4.4.2 TT0751: Status Reply (Navette)

Note: Navette means here the normal Navette device and the lift.

4.4.2.1 Purpose of This Telegram Type

With this telegram, the Navette status will be sent to the Visualization.

4.4.2.2 Sending Direction

Navette -> Visu

4.4.2.3 Sending Time

The Navette will send the status telegram
a) spontaneously, in case of a modification,
b) as a reaction to a status request, or,
c) after a complete reboot or a restart of the Navette.

4.4.2.4 Structure

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			
19			
20			
21			
22			
23			
24			
25			
26			
:			
199			

4.4.2.5 Description of the Fields – General Part

4.4.2.5.1 Overview

Field	Description	
Telegram sender 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 receiver ID	241	Visu
Telegram type	751	Navette status
Telegram sub type	see 4.4.2.5.2, "Telegram Sub Type"	
Version	see 4.4.2.5.3, "Version"	
Topic	see 4.4.2.5.4, "Field “Topic”"	
Status request ID	see 4.4.1.4.2.1, "Overview"	

4.4.2.5.2 Telegram Sub Type

The number shows the combination of the TT0751 parts (not used now)

Topic	Value Range[134]	Used Value
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	0	0
11	0	0
12	0	0

4.4.2.5.3 Version

Version value could not be decoded by Visu. Visu will set version number fix to 0.

Value	*U*	*Description*	*Remark*
0	*y*	*standard*	*fixed to this value*

4.4.2.5.4 Field “Topic”

Value[133]	FiV	U	Description
1	≥0	y	Status see 4.4.2.6, "Topic = 1 (Basic Status)"
2	≥0	y	Navette Control Reply see 4.4.2.7, "Topic = 2 (Navette Control Reply)"
3	≥0	y	Warnings and Messages see 4.4.2.8, "Topic = 3 (Navette Warnings and Messages)"
4	≥0	y	Errors see 4.4.2.9, "Topic = 4 (Navette Errors)"
5	≥0	y	Operational hours counter (OHC) see 4.4.2.10, "Topic = 5 (Navette Operational Hours Counter (OHC))"
6	≥0	y	Variable Values for Messages, Warnings and Errors see 4.4.2.11, "Topic = 6 (Variable Values for Messages, Warnings and Errors)"
7	≥0	y	Operational hours counter (OHC) see 4.4.2.12, "Topic = 7 (Navette Travel Distance (TD))"
11	≥0	y	C-Desk (Z-Pult) Status See 4.4.2.13, "Topic = 11 (C-Desk (Z-Pult) Status)"
12	≥0	y	Detail Status see 4.4.2.14, "Topic = 12 (Detail Status)"
others			not defined

[134] Note: The possible value range of this field is limited to 255, because the MSB of this field will not processed by the Visu driver. Background: The field TST and topic will be merged to one word, using the LSB of both fields.

4.4.2.6 Topic = 1 (Basic Status)

4.4.2.6.1 Telegram Sub Type

TST currently not used for this topic.

Value	FiV	U	Description
0	≥0	n	Standard

4.4.2.6.2 Sending Time

The SRM will send the status telegram
a) spontaneously, in case of a modification
b) as a reaction to a status request.

4.4.2.6.3 Structure (Topic = 1, all Navette PLCs), Version 1; TST=0

No. Byte	Field content		Type
16	Basic status 1	MSB	D
17		LSB	

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

4.4.2.6.4.1 Overview (Topic = 1, all Navette PLCs)

Field	Description
Operation Mode	see 4.3.3.5.3.2

4.4.2.6.4.2 Field "Operation Mode" (Topic = 1, all Navette PLCs)

Priority: 0 = lowest

Value	FiV	U	Priority	Description (EN)	Description (DE)
1	≥1	y	1	automatic on	Automatik
3	≥1	y	2	manual mode	Hand
8	≥1	y	3	home positioning	Fahrt in die Home Position
2	≥1	y	4	reference cycle	Referenzfahrt
4	≥1	y	5	warning	Warnung
0	≥1	y	6	off	Aus
5	≥1	y	7	long term blocking	Langzeitsperre
6	≥1	y	8	error	Störung
7	≥1	y	9	emergency off	NotAus

4.4.2.7 Topic = 2 (Navette Control Reply)

4.4.2.7.1 Telegram Sub Type

TST currently not used for this topic.

Value	FiV	U	Description
0	≥0	n	Standard

4.4.2.7.2 Sending Time

Navette Controller sent this telegram as an answer to a TT0750, topic 2 from the Visu (see 4.4.1.6)

4.4.2.7.3 Structure (Topic = 2, Visu)

No. Byte	Field content		Type
16	Visu Button acknowledge	1 “auto on”	D
17		2 “auto off”	D
18		3 “error reset”	D
19		4 “Home Position”	D
20		5 “Reset OHC”	D
21		6 “Reset TD”	D
22		7	D
23		8	D
24		9	D
25		10	D
26		11	D
27		12	D
28		13	D
29		14	D
30		15	D
31		16	D
32	General Information acknowledge	1 “Fire alert”	D
33		2	D
34		3	D
35		4	D
36		5	D
37		6	D
38		7	D
39		8	D
40		9	D
41		10	D
42		11	D
43		12	D
44		13	D
45		14	D
46		15	D
47		16	D

4.4.2.7.4 Description of the Fields (Topic = 2, Visu)

4.4.2.7.4.1 Overview (Topic = 2, Visu)

Field	Description
Visu Button acknowledge	see 4.4.2.7.4.2
General Information acknowledge	see 4.4.2.7.4.3

4.4.2.7.4.2 Field "Visu Button Acknowledge"

Value	FiV	U	Description
0	≥0	y	idle
1	≥0	y	button action confirmed
others			not defined

4.4.2.7.4.3 Field "General Information Acknowledge"

Value	FiV	U	Description
0	≥0	y	idle
1	≥0	y	general information confirmed
others			not defined

4.4.2.8 Topic = 3 (Navette Warnings and Messages)

4.4.2.8.1 Telegram Sub Type

TST currently not used for this topic.

Value	FiV	U	Description
0	≥0	n	Standard

4.4.2.8.2 Sending Time

Spontaneously on change or by request by Visu (via TT0750, topic 1; see 4.4.1.5)
Topic 6 telegram (see 4.4.2.11) needs to be send before!

4.4.2.8.3 Structure (Topic = 3, Navette)

No. Byte	Field content	Type
16	Navette warning flag 001	M
17	Navette warning flag 002	M
18	Navette warning flag 003	M
19	Navette warning flag 004	M
20	Navette warning flag 005	M
21	Navette warning flag 006	M
22	Navette warning flag 007	M
23	Navette warning flag 008	M
24	Navette warning flag 009	M
25	Navette warning flag 010	M
26	Navette warning flag 011	M
27	Navette warning flag 012	M
28	Navette warning flag 013	M
29	Navette warning flag 014	M
30	Navette warning flag 015	M
31	Navette warning flag 016	M
32	Navette message flag 001	M
33	Navette message flag 002	M
34	Navette message flag 003	M
35	Navette message flag 004	M
36	Navette message flag 005	M
37	Navette message flag 006	M
38	Navette message flag 007	M
39	Navette message flag 008	M
40	Navette message flag 009	M
41	Navette message flag 010	M
42	Navette message flag 011	M
43	Navette message flag 012	M
44	Navette message flag 013	M
45	Navette message flag 014	M
46	Navette message flag 015	M
47	Navette message flag 016	M

4.4.2.8.4 Description of the Fields (Topic = 3, Navette)

4.4.2.8.4.1 Overview (Topic = 3, Navette)

Field	Description
Navette warning flags Navette message flags	The meaning of the single flags will be defined by Navette supplier in an extra Excel file. See Navette Type 2 Error Messages.

4.4.2.9 Topic = 4 (Navette Errors)

4.4.2.9.1 Telegram Sub Type

TST currently not used for this topic.

Value	FiV	U	Description
0	≥0	n	Standard

4.4.2.9.2 Sending Time

Spontaneously on change or by request by Visu (via TT0750, topic 1; see 4.4.1.5)
Topic 6 telegram (see 4.4.2.11) needs to be send before!

4.4.2.9.3 Structure (Topic = 4, Navette)

No. Byte	Field content	Type
16	Navette error flag 001	M
17	Navette error flag 002	M
18	Navette error flag 003	M
19	Navette error flag 004	M
20	Navette error flag 005	M
21	Navette error flag 006	M
22	Navette error flag 007	M
23	Navette error flag 008	M
24	Navette error flag 009	M
25	Navette error flag 010	M
26	Navette error flag 011	M
27	Navette error flag 012	M
28	Navette error flag 013	M
29	Navette error flag 014	M
30	Navette error flag 015	M
31	Navette error flag 016	M
32	Navette error flag 017	M
33	Navette error flag 018	M
34	Navette error flag 019	M
35	Navette error flag 020	M
36	Navette error flag 021	M
37	Navette error flag 022	M
38	Navette error flag 023	M
39	Navette error flag 024	M
40	Navette error flag 025	M
41	Navette error flag 026	M
42	Navette error flag 027	M
43	Navette error flag 028	M
44	Navette error flag 029	M
45	Navette error flag 030	M
46	Navette error flag 031	M
47	Navette error flag 032	M
48	Navette error flag 033	M
49	Navette error flag 034	M
50	Navette error flag 035	M
51	Navette error flag 036	M
52	Navette error flag 037	M
53	Navette error flag 038	M
54	Navette error flag 039	M
55	Navette error flag 040	M
56	Navette error flag 041	M
57	Navette error flag 042	M

No. Byte	Field content	Type
58	Navette error flag 043	M
59	Navette error flag 044	M
60	Navette error flag 045	M
61	Navette error flag 046	M
62	Navette error flag 047	M
63	Navette error flag 048	M
64	Navette error flag 049	M
65	Navette error flag 050	M
66	Navette error flag 051	M
67	Navette error flag 052	M
68	Navette error flag 053	M
69	Navette error flag 054	M
70	Navette error flag 055	M
71	Navette error flag 056	M
72	Navette error flag 057	M
73	Navette error flag 058	M
74	Navette error flag 059	M
75	Navette error flag 060	M
76	Navette error flag 061	M
77	Navette error flag 062	M
78	Navette error flag 063	M
79	Navette error flag 064	M

4.4.2.9.4 Description of the Fields (Topic = 4, Navette)

4.4.2.9.4.1 Overview (Topic = 4, Navette)

Field	Description
Navette error flags	The meaning of the single flags will be defined by Navette supplier in an extra Excel file. See Navette Type 2 Error Messages.

4.4.2.10 Topic = 5 (Navette Operational Hours Counter (OHC))

4.4.2.10.1 Telegram Sub Type

TST currently not used for this topic.

Value	FiV	U	Description
0	≥0	n	Standard

4.4.2.10.2 Sending Time

The SRM will send the status telegram
a) spontaneously, in case of change (maximum every hour).
b) as a reaction to a status request by Visu (via TT0750, topic 1; see 4.4.1.5)

4.4.2.10.3 Structure (Topic = 5, Navette OHC)

No. Byte	Field content				Type
16	Operational Total (not resettable)	OHC	total OHC (Anlage gesamt)	MSW:MSB	D
17				MSW:LSB	
18				LSW:MSB	
19				LSW:LSB	
20			OHC automatic mode (Anlage gesamt)	MSW:MSB	D
21				MSW:LSB	
22				LSW:MSB	
23				LSW:LSB	
24			OHC of the engine in X direction (Motorbetriebsstunden in X-Richtung)	MSW:MSB	D
25				MSW:LSB	
26				LSW:MSB	
27				LSW:LSB	
28			OHC of the engine in Y direction (Motorbetriebsstunden in Y-Richtung)	MSW:MSB	D
29				MSW:LSB	
30				LSW:MSB	
31				LSW:LSB	
32		Axis	Amount of drives (X direction) (Anzahl der Fahrten in X Richtung = Positionierungen)	MSW:MSB	D
33				MSW:LSB	
34				LSW:MSB	
35				LSW:LSB	
36			Amount of drives (Y direction) (Anzahl der Fahrten in Y Richtung = Positionierungen)	MSW:MSB	D
37				MSW:LSB	
38				LSW:MSB	
39				LSW:LSB	
40		LHD1	Amount of get cycles LHD 1 with bars / gripper (Anzahl der Hole-Zyklen LAM1, mit Zinken/Greifer)	MSW:MSB	D
41				MSW:LSB	
42				LSW:MSB	
43				LSW:LSB	
44			Amount of put cycles LHD 1 with bars / gripper (Anzahl der Bring-Zyklen LAM1, mit Zinken/Greifer)	MSW:MSB	D
45				MSW:LSB	
46				LSW:MSB	
47				LSW:LSB	
48			Amount of get cycles LHD 1 without bars / gripper (at CS) (Anzahl der Hole-Zyklen LAM1, ohne Zinken/Greifer; an FT)	MSW:MSB	D
49				MSW:LSB	
50				LSW:MSB	
51				LSW:LSB	
52			Amount of put cycles LHD 1 without bars / gripper (at CS) (Anzahl der Bring-Zyklen LAM1, ohne Zinken/Greifer; an FT)	MSW:MSB	D
53				MSW:LSB	
54				LSW:MSB	
55				LSW:LSB	

No. Byte	Field content				Type
56			Amount of total cycles LHD 1 (sum of the 4 fields above) Anzahl der Zyklen LAM1 (Summe aus den 4 vorherigen Feldern)	MSW:MSB	D
57				MSW:LSB	
58				LSW:MSB	
59				LSW:LSB	
60		LHD2	Amount of get cycles LHD 2 with bars / gripper (Anzahl der Hole-Zyklen LAM2, mit Zinken/Greifer)	MSW:MSB	D
61				MSW:LSB	
62				LSW:MSB	
63				LSW:LSB	
64			Amount of put cycles LHD 2 with bars / gripper (Anzahl der Bring-Zyklen LAM2, mit Zinken/Greifer)	MSW:MSB	D
65				MSW:LSB	
66				LSW:MSB	
67				LSW:LSB	
68			*Amount of get cycles LHD 2 without bars / gripper (at CS) (Anzahl der Hole-Zyklen LAM2, ohne Zinken/Greifer; an FT)*	MSW:MSB	D
69				MSW:LSB	
70				LSW:MSB	
71				LSW:LSB	
72			*Amount of put cycles LHD 2 without bars / gripper (at CS) (Anzahl der Bring-Zyklen LAM2, ohne Zinken/Greifer; an FT)*	MSW:MSB	D
73				MSW:LSB	
74				LSW:MSB	
75				LSW:LSB	
76			Amount of total cycles LHD 2 (sum of the 4 fields above) Anzahl der Zyklen LAM2 (Summe aus den 4 vorherigen Feldern)	MSW:MSB	D
77				MSW:LSB	
78				LSW:MSB	
79				LSW:LSB	
80	Operational Total (resettable)	OHC	total OHC (Anlage gesamt)	MSW:MSB	D
81				MSW:LSB	
82				LSW:MSB	
83				LSW:LSB	
84			OHC automatic mode (Anlage gesamt)	MSW:MSB	D
85				MSW:LSB	
86				LSW:MSB	
87				LSW:LSB	
88			OHC of the engine in X direction (Motorbetriebsstunden in X-Richtung)	MSW:MSB	D
89				MSW:LSB	
90				LSW:MSB	
91				LSW:LSB	
92			OHC of the engine in Y direction (Motorbetriebsstunden in Y-Richtung)	MSW:MSB	D
93				MSW:LSB	
94				LSW:MSB	
95				LSW:LSB	
96		Axis	Amount of drives (X direction) (Anzahl der Fahrten in X Richtung = Positionierungen)	MSW:MSB	D
97				MSW:LSB	
98				LSW:MSB	
99				LSW:LSB	
100			Amount of drives (Y direction) (Anzahl der Fahrten in Y Richtung = Positionierungen)	MSW:MSB	D
101				MSW:LSB	
102				LSW:MSB	
103				LSW:LSB	
104		LHD1	Amount of get cycles LHD 1 with bars / gripper (Anzahl der Hole-Zyklen LAM1, mit Zinken/Greifer)	MSW:MSB	D
105				MSW:LSB	
106				LSW:MSB	
107				LSW:LSB	

No. Byte	Field content				Type
108			Amount of put cycles LHD 1 with bars / gripper (Anzahl der Bring-Zyklen LAM1, mit Zinken/Greifer)	MSW:MSB	D
109				MSW:LSB	
110				LSW:MSB	
111				LSW:LSB	
112			Amount of get cycles LHD 1 without bars / gripper (at CS) (Anzahl der Hole-Zyklen LAM1, ohne Zinken/Greifer; an FT)	MSW:MSB	D
113				MSW:LSB	
114				LSW:MSB	
115				LSW:LSB	
116			Amount of put cycles LHD 1 without bars / gripper (at CS) (Anzahl der Bring-Zyklen LAM1, ohne Zinken/Greifer; an FT)	MSW:MSB	D
117				MSW:LSB	
118				LSW:MSB	
119				LSW:LSB	
120			Amount of total cycles LHD 1 (sum of the 4 fields above) Anzahl der Zyklen LAM1 (Summe aus den 4 vorherigen Feldern)	MSW:MSB	D
121				MSW:LSB	
122				LSW:MSB	
123				LSW:LSB	
124		LHD2	Amount of get cycles LHD 2 with bars / gripper (Anzahl der Hole-Zyklen LAM2, mit Zinken/Greifer)	MSW:MSB	D
125				MSW:LSB	
126				LSW:MSB	
127				LSW:LSB	
128			Amount of put cycles LHD 2 with bars / gripper (Anzahl der Bring-Zyklen LAM2, mit Zinken/Greifer)	MSW:MSB	D
129				MSW:LSB	
130				LSW:MSB	
131				LSW:LSB	
132			*Amount of get cycles LHD 2 without bars / gripper (at CS) (Anzahl der Hole-Zyklen LAM2, ohne Zinken/Greifer; an FT)*	MSW:MSB	D
133				MSW:LSB	
134				LSW:MSB	
135				LSW:LSB	
136			*Amount of put cycles LHD 2 without bars / gripper (at CS) (Anzahl der Bring-Zyklen LAM2, ohne Zinken/Greifer; an FT)*	MSW:MSB	D
137				MSW:LSB	
138				LSW:MSB	
139				LSW:LSB	
140			Amount of total cycles LHD 2 (sum of the 4 fields above) Anzahl der Zyklen LAM2 (Summe aus den 4 vorherigen Feldern)	MSW:MSB	D
141				MSW:LSB	
142				LSW:MSB	
143				LSW:LSB	
144	Day counter (will be set to 0 by Controller e.g. mid night; not resettable by TT0750T2)		Amount of total cycles LHD 1 Anzahl der Zyklen LAM1	MSW:MSB	D
145				MSW:LSB	
146				LSW:MSB	
147				LSW:LSB	
148			Amount of total cycles LHD 2 Anzahl der Zyklen LAM 2	MSW:MSB	D
149				MSW:LSB	
150				LSW:MSB	
151				LSW:LSB	

4.4.2.10.4 Description of the Fields (Topic = 5, Navette OHC)

4.4.2.10.4.1 Overview (Topic = 5, Navette OHC)

Unit for all time values: hours

Field	Description
total OHC	Zähler für die gesamten Betriebsstunden in der Steuerung
OHC automatic mode	Zähler für die Betriebsstunden im Automatik- und Semiautomatikbetrieb in der Steuerung,
OHC of the engine in X/Y direction	Zähler für die Betriebsstunden der X bzw. Y-Achse (Aktive Ansteuerung der Achsen)
Amount of drives in X/Y direction	Zähler für die Anzahl der Fahrten der X bzw. Y-Achse
Amount of cycles LHD 1 / 2	see description in structure

All fields are double: one version for life time counting (not resettable), a 2nd version resettable.

4.4.2.11 Topic = 6 (Variable Values for Messages, Warnings and Errors)

4.4.2.11.1 Telegram Sub Type

TST currently not used for this topic.

Value	FiV	U	Description
0	≥0	n	Standard

4.4.2.11.2 Sending Time

- This topic needs to be sent before the topic 3 or 4!
- Topic 6 will be send automatically before a Topic 3 or 4; no difference if the topic 3 or 4 was requested or send spontaneously
- Topic 6 will be send on request by Visu with TT0750, topic 1, Status bit 1.6 (see 4.4.1.5.3.2); here a single Topic 6 will be send by Navette (no topic 3 or 4).

4.4.2.11.3 Structure (Topic = 6, Gripper Navette)

Structure defined by Abderrahim Eddaaf.

No. Byte	Field content				Type
16	Current Coordi-nate	X-coordinate (A_Nxxxx_cX)		MSW:MSB	D
17				MSW:LSB	
18				LSW:MSB	
19				LSW:LSB	
20		LHD1	Y-coordinate (A_Nxxxx_cY)	MSB	D
21				LSB	
22			S-coordinate (A_Nxxxx_cS)	MSB	D
23				LSB	
24			D-coordinate (A_Nxxxx_cD)	MSB	D
25				LSB	
26	TT1430 Topic 2 values (by MFS)	Amount of TOs	expected (A_Nxxxx_mTOe)	MSB	D
27				LSB	
28			reported (A_Nxxxx_mTOr)	MSB	D
29				LSB	
30		Amount of found occupancy mismatches (A_Nxxxx_mMm)		MSB	D
31				LSB	
32		Coordinate SRM extern (rack, CS) of TOs	X-coordinate (A_Nxxxx_mX)	MSW:MSB	D
33				MSW:LSB	
34				LSW:MSB	
35				LSW:LSB	
36			Y-coordinate (A_Nxxxx_mY)	MSB	D
37				LSB	
38			S-coordinate (A_Nxxxx_mS)	MSB	D
39				LSB	
40			D-coordinate (A_Nxxxx_mD)	MSB	D
41				LSB	
42		Coordinate SRM intern (fork)	LHD number (A_Nxxxx_mLHD)	MSB	D
43				LSB	
44			Place on LHD (A_Nxxxx_mLhdP)	MSB	D
45				LSB	
46	Drive Errors	X-Master LXM (A_Nxxxx_XM1) DriveError_DS402App.csv		MSB	D
47				LSB	
48		X-Slave LXM (A_Nxxxx_XS) DriveError_DS402App.csv		MSB	D
49				LSB	
50		Y-Master LXM (A_Nxxxx_YMn) DriveError_DS402App.csv		MSB	D
51				LSB	

No. Byte	Field content			Type
52	Y-Master Altivar		MSB	D
53	(A_Nxxxx_Y1MI)	DriveError_AV.csv	LSB	
54	LHD 1 - Telescope 1		MSB	D
55	(A_Nxxxx_T11)	DriveError_DS402App.csv	LSB	
56	LHD 1 - Telescope 2		MSB	D
57	(A_Nxxxx_T12)	DriveError_DS402App.csv	LSB	
58	LHD 1-Shift		MSB	D
59	(A_Nxxxx_S1)	DriveError_DS402App.csv	LSB	
60	Reserve (Drive Errors) 60		MSB	D
61		Reserve	LSB	
62	LHD 2 - Telescope 1		MSB	D
63	(A_Nxxxx_T21)	DriveError_DS402App.csv	LSB	
64	LHD 2 - Telescope 2		MSB	D
65	(A_Nxxxx_T22)	DriveError_DS402App.csv	LSB	
66	LHD 2 - Shift		MSB	D
67	(A_Nxxxx_S2)	DriveError_DS402App.csv	LSB	
68	Reserve (Drive Errors) 68		MSB	D
69		Reserve	LSB	
70	LHD 1 - Roll Left		MSB	D
71	(A_Nxxxx_RL11)	DriveError_Roll.csv	LSB	
72	LHD 1 - Roll Right		MSB	D
73	(A_Nxxxx_RL12)	DriveError_Roll.csv	LSB	
74	LHD 2 - Roll Left		MSB	D
75	(A_Nxxxx_RL21)	DriveError_Roll.csv	LSB	
76	LHD 2 - Roll Right		MSB	D
77	(A_Nxxxx_RL22)	DriveError_Roll.csv	LSB	
78	LHD 1 - Finger 1 Tel1 left		MSB	D
79	(A_Nxxxx_F11)	DriveError_Finger.csv	LSB	
80	LHD 1 - Finger 2 Tel2 left		MSB	D
81	(A_Nxxxx_F12)	DriveError_Finger.csv	LSB	
82	LHD 1 - Finger 3 Tel1 middle		MSB	D
83	(A_Nxxxx_F13)	DriveError_Finger.csv	LSB	
84	LHD 1 - Finger 4 Tel2 middle		MSB	D
85	(A_Nxxxx_F14)	DriveError_Finger.csv	LSB	
86	LHD 1 - Finger 5 Tel1 right		MSB	D
87	(A_Nxxxx_F15)	DriveError_Finger.csv	LSB	
88	LHD 1 - Finger 6 Tel2 right		MSB	D
89	(A_Nxxxx_F16)	DriveError_Finger.csv	LSB	
90	LHD 2 - Finger 1 Tel1 left		MSB	D
91	(A_Nxxxx_F21)	DriveError_Finger.csv	LSB	
92	LHD 2 - Finger 2 Tel2 left		MSB	D
93	(A_Nxxxx_F22)	DriveError_Finger.csv	LSB	
94	LHD 2 - Finger 3 Tel1 middle		MSB	D
95	(A_Nxxxx_F23)	DriveError_Finger.csv	LSB	
96	LHD 2 - Finger 4 Tel2 middle		MSB	D
97	(A_Nxxxx_F24)	DriveError_Finger.csv	LSB	
98	LHD 2 - Finger 5 Tel1 right		MSB	D
99	(A_Nxxxx_F25)	DriveError_Finger.csv	LSB	
100	LHD 2 - Finger 6 Tel2 right		MSB	D
101	(A_Nxxxx_F26)	DriveError_Roll.csv	LSB	
102	LHD 1-Bridge		MSB	D
103	(A_Nxxxx_Br1)	DriveError_Bridge.csv	LSB	
104	LHD 2 - Bridge		MSB	D
105	(A_Nxxxx_Br2)	DriveError_Bridge.csv	LSB	

No. Byte	Field content		Type
106	X-Master Drive GLS	MSB	D
107	(A_Nxxxx_XM2) DriveError_GLS.csv	LSB	
108	Y-Master Drive Altivar FU	MSB	D
109	(A_Nxxxx_Y2MI) DriveError_AV_FU.csv	LSB	
110	Reserve (Drive Errors) 110	MSB	D
111		LSB	
112	Reserve (Drive Errors) 112	MSB	D
113		LSB	
114	Reserve (Drive Errors) 114	MSB	D
115		LSB	
116	Reserve (Drive Errors) 116	MSB	D
117		LSB	
118	Reserve (Drive Errors) 118	MSB	D
119		LSB	
120	Reserve (Drive Errors) 120	MSB	D
121		LSB	
122	Reserve (Drive Errors) 122	MSB	D
123		LSB	
124	Reserve (Drive Errors) 124	MSB	D
125		LSB	
126	Reserve (Drive Errors) 126	MSB	D
127		LSB	
128	Reserve (Drive Errors) 128	MSB	D
129		LSB	
130	Reserve (Drive Errors) 130	MSB	D
131		LSB	
132	Reserve (Drive Errors) 132	MSB	D
133		LSB	
134	Reserve (Drive Errors) 134	MSB	D
135		LSB	
136	Reserve (Drive Errors) 136	MSB	D
137		LSB	
138	Reserve (Drive Errors) 138	MSB	D
139		LSB	
140	Reserve (Drive Errors) 140	MSB	D
141		LSB	
142	Reserve (Drive Errors) 142	MSB	D
143		LSB	
144	Reserve (Drive Errors) 144	MSB	D
145		LSB	
146	Reserve (Drive Errors) 146	MSB	D
147		LSB	
148	Reserve (Drive Errors) 148	MSB	D
149		LSB	
150	Reserve (Drive Errors) 150	MSB	D
151		LSB	
152	Reserve (Drive Errors) 152	MSB	D
153		LSB	
154	Reserve (Drive Errors) 154	MSB	D
155		LSB	
156	Reserve (Drive Errors) 156	MSB	D
157		LSB	
158	Reserve (Drive Errors) 158	MSB	D
159		LSB	

No. Byte	Field content			Type
160		Reserve (Drive Errors) 160	MSB	D
161			LSB	
162		Reserve (Drive Errors) 162	MSB	D
163			LSB	
164		Reserve (Drive Errors) 164	MSB	D
165			LSB	
166		Reserve (Drive Errors) 166	MSB	D
167			LSB	
168		Reserve (Drive Errors) 168	MSB	D
169			LSB	
170		Reserve (Drive Errors) 170	MSB	D
171			LSB	
172		Reserve (Drive Errors) 172	MSB	D
173			LSB	
174		Reserve (Drive Errors) 174	MSB	D
175			LSB	
176		Reserve (Drive Errors) 176	MSB	D
177			LSB	
178		Reserve (Drive Errors) 178	MSB	D
179			LSB	
180		Reserve (Drive Errors) 180	MSB	D
181			LSB	
182		Reserve (Drive Errors) 182	MSB	D
183			LSB	
184		Reserve (Drive Errors) 184	MSB	D
185			LSB	
186		Reserve (Drive Errors) 186	MSB	D
187			LSB	
188		Reserve (Drive Errors) 188	MSB	D
189			LSB	
190		Reserve (Drive Errors) 190	MSB	D
191			LSB	
192		Reserve (Drive Errors) 192	MSB	D
193			LSB	
194		Reserve (Drive Errors) 194	MSB	D
195			LSB	
196		Reserve (Drive Errors) 196	MSB	D
197			LSB	
198		Reserve (Drive Errors) 198	MSB	D
199			LSB	

4.4.2.11.4 Description of the Fields (Topic = 6, Navette)

4.4.2.11.4.1 Overview (Topic = 6, Navette)

Field	Description
*	variable values for error messages Visu internal help info appears in purple or blue

4.4.2.12 Topic = 7 (Navette Travel Distance (TD))

Background:
For the gripper Navette a greasing system is installed. The greasing system must lubricate several parts of the Navette after defined travel distances. This topic is used to transmit the movement distances to the Visu system and to archive it there.

4.4.2.12.1 Telegram Sub Type

TST currently not used for this topic.

Value	FiV	U	Description
0	≥0	n	Standard

4.4.2.12.2 Sending Time

The SRM will send the status telegram
a) spontaneously, in case of change (maximum every hour).
b) as a reaction to a status request by Visu (via TT0750, topic 1; see 4.4.1.5)

4.4.2.12.3 Structure (Topic = 7, Navette TD)

No. Byte	Field content				Type
16	Operational Total (not resettable)	Distances Total	X-Axis	MSW:MSB	D
17				MSW:LSB	
18				LSW:MSB	
19				LSW:LSB	
20			Y-Axis	MSW:MSB	D
21				MSW:LSB	
22				LSW:MSB	
23				LSW:LSB	
24	Operational Total (resettable)	Distances Total	X-Axis	MSW:MSB	D
25				MSW:LSB	
26				LSW:MSB	
27				LSW:LSB	
28			Y-Axis	MSW:MSB	D
29				MSW:LSB	
30				LSW:MSB	
31				LSW:LSB	

4.4.2.12.4 Description of the Fields (Topic = 7, Navette TD)

4.4.2.12.4.1 Overview (Topic = 7, Navette TD)

Unit for all time values: meter

Field	Description
Distances Total for x-/y-Axis	in [m]

All fields are double: one version for life time counting (not resettable), a 2nd version resettable.

4.4.2.13 Topic = 11 (C-Desk (Z-Pult) Status)

4.4.2.13.1 Telegram Sub Type

TST currently not used for this topic.

Value	FiV	U	Description
0	≥0	n	Standard

4.4.2.13.2 Sending Time

The SRM will send the status telegram
a) spontaneously, in case of a modification; telegram send interval limited to 2s[135].
b) as a reaction to a status request.

4.4.2.13.3 Structure (Topic = 11, all Navette PLCs), Version 1; TST=0

No. Byte	Field content				Type
16	Operation mode 1				M
17	Operation mode 2				M
18	Status 1				M
19	Status 2				M
20	Visu Button control 1				M
21	Visu Button control 2				M
22	Activity			MSB	D
23				LSB	
24	SRM extern	X-coordinate: Current		MSW:MSB	D
25				MSW:LSB	
26				LSW:MSB	
27				LSW:LSB	
28		LHD1	Y-coordinate: Current	MSB	D
29				LSB	
30			S-coordinate: Current	MSB	D
31				LSB	
32			D-coordinate: Current	MSB	D
33				LSB	
34		LHD2	Y-coordinate: Current	MSB	D
35				LSB	
36			S-coordinate: Current	MSB	D
37				LSB	
38			D-coordinate: Current	MSB	D
39				LSB	

[135] 2s is a default value; might be changed depending on the projects needs

4.4.2.13.4 Description of the Fields (Topic = 11, all SRM PLCs)

4.4.2.13.4.1 Overview (Topic = 11, all Navette PLCs)

Field		Description	
Operation mode 1		see 4.4.2.13.4.2	
Operation mode 2		see 4.4.2.13.4.3	
Status 1		see 4.4.2.13.4.4	
Status 2		see 4.4.2.13.4.5	
Visu Button control 1		see 4.4.2.13.4.6	
Visu Button control 2		see 4.4.2.13.4.7	
Activity		see 4.4.2.13.4.8	
SRM extern	X-coordinate	1 ... 100485	X- coordinate (depending on Navette derivate: 64mm raster or mm)
	Y-coordinate	1 ... 18	Y - coordinate
	S-coordinate (side)	0	No direction (positioning)
		1	Direction left
		2	Direction right
	D-coordinate (deepness)	0	LHD in middle position
		0 ... 935	in mm

4.4.2.13.4.2 Field "Operation mode 1" (Topic = 11, all Navette PLCs)

Bit	FiV	U	Description
0	≥1	y	OP mode off
1	≥1	y	OP mode auto
2	≥1	y	OP mode reference cycle
3	≥1	y	OP mode manual
4	≥1	y	OP mode warning
5	≥1	y	OP mode long term blocking
6	≥1	y	OP mode error
7	≥1	y	OP mode emergency off

4.4.2.13.4.3 Field "Operation mode 2" (Topic = 11, all Navette PLCs)

Bit	FiV	U	Description
0	≥1	y	OP mode home positioning
1	≥1	y	
2	≥1	y	
3	≥1	y	
4	≥1	y	
5	≥1	y	
6	≥1	y	
7	≥1	y	

4.4.2.13.4.4 Field "Status 1" (Topic = 11, all Navette PLCs)

Bit	FiV	U	Description
0	≥1	y	In Home position
1	≥1	y	Fire alert
2	≥1	y	In Reference position
3	≥1	y	
4	≥1	y	
5	≥1	y	
6	≥1	y	
7	≥1	y	

4.4.2.13.4.5 Field “Status 2” (Topic = 11, all Navette PLCs)

Bit	FiV	U	Description
0	≥1	y	
1	≥1	y	
2	≥1	y	
3	≥1	y	
4	≥1	y	
5	≥1	y	
6	≥1	y	
7	≥1	y	

4.4.2.13.4.6 Field “Visu Button control 1” (Topic = 11, all Navette PLCs)

Bit	FiV	U	Description
0	≥1	y	Lock Button “auto on”
1	≥1	y	Lock Button “auto off”
2	≥1	y	Lock Button “error reset”
3	≥1	y	Lock Button “Home Position”
4	≥1	y	
5	≥1	y	
6	≥1	y	
7	≥1	y	

4.4.2.13.4.7 Field “Visu Button control 2” (Topic = 11, all Navette PLCs)

Bit	FiV	U	Description
0	≥1	y	
1	≥1	y	
2	≥1	y	
3	≥1	y	
4	≥1	y	
5	≥1	y	
6	≥1	y	
7	≥1	y	

4.4.2.13.4.8 Field “Activity” (Topic = 11, all Navette PLCs)

Value	FiV	U	Description (EN)	Description (DE)
0	≥1	y	Unclear Status	Unklarer Zustand
1	≥1	y	Waiting for order	Warte auf Auftrag
2	≥1	y	Waiting for follow up order	Warte auf Folgeauftrag
3	≥1	y	get order	Hol – Auftrag
4	≥1	y	follow up get order	Hol – Folgeauftrag
5	≥1	y	put order	Bring – Auftrag
6	≥1	y	follow up put order	Bring – Folgeauftrag
7	≥1	y	fork clearance order	LAM – Räum – Auftrag
8	≥1	y	positioning order	Positionierauftrag
9	≥1	y	home positioning order	Grundstellungsauftrag

4.4.2.14 Topic = 12 (Detail Status)

For Gripper Navette / Lift only!

4.4.2.14.1 Telegram Sub Type

TST currently not used for this topic.

Value	FiV	U	Description
0	≥0	n	Standard

4.4.2.14.2 Sending Time

On request by Visu only (via TT0750, topic 1[WSC10]).
Note: Datas with thin telegram are not valid during the transport order execution happens (indicated via telegram status flag).

4.4.2.14.3 Structure (Gripper Navette + Lift; Topic = 12)

Structure defined by Abderrahim Eddaaf.
Same structure for Gripper Navette and Lift, but different bit meaning!

No. Byte	Field content		Type
16	Telegram	Status 1	M
17		Status 2	M
18	LHD 1	IO 1	M
19		IO 2	M
20		IO 3	M
21		IO 4	M
22	LHD 2	IO 1	M
23		IO 2	M
24		IO 3	M
25		IO 4	M
26	Main Axis	IO 1	M
27		IO 2	M
28		IO 3	M
29		IO 4	M
30		IO 5	M
31		IO 6	M
32		IO 7	M
33		IO 8	M
34	Control	IO 1	M
35		IO 2	M
36		IO 3	M
37		IO 4	M
38		IO 5	M
39		IO 6	M
40		IO 7	M
41		IO 8	M

4.4.2.14.4 Description of the Fields (Topic = 12)

4.4.2.14.4.1 General Fields (Gripper Navette + Lift)

4.4.2.14.4.1.1 Overview (Gripper Navette + Lift; Topic = 12)

Field	Description
Telegram	see 4.4.2.14.4.1.2

4.4.2.14.4.1.2 Fields “Telegram” (Topic = 12)

Field	Bit	Description
Telegram status 1	0	Data valid Note: Datas with thin telegram are not valid during the transport order execution happens.
	1	
	2	
	3	
	4	
	5	
	6	
	7	
Telegram status 1	0	
	1	
	2	
	3	
	4	
	5	
	6	
	7	

4.4.2.14.4.2 Characteristic for Navette 2.0 (Gripper Navette)

For an explanation drawing refer to chapter Generic IF SOC for Visu (TT07xx).

4.4.2.14.4.2.1 Overview (Gripper Navette + Lift; Topic = 12)

Field	Description
LHD 1	see 4.4.2.14.4.2.2
LHD 2	see 4.4.2.14.4.2.3
Main Axis	see 4.4.2.14.4.2.4
Control	see 4.4.2.14.4.2.5

4.4.2.14.4.2.2 Fields “LHD 1” (Gripper Navette; Topic = 12)

Field	Bit	Description (German)	Description (English)
LHD 1 IO 1	0	Tel1_Finger Seite KK oben	
	1	Tel1_Finger Seite KK unten	
	2	Tel1_Finger Mitte oben	
	3	Tel1_Finger Mitte unten	
	4	Tel1_Finger Seite Motor oben	
	5	Tel1_Finger Seite Motor unten	
	6	Referenz Teleskop 1	
	7	Tel2_Finger Seite KK oben	
LHD 1 IO 2	0	Tel2_Finger Seite KK unten	
	1	Tel2_Finger Mitte oben	
	2	Tel2_Finger Mitte unten	
	3	Tel2_Finger Seite Motor oben	
	4	Tel2_Finger Seite Motor unten	
	5	Referenz Teleskop 2	
	6	Geschwindigkeit Rollenantrieb Fahrwerk V1	
	7	Geschwindigkeit Rollenantrieb Gasse V1	
LHD 1 IO 3	0	Geschwindigkeit Rollenantrieb Fahrwerk V2	
	1	Geschwindigkeit Rollenantrieb Gasse V2	
	2	Richtung Rollenantrieb Fahrwerk L-R	
	3	Richtung Rollenantrieb Gasse L-R	
	4	Geschwindigkeit Rollenantrieb Fahrwerk V3	
	5	Geschwindigkeit Rollenantrieb Gasse V3	
	6	Reserve	
	7	Reserve	
LHD 1 IO 4	0	Reserve	
	1	Reserve	
	2	Reserve	
	3	Reserve	
	4	Reserve	
	5	Reserve	
	6	Reserve	
	7	Reserve	

4.4.2.14.4.2.3 Fields “LHD 2” (Gripper Navette; Topic = 12)

Field	Bit	Description (German)	Description (English)
LHD 2 IO 1	0	Tel1_Finger Seite KK oben	
	1	Tel1_Finger Seite KK unten	
	2	Tel1_Finger Mitte oben	
	3	Tel1_Finger Mitte unten	
	4	Tel1_Finger Seite Motor oben	
	5	Tel1_Finger Seite Motor unten	
	6	Referenz Teleskop 1	
	7	Tel2_Finger Seite KK oben	
LHD 2 IO 2	0	Tel2_Finger Seite KK unten	
	1	Tel2_Finger Mitte oben	
	2	Tel2_Finger Mitte unten	
	3	Tel2_Finger Seite Motor oben	
	4	Tel2_Finger Seite Motor unten	
	5	Referenz Teleskop 2	
	6	Störung Netzgerät -G02	
	7	Störung Netzgerät -G03	
LHD 2 IO 3	0	Rückmeldung Lastschütz -KL04	
	1	Geschwindigkeit Rollenantrieb Fahrwerk V1	
	2	Geschwindigkeit Rollenantrieb Gasse V1	
	3	Geschwindigkeit Rollenantrieb Fahrwerk V2	
	4	Geschwindigkeit Rollenantrieb Gasse V2	
	5	Richtung Rollenantrieb Fahrwerk L-R	
	6	Richtung Rollenantrieb Gasse L-R	
	7	Geschwindigkeit Rollenantrieb Fahrwerk V3	
LHD 2 IO 1	0	Geschwindigkeit Rollenantrieb Gasse V3	
	1	Reserve	
	2	Reserve	
	3	Reserve	
	4	Reserve	
	5	Reserve	
	6	Reserve	
	7	Reserve	

4.4.2.14.4.2.4 Fields “Main Axis” (Gripper Navette; Topic = 12)

Field	Bit	Description (German)	Description (English)
Main Axis IO 1	0	Reserve	
	1	Reserve	
	2	Reserve	
	3	X-Achse Not-End	
	4	X-Referenz	
	5	Reserve	
	6	Reserve	
	7	Reserve	
Main Axis IO 2	0	Reserve	
	1	Reserve	
	2	Sicherungsüberwachung Lastschütz Auto ~400V	
	3	Sicherungsüberwachung Antriebstechnik +24V	
	4	Rückmeldung Lastschütz -KL01	
	5	Rückmeldung Hilfsschütz Hand -K015	
	6	Rückmeldung X-Achse 2 Drehzahl 0	
	7	Reserve	

Field	Bit	Description (German)	Description (English)
Main Axis IO 3	0	Reserve	
	1	Reserve	
	2	Reserve	
	3	Reserve	
	4	Reserve	
	5	Y-Achse Not-End negativ	
	6	Y-Achse Not-End positiv	
	7	Kollision Y Navette 1 & 2	
Main Axis IO 4	0	Y-Referenz	
	1	Reserve	
	2	Reserve	
	3	Reserve	
	4	Reserve	
	5	Reserve	
	6	Reserve	
	7	Reserve	
Main Axis IO 5	0	Reserve	
	1	Reserve	
	2	Reserve	
	3	Reserve	
	4	Reserve	
	5	Reserve	
	6	Reserve	
	7	Reserve	
Main Axis IO 6	0	Reserve	
	1	Reserve	
	2	Reserve	
	3	Reserve	
	4	Reserve	
	5	Reserve	
	6	Reserve	
	7	Reserve	
Main Axis IO 7	0	Reserve	
	1	Reserve	
	2	Reserve	
	3	Reserve	
	4	Reserve	
	5	Reserve	
	6	Reserve	
	7	Reserve	
Main Axis IO 8	0	Reserve	
	1	Reserve	
	2	Reserve	
	3	Reserve	
	4	Reserve	
	5	Reserve	
	6	Reserve	
	7	Reserve	

4.4.2.14.4.2.5 Fields “Control” (Gripper Navette; Topic = 12)

Field	Bit	Description (German)	Description (English)
Control IO 1	0	X-Achse Wegerfassung 1	
	1	X-Achse Wegerfassung 2	
	2	Rückmeldung X-Achse1 Drehzahl 0	
	3	Reserve	
	4	Bedienpulte Zustimmtaster	
	5	Betriebsart Automatik	
	6	Bedienpulte Bremse lösen	
	7	Mittelstellung LAM	
Control IO 2	0	Bedienpulte Hubwerk senken	
	1	Bedienpulte Hubwerk heben	
	2	Bedienpulte Betriebsart Hand	
	3	Bedienpulte Not-Halt	
	4	LAM 1 Störung Rollenantrieb Seite Fahrwerk	
	5	LAM 1 Störung Rollenantrieb Seite Gasse	
	6	LAM 1 Motor Brücke läuft	
	7	LAM 2 Störung Rollenantrieb Seite Fahrwerk	
Control IO 3	0	LAM 2 Störung Rollenantrieb Seite Gasse	
	1	LAM 2 Motor Brücke läuft	
	2	LAM 1 Spaltkontrolle Gasse	
	3	LAM 1 Behälter Stopp Gasse	
	4	LAM 1 Behälter Mitte Gasse	
	5	LAM 1 Behälter Mitte Fahrwerk	
	6	LAM 1 Behälter Stopp Fahrwerk	
	7	LAM 1 Spaltkontrolle Fahrwerk	
Control IO 4	0	LAM 1 Referenz Verschub	
	1	LAM 1 Brücke unten	
	2	LAM 1 Brücke oben	
	3	LAM 1 Fach fein X/Y Fahrwerk	
	4	Reserve	
	5	LAM 1 Fach fein X/Y Gasse	
	6	LAM 2 Spaltkontrolle Gasse	
	7	Reserve	
Control IO 5	0	LAM 2 Behälter Stopp Gasse	
	1	LAM 2 Behälter Mitte Gasse	
	2	LAM 2 Behälter Mitte Fahrwerk	
	3	LAM 2 Behälter Stopp Fahrwerk	
	4	LAM 2 Spaltkontrolle Fahrwerk	
	5	LAM 2 Referenz Verschub	
	6	LAM 2 Brücke unten	
	7	LAM 2 Brücke oben	
Control IO 6	0	LAM 2 Fach fein X/Y Fahrwerk	
	1	Reserve	
	2	LAM 2 Fach fein X/Y Gasse	
	3	Rückmeldung Schmierpumpe	
	4	Reserve	
	5	Reserve	
	6	Codierung Fahrzeug 2	
	7	Sicherheit Gabelmitte in Ordnung -KN01	

Field	Bit	Description (German)	Description (English)
Control IO 7	0	Rückmeldung Lastschütz -KL05/06	
	1	X-Achse 1 ESM-Start	
	2	Y-Freigabe Hand 48V	
	3	Reserve	
	4	Reserve	
	5	Reserve	
	6	Reserve	
	7	Reserve	
Control IO 8	0	Reserve	
	1	Reserve	
	2	Reserve	
	3	Reserve	
	4	Reserve	
	5	Reserve	
	6	Reserve	
	7	Reserve	

4.4.2.14.4.3 Characteristic for Navette 2.0 (Gripper Lift)

For an explanation drawing refer to chapter Generic IF SOC for Visu (TT07xx).

4.4.2.14.4.3.1 Overview (Topic = 12)

Field	Description
LHD 1	see 4.4.2.14.4.3.2
LHD 2	see 4.4.2.14.4.3.3
Main Axis	see 4.4.2.14.4.3.4
Control	see 4.4.2.14.4.3.5

4.4.2.14.4.3.2 Fields “LHD 1” (Gripper Lift; Topic = 12)

Field	Bit	Description (German)	Description (English)
LHD 1 IO 1	0	Tel1_Fingerantrieb Seite KK obere Endlage	
	1	Tel1_Fingerantrieb Seite KK untere Endlage	
	2	Tel1_Fingerantrieb Mitte obere Endlage	
	3	Tel1_Fingerantrieb Mitte untere Endlage	
	4	Tel1_Fingerantrieb Seite Motor obere Endlage	
	5	Tel1_Fingerantrieb Seite Motor untere Endlage	
	6	Referenz Teleskop 1	
	7	Tel2_Fingerantrieb Seite KK obere Endlage	
LHD 1 IO 2	0	Tel2_Fingerantrieb Seite KK untere Endlage	
	1	Tel2_	
	2	Tel2_Fingerantrieb Mitte untere Endlage	
	3	Tel2_Fingerantrieb Seite Motor obere Endlage	
	4	Tel2_Fingerantrieb Seite Motor untere Endlage	
	5	Referenz Teleskop 2	
	6	Geschwindigkeit Rollenantrieb Fahrwerk V1	
	7	Geschwindigkeit Rollenantrieb Gasse V1	
LHD 1 IO 3	0	Geschwindigkeit Rollenantrieb Fahrwerk V2	
	1	Geschwindigkeit Rollenantrieb Gasse V2	
	2	Richtung Rollenantrieb Fahrwerk L-R	
	3	Richtung Rollenantrieb Gasse L-R	
	4	Geschwindigkeit Rollenantrieb Fahrwerk V3	
	5	Geschwindigkeit Rollenantrieb Gasse V3	
	6	Reserve	
	7	Reserve	
LHD 1 IO 4	0	Reserve	
	1	Reserve	
	2	Reserve	
	3	Reserve	
	4	Reserve	
	5	Reserve	
	6	Reserve	
	7	Reserve	

4.4.2.14.4.3.3 Fields “LHD 2” (Gripper Lift; Topic = 12)

Field	Bit	Description (German)	Description (English)
LHD 2 IO 1	0	Reserve	
	1	Reserve	
	2	Reserve	
	3	Reserve	
	4	Reserve	
	5	Reserve	
	6	Reserve	
	7	Reserve	
LHD 2 IO 2	0	Reserve	
	1	Reserve	
	2	Reserve	
	3	Reserve	
	4	Reserve	
	5	Reserve	
	6	Reserve	
	7	Reserve	
LHD 2 IO 3	0	Reserve	
	1	Reserve	
	2	Reserve	
	3	Reserve	
	4	Reserve	
	5	Reserve	
	6	Reserve	
	7	Reserve	
LHD 2 IO 1	0	Reserve	
	1	Reserve	
	2	Reserve	
	3	Reserve	
	4	Reserve	
	5	Reserve	
	6	Reserve	
	7	Reserve	

4.4.2.14.4.3.4 Fields “Main Axis” (Gripper Lift; Topic = 12)

Field	Bit	Description (German)	Description (English)
Main Axis IO 1	0	Einlagern FT - > Lift = Übergabe bereit	
	1	Einlagern FT - > Lift = Übergabe läuft	
	2	Einlagern FT - > Lift = Spaltkontrolle	
	3	Einlagern FT - > Lift = Platz 1 belegt	
	4	Einlagern FT - > Lift = Platz 2 belegt	
	5	Einlagern FT - > Lift = Transfer beendet	
	6	Einlagern FT - > Lift = Reserve	
	7	Einlagern FT - > Lift = Auto	
Main Axis IO 2	0	Einlagern Lift - > FT = Übergabe läuft	
	1	Einlagern Lift - > FT = Übergabe läuft	
	2	Einlagern Lift - > FT = 2 TU	
	3	Einlagern Lift - > FT = Reserve	
	4	Einlagern Lift - > FT = Quittierung FT	
	5	Einlagern Lift - > FT = Spalt ok	
	6	Einlagern Lift - > FT = Auto	
	7	Auslagern FT - > Lift = Übergabe bereit	

Field	Bit	Description (German)	Description (English)
Main Axis IO 3	0	Auslagern FT - > Lift = Übergabe läuft	
	1	Auslagern FT - > Lift = Spaltkontrolle	
	2	Auslagern FT - > Lift = FT belegt	
	3	Auslagern FT - > Lift = Reserve	
	4	Auslagern FT - > Lift = Reserve	
	5	Auslagern FT - > Lift = Auto	
	6	Auslagern Lift - > FT = Übergabe bereit	
	7	Auslagern Lift - > FT = Übergabe läuft	
Main Axis IO 4	0	Auslagern Lift - > FT = 2 TU	
	1	Auslagern Lift - > FT = Transfer beendet	
	2	Auslagern Lift - > FT = Reserve	
	3	Auslagern Lift - > FT = Reserve	
	4	Auslagern Lift - > FT = Spalt ok	
	5	Auslagern Lift - > FT = Auto	
	6	Reserve	
	7	Reserve	
Main Axis IO 5	0	Reserve	
	1	Reserve	
	2	Reserve	
	3	Reserve	
	4	Reserve	
	5	Reserve	
	6	Reserve	
	7	Reserve	
Main Axis IO 6	0	Reserve	
	1	Reserve	
	2	Reserve	
	3	Reserve	
	4	Reserve	
	5	Reserve	
	6	Reserve	
	7	Reserve	
Main Axis IO 7	0	Reserve	
	1	Reserve	
	2	Reserve	
	3	Reserve	
	4	Reserve	
	5	Reserve	
	6	Reserve	
	7	Reserve	
Main Axis IO 8	0	Reserve	
	1	Reserve	
	2	Reserve	
	3	Reserve	
	4	Reserve	
	5	Reserve	
	6	Reserve	
	7	Reserve	

4.4.2.14.4.3.5 Fields “Control” (Gripper Lift; Topic = 12)

Field	Bit	Description (German)	Description (English)
Control IO 1	0	Sicherheitsschalter Störungsbeseitigung betätigt	
	1	Reserve	
	2	Reserve	
	3	Referenz Verschub	
	4	LAM 1 Fach fein Y links	
	5	LAM 1 Fach fein Y rechts	
	6	LAM 1 Spaltkontrolle rechts	
	7	LAM 1 Behälter Stopp rechts	
Control IO 2	0	LAM 1 Behälter Mitte rechts	
	1	LAM 1 Behälter Mitte links	
	2	LAM 1 Behälter Stopp links	
	3	LAM 1 Spaltkontrolle links	
	4	Störung Rollenantrieb links	
	5	Störung Rollenantrieb rechts	
	6	Y-Achse Not-End oben	
	7	Y-Achse Not-End unten	
Control IO 3	0	Reserve	
	1	Reserve	
	2	Reserve	
	3	Reserve	
	4	Reserve	
	5	Reserve	
	6	Reserve	
	7	Reserve	
Control IO 4	0	Reserve	
	1	Reserve	
	2	Reserve	
	3	Reserve	
	4	Reserve	
	5	Reserve	
	6	Reserve	
	7	Reserve	
Control IO 5	0	Reserve	
	1	Reserve	
	2	Reserve	
	3	Reserve	
	4	Reserve	
	5	Reserve	
	6	Reserve	
	7	Reserve	
Control IO 6	0	Reserve	
	1	Reserve	
	2	Reserve	
	3	Reserve	
	4	Reserve	
	5	Reserve	
	6	Reserve	
	7	Reserve	

Field	Bit	Description (German)	Description (English)
Control IO 7	0	Reserve	
	1	Reserve	
	2	Reserve	
	3	Reserve	
	4	Reserve	
	5	Reserve	
	6	Reserve	
	7	Reserve	
Control IO 8	0	Reserve	
	1	Reserve	
	2	Reserve	
	3	Reserve	
	4	Reserve	
	5	Reserve	
	6	Reserve	
	7	Reserve	