

Electromotive Actuator for Pressure Independent Control Valve

Model MY4550C_____/MY4560C_____

■ General

The model MY4550C____ or MY4560C_____ electromotive actuators for continuous control, as proportional actuator (0 – 10 V) with manual setting and connection thread M 30 x 1.5. Multiple characteristic lines and the mode of operation are adjustable via the DIP switches (with characteristic lines for model VY4511A_____ pressure independent control valve (PICV)).



■ Features

- Proportional actuator (0 – 10 V)
- Connection thread M 30 x 1.5
- Multiple characteristic lines

Safety Instructions

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



Usage Restrictions

As an electromagnetic wave equipment for office use (Class A), this equipment is intended to use in other than home area. Sellers or users need to take note of this. This product is targeted for general air conditioning. Do not use this product in a situation where human life may be affected. Azbil Corporation will not bear any responsibility for the results produced by the operators.





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 5 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, maintenance, or replacement, 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.
	Do not carelessly touch this product when it is used to control hot water. Doing so may result in burns, because the product reaches a high temperature.

■ Model Numbers

Base number	Control	Power supply	Feedback	Cable	-	Description
MY45						Actuator for model VY4511A_ _ _ _ PICV
	50					DC 0-10V control
	60					DC 0-10V / 3 point / 2 point control
		C				24 V AC
			0			Without position feedback
			1			With position feedback
				1		Cable drawer
					00	Fixed

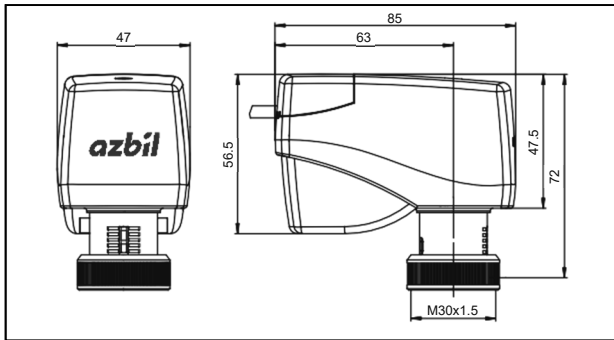
Note: There are only the following 2 model numbers for the electromotive actuators.

MY4550C1100, MY4560C0100

■ Specifications

Item	Specification
Model	Actuator for model VY4511A_ _ _ _ pressure independent control valve
Operating voltage	24 V AC $\pm 10\%$; 50/60 Hz
Power consumption	For sizing transformer
	Nominal
	3.7 VA for AC
	2.5 VA for AC
Startup load	Max. 10 A for short periods
Model number	MY4550C1100
Control	0 – 10 V DC
Position feedback	0 – 10 V DC, 5 mA
Connecting cable	Fixed pre-assembled cable 5 x 0.5 mm ² , length 1.5 m
Weight	0.25 kg
Maximum stroke	4 mm for piston stroke 0 – 100 %
Positioning force	nominal 150 N
Travel time	about 22 s/mm
Manual setting	Only when not under current. Adjustment spindle for Allen key under the cover, 4 mm across flats
Enclosure protection rating	IP 54 according to EN 60529
IEC Protection class	III according to EN 60730
Fluid temperature	0 – 120 °C
Ambient temperature	Operating
	Transport / Storage
	0 – 50 °C
	0 – 50 °C
Ambient relative humidity	Operating
	Transport / Storage
	$\leq 85\%$ (Non-condensate)
	$\leq 85\%$ (Non-condensate)
Installation position	No restriction. But vertical downward installation should be tried to avoid.
Maintenance	Maintenance-free
Installation location	Indoor use
Factory preset position	Note: Salt air, corrosive gas, flammable gas, and organic solvent must be avoided. Fully open

■ Dimensions



■ Maintenance space

Install this product in a place where wiring, configuration, and replacement can be done, leaving enough space around the product so that such work can be carried out after installation.

■ Function

In combination with model VY4511A_ _ _ _ PICVs with continuous control and an electronic room thermostat with proportional output or a central controller in the central building control system, the model MY4550C_ _ _ _ or MY4560C_ _ _ _ electromotive actuators with continuous control allow for precise individual room temperature control. When installing the pipework correspondingly, several terminal units (zones) may be controlled with one valve only.

Perfect regulation with high accuracy is guaranteed by different stored characteristic lines (adjustable via DIP switches S1 – S 6), which are adapted to the PICVs regarding effective valve lift and valve characteristics. The adjustable linear or equal percentage characteristic lines allow for an adaptation to the regulation characteristics of the terminal units. (Exact DIP switch assignment: see operating instructions.)

As for the model MY4550C1100 with position feedback, the current lift position is transmitted via the 0 – 10 V output signal (terminals 4 and 5).

The actuators are silent in operation with low power consumption. The stroke lift of the actuator is clearly visible via the lift position indicator.

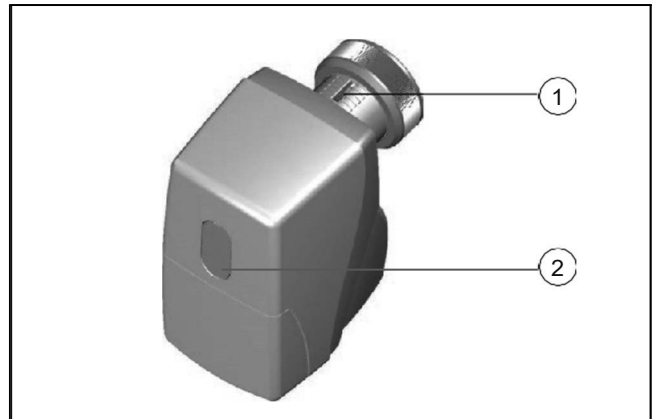
In de-energized state, the manual setting allows for manual operation of the actuator with the help of a 4 mm Allen key. The integrated slip clutch protects the gear against excessive operating forces.

In addition to the cable connected at works, the integrated terminals allow for the direct connection to the installation cable laid on site without additional clamping device.

■ LED display

The LED display located under the cover shows the operating status of the actuator.

- ☀ On Operating current available
- ⚡ Flashes Recognition of neutral point
- Off No operating current

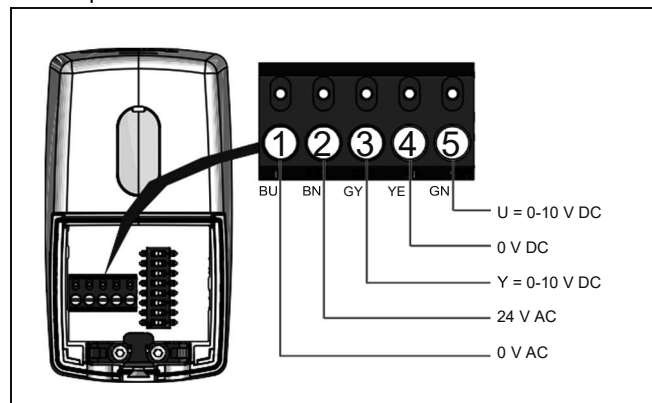


(1)	Lift position indicator of the actuator
(2)	Cover for manual setting (adjustment spindle)

■ Connecting the power supply

Connect the power supply for the desired configuration as shown in Illust. 1 to Illust. 4.

● With position feedback



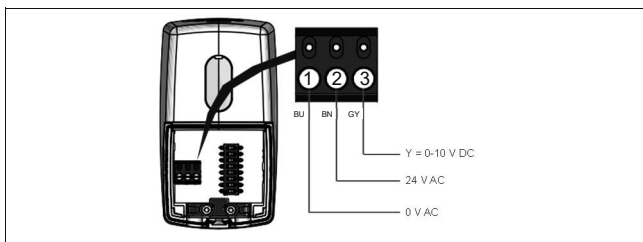
Illust. 1: Model MY4550C1100

Pin assignment

(1)	0 V AC (⊥)	blue (BU)
(2)	24 V AC (~)	brown (BN)
(3)	0-10 V DC control (Y)	grey (GY)
(4)	Position feedback 0 V DC	yellow (YE)
(5)	Position feedback 0-10 V DC (U)	green (GN)

Note: 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.

● **Continuous control** (without position feedback)



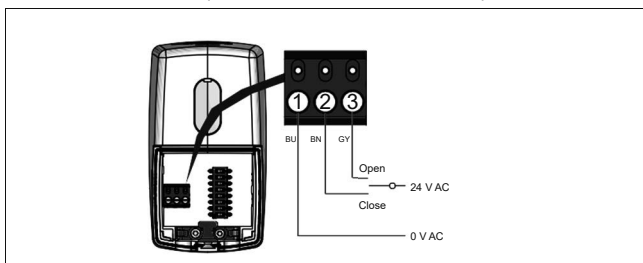
Illust. 2: Model MY4560C0100

Pin assignment

(1)	0 V AC (L)	blue (BU)
(2)	24 V AC (~)	brown (BN)
(3)	0-10 V DC control (Y)	grey (GY)

Note: Ground line (L) is used as a common line (for analog signal (-) transmission).

● **3 point control** (without position feedback)

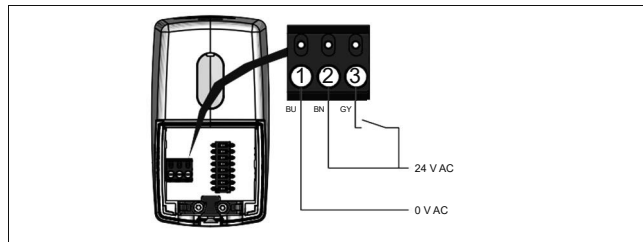


Illust. 4: Model MY4560C0100

Pin assignment

(1)	0 V AC (L)	blue (BU)
(2)	0 V or 24 V AC(~) (close)	brown (BN)
(3)	0 V or 24 V AC(~) (open)	grey (GY)

● **2 point control** (without position feedback)



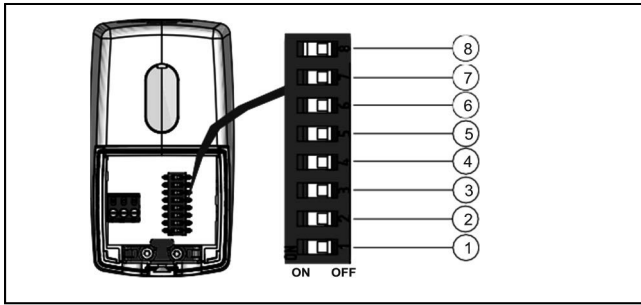
Illust. 3: Model MY4560C0100

Pin assignment

(1)	0 V AC (L)	blue (BU)
(2)	24 V AC (~)	brown (BN)
(3)	0 V or 24 V AC 0 V (close), 24 V (open)	grey (GY)

Note: After the power supply has been connected for the first time, the actuator will carry out an initialisation run. The product will be ready for operation after this initialisation.

■ DIP switch settings



- * Flowrate must be set to the same value on both the handwheel and the DIP switch.
- * In the case of 3-point control by Azbil's FCU controller (model WJ-1202W), change the settings so that the time from fully open to fully closed is between 30 and 255 seconds.

DIP switches

(1)	S1 ON/OFF	Setting of the required stroke behaviour in accordance with the characteristic lines of the valve used.
(2)	S2 ON/OFF	
(3)	S3 ON/OFF	
(4)	S4 ON/OFF	
(5)	S5 ON/OFF	
(6)	S6 ON/OFF	
(7)	S7 OFF	Do not change
(8)	S8 OFF	

Valve + actuator =															Full stroke time (s)	
Valve type	Model	Control range	DIP switches						DIP switches							
			S1	S2	S3	S4	S5	S6	S1	S2	S3	S4	S5	S6		
	DN 15 200 – 1300 l/h	200 - 300 l/h	on	off	on	on	off	off							20	
		301 - 500 l/h	on	off	on	off	off	off	on	off	on	off	off	on	75	
		501 - 900 l/h	on	on	on	on	off	off	on	on	off	on	off	on	80	
		901 - 1300 l/h	on	off	off	off	on	off	on	off	on	on	on	off	on	90
	DN 20 250 – 1800 l/h	250 - 400 l/h	on	off	on	on	off	off							20	
		401 - 800 l/h	on	on	off	off	off	off	on	on	off	off	off	on	35	
		801 - 1100 l/h	on	on	on	on	on	off	on	on	off	off	on	on	70	
		1101 - 1500 l/h	on	on	off	off	on	off	on	on	on	on	on	off	on	90
		1501 - 1800 l/h	on	off	on	off	on	off	on	off	on	on	on	off	on	90
	DN 25 400 – 2500 l/h	400 - 700 l/h	on	on	on	off	on	off							20	
		701 - 1100 l/h	on	on	off	off	off	off	on	on	off	off	off	on	35	
		1101 - 2100 l/h	on	off	off	on	on	off	on	off	off	off	on	on	70	
	2101 - 2500 l/h		on	on	off	on	on	off	on	off	on	on	off	on	90	
	DN 32 600 – 4800 l/h	600 - 800 l/h	on	off	on	on	on	off							20	
801 - 2800 l/h		on	on	on	on	on	off	on	on	off	off	on	on	70		
2801 - 4800 l/h		on	off	off	off	off	on	on	off	on	off	on	on	90		

■ Installation and fitting

The connecting cable must not contact with hot pipes or similar as excessive heat will accelerate the aging of the cable insulation.

Electrical connection must be carried out in accordance with the requirements of the local Electricity Board.

The model MY4550C___ or MY4560C___ electromotive actuator can be installed in any position but a vertical (stroke index pointing upwards) or horizontal installation is preferable. In the case of vertical downward installation, special circumstances (e.g. dirt water) may reduce the service life.

■ Application

The electromotive actuators are combined with model VY4511A___ pressure independent control valve (PICV) for heating, ventilation and air conditioning.

■ Disposal

Dispose of this product as industrial waste in accordance with your local regulations.

Do not reuse all or any part of the product.

■ Related documents

AB-7642 Pressure Independent Control Valve Model: VY4511A_ _ _ _
Specifications/Instructions

Refer also to the following documents that are included with the product.

AX-382E Electromotive Actuator (without position feedback) Model: MY4560C0100
Installation instructions

AX-383E Electromotive Actuator (with position feedback) Model: MY4550C1100
Installation instructions

■ 基于 SJ/T11364-2014 「电子电气产品有害物质限制使用标识要求」 的表示式样



产品中有害物质的名称及含量

部件名称	有害物质					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
产品主体及电缆	○	○	○	○	○	○
本表格依据 SJ/T 11364 的规定编制。 ○: 表示该有害物质在该部件所有均质材料中的含量均在 GB/T 26572 规定的限量要求以下。 ×: 表示该有害物质至少在该部件的某一均质材料中的含量超出 GB/T 26572 规定的限量要求。						



This product complies with the essential requirements of the Electromagnetic Compatibility Directive (EMCD)
EMCD: EN 60730-1, EN 60730-2-14.



Specifications are subject to change without notice.

Azbil Corporation
Building Systems Company

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