



SOFTWARE BACKUP

AML/2

AUTOMATED

MIXED-MEDIA

LIBRARY

/JUNIOR

for Release 2.3.0

Order no. DOC E00 017-C

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1 Description

A software backup is necessary after each change on the AML system. Change means also the reteaching of a drive or another unit.

After a small change or correction only the changed file must be saved.

The service technician is responsible for the actual backup.

The backup diskettes and the System Logbook are located under the keyboard of the AMU PC.

Information

Please don't change any values in the grey fields!

Backup diskettes

Diskette 1 - Robot & Tower software

In error situation, please check the files (size, creation date)

Directory	Filename
ROBOT1\MOOG\ and ROBOT2\MOOG\ 	140HLP.DEF
	BA1G100.PRS
	BA1G131.PRS
	BA2G100.PRS
	BA3G60.PRS
	BA4G29.PRS
	BA5G8.PRS
	BA6G9.PRS
	BOSCHTRM.CFG
	BOSCHTRM.EXE
	BIQ140-.001

Directory	Filename
	BIQ140E.002
	BIQ140E.003
	BIQ140E.004
	A1G100.PRS
	A1G131.PRS
	A2G100.PRS
	A3G60.PRS
	A4G29.PRS
	A5G8.PRS
	A6G9.PRS
ROBOT1\ and ROBOT2\ 	MPRHO3.BIN
	KONFIG.DAT
	PLW3480.DAT
	PLW34907.DAT
	PLW34909.DAT
	PLWDATx.DAT
	VERSION.DAT

Description

Directory	Filename
ROBOT\	IQ_ROBO.P2X
	AMULESES.IRD
	AMUSCHRS.IRD
	EXPROG.DAT
	INIT.IRD
	KOPPLUNG.DAT
	PERMAN.IRD
	SBARCODE.IRD
	PLW3480.IRD
	PLW3490.IRD
	PLWMULTI.IRD
	SNEWGRIP.IRD
	SRACK.IRD
	STEACH.IRD
	STEST.DAT
STEST.IRD	
TOWER\	AMULESE.IRD
	AMUSCHR.IRD
	EXPROG.DAT
	INIT.IRD
	KOPPLUNG.DAT
	PERMAN.IRD
	QTURM1.IRD
	QTURM2.IRD
	QTURM3.IRD
	TEST.DAT
	TEST.GER
	TEST.IRD
IQ_TURM.P2X	

Directory	Filename
TOWER1-3\ and TOWER4-6\ 	MPRHO3.BIN
	KONFIG.DAT
TOWER1-3\MOOG\ and TOWER4-6\MOOG\ 	140HLP.DEF
	BIQ140-.001
	BIQ140E.002
	BIQ140E.003
	BIQ140E.004
	BHTURM.PRS
	BNTURM.PRS
	BOSCHTRM.CFG
	BOSCHTRM.EXE
	HTURM.PRS
	NTURM.PRS

Description

Diskette 2 - AMU Installation Diskette

- AMU*.ZIP
- INSTALL.COMD
- PKUNZIP2.EXE

Diskette 3 - actual updates from AMU software

- Directory \SYSTEM\
- AMUCONF.INI
- AMUCONST.INI
- CONFIG.SYS
- (CONCONT.INI)
- KRNREFPT.R01
- (KRNREFPT.R02)
- STARTUP.COMD
- Directory \CM\

Directory	Filename	Communication Type
C:\CMLIB\ 	AMU3270.*	EXCP
	AMU62S.*	LU 6.2 Single Session
	AMU62SC.*	LU 6.2 Single Session with additional Coax
	AMU62P.*	LU 6.2 Parallel Session
	AMU62PC.*	LU 6.2 Parallel Session with additional Coax
	BOCA.*	only DCAF connection
C:\IBMCOM	PROTOCOL.INI	LAN Adapter and Protocol Support
C:\TCPPIP\BIN	TCP- START.COMD	TCP/IP
C:\MPTN\ETC	SETUP.COMD HOSTS	TCP/IP

Diskette 4 - Backup of the database

2 KONFIG.DAT from version 2.3.0 (robot)

Customer: _____
 Installed: _____
 Changes: _____
 actual Version: _____

2.1 Robot 1

Pos.	Line	Parameter	Default	Actual	Information
Addresses					
1	12	T_ADR_RHO	O01		Logical address of the control unit (same syntax as AMU configuration: O01).
2	13	T_EA1_TYP	E0		Type of the first I/O unit (same syntax as AMU: E0, E1, ...). The I/O unit/B control runs on the robot control.
3	14	T_EA2_TYP	--		Type of the second I/O unit.
4	15	G_EA1_Nr	1		Logical number of the first I/O unit. E001... means value 1
5	16	G_EA2_Nr	0		Logical number of the second I/O unit.
6	17	G_ROBOTNR	1		Logical number of the robot. 1 = robot 1 2 = robot 2
Configuration of cartridge types C0 - 1/2" cartridge 34x0 + 3590 C1 - cartridge DLT C2 - reseved O0 - optical disk Reflection O1 - optical disk 512 V0 - VHS cartridges V1 - cartridge 8 mm V2 - cartridge 4 mm V3 - D2 small cartridges V4 - D2 medium cartridges V5 - Travan V6 - DTF small V7 - DTF large V8 - BetaCAM small V9 - BetaCAM large Use for each media type always the affiliated values, eg media type 1 -> Offset media type 1, barcode recognition media type 1 etc.					
7	21	Z_Cart_Type1	--		media type 1
8	22	Z_Cart_Type2	--		media type 2
9	23	Z_Cart_Type3	--		media type 3
10	24	Z_Cart_Type4	--		media type 4

Pos.	Line	Parameter	Default	Actual	Information
11	25	Z_Cart_Type5	--		media type 5
Calibration point coordinates (right arm) of media type 1 (NewGrip) The NewGrip position is located on the robot console. The controller needs for the media handling the arm values: Positions 12 - 14 -> coordinates for right arm (media type 1) Positions 27 - 29 -> coordinates for left arm (media type 1)					
12	29	FP_NewGripR[1].X_K	386.0		scanner: x-coordinate (in mm) vision system default: 395.0
13	30	FP_NewGripR[1].Y_K	-230.0		scanner: y-coordinate (in mm) vision system default: 0.0
14	31	FP_NewGripR[1].Z_K	90.0		scanner: z-coordinate (in mm) vision system default: 80.0
Calibration point coordinates of media type 2 (NewGrip)					
15	35	FP_NewGripR[2].X_K	386.0		x-coordinate (in mm)
16	36	FP_NewGripR[2].Y_K	-230.0		y-coordinate (in mm)
17	37	FP_NewGripR[2].Z_K	90.0		z-coordinate (in mm)
Calibration point coordinates of media type 3 (NewGrip)					
18	41	FP_NewGripR[3].X_K	386.0		x-coordinate (in mm)
19	42	FP_NewGripR[3].Y_K	-230.0		y-coordinate (in mm)
20	43	FP_NewGripR[3].Z_K	90.0		z-coordinate (in mm)
Calibration point coordinates of media type 4 (NewGrip)					
21	47	FP_NewGripR[4].X_K	386.0		x-coordinate (in mm)
22	48	FP_NewGripR[4].Y_K	-230.0		y-coordinate (in mm)
23	49	FP_NewGripR[4].Z_K	90.0		z-coordinate (in mm)
Calibration point coordinates of media type 5 (NewGrip)					
24	53	FP_NewGripR[5].X_K	386.0		x-coordinate (in mm)
25	54	FP_NewGripR[5].Y_K	-230.0		y-coordinate (in mm)
26	55	FP_NewGripR[5].Z_K	90.0		z-coordinate (in mm)
Calibration point coordinates (left arm) of media type 1 The calibration point coordinates (left arm) of the other media types result from the following parameters.					
27	59	FP_NewGripL[1].X_K	375.0		x-coordinate (in mm)
28	60	FP_NewGripL[1].Y_K	224.0		y-coordinate (in mm)
29	61	FP_NewGripL[1].Z_K	90.0		z-coordinate (in mm)

Robot 1

Pos.	Line	Parameter	Default	Actual	Information
Offset barcode recognition for rack (tower or linear shelf) media type 1 [1/100 mm]					
30	65	FG_X_BC_Rack[1]	0		positive x-val. = gripper forward
31	66	FG_Y_BC_Rack[1]	0		positive y-value = gripper left
32	67	FG_Z_BC_Rack[1]	0		positive z-value = gripper up
Offset barcode recognition for rack (tower or linear shelf) media type 2 [1/100 mm]					
33	71	FG_Y_BC_Rack[2]	0		positive y-value = gripper left
34	72	FG_Z_BC_Rack[2]	0		positive z-value = gripper up
Offset barcode recognition for rack (tower or linear shelf) media type 3 [1/100 mm]					
35	76	FG_Y_BC_Rack[3]	0		positive y-value = gripper left
36	77	FG_Z_BC_Rack[3]	0		positive z-value = gripper up
Offset barcode recognition for rack (tower or linear shelf) media type 4 [1/100 mm]					
37	81	FG_Y_BC_Rack[4]	0		positive y-value = gripper left
38	82	FG_Z_BC_Rack[4]	0		positive z-value = gripper up
Offset barcode recognition for rack (tower or linear shelf) media type 5 [1/100 mm]					
39	86	FG_Y_BC_Rack[5]	0		positive y-value = gripper left
40	87	FG_Z_BC_Rack[5]	0		positive z-value = gripper up
Offset barcode recognition for I/O unit media type 1 [1/100 mm]					
41	91	FG_X_BC_EA[1]	0		positive x-val. = gripper forward
42	92	FG_Y_BC_EA[1]	0		positive y-value = gripper left
43	93	FG_Z_BC_EA[1]	0		positive z-value = gripper up
Offset barcode recognition for I/O unit media type 2 [1/100 mm]					
44	97	FG_Y_BC_EA[2]	0		positive y-value = gripper left
45	98	FG_Z_BC_EA[2]	0		positive z-value = gripper up
Offset barcode recognition for I/O unit media type 3 [1/100 mm]					
46	102	FG_Y_BC_EA[3]	0		positive y-value = gripper left
47	103	FG_Z_BC_EA[3]	0		positive z-value = gripper up
Offset barcode recognition for I/O unit media type 4 [1/100 mm]					
48	107	FG_Y_BC_EA[4]	0		positive y-value = gripper left
49	108	FG_Z_BC_EA[4]	0		positive z-value = gripper up
Offset barcode recognition for I/O unit media type 5 [1/100 mm]					
50	112	FG_Y_BC_EA[5]	0		positive y-value = gripper left
51	113	FG_Z_BC_EA[5]	0		positive z-value = gripper up

Pos.	Line	Parameter	Default	Actual	Information
Offset gripper handling for rack (tower or linear shelf) media type 1 [1/100 mm]					
52	117	FG_X_DelRack[1]	0		positive x-val. = gripper forward
53	118	FG_Y_DelRack[1]	0		positive y-value = gripper left
54	119	FG_Z_DelRack[1]	0		positive z-value = gripper up
Offset gripper handling for rack (tower or linear shelf) media type 2 [1/100 mm]					
55	123	FG_X_DelRack[2]	0		positive x-val. = gripper forward
56	124	FG_Y_DelRack[2]	0		positive y-value = gripper left
57	125	FG_Z_DelRack[2]	0		positive z-value = gripper up
Offset gripper handling for rack (tower or linear shelf) media type 3 [1/100 mm]					
58	129	FG_X_DelRack[3]	0		positive x-val. = gripper forward
59	130	FG_Y_DelRack[3]	0		positive y-value = gripper left
60	131	FG_Z_DelRack[3]	0		positive z-value = gripper up
Offset gripper handling for rack (tower or linear shelf) media type 4 [1/100 mm]					
61	135	FG_X_DelRack[4]	0		positive x-val. = gripper forward
62	136	FG_Y_DelRack[4]	0		positive y-value = gripper left
63	137	FG_Z_DelRack[4]	0		positive z-value = gripper up
Offset gripper handling for rack (tower or linear shelf) media type 5 [1/100 mm]					
64	141	FG_X_DelRack[5]	0		positive x-val. = gripper forward
65	142	FG_Y_DelRack[5]	0		positive y-value = gripper left
66	143	FG_Z_DelRack[5]	0		positive z-value = gripper up
Offset gripper handling for I/O unit media type 1 [1/100 mm]					
67	147	FG_X_DelEA[1]	0		positive x-val. = gripper forward
68	148	FG_Y_DelEA[1]	0		positive y-value = gripper left
69	149	FG_Z_DelEA[1]	0		positive z-value = gripper up
Offset gripper handling for I/O unit media type 2 [1/100 mm]					
70	153	FG_X_DelEA[2]	0		positive x-val. = gripper forward
71	154	FG_Y_DelEA[2]	0		positive y-value = gripper left
72	155	FG_Z_DelEA[2]	0		Positive z-value = gripper up
Offset gripper handling for I/O unit media type 3 [1/100 mm]					
73	159	FG_X_DelEA[3]	0		positive x-val. = gripper forward
74	160	FG_Y_DelEA[3]	0		positive y-value = gripper left
75	161	FG_Z_DelEA[3]	0		positive z-value = gripper up
Offset gripper handling for I/O unit media type 4 [1/100 mm]					
76	165	FG_X_DelEA[4]	0		positive x-val. = gripper forward

Robot 1

Pos.	Line	Parameter	Default	Actual	Information
77	166	FG_Y_DeIEA[4]	0		positive y-value = gripper left
78	167	FG_Z_DeIEA[4]	0		Positive z-value = gripper up
Offset gripper handling for I/O unit media type 5 [1/100 mm]					
79	171	FG_X_DeIEA[5]	0		positive x-val. = gripper forward
80	172	FG_Y_DeIEA[5]	0		positive y-value = gripper left
81	173	FG_Z_DeIEA[5]	0		Positive z-value = gripper up
Assignment of the drive types Same syntax as AMU configuration: eg D3, D8, D9, DO... Use for each drive type always the affiliated offsets. Not used drive types you have to fill up with „-“.					
82	177	LW1	--		drive type 1
83	178	LW2	--		drive type 2
84	179	LW3	--		drive type 3
85	180	LW4	--		drive type 4
86	181	LW5	--		drive type 5
87	182	LW6	--		drive type 6
88	183	LW7	--		drive type 7
Parameters 63 - 98: All parameters FG_Z_O... are only for OD drives. They specify the offset for Put and Get of side B. Offset gripper handling and barcode recognition for drive type 1 [1/100 mm]					
89	187	FG_X_Put_LW[1]	0		positive x-val. = gripper forward (Put)
90	188	FG_Y_Put_LW[1]	0		positive y-value = gripper left (Put)
91	189	FG_Z_Put_LW[1]	0		positive z-value = gripper up (Put)
92	190	FG_X_Get_LW[1]	0		positive x-val. = gripper forward (Get)
93	191	FG_Z_Get_LW[1]	0		positive z-value = gripper up (Get)
94	192	FG_Z_ODB_LW[1]	0		positive z-value = gripper up (Get) OD side B)
95	193	FG_Z_ODP_LW[1]	0		positive z-value = gripper up (Put) OD B-side)
96	194	FZ_Unload[1]	N		Y = gripper presses unload button (Get) , N = gripper does not press the unload button

Pos.	Line	Parameter	Default	Actual	Information
Offset gripper handling and barcode recognition for drive type 2 [1/100 mm]					
97	198	FG_X_Put_LW[2]	0		positive x-val. = gripper forward (Put)
98	199	FG_Y_Put_LW[2]	0		positive y-value = gripper left (Put)
99	200	FG_Z_Put_LW[2]	0		positive z-value = gripper up (Put)
100	201	FG_X_Get_LW[2]	0		positive x-value (in 1/100 mm) = gripper forward (Get)
101	202	FG_Z_Get_LW[2]	0		positive z-value (in 1/100 mm) = gripper up (Get)
102	203	FG_Z_ODB_LW[2]	0		positive z-value (in 1/100 mm) = gripper up (Get OD side B)
103	204	FG_Z_ODP_LW[2]	0		positive z-value (in 1/100 mm) = gripper up (put OD side B)
104	205	FZ_Unload[2]	N		Y = gripper presses unload button (Get), N = gripper does not press the unload button
Offset gripper handling and barcode recognition for drive unit type 3 [1/100 mm]					
105	209	FG_X_Put_LW[3]	0		positive x-val. = gripper forward (Put)
106	210	FG_Y_Put_LW[3]	0		positive y-value = gripper left (Put)
107	211	FG_Z_Put_LW[3]	0		positive z-value = gripper up (Put)
108	212	FG_X_Get_LW[3]	0		positive x-val. = gripper forward (Get)
109	213	FG_Z_Get_LW[3]	0		positive z-value = gripper up (Get)
110	214	FG_Z_ODB_LW[3]	0		positive z-value = gripper up (Get OD B-side)
111	215	FG_Z_ODP_LW[3]	0		positive z-value = gripper up (Put OD B-side)
112	216	FZ_Unload[3]	N		Y = gripper presses unload button (Get), N = gripper does not press the unload button

Robot 1

Pos.	Line	Parameter	Default	Actual	Information
Offset gripper handling and barcode recognition for drive type 4 [1/100 mm]					
113	220	FG_X_Put_LW[4]	0		positive x-val. = gripper forward (Put)
114	221	FG_Y_Put_LW[4]	0		positive y-value = gripper left (Put)
115	222	FG_Z_Put_LW[4]	0		positive z-value = gripper up (Put)
116	223	FG_X_Get_LW[4]	0		positive x-val. = gripper forward (Get)
117	224	FG_Z_Get_LW[4]	0		positive z-value = gripper up (Get)
118	225	FG_Z_ODB_LW[4]	0		positive z-value = gripper up (Get OD side B)
119	226	FG_Z_ODP_LW[4]	0		positive z-value = gripper up (Put OD side B)
120	227	FZ_Unload[4]	N		Y = gripper presses unload button (Get), N = gripper does not press the unload button
Offset gripper handling and barcode recognition for drive type 5 [1/100 mm]					
121	231	FG_X_Put_LW[5]	0		positive x-val. = gripper forward (Put)
122	232	FG_Y_Put_LW[5]	0		positive y-value = gripper left (Put)
123	233	FG_Z_Put_LW[5]	0		positive z-value = gripper up (Put)
124	234	FG_X_Get_LW[5]	0		positive x-val. = gripper forward (Get)
125	235	FG_Z_Get_LW[5]	0		positive z-value = gripper up (Get)
126	236	FG_Z_ODB_LW[5]	0		positive z-value = gripper up (Get OD side B)
127	237	FG_Z_ODP_LW[5]	0		positive z-value = gripper up (Put OD side B)
128	238	FZ_Unload[5]	N		Y = gripper presses unload button (Get), N = gripper does not press the unload button

Pos.	Line	Parameter	Default	Actual	Information
Offset gripper handling and barcode recognition for drive type 6 [1/100 mm]					
129	242	FG_X_Put_LW[6]	0		positive x-val. = gripper forward (Put)
130	243	FG_Y_Put_LW[6]	0		positive y-value = gripper left (Put)
131	244	FG_Z_Put_LW[6]	0		positive z-value = gripper up (Put)
132	245	FG_X_Get_LW[6]	0		positive x-val. = gripper forward (Get)
133	246	FG_Z_Get_LW[6]	0		positive z-value = gripper up (Get)
134	247	FG_Z_ODB_LW[6]	0		positive z-value = gripper up (Get OD side B)
135	248	FG_Z_ODP_LW[6]	0		positive z-value = gripper up (Put OD side B)
136	249	FZ_Unload[6]	N		Y = gripper presses unload button (Get), N = gripper does not press the unload button
Offset gripper handling and barcode recognition for drive type 7 [1/100 mm]					
137	253	FG_X_Put_LW[7]	0		positive x-val. = gripper forward (Put)
138	254	FG_Y_Put_LW[7]	0		positive y-value = gripper left (Put)
139	255	FG_Z_Put_LW[7]	0		positive z-value = gripper up (Put)
140	256	FG_X_Get_LW[7]	0		positive x-val. = gripper forward (Get)
141	257	FG_Z_Get_LW[7]	0		positive z-value = gripper up (Get)
142	258	FG_Z_ODB_LW[7]	0		positive z-value = gripper up (Get OD side B)
143	259	FG_Z_ODP_LW[7]	0		positive z-value = gripper up (Put OD side B)
144	260	FZ_Unload[7]	N		Y = gripper presses unload button (Get), N = gripper does not press the unload button

Robot 1

Pos.	Line	Parameter	Default	Actual	Information
Software limits (depending on your system)					
145	264	G_X_MAXLIMIT	290000		Depends on the length of the system. Handling at the end of the system (I/O unit) must be possible. You get this value with the test program on the PHG. value = x-axis + h-axis
146	265	G_X_MINLIMIT	25000		minimal x-coordinate of AMU
147	266	G_Z_MAXLIMIT	142000		maximal z-coordinate of AMU G_Z_MAXLIMIT = V_max + Z_max „MPRHO3.BIN“ P204 3. axis (v), 6. axis (z)
148	267	G_Z_MINLIMIT	-4500	-4500	minimal z-coordinate of AMU
149	268	G_H_SAVEELBO	100		Maximal h-coordinate for a secure arm change. You get this value with the test program on the PHG: media in gripper, arm in straight position, drive to the first obstacle (eg the I/O unit).
Speed and Acceleration					
150	272	D_V_HANDL	250.0		Slow speed for linear interpolation (during handling): min. 10 / max. 250
Diagnosis					
151	276	G_PHGECHO	1		0 = PHG not connected, normal working conditions, 1 = PHG necessary, tests possible, 2 = PHG connected, only test mode, stand-alone 3 = PHG connected, only test mode, stand-alone without gripper
Gripper offset (☞ gripper data sheet)					
152	280	G_Y_BC	0		y-offset Scanner
153	282	G_X_TEACH	0		x-offset Teach
154	283	G_Y_TEACH	0		y-offset Teach
155	284	G_Z_TEACH	0		z-offset Teach
156	286	G_X_OFFSET	0		gripper offset x-coordinate (in 1/100 mm)
157	287	G_Y_OFFSET	0		gripper offset y-coordinate (in 1/100 mm)
158	288	G_Z_OFFSET	0		gripper offset z-coordinate (in 1/100 mm)

Pos.	Line	Parameter	Default	Actual	Information
159	292	G_PARALLEL	1		Grippertype: 0 = for small medias (401 004 930) 1 = for large medias (401 004 920) 2 = Universal Gripper (401 002 235)
160	293	G_BCErrIgn	1		Reaction on barcode-reading error. 0 = cancel on error 1 = ignore error and continue
161	295	G_Z_BCOff_V	0		Vertical offset (difference between label for side A and side B) for the barcodelabel on optical disks
162	296	G_WarnAus	0		Messages from type „Warning“ will not displayed in AMU-log when G_WarnAus = 1
Timeout					
163	300	D_TIME1	140	140	time-out Quadro tower (in sec)
164	301	D_TIME2	140		time-out I/O unit (in sec) 10 = I/O unit/B
165	302	D_WARTE_KEEP	60		time-out Keep from drive
166	306	D_Z_TO_V	0.27164		Relation between z- and v-axis. Enter all values in mm and with 5 digits after the point. Formulas: max. z-axis = Z_max („MPRH3.BIN“ P204, 3. axis) max. v-axis = V_max („MPRHO3.BIN“ P204, 6. axis) $D_Z_TO_V = \frac{Z_max - 12}{(Z_max - 12) + V_max}$ for D2 medium handling: $D_Z_TO_V = \frac{Z_max - 30}{(Z_max - 30) + V_max}$
167	307	D_Y_Elb	0		only for scanner gripper: positive y-coordinate (in mm) in world coordinates for drive gripper with medium use for touchless movement on track (eg tower covering) 0 = normal processing
Coordinates (in mm) for special handling of drives on the start of track (only scanner gripper)					
168	308	D_X_Col	0		x-coordinate for begin handling area (only for special handling in the back area)
169	309	D_Y_Col	0		y-coordinate handling area (only for special handling in the back area)

Robot 1

Pos.	Line	Parameter	Default	Actual	Information
170	311	G_UMSCHLAG	1		Definition of the robot arm for front handling: 0 = arm not defined 1 = left arm 2 = right arm
171	312	G_FIRSTOWER	1		Number of first connected Quadro tower
Additional offset value for PUT (positive y-value (1/100mm) = gripper left)					
172	316	FG_Y_PRaOff[1]	0		media 1 on rack
173	317	FG_Y_PIEOff[1]	0		media 1 on I/O unit
174	318	FG_Y_PRaOff[2]	0		media 2 on rack
175	319	FG_Y_PIEOff[2]	0		media 2 on I/O unit
176	320	FG_Y_PRaOff[3]	0		media 3 on rack
177	321	FG_Y_PIEOff[3]	0		media 3 on I/O unit
178	322	FG_Y_PRaOff[4]	0		media 4 on rack
179	323	FG_Y_PIEOff[4]	0		media 4 on I/O unit
180	324	FG_Y_PRaOff[5]	0		media 5 on rack
181	325	FG_Y_PIEOff[5]	0		media 5 on I/O unit
182	329		0	0	reserve
183	330		0	0	reserve
184	331		0	0	reserve
185	332		0	0	reserve
186	333		0	0	reserve
Check sum					
187	337	G_SUMME	187	187	number of positions in this file

2.2 Robot 2

Pos.	Line	Parameter	Default	Actual	Information															
Addresses																				
1	12	T_ADR_RHO	O01		Logical address of the control unit (same syntax as AMU configuration: O01).															
2	13	T_EA1_TYP	E0		Type of the first I/O unit (same syntax as AMU: E0, E1, ...). The I/O unit/B control runs on the robot control.															
3	14	T_EA2_TYP	--		Type of the second I/O unit.															
4	15	G_EA1_Nr	1		Logical number of the first I/O unit. E001... means value 1															
5	16	G_EA2_Nr	0		Logical number of the second I/O unit.															
6	17	G_ROBOTNR	1		Logical number of the robot. 1 = robot 1 2 = robot 2															
<p>Configuration of cartridge types</p> <table> <tr> <td>C0 - 1/2" cartridge 34x0 + 3590</td> <td>V0 - VHS cartridges</td> <td>V5 - Travan</td> </tr> <tr> <td>C1 - cartridge DLT</td> <td>V1 - cartridge 8 mm</td> <td>V6 - DTF small</td> </tr> <tr> <td>C2 - reseed</td> <td>V2 - cartridge 4 mm</td> <td>V7 - DTF large</td> </tr> <tr> <td>O0 - optical disk Reflection</td> <td>V3 - D2 small cartridges</td> <td>V8 - BetaCAM small</td> </tr> <tr> <td>O1 - optical disk 512</td> <td>V4 - D2 medium cartridges</td> <td>V9 - BetaCAM large</td> </tr> </table> <p>Use for each media type always the affiliated values, eg media type 1 -> Offset media type 1, barcode recognition media type 1 etc.</p>						C0 - 1/2" cartridge 34x0 + 3590	V0 - VHS cartridges	V5 - Travan	C1 - cartridge DLT	V1 - cartridge 8 mm	V6 - DTF small	C2 - reseed	V2 - cartridge 4 mm	V7 - DTF large	O0 - optical disk Reflection	V3 - D2 small cartridges	V8 - BetaCAM small	O1 - optical disk 512	V4 - D2 medium cartridges	V9 - BetaCAM large
C0 - 1/2" cartridge 34x0 + 3590	V0 - VHS cartridges	V5 - Travan																		
C1 - cartridge DLT	V1 - cartridge 8 mm	V6 - DTF small																		
C2 - reseed	V2 - cartridge 4 mm	V7 - DTF large																		
O0 - optical disk Reflection	V3 - D2 small cartridges	V8 - BetaCAM small																		
O1 - optical disk 512	V4 - D2 medium cartridges	V9 - BetaCAM large																		
7	21	Z_Cart_Type1	--		media type 1															
8	22	Z_Cart_Type2	--		media type 2															
9	23	Z_Cart_Type3	--		media type 3															
10	24	Z_Cart_Type4	--		media type 4															
11	25	Z_Cart_Type5	--		media type 5															

Robot 2

Pos.	Line	Parameter	Default	Actual	Information
Calibration point coordinates (right arm) of media type 1 (NewGrip) The NewGrip position is located on the robot console. The controller needs for the media handling the arm values: Positions 11 - 13 -> coordinates for right arm (media type 1) Positions 27 - 29 -> coordinates for left arm (media type 1)					
12	29	FP_NewGripR[1].X_K	386.0		scanner: x-coordinate (in mm) vision system default: 395.0
13	30	FP_NewGripR[1].Y_K	-230.0		scanner: y-coordinate (in mm) vision system default: 0.0
14	31	FP_NewGripR[1].Z_K	90.0		scanner: z-coordinate (in mm) vision system default: 80.0
Calibration point coordinates of media type 2 (NewGrip)					
15	35	FP_NewGripR[2].X_K	386.0		x-coordinate (in mm)
16	36	FP_NewGripR[2].Y_K	-230.0		y-coordinate (in mm)
17	37	FP_NewGripR[2].Z_K	90.0		z-coordinate (in mm)
Calibration point coordinates of media type 3 (NewGrip)					
18	41	FP_NewGripR[3].X_K	386.0		x-coordinate (in mm)
19	42	FP_NewGripR[3].Y_K	-230.0		y-coordinate (in mm)
20	43	FP_NewGripR[3].Z_K	90.0		z-coordinate (in mm)
Calibration point coordinates of media type 4 (NewGrip)					
21	47	FP_NewGripR[4].X_K	386.0		x-coordinate (in mm)
22	48	FP_NewGripR[4].Y_K	-230.0		y-coordinate (in mm)
23	49	FP_NewGripR[4].Z_K	90.0		z-coordinate (in mm)
Calibration point coordinates of media type 5 (NewGrip)					
24	53	FP_NewGripR[5].X_K	386.0		x-coordinate (in mm)
25	54	FP_NewGripR[5].Y_K	-230.0		y-coordinate (in mm)
26	55	FP_NewGripR[5].Z_K	90.0		z-coordinate (in mm)
Calibration point coordinates (left arm) of media type 1 The calibration point coordinates (left arm) of the other media types result from the following parameters.					
27	59	FP_NewGripL[1].X_K	375.0		x-coordinate (in mm)
28	60	FP_NewGripL[1].Y_K	224.0		y-coordinate (in mm)
29	61	FP_NewGripL[1].Z_K	90.0		z-coordinate (in mm)

Pos.	Line	Parameter	Default	Actual	Information
Offset barcode recognition for rack (tower or linear shelf) media type 1 [1/100 mm]					
30	65	FG_X_BC_Rack[1]	0		positive x-val. = gripper forward
31	66	FG_Y_BC_Rack[1]	0		positive y-value = gripper left
32	67	FG_Z_BC_Rack[1]	0		positive z-value = gripper up
Offset barcode recognition for rack (tower or linear shelf) media type 2 [1/100 mm]					
33	71	FG_Y_BC_Rack[2]	0		positive y-value = gripper left
34	72	FG_Z_BC_Rack[2]	0		positive z-value = gripper up
Offset barcode recognition for rack (tower or linear shelf) media type 3 [1/100 mm]					
35	76	FG_Y_BC_Rack[3]	0		positive y-value = gripper left
36	77	FG_Z_BC_Rack[3]	0		positive z-value = gripper up
Offset barcode recognition for rack (tower or linear shelf) media type 4 [1/100 mm]					
37	81	FG_Y_BC_Rack[4]	0		positive y-value = gripper left
38	82	FG_Z_BC_Rack[4]	0		positive z-value = gripper up
Offset barcode recognition for rack (tower or linear shelf) media type 5 [1/100 mm]					
39	86	FG_Y_BC_Rack[5]	0		positive y-value = gripper left
40	87	FG_Z_BC_Rack[5]	0		positive z-value = gripper up
Offset barcode recognition for I/O unit media type 1 [1/100 mm]					
41	91	FG_X_BC_EA[1]	0		positive x-val. = gripper forward
42	92	FG_Y_BC_EA[1]	0		positive y-value = gripper left
43	93	FG_Z_BC_EA[1]	0		positive z-value = gripper up
Offset barcode recognition for I/O unit media type 2 [1/100 mm]					
44	97	FG_Y_BC_EA[2]	0		positive y-value = gripper left
45	98	FG_Z_BC_EA[2]	0		positive z-value = gripper up
Offset barcode recognition for I/O unit media type 3 [1/100 mm]					
46	102	FG_Y_BC_EA[3]	0		positive y-value = gripper left
47	103	FG_Z_BC_EA[3]	0		positive z-value = gripper up
Offset barcode recognition for I/O unit media type 4 [1/100 mm]					
48	107	FG_Y_BC_EA[4]	0		positive y-value = gripper left
49	108	FG_Z_BC_EA[4]	0		positive z-value = gripper up
Offset barcode recognition for I/O unit media type 5 [1/100 mm]					
50	112	FG_Y_BC_EA[5]	0		positive y-value = gripper left
51	113	FG_Z_BC_EA[5]	0		positive z-value = gripper up

Robot 2

Pos.	Line	Parameter	Default	Actual	Information
Offset gripper handling for rack (tower or linear shelf) media type 1 [1/100 mm]					
52	117	FG_X_DelRack[1]	0		positive x-val. = gripper forward
53	118	FG_Y_DelRack[1]	0		positive y-value = gripper left
54	119	FG_Z_DelRack[1]	0		positive z-value = gripper up
Offset gripper handling for rack (tower or linear shelf) media type 2 [1/100 mm]					
55	123	FG_X_DelRack[2]	0		positive x-val. = gripper forward
56	124	FG_Y_DelRack[2]	0		positive y-value = gripper left
57	125	FG_Z_DelRack[2]	0		positive z-value = gripper up
Offset gripper handling for rack (tower or linear shelf) media type 3 [1/100 mm]					
58	129	FG_X_DelRack[3]	0		positive x-val. = gripper forward
59	130	FG_Y_DelRack[3]	0		positive y-value = gripper left
60	131	FG_Z_DelRack[3]	0		positive z-value = gripper up
Offset gripper handling for rack (tower or linear shelf) media type 4 [1/100 mm]					
61	135	FG_X_DelRack[4]	0		positive x-val. = gripper forward
62	136	FG_Y_DelRack[4]	0		positive y-value = gripper left
63	137	FG_Z_DelRack[4]	0		positive z-value = gripper up
Offset gripper handling for rack (tower or linear shelf) media type 5 [1/100 mm]					
64	141	FG_X_DelRack[5]	0		positive x-val. = gripper forward
65	142	FG_Y_DelRack[5]	0		positive y-value = gripper left
66	143	FG_Z_DelRack[5]	0		positive z-value = gripper up
Offset gripper handling for I/O unit media type 1 [1/100 mm]					
67	147	FG_X_DelEA[1]	0		positive x-val. = gripper forward
68	148	FG_Y_DelEA[1]	0		positive y-value = gripper left
69	149	FG_Z_DelEA[1]	0		positive z-value = gripper up
Offset gripper handling for I/O unit media type 2 [1/100 mm]					
70	153	FG_X_DelEA[2]	0		positive x-val. = gripper forward
71	154	FG_Y_DelEA[2]	0		positive y-value = gripper left
72	155	FG_Z_DelEA[2]	0		Positive z-value = gripper up
Offset gripper handling for I/O unit media type 3 [1/100 mm]					
73	159	FG_X_DelEA[3]	0		positive x-val. = gripper forward
74	160	FG_Y_DelEA[3]	0		positive y-value = gripper left
75	161	FG_Z_DelEA[3]	0		positive z-value = gripper up
Offset gripper handling for I/O unit media type 4 [1/100 mm]					
76	165	FG_X_DelEA[4]	0		positive x-val. = gripper forward

Pos.	Line	Parameter	Default	Actual	Information
77	166	FG_Y_DelEA[4]	0		positive y-value = gripper left
78	167	FG_Z_DelEA[4]	0		Positive z-value = gripper up
Offset gripper handling for I/O unit media type 5 [1/100 mm]					
79	171	FG_X_DelEA[5]	0		positive x-val. = gripper forward
80	172	FG_Y_DelEA[5]	0		positive y-value = gripper left
81	173	FG_Z_DelEA[5]	0		Positive z-value = gripper up
Assignment of the drive types Same syntax as AMU configuration: eg D3, D8, D9, DO... Use for each drive type always the affiliated offsets. Not used drive types you have to fill up with „-“.					
82	177	LW1	--		drive type 1
83	178	LW2	--		drive type 2
84	179	LW3	--		drive type 3
85	180	LW4	--		drive type 4
86	181	LW5	--		drive type 5
87	182	LW6	--		drive type 6
88	183	LW7	--		drive type 7
Parameters 63 - 98: All parameters FG_Z_O... are only for OD drives. They specify the offset for Put and Get of side B. Offset gripper handling and barcode recognition for drive type 1 [1/100 mm]					
89	187	FG_X_Put_LW[1]	0		positive x-val. = gripper forward (Put)
90	188	FG_Y_Put_LW[1]	0		positive y-value = gripper left (Put)
91	189	FG_Z_Put_LW[1]	0		positive z-value = gripper up (Put)
92	190	FG_X_Get_LW[1]	0		positive x-val. = gripper forward (Get)
93	191	FG_Z_Get_LW[1]	0		positive z-value = gripper up (Get)
94	192	FG_Z_ODB_LW[1]	0		positive z-value = gripper up (Get OD side B)
95	193	FG_Z_ODP_LW[1]	0		positive z-value = gripper up (Put OD B-side)
96	194	FZ_Unload[1]	N		Y = gripper presses unload button (Get) , N = gripper does not press the unload button

Robot 2

Pos.	Line	Parameter	Default	Actual	Information
Offset gripper handling and barcode recognition for drive type 2 [1/100 mm]					
97	198	FG_X_Put_LW[2]	0		positive x-val. = gripper forward (Put)
98	199	FG_Y_Put_LW[2]	0		positive y-value = gripper left (Put)
99	200	FG_Z_Put_LW[2]	0		positive z-value = gripper up (Put)
100	201	FG_X_Get_LW[2]	0		positive x-value (in 1/100 mm) = gripper forward (Get)
101	202	FG_Z_Get_LW[2]	0		positive z-value (in 1/100 mm) = gripper up (Get)
102	203	FG_Z_ODB_LW[2]	0		positive z-value (in 1/100 mm) = gripper up (Get OD side B)
103	204	FG_Z_ODP_LW[2]	0		positive z-value (in 1/100 mm) = gripper up (put OD side B)
104	205	FZ_Unload[2]	N		Y = gripper presses unload button (Get), N = gripper does not press the unload button
Offset gripper handling and barcode recognition for drive unit type 3 [1/100 mm]					
105	209	FG_X_Put_LW[3]	0		positive x-val. = gripper forward (Put)
106	210	FG_Y_Put_LW[3]	0		positive y-value = gripper left (Put)
107	211	FG_Z_Put_LW[3]	0		positive z-value = gripper up (Put)
108	212	FG_X_Get_LW[3]	0		positive x-val. = gripper forward (Get)
109	213	FG_Z_Get_LW[3]	0		positive z-value = gripper up (Get)
110	214	FG_Z_ODB_LW[3]	0		positive z-value = gripper up (Get OD B-side)
111	215	FG_Z_ODP_LW[3]	0		positive z-value = gripper up (Put OD B-side)
112	216	FZ_Unload[3]	N		Y = gripper presses unload button (Get), N = gripper does not press the unload button

Pos.	Line	Parameter	Default	Actual	Information
Offset gripper handling and barcode recognition for drive type 4 [1/100 mm]					
113	220	FG_X_Put_LW[4]	0		positive x-val. = gripper forward (Put)
114	221	FG_Y_Put_LW[4]	0		positive y-value = gripper left (Put)
115	222	FG_Z_Put_LW[4]	0		positive z-value = gripper up (Put)
116	223	FG_X_Get_LW[4]	0		positive x-val. = gripper forward (Get)
117	224	FG_Z_Get_LW[4]	0		positive z-value = gripper up (Get)
118	225	FG_Z_ODB_LW[4]	0		positive z-value = gripper up (Get OD side B)
119	226	FG_Z_ODP_LW[4]	0		positive z-value = gripper up (Put OD side B)
120	227	FZ_Unload[4]	N		Y = gripper presses unload button (Get), N = gripper does not press the unload button
Offset gripper handling and barcode recognition for drive type 5 [1/100 mm]					
121	231	FG_X_Put_LW[5]	0		positive x-val. = gripper forward (Put)
122	232	FG_Y_Put_LW[5]	0		positive y-value = gripper left (Put)
123	233	FG_Z_Put_LW[5]	0		positive z-value = gripper up (Put)
124	234	FG_X_Get_LW[5]	0		positive x-val. = gripper forward (Get)
125	235	FG_Z_Get_LW[5]	0		positive z-value = gripper up (Get)
126	236	FG_Z_ODB_LW[5]	0		positive z-value = gripper up (Get OD side B)
127	237	FG_Z_ODP_LW[5]	0		positive z-value = gripper up (Put OD side B)
128	238	FZ_Unload[5]	N		Y = gripper presses unload button (Get), N = gripper does not press the unload button

Robot 2

Pos.	Line	Parameter	Default	Actual	Information
Offset gripper handling and barcode recognition for drive type 6 [1/100 mm]					
129	242	FG_X_Put_LW[6]	0		positive x-val. = gripper forward (Put)
130	243	FG_Y_Put_LW[6]	0		positive y-value = gripper left (Put)
131	244	FG_Z_Put_LW[6]	0		positive z-value = gripper up (Put)
132	245	FG_X_Get_LW[6]	0		positive x-val. = gripper forward (Get)
133	246	FG_Z_Get_LW[6]	0		positive z-value = gripper up (Get)
134	247	FG_Z_ODB_LW[6]	0		positive z-value = gripper up (Get OD side B)
135	248	FG_Z_ODP_LW[6]	0		positive z-value = gripper up (Put OD side B)
136	249	FZ_Unload[6]	N		Y = gripper presses unload button (Get), N = gripper does not press the unload button
Offset gripper handling and barcode recognition for drive type 7 [1/100 mm]					
137	253	FG_X_Put_LW[7]	0		positive x-val. = gripper forward (Put)
138	254	FG_Y_Put_LW[7]	0		positive y-value = gripper left (Put)
139	255	FG_Z_Put_LW[7]	0		positive z-value = gripper up (Put)
140	256	FG_X_Get_LW[7]	0		positive x-val. = gripper forward (Get)
141	257	FG_Z_Get_LW[7]	0		positive z-value = gripper up (Get)
142	258	FG_Z_ODB_LW[7]	0		positive z-value = gripper up (Get OD side B)
143	259	FG_Z_ODP_LW[7]	0		positive z-value = gripper up (Put OD side B)
144	260	FZ_Unload[7]	N		Y = gripper presses unload button (Get), N = gripper does not press the unload button

Pos.	Line	Parameter	Default	Actual	Information
Software limits (depending on your system)					
145	264	G_X_MAXLIMIT	290000		Depends on the length of the system. Handling at the end of the system (I/O unit) must be possible. You get this value with the test program on the PHG. value = x-axis + h-axis
146	265	G_X_MINLIMIT	25000		minimal x-coordinate of AMU
147	266	G_Z_MAXLIMIT	142000		maximal z-coordinate of AMU G_Z_MAXLIMIT = V_max + Z_max „MPRHO3.BIN“ P204 3. axis (v), 6. axis (z)
148	267	G_Z_MINLIMIT	-4500	-4500	minimal z-coordinate of AMU
149	268	G_H_SAVEELBO	100		Maximal h-coordinate for a secure arm change. You get this value with the test program on the PHG: media in gripper, arm in straight position, drive to the first obstacle (eg the I/O unit).
Speed and Acceleration					
150	272	D_V_HANDL	250.0		Slow speed for linear interpolation (during handling): min. 10 / max. 250
Diagnosis					
151	276	G_PHGECHO	1		0 = PHG not connected, normal working conditions, 1 = PHG necessary, tests possible, 2 = PHG connected, only test mode, stand-alone 3 = PHG connected, only test mode, stand-alone without gripper
Gripper offset (☞ gripper data sheet)					
152	280	G_Y_BC	0		y-offset Scanner
153	282	G_X_TEACH	0		x-offset Teach
154	283	G_Y_TEACH	0		y-offset Teach
155	284	G_Z_TEACH	0		z-offset Teach
156	286	G_X_OFFSET	0		gripper offset x-coordinate (in 1/100 mm)
157	287	G_Y_OFFSET	0		gripper offset y-coordinate (in 1/100 mm)
158	288	G_Z_OFFSET	0		gripper offset z-coordinate (in 1/100 mm)

Pos.	Line	Parameter	Default	Actual	Information
159	292	G_PARALLEL	1		Grippertype: 0 = for small medias (401 004 930) 1 = for large medias (401 004 920) 2 = Universal Gripper (401 002 235)
160	293	G_BCErrIgn	1		Reaction on barcode-reading error. 0 = cancel on error 1 = ignore error and continue
161	295	G_Z_BCOff_V	0		Vertical offset (difference between label for side A and side B) for the barodelabel on optical disks
162	296	G_WarnAus	0		Messages from type „Warning“ will not displayed in AMU-log when G_WarnAus = 1
Timeout					
163	300	D_TIME1	140	140	time-out Quadro tower (in sec)
164	301	D_TIME2	140		time-out I/O unit (in sec) 10 = I/O unit/B
165	302	D_WARTE_KEEP	60		time-out Keep from drive
166	306	D_Z_TO_V	0.27164		Relation between z- and v-axis. Enter all values in mm and with 5 digits after the point. Formulas: max. z-axis = Z_max („MPRH3.BIN“ P204, 3. axis) max. v-axis = V_max („MPRHO3.BIN“ P204, 6. axis) $D_Z_TO_V = \frac{Z_max - 12}{(Z_max - 12) + V_max}$ for D2 medium handling: $D_Z_TO_V = \frac{Z_max - 30}{(Z_max - 30) + V_max}$
167	307	D_Y_Elb	0		only for scanner gripper: positive y-coordinate (in mm) in world coordinates for drive gripper with medium use for touchless movement on track (eg tower covering) 0 = normal processing
Coordinates (in mm) for special handling of drives on the start of track (only scanner gripper)					
168	308	D_X_Col	0		x-coordinate for begin handling area (only for special handling in the back area)
169	309	D_Y_Col	0		y-coordinate handling area (only for special handling in the back area)

Pos.	Line	Parameter	Default	Actual	Information
170	311	G_UMSCHLAG	1		Definition of the robot arm for front handling: 0 = arm not defined 1 = left arm 2 = right arm
171	312	G_FIRSTOWER	1		Number of first connected Quadro tower
Additional offset value for PUT (positive y-value (1/100mm) = gripper left)					
172	316	FG_Y_PRaOff[1]	0		media 1 on rack
173	317	FG_Y_PIEOff[1]	0		media 1 on I/O unit
174	318	FG_Y_PRaOff[2]	0		media 2 on rack
175	319	FG_Y_PIEOff[2]	0		media 2 on I/O unit
176	320	FG_Y_PRaOff[3]	0		media 3 on rack
177	321	FG_Y_PIEOff[3]	0		media 3 on I/O unit
178	322	FG_Y_PRaOff[4]	0		media 4 on rack
179	323	FG_Y_PIEOff[4]	0		media 4 on I/O unit
180	324	FG_Y_PRaOff[5]	0		media 5 on rack
181	325	FG_Y_PIEOff[5]	0		media 5 on I/O unit
182	329		0	0	reserve
183	330		0	0	reserve
184	331		0	0	reserve
185	332		0	0	reserve
186	333		0	0	reserve
Check sum					
187	337	G_SUMME	187	187	number of positions in this file

3 Parameter Files for Handling

3.1 PLW34907.DAT , PLW34909.DAT

Correction values for drives, defined at pos. 82 - 88 in KONFIG.DAT with D7 0r D9.

IBM 3490, Siemens 3590

Customer: _____

Installed: _____

Changes: _____

Line	Parameter	Default	Actual	Description
9	Unload allowed ?	0		1 = the command to the robot for press drive buttons will canceled 0 = the command Unload will executed by the robot
10	D_X_ULU	0.0		X-offset for press the unload button [mm]. Positive x-value = gripper forward
11	D_Y_ULU	0.0		Y-offset for press the unload button [mm]. Positive y-value = gripper left
12	D_Z_ULU	0.0		Z-offset for press the unload button [mm]. Positive z-value = gripper up
13	D_X_ULU_GET	0.0		X-offset for the keep after an unload from the feed-position[mm]. Positive x-value = gripper forward
14	D_Y_ULU_GET	0.0		Y-offset for the keep after an unload from the feed-position [mm]. Positive y-value = gripper left
15	D_Z_ULU_GET	0.0		Z-offset for the keep after an unload from the feed-position [mm]. Positive z-value = gripper up
16	D_X_Touch_GET	0.0		X- offset for the search before the keep of the cartridge, independent from the GET position [mm]
17	D_Z_Touch_GET	0.0		positive or negative z-offset for the last search before the end of the keep wait time [mm] 0 = no other position for search
18	D_Z_Touch_GET2	0.0		positive or negative z-offset for the GET after a crash on the drive [mm] 0 = no other position for GET
19	D_Z_OFFSET	0,0		Z-offset for endpos after GET [mm] set to -50 if you use the device keeper

3.2 PLWDAT?.DAT

Correction values for drives, defined at pos. 82 - 88 in KONFIG.DAT

Customer: _____
 Installed: _____
 Changes: _____

Line	Parameter	Actual	Explanation
9	D_X_PUT_2		
Operating first unload button (not ready) Automated button operating during Get will be defined in KONFIG.DAT			
11	D_X_EJECT1		X-offset for press the 1st unload button [mm]. 20 mm in front of the button Positive x-value = gripper forward
12	D_Y_EJECT1		Y-offset for press the 1st unload button [mm]. Positive y-value = gripper left
13	D_Z_EJECT1		Z-offset for press the 1st unload button [mm]. Positive z-value = gripper up
Operating second unload button			
15	G_Send_Btn		allow Unload Command with 2 press buttons 0 = only one unload button 1 = two unload buttons
16	D_X_EJECT2		X-offset for press the 2nd unload button [mm]. 20 mm in front of the button Positive x-value = gripper forward
17	D_Y_EJECT2		Y-offset for press the 2nd unload button [mm]. Positive y-value = gripper left
18	D_Z_EJECT2		Z-offset for press the 2nd unload button [mm]. Positive z-value = gripper up
Operating a flap of a drive			
20	G_CL_U		allowed automatic close flap with the Put command 0 = no flap operating 1 = flap operating
21	D_X_CL_1		X-offset for gripper move to flap nut (start position)
22	D_Z_CL_1		Z-offset for gripper move to flap nut
23	D_Z_CL_2		distance for move in Z-axis for flap closing

Line	Parameter	Actual	Explanation
24	D_X_CL_2		X-offset for check the closed flap
25	D_Z_CL_3		Z-offset for check the closed flap
Put operating rack or shelf after a Get on the drive			
27	D_X_PUT_Ra		Reduced move in X-axis during Put after a get on the drive use for small medias which not complete in the gripper during the get
Put operating			
29	D_X_PUT_1		X-offset for the Put of the media in the drive
30	D_Z_PUT_1		Z-offset for the Put of the media in the drive
31	D_Vel_FctP1		Factor for speed for the first movement in the Put command
32	D_Op_Fct		Position for opening the gripper during the put (relative position during the first movement) (0 - 1)
33	D_X_PUT_Ba		X- offset for moving back for pushing with closed gripper 0 = no pushing
34	D_Z_PUT_Ba		Z- offset for moving back for pushing with closed gripper
35	G_Close		Command for close the gripper for Pushing 0 = pushing with open gripper 1 0 pushing with closed gripper
36	G_Bgl		Reserve
37	D_Vel_FctP2		Factor for speed during the media pushing in the drive (0.1 - 1.0)
38	D_Wait_Push		Wait time after the pushing [sec], before the gripper go back to the start position
40	D_X_GET_1		X-offset for first movement during Get (Position for media recognition)
41	D_Z_GET_1		Z-offset for first movement during Get (Position for media recognition)
42	D_Vel_FctG1		Factor for speed during the first Get handling
43	D_Wait_Get		Wait time between media recognition and gripper closing
44	D_X_GET_2		X-offset for 2nd movement during Get
45	D_Z_GET_2		Z-offset for 2nd movement during Get
46	D_X_GET_3		X-offset for 3rd movement during Get
47	D_Z_GET_3		Z-offset for 3rd movement during Get

Line	Parameter	Actual	Explanation
49	G_Detect		Media recognition on the drive 0 = pusher with slightly pressure 1 = pusher without pressure
50	G_GRP_DIS		gripper position during handling the unload button 0 = pusher with slightly pressure gripper 0° 1 = pusher with full pressure gripper 0° 2 = pusher without pressure gripper 7° 3 = pusher without pressure gripper 0°
51	G_OpenGet		Distance between the gripper jaws during GET on the drive (especially for drives unloading the cartridge hanging down) Values: 0 = default gripper open (depended from media) 1 = smallest gripper gap 2 = medium gripper gap 3 = maximum gripper gap
52	D_Beschl		factor for acceleration during gripper handling on the drive (for slow and soft handling) values: 0.1 - 1.0 (1 = default and high acceleration)
Startposition for Handling on drive (global move in the main program)			
53	INIT		Must not be changed
54	X		x-coordinate
55	Y		y-coordinate
56	Z		z-coordinate
57	K		gripper tilt angle
58	W		drive angle to the covering

4 Parameters of the Robot Amplifier

Customer: _____ Installed: _____
 _____ Changes: _____

Parameters of the Robot Amplifier (10 MHz) MOOG

Parameter	Com.	Axis 1	R 1	R 2	Axis 2	R 1	R 2
Drive Initialization							
RHO Sample Period	ms	20			20		
Controller Type		T161 212			T161 211		
Motor ID	M	D313 L15			D313 L05		
KT	Nm/A	0.4			0.31		
No Motor Poles		8			8		
Current Limit	A	15			6,5		
max. Speed	RPM						
Parameter							
Velocity Loop Gain	Nm/ (Rad/s)	SP	0.07		0.02		
Integral Time Const.	s	SI	0.015		0.015		
Position Loop Gain	(Rad/s)/ Rad	SG	17		17		
2nd Ord. Filter Frequency	Hz	SW	250		250		
2nd Filter Damping		SZ	0.7		0.7		
Acceleration	Rad/s ²	SA	300000		300000		
Maximum Speeds		SL					
Automatic Mode Max.	RPM		4520	3450	4600		
Manual Mode Max.	RPM		4520	3450	4600		
Emerg. Braking Speed	RPM		1		1		
Torque Limit		ST					
Automatic Torque Limit	Nm		2,5		1,6		
Manual Torque Limit	Nm		0,5		0,3		
Emergency Torque Limit	Nm		2,5		1,6		
Emergency Deceleration	Rad/s ²	SE	2000	2094	3141		
Posn. Scaling	Rev/10V	SR	1		1		
Vel. Scaling	RPM/10V	SN	10000		10000		
Options							
CAN Direrction of Rotation	OD		Plus		Minus		
Home Position Offset	OO		0		0		
CAN Position Scaling	OR		16384		16384		
Information							
You cannot enter any of the following factors!							
Gear factor			131	100	100		
Transmission	mm/Rev, °/Rev		2,75	3,6	3,6		
File name on diskette		A1G131. PRS	A1G100. PRS		A2G100.PRS		

Parameters of the Robot Amplifier 16 MHz (BOSCH)

Parameter	Com.	Axis 1	R 1	R 2	Axis 2	R 1	R 2
Software Version	LV	B80860-001			B80860-001		
User Version	C	1			2		
Controller Type		SM 4,7/20-GC			SM 3,5/8-GC		
Motor ID	ms	SM	sg-ax1.016.060		sg-ax1.006.072		
Following Error	SF	400			400		
Static Loop Error	SS	Disabled (1023)			Disabled (1023)		
Signal on Tp10	OTA	3			3		
Signal on Tp3	OTB	0			0		
Input Offset	OI	(0.0)			(0.0)		
Can Position Scaling	OR	Revs/16384			Revs/16384		
Actual Pos. Offset	OO	(0.0)			(0.0)		
Pos. Compensator Type	OC	Non-Decimated			Non-Decimated		
Vel. Compensator Type	OC	2nd ord. filter			2nd ord. filter		
Reference Source	OR	CAN			CAN		
Can Direction Flg	OD	Plus			Minus		
No Motor Poles	SM	8			8		
Calc. Factor Kr	SM	3.419E-1			2.620E-1		
Motor Current Limit	SM	1.498E 1			6.480E 0		
Peak Torque							
Velocity Scaling	SN	1.000E 4			1.000E 4		
Position Scaling	SR	1.000E 0			1.000E 0		
Velocity Loop Gain	SP	6.999E-2			1.999E-2		
Ti	s	SI	1.440E-2		1.440E-2		
Position Loop Gain	SG	1.690E 1			1.690E 1		
Torque Filter Freq.	Hz	SW	2.499E 2		2.499E 2		
Torque Filter Zeta	SZ	7.000E-1			7.000E-1		
Emergency Deceleration	SE	1.983E 3 2.080E 3			3.136E 3		
Auto. Current Limit	A	ST	7.095E 0		5.852E 0		
Man. Current Limit	A	ST	1.387E 0		1.083E 0		
Emer. Current Limit	A	ST	7.095E 0		5.852E 0		
Auto. Mode Max RPM	RPM	SL	4.519E 3 3.450E 3		4.599E 3		
Man. Mode Max RPM	RPM	SL	4.519E 3 3.450E 3		4.599E 3		
Emer.Braking Speed	RPM	SL	1.000E 0		1.000E 0		
R2ph	SM	4.4950E 0			1.3900E 1		
L2ph	SM						
Maximum Motor RPM	LM	8.000E 3			1.050E 4		
Motor Rated RPM	LM	4.900E 3			4.900E 3		
Comm. Cycle Period	ms	SC	1.999E-2		1.999E-2		
Pos'n Limit Switches	OL						
CClkwise Limit Pos'n	OL	99999999			99999999		
Clkwise Limit Pos'n	OL	99999999			99999999		
Thermal Protection	OW	Disabled			Disabled		
Gear factor		131	100		100		
Transmission	°/RPM	2,75	3,6		3,6		
MCO Jumper		L2-L3			L1-L2		
File Name on Diskette		BA1G131. PRS	BA1G100. PRS		BA2G100.PRS		

Parameters of the Robot Amplifier (10 MHz) MOOG

Parameter	Com.	Axis 3	R 1	R 2	Axis 4	R 1	R 2
Drive Initialization							
RHO Sample Period	ms	20			20		
Controller Type		T161 211			T161 211		
Motor ID	M	D312 L05			D312 L05		
KT	Nm/A	0.26			0.26		
No Motor Poles		8			8		
Current Limit	A	2.6			2.6		
max. Speed	RPM						
Parameter							
Velocity Loop Gain	Nm/ (Rad/s)	SP	0.006		0.0055		
Integral Time Const.	s	SI	0.02		0.02		
Position Loop Gain	(Rad/s) / Rad	SG	17		17		
2nd Ord. Filter Frequency	Hz	SW	250		250		
2nd Filter Damping		SZ	0.7		0.7		
Acceleration	Rad/s ²	SA	300000		300000		
Maximum Speeds		SL					
Automatic Mode Max.	RPM		8050		4059		
Manual Mode Max.	RPM		1725		846		
Emerg. Braking Speed	RPM		100		1		
Torque Limit		ST					
Automatic Torque Limit	Nm		0.585		0.585		
Manual Torque Limit	Nm		0,15		0.1		
Emergency Torque Limit	Nm		0,585		0,585		
Emergency Deceleration	Rad/s ²	SE	10470		286		
Posn. Scaling	Rev/10V	SR	1		1		
Vel. Scaling	RPM/10V	SN	10000		10000		
Options							
CAN Direrction of Rotation		OD	Plus		Plus		
Home Position Offset		OO	0		0		
CAN Position Scaling		OR	8192		16384		
Information							
You cannot enter any of the following factors!							
Gear factor			60		29,41		
Transmission	mm/Rev, °/Rev		6		12,24		
File name on diskette			A3G60.PRS		A4G29.PRS		

Parameters of the Robot Amplifier 16 MHz (BOSCH)

Parameter	Com.	Axis 3	R 1	R 2	Axis 4	R 1	R 2
Software Version	LV	B80860-001			B80860-001		
User Version	C	3			4		
Controller Type		SM 3,5/8-GC			SM 3,5/8-GC		
Motor ID	ms	SM sg-x0.002.091			sg-x0.002.091		
Following Error	SF	400			400		
Static Loop Error	SS	Disabled (1023)			Disabled (1023)		
Signal on Tp10	OTA	3			3		
Signal on Tp3	OTB	0			0		
Input Offset	OI	(0.0)			(0.0)		
Can Position Scaling	OR	Revs/8192			Revs/16384		
Actual Pos. Offset	OO	(0.0)			(0.0)		
Pos. Compensator Type	OC	Non-Decimated			Non-Decimated		
Vel. Compensator Type	OC	2nd ord. filter			2nd ord. filter		
Reference Source	OR	CAN			CAN		
Can Direction Flg	OD	Plus			Plus		
No Motor Poles	SM	8			8		
Calc. Factor Kr	SM	2.520E-1			2.520E-1		
Motor Current Limit	SM	2.600E 0			2.600E 0		
Peak Torque							
Velocity Scaling	SN	1.000E 4			1.000E 4		
Position Scaling	SR	1.000E 0			1.000E 0		
Velocity Loop Gain	SP	5.999E-3			5.499E-3		
Ti	s	SI	1.980E-2		1.980E-2		
Position Loop Gain	SG	1.690E 1			1.690E 1		
Torque Filter Freq.	Hz	SW	2.499E 2		2.499E 2		
Torque Filter Zeta		SZ	7.000E-1		7.000E-1		
Emergency Deceleration		SE	1.046E 4		2.560E 2		
Auto. Current Limit	A	ST	2.600E 0		2.600E 0		
Man. Current Limit	A	ST	3.939E-1		3.939E-1		
Emer. Current Limit	A	ST	2.600E 0		2.600E 0		
Auto. Mode Max RPM	RPM	SL	8.050E 3		4.059E 3		
Man. Mode Max RPM	RPM	SL	1.725E 3		8.460E 2		
Emer.Braking Speed	RPM	SL	1.000E 2		1.000E 0		
R2ph		SM	5.039E 1		5.039E 1		
L2ph		SM					
Maximum Motor RPM		LM	1.199E 4		1.199E 4		
Motor Rated RPM		LM					
Comm. Cycle Period	ms	SC	1.999E-2		1.999E-2		
Pos'n Limit Switches		OL					
CCLKwise Limit Pos'n		OL	99999999		99999999		
CLKwise Limit Pos'n		OL	99999999		99999999		
Thermal Protection		OW	Disabled		Disabled		
Gear factor			60		29,41		
Transmission	°/RPM		6		12.24		
MCO Jumper			L1-L2		L1-L2		
File name on diskette			BA3G60.PRS		BA4G29.PRS		

Parameter of the Robot Amplifier (10 MHz) MOOG

Parameter	Com.	Axis 5	R 1	R 2	Axis 6	R 1	R 2
Drive Initialization							
RHO Sample Period	ms	20			20		
Controller Type		T161 213			T161 213		
Motor ID	M	D315 L10			D314 L20		
KT	Nm/A	0.59			0.62		
No Motor Poles		12			12		
Current Limit	A	25			306		
max. Speed	RPM	5800					
Parameter							
Velocity Loop Gain	Nm/ (Rad/s)	SP	0.2		0.15		
Integral Time Const.	s	SI	0.1		0.015		
Position Loop Gain	(Rad/s) / Rad	SG	17		17		
2nd Ord. Filter Frequency	Hz	SW	250		250		
2nd Filter Damping		SZ	0.7		0.7		
Acceleration	Rad/s ²	SA	300000		300000		
Maximum Speeds		SL					
Automatic Mode Max.	RPM		3763		3191		
Manual Mode Max.	RPM		251		319		
Emerg. Braking Speed	RPM		1		100		
Torque Limit		ST					
Automatic Torque Limit	Nm		11.25		16.1		
Manual Torque Limit	Nm		2		6.5		
Emergency Torque Limit	Nm		11.25		16.1		
Emergency Deceleration	Rad/s ²	SE	459		1164		
Posn. Scaling	Rev/10V	SR	1		1		
Vel. Scaling	RPM/10V	SN	10000		10000		
Options							
CAN Direrction of Rotation		OD	Minus		Minus		
Home Position Offset		OO	0		0		
CAN Position Scaling		OR	16384		16384		
Information							
You cannot enter any of the following factors!							
Gear factor			8		9,25		
Transmission	mm/Rev, °/Rev		27,5		21,6		
File name on diskette			A5G8.PRS		A6G9.PRS		

Parameter of the Robot Amplifier 16 MHz (BOSCH)

Parameter	Com.	Axis 5	R 1	R 2	Axis 6	R 1	R 2
Software Version	LV	B80860-002			B80860-001		
User Version	C	5			6		
Controller Type		SM 6,5/30-GC16			SM 3,5/8-GC		
Motor ID	ms	SM	sg-a3.055.049		sg-x0.002.091		
Following Error	SF	Disabled			Disabled		
Static Loop Error	SS	Disabled (1023)			Disabled (1023)		
Signal on Tp10	OTA	3			3		
Signal on Tp3	OTB	1			1		
Input Offset	OI	(0.0)			(0.0)		
Can Position Scaling	OR	Revs/16384			Revs/16384		
Actual Pos. Offset	OO	(0.0)			(0.0)		
Pos. Compensator Type	OC	Non-Decimated			Non-Decimated		
Vel. Compensator Type	OC	2nd ord. filter			2nd ord. filter		
Reference Source	OR	CAN			CAN		
Can Direction Flg	OD	Minus			Minus		
No Motor Poles	SM	12			12		
Calc. Factor Kr	SM	4.500E-1			5.360E-1		
Motor Current Limit	SM	2.996E 1			2.996E 1		
Peak Torque		1.350E 1			1.610E 1		
Velocity Scaling	SN	1.000E 4			1.000E 4		
Position Scaling	SR	1.000E 0			1.000E 0		
Velocity Loop Gain	SP	1.999E-2			1.499E-1		
Ti	s	SI	1.000E-1		1.440E-2		
Position Loop Gain	SG	1.690E 1			1.690E 1		
Torque Filter Freq.	Hz	SW	2.499E 2		2.499E 2		
Torque Filter Zeta		SZ	7.000E-1		7.000E-1		
Emergency Deceleration		SE	4.480E 2		1.151E 3		
Auto. Current Limit	A	ST	2.736E 1		2.975E 1		
Man. Current Limit	A	ST	4.891E 0		1.198E 1		
Emer. Current Limit	A	ST	2.736E 1		2.975E 1		
Auto. Mode Max RPM	RPM	SL	3.762E 3		3.190E 3		
Man. Mode Max RPM	RPM	SL	2.509E 2		3.189E 2		
Emer.Braking Speed	RPM	SL	6.000E 1		1.000E 2		
R2ph		SM	8.549E-1		5.023E 0		
L2ph		SM	4.105E 0		5.500E 0		
Maximum Motor RPM		LM	1.199E 4		3.799E 3		
Motor Rated RPM		LM	4.900E 3		4.900E 3		
Comm. Cycle Period	ms	SC	6.000E 3		1.999E-2		
Pos'n Limit Switches		OL	Diabled		Diabled		
CClkwise Limit Pos'n		OL	99999999		99999999		
Clkwise Limit Pos'n		OL	99999999		99999999		
Thermal Protection		OW	Diabled		Diabled		
Gear factor			8		9,25		
Transmission	°/RPM		27,56		21,6		
MCO Jumper			L2-L3		L1-L2		
File name on diskette			BA5G8.PRS		BA6G9.PRS		

5 Machine Parameters RHO3 (robot)

AML/2 robot for the operating system from TO02F/TO03G/TO05L)

Customer: _____
 Robot-Nr.: _____
 Installed: _____
 Changes: _____

Parameter	Description	Default	Robot 1	Robot 2
P000	GENERAL SYSTEM PARAMETERS			
P010	SELECT LANGUAGE German (0), English (1)	0		
P013	Timer PIC 250 T2	1000	3000	3000
P100	S P E E D S			
P109	1. red. ref. pkt speed in °/s or mm/s			
	A_1	4.8	4.8	4.8
	A_2	6.4	6.4	6.4
	A_3	10.0	10.0	10.0
	A_4	20.1	20.1	20.1
	A_5	50.0	50.0	50.0
	A_6	50.0	50.0	50.0
P110	2. red. ref. pkt speed in °/s or mm/s			
	A_1	0.97	0.97	0.97
	A_2	1.28	1.28	1.28
	A_3	2.0	2.0	2.0
	A_4	2.0	2.0	2.0
	A_5	10.0	10.0	10.0
	A_6	10.0	10.0	10.0
P200	P O S I T I O N S			
P202	SOFTWARE LIMIT SWITCH POSITIVE WC in ° or mm			
	X_K	800.10	800.10	800.10
	Y_K	800.10	800.10	800.10
	Z_K	410.00	410.00	410.00
	C_K	125.10	125.10	125.10
	H_K	99999.90		
	V_K	9999.99		

Parameter	Description	Default	Robot 1	Robot 2
P203	SOFTWARE LIMIT SWITCH NEGATIVE WC in ° or mm			
	X_K	-550.0	-550.0	-550.0
	Y_K	-800.10	-800.10	-800.10
	Z_K	-0.10	-0.10	-0.10
	C_K	-125.10	-125.10	-125.10
	H_K	-99999.9		
	V_K	-9999.99		
P204	SOFTWARE LIMIT SWITCH POSITIVE JC in ° or mm			
	A_1	120.10	120.10	120.10
	A_2	150.10	150.10	150.10
	A_3	410.00	410.00	410.00
	A_4	125.10	125.10	125.10
	A_5	99999.90		
	A_6	9999.99		
P205	SOFTWARE LIMIT SWITCH NEGATIVE JC in ° or mm			
	A_1	-120.10	-120.10	-120.10
	A_2	-150.10	-150.10	-150.10
	A_3	-0.10	-0.10	-0.10
	A_4	-125.10	-125.10	-125.10
	A_5	-99999.90		
	A_6	-9999.99		
P207	REFERENCE POINT POSITION in ° or mm			
	A_1	0.00		
	A_2	0.00		
	A_3	395.00		
	A_4	0.00		
	A_5	0.00		
	A_6	0.00		
P208	REFERENCE POINT OFFSET in ° or mm			
	A_1	0.00	0.00	0.00
	A_2	0.00	0.00	0.00
	A_3	0.00	0.00	0.00
	A_4	0.00	0.00	0.00
	A_5	0.00		
	A_6	0.00	0.00	0.00
P300	K I N . - S U B J . S Y S T E M - P A R A M E T E R S			

Parameter	Description	Default	Robot 1	Robot 2
P307	LENGTH OF AXIS in mm, DEVIATION OF ANGLES in mm/100 mm			
	axis length 1	430.00		
	axis length 2	370.00		
	axis length 3	215.00	215.00	215.00
	axis length 4	10000.00	10000.00	10000.00
	axis length 5	0.00	0.00	0.00
P310	OFFSET OF WORLD COORDINATE SYSTEM in mm			
	X_0	0.00		
	Y_0	0.00		
	Z_0	0.00	0.00	0.00
	01_0	0.00		
	02_0	0.00	0.00	0.00
	03_0	0.00	0.00	0.00
P400	MEASURING SYSTEM PARAMETERS			
P401	CONSTRUCTION OF MEASURING SYSTEM BOARD			
	ROBI_1			
	Axis1			
	MS-CONVERSION FACTOR (Gearfactor 131)	5961.96		
	MS-CONVERSION FACTOR (Gearfactor 100)	4551.11		
P402	REFERENCING DIRECTION -1 = negative 0 = no referencing +1 = positive			
	ROBI_1			
	A_1	1		
	A_2	1		
	A_3	1	1	1
	A_4	-1		
	A_5	-1	-1	-1
	A_6	-1	-1	-1

Communication Parameter Rho Control - Barcode Read System

MODE, 9, MODE, 1, MODE, 4 (Default settings read/write SER_2)

	Scanner (Default)	Vision (Rel. 1.7.2)	Vision (Rel. 1.5, 1.6)	Robot 1	Robot 2
Protocol	4	7	7		
Interface	1	1	1	1	1
Baudrate	9600	9600	9600	9600	9600
Stop-Bit number	1.0	1.0	2.0		
Parity (0, 1, 2)	2 (even)	2 (even)	0 (no)		
Wordlength	7	7	7	7	7
Soft_Hardw. hsk	1	1	1	1	1
Timeout read	5000	20000	20000		
Timeout write	5000	20000	20000		

Communication Parameter Rho Control - AMU

MODE, 9, MODE, 1, MODE, 3 (Default settings read/write SER_1)

	Default	Robot 1	Robot 2
Protocol	8	8	8
Interface	0	0	0
Baudrate	9600		
Stop-Bit number	1.0	1.0	1.0
Parity (0, 1, 2)	2 (even)	2 (even)	2 (even)
Wordlength	8	8	8
Soft_Hardw. hsk	1	1	1

6 Configuration File for Tower Control AML/2

KONFIG.DAT Version 2.2.0

Customer: _____

Tower Control-No.: _____

Installed: _____

Changes: _____

Pos	Line	Parameter	Default	1	2	3	Description
1	25	T_ADR_RHO	O02				Logical address of control unit from the AMU-configuration (e.g. O02).
2	26	T_ADR_AMU	A01	A01	A01	A01	Address AMU.
3	27	G_Adr_QT1	1				Number of 1st Quadro tower of this AMU (same number as at Graphical Configuration).
4	28	G_Adr_QT2	0				Number of 2nd Quadro tower of this AMU (same number as at Graphical Configuration). 0 = no 2nd Quadro tower
5	29	G_Adr_QT3	0				Number of 3rd Quadro tower of this AMU (same number as at Graphical Configuration). 0 = no 3rd Quadro tower
6 - 9		Reserve	0	0	0	0	
10	34	D_Vers_HT1	-55.000				Offset of the 1st main tower of the Quadro tower. Please use the test program for adjusting.
11	35	D_Vers_NT1	85.000				Offset of the 1st auxillary tower of the Quadro tower. Please use the test program for adjusting.
12	36	D_Vers_HT2	-55.000				Offset of the 2nd main tower of the Quadro tower. Please use the test program for adjusting.
13	37	D_Vers_NT2	85.000				Offset of the 2nd auxillary tower of the Quadro tower. Please use the test program for adjusting.
14	38	D_Vers_HT3	-55.000				Offset of the 3rd main tower of the Quadro tower. Please use the test program for adjusting.
15	39	D_Vers_NT3	85.000				Offset of the 3rd auxillary tower of the Quadro tower. Please use the test program for adjusting.
16	40	D_TIME1	180.0				Max. wait time for robot to access the turned tower.
17	41	D_TIME2	60.0	60.0	60.0	60.0	Max. wait time for robot to release the tower.
18	42	D_Speed	0.9	0.9	0.9	0.9	Max. speed of the Quadro tower.

Pos	Line	Parameter	Default	1	2	3	Description
19	43	G_Anz_Robo	1				Number of robots in the system (1 or 2)
20	44	G_PHG_Echo	1				0: PHG not connected, normal working conditions with AMU, test possible 1: PHG necessary, test possible, AMU necessary 2: Stand-alone test with PHG

7 Machine Parameter RHO3 (tower)

AML/2 tower for the operating system from TO02F/TO03G/TO05L

Customer: _____

Installed: _____

Changes: _____

Parameter	Description	Default	Control 1	Control 2	Control 3
P000	General System Parameters				
P001	Number of Kinematics	3			
P010	Select language German (0), English (1)	0			

Communication Parameter Rho Control - AMU

MODE, **9**, **MODE**, **1**, **MODE**, **3** (default settings read/write SER_1)

	Default	Control 1	Control 2	Control 3
Protocol	8	8	8	8
Interface	0	0	0	0
Baudrate	9600			
Stop-Bit number	1.0	1.0	1.0	1.0
Parity (0, 1, 2)	2 (even)	2 (even)	2 (even)	2 (even)
Wordlength	8	8	8	8
Soft_Hardw. hsk	1	1	1	1

8 Parameters of the Tower Amplifier

Customer: _____

Installed: _____

Changes: _____

Parameter of the Tower Amplifier (10 MHz) MOOG

Parameter		Com.	Main tower	1	2	3	Aux. tower	1	2	3
Drive Initialization										
RHO Sample Period	ms		20				20			
Controller Type			T161 213				T161 213			
Motor ID		M	D315 L10				D315 L10			
KT	Nm/A		0.59				0.59			
No Motor Poles			12				12			
Current Limit	A		25				25			
max. Speed	RPM		5800				5800			
Parameter										
Velocity Loop Gain	Nm/ (Rad/s)	SP	0.4				0.2			
Integral Time Const.	s	SI	0.025				0.025			
Position Loop Gain	(Rad/s) / Rad	SG	6				6			
2nd Ord. Filter Frequency	Hz	SW	250				250			
2nd Filter Damping		SZ	0.7				0.7			
Acceleration	Rad/s ²	SA	300000				300000			
Maximum Speeds		SL								
Automatic Mode Max.	RPM		4145				3915			
Manual Mode Max.	RPM		2303				2175			
Emerg. Braking Speed	RPM		1				1			
Torque Limit		ST								
Automatic Torque Limit	Nm		8				4			
Manual Torque Limit	Nm		4				2.3			
Emergency Torque Limit	Nm		8				4			
Emergency Deceleration	Rad/s ²	SE	2097				1981			
Posn. Scaling	Rev/10V	SR	1				1			
Vel. Scaling	RPM/ 10V	SN	10000				10000			
Options										
CAN Direrction of Rotation		OD	Minus				Minus			
Home Position Offset		OO	0				0			
CAN Position Scaling		OR	16384				16384			
Information										
You cannot enter any of the following factors!										
Gear factor			600,75				567.375			
Transmission	mm/Rev, °/Rev									
File name on diskette			HTURM.PRS				NTURM.PRS			

Parameter of the Tower Amplifier 16 MHz (BOSCH)

Parameter	Com	Main tower	1	2	3	Aux. tower	1	2	3
Software Version	LV	B80860-002				B80860-002			
User Version	C	1				2			
Controller Type		SM 6,5/30-GC16				SM 6,5/30-GC16			
Motor ID	SM	sg-a3.055.049				sg-a3.055.049			
Following Error	SF	Disabled				Disabled			
Static Loop Error	SS	Disabled				Disabled			
Signal on Tp10	OTA	3				3			
Signal on Tp3	OTB	1				1			
Input Offset	OI	(0.0)				(0.0)			
Can Position Scaling	OR	Revs/16384				Revs/16384			
Actual Pos. Offset	OO	(0.0)				(0.0)			
Pos. Compensator Type	OC	Non-Decimated				Non-Decimated			
Vel. Compensator Type	OC	2nd ord. filter				2nd ord. filter			
Reference Source	OR	CAN				CAN			
Can Direction Flg	OD	Minus				Minus			
No Motor Poles	SM	12				12			
Calc. Factor Kr	SM	4.500E-1				4.500E-1			
Motor Current Limit	SM	2.996E 1				2.996E 1			
Peak Torque		1.350E 1				1.350E 1			
Velocity Scaling	SN	1.000E 4				1.000E 4			
Position Scaling	SR	1.000E 0				1.000E 0			
Velocity Loop Gain	SP	3.999E-1				1.999E-1			
Ti	s	SI	2.500E-2			2.500E-2			
Position Loop Gain	SG	6.000E 0				6.000E 0			
Torque Filter Freq.	Hz	SW	2.499E 2			2.499E 2			
Torque Filter Zeta		SZ	7.000E-1			7.000E-1			
Emergency Deceleration		SE	2.080E 3			1.951E 3			
Auto. Current Limit	A	ST	1.766E 1			9.783E 1			
Man. Current Limit	A	ST	8.873E 0			5.579E 0			
Emer. Current Limit	A	ST	1.766E 1			9.783E 1			
Auto. Mode Max RPM	RPM	SL	4.144E 3			3.915E 3			
Man. Mode Max RPM	RPM	SL	2.302E 3			2.174E 3			
Emer.Braking Speed	RPM	SL	6.000E 1			6.000E 1			
R2ph		SM	8.699E-1			8.599E-1			
L2ph		SM	4.105E 0			4.105E 0			
Maximum Motor RPM		LM	6.000E 3			6.000E 3			
Motor Rated RPM		LM	4.900E 3			4.900E 3			
Comm. Cycle Period		SC	1.999E-2			1.999E-2			
Pos'n Limit Switches		OL	Disabled			Disabled			
CCLKwise Limit Pos'n		OL	99999999			99999999			
CLKwise Limit Pos'n		OL	99999999			99999999			
Thermal Protection		OW	Disabled			Disabled			
Gear factor / Tansmission			600.75			567.375			
MCO Jumper			L2-L3			L2-L3			
File name on diskette			BHTURM.PRS			BNTURM.PRS			

Parameter of the Tower Amplifier (10 MHz) MOOG

Parameter		com.	Main tower	4	5	6	Aux. tower	4	5	6
Drive Initialisation										
RHO Sample Period	ms		20				20			
Controller Type			T161 213				T161 213			
Motor ID		M	D315 L10				D315 L10			
KT	Nm/A		0.59				0.59			
No Motor Poles			12				12			
Current Limit	A		25				25			
max. Speed	RPM		5800				5800			
Parameter										
Velocity Loop Gain	Nm/ (Rad/s)	SP	0.4				0.2			
Integral Time Const.	s	SI	0.025				0.025			
Position Loop Gain	(Rad/s) / Rad	SG	6				6			
2nd Ord. Filter Frequency	Hz	SW	250				250			
2nd Filter Damping		SZ	0.7				0.7			
Acceleration	Rad/s ²	SA	300000				300000			
Maximum Speeds		SL								
Automatic Mode Max.	RPM		4145				3915			
Manual Mode Max.	RPM		2303				2175			
Emerg. Braking Speed	RPM		1				1			
Torque Limit		ST								
Automatic Torque Limit	Nm		8				4			
Manual Torque Limit	Nm		4				2.3			
Emergency Torque Limit	Nm		8				4			
Emergency Deceleration	Rad/s ²	SE	2097				1981			
Posn. Scaling	Rev/10V	SR	1				1			
Vel. Scaling	RPM/ 10V	SN	10000				10000			
Options										
CAN Direrction of Rotation		OD	Minus				Minus			
Home Position Offset		OO	0				0			
CAN Position Scaling		OR	16384				16384			
Information										
You cannot enter any of the following factors!										
Gear factor			600,75				567.375			
Transmission	mm/Rev, °/Rev									
File Name on Diskette			HTURM.PRS				NTURM.PRS			

Parameter of the Tower Amplifier 16 MHz (BOSCH)

Parameter	com.	Main tower	4	5	6	Aux. tower	4	5	6
Software Version	LV	B80860-002				B80860-002			
User Version	C	1				2			
Controller Type		SM 6,5/30-GC16				SM 6,5/30-GC16			
Motor ID	SM	sg-a3.055.049				sg-a3.055.049			
Following Error	SF	Disabled				Disabled			
Static Loop Error	SS	Disabled				Disabled			
Signal on Tp10	OTA	3				3			
Signal on Tp3	OTB	1				1			
Input Offset	OI	(0.0)				(0.0)			
Can Position Scaling	OR	Revs/16384				Revs/16384			
Actual Pos. Offset	OO	(0.0)				(0.0)			
Pos. Compensator Type	OC	Non-Decimated				Non-Decimated			
Vel. Compensator Type	OC	2nd ord. filter				2nd ord. filter			
Reference Source	OR	CAN				CAN			
Can Direction Flg	OD	Minus				Minus			
No Motor Poles	SM	12				12			
Calc. Factor Kr	SM	4.500E-1				4.500E-1			
Motor Current Limit	SM	2.996E 1				2.996E 1			
Peak Torque		1.350E 1				1.350E 1			
Velocity Scaling	SN	1.000E 4				1.000E 4			
Position Scaling	SR	1.000E 0				1.000E 0			
Velocity Loop Gain	SP	3.999E-1				1.999E-1			
Ti	s	SI	2.500E-2			2.500E-2			
Position Loop Gain		SG	6.000E 0			6.000E 0			
Torque Filter Freq.	Hz	SW	2.499E 2			2.499E 2			
Torque Filter Zeta		SZ	7.000E-1			7.000E-1			
Emergency Deceleration		SE	2.080E 3			1.951E 3			
Auto. Current Limit	A	ST	1.766E 1			9.783E 1			
Man. Current Limit	A	ST	8.873E 0			5.579E 0			
Emer. Current Limit	A	ST	1.766E 1			9.783E 1			
Auto. Mode Max RPM	RPM	SL	4.144E 3			3.915E 3			
Man. Mode Max RPM	RPM	SL	2.302E 3			2.174E 3			
Emer.Braking Speed	RPM	SL	6.000E 1			6.000E 1			
R2ph		SM	8.699E-1			8.599E-1			
L2ph		SM	4.105E 0			4.105E 0			
Maximum Motor RPM		LM	6.000E 3			6.000E 3			
Motor Rated RPM		LM	4.900E 3			4.900E 3			
Comm. Cycle Period		SC	1.999E-2			1.999E-2			
Pos'n Limit Switches		OL	Disabled			Disabled			
CCLKwise Limit Pos'n		OL	99999999			99999999			
CLKwise Limit Pos'n		OL	99999999			99999999			
Thermal Protection		OW	Disabled			Disabled			
gear factor / tansmission			600.75			567.375			
MCO Jumper			L2-L3			L2-L3			
File Name on Diskette			BHTURM.PRS			BNTURM.PRS			

Parameter of the Tower Amplifier (10 MHz) MOOG

Parameter		Com.	Main tower	7	8	9	Aux. tower	7	8	9
Drive Initialization										
RHO Sample Period	ms		20				20			
Controller Type			T161 213				T161 213			
Motor ID		M	D315 L10				D315 L10			
KT	Nm/A		0.59				0.59			
No Motor Poles			12				12			
Current Limit	A		25				25			
max. Speed	RPM		5800				5800			
Parameter										
Velocity Loop Gain	Nm/ (Rad/s)	SP	0.4				0.2			
Integral Time Const.	s	SI	0.025				0.025			
Position Loop Gain	(Rad/s)/ Rad	SG	6				6			
2nd Ord. Filter Frequency	Hz	SW	250				250			
2nd Filter Damping		SZ	0.7				0.7			
Acceleration	Rad/s ²	SA	300000				300000			
Maximum Speeds		SL								
Automatic Mode Max.	RPM		4145				3915			
Manual Mode Max.	RPM		2303				2175			
Emerg. Braking Speed	RPM		1				1			
Torque Limit		ST								
Automatic Torque Limit	Nm		8				4			
Manual Torque Limit	Nm		4				2.3			
Emergency Torque Limit	Nm		8				4			
Emergency Deceleration	Rad/s ²	SE	2097				1981			
Posn. Scaling	Rev/10V	SR	1				1			
Vel. Scaling	RPM/ 10V	SN	10000				10000			
Options										
CAN Direrction of Rotation		OD	Minus				Minus			
Home Position Offset		OO	0				0			
CAN Position Scaling		OR	16384				16384			
Information										
You cannot enter any of the following factors!										
Gear factor			600,75				567.375			
Transmission	mm/Rev, °/Rev									
File Name on diskette			HTURM.PRS				NTURM.PRS			

Parameters of the Tower Amplifier 16 MHz (BOSCH)

Parameter	Com	Main tower	7	8	9	Aux. tower	7	8	9
Software Version	LV	B80860-002				B80860-002			
User Version	C	1				2			
Controller Type		SM 6,5/30-GC16				SM 6,5/30-GC16			
Motor ID	SM	sg-a3.055.049				sg-a3.055.049			
Following Error	SF	Disabled				Disabled			
Static Loop Error	SS	Disabled				Disabled			
Signal on Tp10	OTA	3				3			
Signal on Tp3	OTB	1				1			
Input Offset	OI	(0.0)				(0.0)			
Can Position Scaling	OR	Revs/16384				Revs/16384			
Actual Pos. Offset	OO	(0.0)				(0.0)			
Pos. Compensator Type	OC	Non-Decimated				Non-Decimated			
Vel. Compensator Type	OC	2nd ord. filter				2nd ord. filter			
Reference Source	OR	CAN				CAN			
Can Direction Flg	OD	Minus				Minus			
No Motor Poles	SM	12				12			
Calc. Factor Kr	SM	4.500E-1				4.500E-1			
Motor Current Limit	SM	2.996E 1				2.996E 1			
Peak Torque		1.350E 1				1.350E 1			
Velocity Scaling	SN	1.000E 4				1.000E 4			
Position Scaling	SR	1.000E 0				1.000E 0			
Velocity Loop Gain	SP	3.999E-1				1.999E-1			
Ti	s	SI	2.500E-2			2.500E-2			
Position Loop Gain	SG	6.000E 0				6.000E 0			
Torque Filter Freq.	Hz	SW	2.499E 2			2.499E 2			
Torque Filter Zeta		SZ	7.000E-1			7.000E-1			
Emergency Deceleration		SE	2.080E 3			1.951E 3			
Auto. Current Limit	A	ST	1.766E 1			9.783E 1			
Man. Current Limit	A	ST	8.873E 0			5.579E 0			
Emer. Current Limit	A	ST	1.766E 1			9.783E 1			
Auto. Mode Max RPM	RPM	SL	4.144E 3			3.915E 3			
Man. Mode Max RPM	RPM	SL	2.302E 3			2.174E 3			
Emer.Braking Speed	RPM	SL	6.000E 1			6.000E 1			
R2ph		SM	8.699E-1			8.599E-1			
L2ph		SM	4.105E 0			4.105E 0			
Maximum Motor RPM		LM	6.000E 3			6.000E 3			
Motor Rated RPM		LM	4.900E 3			4.900E 3			
Comm. Cycle Period		SC	1.999E-2			1.999E-2			
Pos'n Limit Switches		OL	Disabled			Disabled			
CCLkwise Limit Pos'n		OL	99999999			99999999			
Clkwise Limit Pos'n		OL	99999999			99999999			
Thermal Protection		OW	Disabled			Disabled			
Gear factor / Tansmission			600.75			567.375			
MCO Jumper			L2-L3			L2-L3			
File name on diskette			BHTURM.PRS			BNTURM.PRS			