Dust Collector
Instruction Manual
for Installation and Maintenance

CMS-3700TP

Document No.: CIM-60005-01

CHIKO AIRTEC CO., LTD.

Revision History

Version	Details of Revision
01	Create new

Table of Contents

Foreword

☆ This instruction manual is a guidebook for safe and correct use of this product.

☆ Before using this product, please read this manual thoroughly for having good grasp of operation and maintenance/inspection. If you perform operations other than those described in this manual, it may cause serious accident. Save this manual with care at the place where it can be easily seen for supervisor, operator and inspector.

☆ Please observe relevant laws and regulations properly when operating this equipment.

☆ Do not do the operation/perform maintenance/inspection of this product unless you understood this manual perfectly.

☆ Please conduct risk assessment before operation of dust collector.

☆ We are not liable for any accident, failure, etc. resulting from the following use:

- Erroneous operation
- Improper operation or improper administration method
- Use with modification
- Natural disaster, fire, explosion, etc.
- Other external factors

☆ Throughout this manual, precautions as follows are described at a variety of points. Those indications are the precautions to help ensure safe use of this product in particular.
Make sure you thoroughly understand these symbols before starting the work.

□WARNING

Using the product carelessly may cause serious accident.

☆ Details of this manual are subject to change with no advance notice. Perform the work according to the details of change instruction.

☆ When in doubt about details of this manual, please contact us.

【Product liability】

About our delivered products ①In case of using the equipment without observing the warning labels or the compliance items stated in the instruction manual, by themselves or by a third party, ②If you move the equipment to another country outside of Japan (If your place is the overseas country means transfer to another country), and use it by yourself or by a third party without our written authorization , ③If you repair, remodify, relocate the equipment by yourself or by a third party without our written authorization, ④Use the equipment for the purposes which doesn't described in the specification document by yourself or by a third party without our written authorization, ⑤Use the equipment at the condition which doesn't described in the specification document by yourself or by a third party without our written authorization, ⑥If there is a product liability related trouble happened to human or physical damage in the case of transferring the equipment to a third party without our written authorization, in the case that damage is present at the time of delivery to your company we will resolve this in your responsibility and burden. But except for it, we will not be responsible for the cost burden on this issue.

【Intellectual property rights】

(1) We guarantee that our delivered products don't infringe industrial property rights such as patent rights of the third parties. However, if your company infringes the industrial property rights of a third party using our delivered products, it will be resolved at your responsibility and burden.

(2) Our delivered products which transferred to the overseas country from Japan [If your place is the overseas country means transfer to another country] and used by yourself or by a third party; our delivered products which remodified and used by yourself or by a third party in the overseas country from Japan [If your place is the overseas country means transfer to another country] ; or the modification infringes industrial property rights such as patent rights of third parties, it will be your responsibility and burden to solve the trouble. We will not pay for the cost burden associated with that issue.

⚠ Important Cautions

Before using our product, make sure you thoroughly understand the details of this manual properly for correct use.
Precautions indicated here are designed for the prevention of harm or damage to yourself or others.
In addition, among precautions, for the sake of clarifying the magnitude of harm and damage and the level of urgency, imaginable details that may be caused by misuse are classified as follows.
However, even in the case of details that are described in CAUTION column, there is a possibility that those may cause serious consequence depending on circumstances.
In either case, these are important details regarding safety, therefore, be sure to observe them.

⚠ **DANGER:** Great risk of death or serious injury from improper use.

⚠ **WARNING:** Possibility of death or serious injury from improper use

⚠ **CAUTION:** Possibility of injury or damage to property from improper use:

Symbols

Symbol △ tells warning or caution. Inside the symbol concrete precaution (in the case of illustration in the left, CAUTION AGAINST ELECTRIC SHOCK) is illustrated.

Symbol ○ tells the prohibited actions.
Inside of or near this symbol concrete prohibited items (in the case of illustration in the left, NO DISASSEMBLING) is illustrated.

Symbol ● tells the compulsory actions.
Inside of this symbol concrete precaution (in the case of illustration in the left, PERFORM GROUNDING WORK) is illustrated.

▽ Cautions in using this product

⚠ CAUTION	
Do not use this product for any application other than predetermined product specification. It may cause ground fault, electric shock, explosion, fire, etc.	Use only the parts produced/approved by us.

▽ Cautions in carrying-in/moving/installing

⚠ CAUTION	
At the occasion of carrying-in or moving, work shall be performed in consideration of gravity and weight. * May cause injury due to drop, breakage, etc.	At the occasion of transferring this product by means of lift or traveling crane, the holder of respective license shall perform transfer. * May cause injury due to drop, breakage, etc.
At the occasion of installing this product at high elevations or installing hopper, secure stable scaffolding before work to ascertain safety. * May cause injury due to fall, rollover, etc.	Do not make modification to this product nor try to relocate it without our prior written approval.

▽ Cautions in operating

⚠ WARNING	
Installation of main body shall be performed at horizontal place with sufficient strength. *The wheel stop is put on the caster without fail. * It may cause injury due to turning sideway or roll of main body.	The wiring work of the remote control shall be performed by the qualified person in accordance with Electrical Installation Technical Standard and extension regulations safely and positively. * Improper connection and erroneous wiring work may cause a risk of electric shock or fire.
The earth is surely installed. * There is a risk of electric shock in the event of breakdown and leak if the earth isn't installed.	Confirm the connection of earth leakage breaker. * It may cause leakage, electric shock or fire.
Don't use a phase advance capacitor for the power supply. * It may cause fire.	Do not use the machine in a state suspected of being abnormal. * Breakdown may cause injury.
Do not use the machine near flammable materials such as kerosene, gasoline, thinner, benzine, paint, etc. Or other materials that may explode. * It may cause an explosion or fire.	Don't suck the corrosive powders and gases * It may cause breakdown, accident or fire.
Don't suck the spark. * It may cause breakdown, accident or fire.	Do not splash water or oil on this product. *It may cause ground fault, fire.
Don't touch the electrical surroundings such as power plug, switch, or wiring with wet hands. * You may be injured by electric shock.	Do not collect hazardous substances or substances that have an adverse effect on the human body. * There is a risk of environmental pollution and health problems.

⚠ CAUTION	
The following act is prohibited about the power supply court. ・ The heavy object is put on it. ・ It is crowded between things. ・ The court is damaged. ・ The court is processed and bent. ・ Pull twist and bundle it forcibly. ・ It is set crossed the passage and the workplace. *It may cause the power supply court damaged and the electric shock and fire.	Before operating the product, make sure that nobody is present inside the machine and dangerous area. * There is a risk of accident or injury.
	Do not use this product outdoors where this product may expose to raindrop. * It may cause electric shock, ground fault, fire, or breakdown due to deterioration of insulation. (Outdoor type excluded)
	Do not insert hands or fingers into inlet port. *It may cause injury.
Do not use this product in the place at high temperatures (40°C or more). * It may cause fire. (Operating atmospheric temperature range is from 0 to 40°C.)	Do not touch the movable parts of the main body while the machine is in operating * It may cause injury.
Don't apply voltage other than described on the nameplate. * It may cause electric shock, short or fire.	In case of emergency stop the machine and cut off the power supply immediately. * It may cause a secondary accident.
Implement noise countermeasures to prevent peripheral sensors from malfunctioning due to noise generated by the inverter. * It may cause an accident.	Do not carelessly change the settings of control devices such as inverters. * There is a risk of injury due to malfunction.

Don’t operate the machine until you have read all this manual carefully and understand. ＊You may be injured by misoperation.	

▽ Cautions in making maintenance/inspection

⚠ CAUTION	
When performing maintenance and inspection, perform such action observing cautions described in this manual, warning labels and caution plates affixed to the machine. * There is a risk of death or injury.	When performing maintenance and inspection, wear the protective equipment (gloves, dust-proof mask and goggles, etc.). *There is a risk of injury, hand roughness and inflammation.
Cut power off. * There is a risk of death, electric shock or injury.	Person other than repair technician never performs dismantling, repair and modification. * It may result in ignition or abnormal action.
Where this product is installed at high elevations or equipped with hopper, secure stable scaffolding before work to ascertain safety. * There is a risk of injury due to fall/roll-over.	Take care to the electrostatic. *There is a risk of fire and explosion.

▽Cautions in installation

1. Make the installation in the horizontal place where there is no vibration or the impact. Please secure enough installation strength in consideration of the weight of the product.
2. To hoist the machine, be sure to use 4 eyebolts on the top when do the hoist. Please confirm safety and work carefully.
3. Piping at the suck entrance is made by flexible duct etc. so don't bend it as much as possible. Fix the joint of the duct in the band so as not to come off.
4. Use only 3-phase 200V/50Hz/60Hz or 220V/60Hz power sources.
5. Supply compressed air to the filter regulator installed on the side panel of the dust collector.
6. Set the compressed air pressure for the pulse unit to 0.5 MPa via the regulator.
7. Use UL-listed cables meeting the following specification.
   Type: MTW (UL1063) or TC (UL1277)
   Rating: 600V
   Conductor: 4-core AWG12
   Sheath outer diameter: ϕ12–16 mm
   Install a UL489-certified inverse time circuit breaker with a 20A rated current on the power line.
8. Maintain ≥915 mm clearance on all sides (front/rear/left/right) for operational safety around the equipment.
   Avoid orienting suction ducts toward operator walkways. Route power cables without ground contact.
   Verify optimal equipment placement/orientation.

▽Cautions in using

1. Do not suck the aspirate powder, gas, etc. that have a risk of corrosion, explosion, fire, etc.
2. The sources of fire such as cigarette butt, may result in burning, therefore, do not suck them.
3. If the spark caused by the grinders and the abrasive cut-off machines might be sucked, the inhalation prevention device is necessary.
4. Remove the dust accumulated in the duct box periodically. If operate with full dust continuously may cause cartridge filter damaged. In addition, it may cause reduction in volume of suck air.
5. Numeric value indicated on monitor may have slight variations immediately after power-up due to instability of measuring section. Attaining stability of measuring section requires 15 minutes. These variations do not interfere with operation of fan.
6. Do not install the obstacle in the upper board of the machine and the exhausted direction.
   Open them by 1m or more.
   (It is convenient to do maintenance, the check, and the repair work.)
7. Perform the earth work to prevent the electric shock.
8. Do not wash the machine in water. Do not pour water into the machine.

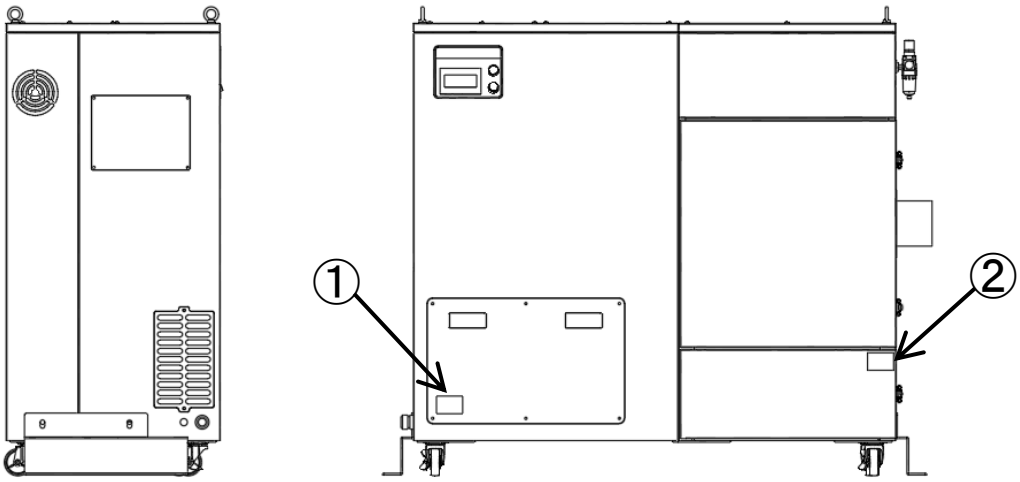
▽Cautions about fire of dust collector

1. Perform operation and maintenance control with the understanding that fire may occur in every dust collector depending on conditions.
2. Do not allow machine to aspirate following substances:
   - Flammables •Spark-bearing powder •Sources of fire (cigarette butt, etc.)
   - Others (Oil mist, etc.)
3. <u>Measures in the event of fire</u>
   Where the circumstances that fire breaks out such as, smoke is discharged from exhaust, wall temperature of dust collector is extremely high, exhaust gas is burning, etc. are encountered, take following actions:
   - Stop all operations of the dust collector immediately.
   - Do not approach machine until fire was put out of itself because it is dangerous.
   - Do not open any door, inspection lid, etc. until fire was put out of itself.
   - Eject dust after fire was put out of itself.
   - If you find lingering flames after fire was put out of itself, close door again to wait extinction or extinguish such lingering flames by means of appropriate fire extinguisher.

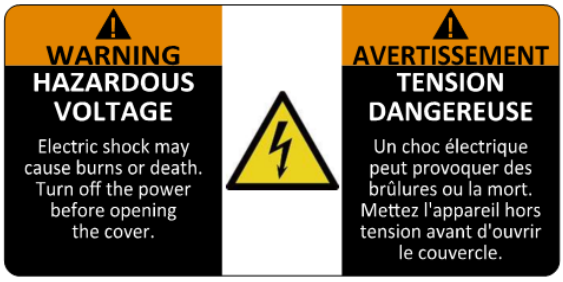
■Sticking chart of warning labels

□CAUTION

Periodically inspect and clean these warning labels so that they can be easily read.
Peeling, torn or dirty labels shall be replaced with new ones.
Contact us for an order of new or replacement labels.

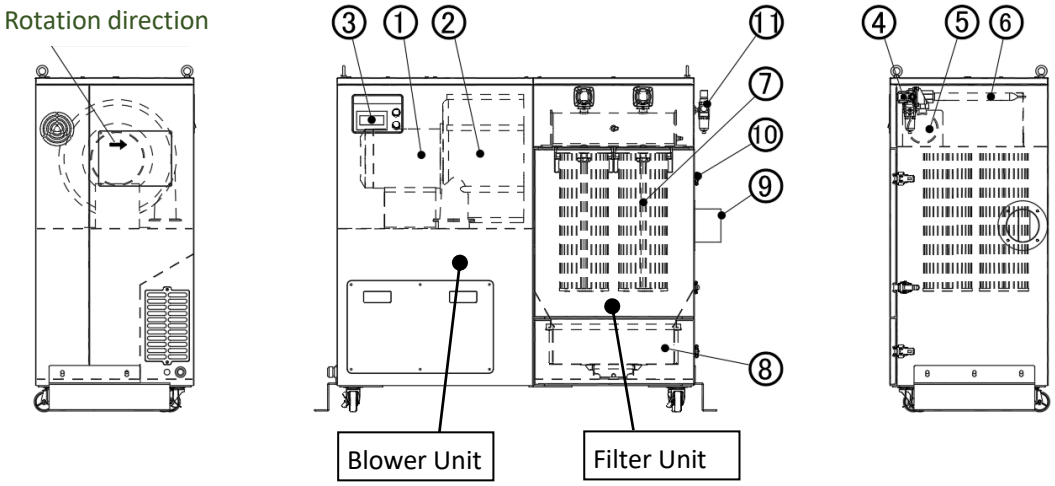


①



②

■Name and specification of parts



【Blower Unit】

No.	Name	Specification
—	Power supply	3-phase 200V/50・60Hz　220V/60Hz
①	Motor　　（kW）	3．7
②	Fan（Blower）	—
—	Gas volume　（m^3/min）	8
③	Control panel	—
—	Recommended Breaker Capacity	20A

※The circuit breaker is out of the scope of delivery.

The breaker must be a UL489 certified listed product, and please select an Inverse time type.

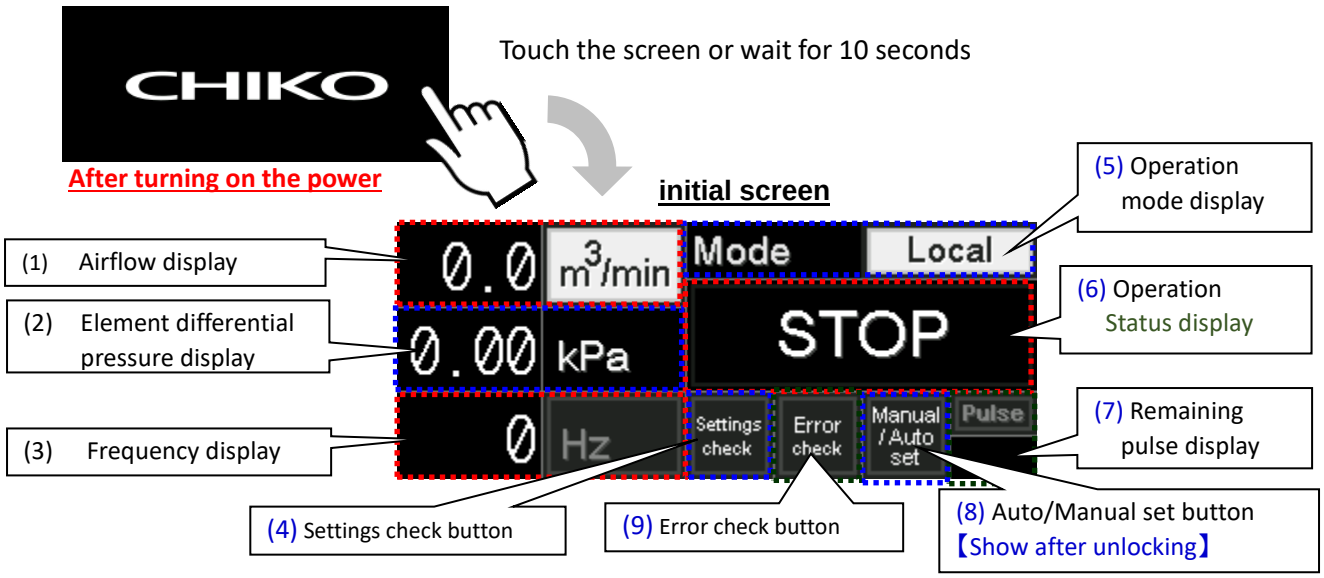
【Filter Unit】

—	Model	CMS－3700TP
④	Pilot valve all-in-one design air valve　　Number	2（DC24V）
⑤	Header pipe	—
⑥	Manifold	—
⑦	Cartridge filter element	Polyester molding filter（PTFE laminate）
	Number	4
	Element area	14㎡
⑧	Dust box	27L
⑨	Suck entrance (mm)	ϕ124
⑩	Catch clip	—
⑪	Air supply	Rc 1/4
—	Compresses air standard consumption L/min （N.T.P.）	8

※These are the values at the time of standard specifications and settings.

It may change when changing the settings.

■How to use the operation panel



(1) Airflow display

Display the current approximate airflow.

m³/min denotes constant airflow control operation.

m³/min denotes frequency command operation.

Push and hold the [m³/min] button to change between the above two operations.

(2) Element differential pressure display

Displays the current element differential pressure.

(3) Frequency display

Displays the current frequency instructions of the fan (blower).

Hz denotes constant airflow control operation.

Hz denotes frequency command operation.

(4) Settings check button

Push this button to switch to the screen to check and change settings.

(5) Operation mode display

Displays the current operation mode.

Remote denotes remote signal operation mode.

Local denotes local operation mode.

Press and hold the display panel during standby to switch operating modes.

(6) Operation Status Display

The unit displays STOP when stopped and RUN when in operation. During the stopping sequence, the STOP indicator flashes. *(Note: The stopping sequence refers to the period until the blower fully halts or the offline pulse cleaning cycle completes.)* Upon full shutdown, the STOP indicator becomes solidly illuminated.

(7) Remaining pulse display

Displays the remaining pulse count during the offline pulse process.

(8) Auto/Manual set button

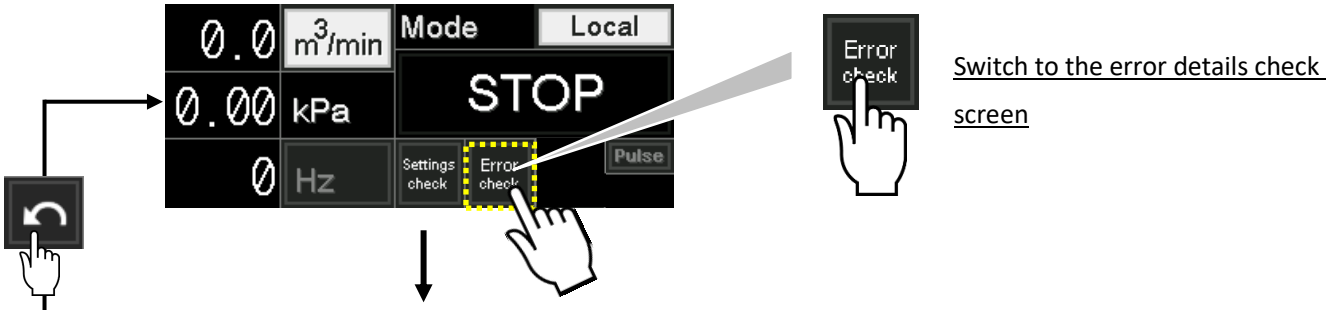
This will be displayed after unlocking. Push this button to switch to the screen for setting automatic/manual for the air blower and dust removal.

(9) Error check button

Push this button to switch to the error details check screen.

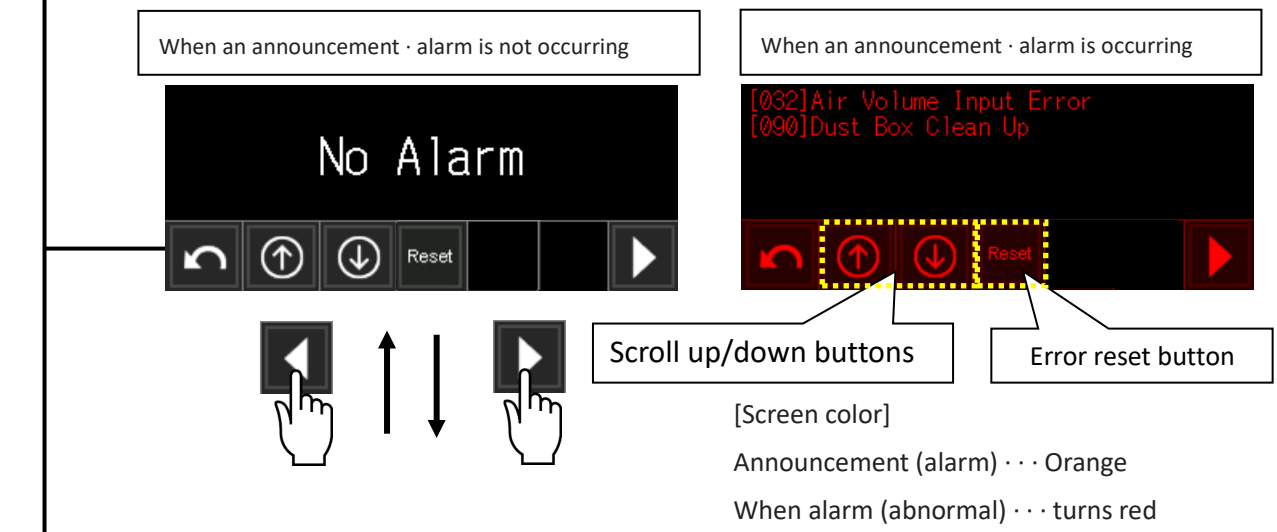
■How to use the error description confirmation screen

● **Initial screen**



Switch to the error details check screen

● **Error description confirmation screen**

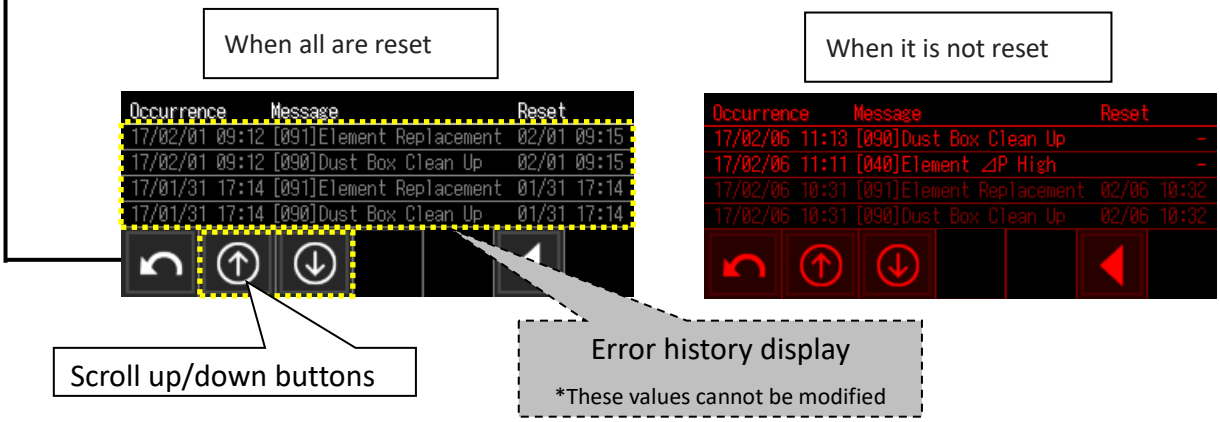


[Screen color]

Announcement (alarm) · · · Orange

When alarm (abnormal) · · · turns red

● **Error description history confirmation screen**



Upon anomaly detection in Remote mode, the external operation command will be automatically disabled.
Post-recovery restart procedure: Turn OFF the external operation command. Reactivate it to ON after system stabilization.
Mode switching is locked during active operation and external operation signal input.

*For announcements and alarms that display at the operation panel, refer to “Troubleshooting (page 32,33)”.

■How to use the settings screen

●Releasing the password lock

Releasing the lock with a password allows the operator to perform the following tasks.

(1) Manual operation of the blower and pulse jet control
(2) Change various pulse jet control settings
(3) Change various announcements and alarm settings
(4) Switching between operation schemes 「Local⇔Remote」
(5) Change the equipment information
(6) Change the password for releasing the lock and the time until the next lock after the lock is released
(7) Change the current time

※Abnormal Reset, Timer Reset, Setting Verification, Auto/Manual Mode Switching functions require no lock release.

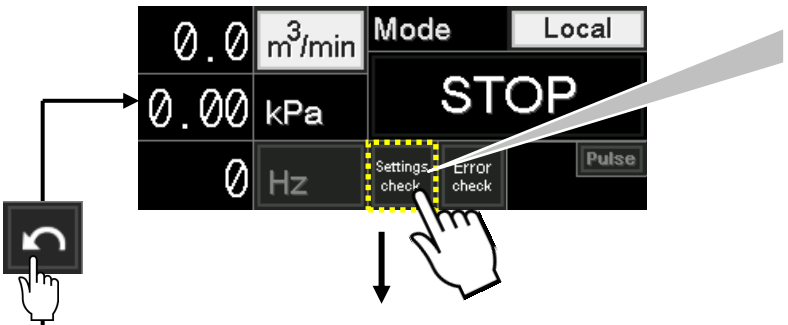
※The password set at the time of shipping from the factory is **"9999".**

Backup pulse is not related to the element pressure differential when operating the fan (blower) but indicates dust removal using a pulse jet that operates at a specified cycle time.

● **After turning on the power**

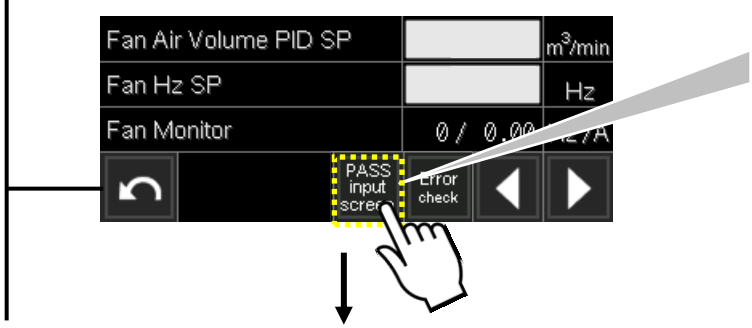
Touch the screen or wait for 10 seconds

● **Initial screen**



Push and hold the button to the left for 2 or more seconds at the initial screen to switch to the setting values confirmation screen

● **Air blow settings screen**

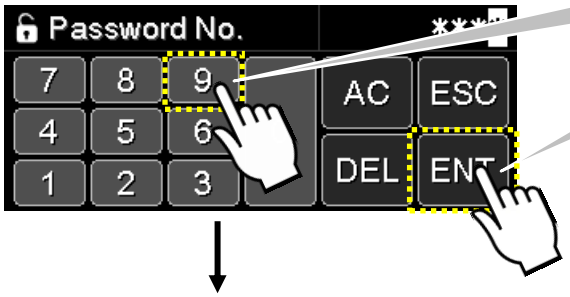


Push and hold the button to the left again for 2 or more seconds to switch to the password input screen

* Numbers shown are default values.

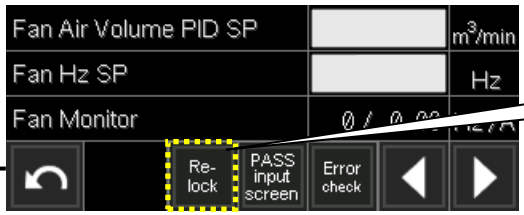
To initial screen

● Password input screen

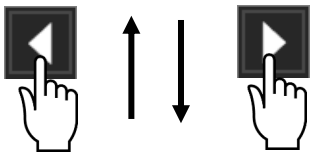


Enter “9999” and then push [ENT] to release the lock.
*The lock can be released from any of the settings screen.

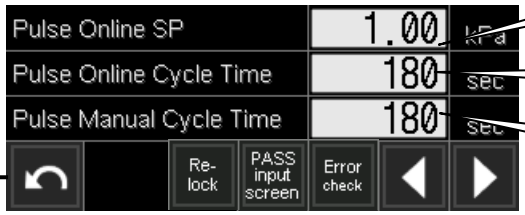
● Air blow settings screen (after releasing lock)



Re-lock button
*Push to re-lock



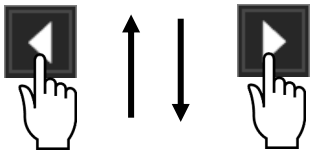
● Online pulse settings screen (after releasing lock)



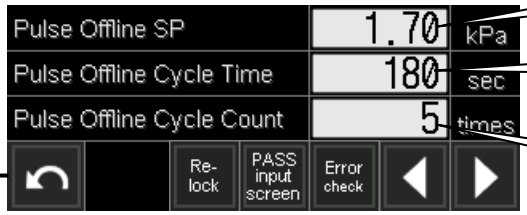
Value set for starting pressure of online pulse

Value set for cycle time of online pulse

Value set for cycle time of manual pulse



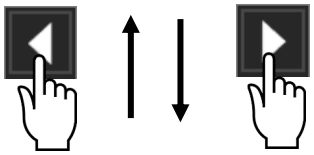
● Offline pulse settings screen (after releasing lock)



Value set for starting pressure of offline pulse

Value set for cycle time of offline pulse

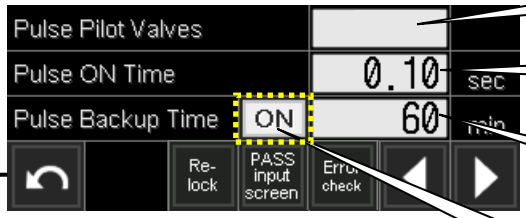
Value set for offline pulse cycle count



* Numbers shown are default values.

To initial screen

● **Pilot valve settings screen (after releasing lock)**



Value set for pilot valve quantity

Value set for pulse ON time

Backup pulse cycle time

Backup pulse ON/OFF (Standard setting: ON)

● **Element differential pressure alarm settings screen(after releasing lock)**

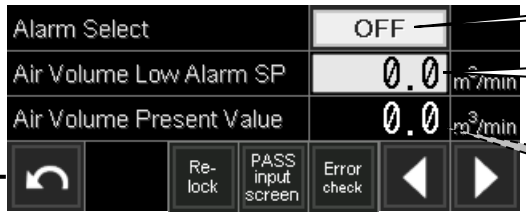
Alarm ON/OFF

Value set for element differential pressure

Current value of element differential pressure

*These values cannot be modified

● **Low airflow alarm settings screen (after releasing lock)**



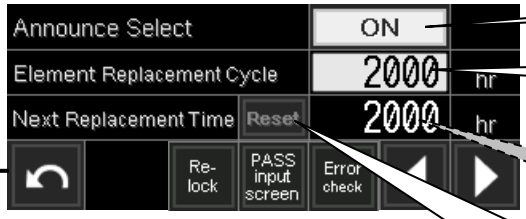
Alarm ON/OFF

Value set for low airflow

Current value of airflow

*These values cannot be modified

● **Element replacement announcement settings screen(after releasing lock)**



Announcement ON/OFF

Value set for element replacement time

Time until element replacement

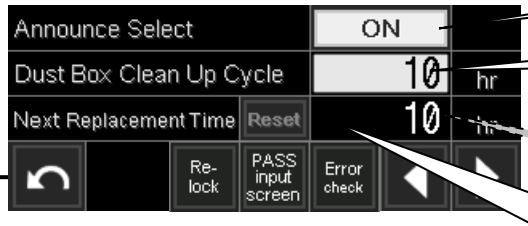
*These values cannot be modified

Push and hold the time reset button for 2 or more seconds

To initial screen

● **Dust discharge announcement settings screen(after releasing lock)**

* Numbers shown are default values.



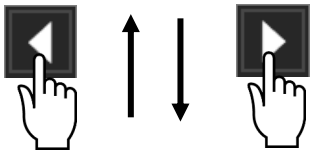
Announcement ON/OFF

Value set for dust discharge time

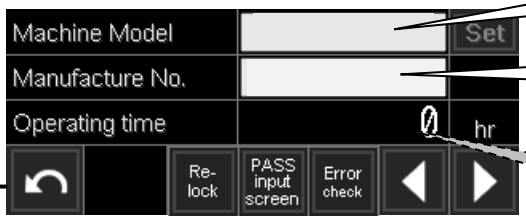
Time until dust discharge

*These values cannot be modified

Push and hold the time reset button for 2 or more seconds



● **Equipment information screen (after releasing lock)**



Equipment model

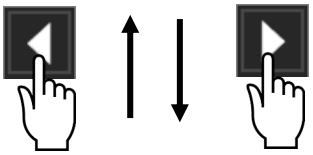
*Can be changed by releasing lock

Equipment manufacturer's number

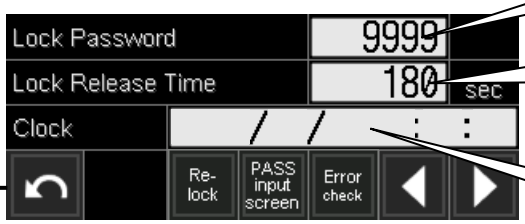
*Can be changed by releasing lock

Cumulative operation time

*These values cannot be modified



● **Password lock and time display screen (after releasing lock)**



Password to release lock

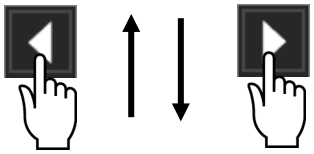
*Can be changed by releasing lock

Time until next lock after lock is released

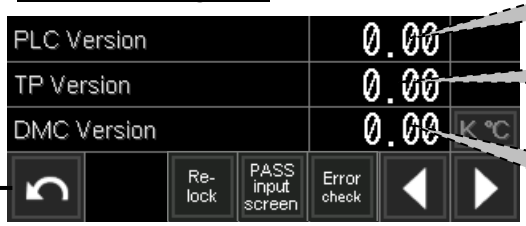
*Can be changed by releasing lock

Current time

*Can be changed by releasing lock



● **Program version display screen (after releasing lock)**



Programmable sequencer program version

*These values cannot be modified

Operation panel program version

*These values cannot be modified

Program version of main board inside control box

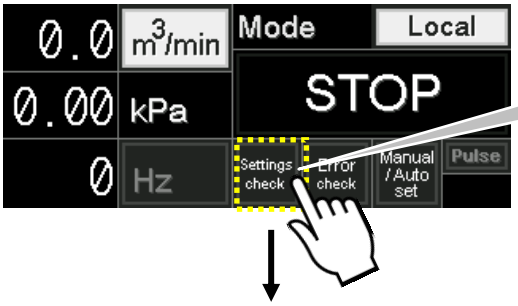
*These values cannot be modified

●Actual procedure examples for changing settings

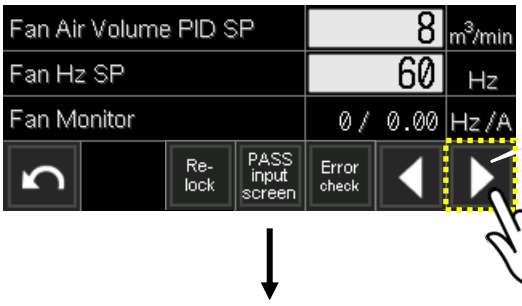
(Example: Changing the pulse cycle for offline pulse from 180 seconds to 90 seconds)

Initial screen(after releasing lock)

* Numbers shown are default values.

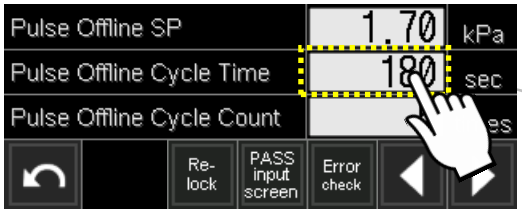


Switch from the initial screen to the setting values check screen.
Push and hold the button for 2 or more seconds.

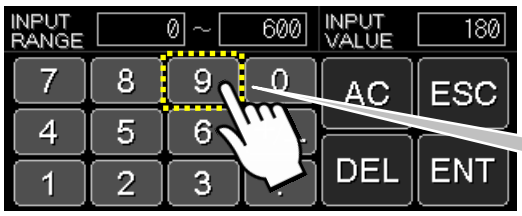


Touch the ▶ button of 2 times to switch to "Pulse Offline Cycle " screen

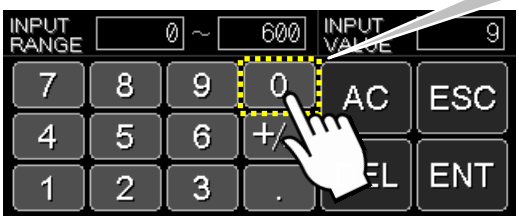
2 times

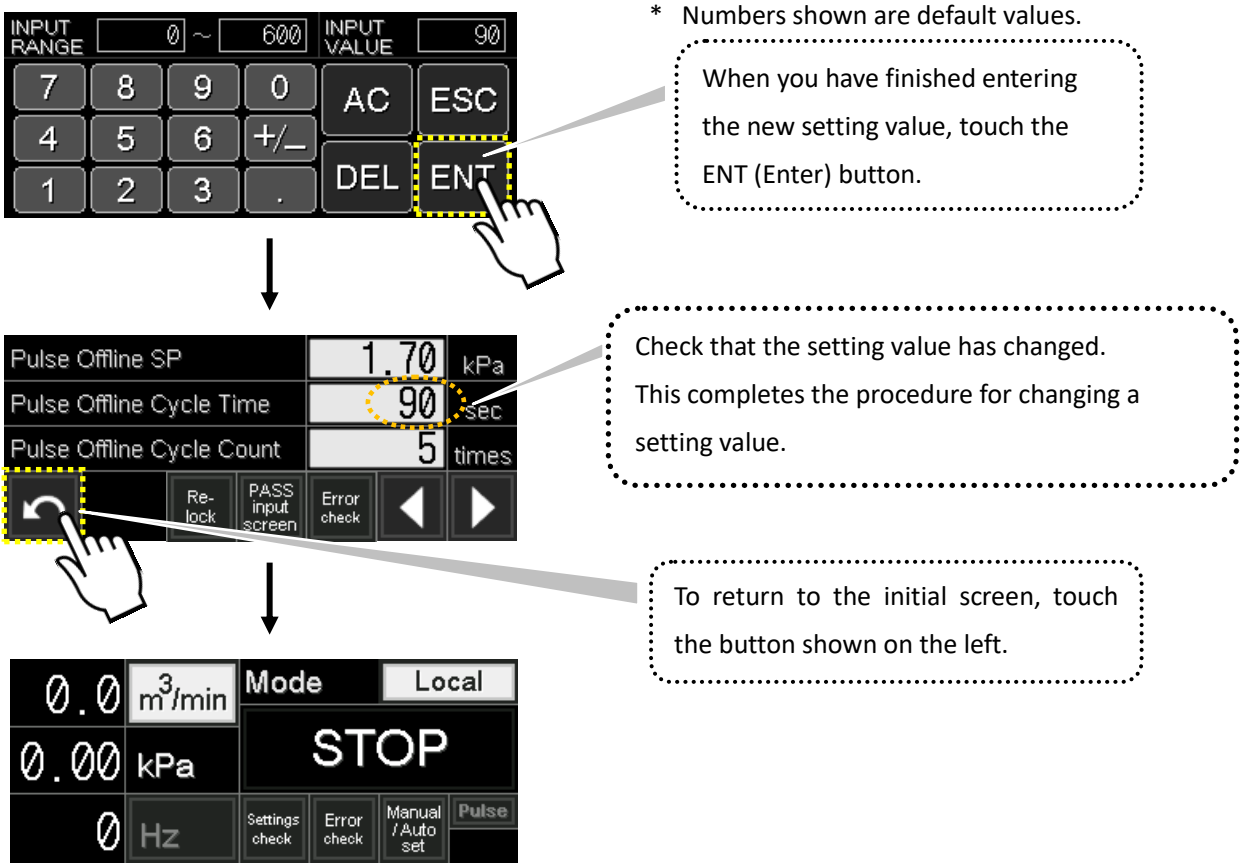


Touch the arrow button shown on the left to advance to the next screen.



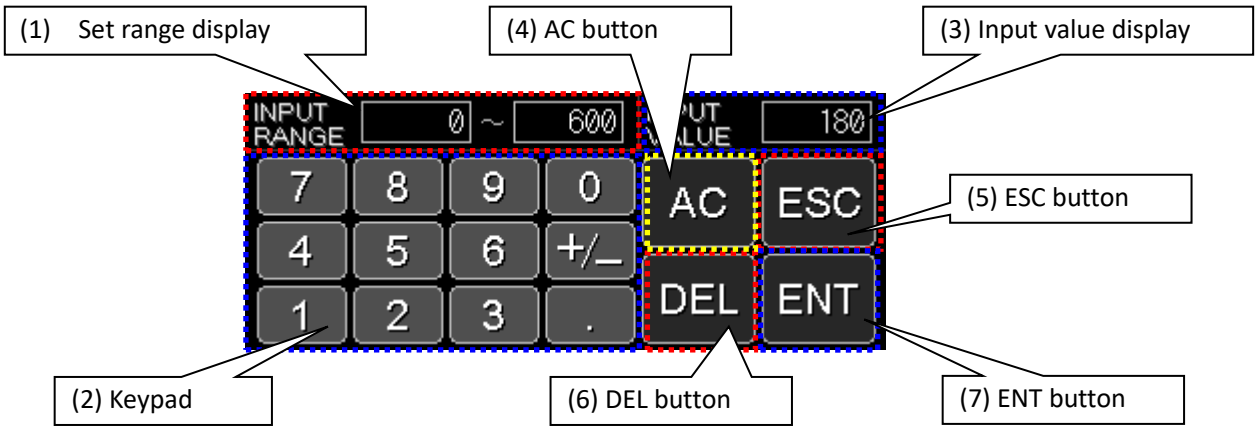
Switch to setting value input screen
Since the new setting value (90)
Please enter





Initial screen (after releasing lock)

Explanation of the setting value input screen



(1)	Set range display	Displays the range that can be set.
(2)	Keypad	Use the keypad to input setting values.
(3)	Input value display	Displays the value you are attempting to set as new.
(4)	AC button	This is the clear all button.
(5)	ESC button	This is the escape (cancels any entered values) button.
(6)	DEL button	This is the delete button.
(7)	ENT button	This is the enter button.

●Switching between operation schemes

● **Initial screen**

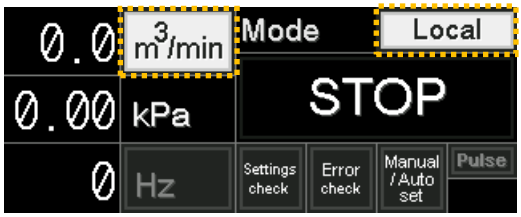
Password-based lock release is required to switch operation schemes.
Mode switching is prohibited during active operation and external operation signal input.

Refer to p.10 and perform the operation of Releasing the password lock。

To switch between all of the operation modes shown below, push and hold for 2 or more seconds.

● **Initial screen (after releasing lock)**

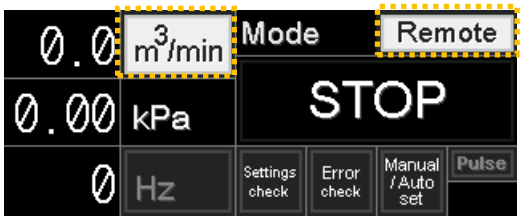
Local operation – Constant airflow control operation

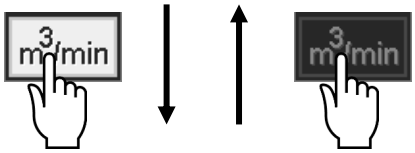


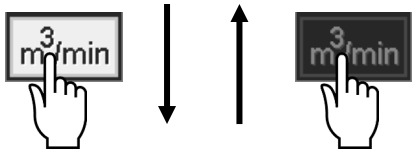
Local

Remote

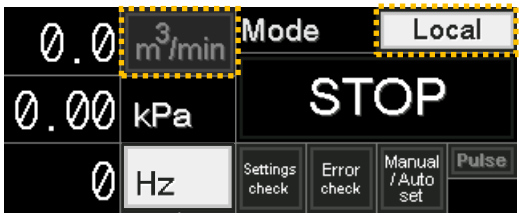
Remote operation - Constant airflow control operation







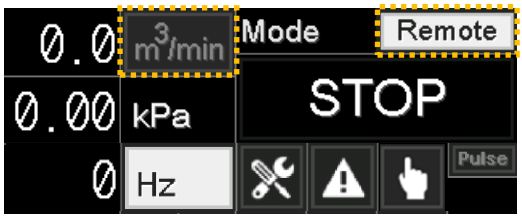
Local operation – Frequency command operation



Local

Remote

Remote operation – Frequency command operation



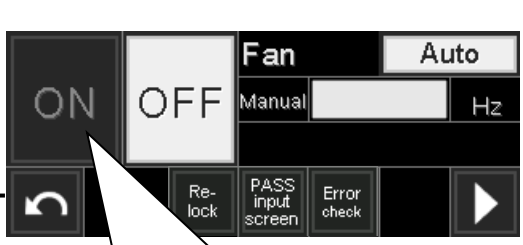
■How to use the manual operation screen

Password-based lock release is required to initiate manual operation.
Mode switching is prohibited during active operation and external operation signal input.

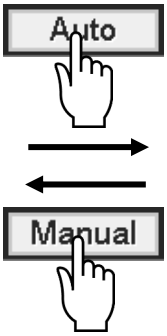
● **Initial screen**

Change to the Auto/Manual settings screen

● **Air blower auto/manual settings screen**

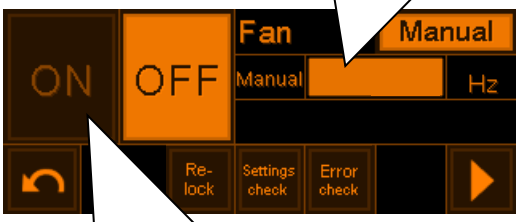


Air blower ON/OFF button (Not ON during AUTO)

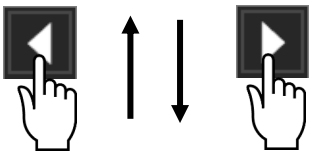


Push and hold for 2 or more seconds

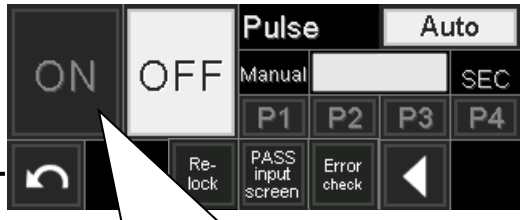
Airflow setting for constant airflow manual operation



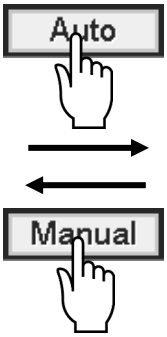
Air blower manual ON/OFF button



● **Dust removal auto/manual settings screen**

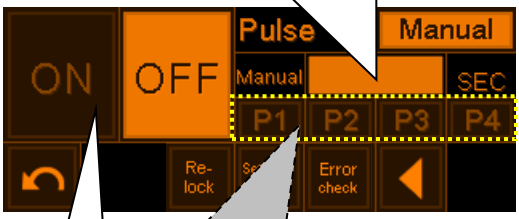


Dust removal ON/OFF button (Not ON during AUTO)



Push and hold for 2 or more seconds

Value set for pulse cycle time during manual operation



Air valve operation display
*These values cannot be modified

Dust removal manual ON/OFF button

When changing from AUTO to MANUAL for either the air blower or dust removal, be aware that ON (operation) cannot be used at the initial screen. Therefore, when changing to MANUAL for either the air blower or dust removal, the screen will display in orange to warn the operator.

■Preparation, starting and stopping operating

□ CAUTION

☆Power supply connection must be performed by certified electricians.

☆Always de-energize the circuit before power connection work.

Risk of electric shock exists if powered during operation.

1. Lockout the power source to prevent accidental energization.。

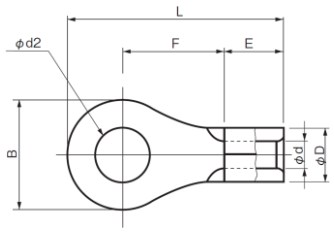
2. Attach a "WORK IN PROGRESS" warning tag or assign a supervisor to monitor the workspace.

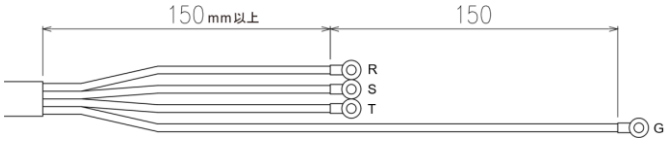
☆Feed the prepared power cable (specifications below) through the cable gland at the lower-left of the main body into the control panel, then connect to the terminal block.

Cable Specifications

Type: UL-listed MTW (UL1063) or TC (UL1277)
Rating: 600V
Conductor： 4－core AWG12
Sheath outer diameter: ϕ12–16 mm
Tighten the cable gland to 17.7–24.8 lbf･in torque.
Use UL486A/UL486B-certified crimp terminals for wiring.
Maintain a minimum free length of 150 mm after stripping the sheath.
Provide a service loop to avoid strain on the cable.

☆Crimping Terminal (Unit Side)
ϕd2：≥4.2mm
Length B: ≤9 mm
Certification：UL486A/486B





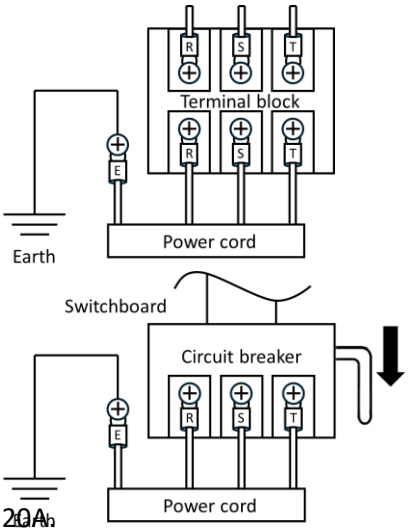
☆Power Cable Connection Procedure:

①Connect the main body side grounding wire to earth.
（Tighten the screw to 10.5 lbf·in torque）

②Secure the R, S, T phase wires to the terminal block.
（Tighten screws to 10.5 lbf·in torque.）

③Connect the breaker-side grounding wire to earth.
Verify grounding resistance ≤100Ω using a certified earth tester.
Select terminal sizes and tightening torque based on breaker dimensions.
Select UL489-certified inverse time type Circuit Breaker.

④Secure the R, S, T phase wires to the circuit breaker rated current 20A.
Select terminal sizes and tightening torque based on breaker dimensions.



☆Always operate with caution!（→『Important Precautions』）

☆Conduct scheduled inspections prior to startup.（→『Inspection Checklist』）

☆Operation under abnormal conditions is strictly prohibited.。（→『Troubleshooting Guide』）

1. Before operating

Check the following items.

1) That the power cable is connected correctly.
2) That the earth wire is grounded correctly.
3) That the element is set correctly.
4) That compressed air for dust removal is being supplied.

※Set the compressed air pressure for dust removal to 0.5 MPa.。
This dust collector is engineered to deliver optimal particle dislodgement efficiency at the specified pressure.

2. Operating

For local operation

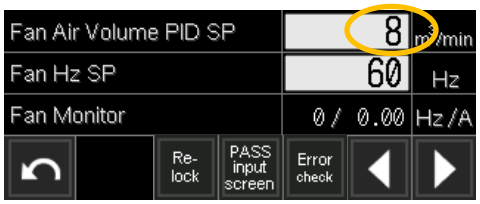
1) Turn on the main power and touch the operation panel or wait 10 seconds for the initial screen shown on the right to display.

2) Press the "ON" button adjacent to the control panel to start the blower.
The "RUN" status indicator will illuminate upon successful activation.

For constant airflow control operation

Switch to m3/min

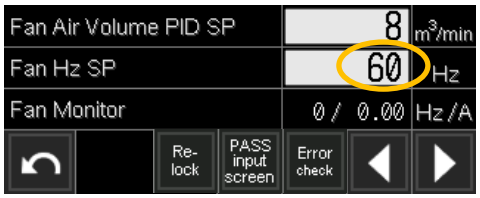
3) In this case, the air volume set on the blower setting screen and Control is performed to automatically change the frequency I will. In order to adjust the necessary air volume, the screen shown below
Please adjust the air volume at



For frequency command operation

Switch to m3/min

3) In this case, it operates at the set frequency. In order to adjust the operating frequency, the screen shown below
Please adjust the operating frequency at



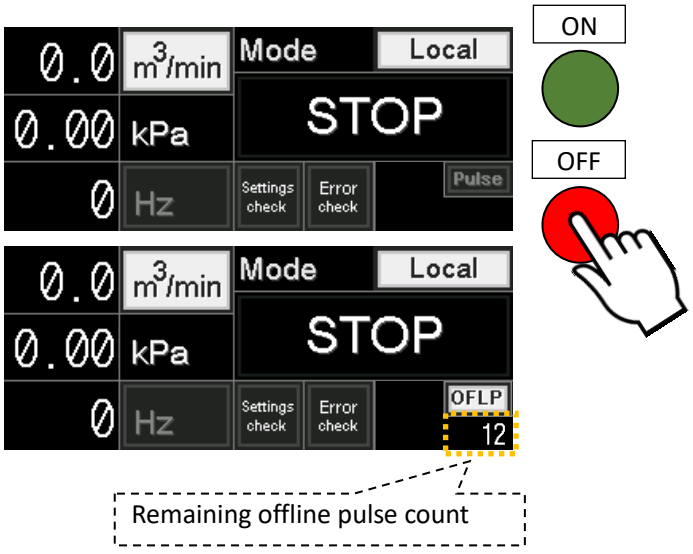
For remote control

Refer to “Start/Stop by External Signal” (p. 28・29).

3. Stopping

1) Push the OFF button at the operation panel. The OFF button becomes highlighted and the fan (blower) stops operating.

*Note that if the equipment enters the offline pulse process after pushing the OFF button, the OFF button begins to flash and as shown on the right, the remaining offline pulse count shown below OP on the bottom right displays and then after the offline pulse ends, the OFF button stops flashing.



⚠ CAUTION

Wait 5 minutes or more before restarting the equipment after turning off the fan (blower) to protect the motor. Also, operating with the intake port closed for a long time will raise the temperature inside the dust collector and may affect the lifespan of the equipment. Therefore, do not use the equipment in this manner.

4. Precautions for trial runs and operations

The fan (blower) has a feature that causes the thermal (overload protection device) on the machine to function and may be stopped operation when the motor overloads due to insufficient load at the suction area. Be aware of the following points when operating or performing a trial run.

●Trail run・・・・・・Always perform a trial run when duct installation has been finished.

●Operation・・・・When the thermal relay activates even after duct installation, lower the operating frequency or set up a damper at the intake port and then adjust the airflow to ensure that the fan motor current value does not exceed the rated current value. The fan motor current value displays at the air blow settings screen.

Rated current value〔A〕	14．5

5. Automatic pulse

The difference between online pulse and offline pulse

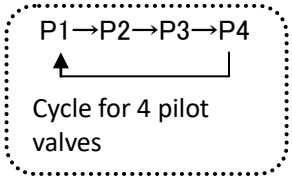
Online pulse	Online pulse is when dust removal is performed using a pulse jet while the fan (blower) is operating.
Offline pulse	Offline pulse is when dust removal is performed using a pulse jet while the fan (blower) has stopped.

1) Online pulse

When operation begins and dust is suctioned, the dust sticks to the element and the element differential pressure value increases. If the differential pressure value of the element displayed at the operation panel is lower than the pulse start pressure, dust removal using a pulse is not performed. However, if it is higher than the pulse start pressure, the pulse starts automatically. If the element differential pressure at the operation panel drops below the pulse start pressure due to dust removal using a pulse, the pulse stops automatically.

PLS displayed on the bottom right of the initial screen becomes highlighted and pulse begins. When using the pulse, the pilot valve number that operated displays immediately after the pilot valve operates.

Before pulse execution　During offline pulse　Pilot valve number displays



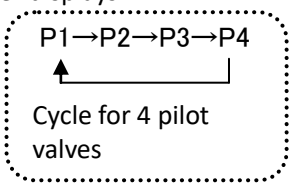
*Refer to “How to use the operation panel (starting at page 10) for setting or changing the pulse start pressure.

2) Offline pulse

When the fan (blower) stops and the element differential pressure value at the operation panel is higher than the offline pulse start pressure, the cycle count pulse specified at “Offline pulse cycle (page 11)” is used.

PLS displayed on the bottom right of the initial screen changes to OP and the remaining offline pulse count displays below it. Also, when using the pulse, the valve number that operated displays immediately after the valve operates. When offline pulse ends, OP no longer displays.

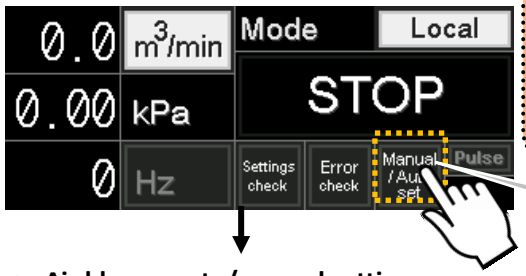
During offline pulse　Pilot valve number displays　After offline pulse ends



*Refer to “How to use the operation panel (page 10 and onwards) for setting or changing the offline pulse start pressure and offline pulse cycle count.

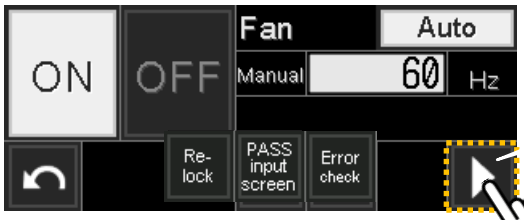
6. Manual pulse

Password-based lock release is required to initiate manual operation. Mode switching is prohibited during active operation and external operation signal input.



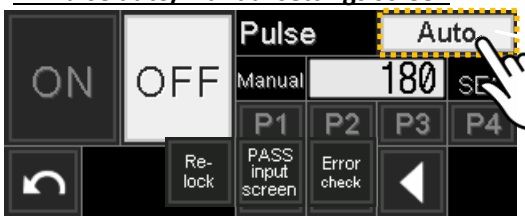
Switch from the initial screen to the auto/manual settings screen.

● **Air blower auto/manual settings screen**

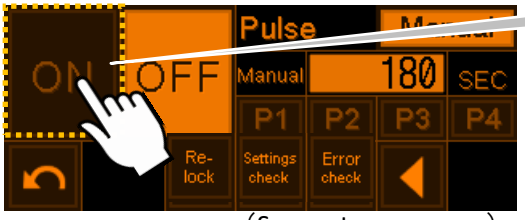


Touch the button shown on the left to switch screens.

● **Pulse auto/manual settings screen**



Touch the button shown on the left to switch from AUTO to MANUAL.
Push and hold for 2 or more seconds.



Touch the ON button to start the pulse jet.

（Screen turns orange）

Manual pulse starts after completing the above procedure.
Be aware that manual pulse does not stop until the OFF button is pushed at this screen or the power is turned off. Also, when changing from AUTO to MANUAL for either the air blower or dust removal, be aware that ON (operation) cannot be used at the initial screen. Therefore, when changing to MANUAL for either the air blower or dust removal, the screen will display in orange to warn the operator.

■Maintenance

[Before the work]

□CAUTION

☆ Always follow the cautionary instructions (see “Critical Notes”).
☆ Always wear protective devices (gloves and dust-proof goggles and mask).

[Draining the water generated by compressed air]

Condensed water may be accumulated in the filter regulator depending on the properties of the compressed air supplied at the factory.
Drain the water (about once a week) with the procedure as described below.

1. Stop the air supply.

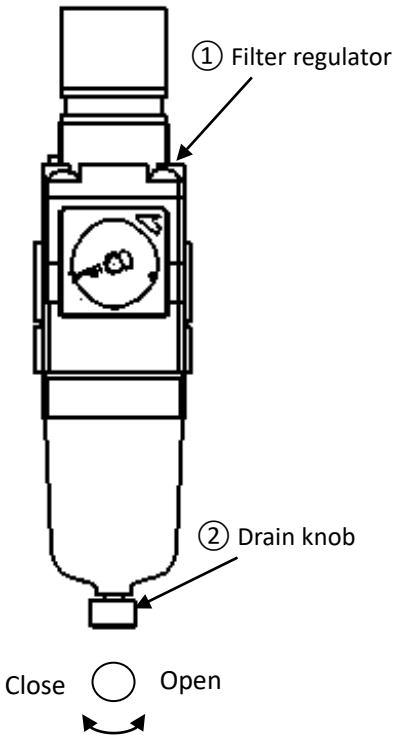
2. Put a drain pan below the filter regulator (①).

3. Rotate the knob (②) in the bottom of the filter regulator counterclockwise to drain.

* At this time, do not rotate the knob quickly.
  If do that, the water may splash under the pressure of the compressed air.

4. Rotate the knob clockwise to tighten.

5. Start the air supply.



Replacing the cartridge element

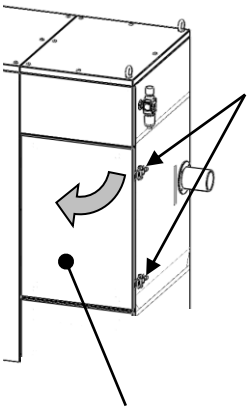
*Replace the cartridge element after approximately 2,000 hours. Also, replace it immediately if it is found to be damaged while performing an inspection.

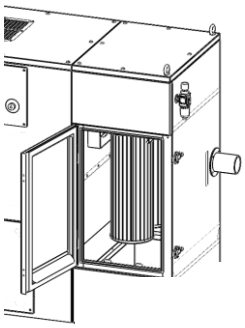
□Caution

Always turn off the main power and ensure the fan (blower) has come to a complete stop.

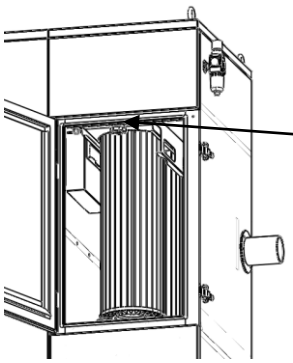
When handling the cartridge element always wear gloves, goggles and a dust mask.

Failure to comply may result in injury to hands or particulate entering eyes or mouth.



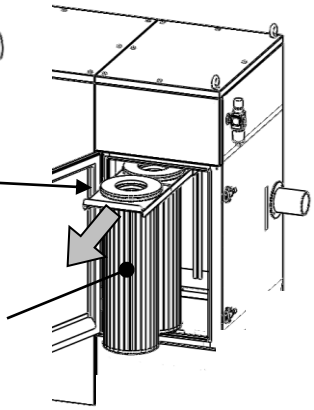


1. Unlock the 2 catch clips (1) on the right side and open the inspection door (2).

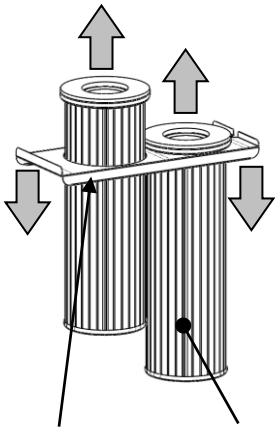


2. Remove the star knob (3) and then pull out the filter frame (4) holding the cartridge elements (5).

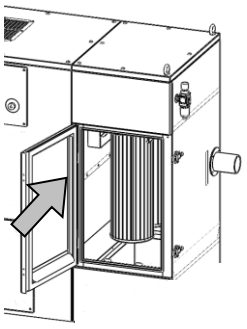
3. Remove the cartridge elements (5) from the filter frame (4) and replace them with new cartridge elements.



4. Install the new cartridge elements using the procedure in reverse.
   Push the filter frame (4) that holds the cartridge elements (5) along the rail to the rear of the cabinet and then secure it with the star knob (3). When doing so, ensure the gasket for the cartridge elements to check is pressed in place.



5. Close the inspection door (2) and then lock the catch clips (1).



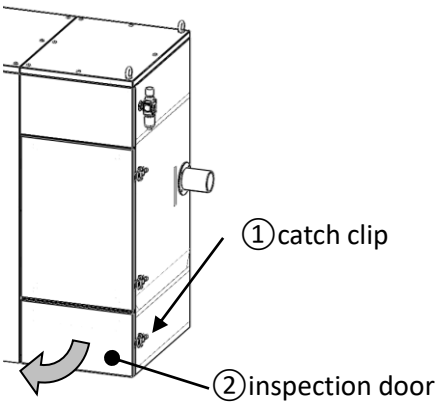
[Exhausting procedure of the dust in dust box]

※ **Dust should be discharged to avoid accumulation as much as possible.**

□CAUTION

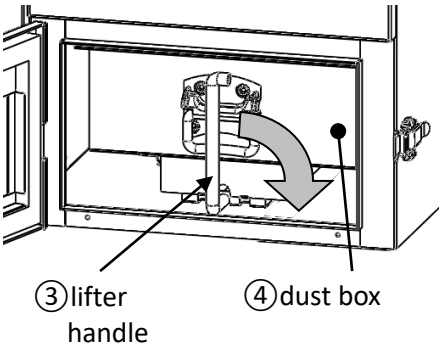
Turn off power while working.
When exhausting the dust box, always wear gloves and dust-proof goggles and mask.
Failure to do this may lead to inflammation of your hand or injury or let the dust enter your eyes or mouth.

1. Remove the catch clip (①) (at the right) and open the inspection door (②).



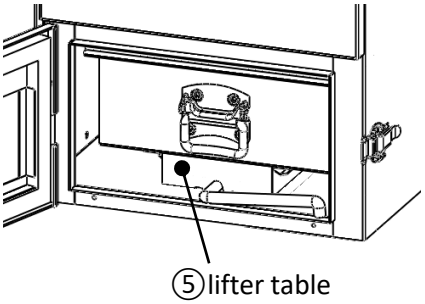
2. Rotate the lifter handle (③) counterclockwise and remove the dust box (④) by pulling toward you.

3. Exhaust the dust in dust box (④).



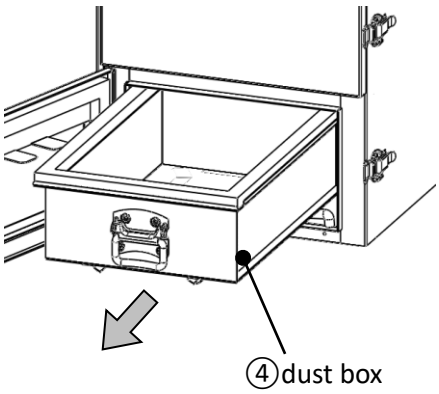
4. The installing procedure is in order opposite to the removing procedure.
Put the pulse unit(④) inside the machine and install it with the bolts

Put the dust box (④) on the lifter table (⑤) and fully insert it.



5. Rotate the lifter handle (③) clockwise to the vertical position.

6. Close the inspection door(②) and tighten with the catch clip(①).



【Replacing cold air inlet filter】

※Replace the filter approximately 1 year. If any significant contamination is found during the inspection, replace it immediately.

□CAUTION

Always turn off the main power before replacement work.

When handling the filter, you must wear gloves, or other protective equipment.

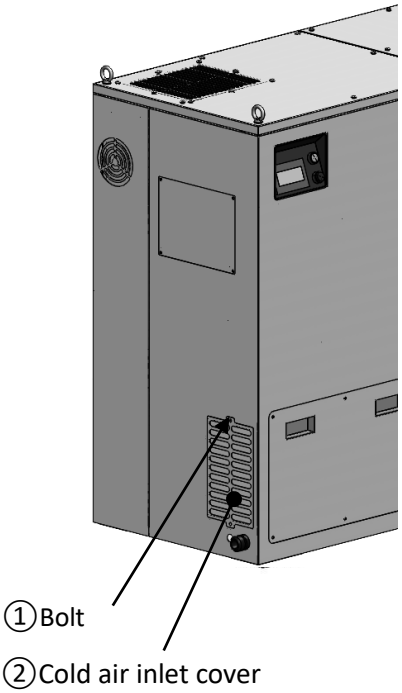
Secure the work area and scaffolding.

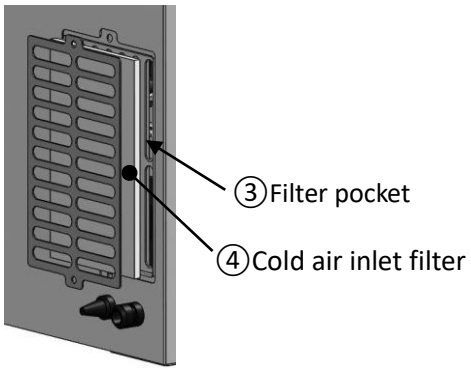
There is a risk of injury to your hands.
Dust may get into your eyes or mouth.

1. Remove the bolt (①) and remove the cold air inlet cover (②).

2. Remove the cold air inlet filter (④) from the filter pocket (③).

3. Installation should be performed in the reverse order of removal.



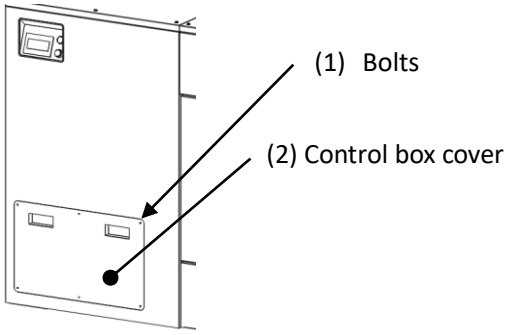


Replacing the PLC battery

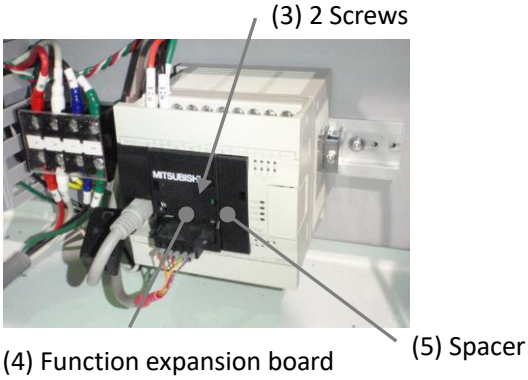
□CAUTION

Always turn off the power if operating.
Always wear gloves and other safety gear.
Prepare the work space and scaffolding.
Failure to comply may result in electric shock, hand roughening or injury, or dust entering eyes or mouth.

1. Remove the bolts (1) and then remove the control box cover (2).
   ※Grounding wire is pre-installed on the underside of the cover. Handle with care to avoid mechanical stress on the wiring during access or maintenance.



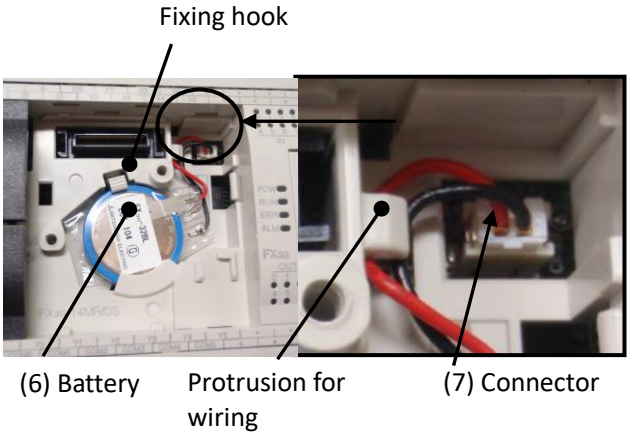
2. Remove the screws (3) and then remove the function expansion board (4) and the spacer (5).



3. Remove the connector (7) from the battery (6) and attach a new battery.

4. Insert the connector (6) from the new battery (6) and hang the battery (6) from the hook to fix it in place.

5. Install the battery wiring so that it passes below the protrusion.



6. Install using the procedure in reverse.

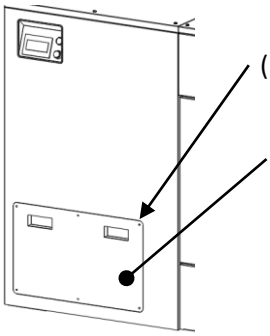
7. Removing the battery temporarily may cause the clock to display the wrong time. Therefore, turn on the power, refer to page 10 and onwards and check the current time.

8. If the clock displays the wrong time, refer to page 10 and onwards and change the time so it matches the current time.

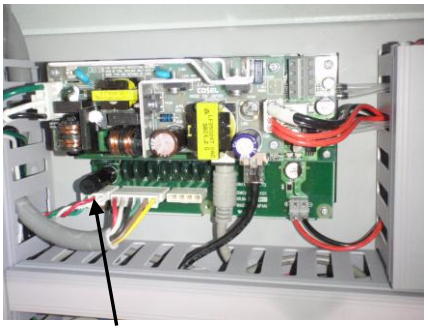
Replacing the fuse for the mainboard

CAUTION

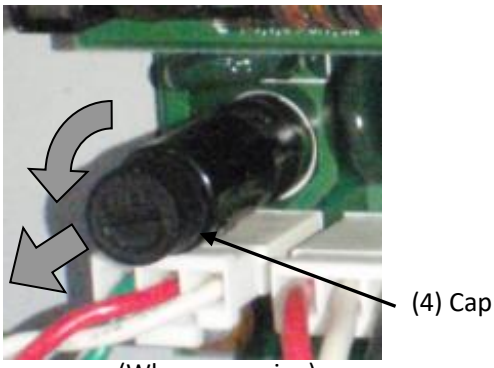
Always turn off the power if operating.
Always wear gloves and other safety gear.
Prepare the work space and scaffolding.
Failure to comply may result in electric shock, hand roughening or injury, or dust entering eyes or mouth.



1. Remove the bolts (1) and then remove the control box cover (2).
   ※Grounding wire is pre-installed on the underside of the cover. Handle with care to avoid mechanical stress on the wiring during access or maintenance.



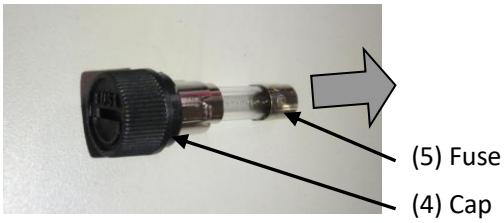
2. There is a fuse holder (3) on the main board. Pinch the cap (4) on the fuse holder (3) and rotate it 90 degrees in a counter clockwise direction to remove.



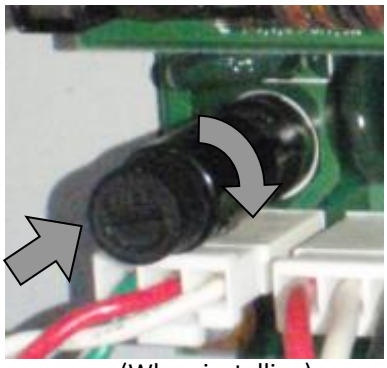
(When removing)

3. Remove the fuse (5) since the fuse (5) belongs with the cap (4) and then attach a new fuse (5).

4. Install using the procedure in reverse. Insert the cap (4) attached to the new fuse (5) in the fuse holder (3) and then while pushing down on it, rotate it 90 degrees in a clockwise direction to install it.



5. Attach the control box cover (2) using the bolts (1).

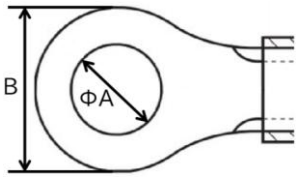

(When installing)

■Starting and stopping with external signals

Terminals are provided to permit starting and stopping with external signals. See the wiring diagram on page 35. Ensure the following conditions are met when using them.

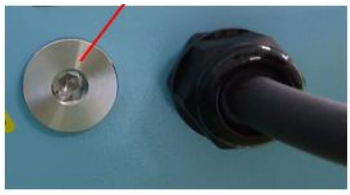
● Remote signal cable installation method

1） Select the UL758-compliant remote signal cable with rated voltage 150V, 10-core 25AWG, Sheath outer diameter of ϕ8–10 mm. The crimp terminals should be UL486 certified with ϕA:M3 size, length B ≤6 mm. screws to PLC controller terminals with a torque of 4.42~7.08lbf·in.



2） Replace the metal screw plug at the lower-left unit panel with a cable gland then feed the remote signal cable through the installed cable gland into the control box. Select a cable gland matching the cable diameter. Tighten to the torque specified for the gland size. Ensure zero cable movement and confirm secure fixation via pull test.

Metal screw plug



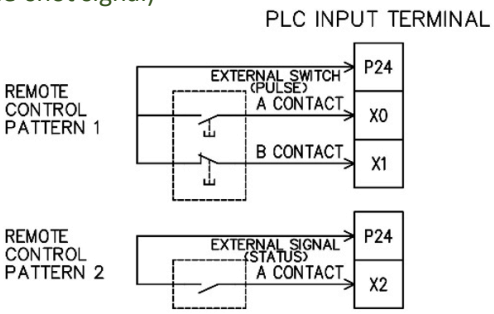
3） Route the remote signal wire along the front side of the control box, following the housing, to the PLC terminal, and install it through two guides to prevent accidental movement. Ensure it is wired at least 100 mm away from high voltage circuits (AC lines, motor lines, etc.), and do not route them through the same duct or bundle them together.

● Precautions when wiring remote signal cable

1. use a shielded or twisted wire for the remote signal cable and keep it within 30m. If the above connection does not work, install a relay near the main body, operate the relay contact by remote signal, and wire from the relay contact to the PLC terminal block.
2. Do not apply voltage to the input terminals of the circuit. (A 24 VDC signal voltage is applied inside the box.)
3. Since the remote signal input circuit has a minute current, a minute signal contact is recommended to prevent contact failure.Input specifications: 24VDC/7mA

● For remote control signals, use either “Remote Control 1” or “Remote Control 2” as shown below.

1. Remote control 1 (PLC terminal block X0, X1 terminals, one-shot signal)
   When a one-shot signal is received between P24 and X0 terminals (contact A), the dust collector starts operation, and when the signal between P24 and X1 terminals (contact B) is turned off (open), the dust collector stops.
   Note: The signal between P24 and X0 terminals must be 100msec or longer.



2. Remote control 2 (PLC terminal block, X2 terminal, status signal)
   The dust collector operates while a status signal is received between the P24 and X2 terminals (contact A), and the dust collector stops when it is turned OFF (open).

※ Interlock of operation by external signal (measures against malfunction prevention)

If you operate the dust collector with the external signal in the Remote mode, pressing the OFF button next to the dust collector panel, the dust collector stops and the「abnormal stop」alarm is triggered.

When it is confirmed that the dust collector is ready (safe) to operate, reset the「abnormal stop」alarm.

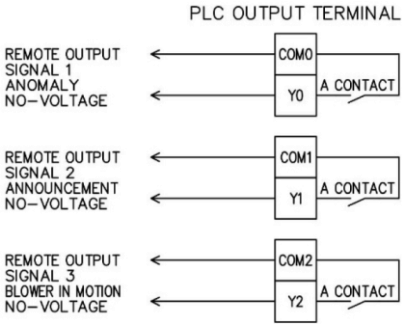
If an error occurs in the “Remote” mode, the external operation command is disabled.
When restarting after the equipment reset turn the external operation command OFF once, Turn the external operation command ON again.
Mode switching cannot be performed during operation or while an external operation signal is being input.

● External Output Signals (Contact Type)

Remote output signal 1: External signal is output between COM0 and Y0 terminals as a batch alarm when an alarm occurs.

Remote output signal 2: Outputs an external signal between COM1 and Y1 terminals as a batch alarm when an announcement is issued.

Remote output signal 3: No-voltage contact output (contact A), voltage of 30 VDC or less
Maximum load: 2A or less (resistive load) / 80VA (inductive load)



For the contents of the alarm announcement, please refer to "Trouble shooting?" (p. 32.33).

■Regular inspection chart

□CAUTION

☆ Always follow the cautionary instructions.（→Important notes）

☆ Please do measures promptly without driving when you find abnormality.
(→Troubleshooting)

【Confirm before driving.】

Check part	Cycle	Check item	Check method	Criteria
Dust box	1/day	Whether the dust piles up or not	Open the check door and watch inside.	No deposit
Air supply entrance	1/week	Whether there is the drain of the filter regulator or not	Watch the drain bottle	No drain
Cartridge element		Whether dust piles up or not on the cell plate	Open the check door and watch inside.	No deposit
Cold air filter		Is the filter dirty or clogged?	Visually inspect the filter	No clogging
Suck duct	1/month	Whether there is loosening of connected part or not	Watch the connected part.	No loosening
		Whether the duct has been damaged or not	Watch the duct from the outside.	No damage
		Whether the dust piles up in the duct or not	Watch the inside of the duct.	No deposit

Please stop the dust collector when you discover the defect by the check result.
Please treat it according to the following.

Check part	Check result ・ Defective content	Treatment Content	Attention when treating
Dust box	Dust piles up	Remove the piled up dust	E-2 D-4 P-1
Air supply	There is drain.	Exhaust the drain.	A-1
Cartridge element	Cartridge filter element is damaged.	Exchange the Cartridge filter element	E-2 D-4 P-1
	The installation of the cartridge filter element has come off.	Install the cartridge filter element	
Cold air filter	Dirty or clogged filter	Cleaning or replacing the filter	E-2
Suck duct	Connected part looses.	Connect the duct firmly.	D-4
	The duct is damaged.	Repair or exchange the duct	
	Dust piles up in the duct.	Remove the piled up dust	

【Confirm when the machine is driving.】

Check part	Cycle of check	Content	Check method	Criteria
Blower	1/day	Whether the sound or the vibration is larger than usual or not	Hear the driving sound	No abnormal sound
Exhaust vent		Whether the dust leakage or not	Watch the exhaust vent	Can't watch
Suck statement		Whether the suck is normal or not (Whether the dust leakage or not)	Watch the suck part	No suck leakage
Dust outlet vent		Whether the air has been sucked or not Whether there is dust blowing leakage at the pulse or not	Confirm whether there is suck sound in the outlet vent or not Watch the dust outlet vent	No suck sound No blowing leakage

Please stop the dust collector when you discover the defect by the check result.
Please treat it according to the following.

Check part	Check result ・ Defective content	Content of treatment	Attention when treating it
Blower	Foreign matter sticks to the fan' impeller	Clean fan' impeller	E-2 D-4 P-1
	Fan motor bearing worn or damaged	Exchange the motor	E-2
	Open phase	Remove possible causes.	E-1
Exhaust vent	There is damage in cartridge filter element	Exchange the cartridge filter element	E-2
	The installation of the cartridge filter element has come off.	Install the cartridge filter element	D-4 P-1
Suck statement	Pressure loss rise because the cartridge filter element block up or the pulse is bad	Exchange of Cartridge filter element	E-2 D-4 P-1
	Dust piles up in the duct.	Remove the piled up dust	
Dust outlet vent	Air has been sucked.	Exchange the packing	E-2 D-4 P-1
	Dust gushes		

※It is connected with the early stage detect of abnormality to understand driving in daily life.

※It might influence not only this machine but also other connected devices when keeping driving with abnormality. Stop driving at once, please when you find abnormality.

※Please refer to "Definition of terms"on page 37・38 for words and phrases of "Attention when treating it".

■Trouble shooting

□CAUTION

If something seems abnormal stop operation immediately

Symptom			Cause	Measure	Precautions when fixing
Operation panel indicates announcement		[090] Dust Box Clean Up	○Dust exhaust time over	○Remove dust from dust box (p.24)	D-4 E-2 P-1
			○Timer not reset	○Reset timer (from p.10)	
		[091] Element Replacement	○Element replacement time over	○Inspect element ○Replace element (p.23)	D-4 E-2 P-1
			○Timer not reset	○Reset timer (from p.10)	
		[093] PLC Battery Low	○PLC battery low	○Replace battery (p.26)	E-1 E-2
Alarm displayed on operation panel	[040] Element ⊿P High		○Element differential pressure high	○Inspect element ○Replace element (p.23)	D-4 E-2 P-1
			○Incorrect settings	○Verify settings (from p.10)	
			○Dirty/clean duct error	○Check pipes for slipping or clogging	
	[030] Element ⊿P Input Error		○Element differential pressure measurement error	○Check pipes for slipping or clogging	D-4 E-2 P-1
			○Dirty/clean duct error	○Check the dirty side differential pressure outlet for dust clogging	
	[032] Air Volume Input Error		○Flow rate measurement error ○PT/PS duct error	○Check pipes for slipping or clogging	
	[043] Air Volume Low		○Flow rate below setting	○Inspect element ○Replace element (p.23)	D-4 E-2 P-1
			○Incorrect settings	○Verify settings (from p.10)	
			○PT/PS duct error	○Check pipes for slipping or clogging	
	Dust collector automatic stop alarm	[006] Stop PB	○The 「OFF」 button on the control panel was pressed during 「REMOTE」operation.	○Confirm if it is OK to reboot ○Reset operation panel error (p.9)	E-1 E-2 P-1
		[022] Fan VFD Time-out	○Fan doesn't start	○Check inverter parameters ○Reapply power (Note 1)	E-1 E-2 P-1
		[020] Fan VFD Error	○Inverter error	○Refer to inverter manual ○Reset operation panel error (p.9)	E-1 E-2
		[021] Fan VFD Link Error	○Inverter signal error	○Check inverter parameters (Note 2)	E-1 E-2
			○Transmission cable error	○Check loose or broken cable ○Reapply power (Note 1)	
		[010] DMC Link Error	○Mainboard transmission error ○Transmission cable error	○Check loose or broken cable ○Reapply power (Note 1)	
		In addition to the above alarm message, the following message (specific to the operation panel) may appear.			
		Please install the package data	○Program read error ○The operation panel program is not installed	Reapply power (Note 1) Replacing the operation panel	E-1 E-2
		Communication error occurred	○Communication with PLC is not connected ○Damaged PLC, function expansion board, communication cable	○Check for cable disconnection and disconnection ○Reapply power (Note 1) ○Replacement of PLC, function expansion board, and communication cable	E-1 E-2

*Screen color: The screen changes to orange when an announcement (alarm) and red when an alarm(abnormal) occurs.

*If an error message other than the above is displayed, please contact us.

Note 1: Turn the power off and then turn it on after 30 seconds. If the alarm reoccurs, please contact us.

Note 2: Do not alter the inverter settings carelessly. This may result in accidents or damage.

Symptom	Cause	Measure	Precautions when fixing
Nothing is indicated on the monitor screen	○Power off	○Turn on power	————
	○Open phase	○Remove cause	————
	○Wire loose, broken	○Check/replace wiring	E-1 E-2
Dust is seen through the exhaust port (Note 3)	○Element damage	○Replace element（p.23）	D-4 E-2 P-1
	○Element improperly installed	○Reinstall correctly	
	○Gasket damage	○Replace gasket	
	○Filter frame improperly set	○Reinstall correctly	
Dust leaks from the inspection door	○Gasket setting causes insufficient seal ○Gasket damage ○Door/hinge deformation	○Tighten inspection door handle during operation of fan (blower) ○Replace gasket ○Repair/replace deformed parts	E-2 * Except when door handle tightened D-4 P-1
Unusual sound or excessive vibration	○Foreign objects affix to fan (blower) impeller	○Fan (blower) impeller cleaning) ○Inspect element	D-4 E-2 P-1
	○Fan (blower) motor bearing has wear damage	○Replace, exchange	E-2 P-1
	○Fan (blower) mounting bolt loose	○Retighten bolts	
The breaker trips as soon as the ON button is pressed	○Secondary wiring short	○Fix wiring	E-1 E-2
	○Mechanical short	○Remove cause	
The fan (blower) does not move when ON is pressed	○Operation panel malfunction	○Repair/replace	E-1 E-2
	○Fan (blower) motor error	○Repair/replace	
	○Power cord broken	○Replace	
	○Operation panel indicates check	○Follow instructions and take measures	
The equipment stopped suddenly	○Monitor panel error	○Remove cause	E-2
	○Fan (blower) motor overload stop	○Remove cause	
Pulse setting pressure reached but dust removal does not activate	○No air supply	○Confirmation of air supply	E-1 E-2
	○Wiring loose or broken	○Check/replace wiring	
	○Mainboard fuse broken	○Replace fuse（p.27）	
Air leakage from jet (header pipe internal pressure drop)	○Air valve damage	○Repair/replace	E-2 R-1
	○Contaminants clogging pilot valve	○Disassemble, clean	
	○Joints and nylon tube air leaks	○Replace joints/nylon tube	
Suction force dropped	○Element dust removal poor	○Adjust removal cycle （from p.10）	E-1 E-2
		○Adjust pulse air pressure	A-1
	○Element is damp	○Remove cause of moisture	D-4 E-2 P-1
	○Particulate spreading again to increase pressure loss	○Remove accumulated particulate （p.24）	
	○Element clogged	○Replace element (p.23）	
	○Accumulation of particulate in suction duct	○Clean ducts	

Note 3: Immediately after replacing with a new element, some particulate may be visible at the exhaust port. This is not an error.

* Please refer to the definitions on page 37･38 for definitions of the precautions when fixing.

■Consumables

□CAUTION

☆Only use parts approved by the manufacturer.
☆We bear no responsibility for accidents that occur when using parts other than those indicated.

Consumables table

Name		Part number	Expected life	Precautions for replacement	Expected results if not replaced
Cartridge element	(PTFE laminate)	CS-180-520-83P-R	2000hrs	E-2 D-4 P-1	D-5 I-5
Cartridge element	(PTFE laminate and Antistatic)	CS-180-540-80P-R-AS			
PLC battery		FX3U-32BL	5 years	E-2 E-1	—
Fuse（3A，5x20mm）		235003	—		
Cold air inlet filter		FS-6500 250x150x13t	1 year	E-2 D-4	Motor failure due to insufficient cooling of the blower motor

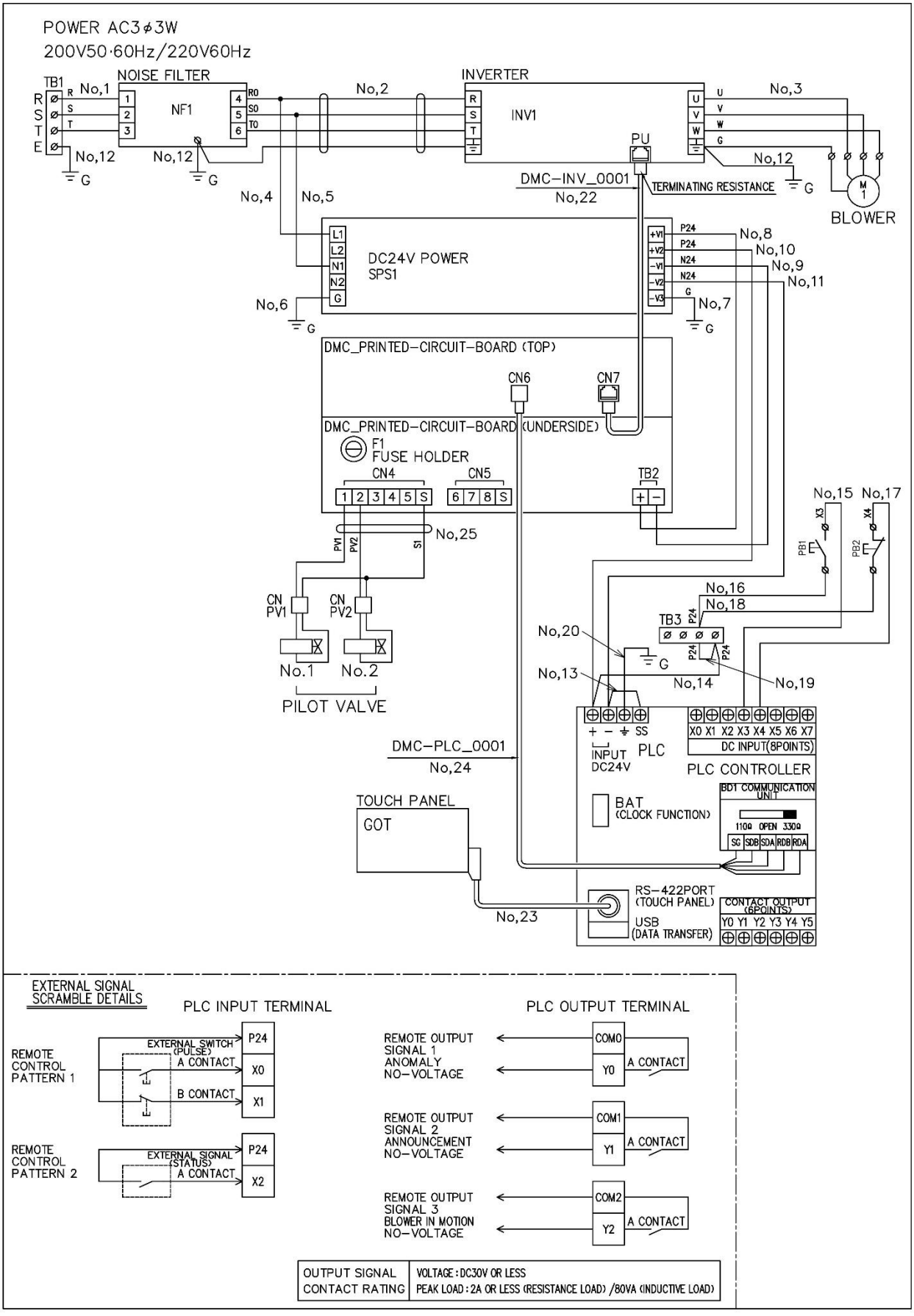
* The expected life period is merely a guideline. It will vary greatly depending on operating conditions.
* Indication of expected life assumes operation of the dust collector for 8 hours/day for 250 days/year.
* The element pressure is merely a guideline and depends on the dust collector operating conditions. If the intake volume degrades, inspect and clean the element. If it does not return to expected level please determine the product as having reached end of life.
* When using an anti-static cartridge element, it is necessary to change the specifications of the housing to ensure stable conduction with the housing.
* The inverter contains consumable parts. For details refer to the inverter manual. When replacing the inverter as a complete unit, the parameters must be adjusted to match this equipment. Please contact us to perform the required adjustments.
* Replace the parts using the expected life as a guideline. If any of the expected results if not replaced occurs, stop the equipment as soon as possible and replace the part.
* Turn off the main power when replacing parts.
* Please refer to the definitions on page 37･38 for definitions of the precautions for replacement and expected results if not replaced.

.Note 1: The cartridge elements are delivered with the gaskets.

Disposal of consumables

☆Dispose of used consumables in accordance with local regulations for waste.

■Wiring diagram



■Precautions for use of the inverter

□CAUTION

☆Only use parts approved by the manufacturer.
☆We bear no responsibility for accidents that occur when using parts other than those indicated.

1. Precautions related to noise

This equipment uses an inverter. When the inverter operates, the inverter, motor, and wiring generate electrical noise impacting radio signals, electronic devices and sensors interfering with normal operation. If noise is causing problems, please install a separately sold noise filter. Installing a noise filter will reduce the effects of noise. Please consult with your supplier sales location or with us for information about noise filters.

2. Reducing harmonics

Inverters used by certain customers may fall under METI regulations for all devices: “Guidelines for Measures to Eliminate Harmonics by Customer Charges with High Voltages and Especially High Voltages”. Perform calculations for equivalent capacity and harmonics-outputting power sources to implement appropriate measures.
Additionally, inverters using 3-phase 200V power supplies at 4.0kW or less were covered by the METI regulation “Japanese Guideline for Reduction of Harmonic Emission” (established September 1994, revised October 1999) but are no longer covered as of January 2004 so now individual voluntary harmonics control measures shall be implemented.
We recommend connecting a harmonics reducing reactor as a means for reducing harmonics. Please consult with your supplier sales location or with us for information about reactors.

Table 1: Rated capacity and harmonics output rate when operating 3-phase inverters

Motor [kW]	Rated current 〔A〕		6.6kV Corresponding vale [mA]	Rated capacity [kVA]	Harmonic output current 6.6kV corresponding value [mA] (Without reactor, 100% operation)							
	200V	400V			5th	7th	11th	13th	17th	19th	23rd	25th
0.4	1.61	0.81	49	0.57	31.85	20.09	4.165	3.773	2.107	1.519	1.274	0.882
0.75	2.74	1.37	83	0.97	53.95	34.03	7.055	6.391	3.569	2.573	2.158	1.494
1.5	5.50	2.75	167	1.95	108.6	68.47	14.20	12.86	7.181	5.177	4.342	3.006
2.2	7.93	3.96	240	2.81	156.0	98.40	20.40	18.48	10.32	7.440	6.240	4.320
3.7	13.0	6.50	394	4.61	257.1	161.5	33.49	30.34	16.94	12.21	10.24	7.092
5.5	19.1	9.55	579	6.77	376.1	237.4	49.22	44.58	24.90	17.95	15.05	10.42

* Values in the table are from the inverter manufacturer catalog.

■Definition of terms

A-1 (エアー噴出) Air gush	Air may gush out of the pneumatic equipment when it is drained or adjustment. Take notice of the air gush at this time.
A-2 (エアーもれ) Air leak	Air may leak out of the equipment if damaged or otherwise failed. In case of air leak, the required air quantity cannot be constantly obtained, possibly resulting in a malfunction of the equipment. Air leak may affect the air supply to other equipment, depending on the leak rate.
B-1 (火傷) Burn	Some parts may become hot as heated by a heater or sucked hot gas. Take care not to touch hot parts.
C-1 (腐食) Corrosion	The equipment may be corroded as a result of rain water intrusion or the condensation caused by cold air flow into the equipment through a degraded packing, poorly sealed shaft opening, etc.
D-1 (堆積物) Deposits	Opening the inspection door or removing a component with dust deposited in the equipment may scatter dust into the atmosphere or cause it to fall onto your body. Your skin may be burned, depending on the dust properties. Run the dust discharger to discharge dust from the hopper before starting the work.
D-2 (転落) Downfall	You may fall down while working at a high place. Wear a safety belt and take other measures to prevent downfall.
D-3 (水抜き) Draining	Before starting the work, check that the water supply valve has been closed and drain water from the piping and reservoir.
D-4 (粉塵) Dust	You may be injured if dust is inhaled or comes into contact with your eyes or skin. Wear a dust-proof mask, safety goggles and/or inspirator as required by the working environment.
D-5 (粉塵もれ) Dust leak	With a damaged or incorrectly installed filter or poorly sealed cell plate, dust may leak out of the exhaust port into the atmosphere to pollute the environment. In case of a wet scrubber, dust may be released into the atmosphere through the exhaust port due to an inadequate spray, water level misadjustment, etc. Supposed causes of damage to the filter include: ・Contact with a damaged part ・Dust accumulated in the dust collector to seal up the filter ・Too many fabric cleaning nember of times ・Filter wear ・Reduced filter strength
E-1 (感電) Electric shock	Take care to prevent electric shock when checking the control panel or electric wiring or wiring the equipment. Those operations shall be performed by qualified personnel.
E-2 (設備停止) Equipment stop	It is dangerous to change any part while the equipment is running. Before doing this, bring the equipment to a complete stop.
F-1 (落下) Falling objects	Take care not to fall any tool or another object as it may damage the filter or equipment or an accident resulting in injury or death under certain circumstances.
G-1 (吹き出し) Gush	Dust may leak or gush out of the equipment through a degraded packing, poorly sealed shaft penetration, etc.
I-1 (排出不能) Impossibility to discharge Dust	It becomes impossible to discharge dust if the dust discharger gets out of order due to sticking dust or damage to the equipment.
I-2 (混練不能) Impossibility to knead	It becomes impossible to knead dust if the equipment fails due to a damaged part or for another reason. In this case, it also becomes impossible to discharge the dust. If water spray is prevented, dry dust is discharged and released into the atmosphere.
I-3 (開閉不能) Impossibility to open/close	As it becomes impossible to open or close the door, you cannot check the equipment or change its parts.

I-4 (混練不良) Insufficient kneading	Normal kneading may be suspended due to insufficient or excessive water spray.
I-5 (吸引不足) Insufficient suction pressure	The suction pressure at the suction area may drop as a result of an increased filter pressure drop or the flue blockage due to a damper failure, possibly affecting the working environment. A puncture or disconnection of the suction duct or dust accumulated in the duct also leads to a suction pressure drop at the suction area. Supposed causes of an increased filter pressure drop : - Wetting of the filter with rain water intruding through a degraded packing, etc. - Incomplete fabric cleaning due to a failure of the fabric cleaning device - Filter clogging - Dust accumulated in the dust collector to seal up the filter - Increased dust concentration - Increased suction air volume
L-1 (給油脂量) Lubrication/greasing quantity	Lubrication: Take care not to lubricate too much. Greasing: Grease to the degree specified for the equipment.
O-1 (酸欠) Oxygen shortage	You may become anoxia at a lower oxygen concentration. Before working in a place where oxygen shortage is predicted, thoroughly ventilate the place. Before entering such a place, measure the oxygen concentration using a detector to ensure the safety. Bring a detector with you during the work and immediately go out of the place if any irregular condition is detected.
P-1 (挟まれ) Pinching	Your body may be pinched by a moving part such as door or a heavy object. Before starting the work, secure the door and other moving parts and support heavy objects not to fall down.
P-2 (有毒ガス) Poisonous gas	You may be poisoned by a poisonous gas such as carbon monoxide. Before working in a place where any poisonous gas may exist, thoroughly ventilate the place. Before entering such a place, measure the concentrations of poisonous gases such as carbon monoxide using a detector to ensure the safety. Bring a detector with you during the work and immediately go out of the place if any irregular condition is detected.
P-3 (操作禁止) Prohibited operation	When checking the equipment or changing its parts, turn off the main power switch on the control panel and attach a sign reading “Do not operate this machine” to the control panel or remove the key switch, if any, so that it will be kept by the responsible person.
R-1 (残圧) Residual pressure	It is dangerous to work with a tank or piping with a residual pressure in it. Before working with it, check that the air supply valve has been closed, release the air pressure from the piping and tank, and check that there is no residual pressure in the piping.
R-2 (巻き込まれ) Roll up	You may be caught by the running equipment. Do not touch any moving part. Also take enough care to prevent entanglement of your clothes.
S-1 (水滴飛散) Scattered water drops	Water drops may be scattered through the exhaust port to affect the circumstances.
S-2 (固着) Sticking	Dust may stick inside the equipment as a result of rain water intrusion or the condensation caused by cold air flow into the equipment through a degraded packing, poorly sealed shaft penetration, etc.
W-1 (水漏れ) Water leak	Water may leak out of the equipment, piping, etc. to flood the circumference.

Warranty and After-Sales Service

Product Warranty

1. Product Warranty Period

One year from delivery.

The guarantee does not apply if the product was obtained by resale or alienation.

2. Scope of Warranty

Free repair or parts replacement if the product fails due to reasons attributable to our company during the warranty period.

However, even during the warranty period, this free warranty does not cover the following:

(1) Consumables, wear and deterioration due to use
(2) Failure due to improper handling
(3) Failure due to use under environmental conditions not specified in this manual
(4) Failure caused by equipment other than our products
(5) Failure due to disassembly, modification, or repair performed by a third party
(6) Failure due to natural disasters or unexpected external factors
(7) Failure due to reasons that are scientifically and technically unpredictable at the time of shipment
(8) Other failures not attributable to us

3. Limitation of Liability

We are not responsible for any damage caused by product failure.

4. Changes in Specifications

The specifications contained in this manual are subject to change without notice for product improvement.

5. Scope of Service

The selling price of the product does not include the cost of dispatching a technician.
Please contact us if you need such service.

After-Sales Service

Please inquire the dealer that you purchased the product when maintenance is needed.

The return shipping costs for free maintenance will be borne by our company, but if the product is used outside the country of purchase, the customer will be responsible for the return shipping costs to and from the country of purchase.

When making a request, please note the model number and serial number of the product in advance before contacting us.

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Notes

Dust Collector
Instruction Manual

for Installation and Maintenance

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