

# Direct Coupled, Non-Spring Return Actuators, 135 in-lb



**GA-P135-024**  
**(0)2-10 VDC, or (0)4-20 mA**

## DESCRIPTION

Electronic, motor-driven, reversible, noiseless, direct coupled actuators.

## APPLICATION

Actuators to be easily installed by direct shaft mounting on air dampers, shutters and butterfly valves in ventilation and air conditioning systems. Can be controlled by any compatible electric or electronic analog controller, DDC/PLC control or automation system.

## FEATURES

- *Direct coupled, easy to install*
- *Ridged V-clamp connector for better shaft gripping*
- *Switch selectable control and feedback signals*
- *Tested for 60,000+ full operations*
- *Manual override*
- *Overload protected*
- *Maintenance-free*
- *Five-year warranty*



**CE**  
**ISO 9001**



## SPECIFICATIONS

### Control

|                 |  |
|-----------------|--|
| Input signal    | Proportional<br>(0)2-10 VDC, or<br>(0)4-20 mA, switch selectable   |
| Input impedance | 100 kΩ   |
| Feedback signal | (0)2-10 VDC<br>or for use as constant<br>power supply 10/15 VDC, 0.5A<br>Refer to table<br>"Function and Signal Selection" |

### Electrical

|                   |                            |
|-------------------|----------------------------|
| Power supply      | 24 VAC/VDC ± 20%, 50/60 Hz |
| Over voltage      | Up to 40 V, max. 5 sec.    |
| Power consumption | 5.5 W (7.0 VA)             |

### Performance

|                     |   |
|---------------------|---|
| Torque              | 135 in-lb (15 Nm)                         |
| Damper size         | Up to 34 sq. ft. (3 m <sup>2</sup> )      |
| Angle of rotation   | 0-95°/95-0°, selectable                   |
| - CCW(L) and CW(R)  | L/R selector, built-in actuator cover     |
| Rotation time       | 40 to 80 sec/0-90°                        |
| Power failure       | Stays in last position of operation       |
| Position indicator  | 0-90° divisions and adj. visual indicator |
| Synchronization     | ± 1%                                      |
| Overload protection | Electronic throughout rotation            |
| Manual override     | Built-in disengage button                 |
| Motor type          | DC motor                                  |
| Noise level         | Max. 40 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

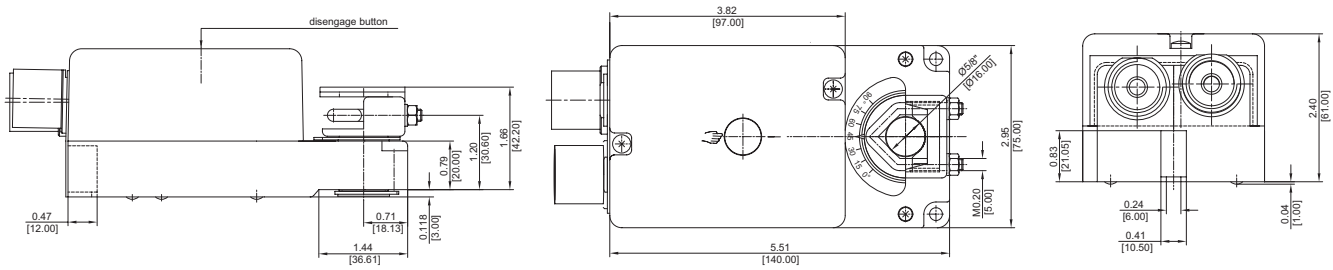
|                           |   |
|---------------------------|---|
| Enclosure                 |   |
| - cover                   | ABS, UL 94-5V   |
| - base                    | PA 6.6  |
| - color                   | Grey and black  |
| - protection              | NEMA 2  |
| Mounting position         | Any position  |
| Anti-rotation bracket     | Included w/actuator   |
| Stacking/paralleling      | Refer to table<br>"Multiple Actuators"  |
| Clamp connection to       |   |
| - round shaft             | Ø 5/16" to 5/8" (8 to 16 mm)  |
| - square shaft            | □ 5/16" to 15/32" (8 to 12 mm)  |
| Wire connection           | 3 ft. (0.9 m) appliance cable, color coded  |
| - option, on request      | Plenum rated cable  |
| Wire size                 | 18 AWG (0.75 mm <sup>2</sup> )  |
| Conduit connector         | 1/2", built-in  |
| Dimensions                | 5.51 x 2.95 x 2.28 in.<br>(140 x 75 x 58 mm)                                      |
| Weight                    | 1.6 lbs. (0.7 kg)   |
| <b>Manufacturing</b>      | ISO 9001 certified  |
| <b>Listings/Approvals</b> | CE<br>UL and CSA  |
| <b>Warranty</b>           | Five-year material and workmanship<br>(Two-year standard, three-year conditional) |

## ORDERING INFORMATION

|                    |          |
|--------------------|----------|
| <b>GA-P135-024</b> | Standard |
|--------------------|----------|

**DIMENSIONS**

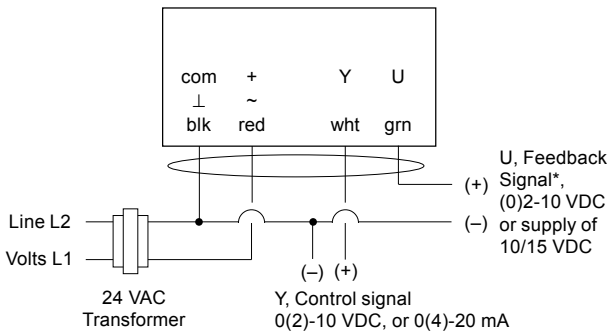
inches (mm)



Note: Anti-rotation mounting bracket supplied w/actuator

**WIRING CONFIGURATION**

GA-P135-024 Proportional control



\* Signal can provide position indication or master-slave applications

- Notes:
- Actuators are provided with color 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.
  - 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.

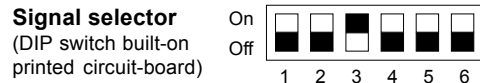
| Multiple Actuators (maximum quantities) | GA-P135-024 Proportional |
|---|--------------------------|
| Stacking (torque is additive)           | 4*                       |
| Parallel connection, 0(2)-10 VDC        | 20                       |
| Parallel connection, 0(4)-20 mA         | 10                       |
| Master-slave, via U, feedback signal    | 10                       |

\* Stacking options for continuous control  
 Sum of total torque:  
 2 actuators = (2 x 100%)  
 3 actuators = (2 x 100%) + (1 x 80%)  
 4 actuators = (2 x 100%) + (1 x 80%) + (1 x 50%)

**GA-P135-024 Function and Signal Selection**

**L/R selector** (built-in actuator cover)

| Select | Angle of rotation |                                   |
|--------|-------------------|-----------------------------------|
| R      | CW/0-90°          | "with increase of control signal" |
| L      | CCW/90-0°         |                                   |



| DIP switch setting         | Off       | On       |
|----------------------------|-----------|----------|
| <b>Y, control signal:</b>  |           |          |
| • 0-10 VDC                 | 2         | 1        |
| • 2-10 VDC                 | 1,2       | -        |
| • 0-20 mA                  | -         | 1,2      |
| • 4-20 mA                  | 1         | 2        |
| <b>U, feedback signal:</b> |           |          |
| • 0-10 VDC                 | 4         | 3 (1=ON) |
| • 2-10 VDC                 | 4 (1=OFF) | 3        |
| <b>or VDC supply:</b>      |           |          |
| • 10 VDC                   | 3         | 4,5      |
| • 15 VDC                   | 3,5       | 4        |

Unused DIP switches should be in the OFF position!

Allowable combinations of control signal (Y) and feedback signal (U), respectively:

- (Y) 0-10 VDC + (U) 0-10 VDC
- (Y) 0-20 mA + (U) 0-10 VDC
- (Y) 2-10 VDC + (U) 2-10 VDC
- (Y) 4-20 mA + (U) 2-10 VDC

Factory set: Y, control signal: 2-10 VDC  
 U, feedback signal: 2-10 VDC  
 OFF = 1, 2, 4, 5, 6 / ON = 3

- Always use a separate transformer when controller power is full-wave rectified.
- Controller and actuators must have separate transformers for paralleled multi-actuator application.
- Provide overload protection for line voltage and disconnect as required.