

GA-SRP(H)135-024

Direct coupled, spring return actuators, 135 in-lb

User Manual

December, 2003


ISO 9001


LISTED

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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.

If using electrical conduit, the attachment to the actuator must be made with flexible metal conduit.

Provide disconnect and overload protection if necessary.

This actuator may only be operated by 24 VAC/VDC!

The transformer **must** be sized according to technical data of the actuator (see section 10). Electronics and controllers must be powered from a separate transformer when controller power is full-wave rectified. Otherwise the controller or the actuator may be damaged.

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)

□ 3/8" to 5/8" (□ 9 - 16 mm)

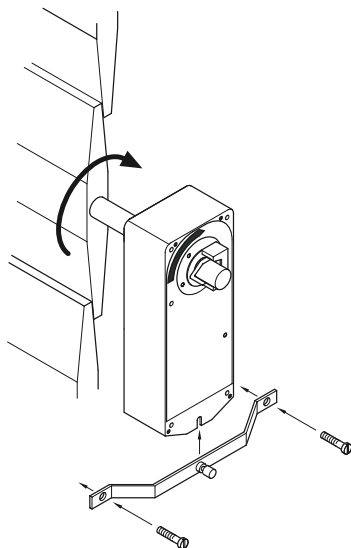
Attention!

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

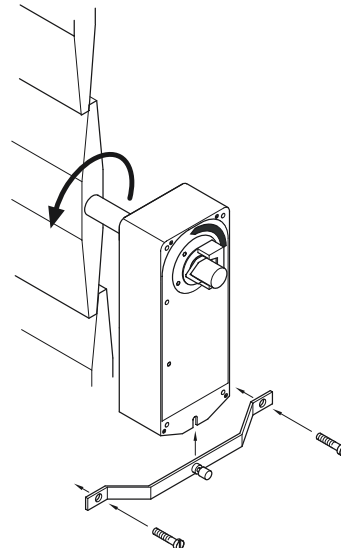
Change of rotation direction by reversed mounting

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"



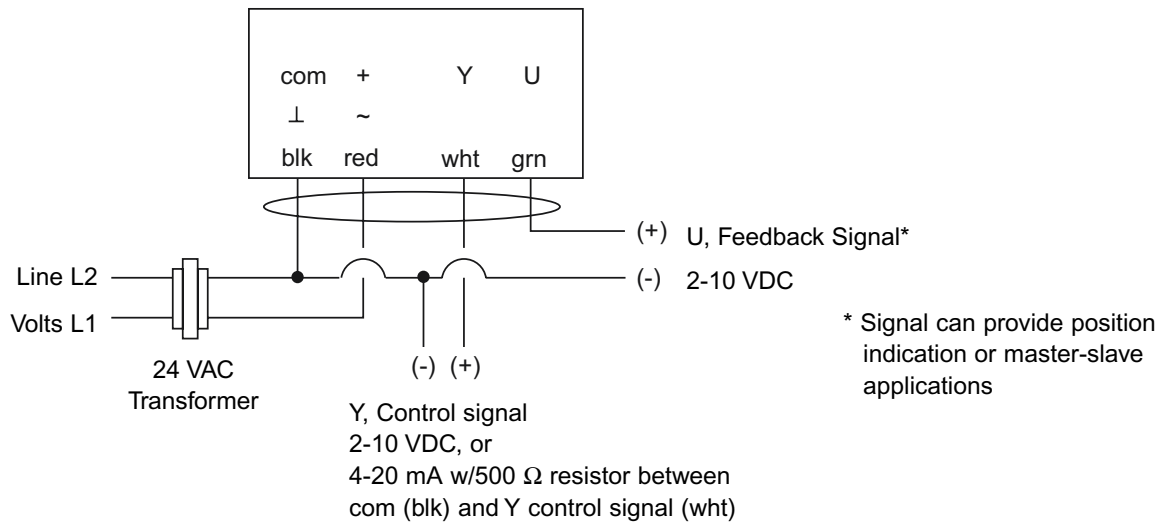
Mounting "counterclockwise rotation"



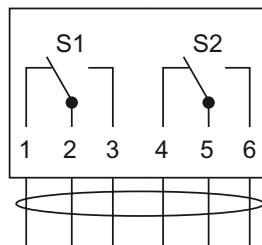
4 Wiring configuration GA-SRP135-024, proportional control

Notes:

- Actuators are provided with color coded wires. Wires for optional switches are number coded.
- Observe polarity on secondary of transformers. All common and signal (-) must be connected in line. Incorrect polarity can cause controller damage or operation error.
- Long wire runs requires a 4-wire configuration (connect common for power and control signal at the actuator or close by). Greater than a 0.2 V drop must be avoided for any common wire.
- Always use a separate transformer when controller power is full-wave rectified.
- Controller and actuators must have separate transformers for paralleled multi-actuator application.
- Use copper twisted conductors only.
- If using electrical conduit, the attachment to the actuator must be made with flexible metal conduit.
- 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.



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°

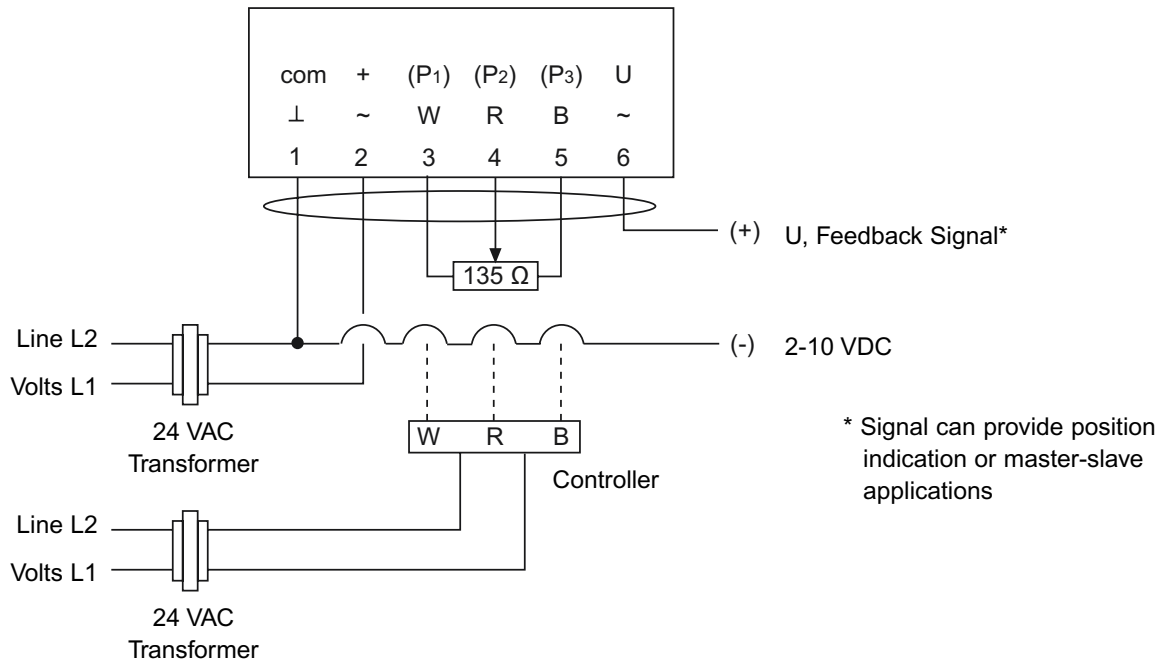
Selection of direction		
Spring return CCW or CW mounted		
Pos. of select.	Angle of rotation	Proportional control Signal Y
CW	0-90°	2-10 VDC
CCW	90-0°	2-10 VDC

Multiple actuators (maximum quantities)	GA-SRP135-024 Proportional
Stacking (torque is additive)	4
Parallel connection, 2-10 VDC	20
Parallel connection, 4-20 mA, w/500 Ω resistor	10
Master-slave, via U, feedback signal	10

5 Wiring configuration GA-SRPH135-024, proportional control

Notes:

- Actuators are provided with number coded wires.
- Observe polarity on secondary of transformers. All common and signal (-) must be connected in line. Incorrect polarity can cause controller damage or operation error.
- Greater than a 0.2 V drop must be avoided for any common wire.
- Controller and actuators must have separate transformers.
- Use copper twisted conductors only.
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- 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.



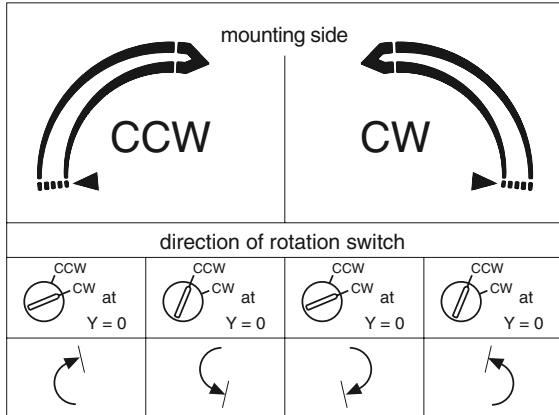
Selection of direction for spring return and motor

- Spring return reversible with CCW or CW mounting
- Motor reversible with CCW/CW selector, built-in actuator cover

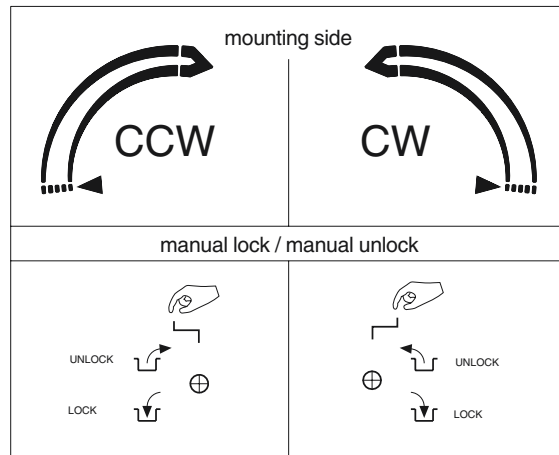
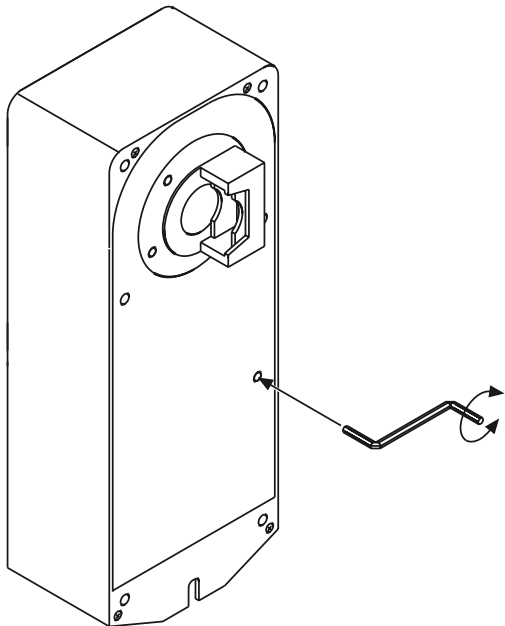
Selection of direction		
Spring return CCW or CW mounted		
Pos. of select.	Angle of rotation	Proportional control Signal Y
CW	0-90°	0-135 Ω
CCW	90-0°	0-135 Ω

Multiple actuators (maximum quantities)	GA-SRPH135-024 Proportional
Stacking (torque is additive)	4
Parallel connection, 0-135 Ω, proportional	20
Master-slave, via U, feedback signal	10

6 Change of control direction



7 Manual lock and manual unlock



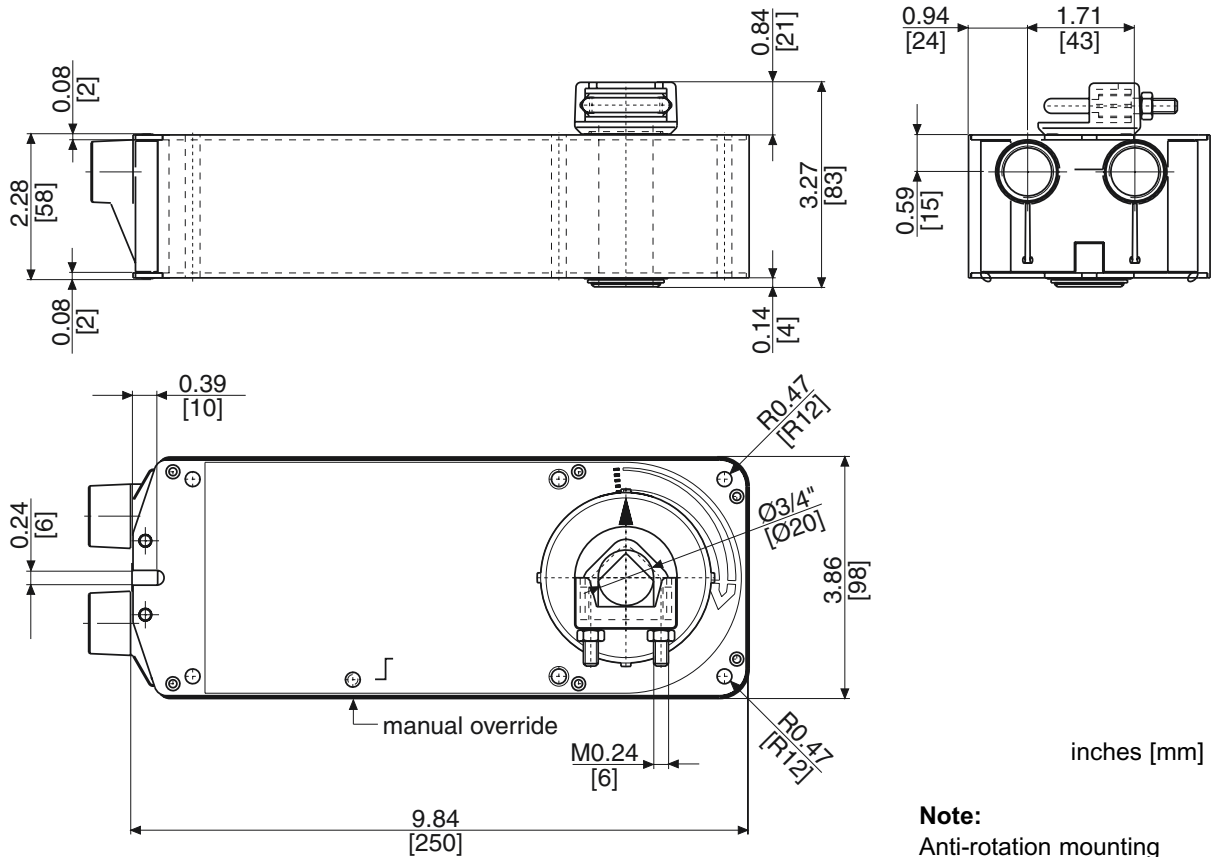
Manual lock

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

Manual unlock

Turn the manual winding tool in direction of rotation!

8 Dimensions



inches [mm]

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

9 Ordering information

GA-SRP135-024 Standard
GA-SRP135-024-S2 w/(2) auxiliary switches

GA-SRPH135-024 Standard

10 Specifications

Control

Input signal
 · GA-SRP135-024 Proportional
 2-10 VDC, or
 4-20 mA *w/500 Ω resistor
 · GA-SRPH135-024 Proportional
 0-135 Ω Honeywell
 series 90 or a 0-135 Ω
 input

Input impedance
 · GA-SRP135-024 100 kΩ
 Feedback signal 2-10 VDC, 0.5 mA

Electrical

Power supply 24 VAC/VDC ± 20%,
 50/60 Hz
 Over voltage Up to 40 V, max. 5 sec.
 Power consumption 7.0 W (9.0 VA)
 - holding 4.0 W

Performance

Torque 135 in-lb (15 Nm)
 Damper size Up to 34 sq. ft. (3.0 m²)
 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%
 Overload protection Electronic throughout
 rotation
 Manual override 3 mm hex crank, shipped
 w/actuator

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 3 ft. (0.9 m) appliance
 cable.
 GA-SRP color coded
 GA-SRPH number coded
 Plenum rated cable
 · option on request 18 AWG (0.75 mm²)
 Wire size 1/2", built-in
 Conduit connector 9.84 x 3.86 x 2.28 in.
 Dimensions (250 x 98 x 58 mm)
 4.4 lbs. (2.0 kg)
 Weight
Manufacturing ISO 9001 certified
Listings/Approvals CE
 UL and CSA
Warranty Five-year material and
 workmanship
 (Two-year standard,
 three-year conditional)

Options

GA-SRP135-024

· S2 (2) Aux. switch
 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