

# VA-3300/3400 SERIES EASY INSTALLATION ACTUATOR

## DESCRIPTION

VA-3300 series cubic cover actuator is electromechanical product, and can be mounted on VB-3000 series valves.

VA-3300 series cubic cover actuator has 3 basic types:

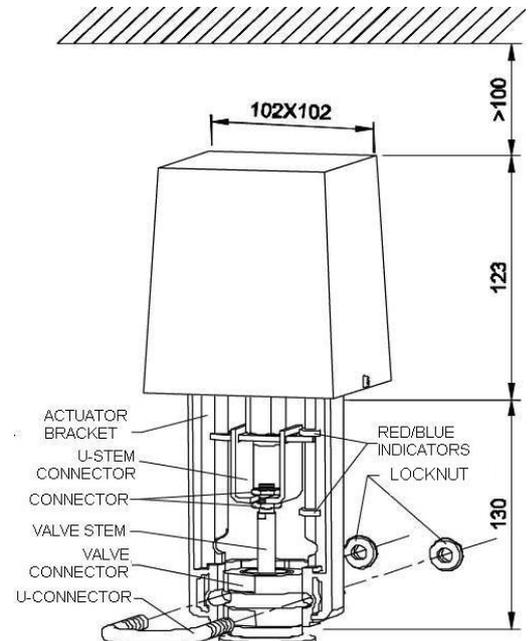
1. VA-3300 (VA-3400) reversible motor operation and provide increasing control;
2. VA-3301 (VA-3401) can accept input 0~10V DC or 4~20mA DC control signal and provide proportional control, and also can provide 0~10V DC feedback signal to indicate the position of the actuator;
3. VA-3302 (VA-3402) can accept input 0~10V DC or 4~20mA DC control signal and provide proportional control.



(Fig. 1)

## CHARACTERISTICS

- Low AC voltage synchronous reversible motor.
- Magnetism clutch.
- The action uses gear to transit. Output gear rollers are supported by surface rolling bearing, which rotate around the central bearing.
- Valve working position indicator.
- Fireproof ABS plastic casing.
- Conveniently mounting.
- 0~10V DC or 4~20mA DC control (For VA-3301 (VA-3401) and VA-3302 (VA-3402) only)
- Working state (DA or RA) can be selected by jumper.
- Apply to 13mm, 15mm, 17mm, 19mm or 22mm stroke can be selected by jumper.
- Have overtime protection function, and failure protection function when without control signal.
- 0~10V DC feedback signal.
- Have manual open/close valve function (only for VA-3XXXM)
- Have auxiliary micro-switch (only for VA-3XXXS)
- Have manual open/close valve function and auxiliary micro-switch (only for VA-3XXXK)



(Fig. 2)

## OPERATION

1. Actuator is driven by reversible synchronous motor with magnetism clutch. Motor can create stable torsion at stopping condition depending on the magnetism effort, which is created by motor rotor and magnetism clutch. And the motor can stop at any position when there is no current pass through.
2. The signal of the increasing or proportional type controller can make the motor rotate clockwise or anti-clockwise.

Ex-factory setting for VA-3301 (VA-3401) and VA-3302 (VA-3402) are: 22mm stroke, 0~10V DC mode, DA working state, UP direction failure protection. If the manufacturer has already mounted the actuator on the valve body, it will fit with the valve's stroke. Further more, it can select direct (DA) or reversible (RA) working mode. The two modes are just opposite. When there is no control signal, it can select DOWN/UP jumper to select the working direction. For VA-3301 (VA-3401) model, it also has 0~10V DC feedback signal output. Since the 0~10V DC and 4~20mA DC control signals are quite different, so if need 4~20mA DC mode, please indicate when ordering, and the factory will adjust the parameter of the PCB.

## SPECIFICATIONS AND TECHNICAL DATA

MODEL		VA-3300X (VA-3400X*)	VA-3301X (VA-3401X*)	VA-3302X (VA-3402X*)
MOTOR		Bi-directional Synchronous motor with magnetic clutch.		
POWER SUPPLY (MOTOR)		24VAC ± 10%, 50/60Hz, 5.5VA 230VAC ± 10%, 50/60Hz, 5.5VA	24VAC ± 10%, 50 / 60Hz, 5.5VA	
STARTUP CAPACITANCE		10 μ F/100V (24V motor) 0.33 μ F/400V (230V motor)	10 μ F/100V (24V motor)	
CURRENT-LIMITING RESISTANCE		10 Ω/1w	10 Ω/1w	
OPERATION / CONTROL		Reversible, incremental control	Proportional control upwards or downwards	
ELECTRIC CIRCUIT	POWER	—	24V AC ± 10%, 50/60Hz,	
	INPUT SIGNAL	—	0~10V DC or 4~20mA DC	
	FEEDBACK	—	0~10V DC (5mA)	—
POWER CONSUMPTION (PCB)		—	2VA	
NORMAL TORQUE		1000N (# 1500N)		
MATERIAL	GEAR	Stainless steel, POM plastic (# Brass)		
	REDUCER CHASSIS	Zinc-plated steel		
	BRACKET	Die-casting aluminum alloyed		
	CASING	Fire-proof ABS engineering plastic (UL94V-0)		
OPERATION TIME		50Hz: 4.6s/mm (# 50Hz: 7.77s/mm) 60Hz: 3.8s/mm (# 60Hz: 6.45s/mm)		
OPERATION TEMP.		2~55°C		
STORAGE TEMP.		-20~65°C		
MAX. RH		<90% no condensation		
CONNECTING WIRES		0.5~1 mm <sup>2</sup>		
DEFAULT SETTING		Move upwards to fully-close position	Stroke: 22mm; Input signal: 0~10V DC; Working mode: DA; Failure protection: UP; Move upwards to fully-close position	
ACCESSORIES		Lock nut, position indicator, position pointer		
NET WEIGHT		1.4kg	1.45kg	

- The "X" with "\*" is additional code: M-with manual open/close function; S-with auxiliary micro-switch; K-with manual open/close function and auxiliary micro-switch; omitted-standard type.
- The data with "#" is the data of VA-34XXX

## INSTALLATION

1. Install the actuator bracket on the valve body, insert the U-connector and tighten the fixed screw of the actuator. (See Fig. 2)
2. Lift up the valve stem and put the lock nut and position pointer onto it, then insert the stem into the U-stem connector. Use spanner to lock the locknut after adjusted the position. (See Fig. 2, the actuator have been set to fully-close position for the valve body, if no special requirements, it should not be changed.)
3. Give priority to vertical installation and remain enough room for screw off the actuator when repair the valve body. (See Fig.3)
4. Connect the wires according to the Wiring Diagram. (See Fig. 3)

5. Turn on the power supply and make the valve fully closed, then aim at the position indicator closing line with the position pointer, and stick it tightly on the bracket of the actuator. (See Fig. 2)
6. Power supply test: The UP or DOWN operation of VA-3300 (VA-3400) actuator can CLOSE or OPEN valve completely. For VA-3301 (VA-3401) and VA-3302 (VA-3402) actuator, choose the STROKE jumper (J5) according to the valve's stroke, then provide it a fully-open signal, for example, if provide 10V signal at the mode "0~10V", actuator will move downwards till the red indicator lamp turns dark. If the gears inside the actuator have already stopped, but the indicator lamp is still on, in this case, it indicates the setting stroke is larger than the valve's real stroke. The stroke potentiometer PT1 (STROKE) needs to be micro-adjusted anticlockwise until the indicator lamp turns off, then, the valve is fully opened. Provide a 0V fully-close signal, actuator will move upwards until the indicator lamp turns off, and then the valve is fully-closed (Ex-factory setting). If the indicator lamp is still on, unscrew the stem from the U-stem connector till the lamp turns off. Finally, let the valve operate a circle to ensure the fully-open and the fully-close of the valve will make the indicator lamp turn off.

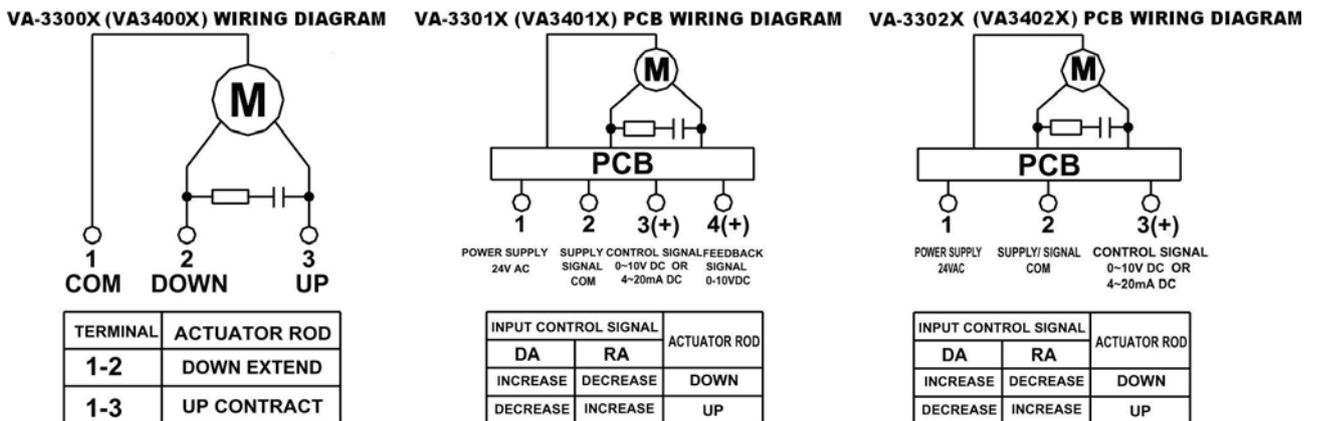
## NOTE

- Actuator must be protected and prevented from water dripping to destroy internal elements and motor.
- Actuator can't be covered with adiabatic material.

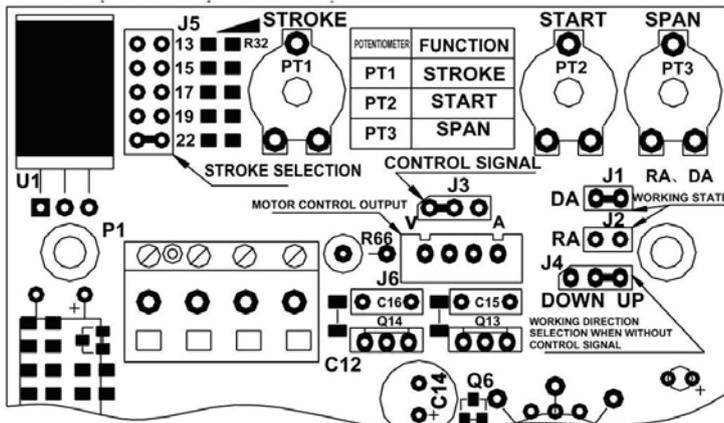
## CAUTION

- Cut off power supply when repair the actuator, to avoid destroying elements or cause casualty because of leakage of electricity.
- When power is on, don't try to connect or disconnect the electrical wires.

## WIRING DIAGRAM AND SETTING DIAGRAM



### PCB SETTING DIAGRAM (IF ANY)



### VA-3XXXM MANUAL SWITCH

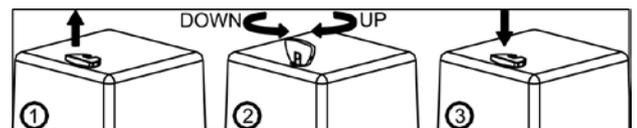


Fig.3