

Project overview

PAGE NUMBERING	
1	Title page
2	Project Overview
3	Revision overview
4	Page overview
100	Mains supply
110	Power supplies
150	Main circuit
200	Control Circuit
300	-
400	PLC overview
500	PLC I/O
600	-
700	-
800	Cabinet Layout
900	Bill of material
920	Components list
940	Terminal Plan
990	Textplates

TERMINAL NUMBERING	
X0	Mains supply
X1	Main power
X2	Control Voltage 230VAC
X3	Control Voltage 24 VAC
X4	Control Voltage 24 VDC
X5	Analog Signals (Field)
X6	Digital Signals (Field)
X7	External Signals (Customer)
X8	EEX i
X9	-

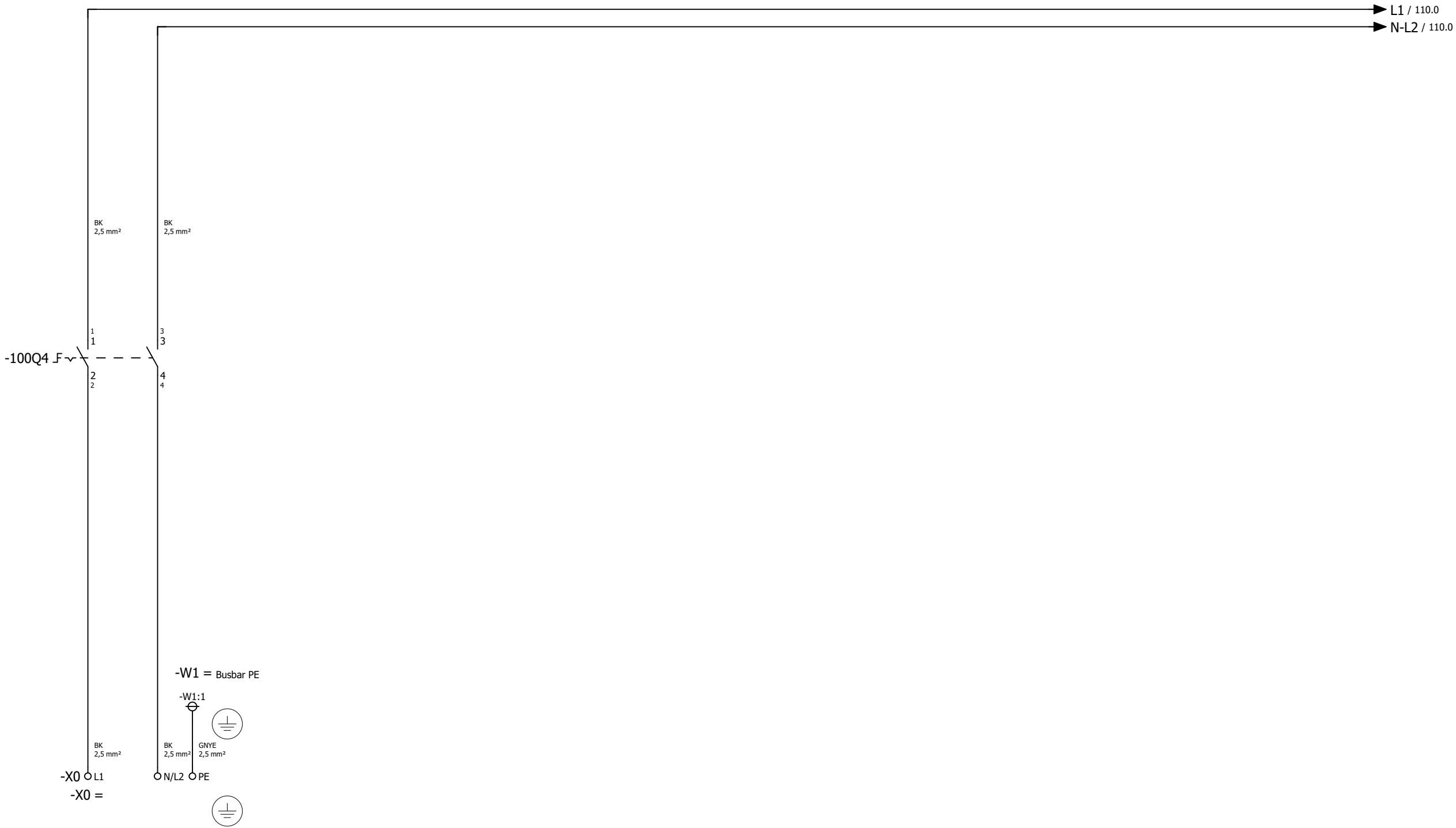


COLOR CODE INTERNAL WIRING		
Main voltage 400/230VAC	Phase	Black
	Neutral	Lightblue
	Earth	Yellow/Green
Control voltage 230VAC	Phase	Red
	Switch wire	Red
	Neutral	Red
Control voltage 24VAC	Phase (L)	Grey
	Switch wire	Grey
	Neutral (N)	Grey
Control voltage 24VDC	Phase (+)	Darkblue
	Switch wire	Darkblue
	Neutral (-)	Darkblue
Control voltage 12VDC	Phase (+)	White
	Switch wire	White
	Neutral (-)	White
Measurement		Purple
External signals (potential free contacts)		Orange
EEx i		Blue

Table of contents

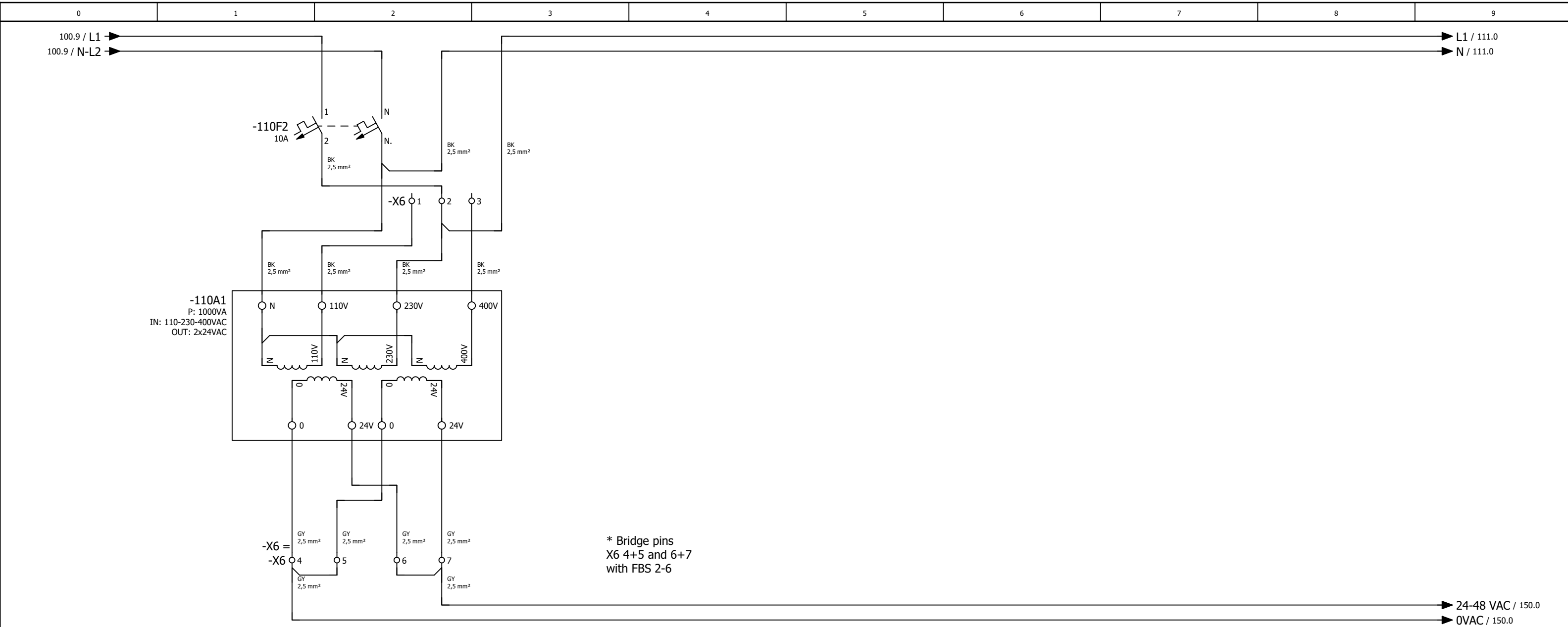
Column X: An automatically generated page was edited

Page	Page description	Revision	Date	Edited by	X
/1	Title Page	Rev G	22-9-2025	p.hellings	
/2	Project Overview	Rev G	22-9-2025	p.hellings	
/3	Revision Overview	Rev G	22-9-2025	p.hellings	
/4	Page Overview	Rev G	22-9-2025	p.hellings	
/100	Mains Power	Rev G	22-9-2025	p.hellings	
/110	Power Supplies	Rev G	22-9-2025	p.hellings	
/111	Power Supplies	Rev G	22-9-2025	p.hellings	
/150	Main Circuit	Rev G	22-9-2025	p.hellings	
/200	Control Circuit 24VDC	Rev G	22-9-2025	p.hellings	
/220	Control Circuit Temperature	Rev G	22-9-2025	p.hellings	
/230	Control Circuit Status	Rev G	22-9-2025	p.hellings	
/400	PLC overview	Rev G	22-9-2025	p.hellings	
/410	PLC CPU Power	Rev G	22-9-2025	p.hellings	
/412	PLC Digital Mix Power	Rev G	22-9-2025	p.hellings	
/413	PLC Digital Mix Power	Rev G	22-9-2025	p.hellings	
/501	PLC I/O Digital Inputs	Rev G	22-9-2025	p.hellings	
/502	PLC I/O Digital Outputs	Rev G	22-9-2025	p.hellings	
/503	PLC I/O Digital Inputs	Rev G	22-9-2025	p.hellings	
/504	PLC I/O Digital Outputs	Rev G	22-9-2025	p.hellings	
/800	Cabinet Layout	Rev G	22-9-2025	p.hellings	
/900	Bill of material	Rev G	22-9-2025	p.hellings	
/901	Bill of material	Rev G	22-9-2025	p.hellings	
/920	Components List	Rev G	22-9-2025	p.hellings	
/921	Components List	Rev G	22-9-2025	p.hellings	
/940	Terminal Plan	Rev G	22-9-2025	p.hellings	
/941	Terminal Plan	Rev G	22-9-2025	p.hellings	
/942	Terminal Plan	Rev G	22-9-2025	p.hellings	
/943	Terminal Plan	Rev G	22-9-2025	p.hellings	
/943.a	Terminal Plan	Rev G	22-9-2025	p.hellings	
/944	Terminal Plan	Rev G	22-9-2025	p.hellings	
/990	Textplates	Rev G	22-9-2025	p.hellings	

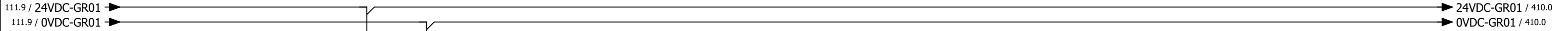


Main Power
110-230-400 VAC + PE / 50-60Hz
Fuse max. 16A

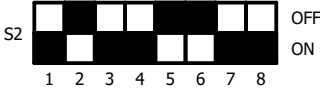
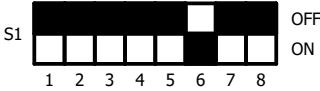
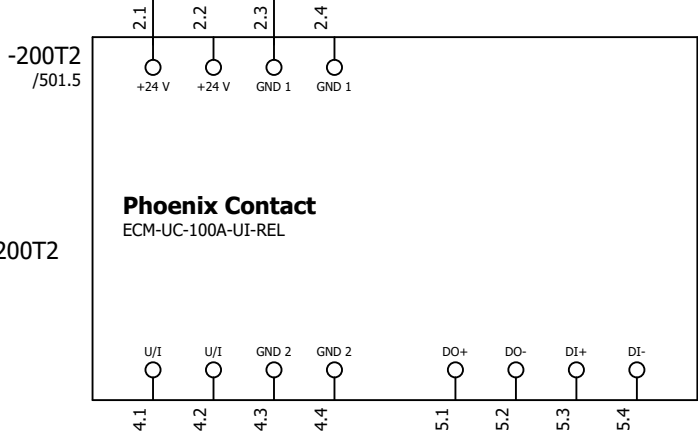
			Date	22-9-2025	Control box EM1-3 project Number xxxxx			SPA-E-CB-NA-PLC-HW-PT1K0 ESBP210002_G	Mains Power	=	
			Ed.	p.hellings						+	
			Appr.								
Modification	Date	Name	Original		Replacement of	Replaced by					Page 100
										Page 5 / 31	



			Date	22-9-2025	Control box EM1-3 project Number xxxxx		Goudsmit Magnetic Systems 	SPA-E-CB-NA-PLC-HW-PT1K0 ESBP210002_G	Main Circuit	=	
			Ed.	p.hellings						+	
			Appr.								Page 150
Modification	Date	Name	Original		Replacement of	Replaced by				Page 8 / 31	

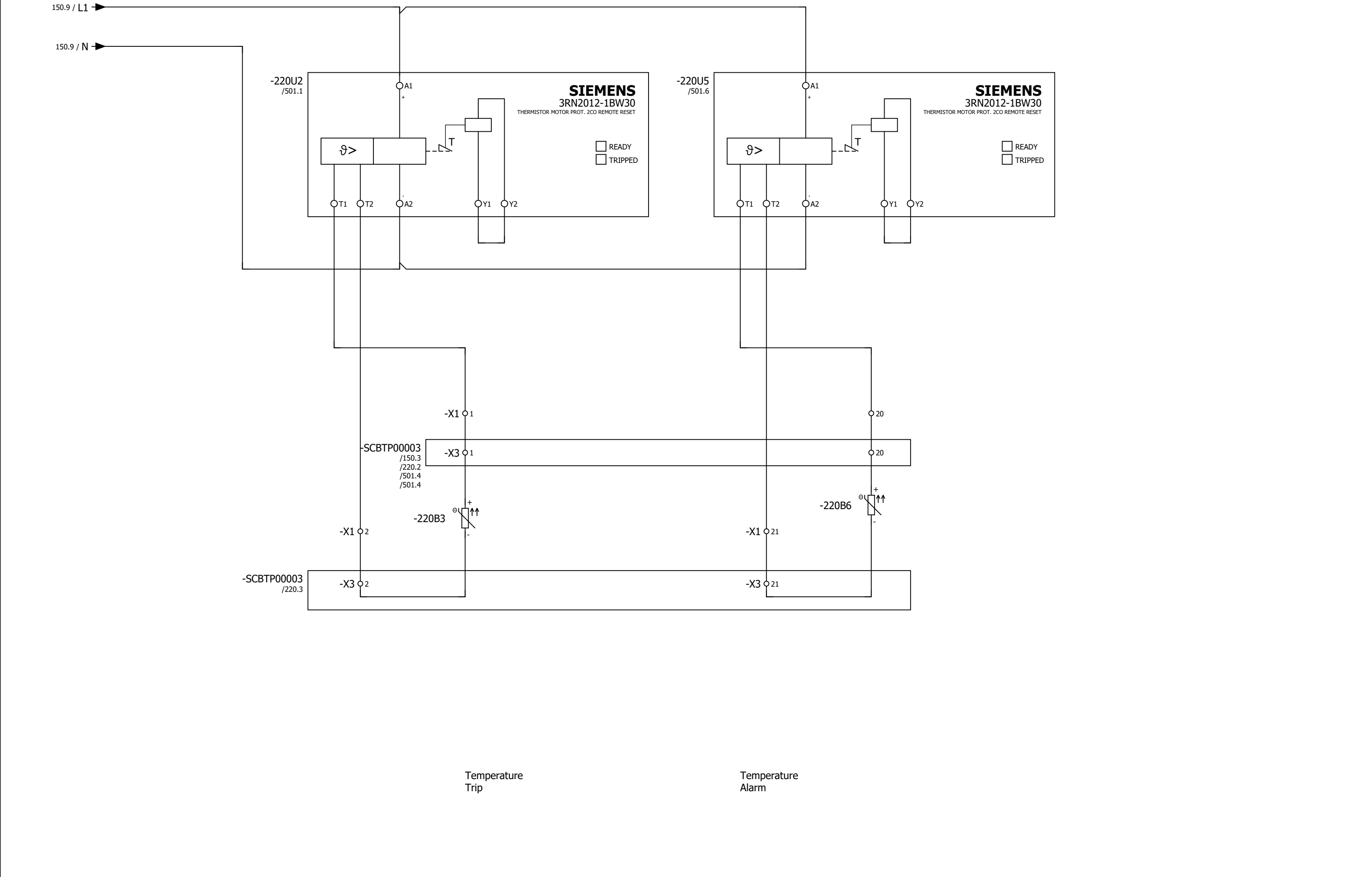


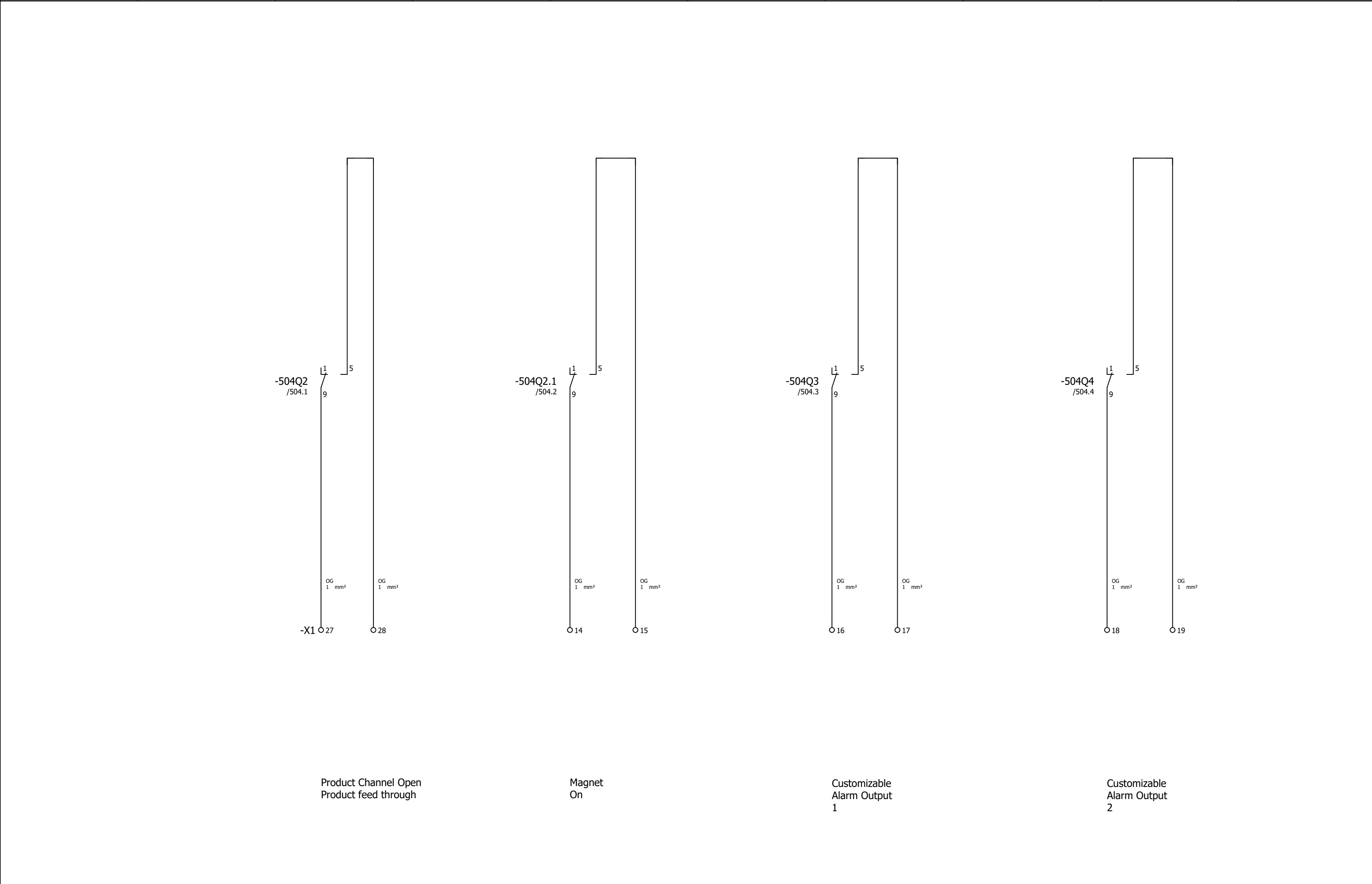
* Note
Wire from to X1-A
must be pulled through 200T2

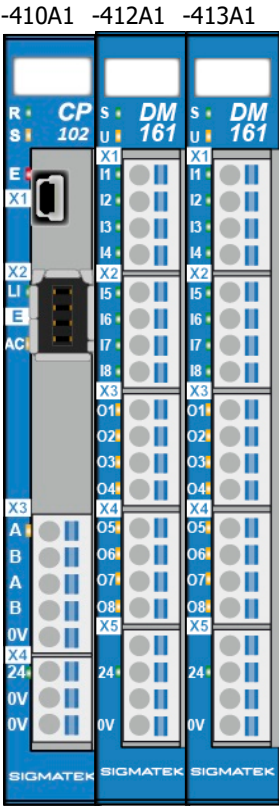


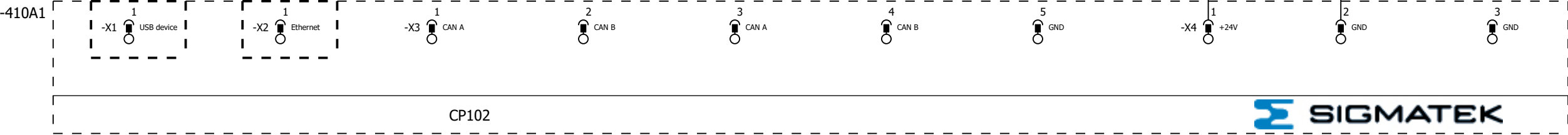
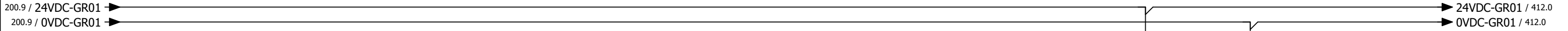
SELECTED

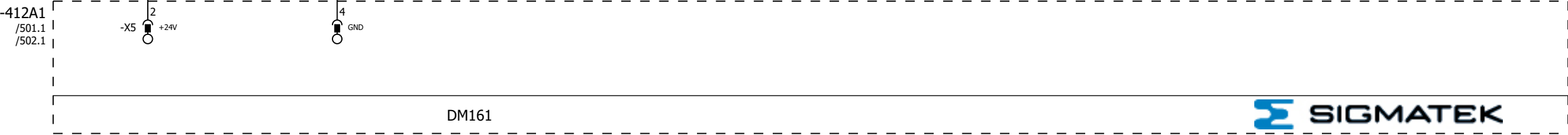
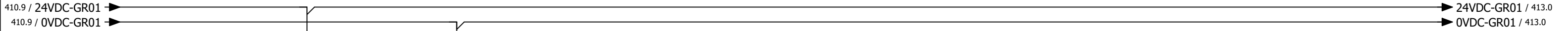
Current
Relay

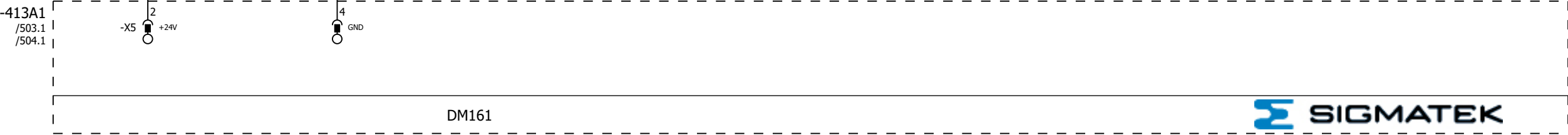
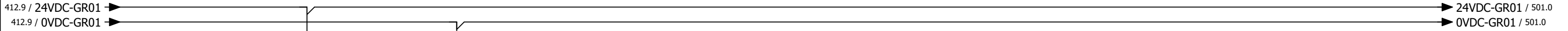




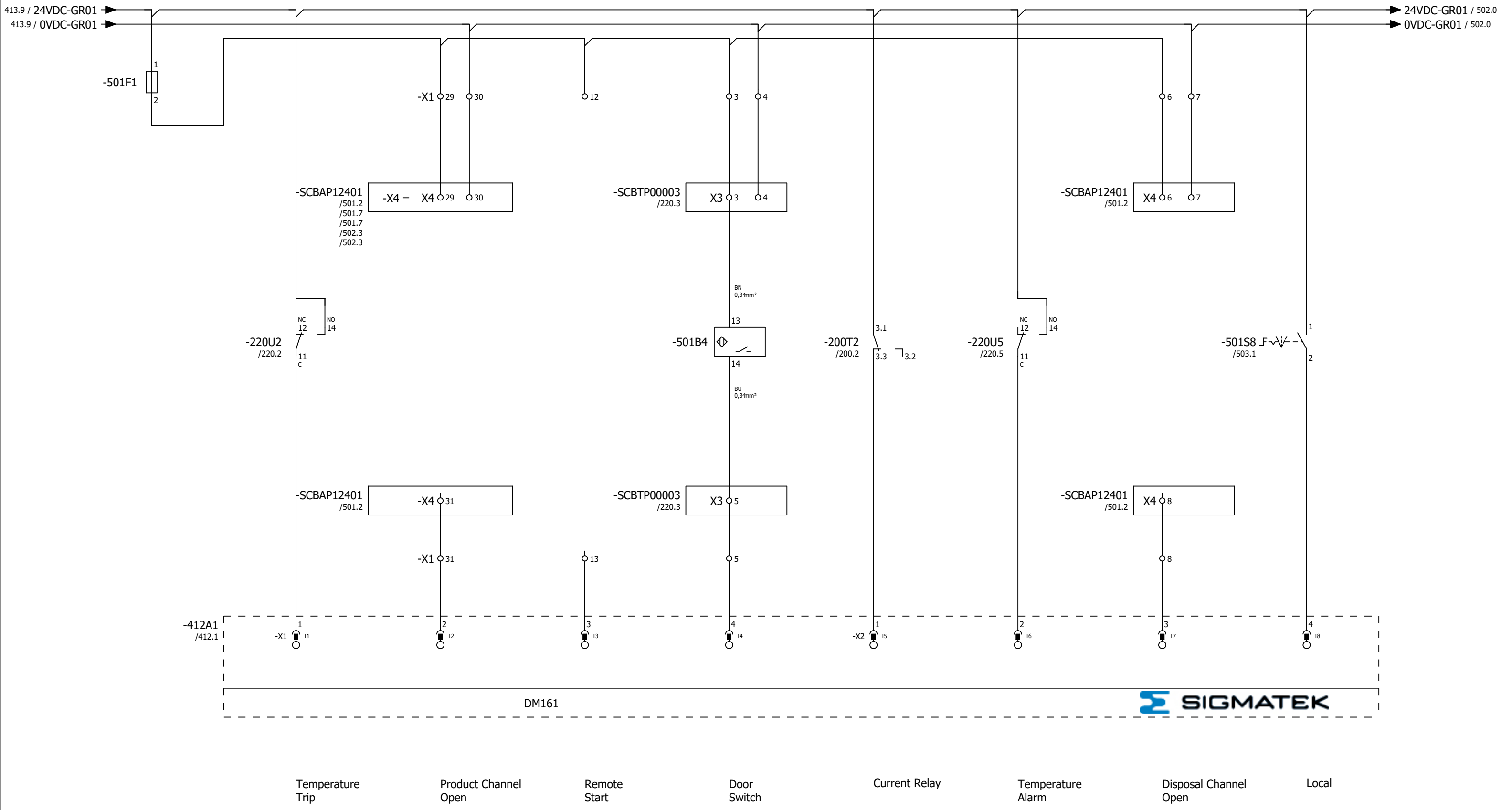




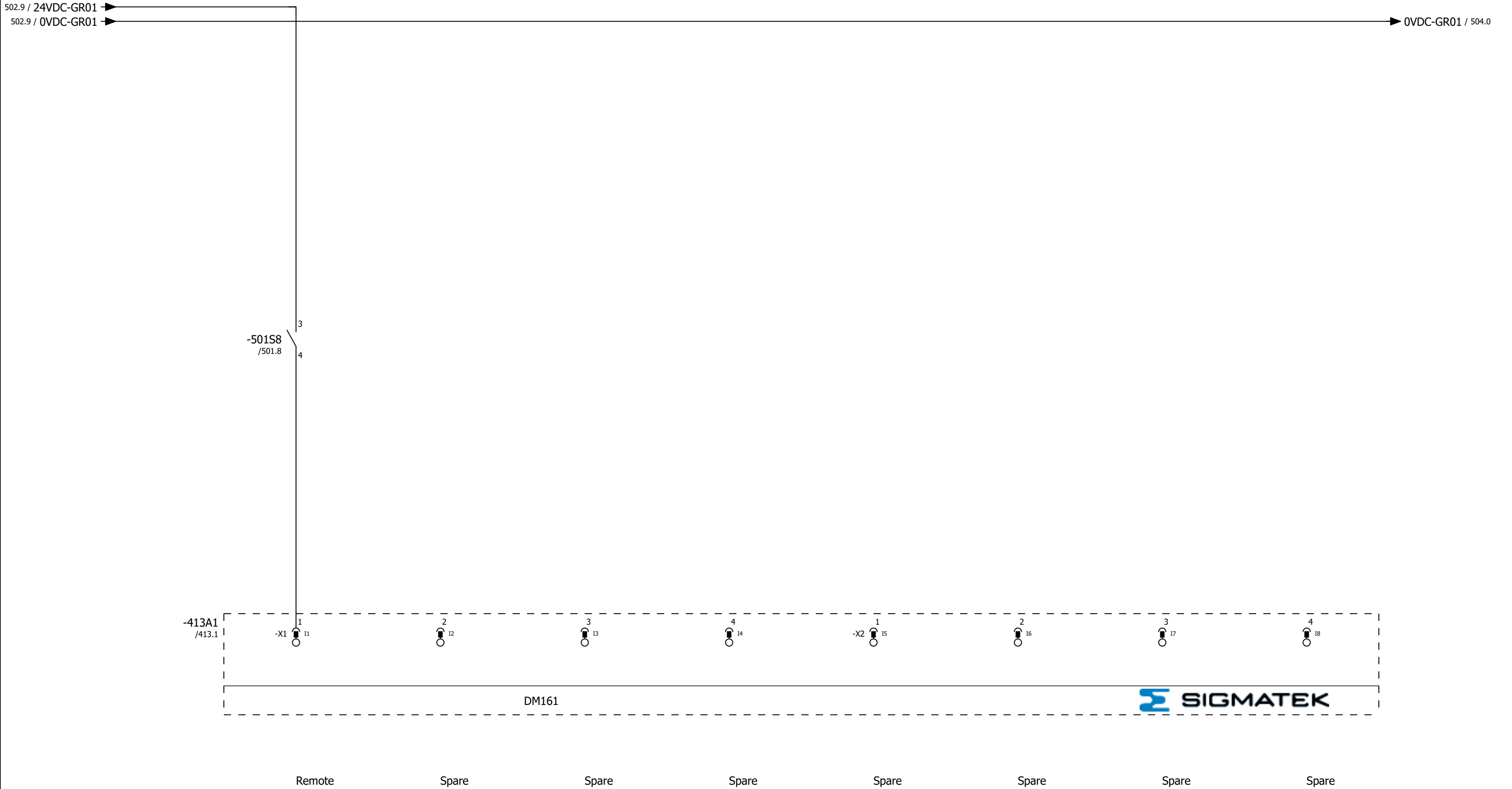




			Date	22-9-2025	Control box EM1-3 project Number xxxxx			SPA-E-CB-NA-PLC-HW-PT1K0 ESBP210002_G	PLC Digital Mix Power	=	
			Ed.	p.hellings						+	
			Appr.								Page 413
Modification	Date	Name	Original		Replacement of	Replaced by					Page 15 / 31







-413A1
/413.1

DM161



-X3 01
1

02
2

03
3

04
4

-X4 05
1

06
2

07
3

08
4

-504Q2
13(-)
14(+)

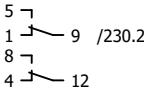
-504Q2.1
13(-)
14(+)

-504Q3
13(-)
14(+)

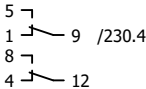
-504Q4
13(-)
14(+)

503.9 / 0VDC-GR01

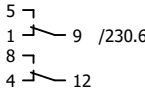
Product Channel
Open
[Product Feed
Through]



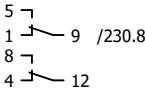
Magnet
On



Customizable
Alarm Output
1



Customizable
Alarm Output
2

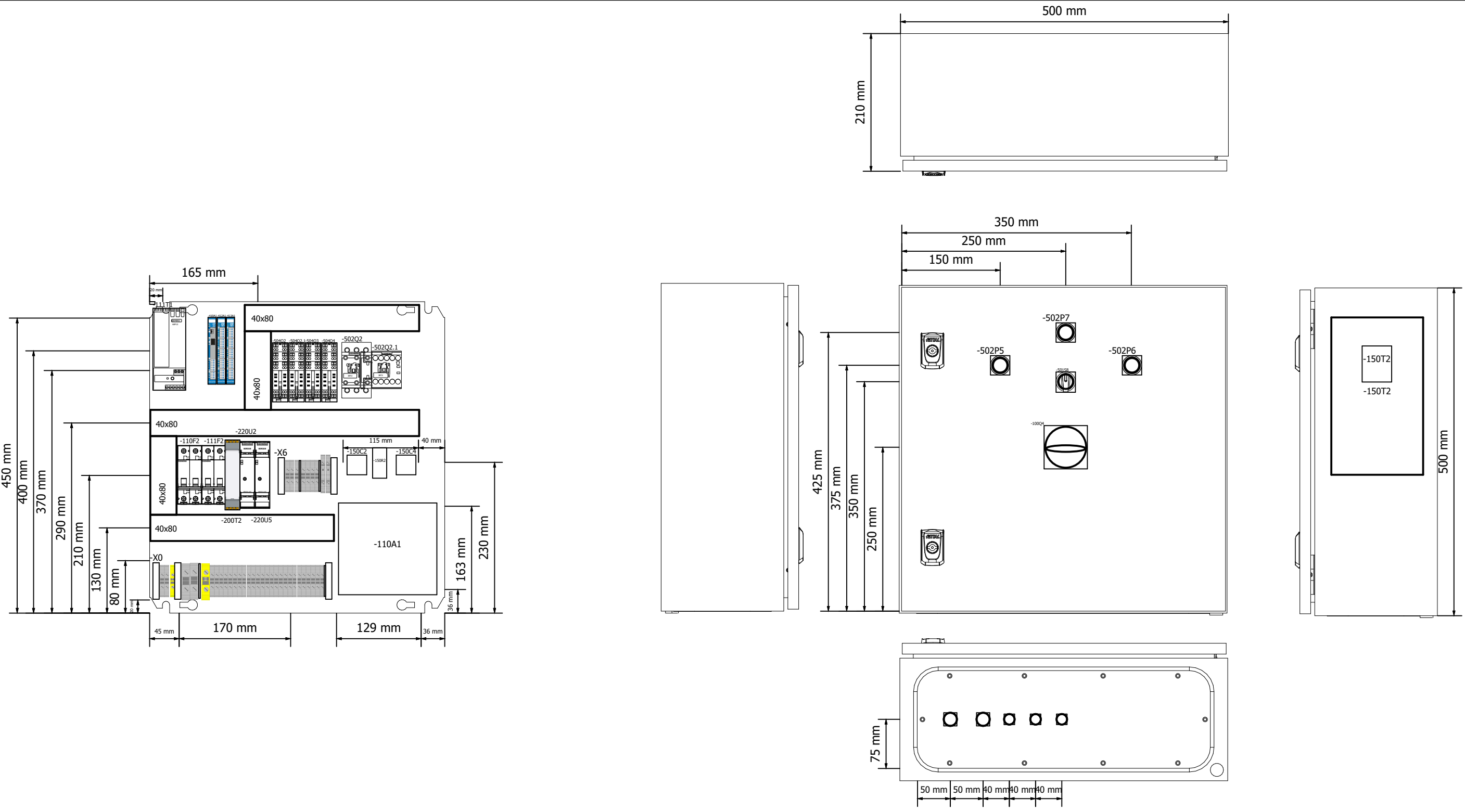


Spare

Spare

Spare

Spare



Bill of material

Quantity	Description	Type number	Part Number	Supplier	Isah Number
1	Compact enclosure AX	AX.1050000	1050000	Rittal	EI1D566403
1	VE1.0 1-PHASE TRANSFORMER	VE1.0	11191164	Jaspers Transformatoren	EIJA501K02
1	S-DIAS CPU Module	CP102	20-004-102	Sigmathek	E0027409
2	S-DIAS Digital Mixed Module	DM161	20-008-161	Sigmathek	E0027373
1	CAPACITOR	450V1.5uF	450V1.5uF	Unknown brand	EIMB81K500
1	Capacitor 6.0uF, 450V AC	MKA 450-6uF	MKA 450-6uF	Comar	EIMB86K301
1	CAPACITOR	450V6.3uF	450V6.3uF	Unknown brand	EIMB86K300
1	CIRCUIT BREAKER 10KA 1+N-POL D10	5SY4510-8	5SY4510-8	Siemens	EIHD042005
1	CIRCUIT BREAKER 6KA1+N-POL C4	5SY6504-7	5SY6504-7	Siemens	E0029964
2	Fuse modular terminal block	UT 4-HESI (5X20) GY	3074169	Phoenix Contact	EIOJ020003
2	5X20mm Fuse 0,5A Slow Acting	MI5T25V0,5	F219747Q	Ferraz	EIHF610212
1	LED MODULE, GREEN	3SU1401-1BB40-1AA0	3SU1401-1BB40-1AA0	Siemens	EIFD403002
1	INDICATOR LIGHT, GREEN	3SU1001-6AA40-0AA0	3SU1001-6AA40-0AA0	Siemens	EIFC050005
3	HOLDER	3SU1500-0AA10-0AA0	3SU1500-0AA10-0AA0	Siemens	EICH000022
1	LED MODULE, YELLOW	3SU1401-1BB30-1AA0	3SU1401-1BB30-1AA0	Siemens	EIFD403003
1	INDICATOR LIGHT, YELLOW	3SU1001-6AA30-0AA0	3SU1001-6AA30-0AA0	Siemens	EIFC050006
1	LED MODULE, RED	3SU1401-1BB20-1AA0	3SU1401-1BB20-1AA0	Siemens	EIFD403001
1	INDICATOR LIGHT, RED	3SU1001-6AA20-0AA0	3SU1001-6AA20-0AA0	Siemens	EIFC050007
1	Base mounting switch, On-Off switch, 90 degree, 20A, 2 pole, padlock, yellow/red	M220-61192-033N4	M220-61192-033N4	Salzer	EICB442605
1	CONTACTOR,AC3:7,5KW 1NO+1NC DC24V	3RT2025-1BB40	3RT2025-1BB40	Siemens	EIDB052001
1	CONTACTOR,AC3:4KW 1NO DC24V	3RT2016-1BB41	3RT2016-1BB41	Siemens	EIDB032001
4	Miniature Power Relay, mechanical indicators built-in, 2 poles	MY2IN-GS-R DC24	MY2IN-GS-R DC24	Omron	EIDF632008
4	Square Sockets	PYF08S	PYF08S	Omron	EIDK600004
1	Varistor	S14K60	S14K60	Epcos	EIKH176502
1	ROTARY CAM SWITCH 1X21A, H/0/A - FRONT MOUNTING IP66	M220-61025-003M1	5960025	Salzer	EICB442601
1	SITOP PSU100S	6EP1333-2BA20	6EP1333-2BA20	Siemens	EIPF240505
1	Bridge Rectifier	VBO30-16NO7	VBO30-16NO7	IXYS	EIKCDB3807
1	Heatsink250x140mm	Heatsink250x140mm	Heatsink250x140mm	TNR	E0093016
1	Current value transformer	ECM-UC-100A-UI-REL	1698172	Phoenix Contact	EITW049001

Components list

Device tag	Quantity	Description	Type number	Part number	Supplier	Isah number	Page/Path
-X1	2	End Clamb	CLIPFIX 35	3022218	Phoenix Contact	EIOM100002	/501.2
-100Q4	1	Base mounting switch, On-Off switch, 90 degree, 20A, 2 pole, padlock, yellow/red	M220-61192-033N4	M220-61192-033N4	Salzer	EICB442605	/100.2
-X0	2	End Clamb	CLIPFIX 35	3022218	Phoenix Contact	EIOM100002	/100.2
-X0	1	End cover	D-UT 2,5/10	3047028	Phoenix Contact	EIOM040000	/100.2
-X0	2	Feed-through terminal block	UT 4	3044102	Phoenix Contact	EIOJ020002	/100.2
-X0	1	Ground modular terminal block	UT 4-PE	3044128	Phoenix Contact	EIOJ320000	/100.2
-110A1	1	VE1.0 1-PHASE TRANSFORMER	VE1.0	11191164	Jaspers Transformatoren	EIJA501K02	/110.1
-110F2	1	CIRCUIT BREAKER 10KA 1+N-POL D10	5SY4510-8	5SY4510-8	Siemens	EIHD042005	/110.2
-X6	2	End Clamb	CLIPFIX 35	3022218	Phoenix Contact	EIOM100002	/110.1;/110.2
-X6	7	Feed-through terminal block	UT 4	3044102	Phoenix Contact	EIOJ020002	/110.1.../110.3
-X6	2	End cover	D-UT 2,5/10	3047028	Phoenix Contact	EIOM040000	/110.2;/110.3
-X6	2	Plug-in bridge	FBS 2-6	3030336	Phoenix Contact	EIOM320003	/110.2
-111F2	1	CIRCUIT BREAKER 6KA1+N-POL C4	5SY6504-7	5SY6504-7	Siemens	E0029964	/111.2
-111T1	1	SITOP PSU100S	6EP1333-2BA20	6EP1333-2BA20	Siemens	EIPF240505	/111.1
-150C2	1	CAPACITOR	450V1.5uF	450V1.5uF	Unknown brand	EIMB81K500	/150.2
-150C4	1	Capacitor 6.0uF, 450V AC	MKA 450-6uF	MKA 450-6uF	Comar	EIMB86K301	/150.4
-150R2	1	Varistor	S14K60	S14K60	Epcos	EIKH176502	/150.2
-150T2	1	Bridge Rectifier	VBO30-16NO7	VBO30-16NO7	IXYS	EIKCDB3807	/150.2
-150T2	1	Heatsink250x140mm	Heatsink250x140mm	Heatsink250x140mm	TNR	E0093016	/150.2
-150U0	1	Cable tags for identifying field components	REBO TAG ID EC1510060012	1215.00829	Goudsmit	E0165910	/150.0
-X1	2	Feed-through terminal block	UT 16	3044199	Phoenix Contact	EIOJ050005	/150.4
-X1	1	End cover	D-UT 16	3047206	Phoenix Contact	EIOM050005	/150.4
-X1	1	Ground modular terminal block	UT 16-PE	3044212	Phoenix Contact	EIOJ350002	/150.5
-200T2	1	Current value transformer	ECM-UC-100A-UI-REL	1698172	Phoenix Contact	EITW049001	/200.2
-220U2	1	THERMISTOR MOTOR PROT. 2CO REMOTE RESET	3RN2012-1BW30	3RN2012-1BW30	Siemens	EIDC037000	/220.2
-220U5	1	THERMISTOR MOTOR PROT. 2CO REMOTE RESET	3RN2012-1BW30	3RN2012-1BW30	Siemens	EIDC037000	/220.5
-X1	25	Feed-through terminal block	UT 4	3044102	Phoenix Contact	EIOJ020002	/220.2;/220.3;/220.5;/220.6;/230.2;/230.4;/230.6
-410A1	1	S-DIAS CPU Module	CP102	20-004-102	Sigmathek	E0027409	/410.1
-412A1	1	S-DIAS Digital Mixed Module	DM161	20-008-161	Sigmathek	E0027373	/412.1
-413A1	1	S-DIAS Digital Mixed Module	DM161	20-008-161	Sigmathek	E0027373	/413.1
-501F1	1	Fuse modular terminal block	UT 4-HESI (5X20) GY	3074169	Phoenix Contact	EIOJ020003	/501.1
-501F1	1	5X20mm Fuse 0,5A Slow Acting	M15T25V0,5	F219747Q	Ferraz	EIHF610212	/501.1
-501S8	1	ROTARY CAM SWITCH 1X21A, H/0/A - FRONT MOUNTING IP66	M220-61025-003M1	5960025	Salzer	EICB442601	/501.8
-X1	1	End cover	D-UT 2,5/10	3047028	Phoenix Contact	EIOM040000	/501.2
-502F3	1	Fuse modular terminal block	UT 4-HESI (5X20) GY	3074169	Phoenix Contact	EIOJ020003	/502.3
-502F3	1	5X20mm Fuse 0,5A Slow Acting	M15T25V0,5	F219747Q	Ferraz	EIHF610212	/502.3
-502P5	1	LED MODULE, GREEN	3SU1401-1BB40-1AA0	3SU1401-1BB40-1AA0	Siemens	EIFD403002	/502.5
-502P5	1	INDICATOR LIGHT, GREEN	3SU1001-6AA40-0AA0	3SU1001-6AA40-0AA0	Siemens	EIFC050005	/502.5
-502P5	1	HOLDER	3SU1500-0AA10-0AA0	3SU1500-0AA10-0AA0	Siemens	EICH000022	/502.5
-502P6	1	LED MODULE, YELLOW	3SU1401-1BB30-1AA0	3SU1401-1BB30-1AA0	Siemens	EIFD403003	/502.6
-502P6	1	INDICATOR LIGHT, YELLOW	3SU1001-6AA30-0AA0	3SU1001-6AA30-0AA0	Siemens	EIFC050006	/502.6
-502P6	1	HOLDER	3SU1500-0AA10-0AA0	3SU1500-0AA10-0AA0	Siemens	EICH000022	/502.6
-502P7	1	LED MODULE, RED	3SU1401-1BB20-1AA0	3SU1401-1BB20-1AA0	Siemens	EIFD403001	/502.7
-502P7	1	INDICATOR LIGHT, RED	3SU1001-6AA20-0AA0	3SU1001-6AA20-0AA0	Siemens	EIFC050007	/502.7
-502P7	1	HOLDER	3SU1500-0AA10-0AA0	3SU1500-0AA10-0AA0	Siemens	EICH000022	/502.7
-502Q2	1	CONTACTOR,AC3:7,5KW 1NO+1NC DC24V	3RT2025-1BB40	3RT2025-1BB40	Siemens	EIDB052001	/502.1
-502Q2.1	1	CONTACTOR,AC3:4KW 1NO DC24V	3RT2016-1BB41	3RT2016-1BB41	Siemens	EIDB032001	/502.2
-504Q2	1	Miniature Power Relay, mechanical indicators built-in, 2 poles	MY2IN-GS-R DC24	MY2IN-GS-R DC24	Omron	EIDF632008	/504.1
-504Q2	1	Square Sockets	PYF08S	PYF08S	Omron	EIDK600004	/504.1
-504Q2.1	1	Miniature Power Relay, mechanical indicators built-in, 2 poles	MY2IN-GS-R DC24	MY2IN-GS-R DC24	Omron	EIDF632008	/504.2
-504Q2.1	1	Square Sockets	PYF08S	PYF08S	Omron	EIDK600004	/504.2
-504Q3	1	Miniature Power Relay, mechanical indicators built-in, 2 poles	MY2IN-GS-R DC24	MY2IN-GS-R DC24	Omron	EIDF632008	/504.3
-504Q3	1	Square Sockets	PYF08S	PYF08S	Omron	EIDK600004	/504.3
-504Q4	1	Miniature Power Relay, mechanical indicators built-in, 2 poles	MY2IN-GS-R DC24	MY2IN-GS-R DC24	Omron	EIDF632008	/504.4
-504Q4	1	Square Sockets	PYF08S	PYF08S	Omron	EIDK600004	/504.4
	1	Compact enclosure AX	AX.1050000	1050000	Rittal	EI1D566403	/800.1

Textplates

MAINSWITCH	MAGNET ON
FAILURE	MAGNET OFF
LOCAL-OFF-REMOTE	-
-	-
-	-

RESOPAL PROPERTIES	
Resopal dimension	45x15mm
Resopal color	White
Text color	Black

CABLE TAGS	
	-

TEXTPLATE	
GOUDSMIT MAGNETICS www.goudsmitmagnets.com CE UK CA	
CONTROL BOX	ESBP210002_G
VOLTAGE:	110-230-400 VAC
CURRENT:	16 A
POWER:	1.0 kW
Goudsmit Magnetics, Petunialaan 19, 5582 HA, Waalre, The Netherlands UK authorised prerepresentative: Goudsmit UK Ltd, 1st Floor, Riverview, The Green, Tullynacross Rd, Lisburn, BT27 5SR, United Kingdom	