

G5 Technician's Manual		 FOR INTERNAL USE ONLY
Reviewers	Seunghyun Lee	
version	1.0	
Path	Teams software	

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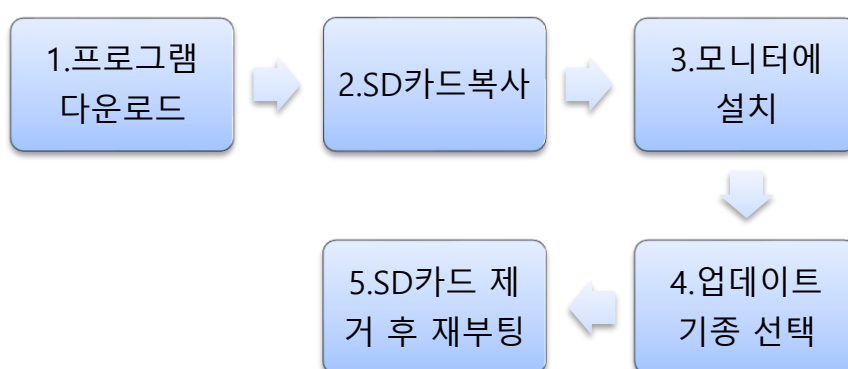
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Modified Code	Date of change	Changelog	Writer/Author
1.0			
1.1			
1.2			

Required for Laboratory Inquiries (Required)

1. Check if there are any issues after the latest program update.
2. Machine nameplate.
3. Company Information.
4. Program Version

How to update the program



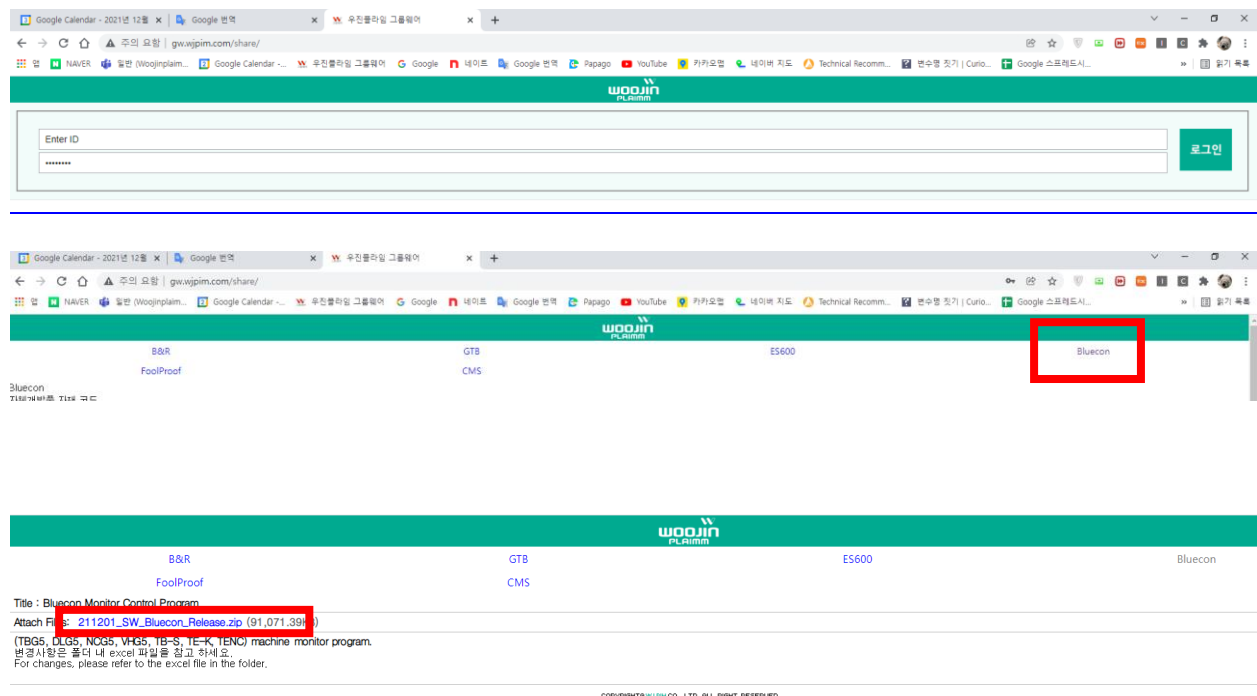
1. Download the program

-Messenger HOME->Data Management-> Research Institute Program (Bluecon)->259 Bulletin Board->Click Attachment

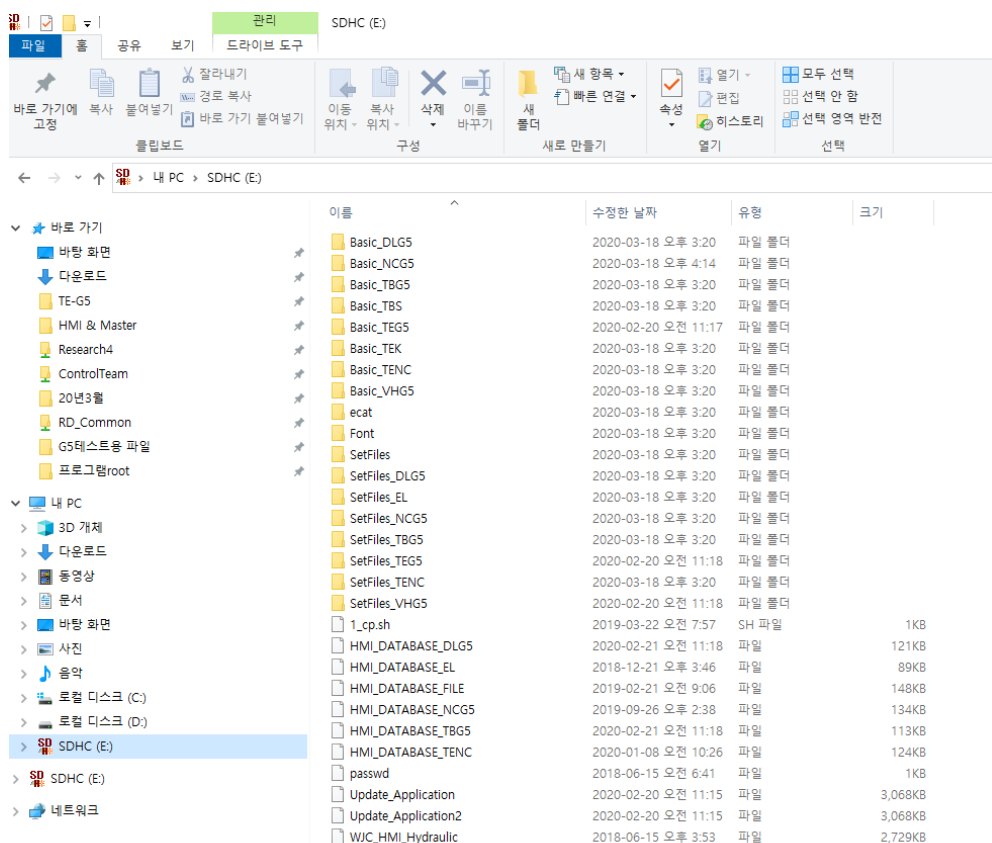
The screenshot shows the WOOJIN PLAImm GroupWare web interface. The '자료관리' (Data Management) tab is selected. In the left sidebar, 'Bluecon' is highlighted under '정보자료실' (Information Data Room). In the main content area, a table lists bulletin board items. Item 259, 'Bluecon Monitor Control Program', is highlighted. Below the table, the attachment '211201_SW_Bluecon_Release.zip' is listed and highlighted. The right sidebar shows the 'HOME' button highlighted.

- Download using Chrome

<http://gw.wjpim.com/share/>



Copying the program to the 2.SD card



3.Insert the SD card into the controller



4.Select the update model

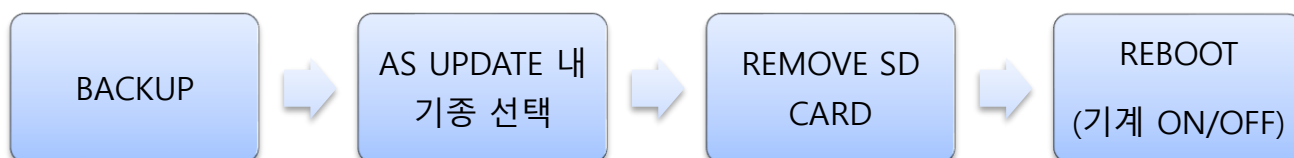


※ Do not remove the SD card before completing the message.

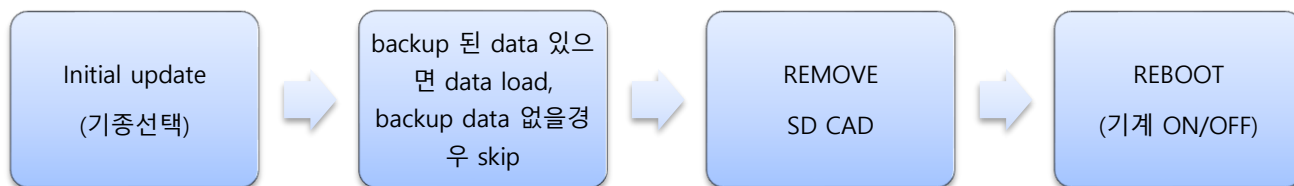
- A: Chage page: Classified into G5 and other models

- B. Data Backup: Copy the FIX data and mold data installed in the monitor to the SD card
- C. Initial update: Used for monitor replacement and initial commissioning (note that it will be changed to FIX data and initial setting data)
- D. AS update: Used to update only the program (data preservation before installation)
- E. Backup data load : Copy the Backup data file (mold data, FIX data) from the SD card to the monitor

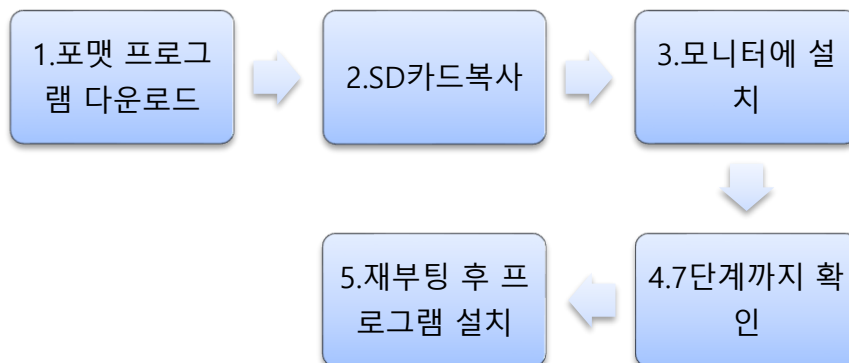
Program Update Procedure



Procedures for Replacing a Monitor



How to format your controller



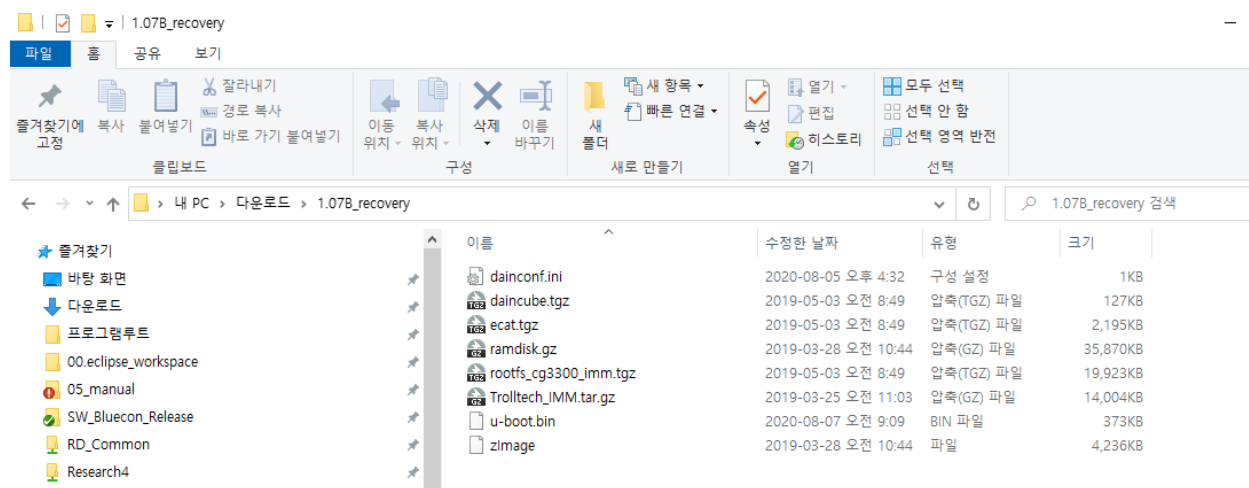
1. Download the format program



NO	카테고리 이름	제목
360	Bluecon 원격지원 매뉴얼	
353	DLG5_모니터 화면 사진	
352	DLG5_전문가 매뉴얼	
322	Bluecon200 PLC 프로그램 업데이트	
321	리드웨이 프로그램	
296	BLUECON 모니터 포맷 프로그램 및 매뉴얼	
282	2020.06.05 BLUECON100(PLC) 업데이트 매뉴얼	
276	전종드라이브 Power, Drive CPU Board F/W 업데이트 프로그램	
273	TE-K 기종 서보드라이브 PCB 교체 매뉴얼	
270	TB-S 모니터 화면 사진(다국어 포함)	
269	TE-K 모니터 화면 사진(다국어 포함)	
267	TE-K FIX Data(기계정보)	
264	TE-K 안전문 인터록 해제 매뉴얼(181001)	
263	TE-K 전문가(시운전) 매뉴얼	
262	TE-K 안전문 인터록 해제 매뉴얼	

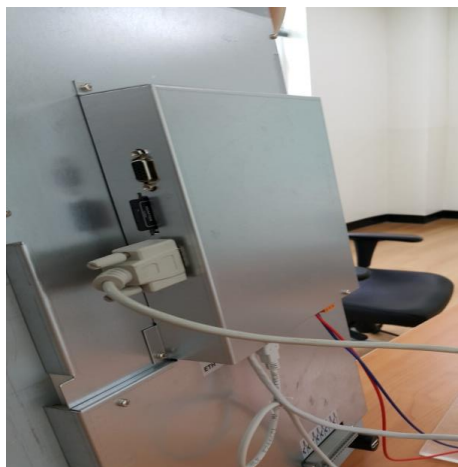
제목: BLUECON 모니터 포맷 프로그램 및 매뉴얼
 작성자: 이승현
 첨부: 190110_BLUECON 업데이트 매뉴얼.pdf (682.12KB) 190401_BLUECON모니터포맷매뉴얼.pdf (401.80KB) 1.07B_recovery.zip (75,985.70KB)

Copying formatted files to a 2.SD card

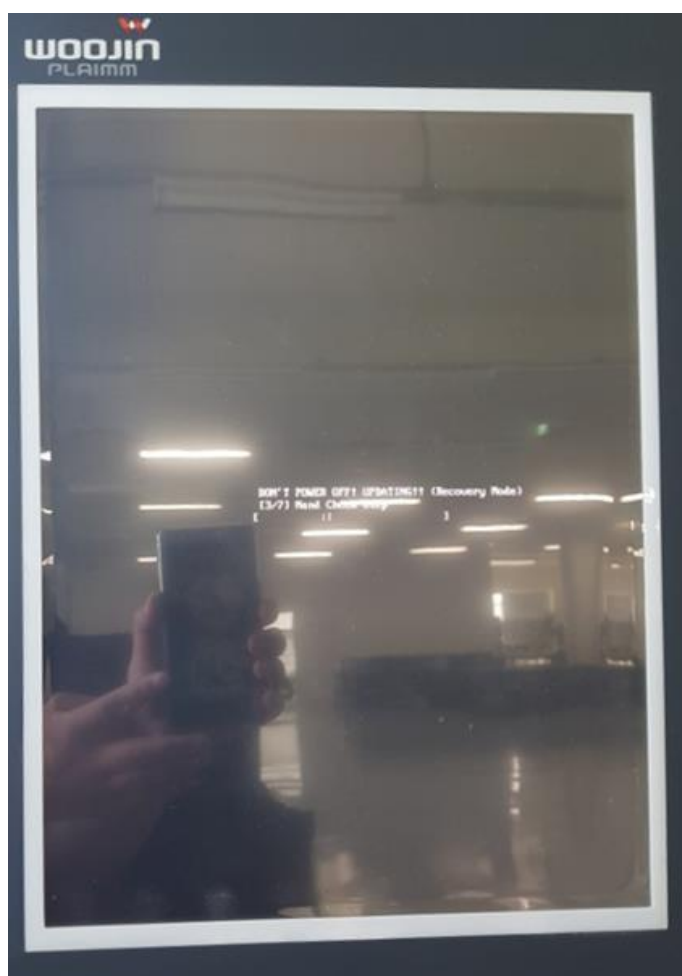


이름	수정된 날짜	유형	크기
dainconf.ini	2020-08-05 오후 4:32	구성 설정	1KB
daincube.tgz	2019-05-03 오전 8:49	압축(TGZ) 파일	127KB
ecat.tgz	2019-05-03 오전 8:49	압축(TGZ) 파일	2,195KB
ramdisk.gz	2019-03-28 오전 10:44	압축(GZ) 파일	35,870KB
rootfs_cg3300_imm.tgz	2019-05-03 오전 8:49	압축(TGZ) 파일	19,923KB
Trolltech_IMM.tar.gz	2019-03-25 오전 11:03	압축(GZ) 파일	14,004KB
u-boot.bin	2020-08-07 오전 9:09	BIN 파일	373KB
zimage	2019-03-28 오전 10:44	파일	4,236KB

3. Install on monitor

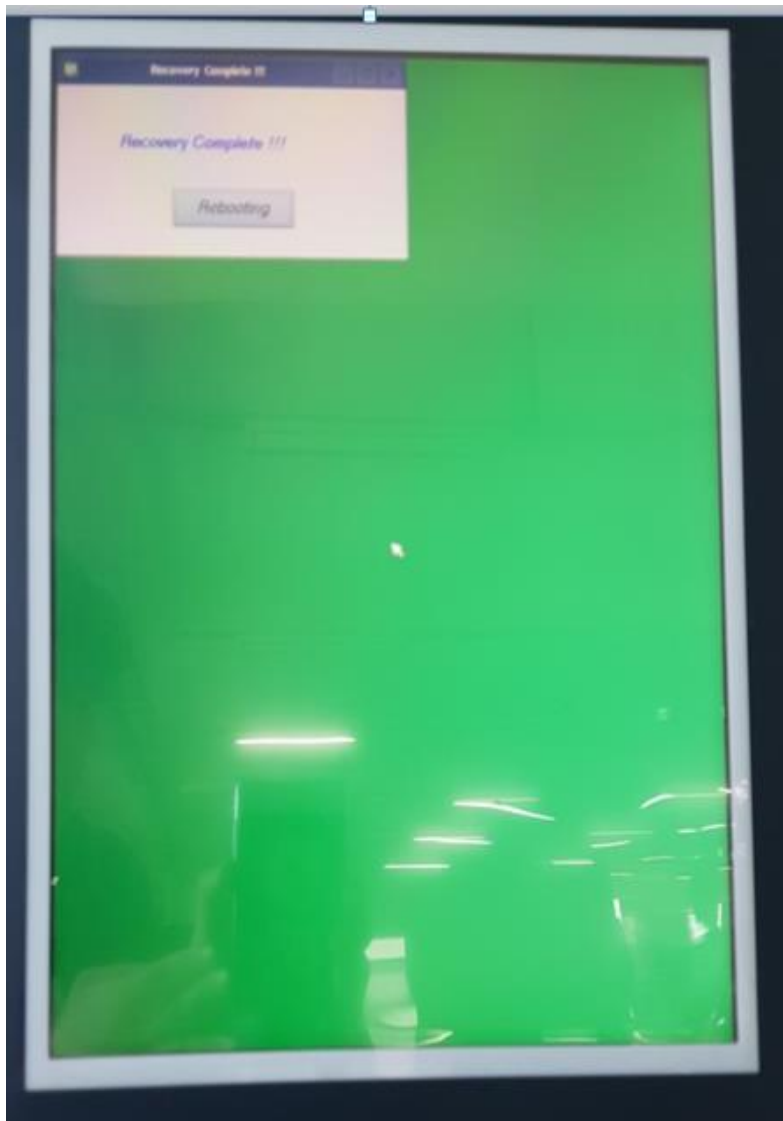


4. Check the formatting process

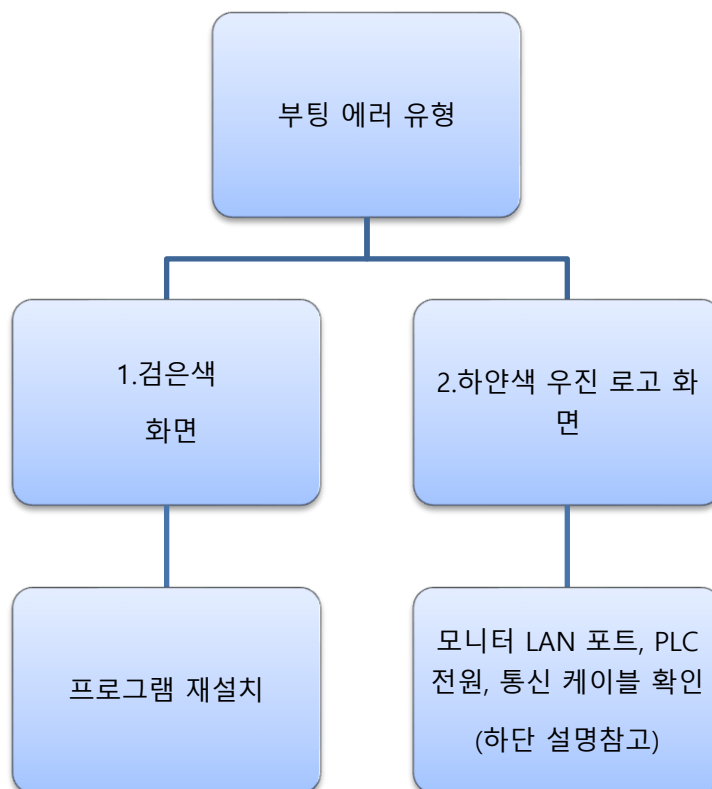


1~7 steps, 5 steps to black screen, still in progress (never turn off the power or remove the SD card)

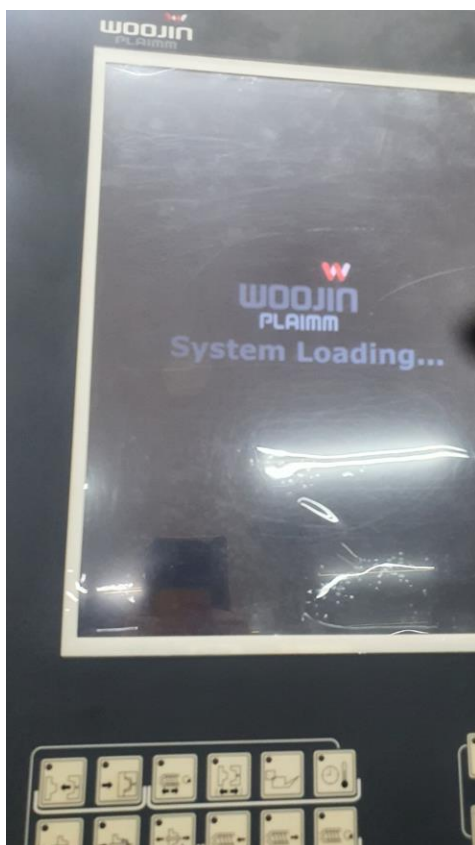
5. Install the program after reboot



How to fix boot errors



1. If you keep the initial black screen



Reinstall the program

2. White boot screen

-Communication_Start.. If Failed is displayed



System Loading.

Create H/W Interface....	Create memory interface..Failed
Create H/W Interface....	Create memory interface..Failed
Create H/W Interface....	Create memory interface..Failed
Create H/W Interface....	OK
Step Wait..	OK
Periph. Init..	OK
Communication_Start..	Communication_Start..Failed
.....	
Communication_Start..	Communication_Start..Failed
.....	
Communication_Start..	Communication_Start..Failed
.....	
Communication_Start..	

www.woojinplaimm.com

- Step1. Checking the monitor's LAN port

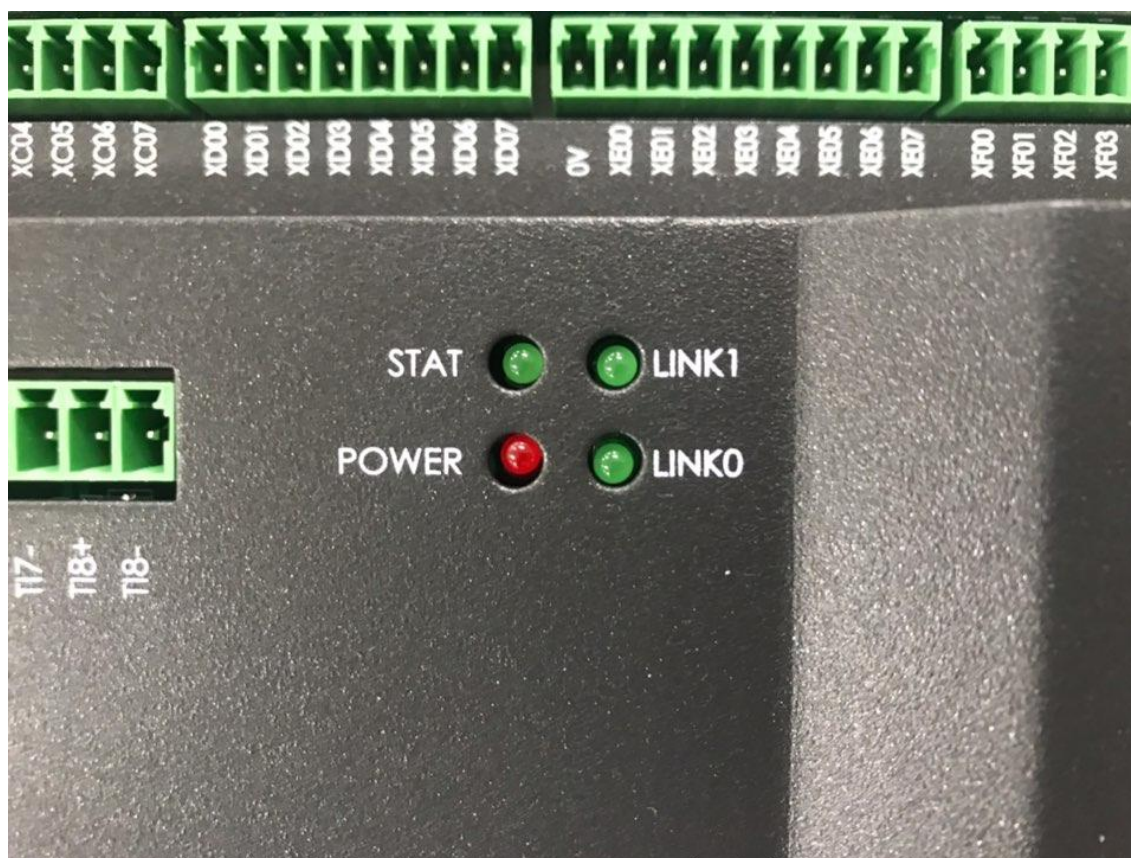


Green: LED ON if the communication cable is connected, if the light does not come on after a certain period of time, the communication cable or board is defective.

Orange: LED blinking when there is communication, bad communication cable or bad board.

Note: It must be connected to the monitor's ECAT port and PLC IN port.

- Step 2. Check PLC



If there is no red light, check the power of the board (check if PWR, GND is 24VDC)

STAT: The green light flashes until communication is established. When communication is connected, the

green LED turns on, flashes after a certain period of time, and when the communication is fully attached, the LED is always on.

LINK0 : Connection status of ECAT IN Port, replace cable or board if the light does not blink

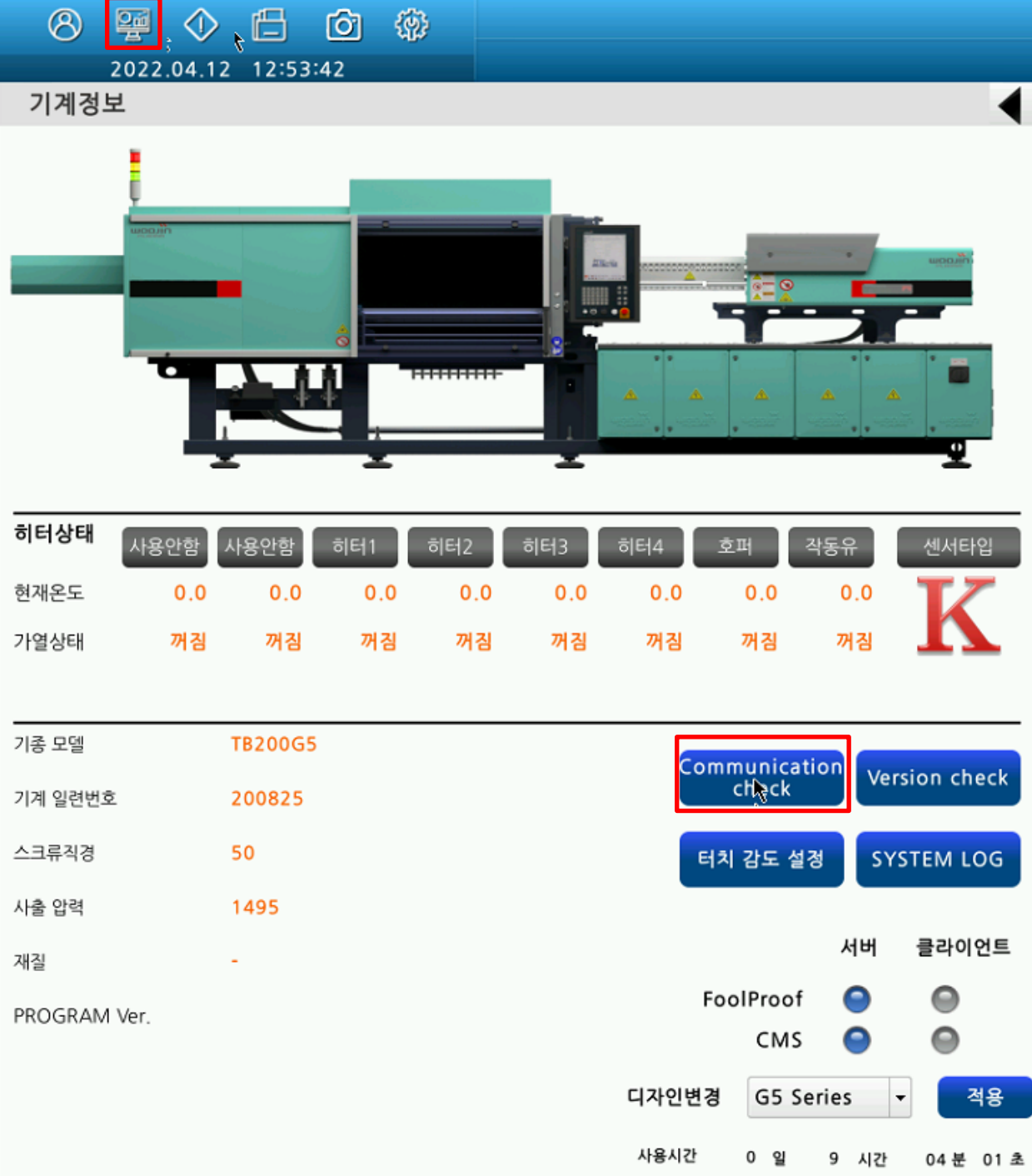
LINK1: Connection status of ECAT OUT Port, replace cable or board if the light does not blink

Note. You need to check the condition of all the boards to which the communication cables are connected.

How to deal with communication errors

1. How to access the communication status page

- Access through the machine information page->communication check



2022.04.12 12:53:42

기계정보

히터상태

	사용안함	사용안함	히터1	히터2	히터3	히터4	호퍼	작동유	센서타입
현재온도	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	K
가열상태	꺼짐	꺼짐	꺼짐	꺼짐	꺼짐	꺼짐	꺼짐	꺼짐	

기종 모델 TB200G5

기계 일련번호 200825

스크류직경 50

사출 압력 1495

재질 -

PROGRAM Ver.

Communication check

Version check

터치 감도 설정

SYSTEM LOG

서버 클라이언트

FoolProof

CMS

디자인변경 G5 Series

적용

사용시간 0 일 9 시간 04 분 01 초

- Alarm Page->COM_ACT, COM_LOG Access

2022.04.12 12:54:40

Communication Check_ACT COM_LOG COM_ACT FIX_LOG LOG ALARM

dec_cbBytes	0	ecat_ver	
dec_config	0	netdev_rx_length_errors	0
dec_error_state	0	netdev_rx_crc_errors	0
dec_rt_cycletime_avg	0	netdev_rx_fifo_errors	0
dec_rt_cycletime_min	0	ecdev_tx_count	0
dec_rt_cycletime_max	0	ecdev_rx_count	0
dec_rt_task_runtime_avg	0	ecdev_lost_packet	0
dec_rt_task_runtime_min	0	ecdev_tx_bytes	0
dec_rt_task_runtime_max	0	ecdev_rx_bytes	0
working_counter	0	dc_time_diag_table[16]	0
online_slave_num	0	cur_dc_diff_time	0
recv_data_sync_flag	0	dec_stats_all_clear_flag	0
send_data_sync_flag	0	dc_time_table_clear_flag	0
rt_task_state	0	app_start_time	0
rt_task_counter	0	app_time	0
working_count_change_c	0	start_time	0
online_slave_num_err_c	0	sync0_cycle_time	0
ready_ev_err_c	0	sync0_shift_time	0
app_ev_err_c	0	remainder	0
end_ev_err_c	0	actual_start	0
wait_period_err_c	0	actual_shift_time	0
deep_sleep_err_c	0	system_time_of_next_sync0	0
wakeup_count_large_err_c	0	system_time_of_send_frame	0
recv_data_err_c	0	nand_id_cnt	0
send_data_err_c	0	boot_cnt	0

CMS_CHECK

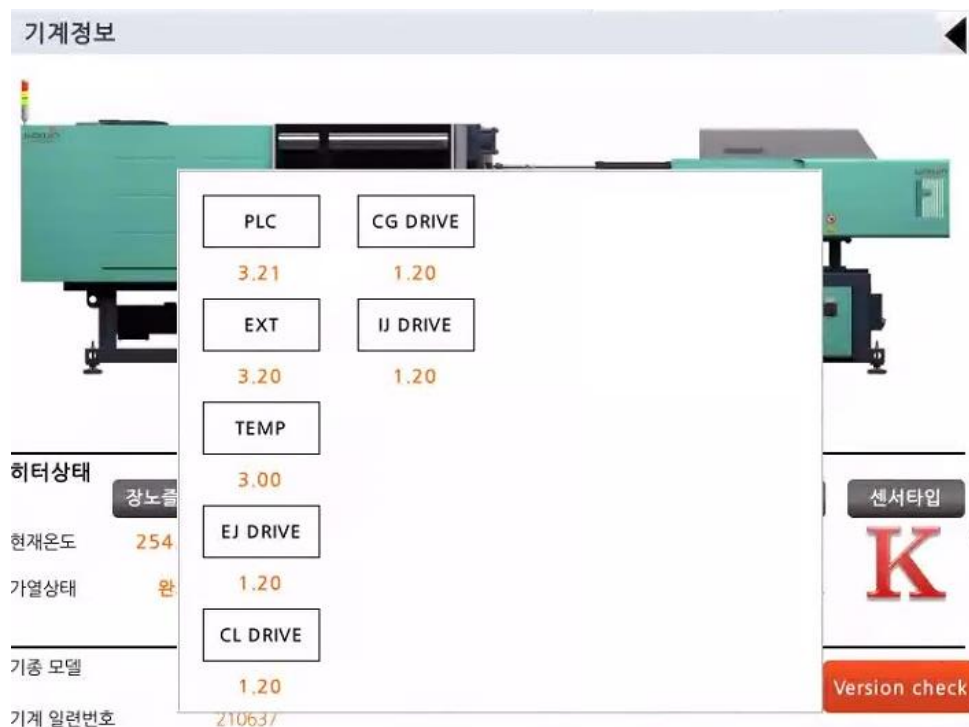
2. COM_ACT Page Key Parameters

Communication Check_ACT		COM_LOG	COM_ACT	FIX_LOG	LOG	ALARM
						3.05.190422w
dec_cbBytes	264	ecat_ver				
dec_config	0	netdev_rx_length_errors				
dec_error_state	0	netdev_rx_crc_errors				
dec_rt_cycletime_avg	999	netdev_rx_fifo_errors				
dec_rt_cycletime_min	81	ecdev_tx_count				
dec_rt_cycletime_max	3521	ecdev_rx_count				
dec_rt_task_runtime_avg	160135	ecdev_lost_packet				
dec_rt_task_runtime_min	70344	ecdev_tx_bytes				
dec_rt_task_runtime_max	265487	ecdev_rx_bytes				
A working_counter	21	dc_time_diag_table[16]				
B online_slave_num	7	cur_dc_diff_time				
recv_data_sync_flag	0	dec_stats_all_clear_flag				
send_data_sync_flag	0	dc_time_table_clear_flag				
rt_task_state	1	app_start_time				
rt_task_counter	127226261	app_time				
C working_count_change_c	49	start_time				
online_slave_num_err_c	0	sync0_cycle_time				
ready_ev_err_c	0	sync0_shift_time				
app_ev_err_c	0	remainder				
end_ev_err_c	4	actual_start				
wait_period_err_c	9	actual_shift_time				
deep_sleep_err_c	4	system_time_of_next_sync0				
wakeup_count_large_err_c	0	system_time_of_send_frame				
recv_data_err_c	0	nand_id_cnt				
send_data_err_c	0	boot_cnt				

It indicates the current state of communication, and the value continues to be renewed.

A. working_counter : It is increased by multiples of 3 for every 1 board connected to the communication. In the above situation, if a total of $21/3 = 7$ boards are connected, and the remainder is displayed as a non-zero value (e.g. 1,2,4,5,7,8,10,11,13,14) when divided by 3, attach the corresponding photo and send it to the laboratory.

B. onlie slave num: indicates the number of boards connected to the communication. (See photo below)



C. err count: The number of counts for each type of error in communication, and if there is a communication error, attach the photo to the laboratory.

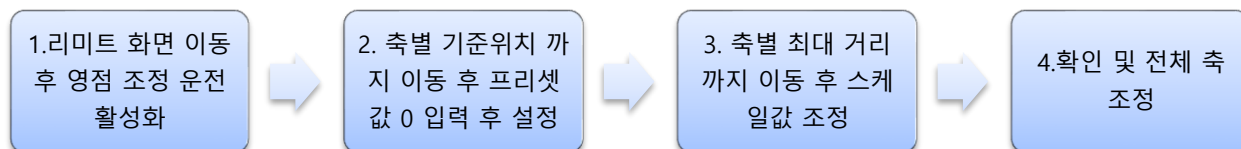
D. lost packet: The number of communication data lost during the communication connection, and the photo is attached to the laboratory in case of communication failure.

COM_LOG Page Description

When an AL-550 alarm occurs, it switches to the page, and displays the communication status when the communication is lost, and if AL-550 occurs, the page is attached to the laboratory.

Communication Check_LOG	COM_LOG	COM_ACT	FIX_LOG	LOG	ALARM
		ecat_ver			
dec_cbBytes	0	netdev_rx_length_errors		0	
dec_config	0	netdev_rx_crc_errors		0	
dec_error_state	0	netdev_rx_fifo_errors		0	
dec_rt_cycletime_avg	0	ecdev_tx_count		0	
dec_rt_cycletime_min	0	ecdev_rx_count		0	
dec_rt_cycletime_max	0	ecdev_lost_packet		0	
dec_rt_task_runtime_avg	0	ecdev_tx_bytes		0	
dec_rt_task_runtime_min	0	ecdev_rx_bytes		0	
dec_rt_task_runtime_max	0	dc_time_diag_table[16]		0	
working_counter	0	cur_dc_diff_time		0	
online_slave_num	0	dec_stats_all_clear_flag		0	
recv_data_sync_flag	0	dc_time_table_clear_flag		0	
send_data_sync_flag	0	app_start_time		0	
rt_task_state	0	app_time		0	
rt_task_counter	0	start_time		0	
working_count_change_c	0	sync0_cycle_time		0	
online_slave_num_err_c	0	sync0_shift_time		0	
ready_ev_err_c	0	remainder		0	
app_ev_err_c	0	actual_start		0	
end_ev_err_c	0	actual_shift_time		0	
wait_period_err_c	0	system_time_of_next_sync0		0	
deep_sleep_err_c	0	system_time_of_send_frame		0	
wakeup_count_large_err_c	0				
recv_data_err_c	0	AL_CNT		0	
send_data_err_c	0				Initialize

How to Zero (Toggle Type Closure Position Further Explanation)



1. Move the limit screen and activate zeroing operation

Position is ignored when zeroing operation is activated.



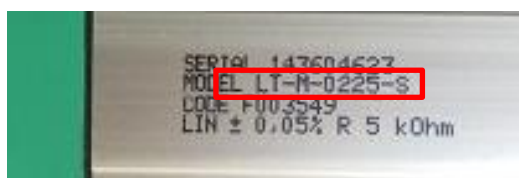
2. Move the reference position for each axis and enter the preset value of 0 and set it

Note.If you drive at high speed at zero speed, cylinder damage may occur, so proceed with slow speed.

- Shape shaft : Completed position of molding (0mm)
- Ejector shaft : Ejector reverse completion position (0mm)
- Injection shaft : Injection completion position (0mm)
- Nozzle shaft : Nozzle forward completion position (0mm)

3. Adjust the scale value after moving the maximum distance by axis.

After moving the maximum distance, enter the displayed distance and the actual distance (measured distance measured with a tape measure) through the scale parameters.



2022.04.13 10:15:44

모터를 기동하십시오

리미트 설정

위치

	현재위치	오프셋	스케일	프리셋		정방향limit	역방향limit
형체	455.0 CR위치 0.0	-32.1	626.3	0.000	설정	460.0	0.0
이젝터	2.0	-5.3	156.1	-0.2	설정	140.0	0.0
사출	220.0	-459.5	225.0	0.4	설정	230.0	0.0

배압 앰프 설정

배압 [bar]

오픈루프 OFF

영점운전

속도 [%]

가속시간 [ms]

압력 [bar]

감속시간 [ms]

영점 조정 운전 활성화

■ Scale Adjustment: $\left(\frac{\text{실측값}}{\text{현재위치값}} \right) * scale$

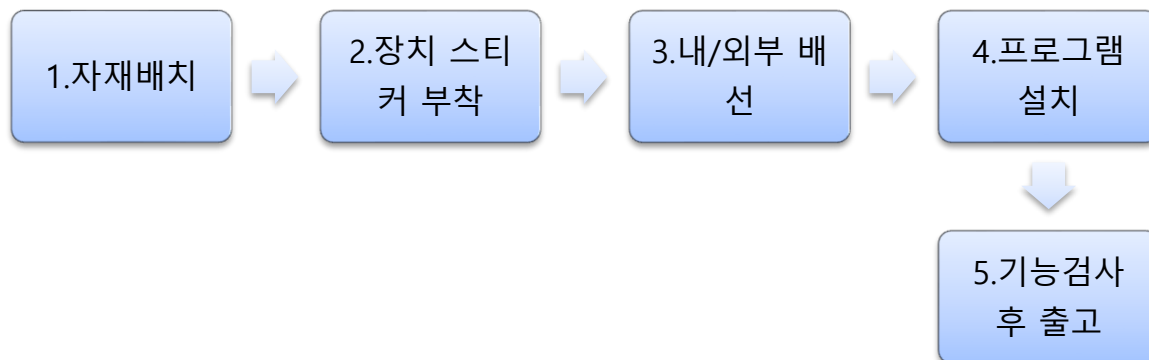
- Actual distance of cylinder (measured distance, measured with tape measure): 230mm, Display distance: 220mm
- $$\frac{230}{220} * 225 = 235.22$$

How to view an electrical drawing

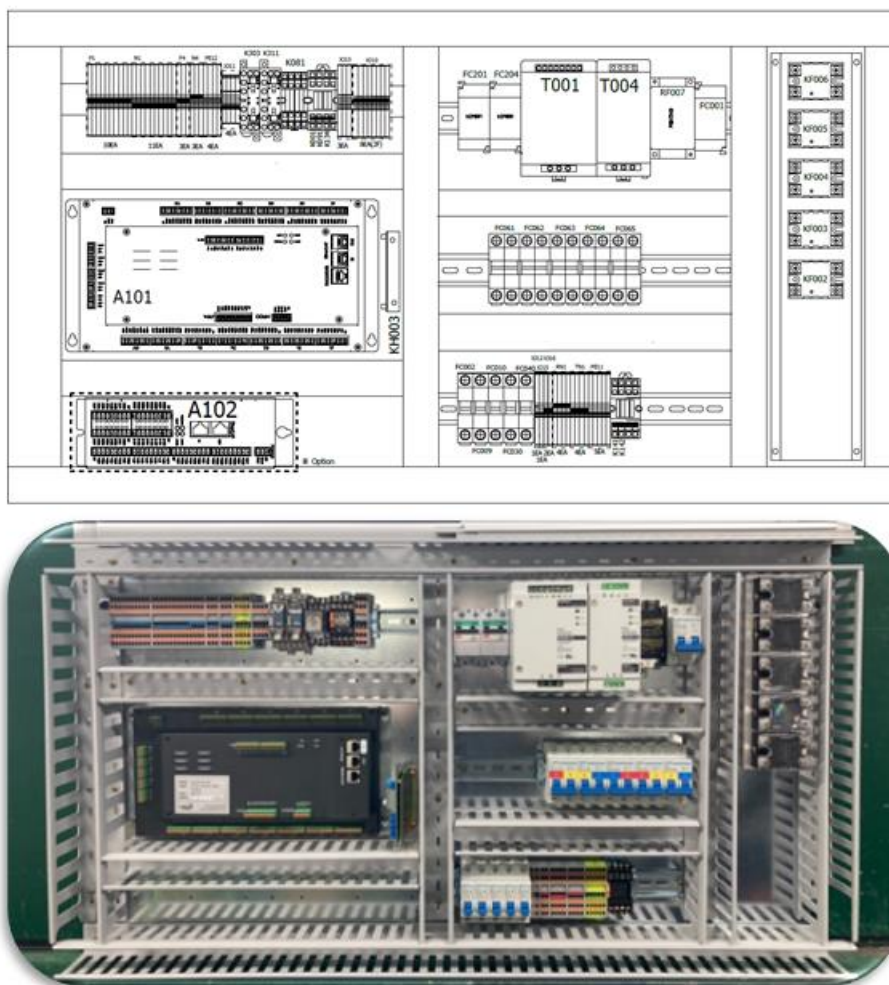
- Electrical Drawing Path

\\W172.16.100.20\\W06_01_laboratory_drawings\\electrical drawings\\3. Up-to-date electrical drawings

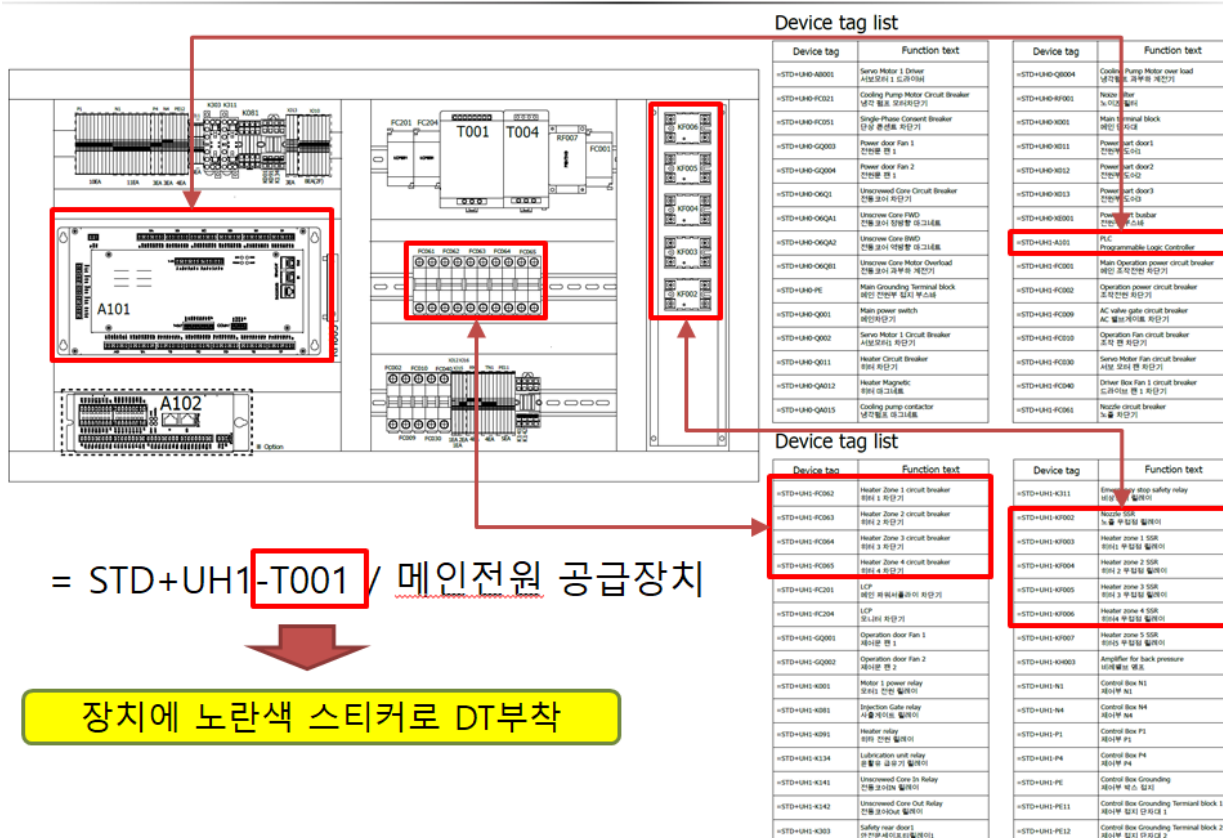
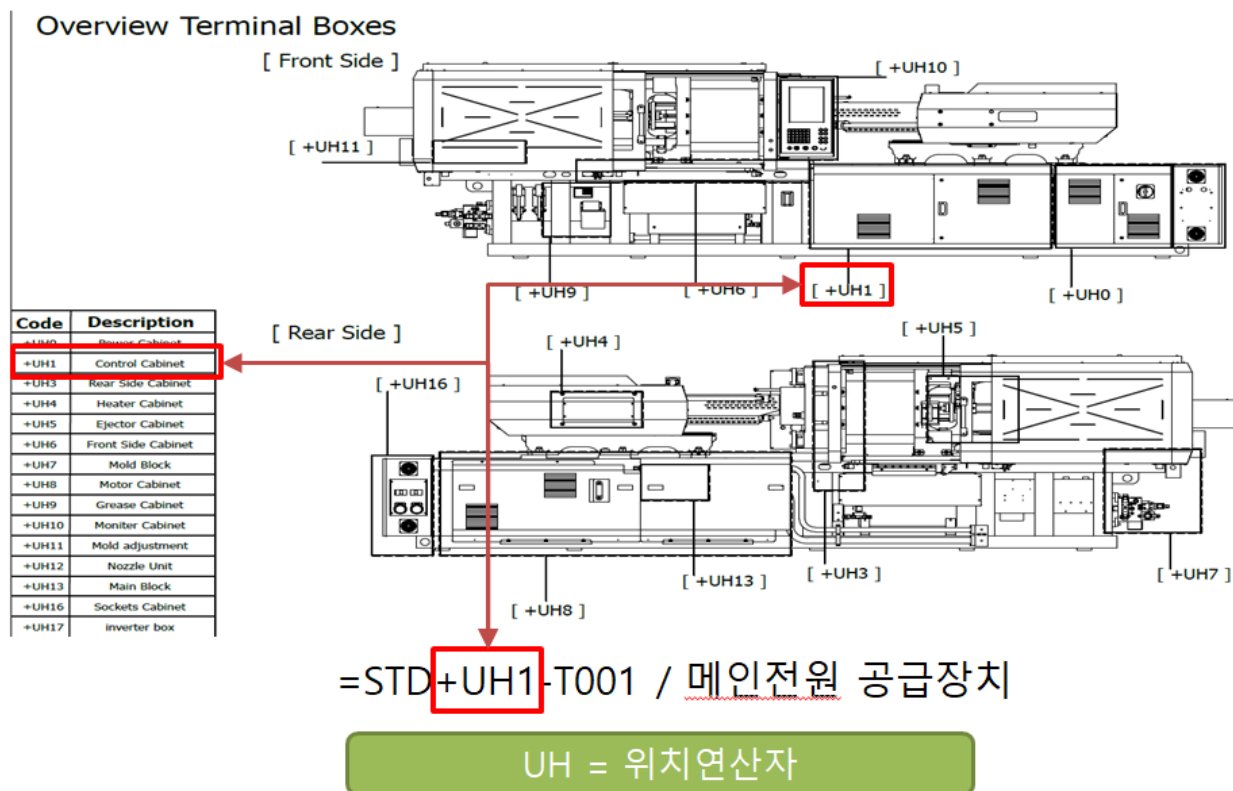
- The process by which the machine is made

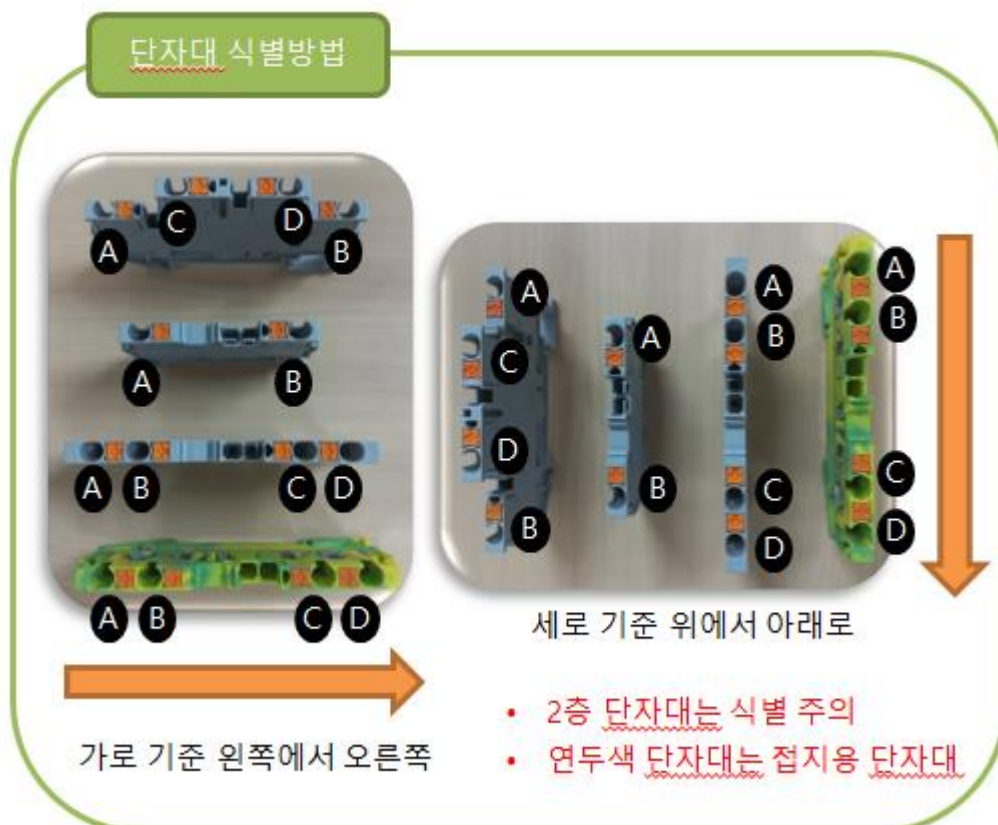
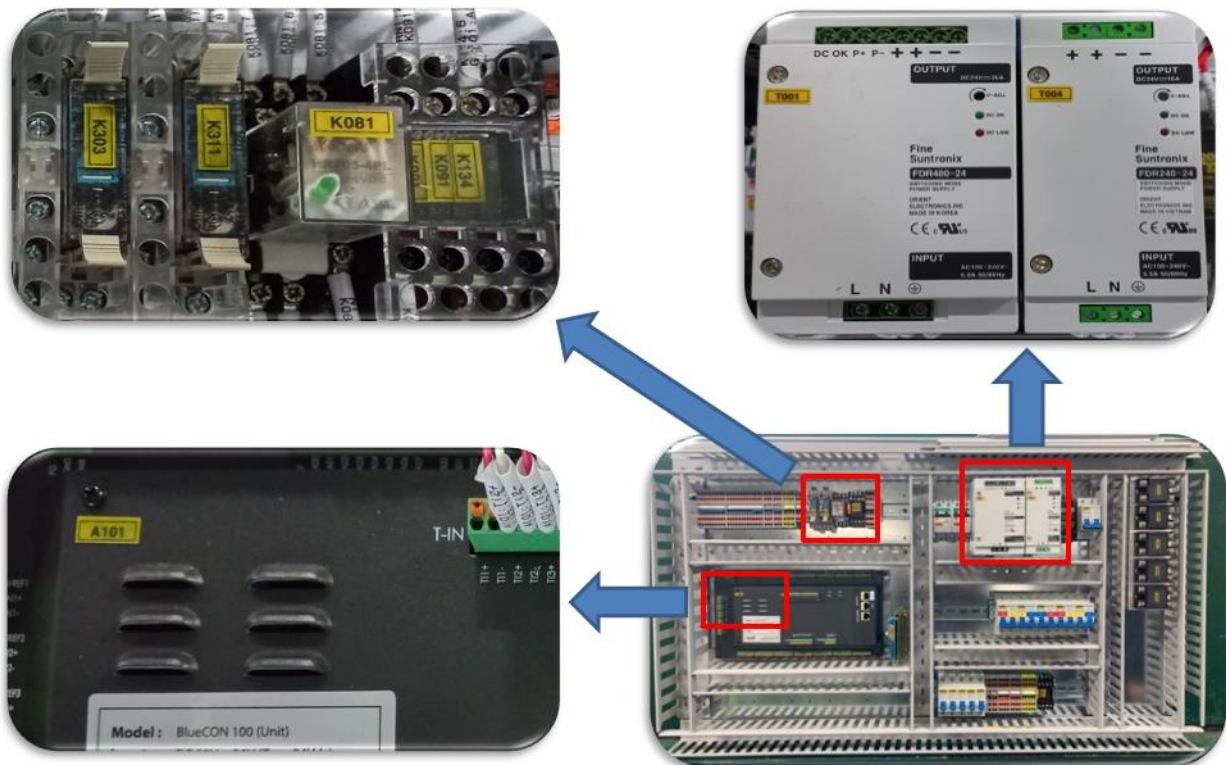


1. Arrangement of materials (laid out as the drawing – without options)

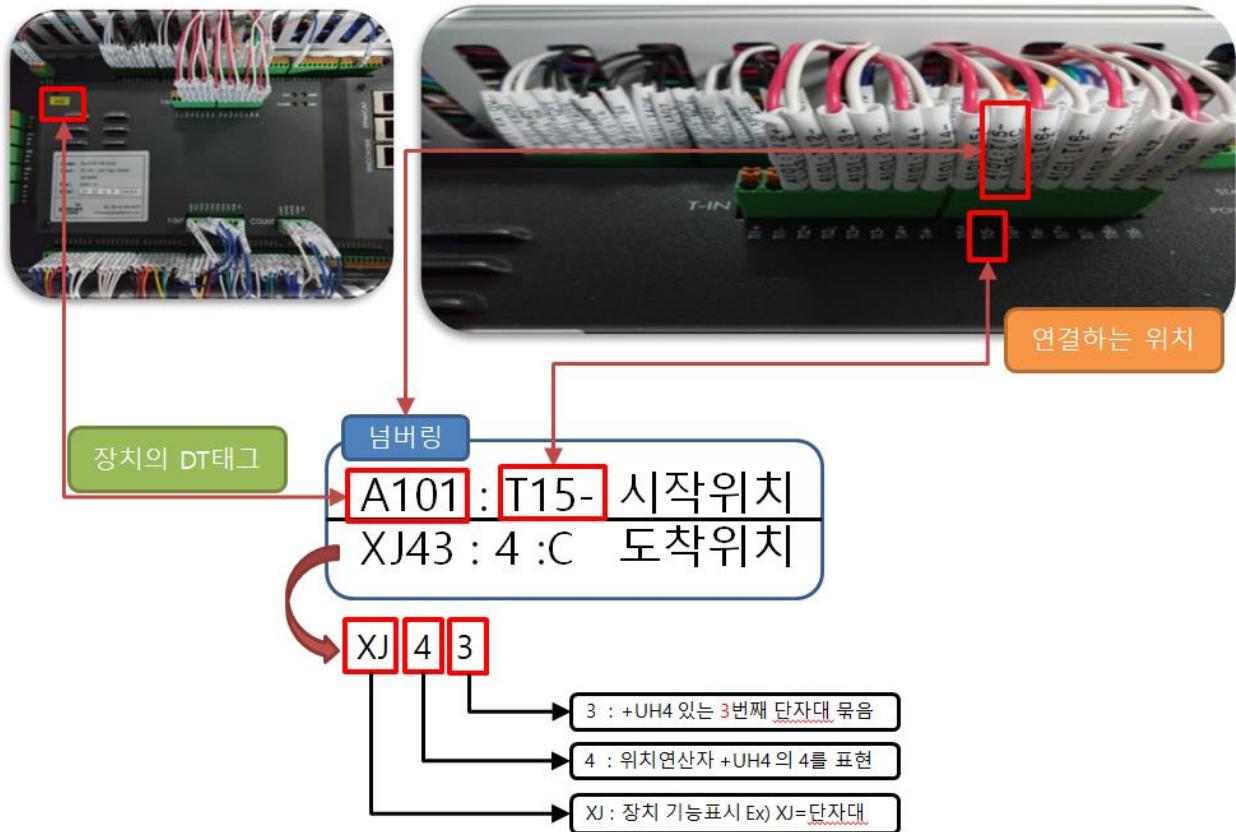


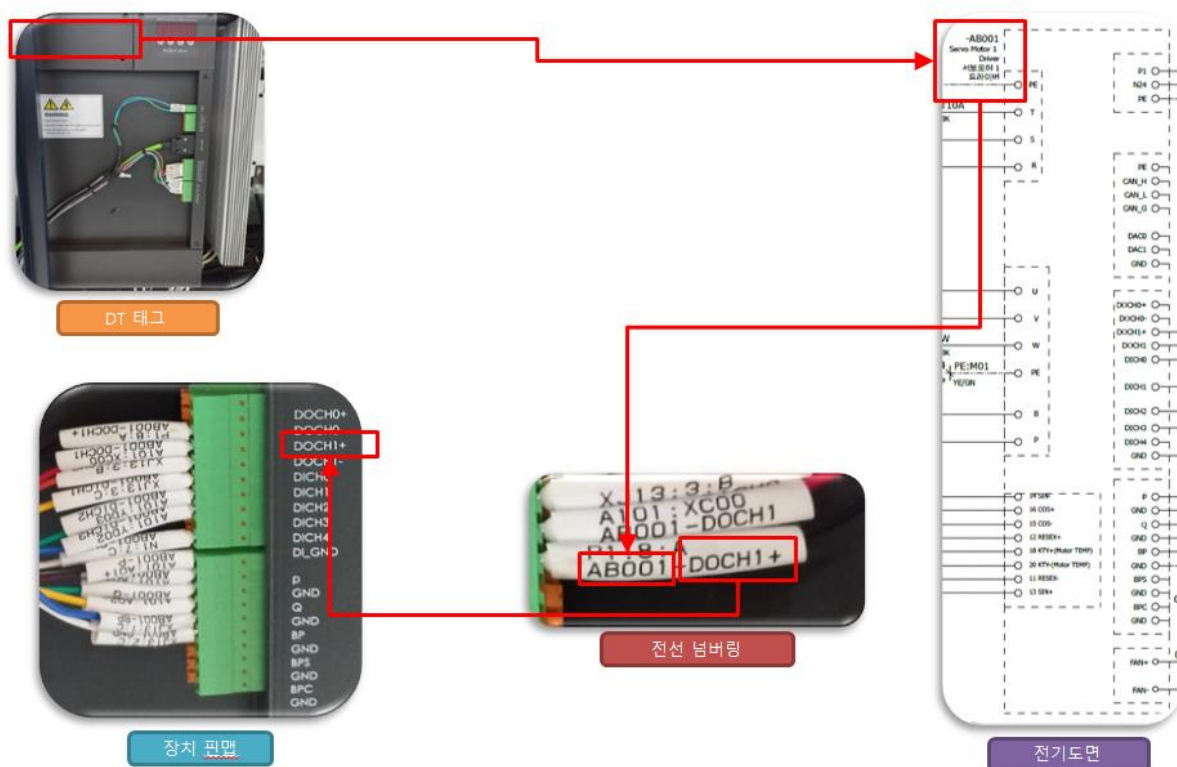
2. Attach the device sticker



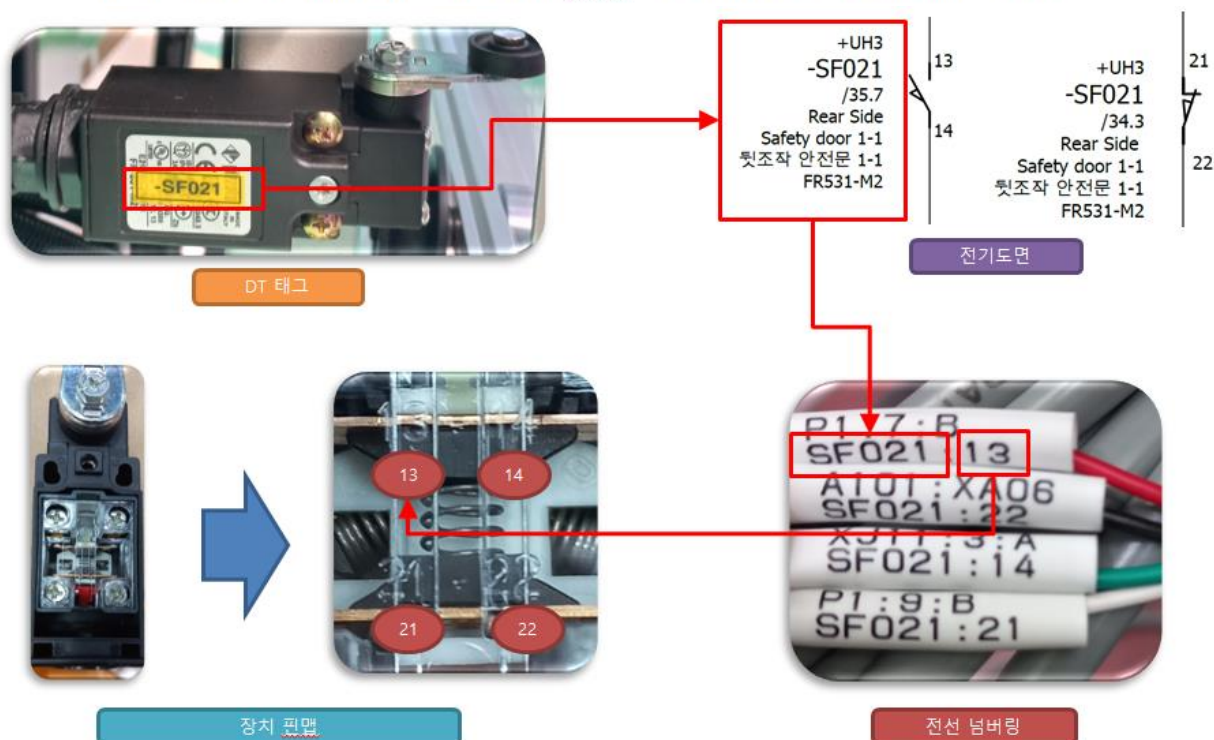


3.Internal/external wiring

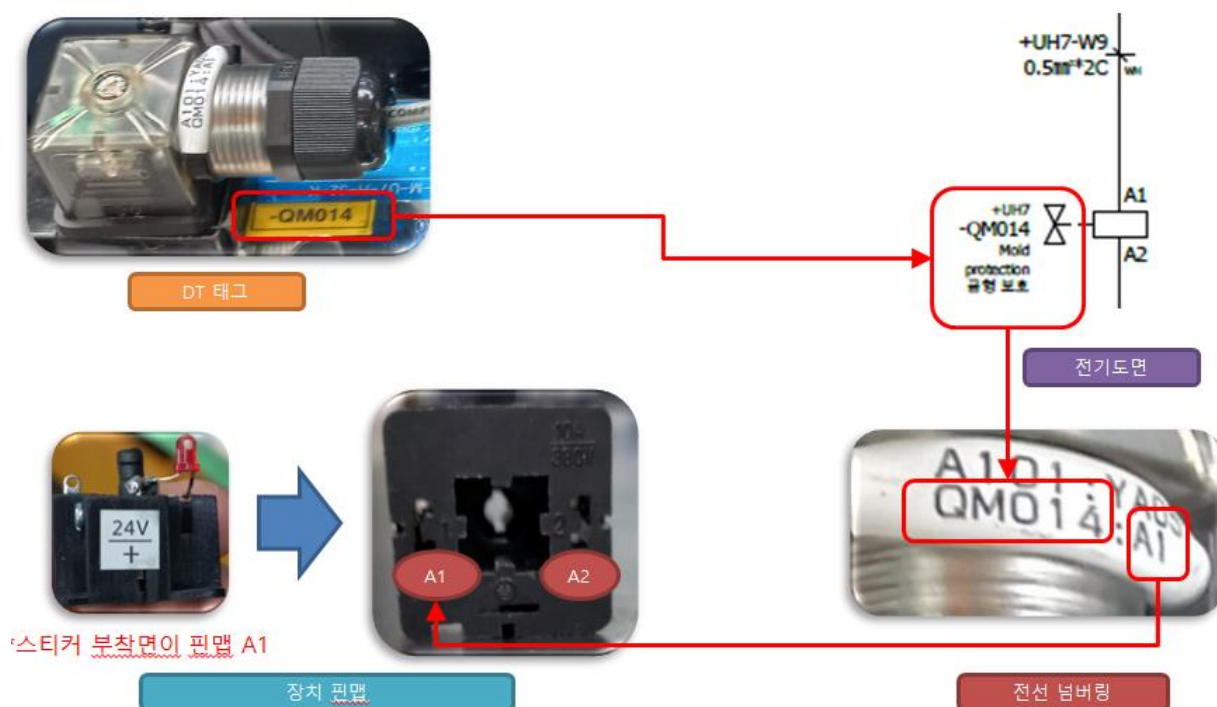




전선 넘버링의 DT태그와 장치 핀맵 숫자에 맞는 곳에 배선 연결



전선 넘버링의 DT태그와 장치 핀맵 숫자에 맞는 곳에 배선 연결



Option Handling

= **STD** + UH1-T001 / 메인전원 공급장치

기본사양

= **O**12KF6 / B&R 핫러너

옵션



옵션은 하얀색 DT태그 부착

O12	B&R 핫러너 (B&R HotRunner)
-----	-------------------------

○ 뒤에 숫자로 어떤 옵션인지 리스트에서 확인 가능하다.

*옵션 목록 (Option List)

4 / 4

NAME	Description	NAME	Description
O1	단상콘센트 (Single_Phase)	O26	사출신호 (Injection Signal)
O2	3상콘센트 (Three_Phase)	O27	알람신호 (Alarm Signal)
O3	유로맵 12 (Euromap 12)	O28	외부입력신호 (Ext Input Signal)
O4	유로맵 67 (Euromap67)	O29	낙하감지센서 (Fall Check Sensor)
O5	코어 에젝터 후진 완료 (Core Ejector BWD End)	O30	스팀사출 (Steam Injection)
O6	회전코어 (UnscREWCore)	O31	가스사출 (Gas Injection)
O7	사출밸브게이트 (Valve Gate)	O32	셧오프노즐 (Shutoff Nozzle)
O8	에어에젝터 (Air Ejector)	O33	계량전동모터 (Charge Motor)
O9	AVR	O34	내장형 유압밸브게이트 (Built-In Hydraulic Valve Gate)
O10	UPS	O35	유압밸브게이트 (Hydraulic Valve Gate)
O11	유로맵 13 (Euromap 13)	O38	안전문 (Safety Door)
O12	B&R 핫런너 (B&R HotRunner)	O47	양불선별장치 (Normality/Faulty Selection)
O13	블루콘 핫런너 (Bluecon HotRunner)	O48	수지공급 (Resin supply)
O14	온도표시장치 (Fool Proof)	O49	사출 정량구리스 (Auto grease supply(injection))
O15	옵션신호 (Option Signal)	O50	히터단선알람 (Heater Cable Alarm)
O16	유로맵 14 (Euromap 14)	O51	바이패스 밸브 (BY Pass Valve)
O17	유압코어 (Hydraulic Core)	O52	형개용에젝터 (MD Opening Ejector)
O18	C E 옵션 (CE Noise Filter)	O53	기계식안전장치 (Mechanical safety sensor)
O19	코어 압빼기 (Core Pressure Release)	O54	배전반 에어컨 (Air Conditioner)
O20	메인트랜스 (MainTrans)	O55	밸브게이트 유압유닛 (Valve Gate Hydraulic unit)
O21	히터팬 (Heater Fan)	O56	계량전동 (Charge Motor)
O22	형체 LED 라이트 (Mold LED Light)		
O23	에어밸브게이트 (Air Valve Gate)		
O24	에너지 모니터링 (Energy Monitoring)		
O25	적산전력계 (Integrating Watt Meter)		

How to View Valve Sequences

-In the case of the previous model, it is difficult to maintain because the numbering wiring for each model is different as it is assigned by IO number. To solve this, we assign a device number to each function and proceed with numbering. (e.g. Type Valve = QM001, Type Valve = QM002, Injection Valve = QM151, All Models Uniform)

A-제어부품, 기타등등
B-근접센서, 온도센서
E-히터
F-퓨즈, BKM, GCP
G-급유기, 팬
K-릴레이, 앰프
M-모터
MB-밸브
P-경광등, LED, 전류전압계
Q-차단기, 마그네트
R-회생저항, 포텐쇼, 리액터, 필터
S-스위치
T-파워서플라이, 트랜스
X-터미널, 단자대

QM001	형폐	Mold Close
QM002	형개	Mold Open
QM003	형체 2차 차단밸브	Shut off Mold
QM004	형폐고속	High speed Mold Close
QM005	형폐고속2	High speed MC-2
QM006	형개고속	High speed MO
QM007	형체 압제거	Mold pressure release
QM009	형체브레이크	Mold brake
QM010	형체브레이크2	Mold brake-2
QM011	형체부 펌프합류	Join Mold pump
QM012	형조정 전진	MH FWD
QM013	형조정 후진	MH BWD

QM151	사출	Inject FWD
QM152	강제후퇴	Inject BWD
QM153	계량	Charge
QM154	노즐 전진	Nozzle FWD
QM155	노즐 후진	Nozzle BWD

-Data that can be checked in case of abnormal operation through the sequence chart of valves for each operation is required.

WW172.16.100.20W06_01_Lab_DrawingsWElectrical DrawingsW5.Hydraulic Block Stickers & Sequence Charts

5.유압블록스티커및시퀀스차트

파일 홈 공유 보기

즐거찾기에 고정, 복사, 붙여넣기, 클립보드, 잘라내기, 경로 복사, 바로 가기 붙여넣기, 이동 위치, 복사 위치, 삭제, 이름 바꾸기, 새 항목, 빠른 연결, 새 폴더, 속성, 열기, 편집, 히스토리, 모두 선택, 선택 안 함, 선택 영역 반전

네트워크 > 172.16.100.20 > 06_01_연구소_도면 > 전기도면 > 5.유압블록스티커및시퀀스차트 >

이름	수정한 날짜	유형
DLA5	2022-06-16 오후 7:03	파일 폴더
DLG5	2021-10-25 오후 4:51	파일 폴더
NCG5	2020-11-23 오후 6:55	파일 폴더
TBG5	2022-04-20 오후 4:40	파일 폴더
THA5	2021-02-18 오전 10:35	파일 폴더
TLA5	2022-04-28 오전 8:40	파일 폴더
VHG5	2020-11-23 오후 8:10	파일 폴더
VHLRS	2022-04-15 오후 12:09	파일 폴더

소_도면 > 전기도면 > 5.유압블록스티커및시퀀스차트 > TBG5 >

TBG5 검색

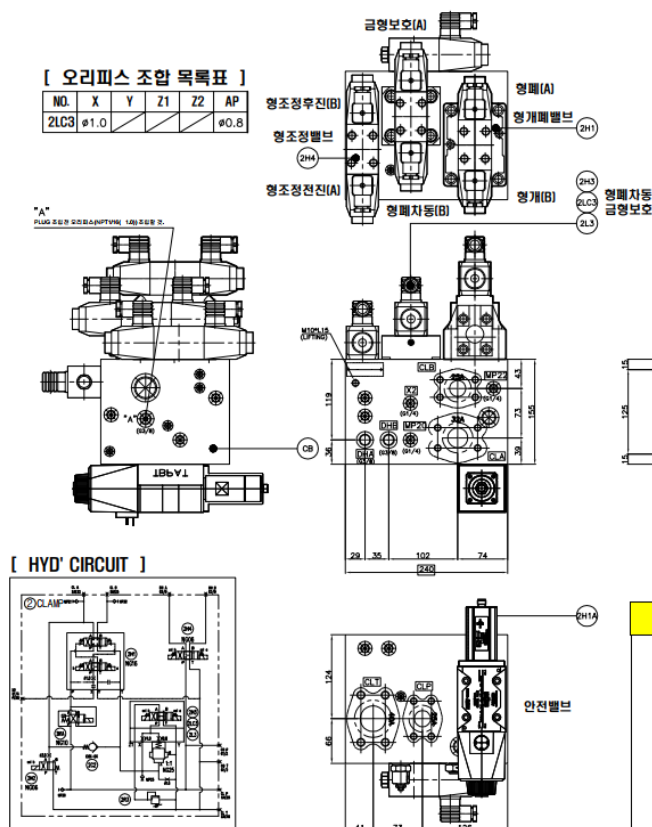
이름	수정한 날짜	유형	크기
160_200_240	2020-12-21 오후 1:10	파일 폴더	
280_480	2021-02-03 오후 7:55	파일 폴더	
580_880	2022-04-15 오후 2:17	파일 폴더	
TB-G5 Sequence chart.xls	2022-04-20 오후 4:40	Microsoft Excel 9...	171KB

There are block assembly diagrams in the folder, which can be used for maintenance through Excel of sequence charts.

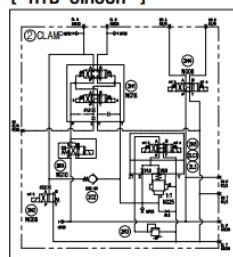
[오리피스 조합 목록표]

NO.	X	Y	Z1	Z2	AP
2LC3	Ø1.0				Ø0.8

A
A는 5.0mm 오버로(0.197인치) 이상 조정할 수.



[HYD. CIRCUIT]



기타	수명	내부	유압	유압
----	----	----	----	----

NO.	DESCRIPTION	MODEL CODE	QTY	REMARK
2B	CLAMP BLOCK	5102M48-0000	1	NI
2H1	SOLENOID VALVE	DDV-3-2C-M-127-H-50-E	1	TKP
2H1A	SAFETY VALVE	DDAV-3-2A-M-127-H-50-PRE-E	1	TKP
2H2	SOLENOID VALVE	DDAV-3-2A-M-127-H-100	1	TKP
2H3	CMT. CHECK VALVE	CWC-04-L	1	TKP
2H3	CMT. INSERT	CWC-25-D-10-M	1	TKP
2H3	CMT. COVER	CWC-25-D-PK-S170	1	TKP
2H3	SOLENOID VALVE	DDAV-3-2C-M-127-H-100	1	TKP
2H3	CMT. RELIEF VALVE	RF-0332-50K	1	TKP
2H4	SOLENOID VALVE	DDAV-3-2C-M-127-H-100	1	TKP

부품	유압기호	명칭	SOL	스티커	PLC IO
형체	2H1A	형체 안전밸브	a	QM003	A101:YA2
	2H1	형폐	a	QM001	A101:YA0
	2H1	형개	b	QM002	A101:YA1
	2H2	형개 충격방지	b	QM015	A101:YA7
	2H3	형폐차동	b	QM004	A101:YA6
	2H3	금형보호	a	QM014	A101:YA5
	2H4	형조정전진	a	QM012	A101:YA3
	2H4	형조정후진	b	QM013	A101:YA3

TB90G5~480C

블럭	기호	구분	출력 신호		I O 번호	형체					노출전진
						형 폐			금 형 보 호	고 압 형 체	
메인	1H1	작동유승온	b	QM202	A101:YD1						
형체	2H1A	안전밸브	a	QM003	A101:YA2						
	2H1	형 폐	a	QM001	A101:YA0						
	2H1	형 개	b	QM002	A101:YA1						
	2H2	형 개 충격방지	b	QM015	A101:YA7						
	2H3	형 폐 차단	b	QM004	A101:YA6						
	2H3	금형보호	a	QM014	A101:YA5						
	2H4	형 조정 전진	a	QM012	A101:YA3						
	2H4	형 조정 후진	b	QM013	A101:YA4						

On the sequence chart, the symbol is the hydraulic symbol, the classification indicates the function, the output signal indicates the direction of the sol, the valve symbol indicates the valve symbol, the IO number means the IO defense for each model, and it is necessary to check whether there is a problem through the

input/output screen.

속 관리

test.db

REC

ACT

온도

1	2	3	4	5	6	7	8	
설정온도	200.0	300.0	295.0	290.0	285.0	280.0	0.0	20.0
현재온도	200.0	300.0	295.0	290.0	285.0	280.0	0.0	0.0

사출

4	4	3	2	1
속도	0.0	0.0	0.0	100.0
압력	0.0	0.0	0.0	175.0
위치	0.0	0.0	0.0	100.0

보압

3	3	2	1
속도	50.0	50.0	50.0
압력	50.0	175.0	100.0
시간	1.0	1.0	1.0

보압 전환 설정

속도	0.0	0.0
압력	0.0	0.0
시간	0.0	0.0

계량

석백1	1	2	3	4	석백2	
속도	0.0	0.0	0.0	0.0	80.0	
압력	0.0				60.0	
배압		0.0	0.0	0.0		
위치	0.0	100.0	160.0	180.0	200.0	220.0

노즐

전진	후진		
속도	10.0	50.0	50.0
압력		81.0	50.0
시간	2.0		3.0

형체

1	2	3	4	5	
속도	50.0	100.0	40.0	20.0	40.0
압력	50.0	120.0	40.0	20.0	190.0
위치	430.0	80.0	20.0	2.0	

이젝터 전진

1	2	3	
속도	40.0	80.0	20.0
압력	40.0	80.0	20.0
위치	15.0	25.0	45.0

형개

5	4	3	2	1	
속도	20.0	30.0	50.0	100.0	50.0
압력	30.0	40.0	50.0	120.0	50.0
위치	455.0	410.0	360.0	260.0	50.0

이젝터 후진

3	2	1	
속도	20.0	80.0	40.0
압력	20.0	80.0	40.0
위치	2.0	30.0	60.0

하트러너

1

PV

SV

0.0

2

PV

SV

0.0

3

PV

SV

0.0

4

PV

SV

0.0

More

외부온도

1 : 사용안함

PV

SV

0.0

2 : 사용안함

PV

SV

0.0

3 : 알람설정

PV

SV

0.0

4 : 시퀀스

PV

SV

0.0

위치그래프

시간그래프

입출력

형체

이젝터

사출

온도

기타설정

품질설정

기술자

2022.04.14 13:00:31 외부출력2 동작중

입력 신호 기호표시 A B

XA00	XA01	XA02	XA03	XA04	XA05	XA06	XA07
형조경전진 리미트	형조경후진 리미트	조작비상 경지스위치	조작속 안전문A	조작속 안전문B	퍼지커버	반조작속 안전문A	반조작속 안전문B
XB00	XB01	XB02	XB03	XB04	XB05	XB06	XB07
뒤조작비상 경지스위치	안전밸브 동작감시	급유기 유량저하	광프1 색선 필터열림	작동유부족	작동유필터 이상	-	-
XC00	XC01	XC02	XC03	XC04	XC05	XC06	XC07
서보드라이브1 이상	전동코어 오버로드	코어1 전진완료	코어1 후진완료	코어3 전진완료	코어3 후진완료	전동코어 전진완료	전동코어 후진완료
XD00	XD01	XD02	XD03	XD04	XD05	XD06	XD07
이젝터후진 완료센서	-	이젝터후진 후쉬버튼	이젝터후진 후쉬버튼	자동문 열림버튼	자동문 닫힘버튼	자동문 저속열림	자동문 저속닫힘
XE00	XE01	XE02	XE03	XE04	XE05	XE06	XE07
옛지센서	-	펌프필터2 열림	서보드라이브2 이상	-	펌프필터3 열림	서보드라이브3 이상	코어2 전진완료
XF00	XF01	XF02	XF03	XF04	XF05	XF06	XF07
코어2 후진완료	[로봇] 비상정지	[로봇] 공정시작	[로봇] 형개인터락	[로봇] 형개인터락	[로봇]이젝터 전진인터락	[로봇]이젝터 후진인터락	[로봇]형체 영역안전

출력 신호

YA00	YA01	YA02	YA03	YA04	YA05	YA06	YA07
형폐	형개	형체안전 밸브	형조경전진	형조경후진	금형보호	형폐자동	형개 총각방지
YB00	YB01	YB02	YB03	YB04	YB05	YB06	YB07
사출	강제후회	노출전진	노출후진	배압회로	계량	이젝터전진	이젝터후진
YC00	YC01	YC02	YC03	YC04	YC05	YC06	YC07
코어1전진	코어1후진	에어이젝터	경광동작색	경광동작색	경광동작색	부저	호퍼냉각수 차단밸브
YD00	YD01	YD02	YD03	YD04	YD05	YD06	YD07
오일 냉각수밸브	작동유속은	서보 Enable	서보펌프 경보리셋	모터1전원	히터전원	급유기 릴레이	기본사출 게이트릴레이
YE00	YE01	YE02	YE03	YE04	YE05	YE06	YE07
에어이젝터2	전동코어 전진릴레이	전동코어 후진릴레이	형개고속	형체 일임방지	강제후회 회로	자동문저속 열림출력	자동문저속 닫힘출력
YF00	YF01	YF02	YF03	YF04	YF05	YF06	YF07
자동문열림	자동문닫힘	[로봇] 자동모드	[로봇] 안전문 닫힘	[로봇] 형개완료	[로봇] 형개완료	[로봇]이젝터 전진완료	[로봇]이젝터 후진완료

형체 0.00V 사출 0.00V 메인압력 0.00V 압력명령 0.00V 배압비례 0.00V 출력검사
이젝터 0.00V - 0.00V 사출압력 0.00V 속도명령 0.00V - 0.00V OFF

2022.04.14 13:00:54 외부출력2 동작중

입력 신호 기호표시 A B

XA00	XA01	XA02	XA03	XA04	XA05	XA06	XA07
+UH11 BG3	+UH11 BG4	+UH10 SF1	+UH6 SF11	+UH6 SF12	+UH6 SF41	+UH3 SF21	+UH3 SF22
XB00	XB01	XB02	XB03	XB04	XB05	XB06	XB07
+UH3 SF2	+UH7 BG5	+UH11 GT1	+UH8 BG18	+UH13 BG43	+UH13 BG23	-	-
XC00	XC01	XC02	XC03	XC04	XC05	XC06	XC07
+UH0 AB1	+UH0 O6QB1	+UH5 O5XD1	+UH5 O5XD2	+UH5 O5XD5	+UH5 O5XD6	+UH5 O6XD1	+UH5 O6XD2
XD00	XD01	XD02	XD03	XD04	XD05	XD06	XD07
+UH5 O17XD1	-	+UH6 S4	+UH6 S5	+UH6 S1	+UH6 S2	+UH6 BG024	+UH6 BG025
XE00	XE01	XE02	XE03	XE04	XE05	XE06	XE07
+UH11 SF61	-	+UH8 BG19	+UH0 AB2	-	+UH8 BG20	+UH0 AB3	+UH3 O5XD3
XF00	XF01	XF02	XF03	XF04	XF05	XF06	XF07
+UH3 O5XD4	ROBOT	ROBOT	ROBOT	ROBOT	ROBOT	ROBOT	ROBOT

출력 신호

YA00	YA01	YA02	YA03	YA04	YA05	YA06	YA07
+UH7 QM1	+UH7 QM2	+UH7 QM3	+UH7 QM12	+UH7 QM13	+UH7 QM14	+UH7 QM4	+UH7 QM15
YB00	YB01	YB02	YB03	YB04	YB05	YB06	YB07
+UH4 QM151	+UH4 QM152	+UH4 QM154	+UH4 QM155	+UH4 QM171	+UH4 QM153	+UH5 QM91	+UH5 QM92
YC00	YC01	YC02	YC03	YC04	YC05	YC06	YC07
+UH5 QM111	+UH5 QM112	+UH5 QM101	+UH5 PF1:RD	+UH5 PF1:YE	+UH5 PF1:GN	+UH6 PJ1	+UH3 QM157
YD00	YD01	YD02	YD03	YD04	YD05	YD06	YD07
+UH3 QM156	+UH3 QM202	+UH0 AB1-3	+UH0 AB1-3	+UH1 K1	+UH1 K91	+UH1 K134	+UH1 K81
YE00	YE01	YE02	YE03	YE04	YE05	YE06	YE07
+UH3 QM113	+UH1 O6K1	+UH1 O6K2	+UH7 QM6	+UH7 QM7	+UH4 QM162	+UH11 QM134	+UH11 QM133
YF00	YF01	YF02	YF03	YF04	YF05	YF06	YF07
+UH11 QM132	+UH11 QM131	ROBOT	ROBOT	ROBOT	ROBOT	ROBOT	ROBOT

Device symbol display function makes it easy to maintain.

How to view graphs

Purpose of use: Used to check the trend of position, speed, pressure change and measure impact, error, and accuracy

The interface displays a control panel for a system named 'test.db'. It includes several data tables and a sidebar menu.

온도 (Temperature) Table:

온도	1	2	3	4	5	6	7	8
설정온도	200.0	300.0	295.0	290.0	285.0	280.0	0.0	20.0
현재온도	200.0	300.0	295.0	290.0	285.0	280.0	0.0	0.0

사출 (Injection) Table:

사출	4	3	2	1
속도	0.0	0.0	0.0	100.0
압력	0.0	0.0	0.0	175.0
위치	0.0	0.0	0.0	100.0

보압 (Pressure) Table:

보압	3	2	1
속도	50.0	50.0	50.0
압력	50.0	175.0	100.0
시간	1.0	1.0	1.0

보압 전환 설정 (Pressure Switch Setting) Table:

	속도	압력	시간
속도	0.0	0.0	0.0
압력	0.0	0.0	0.0
시간	0.0	0.0	0.0

계량 (Measurement) Table:

계량	선택1	1	2	3	4	선택2
속도	0.0	0.0	0.0	0.0	0.0	80.0
압력	0.0					60.0
배압		0.0	0.0	0.0	0.0	
위치	0.0	100.0	160.0	180.0	200.0	220.0

노즐 (Nozzle) Table:

노즐	전진	후진
속도	10.0	50.0
압력	81.0	50.0
시간	2.0	3.0

형체 (Shape) Table:

형체	1	2	3	4	5
속도	50.0	100.0	40.0	20.0	40.0
압력	50.0	120.0	40.0	20.0	190.0
위치	430.0	80.0	20.0	2.0	

이젝터 전진 (Ejector Forward) Table:

이젝터 전진	1	2	3
속도	40.0	80.0	20.0
압력	40.0	80.0	20.0
위치	15.0	25.0	45.0

이젝터 후진 (Ejector Reverse) Table:

이젝터 후진	3	2	1
속도	20.0	80.0	40.0
압력	20.0	80.0	40.0
위치	2.0	30.0	60.0

하트러너 (Harterner) Table:

하트러너	1	2	3	4
PV				
SV	0.0	0.0	0.0	0.0

외부온도 (External Temperature) Table:

외부온도	1 : 사용안함	2 : 사용안함
PV		
SV	0.0	

알람설정 (Alarm Setting) Table:

알람설정	3	4
PV		
SV		

시퀀스 (Sequence) Table:

시퀀스	1	2	3	4
PV				
SV				

위치그래프 (Position Graph) Table:

위치그래프	1	2	3
속도	40.0	80.0	20.0
압력	40.0	80.0	20.0
위치	15.0	25.0	45.0

시간그래프 (Time Graph) Table:

시간그래프	3	2	1
속도	20.0	80.0	40.0
압력	20.0	80.0	40.0
위치	2.0	30.0	60.0

입출력 (Input/Output) Table:

입출력	1	2	3
속도	40.0	80.0	20.0
압력	40.0	80.0	20.0
위치	15.0	25.0	45.0

하단 메뉴 (Bottom Menu):

- 형체
- 이젝터
- 사출
- 온도
- 기타설정
- 품질설정
- 기술자

- Time Graph



형체

형체증압 최대값: 0.0 bar

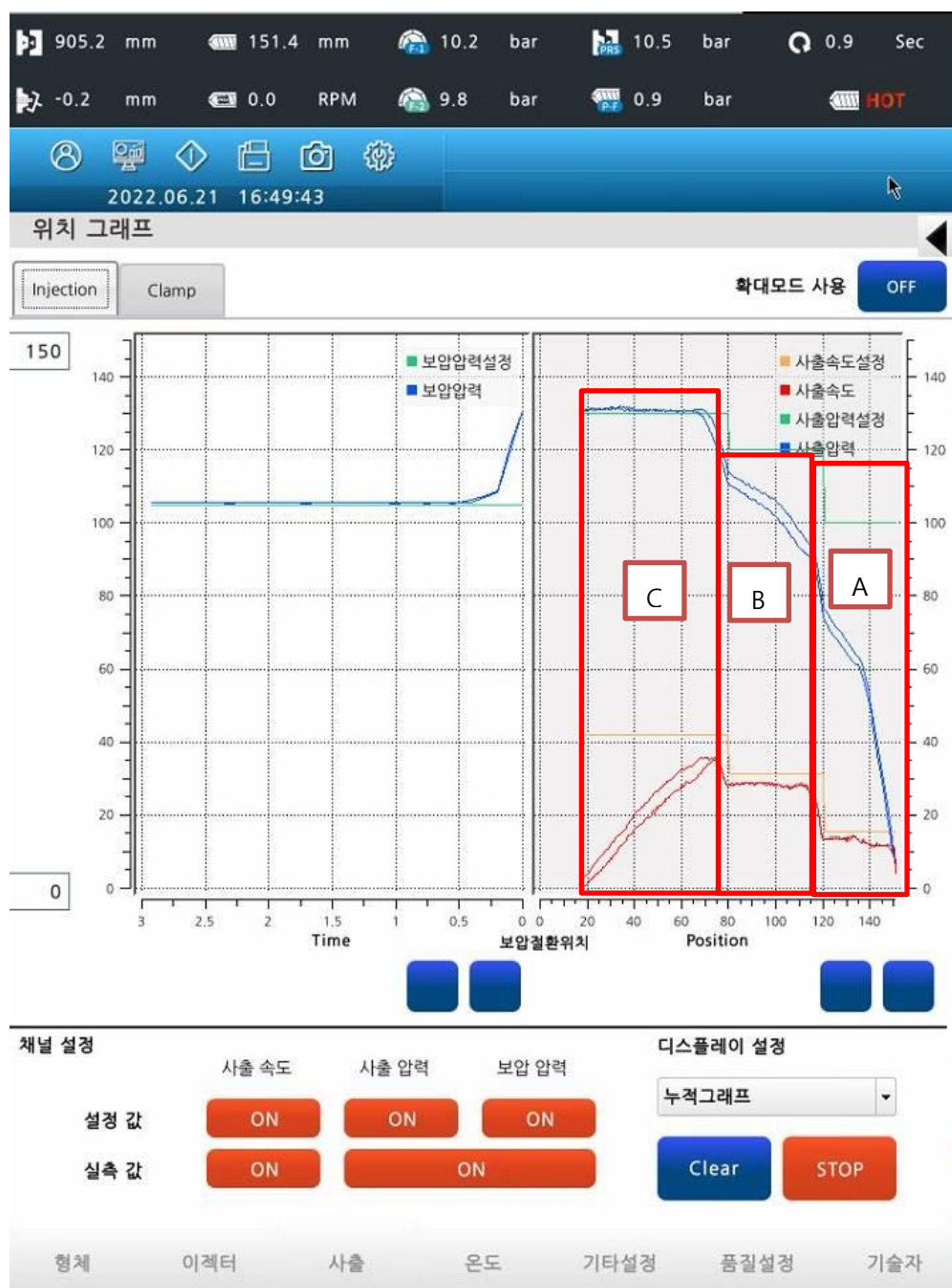
형체	1	2	3	금형보호	증압
속도 [%]	50.0	100.0	40.0	20.0	40.0
압력 [bar]	50.0	120.0	40.0	20.0	190.0
위치 [mm]	430.0	80.0	20.0	2.0	

In the case of the graph above, the graph for speed/pressure/shape position for "type" driving.



In addition, you can select other items to check the status of the machine through the amount of position/pressure change for each operation.

- Location Graph



It is a position graph for injection, and it is easy to analyze when setting conditions through the graph

Zone A: Speed : 16 mm/s , Pressure: 100 bar setting. Since the injection pressure (blue graph) did not exceed the set pressure (green graph), the set injection speed was reached. (The red line coincides with the orange line)

Zone B: Speed : 30mm/s, Pressure : 120bar. Changing the speed causes the injection pressure to change. However, since the injection pressure did not exceed the set pressure, the set injection speed was reached in the same way as in section A.

Zone C: Speed : 42mm/s, Pressure : 130bar. After passing through section B, the filling in the mold (70mm point) is completed and the set pressure is reached, and the speed is reduced to maintain the pressure (decrease in red graph).

How to check and take action in case of shock

When an impact occurs, check the trend of speed/pressure through the time graph. Adjust the acceleration/deceleration to cushion the impact.



가감속 설정

형폐	1	2	3	금형보호	증압
속도 가속	300	300	300	300	300
속도 감속	300	300	300	300	300
압력 가속	100	100	100	100	300
압력 감속	100	100	100	100	300

형개	1	2	3	4	5
속도 가속	300	300	300	300	300
속도 감속	300	300	300	300	300
압력 가속	100	100	100	100	300
압력 감속	100	100	100	100	300

사출	1	2	3	4	5	6	7	8	9	10
속도 가속	100	100	100	100	100	100	100	100	100	100
속도 감속	100	100	100	100	100	100	100	100	100	100
압력 가속	100	100	100	100	100	100	100	100	100	100
압력 감속	100	100	100	100	100	100	100	100	100	100

계량	석백1	1	2	3	4	석백2
속도 가속	100	100	100	100	100	100
속도 감속	100	100	100	100	100	100
압력 가속	100	100	100	100	100	100
압력 감속	100	100	100	100	100	100

기타	보압	이젝터전진	이젝터후진	노즐전후진	형조정	코어
속도 가속	100	200	200	200	200	200
속도 감속	100	100	100	100	100	100
압력 가속	100	100	100	100	100	100
압력 감속	100	100	100	100	100	100

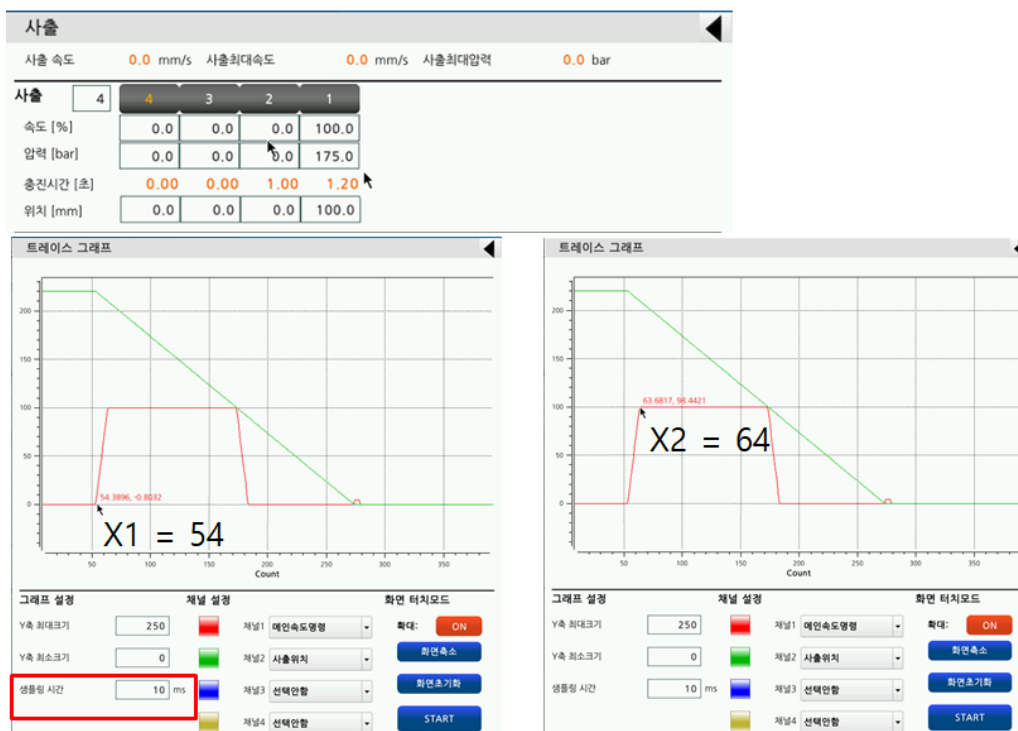
Function Definition

acceleration and deceleration (ms) = maximum speed/pressure time

Speed Acceleration and Deceleration: Motor RPM

Pressure acceleration and deceleration: Motor drive pressure limit.

Ex) 0%->100% time = 0.1sec, 0%->50% time = 0.05sec at 100ms setting



X axis : Time
Y axis : variable(사출위치, 속도명령)

가감속 시간 = (x2-x1) * 샘플링 시간
100ms = (63 - 54) * 10

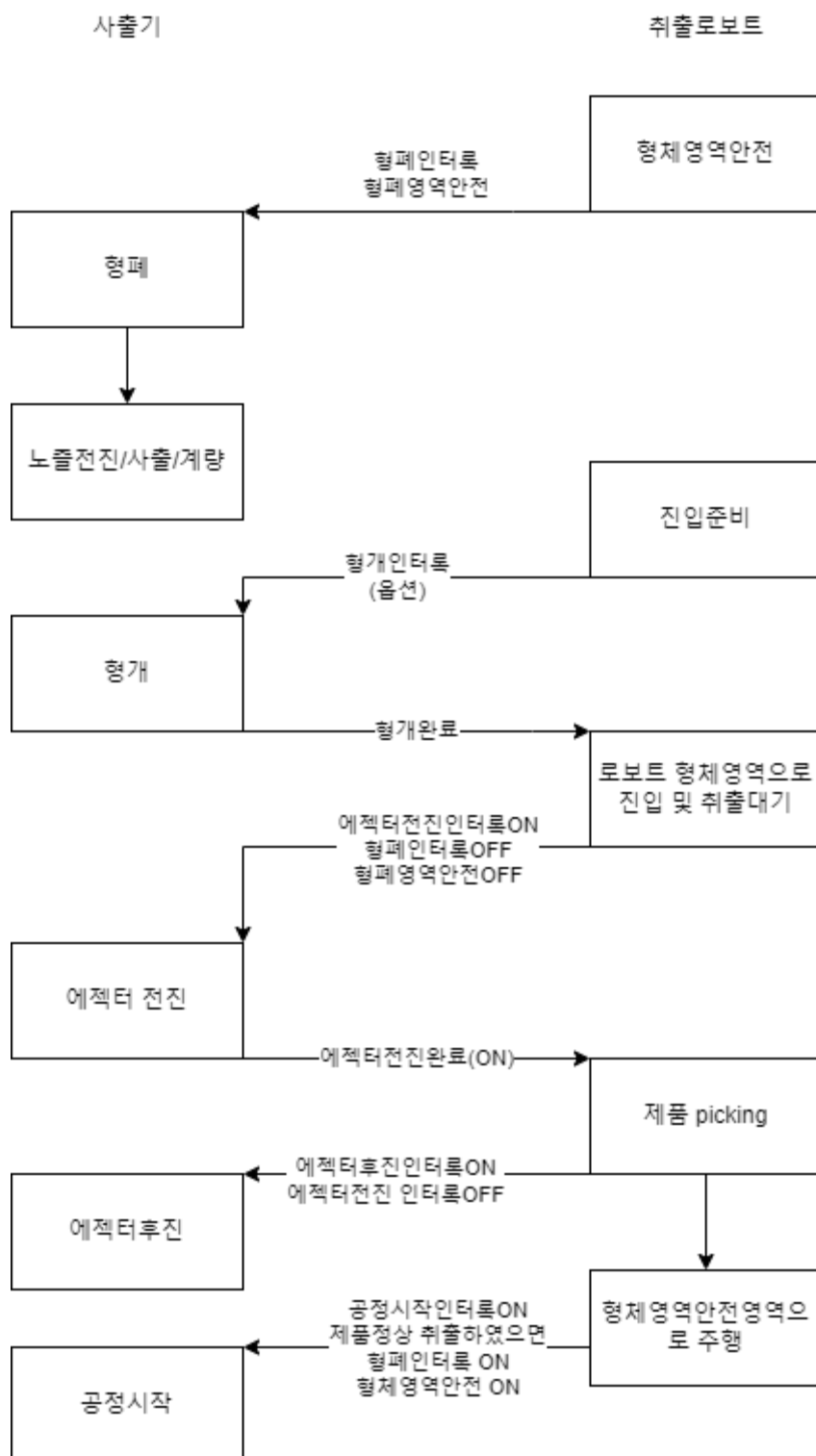
*Note: In the case of injection shafts, the acceleration and deceleration may affect the molded product, so be sure to adjust after consultation with the customer.

Understanding Robot Interfaces

It is an interface used to prevent collisions and smooth operation between the injection molding machine and the robot.

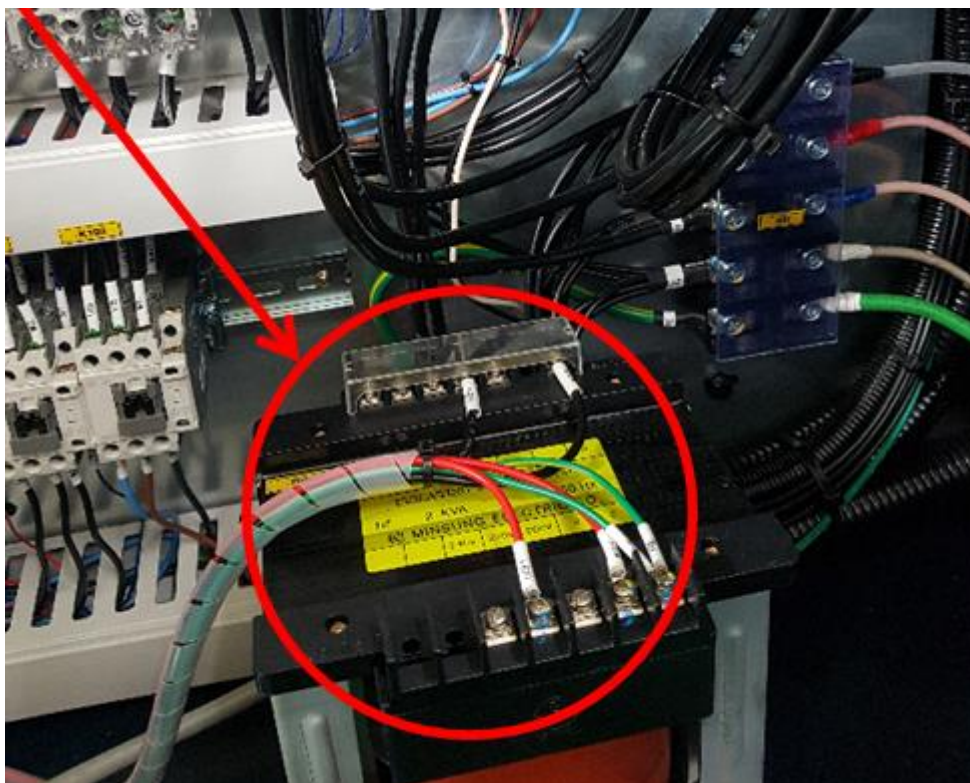
Referring to the diagram below, it can be seen that the injection molding machine is operated through the interlock signal of the robot.

If the interlock signal is turned off during the operation of the injection molding machine, the injection molding machine will trigger an interlock alarm.



Robot Interface Circuit Checklist

1. Robot Power Injection Machine Operation Power Transformer



There is a case where the installation personnel of the take-out robot company wires the operation power transformer (380V to 220V) to the second side of the single-phase transformer installed to supply control power in the company's switchboard.

As a result, it can malfunction due to voltage drop due to insufficient transformer capacity and noise from the take-out robot.

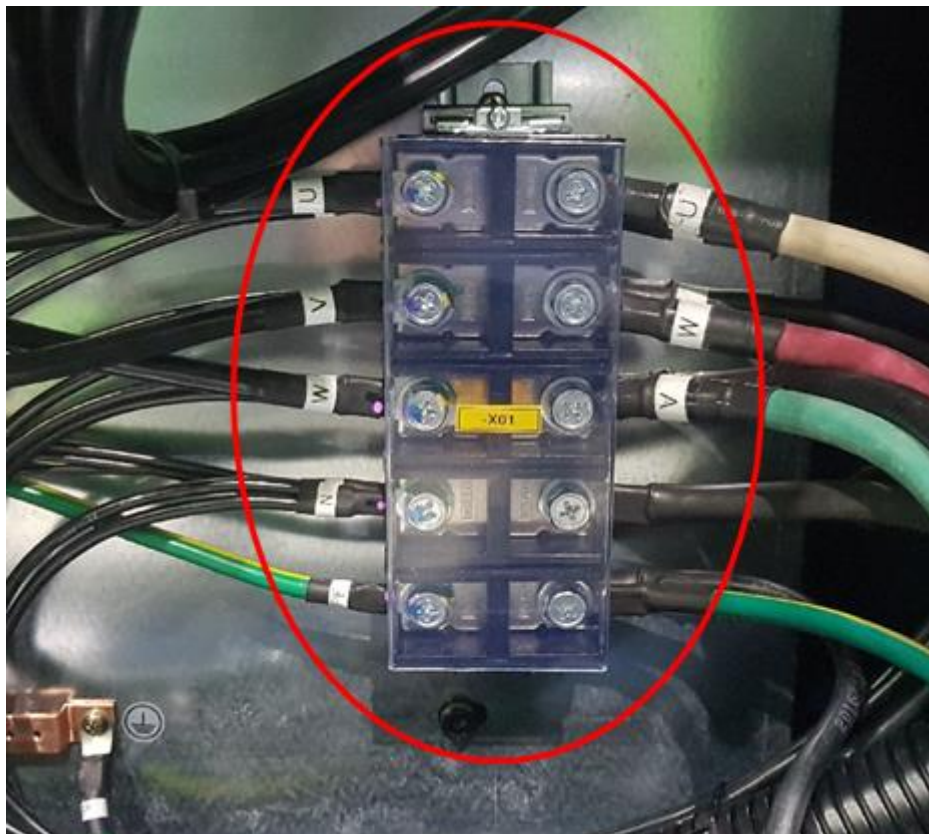
In order to solve this problem, we recommend that you use a single-phase 220V external power supply (R,N) for the Woojin Flame injection machine.

2. Robot interface must be used interlock

In order to prevent collision with the robot, the interlock must be connected, and the process start interlock is sometimes used. (Reason for using process start interlock: When taking out the injection product, check the part for the defective chuck, and if the injection material falls while driving in the shape area, the injection molding machine can be stopped only by turning off the interlock and process start interlock signal.)

AS Initial Checks

Three-phase power input and grounding check



1. Check whether there is factory voltage and low voltage.
2. Check whether the ground wire is connected and the condition of the factory grounding.
3. Do not connect to the ground on the N.

The servo type has better efficiency than the induction motor type, but it generates noise, so it must be consumed as ground. If the ground is connected to N, there is a history of communication errors.

Check the breaker blocking status



Check the status of the circuit breaker in relation to the internal device.

3.1 Check the connection status of the magnetic contactor (magnet) nose part



The wiring part of the nose is located deeply, so there is a risk of mistake when wiring and remounting, and the orange part is in/out when the magnet is in operation status.

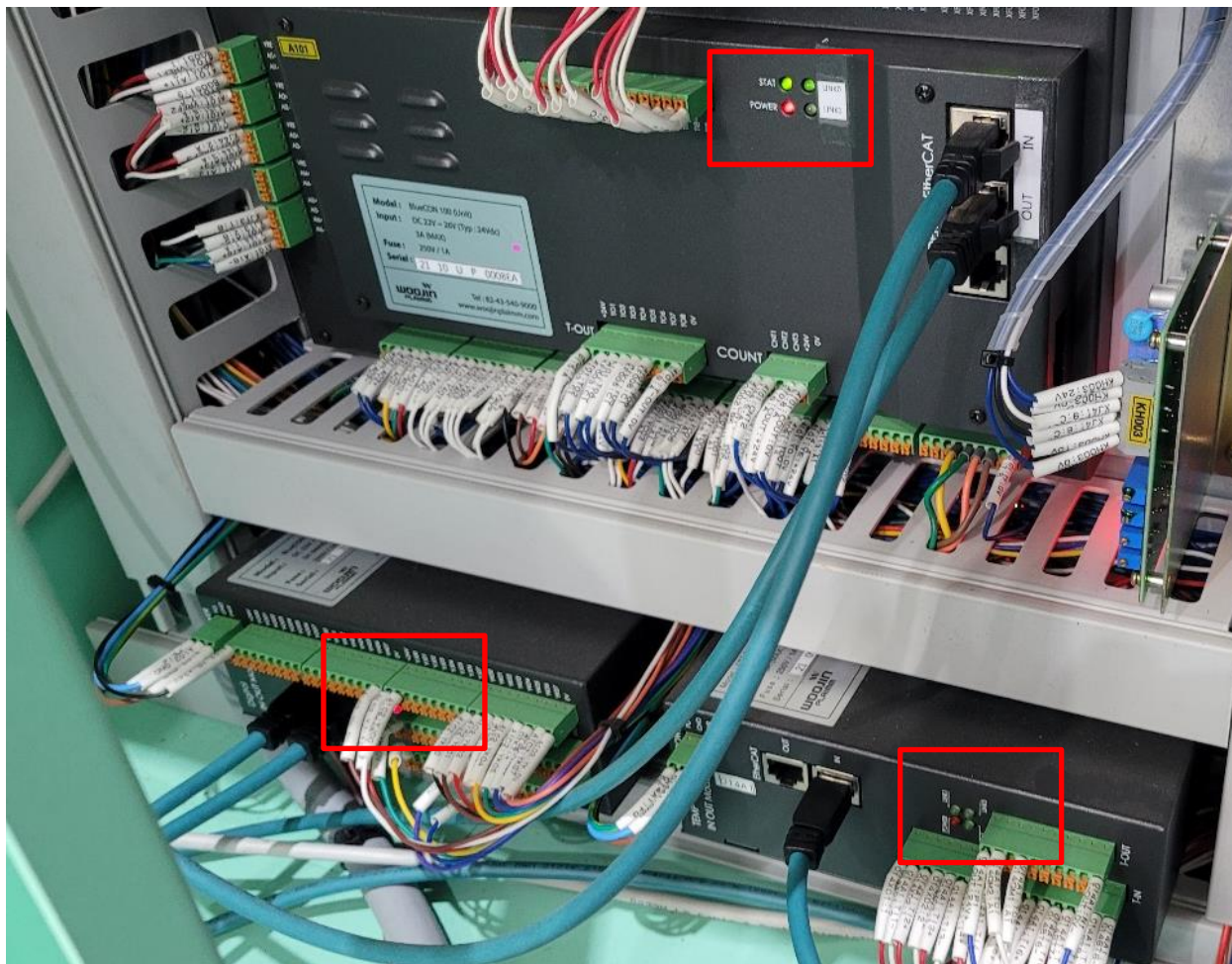
Check the status of the power supply and wiring



Check the status LEDs and voltage of the power supply.

It is no exaggeration to say that the operation of an injection molding machine starts from the power supply. If the power supply fails to function, communication errors and monitor boot errors may occur.

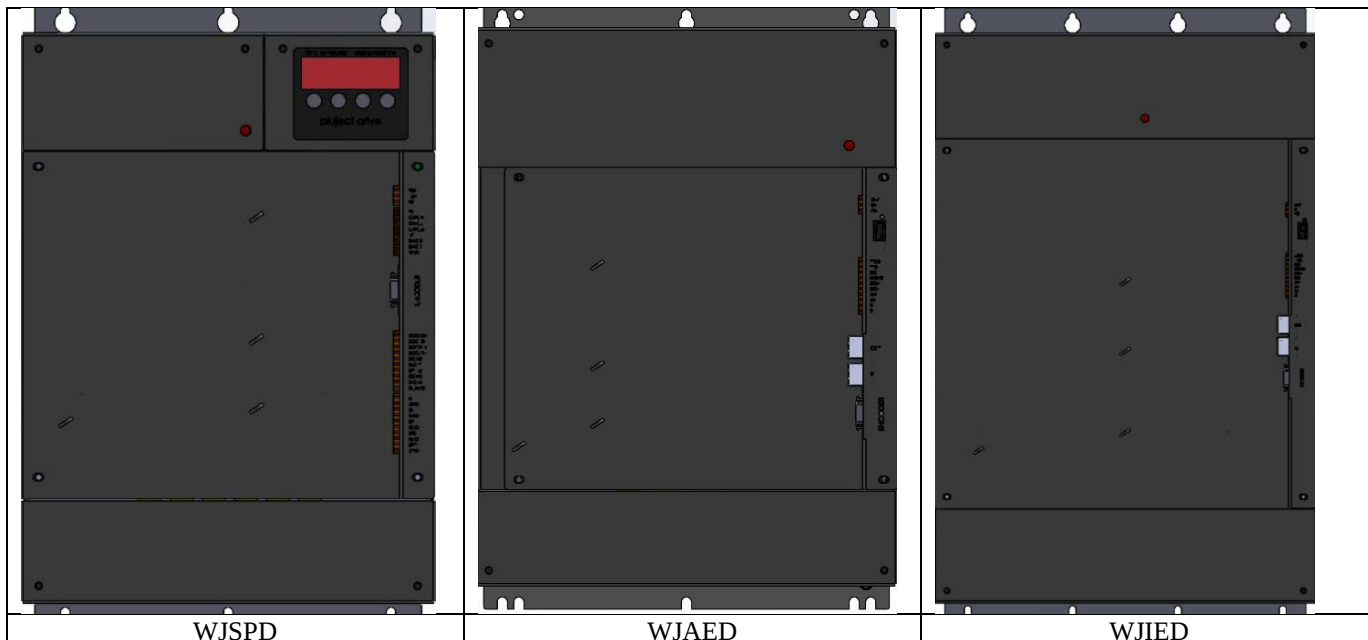
Check the PLC card



If the PLC card is not powered, communication and I/O errors occur.

How to diagnose Woojin servo drive

There are a total of three types of servo drives manufactured by Woojin.



Features of each model

Model	name	Communication method between PLCs
WJSPD	Drive for hydraulic servo motors	Analog I/O
WJAED	Drive for electric servo motors	Industrial Communications
WJIED	Drives for hydraulic & electric servo motors	Industrial Communications

Drive Installation Status by Model

Model/Drive	WJSPD	WJAED	WJIED
TBG5	1, (TB580 or more 2 units)	X	X
DLG5	2 (3 DL1300 or more)	X	X
TEG5	X	4	X (use 1 for high speed)
NCG5	2	X	1
TENC	X	8	X
VHG5	2	X	1

Why did we split WJIED and WJAED & WJSPD?

1. In the case of WJAED, there is a power module that converts to AC->DC, but in the case of VH/NC model turntable, electric high-speed injection machine, there is an additional cost when installing 1 power module and 1 WJAED.

2. In the future, hydraulic models will be equipped with WJIED (a lot of data and easy maintenance when using the communication type)

WJSPD

1. Alarm Code

When a servo drive alarm occurs, an alarm code is generated on the drive's status LED.

Alarm Code	Description	Cause	Gita
AL - 10	ADC Read	CPU Analog Data Read Fail	Replacing the Control Board
AL - 11	S/W Over Current	Software Overcurrent	Confirm the cause (contact us)
AL - 12	H/W Over Current	Hardware overcurrent	Confirm the cause (contact us)
AL - 14	Over Speed	Motor Over Speed	Confirm the cause (contact us)
AL - 22	SCR Fault	SCR Operation Error	Drive Replacement
AL - 23	CT Offset Error	Current Sensor Offset Error	Drive Replacement
AL - 24	Fuse Fault	Fuse Interruptions	Drive Replacement
AL - 32	Pressure Sensor Line Fail	Pressure Feedback Abnormality (Sensors/Cables/Wiring/Motors, etc.)	Replacing the Pressure Sensor
AL - 33	Motor Line Fail	Checking the motor connection	Drive Replacement
AL - 34	U CT OFFSET ERR	Current Sensor Opt Error	Drive Replacement
AL - 35	V CT OFFSET ERR	Current Sensor Opt Error	Drive Replacement
AL - 36	W CT OFFSET ERR	Current Sensor Opt Error	Drive Replacement
AL - 41	Heatsink OverHeat	Drive heatsink temperature overheating	Cooling check (contact us)
AL - 42	Motor OverHeat	Motor Temperature Overheating	Cooling check (contact us)
AL - 43	Heatsink temperature sensor disconnect	Heat sink temperature sensor disconnection	Cooling check (contact us)
AL - 50	Parameter Initial Error	Parameter Initialization Error	Replacing the Control Board
AL - 51	Factory Initial Error	Factory Reset Error	Replacing the Control Board
AL - 52	Data Load Error	Memory Data Loading Error	Replacing the Control Board
AL - 61	Under Voltage Alarm	DC Link Low Voltage Alarm	Check the input voltage (contact us)
AL - 62	Over Voltage Alarm	DC Link Overvoltage Alarm	Check the input voltage (contact us)
AL - 71	Slave's Status occur Error	Poor CAN communication	Check the CAN wiring (contact us)

WJSPD (Hydraulic Servo Drive) Alarm Code

2. Drive Status Parameters

Through the drive status parameters, it is possible to check whether there is an abnormality of the servo motor and servo drive.

Press and hold the M key on the drive to enter "ST-xx". When entering, you can check the parameter information specified at the bottom.

Parameter No.	Description
St-00	Pressure Command (Voltage Indication)
St-01	Pressure Feedback (Voltage Indication)
St-02	Speed Command (Voltage Display)
St-03	Speed Feedback (Voltage Indication)
St-04	Back pressure command (Voltage indication)
St-05	Back Pressure Feedback (Voltage Indication)
St-06	Pressure command (bar indication)
St-07	Pressure Feedback (Bar Indication) – Main Pressure Sensor
St-08	Speed Command (% Indicated)
St-09	Speed Feedback (% Indicated)
St-10	Back pressure command (bar display)
St-11	Back pressure feedback (bar indication) – Back pressure sensor
St-12	–
St-13	Motor RPM
St-14	Feedback Talk
St-15	Overload Rate
St-16	Feedback Current (Arms)
St-17	DC-Link Voltage
St-18	Heatsink temperature
St-19	Motor Temperature
St-20	Digital Input Status Indication
St-21	Digital Output Status Display

St-22	Firmware Version
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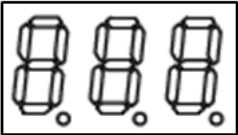
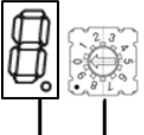
WJSPD (Hydraulic Servo Drive) Status Message Parameters

TIP: The parameters "ST-07" and "ST-13" allow for an initial check of the entire system.

Check the power ratio relative to the reverse direction and speed command through the motor RPM, and check the pressure control through ST-07.

WJAED/WJIED

1. Drive front panel

Power Unit	Drive Unit
 서보 상태 표시 용 7-SEGMENT	 노드 ID 설정 스위치 서보 ID 표시 용 7-SEGMENT

Operate the rotary switch to set the node ID while the drive power is not on.

In the case of this drive, there is only one rotary switch that can be set from 0 ~ 15.

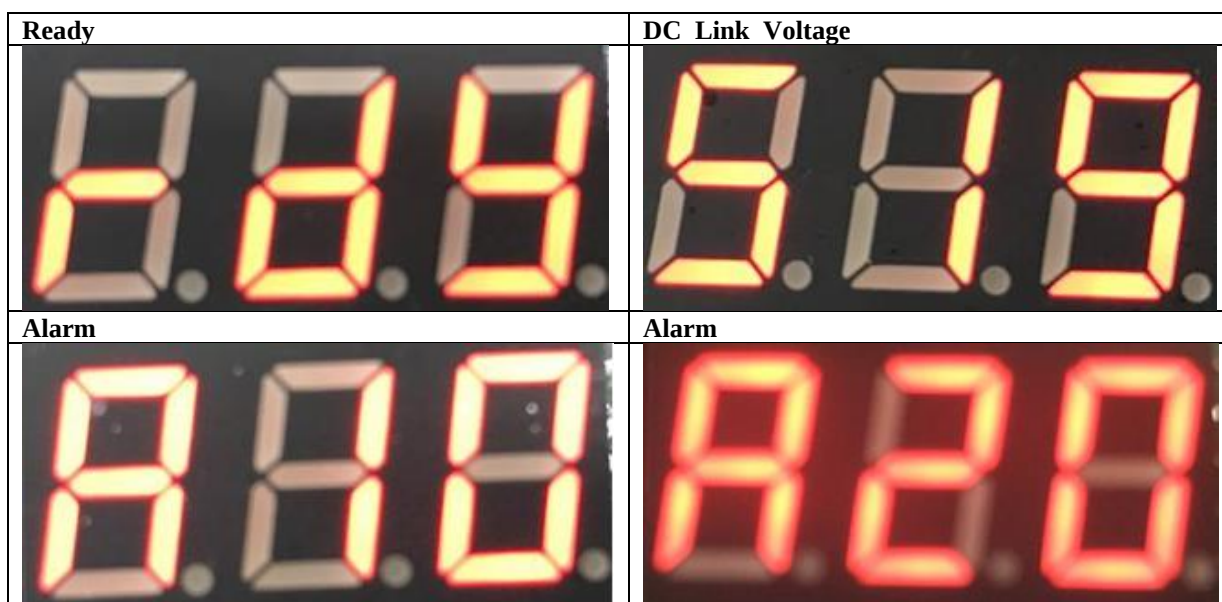
The ID of the drive unit may vary by model.

Number/Machine	TEG5	TENC	VHG5/NCG5
1	Injection	Injection	Rotary
2	Weighing	Weighing	
3	Shape	Shape	
4	Ejector	Ejector	
5	Injection 2 (for high speed)	Injection 2	
6		Weighing2	
7		Ejector2	
8		Rotary	

2. 7-Segment (Power Unit) for servo status display

The 7-Segment for servo status display consists of 3 digits as shown below and is displayed as below.

The 7-segment of the Power Unit indicates the status of the drive, such as DC Link voltage and alarms. When a servo alert occurs, the alert status is displayed in preference to other statuses.



Alarm Codes	Factors of occurrence	What to do
AL-10	RST Board Error	Check that the RST or mains wiring is correct.
AL-11	Fuse Alarm	Check if the fuse in the servo drive is broken, and replace it.
AL-12	Regenerative Resistance Error	Make sure that the regenerative resistor is wired correctly.
AL-13	SCR Alarm	Check if the SCR wiring in the servo drive is correct.
AL-14	Heat sink temperature sensor disconnection	Check that the fan wiring of the servo drive is correct.
AL-20	Heatsink overheating alarm	Check the operation status of the servo drive fan.
AL-21	DCLink Overvoltage Alarm	Check that the DC Link voltage is coming in with a normal input value.
AL-22	DCLink Low Voltage Alarm	Check that the DC Link voltage is coming in with a normal input value.

AL-23	Discharge Command Alarm in Power Input Status	Check the condition of the mains wiring.
AL-24	Single Phase Power Alarm	Check the condition of the mains wiring.

3. Drive Unit Alarm Status

When an alarm is triggered, an alarm number is raised.

11	AL-0112	22/07/01 10:20:44	22/07/01 10:22:41	동작 중 반조작측 안전문이 열렸습니다
12	AL-0112	22/07/01 10:18:22	22/07/01 10:18:46	동작 중 반조작측 안전문이 열렸습니다
13	AL-0112	22/07/01 10:18:20	22/07/01 10:18:22	동작 중 반조작측 안전문이 열렸습니다
14	AL-0112	22/07/01 10:18:20	22/07/01 10:18:20	동작 중 반조작측 안전문이 열렸습니다
15	AL-0112	22/07/01 10:18:18	22/07/01 10:18:19	동작 중 반조작측 안전문이 열렸습니다
16	AL-0112	22/07/01 10:17:33	22/07/01 10:18:18	동작 중 반조작측 안전문이 열렸습니다
17	AL-0112	22/07/01 10:08:22	22/07/01 10:17:02	동작 중 반조작측 안전문이 열렸습니다
18	AL-0703	22/07/01 07:21:19	22/07/01 07:22:36	로봇 - 형개 인터록
19	AL-0421	22/07/01 07:21:19	22/07/01 07:22:36	제라 - 서보드라이브 1 이상 (34)

Alarm Codes	Factors of occurrence	What to do
AL-10	CPU ADC Read Failure	Check if it is the same when you turn off the control, and if it is the same, replace the drive
AL-11	Software Overcurrent	Make sure it is the same when you turn off the control, and if it has the same symptoms, replace the drive.
AL-12	Hardware overcurrent	Check if the CT cable wiring in the servo drive is correct.
AL-13	Overspeed Error	Check that the motor or encoder cable wiring is correct. Make sure that the motor ID is the same as the motor you

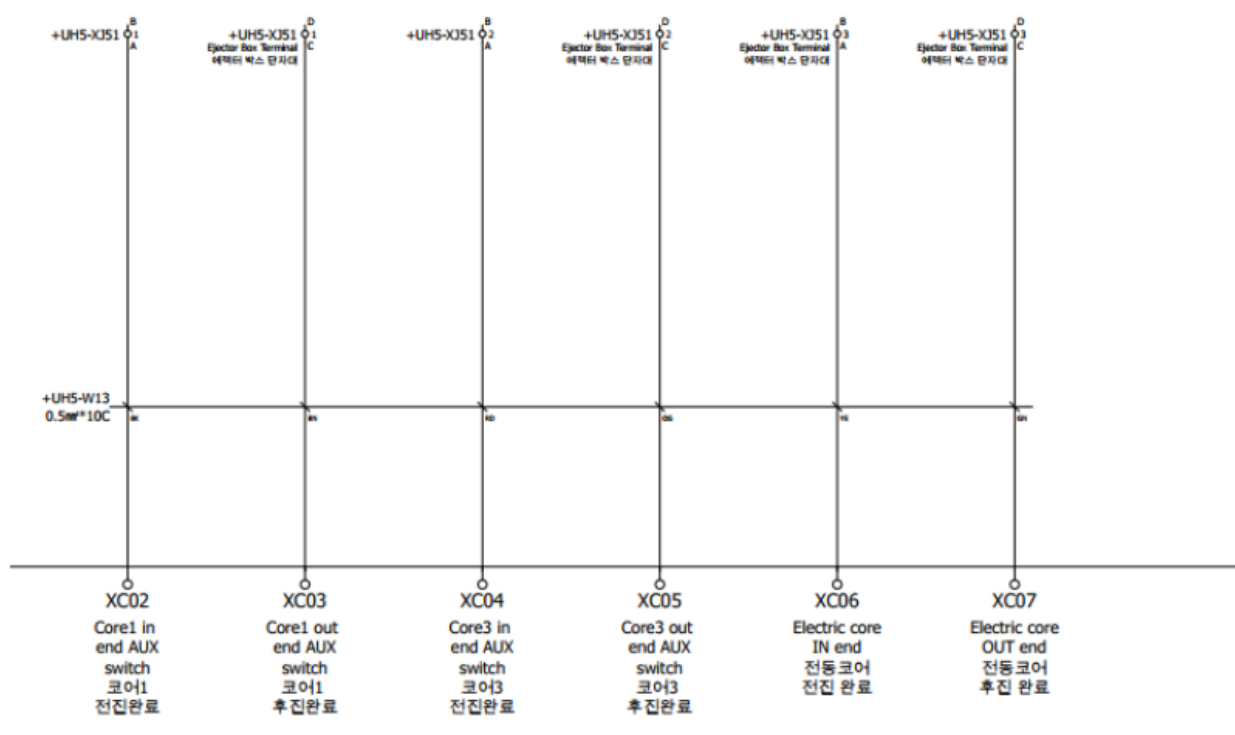
		are equipped with.
AL-14	Position deviation error	
AL-20	IPM P-phase defects	Check the wiring between the Power Unit and the Drive Unit.
AL-21	IPM N-phase defect	Check the wiring between the Power Unit and the Drive Unit.
AL-22	U-phase CT offset error	Adjust the current offset in U.
AL-23	Phase V CT Offset Error	Adjust the current offset in phase V.
AL-24	W-phase CT offset error	Adjust the current offset in the W.
AL-25	U-phase motor power line disconnection	Make sure there are no problems with the motor wiring.
AL-26	V-phase motor power line disconnection	Make sure there are no problems with the motor wiring.
AL-27	W phase motor power line disconnection	Make sure there are no problems with the motor wiring.
AL-30	Resolve communication error	Make sure the resolver cable routing is correct.
AL-31	Overload Alarm	Re-examine the motor or drive capacity.
AL-32	Ndot Position Offset Write Error	
AL-33	Ndot Position Reading Error	
AL-34	Communication Errors	
AL-40	Overload Alarm	Review load conditions, operating conditions or motor capacity.
AL-41	Heatsink overheating alarm	Check if the servo drive's fan is running.
AL-42	Heat sink temperature sensor disconnection	Check if the temperature sensor in the servo drive is wired.
AL-43	Motor Overheating Alarm	After measuring the temperature around the motor, set the ambient environment below 40°C .

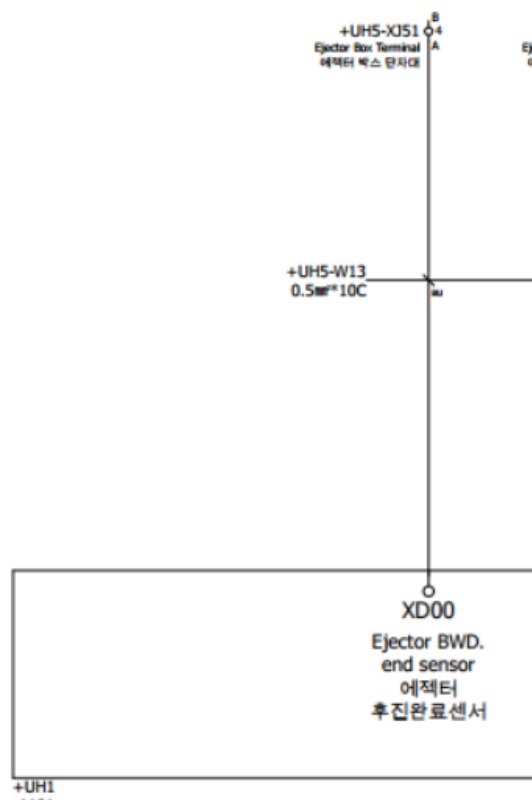
AL-50	EEPROM data failed to read	
AL-51	CPU Watchdog Error	
AL-60	DCLink Low Voltage Alarm	Check that the DC Link voltage is coming in with a normal input value.
AL-61	DCLink Overvoltage Alarm	Check that the DC Link voltage is coming in with a normal input value.

-

Core/Ejector Interlock Connector Connection Diagram

- TBG5



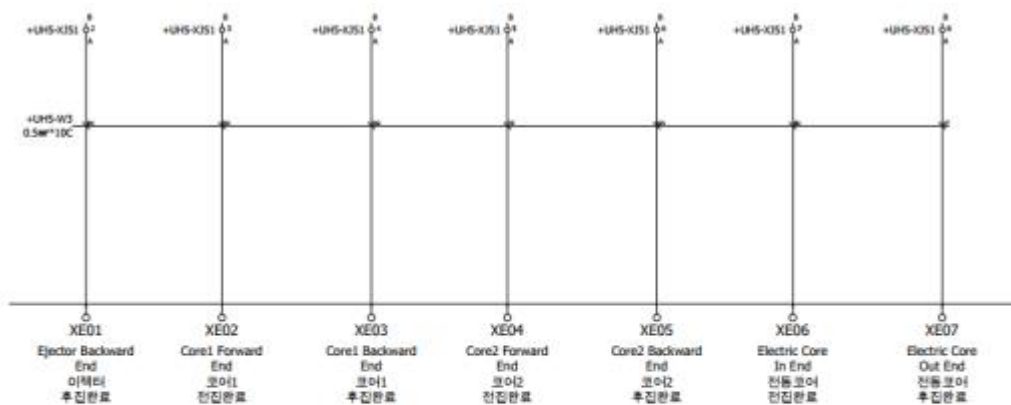


넘버링 도표

명칭	TBG5
코어 1 전진완료	A101:XC02/XJ51:1:A
코어 1 후진완료	A101:XC03/XJ51:1:C
코어 3 전진완료	A101:XC04/XJ51:2:A
코어 3 후진완료	A101:XC05/XJ51:2:C
전동코어전진완료	A101:XC06/XJ51:3:A
전동코어후진완료	A101:XC07/XJ51:3:C
에젝터후진완료	A101:XD01/XJ51:4:A



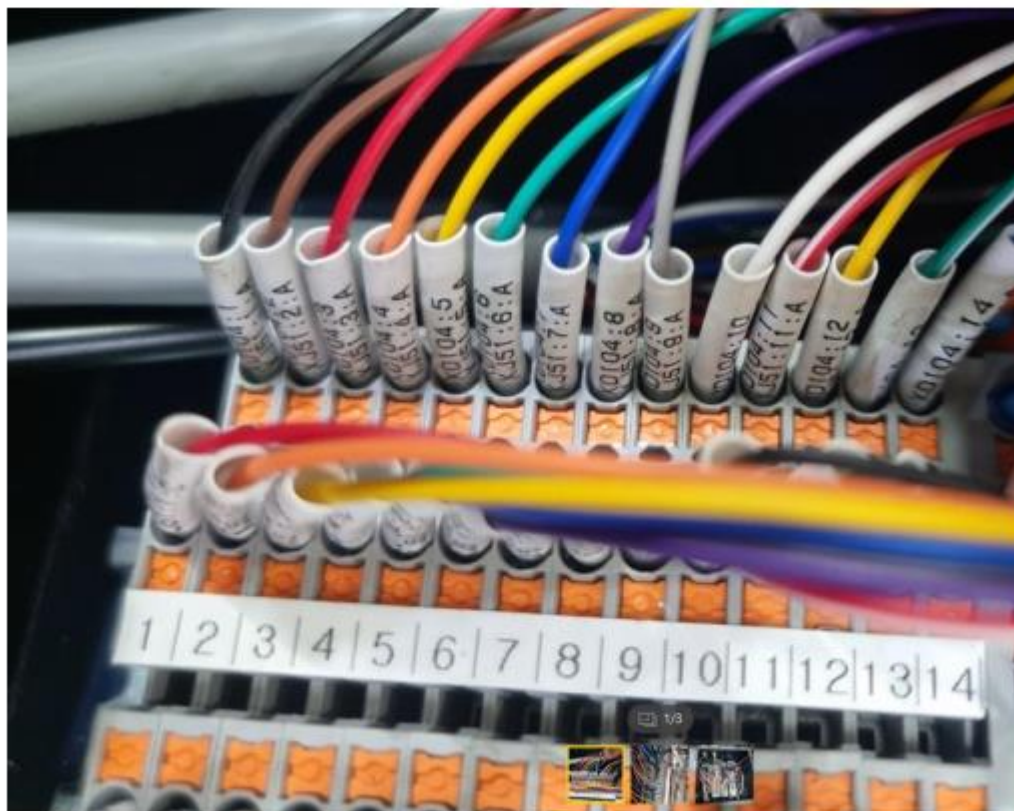
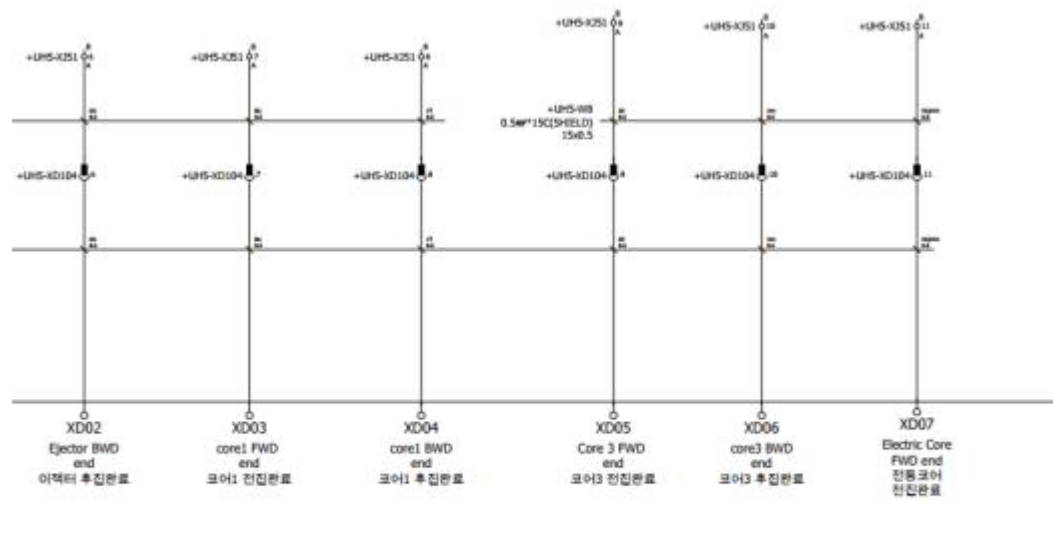
- TEG5



명칭	TEG5
에젝터후진완료	A101:XE01/XJ52:2:A
코어 1 전진완료	A101:XE02/XJ52:3:A
코어 1 후진완료	A101:XE03/XJ52:4:A
코어 2 전진완료	A101:XE04/XJ52:5:A
코어 2 후진완료	A101:XE05/XJ52:6:A
전동코어전진완료	A101:XE06/XJ52:7:A
전동코어후진완료	A101:XE07/XJ52:8:A



- DLG5



명칭	DLG5
에젝터후진완료	XD104:6/XJ51:6:A
코어 1 전진완료	XD104:7/XJ51:7:A
코어 1 후진완료	XD104:8/XJ51:8:A
코어 3 전진완료	XD104:9/XJ51:9:A
코어 3 후진완료	XD104:10/XJ51:10:A
전동코어 전진완료	XD104:11/XJ51:11:A
전동코어 후진완료	XD104:12/XJ51:12:A

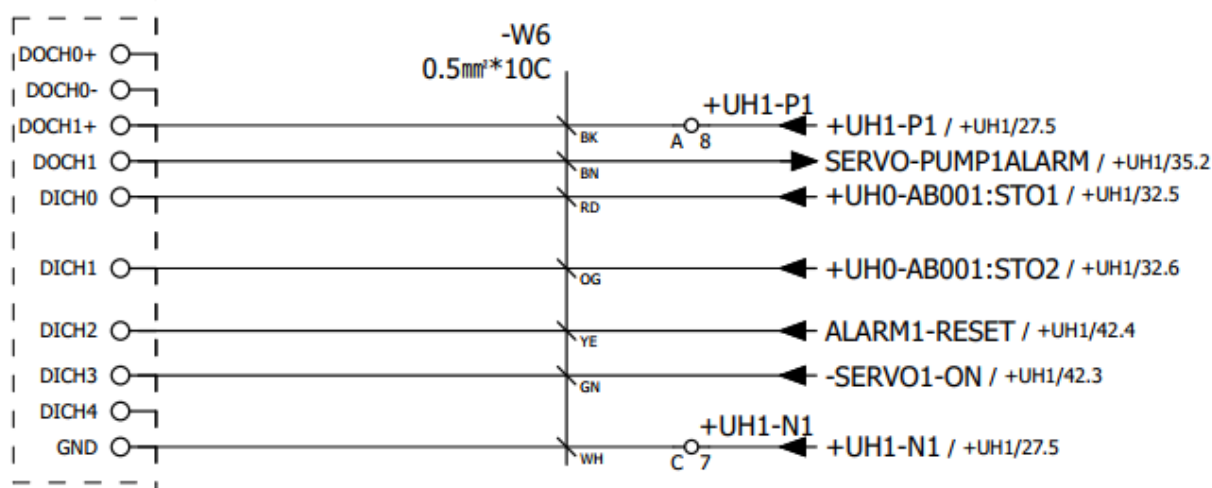
What to do if the basic axis of the injection molding machine (shape, ejector, injection, metering) does not work?

Common checkpoints

- Checking the operating status of the safety relay (Omron safety relay, K303, K311)
 - ◆ K303: Semi-operation side safety door relay, K311: Emergency stop relay
- Check if the breaker is tripped

Hydraulic injection molding machine

- Check the status of servo motors/servo drives
 - ◆ If the drive display displays BB1 or BB2 while the motor is started , check the input status (24VDC) of DICH0 and DICH1.



- ◆ If the drive display displays RDY while the motor is started, check the input status (24VDC) of DICH3.
- Check whether there is a pressure sensor
 - ◆ If you press and hold the M key on the drive, you can check whether the motor is rotating or not through ST-07 (main pressure) and ST-13 (motor RPM). When the air velocity is set to 10% and the atmospheric pressure is set to 100 bar, the pressure sensor should be replaced if the standby RPM is above 50 rpm.
- Checking the Valve Sequence

◆ Refer to the valve sequence chart and valve block diagram to check whether the LED on the valve is lit or not. (PLC, 24VDC check when not lit)

◆ If the LED does not work even after turning on, try forcing the spool to operate.

- Electric Injection Machine

■ Check the status of your servo drive

서보드라이브 상태				
	사출	계량	형체	이젝터
IN	ready			
	svon			
	qstop			
	alarm			
	warn			
	hwbb			
	pf_busy			
	mot_overheat			
	hs_overheat			
	mode_disp	0	0	0
	pos_act	0	0	0
	spd_act	0.0	0.0	0.0
	trq_act	0.0	0.0	0.0
	follow_err	0	0	0
OUT	svon			
	qstop			
	alrst			
	pf_run			
	gain2			
	oper_mode	0	0	0
	trq_target	0.0	0.0	0.0
	pos_target	0	0	0
	spd_profile	0.0	0.0	0.0
	spd_acc	0.0	0.0	0.0
	spd_dec	0.0	0.0	0.0
	trq_slope	0.0	0.0	0.0
	spd_target	0.0	0.0	0.0

Solid status when starting the motor

- OUT : svon

- IN : ready, svon, hwbb

If svon does not light up in OUT: Reinstall the program

If ready and svon in are unlit: Replace the drive

2. Additional LED lighting status during basic axis operation

-OUT : pf_run

-IN : pf_busy

How to take measures related to temperature

- If it is formed higher than the set temperature
 - ◆ Check the on-screen yield rate. Check whether the SSR LED is blinking according to the power rate.
 - ◆ If the SSR output rate is displayed on the monitor but the SSR LED is not lit, check the status of the heater magnet auxiliary contact.
- If the output rate is zero but the temperature rises
 - ◆ After turning off the side CH, I confirm the temperature rise rate
 - ◆ Check the heater thermocouple wiring
- If the temperature value is entered differently
 - ◆ After looking at the temperature graph trend, check the board temperature if the entire CH shakes. Replacing the Board
 - ◆ If only a specific CH is a problem, check the temperature after changing the next CH input (check the thermocouple status)

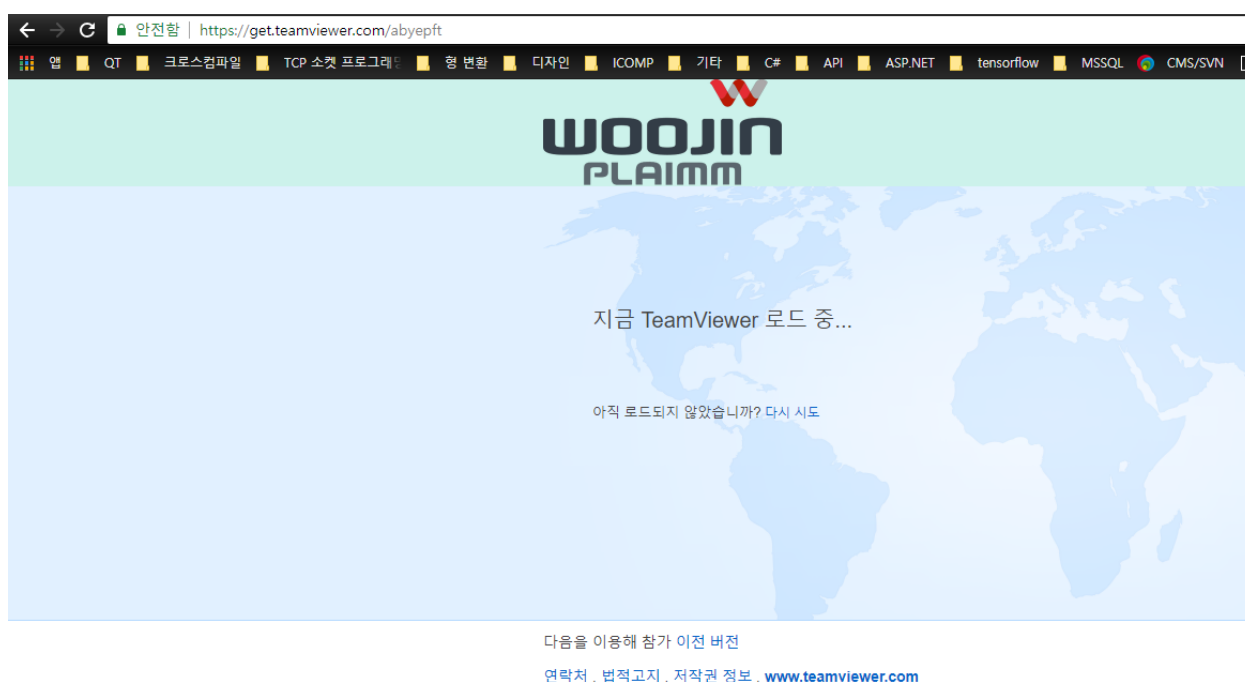
Remote Support Methods



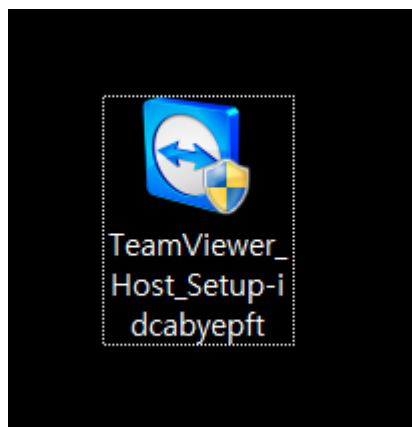
1. Access TeamViewer

Use your phone's hotspot to activate your laptop's wireless internet network and install TeamViewer 11. (It doesn't matter if there is a router inside the company that is connected to the external network)

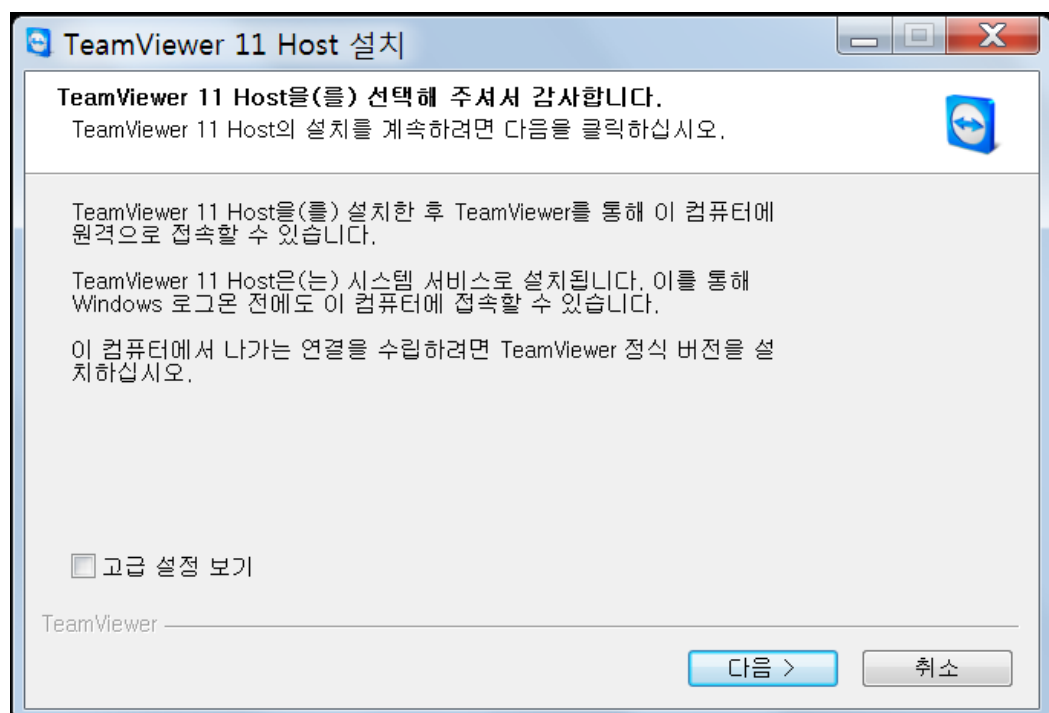
TeamViewer Installation: [Connect to https://get.teamviewer.com/wjcms](https://get.teamviewer.com/wjcms) and install (automatically downloaded)



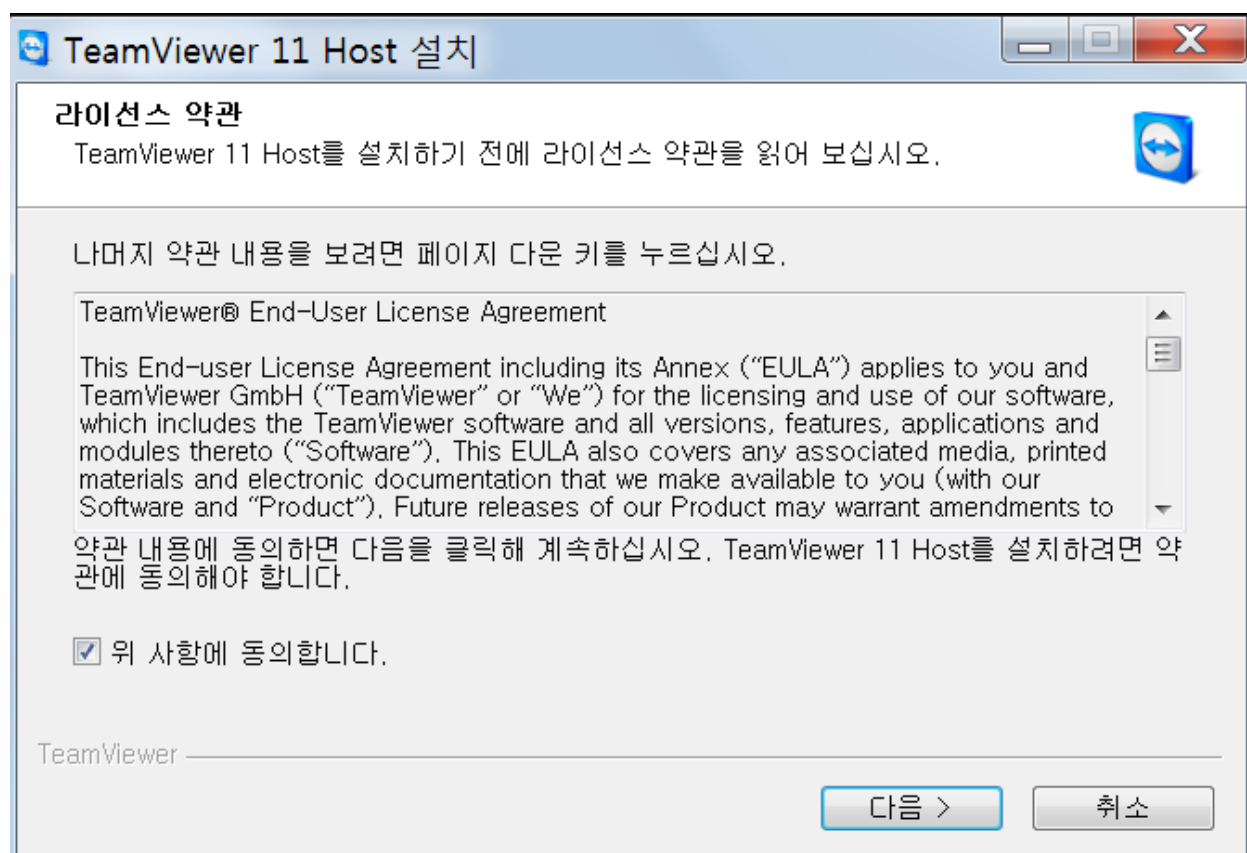
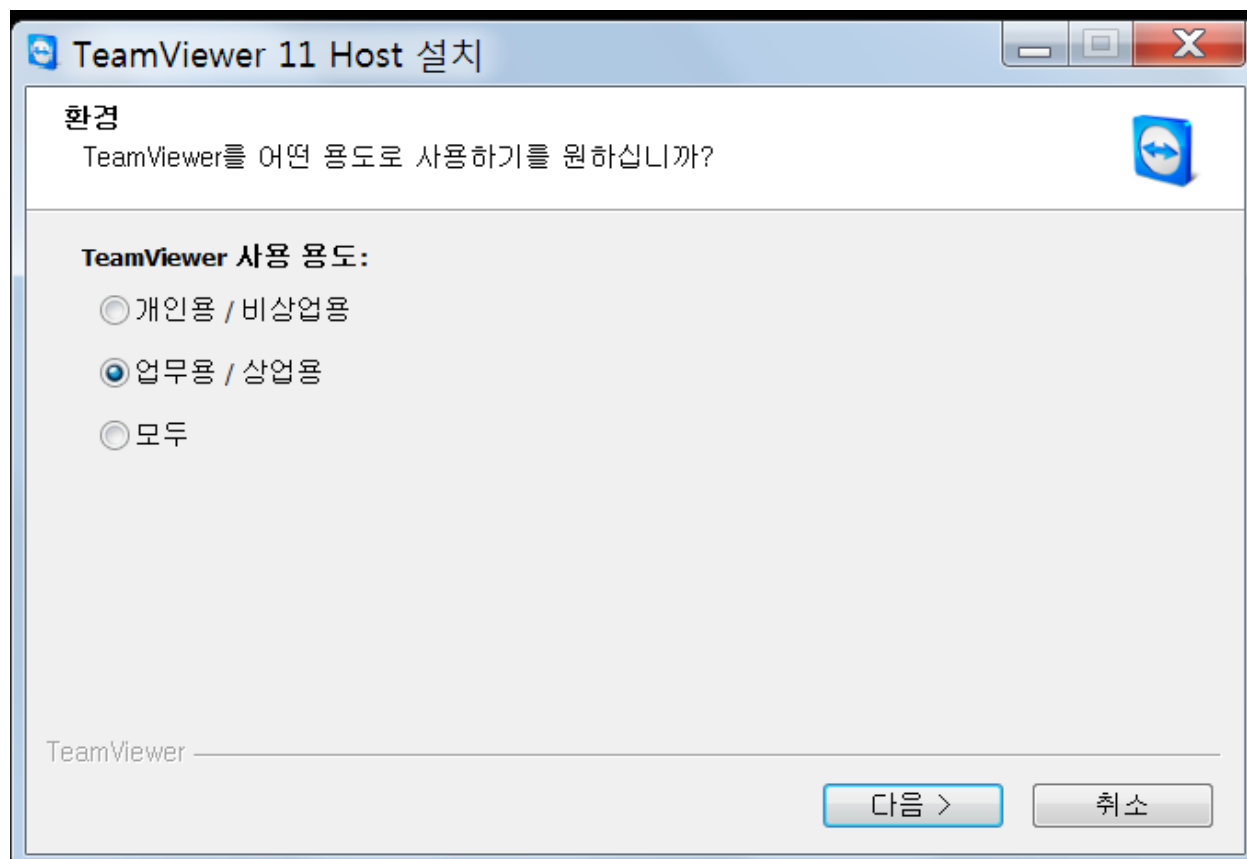
Run the installed file



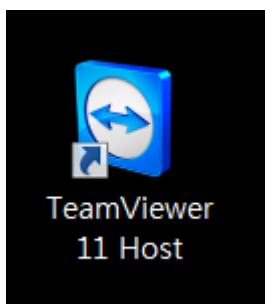
Click Next>



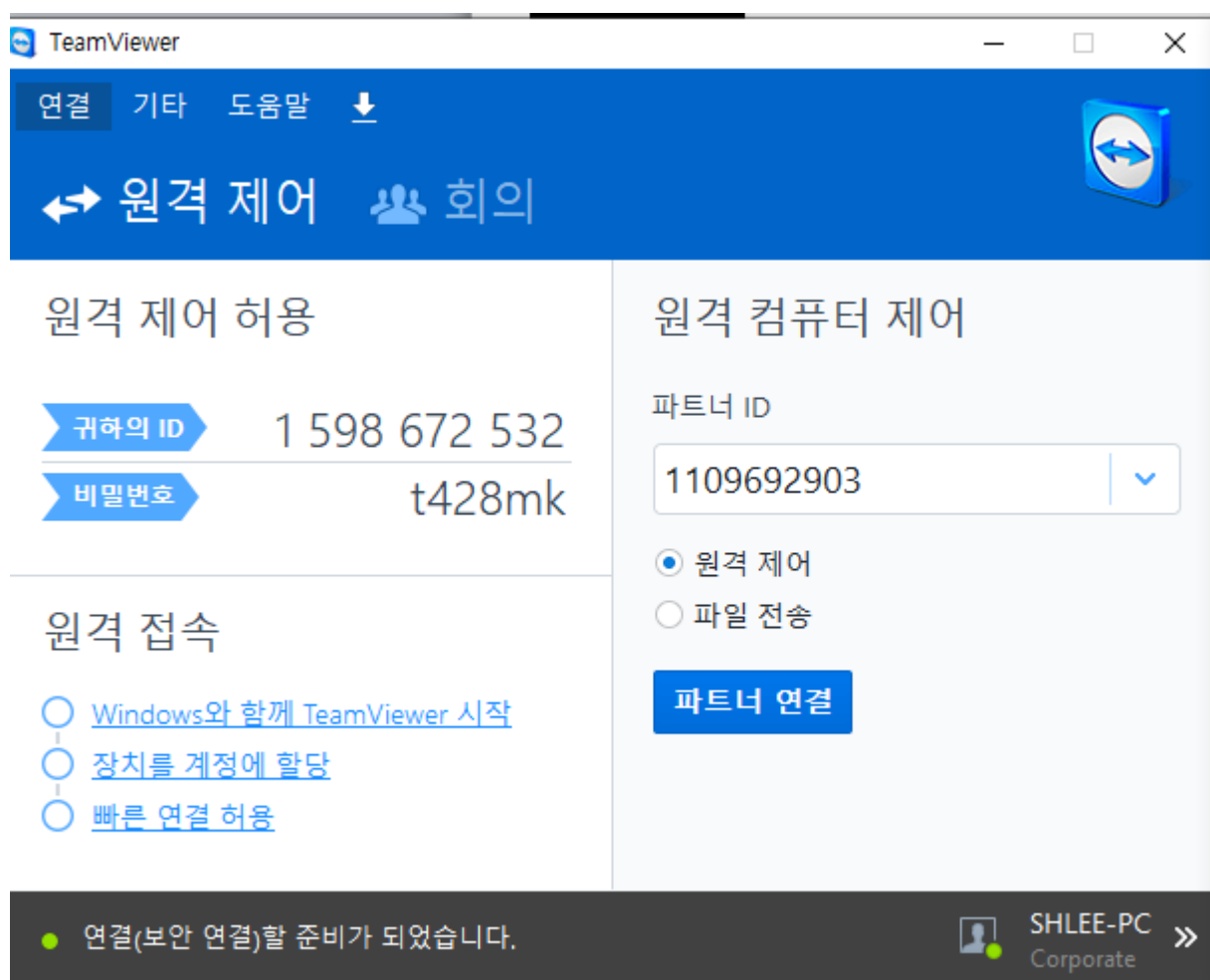
Select Business/Commercial and click the Next > button



Agree and click Next



After the installation completes, launch teamviewer 11 Host on your desktop



Provide your ID and password to the person who will be accessing you remotely. Therefore, when you connect from a remote location, you can see the monitor screen.

2. Connect the LAN cable between the laptop and the controller (ETH port)








2022.04.14 13:11:57
외부출력2 동작중

사용자 정보

사용자 이름

ENGINEER

로그인

비밀번호

로그아웃

등록

삭제

초기화

현재 사용자

ENGINEER

사용자 레벨

3

시작 시 레벨

2

현재 언어

KR

로그인 상태입니다.

시스템설정

2022

년

4

월

14

일

시간설정

11

시

46

분

39

초

거리단위

mm

온도단위

℃

압력단위

bar

속도단위

%

화면보호 시간

15

분

메뉴 블러 사용

통신설정

아이피 설정

0.0.0.0

변경

서브넷 마스크

0.0.0.0

변경

게이트웨이

0.0.0.0

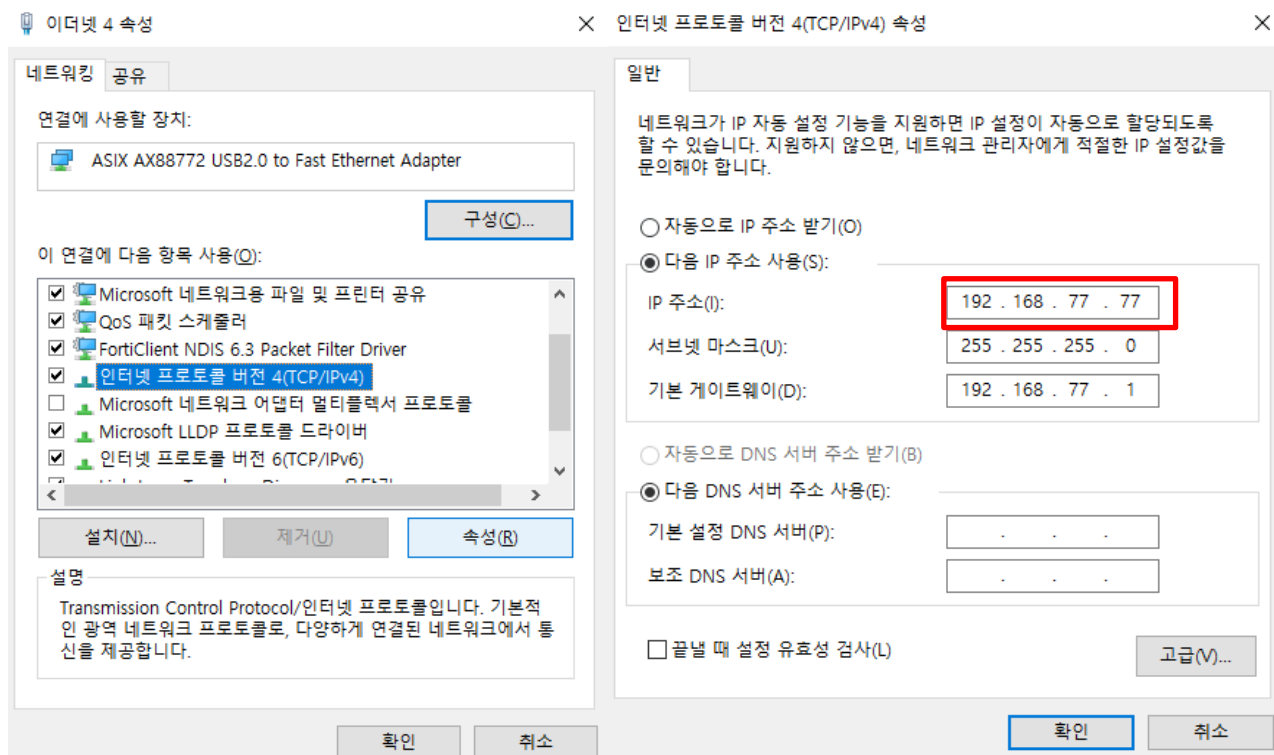
변경

192.168.77.88

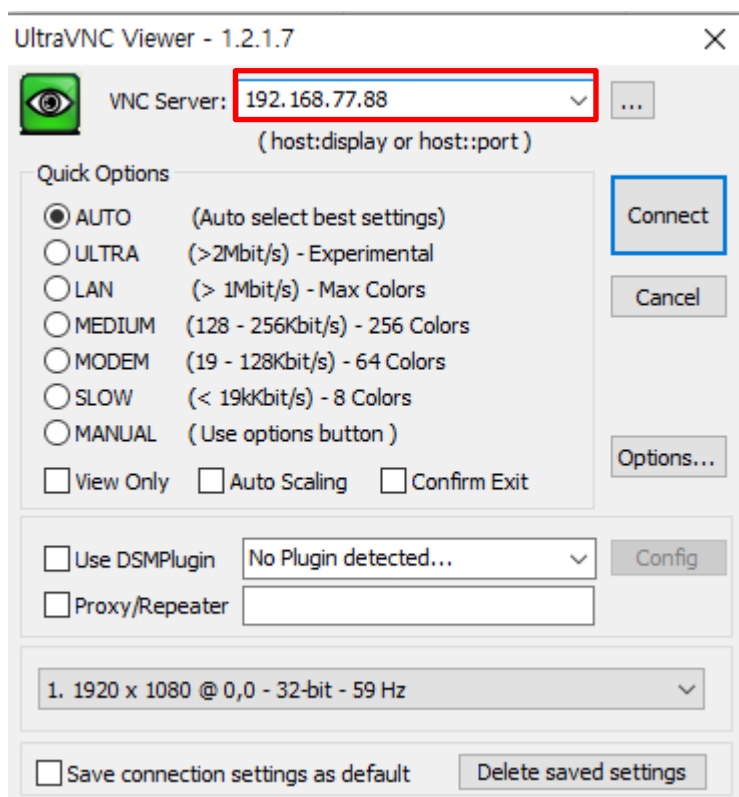
255.255.255.0

192.168.1.1

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Change your laptop's IP. 192.168.77.xx :xx must be set to a different number than the monitor.



After launching VNC Viewer, enter the IP of the controller and connect.

**Note: In the case of UltraVNC, search for freeware and download.*

TBG5 Closure Intermittent Closure Not Complete

Causes and measures

- Potentiometer movement due to poor shape potentiometer mating (body, rod)
 - Refastening of the shape potentiometer
- The error range is not reached due to the zero setting at the end point of the shape cylinder
 - Adjusting the cylinder position in axis calibration mode (adjusting the scale to match the displayed value with the actual distance measured with a tape measure)
 - Move to the end point of the shape cylinder and enter the preset value of 0 and set it
 - Move until the Crosshead Position value is displayed at 10 mm, then re-enter the preset value of 0
 - Conclusion: Zero the +10mm position of the end point rather than the end point of the shape cylinder, leaving a margin to reach the finished position.