

# Push-Pull, Non-Spring Return Actuators, 135 lbf



## DESCRIPTION

Electronic, motor-driven, reversible, noiseless, push-pull actuators.

**GAP-P135-024**  
**(0)2-10 VDC, or (0)4-20 mA**  
*"Linear Stroke"*

## APPLICATION

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

## FEATURES

- *Push-pull, linear stroke*
- *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 (0)2-10 VDC, or (0)4-20 mA, switch selectable
Input impedance	100 kΩ
Feedback signal	(0)2-10 VDC, 5 mA or for use as constant power supply 10/15 VDC, 500 mA
	Refer to table "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	4.0 W (5.5 VA)

### Performance

Push-pull/linear force	135 lbf (600 N)
Damper size	Up to 34 sq. ft. (3 m <sup>2</sup> ), damper friction and linkage mount dependent
Linear stroke	2.362 in. (60 mm)
- direct/reverse acting	L/R selector, built-in actuator cover
Stroke time	60 to 80 sec/0-60 mm
Power failure	Stays in last position of operation
Position indicator	0-60 mm 1and 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

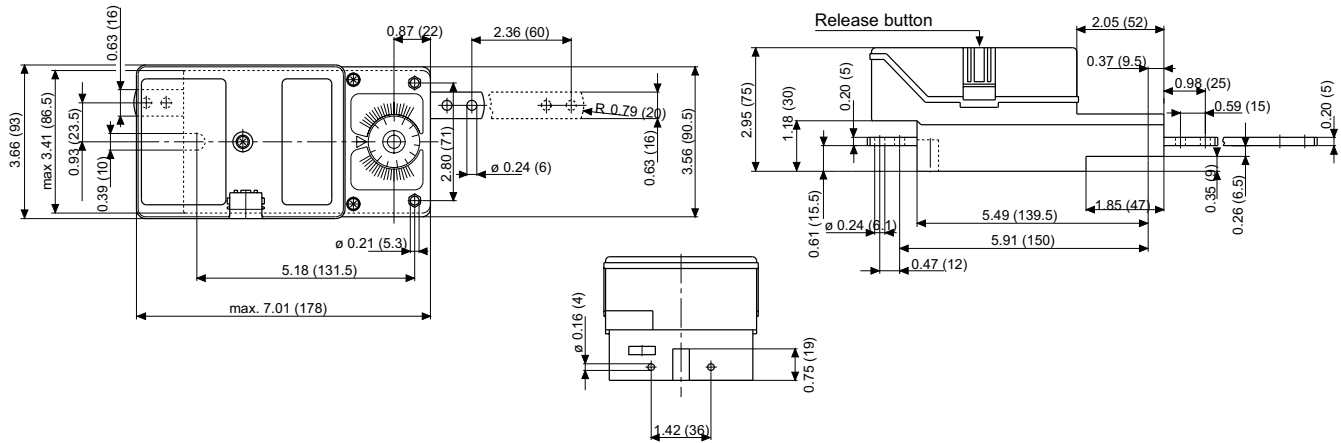
Enclosure	
- cover	ABS, UL 94-5V
- base	PA 6.6
- color	Grey and black
- protection	NEMA 2
Mounting position	Any position
Actuator base mount	
- pivot mount	End tab, w/(2) holes, Ø 1/5" (6.1 mm)
- direct/rigid mount	Front base, w/(2) holes, Ø 3/16" (5.3 mm)
Linear stroke connection to damper linkage	Push rod, w/(2)holes, Ø 1/5" (6.1 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	7.01 x 3.65 x 2.95 in. (178 x 92.7 x 75 mm)
- push rod	0.63 x 0.20 in. (16 x 5 mm)
Weight	3.3 lbs. (1.5 kg)
<b>Manufacturing</b>	ISO 9001 certified
<b>Listings/Approvals</b>	CE
<b>Warranty</b>	Five-year material and workmanship (Two-year standard, three-year conditional)

## ORDERING INFORMATION

<b>GAP-P135-024</b>	Standard
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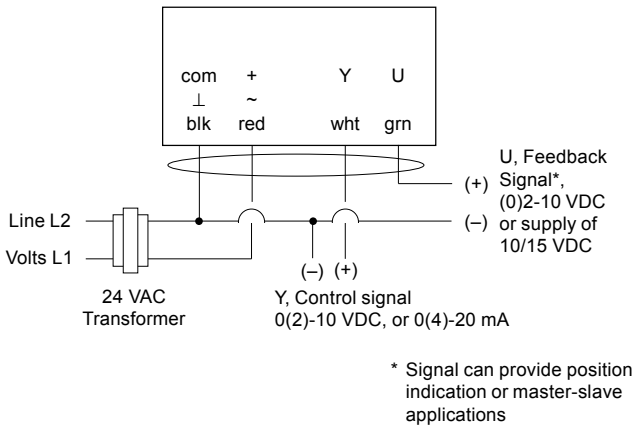
**DIMENSIONS**

inches (mm)

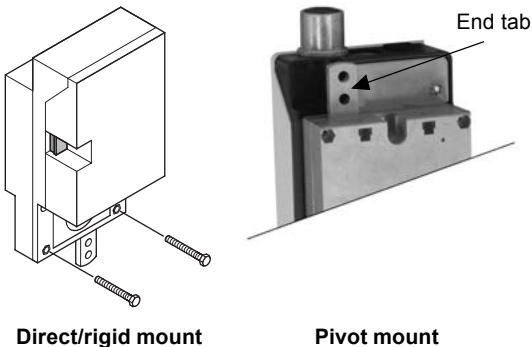


**WIRING CONFIGURATION**

**GAP-P135-024 Proportional control**



- 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.
  - Always use a separate transformer when controller power is full-wave rectified.



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

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

Select	Linear stroke selection	
R	Extending	"with increase of control signal"
L	Retracting	

**Signal selector**

(DIP switch built-on printed circuit-board)



DIP switch setting      Off      On

Y, control signal:

• 0-10 VDC	2	1
• 2-10 VDC	1,2	-
• 0-20 mA	-	1,2
• 4-20 mA	1	2

U, feedback signal:

• 0-10 VDC	4	3 (1=ON)
• 2-10 VDC	4 (1=OFF)	3

or VDC supply:

• 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

- Controller and actuators must have separate transformers for paralleled multi-actuator application.
- Provide overload protection for line voltage and disconnect as required.