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AOX-FQ Elecric Actuator

Patentedproducts,
Counterfeitingnot allowed

AOX

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ELECTRIC INTELLIGENT ACTUATOR
ELECTRIC VALVES

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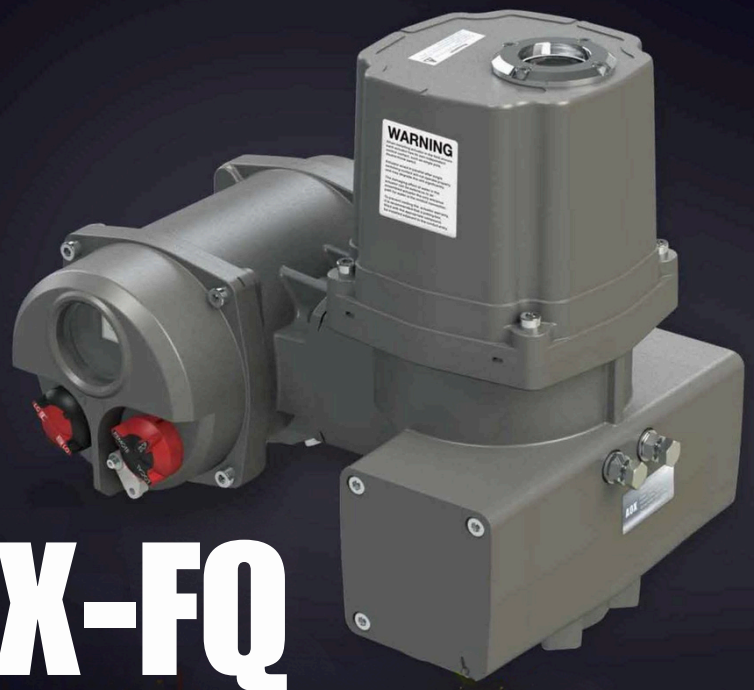

AOX-FQ

Spring Return Electric Actuator

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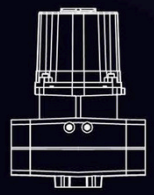

AOX

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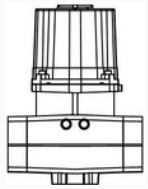
ELECTRIC INTEWGENT ACTUATOR
ELECTRIC VALVES

Catalogue



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Electrical Actuator

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AOX was founded in 1997. With decades of profound understanding of products and rich industrial application experience, rigorous manufacturing process and modular precision design, AOX provides the most professional automatic control products and solutions for various severe working conditions (such as military, nuclear and other fields). Whether in harsh environments or under various operating requirements specified by users, AOX actuators can not only meet high safety standards, but also prove the reliability and robust design of their products.

AOX has always focused on the modular design of products. The diversified components ensure that the products can be assembled according to customer needs, and provide various customized products to meet customer needs.

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Field Case


Electric Power


Petroleum


Chemical industry


Water treatment


Food field


Metallurgy

Honors and qaulific

First tier supplier of CNPC
Sinopec Supplier
National Specialized and Innovative Small and Medium-sized Enterprises National Intellectual Property Advantage Enterprise
National high-tech enterprises
National Technological Innovation Fund for Small and Medium sized Enterprises
National Torch Plan Industrialization Demonstration Project
Provincial High tech Enterprise Research and Development Center
Provincial science and technology new products
Provincial Science and Technology Progress Award
Provincial patent demonstration enterprise
AAA Credit Enterprise
WenZhou specialized, special and new key supporting enterprises
WenZhou Famous Brand Products
EU CE certification
DNVGL certification
CCS certification
ATEX certification
SIL3 certification
CCC certification
ISO9001 / ISO14001 / ISO45001

I PRODUCT FEATURES

Operational safety
When it comes to safely opening or closing valves in emergency situations, this product offers the highest level of reliability with a mechanical solution. The spring-return electric actuator generates the necessary torque through its energy storage mechanism and automatically returns to its original position during the spring-return operation, all without any intervention.

Intelligent control section
Separate aluminum control unit, mounted on the main housing. Convenient *tor* complete replacement and contains all module control components.

Terminal box
The terminal box with double sealing protection design also ensures the sealing integrity of the electrical parts inside the electric device when the terminal box cover is opened tor field wiring.

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Electrical Actuator

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Window
The window is made of polycarbonate, with built-in 0-ring and fixed metal gland. The gland comes with two drainage slots, which is not easy to accumulate water and has a magnifying ettect tor easy observation of valve position.

Upper cover and housing
Other actuators have a vertical joint between the upper cover and the housing, which makes it difficult to remove the upper cover due to the small tolerance here.

Cams and limit switches
Fastened by two screws on top, easy to set, each cam can be set individually, once set. Each cam stays in this position forever.

SUMMARY

The AOX-FQseries spring-return angular stroke electric actuator is part of the mechanical energy storage class of actuators. Normally, the actuator is powered by a motor to turn on the equipment while the spring stores energy. In case of a power failure, the spring releases this energy to drive the actuator and return the equipment to a safe position (either fully open or fully closed). The reset speed is precisely controlled, ensuring a safe and smooth process that prevents pipeline and line explosions.

Description

Torquerange:50-100Nm

Explosion proof enclosure with Exd II CT5/Ex ID a21I P67T95 ·C (ATEX type optional)

Basic control mode:

-ON-OFF MODEL

-MODULATING MODEL

-CONTINUOUS MODELING MODEL

Different control types are available according to customer requirements:

-ON-OFF TYPE

-MODULATING TYPE (PCU)

-NON-INTRUSIVE INTELLIGENT TYPE (SICU/SRCU)

-INTELLIGENT TYPE (ICU)

-FIELDBUS TYPE(ICU+SINGLE/DOUBLE CARD+ FIELDBUS NAME)

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Working environment

Sealingprotection------Conformsto GB/4208-2017 standard, IP67 (standard, all connection surfaces are set with O-ring seal) protection level, available Optional IP68 (double O-rings are set on all connecting surfaces).

Explosion protection level ------According to GB/3836, IEC, CU-TR standard, Exd design. ATEX, CCC certification, meet all potential in explosive environments (such as oil, gas, chemical, power, metallurgy and the emerging gas industry, etc.).

Anti-corrosion protection------Is anodized and polyester powder coated, standard color is AOX grey (similar to RAL 7039), corrosion resistant Strong corrosion resistance, suitable for working conditions such as industrial corrosive environment (chemical, alumina plant) or marine corrosive environment (offshore/sea).

Ambient temperature------Standard: ON-OFF TYPE, MODULATING TYPE (-30 C °-+75 C) °
INTELLIGENTTYPE,NON-INTRUSIVE INTELLIGENT TYPE (-25C-+70C) °
Low temperature: ON-OFF TYPE, MODULATING TYPE (-60C-°+50C) °
INTELLIGENT TYPE.NON-INTRUSIVE INTELLIGENT TYPE (-40C-+60C) °

I Basic Control Methods

According to EN15714-2standard,tomeetdifferent application conditions and designs, there are three basic control methods as follows

Type I On-Off type

The actuator drives the valve from fully open to fully closed or fully closed to fully open.

Type II Modulating T◆rie

The actuator sometimes needs to drive the valve to any position (fully open, midway position and fully closed).

T◆pe III Continuous Modulating Type

The actuator frequently drives the valve to any position between fully open and fully closed.

For continuously adjustable actuators, the number of starts allowed and the load conditions are additionally referenced to the characteristics.

The on-off type or modulating type is selected according to the different mechanical loads of the actuator. Therefore, each actuator type can be used in various operating modes.

		On-Off type	Modulating Type	Continuous Modulating Type
	Working mode	S2-15min/30min	S2–15min/30min	S4-25%/50%
Applicable control functions	Model Name			
	Fieldbus type	ICU+Modbus/Profibus/Hart		Continuous Modulating Type
	intelligent type	ICU		Continuous Modulating Type
	Non intrusive intelligent type	SICU	SRCU	/
	General Type	On-Off type	PCU	Continuous Modulating Type

Note: the number "1" after the model represents the voltage AC 1ph; "2" stands for voltage AC 3ph; "3" represents voltage DC, such as SICU2 (AC 3ph non–invasive integrated switch type)

I Control Functions

AOXactuatorscanbeintegrated into any automation system and it is advisable to choose an actuator with more than non-intrusive integrated functions during the product selection phase, thus saving a lot of time in project planning, installation and documentation required to select external controls. AOX offers a wide range of control functions, so customers can choose the best solution for their needs.

Intelligent Type (ICU)

The ICU control system has comprehensive configuration capabilities for all actuator control functions and supports many different fieldbus controls.

LCD display

- Digital display of opening percentage, accurate to 0.1 %
- Valve position can still be displayed locally when the power is off (optional)
- Fault self-diagnosis function display, such as: valve position error, torque overload, motor overheating, etc.

Non-Intrusive commissioning

- Infrared remote control: convenient for remote operation and setting various functions
- Menu setting by field control knob or remote control

Electronic torque (Optional)

- Torque range adjustable, display running torque, percentage form display

Absolute encoder

- No battery support, high precision recording of valve position

ESD function

- In case of emergency, the ESD signal can override any on-site or remote signal (according to the parameter setting) to force the actuator to close or open the valve.

Fieldbus control (Optional)

- Many different fieldbus systems, such as Profibus, Modbus, Hart, etc

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Non-Intrusive Intelligent TyJ>e (SICU/SRCU)

When the application requires adaptive control function, configurable user interface or intelligent diagnostic function requirements (SICU: non-invasive integrated on-off type, SRCU: non-invasive integrated type), the choice of non invasive integrated function will be the perfect solution.

LCD display

- Chinese/English switch(optional), Digital display of opening percentage
- Valve position can still be displayed locally when the power is off(optional)
- Faull self-diagnosis function display, such as: valve position error, torque overload, motor overheating, etc.

Non-Intrusive commissioning

- Infrared remote control(Optional): convenient for remote operation and setting various functions
- Menu setting by field control knob or remote control

Electronic torque(Optional)

- Torque range adjustable, display running torque, percentage form display

Absolute encoder

- No battery support, high precision recording of valve position

Status indicator

e Full Open e Full Close

Modulating Type (PCU)

Signal setting

- Input (setting) and output (feedback) signals are completely isolated.
- Input/Output: 4-20mA(standard) Input impedance 160Q
- Input/Output: 0-10V, 1-5V, 0-20mA, etc. (optional)

Analog output

- Current: Maximum acceptable load is 7500 at 24VDC supply
- Voltage: Minimum acceptable load is 50KO (shunt resistance 5000)

Adjustment accuracy

- Factory standard accuracy 0.7 %
- Accuracy 0.2%-0.5% can be set

ON-OFF Ty p

Position indicator

- The visual position indicator provides a clear indication of the current valve position. The indicator is mechanically connected to the valve spindle.

Stroke, camand limit switche

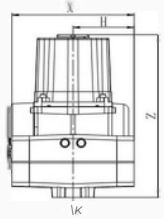
- Omron travel switches are used for good stability and long service life.
- Fastened by two screws on top, easy to set, each cam can be set individually, once set, each cam remains in this position forever.

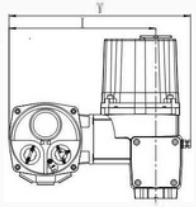
In addition to the above functions, if you have other needs, please contact us.

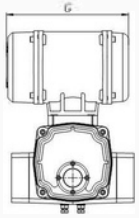
Appearance Drawing

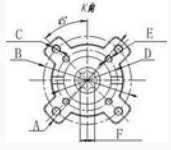
NO.	Spare Parts
1	Control Room
2	Electrical Interface
3	Window
4	Cover
5	Housing
6	Mechanical limit
7	Flange connection

Outline dimension drawing









Unit:mm

Model	X	Y	Z	Φ	B	C	D	E	F	G	H	I
AOX-FQ-005	285	424	380	φ120	φ102	4-M10↧22	φ70	4-M8↧17	17x17↧20	285	142.5	343
AOX-FQ-008	285	424	380	φ120	φ102	4-M10↧22	φ70	4-M8↧17	17x17↧20	285	142.5	343
AOX-FQ-010	285	424	380	φ120	φ102	4-M10↧22	φ70	4-M8↧17	17x17↧20	285	142.5	343

Product specifications

General specifications	
Torque range	50-100Nm
Shell material	Die cast aluminum
Position indicator	Even in case of power failure, the valve position dial can display continuous position changes
Tightness	
Corrosion protection	Paint system
	· Polyester powder coating conforms to GBT 18593-2001 standard · Optional protection for highly corrosive conditions
	· Screws are all stainless steel screws
Travel/limit	
Travel	90 ° standard (90 °~270 ° optional)
Power loss reset direction	Off, the opening direction can be set
Midway stop	Electromagnetic brake control
Limit mode	Electric control: electronic limit
	Power off reset: mechanical limit
Mechanical limit	2 external adjusting bolts
Mechanical specifications	
Self locking device	Electromagnetic brake control
Spring retraction life	100000times
Output flange	The bottom installation dimension shall conform to ISO5211 international standard
output shaft	The output shaft drive sleeve can be disassembled and machined for adaptability. Can be installed vertically or horizontally.
Seismic performance	X Y Z 10g,0.2~34 Hz,30mins
lubrication	Aluminum base grease (EP type)
Electrical specifications	
Motor power supply	110/220V AC 1Phase,380/440V AC 3Phase,50/60Hz, ±10%
Control power	110/220V AC 1Phase,50/60 Hz, ±10%
Electric machinery	Squirrel cage asynchronous motor, insulation class H
Failsafe/Operating Temperature	Built in thermal protection, open 120 ℃± 5 ℃/close 97 ℃± 5 ℃
Heater	330W(220V AC) Anti condensation
Cable entry	2×NPT 3/4" ,1×NPT 1"
EC Directive	
Conformity with EC Directives	The actuator meets the following requirements
	· 2014/30/EU Electromagnetic Compatibility · 2014/35/EU Low Voltage
	The following harmonized standards:
	· General emission standard for industrial environment EN 61000-6-44 · Rotating electrical machine standard EN 60034-1
	· General anti-interference standard for industrial environment EN 61000-6-4

Standard parameters

		Operating time		Motor (H)	Rated current (A)				Weight
					110V AC(50/60Hz)		220V AC(50/60Hz)		
	NM Electric Spring return			W	Function	Locking	Function	Locking	KG
AOX-FO-005	50	10	<3	20	1.5	0.1	0.48	0.1	21
AOX-F0-008	80	10	<3	20	1.5	0.1	0.49	0.1	21.5
AOX-FO-010	100	10	<3	40	1.7	0.2	0.51	0.2	22

The above time is the regular time of the actuator. If you need special time, please contact our company.