4.3.2 TT1430: Status and Control Request (SRM)

4.3.2.1 Purpose of This Telegram Type

With this telegram the MFS requests status information and can control the device.

4.3.2.2 Sending Direction

MFS -> SRM

4.3.2.3 Sending Time

a) Status request from MFS to SRM:
The SOC status can be requested from the MFS at any time. When starting the MFS process, this telegram will usually be sent to all SOCs

b) Control settings from MFS to SRM:
This telegram will be used to switch the SRM in a different operation mode (on, off, error).

4.3.2.4 General

Note: The TT1430 have the same length for all defined topics. Not relevant parts need to be set to 0.

4.3.2.4.1 Structure – General Part (Version 1)

No. Byte	Field content		Type
0	Telegram sender ID	MSB	D
1		LSB	
2	Telegram receiver ID	MSB	D
3		LSB	
4	Telegram type	MSB	D
5		LSB	
6	Telegram sub type	MSB	D
7		LSB	
8	Version	MSB	D
9		LSB	
10	Topic	MSB	D
11		LSB	
12	Status request ID	MSW:MSB	D
13		MSW:LSB	
14		LSW:MSB	
15		LSW:LSB	
16	Structure is described in the following details chapters		
17			
18			
:			
99			

4.3.2.4.2 Description of the Fields – General Part

4.3.2.4.2.1 Overview

Field	Description	
Telegram sender ID	201	MFS
Telegram receiver ID	1121 …1124; 1221 …1224 2121 …2124; 2221 …2224 3121 …3124; 3221 …3224 4121 …4124; 4221 …4224 5121 …5124; 5221 …5224 6121 …6124; 6221 …6224	Controller Nxxxx: 4*2*6 = 48 Navette; (naming see 3.3.2.3.3ff)
	1081, 1082 … 1085, *1086* *2081,* 2082 … 2085, *2086* *3081,* 3082 … 3085, *3086* *4081,* 4082 … 4085, *4086* *5081,* 5082 … 5085, *5086* *6081,* 6082 … 6085, *6086*	Controller NLxxxx: 4 x 6 = 24 Navette Lifts (naming see 3.3.2.3.3ff)
Telegram type	1430	Status and control request SRM
Telegram sub type	see 4.3.2.4.2.2, "Telegram Sub Type"	
Version	see 4.3.2.4.2.3, "Version"	
Topic	see 4.3.2.4.2.4, "Field “Topic”"	
Status request ID	1 ... 4,294,967,295	distinct status request identifier from MFS
	0	Status reply generated by SOC without request or used by MFS, if no TT1434 reply is expected (e.g. TT1430, topic 2 and 4)
	For examples about this field please refer to chapter Generic IF SOC for SRM (TT14xx), chapter 7.2.	

4.3.2.4.2.2 Telegram Sub Type

The number shows the combination of the TT1430 parts (not used now)

Value	FiV	U	Description
0	≥0	n	Standard

4.3.2.4.2.3 Version

The number shows the used version of this telegram type (maybe later new flags will be added, but the structure will not be changed).

Value	U	Description
0	n	initial version (Jysk)
1	y	with "Status request ID"
2	y	Topic 2 for Gripper Navette (X-coordinate now 4 bytes wide)

4.3.2.4.2.4 Field “Topic”

Switch for scope selection. Other values are not defined and will be ignored by the SRM.

Value	FiV	U	Description
1	≥0	y	Status request: see 4.3.2.5, "Topic = 1 (Status Request)"
2	≥0	y	Control settings see 4.3.2.6, "Topic = 2 (Control Settings)"
4	≥1	y	Settings Special Devices see 4.3.2.7, "Topic = 4 (Settings Special Devices)"
others			not defined

4.3.2.5 Topic = 1 (Status Request)

4.3.2.5.1 Structure (Topic = 1, all SRM PLCs)

No. Byte	Field content	Type
16	Status request flags	M

4.3.2.5.2 Description of the Fields (Topic = 1, all SRM PLCs)

4.3.2.5.2.1 Overview (Topic = 1, all SRM PLCs)

Field	Description
Status request flags	see 4.3.2.5.2.2, "Field “Status request flags” (Topic = 1, all SRM PLCs)"

4.3.2.5.2.2 Field “Status request flags” (Topic = 1, all SRM PLCs)

Bit	FiV	U	Description
0	≥0	y	Request for general status; PLC should answer with 1 x TT1434, topic 1 see 4.3.3.5, "Topic = 1 (Status Reply: LHD)"
1	≥0	n	Request for stock image; PLC should answer with n x TT1435, topic 1 (n depends on the rack dimensions and TU types) see -
2	*≥0*	*n*	*Request for TU status; PLC should answer with* *n x TT1434, topic 3 (n = max. possible amount of TUs)* *see -*
3	≥0	n	Request for occupancy image; PLC should answer with n x TT1435, topic 2 (n depends on the rack dimensions) see -
4	≥1	n	Request for shelf type setting image; PLC should answer with n x TT1435, topic 3 (n depends on the rack dimensions) see -
5	≥1	n	Request for empty pallet stack place occupied; PLC should answer with 1 x TT1434, topic 4 see -
6			
7			

4.3.2.6 Topic = 2 (Control Settings)

PLC will answer with a status reply (topic 1) only in case of a status change relevant for TT1434, topic 1.

4.3.2.6.1 Structure (Topic = 2, all SRM PLCs)

4.3.2.6.1.1 Structure (Topic = 2, all SRM PLCs), Version 2 (Gripper Navette)

No. Byte	Field content			Type
16	Control code		MSB	D
17			LSB	
18	Error code		MSB	D
19			LSB	
20	Amount of TOs	expected	MSB	D
21			LSB	
22		reported	MSB	D
23			LSB	
24	Amount of found occupancy mismatches		MSB	D
25			LSB	
26	Coordinate SRM extern (rack, CS)	Aisle	MSB	D
27			LSB	
28		X-coordinate	MSW:MSB	D
29			MSW:LSB	
30			LSW:MSB	
31			LSW:LSB	
32		Y-coordinate	MSB	D
33			LSB	
34		S-coordinate	MSB	D
35			LSB	
36		D-coordinate	MSB	D
37			LSB	
38	Coordinate SRM intern (fork)	SRM number	MSB	D
39			LSB	
40		LHD number	MSB	D
41			LSB	
42		Place on LHD	MSB	D
43			LSB	
44	Long term blocking flags 1			M
45	Control flags 1			M

4.3.2.6.2 Description of the Fields (Topic = 2, all SRM PLCs)

4.3.2.6.2.1 Overview (Topic = 2, all SRM PLCs)

Field	Description	
Control code	see 4.3.2.6.2.2, "Control Code (Topic = 2, all SRM PLCs)"	
Error code	see 4.3.2.6.2.3, "Error Code (Topic = 2, all SRM PLCs)"	
Amount of found occupancy mismatches	0 ... 65,535	Number of occupancy mismatch while comparing occupancy info from SRM (TT1435) against MFS booking information (database)
Coordinate SRM extern	Used by some error codes to define a SRM external point For sub field definition and number range see 4.3.1.6.	
Coordinate SRM intern	Used by some error codes to define a SRM internal point For sub field definition and number range see 4.3.1.6	
Long term blocking flags	Used for control code 10 to set / reset long term blocking mode; see 4.3.2.6.2.4.	
Control flags	Used for control code 1 and 2 to inform Navette 2.0 level control about lift chute access situation; see 4.3.2.6.2.5.	

4.3.2.6.2.2 Control Code (Topic = 2, all SRM PLCs)

Value	FiV	U	Description
1	≥0	y	Request “Automatic on” Navette 2.0: for special control flags see 4.3.2.6.2.5.
2	≥0	y	Request “Automatic off” Navette 2.0: for special control flags see 4.3.2.6.2.5.
3	≥0	y	Request “Switch to error mode”; for reason see 4.3.2.6.2.3.
4	≥0	y	Request “Enable warning” (to be displayed on Visu); for reason see 4.3.2.6.2.3.
5	≥0	y	Request to reset flag of “stock image changed” (TT1434 system status 1, Bit 1; see 4.3.3.5.3.2.1).
6	≥1	y	Request “Disable warning” (to be displayed on Visu); for reason see 4.3.2.6.2.3.
10	≥1	y	Control long term blocking status; for LTB details see 4.3.2.6.2.4
others		n	not defined

4.3.2.6.2.3 Error Code (Topic = 2, all SRM PLCs)

Only valid for the control code 3 + 4.

Value	FiV	U	Description
1	≥0	n	Amount of TOs differs
2	≥0	n	LHD occupancy wrong
3	≥0	y	Rack occupancy mismatch (first found location see “Coordinate SRM extern”; amount of mismatches see “Amount of found occupancy mismatches”)
4	≥0	y	Rack occupancy sensor needs to be checked Problem occurred at “Coordinate SRM extern”
5	≥0	y	LHD sensor needs to be checked Problem occurred at “Coordinate SRM intern”
6	≥0	y	Reported active order is different
7	≥0	y	Reported buffered order is different
8	≥0	y	TU-ID mismatch
9	≥0	y	TU-type mismatch
10	≥1	y	LHD occupancy expected by MFS (e.g. after height error handling)
11	≥1	y	TU retrieval not possible, because transfer location is occupied
12	≥1[118]	y	repeated storage signal missing
13	≥1[118]	y	repeated retrieval signal missing
others		n	not defined

Note 1: Maximum of 32 error codes could be handled in the SRM PLC SW.

Note 2: The error or warning enabled by the MFS will be reset on PLC level by pressing “confirm error”.

Note 3: See section Generic IF SOC for SRM (TT14xx), chapter 5.4.7 for details about setting SRM into error mode

Note 4: If an undefined error code is used, SRM ignores this telegram

[118] Error code is implemented in SRM since May 2015.

4.3.2.6.2.4 Field "Long term blocking flags 1" (Topic = 2, all SRM PLCs)

Only valid for control code 10.
The current LTB status for the SRM will be reflected by the PLC in TT1434, topic 1, flag 6 (4.3.3.5.3.2.1).

Bit	FiV	U	Description
0	≥1	y	long term blocking complete SRM device
1			
2			
3			
4			
5			
6			
7			

4.3.2.6.2.5 Field "Control flags 1" (Topic = 2, all SRM PLCs)

Valid for Navette 2.0 only.

Bit	FiV	U	Description
0	≥2	y	for control code 1 and 2: Request "Automatic on" or "Automatic off" because lift chute access; local switch on will be ignored by level control
1			
2			
3			
4			
5			
6			
7			

4.3.2.7 Topic = 4 (Settings Special Devices)

4.3.2.7.1 Topic = 4 / Specification for PLC = NLmm8x

4.3.2.7.1.1 Structure (Topic = 4, PLC = NLmm8x)

No. Byte	Field content	Type
16	Status flags 1	M
17	Status flags 2	M

4.3.2.7.1.2 Description of the Fields (Topic = 4, PLC = NLmm8x)

4.3.2.7.1.2.1 Overview (Topic = 4, PLC = NLmm8x)

Field	Description
Status flags	see 4.3.2.7.1.2.2

4.3.2.7.1.2.2 Fields "Status flags" (Topic = 4, PLC = NLmm8x)

Field	Bit	U	Description
Status flags 1	0	n	MFS switched off all relevant Navette devices due the Navette lift access request (by TT1430, Topic 1, System status 3.0; feedback to this flag by TT1430, Topic 1, System status 3.1)[119]
	1	y	All pending TOs are executed; MFS will not send new TOs from/to the transfer locations linked to this lift[120]
	2		
	3		
	4		
	5		
	6		
	7		
Status flags 2	0		
	1		
	2		
	3		
	4		
	5		
	6		
	7		

[119] See Generic IF SOC for SRM (TT14xx), chapter 5.4.6.4 for a usage description

[120] Relevant for installations with movable deflector at Navette lift basement only
Additional temporary solution for Metcash, till movable deflector is installed to the lift