FESTO

Circuit diagrams Schaltungsunterlagen

designation:	CP Lab
Bezeichnung:	CP Lab
Customer:	
Kunde:	
Plant identifier	S5M0T7CP Lab S7-IM155-6DP, HMI TP700 V6.1
Anlagenkennzeichen	
remark:	V6 (HMI V2)
Bemerkung:	
last Modification:	2022-05-31
letzte Änderung:	
Print date:	2022-05-31
Druckdatum:	
Path:	\\festo.net\DFS01\INT\Data\EPLAN\DATA_xx\DE\Projects\Didactic\Products\24 CP-L\V6
Pfad:	.1\CP Lab V6.1 2022-05-31.elk

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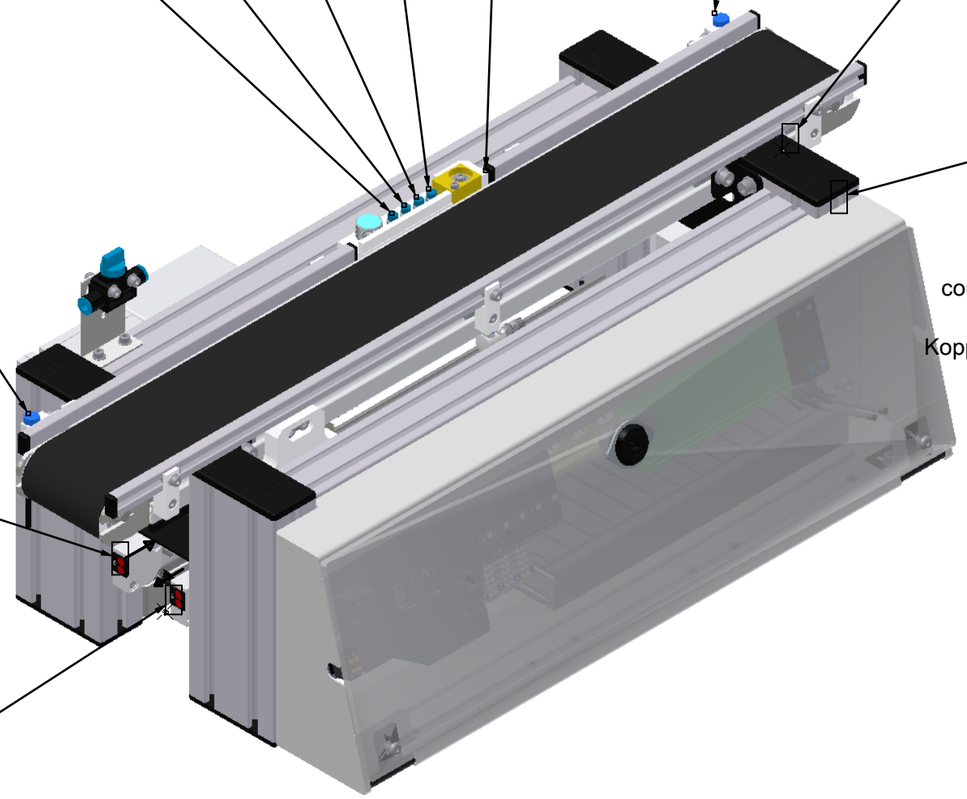


-BG4
150395
SIEN-M8NB-PS-S-L
1
/10.4
Identcode Bit 3
Identcode Bit 3
%I42.3

-BG3
150395
SIEN-M8NB-PS-S-L
2
/10.3
Identcode Bit 2
Identcode Bit 2
%I42.2

-BG2
150395
SIEN-M8NB-PS-S-L
3
/10.2
Identcode Bit 1
Identcode Bit 1
%I42.1

-BG1
150395
SIEN-M8NB-PS-S-L
4
/10.1
Identcode Bit 0
Identcode Bit 0
%I42.0

-BG9
574334
SMT-8M-A-PS-24V-E-0.3-M8D
5
/11.4
Stopper opened
Stopper geöffnet
%I42.7

-BG6
117066
6
/7.4
Pallet at
right end
Palette an
Bandende rechts
%I 1.7

-GF2
165353
SOEG-S-Q30-S-L
7
/11.6
coupling sender
right
Koppelsensor
Sender rechts
%Q42.5

-KG1
165323
SOEG-E-Q30-PS-S-2L
8
/11.1
coupling receiver right
(n.c.)
Koppelsensor Empfänger
rechts (Öffner)
%I42.4

-BG5
117066
9
/7.3
Pallet at
left end
Palette an
Bandende links
%I 1.6

-KG2
165323
SOEG-E-Q30-PS-S-2L
10
/11.2
coupling
receiver left (n.c.)
Koppelsensor Empfänger
links (Öffner)
%I42.5

-GF1
165353
SOEG-S-Q30-S-L
11
/11.5
coupling sender
left
Koppelsensor
Sender links
%Q42.4

+P1

-X1 = power supply Stromversorgung
-X2 = Standardbedienung

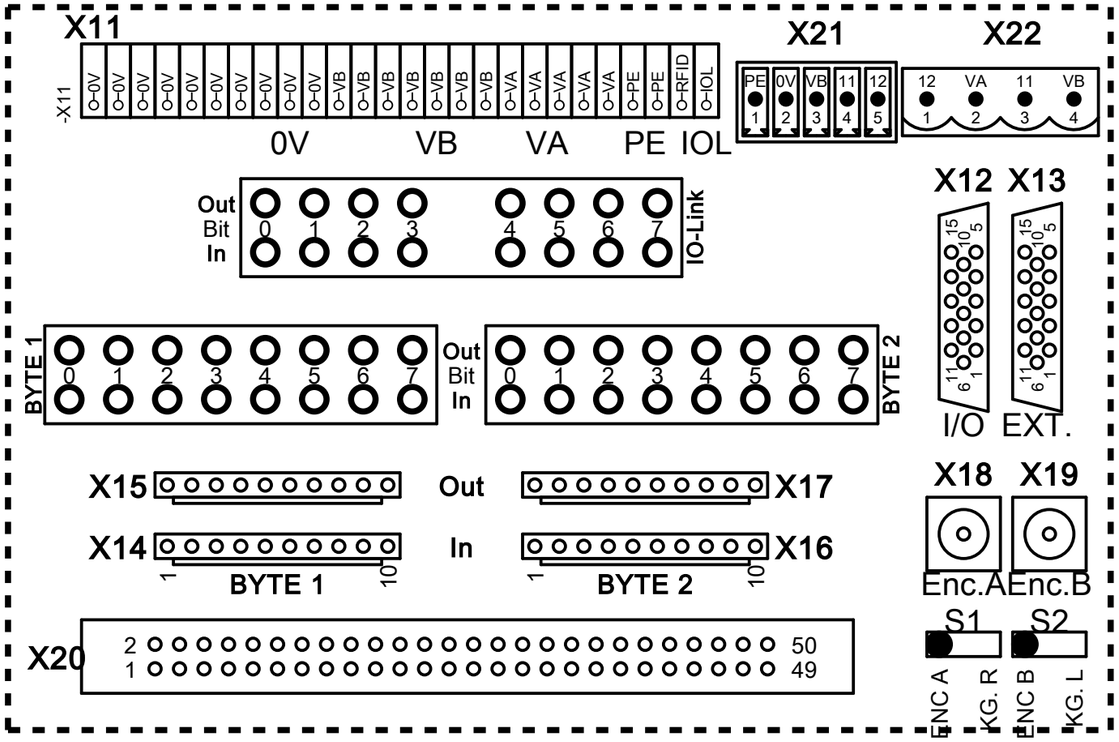
<2
4>>

Date	2020-12-03	Festo Didactic SE Rechbergstraße 3 D-73770 Denkendorf	FESTO	Assembly Aufbau	S-Nr.				
Ed. by.	espe				PSP / DPJ	VN	= S5M0T7	CP Lab S7-IM155-6DP, HMI TP700	Page 3
Creat.	espe						+ G1	Conveyor	of 16
Drw.No.		N:	F:	EPL0VZFG7M	\\festo.net\DFS01\INT\Data\EPLAN\DATA_xx\DE\Projects\Didactic\Products\24 CP Lab V6.1\CP Lab V6.1 2022-05-31.elk				

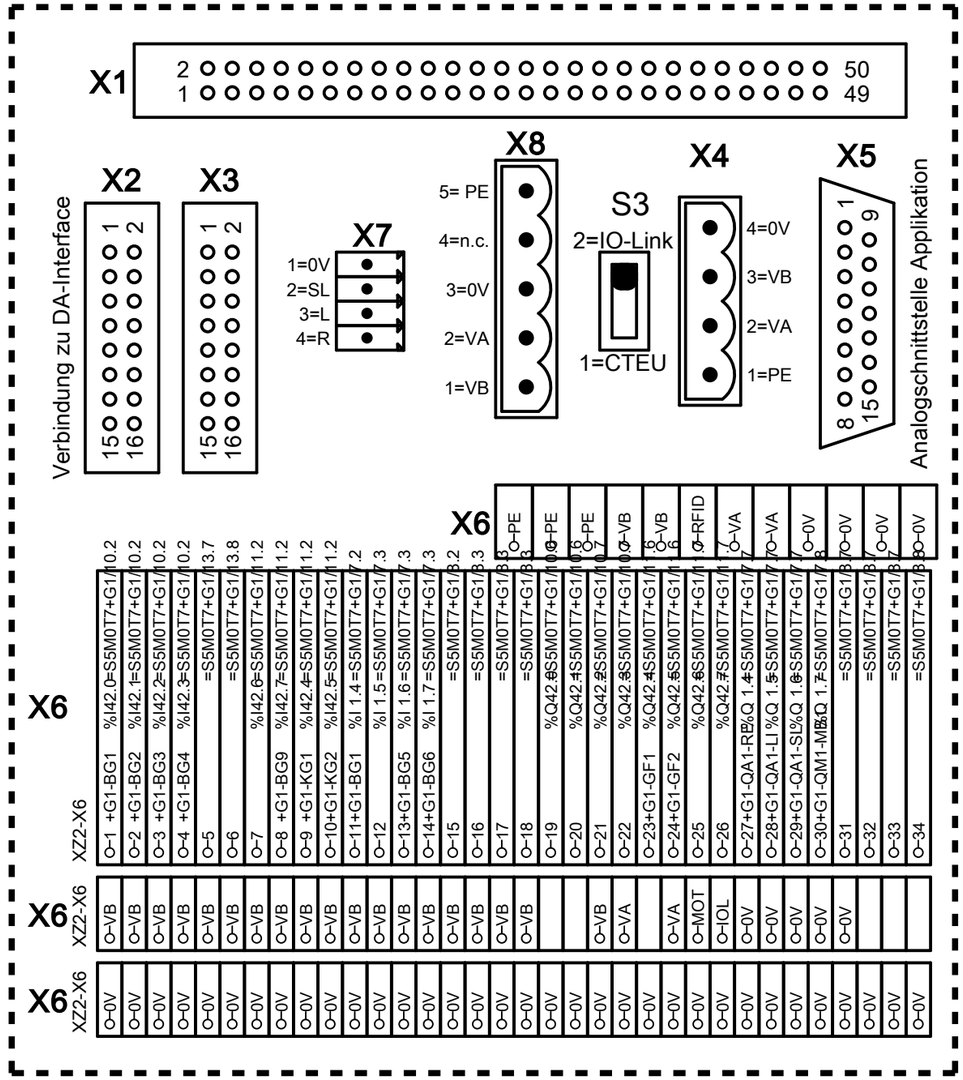
V3

PCB's Rev 2019-01
Platinen Rev 2019-01

-XZ1
front PCB
Platine vorne



-XZ2
rear PCB
Platine hinten



-XZ1-X11 = terminals PCB front side Klemmen Platine vorne
-XZ1-X12 = controlpanel basic functions Bedienfeld Grundfunktionen
-XZ1-X13 = controlpanel additional buttons Bedienfeld Zusatztasten
-XZ1-X14 = Input-Byte 1 Eingangs-Byte 1
-XZ1-X15 = Output-Byte 1 Ausgangs-Byte 1
-XZ1-X16 = Input-Byte 2 Eingangs-Byte 2
-XZ1-X17 = Output-Byte 2 Ausgangs-Byte 2
-XZ1-X18 = incremental encoder BNC-Connector 1 Inkrementalgeber BNC-Anschluss 1
-XZ1-X19 = incremental encoder BNC-Connector 2 Inkrementalgeber BNC-Anschluss 2
-XZ1-X20 = connection to opposite PCB Verbindung zu gegenüberliegender Platine
-XZ1-X21 = Powersupply HMI HMI Stromversorgung
-XZ1-X22 = external Emergency-Stop Connector Not-Halt-Anschluss extern

-XZ1-X1 = connection to opposite PCB Verbindung zu gegenüberliegender Platine
-XZ2-X2 = connection 1 to DA-Interface Verbindung 1 zu DA-Interface
-XZ2-X3 = connection 2 to DA-Interface Verbindung 2 zu DA-Interface
-XZ2-X4 = power supply Stromversorgung
-XZ2-X5 = analog signals for application Analogsignale Applikationsmodul
-XZ2-X6 = terminals PCB rear side Klemmen Platine hinten
-XZ2-X7 = connection to external Motorcontroller Ansteuerung externer Motorregler
-XZ2-X8 = 24V application modules 24V Applikationsmodule

Date	2020-12-03	Festo Didactic SE Rechbergstraße 3 D-73770 Denkendorf	FESTO	Platinen Rev 2019	S-Nr.				
Ed. by.	espe				PSP / DPJ	VN	= S5M0T7	CP Lab S7-IM155-6DP, HMI TP700	Page 4
Creat.	espe						+ G1	Conveyor	of 16
Drw.No.		N:	F:	EPL0VZFG7M	\\festo.net\DFS01\INT\Data\EPLAN\DATA_xx\DE\Projects\Didactic\Products\24 CP Lab V6.1\CP Lab V6.1 2022-05-31.elk				

0	1	2	3	4	5	6	7	8	9

SIE#6ES7155-6BA00-0CN0 -KF1

SIE#6ES7193-6BP00-0DA0 SIE#6ES7131-6BF00-0CA0 /6.0 -KF2

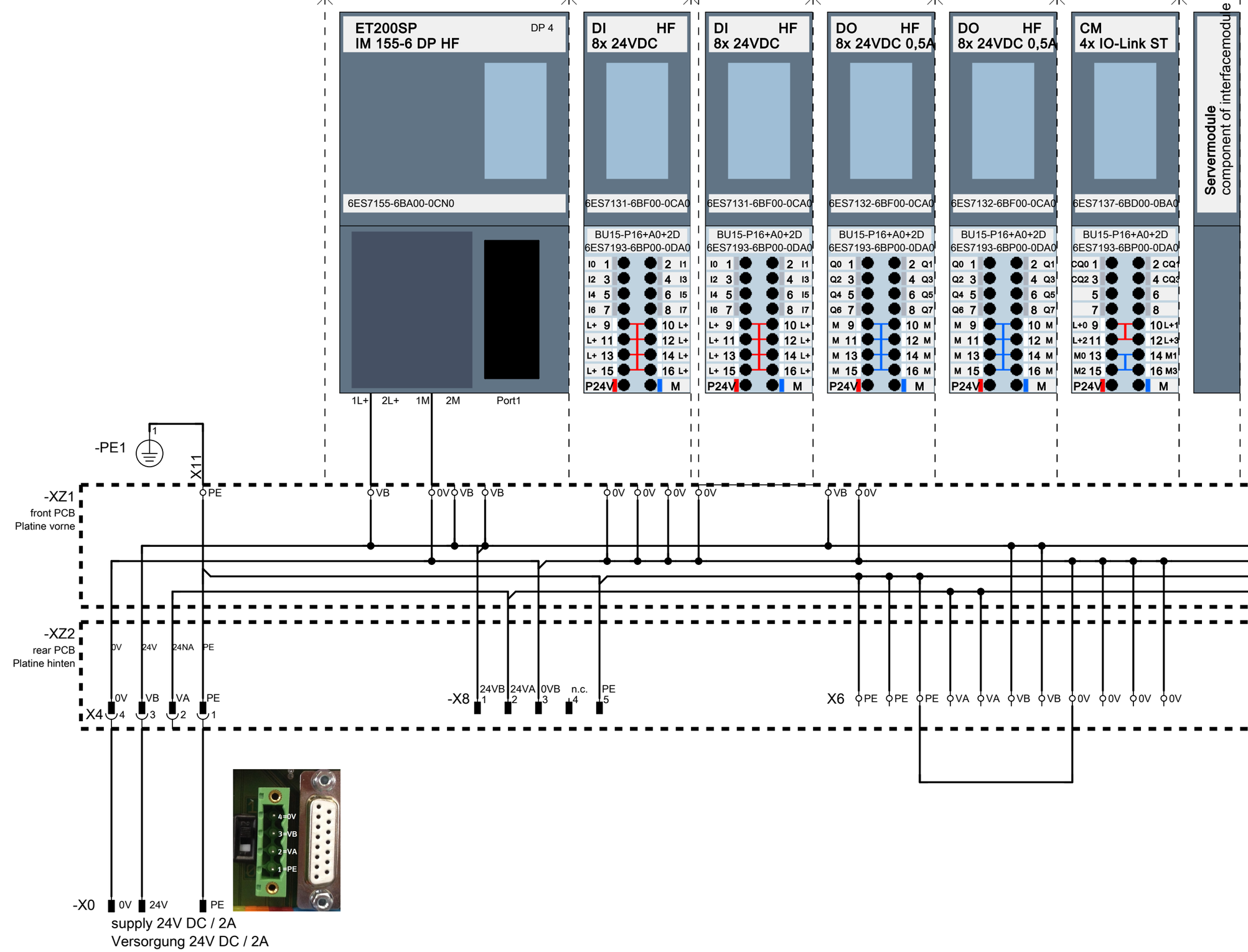
SIE#6ES7193-6BP00-0DA0 SIE#6ES7131-6BF00-0CA0 /7.0 -KF3

SIE#6ES7193-6BP00-0DA0 SIE#6ES7132-6BF00-0CA0 /6.5 -KF4

SIE#6ES7193-6BP00-0DA0 SIE#6ES7132-6BF00-0CA0 /7.5 -KF5

SIE#6ES7193-6BP00-0DA0 SIE#6ES7137-6BD00-0BA0 /9.0 -KF6

-KF7



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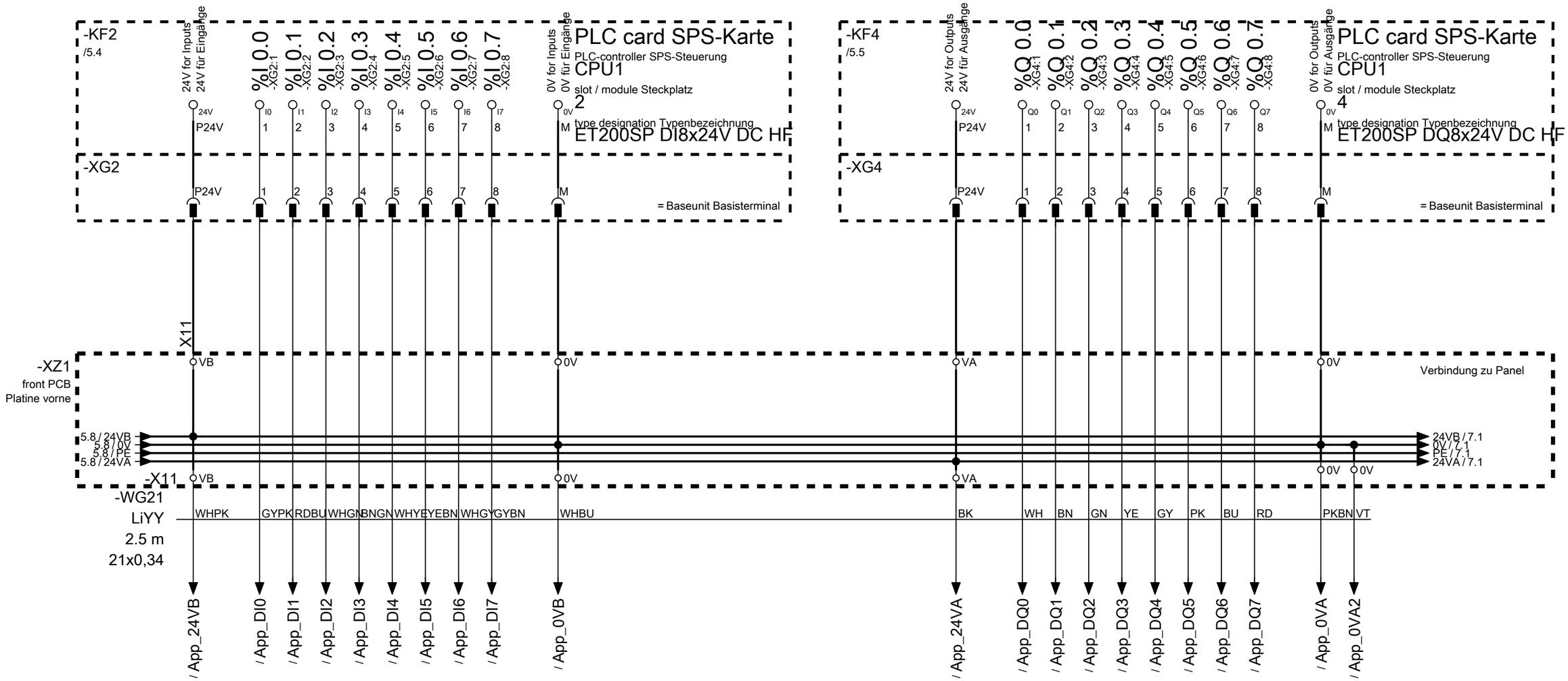
Date	2020-12-03	Festo Didactic SE Rechbergstraße 3 D-73770 Denkendorf	FESTO	assembly PLC Aufbauplan SPS	S-Nr.			
Ed. by.	espe				PSP / DPJ	VN	= S5M0T7	CP Lab S7-IM155-6DP, HMI TP700
Creat.	espe						+ G1	Conveyor
Drw.No.		N:	F:	EPL0VZFG7M \\festo.net\DFS01\INT\Data\EPLAN\DATA_xx\DE\Projects\Didactic\Products\24 CP Lab V6.1\CP Lab V6.1 2022-05-31.elk				



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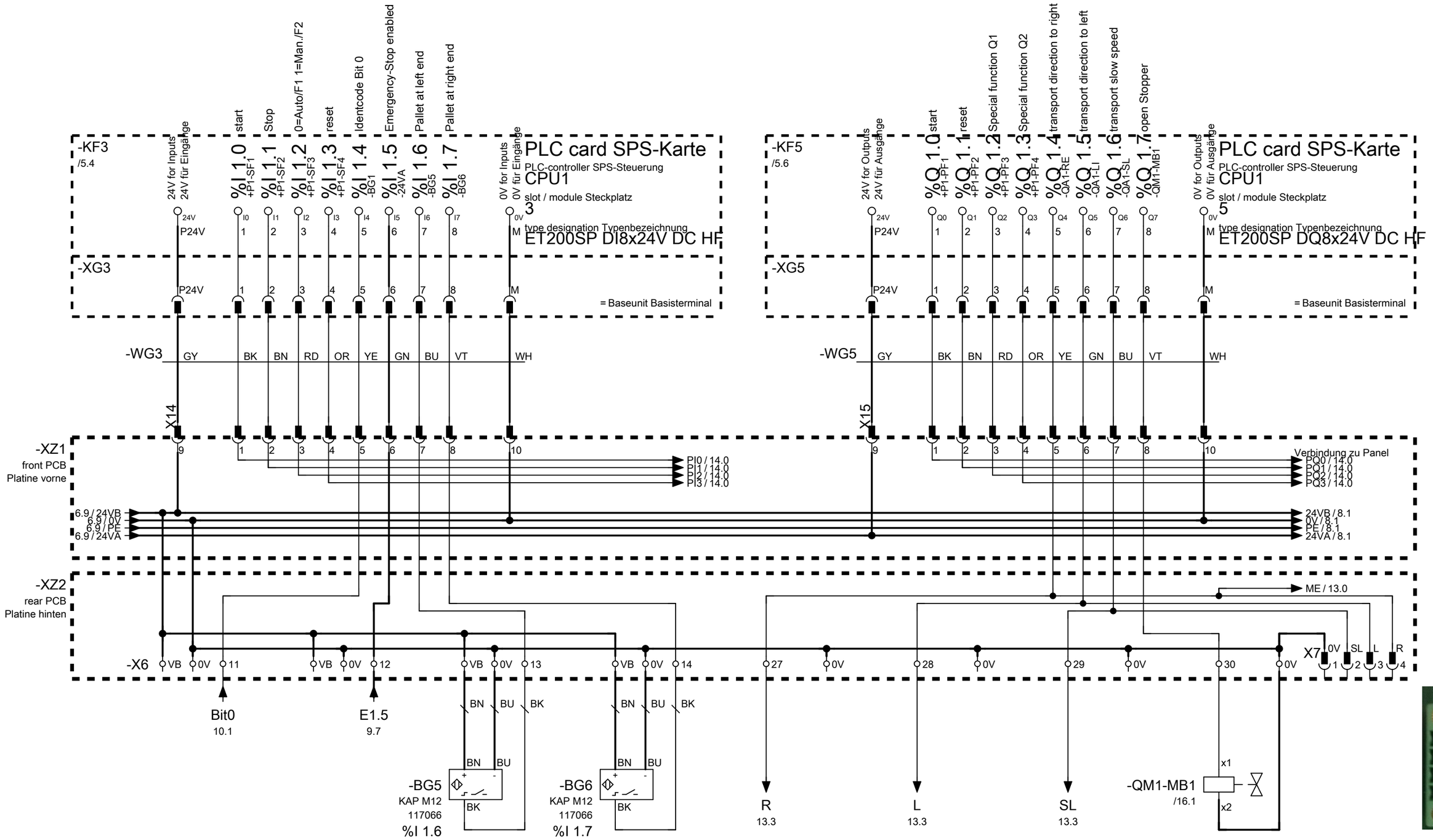
Date	2020-12-03	Festo Didactic SE Rechbergstraße 3 D-73770 Denkendorf	application - Byte 0 Applikation - Byte 0	S-Nr.	
Ed. by.	espe			PSP / DPJ VN	= S5M0T7 CP Lab S7-IM155-6DP, HMI TP700
Creat.	espe				+ G1 Conveyor
Drw.No.		N: F: EPL0VZFG7M \\festo.net\DFS01\INT\Data\EPLAN\DATA_xx\DE\Projects\Didactic\Products\24 CP S7-V6.1\CP Lab V6.1 2022-05-31.elk			



<6

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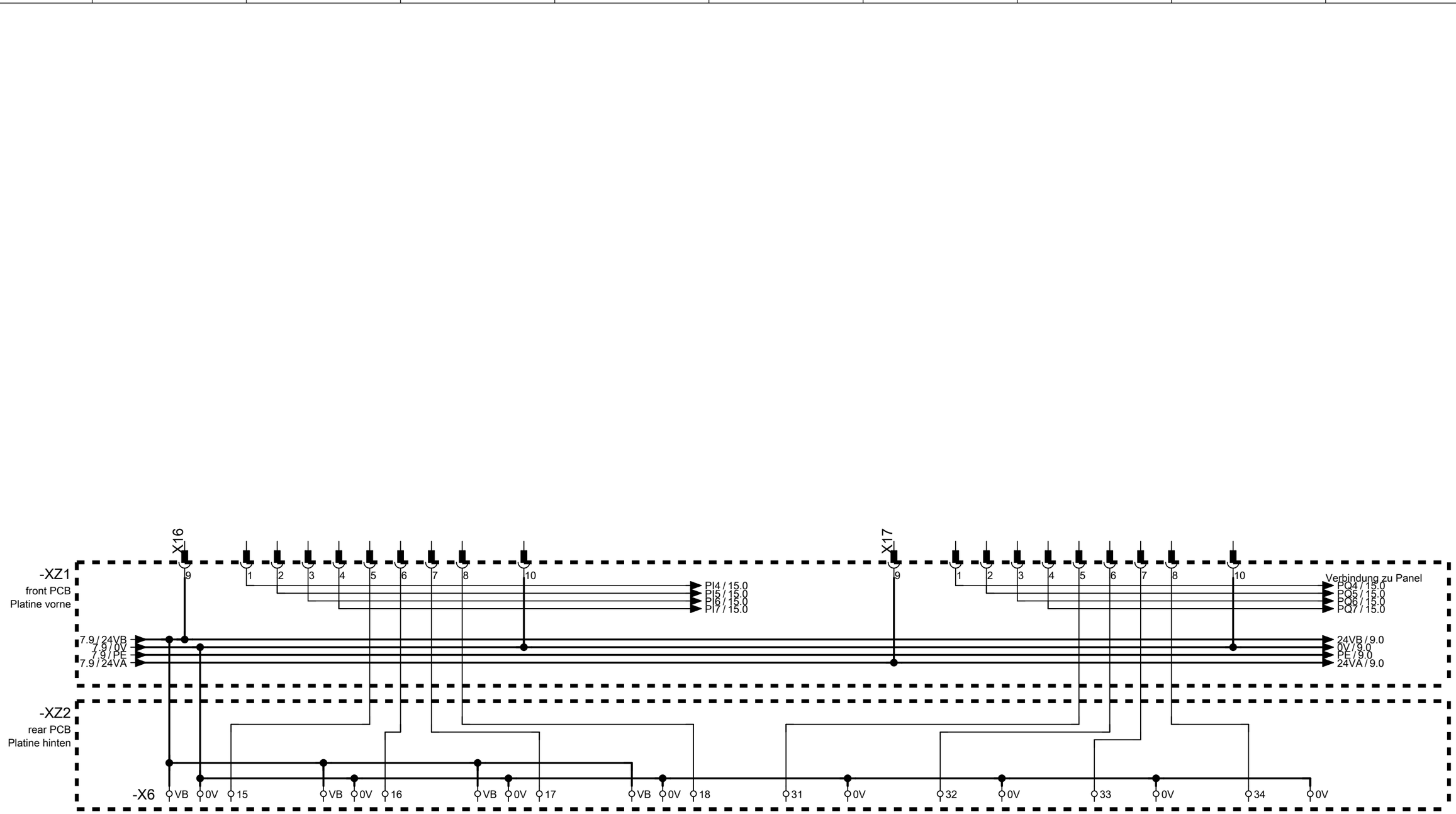
Date	2020-12-03	Festo Didactic SE Rechbergstraße 3 D-73770 Denkendorf	FESTO	PCB - Byte 1 Platine - Byte 1	S-Nr.				
Ed. by.	espe				PSP / DPJ	VN	= S5M0T7	CP Lab S7-IM155-6DP, HMI TP700	Page 7
Creat.	espe						+ G1	Conveyor	of 16
Drw.No.		N:	F:	EPL0VZFG7M	\\festo.net\DFS01\INT\Data\EPLAN\DATA_xx\DE\Projects\Didactic\Products\24 CP Lab V6.1\CP Lab V6.1 2022-05-31.elk				



Date	2020-12-03	Festo Didactic SE Rechbergstraße 3 D-73770 Denkendorf	PCB - Byte 2 Platine - Byte 2	S-Nr.	
Ed. by.	espe				
Creat.	espe			PSP / DPJ VN	= S5M0T7 CP Lab S7-IM155-6DP, HMI TP700 Page 8
Drw.No.		N: F: EPL0VZFG7M \\festo.net\DFS01\INT\Data\EPLAN\DATA_xx\DE\Projects\Didactic\Products\24 CP S7-V6.1\CP Lab V6.1 2022-05-31.elk			+ G1 Conveyor of 16

PS Status of the operating voltage supply (power system)
X1,X2 Status of the internal communication ("I-Port Device 1" / "I-Port Device 2")
NF Network status/network failure (Network Failure)
TP1,TP2 Connection status ("Link1" / "Link2")

IB n+0 = Digital In A+B
IW n+1= ADC0 (12 Bit) AI0 (A) 10V=4095
IB n+3 = ADC1 (8 Bit) AI1 (A) 10V=255
IW n+4= ADC2 (12 Bit) AI0 (B) 10V=4095
IB n+6 = ADC3 (8 Bit) AI1 (B) 10V=255
IB n+7 = LoopCounter 0-255

QB n+0= Digital Out A+B
QW n+1= DAC0 (12 Bit) AQ0 (A)
QW n+3= DAC1 (12 Bit) AQ0 (B)
V1.0: baudrate=COM3 , minCycle=8

-KF6
/5.7

IO-Link Port 1: RFID-Reader
%ID 10
-XTF1:4

IO-Link Port 2: DA-Link-Interface
%ID 42
-X22-S3

IO-Link Port 3: reserve
%ID 50
-XG6:3

IO-Link Port 4: reserve
%ID 58
-XG6:4

24V Channel 1 / 24V Kanal 1 / 0V Channel 1 / 0V Kanal 1
24V Channel 2 / 24V Kanal 2 / 0V Channel 2 / 0V Kanal 2
24V Channel 3 / 24V Kanal 3 / 0V Channel 3 / 0V Kanal 3
24V Channel 4 / 24V Kanal 4 / 0V Channel 4 / 0V Kanal 4

US1 9 M 13 C1 1
US2 10 M 14 C2 2
US3 11 M 15 C3 3
US4 12 M 16 C4 4

-XG6
Baseunit
= Basisterminal

-KF21
/10.0
/11.0
/12.0
DA-Interface
DA-Interface

24V for Inputs / 24V für Eingänge / 0V for Inputs / 0V für Eingänge
24V for Outputs / 24V für Ausgänge / 0V for Outputs / 0V für Ausgänge
FREMDSPRACHE ### IO-Link Device-Port

24VB 1 GNDB 3 24VA 2 GNDA 5 IO-Link 4
IPort 1 3 2 5 4
I-Port / IO-Link
IPort = I-Port / IO-Link

-X11 RFID IOL PE 0V VB

-WG1 BN BU WH GY BK

-X6 VB 0V VA 0V IOL

-S3 1 2
CTEU IOL

8.9 / 24VB
8.9 / 0V
8.9 / PE
8.9 / 24VA

-X6 VB 0V RFID

VB VB VA 0V 0V

24VB / 10.1
0V / 10.1
PE / 10.1
24VA / 10.1

E1.5
7.2

WTF1 BN BU BK

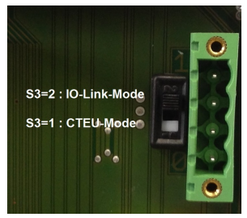
XTF1 1 3 4
24V 0V Data
1 3 4

-XTF1
1 x BC32

Writing- / Reading-Unit
Schreib- / Lesekopf
RF210R IO-Link V1.1
32 Byte I/O

IB n+0: State	State Bit 0: not used
IB n+1: ErrorCode	State Bit 1: Write 28 Byte
IB n+2: Adress-H	State Bit 2: Read 28 Byte
IB n+3: Adress-L	State Bit 3: not used
IB n+4: Data0	State Bit 4: AntOff
.....	State Bit 5: TagPresent
IB n+31: Data27	State Bit 6: Error
	State Bit 7: Done
QB n+0: Command	Command Bit 0: not used
QB n+1: not used	Command Bit 1: Write 28 Byte
QB n+2: Adress-H	Command Bit 2: Read 28 Byte
QB n+3: Adress-L	Command Bit 3: not used
QB n+4: Data0	Command Bit 4: AntOff
.....	Command Bit 5: not used
QB n+31: Data27	Command Bit 6: not used
	Command Bit 7: not used

-XTF1 = RFID-Connector RFID-Anschluss



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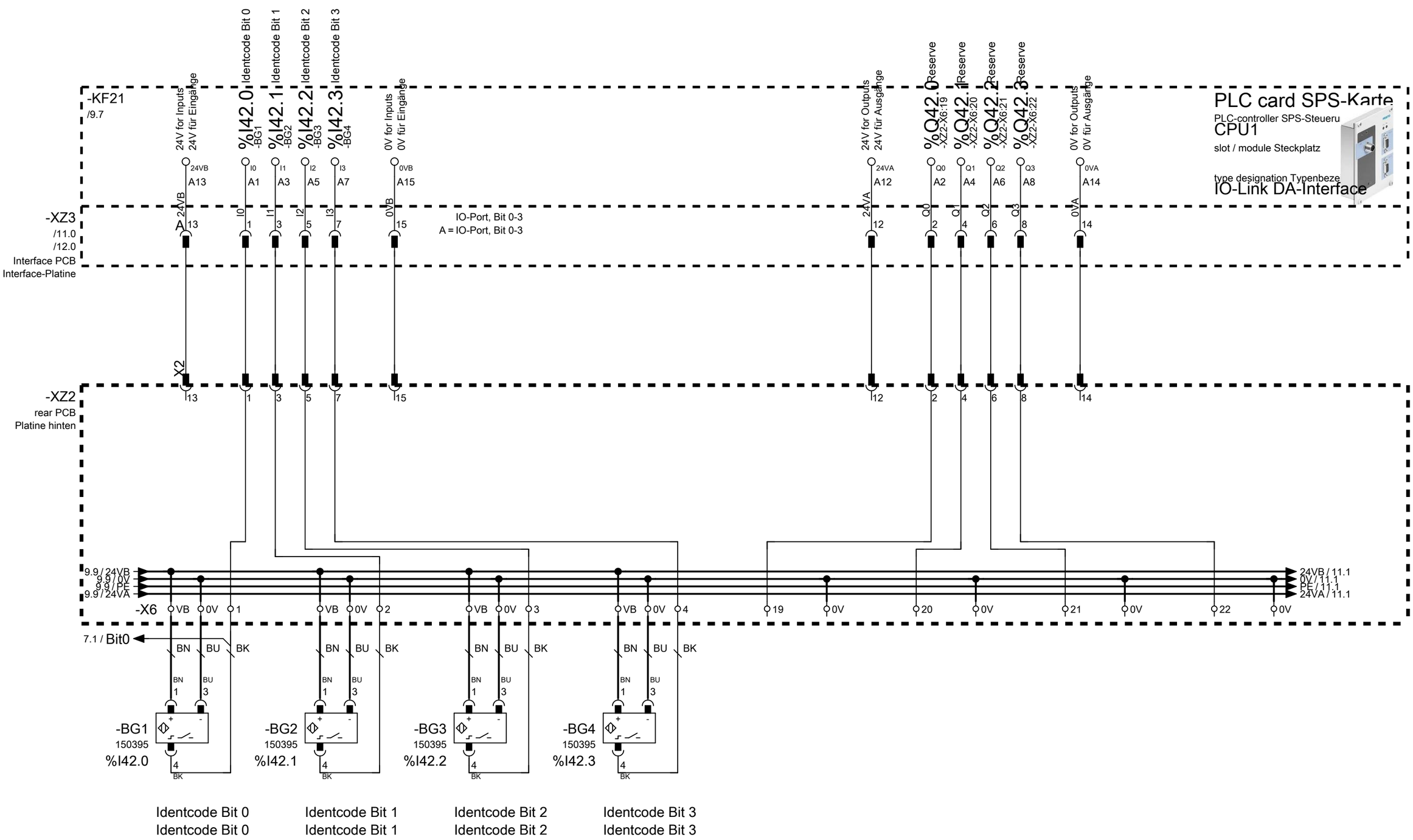
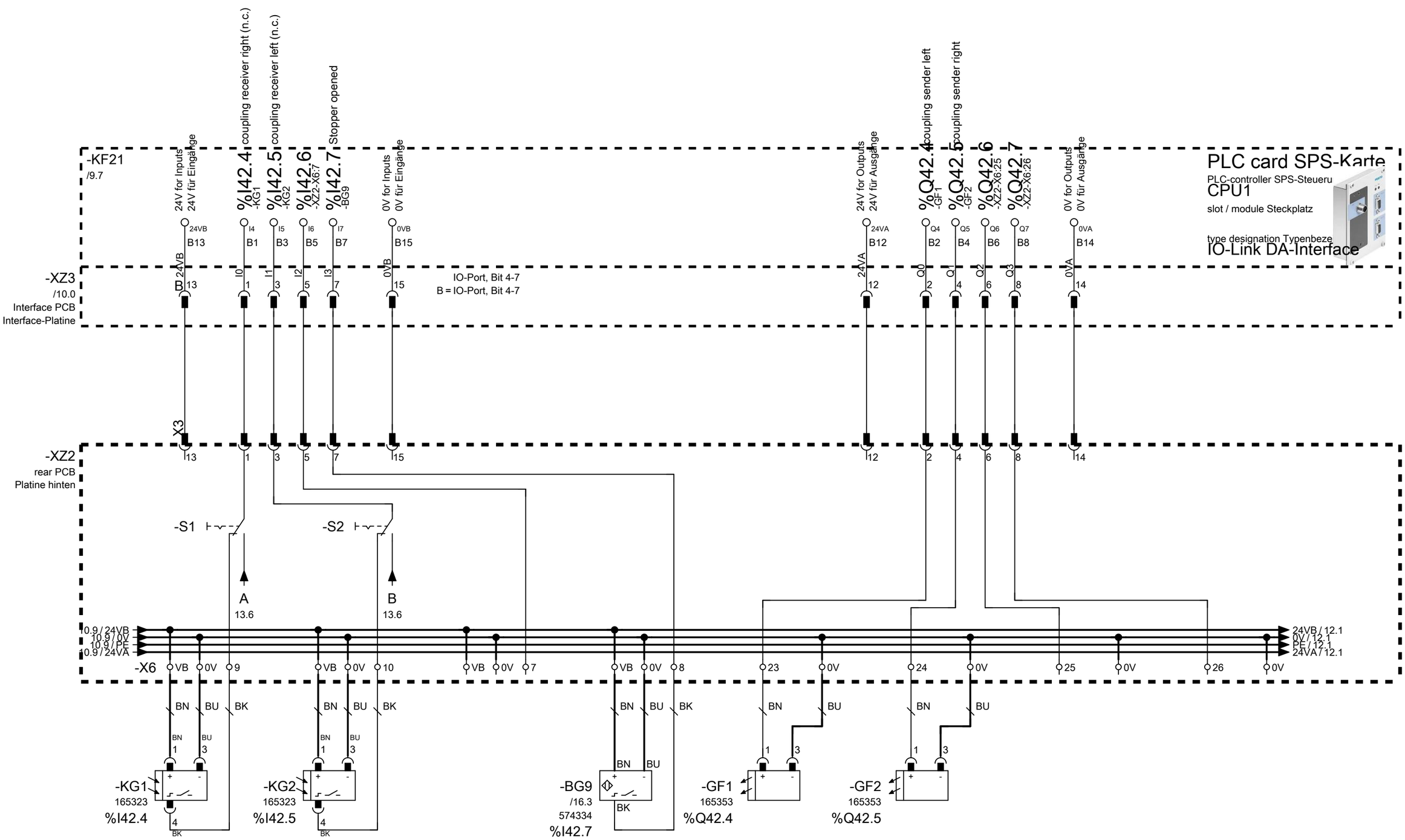
Date	2020-12-03	Festo Didactic SE Rechbergstraße 3 D-73770 Denkendorf	FESTO	PCB - IO-Link & Ethernet Platine - IO-Link & Ethernet	S-Nr.		
Ed. by.	espe				PSP / DPJ VN	= S5M0T7	CP Lab S7-IM155-6DP, HMI TP700
Creat.	espe					+ G1	Conveyor
Drw.No.		N:	F:	EPL0VZFG7M \\festo.net\DFS01\INT\Data\EPLAN\DATA_xx\DE\Projects\Didactic\Products\24 CP Lab V6.1\CP Lab V6.1 2022-05-31.elk			



<<9

11>>

Date	2020-12-03	Festo Didactic SE Rechbergstraße 3 D-73770 Denkendorf	FESTO	PCB - IO-Link A Platine - IO-Link A	S-Nr.				
Ed. by.	espe				PSP / DPJ	VN	= S5M0T7	CP Lab S7-IM155-6DP, HMI TP700	Page 10
Creat.	espe						+ G1	Conveyor	of 16
Drw.No.		N:	F:	EPL0VZFG7M \\festo.net\DFS01\INT\Data\EPLAN\DATA_xx\DE\Projects\Didactic\Products\24 CP Lab V6.1\CP Lab V6.1 2022-05-31.elk					



coupling receiver right (n.c.)
Koppelsensor Empfänger rechts (Öffner)

coupling receiver left (n.c.)
Koppelsensor Empfänger links (Öffner)

Stopper opened
Stopper geöffnet

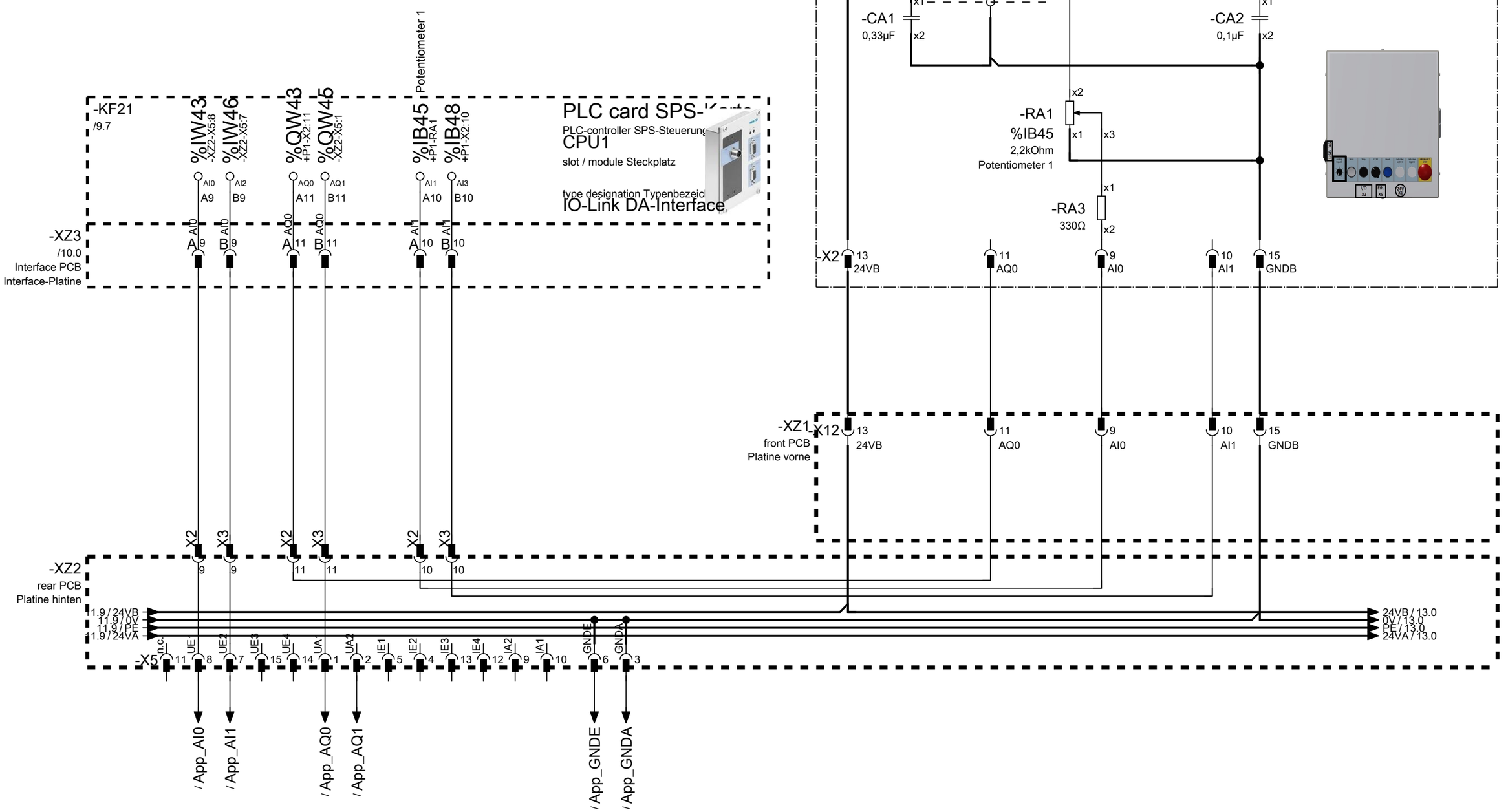
coupling sender left
Koppelsensor Sender links

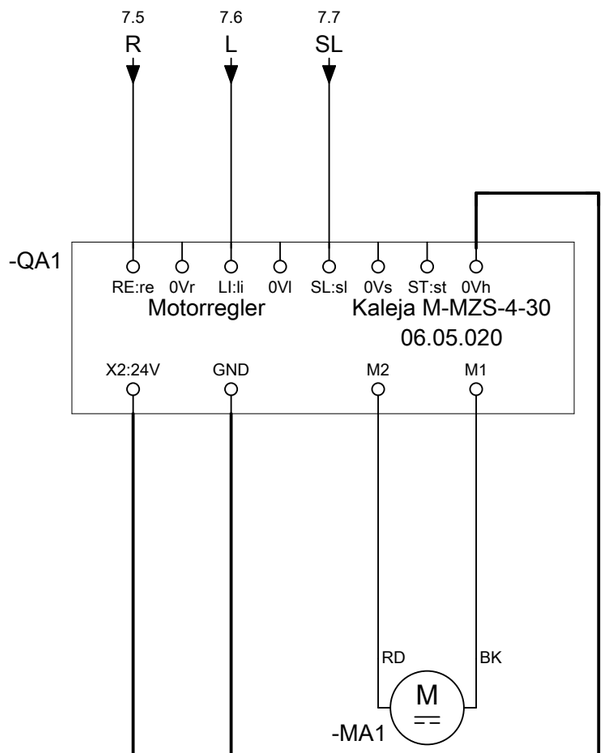
coupling sender right
Koppelsensor Sender rechts

<<10

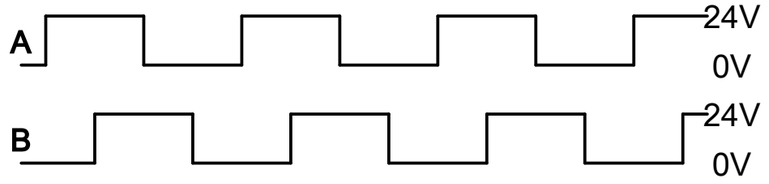
12>>

Date	2020-12-03	Festo Didactic SE Rechbergstraße 3 D-73770 Denkendorf		PCB - IO-Link B Platine - IO-Link B	S-Nr.		
Ed. by.	espe				PSP / DPJ VN	= S5M0T7	CP Lab S7-IM155-6DP, HMI TP700
Creat.	espe					+ G1	Conveyor
Drw.No.		N:	F:	EPL0VZFG7M \\festo.net\DFS01\INT\Data\EPLAN\DATA_xx\DE\Projects\Didactic\Products\24 CP Lab V6.1\CP Lab V6.1 2022-05-31.elk			

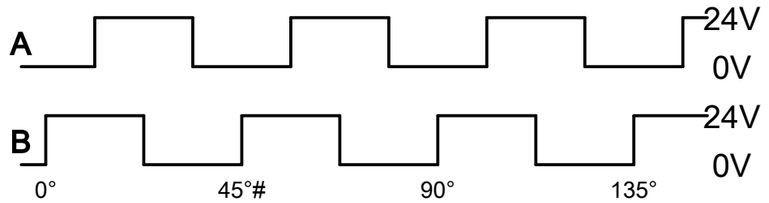




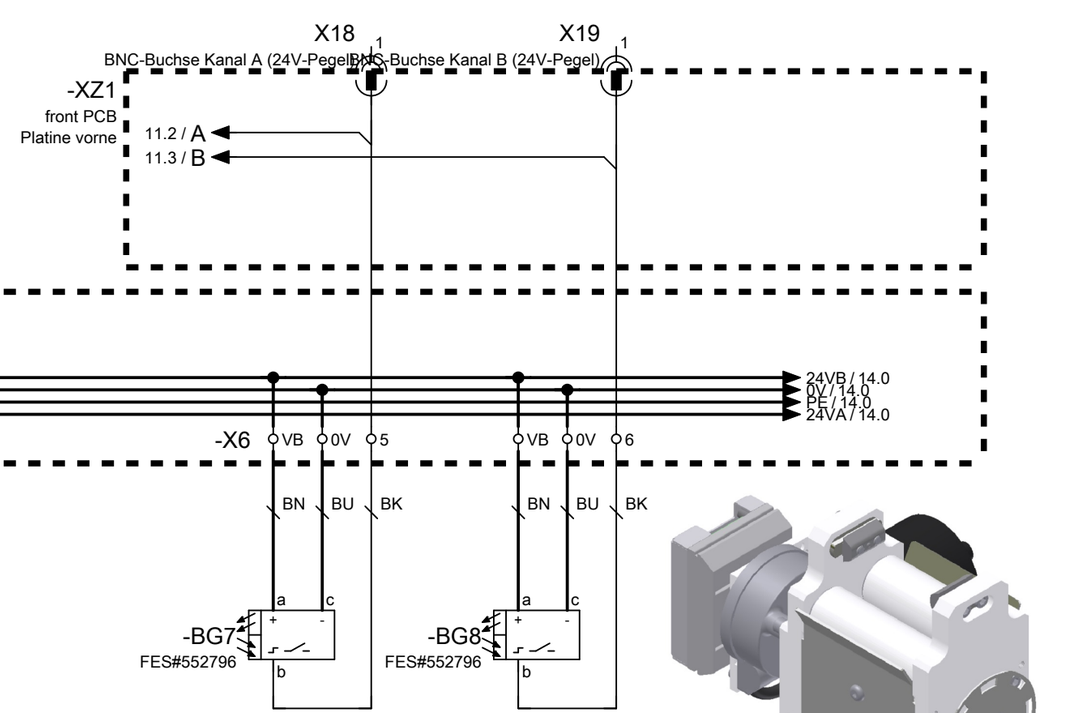
transport direction to right
Bandantrieb Rechtslauf



transport direction to left
Bandantrieb Linkslauf



1 rotation = 8 pulses/channel = 30mm * π = 94,2 mm
1 Umdrehung = 8 Impulse je Kanal = 30mm * π = 94,2 mm



incremental encoder Ch. A
Drehgeber Kanal A

incremental encoder Ch. B
Drehgeber Kanal B

conveyor motor
Bandmotor

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Date	2022-05-31	Festo Didactic SE Rechbergstraße 3 D-73770 Denkendorf	FESTO	PCB - motor + encoder Platine - Motor + Inkrementalgeber	S-Nr.
Ed. by.	espe				PSP / DPJ VN
Creat.	espe				= S5M0T7 CP Lab S7-IM155-6DP, HMI TP700
Drw.No.		N: F: EPL0VZFG7M \\festo.net\DFS01\INT\Data\EPLAN\DATA_xx\DE\Projects\Didactic\Products\24 CP Lab V6.1\CP Lab V6.1 2022-05-31.elk			+ G1 Conveyor

+P1

-PH1
SIE.6AV2124-0GC01-0AX0

Siemens TP700 Comfort

12.8 / _24VB

-SF1 start Start %I 1.0
-SF2 Stop Stopp %I 1.1
-SF3 0=Auto/F1 1=Man./F2 0=Auto/F1 1=Man./F2 %I 1.2
-SF4 reset Richten %I 1.3
-PF1 start Start %Q 1.0
-PF2 reset Richten %Q 1.1
-PF3 Special function Q1 Sonderfunktion Q1 %Q 1.2
-PF4 Special function Q2 Sonderfunktion Q2 %Q 1.3

Sub-D-Buchse
15pol. HD

-X2: 12 24VA, 11 AO0, 14 GNDA, 1 I0, 2 Q0, 3 I1, 5 I2, 7 I3, 4 Q1, 6 Q2, 8 Q3

-XD1: 1 24VB, 2 0V, 3 PE

-SF5 OFF-Button Panel AUS-Taste Panel

JP1

-X1: 2 24VA, 1 24VB, 3 GNDB, 5 PE, 4 n.c.

-WG41: WH, BN, BU, GY, BK

-WG42

X80:1 L+, 2 M, PE

-X90i Audio IN, -X90o Audio OUT, -X60 USB-Mini-B, -X61 USB-A, -X62 USB-A, -X2 DP, -X1/P1 PN RJ45, -X1/P2 PN RJ45

USB

-X6

X6 = USB socked
X5 = Ethernet connector in control panel
-XD1 = Klemmen auf HMI-Platine

-X5: 1

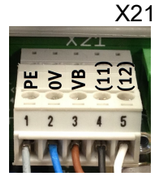
-XZ1 front PCB Platine vorne

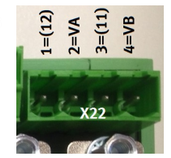
X12: 12 24VA, 11 AO0, 14 GNDA, 1 I0, 2 Q0, 3 I1, 5 I2, 7 I3, 4 Q1, 6 Q2, 8 Q3

7.4 / -PI0
7.4 / -PI1
7.4 / -PI2
7.4 / -PI3
7.9 / -PQ0
7.9 / -PQ1
7.9 / -PQ2
7.9 / -PQ3

X21: 5 (12), 3 24VB, 2 0V, 1 PE, 4 (11)

X22: 1 (12), 2 VA, 3 (11), 4 VB





-XZ2 rear PCB Platine hinten

13.9 / 24VB
13.9 / 0V
13.9 / PE
13.9 / 24VA

24VB / 15.0
0V / 15.0
24VA / 15.0

PN

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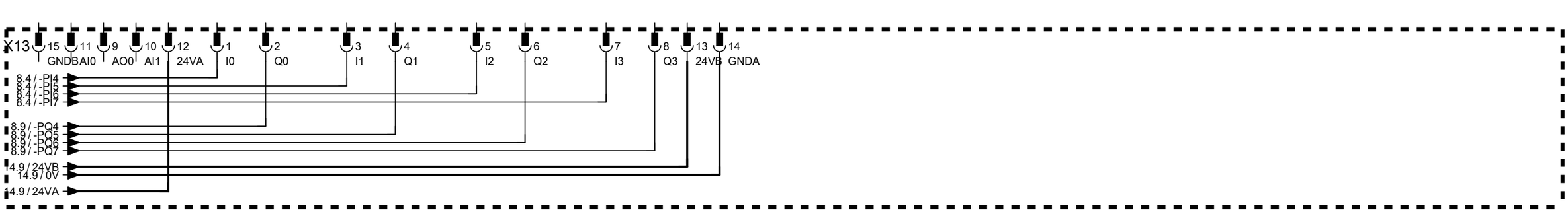
Date	2020-12-03	Festo Didactic SE Rechbergstraße 3 D-73770 Denkendorf	FESTO	controlpanel basic functions & touchpanel Bedienfeld Grundfunktionen & Touchpanel	S-Nr.		
Ed. by.	espe				PSP / DPJ VN	= S5M0T7	CP Lab S7-IM155-6DP, HMI TP700
Creat.	espe					+ G1	Conveyor
Drw.No.		N:	F:	EPL0VZFG7M \\festo.net\DFS01\INT\Data\EPLAN\DATA_xx\DE\Projects\Didactic\Products\24 CP-Lab V6.1\CP Lab V6.1 2022-05-31.elk			



Date	2020-12-03	Festo Didactic SE Rechbergstraße 3 D-73770 Denkendorf	FESTO	controlpanel options Bedienfeld Optionen	S-Nr.
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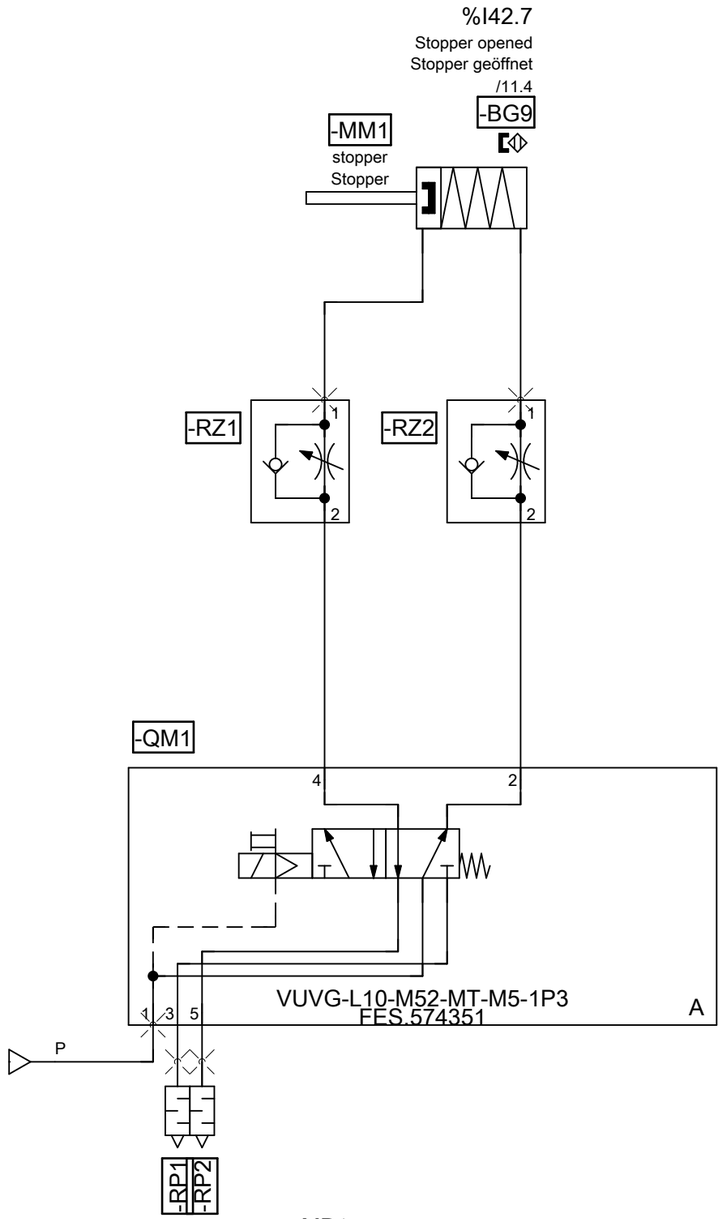

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Date	2020-12-03	Festo Didactic SE Rechbergstraße 3 D-73770 Denkendorf	FESTO	pneumatic schematic Pneumatikplan	S-Nr.				
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