



**Escuela Universitaria
Politécnica** - La Almunia
Centro adscrito
Universidad Zaragoza

**ESCUELA UNIVERSITARIA POLITÉCNICA
DE LA ALMUNIA DE DOÑA GODINA (ZARAGOZA)**

ANEXOS

Automatización de una célula de corte

Automation of a cutting cell

424.24.60

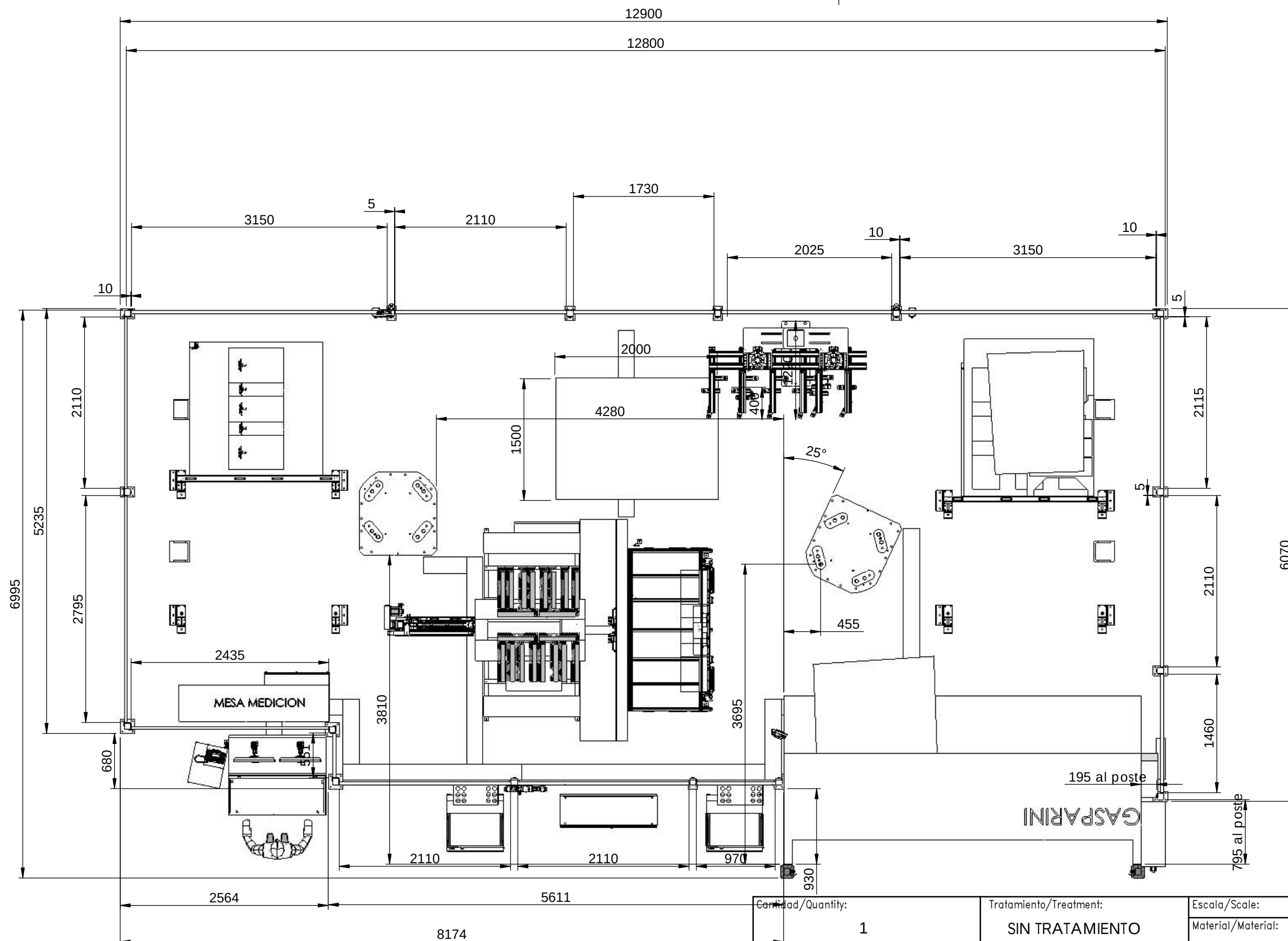
Autor: Yerai Cardiel Recio

Director: Pedro Pablo Huerta Abad

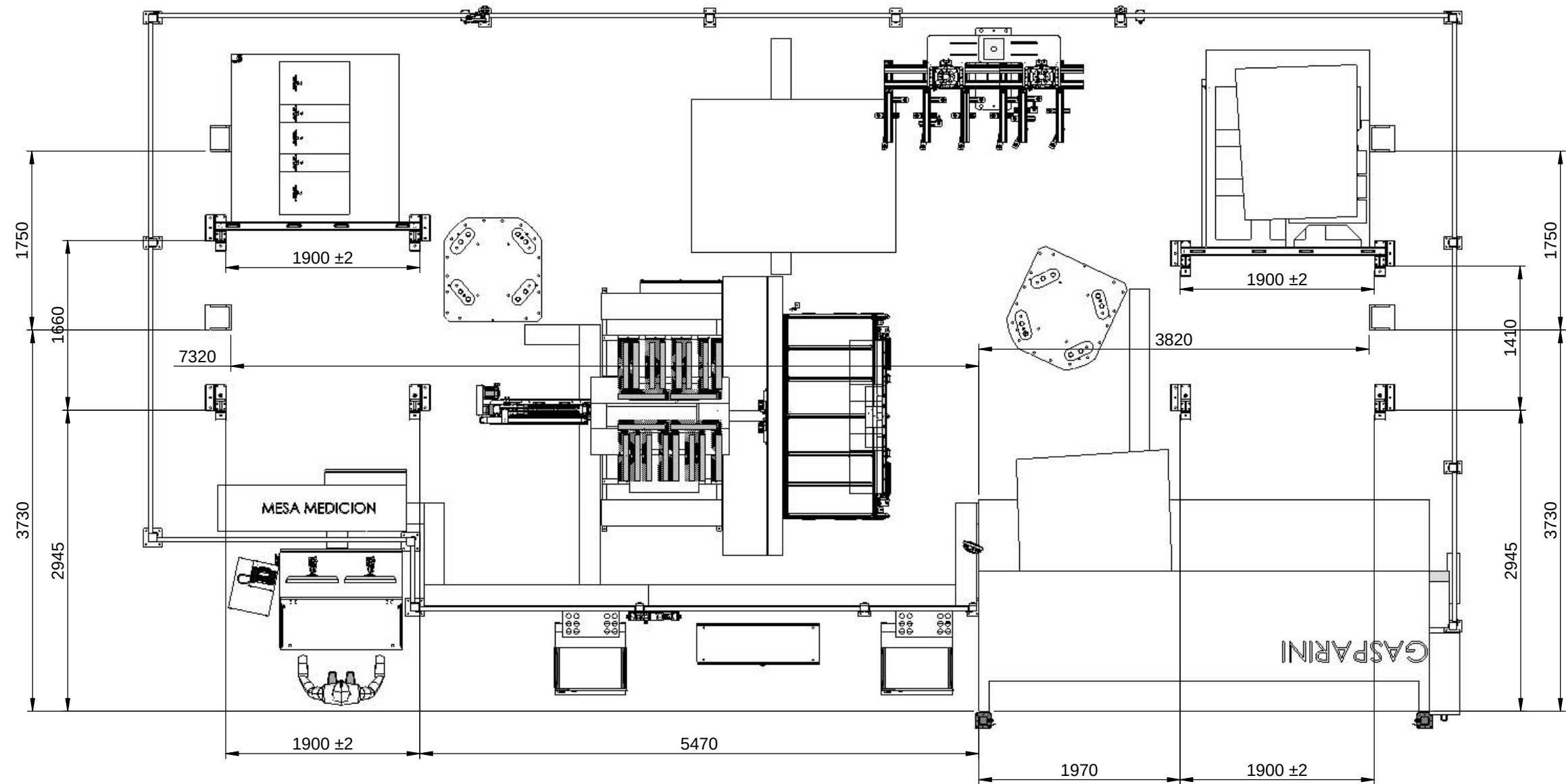
Fecha: 02/2024

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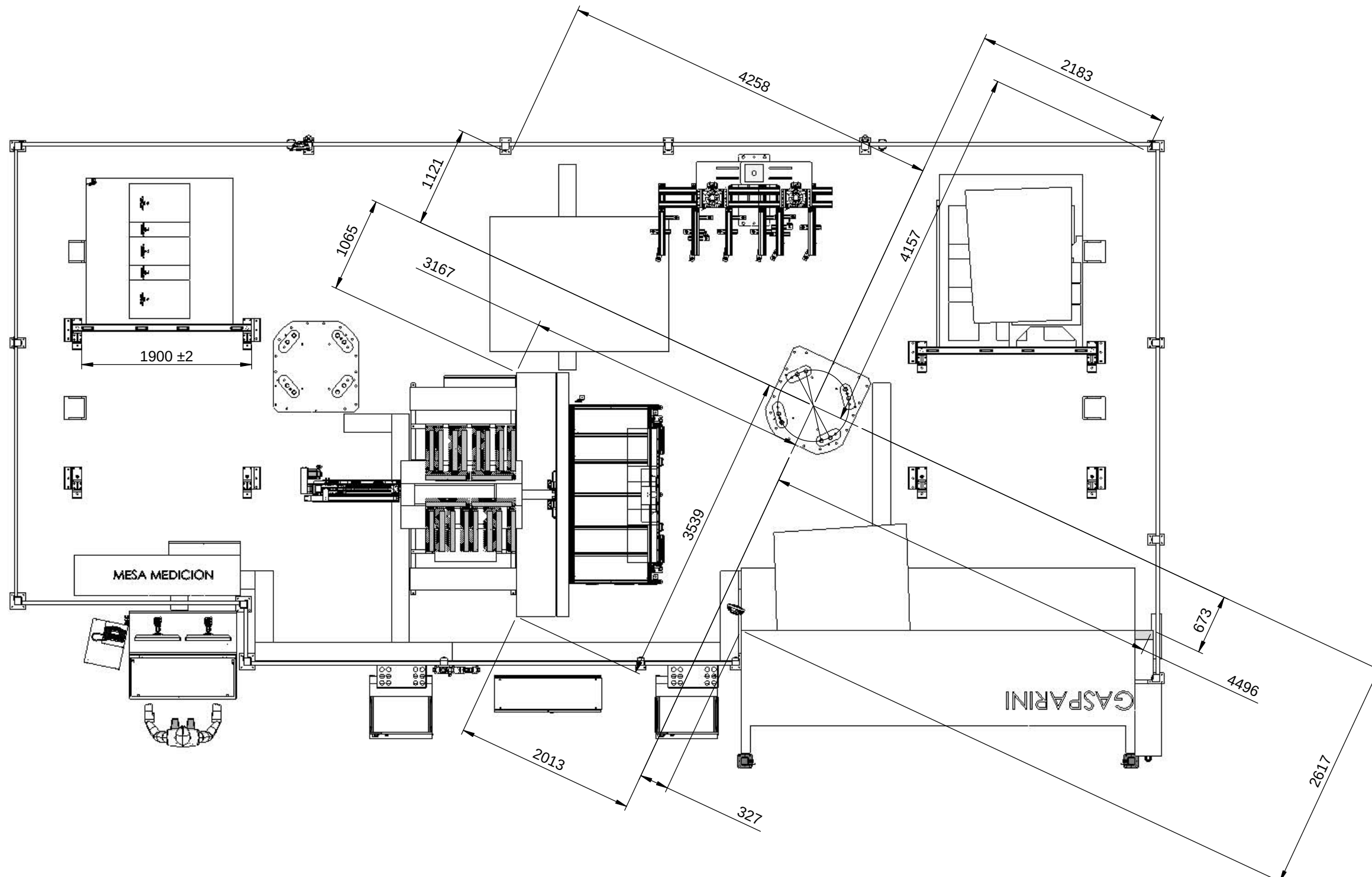


Cantidad/Quantity:		Tratamiento/Treatment:		Escala/Scale:		Peso/Weight:	
1		SIN TRATAMIENTO		1:50		---	
Material/Material:				---			
Descripción/Description:				GRUPO 00 RETROFIT POST-CUTTING			
Tolerancias dimensionales s/g DIN-7168-m Dimensional tolerances according to DIN-7168-m		Fecha/Date		Nombre/Name			
From 0.5 to 3		18-10-22		J.MOÑUX			
From 3 to 6							
From 6 to 30							
From 30 to 120							
From 120 to 400							
From 400 to 1000							
From 1000 to 2000							
From 2000 to 4000							
From 4000 to 8000							
±0.05							
±0.05							
±0.1							
±0.15							
±0.2							
±0.3							
±0.5							
±0.8							
±3							
Para tamaños inferiores a 0.5 se indicará la desviación junto al nominal de referencia./ For sizes below 0.5 tolerance will be indicated with the dimension marks.							
ISO -128		Grado acabado Ra/N Surface finish		ergOmaq		Plano N°/DRW N.:	
6.3 / N9		0.8 / N6				22-539-00-000	
3.2 / N8		0.4 / N5 RECTIFICADO				Hoja/Sheet:	
1.6 / N7		0.2 / N4				1/4	
						Creces de mecanizado/Machining:	
LA INFORMACION CONTENIDA EN ESTE PLANO ES PROPIEDAD EXCLUSIVA DE ERGOMAQ 97 S.L. QUEDA PROHIBIDA LA REPRODUCCION TOTAL O PARCIAL DE ESTE DOCUMENTO ASI COMO SU DIFUSION A TERCEROS SIN LA EXPRESA AUTORIZACION POR ESCRITO DE ERGOMAQ 97 S.L. / THE INFORMATION CONTAINED IN THIS DRAWING IS EXCLUSIVE PROPERTY OF ERGOMAQ 97 S.L. TOTAL OR PARTIAL REPRODUCTION OR THIS DOCUMENT IS PROHIBITED AS WELL AS ITS DISTRIBUTION TO THIRD PARTIES WITHOUT THE EXPRESS WRITTEN AUTORIZATION OF ERGOMAQ 97 S.L.							



Cantidad/Quantity:				Tratamiento/Treatment:				Escala/Scale:		Peso/Weight:			
1				SIN TRATAMIENTO				Material/Material:					
Tolerancias dimensionales s/g DIN-7168-m Dimensional tolerances according to DIN-7168-m				Fecha/Date		Nombre/Name		Descripción/Description:					
From 0.5 to 3		From 3 to 6		From 6 to 30		From 30 to 120		From 120 to 400		From 400 to 1000			
From 1000 to 2000		From 2000 to 4000		From 4000 to 8000		Dibujado/Drawn		18-10-22		J.MOÑUX			
±0.05		±0.05		±0.1		±0.15		±0.2		±0.3			
±0.5		±0.8		±3		Revisado/Checked							
Para tamaños inferiores a 0.5 se indicará la desviación junto al nominal de referencia./ For sizes below 0.5 tolerance will be indicated with the dimension marks.				Aprobado/Approved						GRUPO 00 RETROFIT POST-CUTTING			
ISO -128		Grado acabado Ra/N Surface finish		ergOmaq				Plano N°/DRW N.:		Hoja/Sheet:			
		6.3 √ N9						0.8 √ N6		22-539-00-000		3/4	
		3.2 √ N8						0.4 √ N5 RECTIFICADO					
		1.6 √ N7		0.2 √ N4		Creces de mecanizado/Machining:							
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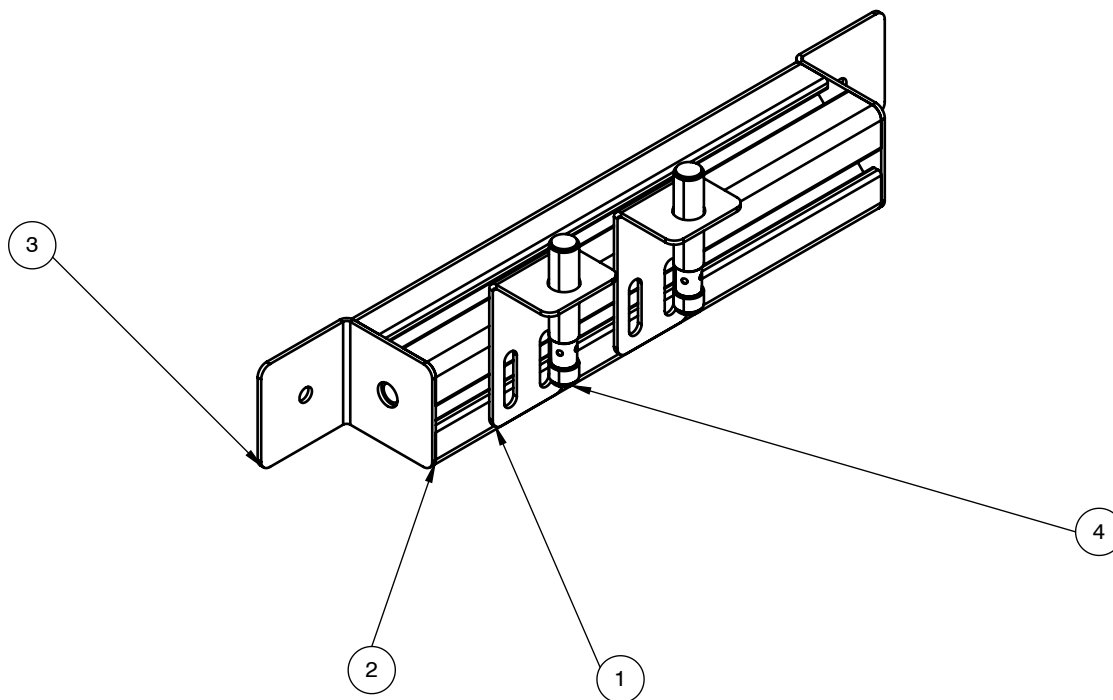
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Cantidad/Quantity:				Tratamiento/Treatment:				Escala/Scale:				Peso/Weight:																			
1				SIN TRATAMIENTO				Material/Material:				---																			
Tolerancias dimensionales s/g DIN-7168-m Dimensional tolerances according to DIN-7168-m								Fecha/Date		Nombre/Name		Descripción/Description:																			
From 0.5 to 3		From 3 to 6		From 6 to 30		From 30 to 120		From 120 to 400		From 400 to 1000		From 1000 to 2000		From 2000 to 4000		From 4000 to 8000		Dibujado/Drawn		18-10-22		J.MOÑUX		GRUPO 00							
±0.05		±0.05		±0.1		±0.15		±0.2		±0.3		±0.5		±0.8		±3		Revisado/Checked						RETROFIT POST-CUTTING							
Para tamaños inferiores a 0.5 se indicará la desviación junto al nominal de referencia./ For sizes below 0.5 tolerance will be indicated with the dimension marks.								Aprobado/Approved																							
ISO -128		Grado acabado Ra/N Surface finish																Plano N°/DRW N.:				Hoja/Sheet:									
		6.3 ▽		N9		0.8 ▽		N6																22-539-00-000				4/4			
		3.2 ▽		N8		0.4 ▽		N5 RECTIFICADO																							
		1.6 ▽		N7		0.2 ▽		N4																							
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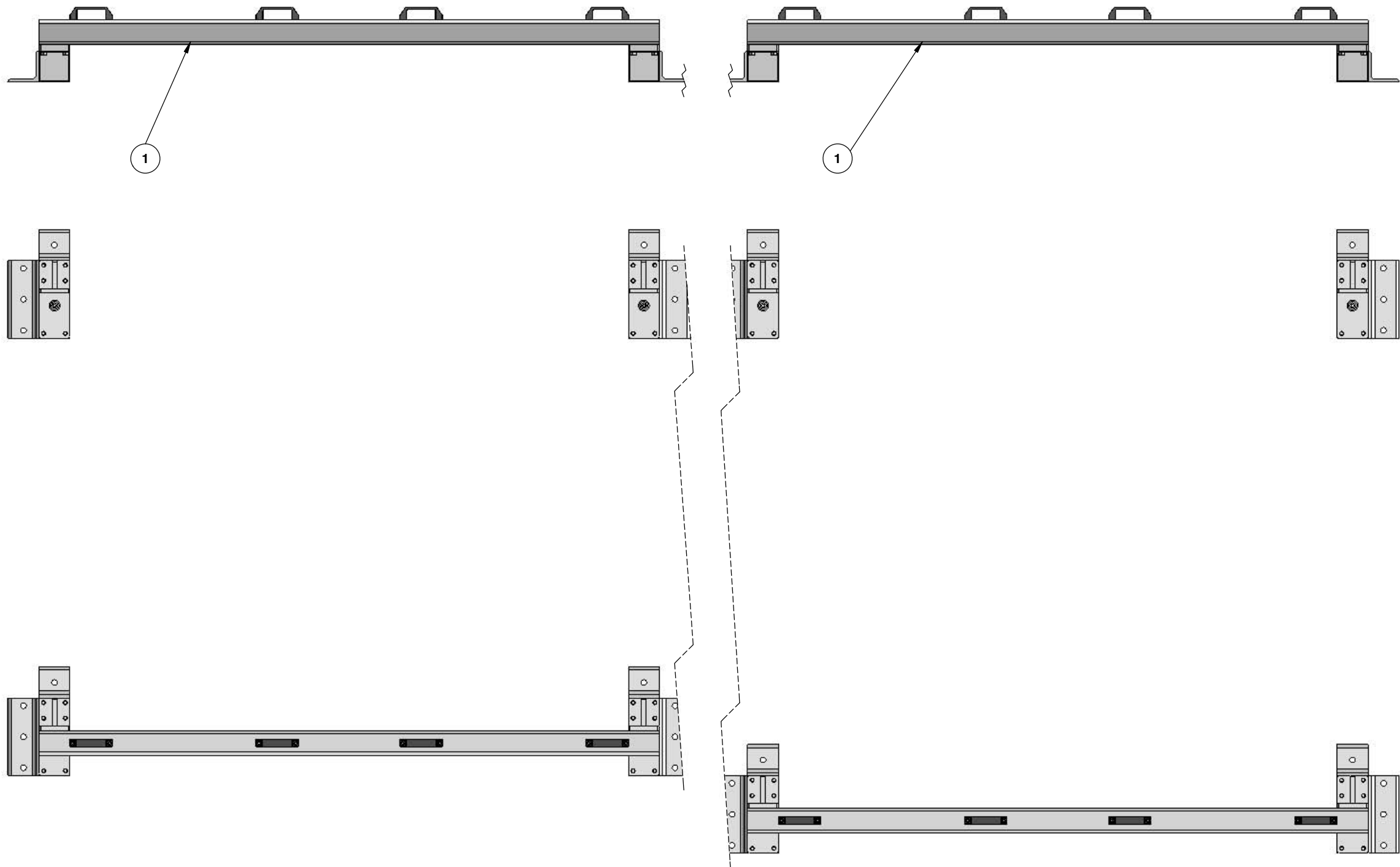
2. PLANOS MECÁNICOS



Nº	CANTIDAD	DENOM.	DESCRIPCION	REF.	PROV.
1	2	22-539-04-001	SOPORTE SENSOR		
2	1	22-539-04-002	POSTE		
3	2	22-539-04-003	SOPORTE PERFIL		
4	2	IS-12-E1-S2	INDUCTIVO M12 ENRASABLE	IS-12-E1-S2	DATALOGIC

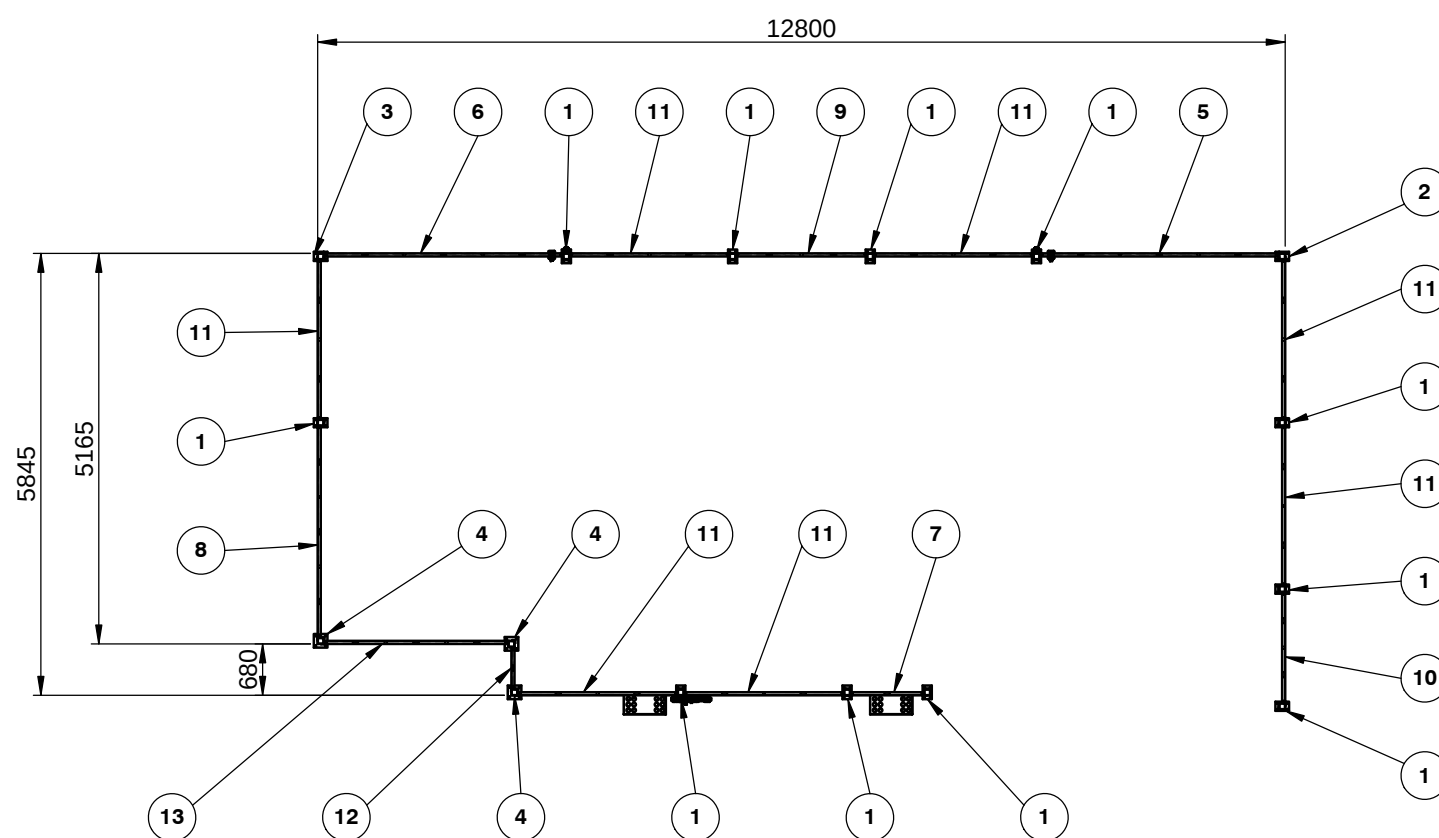
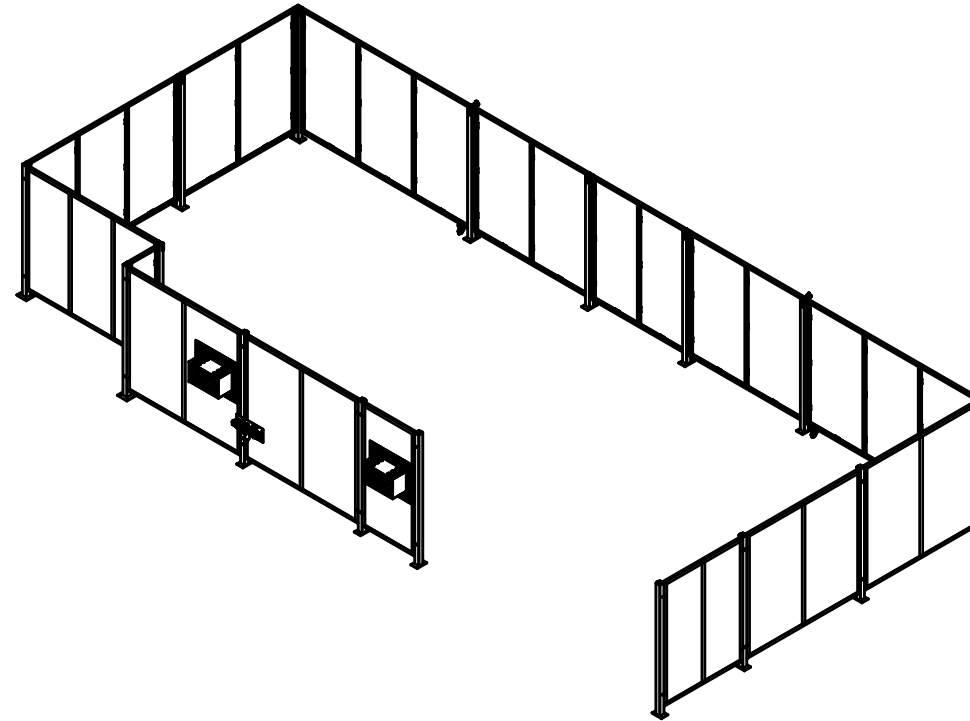
Cantidad/Quantity: 1		Tratamiento/Treatment:		Escala/Scale: 1:3	Peso/Weight:																		
Material/Material:																							
Tolerancias dimensionales s/g DIN-7168-m Dimensional tolerances according to DIN-7168-m		Fecha/Date	Nombre/Name	Descripción/Description:																			
<table border="1"> <tr> <td>From 0.5 to 3</td> <td>From 3 to 6</td> <td>From 6 to 30</td> <td>From 30 to 120</td> <td>From 120 to 400</td> <td>From 400 to 1000</td> <td>From 1000 to 2000</td> <td>From 2000 to 4000</td> <td>From 4000 to 8000</td> </tr> <tr> <td>±0.05</td> <td>±0.05</td> <td>±0.1</td> <td>±0.15</td> <td>±0.2</td> <td>±0.3</td> <td>±0.5</td> <td>±0.8</td> <td>±3</td> </tr> </table>		From 0.5 to 3	From 3 to 6	From 6 to 30	From 30 to 120	From 120 to 400	From 400 to 1000	From 1000 to 2000	From 2000 to 4000	From 4000 to 8000	±0.05	±0.05	±0.1	±0.15	±0.2	±0.3	±0.5	±0.8	±3	Dibujado/Drawn	29-03-23	J.MOÑUX	GRUPO 04 DETECTOR GUILLOTINA
From 0.5 to 3	From 3 to 6	From 6 to 30	From 30 to 120	From 120 to 400	From 400 to 1000	From 1000 to 2000	From 2000 to 4000	From 4000 to 8000															
±0.05	±0.05	±0.1	±0.15	±0.2	±0.3	±0.5	±0.8	±3															
		Revisado/Checked																					
		Aprobado/Approved																					
Para tamaños inferiores a 0,5 se indicará la desviación junto al nominal de referencia./for sizes below 0.5 tolerance will be indicated with the dimension marks.				Plano N°/DRW N.:	Hoja/Sheet:																		
ISO -128 Grado acabado Ra/N Surface finish				22-539-04-000	1/1																		
		Creces de mecanizado/Machining:																					





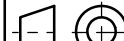
Nº	CANTIDAD	DENOM.	DESCRIPCION	REF.	PROV.
1	2	22-539-03-SUB-01	TOPE PALLET		
2	2	22-539-03-SUB-02	TOPE PALLET		

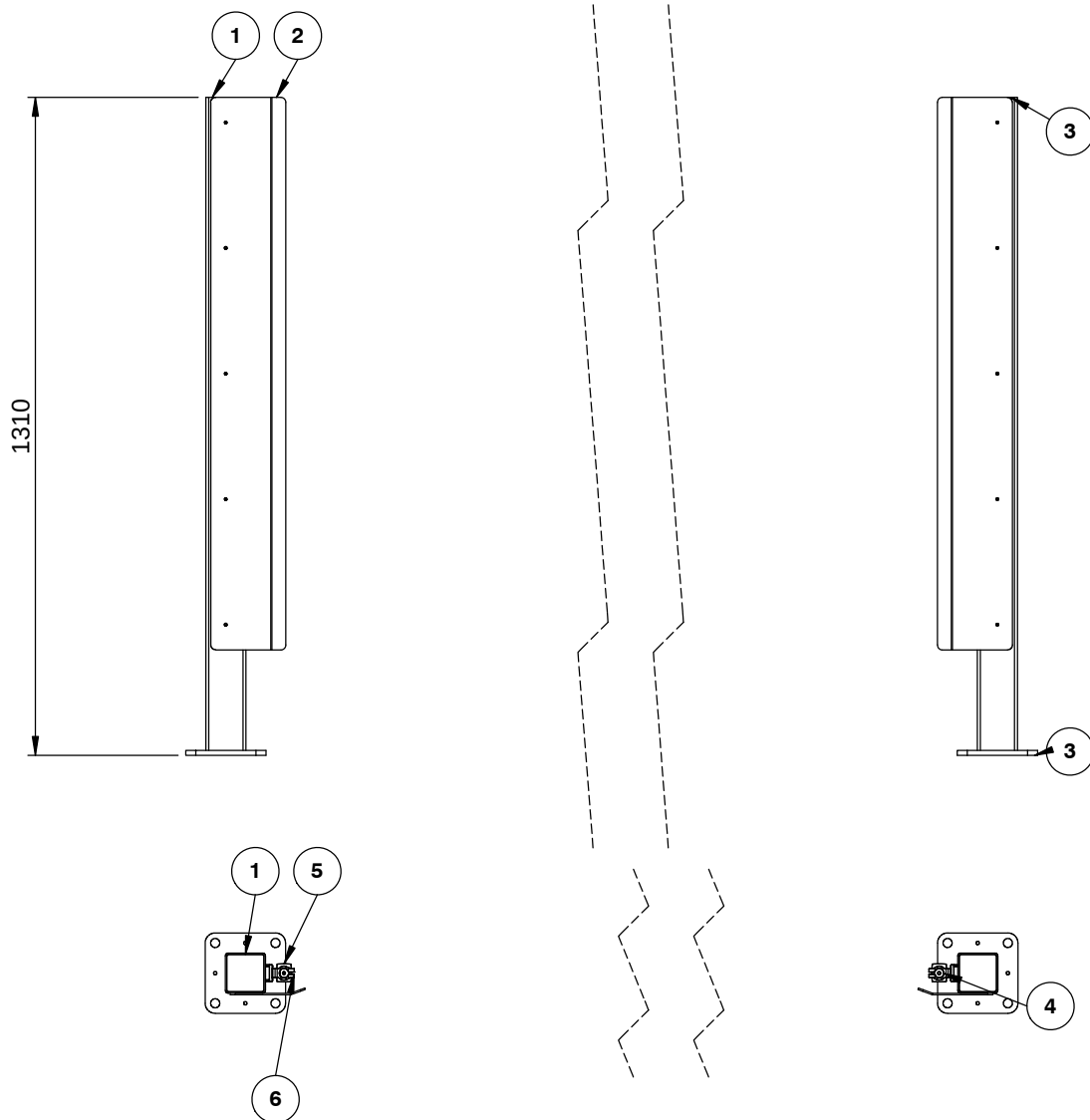
Cantidad/Quantity:		Tratamiento/Treatment:		Escala/Scale:	1:15	Peso/Weight:
1		SIN TRATAMIENTO		Material/Material:		
Tolerancias dimensionales s/g DIN-7168-m Dimensional tolerances according to DIN-7168-m		Fecha/Date		Descripción/Description:		
From 0.5 to 3 From 3 to 6 From 6 to 30 From 30 to 120 From 120 to 400 From 400 to 1000 From 1000 to 2000 From 2000 to 4000 From 4000 to 8000		13-12-22		GRUPO 03 TOPES PALLET		
±0.05 ±0.05 ±0.1 ±0.15 ±0.2 ±0.3 ±0.5 ±0.8 ±3		Revisado/Checked				
Para tamaños inferiores a 0,5 se indicará la desviación junto al nominal de referencia./ For sizes below 0.5 tolerance will be indicated with the dimension marks.		Aprobado/Approved				
ISO -128		Grado acabado Ra/N Surface finish		Plano N°/DRW N.:		Hoja/Sheet:
		6.3 N9 3.2 N8 1.6 N7 0.8 N6 0.4 N5 RECTIFICADO 0.2 N4		22-539-03-000		1/1
		ergOmaq		Creces de mecanizado/Machining:		
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Nº	CANTIDAD	DENOM.	DESCRIPCION
1	11	22-539-02-001	POSTE CERRAMIENTO
2	1	22-539-02-002	POSTE CERRAMIENTO PD
3	1	22-539-02-003	POSTE CERRAMIENTO PI
4	3	22-539-02-004	POSTE Pdoble
5	1	22-539-02-005	PUERTA
6	1	22-539-02-006	PUERTA
7	1	22-539-02-007	PANEL SIMPLE
8	1	22-539-02-008	PANEL TRIPLE
9	1	22-539-02-009	PANEL DOBLE
10	1	22-539-02-010	PANEL DOBLE
11	7	22-539-02-011	PANEL DOBLE
12	1	22-539-02-012	PANEL SIMPLE
13	1	22-539-02-013	PANEL TRIPLE
14	2	22-539-02-SUB-01	GATERA
15	2	QZ18_BRACKET	QZ18_BRACKET
16	2	22-539-02-025	SOPORTE BALIZA
17	1	22-539-02-SUB-02	

POSTES Y MARCOS AMARILLO RAL 1028

Cantidad/Quantity:		Tratamiento/Treatment:		Escala/Scale:		Peso/Weight:																			
1		RAL 1028 EXCEPTO MALLA		1:100																					
Tolerancias dimensionales s/g DIN-7168-m Dimensional tolerances according to DIN-7168-m		Fecha/Date		Nombre/Name		Descripción/Description:																			
<table><tr><td>From 0.5 to 3</td><td>From 3 to 6</td><td>From 6 to 10</td><td>From 10 to 120</td><td>From 120 to 400</td><td>From 400 to 1000</td><td>From 1000 to 2000</td><td>From 2000 to 4000</td><td>From 4000 to 8000</td></tr><tr><td>±0.05</td><td>±0.05</td><td>±0.1</td><td>±0.15</td><td>±0.2</td><td>±0.3</td><td>±0.5</td><td>±0.8</td><td>±3</td></tr></table>		From 0.5 to 3	From 3 to 6	From 6 to 10	From 10 to 120	From 120 to 400	From 400 to 1000	From 1000 to 2000	From 2000 to 4000	From 4000 to 8000	±0.05	±0.05	±0.1	±0.15	±0.2	±0.3	±0.5	±0.8	±3	Dibujado/Drawn		28-11-22		J.MOÑUX	
From 0.5 to 3	From 3 to 6	From 6 to 10	From 10 to 120	From 120 to 400	From 400 to 1000	From 1000 to 2000	From 2000 to 4000	From 4000 to 8000																	
±0.05	±0.05	±0.1	±0.15	±0.2	±0.3	±0.5	±0.8	±3																	
		Revisado/Checked																							
		Aprobado/Approved																							
ISO -128		Grado acabado Ra/N Surface finish		Plano N°/DRW N.:		Hoja/Sheet:																			
		<table><tr><td>6.3 ▽</td><td>N9</td><td>0.8 ▽</td><td>N6</td></tr><tr><td>3.2 ▽</td><td>N8</td><td>0.4 ▽</td><td>N5 RECTIFICADO</td></tr><tr><td>1.6 ▽</td><td>N7</td><td>0.2 ▽</td><td>N4</td></tr></table>		6.3 ▽	N9	0.8 ▽	N6	3.2 ▽	N8	0.4 ▽	N5 RECTIFICADO	1.6 ▽	N7	0.2 ▽	N4	22-539-02-000		1/1							
6.3 ▽	N9	0.8 ▽	N6																						
3.2 ▽	N8	0.4 ▽	N5 RECTIFICADO																						
1.6 ▽	N7	0.2 ▽	N4																						
		ergomaq		Creces de mecanizado/Machining:																					
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Nº	CANTIDAD	DENOM.	DESCRIPCION	REF.	PROV.
1	1	22-539-01-089	POSTE BARRERA		
	1	22-539-01-089_01	PLACA BASE		
	1	22-539-01-089_02	POSTE BARRERA		
	1	22-539-01-089_03	TAPA		
2	2	22-539-01-090	CHAPA PROTECCION		
3	1	22-539-01-091	POSTE		
	1	22-539-01-089_01	PLACA BASE		
	1	22-539-01-091_01	POSTE		
	1	22-539-01-089_03	TAPA		
4	1	MLC500T30-900	MLC500T30-900 TRANSM	68000309	LEUZE
5	1	MLC510R30-900	MLC510R30-900 RECEP	68001309	LEUZE
6	4	BT-2HF	SOPORTE GIRATORIO	BT-2HF	LEUZE

Cantidad/Quantity:
1

Tratamiento/Treatment:
SIN TRATAMIENTO

Escala/Scale: 1:15

Peso/Weight:

Material/Material:

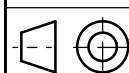
Tolerancias dimensionales s/g DIN-7168-m
Dimensional tolerances according to DIN-7168-m

From 0.5 to 3	From 3 to 6	From 6 to 30	From 30 to 120	From 120 to 400	From 400 to 1000	From 1000 to 2000	From 2000 to 4000	From 4000 to 8000
±0.05	±0.05	±0.1	±0.15	±0.2	±0.3	±0.5	±0.8	±3

Para tamaños inferiores a 0.5 se indicará la desviación junto al nominal de referencia./For sizes below 0.5 tolerance will be indicated with the dimension marks.

ISO -128

Grado acabado Ra/N
Surface finish



6.3 / N9
3.2 / N8
1.6 / N7
0.8 / N6
0.4 / N5 RECTIFICADO
0.2 / N4

ergomaq

Descripción/Description:

GRUPO 01
POSTES BARRERAS

Plano N°/DRW N.:

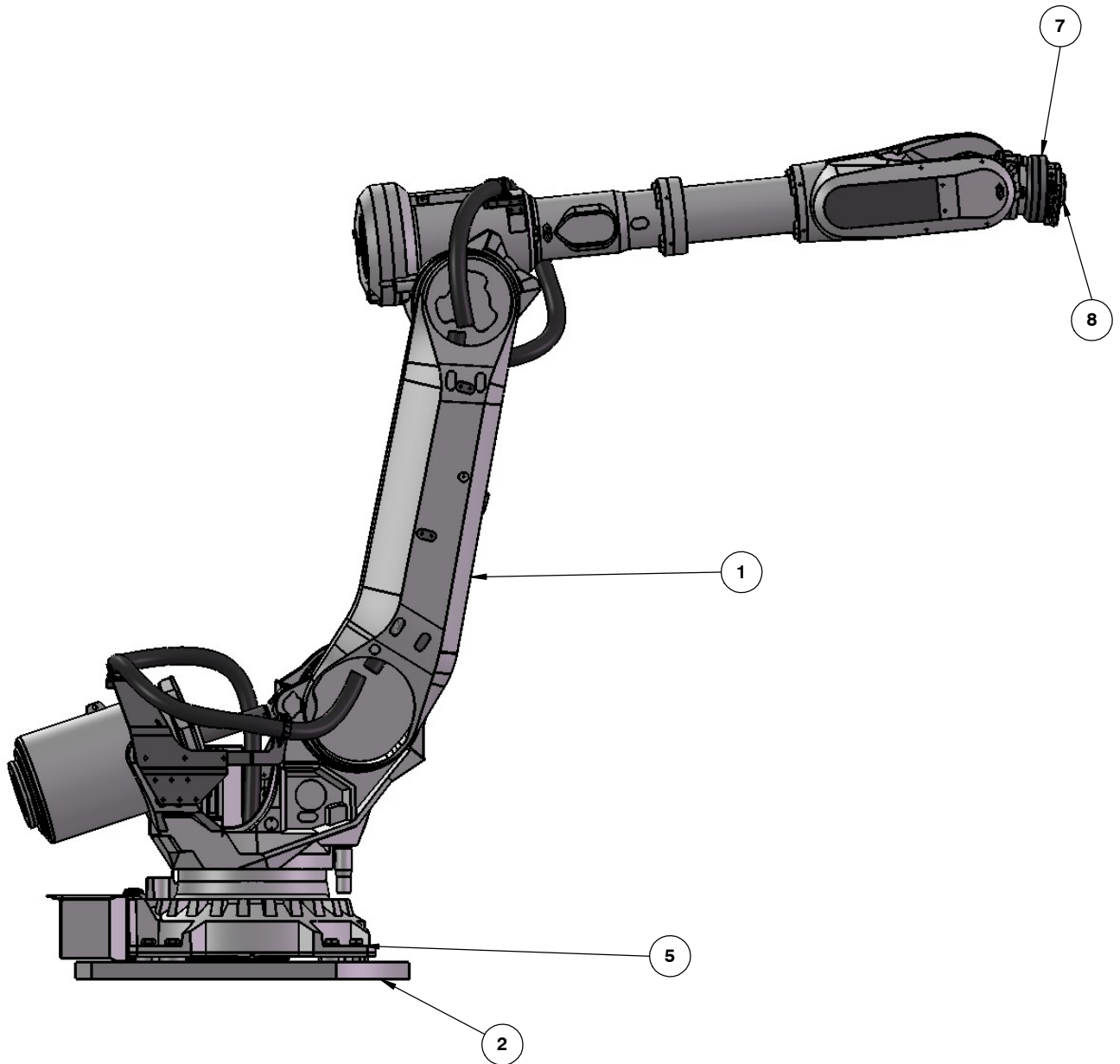
22-539-01-SUB-11

Hoja/Sheet:

1/1

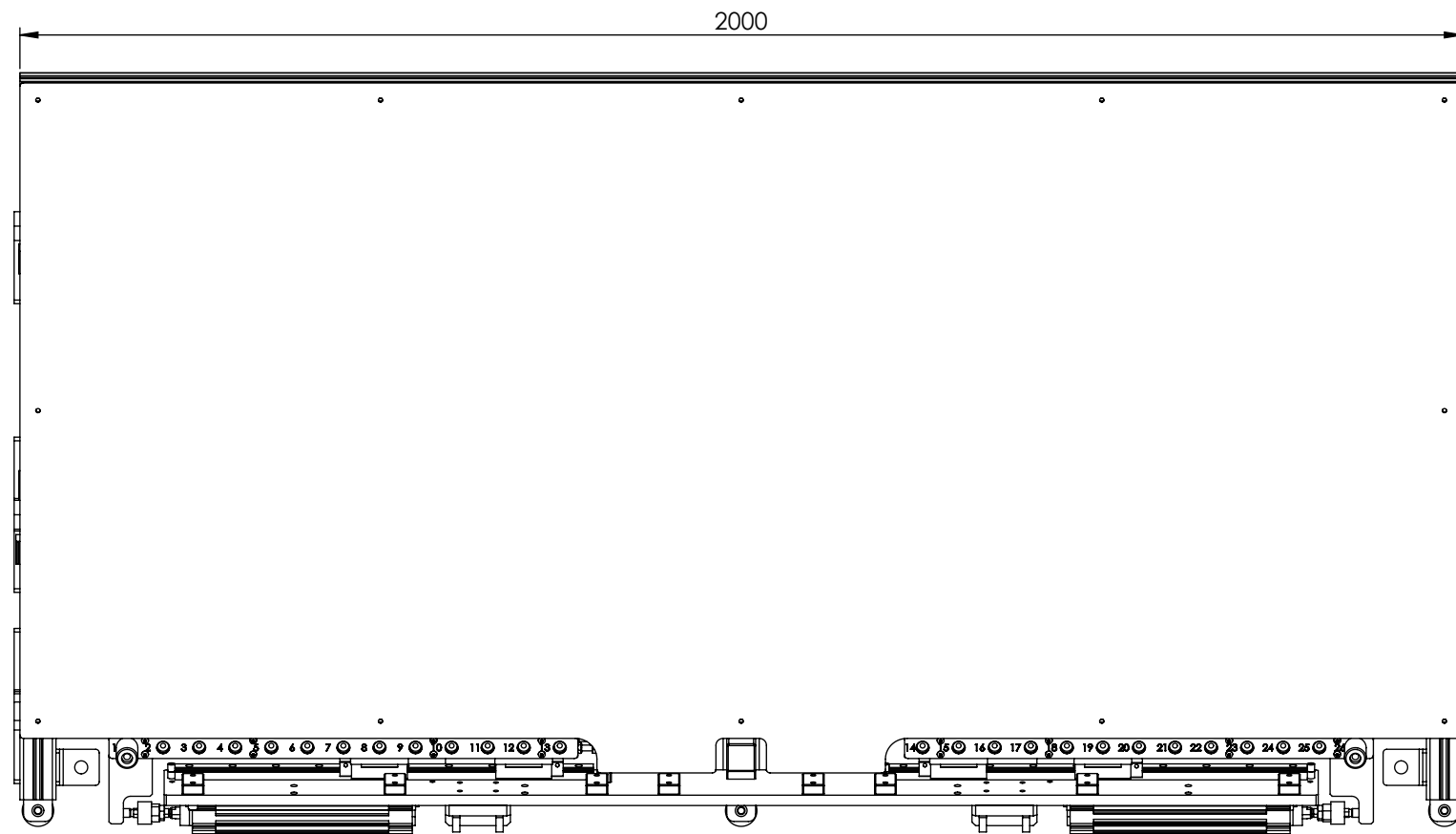
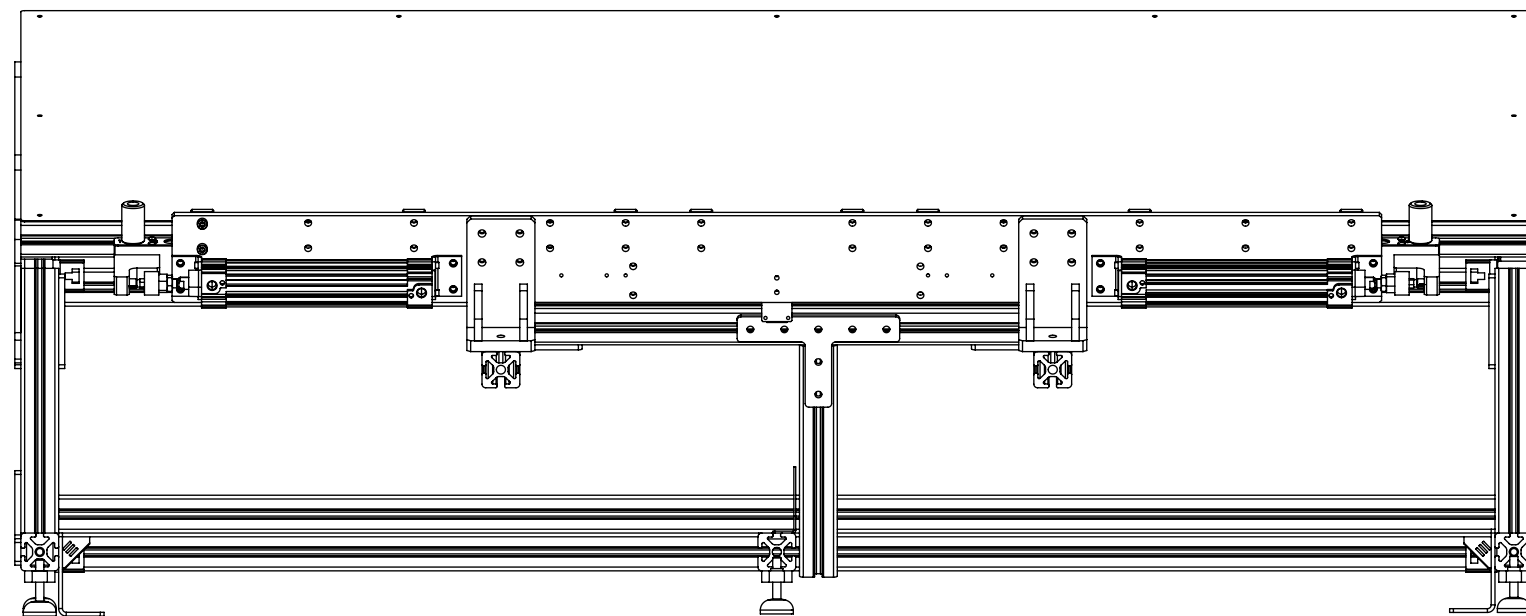
Creces de mecanizado/Machining:

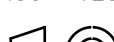
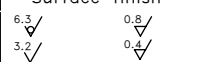
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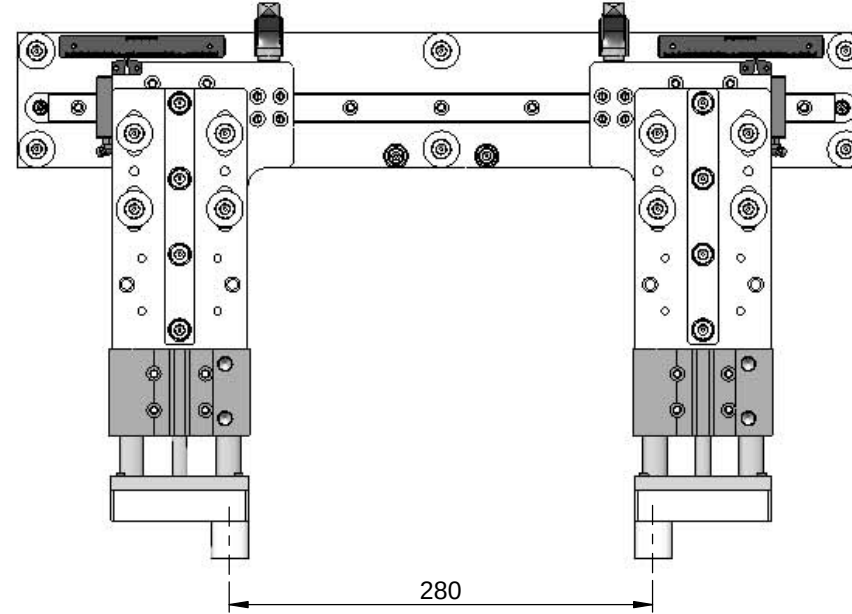
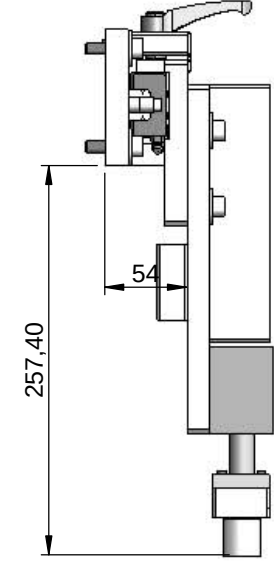
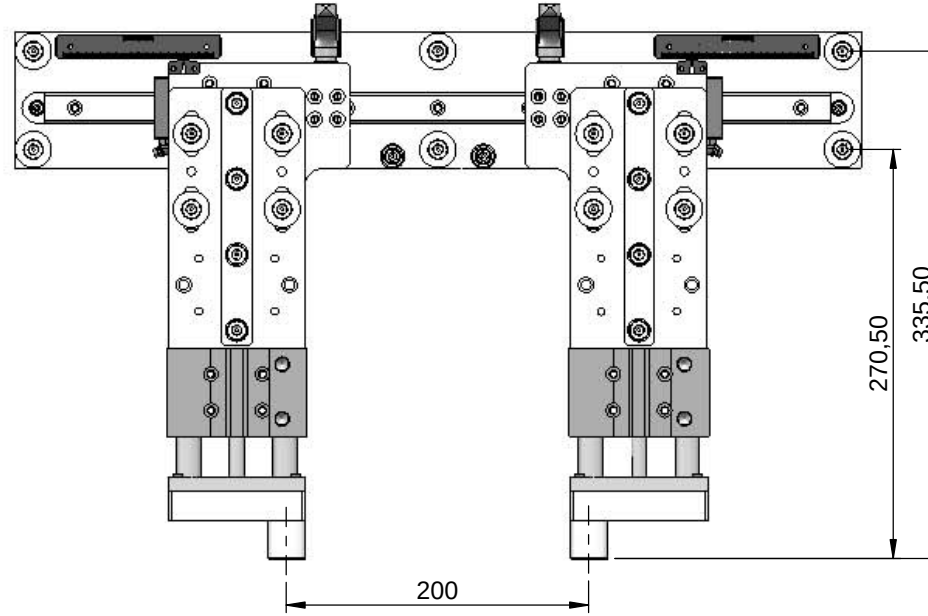
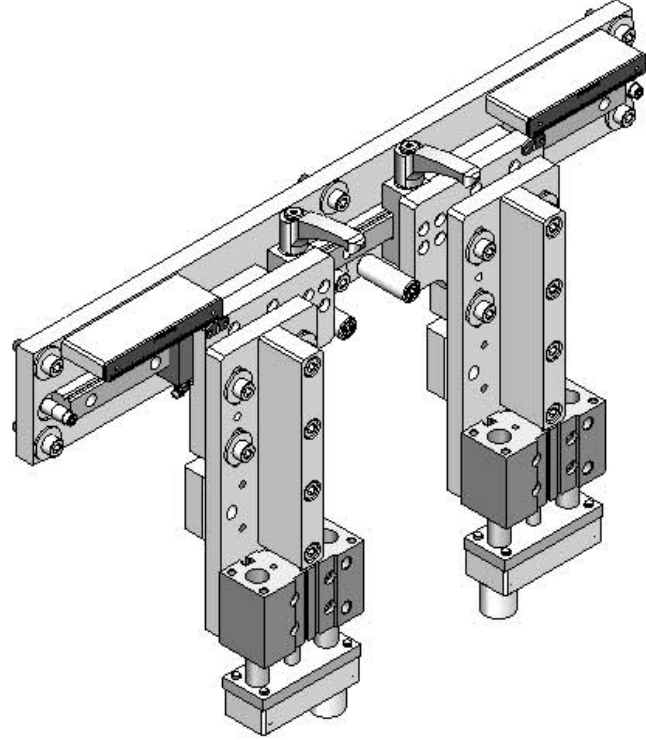


Nº	CANTIDAD	DENOM.	DESCRIPCION	REF.
1	1	IRB 6700 MH3 150 320 IRC5	ROBOT ABB	IRB 6700 MH3 150 320 IRC5
2	1	22-539-01-088	BASE ROBOT	
3	2	22-539-01-107	PIN CENTRADOR	
4	8	Arandela DIN 7980	Arandela DIN-125A	M24
5	8	Arandela DIN 125A	Arandela DIN-125A	M24
6	8	DIN 933 M24x100 8.8 A	TORNILLO HEXAGONAL	DIN 933 M24x100 8.8 A
7	1	22-539-01-064	PLACA INTERMEDIA	
8	1	P1803	CAMBIO RAPIDO	P1803

Cantidad/Quantity: 2		Tratamiento/Treatment: SIN TRATAMIENTO		Escala/Scale: 1:50	Peso/Weight:
				Material/Material: ---	
Tolerancias dimensionales s/g DIN-7168-m Dimensional tolerances according to DIN-7168-m From 0.5 to 3 From 3 to 6 From 6 to 30 From 30 to 120 From 120 to 400 From 400 to 1000 From 1000 to 2000 From 2000 to 4000 From 4000 to 8000 ±0.05 ±0.05 ±0.1 ±0.15 ±0.2 ±0.3 ±0.5 ±0.8 ±3 Para tamaños inferiores a 0.5 se indicará la desviación junto al nominal de referencia/for sizes below 0.5 tolerance will be indicated with the dimension marks.		Fecha/Date: 03-11-22 Nombre/Name: J.MOÑUX Dibujado/Drawn Revisado/Checked Aprobado/Approved	Descripción/Description: GRUPO 01 ROBOT		
ISO -128 Grado acabado Ra/N Surface finish 				Plano N°/DRW N.: 22-539-01-SUB-04	Hoja/Sheet: 1/1
Cresces de mecanizado/Machining:					

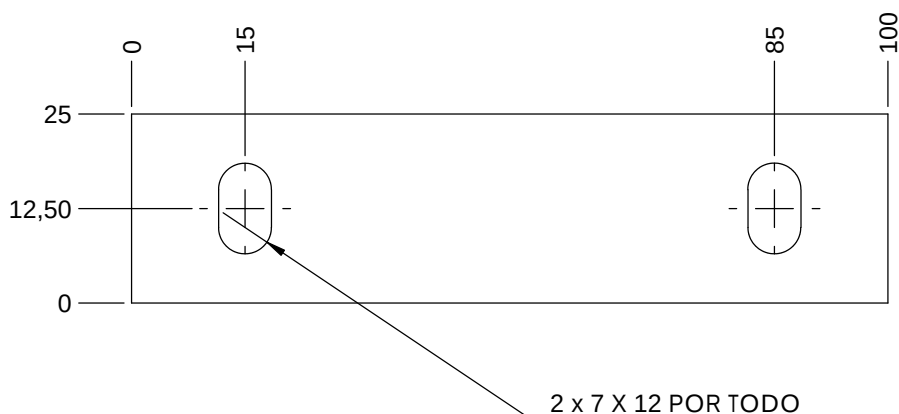
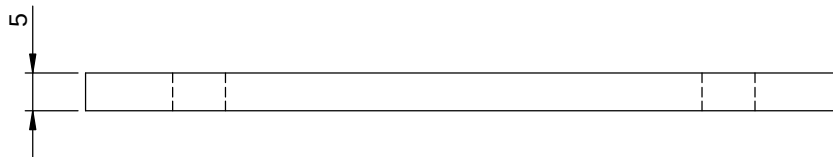


Cantidad/Quantity:		Tratamiento/Treatment:		Escala/Scale:		Peso/Weight:																			
1		SIN TRATAMIENTO		1:10																					
Tolerancias dimensionales s/g DIN-7168-m Dimensional tolerances according to DIN-7168-m		Fecha/Date		Nombre/Name		Descripción/Description:																			
<table><tr><td>From 0.5 to 3</td><td>From 3 to 6</td><td>From 6 to 30</td><td>From 30 to 120</td><td>From 120 to 400</td><td>From 400 to 1000</td><td>From 1000 to 2000</td><td>From 2000 to 4000</td><td>From 4000 to 8000</td></tr><tr><td>±0.05</td><td>±0.05</td><td>±0.1</td><td>±0.15</td><td>±0.2</td><td>±0.3</td><td>±0.5</td><td>±0.8</td><td>±3</td></tr></table>		From 0.5 to 3	From 3 to 6	From 6 to 30	From 30 to 120	From 120 to 400	From 400 to 1000	From 1000 to 2000	From 2000 to 4000	From 4000 to 8000	±0.05	±0.05	±0.1	±0.15	±0.2	±0.3	±0.5	±0.8	±3	09-09-22		J.MOÑUX		GRUPO 01	
From 0.5 to 3	From 3 to 6	From 6 to 30	From 30 to 120	From 120 to 400	From 400 to 1000	From 1000 to 2000	From 2000 to 4000	From 4000 to 8000																	
±0.05	±0.05	±0.1	±0.15	±0.2	±0.3	±0.5	±0.8	±3																	
		Revisado/Checked				CENTRADO CHAPAS																			
		Aprobado/Approved																							
Para tamaños inferiores a 0.5 se indicará la desviación junto al nominal de referencia./ For sizes below 0.5 tolerance will be indicated with the dimension marks.																									
ISO -128		Grado acabado Ra/N Surface finish		Plano N°/DRW N.:		Hoja/Sheet:																			
						22-539-01-SUB-02																			
				Creces de mecanizado/Machining:		1/2																			
LA INFORMACION CONTENIDA EN ESTE PLANO ES PROPIEDAD EXCLUSIVA DE ERGOMAQ 97 S.L. QUEDA PROHIBIDA LA REPRODUCCION TOTAL O PARCIAL DE ESTE DOCUMENTO ASI COMO SU DIFUSION A TERCEROS SIN LA EXPRESA AUTORIZACION POR ESCRITO DE ERGOMAQ 97 S.L. / THE INFORMATION CONTAINED IN THIS DRAWING IS EXCLUSIVE PROPERTY OF ERGOMAQ 97 S.L. TOTAL OR PARTIAL REPRODUCTION OR ITS DIFFUSION TO THIRD PARTIES WITHOUT THE EXPRESS WRITTEN AUTORIZATION OF ERGOMAQ 97 S.L. IS PROHIBITED																									



Nº	CANTIDAD	DENOM.	DESCRIPCION	REF.	PROV.
1	2	22-539-01-017	SOPORTE TOPES		
2	1	22-539-01-035	PLACA BASE		
3	1	22-539-01-036	PLACA CARRO		
4	2	22-539-01-037	CALCE		
5	2	22-539-01-038	SOPORTE CILINDRO		
6	2	22-539-01-039	TOPE		
7	2	22-539-01-040	CALCE REGLA		
8	2	22-539-01-041	CARTELA		
9	2	22-539-01-045	TOPE		
10	1	22-539-01-080	PLACA CARRO		
11	2	MGPM Ø25 Z G1,8	CILINDRO GUIADO	MGPM Ø25 TF 20 Z	SMC
12	2	Patin con engrasador			
	1	ENGRASADOR HIWIN			
	1	Engrasador patin E2	Engrasador	E2 para patin de 20	HIWIN
	1	Patin HG	PATIN HG	HGH-20-CA	HIWIN
13	1	HGR20R-520	GUIA LINEAL HGR	HGR20R-520 G1/G2-20	HIWIN
14	4	SELFOIL Casquillo liso A Ø6-10-10	Casquillo SELFOIL liso	SELFOIL A 6-10-10	ROYME
15	2	DIN 179 Casquillo liso B8.2 12 A	Casquillo guía	DIN 179 Casquillo liso B8.2 12 A	ROYME
16	2	FRENO HK2001A	FRENO PARA GUIA HIWIN EG	HK2001A	ZIMMER
17	2	GN 711.3-AL-1			
18	2	GN 711.2-AL-100-W-M-1			
19	14	M8	Arandela reforzada	DIN 9021B	
20	40	M8x30	Allen cabeza hueca hexagonal	DIN 912	
21	2	22-539-01-110	CALCE		

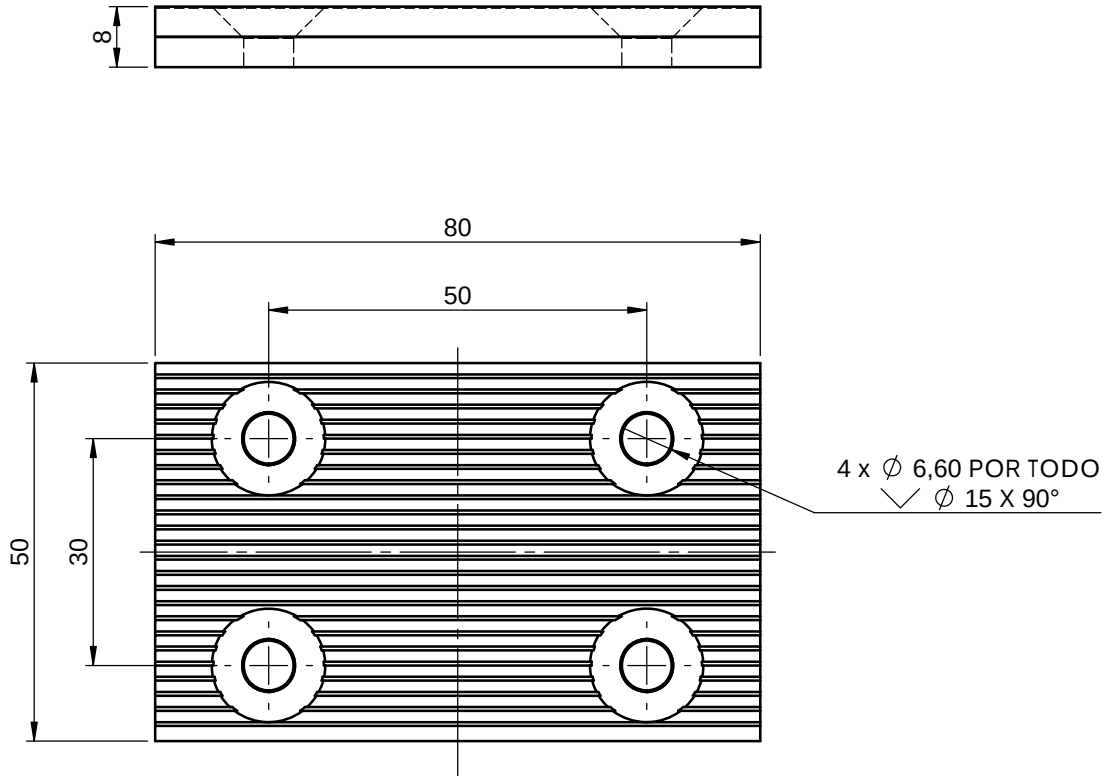
Cantidad/Quantity:		Tratamiento/Treatment:		Escala/Scale:	1:5	Peso/Weight:	
1		SIN TRATAMIENTO		Material/Material: ---			
Tolerancias dimensionales s/g DIN-7168-m Dimensional tolerances according to DIN-7168-m		Fecha/Date	Nombre/Name	Descripción/Description: GRUPO TOPE DOBLE			
From 0.5 to 3		09-09-22	J.MOÑUX				
From 3 to 6							
From 6 to 30				Plano N°/DRW N.: 22-539-01-SUB-01			
From 30 to 120							
From 120 to 400							
From 400 to 1000				Hoja/Sheet: 1/1			
From 1000 to 2000							
From 2000 to 4000							
From 4000 to 8000				Creces de mecanizado/Machining:			
±0.05							
±0.05							
±0.1				ergomaq			
±0.15							
±0.2							
±0.3				LA INFORMACION CONTENIDA EN ESTE PLANO ES PROPIEDAD EXCLUSIVA DE ERGOMAQ 97 S.L. QUEDA PROHIBIDA LA REPRODUCCION TOTAL O PARCIAL DE ESTE DOCUMENTO ASI COMO SU DIFUSION A TERCEROS SIN LA EXPRESA AUTORIZACION POR ESCRITO DE ERGOMAQ 97 S.L. / THE INFORMATION CONTAINED IN THIS DRAWING IS EXCLUSIVE PROPERTY OF ERGOMAQ 97 S.L. TOTAL OR PARTIAL REPRODUCTION OS THIS DOCUMENT IS PROHIBITED AS WELL AS ITS DISTRIBUTION TO THIRD PARTIES WITHOUT THE EXPRESS WRITTEN AUTORTATION OF ERGOMAQ 97 S.L.			
±0.5							
±0.8							
±3							
ISO -128		Grado acabado Ra/N Surface finish					
6.3 / N9		0.8 / N6					
3.2 / N8		0.4 / N5 RECTIFICADO					
1.6 / N7		0.2 / N4					



Cantidad/Quantity: 1		Tratamiento/Treatment: NEGRO RAL-9005		Escala/Scale: 1:1		Peso/Weight:																																			
				Material/Material: F111																																					
<table><tr><th colspan="8">Tolerancias dimensionales s/g DIN-7168-m Dimensional tolerances according to DIN-7168-m</th></tr><tr><td>From 0.5 to 3</td><td>From 3 to 6</td><td>From 6 to 30</td><td>From 30 to 120</td><td>From 120 to 400</td><td>From 400 to 1000</td><td>From 1000 to 2000</td><td>From 2000 to 4000</td></tr><tr><td>±0.05</td><td>±0.05</td><td>±0.1</td><td>±0.15</td><td>±0.2</td><td>±0.3</td><td>±0.5</td><td>±0.8</td></tr><tr><td>±0.05</td><td>±0.05</td><td>±0.1</td><td>±0.15</td><td>±0.2</td><td>±0.3</td><td>±0.5</td><td>±0.8</td></tr></table>				Tolerancias dimensionales s/g DIN-7168-m Dimensional tolerances according to DIN-7168-m								From 0.5 to 3	From 3 to 6	From 6 to 30	From 30 to 120	From 120 to 400	From 400 to 1000	From 1000 to 2000	From 2000 to 4000	±0.05	±0.05	±0.1	±0.15	±0.2	±0.3	±0.5	±0.8	±0.05	±0.05	±0.1	±0.15	±0.2	±0.3	±0.5	±0.8	Fecha/Date 27-02-23		Nombre/Name J.MOÑUX		Descripción/Description: GRUPO 01 CHAPA EMPUJADOR	
Tolerancias dimensionales s/g DIN-7168-m Dimensional tolerances according to DIN-7168-m																																									
From 0.5 to 3	From 3 to 6	From 6 to 30	From 30 to 120	From 120 to 400	From 400 to 1000	From 1000 to 2000	From 2000 to 4000																																		
±0.05	±0.05	±0.1	±0.15	±0.2	±0.3	±0.5	±0.8																																		
±0.05	±0.05	±0.1	±0.15	±0.2	±0.3	±0.5	±0.8																																		
ISO -128				Grado acabado Ra/N Surface finish		Plano N°/DRW N.: 22-539-01-111		Hoja/Sheet: 1/1																																	
				<table><tr><td>6.3 / N9</td><td>0.8 / N6</td></tr><tr><td>3.2 / N8</td><td>0.4 / N5</td></tr><tr><td>1.6 / N7</td><td>0.2 / N4</td></tr></table> N5 RECTIFICADO		6.3 / N9	0.8 / N6	3.2 / N8	0.4 / N5	1.6 / N7	0.2 / N4																														
6.3 / N9	0.8 / N6																																								
3.2 / N8	0.4 / N5																																								
1.6 / N7	0.2 / N4																																								
				Creces de mecanizado/Machining:																																					

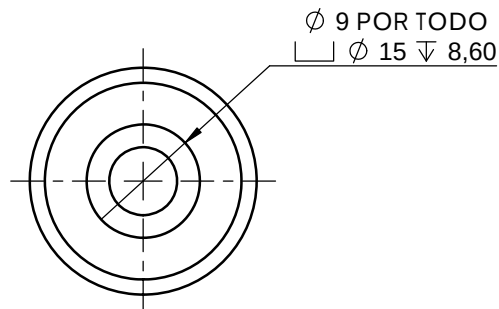
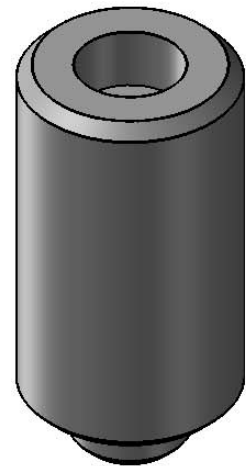
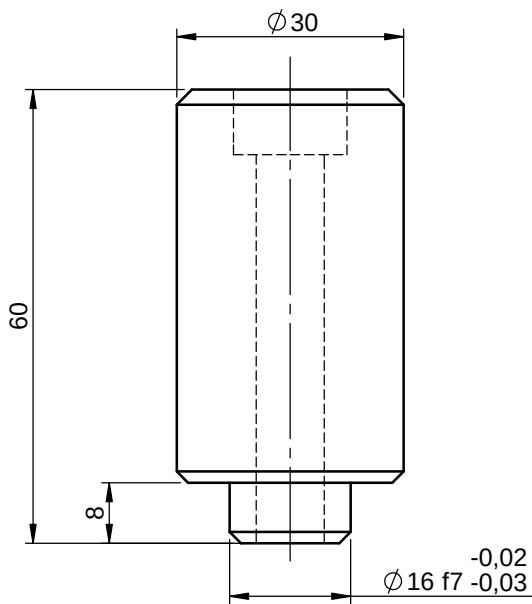
LA INFORMACION CONTENIDA EN ESTE PLANO ES PROPIEDAD EXCLUSIVA DE ERGOMAQ 97 S.L. QUEDA PROHIBIDA LA REPRODUCCION TOTAL O PARCIAL DE ESTE DOCUMENTO ASI COMO SU DIFUSION A TERCEROS SIN LA EXPRESA AUTORIZACION POR ESCRITO DE ERGOMAQ 97 S.L. / THE INFORMATION CONTAINED IN THIS DRAWING IS EXCLUSIVE PROPERTY OF ERGOMAQ 97 S.L. TOTAL OR PARTIAL REPRODUCTION OF THIS DOCUMENT IS PROHIBITED AS WELL AS ITS DISTRIBUTION TO THIRD PARTIES WITHOUT THE EXPRESS WRITTEN AUTORIZATION OF ERGOMAQ 97 S.L.





Nº	CANTIDAD	DENOM.	DESCRIPCION	REF.	PROV.
1	1	PLETINA GU2G	PLACA GOMA PARA GARRAS	GU2G	SOMMER

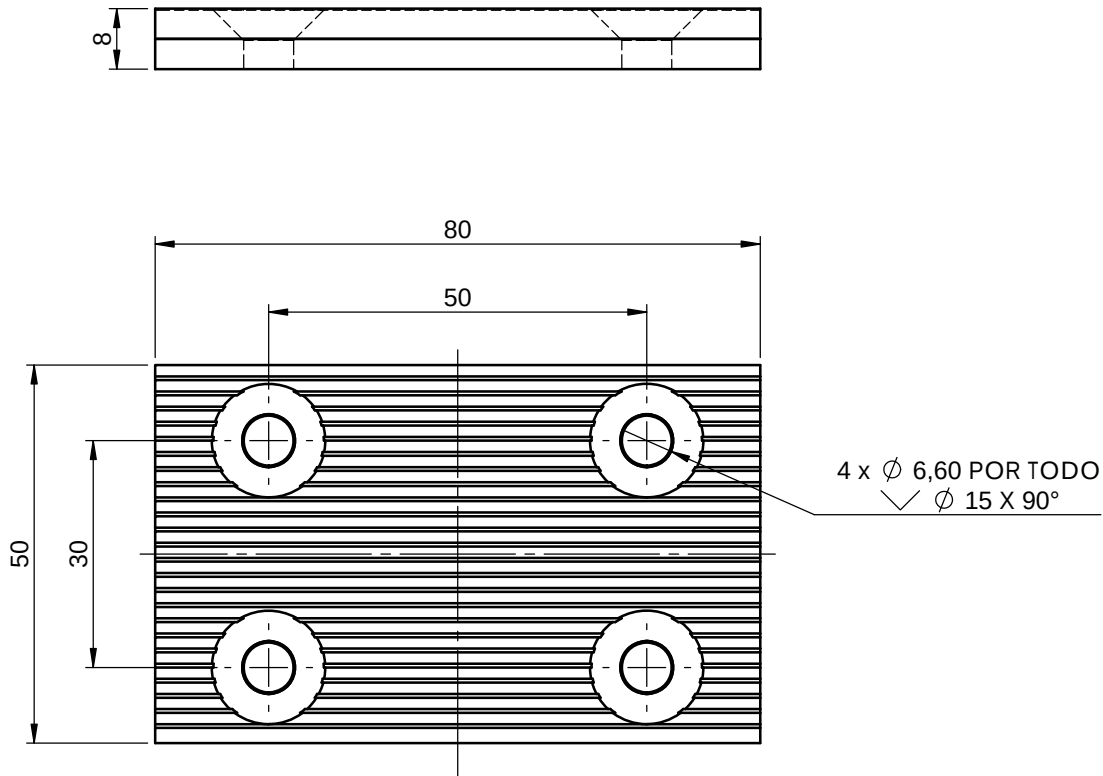
Cantidad/Quantity: 1		Tratamiento/Treatment: SIN TRATAMIENTO		Escala/Scale: 1:1	Peso/Weight:
				Material/Material: PLETINA GU2G	
Tolerancias dimensionales s/g DIN-7168-m Dimensional tolerances according to DIN-7168-m		Fecha/Date	Nombre/Name	Descripción/Description:	
From 0.5 to 3	From 3 to 6	From 6 to 30	From 30 to 120	From 120 to 400	From 400 to 1000
From 1000 to 2000	From 2000 to 4000	From 4000 to 8000			
±0.05	±0.05	±0.1	±0.15	±0.2	±0.3
±0.5	±0.8	±3			
Para tamaños inferiores a 0.5 se indicará la desviación junto al nominal de referencia./For sizes below 0.5 tolerance will be indicated with the dimension marks.		Dibujado/Drawn	10-11-22	J.MOÑUX	GRUPO 01 PLACA DE AMARRE
		Revisado/Checked			
		Aprobado/Approved			
ISO -128	Grado acabado Ra/N Surface finish			Plano N°/DRW N.:	Hoja/Sheet:
	6.3/ N9 3.2/ N8 1.6/ N7 0.8/ N6 0.4/ N5 RECTIFICADO 0.2/ N4			22-539-01-054	1/1
Creces de mecanizado/Machining:					



Cantidad/Quantity: 2		Tratamiento/Treatment: TEMPLADO 56-58 Hrc		Escala/Scale: 1:1	Peso/Weight:																		
				Material/Material: K720																			
Tolerancias dimensionales s/g DIN-7168-m Dimensional tolerances according to DIN-7168-m		Fecha/Date	Nombre/Name	Descripción/Description:																			
<table><tr><td>From 0,5 to 3</td><td>From 3 to 6</td><td>From 6 to 30</td><td>From 30 to 120</td><td>From 120 to 400</td><td>From 400 to 1000</td><td>From 1000 to 2000</td><td>From 2000 to 4000</td><td>From 4000 to 8000</td></tr><tr><td>±0.05</td><td>±0.05</td><td>±0.1</td><td>±0.15</td><td>±0.2</td><td>±0.3</td><td>±0.5</td><td>±0.8</td><td>±3</td></tr></table>		From 0,5 to 3	From 3 to 6	From 6 to 30	From 30 to 120	From 120 to 400	From 400 to 1000	From 1000 to 2000	From 2000 to 4000	From 4000 to 8000	±0.05	±0.05	±0.1	±0.15	±0.2	±0.3	±0.5	±0.8	±3	Dibujada/Drawn	09-11-22	J.MOÑUX	GRUPO 01 TOPE CENTRADOR
From 0,5 to 3	From 3 to 6	From 6 to 30	From 30 to 120	From 120 to 400	From 400 to 1000	From 1000 to 2000	From 2000 to 4000	From 4000 to 8000															
±0.05	±0.05	±0.1	±0.15	±0.2	±0.3	±0.5	±0.8	±3															
		Revisada/Checked																					
		Aprobado/Approved																					
Para tamaños inferiores a 0,5 se indicará la desviación junto al nominal de referencia./For sizes below 0.5 tolerance will be indicated with the dimension marks.																							
ISO -128	Grado acabado Ra/N Surface finish			Plano N°/DRW N.:	Hoja/Sheet:																		
	<table><tr><td>6.3 √ N9</td><td>0.8 √ N6</td></tr><tr><td>3.2 √ N8</td><td>0.4 √ N5 RECTIFICADO</td></tr><tr><td>1.6 √ N7</td><td>0.2 √ N4</td></tr></table>			6.3 √ N9	0.8 √ N6	3.2 √ N8	0.4 √ N5 RECTIFICADO	1.6 √ N7	0.2 √ N4	22-539-01-029	1/1												
6.3 √ N9	0.8 √ N6																						
3.2 √ N8	0.4 √ N5 RECTIFICADO																						
1.6 √ N7	0.2 √ N4																						
				Creces de mecanizado/Machining:																			
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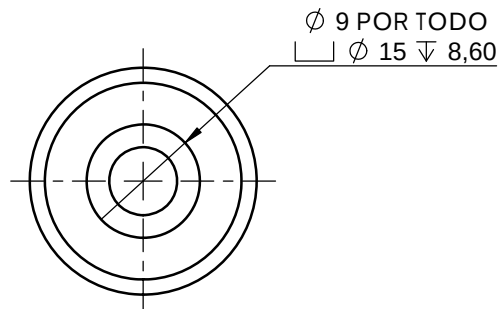
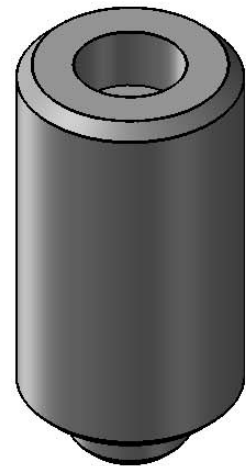
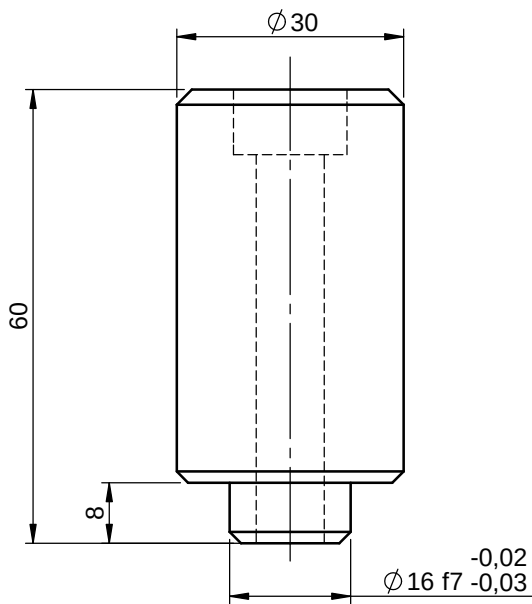
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Nº	CANTIDAD	DENOM.	DESCRIPCION	REF.	PROV.
1	1	PLETINA GU2G	PLACA GOMA PARA GARRAS	GU2G	SOMMER

Cantidad/Quantity: 1		Tratamiento/Treatment: SIN TRATAMIENTO		Escala/Scale: 1:1	Peso/Weight:																	
				Material/Material: PLETINA GU2G																		
Tolerancias dimensionales s/g DIN-7168-m Dimensional tolerances according to DIN-7168-m <table border="1"> <tr> <td>From 0.5 to 3</td> <td>From 3 to 6</td> <td>From 6 to 30</td> <td>From 30 to 120</td> <td>From 120 to 400</td> <td>From 400 to 1000</td> <td>From 1000 to 2000</td> <td>From 2000 to 4000</td> <td>From 4000 to 8000</td> </tr> <tr> <td>±0.05</td> <td>±0.05</td> <td>±0.1</td> <td>±0.15</td> <td>±0.2</td> <td>±0.3</td> <td>±0.5</td> <td>±0.8</td> <td>±3</td> </tr> </table> Para tamaños inferiores a 0.5 se indicará la desviación junto al nominal de referencia./For sizes below 0.5 tolerance will be indicated with the dimension marks.		From 0.5 to 3	From 3 to 6	From 6 to 30	From 30 to 120	From 120 to 400	From 400 to 1000	From 1000 to 2000	From 2000 to 4000	From 4000 to 8000	±0.05	±0.05	±0.1	±0.15	±0.2	±0.3	±0.5	±0.8	±3	Fecha/Date 10-11-22 Nombre/Name J.MOÑUX	Descripción/Description: GRUPO 01 PLACA DE AMARRE	
From 0.5 to 3	From 3 to 6	From 6 to 30	From 30 to 120	From 120 to 400	From 400 to 1000	From 1000 to 2000	From 2000 to 4000	From 4000 to 8000														
±0.05	±0.05	±0.1	±0.15	±0.2	±0.3	±0.5	±0.8	±3														
ISO -128 	Grado acabado Ra/N Surface finish <table border="1"> <tr> <td>6.3 N9</td> <td>0.8 N6</td> </tr> <tr> <td>3.2 N8</td> <td>0.4 N5 RECTIFICADO</td> </tr> <tr> <td>1.6 N7</td> <td>0.2 N4</td> </tr> </table>	6.3 N9	0.8 N6	3.2 N8	0.4 N5 RECTIFICADO	1.6 N7	0.2 N4			Plano N°/DRW N.: 22-539-01-054	Hoja/Sheet: 1/1											
6.3 N9	0.8 N6																					
3.2 N8	0.4 N5 RECTIFICADO																					
1.6 N7	0.2 N4																					
		Cresces de mecanizado/Machining:																				



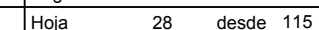
Cantidad/Quantity: 2		Tratamiento/Treatment: TEMPLADO 56-58 Hrc		Escala/Scale: 1:1	Peso/Weight:																		
				Material/Material: K720																			
Tolerancias dimensionales s/g DIN-7168-m Dimensional tolerances according to DIN-7168-m		Fecha/Date	Nombre/Name	Descripción/Description:																			
<table><tr><td>From 0,5 to 3</td><td>From 3 to 6</td><td>From 6 to 30</td><td>From 30 to 120</td><td>From 120 to 400</td><td>From 400 to 1000</td><td>From 1000 to 2000</td><td>From 2000 to 4000</td><td>From 4000 to 8000</td></tr><tr><td>±0.05</td><td>±0.05</td><td>±0.1</td><td>±0.15</td><td>±0.2</td><td>±0.3</td><td>±0.5</td><td>±0.8</td><td>±3</td></tr></table>		From 0,5 to 3	From 3 to 6	From 6 to 30	From 30 to 120	From 120 to 400	From 400 to 1000	From 1000 to 2000	From 2000 to 4000	From 4000 to 8000	±0.05	±0.05	±0.1	±0.15	±0.2	±0.3	±0.5	±0.8	±3	Dibujada/Drawn	09-11-22	J.MOÑUX	GRUPO 01 TOPE CENTRADOR
From 0,5 to 3	From 3 to 6	From 6 to 30	From 30 to 120	From 120 to 400	From 400 to 1000	From 1000 to 2000	From 2000 to 4000	From 4000 to 8000															
±0.05	±0.05	±0.1	±0.15	±0.2	±0.3	±0.5	±0.8	±3															
		Revisada/Checked																					
		Aprobado/Approved																					
Para tamaños inferiores a 0,5 se indicará la desviación junto al nominal de referencia./For sizes below 0.5 tolerance will be indicated with the dimension marks.																							
ISO -128	Grado acabado Ra/N Surface finish			Plano N°/DRW N.:	Hoja/Sheet:																		
	<table><tr><td>6.3 √ N9</td><td>0.8 √ N6</td></tr><tr><td>3.2 √ N8</td><td>0.4 √ N5 RECTIFICADO</td></tr><tr><td>1.6 √ N7</td><td>0.2 √ N4</td></tr></table>			6.3 √ N9	0.8 √ N6	3.2 √ N8	0.4 √ N5 RECTIFICADO	1.6 √ N7	0.2 √ N4	22-539-01-029	1/1												
6.3 √ N9	0.8 √ N6																						
3.2 √ N8	0.4 √ N5 RECTIFICADO																						
1.6 √ N7	0.2 √ N4																						
				Creces de mecanizado/Machining:																			
LA INFORMACION CONTENIDA EN ESTE PLANO ES PROPIEDAD EXCLUSIVA DE ERGOMAQ 97 S.L. QUEDA PROHIBIDA LA REPRODUCCION TOTAL O PARCIAL DE ESTE DOCUMENTO ASI COMO SU DIFUSION A TERCEROS SIN LA EXPRESA AUTORIZACION POR ESCRITO DE ERGOMAQ 97 S.L. / THE INFORMATION CONTAINED IN THIS DRAWING IS EXCLUSIVE PROPERTY OF ERGOMAQ 97 S.L. TOTAL OR PARTIAL REPRODUCTION OF THIS DOCUMENT IS PROHIBITED AS WELL AS ITS DISTRIBUTION TO THIRD PARTIES WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF ERGOMAQ 97 S.L.																							

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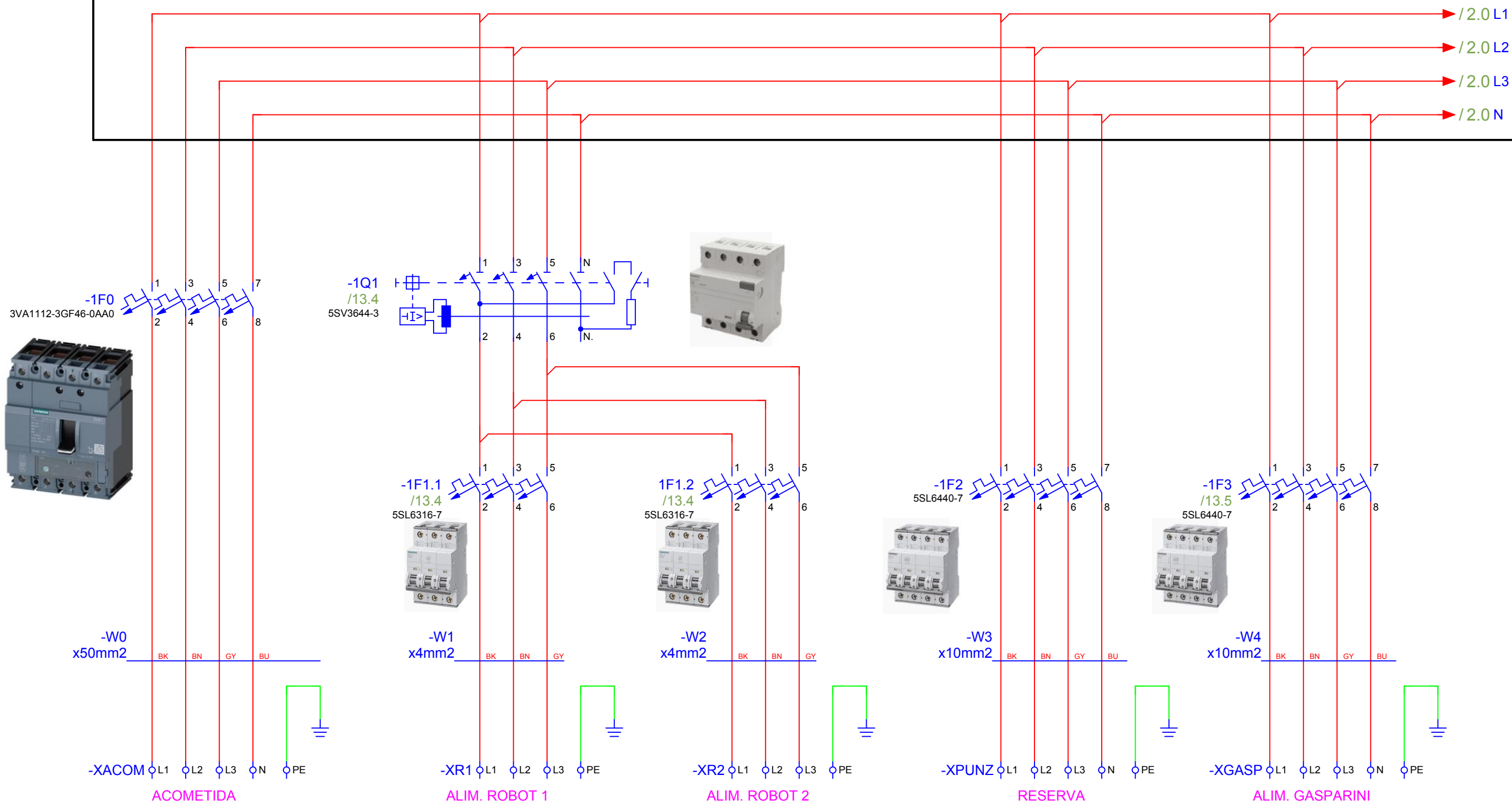


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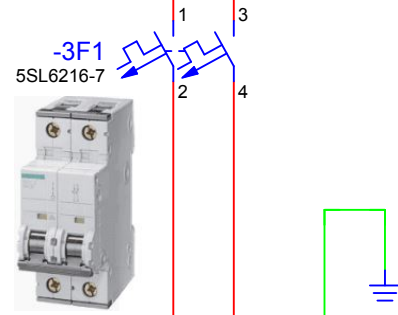
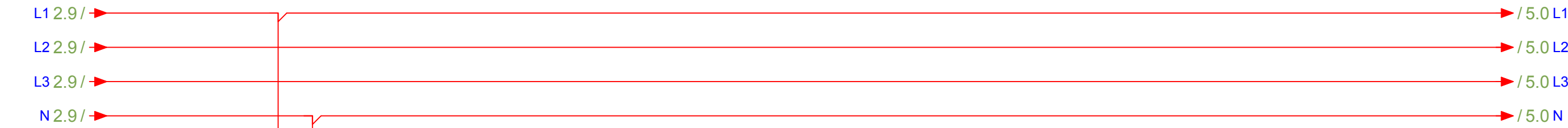
3.1. ARMARIO AE



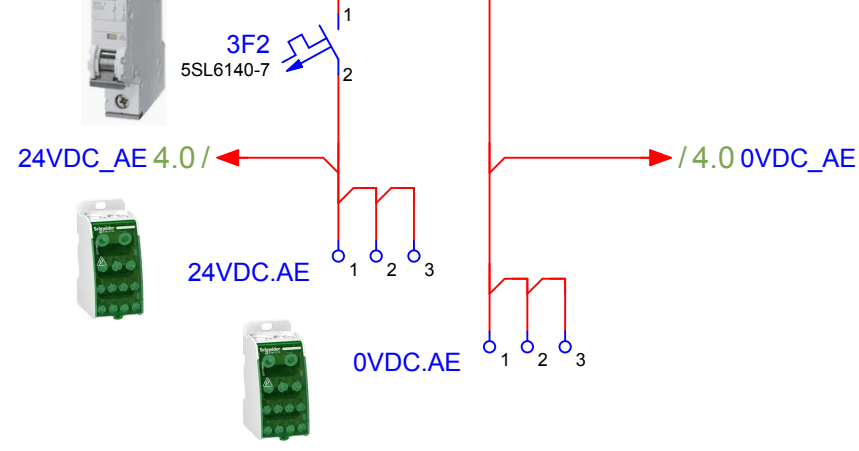
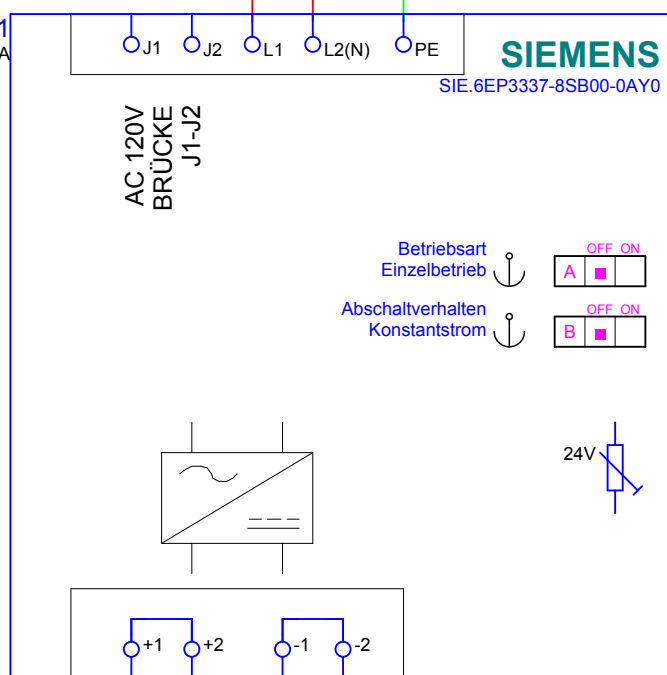
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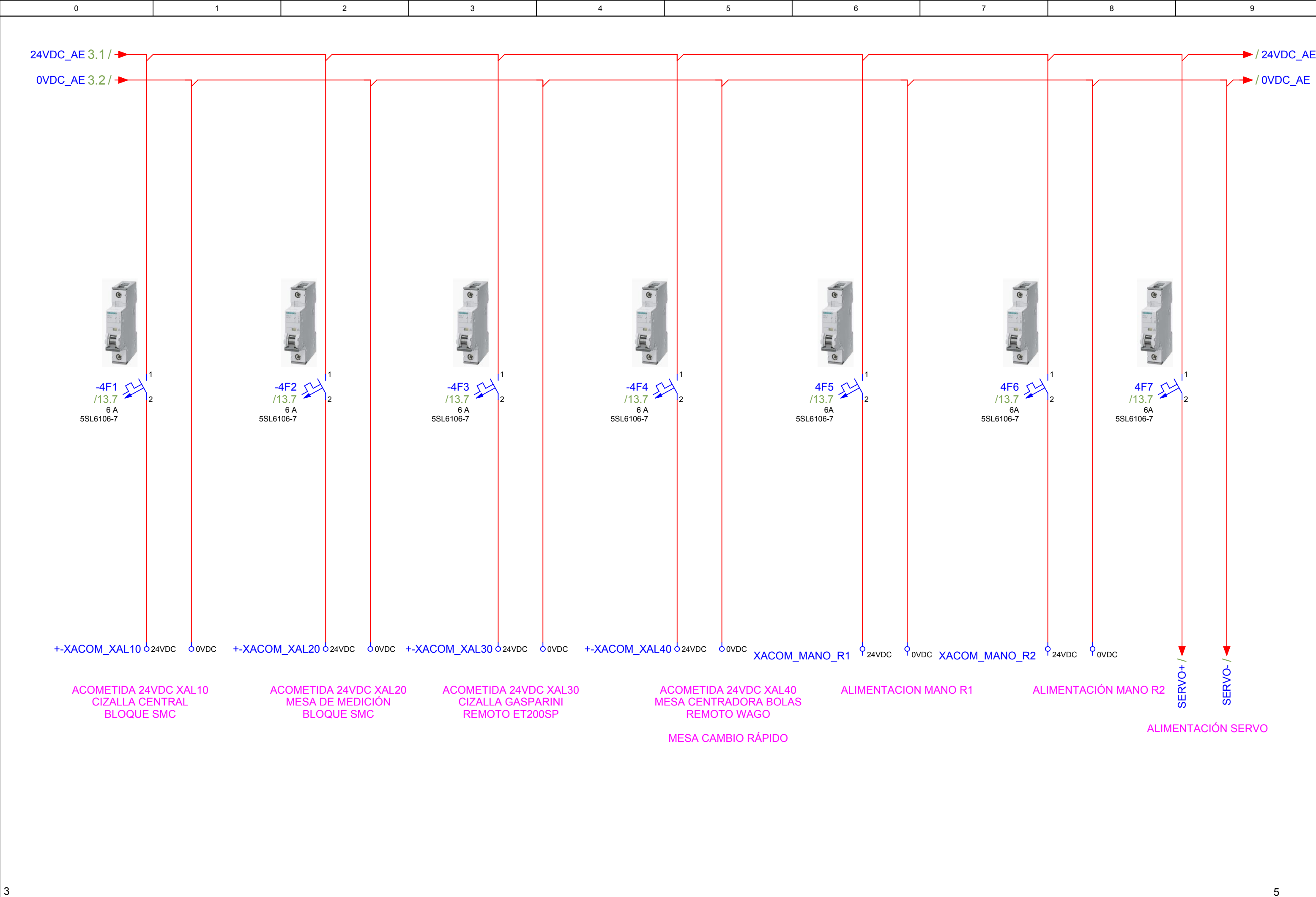


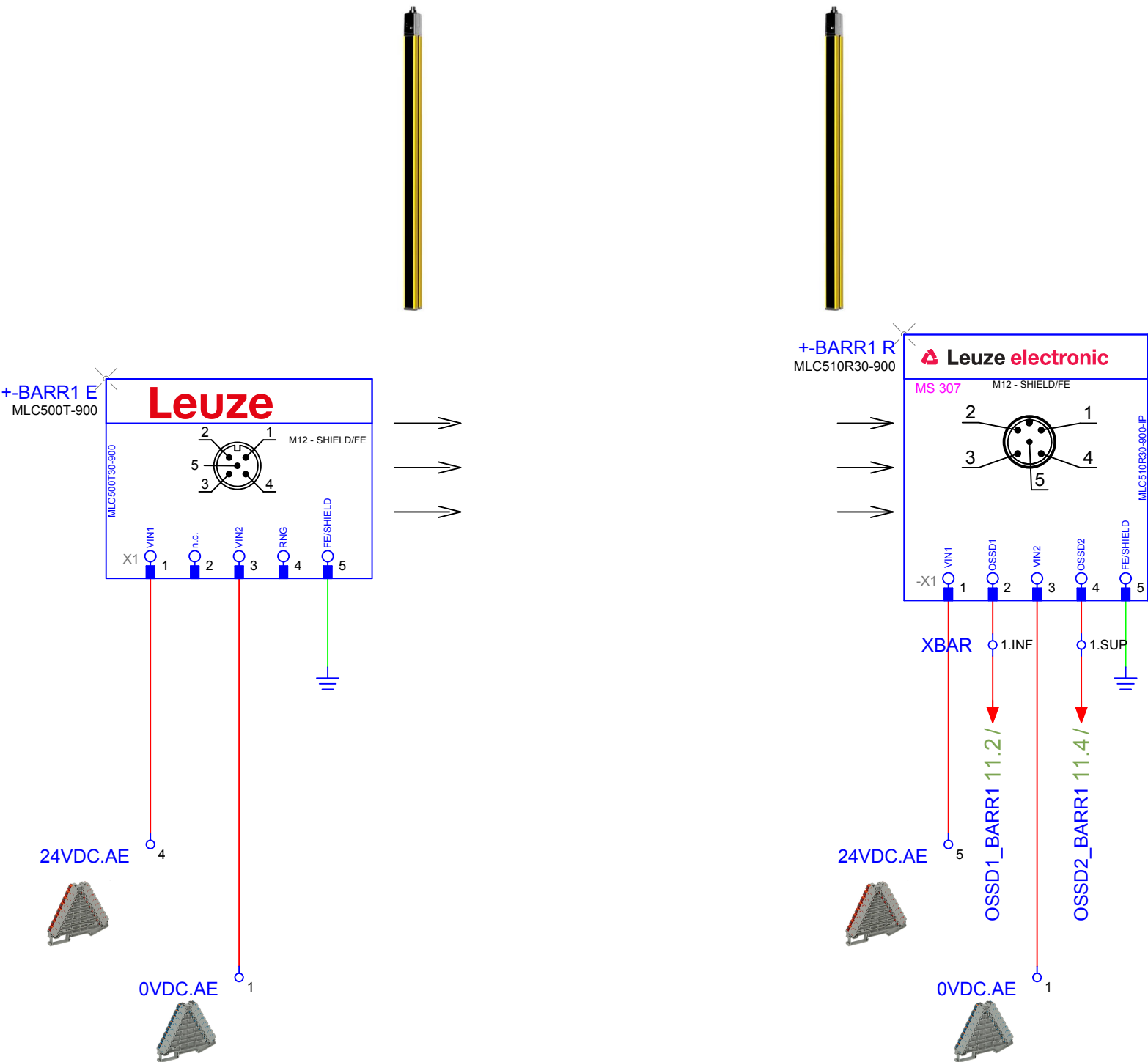




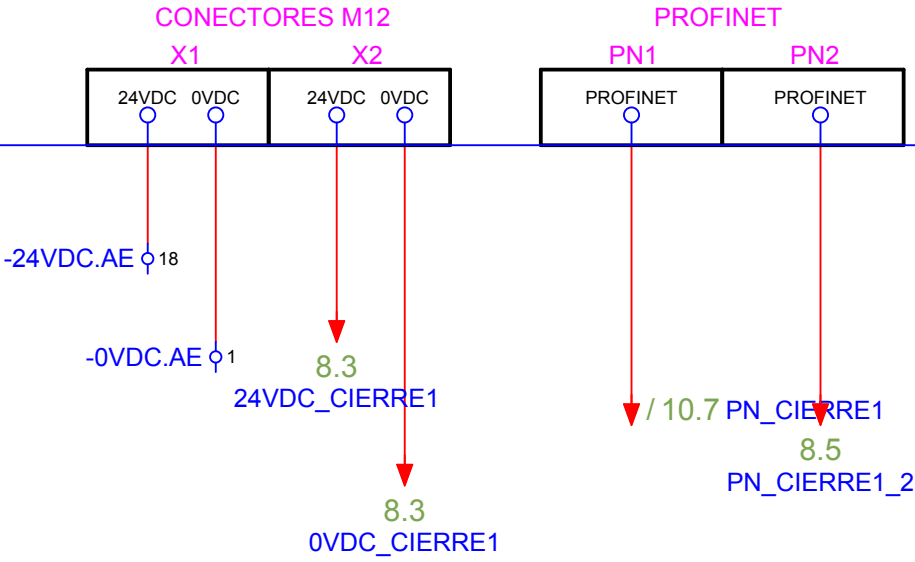
-3FACC1
In: AC 120/230 V Out: DC 24 V/40 A







CIERRE1



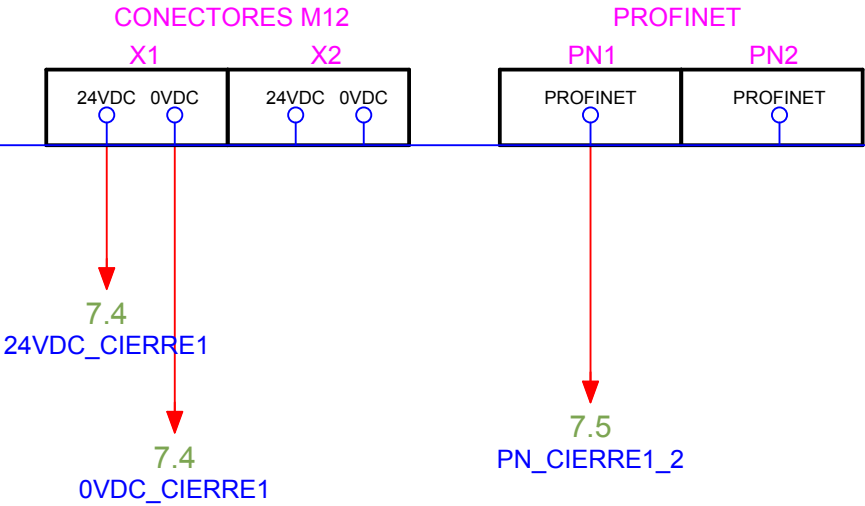
Fecha de Revisión	Modificación Realizada	Autor Revisión



ERG_CIERRE PUERTA IZQ
13/01/2023

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+AE	Página 7
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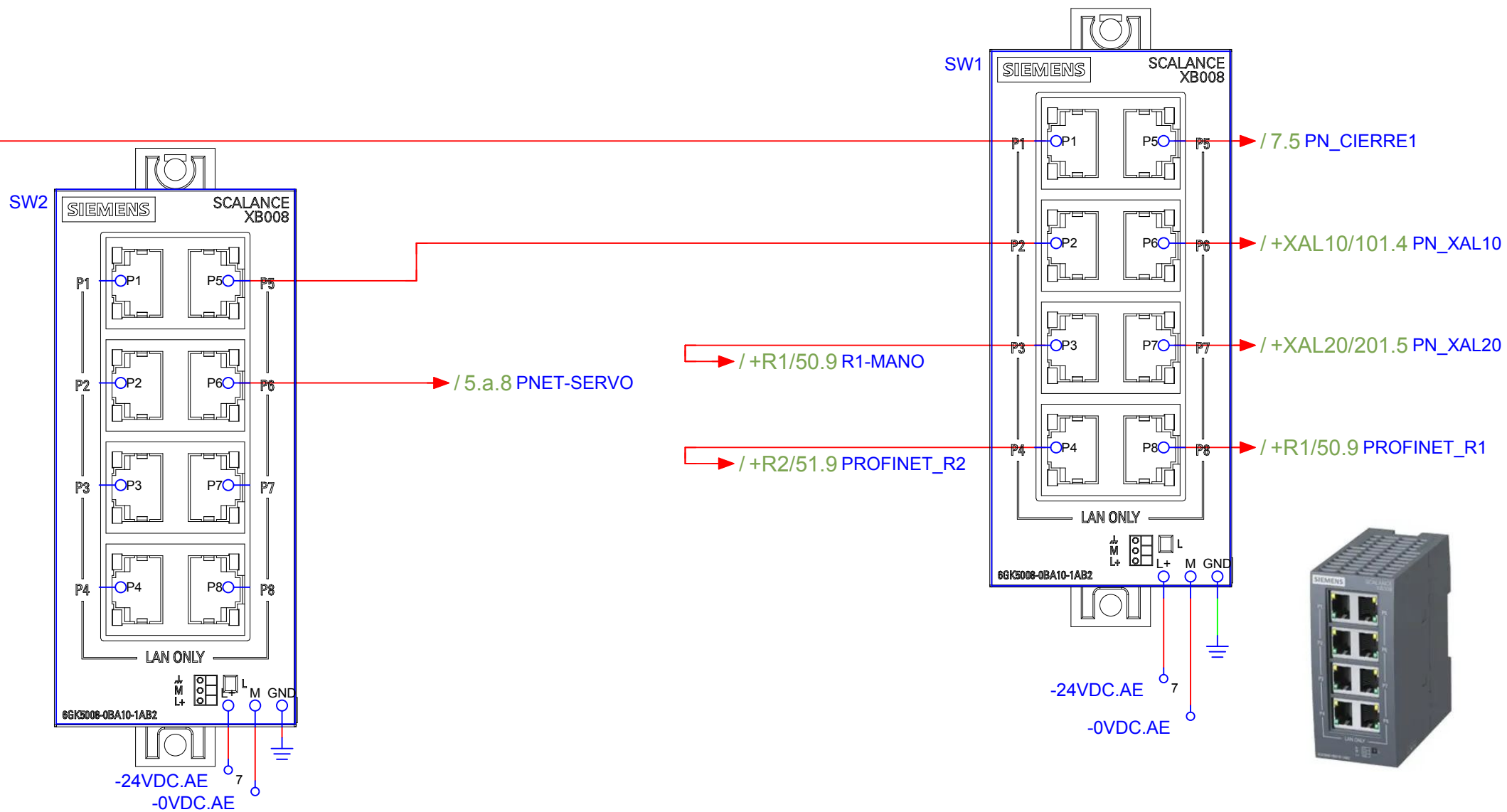
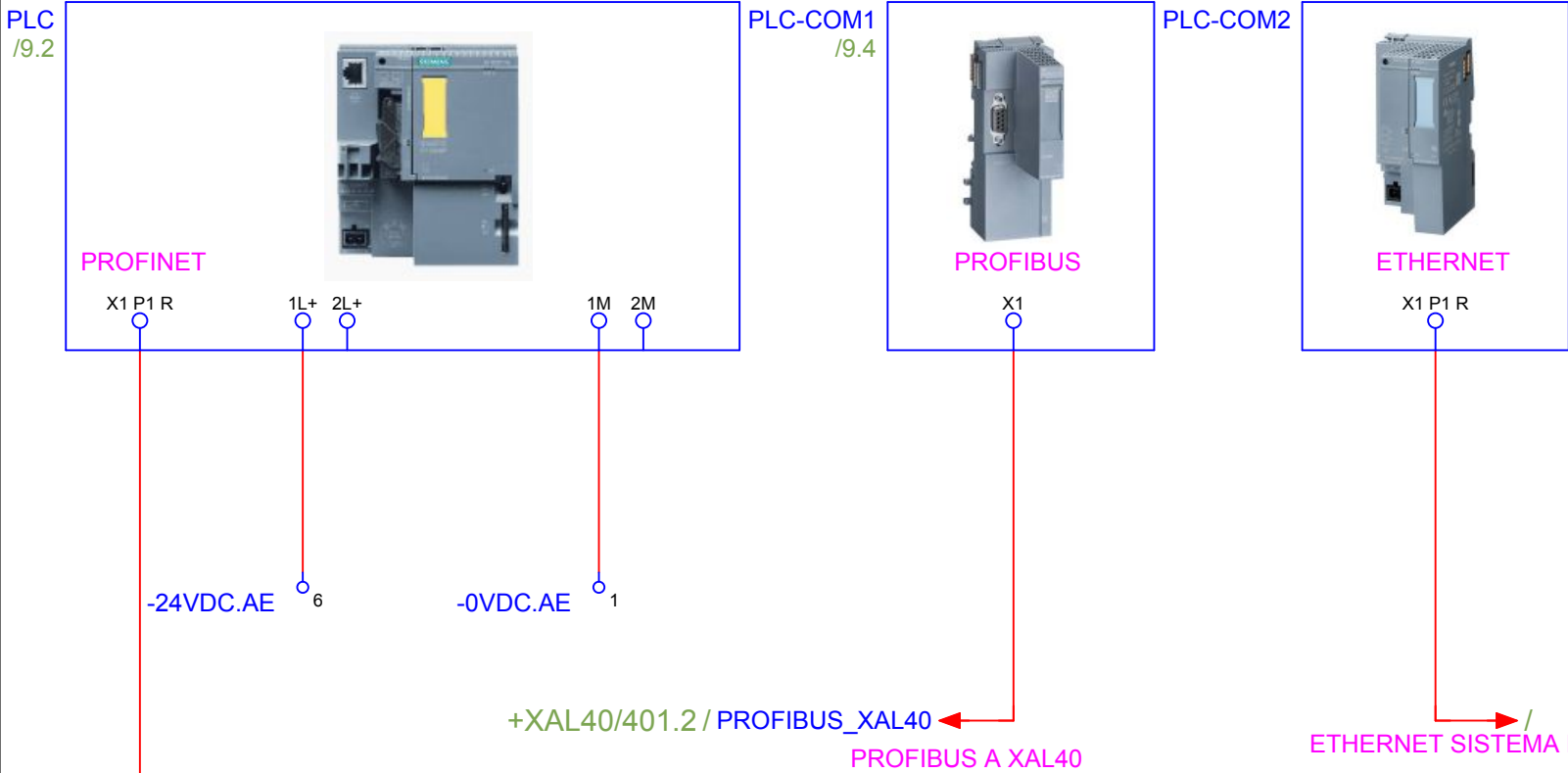
CIERRE2

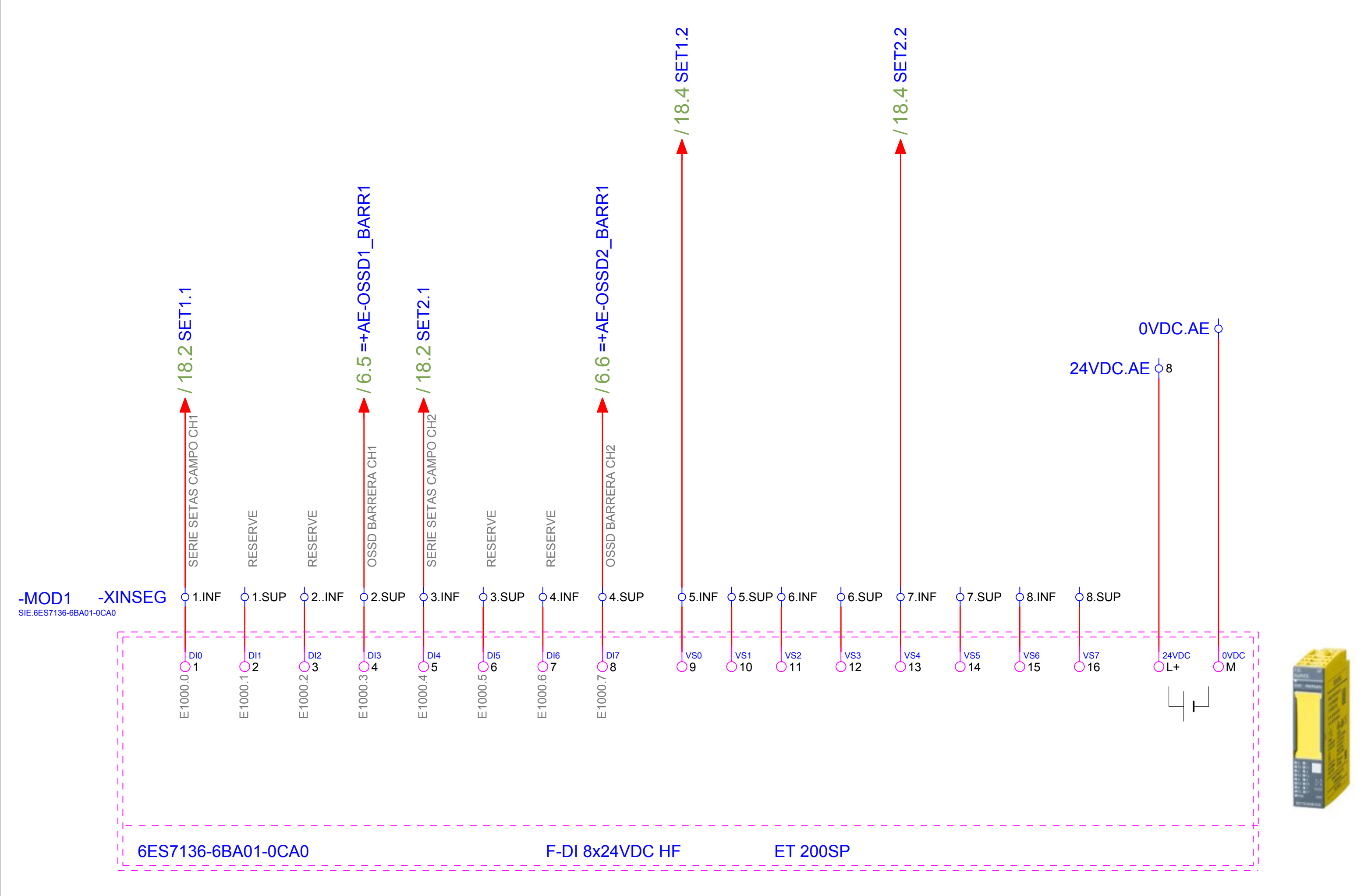


7.4
24VDC_CIERRE1
7.4
0VDC_CIERRE1

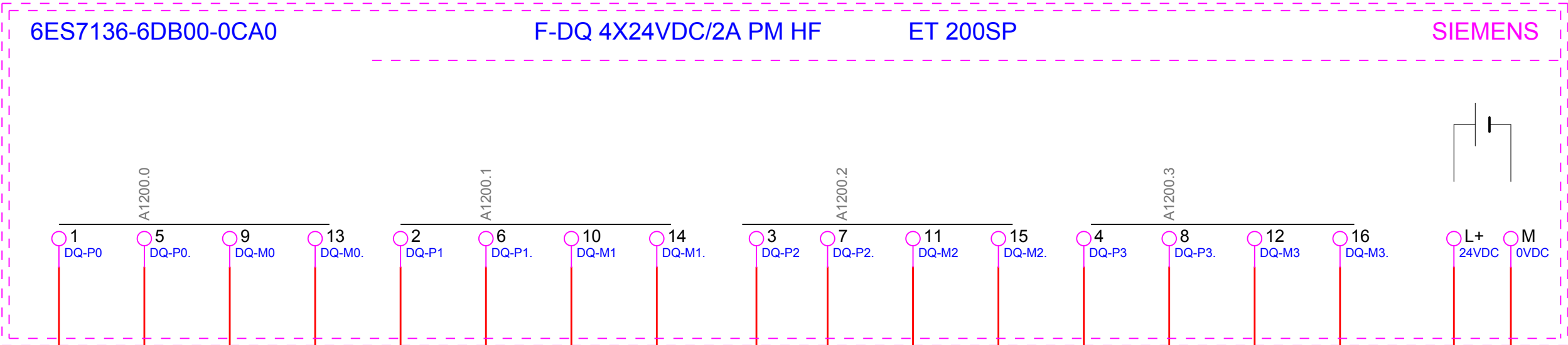
7.5
PN_CIERRE1_2







-MOD2
SIE.6ES7136-6DB00-0CA0



SEGURIDAD PUERTAS

CORTE VÁLVULA GENERAL

SEGURIDAD GASPARINI

XOUTSEG

KSE2
G7SA-3A1B 24VDC

A1
A2

KSE4
G7SA-3A1B 24VDC

A1
A2

KSE6
G7SA-3A1B 24VDC

A1
A2

KSE1
G7SA-3A1B 24VDC

A1
A2

KSE3
G7SA-3A1B 24VDC

A1
A2

KSE5
G7SA-3A1B 24VDC

A1
A2

24VDC.AE 9

0VDC.AE 9

11 - 121/17.0 - 12 /17.1
13 - 141/14.6 - 14 /14.6
23 - 243/19.5 - 34 /19.9
33 - 344/19.9 - 44 /19.5

12 - 111/5.a.6 - 11 /5.a.7
11 - 121/17.1 - 12 /17.2
23 - 242/19.4 - 24 /19.4

11 - 121/17.2 - 12 /17.3
13 - 141/19.1 - 14 /19.1



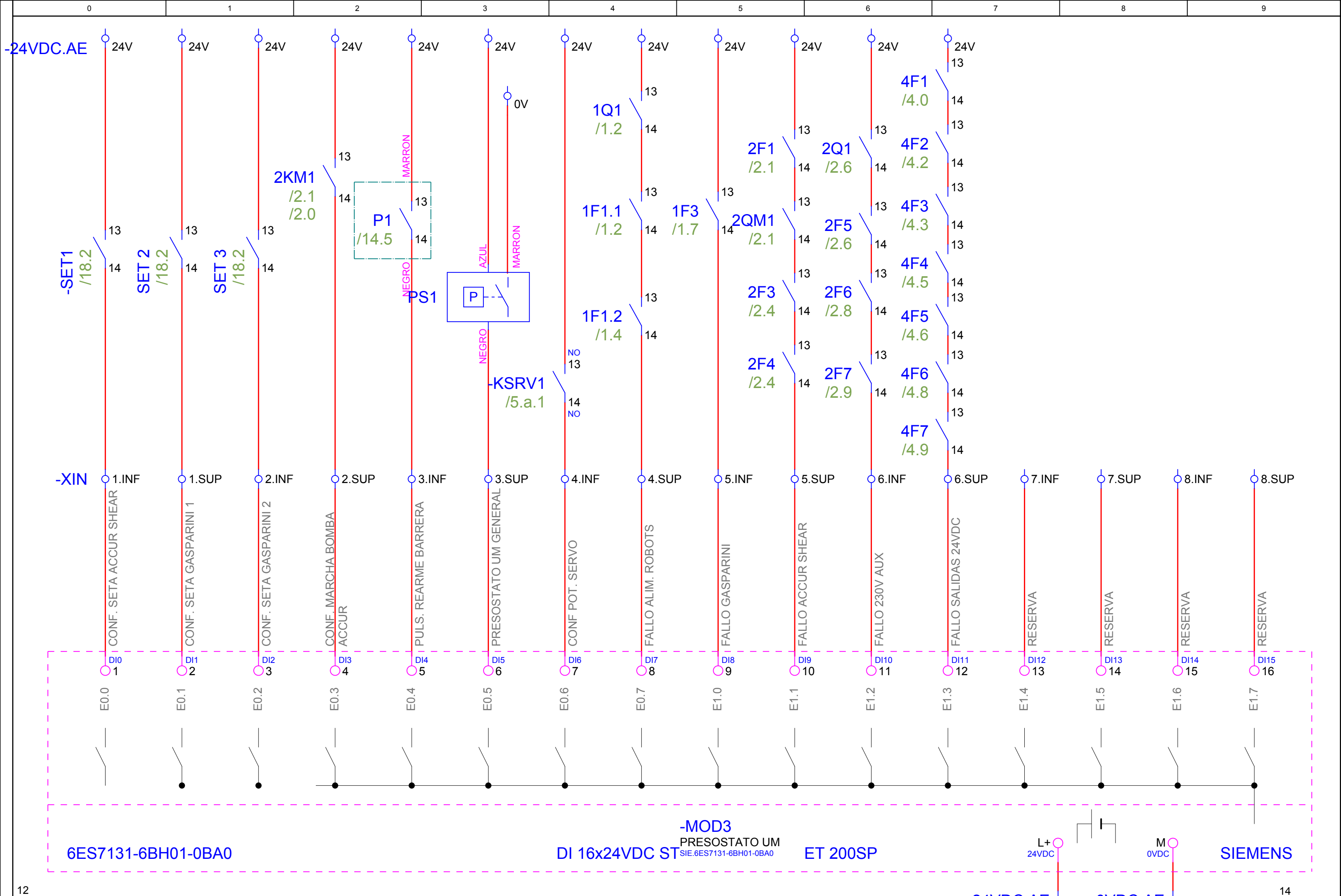
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Ctra. Huesca, Km 13,600. - Polígono Sector 1
50830 Villanueva de Gállego - Zaragoza (España)
Tel: +34 976 150 601 - Fax: +34 976 150 661
E-mail: info@ergomaq.com

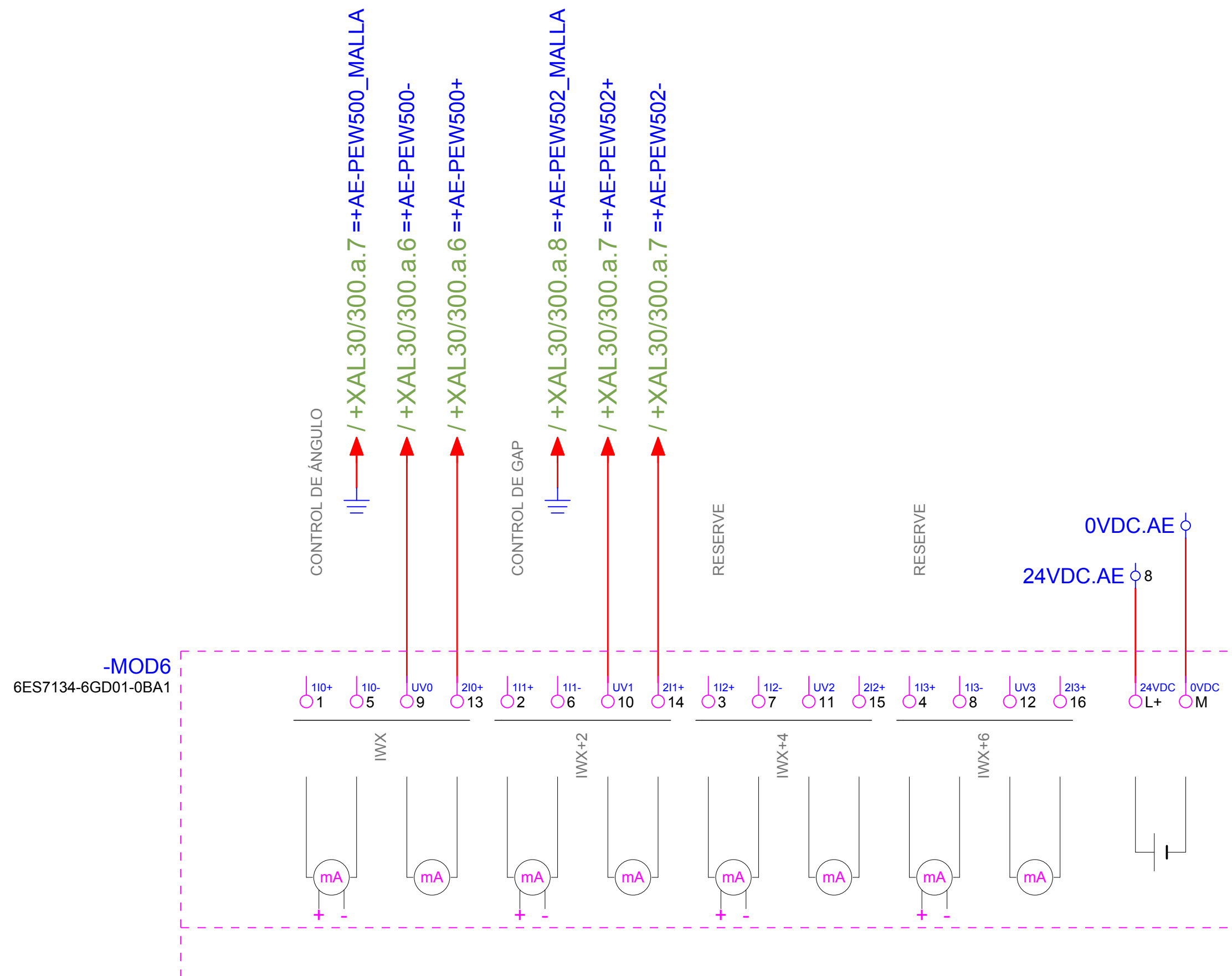
Fecha de Revisión	Modificación Realizada	Autor Revisión

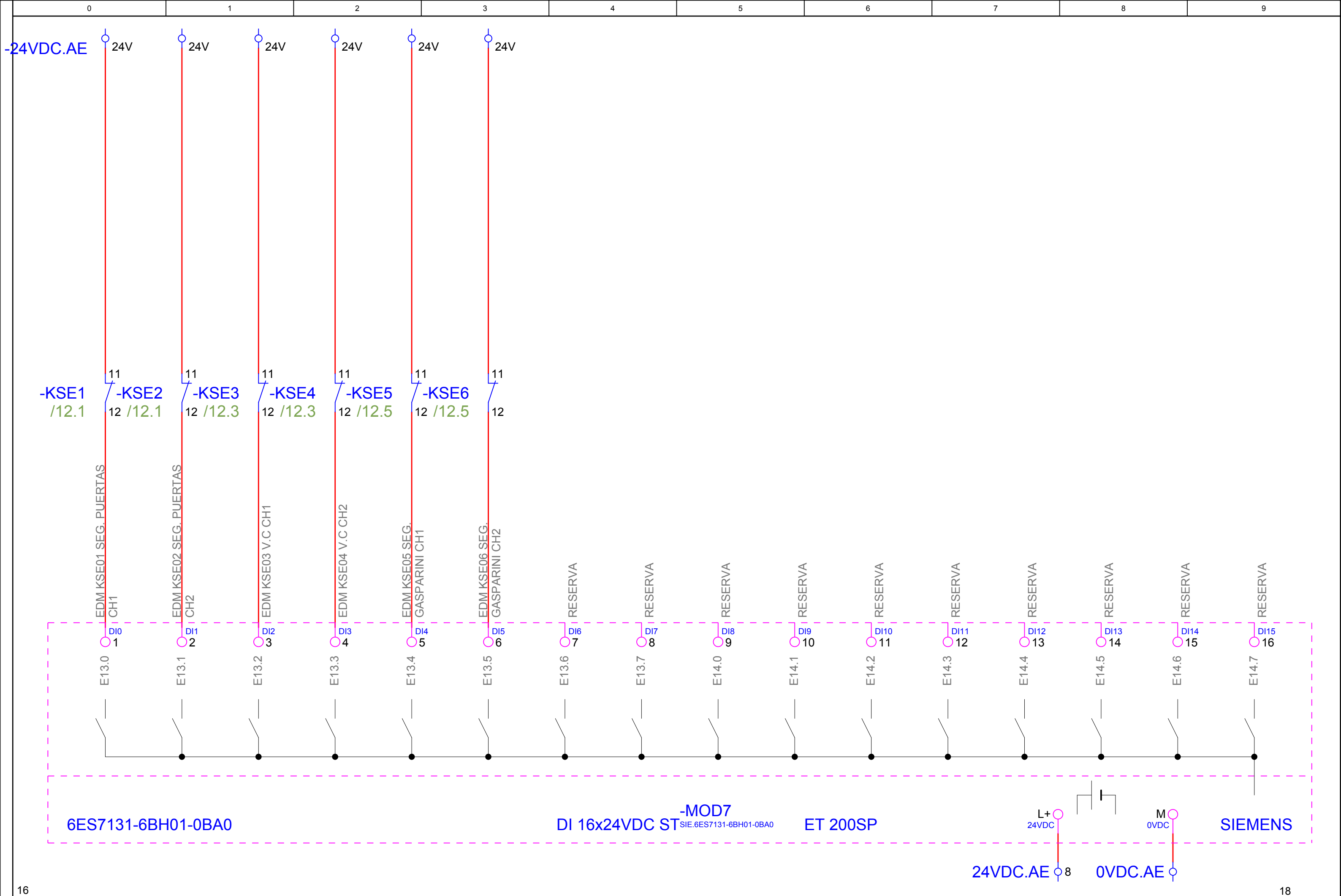
22-0539
RETROFIT POST CUTTING
22-539 RETROFIT POST CUTTING

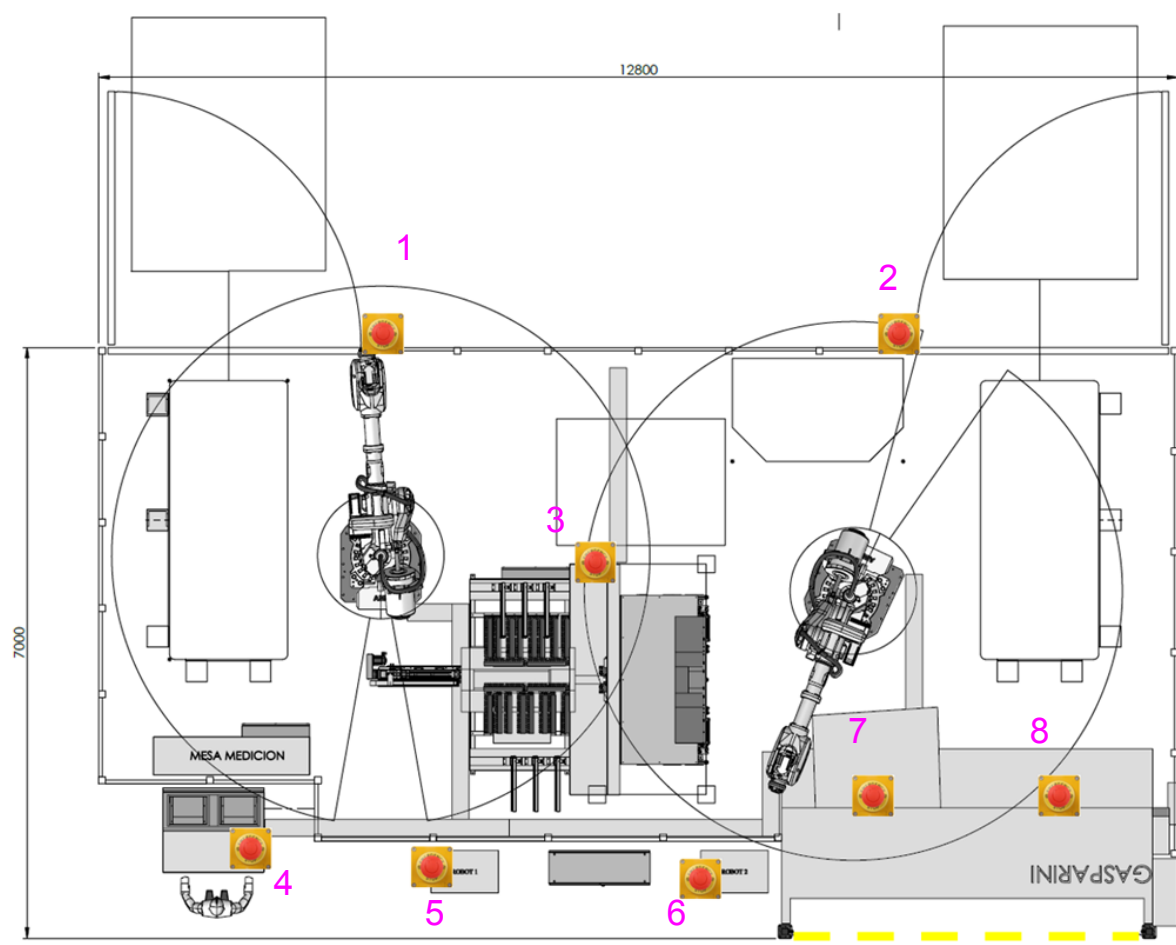
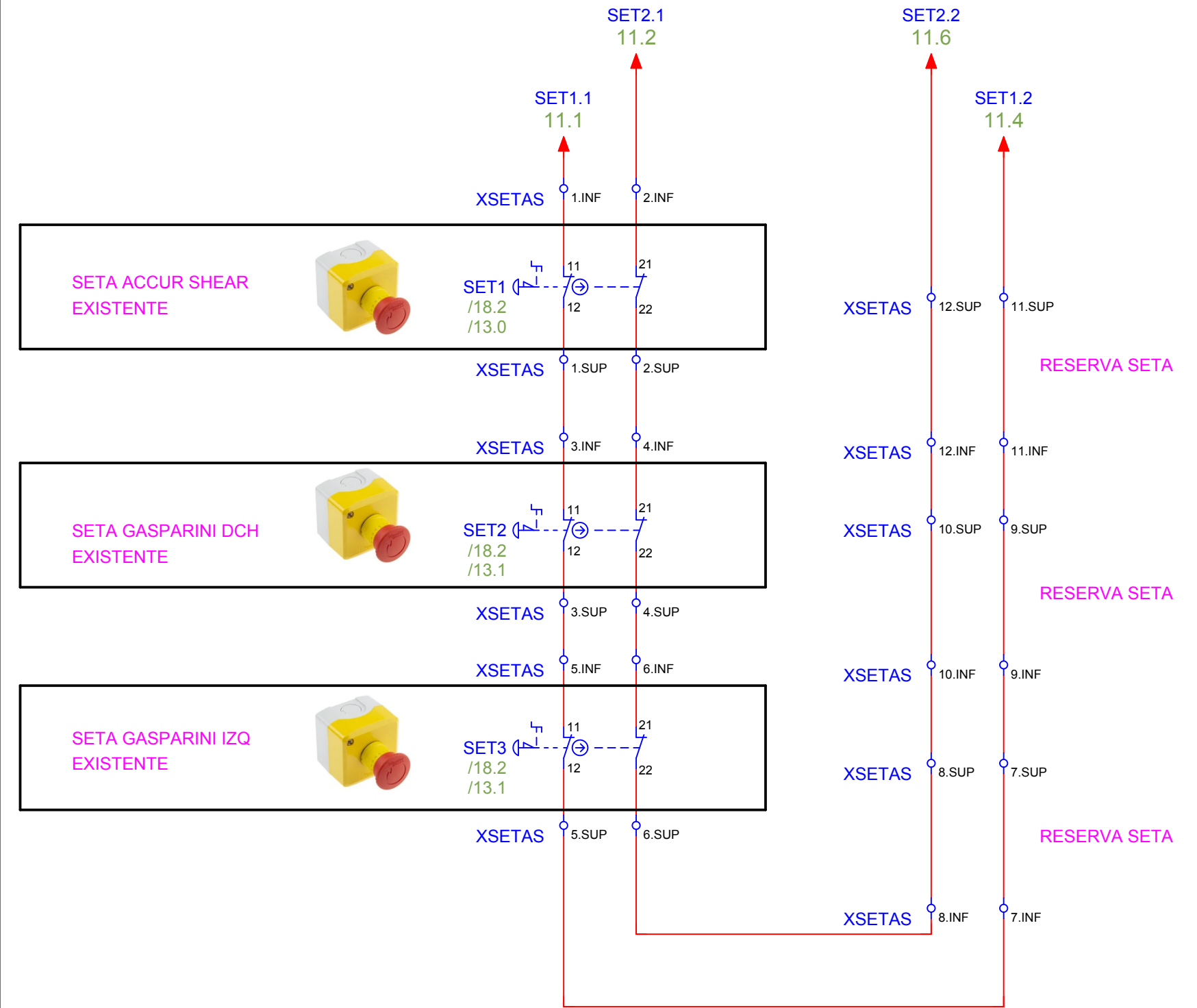


MOD2 4xF-DQ	=	&SCH
	+AE	Página 12
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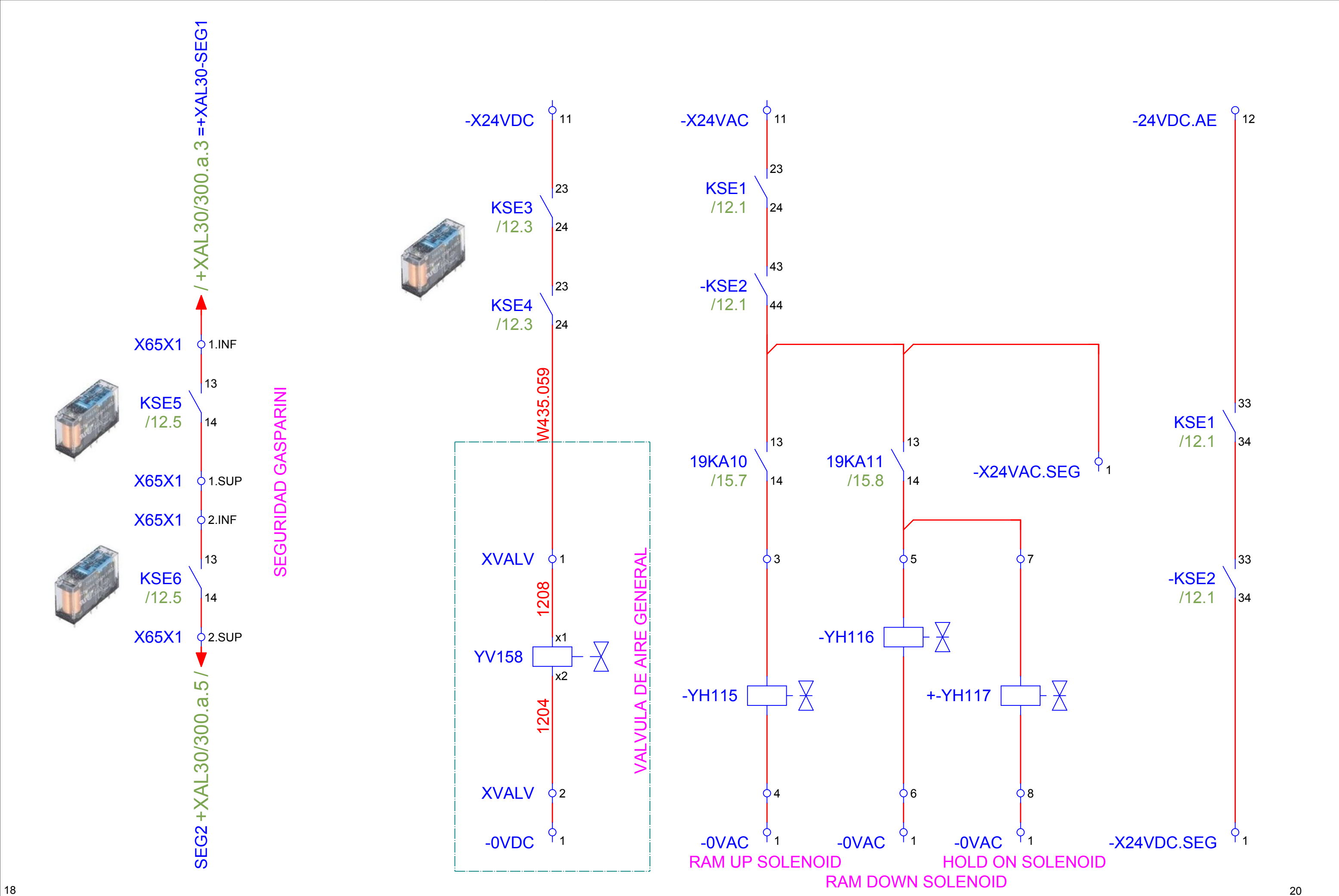




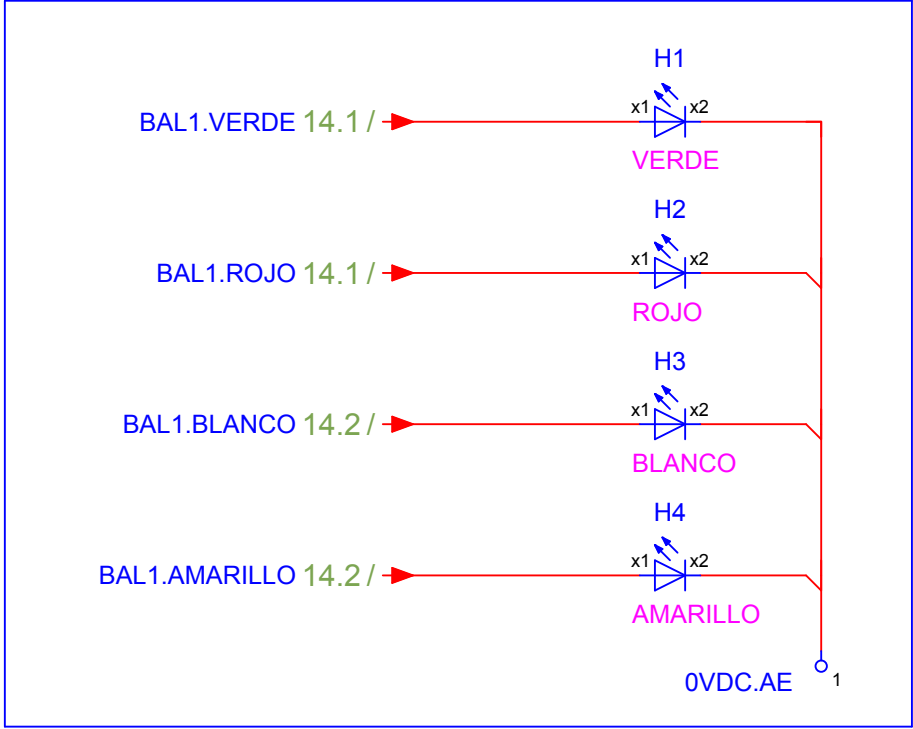




- 1: SETA CIERRE DCH (ETHERNET)
- 2: SETA CIERRE IZ(ETHERNET)
- 3: SETA ACCUR SHEAR
- 4: SETA PUPITRE (ETHERNET)
- 5: SETA ROBOT 1 (ETHERNET)
- 6: SETA ROBOT 2 (ETHERNET)
- 7: SETA GASPARINI 1 DCH
- 8: SETA GASPARINI 2 IZQ

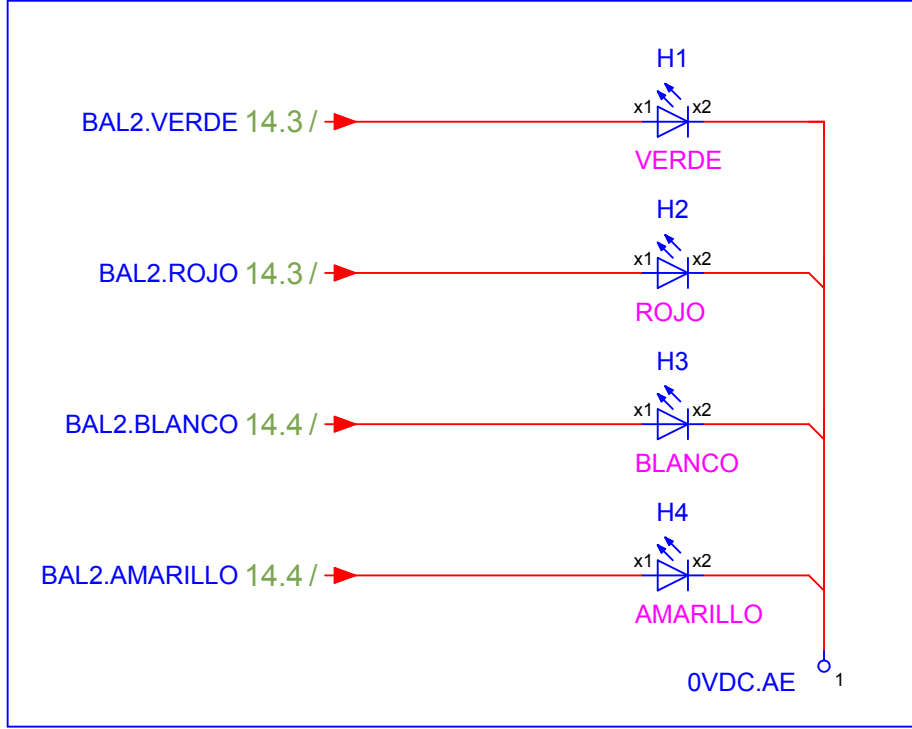


AE.BAL1



BALIZA QLIGHT

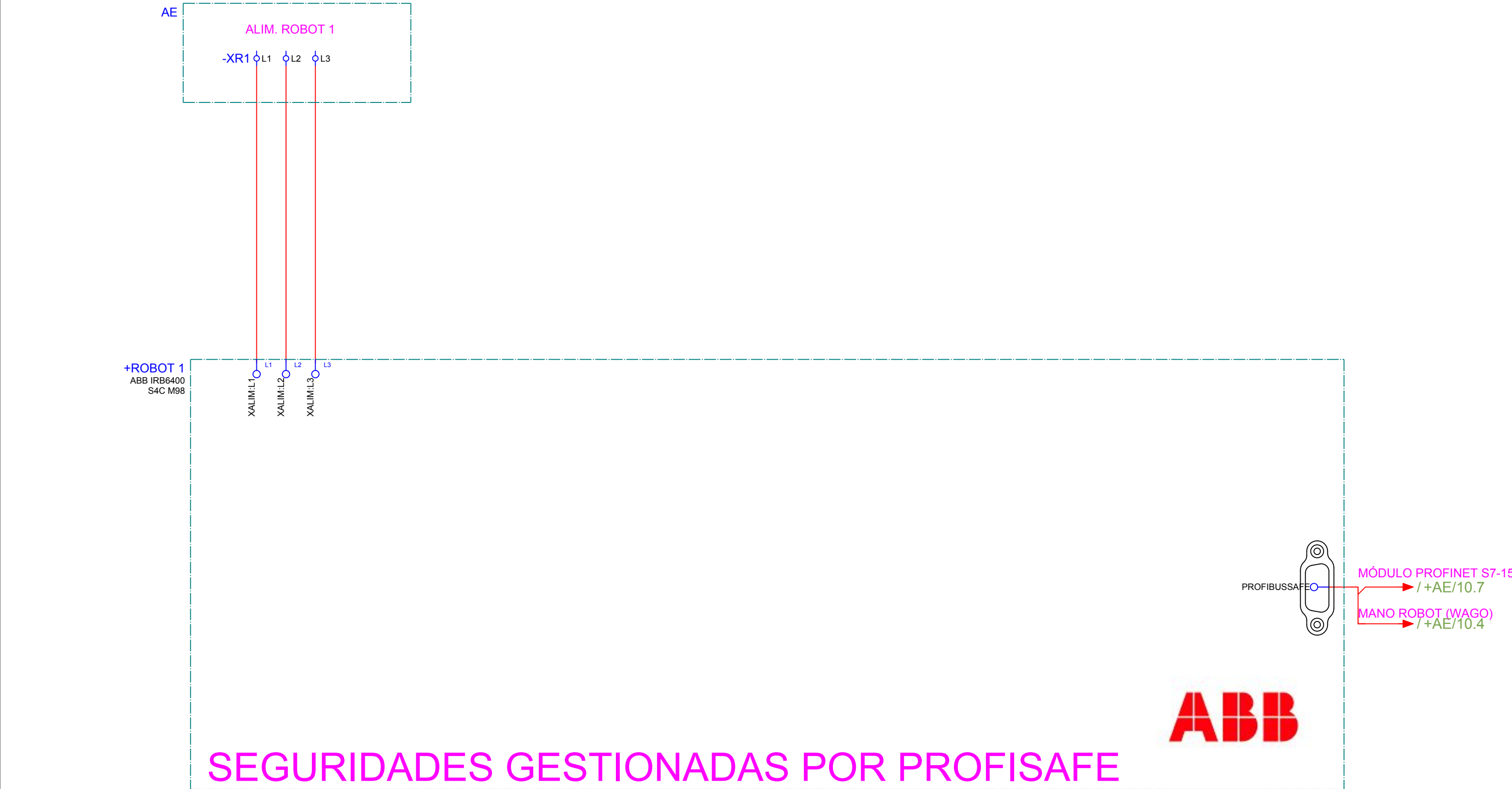
AE.BAL2



BALIZA QLIGHT



3.2. ROBOT1



+ROBOT 1
ABB IRB6400
S4C M98

-X3:1

2

3

4

5

6

7

8

CA.1

CA.2

CA.3

CA.4

CA.5

CA.6

CA.7

CA.8

-X4:1

2

3

4

5

6

7

8

CA.9

CA.10

CA.11

CA.12

CA.13

CA.14

CA.15

CA.16

ENTRADAS DIGITALES DE RELÉS

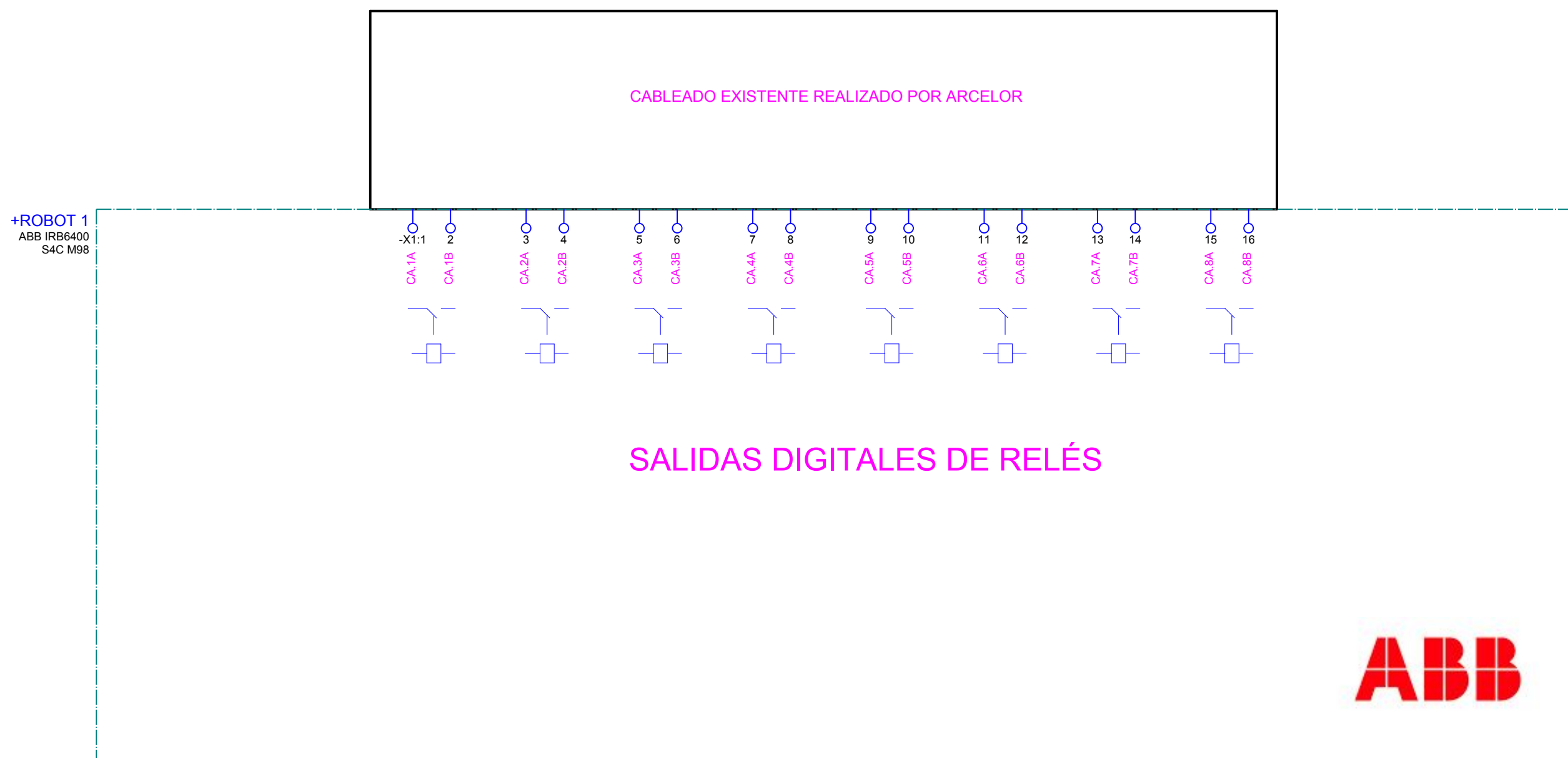


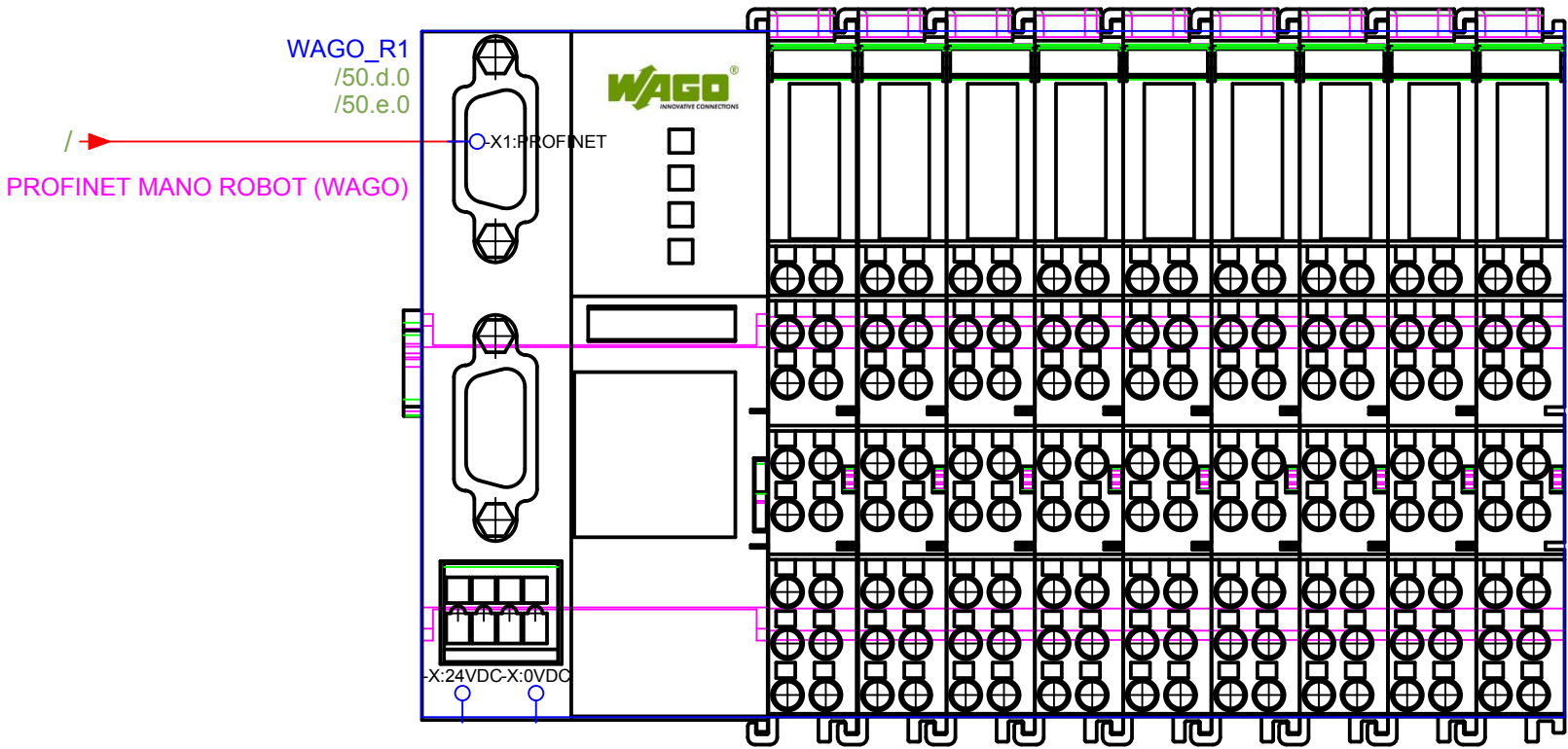
Fecha de Revisión	Modificación Realizada	Autor Revisión

ERG_ROBOT 1 ABB ENTRADAS DIGITALES
26/09/2022

=	
+R1	

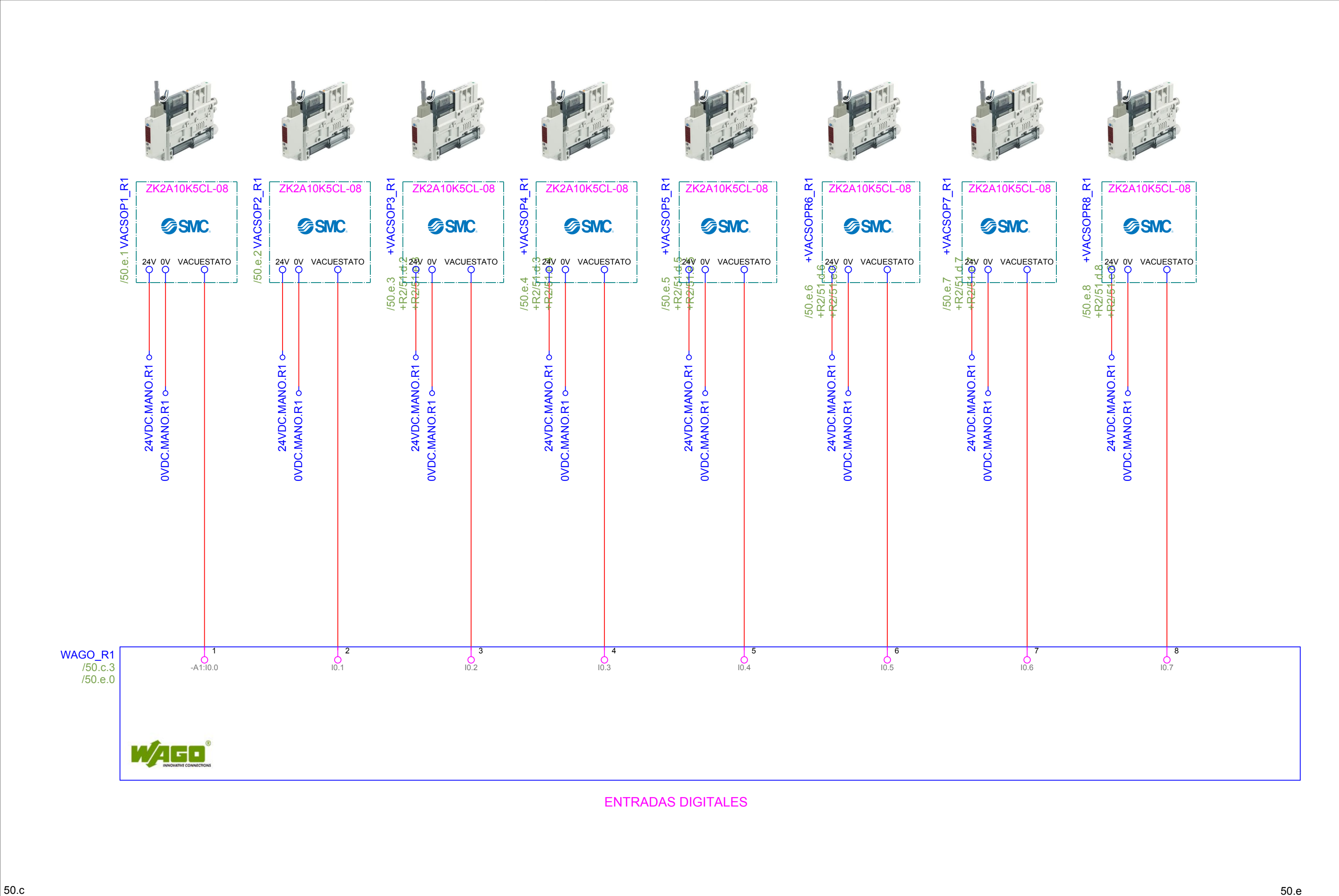
&SCH	
Página	50.a
Hoja	53 desde 115





50.b

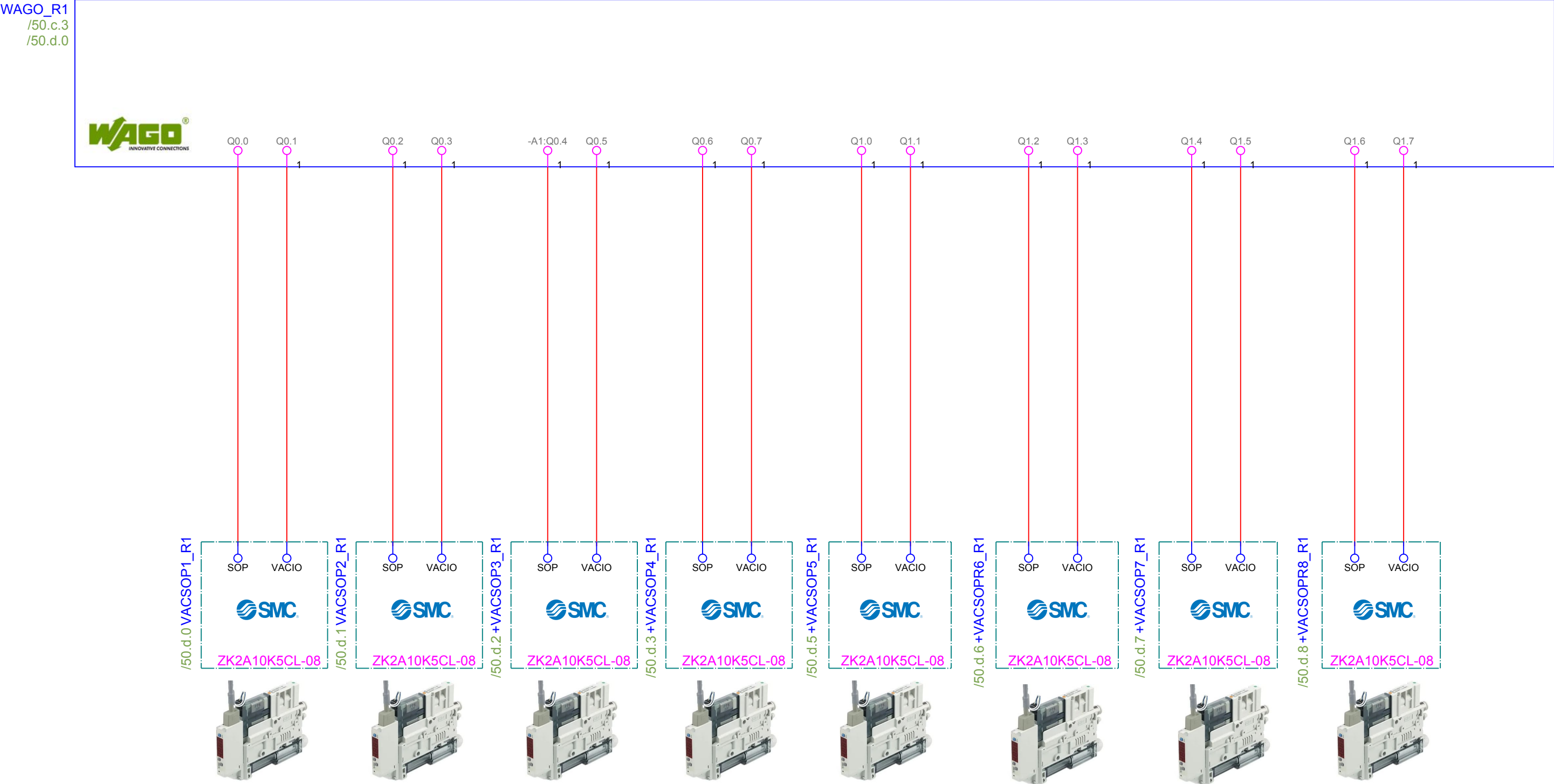
50.d



50.c

50.e

SALIDAS DIGITALES



50.d

+R2&/1



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ERG_ROBOT ABB 1 MANO WAGO DO 1
13/01/2023

=	&SCH
+R1	Página 50.e
	Hoja 57 desde 115



3.3. ROBOT2



ROBOT 2
ABB IRB6400
S4C M98

-X3:1

2

3

4

5

6

7

8

CA.1

CA.2

CA.3

CA.4

CA.5

CA.6

CA.7

CA.8

-X4:1

2

3

4

5

6

7

8

CA.9

CA.10

CA.11

CA.12

CA.13

CA.14

CA.15

CA.16

ENTRADAS DIGITALES DE RELÉS



Fecha de Revisión	Modificación Realizada	Autor Revisión

22-0539

RETROFIT POST CUTTING

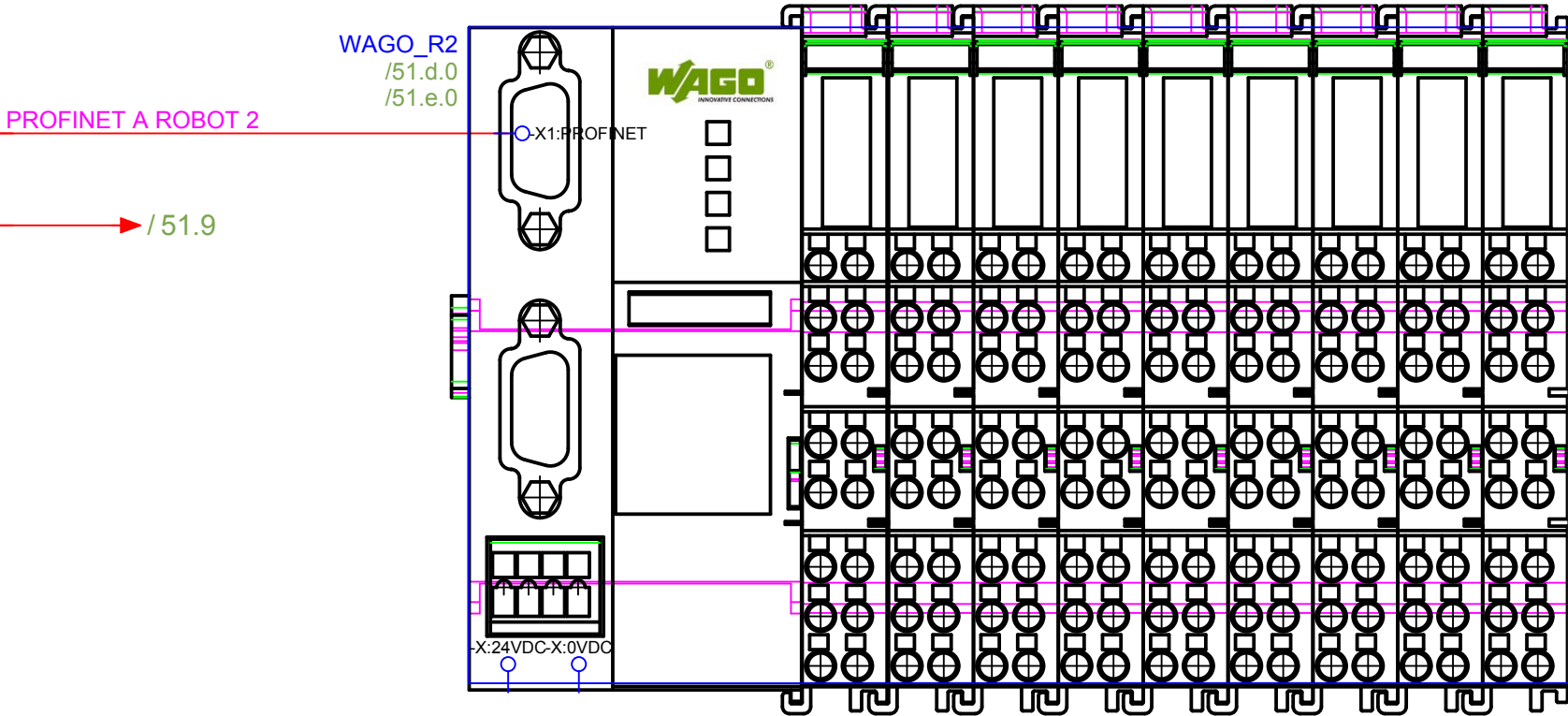
22-539 RETROFIT POST CUTTING



ERG_ROBOT 2 ABB ENTRADAS DIGITALES
26/09/2022

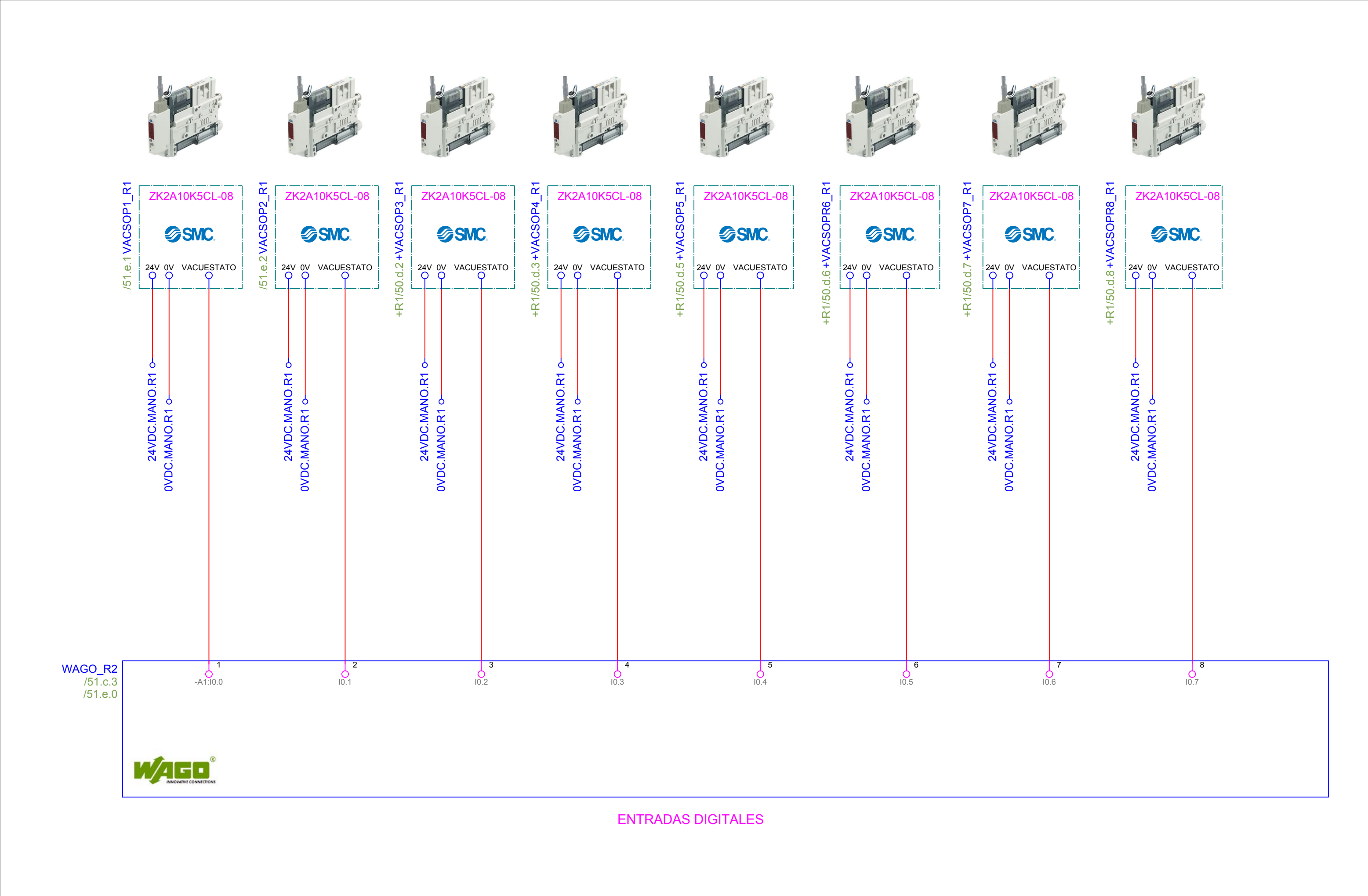
	=	&SCH
	+R2	Página 51.a
		Hoja 61 desde 115





51.b

51.d



ENTRADAS DIGITALES



51.f

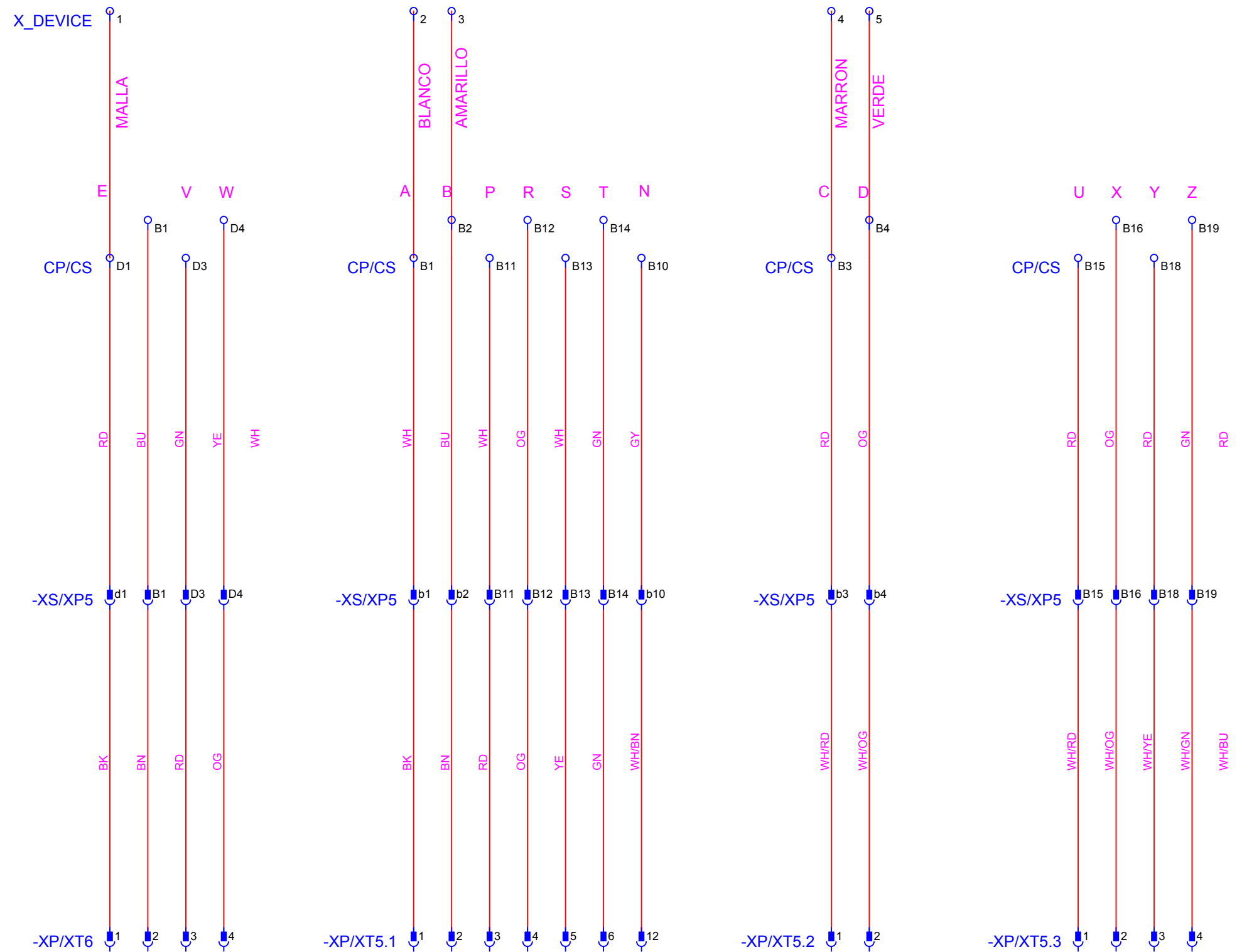


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F06_002 - V1.0

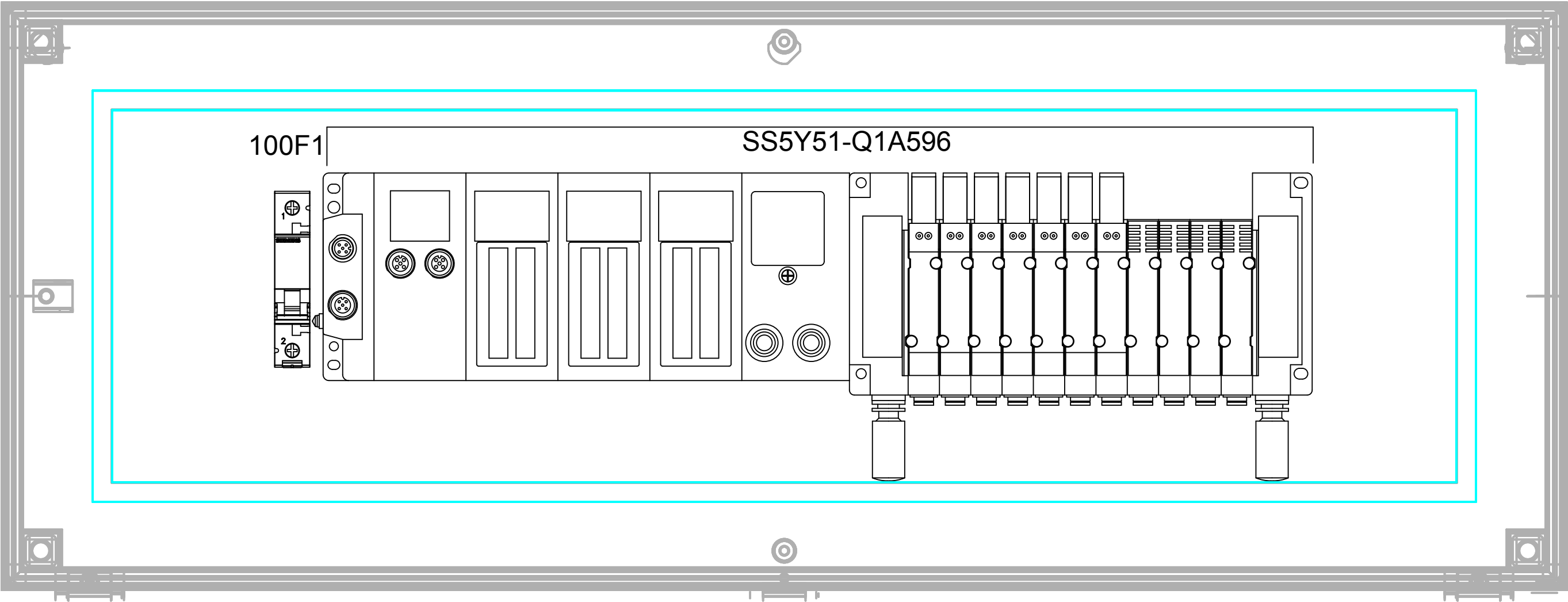
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XAL10	BOH LOTINA CENTRAL	100	ALIMENTACION XAL10		03/02/2023	Ergomaq
	BOH LOTINA CENTRAL	100.a	LAYOUT XAL10		16/12/2022	Ergomaq
	BOH LOTINA CENTRAL	101	SMC LAYOUT XAL10		13/01/2023	Ergomaq
	BOH LOTINA CENTRAL	102	MÓDULO 1 ENTRADA DIGITAL XAL10		13/01/2023	Ergomaq
	BOH LOTINA CENTRAL	103	MÓDULO 2 ENTRADA DIGITAL XAL10		01/02/2023	Ergomaq
	BOH LOTINA CENTRAL	104	MÓDULO 3 ENTRADA DIGITAL XAL10		28/11/2022	Ergomaq
	BOH LOTINA CENTRAL	105	MÓDULO 3 SALIDA DIGITAL XAL10		28/11/2022	Ergomaq
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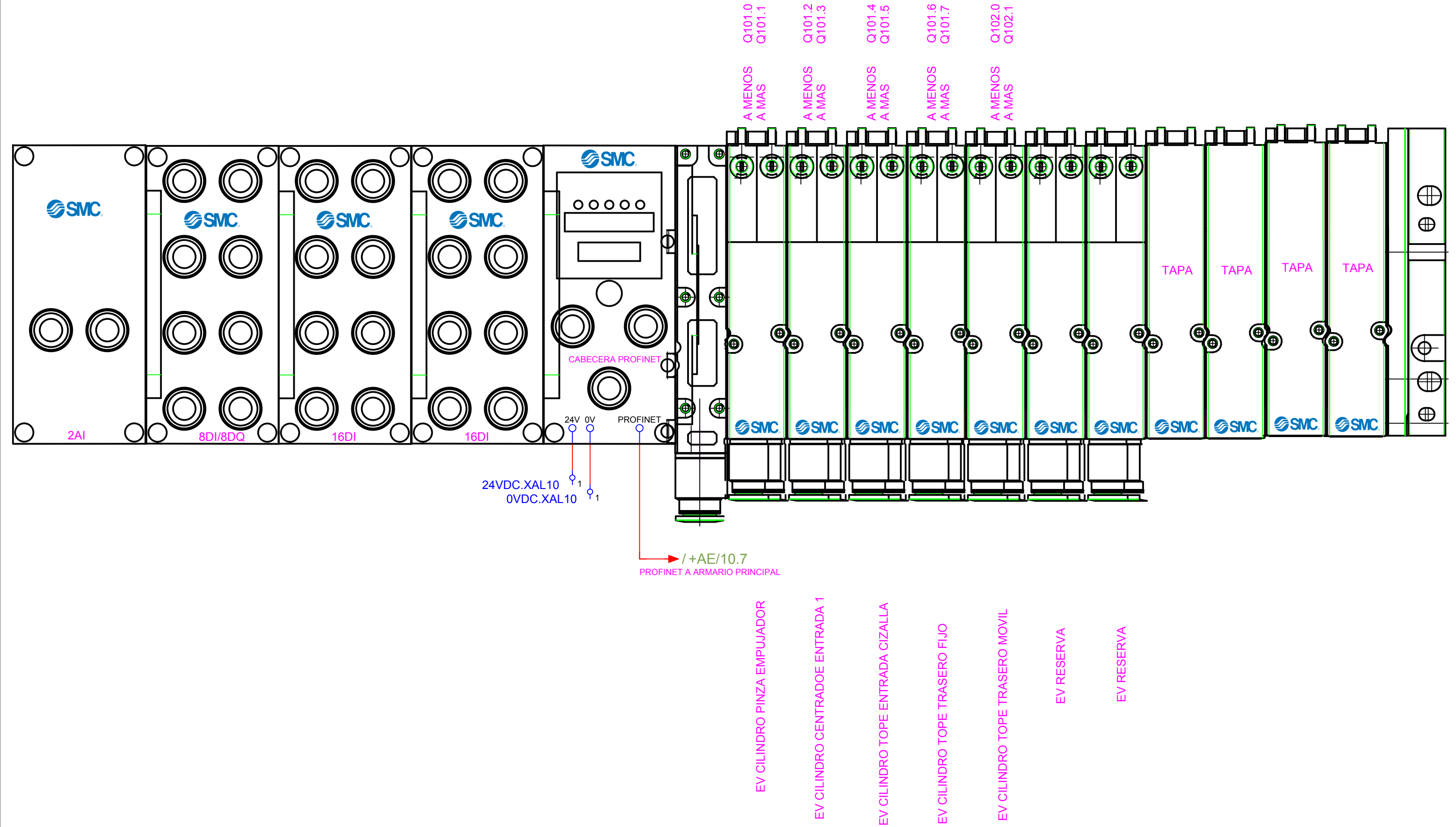


3.4. XAL10

1613000 ARMARIO

1570810 PLACA DE MONTAJE



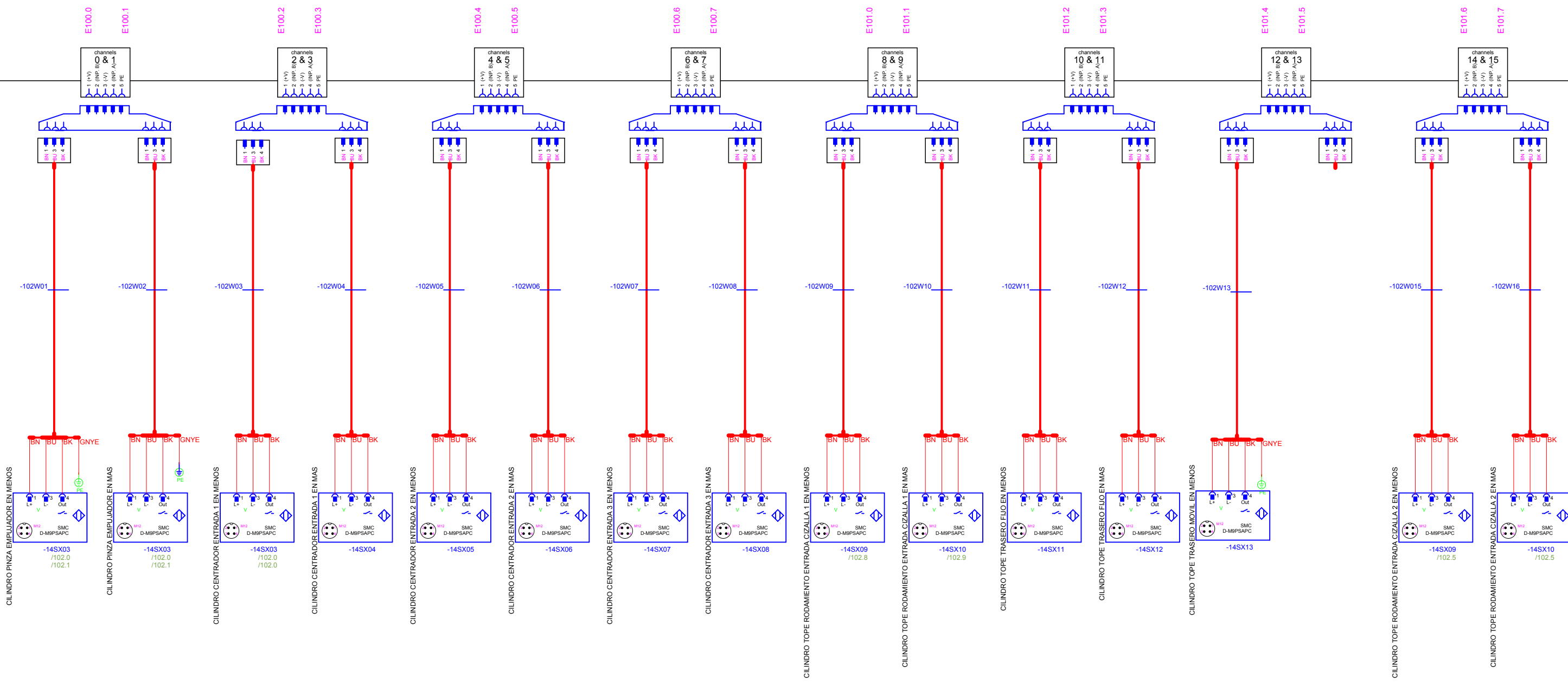


-102A01
/104.5

XAL10 SMC VAVLE ISLAND



16DI-D
16 POINT DIGITAL INPUT

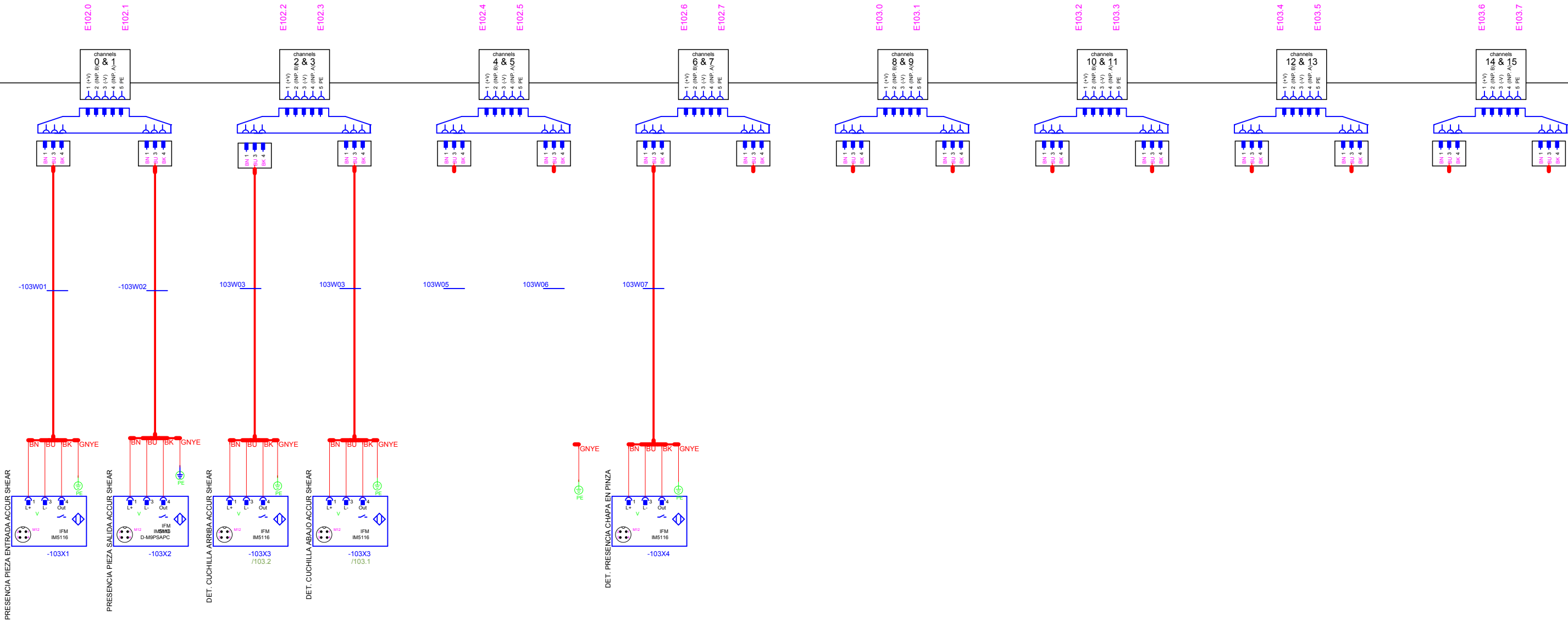


-103A01

XAL10 SMC VAVLE ISLAND



16DI-D
16 POINT DIGITAL INPUT



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Fecha de Revisión	Modificación Realizada	Autor Revisión

22-0539
RETROFIT POST CUTTING
22-539 RETROFIT POST CUTTING



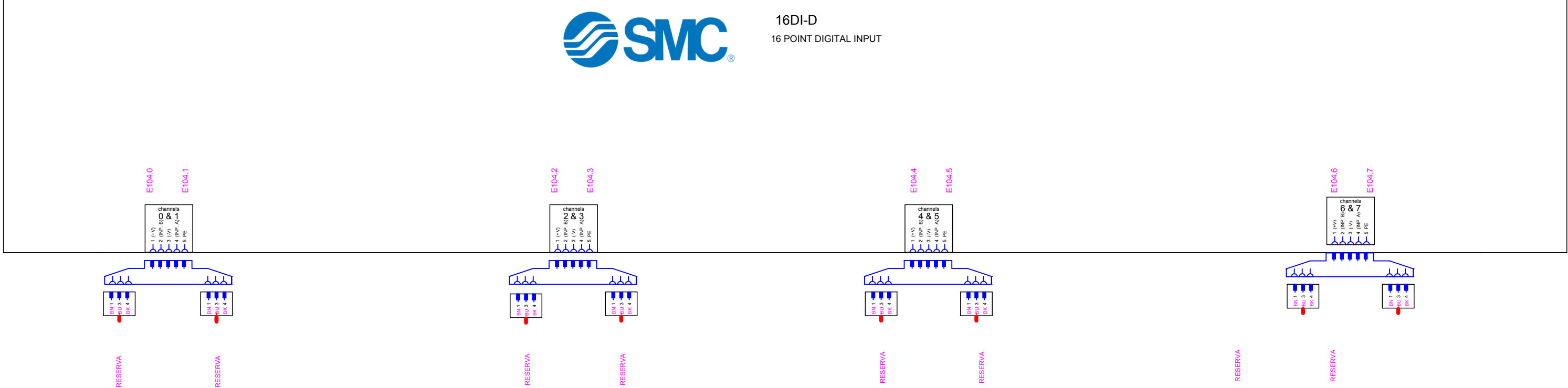
MÓDULO 2 ENTRADA DIGITAL XAL10
01/03/2023

=	&SCH
+XAL10	Página 103
GUILLOTINA CENTRAL	Hoja 73 desde 115

-102A01

/102.5

XAL10 SMC VAVLE ISLAND

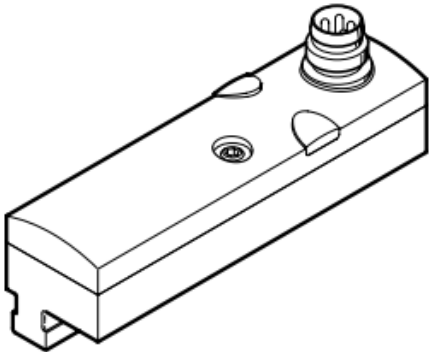
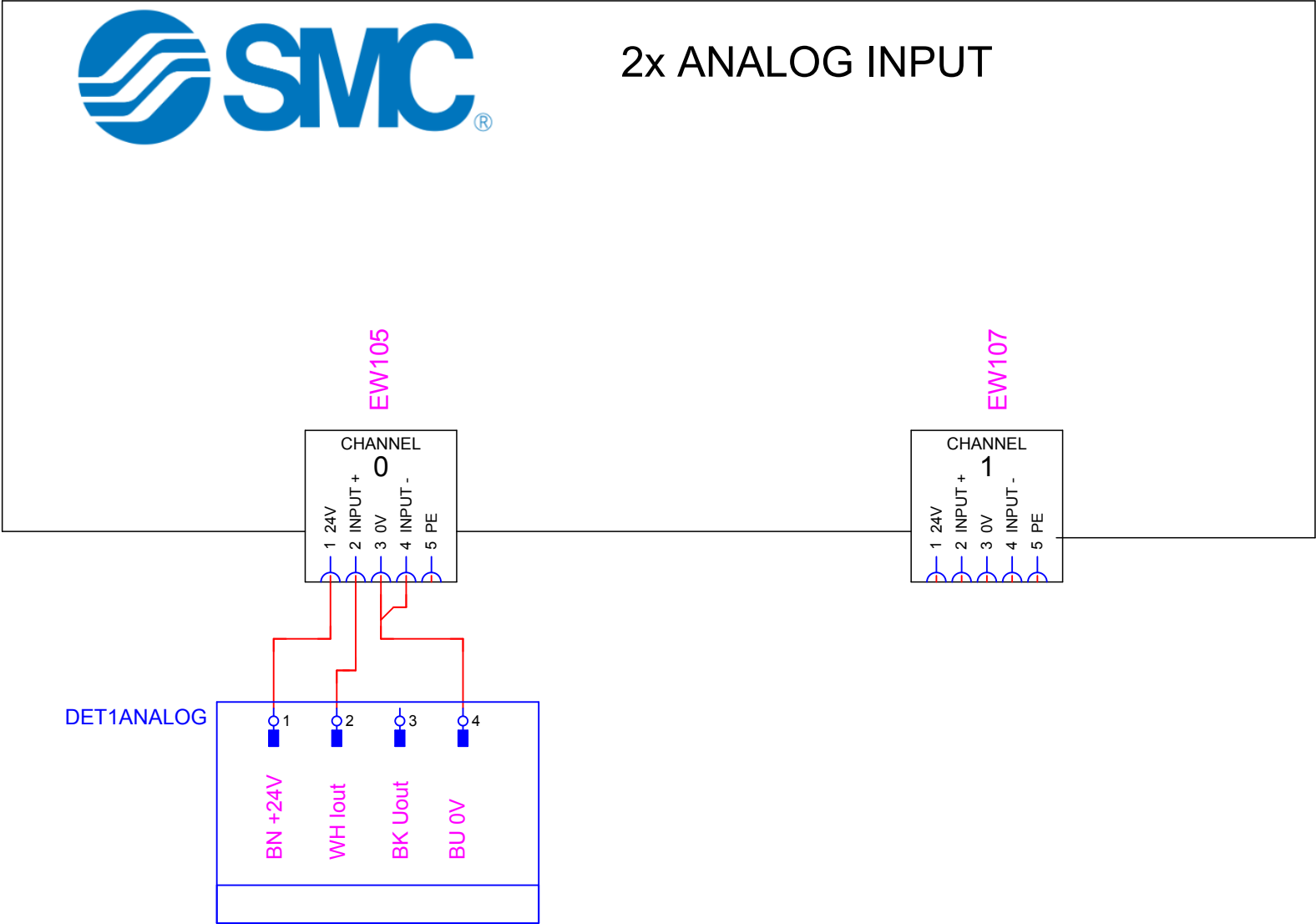




8 POINT DIGITAL OUTPUT

-206A01

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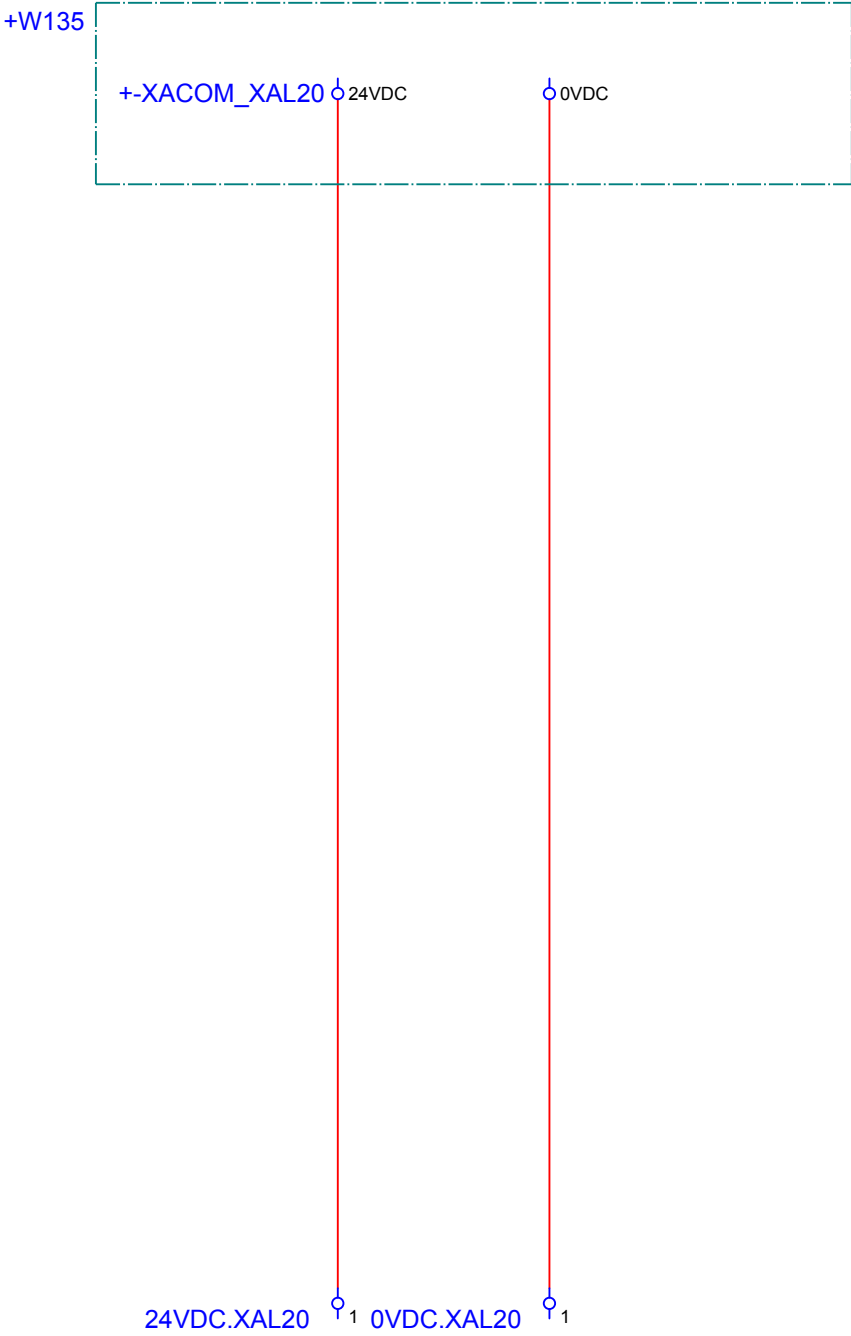


DETECTOR ANALOGICO CILINDRO
TOPE TRASERO VARIAS POSICIONES



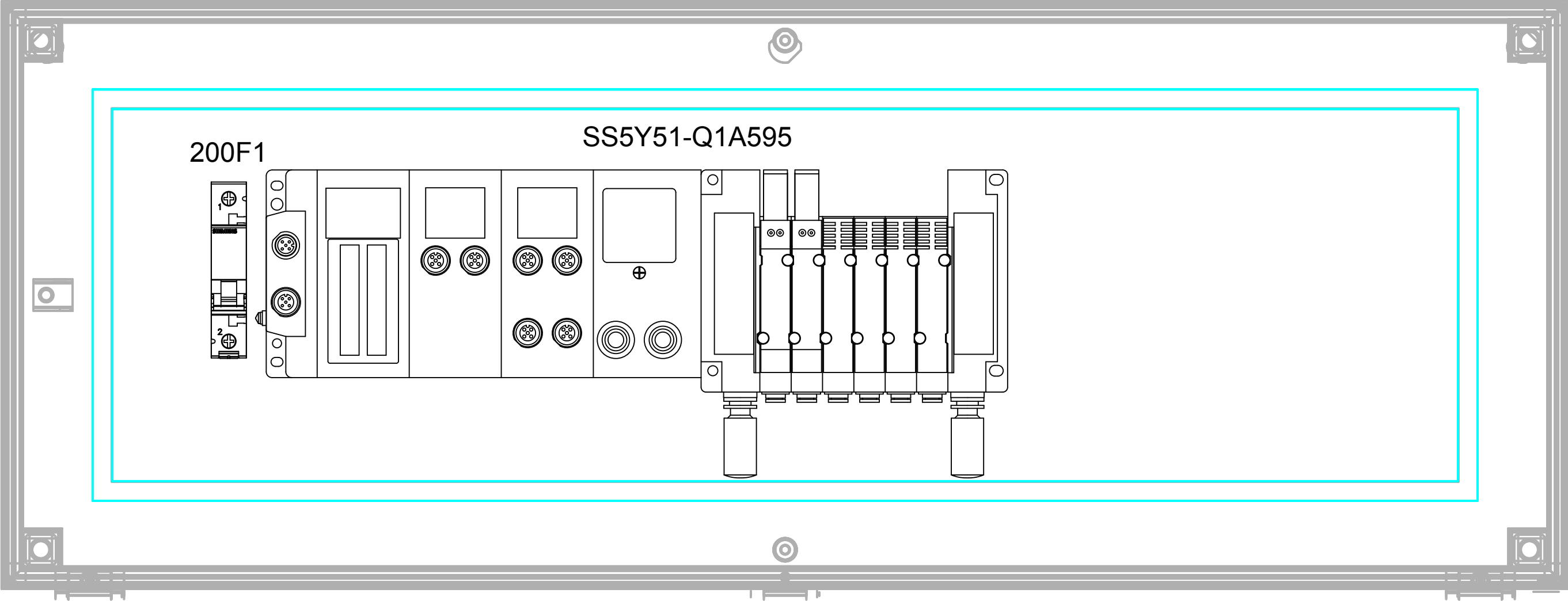
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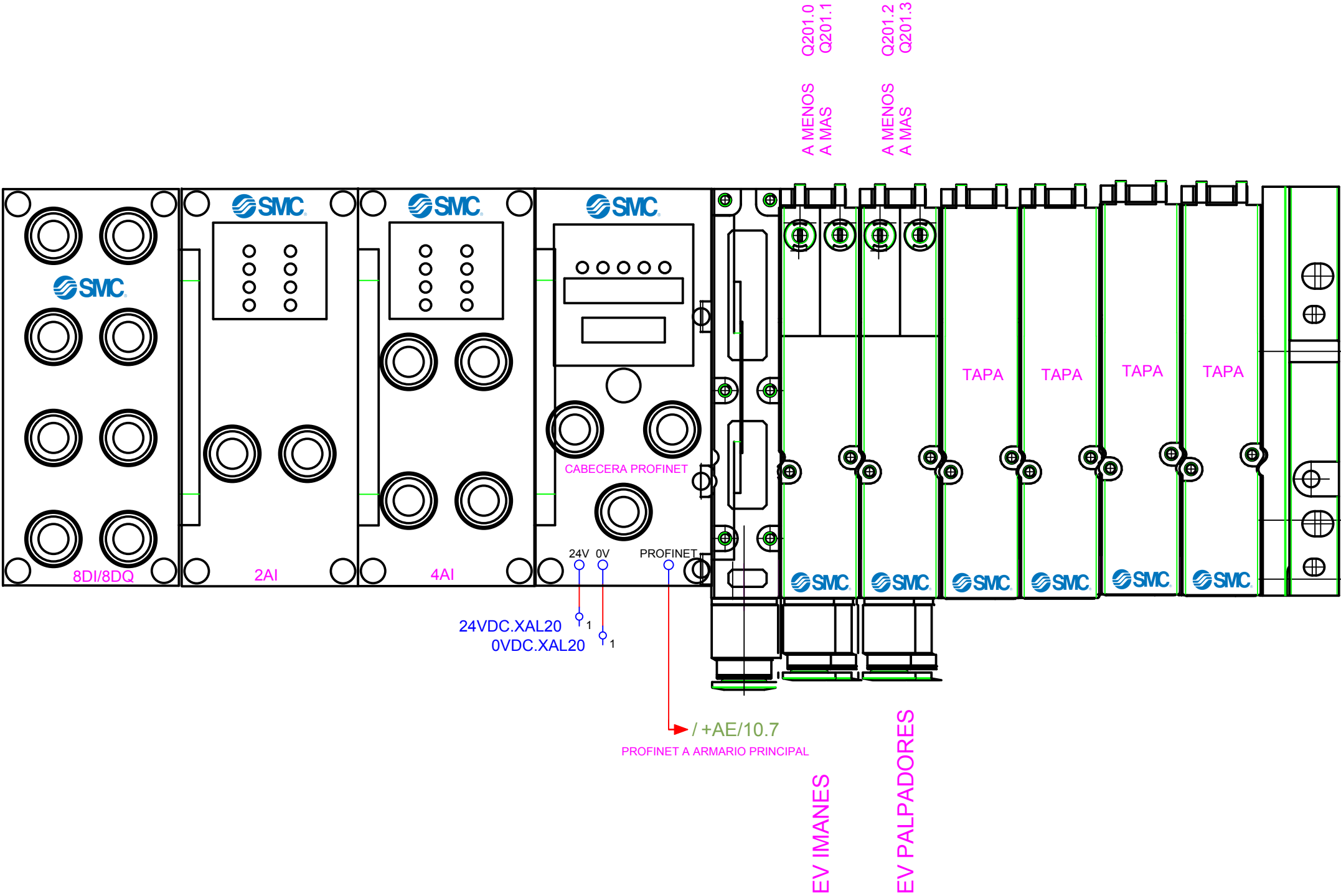
ARMARIO PRINCIPAL



1613000 ARMARIO

1570810 PLACA DE MONTAJE



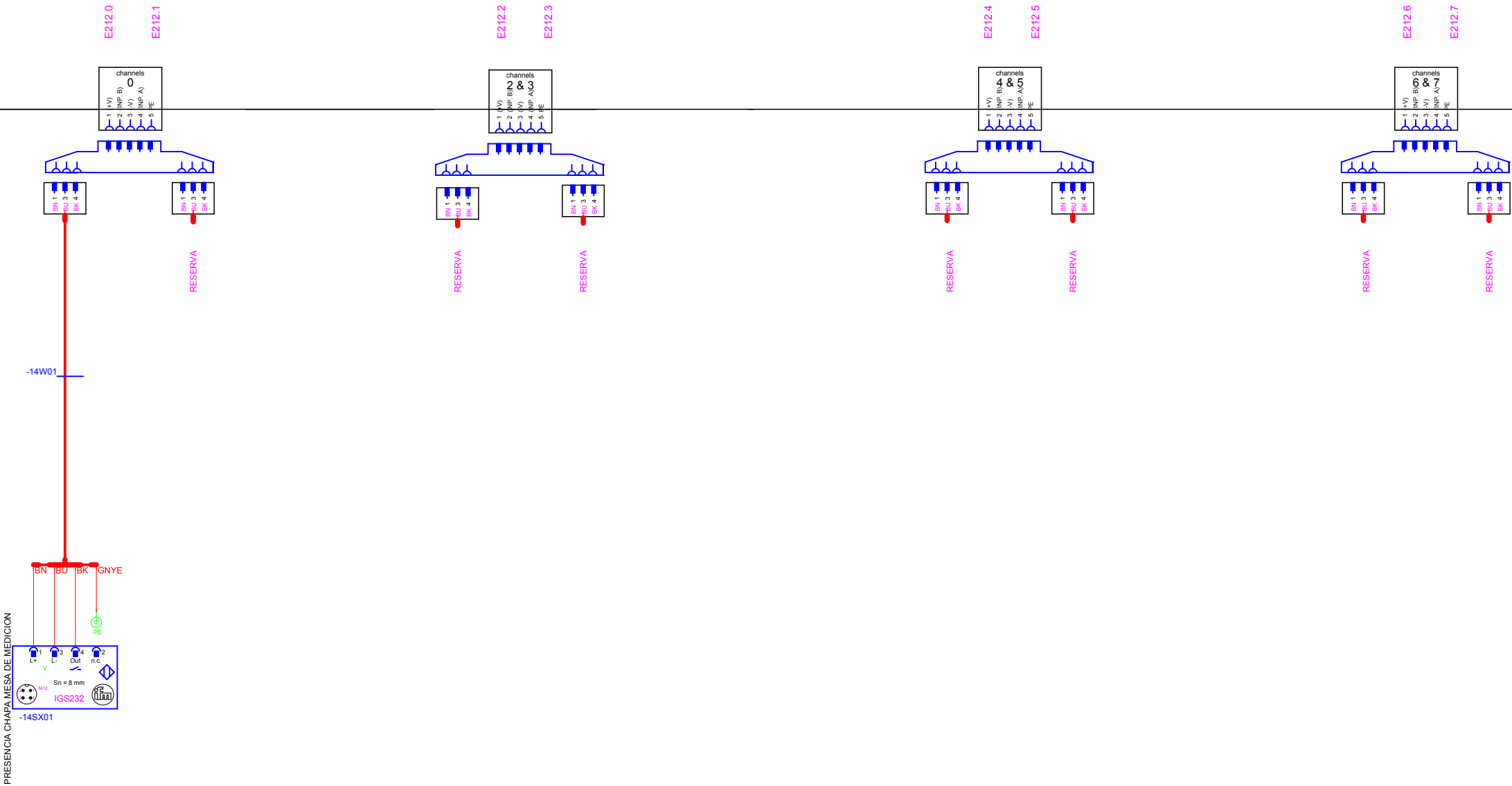


-202A01

XAL10 SMC VAVLE ISLAND

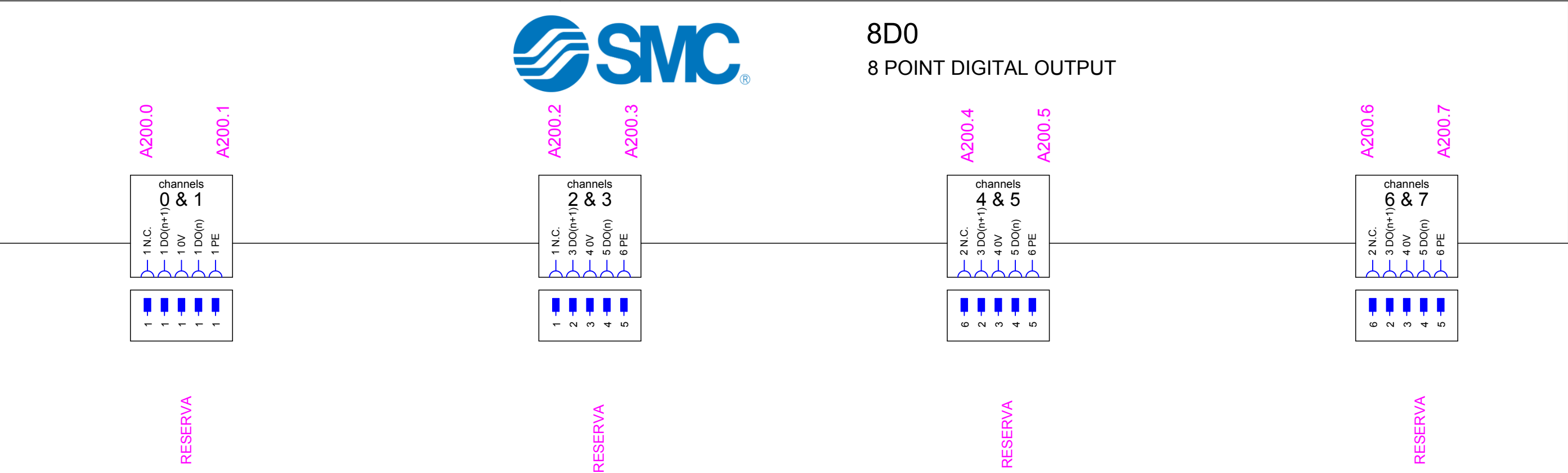


16DI-D
16 POINT DIGITAL INPUT



BOX4 FESTO VAVLE ISLAND #10 DIGITAL OUTPUT MODULE #1

-203A02

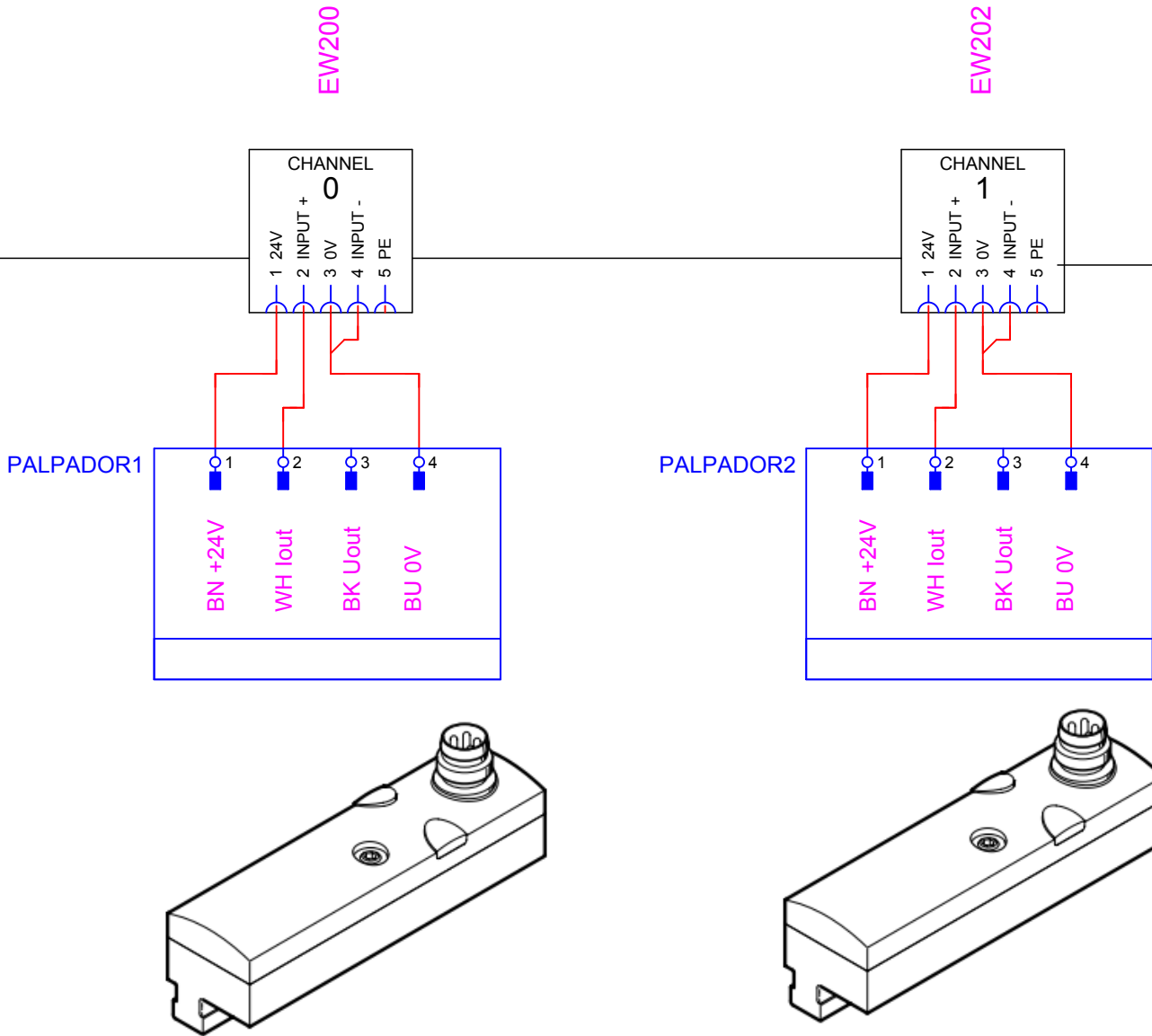


-204A01

XAL10 SMC VAVLE ISLAND



2x ANALOG INPUT



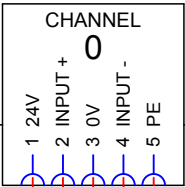
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XAL10 SMC VAVLE ISLAND

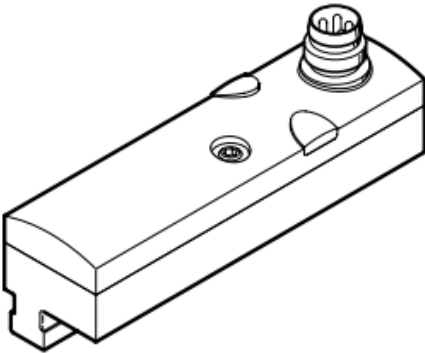
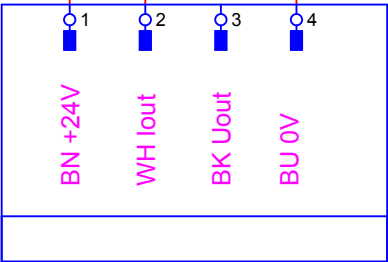


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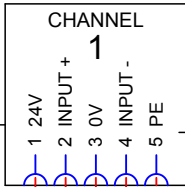
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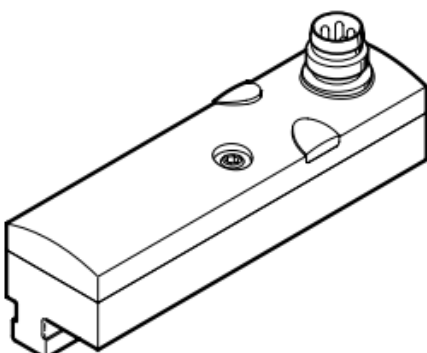
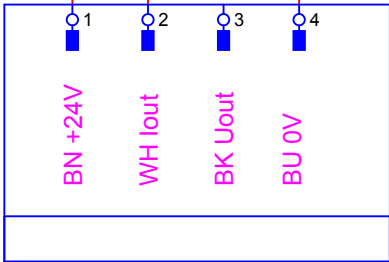
PALPADOR3



EW206



PALPADOR4

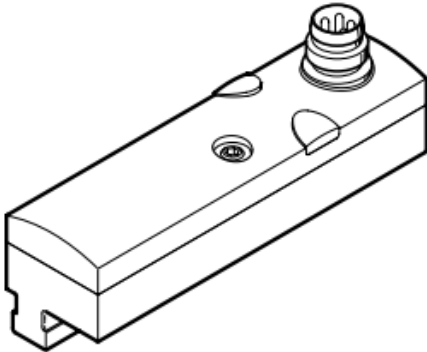
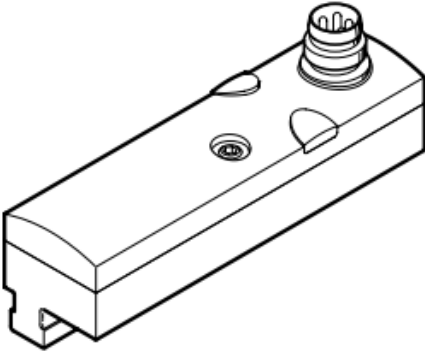
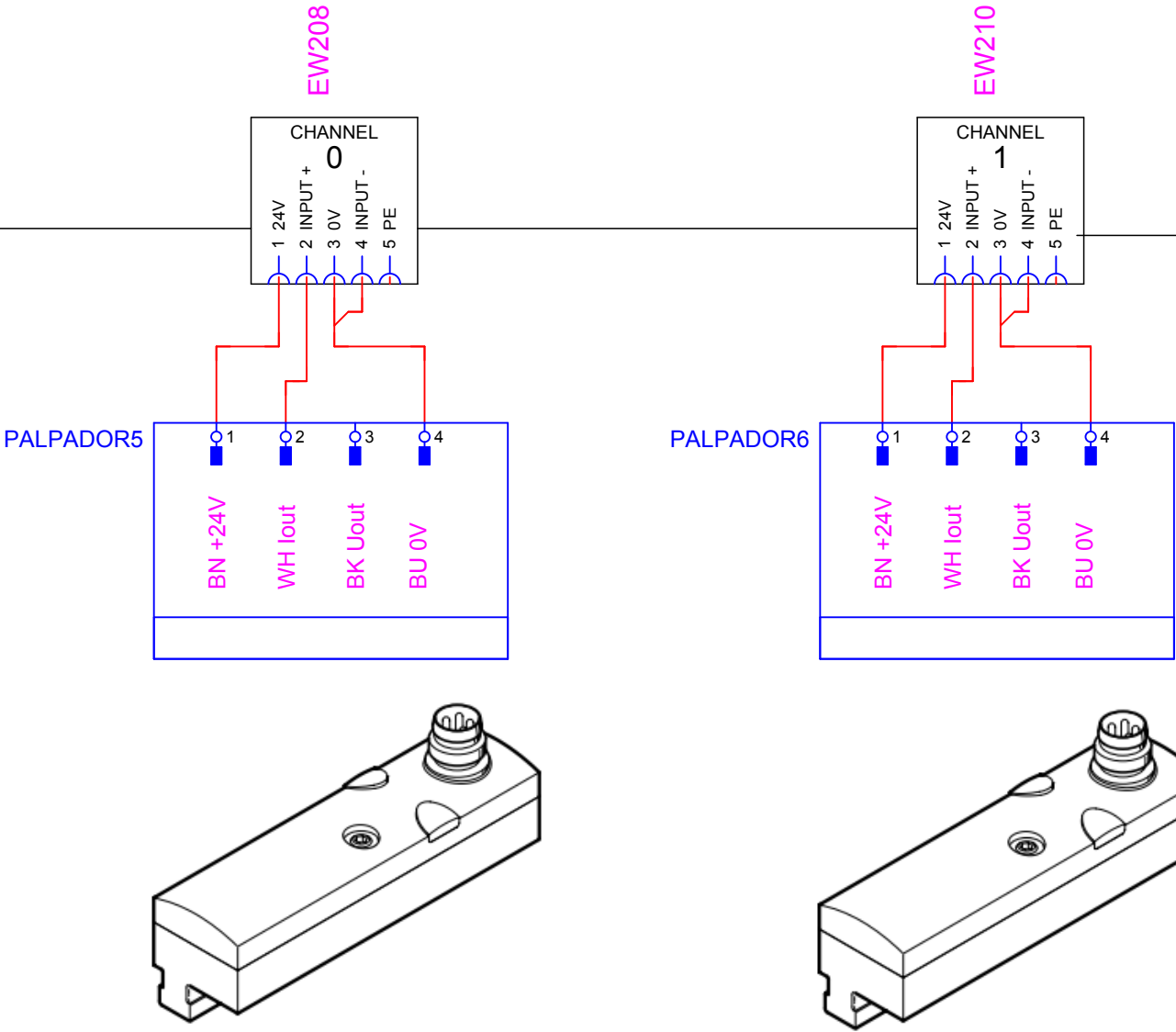


-206A01

XAL10 SMC VAVLE ISLAND



2x ANALOG INPUT



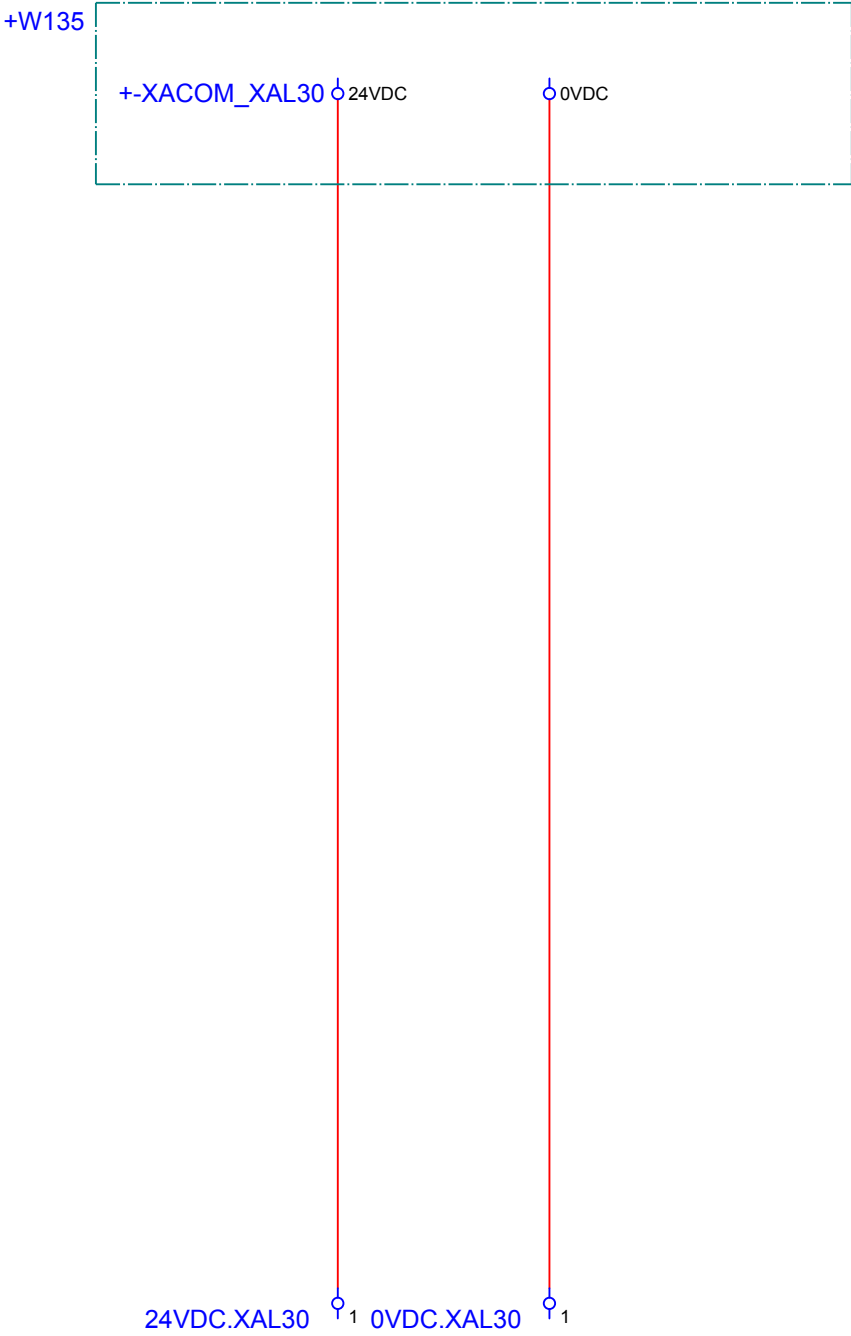


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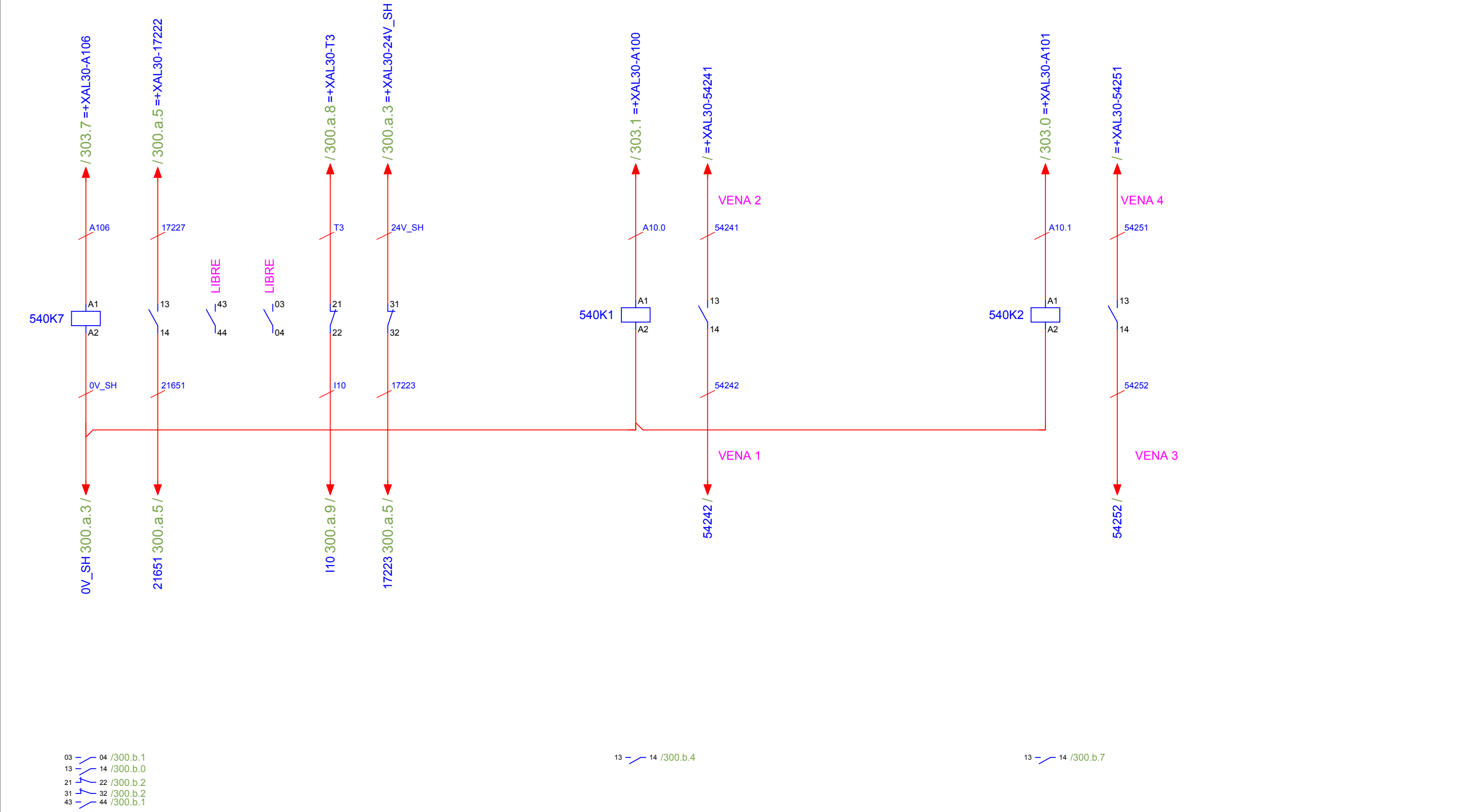


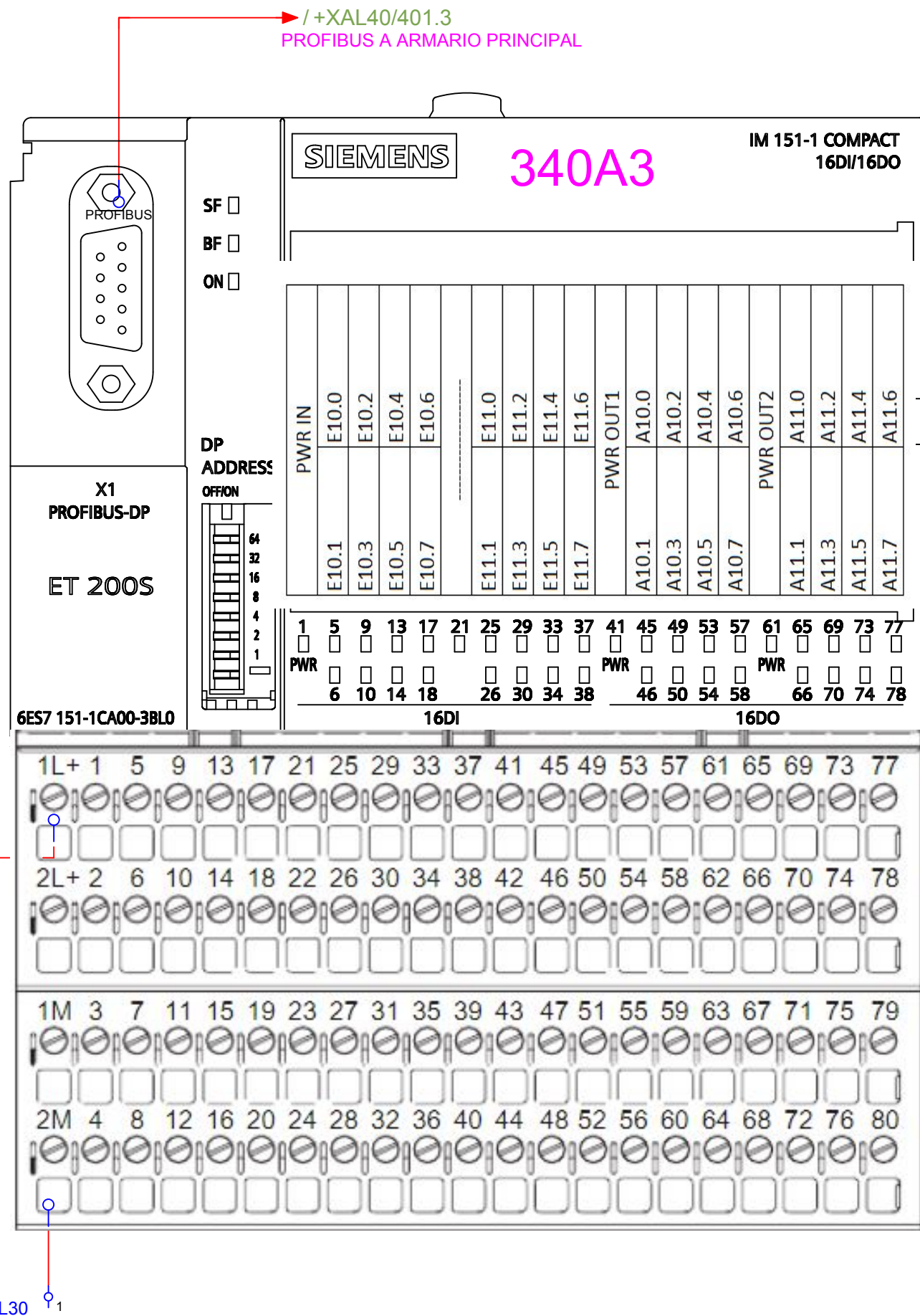
1.a

3









ARMARIO PRINCIPAL GASPARINI

56X1

340A3

24 channels of wiring connections are shown, each with a terminal number and a label. The labels include 'START PUMP', 'STOP PUMP', 'ANGULO +', 'ANGULO -', 'GAP+', 'GAP-', 'END OF STROKE', 'UPPER DEAD POINT', 'EM 1 ROBOT', 'EM 2 ROBOT', 'DESCENT BLADE (NO)', 'DESCENT BLADE (NC)', and 'ASCENT BLADE'. The diagram is color-coded with blue for power and red for signal.

Terminal numbers: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24.

Labels: START PUMP, STOP PUMP, ANGULO +, ANGULO -, GAP+, GAP-, END OF STROKE, UPPER DEAD POINT, EM 1 ROBOT, EM 2 ROBOT, DESCENT BLADE (NO), DESCENT BLADE (NC), ASCENT BLADE.

Additional labels: VENA 1, VENA 2, VENA 3, VENA 4, VENA 5, VENA 6, VENA 7, VENA 8, VENA 9, VENA 10, VENA 14, VENA 16, VENA 17, VENA 18, VENA 19.

Color coding: Blue for power, red for signal.

ERGOMAO				23.0530			=	&SCH
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ERGOMAO				23.0530			=	&SCH
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Fecha de Revisión	Modificación Realizada	Autor Revisión

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RETROFIT POST CUTTING
22-539 RETROFIT POST CUTTING



ENTRADAS/SALIDAS 56X2
01/03/2023

ENTRADAS/SALIDAS 56X2
01/03/2023

	=
	+XAL30
	GUILLOTINA GASPARINI

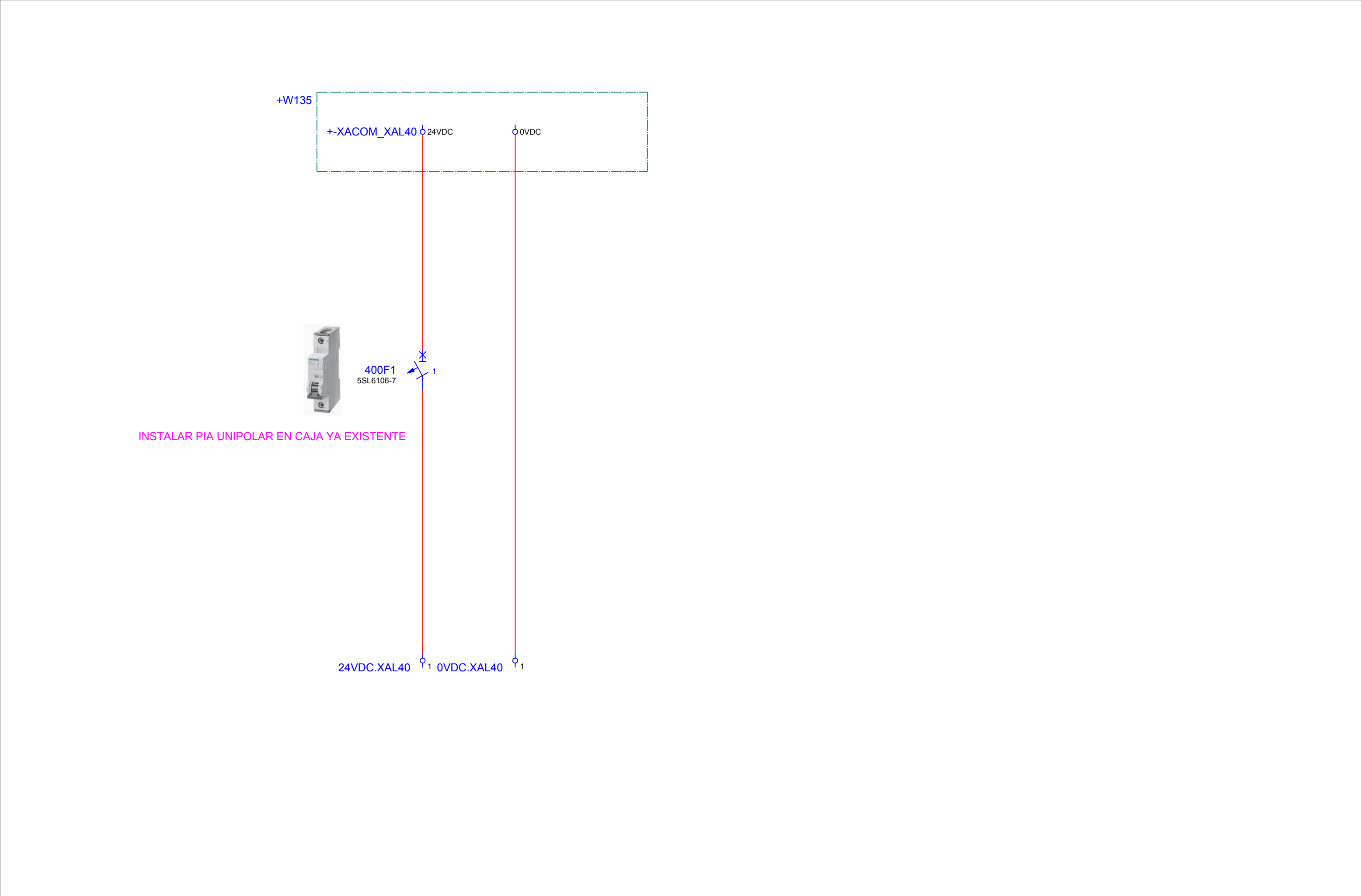
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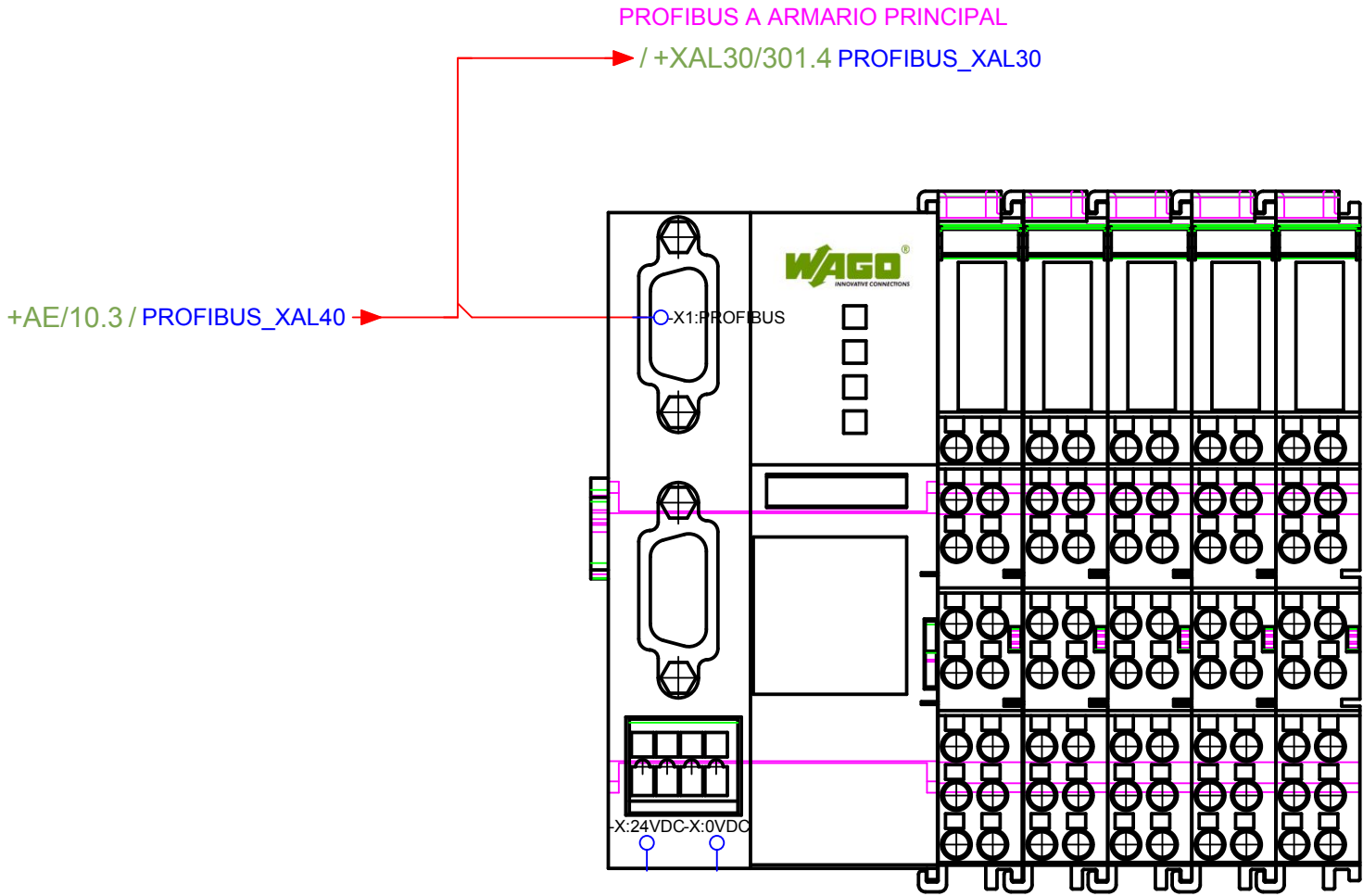
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Página	303
Hoja 97	desde 115

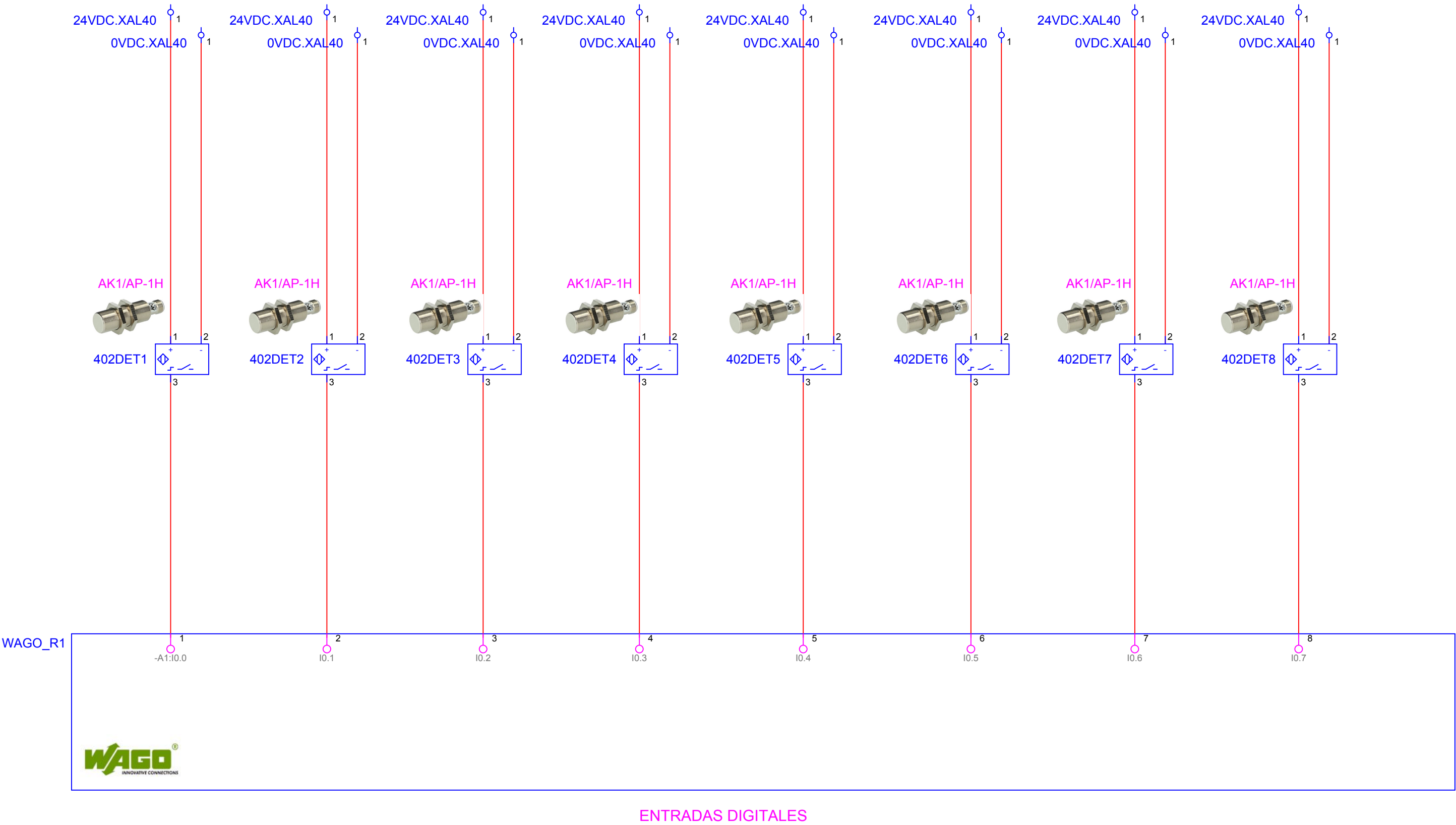
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Página	303
Hoja 97	desde 115



3.7. XAL40

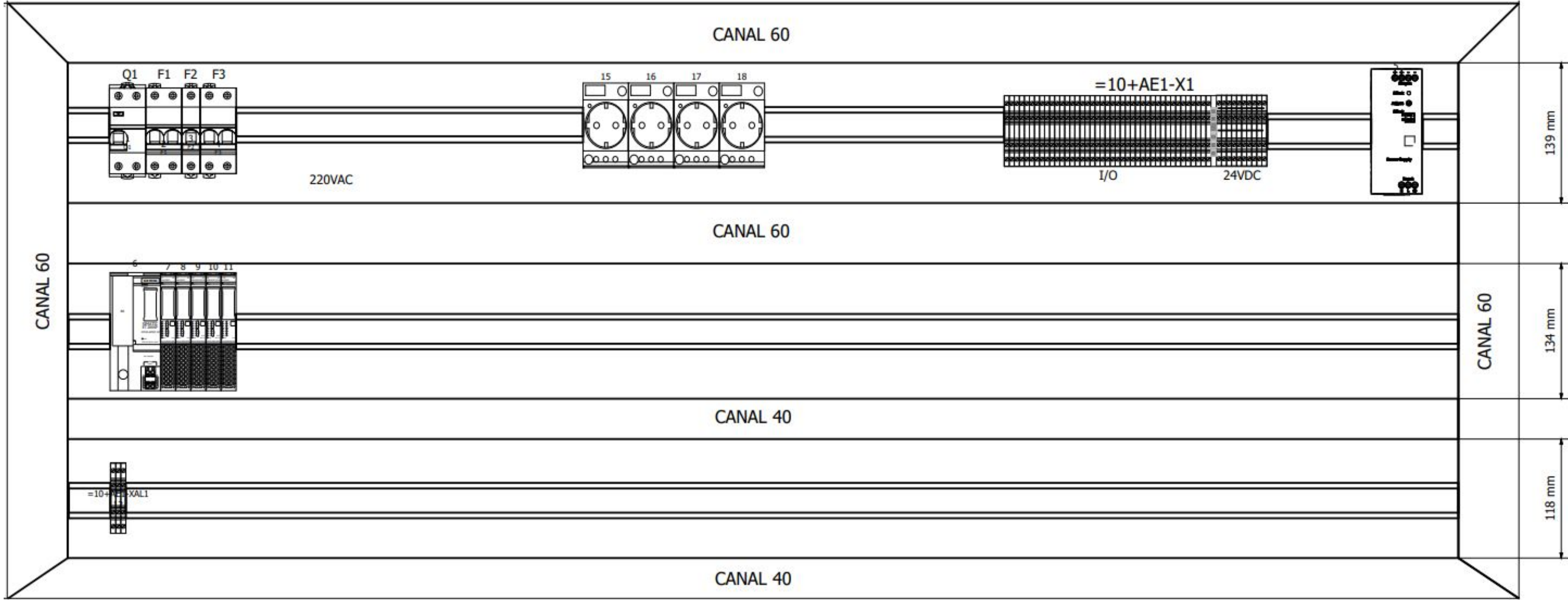








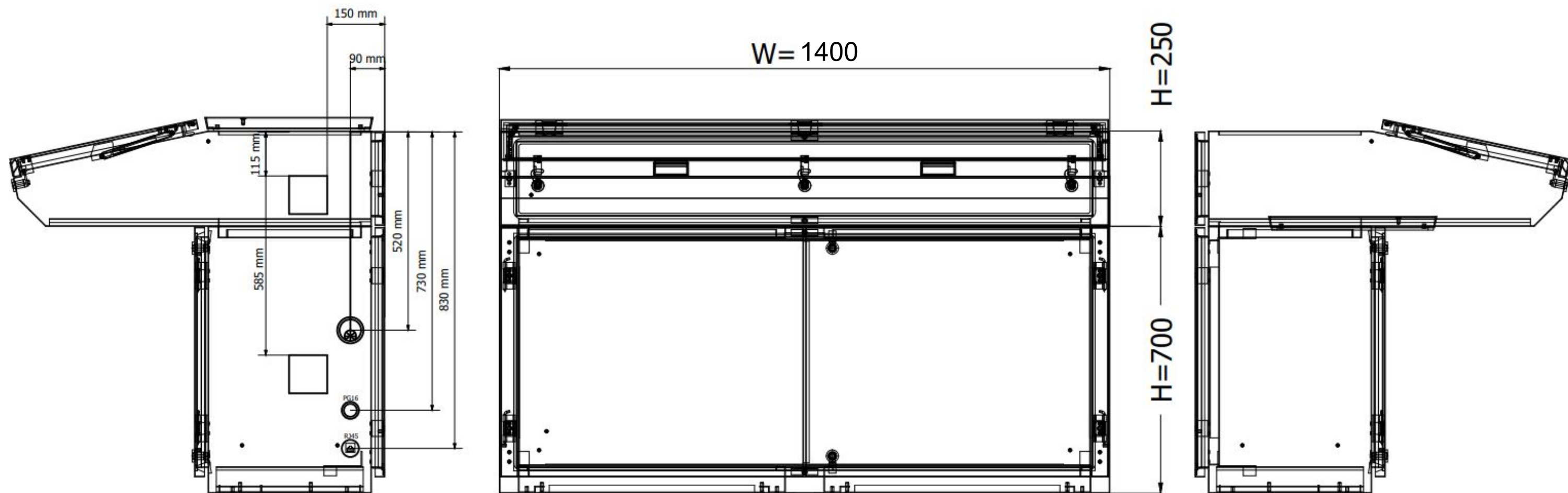
3.8. XAL100

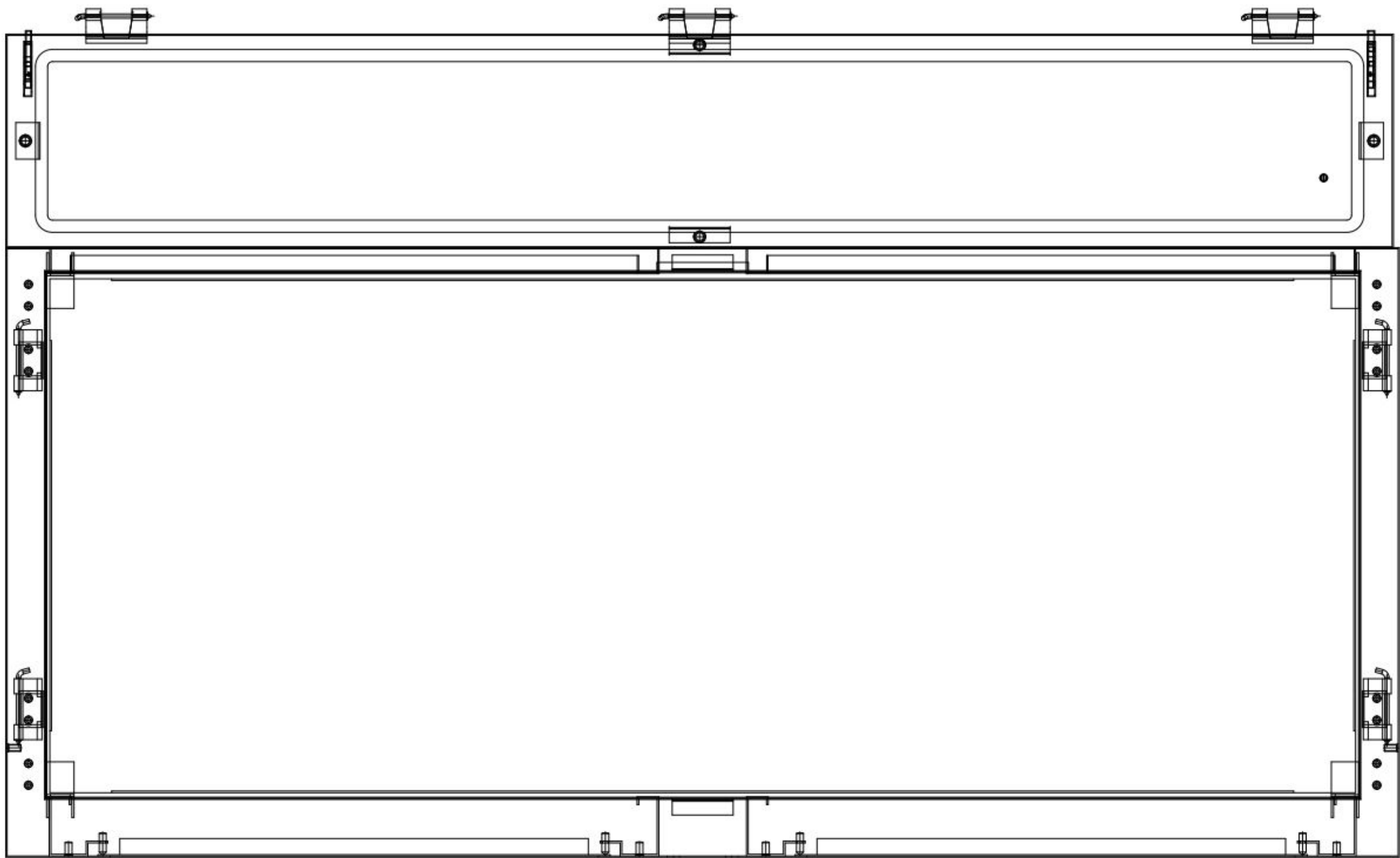


Fecha de Revisión	Modificación Realizada	Autor Revisión



LAYOUT PLACA	=	&
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21/11/2022		Hoja 9 desde 115



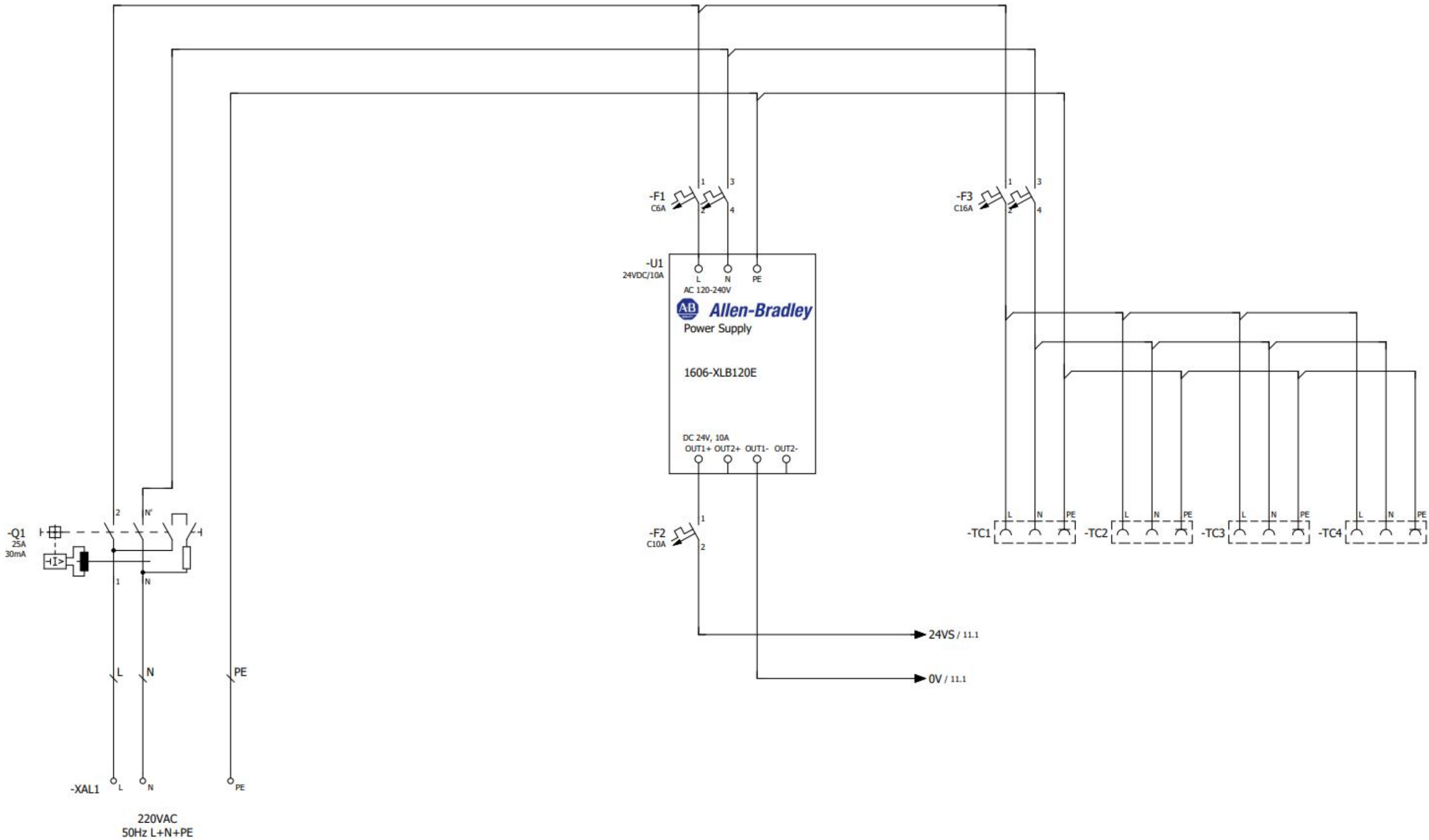


Fecha de Revisión	Modificación Realizada	Autor Revisión



LAYOUT EXTERIOR 2
21/11/2022

=	&
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	Hoja 11 desde 115

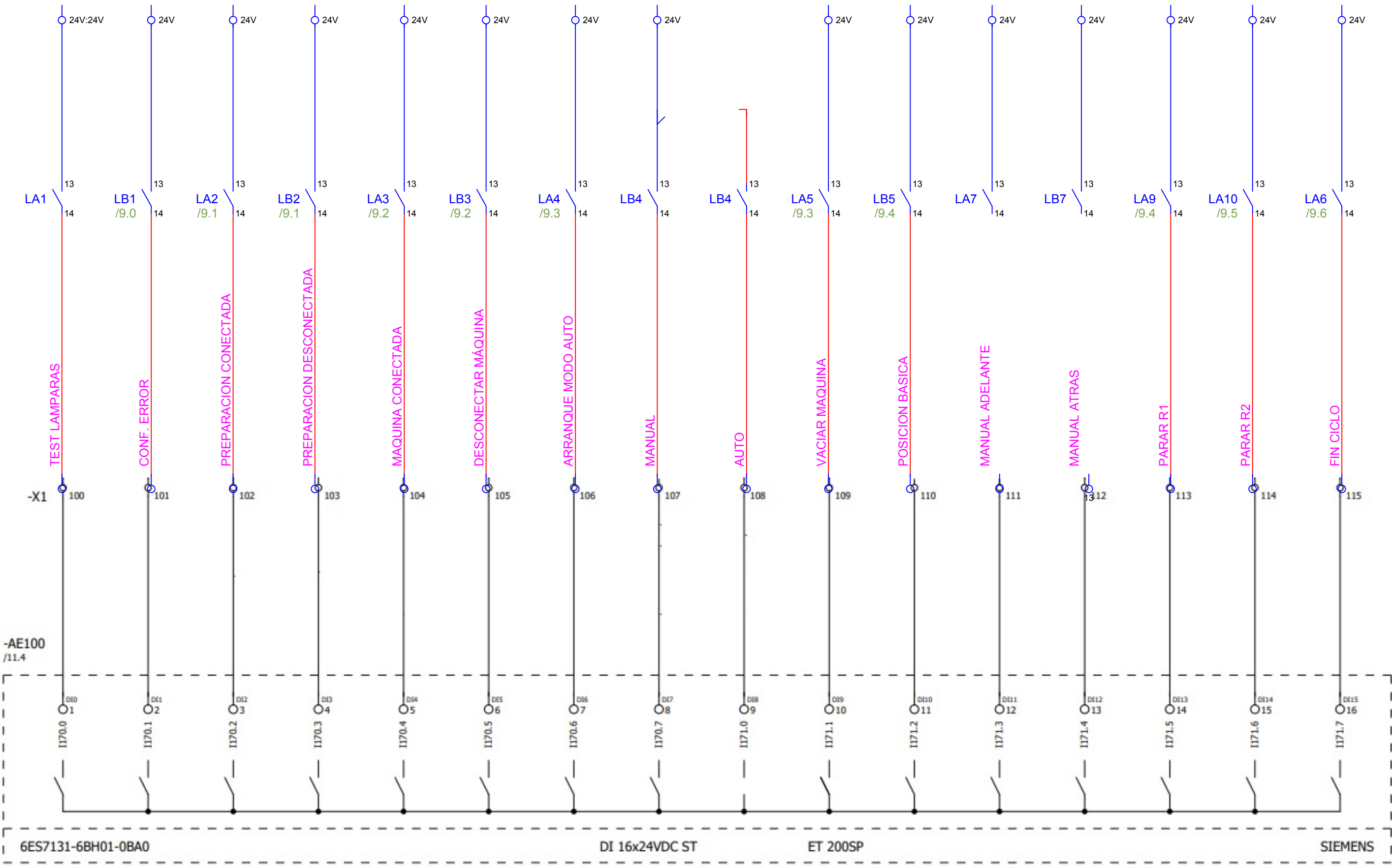


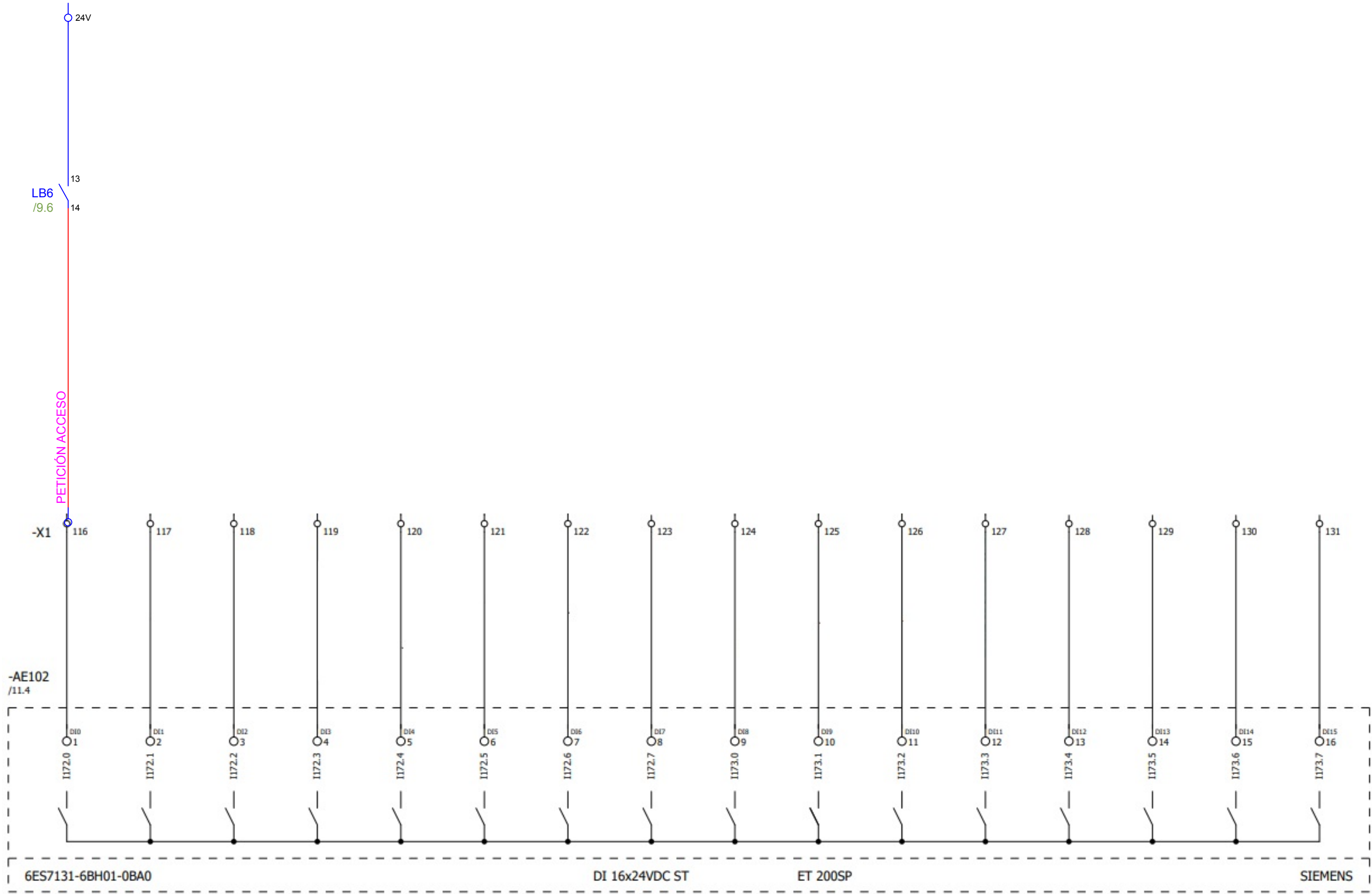
Fecha de Revisión	Modificación Realizada	Autor Revisión



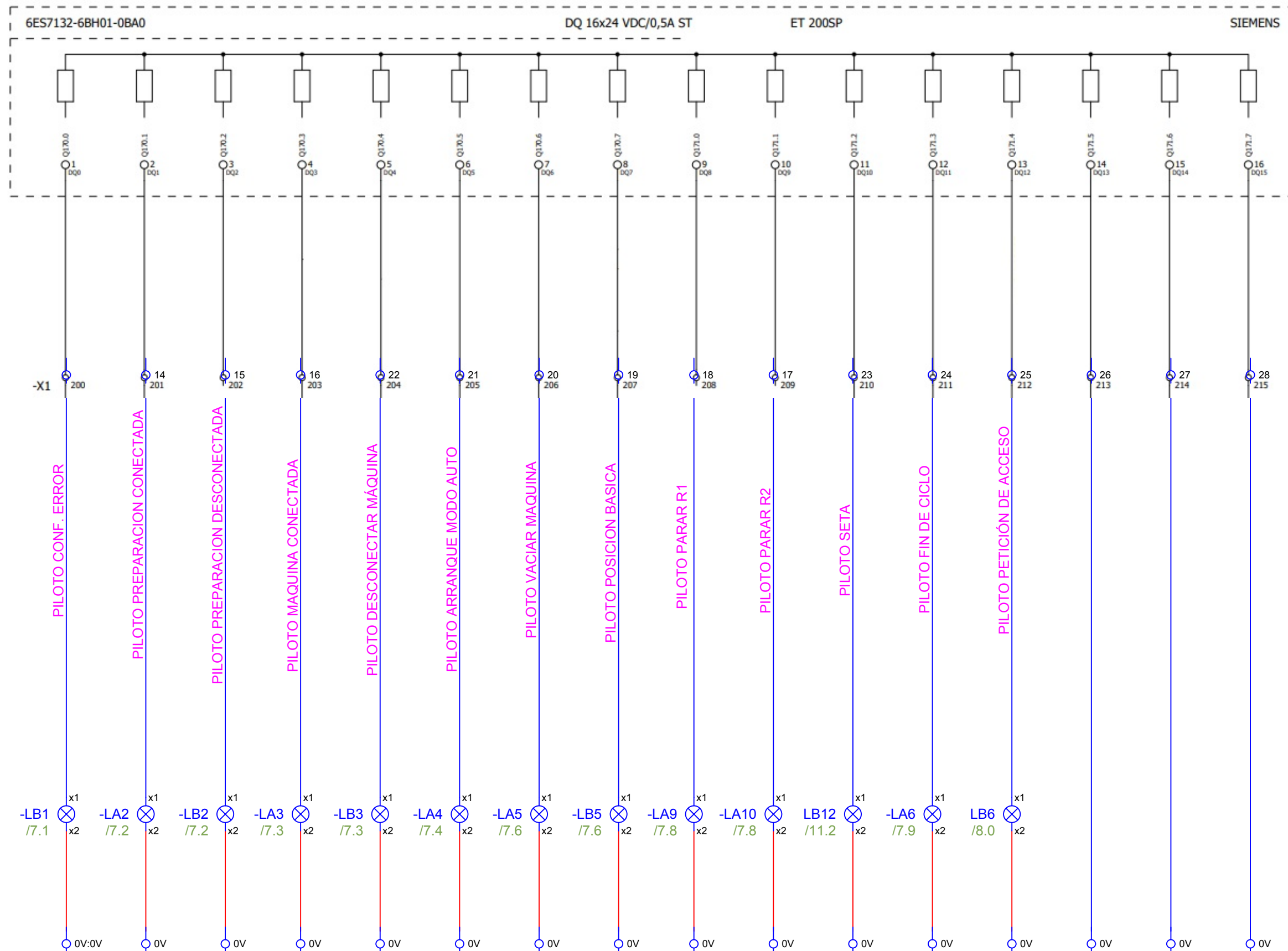
ACOMETIDA	=	&	
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21/11/2022		Hoja	12 desde 115



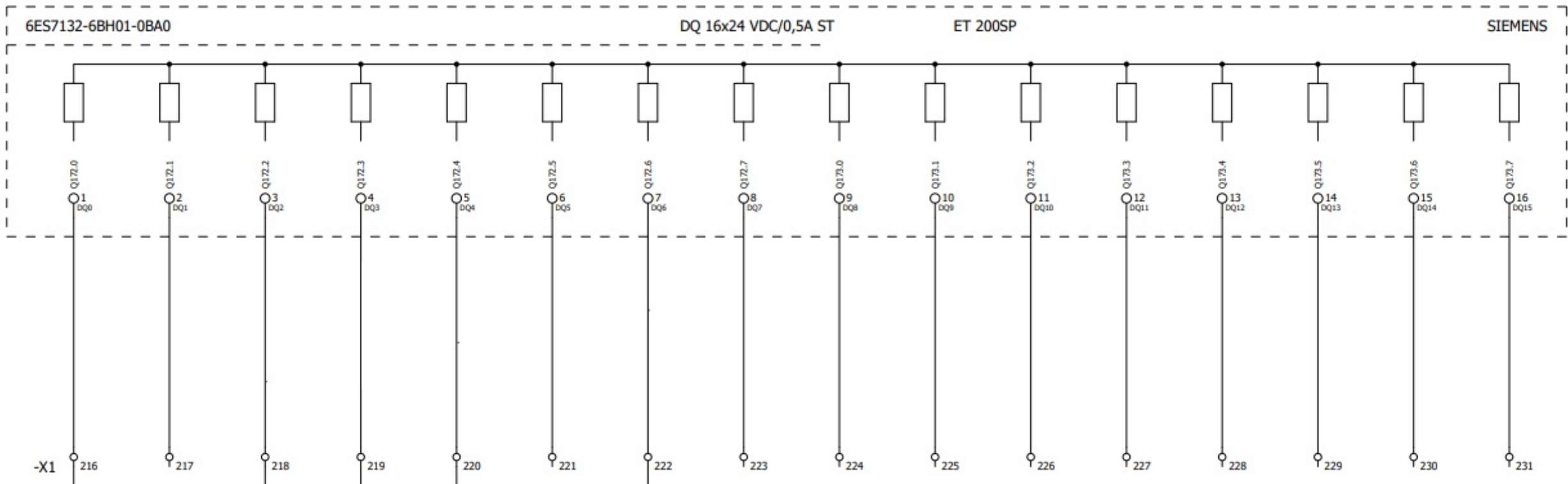


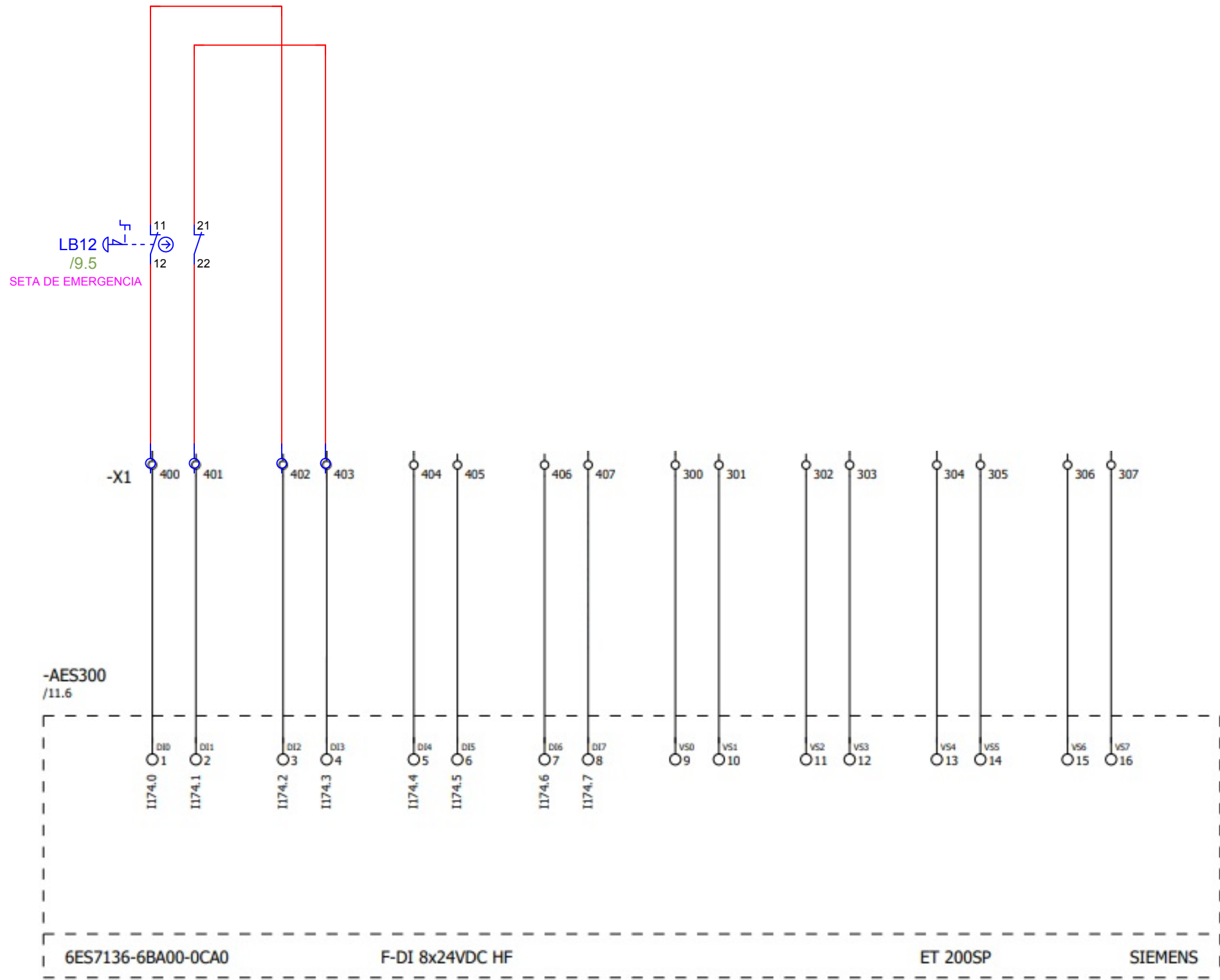


-AA200
/11.5



-AA202
/11.5







Relación de documentos

☐	Memoria	108	páginas
☒	Anexos	102	páginas

La Almunia, a 03 de 06 de 2024



Firmado: Yeraí Cardiel Recio