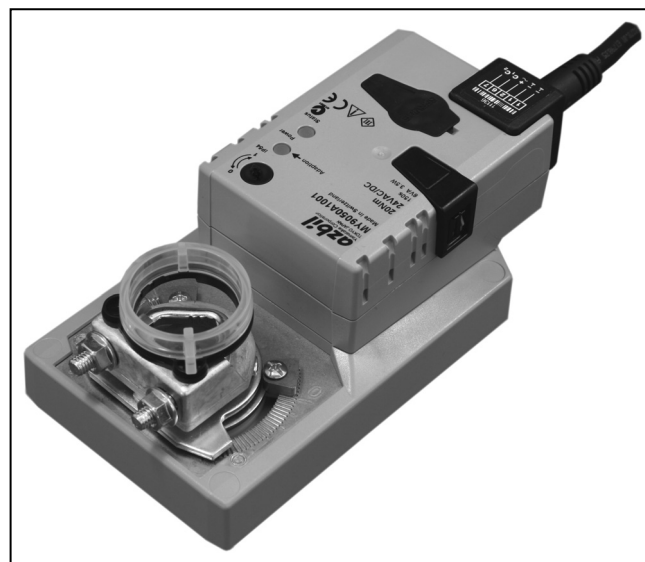


## Direct Coupled Damper Actuator

### Model MY9050A1001

#### General

Model MY9050A1001 direct coupled damper actuator is a motorized actuator to open/close a damper. Model MY9050A1001 contains feedback potentiometer and thus provides proportional control in combination with a electric controller having 135  $\Omega$  variable resistance output (e.g., Model TY9000).



#### Features

- Manual open/close function allows easy adjustment without power supply.
- Standard models are equipped with rotation angle adjuster (mechanical stopper), enabling to adjust motor operating position.
- Low power consumption allows energy conservation.
- Large torque is assured despite compact, lightweight design.
- Rotary switch on the front surface easily changes the motor rotating direction.
- Simple physical structure facilitates installation on most types of the damper shafts.
- Optional auxiliary devices offer a variety of applications.
- Model MY9050A1001 is user-friendly to operate as well as to install and set up.
- Model MY9050A1001 damper actuator conforms to all the applicable standards of CE Marking.



## Safety Instructions

Please read instructions carefully and use the product as specified in this manual. Be sure to keep this manual near by for ready reference.

### Usage Restrictions

This product is targeted for general air conditioning. Do not use this product in a situation where human life may be affected. If this product is used in a clean room or a place where reliability or control accuracy is particularly required, please contact Azbil Corporation's sales representative. Azbil Corporation will not bear any responsibility for the results produced by the operators.

 WARNING



- Do not disassemble the product. Electrical shock or equipment damage may occur.



- Operate the product within the service life, and avoid application that keeps product operating cycle excessively frequent. Overuse of the product may cause fire or product damage.

 CAUTION



- Installation and wiring must be performed by qualified personnel in accordance with all applicable safety standards.



- This product must be operated under the operating conditions (power, temperature, humidity, vibration, shock, installation position, atmospheric condition, etc) specified in this manual to prevent equipment damages.



- This product must be operated within its rated operating ranges specified in this manual. Failure to comply will cause equipment damages.



- Do not install the product in a location with high temperature radiation. High temperature radiation may result in an actuator malfunction.



- Do not put heavy load on the product. It may get damaged.



- All wiring must comply with local codes of indoor wiring and electric installation rules.



- This product does not have a power switch. Be sure to provide a power circuit breaker in the power source.



- To prevent product damage, always disconnect the power supply from the product before performing any wiring and installation.



- Make sure all the wires are tightly connected. Incomplete connection may result in an actuator malfunction.



- To prevent personal injury, do not touch the moving part of the product in operation.



- Dispose of this product as an industrial waste according to the local regulations. Do not recycle all or part of this product.

## Specifications

Item	Specification	
Model number	MY9050A1001	
Action	Proportional action	
Power supply voltage	24 V AC $\pm$ 20 %, 50 Hz/60 Hz	
Power consumption	6 VA (in operation)	
Rotating angle	Max. 95° (mechanical limit)	
Operating time	Approx. 150 s	
Torque at the rated voltage	20 N·m	
Ambient operating conditions	-20 °C to 50 °C, 95 %RH or less (non-condensing) (This product is not rain-proof and thus is for indoor use only.)	
Transport/storage conditions	-20 °C to 60 °C, 95 %RH or less	
Indicator LED / Adaption switch	Name	Description
	Power LED / Adaption switch	Red LED is ON during power ON. / While the power LED is ON, actuator operation mode is switched to Adaption mode* <sup>1</sup> by pressing the power LED.
	Operation LED	Yellow LED is ON while the actuator operation is in Adaption mode or in Synchronisation mode* <sup>1</sup> .
Enclosure rating	Dust proof and drip-proof equivalent to IEC IP54 (Cable conduit must be facing downward.)	
Cable	0.75 mm <sup>2</sup> $\times$ 3-cores, 1 m long	
Material / Color	PC-GF10 / Silver gray	
Weight	Approx. 910 g	
Applicable damper shaft	Circular: $\phi$ 10 mm to $\phi$ 20 mm, 42 mm long or longer Square: 10 mm diagonal to 20 mm diagonal, 42 mm long or longer	
Accessories	<ul style="list-style-type: none"> <li>• M4 tapping screws <math>\times</math> 2</li> <li>• Position indicator ring <math>\times</math> 1</li> <li>• Universal bracket <math>\times</math> 1</li> <li>• Installation instruction sheet <math>\times</math> 1</li> </ul>	
Auxiliary devices (Separate order is required.)	<ul style="list-style-type: none"> <li>• Power transformer: Model AT72-J1</li> <li>• Auxiliary potentiometer*<sup>2</sup>: Model QY9010A1014</li> <li>• Auxiliary switch (SPDT <math>\times</math> 1)*<sup>2</sup>: Model QY6051A1001</li> <li>• Auxiliary switch (SPDT <math>\times</math> 2)*<sup>2</sup>: Model QY6051B1001</li> <li>• Mounting bracket for replacement (for replacing Model MY9040A)*<sup>3</sup>: Model Z-SMA</li> </ul>	
Requirements for order	<ul style="list-style-type: none"> <li>• Product model number (Model MY9050A1001)</li> <li>• Auxiliary device model number (if necessary)</li> </ul>	

### Notes:

- \*1. For details of Adaption mode and Synchronisation mode, refer to "Damper Setting Functions" and "Setting" sections.
- \*2. Multiple auxiliary switches or auxiliary potentiometers cannot be connected. Connect single auxiliary potentiometer or auxiliary switch.
- \*3. Mounting dimensions of Model MY9050A are different from those of Model MY9040A (former model). For replacing Model MY9040A with Model MY9050A, the mounting bracket Model Z-SMA allows no change of the universal bracket mounting position.

## Damper Setting Functions

Function	Description
Adaption	Rotation angle of the damper actuator to be changed is automatically memorized (adapted) by pressing the power LED/Adaption switch.
Synchronisation	Damper actuator position and actual damper position are matched (synchronized) by pressing the gear release button/Synchronisation switch.

### Dimensions

#### Actuator

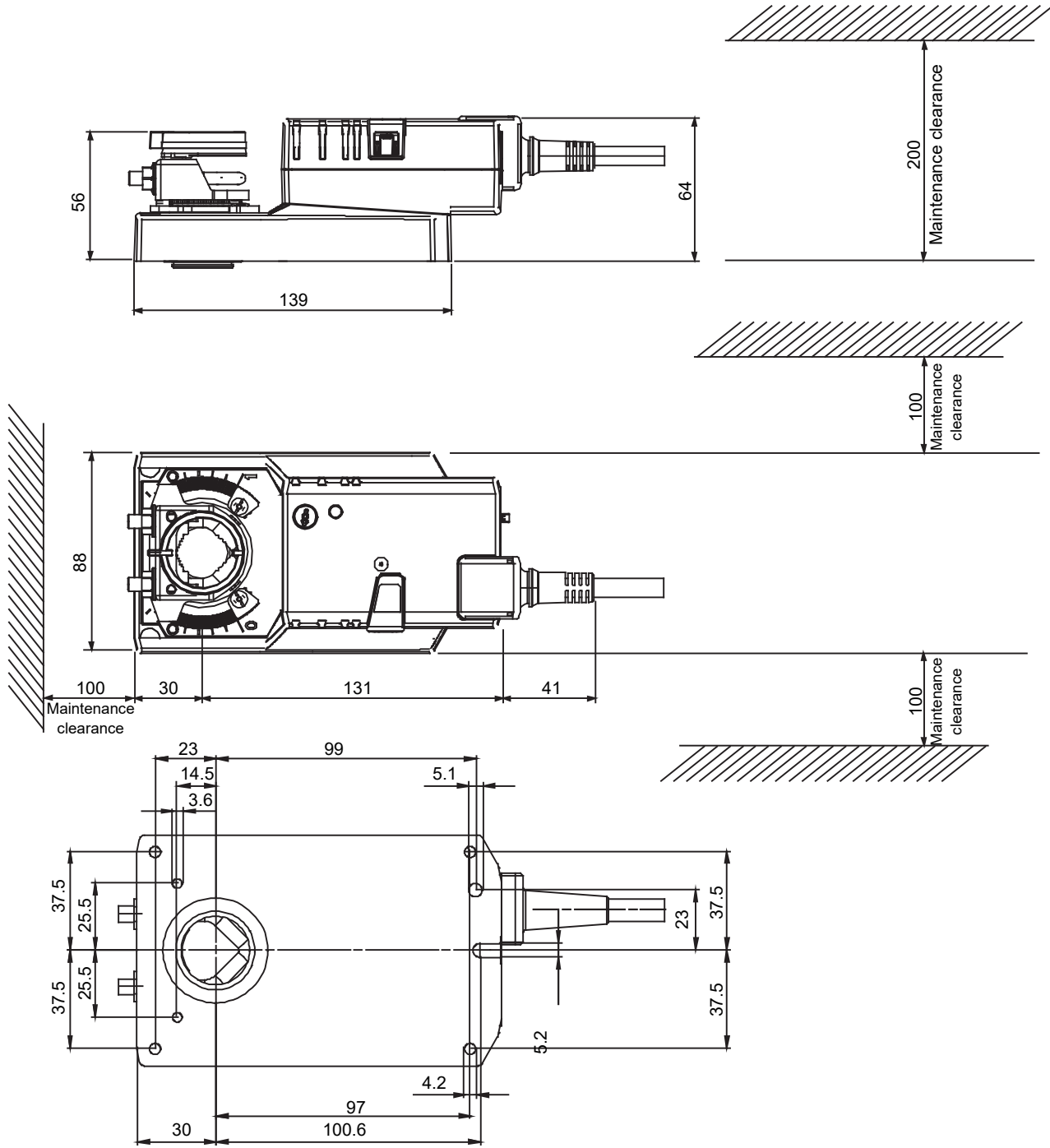
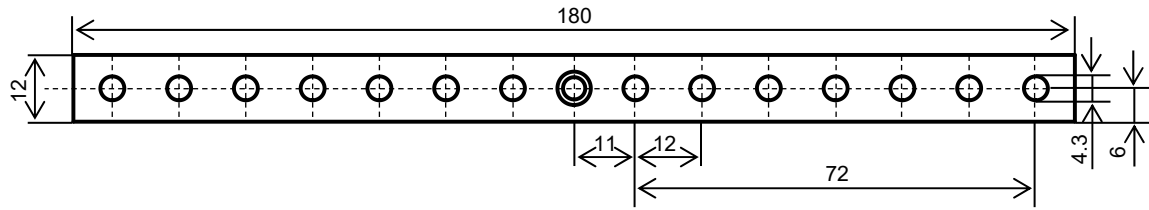


Figure 1. Dimensions (mm): Damper actuator

**Universal bracket**



2 pan-head tapping screws (slotted, M4 × 12, 1.4 pitch) equivalent to JIS\* B 1115-1976 are attached to the universal bracket.

\*JIS: Japanese Industrial Standards

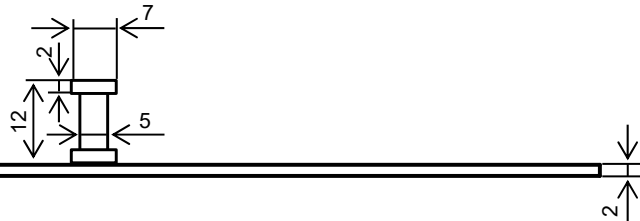


Figure 2. Dimensions (mm): Universal bracket

**Parts Identification**

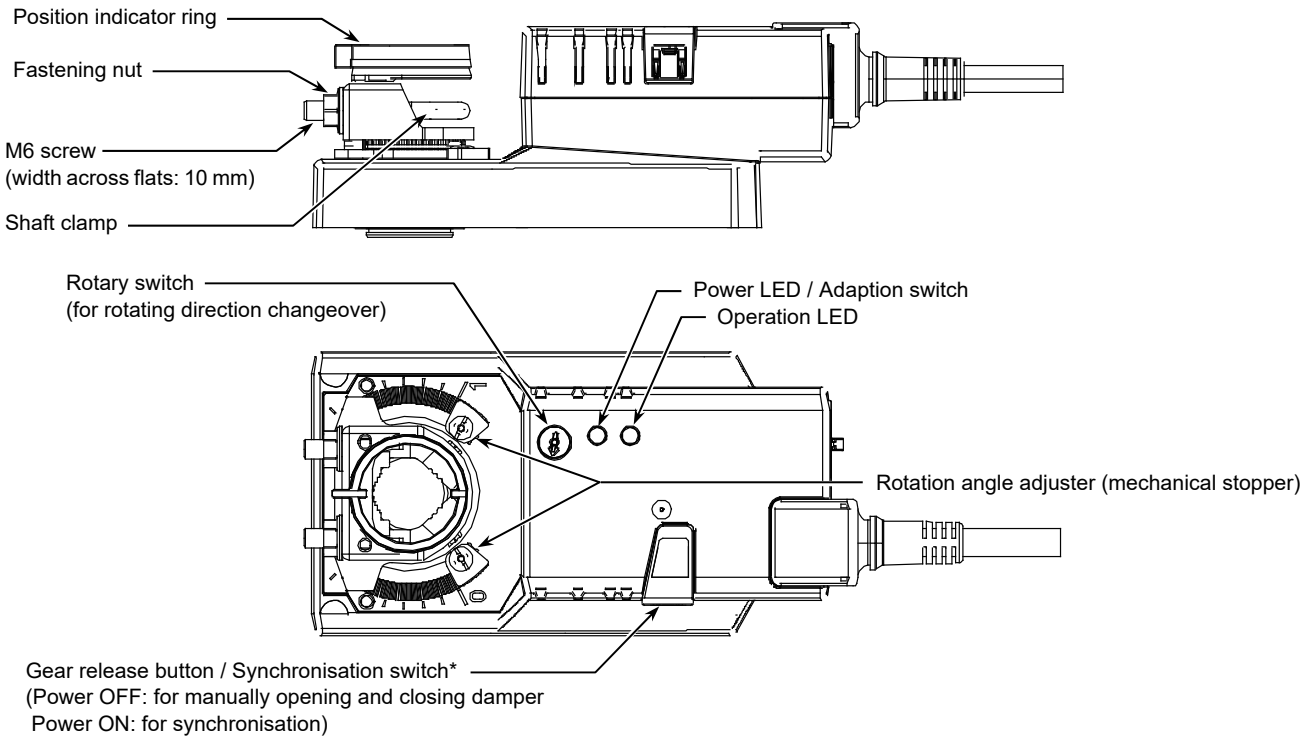


Figure 3. Parts identification


\* Synchronisation:

When the gear release button / Synchronisation switch is pressed during power ON, the actuator fully closes the damper regardless of control signal output from the controller. Then, the actuator operates the damper in response to the control signal. Actuator thus synchronizes its position with the actual damper position.

**IMPORTANT:**

Perform Synchronisation while AHU is OFF. Synchronisation may damage the AHU and damper.

**Installation**

 <b>CAUTION</b>
<ul style="list-style-type: none"> <li>To prevent product damage, always disconnect the power supply from the product before performing installation.</li> </ul>

<p><b>IMPORTANT:</b></p> <ul style="list-style-type: none"> <li>Avoid application that keeps product operating cycle excessively frequent.</li> <li>Meet the rotating direction of the actuator with the damper rotating direction.</li> <li>Tighten the screws so that the actuator is securely assembled with the damper.</li> <li>For the product installation, secure maintenance clearance shown in Fig. 1.</li> </ul>
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**Installation procedure**

- 1) Fully close the damper shaft.

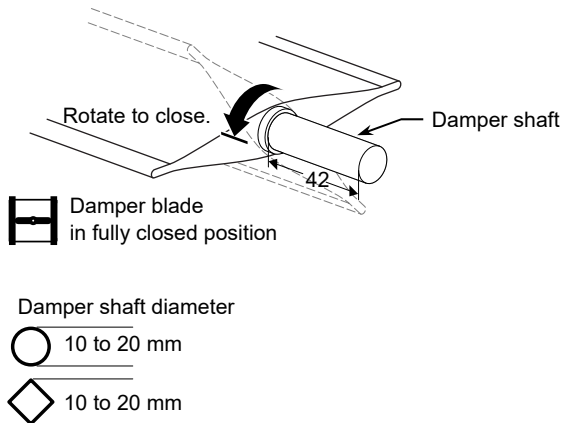


Figure 4. Damper shaft

- 2) Fully close the actuator Model MY9050A, and mount it to the damper shaft. Finger-tighten the fastening nuts of the shaft clamp to temporarily fix the actuator.

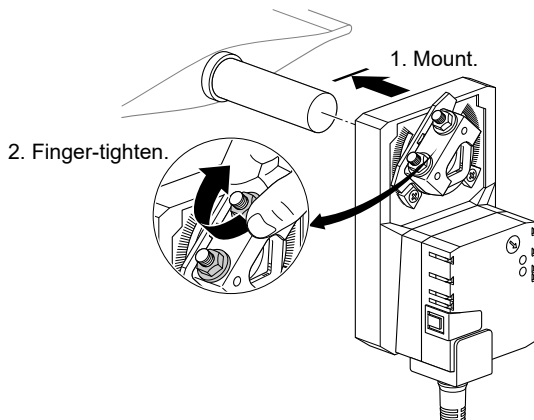


Figure 5. Temporal installation of the actuator body

- 3) With the gear release button pressed, manually rotate the shaft clamp until it is in the position shown in Fig. 6. Then, insert the universal bracket into the slit of the actuator and fix the bracket onto the damper with the two M4 tapping screws.

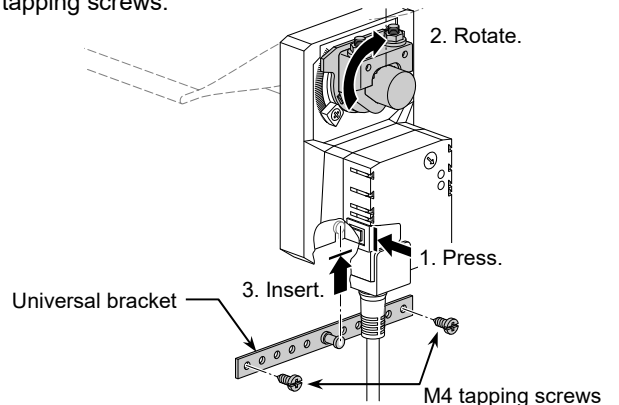


Figure 6. Attaching the universal bracket

- 4) Manually rotate the shaft clamp back to the fully closed position with the gear release button pressed. At this time, be sure to leave a clearance (approx. 1 mm) between the shaft clamp and the rotation angle adjuster (mechanical stopper). Using a wrench, tighten the fastening nuts of the shaft clamp to completely fix the actuator.

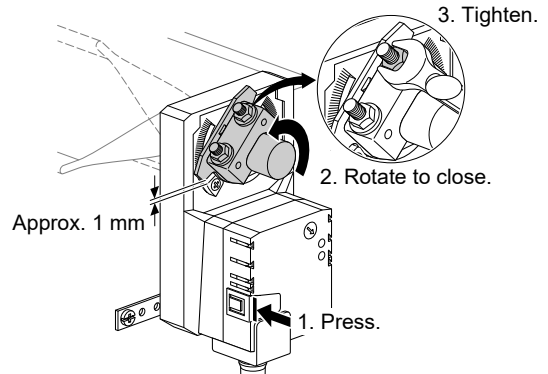


Figure 7. Complete installation of the actuator body

- 5) Attach the position indicator ring to the damper shaft so that the tip of the damper blade and the pointer of the indicator ring point to the same direction. Adjust the rotation angle adjuster on the fully open side depending on the damper rotating angle.

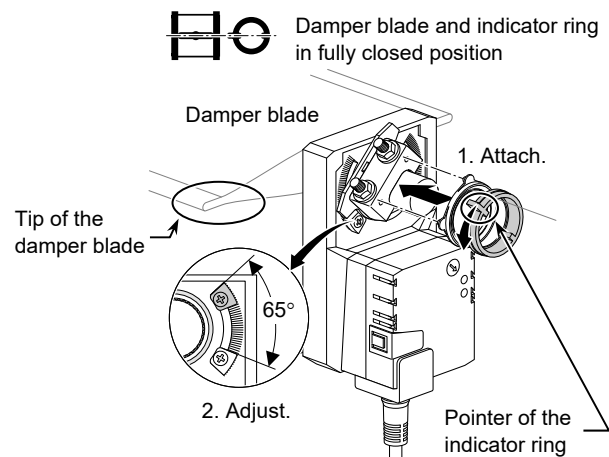


Figure 8. Attaching the position indicator ring

**Wires Connection**

Connect the lead wires as follows:

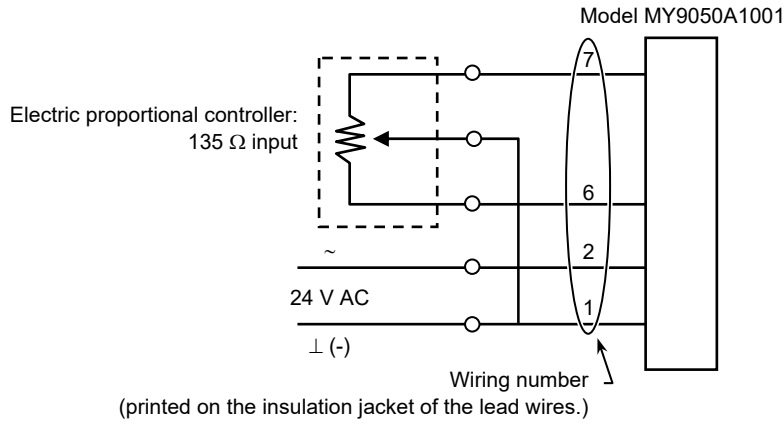


Figure 9. Lead wires connection

**Connection example for multiple actuators (in parallel operation)**

Precautions for parallel operation

- Up to 3 actuators can be connected for parallel operation.
- Rotating angle has an error for hysteresis of the auxiliary potentiometer.
- For power line connection, do not connect lead wire 1 of an actuator and lead wire 2 of another actuator.
- Due to different operating time, Model MY9050A actuators cannot be combined with Model MY9040A actuators.

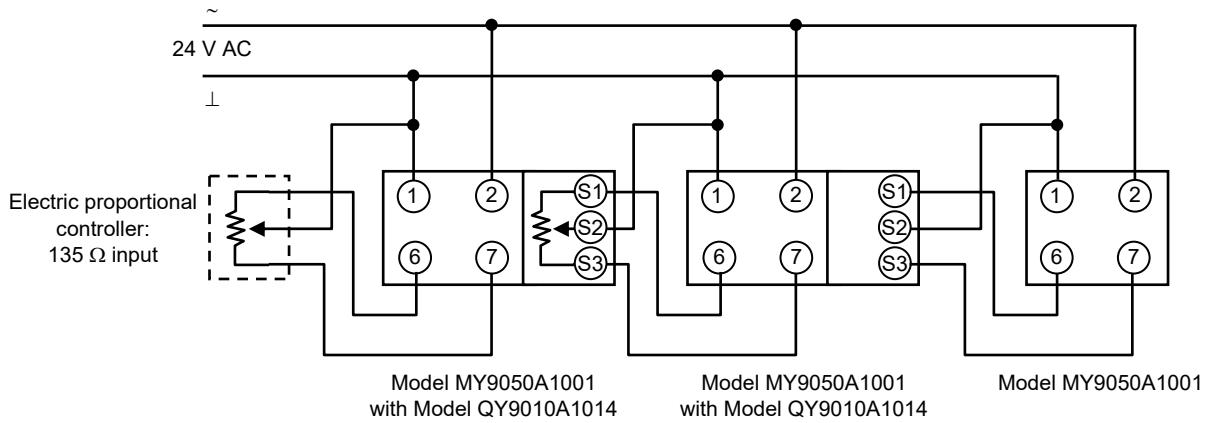


Figure 10. Connection example: Multiple actuators in parallel operation

## Setting

### Synchronisation

Damper position which the actuator controls disagrees with the actual damper position due to manual operation of the damper actuator. In such a case, the actuator requires Synchronisation so that the damper position controlled by the actuator and the actual damper position agree (synchronize).

For Synchronisation, the actuator fully closes the damper, by pressing the gear release button/Synchronisation switch for 1 second when the power is ON, regardless of the control signal output from the controller. Once the actuator fully closes the damper, the actuator operates in response to the control signal.

**IMPORTANT:**

- After manually operating the damper actuator (changing the actuator position during power OFF), always perform Synchronisation.
- Perform Synchronisation while AHU is OFF. Synchronisation may damage the AHU and damper.

### Adaption

When the rotation angle of the actuator is adjusted or changed, the actuator needs to memorize (adapt) the adjusted/changed rotation angle.

For Adaption, the actuator fully closes and then fully opens the damper, by pressing the power LED/Adaption switch when the power is ON, regardless of the control signal output from the controller. Once the actuator fully closes and opens the damper, the actuator operates in response to the control signal.

**IMPORTANT:**

Perform Adaption while AHU is OFF. Adaption may damage the AHU and damper.



*Specifications are subject to change without notice.*

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