

Machine operation monitoring system specifications Documentation EN Blueprint for TNF Blueprint

R2

Made for: Thai Nippon food co. Ltd.

By: TOMAS TECH CO.,LTD.



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Revision History

Date	Version	File name	Details
02/Oct/2023	R1	Machine operation monitoring system specifications Documentation EN Blueprint for TNF Blueprint R1	First edition
01/Nov/2023	R2	Machine operation monitoring system specifications Documentation EN Blueprint for TNF Blueprint R2	Second edition

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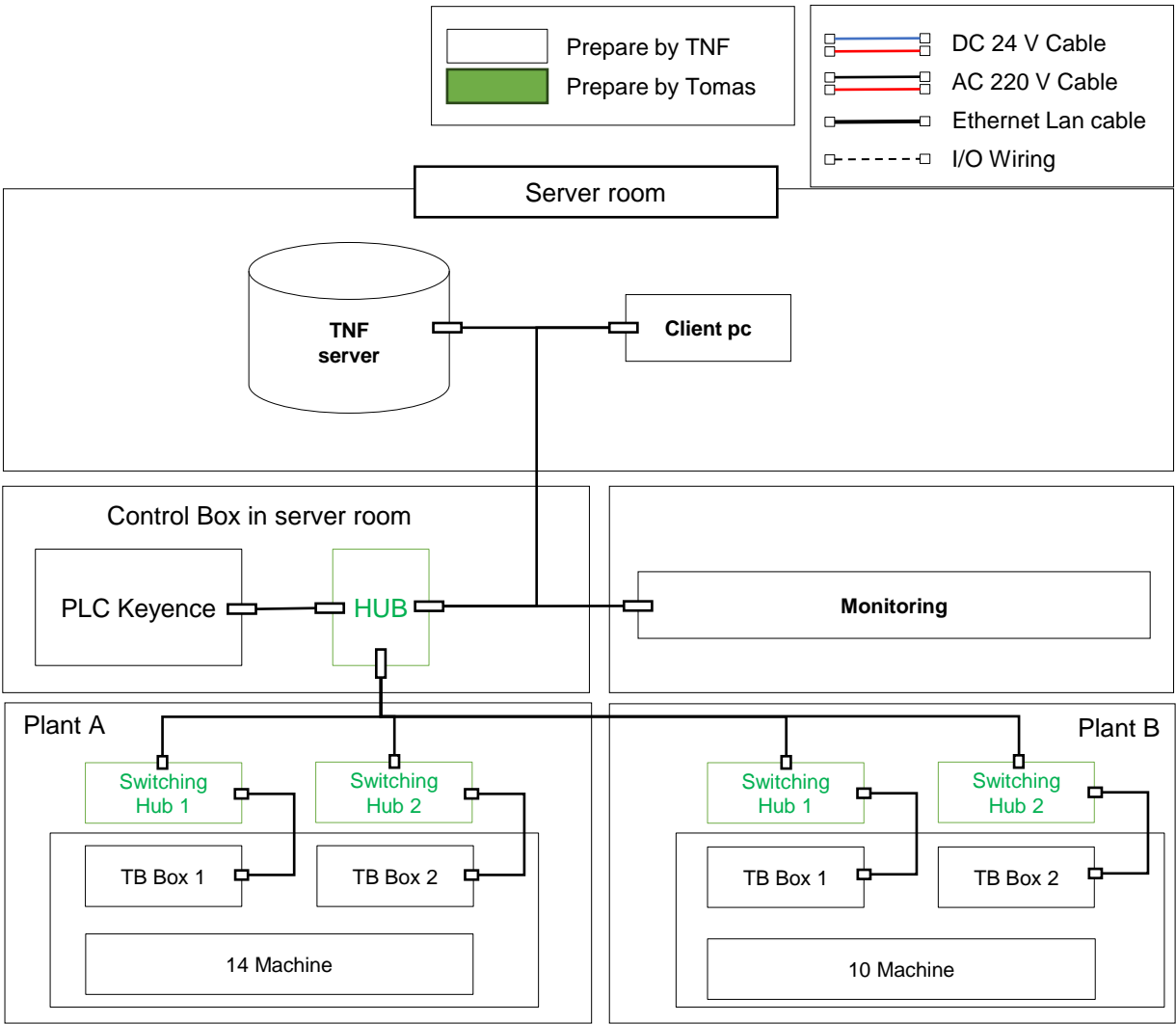
1. Overview

It is a system that retrieves data from machines within Plant A and Plant B within the Thai Nippon food factory in the form of I/O signal and Ethernet. The data is displayed and stored.

2. Overall configuration diagram

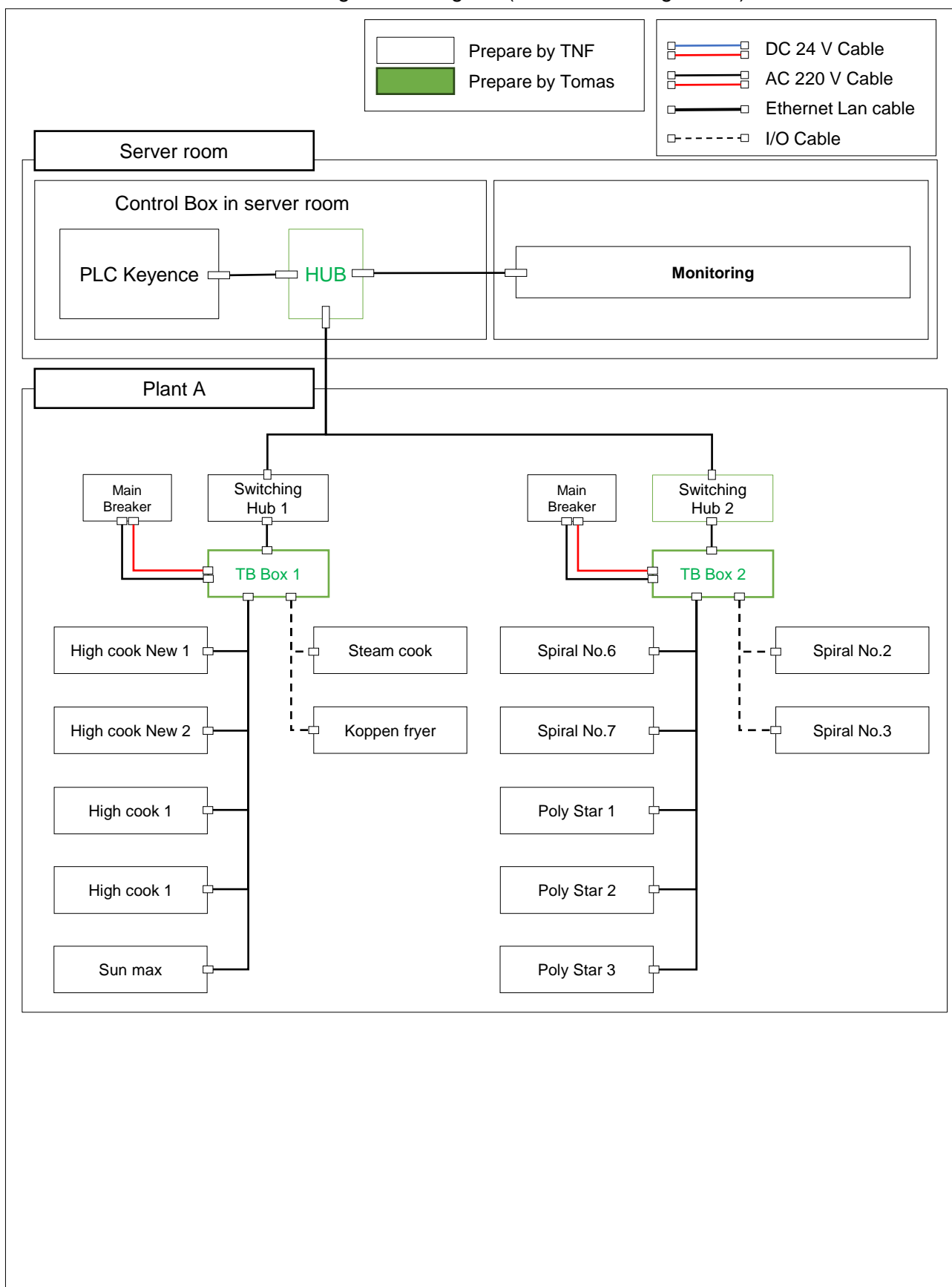
Overall configuration diagram (Hardware configuration)

#	Item	Qty	IP Address	Preparation By
1	Server PC for Record data window server	1		TNF
2	PLC Keyence KV-8000	1	192.168.XXX.1	TNF
3	KV-XLE02	1	192.168.XXX.2	TNF
4	KV-XD02	1	192.168.XXX.4	TNF
5	KVM-16G	2		TNF
6	KV-EP02	5	192.168.XXX.20-30	TNF
7	NC-32EX	8		TNF
8	NC-16EX	3		TNF
9	Ethernet module (FX3U-ENET-L)	10	192.168.XXX.50-69	Tomas
10	Cable Expiation 0.65M for Ethernet module	10		Tomas
11	Ethernet module (QJ71EN71-100)	2	192.168.XXX.70-80	Tomas
12	AMX-PLC	3	192.168.XXX.40-49	Tomas
13	Ethernet hub	10		Tomas
14	Terminal Box	4		Tomas



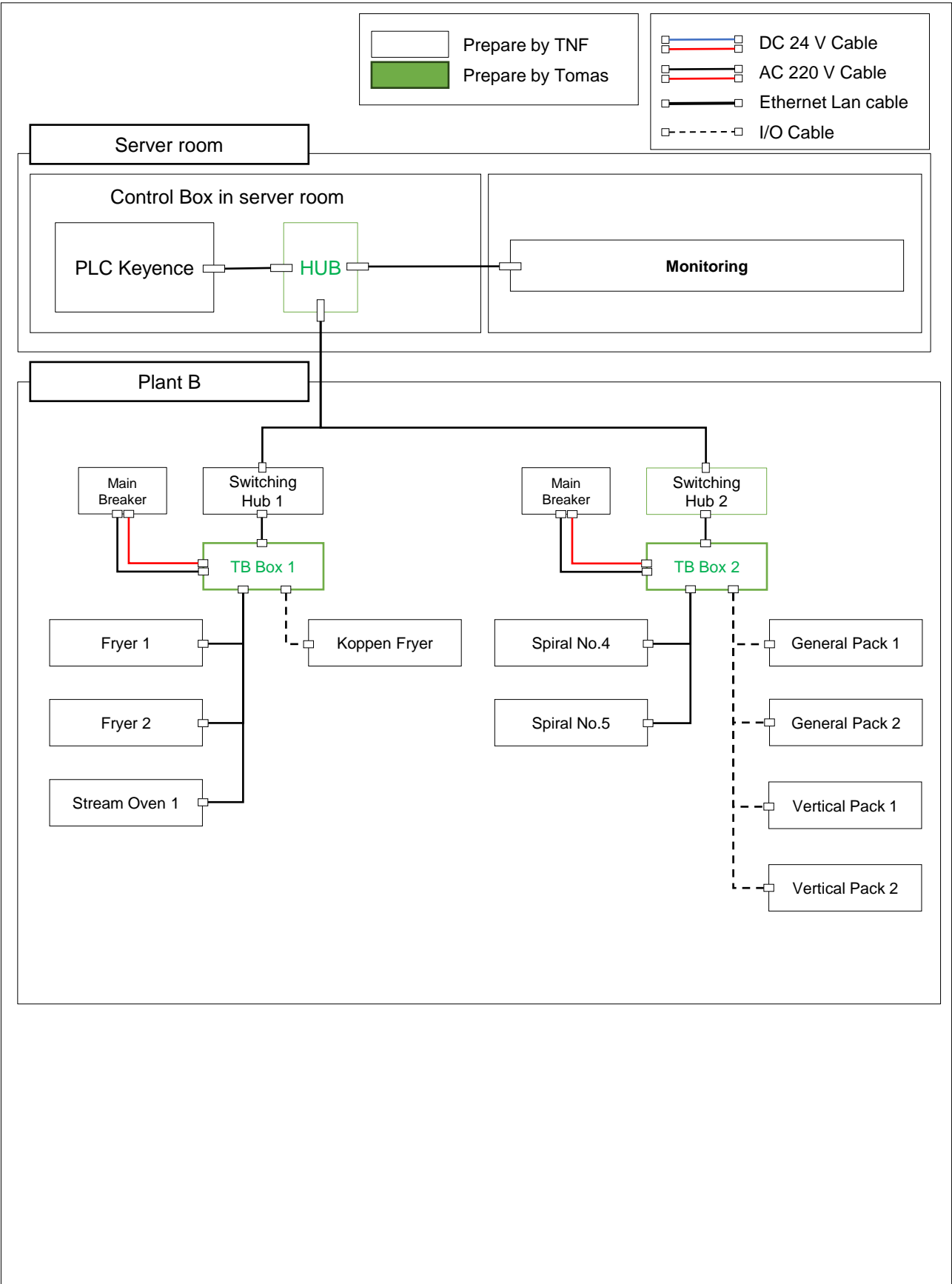
2. Overall configuration diagram

Overall configuration diagram (Hardware configuration)



2. Overall configuration diagram

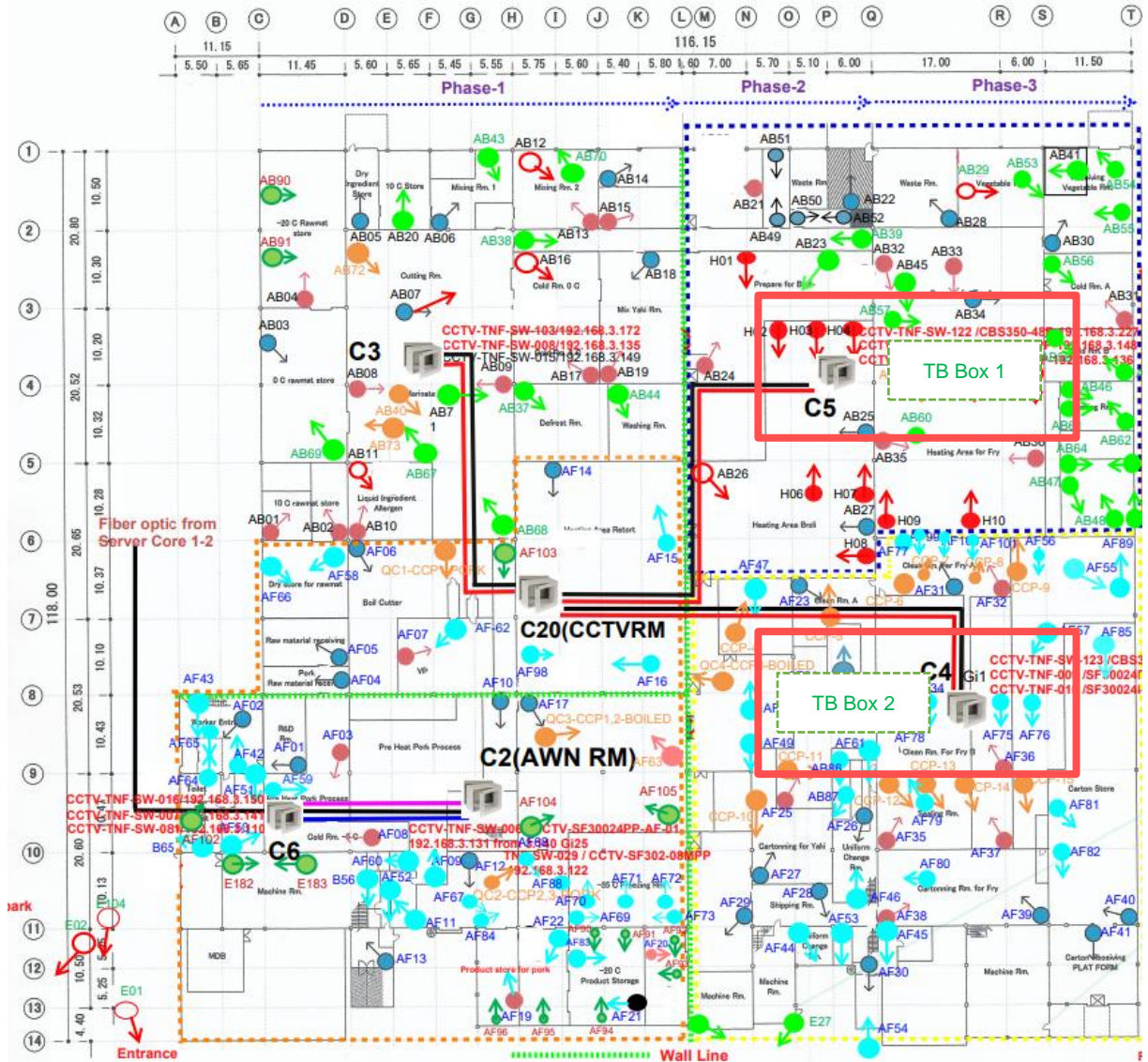
Overall configuration diagram (Hardware configuration)



2. Overall configuration diagram

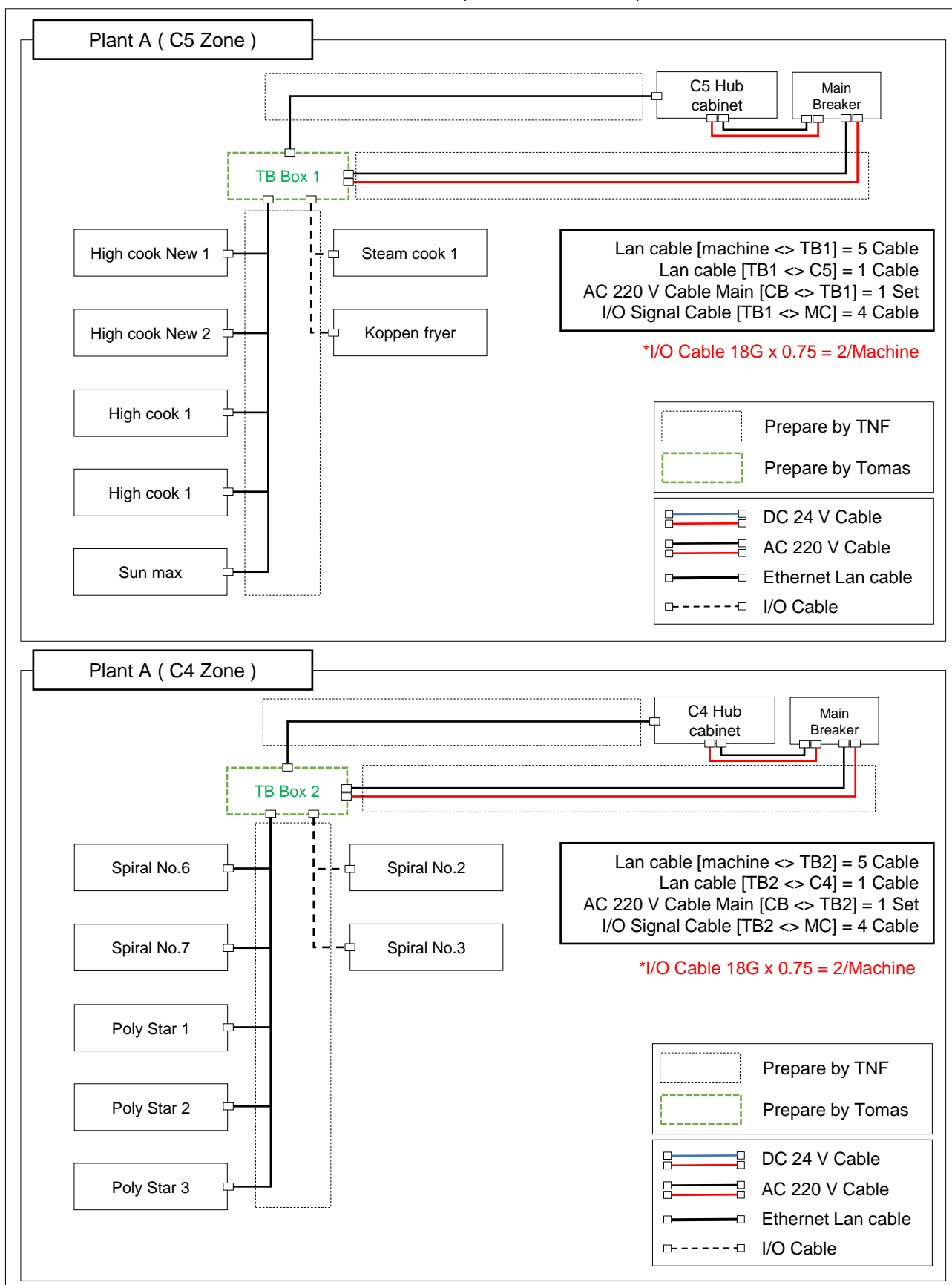
TB Box install (Hardware install)

*Hub cabinet location in Plant A



2. Overall configuration diagram

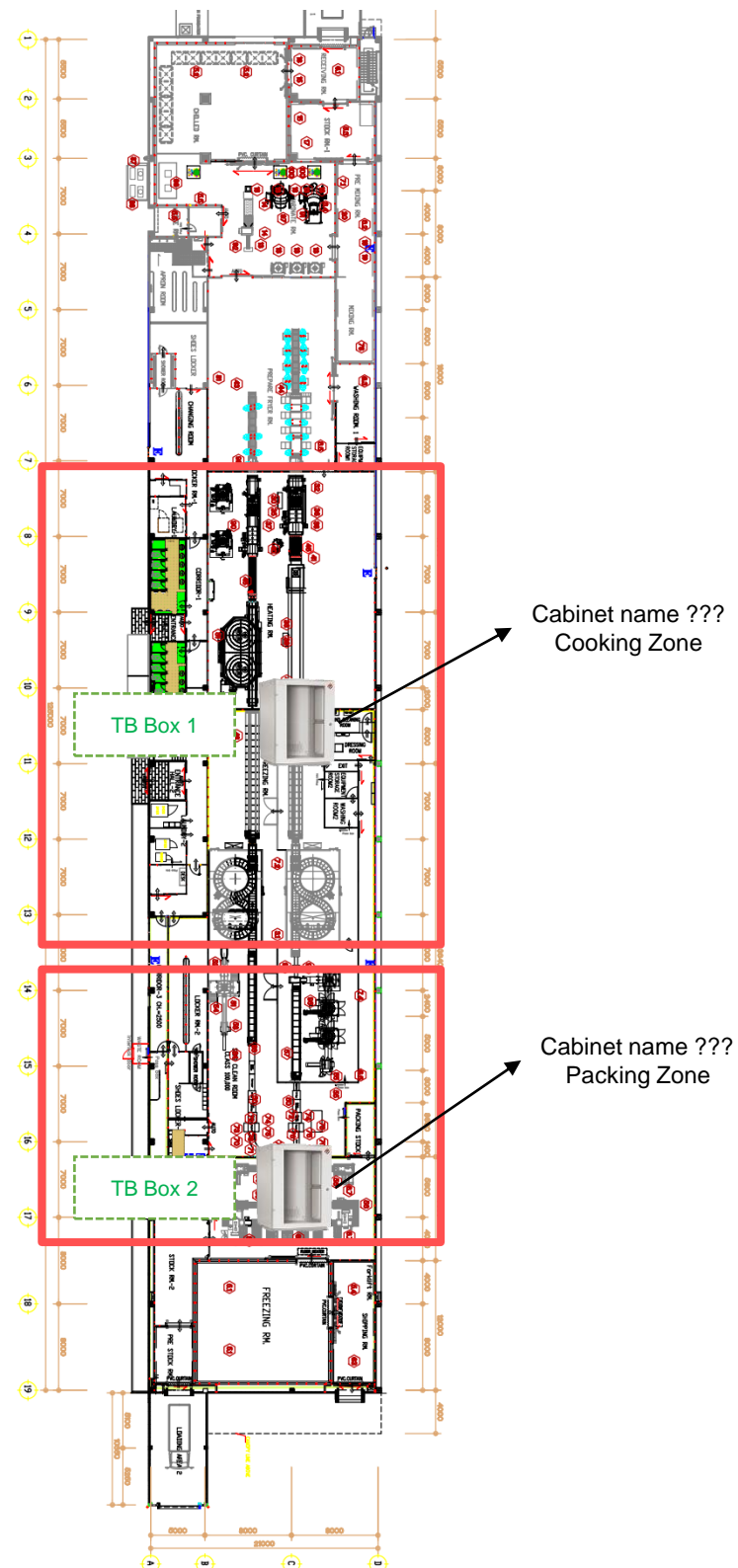
TB Box install (Hardware install)



2. Overall configuration diagram

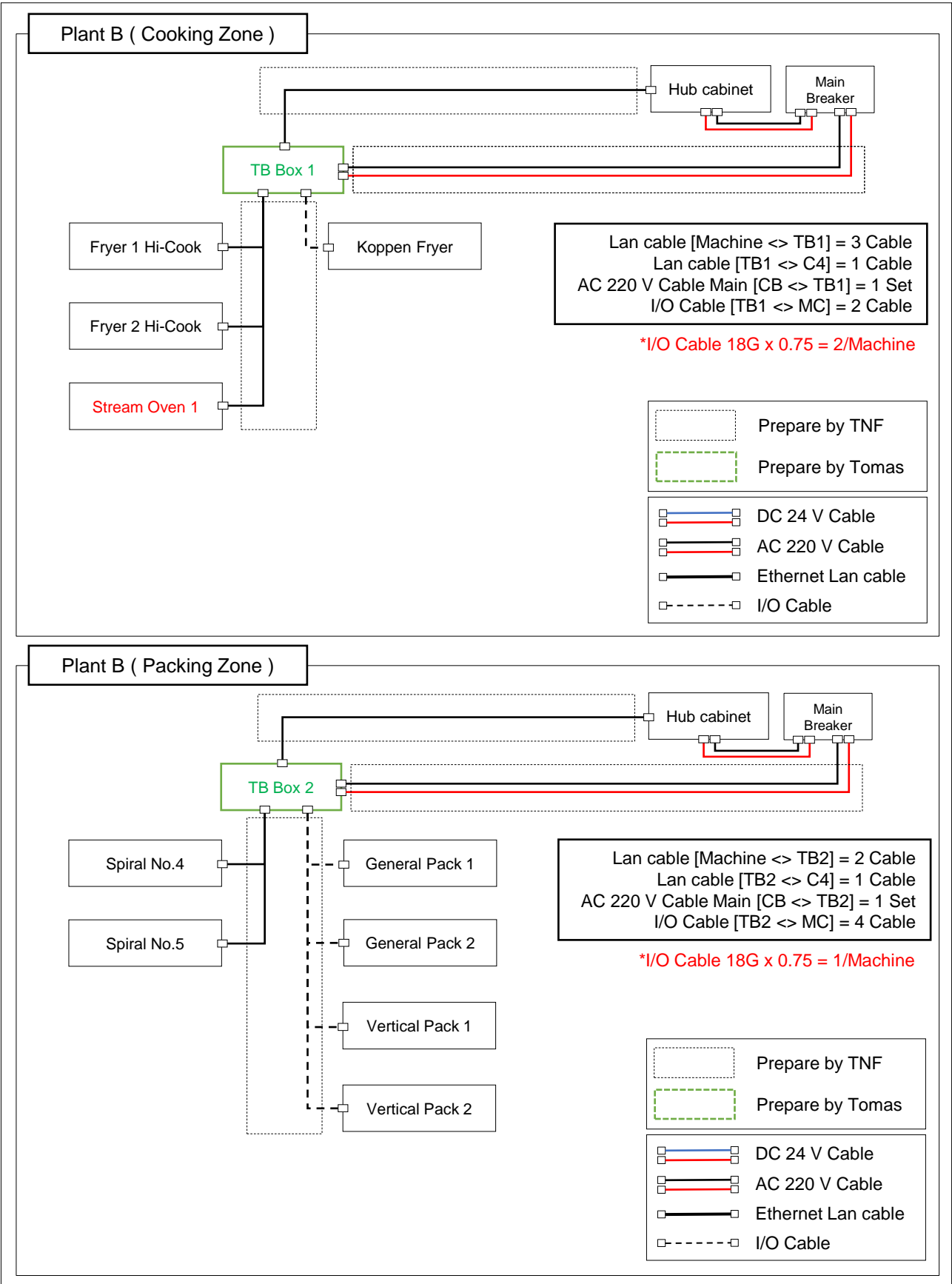
TB Box install (Hardware install)

*Hub cabinet location in Plant B



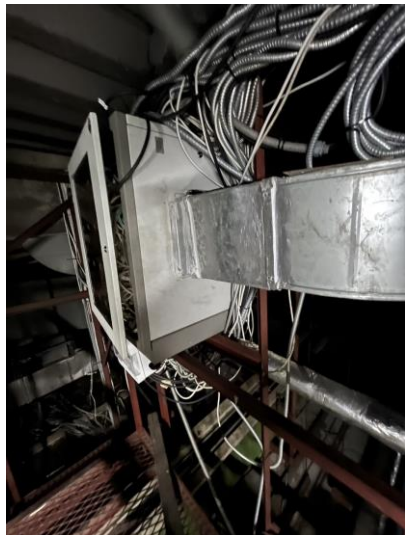
2. Overall configuration diagram

Overall configuration diagram (Hardware configuration)

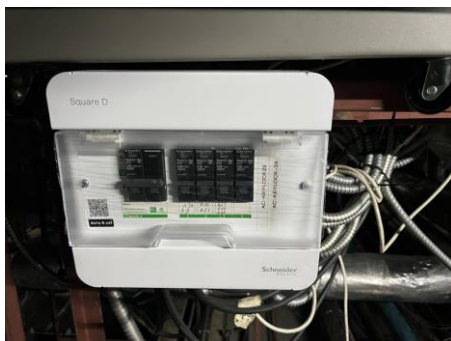


3. TB-BOX Installation



Installation box Type 1

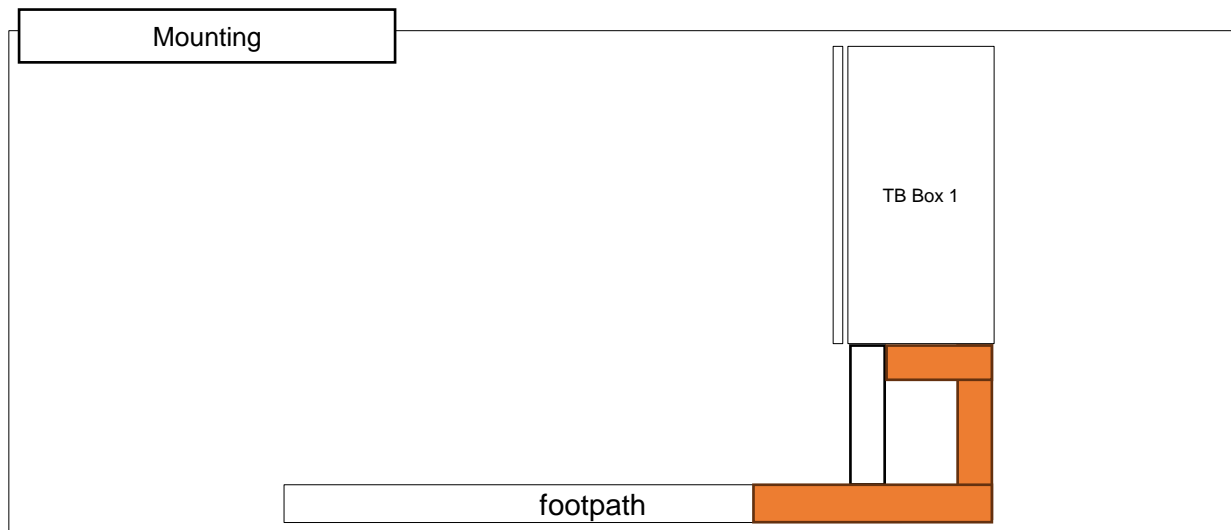
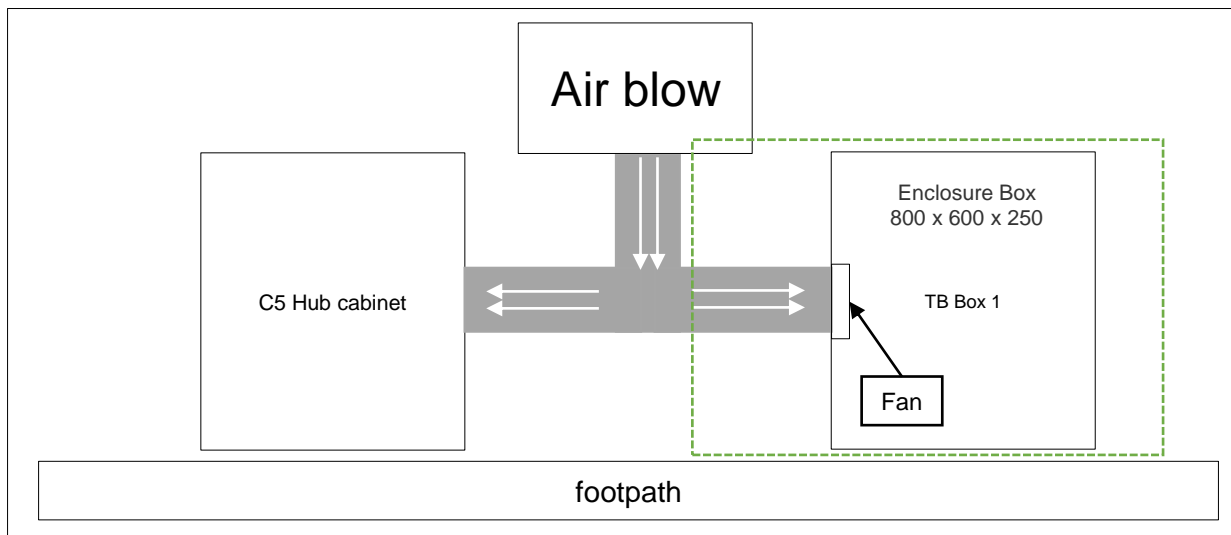


C5 Hub cabinet



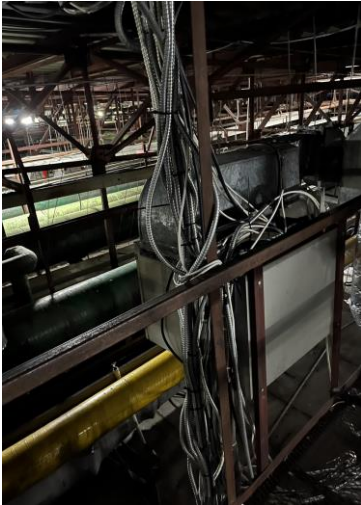
Main breaker

	Prepare by TNF
	Prepare by Tomas





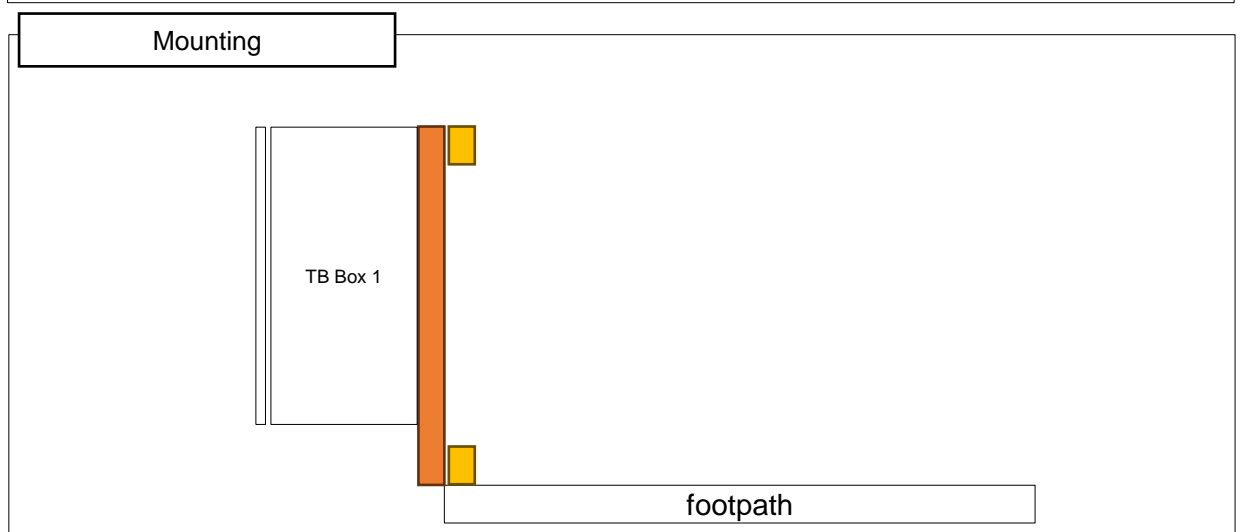
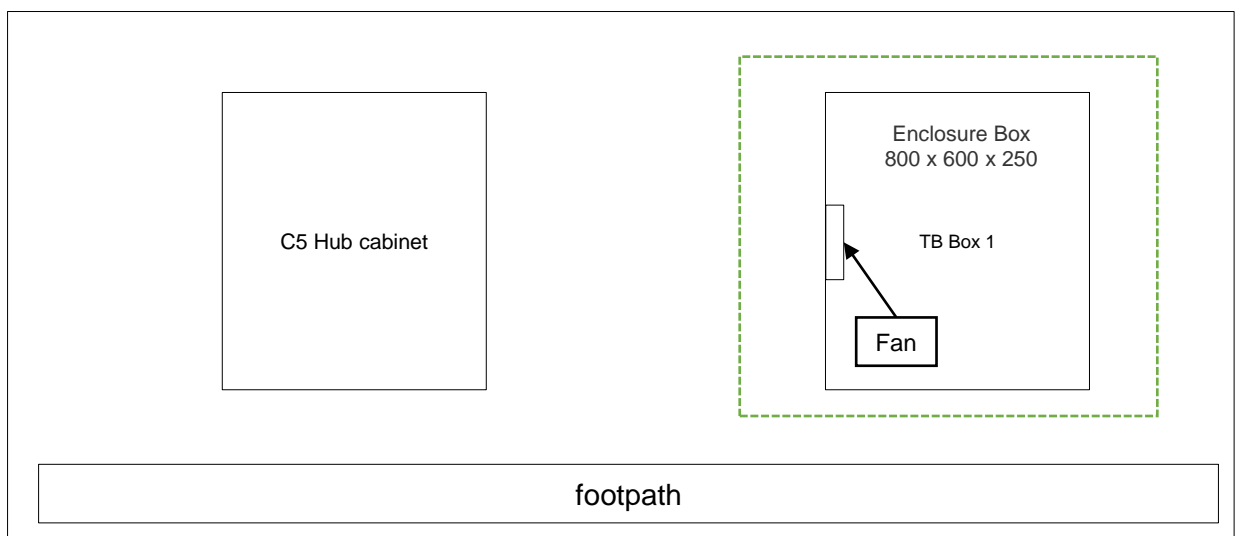
3. TB-BOX Installation

Installation box Type 2



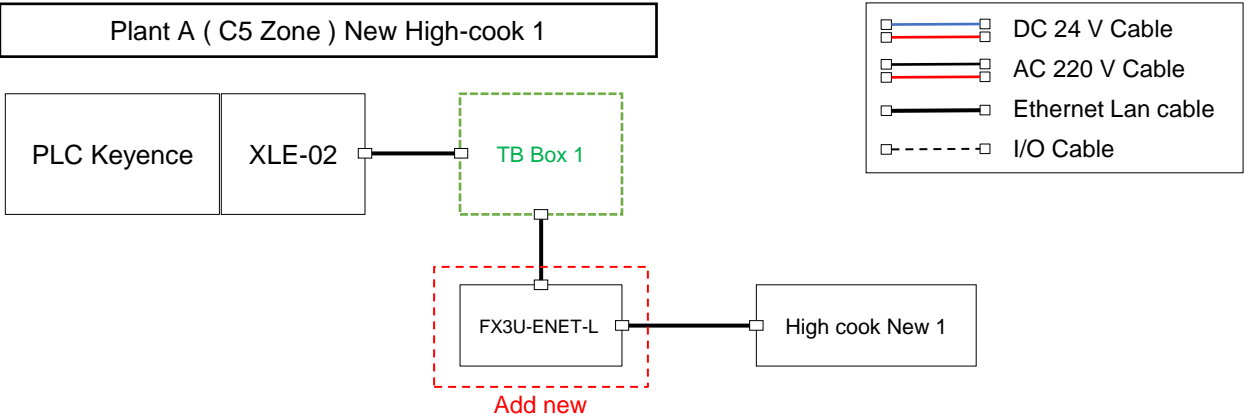
Hub cabinet

	Prepare by TNF
	Prepare by Tomas



4. Hardware install

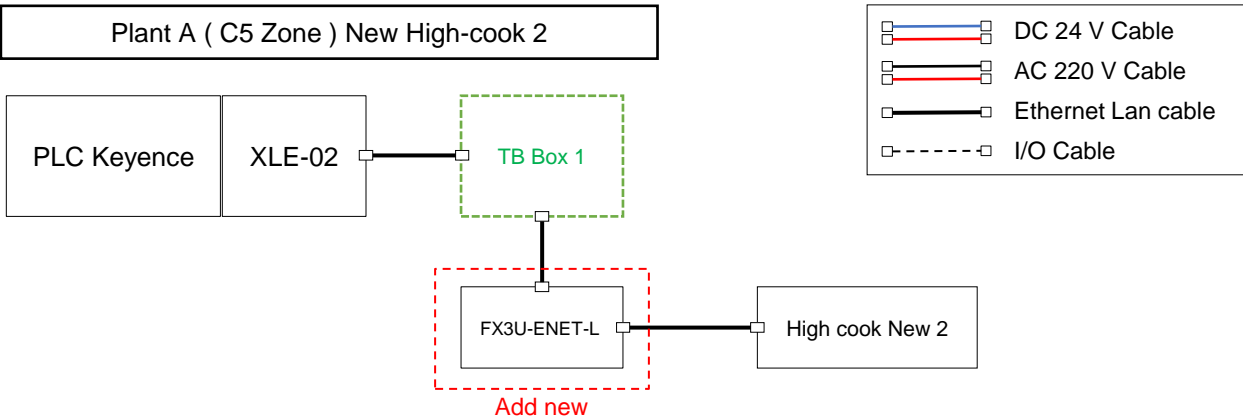
Installation of equipment for extracting data from machines



*Install the FX3U-ENET-L device for retrieving data from the New High-cook machine.

4. Hardware install

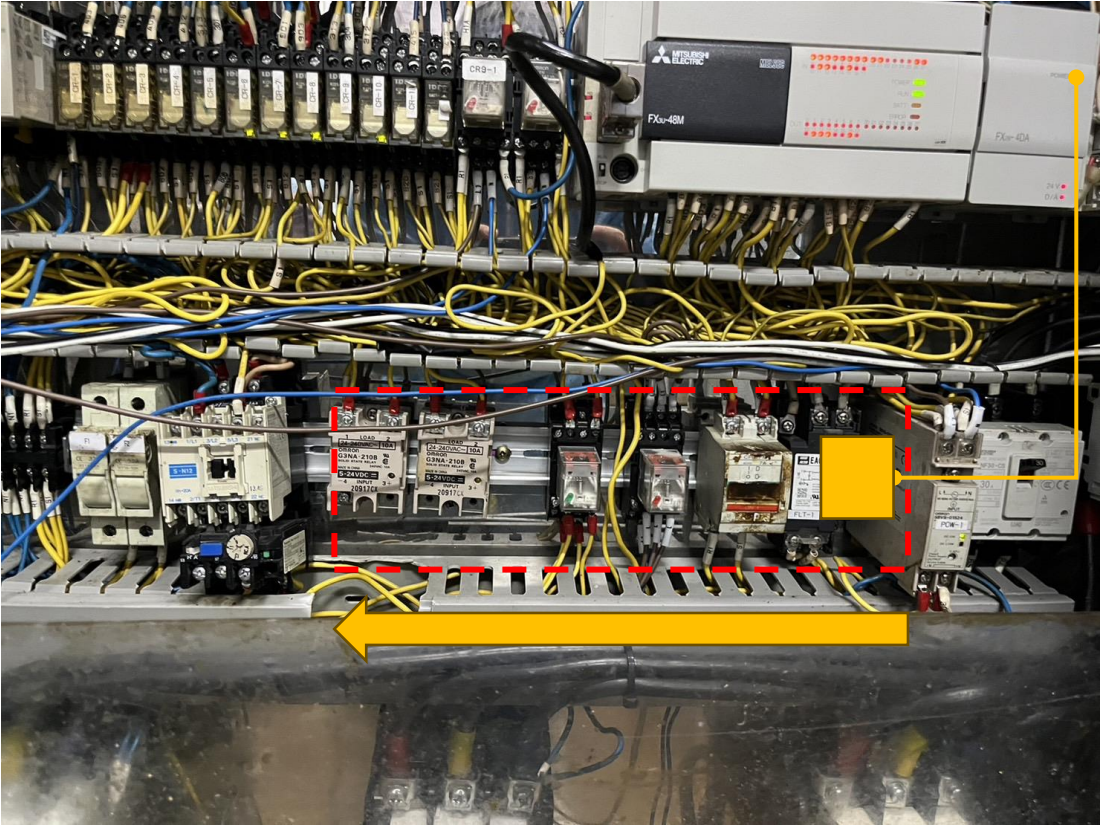
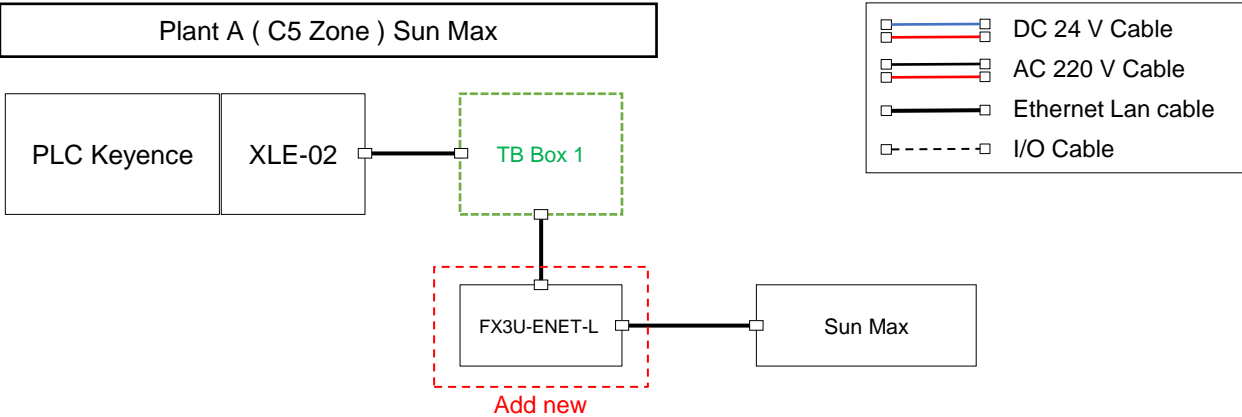
Installation of equipment for extracting data from machines



*Install the FX3U-ENET-L device for retrieving data from the New High-cook2 machine.

4. Hardware install

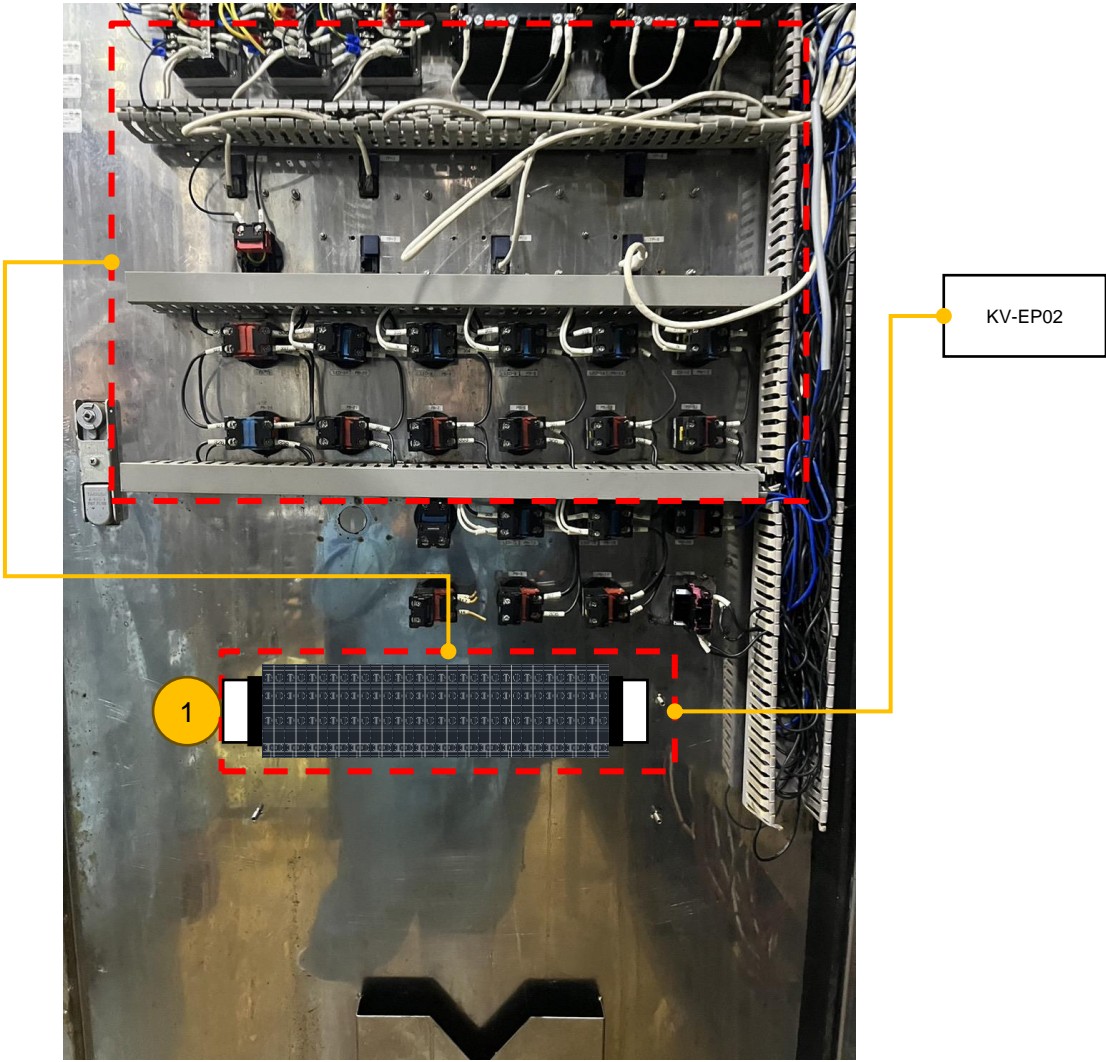
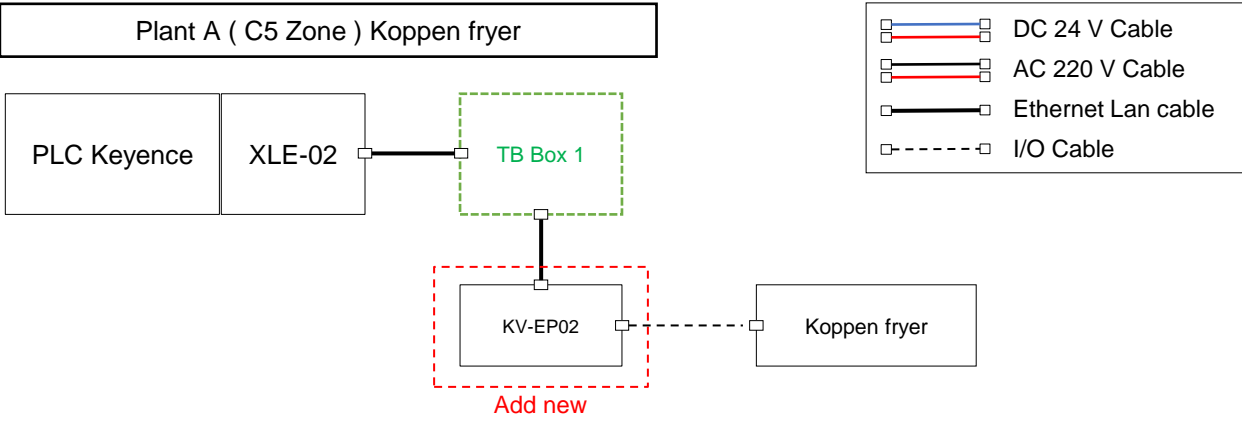
Installation of equipment for extracting data from machines



****Change the layout by moving the marked devices closer together so that the FX3U-ENET-L can be installed.**

4. Hardware install

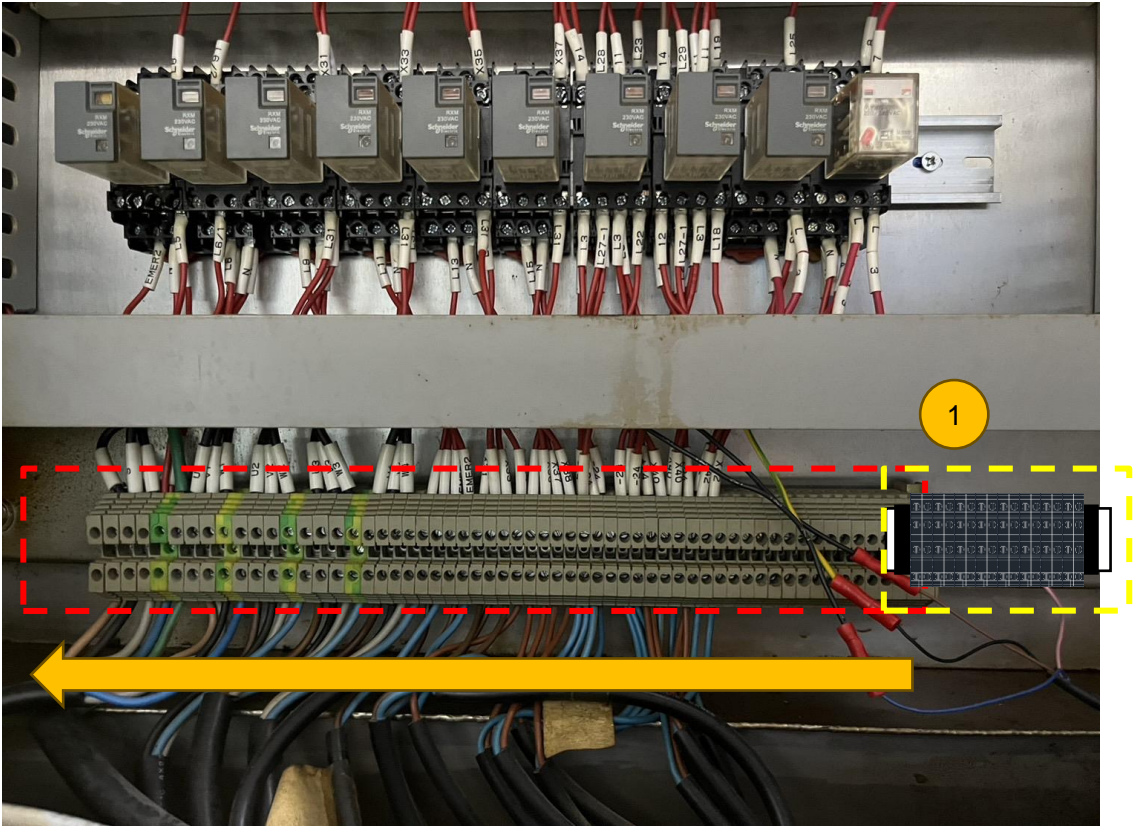
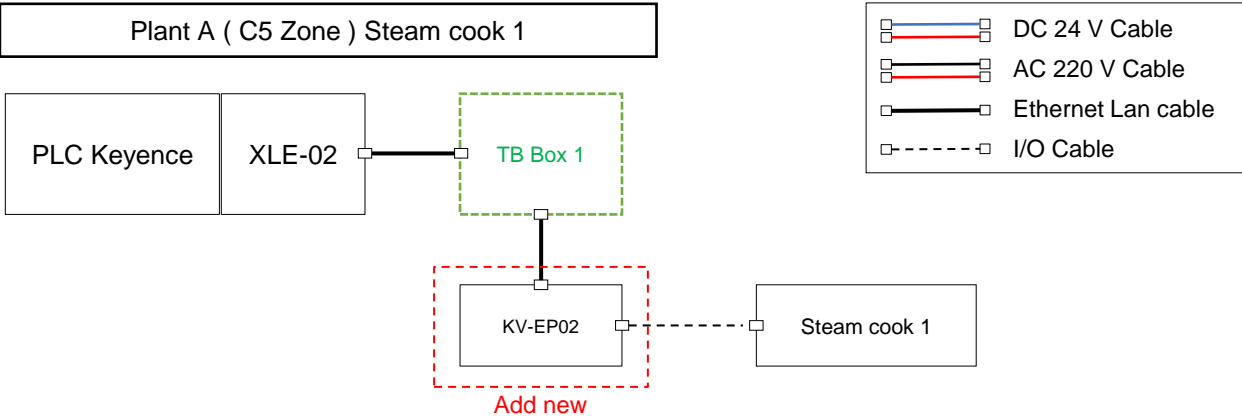
Installation of equipment for extracting data from machines



*Attach Din-rial to number 1 to install Terminal for retrieving data from I/O machines.

4. Hardware install

Installation of equipment for extracting data from machines

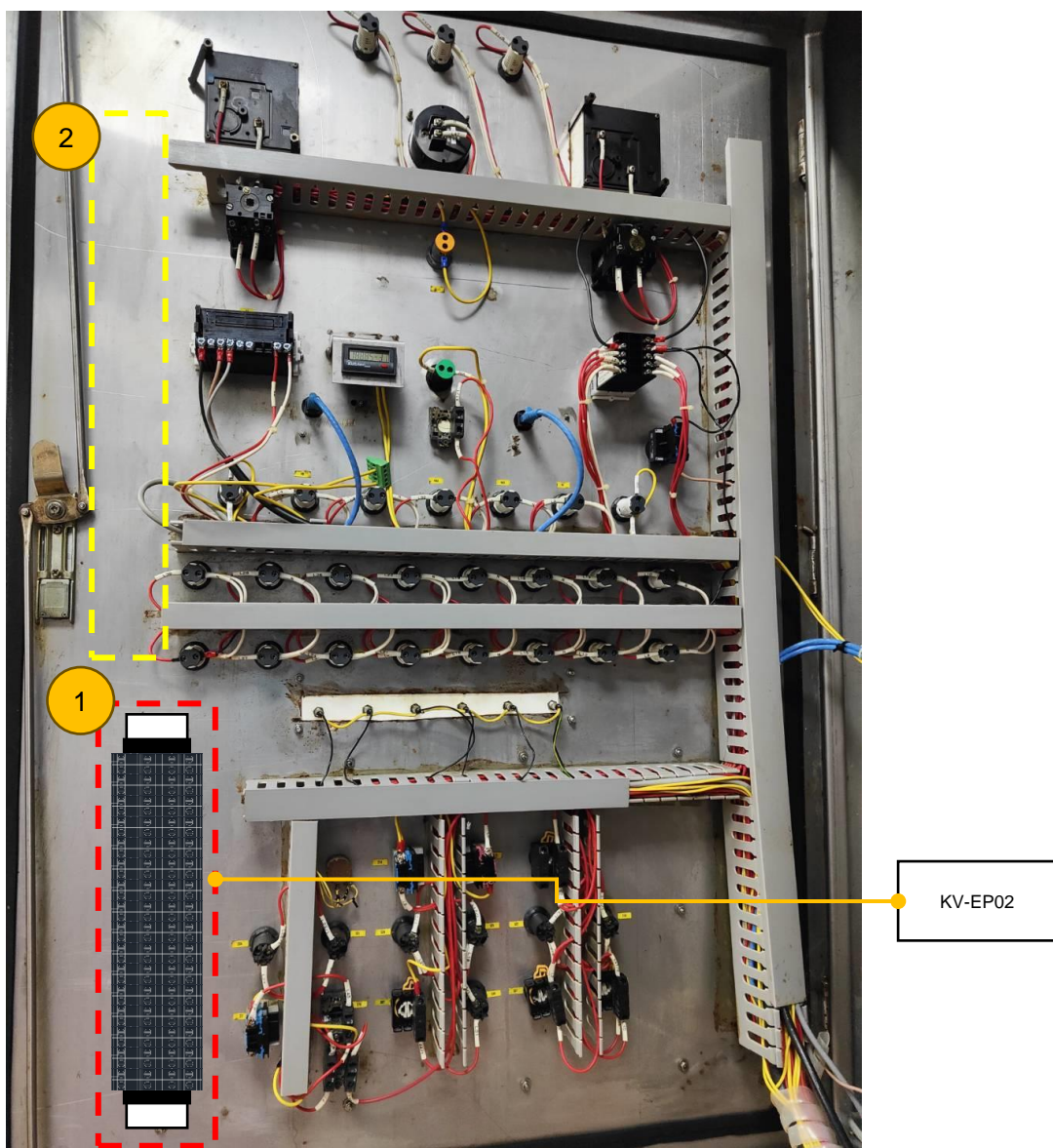
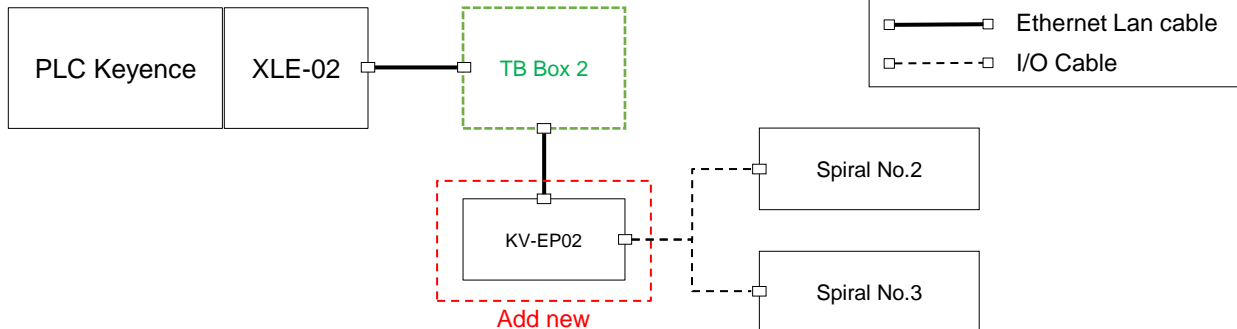


****Change the layout by moving the marked devices closer together so that the terminal can be installed.**

4. Hardware install

Installation of equipment for extracting data from machines

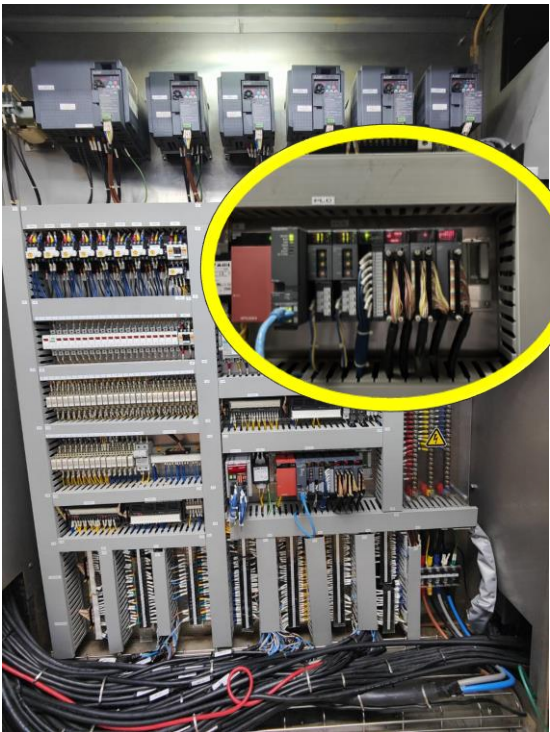
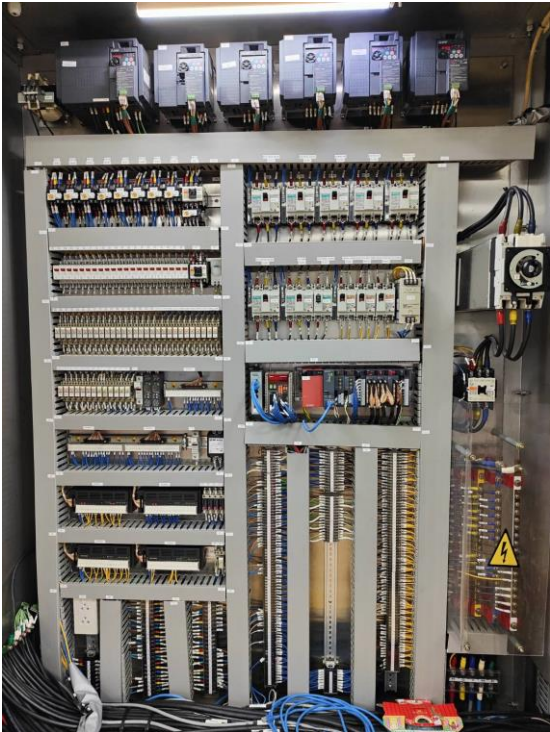
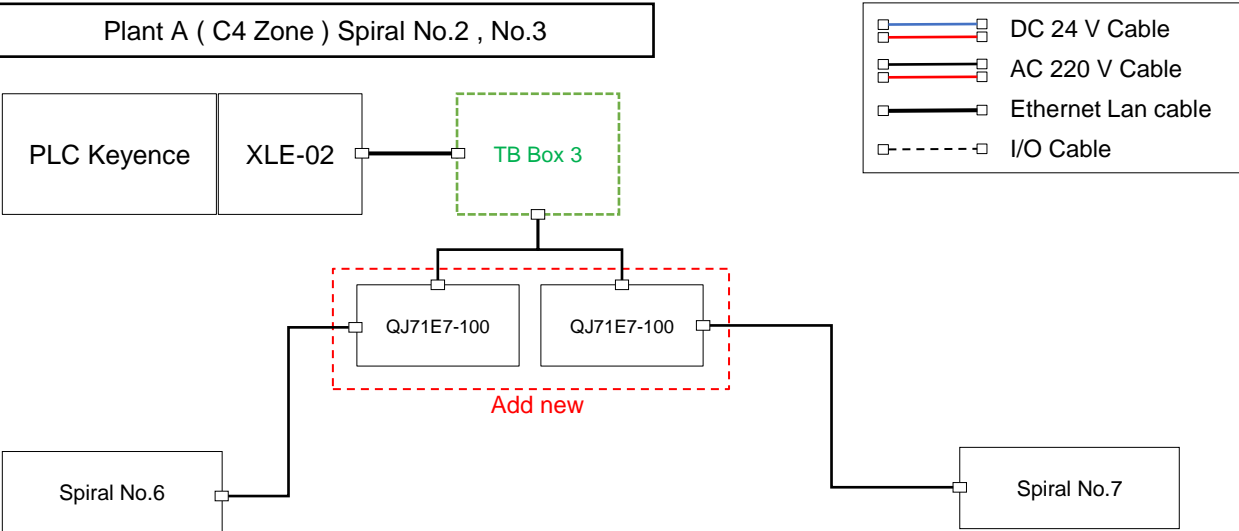
Plant A (C4 Zone) Spiral No.2 , No.3



1. Attach Din-rail to number 1 to install Terminal for retrieving data from I/O machines.
2. Install a wire duct for storing wires at the signal tab from the machine.

4. Hardware install

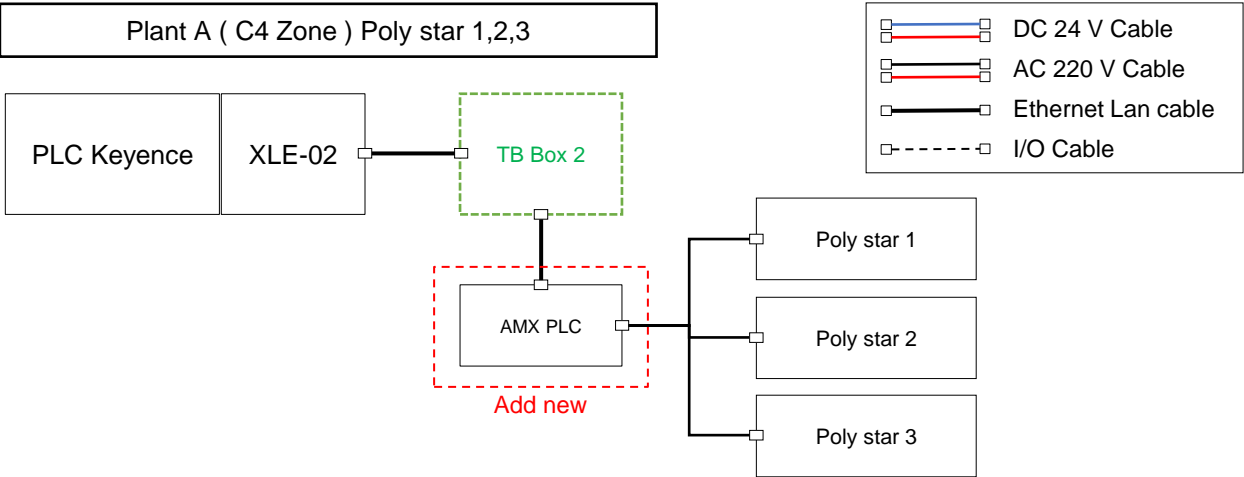
Installation of equipment for extracting data from machines



*Install the QJ71E71-100 device for retrieving data from the New High-cook machine.

4. Hardware install

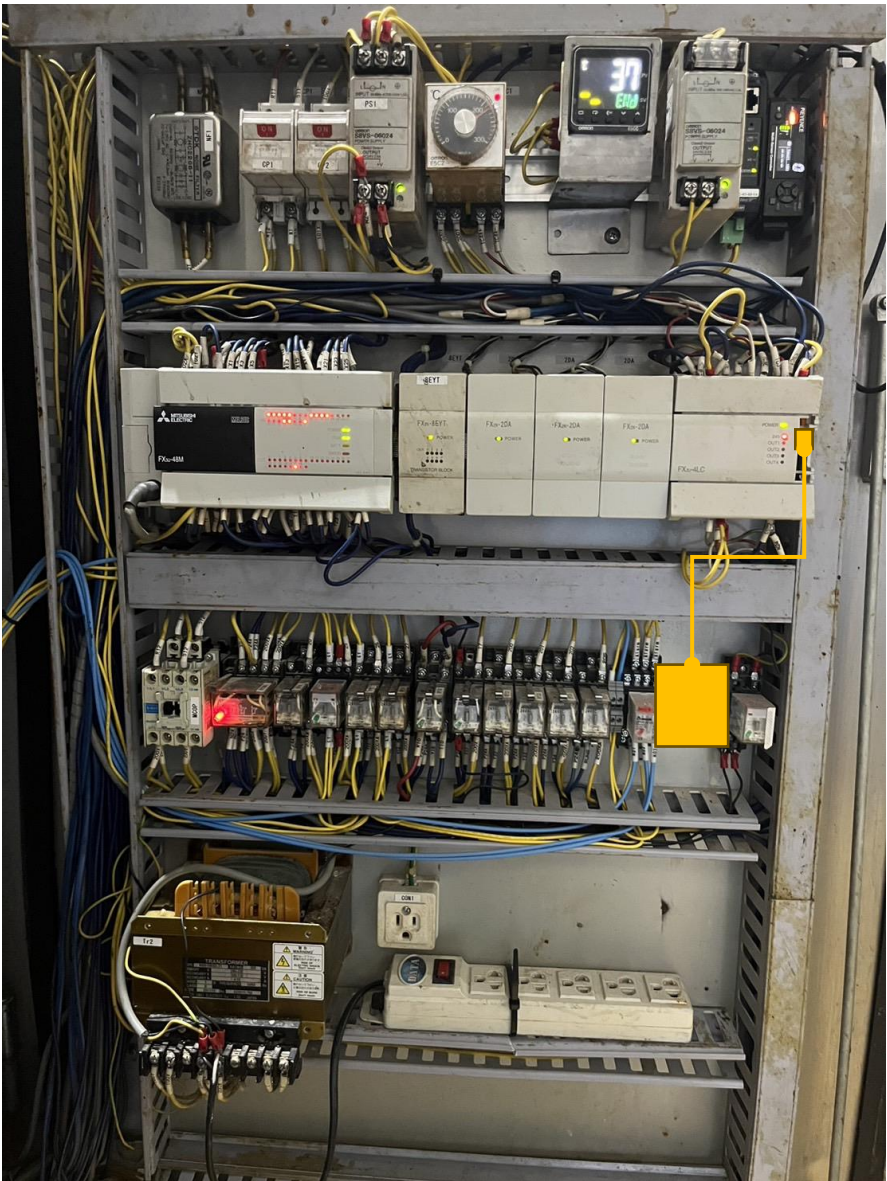
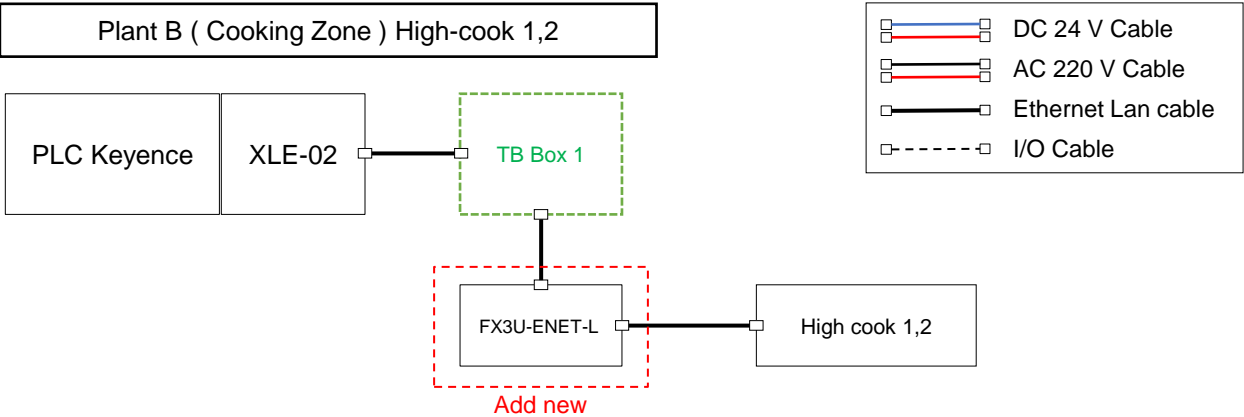
Installation of equipment for extracting data from machines



*Install AMX-PLC for retrieving data from the GOT2000 screen to send data to the Main PLC.

4. Hardware install

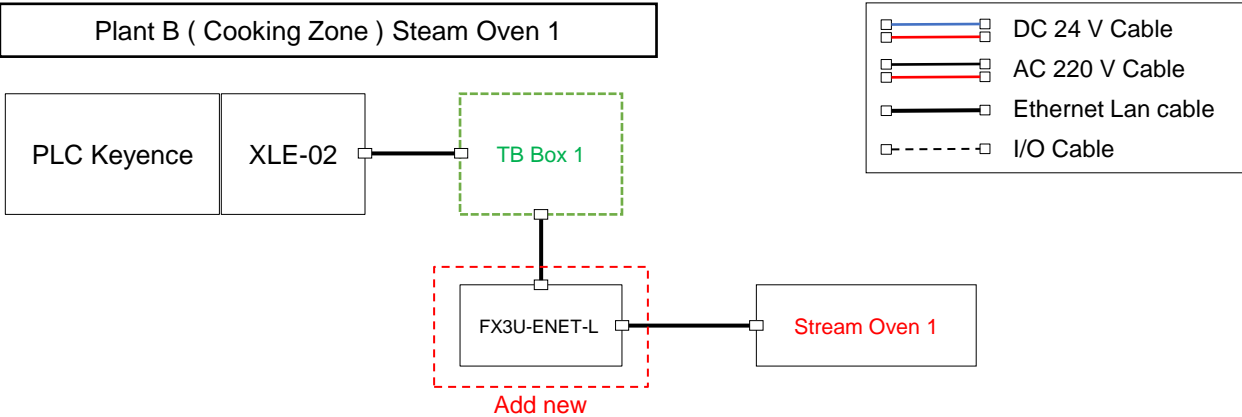
Installation of equipment for extracting data from machines



*Install the FX3U-ENET-L device for retrieving data from the High-cook machine.

4. Hardware install

Installation of equipment for extracting data from machines

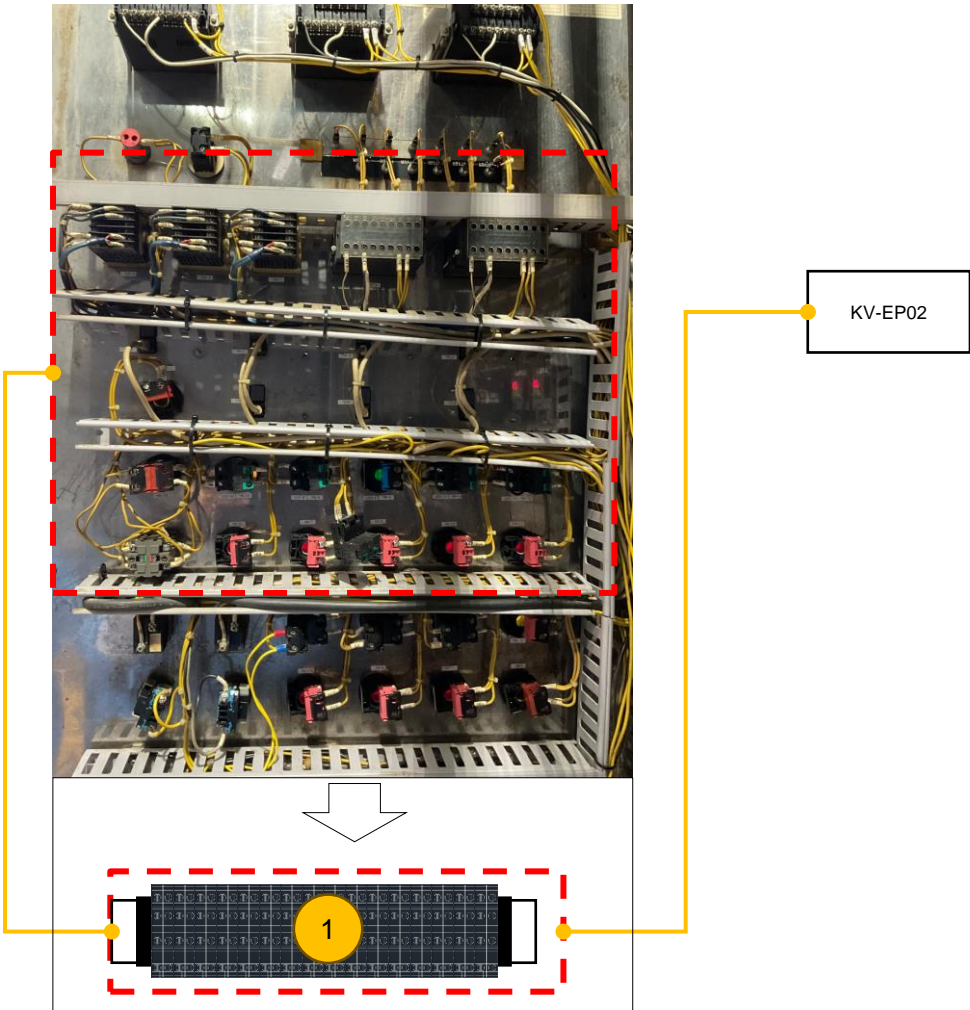
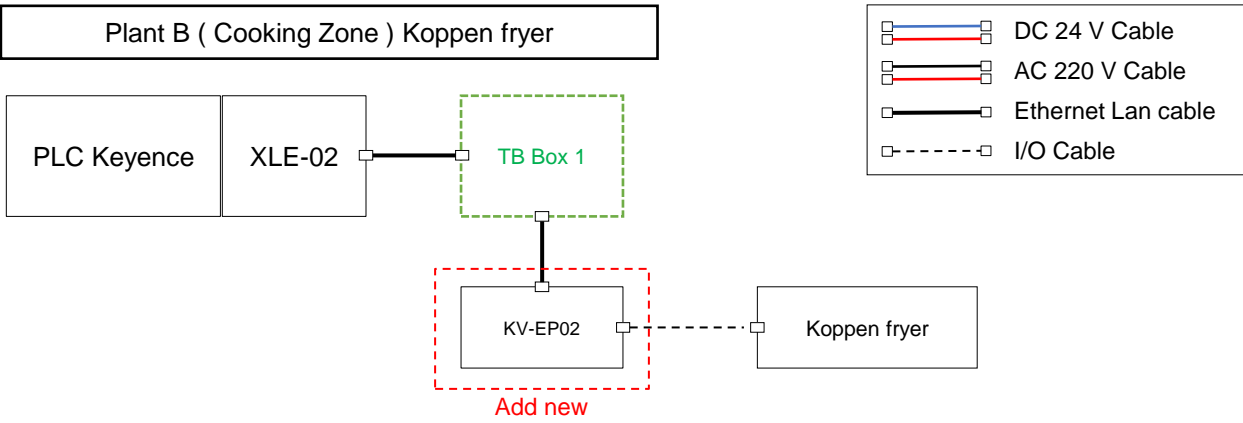


The installation of the equipment cannot be verified because the control cabinet cannot be opened.



4. Hardware install

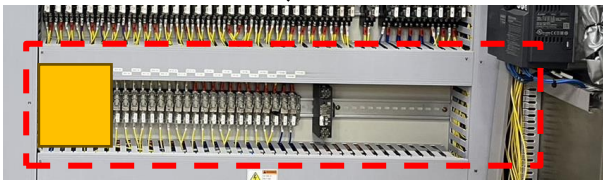
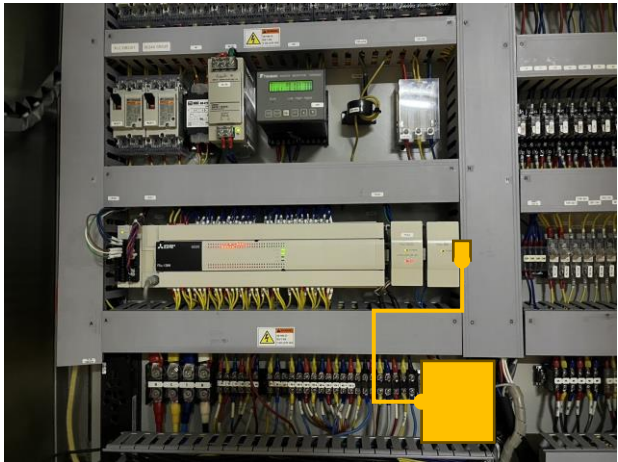
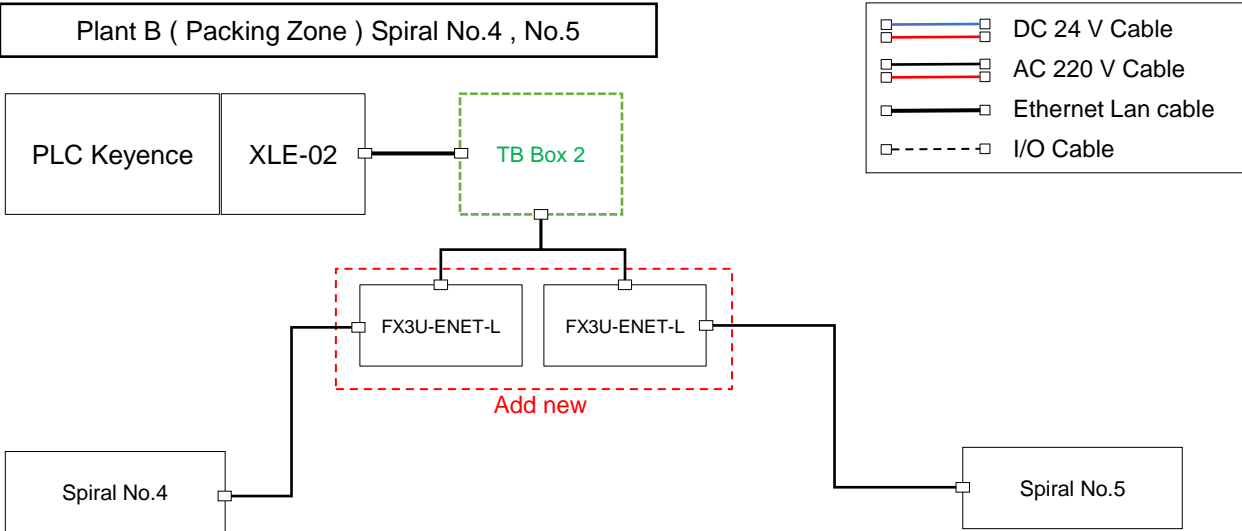
Installation of equipment for extracting data from machines



*Attach Din-rial to number 1 to install Terminal for retrieving data from I/O machines.

4. Hardware install

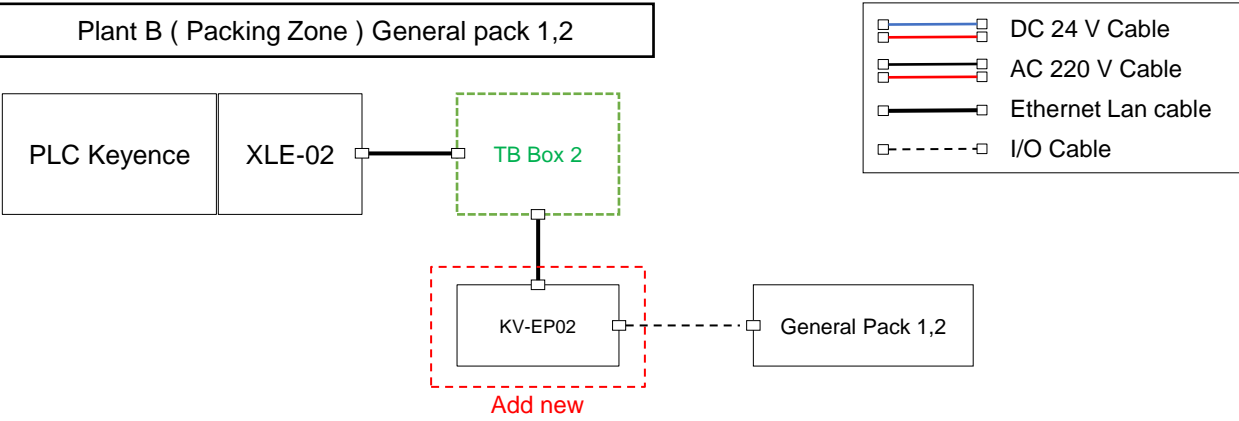
Installation of equipment for extracting data from machines



****Change the layout by moving the marked devices closer together so that the FX3U-ENET-L can be installed.**

4. Hardware install

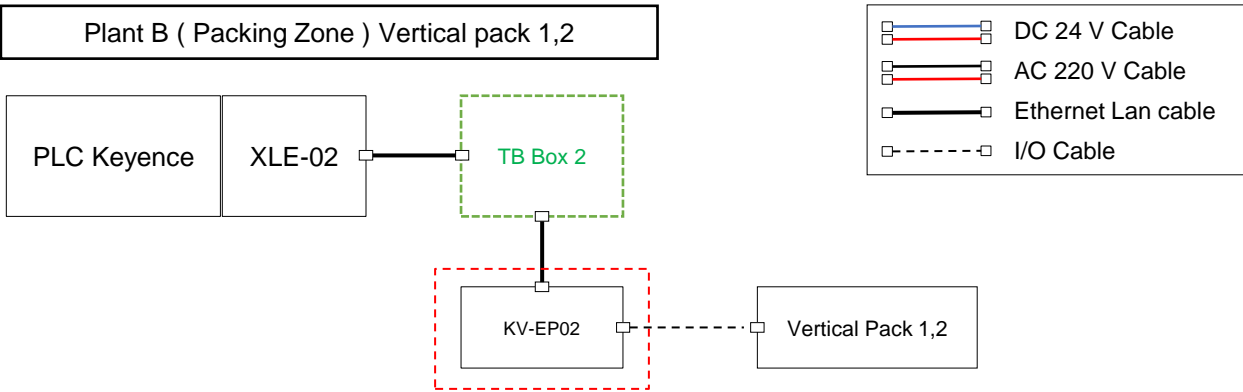
Installation of equipment for extracting data from machines



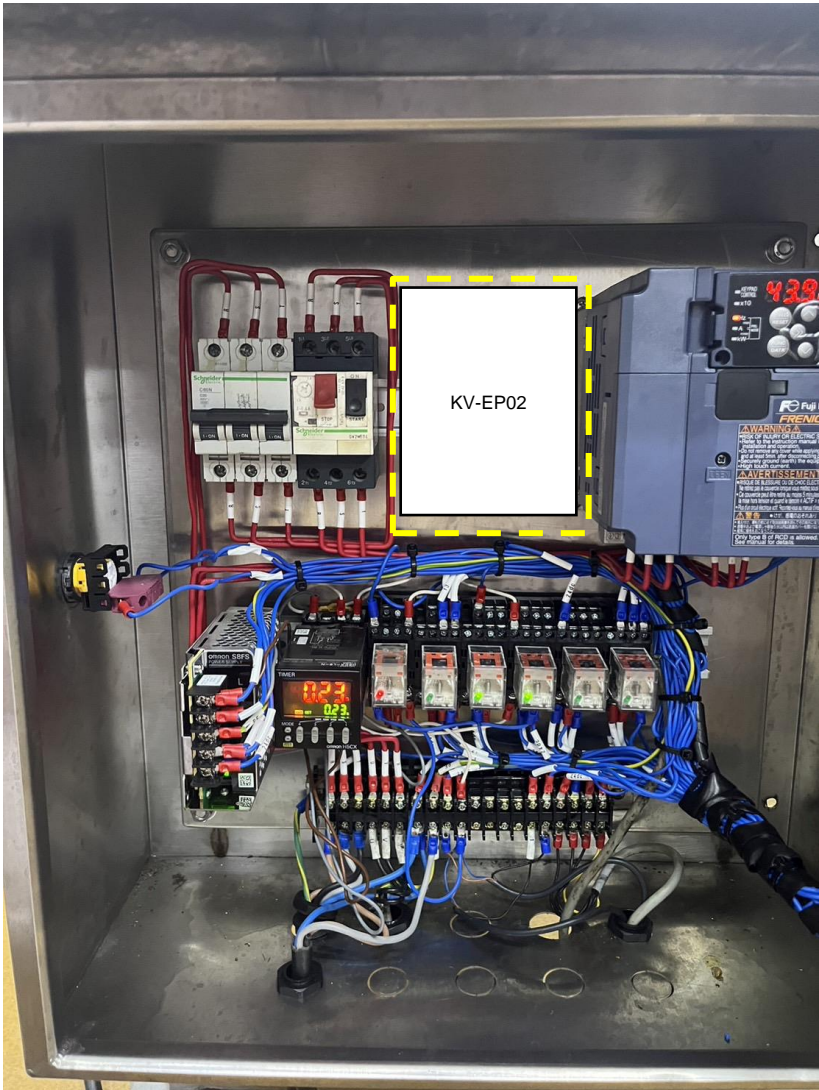
*Attach Terminal for retrieving data from I/O machines.

4. Hardware install

Installation of equipment for extracting data from machines



Add new
*Install EP02 in box Vertical pack machine



5. IP Assign

Assigning IP for use in the Machine operation monitoring system

Plant	No.	Equipment Name	IP Assign	Use in
A	1	PLC KV-8000	XXX.XXX.XXX.1	Main system
A	2	KV-XLE02 (Port 1)	XXX.XXX.XXX.2	Main system
A	3	KV-XLE02 (Port 2)	XXX.XXX.XXX.3	Main system
A	4	KV-XD02 (Port 1)	XXX.XXX.XXX.4	Main system
A	5	KV-XD02 (Port 2)	XXX.XXX.XXX.5	Main system
A	6	KV-EP02	XXX.XXX.XXX.20	Control system (TB1 Plant A)
A	7	KV-EP02	XXX.XXX.XXX.21	Control system (TB2 Plant A)
B	8	KV-EP02	XXX.XXX.XXX.22	Control system (TB1 Plant B)
B	9	KV-EP02	XXX.XXX.XXX.23	Control system (TB1-1 Plant B)
B	10	KV-EP02	XXX.XXX.XXX.24	Control system (TB1-2 Plant B)
A	11	AMX-PLC	XXX.XXX.XXX.40	Control system (Polystar 1)
A	12	AMX-PLC	XXX.XXX.XXX.41	Control system (Polystar 2)
A	13	AMX-PLC	XXX.XXX.XXX.42	Control system (Polystar 3)
A	14	FX3U-ENET-L	XXX.XXX.XXX.50	High-cook1
A	15	FX3U-ENET-L	XXX.XXX.XXX.51	High-cook2
A	16	FX3U-ENET-L	XXX.XXX.XXX.52	New High-cook1
A	17	FX3U-ENET-L	XXX.XXX.XXX.53	New High-cook2
A	18	FX3U-ENET-L	XXX.XXX.XXX.54	Sunmax
B	19	FX3U-ENET-L	XXX.XXX.XXX.55	High-cook1
B	20	FX3U-ENET-L	XXX.XXX.XXX.56	High-cook2
B	21	FX3U-ENET-L	XXX.XXX.XXX.57	Steam Oven1
B	22	FX3U-ENET-L	XXX.XXX.XXX.58	Spiral No.3
B	23	FX3U-ENET-L	XXX.XXX.XXX.59	Spiral No.4
A	24	QJ71EN71-100	XXX.XXX.XXX.70	Spiral No.6
A	25	QJ71EN71-100	XXX.XXX.XXX.71	Spiral No.7
	26		XXX.XXX.XXX.100-150	For Spare
	27		XXX.XXX.XXX.100-150	For Service
	28		XXX.XXX.XXX.200-254	For monitoring

6. Cable specifications

Signal I/O *By owner

Part no.10047 18G x 0.75



HELUKABEL® <VDE-REG 7032> JZ-500 25G1,5 QMM / 10110 300/500 V CE

TECHNICAL DATA

PVC control and connection cable in alignment with DIN VDE 0285-525-2-51 / DIN EN 50525-2-51

Temperature range	flexible -15°C to +80°C fixed -40°C to +80°C
Nominal voltage	AC U ₀ /U 300/500 V
Test voltage core/core	4000 V
Breakdown voltage	8000 V
Minimum bending radius	flexible 7.5x Outer-Ø fixed 4x Outer-Ø

■ CABLE STRUCTURE

- Copper wire bare, finely stranded acc. to DIN VDE 0295 Class 5 / IEC 60228 Class 5
- Core insulation: PVC, compound type Z 7225
- Core identification acc. to DIN VDE 0293-334, black cores with consecutive labeling in white digits
- Protective conductor: starting with 3 cores, G = with protective conductor GN-YE, in the outer layer, x = without protective conductor (OZ)
- Cores stranded in layers with optimal lay lengths
- Outer sheath: PVC acc. to DIN VDE 0207-363-4-1 / DIN EN 50363-4-1 (compound type TM2)
- Sheath colour: grey (RAL 7001)
- Length marking: in metres

■ PROPERTIES

- largely resistant to: oil, for details, see "Technical Information"
- conditionally torsional
- conditionally suitable for drag chains
- the materials used during manufacturing are cadmium-free, contain no silicone and are free from substances harmful to the wetting properties of lacquers

■ TESTS

- flame-retardant acc. to DIN VDE 0482-332-1-2 / DIN EN 60332-1-2 / IEC 60332-1-2
- certifications and approvals: EAC
- VDE-Reg.-No. 7032, valid for temperature range up to +70°C

■ APPLICATION

Used for flexible applications involving medium mechanical stress with free movement, without tensile stress and without forced motion control in dry, damp and wet rooms, however, not suitable for outdoor use. Used as a connection and control cable in machine tools, assembly lines and conveyor belts, production lines, in plant construction, air-conditioning technology, in smelters and steel mills. Select PVC compounds guarantee good flexibility, efficient and quick installation.

■ NOTES

- the conductor is metrically (mm²) constructed, AWG numbers are approximated, and are for reference only
- please note "cleanroom qualification" in your order

Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer Ø mm, approx.	Cu-weight kg/km	Weight kg/km, approx.
10177	6 x 0.75	19	7.7	43.0	99.0
10038	7 G 0.75	19	7.7	50.0	110.0
10039	7 x 0.75	19	7.7	50.0	110.0
10040	8 G 0.75	19	8.3	58.0	130.0
10173	8 x 0.75	19	8.3	58.0	130.0
10041	9 G 0.75	19	9.1	65.0	153.0
10042	10 G 0.75	19	9.8	72.0	162.0
10043	12 G 0.75	19	10.1	86.0	179.0
10044	12 x 0.75	19	10.1	86.0	179.0
10045	14 G 0.75	19	10.8	101.0	214.0
10046	15 G 0.75	19	11.4	108.0	218.0
10047	18 G 0.75	19	12.2	130.0	257.0
10533	19 G 0.75	19	12.2	137.0	264.0
10048	20 G 0.75	19	12.8	144.0	286.0

7. Q&A

Question	By	Date	Answer	By

8. Sign off

We hereby acknowledge and agree the above-mentioned blueprint requirements.
Any changes required after the sign off for this blueprint will be addressed through the change request process.

Thai Nippon Foods Co., Ltd.
Sign:

Name:

Title:

Date:

TOMAS TECH CO.,LTD.

Sign:

Name:

Title:

Date:

END OF BLUEPRINT##