HEATSINK HOLDER INSERTER

Instruction Manual

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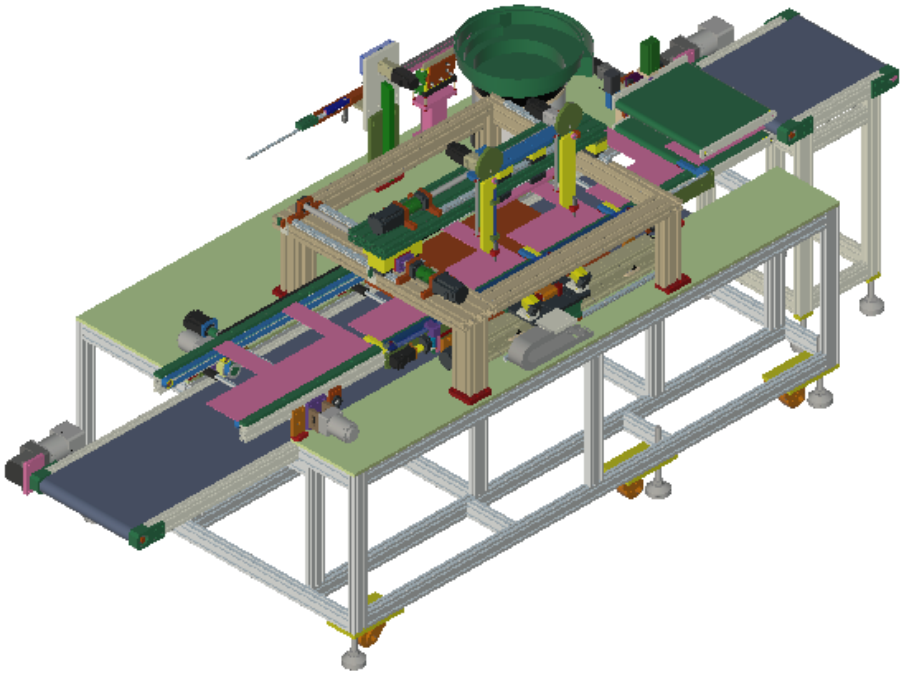

"Translation of the original instructions"

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Mechanism Manual

1. Safety Instructions

Chapter 1 Safety

1.1 Before start

This chapter describes items related to safety preparation for maintenance procedures and preventive maintenance. Users should follow all safety notices (precautions).

Various hazards exist around facilities such as electrical and mechanical hazards. Machine operators should be familiar with the following hazard symbols and how to respond to them.
Machine operators must be sufficiently familiar with preventive measures and countermeasures for each type of risk.
Response measures are designed to minimize or eliminate hazards to maintenance technicians and process workers, as well as to all machine operators working in close proximity to the system.

1.1.1 Machine operator safety

- You may face serious danger if it is not assembled or operated in the correct way.
- The person who operates the equipment must be properly trained.
- Equipment may cause damage (damage) during automatic operation.
- It is very dangerous for a person with little knowledge of the system or a lack of understanding of the machine to operate the system inappropriately or carelessly.
- When working around equipment, be aware of the sharp edges of the system.

1.1.2 Before work

- The person who operates this system must read this manual carefully and be familiar with its contents.
- Heed the statements under the headings “Danger”, “Warning” and “Caution”, and make sure you fully understand them.
- By following the user's manual, you can avoid risks during machine operation or maintenance.
- Before operating or servicing the system, be sure to read and understand the safety precautions in the manual and follow the warning labels throughout the system and the user manual. Failure to do so may result in personal injury or disaster and may result in damage to systems, products and facilities.
- Safety precautions can also be found in other areas.

1.1.3 Warning sign

- Warning signs are very important. Do not intentionally damage it.
- If it is damaged beyond readability (lost or accidentally damaged), a new tag must be placed in its place.

1.2 Warning of danger

During commissioning (installation or servicing of the system), attention should be paid to the following three levels of alertness. You must understand the contents and drive properly.

Warning statements are indicated in warning signs on the system and safety precautions in this manual.

⚠ DANGER

"DANGER" Signs indicate specific anticipated hazards, such as serious injury or personal injury, when machine operators do not strictly follow the training instructions for hazards.

They are similar to warning statements, but are generally more dangerous.

⚠ WARNING

"WARNING" Signs indicate specific anticipated hazards, such as serious injury or personal injury, when machine operators do not strictly follow the training instructions for hazards.

⚠ CAUTION

"CAUTION" Signs indicate hazards that may result in minor personal injury or damage to systems, products and facilities if machine operators do not strictly follow the hazard training instructions.

1.3 Safety sign

Table 1. Marker Description	
 DANGER	**<Danger of high-voltage electric shock>** **Contact with energized parts can burn or kill the operator's fingers.** **Power must be turned off before operating or servicing the system.**
 WARNING	**<Danger of getting your hands rolled up and crushed>** **It can get caught in moving parts.** **Do not operate without safety devices.**

 CAUTION	**<general warning>** **When information about a particular danger or escape cannot be explained by an effective symbol,** **Exclamation mark can express certain information in text.**

1.4 Main hazard and safety rules

1.4.1 Electrical hazard

This step is about current in system control.

If an operator accidentally touches a live or conductive part while servicing, he or she may be seriously injured or killed.

Before operating or servicing the machine, you must read this section to understand electrical hazards and precautions.

There is a possibility of electric shock when the system is still running.

Hazard of high-voltage electric shock

It is very dangerous to turn on the power without prior notice to the workers. Never turn on the power suddenly.

Careless power supply may injure or kill workers due to automatic operation or electric shock.

Warn other operators and do not allow outsiders to turn on the power. The main power is single phase 220V.
The main switchboard supplies power.

Safety rules

When it comes to power cut and emergency shut off, this system is designed and built according to the standard of power and emergency shut off.

Generally, interlocks are fitted to minimize electrical hazards. Note: The cover must not be removed when servicing the system.

Operating Procedures and Precautions

In locations where the prescribed hazards have not been eliminated, the following operating procedures and precautions must be followed to reduce or eliminate the potential for exposure of workers to hazards and to ensure safety and preventive measures.

General procedure for AC power

Always remove power lines first when trying to remove electronics.

Conversely, when going to install electronics, install power lines last. Do not operate the system when the cover is not installed on the electronics.

Always turn off the main power when installing or removing electrical components. To prepare for sudden overcurrent phenomenon, it must be installed according to legitimate standards.

1.4.2 Mechanical hazard

Plates are transported automatically during normal operation of the system, so no operator is required to enter the automated section.

However, when servicing, someone needs to enter the automation zone to make adjustments, etc.

Before servicing, you must read this section to understand mechanical hazards and precautions.

The system also contains assemblies containing moving parts that do not meet safety standards and may cause personal injury.

⚠ WARNING

Do not restart automatic feed from a stopped state or start operation without permission from an operator near the automated machine.
Failure to do so will result in conflict between the automated machine and the operator.

Hazard of crushing hands

- If the operator touches the automatic system even a little, his clothes, hat or hair get caught between the chains or in the automatically actuated zone in the operating section or driving section, resulting in strain, crush, laceration or broken bones. You may get injured.
- Do not put your arm or hand inside the transport unit when the cover is open.
- Workers in any area can be injured by moving parts. The relevant assemblies and areas are.
- Top of machine with interlock door.
- The lower part of the locked machine.

Safety rules

The top of the machine is equipped with an extremely safe interlock that cuts off power to the moving parts when the door is opened.

The interlock door will not function when in manual mode.

You can operate the transport in manual mode while the top door is open.

In this state, the transfer unit can perform commands such as forward/backward movement, up/down movement, and rotation.

Therefore, hands and fingers may be injured if the conveyor is operating.

The user's manual contains warnings that can prevent danger.

The inside of the bottom of the machine (locked with a cover that needs to be opened and closed) must be kept clean.

When doing so, care must be taken not to get your hands or fingers caught in the rotating belt, which could injure your hands or fingers.

Operating Procedures and Precautions

In locations where prescribed hazards have not been eliminated, the following precautions must be followed to reduce or eliminate the possibility of exposure of workers to hazards and to ensure safety and preventive measures.

Operating Procedures and Precautions

In locations where prescribed hazards have not been eliminated, the following operating procedures are designed to reduce or eliminate the potential for temporary exposure of personnel to hazards and to ensure safety maintenance and precautions.

The technical instruction manual contains warnings in case of danger.

1.5 Safety signs

- Safety signs must convey information about specific hazards.
- Safety signs should be simple, direct and understandable to viewers.
- What the safety sign convey.
  - Significant hazard (indicated by signal words)
  - the nature of the hazard (e.g. type of risk) or expected consequences of the hazard
  - How to avoid hazard

1.5.1 Safety signs and their location

< Reference 1> Hazard of getting your hands rolled in

< Reference 2> Hazard of electric shock

< Reference 3> INTER-LOCK DOOR

1.6 Cover

When carrying out maintenance work, the main switch must be turned off.

At this time, the main switch must be locked so that other workers cannot touch it.

Besides, signs are installed to alert other operators. This is a cover.

In this equipment, it is necessary to attach a minimum number of markings to the following parts.

- **Main switch**

Furthermore, when carrying out maintenance work within the work area or loading area, it is also necessary to place signs on the other side of the (front) machine.

1.7 Emergency Stop

1.7.1 Main emergency stop

In the case of an emergency stop with an emergency switch, the operation of the equipment is stopped.

As long as the power on the factory side is not turned off, the power is still active.

Therefore, the main breakers on the system and plant side must be turned off.

Contact with the terminals may cause fatal electric shock.

The emergency stop switch has the following functions.

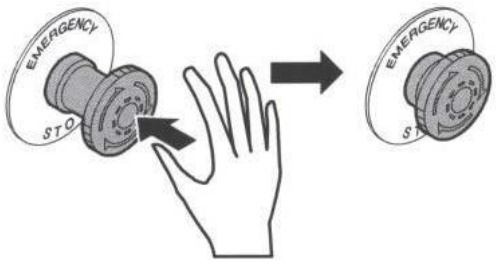
When the emergency stop switch is pressed, the operation of the system is stopped.

To reset the emergency stop state, turn the switch to the right.

The switch is initialized.

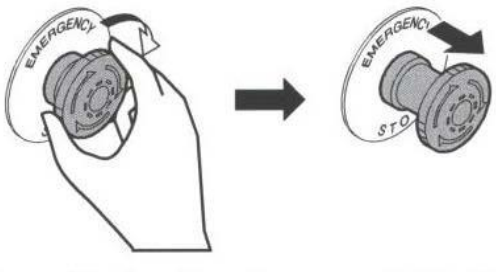
1.7.2 Operating procedure

1. When danger is detected, stay calm and press the emergency stop switch. The emergency stop switch will be in the off position.



<Figure 6> Press the emergency stop switch.

2. After pressing the emergency stop switch, machine operation is stopped. To release, the emergency stop switch must be reinitialized by turning it to the right. The emergency stop switch is in the operating position and operation is enabled.



< Figure 7> Initialize the emergency stop switch.

1.8 General safety instructions

1.8.1 Precautions before operating the system

Systems must be switched on only after checking that parts of the body (including some parts of the body and clothing) or materials can come into contact with the systems of the operating machine, or that similar hazards exist.
Start operation after removing all hazards that may cause personal injury.

1. General maintenance must be done completely before power on.

2. Restrict system operation and maintenance to personnel who have completed the minimum training in system use and maintenance.

1.8.2 Precautions when operating the system

1. Check that there is no contact between the body (including some parts of the body and clothing) and the moving parts of the system.

2. When a problem occurs in the system, we try to thoroughly understand the situation and problem. When handling the system, the system must be turned off.

3. Make sure that no one except the operator enters the work area.

4. In case of abnormal operation, first stop the machine and cut off the power.

1.8.3 Precautions during maintenance

1. Repair, calibration, control, replenishment or cleaning should be restricted to operators who are fully familiar with the system.
Turn off power and operate according to standardized procedures.

2. When the power is on, the system must be operated manually.

1.8.4 Cautions during maintenance

1. When performing maintenance work on the system, turn off the main power to prevent danger (such as electric shock) in advance.

2. The safety sensor must be used except for system maintenance or when not required.
Before carrying out inspection operation, check that the safety sensor is operating normally.

CAUTION: When controlling, maintaining or repairing the system, you must read the above information and follow the safety regulations to avoid hazards and damage to the system.

1.8.5 Other important information

In addition to warnings and cautions, other important information is as follow.

For your safety, do not redesign the body and controls of the system.

When a problem occurs in the system, measure the condition and then address the problem.

Advise and ensure that no part of the body (including clothing) is drawn into moving parts of the system. Otherwise, it may cause a dangerous situation.

In case of an earthquake, storm, or fire, immediately stop the machine, turn off the power and cut off the power supply.

In order to prevent the system from operating incorrectly, block noise caused by other equipment to ensure correct operation.

2. Equipment Maintenance

2-1. Safety during inspection

1. Safety rules

① Do not touch the sensor of each part arbitrarily.

② Access to each drive unit and transfer device is prohibited except for the person concerned when moving backwards and forwards.

③ In case of machine error or malfunction, be sure to take action after turning off the machine or manually.

④ Be sure to cut off the power to the facility and perform maintenance in Manual mode.

⑤ When working, be sure to work in groups of two or more.

⑥ Wear sufficient protective equipment during work.

⑦ Before work, be sure to attach a sign saying 'Working' on the Touch Panel.

⑧ After inspection, be sure to manually check the operation status and check for abnormal operation.

2. Checklist before handling

In order to promote long-term use of the equipment and improvement of production, be sure to perform daily and weekly inspections.

① Are various sensors fixed and focused correctly?

② Are the supports and positions of each unit firmly fastened?

③ Is the air cleanliness of various cylinders, valves and regulators good?

④ Are various electric parts of the control panel firmly supported in their proper positions?

⑤ Is the single-phase 220V of the control panel normally supplied?

⑥ Are the terminal blocks and fastening parts of the control panel good?

⑦ Is the emergency switch function working properly?

⑧ Are there any parts that receive load such as mechanical jamming of the equipment?

⑨ Aren't unnecessary things interfering with the equipment before operating the equipment?

⑩ Are there no other workers in the facility when operating the equipment?

3. Checklist while handling

Always inspect to prevent damage to equipment and to ensure human safety.

During operation of the equipment, inspect only the eyes, nose and ears.

① Is there no noise or foreign matter in the driving part?

② Are there any unnecessary noises while driving?

③ Did you restrict the access of people other than the person concerned?

4. Inspection after handling

Inspect to make sure that the equipment will be operated in the future.

① Check that there is no leakage of oil such as lubricating oil from the equipment.

② Check that there is no leakage from cylinders, valves, and fittings.

③ Prepare for the next operation by performing a return to the origin of the equipment.

④ Keep the working environment clean and remove the surrounding hazards.

⑤ Visually inspect each part for deformation and damage.

⑥ Inspect bolt fastening in important parts and wear and damage of related parts.

2-2. Equipment Check

1) Checklist

① Check noise and heat during motor operation

② Check cylinder operation and each sensor operation

③ Check whether the driving part is connected to the coupling and whether it is damaged

④ Check the surface of the roller for dents and scratches

⑤ Check for interference between magnets

⑥ Check Idle Roller Level status

2) Trouble Shooting

Phenomenon	**Cause**	**Measures**
Motor Noise	Motor fixing Bolt loose	Fixing Bolt tightening
	Coupling breakage and loosening	Coupling replacement and tightening
Roller abnormality and noise	Magnet bad spacing	Magnet between Gap 2mm
	Bearing Housing Fixing Bolt loose	Fixing Bolt tightening
	Bearing Check for damage	Bearing replacement
Air Cylinder abnormal motion	Air pressure abnormal	Air pressure control (5~6 Kgf/cm^2)
	Air Hose twisting, Leak Occurrence	Air piping Line inspection
	Sensor Bad detection, broken	Sensor or Dog Setting and Replacement

2-3. How to repair equipment

1) Precautions for maintenance

① Turn off the power.

- Be sure to turn off the power before disassembling or repairing the product.

② Beware of electric shock

- In case of unavoidable reasons to check the circuit while the power is connected, be especially careful not to touch the charging part (there is a risk of electric shock)

③ Use of appropriate parts

- If parts need to be replaced, be sure to use genuine parts for the corresponding model. (Do not repair malfunctions of electrical contact parts, replace them with parts, and never modify the product.)

④ Use of appropriate tools

- Use appropriate tools for repairs, and accurately adjust measuring instruments..
- Using worn-out tools can cause accidents such as poor connection and poor contact.

⑤ Damaged wires and power cords

- When repairing, check whether the power cord or wires are damaged, and be sure to replace damaged ones.

⑥ Intermediate connection of power cord is prohibited

- Do not cut the middle of the power cord to make a middle connection or connect it from an outlet as it is very dangerous.
  It may cause malfunction or fire..

2) Checklist for maintenance

① Insulation check

- After assembly is complete, be sure to check the insulation resistance.
  (Connect the power after checking that the insulation resistance of the power and ground terminals is over 300 MΩ using an insulation resistance meter.)

② Grounding check

- Check the grounding condition and repair it if it is incomplete.

③ Check the installation status

- Check the installation condition and repair any incomplete parts.

2-4. Equipment Routine Inspection

① Operate the equipment after checking the state of bolt connection in the driving part. Before operating the facility, check the loosening of the bolt and nut fastening parts of the main parts, and if loosening occurs, check the related dimensions according to the setting instructions.

② In case of abnormal noise from the motor and various driving parts, press the emergency switch, check the cause, and operate after taking action..

③ When adjusting equipment, turn off the power to prevent safety accidents.

④ Do not unplug the connection cable while the power is on.

⑤ LM Guide, Ball Screw part should be checked at least once a week, and the grease condition should be checked about once a month and injected if insufficient.

⑥ Do not touch the driving part while driving.

⑦ The adjustment and replacement period of consumables shall be adjusted and replaced at regular intervals when defects are found during the normal operation of the facility.

⑧ When electrical parts (Sensor, Auto S/W) do not operate due to damage or damage, it is possible to check through step operation. to refer to.

⑨ The pneumatic system is judged to be damaged due to air leakage, so if air is supplied to the main line before operating the facility, it is easy to find the leak and take action according to the size of the leak.

2-5. Equipment periodic inspection

Item	Inspection method	Inspection cycle
CDA Pressure	• Regulator Gauge pressure check 5.5 ~ 6.5 kgf/㎠	Everyday, Check regularly
Regulator	• Residual pressure drain with the button at the bottom of the regulator • Turn the filter case to clean with air	1 time / 6 months
Cylinder	• Touch Panel movement Check • Speed Setting With Speed Controller	In case of abnormal operation
Lubrication of drive part	• LM Guide, Bearing, Power Base Cleanliness • Inspect the drive condition and inject grease	1 time / 6 months
Sensor	• Combination state of Sensor and Connector • Disconnection	1 time / Monthly, In case of abnormal operation
Positioning Unit	• Wear condition and assembly condition of parts	1 time / 6 months, In case of abnormal operation
Motor	• Combination state in case of noise or abnormal operation • Disconnection	In case of abnormal operation

EMO S/W	• Check return operation after push	1 time before equipment start-up
electricity	• Check the connection state of the terminal block inside the control panel	1 time / 3 months

2-7. Equipment failure causes and measures

Fault condition	Cause	Measures
Motor not driven	• cut off power supply	• Measure the voltage of the motor
	• short circuit in electrical lines • Bad contact of Magnet Contactor in Motor	• After checking the voltage, repair the defective part
Motor noise	• Damage to stator wires	• Line resistance measurement and insulator and line condition check
	• Bad contact of Magnet Contactor in Motor	• Repair after voltage and current check
	• Impurities	• Remove impurities
Bearing noise	• abnormal load	• Check the degree of fit and pressure, and adjust the housing
	• Bad installation	• Shaft Housing Level adjustment
	• abutment of contact	• Contact area adjustment
Regular noise	• Scratches on rotating parts	• Grease application and Remove impurities
	• Break	• replacement
	• Scratch	• replacement
Irregular noise	• Impurities	• Grease application and Remove impurities
	• Scratch	• replacement
Abnormal temperature rise	• Bad viscosity of grease	• Replace and apply appropriate grease
	• Grease lack	• Grease supplement
Vibration	• Break	• replacement
	• Scratch	• replacement

1) When cleaning the bolts of the Air Service Unit (F.R.L), chemicals such as thinner, carbon tetrachloride, alcohol, and acid should not be used.
2) Do not allow air mixed with moisture to enter the pneumatic equipment.
3) Check that the grease nipple of the bearing unit is always filled with grease and reaches the bearing at least twice a month.

4) General management

After one week of operation, check the condition of all coupling parts (joints of bolts and nuts), and check the condition of coupling once a month in the first year. If the coupling is loose, action must be taken immediately.

After one year, check once every six months, and take immediate action if necessary.

First, within one year after installation, all pneumatic cylinder parts, bearings, motors, and all other driving parts must be inspected, replaced if necessary, and then inspected once every six months.

Second, if the coupling is loosened during operation, immediate action must be taken.

Third, if foreign matter falls into the driving part or the pneumatic piping flexible cable, it must be removed immediately..

2-8. Pneumatic System Periodic Inspection

1) Daily inspection

- The condensed water in the filter of the service unit must be drained every day.

(In general, most large pneumatic systems have automatic drainage.)

2) Weekly inspection

- Clean the foreign matter of the signal input element.
- Check and check the pressure control condition of the pressure regulator.

3) Inspection every 3 months

- Check for pneumatic leakage at the connection port.
- Check the exhaust ball of the valve.

4) Inspection every 6 months

- Check the wear condition of the rod bearing in the cylinder. Replace the sealing if necessary.

2-9. Equipment abnormalities measures

▶ Measures in case of motor abnormality

1) Motor fault diagnosis

The cause of failure of the motor is caused by various causes such as deterioration of the equipment due to long-term use or poor maintenance, inspection, and maintenance. Some of these causes overlap or one cause causes another. , there are many cases of failure due to complex entanglement.

2) Failure cause

Failure cause	Example
What is due to main circuit condition	Voltage fluctuation, disconnection of wiring, malfunction of switch, etc.
Attributable to load or operating conditions	Overload, high frequency start, heavy inertia load, etc.
What is caused by the surrounding environmental conditions	High temperature, high humidity, dust, corrosive gas, vibration, etc.
What is caused by bad installation and construction	Weak foundation (floor), Bad centering, improper belt tension
Things caused by bad maintenance, inspection, and maintenance	Negligence in supplying grease or exchanging brushes, etc.
Attributable to defects in motor manufacturing	Bad assembly, contamination of foreign matter, etc.
Caused by driving operation error	Misoperation, etc.
Attributable to secular life span	Deterioration of ferrous materials, wear of bearings, etc.

3) Impact on failure

A failure of the motor suddenly stops the operation of the load machine driven by it. In some cases, the failure of one motor of small capacity causes a ripple accident in which the production line of the factory is stopped, resulting in enormous damage.

Therefore, it is necessary to actively prevent equipment breakdowns and various disasters caused by them by conducting planned maintenance and inspection.

Even if a breakdown occurs, prompt first aid measures should be taken, and at the same time, efforts should be made to prevent the spread of the accident, and the cause of the breakdown should be pursued to prevent recurrence.

4) Motor failure measures

Anomaly	Cause	Measure
Motor Overheating	Not wired according to the wiring diagram in the Thermal Box.	Rewiring
	The supply voltage is 5% higher than the rated voltage of the motor.	Make sure the rated voltage of the motor is supplied.
	Over Load. Excessive current flows. The pace is too slow.	Replace with a motor that can produce the required output
If the motor does not start	NFB is down	Raise NFB after removing the cause
	Bad wiring	Rewiring
If the motor does not run smoothly	Not wired according to the wiring diagram in the Thermal Box.	Rewiring
	Supply the required voltage or current value for operation	Improvement after checking supply power
Motor hums and excessive current flows.	Motor Coil Winning Bad	Motor repair
	Motor rubs against the inside	
NFB or thermal relay frequently splashes	Circuit short on wiring	Remove shorted circuit
	Motor Circuit Short	Remove shorted circuit
	wiring Miss	Rewiring
Wrong direction of rotation	Incorrect motor wiring	Change the wiring of the incoming main power

5) Examples of measures to prevent motor equipment failure

When it is cold, the viscosity of the grease used for the bearing of the motor or the lubricating oil of the load machine may increase due to the low temperature, resulting in an increase in the starting torque. In significant cases, the motor may not start and may become overloaded.

In this case, it is necessary to select grease and lubricating oil suitable for the operating conditions, and at the same time to properly set the overload protection relay in the motor so that reliable operation is possible.

6) Fault cause and handle

Failure situation	Cause	Handle
Unable to start	The power is not turned on and the voltage is low.	Circuit breaker inspection, power supply voltage inspection
	overload	load check
	Bearing seizing (burning)	Bearing repair
Circuit breakers or thermal breakers	Inadequate selection of rated current	change rated current
	Internal failure of the motor	Motor internal inspection and repair
	overload	Optimization of load
Bad acceleration	Improper starting method	Start-up method review
	Defective control circuit	control circuit check
	voltage drop is large	Examination of power capacity, replacement of wiring size
Overheating of the motor Smoke generation	overload	Optimization of load
	Bad ventilation	Inspection of the cooling ventilation part
	single phase operation (For 3 phase induction motor)	Check for disconnection. Inspection of control mechanism contact failure
	Interfloor paragraph	electric motor repair
Abnormal vibration Abnormal noise	Bad installation	Inspection of foundation and fixing bolts
	Bad direct connection	Centering adjustment
	Bad Bearing	Bearing repair or replacement
	unbalance of load machine	Balancing the load machine

- Maintenance and inspection cycle

Periodic inspections perform inspections, adjustments, and function inspections of areas deemed necessary based on the results of daily inspections. It is desirable to make an integrated decision while looking at the results of the inspection.

▶Countermeasures in case of pneumatic system failure

1) Malfunction and breakdown

Malfunctions and failures are likely to occur under the following conditions.

① Natural wear and tear of pneumatic components and piping is significantly accelerated by the influence of the external environment, compression, and air conditions.
② Wear of parts can cause malfunction, leakage of air pressure, and damage to other parts.
③ Contaminated air can increase abrasion inside pneumatic components and cause malfunctions due to clogging and clogging.
④ Piping can be clogged, cracked or bent due to internal and external environmental factors.
⑤ Accumulation of foreign substances may cause pressure drop and consequently inaccurate switching due to resistance from piping or pneumatic components.
⑥ Inaccurate switching may occur due to pressure drop due to leakage or pulsation of supply pressure. Inaccurate switching can also occur if the filter is clogged and does not supply enough pressure.
⑦ Inaccurate fitting with the cylinder or overload can also cause early wear. In terms of cost, it may be slightly more expensive, but it lowers the frequency of malfunctions and can reduce failures even more.

Important preventive measures include.

- Use the right parts that are well harmonized with the surrounding environment conditions and control sequences. (Fully review the technical data for each part.)
- Select an appropriate mounting type and use a solid cylinder in a place where a large load or side load is applied.
- When the acceleration force is large, a shock-absorber is installed to absorb the operating force.
- If there is a lot of dust and foreign substances, use a self-cleaning cover.
- Securely fix the mounting adjustment screw of the cylinder and the signal input element.
- To prevent signal delay, make the pipe as short as possible.
- Ensure the exhaust of the control and power valves.

2) Failure in pneumatic system

In general, if the initial failure is excluded, the pneumatic system operates well for a certain period of time without failure. Even with some initial wear, it may not be noticeable for weeks or months. Moderate wear and tear may go unnoticed for years. The effects of wear or defects are not easy to detect unless they directly affect the part.

The problem is that erroneous operation occurs in the control sequence due to these causes. In the previous chapter, the causes of malfunctions and prevention methods have already been described, but not all situations in which they can occur. What is mentioned here is limited to malfunctions and pneumatic systems that can occur frequently. Even in a very complex control system, it is necessary to analyze in detail by dividing it into small parts with the help of various data. The operator should be able to eliminate the failure immediately and at least identify the cause to prepare for the next time.

Where a service engineer is needed, it can be easily solved because the service engineer knows most of the cause of the failure and special tools and spare parts are prepared, but it is desirable for the operator to notify the basic situation by phone in advance.

If the cross section of the pneumatic system suddenly increases in a situation where air is not sufficiently supplied, malfunction often occurs. Since these malfunctions do not continuously occur but occur sporadically, it is difficult to find the cause of the malfunction.

When this situation occurs, the cylinder cannot exert its power due to a sudden pressure drop, and the operating sequence may be wrong due to the power valve's malfunction. This phenomenon may be caused by contamination of pipes or leakage of air.

If the diameter of the pipe is reduced by 20%, the pressure drop doubles, so care must be taken. As mentioned in the preparation stage of compressed air, moisture in compressed air must be removed.

In practice, what happens when the amount of moisture in the compressed air increases? Aside from being damaged by the corrosive action of moisture, it has a significant adverse effect on valves.

That is, if the valve stays in one control position for a very long time, it causes a malfunction and prevents proper operation.

In particular, care must be taken because it becomes an emulsion or a resin when mixed with lubricating oil to block the operation of the valve.

The thing to be careful about in the piping is to clean the inside of the piping before connecting it. Otherwise, foreign substances generated during pipe connection work or welding work - sealing tape welding beads, pipe rust, screwing dregs, etc. flow into the pneumatic system and adversely affect it. The effects of these foreign substances are summarized as follows.
① Adherence of slide valve
② Continued leakage by sticking to the seat of the poppet valve
③ It sticks to the one-type nozzle of the flow control valve and interferes with precise speed control, and the cylinder speed decreases over time.

3) Cylinder failure

The failure of a pneumatic cylinder can be identified if it is damaged by observing it well even when the cylinder is operating well.

Observe periodically to see if there is any damage and take action.

Cylinders that exercise with heavy loads over long distances are prone to abrasion on the rod seal side. Lubricating oil adheres to the piston rod, making it easy to move in an unstable state. In this case, check whether the piston rod is covered with a black lubricant film.

In this state, it is easy for the piston to exercise while generating intense vibration.

Even a slowly moving cylinder can be damaged by abrasion of the piston seal, dry mixture of grease, and rubber particles accumulated in the cylinder barrel.

Next, you can judge the cylinder's abnormality by sound. If air leaks from the cylinder during forward/backward movement of the cylinder, you can clearly hear a “shhh” sound. At this time, check the condition of the sealing used in the cylinder.

Methods to prevent malfunctions in pneumatic cylinders are presented below.

① When replacing sealing parts during maintenance, clean the inside of the cylinder to completely remove oil and grease residues, then inject new grease.

② Piston Rod periodically removes these foreign substances so as not to be damaged by dust or deposits.

③ Since the cylinder is a linear element, it is designed to be strong only in the axial direction, so use it so that no load is applied in the radial direction.

When such a load is applied, the piston rod bearing is quickly damaged and the durability of the sealing cannot be guaranteed.

④ Use lubricated air for the cylinder and adjust the amount of lubrication appropriately.

Excessive lubrication should be avoided where possible..

2-10. Equipment Lubrication and Lubrication Guidelines

▶ Purpose of refueling

It is absolutely necessary to extend the life of equipment, reduce noise generated during operation, and prevent wear of machinery.

▶ How to refuel and where to refuel

1) Lubrication

Depending on the lubrication method and the suitability of the lubricant, it has a significant influence on the lifespan, and grease lubrication is widely used as a general lubrication method.

Grease is a semi-solid lubricant consisting of base oil, thickener and additives.

Even for the same type of grease, there is a big difference in performance depending on the name (different for each manufacturer), so care must be taken in selection.

① base oil

Synthetic oils such as mineral oil, silicone oil, and diesel oil are used for grease base oil. Since the lubricity of grease is mainly determined by the lubricating performance of the base oil, the viscosity of the base oil should be considered as important when selecting a lubricant. In general, grease with low viscosity oil is suitable for low temperature or high speed, and grease with high viscosity oil is suitable for high temperature or high load. Alternatively, silicone oil has a wide temperature range from low to extremely high temperatures, can be suitable for low and medium speeds, light and heavy loads, and is used for special purposes due to its excellent water resistance and wide mechanical stability.

② Thickener

In addition to metal soap, inorganic thickeners such as silica gel and bentonite and heat-resistant organic thickeners such as poly-urea and fluorine compounds are also used as thickeners for lubricating grease. There is a close relationship between the type of thickener and the dropping point of the grease, so grease with a high dropping point generally has a high operating temperature. However, greases containing sodium soap in addition to greases using high dropping point thickeners are not suitable for places exposed to water or high humidity as they emulsify.

③ Additives

Antioxidants, rust inhibitors, and extreme pressure agents are added to grease as needed. Grease with an extreme pressure agent is used in conditions of use under heavy and impact loads, and grease with an antioxidant is selected when long-term lubrication is required.

④ lead

Grease consistency indicates the degree of hardness of the grease, which refers to the internal resistance to withstand deformation caused by external force, and is indicated as a grade number determined by the NLGI (National Lubricating Grease Institute). Grease used for roller bearings is NLGI grade number 1-3 am.

⑤ Injection amount of grease

In general, the injection amount of grease is enough to fill 30~50% of the bearing and housing space, and if too much is injected, there is a risk that the temperature rises rapidly at high speed rotation.

However, at low speed, completely filling the grease is effective in preventing corrosion.

⑥ Mixing of Grease

In case of using the same grease that was used for refueling, it should be reviewed first whether it can be mixed. If the injections do not mix well with each other, the consistency will be lowered or the maximum allowable speed will be lowered. Greases with the same thickener and similar base oil can be mixed with each other.

⑦ Grease re-injection interval

Grease re-injection interval depends on the bearing type, size, temperature, speed, and used grease, and it is desirable to shorten the life span of the grease.

Small bearings have a slightly longer lifespan, so the re-injection interval is slightly longer than normal, and medium-sized or large-sized bearings are injected at regular intervals.

⑧ Lubrication of Bearing

It is a grease nipple, and if there is no grease after regular inspection (about 3 months), it is recharged with a grease gun.

⑨ Grease injection device

■Grease Gun

The grease filled in the bearing is usually lubricated using a manual grease gun.

Grease gun uses a simple piston-operated device to squeeze grease into the bearing through the nipple installed in the bearing housing.

At this time, new grease is supplied into the housing through the nipple to push out the deteriorated grease filled in the bearing, and new grease is squeezed out until the new grease is pushed out of the housing..

■Grease Nipple

Grease Nipple generally has a structure of a valve using a ball and spring, which plays a role in preventing grease from flowing back or infiltration of external contaminants. The

shape and form of the nipple differs depending on the connection method of the gun. Therefore, when the grease gun is changed, the shape of the nipple is also changed, and by doing so, it is possible to prevent mishaps caused by incorrectly injecting different types of grease.

3. Outline

3-1 Equipment Name

- HEATSINK HOLDER INSERTER

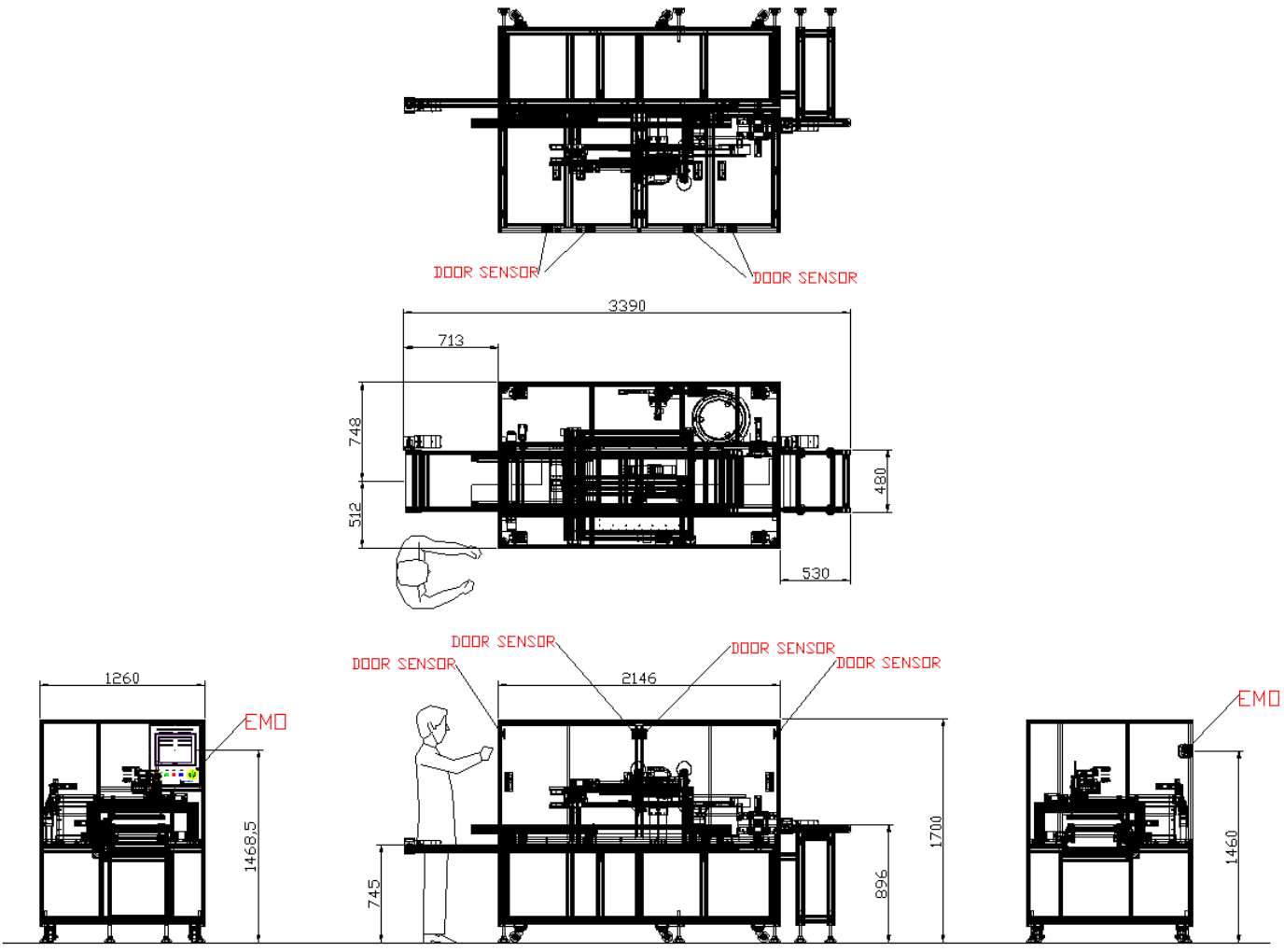
3-2 Equipment Outline

- Equipment that fastens the holder that is automatically supplied to the heatsink to the designated point

3-3 Apply MODEL

- HEATSINK

3-4 Equipment Layout & Interlock location



4. Equipment Specifications

4-1 Equipment SIZE

- Lay-out Size :
- 1260(W)*3390(L)*1700(H)

4-2 Equipment Ability

a) TACT TIME :

b) Working conditions : Insertion of materials using conveyor Insertion and fastening of heatsink holder

4-3 UTILITY

a) ELECTRIC POWER SOURE :

AC220V±10%, 1 ¢ 4.5Kw 20A

b) Control Power : DC 24V

c) Clean Dry Air : 5~6 kg/㎠

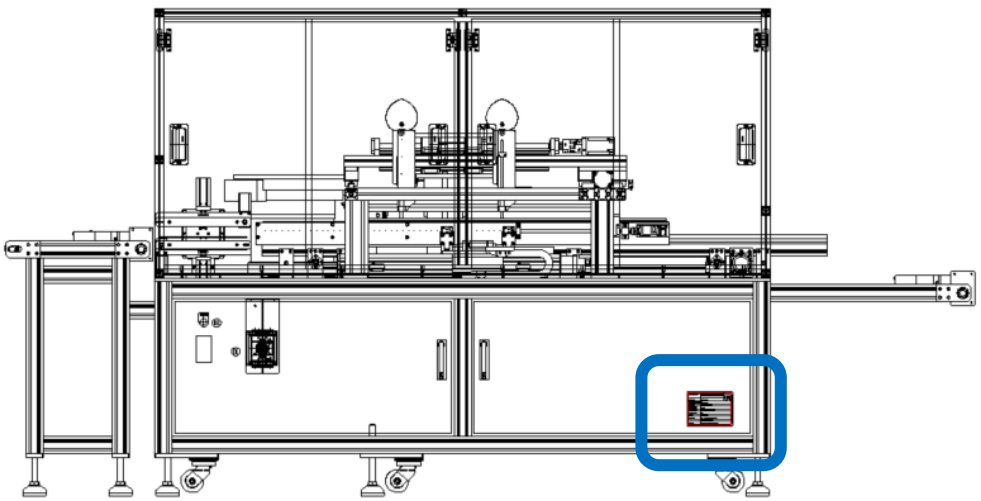
4-4 Equipment Installation Use Environment

a) Temperature range : -10℃~40℃

b) Humidity range : 40% ~ 60%

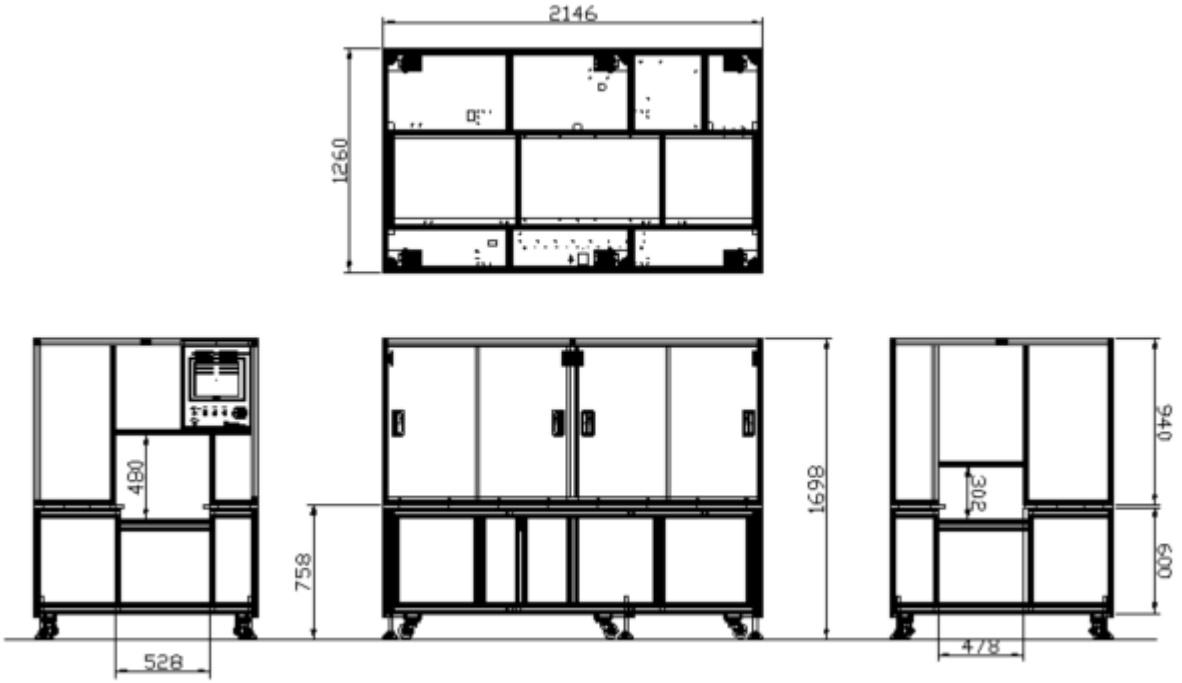
c) Altitude : 4.7M

Name plate installation location (notation)



5. Basic Equipment Specifications

5-1. FRAME UNIT



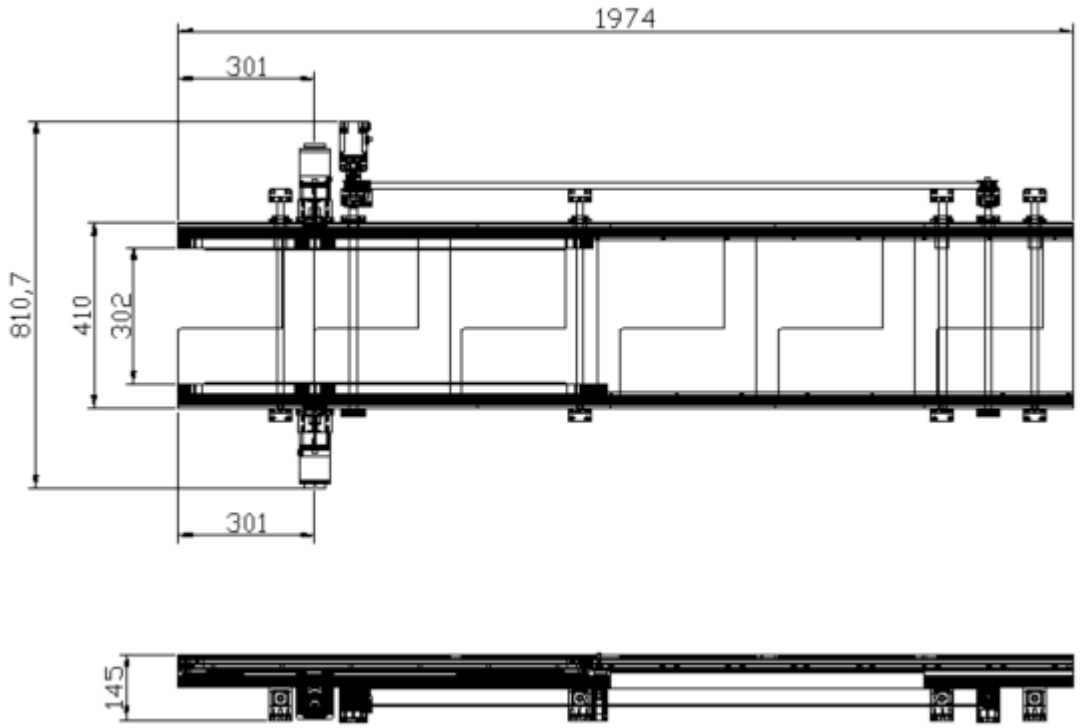
▶ Main features and characteristics

- Unit component installation frame, touch panel installation part for facility operation

1) Structure
   - Composed of lower structure profile
   - Composed of upper structure profile

2) Main components
   - Touch Panel : TOPRW1000WD 102″
   - Door Sensor : D40A-1C2(Omron)

5-2. IN PUT CONVEYOR UNIT



▶ Main features and characteristics

- A device that transports manually supplied heatersink to a designated location

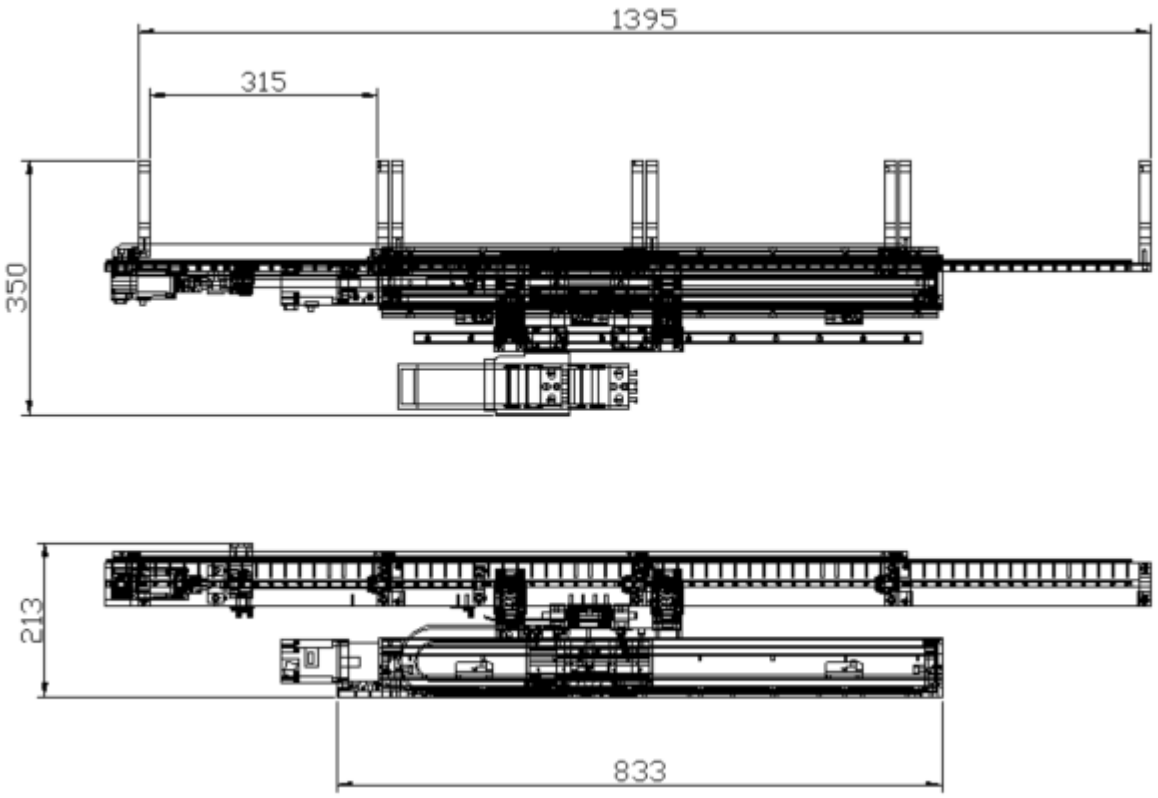
1) Structure

- Composed of Profile
- Belt rotation by motor drive
- Y-axis has variable motion according to product width

2) Main components

- Servo Motor : HG-KN23 & MR-JE-20B(Mitsubishi)
- AC Motor : S7I15GX-S12CE & SEX02CE(SPG)

5-3. TRANSFER UNIT



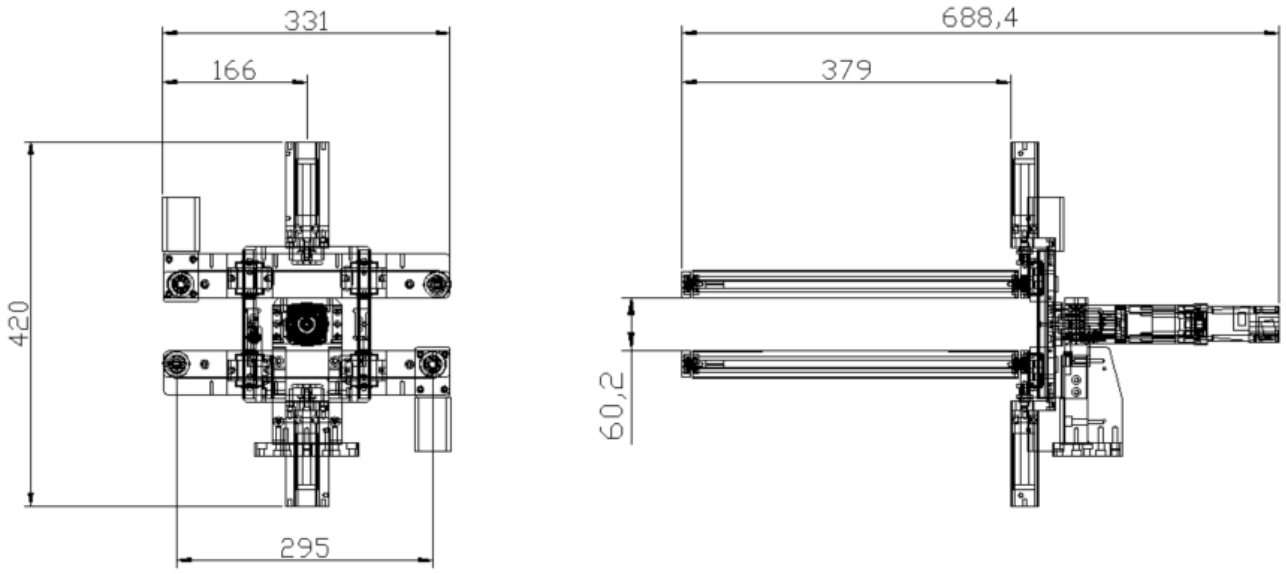
▶ Main features and characteristics

- Aling by heatsink size and a device that transports them to each process location

1) Structure
   - Composed of orthogonal robots
   - Variable motion is made according to the length of the X-axis product

2) Main components
   - ROBOT : HS-75-S20-N2B-0550-R20(Hanshin ROBOT)
   - Servo Motor : HG-KN13 & MR-JE-10B(Mitsubishi)
   - Servo Motor : HG-KN23 & MR-JE-20B(Mitsubishi)

5-4. REVERSE UNIT



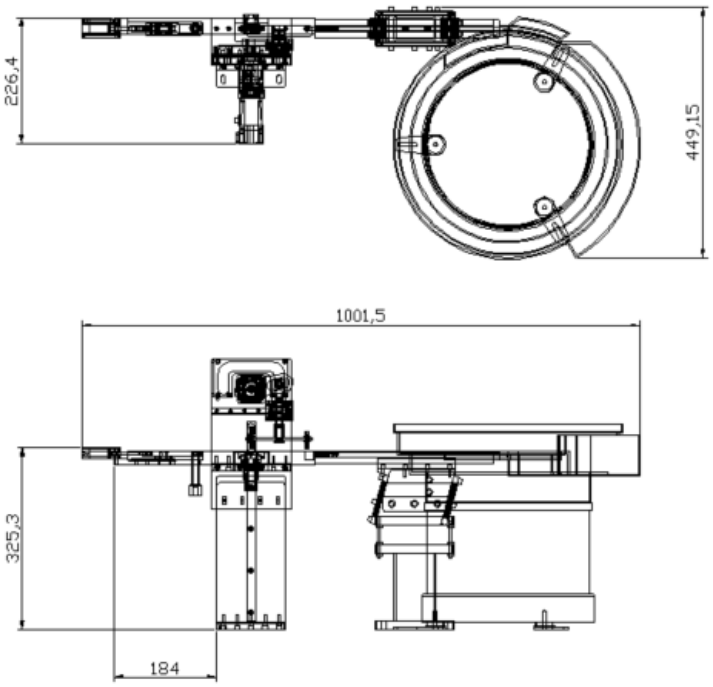
▶ Main features and characteristics

- Heatsink holder fastened finished product 180 degree direction change and discharge device

1) Structure
   - Composed of assembly of processed products

2) Main components
   - Servo Motor : HG-KN13 & MR-JE-10B(Mitsubishi)
   - BLDC Motor : WGW40-BL4263M-24V-49 & BDD-240(Motor Bank)
   - Air Cylinder : CDU25-60D-A93S(SMC)

5-5. HOLDER SUPPLY UNIT



▶ Main features and characteristics

- Feeder for holder supply
- A device that detects the holder supply color classification and detects the presence or absence of the spring attached to the holder and discharges defects

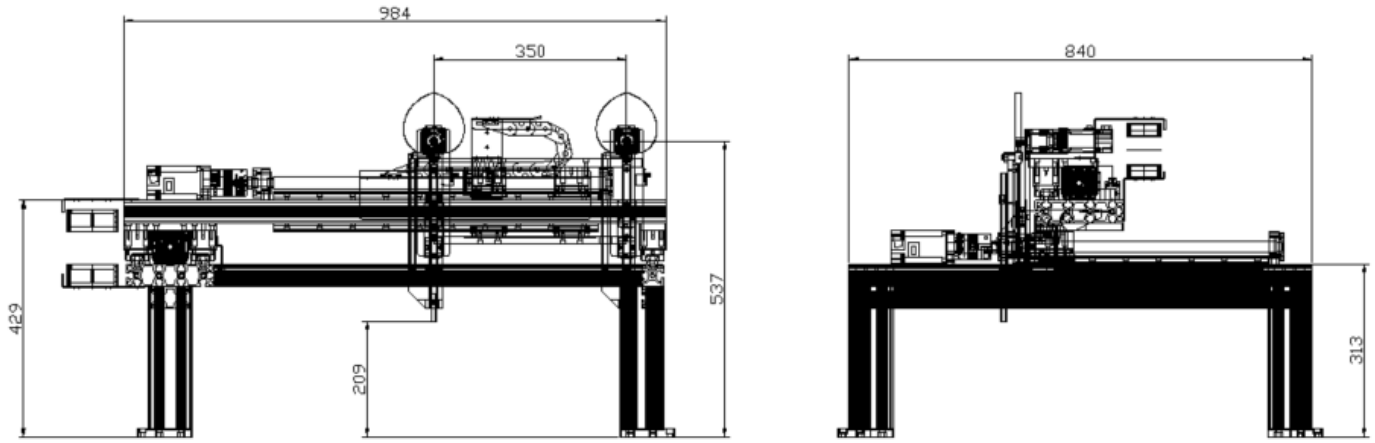
1) Structure

- Composed of assembly of processed products

2) Main components

- Feeder : BOWL & LINEAR FEEDER(HYUPJIN FEEDER)
- Servo Motor : HG-KN13 & MR-JE-10B(Mitsubishi)
- Air Cylinder : CDU16-30D-A93 (SMC)
- Air Cylinder : MHZ2-10-M9BS(SMC)
- FIBER UNIT : FT-420-10(AUTONICS)
- FIBER AMP : BF4R(AUTONICS)

5-6. HOLDER INSERTER UNIT



▶ Main features and characteristics

- Supply of Holders to connect Holdes to Heatsinks,
  A device that fastens X, Y-axis moving holders with a fixed pitch

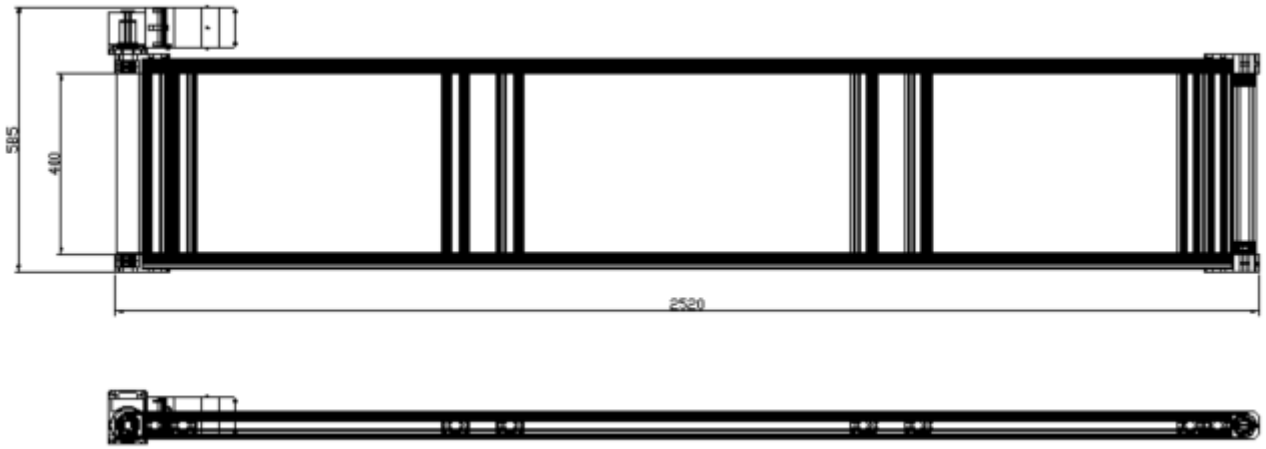
1) Structure

- Composed of assembly of processed products in the profile assembly structure

2) Main components

- Servo Motor : HG-KN13B & MR-JE-10B(Mitsubishi)
- Servo Motor : HG-KN23 & MR-JE-20B(Mitsubishi)
- Sensor : GTD6-N1211(SICK)

5-7. RETURN CONVEYOR UNIT



▶ Main features and characteristics

- A device that returns the assembled product to the worker's position in case of small quantity production

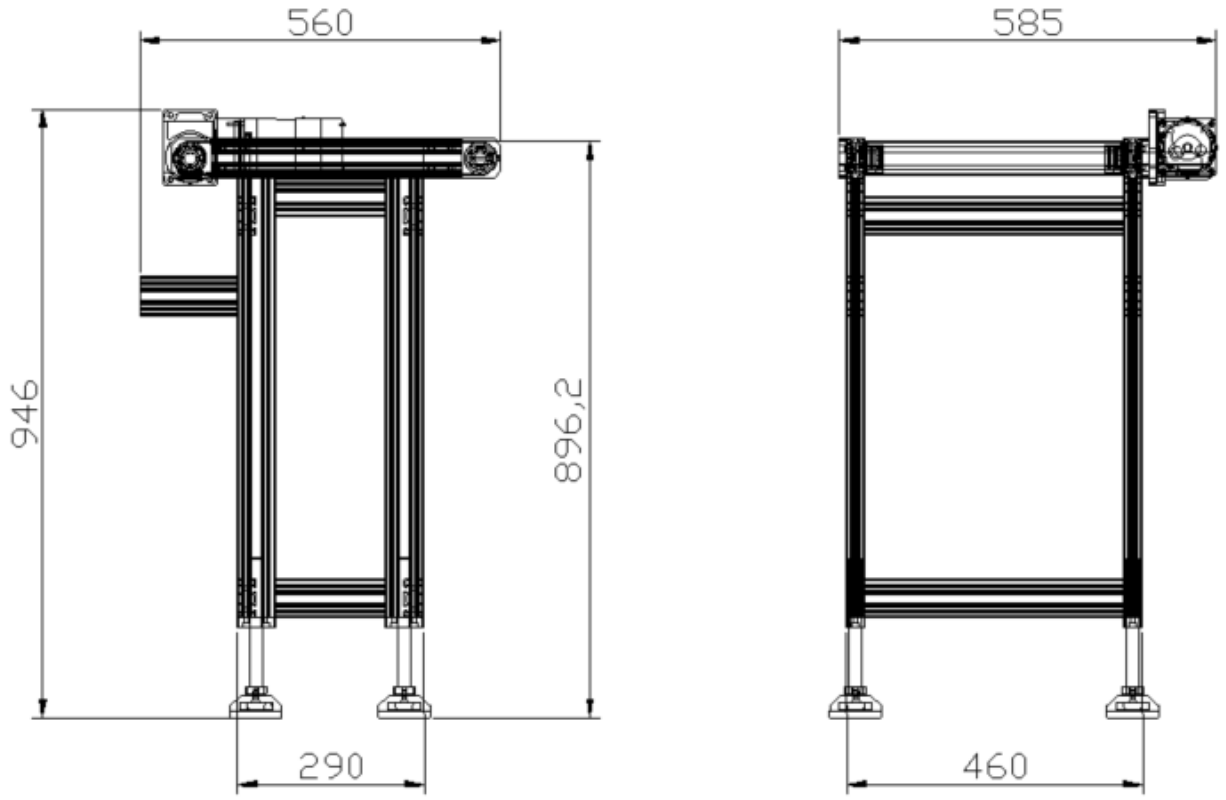
1) Structure

- Composed of assembling processed products in the profile structure

2) Main components

- Motor : S9I90GX-S12CE & SRX02CE
- Sensor : GTD6-N1211

5-8. OUTPUT CONVEYOR UNIT



▶ Main features and characteristics

- A device that transfers the finished product to the downstream equipment

1) Structure

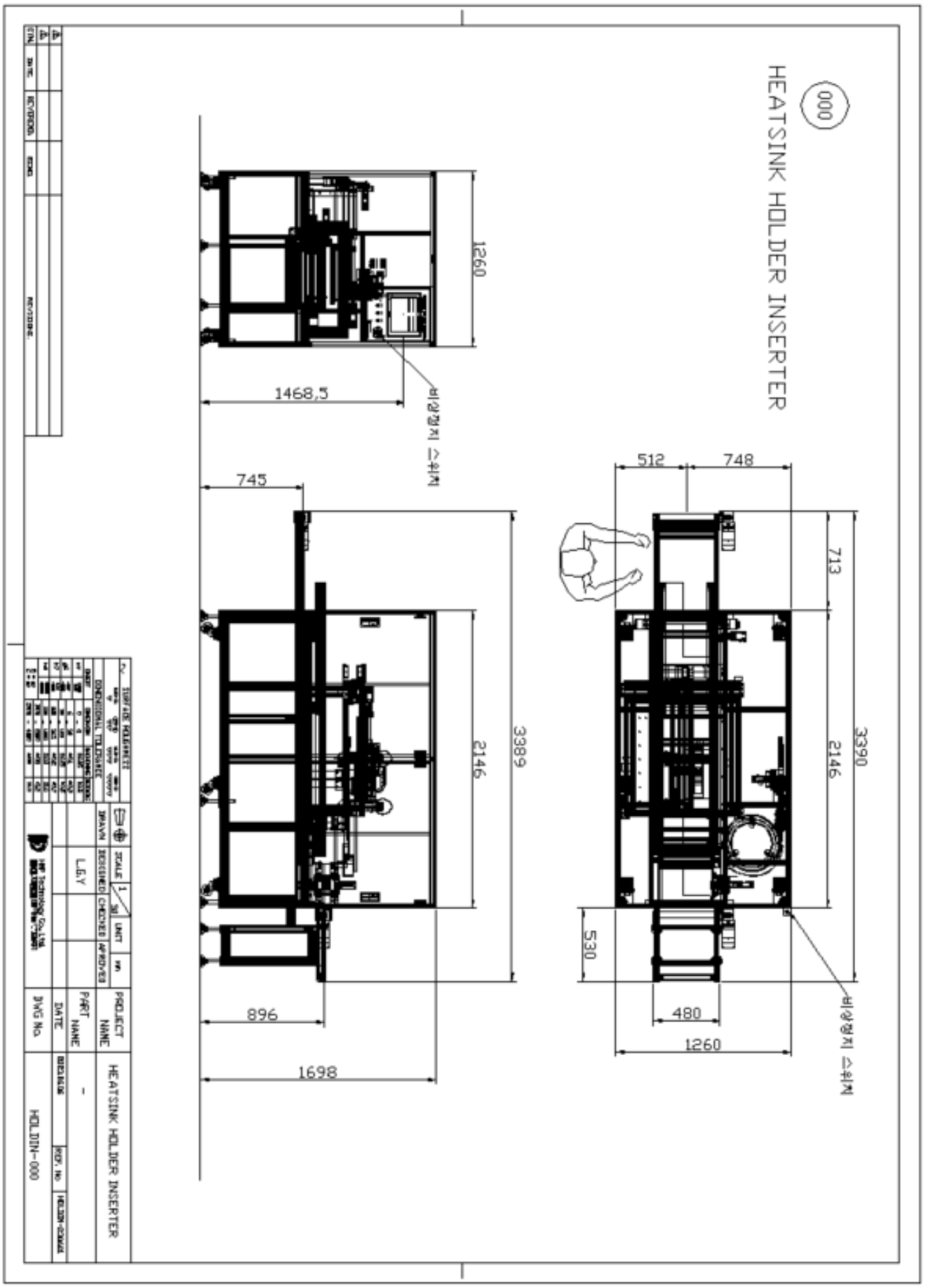
- Composed of assembling processed products in the profile structure

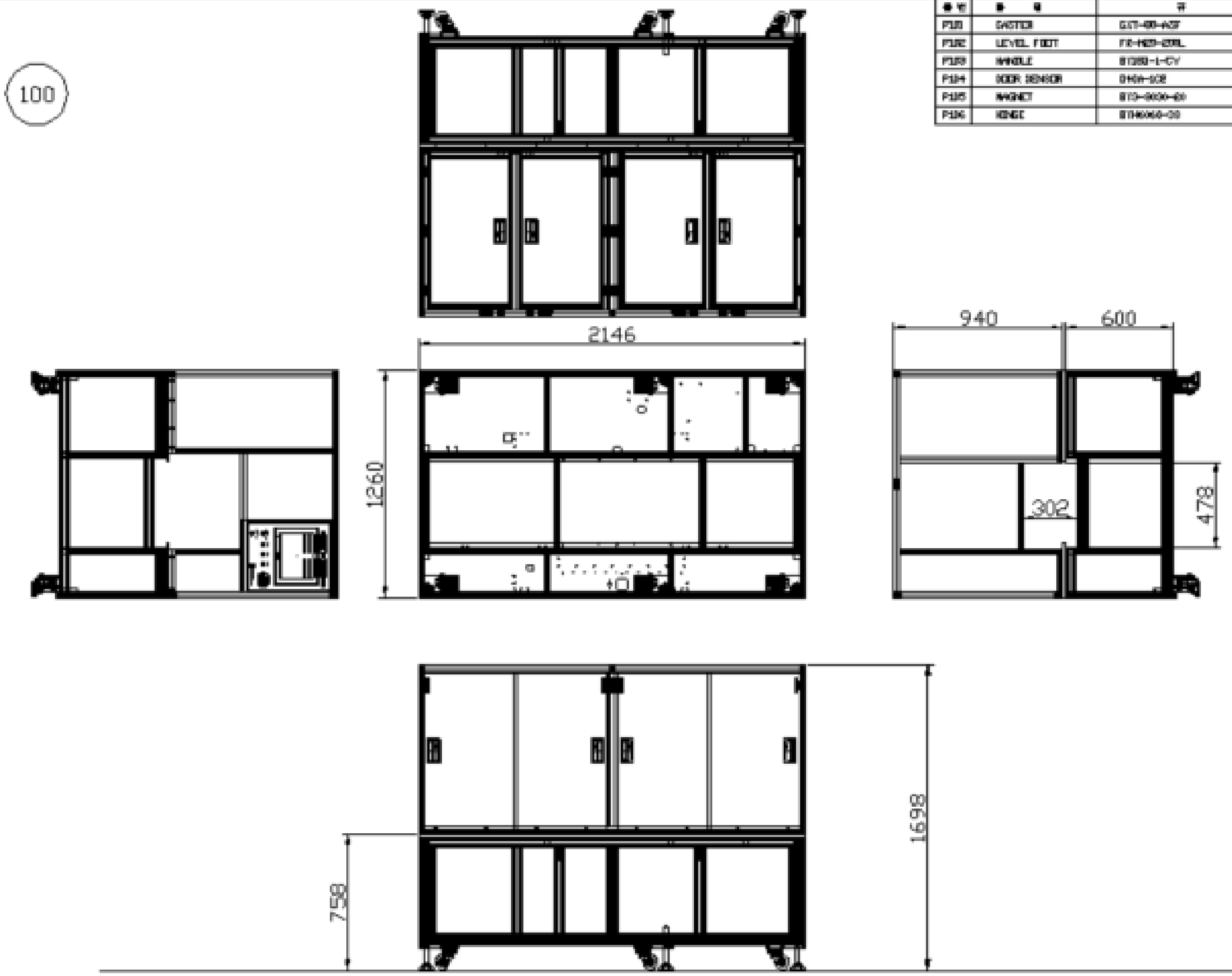
2) Main components

- Motor : S9I90GX-S12CE & SRX02CE

6. Mechanism Drawing

6-1. Assembly Drawing





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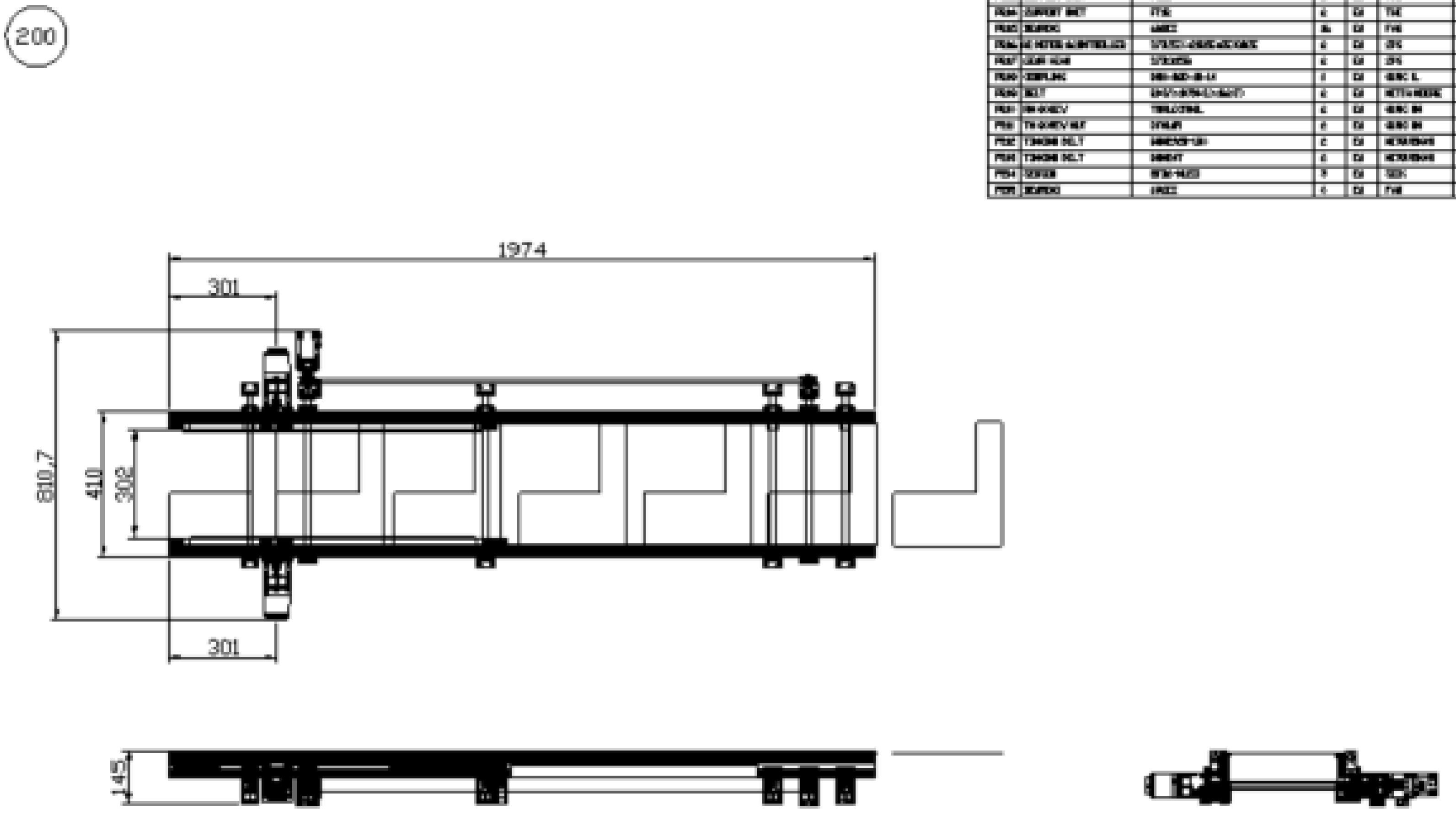
P101	CASTER	[illegible]	6	EA	[illegible]	-
P102	LEVEL FOOT	[illegible]	6	EA	[illegible]	-
P103	HANDLE	[illegible]	8	EA	[illegible]	-
P104	DOOR SENSOR	[illegible]	8	EA	OMRON	-
P105	MAGNET	[illegible]	8	EA	[illegible]	-
P106	HINGE	[illegible]	12	EA	[illegible]	-

SCALE	1/30	UNIT	mm	PROJECT NAME	HEATSINK HOLDER INSERTER
DRAWN	DESIGNED	CHECKED	APPROVED	PART NAME	FRAME UNIT
	L.G.Y			DATE	[illegible]
				REF. No	[illegible]
[illegible]				DWG NO.	HOLDIN-100

SYM.	DATE	REVIEWING	CONG	REVISIONS

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	MAKER	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-
[illegible]	BALL BUSH	[illegible]	[illegible]	[illegible]	THK	-
[illegible]	SUPPORT UNIT	[illegible]	[illegible]	[illegible]	THK	-
[illegible]	SUPPORT UNIT	[illegible]	[illegible]	[illegible]	THK	-
[illegible]	BEARING	[illegible]	[illegible]	[illegible]	[illegible]	-
[illegible]	AC MOTOR [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-
[illegible]	GEAR HEAD	[illegible]	[illegible]	[illegible]	[illegible]	-
[illegible]	COUPLING	[illegible]	[illegible]	[illegible]	[illegible]	-
[illegible]	BELT	[illegible]	[illegible]	[illegible]	[illegible]	-
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-
[illegible]	TIMING BELT	[illegible]	[illegible]	[illegible]	[illegible]	-
[illegible]	TIMING BELT	[illegible]	[illegible]	[illegible]	[illegible]	-
[illegible]	SENSOR	[illegible]	[illegible]	[illegible]	[illegible]	-
[illegible]	BEARING	[illegible]	[illegible]	[illegible]	[illegible]	-



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PART NAME	INPUT CONVEYOR UNIT		
DATE	[illegible]	REF. No	[illegible]
DWG No.	HOLDIN-800		

SCALE 1/[illegible] UNIT [illegible]

DRAWN	DESIGNED	CHECKED	APPROVED
	L.G.Y		

REVISIONS

300

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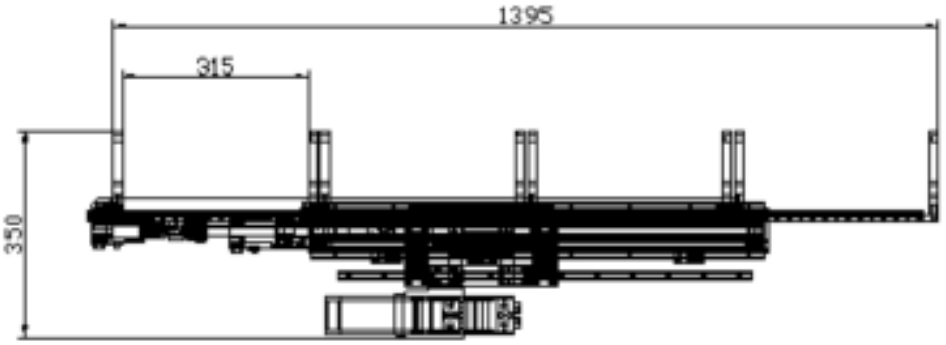
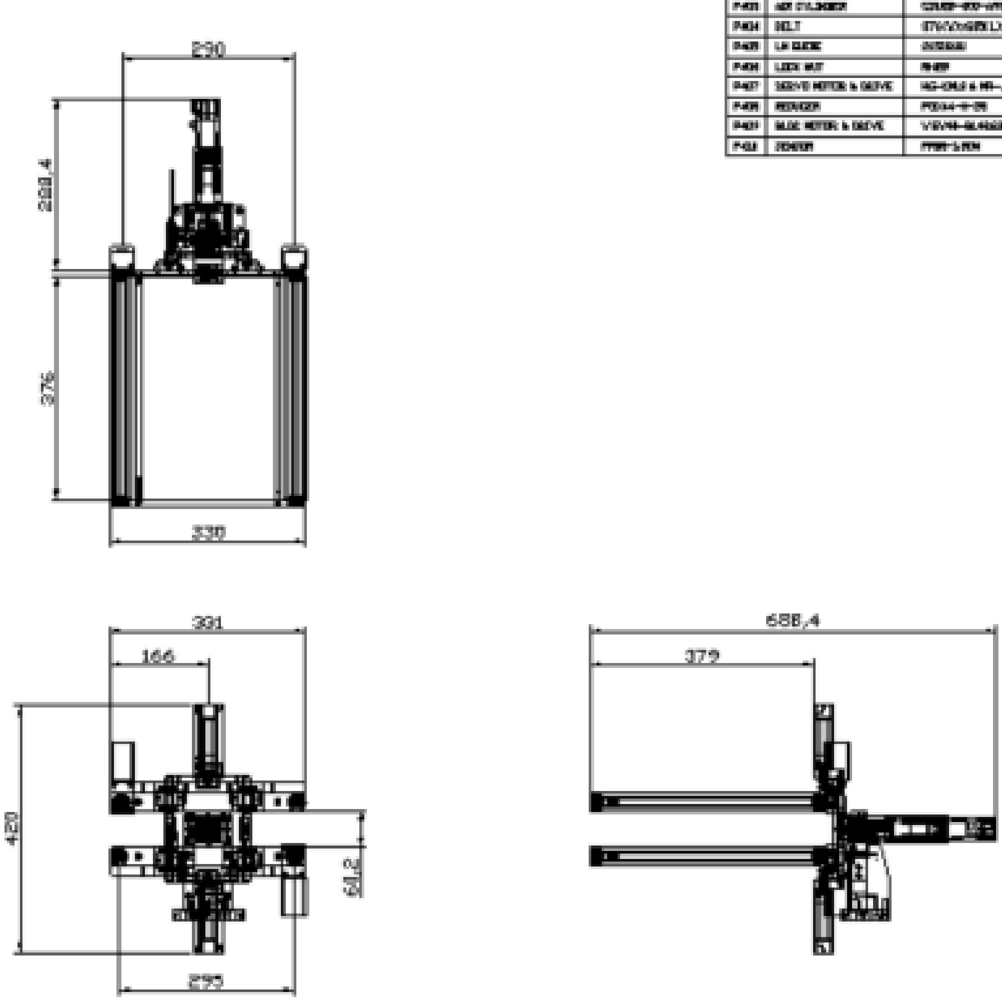
P301	[illegible]	[illegible]	2	EA	SMC	-
P302	[illegible]	[illegible]	4	EA	SMC	-
P303	[illegible]	[illegible]	4	EA	HY	-
P304	[illegible]	[illegible]	1	EA	[illegible]	-
P305	[illegible]	[illegible]	2	EA	[illegible]	-
P306	[illegible]	[illegible]	5	EA	[illegible]	-
P307	[illegible]	[illegible]	1	EA	THK	-
P308	[illegible]	[illegible]	1	EA	THK	-
P309	[illegible]	[illegible]	1	EA	[illegible]	-
P310	[illegible]	[illegible]	4	EA	THK	-
P311	[illegible]	[illegible]	1	EA	THK	-
P312	[illegible]	[illegible]	1	EA	MITSUBISHI	-
P313	[illegible]	[illegible]	1	EA	MITSUBISHI	-
P314	[illegible]	[illegible]	1	EA	HANSON CHAIN	-
P315	[illegible]	[illegible]	1	EA	HANSON ROBOT	-
P316	[illegible]	[illegible]	2	EA	AUTONICS	-
P317	[illegible]	[illegible]	1	EA	AUTONICS	-



SYM.	DATE	REVISIONS	ENG.	REVISIONS
1				
2				

SURFACE ROUGHNESS		SCALE 1/10	UNIT	mm	PROJECT NAME	HEATSINK HOLDER INSERTER
DRAWN	DESIGNED	CHECKED	APPROVED			
	L.G.Y				PART NAME	TRANSFER UNIT
					DATE	REF.No
					DWG No.	HOLDER-300



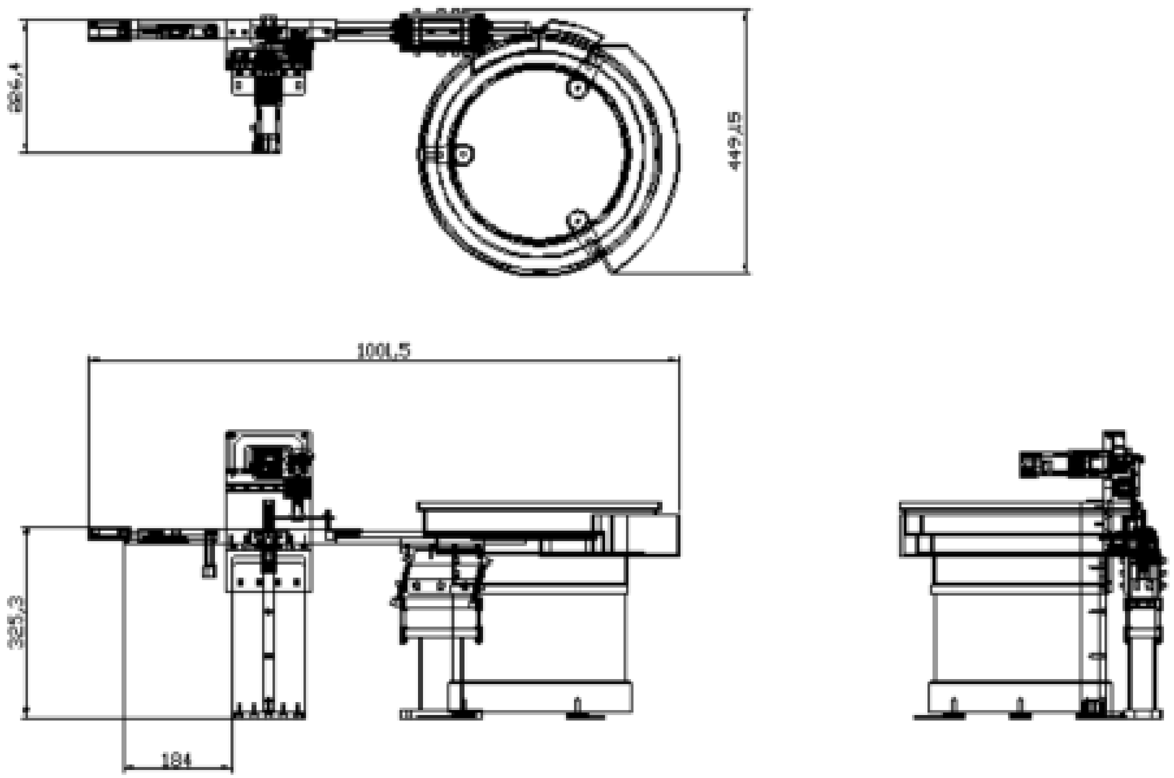
품번	품명	규격	수량	단위	MAKER	비고
P-401	BEARING	[illegible]	2	EA	FAG	-
P-402	BEARING	[illegible]	4	EA	FAG	-
P-403	AIR CYLINDER	[illegible]	2	EA	SMC	-
P-404	BELT	[illegible]	2	EA	[illegible]	-
P-405	LM GUIDE	[illegible]	4	EA	[illegible]	-
P-406	LOCK NUT	[illegible]	1	EA	[illegible]	-
P-407	SERVO MOTOR & DRIVE	[illegible]	1	EA	[illegible]	-
P-408	REDUCER	[illegible]	1	EA	[illegible]	-
P-409	BLDC MOTOR & DRIVE	[illegible]	4	EA	MOTOR BANK	-
P-410	SENSOR	[illegible]	1	EA	[illegible]	-

SCALE 1/10	UNIT mm	PROJECT NAME	HEATSINK HOLDER INSERTER
DESIGNED	CHECKED	APPROVED	
L.G.Y		PART NAME	REVERSE UNIT
		DATE	[illegible]
		REF. No	[illegible]
HM Technology Co., Ltd.		DWG No.	HOLDIN-300

NO.	DATE	REVISIONS	ECN	REVISIONS
△				
△				

500

품번	품명	규격	수량	단위	MAKER	비고
P001	FEEDER	BOWL & LINEAR FEEDER	1	EA	[illegible]	-
P002	AIR CYLINDER	[illegible]	1	EA	SMC	-
P003	AIR CHUCK	[illegible]	1	EA	SMC	-
P004	LM GUIDE	[illegible]	1	EA	[illegible]	-
P005	VACUUM PAD	[illegible]	[illegible]	EA	SMC	-
P006	BEARING	[illegible]	2	EA	THK	-
P007	LM GUIDE	[illegible]	1	EA	[illegible]	-
P008	LM GUIDE	[illegible]	1	EA	[illegible]	-
P009	SERVO MOTOR & DRIVE	[illegible]	1	EA	MITSUBISHI	-
P010	SENSOR	[illegible]	1	EA	AUTONICS	-
P011	REDUCER	[illegible]	1	EA	[illegible]	-
P012	FIBER UNIT	[illegible]	2	EA	AUTONICS	-
P013	FIBER AMP	[illegible]	2	EA	AUTONICS	-

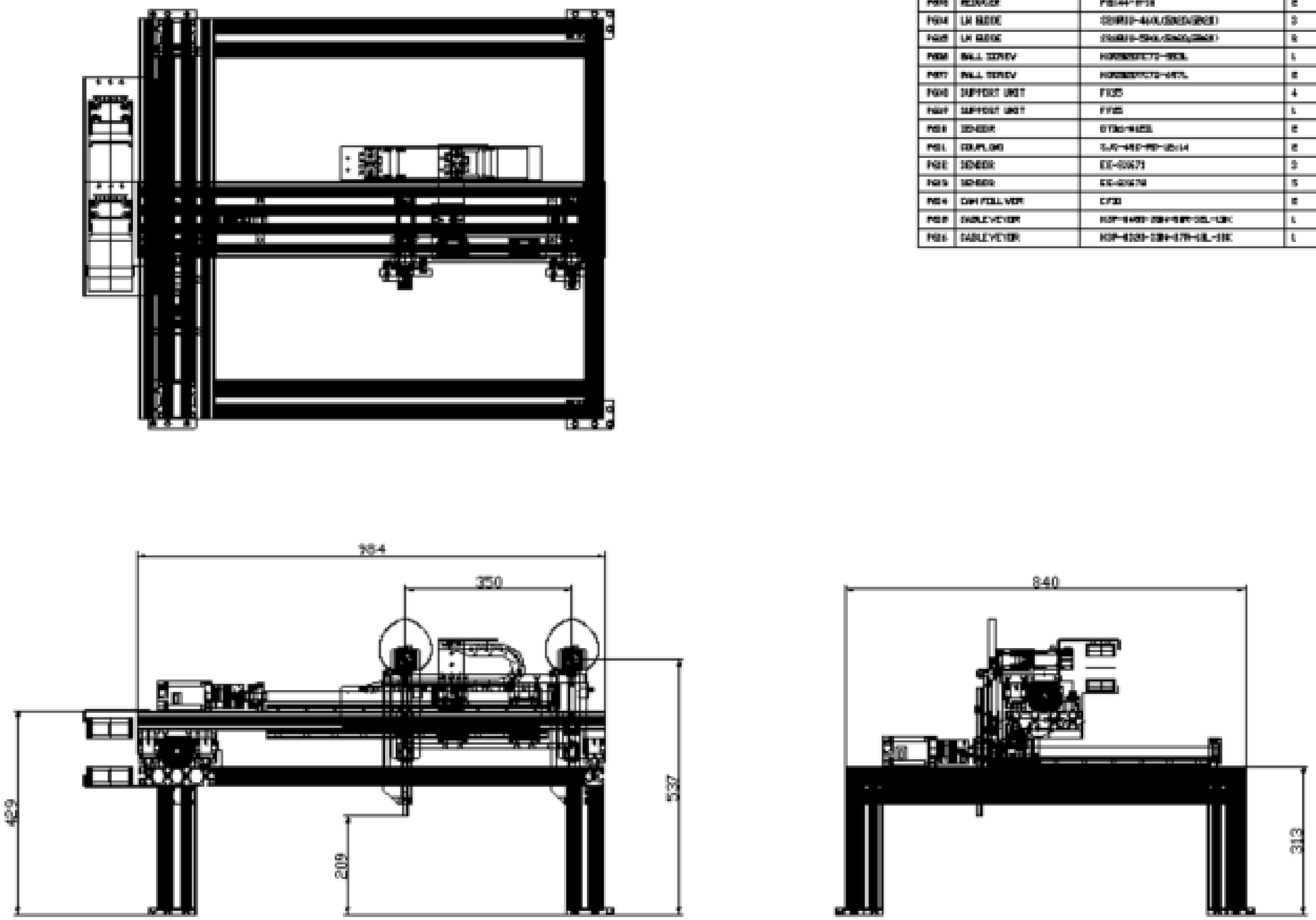


SCALE 1/10	UNIT mm	
DRAWN	DESIGNED	CHECKED	APPROVED
	L.S.Y		
PROJECT NAME	HEATSINK HOLDER INSERTER	
PART NAME	HOLDER SUPPLY UNIT	
DATE	[illegible]	REF. No [illegible]
DWG No.	HOLDIN-500	

SURFACE ROUGHNESS

DIMENSIONAL TOLERANCE

SYM. DATE. REVISION. CHKD. REVISIONS.



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P601	SERVO MOTOR & DRIVE	[illegible]	[illegible]	EA	MITSUBISHI	-
P602	SERVO MOTOR & DRIVE	[illegible]	2	EA	MITSUBISHI	-
P603	REDUCER	[illegible]	2	EA	ATG	-
P604	LM GUIDE	[illegible]	3	EA	[illegible]	-
P605	LM GUIDE	[illegible]	[illegible]	EA	[illegible]	-
P606	BALL SCREW	[illegible]	1	EA	[illegible]	-
P607	BALL SCREW	[illegible]	2	EA	[illegible]	-
P608	SUPPORT UNIT	[illegible]	4	EA	THK	-
P609	SUPPORT UNIT	[illegible]	1	EA	ATG	-
P610	SENSOR	[illegible]	2	EA	[illegible]	-
P611	COUPLING	[illegible]	2	EA	[illegible]	-
P612	SENSOR	EE-SX671	3	EA	OMRON	-
P613	SENSOR	EE-SX670	5	EA	OMRON	-
P614	CAM FOLLOWER	[illegible]	[illegible]	EA	THK	-
P615	CABLEVEYOR	[illegible]	1	EA	[illegible]	-
P616	CABLEVEYOR	[illegible]	1	EA	[illegible]	-

SYM.	DATE	REVISIONS	ENG.
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△			

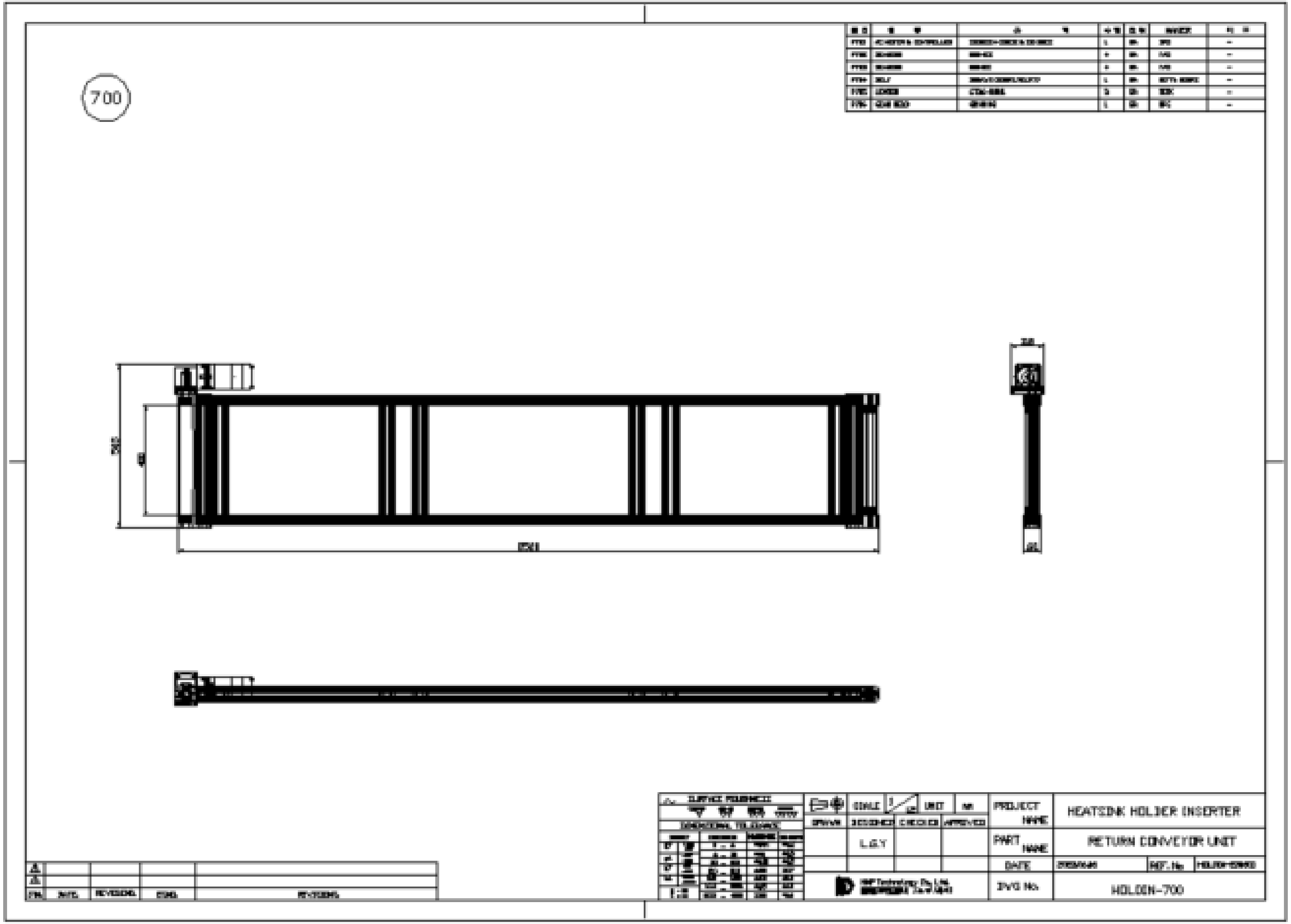
SURFACE ROUGHNESS

DIMENSIONAL TOLERANCE

SCALE	1/12	UNIT	mm
DRAWN	DESIGNED	CHECKED	APPROVED
	L.G.Y		

PROJECT NAME	HEATSINK HOLDER INSERTER
PART NAME	HOLDER INSERTER UNIT
DATE	[illegible]
REF. No	[illegible]
DWG No.	HOLDIN-600

HNP Technology Co., Ltd.


700
PROJECT NAME
HEATSINK HOLDER INSERTER
PART NAME
RETURN CONVEYOR UNIT
SCALE
UNIT
DRAWN
DESIGNED
CHECKED
APPROVED
L.G.Y
DATE
REF. No
DWG No.
HOLDEN-700

946
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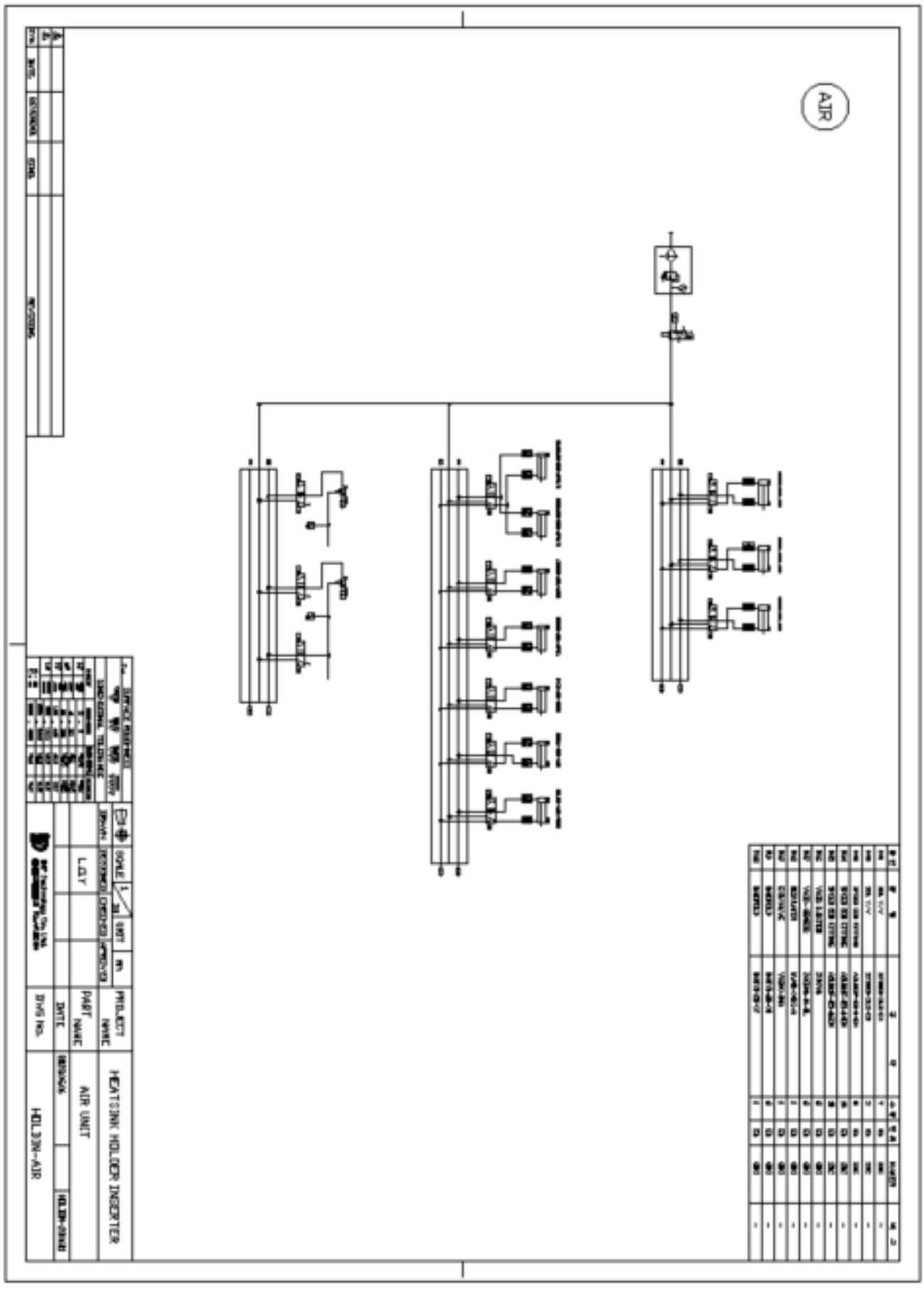
396
585

6-2. Consumable Parts

7. Pneumatic Circuit Diagram



8. Purchasing Item LIST

ASSEMBLY	UNIT	Line [illegible]	[illegible]	[illegible]	[illegible] TYPE OF COMPONENT	[illegible]	[illegible]	[illegible] COMPONENT TYPE NO.	[illegible] MANUFACTU
HEATSINK HOLDER INSERTER	FRAME UNIT	2	HOLDIN 100	P101	CASTER	6	12	[illegible]	C. DOK
HEATSINK HOLDER INSERTER	FRAME UNIT	2	HOLDIN 100	P102	LEVEL FOOT	6	12	[illegible]	C. DOK
HEATSINK HOLDER INSERTER	FRAME UNIT	2	HOLDIN 100	P103	HANDLE	8	16	[illegible]	[illegible]
HEATSINK HOLDER INSERTER	FRAME UNIT	2	HOLDIN 100	P104	DOOR SENSOR	8	16	[illegible]	OMRON
HEATSINK HOLDER INSERTER	FRAME UNIT	2	HOLDIN 100	P105	MAGNET	8	16	[illegible]	[illegible]
HEATSINK HOLDER INSERTER	FRAME UNIT	2	HOLDIN 100	P106	HINGE	12	24	[illegible]	[illegible]
HEATSINK HOLDER INSERTER	INPUT CONVEYOR UNIT	2	HOLDIN 200	P201	SERVO MOTOR & DRIVE	1	2	[illegible]	MITSUBISHI
HEATSINK HOLDER INSERTER	INPUT CONVEYOR UNIT	2	HOLDIN 200	P202	BALL BUSH	4	8	[illegible]	THK
HEATSINK HOLDER INSERTER	INPUT CONVEYOR UNIT	2	HOLDIN 200	P203	SUPPORT UNIT	2	4	[illegible]	THK
HEATSINK HOLDER INSERTER	INPUT CONVEYOR UNIT	2	HOLDIN 200	P204	SUPPORT UNIT	2	4	[illegible]	THK
HEATSINK HOLDER INSERTER	INPUT CONVEYOR UNIT	2	HOLDIN 200	P205	BEARING	16	32	[illegible]	FAG
HEATSINK HOLDER INSERTER	INPUT CONVEYOR UNIT	2	HOLDIN 200	P206	AC MOTOR & CONTROLLER	2	4	[illegible]	SPG
HEATSINK HOLDER INSERTER	INPUT CONVEYOR UNIT	2	HOLDIN 200	P207	GEARHEAD	2	4	[illegible]	SPG
HEATSINK HOLDER INSERTER	INPUT CONVEYOR UNIT	2	HOLDIN 200	P208	COUPLING	1	2	[illegible]	[illegible]
HEATSINK HOLDER INSERTER	INPUT CONVEYOR UNIT	2	HOLDIN 200	P209	BELT	2	4	[illegible]	NITTA MOORE
HEATSINK HOLDER INSERTER	INPUT CONVEYOR UNIT	2	HOLDIN 200	P210	TM SCREW	2	4	[illegible]	[illegible]
HEATSINK HOLDER INSERTER	INPUT CONVEYOR UNIT	2	HOLDIN 200	P211	TM SCREW NUT	2	4	[illegible]	[illegible]
HEATSINK HOLDER INSERTER	INPUT CONVEYOR UNIT	2	HOLDIN 200	P212	TIMING BELT	2	4	[illegible]	MITSUBOSHI
HEATSINK HOLDER INSERTER	INPUT CONVEYOR UNIT	2	HOLDIN 200	P213	TIMING BELT	2	4	[illegible]	MITSUBOSHI
HEATSINK HOLDER INSERTER	INPUT CONVEYOR UNIT	2	HOLDIN 200	P214	SENSOR	3	6	[illegible]	SICK
HEATSINK HOLDER INSERTER	INPUT CONVEYOR UNIT	2	HOLDIN 200	P215	BEARING	6	12	[illegible]	FAG
HEATSINK HOLDER INSERTER	TRANSFER UNIT	2	HOLDIN 300	P301	AIR CYLINDER	2	4	[illegible]	SMC
HEATSINK HOLDER INSERTER	TRANSFER UNIT	2	HOLDIN 300	P302	BEARING	4	8	[illegible]	FAG
HEATSINK HOLDER INSERTER	TRANSFER UNIT	2	HOLDIN 300	P303	OIL BUSH	4	8	[illegible]	[illegible]
HEATSINK HOLDER INSERTER	TRANSFER UNIT	2	HOLDIN 300	P304	LM GUIDE	1	2	[illegible]	[illegible]
HEATSINK HOLDER INSERTER	TRANSFER UNIT	2	HOLDIN 300	P305	LM GUIDE	2	4	[illegible]	[illegible]
HEATSINK HOLDER INSERTER	TRANSFER UNIT	2	HOLDIN 300	P306	LM GUIDE	8	16	[illegible]	[illegible]
HEATSINK HOLDER INSERTER	TRANSFER UNIT	2	HOLDIN 300	P307	SUPPORT UNIT	1	2	[illegible]	THK
HEATSINK HOLDER INSERTER	TRANSFER UNIT	2	HOLDIN 300	P308	SUPPORT UNIT	1	2	[illegible]	THK
HEATSINK HOLDER INSERTER	TRANSFER UNIT	2	HOLDIN 300	P309	COUPLING	1	2	[illegible]	[illegible]
HEATSINK HOLDER INSERTER	TRANSFER UNIT	2	HOLDIN 300	P310	CAM FOLLOWER	4	8	[illegible]	THK
HEATSINK HOLDER INSERTER	TRANSFER UNIT	2	HOLDIN 300	P311	BALL SCREW	1	2	[illegible]	TBI
HEATSINK HOLDER INSERTER	TRANSFER UNIT	2	HOLDIN 300	P312	SERVO MOTOR & DRIVE	1	2	[illegible]	MITSUBISHI
HEATSINK HOLDER INSERTER	TRANSFER UNIT	2	HOLDIN 300	P313	SERVO MOTOR & DRIVE	1	2	[illegible]	MITSUBISHI
HEATSINK HOLDER INSERTER	TRANSFER UNIT	2	HOLDIN 300	P314	ROBOT ACTUATOR	1	2	[illegible]	HANSHIN CHAIN
HEATSINK HOLDER INSERTER	TRANSFER UNIT	2	HOLDIN 300	P315	CABLEVEYOR	1	2	[illegible]	HANSHIN ROBOT
HEATSINK HOLDER INSERTER	TRANSFER UNIT	2	HOLDIN 300	P316	SENSOR	2	4	[illegible]	AUTONICS
HEATSINK HOLDER INSERTER	TRANSFER UNIT	2	HOLDIN 300	P317	SENSOR	1	2	[illegible]	AUTONICS
HEATSINK HOLDER INSERTER	REVERSE UNIT	2	HOLDIN 400	P401	BEARING	2	4	[illegible]	FAG
HEATSINK HOLDER INSERTER	REVERSE UNIT	2	HOLDIN 400	P402	BEARING	8	16	[illegible]	FAG
HEATSINK HOLDER INSERTER	REVERSE UNIT	2	HOLDIN 400	P403	AIR CYLINDER	2	4	[illegible]	SMC
HEATSINK HOLDER INSERTER	REVERSE UNIT	2	HOLDIN 400	P404	BELT	2	4	[illegible]	[illegible]
HEATSINK HOLDER INSERTER	REVERSE UNIT	2	HOLDIN 400	P405	LM GUIDE	2	4	[illegible]	[illegible]
HEATSINK HOLDER INSERTER	REVERSE UNIT	2	HOLDIN 400	P406	LOCK NUT	1	2	[illegible]	[illegible]
HEATSINK HOLDER INSERTER	REVERSE UNIT	2	HOLDIN 400	P407	SERVO MOTOR & DRIVE	1	2	[illegible]	MITSUBISHI
HEATSINK HOLDER INSERTER	REVERSE UNIT	2	HOLDIN 400	P408	REDUCER	1	2	[illegible]	ATG
HEATSINK HOLDER INSERTER	REVERSE UNIT	2	HOLDIN 400	P409	BLDC MOTOR & DRIVE	2	4	[illegible]	MOTOR BANK
HEATSINK HOLDER INSERTER	REVERSE UNIT	2	HOLDIN 400	P410	SENSOR	1	2	[illegible]	AUTONICS
HEATSINK HOLDER INSERTER	HOLDER SUPPLY UNIT	2	HOLDIN 500	P501	FEEDER	1	2	[illegible]	[illegible]
HEATSINK HOLDER INSERTER	HOLDER SUPPLY UNIT	2	HOLDIN 500	P502	AIR CYLINDER	1	2	[illegible]	SMC
HEATSINK HOLDER INSERTER	HOLDER SUPPLY UNIT	2	HOLDIN 500	P503	AIR CHUCK	1	2	[illegible]	SMC
HEATSINK HOLDER INSERTER	HOLDER SUPPLY UNIT	2	HOLDIN 500	P504	LM GUIDE	1	2	[illegible]	[illegible]
HEATSINK HOLDER INSERTER	HOLDER SUPPLY UNIT	2	HOLDIN 500	P505	VACUUM PAD	2	4	[illegible]	SMC
HEATSINK HOLDER INSERTER	HOLDER SUPPLY UNIT	2	HOLDIN 500	P506	BEARING	2	4	[illegible]	THK
HEATSINK HOLDER INSERTER	HOLDER SUPPLY UNIT	2	HOLDIN 500	P507	LM GUIDE	1	2	[illegible]	[illegible]
HEATSINK HOLDER INSERTER	HOLDER SUPPLY UNIT	2	HOLDIN 500	P508	LM GUIDE	1	2	[illegible]	[illegible]
HEATSINK HOLDER INSERTER	HOLDER SUPPLY UNIT	2	HOLDIN 500	P509	SERVO MOTOR & DRIVE	1	2	[illegible]	MITSUBISHI
HEATSINK HOLDER INSERTER	HOLDER SUPPLY UNIT	2	HOLDIN 500	P510	SENSOR	1	2	[illegible]	AUTONICS
HEATSINK HOLDER INSERTER	HOLDER SUPPLY UNIT	2	HOLDIN 500	P511	REDUCER	1	2	[illegible]	ATG
HEATSINK HOLDER INSERTER	HOLDER SUPPLY UNIT	2	HOLDIN 500	P512	FIBER UNIT	3	6	[illegible]	AUTONICS
HEATSINK HOLDER INSERTER	HOLDER SUPPLY UNIT	2	HOLDIN 500	P513	FIBER AMP	3	6	[illegible]	AUTONICS
HEATSINK HOLDER INSERTER	HOLDER INSERTER UNIT	2	HOLDIN 600	P601	SERVO MOTOR & DRIVE	2	4	[illegible]	MITSUBISHI
HEATSINK HOLDER INSERTER	HOLDER INSERTER UNIT	2	HOLDIN 600	P602	SERVO MOTOR & DRIVE	2	4	[illegible]	MITSUBISHI
HEATSINK HOLDER INSERTER	HOLDER INSERTER UNIT	2	HOLDIN 600	P603	REDUCER	2	4	[illegible]	ATG
HEATSINK HOLDER INSERTER	HOLDER INSERTER UNIT	2	HOLDIN 600	P604	LM GUIDE	3	6	[illegible]	[illegible]
HEATSINK HOLDER INSERTER	HOLDER INSERTER UNIT	2	HOLDIN 600	P605	LM GUIDE	2	4	[illegible]	[illegible]
HEATSINK HOLDER INSERTER	HOLDER INSERTER UNIT	2	HOLDIN 600	P606	BALL SCREW	1	2	[illegible]	[illegible]
HEATSINK HOLDER INSERTER	HOLDER INSERTER UNIT	2	HOLDIN 600	P607	BALL SCREW	2	4	[illegible]	[illegible]
HEATSINK HOLDER INSERTER	HOLDER INSERTER UNIT	2	HOLDIN 600	P608	SUPPORT UNIT	4	8	[illegible]	THK
HEATSINK HOLDER INSERTER	HOLDER INSERTER UNIT	2	HOLDIN 600	P609	SUPPORT UNIT	1	2	[illegible]	ATG
HEATSINK HOLDER INSERTER	HOLDER INSERTER UNIT	2	HOLDIN 600	P610	SENSOR	2	4	[illegible]	SICK
HEATSINK HOLDER INSERTER	HOLDER INSERTER UNIT	2	HOLDIN 600	P611	COUPLING	2	4	[illegible]	[illegible]
HEATSINK HOLDER INSERTER	HOLDER INSERTER UNIT	2	HOLDIN 600	P612	SENSOR	3	6	[illegible]	OMRON
HEATSINK HOLDER INSERTER	HOLDER INSERTER UNIT	2	HOLDIN 600	P613	SENSOR	5	10	[illegible]	OMRON
HEATSINK HOLDER INSERTER	HOLDER INSERTER UNIT	2	HOLDIN 600	P614	CAM FOLLWER	2	4	[illegible]	THK
HEATSINK HOLDER INSERTER	HOLDER INSERTER UNIT	2	HOLDIN 600	P615	CABLEVEYOR	1	2	[illegible]	HANSHIN CHAIN
HEATSINK HOLDER INSERTER	HOLDER INSERTER UNIT	2	HOLDIN 600	P616	CABLEVEYOR	1	2	[illegible]	HANSHIN CHAIN
HEATSINK HOLDER INSERTER	RETURN CONVEYOR UNIT	2	HOLDIN 700	P701	AC MOTOR & CONTROLLER	1	2	[illegible]	SPG
HEATSINK HOLDER INSERTER	RETURN CONVEYOR UNIT	2	HOLDIN 700	P702	BEARING	4	8	[illegible]	FAG
HEATSINK HOLDER INSERTER	RETURN CONVEYOR UNIT	2	HOLDIN 700	P703	BEARING	4	8	[illegible]	FAG
HEATSINK HOLDER INSERTER	RETURN CONVEYOR UNIT	2	HOLDIN 700	P704	BELT	1	2	[illegible]	NITTA MOORE
HEATSINK HOLDER INSERTER	RETURN CONVEYOR UNIT	2	HOLDIN 700	P705	SENSOR	3	6	[illegible]	SICK
HEATSINK HOLDER INSERTER	RETURN CONVEYOR UNIT	2	HOLDIN 700	P706	GEARHEAD	1	2	[illegible]	SPG
HEATSINK HOLDER INSERTER	OUTPUT CONVEYOR UNIT	2	HOLDIN 800	P801	AC MOTOR & CONTROLLER	1	2	[illegible]	SPG
HEATSINK HOLDER INSERTER	OUTPUT CONVEYOR UNIT	2	HOLDIN 800	P802	BEARING	4	8	[illegible]	FAG
HEATSINK HOLDER INSERTER	OUTPUT CONVEYOR UNIT	2	HOLDIN 800	P803	BEARING	4	8	[illegible]	FAG
HEATSINK HOLDER INSERTER	OUTPUT CONVEYOR UNIT	2	HOLDIN 800	P804	BELT	1	2	[illegible]	NITTA MOORE
HEATSINK HOLDER INSERTER	OUTPUT CONVEYOR UNIT	2	HOLDIN 800	P805	SENSOR	2	4	[illegible]	SICK
HEATSINK HOLDER INSERTER	OUTPUT CONVEYOR UNIT	2	HOLDIN 800	P806	LEVEL FOOT	2	4	[illegible]	C. DOK
HEATSINK HOLDER INSERTER	OUTPUT CONVEYOR UNIT	2	HOLDIN 800	P807	FOOT BAR	4	8	[illegible]	[illegible]
HEATSINK HOLDER INSERTER	OUTPUT CONVEYOR UNIT	2	HOLDIN 800	P808	GEARHEAD	1	2	[illegible]	SPG
HEATSINK HOLDER INSERTER	AIR UNIT	2	HOLDIN AIR	PA1	SOL V/V	7	14	[illegible]	SMC
HEATSINK HOLDER INSERTER	AIR UNIT	2	HOLDIN AIR	PA2	SOL V/V	5	10	[illegible]	SMC
HEATSINK HOLDER INSERTER	AIR UNIT	2	HOLDIN AIR	PA3	SPEED CON FITTING	2	4	[illegible]	SMC
HEATSINK HOLDER INSERTER	AIR UNIT	2	HOLDIN AIR	PA4	SPEED CON FITTING	14	28	[illegible]	SMC
HEATSINK HOLDER INSERTER	AIR UNIT	2	HOLDIN AIR	PA5	SPEED CON FITTING	10	20	[illegible]	SMC
HEATSINK HOLDER INSERTER	AIR UNIT	2	HOLDIN AIR	PA6	VACC. EJECTOR	2	4	[illegible]	SMC
HEATSINK HOLDER INSERTER	AIR UNIT	2	HOLDIN AIR	PA7	VACC. SENSOR	2	4	[illegible]	SMC
HEATSINK HOLDER INSERTER	AIR UNIT	2	HOLDIN AIR	PA8	REGULATOR	1	2	[illegible]	SMC
HEATSINK HOLDER INSERTER	AIR UNIT	2	HOLDIN AIR	PA9	IDH VALVE	1	2	[illegible]	SMC
HEATSINK HOLDER INSERTER	AIR UNIT	2	HOLDIN AIR	PA10	MANIFOLD	2	4	[illegible]	SMC
HEATSINK HOLDER INSERTER	AIR UNIT	2	HOLDIN AIR	PA11	MANIFOLD	1	2	[illegible]	SMC

9.Parts Catalog(Attached)

Electrical Manual

Index

1. Equipment Specifications

1-1. Equipment Name

- HEATSINK HOLDER INSERTER

1-2. Equipment Outline

Equipment that fastens the holder that is automatically supplied to the heatsink to the designated point

1-3. UTILITY

- ELECTRIC POWER SOURE :

  AC220V±10%, 1 ¢ 4.5Kw 20A

- Control power : DC 24V

2. POWER ON

▪ POWER ON Status check (GPS LAMP ON).

** POWER LAMP always ON **

(LAMP turns off when main power POWER is OFF.)

▪ Turn the handle to the MAIN POWER S/W ON position.

** POWER LAMP(UPS&GPS) always ON (Refer to the contents above) ** (When turning ON the POWER handle, check the DOOR CLOSE status.)

Magnet operates when EMO RESET S/W is ON.

▪ EMO RESET ON.

** EMO status check before POWER LAMP(UPS) ON **

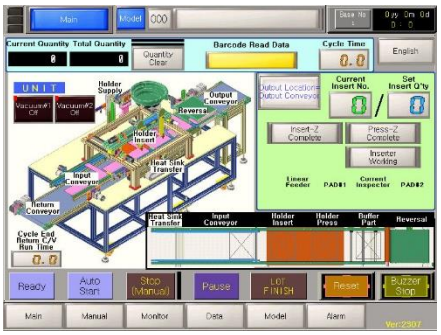
(DOOR is in CLOSE status (requires thorough key management))

▪ TOUCH Equipment Handling MODE GROUP ON.

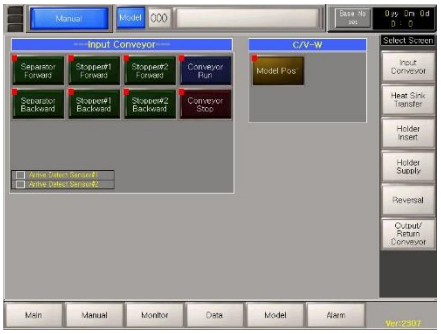
3. Touch Screen Description

3-1. Screen Layout

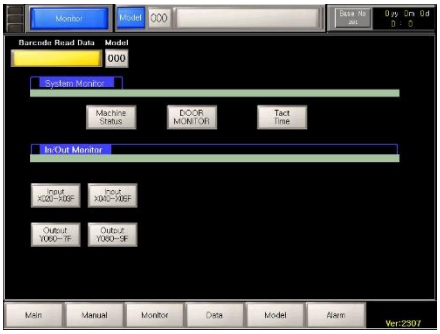
< MAIN SCREEN >



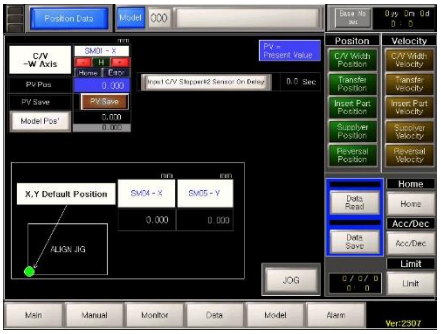
< Manual control settings GROUP >



< System and I/O monitor GROUP >



< SERVO Parameter setting GROUP >

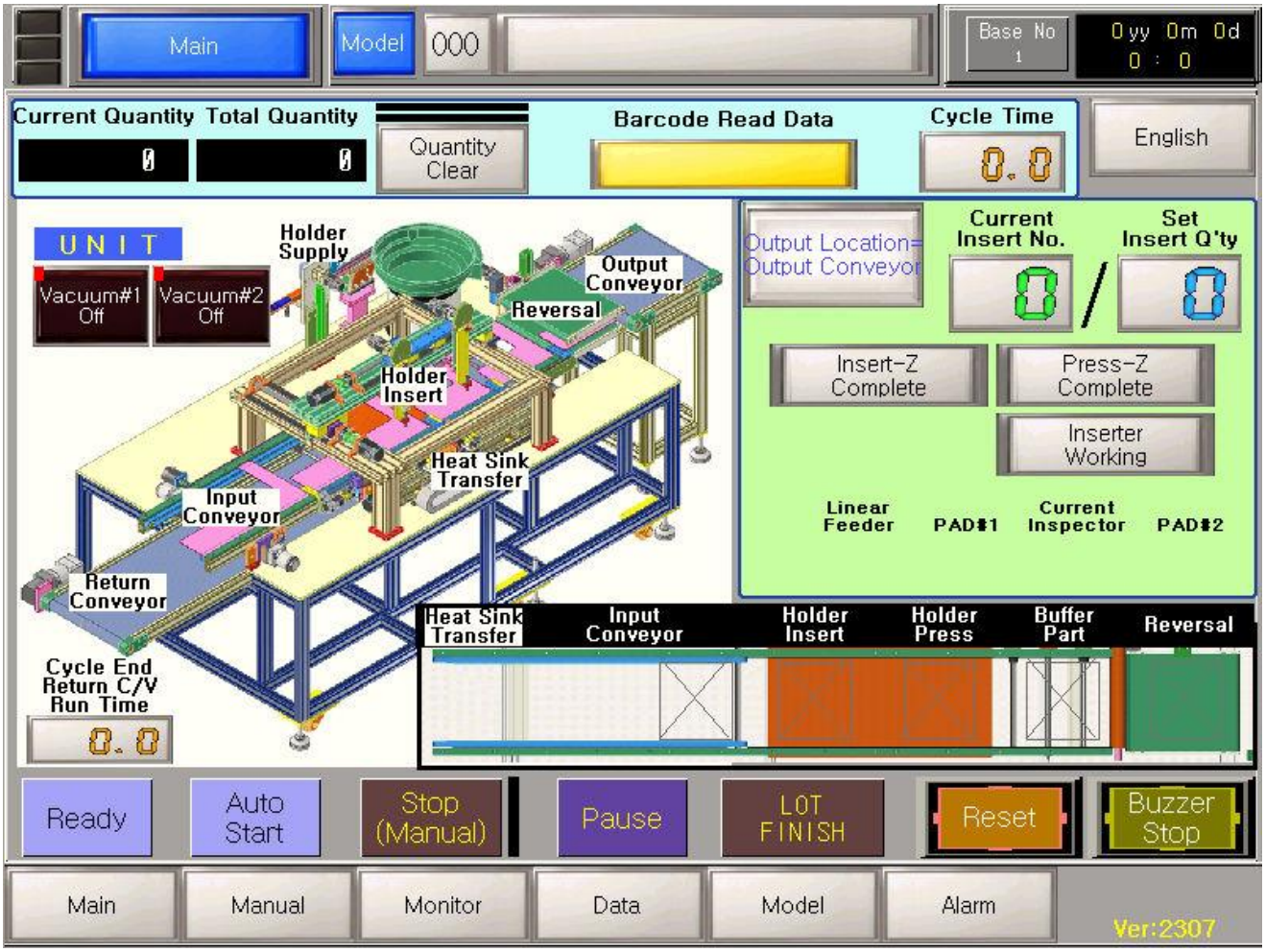


< RECIPE setting GROUP >

< Equipment OPTION select GROUP >

<ALARM HISTORY mark GROUP >

3-2. MAIN Screen

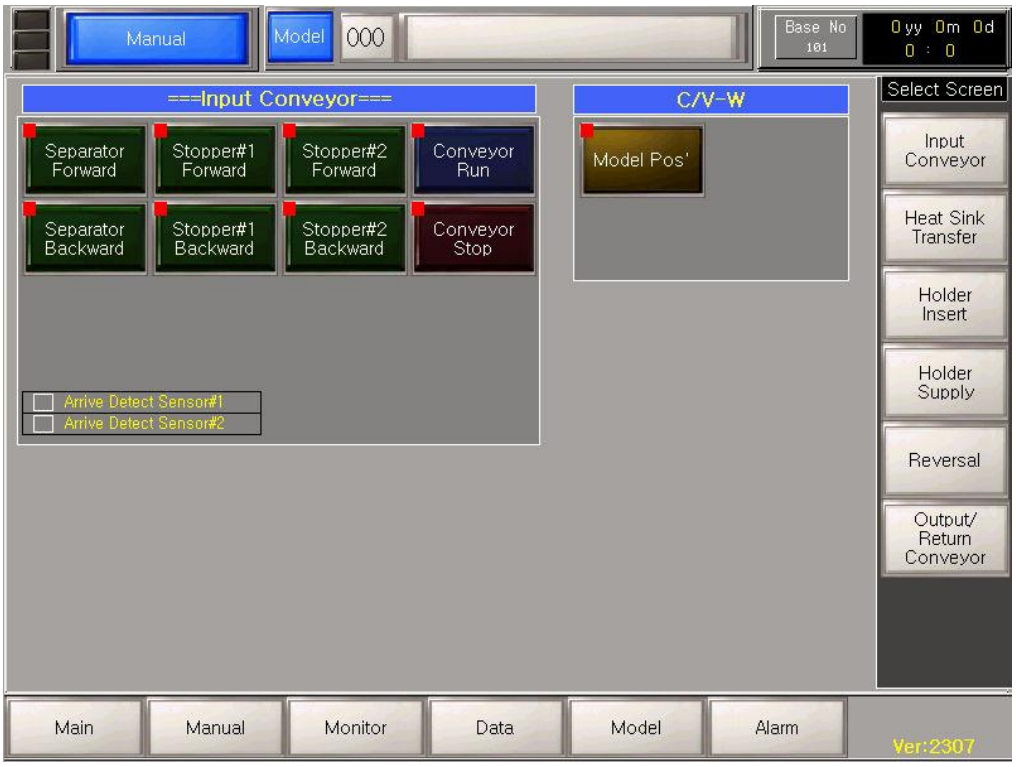


This is the initial screen. When you press the button, you can move to the corresponding screen.

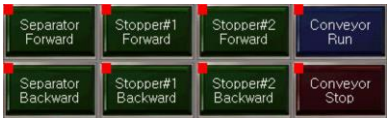
- Ready : It is an operation preparation button for initial automatic operation.
- Auto Start : It is a button for automatic operation when operation preparation is completed.
- Stop : A button to stop the equipment. Manual operation is possible when this button is lit..
- Pause : This button is used to temporarily stop the equipment. Even when an alarm occurs, this button is activated.
- LOT FINISH : This button is used to complete the work without inserting the product.
- Reset : This button flickers when an alarm occurs. If you release the alarm situation and press this button, the light goes out.
- Buzzer Stop : The buzzer operates when an alarm occurs. This button is used to stop the buzzer.

3-3. Manual Screen

- Input conveyor



- Manual output operation button



- ■ Units on the input conveyor can be operated manually.
- ■ You can check whether manual operation is possible.

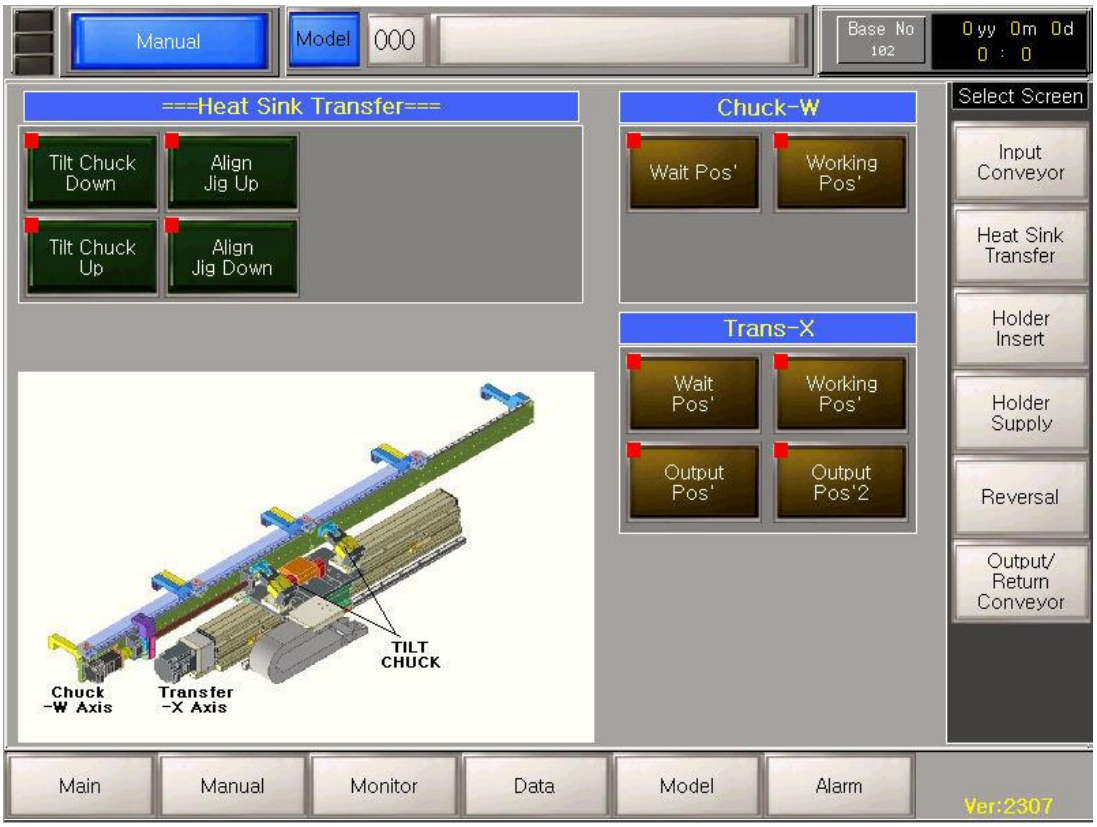
- Conveyor Explosion

- ■ Conveyor width can be moved to the location saved in the model.
- ■ You can check whether manual operation is possible.

- Side menu -

- ■ Move to the GROUP UNIT manual screen according to the location.

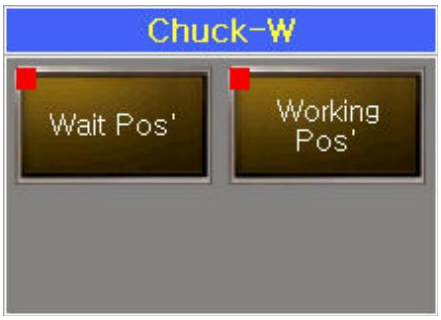
- Heat Sink Transfer Unit Manual Screen



- Heat Sink transfer unit

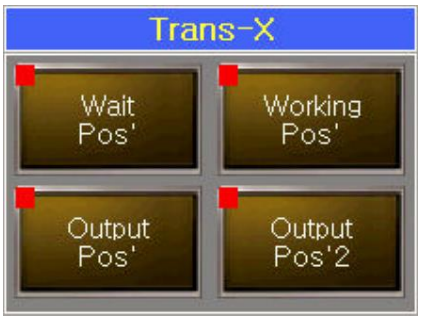
- ■ Tilting chuck and alignment jig can be operated manually..
- ■ You can check whether manual operation is possible.

- Tilting Explosion



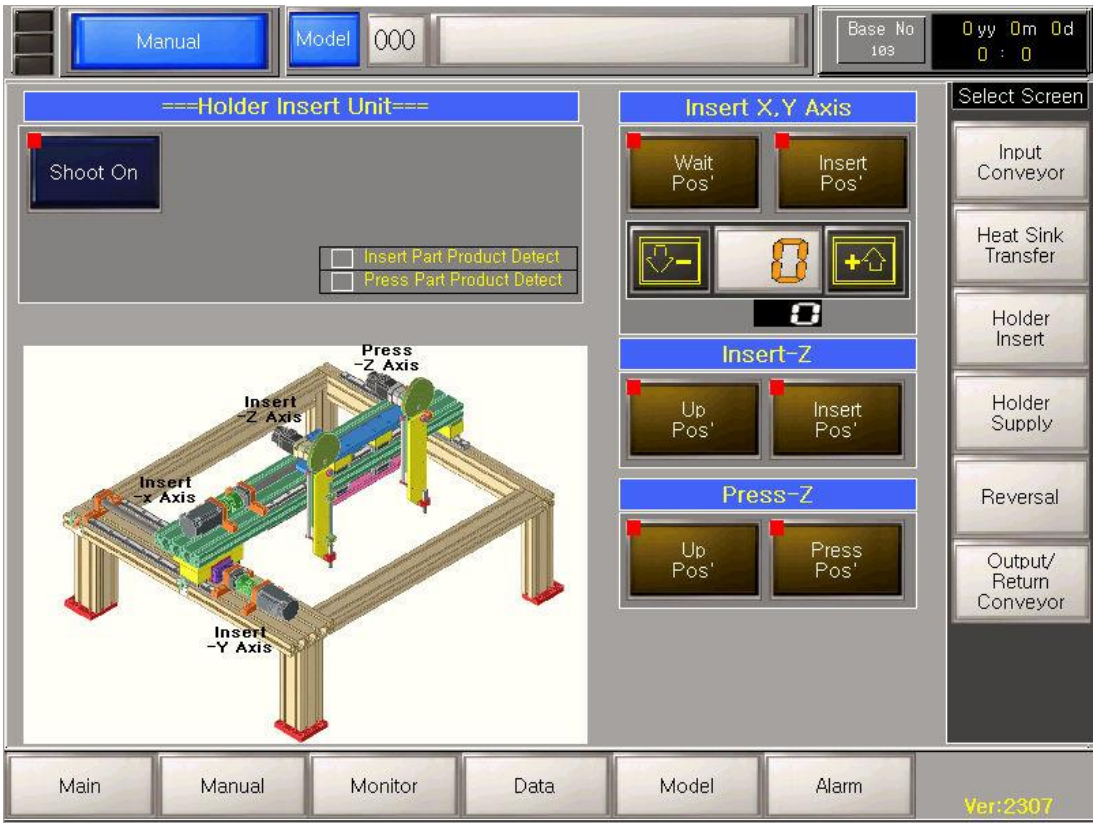
- ■ You can manually operate the tilting axis to the standby position and working position.
- ■ You can check whether manual operation is possible.

- Transfer unit-X axis



- ■ You can manually operate the transfer unit x-axis to the standby position, working position, abaxial position, and discharge position 2.
- ■ You can check whether manual operation is possible.

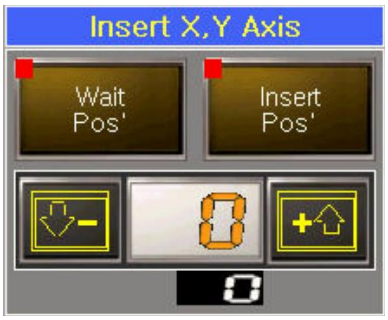
- Holder insert unit manual screen



- Holder insert unit

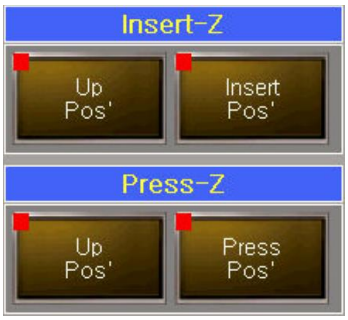
- ■ Hold shooting can be operated manually.
- ■ You can check whether there is a product in the insertion part or the press-fitting part.
- ■ You can check whether manual operation is possible.

- Insert unit X, Y axis



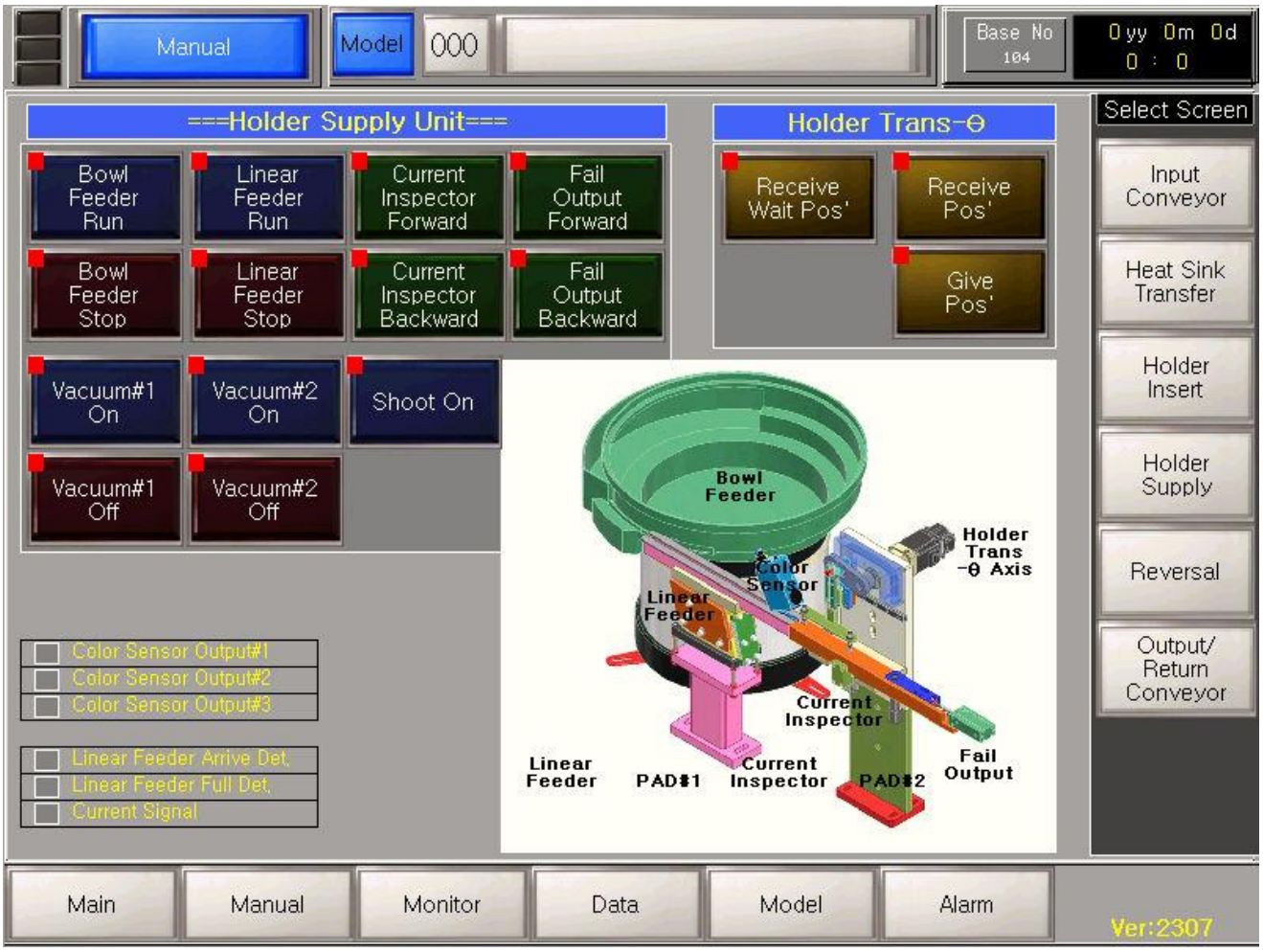
- ■ You can manually operate the X and Y axes of the insertion unit..
- ■ You can change the insertion position by changing the number with - or +.
- ■ You can check whether manual operation is possible.

- Insert, press Z axis

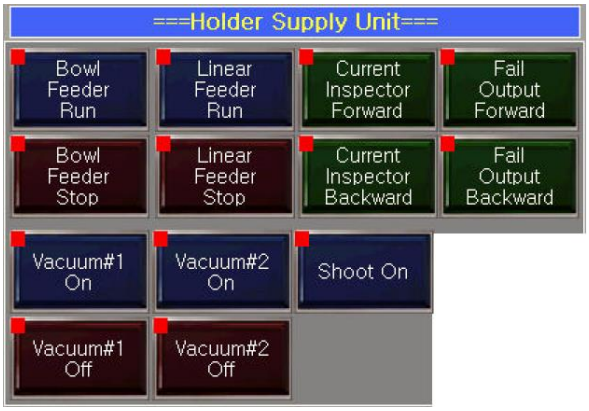


- ■ The Z-axis of the insertion unit can be manually operated.
- ■ If you change the numbers with - and + on the insertion unit, you can change the insertion and press-in position.
- ■ You can check whether manual operation is possible.

- Holder supply unit manual screen



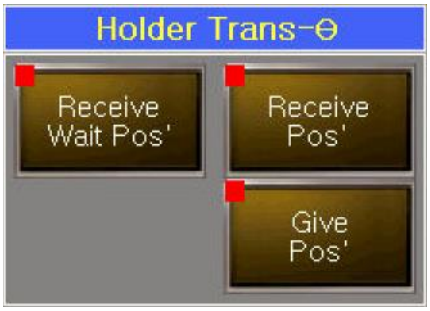
- Holder supply unit



■ Units required for hold supply can be manually operated.

■ You can check whether manual operation is possible.

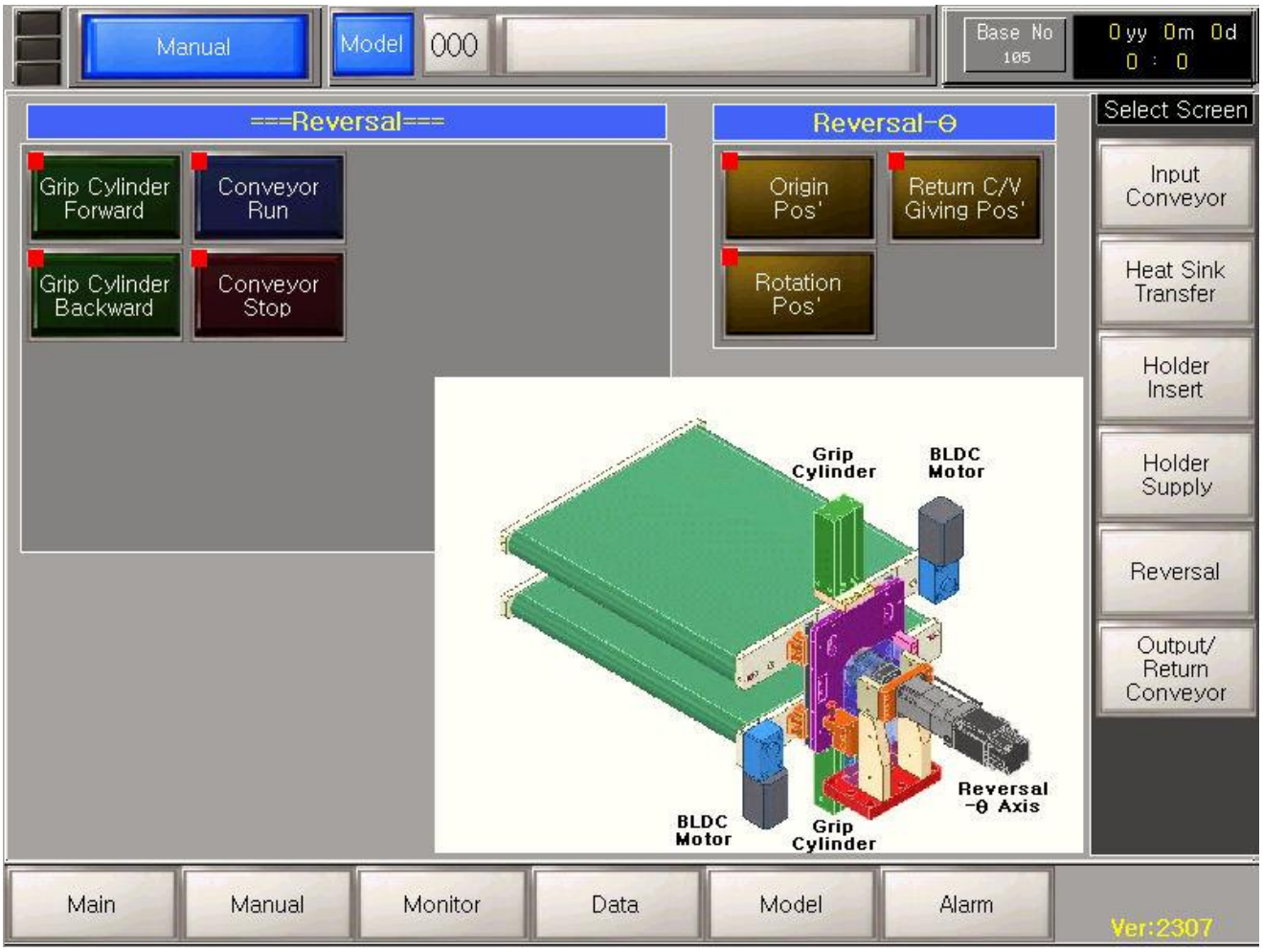
- Holder transfer unit



■ The hold transfer unit can be operated manually.

■ You can check whether manual operation is possible.

- Reversal unit manual screen

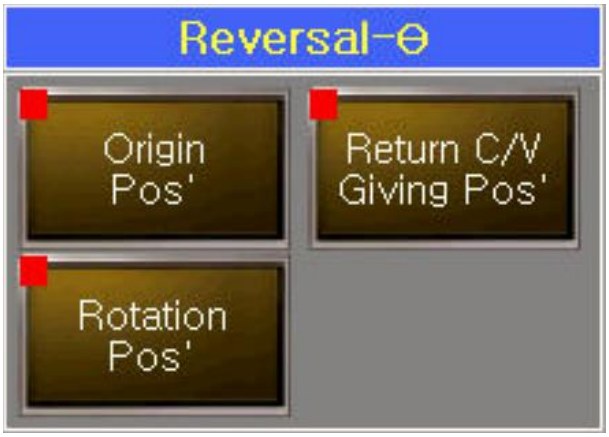


- Reversal unit

■ The grip cylinder of the reversal and the conveyor can be operated manually.

■ You can check whether manual operation is possible.

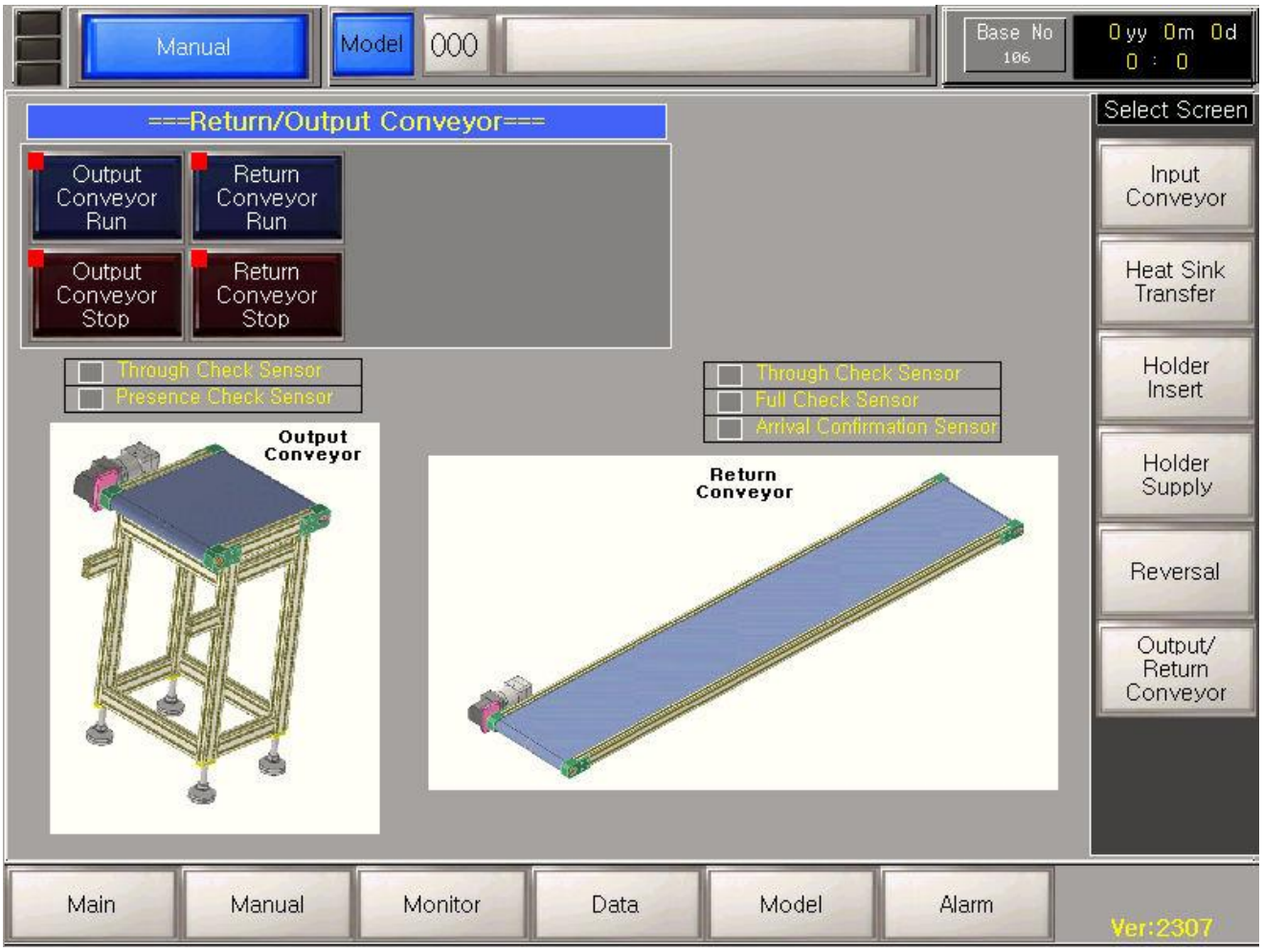
- Reversal-θ axis unit



■ The position of the reversal can be manually operated.

■ You can check whether manual operation is possible.

- Return / Output Conveyor Unit Manual Screen

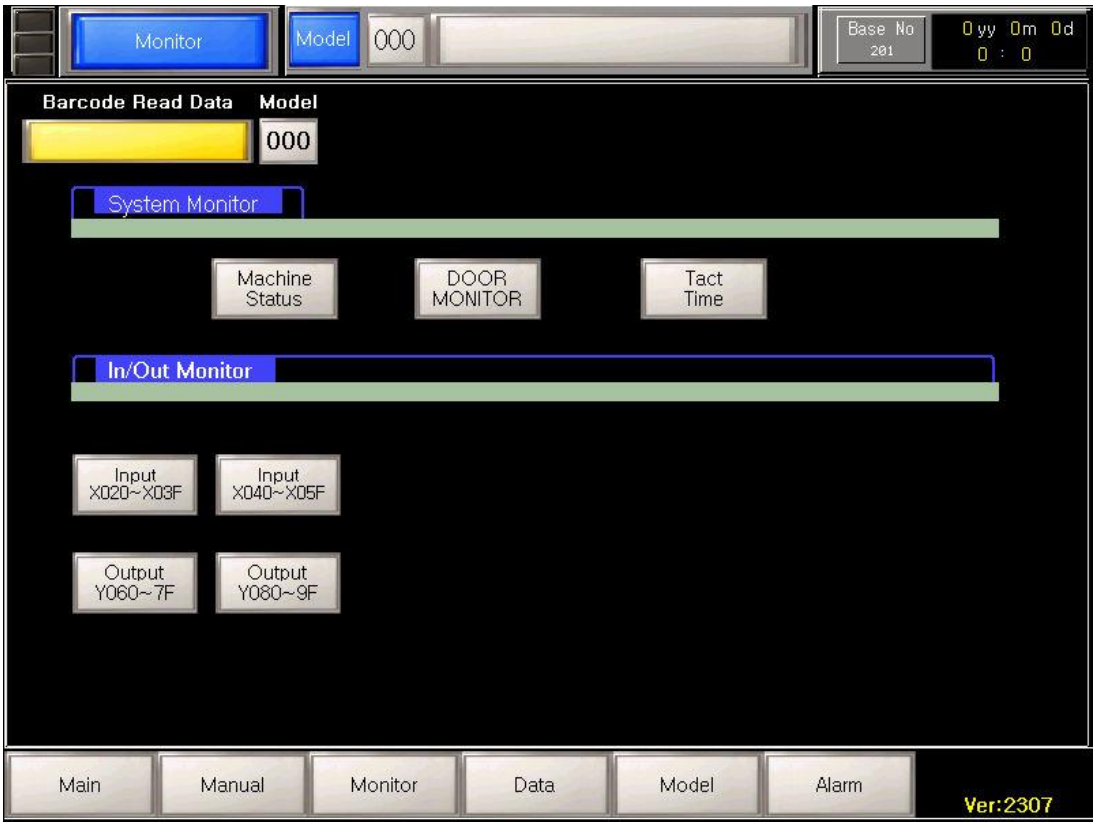


- Return / Output Conveyor Unit

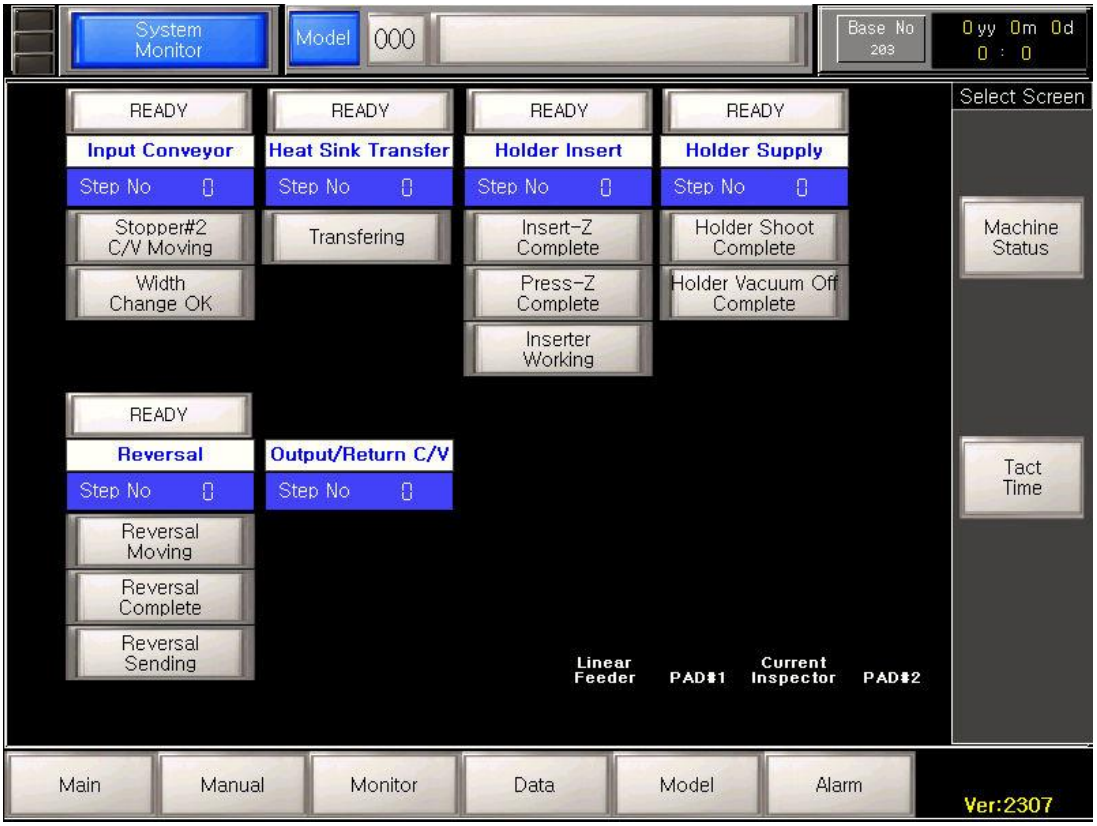
■ The return/output conveyor can be operated manually by RUN/STOP.

■ You can check whether manual operation is possible.

3-4. Monitor Screen

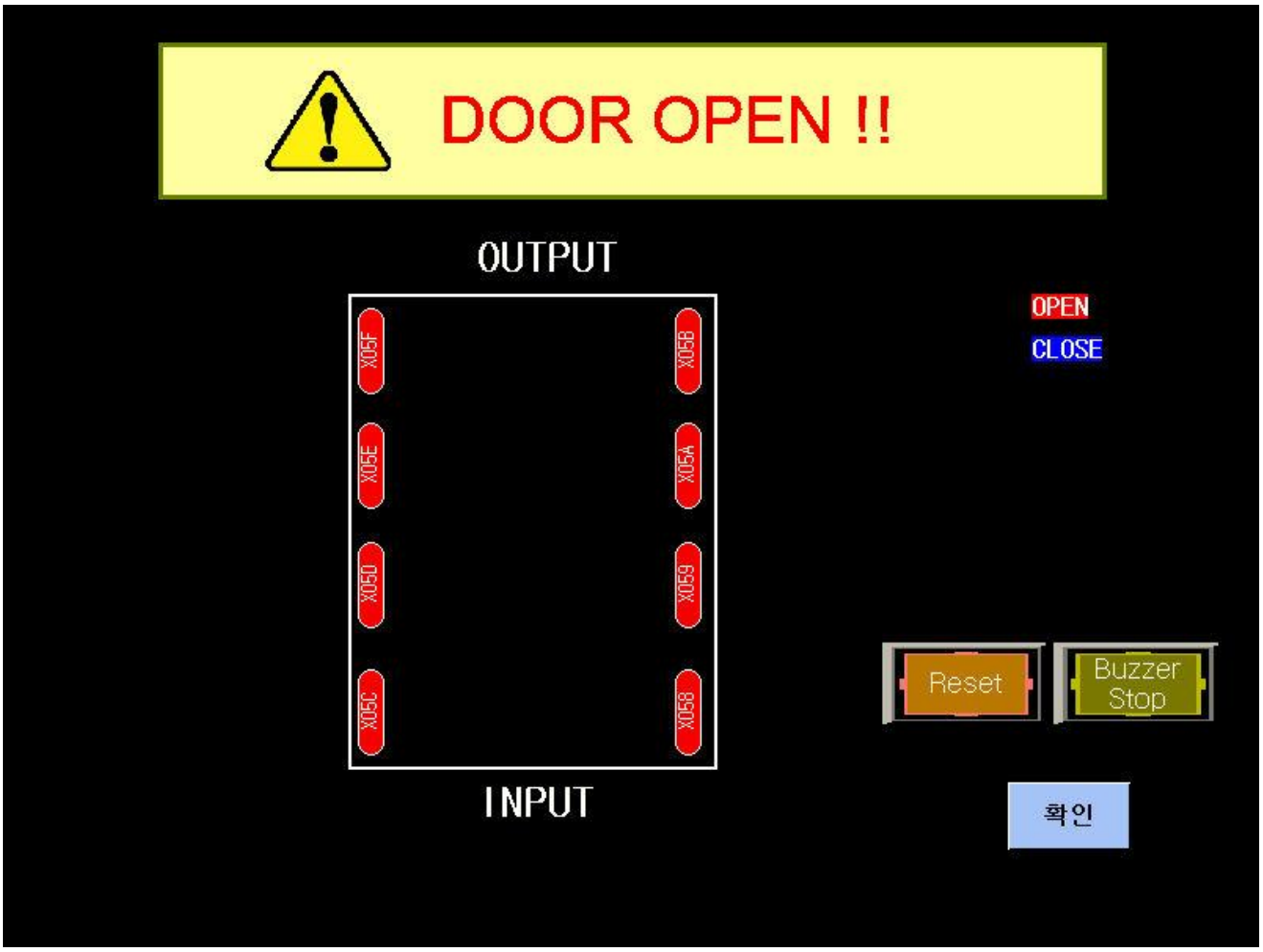


- System monitor



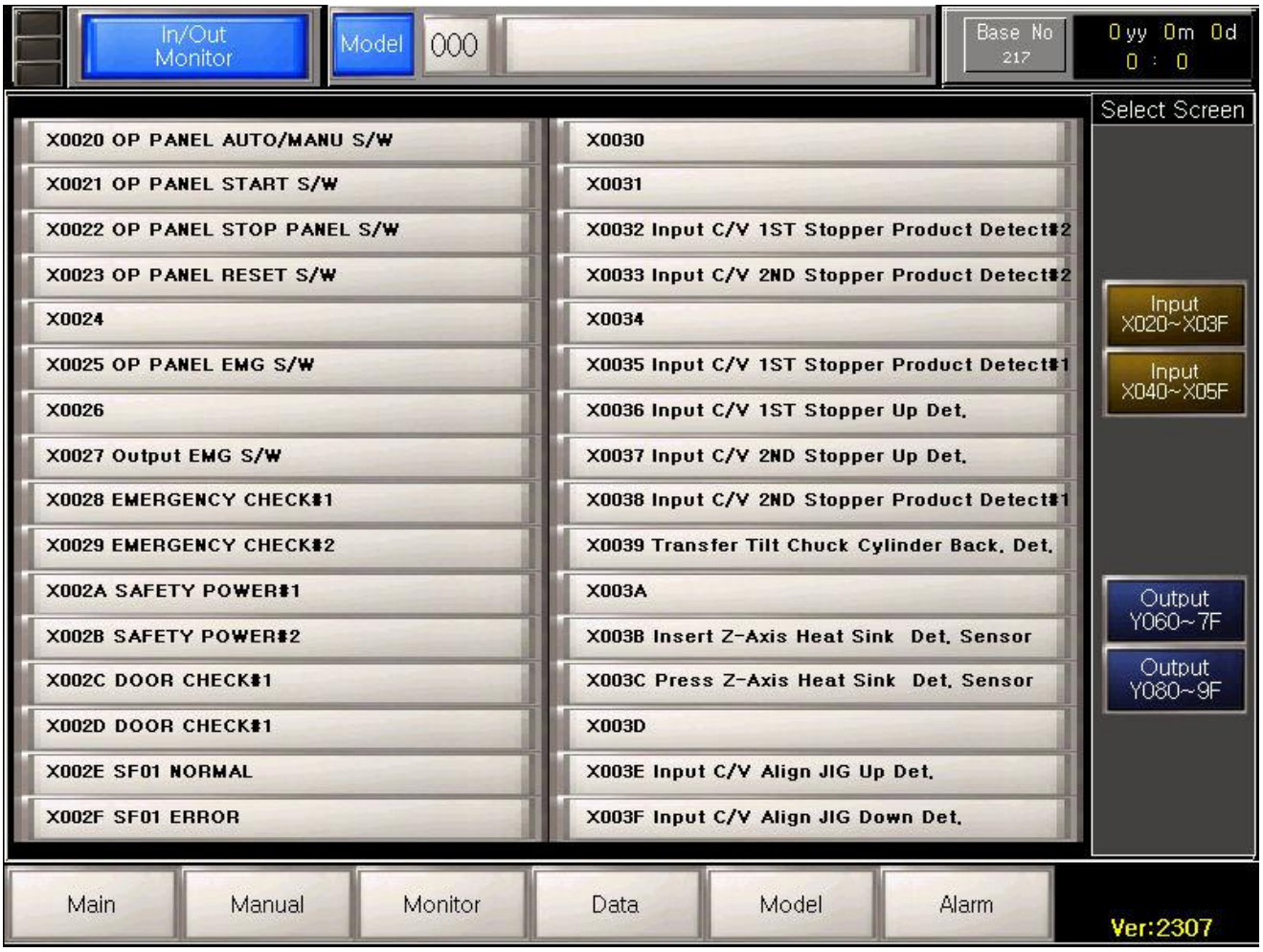
■ If the operation preparation lamp continues to flicker during the main, operation preparation process, it is a screen to check which part is the problem.

- DOOR MONITOR



■ This is a screen that can be checked when a Door Open Error occurs.

- In/Out Monitor



- You can check the input/output I/O.-

(OFF)

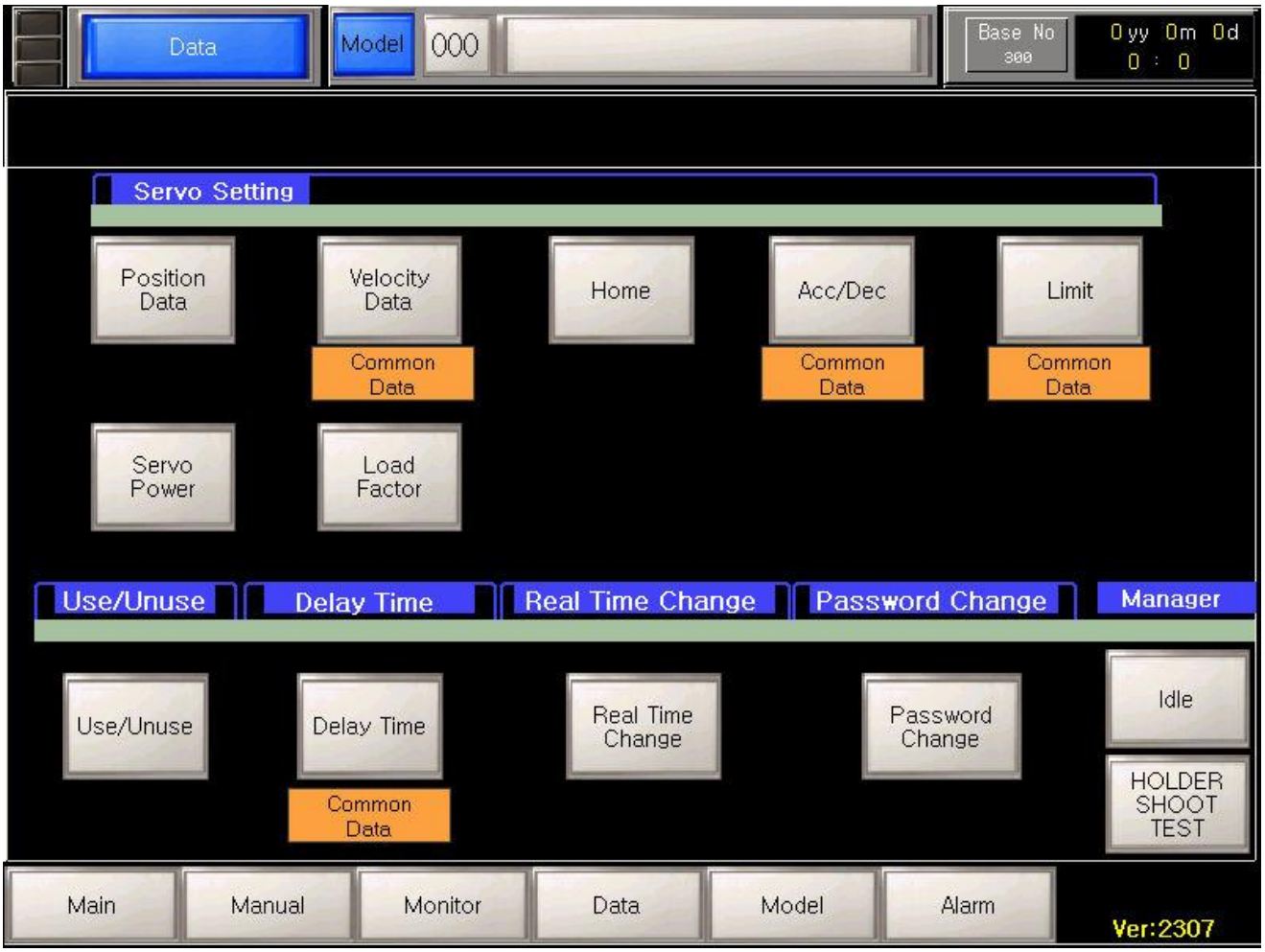
(ON)

■ You can check the I/O number and name.

** When the I/O is ON, the lamp turns yellow/blue **

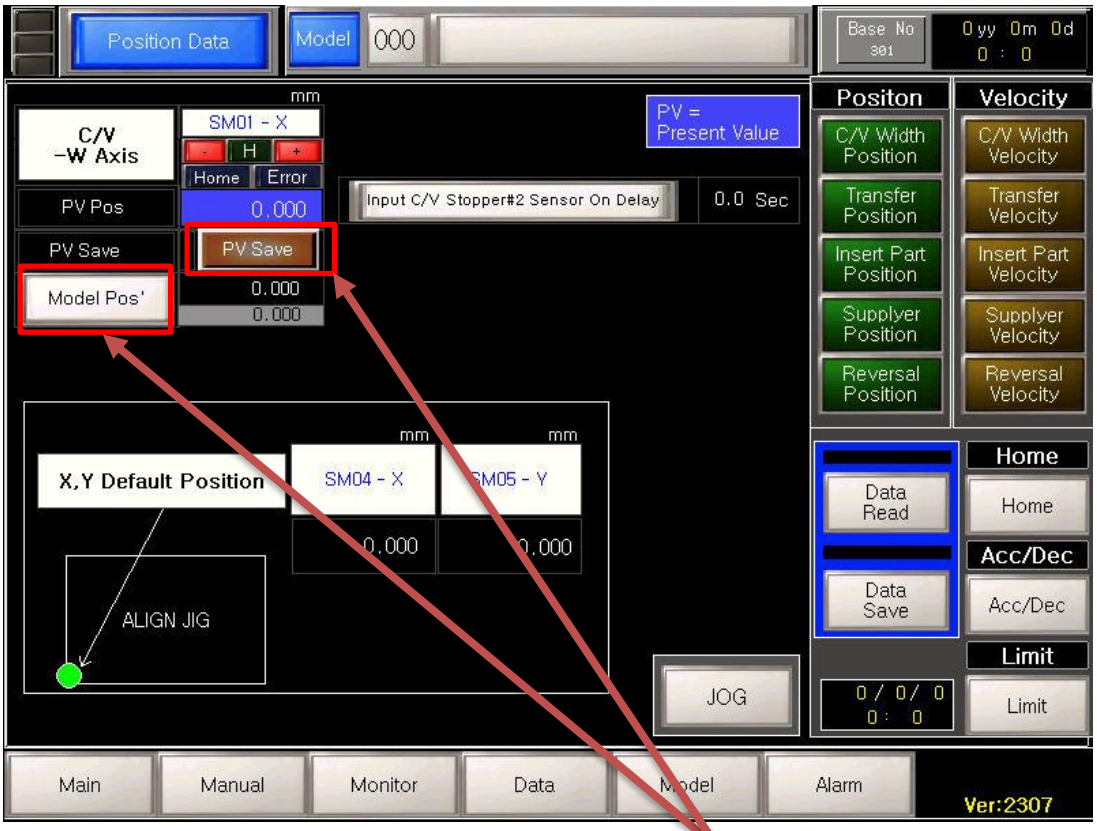
■ You can move the screen to another I/O GROUP.

3-5. Data Screen



- **Position Data**

- **Conveyor width position data**



After moving the position with JOG, select the position to be saved and press the current value save button of the relevant axis for 0.5 second to move the servo current position to that position.

The last data save button must be pressed for 1 second to save.

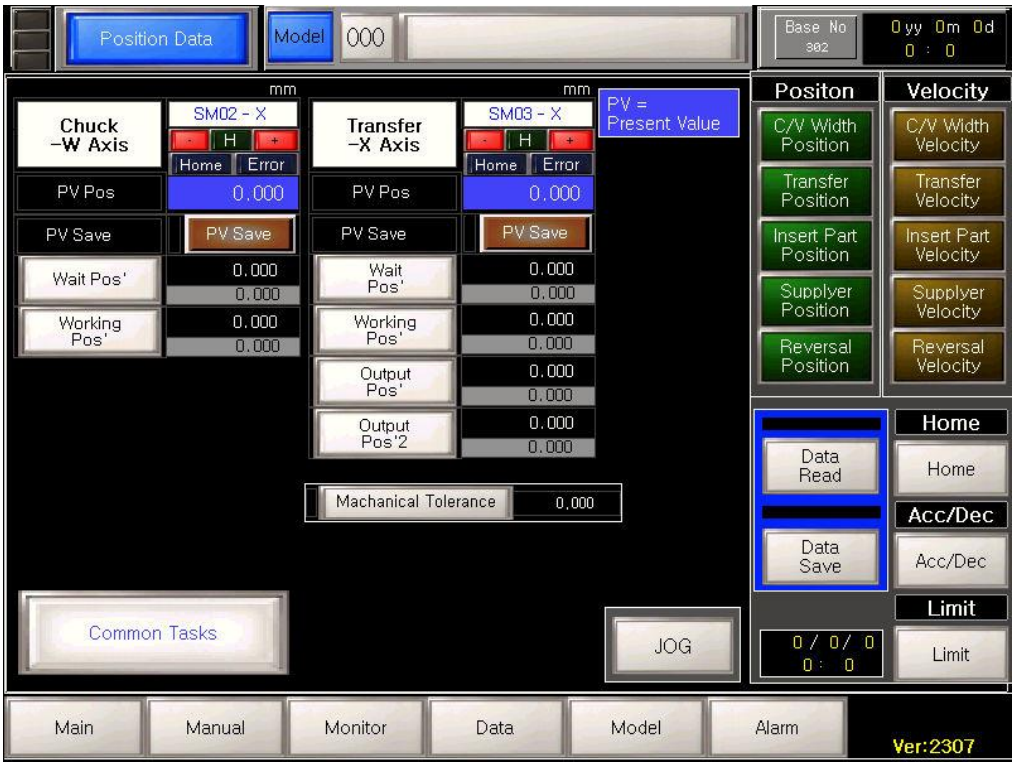
■ Conveyor width can be set.

■ After changing, press and hold the data save button for 1 second to save.

-SERVO status display-

■ -,H,+,Home,Error : You can check the RLS, HOM, FLS, homing completion status, and servo error status of the servo.

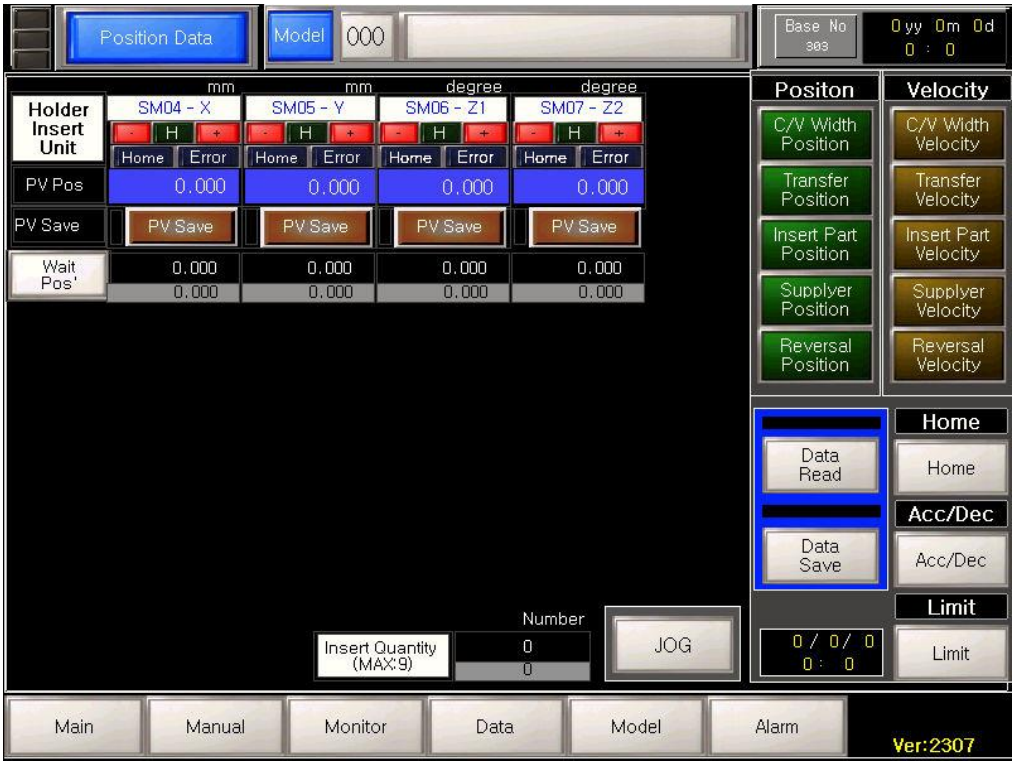
- Heat sink transfer position data



■ You can set the tilting chuck width axis and the heat sink trans-X axis.

■ After changing, press and hold the data save button for 1 second to save.

- Holder insert position data



■ It is possible to set the holder insertion and press-in positions (up to 9 possible).

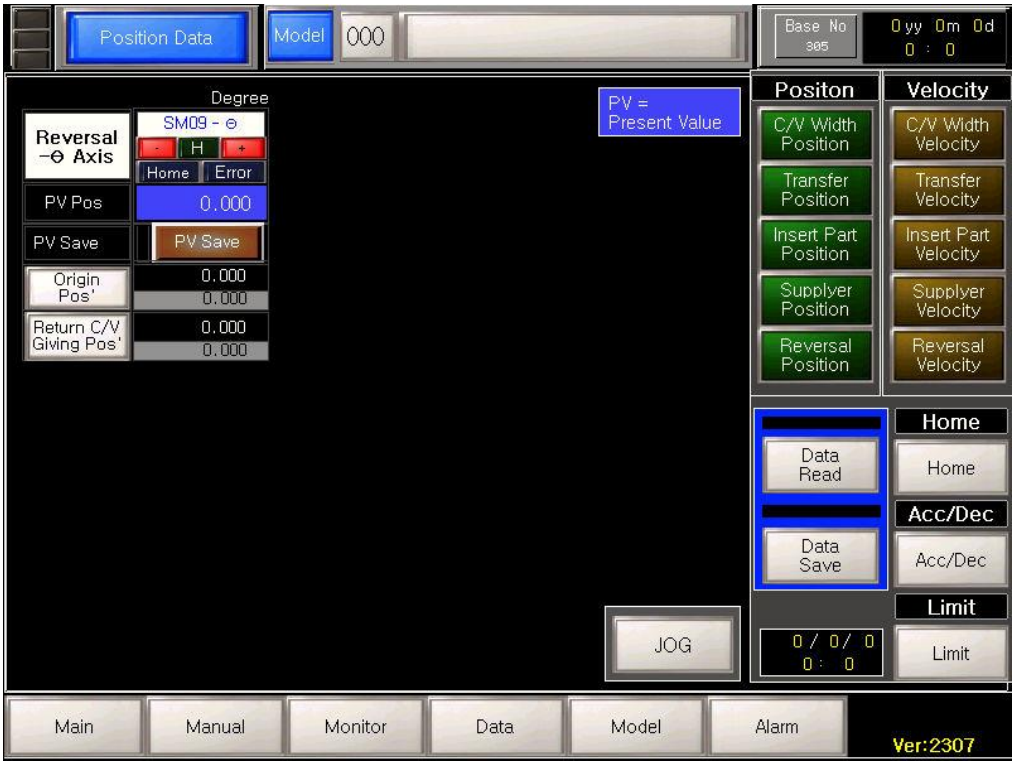
■ After changing, press and hold the data save button for 1 second to save.

- Holder supply position data

■ Holder transfer position and color can be set.

■ After changing, press and hold the data save button for 1 second to save.

- Reversal position data



■ You can set the origin of the reversal and the position value when using the return conveyor.

■ After changing, press and hold the data save button for 1 second to save.

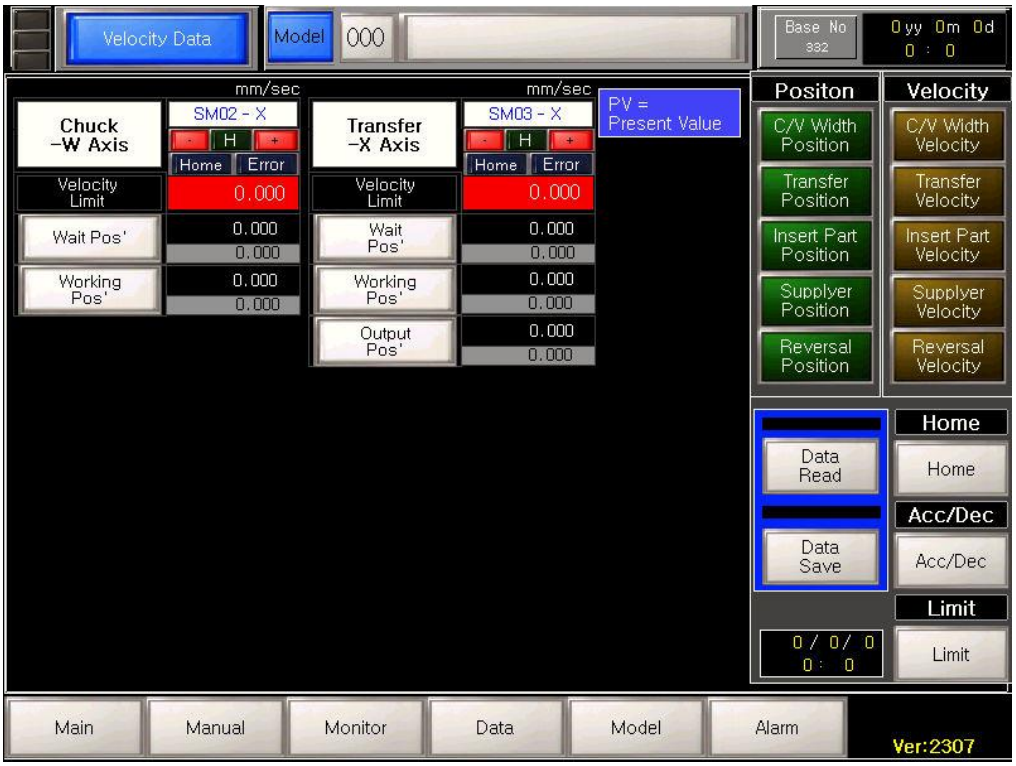
3-6. Velocity Data(Model Common Data)

- Conveyor width velocity data

■ The velocity can be set when adjusting the conveyor width.

■ After changing, press and hold the data save button for 1 second to save.

- Heat sink transfer velocity data



■ Tilting chuck width axis and heat sink transfer-You can set the velocity when moving the X axis..

■ After changing, press and hold the data save button for 1 second to save.

- Holder insert velocity data

■ You can set the velocity for holder insertion and movement of press-in position.

■ After changing, press and hold the data save button for 1 second to save.

- Holder supply velocity data

■ You can set the velocity when moving the holder transfer position.

■ After changing, press and hold the data save button for 1 second to save.

- Reversal velocity data

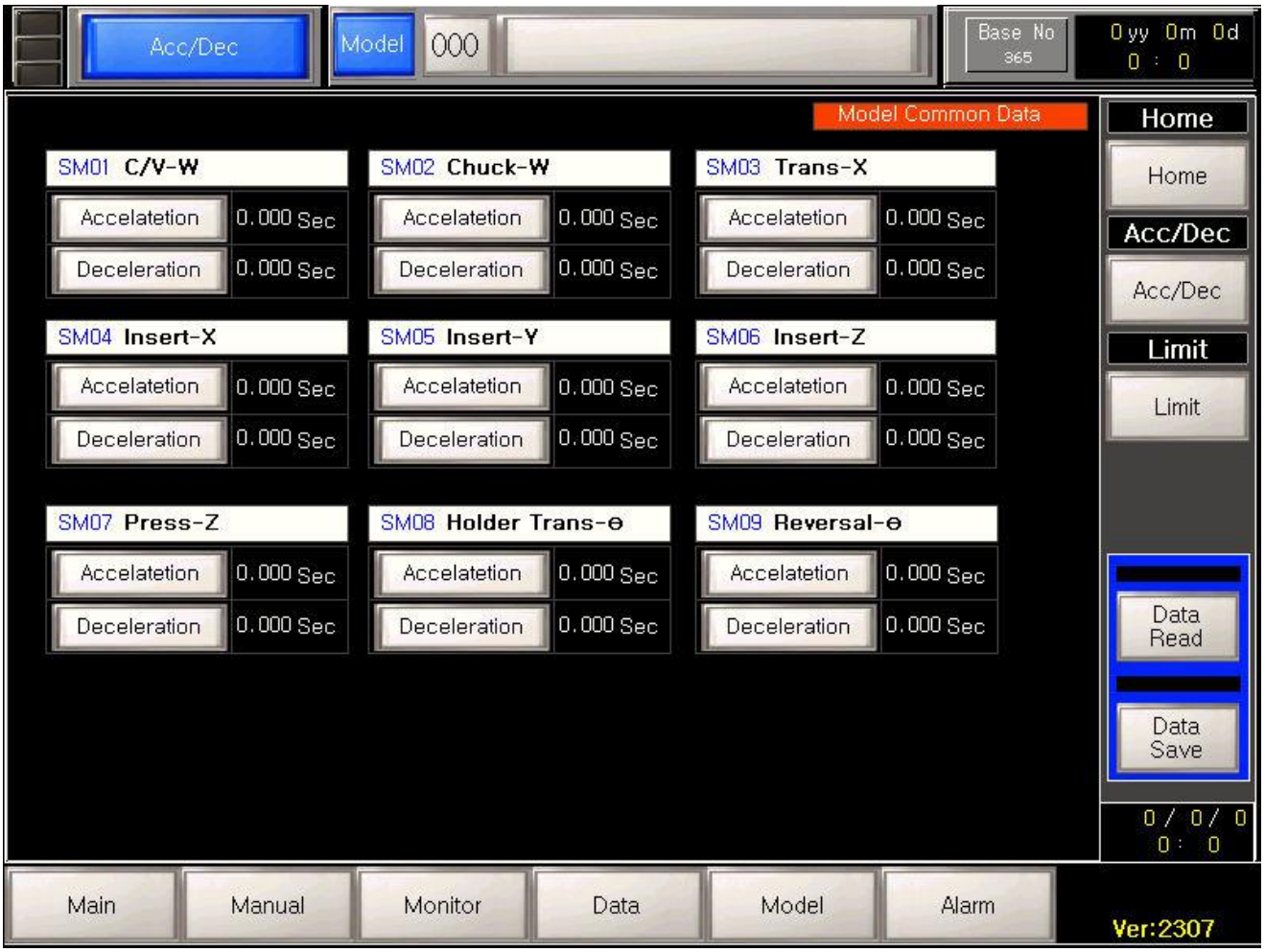
■ You can set the velocity when moving the reversal position.

■ After changing, press and hold the data save button for 1 second to save.

3-7. Home

■ It is possible to move the position of the sensor home of the servo.

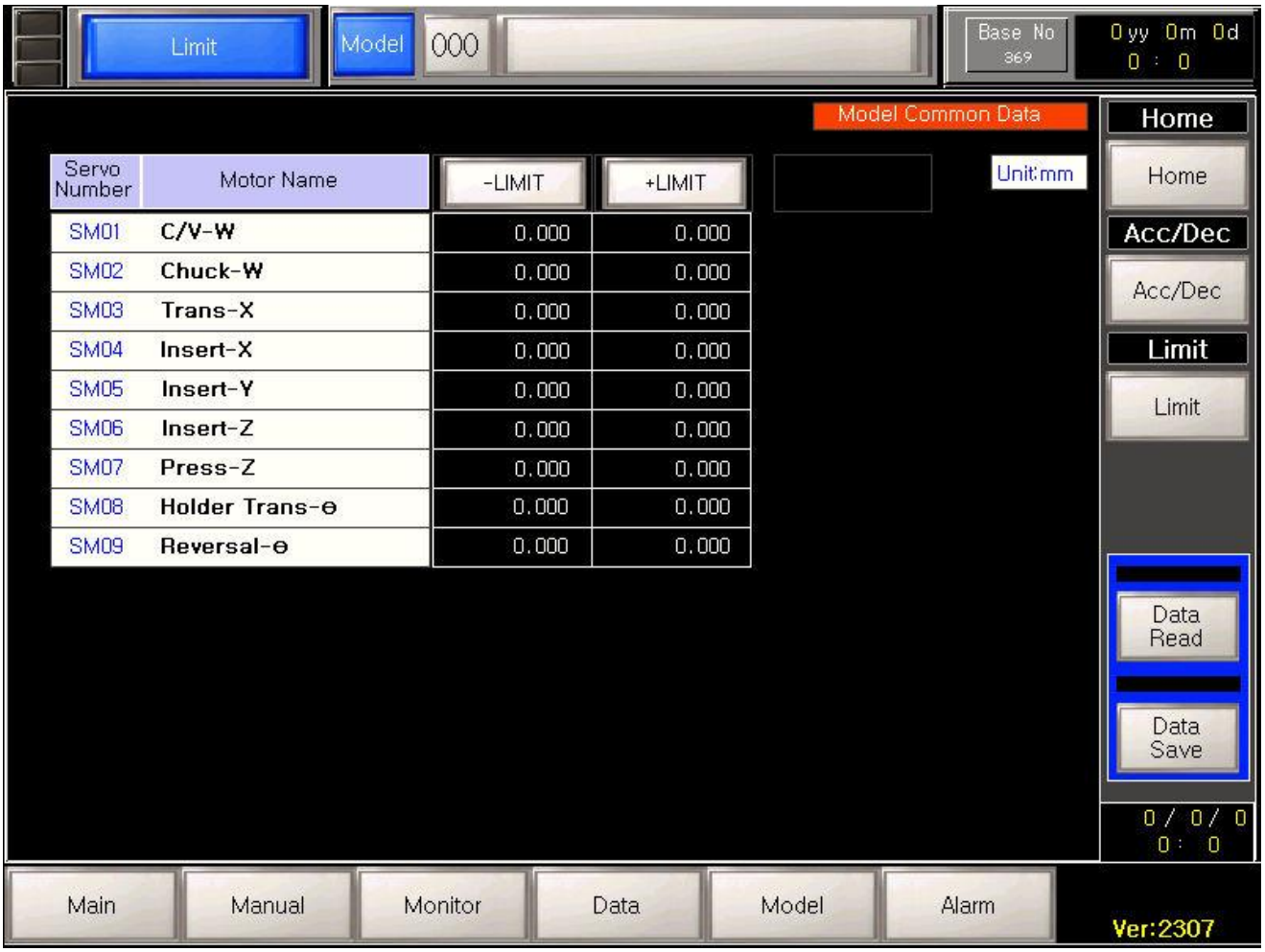
3-8. Acc / Dec(Model Common Data)



■ Servo acceleration and deceleration can be set.

■ After changing, press and hold the data save button for 1 second to save.

3-9. Limit(Model Common Data)



■ You can set servo soft limit.

■ An alarm occurs when the teaching value is out of the limit.

■ After changing, press and hold the data save button for 1 second to save.

3-10. Servo Power

■ Servo power can be turned ON/OFF.

3-11. Load Factor

■ Servo load factor can be set..

3-12. Use / Unuse

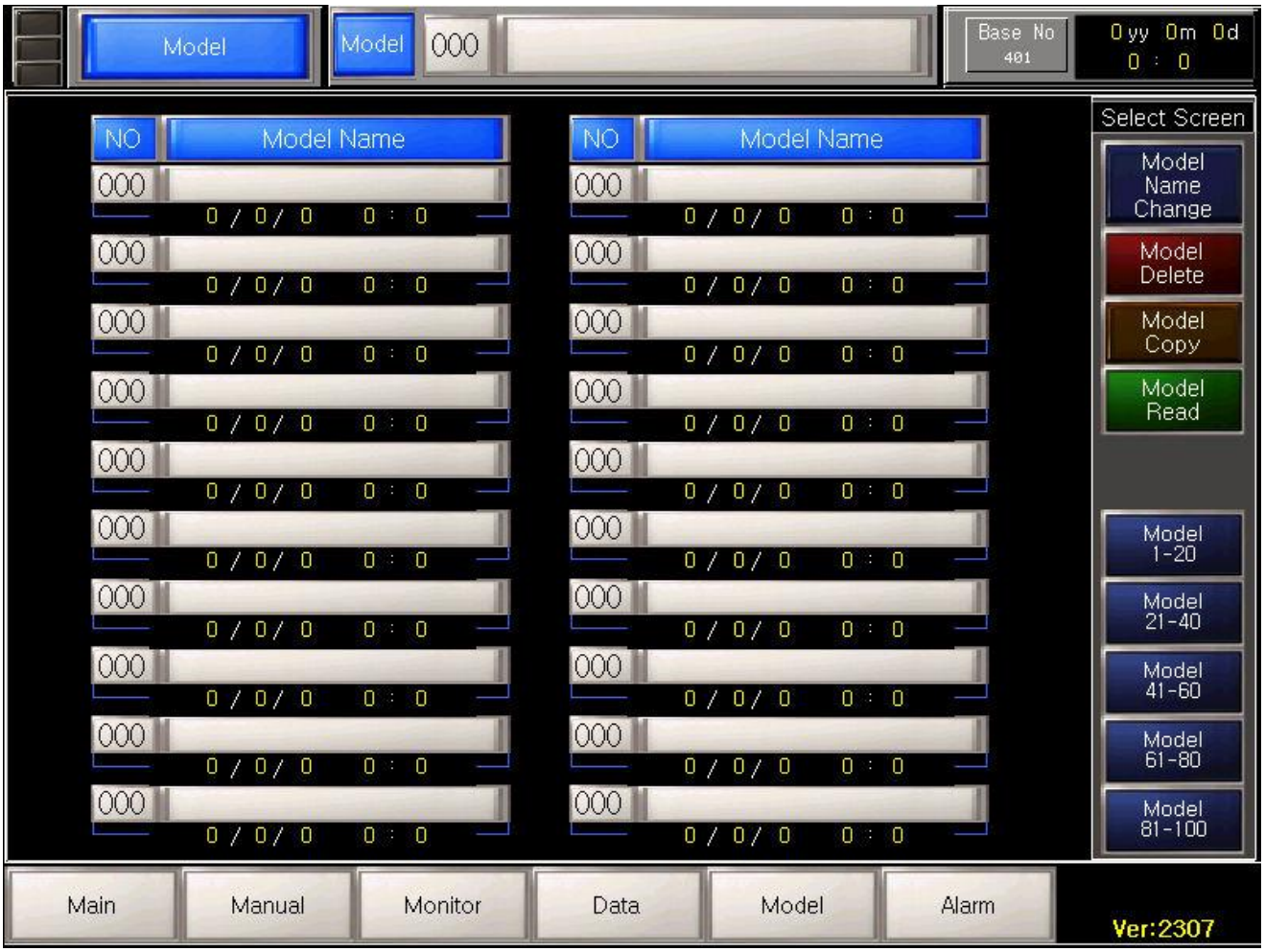
■ You can use / unuse the function of the equipment.

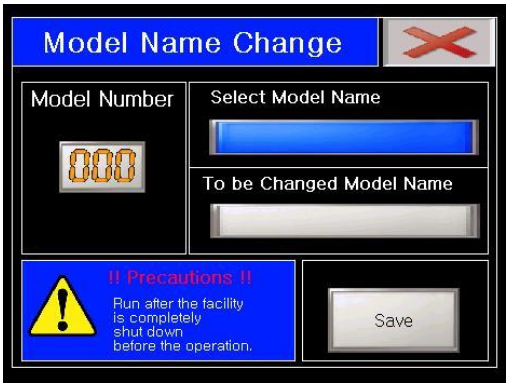
3-13. Delay Time (Model Common Data)

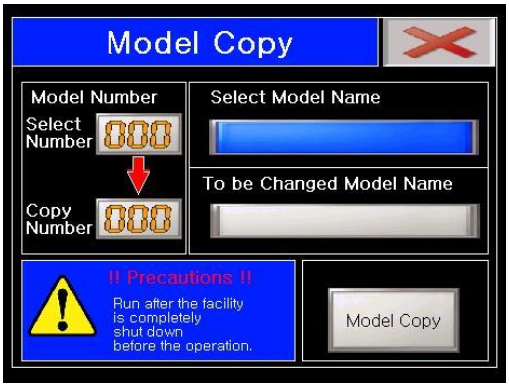
■ Function and sensor delay time can be set.

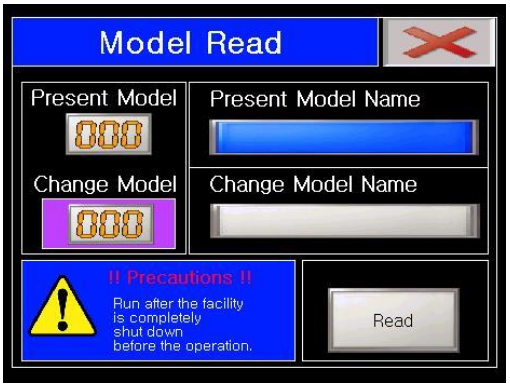
■ After changing, press and hold the data save button for 1 second to save.

3-14. Model



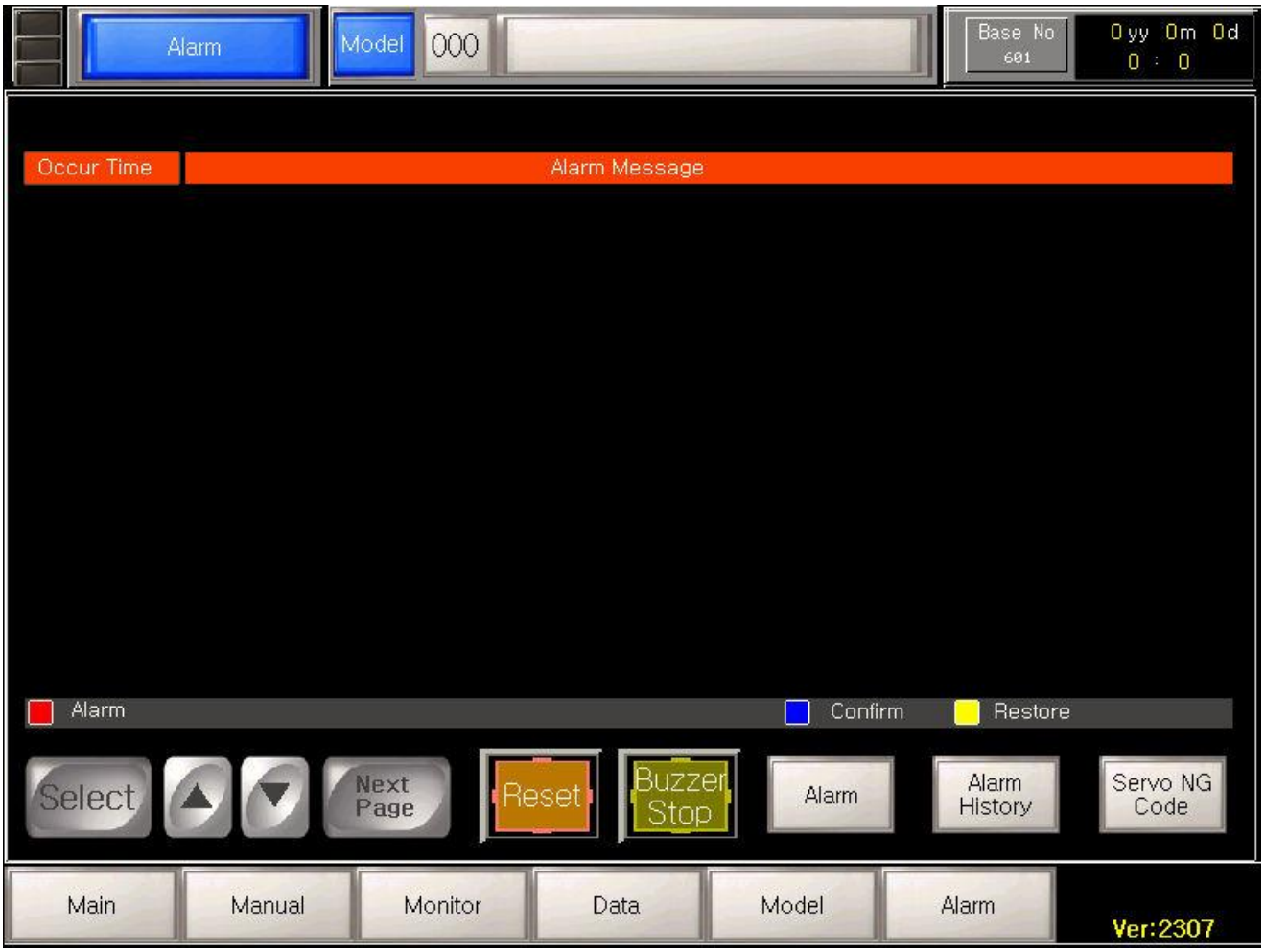






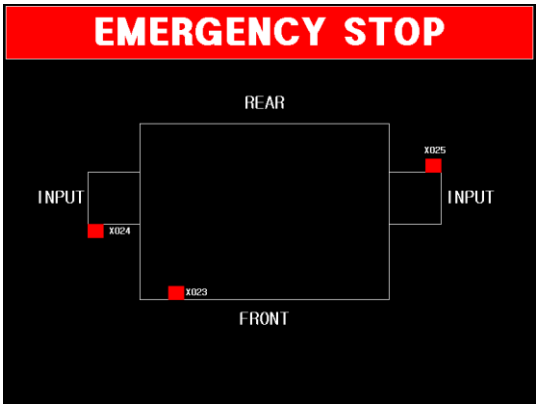
■ You can change the model name, delete, copy, load.

3-15. Alarm



- When an alarm occurs, you can check the content and time.
- Occur Date: Displays the alarm occurrence date
- Occur time: Displays the alarm occurrence time
- Message: Indicates the content of the alarm occurrence
- End time: Displays the alarm clear time

3-16. Emergency Stop Screen



- Displays equipment emergency stop status.

■ EMO Switch design

Emergency stop (EMO) switch has the following functions and features.

a. Emergency stop (EMO) circuit is an independent circuit.

b. When the emergency stop (EMO) switch is pressed, power is cut off from the AC220V (voltage varies depending on specifications) power line.

c. When the emergency stop (EMO) switch is pressed, the contact of the electromagnetic switch opens. Opening of the electromagnetic switch contacts cuts off the entire power supply.

d. To recover from emergency stop (EMO) status, turn the Key EMO switch clockwise to reset. This recovery enables a system power restart.

■ Recovery from EMO

DANGER

Before restoring your system from EMO, make sure no one is using it. Also make sure that there are no tools or foreign objects inside the system and that the system works properly when powered on.

DANGER

Only trained personnel can recover systems from EMO. Customers should be fully aware of anyone working with or near the system and should establish their own safe work procedures regarding recovery from EMO.

3-17. Signal Tower

-. 3 phase Signal Tower(Red, Yellow, Green, Buzzer:DC24V LED)

-.. Display color and equipment status

Equipment status	Red	Yellow	Green	Buzzer
Before operating , manual	○			X
Ready for operation, in complete stop			△	X
In automatic operation			○	X
When an error occurs	△			Intermittent sound
Emergency stop	○			○

Note) ○: Lighting, △: Flickering

← Red

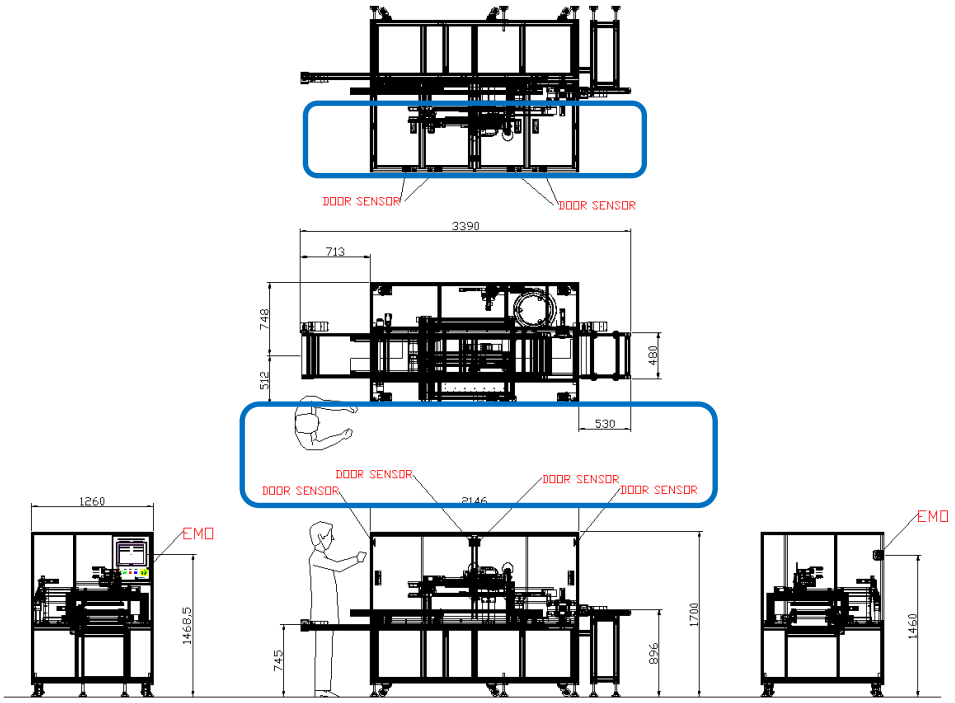
← Yellow

← Green

3-18. Door Interlock Switch Description And Location

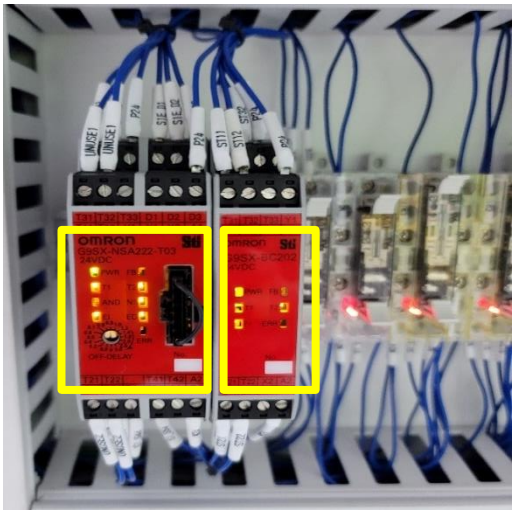
-. D40A-1C2 : Small Contactless Door Switch

-. G9SX-NSA222-T03 : Contactless Door Switch For Controller



3-19. Safety Procedures For Invalidation Door Interlock Switches

1. Reset Button Click when All Power is ON → Safety Control Normalize
   (Condition: Emergency S/W release of equipment and Door S/W (8 locations) must be ON.)



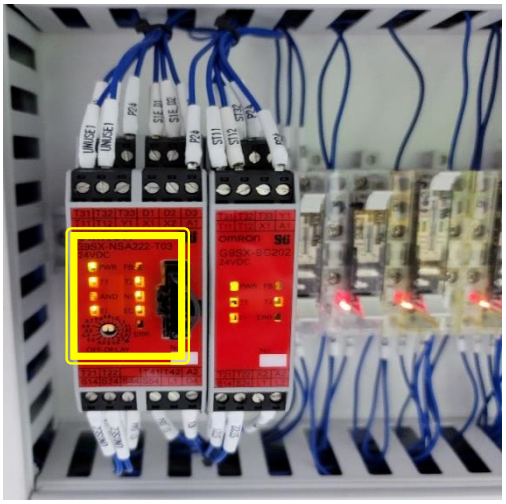
< INTERLOCK Normal >

2. When Drive Key S/W Auto ON, Start Button is clicked, the equipment operates normally, and when the door is opened or emergency S/W is operated, the equipment turns off and stops.

3. When Drive Key S/W Manual ON, Stop Button is clicked, the equipment is normally stopped, The door interlock is invalidated, so the operator can open the door for necessary work. Safety interlock operation turns off at the same time door is opened.

< Safety Interlock operation turns off >

4. After all work is completed, the operator closes all doors,
The Safety Interlock must be normalized by pressing the Reset Button.



< Safety Interlock normalized >

3-20. Tag out

When performing maintenance service, the main switch must be turned off.
At this time, the main switch is locked to prevent other operators from carelessly touching it.
Also, tags are installed to alert other employees. This is tag out.
At least the following sections of equipment require tagout.

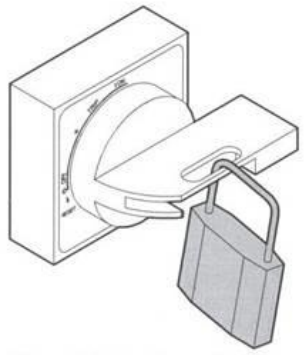
■ Main switch

In addition, during service maintenance work in the utility zone side or internal loading area,
A tag is also required to install the other side of the machine (front).

- Power supply tag out

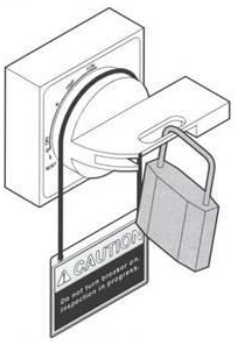
The main switch is locked in the main switch OFF position.
To warn other operators not to touch the main switch after locking
Install the tag above the main switch.

① Locking the circuit breaker

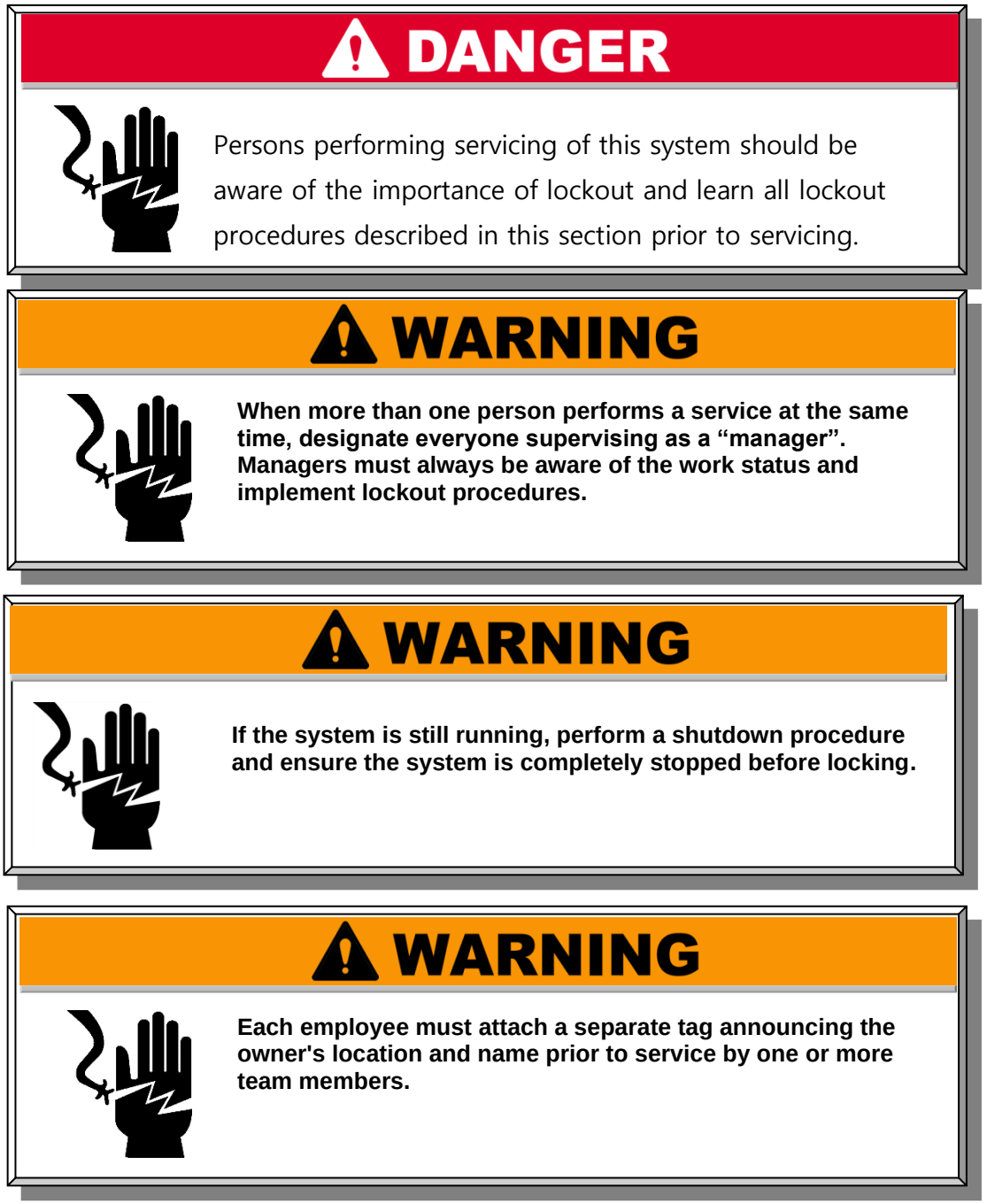


Feature 3 Breaker lock

② There is a tag on the circuit breaker.



3-20-1. LOTO (Log out / Tag out) Procedure



3-21. System Precautions

3-21-1. Caution On High-Voltage Part

While the high-voltage live parts of the system are protected by panels and guards, the following precautions must be observed to prevent accidents.

⚠ DANGER

- Do not remove the panel or door that has the high voltage live part warning label and label attached without permission, or do not operate the removed panel/door or system.
Also, do not open any covers unless you are authorized to do so.

- Under no circumstance, do not touch live parts until thoroughly inspected.

- Always cut off the main power before opening any guards as a cover of necessity during operation.

- Do not operate metal objects including watches and rings while working. Otherwise, accidents may occur due to unintentional/indirect contact.

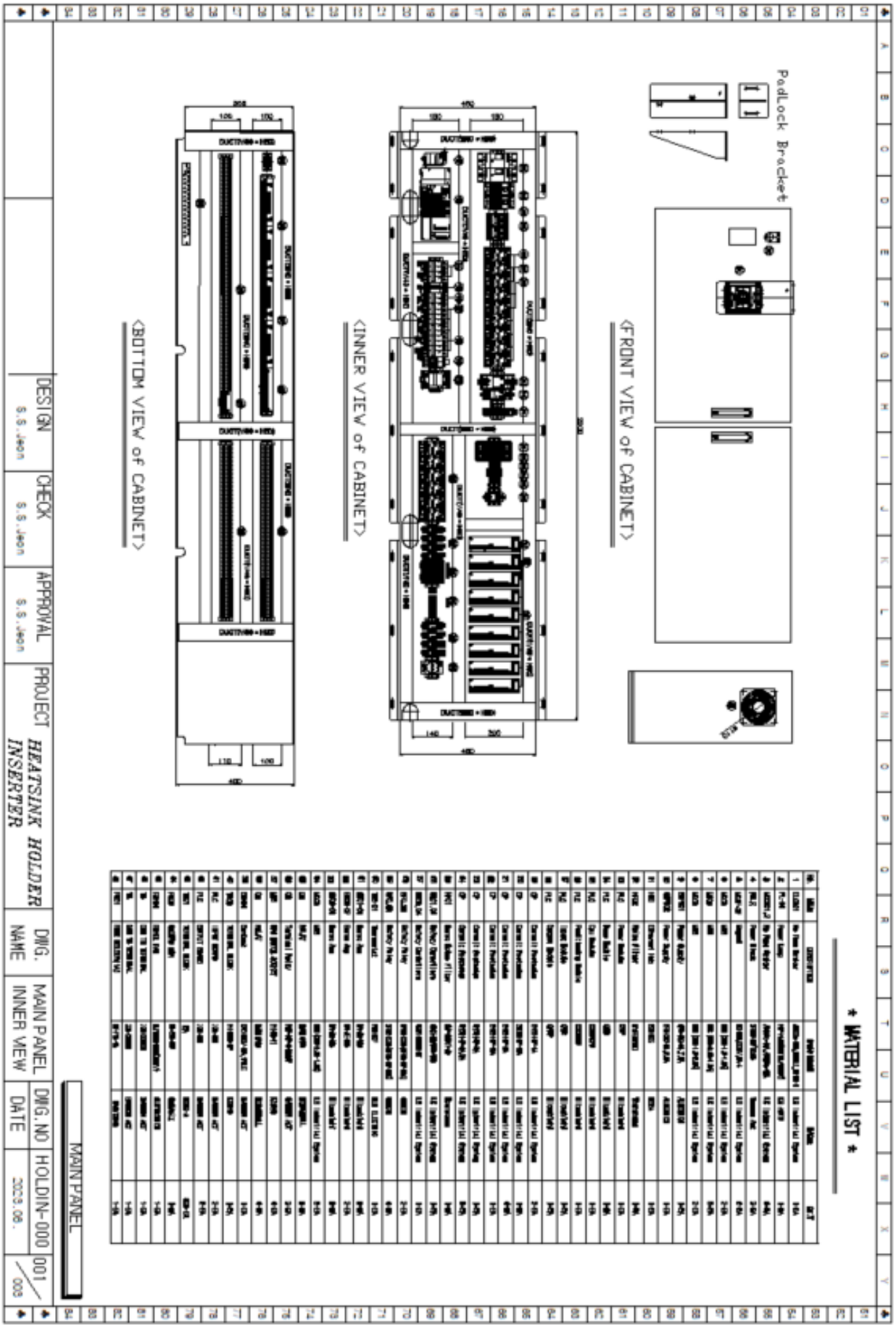
- Before starting work, check all related electrical wiring and that there are no live parts within the scope of work. If necessary, lock out upstream of the main breaker main side (where the hazard warning label is attached to the cover), since this side is alive even after the main breaker switch is set to OFF.

- Do not place any removed parts (screws, etc.) or tools on the system during operation.
If these objects fall inside or otherwise affect the circuitry, a short circuit may occur.

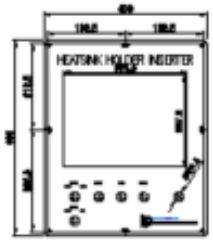
⚠ DANGER

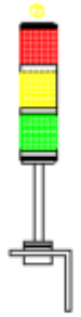
Before servicing any system that does not require electricity, shut off the system power according to the procedures mentioned after.

4. Electric Drawing



NO.	NAME	DESCRIPTION	SPECIFICATION	MAKER	Q'TY
1	TP	PROFACE TOUCH	[illegible]	PROFACE	1-EA
2	S/S	SELECT KEY SWITCH(2POLE,F/O)	[illegible]	KR AUTO	1-EA
3	S/S	SELECT KEY SWITCH(2POLE,F/O)	[illegible]	KR AUTO	1-EA
4	PBL	LAMP PUSH BUTTON SWITCH	[illegible]	KR AUTO	1-EA
5	PBL	LAMP PUSH BUTTON SWITCH	[illegible]	KR AUTO	1-EA
6	ESI	ESD EMERGENCY SWITCH(COVER)	[illegible]	KACON	1-EA
7	T/L	TOWER LAMP	[illegible]	D-LIGHT	1-EA
8	-	-	-	-	-
9	-	-	-	-	-
10	-	-	-	-	-





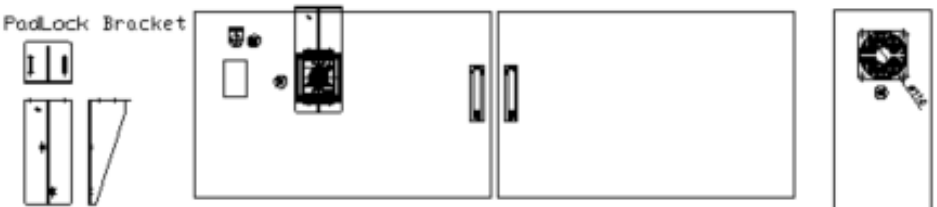
<FRONT VIEW of CABINET>

TOUCH PANEL

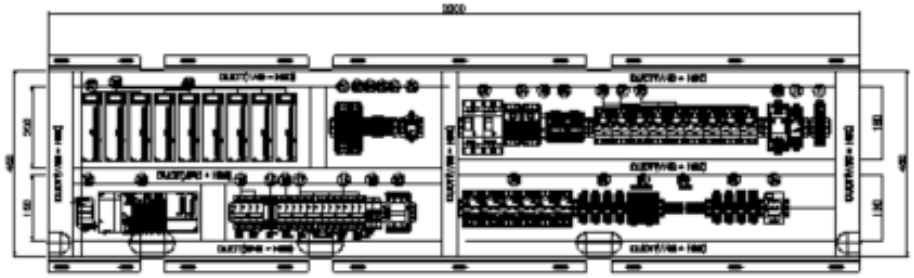
		DESIGN	CHECK	APPROVAL	PROJECT	DWG. NAME		DWG. NO		
		S.S.Jeon	S.S.Jeon	S.S.Jeon	HEATSINK HOLDER INSERTER		TOUCH PANEL VIEW	DATE	HOLDIN-000 / 2023.06.	002 / 005

* SYMMETRY PANEL *

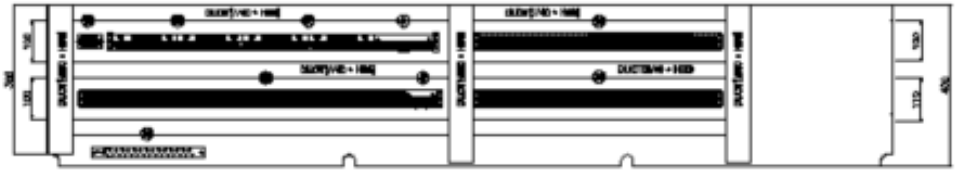
PadLock Bracket



<FRONT VIEW of CABINET>



<INNER VIEW of CABINET>



<BOTTOM VIEW of CABINET>

* MATERIAL LIST *

NO.	PART	DESCRIPTION	SPECIFICATION	MAKER	REMARK
1					
2					
3					
4					
5					
6					
7					
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9					
10					
11					
12					
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47					
48					

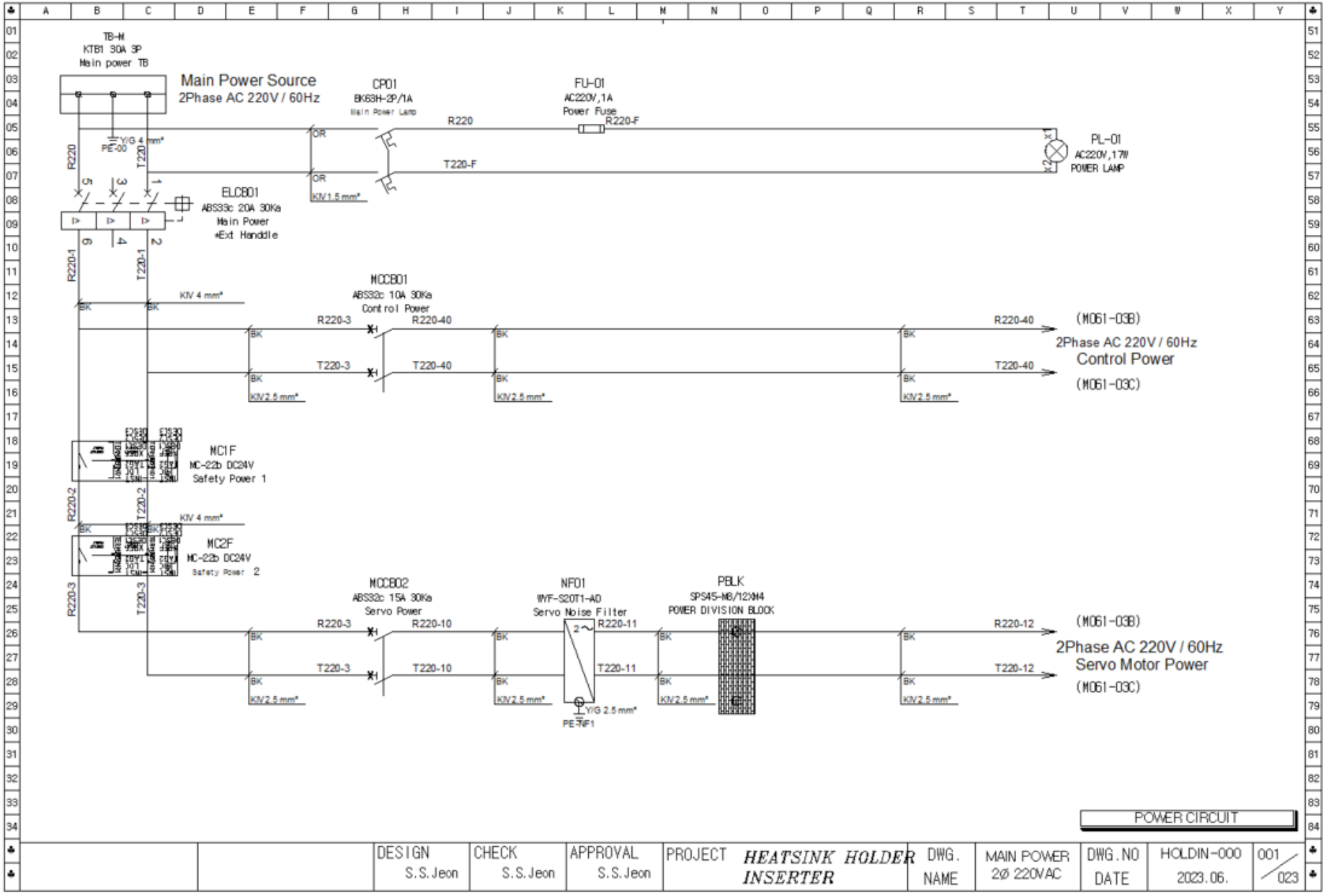
MAIN PANEL

	HOLDER INSERT	DESIGN M/G S.S.Jeon	CHECK S.S.Jeon	APPROVAL S.S.Jeon	PROJECT HEATSINK HOLDER INSERTER	DWG. NAME	MAIN PANEL INNER VIEW	DWG.NO	HOLDIN-000	003 / 003
								DATE	2009.06.	

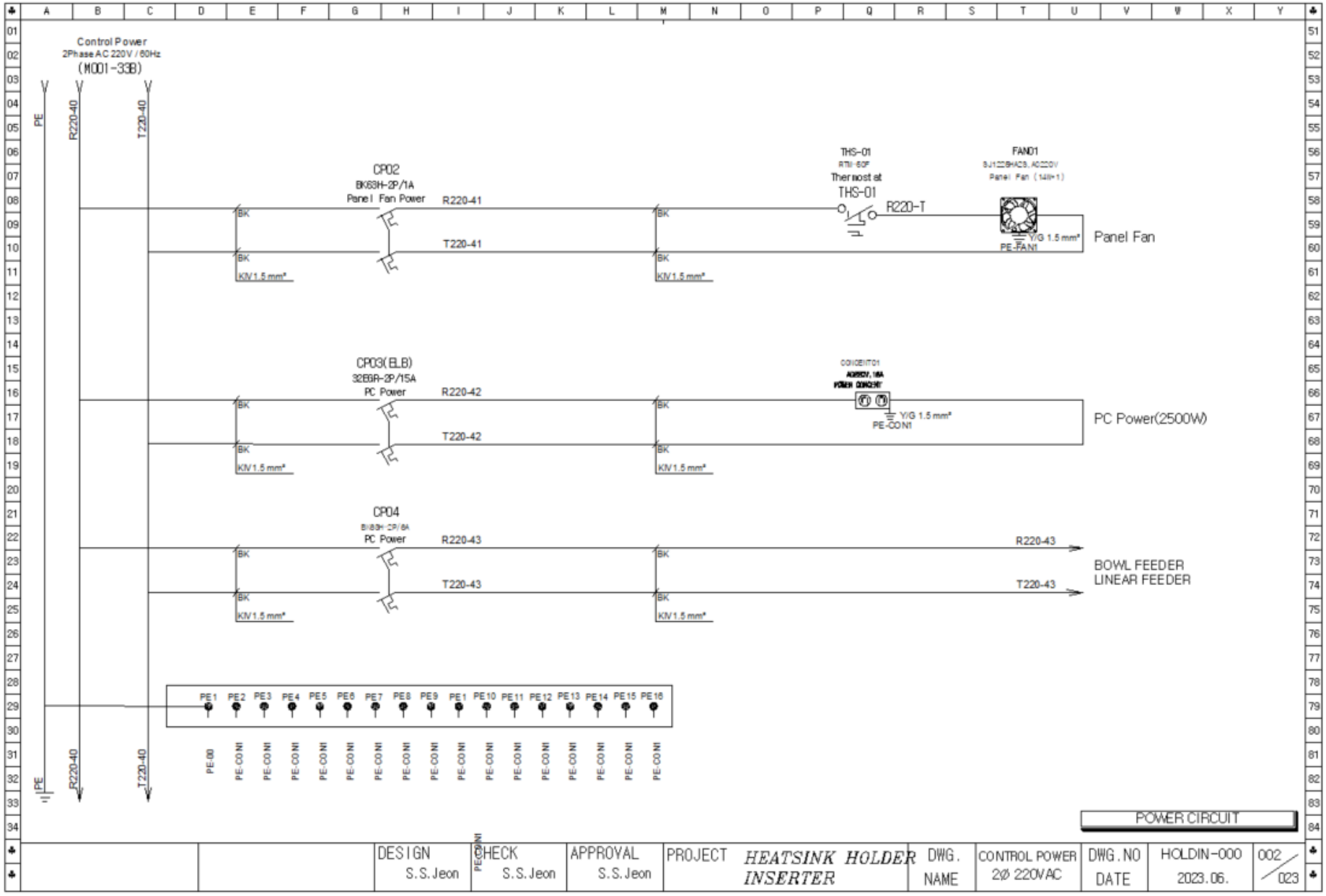
HeatSink Holder
Inserter
Electric Drawing

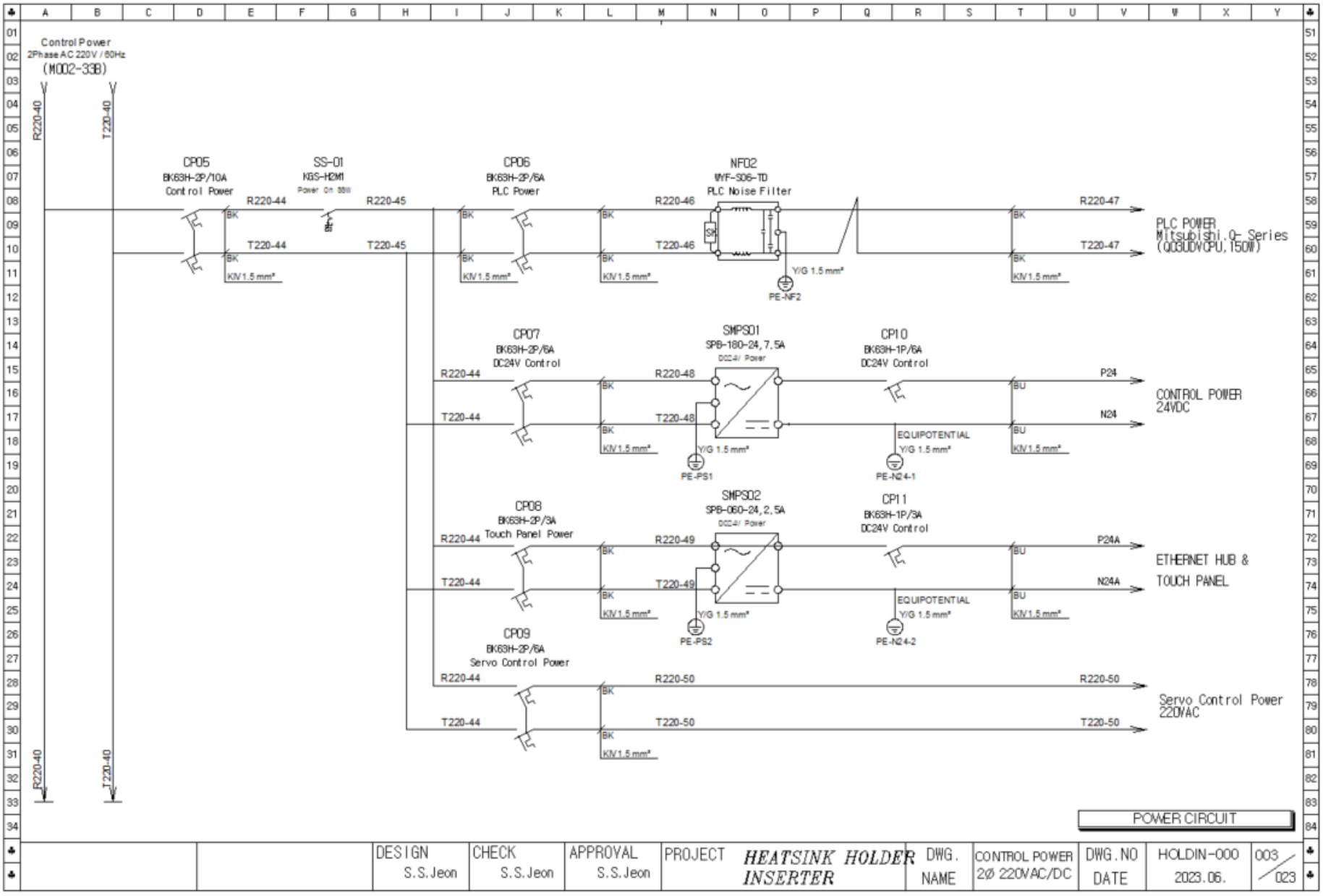
2023-06-30

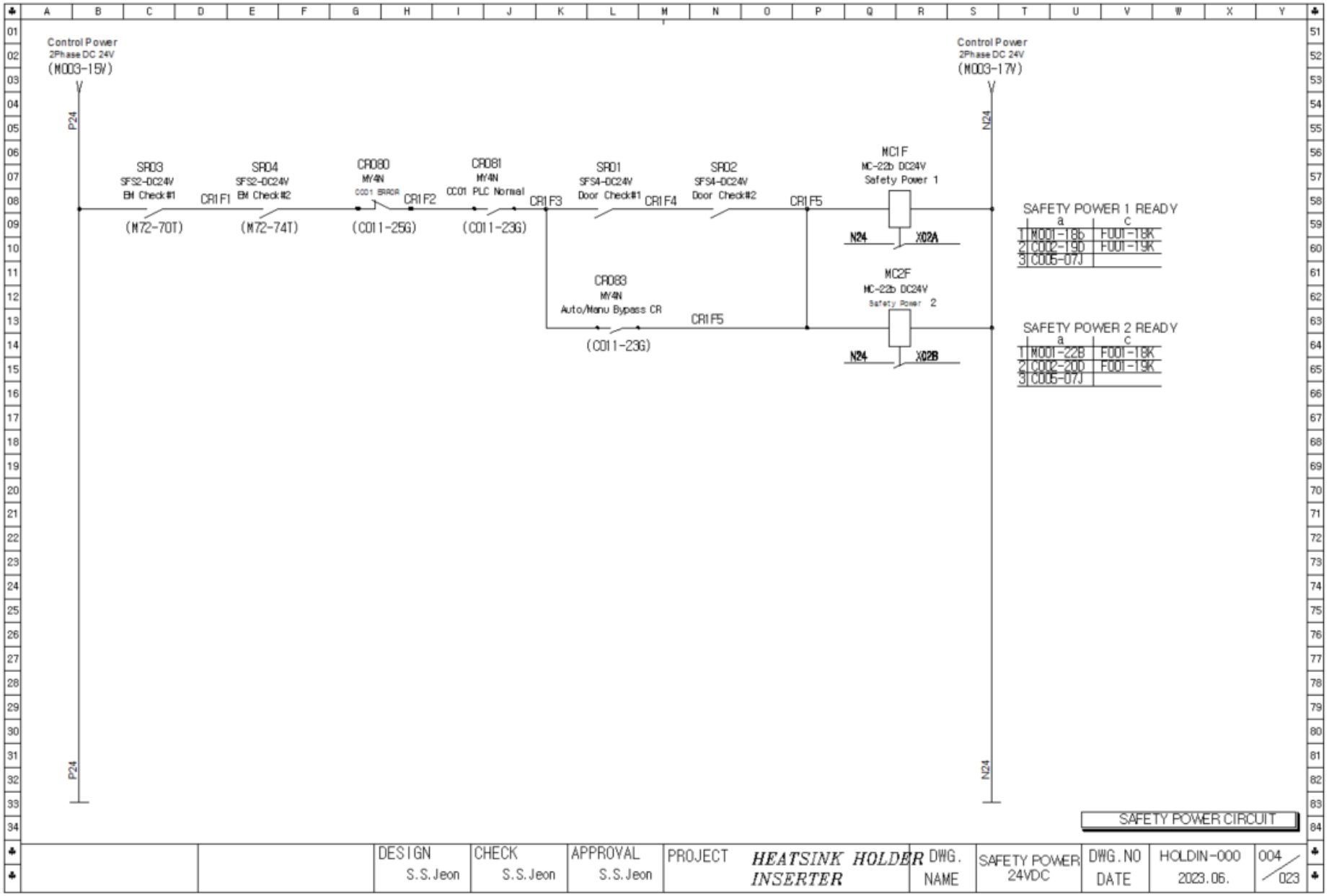
		DESIGN	CHECK	APPROVAL	PROJECT	DWG. NAME		DWG. NO DATE		
		S.S.Jeon	S.S.Jeon	S.S.Jeon	*HEATSINK HOLDER INSERTER*		COVER SHEET		HOLDIN-000 2023.06.	000 000



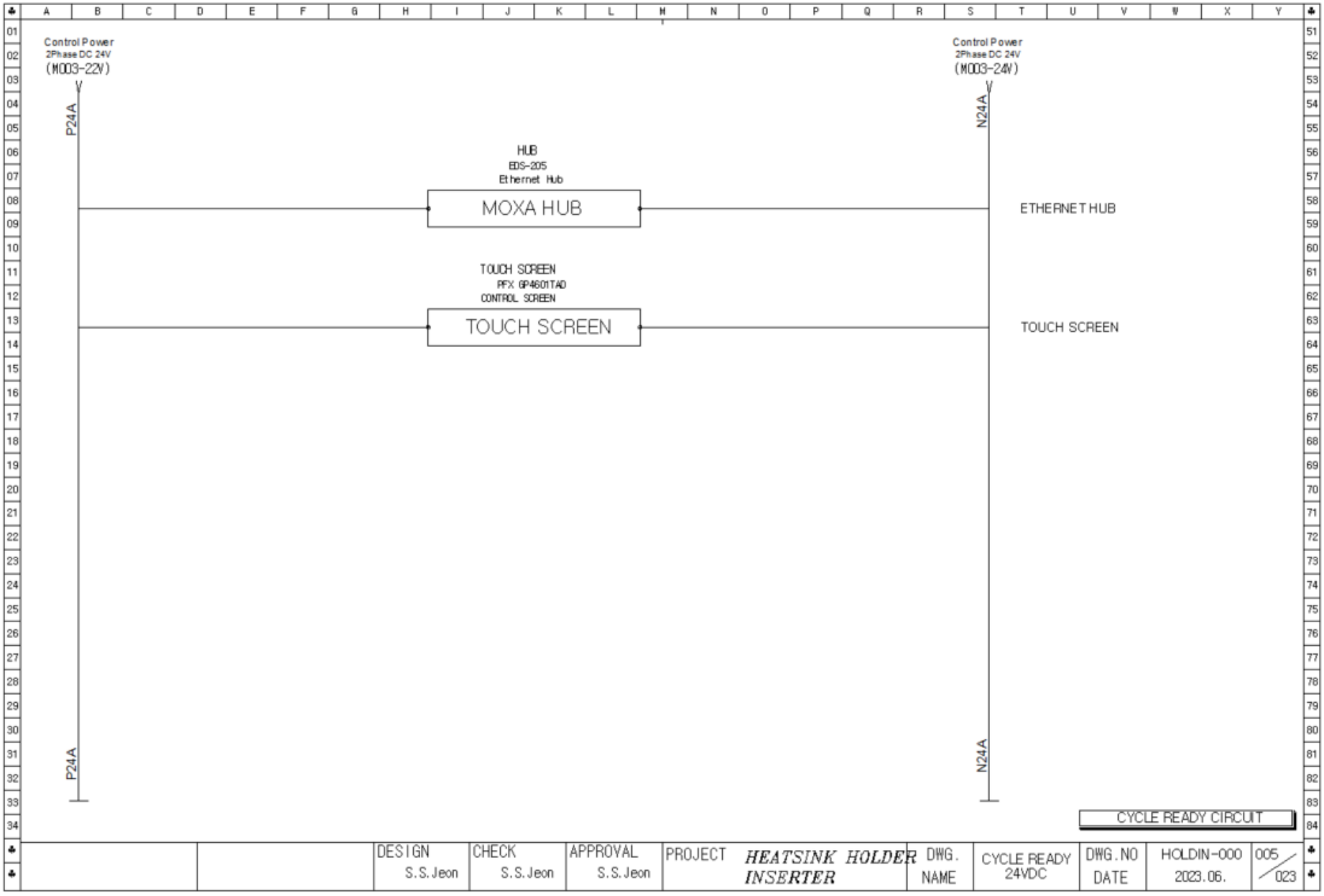
		DESIGN	CHECK	APPROVAL	PROJECT	DWG. NAME	MAIN POWER	DWG.NO	HOLDIN-000	001
		S.S.Jeon	S.S.Jeon	S.S.Jeon	*HEATSINK HOLDER INSERTER*		2Ø 220VAC	DATE	2023.06.	023

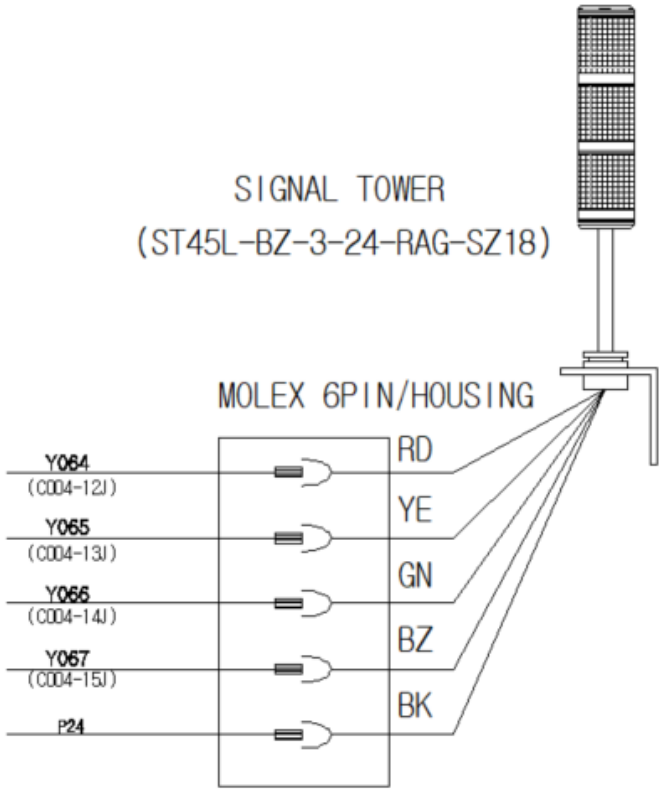

Control Power
2Phase AC 220V / 60Hz
(M001-33B)
PE
R220-40
T220-40
CP02
BK63H-2P/1A
Panel Fan Power
R220-41
T220-41
THS-01
RTII-60F
Thermostat
THS-01
R220-T
FAN01
SJ1220HA3, AC220V
Panel Fan (140*140)
Y/G 1.5mm²
PE-FAN1
Panel Fan
CP03(ELB)
32E6A-2P/15A
PC Power
R220-42
T220-42
CONDENT01
AC250V, 10A
POWER CONCENT
Y/G 1.5mm²
PE-CON1
PC Power(2500W)
CP04
BK63H-2P/6A
PC Power
R220-43
T220-43
BOWL FEEDER
LINEAR FEEDER
BK
KIV 1.5mm²
PE1 PE2 PE3 PE4 PE5 PE6 PE7 PE8 PE9 PE1 PE10 PE11 PE12 PE13 PE14 PE15 PE16
PE-00
PE-CON1
POWER CIRCUIT
DESIGN
S.S.Jeon
CHECK
S.S.Jeon
APPROVAL
S.S.Jeon
PROJECT
HEATSINK HOLDER INSERTER
DWG. NAME
CONTROL POWER
2Ø 220VAC
DWG.NO
HOLDIN-000
DATE
2023.06.
002/023


Control Power
2Phase AC 220V / 60Hz
(M002-33B)
R220-40
T220-40
CP05
BK63H-2P/10A
Control Power
SS-01
KGS-H2M1
CP06
BK63H-2P/6A
PLC Power
NF02
WYF-S06-TD
PLC Noise Filter
R220-44
T220-44
R220-45
T220-45
R220-46
T220-46
R220-47
T220-47
BK
KIV 1.5 mm²
Y/G 1.5 mm²
PE-NF2
PLC POWER
Mitsubishi Q- Series
(Q03UDVCPU, 150W)
CP07
BK63H-2P/6A
DC24V Control
SMPS01
SPB-180-24, 7.5A
DC24V Power
CP10
BK63H-1P/6A
DC24V Control
R220-48
T220-48
P24
N24
BU
EQUIPOTENTIAL
PE-PS1
PE-N24-1
CONTROL POWER
24VDC
CP08
BK63H-2P/3A
Touch Panel Power
SMPS02
SPB-060-24, 2.5A
CP11
BK63H-1P/3A
R220-49
T220-49
P24A
N24A
ETHERNET HUB &
TOUCH PANEL
PE-PS2
PE-N24-2
CP09
BK63H-2P/6A
Servo Control Power
R220-50
T220-50
Servo Control Power
220VAC
POWER CIRCUIT
DESIGN
S.S.Jeon
CHECK
S.S.Jeon
APPROVAL
S.S.Jeon
PROJECT
HEATSINK HOLDER INSERTER
DWG. NAME
CONTROL POWER
2Ø 220VAC/DC
DWG. NO
HOLDIN-000
DATE
2023.06.
003
023



		DESIGN S.S.Jeon	CHECK S.S.Jeon	APPROVAL S.S.Jeon	PROJECT *HEATSINK HOLDER INSERTER*	DWG. NAME	SAFETY POWER 24VDC	DWG.NO DATE	HOLDIN-000 2023.06.	004 / 023

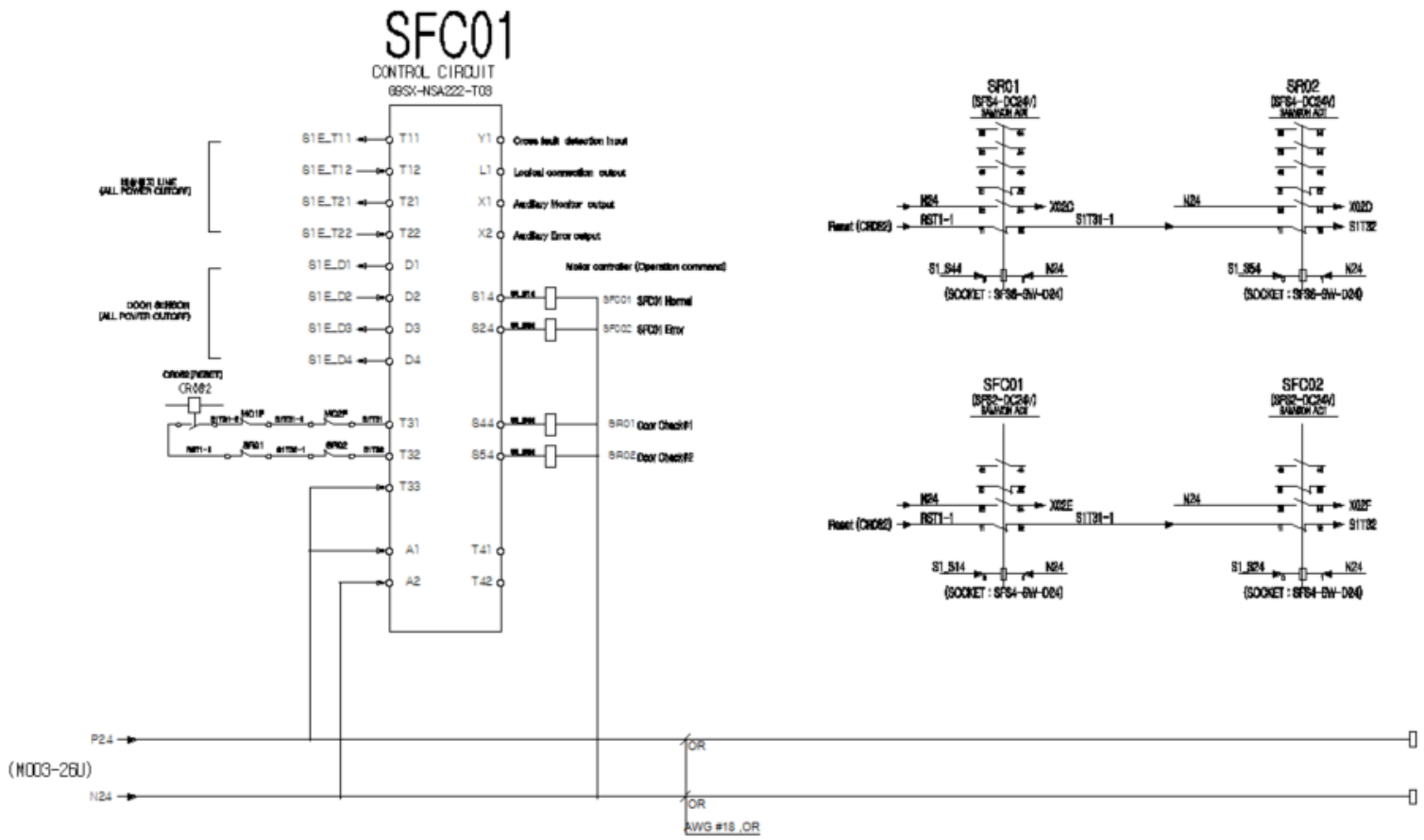

Control Power
2Phase DC 24V
(M003-22V)
P24A
HUB
EDS-205
Ethernet Hub
MOXA HUB
TOUCH SCREEN
PFX GP4601TAD
CONTROL SCREEN
TOUCH SCREEN
P24A
Control Power
2Phase DC 24V
(M003-24V)
N24A
ETHERNET HUB
TOUCH SCREEN
N24A
CYCLE READY CIRCUIT
DESIGN S.S.Jeon
CHECK S.S.Jeon
APPROVAL S.S.Jeon
PROJECT HEATSINK HOLDER INSERTER
DWG. NAME CYCLE READY 24VDC
DWG.NO HOLDIN-000
DATE 2023.06.
005/023



TOWER LAMP CIRCUIT

		DESIGN	CHECK	APPROVAL	PROJECT	DWG. NAME		DWG. NO		
		S.S.Jeon	S.S.Jeon	S.S.Jeon	*HEATSINK HOLDER INSERTER*		TOWER LOCAL 24VDC	DATE	HOLDIN-000 2023.06.	006 / 023

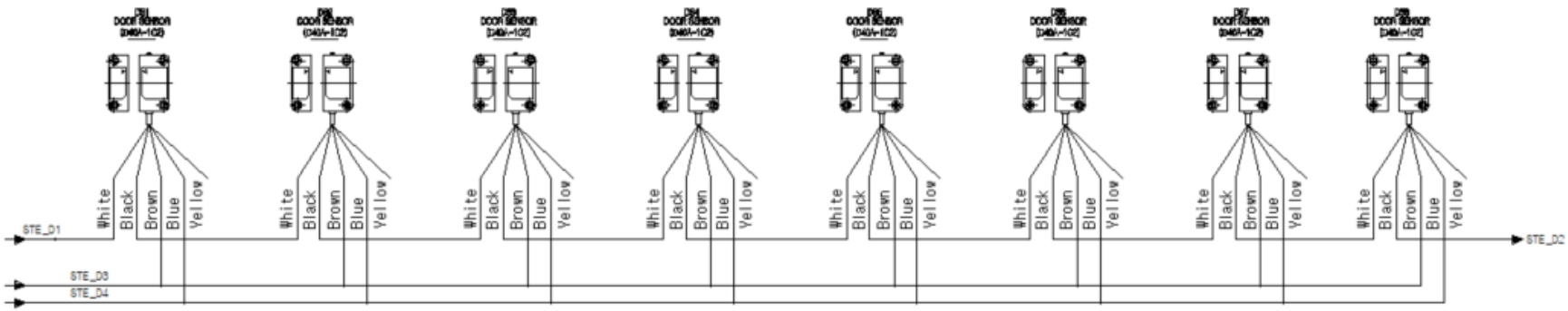
Safety Control Relay Diagram

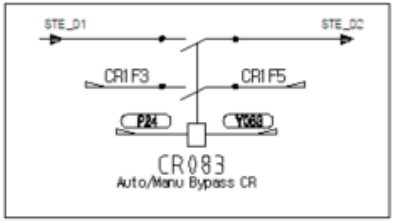


SF01 SAFETY CIRCUIT

		DESIGN	CHECK	APPROVAL	PROJECT	DWG. NAME	SFC01 SAFETY CIRCUIT	DWG. NO	HOLDIN-000	010 / 040
		S.S.Jeon	S.S.Jeon	S.S.Jeon	*HEATSINK HOLDER INSERTER*			DATE	2023.06.	

Door Safety_SF2_(Local Door Sensor)

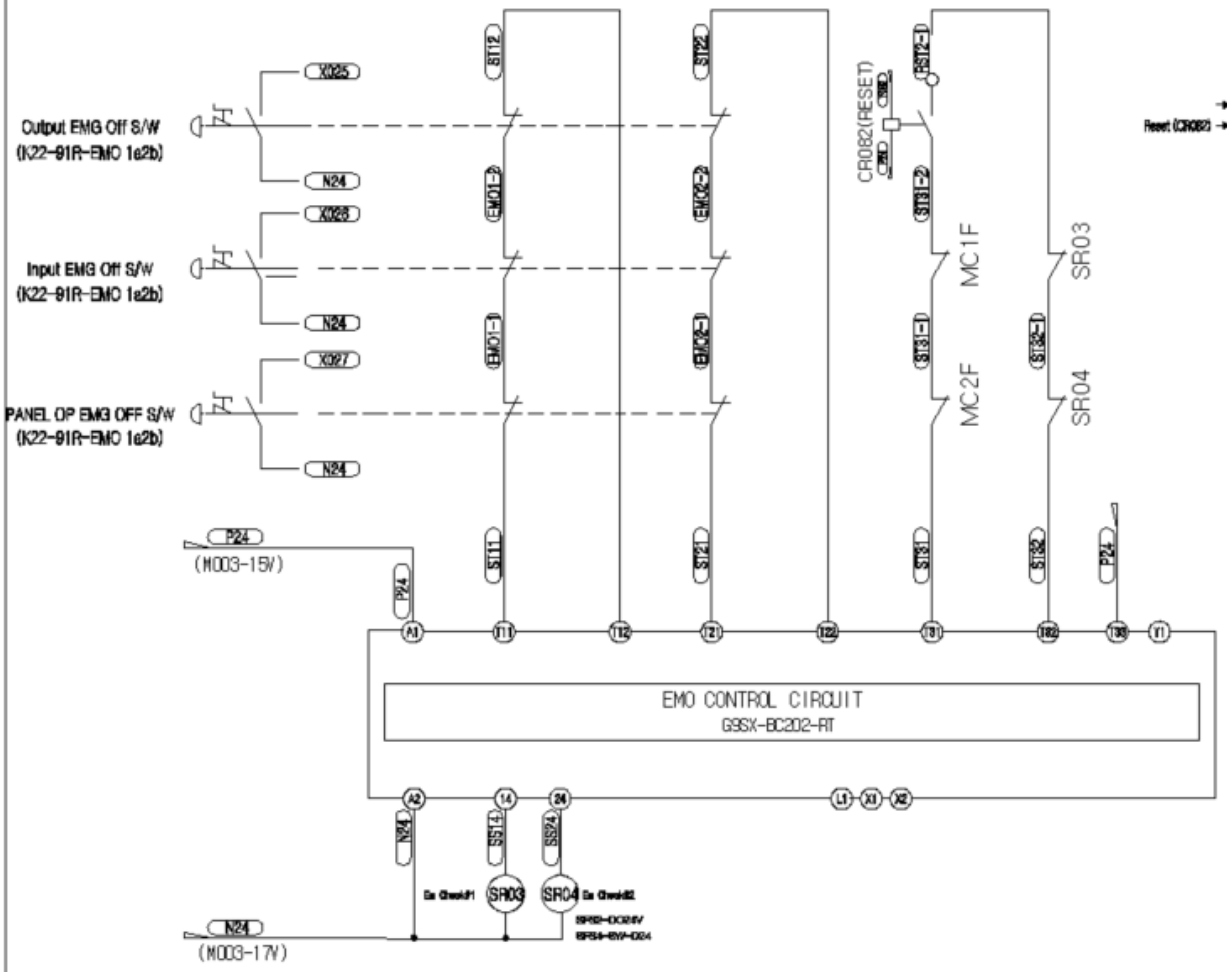




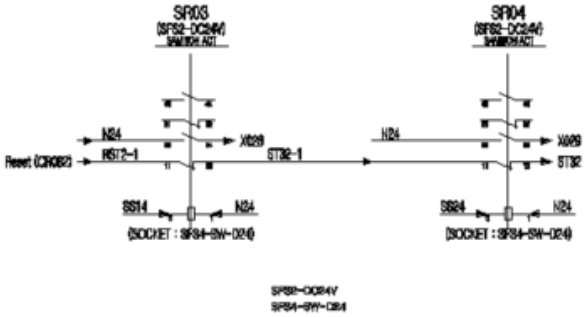
DOOR SAFETY CIRCUIT

		DESIGN	CHECK	APPROVAL	PROJECT	DWG. NAME		DWG. NO		
		S.S.Jeon	S.S.Jeon	S.S.Jeon	*HEATSINK HOLDER INSERTER*		EMO/DOOR SAFETY CIRCUIT	DATE	HOLDIN-000 2023.06.	011 / 040

EMO Safety_SF1_(Local Emergency Switch)



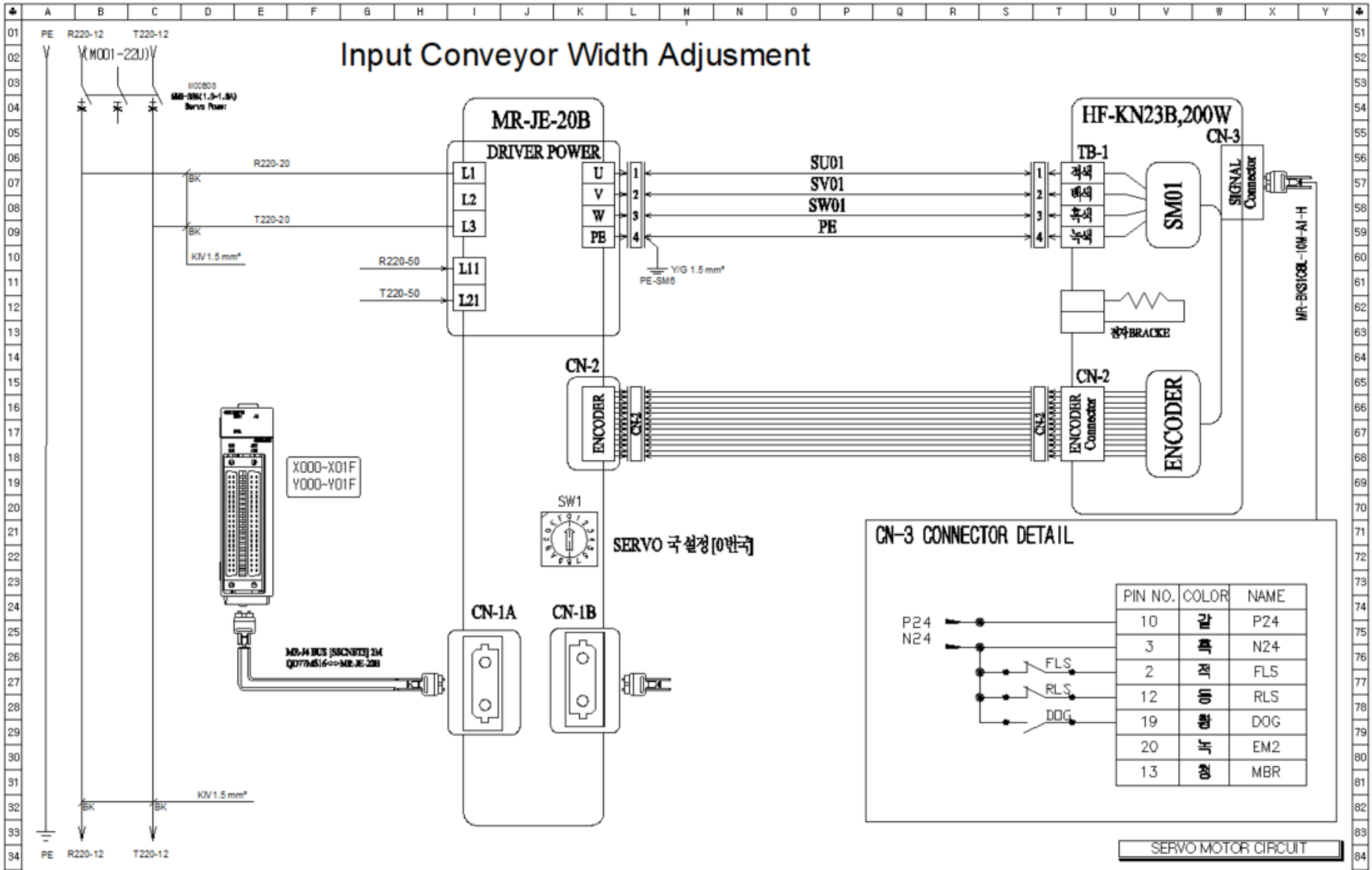
Safety Control Power Diagram



EMO SAFETY CIRCUIT

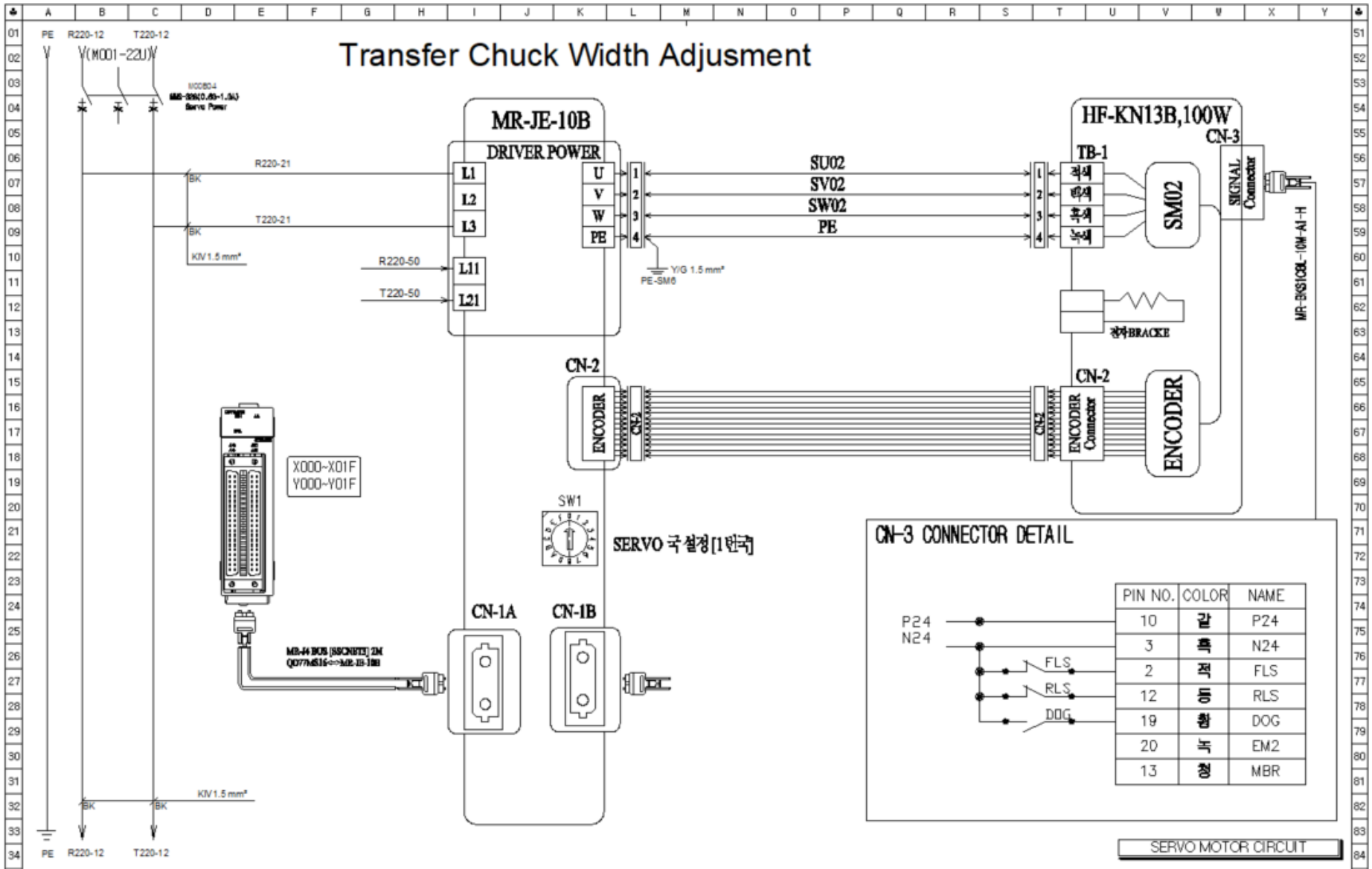
		DESIGN	CHECK	APPROVAL	PROJECT	HEATSINK HOLDER INSERTER	DWG. NAME	SFC01 SAFETY CIRCUIT	DWG. NO	HOLDIN-000
		S.S.Jeon	S.S.Jeon	S.S.Jeon					DATE	2023.06.

Input Conveyor Width Adjusment



		DESIGN	CHECK	APPROVAL	PROJECT	DWG. NAME	SERVO MOTOR POWER	DWG. NO	
		S.S.Jeon	S.S.Jeon	S.S.Jeon	*HEATSINK HOLDER INSERTER*		2Ø 220VAC	DATE	HOLDIN-000 2023.06. 007/023

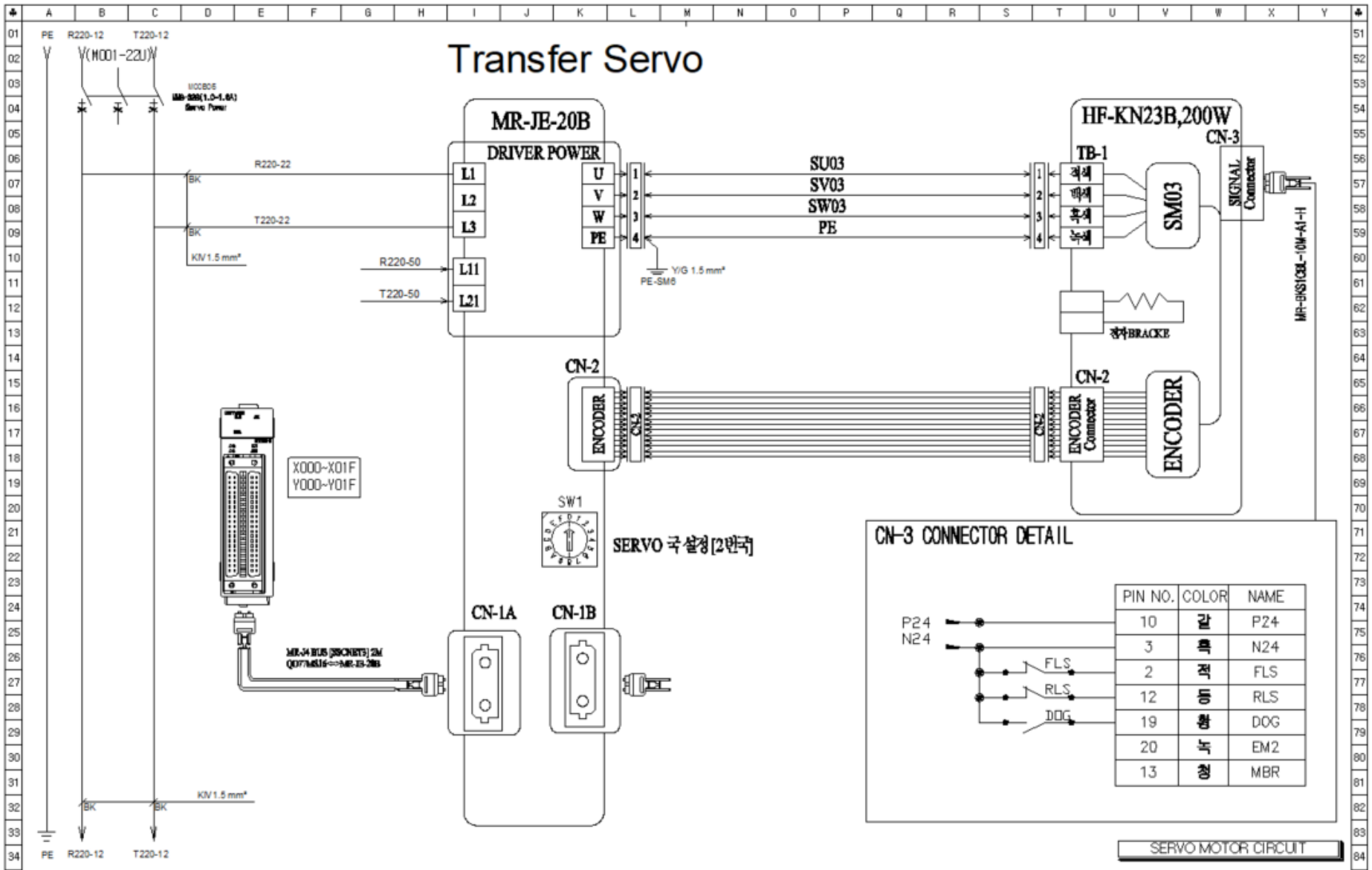
Transfer Chuck Width Adjusment



SERVO MOTOR CIRCUIT

		DESIGN	CHECK	APPROVAL	PROJECT	DWG. NAME	SERVO MOTOR POWER	DWG. NO	HOLDIN-000	008
		S.S.Jeon	S.S.Jeon	S.S.Jeon	*HEATSINK HOLDER INSERTER*		2Ø 220VAC	DATE	2023.06.	/ 023

Transfer Servo



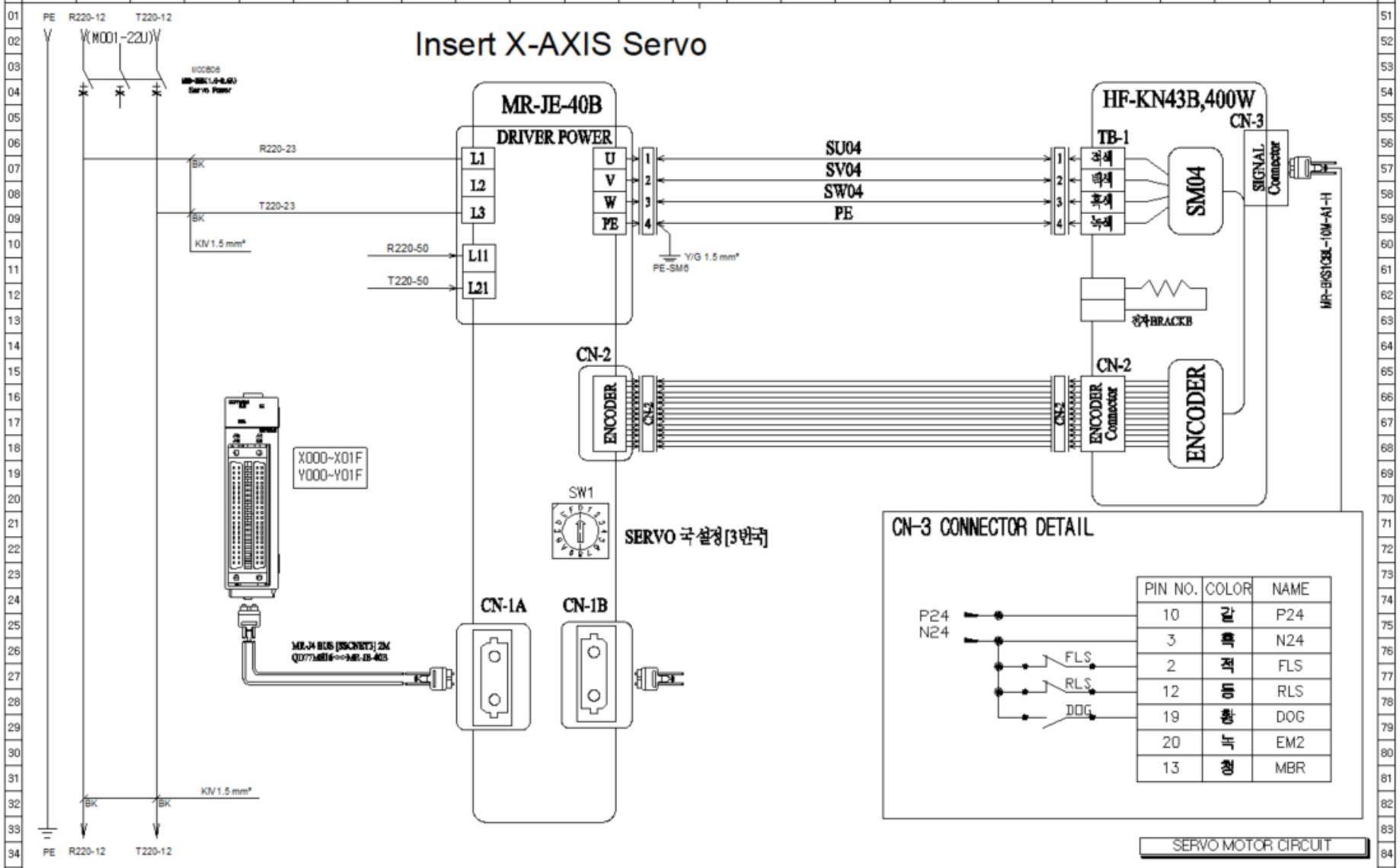
CN-3 CONNECTOR DETAIL

PIN NO.	COLOR	NAME
10	갈	P24
3	흑	N24
2	적	FLS
12	등	RLS
19	황	DOG
20	녹	EM2
13	청	MBR

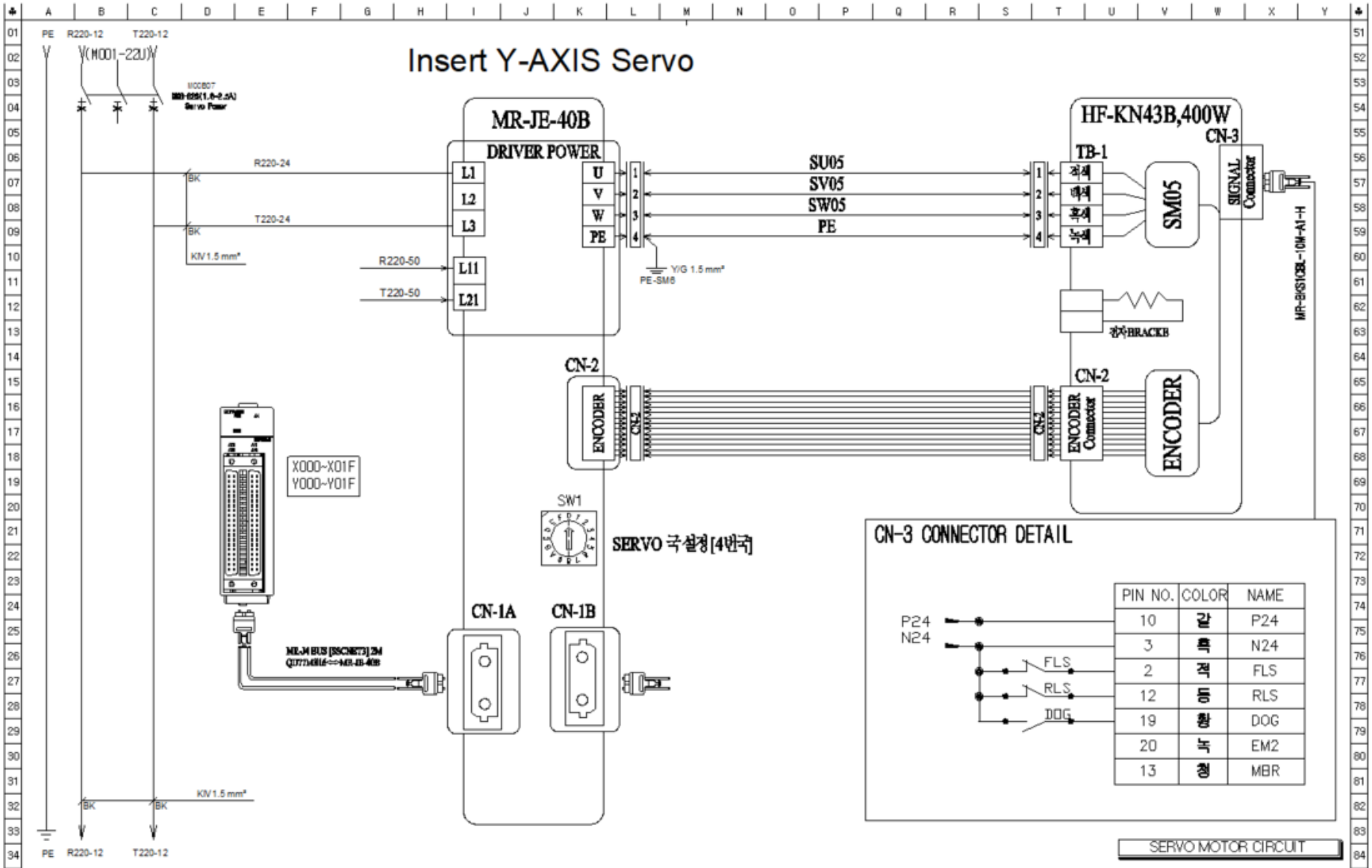
SERVO MOTOR CIRCUIT

DESIGN	CHECK	APPROVAL	PROJECT	DWG. NAME	SERVO MOTOR POWER	DWG. NO	
S.S.Jeon	S.S.Jeon	S.S.Jeon	*HEATSINK HOLDER INSERTER*		2Ø 220VAC	DATE	HOLDIN-000 2023.06. 009/023

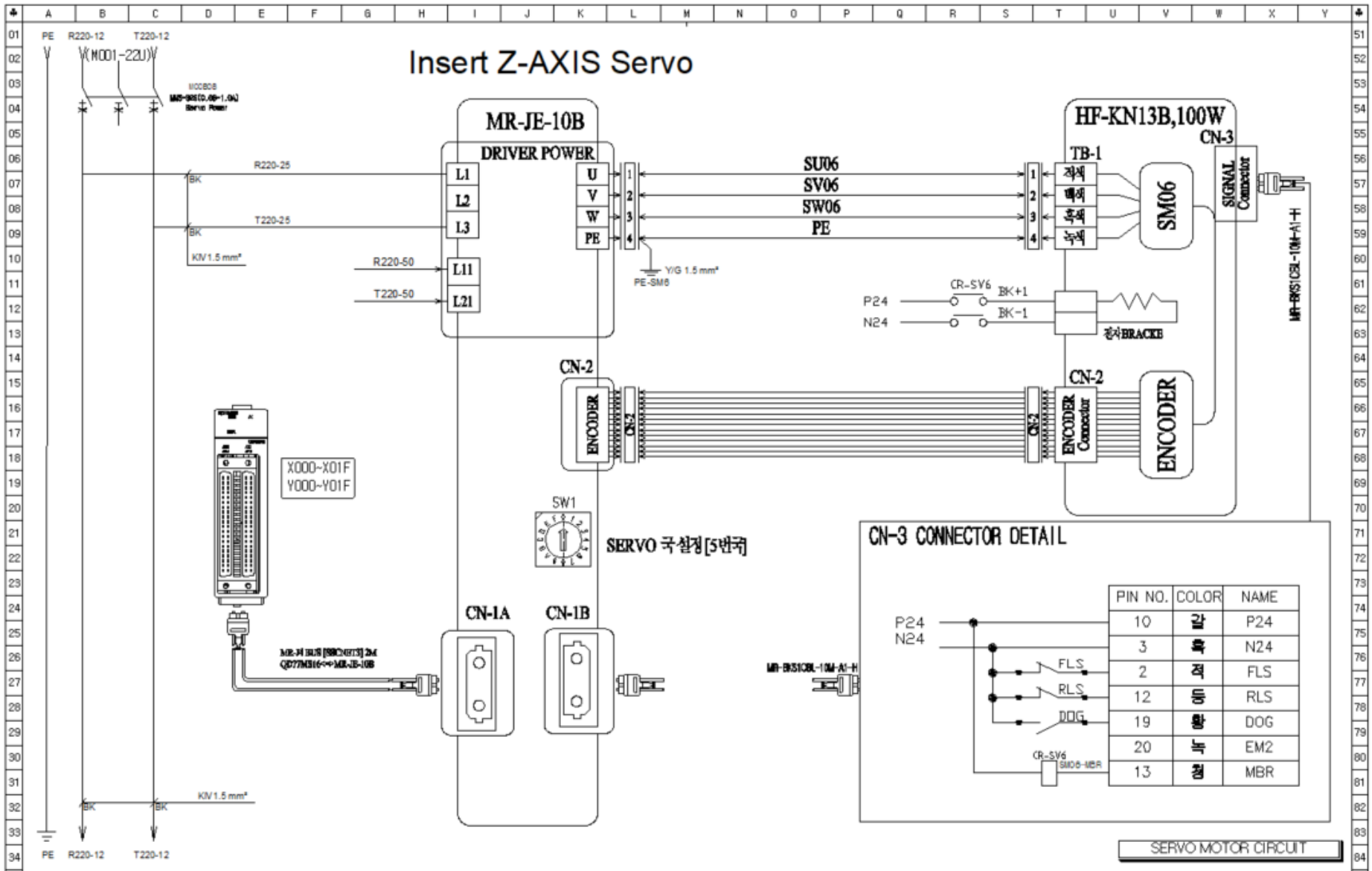
Insert X-AXIS Servo



		DESIGN	CHECK	APPROVAL	PROJECT	DWG. NAME	SERVO MOTOR POWER 2Ø 220VAC	DWG. NO DATE	HOLDIN-000 2023.06.	010 / 023
		S.S.Jeon	S.S.Jeon	S.S.Jeon	*HEATSINK HOLDER INSERTER*					

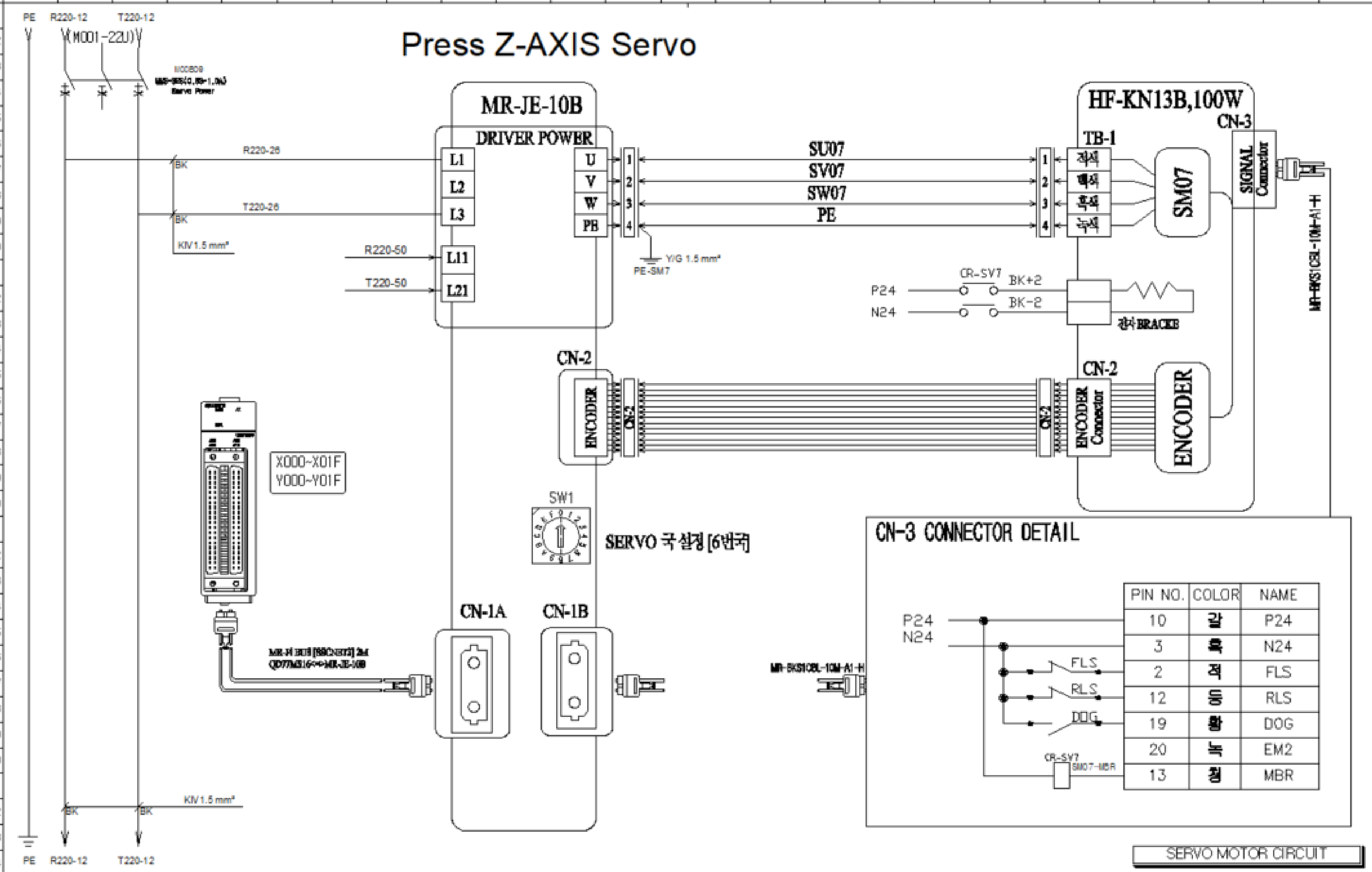

Insert Y-AXIS Servo
PE
R220-12
T220-12
(MOD1-22U)
MOD07
R220-24
T220-24
KIV1.5 mm²
BK
R220-50
T220-50
MR-JE-40B
DRIVER POWER
L1
L2
L3
L11
L21
U
V
W
PE
Y/G 1.5 mm²
PE-SM6
SU05
SV05
SW05
PE
HF-KN43B,400W
CN-3
TB-1
적색
백색
흑색
녹색
SM05
SIGNAL Connector
MR-BKS1CBL-10M-A1-H
전자BRACKE
CN-2
ENCODER
ENCODER Connector
X000~X01F
Y000~Y01F
SW1
SERVO 국설정[4반국]
CN-1A
CN-1B
CN-3 CONNECTOR DETAIL
P24
N24
FLS
RLS
DOG
PIN NO.
COLOR
NAME
10
갈
P24
3
흑
N24
2
적
FLS
12
등
RLS
19
황
DOG
20
녹
EM2
13
청
MBR
SERVO MOTOR CIRCUIT
DESIGN
S.S.Jeon
CHECK
S.S.Jeon
APPROVAL
S.S.Jeon
PROJECT
HEATSINK HOLDER INSERTER
DWG. NAME
SERVO MOTOR POWER 2Ø 220VAC
DWG.NO
HOLDIN-000
DATE
2023.06.
011
023

Insert Z-AXIS Servo



		DESIGN	CHECK	APPROVAL	PROJECT	DWG. NAME	SERVO MOTOR POWER	DWG. NO	
		S.S.Jeon	S.S.Jeon	S.S.Jeon	*HEATSINK HOLDER INSERTER*		2ø 220VAC	DATE	HOLDIN-000 2023.05. 012/023

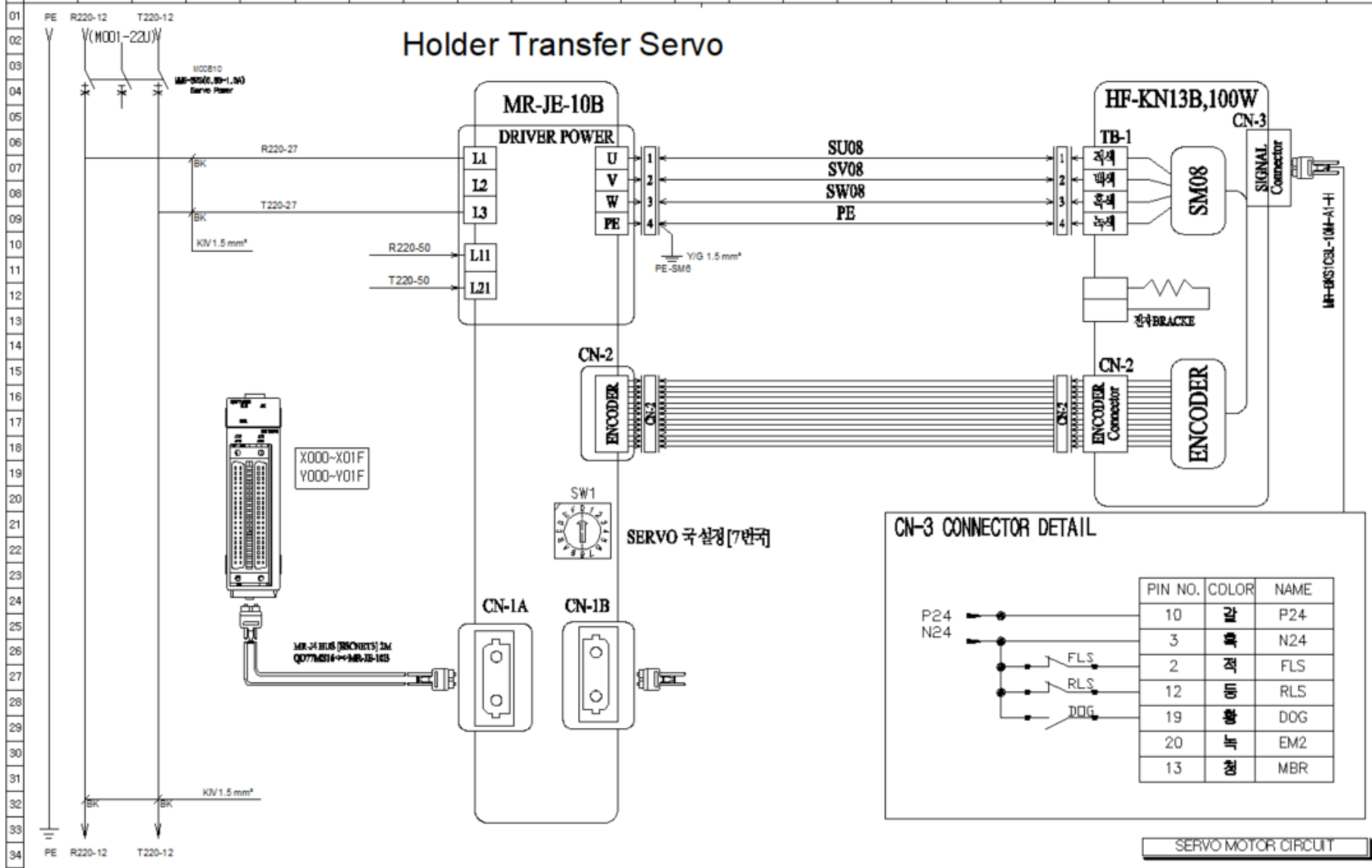
Press Z-AXIS Servo



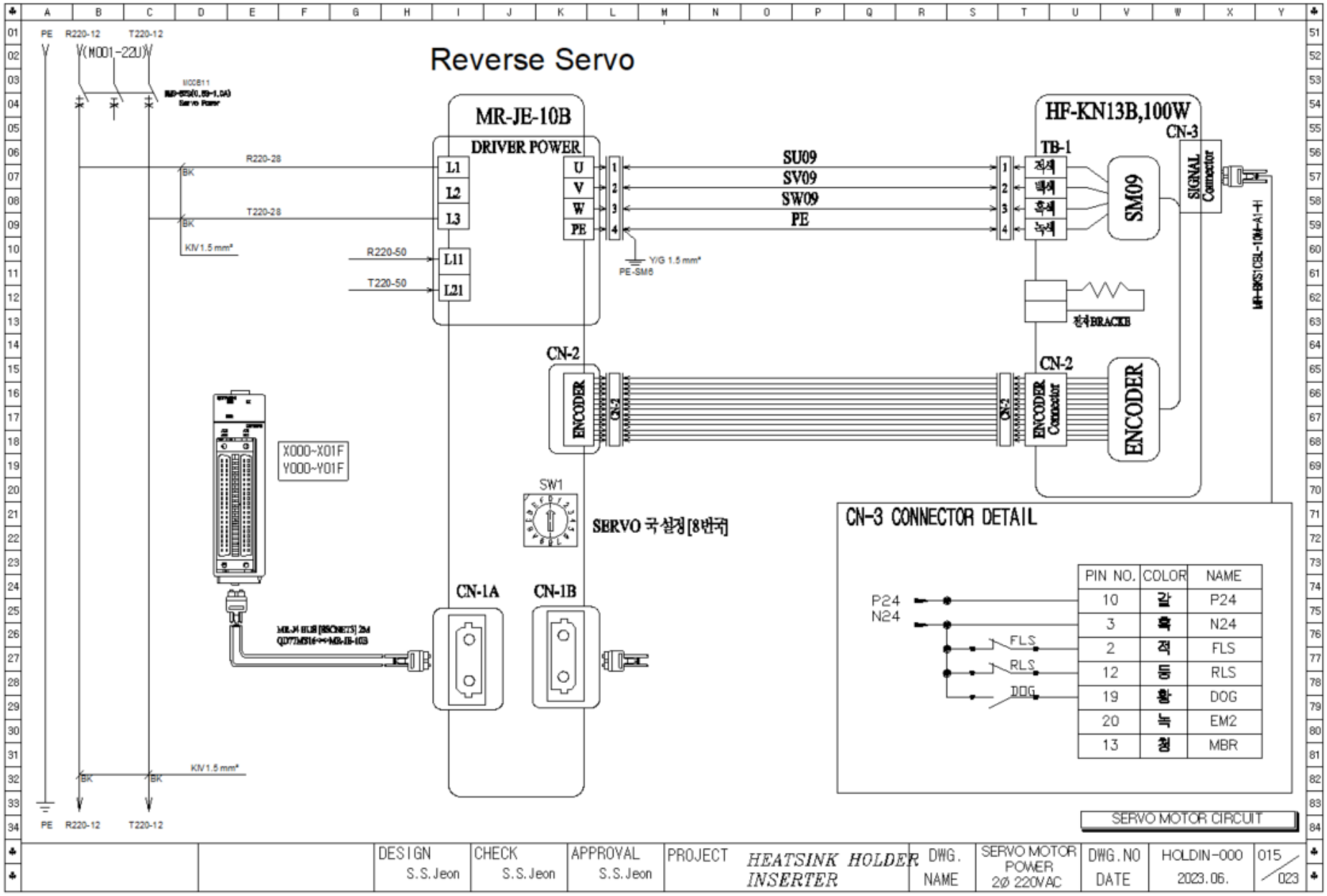
PIN NO.	COLOR	NAME
10	갈	P24
3	흑	N24
2	적	FLS
12	등	RLS
19	황	DOG
20	녹	EM2
13	청	MBR

DESIGN	CHECK	APPROVAL	PROJECT		DWG. NAME		DWG.NO	HOLDIN-000	013/023
S.S.Jeon	S.S.Jeon	S.S.Jeon		*HEATSINK HOLDER INSERTER*		SERVO MOTOR POWER 2Ø 220VAC	DATE	2023.06.	

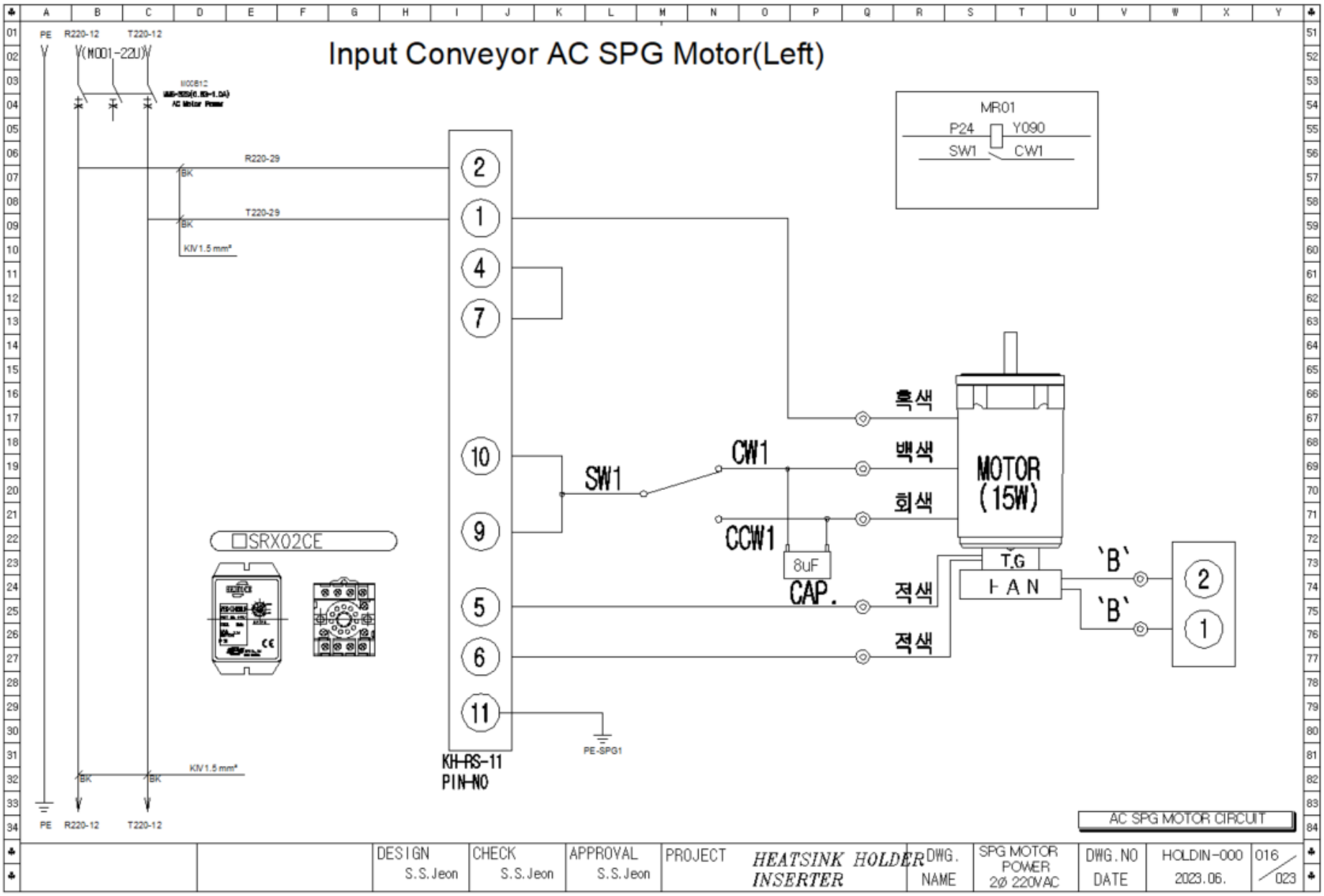
Holder Transfer Servo



DESIGN	CHECK	APPROVAL	PROJECT	DWG. NAME	SERVO MOTOR POWER	DWG. NO	
S.S.Jeon	S.S.Jeon	S.S.Jeon	HEATSINK HOLDER INSERTER		2Ø 220VAC	HOLDIN-000	014/023
						DATE	2023.06.

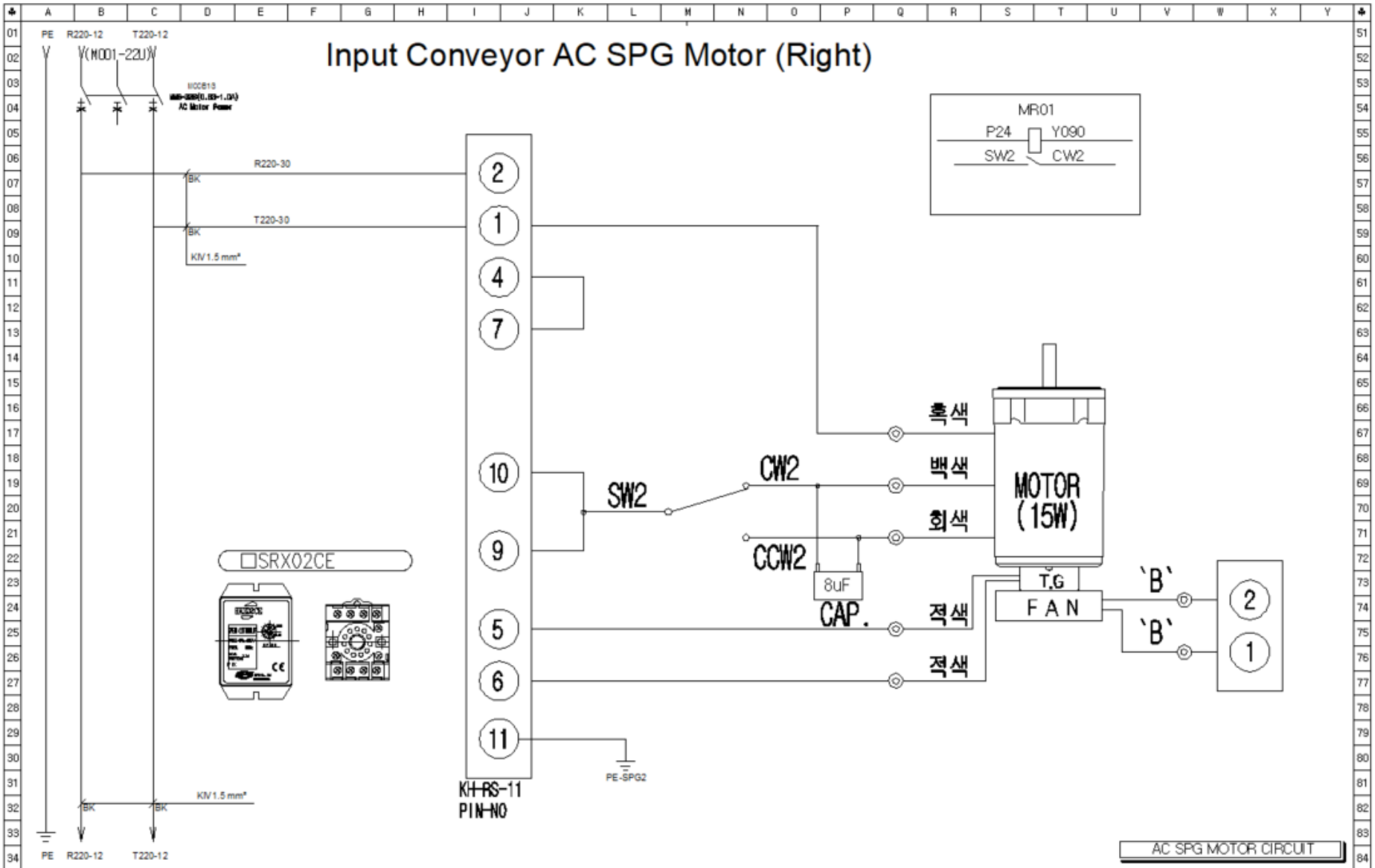

Reverse Servo
PE
R220-12
T220-12
(M001-22U)
MCCB11
R220-28
T220-28
BK
KIV 1.5 mm²
MR-JE-10B
DRIVER POWER
L1
L2
L3
L11
L21
R220-50
T220-50
U
V
W
PE
Y/G 1.5 mm²
PE-SM6
SU09
SV09
SW09
PE
HF-KN13B,100W
CN-3
TB-1
적색
백색
흑색
녹색
SM09
SIGNAL Connector
MR-ENSCBL-10M-A1-H
정격BRACKB
CN-2
ENCODER
ENCODER Connector
X000~X01F
Y000~Y01F
SW1
SERVO 국설정[8번국]
CN-1A
CN-1B
CN-3 CONNECTOR DETAIL
P24
N24
FLS
RLS
DOG
PIN NO. COLOR NAME
10 갈 P24
3 흑 N24
2 적 FLS
12 등 RLS
19 황 DOG
20 녹 EM2
13 청 MBR
SERVO MOTOR CIRCUIT
DESIGN S.S.Jeon
CHECK S.S.Jeon
APPROVAL S.S.Jeon
PROJECT HEATSINK HOLDER INSERTER
DWG. NAME SERVO MOTOR POWER 2Ø 220VAC
DWG.NO HOLDIN-000
DATE 2023.06.
015/023

Input Conveyor AC SPG Motor(Left)



		DESIGN S.S.Jeon	CHECK S.S.Jeon	APPROVAL S.S.Jeon	PROJECT *HEATSINK HOLDER INSERTER*	DWG. NAME	SPG MOTOR POWER 2Ø 220VAC	DWG.NO DATE	HOLDIN-000 2023.06.	016 / 023

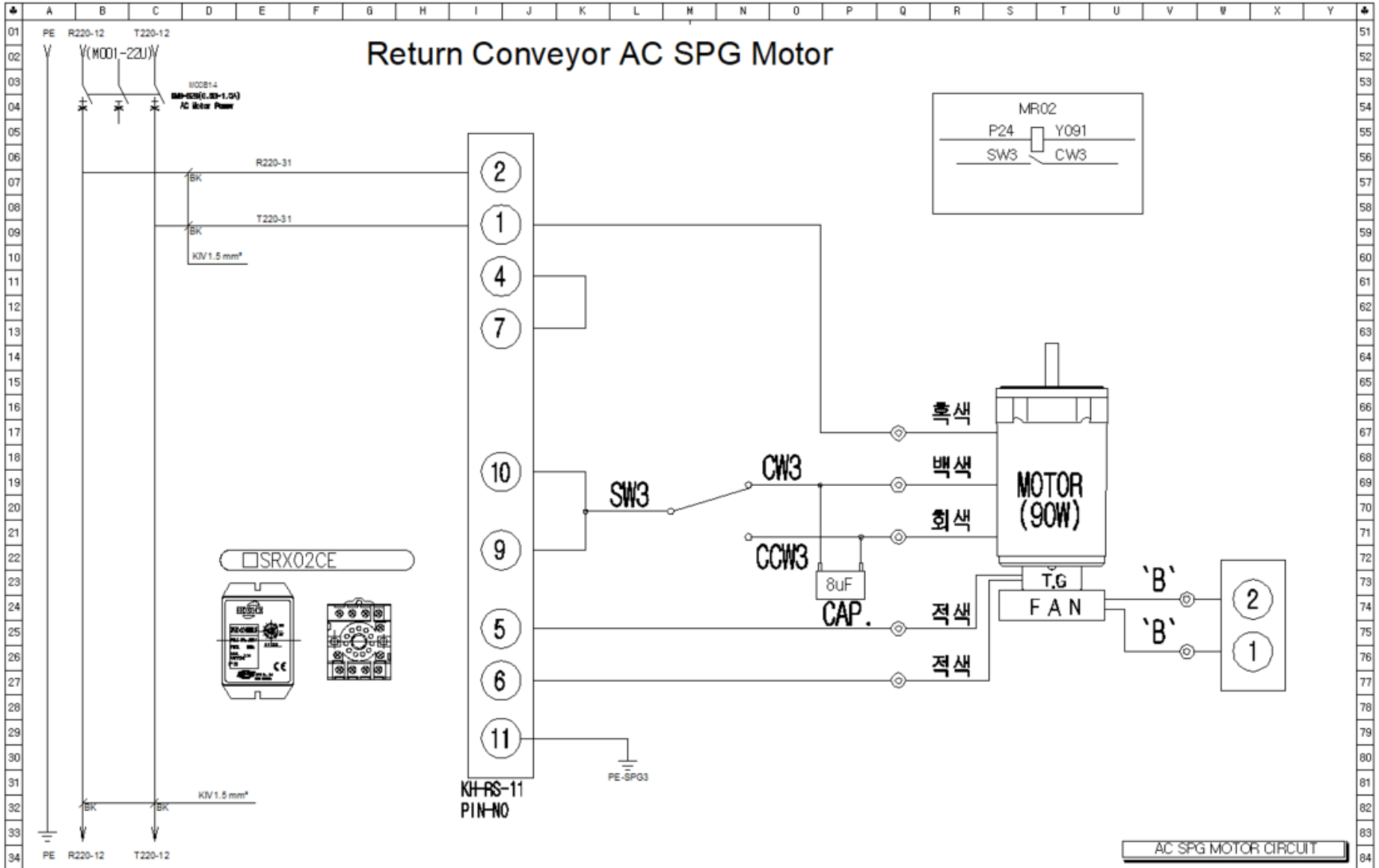
Input Conveyor AC SPG Motor (Right)



AC SPG MOTOR CIRCUIT

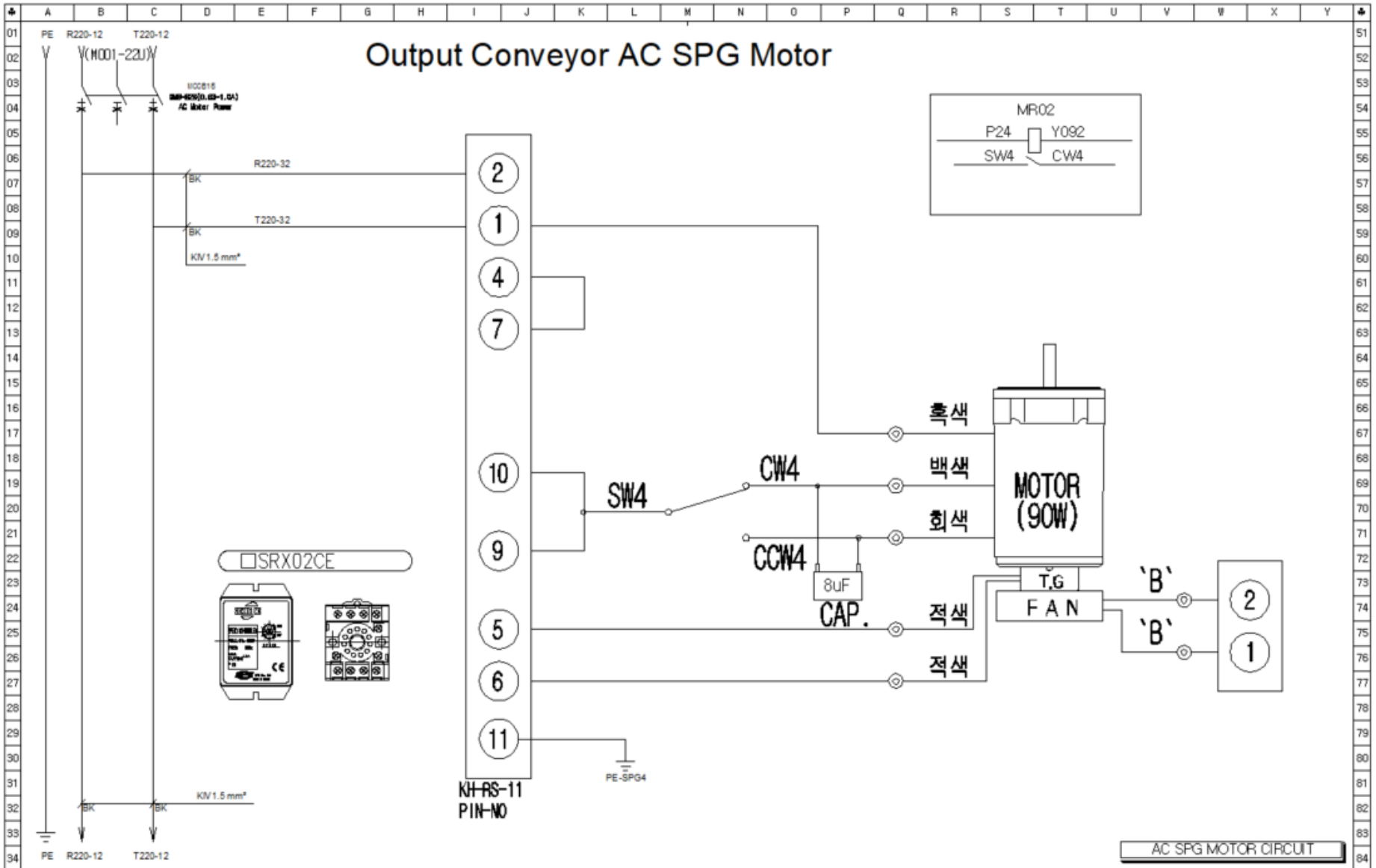
		DESIGN	CHECK	APPROVAL	PROJECT	DWG. NAME	SPG MOTOR POWER 2Ø 220VAC	DWG. NO	HOLDIN-000	017
		S.S.Jeon	S.S.Jeon	S.S.Jeon	*HEATSINK HOLDER INSERTER*			DATE	2023.06.	023

Return Conveyor AC SPG Motor



		DESIGN S.S.Jeon	CHECK S.S.Jeon	APPROVAL S.S.Jeon	PROJECT *HEATSINK HOLDER INSERTER*	DWG. NAME	SPG MOTOR POWER 2ø 220VAC	DWG.NO DATE	HOLDIN-000 2023.06.	018 / 023

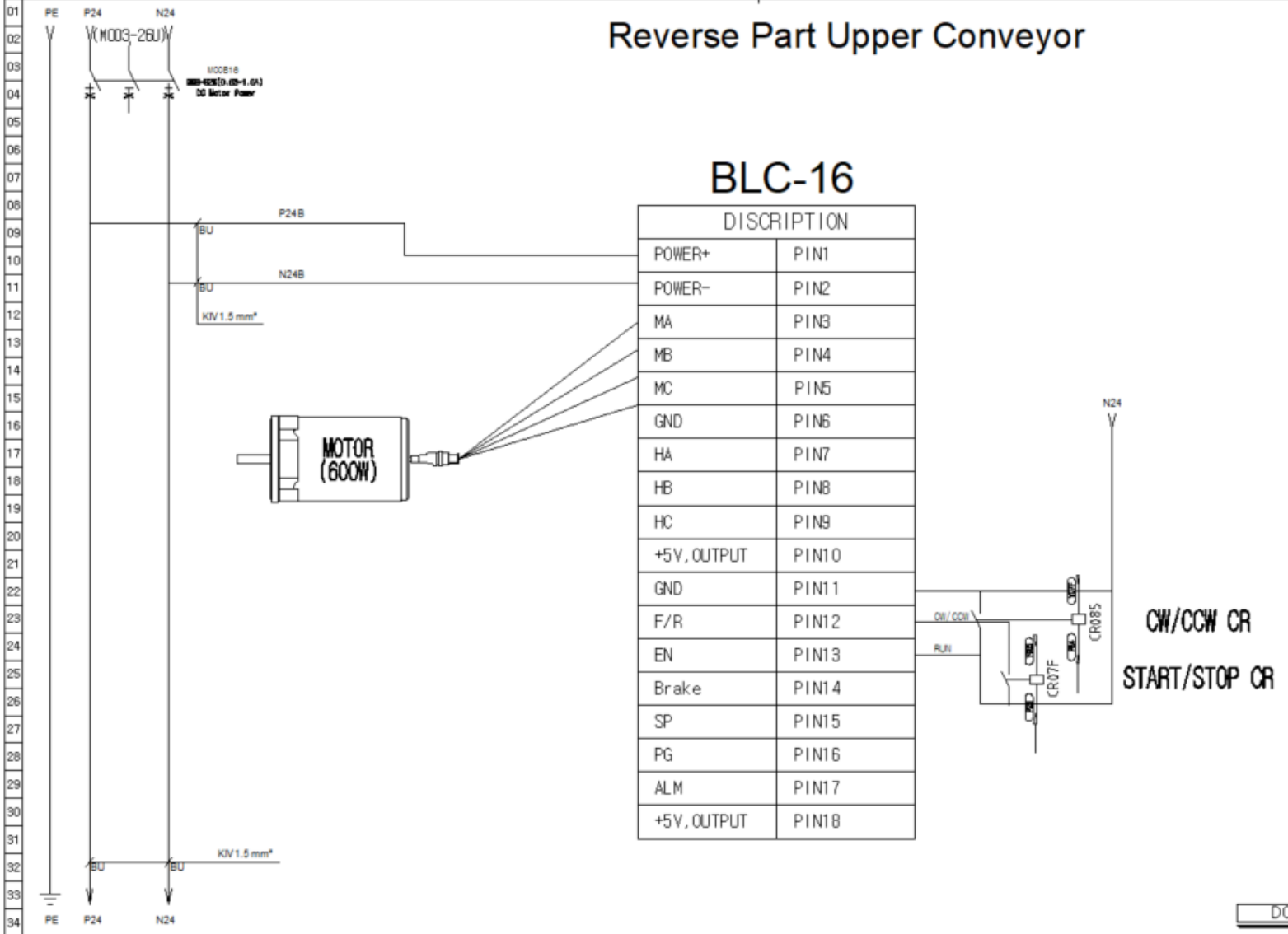
Output Conveyor AC SPG Motor



AC SPG MOTOR CIRCUIT

		DESIGN S.S.Jeon	CHECK S.S.Jeon	APPROVAL S.S.Jeon	PROJECT *HEATSINK HOLDER INSERTER*	DWG. NAME	SPG MOTOR POWER 2Ø 220VAC	DWG.NO DATE	HOLDIN-000 2023.06.	019 / 023

Reverse Part Upper Conveyor



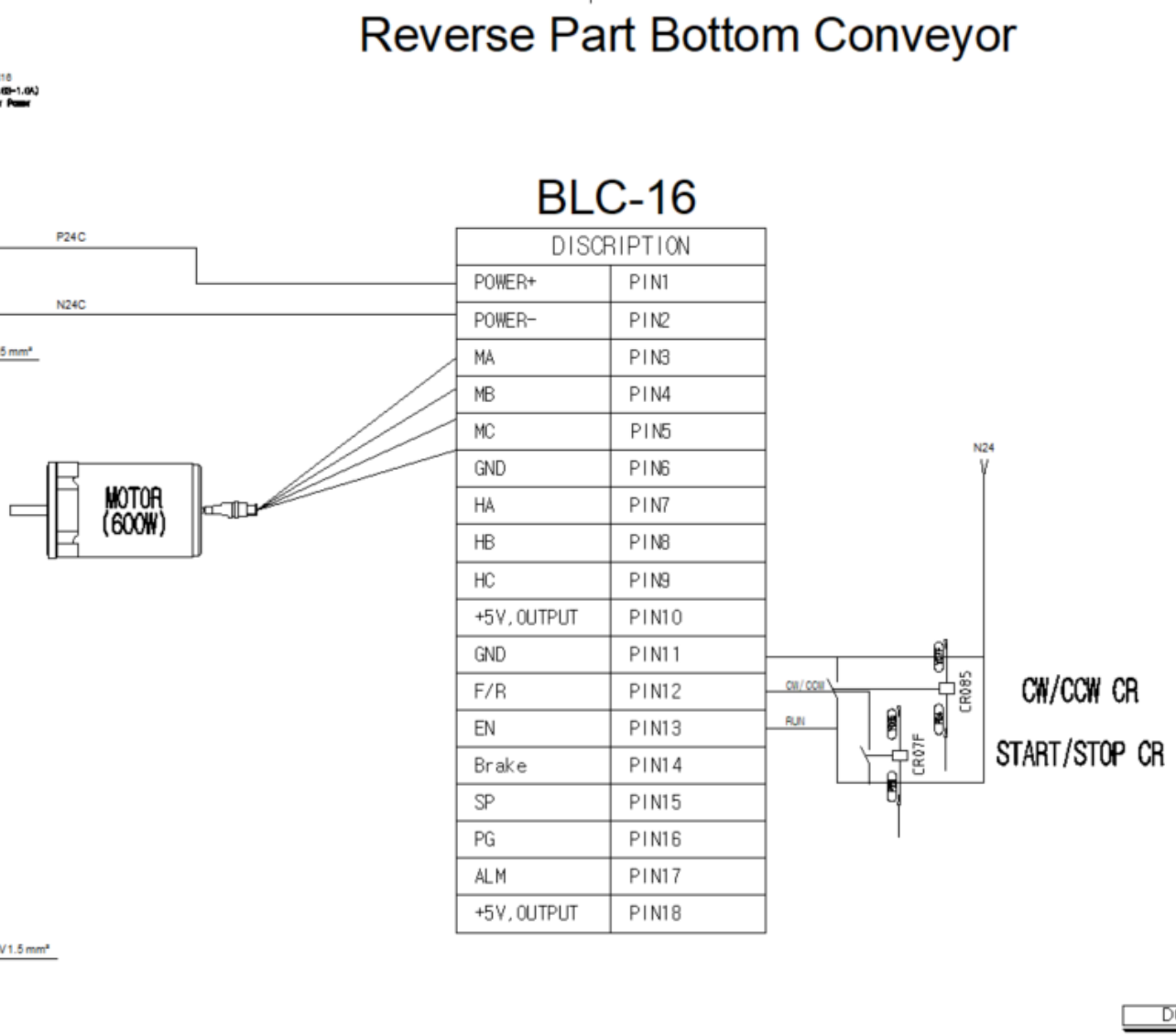
BLC-16

DISCRIPTION	
POWER+	PIN1
POWER-	PIN2
MA	PIN3
MB	PIN4
MC	PIN5
GND	PIN6
HA	PIN7
HB	PIN8
HC	PIN9
+5V, OUTPUT	PIN10
GND	PIN11
F/R	PIN12
EN	PIN13
Brake	PIN14
SP	PIN15
PG	PIN16
ALM	PIN17
+5V, OUTPUT	PIN18

DC BLDC MOTOR CIRCUIT

		DESIGN	CHECK	APPROVAL	PROJECT	DWG. NAME	BLDC MOTOR POWER 2ø 220VAC	DWG. NO DATE	HOLDIN-000 2023.06.	020 / 023
		S.S.Jeon	S.S.Jeon	S.S.Jeon	*HEATSINK HOLDER INSERTER*					

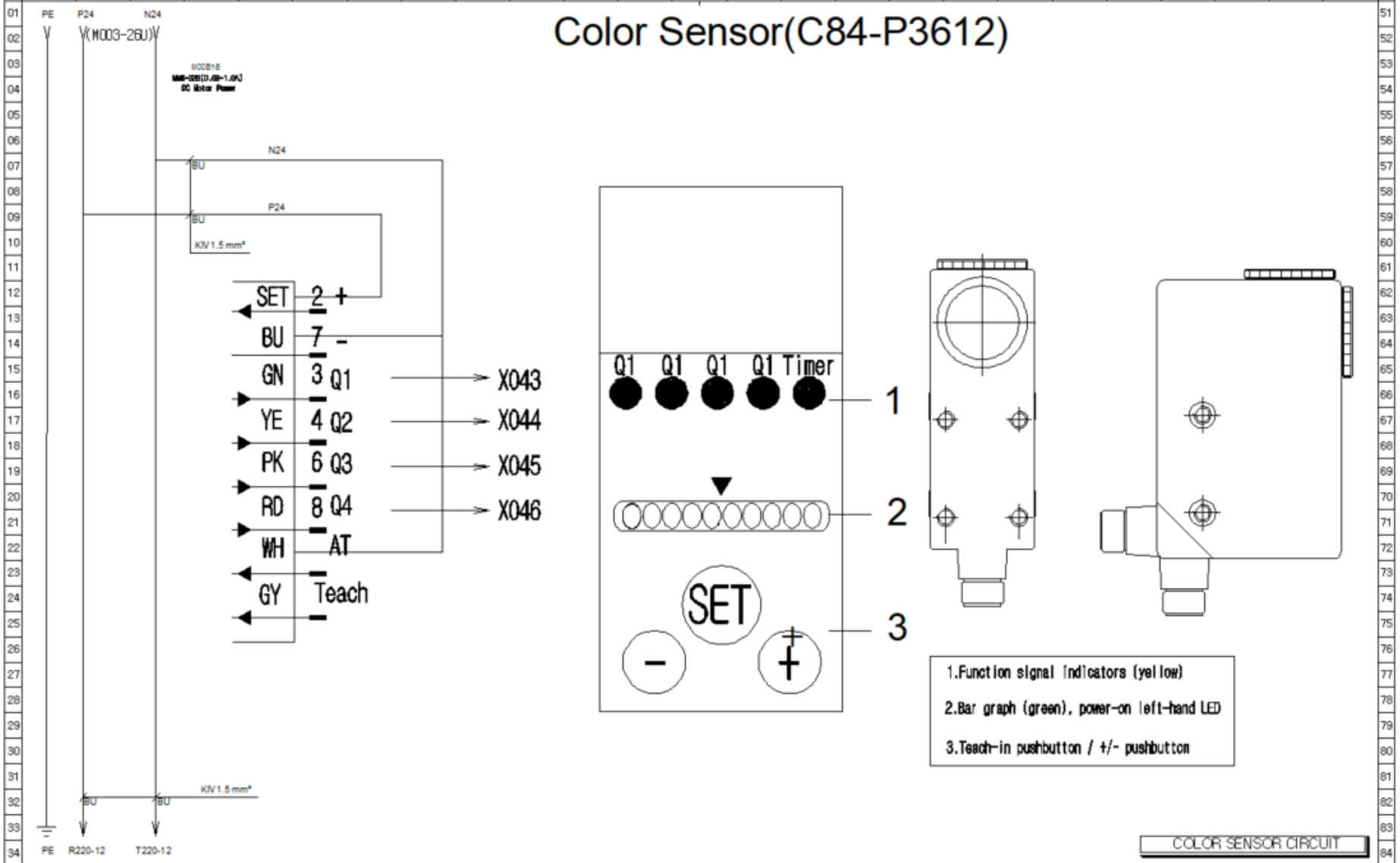
Reverse Part Bottom Conveyor



DC BLDC MOTOR CIRCUIT

		DESIGN S.S.Jeon	CHECK S.S.Jeon	APPROVAL S.S.Jeon	PROJECT *HEATSINK HOLDER INSERTER*	DWG. NAME	BLDC MOTOR POWER 2Ø 220VAC	DWG.NO DATE	HOLDIN-000 2023.06.	021 / 023

Color Sensor(C84-P3612)

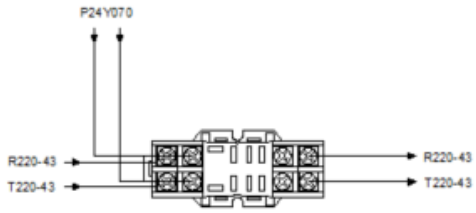


COLOR SENSOR CIRCUIT

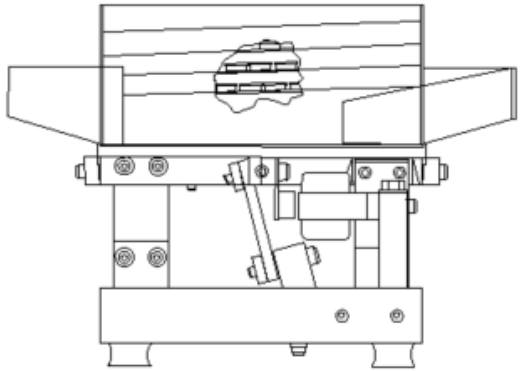
DESIGN	CHECK	APPROVAL	PROJECT	DWG. NAME	COLOR SENS CONTROL 2ø 220VAC	DWG. NO	HOLDIN-000	022 / 023
S.S.Jeon	S.S.Jeon	S.S.Jeon	*HEATSINK HOLDER INSERTER*			DATE	2023.06.	

Bowl Feeder & Linear Feeder

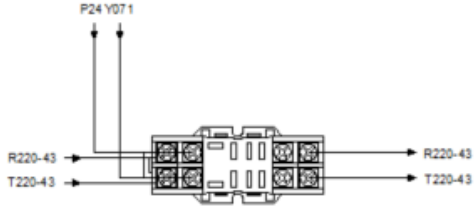
(C003-08R)



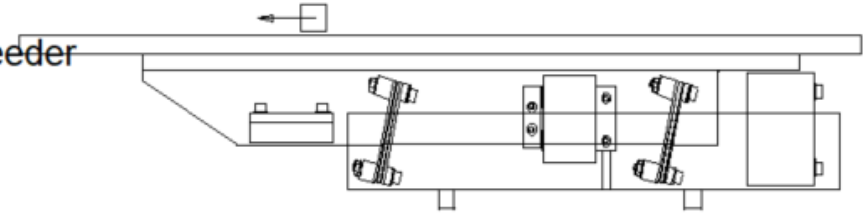
Bowl Feeder



(C003-09R)

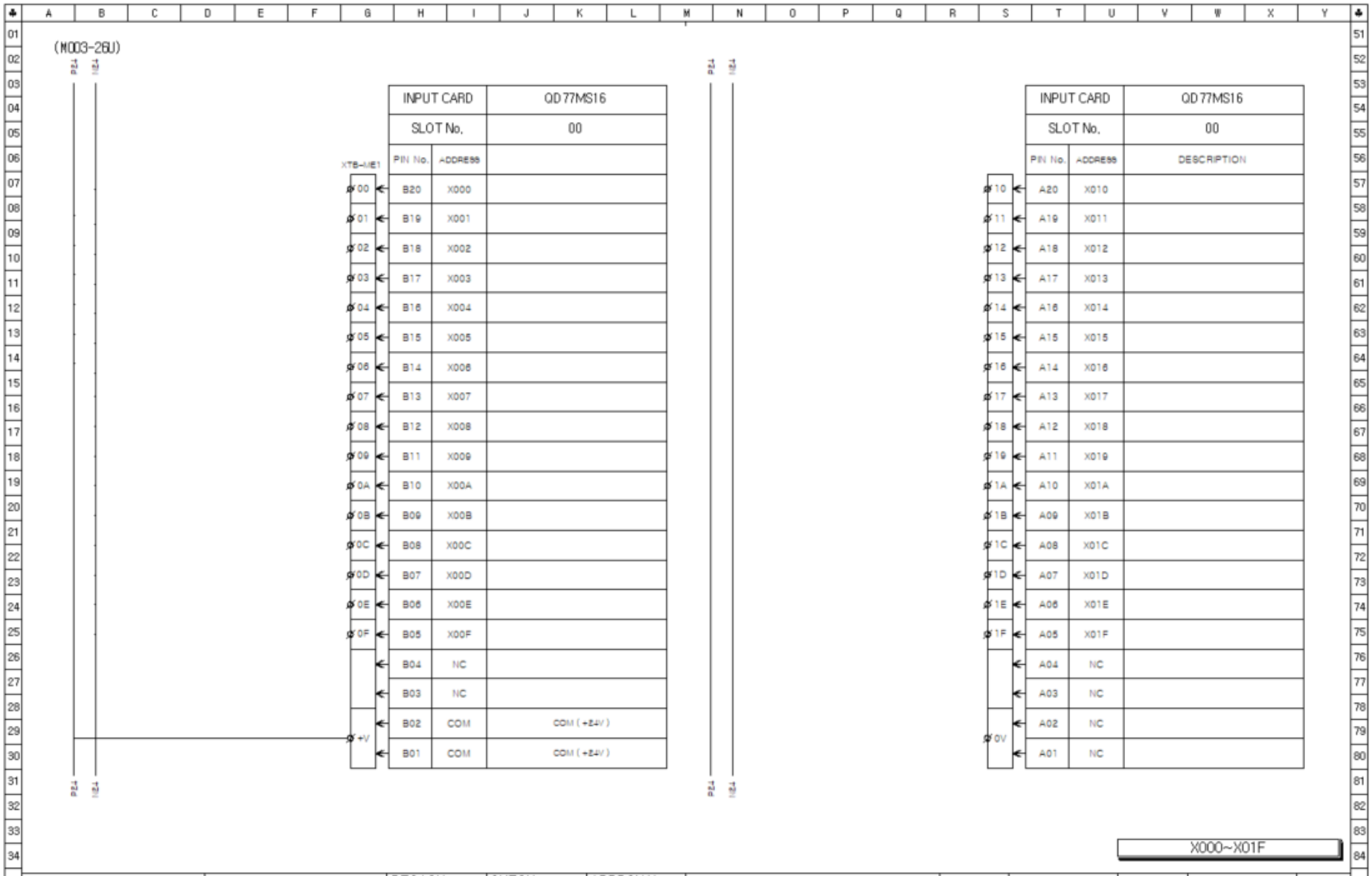


Linear Feeder

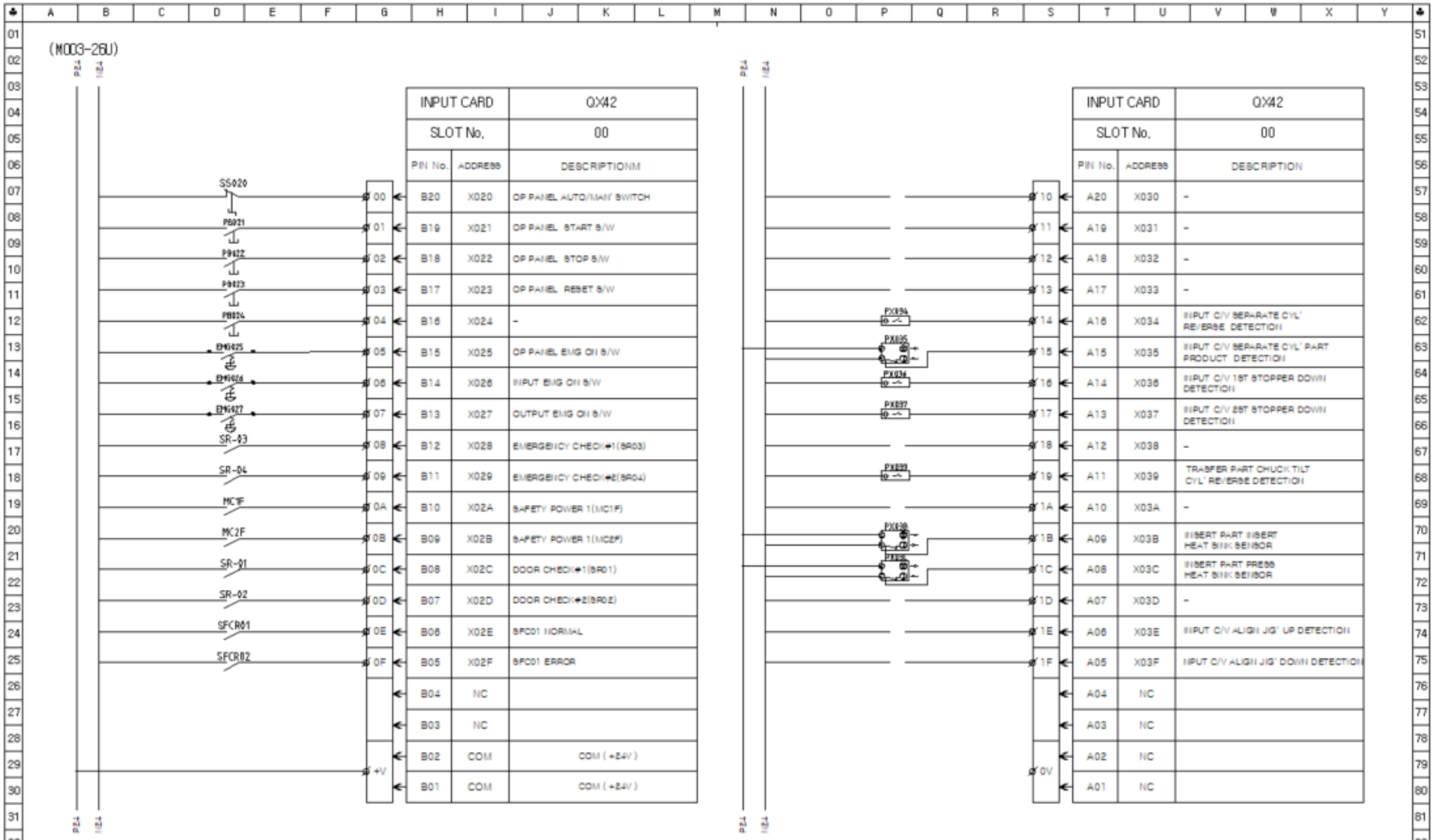


SERVO MOTOR CIRCUIT

		DESIGN	CHECK	APPROVAL	PROJECT	DWG. NAME	SERVO MOTOR POWER	DWG. NO		
		S.S.Jeon	S.S.Jeon	S.S.Jeon	*HEATSINK HOLDER INSERTER*		2Ø 220VAC	DATE	HOLDIN-000 2023.06.	023 023



		DESIGN S.S.Jeon	CHECK S.S.Jeon	APPROVAL S.S.Jeon	PROJECT *HEATSINK HOLDER INSERTER*	DWG. NAME	RTB01 INPUT CIRCUIT	DWG.NO DATE	HOLDIN-000 2023.06.	001 / 005



INPUT CARD	QX42
SLOT No.	00

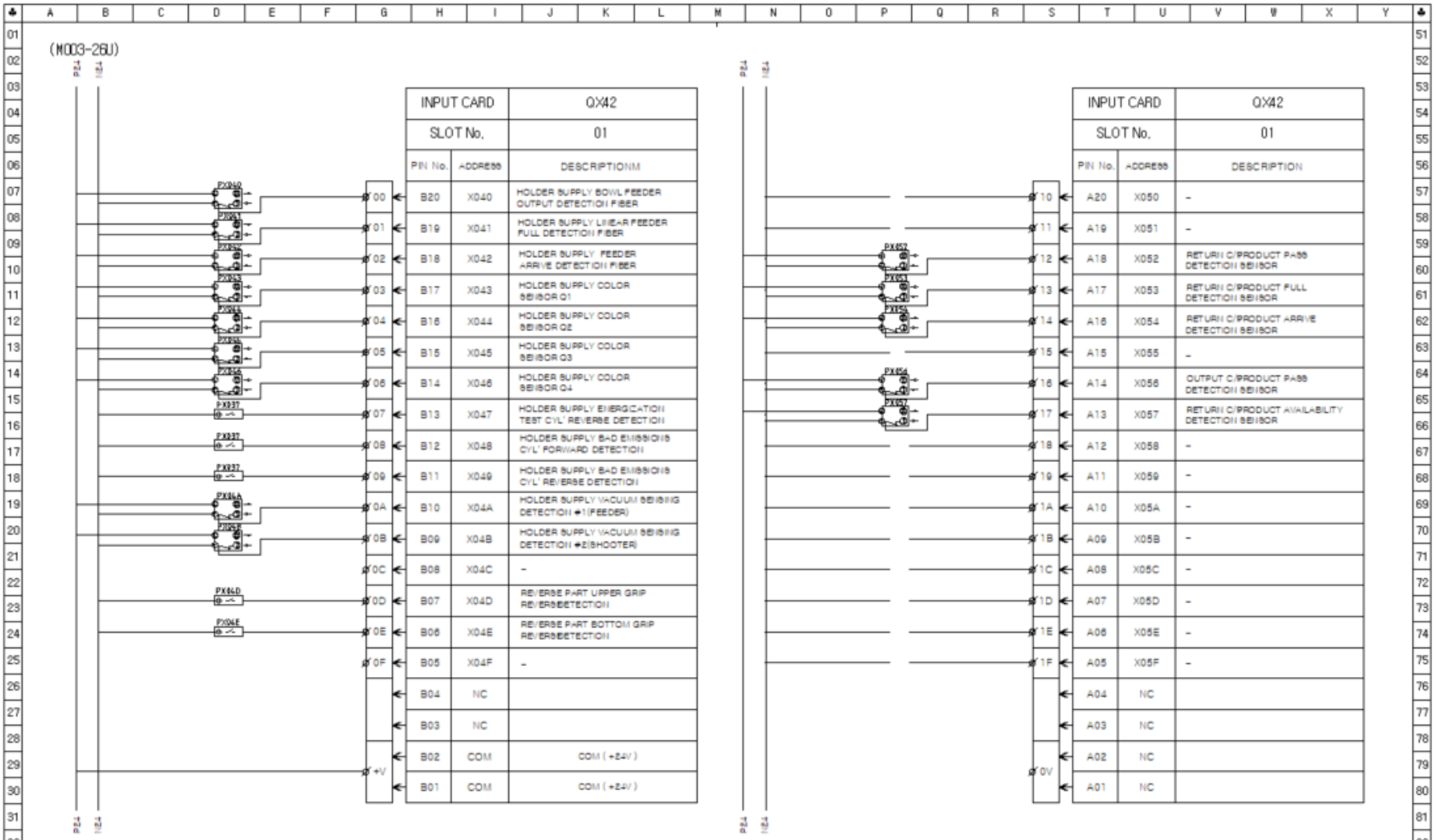
PIN No.	ADDRESS	DESCRIPTIONNM
B20	X020	OP PANEL AUTO/MAN' SWITCH
B19	X021	OP PANEL START S/W
B18	X022	OP PANEL STOP S/W
B17	X023	OP PANEL RESET S/W
B16	X024	-
B15	X025	OP PANEL EMG ON S/W
B14	X026	INPUT EMG ON S/W
B13	X027	OUTPUT EMG ON S/W
B12	X028	EMERGENCY CHECK#1(SR03)
B11	X029	EMERGENCY CHECK#2(SR04)
B10	X02A	SAFETY POWER 1(MC1F)
B09	X02B	SAFETY POWER 1(MC2F)
B08	X02C	DOOR CHECK#1(SR01)
B07	X02D	DOOR CHECK#2(SR02)
B06	X02E	SFC01 NORMAL
B05	X02F	SFC01 ERROR
B04	NC	
B03	NC	
B02	COM	COM (+24V)
B01	COM	COM (+24V)

INPUT CARD	QX42
SLOT No.	00

PIN No.	ADDRESS	DESCRIPTION
A20	X030	-
A19	X031	-
A18	X032	-
A17	X033	-
A16	X034	INPUT C/V SEPARATE CYL' REVERSE DETECTION
A15	X035	INPUT C/V SEPARATE CYL' PART PRODUCT DETECTION
A14	X036	INPUT C/V 1ST STOPPER DOWN DETECTION
A13	X037	INPUT C/V 2ST STOPPER DOWN DETECTION
A12	X038	-
A11	X039	TRASFER PART CHUCK TILT CYL' REVERSE DETECTION
A10	X03A	-
A09	X03B	INSERT PART INSERT HEAT SINK SENSOR
A08	X03C	INSERT PART PRESS HEAT SINK SENSOR
A07	X03D	-
A06	X03E	INPUT C/V ALIGN JIG' UP DETECTION
A05	X03F	INPUT C/V ALIGN JIG' DOWN DETECTION
A04	NC	
A03	NC	
A02	NC	
A01	NC	

X020~X03F

DESIGN	CHECK	APPROVAL	PROJECT	DWG. NAME		DWG. NO		
S.S.Jeon	S.S.Jeon	S.S.Jeon	*HEATSINK HOLDER INSERTER*		RTB01 INPUT CIRCUIT	DATE	HOLDIN-000 2023.06.	002 / 005



INPUT CARD	QX42
SLOT No.	01

PIN No.	ADDRESS	DESCRIPTIONM
B20	X040	HOLDER SUPPLY BOWL FEEDER OUTPUT DETECTION FIBER
B19	X041	HOLDER SUPPLY LINEAR FEEDER FULL DETECTION FIBER
B18	X042	HOLDER SUPPLY FEEDER ARRIVE DETECTION FIBER
B17	X043	HOLDER SUPPLY COLOR SENSOR Q1
B16	X044	HOLDER SUPPLY COLOR SENSOR Q2
B15	X045	HOLDER SUPPLY COLOR SENSOR Q3
B14	X046	HOLDER SUPPLY COLOR SENSOR Q4
B13	X047	HOLDER SUPPLY EMERGICATION TEST CYL' REVERSE DETECTION
B12	X048	HOLDER SUPPLY BAD EMISSION'S CYL' FORWARD DETECTION
B11	X049	HOLDER SUPPLY BAD EMISSION'S CYL' REVERSE DETECTION
B10	X04A	HOLDER SUPPLY VACUUM SENSING DETECTION #1(FEEDER)
B09	X04B	HOLDER SUPPLY VACUUM SENSING DETECTION #2(SHOOTER)
B08	X04C	-
B07	X04D	REVERSE PART UPPER GRIP REVERSEDETECTION
B06	X04E	REVERSE PART BOTTOM GRIP REVERSEDETECTION
B05	X04F	-
B04	NC	
B03	NC	
B02	COM	COM (+24V)
B01	COM	COM (+24V)

INPUT CARD	QX42
SLOT No.	01

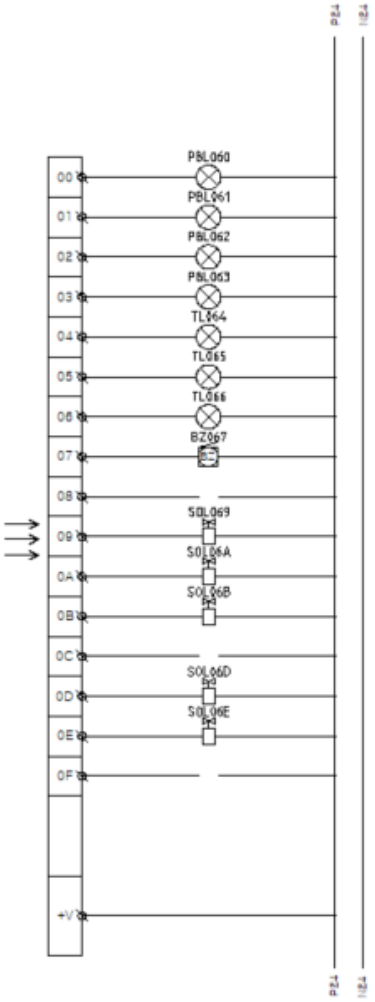
PIN No.	ADDRESS	DESCRIPTION
A20	X050	-
A19	X051	-
A18	X052	RETURN C/PRODUCT PASS DETECTION SENSOR
A17	X053	RETURN C/PRODUCT FULL DETECTION SENSOR
A16	X054	RETURN C/PRODUCT ARRIVE DETECTION SENSOR
A15	X055	-
A14	X056	OUTPUT C/PRODUCT PASS DETECTION SENSOR
A13	X057	RETURN C/PRODUCT AVAILABILITY DETECTION SENSOR
A12	X058	-
A11	X059	-
A10	X05A	-
A09	X05B	-
A08	X05C	-
A07	X05D	-
A06	X05E	-
A05	X05F	-
A04	NC	
A03	NC	
A02	NC	
A01	NC	

X040~X05F

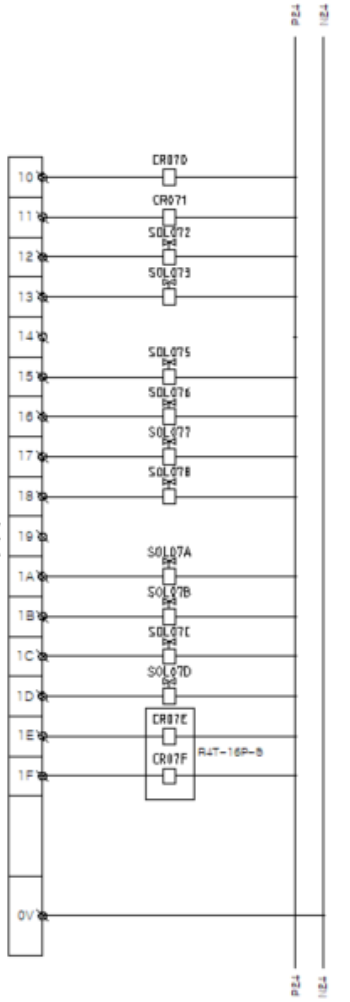
		DESIGN	CHECK	APPROVAL	PROJECT	DWG. NAME		DWG. NO		
		S.S.Jeon	S.S.Jeon	S.S.Jeon	*HEATSINK HOLDER INSERTER*		RTB01 INPUT CIRCUIT	DATE	HOLDIN-000 2023.06.	003 / 005

(M003-26U)

INPUT CARD	QY41P	
SLOT No.	02	
DESCRIPTION	ADDRESS	PIN No.
OP PANEL START LAMP	Y060	R1
OP PANEL STOP PANEL LAMP	Y061	R2
OP PANEL RESET LAMP	Y062	R3
-	Y063	R4
TOWER LAMP (RED)	Y064	R5
TOWER LAMP (YELLOW)	Y065	R6
TOWER LAMP (GREEN)	Y066	R7
TOWER LAMP (BUZZER)	Y067	R8
-	Y068	R9
INPUT C/V SEPARATE CYL' FORWARD SOL	Y069	R10
INPUT C/V 1ST STOPPER DOWN SOL	Y06A	R11
INPUT C/V 2ST STOPPER DOWN SOL	Y06B	R12
-	Y06C	R13
TRASFER PART CHUCK TILT FORWARD SOL	Y06D	R14
INPUT C/V ALIGN JIG' UP SOL	Y06E	R15
-	Y06F	R16
	NC	B04
	NC	B03
COM (+24V)	COM	B02
COM (+24V)	COM	B01



INPUT CARD	QY41P	
SLOT No.	02	
DESCRIPTION	ADDRESS	PIN No.
HOLDER SUPPLY BOWL FEEDER RUN RELAY	Y070	R17
HOLDER SUPPLY LINEAR FEEDER RUN RELAY	Y071	R18
HOLDER SUPPLY BAD EMISSION'S CYL' FORWARD SOL	Y072	R19
HOLDER SUPPLY BAD EMISSION'S CYL' FORWARD SOL	Y073	R20
-	Y074	R21
HOLDER SUPPLY VACUUM SOL #1(FEEDER)	Y075	R22
HOLDER SUPPLY VACUUM SOL #2(SHOOTER)	Y076	R23
HOLDER SUPPLY VACUUM OFF SOL #1(FEEDER)	Y077	R24
HOLDER SUPPLY VACUUM OFF SOL #2(SHOOTER)	Y078	R25
-	Y079	R26
REVERSE PART UPPER GRIP FORWARDSOL	Y07A	R27
REVERSE PART UPPER GRIP REVERSESOL	Y07B	R28
REVERSE PART BOTTOM GRIP FORWARD SOL	Y07C	R29
REVERSE PART BOTTOM GRIP REVERSESOL	Y07D	R30
REVERSE PART UPPER C/V DC MOTOR RUN RELAY	Y07E	R31
REVERSE PART BOTTOM GRIP DC MOTOR RUN RELAY	Y07F	R32
	NC	A04
	NC	A03
COM (0V)	COM	A02
COM (0V)	COM	A01



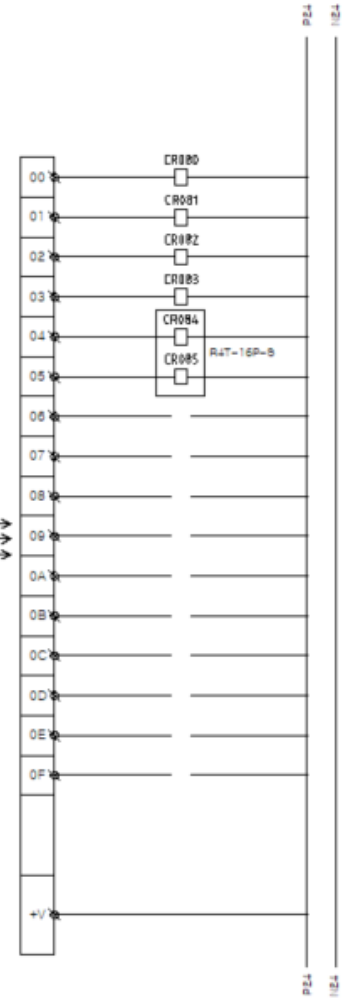
Y060~Y07F

		DESIGN	CHECK	APPROVAL	PROJECT	DWG.	OUTPUT	DWG.NO	HOLDIN-000	004
		S.S.Jeon	S.S.Jeon	S.S.Jeon	*HEATSINK HOLDER INSERTER*	NAME	CIRCUIT	DATE	2023.06.	005

(M003-26U)

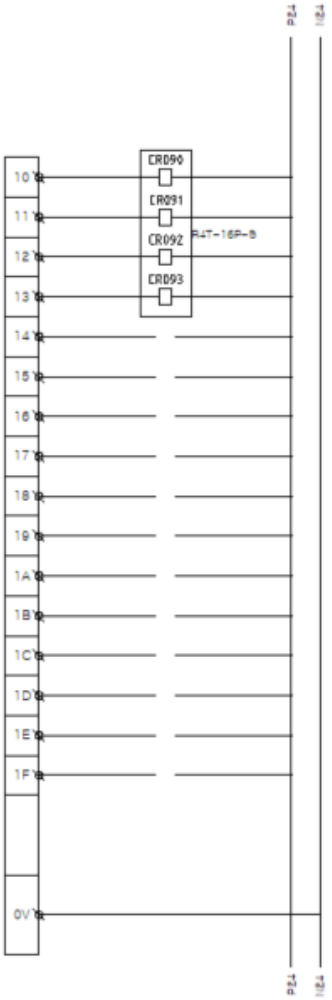
INPUT CARD	QY41P
SLOT No.	02

DESCRIPTION	ADDRESS	PIN No.
CC01 PLC NORMAL	Y080	R1
CC01 PLC ERROR	Y081	R2
OP PANEL ERROR RESET	Y082	R3
SFC01 AUTO/MANU BYPASS	Y083	R4
REVERSE PART UPPER C/V DC MOTOR CW/CCW RELAY	Y084	R5
REVERSE PART BOTTOM GRIP DC MOTOR CW/CCW RELAY	Y085	R6
-	Y086	R7
-	Y087	R8
-	Y088	R9
-	Y089	R10
-	Y08A	R11
-	Y08B	R12
-	Y08C	R13
-	Y08D	R14
-	Y08E	R15
-	Y08F	R16
	NC	B04
	NC	B03
COM (+24V)	COM	B02
COM (+24V)	COM	B01



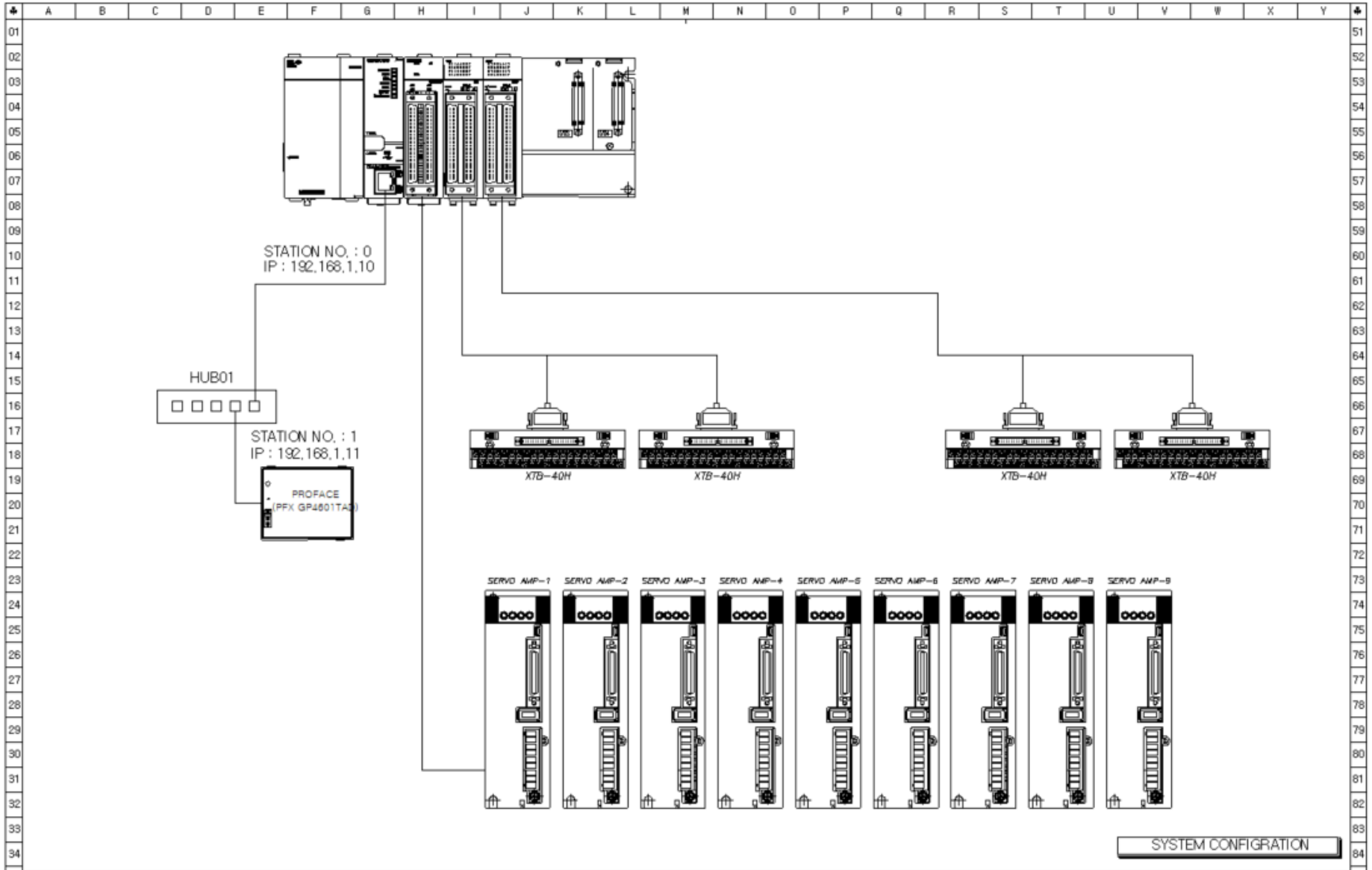
INPUT CARD	QY41P
SLOT No.	02

DESCRIPTION	ADDRESS	PIN No.
INPUT C/V SPG(AC) MOTOR RUN RELAY	Y090	R17
RETURN C/V SPG(AC) MOTOR RUN RELAY	Y091	R18
OUTPUT C/V SPG(AC) MOTOR RUN RELAY	Y092	R19
-	Y093	R20
-	Y094	R21
-	Y099	R22
-	Y096	R23
-	Y099	R24
-	Y098	R25
-	Y099	R26
-	Y09A	R27
-	Y09B	R28
-	Y09C	R29
-	Y09D	R30
-	Y09E	R31
-	Y09F	R32
	NC	A04
	NC	A03
COM (0V)	COM	A02
COM (0V)	COM	A01



Y080~Y09F

		DESIGN	CHECK	APPROVAL	PROJECT	DWG. NAME		DWG. NO	
		S.S.Jeon	S.S.Jeon	S.S.Jeon	*HEATSINK HOLDER INSERTER*		OUTPUT CIRCUIT	DATE	HOLDIN-000 2023.06.	005 / 005



		DESIGN	CHECK	APPROVAL	PROJECT	DWG. NAME	PLC CONFIGRATION	DWG. NO	HOLDIN-000	001/001
		S.S.Jeon	S.S.Jeon	S.S.Jeon	*HEATSINK HOLDER INSERTER*			DATE	2023.06.	

5. ELECTRIC PART LIST

ASSEMBLY	Line 수량	도면번호	부품번호 CIRCI	자재 품명 TYPE OF COMPONENT	수량	총수량	규 격 COMPONENT TYPE NO.	제조원 MANUFACTURER
HEATSINK HOLDER INSERTER	2	HOLDIN-000	1	ELCB01	1	2	ABS-33c/20A	LS Industrial System
HEATSINK HOLDER INSERTER	2	HOLDIN-000	2	POWER LAMP	1	2	KGP-HD2W(WHITE,AC220V)	KG AUTO
HEATSINK HOLDER INSERTER	2	HOLDIN-000	3	MCCB-01,MCCB-02	2	4	ABS32c-10A,ABS32c-15A	LS Industrial System
HEATSINK HOLDER INSERTER	2	HOLDIN-000	4	Power Block	2	4	SPS45-M8/12xM4	SAMWON ACT
HEATSINK HOLDER INSERTER	2	HOLDIN-000	5	Magnet	2	4	MC-22B,DC24V	LS Industrial System
HEATSINK HOLDER INSERTER	2	HOLDIN-000	6	MCCB	2	4	MMS (32S-1.0~1.6A)	LS Industrial System
HEATSINK HOLDER INSERTER	2	HOLDIN-000	7	MCCB	5	10	MMS (32S-0.63~1.0A)	LS Industrial System
HEATSINK HOLDER INSERTER	2	HOLDIN-000	8	MCCB	2	4	MMS (32S-1.6~2.5A)	LS Industrial System
HEATSINK HOLDER INSERTER	2	HOLDIN-000	9	POWER SUPPLY	1	2	SPB-180-24,7.5A	AUTONICS
HEATSINK HOLDER INSERTER	2	HOLDIN-000	10	POWER SUPPLY	1	2	SPB-060-24,2.5A	AUTONICS
HEATSINK HOLDER INSERTER	2	HOLDIN-000	11	Ethernet Hub	1	2	EDS-205	MOXA
HEATSINK HOLDER INSERTER	2	HOLDIN-000	12	Noise Filter	1	2	WYFS06TD	WOONYOUNG
HEATSINK HOLDER INSERTER	2	HOLDIN-000	13	POWER Module	1	2	Q61P	Mitsubishi Electric
HEATSINK HOLDER INSERTER	2	HOLDIN-000	14	Base Module	1	2	Q35B	Mitsubishi Electric
HEATSINK HOLDER INSERTER	2	HOLDIN-000	15	Cpu Module	1	2	Q03UDVCPU	Mitsubishi Electric
HEATSINK HOLDER INSERTER	2	HOLDIN-000	16	Positioning Module	1	2	QD77MS16	Mitsubishi Electric
HEATSINK HOLDER INSERTER	2	HOLDIN-000	17	input Module	1	2	QX42	Mitsubishi Electric
HEATSINK HOLDER INSERTER	2	HOLDIN-000	18	Output Module	1	2	QY42P	Mitsubishi Electric
HEATSINK HOLDER INSERTER	2	HOLDIN-000	19	Curcuit Protector	2	4	BK63H-2P-1A	LS Industrial System
HEATSINK HOLDER INSERTER	2	HOLDIN-000	20	Curcuit Protector(ELB)	1	2	32EGR-2P-15A	LS Industrial System
HEATSINK HOLDER INSERTER	2	HOLDIN-000	21	Curcuit Protector	4	8	BK63H-2P-6A	LS Industrial System
HEATSINK HOLDER INSERTER	2	HOLDIN-000	22	Curcuit Protector	1	2	BK63H-2P-10A	LS Industrial System
HEATSINK HOLDER INSERTER	2	HOLDIN-000	23	Curcuit Protector	1	2	BK63H-2P-3A	LS Industrial System
HEATSINK HOLDER INSERTER	2	HOLDIN-000	24	Curcuit Protector	2	4	BK63H-1P-6A,3A	LS Industrial System
HEATSINK HOLDER INSERTER	2	HOLDIN-000	25	SPG MOTOR CONTROLLER	4	8	SP0002CE	SPG MOTOR
HEATSINK HOLDER INSERTER	2	HOLDIN-000	26	Thermostat	1	2	RTM-50F	RUN ELECTRIC
HEATSINK HOLDER INSERTER	2	HOLDIN-000	27	DRIVE AMP	5	10	MR-JE-10B	Mitsubishi Electric
HEATSINK HOLDER INSERTER	2	HOLDIN-000	28	DRIVE AMP	2	4	MR-JE-20B	Mitsubishi Electric
HEATSINK HOLDER INSERTER	2	HOLDIN-000	29	DRIVE AMP	2	4	MR-JE-40B	Mitsubishi Electric
HEATSINK HOLDER INSERTER	2	HOLDIN-000	31	ENCORDER CABLE	9	18	MR-J3ENCBL10M-A1-L	Mitsubishi Electric
HEATSINK HOLDER INSERTER	2	HOLDIN-000	32	POWER CABLE	9	18	MR-PWS1CBL10M-A1-L	Mitsubishi Electric
HEATSINK HOLDER INSERTER	2	HOLDIN-000	33	BRAKE CABLE	2	4	MR-BKS1CBL10M-A1-L	Mitsubishi Electric
HEATSINK HOLDER INSERTER	2	HOLDIN-000	34	BATTERY(J4)	9	18	MR-BAT6V1SET	Mitsubishi Electric
HEATSINK HOLDER INSERTER	2	HOLDIN-000	35	BUS CABLE	8	16	MR-J3BUS05M(0.5M)	Mitsubishi Electric
HEATSINK HOLDER INSERTER	2	HOLDIN-000	37	Servo Noise Filter	1	2	WYF-S20T1-AD	WOONYOUNG
HEATSINK HOLDER INSERTER	2	HOLDIN-000	38	RELAY	4	8	MY2N DC24V	SAMWON ACT
HEATSINK HOLDER INSERTER	2	HOLDIN-000	39	Terminal Relay	2	4	R4T-16P-S-DC24V	SAMWON ACT
HEATSINK HOLDER INSERTER	2	HOLDIN-000	40	MCCB	6	12	MMS (32S-0.63~1.0A)	LS Industrial System
HEATSINK HOLDER INSERTER	2	HOLDIN-000	41	SPG MOTOR SOCKET	4	8	KH-RS-11	KOINO
HEATSINK HOLDER INSERTER	2	HOLDIN-000	42	RELAY	4	8	MY2N DC24V	HONEY WELL
HEATSINK HOLDER INSERTER	2	HOLDIN-000	43	Terminal Relay	2	4	R4T-16P-S-DC24V	SAMWON ACT
HEATSINK HOLDER INSERTER	2	HOLDIN-000	44	ConCent	1	2	ERC-220V-16A,1POLE	SAMWON ACT
HEATSINK HOLDER INSERTER	2	HOLDIN-000	45	TERMINAL BLOCK	1	2	KH-6030-3P	KOINO
HEATSINK HOLDER INSERTER	2	HOLDIN-000	46	INPUT BOARD	2	4	XTB-40H	SAMWON ACT
HEATSINK HOLDER INSERTER	2	HOLDIN-000	47	OUTPUT BOARD	2	4	XTB-40H	SAMWON ACT
HEATSINK HOLDER INSERTER	2	HOLDIN-000	48	TERMINAL BLOCK	300	600	15A	DONG-A
HEATSINK HOLDER INSERTER	2	HOLDIN-000	49	GROUND BAR	1	2	SG-EB3-30P	SEGIBIZ
HEATSINK HOLDER INSERTER	2	HOLDIN-000	50	PANEL FAN	1	2	SJ1229HA2S(220V)	SUNTRONICS
HEATSINK HOLDER INSERTER	2	HOLDIN-000	51	FAN COVER	2	4	KFC-200	KEM
HEATSINK HOLDER INSERTER	2	HOLDIN-000	53	PILOT LAMP	1	2	KGP-HD2W	KG AUTO
HEATSINK HOLDER INSERTER	2	HOLDIN-000	54	LAMP PUSH BUTTON SWITCH	1	2	KGX-HMD21B	KG AUTO
HEATSINK HOLDER INSERTER	2	HOLDIN-000	55	SELECHT KEY SWITCH(2POLE,FIX)	2	4	KGX-H2M1A	KG AUTO
HEATSINK HOLDER INSERTER	2	HOLDIN-000	56	EMO EMERGENCY SWITCH	3	6	K22-911R-EMO 1a2b	KACON
HEATSINK HOLDER INSERTER	2	HOLDIN-000	57	EMO EMERGENCY COVER	3	6	KEG82	KACON
HEATSINK HOLDER INSERTER	2	HOLDIN-000	58	LAMP PUSH BUTTON SWITCH	1	2	KGX-HMD21G	KG AUTO
HEATSINK HOLDER INSERTER	2	HOLDIN-000	59	LAMP PUSH BUTTON SWITCH	1	2	KGX-HMD21R	KG AUTO
HEATSINK HOLDER INSERTER	2	HOLDIN-000	61	TOWER LAMP	1	2	ST4SL-B2-3-24-RAG-SZ18	Q-LIGHT
HEATSINK HOLDER INSERTER	2	HOLDIN-000	62	COM TB TERMINAL	1	2	XTB-COM20B	SAMWON ACT
HEATSINK HOLDER INSERTER	2	HOLDIN-000	63	I/O LINK CABLE	4	8	C40HF-10PX-1	SAMWON ACT
HEATSINK HOLDER INSERTER	2	HOLDIN-000	64	FUSE HOLDER	1	2	1A	HANYOUNG
HEATSINK HOLDER INSERTER	2	HOLDIN-000	65	Safety Controllers	1	2	G9SX-NSA222-T03	OMRON
HEATSINK HOLDER INSERTER	2	HOLDIN-000	66	Safety Controllers	1	2	G9SX-BC202-RT	OMRON
HEATSINK HOLDER INSERTER	2	HOLDIN-000	67	Safety Relay	4	8	SFS2-DC24	SAMWON ACT
HEATSINK HOLDER INSERTER	2	HOLDIN-000	68	Safety Relay Socket	4	8	SFS2-SW-D24	SAMWON ACT
HEATSINK HOLDER INSERTER	2	HOLDIN-000	69	Safety Relay	2	4	SFS4-DC24	SAMWON ACT
HEATSINK HOLDER INSERTER	2	HOLDIN-000	70	Safety Relay Socket	2	4	SFS4-SW-D24	SAMWON ACT
HEATSINK HOLDER INSERTER	2	HOLDIN-000	71	PVC DUCT	7	14	H60 * W80	YOUNGSIN
HEATSINK HOLDER INSERTER	2	HOLDIN-000	72	PVC DUCT	3	6	H40 * W80	YOUNGSIN
HEATSINK HOLDER INSERTER	2	HOLDIN-000	73	COM TB TERMINAL	1	2	XTB-COM40B	SAMWON ACT

6. ELECTRIC Parts Catalog(Attached)