

Documents listed on below pages

General description	1–9
Circuit diagram	10–44
Switchboard layout	45–49

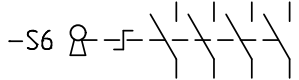
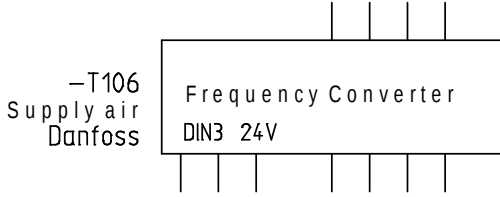
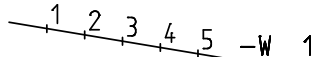
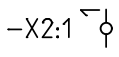
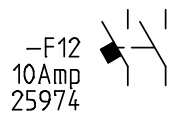
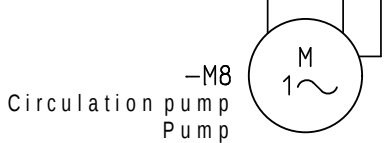
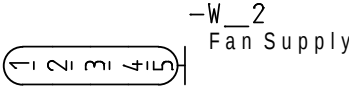
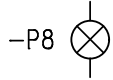
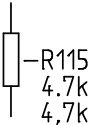
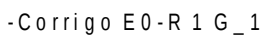
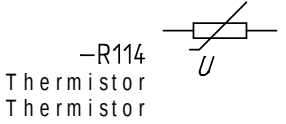
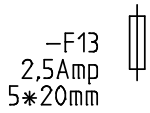
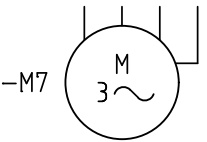
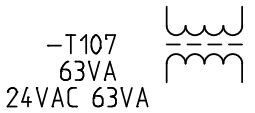
Graphical list

Spareparts	50–59
Terminal matrix	60–69
Cable plan	70–89

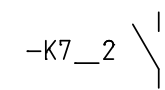
Switchboard are placed behind
inspectionsdoor before supply fan

Components according to functions
are mark with **

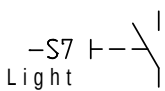
Symbols are according to IEC 60617.
On the following 2 pages there are descriptions of used symbols in the project.

	Switchgear, 4 pole		Frequency converter
	Main supplyCable		References
	Automatic tripping, 3-pole		Terminal
	Automatic tripping, 2-pole		Cirkulation pump
	Shielded cable		Lamp
	Resistors		Info text
	Thermistor		Fuse
	Motor three phase + PE		Transformer

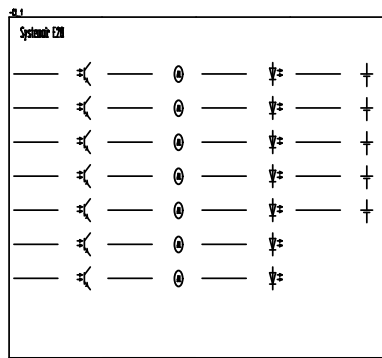
Symbols are according to IEC 60617.
These pages are descriptions of used symbols in the project.



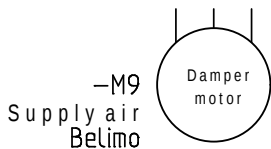
Relay contacts, normaly open



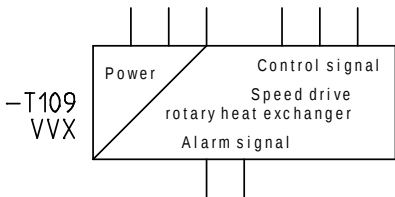
Switchgear



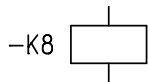
Corrigo E28



Supply air



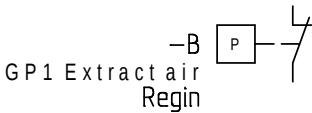
Rotary heat exchanger



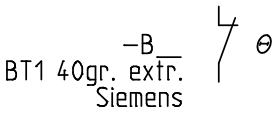
Relay



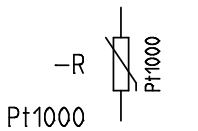
Switchgear, one pole. Extended operation



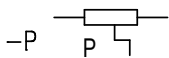
Switchgear, mechanical energy



fireguard



Temperature (measuring)



Pressure

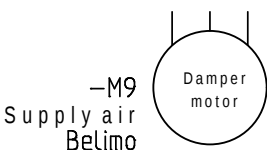
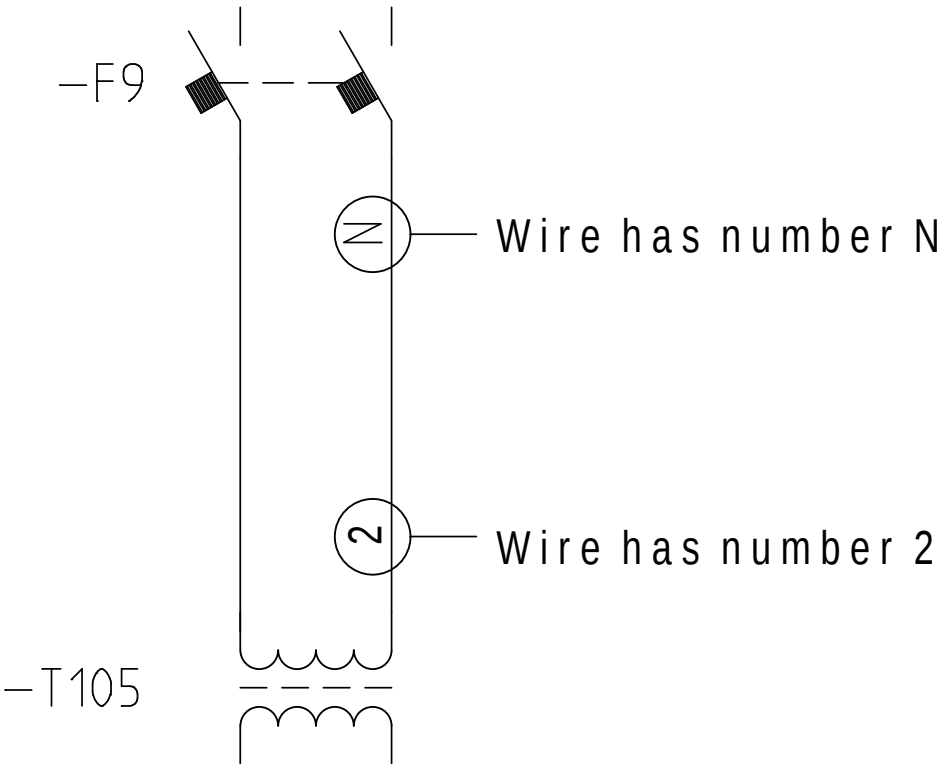
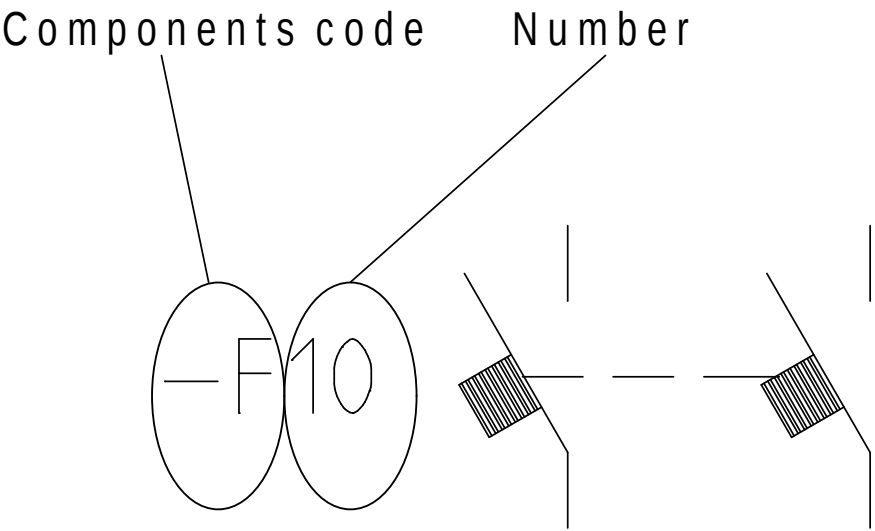


Plate exchanger dampermotor

Labeling of wires
Cables are marked with
terminal name



Components are marked with component codes
followed by a number according to IEC 61346-1 Chart 1



Component codes used
in the project

- S = Switchgear
- F = Automatic tripping
- M = Pump / Damper motor / valve motor
- R = Temperature sensors
- T = Frequency Converter / transformer
- P = Lamps / Pressure guard / Pressure transducer
- C = Controller
- B = Fire guard
- W = Cables
- K = Relay coils
- X = Terminal
- U = Switchboard

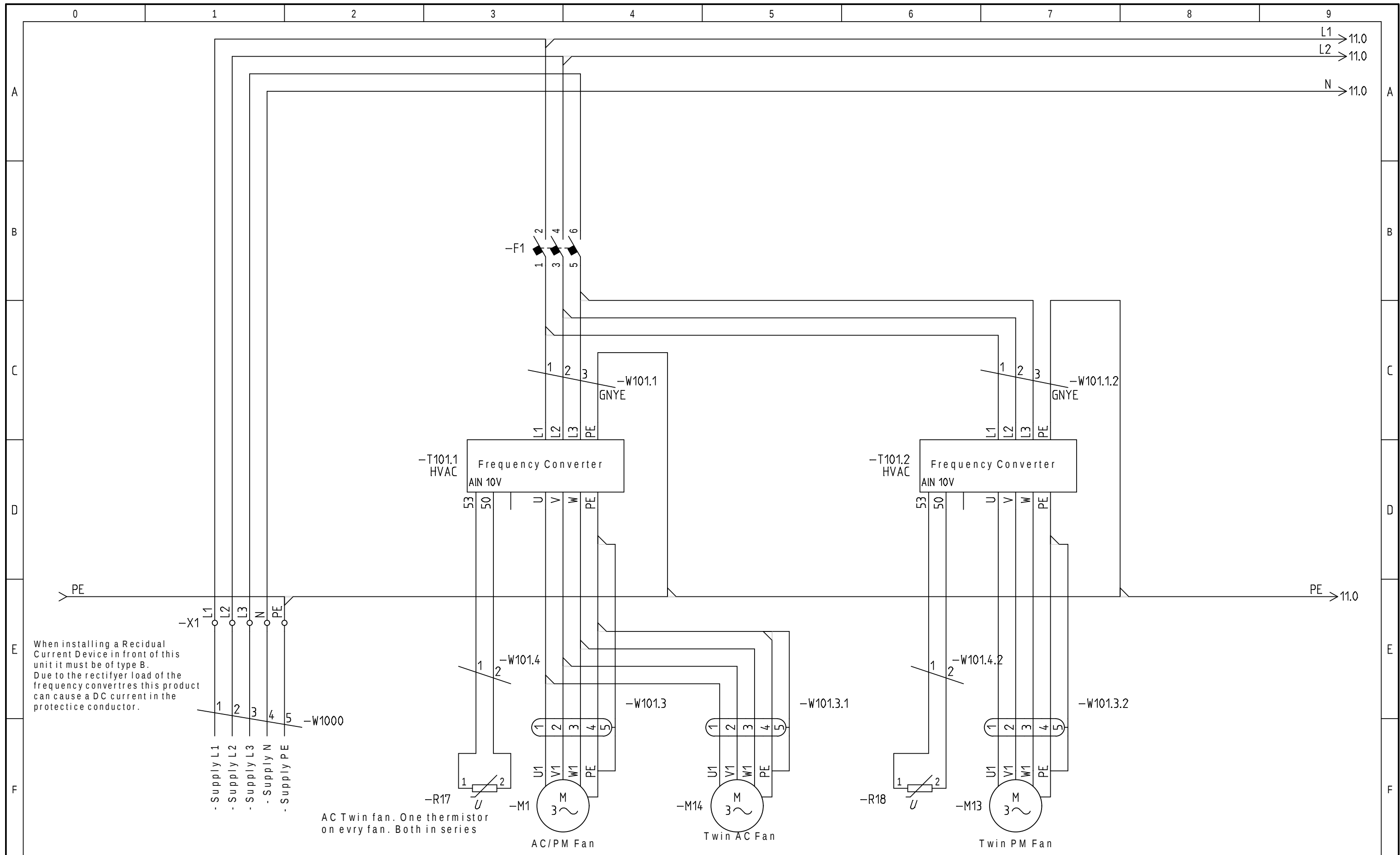
Data for the unit

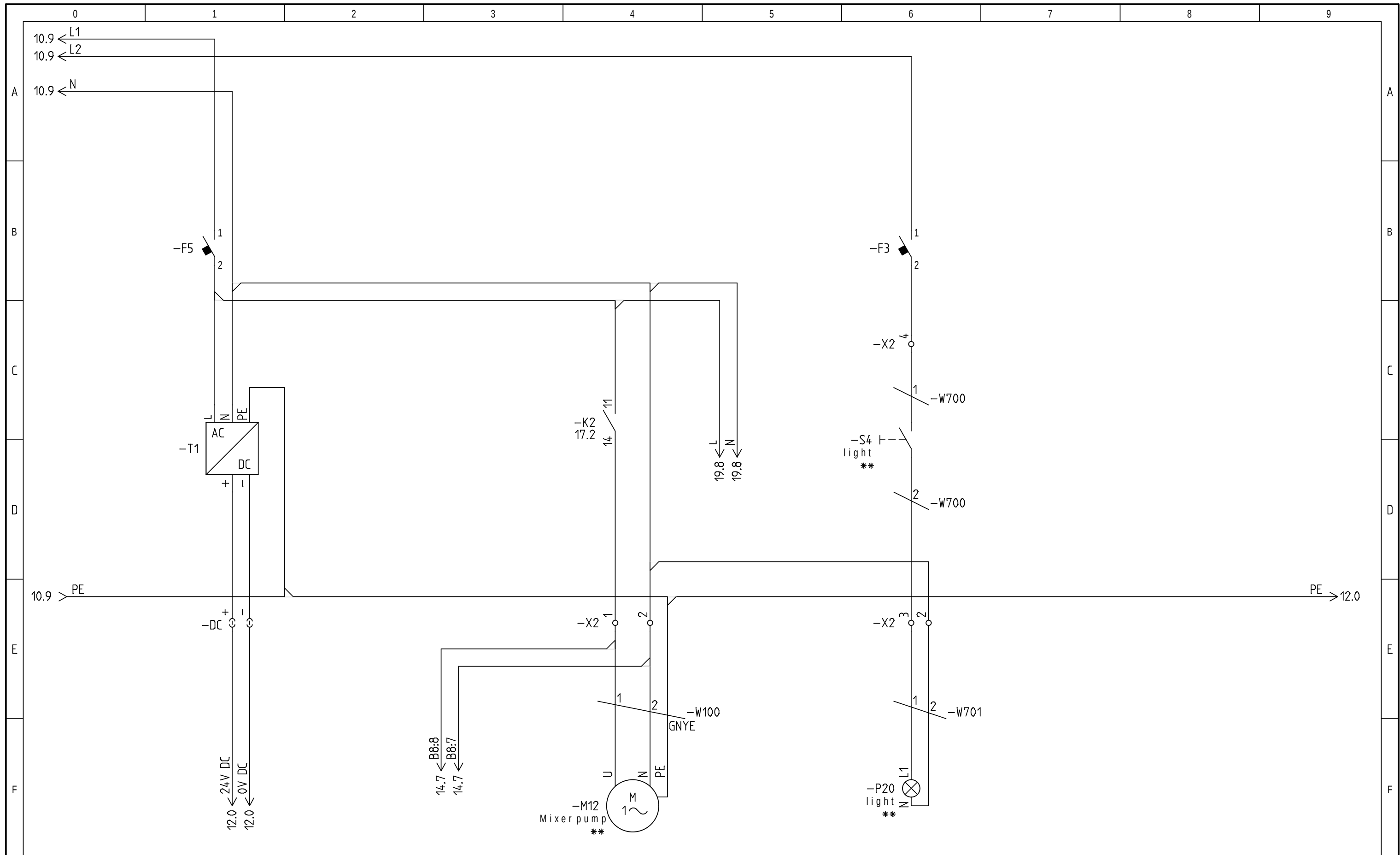
Max load look in order paper

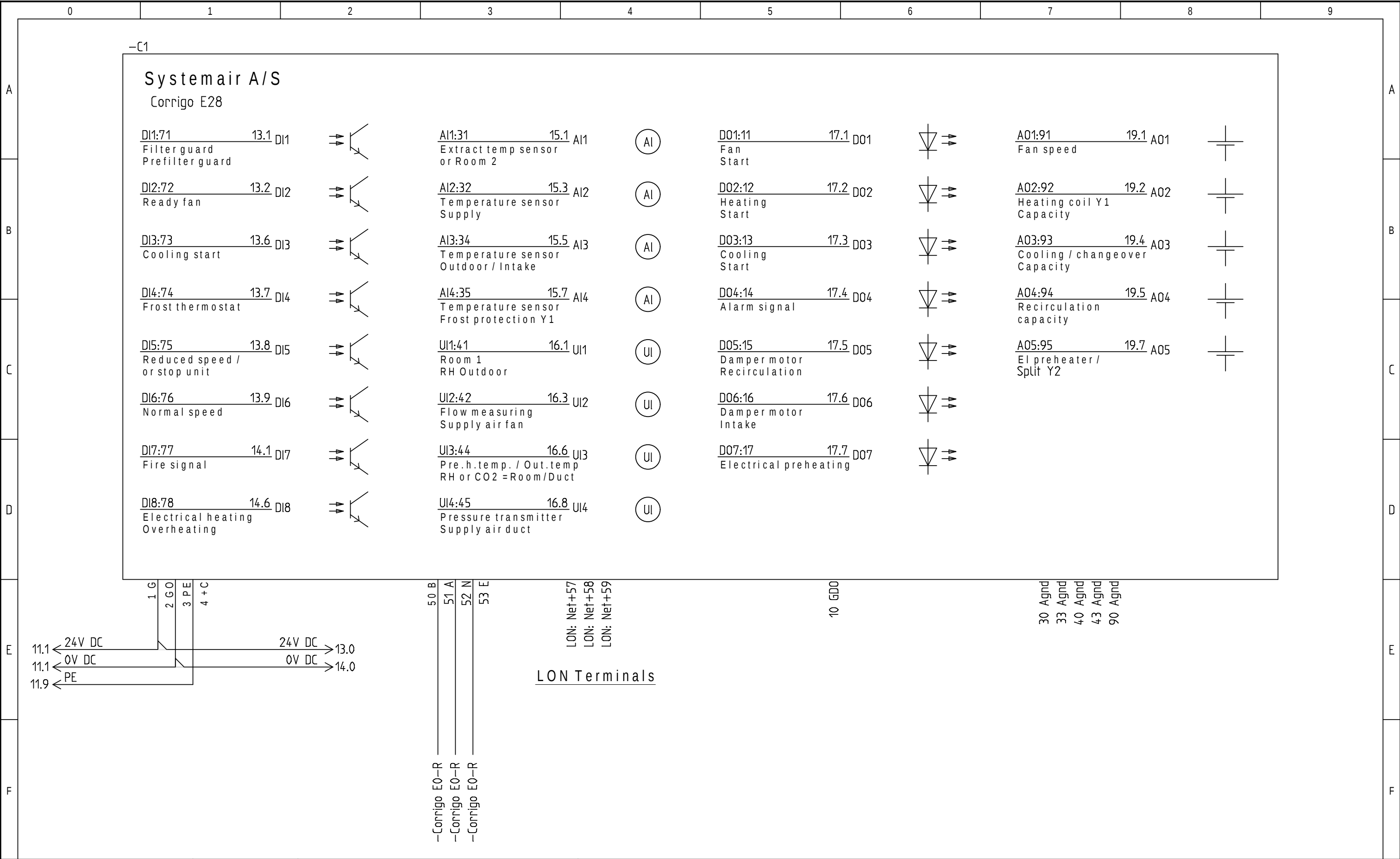
Max pre-fuse look in order paper

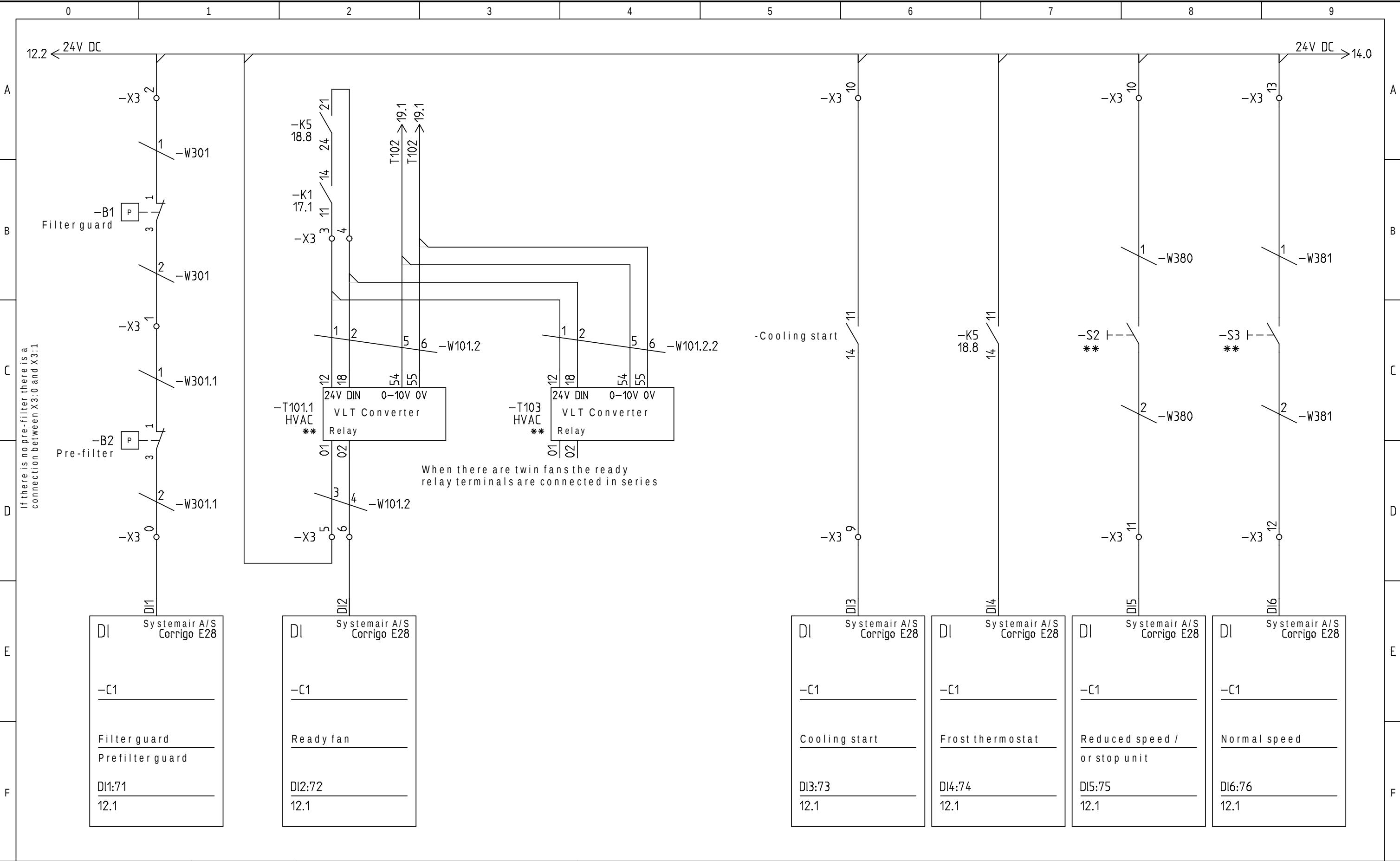
Ik max. 16kAmp

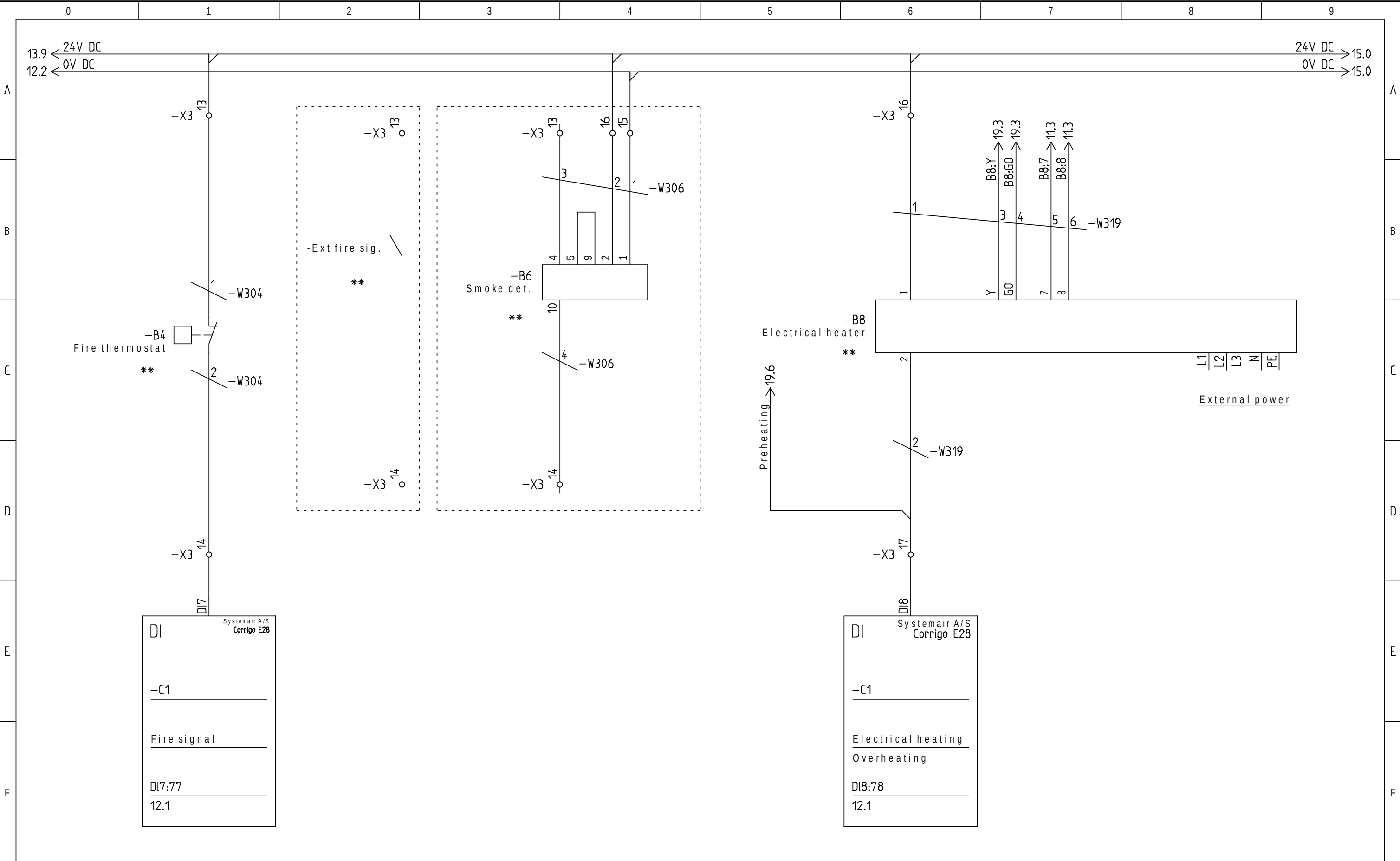
RCD type B

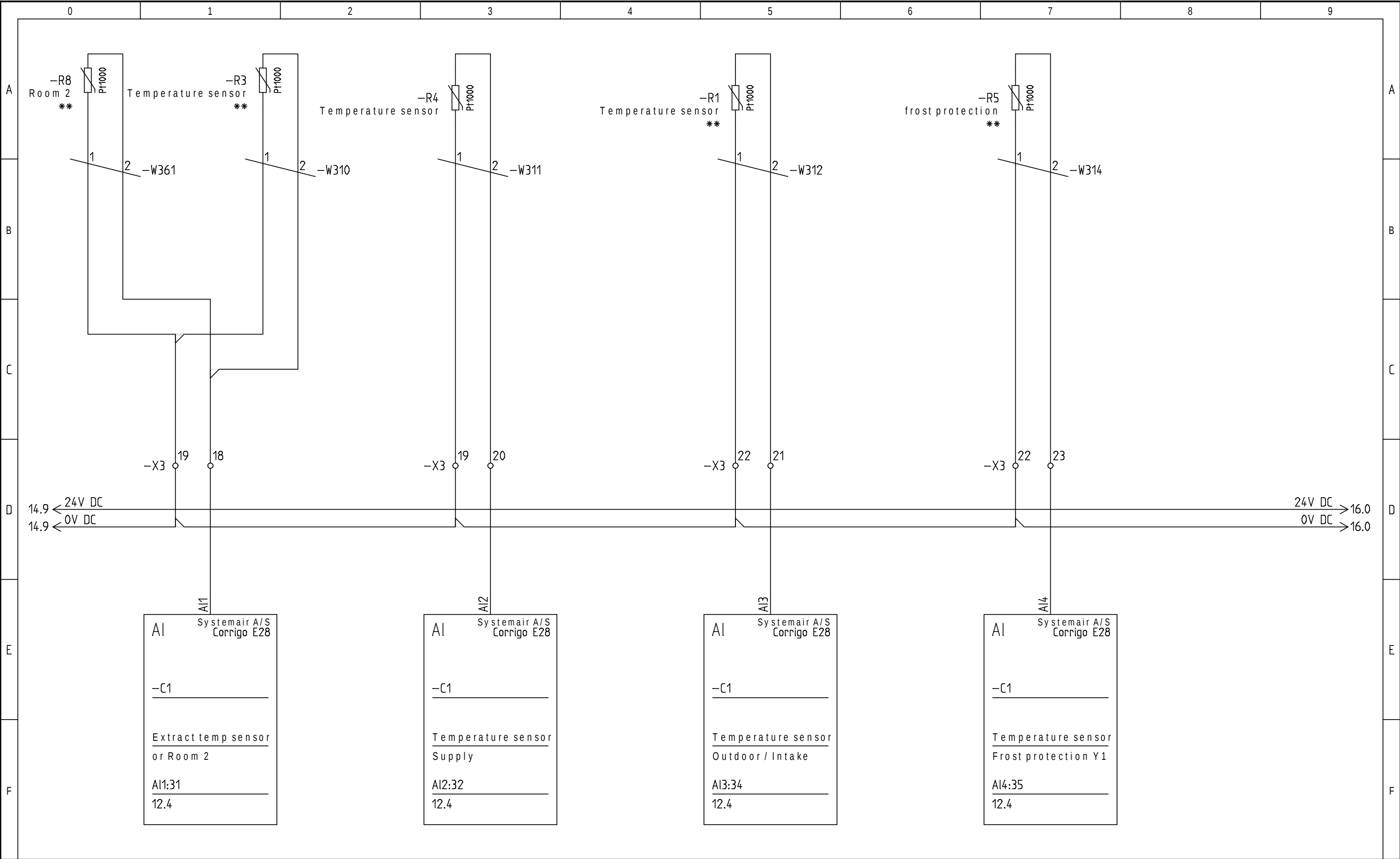


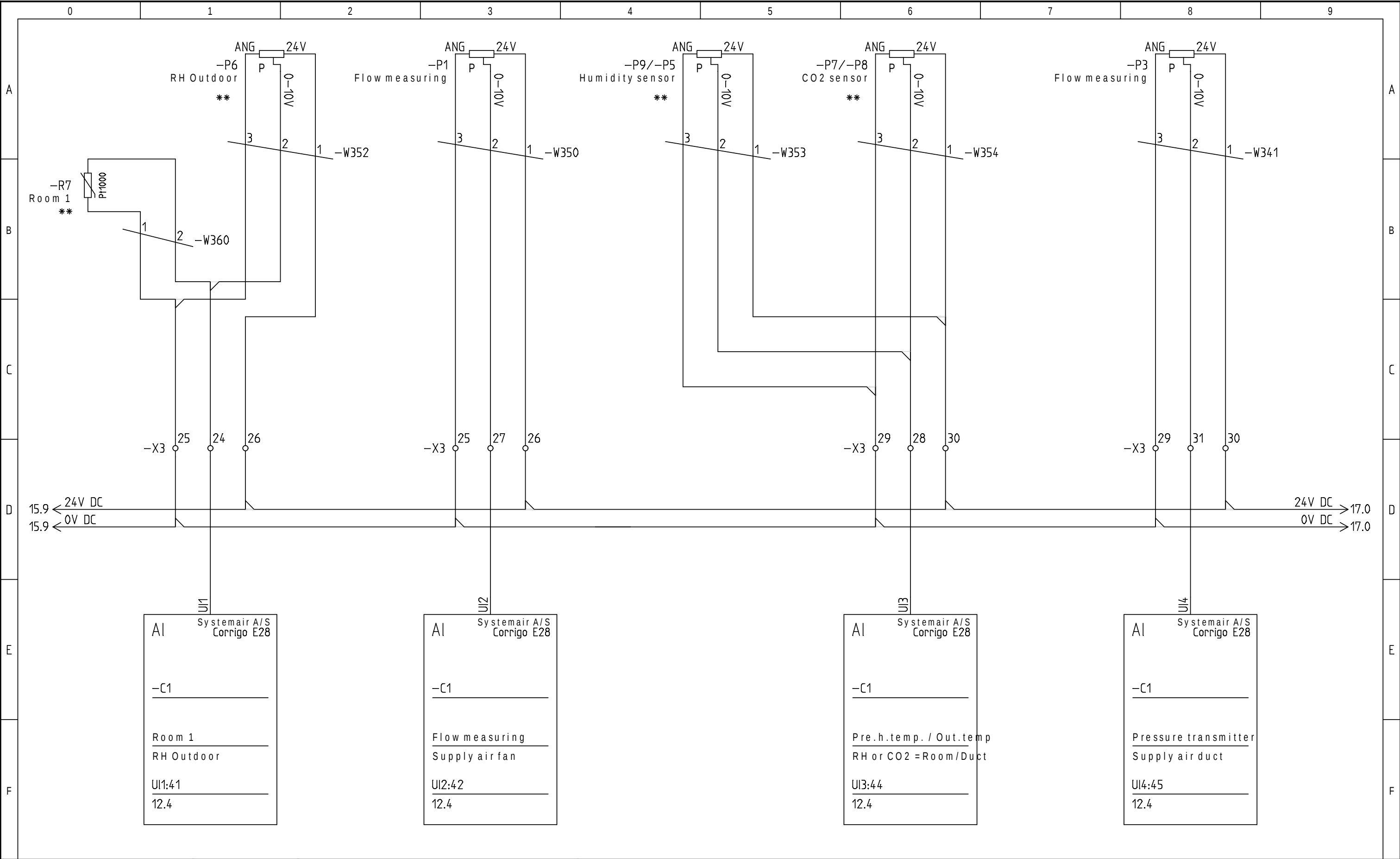


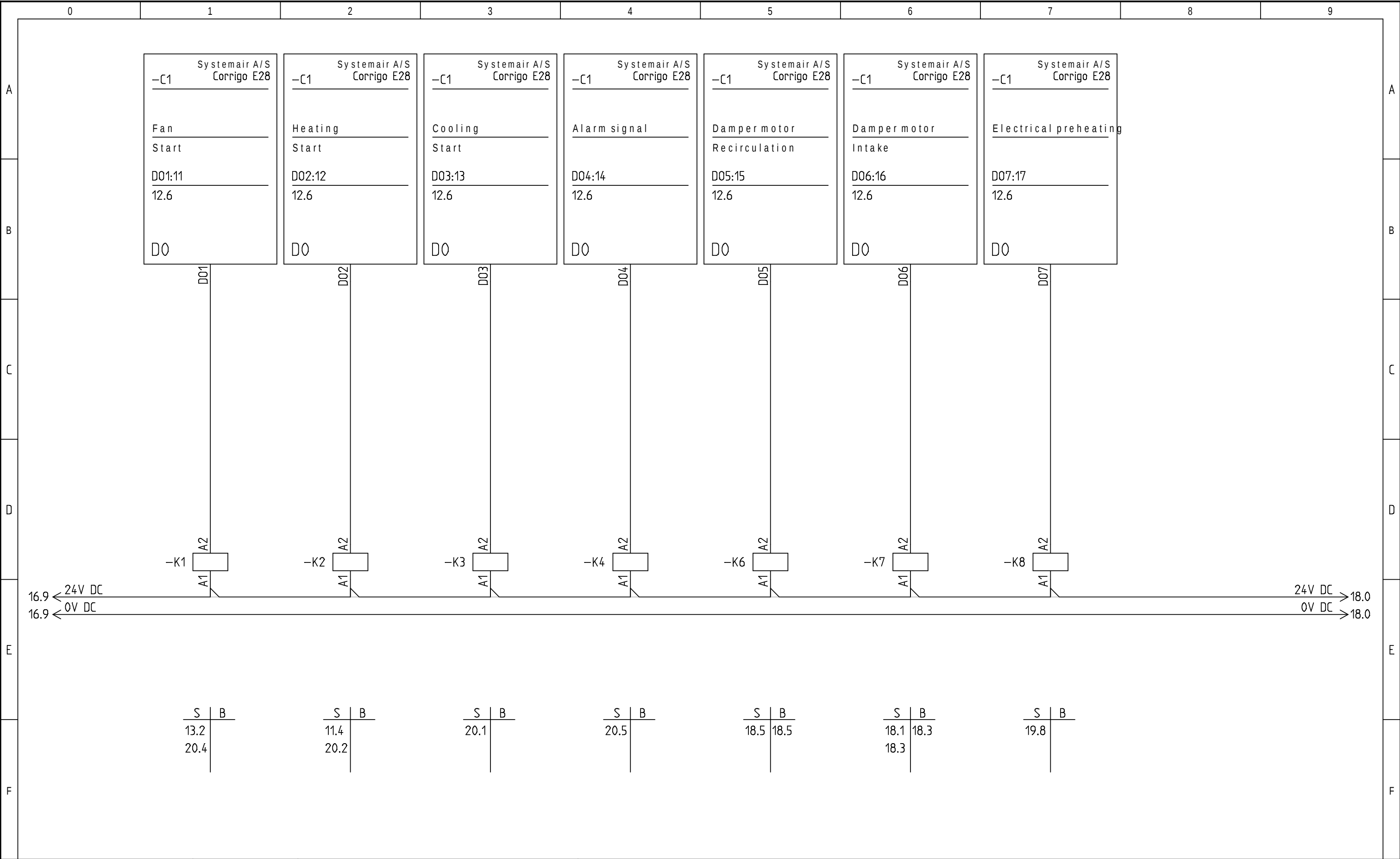


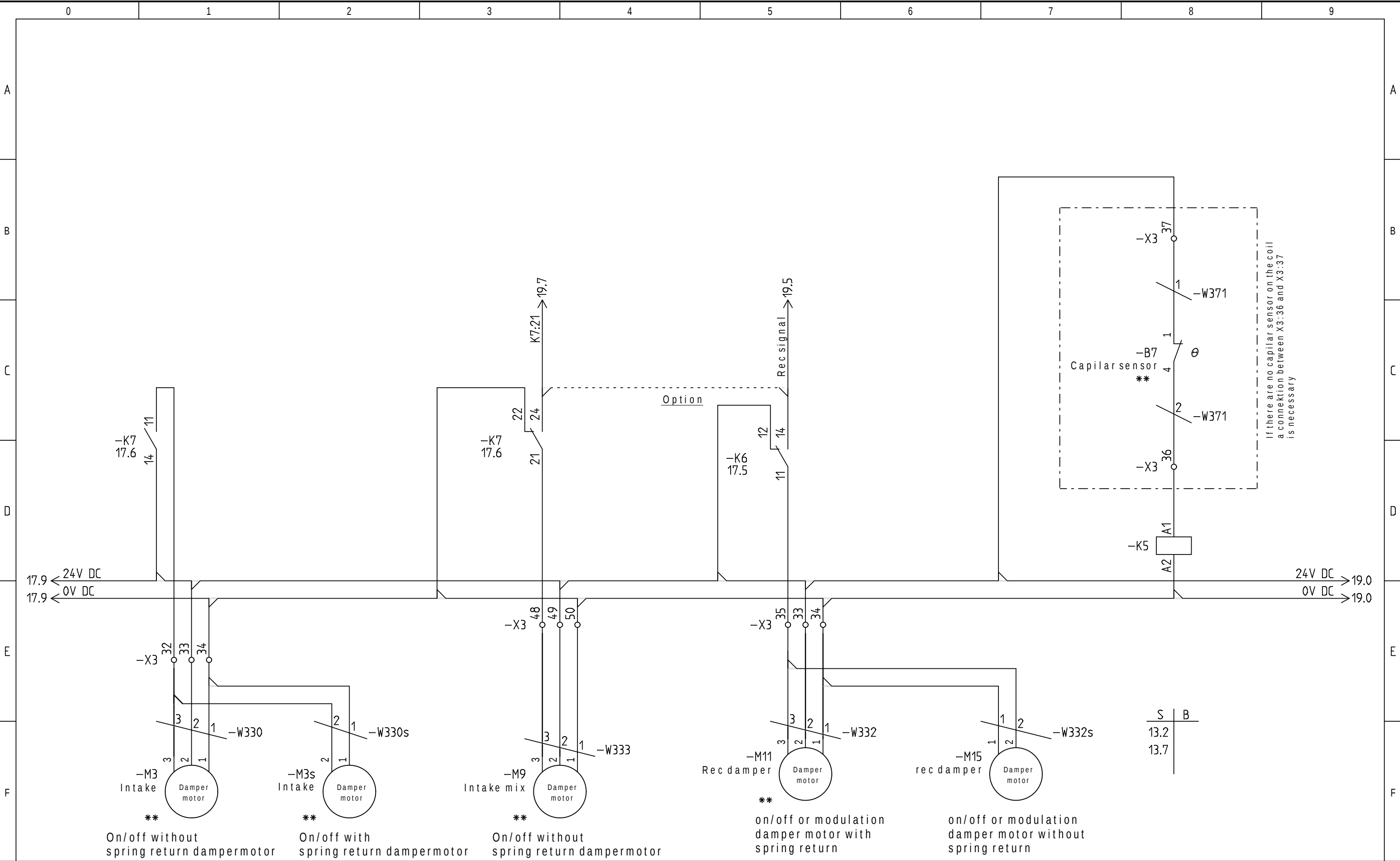


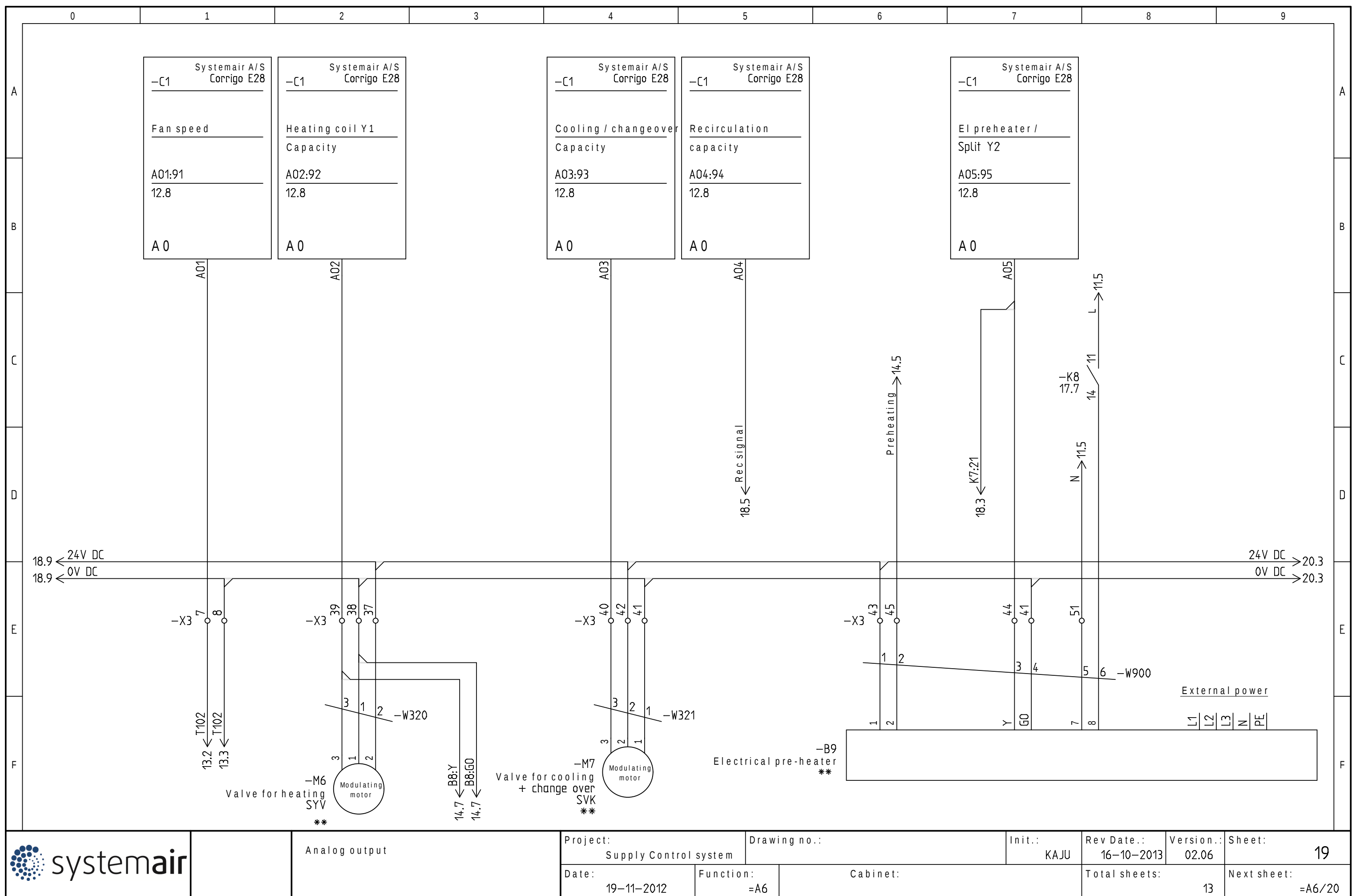


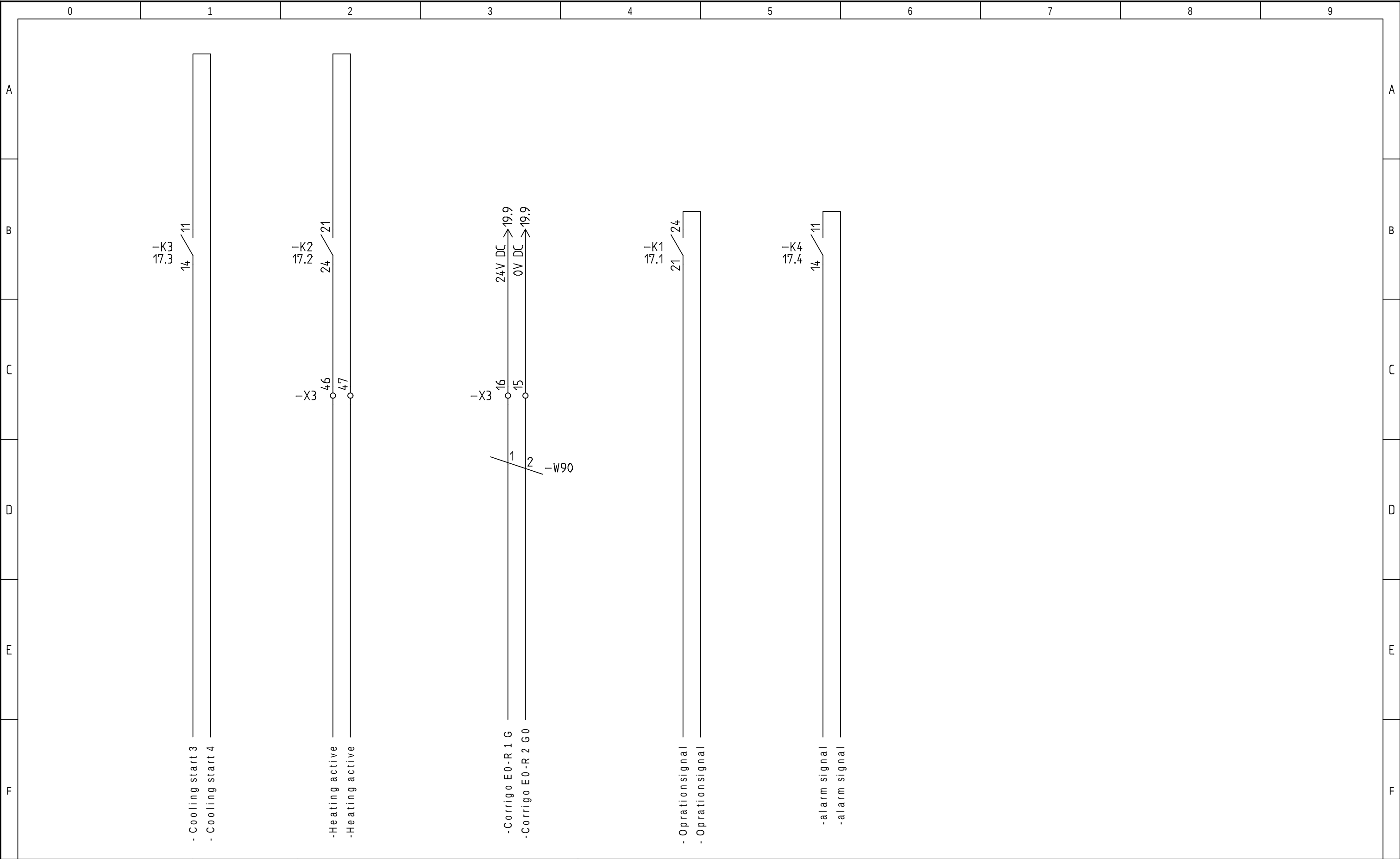












0	1	2	3	4	5	6	7	8	9	
A	Set-up Danfoss FC101 for DV-units with AC motors					Set-up Danfoss FC101 for DV-units with PM motors				A
	Connections:					Connections:				
	0–10V:		Terminal 54-55			0–10V:		Terminal 54-55		
	Start:		Terminal 12-18			Start:		Terminal 12-18		
	Thermistor:		Terminal 50-53			Thermistor:		Terminal 50-53		
	Drive ready:		Terminal 1-2			Drive ready:		Terminal 1-2		
B	Systemair factory set-up is based on Danfoss initialisation.					Systemair factory set-up is based on Danfoss initialisation.				B
C	14–22: Operation mode:		[2] Initialisation (Danfoss Initialisation)			14–22: Operation mode:		[2] Initialisation (Danfoss Initialisation)		
	Systemair factory set-up:					Systemair factory set-up:				
	0-01: Language selection:		Single fan: [3] Auto-Energy optim.			0-01: Language selection:		[1] Inverse		
	1-03: Torque characteristic:		With twin fan set-up: [1] Variable Torque			1-06: Clockwise Direction:		[1] PM, non salient SPM		
	1-20: Motor Power:		According to motor plate / order papers			1-10: Motor Construction:		According to motor plate / Schedule		
	1-24: Motor Current:		With twin fan set-up total power must be used			1-24: Motor Current:		According to motor plate / Schedule		
D	1-25: Motor Nominal Speed:		According to motor plate / order papers			1-25: Motor Nominal Speed:		According to motor plate / Schedule		
	1-42: Motor Cable Length:		With twin fan set-up total current must be used			1-26: Motor Cont. Rated torque:		According to motor plate / Schedule		
	1-50: Motor Magnetisation at zero speed.:		According to motor plate / order papers			1-30: Stator Resistance (Rs):		According to motor plate / Schedule		
	1-52: Min. Speed Normal Magnetisation:		3m			1-37: d-axis inductance (Ld):		According to motor plate / Schedule		
	1-73: Flying Start:		0 %			1-39: Motor Poles:		According to motor plate / Schedule		
	1-90: Motor Thermal Protection:		10 Hz			1-40: Back EMF at 1000 RPM:		According to motor plate / Schedule		
E	3-15: Reference 1 Source:		[2] Thermistor trip			1-42: Motor Cable Length:		3m		
	1-93: Thermistor Source:		[2] Analog input AI54			1-90: Motor Thermal Protection:		[2] Thermistor trip		
	3-03: Maximum Reference:		[1] Analog input AI53			3-15: Reference 1 Source:		[2] Analog input AI54		
	3-16 + 3-17: Reference 2- and 3 Source:		Max. Hz from order papers			1-93: Thermistor Source:		[1] Analog input AI53		
	3-41 + 342: Ramp 1 up and down:		[0] No function			3-03: Maximum Reference:		According to motor plate / Schedule		
	4-14: Motor Speed High Limit:		20 Sec.			3-16 + 3-17: Reference 2- and 3 Source:		[0] No function		
F	4-19: Max. Output Frequency:		90Hz			3-41: Ramp 1 Up Time:		30 Sec.		
	5-12: Terminal 27 Digital input:		90Hz			3-42: Ramp 1 Down Time:		60 Sec.		
	5-40.0: Function Relay:		[0] No operation			4-14: Motor Speed High Limit:		According to motor plate / Schedule		
	5-40.1: Function Relay:		[3] Drive ready/remote			4-19: Max. Output Frequency:		According to motor plate / Schedule		
	6-25: Terminal 54 High Reference:		[3] Drive ready/remote			5-12: Terminal 27 Digital input:		[0] No operation		
	14-20: Reset Mode:		Max. Hz from order papers			5-40.0: Function Relay:		[3] Drive ready/remote		
0-50: LCP Copy:					[2] Automatic reset x 2					
[1] All to LCP (Copy of settings to panel)					[3] Drive ready/remote					
To store Systemair factory settings from the control panel:					To store Systemair factory settings from the control panel:					
0–50: LCP Copy:		[2]			0–50: LCP Copy:		[2]			

			Project:		Drawing no.:		Init.:	Rev Date.:	Version.:	Sheet:
			Supply Control system							
		Date:		Function:		Cabinet:		Total sheets:		Next sheet:
		12–01–2013		=VLT FC–101				13		=VLT FC–101/22

<

0	1	2	3	4	5	6	7	8	9	
Type Number		Name plate	RPM rated	Name plate	Ohm [Rf-f]	m H [Lf-f]	Poles	Bemf @ 1000	Max Hz	Max motor H z
HPS 71 3800 18		1,8	3800	2	3,600	13,00	6	67	215	219
HPS 71 3700 28		2,8	3700	3,6	1,580	6,10	6	79	191	204
HPS 71 3300 18		1,8	3300	2,6	5,750	20,50	6	85	170	182
HPS 71 3200 30		3	3200	4,2	1,850	7,25	6	84	161	176
HPS 71 2900 21		2,1	2900	3,3	4,500	14,75	6	95	143	160
HPS 71 2800 40		4	2800	6,14	1,675	6,75	6	95	144	154
HPS 71 2500 29		2,9	2500	5	3,000	11,00	6	105	129	138
HPS 71 2350 38		3,8	2350	7,3	2,300	9,35	6	115	120	129
HPS 90 2650 64		6,4	2650	9,6	1,250	10,75	8	87	182	194
HPS 90 2350 76		7,6	2350	13	0,800	10,00	8	103	159	172
HPS 90 2100 63		6,3	2100	10,5	1,500	14,75	8	101	142	154
HPS 90 2050 100		10	2050	19	0,810	8,75	8	115	140	150
HPS 90 1850 84		8,4	1850	16	1,050	11,50	8	110	127	136
HPS 90 1900 136		13,6	1900	26	0,575	7,25	8	110	127	139
HPS 90 1700 106		10,6	1700	22	0,900	11,00	8	117	116	125
HPS 112 1550 108		10,9	1550	32	0,750	8,75	6	178	80	85
HPS 112 1700 145		14,5	1700	39	0,465	5,45	6	162	88	94
HPS 112 1350 135		13,5	1350	44	0,490	6,45	6	197	69	74
HPS 112 1500 187		18,7	1500	54	0,295	4,35	6	175	76	83
HPS 112 1000 140		14	1000	51	0,475	7,00	6	242	54	55
HPS 132 1250 199		19,9	1250	69	0,255	7,60	6	210	65	69
HPS 132 1000 202		20,2	1000	77	0,315	9,25	6	230	51	65
HPS 132 1150 300		30	1150	104	0,235	8,00	6	230	58	65
HPS 132 930 273		27,3	930	118	0,280	9,75	6	261	46	65

			Project: Supply Control system		Drawing no.:		Init.: KAGU-10	Rev Date.: 2013 10:44:08	Version.: 02.06	Sheet: 22
			Date: 12-01-2013		Function: =VLT FC-101		Cabinet:		Total sheets: 13	Next sheet:



Internal switchboard

Project:
Supply Control system

Drawing no.:

Init.:
KAJU

Version.:
02.06

Sheet:
45

Date:
15-01-2013

Function:

Cabinet:

Total sheets:
2

Next sheet:
46



External switchboard

Project:
Supply Control system

Drawing no.:

Init.:
KAJU

Version.:
02.06

Sheet:
46

Date:
15-01-2013

Function:

Cabinet:

Total sheets:

Next sheet:

2

List of spare parts						
Name(-)	Amount	Type	Supplier	Description	Manufacture	
–B1	1.00					
–B2	1.00					
–B4	1.00					
–B6	1.00					
–B7	1.00					
–B8	1.00					
–B9	1.00					
–C1	1.00					
–DC	1.00					
–DC	1.00					
–F1	1.00	552826	ABB	Automatic tripping 10A	ABB	
–F2	1.00	552826	ABB	Automatic tripping 10A	ABB	
–K1	1.00					
–K2	1.00					
–K3	1.00					
–K4	1.00					
–K5	1.00					
–K6	1.00					
–K7	1.00					
–K8	1.00					
–M3	1.00	Damper motor spring return	Belimo	Damper motor Spring return	Belimo	
–M3s	1.00	Damper motor spring return	Belimo	Damper motor Spring return	Belimo	
–M7	1.00	Ventilmotor	Belimo	Valve motor	Belimo	
–M8	1.00	Ventilmotor	Belimo	Valve motor	Belimo	
–M9	1.00	Damper motor spring return	Belimo	Damper motor Spring return	Belimo	
–M11	1.00	Rec damper				
–M12	1.00	Not delivered	Not delivered	Not delivered	Not delivered	
–M15	1.00					
–P1	1.00					
–P3	1.00					
			Project: Supply Control system		Drawing no.:	
					Rev.: 02.06	Init.: KAJU
			Date: 04–10–2013		Page: 50	

List of spare parts								
Name(-)	Amount	Type	Supplier	Description	Manufacture			
–P6	1.00							
–P7/–P8	1.00							
–P9/–P5	1.00							
–R1	1.00							
–R3	1.00							
–R4	1.00							
–R5	1.00							
–R7	1.00	Tempsencor 3	Motron	Tempsencor , Pt 1000. 2 m wire	Motron			
–R8	1.00							
–S2	1.00							
–S3	1.00							
–S4	1.00	Switch	El Matic	Switch for light	Elmatic			
–T1	1.00							
–T101.1	1.00	VLT FC101 Danfoss						
–T101.2	1.00	VLT FC101 Danfoss						
–T103	1.00	VLT FC101 Danfoss						
–W90	0.00	Not delivered	Not delivered	Not delivered	Not delivered			
–W100	0.00	Y–OZ	Miltronic	Motorcabel	Miltronic			
–W101.1	0.00							
–W101.2	0.00							
–W101.3	0.00	Y–OZ	Miltronic	Motorcabel	Miltronic			
–W101.4	0.00	Y–OZ	Miltronic	Motorcabel	Miltronic			
–W101.7	0.00	Y–OZ	Miltronic	Motorcabel	Miltronic			
–W101.21	0.00							
–W101.22	0.00							
–W101.23	0.00	Y–OZ	Miltronic	Motorcabel	Miltronic			
–W101.24	0.00	Y–OZ	Miltronic	Motorcabel	Miltronic			
–W301	0.00							
–W301.1	0.00							
–W304	0.00							
				Project:		Drawing no.:	Rev.:	Init.:
				Supply Control system			02.06	KAJU
				Date:				Page:
				04–10–2013				51

List of spare parts								
Name(-)	Amount	Type	Supplier	Description	Manufacture			
–W306	0.00							
–W310	0.00							
–W311	0.00							
–W312	0.00							
–W314	0.00							
–W319	0.00							
–W320	0.00	Y–OZ	Miltronic	Motorcabel	Miltronic			
–W321	0.00	Y–OZ	Miltronic	Motorcabel	Miltronic			
–W330	0.00	Y–OZ	Miltronic	Motorcabel	Miltronic			
–W330s	0.00	Y–OZ	Miltronic	Motorcabel	Miltronic			
–W332	0.00	Y–OZ	Miltronic	Motorcabel	Miltronic			
–W332s	0.00							
–W333	0.00	Y–OZ	Miltronic	Motorcabel	Miltronic			
–W341	0.00							
–W350	0.00							
–W352	0.00							
–W353	0.00							
–W354	0.00							
–W360	0.00							
–W361	0.00							
–W371	0.00							
–W380	0.00	Y–OZ	Miltronic	Motorcabel	Miltronic			
–W381	0.00							
–W700	0.00							
–W701	0.00	Y–OZ	Miltronic	Motorcabel	Miltronic			
–W900	0.00							
–W1000	0.00	Not delivered	Not delivered	Not delivered	Not delivered			
–X1	4.00	1492–J16	ROCKWELL	Supply terminal L1,L2,L3	ROCKWELL			
–X1	1.00	1492–JG16	ROCKWELL	Supply terminal PE	ROCKWELL			
–X2	4.00	1492–K2	ROCKWELL	Terminal 1 in 1 out	ROCKWELL			
				Project:		Drawing no.:	Rev.:	Init.:
				Supply Control system			02.06	KAJU
				Date:				Page:
				04–10–2013				52

List of spare parts

[illegible]

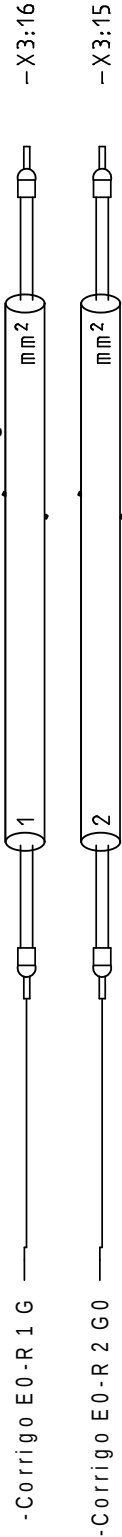
[illegible]

Cabelplan

=T1-W90

Description: Remote panel

Type: Not delivered
Dimension:
Length: m



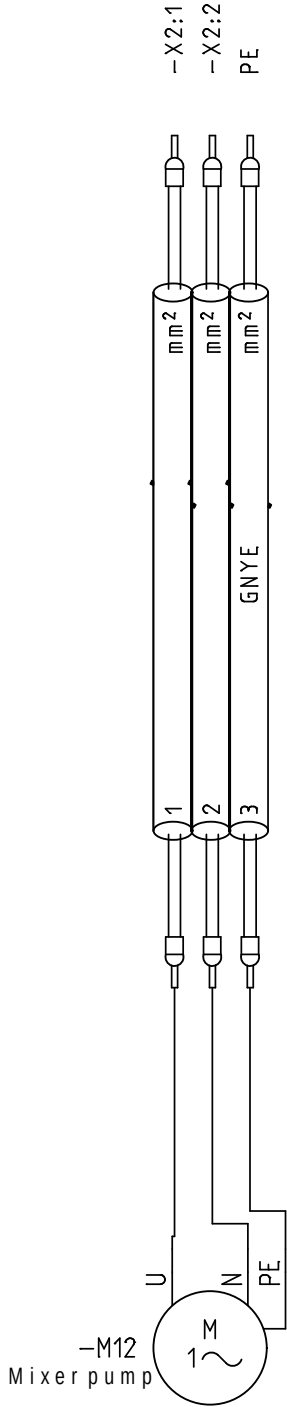
Sheet

Path

=T1-W100

Description: Mixing pump

Type: Y-OZ
Dimension:
Length: m



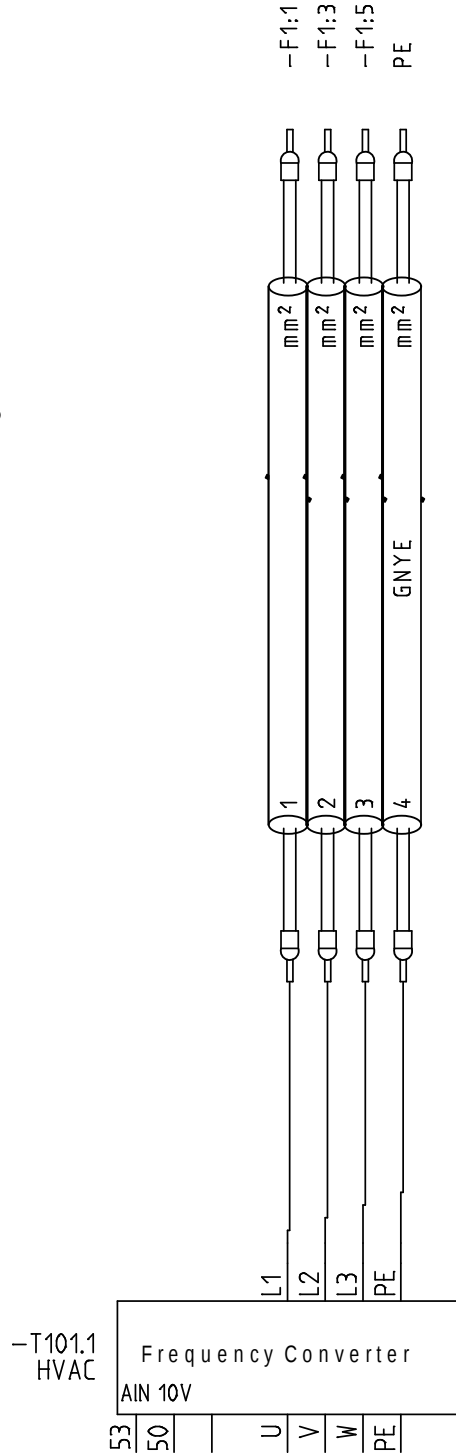
Sheet

Path

=T1-W101.1

Description: VLT Power

Type:
Dimension:
Length: m



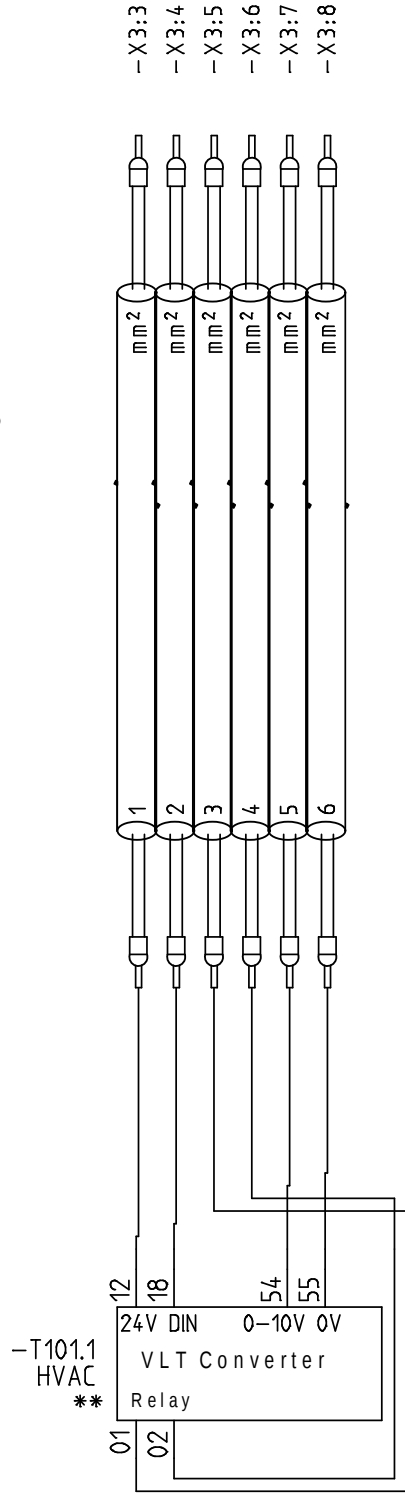
Sheet

Path

=T1-W101.2

Description: VLT control

Type:
Dimension:
Length: m



Sheet

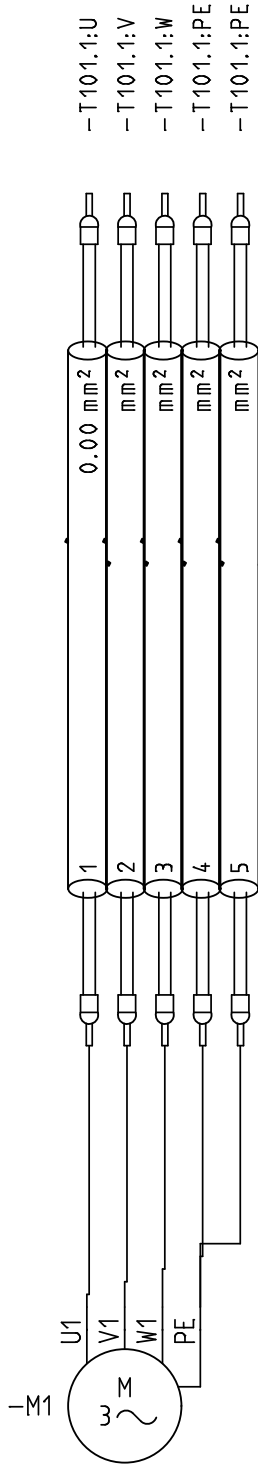
Path

Cabelplan

=T1-W101.3

Description: Fan supply

Type: Y-OZ
Dimension:
Length: m



Sheet

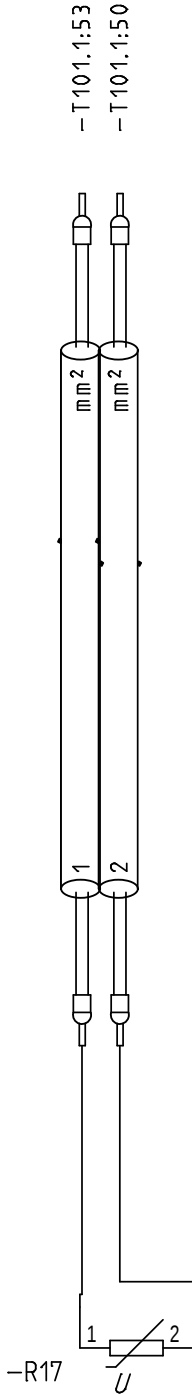
Path

-T101.1:U
-T101.1:V
-T101.1:W
-T101.1:PE
-T101.1:PE

=T1-W101.4

Description: Thermistor

Type: Y-OZ
Dimension:
Length: m

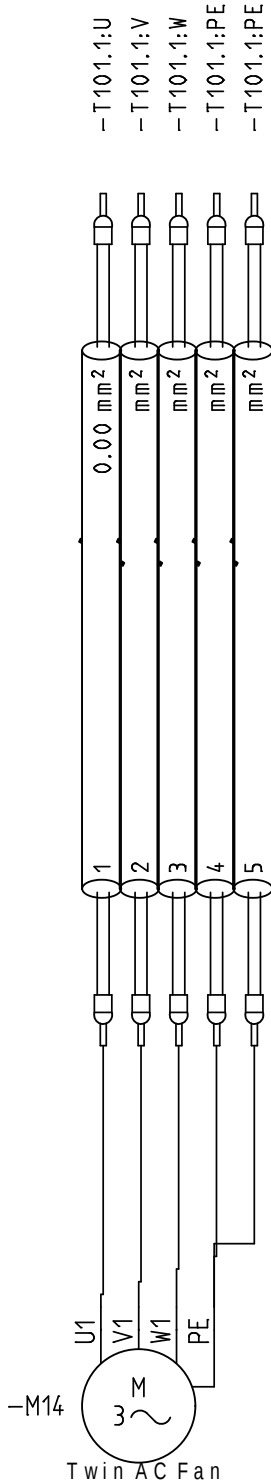


-T101.1:53
-T101.1:50

=T1-W101.7

Description: Fan supply

Type: Y-OZ
Dimension:
Length: m

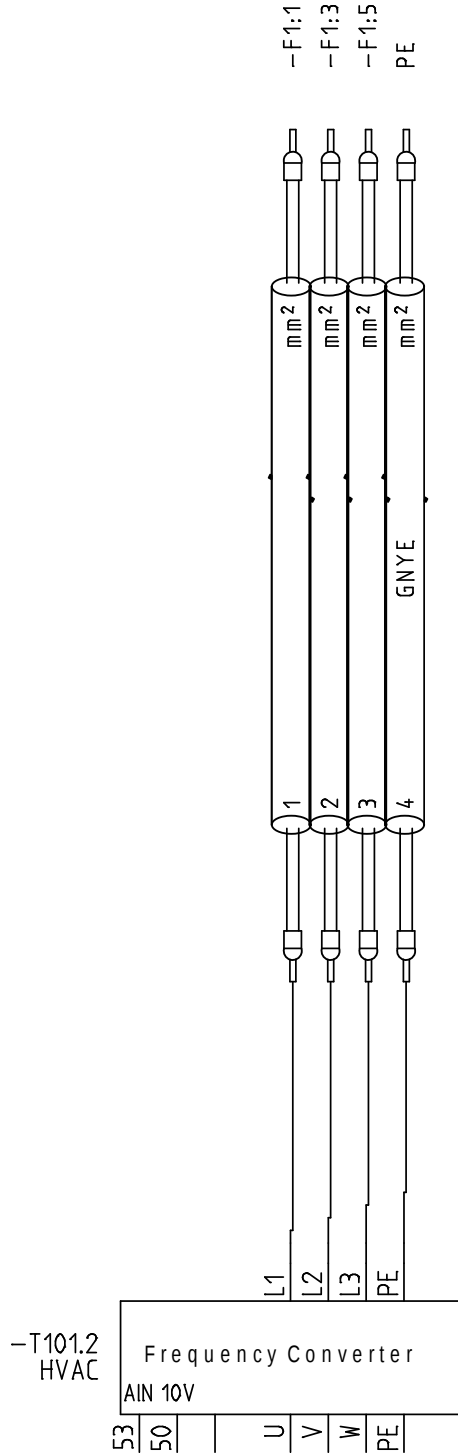


-T101.1:U
-T101.1:V
-T101.1:W
-T101.1:PE
-T101.1:PE

=T1-W101.21

Description: VLT power

Type:
Dimension:
Length: m



-F1:1
-F1:3
-F1:5
PE

GNYE

mm2
mm2
mm2
mm2

Frequency Converter
AIN 10V

53 50 U V W PE

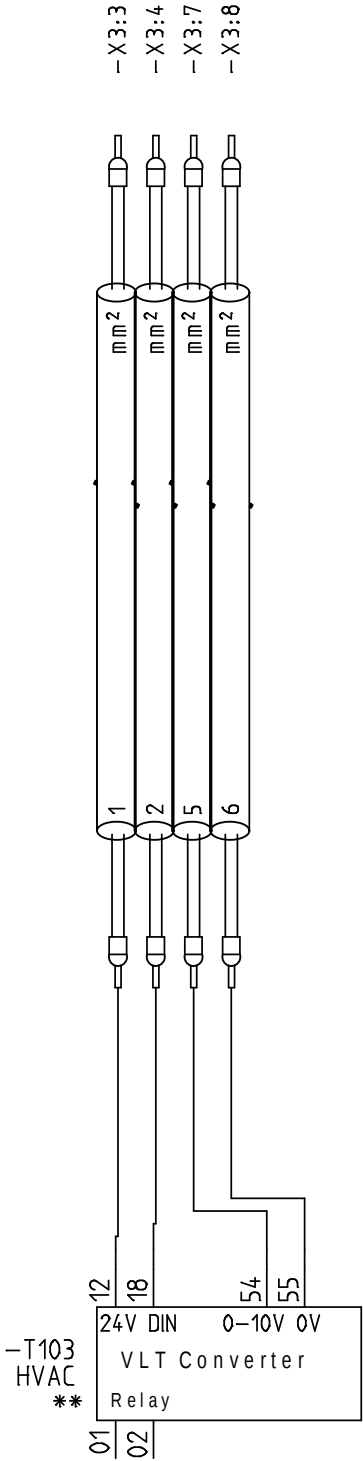
-T101.2
HVAC

Cabelplan

=T1-W101.22

Description: VLT control

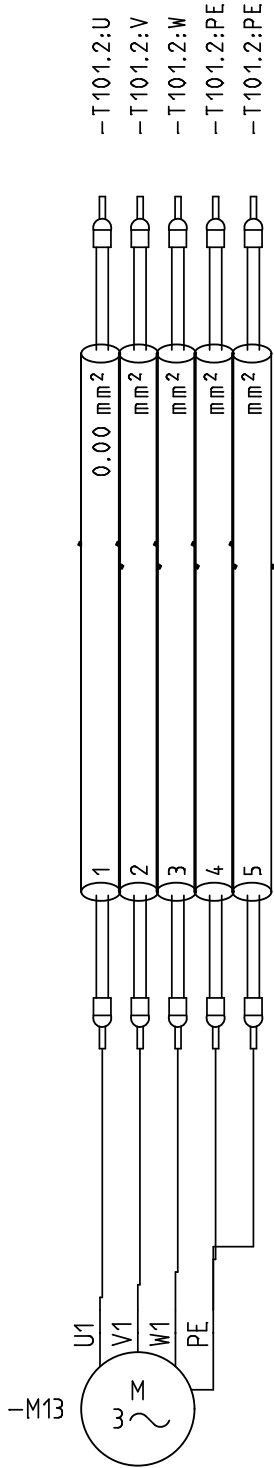
Type:
Dimension:
Length: m



=T1-W101.23

Description: Fan supply

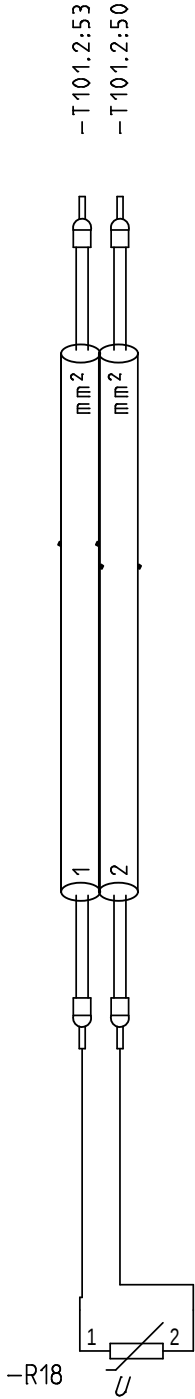
Type: Y-OZ
Dimension:
Length: m



=T1-W101.24

Description: Thermistor Twin PM

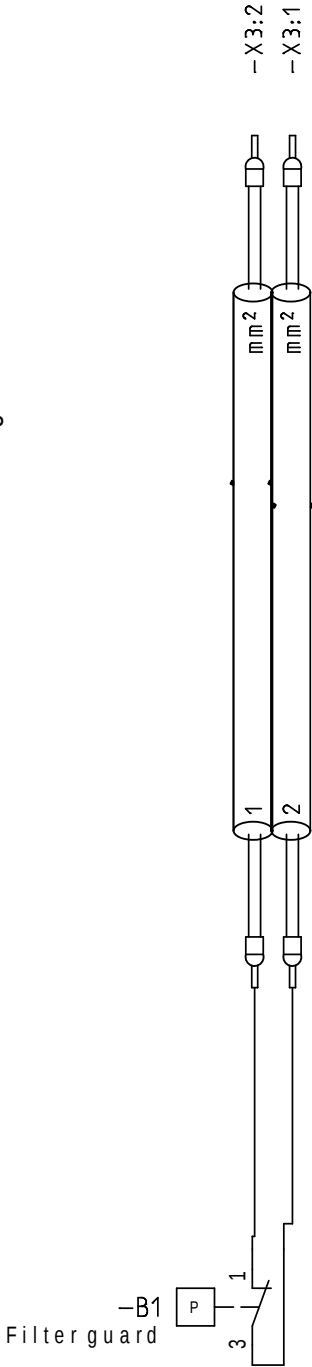
Type: Y-OZ
Dimension:
Length: m



=T1-W301

Description: Filter guard

Type:
Dimension:
Length: m



Sheet

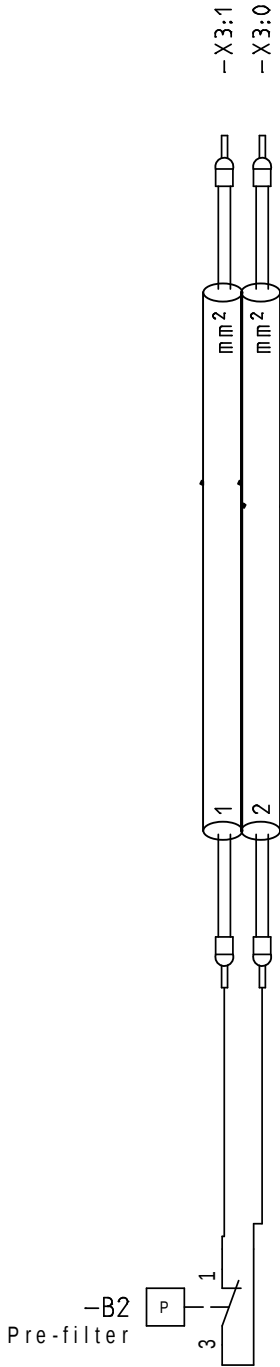
Path

Cabelplan

=T1-W301.1

Description: Filter guard

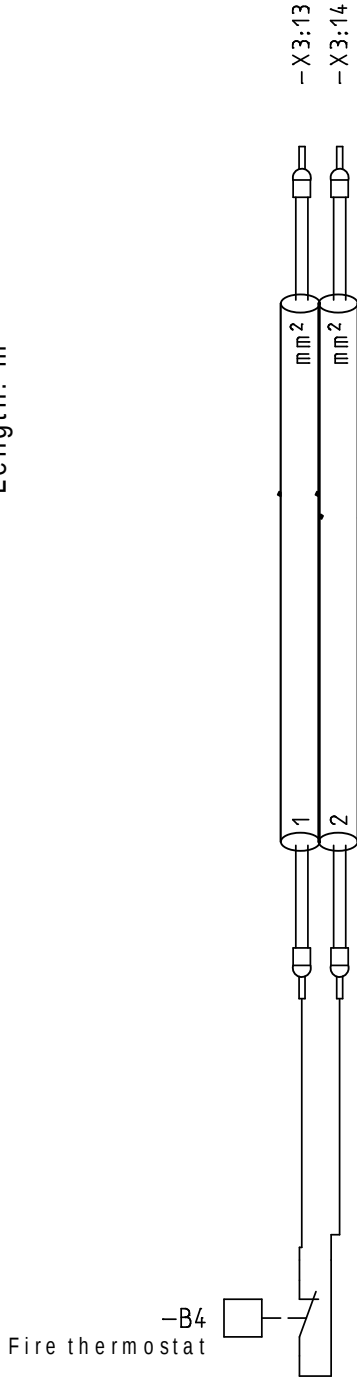
Type:
Dimension:
Length: m



=T1-W304

Description: Fire thermostat

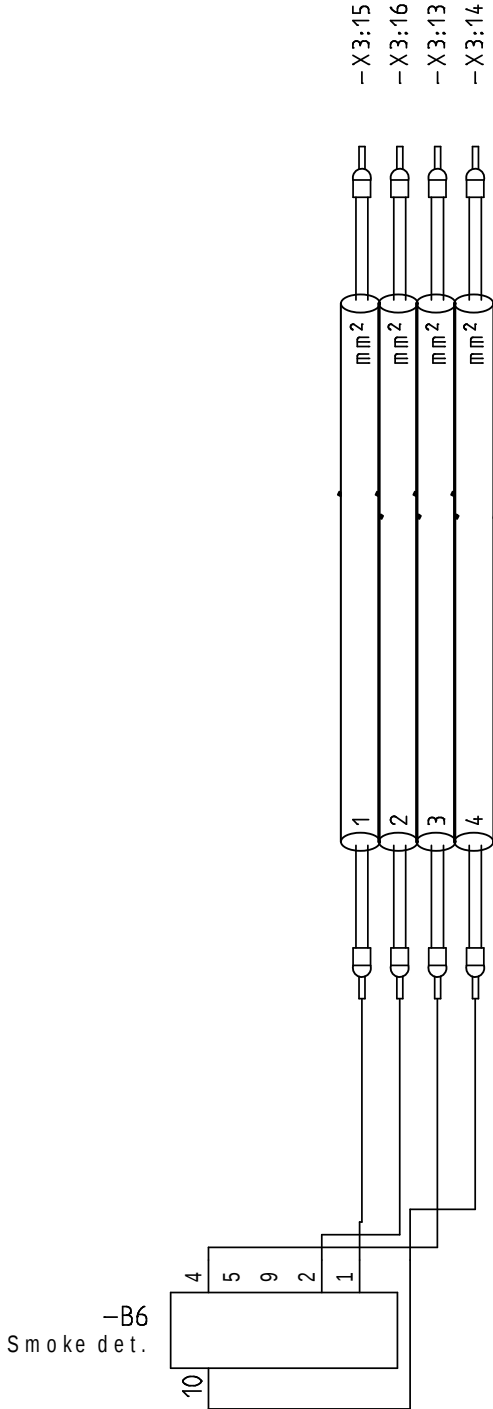
Type:
Dimension:
Length: m



=T1-W306

Description: Smoke detector

Type:
Dimension:
Length: m



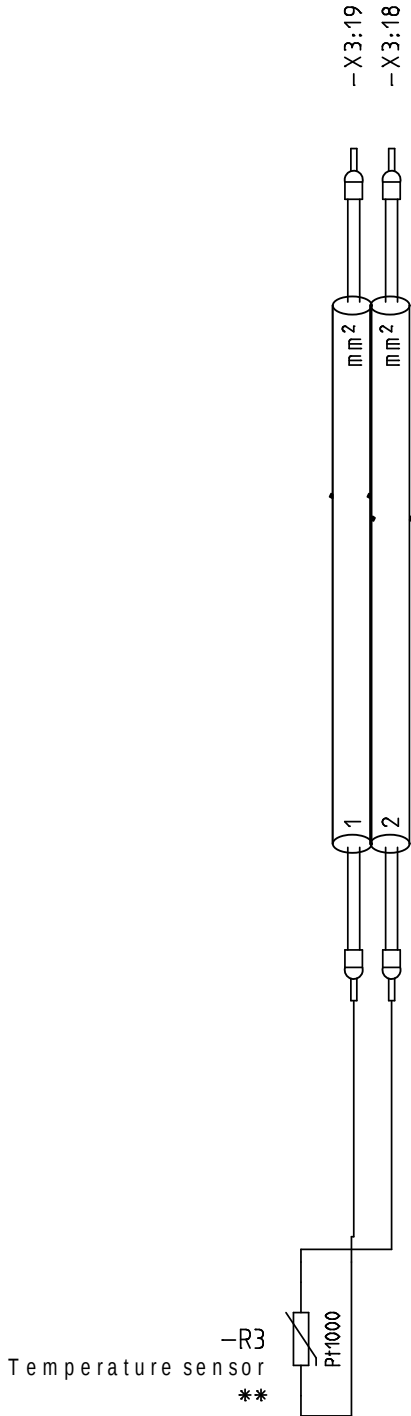
Sheet

Path

Cabelplan

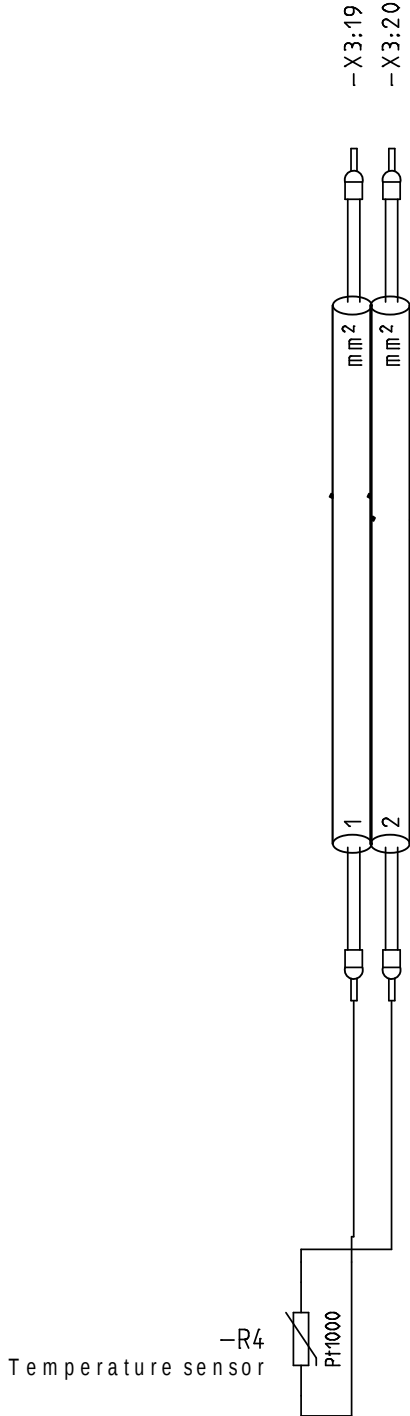
=T1-W310

Description: Temperatursensor
Type:
Dimension:
Length: m



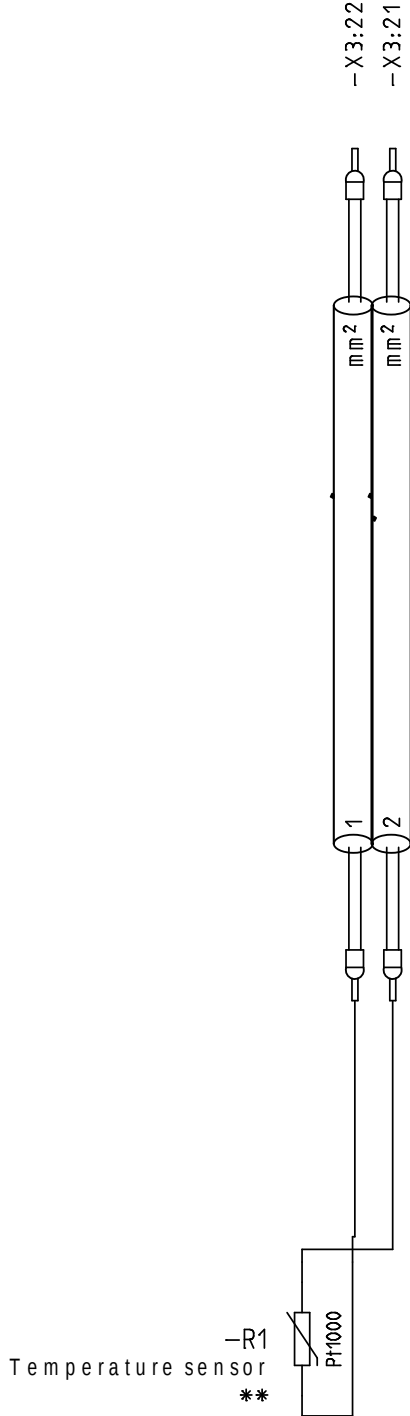
=T1-W311

Description: Temperature sensor
Type:
Dimension:
Length: m



=T1-W312

Description: Temperatursensor
Type:
Dimension:
Length: m



Sheet

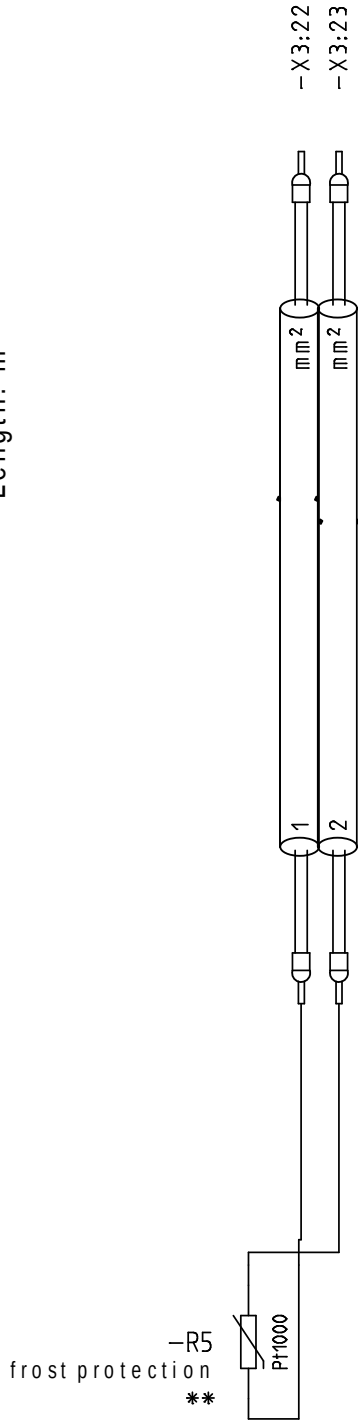
Path

Cabelplan

=T1-W314

Description: Frost protc

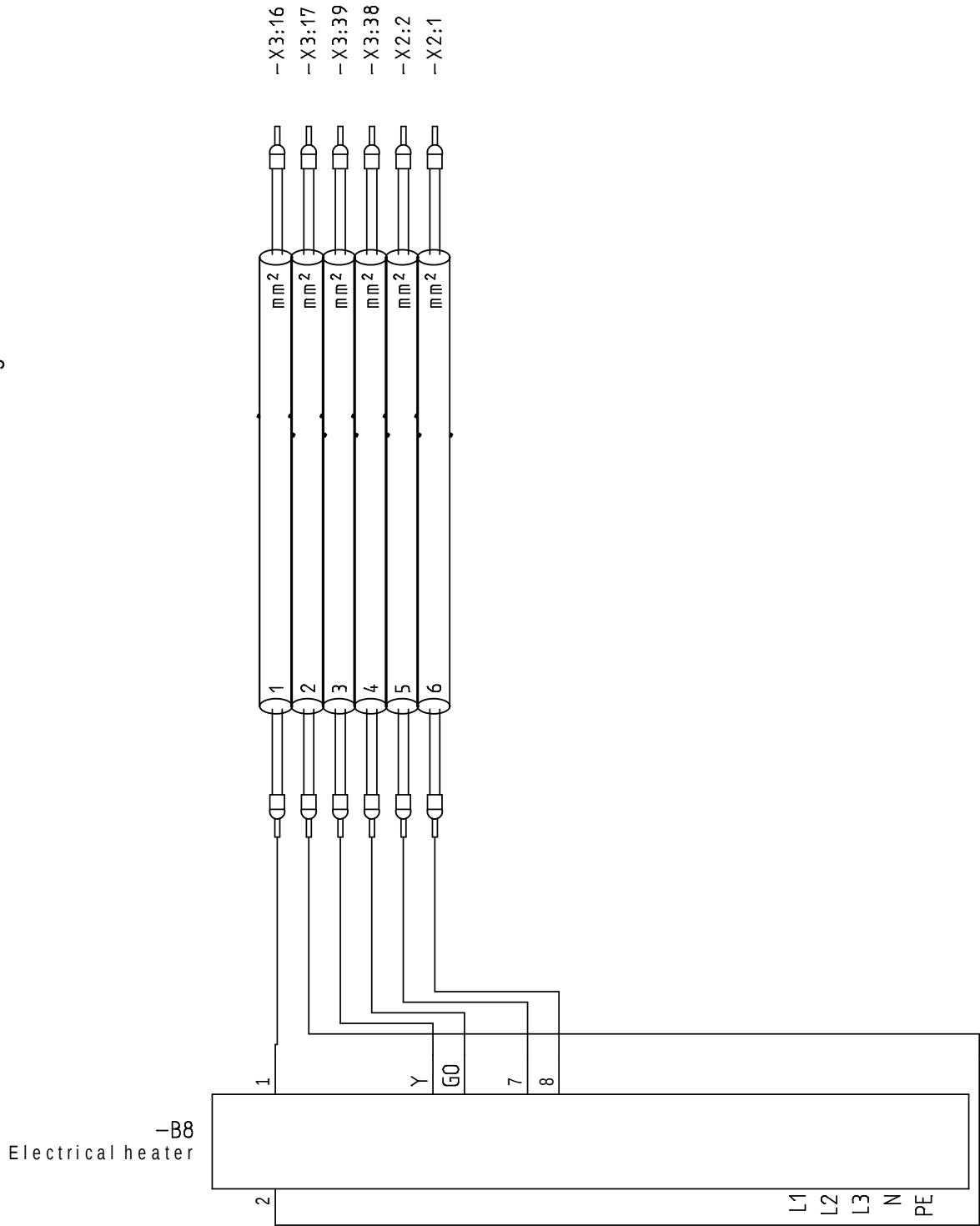
Type:
Dimension:
Length: m



=T1-W319

Description: Electrical heating coil

Type:
Dimension:
Length: m



Sheet

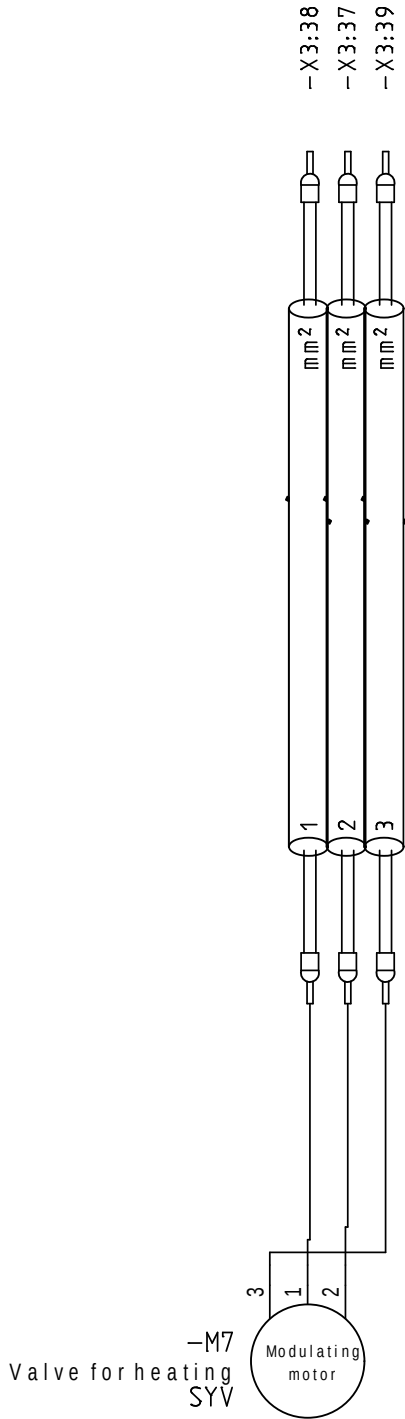
Path

Cabelplan

=T1-W320

Description: Heating valve

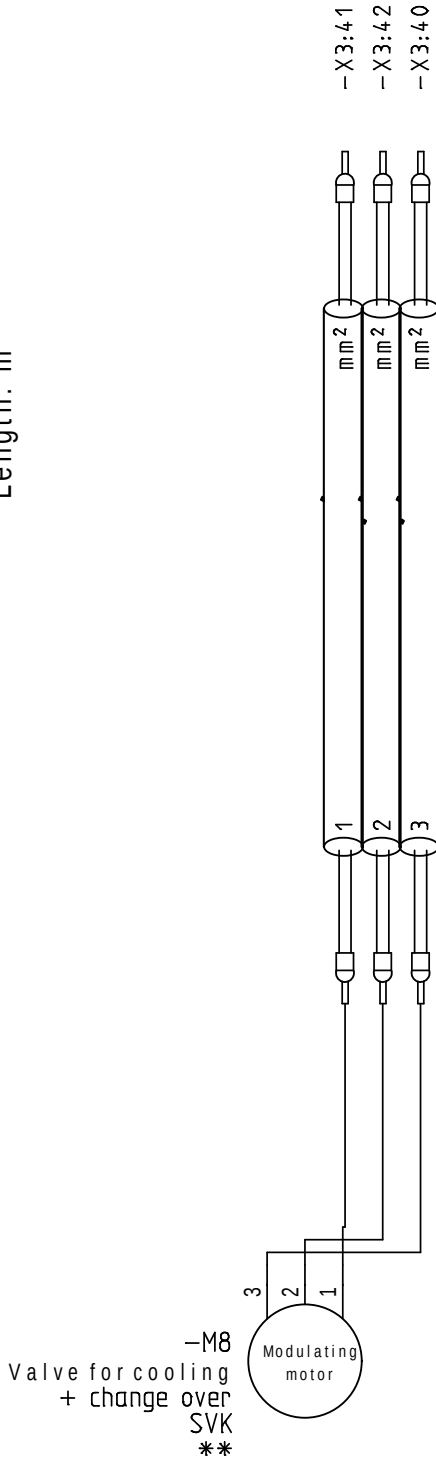
Type: Y-OZ
Dimension:
Length: m



=T1-W321

Description: Cooling valve

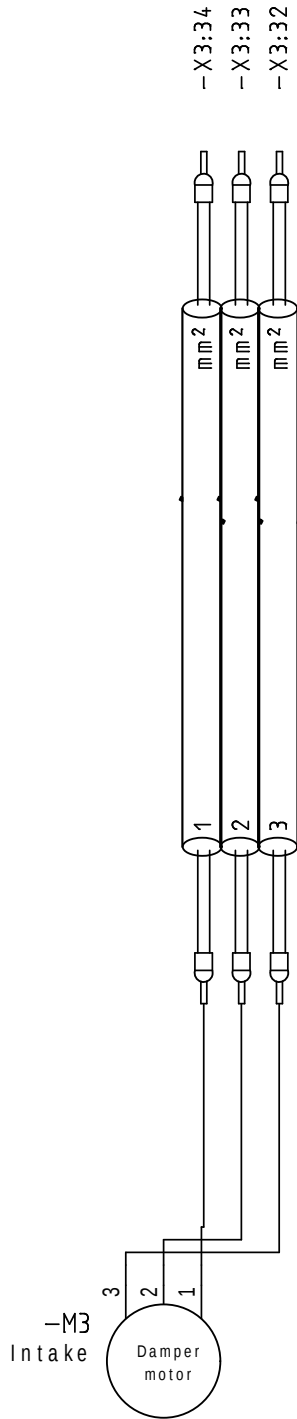
Type: Y-OZ
Dimension:
Length: m



=T1-W330

Description: Intake damper

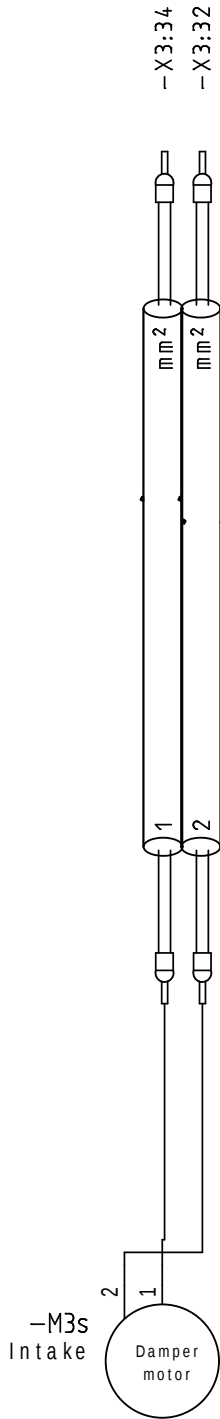
Type: Y-OZ
Dimension:
Length: m



=T1-W330s

Description: Intake damper

Type: Y-OZ
Dimension:
Length: m



Sheet

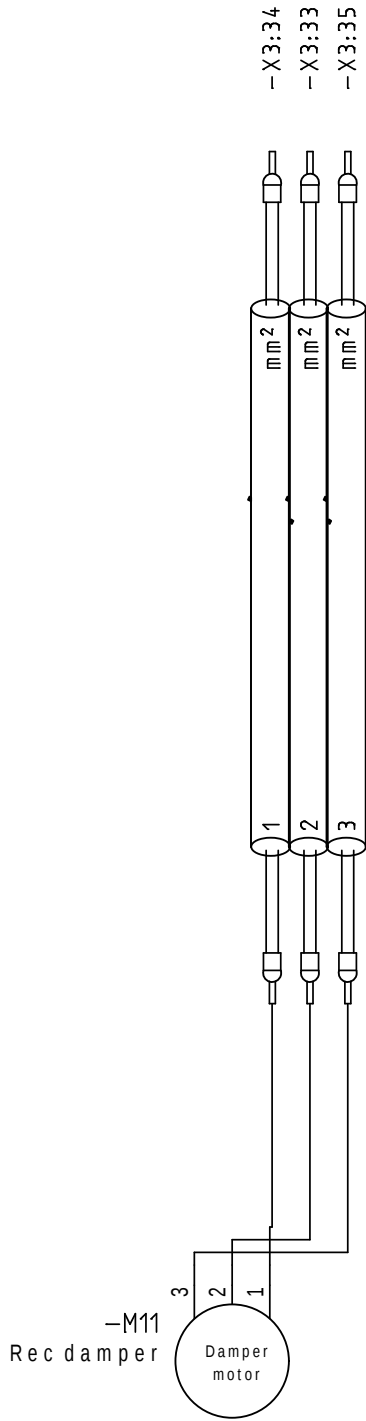
Path

Cabelplan

=T1-W332

Description: Rec mixing damper

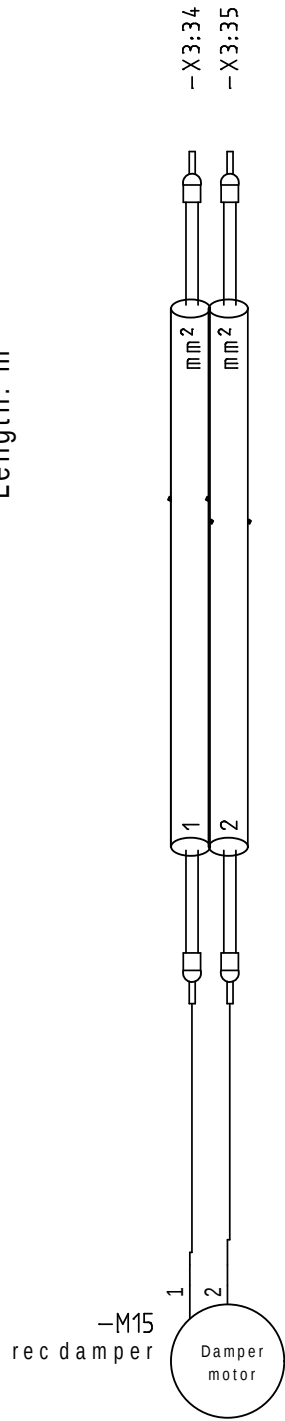
Type: Y-OZ
Dimension:
Length: m



=T1-W332s

Description: Rec mixing damper

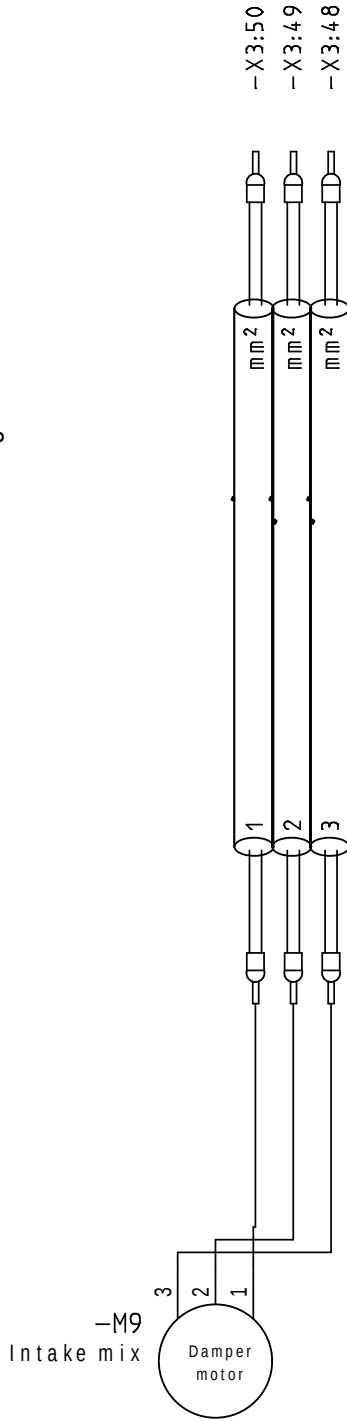
Type:
Dimension:
Length: m



=T1-W333

Description: Intake mix damper

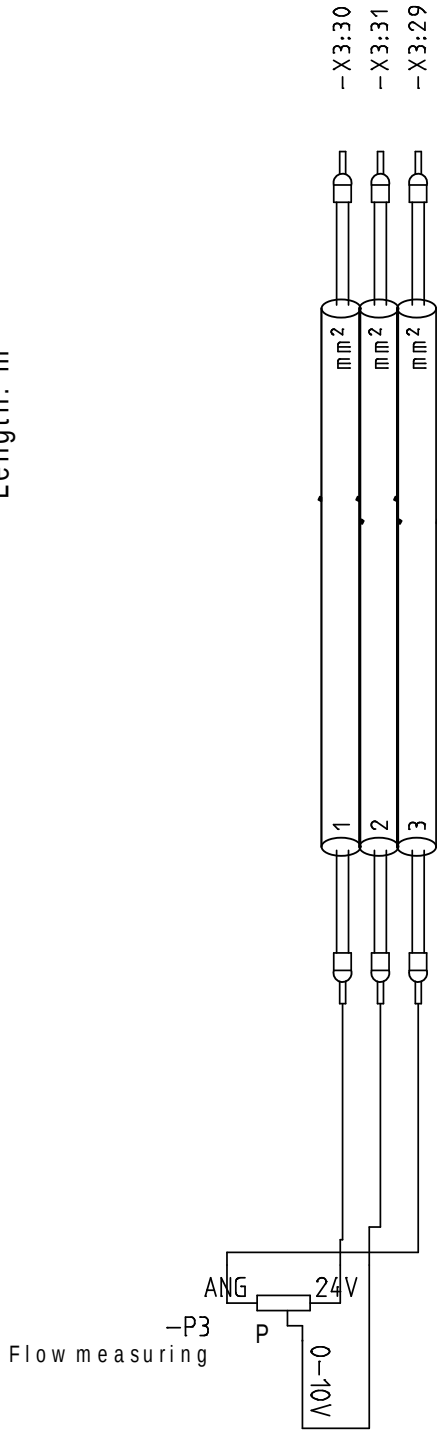
Type: Y-OZ
Dimension:
Length: m



=T1-W341

Description: Flow measuring

Type:
Dimension:
Length: m



Sheet

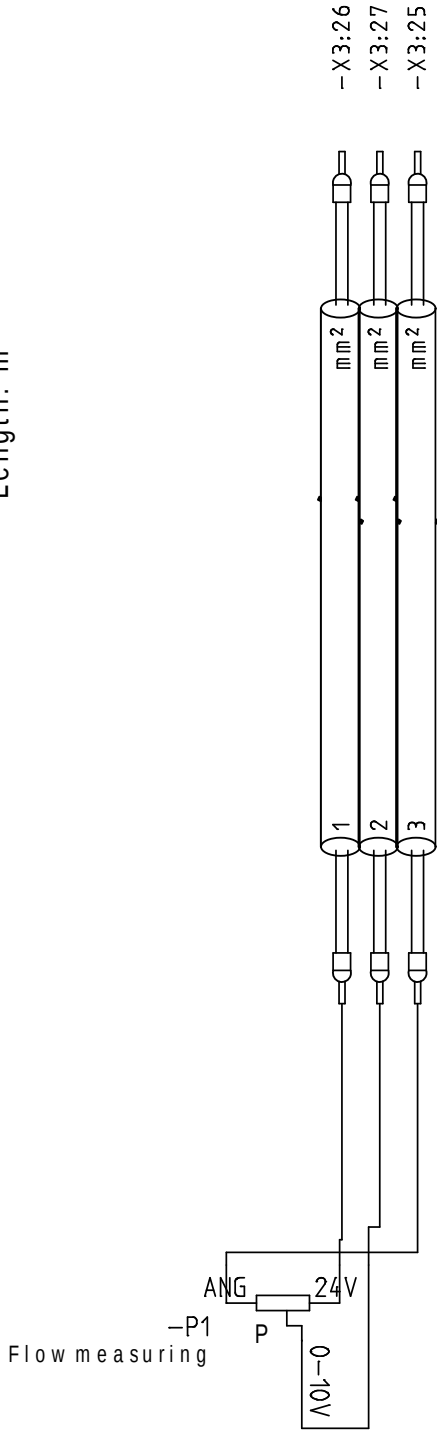
Path

Cabelplan

=T1-W350

Description: Flow measuring

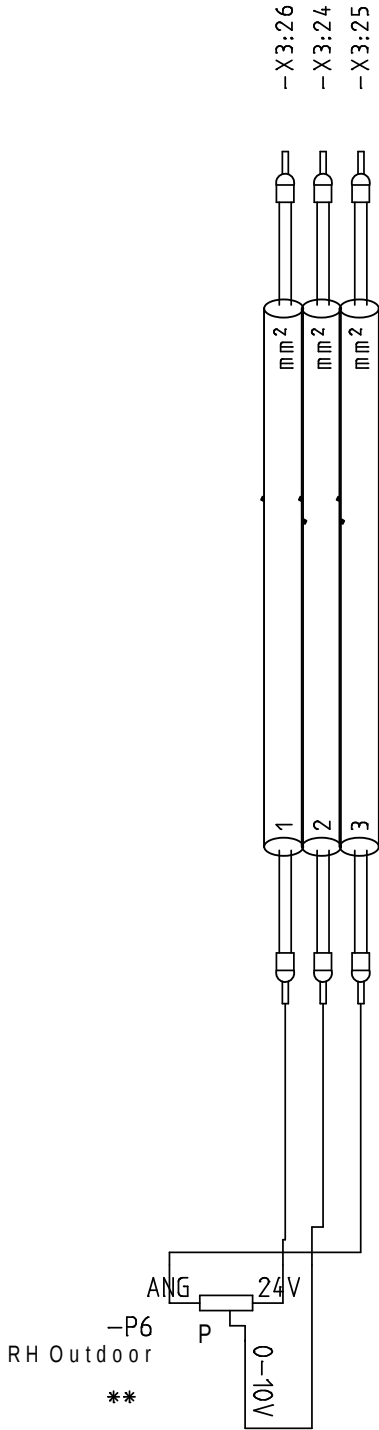
Type:
Dimension:
Length: m



=T1-W352

Description: RH Outdoor

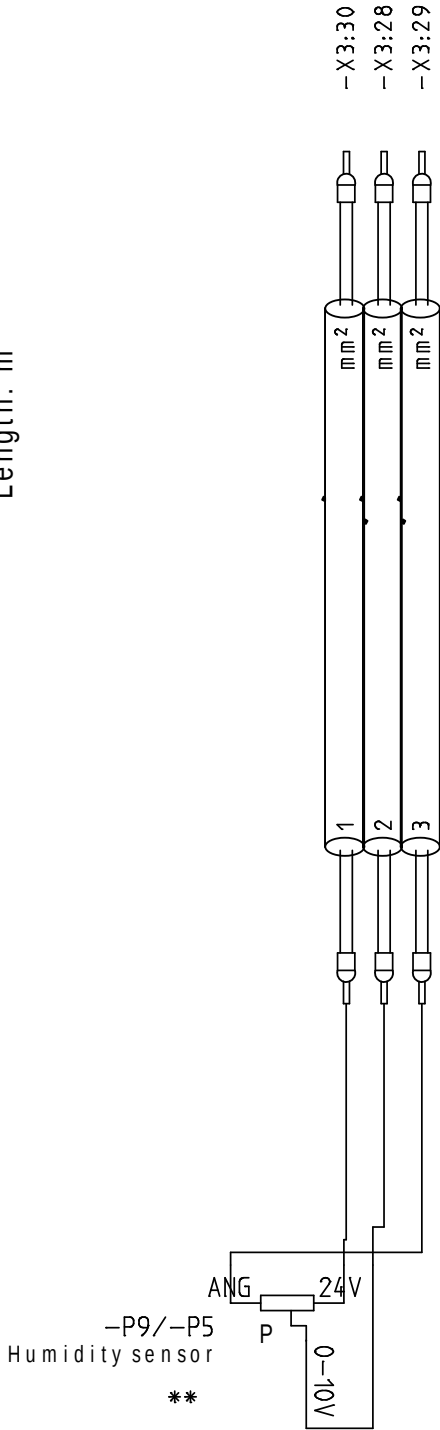
Type:
Dimension:
Length: m



=T1-W353

Description: Humidity sensor

Type:
Dimension:
Length: m



Sheet

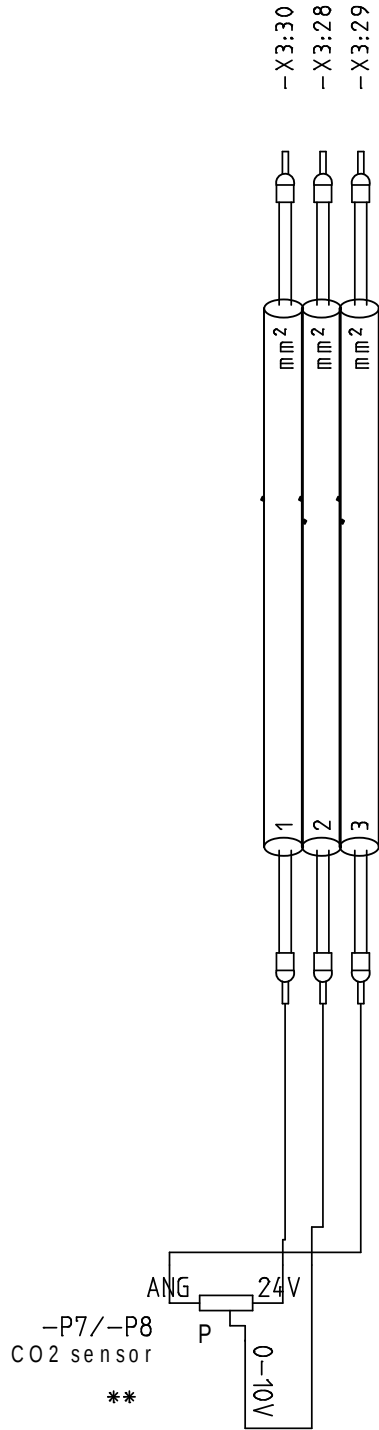
Path

Cabelplan

=T1-W354

Description: CO2 Sensor

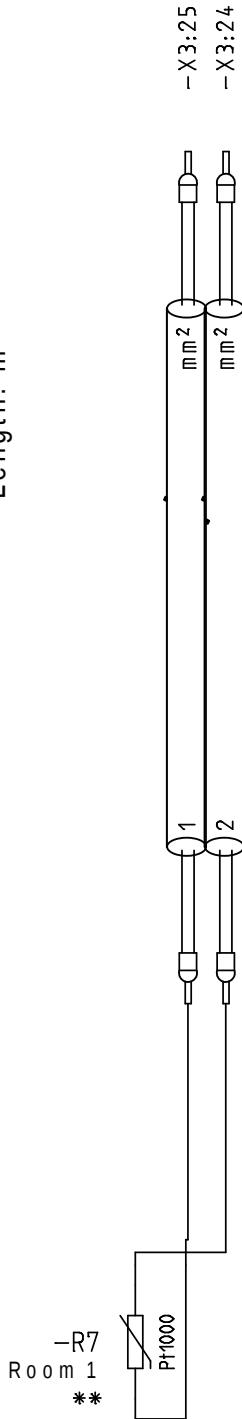
Type:
Dimension:
Length: m



=T1-W360

Description: Room sensor No.1

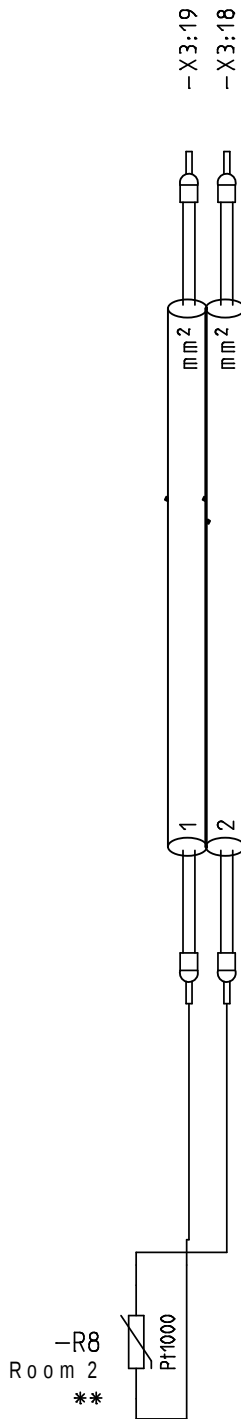
Type:
Dimension:
Length: m



=T1-W361

Description: Room sensor No.2

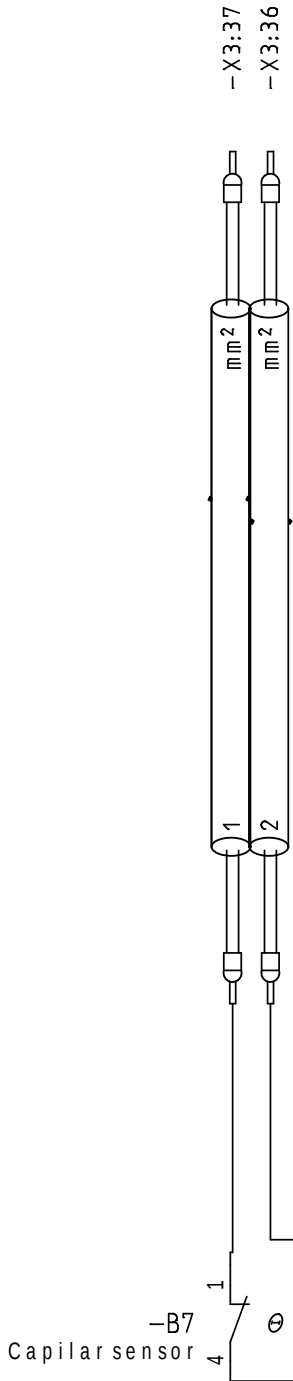
Type:
Dimension:
Length: m



=T1-W371

Description: Capilar sensor

Type:
Dimension:
Length: m



Sheet

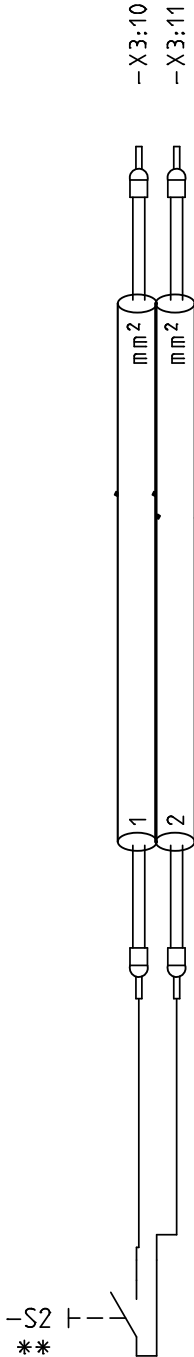
Path

Cabelplan

=T1-W380

Description: Extended operation

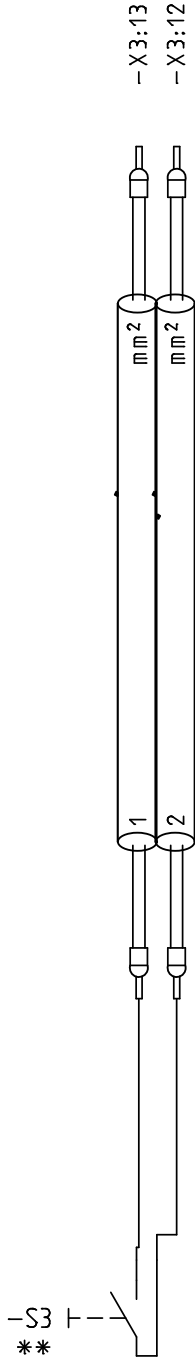
Type: Y-OZ
Dimension:
Length: m



=T1-W381

Description: Extended operation

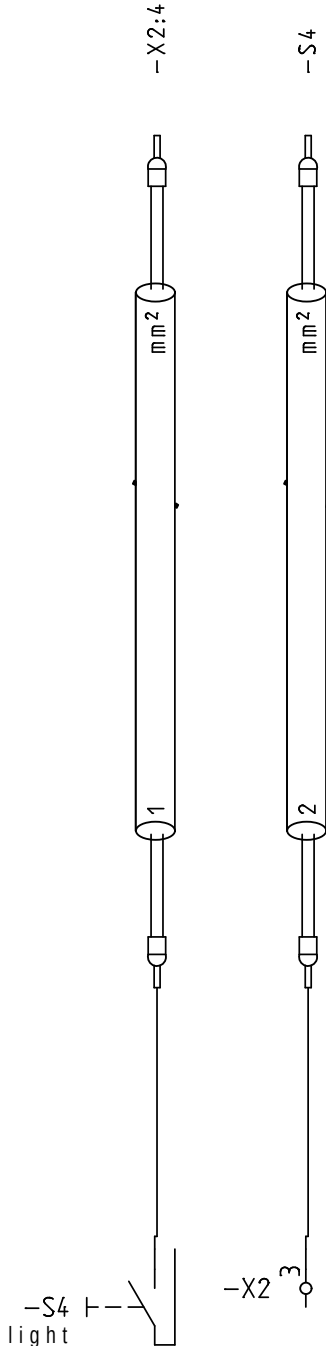
Type:
Dimension:
Length: m



=T1-W700

Description: Ligth switch

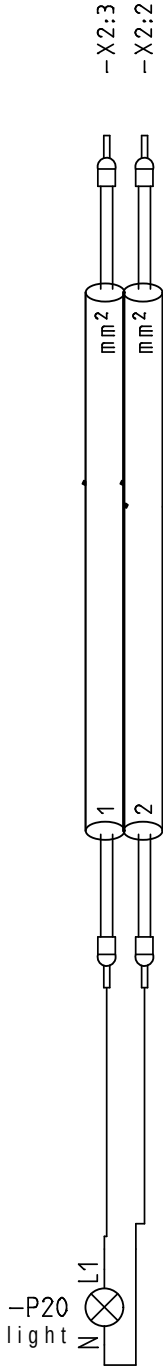
Type:
Dimension:
Length: m



=T1-W701

Description: Light P20

Type: Y-OZ
Dimension:
Length: m



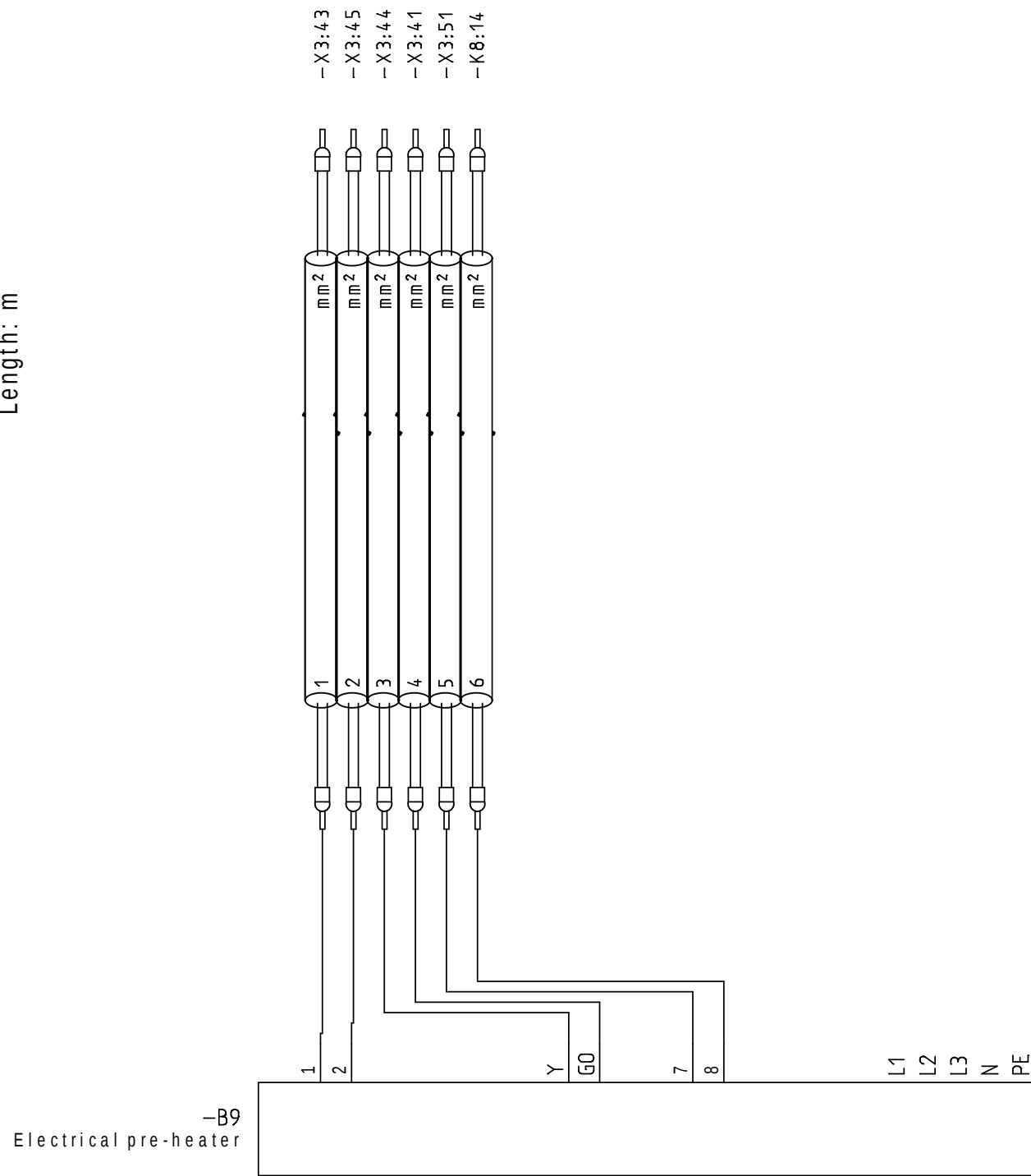
Sheet

Path

T1-W900

Description: Electrical preheating

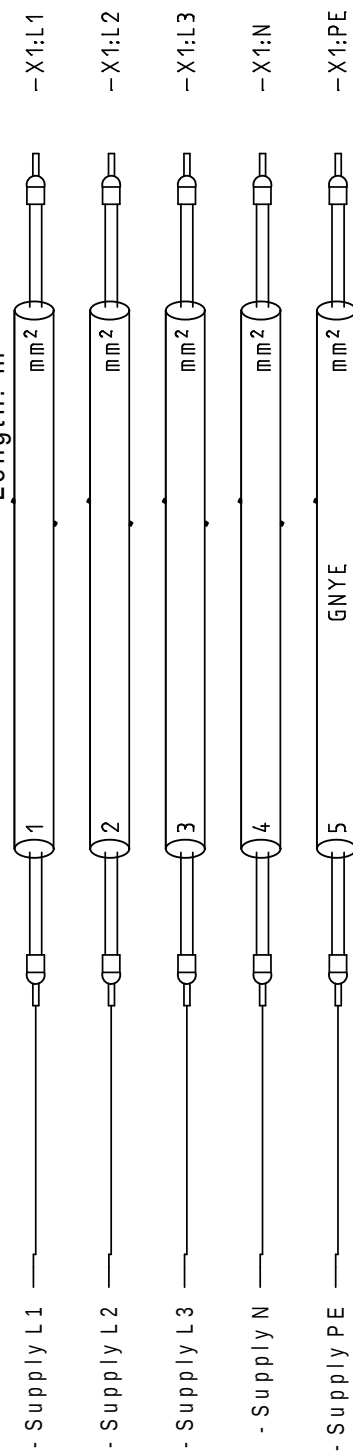
Type:
Dimension:
Length: m



Description: Main supply

T1-W1000

Type: Not delivered
Dimension:
Length: m

[illegible]