

Table of contents

F06_002

Function designation	Location designation	Page	Page description	supplementary page field	Date	Edited by
		1	Title page / cover sheet		15.09.2025	LAMSCHICK
		1	Directory : &BAA1/1 - ==TWR1=DA01&EFA1+HP1/14		08.10.2025	LAMSCHICK
		1.a	Directory : ==TWR1=DA01&EFA1+HP1/15 - ==TWR1=HMDS&EFS1+HP1/3		08.10.2025	LAMSCHICK
BA01	S1	1	Power supply		08.10.2025	LAMSCHICK
	S1	2	Feed N/PE		08.10.2025	LAMSCHICK
EDS	S1	2	24V DC supply controller		08.10.2025	LAMSCHICK
	S1	3	24V DC distribution		08.10.2025	LAMSCHICK
	S1	4	24V DC Safty distribution		08.10.2025	LAMSCHICK
	S1	5	12V DC distribution		08.10.2025	LAMSCHICK
	S1	6	230V AC supply		06.10.2025	LAMSCHICK
DA01	S1	1	Structure PLC Beckhoff		08.10.2025	LAMSCHICK
	S1	9	PLC diagram : ===DA01+S1-KF1 - ===DA01+S1-KF1		08.10.2025	LAMSCHICK
	S1	10	PLC diagram : ===DA01+S1-KF10 - ===DA01+S1-KF10		08.10.2025	LAMSCHICK
	S1	14	PLC diagram : ===DA01+S1-KF20 - ===DA01+S1-KF20		08.10.2025	LAMSCHICK
	S1	15	PLC diagram : ===DA01+S1-KF25 - ===DA01+S1-KF25		08.10.2025	LAMSCHICK
	S1	16	PLC diagram : ===DA01+S1-KF30 - ===DA01+S1-KF30		08.10.2025	LAMSCHICK
	S1	17	PLC diagram : ===DA01+S1-KF35 - ===DA01+S1-KF35		08.10.2025	LAMSCHICK
	S1	1	Power supply		08.10.2025	LAMSCHICK
SFT01	S1	1	Safety shutdown		01.10.2025	LAMSCHICK
DA10	S1	1	IPC		08.10.2025	LAMSCHICK
DD01	S1	1	Sensors		08.10.2025	LAMSCHICK
NC01	S1	1	Tank level		08.10.2025	LAMSCHICK
EDS	HP1	1	Power supply		08.10.2025	LAMSCHICK
	HP1	2	Feed N/PE		08.10.2025	LAMSCHICK
DA01	HP1	1	Structure PLC Beckhoff		08.10.2025	LAMSCHICK
	HP1	9	PLC diagram : ==TWR1=DA01+HP1-KF1 - ==TWR1=DA01+HP1-KF1		08.10.2025	LAMSCHICK
	HP1	10	PLC diagram : ==TWR1=DA01+HP1-KF10 - ==TWR1=DA01+HP1-KF10		08.10.2025	LAMSCHICK
	HP1	14	PLC diagram : ==TWR1=DA01+HP1-KF20 - ==TWR1=DA01+HP1-KF20		08.10.2025	LAMSCHICK

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&BAA1/1

1.a

Date	08.10.2025	ING OPTIhot SVT20 (UoG) PB5002 Replacement of _____ Replaced by _____	INGELA mbH 	Directory : &BAA1/1 - ==TWR1=DA01&EFA1+HP1/14	EU PB5002	==	
Ed.	LAMSCHICK					=	
Appr						+	Page 1
Modification	Date	Name	Original				Page 35

Table of contents

F06_002

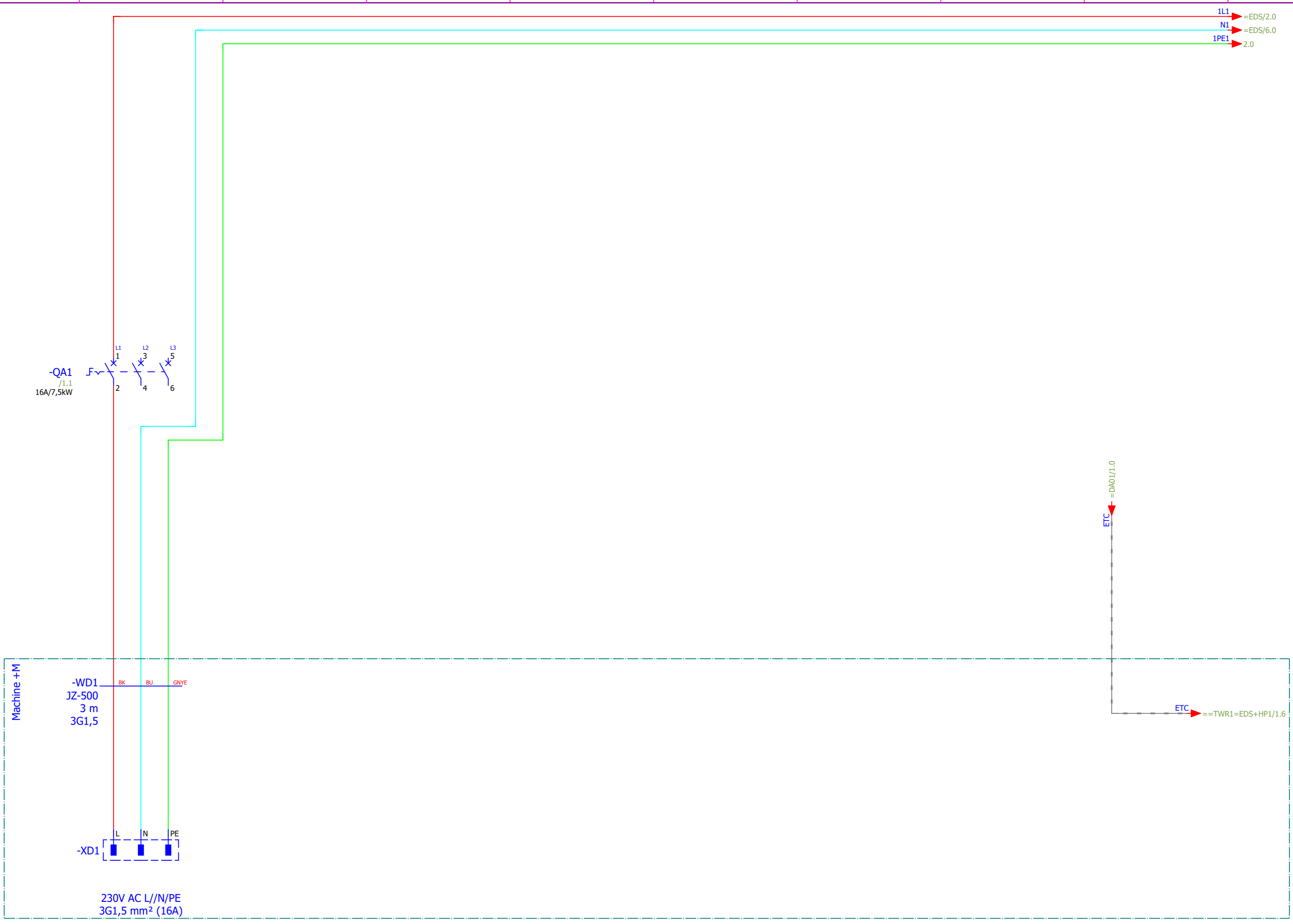
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DA01	HP1	15	PLC diagram : ==TWR1=DA01+HP1-KF30 - ==TWR1=DA01+HP1-KF30		08.10.2025	LAMSCHICK
	HP1	1	Power supply		08.10.2025	LAMSCHICK
DC01	M	1	Control panel		08.10.2025	LAMSCHICK
DD01	HP1	1	Sensors		08.10.2025	LAMSCHICK
HMDS	M	1	HMDS Fluid control		08.10.2025	LAMSCHICK
	HP1	3	HMDS supply		08.10.2025	LAMSCHICK

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=BA01&EFS1+S1/1

Date	08.10.2025	ING OPTIhot SVT20 (UoG) PB5002	INGELA mbH 	Directory : ==TWR1=DA01&EFA1+HP1/15 -	EU PB5002	==	
Ed.	LAMSCHICK					=	
Appr						+	Page 1.a
Modification	Date	Name	Original	Replacement of	Replaced by		Page 35

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=&BAB1+/1.a

Date	26.01.2026		
Ed.	LAMSCHICK		
Appr			
Modification	Date	Name	Original

ING	
OPTIhot SVT20 (UoG) PB5002	
Replacement of	Replaced by

INGELA mbH

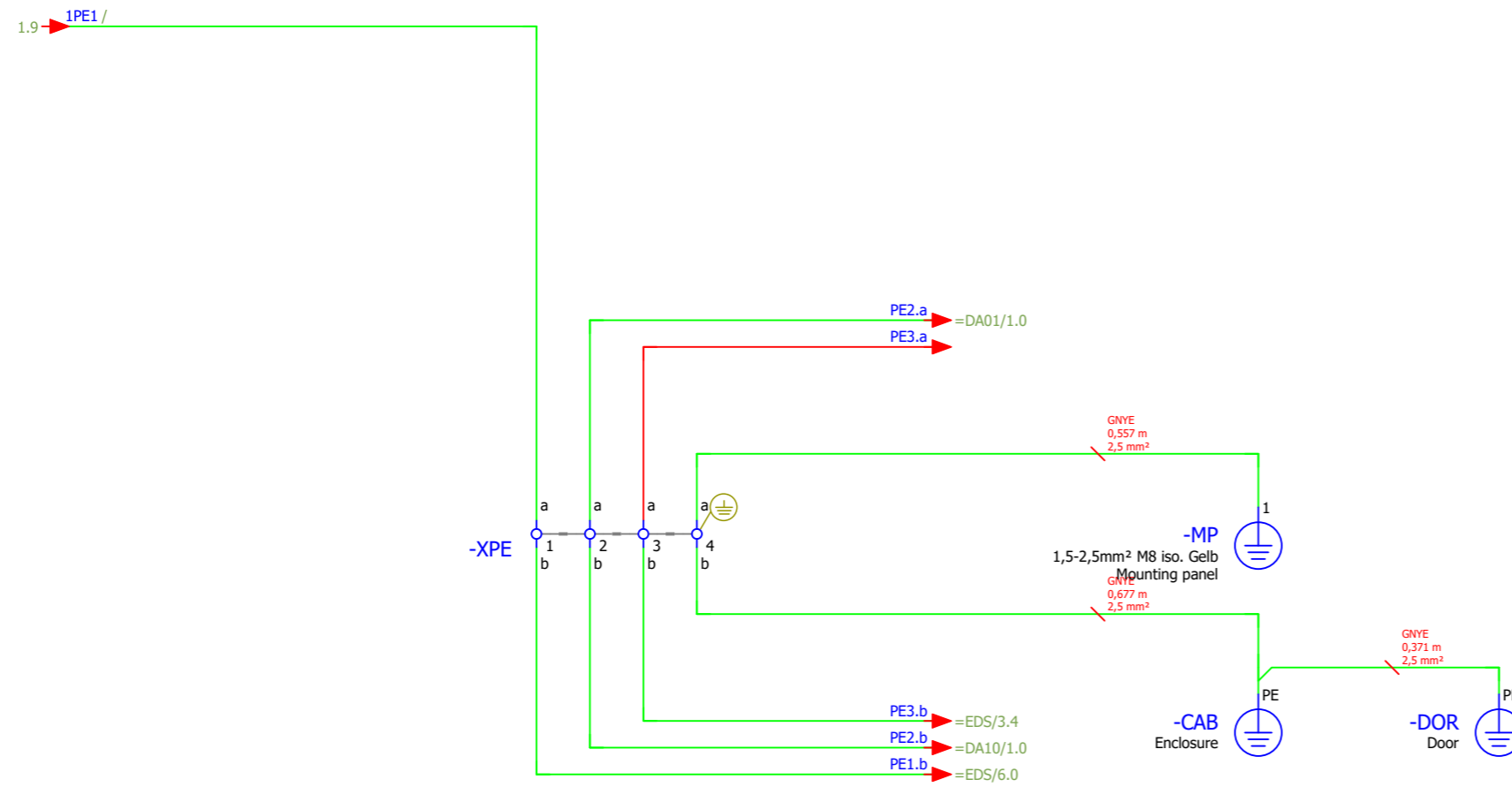
Power supply

EU

==	BA01	Page	1
+ S1		Page	35

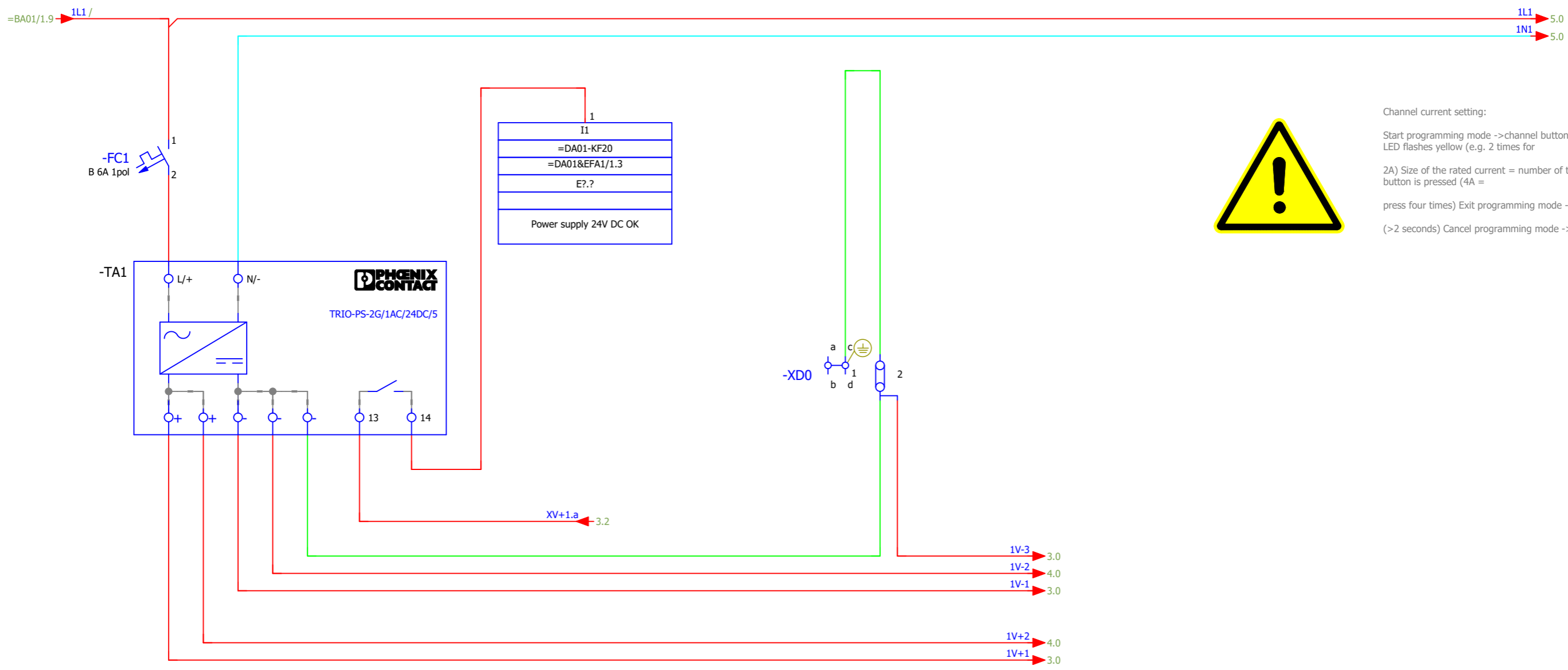
PB5002

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=EDS/2

			Date	12.12.2025	ING OPTIhot SVT20 (UoG) PB5002	INGELA mbH		Feed N/PE	EU	==	
			Ed.	LAMSCHICK						= BA01	
			Appr							+ S1	Page 2
Modification	Date	Name	Original		Replacement of	Replaced by			PB5002	Page	35

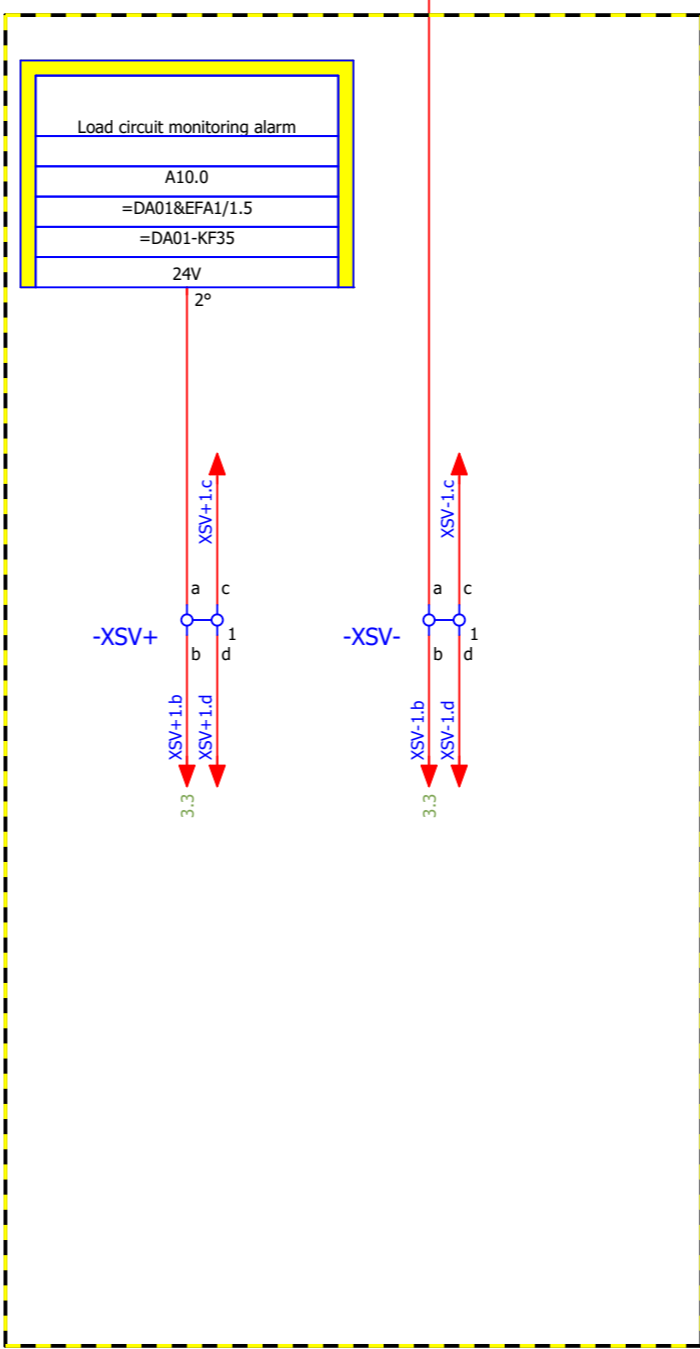
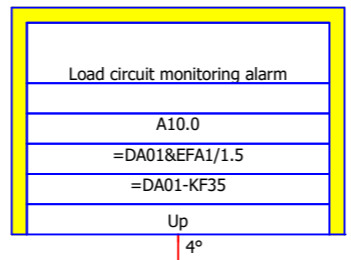
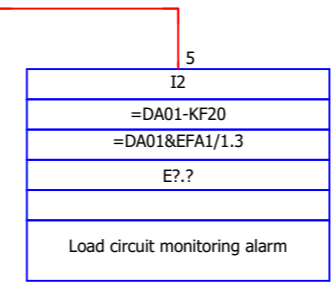
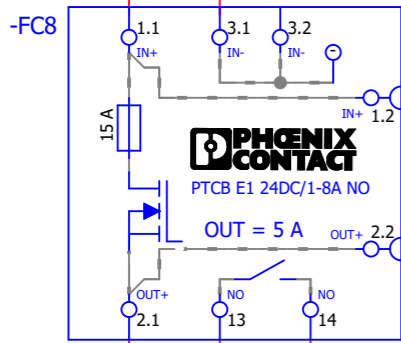


Channel current setting:
 Start programming mode -> channel button (>2 seconds)
 LED flashes yellow (e.g. 2 times for 2A)
 Size of the rated current = number of times the channel button is pressed (4A = press four times)
 Exit programming mode -> channel button (>2 seconds)
 Cancel programming mode -> 60 seconds

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Power supply 24V DC OK

2.6 → 1V-2 /
 3.2 → FCSIN- /
 2.6 → 1V+2 /



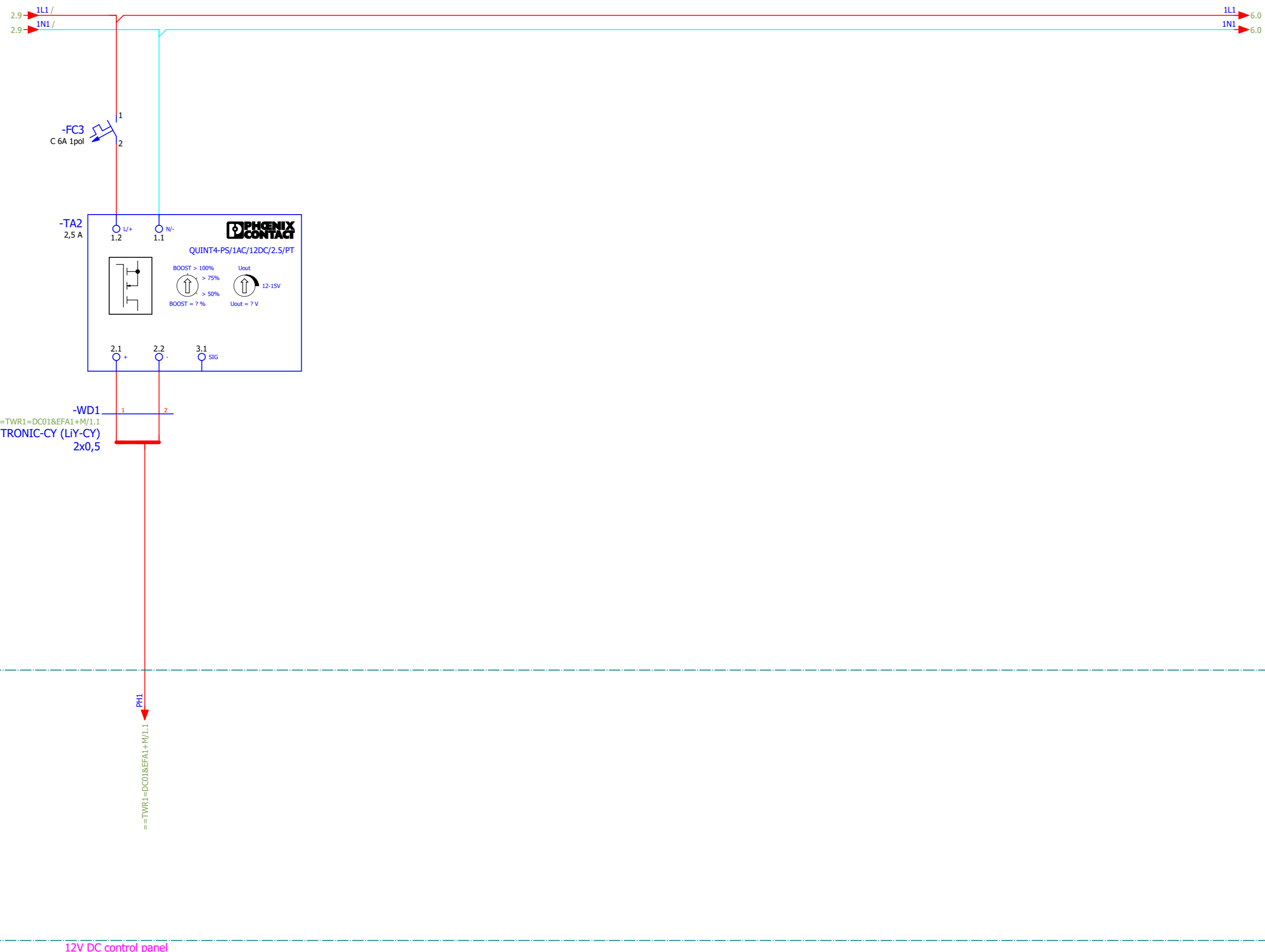
Channel current setting:
 Start programming mode -> channel button (>2 seconds)
 LED flashes yellow (e.g. 2 times for
 2A) Size of the rated current = number of times the channel
 button is pressed (4A =
 press four times) Exit programming mode -> channel button
 (>2 seconds) Cancel programming mode -> 60 seconds

After emergency stop

Load circuit monitoring alarm

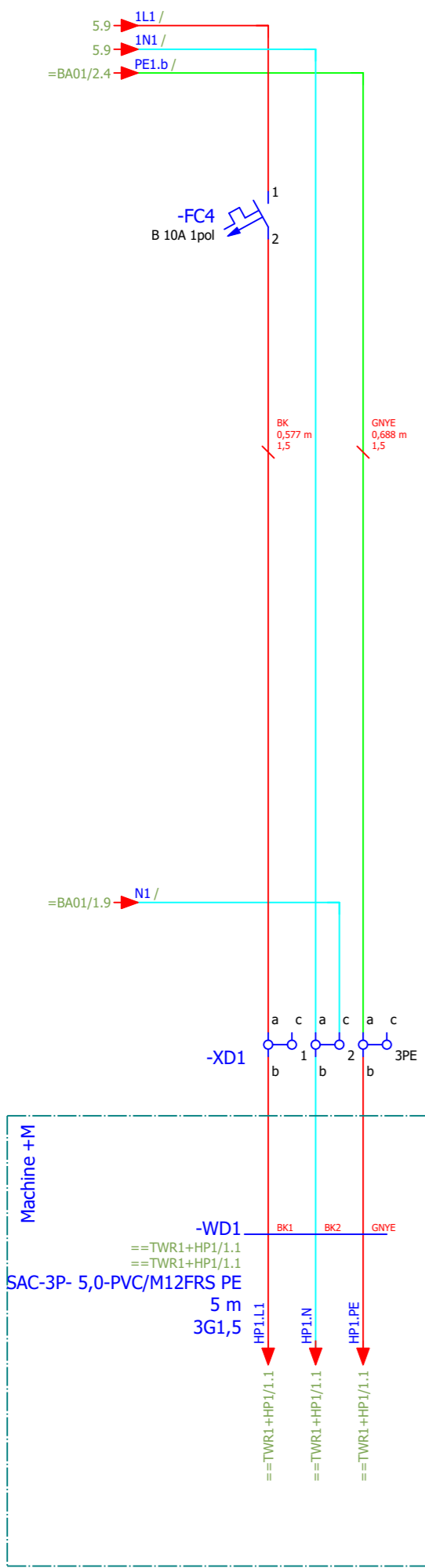
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				Ed.	LAMSCHICK					+ S1		Page	4
				Appr						Page	35		
Modification	Date	Name	Original	Replacement of	Replaced by								



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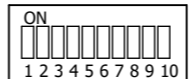
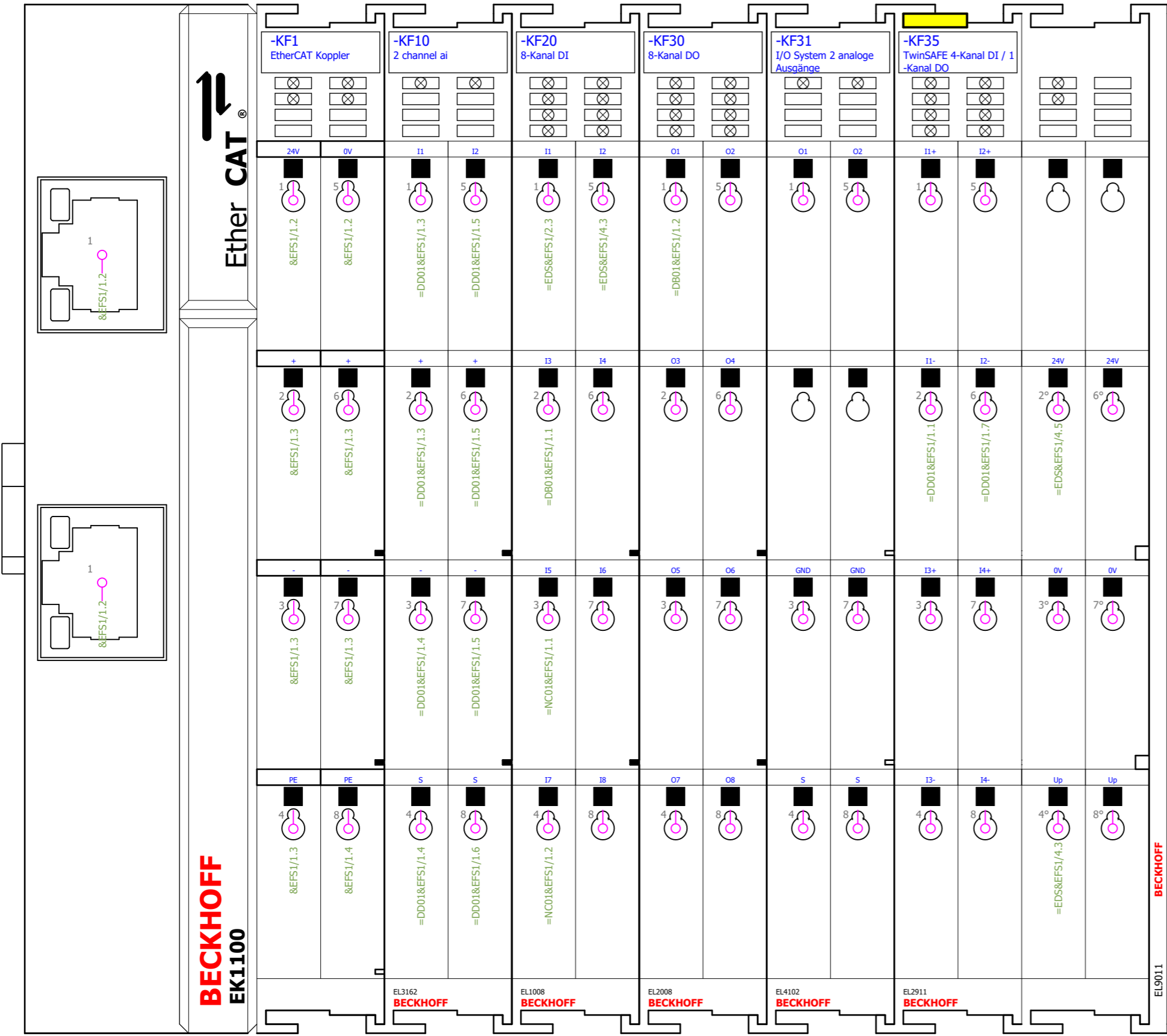
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				Ed.	LAMSCHICK					+ S1		Page	5
				Appr						PB5002		Page	35
Modification	Date	Name	Original	Replacement of		Replaced by							



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			Date	26.01.2026	ING OPTIhot SVT20 (UoG) PB5002	INGELA mbH		230V AC supply	EU	== = EDS			
			Ed.	LAMSCHICK						+ S1		Page	6
			Appr							PB5002		Page	35
Modification	Date	Name	Original		Replacement of	Replaced by							

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Addr:0..1023

=EDS&EFS1/6

Date	21.01.2026
Ed.	LAMSCHICK
Appr	
Modification	Date
	Name
Original	

ING	
OPTIhot SVT20 (UoG) PB5002	
Replacement of	Replaced by

INGELA mbH

Structure PLC Beckhoff

EU	
	PB5002

=	=
= DA01	
+ S1	
Page	1
Page	35

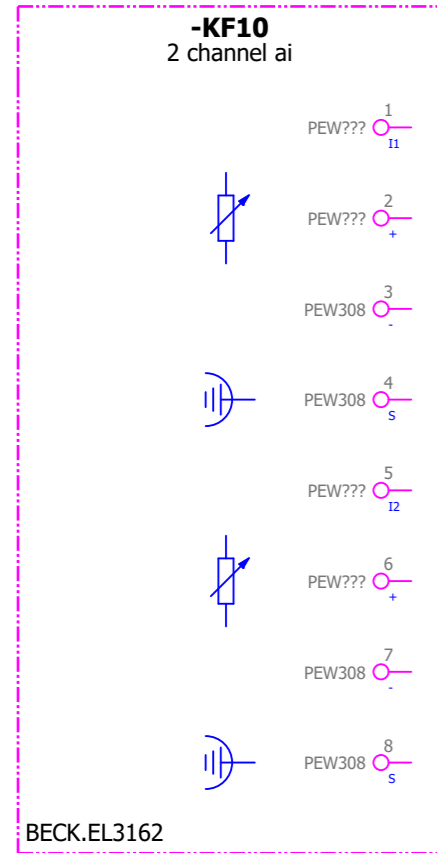
PLC diagram

ING_F19_006

===DA01+S1

Project name VG5521_IN-101435_Robotechnik-PB5002

Card name / address	Placement	Symbolic address	Function text	Device tag actuator / sensor
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PEW???	1 11	=DD01&EFS1/1.3	Pneumatik. Druckluft CDA (Versorgung) Analog 1-5V	=DD01+M-BP1:4
PEW???	2 +	=DD01&EFS1/1.3	Pneumatik. Druckluft CDA (Versorgung) Analog 1-5V	=DD01+M-BP1:3
PEW308	3 -	=DD01&EFS1/1.4	Pneumatik. Druckluft CDA (Versorgung) Analog 1-5V	=DD01+M-BP1:1
PEW308	4 S	=DD01&EFS1/1.4	Res.	
PEW???	5 12	=DD01&EFS1/1.5	Pneumatik. N2 Druck (Versorgung) Analog 1-5V	=DD01+M-BP2:3
PEW???	6 +	=DD01&EFS1/1.5	Pneumatik. N2 Druck (Versorgung) Analog 1-5V	=DD01+M-BP2:2
PEW308	7 -	=DD01&EFS1/1.5	Pneumatik. N2 Druck (Versorgung) Analog 1-5V	=DD01+M-BP2:1
PEW308	8 S	=DD01&EFS1/1.6	Res.	

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2

4

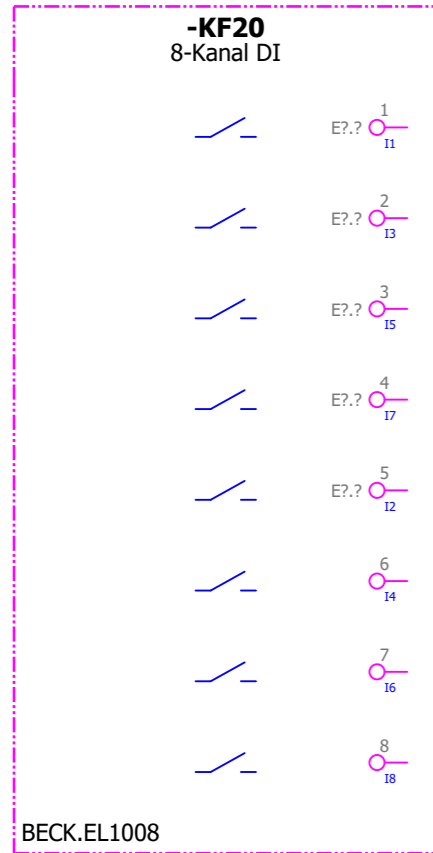
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			Ed.	LAMSCHICK									Page	35
			Appr											
Modification	Date	Name	Original		Replacement of	Replaced by								

PLC diagram

===DA01+S1

Project name VG5521_IN-101435_Robotechnik-PB5002

Card name / address	Placement	Symbolic address	Function text	Device tag actuator / sensor
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Energieversorgung. Spannungsversorgung 24V DC i.O.

=EDS-TA1:14

Bedienen (und Visualisieren). Reset

=DB01-SF2

Medienkabinet. Niveauschalter Tank 1 HMDS 5L

=NC01-KF1:3.2

Medienkabinet. Reserve

=NC01-KF1:2.2

Energieversorgung. Lastkreisüberwachung Alarm

=EDS-FC8:14

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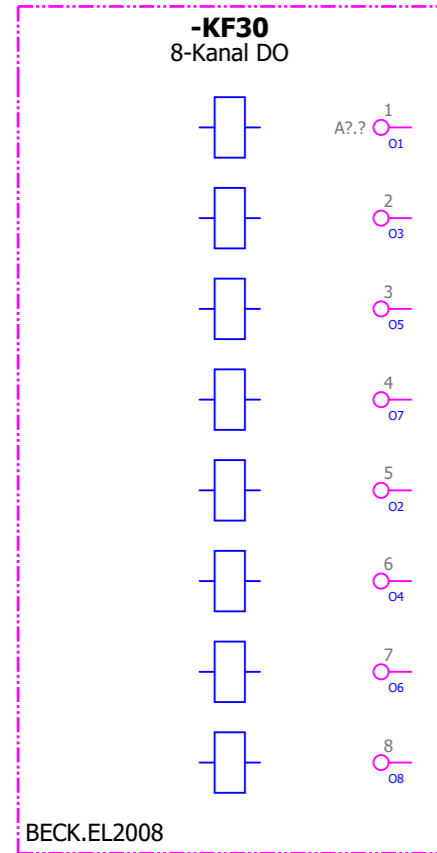
PLC diagram

ING_F19_006

===DA01+S1

Project name VG5521_IN-101435_Robotechnik-PB5002

Card name / address	Placement	Symbolic address	Function text	Device tag actuator / sensor
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=DB01&EFS1/1.2

Bedienen (und Visualisieren). LED Reset

=DB01-SF2

&EFA1/1.3

&EFA1/1.3

&EFA1/1.3

&EFA1/1.4

&EFA1/1.4

&EFA1/1.4

&EFA1/1.4

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Date	21.01.2026	ING OPTIhot SVT20 (UoG) PB5002	Replacement of	Replaced by	INGELA mbH	PLC diagram : ===DA01+S1-KF30 - ===DA01+S1-KF30	EU	= = = DA01 + S1	Page	5
Ed.	LAMSCHICK								Page	35
Appr									Page	
Modification	Date	Name	Original							

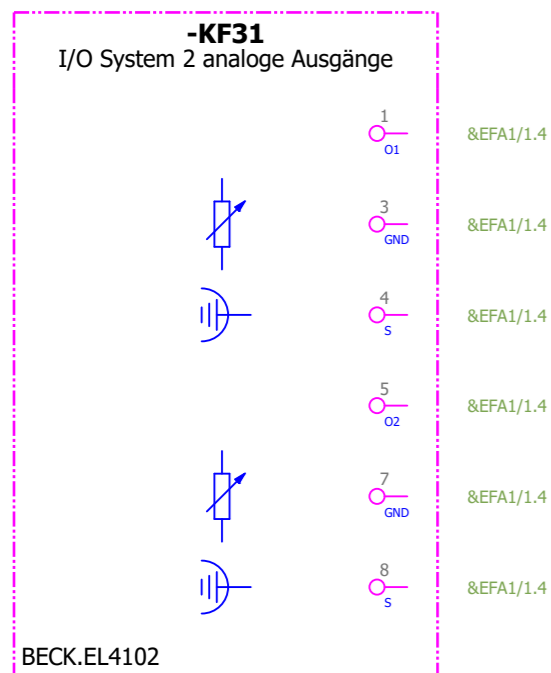
PLC diagram

ING_F19_006

===**DA01+S1**

Project name VG5521_IN-101435_Robotechnik-PB5002

Card name / address	Placement	Symbolic address	Function text	Device tag actuator / sensor
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5

7

			Date	21.01.2026	ING	INGELA mbH	PLC diagram : === DA01+S1-KF31 - === DA01+S1-KF31	EU	==	
			Ed.	LAMSCHICK					= DA01	
			Appr						+ S1	Page
Modification	Date	Name	Original		Replacement of	Replaced by		PB5002	Page	35

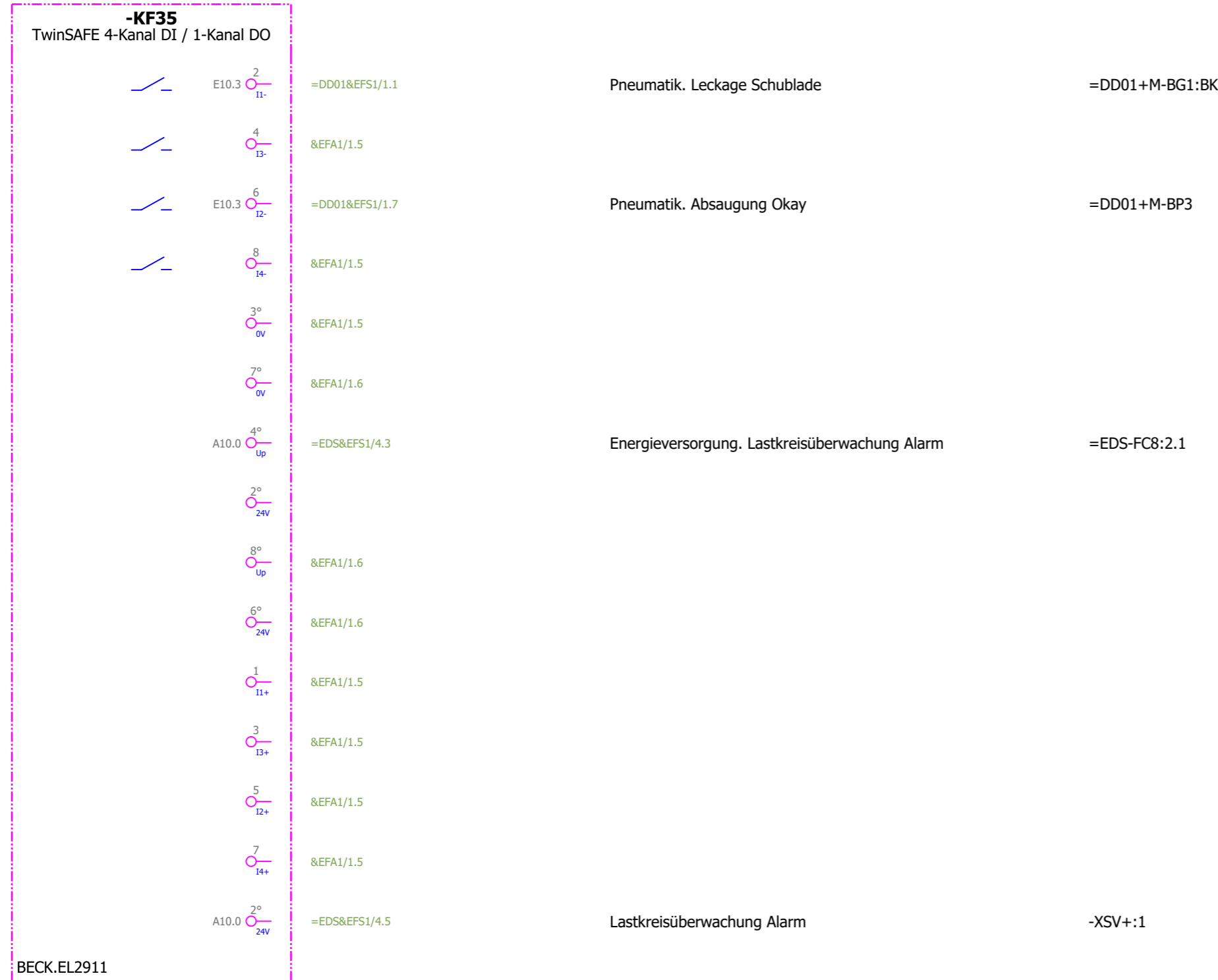
PLC diagram

ING_F19_006

===DA01+S1

Project name VG5521_IN-101435_Robotechnik-PB5002

Card name / address	Placement	Symbolic address	Function text	Device tag actuator / sensor
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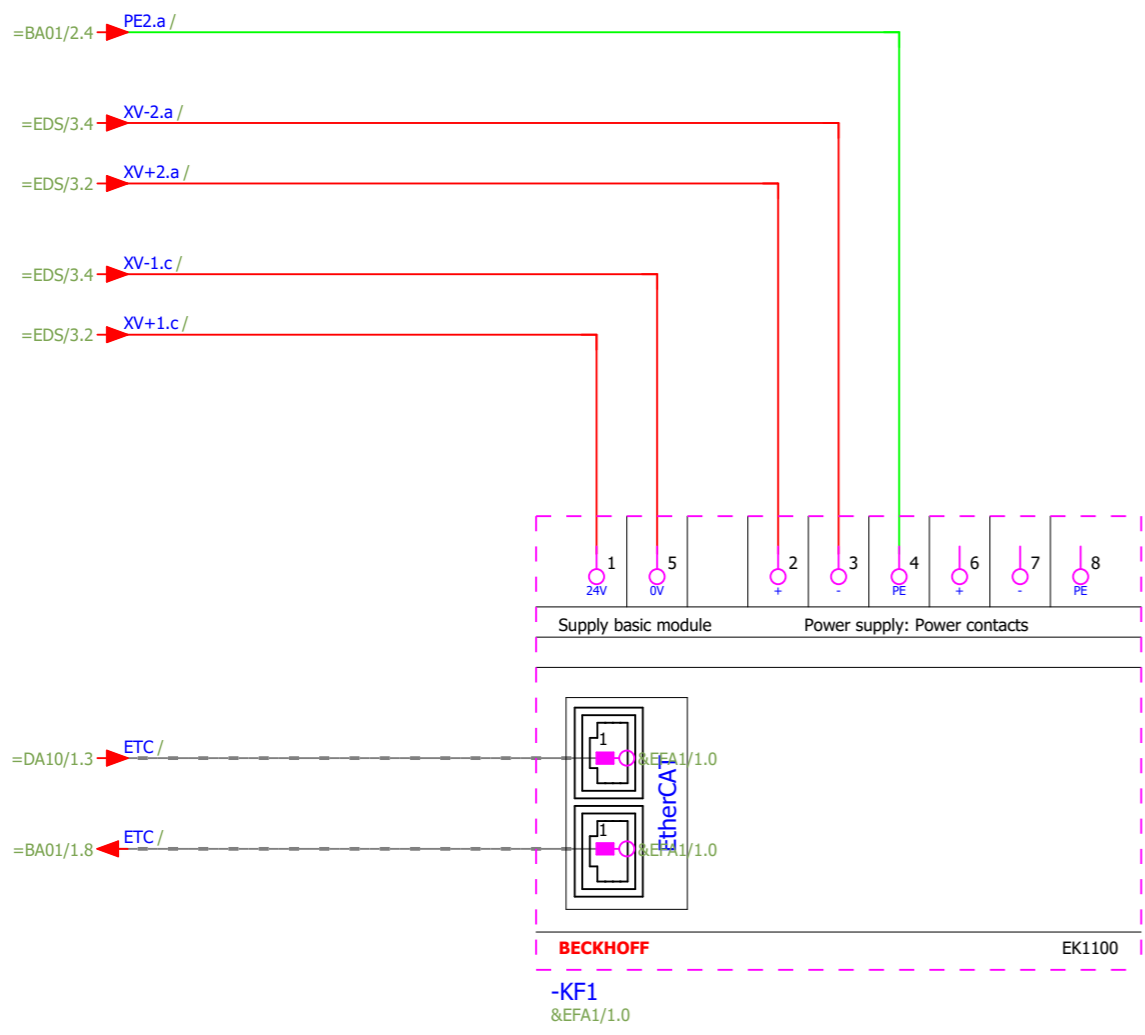
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6

&EFS1/1

Date	21.01.2026			PLC diagram : ===DA01+S1-KF35 - ===DA01+S1-KF35	EU	= = = DA01 + S1	Page	7			
Ed.	LAMSCHICK						Replacement of			Page	35
Appr							Replaced by				
Modification	Date	Name	Original								

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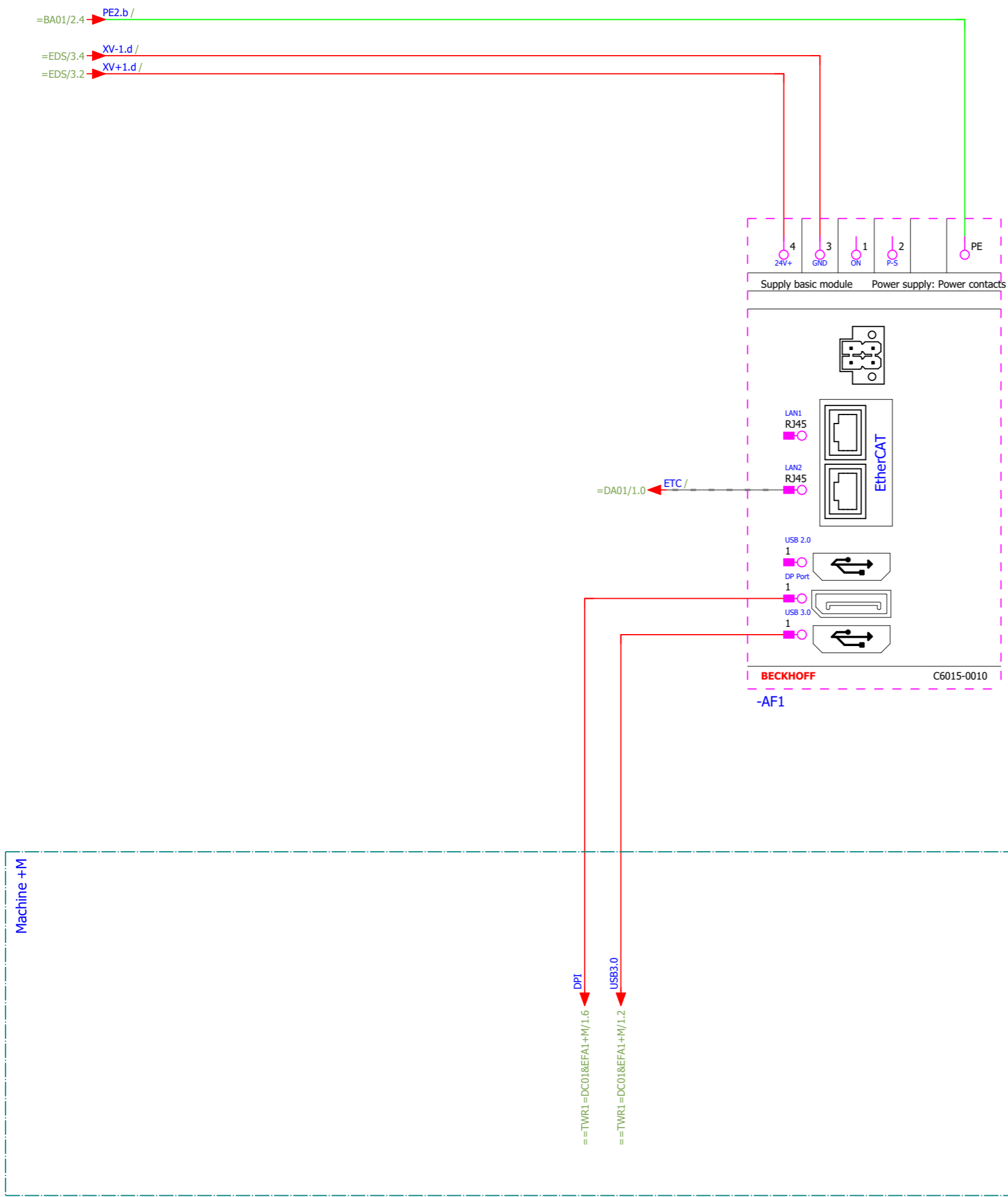


&EFA1/7

=DA10/1

			Date	26.01.2026	ING OPTIhot SVT20 (UoG) PB5002	INGELA mbH		Power supply	EU	== = DA01			
			Ed.	LAMSCHICK						+ S1		Page	1
			Appr							Page	35		
Modification	Date	Name	Original		Replacement of	Replaced by							

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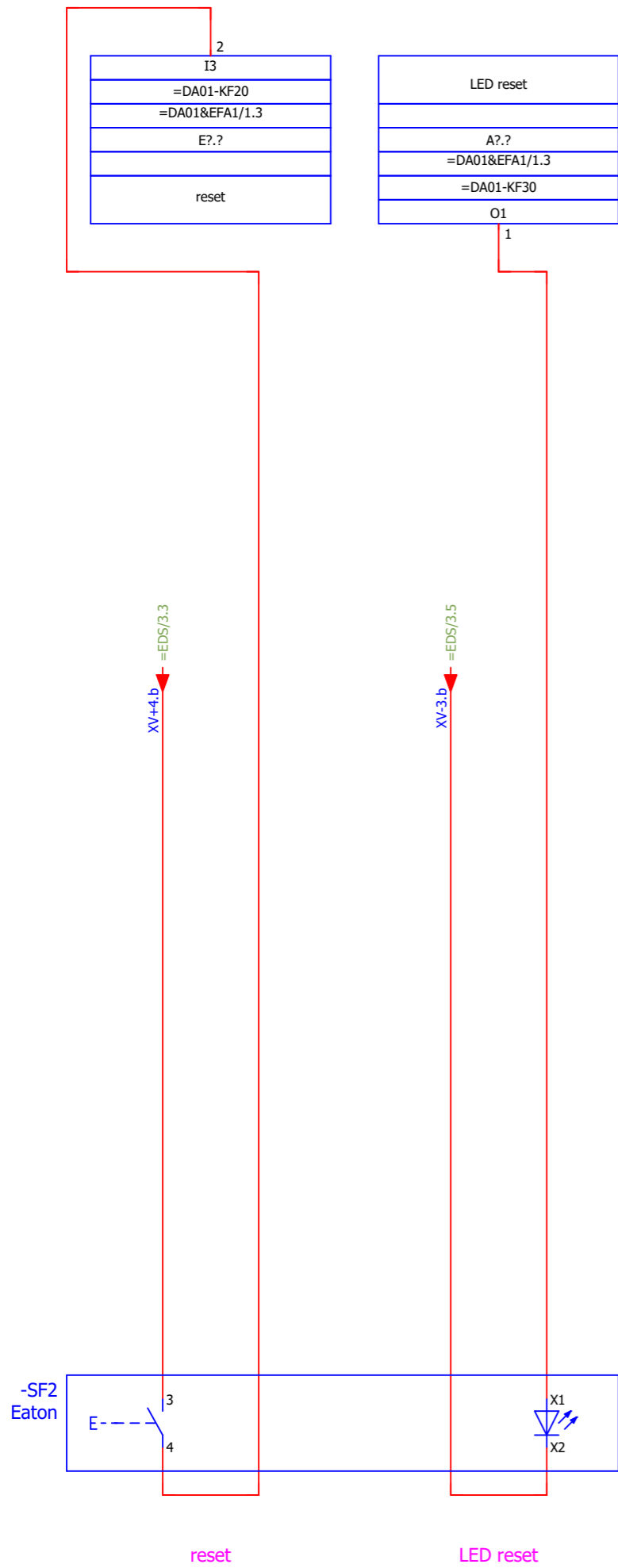


=DA01/1

=DB01/1

				ING OPTIhot SVT20 (UoG) PB5002		INGELA mbH		IPC		EU		== = DA10 + S1	
				Date 26.01.2026 Ed. LAMSCHICK Appr.		Replacement of		Replaced by		PB5002		Page 1 Page 35	
Modification	Date	Name	Original										

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=DA10/1

=DD01/1

Date	26.01.2026
Ed.	LAMSCHICK
Appr	
Modification	Date
	Name
Original	

ING	
OPTIhot SVT20 (UoG) PB5002	
Replacement of	Replaced by

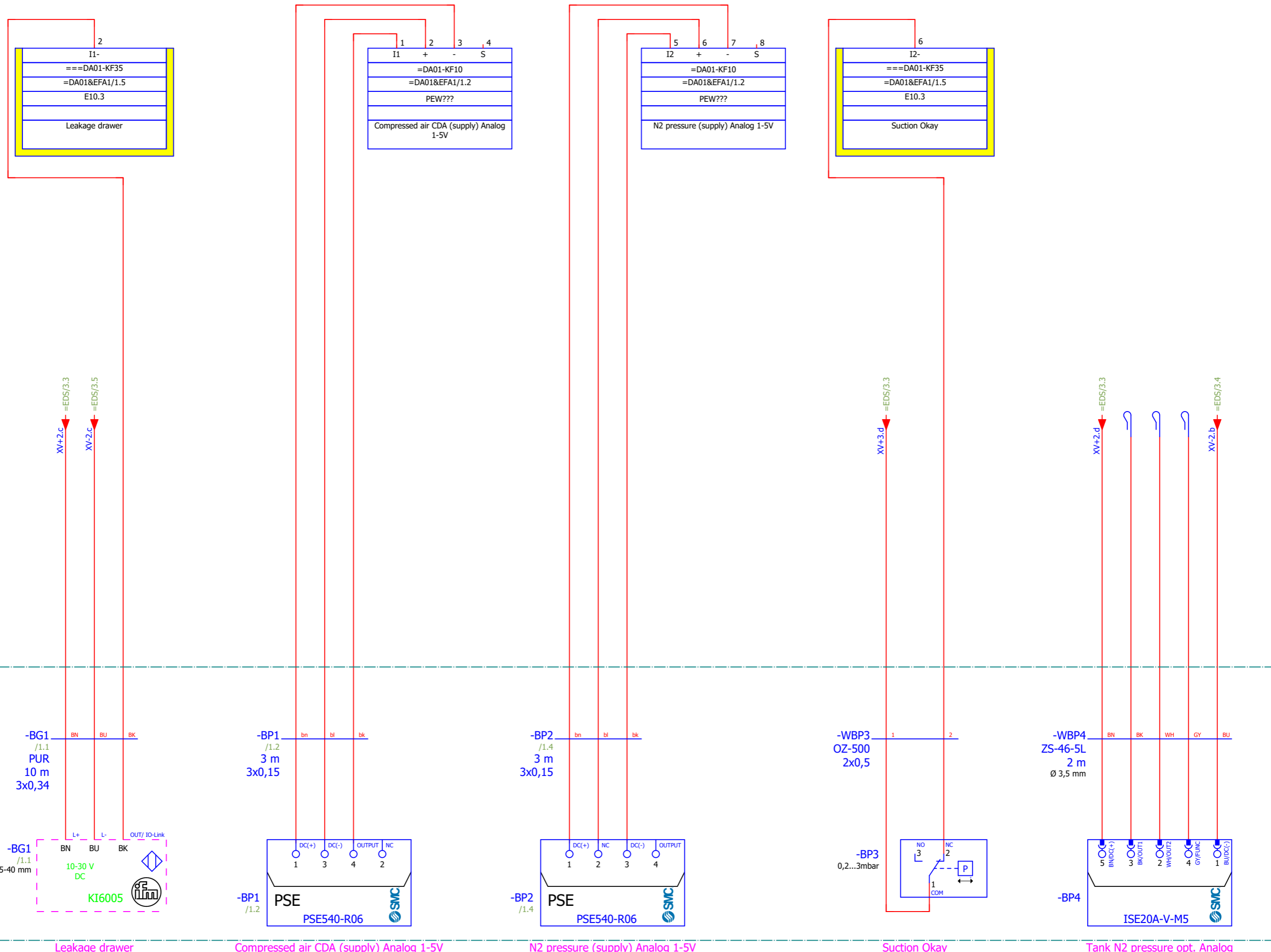
INGELA
mbH

Operation

EU

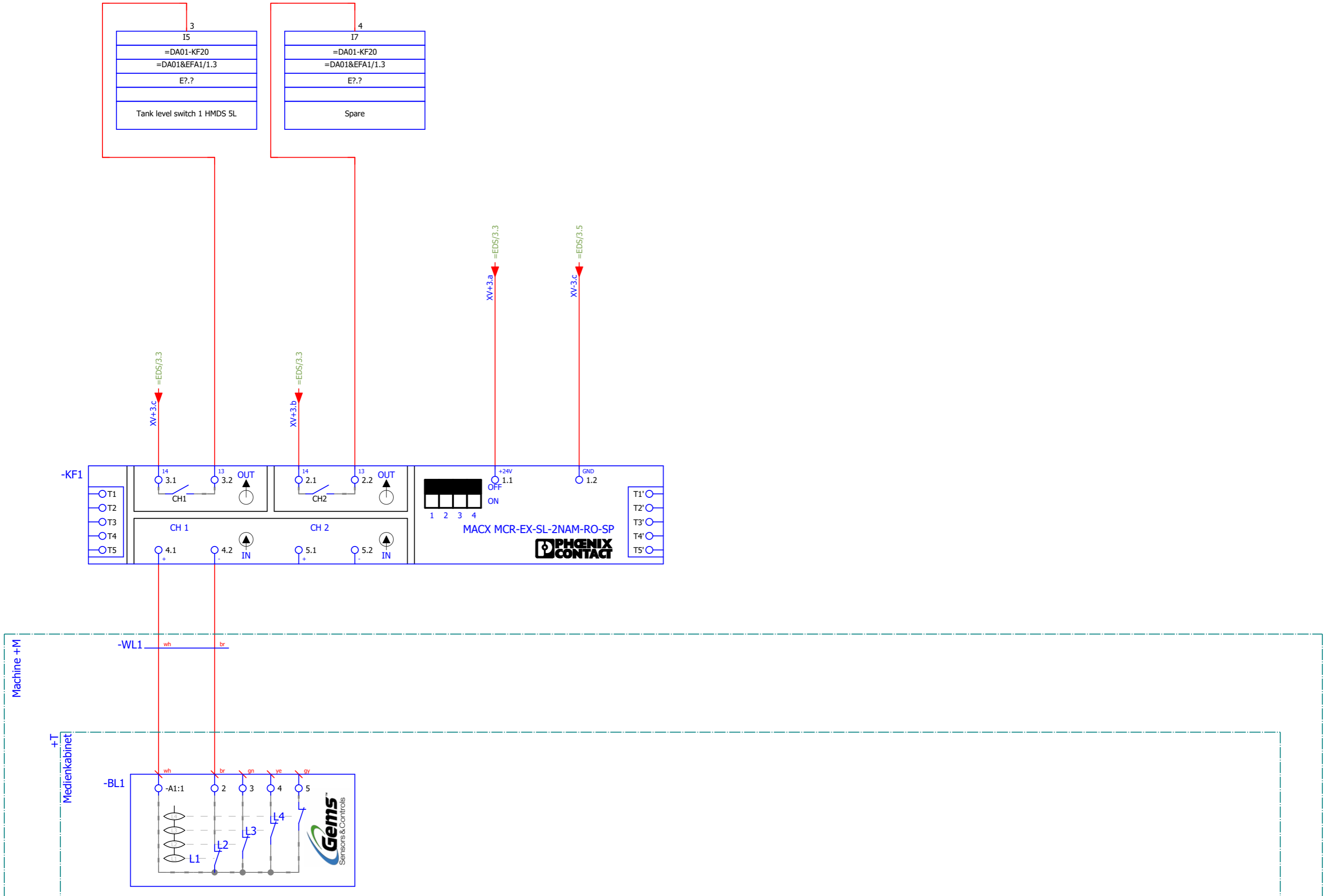
=	
= DB01	
+ S1	Page 1
	Page 35

PB5002



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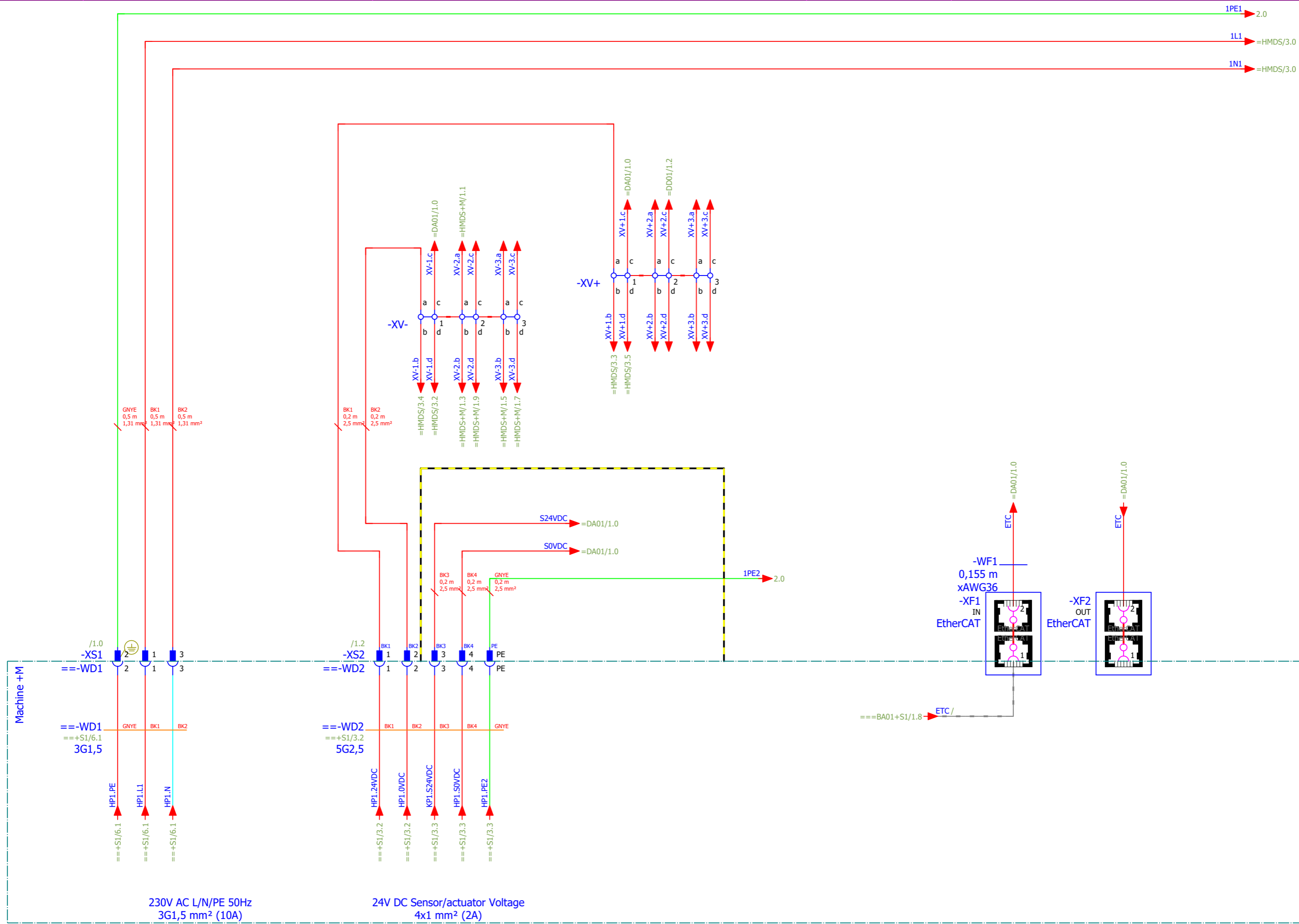


Tank level switch 1
HMDS 5L

=DD01/1				Date 25.11.2025		ING OPTIhot SVT20 (UoG) PB5002	INGELA mbH	Tank level	EU	PB5002	== = NC01 + S1	Page 1 Page 35		
Ed. LAMSCHICK				Replacement of									Replaced by	
Appr														
Modification	Date	Name	Original											

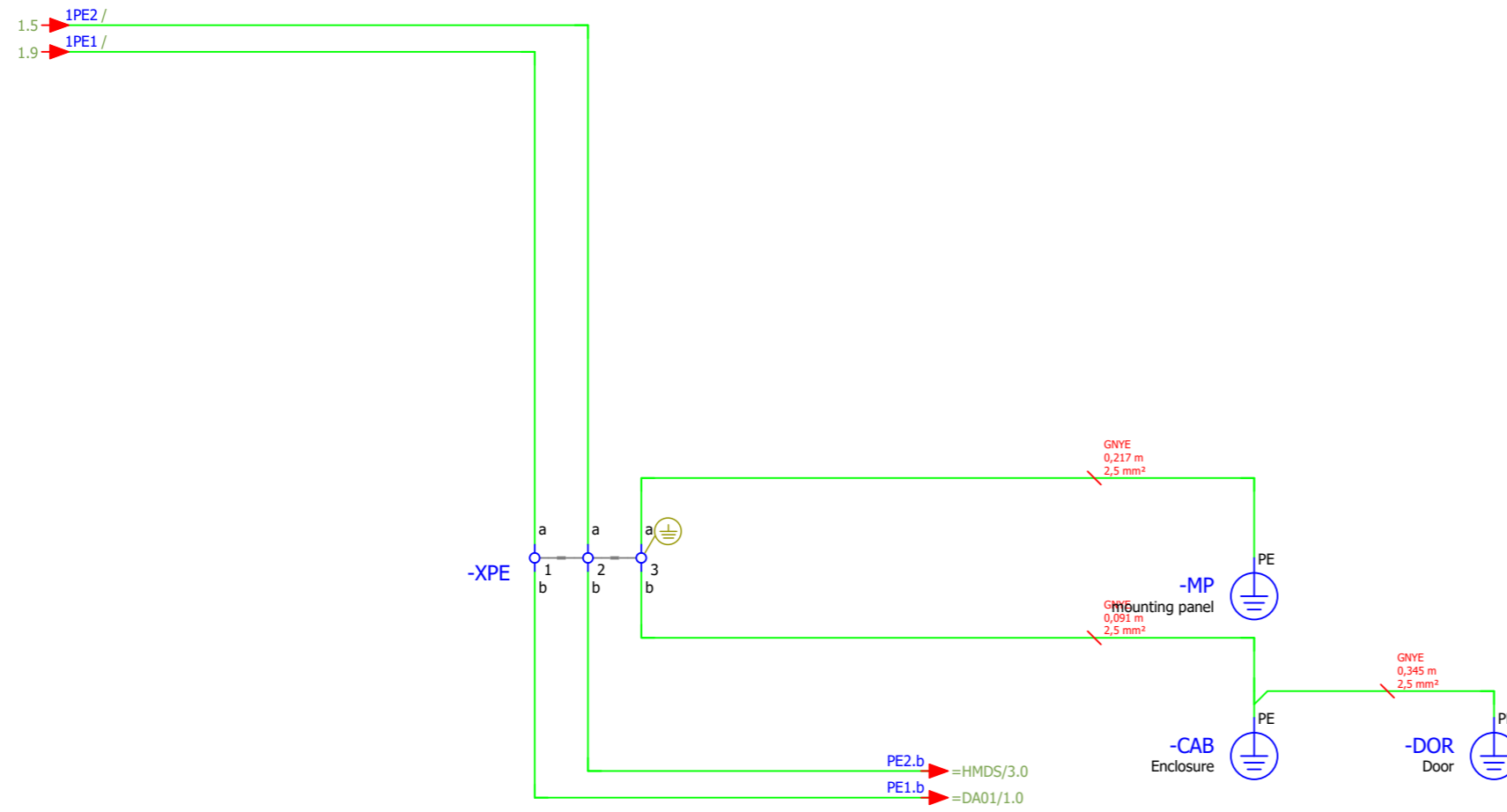
==TWR1=EDS+HP1/1

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ING OPTIhot SVT20 (UoG) PB5002				INGELA mbH		Power supply		EU		== TWR1 = EDS + HP1	
Date: 26.01.2026 Ed.: LAMSCHICK Appr.:				INGELA		PB5002		PB5002		Page: 1 Page: 35	
Modification	Date	Name	Original	Replacement of	Replaced by						

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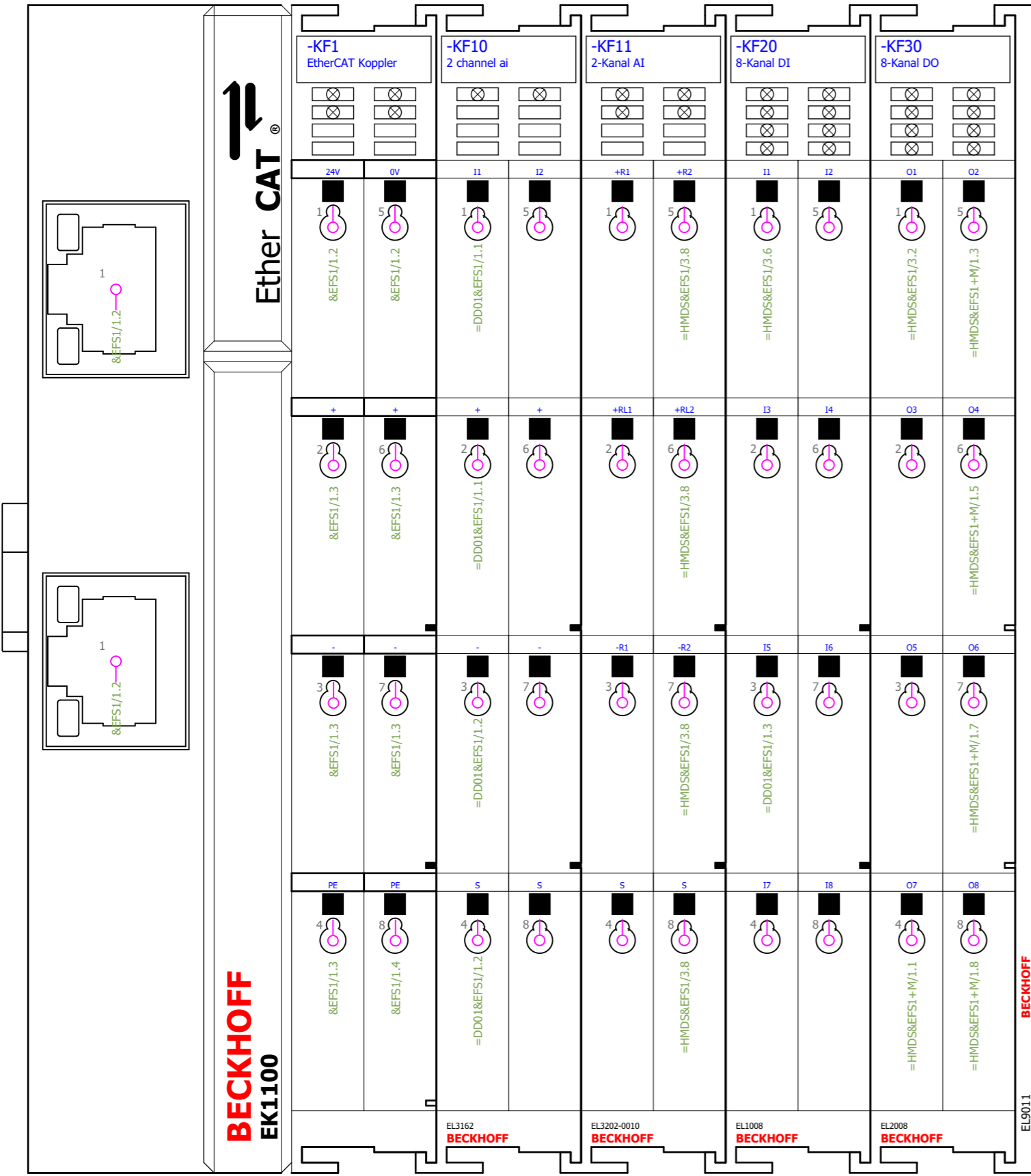


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=DA01&EFA1/1

			Date	26.01.2026	ING OPTIhot SVT20 (UoG) PB5002	INGELA mbH		Feed N/PE	EU	== TWR1	
			Ed.	LAMSCHICK						= EDS	
			Appr							+ HP1	Page 2
Modification	Date	Name	Original		Replacement of	Replaced by			PB5002		Page 35

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=EDS&EFS1/2

Date	16.10.2025		
Ed.	LAMSCHICK		
Appr			
Modification	Date	Name	Original

ING	
OPTIhot SVT20 (UoG) PB5002	
Replacement of	Replaced by

INGELA mbH

Structure PLC Beckhoff

EU
PB5002

== TWR1
= DA01
+ HP1
Page 1
Page 35

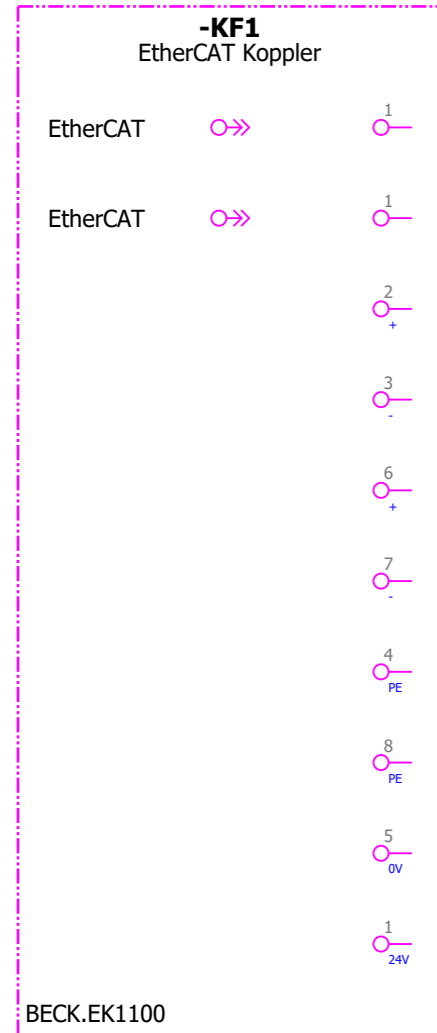
PLC diagram

ING_F19_006

==TWR1=DA01+HP1

Project name VG5521_IN-101435_Robotechnik-PB5002

Card name / address	Placement	Symbolic address	Function text	Device tag actuator / sensor
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EtherCAT	1	&EFS1/1.2	Energieversorgung.	=EDS-XF1:2
EtherCAT	1	&EFS1/1.2	Energieversorgung.	=EDS-XF2:2
	2+	&EFS1/1.3	Energieversorgung.	=EDS-XS2:3
	3.	&EFS1/1.3	Energieversorgung.	=EDS-XS2:4
	6+	&EFS1/1.3		
	7.	&EFS1/1.3		
	4 PE	&EFS1/1.3		-XPE:1
	8 PE	&EFS1/1.4		
	5 0V	&EFS1/1.2		-XV-:1
	1 24V	&EFS1/1.2		-XV+:1

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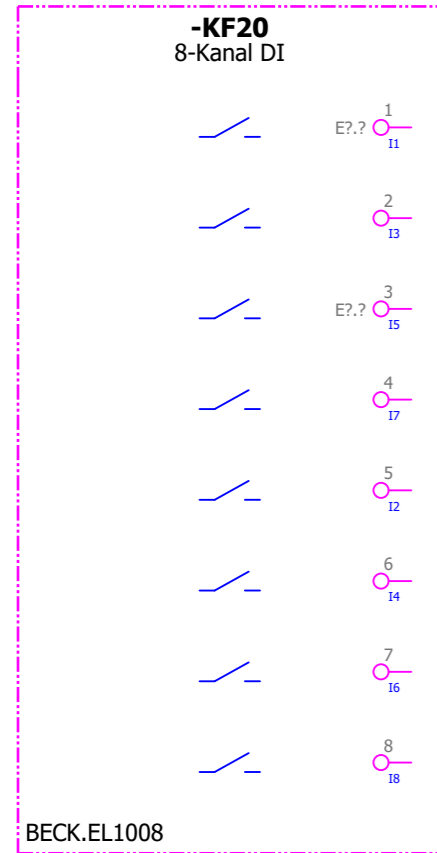
			Date	16.10.2025	ING	INGELA mbH	PLC diagram : ==TWR1=DA01+HP1-KF1 - ==TWR1=DA01+HP1-KF1	EU	== TWR1		
			Ed.	LAMSCHICK					= DA01		
			Appr						+ HP1	Page	4
Modification	Date	Name	Original		Replacement of	Replaced by		PB5002		Page	35

PLC diagram

==TWR1=DA01+HP1

Project name VG5521_IN-101435_Robotechnik-PB5002

Card name / address	Placement	Symbolic address	Function text	Device tag actuator / sensor
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1 11	=HMDS&EFS1/3.6	Sicherheitstemperatur Heizplatte HMDS	=HMDS-KF1
2 13	&EFA1/1.3		
3 15	=DD01&EFS1/1.3	Pneumatik. Schließzylinder zu	=DD01+M-BE2:2
4 17	&EFA1/1.3		
5 12	&EFA1/1.4		
6 14	&EFA1/1.4		
7 16	&EFA1/1.4		
8 18	&EFA1/1.4		

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			Date	16.10.2025	ING	INGELA mbH	PLC diagram : ==TWR1=DA01+HP1-KF20 - ==TWR1=DA01+HP1-KF20	EU	== TWR1		
			Ed.	LAMSCHICK					= DA01		
			Appr						+ HP1	Page	7
Modification	Date	Name	Original		Replacement of	Replaced by			PB5002	Page	35

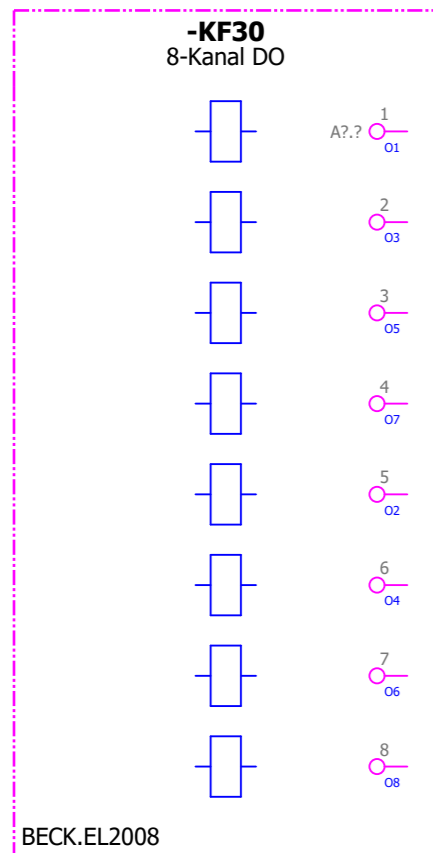
PLC diagram

ING_F19_006

==TWR1=DA01+HP1

Project name VG5521_IN-101435_Robotechnik-PB5002

Card name / address	Placement	Symbolic address	Function text	Device tag actuator / sensor
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1 01	=HMDS&EFS1/3.2	Regler Heizplatte HMDS	=HMDS-QA1:3
2 03	&EFA1/1.4		
3 05	&EFA1/1.4		
4 07	=HMDS&EFS1+M/1.1	Venturi CDA Versorgung	=HMDS+M-QM1-MB1:1
5 02	=HMDS&EFS1+M/1.3	HMDS Versorgung (Pilot ansteuerung)	=HMDS+M-QM2-MB1:1
6 04	=HMDS&EFS1+M/1.5	N2 Versorgung (Pilot ansteuerung)	=HMDS+M-QM3-MB1:1
7 06	=HMDS&EFS1+M/1.7	Vakuum Kammer (Pilot ansteuerung)	=HMDS+M-QM4-MB1:1
8 08	=HMDS&EFS1+M/1.8	Schließzylinder	=HMDS+M-QM5-MB1:1

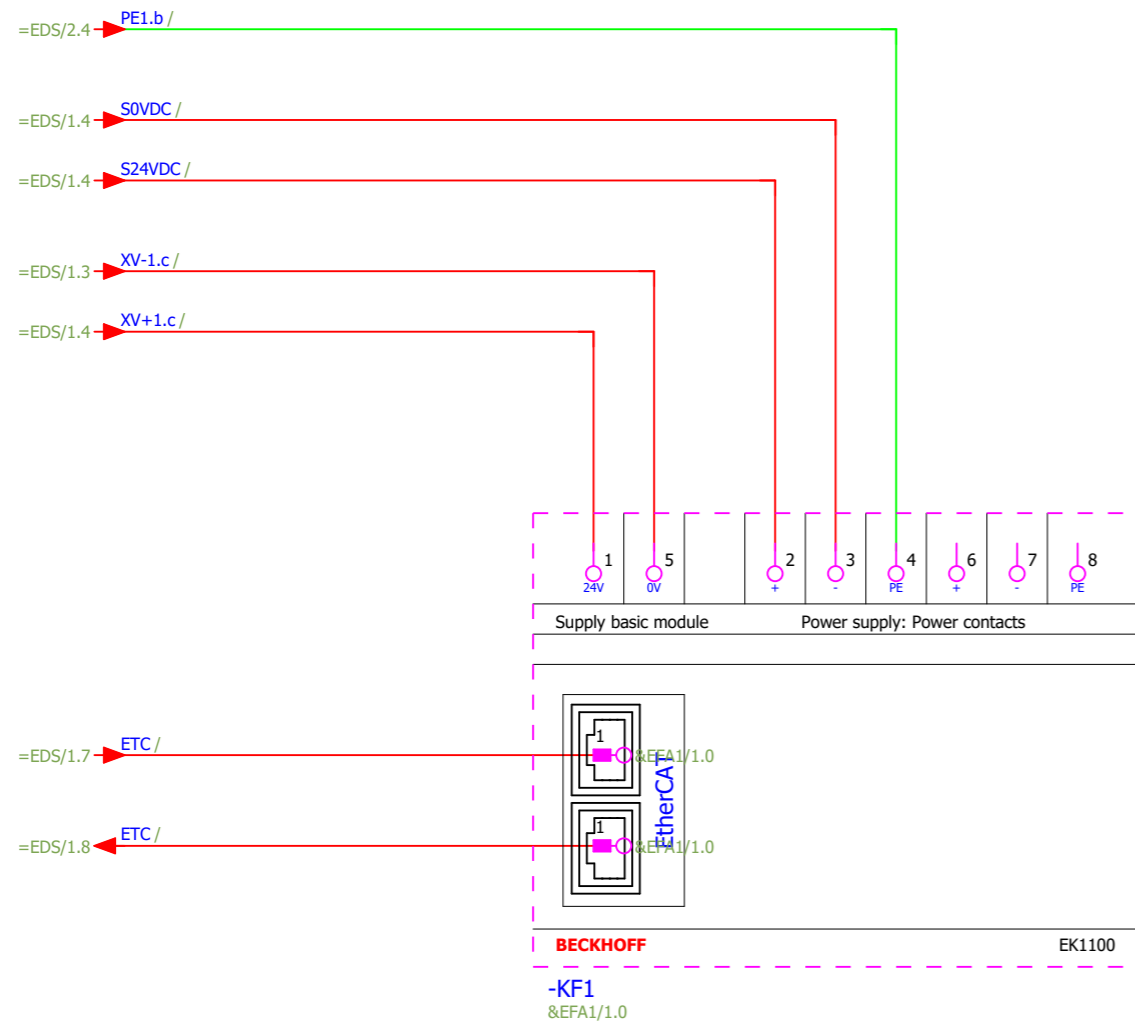
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7

&EFS1/1

Date	16.10.2025	ING OPTIhot SVT20 (UoG) PB5002	INGELA mbH	PLC diagram : ==TWR1=DA01+HP1-KF30 - ==TWR1=DA01+HP1-KF30	EU	== TWR1 = DA01 + HP1	Page	8
Ed.	LAMSCHICK						Page	35
Appr								
Modification	Date	Name	Original	Replacement of	Replaced by	PB5002		

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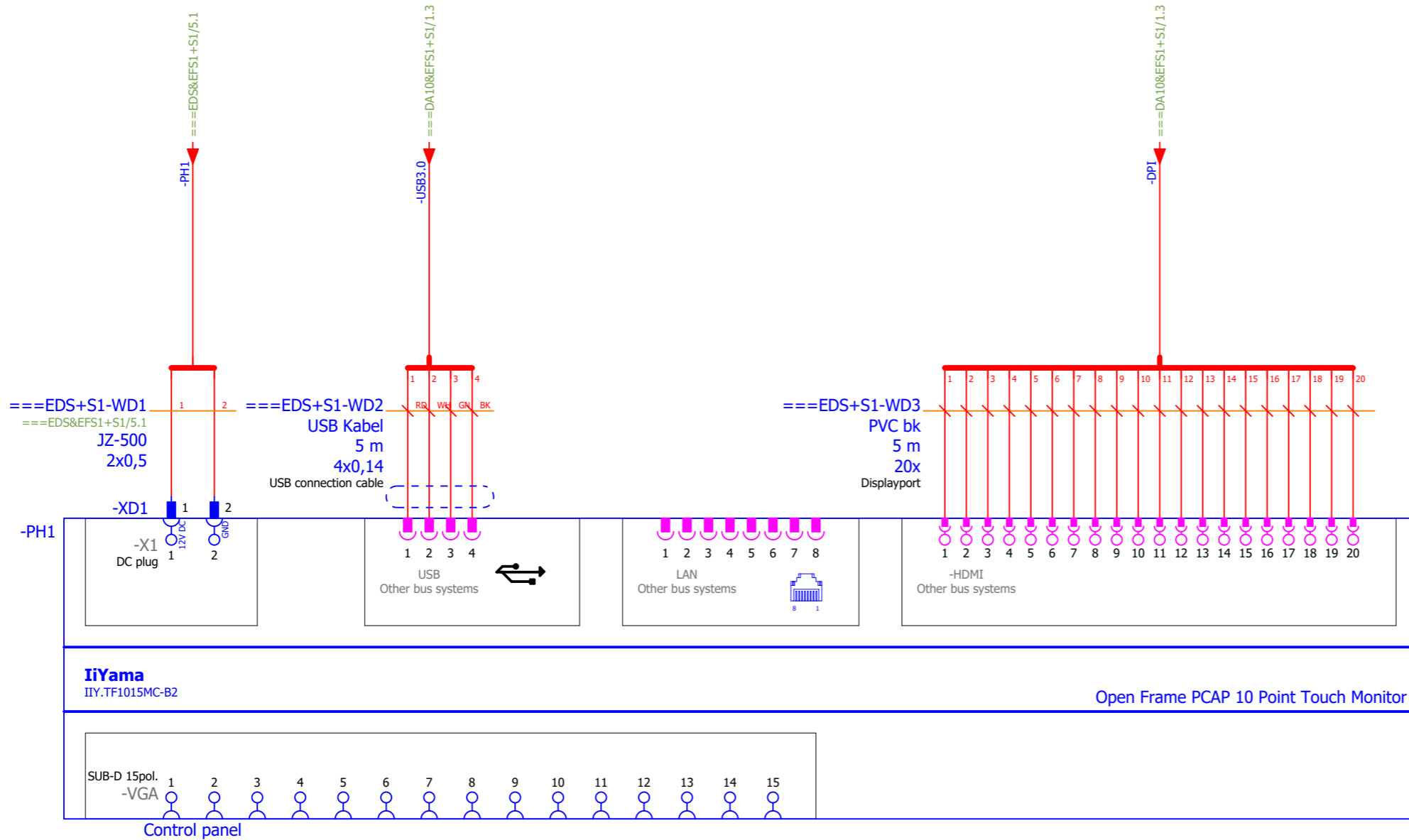


&EFA1/8

=DC01&EFA1+M/1

			Date	26.01.2026	ING OPTIhot SVT20 (UoG) PB5002	INGELA mbH		Power supply	EU	== TWR1	
			Ed.	LAMSCHICK						= DA01	
			Appr							+ HP1	
Modification	Date	Name	Original		Replacement of	Replaced by				PB5002	Page 1 Page 35

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=DA01&EFS1+HP1/1

=DD01&EFS1+HP1/1

Modification	Date	Name	Original

Date	26.01.2026
Ed.	LAMSCHICK
Appr	
Replacement of	Replaced by

ING
OPTIhot SVT20 (UoG) PB5002

INGELA
mbH

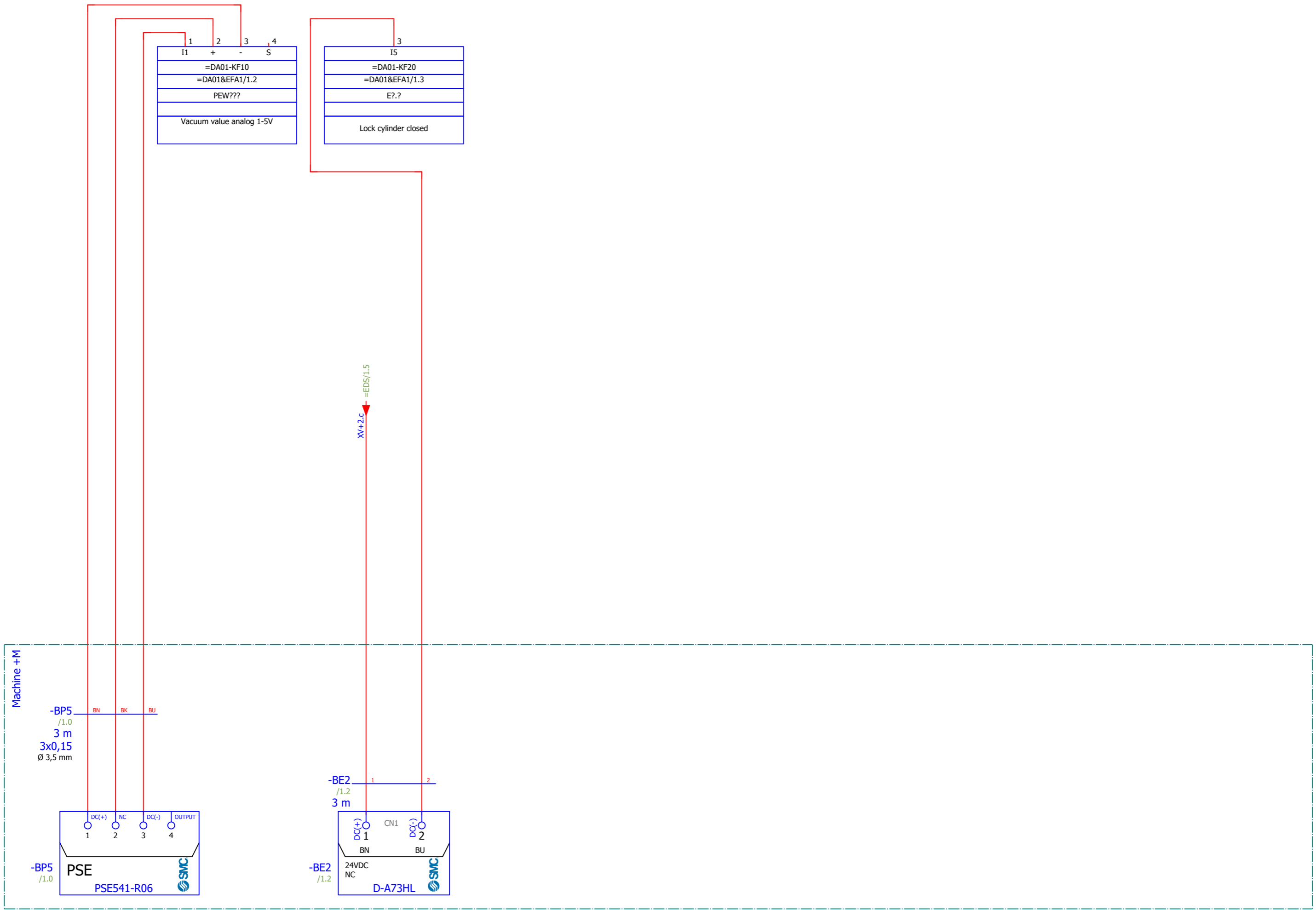
Control panel

EU

PB5002

== TWR1	
= DC01	
+ M	Page 1
	Page 35

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=DC01&EFA1+M/1 Vacuum value analog 1-5V Lock cylinder closed =HMDS+M/1

Date	26.01.2026
Ed.	LAMSCHICK
Appr.	
Modification	Date
	Name
	Original

ING	
OPTIhot SVT20 (UoG) PB5002	
Replacement of	Replaced by

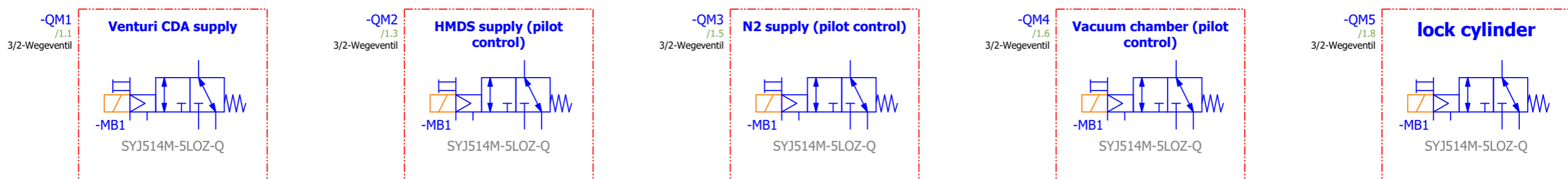
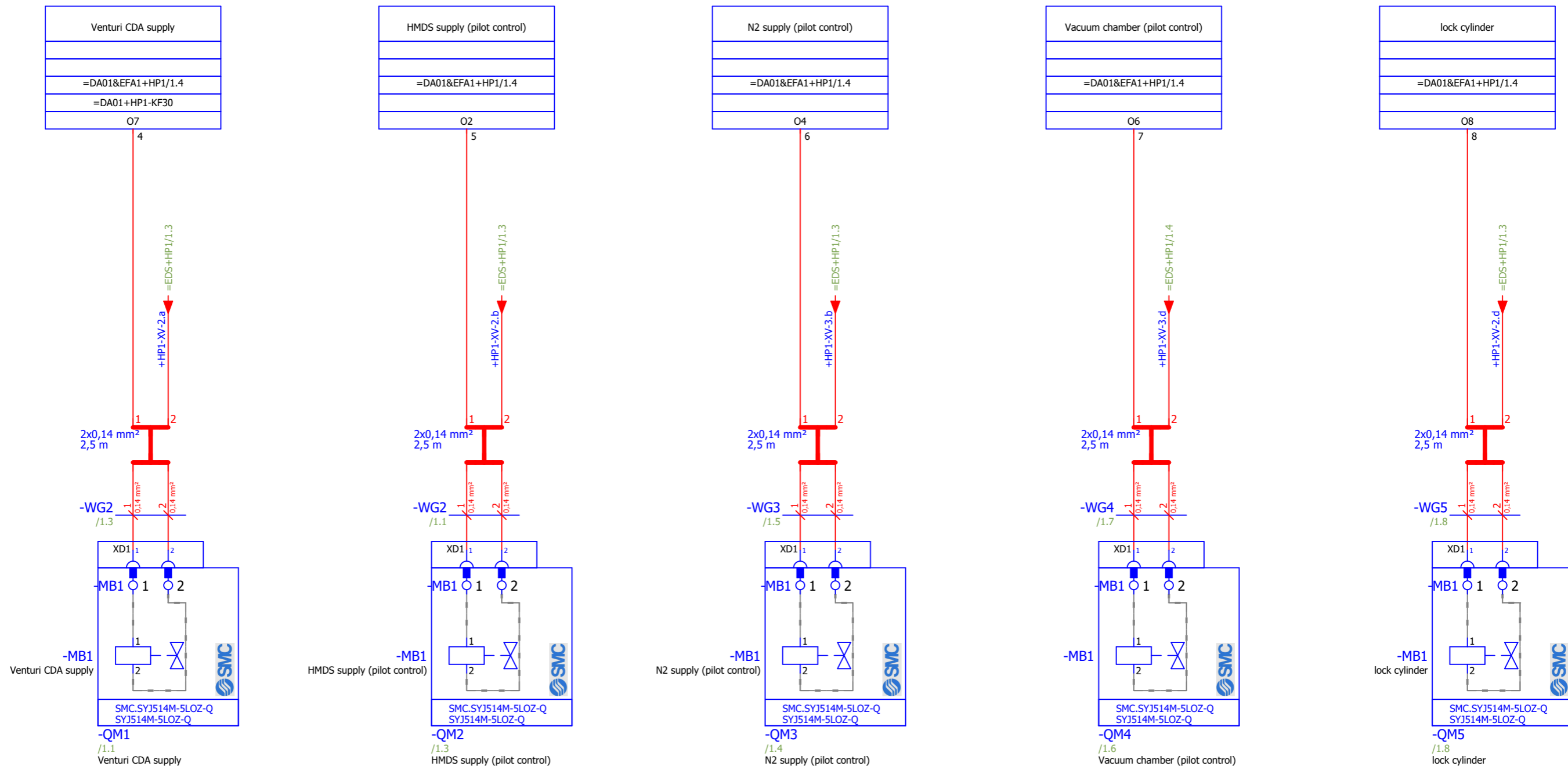


Sensors

EU	
	PB5002

== TWR1	
= DD01	
+ HP1	Page 1
	Page 35

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Venturi CDA supply

HMDS supply (pilot control)

N2 supply (pilot control)

Vacuum chamber (pilot control)

lock cylinder

=DD01+HP1/1

+HP1/3

Date	26.01.2026
Ed.	LAMSCHICK
Appr	
Modification	Date
	Name
	Original

ING	
OPTIhot SVT20 (UoG) PB5002	
Replacement of	Replaced by

INGELA
mbH

HMDS Fluid control

EU

PB5002

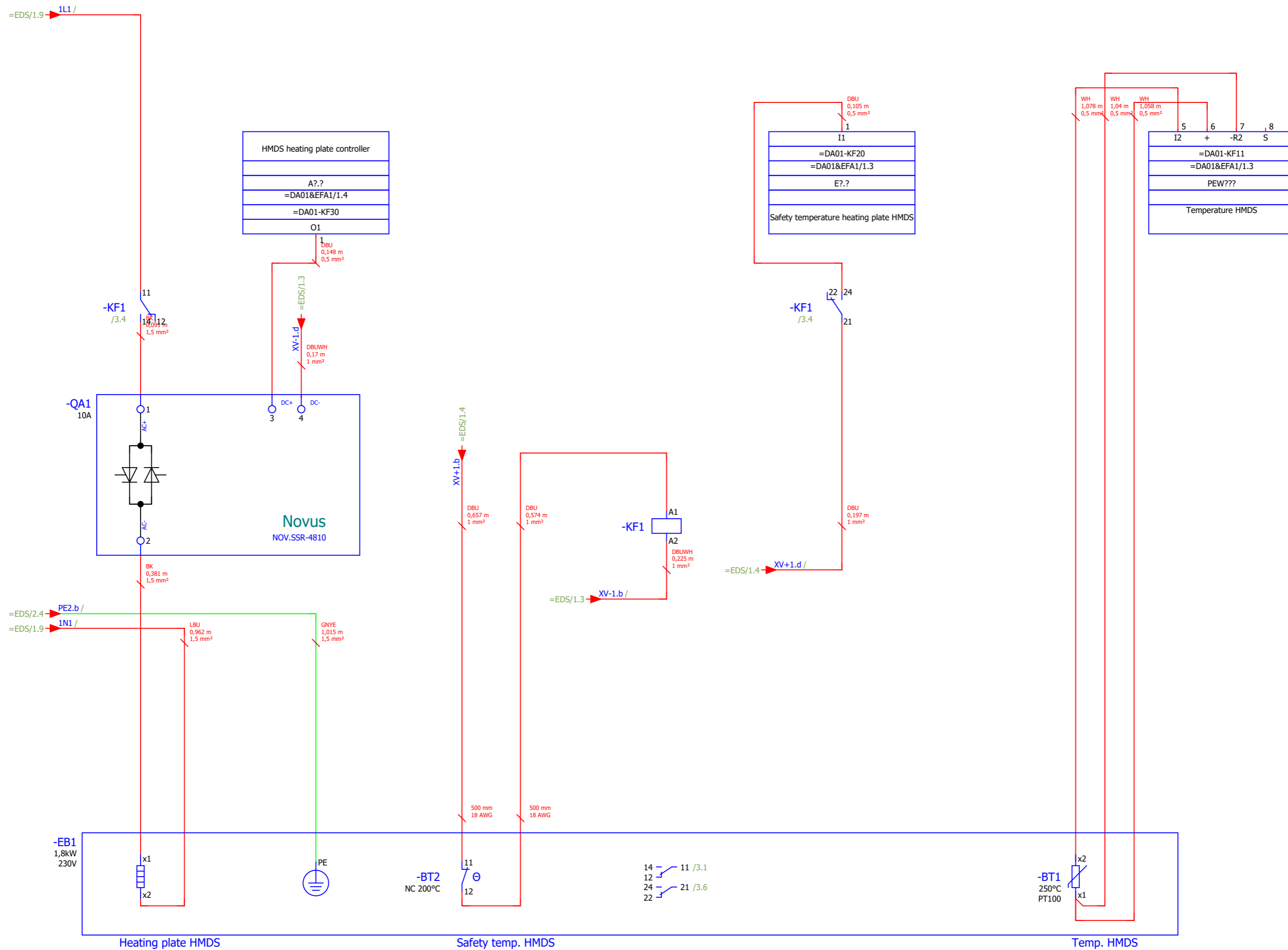
== TWR1

= HMDS

+ M

Page 1

Page 35



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