

**GA-SRT135-024**  
**GA-SRO135-120(024)**

Direct coupled, spring return actuators, 135 in-lb

## User Manual

December, 2003

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## Direct coupled, spring return actuators, 135 in-lb

### 1 Application

Actuators may be easily installed by direct shaft mounting on air dampers, shutters and butterfly valves in ventilation and air conditioning systems. The mechanical spring return function operates only upon a power failure or power interruption caused by an unsafe condition. The actuators can be controlled by any compatible electric or electronic analog controller, DDC/PLC control or automation system.

### 2 Safety remarks

**The actuators are not suitable for use in explosive atmospheric applications!**

All service to the actuators (mounting, electrical connection, retrofitting and repair) must be carried out with the power supply disconnected. The electrical connection must be done by a trained and competent person considering the wiring diagrams, local and national regulations. Use copper twisted conductors only.

When required, use flexible metal conduit only.

Provide disconnect and overload protection if necessary.

**The 24 V-actuator may only be operated by 24 VAC/VDC!**

The transformer **must** be sized according to technical data of the actuator (see section 10).

**Always read the controller installation instructions before making any connection!**

### 3 Installation

Direct mounting with V-bolt clamp to the damper shaft and fixing with enclosed anti-rotation mounting bracket.

Shaft:  $\varnothing 3/8"$  to  $3/4"$  ( $\varnothing 9 - 20$  mm)

$\square 3/8"$  to  $5/8"$  ( $\square 9 - 16$  mm)

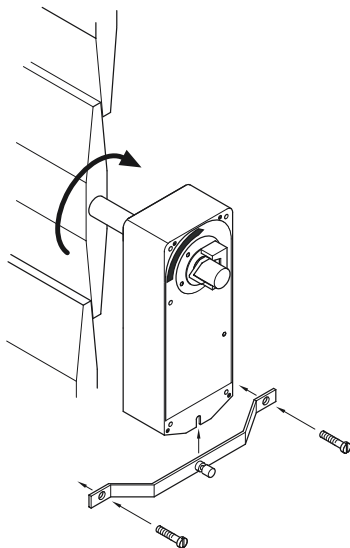
**Attention!**

**Actuator will be delivered for clockwise rotation when control signal is applied - reverse mounting for counterclockwise rotation.**

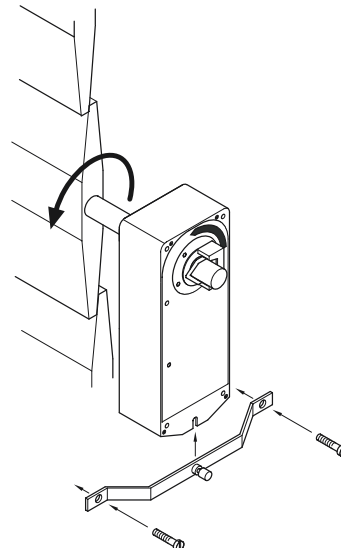
Change of rotation direction by reversed mounting

1. Remove the snap ring.
2. Pull out the V-bolt clamp assembly from the actuator towards outside.
3. Push the V-bolt clamp assembly from the opposite face.
4. Refit the snap ring.

Mounting "clockwise rotation"



Mounting "counterclockwise rotation"

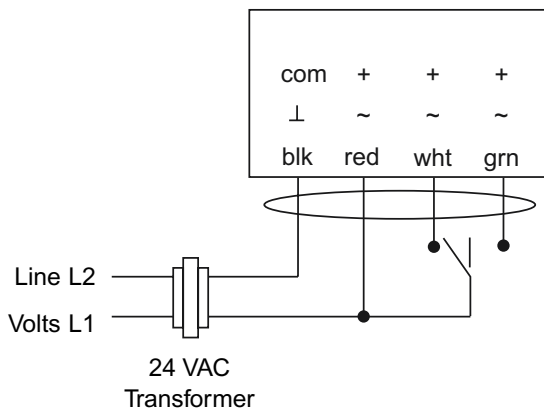


#### 4 Wiring configuration GA-SRT135-024, Tri-state control or On/Off control

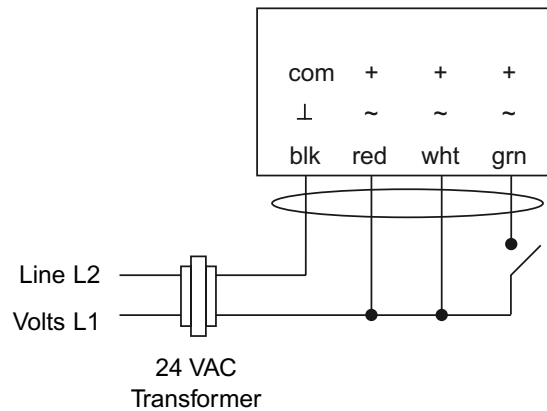
**Notes:**

- Actuators are provided with colour coded wires. Wires for optionally switches are number coded.
- Observe polarity on secondary of transformers. Incorrect polarity can cause controller damage or operation error.
- Use copper twisted conductors only.
- When required, use flexible metal conduit only.
- Provide overload protection for line voltage and disconnect as required.
- Power supply and auxiliary switch connections meet UL and CSA requirements without the need of an electrical ground connection.

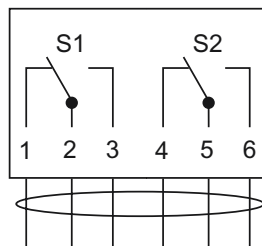
**GA-SRT135-024, Tri-state (3-point floating) control**



**GA-SRT135-024, On/Off control**



**Option S2**



(2) Auxiliary switches, SPDT, 250 VAC, 5 (2.5) A, w/ adjustable cam for setting between 0 - 72° and 18 - 90°.

Factory set: S1 @ 4.5°  
S2 @ 72.0°

Multiple actuators (maximum quantities)	GA-SRT135-024 Tri-state or On/Off
Stacking (torque is additive)	4
Parallel connection	20

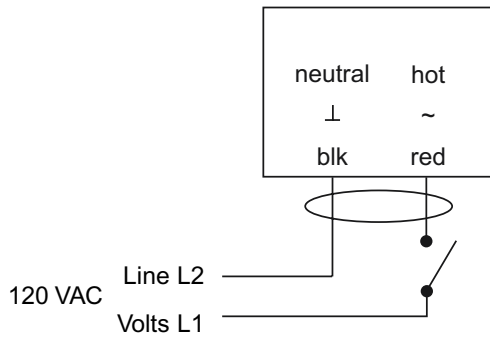
Selection of direction, control wiring connect					
		Spring return CCW mounted		Spring return CW mounted	
Pos. of select.	Angle of rotation	Tri-state	On/Off	Tri-state	On/Off
CW	0-90°	red-white connect	green open	red-green connect	green closed
CW	90-0°	red-green connect	green closed	red-white connect	green open
CCW	0-90°	red-green connect	green closed	red-white connect	green open
CCW	90-0°	red-white connect	green open	red-green connect	green closed

**5 Wiring configuration GA-SRO135-120(024), On/Off control**

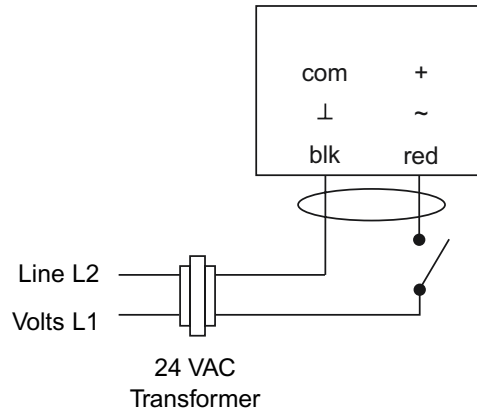
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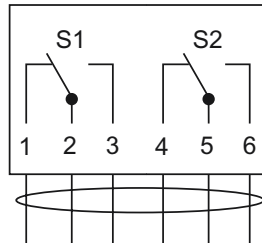
**GA-SRO135-120, On/Off control**



**GA-SRO135-024, On/Off control**



**Option S2**

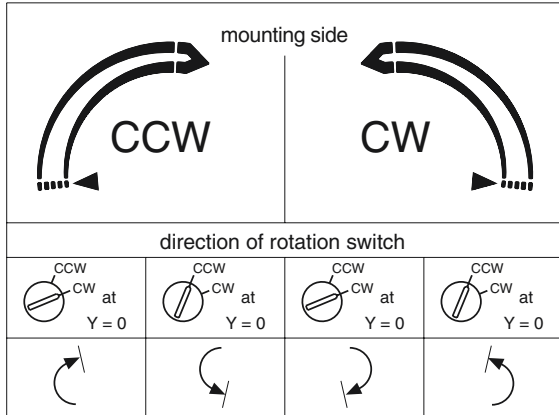


(2) Auxiliary switches, SPDT, 250 VAC, 5 (2.5) A, w/ adjustable cam for setting between 0 - 72° and 18 - 90°.

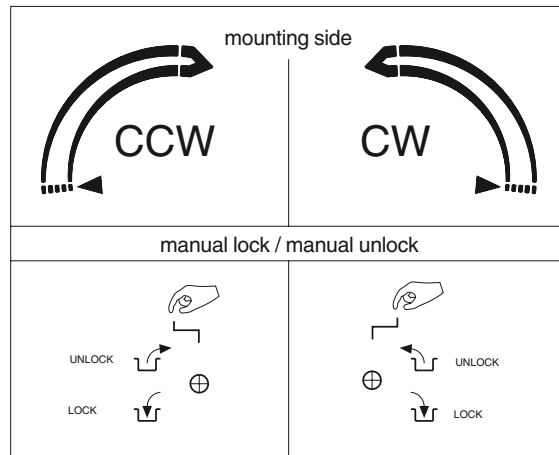
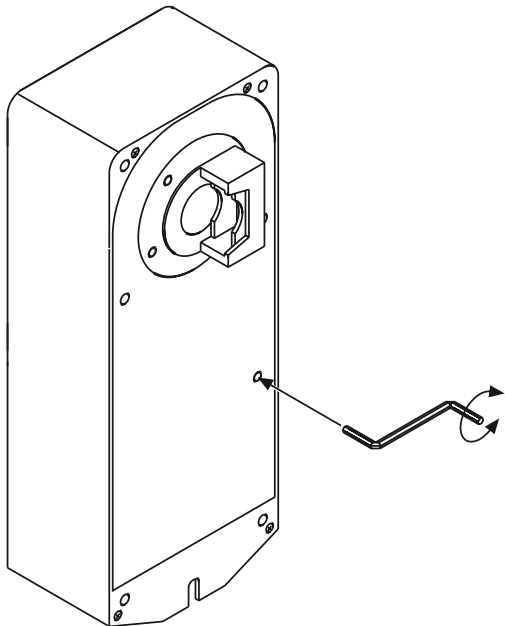
Factory set: S1 @ 4.5°  
S2 @ 72.0°

Multiple actuators (maximum quantities)	GA-SRO135-120(024) On/Off
Stacking (torque is additive)	4
Parallel connection	20

**6 Change of control direction**



**7 Manual lock and manual unlock**



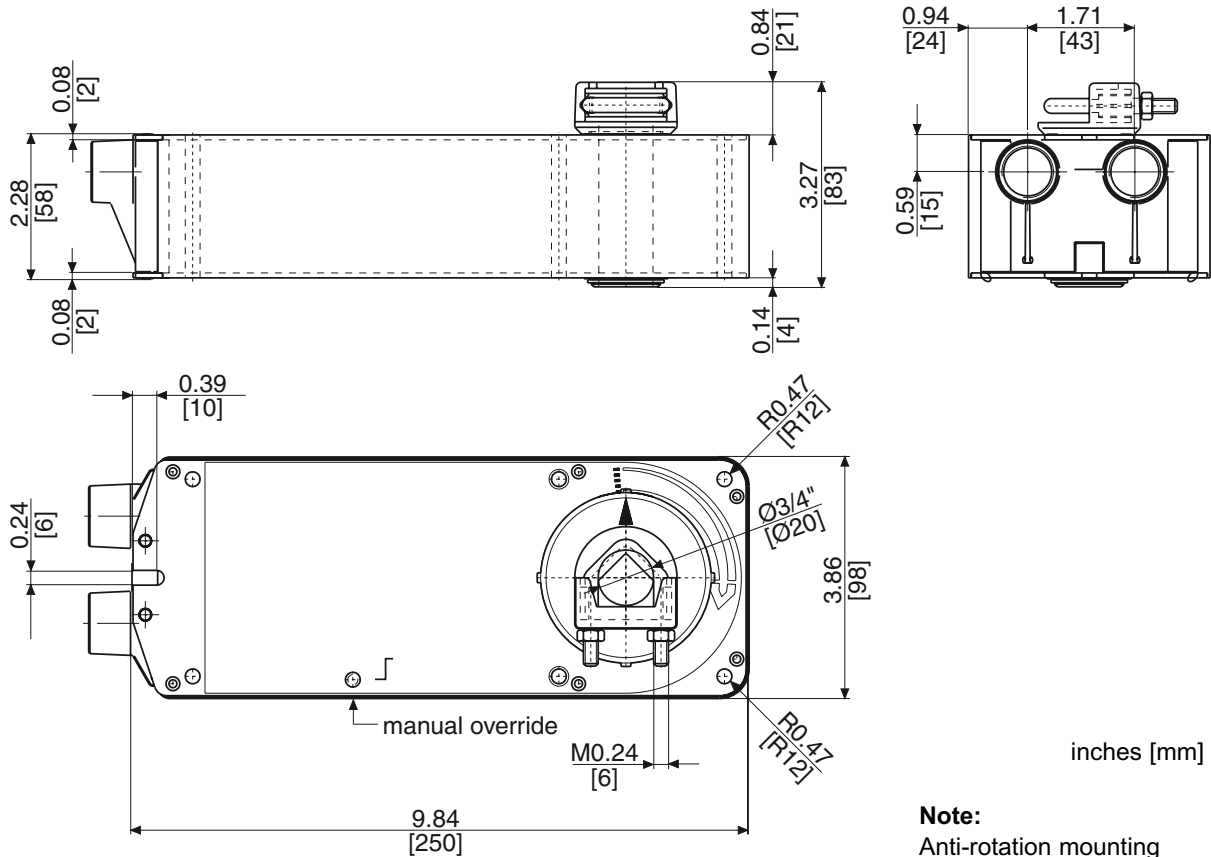
**Manual lock**

Turn the manual winding tool quickly opposite to counter to direction of rotation!

**Manual unlock**

Turn the manual winding tool in direction of rotation!

**8 Dimensions**



**Note:**  
Anti-rotation mounting bracket and 3 mm hex crank for manual override supplied w/actuator

**9 Ordering information**

<b>GA-SRT135-024</b>	Standard	<b>GA-SRO135-120</b>	120 VAC
<b>GA-SRT135-024-S2</b>	w/(2) auxiliary switches	<b>GA-SRO135-120-S2</b>	120 VAC w/(2) auxiliary switches
		<b>GA-SRO135-024</b>	24 VAC/VDC
		<b>GA-SRO135-120-S2</b>	24 VAC/VDC w/(2) auxiliary switches

**10 Specifications**

**Control**

- Input signal
- GA-SRT135-024 Tri-state (3-pt. floating) or On/Off, 24 VAC/DC
- GA-SRO135-120(024) On/Off, 2-wire

**Electrical**

- Power supply
- GA-SRT135-024 24 VAC/VDC ± 20%, 50/60 Hz
- GA-SRO135-120 120 VAC ± 15%, 50/60 Hz
- GA-SRO135-024 24 VAC/VDC ± 20%, 50/60 Hz
- Over voltage Up to 40 V, max. 5 sec.

**Power consumption**

- GA-SRT135-024 6.5 W (8.5 VA) holding 4.0 W
- GA-SRO135-120 10.0 W (12.0 VA) holding 7.0 W
- GA-SRO135-024 6.0 W (8.0 VA) holding 4.0 W

**Performance**

- Torque 135 in-lb (15 Nm)
- Damper size Up to 34 sq. ft. (3.0 m<sup>2</sup>)
- Angle of rotation 100° (-5 to 95°)
- direction Spring return can be selected by CCW/CW mounting

**Rotation time**

- actuator rotation < 150 sec/0-90°
- spring return < 20 sec/90-0°

**Power failure**

- Spring return to -5° position

**Position indicator**

- Visual scale

**Synchronization**

- ± 1%

**Electrical protection for GA-SRO135-120**

- Double insulated

**Overload protection**

- Electronic throughout rotation

**Manual override**

- 3 mm hex crank, shipped w/actuator

**Motor type**

- DC motor

**Noise level**

- motor Max. 50 dB(A)
- spring return Max. 62 dB(A)

**Environmental**

**Permissible ambient**

- working temperature -22°F to 122°F (-30°C to 50°C)
- storage temperature -40°F to 176°F (-40°C to 80°C)
- humidity 5-95% RH, non-condensing

**Physical**

**Enclosure**

- cover plates Zinc coated steel
- base PA 6.6
- color Silver and black
- protection NEMA 2
- Mounting position Any position
- Anti-rotation bracket Included w/actuator
- Stacking/paralleling Refer to table "Multiple Actuators"

**Clamp connection to**

- round shaft Ø 3/8" to 3/4" (9 to 20 mm)
- square shaft □ 3/8" to 5/8" (9 to 16 mm)

**Wire connection**

- option on request 3 ft. (0.9 m) appliance cable, color coded Plenum rated cable
- Wire size 18 AWG (0.75 mm<sup>2</sup>)
- Conduit connector 1/2", built-in
- Dimensions 9.84 x 3.86 x 2.28 in. (250 x 98 x 58 mm)

**Weight**

- 4.4 lbs. (2.0 kg)

**Manufacturing**

- ISO 9001 certified

**Listings/Approvals**

- CE
- UL and CSA
- Five-year material and workmanship (Two-year standard, three-year conditional)

**Warranty**

- 

**Options**

- S2** (2) Aux. switches built-in SPDT 250 VAC, 5 (2.5) A, position adj. between 0-72° and 18-90°, incl. 3 ft. (0.9 m) appliance cable, number coded, and 1/2" conduit connector