

# Shibaura Machine

## Regeneration Discharge Unit Instruction Manual

This instruction manual describes our product regeneration discharge unit.

All users are requested to completely read through and understand this manual before use, and to handle the unit with utmost care.

Keep this manual for future reference.

### 1. Application

The regeneration discharge unit is intended for absorbing energy in its circuit, which is generated at slowdown of the actuator motor. It is very useful when load inertia is expected to exceed the permissible value or when generation of too much energy is expected, and prevents generation of overvoltage in the robot controller.

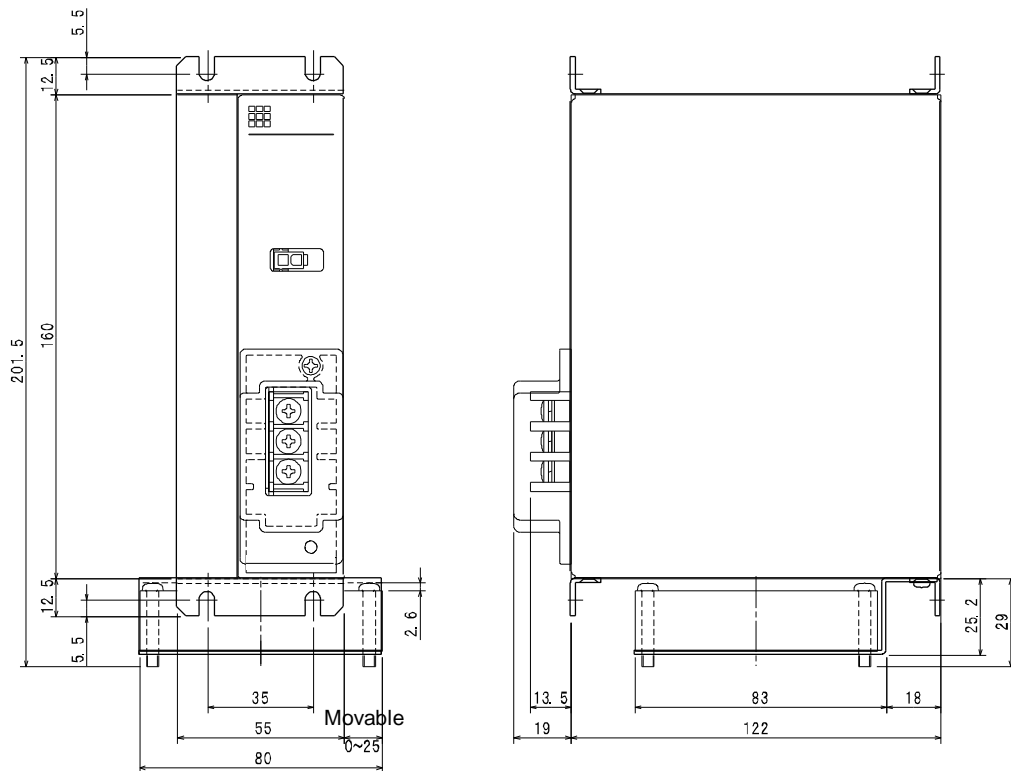
### 2. Specifications

Type	ABSU-4000	Remarks
Regeneration operating voltage	DC390 V	
Cooling system	Forced air cooling system (use of cooling fan)	
Specification of cooling fan	DC24 V, 0.19 A	Brushless DC motor
Protection function	The thermo-relay operates when the discharge resistor temperature has reached 150°C.	Contact capacity AC125 V, 4 A AC250 V, 4 A
Applicable controller	CA25-M40/S40 CA20-M40/S40 CA10-M40/S40	400 W controller
Environmental conditions		
• Place of installation	Indoor	
• Operating temperature	0°C ~ 40°C	
• Operating humidity	30 % ~ 90 %RH, non-condensing	
• Operating atmosphere	No corrosive gas is involved.	
• Storage temperature	-20°C ~ 70°C	
• Storage humidity	30 % ~ 90 %RH, non-condensing	
• Storage atmosphere	No corrosive gas is involved.	
• Vibration	9.8 m/S <sup>2</sup> or less	
Outer dimensions	80 (W) × 189 (H) × 122 (D)	Including cooling fan and excluding fixture.
Mass	0.94 kg	

**Caution:** When the regeneration discharge unit is used together with a controller other than the controller specified above, the unit may malfunction or may not operate at all.

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### 3. Outer Dimensions

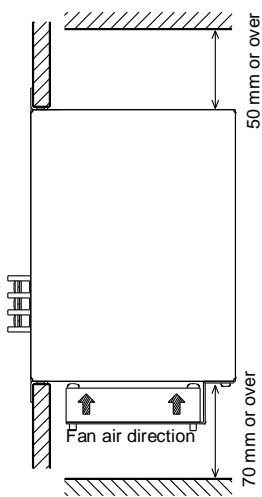


- This drawing shows the regeneration discharge unit equipped with a cooling fan at its bottom rear side.
- For cooling fan position in the crosswise direction, it can be mounted at a desired position within the movable range as shown above.

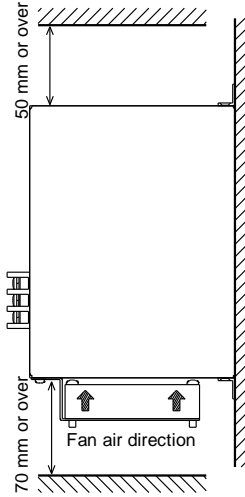
## 4. Installation

This equipment employs the forced air cooling system using a cooling fan.

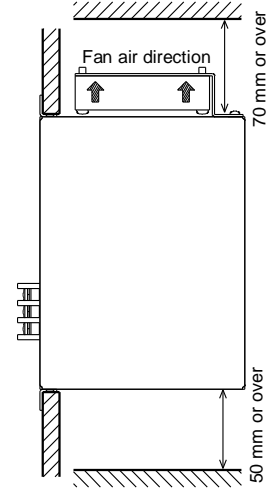
Be sure to install it lengthwise, mount the cooling fan and keep enough spaces as shown in the drawing below not to blockade the vent holes on the top and bottom sides. If ventilation is incomplete, the equipment cannot be operated to its full capacity and will cause a trouble.



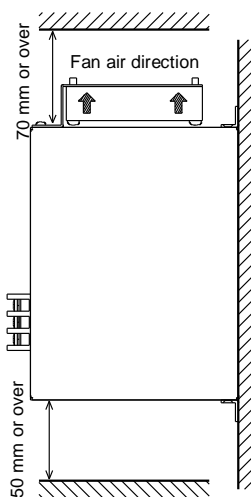
(1) Cooling fan is mounted on the bottom rear side.



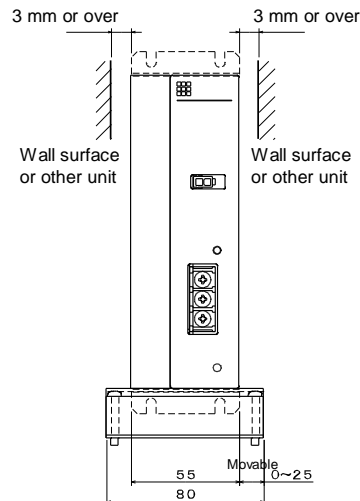
(2) Cooling fan is mounted on the bottom front side.



(3) Cooling fan is mounted on the top rear side.



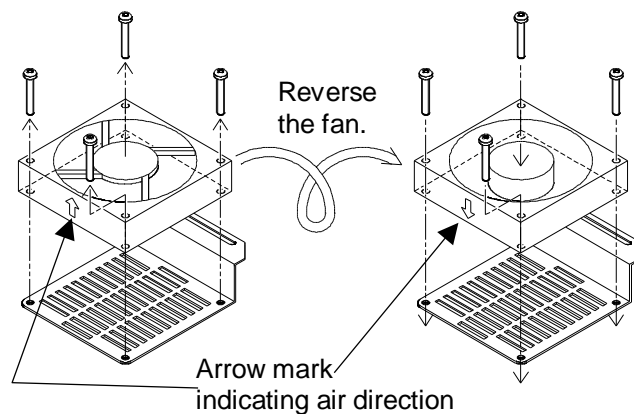
(4) Cooling fan is mounted on the top front side.



The temperature of the basic unit may become high during operation. DO NOT contact this unit with an adjacent wall surface or other unit, but keep a space of more than 3 mm on both sides.

For cooling fan position in the crosswise direction, it can be mounted at a desired position within the movable range as shown above.

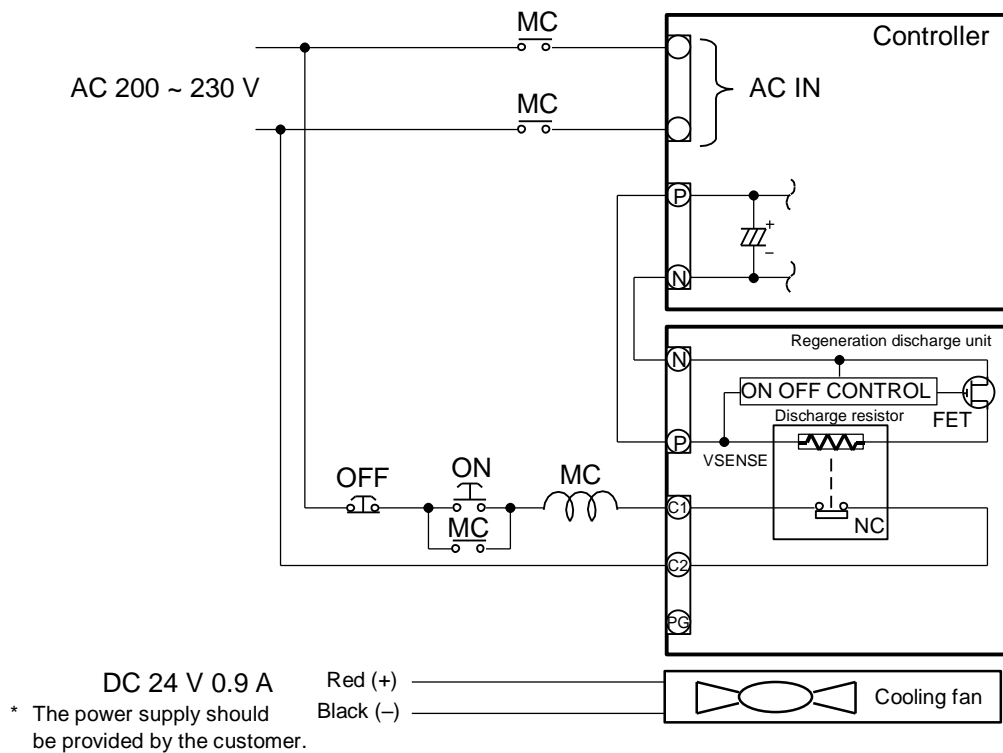
When mounting the cooling fan, air of the fan should flow upward (from the bottom to the top). The cooling fan is factory-set to the bottom. When you wish to mount the cooling fan on the top as shown in Figs. (3) and (4) above, remove the screws once, reverse the fan, then mount it again with the screws, as shown below.



Take careful precautions to prevent entry of contaminant such as liquid and dust into the regeneration discharge unit from the vent holes.

This equipment is not dust-proof. Avoid using it in a heavily contaminated place.

## 5. Example of Connection



## 6. Cautions on Use

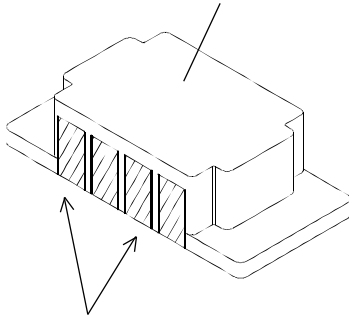
- A thermo-relay is incorporated in the discharge resistor of the regeneration discharge unit, which operates when the discharge resistor temperature reaches 150°C.
- When this relay has actuated, output terminals C1–C2 of the regeneration discharge unit become open.
- Create the sequence in such a manner that when the thermo-relay has actuated, the controller always stops.
- Once the thermo-relay has actuated, it takes about three (3) minutes until it is reset (i.e., restored to a normal state).

## 7. How to Use Attached Terminal Block Cover

After wiring to the terminal block, be sure to set the attached terminal block cover to prevent electric shocks.

Use the terminal block cover by processing after confirming the wire lead-in direction, as shown below.

Terminal block cover (transparent)



Make a cut along the thick lines, then bend the shaded areas.

To provide lead-in wire holes, remove the shaded areas in the left figure, using nippers (or a cutter) when necessary. It is also possible to provide these holes on the opposite side.