



Customer name:	-
Customer number:	-
Country:	The Netherlands
Language:	English
Project Name: CTRL BOX EM1-3 EX	
Project Number: -	
Product: SPA-E-CB-X2-PLC-HW-PT1K0	
Item number: ESBP310002	
ATEX: ATEX II 2D tb IIIC T130, Ta 0...+40°C	
Designer:	MV
Design date:	05-06-2018
Revision number:	E
Status:	Released
Supply Voltage:	110-230-400VAC
Nominal Power:	...kW
Max. supply Current:	16A
Control Voltage:	24VDC
Total pages: 024	

General specifications

PAGE NUMBERING	
1	Front page
2	Project specifications
10	Drawing list
100	Main circuit
150	Power supplies
200	Control circuit
300	-
400	PLC overview
500	PLC I/O
600	-
700	-
800	Spare connections
900	Bill of material
910	Components list
950	Terminal plan

TERMINAL NUMBERING	
X0	Main supply
X1	Main power
X2	Control voltage 230VAC
X3	Control voltage 24Vac
X4	Control voltage 24Vdc
X5	Analog signals
X6	External supply
X7	EEx i
X8	?
X9	?

100M1
 └─ REFERENCE NUMBER
 └─ PART CODE
 └─ PAGE NUMBER

COLOR CODE INTERNAL WIRING				
Main current 400/230V	Phase	Black	>=	1.5mm ²
	Neutral	Lightblue	>=	1.5mm ²
	Earth	Yellow/Green	>=	1.5mm ²
Control voltage 230Vac	Phase	Red	>=	..mm ²
	Switch wire	Red	>=	..mm ²
	Neutral	Red	>=	..mm ²
Control voltage 24Vac	Phase (L)	Grey	>=	..mm ²
	Switch wire	Grey	>=	..mm ²
	Neutral (N)	Grey	>=	..mm ²
Control voltage 24Vdc	Phase (+)	Darkblue	>=	..mm ²
	Switch wire	Darkblue	>=	..mm ²
	Neutral (-)	Darkblue	>=	..mm ²
Control voltage 12Vdc	Phase (+)	White	>=	..mm ²
	Switch wire	White	>=	..mm ²
	Neutral (-)	White	>=	..mm ²
Measurement		Purple	>=	..mm ²
External supply (Potential free contacts)		Orange	>=	..mm ²
EEx i		Blue	>=	..mm ²

Drawing list

Installation	Location	Page	Description 1	Description 2	Description 3
		001	Front page		
		002	Project specification		
		010	Drawing list		
		100	Main Switch		
		110	Power supplies		
		111	Power supplies		
		150	Main circuit		
		200	Control circuit		
		220	Control circuit Temp		
		230	Control circuit Status		
		400	PLC overview		
		500	PLC I/O Simatek CP102 1-1	CPU	
		501	PLC I/O Simatek DM161 1-2	Digital inputs	
		502	PLC I/O Simatek DM161 2-2	Digital outputs	
		503	PLC I/O Simatek DM161 1-2	Digital inputs	
		504	PLC I/O Simatek DM161 2-2	Digital outputs	
		800	Spare connections		
		900	Bill of material		
		901	Bill of material		
		910	Components list		
		911	Components list		
		912	Components list		
		950	Terminal plan		
		990	Text plate		

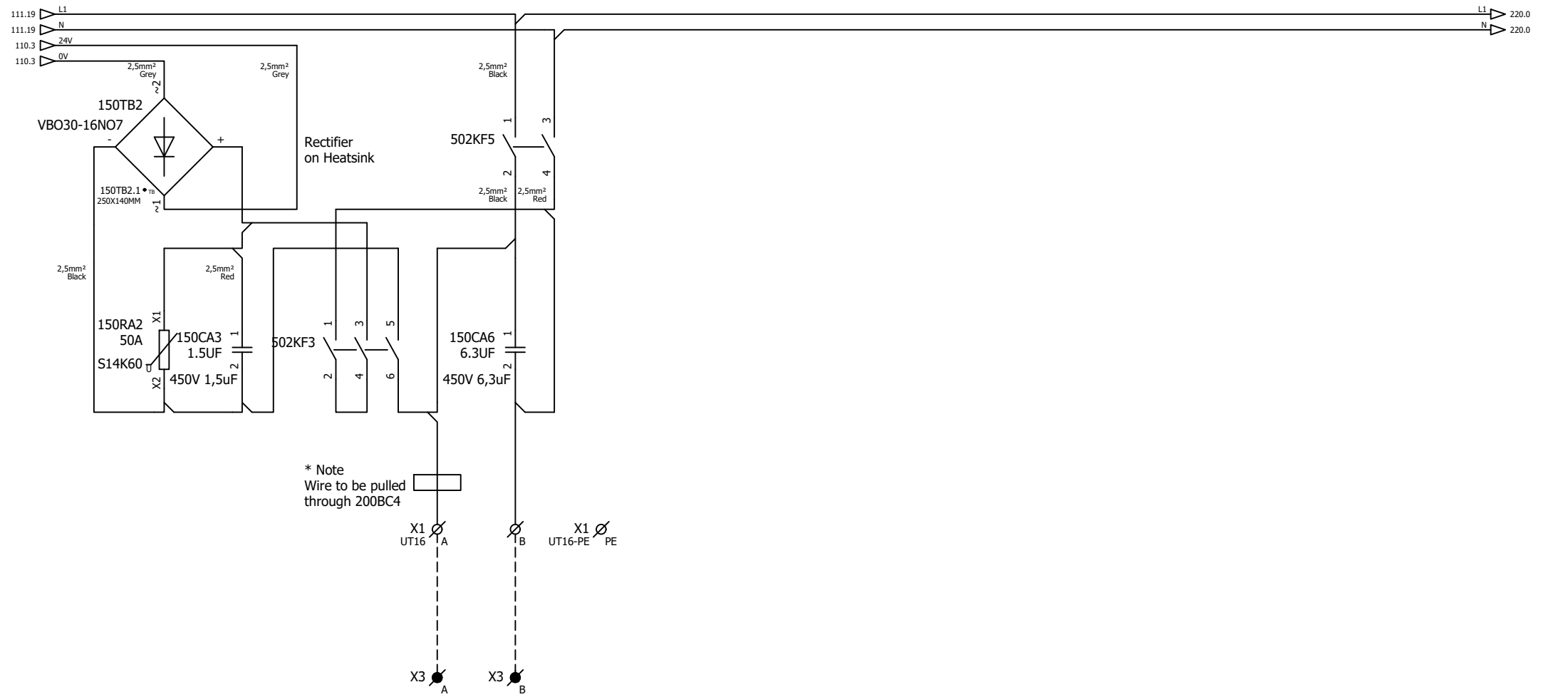
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MAIN POWER SUPPLY
110-230-400VAC +PE / 50_60Hz
Fuse max. 16A

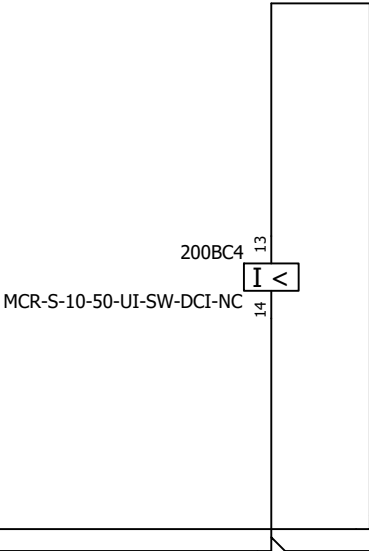
Prev. sheet: 010				Next Sheet: 110			
Designer: MV	Project name : CTRL BOX EM1-3 EX		Product: SPA-E-CB-X2-PLC-HW-PT1K0	Drawing descr.: Main Switch	Sheet: 100		
Design date: 05-06-2018	Project number : -		Item number: ESBP310002			Inst.:	
Rev. nr.: E	Customer: -		Doc. number: ESBP310002_Page-100.dwg			Loc.:	
Status: Released	Customer number: -						

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
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Magnet

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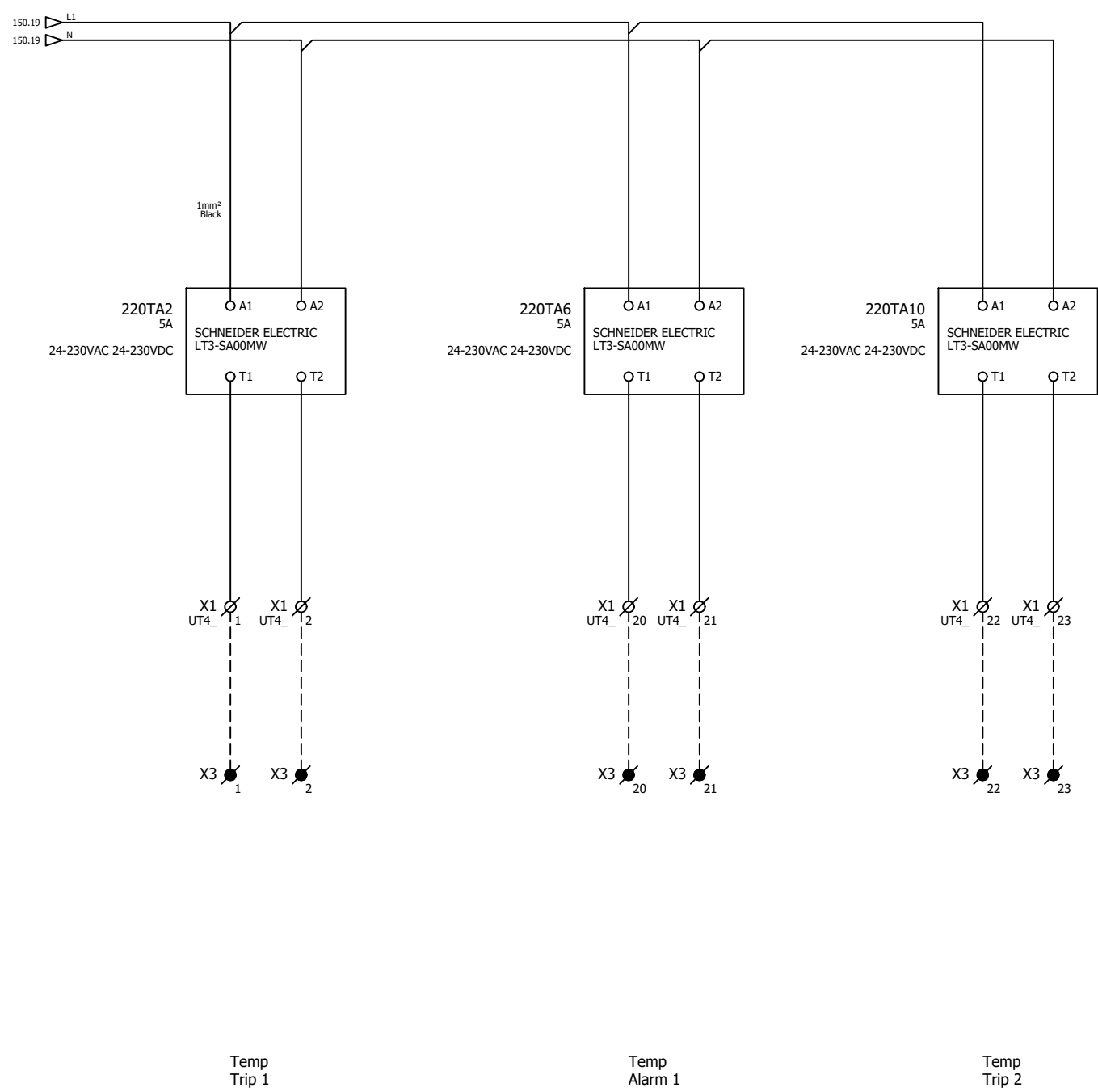


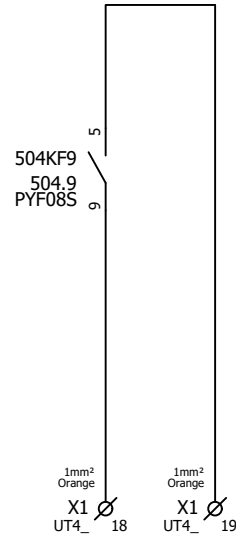
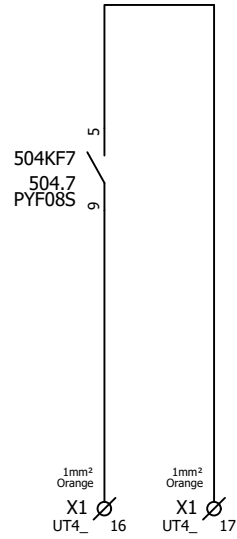
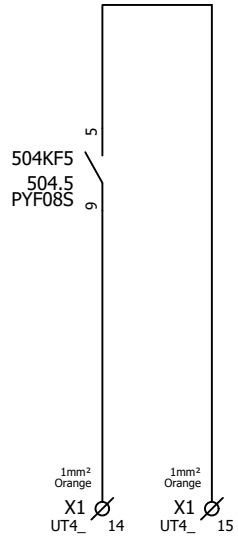
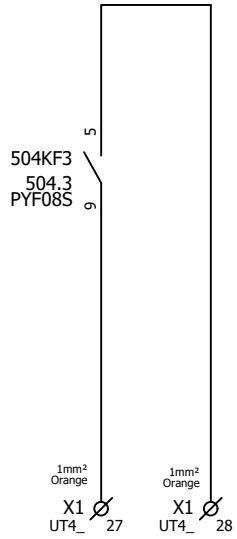
* Note
Wire from 502KF3-6 to X1-A
must be pulled trough 200BC4

3 1 2 501.11

Current
Relay

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
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Product Channel Open
Product feed Through

Magnet
On

Customizable
Alarm Output
1

Customizable
Alarm Output
2

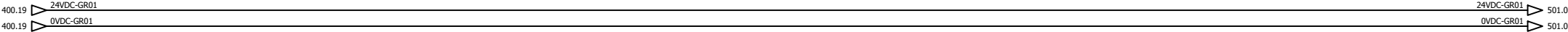
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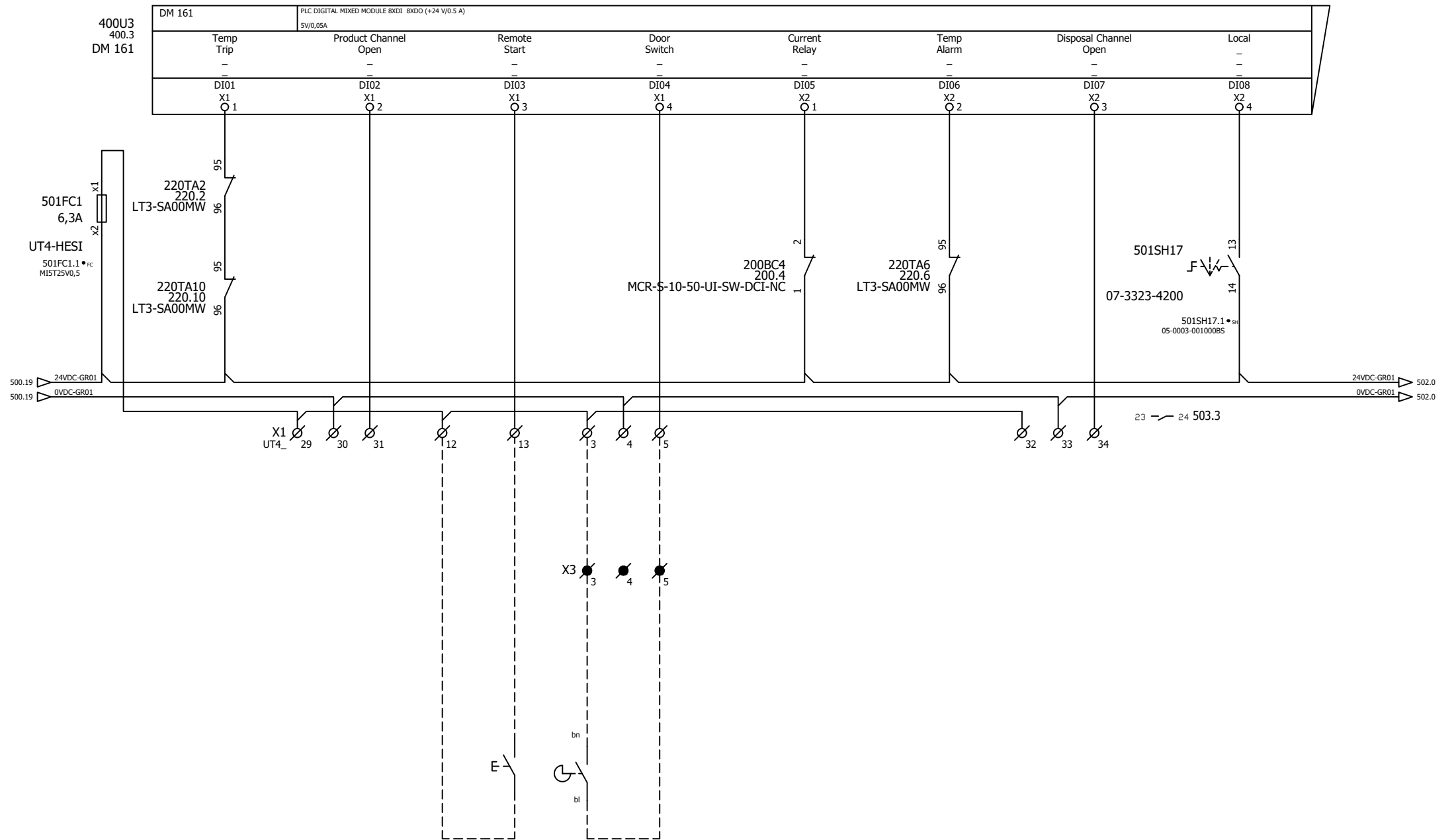
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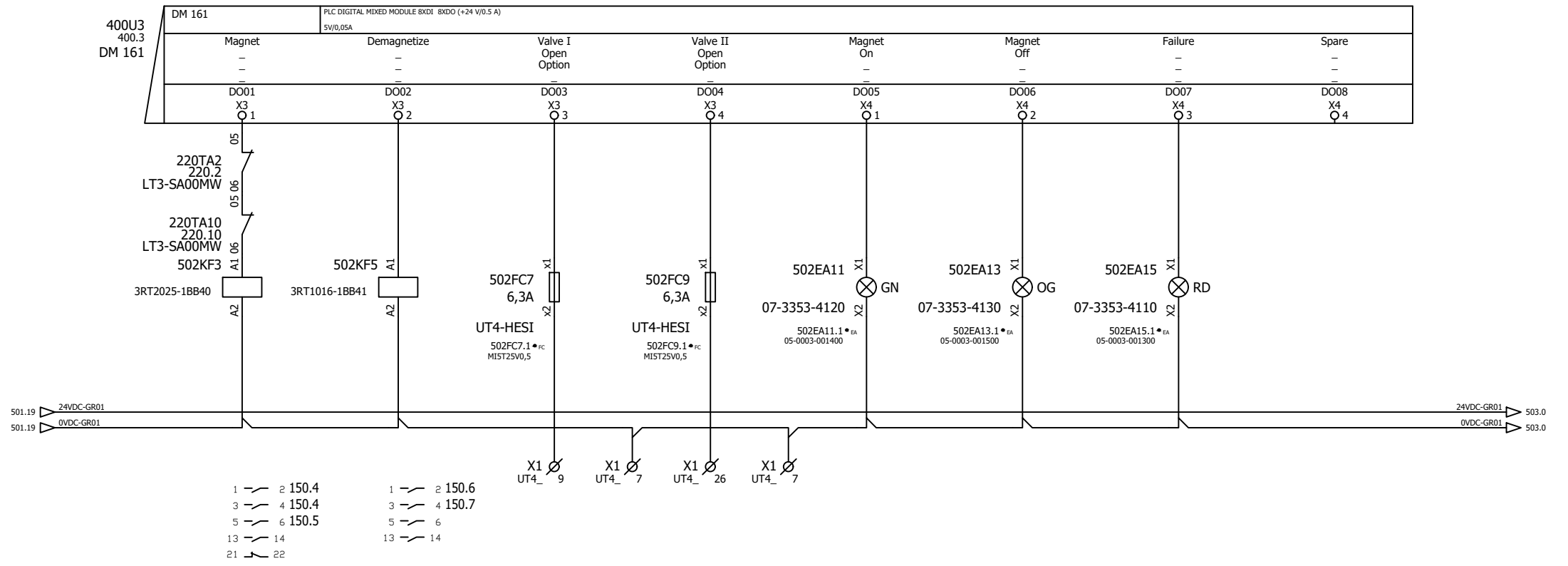


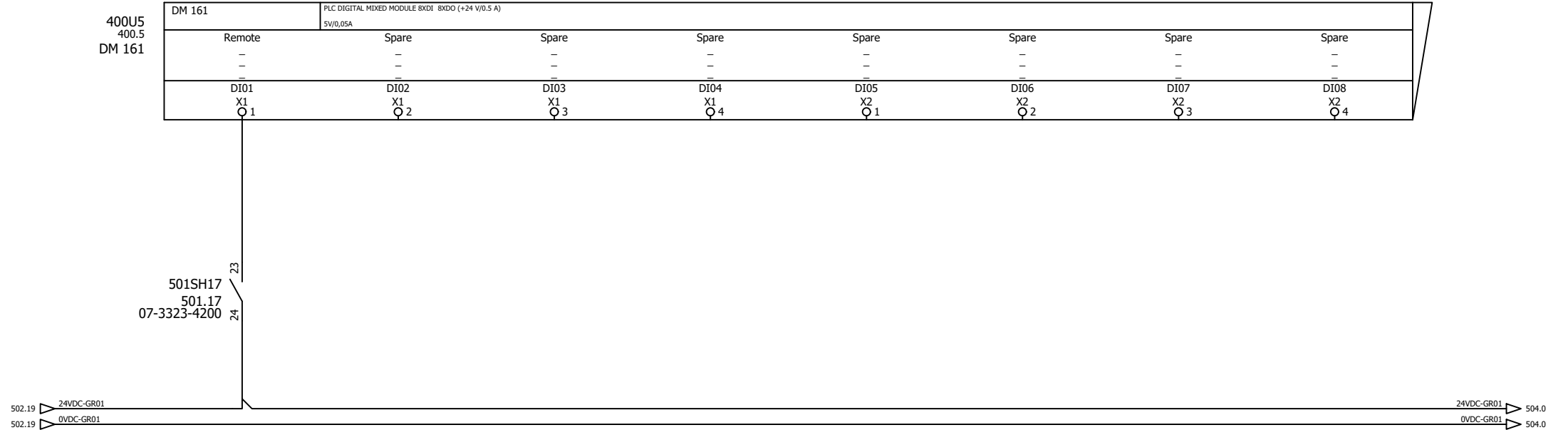
400U2
400.2
CP102

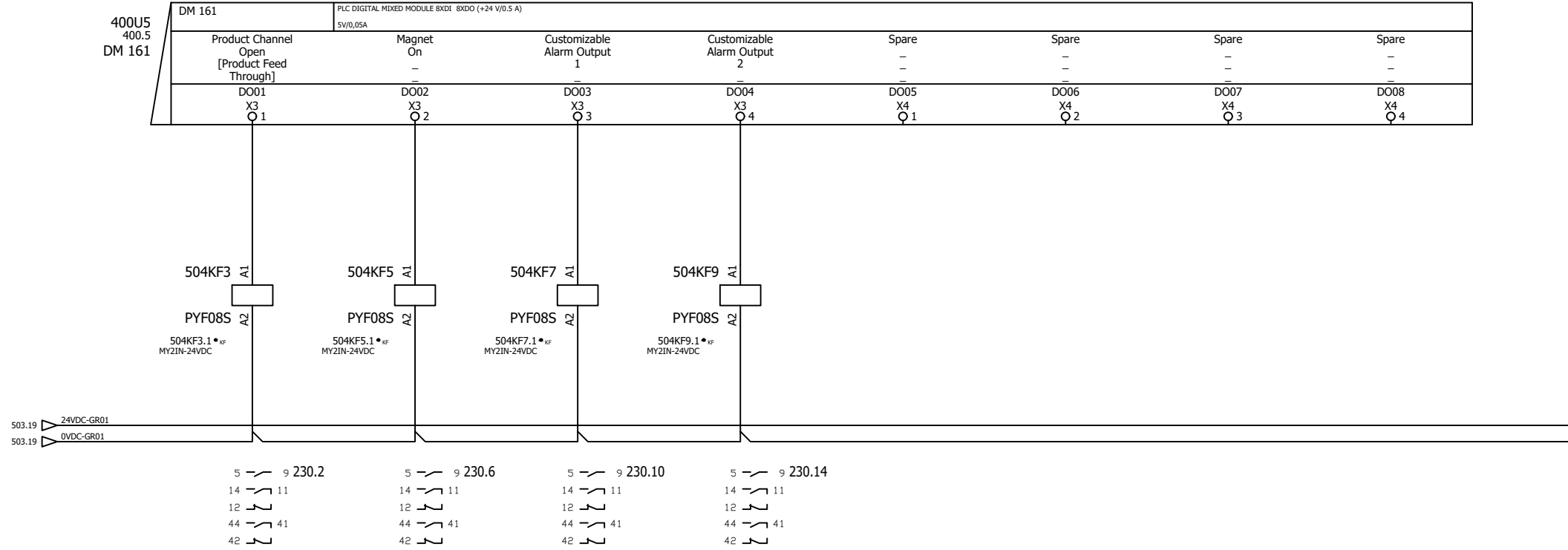
CP 102	PLC CPU 256MB NAND 24VDC/1A 5V/0.6A				
USB Connection (Micro B)	Ethernet Connection (Industrial mini I/O)		CAN Connection —		
—	—		—		
USB-OTG X1 ⌀ USB	ETHERNET X2 ⌀ ETH		CAN:A X3 ⌀ 1	B X3 ⌀ 2	A X3 ⌀ 3 B X3 ⌀ 4











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Prev. sheet: 504				Next Sheet: 900			
Designer: MV Design date: 05-06-2018 Rev. nr.: E Status: Released	Project name : CTRL BOX EM1-3 EX Project number : - Customer: - Customer number: -		Product: SPA-E-CB-X2-PLC-HW-PT1K0 Item number: ESBP310002 Doc. number: ESBP310002_Page-800.dwg	Drawing descr.: Spare connections	Sheet: 800 Inst.: Loc.:		

Bill of Material

#	Item number	Manufacturer	Product Code	Custom code	Description
1	EIFB353001	BARTEC	05-0003-001400	05-0003-001400	38MM EX LAMP MODULE ACTUATOR GREEN
1	EIFB353005	BARTEC	05-0003-001500	05-0003-001500	38MM EX LAMP MODULE ACTUATOR YELLOW
1	EIFB353003	BARTEC	05-0003-001300	05-0003-001300	38MM EX LAMP MODULE ACTUATOR RED
1	EIFB353002	BARTEC	07-3353-4110	07-3353-4110	EX LAMP MODULE RED
1	EIFB353004	BARTEC	07-3353-4130	07-3353-4130	EX LAMP MODULE YELLOW
1	EIFB353000	BARTEC	07-3353-4120	07-3353-4120	EX LAMP MODULE GREEN
1	EICF800001	BARTEC	05-0003-001000BS	05-0003-001000BS	POSITION SELECTOR SWITCH, I-0-II (I + II LATCHING)
1	E0083972	BARTEC	07-3323-4200	07-3323-4200	SWITCH MODULE, 2x NO
1	E0083970	BARTEC	05-0003-007001	05-0003-007001	POSITION SELECTOR SWITCH
1	E0095881	BARTEC	07-3323-1200	07-3323-1200	SWITCH MODULE, 2x NO
1	EIKH176502	EPCOS	S14K60	S14K60	60V 14A 1650 pF
3	EIHF610212	FERRAZ	F219747Q	MI5T25V0,5	SLOW ACTING 5X20mm 0,5A
1	EIKCDB3807	IXYS	VBO30-16NO7	VBO30-16NO7	BRIDGE RECTIFIERS 1600 VOLT 25 AMP
1	EIJA501K02	JASPERS	11191164	VE1.0	SINGLE PHASE IP00 , 500VA, 110-230-400VAC PRIM. , 2x 24 VAC SEC.
4	EIDF632004	OMRON	MY2IN-24VDC	MY2IN-24VDC	2XNO/NC, DPDT
4	EIDK600004	OMRON	PYF08S	PYF08S	SOCKET FOR MY2(S)
3	EUT4HESI	PHOENIX	3074169	UT4-HESI	SINGLE-POLE, 5 X 20-25-30MM
1	EITW049000	PHOENIX	2814744	MCR-S-10-50-UI-SW-DCI-NC	0..10-0..50A AC/DC, RELAY AND TRANSISTOR OUTPUT, ANALOG OUTPUT
2	EIOM320003	PHOENIX	3030336	FBS2-6	2 POLES, PITCH 6.2MM, WIDTH 10.7MM, RED
1	EIOM050005	PHOENIX	3047028	D-UT 16	END COVER FOR UT 16 TERMINALS
4	EIOM040000	PHOENIX	3047028	D-UT 2-5-10	END COVER FOR UT 2,5-10 TERMINALS
4	EIOM100002	PHOENIX	3022218	CLIPFIX 35	END CLAMB FOR 35MM DIN RAIL, CLIPFIX 35
2	EIOJ050005	PHOENIX	3044199	UT16	1 LEVEL - SCREW 1,5 - 25mm²
38	EIOJ020002	PHOENIX	3044102	UT4_	1 LEVEL - SCREW 0.14 - 6mm²
2	EIOJ350002	PHOENIX	3044212	UT16-PE	1 LEVEL - SCREW, GROUND, 1,5 - 25mm²
3	EIDC232000	SCHNEIDER ELECTRIC	LT3-SA00MW	LT3-SA00MW	LT3 WITH AUTOMATIC RESET,24..230V, 2 NO-NC
1	EIDB032001	SIEMENS	8932683	3RT2016-1BB41	AC-3, 4KW/400V, 1NO, 24V DC, 50/60 HZ, 3-POLE, SZ S00, SCREW TERMINAL
1	EIDB052001	SIEMENS	3RT2025-1BB40	3RT2025-1BB40	AC-3, 7.5KW/400V, 1NO + NC, 24V DC, 50/60 HZ, 3-POLE, SZ S00, SCREW TERMINAL
1	EIPF240505	SIEMENS	6EP1333-2BA20	6EP1333-2BA20	SITOP SMART 24 V/5 A STABALIZED POWER SUPPLY INPUT: 12-230 V AC OUTPUT: 24 V DC/5 A
1	E0029964	SIEMENS	5SY6504-7	5SY6504-7	1-POLE + N, C, 230V 6KA, 4A
1	EIHD042005	SIEMENS	5SY4510-8	5SY4510-8	1-POLE + N, D, 400V 6KA, 10A
2	E0027373	SIGMATEK	20-008-161	DM 161	DIGITAL MIXED MODULE 8XDI 8XDO (+24 V/0.5 A)
1	E0027409	SIGMATEK	20-004-102	CP 102	CPU 256MB NAND

Bill of Material

#	Item number	Manufacturer	Product Code	Custom code	Description
1	E0093016	TNR	250X140MM	250X140MM	ALUMINIUM HEATSINK PLATE 250X140X10MM
2	E0078679	_UNKNOWN	X	SEE PAGE 990 FOR DETAILS	SEE E-DWG PAGE 990 FOR DETAILS
1	EIMB86K300	_UNKNOWN	x	450V 6,3uF	450v / 6,3UF
1	EIMB81K500	_UNKNOWN	x	450V 1,5uF	450v / 1,5UF

Components list

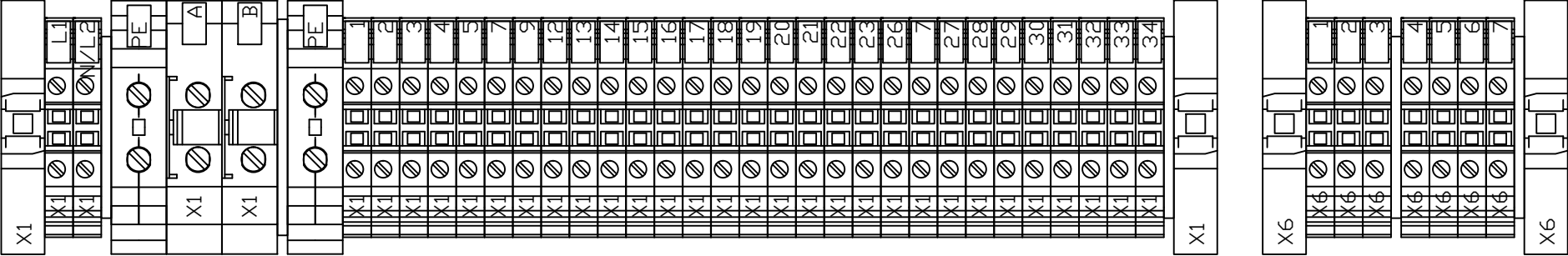
Component code	Item number	Manufacturer	Product Code	Custom code	Description
100QB2	E0095881	BARTEC	07-3323-1200	07-3323-1200	SWITCH 07-3323-1200 BARTEC
100QB2.1	E0083970	BARTEC	05-0003-007001	05-0003-007001	SWITCH 05-0003-007001 BARTEC
110QA2	EIHD042005	SIEMENS	5SY4510-8	5SY4510-8	CIRCUIT BR. 5SY4510-8 SIEMENS
110TA2	EIJA501K02	JASPERS	11191164	VE1.0	TRANSFORMER VE1.0 JASPERS
110X1	EIOM320003	PHOENIX	3030336	FBS2-6	BRIDGE FBS2-6 PHOENIX
110X1.1	EIOM320003	PHOENIX	3030336	FBS2-6	BRIDGE FBS2-6 PHOENIX
111GB2	EIPF240505	SIEMENS	6EP1333-2BA20	6EP1333-2BA20	POWER SUPPLY 6EP1333-2BA20 SIEMENS
111QA2	E0029964	SIEMENS	5SY6504-7	5SY6504-7	CIRCUIT BR. 5SY6504-7 SIEMENS
150CA3	EIMB81K500	_UNKNOWN	x	450V 1,5uF	CAPACITOR 450V 1,5uF _UNKNOWN
150CA6	EIMB86K300	_UNKNOWN	x	450V 6,3uF	CAPACITOR 450V 6,3uF _UNKNOWN
150RA2	EIKH176502	EPCOS	S14K60	S14K60	VARISTOR S14K60 EPCOS
150TB2	EIKCDB3807	IXYS	VBO30-16NO7	VBO30-16NO7	CONVERTER VBO30-16NO7 IXYS
150TB2.1	E0093016	TNR	250X140MM	250X140MM	HEATSINK 250X140MM TNR
200BC4	EITW049000	PHOENIX	2814744	MCR-S-10-50-UI-SW-DCI-NC	CUR. RELAY MCR-S-10-50-UI-SW-DCI-NC PHOENIX
220TA10	EIDC232000	SCHNEIDER ELECTRIC	LT3-SA00MW	LT3-SA00MW	THERM RELAY LT3-SA00MW SCHNEIDER ELECTRIC
220TA2	EIDC232000	SCHNEIDER ELECTRIC	LT3-SA00MW	LT3-SA00MW	THERM RELAY LT3-SA00MW SCHNEIDER ELECTRIC
220TA6	EIDC232000	SCHNEIDER ELECTRIC	LT3-SA00MW	LT3-SA00MW	THERM RELAY LT3-SA00MW SCHNEIDER ELECTRIC
400U2	E0027409	SIGMATEK	20-004-102	CP 102	PLC CP 102 SIGMATEK
400U3	E0027373	SIGMATEK	20-008-161	DM 161	PLC DM 161 SIGMATEK
400U5	E0027373	SIGMATEK	20-008-161	DM 161	PLC DM 161 SIGMATEK
501FC1	EUT4HESI	PHOENIX	3074169	UT4-HESI	FUSE HOLDER UT4-HESI PHOENIX
501FC1.1	EIHF610212	FERRAZ	F219747Q	MI5T25V0,5	FUSE MI5T25V0,5 FERRAZ
501SH17	E0083972	BARTEC	07-3323-4200	07-3323-4200	SWITCH 07-3323-4200 BARTEC
501SH17.1	EICF800001	BARTEC	05-0003-001000BS	05-0003-001000BS	SWITCH 05-0003-001000BS BARTEC
502EA11	EIFB353000	BARTEC	07-3353-4120	07-3353-4120	INDICATOR 07-3353-4120 BARTEC
502EA11.1	EIFB353001	BARTEC	05-0003-001400	05-0003-001400	INDICATOR 05-0003-001400 BARTEC
502EA13	EIFB353004	BARTEC	07-3353-4130	07-3353-4130	INDICATOR 07-3353-4130 BARTEC
502EA13.1	EIFB353005	BARTEC	05-0003-001500	05-0003-001500	INDICATOR 05-0003-001500 BARTEC
502EA15	EIFB353002	BARTEC	07-3353-4110	07-3353-4110	INDICATOR 07-3353-4110 BARTEC
502EA15.1	EIFB353003	BARTEC	05-0003-001300	05-0003-001300	INDICATOR 05-0003-001300 BARTEC
502FC7	EUT4HESI	PHOENIX	3074169	UT4-HESI	FUSE HOLDER UT4-HESI PHOENIX
502FC7.1	EIHF610212	FERRAZ	F219747Q	MI5T25V0,5	FUSE MI5T25V0,5 FERRAZ
502FC9	EUT4HESI	PHOENIX	3074169	UT4-HESI	FUSE HOLDER UT4-HESI PHOENIX

Components list

Component code	Item number	Manufacturer	Product Code	Custom code	Description
502FC9.1	EIHF610212	FERRAZ	F219747Q	MI5T25V0,5	FUSE MI5T25V0,5 FERRAZ
502KF3	EIDB052001	SIEMENS	3RT2025-1BB40	3RT2025-1BB40	CONTACTOR 3RT2025-1BB40 SIEMENS
502KF5	EIDB032001	SIEMENS	8932683	3RT2016-1BB41	CONTACTOR 3RT2016-1BB41 SIEMENS
504KF3	EIDK600004	OMRON	PYF08S	PYF08S	CONTROL RELAY AUX. PYF08S OMRON
504KF3.1	EIDF632004	OMRON	MY2IN-24VDC	MY2IN-24VDC	CONTROL RELAY MY2IN-24VDC OMRON
504KF5	EIDK600004	OMRON	PYF08S	PYF08S	CONTROL RELAY AUX. PYF08S OMRON
504KF5.1	EIDF632004	OMRON	MY2IN-24VDC	MY2IN-24VDC	CONTROL RELAY MY2IN-24VDC OMRON
504KF7	EIDK600004	OMRON	PYF08S	PYF08S	CONTROL RELAY AUX. PYF08S OMRON
504KF7.1	EIDF632004	OMRON	MY2IN-24VDC	MY2IN-24VDC	CONTROL RELAY MY2IN-24VDC OMRON
504KF9	EIDK600004	OMRON	PYF08S	PYF08S	CONTROL RELAY AUX. PYF08S OMRON
504KF9.1	EIDF632004	OMRON	MY2IN-24VDC	MY2IN-24VDC	CONTROL RELAY MY2IN-24VDC OMRON
990TEXTPLATE10	E0078679	_UNKNOWN	X	SEE PAGE 990 FOR DETAILS	TEXT PLATE SEE PAGE 990 FOR DETAILS
990TEXTPLATE2	E0078679	_UNKNOWN	X	SEE PAGE 990 FOR DETAILS	TEXT PLATE SEE PAGE 990 FOR DETAILS

Components list

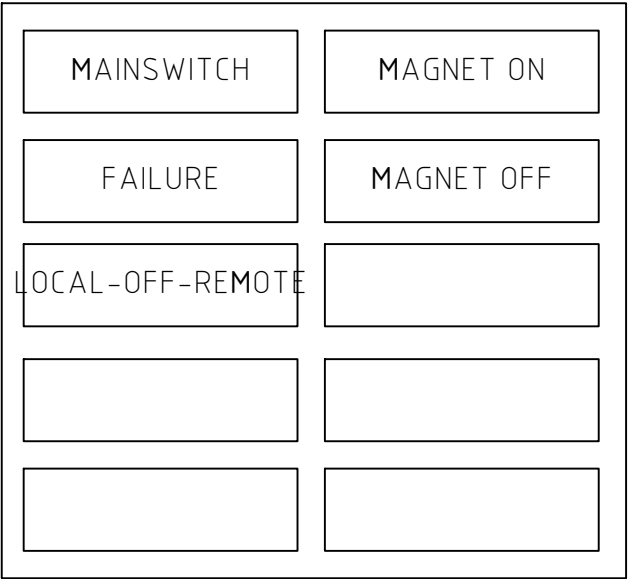
Component code	Item number	Manufacturer	Product Code	Custom code	Description



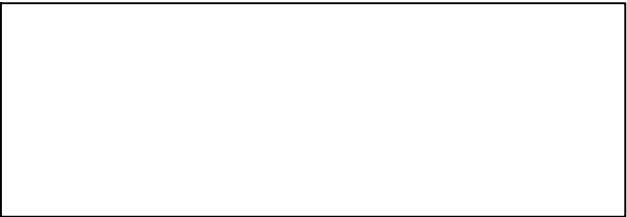
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□ X1 EP1 D-UT 2-5-10
□ X1 ES2 CLIPFIX 35
□ X1 EP2 D-UT 16
□ X1 EP3 D-UT 2-5-10

□ X6 ES5 CLIPFIX 35
□ X6 EP2 D-UT 2-5-10
□ X6 EP3 D-UT 2-5-10
□ X6 ES6 CLIPFIX 35

990TEXTPLATE2



990TEXTPLATE10



- Text plate dimension: 45x15mm
- Text plate color: White
- Text color: Black