Display as shown, but lift is not moving.</p> <ul style="list-style-type: none"> <li>No drive signals at input of frequency converter U1. An orange LED lights up in the frequency converter; display at the integrated operating module.</li> <li>Shelf is jammed or pressing against something.</li> </ul>	<ul style="list-style-type: none"> <li>Check drive signals 24V DC from terminal 782 via K7, K6, CPU1 504, 505/506 to terminal 43 + 41/42 using circuit diagram.</li> <li>Check mechanics and stored articles.</li> <li>Check positioning, and if necessary store the access position and a rear carrier position again in the positioning mode as explained in the Technical Description.</li> <li>Check shelf table.</li> </ul>
S04201	<b>WRONG OP MODE/INITIALISATION</b>	Lift with multiple access points was initialised without shutters, without guide rails, without ejector, without double access, without lift run only when door closed.	<ul style="list-style-type: none"> <li>Check initialisation.</li> </ul>

### 10 Error messages

Lift run status	Lift run error Lean-Lift, Multi-Space	Cause	Action
S04124	<b>REMOVE SHELF</b>	<p>When a shelf is pushed out into an access point, the system detects that there is another shelf in the access point.</p> <ul style="list-style-type: none"> <li>Shelf was pushed into the access point manually.</li> <li>Incorrect signal from proximity switch B20.</li> </ul>	<ul style="list-style-type: none"> <li>Remove shelf from access point.</li> <li>Check installation measurements, function and power supply for terminal 877 of proximity switch B20 (check for metal shavings, dirt).</li> </ul> <p>If additional access point proximity switches B26, B27 are present:</p> <ul style="list-style-type: none"> <li>Check B26 at terminal 879.</li> </ul>
S04053	<b>ERROR TOTAL LOAD EXCEEDED</b>	<p>The system has detected that a lift with a max. total load capacity of 60 tonnes is to be operated without a shelf weighing device.</p> <ul style="list-style-type: none"> <li>Incorrect initialisation.</li> <li>Lift version not permitted.</li> </ul>	<ul style="list-style-type: none"> <li>Check initialisation.</li> <li>Contact the Hänel service department.</li> </ul>
S04054	<b>NUMBER OF SHELVES TOO HIGH</b>	<p>The system detects that a lift is not fitted with shelf weighing device and the shelf number limit has been exceeded. Also, the max. shelf load is greater than 500 kg (1102 lbs.) or the lift height is greater than 15 meters (590.55").</p> <ul style="list-style-type: none"> <li>Incorrect initialisation.</li> <li>Lift version not permitted.</li> </ul>	<ul style="list-style-type: none"> <li>Check initialisation.</li> <li>Contact the Hänel service department.</li> </ul>
S04059	<b>MOT .CURRENT TOO HIGH GET SHELF</b>  <b>MOT .CURRENT TOO HIGH -&gt; REMOVE ARTICLE</b>	<p>The system detects that an overload situation has caused the current limit of the frequency converter to be exceeded.</p> <ul style="list-style-type: none"> <li>Shelf overloaded.</li> </ul>	<ul style="list-style-type: none"> <li>Press the [ ← ] key. The shelf is brought to the access point.</li> <li>Reduce shelf overload.</li> </ul>
S04132	<b>SYSTEM ERROR LIFT HEIGHT</b>	<p>The system has detected that a lift with a height greater than 15 meters is to be operated without a shelf weighing device.</p> <ul style="list-style-type: none"> <li>Incorrect initialisation.</li> <li>Lift version not permitted.</li> </ul>	<ul style="list-style-type: none"> <li>Check initialisation.</li> <li>Contact the Hänel service department.</li> </ul>

### 10 Error messages

Lift run status	Lift run error Lean-Lift, Multi-Space	Cause	Action
S04100	<b>CLOSE DOOR</b>	<p>If the system has a second safety circuit and the lift runs while the safety light barrier is deactivated (redundancy system):</p> <ul style="list-style-type: none"> <li>Light barriers are interrupted and door is not closed.</li> </ul>	<ul style="list-style-type: none"> <li>Close the door.</li> <li>Check initialisation of the error message inputs.</li> <li>Check door position switches S13, S14 and contactor K18 according to "Safety component I+II" and "Control component" circuit diagrams.</li> </ul>
S04066	<b>OPEN DOOR</b>	<p>If there is one access point and a second safety circuit: Lift number with active safety light barriers is possible with the door open.</p> <ul style="list-style-type: none"> <li>The message is displayed if error message input "DOOR MONITORING" is voltage-free and the error message input in front of "DOOR MONITORING" is carrying voltage.</li> </ul>	<ul style="list-style-type: none"> <li>Open door.</li> <li>Check initialisation of the error message inputs.</li> <li>Check door position switches S13, S14 and contactor K18, K19 according to "Safety components I+II" and "Control component" circuit diagrams.</li> </ul>
S04067	<b>SENSOR TEST : OPEN AND CLOSE DOOR</b>	<p>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.</p> <ul style="list-style-type: none"> <li>The message is displayed if error message input "DOOR MONITORING" is voltage-free and the error message input in front of "DOOR MONITORING" is carrying voltage.</li> </ul>	<ul style="list-style-type: none"> <li>Open and close door.</li> <li>Check initialisation of the error message inputs.</li> <li>Check door position switches S13, S14 and contactor K18, K19 according to "Safety components I+II" and "Control component" circuit diagrams.</li> </ul>
S04011	<b>SYSTEM ERROR RS485</b>	<p>For a frequency converter with RS485 connection, the system has detected a faulty RS485 connection or none at all.</p> <ul style="list-style-type: none"> <li>Incorrect initialisation.</li> <li>RS485 cable defective.</li> <li>Control system interface or frequency converter defective.</li> </ul>	<ul style="list-style-type: none"> <li>Check initialisation of "Frequency converter with RS485".</li> <li>Check interface parameters of frequency converter.</li> <li>Replace RS485 cable.</li> <li>Replace control system or frequency converter.</li> </ul>



### 10 Error messages

Lift run status	Lift run error Lean-Lift, Multi-Space	Cause	Action
S04012	<b>EXTRACTOR OVERLOADED ?</b>  <b>PLEASE CHECK</b>	The load measurement system has detected that the maximum permitted shelf load has been exceeded. <ul style="list-style-type: none"> <li>• Incorrect initialisation.</li> <li>• Shelf is overloaded.</li> <li>• No zero calibration of the load measurement system has been performed.</li> <li>• Measurement incorrect.</li> </ul>	<ul style="list-style-type: none"> <li>• Check initialisation.</li> <li>• Remove articles from shelf.</li> <li>• Carry out zero calibration of the load measurement system (see Lean-Lift positioning).</li> <li>• Store the shelf despite the message.</li> </ul>
S04013	<b>TOTAL LOAD EXCEEDED ?</b>  <b>PLEASE CHECK</b>	The load measurement system has detected that the maximum permitted total load has been exceeded. <ul style="list-style-type: none"> <li>• Incorrect initialisation.</li> <li>• The lift is overloaded at the front or rear.</li> <li>• No zero calibration of the load measurement system has been performed.</li> <li>• "Check load" test run has not been performed.</li> <li>• Measurement incorrect.</li> </ul>	<ul style="list-style-type: none"> <li>• Check initialisation.</li> <li>• Unload lift at the front or rear.</li> <li>• Carry out zero calibration of the load measurement system (see Lean-Lift positioning).</li> <li>• Carry out "Check load" test run according to the "Service notes" in the Annex.</li> <li>• Store the shelf despite the message.</li> </ul>
S04130	<b>END LIFT RUN AT OTHER ACCESS POINT (X)</b>	The system has detected that a lift run at access point (x) has not ended. <ul style="list-style-type: none"> <li>• No lift run is carried out for this access point because the lift run at access point (x) has not ended.</li> </ul>	<ul style="list-style-type: none"> <li>• Cancel the lift run at access point and carry out the lift run at access point (x).</li> </ul>
S04131	<b>OTHER ACCESS POINT OCCUPIED WITH SHELF (X)</b>	Only for lifts with multiple access points without automatic shutters and without high-speed door: The system has detected that access point (x) is occupied with a shelf. <ul style="list-style-type: none"> <li>• No lift run is carried out for this access point because access point (x) is occupied with a shelf.</li> </ul>	<ul style="list-style-type: none"> <li>• Cancel the lift run at this access point and store the shelf at access point (x).</li> </ul>

### 10 Error messages

#### 10.6 Rotomat error messages during carousel run



#### SAFETY INSTRUCTION

Only authorised personnel are allowed to carry out work within the carousel. Authorised personnel are those who have proof of sufficient qualification and training for these tasks.

Always observe the safety instructions in the lift/carousel instruction manual!

The error message texts must agree with the actual switching of input terminals 701-712 through the safety switches.

Terminals 501-511, 701-712 are located on the MP 12D/N CPU I board.

- Refer also to the "Safety component" and "Control component" circuit diagrams and "Initialisation of error message inputs".

If an error message is displayed for an error that can be resolved easily from outside of the machine, correct the problem. Otherwise, contact Hänel service.

Press the [ ← ] key to continue the interrupted carousel run. Press the [ CE ] key to cancel the operation.

Boards mentioned in the error messages:

Name	Number (VV = Version)
MP 12D/N CPU I	S8-47-VV
MP 12N CPU II	S8-46-VV
MP 12 EXT	S8-19-VV
POSITIONING SENSOR	S9-04-VV

#### Notes on documents

- For wiring, refer to the "Power component", "Safety components I+II" and "Control component" circuit diagrams and the electronics diagram general plan.
- For the Rotomat frequency converter, refer to the document "FREQUENZ".
- For the rocker switch, refer to the documents "SAFETYSW" and "SAFETYS1".
- For the service door switch, refer to the documents "KLASCHA" and "KLASCHAV".
- For light barriers, refer to the document "LICHTSC1".
- For positioning sensors, refer to the document "S92001".



- x The access point number "( x )" is specified in the error messages only if multiple access points are present.

### 10 Error messages

Lift/carousel run status	Rotomat carousel run errors	Cause	Action
S03103	<b>SAFETY NOT CLEAR</b>	<ul style="list-style-type: none"> <li>No voltage at input terminal 503. All safety inputs (terminals 701-712) that are initialised, however, have voltage.</li> </ul>	<ul style="list-style-type: none"> <li>Check initialisation of error message inputs.</li> <li>Check whether one of the safety switches has been triggered (emergency stop, doors, service door switches, thermal cut-out for motor, frequency converter, light barriers, etc.).</li> <li>Trace the signal against the "Safety components I+II" and "Control component" circuit diagrams. K6, K7, B0 may be defective.</li> </ul>
S03008	<b>STOP BUTTON PRESSED</b>	<p>Interruption between terminals 511 and 510 during a carousel run.</p> <ul style="list-style-type: none"> <li><b>[ STOP ]</b> key has been pressed.</li> <li>Defective relay (contact interrupted) on MP 12D/N CPU I board.</li> </ul>	<ul style="list-style-type: none"> <li>Press the <b>[ ← ]</b> key.</li> <li>If the <b>[ STOP ]</b> key was not pressed, check against the "Safety component I" diagram whether 24V AC is being switched through from terminal 511 to 510. If the <b>[ STOP ]</b> key is pressed, the voltage at terminal 510 must drop off. Replace MP 12D/N CPU I board if defective.</li> </ul>
S03102	<b>F7</b>	<p>No voltage present at safety input F7.</p> <ul style="list-style-type: none"> <li>Safety cut-out F7 has been triggered or is defective.</li> <li>Line interrupted.</li> <li>Short-circuit in safety circuit.</li> </ul>	<ul style="list-style-type: none"> <li>Cut-out F7 in the electrical drawer must be checked by qualified personnel.</li> <li>Trace signal "F7" against the "Safety components I+II" and "Control component" circuit diagrams.</li> <li>Check safety circuit according to "Safety component I" circuit diagram.</li> </ul>
S03095	<b>EMERGENCY STOP (F7) (X)</b>	<p>No voltage at safety input nS4 at access point (x).</p> <ul style="list-style-type: none"> <li>The emergency stop button has been pressed.</li> <li>Safety cut-out F7 has been triggered or is defective. (Applies to access point 1 only)</li> <li>Line interrupted.</li> <li>Short-circuit in safety circuit.</li> </ul>	<ul style="list-style-type: none"> <li>Check emergency stop switch and unlock if necessary.</li> <li>Cut-out F7 in the electrical drawer must be checked by qualified personnel.</li> <li>Trace signal "nS4" against the "Safety component I" and "Control component" circuit diagrams.</li> <li>Check safety circuit according to "Safety component I" circuit diagram.</li> </ul>

### 10 Error messages

Lift/carousel run status	Rotomat carousel run errors	Cause	Action
S03092  S03093	<b>UPPER DOOR</b> ( X ) or <b>LOWER DOOR</b> ( X )	<p>No voltage at safety input nS1/1, nS1/2 or nS2/1, nS2/2 at access point (x).</p> <ul style="list-style-type: none"> <li>Sliding doors not fully open.</li> <li>Safety rocker switch of upper or lower door actuated.</li> <li>Safety threshold nS1/1, nS1/2, nS2/1, nS2/2 defective or power supply line interrupted.</li> </ul>	<ul style="list-style-type: none"> <li>Open door fully.</li> <li>The safety rocker switches on the doors must move freely and be in the horizontal position. The metal fingers on the left and right of the rocker switches must be in contact with their fixed counterparts. Refer also to the "Installation instructions for rocker switch" (documents "SAFETYSW" and "SAFETYS1").</li> <li>Check the switches and trace signals "nS1" and "nS2" against the "Safety component I" and "Control component" circuit diagrams. Replace switches if defective.</li> </ul>
S03106	<b>DOOR</b> ( X )	<p>With "Lift run with sliding door closed only" or with Access code management if door at access point (x) is not closed completely.</p> <ul style="list-style-type: none"> <li>Sliding doors not closed completely.</li> <li>Switch nB8/1, nB8/2 defective or power supply interrupted.</li> </ul>	<ul style="list-style-type: none"> <li>Unlock door using key switch/manual selector switch (S5) (☉ position), then open and close door. Then turn switch back to "Automatic" position (⌘ position).</li> <li>Check magnetic switch and replace if defective.</li> </ul>
S03116  S03091  S03088	<b>SERVICE DOOR</b> or <b>LOWER SERVICE DOOR</b> or <b>UPPER SERVICE DOOR</b>	<p>No voltage present at safety input S3 (S30).</p> <ul style="list-style-type: none"> <li>Lower service door or optional upper service door not correctly closed.</li> <li>Service door switch defective or power supply line interrupted.</li> </ul>	<ul style="list-style-type: none"> <li>Close service door correctly so that switch S3 or S30 is actuated. Refer also to the "Installation instructions for rocker switch" document ("KLASCHA and KLASCHAV").</li> <li>Check switch S3 (S30) and trace signals "S3", "S30" against the "Safety component I" and "Control component" circuit diagrams and replace if defective.</li> </ul>
S03090	<b>MOTOR TOO HOT</b>	<p>No voltage present at safety input B6, B7.</p> <ul style="list-style-type: none"> <li>Motor 1 or motor 2 overheated.</li> <li>Thermal cut-out in motor defective or power supply line interrupted.</li> </ul>	<ul style="list-style-type: none"> <li>Allow motor(s) to cool down for about 10 min.</li> <li>Check thermal cut-outs B6, B7 and their power supply lines against the "Safety component I" and "Control component" circuit diagrams. If the thermal cut-out is defective, the motor must be replaced.</li> </ul>

### 10 Error messages

Lift/carousel run status	Rotomat carousel run errors	Cause	Action
S03122	<b>FREQUENCY CONVERTER</b>	<p>No voltage present at safety input U1.</p> <ul style="list-style-type: none"> <li>Frequency converter has switched off because of overload.</li> <li>Frequency converter incorrectly set or defective.</li> <li>Line interrupted.</li> </ul>	<ul style="list-style-type: none"> <li>Switch carousel off, then on again and allow frequency converter to cool down if necessary.</li> <li>Check setting of the frequency converter against "Frequency transformer settings for Rotomat" (document "FREQUENZ") and replace if defective.</li> <li>Check wiring against "Power component" and "Control component" circuit diagrams.</li> </ul>
S03089	<b>LIGHT BARRIERS ( X )</b>	<p>No voltage present at safety input nB0.</p> <ul style="list-style-type: none"> <li>Interruption of safety light barriers at access opening (x) due to protruding object.</li> <li>Safety light barrier is not yet set.</li> <li>After only a brief interruption of the safety circuit (e.g. emergency stop, safety rocker switch, frequency converter), the light barrier remains triggered.</li> <li>Transmitters and receivers of light barriers not aligned correctly.</li> <li>Light barriers interrupted by dirt on Plexiglas screens on left and right of access opening.</li> <li>Control system of safety light barrier defective or transmitter/receiver defective.</li> </ul>	<ul style="list-style-type: none"> <li>Clear the area monitored by the light barriers and press the <b>↵</b> key for about 0.5 sec.</li> <li>Press the <b>↵</b> key for about 0.5 sec. to set the safety circuit.</li> <li>Press the <b>↵</b> key for about 0.5 sec. to set the safety circuit.</li> <li>Realign light barriers according to "Installation instructions for light barrier" (document "LICHTSC1").</li> <li>Clean the Plexiglas screens.</li> <li>Replace defective part.</li> </ul>
S03010	<b>MANUAL OPERATION ACTIVATED</b>	<p>No voltage at input terminal 504 for monitoring Automatic mode and voltage at terminal 503.</p> <ul style="list-style-type: none"> <li>Manual/auto mode selection switch S5 is in the central position <b>○</b>.</li> <li>Manual/auto mode selection switch S5 defective or power supply lines interrupted.</li> </ul>	<ul style="list-style-type: none"> <li>Turn manual/auto mode selection switch to locking position <b>‡</b>.</li> <li>Check switch S5, its power supply lines and the "automatic" signal against "Safety component II" and "Control component" and replace if defective.</li> </ul>

### 10 Error messages

Lift/carousel run status	Rotomat carousel run errors	Cause	Action
S04105	<b>BRAKE IS NOT CORRECT</b>	<p>In a carousel with the MFPS positioning sensor, the stop position was overshoot.</p> <ul style="list-style-type: none"> <li>• Brake is not being correctly activated.</li> <li>• Brake Y1 worn or incorrectly set.</li> </ul>	<ul style="list-style-type: none"> <li>• Check brake control against "Power component" circuit diagram.</li> <li>• Check condition of brake Y1. -&gt; Refer to the Rotomat operating manual.</li> </ul>
S04094	<b>OVER IMBALANCE DETECTED &lt; t t &gt;</b>	<p>The load imbalance indicator has detected an unacceptable load imbalance in the carousel.</p> <ul style="list-style-type: none"> <li>• Unacceptable load imbalance in the carousel.</li> <li>• Storage articles have fallen out and blocked the carousel.</li> <li>• Phase failure has caused the motor to draw increased power at the existing phases.</li> <li>• The power values are not correctly assigned to the carriers.</li> </ul>	<ul style="list-style-type: none"> <li>• Bring the displayed shelf levels or neighbouring shelves to the access position and unload them. Afterwards, execute an initialisation run in both directions.</li> <li>• Remove the blockage and then execute an initialisation run in both directions.</li> <li>• Check motor control K1, K2, K3, K4 against "Power component" circuit diagram.</li> <li>• Check initialisation of control system and positioning system. Afterwards, execute an initialisation run in both directions.</li> </ul>
S04135	<b>IMBALANCE TEMP . I SENSOR IS DEFECTIVE</b>	<p>Software of MP 12D/N CPU I board detects defective temperature sensor.</p> <ul style="list-style-type: none"> <li>• Temperature sensor power supply line interrupted.</li> <li>• Temperature sensor defective or power supply line interrupted.</li> <li>• MP 12D/N CPU I board is defective.</li> </ul>	<ul style="list-style-type: none"> <li>• Replace power supply line.</li> <li>• Replace temperature sensor if defective.</li> <li>• Replace MP 12D/N CPU I board if defective.</li> </ul>
S04136	<b>IMBALANCE CURRENT I SENSOR DEFECTIVE</b>	<p>Software of MP 12D/N CPU I board detects defective current sensor.</p> <ul style="list-style-type: none"> <li>• MP 12D/N CPU I board is defective.</li> </ul>	<ul style="list-style-type: none"> <li>• Replace MP 12D/N CPU I board if defective.</li> </ul>
S04144	<b>LOAD IMBALANCE INDICATOR IS DISABLED</b>	<p>Load imbalance indicator is disabled. Despite this, power value is detected via the current sensor during the carousel run.</p> <ul style="list-style-type: none"> <li>• Incorrect initialisation.</li> </ul>	<ul style="list-style-type: none"> <li>• Check initialisation.</li> </ul>

### 10 Error messages

Lift/carousel run status	Rotomat carousel run errors	Cause	Action
	<b>SHELF ACCESSED AT OTHER ACCESS POINT</b>	<p>Simultaneous signal at two or more terminals 521 of the MP 12D/N CPU I and MP 12 EXT boards.</p> <ul style="list-style-type: none"> <li>At a carousel with multiple access points, a second access point has not been closed correctly.</li> <li>The electronics receive incorrect access signals.</li> </ul>	<ul style="list-style-type: none"> <li>Close other access point again. Check that the safety door guard is released.</li> <li>Trace signal "Access x in operation" against "Safety component I" and "Control component" circuit diagrams.</li> </ul>
S04060	<b>NO INITIAL . RUN</b>	<ul style="list-style-type: none"> <li>On a Rotomat with relative sensor or position sensor, no initialisation run has been carried out yet.</li> </ul>	<ul style="list-style-type: none"> <li>Carry out initialisation run as outlined in the chapter on "Positioning in Rotomat operating mode with relative sensor".</li> </ul>
S04061	<b>LIFT TOO FAST</b>	<p>When rotating through several carriers, the carousel takes less time than expected. (Rotomat with relative sensor or position sensor with monitoring of carousel run)</p> <ul style="list-style-type: none"> <li>Drive defective.</li> <li>Motor activation faulty.</li> </ul>	<ul style="list-style-type: none"> <li>Check for shearing of drive chain or for gear damage.</li> <li>If frequency converter present: Check setting of the frequency converter against "Frequency transformer settings for Rotomat" (document "FREQUENZ") and replace if defective.</li> </ul>
S04062	<b>LIFT TOO SLOW</b>	<p>When rotating through several carriers, the carousel takes longer than expected. (Rotomat with relative sensor or position sensor with monitoring of carousel run)</p> <ul style="list-style-type: none"> <li>Carousel blocked or overloaded.</li> <li>Drive defective.</li> <li>Motor activation faulty.</li> </ul>	<ul style="list-style-type: none"> <li>Check the carousel for load imbalance or for articles that have fallen out.</li> <li>Check for shearing of drive chain or for gear damage.</li> <li>Check for phase failure or incorrect setting, or for defective frequency converter.</li> </ul>
S04063	<b>WRONG DIRECTION</b>	<p>Wrong direction of rotation detected. (Rotomat with relative sensor or position sensor)</p> <ul style="list-style-type: none"> <li>Phases inverted.</li> <li>Sensor system defective.</li> </ul>	<ul style="list-style-type: none"> <li>Check wiring of phases</li> <li>Check sensor system and replace if defective.</li> </ul>

### 10 Error messages

Lift/carousel run status	Rotomat carousel run errors	Cause	Action
	<b>SYNCHRO . RUN LIFT RUN TO :</b>	<p>When a carrier was moved past the MFPS, a pulse number was detected that was different than that expected by the control system on the basis of the pulse strip length initialised.</p> <ul style="list-style-type: none"> <li>Positioning sensor incorrectly set or defective.</li> <li>Reflective strip is soiled, damaged or has come loose.</li> <li>Pulse strip length incorrectly initialised.</li> <li>Wrong strip length for individual reflective strips.</li> </ul>	<p>The carousel moves past carrier no. 1 to synchronise the positioning system. When synchronisation is completed, the target shelf is accessed and the message no longer appears.</p> <ul style="list-style-type: none"> <li>Adjust positioning sensor according to "Installation instructions for positioning sensor" (document "S92001") and replace if defective.</li> <li>Check pulse strip and replace if necessary.</li> <li>Check initialisation.</li> <li>Check length of reflective strips.</li> </ul>
	<b>SENSOR ERROR AT SHELF xx</b>	<p>If a synchronisation run is stopped with the [STOP] key, the number of the shelf that triggered the synchronisation run is displayed.</p> <ul style="list-style-type: none"> <li>Displayed shelf number does not change following another synchronisation run.</li> <li>Displayed shelf number changes randomly following another synchronisation run.</li> </ul>	<ul style="list-style-type: none"> <li>Check pulse strip.</li> <li>Check position sensor.</li> </ul>
	<b>SYSTEM ERROR SAFETY CIRCUIT DEFECTIVE --&gt; SWITCH OFF</b>	<p>Signal detected at input terminal 503 when control system switched on.</p> <ul style="list-style-type: none"> <li>Defective component in safety circuit or wiring error.</li> <li>Only the microprocessor control system was switched off and on again via the integrated safety switch.</li> <li>MP 12D/N CPU I board is defective.</li> </ul>	<ul style="list-style-type: none"> <li>Check safety circuit (contactors K5, K6, K7) against "Safety component II" and "Control component" circuit diagrams, replace defective component.</li> <li>Switch lift off, then on again.</li> <li>Replace MP 12D/N CPU I board if defective.</li> </ul>



### 10 Error messages

Lift/carousel run status	Rotomat carousel run errors	Cause	Action
S03100	<b>CLOSE DOOR</b>	<p>If the system has a second safety circuit and emergency operation is activated:</p> <ul style="list-style-type: none"> <li>• Light barriers are interrupted and door is fully open.</li> <li>• Door is partially open.</li> </ul>	<ul style="list-style-type: none"> <li>• Close the door.</li> <li>• Check initialisation of error message inputs.</li> <li>• Check door position switches S13, S14 and contactor K18 according to "Safety component I+II" circuit diagram.</li> <li>• Close the door.</li> <li>• Check initialisation of error message inputs.</li> <li>• Check door position switches S13, S14 and contactor K18 according to "Safety component I+II" circuit diagram.</li> </ul>
S04067	<b>SENSOR TEST : OPEN AND CLOSE DOOR</b>	<p>If there is one access point and a second safety circuit: A carousel run when emergency operation is activated requires that the door be opened and closed after a safety circuit interruption.</p> <ul style="list-style-type: none"> <li>• The message is displayed if error message inputs "UPPER DOOR" and "LIGHT BARRIERS" and terminal 503 are voltage-free and the remaining error inputs are under voltage.</li> </ul>	<ul style="list-style-type: none"> <li>• Open and close door.</li> <li>• Check initialisation of error message inputs.</li> <li>• Check door position switches S13, S14 and contactors K6, K7, K18, K19 according to "Safety components I+II" circuit diagram.</li> </ul>
S03019	<b>UNLOCKED DOOR AT ACCESS POINT ( X )</b>	<p>The door at access point (x) is not locked.</p> <ul style="list-style-type: none"> <li>• Locking is mechanically blocked.</li> <li>• The manual selection switch at access point (x) is on manual mode.</li> <li>• Microswitch Y10/n-S1 of the locking mechanism faulty.</li> </ul>	<ul style="list-style-type: none"> <li>• Check locking.</li> <li>• Check manual selector switch.</li> <li>• Check microswitch.</li> </ul>



### 11 Service notes

#### 11.1 Software update MP 12N

A software update of the MP 12N is carried out via the Ethernet interface X12 using the "JUMP" service software.

##### Required components / settings

- ◆ Laptop with installed PCMCIA Ethernet LAN card or 10/100 Mbps Ethernet interface.
- ◆ TCP/IP address = 172.xx.1.200  
(xx = 16 to 31; set address range for the MP 12N)  
Subnet mask = 255.255.0.0
- ◆ "JUMP" service software with integrated Java Runtime Environment.
- ◆ Ethernet 10/100 Base T patch cable (crossover).

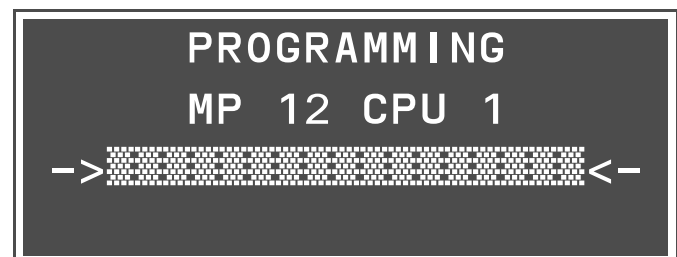
##### Procedure

- Establish connection between laptop and MP 12N with patch cable.
- Switch on the MP 12N control system and let it boot up.
- Start the "JUMP" service software.
- Select the menu item:
  - ⇒ Upload
  - ⇒ Program update
  - ⇒ MP 12N-S/H
  - ⇒ MP 12D/N CPU I or  
MP 12N CPU II or  
MP 12N TFT or  
MP 12N host communication or  
MP 12N web server
- Select the ZIP or WAR file.
- ➔ Connection is set up. File is transferred.
- Switch the MP 12N control system off, then on again.
- ➔ The transferred ZIP or WAR file is unpacked and launched automatically.

##### Description of the operator prompts

- ➔ The program is written from the MP 12N CPU 2 to the flash EPROM of the MP 12D/N CPU 1. A progress display in the form of a bar shows the status of programming.

##### Display



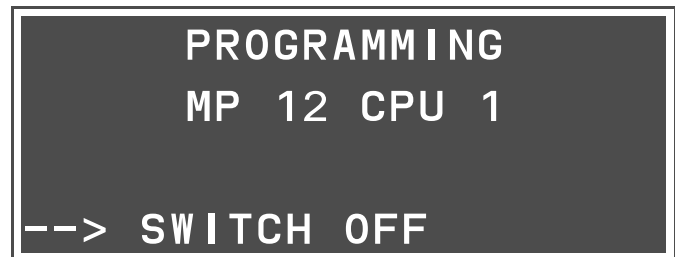
- x The control system must not be switched off during programming. Otherwise, programming must be carried out with jumper J3 set.

### 11 Service notes

#### Description of the operator prompts

- MP 12 CPU 1 software update is complete.
- Switch off the lift/carousel.

#### Display



#### 11.2 Software update MP 100D

- Refer to the "Technical Description of the Microprocessor Control System MP 12N-S / MP 100D Server for Lean-Lift, Multi-Space and Rotomat."

### 11 Service notes

#### 11.3 IP addresses for Ethernet multi-unit network

- Refer to the "Technical Description of the Microprocessor Control System MP 12N-S / MP 100D Server for Lean-Lift, Multi-Space and Rotomat."

Static IP addresses in  
Ethernet multi-unit network

MP 12N	172.<IP address range>.<Access point number>.<Lift number> 172.<IP address range>.<Access point number>.<Reserved>
MP 100D	172.<IP address range>.1.254 172.<IP address range>.1.253 (reserved) 172.<IP address range>.<Access point number>.<Reserved>
Camera	172.<IP address range>.<Camera/access point number>.<Lift number>
Service	172.<IP address range>.1.200

<IP address range> : 16 - 31 (default is 16)

<Access point number> : 1 - 8

<Camera/access point number> : 11 - 18 and 21 - 28

<Lift number> : 1 - 99

<Reserved> : 100 - 110

The chosen IP address range must be completely available on the customer's system.

IP addresses in the  
Ethernet multi-unit network  
without integration into the  
corporate network:

Printer	172.<IP address range>.1.252
Host	172.<IP address range>.1.230
Host FTP server	172.<IP address range>.1.251
Host Browser	172.<IP address range>.1.<Reserved browser>

<IP address range> : 16 - 31 (default is 16)

<Reserved browser> : 242 - 249

This must be adhered to so as to avoid crossovers during updates and expansions.



An alternative is to integrate the network into the corporate network. In this case, the corporate network must be located in a separate IP address range.

### 11 Service notes

#### 11.4 Test runs

- Refer to the "Supplementary Description of the Service Functions for Microprocessor Control System MP 12D/N Lean-Lift, Multi-Space and Rotomat"

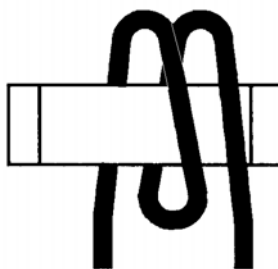
#### 11.5 Load imbalance indicator (only with Rotomat)

##### 11.5.1 Measuring and assigning the power values

The load imbalance indicator uses a current sensor to measure the current power values during the fast carousel run. These power values are proportional to the load of the carousel. The current value measured is assigned to the specific carrier that is currently in the access point and stored in a weight distribution table. The table contains a power value for each carrier for the upward and downward directions and is updated each time the carousel rotates. The size of the imbalance is calculated from the difference between the maximum and minimum current value in the table.

##### 11.5.2 Notes about the current sensor

The phase of the motor power line (fast run) must be looped twice through the current sensor (see sketch below). If the sensor is defective, a corresponding error message appears.



##### 11.5.3 Notes about the temperature sensor

The temperature sensor compensates for a drop in power values when the motor is heated. The temperature sensor has a resistance range from 1.6 k $\Omega$  (0°C/32°F) to 3.4 k $\Omega$  (+100°C/+212°F), where the value at 25°C (77°F) is approx. 2.0 k $\Omega$ .

### 12 Annex

#### 12.1 Configuration settings

A configuration that differs from the default setting can be documented here. This is useful for production, installation and service personnel.



x Default settings are underscored.

- 1) Only in conjunction with corresponding hardware and mechanical equipment.
- 2) Only in conjunction with formatting of storage management by service personnel.

#### Carousel control

Parameters	Setting
SELECT LANGUAGE FOR STANDARD OPERATION :	<input type="checkbox"/> DE <input type="checkbox"/> EN <input type="checkbox"/> FR <input type="checkbox"/> NL <input type="checkbox"/> IT <input type="checkbox"/> ES <input type="checkbox"/> DA <input type="checkbox"/> FI <input type="checkbox"/> SV <input type="checkbox"/> NO <input type="checkbox"/> CS <input type="checkbox"/> HU <input type="checkbox"/> PT <input type="checkbox"/> PL <input type="checkbox"/> SL <input type="checkbox"/> HR <input type="checkbox"/> TR <input type="checkbox"/> RO <input type="checkbox"/> SK <input type="checkbox"/> ET <input type="checkbox"/> LT <input type="checkbox"/> LV <input type="checkbox"/> EN_US <input type="checkbox"/> RU <input type="checkbox"/> ZH_CN
1) OPERATING MODE :	<input type="checkbox"/> ROTOMAT <input type="checkbox"/> LEAN-LIFT <input type="checkbox"/> RACK OPERATION <input type="checkbox"/> ROTOMAT LIFT RUN SIMULATION <input type="checkbox"/> LEAN-LIFT LIFT RUN SIMULATION <input type="checkbox"/> MULTI-SPACE <input type="checkbox"/> MULTI-SPACE LIFT RUN SIMULATION
1) PROGRAM VERSION :	<input type="checkbox"/> S / H [MP 100D] <input type="checkbox"/> H [HOST-WEB] <input type="checkbox"/> H [HOST-DATA] <input type="checkbox"/> S / H [MP 12N-S]
2) STORAGE MANAGEMENT PACKET :	<input type="checkbox"/> ARTICLE STORAGE MANAGEMENT <input type="checkbox"/> FILE MANAGEMENT <input type="checkbox"/> TOOL STORAGE MANAGEMENT
1) TOTAL NUMBER OF ACCESS POINTS : (not with rack operation)	<input type="checkbox"/> -1- <input type="checkbox"/> -2- <input type="checkbox"/> -3- <input type="checkbox"/> -4- <input type="checkbox"/> -5- <input type="checkbox"/> -6- <input type="checkbox"/> -7- <input type="checkbox"/> -8-
2) ENTER LIFT NUMBER :	____ 1

### 12 Annex

#### Carousel control

	Parameters	Setting
1)	SELECT COMPARTMENT DISPLAY :	<input type="checkbox"/> COMPARTMENT DISPLAY <input type="checkbox"/> COMPARTMENT DEPTH DISPLAY <input type="checkbox"/> COMPARTMENT DEPTH DISPLAY TYPE 2 <input type="checkbox"/> COMPARTMENT DEPTH DISPLAY TYPE 3 <input type="checkbox"/> ---
1) 2)	NO. OF CARRIERS : (not with Lean-Lift)	_____
2)	NO. OF COMPARTMENTS :	_____ 1
2)	NO. OF COMPARTMENT DEPTHS :	_____ 1
1)	LIFT RUN ONLY WITH CLOSED DOOR :	<input type="checkbox"/> YES <input type="checkbox"/> NO
1)	SECOND SAFETY CIRCUIT :	<input type="checkbox"/> YES <input type="checkbox"/> NO
1)	SAFETY LIGHT CURTAIN :	<input type="checkbox"/> YES <input type="checkbox"/> NO
	ENTER START TIME :	_____ 1
	ENTER STOP TIME :	_____ 1
2)	SLOT INCREMENT [MM]:	<input type="checkbox"/> 75/90/125 <input type="checkbox"/> 37.5 <input type="checkbox"/> 25
2)	INVENTORY CONTROL : (not with file management)	<input type="checkbox"/> YES <input type="checkbox"/> NO
2)	STORAGE LOCATION MANAGEMENT : (not with file management)	<input type="checkbox"/> FIFO <input type="checkbox"/> FIFO WITH RESTORE FUNCTION <input type="checkbox"/> RANDOM ACCESS STORAGE

#### Interface assignment S1-4

	Parameters	Setting
1)	BARCODE READER :	<input type="checkbox"/> = <input type="checkbox"/> S1 <input type="checkbox"/> S2 <input type="checkbox"/> S3 <input type="checkbox"/> S4
1)	SCALE :	<input type="checkbox"/> = <input type="checkbox"/> S1 <input type="checkbox"/> S2 <input type="checkbox"/> S3 <input type="checkbox"/> S4
1)	BADGE READER/TRANSPONDER :	<input type="checkbox"/> = <input type="checkbox"/> S1 <input type="checkbox"/> S2 <input type="checkbox"/> S3 <input type="checkbox"/> S4
1)	PC :	<input type="checkbox"/> = <input type="checkbox"/> S1 <input type="checkbox"/> S2 <input type="checkbox"/> S3 <input type="checkbox"/> S4
1)	PRINTER :	<input type="checkbox"/> = <input type="checkbox"/> S1 <input type="checkbox"/> S2 <input type="checkbox"/> S3 <input type="checkbox"/> S4



### 12 Annex

Setting interface  
parameters S1-5

Parameters

Setting

INTERFACE S1		
BAUD RATE	:	[ ] 1200 [ ] 2400 [ ] 4800 [ ] <u>9600</u> [ ] 19200 [ ] 38400 [ ] 57600 [ ] 76800 [ ] 115200
DATA BITS	:	[ ] 7 [ ] <u>8</u>
STOP BITS	:	[ ] <u>1</u> [ ] 2
INTERFACE S2		
BAUD RATE	:	[ ] 1200 [ ] 2400 [ ] 4800 [ ] <u>9600</u> [ ] 19200 [ ] 38400 [ ] 57600 [ ] 76800 [ ] 115200
DATA BITS	:	[ ] 7 [ ] <u>8</u>
STOP BITS	:	[ ] <u>1</u> [ ] 2
INTERFACE S3		
BAUD RATE	:	[ ] 1200 [ ] 2400 [ ] 4800 [ ] <u>9600</u> [ ] 19200 [ ] 38400 [ ] 57600 [ ] 76800 [ ] 115200
DATA BITS	:	[ ] 7 [ ] <u>8</u>
STOP BITS	:	[ ] <u>1</u> [ ] 2
INTERFACE S4		
BAUD RATE	:	[ ] 1200 [ ] 2400 [ ] 4800 [ ] <u>9600</u> [ ] 19200 [ ] 38400 [ ] 57600 [ ] 76800 [ ] 115200
DATA BITS	:	[ ] 7 [ ] <u>8</u>
STOP BITS	:	[ ] <u>1</u> [ ] 2
INTERFACE S5		
BAUD RATE	:	[ ] 1200 [ ] 2400 [ ] 4800 [ ] <u>9600</u> [ ] 19200 [ ] 38400 [ ] 57600 [ ] 76800 [ ] 115200
DATA BITS	:	[ ] 7 [ ] <u>8</u>
STOP BITS	:	[ ] <u>1</u> [ ] 2

### 12 Annex

#### Select function

Parameters	Setting
CONTAINER SIZE	: [ ] YES[ ] <u>NO</u>
REQUEST ARTICLE	: [ ] YES[ ] <u>NO</u>
AUTO. STOR. LOC. ASSIGNMENT	: [ ] YES[ ] <u>NO</u>
ARTICLE SEARCH	: [ ] YES[ ] <u>NO</u>
STORAGE LOCATION CREATION ONLY WITH MANDATORY CONTAINER SIZE ENTRY	: [ ] YES[ ] <u>NO</u>
PROCESS REQUISITIONS	: [ ] YES[ ] <u>NO</u>
DELETE REQUISITIONS	: [ ] YES[ ] <u>NO</u>
QUANTITY FACTOR FOR REQ.	: [ ] YES[ ] <u>NO</u>
MATCH CODE SRCH FOR	
ARTICLE NUMBER	: [ ] YES[ ] <u>NO</u>
ARTICLE NAME	: [ ] YES[ ] <u>NO</u>
REQUISITION NUMBER	: [ ] YES[ ] <u>NO</u>
SPECIAL DATA FIELD	: [ ] YES[ ] <u>NO</u>
DELETE STORAGE LOCATION AUTO- MATICALLY AT ZERO INVENTORY	: [ ] YES[ ] <u>NO</u>
DELETE REQUISITION AUTO- MATICALLY AFTER IT IS PROCESSED	: [ ] YES[ ] <u>NO</u>
QUICK SELECTION JOB PROCESSING BY PRIORITY	: [ ] YES[ ] <u>NO</u>

#### Keylock function

Parameters	Setting
<b>DISABLE +</b>	: [ ] YES[ ] <u>NO</u>
<b>DISABLE +U</b>	: [ ] YES[ ] <u>NO</u>
<b>DISABLE -U</b>	: [ ] YES[ ] <u>NO</u>
<b>DISABLE ↕</b>	: [ ] YES[ ] <u>NO</u>
<b>DISABLE U</b>	: [ ] YES[ ] <u>NO</u>
DISABLE ALL KEYS	: [ ] YES[ ] <u>NO</u>
FAST KEYLOCK FUNCTION	: [ ] YES[ ] <u>NO</u>
CURRENT PASSWORD	: _____ <u>22488</u>

### 12 Annex

#### Screensaver

Parameters	Setting
CUSTOMER TEXT :	

#### Storage management S/H [MP 100D]

Parameters	Setting
2) ENTER MAXIMUM NO. OF CHARACTERS FOR ARTICLE NUMBERS :	___ <u>20</u>
2) ENTER MAXIMUM NO. OF CHARACTERS FOR ARTICLE NAME :	___ <u>20</u>
2) ENTER MAXIMUM NO. OF CHARACTERS FOR REQUISITION NUMBERS :	___ <u>20</u>
2) DATE FORMAT :	<input type="checkbox"/> MMDDYY <input type="checkbox"/> DDMMYY
2) QUANTITY JOURNAL LOGGING :	<input type="checkbox"/> YES <input type="checkbox"/> <u>NO</u>
2) DELETE ALL SPECIAL DATA FIELDS :	<input type="checkbox"/> YES <input type="checkbox"/> <u>NO</u>
2) SPEC. DATA FIELD FOR ARTICLE MASTER DATA H01 - H25 FIELD NUMBER : NO. OF CHARACTERS : FIELD NAME :	 _____ _____ _____
2) SPEC. DATA FIELD FOR ART. MASTER DATA C01 - C25 FIELD NUMBER : NO. OF CHARACTERS : FIELD NAME :	 _____ _____ _____
2) SPEC. DATA FIELDS FOR ART. MASTER DATA U01 - U25 FIELD NUMBER : NO. OF CHARACTERS : FIELD NAME :	 _____ _____ _____
2) MULTI-UNIT STORAGE MULTI-UNIT STORAGE : -> FIFO :	 <input type="checkbox"/> YES <input type="checkbox"/> <u>NO</u> <input type="checkbox"/> YES <input type="checkbox"/> <u>NO</u>
REQUISITION PROCESSING :	<input type="checkbox"/> SEQUENTIAL <input type="checkbox"/> <u>PATH-OPTIMISED</u> <input type="checkbox"/> TIME-OPTIMISED
CONTROL OF QUANTITY FACTOR FOR REQUISITION PROCESSING :	<input type="checkbox"/> YES <input type="checkbox"/> <u>NO</u>

### 12 Annex

#### 12.2 Revision notes

Last issue dated: 2007-10-24

- ◆ Validity, target group improved.
- ◆ Rotomat with new load imbalance indicator (MP 12D/N CPU I ROTOMAT)  
Load imbalance indicator can be disabled in the initialisation.  
New carousel run error message "LOAD IMBALANCE INDICATOR IS DISABLED".
- ◆ Error message SENSOR ERROR AT CARRIER FRONT improved.
- ◆ "Position sensor" added to error message NO INITIAL. RUN.
- ◆ Error messages SYSTEM ERROR 33 to 36 added

### Keyword index

<b>A</b>	
Activate initialisation mode.....	15
Activate initialisation mode of the positioning system.....	53
Activate redundancy system.....	170
Activate shelf locking.....	169
Adapt range of functions.....	116
<b>B</b>	
Basic position.....	58
<b>C</b>	
Call up printout setting.....	130
Call up system services.....	109
Call up system services host.....	167
Call up system services lift control.....	110
Call up system services run sequence.....	168
Call up system services safety inspections.....	182
Call up system services service functions.....	181
Call up system services storage management.....	129
Change passwords of storage management system.....	159
Change shelf parameters.....	178
Change shelf parameters for all shelves.....	179
Configuration software.....	199
Configure networking for multi-unit network.....	23
Configure TFT display.....	125
Control of quantity factor for requisition processing.....	166
<b>D</b>	
Defining the path list.....	161
Display shelf parameters.....	177
Display system clock.....	124, 138
<b>E</b>	
Enable or disable emergency operation.....	128
Enter distance between worktop - footprint of the carousel. .	32
Enter lift/carousel data.....	27
Enter row distance.....	31
Enter screensaver.....	127
Error messages.....	253
External data transfer.....	164
Extractor.....	58
<b>F</b>	
Format imbalance.....	32
Format shelf memory.....	41
<b>G</b>	
Generate article list.....	131
Generate job list.....	135
Generate job list for rack.....	135
Generate job overview list.....	134
Generate operations journal list (supplementary module)...	134
Generate order recommendation list.....	134
Generate quantity journal list.....	133
Generate requisition list.....	132
Generate requisition list for rack.....	133
Generate requisition overview list.....	132
<b>I</b>	
Initialisation of other access points.....	45
Initialise main switch with undervoltage trip.....	35
Initialise safety circuit monitors.....	34
Initialise safety light curtain.....	36
Initialise the optional electrical equipment "Lift run only with door closed".....	33
Initialise the optional electrical equipment "Second safety circuit".....	34
Initialising the MP 12 EXT board.....	38
Interface assignment.....	111
<b>J</b>	
Job management.....	164
<b>M</b>	
Manufacturer.....	9
<b>P</b>	
Peripheral devices.....	249
Print system information.....	143
Program version MP 12N-H[HOST-DATA].....	185
<b>R</b>	
Register lift/carousel.....	158
Requisition processing.....	165
<b>S</b>	
Select error messages following interruption of the safety circuit.....	39
Select storage location management.....	43
Set alternating-side requisition.....	24
Set article management with inventory control.....	42
Set compartment display.....	26
Set interface parameters.....	140
Set interface parameters S1-5.....	113
Set keylock function.....	120
Set language.....	16
Set lift/carousel number.....	24
Set motor type.....	30
Set number of access points.....	22
Set number of lift units.....	18

### Keyword index

Set operating mode.....	17	Store empty shelves.....	180
Set power frequency.....	29	Supplementary documents.....	12
Set printer.....	136	Symbols.....	10
Set program version.....	19	System formatting.....	148
Set sensor type.....	25	System installation.....	157
Set start and stop time.....	37	<b>T</b>	
Set storage management packet.....	20	Target group.....	9
Set supplementary modules.....	122	<b>U</b>	
Set supply voltage.....	29	Unregister lift/carousel.....	158
Set system clock.....	124, 138	Update shelf table .....	158
Set the language for printer/host communication.....	139	<b>V</b>	
Set the Rotomat type.....	30	Validity.....	9
Shelf properties.....	176		

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