Series W-AR

Electric Actuator

Series W-AR actuator is widely used in auto-control system to regulate the opening rate of electronic valves. Along with Series W-PICV valve body, the actuator is able to control the system's temperature, pressure and flow through receiving different kinds of signals.

Features

• Easy to debug on site, no need to remove the shell
• Electronic presetting facilitates on-site commissioning
• Manual operation facilitates on-site trouble-shooting
• Precise positioning achieved by self-calibration function

Working Principle

Modulation Type W-AR2M

The modulation type electric actuator can realize equal percentage flow control. By inputting 0 (2) - 10VDC and 0 (4) - 20mA control signals, the feedback output signal of valve position can be observed, and the automatic regulation and control of pipeline fluid medium can be realized, which makes the application of control valve more flexible. After the modulation type electric actuator is powered on, by pressing the SW1 learning / reset button on the shell, the actuator will firstly go down to find the valve closing position, and then reverse the upward direction to return to the reference position and stop. After the self-adaptation is completed, it will automatically enter the operation state. MCU (chip) will automatically save the parameters obtained during learning, and it will not be lost even after power failure. At this time, the driver power indicator on long time light indicates that the self-adaptive is over, and the coordination and adjustment of valve body and driver are completed. Currently, the running direction of the driver is controlled by the control signal. When the driver is powered on, press the SW1 learning / reset button on the shell to enter the adaptive state if it needs to be adaptive.

On-off Type W-AR1S

The W-AR1S motorized actuator accepts two-wire and one–control on/off type control. When the power is switched on, the actuator drives the screw downwards one-way to close the valve. When the external power is cut off, auto reset is triggered electronically to drive the screw upwards to keep the valve open.

Model Description

		W-	A	R	1	S-	16

W	WATTS
A	Electric Actuator
R	Multi-turn
Power Supply: 1=110~240VAC 2=24VAC/DC	
Control Mode: S =ON/OFF Type M=Modulation Type	
Output Force: 16=160N 25=250N	

Material

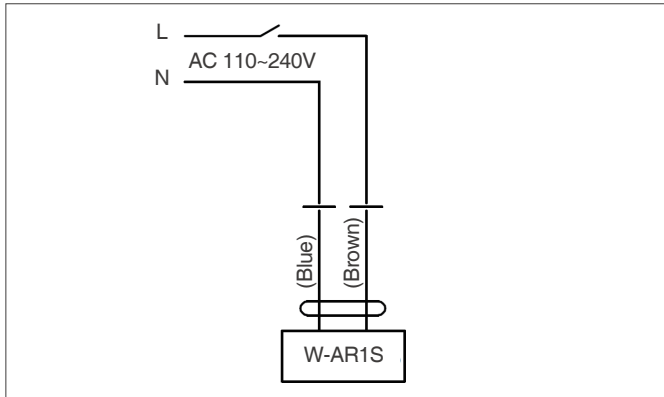| Compontent	Material
Upper Shell	Flame-Retardant ABS Engineering Plastics
Lower Shell	Glass Fiber Flame-Retardant Nylon PA66+30%
Center Crew and gear	10% Glass Fiber Reinforced POM
Connecting Nut	Brass HPb59-1

Installation Dimensions (mm)

82 ≥50 75 M30X1.5 65 61 81
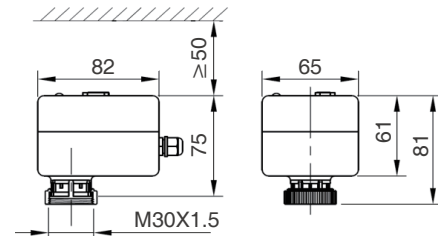
Upstream installation dimension of 160N actuator=13.6mm
Upstream installation dimension of 250N actuator=15.8mm

Specifications

Model No.	W-AR1S-16	W-AR1S-25	W-AR2M-16	W-AR2M-25
Thrust Output	＞160N	＞250N	＞160N	＞250
Power Supply	110~240VAC 50/60H		24VAC/DC±10%	
Control Signal	On/off type (two-wire, one control)		0(2)~10V DC(input resistance 200KΩ) Or 0(4)~20mA DC(input resistance 500Ω)	
Feedback Signal	——		0~10V DC (1mA)	
Connecting Wire Spec.	Two-core Length 200mm（2X0.5mm²)		Four-core Lengt 400mm（4X0.3mm²)	
Power Consumption	< 2W			
Operating Time	≈5s/mm			
Max. Stroke	6.5mm			
Factory Preset	The actuator drives the screw downwards to close the valve when the power is on and drives the screw upwards to open the valve when power is off.		Switch JP1 setting: 0~10 V DC control,RA status: the actuator drives the screw upwards to close the valve by 0V control signal and drives the screw upwards to open the valve by 10V control signal.	
	The screw is preset in the upwards position for easy connection to the valve.			
Protection Class	IP54			
Temperature Limits	Operation: 2 ～ +55℃ Storage: - 20 ～ +65℃			
Max. RH	< 90% and no condensation			

Wiring for On/Off Type

L ─── AC 110~240V
N

(Blue) (Brown)

W-AR1S

Wiring for Modulation Type

~ AC 24V
⊥ — POWER & SIGNAL COMMON
+ SIGNAL INPUT 0(2)~10V DC
   (0)4-20mA DC
+ FEEDBACK OUTPUT O~10V DC

(Red) (Blue) (Yellow) (Green)

1   2   3   4
W-AR2M

INPUT CONTROL SIGNAL	ACTUATOR
RA STATUS	SCREW
0V	DOWNWORDS
10V	UPWARDS
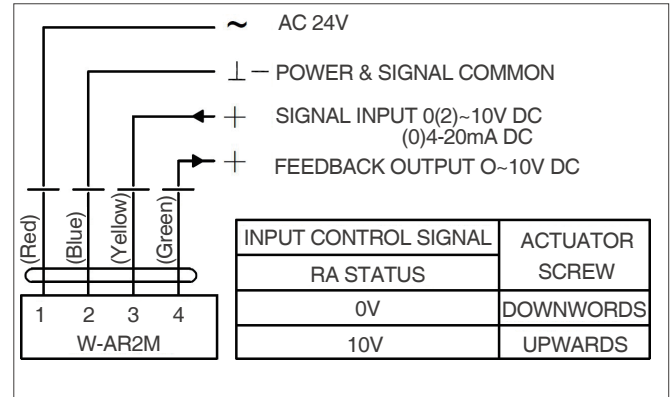
Installation Instruction

5mm

4
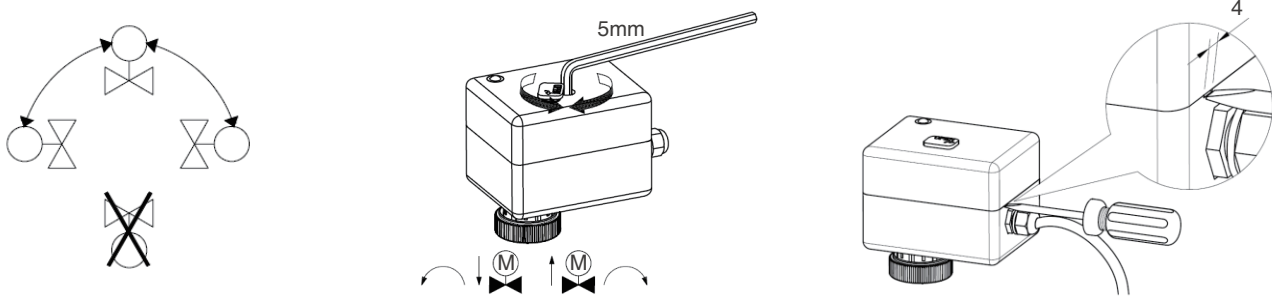
Cut 0ff The Power Supply Before Manual Operation

Notes

1. The actuator's screw is preset upwards to the top (position of fully open valve) in the factory, allowing for direct connection with the valve. If the actuator is electrically tested before installing (for example in the 0V status) and the screw is set downwards to the bottom; the screw must be set to the top by powering on or manual operation before installation, in order to connect to the valve.
2. Leave enough space over the actuator for easy disassembly and maintenance.
3. The actuator must be protected against water leakage and damage to the internal components.
4. Manual operation is forbidden when the actuator is powered on.

Self-stroking for W-AR2M modulation type actuator: Do not need to disassemble the housing. Press the Learn/Reset Button SW1 on the shell after the actuator is power on. The actuator will drive the screw downwards and check the position for closing the valve, then upwards and stop after it returning to the preset position. The self-stroking is completed and the actuation will automatically enter the operation status. The MCU (chip) will automatically save the parameters during the self-stroking and the parameters will not be lost after powering off.

Control signal and status shift of W-AR2M modulation type actuator: Disassemble the housing by straight screwdriver. Set the JP1 switch (refer to the table above) correctly according to the required functions after powering on. Then press the SW1 Learn/Reset button. The indicator light flashes in the Learn status, the actuator will drive the screw downwards and check the position for closing the valve, then upwards and stop after returning to the preset position. The indicator light stops flashing and is on after self-stroking is completed. The actuation will automatically enter the operation status.

JP1 SWITCH SETTING					PCB
Ctrt Signal \ Mode	0~10V DC	2~10V DC	0~20mA DC	4~20mA DC	STUDY/RESET BUTTON — SW1
RA 0%= 100%=	OFF ON (1 2 3) ACTORY PRESET	OFF ON (1 2 3)	OFF ON (1 2 3)	OFF ON (1 2 3)	INDICATOR LIGHT
DA 0%= 100%=	OFF ON (1 2 3)	OFF ON (1 2 3)	OFF ON (1 2 3)	OFF ON (1 2 3)	SWITCH 1=V/mA CONTROL SIGNAL VOLTAGE(OFF) CURRENT(ON)

JP1 — V/mA — DA/RA — Start — OFF ON

SWITCH 2= DA/RA STATUS DA(OFF)/RA(ON)
SWITCH 3= CONTROL SIGNAL START SETTING 0V/0mA(OFF); 2V/4mA(ON)

LED1   SW2