Version 05/Feb/2023

Confidential

MK project Area 2 Camera specifications Documentation EN

Blueprint

R5

Made for : Daifuku (Thailand) Ltd., Meiji (Thailand) Co.,Ltd.

By : TOMAS TECH CO.,LTD.

TOMAS TECH

TOMAS TECH CO.,LTD.

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Tel :+66-98-271-9741 E-mail : info@tomastc.com

Revision History

Date	Version	File name	Details
31/Oct/2022	R1	MK project Area 2 Camera specifications Documentation EN Blueprint	First edition
01/Nov/2022	R2	MK project Area 2 Camera specifications Documentation EN Blueprint	Second edition 
10/Nov/2022	R3	MK project Area 2 Camera specifications Documentation EN Blueprint	Third edition 
14/Nov/2022	R4	MK project Area 2 Camera specifications Documentation EN Blueprint	4th edition 
05/Feb/2023	R5	MK project Area 2 Camera specifications Documentation EN Blueprint	5th edition 

■ Contents

1. Overview

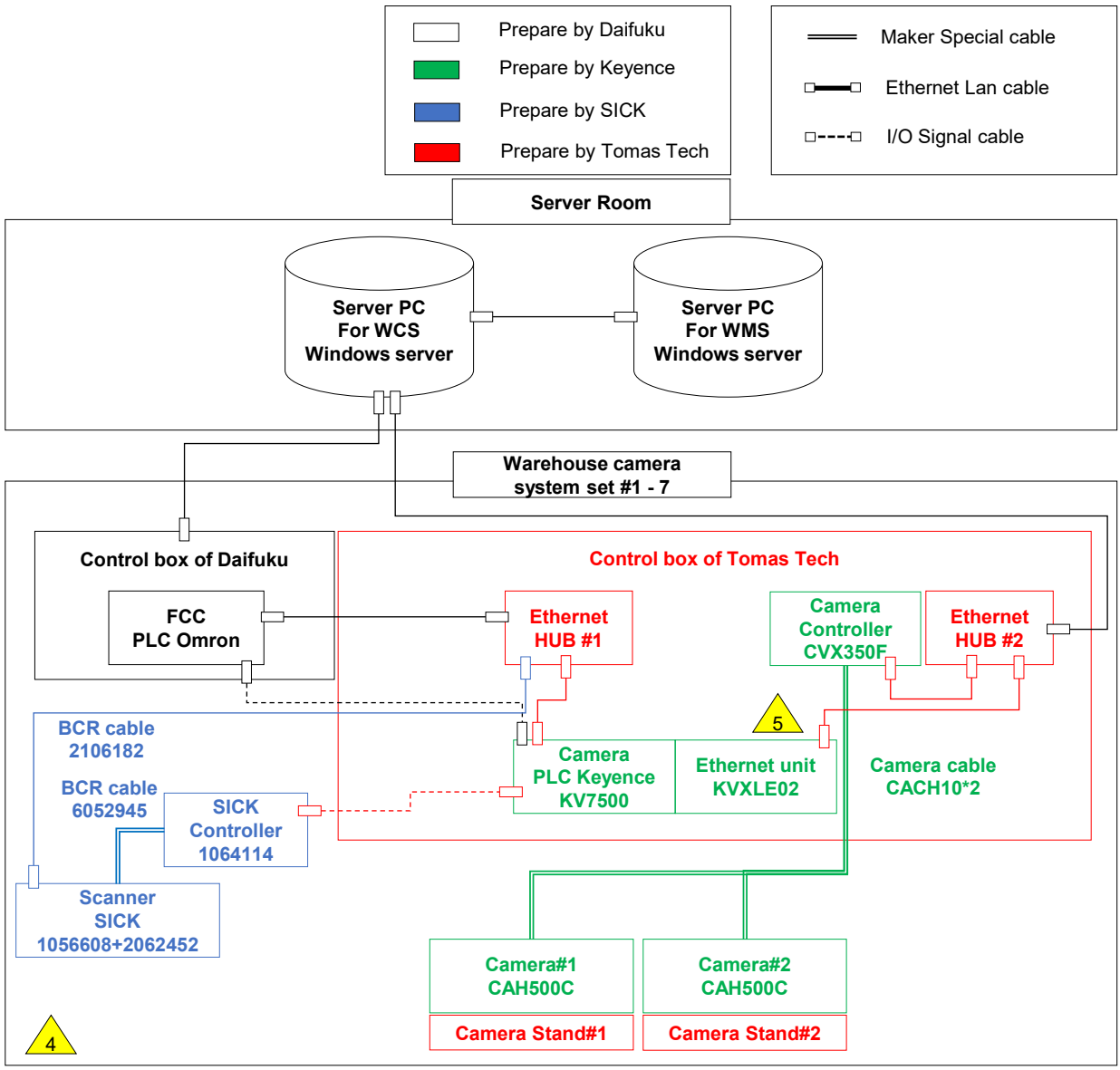
A Keyence camera takes a picture of a package being transported on a conveyor. By using a barcode reader, scan information and link the captured information.
Each information is stored on Daifuku's server via Ethernet.

2. Overall configuration diagram

Overall configuration diagram image (Hardware configuration)

2

#	Item	Qty	IP adress	Preparation By
1	Server PC for WMS Windows server	1		Daifuku
2	Server PC for WCS Windows server	1		Daifuku
3	FCC PLC Omron	1		Daifuku
4	Camera Controller CVX350F	7		Keyence
5	Camera PLC Keyence KV7500	7		Keyence
6	Ethernet unit KVXLE02	7		Keyence
7	Camera CAH500C	14		Keyence
8	Camera cable CACH10	14		Keyence
9	BCR cable 2106182	7		SICK
10	BCR cable 6052945	7		SICK
11	SICK Controller 1064114	7		SICK
12	Scanner SICK 1056608+2062452	7		SICK
13	Control box of Daifuku	1		Daifuku
14	Camera Stand	14		Tomas
15	Ethernet HUB	14		Tomas
16	Control box of Tomas Tech	7		Tomas
17				
18				
19				

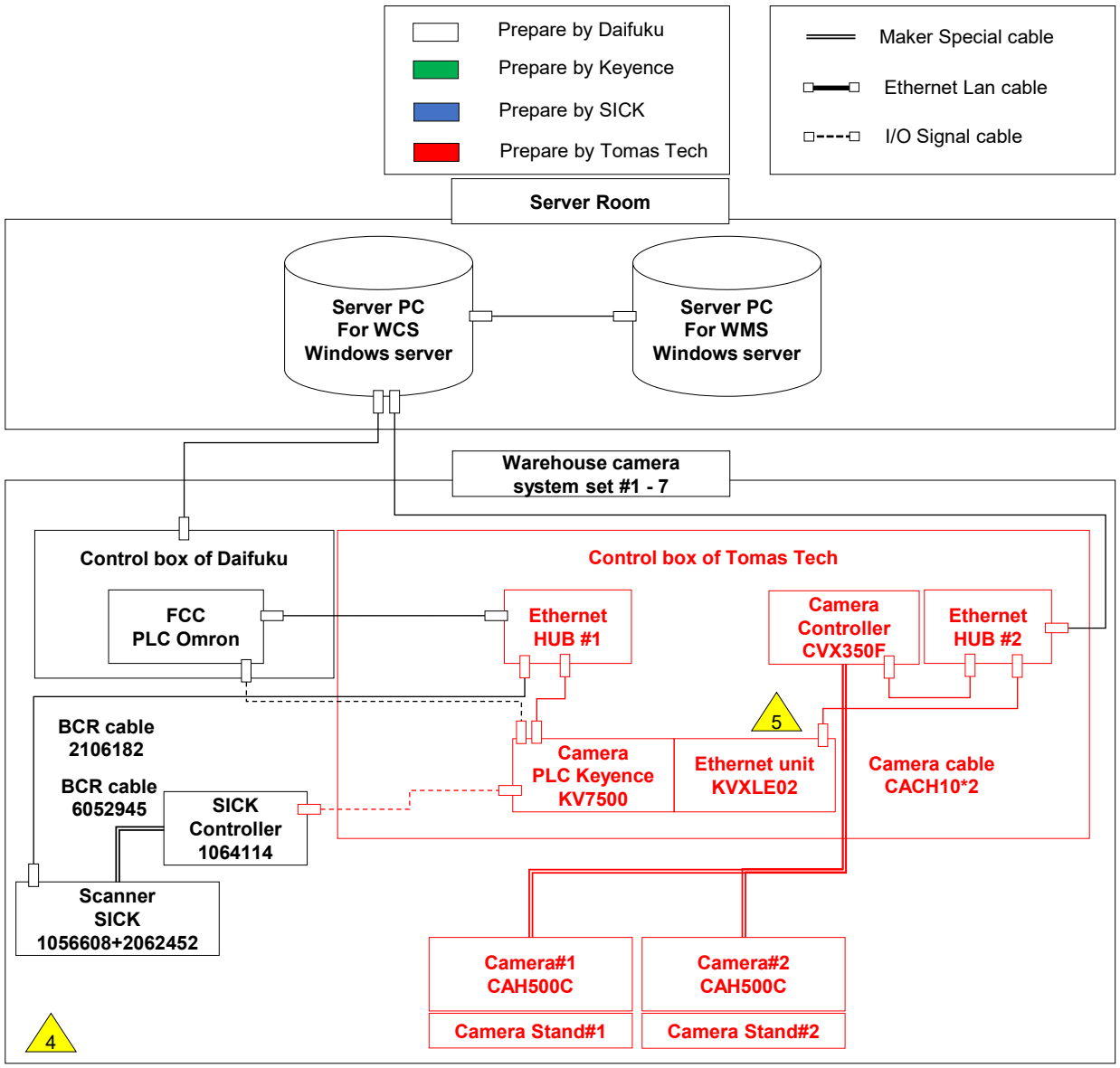


2. Overall configuration diagram

Overall configuration diagram image (Installation configuration)

2

#	Item	Qty	IP adress	Preparation By
1	Server PC for WMS Windows server	1		Daifuku
2	Server PC for WCS Windows server	1		Daifuku
3	FCC PLC Omron	1		Daifuku
4	Camera Controller CVX350F	7		Tomas
5	Camera PLC Keyence KV7500	7		Tomas
6	Ethernet unit KVXLE02	7		Tomas
7	Camera CAH500C	14		Tomas
8	Camera cable CACH10	14		Tomas
9	BCR cable 2106182	7		Daifuku
10	BCR cable 6052945	7		Daifuku
11	SICK Controller 1064114	7		Tomas
12	Scanner SICK 1056608+2062452	7		Daifuku
13	Control box of Daifuku	1		Daifuku
14	Camera Stand	14		Tomas
15	Ethernet HUB	14		Tomas
16	Control box of Tomas Tech	7		Tomas
17	Power and Lan wiring to Control box of Tomas Tech	7		Daifuku
18				
19				

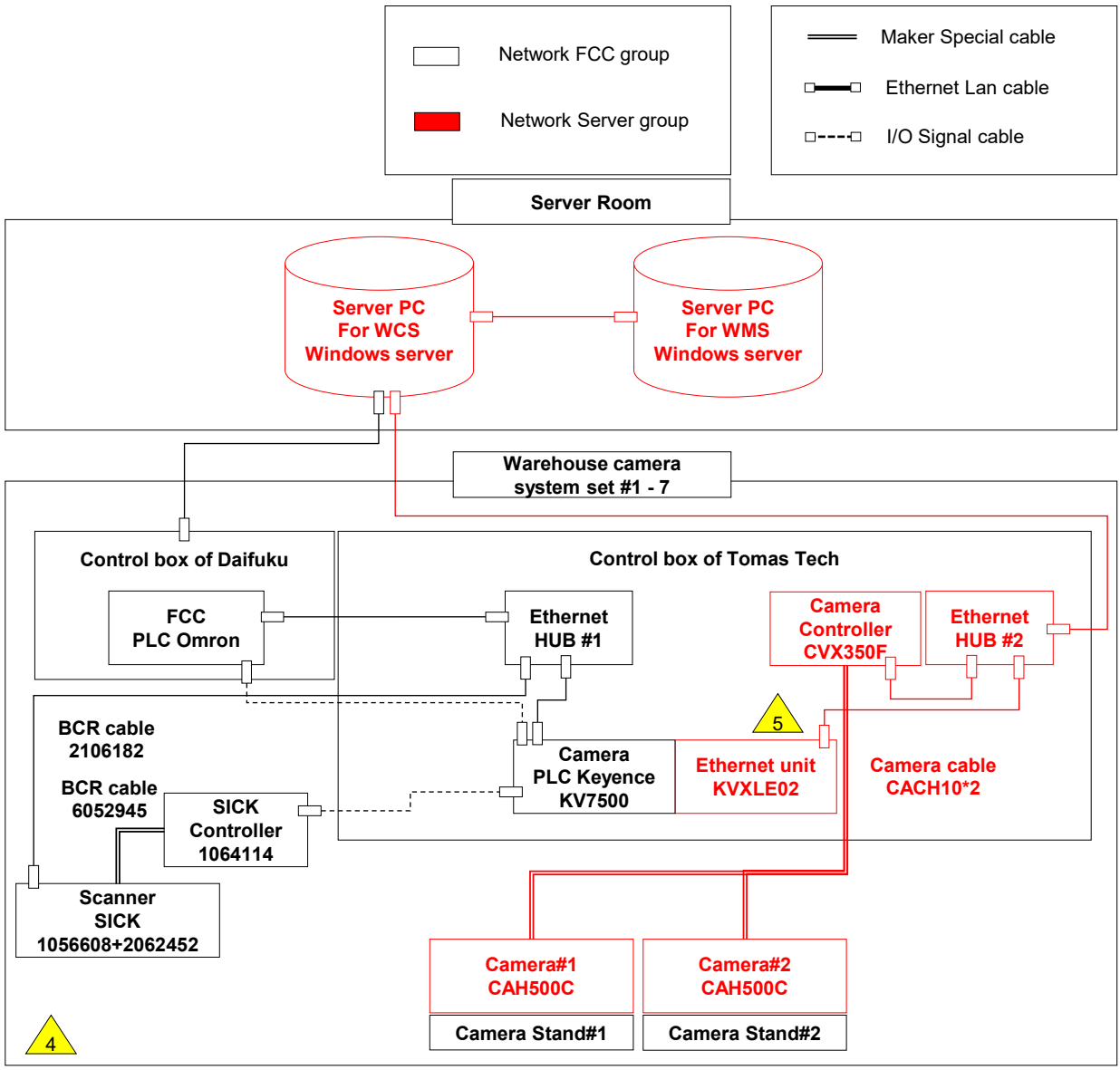


2. Overall configuration diagram

Overall configuration diagram image (Network group)

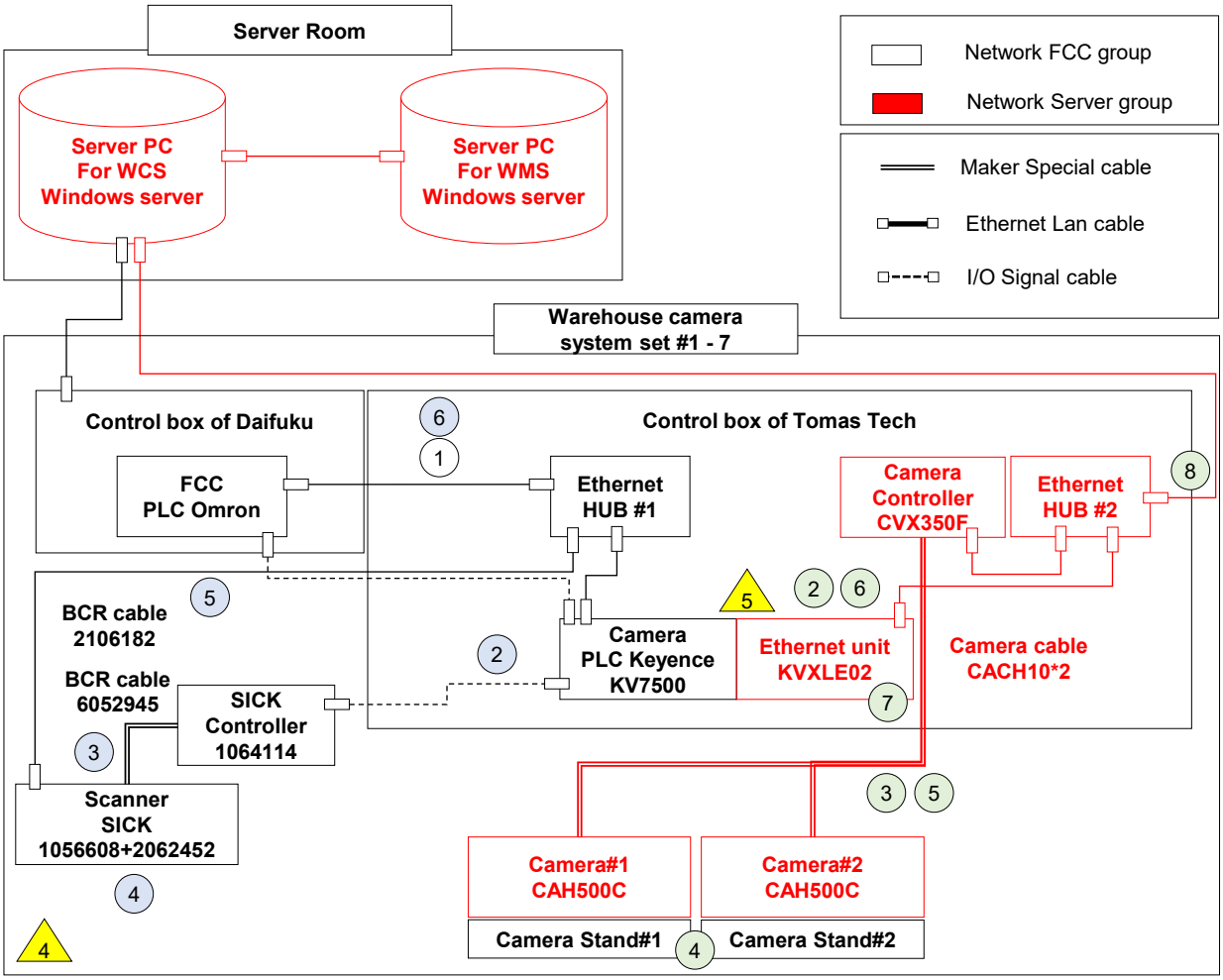
2

#	Item	Qty	IP adress	Network group
1	Server PC for WMS Windows server	1		Server group
2	Server PC for WCS Windows server	1		Server group
3	FCC PLC Omron	1		FCC group
4	Camera Controller CVX350F	7		Server group
5	Camera PLC Keyence KV7500	7		Server group / FCC group
6	Ethernet unit KVXLE02	7		Server group
7	Camera CAH500C	14		Server group
8	Camera cable CACH10	14		Server group
9	BCR cable 2106182	7		FCC group
10	BCR cable 6052945	7		FCC group
11	SICK Controller 1064114	7		FCC group
12	Scanner SICK 1056608+2062452	7		FCC group
13	Control box of Daifuku	1		FCC group
14	Camera Stand	14		FCC group
15	Ethernet HUB	14		FCC group
16	Control box of Tomas Tech	7		Server group / FCC group
17				
18				
19				



3. System functional specifications

System processing list



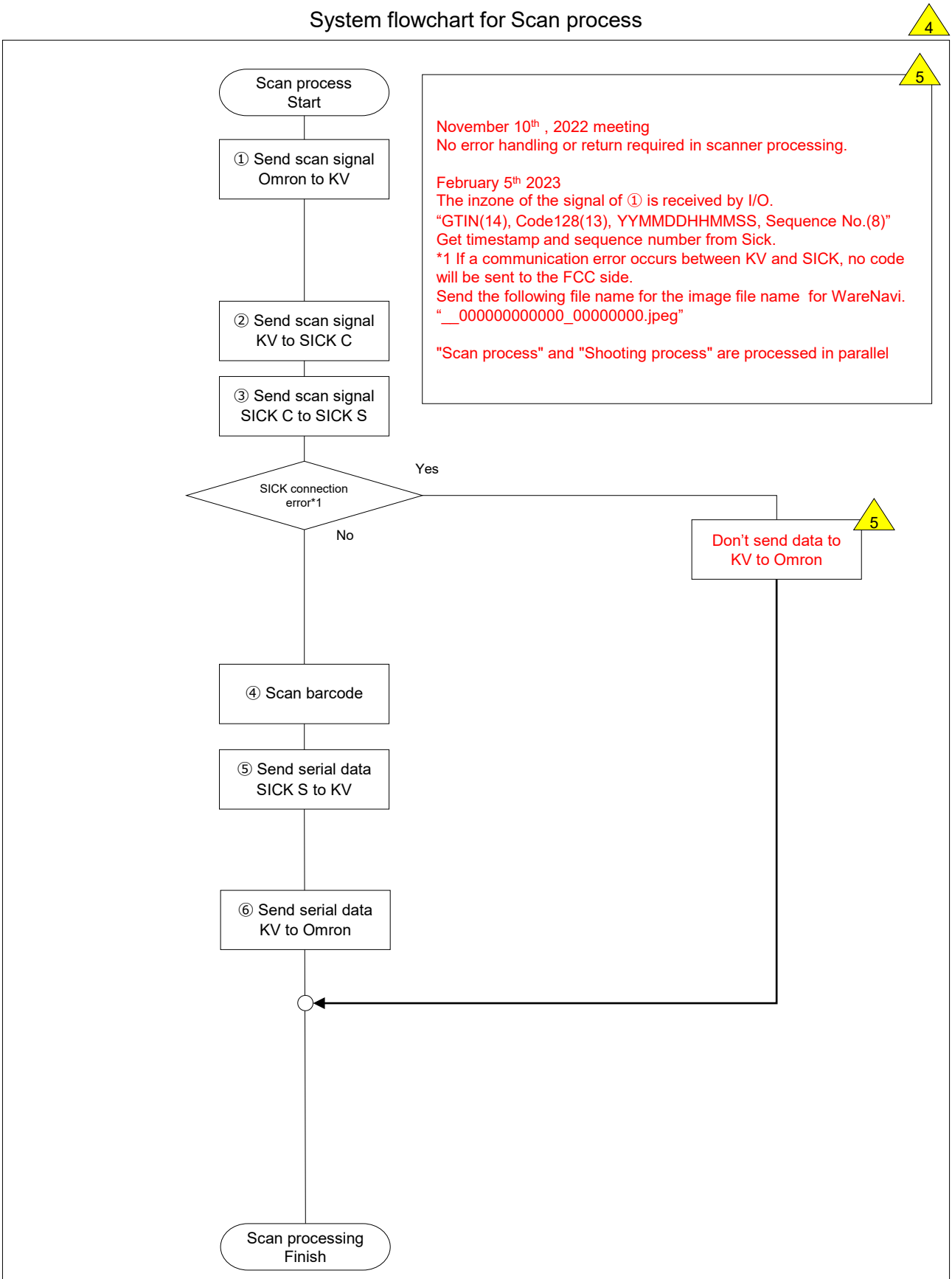
①Send trigger signal from FCC PLC Omron to Camera PLC Keyence (FCC Omron PLC → Camera PLC Keyence)
Communication method: I/O

② Send scan signal from Camera PLC Keyence to SICK Controller (Camera PLC Keyence → SICK Controller) Communication method: I/O
③ Scan signal is sent from SICK Controller to Scanner SICK (SICK Controller → Scanner SICK)
Communication method: SICK scanner communication
④ Barcode scanning
⑤ Send barcode data from Scanner SICK to Camera PLC Keyence (Scanner SICK → Camera PLC Keyence) Communication method: Ethernet
⑥ Send barcode data from Camera PLC Keyence to FCC Omron PLC (Camera PLC Keyence → FCC Omron PLC)
Communication method: Socket communication*2

②Send the shooting signal from Camera PLC Keyence to Camera Controller CVX350F (Camera PLC Keyence → Camera Controller CVX350F)
Communication method: Ethernet
③Send the shooting signal from Camera Controller CVX350F to CameraCAH500C (Camera PLC Keyence → Camera Controller CVX350F)
Communication method: Keyence CV communication
④ Shooting
⑤ Send image data from CameraCAH500C to Camera Controller CVX350F (Camera Controller CVX350F → Camera PLC Keyence)
Communication method: Keyence CV communication
⑥ Send image data from Camera Controller CVX350F to Camera PLC Keyence Communication method: Ethernet
⑦ Rename processing of image data with Camera PLC Keyence
⑧ Send image data from Camera PLC Keyence to Server PC for WCS Windows server
(Camera PLC Keyence → Server PC for WCS Windows server) Communication method: FTP

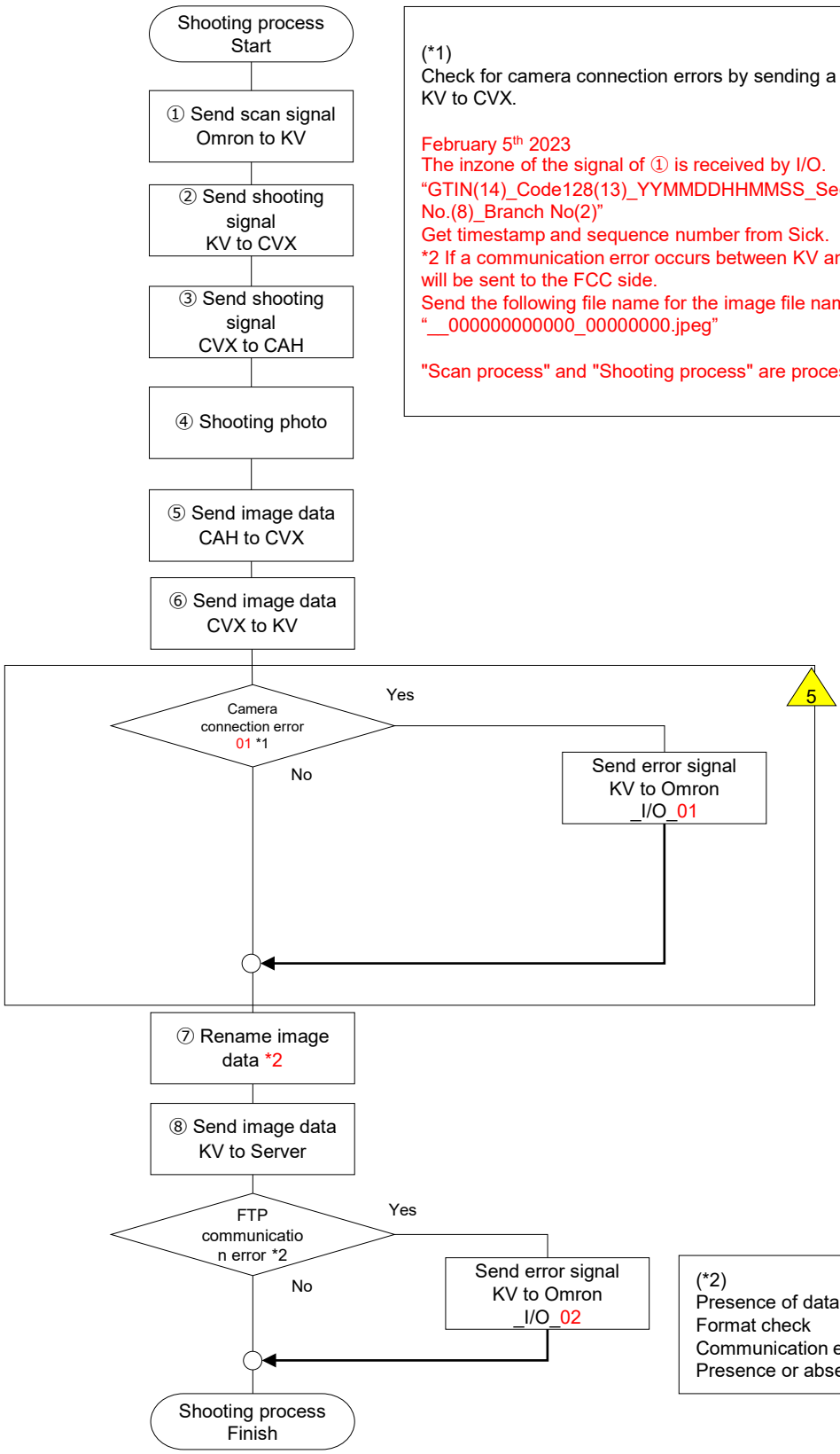
3. System functional specifications

System flowchart for Scan process



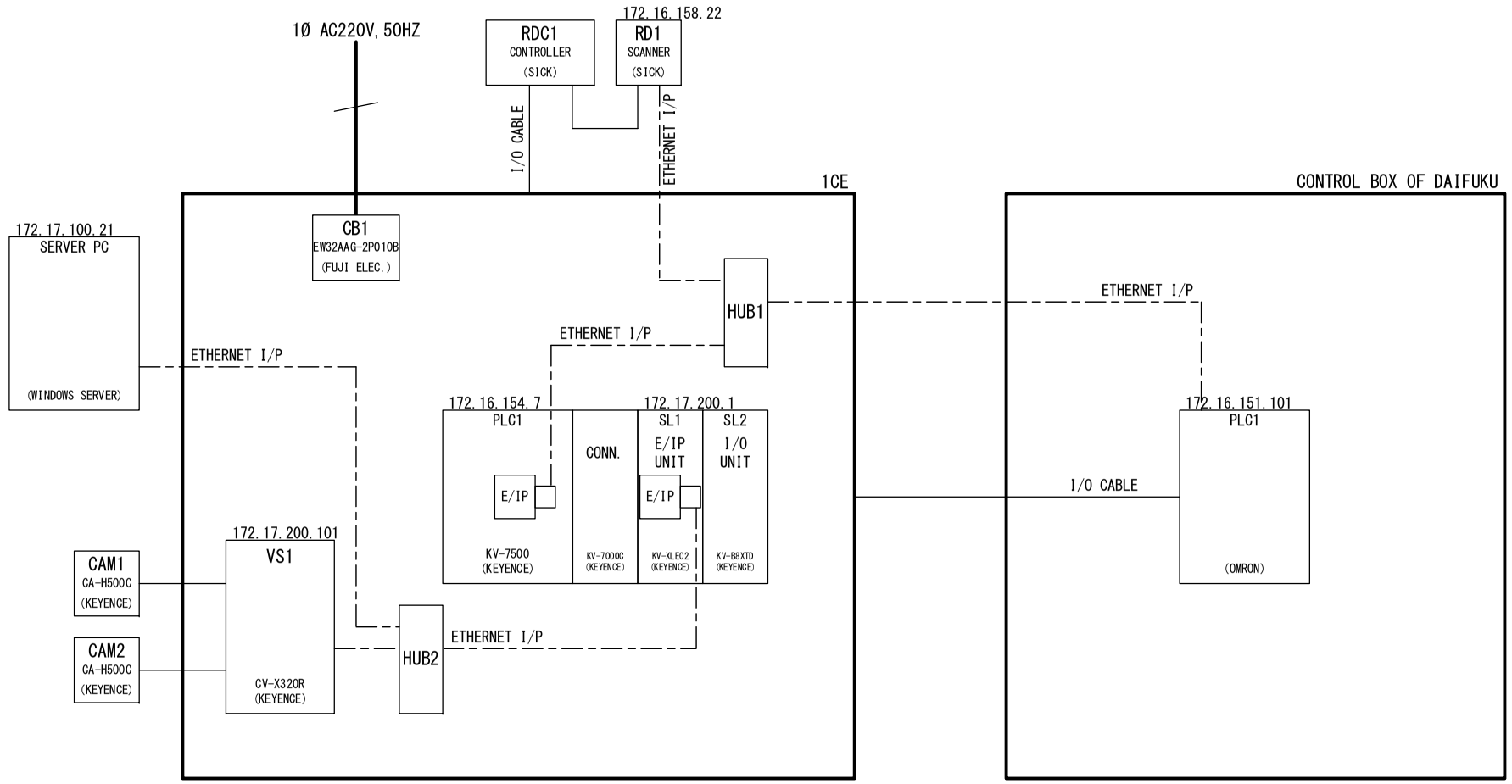
3. System functional specifications

System flowchart for shooting process



4. Drawing

POWER SPECIFICATION	AC 220 V, 50 Hz
SPEC. FRAME BREAKER	32 A
RATE CAPACITY	10 A



ASSY NO.			
TRACK TIME	____-____s		
PLC	KV-7500		
USE TOOL	PLC	KV STUDIO Ver. 11G	
SUPPLIES LIFE	NAME	MODEL	LIFE
	CPU UNIT BATTERY	KV-B1	5 YEAR

PART NAME: SYSTEM BLOCK DIAGRAM							
TOMAS TECH CO., LTD.					PART NO. MKP102022-AA-0000-TMT MKP102022-EE-5000-TMT	ASP CODE Z	SHEET 1/1
APPROVED	CHECKED	CHECKED	DESIGNED	DRAWN	REMARK: MK PROJECT AREA 2 CAMERA UNIT		SCALE —
			10/2022 SUWACHET	10/2022 SUWACHET			

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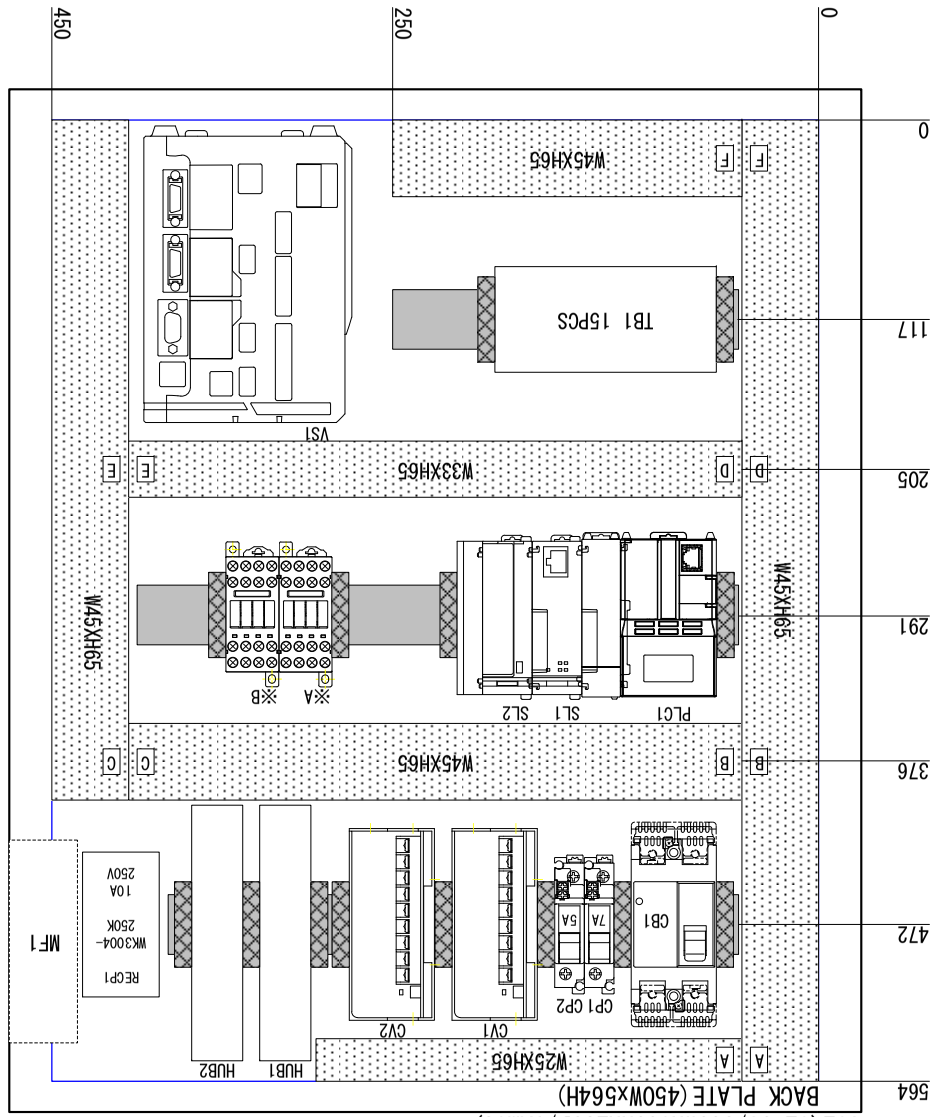

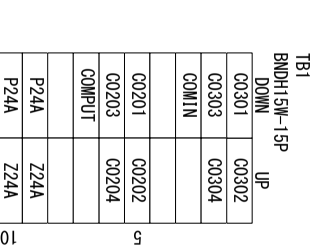

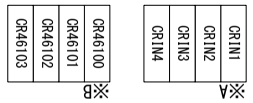

PART NAME	1CE LAYOUT				
	TOMAS TECH CO.,LTD.				
APPROVED	CHECKED	CHECKED	DESIGNED	DRAWN	REMARK
			10/2022 SUWACHET	10/2022 SUWACHET	MK PROJECT AREA 2 CAMERA UNIT
PART NO.	MKP102022-AA-0000-TMT				SCALE
	MKP102022-EE-8000-TMT				—
ASP CODE Z					SHEET 1/2

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PART NAME	ICE DEVICE LIST		
	TOMAS TECH CO.,LTD.	PART NO.	MKP102022-AA-0000-TMT
APPROVED			MKP102022-EE-8000-TMT
CHECKED		ASP CODE	Z
CHECKED		SCALE	—
DESIGNED	10/2022 SUWACHET	REMARK	MK PROJECT AREA 2 CAMERA UNIT
DRAWN	10/2022 SUWACHET	SHEET	2 / 2

MARK	BRANCHED PART NO.	NOMINAL CODE	PART NAME	Q'TY UNIT	MAKER	NOTE
1						
2						
3						
4						
5						
6						
7						
8		W45XH65	WIRE DUCT	1	PIYA	
9		W33XH65	WIRE DUCT	1	PIYA	
10		W25XH65	WIRE DUCT	1	PIYA	
11						
12		BNJ26FWPN10	JUMPER	5	IDEC	
13		BNL6	STOPPER	2	IDEC	
14		PFP-M	STOPPER	12	OMRON	
15						
16						
17						
18						
19	TB1	BNDE15W	END PLATE	1	IDEC	
20		BNDH15W	TERMINAL	15	IDEC	
21						
22		BNC240	LOWER DUST COVER	1	IDEC	
23		BNC230	UPPER DUST COVER	1	IDEC	
24						
25		BNM3	MARK STRIP END	2	IDEC	
26		BNM7	MARK STRIP	2	IDEC	
27		BNS3	DIN RAIL STAND OFF	2	IDEC	
28		PFP-100N	DIN RAIL	3	OMRON	
29						
30						
31						
32						
33						
34						
35						
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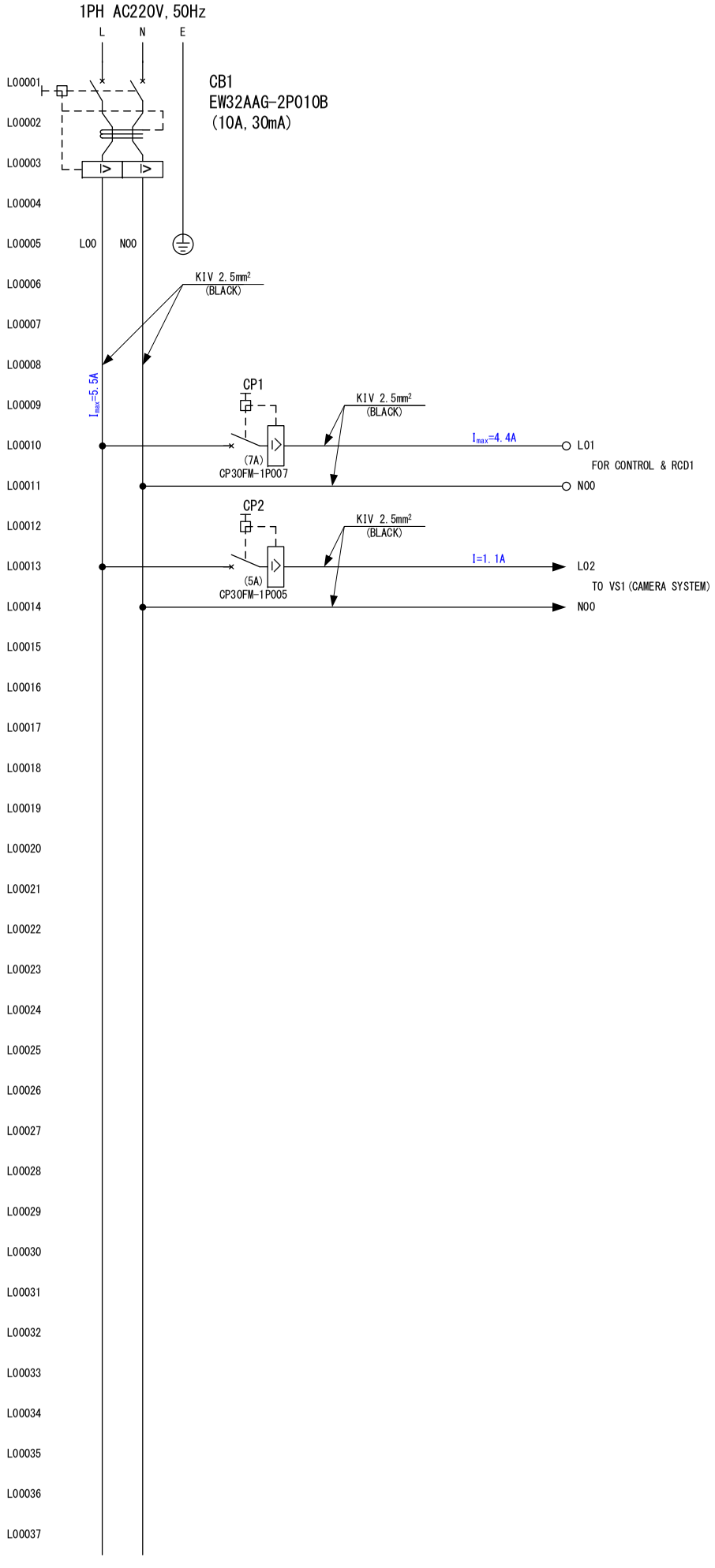
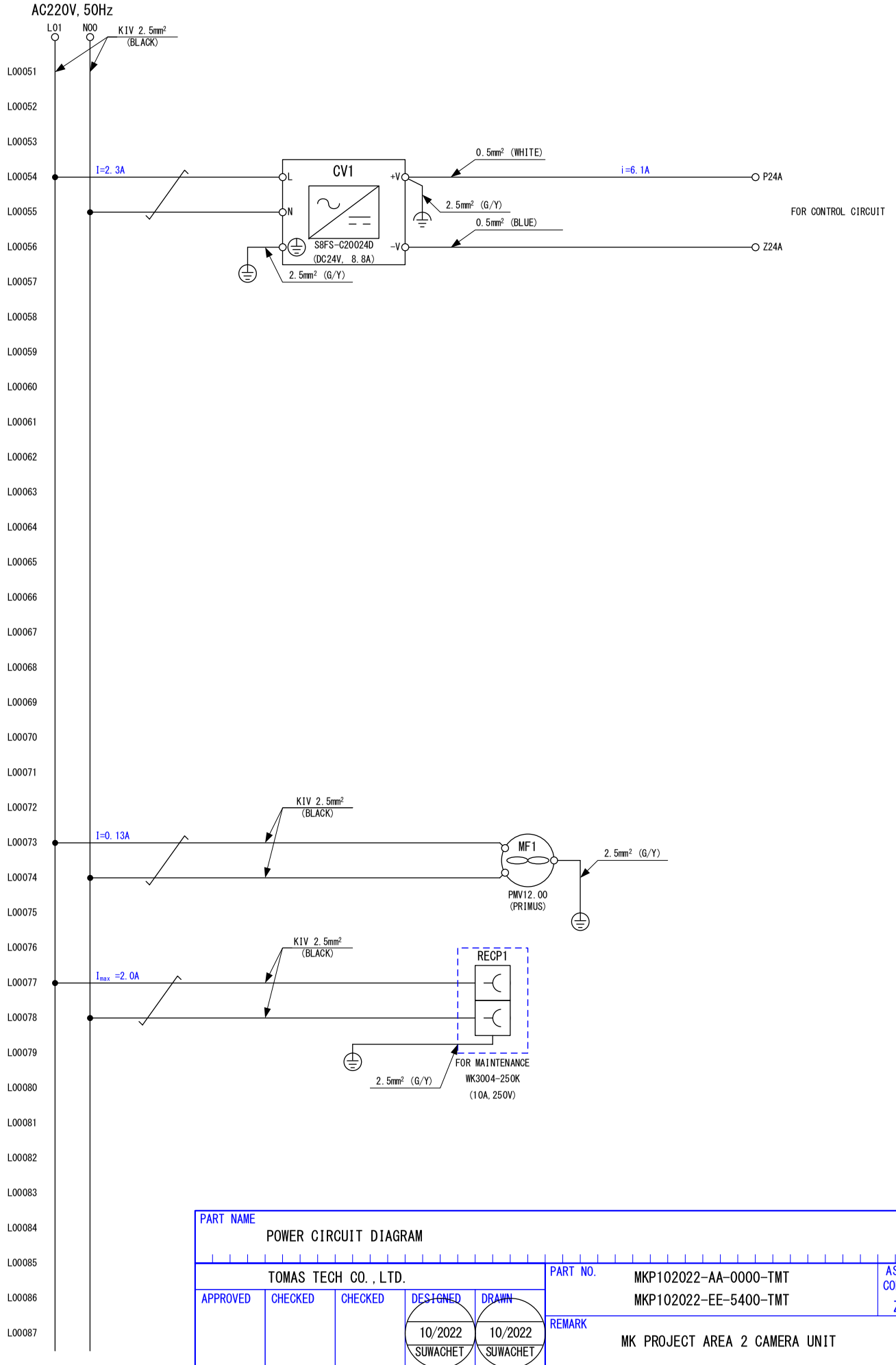
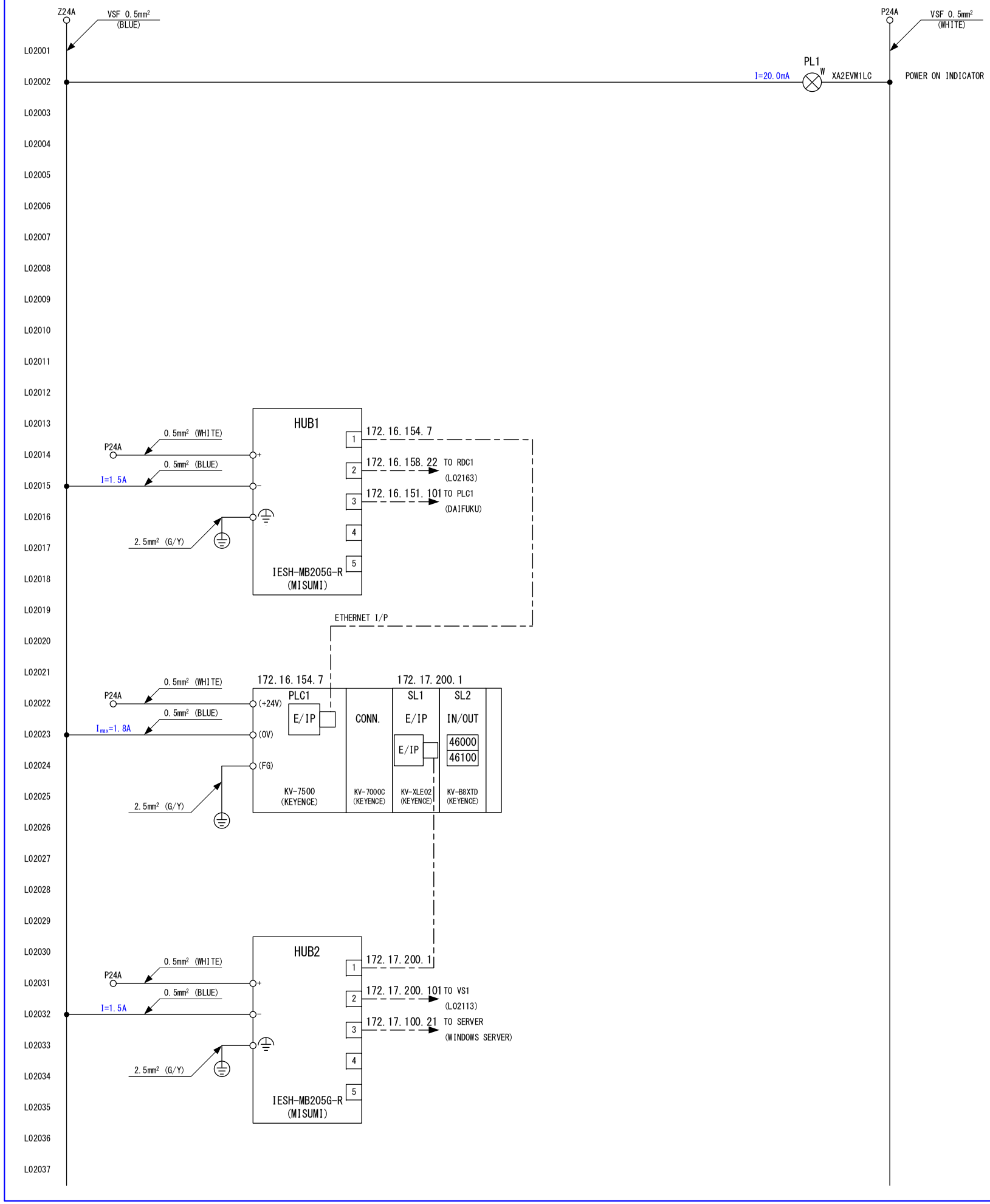
42						
43						

MARK	BRANCHED PART NO.	NOMINAL CODE	PART NAME	Q'TY UNIT	MAKER	NOTE
111	PLC1	KV-750D	CPU UNIT	1	KEYENCE	
112		KV-700DC	CONNECTION UNIT	1	KEYENCE	
113		KV-XLE02	ETHERNET I/P UNIT	1	KEYENCE	
114		KV-B8XTD	INPUT 8/OUTPUT 8 UNIT	1	KEYENCE	
115						
116						
117						
118						
119	CV1	S8FS-C20024D	POWER SUPPLY	1	OMRON	
120	CV2	S8FS-C10024D	POWER SUPPLY	1	OMRON	
121						
122						
123	MF1	PMV12.00 220VAC/50HZ	MOTOR FAN KIT	1	PRIMUS	
124		PMF12	FILTER	1	PRIMUS	
125						
126						
127						
128	CB1	BW8BTAA-S2	COVER BREAKER	1	FUJI ELEC.	
129		EW32AAG-2P010B	CIRCUIT BREAKER	1	FUJI ELEC.	
130						
131	CP1	CP30FM-1P007	CIRCUIT PROTECTOR	1	FUJI ELEC.	
132	CP2	CP30FM-1P005	CIRCUIT PROTECTOR	1	FUJI ELEC.	
133						
134	HUB1,HUB2	IESH-MB205G-R	SWITCHING HUB	2	MISUMI	
138						
139						
140	VS1	CV-X320R	VISION CONTROLLER	1	KEYENCE	
141						
142						
143	RECP1	WK3004-250K	RECEPTACLE	1	PANASONIC	
144						
145	CR1N1-4, CR46100-3	G6D-4-SB	SHORT BAR	4	OMRON	
146		G6D-F4B	RELAY	2	OMRON	
147						
148						
149	ICE	CE-08	CONTROL BOX	1	TEMCO	
150						
151						
152						
153						
154						
155						
156						





PART NAME	POWER CIRCUIT DIAGRAM						
TOMAS TECH CO., LTD.					PART NO.	MKP102022-AA-0000-TMT MKP102022-EE-5400-TMT	ASP CODE: Z
APPROVED	CHECKED	CHECKED	DESIGNED	DRAWN			SHEET: 1/4
			10/2022 SUWACHET	10/2022 SUWACHET	REMARK	MK PROJECT AREA 2 CAMERA UNIT	SCALE: —



PART NAME: CONTROL CIRCUIT DIAGRAM (MASTER ON CIRCUIT I)						
TOMAS TECH CO.,LTD.					PART NO. MKP102022-AA-0000-TMT MKP102022-EE-5400-TMT	ASP CODE Z / SHEET 2/4
APPROVED	CHECKED	CHECKED	DESIGNED 10/2022 SUWACHET	DRAWN 10/2022 SUWACHET	REMARK MK PROJECT AREA 2 CAMERA UNIT	SCALE —

L02101
L02102
L02103
L02104
L02105
L02106
L02107
L02108
L02109
L02110
L02111
L02112
L02113
L02114
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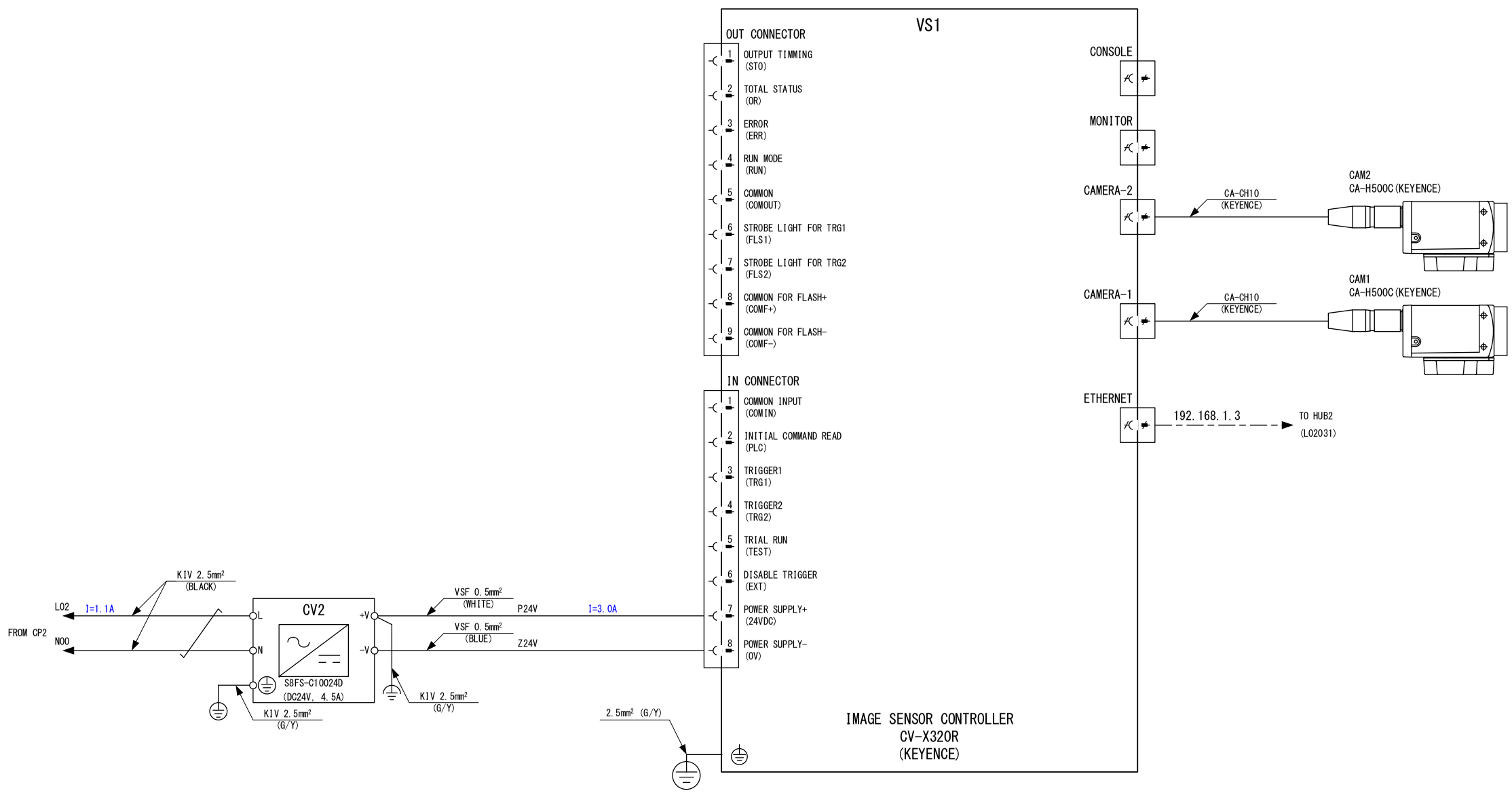

PART NAME	CONTROL CIRCUIT DIAGRAM (CAMERA CIRCUIT)					
TOMAS TECH CO.,LTD.				PART NO.	MKP102022-AA-0000-TMT MKP102022-EE-5400-TMT	ASP CODE Z / SHEET 3/4
APPROVED	CHECKED	CHECKED	DESIGNED 10/2022 SUWACHET	DRAWN 10/2022 SUWACHET	REMARK MK PROJECT AREA 2 CAMERA UNIT	SCALE —

L02151
L02152
L02153
L02154
L02155
L02156
L02157
L02158
L02159
L02160
L02161
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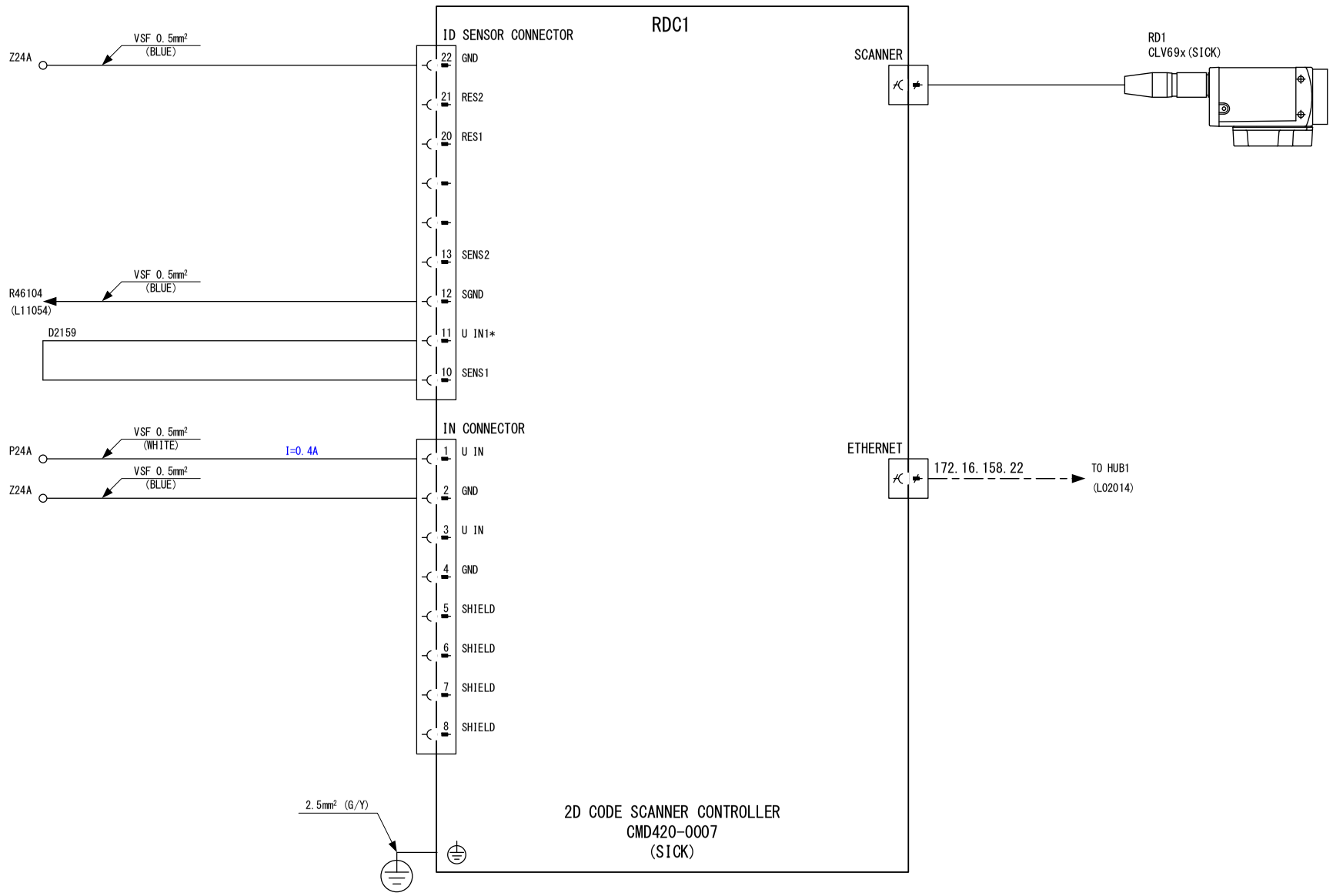
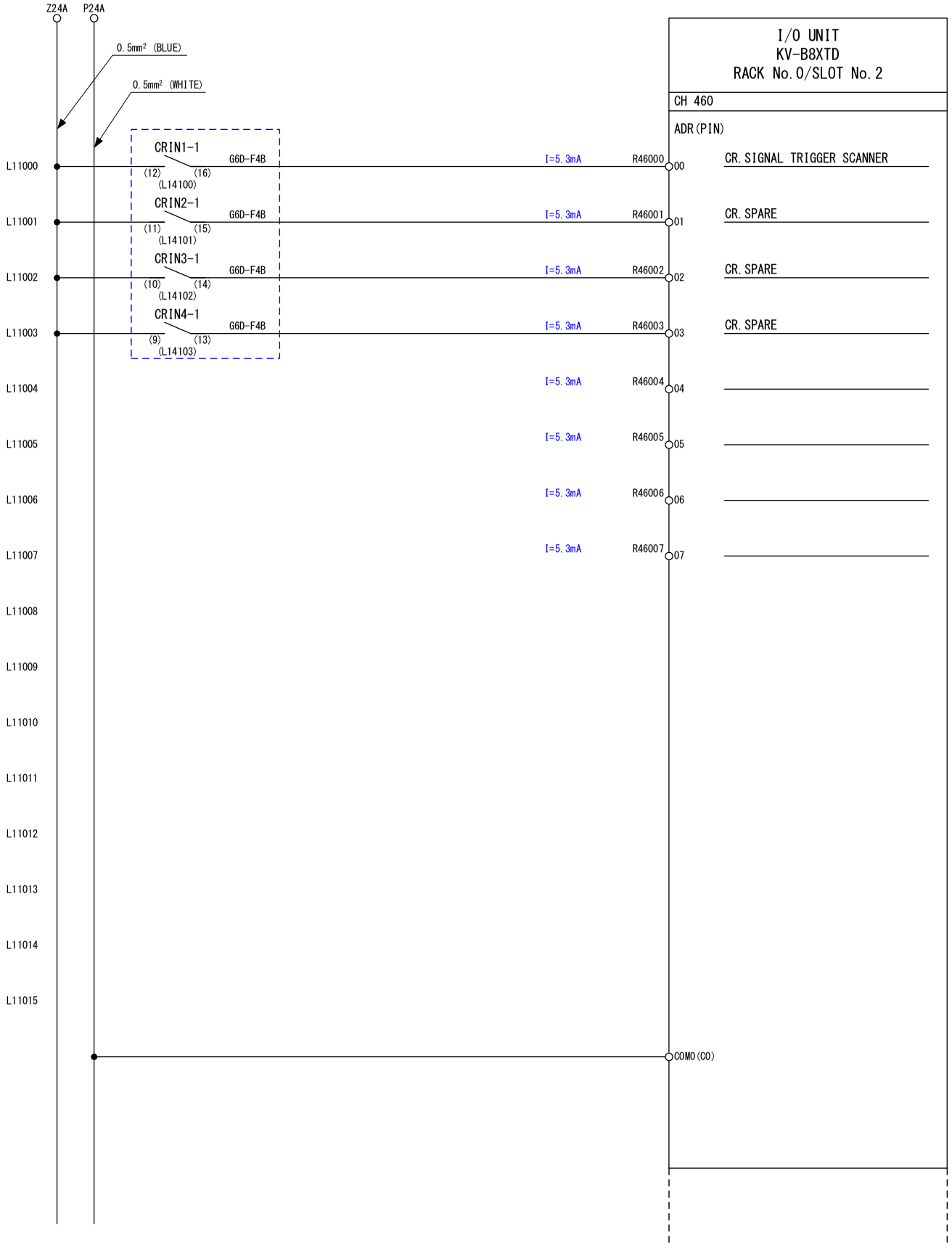
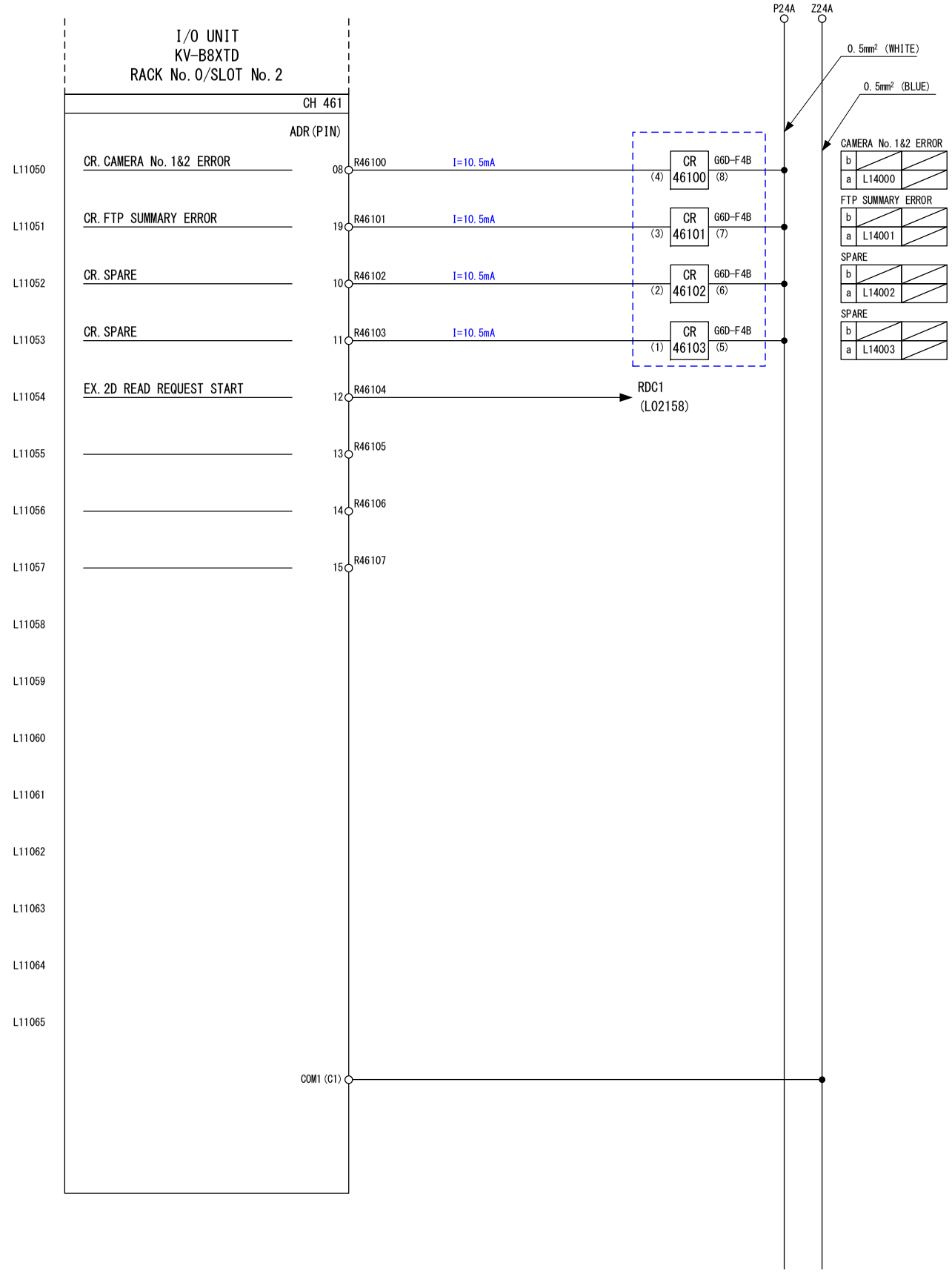


PART NAME: CONTROL CIRCUIT DIAGRAM (SCANNER CIRCUIT)							
TOMAS TECH CO.,LTD.					PART NO. MKP102022-AA-0000-TMT MKP102022-EE-5400-TMT	ASP CODE Z	SHEET 4/4
APPROVED	CHECKED	CHECKED	DESIGNED 10/2022 SUWACHET	DRAWN 10/2022 SUWACHET	REMARK MK PROJECT AREA 2 CAMERA UNIT		SCALE —



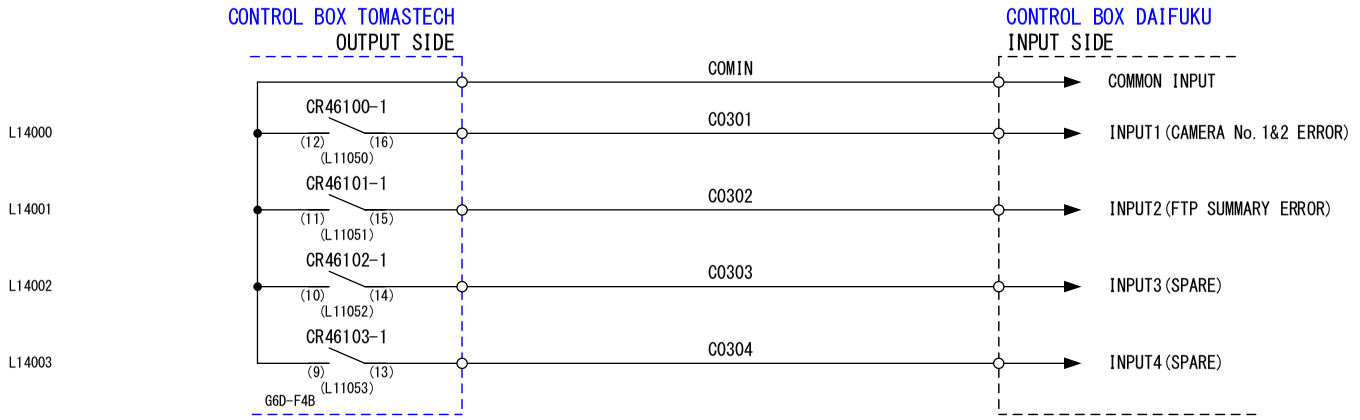


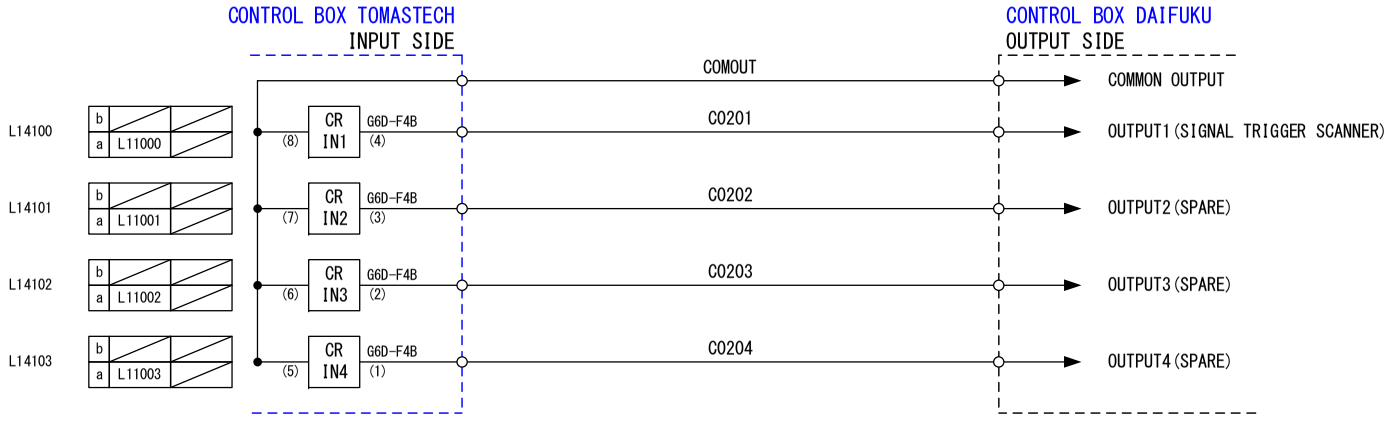
REMEARK: MARK TUBE
RXXX XX
- BIT 00-15
- WORD 0000-1999

1CE CONTROL BOX

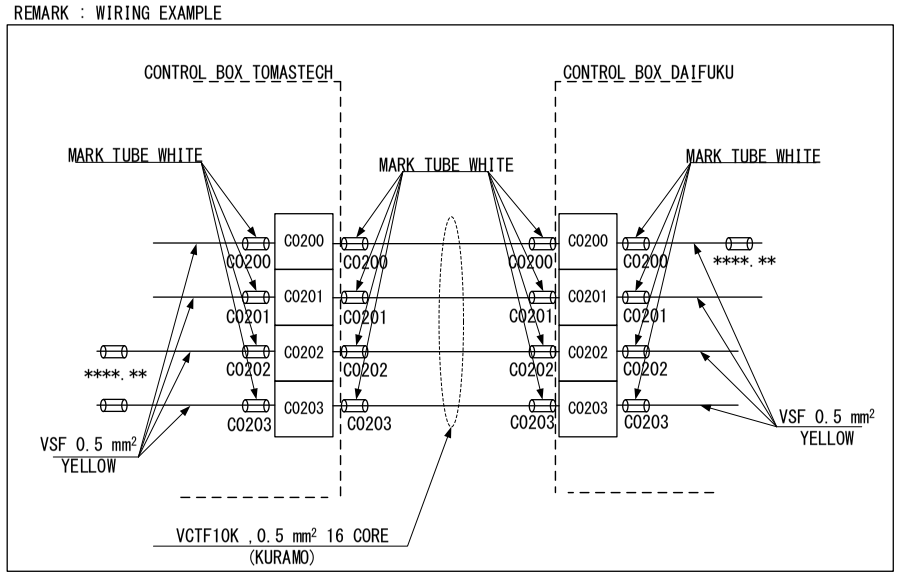
PART NAME: I/O DEVICE 1						
TOMAS TECH CO.,LTD.					PART NO. MKP102022-AA-0000-TMT MKP102022-EE-5500-TMT	ASP CODE Z / SHEET 1/2
APPROVED	CHECKED	CHECKED	DESIGNED 10/2022 SUWACHET	DRAWN 10/2022 SUWACHET	REMARK MK PROJECT AREA 2 CAMERA UNIT	SCALE —

M/C INTERFACE CIRCUIT DIAGRAM





REMARK : WIRING EXAMPLE



PART NAME	I/O INTERFACE BETWEEN M/C						
TOMAS TECH CO., LTD.					PART NO.	MKP102022-AA-0000-TMT MKP102022-EE-5500-TMT	ASP CODE Z / SHEET 2/2
APPROVED	CHECKED	CHECKED	DESIGNED	DRAWN	REMARK	MK PROJECT AREA 2 CAMERA UNIT	SCALE —
			10/2022 SUWACHET	10/2022 SUWACHET			

EQIP.No.	ADDRESS No		DEVICE	DESCRIPTION	TYPE	DESTINATION	EQIP.No.	ADDRESS No	DEVICE	DESCRIPTION	TYPE	DESTINATION
I/O UNIT	R460 IN	00	CR	SIGNAL TRIGGER SCANNER	G6D-F4B							
		01	CR	SPARE	G6D-F4B							
		02	CR	SPARE	G6D-F4B							
		03	CR	SPARE	G6D-F4B							
		04										
		05										
		06										
		07										
KV-B8XTD	R461 OUT	00	CR	CAMERA No.1&2 ERROR	G6D-F4B							
		01	CR	FTP SUMMARY ERROR	G6D-F4B							
		02	CR	SPARE	G6D-F4B							
		03	CR	SPARE	G6D-F4B							
		04	EX	2D READ REQUEST START								
		05										
		06										
		07										

PART NAME							
PLC I/O DEVICE ASSIGNMENT							
TOMAS TECH CO.,LTD.					PART NO.	ASP	SHEET
APPROVED	CHECKED	CHECKED	DESIGNED	DRAWN	MKP102022-EE-5500-TMT	Z	1/2
-	-	-	11/2022 C.SUWACHET	11/2022 C.SUWACHET	REMARK: MK PROJECT AREA 2 CAMERA UNIT		SCALE

TOMAS TECH CO.,LTD.

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For Customer's Appoved / Date Appoved

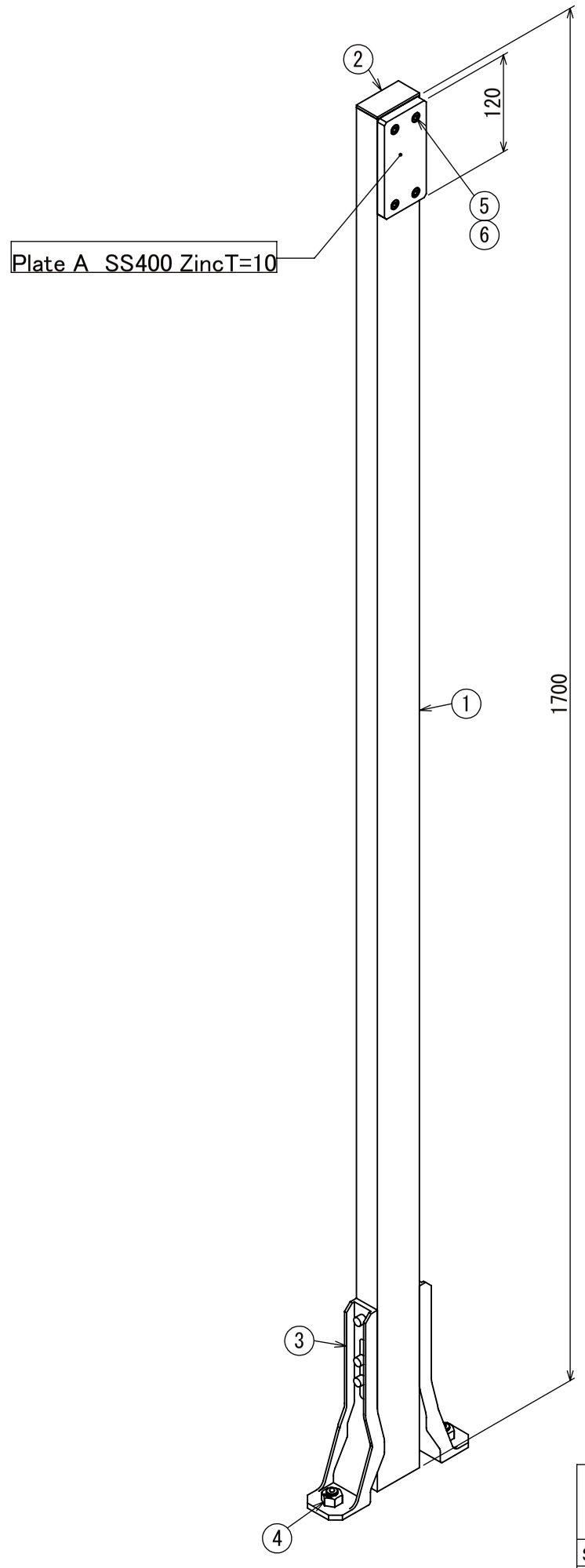
_____ _ ____/____/____

Authoried Signature/Company Stamp

Project Name :

Camera Stand -3

Update.	1	2
Design.		
Date.		



Rev.	1	2	3
Design.			
Checker.			
Appoved.			
Date.			

Customer Name	MK project_Area 1,2			Tolerance not specified	
				Size Classification(mm)	Straight Tolerance(mm)
Sales.			SCALE : 1:6	Below 50	±0.75
Engineer.				Over 50:Below 500	±1
Design.				Over 500:Below 1000	±1.75
Checked			Q'ty : 1 Set	Over 1000:Below 2000	±2
Approved.				Over2000	±3

TOMAS TECH CO.,LTD.

DWG NO.

SF20221108_1

1/1

5. Q&A

#	Date	Question	By	Date	Answer	By

6. 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.

Daifuku (Thailand) Ltd.

Sign: _____

Name: _____

Title: _____

Date: _____

Meiji (Thailand) Co.,Ltd.

Sign: _____

Name: _____

Title: _____

Date: _____

TOMAS TECH CO.,LTD.

Sign: _____

Name: _____

Title: _____

Date: _____

END OF BLUEPRINT##