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Pudong New District, Shanghai, 201319  
P.R.China

<b>Latest revision:</b> Rev 01 1/23/2025	<b>Approved by, date:</b> Per V. Carlsson	 <b>Lab/Office:</b> RA/RDP ABB Engineering (Shanghai) Ltd. No.4528, Kangxin Highway, Pudong New District, Shanghai, 201319, P. R. China	<b>Copyright</b>	<b>Status:</b> Approved	<b>High-level function:</b> = Overview <b>Mounting location:</b> +
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ABB Engineering (Shanghai) Ltd.

Phone

Company / customer			
Project description	OmniCore C90XT		
Job number			
Commission			
Manufacturer (company)	ABB Engineering (Shanghai) Ltd.		
Path			
Project name	OmniCore C90XT Rev 01		
Make			
Type	Industrial robot controller		
Place of installation			
Responsible for project			
Part feature			
Created on	11/11/2019		
Edit date	1/23/2025	by (short name) CNBRZHA2	Number of pages 64

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Rev 00 2024/6/20  
New release

Rev 01 2025/01/23

- 1. MultiMove added in page 16, 16.a, 16.b, 16.c and Robot Signal Exchange Proxy added in page 9, 9.a.
- 2. Add connection examples for safety interface in page 6.a.
- 3. Update Copyright in page 001 using 2025 template.

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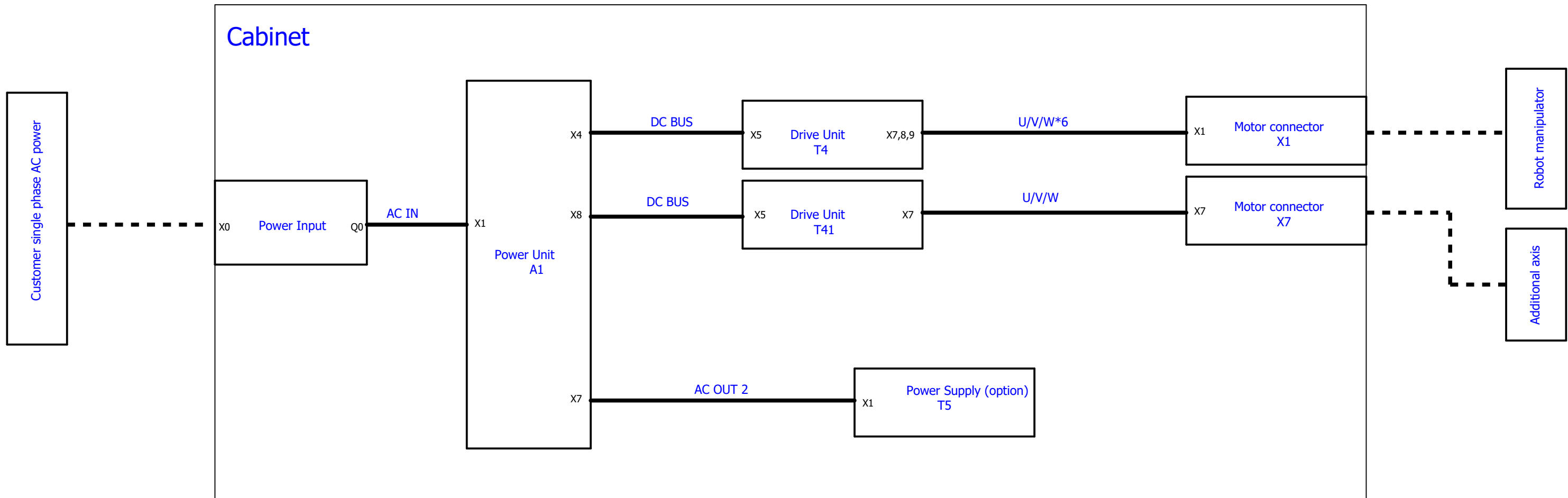
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Power circuit

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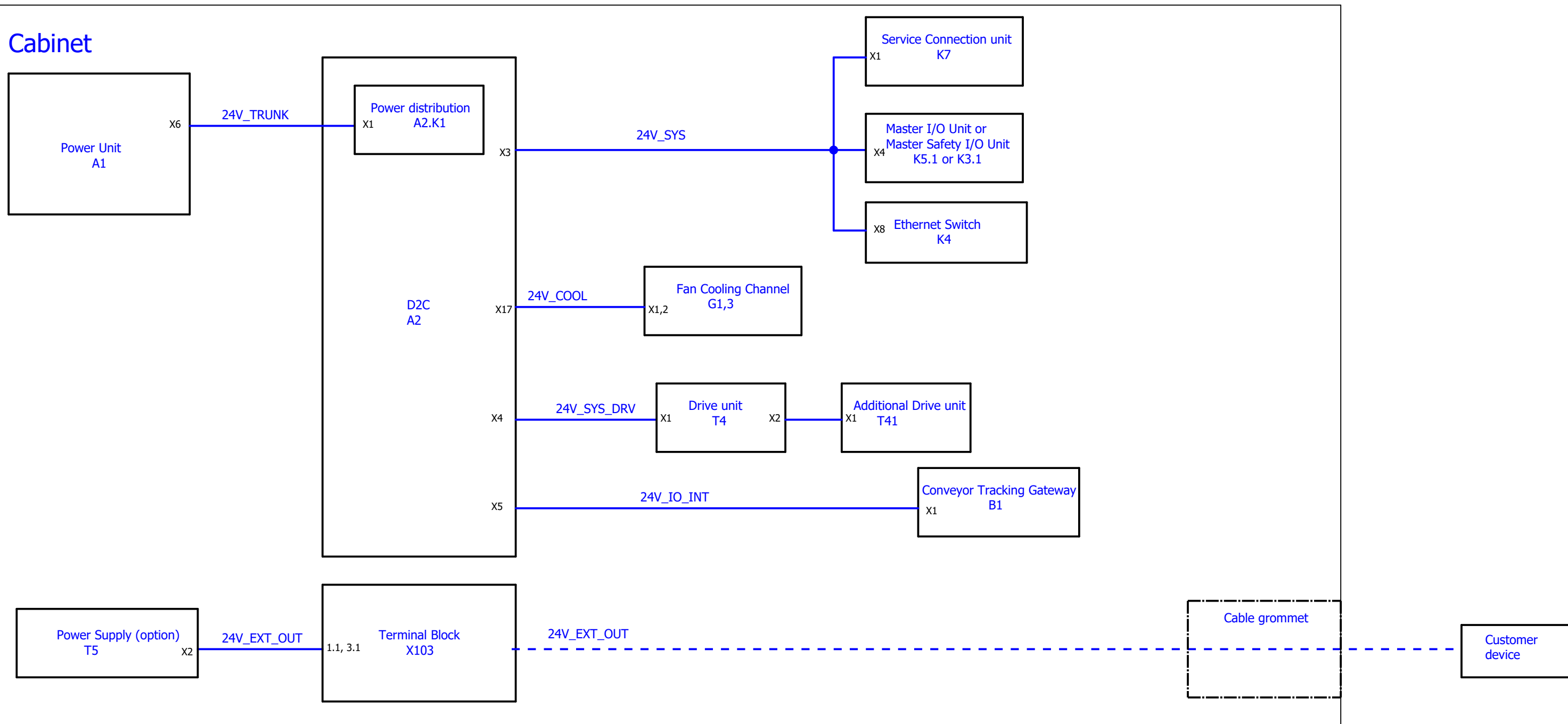
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Block diagram

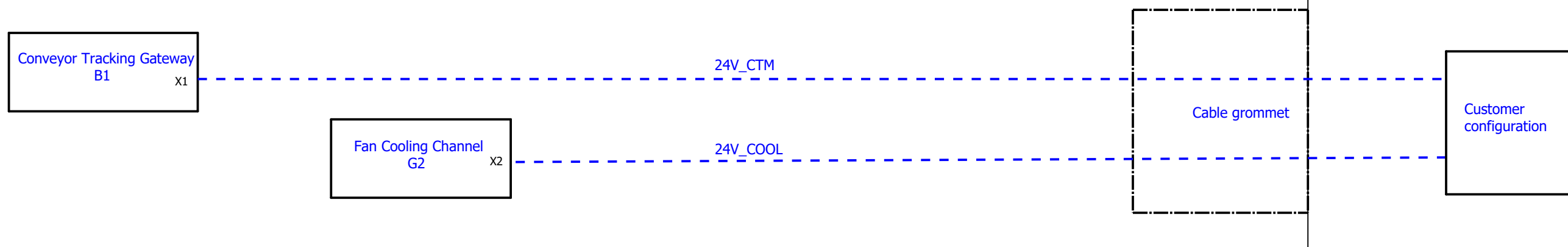
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# Cabinet



# Ext.box



24VDC logical power circuit

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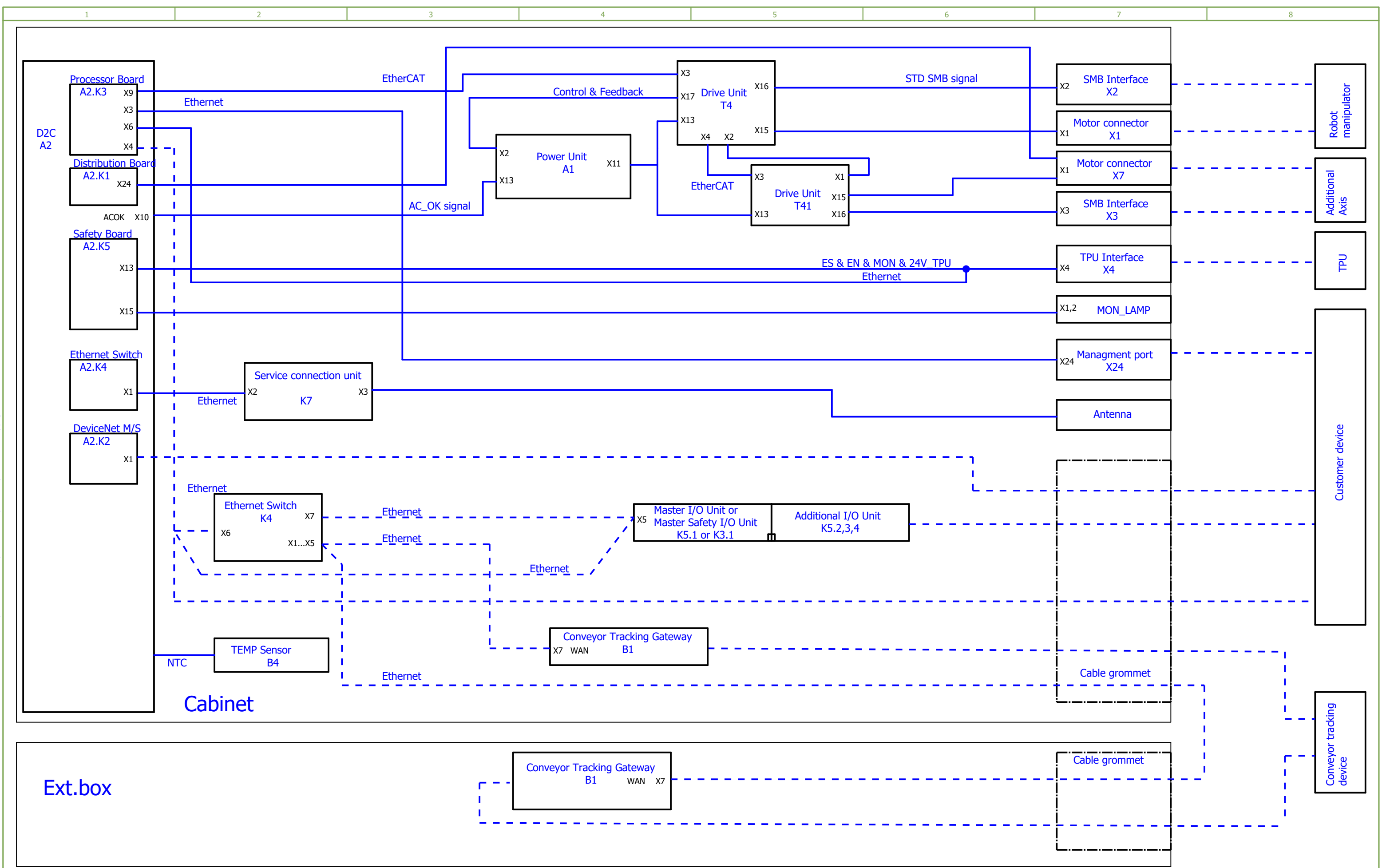
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Block diagram

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Control circuit

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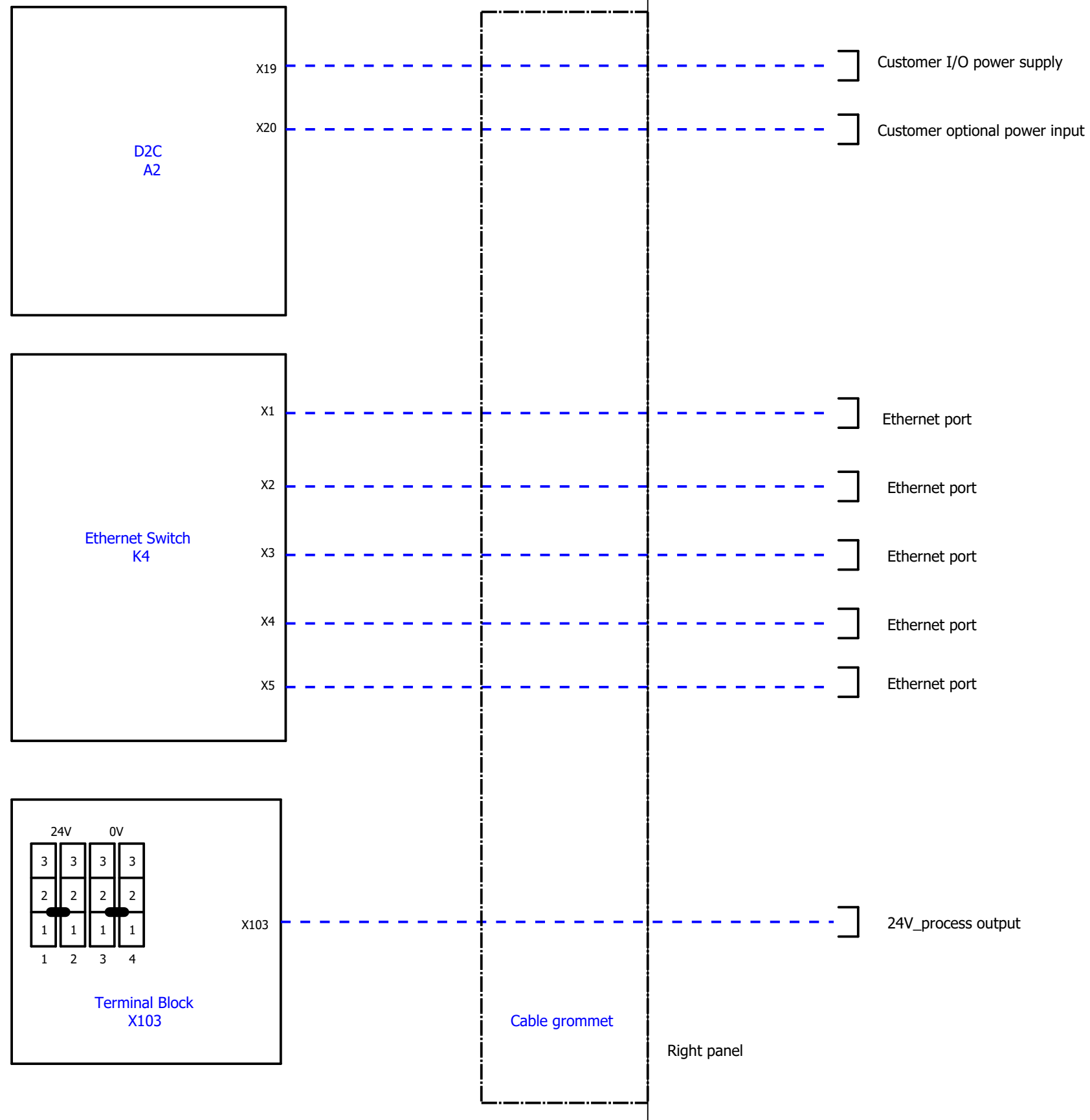
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Customer interface

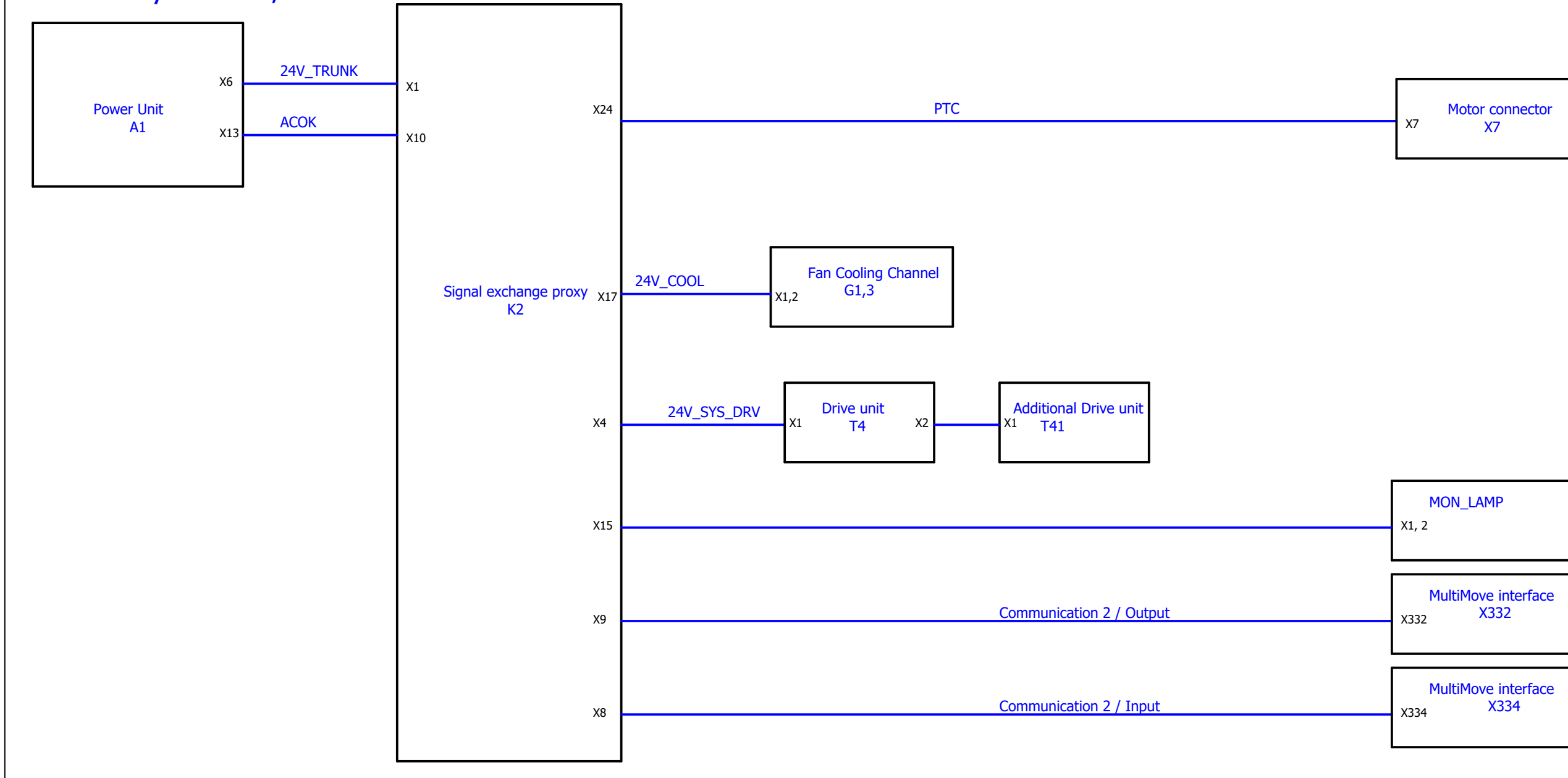
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Block diagram

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# Secondary Cabinet, MultiMove



24VDC logical power circuit

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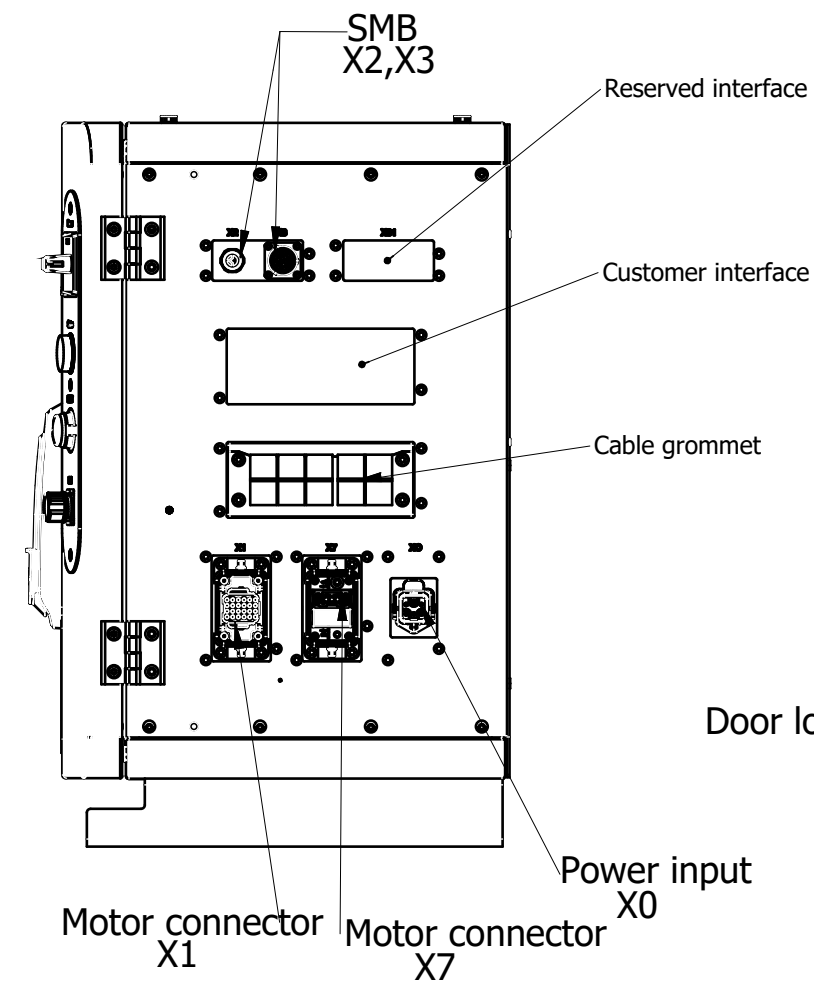
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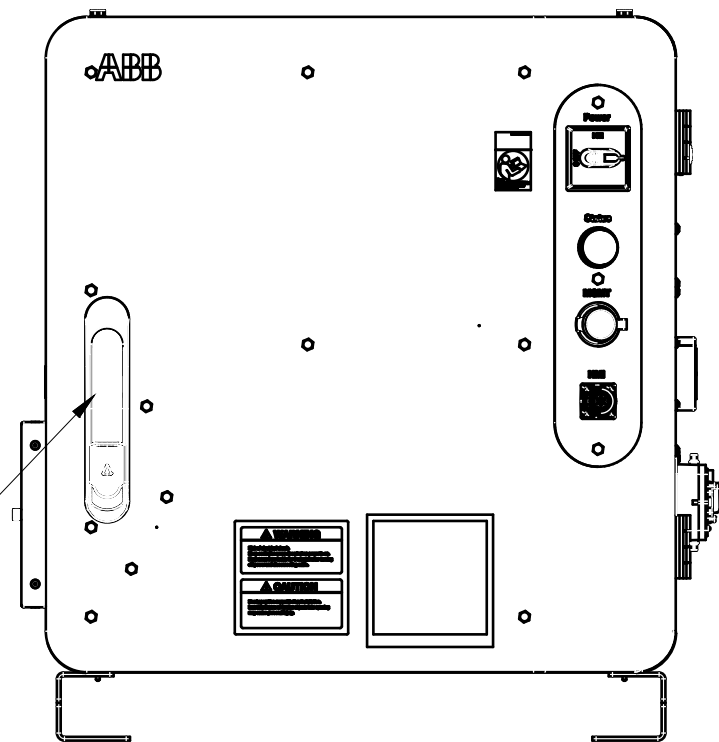
Block diagram, Secondary controllers

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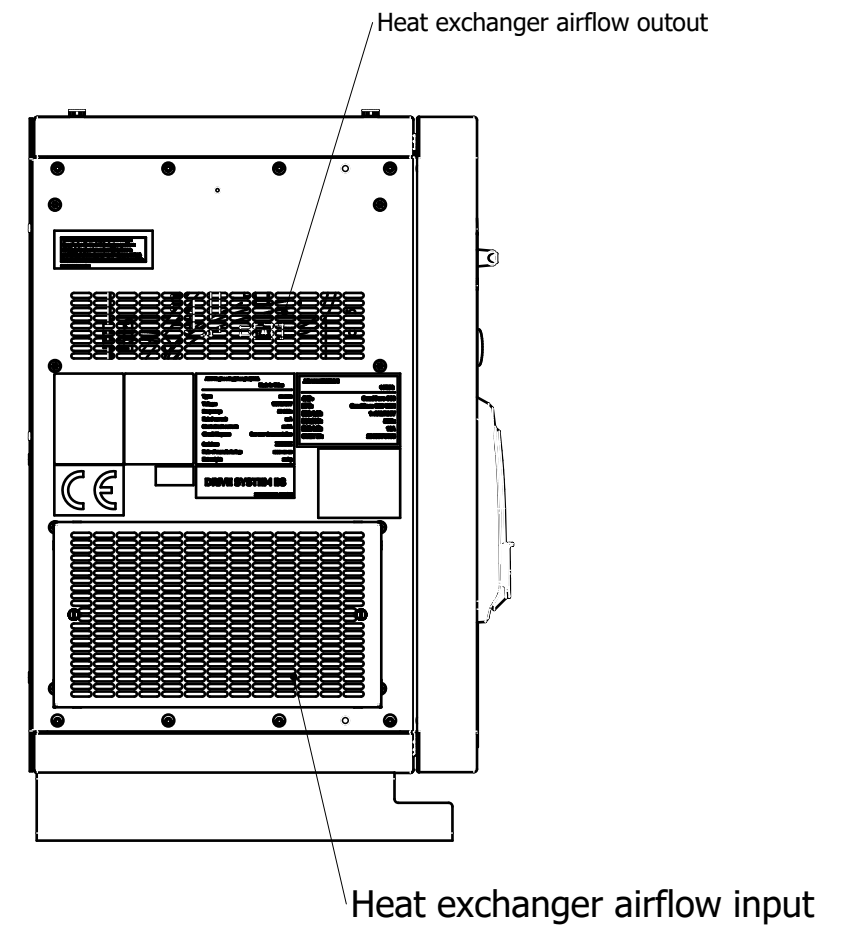
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Right view



Front view



Left view

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Cabinet - U1

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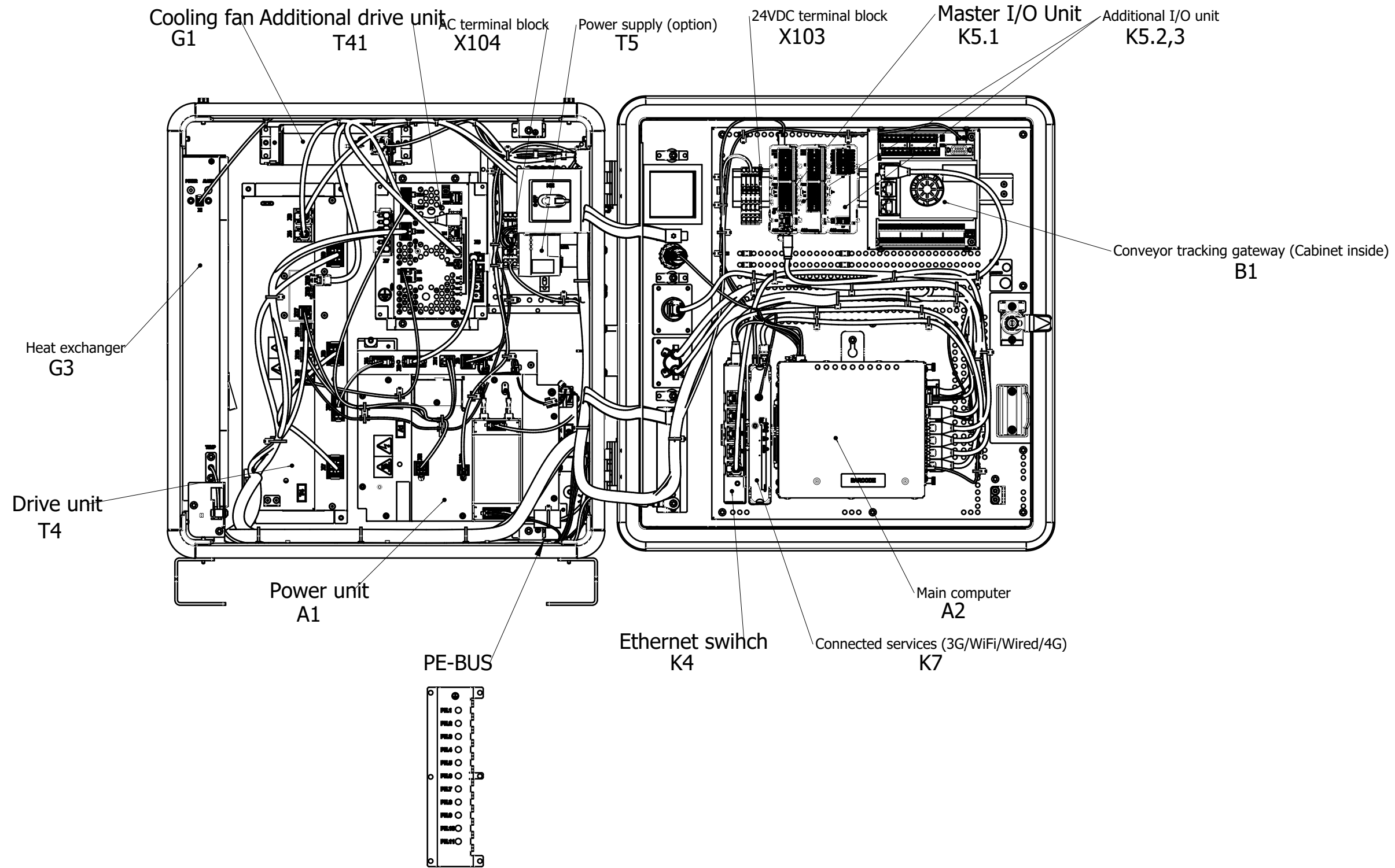
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Note. Depending on chosen options, the graphical visualization does not always correspond to reality.



## Internal view

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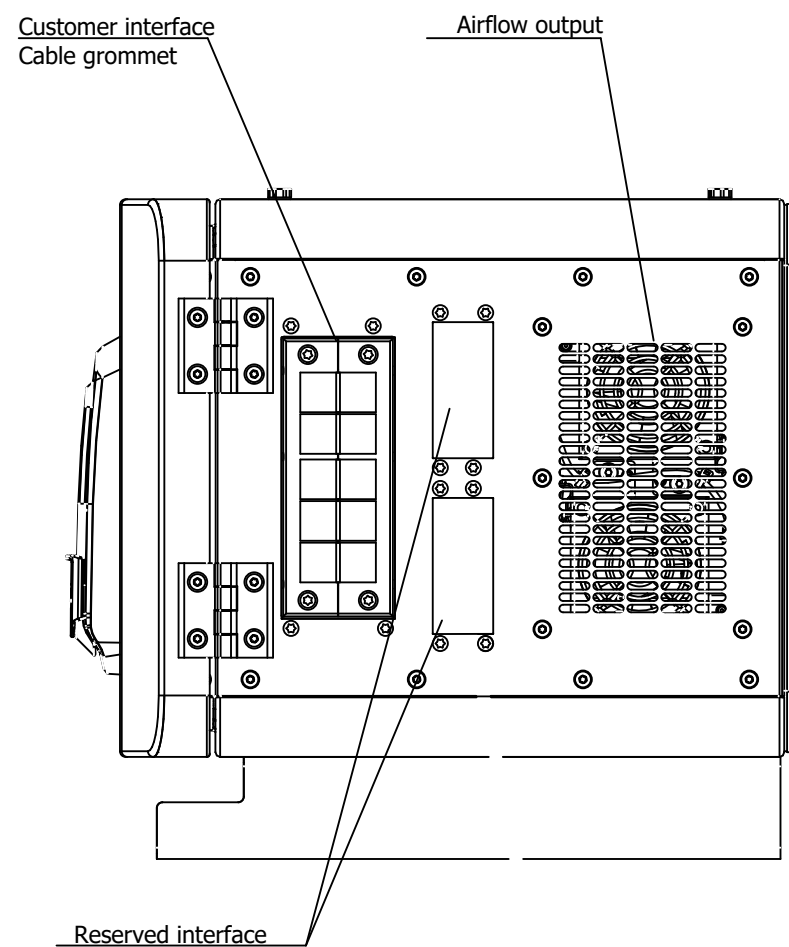
Cabinet - U1

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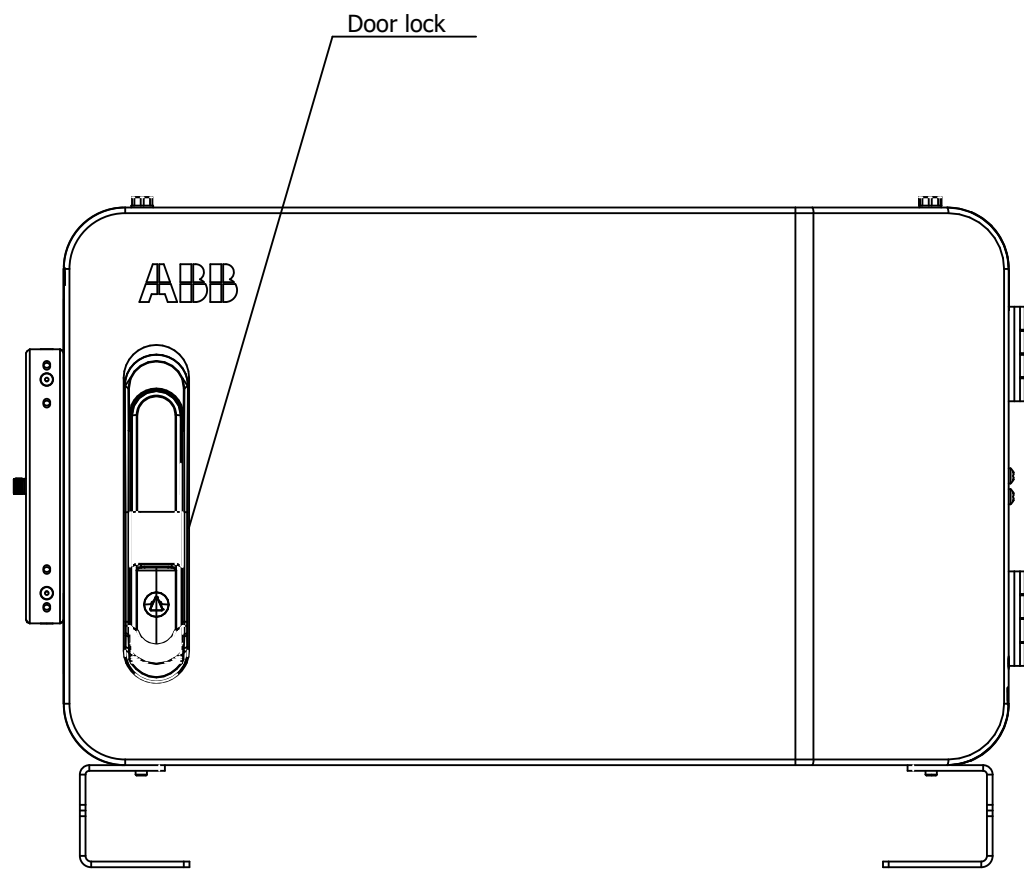
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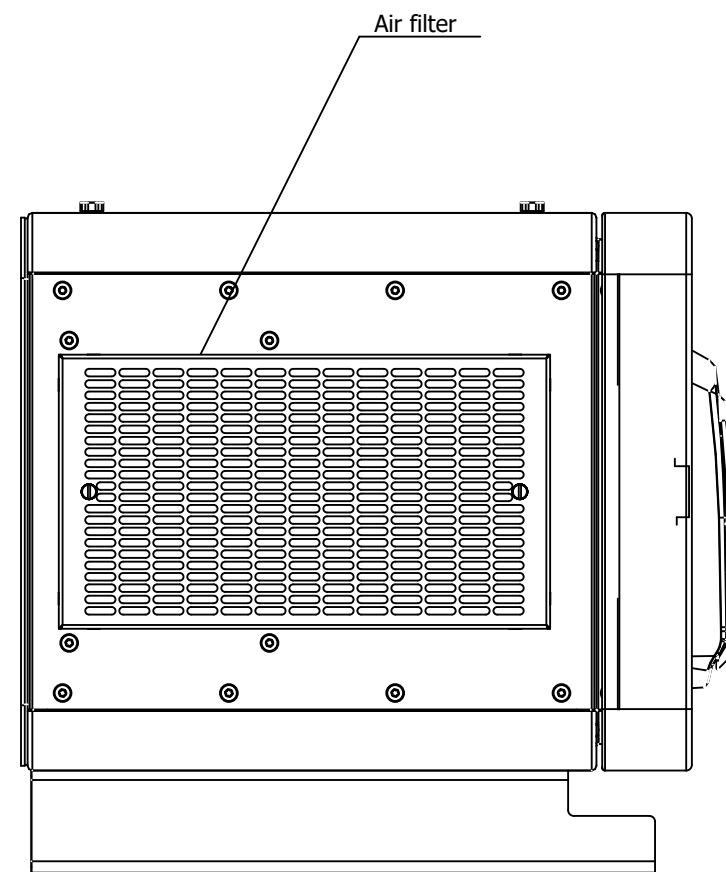
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Right View



Front view



Left View

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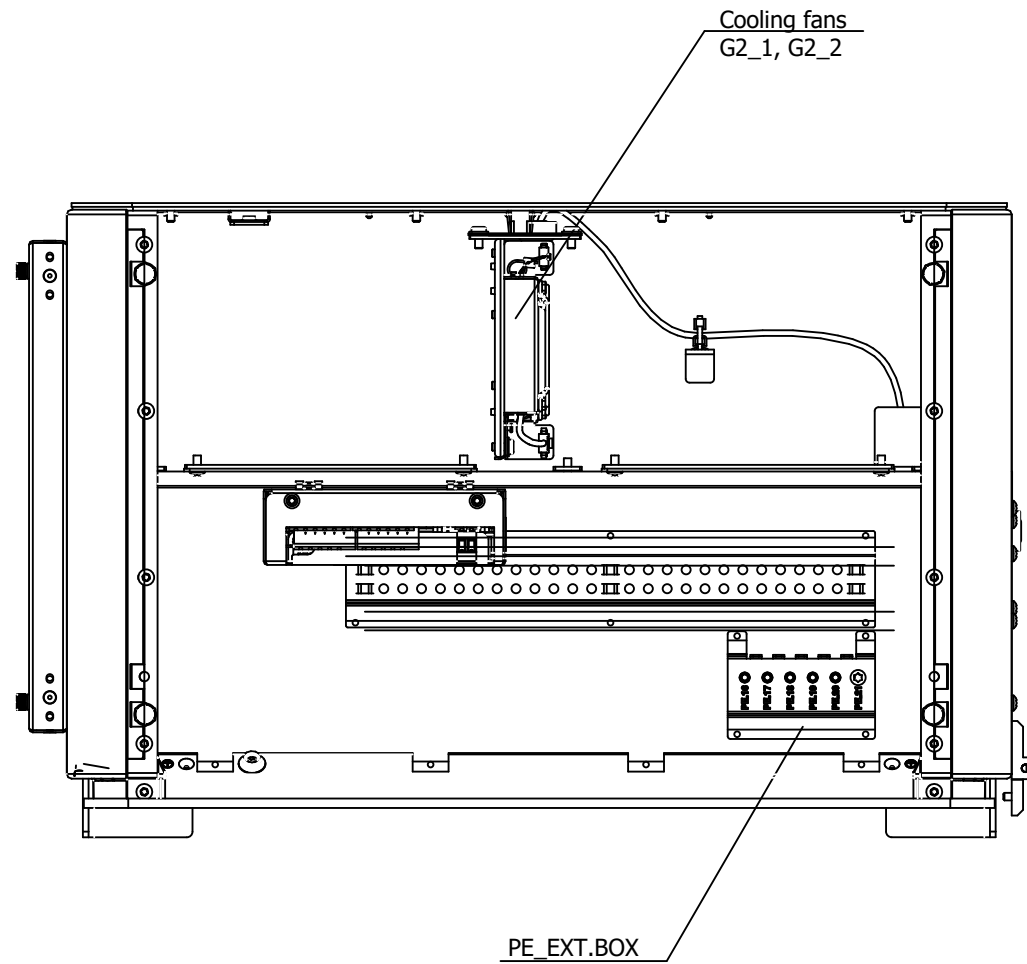
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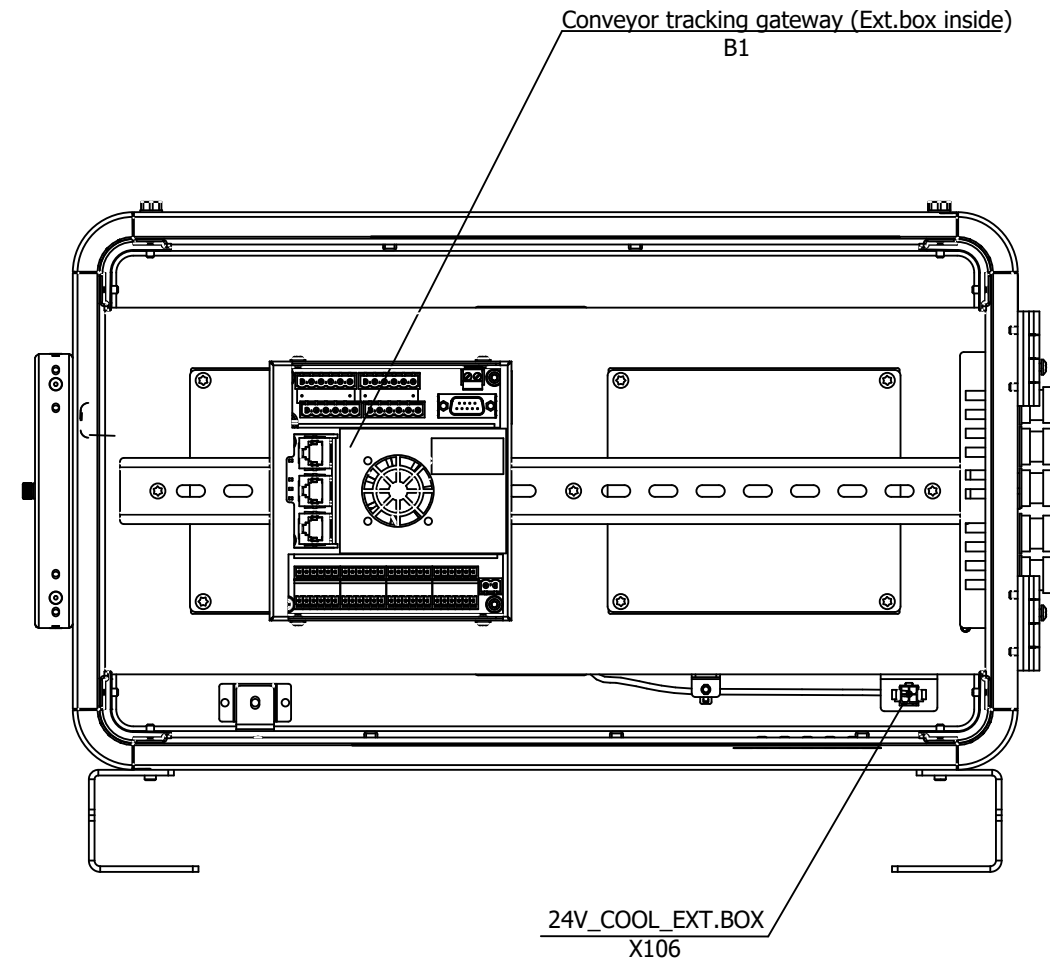
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Internal top view



Internal front view

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EXT. BOX - U2

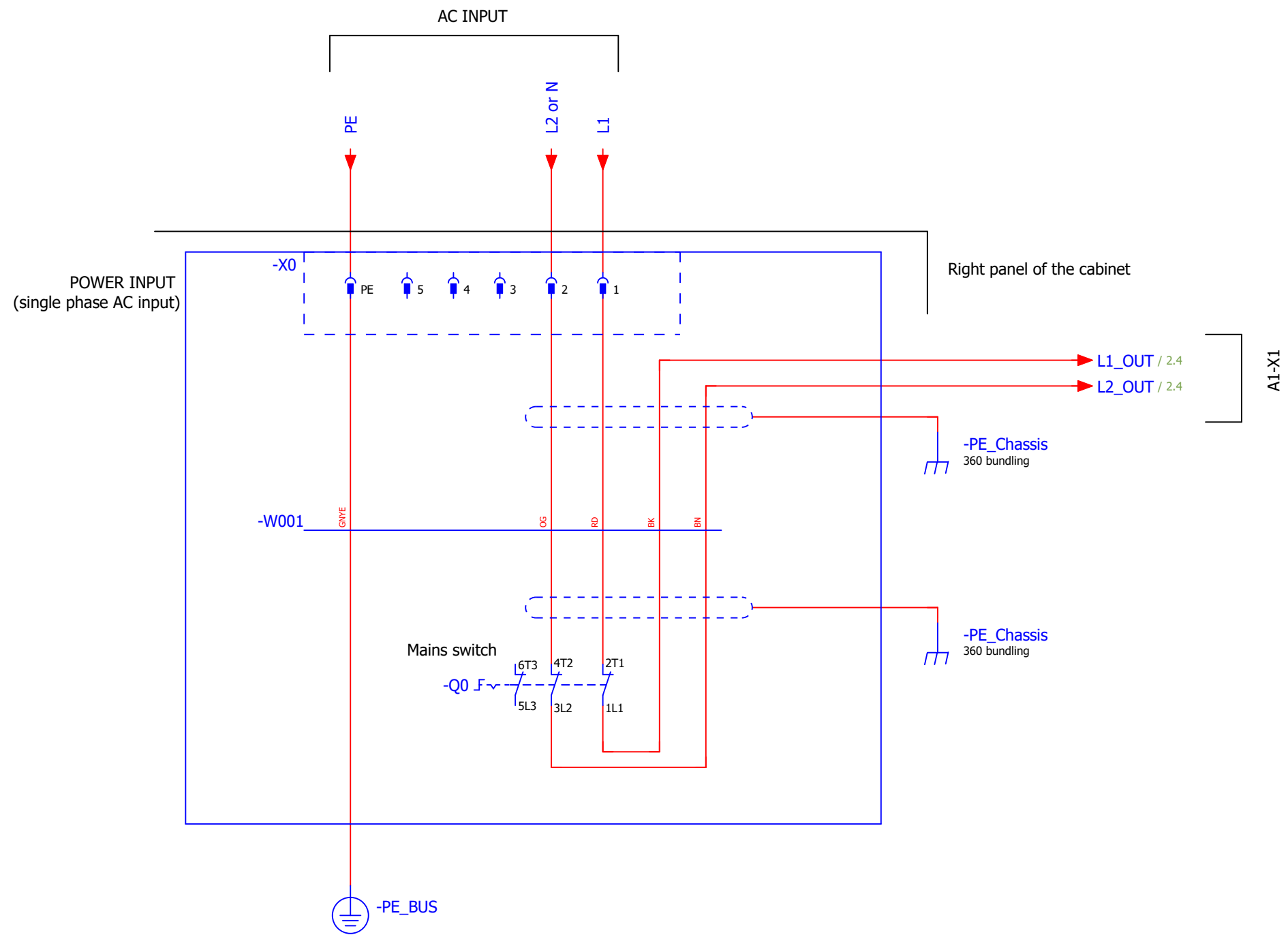
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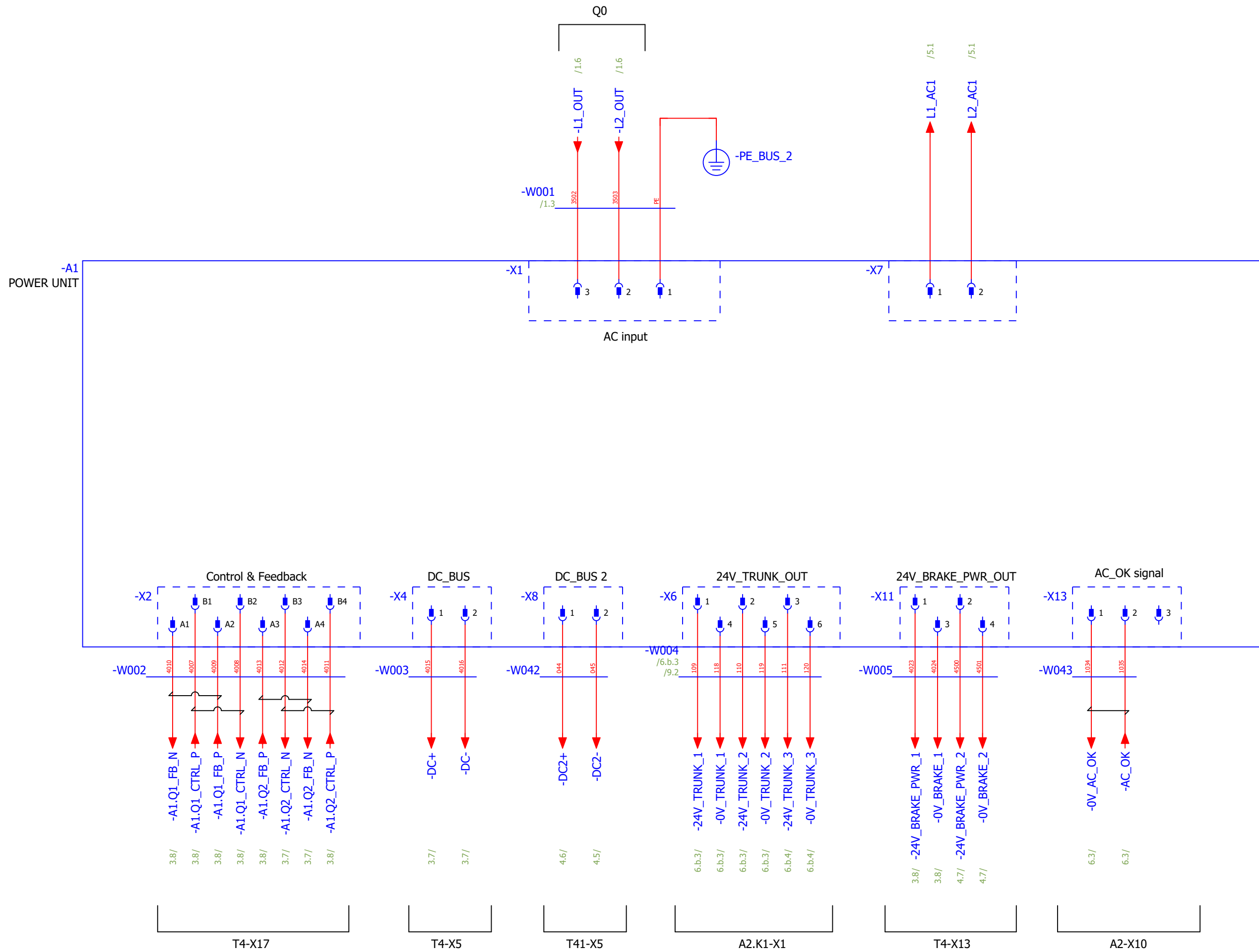
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**POWER INPUT**

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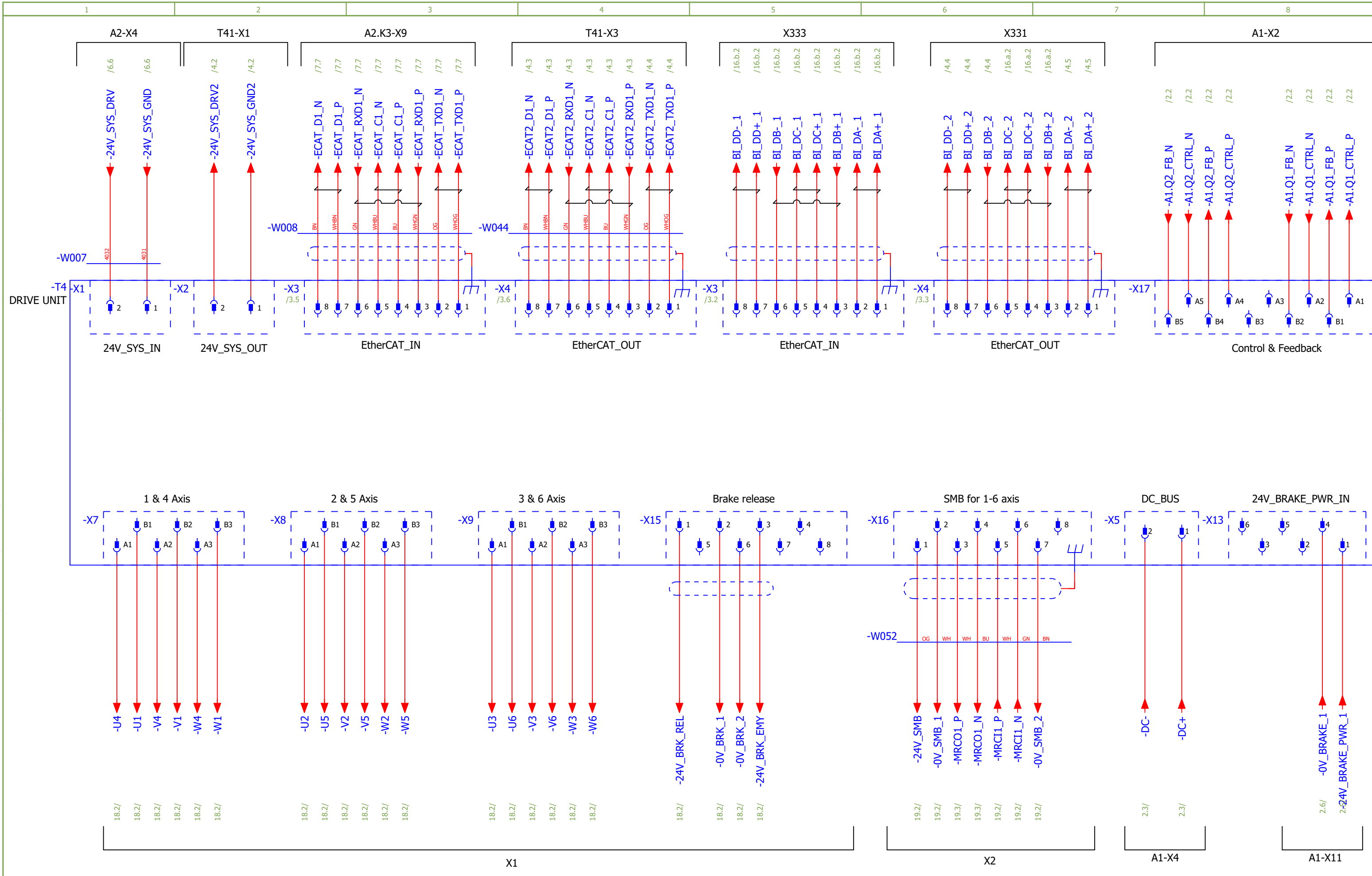
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**POWER UNIT- A1**

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**DRIVE UNIT- T4**

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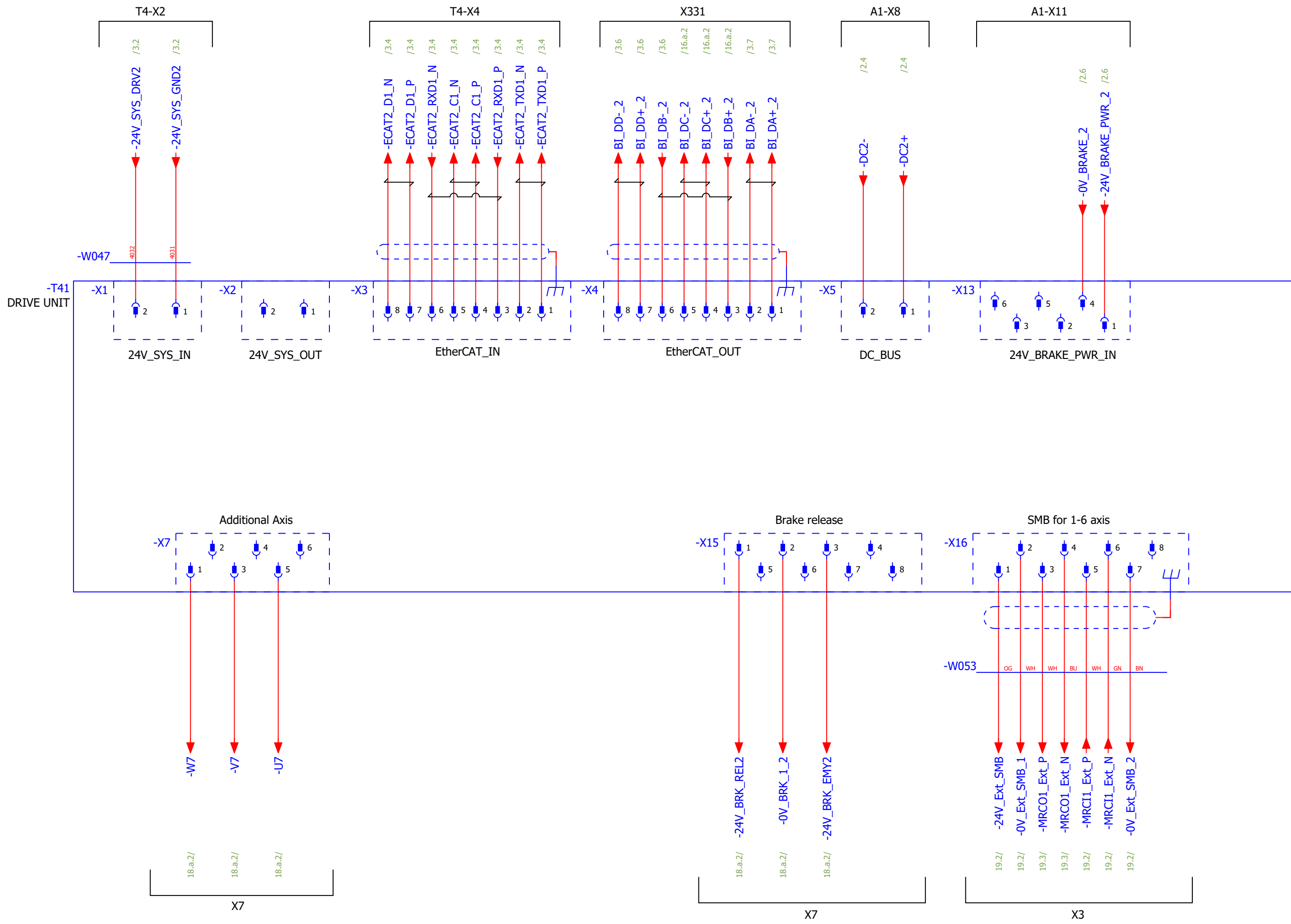
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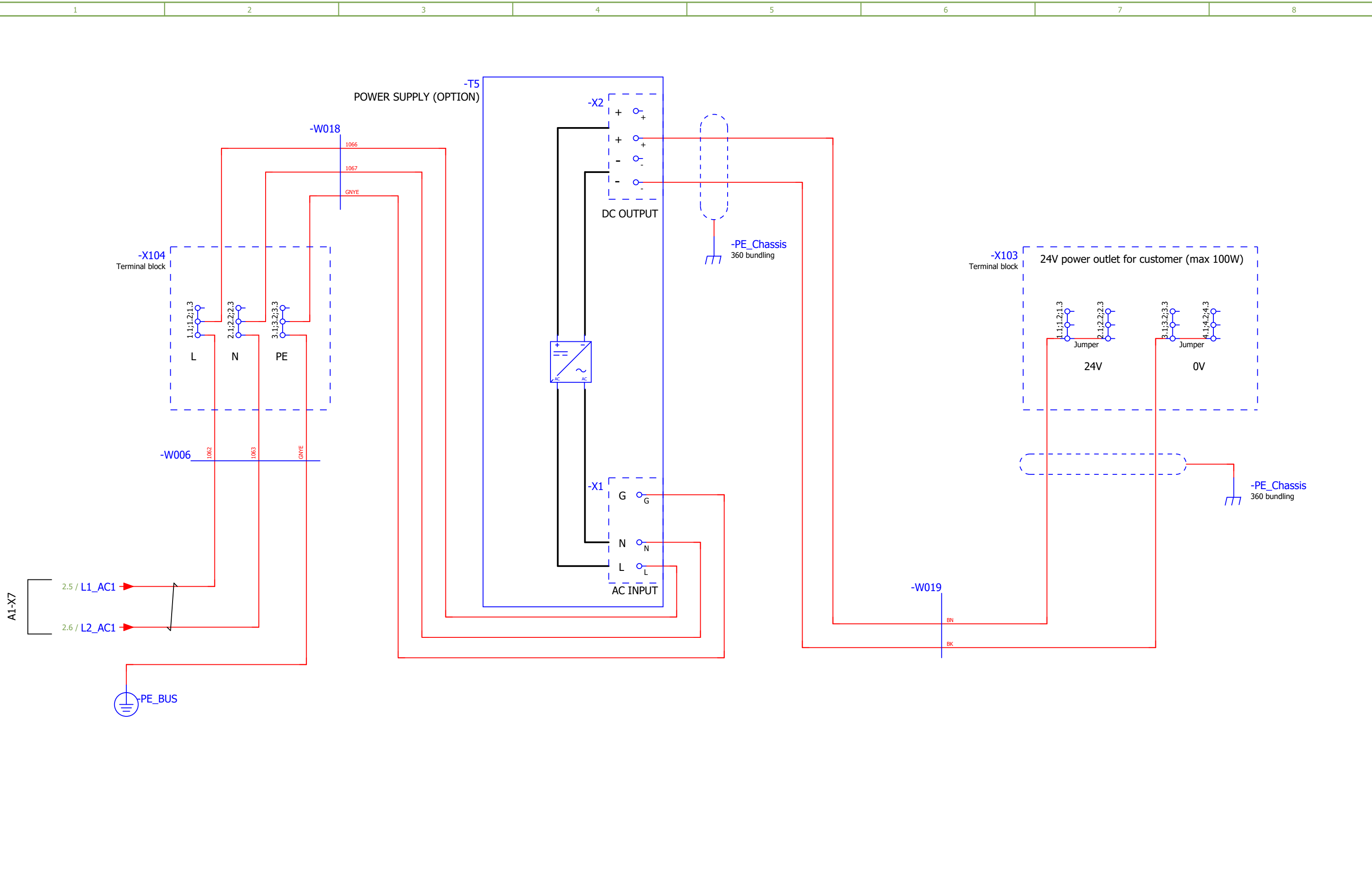
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**Additional DRIVE UNIT- T41**  
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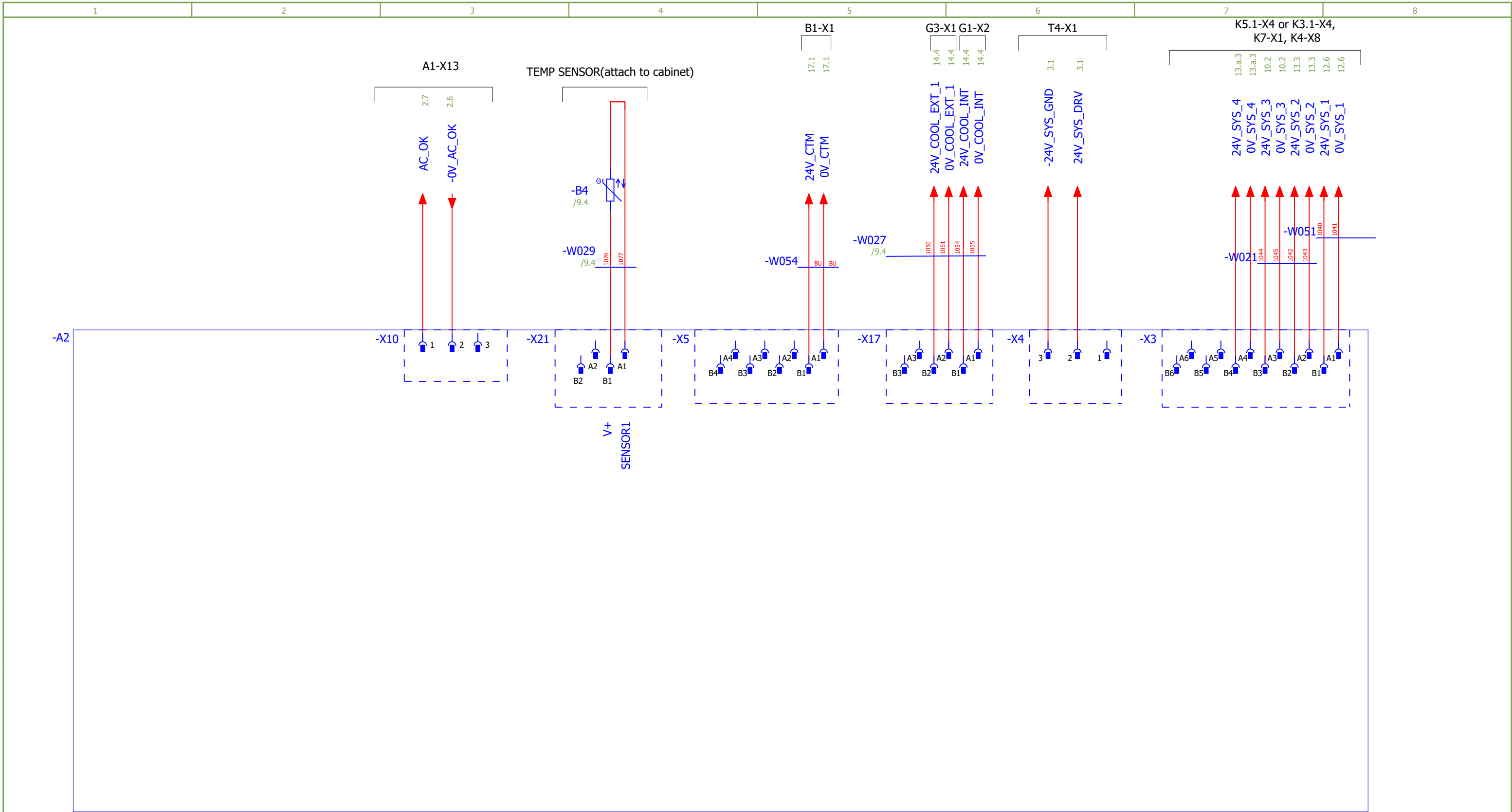
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**POWER SUPPLY (OPTION)- T5**

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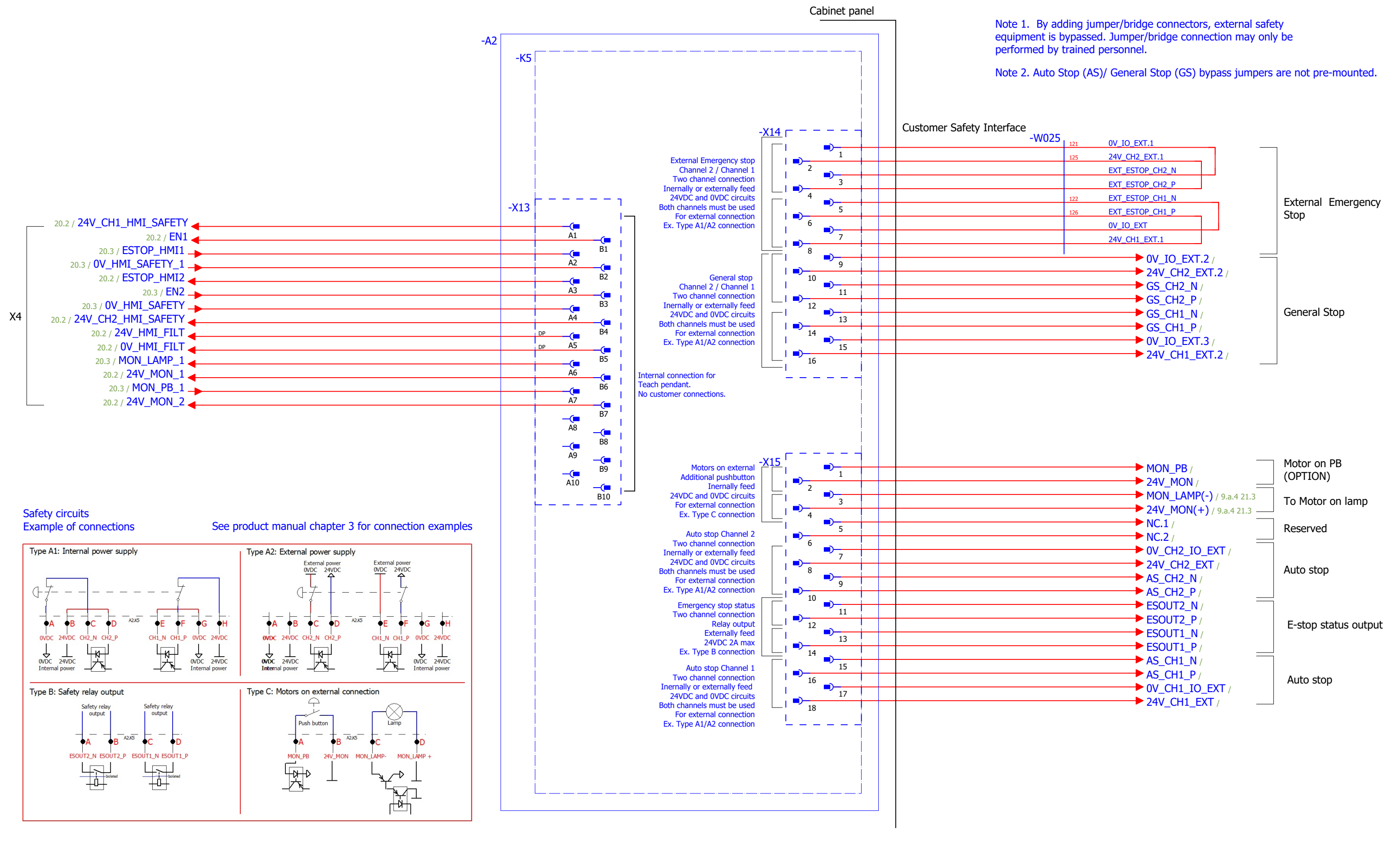
D2C - A2

Status: Approved

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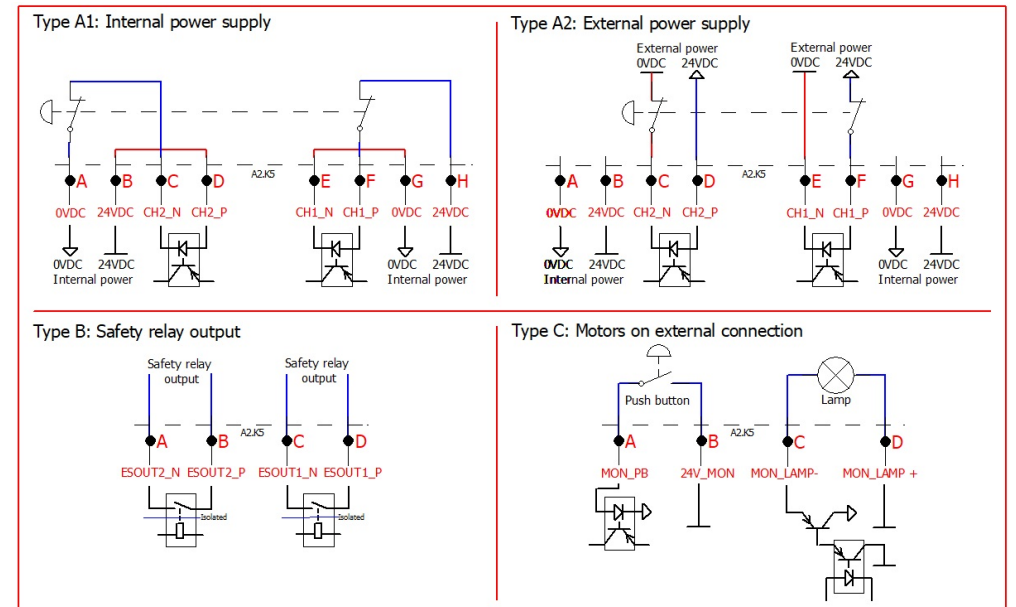
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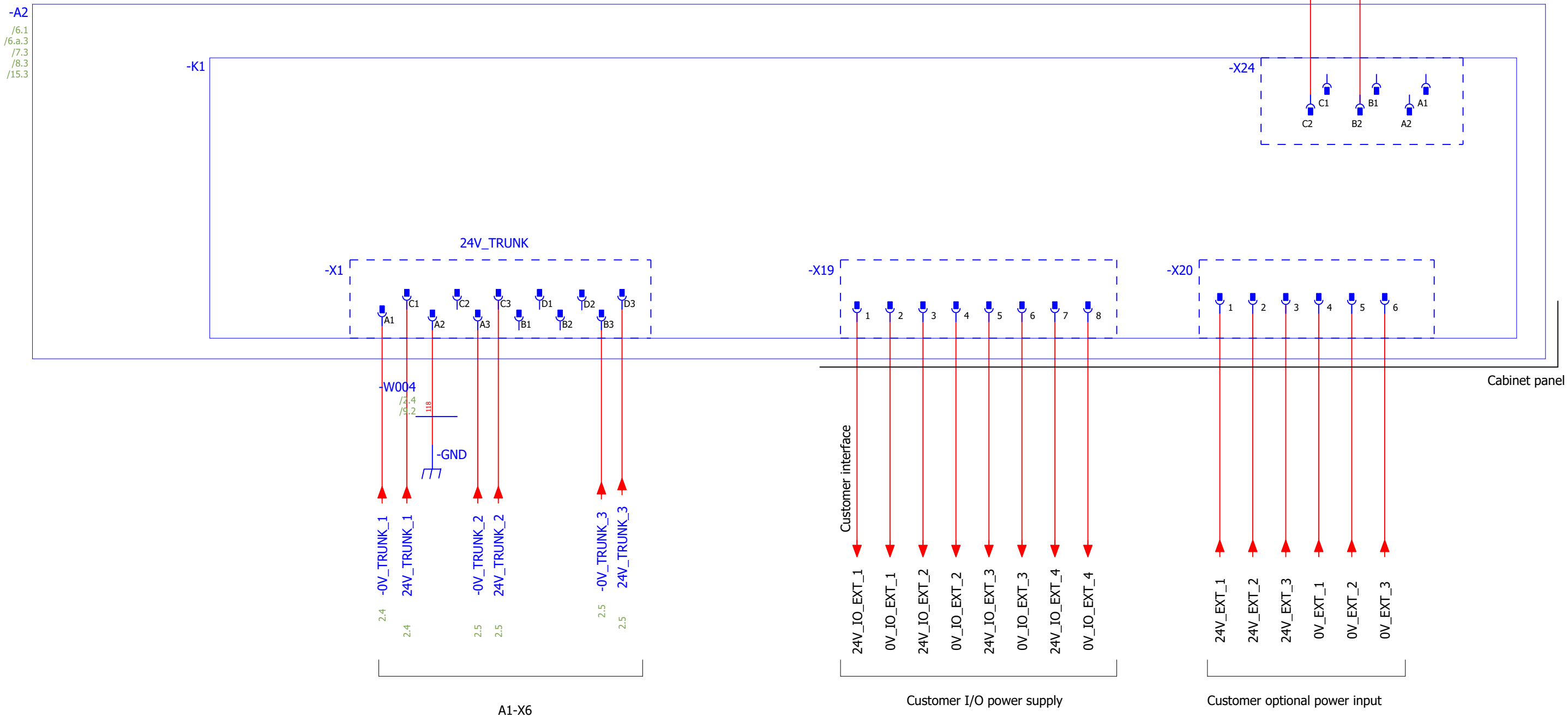


Note 1. By adding jumper/bridge connectors, external safety equipment is bypassed. Jumper/bridge connection may only be performed by trained personnel.

Note 2. Auto Stop (AS)/ General Stop (GS) bypass jumpers are not pre-mounted.

**Safety circuits**  
Example of connections See product manual chapter 3 for connection examples





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**D2C Power Distribution board - A2.K1**

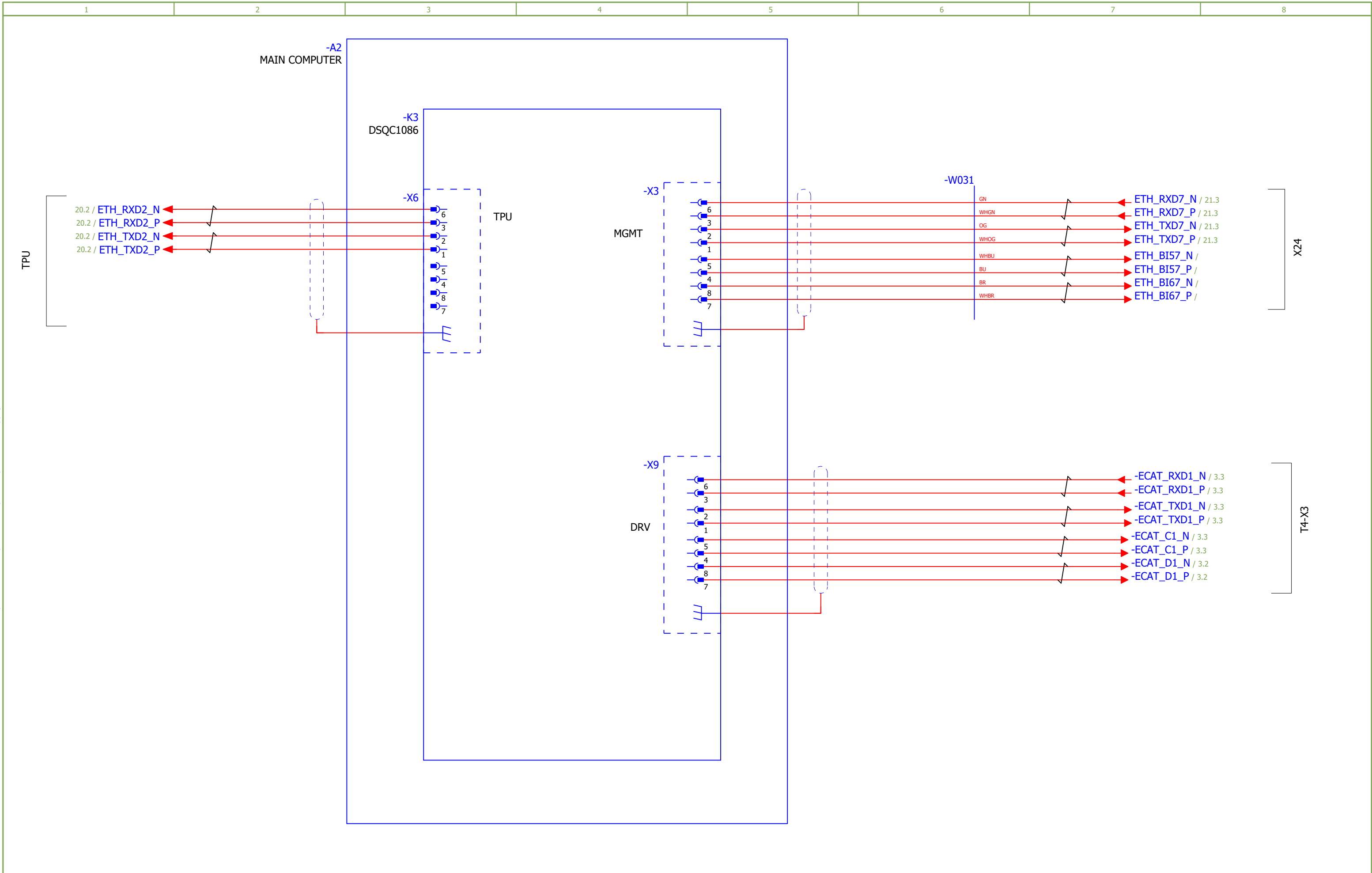
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11/11/2024

Prepared by, date: \_\_\_\_\_  
Approved by, date: Per V. Carlsson

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D2C Process Board - A2.K3

Status:  
Approved

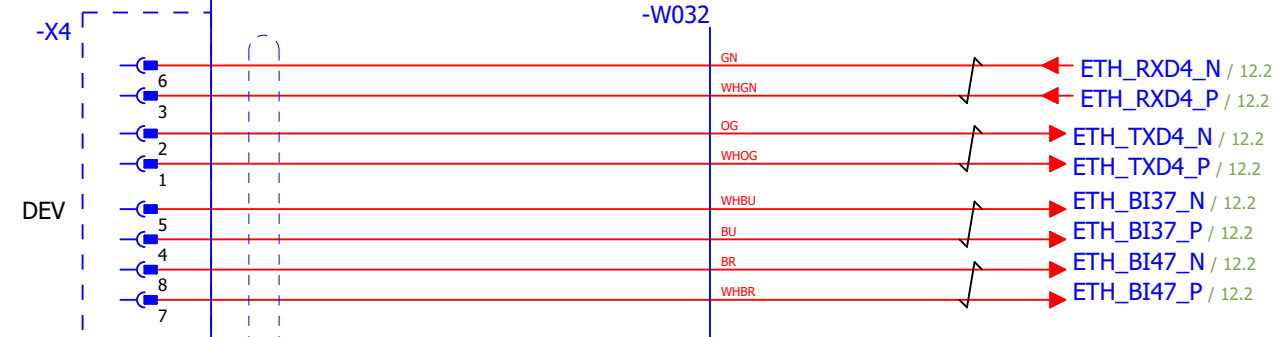
Document no.  
3HAC086305-010

High-level function: = SCH  
Mounting location: + U1

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-A2.K3  
MAIN COMPUTER

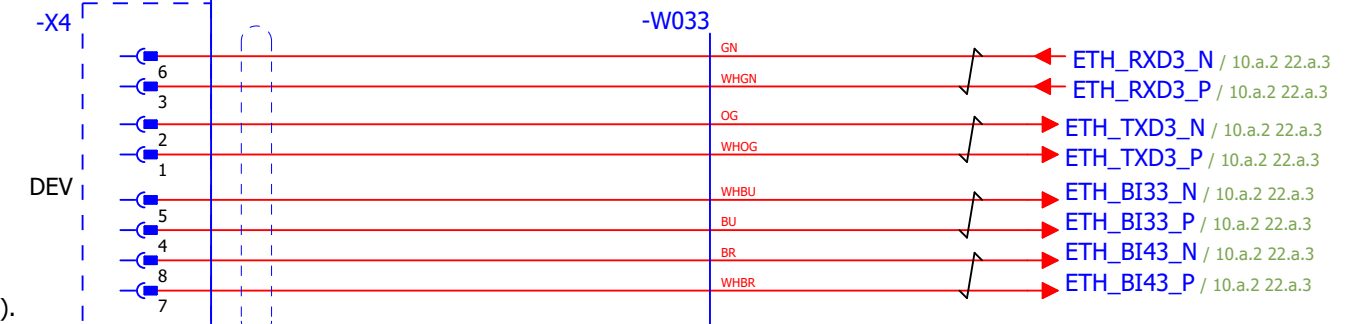
Option - Ethernet  
The Ethernet switch (K4) exists.



K4-X6

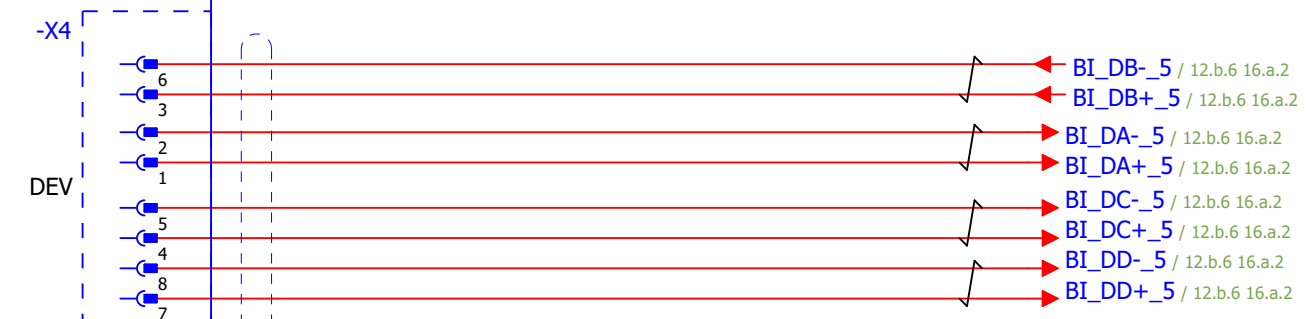
-A2.K3  
MAIN COMPUTER

Option - Ethernet  
The Ethernet switch (K4) does not exist,  
the master I/O unit (K5) or master safe I/O unit (K3) need connect to main computer (A2).



K5.1-X5  
K3.1-X5

Option - Ethernet  
The Ethernet switch (K4) does not exist,  
MultiMove output X332 in primary controller need connect to main computer (A2).



X332

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12/23/2024

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D2C Process Board - A2.K3

Status:  
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High-level function: = SCH  
Mounting location: + U1

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3HAC086305-010

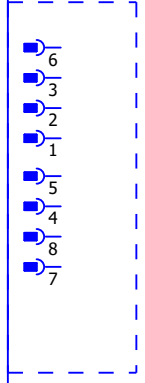
Page: 7.a  
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-A2  
MAIN COMPUTER

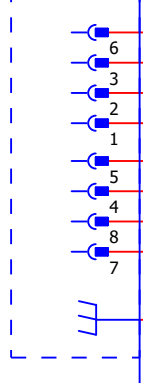
-K4  
DSQC1088

-X4



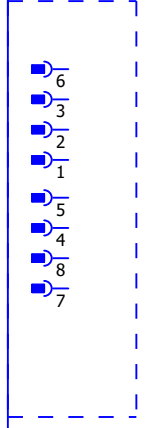
LAN

-X1



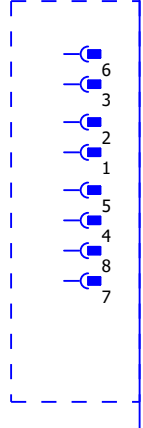
ABILITY

-X2



WAN1

-X3



WAN2

-W062



- ETH\_RXD27\_N / 13.3 13.a.3
- ETH\_RXD27\_P / 13.3 13.a.3
- ETH\_TXD27\_N / 13.3 13.a.3
- ETH\_TXD27\_P / 13.3 13.a.3
- ETH\_BI327\_N / 13.3 13.a.3
- ETH\_BI327\_P / 13.3 13.a.3
- ETH\_BI427\_N / 13.3 13.a.3
- ETH\_BI427\_P / 13.3 13.a.3

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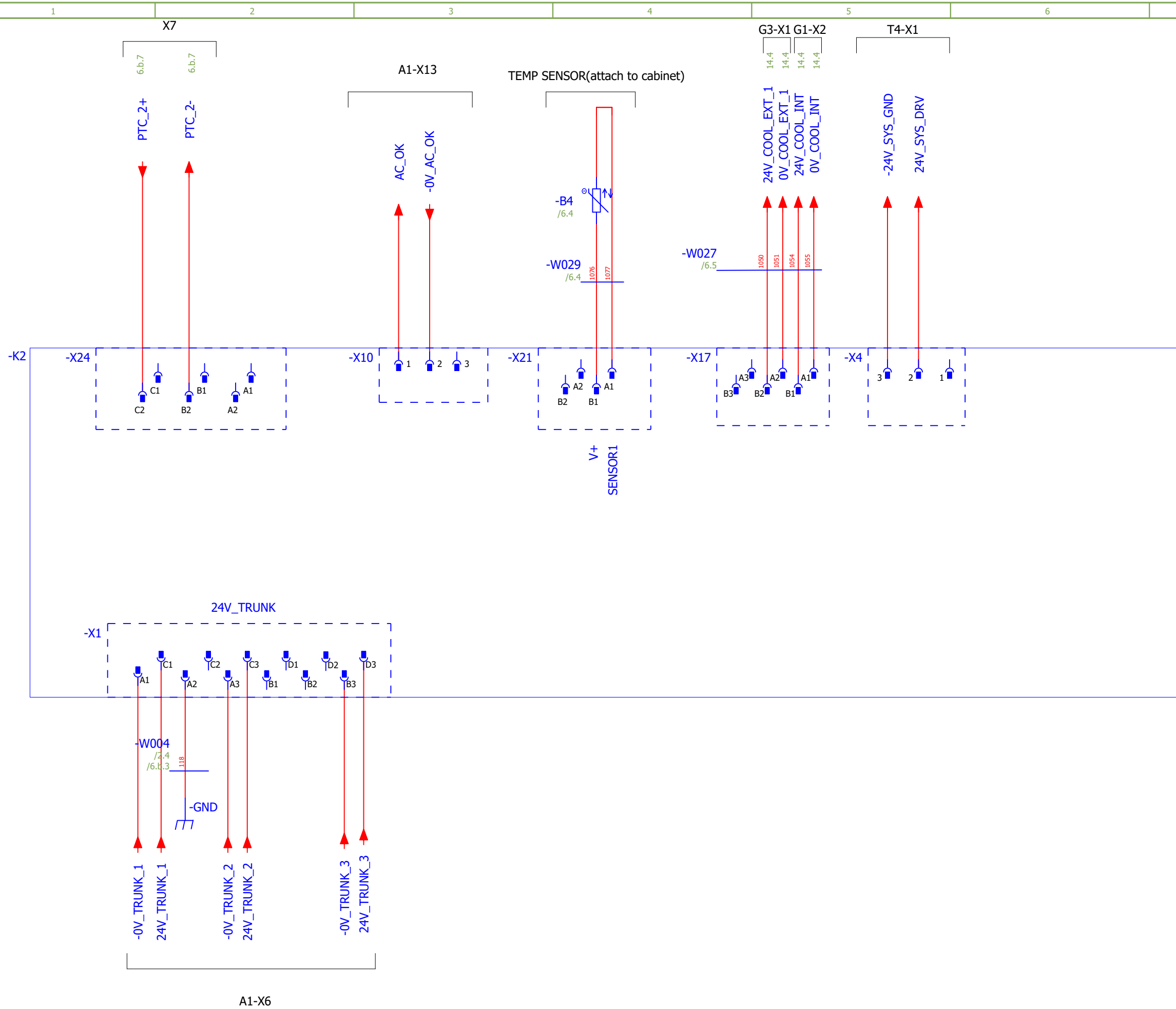
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D2C Ethernet Board - A2.K4

Status: Approved	High-level function: = SCH Mounting location: + U1
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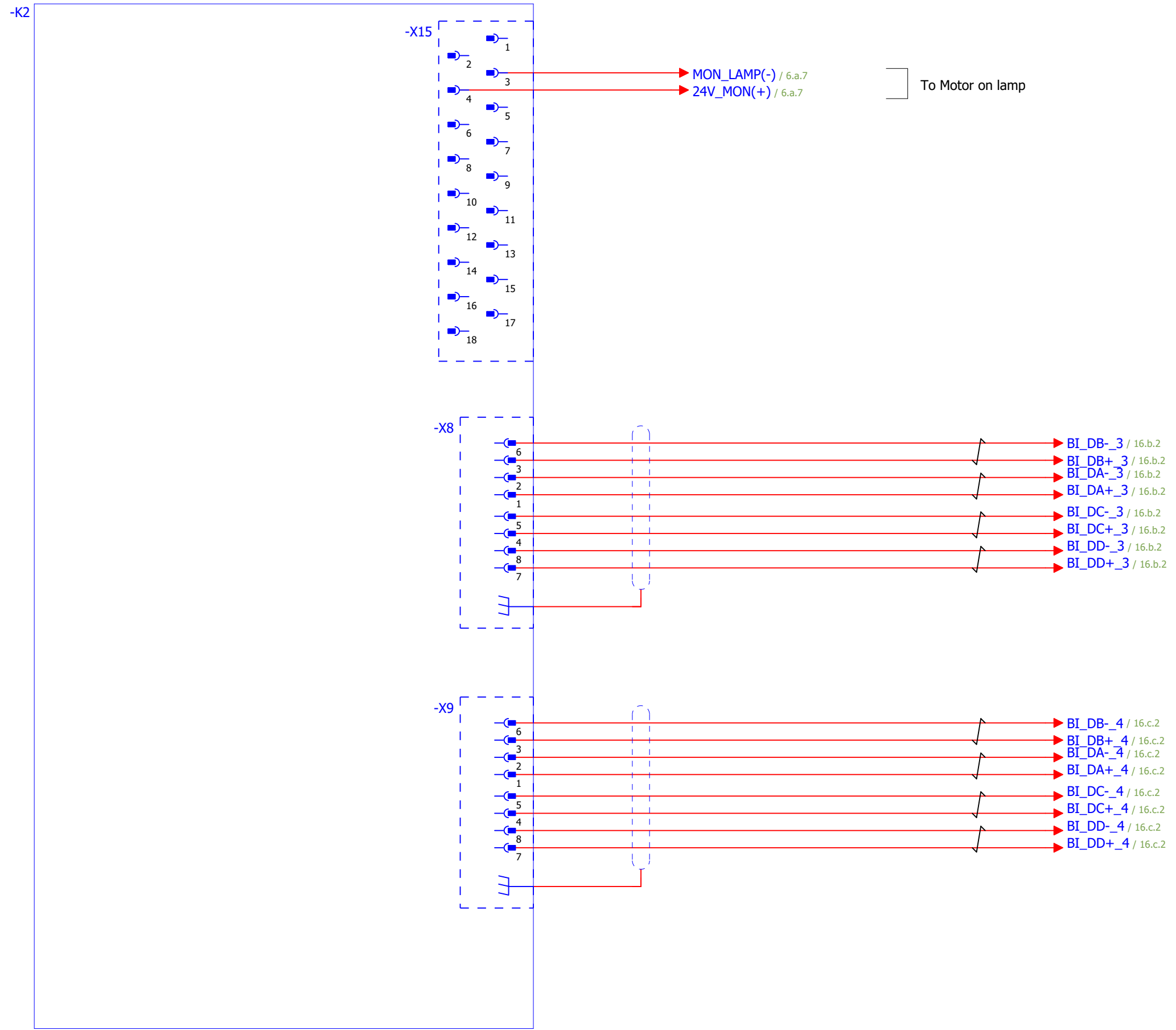
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**ROBOT SIGNAL EXCHANGE PROXY - K2**

Status:	High-level function: = SCH
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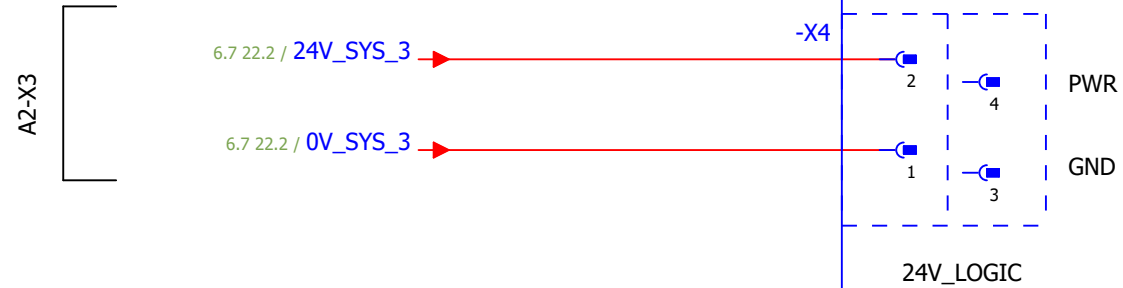
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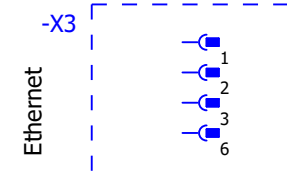
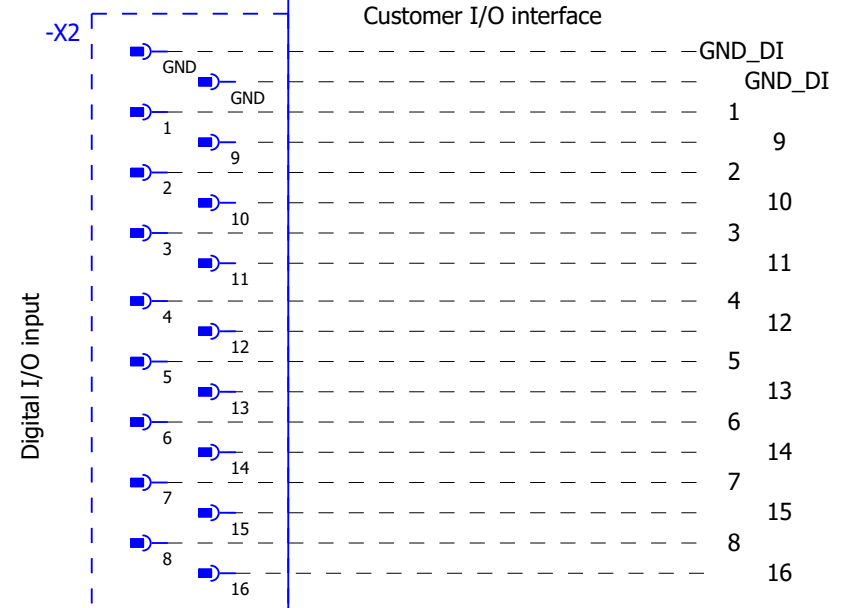
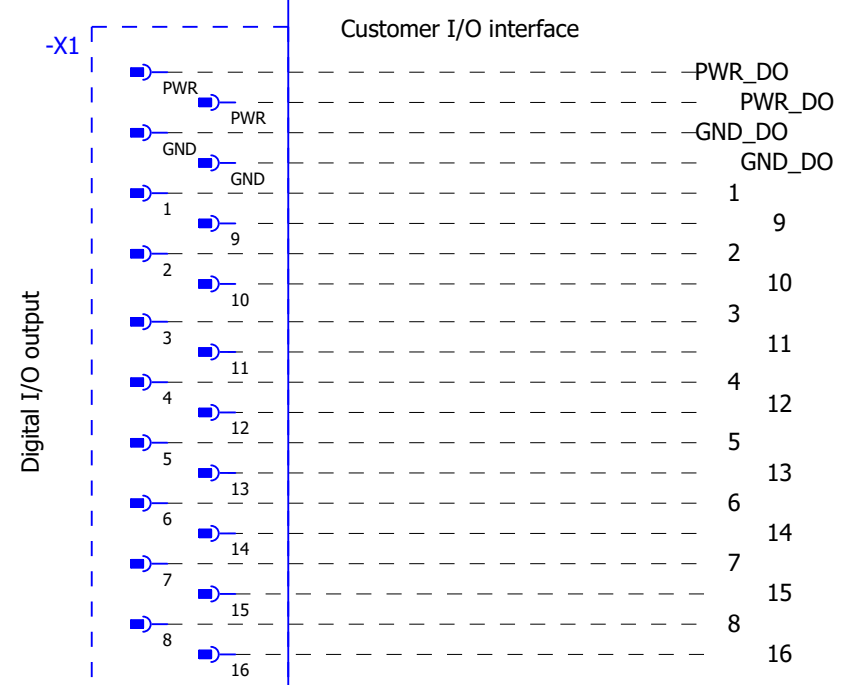
**ROBOT SIGNAL EXCHANGE PROXY - K2**

Status:	High-level function: = SCH
Approved	Mounting location: + U1
Document no.	Page: 9.a
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-K5.1  
MASTER I/O UNIT



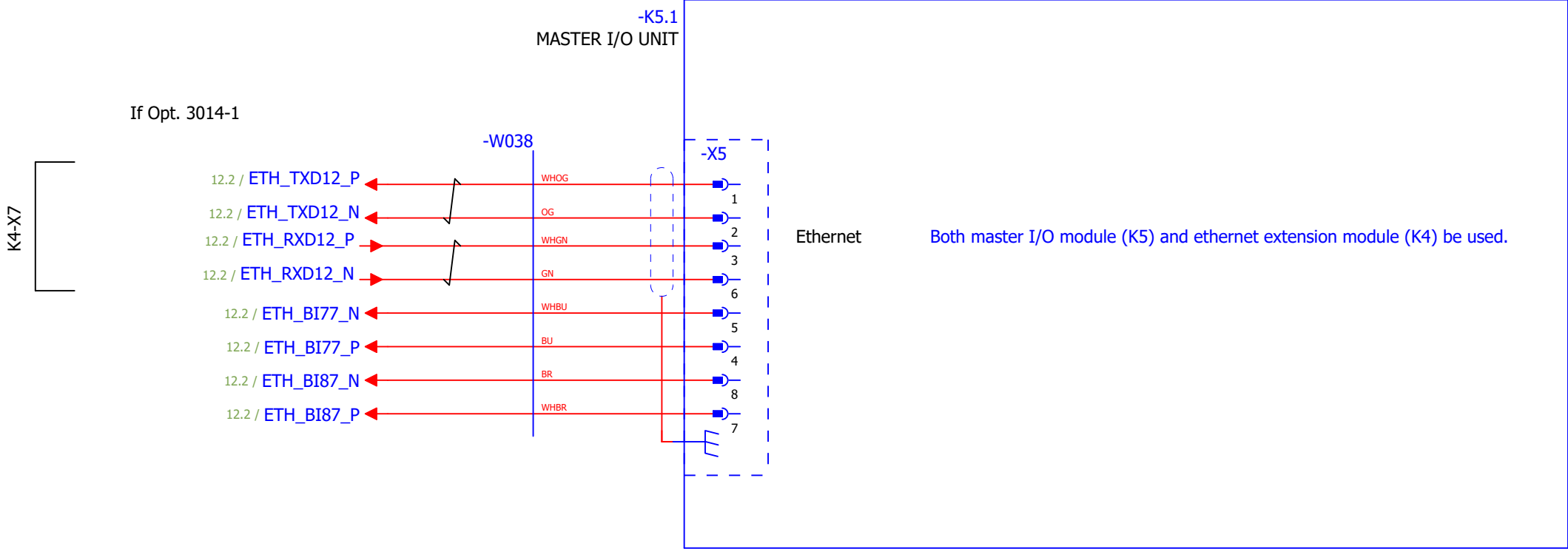
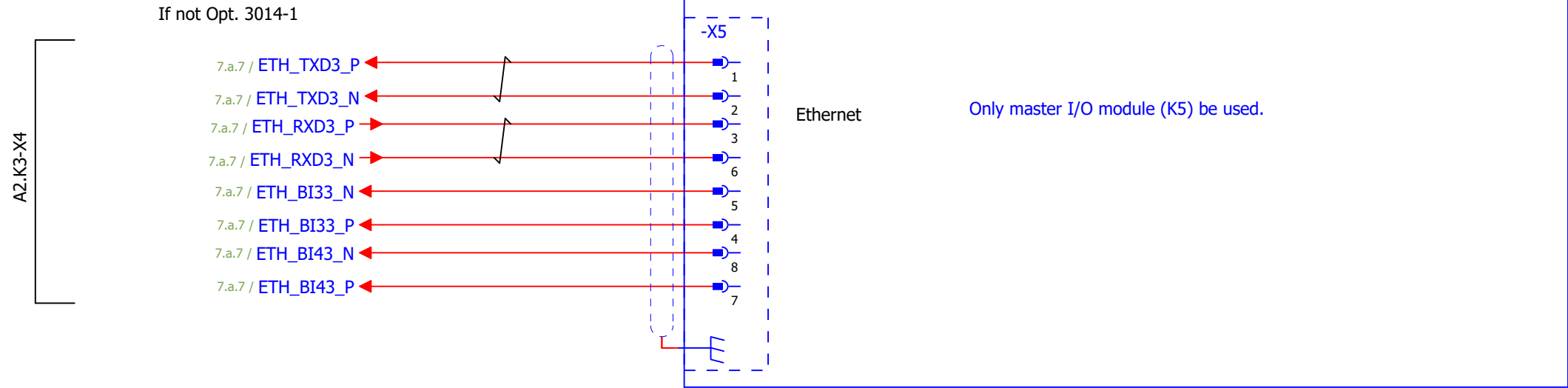
24V\_LOGIC



24V\_PROCESS  
CUSTOMER DO  
OUTPUT CH1~16

CUSTOMER DI  
INPUT CH1~16

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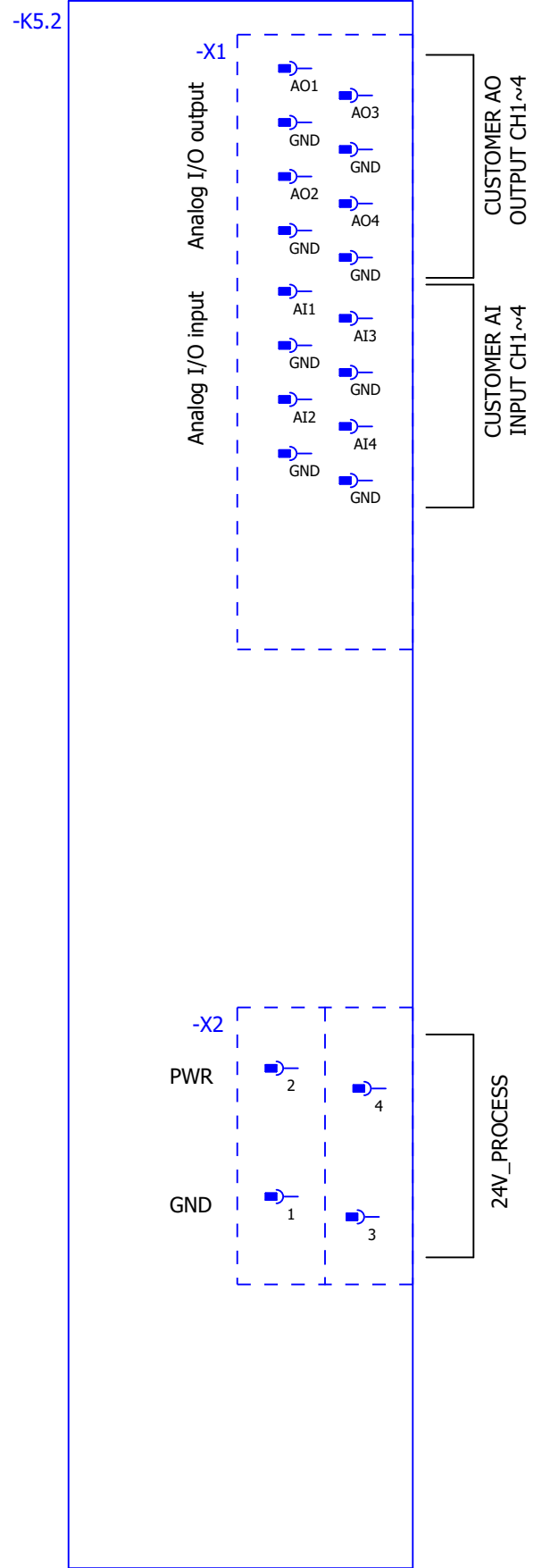
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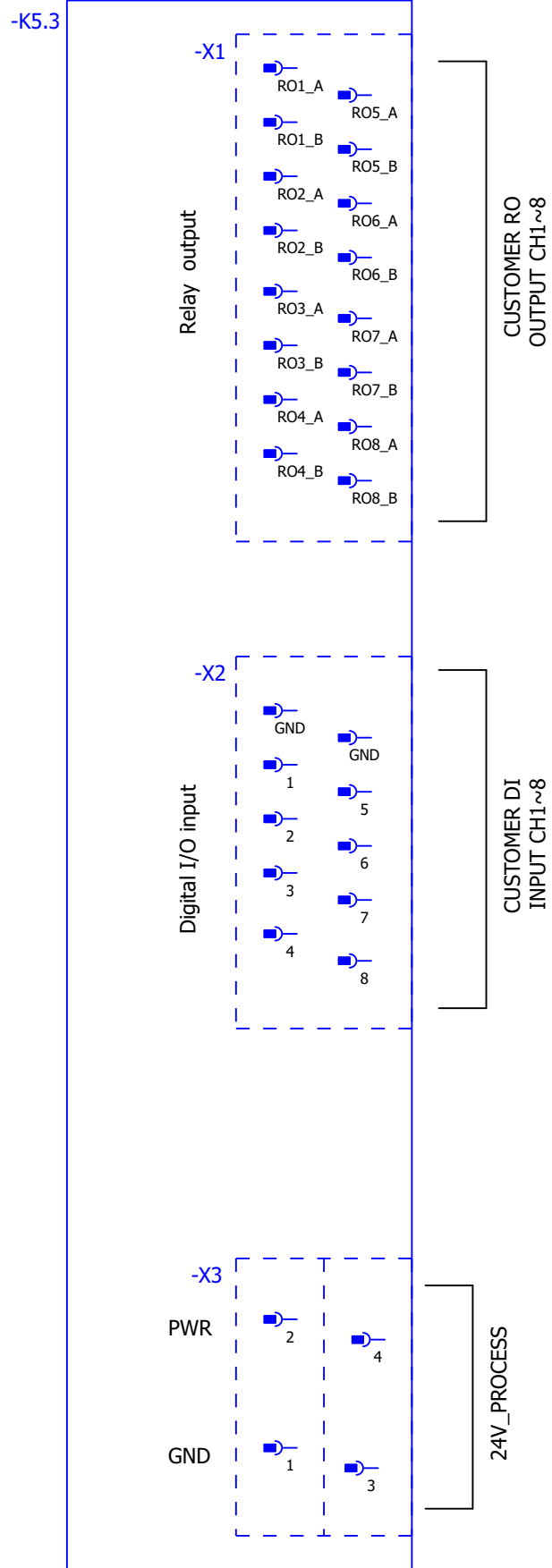
**MASTER I/O UNIT - K5.1**

Status:	High-level function: = SCH
Approved	Mounting location: + U1
Document no.	Page: 10.a
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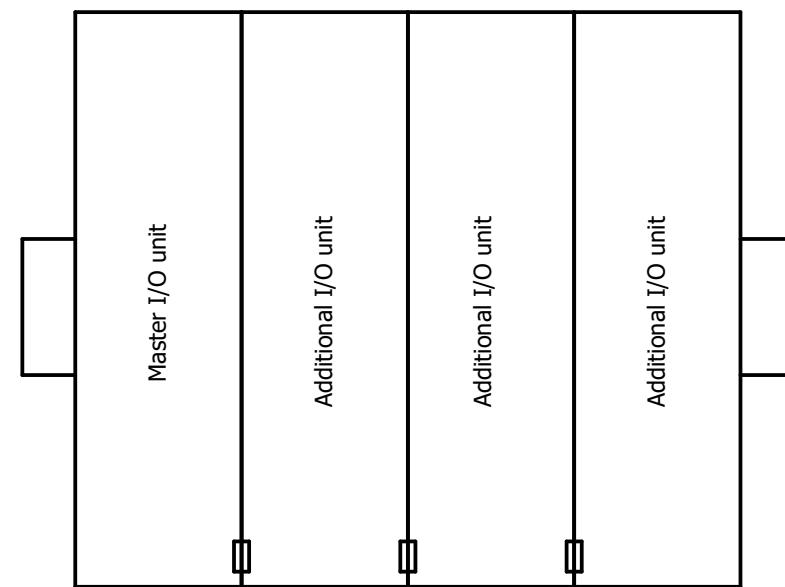
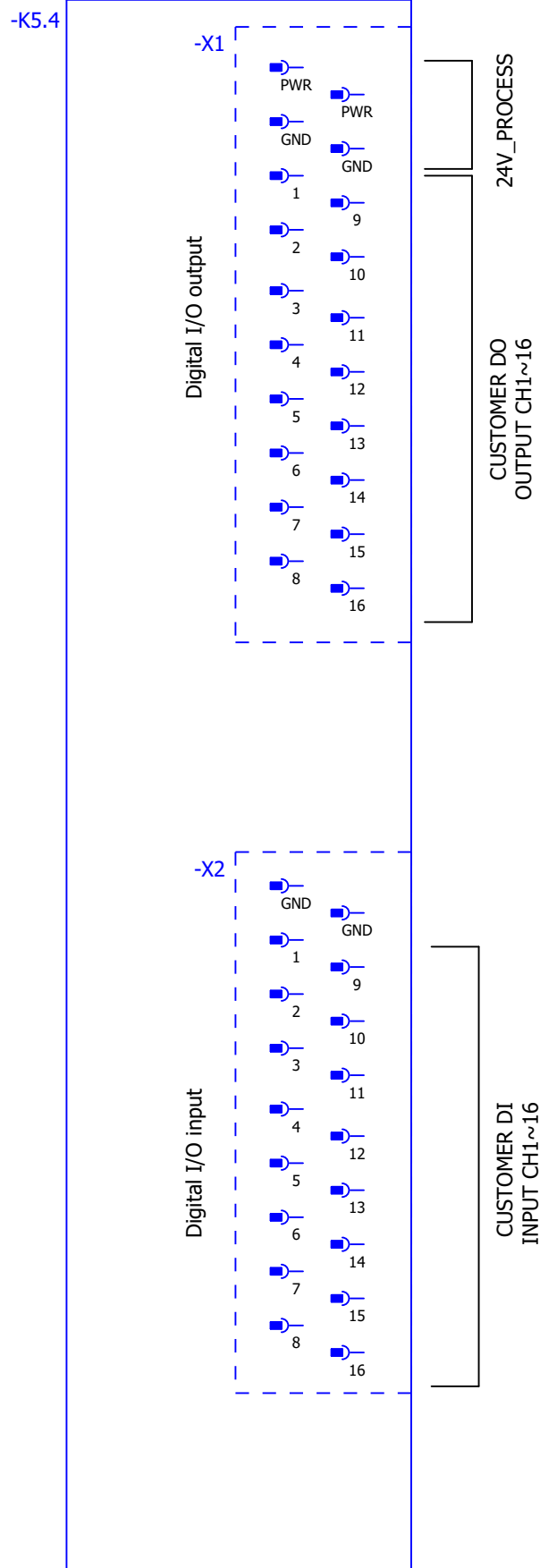
ADDITIONAL I/O UNIT (AI/AO)



ADDITIONAL I/O UNIT (RO/DI)



ADDITIONAL I/O UNIT (DI/DO)



Master I/O unit must install at the left.

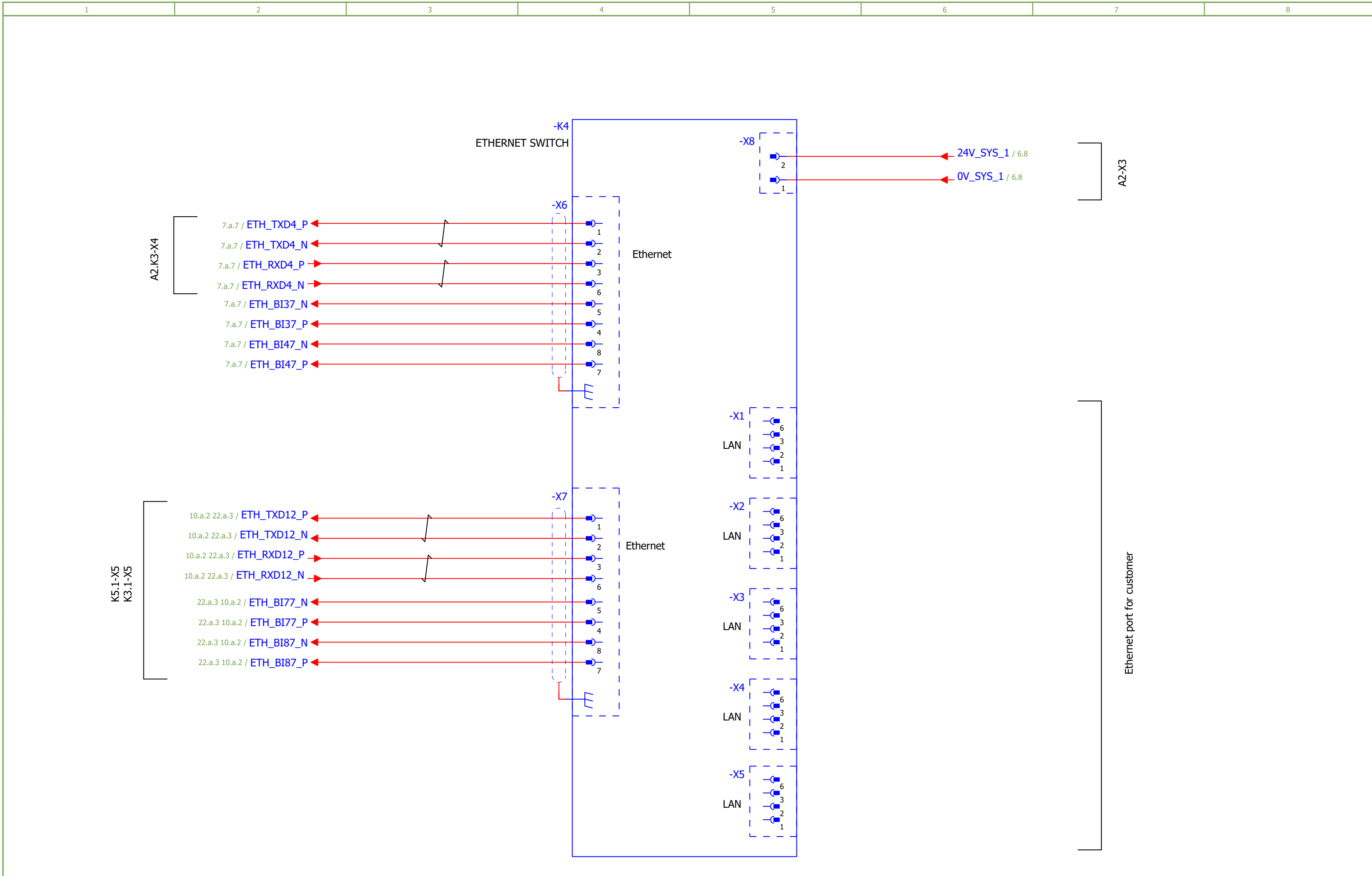
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ADDITIONAL I/O UNIT - K5.2,3,4

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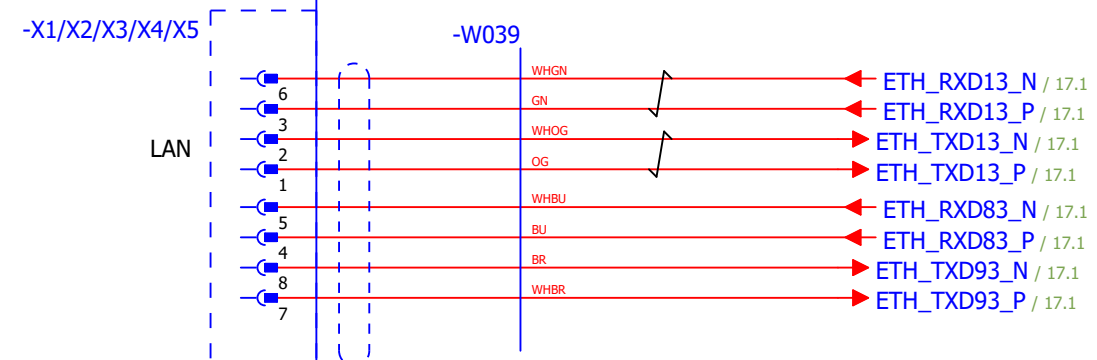
ETHERNET SWITCH - K4

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-K4  
ETHERNET SWITCH

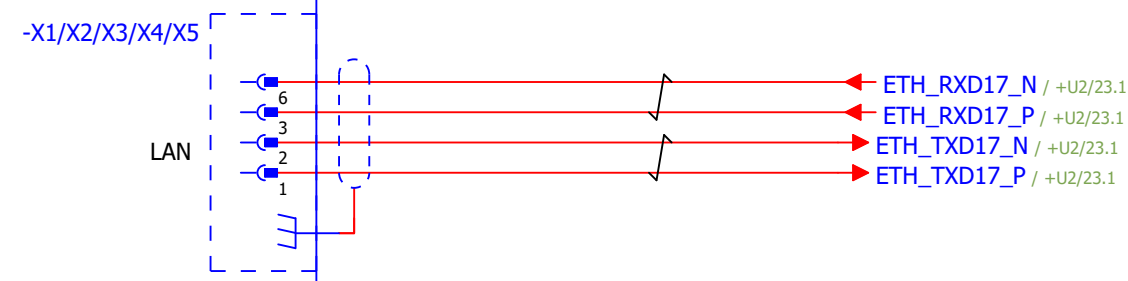
Option - Ethernet  
When CTM (B1) is used and installed in the controller.



B1-X7

-K4  
ETHERNET SWITCH

Option - Ethernet  
When CTM (B1) is used and installed in the EXT.BOX.  
Ethernet cable need customer to prepare.



B1-X7 in EXT.BOX

Customer Ethernet interface

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ETHERNET SWITCH - K4

Status:  
Approved

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Mounting location: + U1

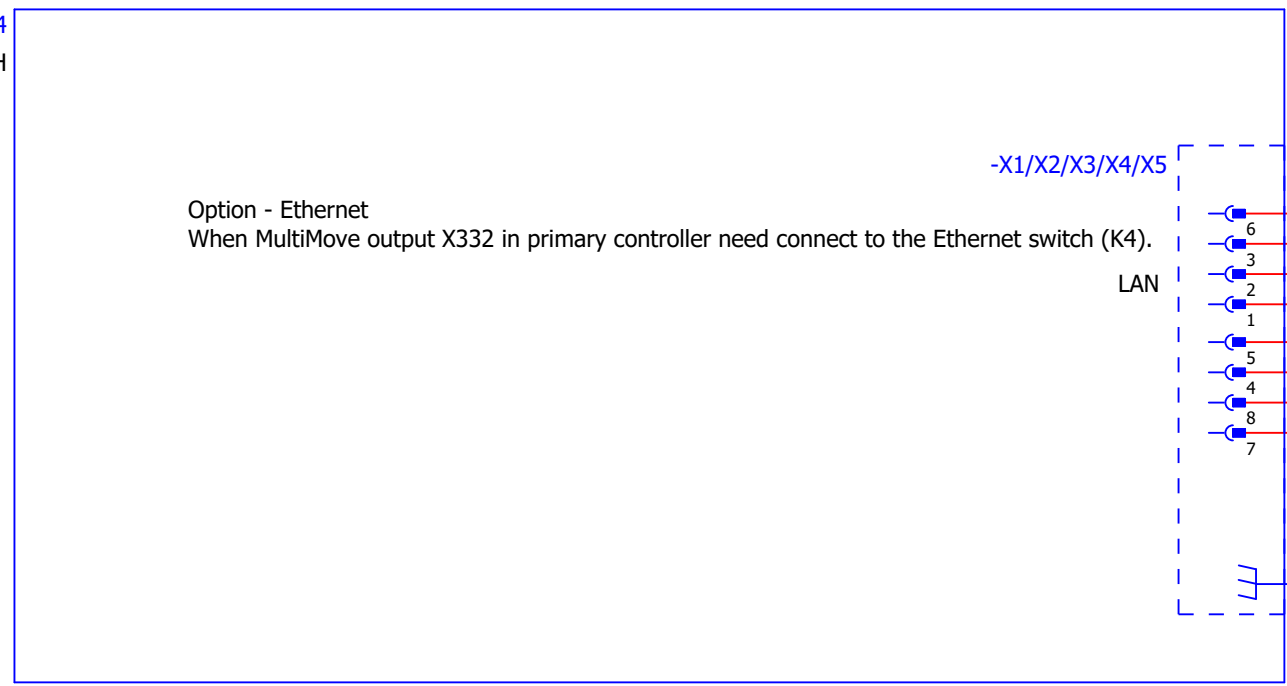
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-K4  
ETHERNET SWITCH



-X1/X2/X3/X4/X5

LAN

- BI\_DB-\_5 / 7.a.7
- BI\_DB+\_5 / 7.a.7
- BI\_DA-\_5 / 7.a.7
- BI\_DA+\_5 / 7.a.7
- BI\_DC-\_5 / 7.a.7
- BI\_DC+\_5 / 7.a.7
- BI\_DD-\_5 / 7.a.7
- BI\_DD+\_5 / 7.a.7

X332

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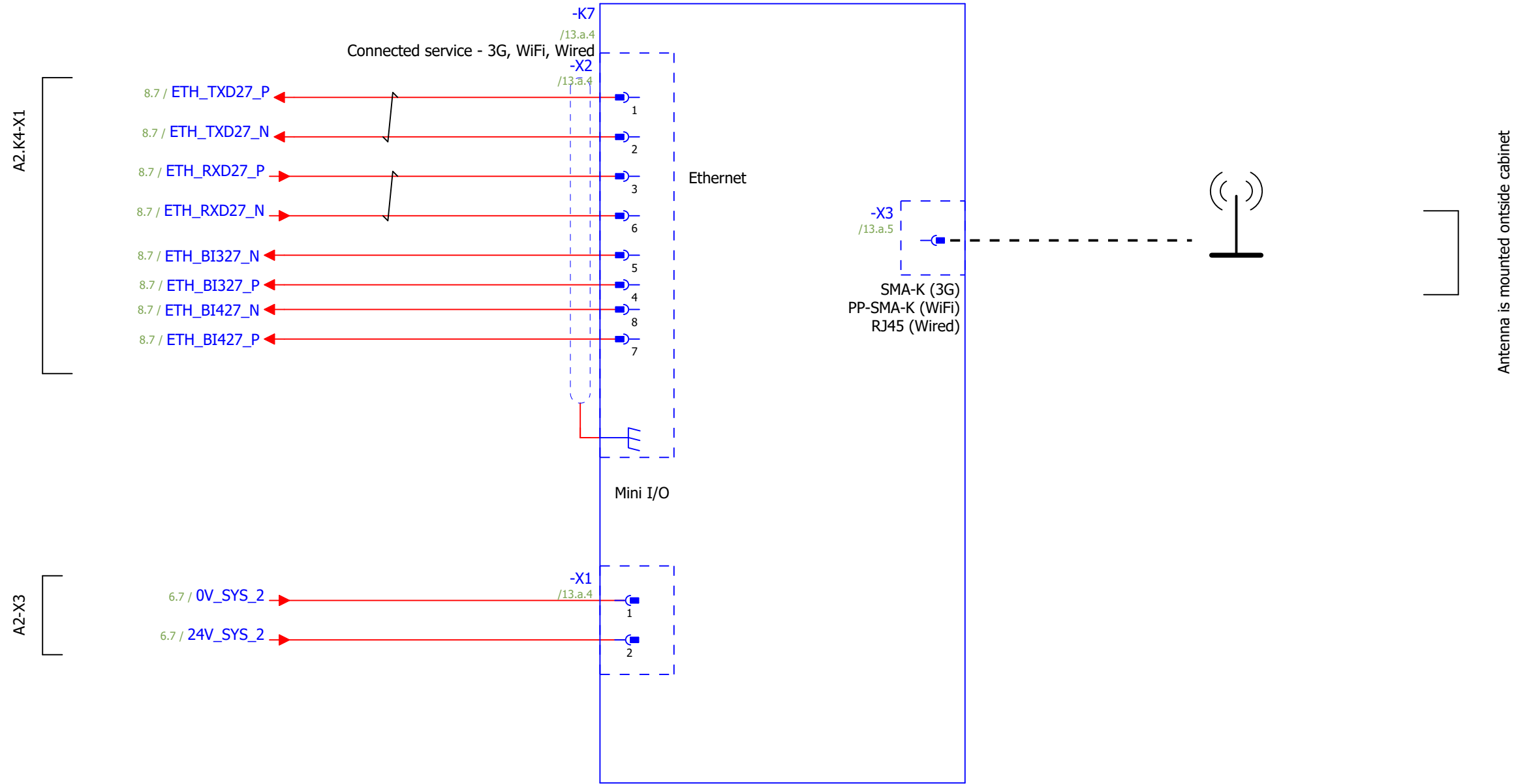
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ETHERNET SWITCH - K4

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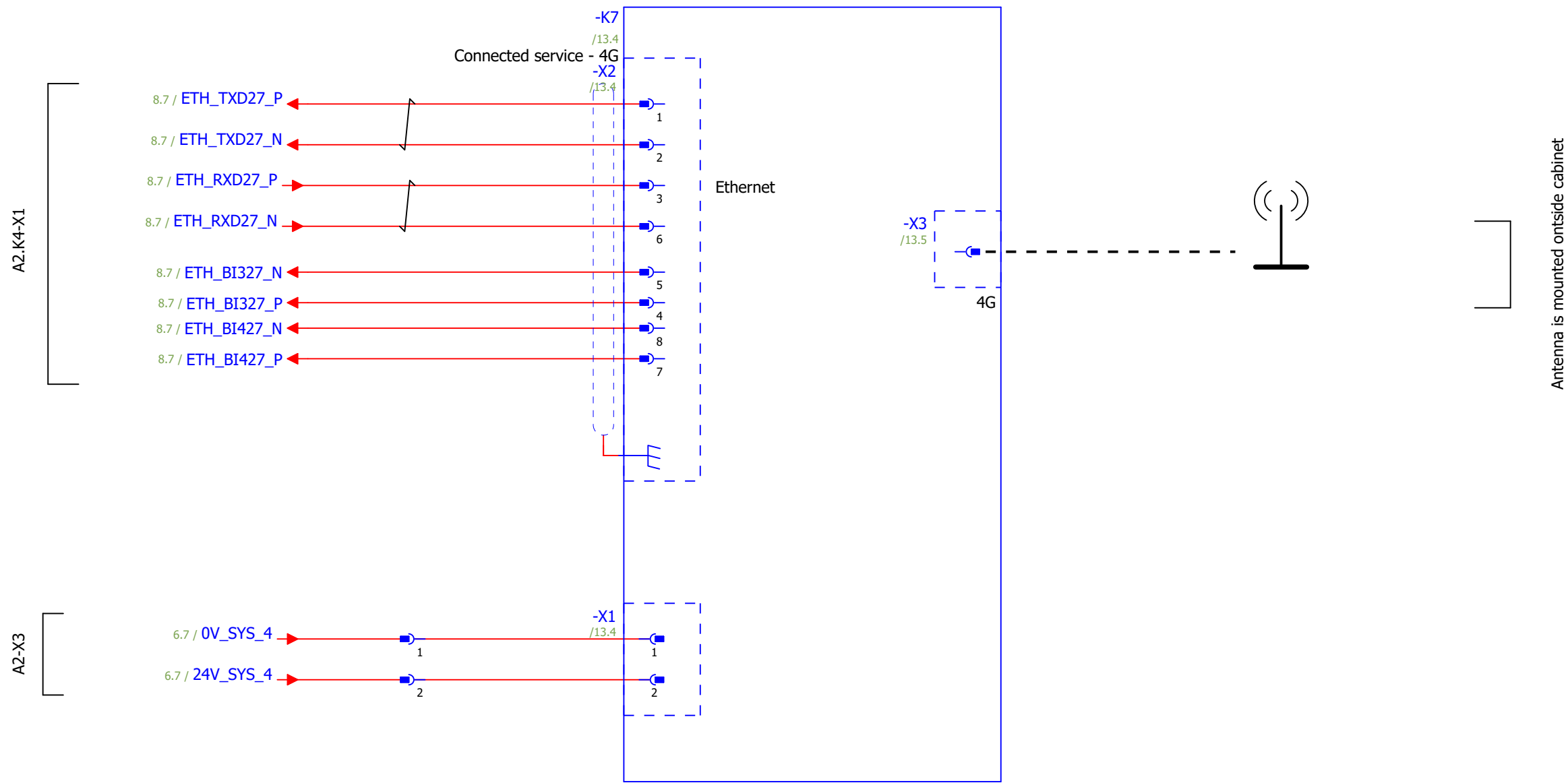
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**CONNECTED SERVICES - 3G, WiFi, Wired- K7**

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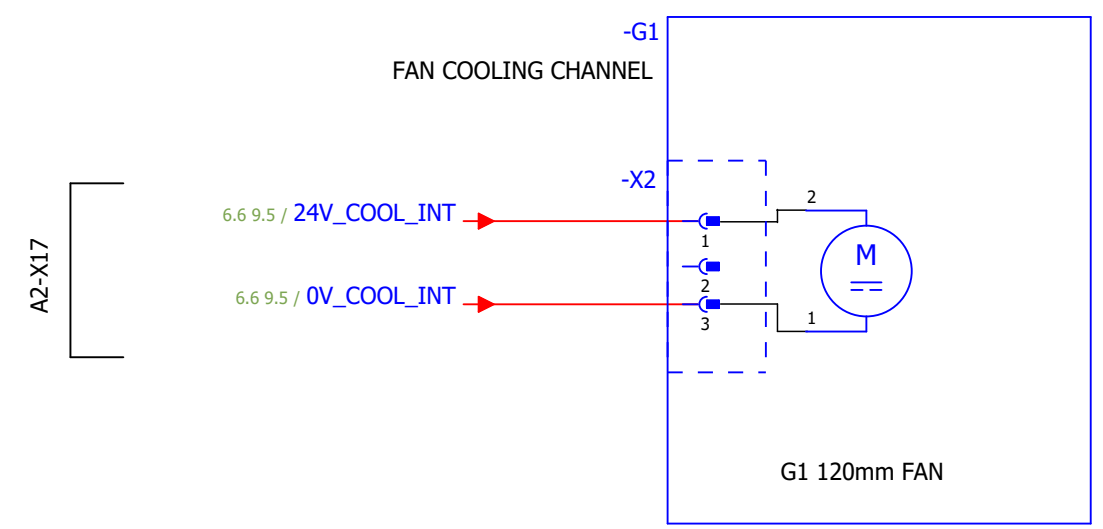
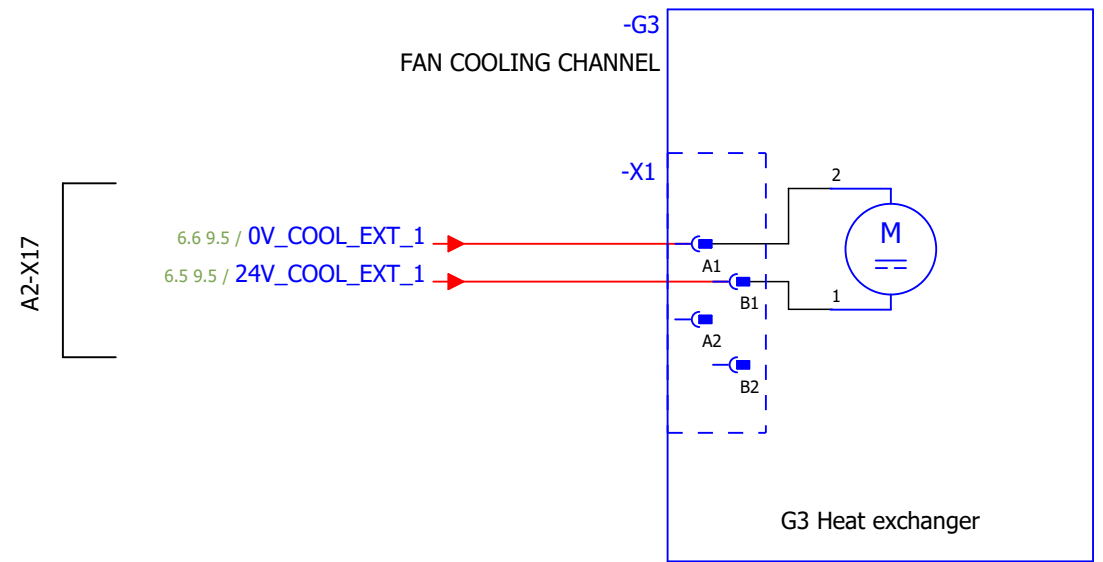
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**CONNECTED SERVICES - 4G- K7**

<b>Status:</b> Approved	<b>High-level function:</b> = SCH <b>Mounting location:</b> + U1
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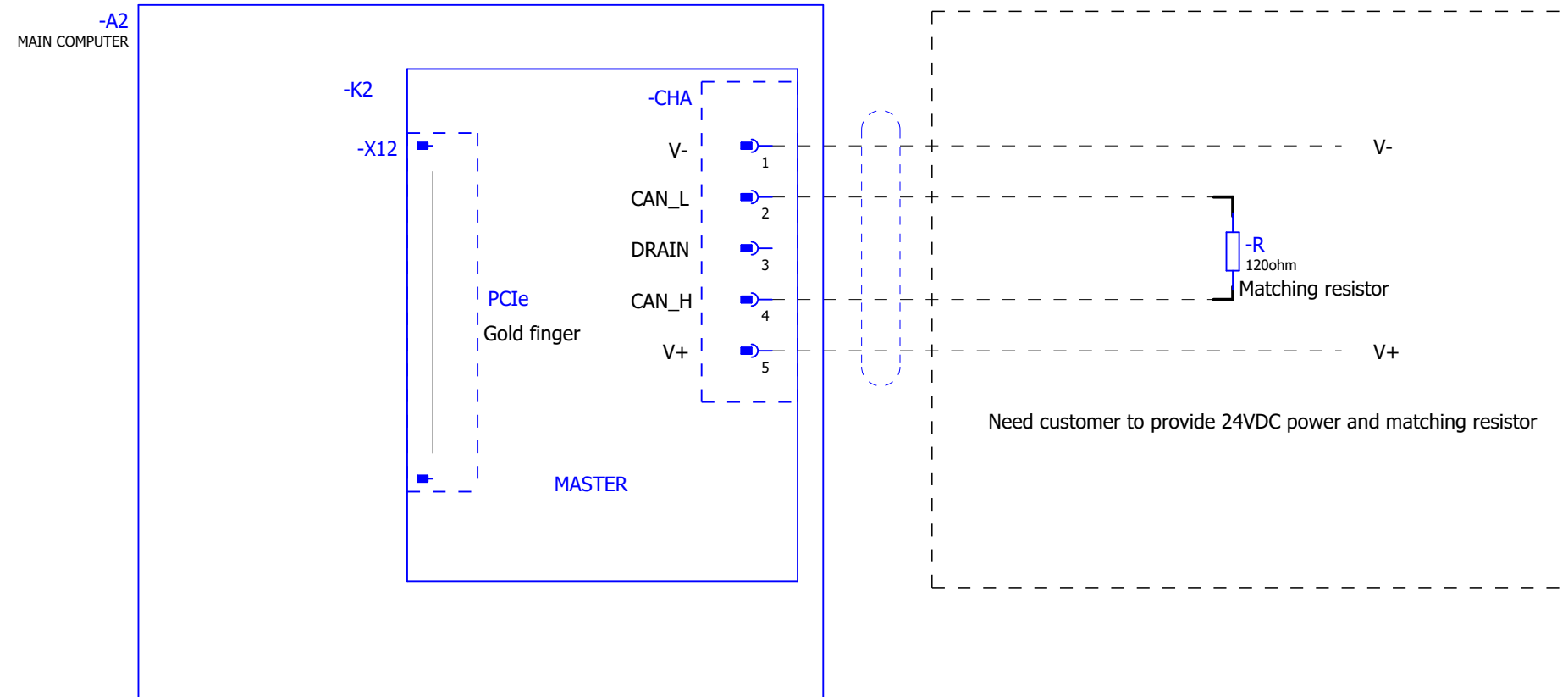
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FAN COOLING CHANNEL - G1,3

Status:	High-level function: = SCH
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FIELD BUS ADAPTER MASTER - A2.K2

Status:

Approved

Document no.

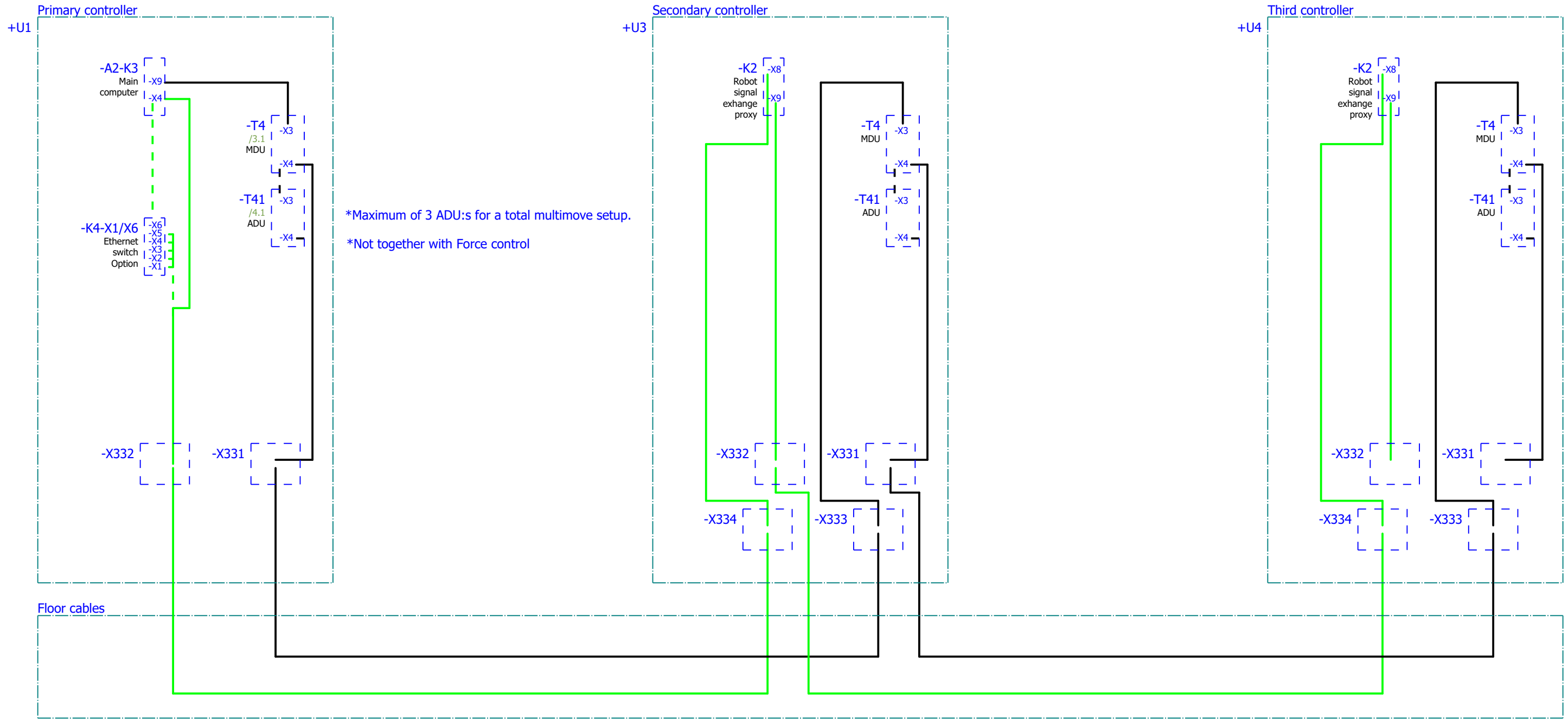
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High-level function: = SCH  
Mounting location: + U1

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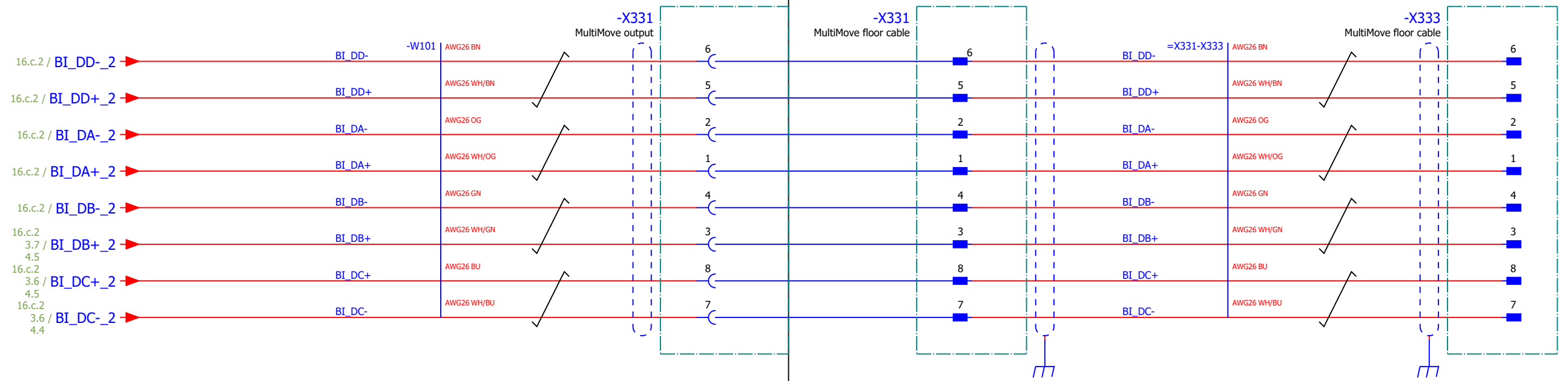
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MultiMove overview

Status:	High-level function: = SCH
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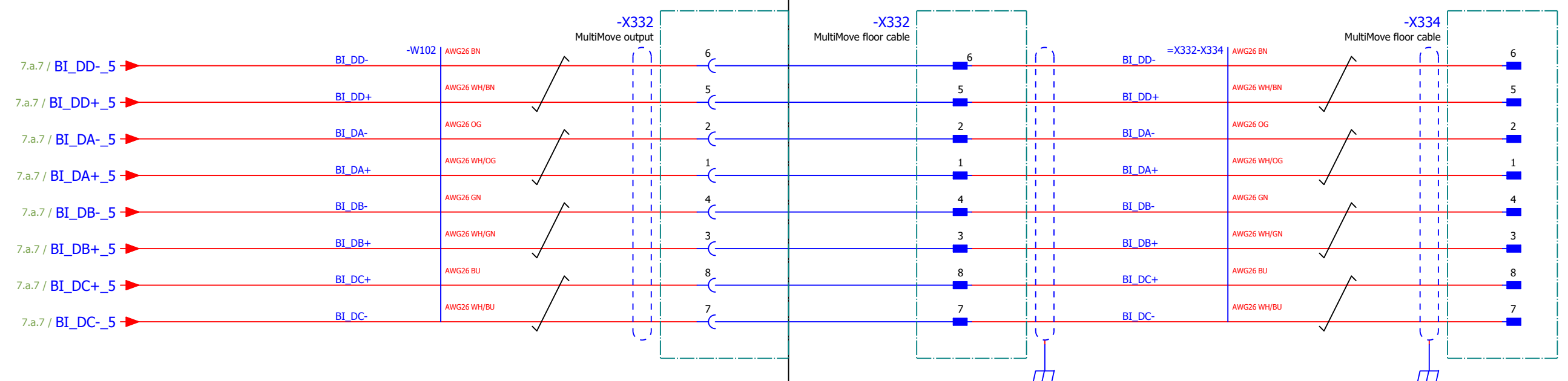
Cabinet panel

T4.X4 or T4L.X4



16.b.5 / X333

A2.K3.X4 or K4.X1-5

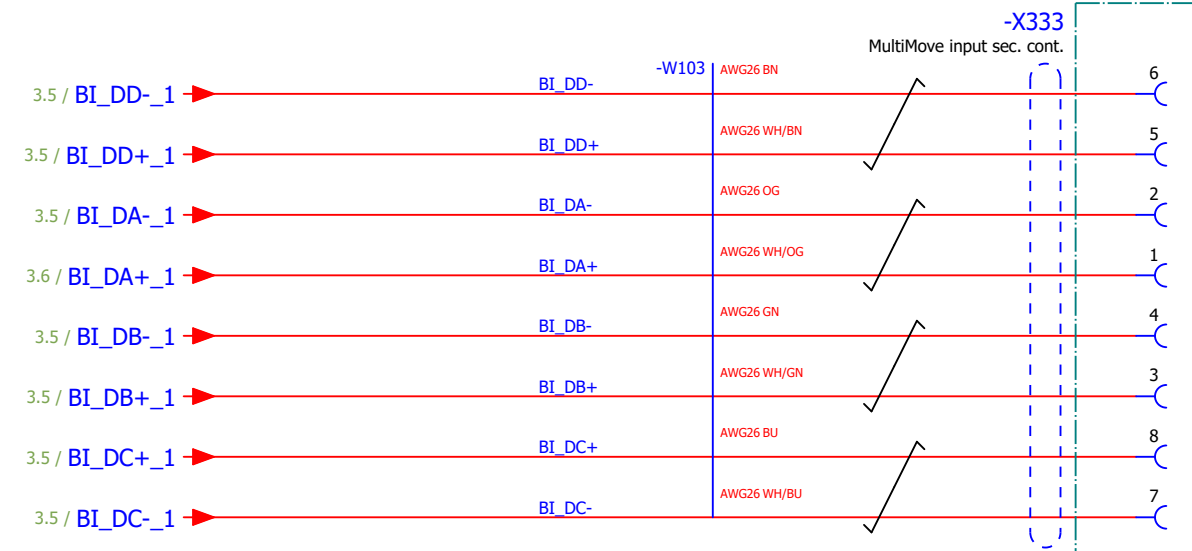


16.b.5 / X334

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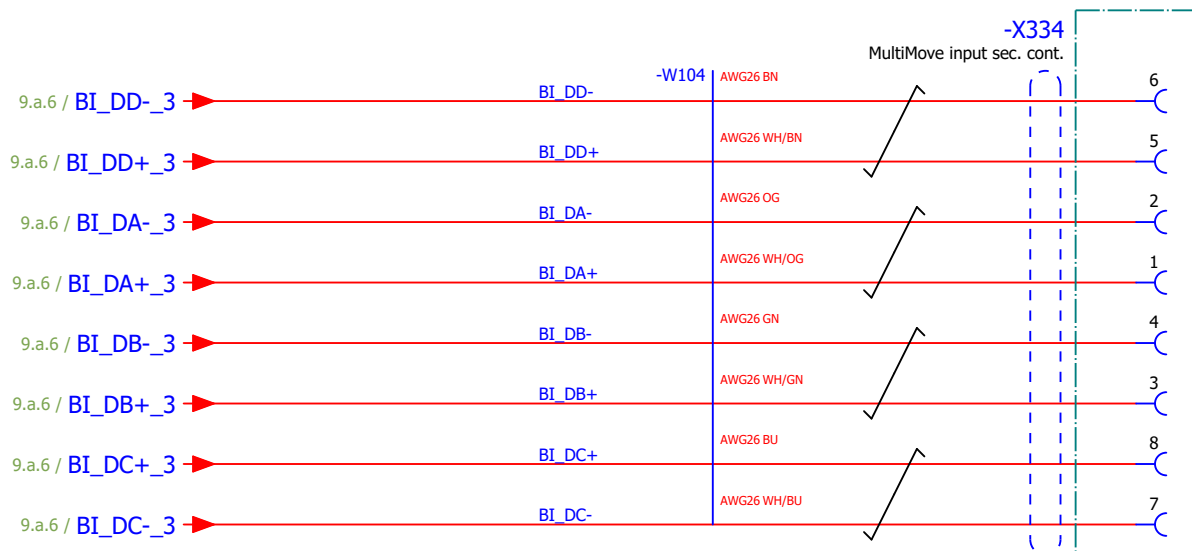
Cabinet panel

T4.X3



← X333 / 16.a.8

K2.X8



← X334 / 16.a.8

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MultiMove input, secondary controller

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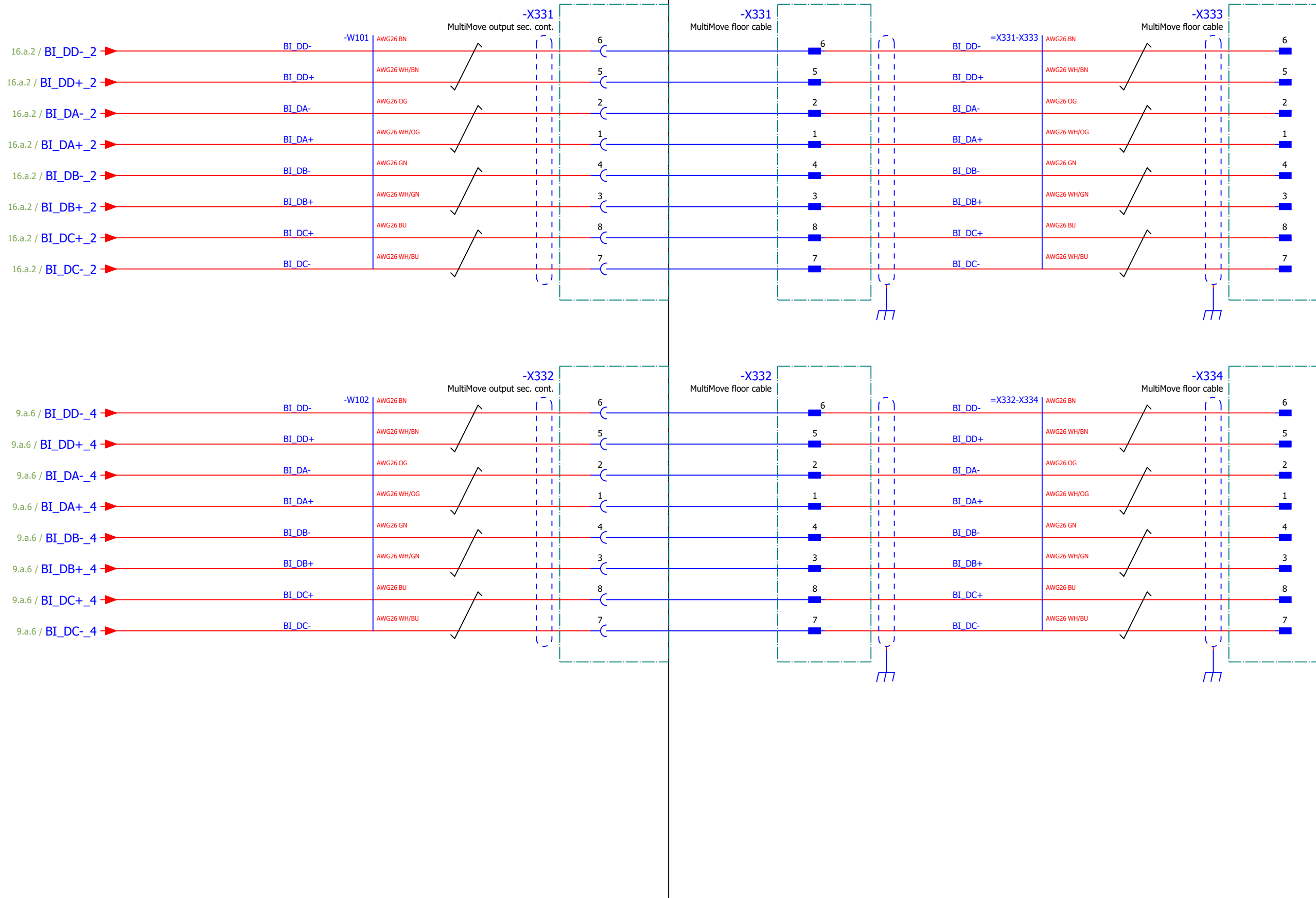


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T4.X4 or T41.X4

K2.X9

Cabinet panel



Connected to next controller in multimove series.

Connected to next controller in multimove series.

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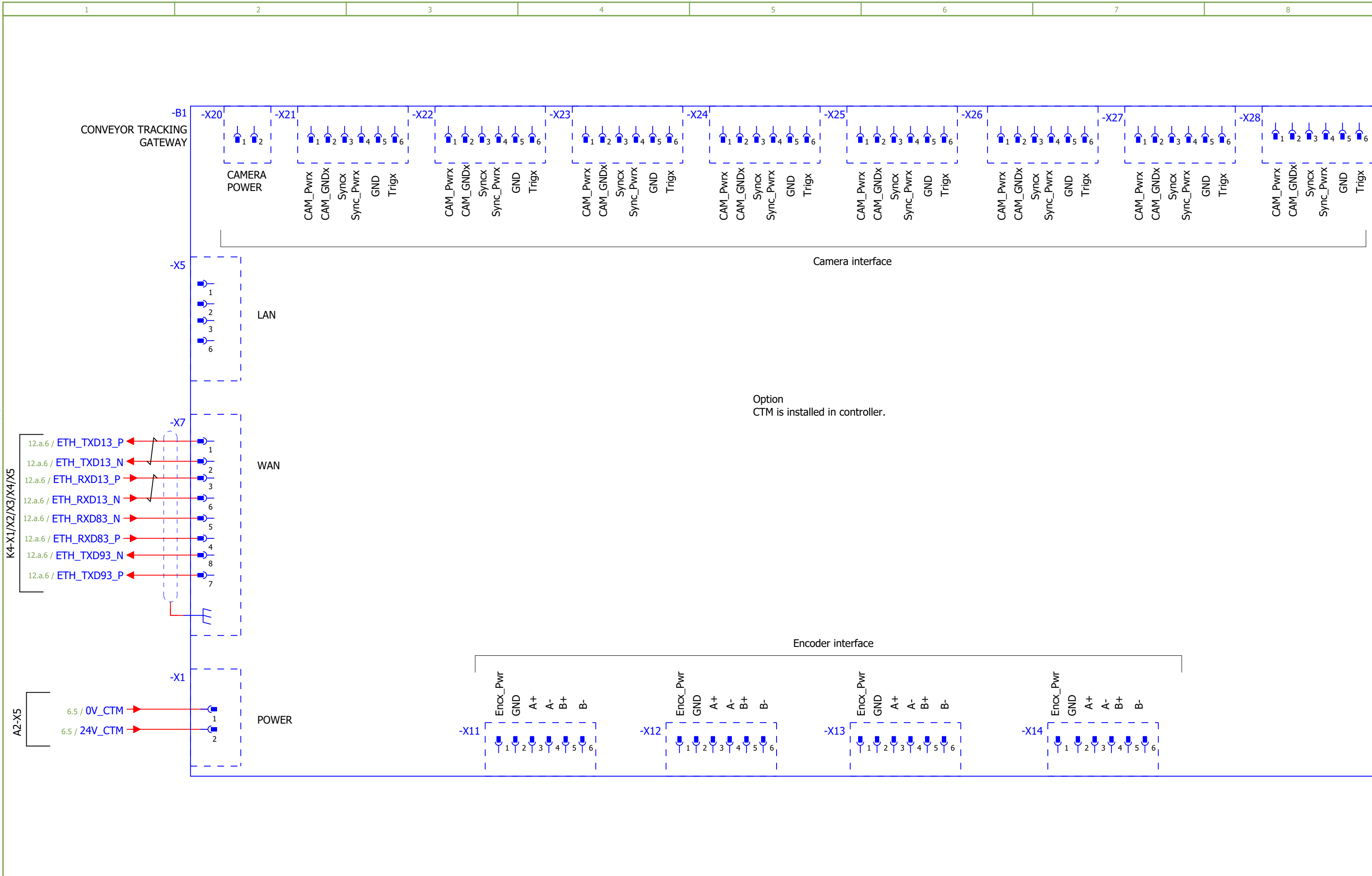
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MultiMove output, secondary controller

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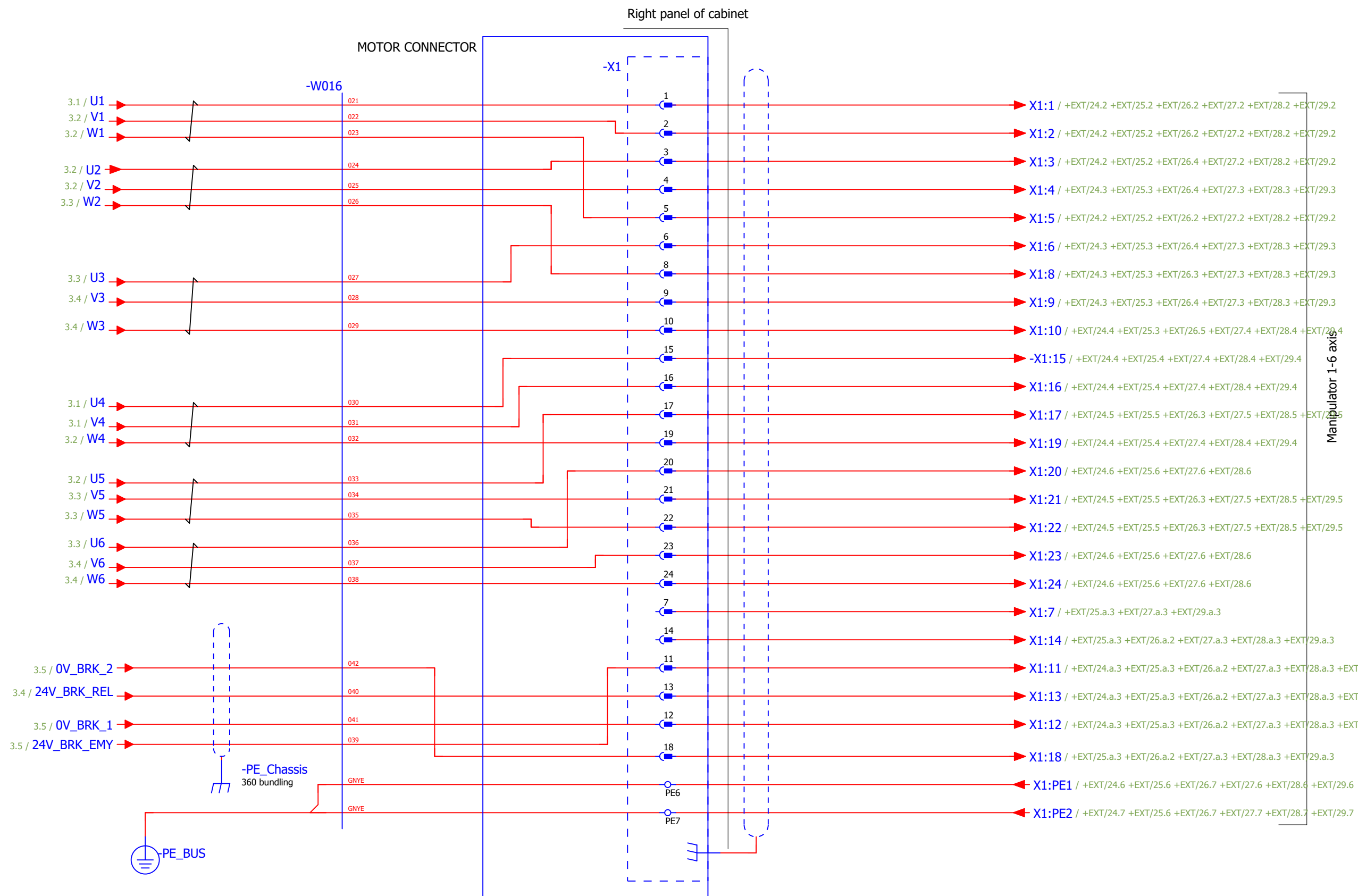
**CONVEYOR TRACKING GATEWAY - B1**

Status:	High-level function: = SCH
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T4-X7, X8, X9

T4-X15



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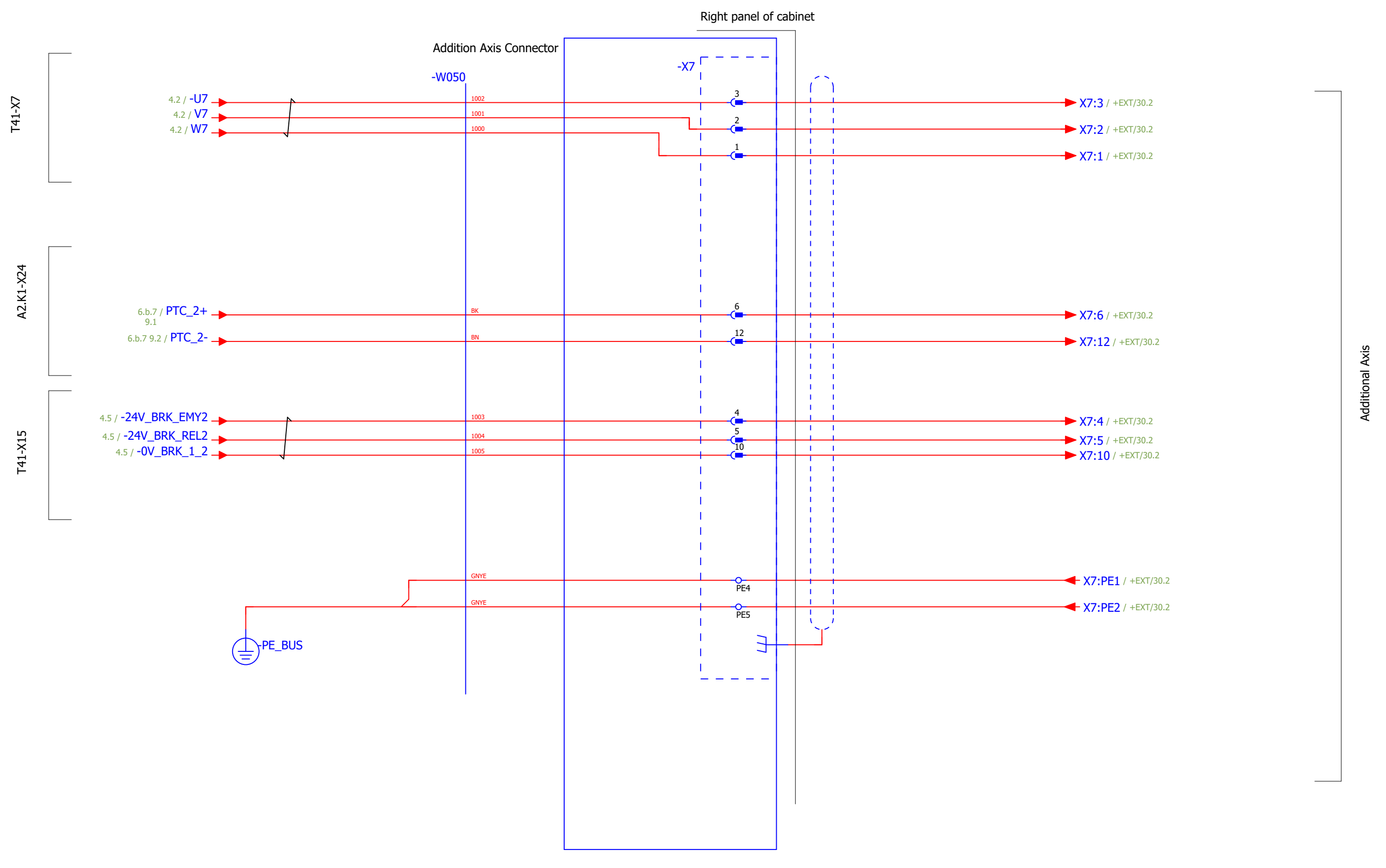
**MOTOR CONNECTOR - X1**

Status: Approved

High-level function: = SCH  
Mounting location: + U1

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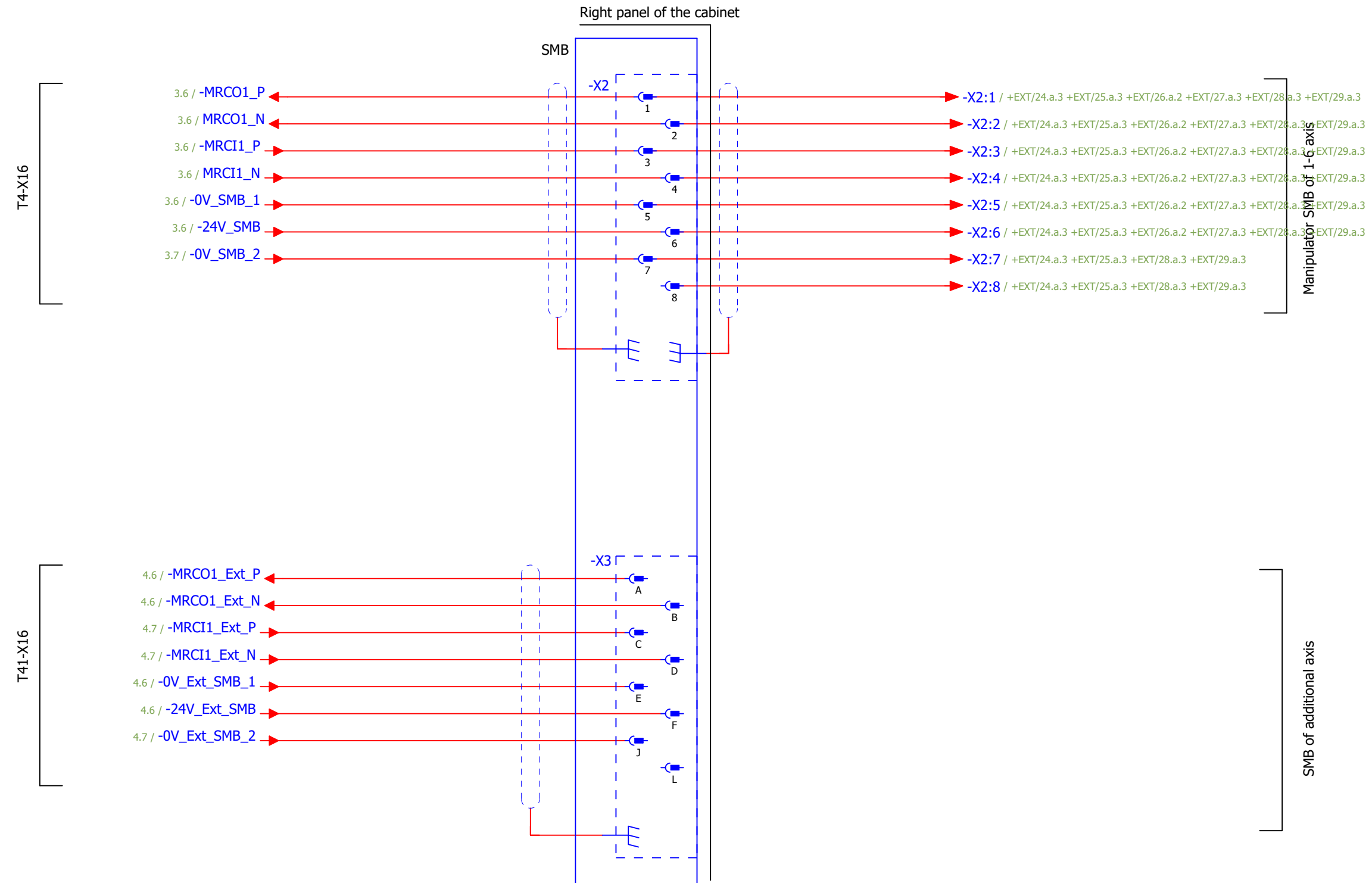
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**ADU SUPPORT CONNECTOR - X7**

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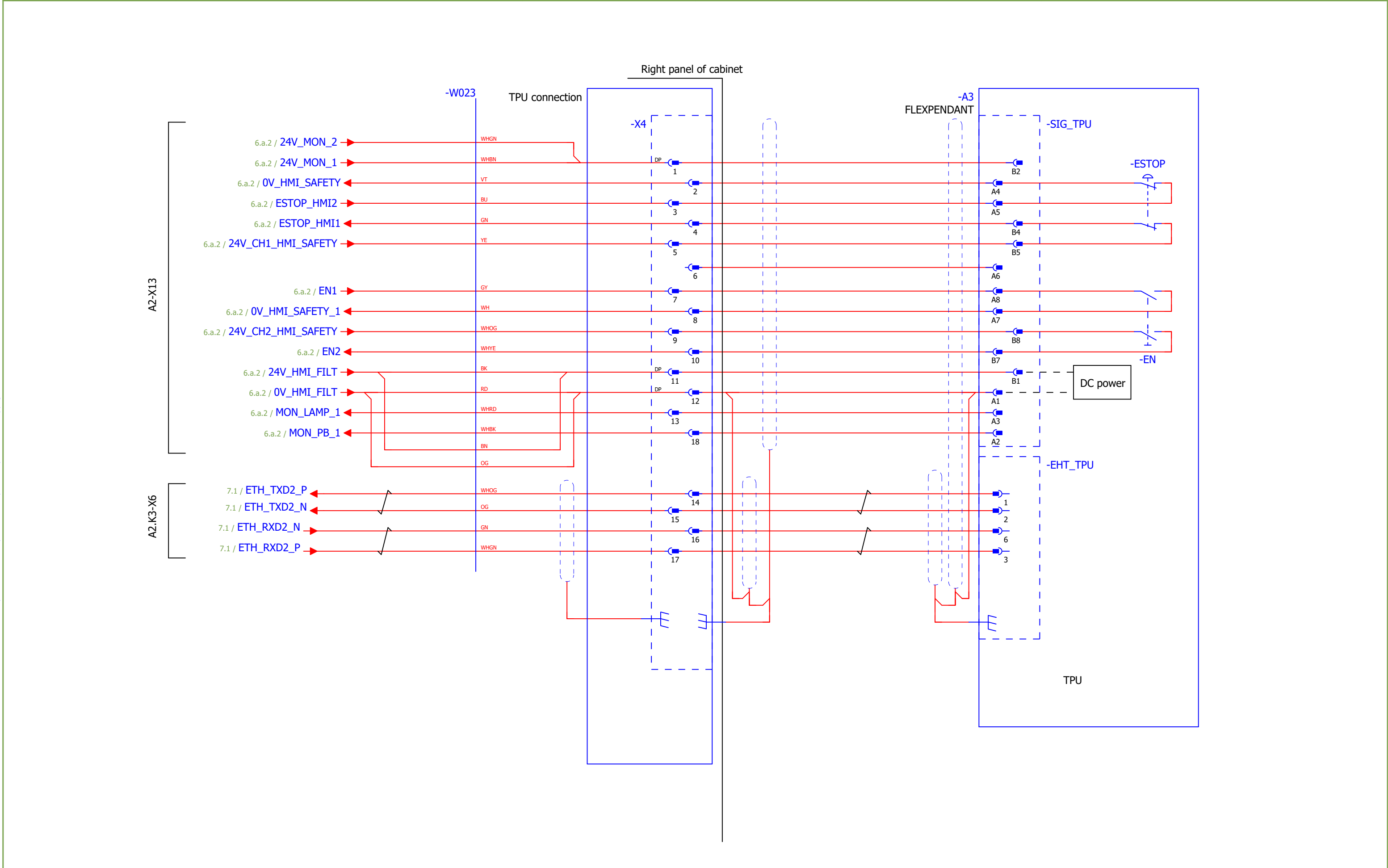
Latest revision:	
Rev 01	11/1/2024
Prepared by, date:	Approved by, date: Per V. Carlsson

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**SMB - MANIPULATOR SIGNAL CONNECTORS**  
- X2,3

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Latest revision:  
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11/11/2024

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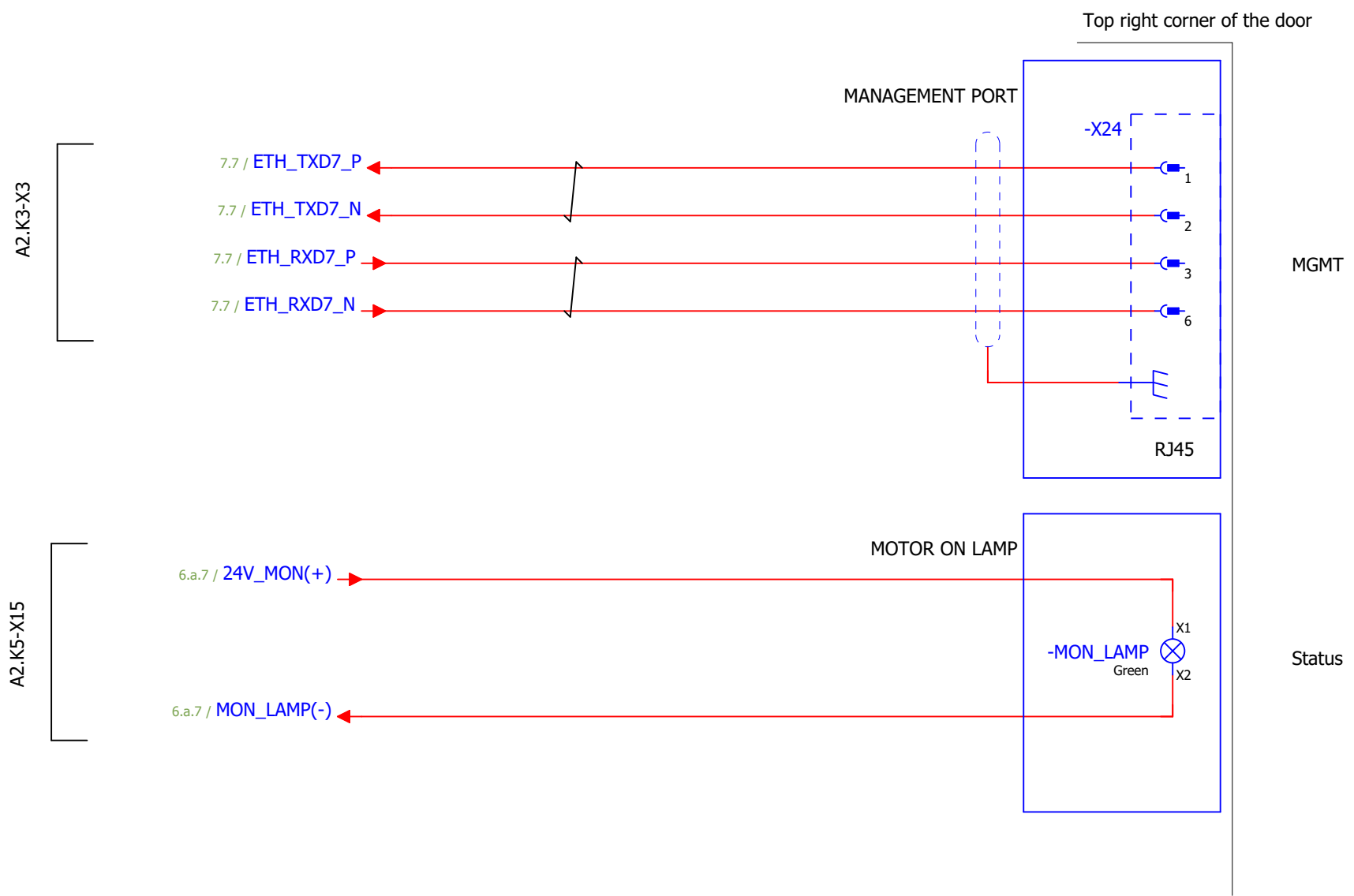
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**TPU - HMI SIGNAL CONNECTORS - X4**

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**MANAGEMENT PORT & MOTOR ON LAMP - X24**

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A2-X3

6.7 10.2 / 24V\_SYS\_3

6.7 10.2 / 0V\_SYS\_3

-K3.1  
MASTER SAFE I/O UNIT

-X4

24V\_LOGIC

PWR

GND

-X1

SDO

Customer I/O interface

-X2

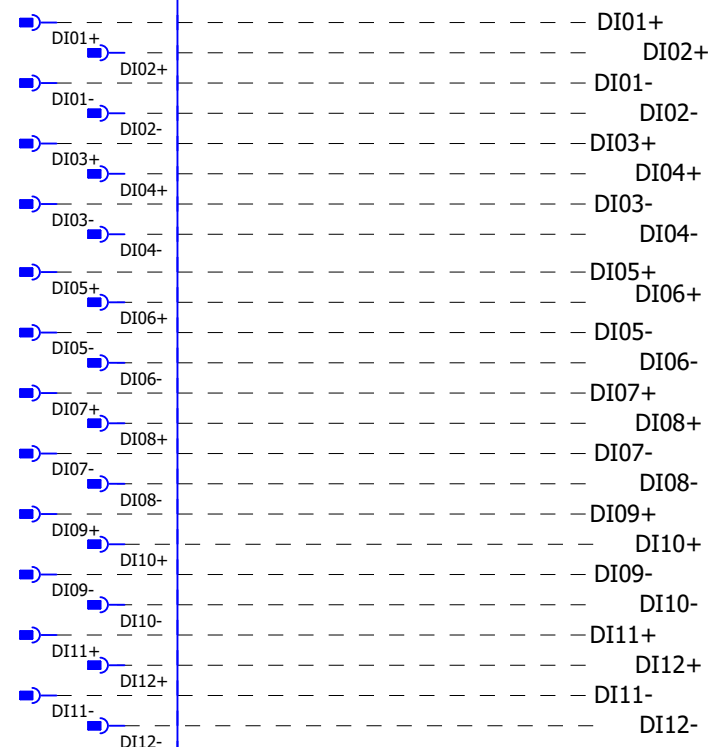
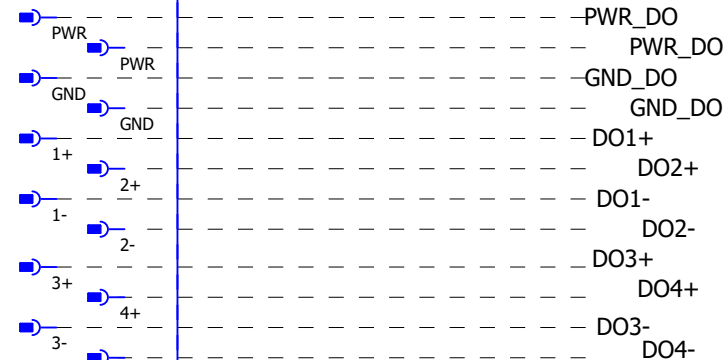
SDI

Customer I/O interface

24V\_PROCESS

CUSTOMER SDO  
OUTPUT CH1~2

CUSTOMER SDI  
INPUT CH1~12



Latest revision: Rev 01 6/10/2024	
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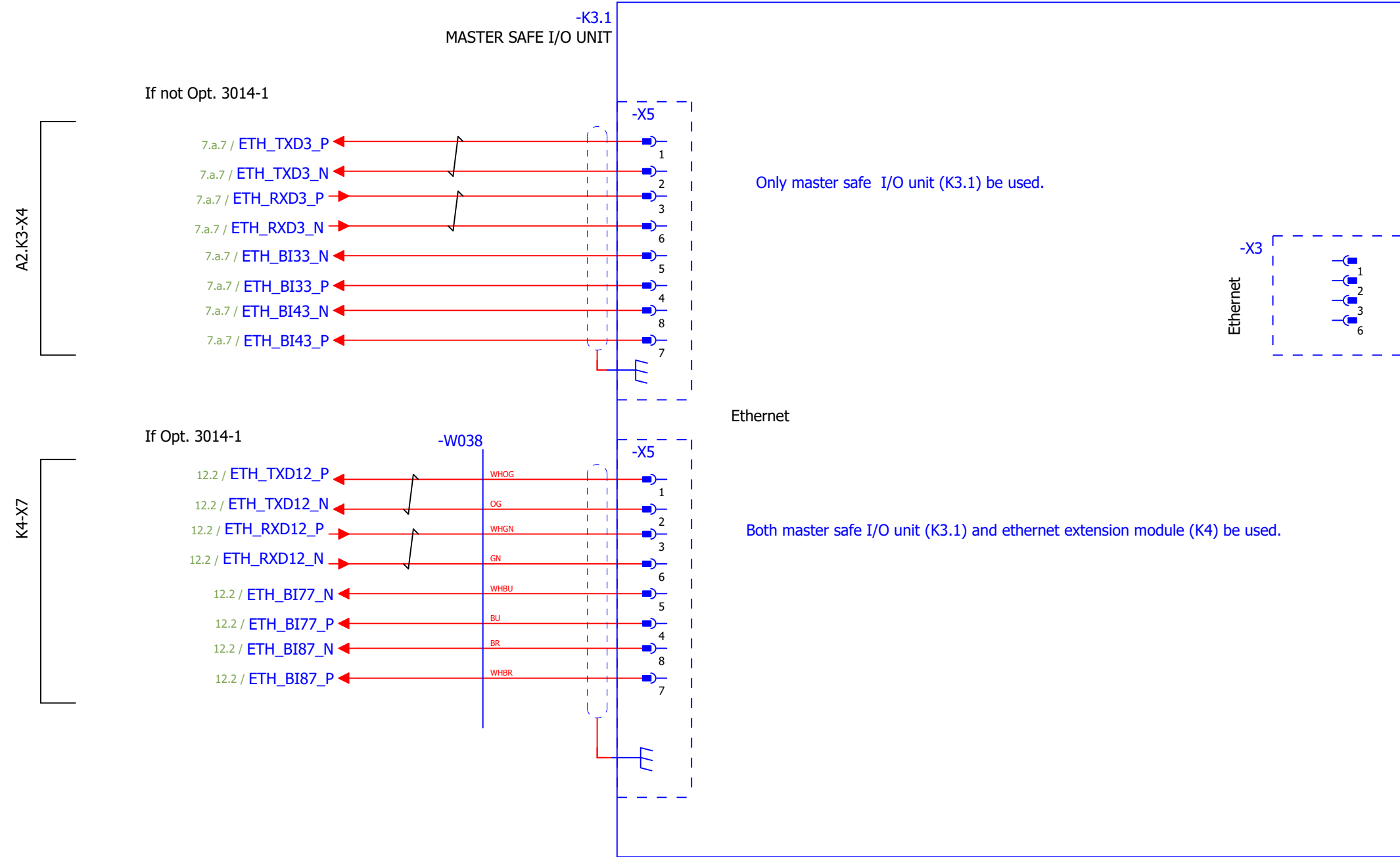
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MASTER SAFE I/O UNIT - K3.1

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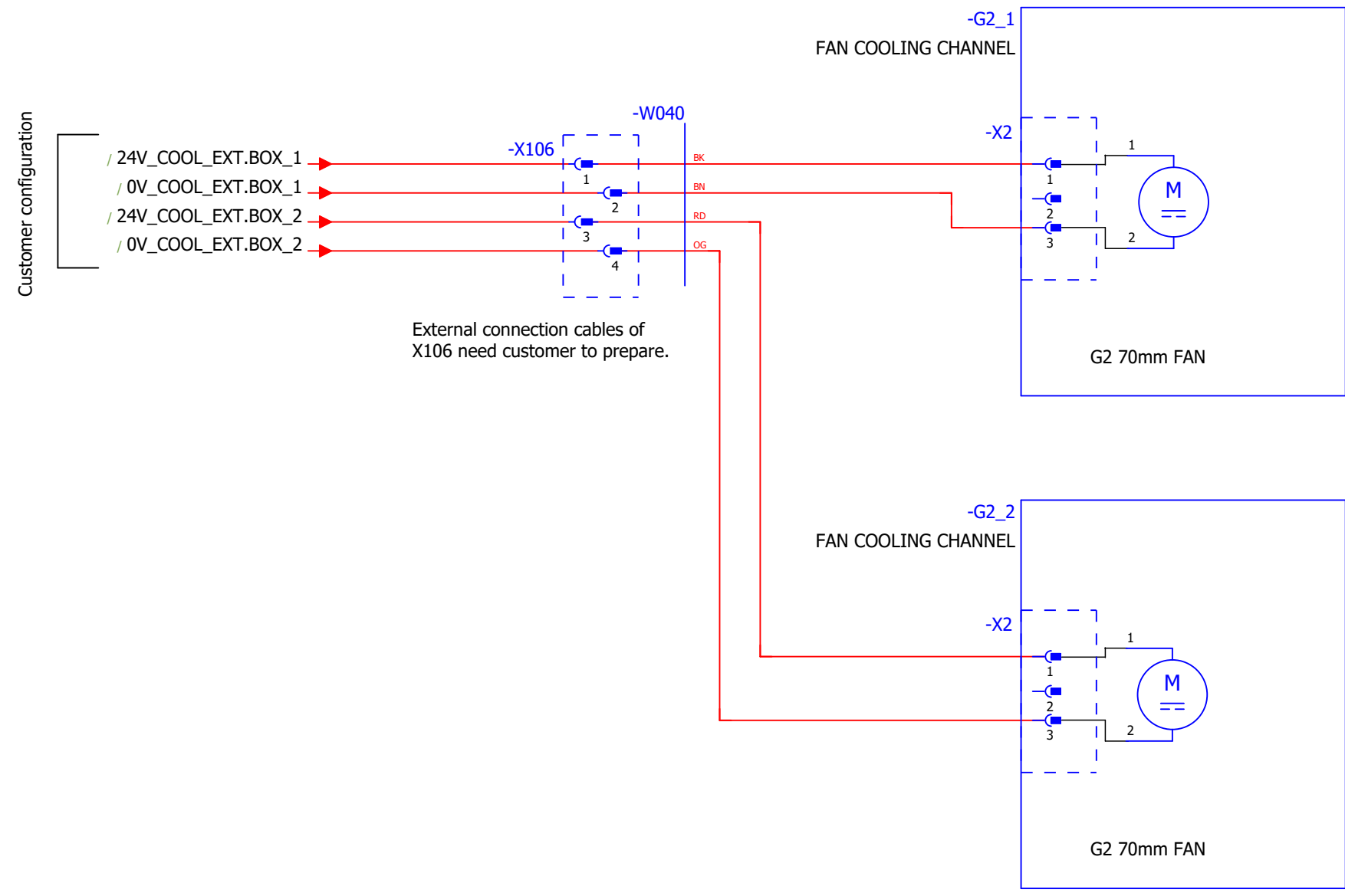
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**MASTER SAFE I/O UNIT - K3.1**

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FAN COOLING CHANNEL - G2

Status:  
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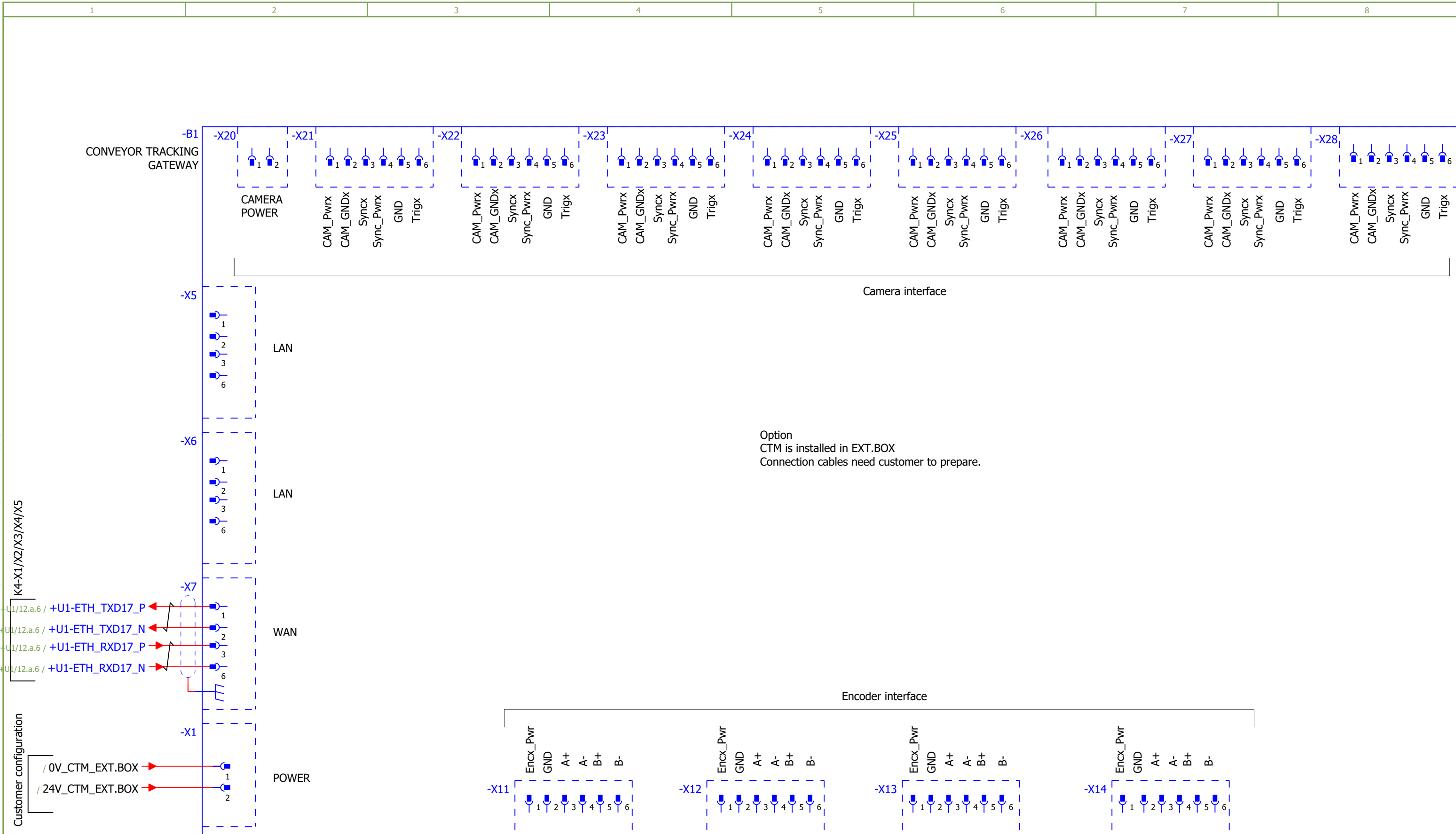
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Mounting location: + U2

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Option  
CTM is installed in EXT.BOX  
Connection cables need customer to prepare.

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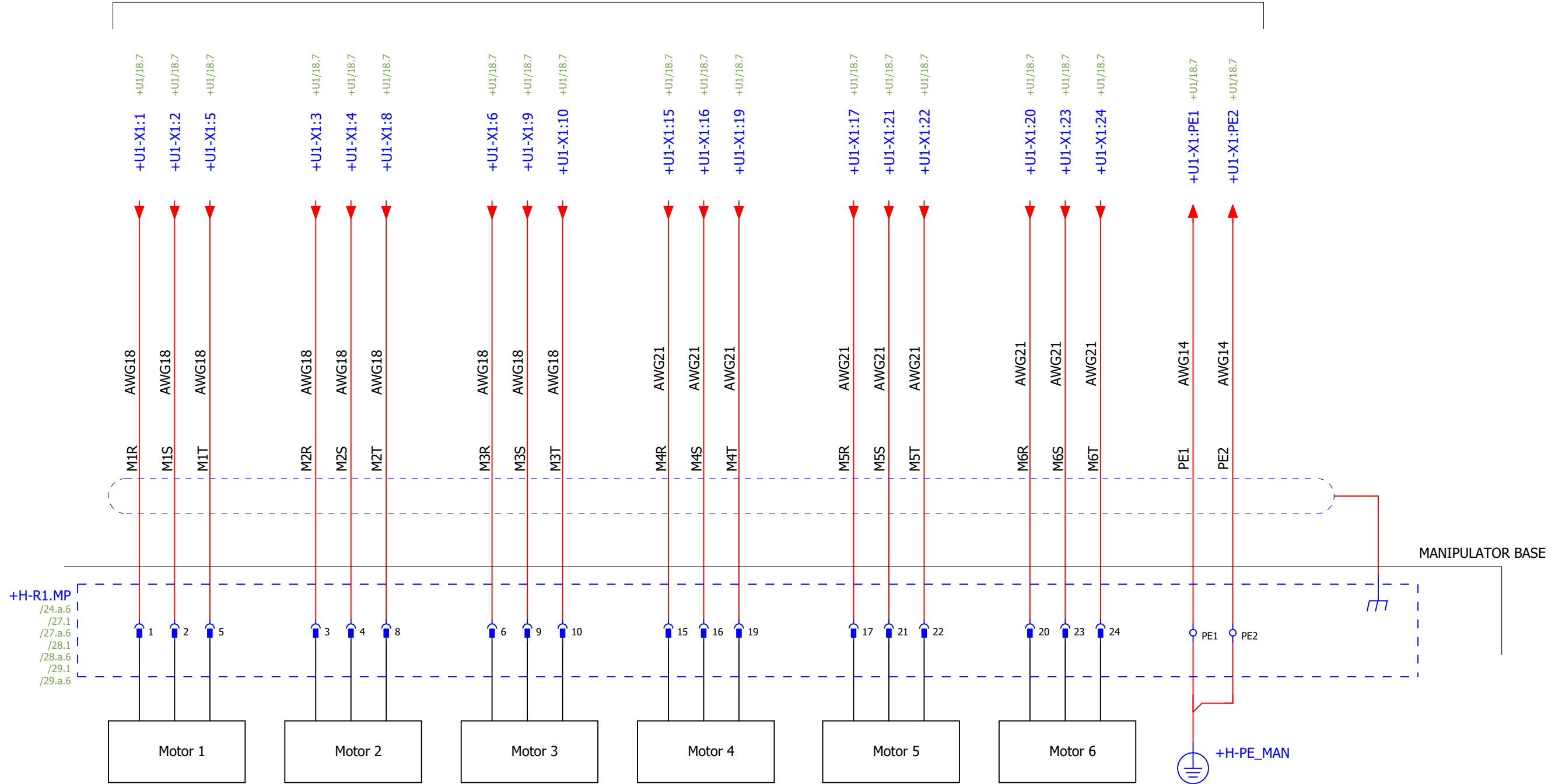
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**CONVEYOR TRACKING GATEWAY - B1**

Status: Approved	High-level function: = SCH Mounting location: + U2
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# IRB 1010, IRB 1100, IRB 1200, IRB 1300, CRB 1100, CRB 1300 cabinet

Controller interface  
+U-X1



Latest revision:  
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6/17/2024

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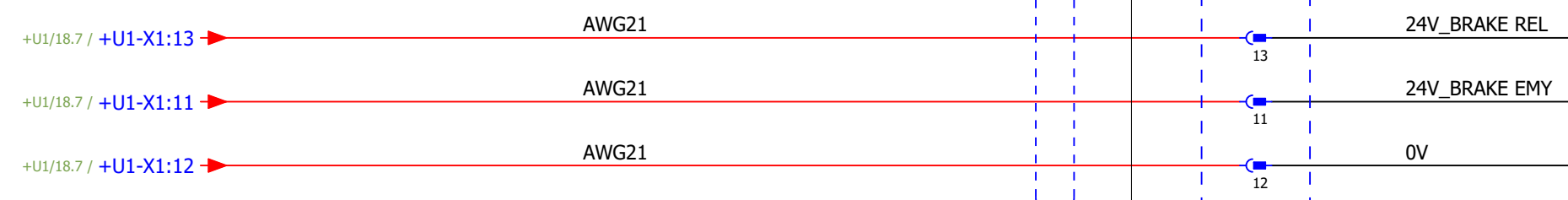
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SERVO DRIVE SYSTEM IRB 1010, IRB 1100, IRB 1200, IRB 1300, CRB 1100, CRB 1300

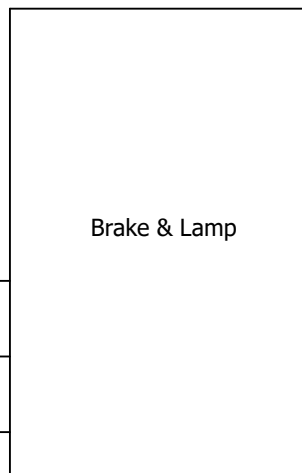
Status: Approved 1200,	High-level function: = SCH Mounting location: + EXT
Document no. 3HAC086302-010	Page: 24 Next: 24.a Total: 64

MANIPULATOR BASE

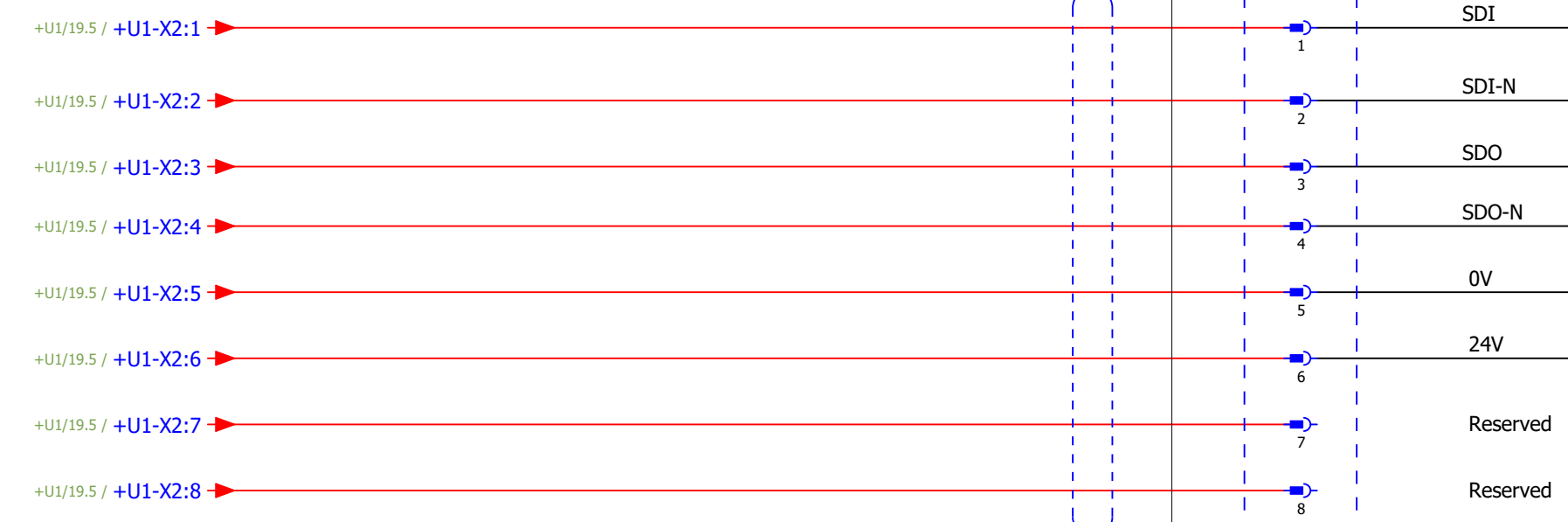
Controller interface  
+U-X1



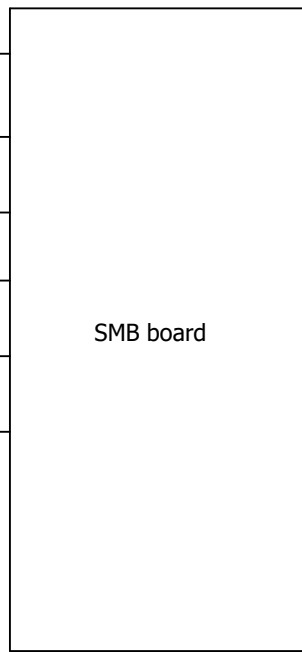
/24.1  
/27.1  
/27.a.6  
/28.1  
/28.a.6  
/29.1  
/29.a.6



Controller interface  
+U-X2



/27.a.6  
/28.a.6  
/29.a.6



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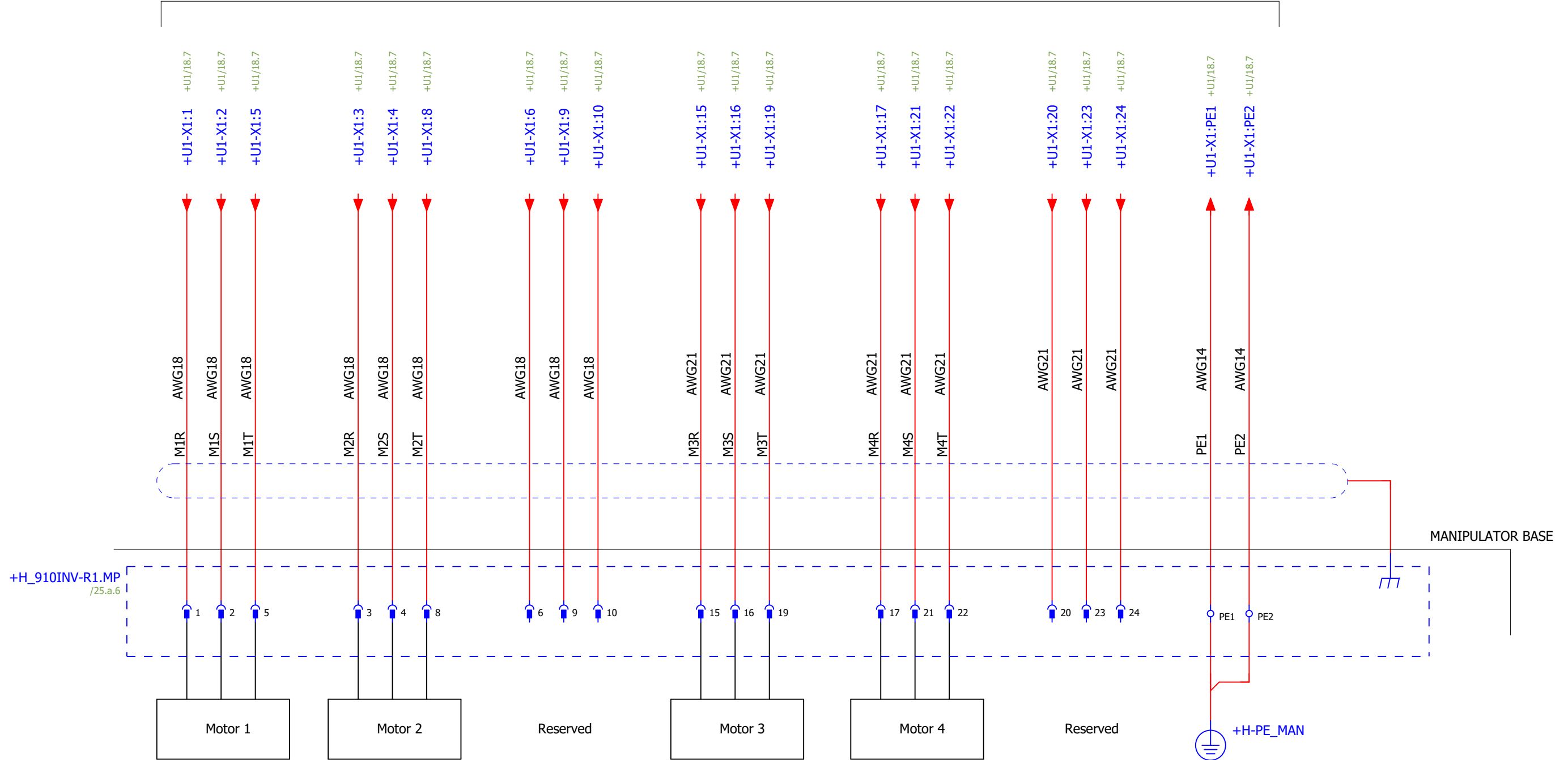
CONTROL CABLE IRB 1010, IRB 1100,  
IRB 1300, CRB 1100, CRB 1300

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Document no. 3HAC086302-010	Page: 24.a Next: 25 Total: 64

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# IRB 910INV, IRB 920, IRB 930 cabinet

Controller interface  
+U-X1



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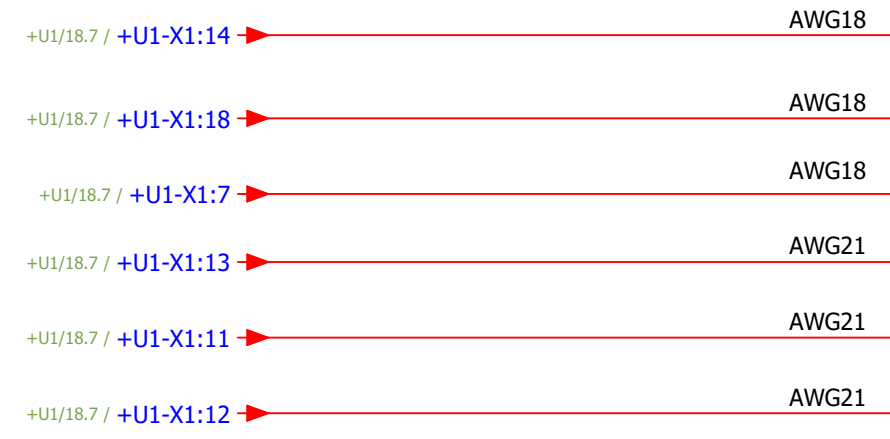
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SERVO DRIVE SYSTEM IRB 910INV,  
IRB 920, IRB 930

Status: Approved	High-level function: = SCH Mounting location: + EXT
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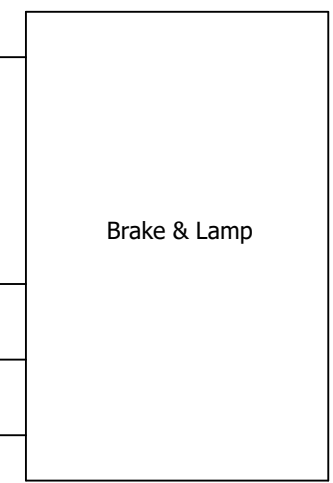
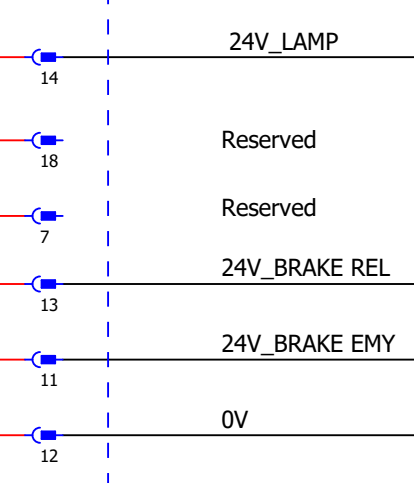
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Controller interface  
+U-X1

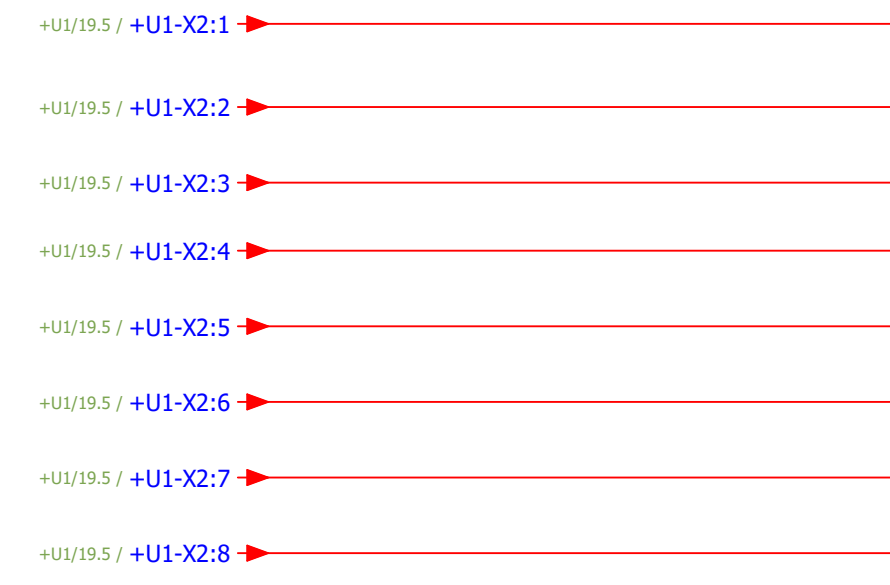


MANIPULATOR BASE

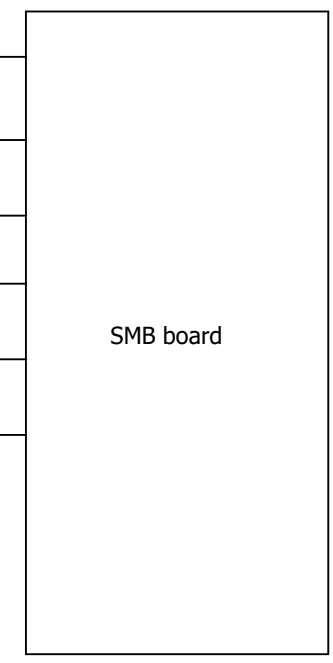
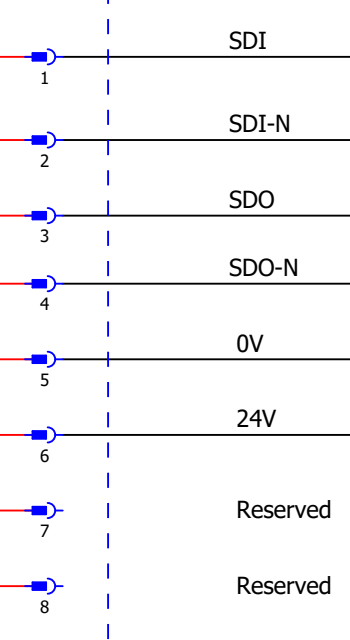
+H\_910INV-R1.MP



Controller interface  
+U-X2



+H\_910INV-R1.SMB



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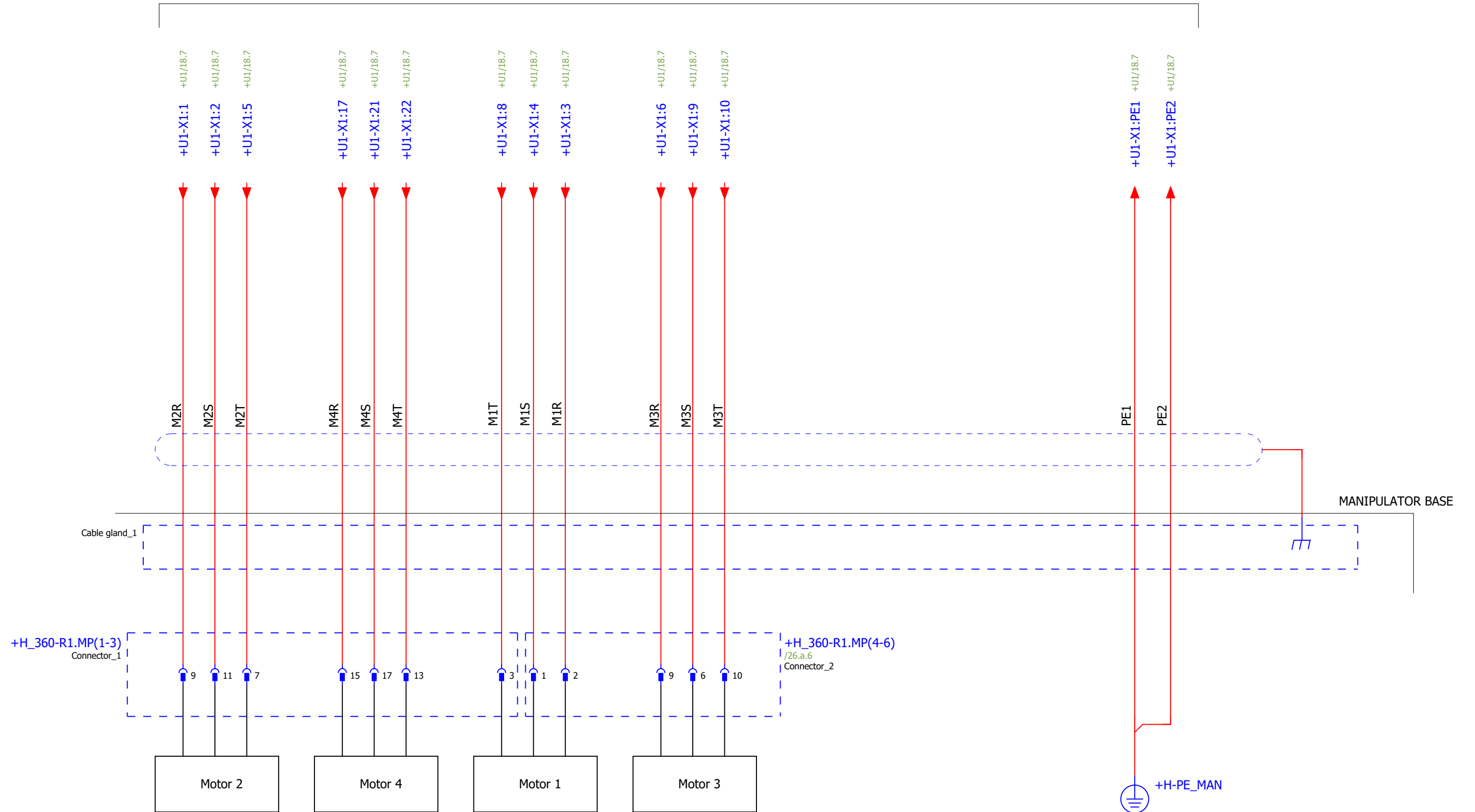
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CONTROL CABLE IRB 910INV,  
IRB 920, IRB 930

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# IRB 360 OmniCore cabinet

Controller interface  
+U1-X1



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SERVO DRIVE SYSTEM IRB 360 OmniCore

Status:  
Approved

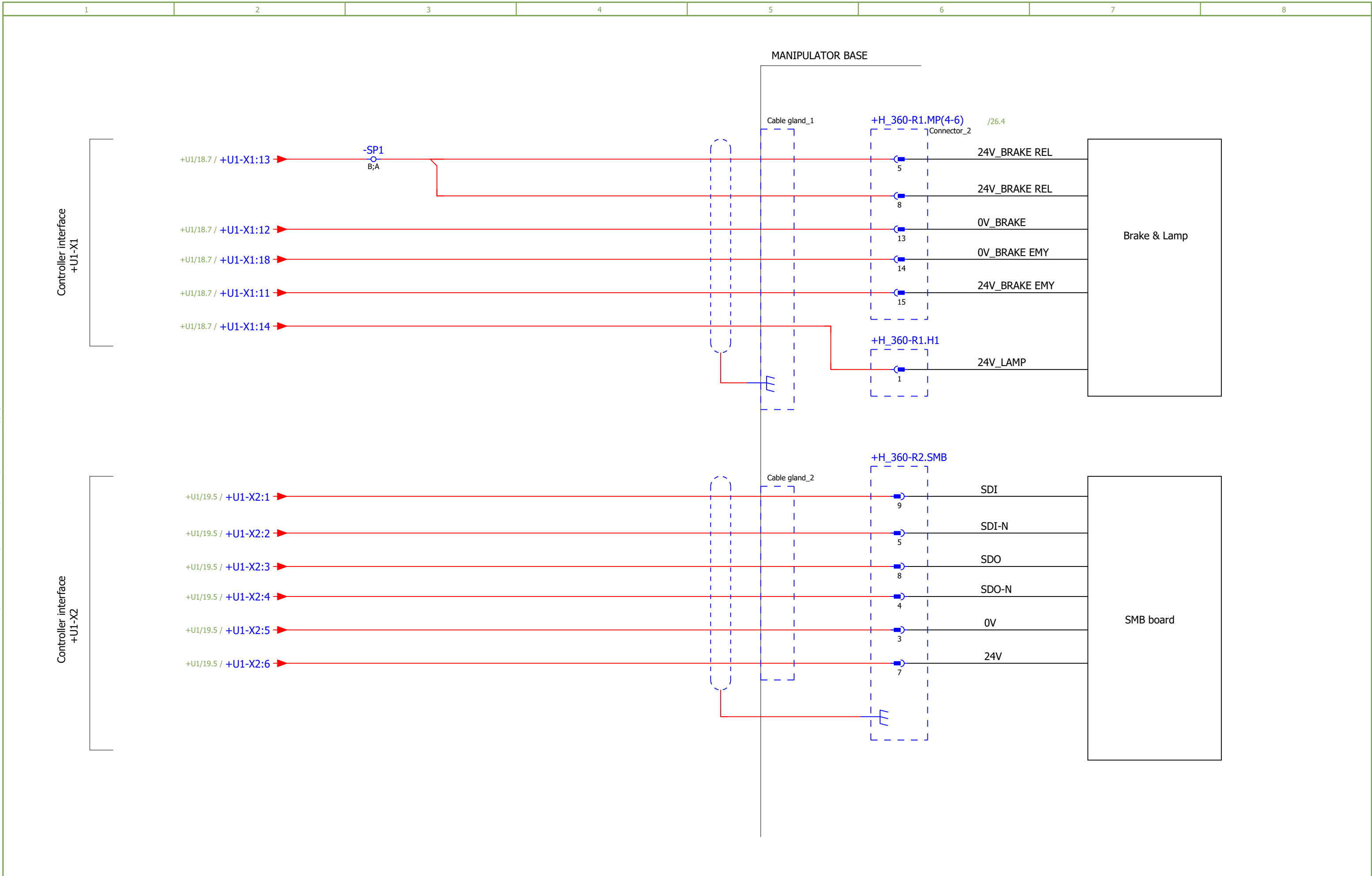
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Mounting location: + EXT

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**CONTROL CABLE IRB 360 OmniCore**

Status: Approved

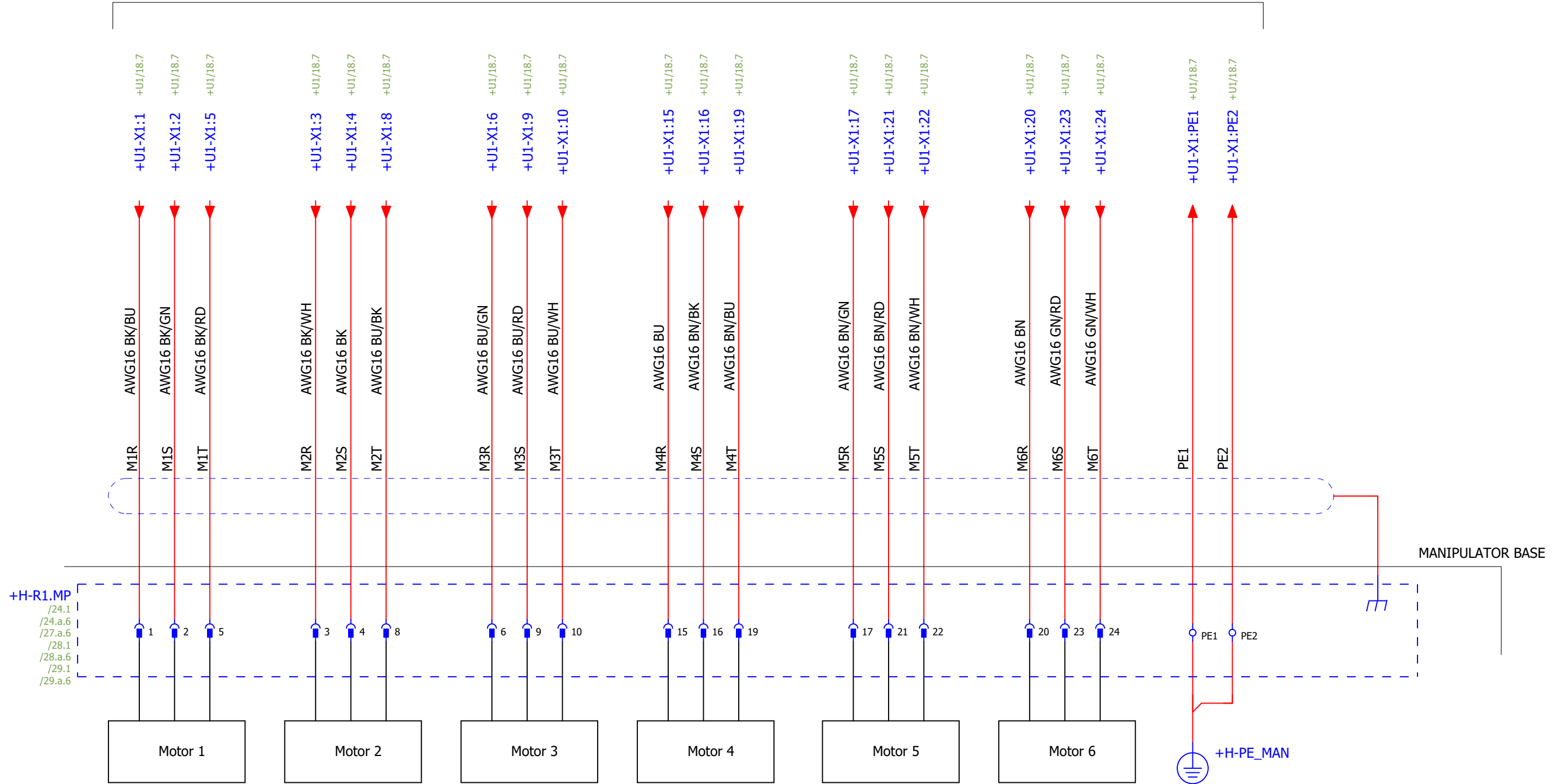
High-level function: = SCH  
Mounting location: + EXT

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# IRB 1200 cabinet

Controller interface  
+U-X1



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SERVO DRIVE SYSTEM IRB 1200

Status:  
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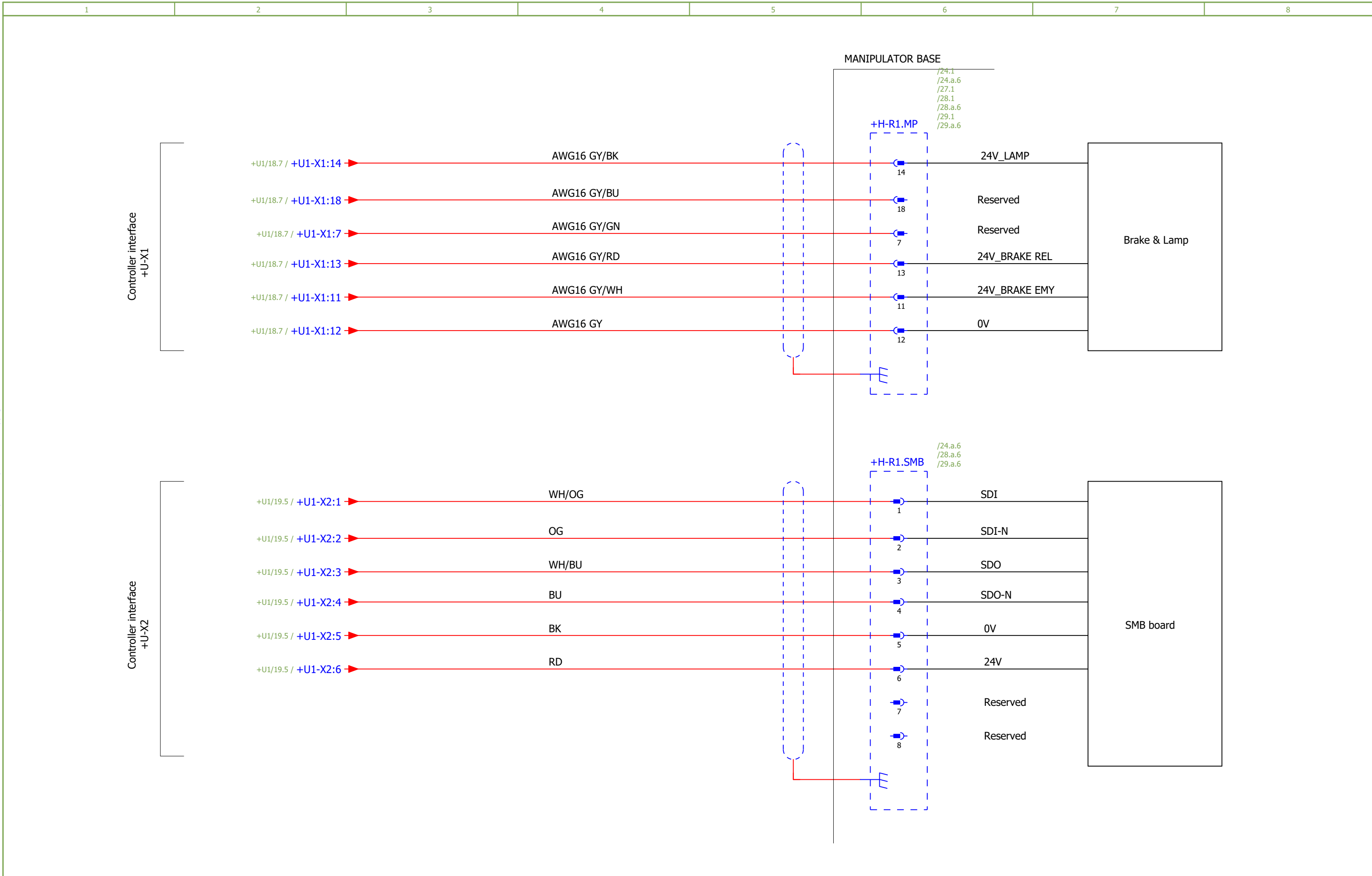
High-level function: = SCH  
Mounting location: + EXT

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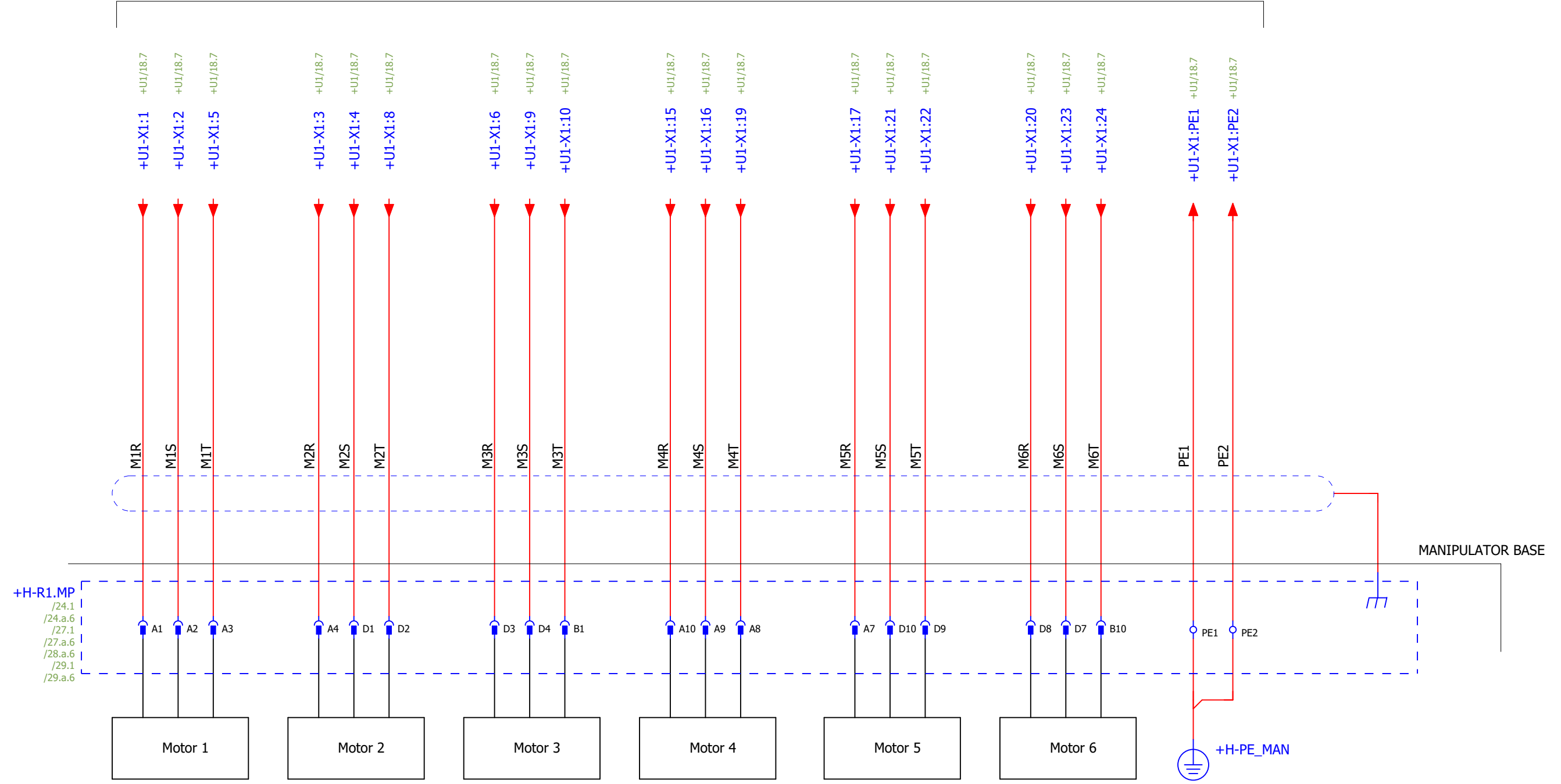
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# IRB 1600 cabinet

Controller interface  
+U-X1



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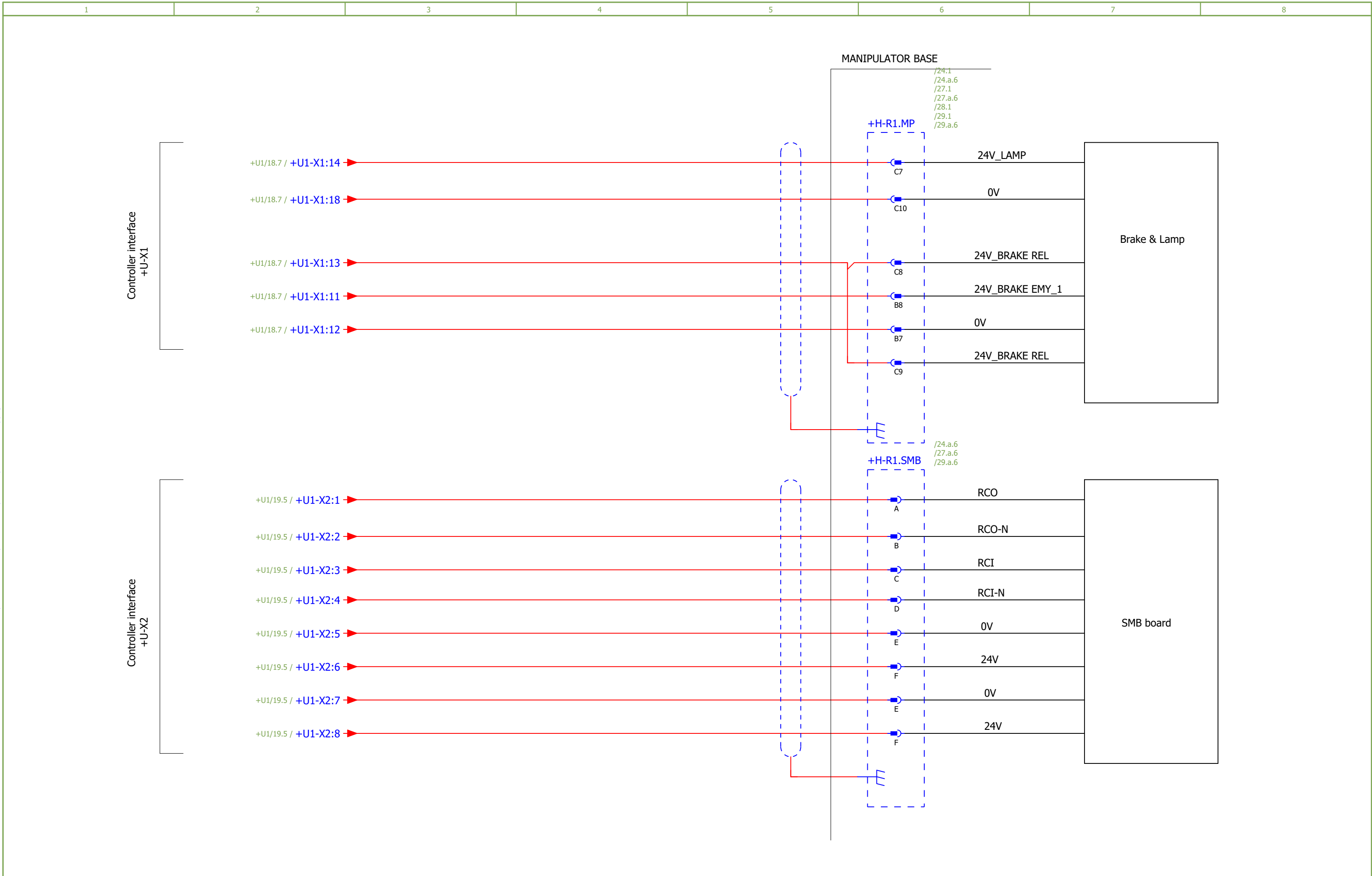
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**SERVO DRIVE SYSTEM IRB 1600**

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**CONTROL CABLE IRB 1600**

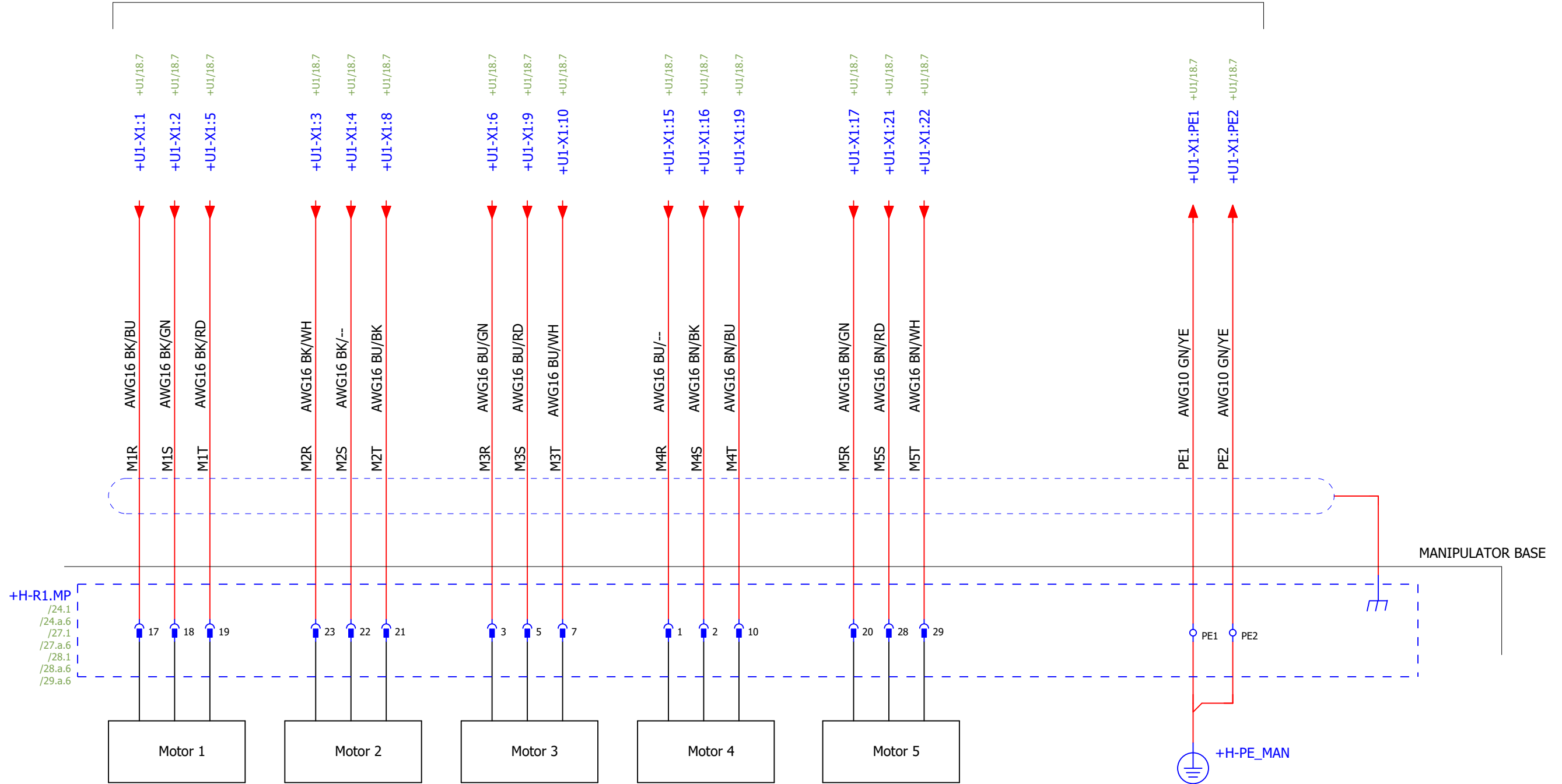
**Status:** Approved

**High-level function:** = SCH  
**Mounting location:** + EXT

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# IRB 365 cabinet

Controller interface  
+U-X1



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Controller interface  
+U-X1

- +U1/18.7 / +U1-X1:14
- +U1/18.7 / +U1-X1:18
- +U1/18.7 / +U1-X1:7
- +U1/18.7 / +U1-X1:13
- +U1/18.7 / +U1-X1:11
- +U1/18.7 / +U1-X1:12

AWG16 GY/RD  
AWG16 GY/WH  
AWG16 GY

MANIPULATOR BASE

/24.1  
/24.a.6  
/27.1  
/27.a.6  
/28.1  
/28.a.6  
/29.1

+H-R1.MP

- 14
- 18
- 7
- 13
- 11
- 12

24V\_LAMP  
Reserved  
Reserved  
24V\_BRAKE REL  
24V\_BRAKE EMY  
0V

Brake & Lamp

Controller interface  
+U-X2

- +U1/19.5 / +U1-X2:1
- +U1/19.5 / +U1-X2:2
- +U1/19.5 / +U1-X2:3
- +U1/19.5 / +U1-X2:4
- +U1/19.5 / +U1-X2:5
- +U1/19.5 / +U1-X2:6
- +U1/19.5 / +U1-X2:7
- +U1/19.5 / +U1-X2:8

/24.a.6  
/27.a.6  
/28.a.6

+H-R1.SMB

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8

SDI  
SDI-N  
SDO  
SDO-N  
0V  
24V  
Reserved  
Reserved

SMB board

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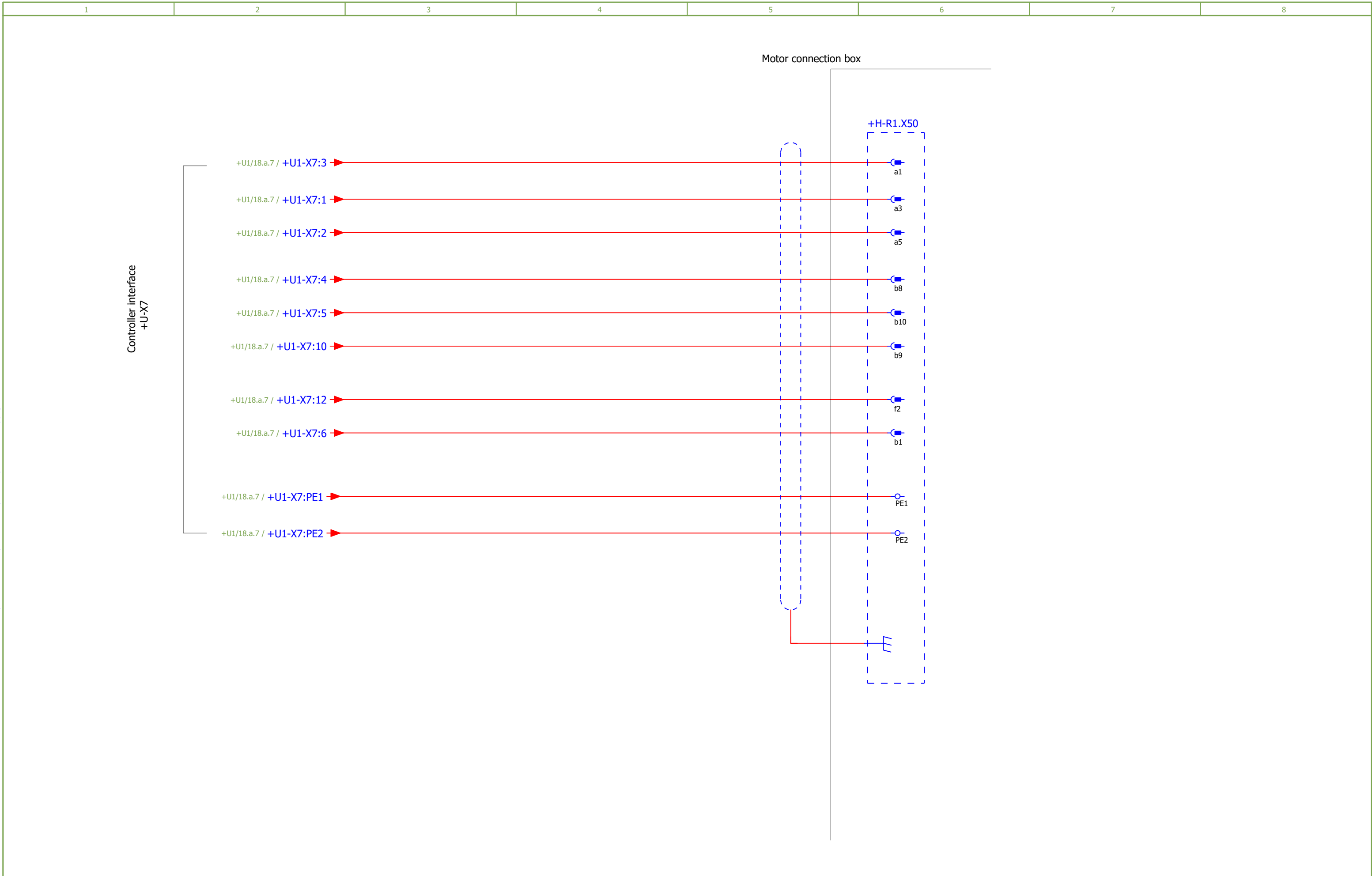
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**CONTROL CABLE IRB 365**

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Servo 1 Axis

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