UGMR Series Spring Return Electric Actuator

High performance and engineered reliability
Fully compliant with the latest international standards and regulations
Applicable to a wide range of specifications and higher cost performance
Compact design that facilitates the most demanding industrial applications

MD 2006/42/EC

ATEX 94/9/EC

Design and Structure

Design

UGMR series spring return electric actuator is designed for fail-safe positioning of valves or dampers upon loss of supply voltage. Mechanical spring return design is used to position controlled devices to either fully open or fully closed positions without any external power source.

Under normal power supply conditions, the actuator is launched by motor driven equipment and the spring stores energy in the mean time. When emergency power is off, the spring releases the energy to drive the actuator and ensures that the equipment and device return to the safe position (full open or full close). The whole process is secure and stable to eliminate the bursting pipes(hammer-blow effect). The interior mechanical part of the spring return electric actuator includes a driver unit, energy storage unit and energy locking unit. The three units constitute an integrated transmission chain system by gear drive.

In addition, the optional manual override ensures that operators can manually rotate the equipment or device to a precise position and get locked with a lock-up button. Manual release is not required during the elecric control operation. Fully approved and tested with a series features and advantages, such as:

- High performance with trusted and engineered reliability
- Fully compliant with the latest international standards and regulations
- Applicable to a wide range of specifications and higher cost performance
- Compact design that facilitatesthe most demanding industrial applications

Structure

1.Product Construction
Compact and designed for small spaces.

6. Adaptive Connection Parts
Actuator flange and drive sleeves comply with ISO5211 standards. A versatile design that offers flexible and easy parts replacement.

2.Low Maintenance
Durable hassle-free operation. Spring effectively drives a 90° full stroke. Emergency on/off model employs a mechanical buffer without impacting pipes.

5. Position Detection
Stroke control switch with quick set up and reliability. Three dimensional indicators can be monitored in multi angles. Optional with switching value and analog quantity control.

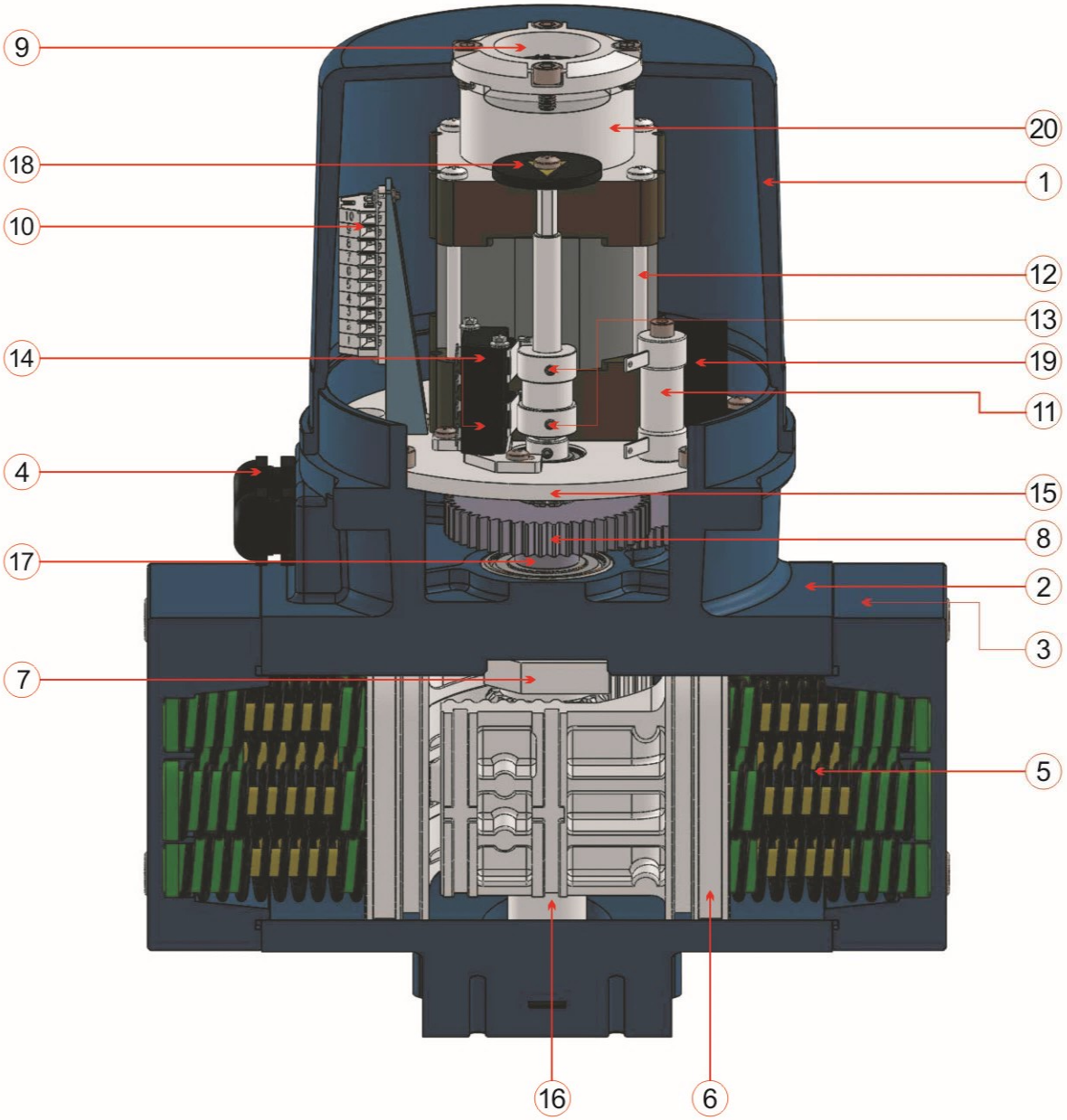
3. Secure And Stable
Spring return electric actuator complies with SIL2/SIL3 standard regulations and is maintenance-free with anti-explosive applications.

4.Secure Operation
Under critical conditions, this product provides excellent guarantee stability with mechanical solutions. Spring return electric actuator generates the required torque through energy storage mechanism for returning to safe position with no assistance during the spring return operation process.

Quality Management

- UGMR series spring return electric actuator production process is fully compliant with ISO9001.
- 100% of all units are factory tested and externally marked with authenticated serial numbers for traceability.
- 100% of all units are individually boxed with durable cardboard packaging for protection with clear and detailed labels for quick identification.

Part and Material



Serial No.	Part Name	Material	Serial No.	Part Name	Material
1	Upper Cap	ADC12	11	Space Heater	Ceramic
2	Body	AL104	12	Electrical Motor	Integrated Set
3	Side Cap	ADC12	13	Adjustment Cam	ADC12
4	Connection Lock	Nylon	14	Microswitch	Integrated Assembly
5	Safety Spring	Spring Steel	15	Mounting Retaining Plate	Q235
6	Piston	ADC12	16	Output Shaft	45# Steel
7	Spacing Block	45# Steel	17	Locating Bearing	Bearing Steel
8	Driving Gear	40CR	18	Position Indicator	Nylon
9	Display Window	Tempered Glass	19	Capacitor	Composite Material
10	Wiring Terminal	Flame-retarded Nylon	20	Brake	Integrated Set

Product Information

1. Body:
Material: aluminium alloy coated with polyester powder.ISO12944-6 C3 corrosion-proof grade, CSA test, NEMA 4X/5 outdoor application and IP67 protection grade tested.

2. Convex Position Indicator:
Continuous mechanical position indicator is available at the top of the body on all models for convenient readings of actuator functions.

3. Lubrication:
- All the gearing sets are factory lubricated.
- Additional lubrication oil is unnecessary during the product's service life.

4. Starting Frenquency:
50% starting frequnecy (as per IEC standard)

5. Certifications:
CE/CSA/RoHS/REACH

6. Working Condition:
- Working Temperature:−25℃～65℃
- Aumidity (25℃):95%

7. Safety Integrity Grade:
SIL2

8. Conduit Entry:
Standard:2×M20*1.5
Optional:2×3/4"NPT、2×1/2"NPT

9. Heater:
- The heater will keep the temperatures at a proper level to avoid freezing lubrication oil caused by low temperature and keep the interior actuator dry to avoid product failure caused by moisture exposure.
- Heater is not recommended if the working temperature is above 35℃(95d℉).
- A temperature control switch of 25 °C ± 5 °C (77 ± 9d°F) is recommended to be placed in front of the heater in case oflarge temperature fluctuations between day and night as well as summer and winter.This will allow the heater function to operate properly.

10. Temperature Control Switch:
Temperature control switch for the heater will cut off the circuit to halt the heating process when the interior temperature of the actuator exceeds 25℃±5℃(77±9d℉)

11.Supporting Microswitch:
The series comes equipped with a standard full open/full close microswitches (LS1 & LS2) and additional two supporting microswitches (LS3 & LS4) can be added to feedback passive contact.

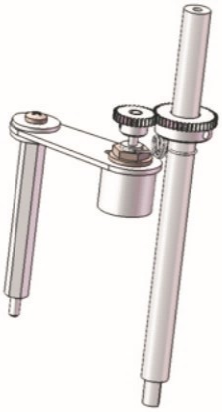
12. Proportional Control:
During the proportional control process, the flow is effectively controlled and output to valve position and then to the central control room by the valve open/close positions control through analog signal.

13. Variable Resistor :
Apply to on/off type or three-point floating type actuator. Resistance value of 1K ohm or 5K ohm are selectable to provide output signal to position indicator.

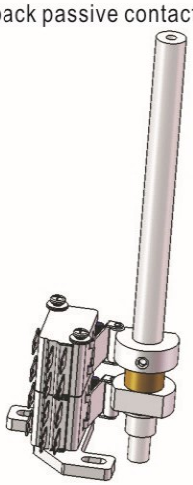
14. Analog Signal Output Panel:
- Designed for three-point floating type actuator
- Output signal: 0-20mA/4-20mA/0-5V/0-10V/ 1-5V/2-10V

15. Floating Control:
- The actuator can be controlled to open, close or stop functions at intermediate positions between 0 °and 90 ° via external signal.
- In case of a power outage, the actuator can still operate clockwise or counter-clockwise to the end position and then stop via spring drive.

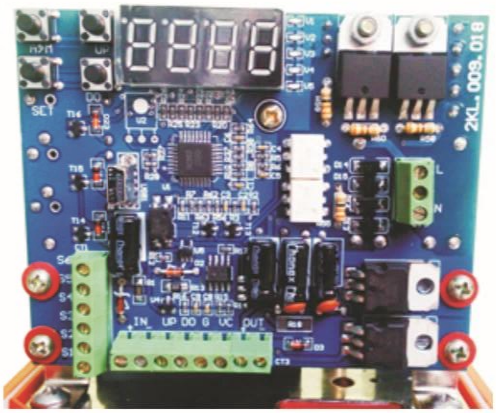
16. Operating Direction:
The actuator rotation direction is not adjustable and comes equipped with factory settings. Customer needs to clarify in PO the preferred operating direction, clockwise or counter-clockwise.
- Standard: the spring is released in power failure condition and drive output shaft rotate clockwise.
- Optional: the spring is released during a power failure situation and the drive output shaft will rotate counterclockwise.



Potentiometer 1K Resistance Output



On/Off Type Passive Contact

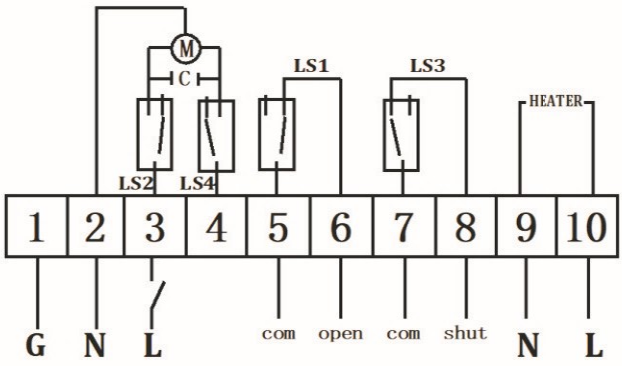


Analog Quantity Control Panel

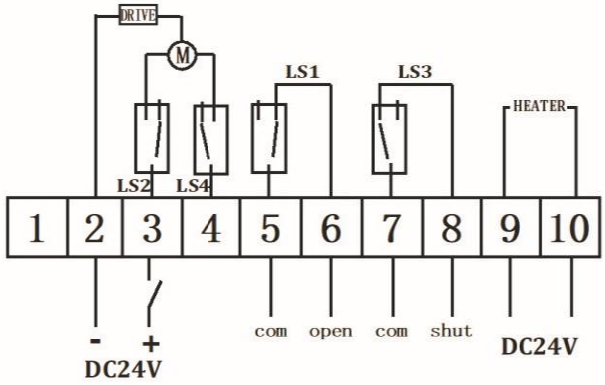
Electrical Information

Model	Torque (NM)	Operating Time (Sec/90°)		Electric Current					
				AC110V(50/60HZ)		AC220V(50/60HZ)		DC24V	
		Electrical	Spring	Operation	Locking	Operation	Locking	Operation	Locking
UGMR-1-50	50	8	≤3	1.8A	0.1A	0.7A	0.1A	3.0A	0.1A
UGMR-1-70	70	8	≤3	1.8A	0.1A	0.7A	0.1A	3.0A	0.1A
UGMR-2-140	140	10	≤3	4.3A	0.2A	2.2A	0.2A	9.0A	0.2A
UGMR-3-200	200	12	≤3	5.2A	0.2A	3.2A	0.2A	21A	0.2A
UGMR-3-300	300	12	≤3	5.2A	0.3A	3.2A	0.3A	21A	0.3A

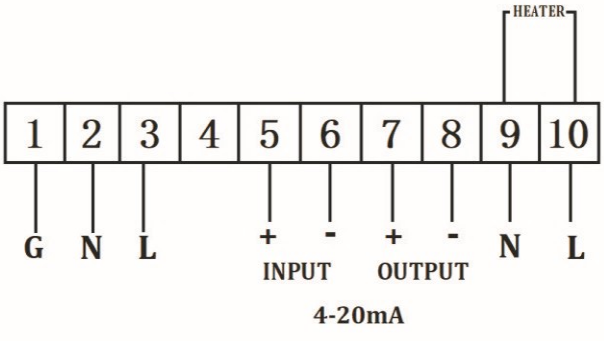
Wiring Diagram



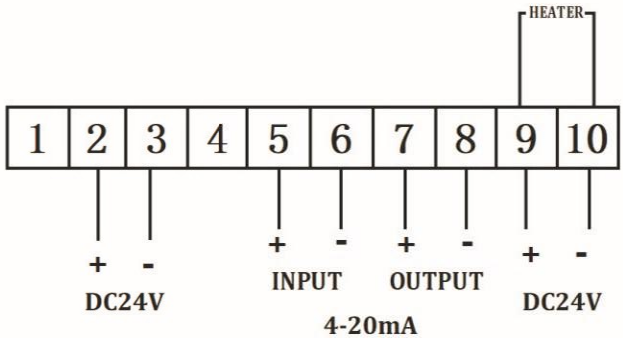
Single-phase AC110V/AC220V On/Off Type



DC24V On/Off Type



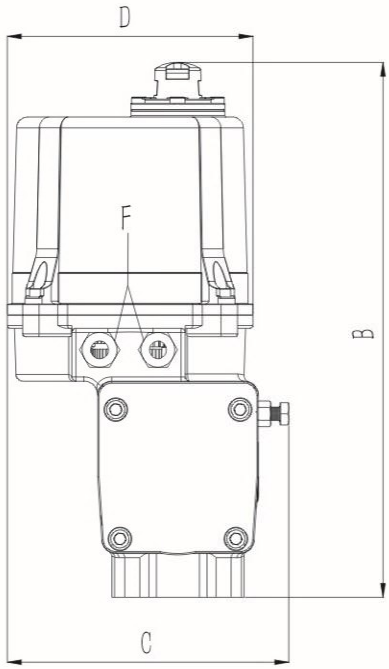
Single-phase AC110V/AC220V Modulating Type

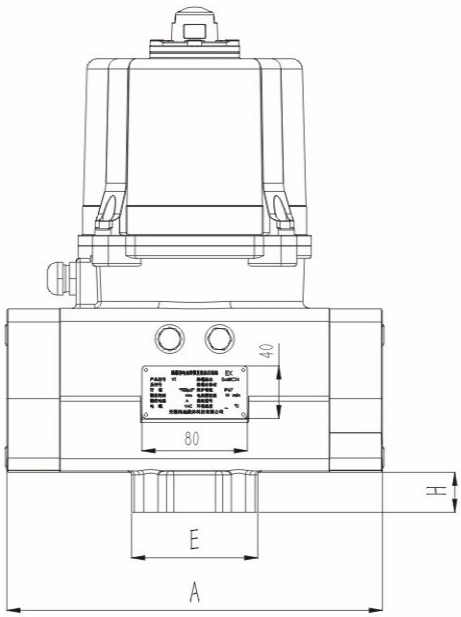


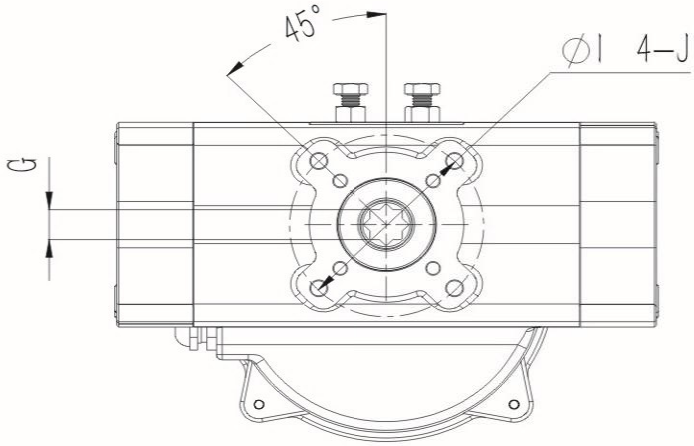
DC24V Modulating Type

Outline Dimension

UGMR Outline Dimension Diagram







Model	A	B	C	D	E	F	G	H	ΦI	J
UGMR-1	266	380	199	177	96	2*M20*1.5	17	19	F05/07	M6/M8
UGMR-2	377	436	240	206	120	2*M20*1.5	22	25	F07/10	M8/M10
UGMR-3	406	535	280	260	120	2*M20*1.5	27	30	F10/12	M10/M12

Technical Data

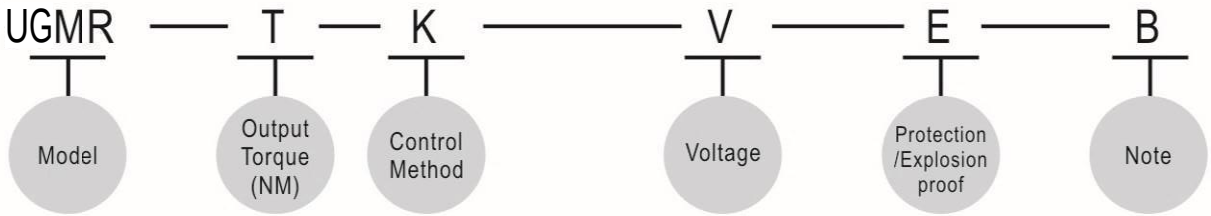
Model	UGMR-1		UGMR-2	UGMR-3	
Torque	50Nm	70Nm	140Nm	200Nm	300Nm
Power (W)	60W	60W	120W	200W	200W
Voltage (DC/AC)	110VAC/220VAC、24VDC				
Frequency (Hz)	50/60				
Operation Mode	S2-20Min				
Start Time (S)	8	8	10	12	12
Spring Return Time (S)	3	3	5	5	5
Spring Circle Life (Times)	100000	100000	100000	100000	100000
Ambient Temperature	-25℃～65℃				
Ambient Humidity (25℃)	95%				
Protection Class	IP67				
Manual Override	Optional with open, need to be customized				
Manual Override Method	Operation under power off (system power supply interrupted)				
Power Loss Return Direction	Close(or open)				
Half Stop	Electromagnetic brake control				
Cable Entry	2* M20*1. 5				
Lubrication	Grease				
Limit Method	Electronic control: electronic limit Spring return at power failure: mechanical limit				
On-Off Type Signal	Passive feedback, two-wire/three-wire				
Mechanical Stopper	Full close/open machanical stopper				
Anti-Explosion Class	Ex d II B(C)T4(6)				
Color	Available for customization as per customer requirement				

Installation Information

Precautions

- Electric actuator should not be installed inversely.
- Prior to wiring, please make sure voltage is correctly set first.
- Power should be turned off prior to wiring or troubleshooting to avoid damage.
- Please ensure outlet hole and upper cover is locked to prevent dust and rain from penetrating the housing after wiring completed.
- Please ensure water-proof sealing parts are installed correctly prior to locking the upper cover to prevent dust and rain drop from entering.
- Please be careful with the direction of the actuator outlet hole to avoid dust and rain drop infiltration.
- Please separate wire actuator but do not connect parallel when two or more actuators are co-installed.
  Suggestion: Additional relay isolator is recommended to be installed if two or more actuators are operated concurrently.
- Each actuator contains a ground wire connector which should be connected.
- Non-explosion proof products should not be installed in hazardous areas (explosive gas, etc.) and be located in a completely vacuum-sealed environment.
- Interval times between each switch operation should not exceed 5mins to avoid motor shut-down caused by overheating.
- Please don't let metal tools or hands touch any of the components on the PCB plate to avoid damage to product function caused by electrostatic interference.

Selection Method



Control Method	Voltage	Protection/Explosion proof
O: Open/close type	D: AC220V(50/60hz)	W: Protection Type IP65
M: Built-in RPC type	E: AC110V(50/60hz)	Ex: Explosionproof Type
M1: 4- 20mA Input/output	F: DC24V	Ex d II B(C)T4(6)
M2: 0-5V Input/output	G: DC12V	
M3: 2-10V Input/output		

⚠ Notice

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