Series W-A11

Electrical Control Valve Actuator

♦ Application

Series W-A11 actuator is widely used in auto-control system to regulate the opening rate of electronic valves. Along with Series W-912, Series W-913 Series W-942 or Series W-943 valve body, the actuator is able to control the system's temperature, pressure and flow through receiving different kinds of signals.

♦ Features

- With valve position indicator
- Electronic presetting facilitates on-site commissioning
- Manual operation facilitates on-site trouble-shooting
- Automatic fault detection and alarm functions
- Overload protection function for the power supply
- Precise positioning achieved by self-calibration function (automatically run when first starts up)

♦ Operating Principles

Intelligent Proportional Control Actuator

Intelligent proportional control actuator can realize linear flow control. Through inputting 0(2)-10VDC or 0(4)-20mA control signal, automatic control of the valve and consequently of the fluid is allowed. Intelligent proportional control actuator automatically runs self-calibration function without manual adjustment when first starts up. Meanwhile, its operation indicating light (RUN) begins to blink at 1 Hz. The actuator's shaft moves outwards to its lower limit position and then retracts to its upper position (at this moment the actuator is not in the control of any control signal). After around 150s, the indicating light stops blinking, and the whole self-calibration process is completed. At this point, the actuator starts to be controlled by control signals. Additionally, if self-calibration is needed in the running of the actuator, press the red button on the actuator's circuit board for more than 3s, and then the actuator will begin self-calibrating. This is namely manual self-calibration function, the process of which is the same as that of the automatic self-calibration.

Floating Point Control Actuator

Through the wiring modes of three-point control or on/off control, the floating point control enables the actuator to realize the states of on, off or pause. Optional functions of floating control actuator: DF1 stands for feedback function with potentiometer; DF2 stands for feedback function with dry contact; DF3 indicates active feedback function with limit position.

♦ Technical Specification

Materials:

- Actuator Support: Die Casting Aluminum
- Actuator Shell: 500/1000N: PC
  1800/3000/5000/16000N: Die Casting Aluminum

Intelligent Proportional Control Actuator:

Type	W-A11A1(2)X	W-A11B1(2)X	W-A11C1(2)X	W-A11D1(2)X	W-A11E1(2)X	W-A11F2X
Power Voltage	1:24VAC 2:220VAC	1:24VAC 2:220VAC	1:24VAC 2:220VAC	1:24VAC 2:220VAC	1:24VAC 2:220VAC	2:220VAC
Power Frequency (Hz)	50±1%	50±1%	50±1%	50±1%	50±1%	50±1%
Energy Consumption	7.5VA	7.5VA	15VA	15VA	15VA	100VA
Rated Actuator Force (N)	500	1000	1800	3000	5000	16000
Actual Actuator Force (N)	500-700	1000-1200	1800-2000	3000-3500	4500-5500	16000-16500
Action Time (s/mm)	3.85	3.85	3.2	3.2	3.2	1.36
Stroke (mm)	22	22	44	44	44	110
IP Grade	IP54	IP54	IP54	IP54	IP54	IP54
Input Signal	0(2)-10VDC, 0(4)-20mA	0(2)-10VDC, 0(4)-20mA	0(2)-10VDC, 0(4)-20mA	0(2)-10VDC, 0(4)-20mA	0(2)-10VDC, 0(4)-20mA	0(2)-10VDC, 0(4)-20mA
Output Signal	0(2)-10VDC, 0(4)-20mA	0(2)-10VDC, 0(4)-20mA	0(2)-10VDC, 0(4)-20mA	0(2)-10VDC, 0(4)-20mA	0(2)-10VDC, 0(4)-20mA	0(2)-10VDC, 0(4)-20mA
Wiring Diagram	24VAC: Fig.1 220VAC: Fig.2	24VAC: Fig.1 220VAC: Fig.2	24VAC: Fig.1 220VAC: Fig.2	24VAC: Fig.1 220VAC: Fig.2	24VAC: Fig.1 220VAC: Fig.2	Fig.3
Control Panel Diagram	24VAC: Fig.6 220VAC: Fig.7	24VAC: Fig.6 220VAC: Fig.7	24VAC: Fig.8 220VAC: Fig.9	24VAC: Fig.8 220VAC: Fig.9	24VAC: Fig.8 220VAC: Fig.9	Fig.10

Floating Control Actuator :

Type	W-A11A1(2)F	W-A11B1(2)F	W-A11C1(2)F	W-A11D1(2)F	W-A11E1(2)F
Power Voltage	1:24VAC 2:220VAC	1:24VAC 2:220VAC	1:24VAC 2:220VAC	1:24VAC 2:220VAC	1:24VAC 2:220VAC
Power Frequency (Hz)	50±1%	50±1%	50±1%	50±1%	50±1%
Energy Consumption	5.5VA	5.5VA	13VA	13VA	13VA
Rated Actuator Force (N)	500	1000	1800	3000	5000
Actual Actuator Force (N)	500-700	1000-1200	1800-2000	3000-3500	4500-5500
Action Time (s/mm)	3.85	3.85	3.2	3.2	3.2
Stroke (mm)	22	22	44	44	44
IP Grade	IP54	IP54	IP54	IP54	IP54
Input Signal	3-Point	3-Point	3-Point	3-Point	3-Point
Wiring Diagram	Fig.4	Fig.4	Fig.5	Fig.5	Fig.5
Control Panel Diagram	-	-	Fig.11	Fig.11	Fig.11

Wiring and Panel Diagrams of Electric Actuator:

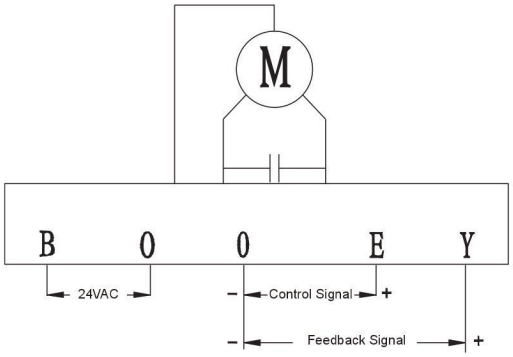


Fig.1: Intelligent Proportional Control Wiring 500/1000/1800/3000/5000N (24VAC)

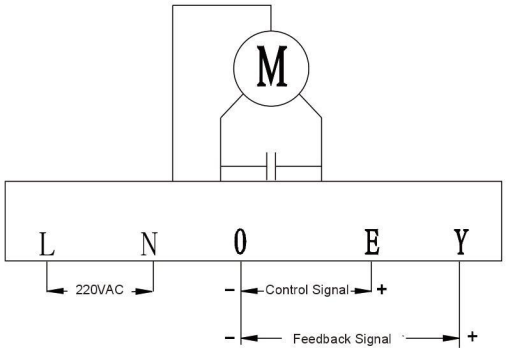


Fig.2: Intelligent Proportional Control Wiring 500/1000/1800/3000/5000N (220VAC)

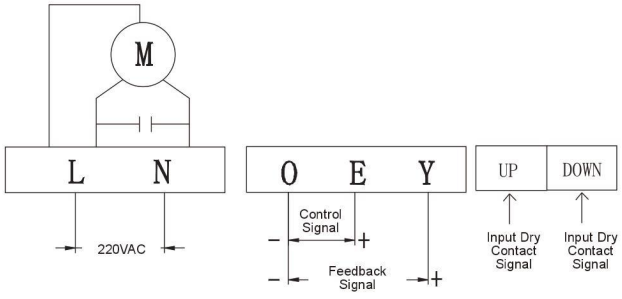
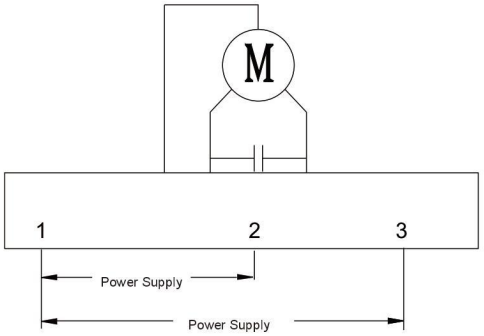


Fig.3: Intelligent Proportional Control Wiring 16000N (220VAC)



Terminal	Actuator Shaft
1-2 →	Protrude
3-4 →	Retract

Fig.4: Floating Point Control Wiring 500/1000N

Remark:

A. When a voltage is applied between End 1 and End 2, the actuator's shaft moves outwards.
B. When a voltage is applied between End 1 and End 3, the actuator's shaft moves inwards.
C. When there is no voltage, the actuator's shaft stays at the current position.

*It is forbidden to apply voltages between End 1 and End 2, and between End 1 and End 3 simultaneously!

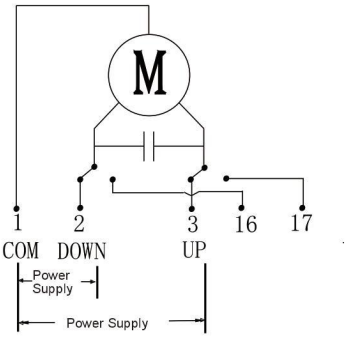


Fig.5: Floating Point Control Wiring 1800/3000/5000N

Remark:

A. When a voltage is applied between End 1 and End 2, the actuator's shaft moves outwards.
B. When a voltage is applied between End 1 and End 3, the actuator's shaft moves inwards.
C. When a voltage is applied between End 1 and End 16, the actuator's shaft moves outwards to its lower limit position, providing active feedback (DF3 Function).
D. When a voltage is applied between End 1 and End 17, the actuator's shaft moves inwards to its upper limit position, providing active feedback (DF3 Function).

*It is forbidden to apply voltages between End 1 and End 2, and between End 1 and End 3 simultaneously!

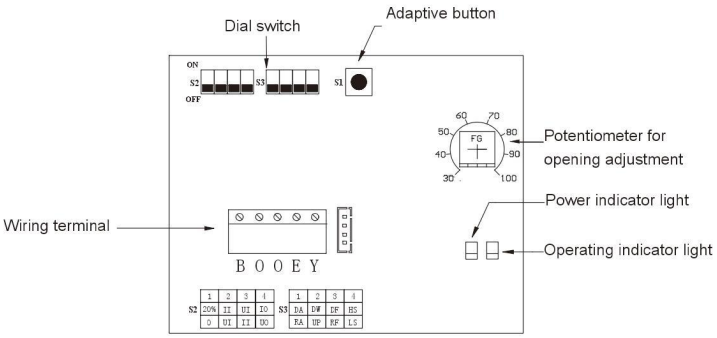


Fig.6: Control Panel - Intelligent Proportional Control 500/1000N (24VAC)

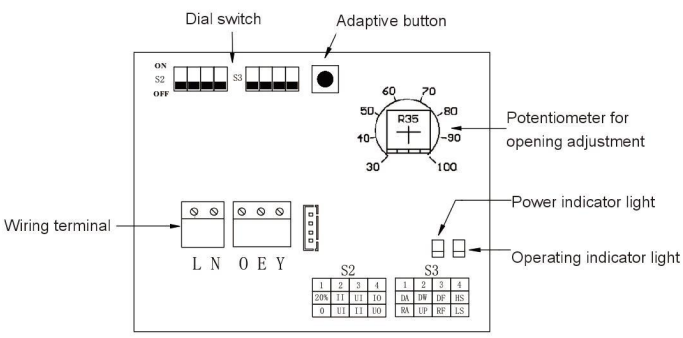


Fig.7: Control Panel - Intelligent Proportional Control 500/1000N (220VAC)

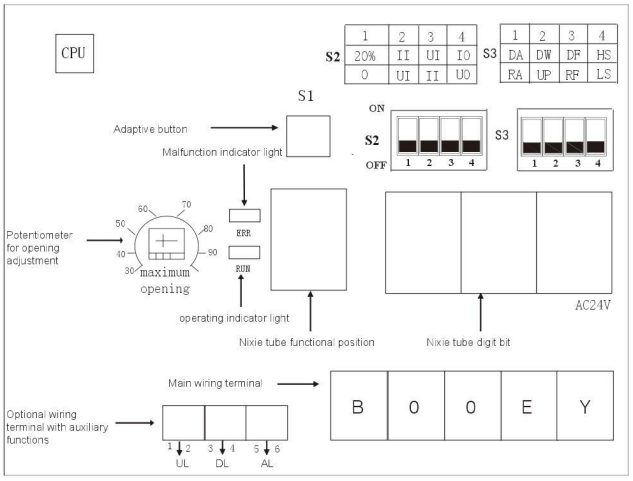


Fig.8: Control Panel - Intelligent Proportional Control 1800/3000/5000N (24VAC)

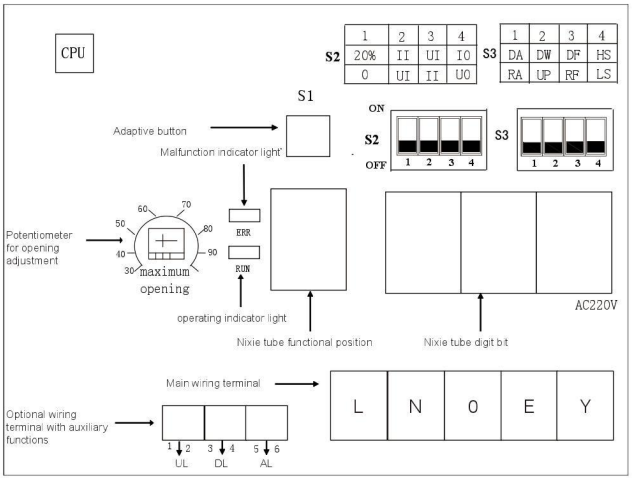


Fig.9: Control Panel - Intelligent Proportional Control 1800/3000/5000N (220VAC)

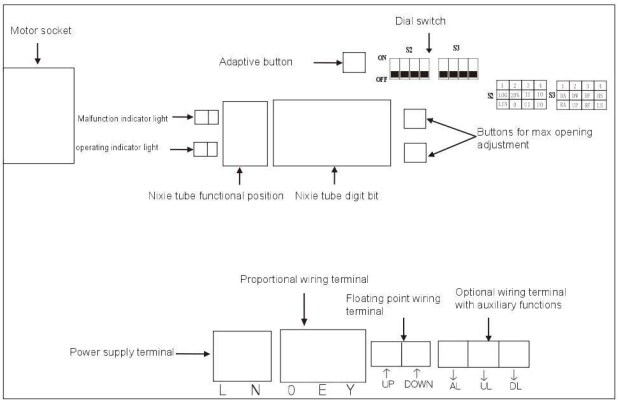


Fig.10: Control Panel - Intelligent Proportional Control 16000N (220VAC)

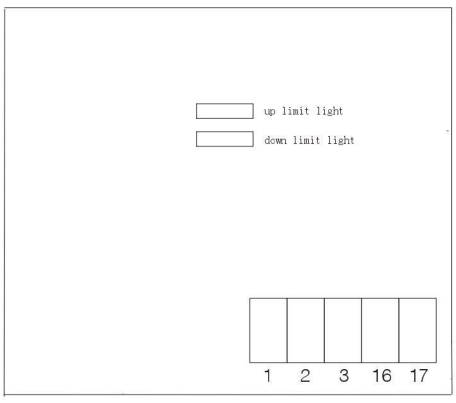


Fig.11: Control Panel – Floating Point Control 1800/3000/5000N

♦ Technical Parameters

Product Type:

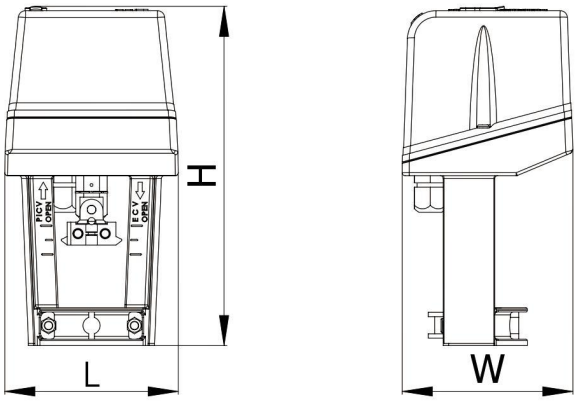
No.	Type	Name	Weight (Kg)
1	W-A11A1X	500N Intelligent Proportional Control Actuator(24VAC)	1.7
2	W-A11A2X	500N Intelligent Proportional Control Actuator(220VAC)	
3	W-A11A1F	500N Floating Point Control Actuator(24VAC)	
4	W-A11A2F	500N Floating Point Control Actuator(220VAC)	
5	W-A11B1X	1000N Intelligent Proportional Control Actuator(24VAC)	
6	W-A11B2X	1000N Intelligent Proportional Control Actuator(220VAC)	
7	W-A11B1F	1000N Floating Point Control Actuator(24VAC)	
8	W-A11B2F	1000N Floating Point Control Actuator(220VAC)	
9	W-A11C1X	1800N Intelligent Proportional Control Actuator(24VAC)	5.4
10	W-A11C2X	1800N Intelligent Proportional Control Actuator(220VAC)	
11	W-A11C1F	1800N Floating Point Control Actuator(24VAC)	
12	W-A11C2F	1800N Floating Point Control Actuator(220VAC)	
13	W-A11D1X	3000N Intelligent Proportional Control Actuator(24VAC)	
14	W-A11D2X	3000N Intelligent Proportional Control Actuator(220VAC)	
15	W-A11D1F	3000N Floating Point Control Actuator(24VAC)	
16	W-A11D2F	3000N Floating Point Control Actuator(220VAC)	
17	W-A11E1X	5000N Intelligent Proportional Control Actuator(24VAC)	
18	W-A11E2X	5000N Intelligent Proportional Control Actuator(220VAC)	
19	W-A11E1F	5000N Floating Point Control Actuator(24VAC)	
20	W-A11E2F	5000N Floating Point Control Actuator(220VAC)	
21	W-A11F2X	16000N Intelligent Proportional Control Actuator(220VAC)	50.0

Coding Rules:

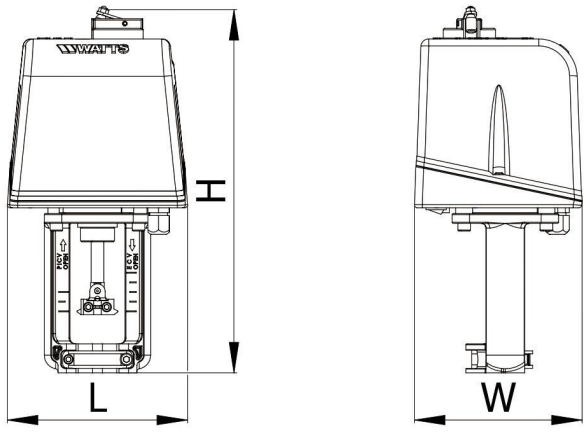
	W-	A	1 1	A	1	X
W WATTS						
A Actuator						
11 Linear Motion						
Output Force (N)						
A=500 B=1000						
C=1800 D=3000						
E=5000 F=16000						
Working Voltage						
1:24 VAC 2:220 VAC						
Control Type						
X: Intelligent Proportional F: Floating Point						

♦ Installation

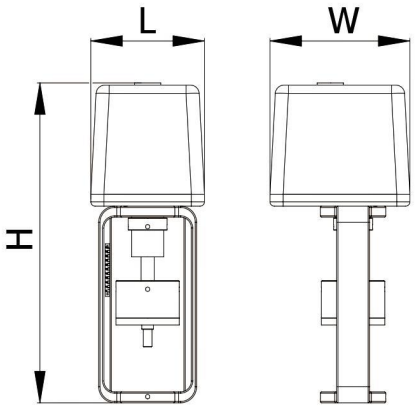
"Installation Dimensions: (mm)



Series W-A11 500/1000N Actuator

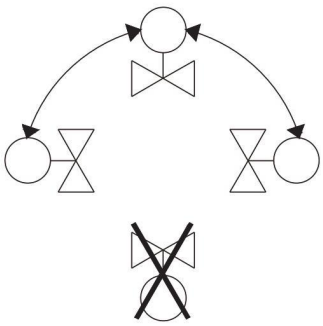


Series W-A11 1800/3000/5000N Actuator

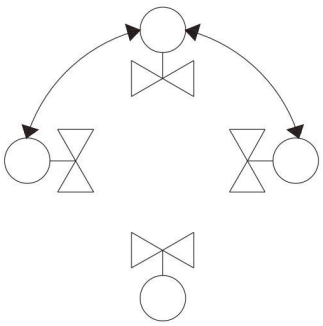


Series W-A11 16000N Actuator

Installation Dimensions:



Fluid: Water, Avoid Downward Installation



Fluid: Steam, Any Direction is Feasible