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|----------------------|---|------------------------------------------------------------|
| Customer | : | |
| Drawing number | : | 3HAC086302-010 |
| Drawing version | : | Rev 00 |
| Manufacture | : | ABB Engineering (Shanghai) Ltd. |
| Type | : | Industrial robot controller |
| Type of installation | : | |
| Control cabinet | : | Project template with identifier structure to IEC standard |
| Mains voltage | : | 220~230VAC, 50/60Hz |
| Supply | : | |
| Control voltage | : | |
| Year of construction | : | 2022 |
| Project start | : | 6/24/2022 |
| Project manager | : | |
| Last revision | : | |
| Designed by | : | |
| Designed date | : | 11/10/2023 |
| Number of pages | : | 68 |

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20231018 Rev00
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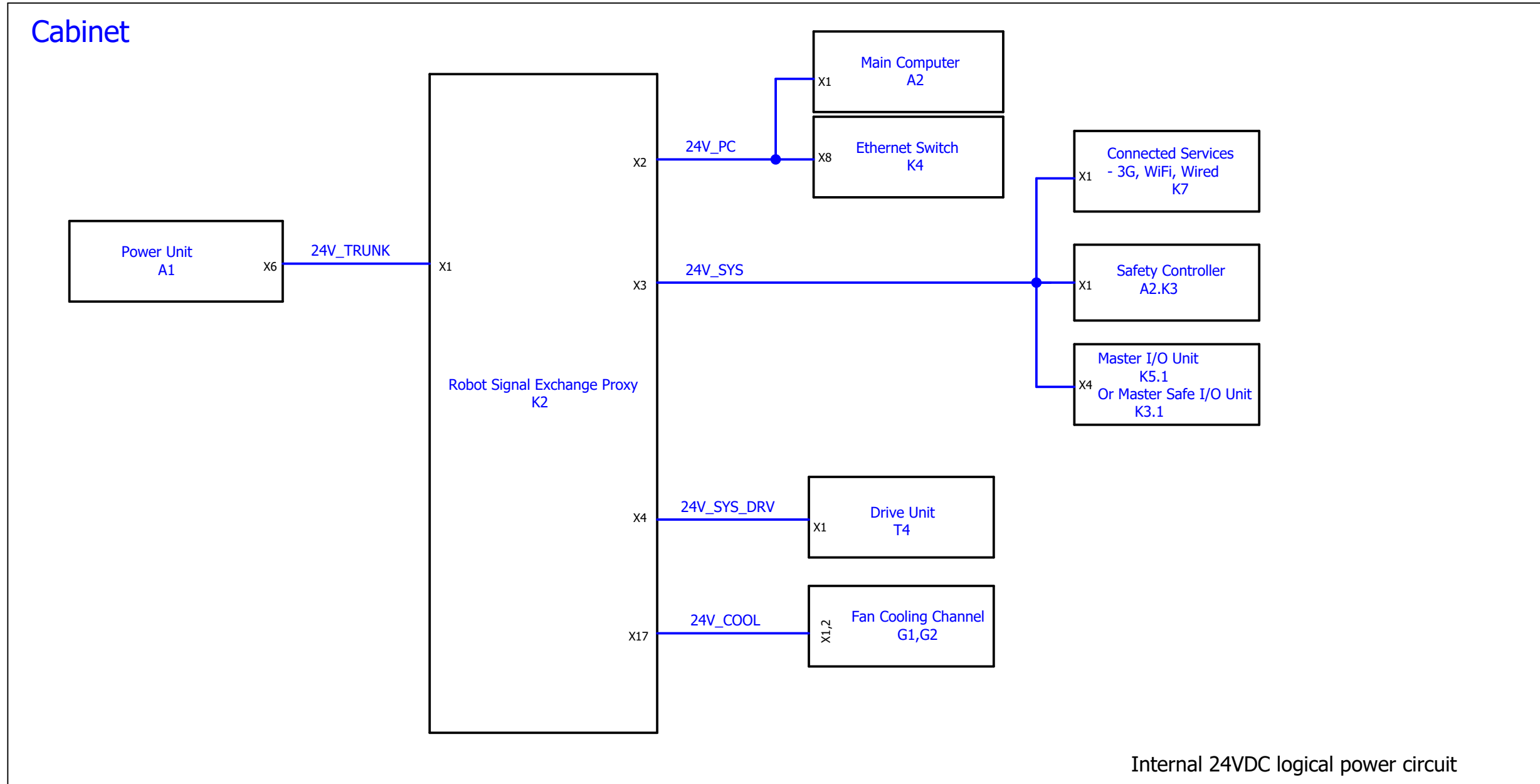
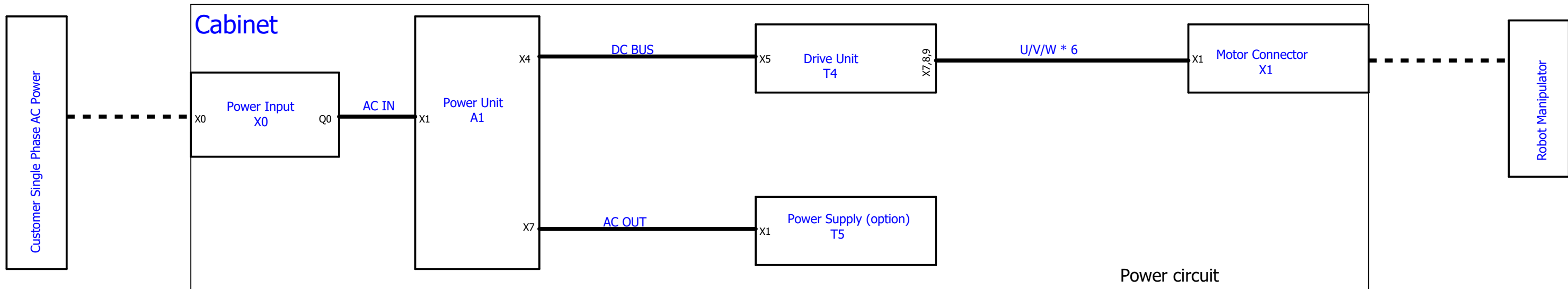
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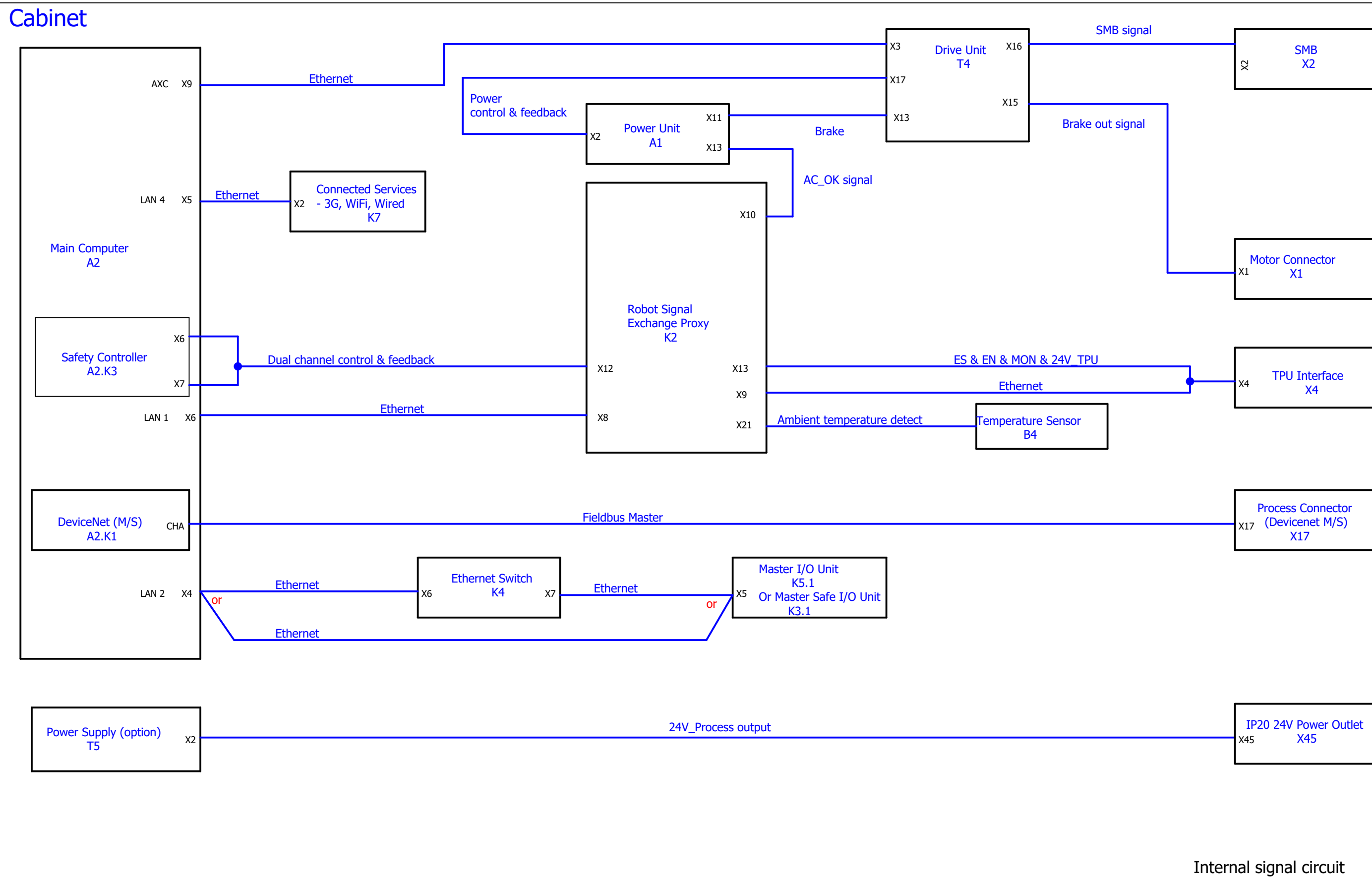
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Block diagram

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Cabinet



Internal signal circuit

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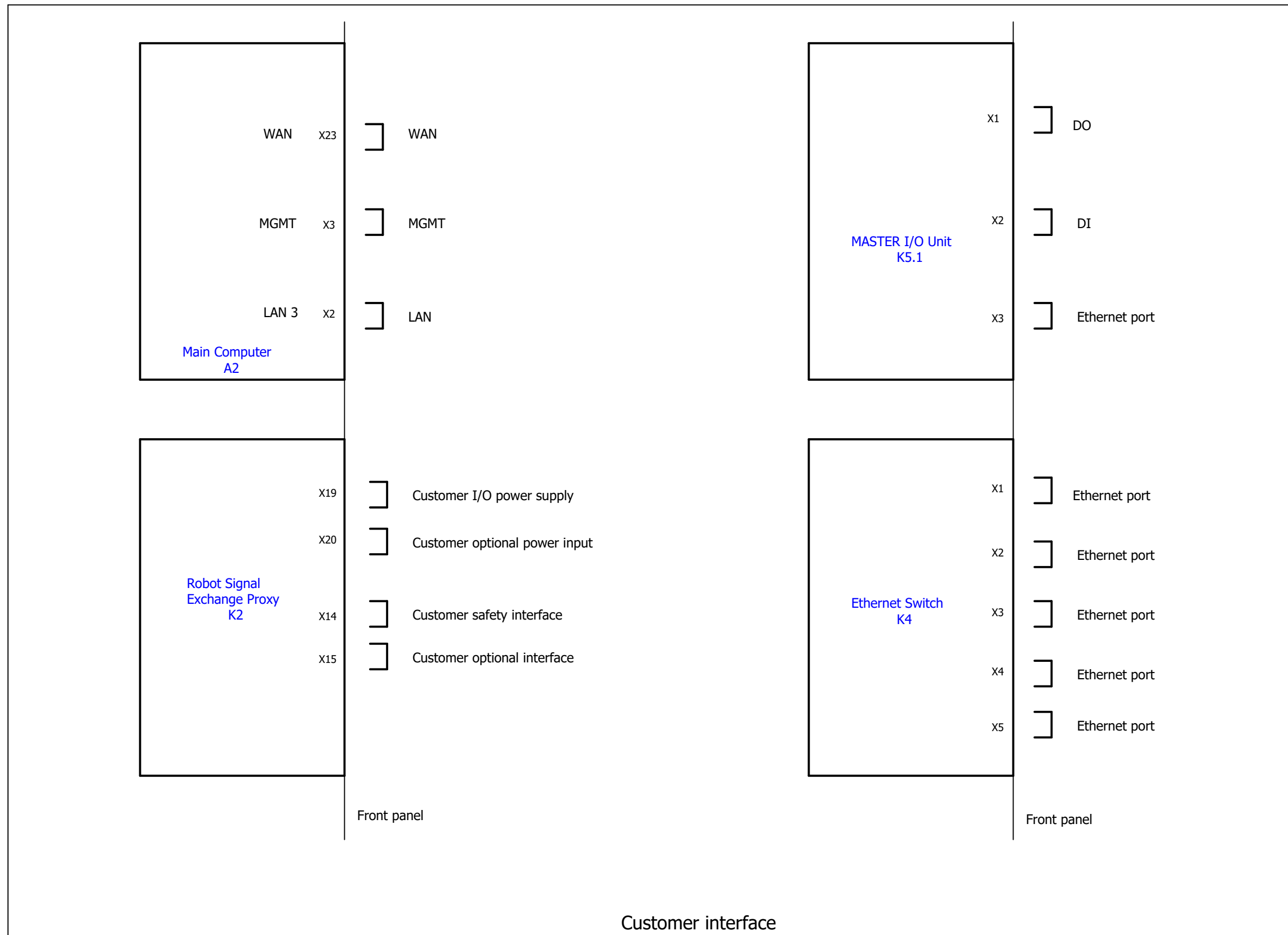
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Block diagram

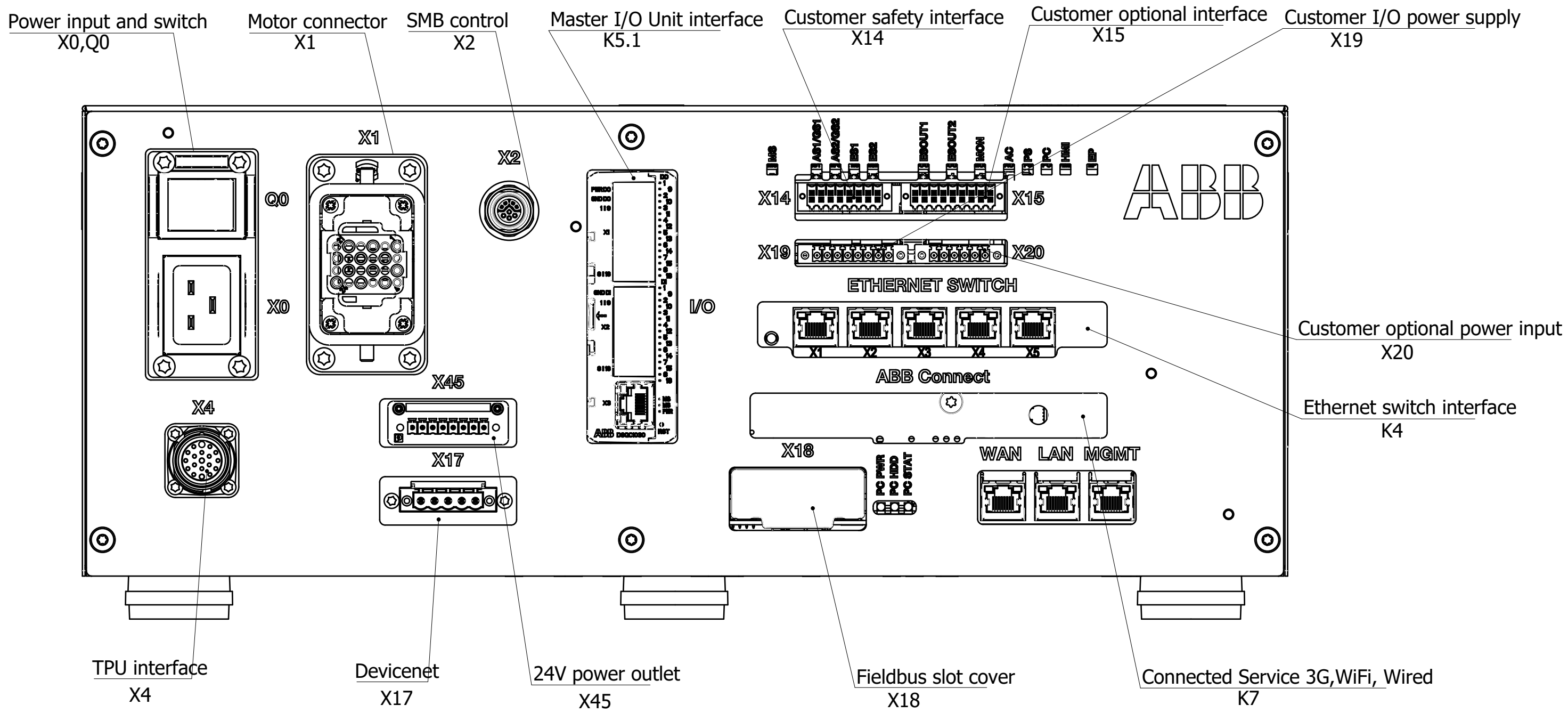
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Front view

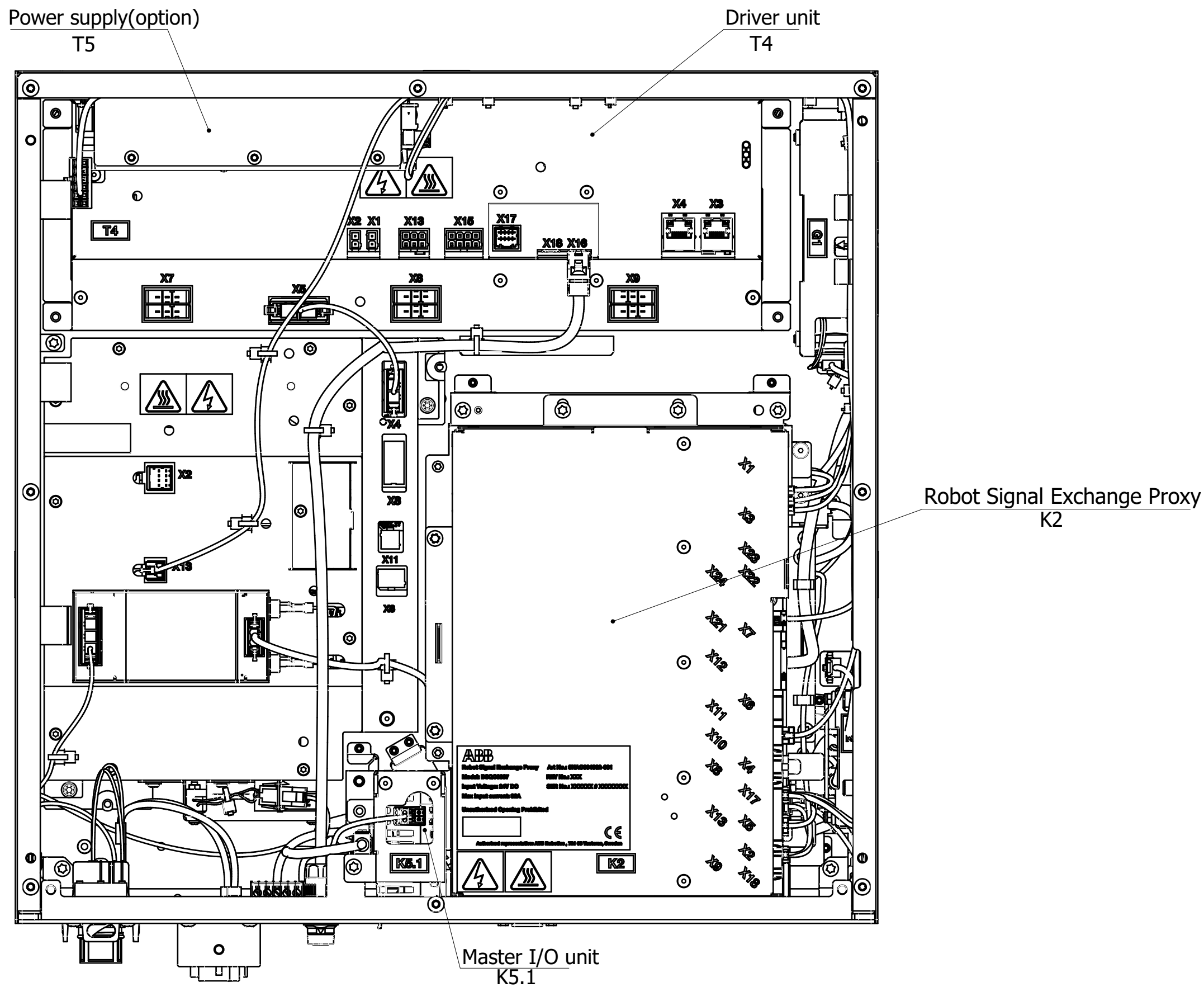
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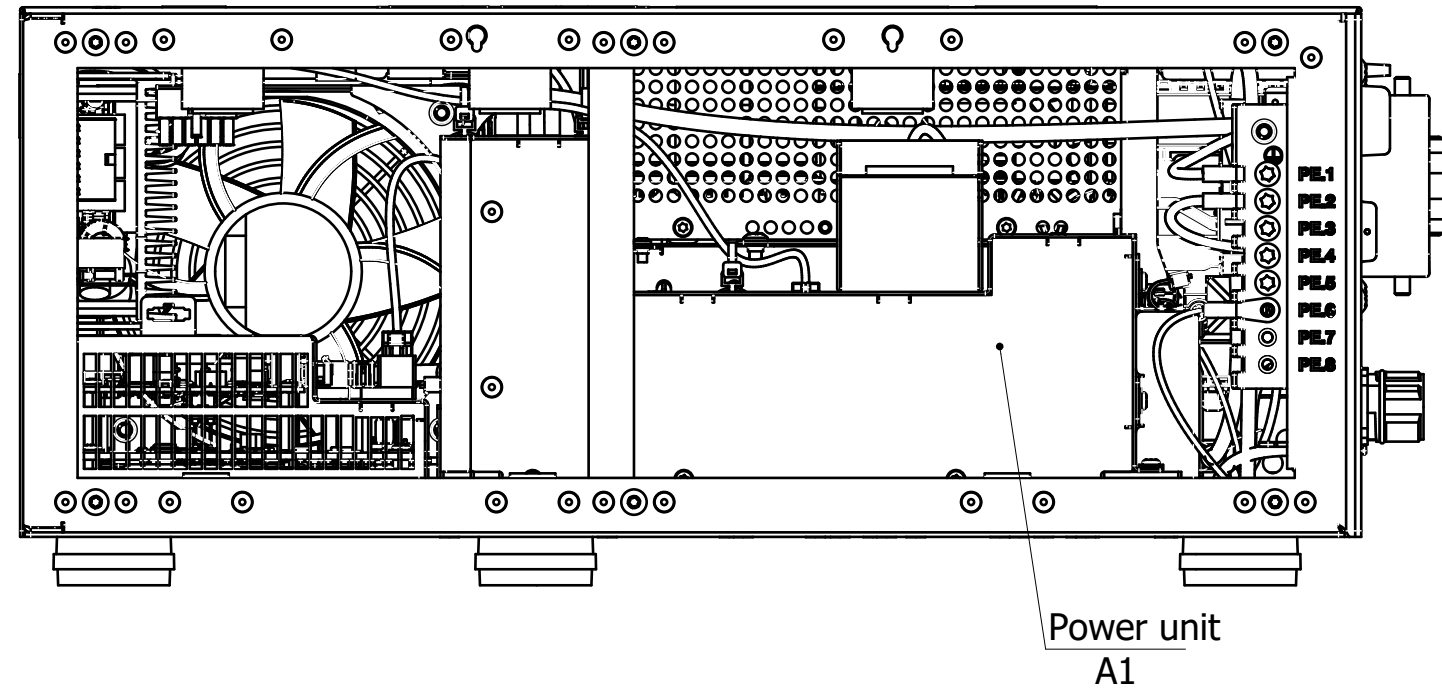
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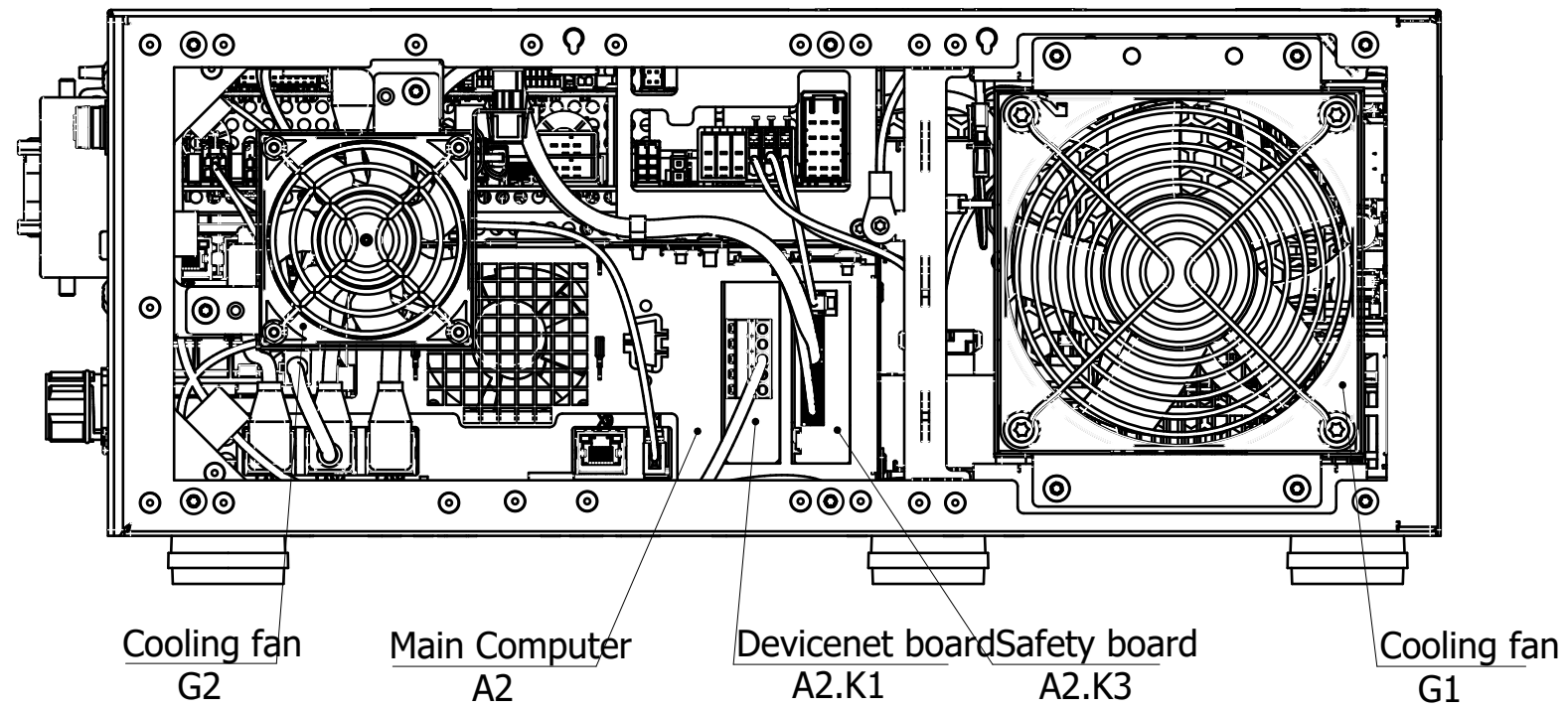
Top view

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Left side



Right side



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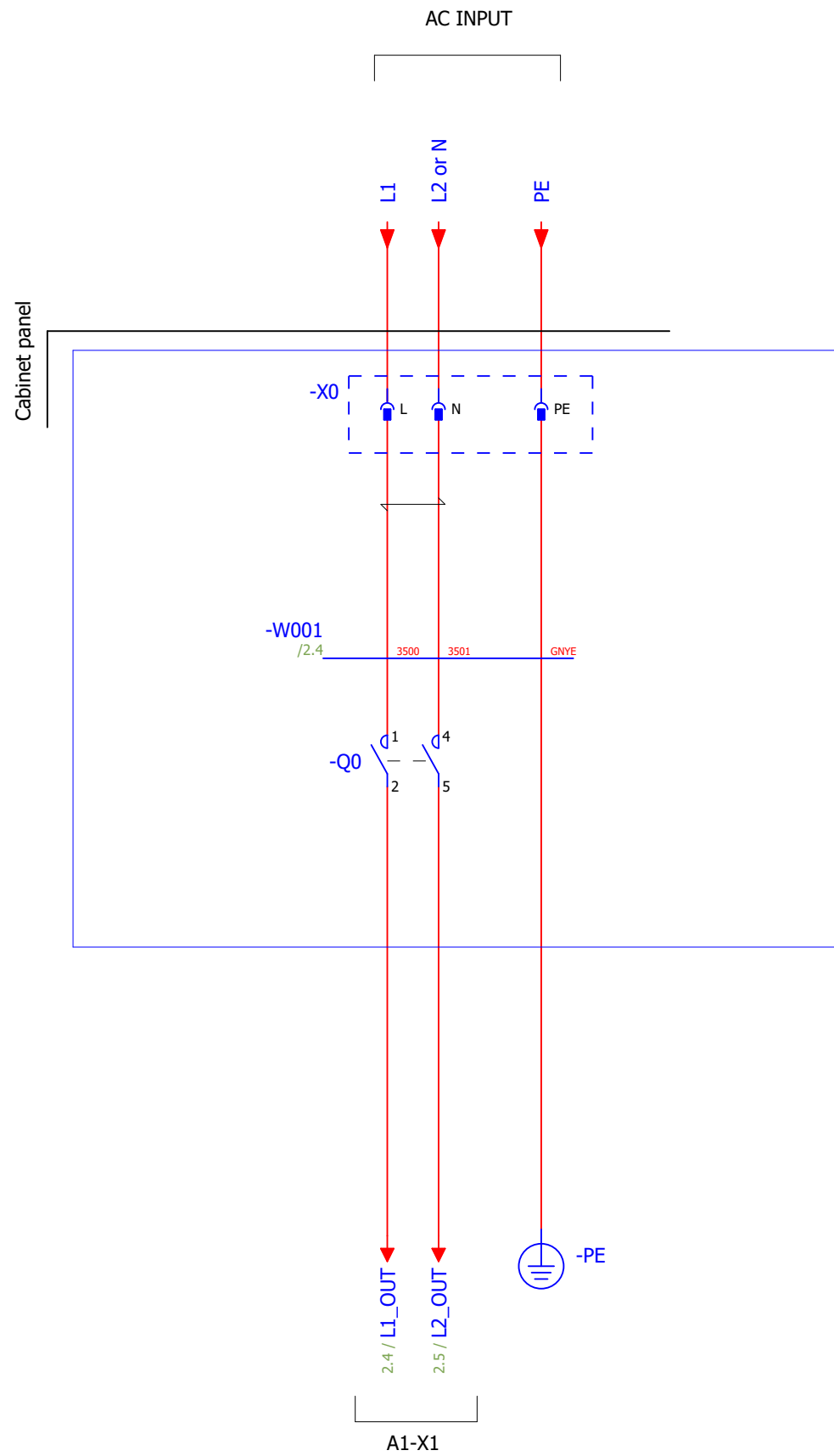
Side view

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POWER INPUT /X0

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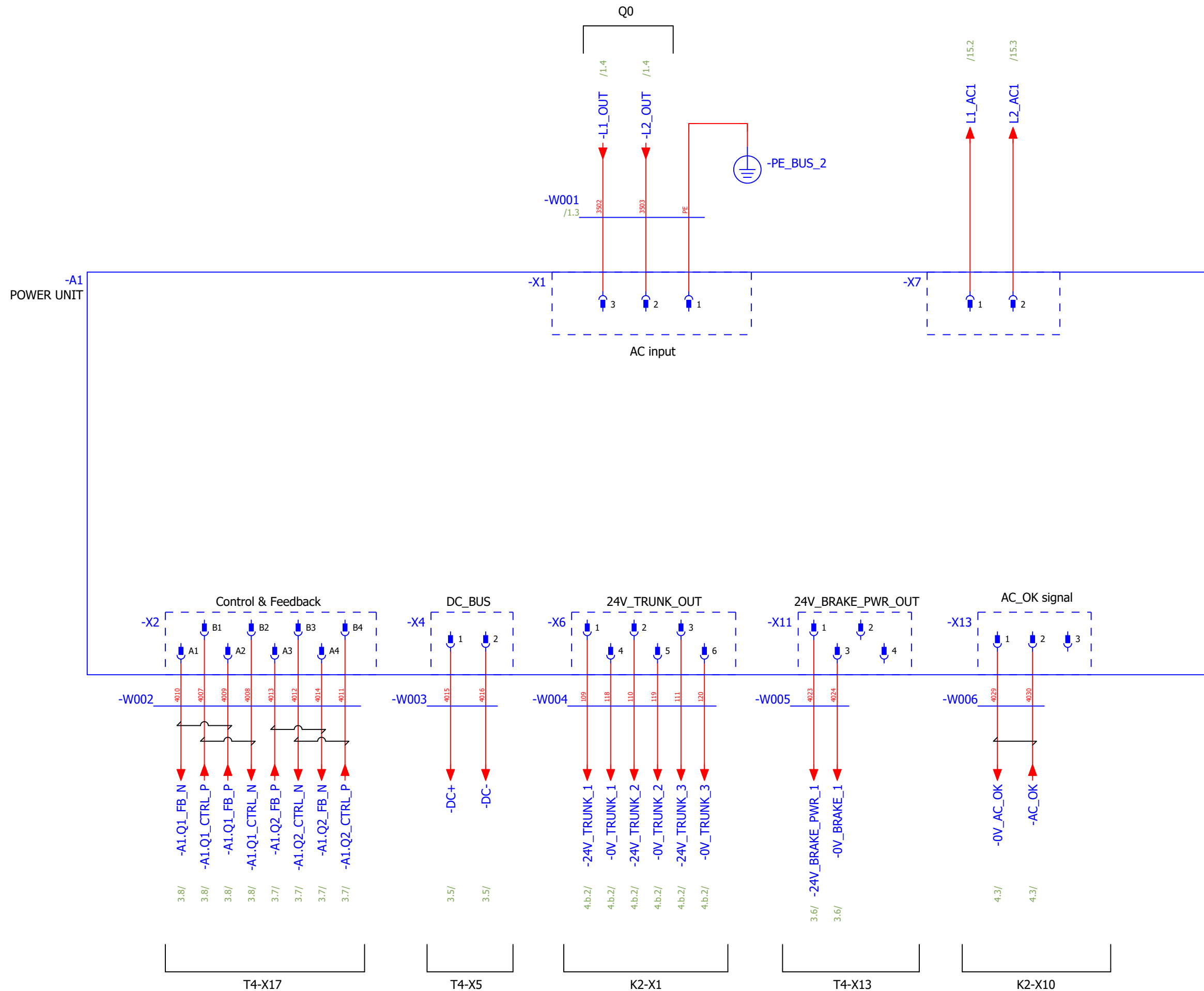
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POWER UNIT /A1

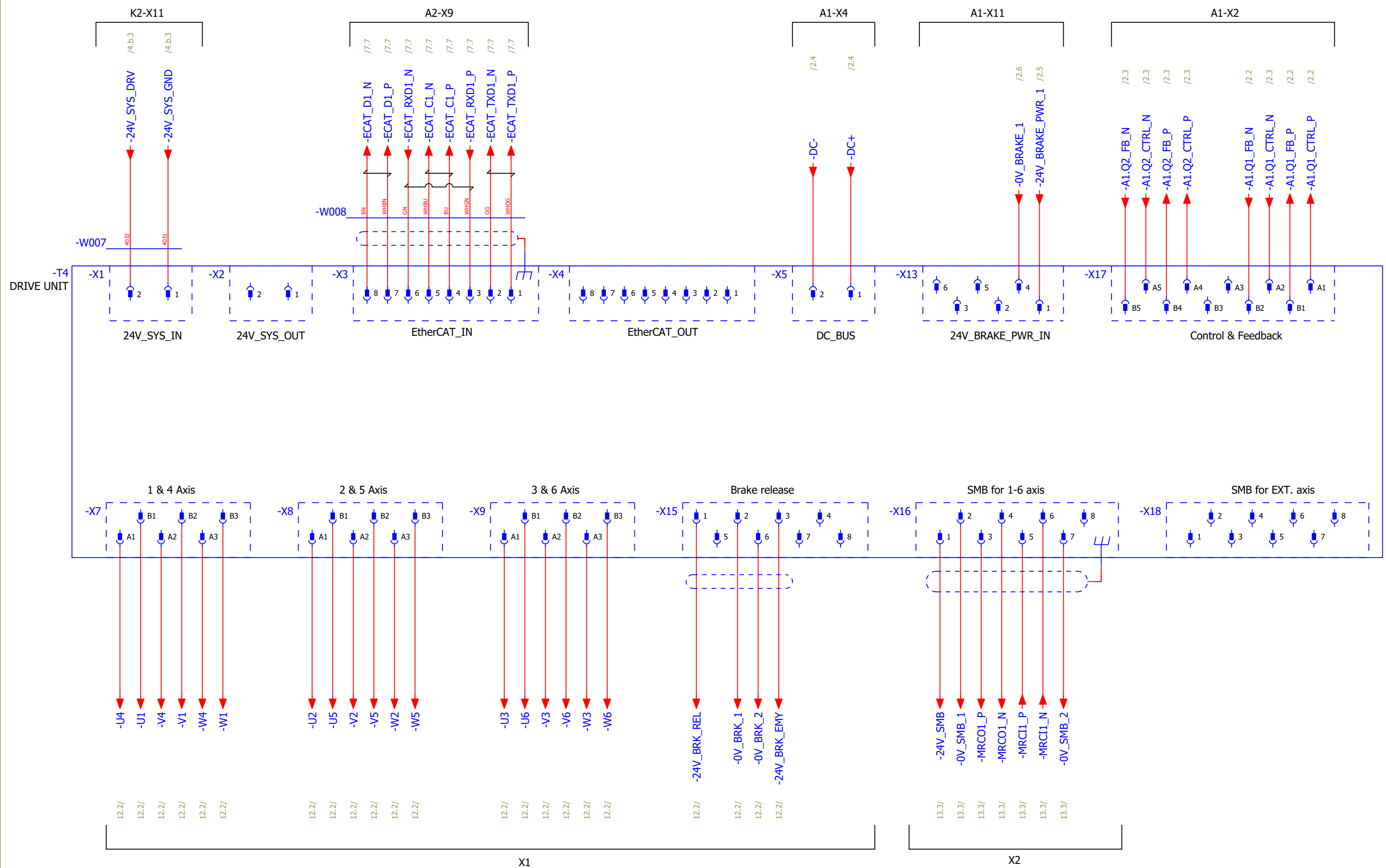
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X1

X2

DRIVE UNIT /T4

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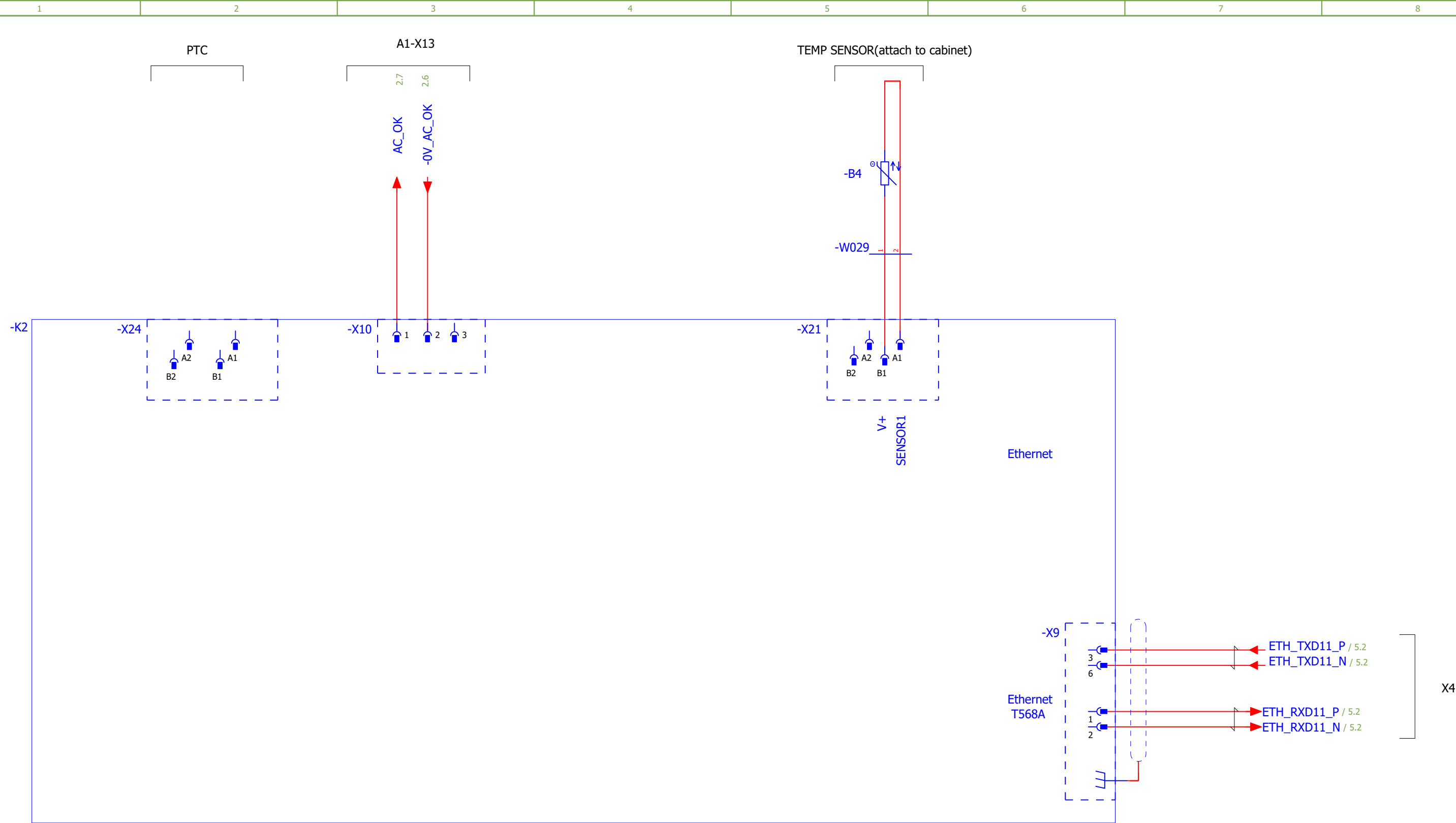
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ROBOT SIGNAL EXCHANGE PROXY - K2

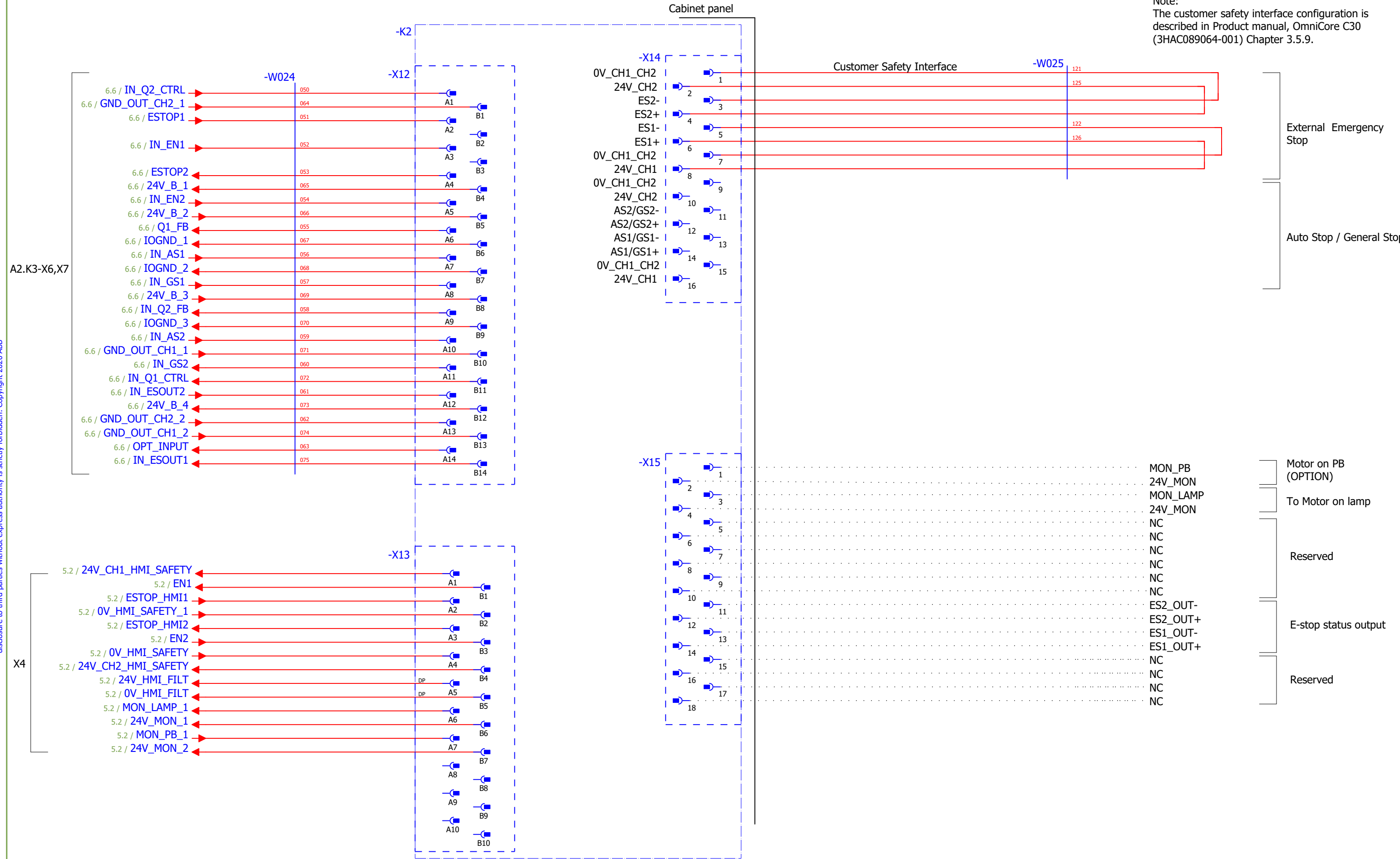
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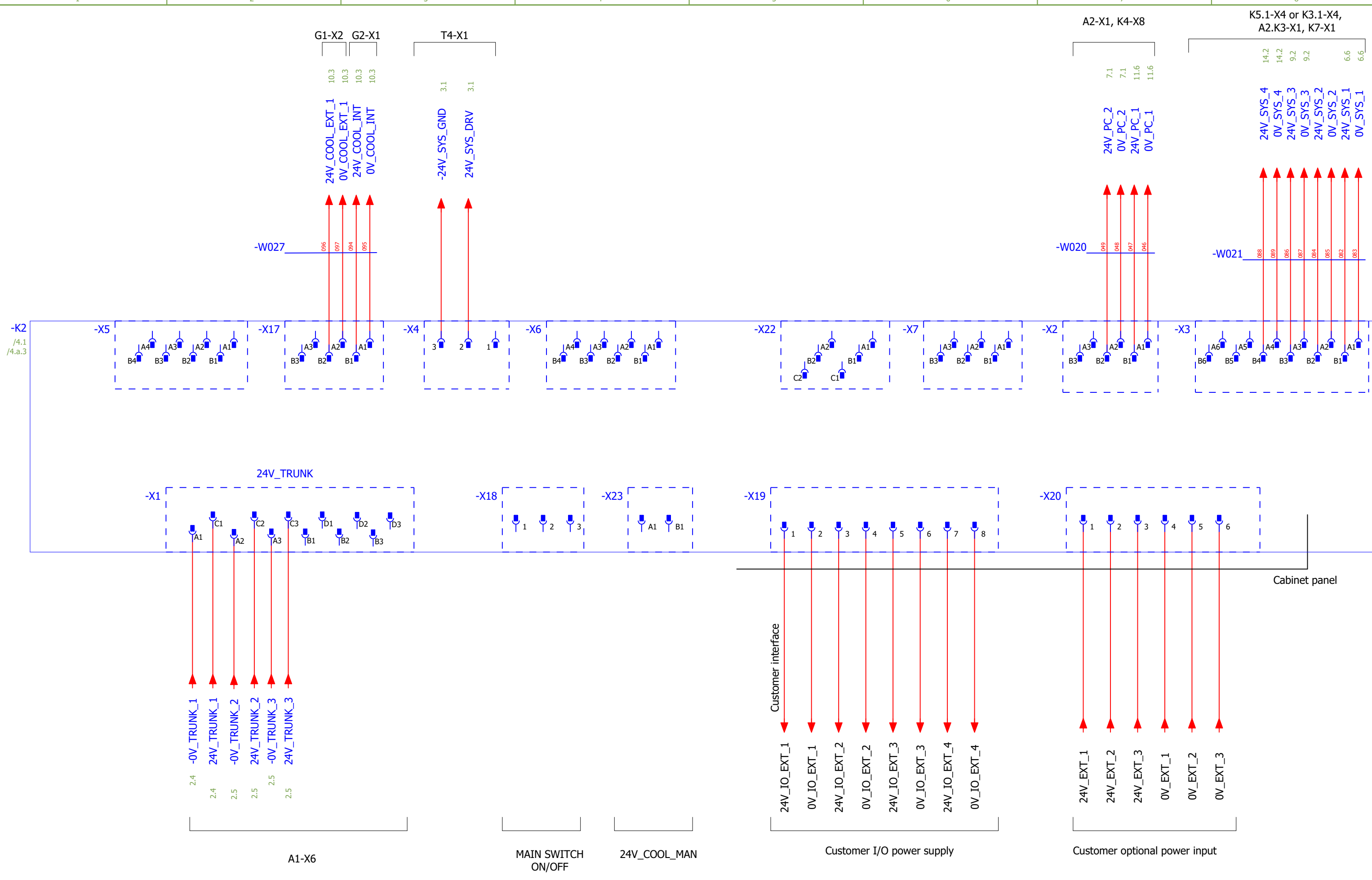
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Note:
The customer safety interface configuration is described in Product manual, OmniCore C30 (3HAC089064-001) Chapter 3.5.9.



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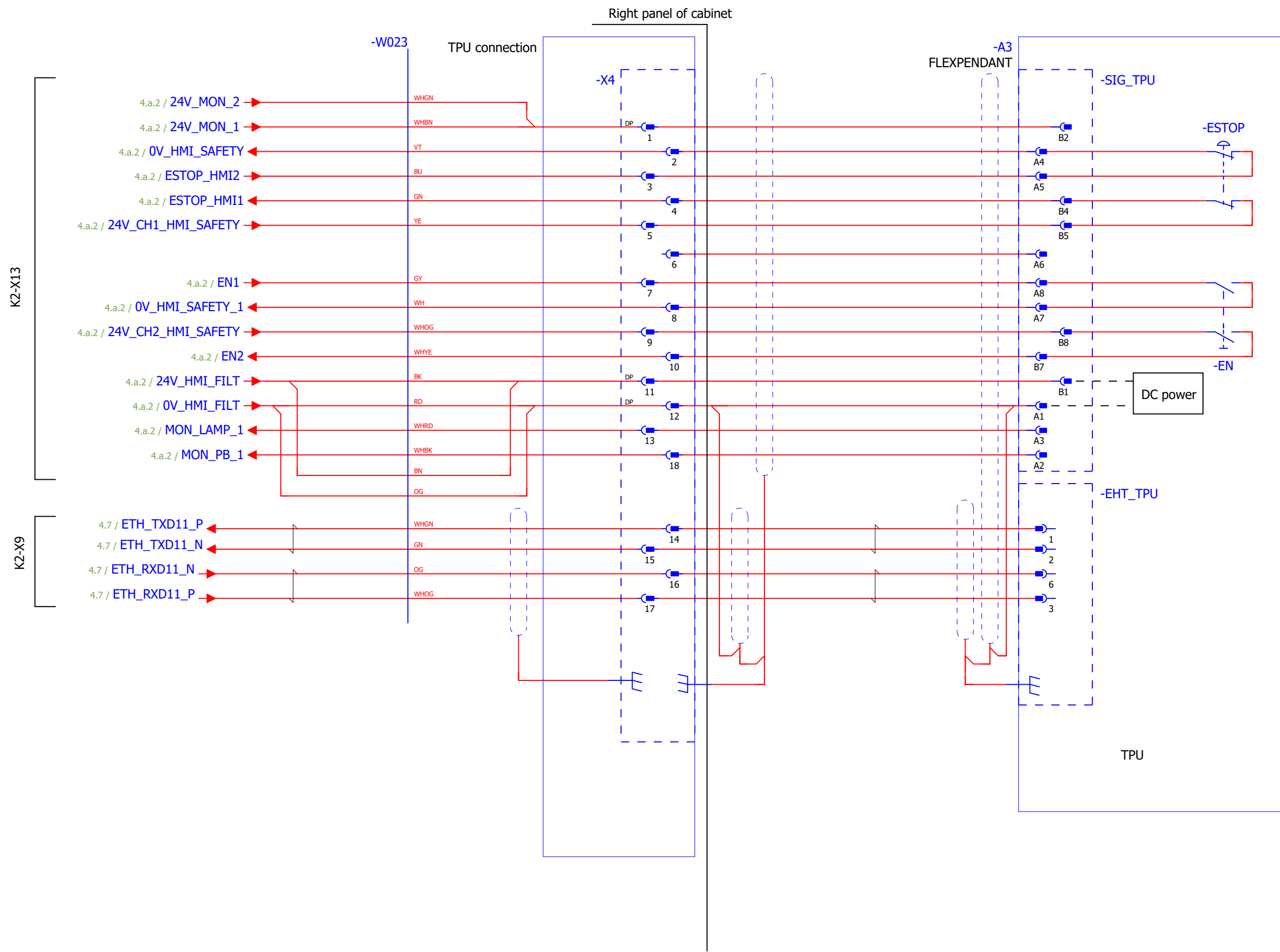
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TPU - HMI SIGNAL CONNECTORS /X4

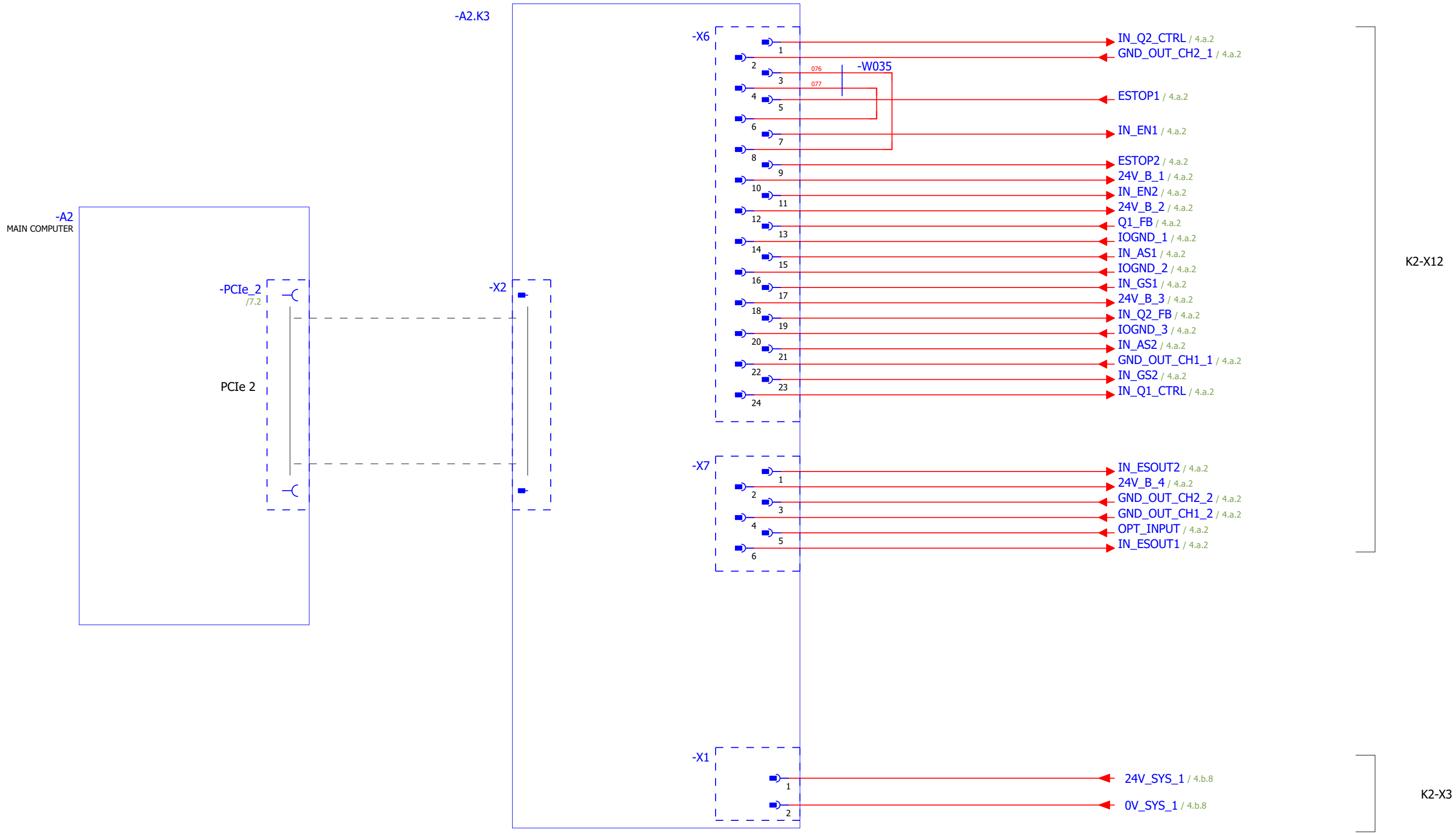
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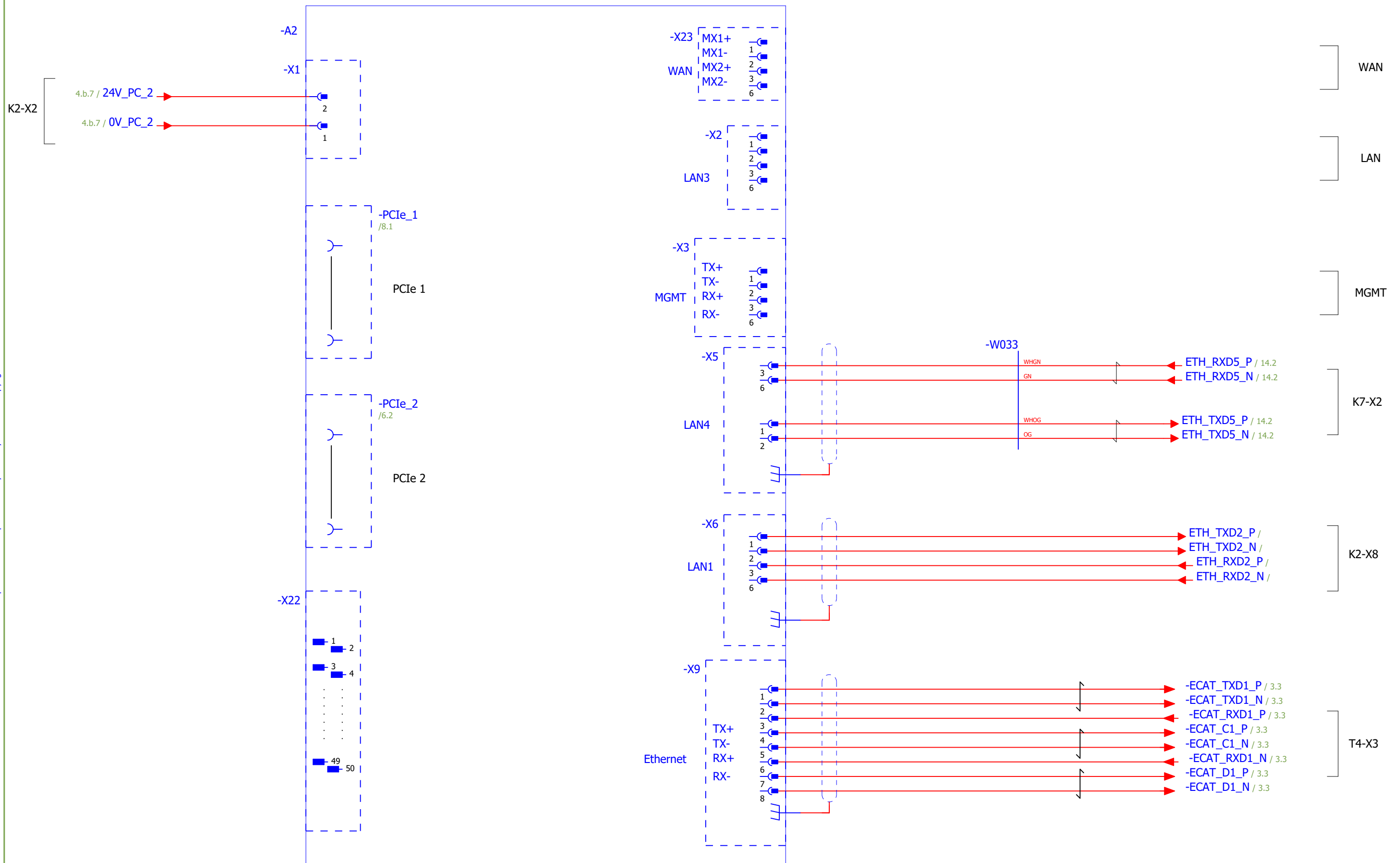
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SAFETY CONTROLLER /A2.K3

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MAIN COMPUTER /A2

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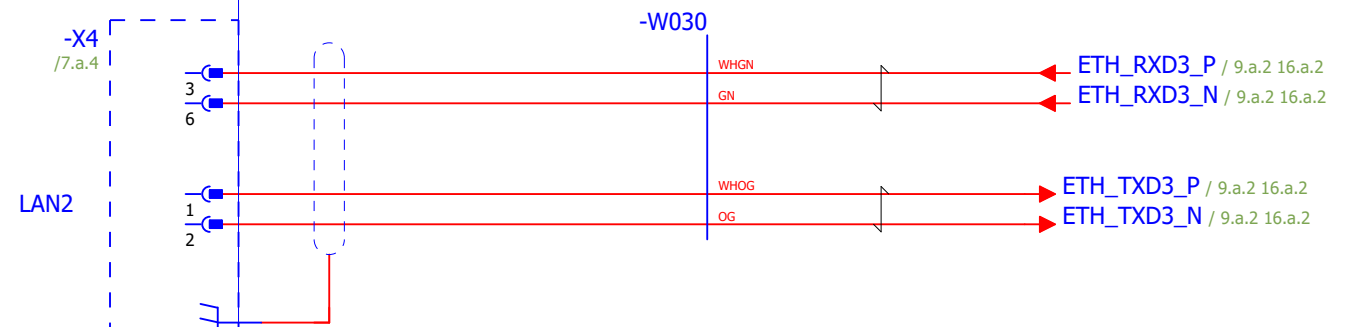
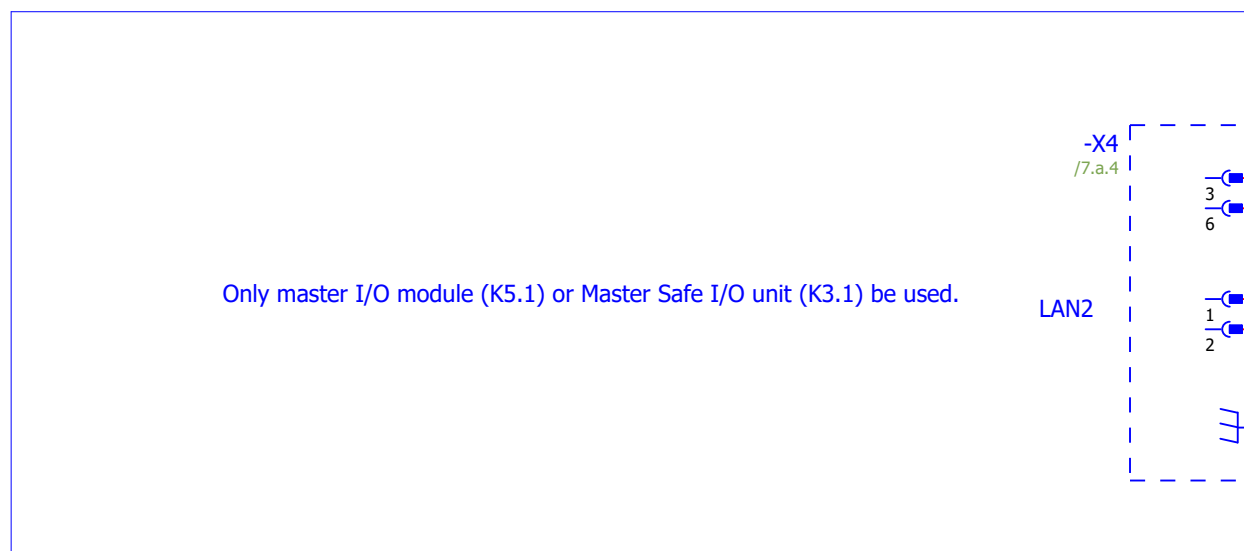
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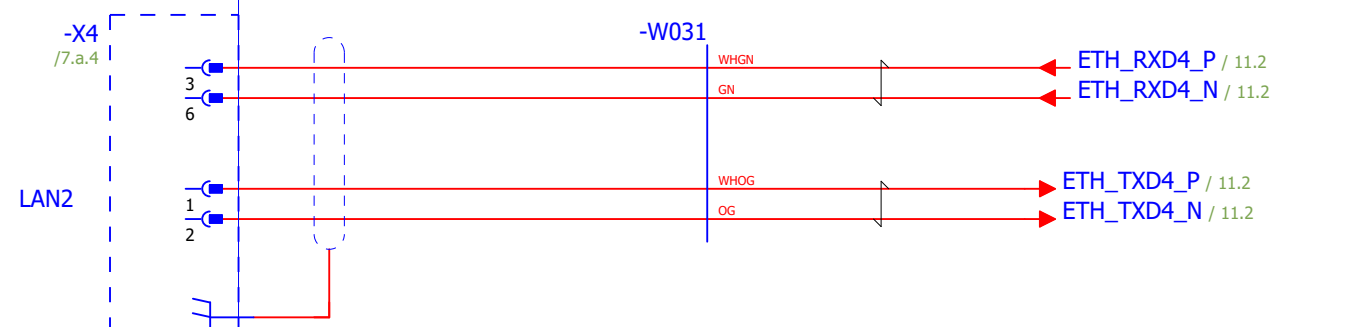
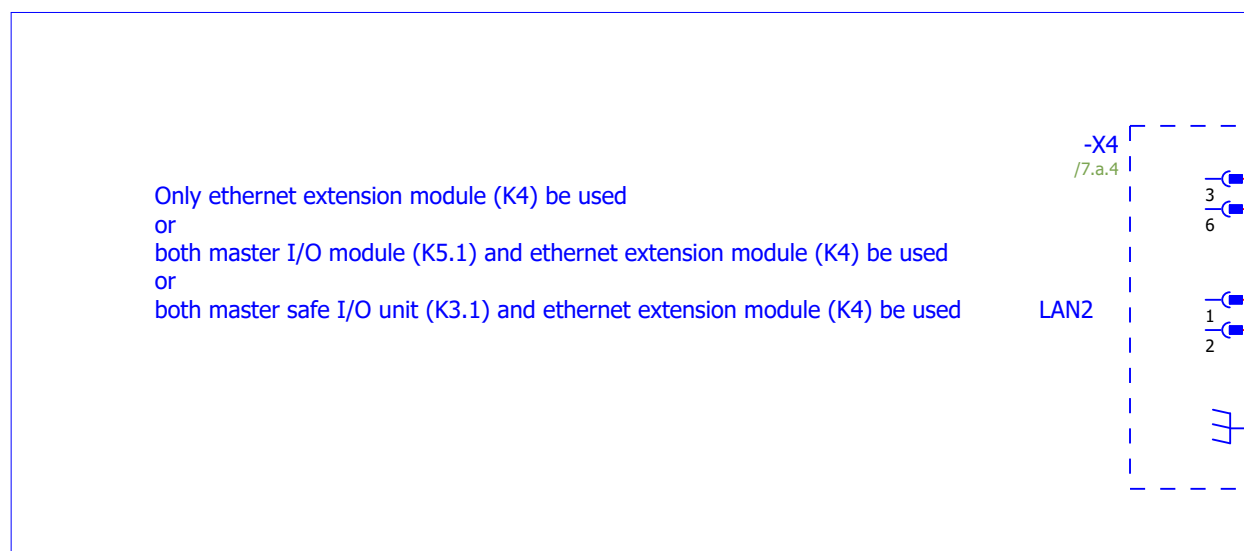
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-A2



K5.1-X5
Or K3.1-X5

-A2



K4-X6

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MAIN COMPUTER /A2

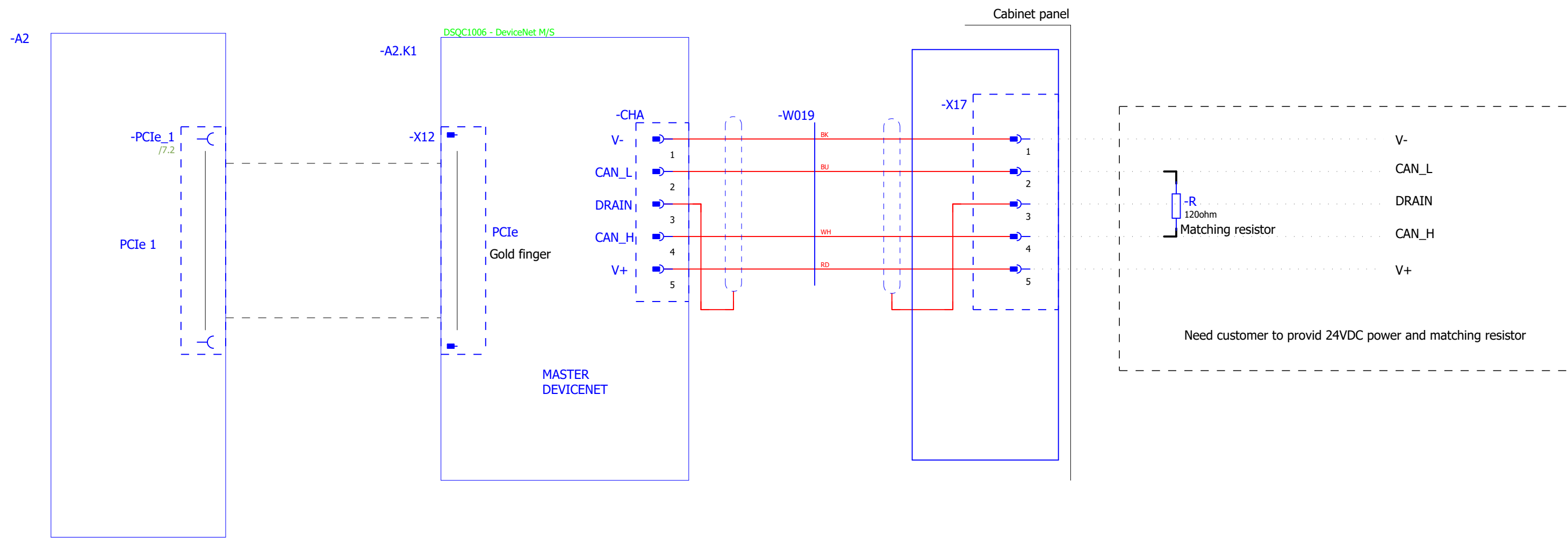
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FIELD BUS ADAPTER MASTER /A2.K1

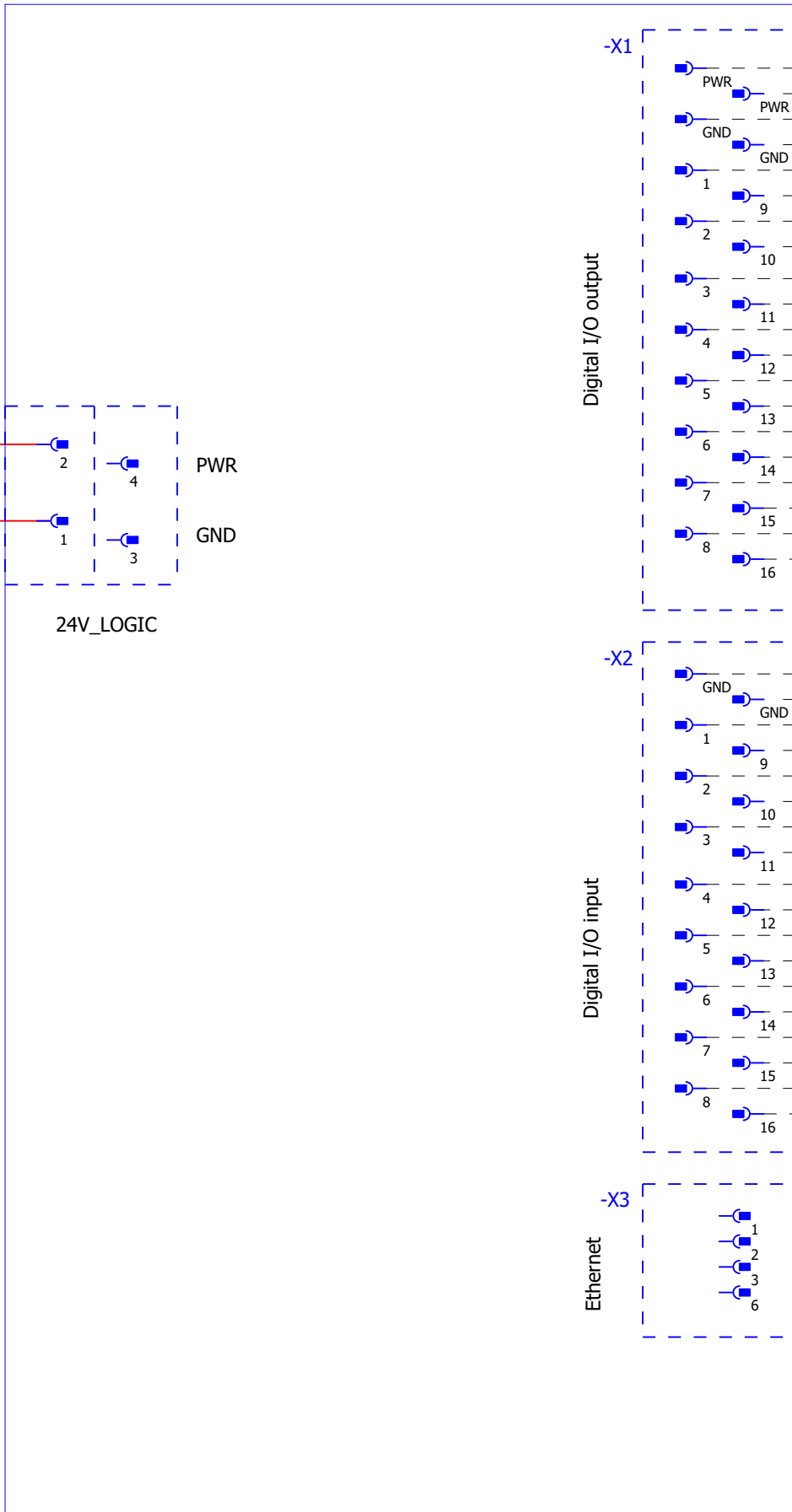
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K2-X3

4.b.8 16.2 / 24V_SYS_3
4.b.8 16.2 / 0V_SYS_3

-K5.1
MASTER I/O UNIT

-X4



Customer I/O interface

| | |
|--------|--------|
| PWR_DO | PWR_DO |
| GND_DO | GND_DO |
| 1 | 9 |
| 2 | 10 |
| 3 | 11 |
| 4 | 12 |
| 5 | 13 |
| 6 | 14 |
| 7 | 15 |
| 8 | 16 |

24V_PROCESS
CUSTOMER DO
OUTPUT CH1~16

Customer I/O interface

| | |
|--------|--------|
| GND_DI | GND_DI |
| 1 | 9 |
| 2 | 10 |
| 3 | 11 |
| 4 | 12 |
| 5 | 13 |
| 6 | 14 |
| 7 | 15 |
| 8 | 16 |

CUSTOMER DI
INPUT CH1~16

-X3

Ethernet

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MASTER I/O UNIT /K5.1

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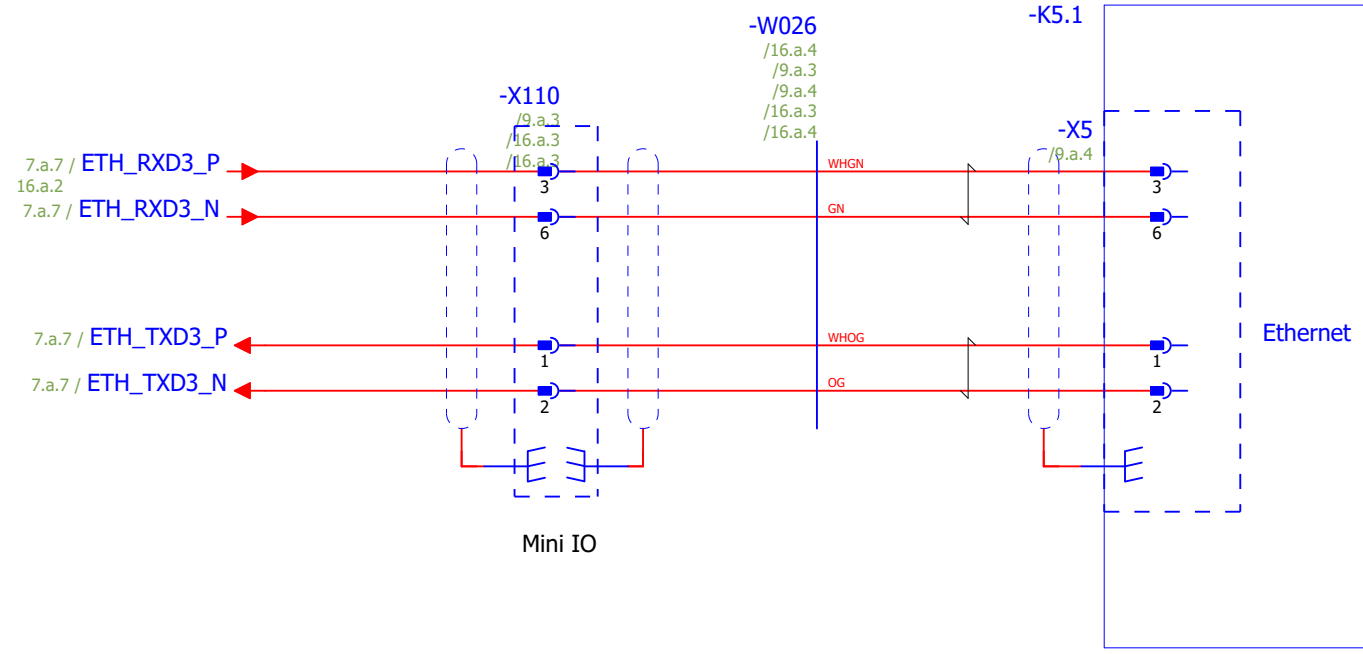
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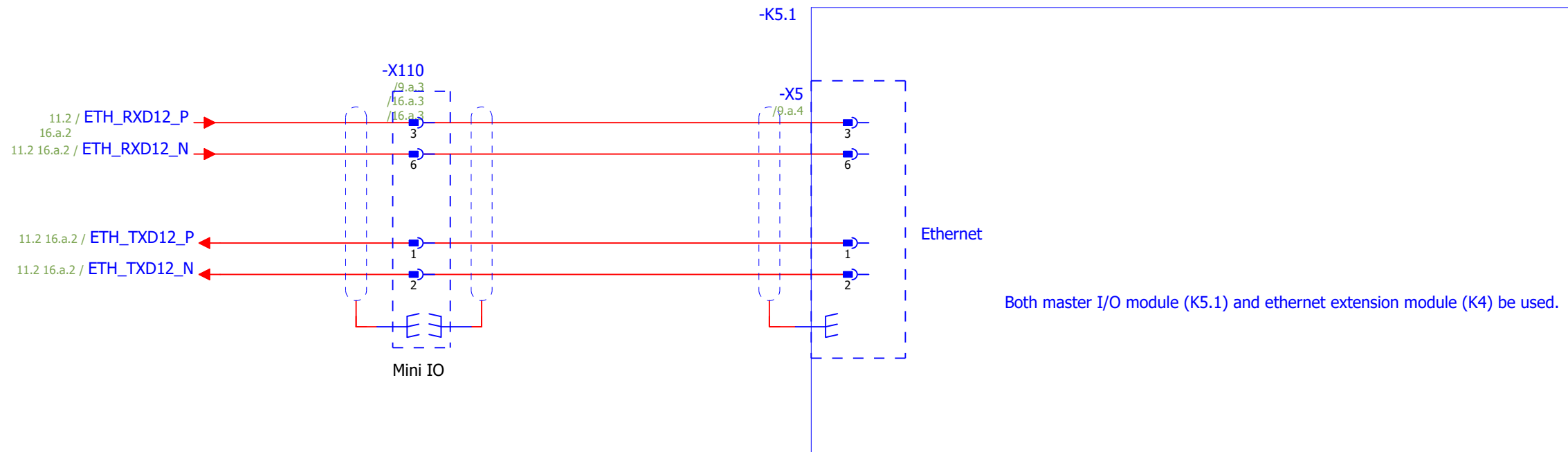
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A2-X4



K4-X7



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MASTER I/O UNIT /K5.1

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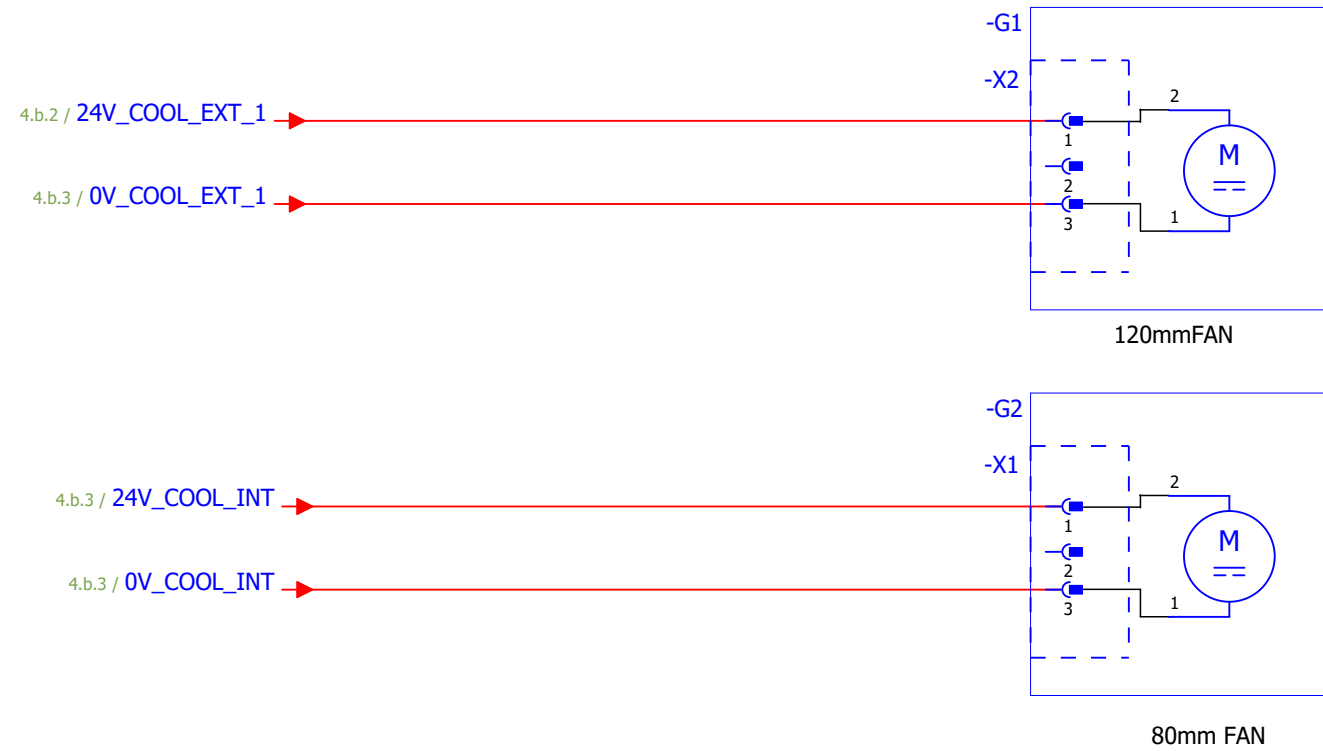
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Mounting location: + U

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K2-X17



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FAN COOLING CHANNEL /G1,2

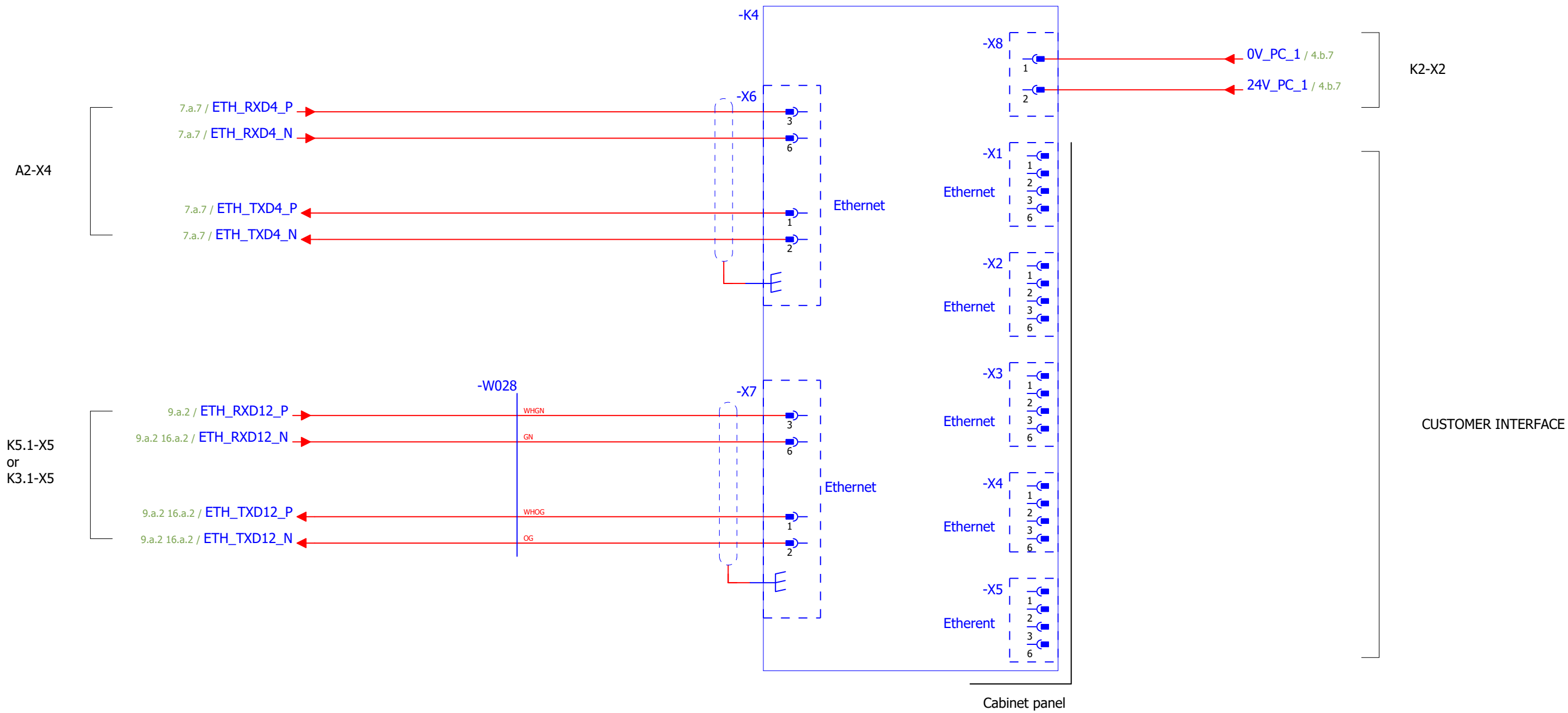
Status:
Approved

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

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ETHERNET SWITCH /K4

Status:
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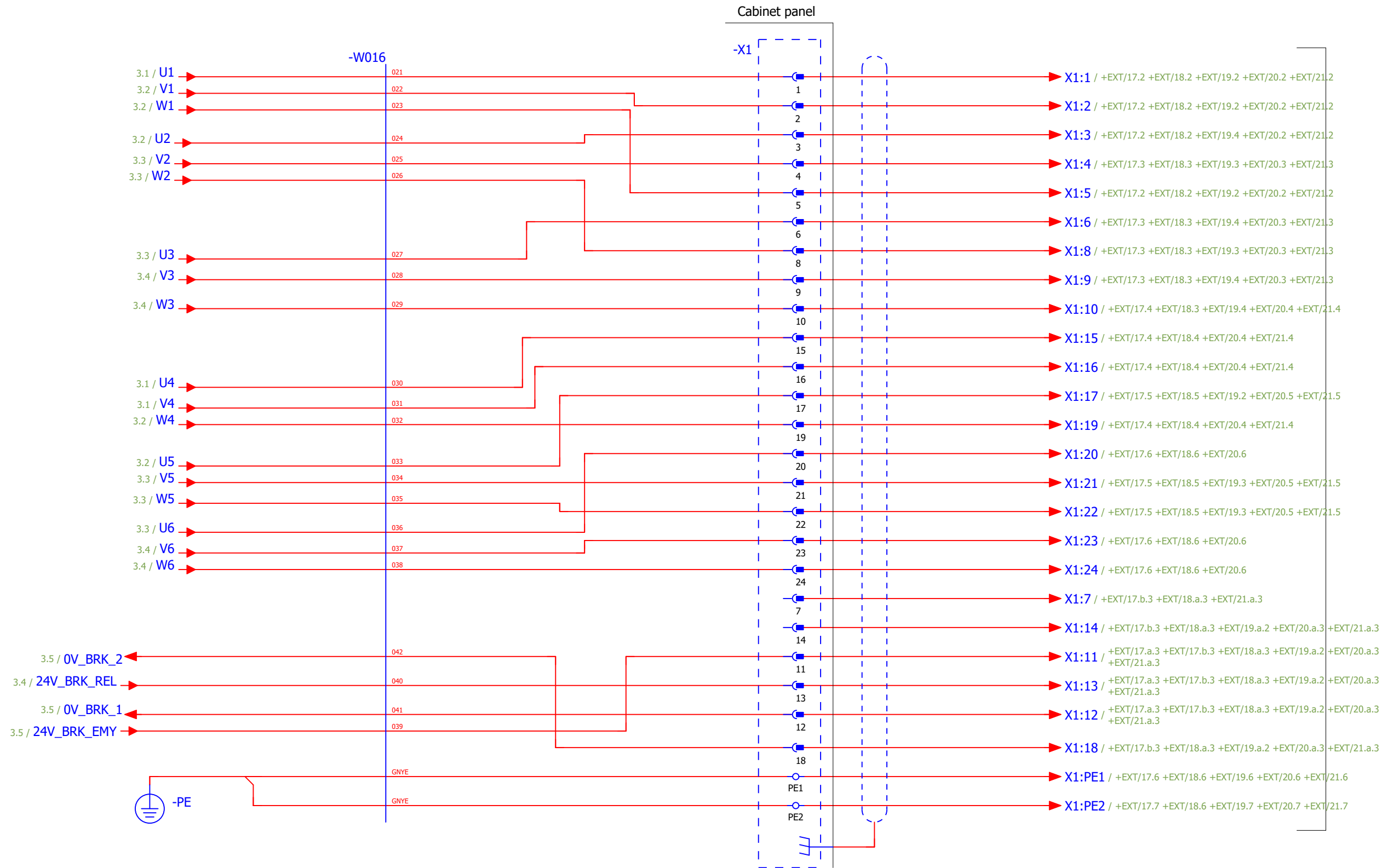
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T4-X7,X8,X9

T4-X15



to manipulator

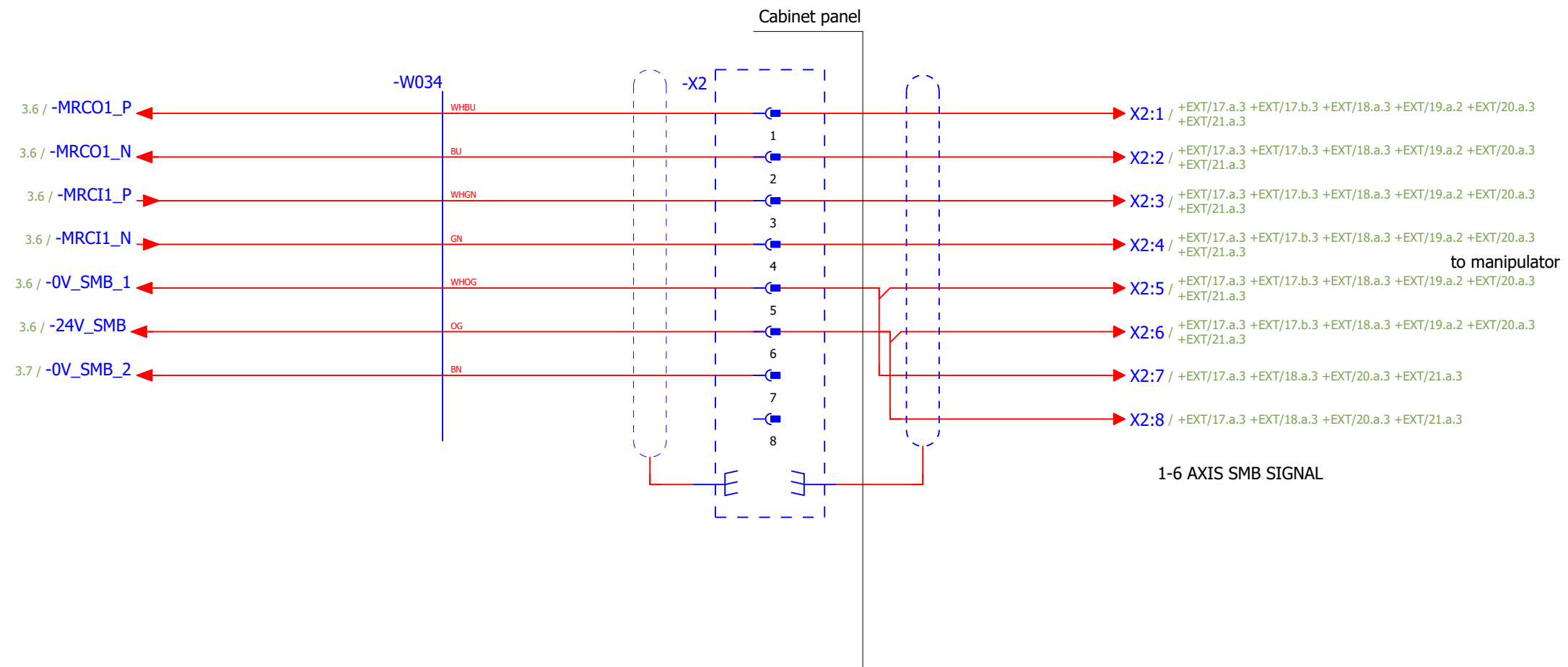
| | | |
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MOTOR CONNECTOR - X1

| | |
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SMB INTERFACE /X2

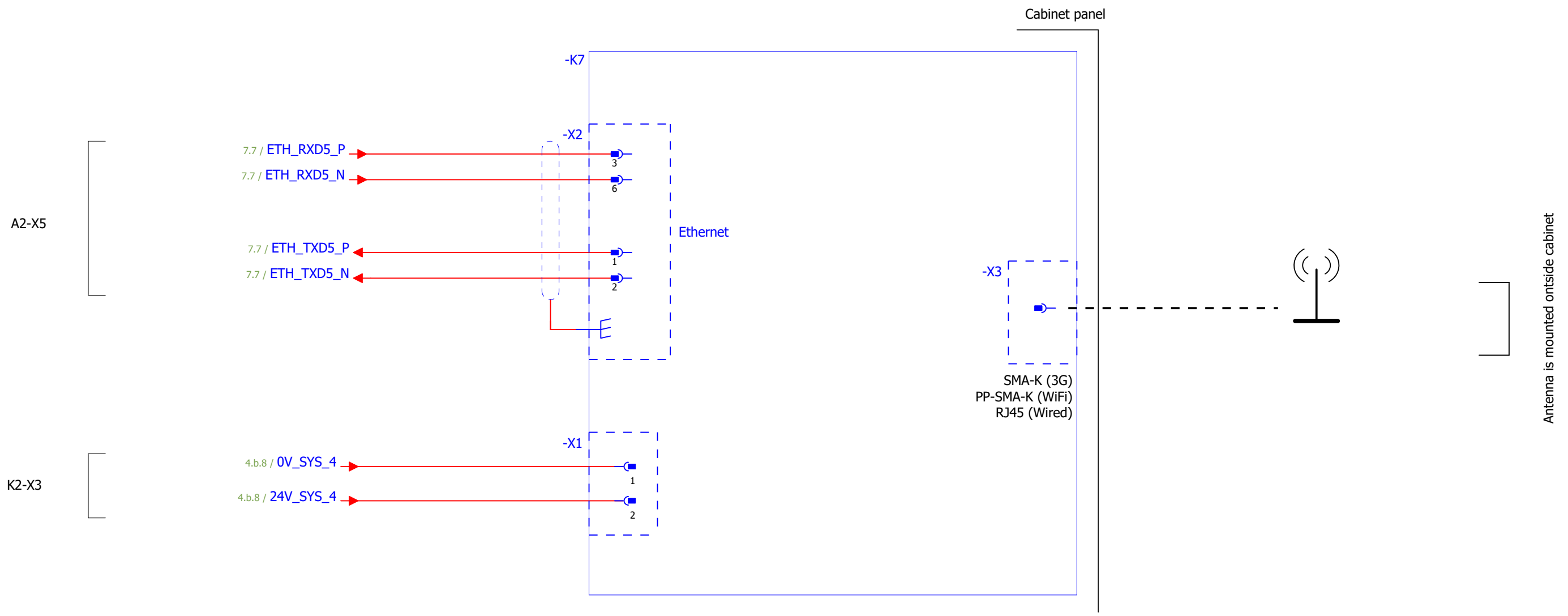
Status:
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High-level function: = SCH
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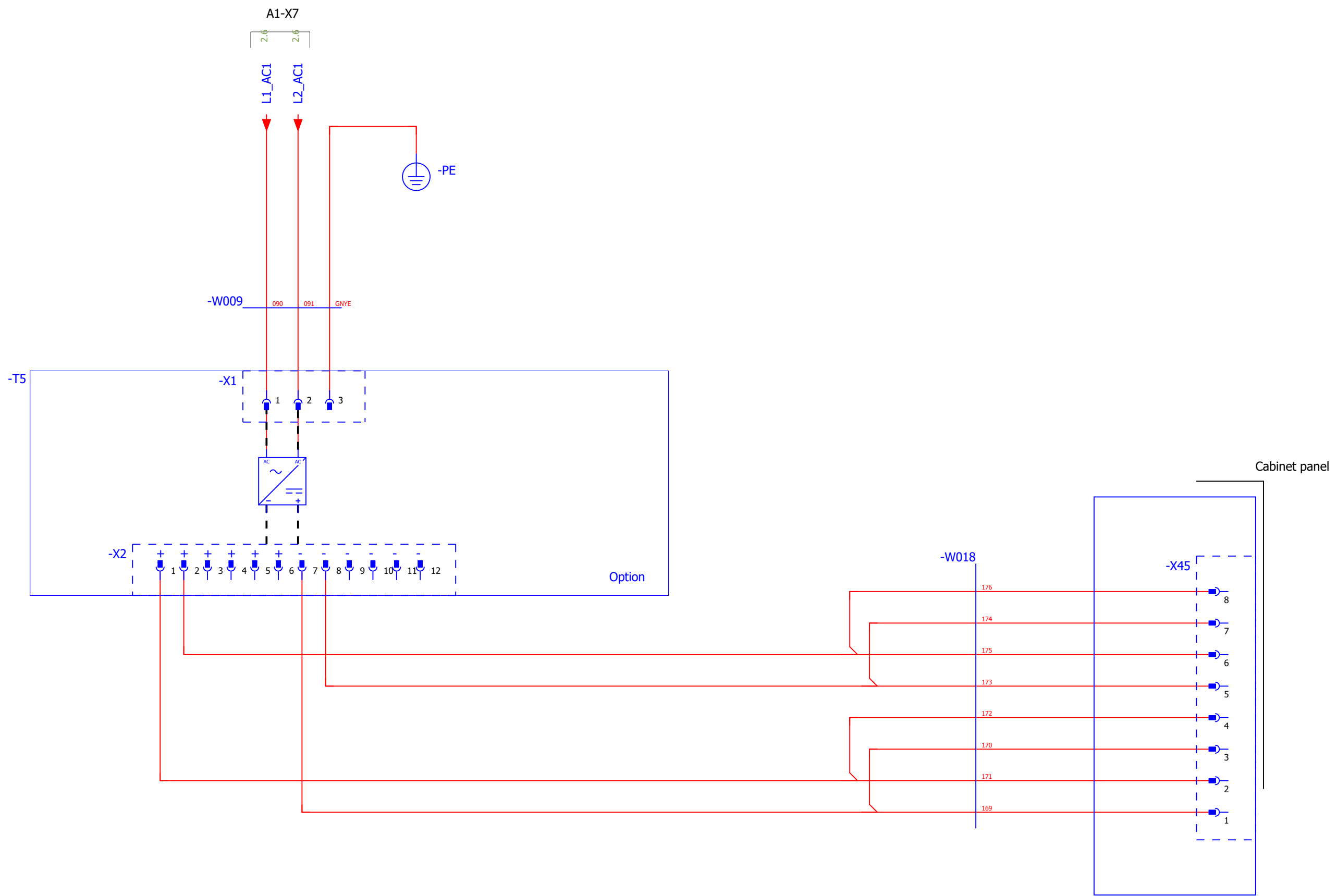
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CONNECTED SERVICES - 3G, WiFi, Wired /K7

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POWER SUPPLY (OPTION) /T5

Status:
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Mounting location: + U

Document no.
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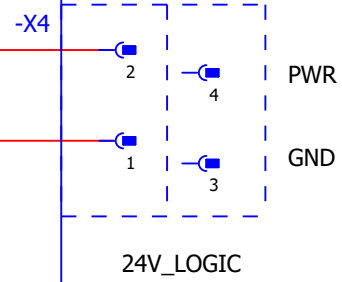
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K2-X3

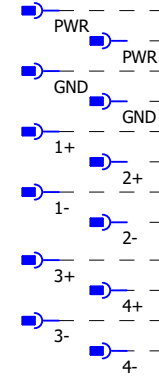
4.b.8 9.2 / 24V_SYS_3
4.b.8 9.2 / 0V_SYS_3

-K3.1
MASTER SAFE I/O UNIT



-X1

SDO



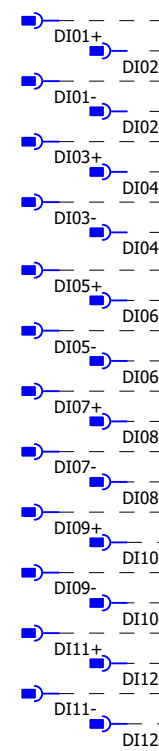
Customer I/O interface

-PWR_DO
PWR_DO
-GND_DO
GND_DO
-DO1+
DO2+
DO1-
DO2-
DO3+
DO4+
DO3-
DO4-

24V_PROCESS
CUSTOMER SDO
OUTPUT CH1~2

-X2

SDI



Customer I/O interface

-DI01+
DI02+
DI01-
DI02-
-DI03+
DI04+
DI03-
DI04-
-DI05+
DI06+
DI05-
DI06-
-DI07+
DI08+
DI07-
DI08-
-DI09+
DI10+
DI09-
DI10-
-DI11+
DI12+
DI11-
DI12-

CUSTOMER SDI
INPUT CH1~12

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MASTER SAFE I/O UNIT /K3.1

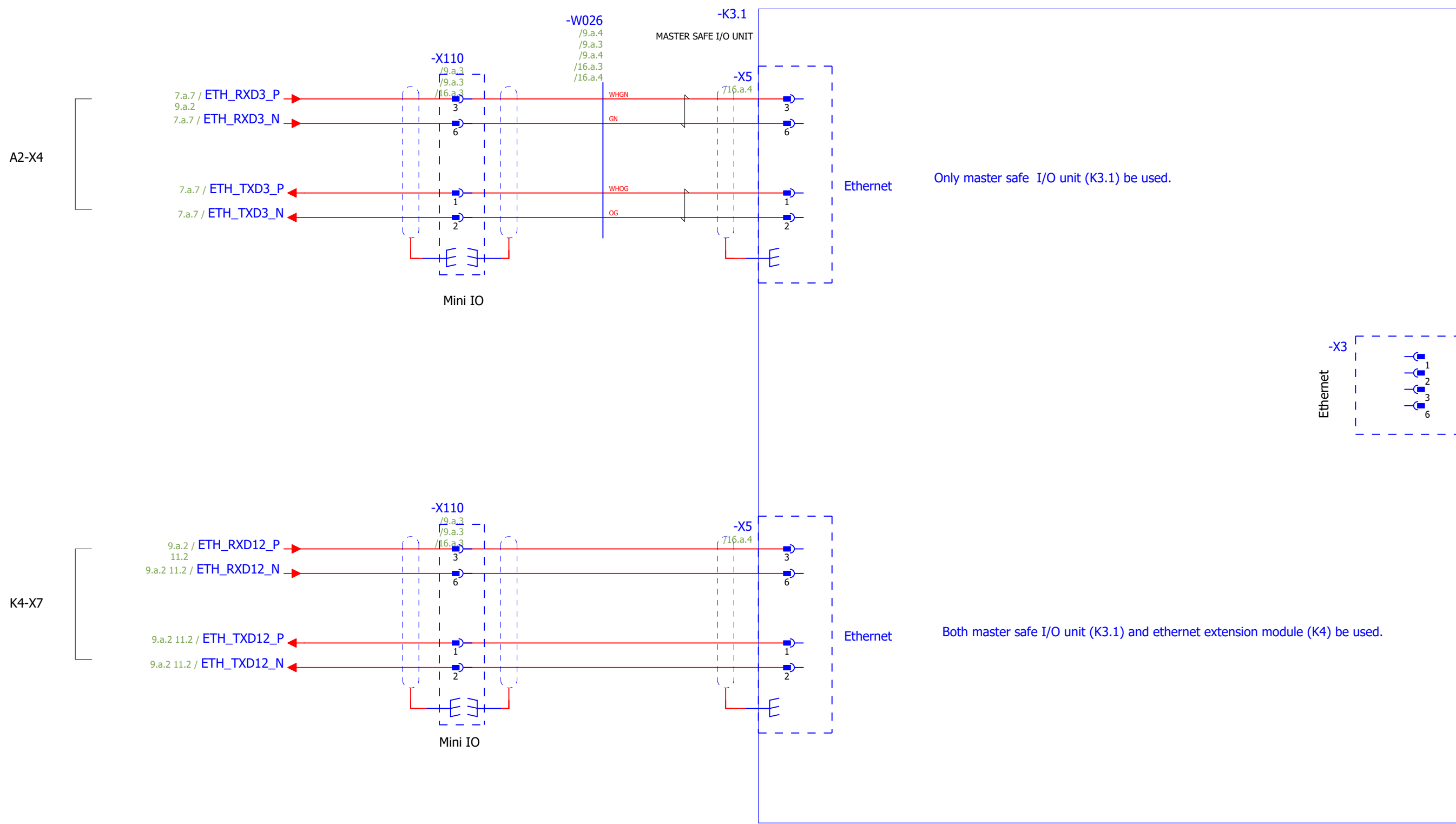
Status:
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High-level function: = SCH
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MASTER SAFE I/O UNIT /K3.1

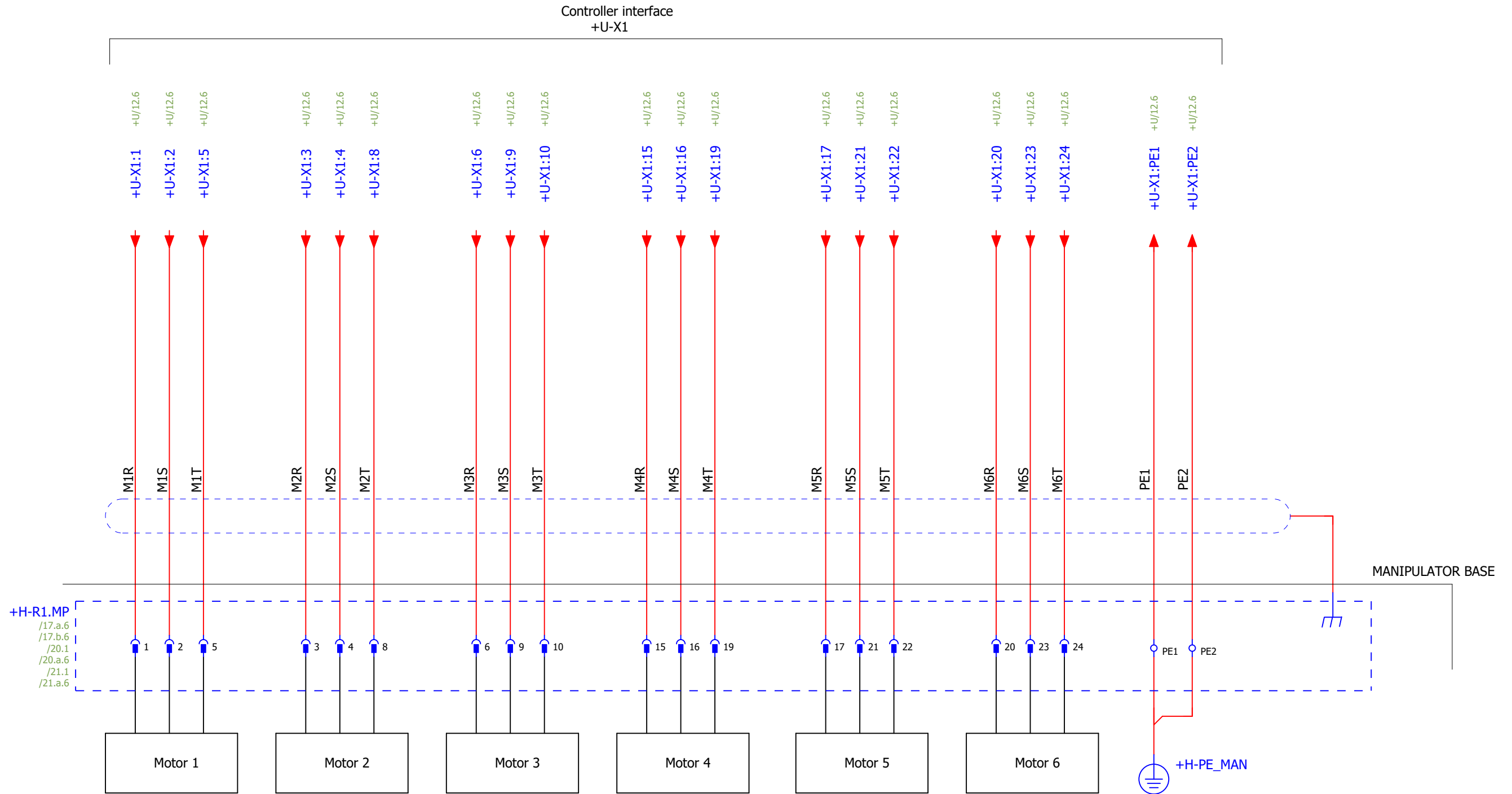
Status:
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High-level function: = SCH
Mounting location: + U

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IRB 1010, IRB 1100, IRB 1200, IRB 1300, CRB 1100, CRB 1300 cabinet



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

| | |
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Controller interface
+U-X1

+U/12.6 / +U-X1:13

+U/12.6 / +U-X1:11

+U/12.6 / +U-X1:12

Controller interface
+U-X2

+U/13.6 / +U-X2:1

+U/13.6 / +U-X2:2

+U/13.6 / +U-X2:3

+U/13.6 / +U-X2:4

+U/13.6 / +U-X2:5

+U/13.6 / +U-X2:6

+U/13.6 / +U-X2:7

+U/13.6 / +U-X2:8

MANIPULATOR BASE

/17.1
/17.b.6
/20.1
/20.a.6
/21.1
/21.a.6

+H-R1.MP

13

11

12

24V_BRAKE REL

24V_BRAKE EMY

0V

Brake & Lamp

/17.b.6
/20.a.6
/21.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

Latest revision:

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

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

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3HAC086302-010

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Controller interface
+U-X1

+U/12.6 / +U-X1:14
+U/12.6 / +U-X1:18
+U/12.6 / +U-X1:7
+U/12.6 / +U-X1:13
+U/12.6 / +U-X1:11
+U/12.6 / +U-X1:12

MANIPULATOR BASE

/17.1
/17.a.6
/20.1
/20.a.6
/21.1
/21.a.6

+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

+U/13.6 / +U-X2:1
+U/13.6 / +U-X2:2
+U/13.6 / +U-X2:3
+U/13.6 / +U-X2:4
+U/13.6 / +U-X2:5
+U/13.6 / +U-X2:6

/17.a.6
/20.a.6
/21.a.6

+H-R1.SMB

1
2
3
4
5
6
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8

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

SMB board

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CONTROL CABLE IRB 1200

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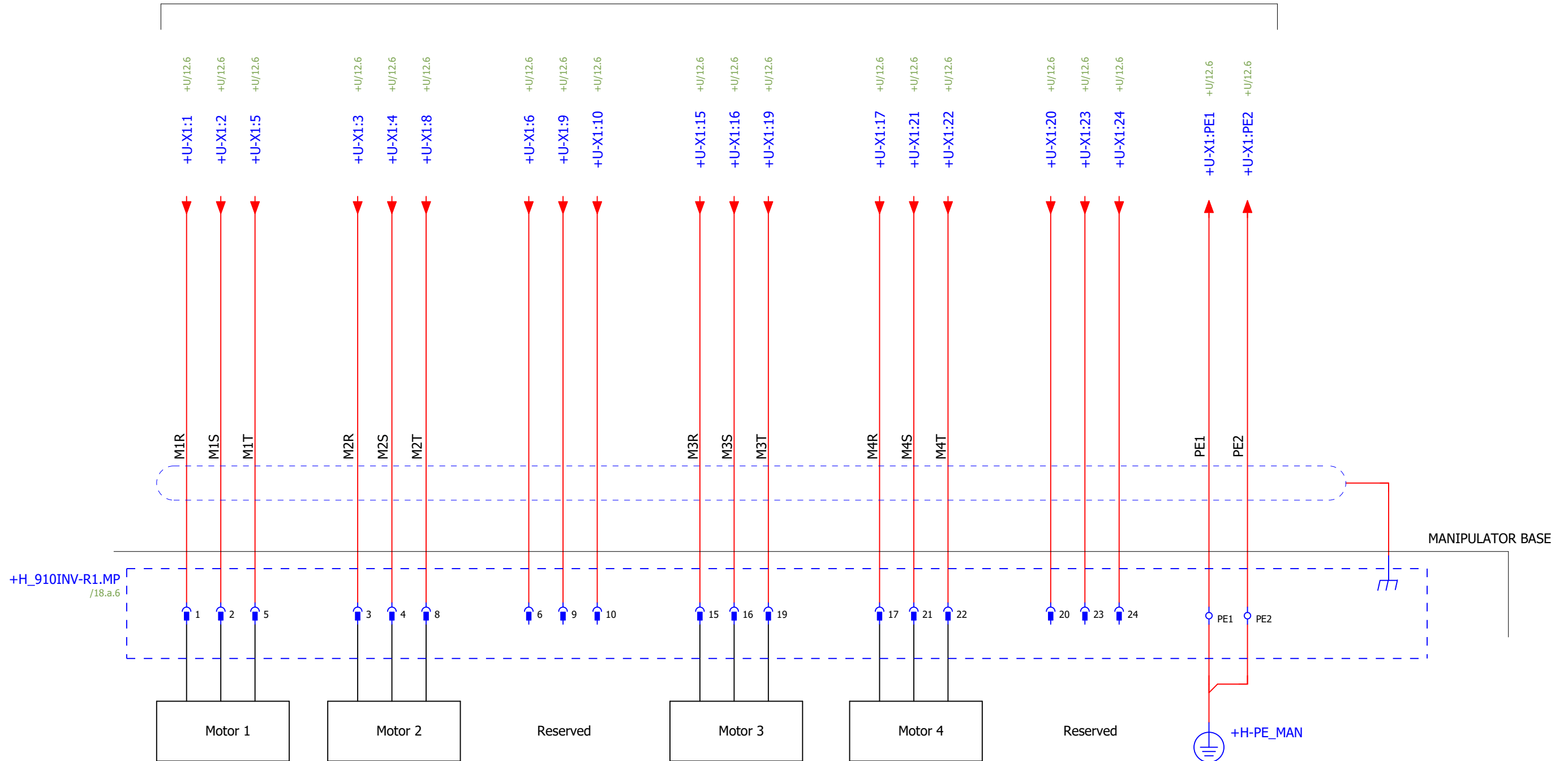
High-level function: = SCH
Mounting location: + EXT

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IRB 910INV, IRB 920, IRB 930 cabinet

Controller interface
+U-X1



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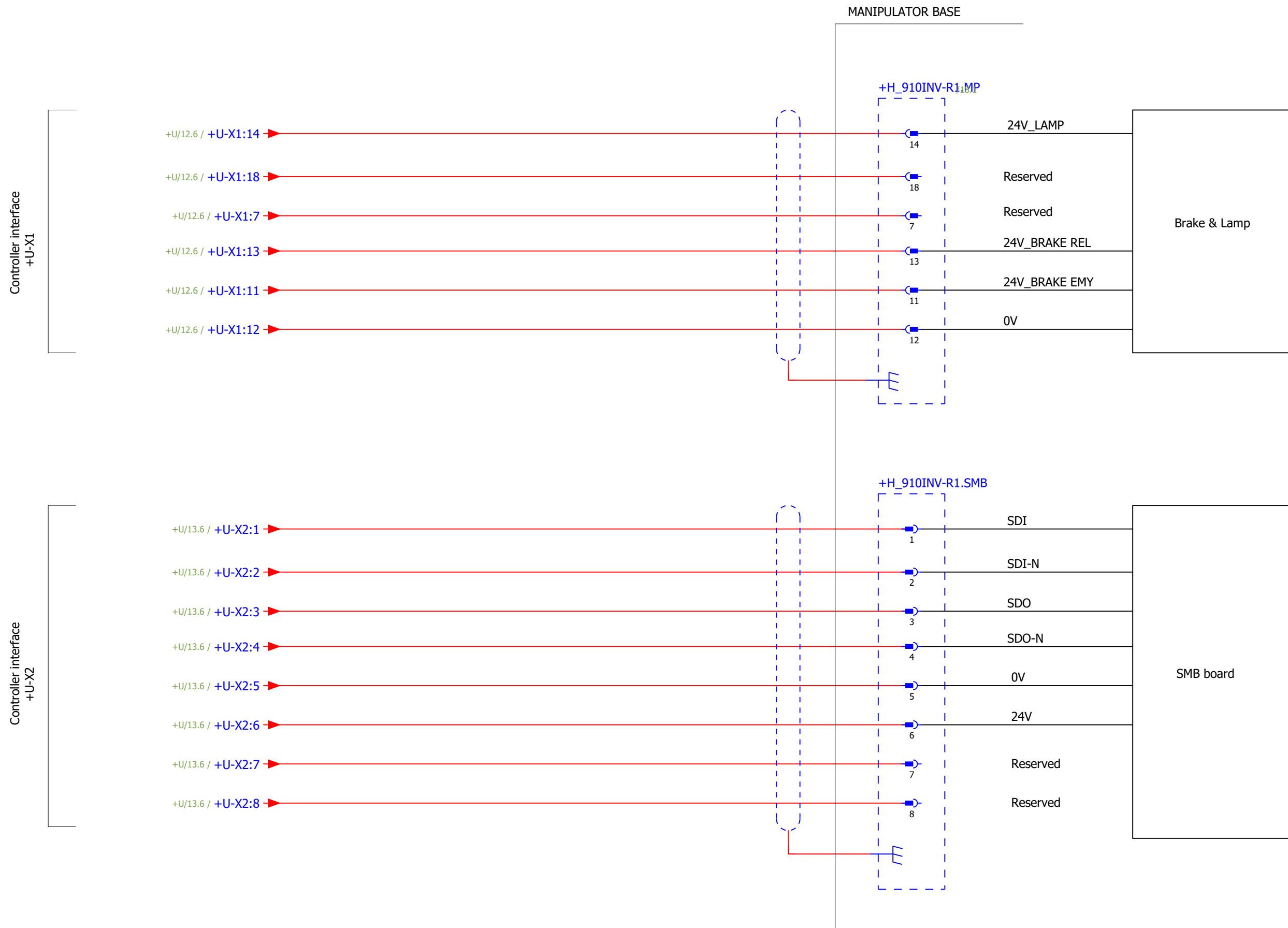
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SERVO DRIVE SYSTEM IRB 910INV,
IRB 920, IRB 930

| | |
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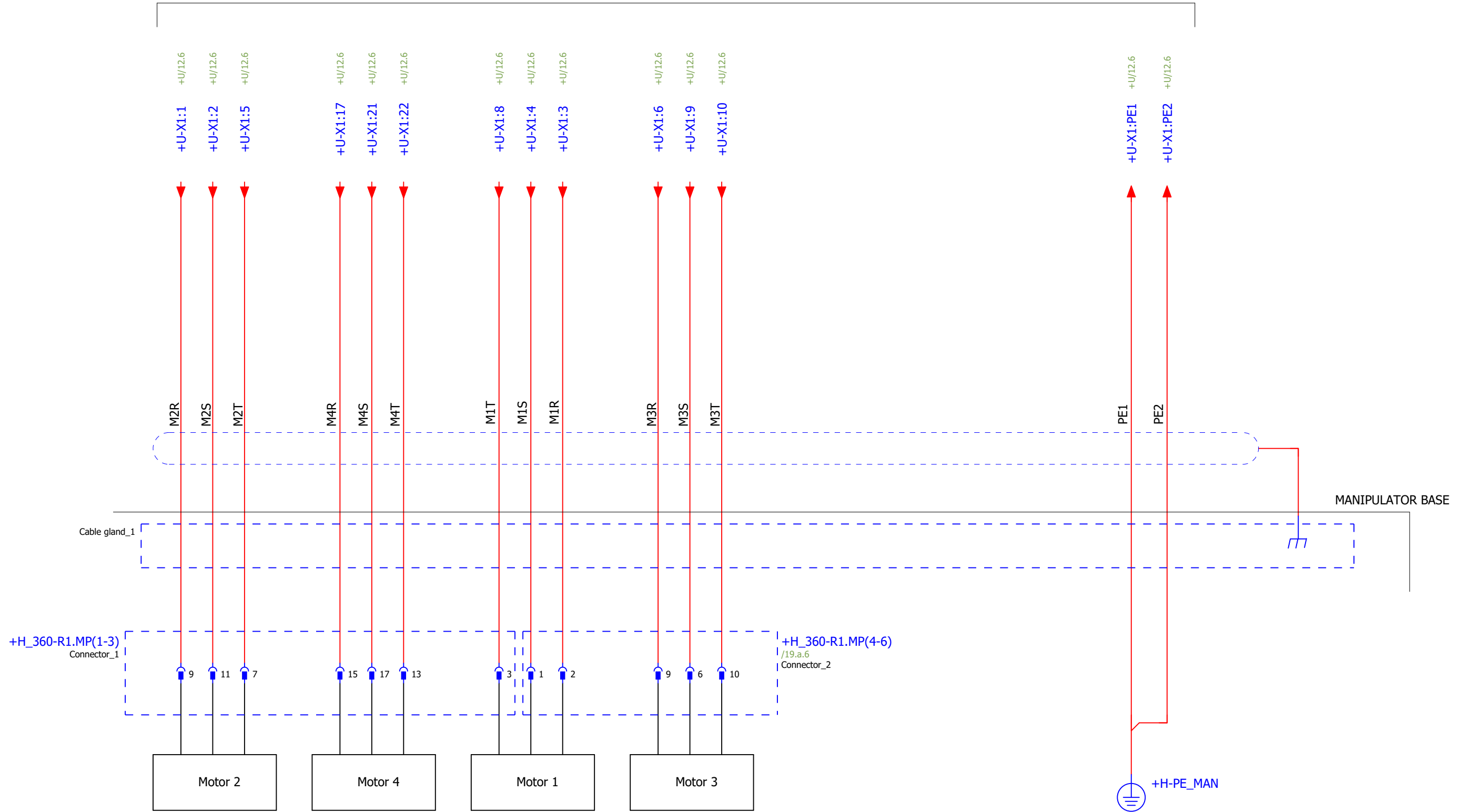
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**CONTROL CABLE IRB 910INV,
IRB 920, IRB 930**

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IRB 360 OmniCore cabinet

Controller interface
+U-X1



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SERVO DRIVE SYSTEM IRB 360 OmniCore

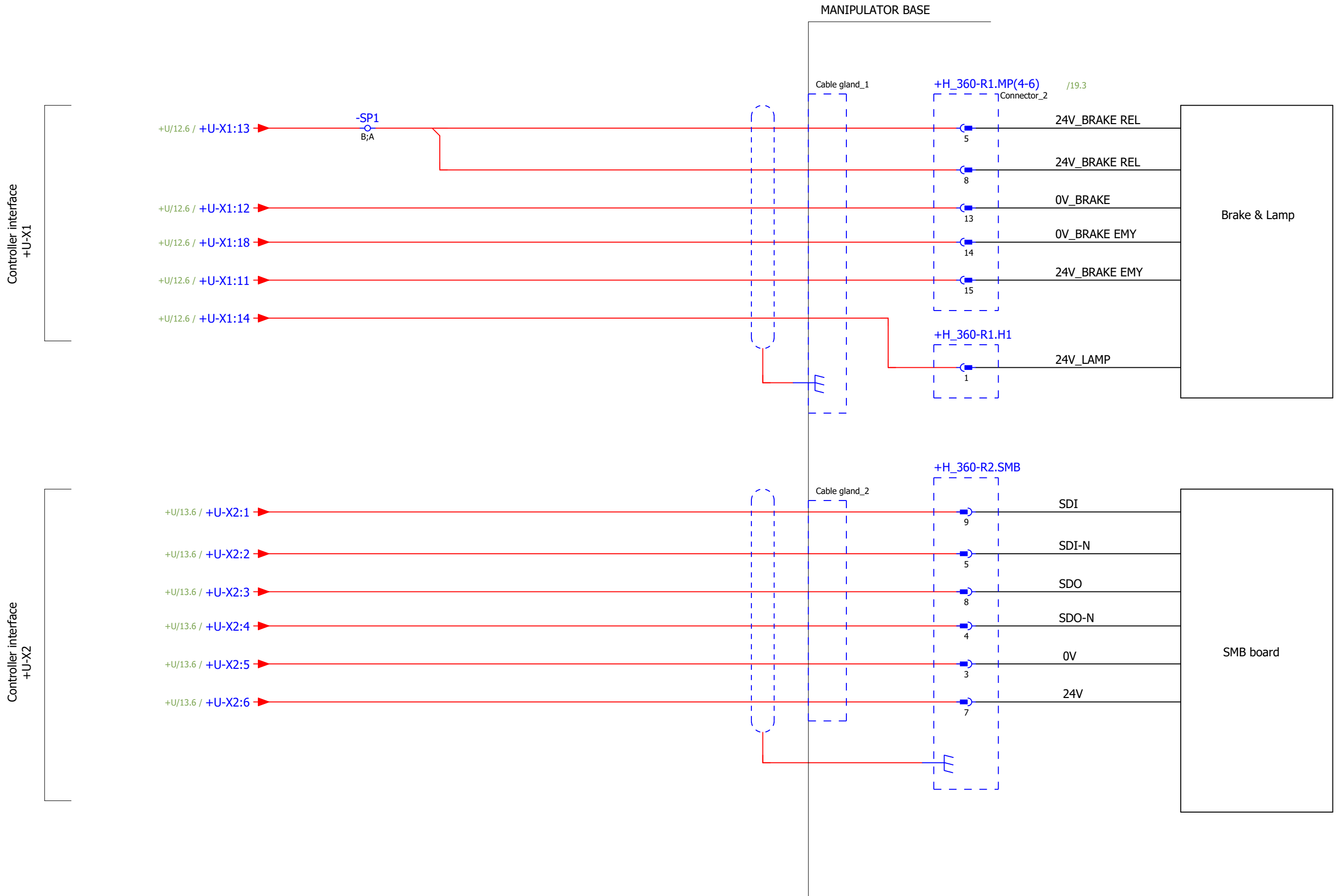
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High-level function: = SCH
Mounting location: + EXT

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CONTROL CABLE IRB 360 OmniCore

Status:
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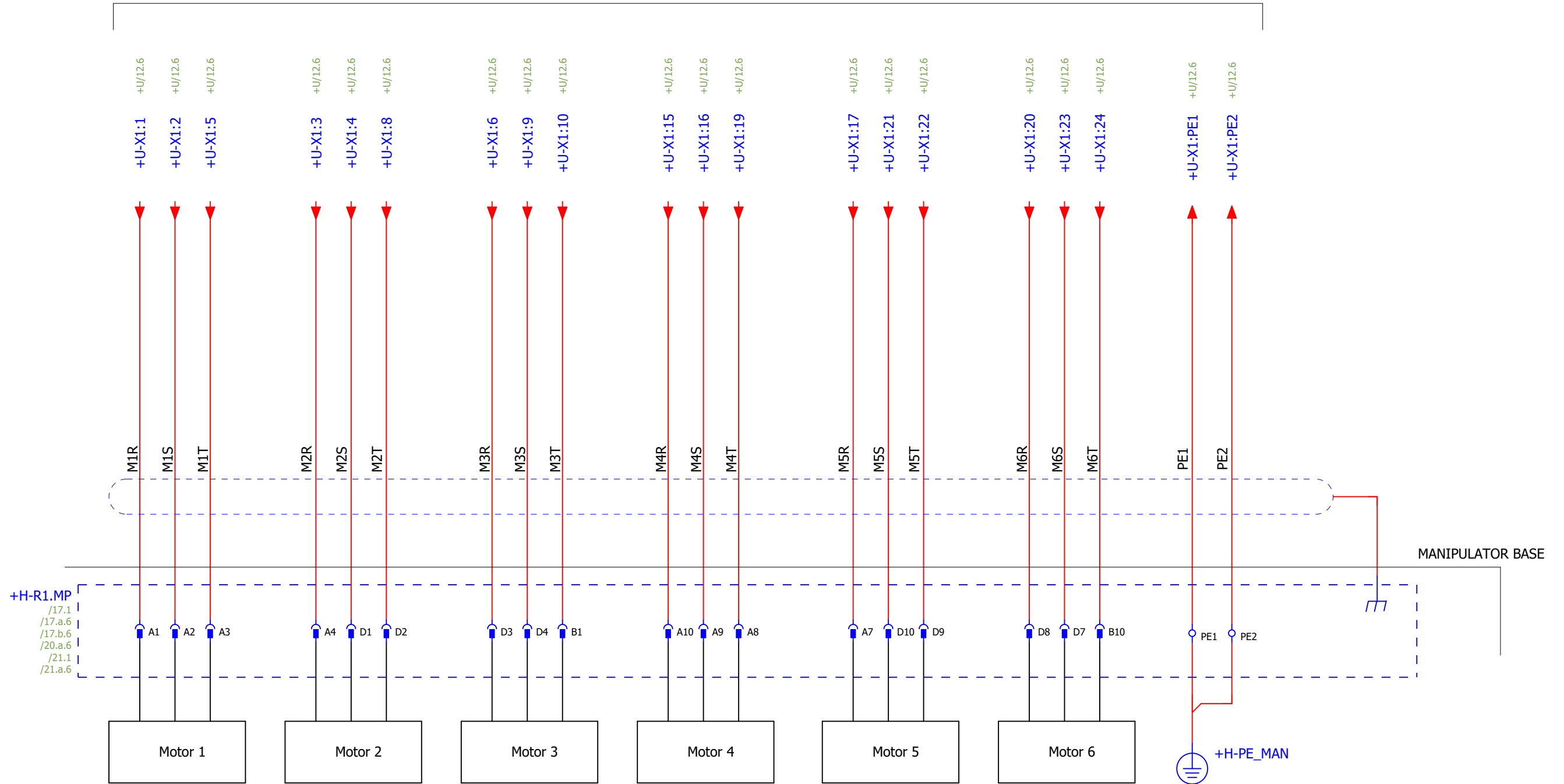
High-level function: = SCH
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IRB 1600 cabinet

Controller interface
+U-X1



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SERVO DRIVE SYSTEM IRB 1600

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Controller interface
+U-X1

+U/12.6 / +U-X1:14
+U/12.6 / +U-X1:18
+U/12.6 / +U-X1:13
+U/12.6 / +U-X1:11
+U/12.6 / +U-X1:12

Controller interface
+U-X2

+U/13.6 / +U-X2:1
+U/13.6 / +U-X2:2
+U/13.6 / +U-X2:3
+U/13.6 / +U-X2:4
+U/13.6 / +U-X2:5
+U/13.6 / +U-X2:6
+U/13.6 / +U-X2:7
+U/13.6 / +U-X2:8

MANIPULATOR BASE

/17.1
/17.a.6
/17.b.6
/20.1
/21.1
/21.a.6

+H-R1.MP

C7

24V_LAMP

C10

0V

C8

24V_BRAKE REL

B8

24V_BRAKE EMY_1

B7

0V

C9

24V_BRAKE REL

Brake & Lamp

+H-R1.SMB

A

RCO

B

RCO-N

C

RCI

D

RCI-N

E

0V

F

24V

E

0V

F

24V

SMB board

/17.a.6
/17.b.6
/21.a.6

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CONTROL CABLE IRB 1600

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

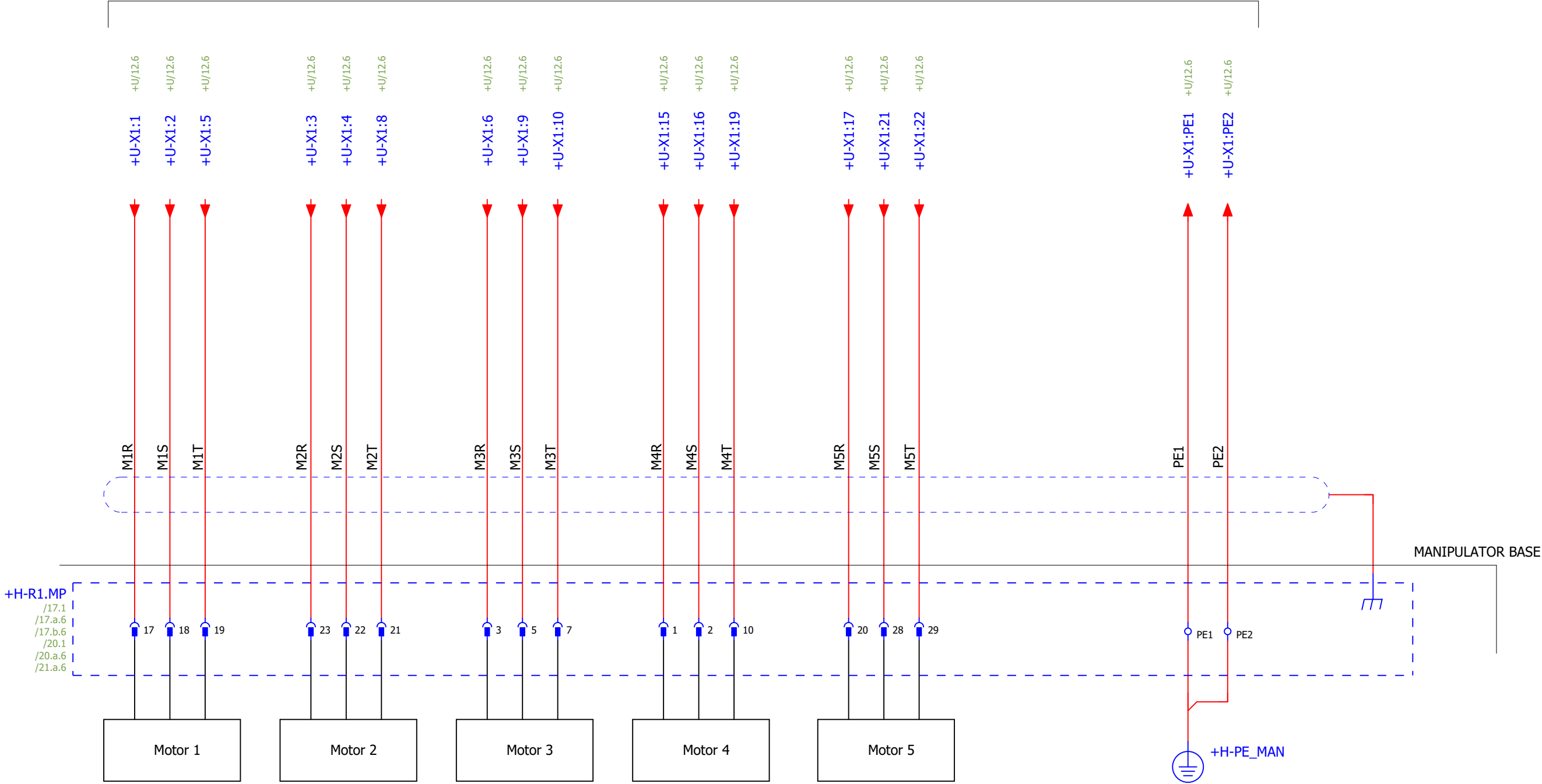
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IRB 365 cabinet

Controller interface
+U-X1



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SERVO DRIVE SYSTEM IRB 365

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Controller interface
+U-X1

+U/12.6 / +U-X1:14
+U/12.6 / +U-X1:18
+U/12.6 / +U-X1:7
+U/12.6 / +U-X1:13
+U/12.6 / +U-X1:11
+U/12.6 / +U-X1:12

MANIPULATOR BASE

/17.1
/17.a.6
/17.b.6
/20.1
/20.a.6
/21.1

+H-R1.MP

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24V_LAMP
Reserved
Reserved
24V BRAKE REL
24V BRAKE EMY
0V

Brake & Lamp

Controller interface
+U-X2

+U/13.6 / +U-X2:1
+U/13.6 / +U-X2:2
+U/13.6 / +U-X2:3
+U/13.6 / +U-X2:4
+U/13.6 / +U-X2:5
+U/13.6 / +U-X2:6
+U/13.6 / +U-X2:7
+U/13.6 / +U-X2:8

/17.a.6
/17.b.6
/20.a.6

+H-R1.SMB

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

SMB board

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CONTROL CABLE IRB 365

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| | | | | Connection point A | | | | Connection point B | | | | | | |
|----------|-----------------------|------------|------------|--------------------|--------|------|------|--------------------|--------|------|------|--------|-----|------|
| Wire no. | Specification | Size (AWG) | Lgth. (mm) | Item description | : term | Type | Ref. | Item description | : term | Type | Ref. | Remark | Rev | Page |
| PE | GN/YE UL1015 | 14 | | A1-X1 | 1 | | | PE_BUS_2 | | | | PE | | 1 |
| 3503 | BK UL1015, Twisted_2 | 14 | | A1-X1 | 2 | | | Q0 | 5 | | | L2_OUT | | |
| 3502 | BK UL1015, Twisted_2 | 14 | | A1-X1 | 3 | | | Q0 | 2 | | | L1_OUT | | |
| GNYE | GNYE, UL1015 | 14 | | X0 | PE | | | PE | | | | PE | | |
| 3500 | BK, UL1015, Twisted-1 | 14 | | X0 | L | | | Q0 | 1 | | | L | | |
| 3501 | BK, UL1015, Twisted-1 | 14 | | X0 | N | | | Q0 | 4 | | | N | | |
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| Latest revision: Rev 00 10/13/2023 | Prepared by, date: Approved by, date: Per V. Carlsson |
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ABB Engineering (Shanghai) Ltd.
No.4528, Kangxin Highway,
Pudong New District, Shanghai,
201319, P. R. China

Lab/Office:
RA/RDP

Cable diagram =SCH+U-W001

| | |
|--------------------------------|-------------------------------------------------------|
| Status: Approved | High-level function: = Report Mounting location: + |
| Document no. 3HAC086302-010 | Page: 007 Next: 008 Total: 68 |

Cable diagram

-W002

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Harness Safety control & feedback

| | | | | Connection point A | | | | Connection point B | | | | | | |
|----------|---------------|------------|------------|--------------------|--------|------|------|--------------------|--------|------|------|--------------|-----|------|
| Wire no. | Specification | Size (AWG) | Lgth. (mm) | Item description | : term | Type | Ref. | Item description | : term | Type | Ref. | Remark | Rev | Page |
| 4010 | | | | A1-X2 | A1 | | | T4-X17 | B2 | | | A1.Q1_FB_N | | 2 |
| 4009 | | | | A1-X2 | A2 | | | T4-X17 | B1 | | | A1.Q1_FB_P | | |
| 4013 | | | | A1-X2 | A3 | | | T4-X17 | B4 | | | A1.Q2_FB_P | | |
| 4014 | | | | A1-X2 | A4 | | | T4-X17 | B5 | | | A1.Q2_FB_N | | |
| 4007 | | | | A1-X2 | B1 | | | T4-X17 | A1 | | | A1.Q1_CTRL_P | | |
| 4008 | | | | A1-X2 | B2 | | | T4-X17 | A2 | | | A1.Q1_CTRL_N | | |
| 4012 | | | | A1-X2 | B3 | | | T4-X17 | A5 | | | A1.Q2_CTRL_N | | |
| 4011 | | | | A1-X2 | B4 | | | T4-X17 | A4 | | | A1.Q2_CTRL_P | | |
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Cable diagram

-W003

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Harness DC BUS

| Wire no. | Specification | Size (AWG) | Lgth. (mm) | Connection point A | | | | Connection point B | | | | Remark | Rev | Page |
|----------|---------------|------------|------------|--------------------|--------|------|------|--------------------|--------|------|------|--------|-----|------|
| | | | | Item description | : term | Type | Ref. | Item description | : term | Type | Ref. | | | |
| 4015 | BK, UL1015 | 16 | | A1-X4 | 1 | | | T4-X5 | 1 | | | DC+ | | 2 |
| 4016 | BK, UL1015 | 16 | | A1-X4 | 2 | | | T4-X5 | 2 | | | DC- | | |
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Latest revision:
Rev 00
2/21/2023

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



Lab/Office:
RA/RDP

ABB Engineering (Shanghai) Ltd.
No.4528, Kangxin Highway,
Pudong New District, Shanghai,
201319, P. R. China

Cable diagram =SCH+U-W003

Status:
Approved

High-level function: = Report
Mounting location: +

Document no.
3HAC086302-010

Page: 009
Next: 010
Total: 68

Cable diagram

-W004

Harness 24V_Trunk

| Wire no. | Specification | Size (AWG) | Lgth. (mm) | Connection point A | | | | Connection point B | | | | Remark | Rev | Page |
|----------|---------------|------------|------------|--------------------|--------|------|------|--------------------|--------|------|------|-----------|-----|------|
| | | | | Item description | : term | Type | Ref. | Item description | : term | Type | Ref. | | | |
| 109 | BU, UL1569 | 18 | | A1-X6 | 1 | | | K2-X1 | C1 | | | 24V_Trunk | | 2 |
| 110 | BU, UL1569 | 18 | | A1-X6 | 2 | | | K2-X1 | C2 | | | 24V_Trunk | | |
| 111 | BU, UL1569 | 18 | | A1-X6 | 3 | | | K2-X1 | C3 | | | 24V_Trunk | | |
| 118 | BU, UL1569 | 18 | | A1-X6 | 4 | | | K2-X1 | A1 | | | 0V_Trunk | | |
| 119 | BU, UL1569 | 18 | | A1-X6 | 5 | | | K2-X1 | A2 | | | 0V_Trunk | | |
| 120 | BU, UL1569 | 18 | | A1-X6 | 6 | | | K2-X1 | A3 | | | 0V_Trunk | | |
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Latest revision:
Rev 00
10/18/2023

Prepared by, date: _____ Approved by, date: Per V. Carlsson



Lab/Office:
RA/RDP

Cable diagram =SCH+U-W004

Status:
Approved

High-level function: = Report
Mounting location: +

Document no. 3HAC086302-010

Page: 010
Next: 011
Total: 68

Cable diagram

-W005

Harness 24V_Brake

| Wire no. | Specification | Size (AWG) | Lgth. (mm) | Connection point A | | | | Connection point B | | | | Remark | Rev | Page |
|----------|---------------|------------|------------|--------------------|--------|------|------|--------------------|--------|------|------|-----------------|-----|------|
| | | | | Item description | : term | Type | Ref. | Item description | : term | Type | Ref. | | | |
| 4023 | BU, UL1569 | 22 | | A1-X11 | 1 | | | T4-X13 | 1 | | | 24V_BRAKE_PWR_1 | | 2 |
| 4024 | BU, UL1569 | 22 | | A1-X11 | 3 | | | T4-X13 | 4 | | | 0V_BRAKE_1 | | |
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| Latest revision: Rev 00 2/21/2023 | Lab/Office: RA/RDP | Cable diagram =SCH+U-W005 ABB Engineering (Shanghai) Ltd. <small>No.4528, Kangxin Highway, Pudong New District, Shanghai, 201319, P. R. China</small> | Status: Approved | High-level function: = Report Mounting location: + | Document no. 3HAC086302-010 |
| | | | | | Prepared by, date: Approved by, date: Per V. Carlsson |

Cable diagram

-W006

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Harness AC_OK signal

| | | | | Connection point A | | | | Connection point B | | | | | | |
|----------|---------------|------------|------------|--------------------|--------|------|------|--------------------|--------|------|------|----------|-----|------|
| Wire no. | Specification | Size (AWG) | Lgth. (mm) | Item description | : term | Type | Ref. | Item description | : term | Type | Ref. | Remark | Rev | Page |
| 4029 | BU, UL1569 | 22 | | A1-X13 | 1 | | | K2-X10 | 2 | | | 0V_AC_OK | | 2 |
| 4030 | BU, UL1569 | 22 | | A1-X13 | 2 | | | K2-X10 | 1 | | | AC_OK | | |
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Cable diagram -W007

Harness 24V_SYS

| | | | | Connection point A | | | | Connection point B | | | | | | |
|----------|---------------|------------|------------|--------------------|--------|------|------|--------------------|--------|------|------|-------------|-----|------|
| Wire no. | Specification | Size (AWG) | Lgth. (mm) | Item description | : term | Type | Ref. | Item description | : term | Type | Ref. | Remark | Rev | Page |
| 4032 | BU, UL1569 | 22 | | K2-X4 | 2 | | | T4-X1 | 2 | | | 24V_SYS_DRV | | 3 |
| 4031 | BU, UL1569 | 22 | | K2-X4 | 3 | | | T4-X1 | 1 | | | 24V_SYS_GND | | |
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Latest revision: Rev 00
2/21/2023

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

ABB Lab/Office:
RA/RDP

ABB Engineering (Shanghai) Ltd.
No.4528, Kangxin Highway,
Pudong New District, Shanghai,
201319, P. R. China

Cable diagram =SCH+U-W007

Status: Approved
High-level function: = Report
Mounting location: +

Document no. 3HAC086302-010
Page: 013
Next: 014
Total: 68

Cable diagram -W008

Harness EtherCAT

| | | | | Connection point A | | | | Connection point B | | | | | | |
|----------|---------------------------|------------|------------|--------------------|--------|------|------|--------------------|--------|--------|------|--------------|-----|------|
| Wire no. | Specification | Size (AWG) | Lgth. (mm) | Item description | : term | Type | Ref. | Item description | : term | Type | Ref. | Remark | Rev | Page |
| WHOG | 3HAC025999-001, Twisted_1 | 26 | | A2-X9 | 1 | | | T4-X3 | 1 | | | TXD+ | | 3 |
| OG | 3HAC025999-001, Twisted_1 | 26 | | A2-X9 | 2 | | | T4-X3 | 2 | | | TXD- | | |
| WHGN | 3HAC025999-001, Twisted_2 | 26 | | A2-X9 | 3 | | | T4-X3 | 3 | | | RXD+ | | |
| BU | 3HAC025999-001, Twisted_3 | 26 | | A2-X9 | 4 | | | T4-X3 | 4 | | | Reserved_C_P | | |
| WHBU | 3HAC025999-001, Twisted_3 | 26 | | A2-X9 | 5 | | | T4-X3 | 5 | | | Reserved_C_N | | |
| GN | 3HAC025999-001, Twisted_2 | 26 | | A2-X9 | 6 | | | T4-X3 | 6 | | | RXD- | | |
| WHBN | 3HAC025999-001, Twisted_4 | 26 | | A2-X9 | 7 | | | T4-X3 | 7 | | | Reserved_D_P | | |
| BN | 3HAC025999-001, Twisted_4 | 26 | | A2-X9 | 8 | | | T4-X3 | 8 | | | Reserved_D_N | | |
| Shield | | | | T4-X3-SHELL | | | | W008 | | Shield | | | | |
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Latest revision:
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2/21/2023

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



Lab/Office:
RA/RDP

ABB Engineering (Shanghai) Ltd.
No.4528, Kangxin Highway,
Pudong New District, Shanghai,
201319, P. R. China

Cable diagram =SCH+U-W008

Status:
Approved

High-level function: = Report
Mounting location: +

Document no.
3HAC086302-010

Page: 014
Next: 015
Total: 68

Cable diagram

-W009

/ Harness AC input of power supply

| | | | | Connection point A | | | | Connection point B | | | | | | |
|----------|-----------------------|------------|------------|--------------------|--------|------|------|--------------------|--------|------|------|--------|-----|------|
| Wire no. | Specification | Size (AWG) | Lgth. (mm) | Item description | : term | Type | Ref. | Item description | : term | Type | Ref. | Remark | Rev | Page |
| 090 | BK, UL1015, Twisted-2 | 16 | | A1-X7 | 1 | | | T5-X1 | 1 | | | L | | 16 |
| 091 | BK, UL1015, Twisted-2 | 16 | | A1-X7 | 2 | | | T5-X1 | 2 | | | N | | |
| GNYE | GNYE, UL1015 | 14 | | PE | | | | T5-X1 | 3 | | | PE | | |
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10/13/2023

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



Lab/Office:
RA/RDP

ABB Engineering (Shanghai) Ltd.
No.4528, Kangxin Highway,
Pudong New District, Shanghai,
201319, P. R. China

Cable diagram =SCH+U-W009

Status:
Approved

High-level function: = Report
Mounting location: +

Document no. Page: 015
Next: 022
Total: 68

Cable diagram

-W016

Harness Motors power LV 6-axis

| | | | | Connection point A | | | | Connection point B | | | | | | |
|----------|-----------------------------------|------------|------------|--------------------|--------|------|------|--------------------|--------|------|------|-------------|-----|------|
| Wire no. | Specification | Size (AWG) | Lgth. (mm) | Item description | : term | Type | Ref. | Item description | : term | Type | Ref. | Remark | Rev | Page |
| 021 | BK UL1015, twisted_1, 3HAB7885-60 | 14 | | T4-X7 | B1 | | | X1 | 1 | | | U1 | | 13 |
| 022 | BK UL1015, twisted_1, 3HAB7885-60 | 14 | | T4-X7 | B2 | | | X1 | 2 | | | V1 | | |
| 024 | BK UL1015, twisted_2, 3HAB7885-60 | 14 | | T4-X8 | A1 | | | X1 | 3 | | | U2 | | |
| 025 | BK UL1015, twisted_2, 3HAB7885-60 | 14 | | T4-X8 | A2 | | | X1 | 4 | | | V2 | | |
| 023 | BK UL1015, twisted_1, 3HAB7885-60 | 14 | | T4-X7 | B3 | | | X1 | 5 | | | W1 | | |
| 027 | BK UL1015, twisted_3, 3HAB7885-60 | 14 | | T4-X9 | A1 | | | X1 | 6 | | | U3 | | |
| 026 | BK UL1015, twisted_2, 3HAB7885-60 | 14 | | T4-X8 | A3 | | | X1 | 8 | | | W2 | | |
| 028 | BK UL1015, twisted_3, 3HAB7885-60 | 14 | | T4-X9 | A2 | | | X1 | 9 | | | V3 | | |
| 029 | BK UL1015, twisted_3, 3HAB7885-60 | 14 | | T4-X9 | A3 | | | X1 | 10 | | | W3 | | |
| 039 | BU, UL1569, Twisted-8 | 18 | | T4-X15 | 3 | | | X1 | 11 | | | 24V_BRK_EMY | | |
| 030 | BK UL1015, twisted_4, 3HAB7885-60 | 14 | | T4-X7 | A1 | | | X1 | 15 | | | U4 | | |
| 031 | BK UL1015, twisted_4, 3HAB7885-60 | 14 | | T4-X7 | A2 | | | X1 | 16 | | | V4 | | |
| 033 | BK UL1015, twisted_5, 3HAB7885-60 | 14 | | T4-X8 | B1 | | | X1 | 17 | | | U5 | | |
| 042 | BU, UL1569, Twisted-7 | 18 | | T4-X15 | 6 | | | X1 | 18 | | | 0V_BRK | | |
| 032 | BK UL1015, twisted_4, 3HAB7885-60 | 14 | | T4-X7 | A3 | | | X1 | 19 | | | W4 | | |
| 036 | BK UL1015, twisted_6, 3HAB7885-60 | 14 | | T4-X9 | B1 | | | X1 | 20 | | | U6 | | |
| 034 | BK UL1015, twisted_5, 3HAB7885-60 | 14 | | T4-X8 | B2 | | | X1 | 21 | | | V5 | | |
| 035 | BK UL1015, twisted_5, 3HAB7885-60 | 14 | | T4-X8 | B3 | | | X1 | 22 | | | W5 | | |
| 037 | BK UL1015, twisted_6, 3HAB7885-60 | 14 | | T4-X9 | B2 | | | X1 | 23 | | | V6 | | |
| 038 | BK UL1015, twisted_6, 3HAB7885-60 | 14 | | T4-X9 | B3 | | | X1 | 24 | | | W6 | | |
| GNYE | GNYE UL1015, 3HAB7917-2 | 14 | | PE | | | | X1 | PE1 | | | PE1 | | |
| GNYE | GNYE UL1015, 3HAB7917-2 | 14 | | PE | | | | X1 | PE2 | | | PE2 | | |
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Latest revision:
Rev 00
10/13/2023

Prepared by, date: _____ Approved by, date: Per V. Carlsson



Lab/Office:
RA/RDP

ABB Engineering (Shanghai) Ltd.
No.4528, Kangxin Highway,
Pudong New District, Shanghai,
201319, P. R. China

Cable diagram =SCH+U-W016

Status: Approved

High-level function: = Report
Mounting location: +

Document no. 3HAC086302-010

Page: 022
Next: 024
Total: 68

Cable diagram

-W018

/ Harness 24V_Process output

| Wire no. | Specification | Size (AWG) | Lgth. (mm) | Connection point A | | | | Connection point B | | | | Remark | Rev | Page |
|----------|---------------|------------|------------|--------------------|--------|------|------|--------------------|--------|------|------|--------|-----|------|
| | | | | Item description | : term | Type | Ref. | Item description | : term | Type | Ref. | | | |
| 171 | BU, UL1569 | 18 | | T5-X2 | 1 | | | X45 | 2 | | | 24V | | 16 |
| 175 | BU, UL1569 | 18 | | T5-X2 | 2 | | | X45 | 6 | | | 24V | | |
| 169 | BU, UL1569 | 18 | | T5-X2 | 7 | | | X45 | 1 | | | 0V | | |
| 173 | BU, UL1569 | 18 | | T5-X2 | 8 | | | X45 | 5 | | | 0V | | |
| 170 | BU, UL1569 | 18 | | X45 | 1 | | | X45 | 3 | | | 0V | | |
| 172 | BU, UL1569 | 18 | | X45 | 2 | | | X45 | 4 | | | 24V | | |
| 174 | BU, UL1569 | 18 | | X45 | 5 | | | X45 | 7 | | | 0V | | |
| 176 | BU, UL1569 | 18 | | X45 | 6 | | | X45 | 8 | | | 24V | | |
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| Latest revision: Rev 00 2/21/2023 | Prepared by, date: | Approved by, date: Per V. Carlsson |  ABB Lab/Office: RA/RDP ABB Engineering (Shanghai) Ltd. No.4528, Kangxin Highway, Pudong New District, Shanghai, 201319, P. R. China | Cable diagram =SCH+U-W018 | Status: Approved | High-level function: = Report Mounting location: + | Document no. 3HAC086302-010 | Page: 024 Next: 025 Total: 68 |
| | | | | | | | | |

Cable diagram

-W019

Harness DeviceNet connection

| | | | | Connection point A | | | | Connection point B | | | | | | |
|----------|--------------------|------------|------------|--------------------|--------|------|------|--------------------|--------|------|------|--------|-----|------|
| Wire no. | Specification | Size (AWG) | Lgth. (mm) | Item description | : term | Type | Ref. | Item description | : term | Type | Ref. | Remark | Rev | Page |
| BK | 3HAB8277-1, 2 pair | 22 | | A2.K1-CHA | 1 | | | X17 | 1 | | | V- | | 9 |
| BU | 3HAB8277-1, 2 pair | 24 | | A2.K1-CHA | 2 | | | X17 | 2 | | | CAN_L | | |
| Shield | | | | A2.K1-CHA | 3 | | | X17 | 3 | | | | | |
| WH | 3HAB8277-1, 2 pair | 24 | | A2.K1-CHA | 4 | | | X17 | 4 | | | CAN_H | | |
| RD | 3HAB8277-1, 2 pair | 22 | | A2.K1-CHA | 5 | | | X17 | 5 | | | V+ | | |
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Cable diagram

-W020

Harness 24V_PC

| | | | | Connection point A | | | | Connection point B | | | | | | |
|----------|------------------------|------------|------------|--------------------|--------|------|------|--------------------|--------|------|------|--------|-----|------|
| Wire no. | Specification | Size (AWG) | Lgth. (mm) | Item description | : term | Type | Ref. | Item description | : term | Type | Ref. | Remark | Rev | Page |
| 048 | BU UL1569, 3HAB8303-46 | 20 | | A2-X1 | 1 | | | K2-X2 | A2 | | | 0V_PC | | 4.b |
| 049 | BU UL1569, 3HAB8303-46 | 20 | | A2-X1 | 2 | | | K2-X2 | B2 | | | 24V_PC | | |
| 046 | BU UL1569, 3HAB8303-46 | 20 | | K4-X8 | 1 | | | K2-X2 | A1 | | | 0V_PC | | |
| 047 | BU UL1569, 3HAB8303-46 | 20 | | K4-X8 | 2 | | | K2-X2 | B1 | | | 24V_PC | | |
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| Latest revision: Rev 00 2/21/2023 | |  Lab/Office: RA/RDP ABB Engineering (Shanghai) Ltd. No.4528, Kangxin Highway, Pudong New District, Shanghai, 201319, P. R. China | Cable diagram =SCH+U-W020 | | Status: Approved | | High-level function: = Report Mounting location: + | |
| Prepared by, date: | | | Approved by, date: Per V. Carlsson | | Document no. 3HAC086302-010 | | Page: 026 Next: 027 Total: 68 | |

Cable diagram

-W021

Harness 24V_SYS

| | | | | Connection point A | | | | Connection point B | | | | | | |
|----------|------------------------|------------|------------|--------------------|--------|------|------|--------------------|--------|------|------|-----------|-----|------|
| Wire no. | Specification | Size (AWG) | Lgth. (mm) | Item description | : term | Type | Ref. | Item description | : term | Type | Ref. | Remark | Rev | Page |
| 082 | BU UL1569, 3HAB8303-46 | 20 | | K2-X3 | B1 | | | A2.K3-X1 | 1 | | | 24V_SYS_1 | | 4.b |
| 083 | BU UL1569, 3HAB8303-46 | 20 | | K2-X3 | A1 | | | A2.K3-X1 | 2 | | | 0V_SYS_1 | | |
| 087 | BU UL1569, 3HAB8303-46 | 20 | | K2-X3 | A3 | | | K5.1-X4 | 1 | | | 24V_SYS_3 | | |
| 089 | BU UL1569, 3HAB8303-46 | 20 | | K2-X3 | A4 | | | K7-X1 | 1 | | | 0V_SYS_4 | | |
| 086 | BU UL1569, 3HAB8303-46 | 20 | | K2-X3 | B3 | | | K5.1-X4 | 2 | | | 24V_SYS_3 | | |
| 088 | BU UL1569, 3HAB8303-46 | 20 | | K2-X3 | B4 | | | K7-X1 | 2 | | | 24V_SYS_4 | | |
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Cable diagram

-W023

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Harness TPU connection

| | | | | Connection point A | | | | Connection point B | | | | | | |
|----------|----------------------------------------|------------|------------|--------------------|--------|------|------|--------------------|--------|------|------|--------------|-----|------|
| Wire no. | Specification | Size (AWG) | Lgth. (mm) | Item description | : term | Type | Ref. | Item description | : term | Type | Ref. | Remark | Rev | Page |
| Shield | | | | K2-X9 | | | | X4-SHELL | | | | | | 5 |
| WHOG | Twisted_1, 3HAC025999-001 cat5e SF/UTP | 26 | | K2-X9 | 1 | | | X4 | 17 | | | TXD+ | | |
| OG | Twisted_1, 3HAC025999-001 cat5e SF/UTP | 26 | | K2-X9 | 2 | | | X4 | 16 | | | TXD- | | |
| WHGN | Twisted_2, 3HAC025999-001 cat5e SF/UTP | 26 | | K2-X9 | 3 | | | X4 | 14 | | | RXD+ | | |
| GN | Twisted_2, 3HAC025999-001 cat5e SF/UTP | 26 | | K2-X9 | 6 | | | X4 | 15 | | | RXD- | | |
| YE | 3HAC063242-032, 16wires | 22 | | K2-X13 | A1 | | | X4 | 5 | | | ESTOP1_TPU_A | | |
| GN | 3HAC063242-032, 16wires | 22 | | K2-X13 | A2 | | | X4 | 4 | | | ESTOP1_TPU_B | | |
| BU | 3HAC063242-032, 16wires | 22 | | K2-X13 | A3 | | | X4 | 3 | | | ESTOP2_TPU_A | | |
| VT | 3HAC063242-032, 16wires | 22 | | K2-X13 | A4 | | | X4 | 2 | | | ESTOP2_TPU_B | | |
| BK | 3HAC063242-032, 16wires | 22 | | K2-X13 | A5 | | | X4 | 11 | | | 24V_TPU | | |
| BN | 3HAC063242-032, 16wires | 22 | | K2-X13 | A5 | | | X4 | 11 | | | 24V_TPU | | |
| WHRD | 3HAC063242-032, 16wires | 22 | | K2-X13 | A6 | | | X4 | 13 | | | MON_LAMP | | |
| WHBK | 3HAC063242-032, 16wires | 22 | | K2-X13 | A7 | | | X4 | 18 | | | MON_PB | | |
| GY | 3HAC063242-032, 16wires | 22 | | K2-X13 | B1 | | | X4 | 7 | | | EN1 | | |
| WH | 3HAC063242-032, 16wires | 22 | | K2-X13 | B2 | | | X4 | 8 | | | GND | | |
| WHYE | 3HAC063242-032, 16wires | 22 | | K2-X13 | B3 | | | X4 | 10 | | | EN2 | | |
| WHOG | 3HAC063242-032, 16wires | 22 | | K2-X13 | B4 | | | X4 | 9 | | | 24V_CH2 | | |
| OG | 3HAC063242-032, 16wires | 22 | | K2-X13 | B5 | | | X4 | 12 | | | GND_TPU | | |
| RD | 3HAC063242-032, 16wires | 22 | | K2-X13 | B5 | | | X4 | 12 | | | GND_TPU | | |
| WHBN | 3HAC063242-032, 16wires | 22 | | K2-X13 | B6 | | | X4 | 1 | | | 24V_MON | | |
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| Prepared by, date: | | | Approved by, date: Per V. Carlsson | | Document no. 3HAC086302-010 | Page: 029 Next: 030 Total: 68 | |

Cable diagram

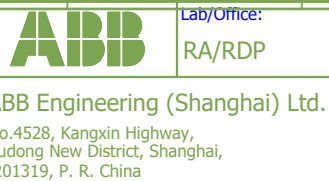
-W024

Harness dual channel safety

| | | | | Connection point A | | | | Connection point B | | | | | | |
|----------|------------------------|------------|------------|--------------------|--------|------|------|--------------------|--------|------|------|-------------|-----|------|
| Wire no. | Specification | Size (AWG) | Lgth. (mm) | Item description | : term | Type | Ref. | Item description | : term | Type | Ref. | Remark | Rev | Page |
| 050 | BU UL1569, 3HAB8303-16 | 26 | | A2.K3-X6 | 1 | | | K2-X12 | A1 | | | IN_Q2_CTRL | | 4.a |
| 064 | BU UL1569, 3HAB8303-16 | 26 | | A2.K3-X6 | 2 | | | K2-X12 | B1 | | | GND_OUT-CH2 | | |
| 051 | BU UL1569, 3HAB8303-16 | 26 | | A2.K3-X6 | 5 | | | K2-X12 | A2 | | | ESTOP1 | | |
| 052 | BU UL1569, 3HAB8303-16 | 26 | | A2.K3-X6 | 7 | | | K2-X12 | A3 | | | IN_EN1 | | |
| 053 | BU UL1569, 3HAB8303-16 | 26 | | A2.K3-X6 | 9 | | | K2-X12 | A4 | | | ESTOP2 | | |
| 065 | BU UL1569, 3HAB8303-16 | 26 | | A2.K3-X6 | 10 | | | K2-X12 | B4 | | | 24V_B | | |
| 054 | BU UL1569, 3HAB8303-16 | 26 | | A2.K3-X6 | 11 | | | K2-X12 | A5 | | | IN_EN2 | | |
| 066 | BU UL1569, 3HAB8303-16 | 26 | | A2.K3-X6 | 12 | | | K2-X12 | B5 | | | 24V_B | | |
| 055 | BU UL1569, 3HAB8303-16 | 26 | | A2.K3-X6 | 13 | | | K2-X12 | A6 | | | Q1_FB | | |
| 067 | BU UL1569, 3HAB8303-16 | 26 | | A2.K3-X6 | 14 | | | K2-X12 | B6 | | | IOGND | | |
| 056 | BU UL1569, 3HAB8303-16 | 26 | | A2.K3-X6 | 15 | | | K2-X12 | A7 | | | IN_AS1 | | |
| 068 | BU UL1569, 3HAB8303-16 | 26 | | A2.K3-X6 | 16 | | | K2-X12 | B7 | | | IOGND | | |
| 057 | BU UL1569, 3HAB8303-16 | 26 | | A2.K3-X6 | 17 | | | K2-X12 | A8 | | | IN_GS1 | | |
| 069 | BU UL1569, 3HAB8303-16 | 26 | | A2.K3-X6 | 18 | | | K2-X12 | B8 | | | 24V_B | | |
| 058 | BU UL1569, 3HAB8303-16 | 26 | | A2.K3-X6 | 19 | | | K2-X12 | A9 | | | IN_Q2_FB | | |
| 070 | BU UL1569, 3HAB8303-16 | 26 | | A2.K3-X6 | 20 | | | K2-X12 | B9 | | | IOGND | | |
| 059 | BU UL1569, 3HAB8303-16 | 26 | | A2.K3-X6 | 21 | | | K2-X12 | A10 | | | IN_AS2 | | |
| 071 | BU UL1569, 3HAB8303-16 | 26 | | A2.K3-X6 | 22 | | | K2-X12 | B10 | | | GND_OUT_CH1 | | |
| 060 | BU UL1569, 3HAB8303-16 | 26 | | A2.K3-X6 | 23 | | | K2-X12 | A11 | | | IN-GS2 | | |
| 072 | BU UL1569, 3HAB8303-16 | 26 | | A2.K3-X6 | 24 | | | K2-X12 | B11 | | | IN_Q1_CTRL | | |
| 061 | BU UL1569, 3HAB8303-16 | 26 | | A2.K3-X7 | 1 | | | K2-X12 | A12 | | | IN_OPT_OUT2 | | |
| 073 | BU UL1569, 3HAB8303-16 | 26 | | A2.K3-X7 | 2 | | | K2-X12 | B12 | | | 24V_B | | |
| 062 | BU UL1569, 3HAB8303-16 | 26 | | A2.K3-X7 | 3 | | | K2-X12 | A13 | | | GND_OUT_CH2 | | |
| 074 | BU UL1569, 3HAB8303-16 | 26 | | A2.K3-X7 | 4 | | | K2-X12 | B13 | | | GND_OUT_CH1 | | |
| 063 | BU UL1569, 3HAB8303-16 | 26 | | A2.K3-X7 | 5 | | | K2-X12 | A14 | | | OPT_INPUT | | |
| 075 | BU UL1569, 3HAB8303-16 | 26 | | A2.K3-X7 | 6 | | | K2-X12 | B14 | | | IN_OPT_OUT1 | | |

Latest revision:
Rev 00
10/13/2023

Prepared by, date: _____ Approved by, date: Per V. Carlsson



Lab/Office:
RA/RDP

Cable diagram =SCH+U-W024

Status:
Approved

High-level function: = Report
Mounting location: +

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3HAC086302-010

Page: 030
Next: 031
Total: 68

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Cable diagram

-W025

Harness Short-circuit connector

| Wire no. | Specification | Size (AWG) | Lgth. (mm) | Connection point A | | | | Connection point B | | | | Remark | Rev | Page |
|----------|------------------------|------------|------------|--------------------|--------|------|------|--------------------|--------|------|------|---------------|-----|------|
| | | | | Item description | : term | Type | Ref. | Item description | : term | Type | Ref. | | | |
| 121 | BU UL1569, 3HAB8303-46 | 20 | | K2-X14 | 1 | | | K2-X14 | 3 | | | Short circuit | | 4.a |
| 125 | BU UL1569, 3HAB8303-46 | 20 | | K2-X14 | 2 | | | K2-X14 | 4 | | | Short circuit | | |
| 122 | BU UL1569, 3HAB8303-46 | 20 | | K2-X14 | 5 | | | K2-X14 | 7 | | | Short circuit | | |
| 126 | BU UL1569, 3HAB8303-46 | 20 | | K2-X14 | 6 | | | K2-X14 | 8 | | | Short circuit | | |
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Latest revision:
Rev 00
2/21/2023

Prepared by, date: _____ Approved by, date: Per V. Carlsson



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201319, P. R. China

Cable diagram =SCH+U-W025

Status:
Approved

High-level function: = Report
Mounting location: +

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Page: 031
Next: 032
Total: 68

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Cable diagram

-W026

Harness Ethernet with Mini-IO

| | | | | Connection point A | | | | Connection point B | | | | | | |
|----------|----------------------------------------|------------|------------|--------------------|--------|------|------|--------------------|--------|------|------|--------|-----|------|
| Wire no. | Specification | Size (AWG) | Lgth. (mm) | Item description | : term | Type | Ref. | Item description | : term | Type | Ref. | Remark | Rev | Page |
| WHOG | Twisted_1, 3HAC025999-001 cat5e SF/UTP | 26 | | K3.1-X5 | 1 | | | X110 | 1 | | | TXD+ | | 10.a |
| OG | Twisted_1, 3HAC025999-001 cat5e SF/UTP | 26 | | K3.1-X5 | 2 | | | X110 | 2 | | | TXD- | | |
| WHGN | Twisted_2, 3HAC025999-001 cat5e SF/UTP | 26 | | K3.1-X5 | 3 | | LAN4 | X110 | 3 | | LAN4 | RXD+ | | |
| GN | Twisted_2, 3HAC025999-001 cat5e SF/UTP | 26 | | K3.1-X5 | 6 | | | X110 | 6 | | | RXD- | | |
| Shield | | | | K5.1-X5 | | | | X110 | | | | | | |
| Shield | | | | K5.1-X5 | | | | X110 | | | | | | |
| WHOG | Twisted_1, 3HAC025999-001 cat5e SF/UTP | 26 | | K5.1-X5 | 1 | | | X110 | 1 | | | TXD+ | | |
| OG | Twisted_1, 3HAC025999-001 cat5e SF/UTP | 26 | | K5.1-X5 | 2 | | | X110 | 2 | | | TXD- | | |
| WHGN | Twisted_2, 3HAC025999-001 cat5e SF/UTP | 26 | | K5.1-X5 | 3 | | LAN4 | X110 | 3 | | LAN4 | RXD+ | | |
| GN | Twisted_2, 3HAC025999-001 cat5e SF/UTP | 26 | | K5.1-X5 | 6 | | | X110 | 6 | | | RXD- | | |
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Cable diagram -W027 /

Harness 24V_Cooling

| | | | | Connection point A | | | | Connection point B | | | | | | |
|----------|------------------------|------------|------------|--------------------|--------|------|------|--------------------|--------|------|------|----------------|-----|------|
| Wire no. | Specification | Size (AWG) | Lgth. (mm) | Item description | : term | Type | Ref. | Item description | : term | Type | Ref. | Remark | Rev | Page |
| 096 | BU UL1569, 3HAB8303-46 | 20 | | G1-X2 | 1 | | | K2-X17 | B2 | | | 24V_COOLING_G1 | | 4.b |
| 097 | BU UL1569, 3HAB8303-46 | 20 | | G1-X2 | 3 | | | K2-X17 | A2 | | | 0V_COOLING_G1 | | |
| 094 | BU UL1569, 3HAB8303-46 | 20 | | G2-X1 | 1 | | | K2-X17 | B1 | | | 24V_COOLING_G2 | | |
| 095 | BU UL1569, 3HAB8303-46 | 20 | | G2-X1 | 3 | | | K2-X17 | A1 | | | 0V_COOLING_G2 | | |
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| Latest revision: | |
| Rev 00 | |
| 2/21/2023 | |
| Prepared by, date: | Approved by, date: Per V. Carlsson |

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Cable diagram =SCH+U-W027

| | |
|---------------------------------------|---------------------------------------------------------------------|
| Status: Approved | High-level function: = Report Mounting location: + |
| Document no. 3HAC086302-010 | Page: 033 Next: 034 Total: 68 |

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Cable diagram

-W028

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/

Harness Ethernet

| | | | | Connection point A | | | | Connection point B | | | | | | |
|----------|----------------------------------------|------------|------------|--------------------|--------|------|------|--------------------|--------|------|------|--------|-----|------|
| Wire no. | Specification | Size (AWG) | Lgth. (mm) | Item description | : term | Type | Ref. | Item description | : term | Type | Ref. | Remark | Rev | Page |
| Shield | | | | K4-X7 | | | | X110 | | | | | | 12 |
| Shield | | | | K4-X7 | | | | X110 | | | | | | |
| WHOG | Twisted_1, 3HAC025999-001 cat5e SF/UTP | 26 | | K4-X7 | 1 | | | X110 | 1 | | | TXD+ | | |
| OG | Twisted_1, 3HAC025999-001 cat5e SF/UTP | 26 | | K4-X7 | 2 | | | X110 | 2 | | | TXD- | | |
| WHGN | Twisted_2, 3HAC025999-001 cat5e SF/UTP | 26 | | K4-X7 | 3 | | LAN4 | X110 | 3 | | LAN4 | RXD+ | | |
| GN | Twisted_2, 3HAC025999-001 cat5e SF/UTP | 26 | | K4-X7 | 6 | | | X110 | 6 | | | RXD- | | |
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| Prepared by, date: | Approved by, date: Per V. Carlsson |



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Cable diagram =SCH+U-W028

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|--------------|----------------|-------------------------------|
| Status: | Approved | High-level function: = Report |
| Document no. | 3HAC086302-010 | Mounting location: + |
| | | Page: 034 |
| | | Next: 035 |
| | | Total: 68 |

| Wire no. | Specification | Size (AWG) | Lgth. (mm) | Connection point A | | | | Connection point B | | | | Remark | Rev | Page |
|----------|-------------------------|------------|------------|--------------------|--------|------|------|--------------------|--------|------|------|---------|-----|------|
| | | | | Item description | : term | Type | Ref. | Item description | : term | Type | Ref. | | | |
| 1 | WH build-in temp sensor | | | K2-X21 | B1 | | | B4 | | | | V+ | | 4 |
| 2 | WH build-in temp sensor | | | K2-X21 | A1 | | | B4 | | | | SENSOR1 | | |
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2/21/2023

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



Lab/Office:
RA/RDP

Cable diagram =SCH+U-W029

Status:
Approved

High-level function: = Report
Mounting location: +

Document no.
3HAC086302-010

Page: 035
Next: 036
Total: 68

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Cable diagram

-W030

Harness Ethernet

| | | | | Connection point A | | | | Connection point B | | | | | | |
|----------|-------------------------------------------|------------|------------|--------------------|--------|------|------|--------------------|--------|------|------|--------|-----|------|
| Wire no. | Specification | Size (AWG) | Lgth. (mm) | Item description | : term | Type | Ref. | Item description | : term | Type | Ref. | Remark | Rev | Page |
| Shield | | | | A2-X4 | | | | X110 | | | | | | 7.a |
| Shield | | | | A2-X4 | | | | X110 | | | | | | |
| WHOG | Twisted_1, 3HAC025999-001 cat5e SF/UTP 26 | | | A2-X4 | 1 | | | X110 | 1 | | | TXD+ | | |
| WHOG | Twisted_1, 3HAC025999-001 cat5e SF/UTP 26 | | | A2-X4 | 1 | | | X110 | 1 | | | TXD+ | | |
| OG | Twisted_1, 3HAC025999-001 cat5e SF/UTP 26 | | | A2-X4 | 2 | | | X110 | 2 | | | TXD- | | |
| OG | Twisted_1, 3HAC025999-001 cat5e SF/UTP 26 | | | A2-X4 | 2 | | | X110 | 2 | | | TXD- | | |
| WHGN | Twisted_2, 3HAC025999-001 cat5e SF/UTP 26 | | | A2-X4 | 3 | | | X110 | 3 | | | RXD+ | | |
| GN | Twisted_2, 3HAC025999-001 cat5e SF/UTP 26 | | | A2-X4 | 6 | | | X110 | 6 | | | RXD- | | |
| GN | Twisted_2, 3HAC025999-001 cat5e SF/UTP 26 | | | A2-X4 | 6 | | | X110 | 6 | | | RXD- | | |
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Prepared by, date: _____ Approved by, date: Per V. Carlsson



Lab/Office: RA/RDP

Cable diagram =SCH+U-W030

Status: Approved

High-level function: = Report
Mounting location: +

Document no. 3HAC086302-010

Page: 036
Next: 037
Total: 68

Cable diagram -W031

Harness Ethernet

| | | | | Connection point A | | | | Connection point B | | | | | | |
|----------|----------------------------------------|------------|------------|--------------------|--------|------|------|--------------------|--------|------|------|--------|-----|------|
| Wire no. | Specification | Size (AWG) | Lgth. (mm) | Item description | : term | Type | Ref. | Item description | : term | Type | Ref. | Remark | Rev | Page |
| Shield | | | | A2-X4 | | | | K4-X6 | | | | | | 7.a |
| WHOG | Twisted_1, 3HAC025999-001 cat5e SF/UTP | 26 | | A2-X4 | 1 | | | K4-X6 | 1 | | | TXD+ | | |
| OG | Twisted_1, 3HAC025999-001 cat5e SF/UTP | 26 | | A2-X4 | 2 | | | K4-X6 | 2 | | | TXD- | | |
| WHGN | Twisted_2, 3HAC025999-001 cat5e SF/UTP | 26 | | A2-X4 | 3 | | | K4-X6 | 3 | | | RXD+ | | |
| GN | Twisted_2, 3HAC025999-001 cat5e SF/UTP | 26 | | A2-X4 | 6 | | | K4-X6 | 6 | | | RXD- | | |

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Cable diagram =SCH+U-W031

Status:
Approved

High-level function: = Report
Mounting location: +

Document no.
3HAC086302-010

Page: 037
Next: 039
Total: 68

Cable diagram -W033

Harness Ethernet with Mini-IO

| | | | | Connection point A | | | | Connection point B | | | | | | |
|----------|-------------------------------------------|------------|------------|--------------------|--------|------|------|--------------------|--------|------|------|--------|-----|------|
| Wire no. | Specification | Size (AWG) | Lgth. (mm) | Item description | : term | Type | Ref. | Item description | : term | Type | Ref. | Remark | Rev | Page |
| Shield | | | | A2-X5 | | | | K7-X2 | | | | | | 7 |
| WHOG | Twisted_1, 3HAC025999-001 cat5e SF/UTP 26 | | | A2-X5 | 1 | | | K7-X2 | 1 | | | TXD+ | | |
| OG | Twisted_1, 3HAC025999-001 cat5e SF/UTP 26 | | | A2-X5 | 2 | | | K7-X2 | 2 | | | TXD- | | |
| WHGN | Twisted_2, 3HAC025999-001 cat5e SF/UTP 26 | | | A2-X5 | 3 | | | K7-X2 | 3 | | | RXD+ | | |
| GN | Twisted_2, 3HAC025999-001 cat5e SF/UTP 26 | | | A2-X5 | 6 | | | K7-X2 | 6 | | | RXD- | | |
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Cable diagram -W034

Harness Single SMB connection

| | | | | Connection point A | | | | Connection point B | | | | | | |
|----------|-------------------------------------|------------|------------|--------------------|--------|------|------|--------------------|--------|------|------|---------------|-----|------|
| Wire no. | Specification | Size (AWG) | Lgth. (mm) | Item description | : term | Type | Ref. | Item description | : term | Type | Ref. | Remark | Rev | Page |
| Shield | | | | T4-X16-SHELL | | | | X2 | | | | | | 14 |
| OG | 3HAC066598-001 build in Y-CODE conn | 20 | | T4-X16 | 1 | | | X2 | 6 | | | 24V_SMB | | |
| WHOG | 3HAC066598-001 build in Y-CODE conn | 20 | | T4-X16 | 2 | | | X2 | 5 | | | 0V_1 | | |
| WHBU | 3HAC066598-001 build in Y-CODE conn | 26 | | T4-X16 | 3 | | | X2 | 1 | | | MRCO (TXD+) | | |
| BU | 3HAC066598-001 build in Y-CODE conn | 26 | | T4-X16 | 4 | | | X2 | 2 | | | MRCO_N (TXD-) | | |
| WHGN | 3HAC066598-001 build in Y-CODE conn | 26 | | T4-X16 | 5 | | | X2 | 3 | | | MRCI (RXD+) | | |
| GN | 3HAC066598-001 build in Y-CODE conn | 26 | | T4-X16 | 6 | | | X2 | 4 | | | MRCI_N (RXD-) | | |
| BN | 3HAC066598-001 build in Y-CODE conn | 20 | | T4-X16 | 7 | | | X2 | 7 | | | 0V_2 | | |
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Prepared by, date: _____ Approved by, date: Per V. Carlsson



Lab/Office:
RA/RDP

ABB Engineering (Shanghai) Ltd.
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201319, P. R. China

Cable diagram =SCH+U-W034

Status: Approved

High-level function: = Report
Mounting location: +

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Page: 040
Next:
Total: 68

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