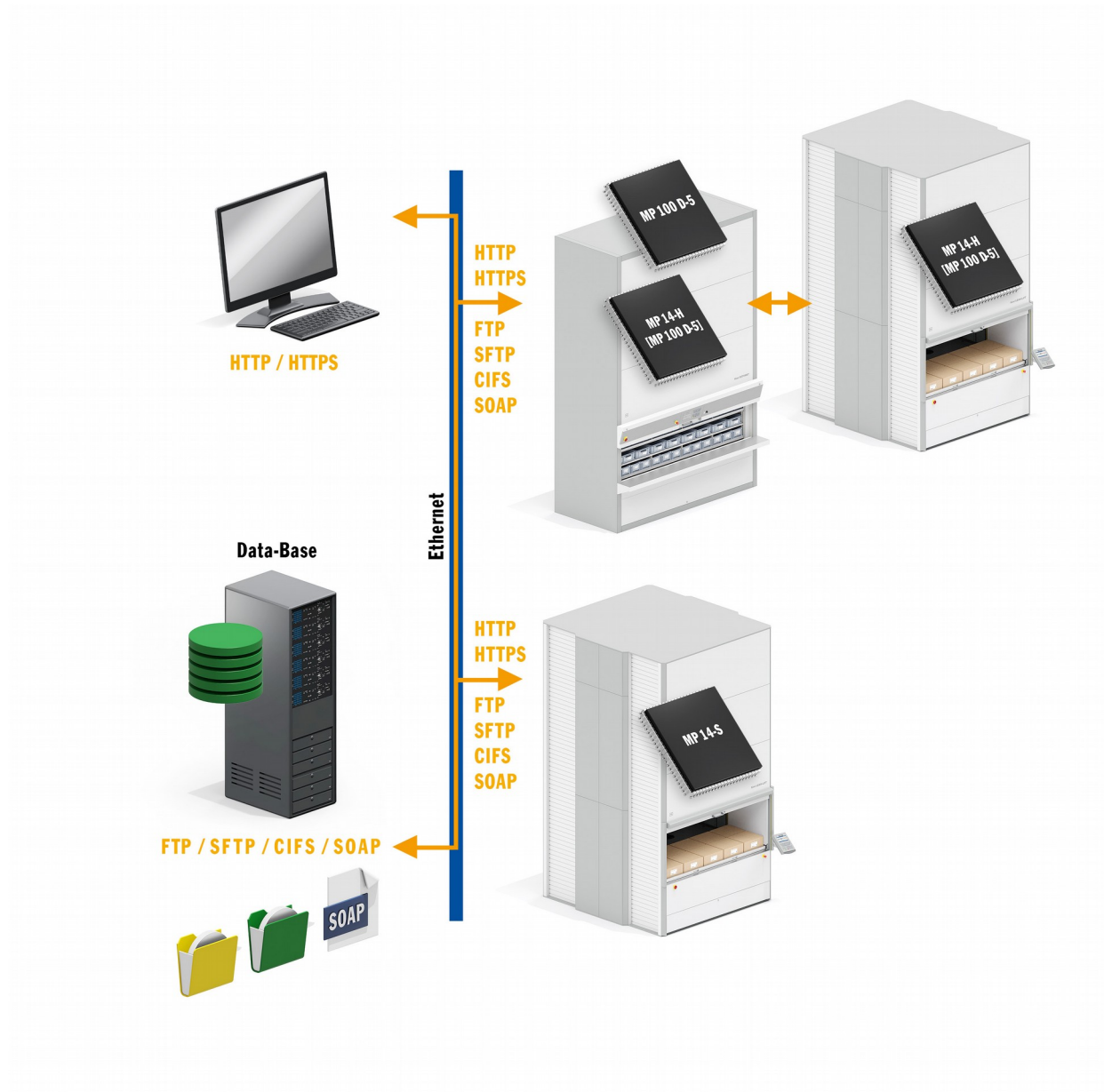


Technical Description of the Microprocessor Control System MP 14-S / MP 100D-5 server

Lean-Lift Multi-Space Rotomat



1	Introduction	9
1.1	Basic information.....	9
1.2	Guide through the document.....	11
1.3	Safety instructions.....	12
1.4	Supplementary documents.....	13
2	Overview of features	15
3	Web server with storage portal application	19
3.1	Prerequisite.....	19
3.2	Features.....	19
3.3	URL of starting screen.....	21
3.4	PC browser settings.....	22
3.4.1	Firefox.....	22
3.4.2	Chrome.....	22
3.4.3	Cookie guideline.....	22
3.5	Storage portal.....	23
3.5.1	Download of data files via the storage portal.....	23
4	Integration into Ethernet corporate network (only for installation, maintenance and IT specialists)	25
4.1	Terms used:.....	25
4.2	Network overview (schematic illustration).....	25
4.3	Integration into corporate network Part I (data screening using a browser via the storage portal).....	27
4.4	Integration into corporate network, Part I (Network printer).....	29
4.5	Integration into corporate network, Part II (Host communication).....	31
4.5.1	SOAP data exchange integrated into the application of the ERP system.....	31
4.5.2	File transfer to the ERP system.....	31
4.6	Control centre (HTTPS, firewall).....	33
4.6.1	URL of starting screen.....	33
4.6.2	Login.....	33
4.6.3	Certificate maintenance (HTTPS).....	34
4.6.3.1	Encrypted connection for program version MP 14-S/H[MP 14-S]/H[MP 100D-5].....	35
4.6.4	Internal firewall.....	37
4.6.5	Date & time (System "V 7.0" or higher).....	38
5	System services storage management (only for installation and maintenance personnel)	39
6	Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)	41
6.1	Overview of features.....	41
6.2	Software requirement.....	41
6.3	General conventions.....	42

6.3.1	Character set.....	42
6.3.2	Data fields.....	42
6.3.3	Error codes.....	42
6.4	"Com" web service.....	43
6.4.1	Function.....	43
6.4.2	Configuration of a WSDL 1.1 file.....	45
6.4.3	SOAP messages.....	47
6.4.4	Passed/return parameters.....	48
6.5	Overview of the individual methods of the "Com" web service.....	50
6.6	Methods in the standard.....	53
6.6.1	"sendAllAMDV01" method - transfer article master data, including article pool and free location data (older version).....	53
6.6.2	"sendAllAMDV03" method - transfer article master data, including article pool and free location data.....	54
6.6.3	"sendAllAMDV02" method - transfer article master data (older version).....	55
6.6.4	"sendAllAMDV04" method - transfer article master data.....	56
6.6.5	"readAMDV01" method - read out the article master data of an article (older version).....	57
6.6.6	"readAMDV02" method - read out the article master data of an article.....	58
6.6.7	"readAllAMDV01" method - read out all article master data (older version).....	59
6.6.8	"readAllAMDV03" method - read out all article master data.....	60
6.6.9	"readAllAMDV02" method - read out all article master data (older version).....	61
6.6.10	"readAllAMDV04" method - read out all article master data.....	62
6.6.11	"readOrdRecomV01" method - read out order recommendation list (older version).....	63
6.6.12	"readOrdRecomV02" method - read out order recommendation list.....	64
6.6.13	"readQjournalV01" method - read out a quantity journal.....	66
6.6.14	"sendJobsV01" method - transfer jobs (older version).....	67
6.6.15	"sendJobsV02" method - transfer jobs.....	68
6.6.16	"readJobV01" method - read out a job (older version).....	70
6.6.17	"readJobV02" method - read out a job.....	71
6.6.18	"readAllJobsV01" method - read out all jobs (older version).....	72
6.6.19	"readAllJobsV02" method - read out all jobs.....	73
6.6.20	"readAllJobsSumV01" method - read out job overview.....	74
6.6.21	"deleteJobV01" method - delete job.....	75
6.6.22	"deleteAllJobsV01" method - delete all jobs.....	76
6.7	Methods for supplementary modules.....	77
6.7.1	"readOpjournalV01" method - read out operations journal (older version).....	77
6.7.2	"readOpjournalV02" method - read out operations journal (older version).....	79
6.7.3	"readOpjournalV03" method - read out operations journal.....	81
6.7.4	"sendAPDV01" method - transfer article pool data (older version).....	83
6.7.5	"sendAPDV02" method - transfer article pool data (older version).....	84
6.7.6	"sendAPDV03" method - transfer article pool data.....	85
6.7.7	"readAllAPDV01" method - read out all article pool data (older version).....	86
6.7.8	"readAllAPDV02" method - read out all article pool data.....	87
6.7.9	"deleteAPDV01" method - delete an article pool data record.....	88
6.7.10	"deleteAllAPDV01" method - delete all article pool data.....	89
6.7.11	"sendFREV01" method - transfer free location data.....	90
6.7.12	"readAllFREV01" method - read out all free location data.....	91

6.7.13	"readAllLNDV01" method - read out all lending data.....	92
6.7.14	"sendLNDV01" method - transfer lending data.....	93
6.7.15	"readAllREVV01" method - read out all reservation data.....	94
6.7.16	"sendREVV01" method - transfer lending data.....	95
6.8	Object types for the data exchange.....	96
6.8.1	"AMDTypeV01" object - article master data record (older version).....	96
6.8.2	"AMDTypeV02" object - article master data record.....	97
6.8.3	"OrdRecomPosTypeV01" - order recommendation data record.....	99
6.8.4	"QjournalPosTypeV01" object - quantity journal data record.....	100
6.8.5	"JobTypeV01" object - job data record (older version).....	101
6.8.6	"JobTypeV02" object - job data record.....	102
6.8.7	"JobPositionTypeV01" object - item data record for a job (older version).....	103
6.8.8	"JobPositionTypeV02" object - item data record for a job.....	104
6.8.9	"JobSummaryTypeV01" object - job data record for a job overview.....	105
6.8.10	"OpjournalPosTypeV01" object - item data record for the operations journal (older version).....	106
6.8.11	"OpjournalPosTypeV02" object - item data record for the operations journal (older version).....	107
6.8.12	"OpjournalPosTypeV03" object - item data record for the operations journal.....	108
6.8.13	"APDTypeV01" object - article pool data record (older version).....	109
6.8.14	"APDTypeV02" object - article pool data record (older version).....	110
6.8.15	Object "APDTypeV03" - article pool data record.....	111
6.8.16	"FRETypeV01" object - free location data record.....	112
6.8.17	"LNDTypeV01" object - lending data record.....	113
6.8.18	"REVTypeV01" object - reservation data record.....	114
6.9	SOAP monitor.....	115

7	Host communication by file transfer (only for installation, maintenance and IT specialists)	117
7.1	Overview of features.....	117
7.2	Software requirement.....	119
7.3	General data record conventions.....	121
7.3.1	Hänel MP format (standard).....	121
7.3.2	CSV format (conversion to Hänel MP format).....	121
7.3.3	Character set.....	121
7.3.4	Data fields.....	121
7.3.5	Error codes.....	121
7.4	File transfer.....	122
7.4.1	Send data to the MP control system MP 14-S / MP 100D-5.....	122
7.4.2	Read data from the MP control system MP 14-S / MP 100D-5.....	123
7.4.3	Delete data from the MP control system MP 14-S / MP 100D-5.....	123
7.5	File types.....	124
7.5.1	Article master data file.....	124
7.5.2	Article pool file.....	127
7.5.3	Job file.....	130
7.5.4	Operations journal file.....	136
7.5.5	Free location file.....	139

7.5.6	Quantity journal file.....	140
7.5.7	Order recommendation file.....	141
7.5.8	Lending file.....	143
7.5.9	Reservation file.....	145
7.5.10	System file.....	146
7.5.11	Request file.....	147
7.5.12	Response file.....	149
7.6	Data conversion.....	149
8	Annex: Host communication by file transfer/web service (only for installation, maintenance and IT specialists)	151
8.1	Character set.....	151
8.2	Data fields.....	151
8.3	Error codes.....	157
9	Configuration software for host communication (only for installation, maintenance and IT specialists)	167
9.1	Overview of features.....	167
9.2	Installation.....	167
9.3	General operating instructions.....	168
9.4	"Transfer" menu.....	170
9.5	"Communication" menu.....	171
9.6	"File types" menu (not for web service).....	173
9.6.1	Data files (not for web service).....	175
9.6.2	Request file (not for web service).....	177
9.6.3	Response file (not for web service).....	177
9.6.4	Log file (not for web service).....	179
9.7	"Conversion" menu (not for web service).....	181
9.8	"File transfer" menu (not for web service).....	184
9.8.1	Send (import).....	185
9.8.2	Read (export).....	187
9.9	Data backup.....	188
9.10	"Log " menu (not for web service).....	188
9.11	"Info" menu.....	189
9.12	Send configuration to MP control system.....	190
10	Interfaces MP 100D-5 (only for installation, maintenance and IT specialists)	191
10.1	Ethernet interface.....	191
10.2	GSC interface.....	192
11	Connection of peripheral devices (only for installation, maintenance and IT specialists)	193
11.1	Network printer.....	193

12	Service notes (for installation and maintenance personnel only)	195
12.1	Software update MP 14-S.....	195
12.2	Software update MP 100D-5.....	195
12.3	Extension to background data backup (only for MP100D-5).....	196
12.4	Exporting system data from storage management system.....	196
13	Annex: Customer form for integration into corporate network, Part I	197
13.1	Data screening using a browser.....	197
13.2	Network printer.....	198
13.3	MP multi-unit network integrated into the corporate network.....	198
14	Annex: customer form for integration into corporate network, Part II	201
14.1	Host communication file transfer / data conversion.....	201
15	License notes	217
16	Revision notes	219
	Keyword index	221

Technical Description of the Microprocessor Control System MP 14-S / MP 100D-5 server

**Lean-Lift
Multi-Space
Rotomat**

1 Introduction

1.1 Basic information

Contents

This document contains information about operating and configuring the MP 14-S / MP 100D-5 server microprocessor control system and integrating it into the IT system.

Target group

This document has been written for:

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

Manufacturer

Hänel Büro- und Lagersysteme
Postfach 11 61
D-74173 Bad Friedrichshall, Germany
Phone +49 7136/27725
Fax +49 7136/27741
www.hanel.de

Validity

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

Type: Lean-Lift, Multi-Space, Rotomat

Access points: Unlimited

Serial number: See type plate on the lift/carousel

Model year: See type plate on the lift/carousel

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

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

	Printed circuit board S0861
MP 100D-5 SYSTEM	V 6.0
MP 100D-5 PACKAGE	V 7.3 STANDARD PACKAGE 1

	Printed circuit board S0861
MP 14 SYSTEM	V 5.0
MP 14 PACKAGE	V 5.5 STANDARD PACKAGE 8

This document may describe additional extended functions which are not contained in the minimum versions described above. In this case, use the most current software version for each. If a higher system version is required, this is described in the corresponding chapter.

1 Introduction

Keep in an accessible place as a complete document

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

Change service

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

Copyright

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

All other rights reserved.

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 Rotomat: **Carrier level**
- For rack operation: **Shelf level**

FTP server

File server for unencrypted transfer of files based on the "File Transfer Protocol" in accordance with RFC 959.

SFTP server

File server for encrypted transfer of files based on the "SSH File Transfer Protocol" (SSH version 2 and up)

CIFS server

File server using the CIFS protocol.
Such as Window File Sharing for Windows
Such as Samba Server for Unix/Linux systems

(S)FTP server

Umbrella term for FTP or SFTP server.

File server

General term for an FTP/SFTP or CIFS server

SOAP

Simple object access protocol

Inbox

Input directory on the file server

Outbox

Output directory on the file server

For shared features, this documentation also uses the term "MP control system" instead of MP 14-S / MP 100D-5.

1 Introduction

1.3 Safety instructions



DANGER

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

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

SAFETY INSTRUCTION

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

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

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

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

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



SAFETY INSTRUCTION

Compliance with the following is mandatory:

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

1 Introduction

1.4 Supplementary documents

MP 14

- Refer to the "Supplementary Description of the Article Storage Management Microprocessor Control System MP 14-S / H[MP 14-S] / H[MP 100D-5] Lean-Lift, Multi-Space and Rotomat".
- Technical Description of the Microprocessor Control System MP 14 Lean-Lift and Multi-Space
or
- Technical Description of the Microprocessor Control System MP 14 Rotomat
- For the optional supplementary descriptions, refer to the User Guide for the Microprocessor Control System MP 14

2 Overview of features

- ◆ Data storage on a CFast flashcard. (Approved by Hänel)
- ◆ Network functions

Two logically separated IP addresses on a physical Ethernet interface.

 1. IP address in multi-unit network (internal):
 - B class address range from 172.16.x.x - 172.31.x.x
 2. IP address in corporate network:
 - Dynamic IP address assignment via DHCP
If no DHCP server is found, the second IP address is shut off.
 - Alternative: static IP address assignment with subnet mask and standard gateway.
- ◆ Integrated firewall

See Chapter 4.6.4 on page 37.
- ◆ NTP time server support

See Chapter 4.6.5 on page 38.
- ◆ Integrated web server

A host/PC system with PC browser can be connected via Ethernet to the MP control system.

Storage data can be visually displayed in the browser and printed out via the storage portal.

See Chapter 3 on page 19.
- ◆ Host communication by file transfer

The file transfer is carried out via Ethernet to the customer-side host system. There are 3 different file transfer protocols available.

 - FTP (File Transfer Protocol based on RFC 959).
 - SFTP (SSH File Transfer Protocol using SSH version 2 and up)
 - CIFS (Common Internet File System)

Files can be converted between CSV format (comma-separated files) and the Hänel MP format.

See Chapter 7 on page 117.
- ◆ Host communication by SOAP protocol (SOAP 1.1)

Data is exchanged via SOAP protocol from the customer-side web service client to the integrated web service. During this process, data can be exchanged between both systems synchronously.

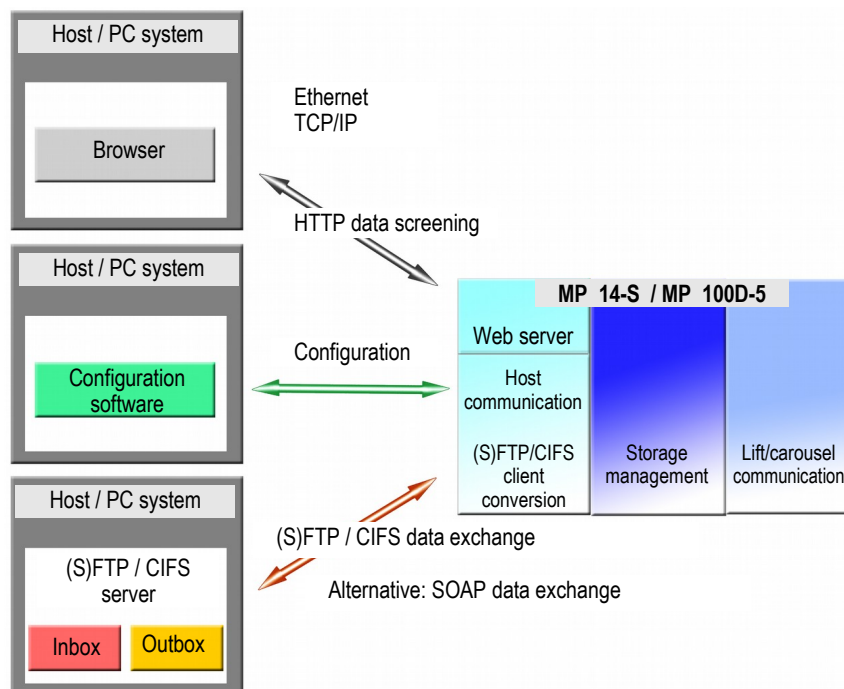
See Chapter 6 on page 41.
- ◆ Configuration software for the host communication

Java program for adapting the host communication to the customer's management system.

See Chapter 9 on page 167.

2 Overview of features

Function diagram



Storage management

For Article storage management with max. 40-digit article number, 40-character article name, 40-character job number, 10 Hxx spec. data field for up to 40 characters, 2 Cxx spec. data fields with up to 40 characters and 3 Uxx spec. data fields with up to 40 characters, the following maximum limit values * apply:

	Number of articles (with 1 storage location per article)	Number of storage locations	Number of jobs	Number of jobitems
MP 14-S	10.000	100.000	1.000	25.000
MP 100D-5	100.000	400.000	4.000	100.000

*) Note that some supplementary modules use special data fields. For more information, refer to the corresponding supplementary descriptions.



- x The supplementary modules „Storage time management“, „Inventory function“ and additionally used Hxx special data fields can reduce the maximum number of articles.
- x Additional Cxx special data fields can reduce the number of jobs.
- x Additionally used Uxx special data fields can reduce the number of job items.
- x Refer also to the Technical Description of the Microprocessor Control MP 14 Lean-Lift and Multi-Space or the Technical Description of the Microprocessor Control System MP 14 Rotomat.

In storage management, special data fields for saving and displaying additional information can be formatted.

2 Overview of features

Article master data	25 x H special data fields
Job header	25 x C special data fields
Job item	25 x U special data fields



- x A special data field can be up to 40 characters long. However, the maximum configurable combination of special data fields and their number of characters is limited.
- x Refer also to the Technical Description of the Microprocessor Control MP 14 Lean-Lift and Multi-Space or the Technical Description of the Microprocessor Control System MP 14 Rotomat.

Index tables for article and storage location indexing are not saved during the program execution, but are created again every time the program is started.

Job processing by priority

Sequential, path-optimised or time-optimised job processing.

Job item can be selected through the article number. (e.g. for a storage job)

Automatic search for storage location.

Match code search with/without taking upper case/lower case into account.

Expanding functions with various supplementary modules.

Lift/carousel communication

The MP 100D-5 manages up to 99 Rotomats, Lean-Lifts, Multi-Space units, rack operation systems with up to 4 access points each with MP 14-H[MP 100D-5]

The MP 14-S manages up to 2 Rotomats, Lean-Lifts, Multi-Space units, rack operation systems with up to 4 access points each with MP 14-H[MP 14-S]

Lifts/carousels with the file storage management packet and tool storage management are not supported.

Web server with storage portal application

Connection of up to 8 PCs with browsers to integrated Web server for visualization of article and lift data.

Host communication

Host communication is carried out via a web server with integrated SOAP interface for data transfer. Alternatively, host communication can take place via an automatic file transfer between an external server and an integrated client. You can alternatively select between FTP, SFTP and the CIFS protocol for the file transfer.

The host communication can be initialised using a configuration software program.

3 Web server with storage portal application

3.1 Prerequisite

Connection of a host/PC system with PC browser via Ethernet to the MP control system.

The following browser is recommended:

- Firefox
- Chrome

3.2 Features

Article

- ◆ The browser can be used to visually access the storage management system via the storage portal application on the integrated web server.
In addition, lists can be printed out. The user can alter the printouts as required.
- ◆ The following storage management packets are available:
 - Article storage management
- ◆ Article data:
Match code search based on article designation, article number or special data field is possible. Input of "?" as wildcard.
- ◆ Article list:
A printout of a self-defined article list is possible. This list is displayed page by page.
- ◆ Order recommendation list:
As soon as the stock of a specific article falls below the specified minimum inventory, this article is included in the order recommendation list.
The order recommendation list can be downloaded as a CSV file in a browser.

Jobs

- ◆ Job data:
Match code search for job designation or special data field is possible. Input of "?" as wildcard.
- ◆ Job overview:
An overview of all, or all unprocessed, jobs can be displayed and printed out.

Journals

(for a formatted quantity journal
or formatted supplementary
module operations journal)

- ◆ Quantity journal:
All storage and retrieval operations are added respectively and displayed as a "Journal out" or "Journal in" operation. The quantity journal can be read out via host communication.
- ◆ Operations journal:
All removals from and placements in storage are listed as a separate position e.g. with date and time. The operations journal can be read out via host communication.

Article pool management
(for article pool management
supplementary module)

- ◆ Transmitting / editing / deleting article pool data (article data that does not depend on storage location) such as the article name, minimum inventory, container, Hxx special data fields.
- ◆ Creating / editing / deleting article pool data using the storage portal

3 Web server with storage portal application

User management

(For the access code management supplementary module with integrated user management)

- ◆ User group:
You can define up to 100 user groups (e.g. departments), to which you can assign storage location rights for access to up to 2000 storage areas.
- ◆ User:
You can define up to 2000 users, which you can assign to multiple user groups.
The data can be read out/read in via host communication.

Free location management

(For lifts/carousels with the free location management supplementary module)

- ◆ Up to 15 different free location container types (width * depth) can be stored. During multi-unit storage, this applies to the entire multi-unit network. Otherwise, it applies to each individual lift/carousel. The free location data can be read out/read in separately via host communication. Not possible in combination with storage location height management.

Access protection

- ◆ Optionally, access to the storage portal application can be protected using a login window connected in series. (Password: "22488")
- ◆ The editing options within the storage portal application can be limited.

Lending management

(for supplementary module lending management)

- ◆ For MP100D-5, up to 10000 lending operations and up to 1000 reservations can be stored. For MP14-S, up to 5000 lending operations and 500 reservations.

3 Web server with storage portal application

3.3 URL of starting screen

DNS server

If a DNS server in the corporate network is available which takes over the name from the DHCP server, the URL is composed as follows:

- For **MP 14-S**: mp14-*<commission number>*
- For **MP 100D-5**: mp100d-*<commission number>*

<commission number>: Commission number of the control system, whereby the following characters must be replaced because these are not permitted in a URL:

replace "." with "p"
replace "/" with "s"
replace "*" with "a"

For an MP14 lift/carousel with 2-n access points, "e" with 2-n is still appended to the commission number.

Example for MP 14-S:

Requisition number: 258.320/7-9

Access point 1:

URL: http://mp14-258p320s7-9

Access point 2:

URL: http://mp14-258p320s7-9e2

Example for MP 100D-5:

Requisition number: 223.420/1-2*1

URL: http://mp100d-5-223p420s1-2a1

No DNS server

If there is no DNS server, the IP address of the MP control system is used as the URL.

Example:

IP address: 192.160.150.140

URL: http://192.160.150.140

3 Web server with storage portal application

3.4 PC browser settings

3.4.1 Firefox

If a proxy server is used:

- Under **Options** ⇒ **Network Settings** enter the IP address of the MP control system under **No proxy for**.



We recommend allowing normal cookies, as otherwise the language must be reset every time the MP control system's web server is restarted.

In any case, session cookies have to be allowed by the browser.

See **Settings** ⇒ **Privacy & Security** ⇒ **Cookies and Site Data** ⇒ **Permissions** ⇒ **Exceptions - Cookies and Site Data**

3.4.2 Chrome

If a proxy server is used:

- Under **Settings** ⇒ **Advanced** ⇒ **System** open the menu item **Open your computer's proxy settings**.
- Under **Manual proxy setup** enable the tick box **Do not use proxy server for local addresses (intranet)** and
- enter the IP address of the MP control system under the section **Do not use proxy server for addresses beginning with:**.



We recommend allowing normal cookies, as otherwise the language must be reset every time the MP control system's web server is restarted.

In any case, session cookies have to be allowed by the browser.

See **Settings** ⇒ **Privacy and security** ⇒ **Cookies and other site data** ⇒ **Websites that may always use cookies** ⇒ **Add website**.

3.4.3 Cookie guideline

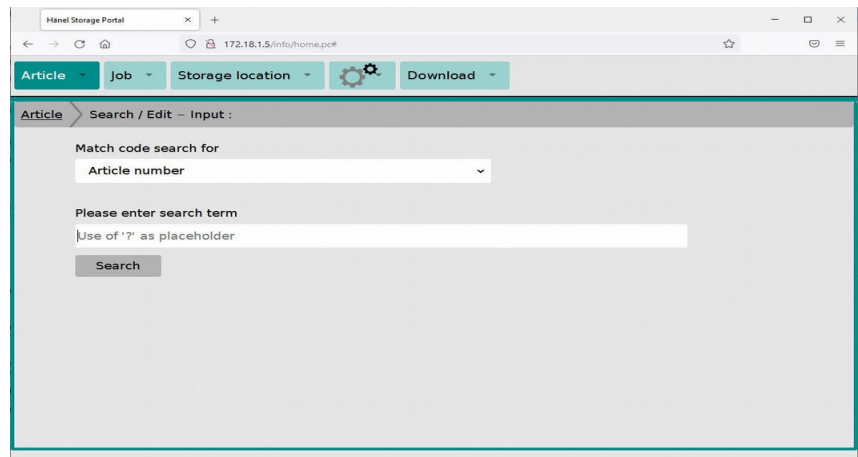


Only technically necessary cookies are used. These do not require consent.

3 Web server with storage portal application

3.5 Storage portal

Home page



Operation

- User Guide for the Article Storage Management Microprocessor Control System MP 14-S/H[MP14-S]/H[MP 100D-5] Lean-Lift, Multi-Space and Rotomat.

3.5.1 Download of data files via the storage portal



In a browser, you can click the Download button in the storage portal to download a selection of data files.

- ◆ Article master data
- ◆ Order recommendation list (the articles are marked as "ordered")
- ◆ Operations journal (journal not deleted after being read out).
- ◆ Operations journal (journal deleted after being read out).

The files are stored in CSV format.

Settings for the CSV files can be configured with the configuration software for the "Jacomman" host communication. See Chapter 9.7 "Conversion" menu on page 181. This then applies equally to the host communication.

4 Integration into Ethernet corporate network (only for installation, maintenance and IT specialists)



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

4.1 Terms used:

MP multi-unit network	Communication link of the Hänel MP control systems with each other. GSC or Ethernet multi-unit network design is possible.
Company network	All PCs, (S)FTP/CIFS servers, DHCP / DNS servers, network printers in a customer's network or alone, which are to be connected to the MP 14-S / MP 100D-5 via a network cable.
DNS name / MP name	Name of the MP control system which can be used in alternative to the IP address to access the MP control system if a DNS server is in the corporate network. By default, the name of the MP control system consists of a prefix and the commission number of the MP 14N-S / MP 100D-5. Prefix for MP 14-S: "mp14-" Prefix for MP 100D-5: "mp100d-" For the requisition number, some symbols are replaced to maintain a valid DNS name. These are "p" for ".", "s" for "/", "a" for "**". Example: mp100d-322p128s1-2a1 The MP name can be overwritten with a user-defined name. ➤ For MP 14-S, see "Technical Description of the Microprocessor Control System MP 14 Lean-Lift and Multi-Space (or Rotomat)", chapter "System services storage management" -> "Setting interface parameters" -> "ETHERNET CORPORATE NETWORK". ➤ For MP 100D-5, see "Technical Description of the Microprocessor Control System MP 14 Lean-Lift and Multi-Space (or Rotomat)", chapter "System services storage management" -> "Setting interface parameters" -> "ETHERNET CORPORATE NETWORK". ➤ DNS names may contain only alphabetical characters (A-Z), numbers (0-9) and the minus sign (-).
Switch	A switch (adapter / diverter) is a coupling element that interconnects network segments / network participants.
Ethernet patch cable	Connecting cable between MP 14 (X13) or MP 100D-5 (X13) and the corporate network or a unit with an Ethernet connection. In the crossover model as a point-to-point connection between the MP control system and a unit with an Ethernet connection which does not support any "Auto-MDI"-X. In the standard model as a connecting cable from the MP control system to a switch.



Ethernet patch cables are not included in the scope of delivery and must be provided by the customer. We recommend a patch cable of at least Cat. 6.

4.2 Network overview (schematic illustration)

IP addresses	The 10/100 Mbit Ethernet connection of the MP 14-S / MP 100D-5 has 2 logical addresses. 1. IP address for the connection to the MP multi-unit network 2. IP address for the connection to the corporate network. The MP 100D-5 IP address for the corporate network is at DHCP by default.
---------------------	--

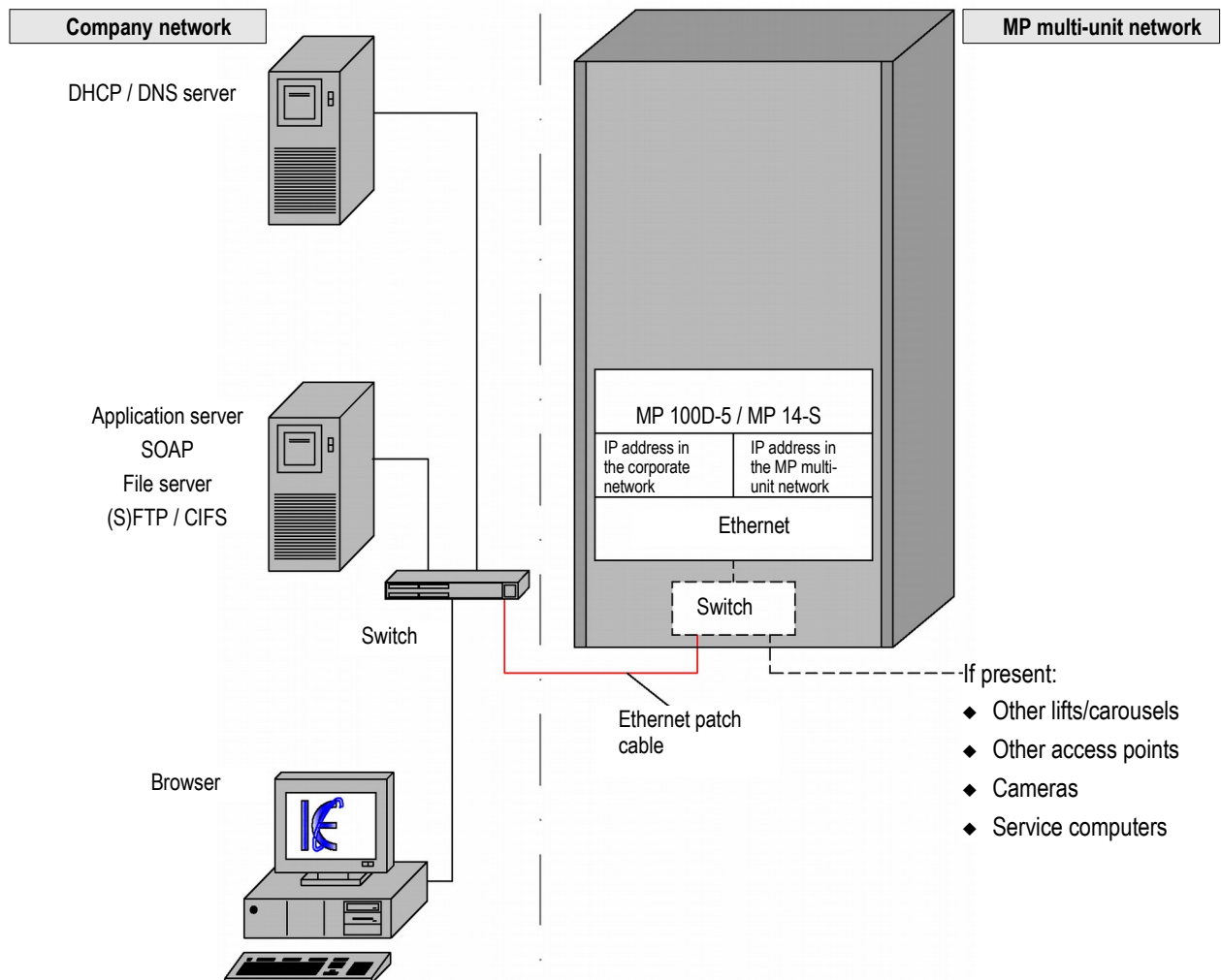


Since the MP multi-unit network and the corporate network are physically in the same network, all participants must have unique IP addresses.

Technical Description of the Microprocessor Control System MP 14-S / MP 100D-5 server

Lean-Lift Multi-Space Rotomat

4 Integration into Ethernet corporate network (only for installation, maintenance and IT specialists)



IP addresses in the Ethernet MP multi-unit network

MP 100D-5	172.<IP address range>.1.254 172.<IP address range>.1.253 (reserved) 172.<IP address range>.<Access point number>.<Reserved>
MP 14-S	172.<IP address range>.<Access point number>.<Lift number> 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

4 Integration into Ethernet corporate network (only for installation, maintenance and IT specialists)

4.3 Integration into corporate network Part I (data screening using a browser via the storage portal)



- In the simplest case, connection is possible without additional initialisation.
- The following step-by-step procedure checks whether additional initialisation is necessary.
- If the "Installation support using a browser" service was ordered, the basis is the form filled in by the customer from **Chapter 13 Annex: Customer form for integration into corporate network, Part I**.
- A physical connection to the corporate network cannot be established until after the last step is completed.

1st step:

Check and initialise Ethernet adapter

The Ethernet adapter for the MP control systems can be configured to 10 Mbit half duplex / 10 Mbit full duplex / 100 Mbit half duplex / 100 Mbit full duplex / autonegotiation. **The default setting for the MP 14 and the MP 100D-5 is autonegotiation.** In conjunction with a non-configurable Hänel lift/carousel switch, this setting is always required. If there is a direct connection to the customer's switch (without lift/carousel switch) and you are experiencing connection problems, we recommend setting both the Ethernet adapter of the MP control system and the port of the customer's switch to a fixed 100 Mbit full-duplex.

- For MP 14-S, see "Technical Description of the Microprocessor Control System MP 14 Lean-Lift and Multi-Space" (or "Rotomat"), chapter "System services lift control" "Setting interface parameters" "ETHERNET MP MULTI-UNIT NETWORK".
- For MP 100D-5, see "Technical Description of the Microprocessor Control System MP 14 Lean-Lift and Multi-Space" (or "Rotomat"), chapter "System services storage management" "Setting interface parameters" "ETHERNET MP MULTI-UNIT NETWORK".

2nd step:

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



The IP addresses of the MP control systems for the MP multi-unit network are in a B-class address range (subnet). **By default, this range is 172.16.xxx.yyy.** If this range is used by the customer for other purposes, a different address range from 172.16.xxx.yyy to 172.31.xxx.yyy (subnet 172.16 - 172.31) can be configured. See Chapter 4.2 Network overview (schematic illustration) on page 25.

Initialisation is required only if multiple MP multi-unit networks have to be connected to the corporate network (each MP multi-unit network requires its own address range), or if the IP addresses for the MP multi-unit network overlap with the IP addresses for the corporate network.

- For MP 14-S, see "Technical Description of the Microprocessor Control System MP 14 Lean-Lift and Multi-Space" (or "Rotomat"), chapter "System services lift control" "Setting interface parameters" "ETHERNET MP MULTI-UNIT NETWORK".
- For MP 100D-5, see "Technical Description of the Microprocessor Control System MP 14 Lean-Lift and Multi-Space" (or "Rotomat"), chapter "System services storage management" "Setting interface parameters" "ETHERNET MP MULTI-UNIT NETWORK".

4 Integration into Ethernet corporate network (only for installation, maintenance and IT specialists)

3rd step:

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



The IP address of the MP 100D-5 / MP 14 for the corporate network is set to DHCP by default. As soon as the control system is physically integrated into the corporate network, it gets an IP address assigned by the DHCP server.

Initialisation is required only if initialisation of the IP address for the corporate network is not set to DHCP.

- For MP 14-S, see "Technical Description of the Microprocessor Control System MP 14 Lean-Lift and Multi-Space (or Rotomat)", chapter "System services storage management" -> "Setting interface parameters" -> "ETHERNET CORPORATE NETWORK".
- For MP 100D-5, see "Technical Description of the Microprocessor Control System MP 14 Lean-Lift and Multi-Space (or Rotomat)", chapter "System services storage management" -> "Setting interface parameters" -> "ETHERNET CORPORATE NETWORK".

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



If there is a DNS server in the company network which supports a dynamic update of the Domain Name System (DNS UPDATE) in accordance with RFC 2136 by the DHCP server, then the name of the MP 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).

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

- For MP 14-S, see "Technical Description of the Microprocessor Control System MP 14 Lean-Lift and Multi-Space (or Rotomat)", chapter "System services storage management" -> "Setting interface parameters" -> "ETHERNET CORPORATE NETWORK".
- For MP 100D-5, see "Technical Description of the Microprocessor Control System MP 14 Lean-Lift and Multi-Space (or Rotomat)", chapter "System services storage management" -> "Setting interface parameters" -> "ETHERNET CORPORATE NETWORK".

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

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



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

- For MP 14-S, see "Technical Description of the Microprocessor Control System MP 14 Lean-Lift and Multi-Space (or Rotomat)", chapter "System services storage management" -> "Setting interface parameters" -> "ETHERNET CORPORATE NETWORK".
- For MP 100D-5, see "Technical Description of the Microprocessor Control System MP 14 Lean-Lift and Multi-Space (or Rotomat)", chapter "System services storage management" -> "Setting interface parameters" -> "ETHERNET CORPORATE NETWORK".

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

4 Integration into Ethernet corporate network (only for installation, maintenance and IT specialists)

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

Initialise the MP control system to "GET IP ADDRESS FROM DHCP: NO".

Then initialise the IP address, the subnet mask and the standard gateway.

- For MP 14-S, see "Technical Description of the Microprocessor Control System MP 14 Lean-Lift and Multi-Space (or Rotomat)", chapter "System services storage management" -> "Setting interface parameters" -> "ETHERNET CORPORATE NETWORK".
- For MP 100D-5, see "Technical Description of the Microprocessor Control System MP 14 Lean-Lift and Multi-Space (or Rotomat)", chapter "System services storage management" -> "Setting interface parameters" -> "ETHERNET CORPORATE NETWORK".

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

4th step:

Browser access to the storage portal of the MP control system

A max. of 8 PCs / host systems can access the MP control system at the same time as the browser (e.g. Firefox). Either the IP address of the MP control system, e.g. <http://92.168.100.20>, or the name of the MP control system must be entered as the URL.



Installation support for data screening using a browser can be ordered at extra charge from Hänel.

To do so, also refer to the form to be filled in by the customer from **Chapter 13 Annex: Customer form for integration into corporate network, Part I.**

4.4 Integration into corporate network, Part I (Network printer)



- Prerequisite is the completed integration into corporate network, Part I (Data screening using a browser)
- In the simplest case, connection is possible without additional initialisation.
- The following step-by-step procedure checks whether additional initialisation is necessary.
- If the "Installation support using a browser" service was ordered, the basis is the form filled in by the customer from **Chapter 13 Annex: Customer form for integration into corporate network, Part I.**
- A physical connection to the corporate network cannot be established until after the last step is completed.

1st step:

Installation of network printer if it keeps its IP address / DNS name from a DHCP / DNS server



By default, the MP control system has the printer port set to DHCP and the printer name set to HAENELPRINTER.

Initialisation is required only if the printer name is to be changed to a user-defined name.

- For MP 14-S, see "Technical Description of the Microprocessor Control System MP 14 Lean-Lift and Multi-Space (or Rotomat)", chapter "System services lift control" "Printout setting" "Set printer".
- For MP 100D-5, see "Technical Description of the Microprocessor Control System MP 14 Lean-Lift and Multi-Space (or Rotomat)", chapter "System services lift control" -> "Printout setting" -> "Set printer".

4 Integration into Ethernet corporate network (only for installation, maintenance and IT specialists)

Installation of network printer if it has a static IP address (without DHCP server)

The printer port must be set manually on the MP control system. To do so, initialise the IP address of the printer.

- For MP 14-S, see "Technical Description of the Microprocessor Control System MP 14 Lean-Lift and Multi-Space (or Rotomat)", chapter "System services lift control" -> "Printout setting" -> "Set printer".
- For MP 100D-5, see "Technical Description of the Microprocessor Control System MP 14 Lean-Lift and Multi-Space (or Rotomat)", chapter "System services lift control" -> "Printout setting" -> "Set printer".

2nd step:

Setting the printed lines per page

The number of lines per page must be set. The default value for DIN A4-sized paper is 63.

- For MP 14-S, see "Technical Description of the Microprocessor Control System MP 14 Lean-Lift and Multi-Space (or Rotomat)", chapter "System services lift control" -> "Printout setting" -> "Set printer".
- For MP 100D-5, see "Technical Description of the Microprocessor Control System MP 14 Lean-Lift and Multi-Space (or Rotomat)", chapter "System services lift control" -> "Printout setting" -> "Set printer".

3rd step:

Setting printer emulation

The printer emulation must be set to POSTSCRIPT.

- For MP 14-S, see "Technical Description of the Microprocessor Control System MP 14 Lean-Lift and Multi-Space (or Rotomat)", chapter "System services lift control" -> "Printout setting" -> "Set printer".
- For MP 100D-5, see "Technical Description of the Microprocessor Control System MP 14 Lean-Lift and Multi-Space (or Rotomat)", chapter "System services lift control" -> "Printout setting" -> "Set printer".

4 Integration into Ethernet corporate network (only for installation, maintenance and IT specialists)

4.5 Integration into corporate network, Part II (Host communication)

4.5.1 SOAP data exchange integrated into the application of the ERP system



- Prerequisite is the completed integration into corporate network, Part I (Data screening using a browser) and the physical connection into corporate network.
- Continue right away with Chapter 6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

4.5.2 File transfer to the ERP system



- Prerequisite is the completed integration into corporate network, Part I (Data screening using a browser) and the physical connection into corporate network.
- If the "Installation support for host communication file transfer / data conversion" service has been ordered, the basis is the form filled in by the customer from **Chapter 14 Annex: customer form for integration into corporate network, Part II.**

1st step:

(S)FTP / CIFS server host communication

Refer also to Chapter 9.5 "Communication" menu on page 171.

2nd step:

File types

Refer also to Chapter 9.6 "File types" menu on page 173.

3rd step:

Data conversion

Refer also to Chapter 9.7 "Conversion" menu on page 181.

4th step:

File transfer

Refer also to Chapter 9.8 "File transfer" menu on page 184.



Installation support for host communication (file transfer / data conversion) can be ordered at extra charge from Hänel.

To do so, also refer to the form to be filled in by the customer from **Chapter 14 Annex: customer form for integration into corporate network, Part II.**

4 Integration into Ethernet corporate network (only for installation, maintenance and IT specialists) specialists

4.6 Control centre (HTTPS, firewall)



- Prerequisite for MP 100D-5 is at least a V6.2 system.
- Prerequisite for MP 14-S is at least a V5.3 system.

4.6.1 URL of starting screen

**Direct connection of browser
(e.g. laptop, PC) to MP control system**

`http://<IP address of MP multi-unit network>/controlcenter`
or
`http://<IP address of corporate network>/controlcenter`
or
`https://<IP address of MP multi-unit network>/controlcenter`
or
`https://<IP address of corporate network>/controlcenter`

**Intranet connection of browser
(e.g. laptop, PC) to MP control system**

`http://<IP address of MP multi-unit network>/controlcenter`
or
`http://<IP address of corporate network>/controlcenter`
or
`http://<MP name>/controlcenter`
or
`https://<IP address of MP multi-unit network>/controlcenter`
or
`https://<IP address of corporate network>/controlcenter`
or
`https://<MP name>/controlcenter`

4.6.2 Login

User (customer)

admin

Password (customer)

22488

The password can be changed.

User (service)

service

Password (service)

Service password

If the customer has forgotten their password, service can reset this password.

4 Integration into Ethernet corporate network (only for installation, maintenance and IT specialists)

4.6.3 Certificate maintenance (HTTPS)

- ◆ Display CA certificates of the system.
- ◆ Display manually imported CA certificates.
- ◆ Import CA certificates manually.
- ◆ Delete manually imported CA certificates.
- ◆ Generate/renew self-signed certificate.
- ◆ Export server certificate chain (format: PEM).
- ◆ Generate certificate signing request (format: CSR (certificate signing request)).
- ◆ Install server certificate chain (format: DER, PEM, PKCS#7 (P7B)).
- ◆ Back up and restore server certificate store.
The certificate store should be backed up after successful commissioning as well as before replacing the system flash cards.



- x The date, time and MP name are used in the self-signed certificate and for the certificate signing request. These parameters should be set correctly in the MP control system before working with the control centre.
- x If the validity period of a certificate has expired, an update using the control centre is necessary.

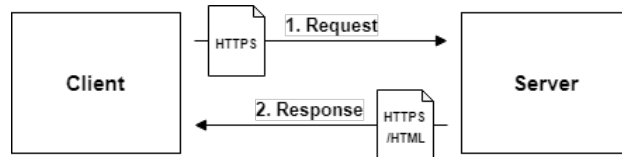
4 Integration into Ethernet corporate network (only for installation, maintenance and IT specialists)

4.6.3.1 Encrypted connection for program version MP 14-S/H[MP 14-S]/H[MP 100D-5]

Storage portal

PC browser

Web server
MP control system



Scenarios:

- A) The PC browser sets up an encrypted connection to the web server and trusts the self-signed server certificate of the MP control system.
- B) The PC browser client sets up an encrypted connection to the web server and trusts the self-signed server certificate of the MP control system after the certificate has been imported on the PC.

Functions in control centre:

- Export server certificate chain (format: PEM).

Customer:

- Import certificate chain.

- C) The PC browser sets up an encrypted connection to the web server and trusts the self-signed server certificate of the MP control system that has been signed by an internal or external certification authority after this certificate has been installed on the MP control system.

Functions in control centre:

- Generate certificate signing request (format: CSR (certificate signing request)).
- Install server certificate chain.

Customer:

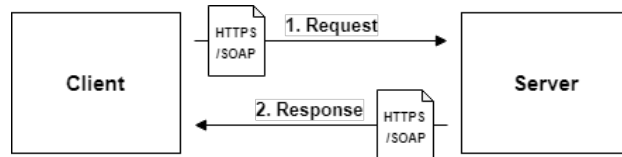
- Create server certificate chain as certificate signing request.
- If necessary, import the CA certificate on the PC.

4 Integration into Ethernet corporate network (only for installation, maintenance and IT specialists)

Host communication by
means of web service via
SOAP protocol

Web service client
Host

Web server
MP control system



Scenarios:

- A) The web service client sets up an encrypted connection to the web server and trusts the self-signed server certificate of the MP control system.
- B) The web service client sets up an encrypted connection to the web server and trusts the self-signed server certificate of the MP control system after the certificate has been imported on the host.

Functions in control centre:

- Export server certificate chain (format: PEM).

Customer:

- Import certificate chain.

- C) The web service client sets up an encrypted connection to the web server and trusts the self-signed server certificate of the MP control system that has been signed by an internal or external certification authority after this certificate has been installed on the MP control system.

Functions in control centre:

- Generate certificate signing request (format: CSR (certificate signing request)).
- Install server certificate chain.

Customer:

- Create server certificate chain as certificate signing request.
- If necessary, import CA certificate for web service client.

4 Integration into Ethernet corporate network (only for installation, maintenance and IT specialists)

4.6.4 Internal firewall

General

- ◆ The internal firewall is active at delivery. No port groups are additionally blocked.
- ◆ If an internal firewall is active without additional blocking of port groups, the following is true:
 - All unused ports are blocked.
 - No IP address ranges are blocked.
 - For an Ethernet MP multi-unit network, ports **2401-2408** and **3000-3008** are not blocked, because these are used for internal communication.
 - For a GSC multi-unit network, ports **2401-2408** and **3000-3008** are closed.
 - The ping command (ICMP echo request) is possible.
 - The port groups listed below can additionally be blocked, if necessary.

Port groups:

Service ports

These ports are used only for service purposes.
When the service ports are selected, ports **20**, **21**, **22** (for systems lower than "V7.0"), **2100**, **3600** are additionally disabled.

Camera / SSH port (system "V7.0" or higher)

This port is used for service purposes and for lifts/carousels with the supplementary feature "Hänel camera". When the camera / SSH port is selected, port **22** is additionally disabled.

Host communication ports

These ports are used when there is a connection to a host system.
When the host communication ports are selected, ports **2200** and **3500** are additionally blocked.

Web server port (HTTP)

This port is used for connecting a PC browser to the MP control system. When the web server port (HTTP) is selected, port **80** is additionally blocked.

Web server port (HTTPS)

This port is used for an encrypted connection between a PC browser and the MP control system. When the web server port (HTTPS) is selected, port **443** is additionally blocked.

IP address range

For internal purposes, one of the 16 IP address ranges 172.16.x.x to 172.31.x.x is used, depending on the initialisation. When the IP address range is selected, the initialised IP address range (e.g. 16) is blocked and no longer visible from outside. That is, a ping command is no longer possible in this address range. The remaining IP address ranges can be used as corporate network address ranges.



Caution: For an Ethernet MP multi-unit network, the IP address range must not be blocked if the camera supplementary feature is present or in the event of service work.

4 Integration into Ethernet corporate network (only for installation, maintenance and IT specialists)

4.6.5 Date & time (System "V 7.0" or higher)

General

- ◆ Display of current system time.
- ◆ Enable / disable the time synchronization using NTP time server
- ◆ Setting the system time manually

NTP time server synchronization

For the system time to be set corresponding to the location, the suitable time zone must be selected. The default setting of the MP control system for the time zone is UTC. If the MP control system obtains the network settings from a DHCP server and this server provides notification of the time server's address, no other information is required. If this is not the case, the IP address or host name of a reachable time server must be entered. Multiple time servers can also be stored.

Manual configuration

If no time server is reachable in the network, you can use the input window to set the date and time. Optionally, both entries can be made automatically by selecting "Synchronize with computer time". This uses the date and time of the computer with which the configuration is being carried out.

5 System services storage management (only for installation and maintenance personnel)



This chapter is intended for instructed installation and maintenance personnel.

Setting system parameters of storage management

Also refer to:

➤ Technical Description of the Microprocessor Control System MP 14 Lean-Lift and Multi-Space

or

➤ Technical Description of the Microprocessor Control System MP 14 Rotomat

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)



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

6.1 Overview of features

- ◆ The MP 14-S / MP 100D-5 makes the host communication module available to a customer-side host/PC system using a web service.
- ◆ A WSDL file (SOAP 1.1) for automatic code generation of the web service client is provided through the integrated MP control system web server.
- ◆ This makes it possible to program an interface to the MP control system independent of the platform and programming languages.
- ◆ Support for various methods of data transfer
See Chapter 6.6 on page 53.

6.2 Software requirement

MP control system

	Printed circuit board S0861
MP 100D-5 SYSTEM	V7.0
MP 100D-5 PACKAGE	V 7.2 STANDARD PACKAGE 1

	Printed circuit board S0861
MP 14 SYSTEM	V7.0
MP 14 PACKAGE	V 5.3 STANDARD PACKAGE 4

ERP system

- ◆ The ERP system on the host/PC system must support the HTTP-based SOAP 1.1 protocol.
- ◆ Developing a web service client requires a corresponding development environment for the favoured programming language and the option to generate a client service proxy from a WSDL file.
- ◆ Generation of passed objects and return projects as well as error handling has to be programmed on the customer side.

Configuration software for MP 100D-5 / MP 14-S Host-communication

- ◆ You can enable the web service interface using the configuration software.
See Chapter 9 on page 167.

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.3 General conventions

6.3.1 Character set



For character set conventions used, see Chapter 8.1 Page 151.

6.3.2 Data fields

See Chapter 8.2 on page 151.

6.3.3 Error codes

See Chapter 6.4.4 on page 48.

See Chapter 8.3 on page 157.

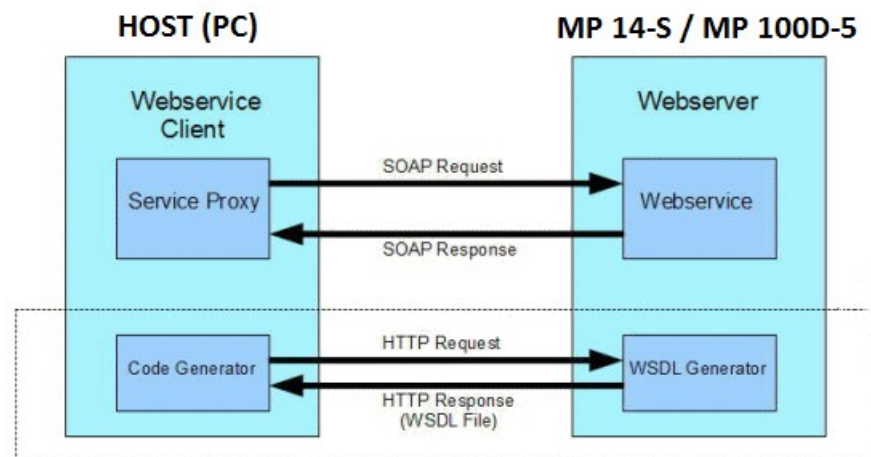
6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.4 "Com" web service

6.4.1 Function

- ◆ The MP control system provides access to the "Com" web service. This allows an application on a connected host/PC system to call the various methods of this web service in order to transfer data to and from the MP control system.

Overview of function



Programming the web service interface

- ◆ To call a web service, a web service client has to be programmed first. To do so, you can use, for example, an Eclipse development environment with a Java EE IDE for WebDevelopers and an Axis2 runtime environment. Other development environments/programming languages are also possible.

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

Calling up the web service interface

- ◆ A WSDL 1.1 file can be read out from the WSDL Generator of the MP14-S / MP 100D-5 system using an HTTP request (Port 80).
URL: `http://<IP address of the MP control system>/jwscom/services/Com?wsdl`
This WSDL file describes the interface between the web service and a web service client in XML form.
- ◆ Alternatively, an HTTPS request (Port 443) is possible.
- ◆ A service proxy as well as passed and return objects can now be created automatically in the desired programming language using the code generator for the customer's development environment.
- ◆ The methods of the "Com" service proxy can be called from the existing customer application with the corresponding passed objects, and the return objects for the customer application can be evaluated.
- ◆ Subsequently, error handling must be programmed.
- ◆ A method is considered non-blocking if the SOAP response is issued right after the SOAP request. For blocking methods, the amount of time between the SOAP request and SOAP response usually depends on the number and size of the data records to be transferred.
- ◆ **For this reason, you must ensure that the socket timeout of the client-server connection is deactivated or set to a high enough value.**
Example of timeout deactivation on a Java Axis2 client:
`comStub._getServiceClient().getOptions().setTimeoutInMilliseconds(0);`
- ◆ **The guide values specified in the web service methods for the processing time are not precise time specifications, but are intended to be inexact guide values for the programmer. The actual times depend on the data record size, the number of data records, the MP control system, the speed of the data transfer and the hardware and software used by the customer.**
- ◆ The Web application calls up the method of a Webservice client class on the host Web server. The method call is sent to the web service as a SOAP message in XML form via HTTP protocol (Port 80) on the MP control system. There, the SOAP message is converted back into a method call and the code programmed there is executed.
- ◆ Parameters can be passed to a method call in the form of objects (for example, Java Beans). The return parameters of a method are also returned in the form of objects. In addition, parameters for error handling are returned.

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.4.2 Configuration of a WSDL 1.1 file

Example: WSDL 1.1	Contents
definitions	<pre> <?xml version="1.0" encoding="UTF-8"?> <wsdl:definitions targetNamespace="http://main.jws.com.hanel.de" xmlns:ns="http://main.jws.com.hanel.de" xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl" xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/" xmlns:http="http://schemas.xmlsoap.org/wsdl/http/" xmlns:ax21="http://main.jws.com.hanel.de/ax21" xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/" xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/" xmlns:soap12="http://schemas.xmlsoap.org/wsdl/soap12/"> <wsdl:documentation> Web service V 2.0 standard on MP14-S / MP100D-5 </wsdl:documentation> </pre>
types	<pre> <xs:complexType name="JobPositionTypeV01"> <xs:sequence> <xs:element minOccurs="1" name="articleNumber" nillable="false" type="xs:string"/> <xs:element minOccurs="1" name="operation" nillable="false" type="xs:string"/> <xs:element minOccurs="1" name="nominalQuantity" nillable="false" type="xs:string"/> <xs:element minOccurs="0" name="actualQuantity" nillable="false" type="xs:string"/> <xs:element minOccurs="0" name="containerSize" nillable="false" type="xs:int"/> <xs:element minOccurs="0" name="positionStatus" nillable="false" type="xs:int"/> <xs:element minOccurs="0" name="property" nillable="false" type="xs:string"/> <xs:element minOccurs="0" name="u01SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="u02SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="u03SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="u04SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="u05SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="u06SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="u07SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="u08SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="u09SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="u10SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="u11SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="u12SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="u13SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="u14SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="u15SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="u16SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="u17SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="u18SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="u19SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="u20SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="u21SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="u22SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="u23SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="u24SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="u25SpecialField" nillable="true" type="xs:string"/> </xs:sequence> </xs:complexType> <xs:complexType name="JobTypeV01"> <xs:sequence> <xs:element minOccurs="1" name="jobNumber" nillable="false" type="xs:string"/> <xs:element minOccurs="0" name="jobPriority" nillable="true" type="xs:int"/> <xs:element minOccurs="0" name="jobStatus" nillable="true" type="xs:int"/> <xs:element minOccurs="0" name="jobDate" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="jobTime" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="c01SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="c02SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="c03SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="c04SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="c05SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="c06SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="c07SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="c08SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="c09SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="c10SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="c11SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="c12SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="c13SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="c14SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="c15SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="c16SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="c17SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="c18SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="c19SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="c20SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="c21SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="c22SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="c23SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="c24SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="c25SpecialField" nillable="true" type="xs:string"/> <xs:element minOccurs="0" name="maxOccurs" type="unbounded" minOccurs="1" name="JobPosition" type="ax21:JobPositionTypeV01"/> </xs:sequence> </xs:complexType> </pre>
message	<pre> <wsdl:message name="sendJobsReqV01"> <wsdl:part name="parameters" element="ns:sendJobsReqV01"/> </wsdl:message> <wsdl:message name="sendJobsResV01"> <wsdl:part name="parameters" element="ns:sendJobsResV01"/> </wsdl:message> </pre>

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

portType	<pre> <wsdl:portType name="ComPortType"> <wsdl:operation name="sendJobsV01"> <wsdl:documentation>Send jobs</wsdl:documentation> <wsdl:input message="ns:sendJobsReqV01" wsaw:Action="urn:sendJobsReqV01"> </wsdl:input> <wsdl:output message="ns:sendJobsResV01" wsaw:Action="urn:sendJobsResV01"> </wsdl:output> </wsdl:operation> </wsdl:portType> </pre>
binding	<pre> <wsdl:binding name="ComSoap11Binding" type="ns:ComPortType"> <soap:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/> <wsdl:operation name="sendJobsV01"> <soap:operation soapAction="" style="document"/> <wsdl:input> <soap:body use="Literal"/> </wsdl:input> <wsdl:output> <soap:body use="Literal"/> </wsdl:output> </wsdl:operation> </wsdl:binding> </pre>
service	<pre> <wsdl:service name="Com"> <wsdl:documentation>web service interface between Haenel MP14-S / MP100D-5 controls and host systems</wsdl:documentation> <wsdl:port name="ComHttpSoap11Endpoint" binding="ns:ComSoap11Binding"> <soap:address location="http://localhost:8080/JWSCom/services/Com.ComHttpSoap11Endpoint/"> </soap:address> </wsdl:port> </wsdl:service> </wsdl:definitions> </pre>

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.4.3 SOAP messages

SOAP message

The web service client generated from the WSDL file has to support SOAP 1.1. Method calls are implemented in SOAP requests. Each SOAP request consists of a passed message, which in turn contains the passed parameters. The return parameters are returned as a SOAP response in a return message. The "Vxx" ending at the end of each method and each object type is used for version management and distinguishes it from future versions of a method. See the example below with the "sendJobsV01" method.

SOAP request (Example)

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:q0="http://main.jws.com.hanel.de" xmlns:q1="http://main.jws.com.hanel.de/xsd"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soapenv:Body>
    <_ q0:sendJobsReqV01>
      <_ q0:param>
        <_ q1:job>
          <q1:jobNumber>job172334</q1:jobNumber>
          <q1:jobPriority>100</q1:jobPriority>
          <q1:c01SpecialField>12003</q1:c01SpecialField>
          <_ q1:JobPosition>
            <q1:articleNumber>1000035</q1:articleNumber>
            <q1:operation>-</q1:operation>
            <q1:nominalQuantity>12</q1:nominalQuantity>
            <q1:u08SpecialField>14003</q1:u08SpecialField>
          </q1:JobPosition>
          <_ q1:JobPosition>
            <q1:articleNumber>1000070</q1:articleNumber>
            <q1:operation>-</q1:operation>
            <q1:nominalQuantity>5</q1:nominalQuantity>
            <q1:u08SpecialField>14004</q1:u08SpecialField>
          </q1:JobPosition>
        </q1:job>
      </q0:param>
    </q0:sendJobsReqV01>
  </soapenv:Body>
</soapenv:Envelope>
```

SOAP response (Example)

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/">
  <_ soapenv:Body>
    <_ ns2:sendJobsResV01 xmlns:ns2="http://main.jws.com.hanel.de">
      <_ ns2:return>
        <ns1:returnValue>xmlns:ns1="http://main.jws.com.hanel.de/xsd">0</ns1:returnValue>
      </ns2:return>
    </ns2:sendJobsResV01>
  </soapenv:Body>
</soapenv:Envelope>
```

Binding

http://<IP address of the MP control system>/jwscom/services/Com.ComHttpSoap11Endpoint

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.4.4 Passed/return parameters

General information about the passed parameters

A method can be called up without or with passed parameters. This depends on the selected method. For a method call with passed parameters, these are passed to the method in the form of an object (for example, Java Bean). All parameters do not always have to be used within an object. Whether a parameter has to be set and what value it has to have can be found in the tables of Chapter 6.6 Methods in the standard. If a passed parameter is to be set, you can get information about its type and the value range from the tables in Chapter 6.6 Methods in the standard.

General information about the return parameters

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

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

Each return object has a "**returnValue**" parameter that is always returned.

There are also alternative parameters such as "**errorNumber**", "**errorMessage**" and "**errorIndex**" that describe an error more precisely if they are returned.

General return parameters

return Value	Meaning		
0	OK, method was executed correctly. Remaining return parameters are valid		
	returnErrorNumber	returnErrorMessage	returnErrorIndex
	1	No job available	-
	2	Job is not available	-
	3	No requisition available	-
	4	Requisition is not available	-
	5	Article is not available	-
1	reserved		
2	Method was not executed because a method which has already been called up has not responded in at least 10 sec. Try again at a later time. Remaining return parameters are invalid.		
	returnErrorNumber	returnErrorMessage	returnErrorIndex
	201	Connection to MP at work. Try it later once again.	-
3	reserved		
4	Method was not executed because it is not available.		
	returnErrorNumber	returnErrorMessage	returnErrorIndex
	401	Quantity journal not available. Please check MP-initialisation.	-
	402	Operation journal not available. Please check MP-initialisation.	-

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

return Value	Meaning		
	403	Article pool data not available. Please check MP-initialisation.	
5	Method was not executed as the MP control system is not yet ready. The MP control system could be shut off or in the start-up phase.		
	returnErrorNumber	returnErrorMessage	returnErrorIndex
	501	MP not ready. Try it later once again.	-
	502	Cannot receive data from MP	-
	503	Cannot send data to MP	-
6	Internal error. Used for troubleshooting/analysis during programming. Additional error parameters enable more precise localization of the problem. If the problem initially occurs in a specific data record, the returnErrorIndex points to the number of the transferred data record that caused the problem. Remaining return parameters are invalid.		
	returnErrorNumber	returnErrorMessage	returnErrorIndex
	601	Failed to open <file>	-
	602	Unsupported encoding exception	-
	603	IO exception	-
	604	Cannot start request	-
	605	Failed to write	0-n
7	The MP storage management system has detected an error due to data that do not match. Remaining return parameters are invalid.		
	returnErrorNumber	returnErrorMessage	returnErrorIndex
	Error code according to Chapter 8.3 Error codes.	Error text according to Chapter 8.3 Error codes.	0-n

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.5 Overview of the individual methods of the "Com" web service

Methods in the standard	Description	Reference
sendAllAMDV01	Transfers the article master data of all articles to the MP control system. (Incl. article pool and free location data) Older version.	See Chapter 6.6.1 on page 53
sendAllAMDV03	Transfers the article master data of all articles to the MP control system. (Incl. article pool and free location data) Supports batch management.	See Chapter 6.6.2 on page 54
sendAllAMDV02	Transfers the article master data of all articles to the MP control system. (Excl. article pool and free location data) Older version.	See Chapter 6.6.3 on page 55
sendAllAMDV04	Transfers the article master data of all articles to the MP control system. (Excl. article pool and free location data) Supports batch management.	See Chapter 6.6.4 on page 56
readAMDV01	Reads out the article master data of a defined article from the MP control system. Older version	See Chapter 6.6.5 on page 57
readAMDV02	Reads out the article master data of a defined article from the MP control system. Supports batch management.	See Chapter 6.6.6 on page 58
readAllAMDV01	Reads the article master data of all articles from the MP control system. (Incl. article pool and free location data) Older version.	See Chapter 6.6.7 on page 59
readAllAMDV03	Reads the article master data of all articles from the MP control system. (Incl. article pool and free location data) Supports batch management.	See Chapter 6.6.8 on page 60
readAllAMDV02	Reads the article master data of all articles from the MP control system. (Excl. article pool and free location data)	See Chapter 6.6.9 on page 61
readAllAMDV04	Reads the article master data of all articles from the MP control system. (Excl. article pool and free location data) Supports batch management.	See Chapter 6.6.10 on page 62
readOrdRecomV01	Read the order recommendation list from the MP control system. (only possible in storage management systems with inventory control) Older version.	See Chapter 6.6.11 on page 63
readOrdRecomV02	Read the order recommendation list from the MP control system. (Only possible in storage management systems with inventory control) Replaces readOrdRecomV01.	See Chapter 6.6.12 on page 64
readQjournalV01	Reads the quantity journal from the MP control system.	See Chapter 6.6.13 on page 66
sendJobsV01	Transfers one or more jobs with job items to the MP control system. Older version.	See Chapter 6.6.14 on page 67

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

sendJobsV02	Transfers one or more jobs with job items to the MP control system. Supports batch management.	See Chapter 6.6.15 on page 68
readJobV01	Reads a defined job with job items from the MP-control system. Older version.	See Chapter 6.6.16 on page 70
readJobV02	Reads a defined job with job items from the MP control system. Supports batch management.	See Chapter 6.6.17 on page 71
readAllJobsV01	Reads all jobs from the MP control system. Older version.	See Chapter 6.6.18 on page 72
readAllJobsV02	Reads all jobs from the MP control system. Supports batch management.	See Chapter 6.6.19 on page 73
readAllJobsSumV01	Reads out all jobs without items from the MP control system.	See Chapter 6.6.20 on page 74
deleteJobV01	Deletes a defined job from the MP control system.	See Chapter 6.6.21 on page 75
deleteAllJobsV01	Deletes all jobs from the MP control system.	See Chapter 6.6.22 on page 76

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

Methods for supplementary modules	Description	Reference
sendAPDV01	Transfers one or more sets of article pool data to the MP control system. Older version.	See Chapter 6.7.4 on page 83
sendAPDV02	Transfers one or more sets of article pool data to the MP control system. (adding data field G)) Older version.	See Chapter 6.7.5 on page 84
sendAPDV03	Transfers one or more sets of article pool data to the MP control system. Supports batch management.	See Chapter 6.7.6 on page 85
readAllAPDV01	Reads all article pool data from the MP control system. (with and without storage locations) Older version.	See Chapter 6.7.7 on page 86
readAllAPDV02	Reads all article pool data from the MP control system. (with and without storage locations) Supports batch management.	See Chapter 6.7.8 on page 87
deleteAPDV01	Deletes a defined article pool data record from the MP control system.	See Chapter 6.7.9 on page 88
deleteAllAPDV01	Deletes all article pool data records from the MP control system.	See Chapter 6.7.10 on page 89
readOpjournalV01	Reads the operations journal from the MP control system.	See Chapter 6.7.1 on page 77
readOpjournalV02	Reads the operations journal from the MP control system. Supports batch management.	See Chapter 6.7.2 on page 79
readOpjournalV03	Reads the operations journal from the MP control system. Supports nominal quantity	See Chapter 6.7.3 on page 81
sendFREVO1	Transfers all sets or individual sets of article pool data to the MP control system.	See Chapter 6.7.11 on page 90
readAllFREVO1	Reads all free location data from the MP control system	See Chapter 6.7.12 on page 91
sendLNDV01	Transfers all lending data to the MP control system	See Chapter 6.7.14 on page 93
readAllLNDV01	Reads all lending data from the MP control system	See Chapter 6.7.13 on page 92
sendREVV01	Transfers all reservation data to the MP control system	See Chapter 6.7.16 on page 95
readAllREVV01	Reads all reservation data from the MP control system	See Chapter 6.7.15 on page 94

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.6 Methods in the standard

Methods and objects marked as "older version" are still supported for compatibility reasons. However, these should not be used for new systems.

6.6.1 "sendAllAMDV01" method - transfer article master data, including article pool and free location data (older version)

Description

With this method, the host has the ability to transfer all article master data to the MP control system. To do so, the article management of the MP control system must be empty and formatted. As soon as article master data is available, no additional article master data can be transferred. The maximum number of data records to be transferred (n) depends on the MP control system.

For MP 100D-5: n = 100000. For MP-14N-S: n = 10000.

Article pool data can also be read in for the supplementary module "article pool management". Article pool data are transmitted in the same AMDTypeV01 object as a subset of the article master data records. The data field "liftNumber" must be set to 0 for purposes of differentiation.

For the "free location management" supplementary module, the free location data records can also be read in first. Free location data records are transmitted in the same object AMDTypeV01. The data field "articleNumber" must be filled with " " and the data field "fifo" with '0' for purposes of differentiation.

The processing time of this method can vary depending on the number and size of the article master data records. Guide values for article number = 20 characters, article name = 40 characters and H01 special data field = 20 characters:

1,000 articles approx. 5 sec., 10,000 articles approx. 40 sec., 100,000 articles approx. 8 min.

Passed message

Message type **SendAllAMDReqV01** Contains passed parameters

Passed parameters

Object type **ParSendAllAMDV01**

Parameter value	Meaning	Type	Area	Mandatory
articles[1-n]	1-n article master data. See Chapter 6.8.1 on page 96.	AMDTypeV01	1-n	Yes

Return message

Message type **SendAllAMDResV01** Contains return parameters

Return parameters

Object type **RetSendAllAMDV01**

Parameters	Meaning	Type	Area	Mandatory
returnValue	General return value	Int	0-7	Yes
errorNumber	General error number	Int	0-x	No
errorMessage	General error message	String	0-x characters	No
errorIndex	General error index	Int	0-x	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.6.2 "sendAllAMDV03" method - transfer article master data, including article pool and free location data

Description This method also supports the supplementary module Batch management and thus replaces the method sendAllAMDV01. With this method, the host has the ability to transfer all article master data to the MP control system. To do so, the article management of the MP control system must be empty and formatted. As soon as article master data is available, no additional article master data can be transferred. The maximum number of data records to be transferred (n) depends on the MP control system.

For MP 100D-5: n= 100000. For MP-14N-S: n = 10000.

Article pool data can also be read in for the supplementary module "article pool management". Article pool data are transmitted in the same AMDTypeV02 object as a subset of the article master data records. The data field "liftNumber" must be set to 0 for purposes of differentiation.

For the "free location management" supplementary module, the free location data records can also be read in first. Free location data records are transmitted in the same object AMDTypeV02. The data field "articleNumber" must be filled with " " and the data field "fifo" with '0' for purposes of differentiation.

The processing time of this method can vary depending on the number and size of the article master data records. Guide values for article number = 20 characters, article name = 40 characters and H01 special data field = 20 characters:

1,000 articles approx. 5 sec., 10,000 articles approx. 40 sec., 100,000 articles approx. 8 min.

Passed message Message type **SendAllAMDReqV03** Contains passed parameters

Passed parameters Object type **ParSendAllAMDV03**

Parameter value	Meaning	Type	Area	Mandatory
articles[1-n]	1-n article master data. See Chapter 6.8.2 on page 97	AMDTypeV02	1-n	Yes

Return message Message type **SendAllAMDResV03** Contains return parameters

Return parameters Object type **RetSendAllAMDV03**

Parameters	Meaning	Type	Area	Mandatory
returnValue	General return value	Int	0-7	Yes
errorNumber	General error number	Int	0-x	No
errorMessage	General error message	String	0-x characters	No
errorIndex	General error index	Int	0-x	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.6.3 "sendAllAMDV02" method - transfer article master data (older version)

Description

With this method, the host has the ability to transfer all article master data to the MP control system. To do so, the article management of the MP control system must be empty and formatted. As soon as article master data is available, no additional article master data can be transferred. The maximum number of data records to be transferred (n) depends on the MP control system.

For MP 100D-5: n= 100000. For MP-14-S: n = 10000.

Unlike **sendAllAMDV01** no article pool data and no free location data are transferred. New methods such as **sendAPDV03** and **sendFREVO1** are available for this purpose.

The processing time of this method can vary depending on the number and size of the article master data records. Guide values for article number = 20 characters, article name = 40 characters and H01 special data field = 20 characters:

1,000 articles approx. 5 sec., 10,000 articles approx. 40 sec., 100,000 articles approx. 8 min.

Passed message

Message type **SendAllAMDReqV02** Contains passed parameters

Passed parameters

Object type **ParSendAllAMDV02**

Parameter value	Meaning	Type	Area	Mandatory
articles[1-n]	1-n article master data. See Chapter 6.8.1 on page 96.	AMDTypeV01	1-n	Yes

Return message

Message type **SendAllAMDResV02** Contains return parameters

Return parameters

Object type **RetSendAllAMDV02**

Parameters	Meaning	Type	Area	Mandatory
returnValue	General return value	Int	0-7	Yes
errorNumber	General error number	Int	0-x	No
errorMessage	General error message	String	0-x characters	No
errorIndex	General error index	Int	0-x	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.6.4 "sendAllAMDV04" method - transfer article master data

Description This method also supports the supplementary module Batch management and thus replaces the method sendAllAMDV02. With this method, the host has the ability to transfer all article master data to the MP control system. To do so, the article management of the MP control system must be empty and formatted. As soon as article master data is available, no additional article master data can be transferred. The maximum number of data records to be transferred (n) depends on the MP control system.

For MP 100D-5: n= 100000. For MP-14-S: n = 10000.

Unlike **sendAllAMDV02**, no article pool data and no free location data are transferred. New methods such as **sendAPDV03** and **sendFREVO1** are available for this purpose.

The processing time of this method can vary depending on the number and size of the article master data records. Guide values for article number = 20 characters, article name = 40 characters and H01 special data field = 20 characters:

1,000 articles approx. 5 sec., 10,000 articles approx. 40 sec., 100,000 articles approx. 8 min.

Passed message Message type **SendAllAMDReqV04** Contains passed parameters

Passed parameters Object type **ParSendAllAMDV04**

Parameter value	Meaning	Type	Area	Mandatory
articles[1-n]	1-n article master data. See Chapter 6.8.2 on page 97	AMDTypeV02	1-n	Yes

Return message Message type **SendAllAMDResV04** Contains return parameters

Return parameters Object type **RetSendAllAMDV04**

Parameters	Meaning	Type	Area	Mandatory
returnValue	General return value	Int	0-7	Yes
errorNumber	General error number	Int	0-x	No
errorMessage	General error message	String	0-x characters	No
errorIndex	General error index	Int	0-x	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.6.5 "readAMDV01" method - read out the article master data of an article (older version)

Description

With this method, the host has the ability to read the article master data of a defined article from the MP control system. The maximum number of data records to be read out (n) is 255.

If the article is not available, then no article master data record is acknowledged. This method receives the following reply: returnValue = 0.

The method is not blocking.

Passed message

Message type **ReadAMDReqV01** Contains passed parameters

Passed parameters

Object type **ParReadAMDV01**

Parameter value	Meaning	Type	Area	Mandatory
articleNumber	Article number whose master data is to be read.	String	1-40 characters	Yes

Return message

Message type **ReadAMDResV01** Contains return parameters

Return parameters

Object type **RetAMDV01**

Parameters	Meaning	Type	Area	Mandatory
articles[0-n]	Article master data record can be present [0-n] times. See Chapter 6.8.1 on page 96.	AMDTypeV01	0-n	Yes
returnValue	General return value	Int	0-7	Yes
errorNumber	General error number	Int	0-x	No
errorMessage	General error message	String	0-x characters	No
errorIndex	General error index	Int	0-x	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.6.6 "readAMDV02" method - read out the article master data of an article

Description

This method also supports the supplementary module Batch management and thus replaces the method readAMDV01. With this method, the host has the ability to read the article master data of a defined article from the MP control system. The maximum number of data records to be read out (n) is 255.

If the article is not available, then no article master data record is acknowledged. This method receives the following reply: returnValue = 0.

The method is not blocking.

Passed message

Message type **ReadAMDReqV02** Contains passed parameters

Passed parameters

Object type **ParReadAMDV02**

Parameter value	Meaning	Type	Area	Mandatory
articleNumber	Article number whose master data is to be read.	String	1-40 characters	Yes

Return message

Message type **ReadAMDResV02** Contains return parameters

Return parameters

Object type **RetAMDV02**

Parameters	Meaning	Type	Area	Mandatory
articles[0-n]	Article master data record can be present [0-n] times. See Chapter 6.8.2 on page 97.	AMDTypeV02	0-n	Yes
returnValue	General return value	Int	0-7	Yes
errorNumber	General error number	Int	0-x	No
errorMessage	General error message	String	0-x characters	No
errorIndex	General error index	Int	0-x	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.6.7 "readAllAMDV01" method - read out all article master data (older version)

Description

With this method, the host has the ability to read all article master data stored in the MP control system. The maximum number of data records to be read out (n) depends on the MP control system.

For MP 100D-5: n= 100000. For MP-14-S: n = 10000.

For the supplementary module "article pool management", article pool data are also read out in the same object type (**AMDTypeV01**). Also refer to Chapter 7.5.2 on page 127. The "liftNumber" data field is set to 0 for the purpose of differentiation.

For the supplementary module "free location management", free location data are also read out in the same object type (**AMDTypeV01**). Also refer to Chapter 7.5.5 on page 139. The "articleNumber" data field must be filled with " " and the "fifo" data field must be filled with '0' for the purpose of differentiation from the article master data.

The processing time of this method can vary depending on the number and size of the article master data records.

Guide values for article number = 20 characters, article name = 40 characters and H01 special data field = 20 characters:

1,000 articles approx. 5 sec., 10,000 articles approx. 40 sec., 100,000 articles approx. 18 min.

Passed message

Message type **ReadAllAMDReqV01** Contains passed parameters

Passed parameters

None

Return message

Message type **ReadAllAMDResV01** Contains return parameters

Return parameters

Object type **RetAllAMDV01**

Parameters	Meaning	Type	Area	Mandatory
articles[0-n]	Article master data record can be present [0-n] times. See Chapter 6.8.1 on page 96.	AMDTypeV01	0-n	Yes
returnValue	General return value	Int	0-7	Yes
errorNumber	General error number	Int	0-x	No
errorMessage	General error message	String	0-x characters	No
errorIndex	General error index	Int	0-x	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.6.8 "readAllAMDV03" method - read out all article master data

Description

This method also supports the supplementary module Batch management and thus replaces the method readAllAMDV01. With this method, the host has the ability to read all article master data stored in the MP control system. The maximum number of data records to be read out (n) depends on the MP control system.

For MP 100D-5: n = 100000. For MP-14-S: n = 10000.

For the supplementary module "article pool management", article pool data is also read out in the same object type (**AMDTypeV02**). Also refer to Chapter 7.5.2 on page 127. The "liftNumber" data field is set to 0 for the purpose of differentiation.

For the supplementary module "free location management", free location data is also read out in the same object type (**AMDTypeV02**). Also refer to Chapter 7.5.5 on page 139. The "articleNumber" data field must be filled with " " and the "fifo" data field must be filled with '0' for the purpose of differentiation from the article master data.

The processing time of this method can vary depending on the number and size of the article master data records.

Guide values for article number = 20 characters, article name = 40 characters and H01 special data field = 20 characters:

1,000 articles approx. 5 sec., 10,000 articles approx. 40 sec., 100,000 articles approx. 18 min.

Passed message

Message type **ReadAllAMDReqV03** Contains passed parameters

Passed parameters

None

Return message

Message type **ReadAllAMDResV03** Contains return parameters

Return parameters

Object type **RetAllAMDV03**

Parameters	Meaning	Type	Area	Mandatory
articles[0-n]	Article master data record can be present [0-n] times. See Chapter 6.8.2 on page 97	AMDTypeV02	0-n	Yes
returnValue	General return value	Int	0-7	Yes
errorNumber	General error number	Int	0-x	No
errorMessage	General error message	String	0-x characters	No
errorIndex	General error index	Int	0-x	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.6.9 "readAllAMDV02" method - read out all article master data (older version)

Description

With this method, the host has the ability to read all article master data stored in the MP control system. The maximum number of data records to be read out (n) depends on the MP control system.
For MP 100D-5: n= 100000. For MP-14-S: n = 10000.
For "article pool management" supplementary modules, this command does not read out article pool data. Also refer to the method "**readAllAPDV02**".
For the "article pool management" supplementary module, this command does not read out free location data. Also refer to the method "**readAllFREV01**".
The processing time of this method can vary depending on the number and size of the article master data records.
Guide values for article number = 20 characters, article name = 40 characters and H01 special data field = 20 characters:
1,000 articles approx. 5 sec., 10,000 articles approx. 40 sec., 100,000 articles approx. 18 min.

Passed message

Message type	ReadAllAMDReqV02	Contains passed parameters
--------------	-------------------------	----------------------------

Passed parameters

None

Return message

Message type	ReadAllAMDResV02	Contains return parameters
--------------	-------------------------	----------------------------

Return parameters

Object type	RetAllAMDV02
-------------	---------------------

Parameters	Meaning	Type	Area	Mandatory
articles[0-n]	Article master data record can be present [0-n] times. See Chapter 6.8.1 on page 96.	AMDTypeV01	0-n	Yes
returnValue	General return value	Int	0-7	Yes
errorNumber	General error number	Int	0-x	No
errorMessage	General error message	String	0-x characters	No
errorIndex	General error index	Int	0-x	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.6.10 "readAllAMDV04" method - read out all article master data

Description This method also supports the supplementary module Batch management and thus replaces the method readAllAMDV02. With this method, the host has the ability to read all article master data stored in the MP control system. The maximum number of data records to be read out (n) depends on the MP control system.

For MP 100D-5: n= 100000. For MP-14-S: n = 10000.

For "article pool management" supplementary modules, this command does not read out article pool data. Also refer to the method "**readAllAPDV02**".

For the "article pool management" supplementary module, this command does not read out free location data. Also refer to the method "**readAllFREVO1**".

The processing time of this method can vary depending on the number and size of the article master data records.

Guide values for article number = 20 characters, article name = 40 characters and H01 special data field = 20 characters:

1,000 articles approx. 5 sec., 10,000 articles approx. 40 sec., 100,000 articles approx. 18 min.

Passed message Message type **ReadAllAMDReqV04** Contains passed parameters

Passed parameters None

Return message Message type **ReadAllAMDResV04** Contains return parameters

Return parameters Object type **RetAllAMDV04**

Parameters	Meaning	Type	Area	Mandatory
articles[0-n]	Article master data record can be present [0-n] times. See Chapter 6.8.2 on page 97.	AMDTypeV02	0-n	Yes
returnValue	General return value	Int	0-7	Yes
errorNumber	General error number	Int	0-x	No
errorMessage	General error message	String	0-x characters	No
errorIndex	General error index	Int	0-x	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.6.11 "readOrdRecomV01" method - read out order recommendation list (older version)

Description

With this method, the host has the ability to read out an order recommendation list from the MP control system for lifts/carousels with inventory control.

The order recommendation list contains information relating to articles for which the total inventory has dropped below the minimum inventory. An article is listed in the order recommendation list, as long as its inventory is less than its minimum inventory. If an article is read out for the first time, its status is '0'. For each additional read-out process, its status accounts for '1'. This prevents an already read out and ordered article from being re-ordered.

The maximum number of data records to be read (n) depends on the MP control system. For MP 100D-5: n= 100000. For MP-14-S: n = 10000.

The processing time of this method can vary depending on the number and size of the order recommendation data records.

Guide values for article number = 20 characters, article name = 40 characters and H01 special data field = 20 characters:
1,000 articles approx. 10 sec., 10,000 articles approx. 1:30 min.

Passed message

Message type	ReadOrdRecomReqV01	Contains passed parameters
--------------	---------------------------	----------------------------

Passed parameters

None

Return message

Message type	ReadOrdRecomResV01	Contains return parameters
--------------	---------------------------	----------------------------

Return parameters

Object type	RetReadOrdRecomV01
-------------	---------------------------

Parameters	Meaning	Type	Area	Mandatory
orderRecommendationPositions[0-n]	Order recommendation item can be present 1-n times. See Chapter 6.8.3 on page 99.	OrdRecomPosTypeV01	0-n	No
returnValue	General return value	Int	0-7	Yes
errorNumber	General error number	Int	0-500	No
errorMessage	General error message	String	0-x characters	No
errorIndex	General error index	Int	0-100000	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.6.12 "readOrdRecomV02" method - read out order recommendation list

Description With this method, the host has the ability to read out an order recommendation list from the MP control system for lifts/carousels with inventory control. This method expands the method readOrdRecomV01.

The order recommendation list contains information relating to articles for which the total inventory has dropped below the minimum inventory. An article is listed in the order recommendation list, as long as its inventory is less than its minimum inventory.

The "mode" passed parameter can be used to define whether or not the exported order recommendation data records are to be marked as ordered after the read out. If a data record marked as ordered is exported again, its status will be '1' instead of '0'.

This prevents an already read out and ordered article from being re-ordered.

The maximum number of data records to be read (n) depends on the MP control system. For MP 100D-5: n= 100000. For MP-14-S: n = 10000.

The processing time of this method can vary depending on the number and size of the order recommendation data records.

Guide values for article number = 20 characters, article name = 40 characters and H01 special data field = 20 characters:

1,000 articles approx. 10 sec., 10,000 articles approx. 1:30 min.

Passed message Message type **ReadOrdRecomReqV02** Contains passed parameters

Passed parameters Object type **ParReadOrdRecomV02**

Parameter value	Meaning	Type	Area	Mandatory
modus	'0': Read order recommendation data records. Then the data records are not marked as ordered. (Status remains '0') '1': Read order recommendation data records. Then the data records are marked as ordered. (Status becomes '1', function such as readOrdRecomV01)	Int	0-1	Yes

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

Return message Message type **ReadOrdRecomResV02** Contains return parameters

Return parameters Object type **RetReadOrdRecomV02**

Parameters	Meaning	Type	Area	Mandatory
orderRecommendationPositions[0-n]	Order recommendation item can be present 1-n times. See Chapter 6.8.3 on page 99.	OrdRecomPosTypeV01	0-n	No
returnValue	General return value	Int	0-7	Yes
errorNumber	General error number	Int	0-500	No
errorMessage	General error message	String	0-x characters	No
errorIndex	General error index	Int	0-100000	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.6.13 "readQjournalV01" method - read out a quantity journal

Description With this method, the host has the ability to read out all entry and exit points of an article. This provides information about the turnover ratio of the articles. The quantity journal must be formatted in the MP control system. The maximum number of data records to be read out (n) depends on the MP control system.
For MP 100D-5: n= 100000. For MP-14-S: n = 10000.
After being read out, the quantity journal is deleted automatically.
The processing time of this method can vary depending on the number of quantity journal data records.

Passed message Message type **ReadQjournalReqV01** Contains passed parameters

Passed parameters None

Return message Message type **ReadQjournalResV01** Contains return parameters

Return parameters Object type **RetReadQjournalV01**

Parameters	Meaning	Type	Area	Mandatory
qjournalPositions [0-n]	Quantity journal data record can be present [0-n] times. See Chapter 6.8.4 on page 100.	QjournalPosTypeV01	0-n	Yes
returnValue	General return value	Int	0-7	Yes
errorNumber	General error number	Int	0-x	No
errorMessage	General error message	String	0-x characters	No
errorIndex	General error index	Int	0-x	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.6.14 "sendJobsV01" method - transfer jobs (older version)

Description

With this method, the host has the ability to transfer one or more jobs together to the MP control system.

A priority level can be assigned to a job to give a job with the "Quick job processing selection" function preference or to designate it as a low priority. When the priority level is the same, the date and time of the transfer determine the processing sequence.

Unlike the other jobs, a job with priority '0' is not deleted after processing or after read-back, but remains in the job memory.

You can add to jobs by transferring the job number and the additional job items.

Requirements:

The job must not be in progress.

"Supplement through host communication" must be enabled.

For MP 14-S, see "Technical Description of the Microprocessor Control System MP 14 Lean-Lift and Multi-Space" (or "Rotomat"), chapter "System services lift control" → "System configuration" → "Setting supplementary functions" → "Supplement through host communication".

For MP 100D-5, see "Technical Description of the Microprocessor Control System MP 14 Lean-Lift and Multi-Space" (or "Rotomat"), chapter "System services lift control" → "System configuration" → "Setting supplementary functions" → "Supplement through host communication".

Maximum number of jobs with an empty job memory (n).

For MP 100D-5: n= 4000. For MP-14-S: n = 1000.

The processing time of this method can vary depending on the number and size of the job items.

1 job with 1000 items, approx. 5 sec.

Passed message

Message type **SendJobsReqV01** Contains passed parameters

Passed parameters

Object type **ParSendJobsV01**

Parameter value	Meaning	Type	Area	Mandatory
job[1-n]	Jobs can be present 1-n times. See Chapter 6.8.5 on page 101.	JobTypeV01	1-n	Yes

Return message

Message type **SendJobsResV01** Contains return parameters

Return parameters

Object type **RetSendJobsV01**

Parameters	Meaning	Type	Area	Mandatory
returnValue	General return value	Int	0-7	Yes
errorNumber	General error number	Int	0-x	No
errorMessage	General error message	String	0-x characters	No
errorIndex	General error index	Int	0-x	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.6.15 "sendJobsV02" method - transfer jobs

Description

This method also supports the supplementary module Batch management and thus replaces the method sendJobsV01. With this method, the host has the ability to transfer one or more jobs together to the MP control system.

A priority level can be assigned to a job to give a job with the "Quick job processing selection" function preference or to designate it as a low priority. When the priority level is the same, the date and time of the transfer determine the processing sequence.

Unlike the other jobs, a job with priority '0' is not deleted after processing or after read-back, but remains in the job memory.

You can add to jobs by transferring the job number and the additional job items.

Requirements:

The job must not be in progress.

"Supplement through host communication" must be enabled.

For MP 14-S, see "Technical Description of the Microprocessor Control System MP 14 Lean-Lift and Multi-Space" (or "Rotomat"), chapter "System services lift control" → "System configuration" → "Setting supplementary functions" → "Supplement through host communication".

For MP 100D-5, see "Technical Description of the Microprocessor Control System MP 14 Lean-Lift and Multi-Space" (or "Rotomat"), chapter "System services lift control" → "System configuration" → "Setting supplementary functions" → "Supplement through host communication".

Maximum number of jobs with an empty job memory (n).

For MP 100D-5: n= 4000. For MP-14-S: n = 1000.

The processing time of this method can vary depending on the number and size of the job items.

1 job with 1000 items, approx. 5 sec.

Passed message

Message type **SendJobsReqV02** Contains passed parameters

Passed parameters

Object type **ParSendJobsV02**

Parameter value	Meaning	Type	Area	Mandatory
job[1-n]	Jobs can be present 1-n times. See Chapter 6.8.8 on page 104.	JobPositionTypeV02	1-n	Yes

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

Return message Message type **SendJobsResV02** Contains return parameters

Return parameters Object type **RetSendJobsV02**

Parameters	Meaning	Type	Area	Mandatory
returnValue	General return value	Int	0-7	Yes
errorNumber	General error number	Int	0-x	No
errorMessage	General error message	String	0-x characters	No
errorIndex	General error index	Int	0-x	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.6.16 "readJobV01" method - read out a job (older version)

Description With this method, the host has the ability to read out a defined job from the MP control system.
(1-40 means the number of characters is between 1 - max. formatted number of characters in the MP control system)
The processing time of this method can vary depending on the number and size of the job items.
1 job with 1000 items, approx. 5 sec.

Passed message Message type **ReadJobReqV01** Contains passed parameters

Passed parameters Object type **ParReadJobV01**

Parameter value	Meaning	Type	Area	Mandatory
jobNumber	Job number of the job to be read.	String	1-40 characters	Yes

Return message Message type **ReadJobResV01** Contains return parameters

Return parameters Object type **RetReadJobV01**

Parameters	Meaning	Type	Area	Mandatory
job	Job. See Chapter 6.8.5 on page 101.	JobTypeV01	0-1	No
returnValue	General return value	Int	0-7	Yes
errorNumber	General error number	Int	0-x	No
errorMessage	General error message	String	0-x characters	No
errorIndex	General error index	Int	0-x	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.6.17 "readJobV02" method - read out a job

Description

This method also supports the supplementary module Batch management and thus replaces the method readJobV01. With this method, the host has the ability to read out a defined job from the MP control system.

(1-40 means the number of characters is between 1 - max. formatted number of characters in the MP control system)

The processing time of this method can vary depending on the number and size of the job items.

1 job with 1000 items, approx. 5 sec.

Passed message

Message type **ReadJobReqV02** Contains passed parameters

Passed parameters

Object type **ParReadJobV02**

Parameter value	Meaning	Type	Area	Mandatory
jobNumber	Job number of the job to be read.	String	1-40 characters	Yes

Return message

Message type **ReadJobResV02** Contains return parameters

Return parameters

Object type **RetReadJobV02**

Parameters	Meaning	Type	Area	Mandatory
job	Job. See Chapter 6.8.6 on page 102.	JobTypeV02	0-1	No
returnValue	General return value	Int	0-7	Yes
errorNumber	General error number	Int	0-x	No
errorMessage	General error message	String	0-x characters	No
errorIndex	General error index	Int	0-x	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.6.18 "readAllJobsV01" method - read out all jobs (older version)

Description With this method, the host has the ability to read out all jobs or all processed jobs from the MP control system.
After the processed jobs are read out, they are deleted automatically.
Processed jobs can only be read out if this is specified in the initialisation of supplementary functions.
0-n means 1-1000 for MP14-S and 1-4000 for MP100D-5.
The processing time of this method can vary depending on the number and size of the job items.

Passed message Message type **ReadAllJobsReqV01** Contains passed parameters

Passed parameters Object type **ParReadAllJobsV01**

Parameter value	Meaning	Type	Area	Mandatory
mode	<i>Mode = 0:</i> All jobs (new + partially processed + processed) <i>Mode = 1:</i> Processed jobs	Int	0-1	Yes

Return message Message type **ReadAllJobsResV01** Contains return parameters

Return parameters Object type **RetReadAllJobsV01**

Parameters	Meaning	Type	Area	Mandatory
job[]	Jobs can be present 0-n times. See Chapter 6.8.5 on page 101.	JobTypeV01	0-n	No
returnValue	General return value	Int	0-7	Yes
errorNumber	General error number	Int	0-x	No
errorMessage	General error message	String	0-x characters	No
errorIndex	General error index	Int	0-x	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.6.19 "readAllJobsV02" method - read out all jobs

Description This method also supports the supplementary module Batch management and thus replaces the method readAllJobsV01. With this method, the host has the ability to read out all jobs or all processed jobs from the MP control system.

After the processed jobs are read out, they are deleted automatically.

Processed jobs can only be read out if this is specified in the initialisation of supplementary functions.

0-n means 1-1000 for MP14-S and 1-4000 for MP100D-5.

The processing time of this method can vary depending on the number and size of the job items.

Passed message Message type **ReadAllJobsReqV02** Contains passed parameters

Passed parameters Object type **ParReadAllJobsV02**

Parameter value	Meaning	Type	Area	Mandatory
mode	<i>Mode = 0:</i> All jobs (new + partially processed + processed) <i>Mode = 1:</i> Processed jobs	Int	0-1	Yes

Return message Message type **ReadAllJobsResV02** Contains return parameters

Return parameters Object type **RetReadAllJobsV02**

Parameters	Meaning	Type	Area	Mandatory
job[]	Jobs can be present 0-n times. See Chapter 6.8.6 on page 102.	JobTypeV02	0-n	No
returnValue	General return value	Int	0-7	Yes
errorNumber	General error number	Int	0-x	No
errorMessage	General error message	String	0-x characters	No
errorIndex	General error index	Int	0-x	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.6.20 "readAllJobsSumV01" method - read out job overview

Description

With this method, the host has the ability to read out an overview of all jobs or all processed jobs from the MP control system without their job items.

An overview with processed jobs can only be read out if this is specified in the initialisation of supplementary functions.

0-n means 1-1000 for MP14-S and 1-4000 for MP100D-5.

The processing time of this method can vary depending on the number of jobs.

Passed message

Message type **ReadAllJobsSumReqV01** Contains passed parameters

Passed parameters

Object type **ParReadAllJobsSumV01**

Parameter value	Meaning	Type	Area	Mandatory
mode	<i>Mode = 0:</i> All jobs (new + partially processed + processed) <i>Mode = 1:</i> Processed jobs	Int	0-1	Yes

Return message

Message type **ReadAllJobsSumResV01** Contains return parameters

Return parameters

Object type **RetReadAllJobsSumV01**

Parameters	Meaning	Type	Area	Mandatory
job[]	Jobs. Can be present 0-n times. See Chapter 6.8.9 on page 105.	JobSummaryTypeV01	0-n	No
returnValue	General return value	Int	0-7	Yes
errorNumber	General error number	Int	0-x	No
errorMessage	General error message	String	0-x characters	No
errorIndex	General error index	Int	0-x	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.6.21 "deleteJobV01" method - delete job

Description With this method, the host has the ability to delete a defined job from the MP control system.
If a job that is no longer in the storage management system at this time is deleted using this method, an error message is not returned; instead the job is returned as deleted.
(1-40 means the number of characters is between 1 - max. formatted number of characters in the MP control system)
The method is not blocking.

Passed message Message type **DeleteJobReqV01** Contains passed parameters

Passed parameters Object type **ParDeleteJobV01**

Parameter value	Meaning	Type	Area	Mandatory
jobNumber	Job number of the job to be deleted.	String	1-40 characters	Yes

Return message Message type **DeleteJobResV01** Contains return parameters

Return parameters Object type **RetDeleteJobV01**

Parameters	Meaning	Type	Area	Mandatory
returnValue	General return value	Int	0-7	Yes
errorNumber	General error number	Int	0-x	No
errorMessage	General error message	String	0-x characters	No
errorIndex	General error index	Int	0-x	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.6.22 "deleteAllJobsV01" method - delete all jobs

Description

With this method, the host has the ability to delete all jobs from the MP control system.

Caution:

- In addition to processed and new jobs, jobs that are in progress are also deleted.
- Afterwards, the jobs are deleted and cannot be recovered.

(1-40 means the number of characters is between 1 - max. formatted number of characters in the MP control system)

The method is not blocking.

Passed message

Message type

DeleteAllJobsReqV01

Contains passed parameters

Passed parameters

None

Return message

Message type

DeleteAllJobsResV01

Contains return parameters

Return parameters

Object type

RetDeleteAllJobsV01

Parameters	Meaning	Type	Area	Mandatory
returnValue	General return value	Int	0-7	Yes
errorNumber	General error number	Int	0-x	No
errorMessage	General error message	String	0-x characters	No
errorIndex	General error index	Int	0-x	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.7 Methods for supplementary modules



After formatting the supplementary modules in the MP 100D-5 and MP 14-S, the MP control system must be switched off/on so that the web service detects the supplementary modules. For the supplementary module Batch management, methods have been added in Chapters "Methods in the standard" and "Methods for supplementary modules".

6.7.1 "readOpjournalV01" method - read out operations journal (older version)



The prerequisite is the supplementary module "Operations journal logging".

➤ Refer to the "Supplementary Description of the Operations Journal Logging Microprocessor Control System MP 14-S/H[MP 14-S]/H[MP 100D-5] Lean-Lift, Multi-Space and Rotomat".

Description

With this method, the host has the ability to read out the operations journal from the MP control system. When calling up the method, you can decide whether the operations journal is subsequently deleted or retained.

The operations journal contains information on the individual storage operations.

The following information can be read out:

- ◆ Procedure (storage or retrieval/delete storage location/create storage location).
- ◆ Stored or retrieved quantity.
- ◆ Information about the job that is used as the basis for which the operation was carried out (optional).
- ◆ Date and time the operation was carried out (optional).
- ◆ Cost centre for which it was booked (optional).
- ◆ User field that must be entered during processing (optional).
- ◆ User who carried out the operation (only with supplementary module "Access code management").
- ◆ Storage location of the moved article (optional)
- ◆ Inventory difference (with '+'/'-' and 'i'/'o' in the operation data field) and the inventory difference quantity. (Only with the "inventory function" supplementary module).
- ◆ Contents of the Uxx special data fields for job processing, if these have been transferred. (Only for activation within the operations journal)

(1-40 means the number of characters is between 1 - max. formatted number of characters in the MP control system)

1-n means 1-25000 for MP14-S and 1-100000 for MP100D-5.

Values in [] are internal data field identifiers. For contents, see Chapter 8.2 on page 151.

The processing time of this method can vary depending on the number and size of the operations journal items.

1000 operations journal entries, approx. 5 sec.

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

Passed message Message type **ReadOpjournalReqV01** Contains passed parameters

Passed parameters Object type **ParReadOpjournalV01**

Parameter value	Meaning	Type	Area	Mandatory
modus	'0': Read operations journal without subsequent deletion. '1': Read operations journal with subsequent deletion.	Int	0-1	Yes

Return message Message type **ReadOpjournalResV01** Contains return parameters

Return parameters Object type **RetReadOpjournalV01**

Parameters	Meaning	Type	Area	Mandatory
opjournalPosition[0-n]	Operations journal item can be present 1-n times. See Chapter 6.8.10 on page 106.	OpjournalPos TypeV01	1-n	No
returnValue	General return values	Int	0-7	Yes
errorNumber	General error number	Int	0-x	No
errorMessage	General error message	String	0-x characters	No
errorIndex	General error index	Int	0-x	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.7.2 "readOpjournalV02" method - read out operations journal (older version)



The prerequisite is the supplementary module "Operations journal logging".

- Refer to the "Supplementary Description of the Operations Journal Logging Microprocessor Control System MP 14-S/H[MP 14-S]/H[MP 100D-5] Lean-Lift, Multi-Space and Rotomat".

Description

This method also supports the supplementary module Batch management and thus replaces the method readOpjournalV01. With this method, the host has the ability to read out the operations journal from the MP control system. When calling up the method, you can decide whether the operations journal is subsequently deleted or retained.

The operations journal contains information on the individual storage operations.

The following information can be read out:

- ◆ Batch number with activated batch management.
- ◆ Procedure (storage or retrieval/delete storage location/create storage location).
- ◆ Stored or retrieved quantity.
- ◆ Information about the job that is used as the basis for which the operation was carried out (optional).
- ◆ Date and time the operation was carried out (optional).
- ◆ Cost centre for which it was booked (optional).
- ◆ User field that must be entered during processing (optional).
- ◆ User who carried out the operation (only with supplementary module "Access code management").
- ◆ Storage location of the moved article (optional)
- ◆ Inventory difference (with '+'/'-' and 'i'/'o' in the operation data field) and the inventory difference quantity. (Only with the "inventory function" supplementary module).
- ◆ Contents of the Uxx special data fields for job processing, if these have been transferred. (Only for activation within the operations journal)

(1-40 means the number of characters is between 1 - max. formatted number of characters in the MP control system)

1-n means 1-25000 for MP14-S and 1-100000 for MP100D-5.

Values in [] are internal data field identifiers. For contents, see Chapter 8.2 on page 151.

The processing time of this method can vary depending on the number and size of the operations journal items.

1000 operations journal entries, approx. 5 sec.

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

Passed message Message type **ReadOpjournalReqV02** Contains passed parameters

Passed parameters Object type **ParReadOpjournalV02**

Parameter value	Meaning	Type	Area	Mandatory
modus	'0': Read operations journal without subsequent deletion. '1': Read operations journal with subsequent deletion. '2': Read only the latest items that have not yet been read out from the operations journal. The operations journal is not deleted.	Int	0-1	Yes

Return message Message type **ReadOpjournalResV02** Contains return parameters

Return parameters Object type **RetReadOpjournalV02**

Parameters	Meaning	Type	Area	Mandatory
opjournalPosition[0-n]	Operations journal item can be present 1-n times. See Chapter 6.8.11 on page 107.	OpjournalPos TypeV02	1-n	No
returnValue	General return values	Int	0-7	Yes
errorNumber	General error number	Int	0-x	No
errorMessage	General error message	String	0-x characters	No
errorIndex	General error index	Int	0-x	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.7.3 "readOpjournalV03" method - read out operations journal



The prerequisite is the supplementary module "Operations journal logging".

- Refer to the "Supplementary Description of the Operations Journal Logging Microprocessor Control System MP 14-S/H[MP 14-S]/H[MP 100D-5] Lean-Lift, Multi-Space and Rotomat".

Description

This method also supports a nominal quantity and thus replaces the method readOpjournalV01 and readOpjournalV02. With this method, the host has the ability to read out the operations journal from the MP control system. When calling up the method, you can decide whether the operations journal is subsequently deleted or retained.

The operations journal contains information on the individual storage operations.

The following information can be read out:

- ◆ Batch number with activated batch management.
- ◆ Procedure (storage or retrieval/delete storage location/create storage location).
- ◆ Stored or retrieved quantity.
- ◆ Nominal quantity for job processing, for direct storage/retrieval, the nominal quantity is equal to the stored/retrieved quantity. (Standard formatting must have been carried out.)
- ◆ Information about the job that is used as the basis for which the operation was carried out (optional).
- ◆ Date and time the operation was carried out (optional).
- ◆ Cost centre for which it was booked (optional).
- ◆ User field that must be entered during processing (optional).
- ◆ User who carried out the operation (only with supplementary module "Access code management").
- ◆ Storage location of the moved article (optional)
- ◆ Inventory difference (with '+'/'-' and 'i'/'o' in the operation data field) and the inventory difference quantity. (Only with the "inventory function" supplementary module).
- ◆ Contents of the Uxx special data fields for job processing, if these have been transferred. (Only for activation within the operations journal)

(1-40 means the number of characters is between 1 - max. formatted number of characters in the MP control system)

1-n means 1-25000 for MP14-S and 1-100000 for MP100D-5.

Values in [] are internal data field identifiers. For contents, see Chapter 8.2 on page 151.

The processing time of this method can vary depending on the number and size of the operations journal items.

1000 operations journal entries, approx. 5 sec.

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

Passed message Message type **ReadOpjournalReqV03** Contains passed parameters

Passed parameters Object type **ParReadOpjournalV03**

Parameter value	Meaning	Type	Area	Mandatory
modus	'0': Read operations journal without subsequent deletion. '1': Read operations journal with subsequent deletion. '2': Read only the latest items that have not yet been read out from the operations journal. The operations journal is not deleted.	Int	0-1	Yes

Return message Message type **ReadOpjournalResV03** Contains return parameters

Return parameters Object type **RetReadOpjournalV03**

Parameters	Meaning	Type	Area	Mandatory
opjournalPosition[0-n]	Operations journal item can be present 1-n times. See Chapter 6.8.11 on page 107.	OpjournalPos TypeV02	1-n	No
returnValue	General return values	Int	0-7	Yes
errorNumber	General error number	Int	0-x	No
errorMessage	General error message	String	0-x characters	No
errorIndex	General error index	Int	0-x	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.7.4 "sendAPDV01" method - transfer article pool data (older version)

Description

With this method, the host has the ability to transfer article pool data to the MP control system. The maximum number of data records to be transferred (n) depends on the MP control system.

For MP 100D-5: n= 100000. For MP-14-S: n = 10000.

The processing time of this method can vary depending on the number and size of the article pool data records. Guide values for article number = 20 characters, article name = 40 characters and H01 special data field = 20 characters:

1,000 articles approx. 13 sec., 10,000 approx. 2 min., 10,000 articles approx. 20 min.

Passed message

Message type **SendAPDReqV01** Contains passed parameters

Passed parameters

Object type **ParSendAPDV01**

Parameter value	Meaning	Type	Area	Mandatory
articles[1-n]	1-n article pool data records. See Chapter 6.8.13 on page 109.	APDTypeV01	1-n	Yes

Return message

Message type **SendAPDResV01** Contains return parameters

Return parameters

Object type **RetSendAPDV01**

Parameters	Meaning	Type	Area	Mandatory
returnValue	General return value	Int	0-7	Yes
errorNumber	General error number	Int	0-x	No
errorMessage	General error message	String	0-x characters	No
errorIndex	General error index	Int	0-x	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.7.5 "sendAPDV02" method - transfer article pool data (older version)

Description

This method also supports the data field [G] and thus replaces the method sendAPDV01.

With this method, the host has the ability to transfer article pool data to the MP control system.

The maximum number of data records to be transferred (n) depends on the MP control system.

For MP 100D-5: n= 100000. For MP-14-S: n = 10000.

The processing time of this method can vary depending on the number and size of the article pool data records. Guide values for article number = 20 characters, article name = 40 characters and H01 special data field = 20 characters:

1,000 articles approx. 13 sec., 10,000 approx. 2 min., 10,000 articles approx. 20 min.

Passed message

Message type

SendAPDReqV02

Contains passed parameters

Passed parameters

Object type

ParSendAPDV02

Parameter value	Meaning	Type	Area	Mandatory
articles[1-n]	1-n article pool data records. See Chapter 6.8.14 on page 110.	APDTypeV02	1-n	Yes

Return message

Message type

SendAPDResV02

Contains return parameters

Return parameters

Object type

RetSendAPDV02

Parameters	Meaning	Type	Area	Mandatory
returnValue	General return value	Int	0-7	Yes
errorNumber	General error number	Int	0-x	No
errorMessage	General error message	String	0-x characters	No
errorIndex	General error index	Int	0-x	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.7.6 "sendAPDV03" method - transfer article pool data

Description This method also supports the supplementary module Batch management and thus replaces the method sendAPDV02.

With this method, the host has the ability to transfer article pool data to the MP control system. The maximum number of data records to be transferred (n) depends on the MP control system. For MP 100D-5: n= 100000. For MP-14-S: n = 10000.

The processing time of this method can vary depending on the number and size of the article pool data records. Guide values for article number = 20 characters, article name = 40 characters and H01 special data field = 20 characters:
1,000 articles approx. 13 sec., 10,000 approx. 2 min., 10,000 articles approx. 20 min.

Passed message Message type **SendAPDReqV03** Contains passed parameters

Passed parameters Object type **ParSendAPDV03**

Parameter value	Meaning	Type	Area	Mandatory
articles[1-n]	1-n article pool data records. See Chapter 6.8.15 on page 111.	APDTypeV03	1-n	Yes

Return message Message type **SendAPDResV02** Contains return parameters

Return parameters Object type **RetSendAPDV02**

Parameters	Meaning	Type	Area	Mandatory
returnValue	General return value	Int	0-7	Yes
errorNumber	General error number	Int	0-x	No
errorMessage	General error message	String	0-x characters	No
errorIndex	General error index	Int	0-x	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.7.7 "readAllAPDV01" method - read out all article pool data (older version)

Description

With this method, the host has the ability to read all article pool data stored in the MP control system. The maximum number of data records to be read out (n) depends on the MP control system.

For MP 100D-5: n= 100000. For MP-14-S: n = 10000.

The processing time of this method can vary depending on the number and size of the article pool data records.

Guide values for article number = 20 characters, article name = 40 characters and H01 special data field = 20 characters:

1,000 articles approx. 5 sec., 10,000 articles approx. 40 sec., 100,000 articles approx. 18 min.

Passed message

Message type

ReadAllAPDReqV01

Contains passed parameters

Passed parameters

None

Return message

Message type

ReadAllAPDResV01

Contains return parameters

Return parameters

Object type

RetAllAPDV01

Parameters	Meaning	Type	Area	Mandatory
articles[0-n]	Article pool data record can be present [0-n] times. See Chapter 6.8.14 on page 110.	APDTypeV02	0-n	Yes
returnValue	General return value	Int	0-7	Yes
errorNumber	General error number	Int	0-x	No
errorMessage	General error message	String	0-x characters	No
errorIndex	General error index	Int	0-x	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.7.8 "readAllAPDV02" method - read out all article pool data

Description

This method also supports the supplementary module Batch management and thus replaces the method readAllAPDV01.

With this method, the host has the ability to read all article pool data stored in the MP control system. The maximum number of data records to be read out (n) depends on the MP control system.

For MP 100D-5: n= 100000. For MP-14-S: n = 10000.

The processing time of this method can vary depending on the number and size of the article pool data records.

Guide values for article number = 20 characters, article name = 40 characters and H01 special data field = 20 characters:

1,000 articles approx. 5 sec., 10,000 articles approx. 40 sec., 100,000 articles approx. 18 min.

Passed message

Message type

ReadAllAPDReqV02

Contains passed parameters

Passed parameters

None

Return message

Message type

ReadAllAPDResV02

Contains return parameters

Return parameters

Object type

RetAllAPDV02

Parameters	Meaning	Type	Area	Mandatory
articles[0-n]	Article pool data record can be present [0-n] times. See Chapter 6.8.15 on page 111.	APDTypeV03	0-n	Yes
returnValue	General return value	Int	0-7	Yes
errorNumber	General error number	Int	0-x	No
errorMessage	General error message	String	0-x characters	No
errorIndex	General error index	Int	0-x	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.7.9 "deleteAPDV01" method - delete an article pool data record

Description With this method, the host has the ability to delete an article pool data record from the MP control system.
(1-40 means the number of characters is between 1 - max. formatted number of characters in the MP control system)
The method is not blocking.

Passed message Message type **DeleteAPDReqV01** Contains passed parameters

Passed parameters Object type **ParamDeleteAPDV01**

Parameter value	Meaning	Type	Area	Mandatory
articleNumber	Article number.	String	1-40	Yes

Return message Message type **DeleteAPDResV01** Contains return parameters

Return parameters Object type **RetDeleteAPDV01**

Parameters	Meaning	Type	Area	Mandatory
returnValue	General return value	Int	0-7	Yes
errorNumber	General error number	Int	0-x	No
errorMessage	General error message	String	0-x characters	No
errorIndex	General error index	Int	0-x	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.7.10 "deleteAllAPDV01" method - delete all article pool data

Description With this method, the host has the ability to delete all article pool data records from the MP control system.
(1-40 means the number of characters is between 1 - max. formatted number of characters in the MP control system)
The method is not blocking.

Passed message Message type **DeleteAllAPDReqV01** Contains passed parameters

Passed parameters None

Return message Message type **DeleteAllAPDResV01** Contains return parameters

Return parameters Object type **RetDeleteAllAPDV01**

Parameters	Meaning	Type	Area	Mandatory
returnValue	General return value	Int	0-7	Yes
errorNumber	General error number	Int	0-x	No
errorMessage	General error message	String	0-x characters	No
errorIndex	General error index	Int	0-x	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.7.11 "sendFREv01" method - transfer free location data

Description Using this free location management supplementary module, the host has the ability to transfer free location data to the MP control system with this method. Only free location data for unassigned storage locations can be transferred.

Before transferring the article master data, the free location data must be transferred.

The processing time of this method can vary depending on the number and size of the free location data records.

Passed message Message type **SendFREReqV01** Contains passed parameters

Passed parameters Object type **ParSendFREv01**

Parameter value	Meaning	Type	Area	Mandatory
freetypes[1-n]	1-n free location data. See Chapter 6.8.16 on page 112.	FRETypeV01	1-n	Yes

Return message Message type **SendFREResV01** Contains return parameters

Return parameters Object type **RetSendFREv01**

Parameters	Meaning	Type	Area	Mandatory
returnValue	General return value	Int	0-7	Yes
errorNumber	General error number	Int	0-x	No
errorMessage	General error message	String	0-x characters	No
errorIndex	General error index	Int	0-x	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.7.12 "readAllFREv01" method - read out all free location data

Description With this method, the host has the ability to read all free location data stored in the MP control system.
The processing time of this method can vary depending on the number of free location data records.

Passed message Message type **ReadAllFREReqV01** Contains passed parameters

Passed parameters None

Return message Message type **ReadAllFREResV01** Contains return parameters

Return parameters Object type **RetAllFREv01**

Parameters	Meaning	Type	Area	Mandatory
freetypes[0-n]	Free location data record can be present [0-n] times. See Chapter 6.8.16 on page 112.	FRETypeV01	0-n	Yes
returnValue	General return value	Int	0-7	Yes
errorNumber	General error number	Int	0-x	No
errorMessage	General error message	String	0-x characters	No
errorIndex	General error index	Int	0-x	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.7.13 "readAiILNDV01" method - read out all lending data

Description With this method, the host has the ability to read all article master data stored in the MP control system. The processing time of this method can vary depending on the number of lending data records.

Passed message Message type **ReadAiILNDReqV01** Contains passed parameters

Passed parameters None

Return message Message type **ReadAiILNDResV01** Contains return parameters

Return parameters Object type **RetReadAiILNDV01**

Parameters	Meaning	Type	Area	Mandatory
lendings[0-n]	Lending data record can be present [0-n] times. See Chapter 6.8.17 on page 113	LNDTypeV01	0-n	Yes
returnValue	General return value	Int	0-7	Yes
errorNumber	General error number	Int	0-x	No
errorMessage	General error message	String	0-x characters	No
errorIndex	General error index	Int	0-x	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.7.14 "sendLNDV01" method - transfer lending data

Description In conjunction with the supplementary module lending management, the host has the ability to transmit lending data to the MP control system. You can transfer only lending data to an empty lending memory. The processing time of this method can vary depending on the number of lending data records.

Passed message Message type **SendLNDReqV01** Contains passed parameters

Passed parameters Object type **ParSendLNDV01**

Parameter value	Meaning	Type	Area	Mandatory
lendings[1-n]	1-n lending data. See Chapter 6.8.17 on page 113	LNDTypeV01	1-n	Yes

Return message Message type **SendLNDResV01** Contains return parameters

Return parameters Object type **RetSendLNDV01**

Parameters	Meaning	Type	Area	Mandatory
returnValue	General return value	Int	0-7	Yes
errorNumber	General error number	Int	0-x	No
errorMessage	General error message	String	0-x characters	No
errorIndex	General error index	Int	0-x	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.7.15 "readAllIREVV01" method - read out all reservation data

Description With this method, the host has the ability to read all reservation data stored in the MP control system.
The processing time of this method can vary depending on the number of reservation data records.

Passed message Message type **ReadAllIREVReqV01** Contains passed parameters

Passed parameters None

Return message Message type **ReadAllIREVResV01** Contains return parameters

Return parameters Object type **RetAllIREVV01**

Parameters	Meaning	Type	Area	Mandatory
reservations[0-n]	Reservation data record can be present [0-n] times. See Chapter 6.8.18 on page 114.	REVTypeV01	0-n	Yes
returnValue	General return value	Int	0-7	Yes
errorNumber	General error number	Int	0-x	No
errorMessage	General error message	String	0-x characters	No
errorIndex	General error index	Int	0-x	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.7.16 "sendREVV01" method - transfer lending data

Description In conjunction with the supplementary module lending management, the host has the ability to transmit lending data to the MP control system. You can transfer only reservation data to an empty lending memory.

The processing time of this method can vary depending on the number of reservation data records.

Passed message Message type **SendREVReqV01** Contains passed parameters

Passed parameters Object type **ParSendREVV01**

Parameter value	Meaning	Type	Area	Mandatory
reservations[1-n]	1-n reservation data. See Chapter 6.8.18 on page 114.	REVTypeV01	1-n	Yes

Return message Message type **SendREVResV01** Contains return parameters

Return parameters Object type **RetSendREVV01**

Parameters	Meaning	Type	Area	Mandatory
returnValue	General return value	Int	0-7	Yes
errorNumber	General error number	Int	0-x	No
errorMessage	General error message	String	0-x characters	No
errorIndex	General error index	Int	0-x	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.8 Object types for the data exchange



Objects are used for the data exchange. The configuration of these objects and the object types are explained below.

6.8.1 "AMDTypeV01" object - article master data record (older version)

This object type describes an article master data record.

Usage:

- "sendAllAMDV01" method - transfer article master data, including article pool and free location data. Chapter 6.6.1 on page 53.
- "sendAllAMDV02" method - transfer article master data. Chapter 6.6.3 on page 55.
- "readAMDV01" method - read out the article master data of an article. Chapter 6.6.5 on page 57.
- "readAllAMDV01" method - read out all article master data. Chapter 6.6.7 on page 59.
- "readAllAMDV02" method - read out all article master data. Chapter 6.6.9 on page 61.

Object type **AMDTypeV01**

Parameter value	Meaning	Type	Area	Mandatory
articleNumber	Article number [S]	String	1-40 characters	Yes
articleName	Article name [N]	String	0-40 characters	No
liftNumber	Lift number [L]	Int	1-99	Yes
shelfNumber	Shelf number [T]	Int	1-255(999)	Yes
compartmentNumber	Compartment number [F]	Int	1-255	Yes
compartmentDepthNumber	Compartment depth number [O]	Int	1-99	Yes
containerSize	Container size [G]	Int	See Chapter 8.2	No
FIFO	FIFO [I](First in / first out)	Int	1-255	Yes
inventoryAtStorageLocation	Inventory at storage location [B]	String	See Chapter 8.2	Yes
minimumInventory	Minimum inventory [R]	String	See Chapter 8.2	No
hxxSpecialField	25 special data fields for article master data [Hxx] xx = 01 - 25	String	0-40 characters	No
h03SpecialField	Date of storage (STM)	String	0-40 characters	No
h04SpecialField	Time of storage (STM)	String	0-40 characters	No
h05SpecialField	Date of inventory (IF)	String	0-40 characters	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

h06SpecialField	Time of inventory (IF)	String	0-40 characters	No
h07SpecialField	Inventory difference (IF)	String	0-40 characters	No
h08SpecialField	Inventory quantity (IF)	String	0-40 characters	No
h15SpecialField	Signal storage time (STM)	String	0-40 characters	No

6.8.2 "AMDTypeV02" object - article master data record

This object type describes an article master data record. The supplementary module Batch management is supported

Usage:

- "sendAllAMDV03" method - transfer article master data, including article pool and free location data. Chapter 6.6.2 on page 54.
- "sendAllAMDV04" method - transfer article master data. Chapter 6.6.4 on page 56.
- "readAMDV02" method - read out the article master data of an article. Chapter 6.6.9 on page 61.
- "readAllAMDV03" method - read out all article master data. Chapter 6.6.8 on page 60
- "readAllAMDV04" method - read out all article master data. Chapter 6.6.10 on page 62.

Object type **AMDTypeV02**

Parameter value	Meaning	Type	Area	Mandatory
articleNumber	Article number [S]	String	1-40 characters	Yes
batchNumber	Batch number [c], only with supplementary module Batch management.	String	0-40	No
articleName	Article name [N]	String	0-40 characters	No
liftNumber	Lift number [L]	Int	1-99	Yes
shelfNumber	Shelf number [T]	Int	1-255(999)	Yes
compartmentNumber	Compartment number [F]	Int	1-255	Yes
compartmentDepthNumber	Compartment depth number [O]	Int	1-99	Yes
containerSize	Container size [G]	Int	See Chapter 8.2	No
FIFO	FIFO [I](First in / first out)	Int	1-255	Yes
inventoryAtStorageLocation	Inventory at storage location [B]	String	See Chapter 8.2	Yes
minimumInventory	Minimum inventory [R]	String	See Chapter 8.2	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

hxxSpecialField	25 special data fields for article master data [Hxx] xx = 01 - 25	String	0-40 characters	No
h03SpecialField	Date of storage (STM)	String	0-40 characters	No
h04SpecialField	Time of storage (STM)	String	0-40 characters	No
h05SpecialField	Date of inventory (IF)	String	0-40 characters	No
h06SpecialField	Time of inventory (IF)	String	0-40 characters	No
h07SpecialField	Inventory difference (IF)	String	0-40 characters	No
h08SpecialField	Inventory quantity (IF)	String	0-40 characters	No
h15SpecialField	Signal storage time (STM)	String	0-40 characters	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.8.3 "OrdRecomPosTypeV01" - order recommendation data record

This object type describes a data record for reading out an order recommendation list.

Usage:

➤ "readOrdRecomV01" method - read out order recommendation list. Chapter 6.6.11 on page 63.

Object type **OrdRecomPosTypeV01**

Parameter value	Meaning	Type	Area	Mandatory
articleNumber	Article number [S]	String	1-40 characters	Yes
articleName	Article name [N]	String	0-40 characters	No
totalInventory	Total inventory [P]	String	See Chapter 8.2	No
minimumInventory	Minimum inventory [R]	String	See Chapter 8.2	Yes
status	Status [W]	Int	See Chapter 8.2	Yes
hxxSpecialField	25 special data fields for article master data [Hxx] xx = 01 - 25	String	0-40 characters	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.8.4 "QjournalPosTypeV01" object - quantity journal data record

This object type describes a data record for reading out the quantity journal.

Usage:

➤ "readQjournalV01" method - read out a quantity journal. Chapter 6.6.13 on page 66.

Object type **QjournalPosTypeV01**

Parameter value	Meaning	Type	Area	Mandatory
articleNumber	Article number [S]	String	1-40 characters	Yes
articleName	Article name [N]	String	0-40 characters	No
totalInventory	Total inventory [P]	String	See Chapter 8.2	No
minimumInventory	Minimum inventory [R]	String	See Chapter 8.2	Yes
journalIn	Journal in [Z]	Int	See Chapter 8.2	Yes
journalOut	Journal out [A]	Int	See Chapter 8.2	Yes
hxxSpecialField	25 special data fields for article master data [Hxx] xx = 01 - 25	String	0-40 characters	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.8.5 "JobTypeV01" object - job data record (older version)

This object type describes the configuration of a job data record.

Usage:

- "sendJobsV01" method - transfer jobs. Chapter 6.6.14 on page 67.
- "readJobV01" method - read out a job. Chapter 6.6.16 on page 70.
- "readAllJobsV01" method - read out all jobs. Chapter 6.6.18 on page 72.

Object type **JobTypeV01**

Parameter value	Meaning	Type	Area	Mandatory
jobNumber	Job number [K]	String	1-40	Yes
jobPriority	Job priority [p]	Int	0-255	No
jobStatus	Job status [w]	Int	0-4	No
jobDate	Job date [d]	String	6	No
jobTime	Job time [u]	String	4	No
cxxSpecialField	25 special data fields for job header [Cxx] xx = 01 - 25	String	0-40 characters	No
jobPosition[1-n]	Job item can be present 1-n times.	JobPositionTypeV01	1-n	Yes

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.8.6 "JobTypeV02" object - job data record

This object type describes the configuration of a job data record.

Usage:

- "sendJobsV02" method - transfer jobs. Chapter 6.6.15 on page 68.
- "readJobV02" method - read out a job. Chapter 6.6.17 on page 71.
- "readAllJobsV02" method - read out all jobs. Chapter 6.6.19 on page 73.

Object type **JobTypeV02**

Parameter value	Meaning	Type	Area	Mandatory
jobNumber	Job number [K]	String	1-40	Yes
jobPriority	Job priority [p]	Int	0-255	No
jobStatus	Job status [w]	Int	0-4	No
jobDate	Job date [d]	String	6	No
jobTime	Job time [u]	String	4	No
cxxSpecialField	25 special data fields for job header [Cxx] xx = 01 - 25	String	0-40 characters	No
jobPosition[1-n]	Job item can be present 1-n times.	JobPositionTypeV02	1-n	Yes

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.8.7 "JobPositionTypeV01" object - item data record for a job (older version)

This object type describes the configuration of an item data record for a job.

Usage:

➤ Object type JobTypeV01. Chapter 6.8.5 on page 101.

Object type **JobPositionTypeV01**

Parameter value	Meaning	Type	Area	Mandatory
articleNumber	Article number [S]	String	1-40 characters	Yes
operation	Operation [V]	String	1 character	Yes
nominalQuantity	Nominal quantity [Q]	String	See Chapter 8.2	Yes
actualQuantity	Actual quantity [M]	String	See Chapter 8.2	No
containerSize	Container size [G] for creating a storage location ('p' operation)	Int	See Chapter 8.2	No
positionStatus	Item status [W]	Int	0-4	No
property	Property [e]	String	See Chapter 8.2	No
uxxSpecialField	25 special data fields job item [Uxx] xx = 01 - 25	String	1-40 characters	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.8.8 "JobPositionTypeV02" object - item data record for a job

This object type describes the configuration of an item data record for a job.

Usage:

➤ "JobTypeV02" object - job data record. Chapter 6.8.6 on page 102.

Object type **JobPositionTypeV02**

Parameter value	Meaning	Type	Area	Mandatory
articleNumber	Article number [S]	String	1-40 characters	Yes
batchNumber	Batch number [c], only for supplementary module Batch management	String	0-40	No
operation	Operation [V]	String	1 character	Yes
nominalQuantity	Nominal quantity [Q]	String	See Chapter 8.2	Yes
actualQuantity	Actual quantity [M]	String	See Chapter 8.2	No
containerSize	Container size [G] for creating a storage location ('p' operation)	Int	See Chapter 8.2	No
positionStatus	Item status [W]	Int	0-4	No
property	Property [e]	String	See Chapter 8.2	No
uxxSpecialField	25 special data fields job item [Uxx] xx = 01 - 25	String	1-40 characters	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.8.9 "JobSummaryTypeV01" object - job data record for a job overview

This object type describes the configuration of a job data record for a job overview.

Usage:

➤ "readAllJobsSumV01" method - read out job overview. Chapter 6.6.20 on page 74.

Object type **JobSummaryTypeV01**

Parameter value	Meaning	Type	Area	Mandatory
jobNumber	Job number [K]	String	1-40	Yes
jobPriority	Job priority [p]	Int	0-255	No
jobStatus	Job status [w]	Int	0-4	No
jobDate	Job date [d]	String	6	No
jobTime	Job time [u]	String	4	No
cxxSpecialField	25 special data fields for job header [Cxx] xx = 01 - 25	String	0-40 characters	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.8.10 "OpjournalPosTypeV01" object - item data record for the operations journal (older version)

This object type describes the configuration of an item data record for the operations journal.

Usage:

➤ "readOpjournalV01" method - read out operations journal. Chapter 6.7.1 on page 77.

Object type **OpjournalPosTypeV01**

Parameters	Meaning	Type	Area	Mandatory
articleNumber	Article number [S]	String	1-40 characters	Yes
operation	Operation [V]	String	1 character	Yes
actualQuantity	Quantity placed in/removed from storage [Q]	String	See Chapter 8.2	Yes
containerSize	Container size [G] for creating a storage location ('p' operation)	Int	See Chapter 8.2	No
status	Status [W]	Int	See Chapter 8.2	Yes
u01SpecialField	Job number [U01]	String	See Chapter 8.2	No
u02SpecialField	Date [U02]	String	See Chapter 8.2	No
u03SpecialField	Time [U03]	String	See Chapter 8.2	No
u04SpecialField	Cost centre [U04]	String	See Chapter 8.2	No
u05SpecialField	User field U05]	String	See Chapter 8.2	No
u06SpecialField	Operator [U06] (UV)	String	See Chapter 8.2	No
u07SpecialField	Storage location [U07] (LLTTTFFFOO) Lift number (LL) Shelf number (TTT) Compartment number (FFF) Compartment depth number (OO)	String	See Chapter 8.2	No
uxxSpecialField	Special data fields [Uxx] xx = 08 - 25	String	See Chapter 8.2	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.8.11 "OpjournalPosTypeV02" object - item data record for the operations journal (older version)

This object type describes the configuration of an item data record for the operations journal.

Usage:

➤ "readOpjournalV02" method - read out operations journal (older version). Chapter 6.7.2 on page 79.

Object type **OpjournalPosTypeV02**

Parameters	Meaning	Type	Area	Mandatory
articleNumber	Article number [S]	String	1-40 characters	Yes
batchNumber	Batch number [c], only for supplementary module Batch management.	String	0-40 characters	No
operation	Operation [V]	String	1 character	Yes
actualQuantity	Quantity placed in/removed from storage [Q]	String	See Chapter 8.2	Yes
containerSize	Container size [G] for creating a storage location ('p' operation)	Int	See Chapter 8.2	No
status	Status [W]	Int	See Chapter 8.2	Yes
u01SpecialField	Job number [U01]	String	See Chapter 8.2	No
u02SpecialField	Date [U02]	String	See Chapter 8.2	No
u03SpecialField	Time [U03]	String	See Chapter 8.2	No
u04SpecialField	Cost centre [U04]	String	See Chapter 8.2	No
u05SpecialField	User field U05]	String	See Chapter 8.2	No
u06SpecialField	Operator [U06] (UV)	String	See Chapter 8.2	No
u07SpecialField	Storage location [U07] (LLTTTFFFOO) Lift number (LL) Shelf number (TTT) Compartment number (FFF) Compartment depth number (OO)	String	See Chapter 8.2	No
uxxSpecialField	Special data fields [Uxx] xx = 08 - 25	String	See Chapter 8.2	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.8.12 "OpjournalPosTypeV03" object - item data record for the operations journal

This object type describes the configuration of an item data record for the operations journal.

Usage:

- "readOpjournalV03" method - read out operations journal. Chapter 6.7.3 on page 81.

Object type **OpjournalPosTypeV02**

Parameters	Meaning	Type	Area	Mandatory
articleNumber	Article number [S]	String	1-40 characters	Yes
batchNumber	Batch number [c], only for supplementary module Batch management.	String	0-40 characters	No
operation	Operation [V]	String	1 character	Yes
actualQuantity	Quantity placed in/removed from storage [Q]	String	See Chapter 8.2	Yes
nominalQuantity	Nominal quantity [!]	String	See Chapter 8.2	No
containerSize	Container size [G] for creating a storage location ('p' operation)	Int	See Chapter 8.2	No
status	Status [W]	Int	See Chapter 8.2	Yes
u01SpecialField	Job number [U01]	String	See Chapter 8.2	No
u02SpecialField	Date [U02]	String	See Chapter 8.2	No
u03SpecialField	Time [U03]	String	See Chapter 8.2	No
u04SpecialField	Cost centre [U04]	String	See Chapter 8.2	No
u05SpecialField	User field [U05]	String	See Chapter 8.2	No
u06SpecialField	Operator [U06] (UV)	String	See Chapter 8.2	No
u07SpecialField	Storage location [U07] (LLTTTFFFOO) Lift number (LL) Shelf number (TTT) Compartment number (FFF) Compartment depth number (OO)	String	See Chapter 8.2	No
uxxSpecialField	Special data fields [Uxx] xx = 08 - 25	String	See Chapter 8.2	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.8.13 "APDTypeV01" object - article pool data record (older version)

This object type describes the configuration of an article pool data record.

Usage:

➤ "sendAPDV01" method - transfer article pool data. Chapter 6.7.4 on page 83.

Object type **APDTypeV01**

Parameter value	Meaning	Type	Area	Mandatory
articleNumber	Article number [S]	String	1-40 characters	Yes
articleName	Article name [N]	String	0-40 characters	No
minimumInventory	Minimum inventory [R]	String	See Chapter 8.2	No
hxxSpecialField	25 special data fields for article master data [Hxx] xx = 01 - 25	String	0-40 characters	No
h15SpecialField	Signal storage time [H15] (LZV)	String	8 characters	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.8.14 "APDTypeV02" object - article pool data record (older version)

This object type describes the structure of a article pool data record with data field G (container size) added.

Usage:

- "sendAPDV02" method - transfer article pool data. Chapter 6.7.5 on page 84.
- "readAllAPDV01" method - read out all article pool data. Chapter 6.7.7 on page 86.

Object type **APDTypeV02**

Parameter value	Meaning	Type	Area	Mandatory
articleNumber	Article number [S]	String	1-40 characters	Yes
articleName	Article name [N]	String	0-40 characters	No
minimumInventory	Minimum inventory [R]	String	See Chapter8.2	No
containerSize	Container size [G], if there is still no storage location for this article, is accepted by this data field	Int	See Chapter8.2	No
hxxSpecialField	25 special data fields for article master data [Hxx] xx = 01 - 25	String	0-40 characters	No
h15SpecialField	Signal storage time [H15] (LZV)	String	8 characters	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.8.15 Object "APDTypeV03" - article pool data record

This object type describes the configuration of an article pool data record. The supplementary module Batch management is supported

Usage:

- "sendAPDV03" method - transfer article pool data. Chapter 6.7.6 on page 85.
- "readAllAPDV02" method - read out all article pool data. Chapter 6.7.8 on page 87.

Object type **APDTypeV03**

Parameter value	Meaning	Type	Area	Mandatory
articleNumber	Article number [S]	String	1-40 characters	Yes
batchArticle	Batch article [v], only for supplementary module Batch management false = No batch article true = Batch article	Boolean	false,true	No
articleName	Article name [N]	String	0-40 characters	No
minimumInventory	Minimum inventory [R]	String	See Chapter 8.2	No
containerSize	Container size [G], if there is still no storage location for this article, is accepted by this data field	Int	See Chapter 8.2	No
hxxSpecialField	25 special data fields for article master data [Hxx] xx = 01 - 25	String	0-40 characters	No
h15SpecialField	Signal storage time [H15] (LZV)	String	8 characters	No

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.8.16 "FRETypeV01" object - free location data record

This object type describes a free location data record. Allocation to a container type is carried out in the MP control system.

Usage:

- "sendFRETypeV01" method - transfer free location data. Chapter 6.7.11 on page 90.
- "readAllFRETypeV01" method - read out all free location data. Chapter 6.7.12 on page 91.

Object type **FRETypeV01**

Parameter value	Meaning	Type	Area	Mandatory
liftNumber	Lift number [L]	Int	1-99	Yes
shelfNumber	Shelf number [T]	Int	1-255(999)	Yes
compartmentNumber	Compartment number [F]	Int	1-255	Yes
compartmentDepthNumber	Compartment depth number [O]	Int	1-99	Yes
containerSize	Container size [G]	Int	See Chapter 8.2	Yes

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.8.17 "LNDTypeV01" object - lending data record

This object type describes a lending data record.

Usage:

- "sendLNDV01" method - transfer lending data Chapter 6.7.14 on page 93.
- "readAllLNDV01" method - read out all lending data Chapter 6.7.13 on page 92.

Object type **LNDTypeV01**

Parameter value	Meaning	Type	Area	Mandatory
articleNumber	Article number [S]	String	1-40 characters	Yes
batchNumber	Batch number [c] Only in conjunction with supplementary module Batch management	String	1-40 characters	No
liftNumber	Lift number [L]	Int	1-99	Yes
shelfNumber	Shelf number [T]	Int	1-255(999)	Yes
compartmentNumber	Compartment number [F]	Int	1-255	Yes
compartmentDepthNumber	Compartment depth number [O]	Int	1-99	Yes
lendingQuantity	Lending quantity [B]	Int	See Chapter 8.2	Yes
borrower	Borrower [H01]	String	1-40 characters	Yes
lendingDate	Lending date [H10]	String	See Chapter 8.2	Yes
lendingTime	Lending time [H11]	String	See Chapter 8.2	Yes

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.8.18 "REVTypeV01" object - reservation data record

This object type describes a reservation data record.

Usage:

- "sendREVV01" method - transfer lending data Chapter 6.7.16 on page 95.
- "readAllREVV01" method - read out all reservation data Chapter 6.7.15 on page 94.

Object type **REVTypeV01**

Parameter value	Meaning	Type	Area	Mandatory
articleNumber	Article number [S]	String	1-40 characters	Yes
batchNumber	Batch number [c] Only in conjunction with supplementary module Batch management	String	1-40 characters	No
reservationQuantity	Reservation quantity [H13]	Int	See Chapter 8.2	Yes
reserver	Reserver [H14]	String	1-40 characters	Yes
reservationDate	Reservation date [H16]	String	See Chapter 8.2	Yes
reservationTime	Reservation time [H17]	String	See Chapter 8.2	Yes

6 Host communication using a web service via SOAP protocol (only for installation, maintenance and IT specialists)

6.9 SOAP monitor

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

Calling up in a PC browser using the URL:

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



The SOAP messages are displayed time-shifted.

7 Host communication by file transfer (only for installation, maintenance and IT specialists)



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

7.1 Overview of features

- ◆ The MP 14-S / MP 100D-5 communicates via the host communication module via file transfer with the customer-side host / PC system.
- ◆ The host communication module can be configured from any PC in the network using the configuration software.
- ◆ There are 3 different file transfer protocols available:
 - FTP (File Transfer Protocol based on RFC 959) for the customer-side FTP server
 - SFTP (SSH File Transfer Protocol) for the customer-side SFTP server (SSH version 2 and up). This guarantees encrypted data transmission.
 - CIFS (Common Internet File System) for a customer-side file server, such as Windows File Sharing.
Caution: for SMB Version 2.0, 2.1 and 3.0, at least MP 100D 5 System V6.1 or MP14 System V5.1 with up-to-date software is required. For SMB version 3.1.1, system V7.0 is required at a minimum.
- ◆ One input directory and one output directory on the server are used as the transfer interface. To do so, the client sends commands to the server in definable intervals.
- ◆ **Reading** data into the MP control system:
The following file types can be imported:
 - Article master file
(write back data backup)
 - Article pool file (optional supplementary module)
 - Job file
(one or several jobs in the file with and without processing priority)
 - Free location file (optional supplementary module)
 - System file
(only by service)
- ◆ **Reading out** data from the MP control system:
The following file types can be exported:
 - Article master data file
(individual data record or data backup of all data records)
 - Article pool file (optional supplementary module)
 - Job overview file
(overview of all saved or processed jobs)
 - Job file
(individual job or data backup of all jobs, or reading back of processed jobs with return notification of the processing time and actual quantity)
 - Quantity journal file (if activated during formatting)
(contains minimum inventory, total inventory level and the sum of all additions and retrievals since the last time the journal was deleted)
 - Order recommendation file
(contains all articles, for which their total inventory is lower than the minimum inventory.)

7 Host communication by file transfer (only for installation, maintenance and IT specialists)

- Operations journal file (optional supplementary module)
(with all initialised data fields, e.g.: date, time, operation, quantity, job, cost centre, user field)
- Free location file (optional supplementary module)
- System file of the MP control system storage management system
(data backup)
- ◆ **Deleting** data from the MP control system:
The following file types can be deleted:
 - Article pool data (all or individual)
 - Job file (one job /all jobs for each command)
- ◆ A **response file** is sent to the inbox on the file server to acknowledge the transactions. The acknowledgments are machine-readable and can be given plain text messages (configurable).
- ◆ An internal **log file** for fault analysis can be output via Jacomman or through Jump.
- ◆ Customer-side **request file** for querying files. The request file is placed in the outbox on the file server for this.
- ◆ Definition of **conversion filters** for every data type for importing and reading out CSV files (comma-separated files). Most databases and spreadsheets offer CSV files as an import and export format.

7 Host communication by file transfer (only for installation, maintenance and IT specialists)

7.2 Software requirement

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. This data transfer is not encrypted.
- ◆ Furthermore, one input and one output directory must be created in the file system of the FTP server.
- ◆ The input directory serves as the target directory for the data files sent by the MP control system.
- ◆ The output directory serves as the source directory from which the MP control system can read its data.
- ◆ The following default user must be created on the FTP server:
 - User: MP100D
 - Password: 22488

These are factory settings of the MP control system and can be modified as desired
See Chapter 9.5 on page 172.
- ◆ Furthermore, the following access authorisations must be granted:
 - Read, write, delete, list and append rights
 - Access to the inbox
 - Access to the outbox
- ◆ When using an external firewall, Port 21 must be enabled for the MP control system. Additional ports are to be enabled depending on the FTP server.

SFTP server (alternative)

- ◆ Alternatively, a customer-side SFTP server can be installed on the host / PC system. With operating systems that use OpenSSH standards, such as Linux / Unix, this could be an sshd (SSH daemon) that contains the SFTP server. In this case, SSH version 2 or better is required. This data transfer is encrypted.
- ◆ Furthermore, one input and one output directory must be created in the file system of the SFTP server.
- ◆ The input directory serves as the target directory for the data files sent by the MP control system.
- ◆ The output directory serves as the source directory from which the MP control system can read its data.
- ◆ The following default user must be created on the SFTP server:
 - User: MP100D
 - Password: 22488

These are factory settings of the MP control system and can be modified as desired
See Chapter 9.5 on page 172.
- ◆ Furthermore, the following access authorisations must be granted:
 - Read, write, delete, list and append rights
 - Access to the inbox
 - Access to the outbox
- ◆ When using an external firewall, Port 22 must be enabled for the MP control system. Additional ports are to be enabled depending on the FTP server.

7 Host communication by file transfer (only for installation, maintenance and IT specialists)

CIFS server (alternative)

- ◆ A Samba server can be installed on the host/PC system for Unix/Linux systems. The current version supports SMBv1, SMBv2, SMBv2.1 and SMBv3. In Windows, the Windows File Sharing is sufficient.
- ◆ A transfer directory has to be shared on the file server for this. This directory is provided with a share name via Windows File Sharing in Windows. The share name can be defined by the user.
- ◆ Furthermore, one input and one output directory must be created in the transfer directory.
- ◆ The input directory serves as the target directory for the data files sent by the MP control system.
- ◆ The output directory serves as the source directory from which the MP control system can read its data.
- ◆ The following default user must be created on the file server:
 - User: MP100D
 - Password: 22488These are factory settings of the MP control system and can be modified as desired. See Chapter 9.5 on page 172.
- ◆ When using a domain, it is initialised with input in the "User" field in the following form using the configuration software:
"Domain/User"
- ◆ Be aware that the " character is not allowed as a special character in the password.
- ◆ Furthermore, the following access authorisations must be granted:
 - Read, write, delete, list and append rights
 - Access to the inbox
 - Access to the outbox
- ◆ When using an external firewall, Port 445 must be enabled for the MP control system.

Configuration software for MP 100D-5 / MP 14-S host communication

- ◆ The configuration software can be used to set the parameters for the file server connection, including the parameters for the data transfer and data conversion. See Chapter 9 on page 167.

7 Host communication by file transfer (only for installation, maintenance and IT specialists)

7.3 General data record conventions

Data record formats

The storage management system of the MP control system is based on an integrated database that stores data records of various data types. Host communication by file transfer makes it possible to import/export these data records in the form of files per file transfer in Hänel MP format from the control system, or to delete them.

Furthermore, if desired, the imported data records can be converted from CSV format (comma-separated) to the Hänel MP format and the exported data records can be converted from the Hänel MP format to the CSV format.

7.3.1 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. See Chapter 7.3.4 on page 121.

Example:

*\$S.....\$L...\$F...\$T...\$B.....\$G.....\$R.....\$O..\$N.....\$U01...\$

7.3.2 CSV format (conversion to Hänel MP format)

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 can be set off 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. See also Chapter 9.7.

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"

7.3.3 Character set



For character set conventions used, see Chapter 8.1 Page 151.

7.3.4 Data fields

See Chapter 8.2 on page 151

7.3.5 Error codes

See Chapter 8.3 on page 157.

7 Host communication by file transfer (only for installation, maintenance and IT specialists)

7.4 File transfer

- ◆ The software requirements described in Chapter 7.2 on page 119 must be fulfilled. Refer also to Chapter 9.8 on page 184.
- ◆ The FTP/SFTP/CIFS client of the MP control system polls the file server (outbox) for files. Following file transfer, the MP control system generates a response file with status return messages in the inbox of the file server.
- ◆ Additional status messages are appended to an existing response file.
- ◆ The host system is responsible for ensuring that the response file does not grow in an uncontrolled manner to prevent memory errors. A file size < 1 Mbyte is recommended.
- ◆ The inbox and outbox directories must contain only the files necessary for transfer. The host system is responsible for removing the data files transferred by the MP system from the inbox directory.
- ◆ No empty files may be transmitted.

7.4.1 Send data to the MP control system MP 14-S / MP 100D-5

- ◆ The file to be transferred can be automatically or manually copied into the outbox.
- ◆ The file name must contain characters in ASCII format only.
- ◆ The file must be stored with UTF-8 character encoding.
- ◆ When the polling cycle is complete, the request file is picked up by the MP control system and deleted in the outbox.
- ◆ The file is converted (only if configured) and imported to the storage management system of the MP control system.
- ◆ A line with a status message is written into the response file, which is then copied to the inbox.
- ◆ The sequence of status messages in the response file does not necessarily have to be identical to the sequence of processing in the MP control system.
- ◆ If a file is copied to the outbox once again before the outbox has been picked up by the MP control system and deleted, the file will be overwritten. However, if the file has already been retrieved, it will be transferred once again. During the import into the storage management system, a check takes place of whether another transfer is permitted. The MP control system writes a status message into the response file and copies the file to the inbox.
- ◆ If multiple files are copied into the outbox simultaneously, the files are processed in alphabetical order.
E.g. xyz.job, abc.job, def.job are copied into the outbox simultaneously.
The files are processed in the order abc.job, def.job, xyz.job.

7 Host communication by file transfer (only for installation, maintenance and IT specialists)

7.4.2 Read data from the MP control system MP 14-S / MP 100D-5

- ◆ 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 control system 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.

7.4.3 Delete data from the MP control system MP 14-S / MP 100D-5

- ◆ 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 control system 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.

7 Host communication by file transfer (only for installation, maintenance and IT specialists)

7.5 File types

7.5.1 Article master data file

Article master data record

An article master data file usually contains article master data records. An article data record contains article-related and storage location-related data fields.

- x Article-related data fields: article number, article name, minimum inventory, customer-specific special data fields and special data fields related to supplementary modules.
- x Storage location-related data fields: lift number, shelf number, compartment number, compartment depth number, inventory, FIFO flag, container size.

Each storage location has its own article master data record.

For data backup, all article master data or individual article master data can be read out from the MP control system.

If, during the import, several identical FIFO entries with the same article number are detected, the FIFO entry will be assigned in accordance with the sequence of the data records. The first data record is the storage location with the oldest FIFO entry (=1).

For the supplementary module "Article pool management", article pool data records can be transferred and for "Free location management", free location data records can be transferred in an article master data record. Supplementary modules such as "storage time management" (LZV) and "inventory function" (IF) fill Hxx special data fields. For more information, also refer to the corresponding supplementary descriptions.

Hänel data record structure

*\$S.....\$L..\$F...\$T...\$B.....\$I...\$G.....\$R.....\$O..\$N.....\$Hxx...\$CRLF

Data fields in the data record

Code	Meaning	Optional
S	Article number	
L	Lift number	
F	Compartment number	
T	Shelf number	
B	Inventory at storage location	
I	FIFO identifier	
G	Container size	x
R	Minimum inventory	x
O	Compartment depth number	x
N	Article name	x
Hxx	Special data field H01 - H25	x
H03	Date of storage (STM)	x
H04	Time of storage (STM)	x
H05	Date of inventory (IF)	x
H06	Time of inventory (IF)	x

7 Host communication by file transfer (only for installation, maintenance and IT specialists)

Data fields in the data record

Code	Meaning	Optional
H07	Inventory difference (IF)	x
H08	Inventory quantity (IF)	x
H15	Signal storage time (STM)	x



Additional data fields can be passed but are not used. Therefore, unused alphanumeric data fields are assigned " " and numerical are assigned "0".

For additional information about data fields, refer to Chapter 8.2 on page 151.

7 Host communication by file transfer (only for installation, maintenance and IT specialists)

Send article master data

If an article master data file contains article master data, then these data can only be sent if no article data is registered in the storage management system (e.g. after a reformat)

The article master data file is placed in the file server's outbox for transmission to the MP control system.

Read all article master data

Command in request file

READ AMDBACKUP <filename>

Explanation

- ◆ READ = read
- ◆ AMDBACKUP = Article Master Data Backup
- ◆ <filename>
Specify the name of the file in which the article master data is subsequently to be located. A file name extension is added automatically by the MP control system according to the configuration.

Example:

READ AMDBACKUP backupfile

Article master data, including article pools and free location data (if present), are read out to the file "backupfile.amd" in the inbox.

Command in request file

**READ AMDBACKUP_V02
<filename>**

Explanation

- ◆ READ = read
- ◆ AMDBACKUP_V02 = article master data without article pools and free location data.
- ◆ <filename>
Specify the name of the file in which the article master data is subsequently to be located. A file name extension is added automatically by the MP control system according to the configuration.

**READ AMDBACKUP_V02
backupfile**

Article master data without article pools and free location data are read out to the file "backupfile.amd" in the inbox.



Caution:

If the article master data is to be used for data backup purposes, ensure that a corresponding host data field has been assigned to all MP data fields during data conversion. Otherwise, not all data records are read out. If no data conversion was carried out prior to exporting, all data fields will always be exported.

7 Host communication by file transfer (only for installation, maintenance and IT specialists)

Read the article master data for a specific article

Command in request file

**READ AMD <article number>
<filename>**

Explanation

- ◆ READ = read
- ◆ AMD = article master data
- ◆ <articlenumber>
Specify the article number of the article to be exported here.
- ◆ <filename>
Specify the name of the file in which the article master data is subsequently to be located. A file name extension is added automatically by the MP control system according to the configuration.

Example:

READ AMD 1234 test

Article master data of article "1234" are read out to the file "test.amd" in the inbox.

7.5.2 Article pool file



A prerequisite is the supplementary module "Article pool management".

- Refer to the "Supplementary Description of the Article Pool Management Microprocessor Control System MP 14-S/H[MP 14-S]/H[MP 100D-5] Lean-Lift, Multi-Space and Rotomat".

Article pool data are independent of storage location and contain only article-related data fields (e.g. article number, article designation, minimum inventory, container size and Hxx special data fields). The container size specification is a template for each storage location of an article, but can be created differently for each storage location. If the container size is given although a storage location already exists, it is ignored.

- ◆ Article-related data can be sent to the MP control system via host communication without the control system having to know which lifts/carousels are available with which storage volume.
- ◆ When creating a storage location for an article, the user at the lift/carousel does not need to enter its article-related data fields. These are taken over automatically from the article pool data.
- ◆ During operation, updates can be carried out on article-related data fields for any article pool data records. For example, new minimum inventory levels for corresponding articles can be transferred.

Hänel data record structure

***\$S.....\$N.....\$R.....\$G....\$Hxx...\$CRLF**

Data fields in the data record

Code	Meaning	Optional
S	Article number	
N	Article name	x
R	Minimum inventory	x
G	Container size	x
Hxx	Special data field H01 - H25 if not reserved	x

7 Host communication by file transfer (only for installation, maintenance and IT specialists)

Reserved data fields

H03	Storage date (for STM)	reserved
H04	Storage time (for STM)	reserved
H05	Inventory date (for IF)	reserved
H06	Inventory time (for IF)	reserved
H07	Inventory difference (for IF)	reserved
H08	Inventory difference quantity (for IF)	reserved
H15	Signal storage time (for STM and signal storage time per article)	reserved



Data fields can only ever be transferred if they are assigned or edited and they are not reserved. If reserved data fields are transferred, they are ignored.
For additional information about data fields, refer to Chapter 8.2 on page 151.

Send article pool data

The article pool file is placed in the file server's outbox for transmission to the MP control system.

Read article pool data

Command in request file

READ IPDBACKUP_V01
<filename>

Explanation

- ◆ READ = read
- ◆ IPDBACKUP_V01 = backup of article pool data
- ◆ <filename>
Specify the name of the file in which the article pool data are subsequently to be located. A file name extension is added automatically by the MP control system according to the configuration.

READ AMDBACKUP <filename>

- ◆ READ = read
- ◆ AMDBACKUP = backup of article master data, including article pool data. In contrast to the article master data, storage location data fields **L** (Lift/Carousel), **T** (Shelf), **F** (Compartment), **O** (Compartment depth) are set to **0** (null).
- ◆ <filename>
Specify the name of the file in which the article master data are subsequently to be located. A file name extension is added automatically by the MP control system according to the configuration.

7 Host communication by file transfer (only for installation, maintenance and IT specialists)

Read article pool data	Command in request file	Explanation
Deleting article pool data for a specific article	DELETE IPD <articlenumber>	◆ DELETE = delete ◆ IPD = article pool data (Item Pool Data) ◆ <articlenumber> Specify here the article number corresponding to the pool data to be deleted.
Deleting article pool data	DELETE IPDSUM	◆ DELETE = delete ◆ IPDSUM = all article pool data

7 Host communication by file transfer (only for installation, maintenance and IT specialists)

7.5.3 Job file

Job data records with priority 1-255 are processed by priority. Selection per match code search is possible as an option.

A job is processed once and marked as processed until it is exported again by host communication from the MP control system.

As an option, jobs can also be deleted after processing.

Job data records with priority 0 remain in the job memory after processing or after read-out and can be processed more than once.

- ◆ Jobs can be transferred to the MP control system as single jobs or as multiple jobs (several jobs in one file).
- ◆ Transferred jobs can be added, provided that they are not in progress. For this purpose, the "Supplement through host communication" function must be enabled in the supplementary functions of the storage management system. See "Technical Description of the Microprocessor Control System MP 14 Lean-Lift and Multi-Space (or Rotomat)", chapter "System services storage management" -> "System configuration" -> "Setting supplementary functions".
- ◆ A job can be deleted at any time by host communication.
- ◆ Backup/restore of all jobs located in the MP control system.
- ◆ Export of an overview of all jobs.
- ◆ Export of an overview of all processed jobs
- ◆ By exporting a single job with items, it is possible to determine the processing status on the basis of the header and item status.
- ◆ By reading out all processed jobs with the items, the following information is possible:
 - Actual removed quantity
 - Date and time when the job was processed
- ◆ After exporting, all processed jobs with priority 1-255 are deleted automatically.
- ◆ You can add to jobs by transferring the job number and the additional job items.

Requirements:

The job must not be in progress.

"Supplement through host communication" must be enabled.

For MP 14-S, see "Technical Description of the Microprocessor Control System MP 14 Lean-Lift and Multi-Space" (or "Rotomat"), chapter "System services lift control" → "System configuration" → "Setting supplementary functions" → "Supplement through host communication".

For MP 100D-5, see "Technical Description of the Microprocessor Control System MP 14 Lean-Lift and Multi-Space" (or "Rotomat"), chapter "System services lift control" → "System configuration" → "Setting supplementary functions" → "Supplement through host communication".

Possible file structures

The job name can be located in either of the following:

- Header data record
- Item data record.

Here, the header data fields are in every item data record.

Technical Description of the Microprocessor Control System MP 14-S / MP 100D-5 server

Lean-Lift Multi-Space Rotomat

7 Host communication by file transfer (only for installation, maintenance and IT specialists)

File structure

(for job name in header data record)

```
<Job header>
<Job item 1>
<Job item 2>
<Separator line>
<Job header>
<Job item 1>
<Job item 2>
<Job item 3>
<End line>
```

x Explanations for <Separator line> and <End line>:
*E99 is the default value. This can be changed by configuration.

Data record structure of the job header

(for job name in header data record)

*\$K.....\$p...\$w...\$d...\$u...\$Cxx.....\$CRLF

Data fields in the header data record

(for job name in header data record)

Code	Meaning	Optional
K	Job	
p	Priority	x
w	Status	x
d	Datum	x
u	Time	x
Cxx	Special data field C01 - C25	x

Data record structure of the job item

(for job name in header data record)

*\$S.....\$V.\$Q.....\$M.....\$G.....\$W..\$Uxx.....\$CRLF

Data fields in the item data record

(for job name in header data record)

Code	Meaning	Optional
S	Article number	
V	Operation	
Q	Nominal quantity	
G	Container size	x
M	Actual quantity	x
W	Status	x
e	Property	x
Uxx	Special data field U01 - U25	x

7 Host communication by file transfer (only for installation, maintenance and IT specialists)



For additional information about data fields, refer to Chapter 7.3.4 on page 121.

File structure

(for job name in item data record)

```
<Job item 1>
<Job item 2>
<Separator line>
<Job item 1>
<Job item 2>
<Job item 3>
<Job item 4>
<End line>
```

x Explanations for <Separator line> and <End line>:

***E99** is the default value. This can be changed by configuration.

Data record structure of the job item

(for job name in item data record)

***\$K.....\$p...\$w...\$d...\$u...\$Cxx...\$S.....\$V.\$Q.....\$M....\$G.....\$W..\$Uxx.....\$CRLF**

x **Caution:** The header data begin with ***\$K** and must be in a row before the item data, which begin with **\$S**.

Data fields in the item data record

(for job name in item data record)

Code	Meaning	Optional
K	Job	
p	Priority	x
w	Status	x
d	Datum	x
u	Time	x
Cxx	Special data field C01 - C25	x
S	Article number	
V	Operation	
Q	Nominal quantity	
G	Container size	x
M	Actual quantity	x
W	Status	x
e	Property	x
Uxx	Special data field U01 - U25	x



For additional information about data fields, refer to Chapter 8.2 on page 151.

7 Host communication by file transfer (only for installation, maintenance and IT specialists)

Read all jobs

Command in request file

READ JOBBACKUP <filename>

Explanation

- ◆ READ = read
- ◆ JOBBACKUP = export all jobs of the MP control system
- ◆ <filename>
Specify the name of the file in which the jobs are subsequently to be located. A file name extension is added automatically by the MP control system according to the configuration.

Example:

READ JOBBACKUP alljob

All jobs stored in the MP 14-S / MP 100D-5 are read out to the file "alljob.job" in the inbox.



Caution:

If the job data is to be used for data backup purposes, ensure that a corresponding host data field has been assigned to all MP data fields during data conversion. Otherwise, not all data records are read out.

If no data conversion was carried out prior to exporting, all data fields will always be exported.

Read individual jobs

Command in request file

**READ CMM <jobname>
<filename>**

Explanation

- ◆ READ = read
- ◆ JOB = job to be read
- ◆ <jobname>
Here, specify the name of the job to be exported.
- ◆ <filename>
Specify the name of the file in which the job is subsequently to be located. A file name extension is added automatically by the MP control system according to the configuration.

Example:

READ JOB 12345 job1

The job "12345" is read out to the "job1.job" file in the inbox.

7 Host communication by file transfer (only for installation, maintenance and IT specialists)

Read out processed jobs

Command in request file

READ JOBPROC <filename>

Explanation

- ◆ READ = read
- ◆ JOBPROC = processed jobs
- ◆ <filename>
Specify the name of the file in which the processed jobs are subsequently to be located. A file name extension is added automatically by the MP control system according to the configuration.

Example:

READ JOBPROC jobs

The processed jobs are read out to the inbox in the "jobs.job" file.



The "Reading back edited jobs" function must be activated in the supplementary functions of the storage management system. See "Technical Description of the Microprocessor Control System MP 14 Lean-Lift and Multi-Space (or Rotomat)", chapter "System services storage management" -> "System configuration" -> "Setting supplementary functions" -> "Reading back edited jobs".

Deleting individual jobs

Command in request file

DELETE JOB <jobname>

Explanation

- ◆ DELETE = delete
- ◆ JOB = job to be read
- ◆ <jobname>
Here, specify the name of the job to be deleted.

Example:

DELETE JOB 12345

The job "12345" is deleted from the storage management system.

Delete all jobs

DELETE ALLJOBS

- ◆ DELETE = delete
- ◆ ALLJOBS = all jobs

Exporting overview of all jobs

Command in request file

READ JOBSUM <filename>

Explanation

- ◆ READ = read
- ◆ JOBSUM = sum of all jobs
- ◆ <filename>
Specify the name of the file in which the job overview is subsequently to be located. A file name extension is added automatically by the MP control system according to the configuration.

Example:

READ JOBSUM jobs

An overview of all jobs stored in the MP control system is read out to the file "jobs.jsm" in the inbox.

7 Host communication by file transfer (only for installation, maintenance and IT specialists)

Read out overview of all
processed jobs

Command in request file

READ JOBSUMPROC <filename>

Explanation

- ◆ READ = read
- ◆ JOBSUMPROC = sum of all jobs
- ◆ <filename>
Specify the name of the file in which the job overview is subsequently to be located. A file name extension is added automatically by the MP control system according to the configuration.

Example:

READ JOBSUMPROC procjobs

An overview of all processed jobs is read out to the file "procjobs.jsm" in the inbox.

Sending jobs

The job file is placed in the file server's outbox for transmission to the MP control system.

- x Only those jobs can be read in for which there is still no job name in the MP control system.

7 Host communication by file transfer (only for installation, maintenance and IT specialists)

7.5.4 Operations journal file



The prerequisite is the supplementary module "Operations journal logging".

- Refer to the "Supplementary Description of the Operations Journal Logging Microprocessor Control System MP 14-S/H[MP 14-S]/H[MP 100D-5] Lean-Lift, Multi-Space and Rotomat".

The operations journal contains information on the individual storage operations.

The following information can be read out:

- ◆ Goods in/out operation (storage or retrieval/retrieve+delete storage location/create storage location+store).
- ◆ Goods in/out operation (positive inventory difference ('+', 'i'), negative inventory difference ('-', 'o') optional with "Inventory function" supplementary module)
- ◆ Stored or retrieved quantity.
- ◆ Nominal quantity for job processing, for direct storage/retrieval, the nominal quantity is equal to the stored/retrieved quantity. (Standard formatting must have been carried out.)
- ◆ Inventory difference quantity (difference between target inventory and current inventory at the storage location, optional with "Inventory function" supplementary module)
- ◆ Information about the job that is used as the basis for which the operation was carried out (optional).
- ◆ Date and time the operation was carried out (optional).
- ◆ Cost centre for which it was booked (optional).
- ◆ User field that must be entered during processing (optional).
- ◆ User who carried out the operation (only with supplementary module "Access code management").
- ◆ Storage location of the moved article (optional)
- ◆ Contents of the Uxx special data fields for job processing, if these have been transferred. (Only for activation within the operations journal)

Hänel data record structure

*\$S.....\$V...\$Q....\$G.....\$W....\$U01....\$U02...\$U03....\$U04....\$U05....\$U06...\$U07...\$CRLF

Data fields in the operation journal data record

Code	Meaning	Optional
S	Article number	
V	Operation	
Q	Actual quantity (actual stored/retrieved quantity) Inventory difference quantity (for IF in OJ) optional	
!	Nominal quantity for job processing.	x
G	Container size	
W	Status	
U01	Job	x

7 Host communication by file transfer (only for installation, maintenance and IT specialists)

Data fields in the operation journal data record

Code	Meaning	Optional
U02	Datum	x
U03	Time	x
U04	Cost centre	x
U05	User field	x
U06	Operator (UV)	x
U07	Storage location (LLTTTFFFOO) Lift number (LL) Shelf number (TTT) Compartment number (FFF) Compartment depth number (OO)	x
Uxx	Special data field U08 - U25	x



For additional information about data fields, refer to Chapter 8.2 on page 151.

The operations journal can only be exported from the MP control system.

Read operations journal

Command in request file	Explanation
READ OPJOURNAL <filename>	◆ READ = read ◆ OPJOURNAL = operations journal ◆ <filename> Specify the name of the file in which the operations journal is subsequently to be located. A file name extension is added automatically by the MP control system according to the configuration. - x If an operations journal that has already been exported with the same name is in the file server's inbox, then the new file is appended to it and it is not overwritten. - x The operations journal in the MP control system is deleted automatically after exporting.
Example: READ OPJOURNAL journal	The operations journal is read out to the file "journal.opj" in the inbox.

7 Host communication by file transfer (only for installation, maintenance and IT specialists)

Read backup operations journal

Command in request file

Explanation

**READ OPJOURNALBACKUP
<filename>**

- ◆ READ = read
- ◆ OPJOURNALBACKUP = operations journal backup
- ◆ <filename>
Specify the name of the file in which the operations journal is subsequently to be located. A file name extension is added automatically by the MP control system according to the configuration.
- x If an operations journal that has already been exported with the same name is in the file server's inbox, then that file is overwritten.
- x The operations journal in the MP control system is not deleted after exporting.

Read new operations journal items

**READ OPJOURNALNEWPOS
<filename>**

- ◆ READ = read
- ◆ OPJOURNALNEWPOS = New operations journal items that have not yet been read out
- ◆ <filename>
Specify the name of the file in which the operations journal is subsequently to be located. A file name extension is added automatically by the MP control system according to the configuration.
- x If an operations journal that has already been exported with the same name is in the file server's inbox, the new items are appended to this file.
- x The operations journal in the MP control system is not deleted after exporting.

7 Host communication by file transfer (only for installation, maintenance and IT specialists)

7.5.5 Free location file

Free location data record

The prerequisite is the supplementary module "Free location management".

- Refer to the "Supplementary Description of the Free Location Management Microprocessor Control System MP 14-S/H[MP 14-S]/H[MP 100D-5] Lean-Lift, Multi-Space and Rotomat".

Free location data records contain the container size and the storage location where the container type is stored. When initialising the container types, the allocation of container type (1-15) and container is defined on the lift/carousel control system.

Free location data records can be transferred to the MP control system at any time. Ensure that the existing containers cannot be overwritten. These must be emptied and deleted manually beforehand. Empty containers can also only be created if there is no overlap with other containers at the corresponding storage location.

Hänel data record structure

*\$S.\$L...\$T...\$F...\$O...\$G.....\$CRLF

Data fields in the data record

Code	Meaning	Optional
L	Lift number	
T	Shelf number	
F	Compartment number	
O	Compartment depth number	
G	Container size	



Additional data fields can be passed but are not used. Unused alphanumeric data fields are assigned " " and numerical are assigned "0".

Sending free location data

The free location file is placed in the file server's outbox for transmission to the MP control system.

Reading free location data

Command in request file

READ FREELOCBACKUP_V01
<filename>

Explanation

- ◆ READ = read
- ◆ FREELOCBACKUP_V01 = free location data
- ◆ <filename>
Specify the name of the file in which the free location data are subsequently to be located. A file name extension is added automatically by the MP control system according to the configuration.

Example:

READ FREELOCBACKUP_V01
freetypes

The free location data are read out to the "freetypes.fre" file in the inbox.

7 Host communication by file transfer (only for installation, maintenance and IT specialists)

7.5.6 Quantity journal file

The quantity journal contains information about the minimum inventory, total inventory and the sum of all additions and retrievals since the last time the journal was deleted.

The quantity journal must be formatted in the MP control system.

The following information can be read out:

- ◆ Article designation
- ◆ Total inventory of an article
- ◆ Minimum inventory of an article
- ◆ Sum of placements into storage (addition) for all storage location of an article.
- ◆ Sum of removals from storage (retrieval) for all storage location of an article.
- ◆ Hxx Special data fields of the article. (as long as not reserved for supplementary modules)

Hänel data record structure

*\$S.....\$N.....\$P.....\$R.....\$Z.....\$A.....\$Hxx...\$CRLF

Data fields in the quantity journal data record

Code	Meaning	Optional
S	Article number	
N	Article name	x
P	Total inventory	
R	Minimum inventory	
Z	Goods in	
A	Goods out	
Hxx	Special data field H01 - H25	x



For additional information about data fields, refer to Chapter 8.2 on page 151.

The quantity journal can only be exported from the MP control system. After being read out, the journal is deleted automatically.

Read quantity journal

Command in request file	Explanation
READ QJOURNAL <filename>	◆ READ = read ◆ QJOURNAL = Quantity journal ◆ <filename> Specify the name of the file in which the quantity journal is subsequently to be located. A file name extension is added automatically by the MP control system according to the configuration.
Example: READ QJOURNAL qjournal	The quantity journal is read out to the file "qjournal.opj" in the inbox.

7 Host communication by file transfer (only for installation, maintenance and IT specialists)

7.5.7 Order recommendation file

The order recommendation list contains information relating to articles, for which the total inventory falls below the minimum inventory. An article is listed in the order recommendation list, as long as its inventory is less than its minimum inventory. If an article is read out for the first time, its status is '0'. For each additional read-out process, its status accounts for '1'. This prevents an already read out and ordered article from being re-ordered.

In addition to host communication, the order recommendation list can also be read out in CSV format via the storage portal of the browser. In doing so, the settings from 9.7 "Conversion" menu page 181 are applied.

The following information can be read out:

- ◆ Article designation
- ◆ Total inventory of the article
- ◆ Minimum inventory of the article
- ◆ Order status of the article
- ◆ Hxx Special data fields of the article. (as long as not reserved for supplementary modules)

Hänel data record structure

*\$S.....\$N.....\$P.....R.....\$W.....\$Hxx...\$CRLF

Data fields in the order recommendation data set

Code	Meaning	Optional
S	Article number	
N	Article name	x
P	Total inventory	x
R	Minimum inventory	x
W	Status	x
Hxx	Special data field H01 - H25	x



For additional information about data fields, refer to Chapter 8.2 on page 151.

The order recommendation list can only be exported from the MP control system.

Read order recommendation list
(the data records are marked as ordered after being read out)

Command in request file

READ ORECOMMEND <filename>

Explanation

- ◆ READ = read
- ◆ ORECOMMEND = Order recommendation list
- ◆ <filename>
Specify the name of the file in which the order recommendation list is subsequently to be located. A file name extension is added automatically by the MP control system according to the configuration.

7

Host communication by file transfer (only for installation, maintenance and IT specialists)

Read order recommendation list backup (the data records are not marked as ordered after being read out)

Example:
READ ORECOMMEND
recommendlist

Command in request file
READ ORECOMMENDBACKUP
<filename>

The order recommendation list is read out to the file "recommendlist.orl" in the inbox.

Explanation

READ ORECOMMENDBACKUP
<filename>

- ◆ READ = read
- ◆ ORECOMMENDBACKUP = Order recommendation list
- ◆ <filename>
Specify the name of the file in which the order recommendation list is subsequently to be located. A file name extension is added automatically by the MP control system according to the configuration.

Example:
READ ORECOMMENDBACKUP
recommendbackup

The order recommendation list is read out to the file "recommendbackup.orl" in the inbox.

7 Host communication by file transfer (only for installation, maintenance and IT specialists)

7.5.8 Lending file

Lending data record

A prerequisite is the supplementary module "Lending management".

- Refer to the "Supplementary Description of the Lending Management Microprocessor Control System MP 14-S/H[MP 14-S]/H[MP 100D-5] Lean-Lift, Multi-Space and Rotomat".

Lending data records are transferred in the lending file. You can transfer lending data to an empty lending memory only. For example, to re-save a backup of the lending data after formatting the storage management system. Transmitting individual lending data records during operation is not possible in order to ensure data integrity.

Hänel data record structure

***\$S.\$L...\$T...\$F...\$O...\$B...\$H01...\$H10...\$H11...\$CRLF**

Data fields in the data record

Code	Meaning	Optional
S	Article number	
L	Lift number	
T	Shelf number	
F	Compartment number	
O	Compartment depth number	
B	Lending quantity	
H01	Borrower	
H10	Lending date	
H11	Lending time	



Additional data fields can be passed but are not used. Unused alphanumeric data fields are assigned " " and numerical are assigned "0".
For additional information about data fields, refer to Chapter 8.2 on page 151.

Send lending data

The lending file is placed in the file server's outbox for transmission to the MP control system.

7 Host communication by file transfer (only for installation, maintenance and IT specialists)

Read lending data

Command in request file

Explanation

READ LENDINGBACKUP_V01
<filename>

- ◆ READ = read
- ◆ LENDINGBACKUP_V01 = lending data
- ◆ <filename>
Specify the name of the file in which the lending data is subsequently to be located. A file name extension is added automatically by the MP control system according to the configuration.

Example:

READ LENDINGBACKUP_V01
lendings

The lending data is read out to the "lendings.lnd" file in the inbox.

7 Host communication by file transfer (only for installation, maintenance and IT specialists)

7.5.9 Reservation file

Reservation data record

A prerequisite is the supplementary module "Lending management".

- Refer to the "Supplementary Description of the Lending Management Microprocessor Control System MP 14-S/H[MP 14-S]/H[MP 100D-5] Lean-Lift, Multi-Space and Rotomat".

Reservation data records are transferred in the reservation file. You can transfer reservation data to an empty reservation data memory only. For example, to re-save a backup of the reservation data after formatting the storage management system. Transmitting individual reservation data records during operation is not possible in order to ensure data integrity.

Hänel data record structure

*\$S.\$L...\$T...\$F...\$O...\$B...\$H01...\$H10...\$H11...\$CRLF

Data fields in the data record

Code	Meaning	Optional
S	Article number	
H13	Reservation quantity	
H14	Reserver	
H16	Reservation date	
H17	Reservation time	



Additional data fields can be passed but are not used. Unused alphanumeric data fields are assigned " " and numerical are assigned "0". For additional information about data fields, refer to Chapter 8.2 on page 151.

Send reservation data

The reservation file is placed in the file server's outbox for transmission to the MP control system.

Read reservation data

Command in request file

READ RESERVATIONBACKUP_V01
<filename>

Explanation

- ◆ READ = read
- ◆ RESERVATIONBACKUP_V01 = reservation data
- ◆ <filename>
Specify the name of the file in which the reservation data is subsequently to be located. A file name extension is added automatically by the MP control system according to the configuration.

Example:

READ RESERVATIONBACKUP_V01
reservations

The reservation data is read out to the "reservations.rev" file in the inbox.

7 Host communication by file transfer (only for installation, maintenance and IT specialists)

7.5.10 System file

The system files of the storage management system of the MP control system can be exported and imported.

Read system data

Command in request file	Explanation
<code>READ SYS <filename></code>	◆ READ = read ◆ SYS = system files of the MP control system <filename> Specify the name of the file here in which the system data is subsequently to be located. A file name extension is added automatically by the MP control system according to the configuration.
Example: <code>READ SYS sysmp</code>	The system files of the storage management system are read out to the "sysmp.sys" file in the inbox.

Send system data



When a system file is sent, the storage management system of the MP control system is reformatted. All data such as article and job data are deleted.
Before sending the system file, be absolutely certain to carry out a data backup.

This function is password-protected in the configuration software. For this reason, this function should only be carried out by trained personnel or by Hänel Service.

7 Host communication by file transfer (only for installation, maintenance and IT specialists)

7.5.11 Request file

Request files are files which contain commands for the MP control system.

They are used to read or delete data from the MP control system.

Several commands can be combined in one request file.

One line is used per command. A "!" at the start of the line indicates a user-defined comment.

The command sequence in the request file corresponds to the processing sequence.

The request file can be 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. The name of the request file must consist of ASCII characters only.

If the expression contains blanks in the angle brackets, the expression " " is to be taken. E.G. DELETE JOB "34322-0"

Overview of commands

Command	Operation	Compatibility with MP 12N / MP 100D
READ AMDBACKUP <filename>	Read all article master data records. If the article pool management and/or free location management supplementary module(s) is/are enabled, the article pool and/or free location data are also read out.	X
READ AMDBACKUP_V02	Read all article master data records without article pools and free location data.	-
READ AMD <article> <filename>	Read individual article master data records.	X
READ IPDBACKUP_V01	Read all article pool data records for the Article pool management supplementary module	-
DELETE IPDSUM	Delete all article pool data records	X
DELETE IPD <article>	Delete individual article pool data record.	X
READ JOBBACKUP <filename>	Read all jobs.	X
READ JOB <job> <filename>	Read individual job.	X
READ JOBPROC <filename>	Read all processed jobs.	X
DELETE JOB <job>	Delete job.	X
DELETE ALLJOBS	Delete all jobs.	X
READ JOBSUM <filename>	Read job overview.	X
READ JOBSUMPROC <filename>	Read overview of all processed jobs.	X
READ OPJOURNAL <filename>	Read this out for the supplementary module Operations journal. The operations journal is subsequently	X

7 Host communication by file transfer (only for installation, maintenance and IT specialists)

	deleted.	
READ OPJOURNALBACKUP <filename>	Read this out for the supplementary module Operations journal. Operations journal remains stored.	X
READ FREELOCBACKUP_V01	Read the free location data for the supplementary module Free location management	-
READ QJOURNAL <filename>	Read quantity journal.	X
READ ORECOMMEND <filename>	Read order recommendation list	X
READ LENDINGBACKUP_V01	Read lending list	-
READ RESERVATIONBACKUP_V01	Read reservation list	-
READ SYS <filename>	Read system data.	X

The file names are always specified without a file name extension. See Chapter 9.6 on page 173.
The file names must contain only legible characters from the ASCII character sets and no \ / : * ? " < >.

7 Host communication by file transfer (only for installation, maintenance and IT specialists)

7.5.12 Response file

Response files are automatically copied by the MP control system into the inbox of the file server.

They contain status acknowledgments to commands from a request file and status acknowledgments for transfer of article master data, article pool, job, journal and system data.

If there is no response file in the inbox, the MP control system will create one in the inbox of the file server, or the file will be extended.

The host system must periodically move or delete the response file before it becomes too big for the system.

The response file is stored with UTF-8 character encoding.

7.6 Data conversion

An import/export converter can be defined for article master data, article pool, job, operations journal, order recommendation, free location and quantity journal files. 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 9.7 on page 181.

8 Annex: Host communication by file transfer/web service (only for installation, maintenance and IT specialists)



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

8.1 Character set

Character set	Alphanumeric characters
Unicode	- Unicode character range "C0 Controls and Basic Latin" (0x20 - 0x7F) - Unicode character range "C1 Controls and Latin 1 Supplement" (0x80 - 0xFF) - All other Unicode ranges also cover the corresponding character range of the configured language. - The "\$" character is an exception that is reserved internally and is not available.
Data record closure (only for file transfer)	All data records end with "CRLF " (Carriage Return ASCII 13 and Line Feed ASCII 10).

8.2 Data fields

Each data field in the MP 14-S / MP 100D-5 storage management system has its own specific meaning, depending on the data record/method in which it is used.

Supplementary modules such as inventory function, storage time management and operations journal logging also have an effect on the data fields used.



- x In the following table, the following abbreviations are used:
- IF: Inventory function (supplementary module)
 - LZV: Storage time management (supplementary module)
 - LHV: Storage location height management (supplementary module)
 - OJ: Operations journal (supplementary module)
 - UV: User management (supplementary module)
 - DZ: Decimal input for quantities (supplementary module)
 - LM: Lending management (supplementary module)
 - UXX: INPUT OF UXX DATA FIELDS FOR JOB PROCESSING (supplementary function)
 - MS: Multi-Space

Code	Meaning	No. of characters	Contents	Type
*	(ASCII 42) Transmission start character, start of a data record, command or response code (only for file transfer)			
\$	Separator between individual data fields (only for file transfer)			
S	Article number	1 - 40		alphanumeric

Technical Description of the Microprocessor Control System MP 14-S / MP 100D-5 server

Lean-Lift Multi-Space Rotomat

8 Annex: Host communication by file transfer/web service (only for installation, maintenance and IT specialists)

Code	Meaning	No. of characters	Contents	Type
L	Lift number (storage location)	1 - 2	1 - 99	numerical
T	Shelf number (storage location)	1 - 3	1 - 255 (999 for MS)	numerical
F	Compartment number (storage location)	1 - 3	1 - 255	numerical
O	Compartment depth (storage location)	0 - 2	1 - 99	numerical
B	Inventory at storage location Lending quantity (for LM in lending data record)	1 - 8	0 - 99999999 0.0-999999.9 (DI) 0.00-99999.99 (DI) 0.000-9999.999 (DI)	numerical 1 decimal place 2 decimal places 3 decimal places
I	FIFO flag (1 = oldest storage location)	0 - 3	1 - 255	numerical
R	Minimum inventory (minimum inventory across all storage locations of the article)	1 - 8	0 - 99999999 0.0-999999.9 (DI) 0.00-99999.99 (DI) 0.000-9999.999 (DI)	numerical 1 decimal place 2 decimal places 3 decimal places
P	Total inventory (total number of inventories across all storage locations of the article)	1-8	0 - 99999999 0.0-999999.9 (DI) 0.00-99999.99 (DI) 0.000-9999.999 (DI)	numerical 1 decimal place 2 decimal places 3 decimal places
G	Container size Digits 1-3: Size in compartments Digits 4-5: Size in compartment depths For SLHM: Digits 1-3: Compartment Digits 4-5: Compartment depth Digits 6-7: Height	5 7	00101 - 25599 0010101 - 2559931	numerical numerical
c	Batch number	0-40		alphanumeric
v	Batch articles	1	0,1 false,true	numerical (for file transfer) boolean (for web service)
N	Article name	0 - 40		alphanumeric
Hxx	Special data fields H01 - H25 (user-definable, related to article) x Depending on the storage management system package or the supplementary module used, special data fields can be reserved for this purpose.	0 - 40		alphanumeric
H01	Borrower (for LM in lending data record)	0-40		alphanumeric

8 Annex: Host communication by file transfer/web service (only for installation, maintenance and IT specialists)

Code	Meaning	No. of characters	Contents	Type
H03	Date of storage (for STM)	6	[DDMMYY] or [MMDDYY]	numerical
H04	Time of storage (for STM)	4	[HHMM]	numerical
H05	Date of inventory (for IF)	6	[DDMMYY] or [MMDDYY]	numerical
H06	Time of inventory (for IF)	4	[HHMM]	numerical
H07	Inventory difference (for IF) +: Positive difference -: Negative difference	1	+ / -	alphanumeric
H08	Inventory quantity (for IF)	8	0 - 99999999 0.0-999999.9 (DI) 0.00-99999.99 (DI) 0.000-9999.999 (DI)	numerical 1 decimal place 2 decimal places 3 decimal places
H10	Lending date (for LM in lending data record)	6	[DDMMYY] or [MMDDYY]	numerical
H11	Lending time (for LM in lending data record)	4	[HHMM]	numerical
H13	Reservation quantity (for LM in reservation data record)	8	0 - 99999999 0.0-999999.9 (DI) 0.00-99999.99 (DI) 0.000-9999.999 (DI)	numerical 1 decimal place 2 decimal places 3 decimal places
H14	Reserver (for LM in reservation data record)	0-40		alphanumeric
H15	Signal storage time (for STM)	8	DDDDHHMM DDDD = 0000-9999 days HH = 00-23 hours MM = 00-59 minutes	numerical
H16	Reservation date (for LM in reservation data record)	6	[DDMMYY] or [MMDDYY]	numerical
H17	Reservation time (for LM in reservation data record)	4	[HHMM]	numerical
K	Job number	1-40		alphanumeric

Technical Description of the Microprocessor Control System MP 14-S / MP 100D-5 server

Lean-Lift Multi-Space Rotomat

8 Annex: Host communication by file transfer/web service (only for installation, maintenance and IT specialists)

Code	Meaning	No. of characters	Contents	Type
W	Status of the job item 00: Unprocessed 01: Processed 03: Reset 04: Partially processed (the remaining quantity must still be removed) Status of the order recommendation item 00: Item has not yet been read out 01: Item has already been read out Status of operations journal item 02: Operations journal item	0 - 2	00 / 01	numerical
Cxx	Special data fields C01 - C25 (user-definable, related to job header) x Depending on the supplementary module used, special data fields can be reserved for this purpose.	0 - 40		alphanumeric
V	Operation -: Remove articles (with job or in OJ) -: Negative inventory difference (for IF in OJ) optional +: Store articles (with job or in OJ) +: Positive inventory difference (for IF in OJ) optional p: Create storage location + store articles (with OJ) c: Remove articles + delete storage location if empty (with job or in OJ) r: Create storage location (re-store) + store, only with re-store function (as FIFO oldest storage location) (with job or in OJ) o: Negative inventory difference (for IF in OJ) optional instead of '-' i: Positive inventory difference (for IF in OJ) optional instead of '+' m: Get shelf with [↓] key for the Lean-Lift and Multi-Space (for OJ with extended recording of storage location) s: Cancel a registration after positioning the shelf in the access point (for OJ with extended recording of storage location) a: Borrow (for lending management) z: Return (for lending management)	1	+ / - / p / c / r / i / o / m / s	alphanumeric
Q	Nominal quantity in the job Actual quantity in OJ Inventory difference quantity (for IF in OJ) optional	1 - 8	0 - 99999999 0.0-999999.9 (DI) 0.00-9999.99 (DI) 0.000-9999.999 (DI)	numerical 1 decimal place 2 decimal places 3 decimal places

Technical Description of the Microprocessor Control System MP 14-S / MP 100D-5 server

Lean-Lift Multi-Space Rotomat

8 Annex: Host communication by file transfer/web service (only for installation, maintenance and IT specialists)

Code	Meaning	No. of characters	Contents	Type
!	Nominal quantity in OJ. For direct storage/retrieval, the nominal quantity is equal to the actual quantity.	1 - 8	0 - 99999999 0.0-999999.9 (DI) 0.00-99999.99 (DI) 0.000-9999.999 (DI)	numerical 1 decimal place 2 decimal places 3 decimal places
p	Priority of a job 1 : low 255: high x If no priority field is specified, "100" is assumed. x Jobs with a higher priority are suggested for processing before jobs with a low priority. 0: Job is permanently stored and can be processed more than once.	0 - 3	1 - 255	numerical
w	Status of the job header 00: Unprocessed 01: Canceled / partially processed 02: In progress 03: Completely processed	0 - 2	00 - 04	numerical
d	Job date – For unprocessed jobs: transfer date – For jobs that have been canceled, are in progress or have been processed: date of processing	6	[DDMMYY] or [MMDDYY]	numerical
u	Job time – For unprocessed jobs: transfer time – For jobs that have been canceled, are in progress or have been processed: time of processing	4	[HHMM]	numerical
M	Actual quantity Quantity in a job item that was actually stored/removed. An actual quantity of "0" is registered for a canceled job item.	0 - 8	0 - 99999999 0.0-999999.9 (DI) 0.00-99999.99 (DI) 0.000-9999.999 (DI)	numerical 1 decimal place 2 decimal places 3 decimal places
e	Property (with UXX) Defines Uxx special data fields that are additionally prompted during job processing and are to be stored in the job. These fields are additionally taken over in the operations journal (with OJ). 0 to 5 Uxx special data fields with 3 characters each can be entered here on an item-related basis.	0-15	UxxUxxUxxUxxUxx e.g. eU09U11U15	alphanumeric
Uxx	Special data fields U01 - U25 (user-definable, related to job item) x Depending on the storage management system package or the supplementary module used, special data fields can be reserved for this purpose.	0 - 40		alphanumeric

Technical Description of the Microprocessor Control System MP 14-S / MP 100D-5 server

Lean-Lift Multi-Space Rotomat

8 Annex: Host communication by file transfer/web service (only for installation, maintenance and IT specialists)

Code	Meaning	No. of characters	Contents	Type
U01	Job number (job of the operation for OJ)	0 - 40		alphanumeric
U02	Date of operation (for OJ)	6	[DDMMYY] or [MMDDYY]	numerical
U03	Time of operation (for OJ)	4	[HHMM]	numerical
U04	Cost centre of operation (for OJ)	0 - 40		alphanumeric
U05	User field (for OJ)	0 - 40		alphanumeric
U06	Operator (with OJ + UM)	0 - 40		alphanumeric
U07	Storage location of operation (for OJ)	10	[LLTTTFFFOO]	numerical
Z	Goods in Article-based sum of all placements into storage in the quantity journal	1 - 8	0 - 99999999 0.0-999999.9 (DI) 0.00-99999.99 (DI) 0.000-9999.999 (DI)	numerical 1 decimal place 2 decimal places 3 decimal places
A	Goods out Article-based sum of all removals from storage in the quantity journal	1 - 8	0 - 99999999 0.0-999999.9 (DI) 0.00-99999.99 (DI) 0.000-9999.999 (DI)	numerical 1 decimal place 2 decimal places 3 decimal places

8 Annex: Host communication by file transfer/web service (only for installation, maintenance and IT specialists)

8.3 Error codes

Terms

MP = MP 14-S / MP 100D-5 control system

Storage management = Storage management software of the MP

Host communication (JACOM) = Host communication software of the MP

Host FTP server = FTP server on the host system

Host SFTP server = SFTP server on the host system

Host (S)FTP server = FTP or SFTP server on the host system

Host CIFS server = Windows File Sharing or Samba server on the host system

SOAP = data transfer via web service using the SOAP protocol

x The error codes appear in the response file and the host communication log during a file transfer.

x For a web service using SOAP, the error codes are displayed "errorNumber" parameter for returnValue 7.

Error code	Data exchange	Source	Description	Action
E04	FTP / SFTP / CIFS / SOAP	MP storage management	Error: time out	Internal error.
E05	FTP / SFTP / CIFS / SOAP	MP storage management	Error: data record not understood.	Internal error.
E10	FTP / SFTP / CIFS / SOAP	MP storage management	Error: create article.	Check article
E19	FTP / SFTP / CIFS / SOAP	MP storage management	reserved	reserved
E20	FTP / SFTP / CIFS / SOAP	MP storage management	Error: File management	No compartment depth possible for file management
E21	FTP / SFTP / CIFS / SOAP	MP storage management	Error: storage location height management.	No lifts/carousels with supplementary module "Free location management" permitted.
E22	FTP / SFTP / CIFS / SOAP	MP storage management	Error: Multi-unit storage	No lifts/carousels with supplementary module "Free location management" are possible.
E23	FTP / SFTP / CIFS / SOAP	MP storage management	Error: Multi-unit storage	All lifts/carousels must have the same storage management setting.
E24	FTP / SFTP / CIFS / SOAP	MP storage management	Error: Multi-unit storage	All lifts/carousels must have the same inventory control system.
E25	FTP / SFTP / CIFS / SOAP	MP storage management	reserved	reserved
E26	FTP / SFTP / CIFS / SOAP	MP storage management	reserved	reserved

Technical Description of the Microprocessor Control System MP 14-S / MP 100D-5 server

Lean-Lift Multi-Space Rotomat

8 Annex: Host communication by file transfer/web service (only for installation, maintenance and IT specialists)

Error code	Data exchange	Source	Description	Action
E27	FTP / SFTP / CIFS / SOAP	MP storage management	reserved	reserved
E28	FTP / SFTP / CIFS / SOAP	MP storage management	Error: article memory not empty.	MP storage management must be formatted.
E29	FTP / SFTP / CIFS / SOAP	MP storage management	Error: storage location for container type not assignable.	Check article data record.
E30	FTP / SFTP / CIFS / SOAP	MP storage management	Error: Job not found	Check job
E31	FTP / SFTP / CIFS / SOAP	MP storage management	Error: Job in progress.	Try again at a later time. Or job already exists and was not yet read back.
E33	FTP / SFTP / CIFS / SOAP	MP storage management	Error: storage location not assignable.	Check article data record.
E34	FTP / SFTP / CIFS / SOAP	MP storage management	Error: Job cannot be deleted.	Check job.
E35	FTP / SFTP / CIFS / SOAP	MP storage management	Error: MP storage management not formatted.	MP storage management must be formatted.
E36	FTP / SFTP / CIFS / SOAP	MP storage management	Error: Article pool management.	Settings for lift/carousel control and storage management system must match.
E37	FTP / SFTP / CIFS / SOAP	MP storage management	reserved	reserved
E38	FTP / SFTP / CIFS / SOAP	MP storage management	Error: Free location management	Settings for lift/carousel control and storage management system must match.
E39	FTP / SFTP / CIFS / SOAP	MP storage management	Error in access code management.	Check access code management setting.
E40	FTP / SFTP / CIFS / SOAP	MP storage management	Error: storage location height management.	Settings for lift/carousel control and storage management system must match.
E42	FTP / SFTP / CIFS / SOAP	MP storage management	Job management error.	Job cannot be deleted due to an internal error.
E45	FTP / SFTP / CIFS / SOAP	MP storage management	Error in data record structure at data field S .	Check data field.
E46	FTP / SFTP / CIFS / SOAP	MP storage management	Error in data record structure at data field T F G O I .	Check data fields.
E47	FTP / SFTP / CIFS / SOAP	MP storage management	Error in data record structure at data field S V Q .	Check data fields.
E48	FTP / SFTP / CIFS / SOAP	MP storage management	Error in data record structure at data field H01 H02 .	Check data fields.

Technical Description of the Microprocessor Control System MP 14-S / MP 100D-5 server

Lean-Lift Multi-Space Rotomat

8 Annex: Host communication by file transfer/web service (only for installation, maintenance and IT specialists)

Error code	Data exchange	Source	Description	Action
E49	FTP / SFTP / CIFS / SOAP	MP storage management	Error in data record structure at data field S N K .	Check data fields.
E50	FTP / SFTP / CIFS / SOAP	MP storage management	Error in data record structure at data field L E .	Check data fields.
E51	FTP / SFTP / CIFS / SOAP	MP storage management	Error in data record structure at data field D L G T B F Q .	Check data fields.
E52	FTP / SFTP / CIFS / SOAP	MP storage management	Error in data record structure at data field L T F E .	Check data fields.
E53	FTP / SFTP / CIFS / SOAP	MP storage management	Error in data record structure at data field K .	Check data field.
E60	FTP / SFTP / CIFS / SOAP	MP storage management	Error: Data field lengths too long.	Check data fields.
E61	FTP / SFTP / CIFS / SOAP	MP storage management	Error: Data field names too long.	Check data fields.
E63	FTP / SFTP / CIFS / SOAP	MP storage management	Error: Job already exists.	Jobs cannot be overwritten.
E64	FTP / SFTP / CIFS / SOAP	MP storage management	Error: Memory full.	Check article and job memory.
E66	FTP / SFTP / CIFS / SOAP	MP storage management	Operations journal error.	Check operations journal setting.
E67	FTP / SFTP / CIFS / SOAP	MP storage management	External shelf management error.	Check external shelf management setting.
E68	FTP / SFTP / CIFS / SOAP	MP storage management	Error in article pool management	Check article pool management setting.
E69	FTP / SFTP / CIFS / SOAP	MP storage management	For free location management, no container type is initialised for the container to be transferred.	Check initialisation of free location management.
E70	FTP / SFTP / CIFS / SOAP	MP storage management	Error in data field M .	Check data field.
E71	FTP / SFTP / CIFS / SOAP	MP storage management	Error in data field V .	Check data field.
E72	FTP / SFTP / CIFS / SOAP	MP storage management	Error in data field S .	Check data field.
E73	FTP / SFTP / CIFS / SOAP	MP storage management	Error in data field K .	Check data field.
E74	FTP / SFTP / CIFS / SOAP	MP storage management	Error in data field N .	Check data field.
E75	FTP / SFTP / CIFS / SOAP	MP storage management	Error in data field G .	Check data field.

Technical Description of the Microprocessor Control System MP 14-S / MP 100D-5 server

Lean-Lift Multi-Space Rotomat

8 Annex: Host communication by file transfer/web service (only for installation, maintenance and IT specialists)

Error code	Data exchange	Source	Description	Action
E76	FTP / SFTP / CIFS / SOAP	MP storage management	Error in data field B.	Check data field.
E77	FTP / SFTP / CIFS / SOAP	MP storage management	Error in data field R.	Check data field.
E78	FTP / SFTP / CIFS / SOAP	MP storage management	Error in data field P.	Check data field.
E79	FTP / SFTP / CIFS / SOAP	MP storage management	Error in data field Q.	Check data field.
E80	FTP / SFTP / CIFS / SOAP	MP storage management	Error in data field T.	Check data field.
E81	FTP / SFTP / CIFS / SOAP	MP storage management	Error in data field F.	Check data field.
E82	FTP / SFTP / CIFS / SOAP	MP storage management	Error in data field O.	Check data field.
E83	FTP / SFTP / CIFS / SOAP	MP storage management	Error in data field L.	Check data field.
E84	FTP / SFTP / CIFS / SOAP	MP storage management	Error in data field I.	Check data field.
E85	FTP / SFTP / CIFS / SOAP	MP storage management	Error in data field Y.	Check data field.
E86	FTP / SFTP / CIFS / SOAP	MP storage management	Error in data field X.	Check data field.
E87	FTP / SFTP / CIFS / SOAP	MP storage management	Error in data field E.	Check data field.
E88	FTP / SFTP / CIFS / SOAP	MP storage management	Error in data field J.	Check data field.
E89	FTP / SFTP / CIFS / SOAP	MP storage management	Error in data field D.	Check data field.
E90	FTP / SFTP / CIFS / SOAP	MP storage management	Error in data field W.	Check data field.
E91	FTP / SFTP / CIFS / SOAP	MP storage management	Error in data field A.	Check data field.
E92	FTP / SFTP / CIFS / SOAP	MP storage management	Error in data field Z.	Check data field.
E93	FTP / SFTP / CIFS / SOAP	MP storage management	Error in data field p.	Check data field.
E94	FTP / SFTP / CIFS / SOAP	MP storage management	Error in data field C.	Check data field.
E95	FTP / SFTP / CIFS / SOAP	MP storage management	Error in data field U.	Check data field.

8 Annex: Host communication by file transfer/web service (only for installation, maintenance and IT specialists)

Error code	Data exchange	Source	Description	Action
E96	FTP / SFTP / CIFS / SOAP	MP storage management	Error in data field H .	Check data field.
E97	FTP / SFTP / CIFS / SOAP	MP storage management	Error in data field d .	Check data field.
E98	FTP / SFTP / CIFS / SOAP	MP storage management	Error in data field u .	Check data field.
E110	FTP / SFTP / CIFS / SOAP	MP storage management	CFlash flash card too small	Use a larger CFlash flash card. At least 1 GB approved by Hänel)
E111	FTP / SFTP / CIFS / SOAP	MP storage management	Reformatting necessary	A software update was carried out with a newer program version that requires reformatting. Carry out potential software update with older version and data backup. Afterwards, carry out software update with current version and formatting. Import data again.
E112	FTP / SFTP / CIFS / SOAP	MP storage management	reserved	reserved
E113	FTP / SFTP / CIFS / SOAP	MP storage management	With MP 14-S, no additional lift/carousel can be registered.	Use MP100D-5 for more than 2 lifts/carousels.
E114	FTP / SFTP / CIFS / SOAP	MP storage management	Error in data field n .	Check data field.
E117	FTP / SFTP / CIFS / SOAP	MP storage management	Error in data field a .	Check data field.
E120	FTP / SFTP / CIFS / SOAP	MP storage management	Error in data field e .	Check data field.
E123	FTP / SFTP / CIFS / SOAP	MP storage management	Lending memory is not empty	Format storage management.
E124	FTP / SFTP / CIFS / SOAP	MP storage management	Reservation memory is not empty	Format storage management.
E125	FTP / SFTP / CIFS / SOAP	MP storage management	Lending management is not formatted.	Format storage management with lending management.
E126	FTP / SFTP / CIFS / SOAP	MP storage management	Lending data includes an undefined storage location for the article	The lending data must include a valid storage location.
E127	FTP / SFTP / CIFS / SOAP	MP storage management	A reservation already exists for this article / reserver	A reserver can reserve an article only 1 x.
E128	FTP / SFTP / CIFS / SOAP	MP storage management	Error in the data record when transmitting the lending data	Check mandatory data fields.
E129	FTP / SFTP / CIFS / SOAP	MP storage management	Error in the data record when transmitting the reservation data	Check mandatory data fields.

Technical Description of the Microprocessor Control System MP 14-S / MP 100D-5 server

Lean-Lift Multi-Space Rotomat

8 Annex: Host communication by file transfer/web service (only for installation, maintenance and IT specialists)

Error code	Data exchange	Source	Description	Action
E300	FTP / SFTP / CIFS	MP host communication	Host communication cannot be started.	Internal error.
E301	FTP / SFTP / CIFS	MP host communication	Default initialisation cannot be written in file.	Internal error.
E302	FTP / SFTP	MP host communication	Unknown host.	Check TCP/IP address.
E303	FTP / SFTP	MP host communication	Host cannot be reached/timeout.	Check TCP/IP address.
E304	FTP / SFTP	MP host communication	Host FTP server not responding.	Activate host FTP server.
E305	FTP	Host FTP server	Error in connection setup.	Check FTP server settings.
E306	FTP	Host FTP server	Unknown user name.	User / FTP server; check rights.
E306	SFTP	Host SFTP server	Failed authentication	Verify the user / password / account.
E307	FTP	Host FTP server	Incorrect password.	Password / FTP server; check rights.
E308	FTP / SFTP	Host (S)FTP server	Error in changing directories.	Check (S)FTP server rights.
E309	FTP / SFTP	Host (S)FTP server	Directory could not be listed.	Directory / FTP server; check rights.
E310	FTP	Host FTP server	File could not be downloaded.	Directory / FTP server; check rights.
E311	FTP	Host FTP server	Error in closing the download connection.	Internal error.
E312	FTP / SFTP / CIFS	Host file server	File could not be deleted.	Directory / (S)FTP server; check rights.
E313	FTP / SFTP / CIFS	MP host communication	JACOM upload source directory not found.	Internal error
E314	FTP / SFTP	Host (S)FTP server	Host (S)FTP server file could not be downloaded.	Directory / (S)FTP server; check rights.
E315	FTP	Host FTP server	Host FTP server error in closing the upload connection.	Internal error. Check the directory.
E316	FTP	Host FTP server	Host FTP server does not support PASSIVE MODE.	Check FTP server.
E317	FTP	Host FTP server	Host FTP server: unknown response.	Check FTP server.
E318	FTP / SFTP	MP host communication	JACOM download target directory not found.	Check the directory.
E319	FTP / SFTP / CIFS	MP host communication	JACOM conversion source directory not found.	Check the directory.

8 Annex: Host communication by file transfer/web service (only for installation, maintenance and IT specialists)

Error code	Data exchange	Source	Description	Action
E320	FTP / SFTP / CIFS	MP host communication	JACOM conversion target directory not found.	Check the directory.
E321	FTP / SFTP / CIFS	MP host communication	JACOM error when converting article master data.	Check conversion parameters.
E322	FTP / SFTP / CIFS	MP host communication	JACOM directory not found.	Check the directory.
E323	FTP / SFTP / CIFS	MP host communication	MP-JACOM connection could not be set up.	Start MP control system.
E324	FTP / SFTP / CIFS	MP host communication	JACOM error when converting operations journal data.	Check conversion parameters.
E325	FTP / SFTP / CIFS	MP storage management	"Read in article master data" canceled	Internal error.
E326	FTP / SFTP	MP host communication	JACOM host (S)FTP server communication incorrect. Server offline	Start server
E327	FTP / SFTP	Host (S)FTP server	Host (S)FTP server error in reading download file.	TCP/IP connection error.
E328	FTP / SFTP / CIFS	MP host communication	JACOM error when converting article pool data.	Check conversion parameters.
E329	FTP / SFTP / CIFS	MP host communication	reserved	reserved
E330	FTP / SFTP / CIFS	MP host communication	JACOM WebComServer could not be started.	Internal error.
E331	FTP / SFTP / CIFS	MP host communication	JACOM WebComServer connection refused.	Internal error.
E332	FTP / SFTP / CIFS	MP host communication	JACOM error when converting quantity journal data.	Check conversion parameters.
E333	FTP / SFTP / CIFS	MP storage management	"Read out article master data" canceled.	File incomplete.
E334	FTP / SFTP / CIFS	MP host communication	Host request file command unknown.	Check syntax.
E335	FTP / SFTP / CIFS	MP storage management	"Read in article pool data" canceled.	Internal error.
E336	FTP / SFTP / CIFS	MP storage management	"Read in system file" canceled.	Internal error.
E337	FTP / SFTP / CIFS	MP host communication	Command is not supported.	Check syntax.
E338	FTP / SFTP / CIFS	MP storage management	"Read out system data" canceled.	Internal error.
E339	FTP / SFTP / CIFS	MP storage management	reserved	reserved

8 Annex: Host communication by file transfer/web service (only for installation, maintenance and IT specialists)

Error code	Data exchange	Source	Description	Action
E340	FTP / SFTP / CIFS	MP storage management	reserved	reserved
E341	FTP / SFTP / CIFS	MP host communication	reserved	reserved
E342	FTP / SFTP / CIFS / SOAP	MP storage management	"Read out operations journal" canceled.	Internal error.
E344	FTP / SFTP / CIFS / SOAP	MP storage management	reserved	reserved
E345	FTP / SFTP / CIFS / SOAP	MP storage management	reserved	reserved
E346	FTP / SFTP / CIFS / SOAP	MP storage management	reserved	reserved
E347	FTP / SFTP / CIFS / SOAP	MP storage management	"Export quantity journal" canceled.	Internal error.
E349	FTP / SFTP / CIFS / SOAP	MP storage management	reserved	reserved
E351	FTP / SFTP / CIFS / SOAP	MP storage management	reserved	reserved
E352	FTP / SFTP / CIFS	MP host communication	Error in data transfer host-JACOM.	See system protocol.
E353	FTP / SFTP / CIFS	MP host communication	Host file server disconnected.	(S)FTP server inactive.
E354	FTP / SFTP / CIFS / SOAP	MP storage management	"Delete job" canceled.	Internal error.
E355	FTP / SFTP / CIFS / SOAP	MP storage management	"Export overview of processed jobs" canceled.	Internal error.
E356	FTP / SFTP / CIFS / SOAP	MP storage management	"Export job" canceled.	Internal error.
E357	FTP / SFTP / CIFS / SOAP	MP storage management	"Export jobs" canceled.	Internal error.
E358	FTP / SFTP / CIFS / SOAP	MP storage management	"Export job overview" canceled.	Internal error.
E359	FTP / SFTP / CIFS / SOAP	MP storage management	"Read in job" canceled.	Internal error.
E360	FTP / SFTP / CIFS / SOAP	MP storage management	Job not found.	Check job.
E361	FTP / SFTP / CIFS	MP host communication	JACOM error when converting job data.	Check conversion parameters.
E362	FTP / SFTP / CIFS	MP host communication	File with incorrect character encoding detected.	Verify that the file to be transferred has been saved as "UTF-8".

Technical Description of the Microprocessor Control System MP 14-S / MP 100D-5 server

Lean-Lift Multi-Space Rotomat

8 Annex: Host communication by file transfer/web service (only for installation, maintenance and IT specialists)

Error code	Data exchange	Source	Description	Action
E364	FTP / SFTP / CIFS	MP host communication	"Delete article pool data record" canceled	Internal error.
E365	FTP / SFTP / CIFS	MP host communication	"Delete article pool data" canceled	Internal error.
E366	FTP / SFTP / CIFS	MP host communication	Transfer empty file	Check contents of the transferred data.
E367	FTP / SFTP / CIFS	MP host communication	Order recommendation list canceled, file not complete	Internal error.
E368	FTP / SFTP / CIFS	MP host communication	JACOM error when converting the order recommendation list	Check conversion parameters.
E369	FTP / SFTP / CIFS / SOAP	MP storage management	Free location data read-in canceled	Free location data up read in to but excluding the data record for which a complaint has been registered. Starting with the data record for which a complaint has been registered, the free location data could no longer be accepted. Check for free storage locations.
E430	CIFS	MP host communication	Error attaching file	Check the directory/rights
E431	CIFS	MP host communication	Error uploading file	Check the directory/rights
E432	CIFS	MP host communication	Error downloading file	Check the directory/rights
E433	CIFS	MP host communication	Unknown host	Check IP address
E434	CIFS	MP host communication	Error mounting the share directory	Check the share directory
E435	CIFS	MP host communication	Error reading directory	Check the directory/rights
E436	FTP / SFTP / CIFS / SOAP	MP storage management	Free location data read-out canceled (file not complete)	Internal error.
E437	FTP / SFTP / CIFS	MP host communication	JACOM error when converting the free location data	Check conversion parameters.
E438	FTP / SFTP / CIFS / SOAP	MP storage management	Article pool data read-out canceled (file not complete)	Internal error.
E446	FTP / SFTP / CIFS / SOAP	MP storage management	Lending list read-out canceled (file not complete)	Internal error
E447	FTP / SFTP / CIFS / SOAP	MP storage management	Reservation list read-out canceled (file not complete)	Internal error
E448	FTP / SFTP / CIFS / SOAP	MP storage management	Lending list read-in canceled (no data record stored)	Internal error / memory full
E449	FTP / SFTP / CIFS / SOAP	MP storage management	Reservation list read-in canceled (no data record stored)	Internal error / memory full

8 Annex: Host communication by file transfer/web service (only for installation, maintenance and IT specialists)

Error code	Data exchange	Source	Description	Action
E450	FTP / SFTP / CIFS	MP host communication	Error when converting the reservation data	Check conversion parameters
E451	FTP / SFTP / CIFS	MP host communication	Error when converting the lending data	Check conversion parameters

9 Configuration software for host communication (only for installation, maintenance and IT specialists)



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

9.1 Overview of features

The following settings are possible using the configuration software (JacomMan):

- ◆ Configuring the MP 100D-5 / MP 14-S host communication
- ◆ Configuration of the MP 14-H[HOST-DATA]
- ◆ Configuring the MP 100D / MP 12N-S host communication
- ◆ Configuration of the MP 12N-H[HOST-DATA]
- ◆ Export and local saving of the host communication parameters
- ◆ Initialisation of the supplementary modules
- ◆ Initialisation of job processing
- ◆ Definition of the data fields that can be displayed
- ◆ Host connection via file transmission FTP / SFTP / CIFS
 - ◆ Specifying the file server
 - ◆ Defining the host connection parameters
 - ◆ Enabling/disabling the data exchange
 - ◆ Defining the data conversion of data files
 - ◆ Display of the log file
- ◆ Host connection via web service / SOAP

9.2 Installation

Prerequisites for operating the configuration software

- ◆ Windows 10
- ◆ At least 200 MB of available hard disk space



Installation on the service or customer computer

- x The configuration software ("jacm_vxx_vm.exe") can be downloaded and installed from the documentation DVD.
 - 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, the files "jacomman.jar" (Java Archive) and jacomman.bat are in the installation directory.
- ➔ For the file "jacm_vxx_vm.exe", a separate JRE is also in the 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 100D / MP 12N-S / MP100D-5 / MP14-S".
- When using an external firewall, Port 3500 must be enabled for the MP control system.
- x If there are problems, open the file "jacomman.bat" in the installation directory and check the directory paths.

9

Configuration software for host communication (only for installation, maintenance and IT specialists)

9.3

General operating instructions

The program contains the following menus:

Menu	See Chapter	Page
Transfer	9.4	170
Communication	9.5	171
File types (not for web service)	9.6	173
Data conversion (not for web service)	9.7	181
File transfer (not for web service)	9.8	184
Data backup (not for web service without data backup)	9.9	188
Log (not for web service)	9.10	188

The program offers the following basic functions:

Symbol	Function
Right arrow button 	After the program start: ◆ Establish a connection to MP control system and load the configuration data. After loading the configuration data: ◆ Go to next page
Left arrow button 	Go to previous page
Help button 	Call up help
Hand button  	Applying the settings on a page x If you click the hand button, the hand becomes a fist. This indicates that the settings on the current page have been accepted.

Technical Description of the Microprocessor Control System MP 14-S / MP 100D-5 server

Lean-Lift Multi-Space Rotomat

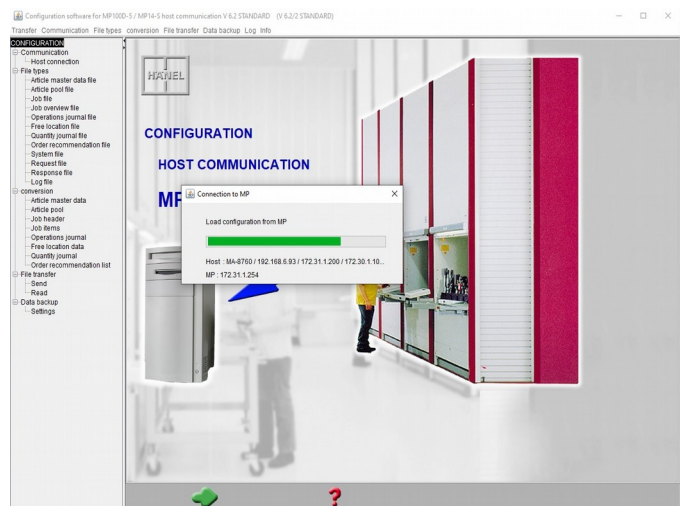
9 Configuration software for host communication (only for installation, maintenance and IT specialists)

Description of the operator prompts

Establish connection to MP control system

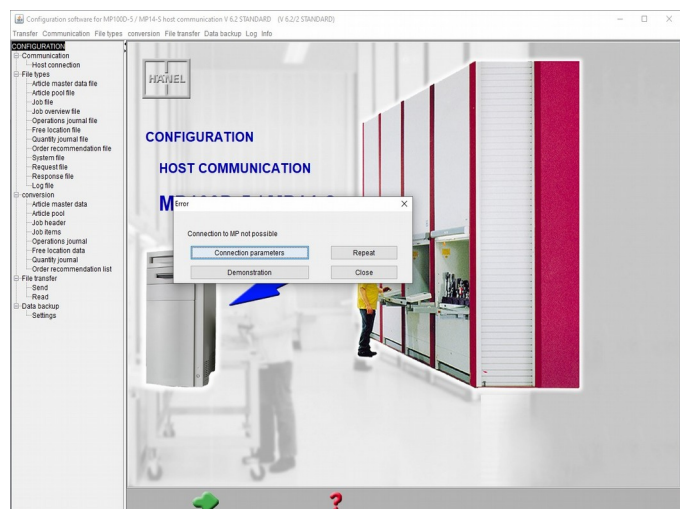
- After the program start, click the right arrow button.
- The configuration software attempts to establish a connection to the MP control system and load the configuration data.
- x If you want to load these data again, you can do so in the menu "Transfer" -> "Load configuration from MP".

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.



9 Configuration software for host communication (only for installation, maintenance and IT specialists)

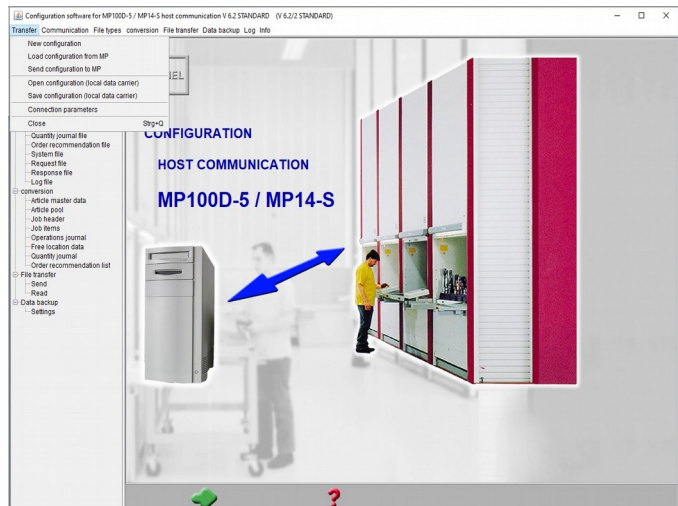
9.4 "Transfer" menu

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. mp14-58p320s7-9
 - 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 124-S and lift/carousel 1, access point 1.
For the MP 100D-5, access is possible using the IP address 172.16.1.254.
See Chapter 9.2 on page 167.
- ◆ **Close:** The configuration software is closed.

Display



9 Configuration software for host communication (only for installation, maintenance and IT specialists)

9.5 "Communication" menu

Description of the operator prompts

Define parameters for host communication

- In the "Communication" menu, select the "Host connection" menu item.
- Configure connection parameters.

FTP client:

Selects the FTP client for host communication via file transfer protocol with an FTP server. (RFC 959)

SFTP client (SSH FTP): (alternative)

Selects the SFTP client for host communication via SSH file transfer protocol (encrypted) with an SFTP server.

CIFS client (SMB / CIFS): (alternative)

Selects the CIFS client for host communication via CIFS protocol (e.g. for Windows File Sharing / Samba server)

Web service server (SOAP): (alternative)

Selection of the web service server for host communication via the SOAP 1.1 protocol.

Data backup (CIFS): (alternative for SOAP)

If set to web service server (SOAP), it is possible to carry out a background data backup based on CIFS. Then the settings for CIFS can also be configured for this purpose.

inactive:

- For "active": The host communication of the MP control system is activated
- For "inactive": The host communication of the MP control system is deactivated. Host communication is not possible.

MP 100D-5 / MP 14-S:

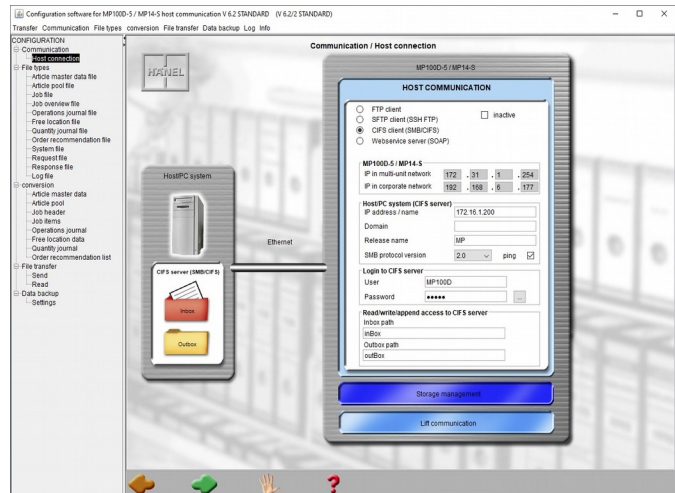
The IP in the multi-unit network and the IP in the corporate network are displayed for informational purposes.

Host/PC system ((S)FTP/CIFS server): (not for web service without data backup through CIFS)

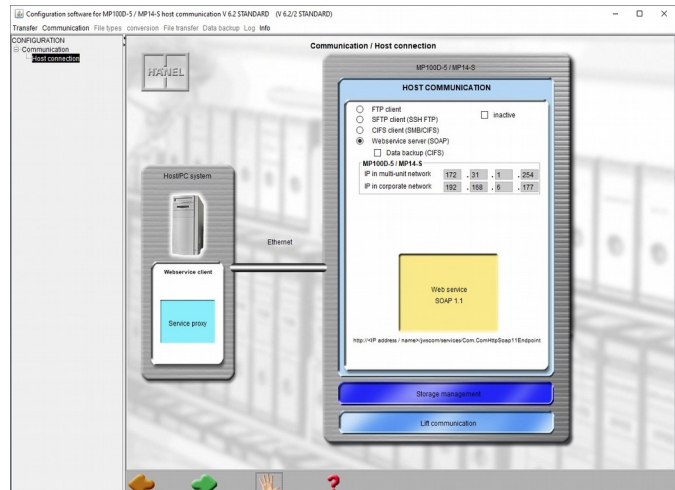
You have to enter the IP address of the host / PC system on which the file server is installed. Alternatively, it is possible to enter the DNS name of the file server as long as the MP 14-S / MP 100D-5 obtains its IP address via DHCP.

See Chapter 7.2 on page 119.

For FTP/SFTP and CIFS:



For web service server (SOAP):



9 Configuration software for host communication (only for installation, maintenance and IT specialists)

Description of the operator prompts

Share name: (Not for FTP / SFTP and web service without data backup through CIFS)

The share name for the transfer directory that contains the inbox and outbox also has to be entered here when using the CIFS protocol.

SMB protocol version: (Not for FTP / SFTP / web service without data backup through CIFS)

The SMB protocol version can be set here. It is recommended here that at least Version 2.0 be used; Version 1.0 was discontinued for security reasons, but it can still be used for reasons of compatibility with older systems.

Ping: (Not for FTP / SFTP / web service without data backup through CIFS)

If the "ping" command is used for setting, before login on the CIFS server a check is run to see whether the server can be reached. Accordingly, an error message is output in the protocol. Can help with troubleshooting and is enabled by default. This must be disabled for networks that do not allow the "ping" command.

Login on the (S)FTP / CIFS server: (Not for web service without data backup through CIFS)

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 the user account setting for the file server. The file server may restrict the number of characters or the type (numeric or alphanumeric) of characters used here.

A domain can be entered in the form of "Domain/User" when using the CIFS protocol.

See Chapter 7.2 on page 119.

Read / write / append rights to (S)FTP / CIFS server: (Not for web service) without data backup through CIFS)

Here, you must specify the absolute or relative path, including the name of the directory for the inbox and outbox.

See Chapter 7.2 on page 119.

9 Configuration software for host communication (only for installation, maintenance and IT specialists)

9.6 "File types" menu (not for web service)

Through the configuration of the file types, the MP 100D-5 / MP 14-S 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 (S)FTP/CIFS client:**
The polling cycle determines the time which elapses before the MP control system polls the outbox of the host file server for a specific file type.
The polling cycle can be set separately for the individual file types and the request file (1-360 sec.).
- ◆ **Line separating multiple requisitions:**
For job files, multiple jobs may be contained in one file.
A separator line, which can be configured here, must be inserted between jobs.
Default value = *E99
- ◆ **Job name contained in job item:**
Jobs can be transferred in two different file structures; see Chapter 7.5.3 on page 130. The structure of a job is specified here.
- ◆ **Cyclical acknowledgment:**
After a certain cycle time, processed jobs and the operations journal can be cyclically sent by the MP control system to the inbox of the file server.
- ◆ **Output cycle of the (S)FTP/CIFS client:**
When cyclical acknowledgment is enabled, here define the time after which the MP control system outputs the processed jobs or operations journal to the inbox of the file server (1-360 min.).
- ◆ **File name:**
For cyclical acknowledgment of processed jobs, a file name must be assigned to the file that is to contain the processed jobs.

9 Configuration software for host communication (only for installation, maintenance and IT specialists)

Through the configuration of the file types, the MP 100D-5 / MP 14-S host communication receives information on the type of file, the time sequence of transfer and the structure of the file.

◆ (8.3) Notation:

By default, for the automatic data backup of the article master data file, the file is saved with the file name `yyyymmddhmmss.amd`.

This can be shortened to `yyyymmdd.amd` by enabling 8.3 Notation.

Structure of the file name:

yyyy = year

mm = month

dd = day

hh = hour

mm = minute

ss = second

This setting also affects the setting in section 9.6.3 Response file on page 177.

9 Configuration software for host communication (only for installation, maintenance and IT specialists)

9.6.1 Data files (not for web service)

The following data file types can be configured:

Article master data file, article pool file, job file, job overview file, operations journal file, free location file, quantity journal file, order recommendation file, lending file, reservation file and system file.

9 Configuration software for host communication (only for installation, maintenance and IT specialists)

Description of the operator prompts

Configure file types

- Select the file type in the navigation bar.
- Enter the file name extension.
- Select polling cycle.

For job file:

- Enter the separator line flag.

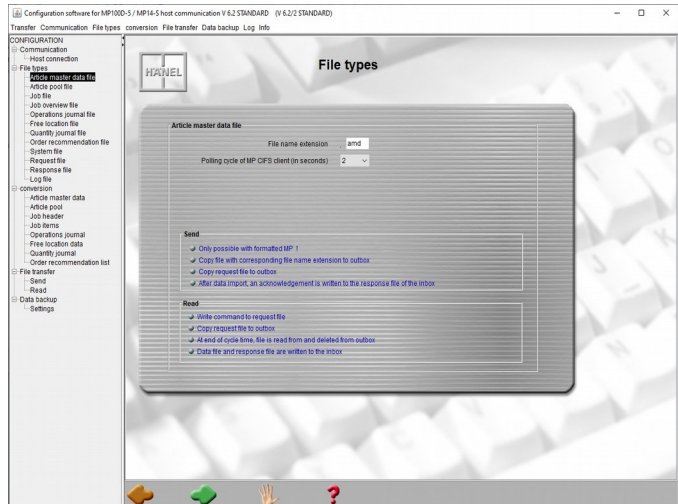
For job file and operations journal file:

- Select with or without cyclical acknowledgment.
- For cyclical acknowledgment, enter the output cycle in minutes (1,5,10,30,60,120,180,240,300,360) and the file name.

Coding:

- The data files are "UTF-8" encoded.
- The file names must contain characters from the ASCII character set only.

Display



Default setting:

File type (data file)	File name extension	Polling cycle (seconds)	Separat or line
Article master data	.amd	2	-- 1)
Article pool ²⁾	.ipd	2	-- 1)
Job	.job	2	*E99
Job overview	.jsm	2	-- 1)
Operations journal ³⁾	.opj	2	-- 1)
Free location data ⁴⁾	.fre	2	-- 1)
Order recommendation list	.orl	2	-- 1)
Quantity journal	.qtj	2	-- 1)
Lending data ⁵⁾	.lnd	2	-- 1)
Reservation data ⁵⁾	.rev	2	-- 1)
System	.sys	2	-- 1)

- 1) For these file types, no separator line can be configured.
- 2) Only with supplementary module "Article pool management".
- 3) Only with supplementary module "Operations journal logging".
- 4) Only with supplementary module "Free location management".
- 5) Only with supplementary module "Lending management".

9 Configuration software for host communication (only for installation, maintenance and IT specialists)

9.6.2 Request file (not for web service)

The request file contains commands instead of data.
See Chapter 7.5.11 on page 147.

Description of the operator prompts

Configure request file

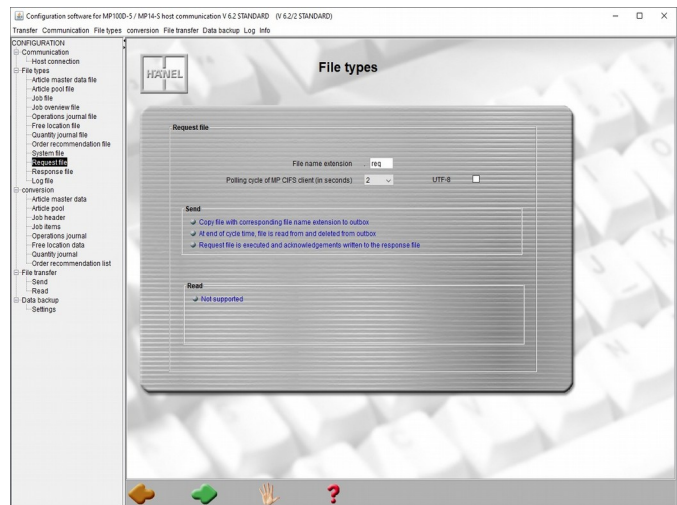
- Select the file type "Request file" in the navigation bar.
- Enter the file name extension.
- Select polling cycle.
- if necessary, check the box next to "UTF-8".

Default setting:

File type	File name extension	Polling cycle (sec.)
Request	.req	2



Display



- x The request file is "ISO 8859-1" encoded by default. Alternatively, it can be encoded using "UTF-8" for languages that use characters not included in this character range.
- x The file names must contain characters from the ASCII character set only.

9.6.3 Response file (not for web service)

Acknowledgments from the MP control system are saved in the inbox as a status line in the response file.

See Chapter 7.5.12 on page 149.

The response file format can be configured.

Structure of the file name

The file name of the response file has the following default structure:
yyyymmdd-hhmmss.res

yyyy = year hh = hour
 mm = month mm = minute
 dd = 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 "yyyymmdd.res".

9 Configuration software for host communication (only for installation, maintenance and IT specialists)

- x The response file is always "UTF-8" encoded.
- x The file name must contain characters from the ASCII character set only.

Description of the operator prompts

Configure response file

- Select the file type "Response file" in the navigation bar.
- Enter the file name extension (default is "res").
- If necessary, enable the tick box next to "(8.3) Notation".
- Adapt the file structure if necessary.

Move field:

- Left-click one of the gray 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.

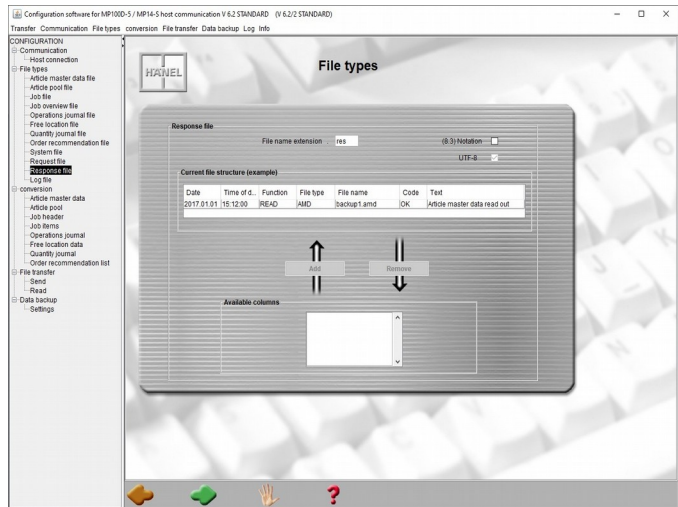
Remove field from file structure:

- 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



9 Configuration software for host communication (only for installation, maintenance and IT specialists)

9.6.4 Log file (not for web service)



The log file records the communication between the file server and (S)FTP/CIFS client or the storage management system. The data record structure of the log file can be configured.

- x All of the entries in the response file are written to the log file as well.
- x When reading in larger files, content is entered into the log file in cycles via the status (in % and quantity) of the currently read-in data records.
2020-05-20 13:19:03 WRITE IPD pool.ipd INFO checked and imported: 12% (840)
- x When exporting larger files, content is entered into the log file in cycles via the status (quantity) of the currently exported data records.
2020-05-20 13:21:14 READ AMDBACKUP backup.amd INFO exported: (4500)
- x The log file can be exported via the configuration software or via the "JUMP" service software.
- x The file name extension is set by default to "log" and cannot be changed.
- x The log file is always "UTF-8" encoded.

9 Configuration software for host communication (only for installation, maintenance and IT specialists)

Description of the operator prompts

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 gray 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 log file has been defined.

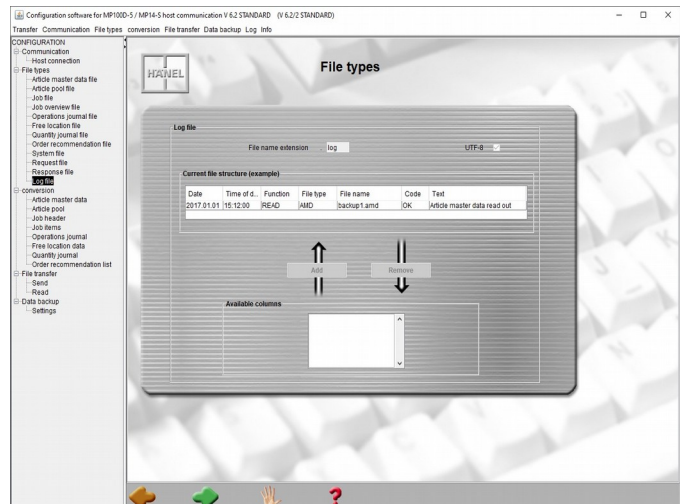
Remove field from file structure:

- 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".

Display



9 Configuration software for host communication (only for installation, maintenance and IT specialists)

9.7 "Conversion" menu (not for web service)

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 data conversion file type 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.

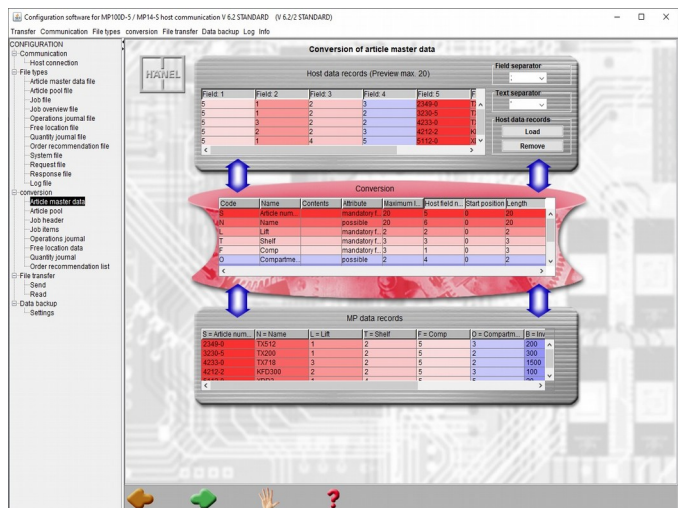
A few programs export alphanumeric data fields in text separators.

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 is 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.

9 Configuration software for host communication (only for installation, maintenance and IT specialists)

Description of the operator prompts

Assign host data fields corresponding MP data fields

There are three options for selecting the fields of the host data records:

5. Use drag and drop to copy the entire column from the host data records into the MP data records.
6. Double-click the column of the desired field of the host data record.
7. 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 7.4 on page 122.
- x The settings only have to be made for the data files to be transferred.
Unless the option "Job name contained in job item" is selected, the job header and job item are configured separately. Otherwise, it is sufficient to simply configure the job item.
- Select or enter the parameters for the data file to be converted during transferring (e.g. article master data file).

Host data field:

The host data fields are specified in detail here.

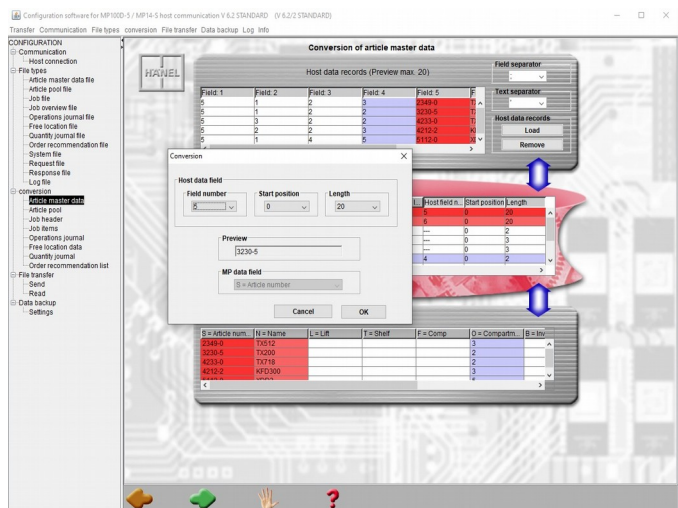
- **Field number:** Specifies which field () of the host data record is to be defined. (Applies to Send and Read).
- **Start position:** Here you have to set the position of the host data field at which conversion is to start. (Only applies to Send. Settings are ignored for Read.)
- **Length:** The number 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 MP 14-S / MP 100D-5 (e.g. "S" = article number) that is to correspond to this host data field must 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.

Display



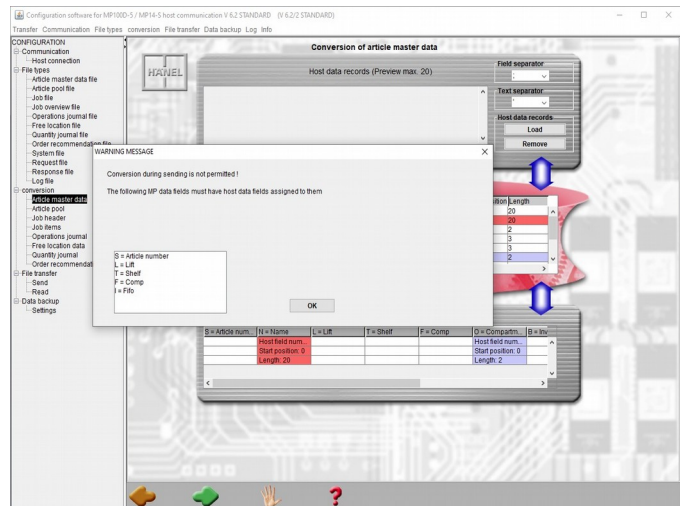
- x Note on the "Contents" column:
This column specifies whether numeric or alphanumeric characters can be used in this data field.
- x Note on the "Attribute" column:
This column specifies whether a host data field has to be assigned to this MP data field.
"Mandatory": MP data field must be assigned to a host data field when sending.
"Possible": MP data field may be assigned to a host data field, although this is not absolutely necessary.

9 Configuration software for host communication (only for installation, maintenance and IT specialists)

Description of the operator prompts

- ✗ It is mandatory to assign a host data field to certain MP data fields when sending. For these fields, the value "Mandatory" appears in the "Attribute" column. If one or more of these fields has not been 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



9 Configuration software for host communication (only for installation, maintenance and IT specialists)

9.8 "File transfer" menu (not for web service)

The communication between the host and the MP control system is by means of an automated data exchange between the host file server and the MP client.

After a defined polling cycle (see Chapter 9.6 on page 173) the MP client polls the outbox of the file server for files.

If there is a file in the output box of the file 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 file** (e.g. article master data, job file) is recognised, an attempt is made to enter this file into the MP control system. As feedback, a status line is entered into a response file and placed into the file server inbox. If the response file already exists, the status feedback is added to the existing contents.

A percent is specified when transferring larger files and the number of data records that have already been imported is written to the log in cycles as a control.

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.

If larger files are exported from the MP control system due to the request file, then the number of data records that have already been exported is written to the log as a control.

Depending on the command or quantity of the sent or requested data, the entry in 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 and the log 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 7.4 on page 122.

9 Configuration software for host communication (only for installation, maintenance and IT specialists)

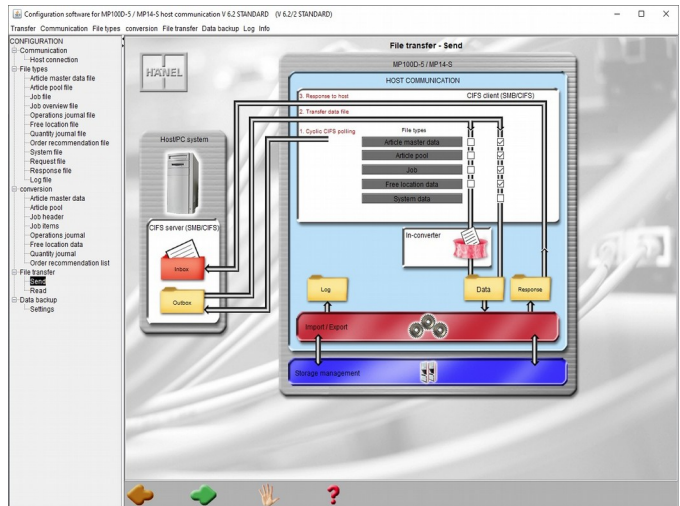
9.8.1 Send (import)

Description of the operator prompts

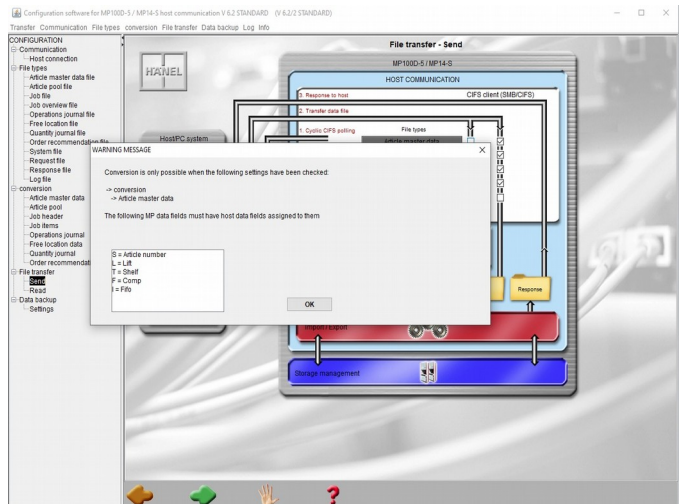
Activate with conversion / without conversion

- ➔ Under "File types", there is a list of files that can be sent.
If certain file types have a white font, this indicates that they were not formatted in the MP control system and can therefore not be sent.
- ➔ 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 9.7 on page 181.
- Enable the right tick box if the file is to be sent directly to the MP control system.

Display



- ➔ The error message to the right appears if the MP data fields have not yet been assigned host data fields. See Chapter 9.7 on page 181.



9 Configuration software for host communication (only for installation, maintenance and IT specialists)

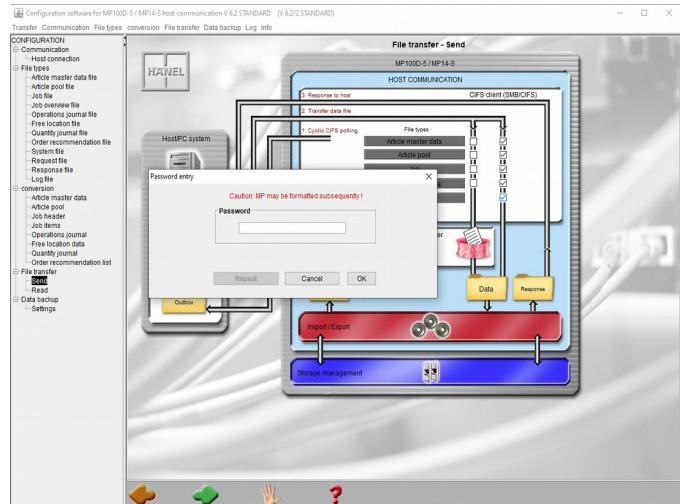
Description of the operator prompts

Send system data from storage management system

- Click the hand button to accept the settings.
- ➔ The "Password entry" window opens.
- Enter password.
- Click the **OK** button.
- ➔ After the configuration data is sent to the MP control system, the control system is ready to receive the system data of the storage management system. After the system data is received, the storage management is reformatted.



Display



When a system file is sent, the storage management system of the MP control system is reformatted. All data such as article and job data are deleted.

Before sending the system file, be absolutely certain to carry out a data backup.

This function is protected by a password. For this reason, the settings for this function should be configured by trained personnel or by Hänel Service only.

9 Configuration software for host communication (only for installation, maintenance and IT specialists)

9.9 Data backup

Description of the operator prompts

Enabling automatic data backup

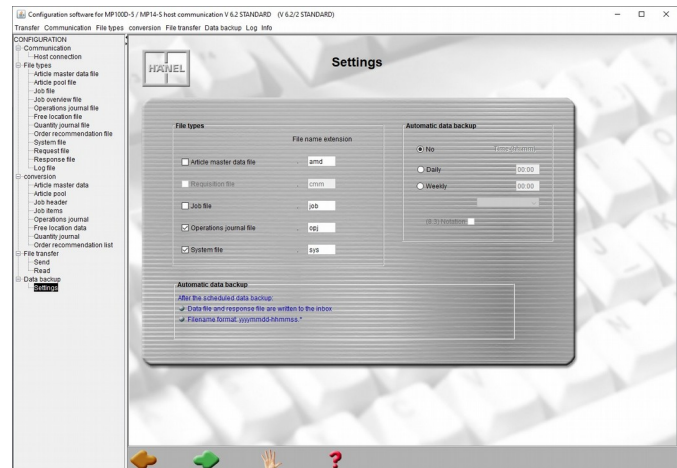
- In the "Data backup" menu, select the "Settings" menu item.
- A data backup can be carried out for the following files:
 - Article master data file
 - Requisition file (only for MP12N-S/MP100D)
 - Job file
 - Operations journal file
 - System file
 - Lending file
 - Reservation file

→ Automatic data backup (applies to selected files)

- **No:** No automatic data backup
 - **Daily:** Daily data backup at specified time (hh:mm)
 - **Weekly:** Weekly data backup at specified time and weekday.
- x If the control system is switched off at the specified time, then the data backup is conducted once the time is reached again after the control system is switched back on. If the control system is offline for the file server at that time, then data backup is rescheduled automatically to the next time the file server is connected.

9.10 "Log " menu (not for web service)

Display



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 9.6.4 on page 179.

9 Configuration software for host communication (only for installation, maintenance and IT specialists)

9.11 "Info" menu

In the "Info" → "Settings" menu you can configure the following parameters:

- ◆ Language (DE, EN, FR etc.)
- ◆ Font (Arial etc.)
- ◆ Program version (MP100D / MP12N-S / MP100D-5 / MP14, MP12N-H[HOST-DATA] / MP14-H[HOST-DATA] when the program is started)
- ◆ Password (password prompt when the program is started)
 - No (no password prompt)
 - Yes (password can be entered or applied)
 - New password (password can be overwritten)

9 Configuration software for host communication (only for installation, maintenance and IT specialists)

9.12 Send configuration to MP control system

Description of the operator prompts

The data is not applied in the host communication of the MP control system until the configuration is sent to the MP control system.

Send configuration data to MP control system

Prerequisite:

All settings have been accepted using the "hand" button.

- After the last window is displayed, click the right arrow button.

or

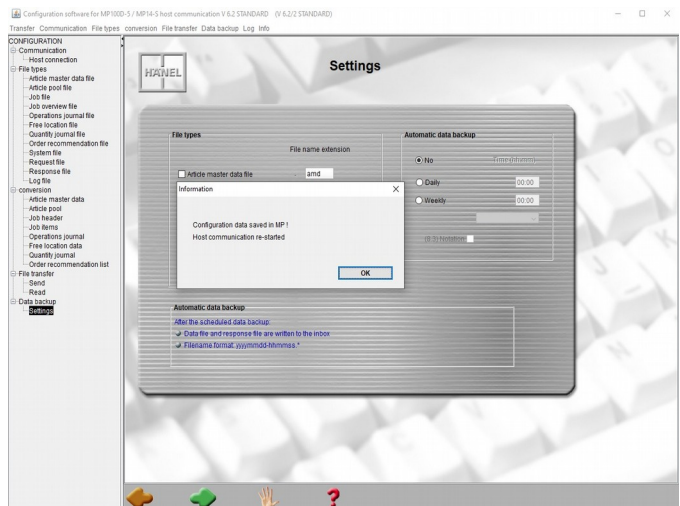
- In the "Transfer" menu, select the "Send configuration to MP" menu item.

➔ Configuration settings are sent to the MP control system.

- Click the **OK** button.

➔ The changes in the MP control system become active after the export, and the host communication is automatically restarted.

Display



10 Interfaces MP 100D-5 (only for installation, maintenance and IT specialists)



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

10.1 Ethernet interface

Intended use:

The Ethernet 10/100 Base T interface (connector X102) is used for the connection to the corporate network (e.g. ERP system). For an Ethernet multi-unit network, this is also used to connect the lifts/carousels to each other.

The TCP/IP address for the multi-unit network has a default setting of 172.16.1.254.

The TCP/IP address for the Ethernet company network is drawn from the DHCP server as standard.

- Refer also to the chapter on "Setting interface parameters" in the "Technical Description of the MP 14 Lean-Lift, Multi-Space (or Rotomat)".
- Refer also to drawing draws/ethernet.dwg "Ethernet network / Ethernet multi-unit network"
- ◆ Connection for "JUMP" service software
 - See Chapter 12.1 Software update MP 14-S on page 195.
 - See Chapter 12.2 Software update MP 100D-5 on page 195.
- ◆ Connection for browser, printer, file server via switch
 - See Chapter 4 Integration into Ethernet corporate network on page 25.

No use of the Ethernet interface beyond this is permitted.

10 Interfaces MP 100D-5 (only for installation, maintenance and IT specialists)

10.2 GSC interface

X13

Intended use:

The GSC connector (connector X13) is used to connect the MP100D-5 to the MP multi-unit network.

Refer also to the drawings:

- infasm/mp100d-5 "Installation of MP 100D-5"
- draws/verbund.dwg "MP100D-5 multi-unit network via GSC"

No use beyond this is permitted.

11 Connection of peripheral devices (only for installation, maintenance and IT specialists)

The following peripheral devices can be connected to the storage management system of an MP 14-S, MP 100D-5:

- Network printer with Postscript emulation

For additional peripheral devices for connection to an MP 14-S, refer to "Technical Description of the Microprocessor Control System MP 14 Lean-Lift and Multi-Space (or Rotomat)".

11.1 Network printer

Prerequisites for the printer:

- ◆ 10/100 Mbit Ethernet connection
- ◆ No printing via print spooler
- ◆ "POSTSCRIPT" printer emulation

12 Service notes (for installation and maintenance personnel only)



This chapter is intended for instructed installation and maintenance personnel.

12.1 Software update MP 14-S

- See "Technical Description of the Microprocessor Control System MP 14 Lean-Lift and Multi-Space"
- or
- See "Technical Description of the Microprocessor Control System MP 14 Rotomat".

12.2 Software update MP 100D-5

A software update of MP 100D-5 is carried out via the Ethernet interface X102 using the "JUMP" service software.

Required components / settings

- ◆ Laptop with installed 10/100 Mbit Ethernet interface.
- ◆ TCP/IP address: 172.xx.1.200
(xx) = 16 to 31; configured address range for the MP control system
- Subnet mask: 255.255.0.0
- ◆ "JUMP" service software with integrated Java Runtime Environment.
- ◆ Ethernet 10/100 Base T patch cable (at least CAT 6).

Procedure

- Establish connection between laptop and MP 100D-5 with patch cable.
- Switch on the MP 100D-5 control system and allow it to boot up.
- Start the "JUMP" service software.
- Select the menu item:
 - Upload
 - Program update
 - MP 100D
 - MP 100D(-5) packageSelect ZIP file.
- ➔ Connection is set up. File is transferred.
- Switch the MP 100D-5 control system off, then on again.
- ➔ The transferred ZIP file is unpacked and started automatically.

12 Service notes (for installation and maintenance personnel only)

12.3 Extension to background data backup (only for MP100D-5)



- Prerequisite is at least a V6.2 system.

Procedure

- Carry out data backup on service computer using "JUMP" service software. Backup of article data, job data, journal data and initialisation data.
 - Switch off the MP 100D-5 control system.
 - Insert the second flash card (SD flash card) at X135. (Caution, only flash cards approved by Hänel can be used)
 - Switch on the MP 100D-5 control system and wait for it to boot up. Booting up takes longer because the data are copied from the CFast flash card to the SD flash card.
- ➔ The control system is ready to operate. The background data backup has been installed correctly.

12.4 Exporting system data from storage management system

The complete settings of the integrated storage management system can be exported using the "JUMP" service software.

In the event of problems, "JUMP" can be used to check the settings. Furthermore, the exported file can be used to reproduce the customer configuration. This can also be very helpful during troubleshooting.

Procedure for system changes to storage management system (formatting)

- Carry out data backup on service computer using "JUMP" service software. Backup of article data, job data, journal data and initialisation data.
- Label old flash card and place in safekeeping.
- Carry out system formatting on new flash card.
- Register all lifts/carousels.
- Import data backup from service computer.

13 Annex: Customer form for integration into corporate network, Part I

13.1 Data screening using a browser

This form must be filled in by the customer's IT specialists if the following services have been ordered: "Installation support for data screening using a browser" or "Installation support for host communication file transfer / data conversion".

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

Contact:

Hänel Büro- und Lagersysteme
Abt. Elektronik-Entwicklung
Postfach 1161
D-74173 Bad Friedrichshall, Germany
E-mail: DEL@haenel.biz



Chapter 4 Integration into Ethernet corporate network is the basis for filling in the following tables:

MP 14-S / MP 100D-5 - Integration into corporate network	
1.	Is the MP control system to receive the TCP/IP address via a DHCP server? ☐ Yes ☐ No
2.	x Fill in only if the answer to "1" was "No": Which TCP/IP parameters should the MP control system receive? TCP/IP address : _____ Sub-network mask : _____ Standard gateway : _____
3.	Is a DNS server in the network that supports DNS UPDATE in accordance with RFC 2136? ☐ Yes ☐ No
4.	DNS name of the MP control system : _____
5.	The MP control systems use further TCP/IP addresses internally. These are located by default in the 172.16.xxx.yyy. address range of the B-class network. The control system gives you the ability to use other address ranges between 172.16.xxx.yyy and 172.31.xxx.yyy. Which address range is available on the intranet: 172._____.xxx.xxx
6.	Encrypted connection (HTTPS) ☐ Yes ☐ No

13 Annex: Customer form for integration into corporate network, Part I

13.2 Network printer

- x The following table has to be filled in only if a network printer is to be connected to the MP 14-S / MP 100D-5:

Network printer - connection to MP 14-S / MP 100D-5	
1.	x Fill in only if the network printer is addressed via its TCP/IP address: Which TCP/IP parameters does the network printer have? TCP/IP address: _____
2.	x Fill in only if the network printer is addressed via its printer name (DNS): What is the name of the network printer? Name: _____

13.3 MP multi-unit network integrated into the corporate network

- x The following table only has to be filled in if the MP multi-unit network is to be integrated into the corporate Ethernet network.
- x On this type of multi-unit network, each access point of a lift/carousel is connected to another via the corporate network. Here, you must ensure that each Ethernet connection of a lift/carousel/access point has 2 logical IP addresses.
- x For the MP multi-unit network, the multi-unit network IP address is used to exchange internal lift data.
This address is defined as follows.
172.<range>.<access point number>.<lift number>
The range can be set from 16 - 31 by the customer and applies to all lifts/carousels in the multi-unit network. It is important to ensure that this IP address range is available in the corporate network.
- x There is also an IP address for the corporate network. This is used for host communication for MP 14-S and MP 100D-5.
For lifts/carousels in the MP multi-unit network, this IP address can be set as follows.
 - x Manual IP address assignment
 - x Address assignment via DHCP
 - x Switch off IP address IP: 0.0.0.0 (recommended)

13 Annex: Customer form for integration into corporate network, Part I

MP multi-unit network integrated into the corporate network (This page must be considered separately for each lift/carousel/access point in the MP multi-unit network)		
1.	Which IP address range can be used for the TCP/IP addresses of the lifts/carousels in the multi-unit network? TCP/IP address: 172._____.<access point number>.<lift number> (16 - 31 possible)	
2.	Should the TCP/IP address in the corporate network be deactivated?	☐ Yes (recommended) 0.0.0.0 ☐ No
3.	x Fill in only if the answer to "2" was "No": Is the MP control system to receive the TCP/IP address via a DHCP server?	☐ Yes ☐ No
4.	x Fill in only if the answer to "3" was "No": Which TCP/IP parameters should the MP control system receive? TCP/IP address : _____. Sub-network mask : _____. Standard gateway : _____	
5.	x Fill in only if the answer to "3" was "Yes": Is a DNS server in the network that supports DNS UPDATE in accordance with RFC 2136?	☐ Yes ☐ No
6.	x Fill in only if the answer to "5" was "Yes": DNS name of the MP control system : _____	
7.	Steps 2 - 6 must be repeated for each lift/carousel/access point. If there are entries in lines 4 - 6, this page can also be copied beforehand for each lift/access point in the MP multi-unit network.	

Notes:

This image shows a blank sheet of white paper with horizontal ruling lines, resembling notebook paper. The page is divided into two columns by a vertical center fold. Each column contains 21 horizontal lines, creating 20 rows per side. The lines are evenly spaced and extend across the width of each column.

14 Annex: customer form for integration into corporate network, Part II

14.1 Host communication file transfer / data conversion

This form must be filled in by the customer's IT specialists if the following has been ordered: "Installation support for host communication file transfer / data conversion".

Please fill in the form and hand it to the Hänel Service technician on the day of the installation support.

To optimise the installation with regard to time and function, you can send a copy of the filled in form Part I and II to Hänel in advance, including any example files to be converted. This allows any adaptation problems to be detected in a timely manner.

Contact:

Hänel Büro- und Lagersysteme
Abt. Elektronik-Entwicklung
Postfach 1161
D-74173 Bad Friedrichshall, Germany
E-mail: DEL@haenel.biz



The following chapters are the basis for filling in the following tables:

- Chapter 7 "Host communication by file transfer (only for installation, maintenance and IT specialists)",
- Chapter 9 Configuration software for host communication

Only the sheets corresponding to the scope of the data to be converted need to be filled in.

14 Annex: customer form for integration into corporate network, Part II

SOAP connection

Host communication MP 14-S / MP 100D-5 - connection to ERP system via SOAP	
1.	Connection via SOAP protocol (SOAP 1.1). ☐ If yes, additional data backup through CIFS protocol ☐ If no additional data backup through CIFS is to be provided for SOAP, no additional information is required for the file server connection.
2.	Encrypted connection (SOAP via HTTPS) ☐ Yes ☐ No

File server connection

Host communication MP 14-S / MP 100D-5 - connection to the file server	
1.	Connection via the FTP protocol (RFC 959) ☐ Connection to an SFTP protocol (SSH version 2 and up) ☐ Connection via the CIFS protocol (e.g. Windows File Share, Samba) ☐ ☐ SMB version 1.0 ☐ SMB version 2.0 (for system V5.1 / V6.1 and later) ☐ SMB version 2.1 (for system V5.1 / V6.1 and later) ☐ SMB version 3.0 (for system V5.1 / V6.1 and later) ☐ SMB version 3.1.1 (for system V7.0 / V7.0 and later)
2.	Which TCP/IP address does the file server have for the host communication? TCP/IP address: _____ Share name (only for CIFS) _____ Domain (only for CIFS if required) _____
3.	Path of the output directory on the file server: _____ Path of the input directory on the file server: _____
4.	The MP control system requires read/write/append/delete rights to the directories (under 3) on the file server. Login account of the MP control system: User: _____ Password: _____

14 Annex: customer form for integration into corporate network, Part II

File types import / export

	MP 14-S / MP 100D-5 File types	Send file to MP 14-S / MP 100D-5 (import)			Read file from MP 14-S / MP 100D-5 (export)		
		Yes		No	Yes		No
		MP ¹⁾	CSV ²⁾		MP ¹⁾	CSV ²⁾	
1.	Article master data file	x	x	-	x	x	-
2.	Article pool file	x	x	-	x	x	-
3.	Job file	x	x	-	x	x	-
4.	Job overview file	-	-	x	x	x	-
5.	Operations journal file	-	-	x	x	x	-
6.	Quantity journal file	-	-	x	x	x	-
7.	Order recommendation file	-	-	x	x	x	-
8.	Free location file	x	x	-	x	x	-
9.	Lending file	x	x	-	x	x	-
10	Reservation file	x	x	-	x	x	-

1) Hänel MP format

2) CSV format

Technical Description of the Microprocessor Control System MP 14-S / MP 100D-5 server

Lean-Lift Multi-Space Rotomat

14 Annex: customer form for integration into corporate network, Part II

Article master data (only fill in if the article master data is to be converted)

CSV file	Example:	Customer data
File ending	*.amd	
Field separators	;	
Text separators	"	

Data record example	12001;"ABC";1;10;3;4;1;300;200;00101									
Field number	1	2	3	4	5	6	7	8	9	10
Customer data record										
Field number										

Max. no of charac- ters	Field type	Data field	Manda- tory ¹⁾	Example:		Customer data																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
				Field contents:		Field No.	Field content (From the above customer data record example, enter the individual fields here)																Field No.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
40	Alpha-numerical	Article number (S)	X	1	2	0	0	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								</

1) All mandatory data fields must have a corresponding field in the host data record when imported to the MP control system.

Lean-Lift Multi-Space Rotomat

Article pool data (only fill in if the article pool data is to be converted)

Data record example	12002;200;"DEF";"STAT"			
Field number	1	2	3	4
Customer data record				
Field number				

[illegible]

1) All mandatory data fields must have a corresponding field in the host data record when imported to the MP control system.

Technical Description of the Microprocessor Control System MP 14-S / MP 100D-5 server

Lean-Lift
Multi-Space
Rotomat

14 Annex: customer form for integration into corporate network, Part II

Job header (only fill in if the job data is to be converted)

CSV file	Example:	Customer data
File ending	*.job	
Field separators	;	
Text separators	"	

Data record example	"AUFT 1";018;01;03404;1245				
Field number	1	2	3	4	5
Customer data record					
Field number					

Max. no of characters	Field type	Data field	Mandatory ¹⁾	Example:				Customer data																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
				Field contents:			Field No.	Field content (From the above customer data record example, enter the individual fields here)																Field No.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
40	Alpha-numerical	Job (K)	X	A	U	F	T	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					

1) All mandatory data fields must have a corresponding field in the host data record when imported to the MP control system.

Lean-Lift Multi-Space Rotomat

Job item with job name in job header (only fill in if job data with separate job header are to be converted)

Data record example	12005 ; "-" ; 3 ; 3 ; 30404
Field number	1 2 3 4 5
Customer data record	
Field number	

1) All mandatory data fields must have a corresponding field in the host data record when imported to the MP control system.

Technical Description of the Microprocessor Control System MP 14-S / MP 100D-5 server

Lean-Lift
Multi-Space
Rotomat

14 Annex: customer form for integration into corporate network, Part II

Job item with job name in job item (only fill in if job data is to be converted)

CSV file	Example:	Customer data
File ending	*.job	
Field separators	;	
Text separators	"	

Data record example	12004;"+";300;300;25599;00;"AUFTRAG";001;270903;1505;00										
Field number	1	2	3	4	5	6	7	8	9	10	11
Customer data record											
Field number											

Max. no of characters	Field type	Data field	Mandatory ¹⁾	Example:		Customer data																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
				Field content		Field No.	Field content (From the above customer data record example, enter the individual fields here)																Field No.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
40	Alpha-numerical	Job (K)	X	A	U	F	T	R	A	G	7																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									

1) All mandatory data fields must have a corresponding field in the host data record when imported to the MP control system.

14 Annex: customer form for integration into corporate network, Part II

Operations journal data (only fill in if operations journal data is to be converted)

CSV file	Example:	Customer data
File ending	*.opj	
Field separators	;	
Text separators	"	

Data record example	12005;"-";4175;00101;00;"AUFTRAG";110603;0756;"EINKAUF";"GL-T"									
Field number	1	2	3	4	5	6	7	8	9	10
Customer data record										
Field number										

Max. no of charac- ters	Field type	Data field	Example:		Customer data															
			Field content						Field content (From the above customer data record example, enter the individual fields here)											
40	Alpha- numerical	Article number (S)	1	2	0	0	5													
40	Alpha- numerical	Batch number (c)																		
1	Alpha- numerical	Process (V)	-																	
8	Numerical	Actual quantity (Q)	4	1	7	5														
5 - 7	Numerical	Container (G)	0	0	1	0	1													
2	Numerical	Status (W)	0	0																
40	Alpha- numerical	Job (U01)	A	U	F	T	R	A	G											
40	Alpha- numerical	Date (U02)	1	1	0	6	0	3												
40	Alpha- numerical	Time (U03)	0	7	5	6														
40	Alpha- numerical	Cost centre (U04)	E	I	N	K	A	U	F											
40	Alpha- numerical	User field (U05)																		
40	Alpha- numerical	Operator/ lender (U06)	G	L	-	T														
10	Alpha- numerical	Storage location (U07)	0	1	0	0	1	0	2											

Operations journal data can only be exported from the MP control system.

Technical Description of the Microprocessor Control System MP 14-S / MP 100D-5 server

Lean-Lift
Multi-Space
Rotomat

14 Annex: customer form for integration into corporate network, Part II

Quantity journal (only fill in if quantity journal data is to be converted)

CSV file	Example:	Customer data
File ending	*.qtj	
Field separators	;	
Text separators	"	

Data record example	12006;"BOHRER5";2450;100;200;6700					
Field number	1	2	3	4	5	6
Customer data record						
Field number						

Max. no of charac- ters	Field type	Data field	Example:		Customer data															
			Field content						Field content (From the above customer data record example, enter the individual fields here)											
40	Alpha- numerical	Article number (S)	1	2	0	0	6		1											
40	Alpha- numerical	Article name (N)	B	O	H	R	E	R	5	2										
8	Numerical	Total inventory (P)	2	4	5	0	0	0		3										
8	Numerical	Minimum inventory (R)	1	0	0	0	0	0		4										
8	Numerical	In (Z)	2	0	0					5										
8	Numerical	Out (A)	6	7	0	0				6										
40	Alpha- numerical	Special data field (H..)							4											
40	Alpha- numerical	Special data field (H..)																		

Quantity journal data can only be exported from the MP control system.

14 Annex: customer form for integration into corporate network, Part II

Order recommendation list (only fill in if the order recommendation data is to be converted)

CSV file	Example:	Customer data
File ending	*.orl	
Field separators	;	
Text separators	"	

Data record example	12006;"BOHRER5";2450;100;0				
Field number	1	2	3	4	5
Customer data record					
Field number					

Max. no of characters	Field type	Data field	Example:							Customer data																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
			Field content							Field No.	Field content (From the above customer data record example, enter the individual fields here)																	Field No.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
40	Alpha-numerical	Article number (S)	1	2	0	0	6		1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														

Order recommendation data can only be exported from the MP control system.

Lean-Lift Multi-Space Rotomat

Free location data (only fill in if the free location data are to be converted)

Data record example	1;2;1;10;00101
Field number	1 2 3 4 5
Customer data record	
Field number	

[illegible]

1) All mandatory data fields must have a corresponding field in the host data record when imported to the MP control system.

Technical Description of the Microprocessor Control System MP 14-S / MP 100D-5 server

Lean-Lift Multi-Space Rotomat

14 Annex: customer form for integration into corporate network, Part II

Lending data (only fill in if lending data is to be converted)

CSV file	Example:	Customer data
File ending	*.Ind	
Field separators	;	
Text separators	"	

Data record example	4711;1;2;3;10;15;XYZ;211220;1200								
Field number	1	2	3	4	5	6	7	8	9
Customer data record									
Field number									

Max. no of charac- ters	Field type	Data field	Manda- tory ¹⁾	Example:		Customer data													
				Field content				Field No.											
								(From the above customer data record example, enter the individual fields here)											
40	Alpha- numeric	Article number (S)	X	4	7	1	1	1											
2	Numerical	Lift number (L)	X	1	1			2											
3	Numerical	Shelf (T)	X	2				3											
3	Numerical	Compartment (F)	X	3				4											
2	Numerical	Compartment depth (O)	X	1	0			5											
8	Numerical	Lending quantity (B)	X	1	5			6											
40	Alpha- numeric	Borrower	X	X	Y	Z		7											
6	Numerical	Lending date	X	2	1	1	2	2	8										
4	Numerical	Lending time	X	1	2	0	0	9											

¹⁾ All mandatory data fields must have a corresponding field in the host data record when imported to the MP control system.

Technical Description of the Microprocessor Control System MP 14-S / MP 100D-5 server

Lean-Lift
Multi-Space
Rotomat

14 Annex: customer form for integration into corporate network, Part II

Reservation data (only fill in if the reservation data is to be converted)

CSV file	Example:	Customer data
File ending	*.rev	
Field separators	;	
Text separators	"	

Data record example	4711;XYZ;20;211220;1200								
Field number	1	2	3	4	5	6	7	8	9
Customer data record									
Field number									

Max. no of charac- ters	Field type	Data field	Manda- tory ¹⁾	Example:		Customer data													
				Field content		Field No.	Field content (From the above customer data record example, enter the individual fields here)												Field No.
40	Alpha- numeric	Article number (S)	X	4	7	1	1	1											
40	Alpha- numeric	Reserver	X	X	Y	Z		2											
8	Numerical	Reser- vation quantity	X	2	0			3											
6	Numerical	Reser- vation date	X	2	1	1	2	2	4										
4	Numerical	Reserver time	X	1	2	0	0	5											

1) All mandatory data fields must have a corresponding field in the host data record when imported to the MP control system.

Notes:

[illegible]

15 License notes

The Hänel MP software and the operating system use open-source software.

The license texts and the sources of the libraries preinstalled on the system as well as further information and documentation can be found on the "Technical documentation" USB stick.

16 Revision notes

Last issue dated: 2022-0720

Changes to the last issue:

- ◆ Chapter 3.4.3 Cookie guideline
- ◆ Chapter 6.6.14 "sendJobsV01" method - transfer jobs
- ◆ Chapter 6.6.15 "sendJobsV02" method - transfer jobs
- ◆ Chapter 6.7.2 "readOpjournalV02" method - read out operations journal (older version)
- ◆ Chapter 6.7.3 "readOpjournalV03" method - read out operations journal
- ◆ Chapter 6.8.11 "OpjournalPosTypeV02" object - item data record for the operations journal (older version)
- ◆ Chapter 6.8.12 "OpjournalPosTypeV03" object - item data record for the operations journal
- ◆ Chapter 7 Host communication by file transfer (only for installation, maintenance and IT specialists)
- ◆ Chapter 7.5.1 Article master data file
- ◆ Chapter 7.5.3 Job file
- ◆ Chapter 7.5.4 Operations journal file
- ◆ Chapter 8.2 Data fields
- ◆ Chapter 10.1 Ethernet interface
- ◆ Chapter 14.1 Host communication file transfer / data conversion

Technical Description of the Microprocessor Control System MP 14-S / MP 100D-5 server

Lean-Lift Multi-Space Rotomat

Keyword index

A		H	
Annex: Customer form.....	197, 201	Hänel MP format.....	121
Article master data file.....	124	Host communication.....	17, 41, 117
Article pool file.....	127		
C		I	
CIFS server.....	120	Interfaces.....	191
Configuration software.....	167		
Configure file types.....	176	J	
Configure log file.....	180	Job file.....	130
Configure request file.....	177		
Configure response file.....	178	L	
CSV format.....	121	Lift/carousel communication.....	17
Customer form.....			
– Data screening using a browser.....	197	O	
– Host communication file transfer / data conversion.....	201	Operations journal file.....	136
		Order recommendation file.....	141
		Overview of features.....	15
D		Q	
Data conversion.....	149	Quantity journal file.....	140
Data fields.....	42, 121		
Data files.....	175	R	
Data record conventions.....	121	Request file.....	147
		Response file.....	149
E		S	
Error codes.....	42, 121, 157	Set delimiter.....	181
Ethernet interface.....	191	SFTP server.....	119
Exporting system data from storage management system.....	196	SOAP.....	11
Extension to background data backup (only for MP100D-5).....	196	Software update.....	195
		Storage management.....	16
		Supplementary documents.....	13
		System file.....	146
		System parameters of storage management.....	39
F		T	
Field separator.....	181	Text separator.....	181
File transfer.....	122		
File types.....	124	W	
FTP server.....	119	Web server.....	
Function diagram.....	16	– Features.....	19
		– PC browser settings.....	22
		– URL of starting screen.....	21
		Web server with storage portal application.....	17
G			
GSC interface.....	192		

Hänel

Büro- und Lagersysteme

Postfach 11 61

D-74173 Bad Friedrichshall

Phone: +49 7136/27725

Fax: +49 7136/27741

<http://www.hanel.de>

Innovative ideas. Sound technology. Flexible systems.

