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Street	Street
ZIP code / City	ZIP code / City
Phone.	Phone.
Fax	Fax
E-mail	E-mail

Project name	CDI_EN_1078978_PA-CONTROL_Steuer_LV-servoTEC_S2_102_105	Power supply	400 V AC / 3Ph / 50Hz
Drawing number	1078978	Input lead	5x2,5mm²
Type		Rated current	???A
	E.Grieshaber		3x16A gl
Creator	Andreas Meßmer	Control voltage	24 V
Created on	2008		
Version	V0.01		
Edit date	03.02.2009		
by (short name)	Messmer		
Number of pages	110		

Structure identifier overview

F24_001

Full designation	labeling	Structure description	Full designation	labeling	Structure description
=ALG	Anlage	General data			
=102	Anlage	LV servoTEC_S2_102			
=105	Anlage	LV servoTEC_S2_105			
+ALG	Einbauort	General project data			
+CC1	Einbauort	Switch cabinet 1			
+CP1	Einbauort	Operation panel			
+MW	Einbauort	General machine wiring			

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Page	Page description	supplementary page field	Date	Edited by	X
=ALG+ALG/1	Cover page		21.02.2008	Messmer	X
=ALG+ALG/2	Structure identifier overview		18.11.2008	Messmer	
=ALG+ALG/3	Table of contents : =ALG+ALG/1 - =102+CC1/27		18.11.2008	Messmer	
=ALG+ALG/3.a	Table of contents : =102+CC1/28 - =105+CC1/8		18.11.2008	Messmer	
=ALG+ALG/3.b	Table of contents : =105+CC1/9 - =105+CC1/41		18.11.2008	Messmer	
=ALG+ALG/3.c	Table of contents : =105+CC1/42 - =105+CC1/52		18.11.2008	Messmer	
=102+CC1/1	Power supply		14.11.2008	Messmer	
=102+CC1/2	PE-arrangement		14.11.2008	Messmer	
=102+CC1/3	Arrangement 400V		14.11.2008	Messmer	
=102+CC1/4	Service-outlet / 24V Power supply		14.11.2008	Messmer	
=102+CC1/5	Supply voltage LV servoTEC		14.11.2008	Messmer	
=102+CC1/6	Fuse protection 24V		14.11.2008	Messmer	
=102+CC1/7	Protective circuit Signal ON		14.11.2008	Messmer	
=102+CC1/8	Emergency stop chain		14.11.2008	Messmer	
=102+CC1/9	Safety module Emergency stop		14.11.2008	Messmer	
=102+CC1/10	Door cycle chain		14.11.2008	Messmer	
=102+CC1/11	Safety module protective door circuit chain		14.11.2008	Messmer	
=102+CC1/12	Safety module door protective circuit adjust mode button / acceptance button		14.11.2008	Messmer	
=102+CC1/13	PA-CONTROL Steuer Overview		14.11.2008	Messmer	X
=102+CC1/14	PA-CONTROL Steuer Power supply		14.11.2008	Messmer	X
=102+CC1/15	PA-CONTROL Steuer Supply I/O-board 1		14.11.2008	Messmer	X
=102+CC1/16	PA-CONTROL Steuer Panel / Diag		14.11.2008	Messmer	X
=102+CC1/17	PA-CONTROL Steuer CPU 4 / CAN bus		14.11.2008	Messmer	X
=102+CC1/18	Inputs overview I1-I16		14.11.2008	Messmer	X
=102+CC1/19	Outputs overview O1-O16		14.11.2008	Messmer	X
=102+CC1/20	PA-CONTROL I/O-board-1 I1-I8		14.11.2008	Messmer	
=102+CC1/21	PA-CONTROL I/O-board-1 I9-I16		14.11.2008	Messmer	
=102+CC1/22	PA-CONTROL I/O-board 1 O1-O8		14.11.2008	Messmer	
=102+CC1/23	PA-CONTROL I/O-board 1 O9-O16		14.11.2008	Messmer	
=102+CC1/24	Beckhoff BK5120 bus connection		14.11.2008	Messmer	
=102+CC1/25	Overview Beckhoff bus connection		14.11.2008	Messmer	X
=102+CC1/26	Inputs overview I1025-1052		14.11.2008	Messmer	X
=102+CC1/27	Inputs overview I1053-1056		14.11.2008	Messmer	X

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=102+CC1/31	Inputs connection I1032-1039		14.11.2008	Messmer	
=102+CC1/32	Inputs connection I1040-1047		14.11.2008	Messmer	
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=102+CC1/35	Outputs connection O1033-1040		14.11.2008	Messmer	
=102+CC1/36	Supply clamp		14.11.2008	Messmer	
=102+CC1/37	Outputs connection O1041-1048		14.11.2008	Messmer	
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=102+CC1/39	A1 LV servoTEC_S2_102 Overview		14.11.2008	Messmer	X
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=102+CC1/41	A1 LV servoTEC S2 Incremental encoder		14.11.2008	Messmer	
=102+CC1/42	A1 LV servoTEC S2 CAN / RS232		14.11.2008	Messmer	
=102+CC1/43	A1 LV servoTEC S2 Motor connection		14.11.2008	Messmer	
=102+CC1/44	A1 LV servoTEC S2 Axis limit switch		17.11.2008	Messmer	
=102+CC1/45	A2 LV servoTEC S2 IO-adapter		14.11.2008	Messmer	X
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=102+CC1/49	A2 LV servoTEC S2 CAN / RS232		14.11.2008	Messmer	
=102+CC1/50	A2 LV servoTEC S2 Motor connection		14.11.2008	Messmer	
=102+CC1/51	A2 LV servoTEC S2 Axis limit switch		17.11.2008	Messmer	
=102+CC1/52	Spare clamps		14.11.2008	Messmer	
=105+CC1/1	Power supply		14.11.2008	Messmer	
=105+CC1/2	PE-arrangement		14.11.2008	Messmer	
=105+CC1/3	Arrangement 400V		14.11.2008	Messmer	
=105+CC1/4	Service-outlet / 24V Power supply		14.11.2008	Messmer	
=105+CC1/5	Supply voltage LV servoTEC		14.11.2008	Messmer	
=105+CC1/6	Fuse protection 24V		14.11.2008	Messmer	
=105+CC1/7	Protective circuit Signal ON		14.11.2008	Messmer	
=105+CC1/8	Emergency stop chain		14.11.2008	Messmer	

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=105+CC1/9	Safety module Emergency stop		14.11.2008	Messmer	
=105+CC1/10	Door cycle chain		14.11.2008	Messmer	
=105+CC1/11	Safety module protective door circuit chain		14.11.2008	Messmer	
=105+CC1/12	Safety module door protective circuit adjust mode button / acceptance button		14.11.2008	Messmer	
=105+CC1/13	PA-CONTROL Steuer Overview		14.11.2008	Messmer	X
=105+CC1/14	PA-CONTROL Steuer Power supply		14.11.2008	Messmer	X
=105+CC1/15	PA-CONTROL Steuer Supply I/O-board 1		14.11.2008	Messmer	X
=105+CC1/16	PA-CONTROL Steuer Panel / Diag		14.11.2008	Messmer	X
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=105+CC1/18	Inputs overview I1-I16		14.11.2008	Messmer	X
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=105+CC1/21	PA-CONTROL I/O-board-1 I9-I16		14.11.2008	Messmer	
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=105+CC1/32	Inputs connection I1040-1047		14.11.2008	Messmer	
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=105+CC1/36	Supply clamp		14.11.2008	Messmer	
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=105+CC1/38	A1 LV servoTEC S2 IO-adapter		17.11.2008	Messmer	X
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=105+CC1/40	A1 LV servoTEC S2 Supply voltage		17.11.2008	Messmer	
=105+CC1/41	A1 LV servoTEC S2 Incremental encoder		14.11.2008	Messmer	

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=105+CC1/42	A1 LV servoTEC S2 CAN / RS232		14.11.2008	Messmer	
=105+CC1/43	A1 LV servoTEC S2 Motor connection		14.11.2008	Messmer	
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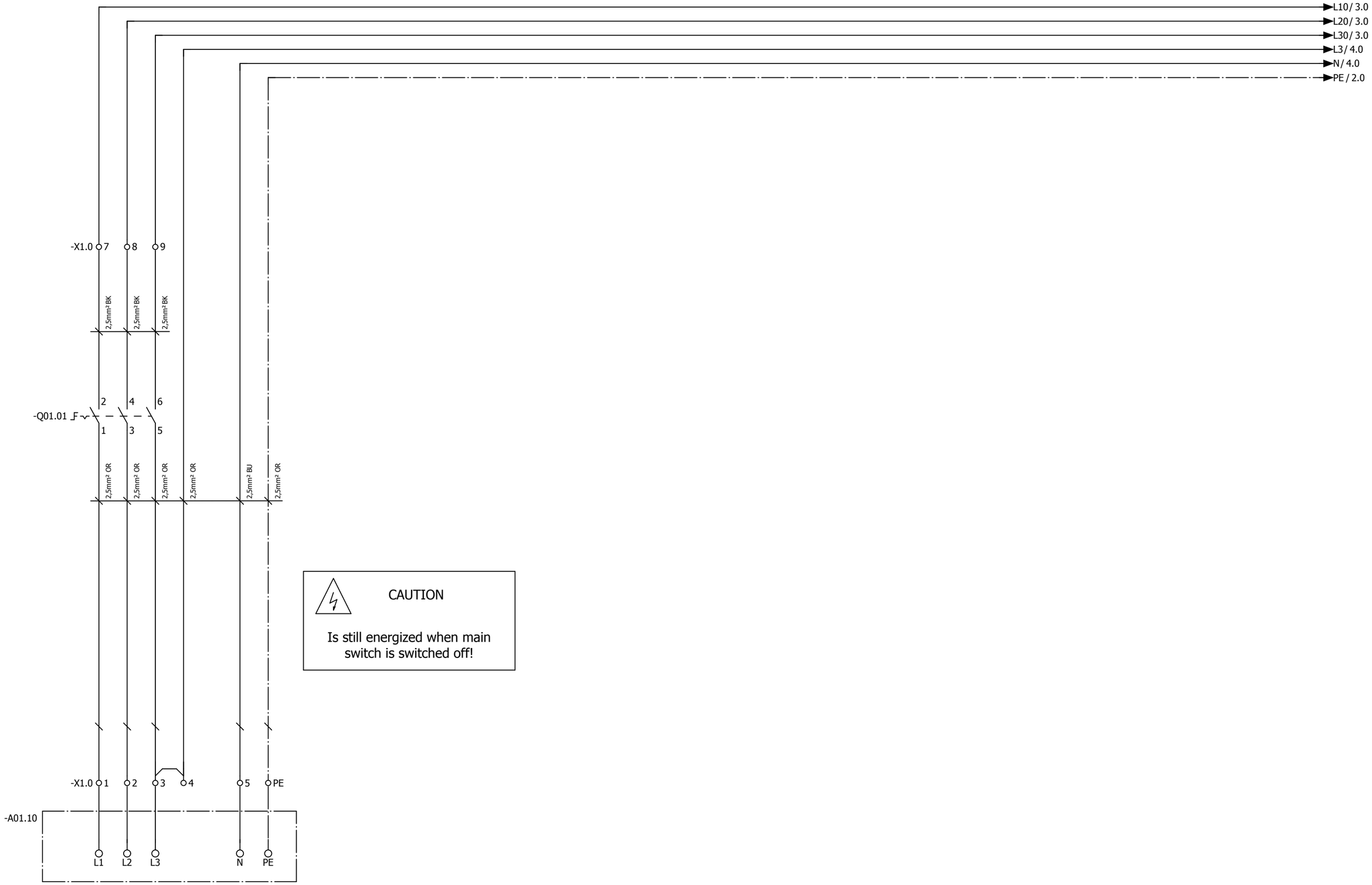

CAUTION

Is still energized when main switch is switched off!

			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		= 102	
			Ed. by	Messmer			+ CC1	
			Appr				1078978	Page 1
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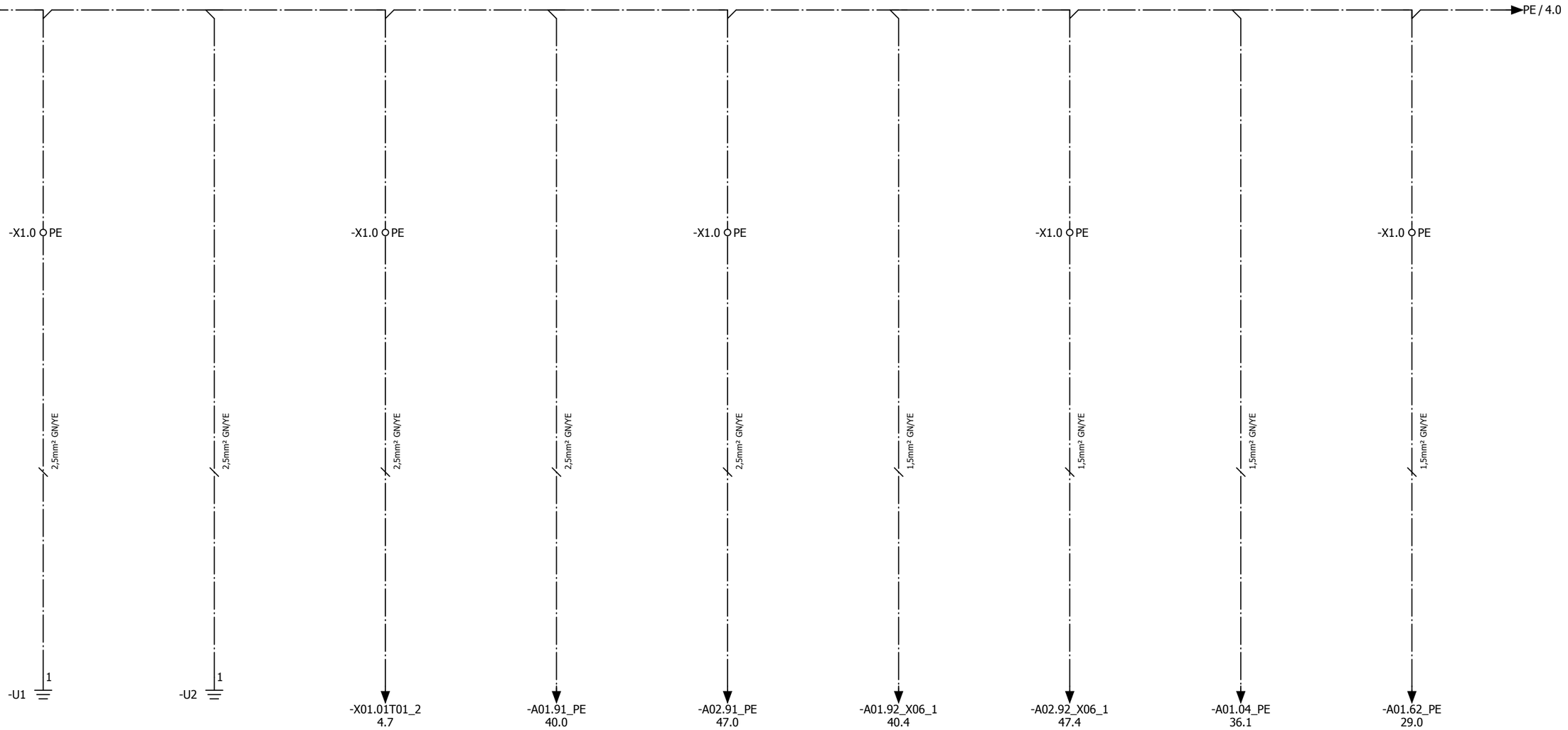
Power supply



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			Ed. by	Messmer		PE-arrangement	+ CC1	
			Appr				1078978	Page 2
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1.9 / -L10
1.9 / -L20
1.9 / -L30

L10 / 4.0
L20 / 4.0
L30 / 4.0

2,5mm² BK
2,5mm² BK
2,5mm² BK

-F03.91
C13A
1 3 5
2 4 6

-Q01.04K01
/9.7
1 3 5
2 4 6

-Q02.04K01
/9.7
1 3 5
2 4 6

5.0 / -L12
5.0 / -L22
5.0 / -L32

400V
Switch off after
emergency
stop situation time-delayed

			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX	Arrangement 400V	= 102	
			Ed. by	Messmer			+ CC1	
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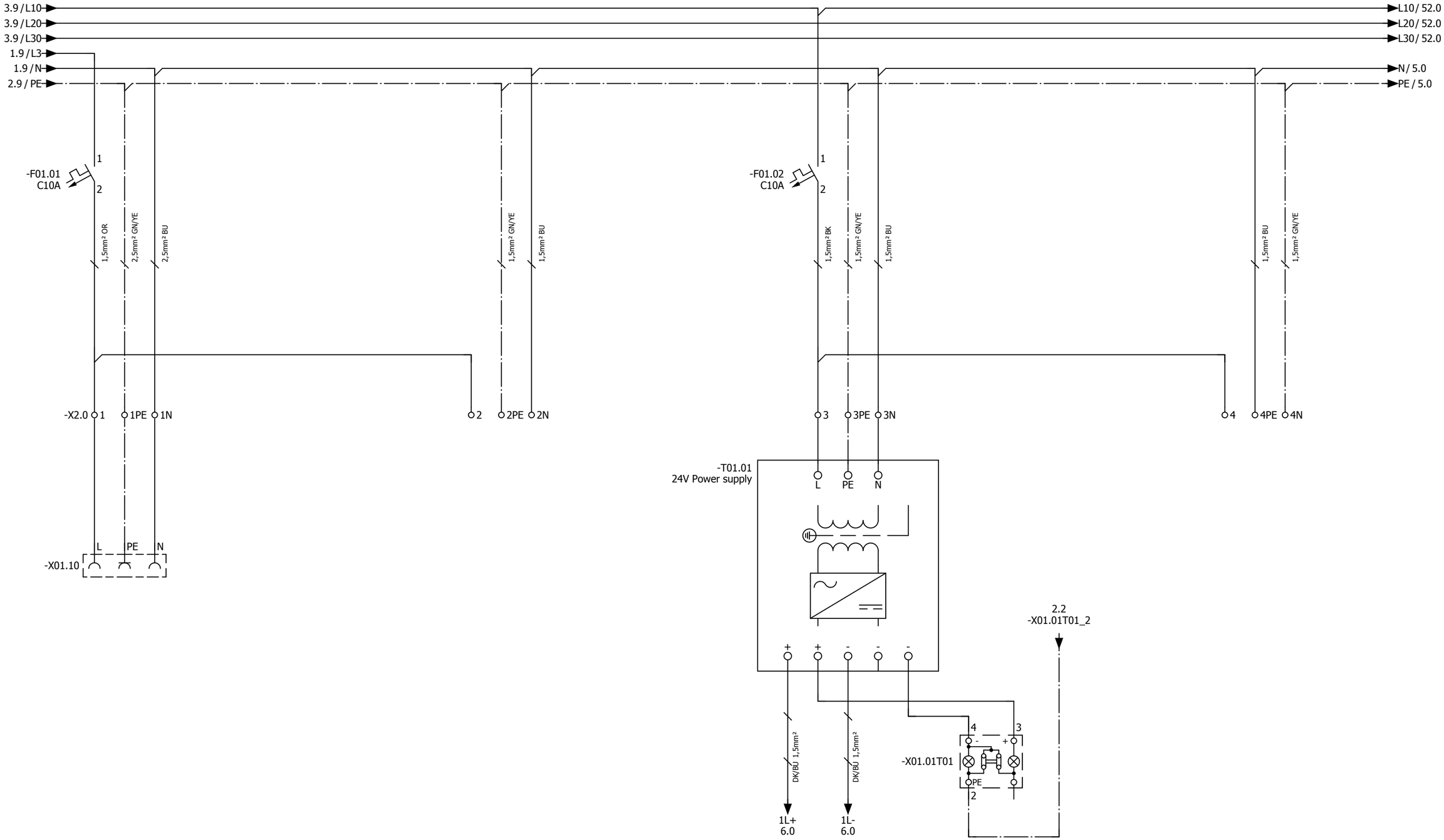

Service-outlet
Switch cabinet

Spare

24V Power supply

Earthed disconnect terminal

Spare

			Date	03.02.2009		Service-outlet / 24V Power supply	= 102
			Ed. by	Messmer			+ CC1
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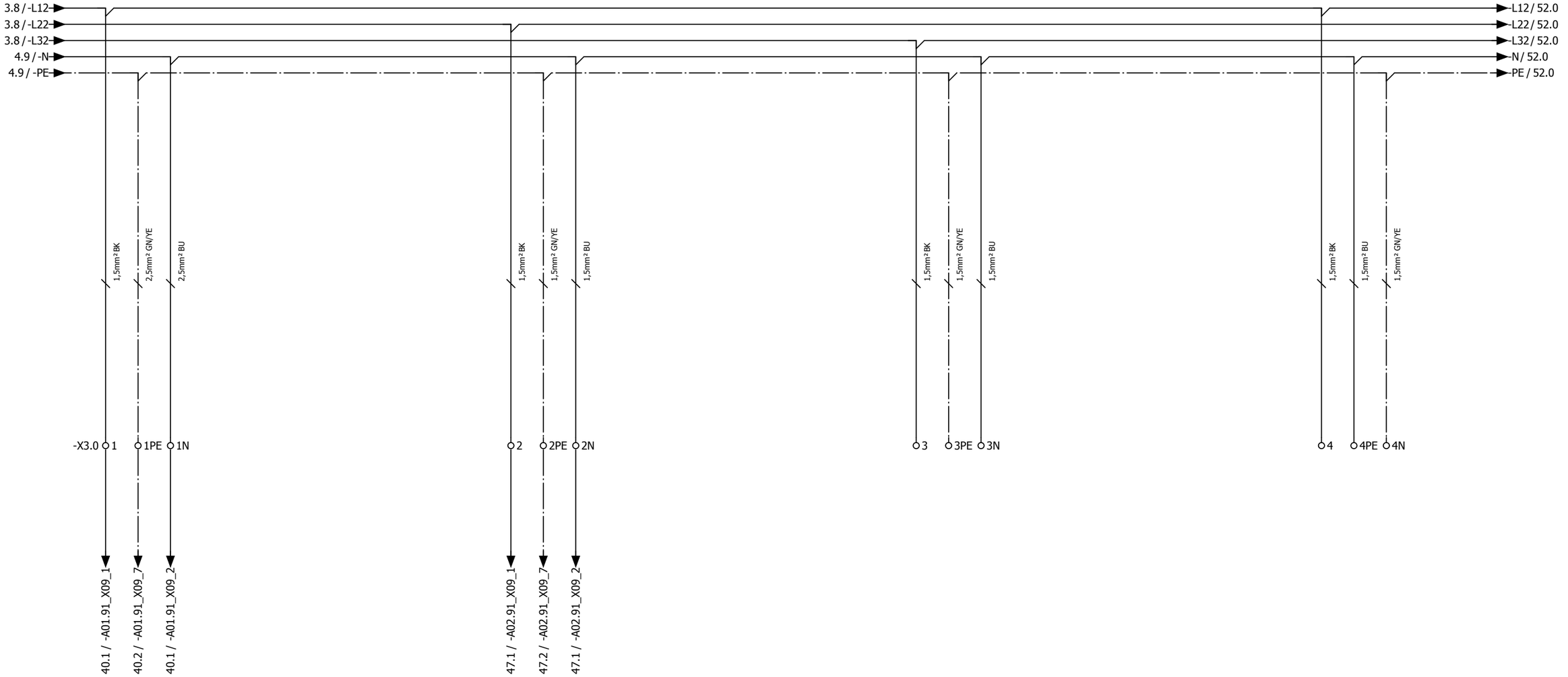

Supply voltage
LV servoTEC 1

Supply voltage
LV servoTEC 2

4 6

			Date	03.02.2009		Supply voltage LV servoTEC		= 102	
			Ed. by	Messmer				+ CC1	
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4.5 / 1L+ → DK/BU 2,5mm²

1L+ / 52.0 ← DK/BU 2,5mm²

MICO 4.6 Power control

-F01.00

+24V

13 / 14 /32.4

+24V

+24V

+24V — +24V

-F01.04 2A

-F02.04 6A

-F01.05 4A

-F01.06 4A

0V — 0V

GND | 1 | 2 | 3 | 4 | GND

0,75mm² DK/BU

-Q01.04K03 /12.5 53 / 54

-Q02.04K03 /12.6 53 / 54

Clamp 1-8 → -L01.04+ 9.0

Clamp 9-13 → -L02.04+ 7.0

Clamp 14-19 → -L01.05+ 7.0

Clamp 20-21 → -L01.06+ 7.0

MICO 4.10 Power control

-F02.00

+24V

13 / 14 /32.4

+24V

+24V

-F01.07 4A

-F01.08 4A

-F01.91 6A

-F02.91 8A

GND | 1 | 2 | 3 | 4 | GND

0,75mm² DK/BU

-Q03.04K03 /12.7 1 / 2

-Q04.04K03 /12.8 1 / 2

-Q01.04K02 /11.7 53 / 54

-Q02.04K02 /11.7 53 / 54

-Q01.04K02 /11.7 73 / 74

-Q02.04K02 /11.7 73 / 74

Clamp 22-25 → -L01.07+ 52.0

Clamp 26-29 → -L01.08+ 52.0

Clamp 30-35 → -L01.91+ 40.0

Clamp 36-49 → -L02.91+ 40.0

-X1.1 -1

4.5 / -1L- → -1L- / 7.0

24V Emergency stop	24V General supply	24V Inputs	24V Outputs category A adjust mode without acceptance button	24V Outputs category B adjust mode only with acceptance button	24V Outputs category C adjust mode only with protective doors closed	24V Switch off after emergency stop, door open, time-delayed	24V Supply LVservoTEC

5 7

			Date	03.02.2009			= 102	
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IEF WERNER — Fuse protection 24V

6.2 / L02.04+
6.4 / L01.06+
6.3 / L01.05+

L02.04+ / 14.0
-L01.06+ / 40.0
L01.05+ / 29.0

-X1.1 +19
-X1.1 +20
-X1.1 +9
-X1.1 +10
-X1.1 +14
+15

+CP1-W01.11A01
KAWEFLEX 3130
18x0,75
1
/7.0
/8.1
/8.1
/9.2
/9.2
/12.1

+CP1
-A01.11
/30.0

+CP1
-P01.03K01
/9.2
gn
X1
X2

+CP1-W01.11A01
KAWEFLEX 3130
18x0,75
2

-X1.1 -2
-X1.1 -3
-X1.1 -4
-X1.1 -5

6.9 / 1L-

1L- / 9.0

Protection
cycle ON

6

8

			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		= 102	
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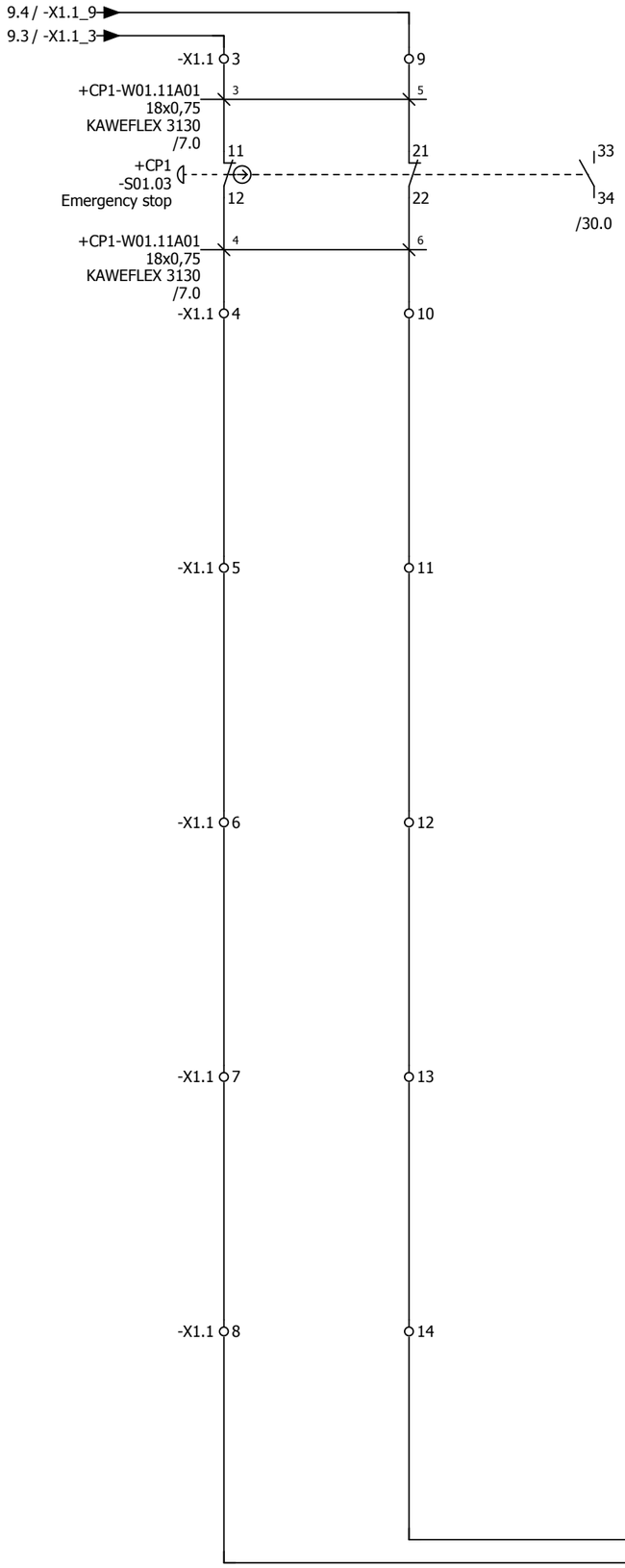
WERNER

Protective circuit Signal ON



K01.04_Y22 / 9.5
K01.04_Y12 / 9.3

7 9

			Date	03.02.2009			= 102	
			Ed. by	Messmer			+ CC1	
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WERNER

Emergency stop chain

6.1 / -L01.04+

-X1.1 +1

-X1.1 +2

L01.04+ / 11.0

+CP1-W01.11A01 7
18x0,75
KAWEFLEX 3130
/7.0

-Q02.04K01 -Q01.04K01 /9.7

21
22
21
22

+CP1
-S01.03K01
ON

13
14

X1
X2

/7.1

+CP1-W01.11A01 8
18x0,75
KAWEFLEX 3130
/7.0

-X1.1 1

-X1.1 2

8.0
-X1.1_3

8.9
-K01.04_Y12

8.0
-X1.1_9

8.9
-K01.04_Y22

-K01.04
3TK2828-2BB41

A1(+) Y33 Y34 Y10 Y11 Y12 Y21 Y22 13 23 47 57 31

SIEMENS

1,5 2,1 1,2 0,6 2,7 0,05 3,0s

13 14 23 24 47 48 57 58 31 32

A2(-) PE 14 24 48 58 32

12.1 / -K03.04_1

32.0 / -A04.02_1E1

-Q01.04K01 A1 A2 -R01.04K01 x1 U x2

-Q02.04K01 A1 A2 -R02.04K01 x1 U x2

-X1.1 -6

-X1.1 -7

7.9 / -1L+

-1L- / 11.0

1 2 /3.8
3 4 /3.8
5 6 /3.8
21 22 /9.1

1 2 /3.8
3 4 /3.8
5 6 /3.8
21 22 /9.1

Safety module time-delayed
emergency-stop

8

10

			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		= 102	
			Ed. by	Messmer		Safety module Emergency stop	+ CC1	
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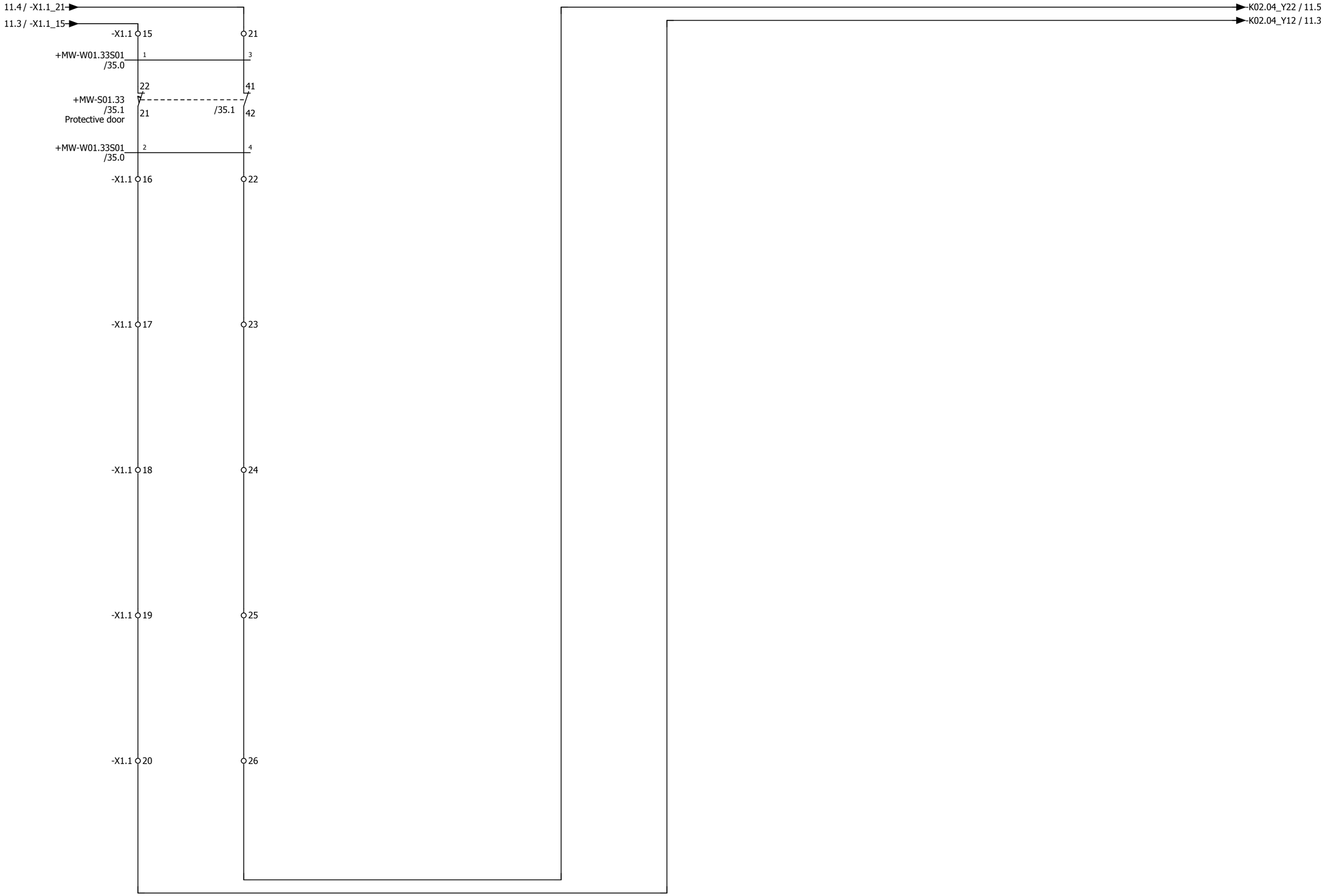

			Date	03.02.2009			= 102	
			Ed. by	Messmer			+ CC1	
			Appr		PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		1078978	Page 10
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WERNER Door cycle chain

0	1	2	3	4	5	6	7	8	9

9.9 / -L01.04+

L01.04+ / 12.0

-X1.1 +3

-Q01.04K02 /11.7
21
22

-Q02.04K02 /11.7
21
22

-A01.91_X03_5
40.9

47.9
-K02.04_Y34

10.0
-X1.1_15

10.9
-K02.04_Y12

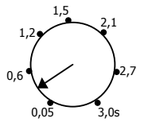
10.0
-X1.1_21

10.9
-K02.04_Y22

-K02.04
3TK2828-2BB41

A1(+) Y33 Y34 Y10 Y11 Y12 Y21 Y22 13 23 47 57 31

SIEMENS



13
14
/12.3

23
24
/12.4

47
48

57
58

31
32

A2(-) PE 14 24 48 58 32

-X1.1 -8

9.9 / -1L

-1L- / 12.0

-Q01.04K02 A1 A2 -R01.04K02 x1 U x2

-Q02.04K02 A1 A2 -R02.04K02 x1 U x2

1 2
3 4
5 6
21 22 /11.2
53 54 /6.6
61 62
73 74 /6.7
83 84

1 2
3 4
5 6
21 22 /11.2
53 54 /6.6
61 62
73 74 /6.7
83 84

Safety module
protective door circuit chain

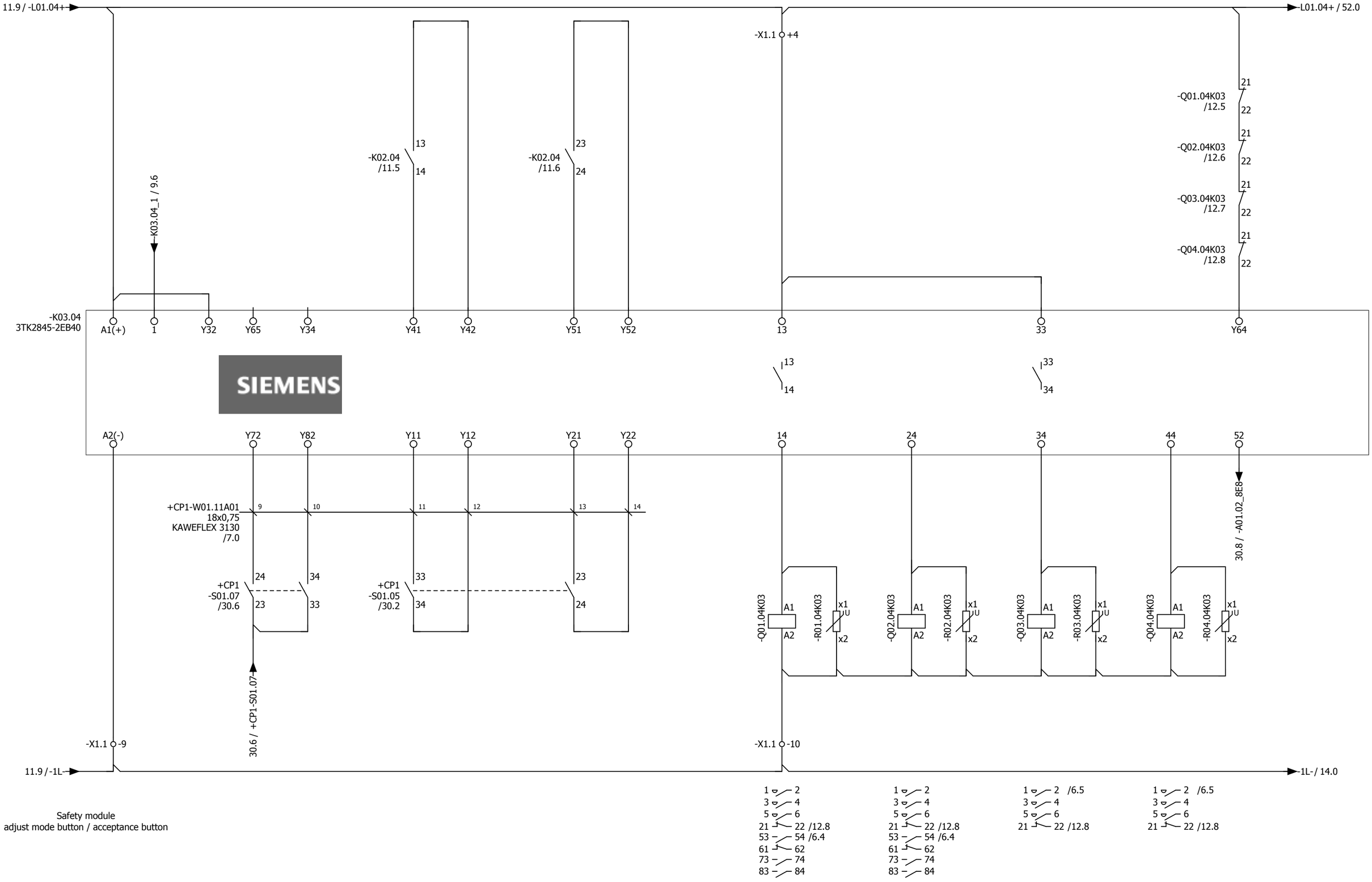
10

12

			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		= 102	
			Ed. by	Messmer			+ CC1	
			Appr				1078978	Page 11
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg 110

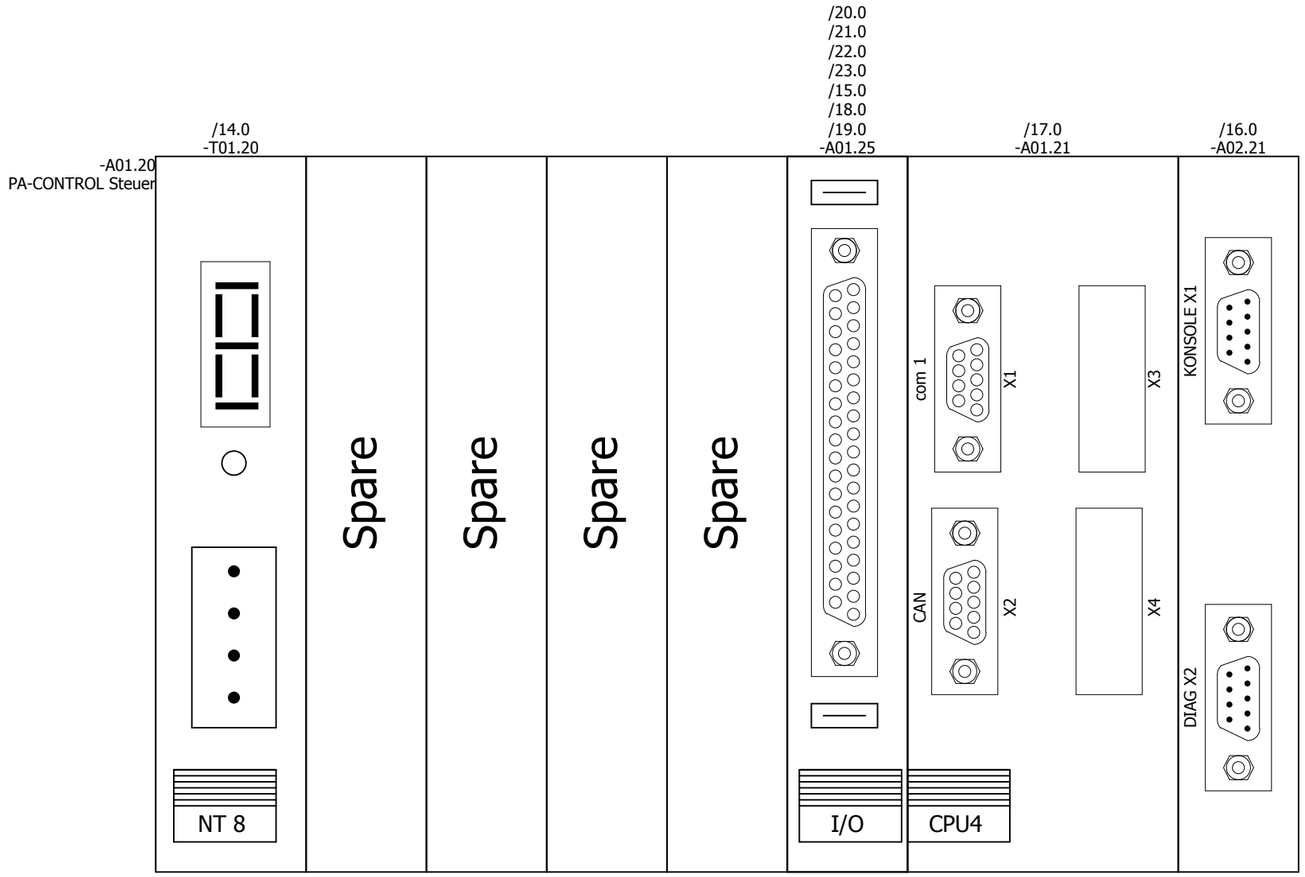
WERNER

Safety module
protective door circuit chain



Safety module
adjust mode button / acceptance button

			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		= 102	
			Ed. by	Messmer		Safety module door protective circuit adjust mode button / acceptance button	+ CC1	
			Appr				1078978	Page 12
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg 110



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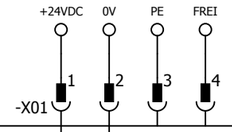
			Ed. by	Messmer			+ CC1	
			Appr		PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		1078978	Page 13
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg 110

-T01.20
/13.2

NT 8

Supply Voltage



-X1.1 -11

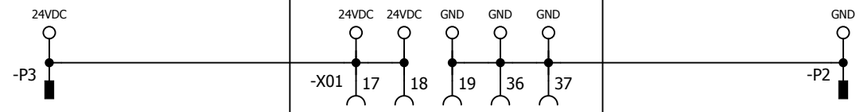
7.9 / -L02.04+ → -L02.04+ / 29.0
12.9 / -1L- → -1L- / 29.0

			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		PA-CONTROL Steuer Power supply	= 102
			Ed. by	Messmer				+ CC1
			Appr				1078978	Page 14
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg 110

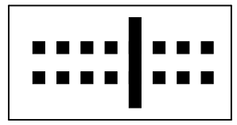
-A01.25
/13.5

I/O-board 1

Supply Voltage



JP1



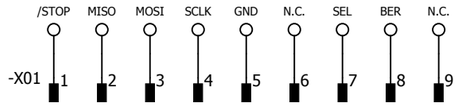
1. I/O-board

			Date	03.02.2009		PA-CONTROL Steuer Supply I/O-board 1		= 102	
			Ed. by	Messmer				+ CC1	
			Appr		PA-CONTROL_Steuer_LV-servoTEC_S2_1XX			1078978	Page 15
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by			Pg 110

-A02.21
/13.6

KONSOLE / DIAG

KONSOLE



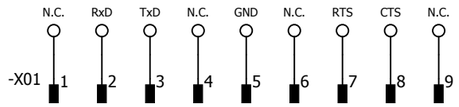
DIAG

			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		PA-CONTROL Steuer Panel / Diag	= 102
			Ed. by	Messmer				+ CC1
			Appr				1078978	Page 16
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg 110

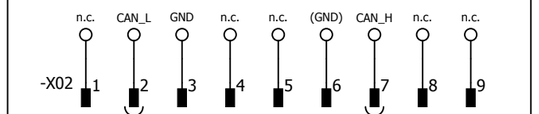
-A01.21
/13.5

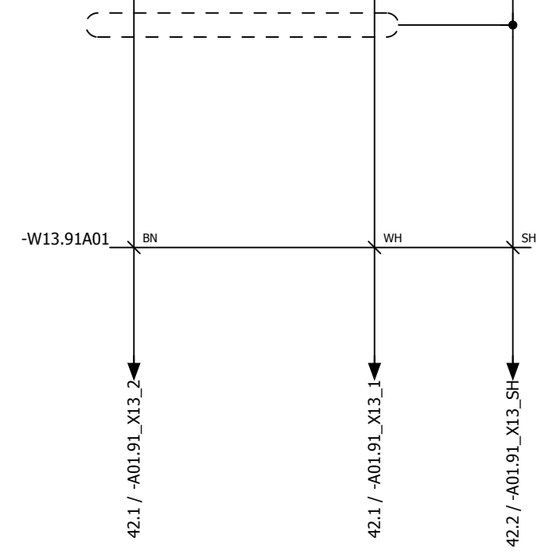
CPU 4

COM 1



CAN Bus





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			Ed. by	Messmer				+ CC1
			Appr				1078978	Page 17
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg 110

0	1	2	3	4	5	6	7	8	9

-A01.25
/13.5

I1	/20.0	-A01.25-X01:1	Spare
I2	/20.2	-A01.25-X01:2	Spare
I3	/20.3	-A01.25-X01:3	Spare
I4	/20.4	-A01.25-X01:4	Spare
I5	/20.5	-A01.25-X01:5	Spare
I6	/20.6	-A01.25-X01:6	Spare
I7	/20.7	-A01.25-X01:7	Spare
I8	/20.8	-A01.25-X01:8	Spare
I9	/21.0	-A01.25-X01:9	Spare
I10	/21.2	-A01.25-X01:10	Spare
I11	/21.3	-A01.25-X01:11	Spare
I12	/21.4	-A01.25-X01:12	Spare
I13	/21.5	-A01.25-X01:13	Spare
I14	/21.6	-A01.25-X01:14	Spare
I15	/21.7	-A01.25-X01:15	Spare
I16	/21.8	-A01.25-X01:16	Spare

			Date	03.02.2009				= 102	
			Ed. by	Messmer				+ CC1	
			Appr		PA-CONTROL_Steuer_LV-servoTEC_S2_1XX	Inputs overview I1-I16		1078978	Page 18
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by			Pg 110

0	1	2	3	4	5	6	7	8	9

-A01.25
/13.5

O1	/22.0	-A01.25-X01:20	Spare
O2	/22.2	-A01.25-X01:21	Spare
O3	/22.3	-A01.25-X01:22	Spare
O4	/22.4	-A01.25-X01:23	Spare
O5	/22.5	-A01.25-X01:24	Spare
O6	/22.6	-A01.25-X01:25	Spare
O7	/22.7	-A01.25-X01:26	Spare
O8	/22.8	-A01.25-X01:27	Spare
O9	/23.0	-A01.25-X01:28	Spare
O10	/23.2	-A01.25-X01:29	Spare
O11	/23.3	-A01.25-X01:30	Spare
O12	/23.4	-A01.25-X01:31	Spare
O13	/23.5	-A01.25-X01:32	Spare
O14	/23.6	-A01.25-X01:33	Spare
O15	/23.7	-A01.25-X01:34	Spare
O16	/23.8	-A01.25-X01:35	Spare

			Date	03.02.2009				= 102	
			Ed. by	Messmer				+ CC1	
			Appr		PA-CONTROL_Steuer_LV-servoTEC_S2_1XX			1078978	Page 19
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by			Pg 110

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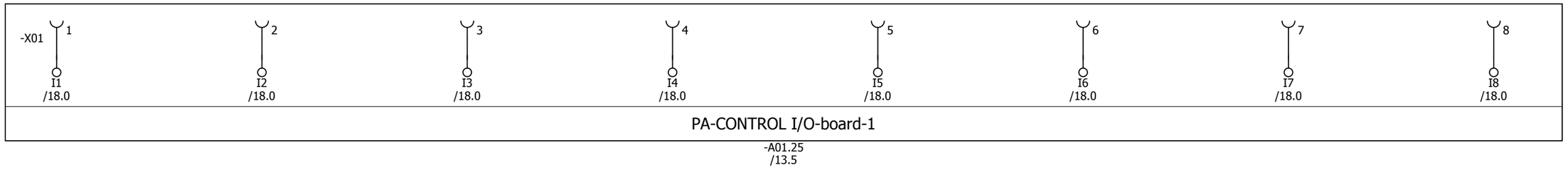
Outputs overview
O1-O16

0	1	2	3	4	5	6	7	8	9



Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare	

			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		PA-CONTROL I/O-board-1 I1-I8	= 102
			Ed. by	Messmer				+ CC1
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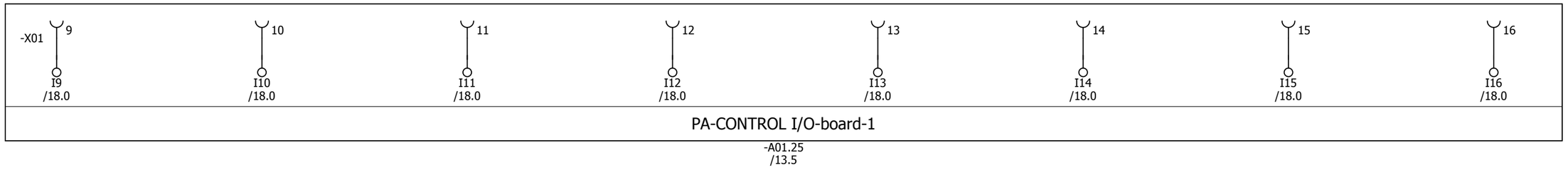
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg 110

0	1	2	3	4	5	6	7	8	9



Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare

0	1	2	3	4	5	6	7	8	9

/13.5
-A01.25

PA-CONTROL I/O-board-1

/19.0 O1	/19.0 O2	/19.0 O3	/19.0 O4	/19.0 O5	/19.0 O6	/19.0 O7	/19.0 O8
-X01 /15.4 20	21	22	23	24	25	26	27
Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare

			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		PA-CONTROL I/O-board 1 O1-O8	= 102
			Ed. by	Messmer				+ CC1
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Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg 110

/13.5
-A01.25

PA-CONTROL I/O-board-1

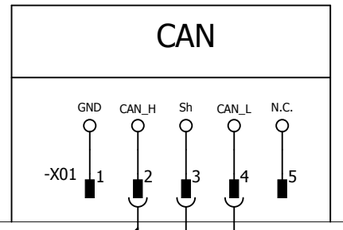
/19.0 O9	/19.0 O10	/19.0 O11	/19.0 O12	/19.0 O13	/19.0 O14	/19.0 O15	/19.0 O16
-X01 /15.4 28	29	30	31	32	33	34	35
Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare

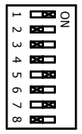
			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		PA-CONTROL I/O-board 1 O9-O16	= 102
			Ed. by	Messmer				+ CC1
			Appr				1078978	Page 23
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg 110

-A01.62
/29.0

BK5120

Bus address:17





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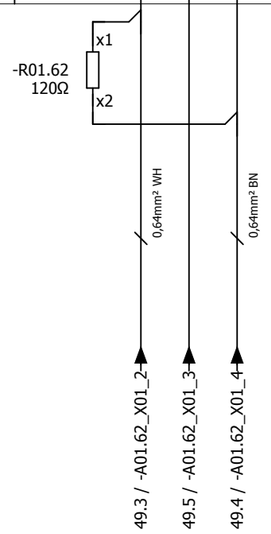

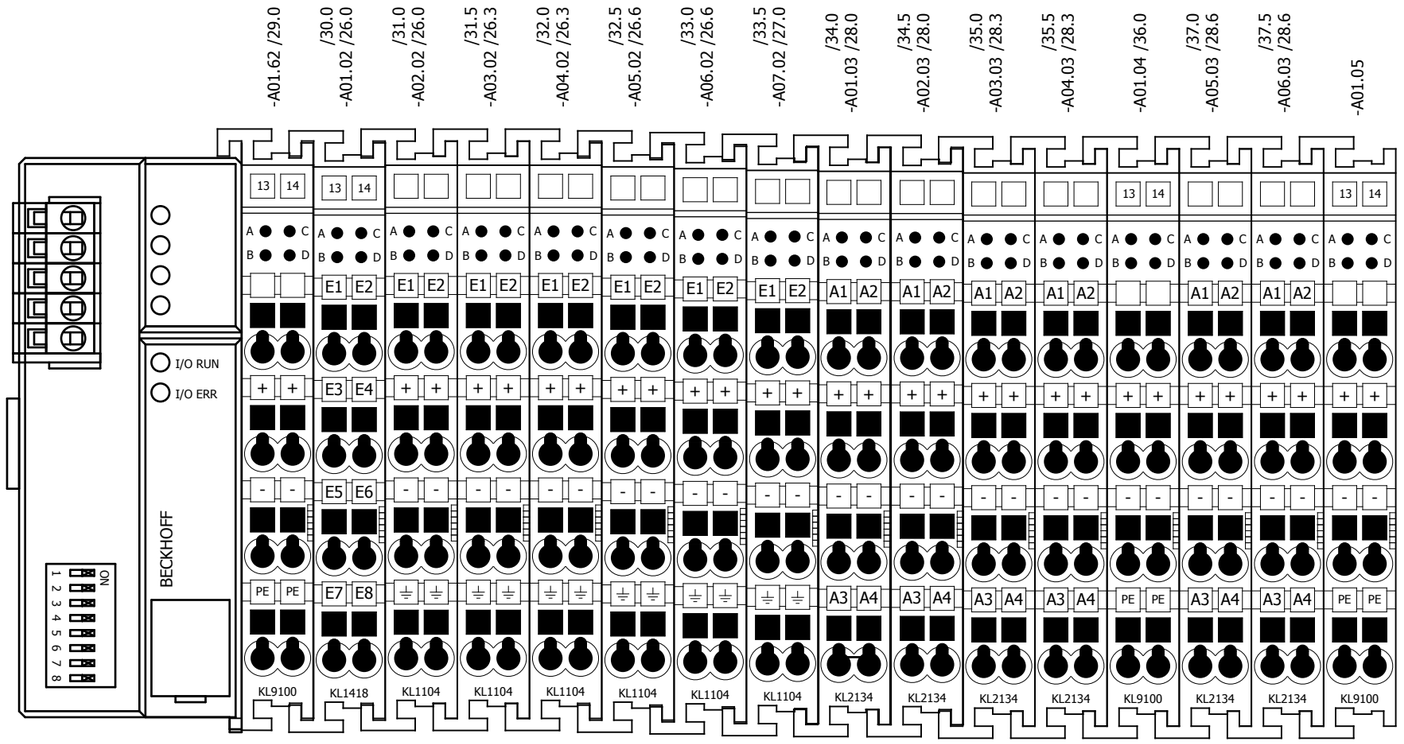

			Date	03.02.2009				= 102	
			Ed. by	Messmer				+ CC1	
			Appr		PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		1078978	Page	25
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IEF WERNER

Overview
Beckhoff bus connection

0	1	2	3	4	5	6	7	8	9

-A01.02
/30.0

I1025 IN 1E1	/30.0	+CP1-S01.03	Emergency halt pressed operator panel	
I1026 IN 5E2	/30.2	+CP1-S01.05	Confirmation button	
I1027 IN 2E3	/30.3	+CP1-S01.04	Automatic Mode (I)	
I1028 IN 6E4	/30.4	+CP1-S01.04	Adjust mode (0)	
I1029 IN 3E5	/30.5	+CP1-S01.04	Step Mode (II)	
I1030 IN 7E6	/30.6	+CP1-S01.07	Bridge protective doors	
I1031 IN 4E7	/30.7		Spare	
I1032 IN 8E8	/30.8	-K03.04:52	Safety module adjust mode-/acceptance button	

-A02.02
/31.0
KL1104

I1033 1E1	/31.0	+MW-S01.33	Protective door open	
2+	/31.1		Protective door open	
3-	/31.1		Protective door open	
I1034 5E2	/31.2		Spare	
I1035 4E3	/31.3		Spare	
6+	/31.3		Spare	
7-	/31.4		Spare	
I1036 8E4	/31.4		Spare	

-A03.02
/31.5
KL1104

I1037 1E1	/31.5		Spare	
2+	/31.5		Spare	
3-	/31.6		Spare	
I1038 5E2	/31.6		Spare	
I1039 4E3	/31.8		Spare	
6+	/31.8		Spare	
7-	/31.8		Spare	
I1040 8E4	/31.9		Spare	

-A04.02
/32.0
KL1104

I1041 IN 1E1	/32.0	-K01.04:24	Safety module emergency-stop ON	
DC24V 2+	/32.1		Safety module emergency-stop ON	
M 3-	/32.1		Safety module emergency-stop ON	
I1042 IN 5E2	/32.2		Spare	
I1043 IN 4E3	/32.3	-F02.00	Spare	
DC24V 6+	/32.3		Spare	
M 7-	/32.4		Spare	
I1044 IN 8E4	/32.4	-F01.00	Fuse protection 24V I.O.	

-A05.02
/32.5
KL1104

I1045 IN 1E1	/32.5	+HGE-S01.10	Spare	
DC24V 2+	/32.5		Spare	
M 3-	/32.6		Spare	
I1046 IN 5E2	/32.6	+HGA-S01.10	Spare	
I1047 IN 4E3	/32.8	+TIS-S01.10	Spare	
DC24V 6+	/32.8		Spare	
M 7-	/32.8		Spare	
I1048 IN 8E4	/32.9	+TIS-S02.10	Spare	

-A06.02
/33.0
KL1104

I1049 IN 1E1	/33.0		Spare
DC24V 2+	/33.1		Spare
M 3-	/33.1		Spare
I1050 IN 5E2	/33.2		Spare
I1051 IN 4E3	/33.3		Spare
DC24V 6+	/33.3		Spare
M 7-	/33.4		Spare
I1052 IN 8E4	/33.4		Spare

			Date	03.02.2009				= 102	
			Ed. by	Messmer				+ CC1	
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WERNER

Inputs overview
I1025-1052

0	1	2	3	4	5	6	7	8	9

-A07.02
/33.5

IN 1E1 I1053	/33.5	+PWE-S01.10	Spare
DC24V 2+	/33.5		Spare
M 3-	/33.6		Spare
IN 5E2 I1054	/33.6	+PWA-S01.10	Spare
IN 4E3 I1055	/33.8		Spare
DC24V 6+	/33.8		Spare
M 7-	/33.8		Spare
IN 8E4 I1056	/33.9		Spare

			Date	03.02.2009				= 102		
			Ed. by	Messmer				+ CC1		
			Appr		PA-CONTROL_Steuer_LV-servoTEC_S2_1XX			1078978	Page	27
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by			Pg	110

WERNER

Inputs overview
I1053-1056

0	1	2	3	4	5	6	7	8	9

-A01.03
/34.0

OUT 1A1 O1025	/34.0	-H01.00	Operation Mode (Signal lights)	
DC24V 2+	/34.1		Operation Mode (Signal lights)	
M 3-	/34.1		Operation Mode (Signal lights)	
OUT 5A2 O1026	/34.2	-H02.00	Level (Signal lights)	
OUT 4A3 O1027	/34.3	-H03.00	Error (Signal lights)	
DC24V 6+	/34.3		Error (Signal lights)	
M 7-	/34.4		Error (Signal lights)	
OUT 8A4 O1028	/34.4		Spare	

-A02.03
/34.5

OUT 1A1 O1029	/34.5		Spare	
DC24V 2+	/34.5		Spare	
M 3-	/34.6		Spare	
OUT 5A2 O1030	/34.6		Spare	
OUT 4A3 O1031	/34.8		Spare	
DC24V 6+	/34.8		Spare	
M 7-	/34.8		Spare	
OUT 8A4 O1032	/34.9		Spare	

-A03.03
/35.0

OUT 1A1 O1033	/35.0	+MW-S01.33	Close Protective door	
DC24V 2+	/35.1		Close Protective door	
M 3-	/35.1		Close Protective door	
OUT 5A2 O1034	/35.2		Spare	
OUT 4A3 O1035	/35.3		Spare	
DC24V 6+	/35.3		Spare	
M 7-	/35.4		Spare	
OUT 8A4 O1036	/35.4		Spare	

-A04.03
/35.5

OUT 1A1 O1037	/35.5		Spare	
DC24V 2+	/35.5		Spare	
M 3-	/35.6		Spare	
OUT 5A2 O1038	/35.6		Spare	
OUT 4A3 O1039	/35.8		Spare	
DC24V 6+	/35.8		Spare	
M 7-	/35.8		Spare	
OUT 8A4 O1040	/35.9		Spare	

-A05.03
/37.0

OUT 1A1 O1041	/37.0		Spare	
DC24V 2+	/37.1		Spare	
M 3-	/37.1		Spare	
OUT 5A2 O1042	/37.2		Spare	
OUT 4A3 O1043	/37.3		Spare	
DC24V 6+	/37.3		Spare	
M 7-	/37.4		Spare	
OUT 8A4 O1044	/37.4		Spare	

-A06.03
/37.5

OUT 1A1 O1045	/37.5		Spare	
DC24V 2+	/37.5		Spare	
M 3-	/37.6		Spare	
OUT 5A2 O1046	/37.6		Spare	
OUT 4A3 O1047	/37.8		Spare	
DC24V 6+	/37.8		Spare	
M 7-	/37.8		Spare	
OUT 8A4 O1048	/37.9		Spare	

			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		Outputs overview O1025-1048	= 102	
			Ed. by	Messmer				+ CC1	
			Appr					1078978	Page 28
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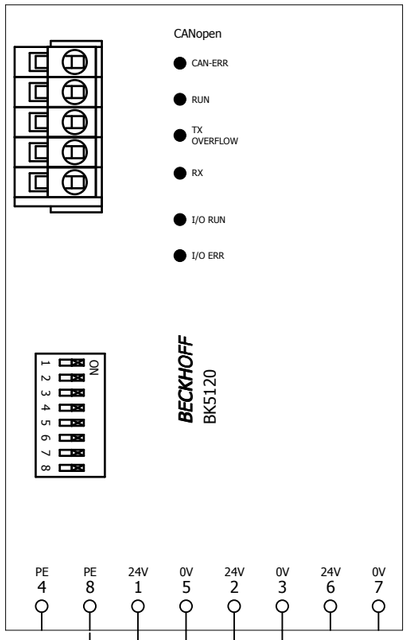
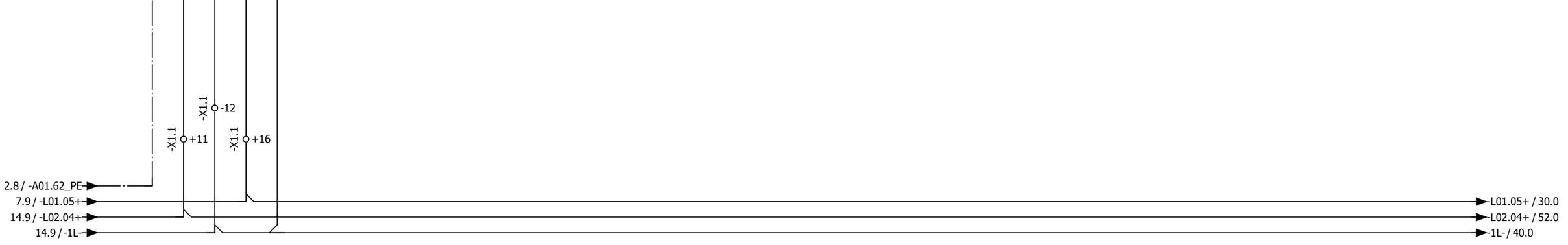
0	1	2	3	4	5	6	7	8	9

-A01.62
/24.0
/25.1





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			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		Beckhoff BK5120 Supply voltage	= 102	
			Ed. by	Messmer				+ CC1	
			Appr					1078978	Page 29
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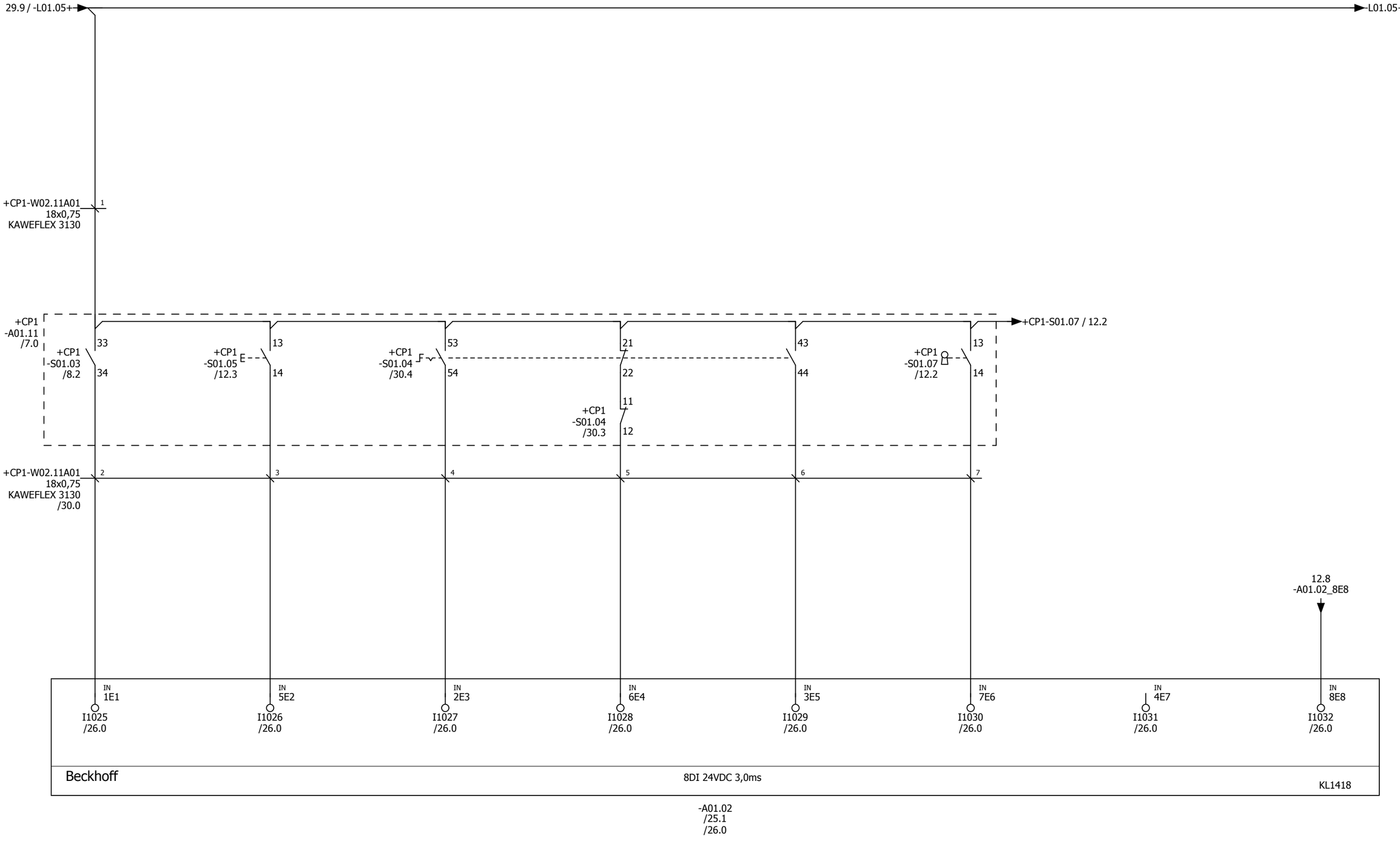
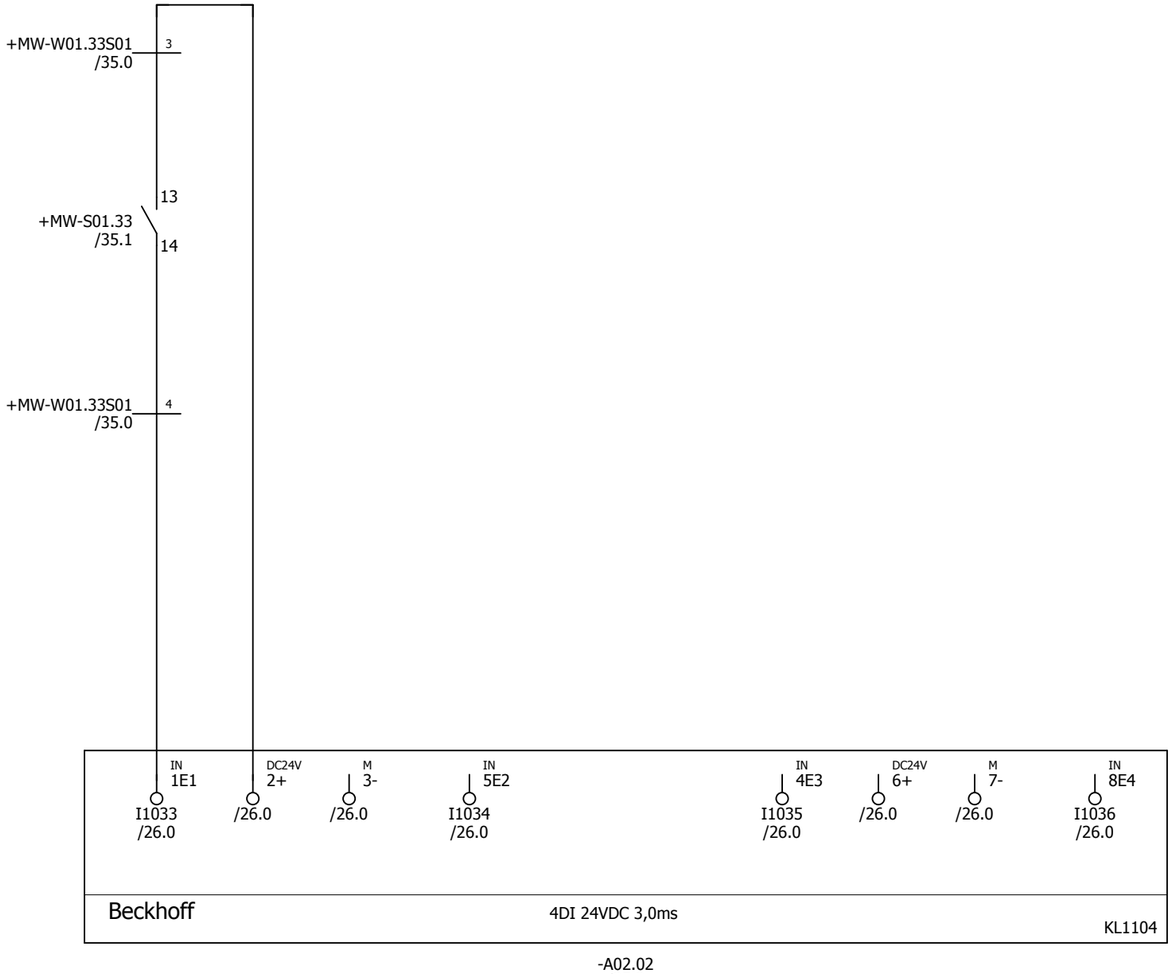


			Date	03.02.2009			= 102	
			Ed. by	Messmer			+ CC1	
			Appr		PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		1078978	Page 30
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg 110

WERNER

Inputs connection
I1025-1031

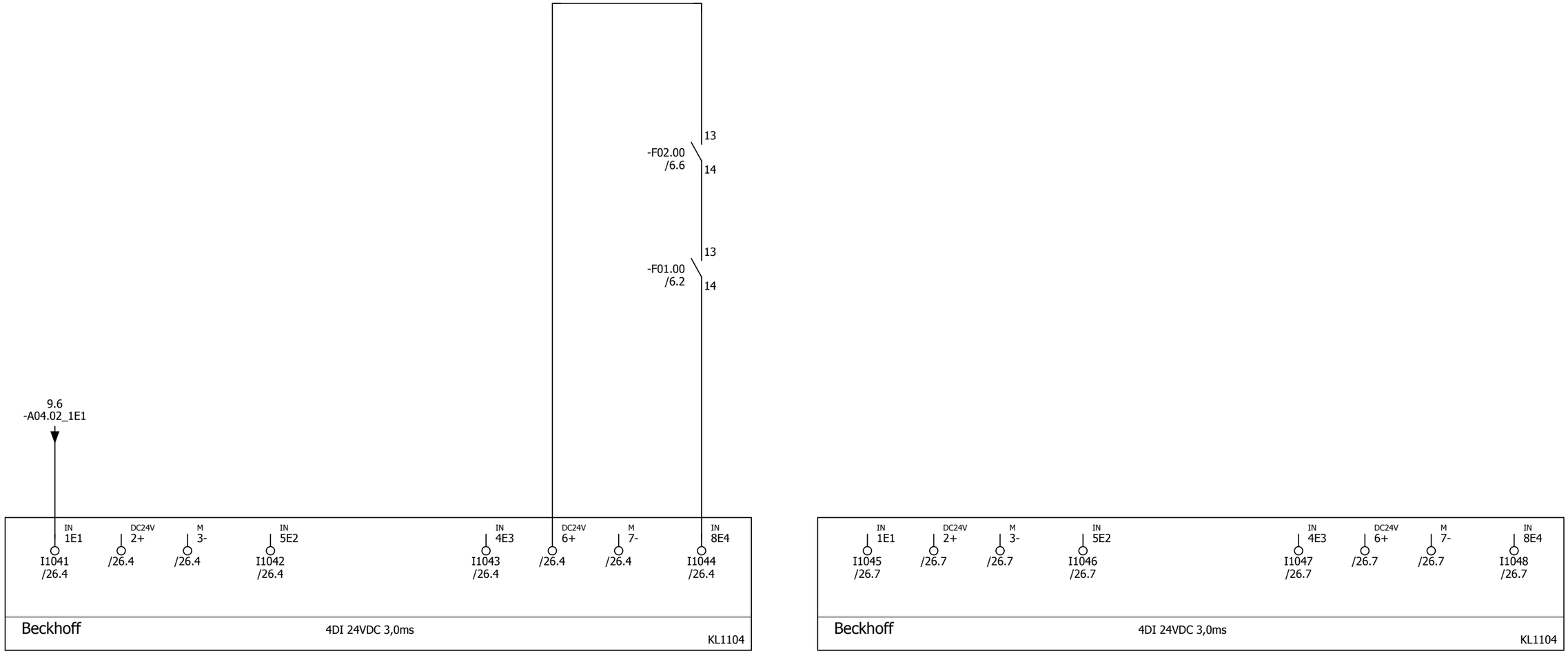
0	1	2	3	4	5	6	7	8	9



			Date	03.02.2009			= 102	
			Ed. by	Messmer			+ CC1	
			Appr		PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		1078978	Page 31
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg 110

WERNER

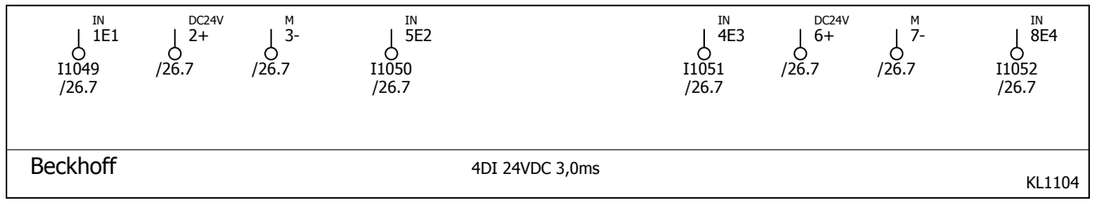
Inputs connection
I1032-1039



Safety module emergency-stop ON | Spare | Spare | Fuse protection 24V I.O. | Spare | Spare | Spare | Spare

			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		Inputs connection I1040-1047	= 102
			Ed. by	Messmer				+ CC1
			Appr					1078978 Page 32
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg 110

0	1	2	3	4	5	6	7	8	9



-A06.02
/25.3
/26.6

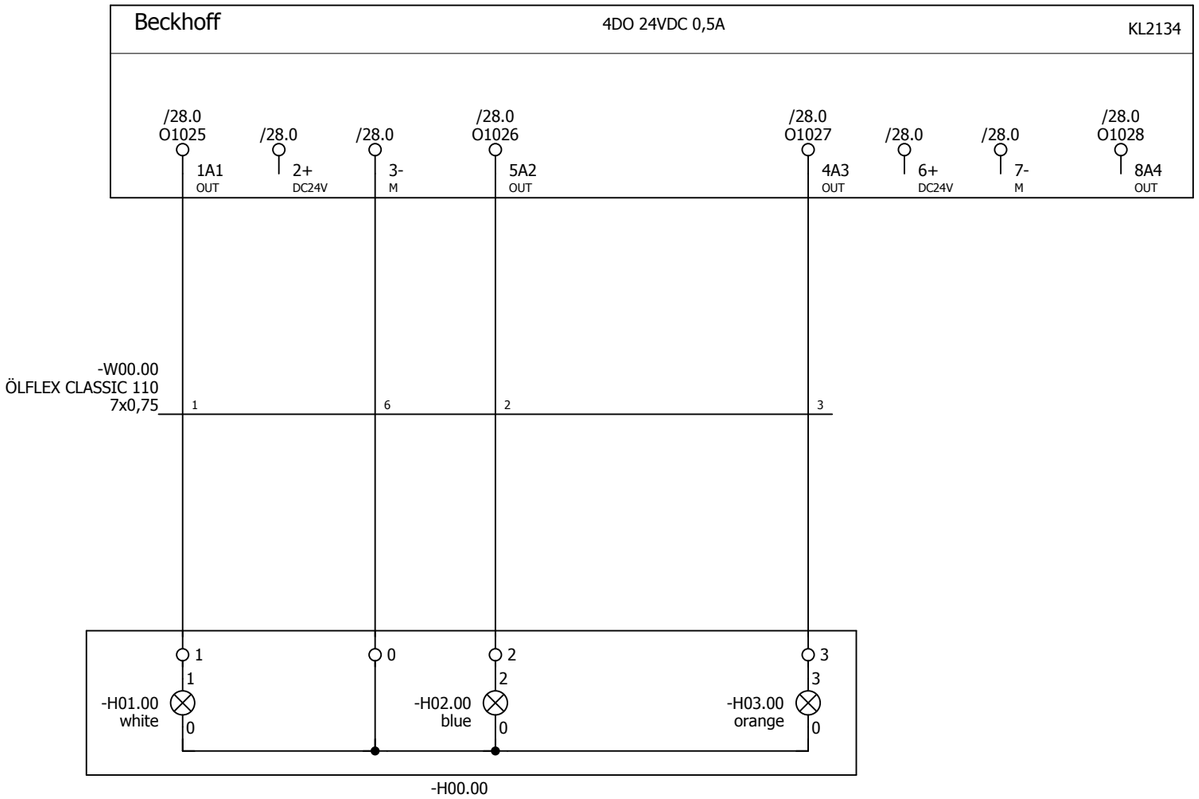
Spare | Spare | Spare | Spare

-A07.02
/25.3
/27.0

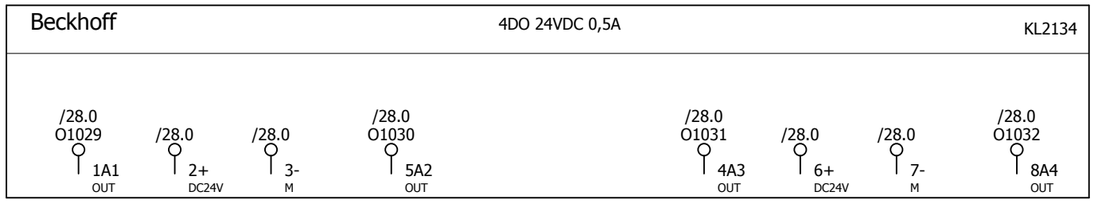
Spare | Spare | Spare | Spare

			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		= 102	
			Ed. by	Messmer		Inputs connection I1048-1055	+ CC1	
			Appr				1078978	Page 33
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg 110

/25.3
/28.0
-A01.03



/25.4
/28.0
-A02.03



Operation Mode (Signal lights)	Level (Signal lights)	Error (Signal lights)	Spare	Spare	Spare	Spare	Spare

			Date	03.02.2009			= 102	
			Ed. by	Messmer			+ CC1	
			Appr		PA-CONTROL_Steuer_LV-servoTEC_S2_1XX	Outputs connection O1025-1032	1078978	Page 34
Modification	Date	Name	Version	V0.01	Replacement for / Replaced by			Pg 110

/25.4
/28.3
-A03.03

Beckhoff 4DO 24VDC 0,5A KL2134

/28.4 O1033	/28.4	/28.4	/28.4 O1034	/28.4 O1035	/28.4	/28.4	/28.4 O1036
1A1 OUT	2+ DC24V	3- M	5A2 OUT	4A3 OUT	6+ DC24V	7- M	8A4 OUT

/25.4
/28.3
-A04.03

Beckhoff 4DO 24VDC 0,5A KL2134

/28.4 O1037	/28.4	/28.4	/28.4 O1038	/28.4 O1039	/28.4	/28.4	/28.4 O1040
1A1 OUT	2+ DC24V	3- M	5A2 OUT	4A3 OUT	6+ DC24V	7- M	8A4 OUT

+MW-W01.33S01 7
12x0,75
ÖLFLEX CLASSIC 110

+MW-S01.33

11	22	42	51	71	13	63
12	21	41	52	72	14	64

/10.1 /10.2 /31.0

+MW-W01.33S01 8
12x0,75
ÖLFLEX CLASSIC 110
/35.0

Close Protective door	Spare	Spare	Spare	Spare	Spare	Spare	Spare

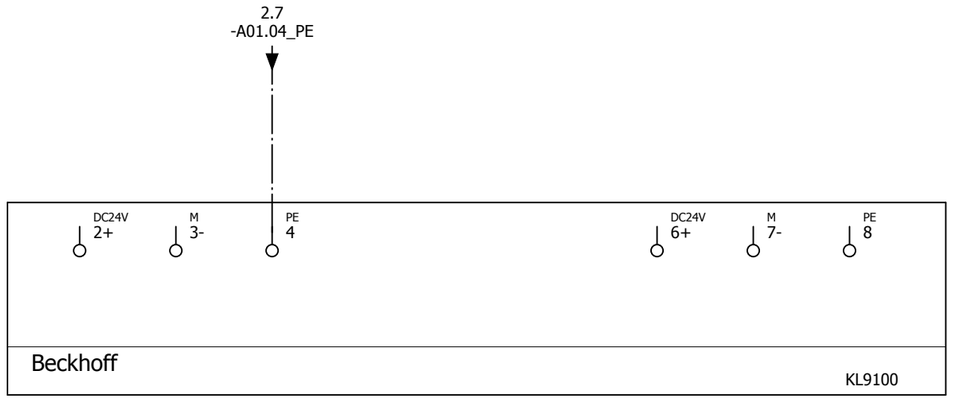
			Date	03.02.2009		
			Ed. by	Messmer		
			Appr		PA-CONTROL_Steuer_LV-servoTEC_S2_1XX	
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by

WERNER

Outputs connection
O1033-1040

	= 102
	+ CC1
1078978	Page 35
	Pg 110

0	1	2	3	4	5	6	7	8	9



-A01.04
/25.4

			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		Supply clamp	= 102	
			Ed. by	Messmer				+ CC1	
			Appr					1078978	Page 36
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by			Pg 110

/25.5
/28.6
-A05.03

Beckhoff — 4DO 24VDC 0,5A — KL2134

/28.7 O1041	/28.7	/28.7	/28.7 O1042	/28.7 O1043	/28.7	/28.7	/28.7 O1044
1A1 OUT	2+ DC24V	3- M	5A2 OUT	4A3 OUT	6+ DC24V	7- M	8A4 OUT

/25.5
/28.6
-A06.03

Beckhoff — 4DO 24VDC 0,5A — KL2134

/28.7 O1045	/28.7	/28.7	/28.7 O1046	/28.7 O1047	/28.7	/28.7	/28.7 O1048
1A1 OUT	2+ DC24V	3- M	5A2 OUT	4A3 OUT	6+ DC24V	7- M	8A4 OUT

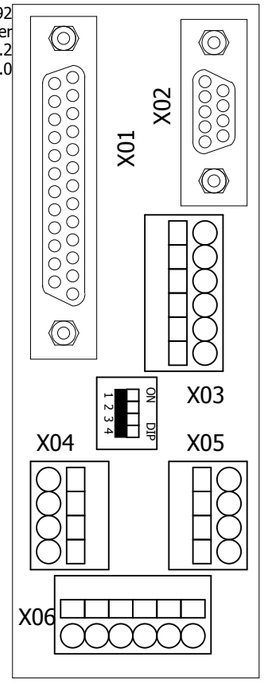
Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare

			Date	03.02.2009				= 102	
			Ed. by	Messmer				+ CC1	
			Appr		PA-CONTROL_Steuer_LV-servoTEC_S2_1XX			1078978	Page 37
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by			Pg 110

WERNER

Outputs connection
O1041-1048

-A01.92
LV servoTEC S2 IO-adapter
/40.2
/44.0



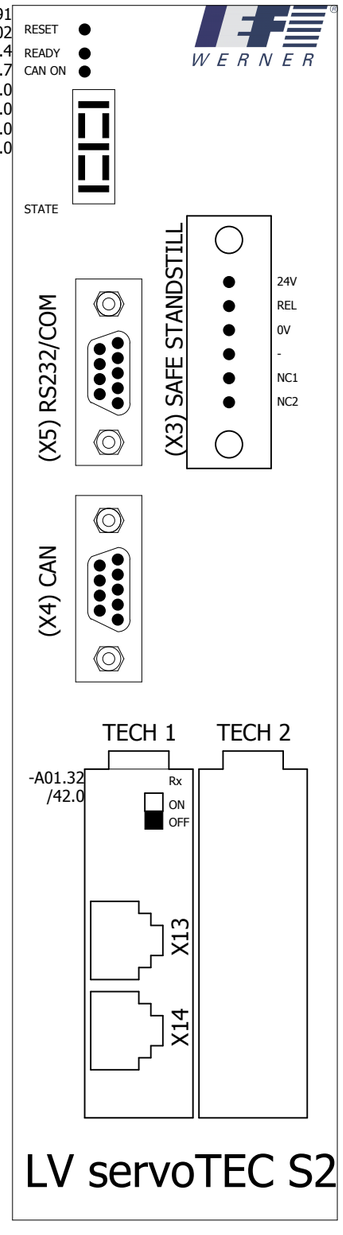
Offset-address			
	0		8
	1		9
	2		10
	3		11
	4		12
	5		13
	6		14
	7		15

Fieldbus	Base address (is set withS2 Commander)
CAN Open	Base Node number
Profibus	Slave-address
SERCOS	Drive-address

Bus address calculation: Bus-address = Base address + Offset-address

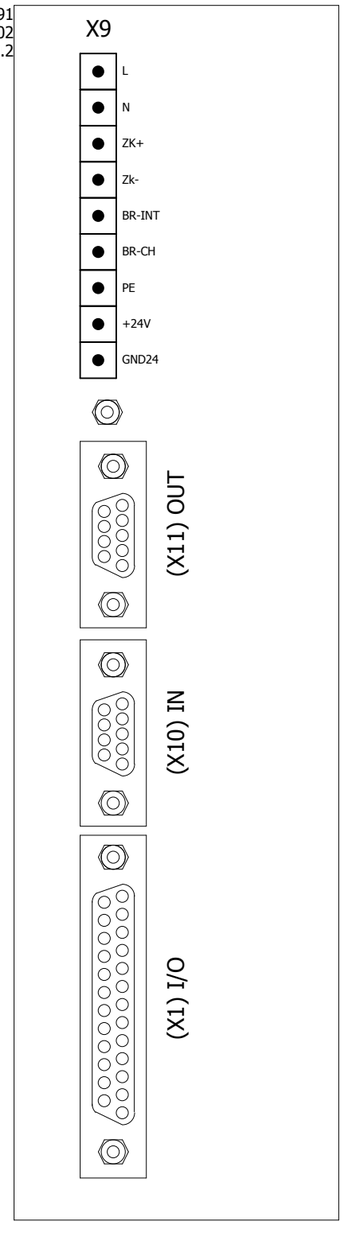
front

-A01.91
LV servoTEC_S2_102
/39.4
/39.7
/41.0
/42.0
/40.0
/43.0



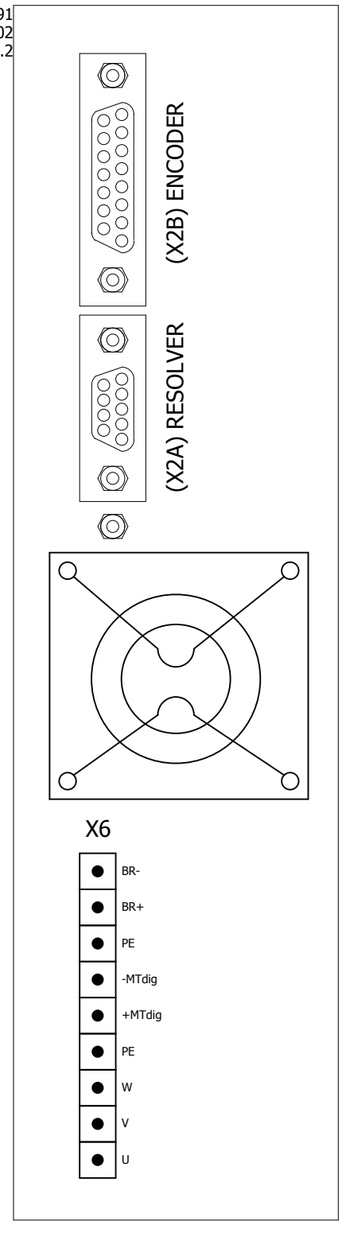
on top

-A01.91
LV servoTEC_S2_102
/39.2



below

-A01.91
LV servoTEC_S2_102
/39.2



			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		A1 LV servoTEC_S2_102 Overview	= 102
			Ed. by	Messmer				+ CC1
			Appr				1078978	Page 39
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg 110

-A01.91
/39.2

LV servoTEC S2

Supply voltage [X09]

Schutzerdung

-X09: L 1 | N 2 | ZK+ 3 | ZK- 4 | BR-INT 5 | BR-CH 6 | PE 7 | +24V 8 | GND24V 9

2.3 / -A01.91_PE
5.1 / -A01.91_X09_1
5.1 / -A01.91_X09_2
5.1 / -A01.91_X09_7

I/O-communication [X01]

-X01: AGND 1 | AGND 14 | AINO 2 | #AINO 15 | AIN1 3 | AIN2 16 | +VREF 4 | AMON0 17 | AMON1 5 | +24V 18 | GND24 6 | DIN0 19 | DIN1 7 | DIN2 20 | DIN3 (Power supply Release) 8 | DIN4 21 | DIN5 (Regulator Release) 9 | DIN6 (END. NEG.) 22 | DIN7 (END. POS.) 10 | DIN8 (REF.) 23 | DIN9 11 | DOUT0 (READY) 24 | DOUT1 12 | DOUT2 25 | DOUT3 13

-W01.92A01: VT 0,14 | BK 0,14 | GY 0,14 | BN 0,14 | WH 0,14 | RD 0,14 | WH BK 0,14 | RD 0,14 | WH BN 0,14 | OG 0,14 | WH RD 0,14 | YE 0,14 | WH OG 0,14 | GN 0,14 | WH YE 0,14 | BU 0,14 | SH

Safe Standstill [X03]

-X03: 24V 1 | REL 2 | 0V 3 | n.c. 4 | NC1 5 | NC2 6

11.2 / -A01.91_X03_5
47.9 / -A02.91_X03_5

-A01.92
/38.2

-X01: n.c. 1 | n.c. 14 | n.c. 2 | n.c. 15 | n.c. 3 | n.c. 16 | n.c. 4 | n.c. 17 | n.c. 5 | +24V 18 | GND24 6 | DIN0 19 | DIN1 7 | DIN2 20 | DIN3 8 | DIN4 21 | DIN5 9 | DIN6 22 | DIN7 10 | DIN8 23 | DIN9 11 | DOUT0 24 | DOUT1 12 | DOUT2 25 | DOUT3 13

I/O-communication

LV servoTEC S2 IO-Adapter

Supply / release IN

-X04: +24V + | GND 0 | Endstufen Freigabe EF | Regler Freigabe RF

I/O

-X06: PE PE | DIN9 I9 | DOUT0 O0 | DOUT1 O1 | DOUT2 O2 | DOUT3 O3

2.5 / -A01.92_X06_1

Supply / release OUT

-X05: Regulator Release RF | Power supply Release EF | GND 0 | +24V +

47.3 / -A02.92_X04_4
47.3 / -A02.92_X04_3
47.3 / -A02.92_X04_2
47.3 / -A02.92_X04_1

-X1.1 +36
-X1.1 -13
-X1.1 +37
-X1.1 +30
-X1.1 +21
-X1.1 +31

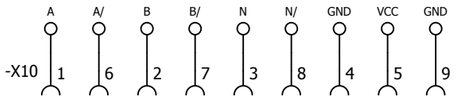
7.9 / -L01.06+ → L01.06+ / 52.0
6.7 / -L01.91+ → L01.91+ / 47.0
6.8 / -L02.91+ → L02.91+ / 47.0
29.9 / -1L → 1L- / 47.0

			Date	03.02.2009		A1 LV servoTEC S2 Supply voltage	= 102
			Ed. by	Messmer	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		+ CC1
			Appr			1078978	Page 40
Modification	Date	Name	Version	V0.01	Replacement for / Replaced by		Pg 110

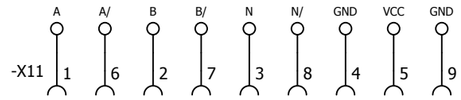
-A01.91
/39.2

LV servoTEC S2

Incremental encoder Input [X10]



Incremental encoder Output [X11]



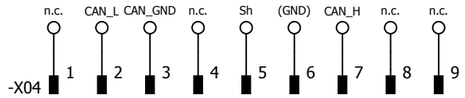
			Date	03.02.2009		A1 LV servoTEC S2 Incremental encoder	= 102	
			Ed. by	Messmer			+ CC1	
			Appr		PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		1078978	Page 41
Modification	Date	Name	Version	V0.01	Replacement for / Replaced by			Pg 110

-A01.91
/39.2

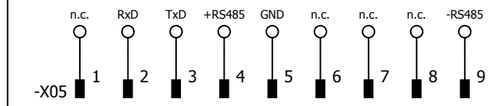
LV servoTEC S2

Bus address:1

CAN [X04]



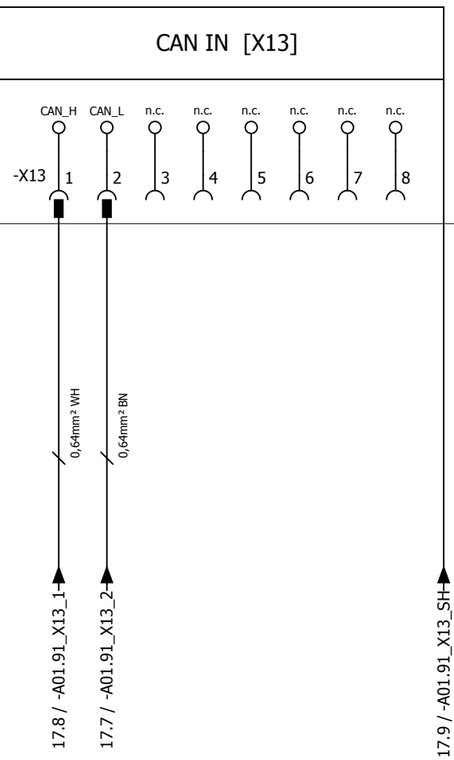
RS232/COM [X05]



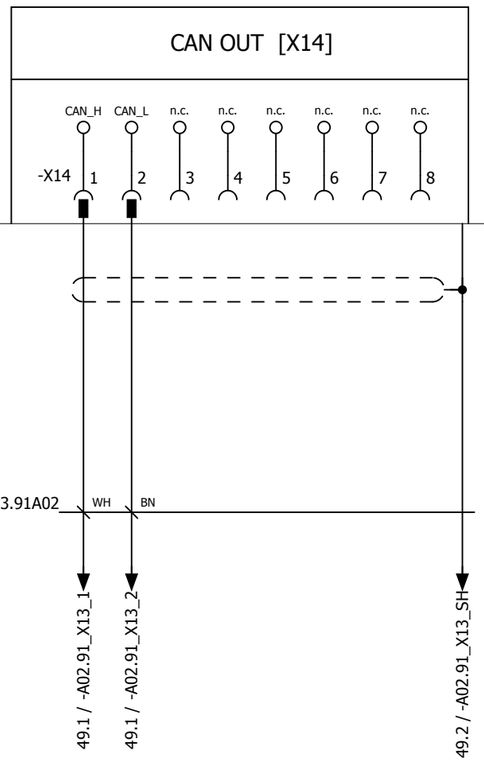
-A01.91-A01.32
/39.2

Terminating resistor

CAN IN [X13]



CAN OUT [X14]



			Date	03.02.2009		A1 LV servoTEC S2 CAN / RS232	= 102	
			Ed. by	Messmer			+ CC1	
			Appr		PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		1078978	Page 42
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg 110

-A01.91
/39.2

LV servoTEC S2

Motor connection [X06]

-X06: PE 6 | U2 9 | V2 8 | W2 7 | BR- 1 | BR+ 2 | -MTdig 4 | +Mtdig 5 | PE 3

SH1
SH
-W01.51M01 /43.0 9 m

-W01.51M01: GNYE U | V | W | BN2 | BN1

-M01.51

-X01: PE PE | U U | V V | W W | B B | A A

Motor

Resolver connection [X02A]

-X02A: Mt+ 5 | Mt- 8 | R1 4 | R2 9 | SINUS- 6 | SINUS+ 1 | COS- 7 | COS+ 2 | AGND 3

PE

Encoder connection [X02B]

-X02B: #COS 7 | COS 14 | #SIN 8 | SIN 15 | DATA 12 | #DATA 5 | SCLK 13 | #SCLK 6 | U_SENS+ 9 | U_SENS- 2 | US 10 | GND 3 | MT+ 1 | n.c. 11 | n.c. 4

SH
-W02.51M01 /43.6

-W02.51M01: WH 0,25 | BN 0,25 | GN 0,25 | YE 0,25 | GY 0,25 | PK 0,25 | BU 0,25 | RD 0,25 | BK 0,25 | VT 0,25 | GYPK 0,25 | RDBU 0,25 | WHGN 0,25 | BNGN 0,25

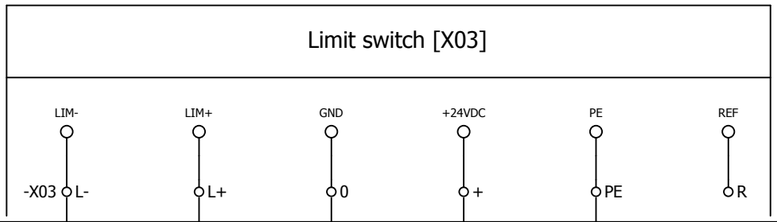
-X02: 9 COS B+ | 1 COS B- | 11 SIN A+ | 3 SIN A- | 13 #DATA | 5 DATA | 15 #CLOCK | 8 CLOCK | 10 0V | 12 Up | 2 0V | 4 Up | 7 Thermo | 14 Thermo

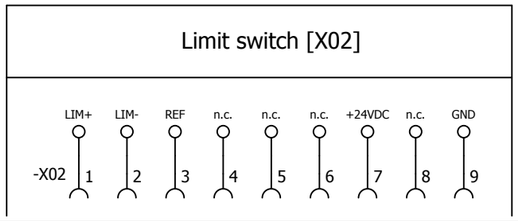
Sinus-Cosinus Encoder

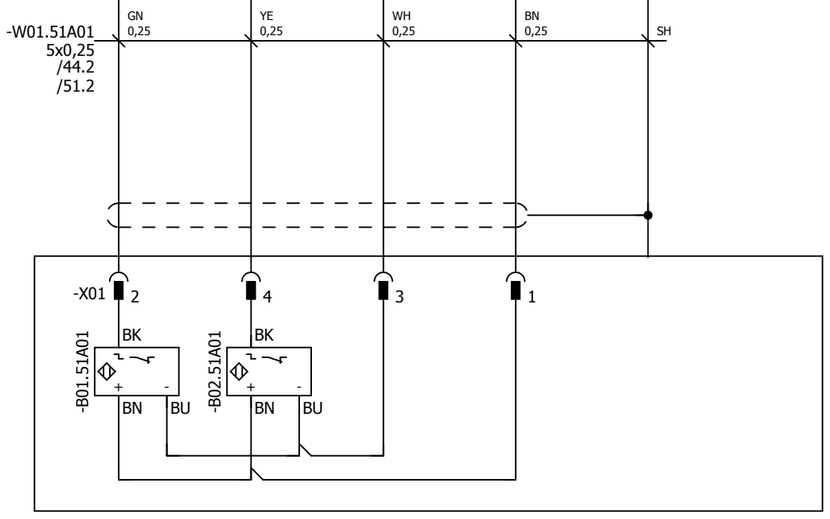
			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX	A1 LV servoTEC S2 Motor connection	= 102 + CC1
			Ed. by	Messmer			
			Appr				1078978 Page 43
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by	Pg 110

-A01.92
/38.2

LV servoTEC S2 IO-Adapter

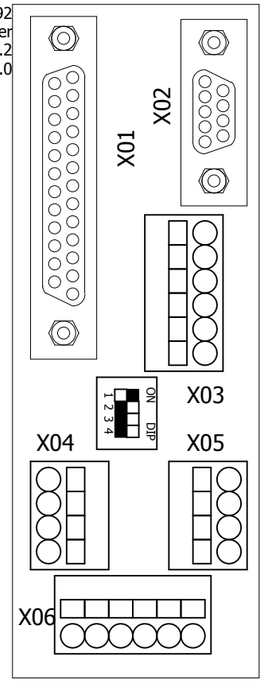






			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		A1 LV servoTEC S2 Axis limit switch	= 102 + CC1
			Ed. by	Messmer				
			Appr				1078978	Page 44
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg 110

-A02.92
LV servoTEC S2 IO-adapter
/47.2
/51.0



Offset-address			
DIP 1234	0	DIP 1234	8
DIP 1234	1	DIP 1234	9
DIP 1234	2	DIP 1234	10
DIP 1234	3	DIP 1234	11
DIP 1234	4	DIP 1234	12
DIP 1234	5	DIP 1234	13
DIP 1234	6	DIP 1234	14
DIP 1234	7	DIP 1234	15

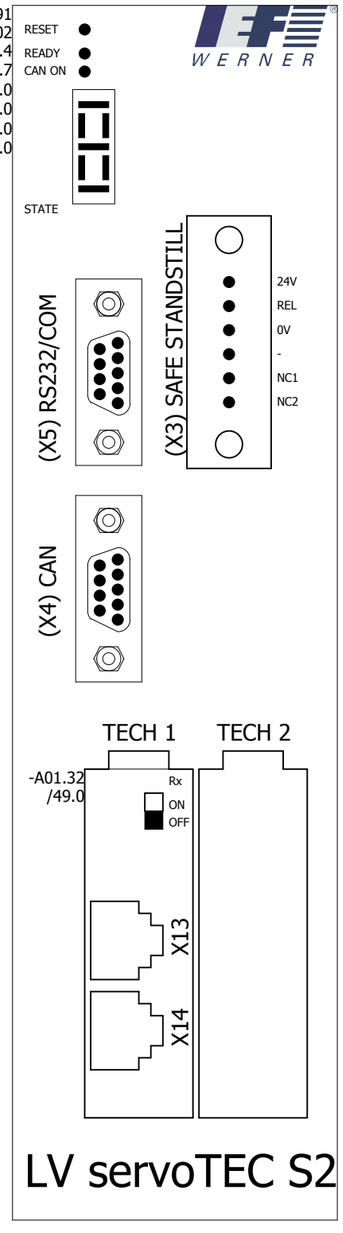
Fieldbus	Base address (is set withS2 Commander)
CAN Open	Base Node number
Profibus	Slave-address
SERCOS	Drive-address

Bus address calculation: Bus-address = Base address + Offset-address

0	1	2	3	4	5	6	7	8	9

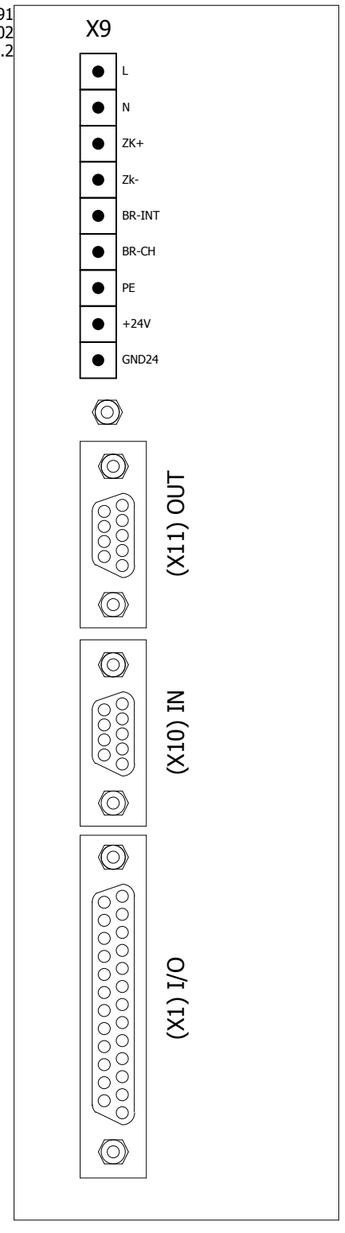
front

-A02.91
LV servoTEC_S2_102
/46.4
/46.7
/48.0
/49.0
/47.0
/50.0



on top

-A02.91
LV servoTEC_S2_102
/46.2



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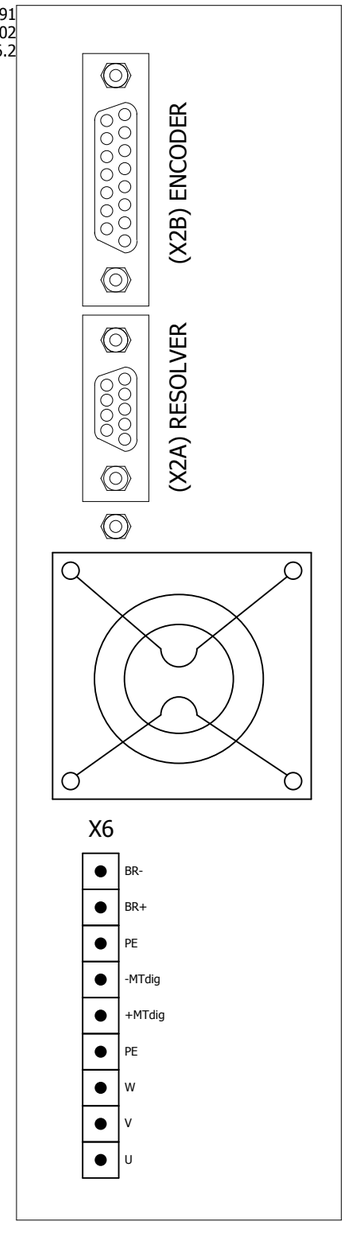
-A02.91
LV servoTEC_S2_102
/46.2



			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		A2 LV servoTEC_S2_102 Overview	= 102	
			Ed. by	Messmer				+ CC1	
			Appr					1078978	Page 46
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by			Pg 110

-A02.91
/46.2

LV servoTEC S2

Supply voltage [X09]

Schutzerdung

-X09: L 1 | N 2 | ZK+ 3 | ZK- 4 | BR-INT 5 | BR-CH 6 | PE 7 | +24V 8 | GND24V 9

2.4 / -A02.91_PE

5.3 / -A02.91_X09_1

5.3 / -A02.91_X09_2

5.3 / -A02.91_X09_7

I/O-communication [X01]

-X01: AGND 1 | AGND 14 | AINO 2 | #AINO 15 | AIN1 3 | AIN2 16 | +VREF 4 | AMON0 17 | AMON1 5 | +24V 18 | GND24 6 | DIN0 19 | DIN1 7 | DIN2 20 | DIN3 8 | DIN4 (Power supply Release) 21 | DIN5 (Regulator Release) 9 | DIN6 (END. NEG.) 22 | DIN7 (END. POS.) 10 | DIN8 (REF.) 23 | DIN9 11 | DOUT0 (READY) 24 | DOUT1 12 | DOUT2 25 | DOUT3 13

-W01.92A02: VT 0,14 | BK 0,14 | GY 0,14 | BN 0,14 | WH 0,14 | RD 0,14 | WH BK 0,14 | RD 0,14 | WH BN 0,14 | OG 0,14 | WH RD 0,14 | YE 0,14 | WH OG 0,14 | GN 0,14 | WH YE 0,14 | BU 0,14 | SH

Safe Standstill [X03]

-X03: 24V 1 | REL 2 | 0V 3 | n.c. 4 | NC1 5 | NC2 6

40.9 / -A02.91_X03_5

11.2 / -K02.04_Y34

-A02.92
/45.2

-X01: n.c. 1 | n.c. 14 | n.c. 2 | n.c. 15 | n.c. 3 | n.c. 16 | n.c. 4 | n.c. 17 | n.c. 5 | +24V 18 | GND24 6 | DIN0 19 | DIN1 7 | DIN2 20 | DIN3 8 | DIN4 21 | DIN5 9 | DIN6 22 | DIN7 10 | DIN8 23 | DIN9 11 | DOUT0 24 | DOUT1 12 | DOUT2 25 | DOUT3 13

I/O-communication

LV servoTEC S2 IO-Adapter

Supply / release IN

-X04: +24V + | GND 0 | Endstufen Freigabe EF | Regler Freigabe RF

40.7 / -A02.92_X04_1

40.7 / -A02.92_X04_2

40.7 / -A02.92_X04_3

40.6 / -A02.92_X04_4

I/O

-X06: PE PE | DIN9 I9 | DOUT0 O0 | DOUT1 O1 | DOUT2 O2 | DOUT3 O3

2.6 / -A02.92_X06_1

Supply / release OUT

-X05: Regulator Release RF | Power supply Release EF | GND 0 | +24V +

-X1.1 +38

-X1.1 -14

40.9 / -L01.91+

40.9 / -L02.91+

40.9 / -1L-

-L01.91+ / 52.0

-L02.91+ / 52.0

-1L- / 52.0

46

48

			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX	
			Ed. by	Messmer		
			Appr			
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by

A2 LV servoTEC S2
Supply voltage

= 102
+ CC1

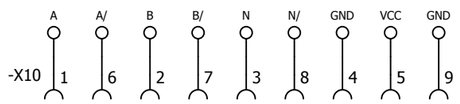
1078978

Page 47
Pg 110

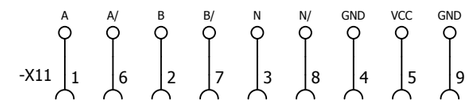
-A02.91
/46.2

LV servoTEC S2

Incremental encoder Input [X10]



Incremental encoder Output [X11]

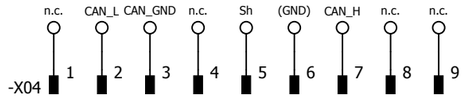


-A02.91
/46.2

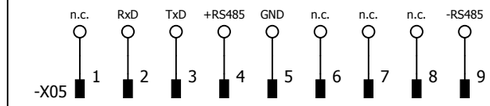
LV servoTEC S2

Bus address:2

CAN [X04]



RS232/COM [X05]

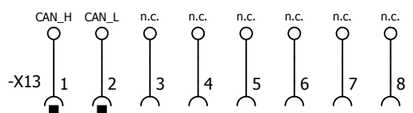


-A02.91-A01.32
/46.2

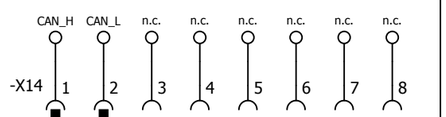
Terminating resistor

ON
OFF

CAN IN [X13]



CAN OUT [X14]



0,64mm² WH

0,64mm² BN

42.3 / -A02.91_X13_1

42.4 / -A02.91_X13_2

42.5 / -A02.91_X13_SH

-W01.62A01 WH BN

24.1 / -A01.62_X01_2

24.1 / -A01.62_X01_4

24.1 / -A01.62_X01_3

			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX	A2 LV servoTEC S2 CAN / RS232	= 102 + CC1
			Ed. by	Messmer			
			Appr			1078978	Page 49
Modification	Date	Name	Version	V0.01	Replacement for / Replaced by		Pg 110

-A02.91
/46.2

LV servoTEC S2

Motor connection [X06]

-X06: PE 6 | U2 9 | V2 8 | W2 7 | BR- 1 | BR+ 2 | -MTdig 4 | +Mtdig 5 | PE 3

PE

SH1

SH

-W01.51M02 /50.0 9 m

-W01.51M02: GNYE | U | V | W | BN2 | BN1

Resolver connection [X02A]

-X02A: Mt+ 5 | Mt- 8 | R1 4 | R2 9 | SINUS- 6 | SINUS+ 1 | COS- 7 | COS+ 2 | AGND 3

SH | SH5 | SH6 | SH2 | SH3 | SH4

-W02.51M02 /50.3

-W02.51M02: BN | WH | RD | BU | YE | GN | GY | PK

Encoder connection [X02B]

-X02B: #COS 7 | COS 14 | #SIN 8 | SIN 15 | DATA 12 | #DATA 5 | SCLK 13 | #SCLK 6 | U_SENS+ 9 | U_SENS- 2 | US 10 | GND 3 | MT+ 1 | n.c. 11 | n.c. 4

-M02.51

-X01: PE | U | V | W | B | A

-X02: 2 THERMO | 6 THERMO | 5 REF+ | 9 REF- | 4 SINUS- | 8 SINUS+ | 7 COS- | 3 COS+

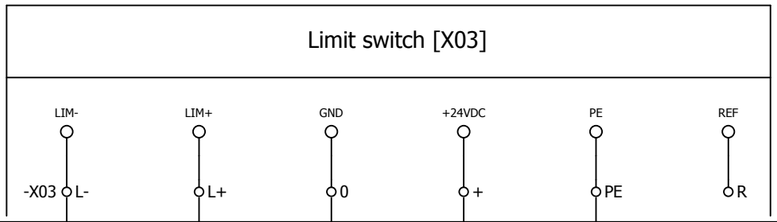
Motor

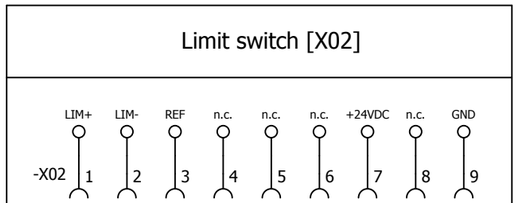
Resolver

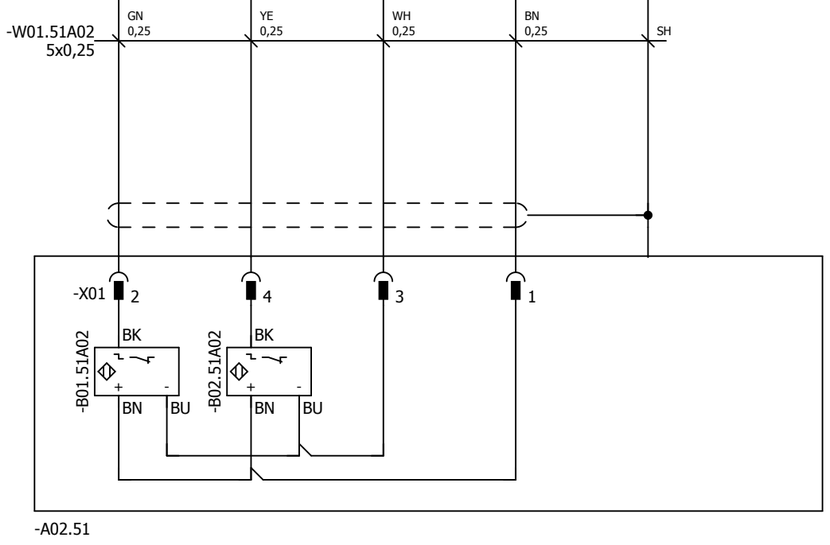
			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX	A2 LV servoTEC S2 Motor connection	= 102 + CC1
			Ed. by	Messmer			
			Appr				1078978 Page 50
Modification	Date	Name	Version	V0.01	Replacement for / Replaced by		Pg 110

-A02.92
/45.2

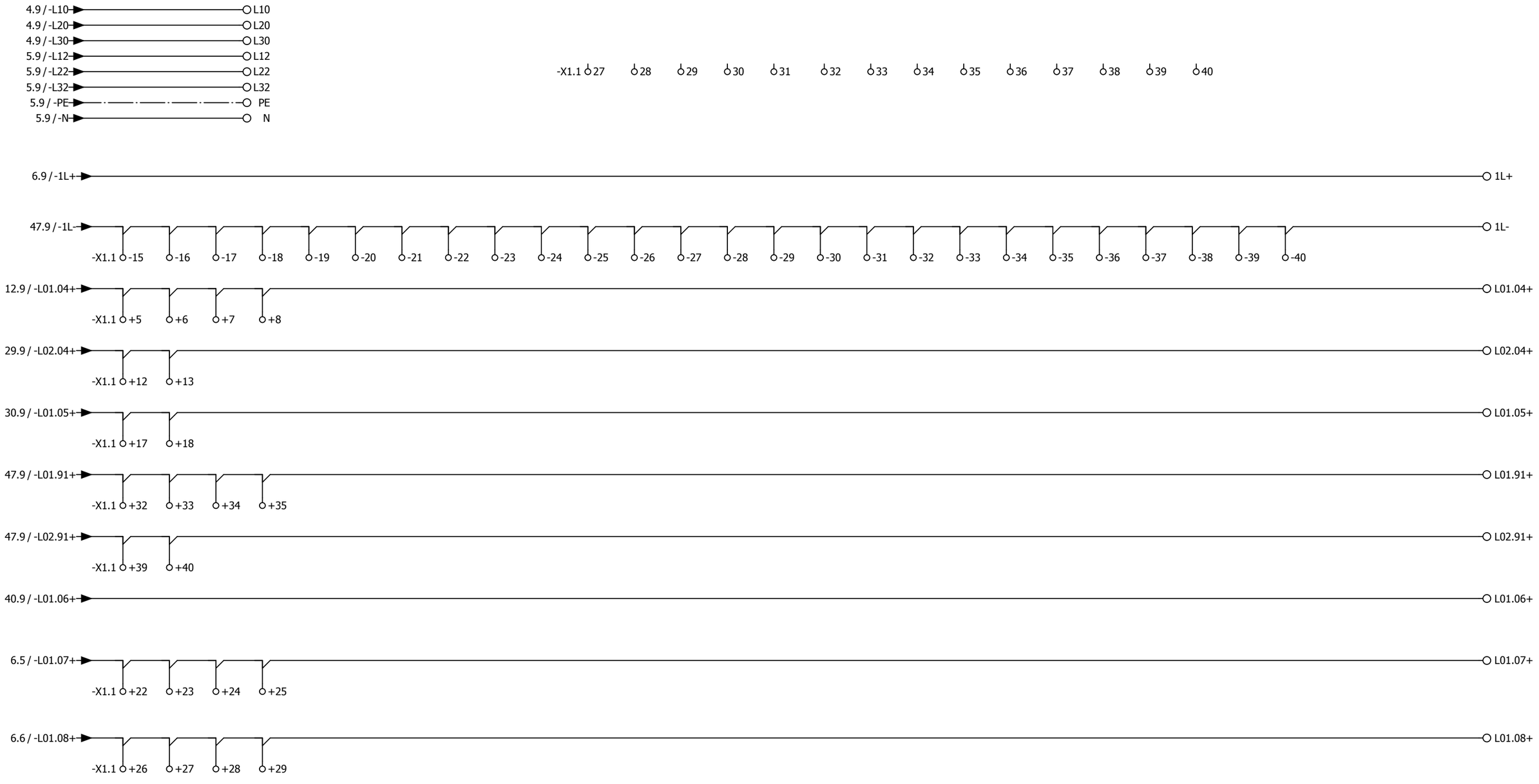
LV servoTEC S2 IO-Adapter





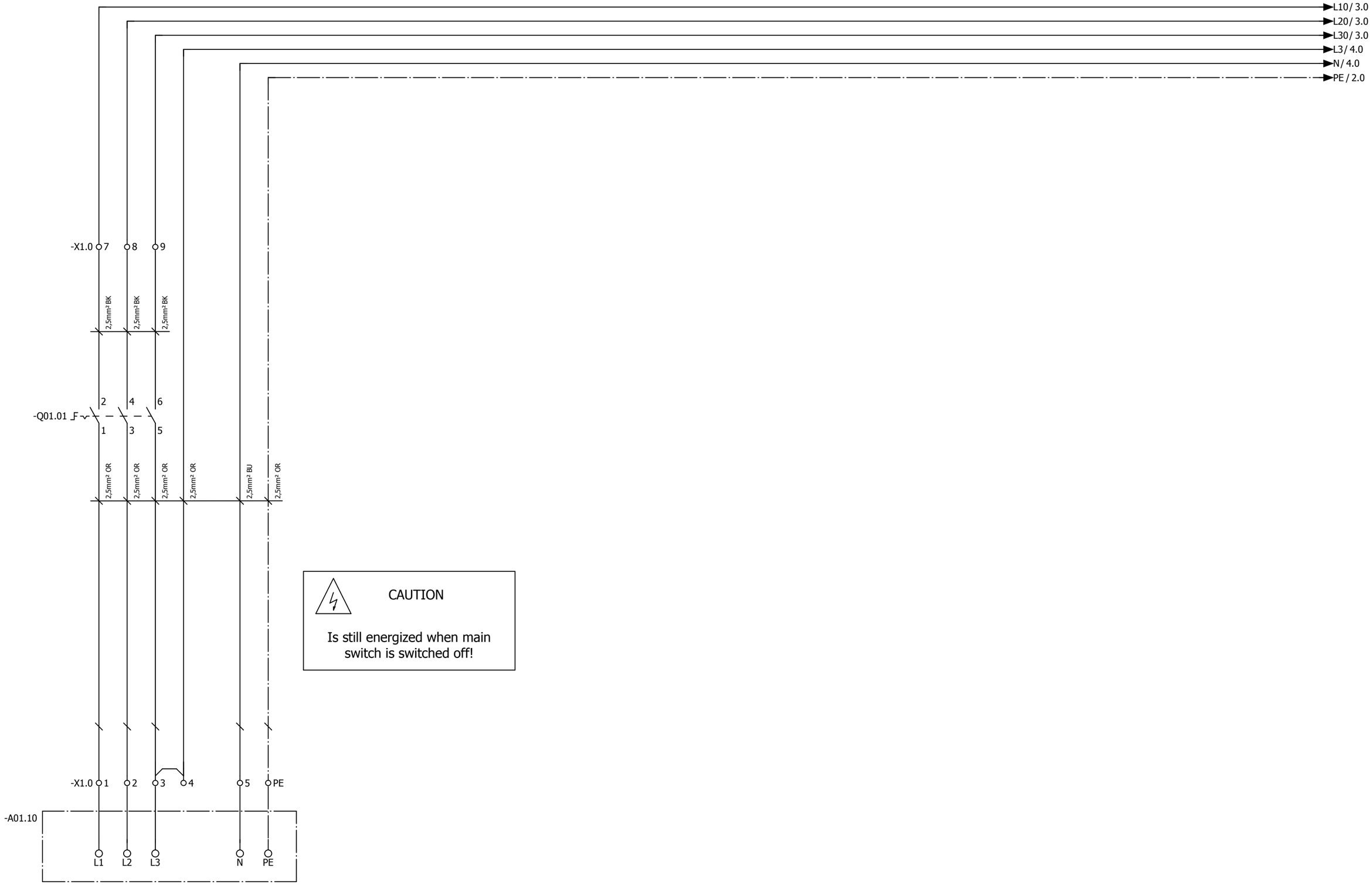


			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		A2 LV servoTEC S2 Axis limit switch	= 102 + CC1
			Ed. by	Messmer				
			Appr				1078978	Page 51
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg 110



			Date	03.02.2009			= 102	
			Ed. by	Messmer			+ CC1	
			Appr		PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		1078978	Page 52
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg 110

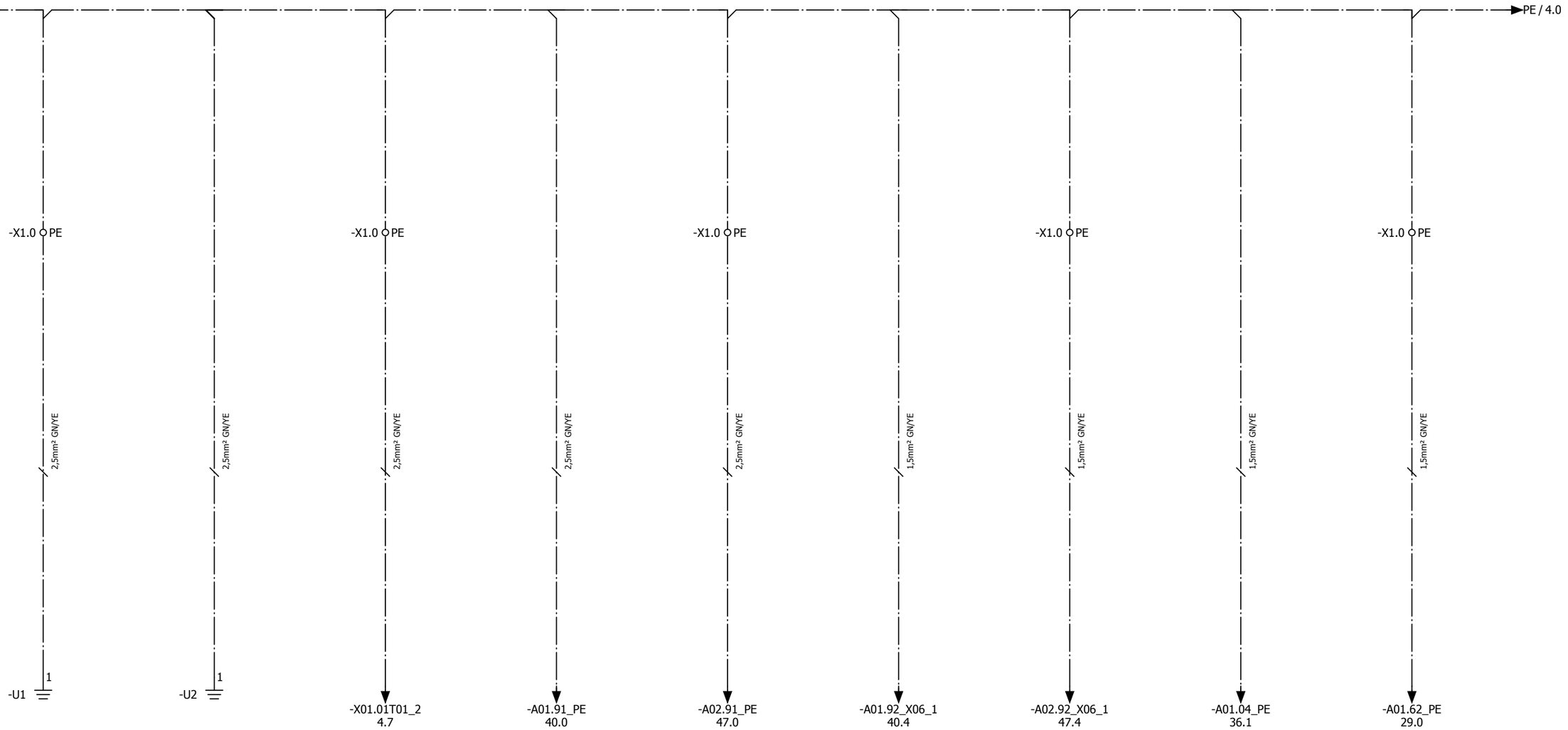
WERNER Spare clamps



CAUTION

Is still energized when main switch is switched off!

			Date	03.02.2009		Power supply		= 105
			Ed. by	Messmer				+ CC1
			Appr		PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		1078978	Page 1
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg 110



Mounting plate 1 | Switch cabinet housing | PE module 24V | A1 LV servoTEC | A2 LV servoTEC | A1 LV servoTEC I/O-Module | A2 LVservoTEC I/O-Module | Supply clamp | Bus coupler

			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX	PE-arrangement	= 105
			Ed. by	Messmer			+ CC1
			Appr				1078978 Page 2
Modification	Date	Name	Version	V0.01	Replacement for / Replaced by	WERNER	Pg 110

1.9 / -L10
1.9 / -L20
1.9 / -L30

L10 / 4.0
L20 / 4.0
L30 / 4.0

2,5mm² BK
2,5mm² BK
2,5mm² BK

-F03.91
C13A
1 3 5
2 4 6

-Q01.04K01
/9.7
1 3 5
2 4 6

-Q02.04K01
/9.7
1 3 5
2 4 6

5.0 / -L12
5.0 / -L22
5.0 / -L32

400V
Switch off after
emergency
stop situation time-delayed

			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX	Arrangement 400V	= 105	
			Ed. by	Messmer			+ CC1	
			Appr				1078978	Page 3
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg 110

3.9 / L10
3.9 / L20
3.9 / L30
1.9 / L3
1.9 / N
2.9 / PE

L10 / 52.0
L20 / 52.0
L30 / 52.0
N / 5.0
PE / 5.0

-F01.01
C10A
1
2

1,5mm² OR
2,5mm² GN/YE
2,5mm² BU
1,5mm² GN/YE
1,5mm² BU

-X2.0 1 1PE 1N 2 2PE 2N

L PE N
-X01.10

-F01.02
C10A
1
2

1,5mm² BK
1,5mm² GN/YE
1,5mm² BU
1,5mm² BU
1,5mm² GN/YE

3 3PE 3N 4 4PE 4N

-T01.01
24V Power supply
L PE N
+ + - - -

DK/BU 1,5mm²
DK/BU 1,5mm²
1L+ 6.0
1L- 6.0

2.2
-X01.01T01_2

-X01.01T01
4 - 3 +
PE
2

Service-outlet
Switch cabinet

Spare

24V Power supply

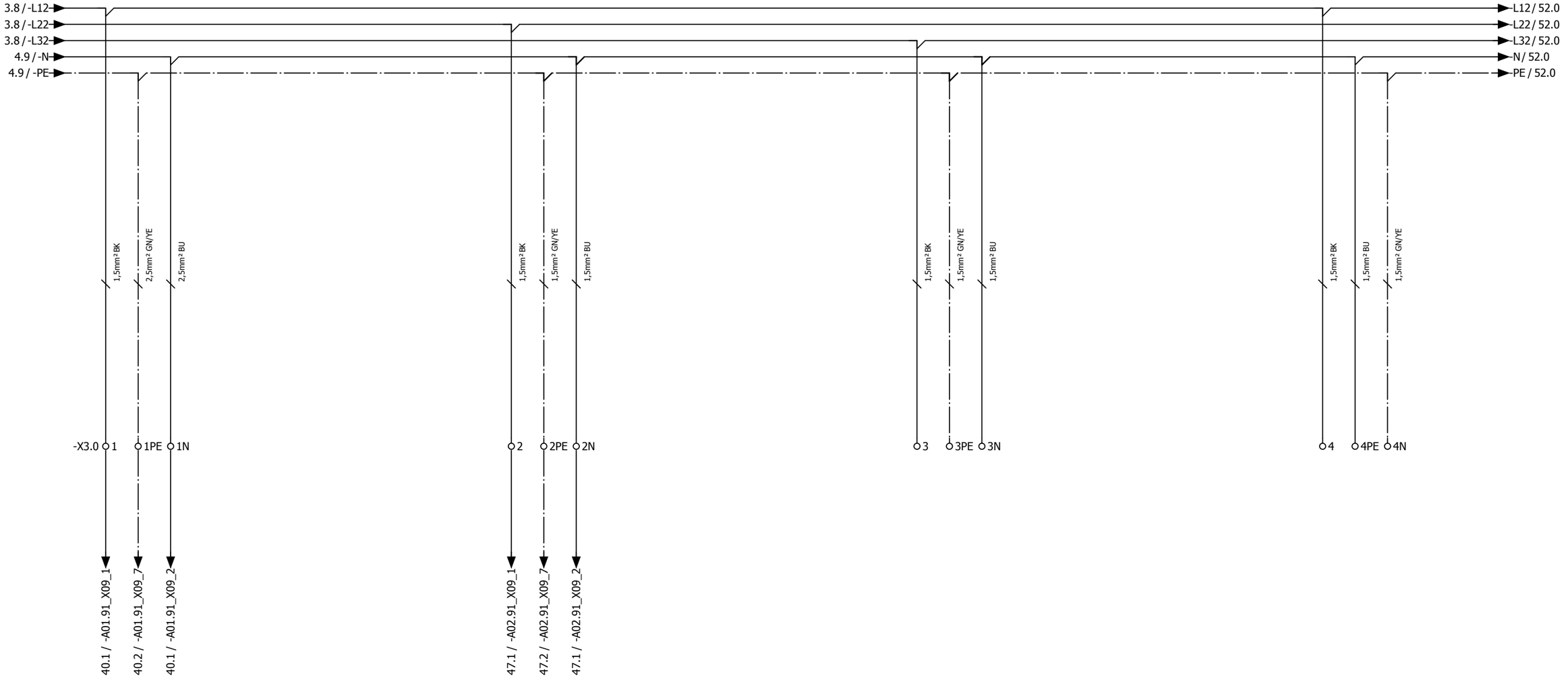
Earthed disconnect terminal

Spare

			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX	
			Ed. by	Messmer		
			Appr			
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by

Service-outlet / 24V Power supply

= 105
+ CC1
1078978
Page 4
Pg 110



Supply voltage
LV servoTEC 1

Supply voltage
LV servoTEC 2

4 6

			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		Supply voltage LV servoTEC	= 105	
			Ed. by	Messmer				+ CC1	
			Appr				1078978	Page	5
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg	110

4.5 / 1L+ → DK/BU 2,5mm²

1L+ / 52.0 ← DK/BU 2,5mm²

MICO 4.6 Power control

-F01.00

+24V

13 / 14 /32.4

+24V

+24V

+24V — +24V

-F01.04 2A

-F02.04 6A

-F01.05 4A

-F01.06 4A

0V — 0V

GND | 1 | 2 | 3 | 4 | GND

0,75mm² DK/BU

-Q01.04K03 /12.5 53 / 54

-Q02.04K03 /12.6 53 / 54

Clamp 1-8 → -L01.04+ 9.0

Clamp 9-13 → -L02.04+ 7.0

Clamp 14-19 → -L01.05+ 7.0

Clamp 20-21 → -L01.06+ 7.0

MICO 4.10 Power control

-F02.00

+24V

13 / 14 /32.4

+24V

+24V

-F01.07 4A

-F01.08 4A

-F01.91 6A

-F02.91 8A

GND | 1 | 2 | 3 | 4 | GND

0,75mm² DK/BU

-Q03.04K03 /12.7 1 / 2

-Q04.04K03 /12.8 1 / 2

-Q01.04K02 /11.7 53 / 54

-Q02.04K02 /11.7 53 / 54

-Q01.04K02 /11.7 73 / 74

-Q02.04K02 /11.7 73 / 74

Clamp 22-25 → -L01.07+ 52.0

Clamp 26-29 → -L01.08+ 52.0

Clamp 30-35 → -L01.91+ 40.0

Clamp 36-49 → -L02.91+ 40.0

-X1.1 -1

4.5 / -1L- → -1L- / 7.0

24V Emergency stop	24V General supply	24V Inputs	24V Outputs category A adjust mode without acceptance button	24V Outputs category B adjust mode only with acceptance button	24V Outputs category C adjust mode only with protective doors closed	24V Switch off after emergency stop, door open, time-delayed	24V Supply LVservoTEC

5 7

			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		Fuse protection 24V	= 105
			Ed. by	Messmer				+ CC1
			Appr				1078978	Page 6
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg 110

WERNER

6.2 / L02.04+
6.4 / L01.06+
6.3 / L01.05+

L02.04+ / 14.0
-L01.06+ / 40.0
L01.05+ / 29.0

-X1.1 +19
-X1.1 +20
-X1.1 +9
-X1.1 +10
-X1.1 +14
+15

+CP1-W01.11A01
KAWEFLEX 3130
18x0,75 1
/7.0
/8.1
/8.1
/9.2
/9.2
/12.1

+CP1
-A01.11
/30.0

+CP1
-P01.03K01
/9.2
gn

X1
X2

+CP1-W01.11A01
KAWEFLEX 3130
18x0,75 2

-X1.1 -2
-X1.1 -3
-X1.1 -4
-X1.1 -5

6.9 / 1L-

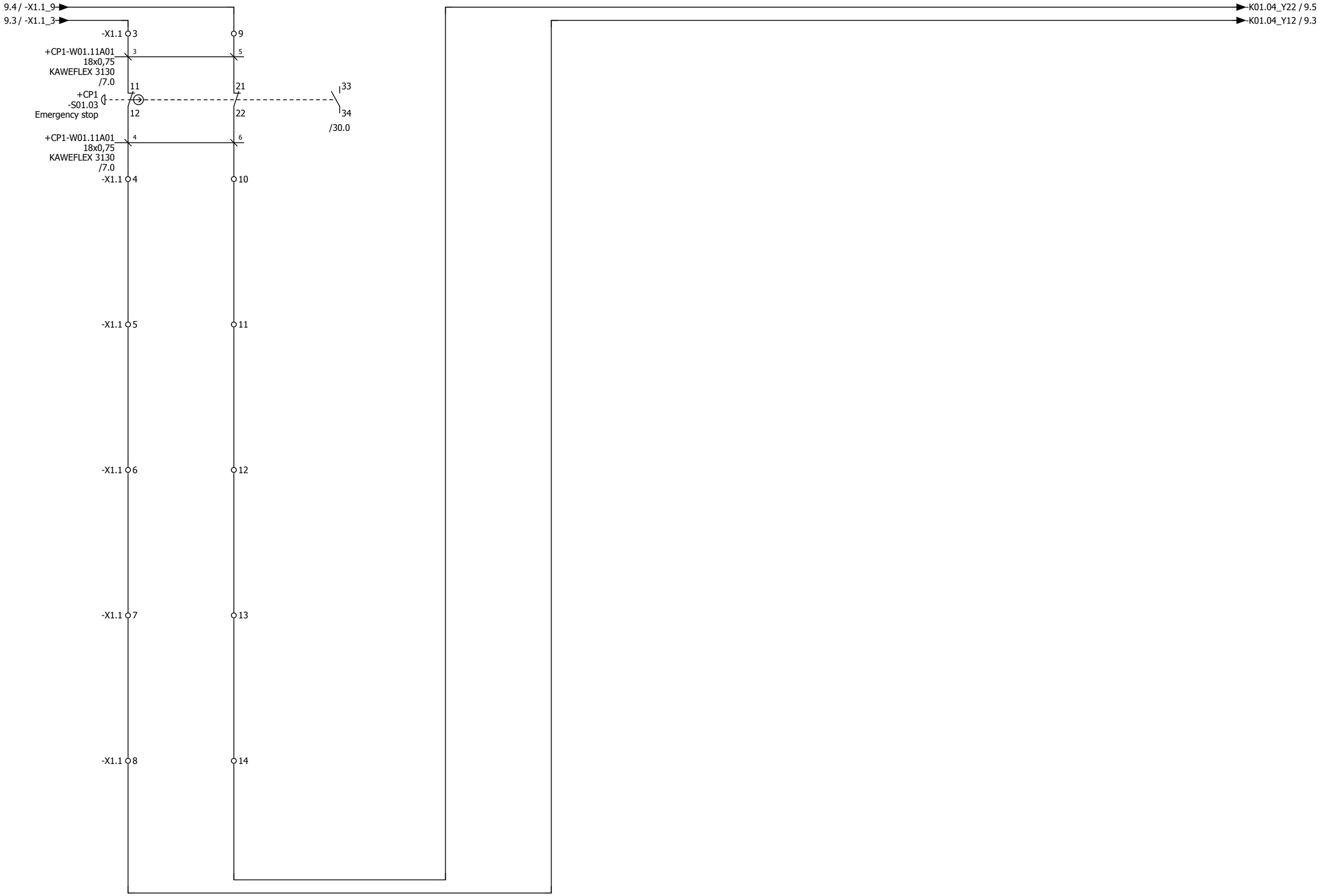
1L- / 9.0

Protection
cycle ON

6 8

			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		Protective circuit Signal ON	= 105
			Ed. by	Messmer				+ CC1
			Appr				1078978	Page 7
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg 110

WERNER



			Date	03.02.2009			= 105	
			Ed. by	Messmer			+ CC1	
			Appr		PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		1078978	Page 8
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg 110

WERNER

Emergency stop chain

6.1 / -L01.04+

-X1.1 +1

-X1.1 +2

L01.04+ / 11.0

+CP1-W01.11A01 7
18x0,75
KAWEFLEX 3130
/7.0

-Q02.04K01 -Q01.04K01 /9.7
21
22
21
22

+CP1
-S01.03K01
ON
13
14
X1
X2
/7.1

+CP1-W01.11A01 8
18x0,75
KAWEFLEX 3130
/7.0

8.0
-X1.1_3

8.9
-K01.04_Y12

8.0
-X1.1_9

8.9
-K01.04_Y22

-X1.1 1

-X1.1 2

-K01.04
3TK2828-2BB41

A1(+) Y33 Y34 Y10 Y11 Y12 Y21 Y22 13 23 47 57 31

SIEMENS

1,5 2,1 1,2 0,6 2,7 0,05 3,0s

13 14
23 24
47 48
57 58
31 32

A2(-) PE 14 24 48 58 32

12.1 / -K03.04_1

32.0 / -A04.02_1E1

-Q01.04K01 A1 A2 -R01.04K01 x1 U x2

-Q02.04K01 A1 A2 -R02.04K01 x1 U x2

-X1.1 -6

-X1.1 -7

7.9 / -1L+

-1L- / 11.0

1 2 /3.8
3 4 /3.8
5 6 /3.8
21 22 /9.1

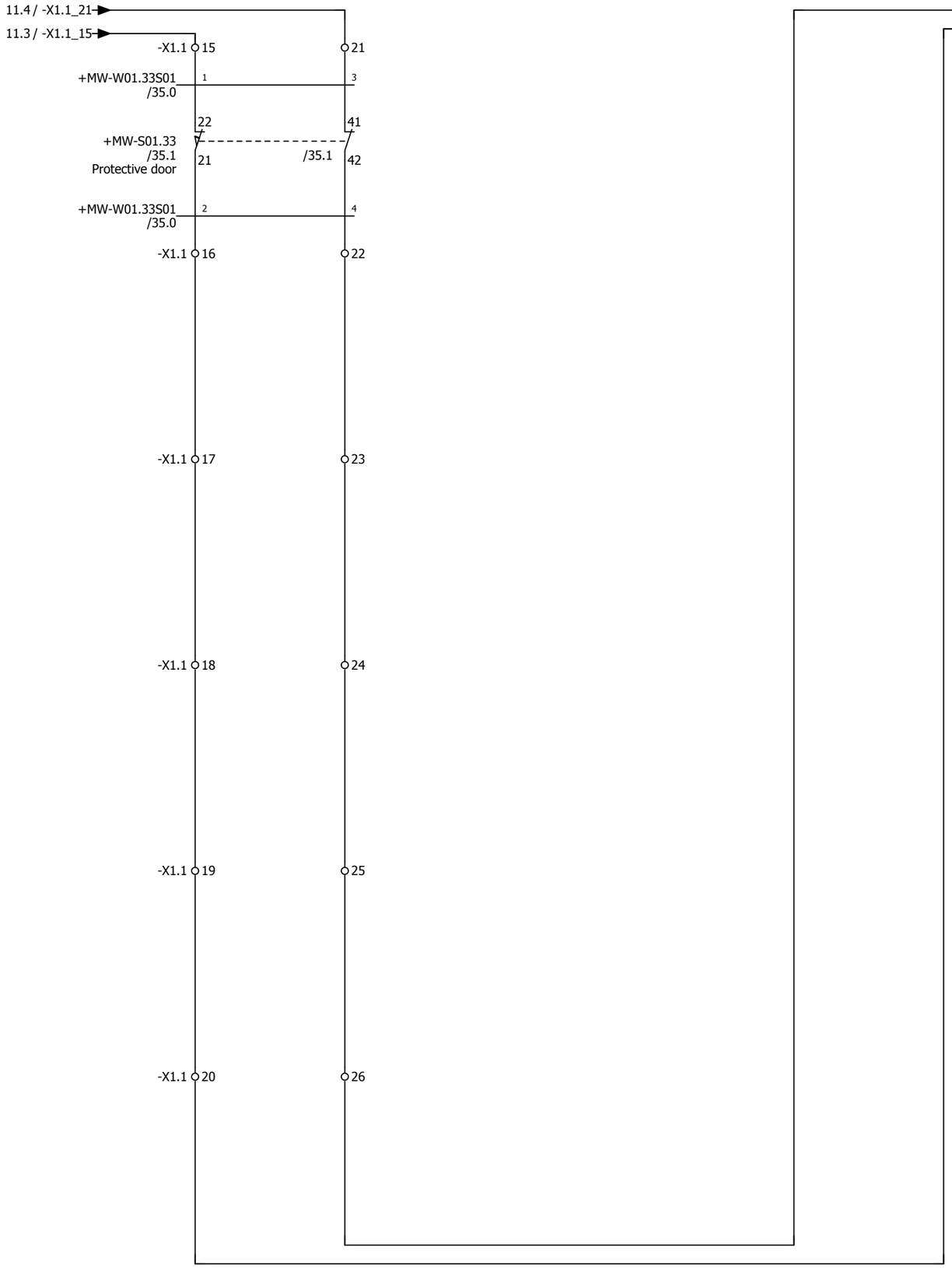
1 2 /3.8
3 4 /3.8
5 6 /3.8
21 22 /9.1

Safety module time-delayed
emergency-stop

8

10

			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		= 105	
			Ed. by	Messmer		Safety module Emergency stop	+ CC1	
			Appr				1078978	Page 9
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg 110



			Date	03.02.2009		Door cycle chain	= 105	
			Ed. by	Messmer			+ CC1	
			Appr		PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		1078978	Page 10
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg 110

0	1	2	3	4	5	6	7	8	9

9.9 / -L01.04+

L01.04+ / 12.0

-X1.1 +3

-Q01.04K02 /11.7
21
22

-Q02.04K02 /11.7
21
22

-A01.91_X03_5
40.9

47.9
-K02.04_Y34

10.0
-X1.1_15

10.9
-K02.04_Y12

10.0
-X1.1_21

10.9
-K02.04_Y22

-K02.04
3TK2828-2BB41

A1(+) Y33 Y34 Y10 Y11 Y12 Y21 Y22 13 23 47 57 31

SIEMENS

1,5 2,1 1,2 0,6 2,7 0,05 3,0s

13 14 /12.3

23 24 /12.4

47 48

57 58

31 32

A2(-) PE 14 24 48 58 32

-Q01.04K02 A1 A2 -R01.04K02 x1 U x2

-Q02.04K02 A1 A2 -R02.04K02 x1 U x2

-X1.1 -8

9.9 / -1L

-1L- / 12.0

Safety module
protective door circuit chain

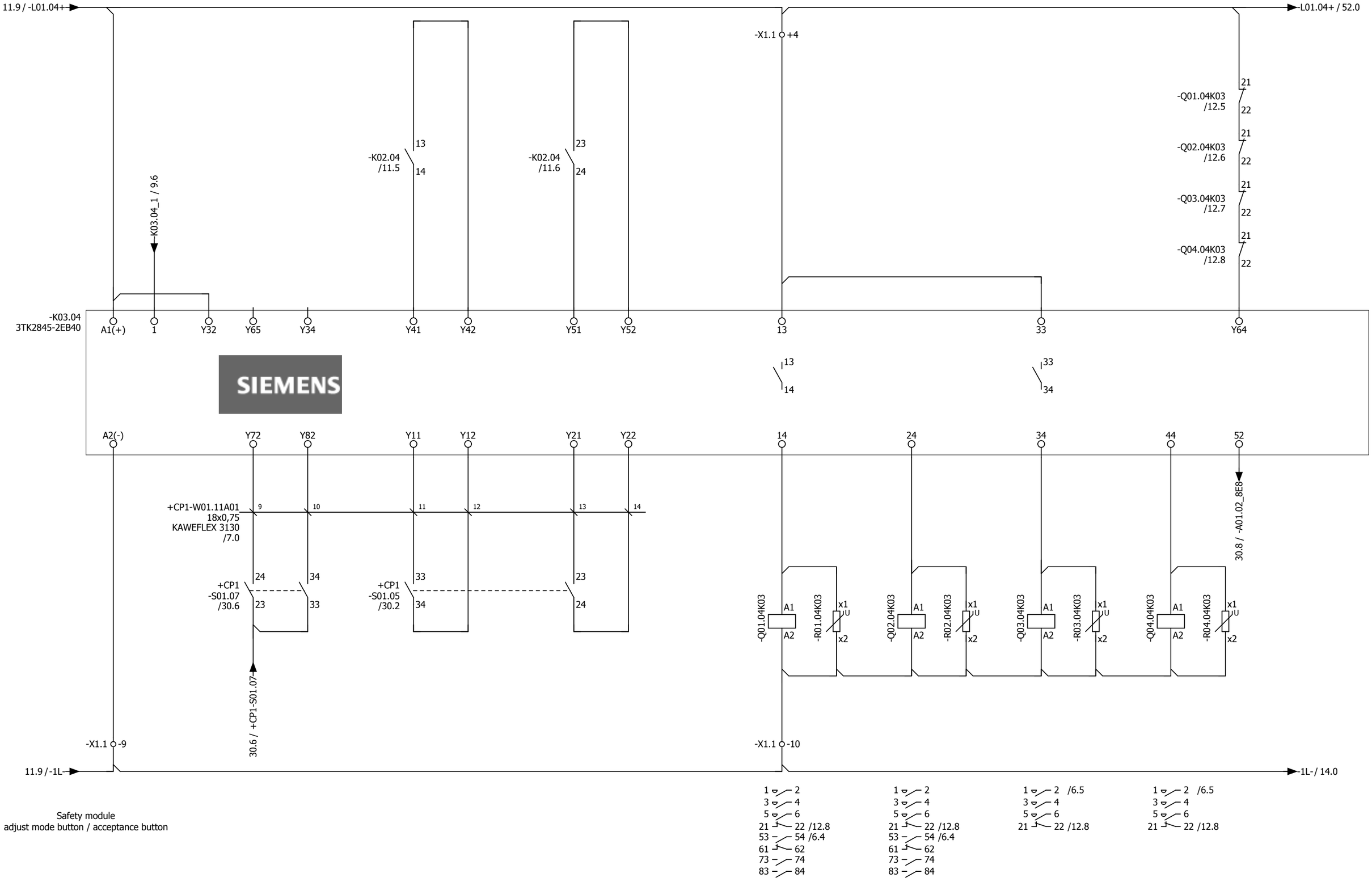
1	2	
3	4	
5	6	
21	22	/11.2
53	54	/6.6
61	62	
73	74	/6.7
83	84	

1	2	
3	4	
5	6	
21	22	/11.2
53	54	/6.6
61	62	
73	74	/6.7
83	84	

10

12

			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX	Safety module protective door circuit chain	= 105
			Ed. by	Messmer			+ CC1
			Appr			1078978	Page 11
Modification	Date	Name	Version	V0.01	Replacement for / Replaced by		Pg 110



Safety module
adjust mode button / acceptance button

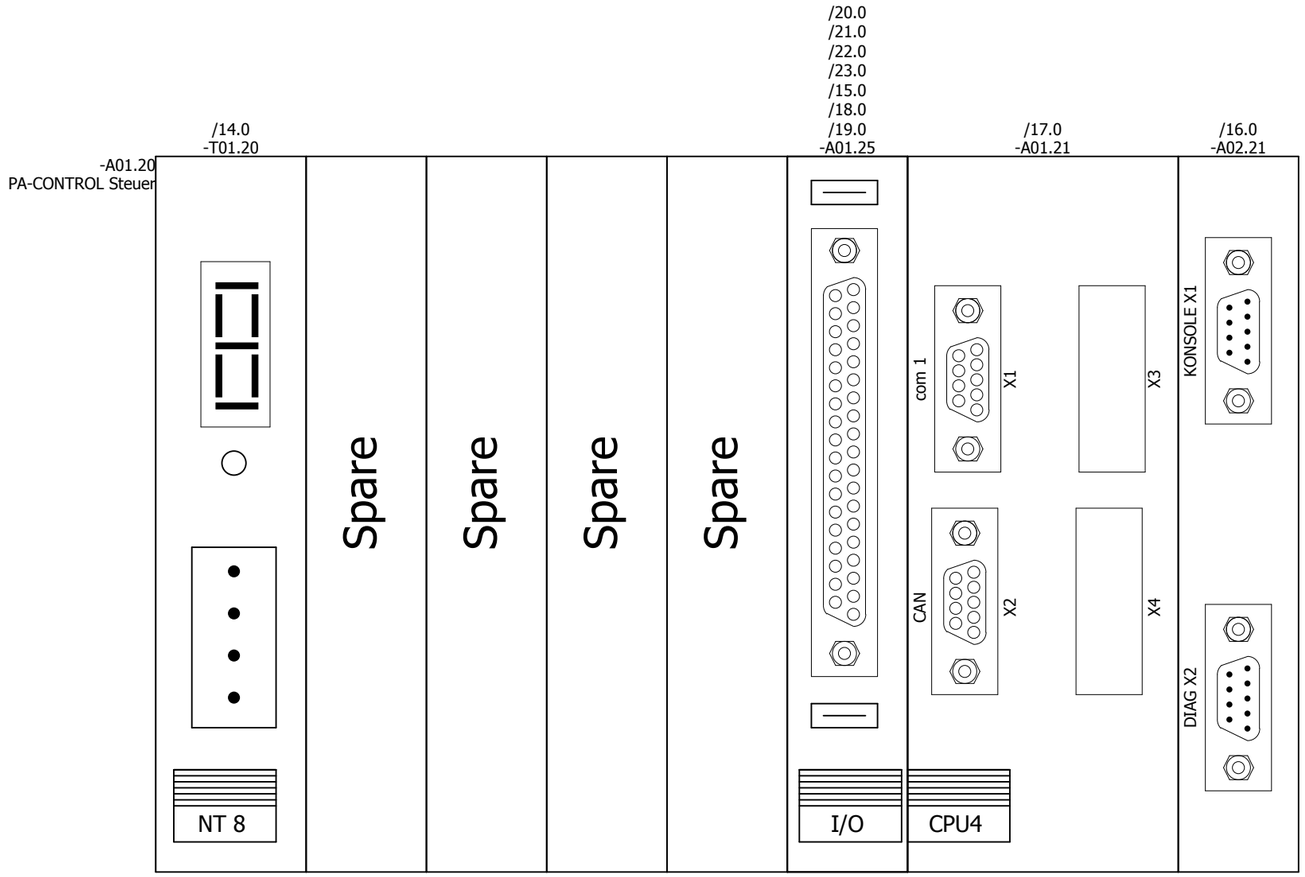
11

13

			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX	
			Ed. by	Messmer		
			Appr			
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by

Safety module door
protective circuit adjust mode button / acceptance button

= 105
+ CC1
1078978
Page 12
Pg 110

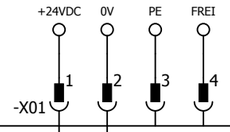


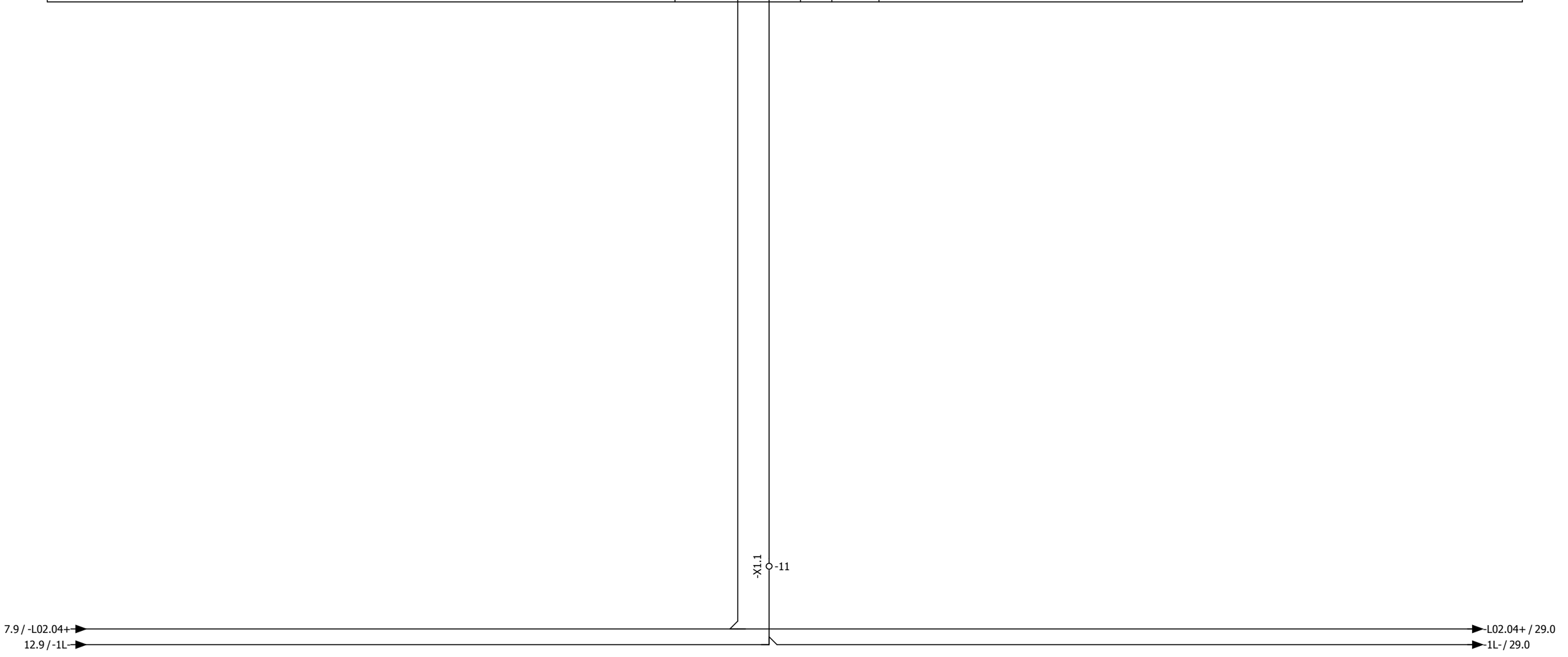
			Date	03.02.2009		PA-CONTROL Steuer Overview	= 105	
			Ed. by	Messmer			+ CC1	
			Appr		PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		1078978	Page 13
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg 110

-T01.20
/13.2

NT 8

Supply Voltage



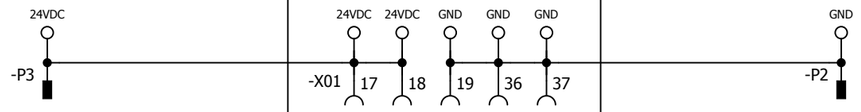


			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		PA-CONTROL Steuer Power supply	= 105
			Ed. by	Messmer				+ CC1
			Appr				1078978	Page 14
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg 110

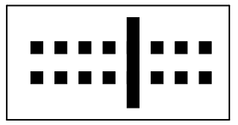
-A01.25
/13.5

I/O-board 1

Supply Voltage



JP1



1. I/O-board

			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		PA-CONTROL Steuer Supply I/O-board 1	= 105	
			Ed. by	Messmer				+ CC1	
			Appr					1078978	Page 15
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by			Pg 110

-A02.21
/13.6

KONSOLE / DIAG

KONSOLE

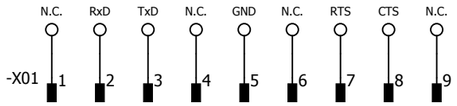
DIAG

			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		PA-CONTROL Steuer Panel / Diag	= 105
			Ed. by	Messmer				+ CC1
			Appr				1078978	Page 16
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg 110

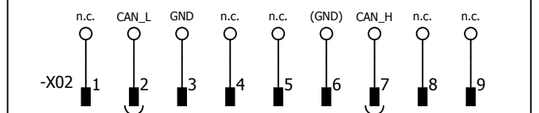
-A01.21
/13.5

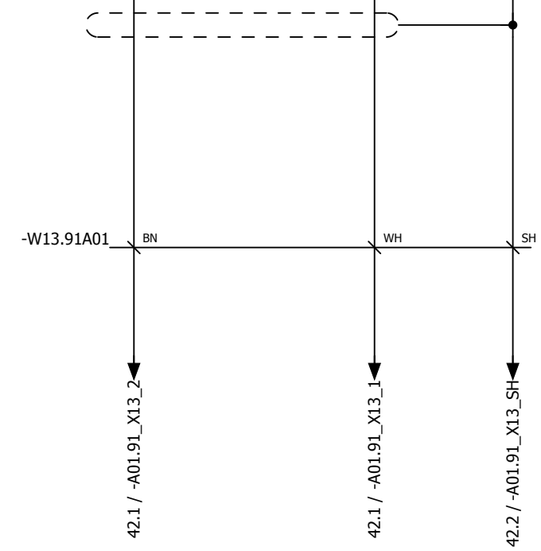
CPU 4

COM 1



CAN Bus





			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		= 105	
			Ed. by	Messmer		PA-CONTROL Steuer CPU 4 / CAN bus	+ CC1	
			Appr				1078978	Page 17
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg 110

0	1	2	3	4	5	6	7	8	9

-A01.25
/13.5

I1	/20.0	-A01.25-X01:1	Spare
I2	/20.2	-A01.25-X01:2	Spare
I3	/20.3	-A01.25-X01:3	Spare
I4	/20.4	-A01.25-X01:4	Spare
I5	/20.5	-A01.25-X01:5	Spare
I6	/20.6	-A01.25-X01:6	Spare
I7	/20.7	-A01.25-X01:7	Spare
I8	/20.8	-A01.25-X01:8	Spare
I9	/21.0	-A01.25-X01:9	Spare
I10	/21.2	-A01.25-X01:10	Spare
I11	/21.3	-A01.25-X01:11	Spare
I12	/21.4	-A01.25-X01:12	Spare
I13	/21.5	-A01.25-X01:13	Spare
I14	/21.6	-A01.25-X01:14	Spare
I15	/21.7	-A01.25-X01:15	Spare
I16	/21.8	-A01.25-X01:16	Spare

			Date	03.02.2009				= 105	
			Ed. by	Messmer				+ CC1	
			Appr		PA-CONTROL_Steuer_LV-servoTEC_S2_1XX			1078978	Page 18
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by			Pg 110

WERNER

Inputs overview
I1-I16

0	1	2	3	4	5	6	7	8	9

-A01.25
/13.5

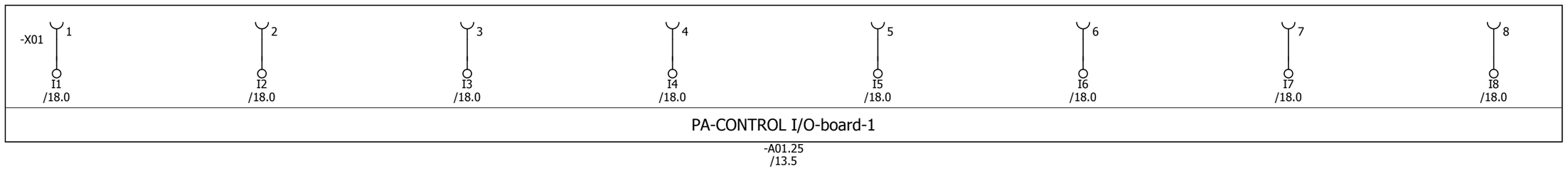
O1	/22.0	-A01.25-X01:20	Spare
O2	/22.2	-A01.25-X01:21	Spare
O3	/22.3	-A01.25-X01:22	Spare
O4	/22.4	-A01.25-X01:23	Spare
O5	/22.5	-A01.25-X01:24	Spare
O6	/22.6	-A01.25-X01:25	Spare
O7	/22.7	-A01.25-X01:26	Spare
O8	/22.8	-A01.25-X01:27	Spare
O9	/23.0	-A01.25-X01:28	Spare
O10	/23.2	-A01.25-X01:29	Spare
O11	/23.3	-A01.25-X01:30	Spare
O12	/23.4	-A01.25-X01:31	Spare
O13	/23.5	-A01.25-X01:32	Spare
O14	/23.6	-A01.25-X01:33	Spare
O15	/23.7	-A01.25-X01:34	Spare
O16	/23.8	-A01.25-X01:35	Spare

			Date	03.02.2009				= 105	
			Ed. by	Messmer				+ CC1	
			Appr		PA-CONTROL_Steuer_LV-servoTEC_S2_1XX			1078978	Page 19
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by			Pg 110

WERNER

Outputs overview
O1-O16

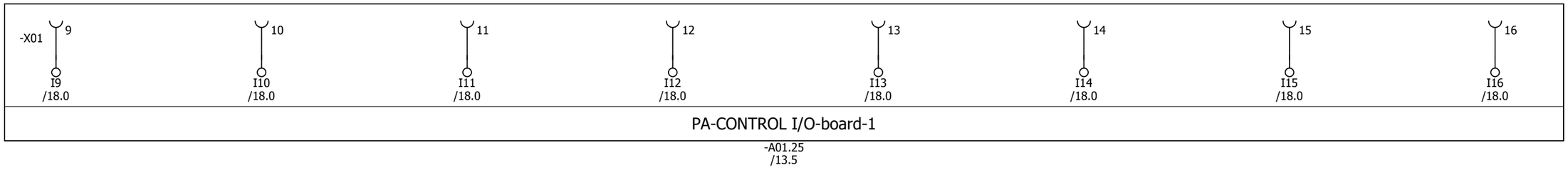
0	1	2	3	4	5	6	7	8	9



Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare	

			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		PA-CONTROL I/O-board-1 I1-I8	= 105 + CC1
			Ed. by	Messmer				
			Appr				1078978	Page 20
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg 110

0	1	2	3	4	5	6	7	8	9



Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare

/13.5
-A01.25

PA-CONTROL I/O-board-1

/19.0 O1	/19.0 O2	/19.0 O3	/19.0 O4	/19.0 O5	/19.0 O6	/19.0 O7	/19.0 O8
-X01 /15.4 20	21	22	23	24	25	26	27
Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare

			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		PA-CONTROL I/O-board 1 O1-O8	= 105
			Ed. by	Messmer				+ CC1
			Appr				1078978	Page 22
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg 110

/13.5
-A01.25

PA-CONTROL I/O-board-1

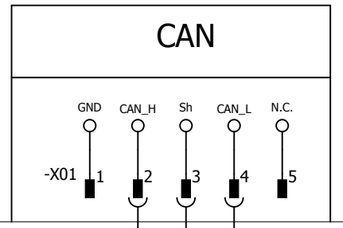
/19.0 O9	/19.0 O10	/19.0 O11	/19.0 O12	/19.0 O13	/19.0 O14	/19.0 O15	/19.0 O16
-X01 /15.4 28	29	30	31	32	33	34	35
Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare

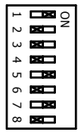
			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		PA-CONTROL I/O-board 1 O9-O16	= 105
			Ed. by	Messmer				+ CC1
			Appr				1078978	Page 23
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg 110

-A01.62
/29.0

BK5120

Bus address:17





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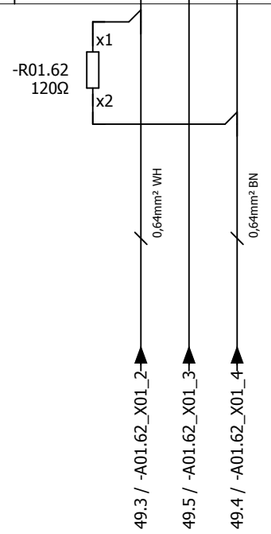
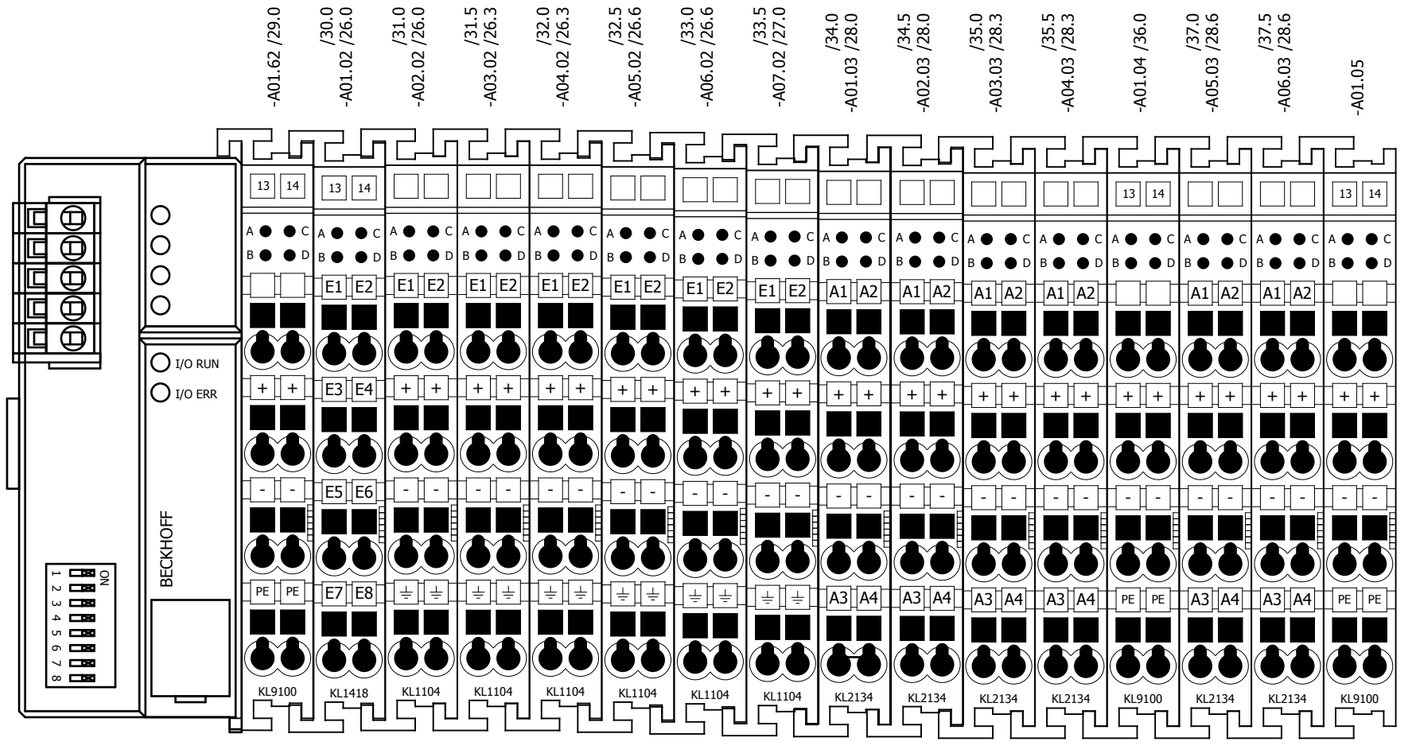




			Date	03.02.2009			= 105	
			Ed. by	Messmer			+ CC1	
			Appr		PA-CONTROL_Steuer_LV-servoTEC_S2_1XX	Overview Beckhoff bus connection	1078978	Page 25
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg 110

0	1	2	3	4	5	6	7	8	9

-A01.02
/30.0

I1025	IN 1E1	/30.0	+CP1-S01.03	Emergency halt pressed operator panel	
I1026	IN 5E2	/30.2	+CP1-S01.05	Confirmation button	
I1027	IN 2E3	/30.3	+CP1-S01.04	Automatic Mode (I)	
I1028	IN 6E4	/30.4	+CP1-S01.04	Adjust mode (0)	
I1029	IN 3E5	/30.5	+CP1-S01.04	Step Mode (II)	
I1030	IN 7E6	/30.6	+CP1-S01.07	Bridge protective doors	
I1031	IN 4E7	/30.7		Spare	
I1032	IN 8E8	/30.8	-K03.04:52	Safety module adjust mode-/acceptance button	

-A02.02
/31.0
KL1104

I1033	1E1	/31.0	+MW-S01.33	Protective door open	
	2+	/31.1		Protective door open	
	3-	/31.1		Protective door open	
I1034	5E2	/31.2		Spare	
I1035	4E3	/31.3		Spare	
	6+	/31.3		Spare	
	7-	/31.4		Spare	
I1036	8E4	/31.4		Spare	

-A03.02
/31.5
KL1104

I1037	1E1	/31.5		Spare	
	2+	/31.5		Spare	
	3-	/31.6		Spare	
I1038	5E2	/31.6		Spare	
I1039	4E3	/31.8		Spare	
	6+	/31.8		Spare	
	7-	/31.8		Spare	
I1040	8E4	/31.9		Spare	

-A04.02
/32.0
KL1104

I1041	IN 1E1	/32.0	-K01.04:24	Safety module emergency-stop ON	
	DC24V 2+	/32.1		Safety module emergency-stop ON	
	M 3-	/32.1		Safety module emergency-stop ON	
I1042	IN 5E2	/32.2		Spare	
I1043	IN 4E3	/32.3	-F02.00	Spare	
	DC24V 6+	/32.3		Spare	
	M 7-	/32.4		Spare	
I1044	IN 8E4	/32.4	-F01.00	Fuse protection 24V I.O.	

-A05.02
/32.5
KL1104

I1045	IN 1E1	/32.5	+HGE-S01.10	Spare	
	DC24V 2+	/32.5		Spare	
	M 3-	/32.6		Spare	
I1046	IN 5E2	/32.6	+HGA-S01.10	Spare	
I1047	IN 4E3	/32.8	+TIS-S01.10	Spare	
	DC24V 6+	/32.8		Spare	
	M 7-	/32.8		Spare	
I1048	IN 8E4	/32.9	+TIS-S02.10	Spare	

-A06.02
/33.0
KL1104

I1049	IN 1E1	/33.0		Spare	
	DC24V 2+	/33.1		Spare	
	M 3-	/33.1		Spare	
I1050	IN 5E2	/33.2		Spare	
I1051	IN 4E3	/33.3		Spare	
	DC24V 6+	/33.3		Spare	
	M 7-	/33.4		Spare	
I1052	IN 8E4	/33.4		Spare	

			Date	03.02.2009			= 105	
			Ed. by	Messmer			+ CC1	
			Appr		PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		1078978	Page 26
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg 110

WERNER

Inputs overview
I1025-1052

0	1	2	3	4	5	6	7	8	9

-A07.02
/33.5

IN 1E1 I1053	/33.5	+PWE-S01.10	Spare
DC24V 2+	/33.5		Spare
M 3-	/33.6		Spare
IN 5E2 I1054	/33.6	+PWA-S01.10	Spare
IN 4E3 I1055	/33.8		Spare
DC24V 6+	/33.8		Spare
M 7-	/33.8		Spare
IN 8E4 I1056	/33.9		Spare

			Date	03.02.2009		Inputs overview I1053-1056		= 105	
			Ed. by	Messmer				+ CC1	
			Appr		PA-CONTROL_Steuer_LV-servoTEC_S2_1XX			1078978	Page 27
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by			Pg 110

0	1	2	3	4	5	6	7	8	9

-A01.03
/34.0

O1025 OUT 1A1	/34.0	-H01.00	Operation Mode (Signal lights)	
DC24V 2+	/34.1		Operation Mode (Signal lights)	
M 3-	/34.1		Operation Mode (Signal lights)	
O1026 OUT 5A2	/34.2	-H02.00	Level (Signal lights)	
O1027 OUT 4A3	/34.3	-H03.00	Error (Signal lights)	
DC24V 6+	/34.3		Error (Signal lights)	
M 7-	/34.4		Error (Signal lights)	
O1028 OUT 8A4	/34.4		Spare	

-A02.03
/34.5

O1029 OUT 1A1	/34.5		Spare	
DC24V 2+	/34.5		Spare	
M 3-	/34.6		Spare	
O1030 OUT 5A2	/34.6		Spare	
O1031 OUT 4A3	/34.8		Spare	
DC24V 6+	/34.8		Spare	
M 7-	/34.8		Spare	
O1032 OUT 8A4	/34.9		Spare	

-A03.03
/35.0

O1033 OUT 1A1	/35.0	+MW-S01.33	Close Protective door	
DC24V 2+	/35.1		Close Protective door	
M 3-	/35.1		Close Protective door	
O1034 OUT 5A2	/35.2		Spare	
O1035 OUT 4A3	/35.3		Spare	
DC24V 6+	/35.3		Spare	
M 7-	/35.4		Spare	
O1036 OUT 8A4	/35.4		Spare	

-A04.03
/35.5

O1037 OUT 1A1	/35.5		Spare	
DC24V 2+	/35.5		Spare	
M 3-	/35.6		Spare	
O1038 OUT 5A2	/35.6		Spare	
O1039 OUT 4A3	/35.8		Spare	
DC24V 6+	/35.8		Spare	
M 7-	/35.8		Spare	
O1040 OUT 8A4	/35.9		Spare	

-A05.03
/37.0

O1041 OUT 1A1	/37.0		Spare	
DC24V 2+	/37.1		Spare	
M 3-	/37.1		Spare	
O1042 OUT 5A2	/37.2		Spare	
O1043 OUT 4A3	/37.3		Spare	
DC24V 6+	/37.3		Spare	
M 7-	/37.4		Spare	
O1044 OUT 8A4	/37.4		Spare	

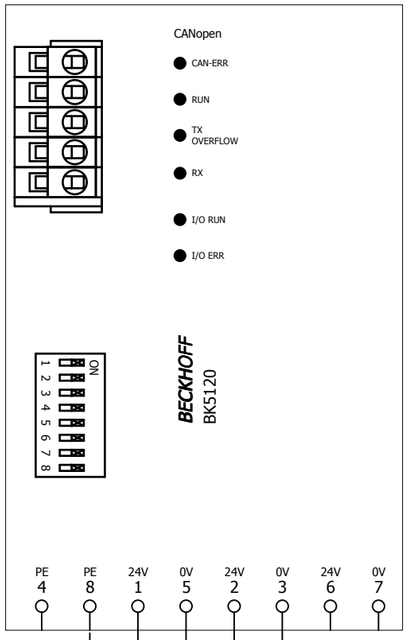
-A06.03
/37.5

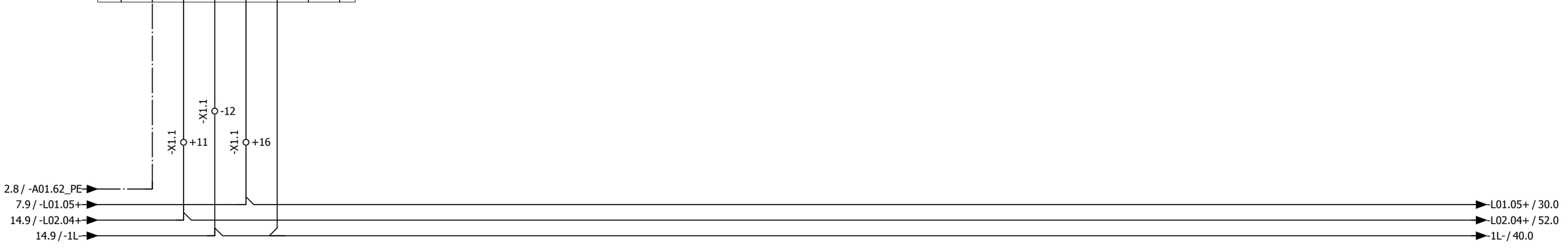
O1045 OUT 1A1	/37.5		Spare	
DC24V 2+	/37.5		Spare	
M 3-	/37.6		Spare	
O1046 OUT 5A2	/37.6		Spare	
O1047 OUT 4A3	/37.8		Spare	
DC24V 6+	/37.8		Spare	
M 7-	/37.8		Spare	
O1048 OUT 8A4	/37.9		Spare	

			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		Outputs overview O1025-1048	= 105	
			Ed. by	Messmer				+ CC1	
			Appr					1078978	Page 28
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by			Pg 110

0	1	2	3	4	5	6	7	8	9

-A01.62
/24.0
/25.1

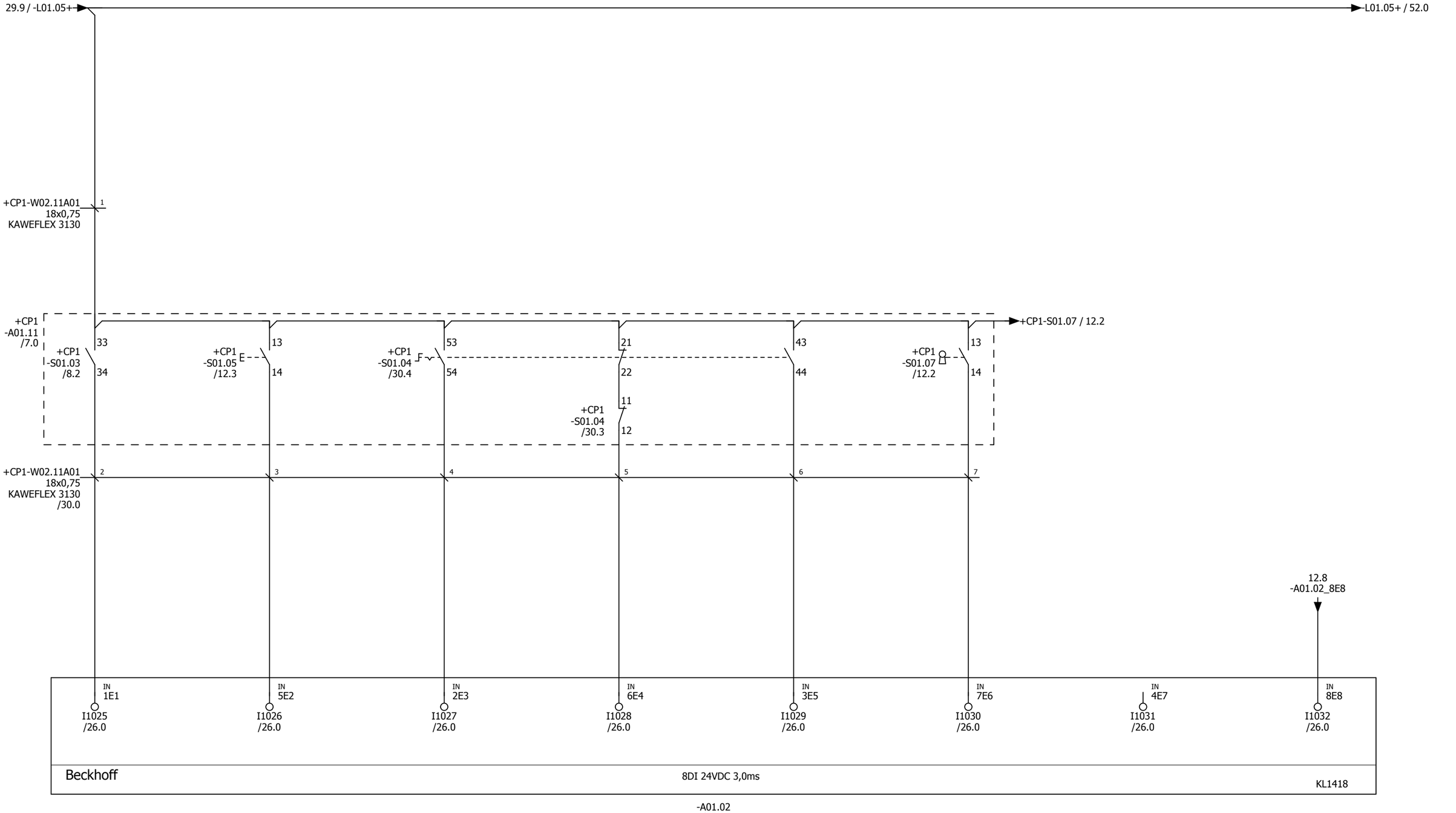




28

30

			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		Beckhoff BK5120 Supply voltage	= 105	
			Ed. by	Messmer				+ CC1	
			Appr					1078978	Page 29
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by			Pg 110



			Date	03.02.2009			= 105	
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			Appr		PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		1078978	Page 30
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg 110

WERNER

Inputs connection
I1025-1031

0	1	2	3	4	5	6	7	8	9

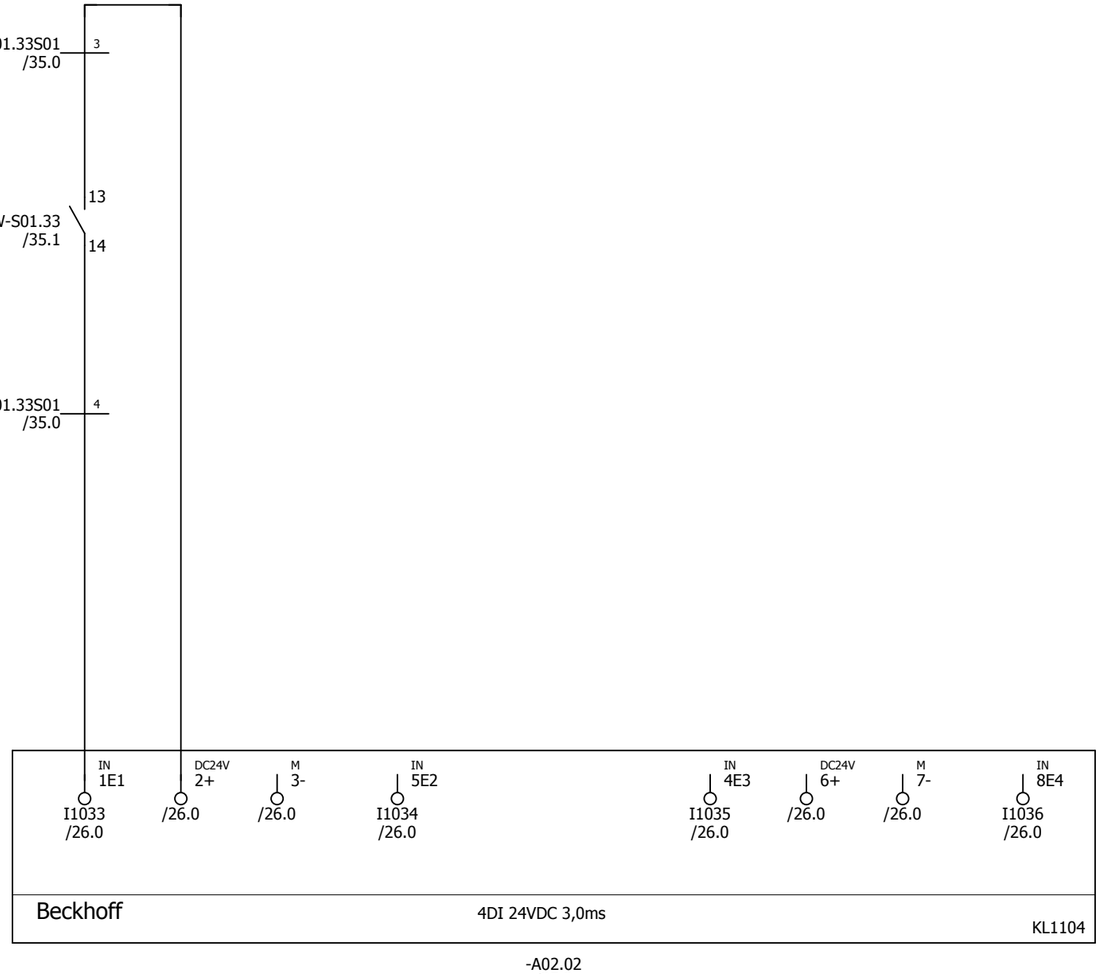
+MW-W01.33S01 /35.0 — 3

13

+MW-S01.33 /35.1

14

+MW-W01.33S01 /35.0 — 4



-A02.02
/25.2
/26.0

Protective door open

Spare

Spare

Spare

-A03.02
/25.2
/26.3

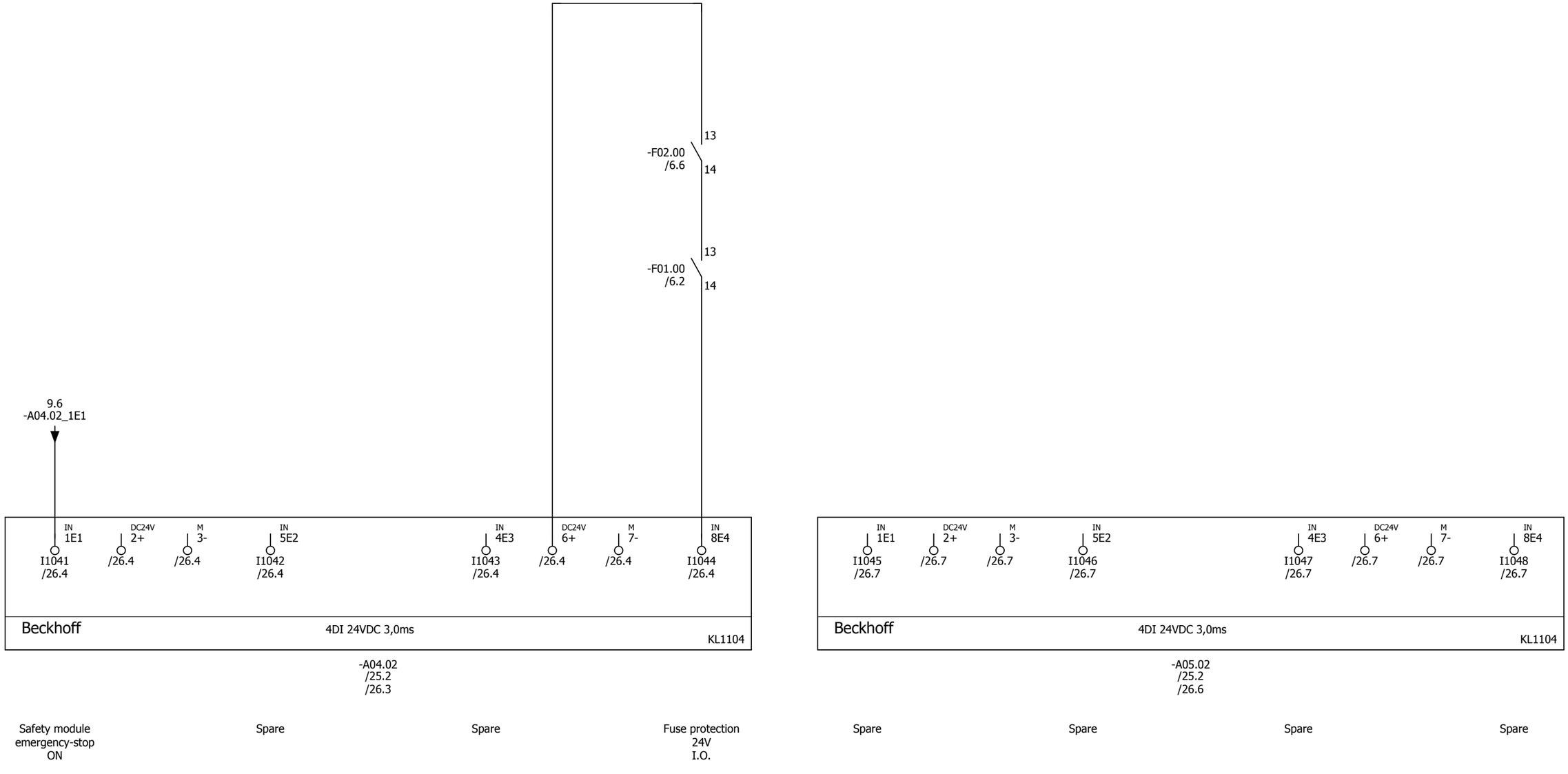
Spare

Spare

Spare

Spare

			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		= 105	
			Ed. by	Messmer		Inputs connection I1032-1039	+ CC1	
			Appr				1078978	Page 31
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg 110



			Date	03.02.2009			= 105	
			Ed. by	Messmer			+ CC1	
			Appr		PA-CONTROL_Steuer_LV-servoTEC_S2_1XX	Inputs connection I1040-1047	1078978	Page 32
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg 110

0	1	2	3	4	5	6	7	8	9

-A06.02
/25.3
/26.6

Spare | Spare | Spare | Spare

-A07.02
/25.3
/27.0

Spare | Spare | Spare | Spare

			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		= 105	
			Ed. by	Messmer		Inputs connection I1048-1055	+ CC1	
			Appr				1078978	Page 33
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg 110

/25.3
/28.0
-A01.03

Beckhoff 4DO 24VDC 0,5A KL2134

/28.0 O1025	/28.0	/28.0	/28.0 O1026	/28.0 O1027	/28.0	/28.0	/28.0 O1028
1A1 OUT	2+ DC24V	3- M	5A2 OUT	4A3 OUT	6+ DC24V	7- M	8A4 OUT

-W00.00
ÖLFLEX CLASSIC 110
7x0,75 — 1 — 6 — 2 — 3

-H01.00 white: 1 / 0
-H02.00 blue: 2 / 0
-H03.00 orange: 3 / 0
0
-H00.00

/25.4
/28.0
-A02.03

Beckhoff 4DO 24VDC 0,5A KL2134

/28.0 O1029	/28.0	/28.0	/28.0 O1030	/28.0 O1031	/28.0	/28.0	/28.0 O1032
1A1 OUT	2+ DC24V	3- M	5A2 OUT	4A3 OUT	6+ DC24V	7- M	8A4 OUT

Operation Mode (Signal lights)	Level (Signal lights)	Error (Signal lights)	Spare	Spare	Spare	Spare	Spare

			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		= 105
			Ed. by	Messmer		Outputs connection O1025-1032	+ CC1
			Appr				1078978 Page 34
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by	Pg 110

/25.4
/28.3
-A03.03

Beckhoff 4DO 24VDC 0,5A KL2134

/28.4 O1033	/28.4	/28.4	/28.4 O1034	/28.4 O1035	/28.4	/28.4	/28.4 O1036
1A1 OUT	2+ DC24V	3- M	5A2 OUT	4A3 OUT	6+ DC24V	7- M	8A4 OUT

/25.4
/28.3
-A04.03

Beckhoff 4DO 24VDC 0,5A KL2134

/28.4 O1037	/28.4	/28.4	/28.4 O1038	/28.4 O1039	/28.4	/28.4	/28.4 O1040
1A1 OUT	2+ DC24V	3- M	5A2 OUT	4A3 OUT	6+ DC24V	7- M	8A4 OUT

+MW-W01.33S01 7
12x0,75
ÖLFLEX CLASSIC 110

+MW-S01.33

11	22	42	51	71	13	63
12	21	41	52	72	14	64

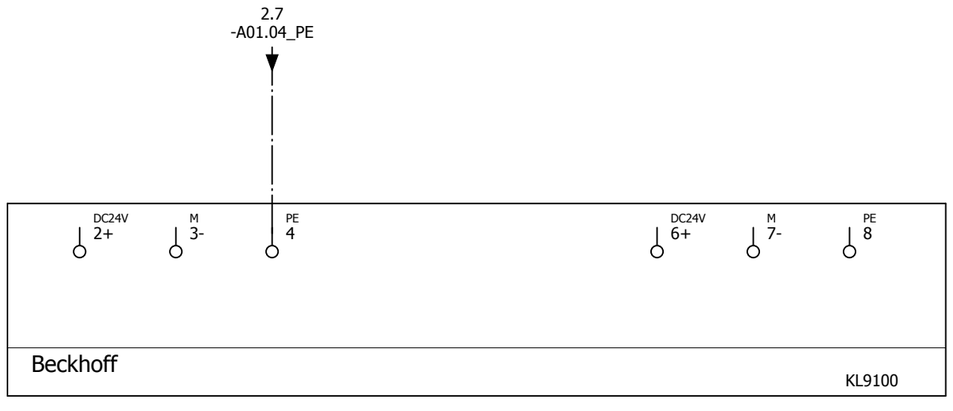
/10.1 /10.2 /31.0

+MW-W01.33S01 8
12x0,75
ÖLFLEX CLASSIC 110
/35.0

Close Protective door	Spare	Spare	Spare	Spare	Spare	Spare	Spare

			Date	03.02.2009			Outputs connection O1033-1040		= 105
			Ed. by	Messmer	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX				+ CC1
			Appr					1078978	Page 35
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by			Pg 110

0	1	2	3	4	5	6	7	8	9



-A01.04
/25.4

			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		Supply clamp	= 105	
			Ed. by	Messmer				+ CC1	
			Appr					1078978	Page 36
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by			Pg 110

/25.5
/28.6
-A05.03

Beckhoff — 4DO 24VDC 0,5A — KL2134

/28.7 O1041	/28.7	/28.7	/28.7 O1042	/28.7 O1043	/28.7	/28.7	/28.7 O1044
1A1 OUT	2+ DC24V	3- M	5A2 OUT	4A3 OUT	6+ DC24V	7- M	8A4 OUT

/25.5
/28.6
-A06.03

Beckhoff — 4DO 24VDC 0,5A — KL2134

/28.7 O1045	/28.7	/28.7	/28.7 O1046	/28.7 O1047	/28.7	/28.7	/28.7 O1048
1A1 OUT	2+ DC24V	3- M	5A2 OUT	4A3 OUT	6+ DC24V	7- M	8A4 OUT

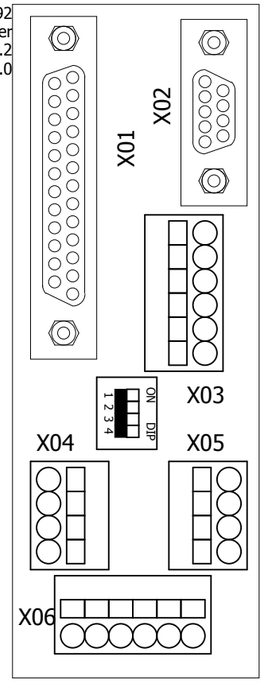
Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare

			Date	03.02.2009				= 105	
			Ed. by	Messmer				+ CC1	
			Appr		PA-CONTROL_Steuer_LV-servoTEC_S2_1XX			1078978	Page 37
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by			Pg 110

WERNER

Outputs connection
O1041-1048

-A01.92
LV servoTEC S2 IO-adapter
/40.2
/44.0



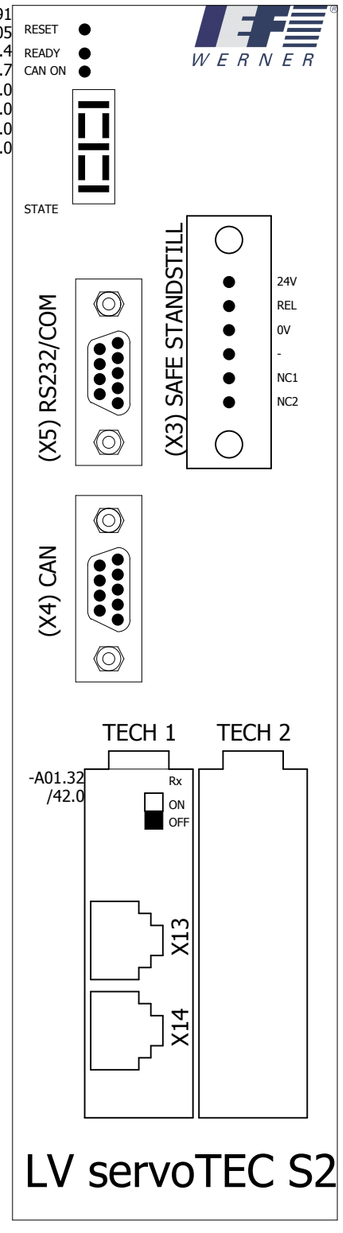
Offset-address			
ON DIP 1 2 3 4	0	ON DIP 1 2 3 4	8
ON DIP 1 2 3 4	1	ON DIP 1 2 3 4	9
ON DIP 1 2 3 4	2	ON DIP 1 2 3 4	10
ON DIP 1 2 3 4	3	ON DIP 1 2 3 4	11
ON DIP 1 2 3 4	4	ON DIP 1 2 3 4	12
ON DIP 1 2 3 4	5	ON DIP 1 2 3 4	13
ON DIP 1 2 3 4	6	ON DIP 1 2 3 4	14
ON DIP 1 2 3 4	7	ON DIP 1 2 3 4	15

Fieldbus	Base address (is set withS2 Commander)
CAN Open	Base Node number
Profibus	Slave-address
SERCOS	Drive-address

Bus address calculation: Bus-address = Base address + Offset-address

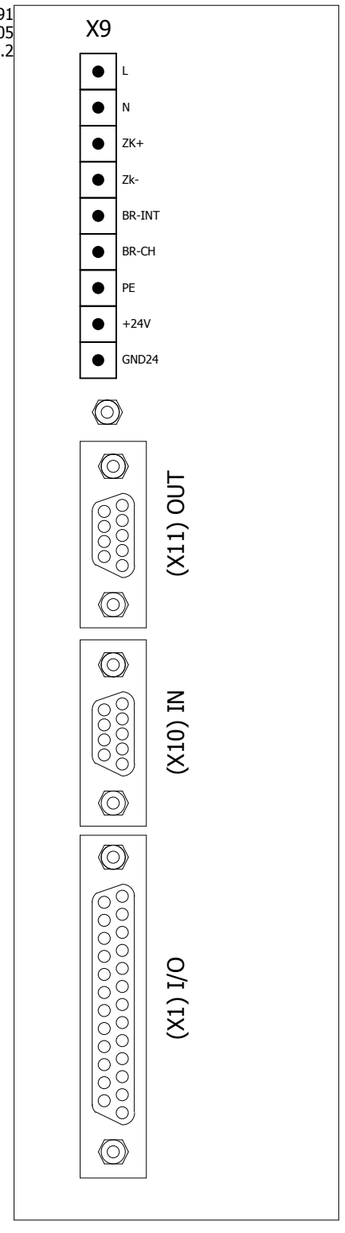
front

-A01.91
LV servoTEC_S2_105
/39.4
/39.7
/41.0
/42.0
/40.0
/43.0



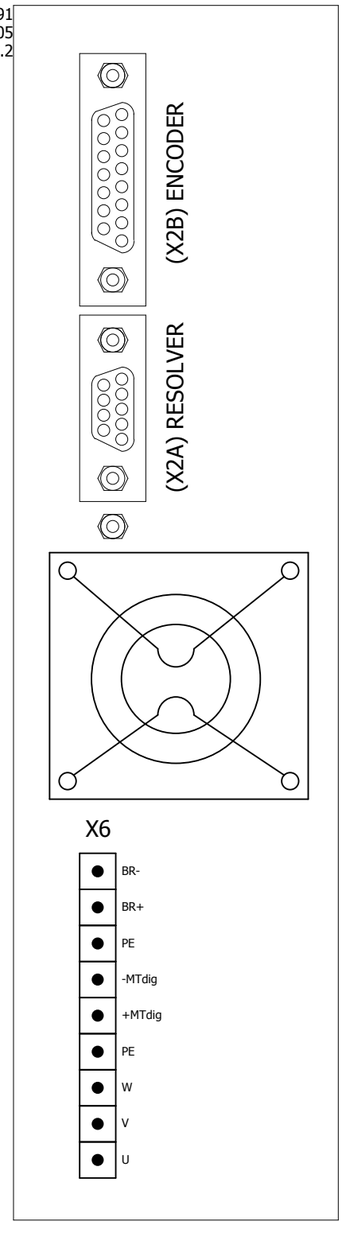
on top

-A01.91
LV servoTEC_S2_105
/39.2



below

-A01.91
LV servoTEC_S2_105
/39.2



			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		A1 LV servoTEC_S2_105 Overview	= 105	
			Ed. by	Messmer				+ CC1	
			Appr					1078978	Page 39
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by			Pg 110

-A01.91
/39.2

LV servoTEC S2

Supply voltage [X09]

Schutzerdung

-X09: L 1 | N 2 | ZK+ 3 | ZK- 4 | BR-INT 5 | BR-CH 6 | PE 7 | +24V 8 | GND24V 9

2.3 / -A01.91_PE
5.1 / -A01.91_X09_1
5.1 / -A01.91_X09_2
5.1 / -A01.91_X09_7

I/O-communication [X01]

-X01: AGND 1 | AGND 14 | AINO 2 | #AINO 15 | AIN1 3 | AIN2 16 | +VREF 4 | AMON0 17 | AMON1 5 | +24V 18 | GND24 6 | DIN0 19 | DIN1 7 | DIN2 20 | DIN3 8 | DIN4 (Power supply Release) 21 | DIN5 (Regulator Release) 9 | DIN6 (END. NEG.) 22 | DIN7 (END. POS.) 10 | DIN8 (REF.) 23 | DIN9 11 | DOUT0 (READY) 24 | DOUT1 12 | DOUT2 25 | DOUT3 13

-W01.92A01: VT 0,14 | BK 0,14 | GY 0,14 | BN 0,14 | WH 0,14 | RD 0,14 | WH BK 0,14 | RD 0,14 | WH BN 0,14 | OG 0,14 | WH RD 0,14 | YE 0,14 | WH OG 0,14 | GN 0,14 | WH YE 0,14 | BU 0,14 | SH

Safe Standstill [X03]

-X03: 24V 1 | REL 2 | 0V 3 | n.c. 4 | NC1 5 | NC2 6

11.2 / -A01.91_X03_5
47.9 / -A02.91_X03_5

-A01.92
/38.2

-X01: 1 n.c. | 14 n.c. | 2 n.c. | 15 n.c. | 3 n.c. | 16 n.c. | 4 n.c. | 17 n.c. | 5 n.c. | 18 +24V | 6 GND24 | 19 DIN0 | 7 DIN1 | 20 DIN2 | 8 DIN3 | 21 DIN4 | 9 DIN5 | 22 DIN6 | 10 DIN7 | 23 DIN8 | 11 DIN9 | 24 DOUT0 | 12 DOUT1 | 25 DOUT2 | 13 DOUT3

I/O-communication

LV servoTEC S2 IO-Adapter

Supply / release IN

-X04: + (+24V) | 0 (GND) | EF (Endstufen Freigabe) | RF (Regler Freigabe)

I/O

-X06: PE | I9 (DIN9) | O0 (DOUT0) | O1 (DOUT1) | O2 (DOUT2) | O3 (DOUT3)

2.5 / -A01.92_X06_1

Supply / release OUT

-X05: RF (Regulator Release) | EF (Power supply Release) | 0 (GND) | + (+24V)

47.3 / -A02.92_X04_4
47.3 / -A02.92_X04_3
47.3 / -A02.92_X04_2
47.3 / -A02.92_X04_1

-X1.1 +36
-X1.1 +37
-X1.1 +30
+21
-X1.1 -13
-X1.1 +31

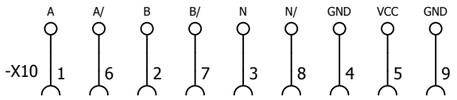
7.9 / -L01.06+ → L01.06+ / 52.0
6.7 / -L01.91+ → L01.91+ / 47.0
6.8 / -L02.91+ → L02.91+ / 47.0
29.9 / -1L → 1L- / 47.0

			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX	A1 LV servoTEC S2 Supply voltage	= 105 + CC1
			Ed. by	Messmer			
			Appr			1078978	Page 40
Modification	Date	Name	Version	V0.01	Replacement for / Replaced by		Pg 110

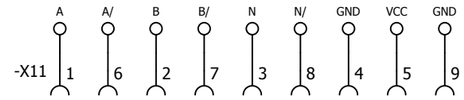
-A01.91
/39.2

LV servoTEC S2

Incremental encoder Input [X10]



Incremental encoder Output [X11]



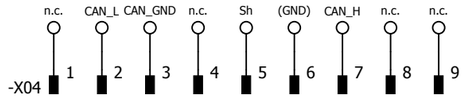
			Date	03.02.2009		A1 LV servoTEC S2 Incremental encoder	= 105	
			Ed. by	Messmer			+ CC1	
			Appr		PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		1078978	Page 41
Modification	Date	Name	Version	V0.01	Replacement for / Replaced by			Pg 110

-A01.91
/39.2

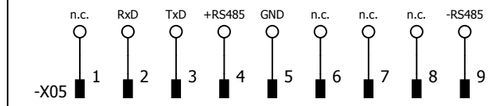
LV servoTEC S2

Bus address:1

CAN [X04]



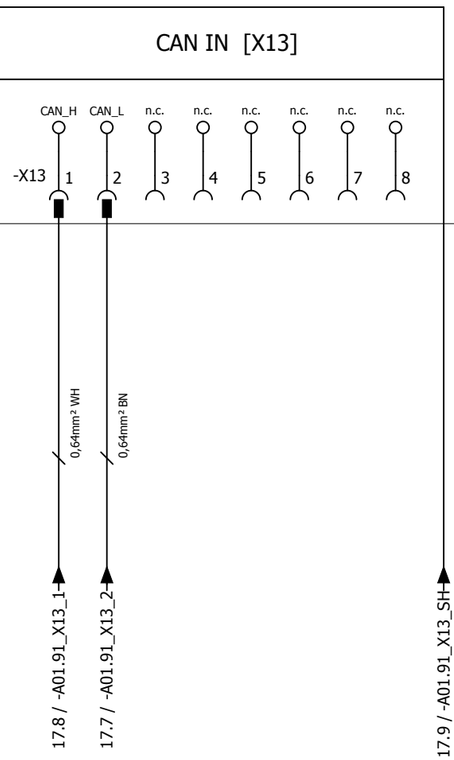
RS232/COM [X05]



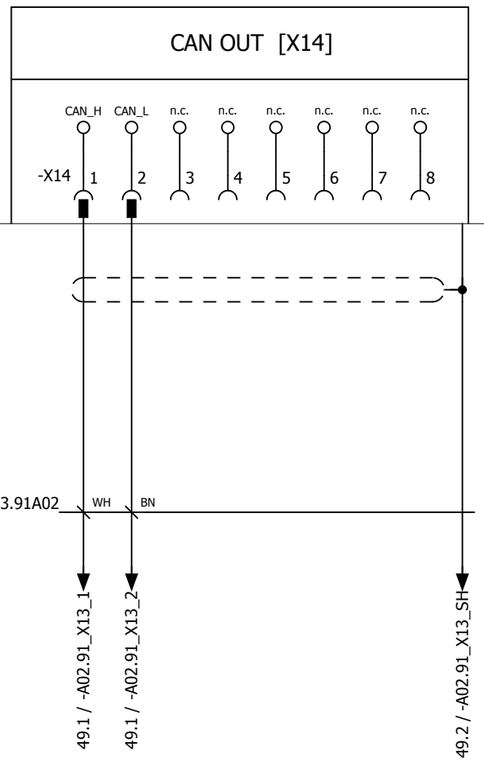
-A01.91-A01.32
/39.2

Terminating resistor

CAN IN [X13]



CAN OUT [X14]



			Date	03.02.2009		A1 LV servoTEC S2 CAN / RS232	= 105	
			Ed. by	Messmer			+ CC1	
			Appr		PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		1078978	Page 42
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg 110

-A01.91
/39.2

LV servoTEC S2

Motor connection [X06]

-X06: PE 6 | U2 9 | V2 8 | W2 7 | BR- 1 | BR+ 2 | -MTdig 4 | +Mtdig 5 | PE 3

PE

SH1

SH

-W01.51M01 /43.0 9 m

-W01.51M01: GNYE U | V | W | BN2 | BN1

-M01.51

-X01: PE PE | U U | V V | W W | B B | A A

Motor

Resolver connection [X02A]

-X02A: Mt+ 5 | Mt- 8 | R1 4 | R2 9 | SINUS- 6 | SINUS+ 1 | COS- 7 | COS+ 2 | AGND 3

Encoder connection [X02B]

-X02B: #COS 7 | COS 14 | #SIN 8 | SIN 15 | DATA 12 | #DATA 5 | SCLK 13 | #SCLK 6 | U_SENS+ 9 | U_SENS- 2 | US 10 | GND 3 | MT+ 1 | n.c. 11 | n.c. 4

SH

-W02.51M01 /43.6

-W02.51M01: WH 0,25 | BN 0,25 | GN 0,25 | YE 0,25 | GY 0,25 | PK 0,25 | BU 0,25 | RD 0,25 | BK 0,25 | VT 0,25 | GYPK 0,25 | RDBU 0,25 | WHGN 0,25 | BNGN 0,25

-X02: 9 COS B+ | 1 COS B- | 11 SIN A+ | 3 SIN A- | 13 #DATA | 5 DATA | 15 #CLOCK | 8 CLOCK | 10 0V | 12 Up | 2 0V | 4 Up | 7 Thermo | 14 Thermo

Sinus-Cosinus Encoder

42

44

			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		A1 LV servoTEC S2 Motor connection	= 105 + CC1
			Ed. by	Messmer				
			Appr				1078978	Page 43
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg 110

-A01.92
/38.2

LV servoTEC S2 IO-Adapter

Limit switch [X03]

LIM- LIM+ GND +24VDC PE REF

-X03 L- L+ 0 + PE R

Limit switch [X02]

LIM+ LIM- REF n.c. n.c. n.c. +24VDC n.c. GND

-X02 1 2 3 4 5 6 7 8 9

-W01.51A01
5x0,25
/44.2
/51.2

GN 0,25 | YE 0,25 | WH 0,25 | BN 0,25 | SH

-X01 2 4 3 1

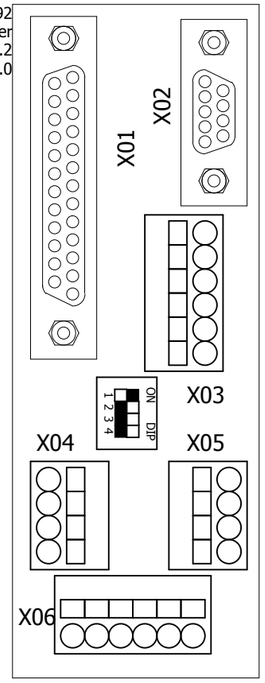
-B01.51A01 BK BN BU

-B02.51A01 BK BN BU

-A01.51

			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX	A1 LV servoTEC S2 Axis limit switch	= 105 + CC1
			Ed. by	Messmer			
			Appr			1078978	Page 44
Modification	Date	Name	Version	V0.01	Replacement for / Replaced by		Pg 110

-A02.92
LV servoTEC S2 IO-adapter
/47.2
/51.0



Offset-address			
	0		8
	1		9
	2		10
	3		11
	4		12
	5		13
	6		14
	7		15

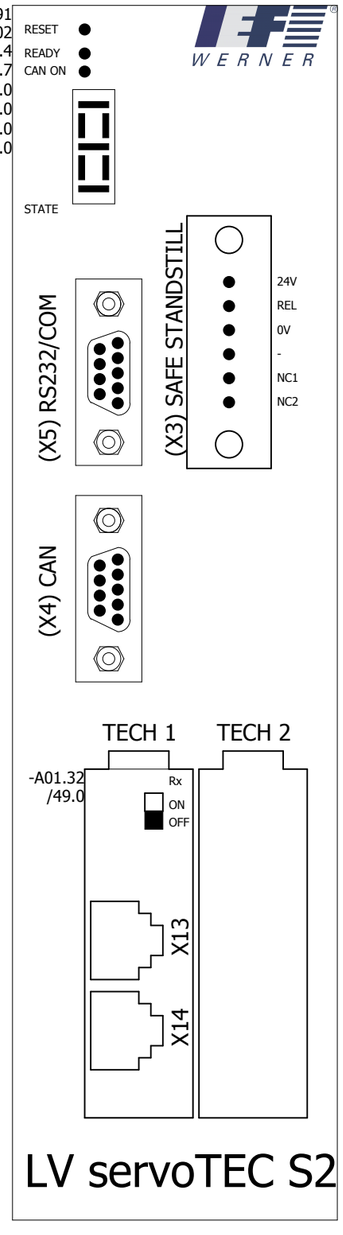
Fieldbus	Base address (is set withS2 Commander)
CAN Open	Base Node number
Profibus	Slave-address
SERCOS	Drive-address

Bus address calculation: Bus-address = Base address + Offset-address

0	1	2	3	4	5	6	7	8	9

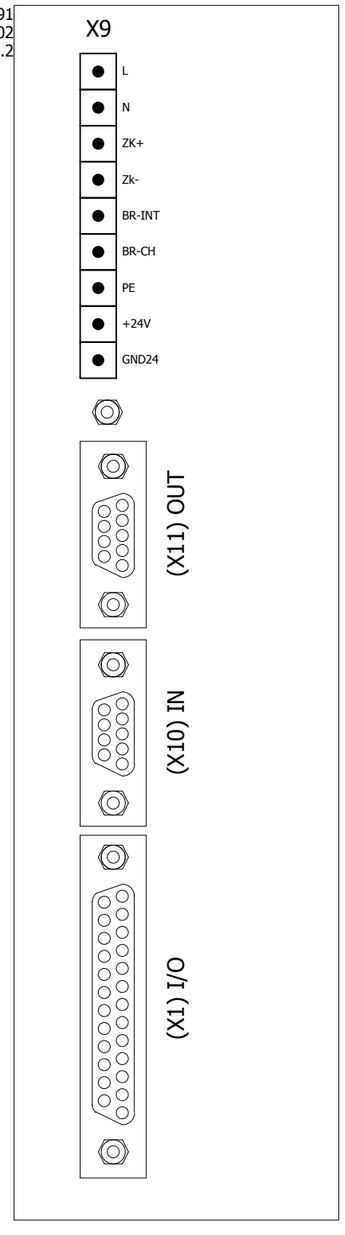
front

-A02.91
LV servoTEC_S2_102
/46.4
/46.7
/48.0
/49.0
/47.0
/50.0



on top

-A02.91
LV servoTEC_S2_102
/46.2



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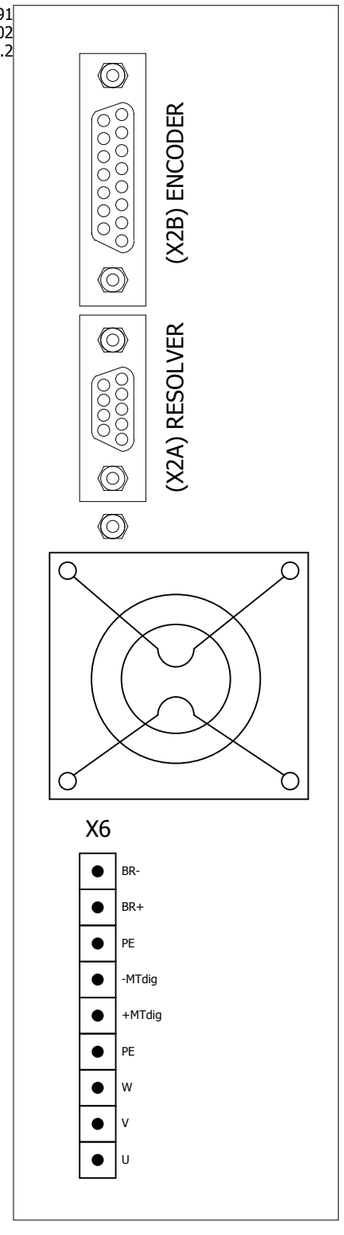
-A02.91
LV servoTEC_S2_102
/46.2



			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		A2 LV servoTEC_S2_105 Overview	= 105	
			Ed. by	Messmer				+ CC1	
			Appr					1078978	Page 46
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by			Pg 110

-A02.91
/46.2

LV servoTEC S2

Supply voltage [X09]

Schutzerdung

-X09: L 1 | N 2 | ZK+ 3 | ZK- 4 | BR-INT 5 | BR-CH 6 | PE 7 | +24V 8 | GND24V 9

2.4 / -A02.91_PE

5.3 / -A02.91_X09_1

5.3 / -A02.91_X09_2

5.3 / -A02.91_X09_7

I/O-communication [X01]

-X01: AGND 1 | AGND 14 | AINO 2 | #AINO 15 | AIN1 3 | AIN2 16 | +VREF 4 | AMON0 17 | AMON1 5 | +24V 18 | GND24 6 | DIN0 19 | DIN1 7 | DIN2 20 | DIN3 8 | DIN4 (Power supply Release) 21 | DIN5 (Regulator Release) 9 | DIN6 (END. NEG.) 22 | DIN7 (END. POS.) 10 | DIN8 (REF.) 23 | DIN9 11 | DOUT0 (READY) 24 | DOUT1 12 | DOUT2 25 | DOUT3 13

-W01.92A02: VT 0,14 | BK 0,14 | GY 0,14 | BN 0,14 | WH 0,14 | RD 0,14 | WH BK 0,14 | RD 0,14 | WH BN 0,14 | OG 0,14 | WH RD 0,14 | YE 0,14 | WH OG 0,14 | GN 0,14 | WH YE 0,14 | BU 0,14 | SH

Safe Standstill [X03]

-X03: 24V 1 | REL 2 | 0V 3 | n.c. 4 | NC1 5 | NC2 6

40.9 / -A02.91_X03_5

11.2 / -K02.04_Y34

-A02.92
/45.2

-X01: 1 n.c. | 14 n.c. | 2 n.c. | 15 n.c. | 3 n.c. | 16 n.c. | 4 n.c. | 17 n.c. | 5 n.c. | 18 +24V | 6 GND24 | 19 DIN0 | 7 DIN1 | 20 DIN2 | 8 DIN3 | 21 DIN4 | 9 DIN5 | 22 DIN6 | 10 DIN7 | 23 DIN8 | 11 DIN9 | 24 DOUT0 | 12 DOUT1 | 25 DOUT2 | 13 DOUT3

I/O-communication

LV servoTEC S2 IO-Adapter

Supply / release IN

-X04: + (+24V) | 0 (GND) | EF (Endstufen Freigabe) | RF (Regler Freigabe)

40.7 / -A02.92_X04_1

40.7 / -A02.92_X04_2

40.7 / -A02.92_X04_3

40.6 / -A02.92_X04_4

I/O

-X06: PE | I9 (DIN9) | O0 (DOUT0) | O1 (DOUT1) | O2 (DOUT2) | O3 (DOUT3)

2.6 / -A02.92_X06_1

Supply / release OUT

-X05: RF (Regulator Release) | EF (Power supply Release) | 0 (GND) | + (+24V)

-X1.1 +38

-X1.1 -14

40.9 / -L01.91+

40.9 / -L02.91+

40.9 / -1L-

-L01.91+ / 52.0

-L02.91+ / 52.0

-1L- / 52.0

			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX	
			Ed. by	Messmer		
			Appr			
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by

A2 LV servoTEC S2
Supply voltage

= 105
+ CC1

1078978

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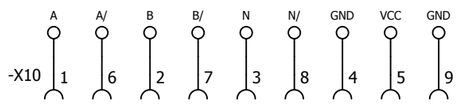
Pg 110

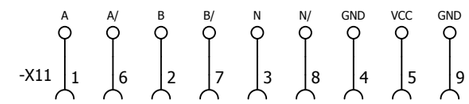
-A02.91
/46.2

LV servoTEC S2

Incremental encoder Input [X10]



Incremental encoder Output [X11]

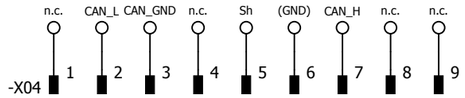


-A02.91
/46.2

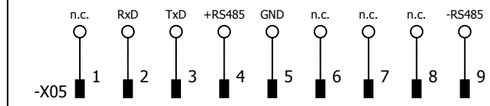
LV servoTEC S2

Bus address:2

CAN [X04]



RS232/COM [X05]

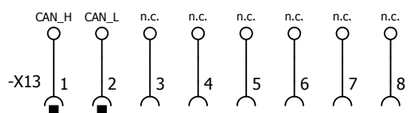


-A02.91-A01.32
/46.2

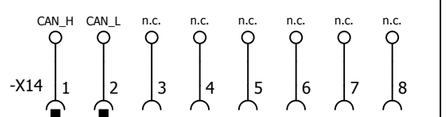
Terminating resistor

ON
OFF

CAN IN [X13]



CAN OUT [X14]



0,64mm² WH

0,64mm² BN

-W01.62A01 WH BN

42.3 / -A02.91_X13_1

42.4 / -A02.91_X13_2

42.5 / -A02.91_X13_SH

24.1 / -A01.62_X01_2

24.1 / -A01.62_X01_4

24.1 / -A01.62_X01_3

			Date	03.02.2009		A2 LV servoTEC S2 CAN / RS232	= 105
			Ed. by	Messmer			+ CC1
			Appr		PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		1078978 Page 49
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by	Pg 110

-A02.91
/46.2

LV servoTEC S2

Motor connection [X06]

-X06: PE 6 | U2 9 | V2 8 | W2 7 | BR- 1 | BR+ 2 | -MTdig 4 | +Mtdig 5 | PE 3

PE

SH1

SH

-W01.51M02 /50.0 9 m

-W01.51M02: GNYE | U | V | W | BN2 | BN1

Resolver connection [X02A]

-X02A: Mt+ 5 | Mt- 8 | R1 4 | R2 9 | SINUS- 6 | SINUS+ 1 | COS- 7 | COS+ 2 | AGND 3

SH | SH5 | SH6 | SH2 | SH3 | SH4

-W02.51M02 /50.3

-W02.51M02: BN | WH | RD | BU | YE | GN | GY | PK

Encoder connection [X02B]

-X02B: #COS 7 | COS 14 | #SIN 8 | SIN 15 | DATA 12 | #DATA 5 | SCLK 13 | #SCLK 6 | U_SENS+ 9 | U_SENS- 2 | US 10 | GND 3 | MT+ 1 | n.c. 11 | n.c. 4

-M02.51

-X01: PE | U | V | W | B | A

-X02: 2 THERMO | 6 THERMO | 5 REF+ | 9 REF- | 4 SINUS- | 8 SINUS+ | 7 COS- | 3 COS+

Motor

Resolver

			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX	A2 LV servoTEC S2 Motor connection
			Ed. by	Messmer		
			Appr			
Modification	Date	Name	Version	V0.01	Replacement for / Replaced by	

= 105
+ CC1
1078978
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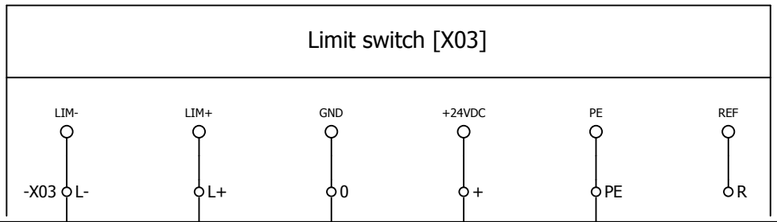
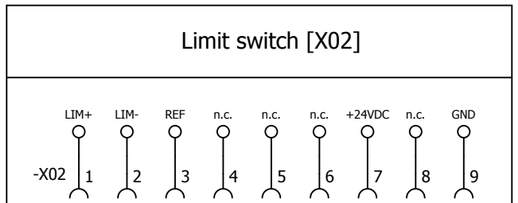
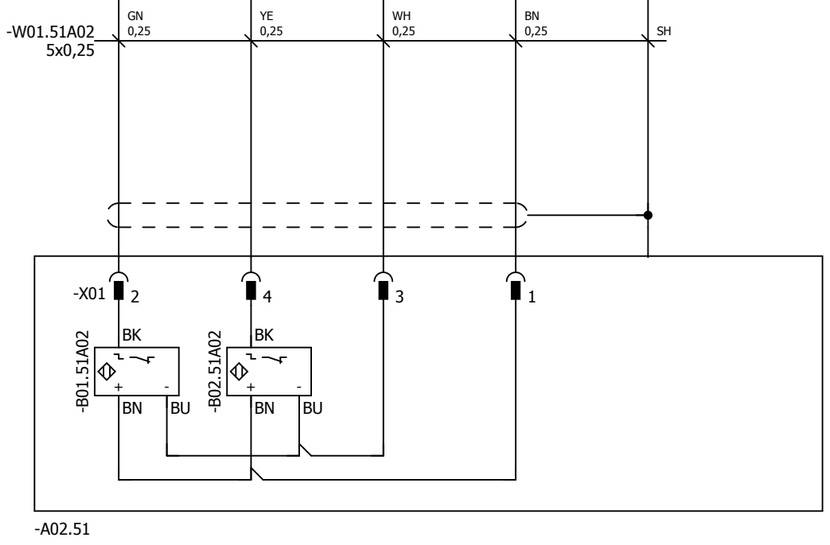
Pg 110

-A02.92
/45.2

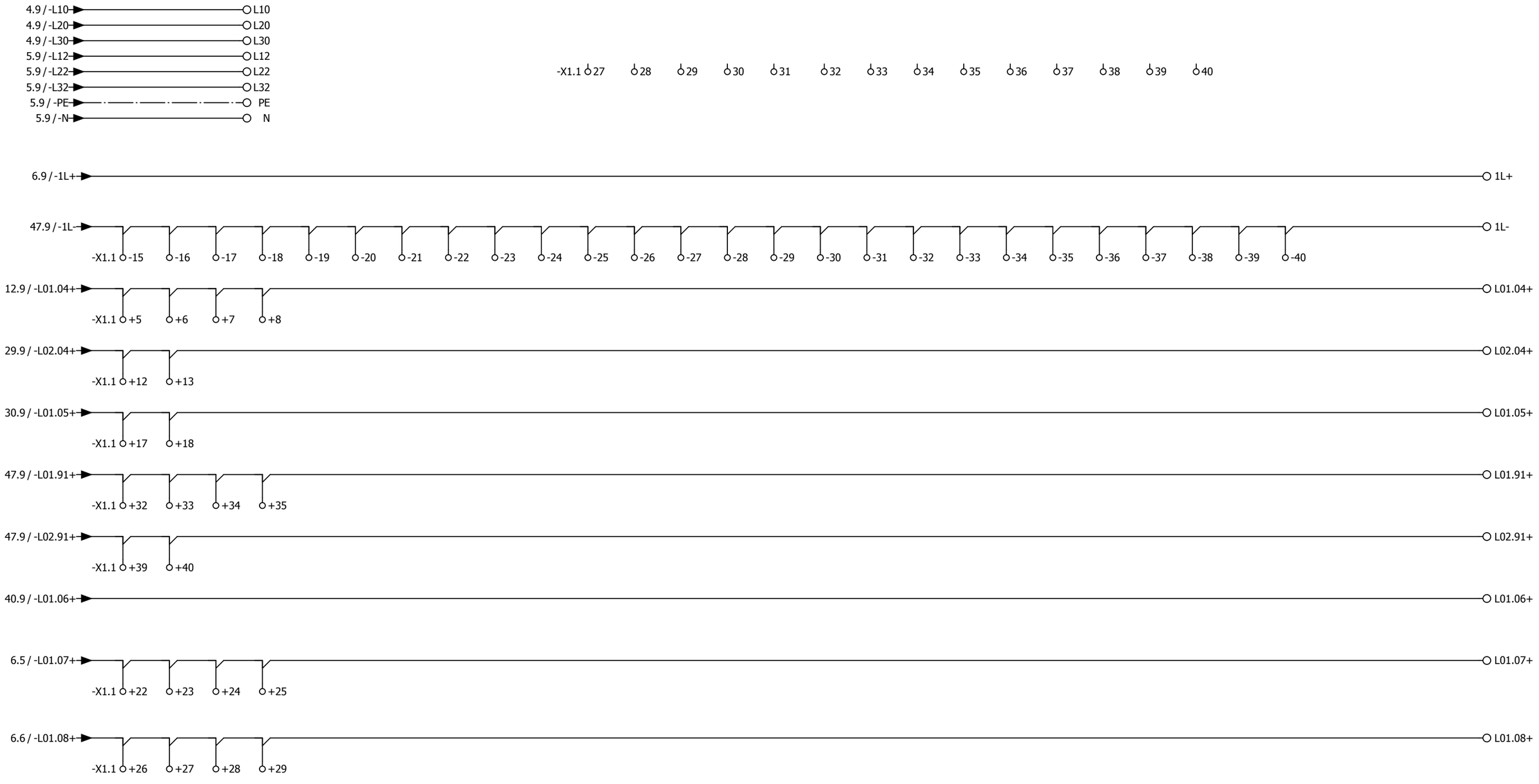
LV servoTEC S2 IO-Adapter







			Date	03.02.2009	PA-CONTROL_Steuer_LV-servoTEC_S2_1XX		A2 LV servoTEC S2 Axis limit switch	= 105 + CC1
			Ed. by	Messmer				
			Appr				1078978	Page 51
Modification	Date	Name	Version	V0.01	Replacement for	Replaced by		Pg 110


4.9 / -L10
L10
4.9 / -L20
L20
4.9 / -L30
L30
5.9 / -L12
L12
5.9 / -L22
L22
5.9 / -L32
L32
5.9 / -PE
PE
5.9 / -N
N
-X1.1 27 28 29 30 31 32 33 34 35 36 37 38 39 40
6.9 / -1L+
1L+
47.9 / -1L-
1L-
-X1.1 -15 -16 -17 -18 -19 -20 -21 -22 -23 -24 -25 -26 -27 -28 -29 -30 -31 -32 -33 -34 -35 -36 -37 -38 -39 -40
12.9 / -L01.04+
L01.04+
-X1.1 +5 +6 +7 +8
29.9 / -L02.04+
L02.04+
-X1.1 +12 +13
30.9 / -L01.05+
L01.05+
-X1.1 +17 +18
47.9 / -L01.91+
L01.91+
-X1.1 +32 +33 +34 +35
47.9 / -L02.91+
L02.91+
-X1.1 +39 +40
40.9 / -L01.06+
L01.06+
6.5 / -L01.07+
L01.07+
-X1.1 +22 +23 +24 +25
6.6 / -L01.08+
L01.08+
-X1.1 +26 +27 +28 +29