

ACTIVAL™

Electro-Mechanical Actuator for Control Ball Valve

Overview

Model MY53_0A actuator is designed specifically for Models VY53_2 two-way and VY53_3 three-way proportional control ball valves, which control the chilled/hot water in heating, ventilation and air conditioning (HVAC) applications.

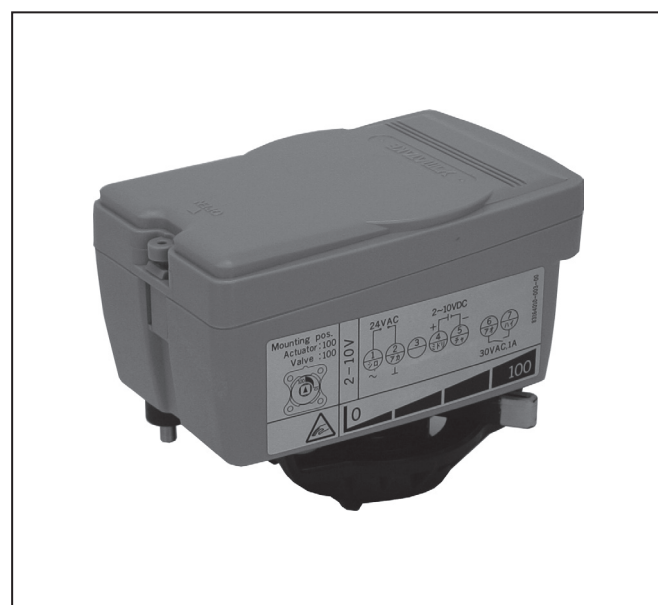
ACTIVAL Model MY53_0A_000 has a reversible synchronous motor, which operates at a low voltage of 24 V AC.

Six kinds of control signals are available to operate the ACTIVAL ball valves:

- Floating (3-position) with nominal 135 Ω feedback potentiometer
- Nominal 135 Ω resistance input
- 4–20 mA DC input
- 2–10 V DC input
- 0–10 V DC input
- Floating (3-position)

These control signals provide proportional control in combination with an electric/electronic proportional controller or a DDC (direct digital control) controller.

* DDC: Direct Digital Control



Features

- Compact and lightweight:
The ACTIVAL can be installed in a limited space.
- Easy and simple mounting onto Models VY53_2 and VY53_3 valves:
- The actuator can be mounted without tools, and no adjustment is required (one-touch lever-locking mechanism).
- IEC IP54:
Dust-proof and splash-proof enclosure enables to be installed in an AHU (air handling unit).
- Easy manual override:
The actuator operation can be switched to manual from electric. It besides can be manually operated without tools.
- Highly-visible position indicator:
Valve position is easily recognized with the indicator/manual lever.
- Energy-saving:
No power is consumed in fully open/closed position of the valve because of the limit switch mechanism. (Only for Model MY5310A.)
- Built-in auxiliary switch (except Model MY5370A):
The switch is adjustable between 20-80% position.
- 2-10 V DC output (for position feedback) available with 4-20 mA DC input type, 2-10 V DC input type, and 0-10 V DC input type.
- 90° stroke in 60 seconds (50 Hz) / 50 seconds (60 Hz) operating time.
- ACTIVAL Model MY53_0A conforms to all the standards related to CE Marking.

Safety Precautions

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

Restrictions on Use

This product was developed, designed, and manufactured for general air conditioning use.

Do not use the product in a situation where human life may be at risk or for nuclear applications in radiation controlled areas. If you wish to use the product in a radiation controlled area, please contact Azbil Corporation.

Particularly when the product is used in the following applications where safety is required, implementation of fail-safe design, redundant design, regular maintenance, etc., should be considered in order to use the product safely and reliably.

- Safety devices for protecting the human body
- Start/stop control devices for transportation machines
- Aeronautical/aerospace machines

For system design, application design, instructions for use, or product applications, please contact Azbil Corporation.

Azbil Corporation bears no responsibility for any result, or lack of result, deriving from the customer's use of the product.

Recommended Design Life

It is recommended that this product be used within the recommended design life.

The recommended design life is the period during which you can use the product safely and reliably based on the design specifications.

If the product is used beyond this period, its failure ratio may increase due to time-related deterioration of parts, etc.



The recommended design life during which the product can operate reliably with the lowest failure ratio and least deterioration over time is estimated scientifically based on acceleration tests, endurance tests, etc., taking into consideration the operating environment, conditions, and frequency of use as basic parameters.

The recommended design life of this product is 10 years.





The recommended design life assumes that maintenance, such as replacement of the limited life parts, is carried out properly.









Refer to the section on maintenance in this manual.

Warnings and Cautions

| | | |
|---|----------------|--|
|  | WARNING | Alerts users that improper handling may cause death or serious injury. |
|  | CAUTION | Alerts users that improper handling may cause minor injury or material loss. |


Signs


| | |
|---|--|
|  | Notifies users that specific actions are prohibited to prevent possible danger. The symbol inside  graphically indicates the prohibited action. (For example, the sign on the left means that disassembly is prohibited.) |
|  | Instructs users to carry out a specific obligatory action to prevent possible danger. The symbol inside  graphically indicates the actual action to be carried out. (For example, the sign on the left indicates general instructions.) |


|  CAUTION | |
|--|--|
|  | Provide a circuit protector (e.g., a fuse or circuit breaker) for the power source. Failure to do so may cause a short circuit leading to fire or device failure. |
|  | Install, wire, and use this product under the conditions specified by this manual. Failure to do so may cause fire or device failure. |
|  | Do not put a load or weight on this product. Doing so may damage the product. |
|  | Installation and wiring of the actuator must be performed by personnel qualified to do instrumentation and electrical work. Mistakes in installation or wiring may cause fire or electric shock. |
|  | Before wiring, setting, or maintenance, be sure to turn off the power to this product. Failure to do so may result in electric shock or device failure. |
|  | After the actuator is installed, make sure that the lock lever is closed (locked). If the lever is not locked, the actuator may fall out, resulting in injury. |
|  | All wiring must comply with applicable codes and ordinances. Otherwise there is a danger of fire. |

 CAUTION

For wiring, strip the insulation from cables as specified in this manual.

 If the length of exposed wire is longer than specified, it may cause electric shock or short circuit between adjacent terminals.
If it is too short, it may not make proper contact.

 After wiring, setting, or maintenance, be sure to reattach the cover.
Failure to do so may result in electric shock.

 Do not touch the moving parts of this product.
Doing so may cause injury.

■ Model Numbers with Control Signals and Auxiliary Switch / 2-10 V DC Output (for position feedback)

| Model number | Control signal | Built-in auxiliary switch / 2-10 V DC output signal | UL/cUL (Note 2) |
|--------------|--|---|-----------------|
| MY5310A4000 | Floating (3-position) with nominal 135 Ω feedback potentiometer | One auxiliary switch | ✓ |
| MY5320A4000 | Nominal 135 Ω resistance input | One auxiliary switch | – |
| MY5330A2000 | 4 to 20 mA DC input (Note 1) | 2-10 V DC analog output signal | – |
| MY5330A4000 | 4 to 20 mA DC input | One auxiliary switch | – |
| MY5340A2000 | 2 to 10 V DC input (Note 1) | 2-10 V DC analog output signal | ✓ |
| MY5340A4000 | 2 to 10 V DC input | One auxiliary switch | ✓ |
| MY5350A2000 | 0 to 10 V DC input (Note 1) | 2-10 V DC analog output signal | – |
| MY5350A4000 | 0 to 10 V DC input | One auxiliary switch | – |
| MY5370A0000 | Floating (3-position) | None | ✓ |

Notes:

- 2-10 V DC output is available only with 4-20 mA DC input (Model MY5330A2000), 2-10 V DC input (Model MY5340A2000), and 0-10 V DC input (Model MY5350A2000).
- Depending on the model number, this product has acquired the following UL/cUL certification.
UL60730-1/-2-14, CAN/CSA E60730-1:15 / -2-14:13
Rated impulse voltage : 330 V (Over Voltage Category I), Control pollution degree: 4, Type of action: 1
Use the class 2 power supply.
Provide a circuit protector (8 A max.) such as a fuse or circuit breaker for the power source.
Rain and snow must be avoided.

● Options

| Item | Model number | Specification | | |
|-----------------------|--------------|---------------|--------------------------------|--------------|
| Waterproof connector* | 83104346- | 012 | Applicable wire Dia. 6–8 mm | |
| | | 013 | | Dia. 7–9 mm |
| | | 014 | | Dia. 9–11 mm |
| Outdoor cover | 83165967-001 | | | |

* Required to maintain IP54.

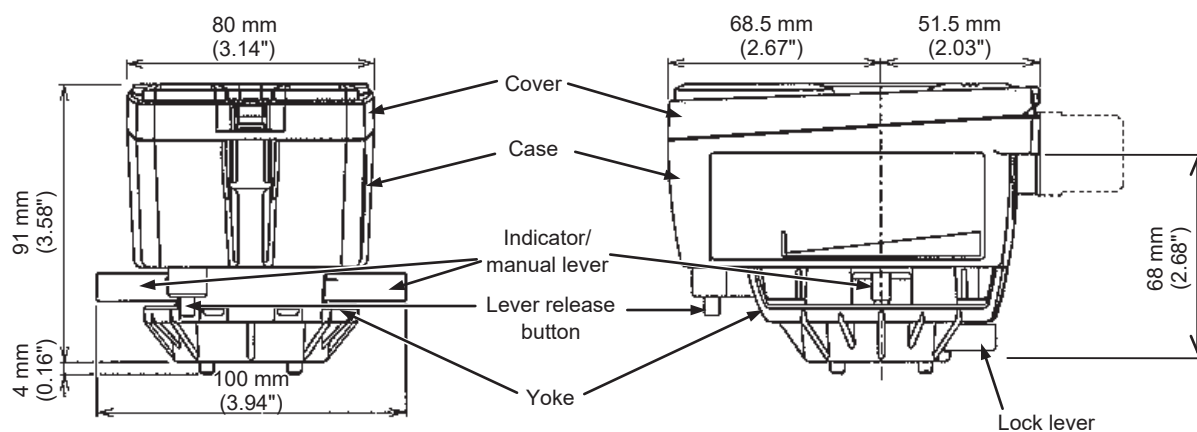
Note:

- IEC: International Electrotechnical Commission

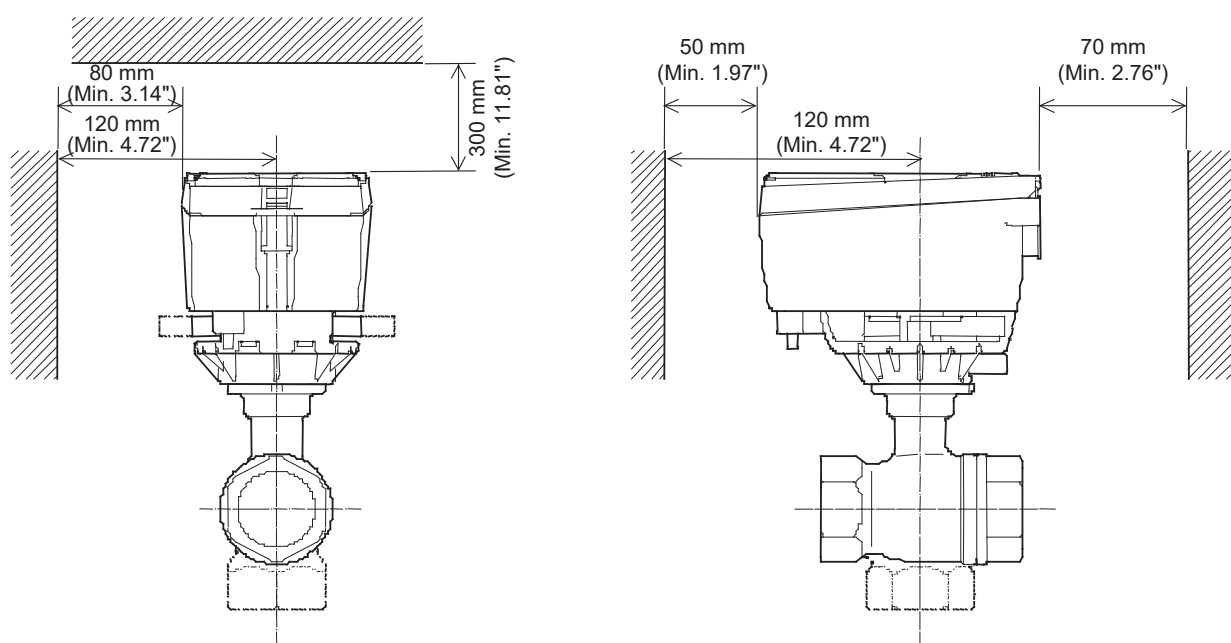
■ Specifications

| Item | Specification | | | | | | |
|---|---|--|---------------------|----------------------|--|-----------------------|--------|
| Power supply | 24 V AC \pm 15 %, 50/60 Hz | | | | | | |
| Applicable valves | Two-way control ball valves : Model VY53_2A Three-way control ball valves : Model VY53_3A | | | | | | |
| Power consumption | Model MY5310A/MY5370A : Max. 4 VA Model MY5320A/MY5330A/MY5340A/MY5350A : Max. 7 VA | | | | | | |
| Timing | 60 \pm 6 sec. (50 Hz) / 50 \pm 6 sec. (60 Hz) | | | | | | |
| Control signals | Floating (3-position) with nominal 135 Ω feedback potentiometer <table border="0" style="margin-left: 20px;"> <tr> <td style="border-left: 1px solid black; border-right: 1px solid black; padding: 0 5px;">Feedback potentiometer</td> <td style="padding: 0 5px;">Total resistance:</td> <td style="padding: 0 5px;">Nominal 135 Ω</td> </tr> <tr> <td style="border-left: 1px solid black; border-right: 1px solid black; padding: 0 5px;"></td> <td style="padding: 0 5px;">Max. applied voltage:</td> <td style="padding: 0 5px;">5 V DC</td> </tr> </table> Nominal 135 Ω resistance input 4 mA DC to 20 mA DC input (input impedance: 100 Ω) 0 V DC to 10 V DC input (input impedance: 150 k Ω or higher) 2 V DC to 10 V DC input (input impedance: 150 k Ω or higher) Floating (3-position) | Feedback potentiometer | Total resistance: | Nominal 135 Ω | | Max. applied voltage: | 5 V DC |
| Feedback potentiometer | Total resistance: | Nominal 135 Ω | | | | | |
| | Max. applied voltage: | 5 V DC | | | | | |
| Analog output (only with 4-20 mA DC, and 2-10V DC inputs) | Range: 2 V DC (0 %) to 10 V DC (100%) Max. load: 10 k Ω or higher (Max. 1 mA) | | | | | | |
| Environmental conditions | Rated operating conditions | Transport storage conditions | | | | | |
| | Ambient temperature | * -20°C to 50 °C (-4 to 122 °F) (Fluid temperature: 0 °C to 100 °C (32 to 212 °F)) * Do not allow the fluid to freeze. | -20 °C to 70 °C | | | | |
| | Ambient humidity | 5 % RH to 95 % RH | 5 % RH to 95 % RH | | | | |
| | Vibration | 5 m/s ² | 20 m/s ² | | | | |
| Materials | Case: Plastic (polycarbonate resin) (Color: Gray) Cover: Plastic (polycarbonate resin) (Color: Gray) Yoke: Plastic (polyphenylene sulfide resin) (Color: Black) | | | | | | |
| Auxiliary switch (except Model MY5370A) | One SPST Maximum applied voltage/current : 30 V AC, 100 mA Actuating position : variable within 20 % to 80 % Setting accuracy : \pm 10 % | | | | | | |
| Installation locations | Indoor (salt air, corrosive gas, flammable gas, and organic solvent must be avoided.) Outdoor (Use the outdoor cover etc. to be ordered separately. Direct sunlight, salt air, corrosive gas, flammable gas, and organic solvent must be avoided.) | | | | | | |
| Installation orientation | Installable in any position ranging from upright to sideways. | | | | | | |
| Valve position indication | Indicator/manual lever shows the valve position by pointing at the value of the scale on the actuator bilateral sides. 0 (%) : fully closed for Model VY53_2 / for Port B (B-AB) of Model VY53_2 100 (%) : fully open for Model VY53_3 / for Port A (A-AB) of Model VY53_3 | | | | | | |
| Manual override | Disconnect from the power supply. Turn the indicator/manual lever while pressing the lever release button. | | | | | | |
| Wiring | Electrical connection: Quick-fit screwless terminal Conduit thread: G1/2 (ISO 7-1) | | | | | | |
| Enclosure rating | Equivalent to IEC IP54: Dust-proof and splash-proof | | | | | | |
| Insulation | Between terminal and case : 50 M Ω or higher at 500 V DC | | | | | | |
| Dielectric strength | Between terminal and case: 500 V/min with 1 mA or less leakage current | | | | | | |
| Position for shipment | 100 % (fully open) Auxiliary switch: 50 % | | | | | | |
| Weight | 0.5 kg | | | | | | |

■ Dimensions and Parts Identification



Figuar 1. Dimensions and parts identification



Figuar 2. Mounting dimensions with clearance

Installation

| | |
|------------------|---|
| ⚠ CAUTION | |
| ! | Install, wire, and use this product under the conditions specified by this manual. Failure to do so may cause fire or device failure. |
| | Do not put a load or weight on this product. Doing so may damage the product. |

● Precautions for installation

Observe the following cautions in order to avoid failure of this product.

- Do not strike or jar this product.
- Do not install this product near a steam coil etc. High-temperature radiant heat may cause failure of the actuator.

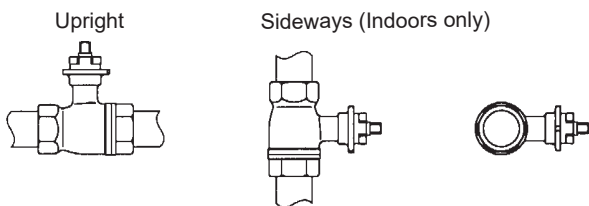
In addition, observe the following cautions.

- Install the product in a position allowing easy access for maintenance and inspection.
- If the product is installed in a ceiling, make a trapdoor for inspection within 508 mm (20") around the valve.

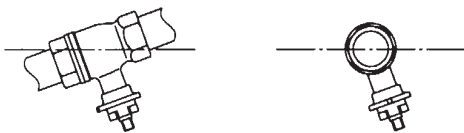
● Mounting position

Install the product so that fluid flows in the direction pointed by the arrow on the body. It can be mounted in any position ranging from upright to sideways (90° tilted).

Note: If the product is installed outdoors, place it in upright position.



Figuar 3. Correct mounting

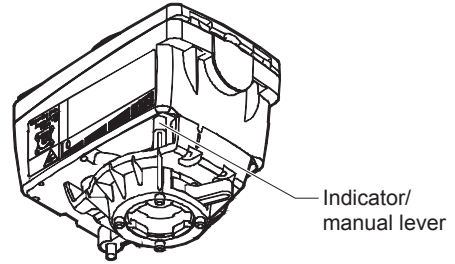


Figuar 4. Incorrect mounting

● Factory preset position

Actuator shaft: fully open

Indicator/manual lever: completely turned clockwise.



Figuar 5. Indicator/manual lever position for shipment

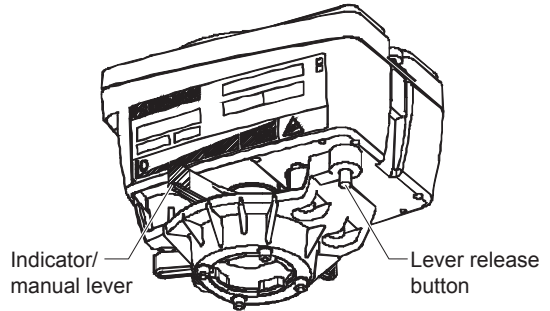
● Manually opening/closing operation

IMPORTANT

- Before opening or closing the valve manually, turn off the power. If the valve is manually opened or closed while the power (24 V AC) is applied, the actuator may break down.
- Do not manually open or close the valve beyond the fully open or fully closed scale.

- (1) Turn off the power.
- (2) While pressing the lever release button, turn the indicator/manual lever.

Note: No tool is required.



Figuar 6. Manually opening/closing operation

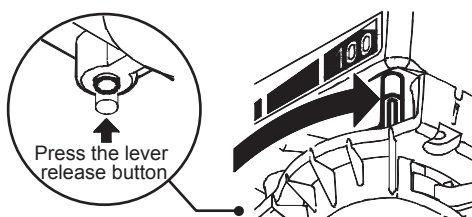
● Mounting on valve

| | |
|------------------|--|
| ⚠ CAUTION | |
| ! | Installation and wiring of the actuator must be performed by personnel qualified to do instrumentation and electrical work. Mistakes in installation or wiring may cause fire or electric shock. |
| ! | After the actuator is installed, make sure that the lock lever is closed (locked). If the lever is not locked, the actuator may fall out, resulting in injury. |

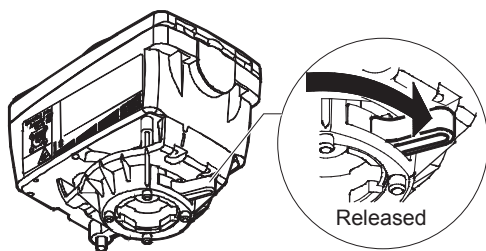
IMPORTANT

- When changing the mounting position of the actuator, set the valve position to 100 % (fully open) for the valve and actuator. If the valve and actuator are assembled in different valve positions, gears in the actuator will be damaged because the actuator will try to close or open the valve although the valve stops at the fully closed or fully open position.
- Actuator
The indicator/manual lever should be at the 100 position.
- Valve
The arrow on the stem should point to the 100 position. Align the round hole on the side of the valve stem with the tip on the joint surface of actuator.

(1) While pressing the lever release button, turn the indicator/manual lever to the fully open position.

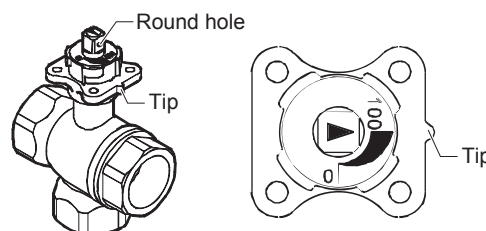


(2) Turn the lock lever to all the way to the right end.



(3) Check that the valve stem points to the fully open position.

When the valve stem points to the 100 position, the round hole on the side of the valve stem faces to the tip on the joint surface of actuator.

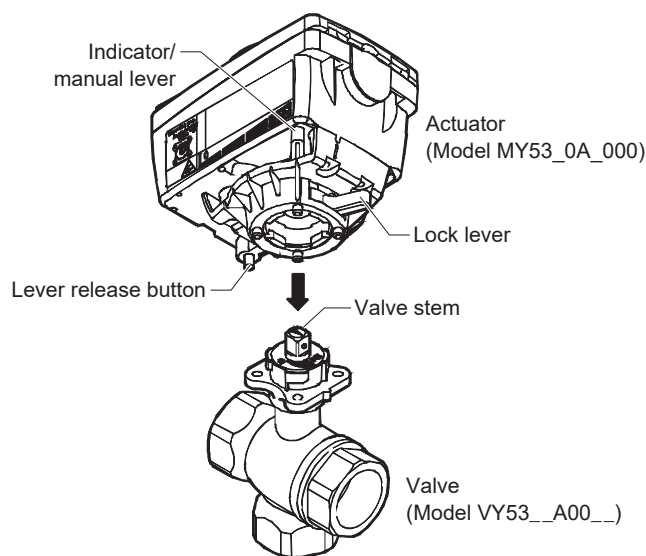


(4) Mount the product on the valve (Model VY53__A00__).

Align the four holes on the valve with the tip on the actuator.

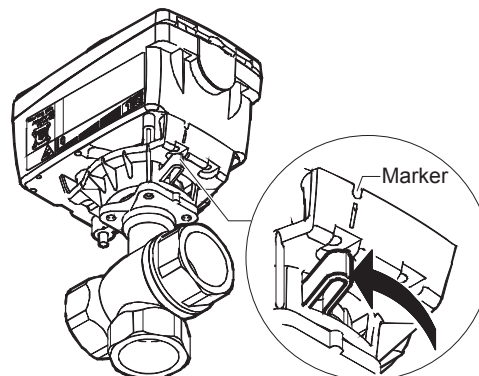
Check the factory preset position of the actuator and valve.

The actuator and valve can be assembled by 90° steps.



Note: Do not press the lever release button while operating. Keep the heat insulator away from the lever release button or the indicator/manual lever.

(5) Turn the lock lever to the left end (marker).



■ Wiring

| ⚠ CAUTION | |
|-----------|--|
| ! | Provide a circuit protector (e.g., a fuse or circuit breaker) for the power source. Failure to do so may cause a short circuit leading to fire or device failure. |
| ! | Install, wire, and use this product under the conditions specified by this manual. Failure to do so may cause fire or device failure. |
| ! | Installation and wiring of the actuator must be performed by personnel qualified to do instrumentation and electrical work. Mistakes in installation or wiring may cause fire or electric shock. |
| ! | Before wiring, be sure to turn off the power to this product. Failure to do so may result in electric shock or device failure. |
| ! | All wiring must comply with applicable codes and ordinances. Otherwise there is a danger of fire. |
| ! | For wiring, strip the insulation from cables as specified in this manual. If the length of exposed wire is longer than specified, it may cause electric shock or short circuit between adjacent terminals. If it is too short, it may not make proper contact. |

| IMPORTANT | |
|-----------|--|
| • | This product is designed for 24 V AC power supply voltage. Do not apply power supply voltage other than 24 V AC. |
| • | For the 2–10 V DC input type, 0–10 V DC input type, and 4–20 mA input type, check the polarity of the power supply and 2–10 V DC feedback signal, and then correctly wire the product. Incorrect wiring may result in PCB (print circuit board) burnout. |

● How to maintain IP54 (dust-proof, splash-proof)

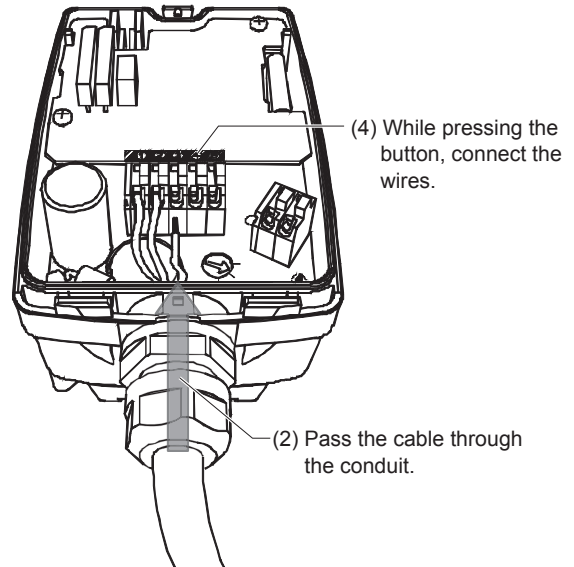
In order to maintain IP54 performance, use the waterproof connector when the product is used in high humidity environment or outdoor.

- Close the cover firmly.
- Use the waterproof connector (option) and apply a waterproofing treatment for the conduit holes.

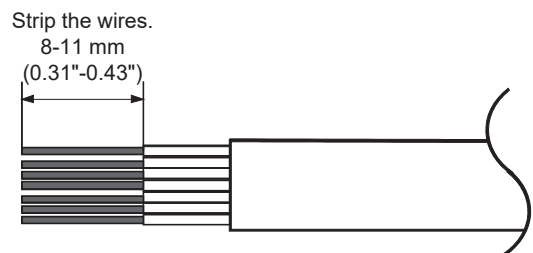
● Connecting cable

Connect the cable as instructed below. Refer to ■ “Terminal Diagram.”

- (1) Open the cover.
- (2) Pass the cable through the conduit hole.



- (3) Strip 8–11 mm (0.31”–0.43”) from the wire sheath.



- (4) While pressing the button on the terminal block, insert the lead wires for connection.
- (5) Lightly pull each lead wire to check that it does not come out.

| ⚠ CAUTION | |
|-----------|--|
| ! | After wiring, be sure to reattach the terminal cover. Failure to do so may result in electric shock. |

Auxiliary Switch Settings

⚠ CAUTION

⊘ Do not put a load or weight on this product. Doing so may damage the product.

⚠ Before beginning setup work, be sure to turn off the power to this product. Failure to do so may result in electric shock or device failure.

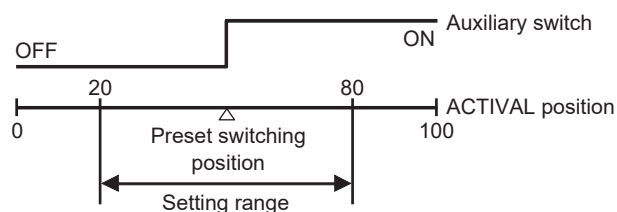
Model MY5310A4000 has one built-in auxiliary switch connected to the terminals 7 and 8.

Models MY5320A4000, MY5330A4000, MY5340A4000, and MY5350A4000 have one built-in auxiliary switch connected to the terminals 6 and 7.

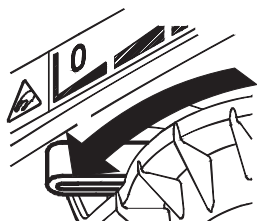
When the ACTIVAL is in open operation from 0 % position, the auxiliary switch is turned on (the terminals 7 and 8 or 6 and 7 are electrically connected) at the preset position.

Terminals 7 and 8 for Model MY5310A.

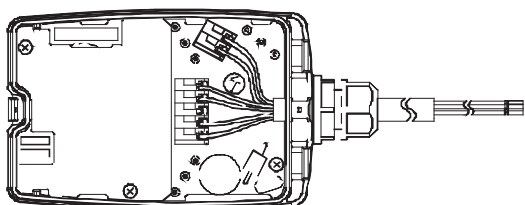
Terminals 6 and 7 for Models MY5320A, MY5330A, MY5340A, and MY5350A.



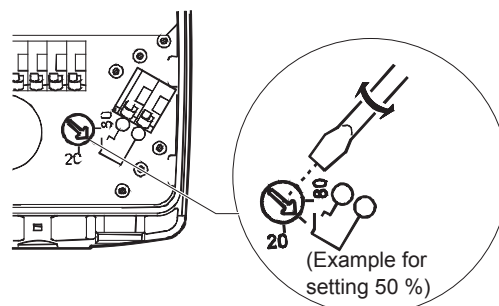
- (1) In the electric operation mode, set the valve position to the fully closed position.



- (2) Turn off the power on the product and open the cover.

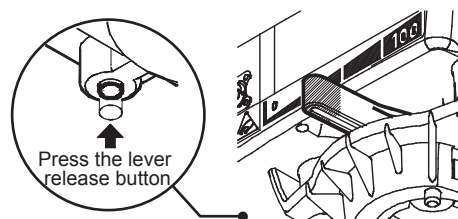


- (3) Set the position where the auxiliary switch is turned ON. The position can be set from 20 % to 80 %.



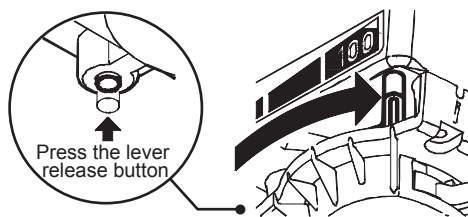
- (4) While pressing the lever release button, manually move the indicator/manual lever to the position set by step (3).

Check that the connection between "blue - gray" becomes conducted.



- (5) While pressing the lever release button, manually move the indicator/manual lever to the fully open position.

Check that the auxiliary switch is being conducted.



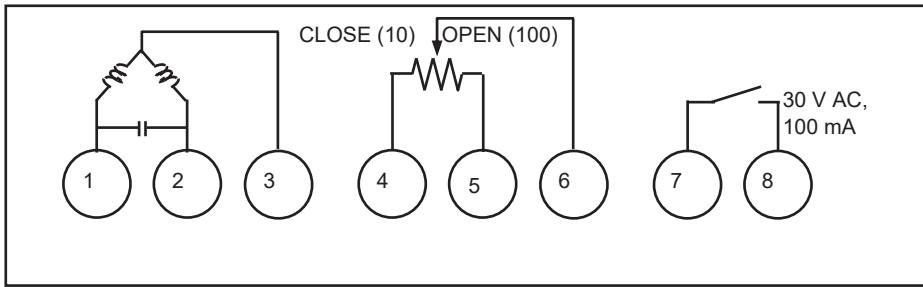
- (6) Close the cover.

⚠ CAUTION

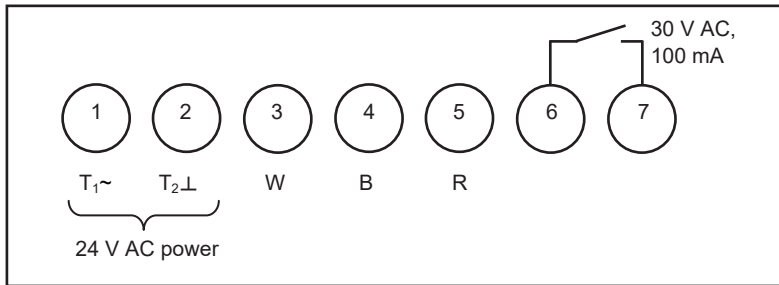
⚠ After settings, be sure to reattach the cover. Failure to do so may result in electric shock.

■ Terminals Connection

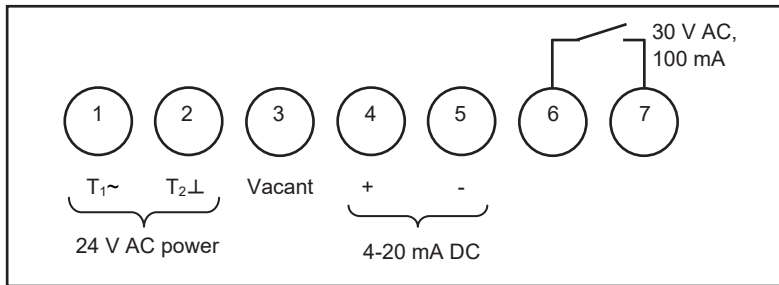
● Model MY5310A4000 (Nominal 135 Ω feedback potentiometer, with auxiliary switch)



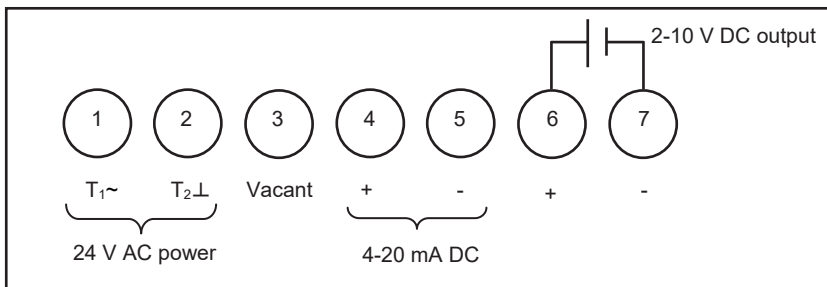
● Model MY5320A4000 (Nominal 135 Ω resistance input, with auxiliary switch)



● Model MY5330A4000 (4-20 mA DC input, with auxiliary switch)

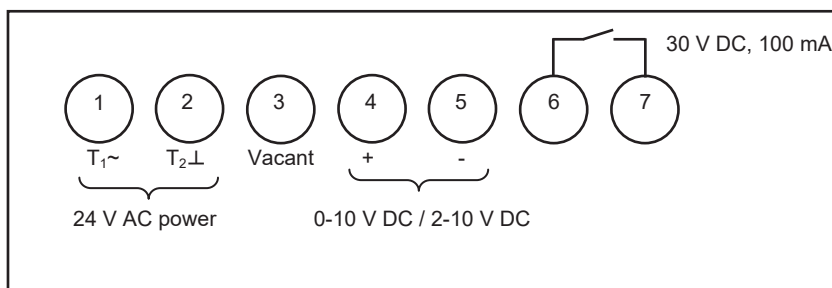


● Model MY5330A2000 (4-20 mA DC input, with 2-10 V DC output)

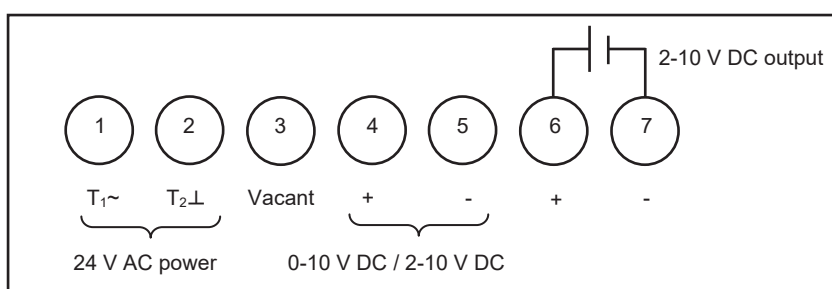


Figuar 7. Wiring terminal diagrams

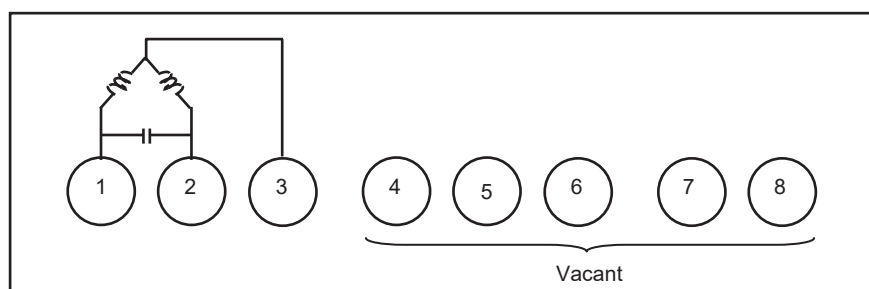
- Model MY5340A4000 / MY5350A4000 (2-10 V DC / 0-10 V DC input, with auxiliary switch)



- Model MY5340A2000 / MY5350A2000 (2-10 V DC / 0-10 V DC input, with 2-10 V DC output)



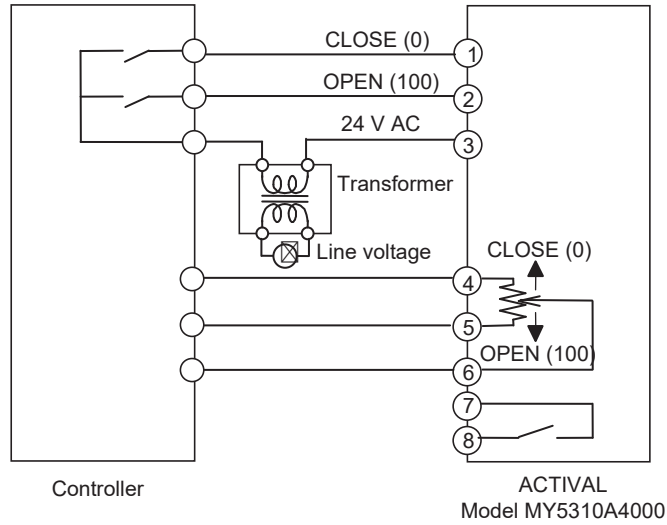
- Model MY5370A0000 (Floating (3-position) , with auxiliary switch)



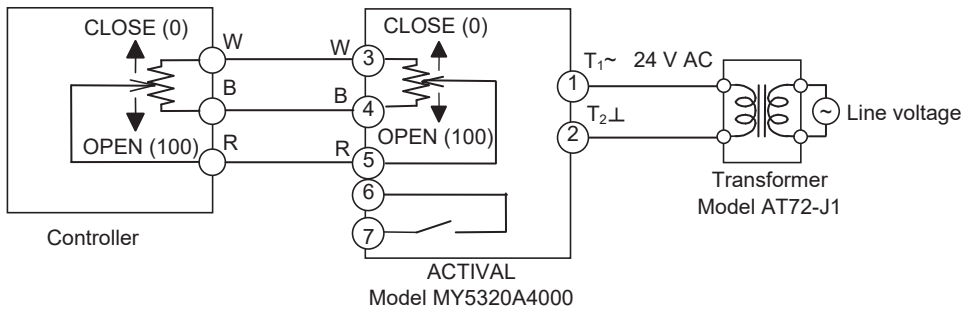
Figurar 8. Wiring terminal diagrams

■ Wiring Examples

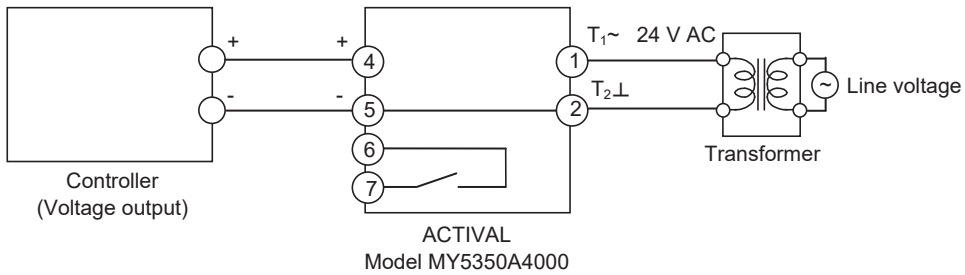
● Model MY5310A4000: Floating (3-position) with nominal 135 Ω feedback potentiometer



● Model MY5320A4000: Nominal 135 Ω resistance input

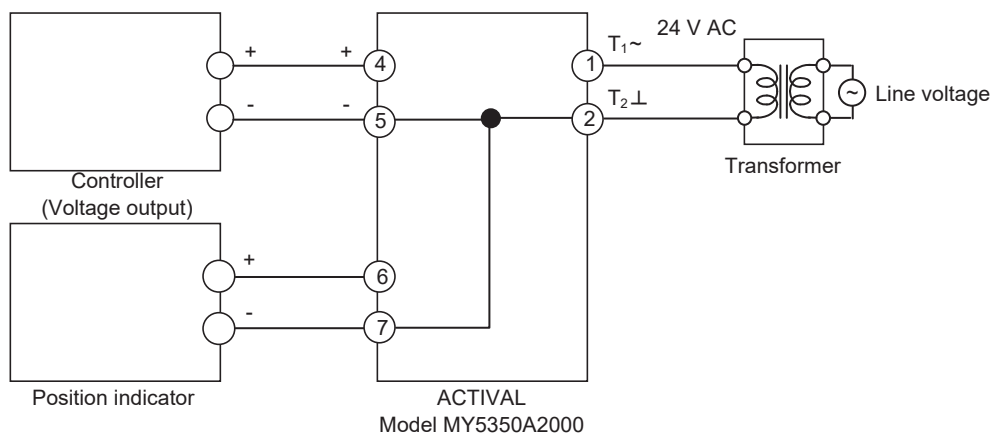


● Model MY5350A4000: 0–10 V DC input with auxiliary switch



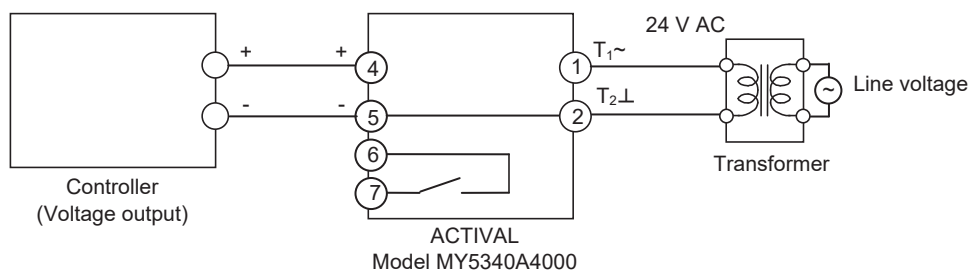
Note: Terminals 2 and 5 are connected inside the actuator.

● **Model MY5350A2000: 0-10 V DC input with 2-10 V DC output**



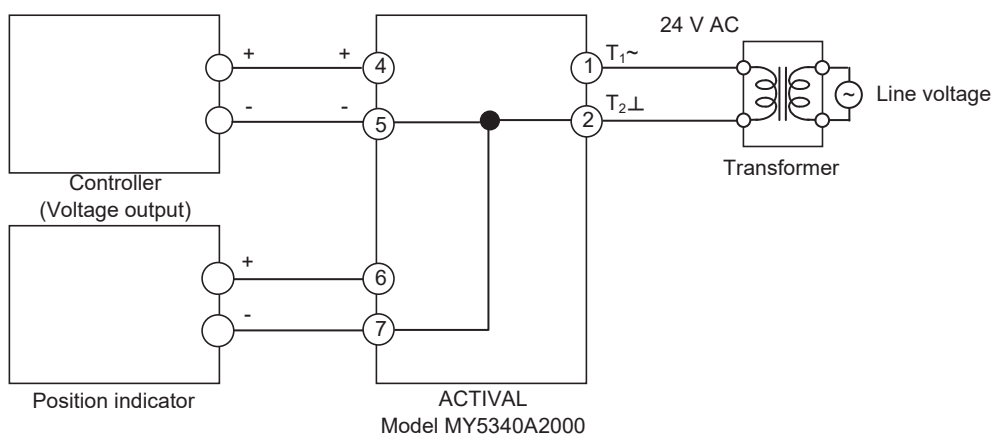
Note: Terminals 2, 5 and 7 are not connected inside the actuator.

● **Model MY5340A4000: 2-10 V DC input with auxiliary switch**



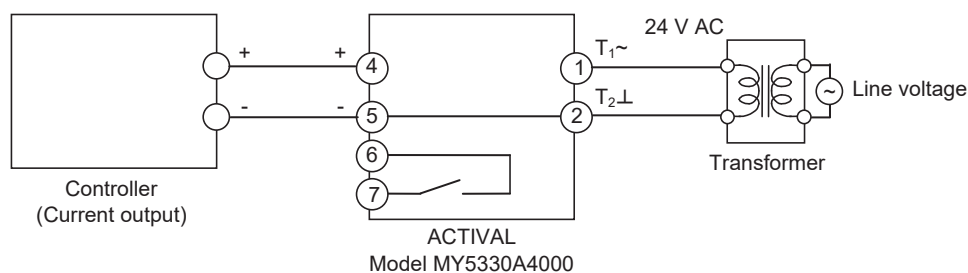
Note: Terminals 2 and 5 are connected inside the actuator.

● **Model MY5340A2000: 2-10 V DC input with 2-10 V DC output**



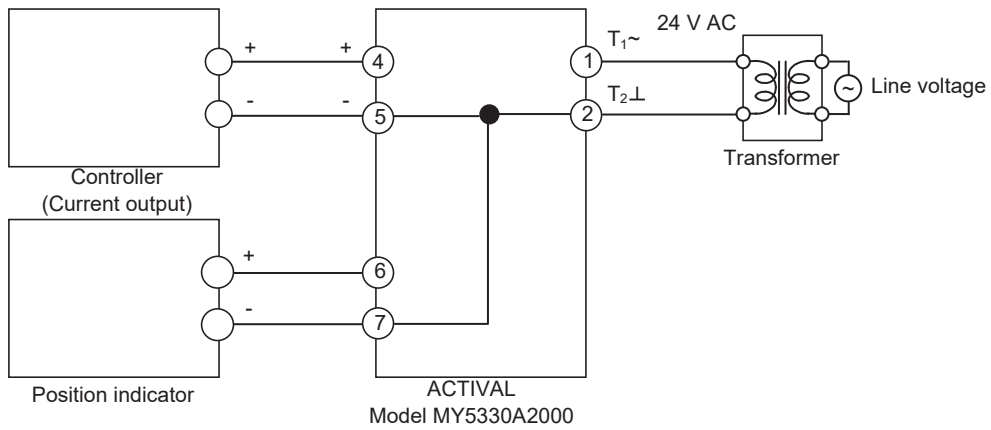
Note: Terminals 2, 5 and 7 are connected inside the actuator.

● **Model MY5330A4000: 4-20 mA DC input with auxiliary switch**



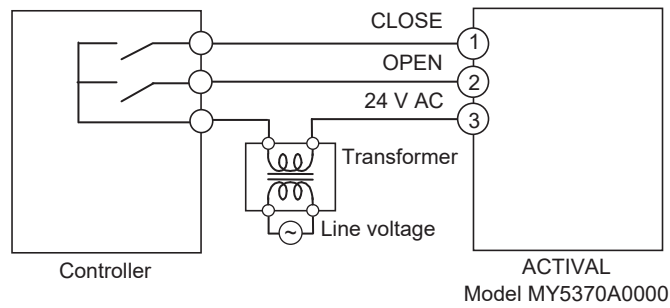
Note: Terminals 2 and 5 are connected inside the actuator.

● **Model MY5330A2000: 4–20 mA DC input with 2–10 V DC output**



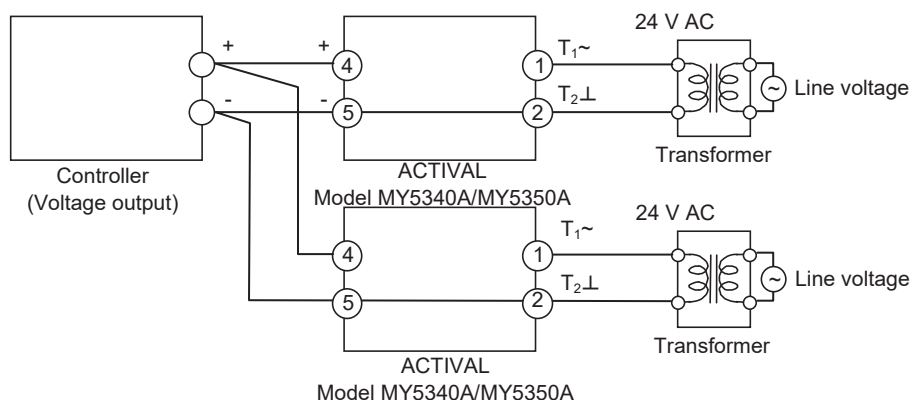
Note: Terminals 2, 5 and 7 are connected inside the actuator.

● **Model MY5370A0000: Floating (3-position)**



Advanced Wiring Examples

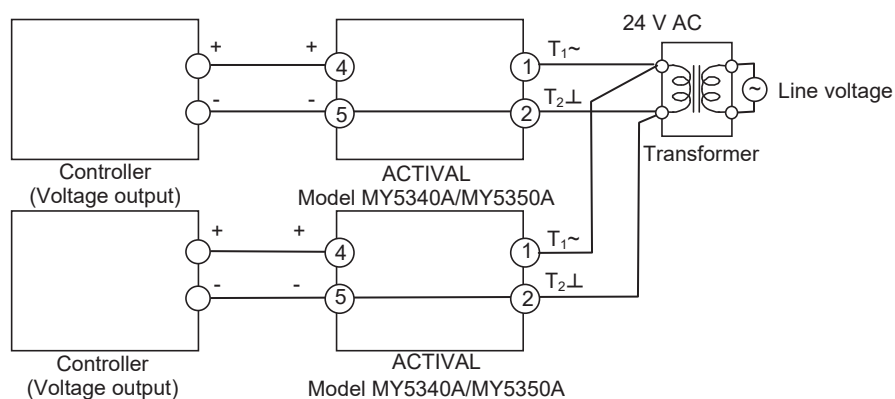
2-10 V DC input / 0-10 V DC input (an input signal used in common)



Note:

1. Terminals 2 and 5 are connected inside the actuator.
2. Two ACTIVAL as shown in the figure above must be the same-type (same model number). Terminals 2, 5 and 7 are connected inside the actuator.

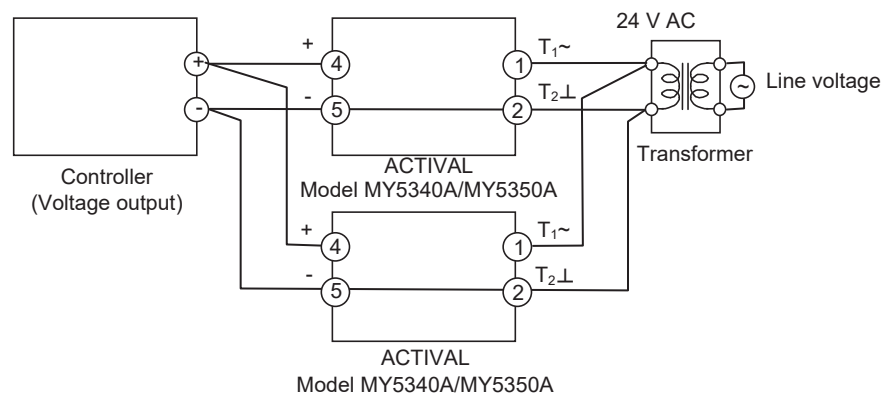
2-10 V DC input / 0-10 V DC input (power supply used in common)



Note:

1. All actuators must be in phase when using common transformer supply. Connect one transformer terminal to T1 on each actuator. Connect the other transformer terminal to T2 on each actuator.
2. Do not connect the actuator power supply terminals in parallel.
3. If you do not connect the lead wire properly, actuator and wiring might get damaged.
4. Terminals 2 and 5 are connected inside the actuator.
5. Two ACTIVAL as shown in the figure above must be the same-type (same model number).

2-10 V DC input / 0-10 V DC input (both input signal and power supply used in common)

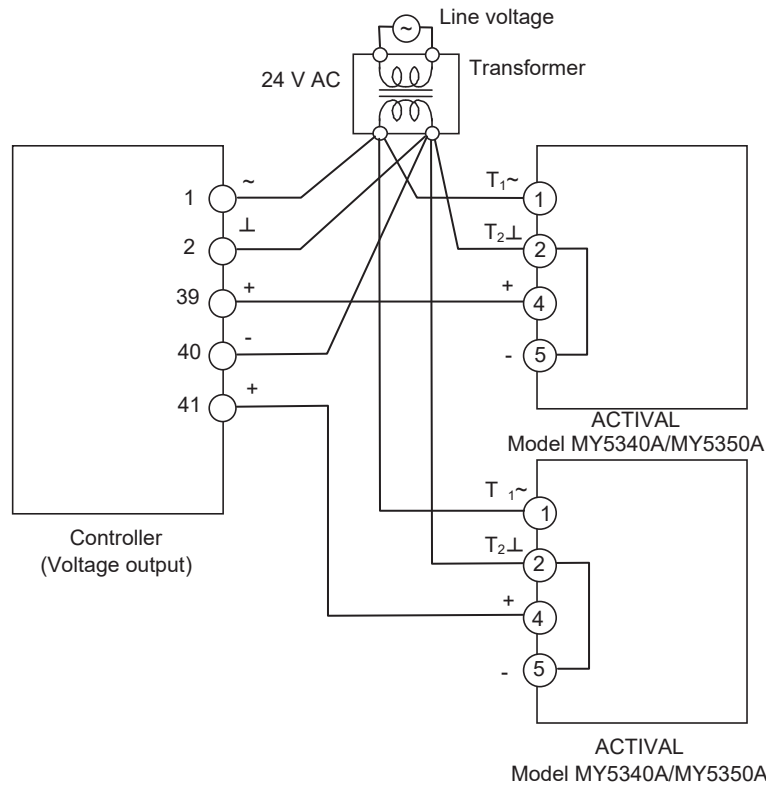


Note:

1. All actuators must be in phase when using common transformer supply. Connect one transformer terminal to T1 on each actuator. Connect the other transformer terminal to T2 on each actuator.
2. Do not connect the actuator power supply terminals in parallel. Do not connect the actuator signal input terminals in parallel.
3. If you do not connect the lead wire properly, actuator and wiring might get damaged.
4. Terminals 2 and 5 are connected inside the actuator.
5. Two ACTIVAL as shown in the figure above must be the same-type (same model number).

● **2-10 V DC input / 0-10 V DC input (system common wiring)**

Ground line (⊥) is used as a common line (for analog signal (-) transmission). Actuator thus has to have mutual ground as the connected controller.

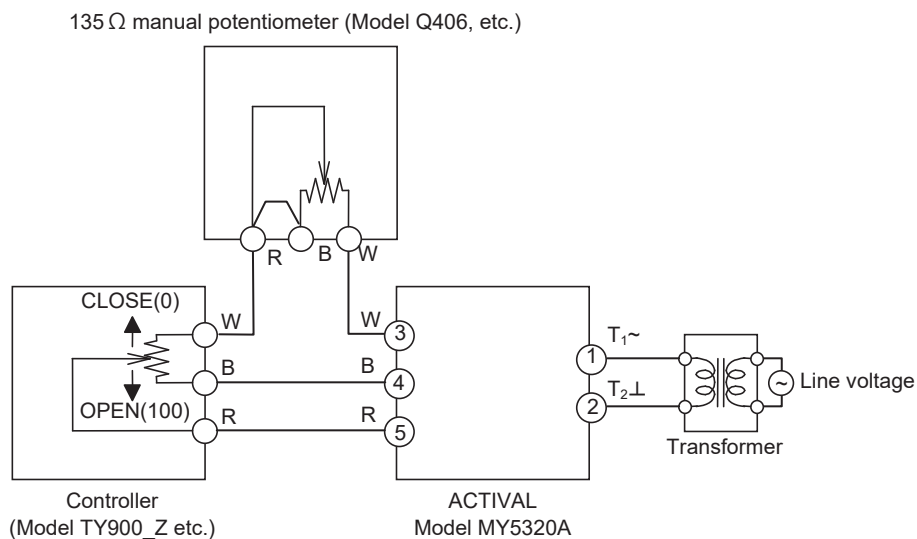


Note:

1. Controller to be connected needs to be applicable to system common wiring.
2. Wiring length between the actuator terminal "⊥" and 0 V branch connection point of the transformer secondary side must be: 10 m or shorter for JIS* IV electric wire with 1.25 mm² cross section (or equivalent)
5 m or shorter for conducting wire with 0.75 mm² cross section
* JIS: Japanese Industrial Standards
3. Terminals 2 and 5 are connected inside the actuator.
4. Two ACTIVAL as shown in the figure above must be the same-type (same model number).

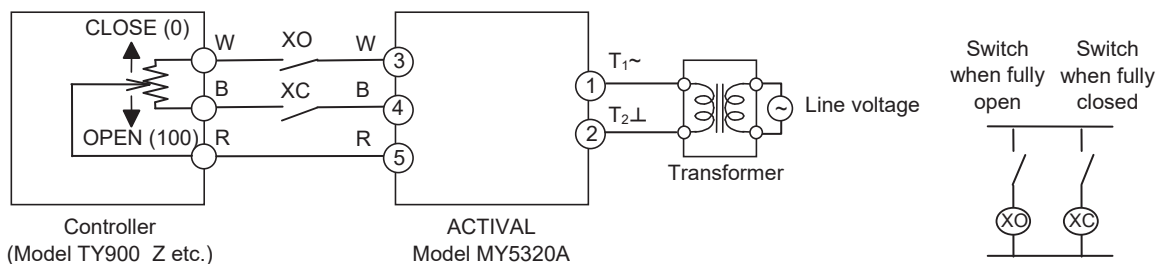
● **Nominal 135 Ω resistance input (wiring for minimum position setting)**

Besides a proportional controller, the minimum opening range can be set from 0 % to approximately 50 % by adding 135 Ω manual potentiometer .



Note: When abnormal circumstances (wire disconnection inside the actuator, input signal error, the end of feedback potentiometer life cycle etc.) occur, the valve cannot maintain the minimum opening. This also may result in a secondary damage. Avoid the applications having any possibility of causing a secondary damage.

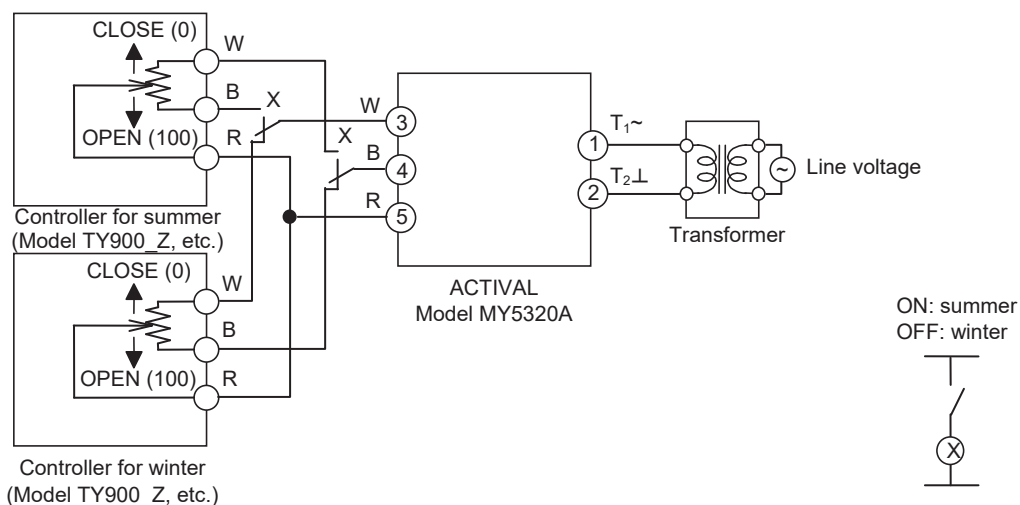
• Nominal 135 Ω resistance input (using relay and interlock)



Note:

1. When XO is open, the actuator is in 100% open position (fully open). When XC is open, the actuator is in 0% open position (fully closed). When both are open, the actuator is in 0% open position (fully closed).
2. Connect between R and R directly.
3. Use relay with: 10 V, 1 mA or lower min. contact load and 20 V, 20 mA or higher max. contact load.





• Nominal 135 Ω resistance input (summer / winter changeover)



Note:

1. Connect between R and R directly.
2. Use relay with: 10 V, 1 mA or lower min. contact load and 20 V, 20 mA or higher max. contact load.

■ Inspection and Maintenance

| ⚠ CAUTION | |
|---|--|
|  | Do not put a load or weight on this product. Doing so may damage the product. |
|  | Before wiring, setting, or maintenance, be sure to turn off the power to this product. Failure to do so may result in electric shock or device failure. |
|  | After wiring, setting, or maintenance, be sure to reattach the cover. Failure to do so may result in electric shock. |
|  | Do not touch the moving parts of this product. Doing so may cause injury. |

● Inspection

Inspect the ACTIVAL according to Table 1.

Manually open/close the ACTIVAL at least once a month if it is left, being mounted on the valve, in inactive state for a long period.

● Maintenance

Visually inspect the fluid leakage of the assembled valve and the ACTIVAL (actuator) operations every six months. If any of the problems described in Table 2 are found, take corresponding actions shown in the table.

Table 1. Inspection items and details

| Inspection item | Inspection interval | Inspection detail |
|--------------------|---------------------|--|
| Visual inspection | Semiannual | <ul style="list-style-type: none"> • Actuator damages. • Fluid leaks from the valve gland and the valve connecting part. • Loosened lock lever of the ACTIVAL mounted onto the valve. |
| Operating status | Semiannual | <ul style="list-style-type: none"> • Valve unstable open/close operation. • Abnormal noise and vibration. |
| Routine inspection | Any time | <ul style="list-style-type: none"> • Valve unstable open/close operation. • Abnormal noise and vibration. • Valve hunting |

Table 2. Troubleshooting

(If your problem is not solved by the corresponding action, please contact Azbil Corporation near you.)

| Problem | Part to check | Action |
|--|---|---|
| • Valve does not operate smoothly / valve stops halfway / valve does not operate at all. | Conditions of the power applied and of the input signal applied. Wiring condition / disconnected wires. Jammed foreign substance (may block the valve open/close operation) . | Check the power supply and the controller connected to the valve. Check the wiring. Remove the jammed foreign substances by manual operation. |
| • Auxiliary switch does not operate at all. | Condition of the auxiliary switch (cam switch) dial. Wiring condition / disconnected wires. | Adjust the dial setting. Check the wiring. |
| • Fluid leaks when the ACTIVAL fully closes the valve. | ACTIVAL incorrect mounting onto the valve. | Re-mount the actuator onto the valve referring to "Installation" on P.5.. |
| • Valve hunting occurs. | Secondary pressure condition and differential pressure condition. Unstable control. | Adjust the inlet and outlet pressure. Correct the control parameter setting of controller. |
| • ACTIVAL mounting position vibrates or produces abnormal noise. | Lock lever status. Yoke damages. | Lock (close) the lock lever. Consult with Azbil Corporation's sales/service personnel. |
| • ACTIVAL produces abnormal noise when being in operation. | - | Consult with Azbil Corporation's sales/service personnel. |

■ Disposal

Dispose of this product as industrial waste in accordance with your local regulations.
Do not reuse all or any part of the product.



This product complies with the following harmonised standards of the Electromagnetic Compatibility Directive (EMCD) and the Restriction of the use of certain Hazardous Substances in Electrical and Electronic Equipment Directive (RoHSD) .

EMCD: EN 61000-6-2
EN 55011 Class A, Group 1
RoHSD: EN 50581

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