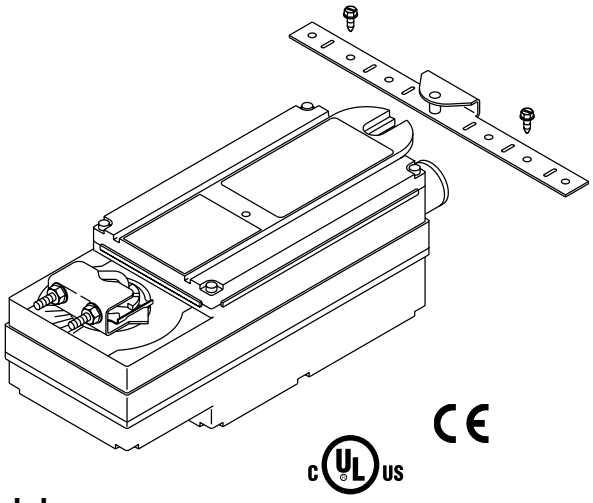
Flat Pack
Direct Coupled Damper Actuators

- **Direct coupled to the damper shaft with dual industrial hardened universal mounting clamps**
- **Two-position, floating and analog models available**
- **Spring Return, 150 lb-in. (17 Nm) rated torque**
- **Non-Spring Return, 300 lb-in (34 Nm) rated torque**
- **NEMA Type 4 housing (IEC IP56)**
- **Custom automatic current sensing motor control provides extended reliability and repeatable timing**
- **Clockwise or counterclockwise Spring Return is determined by actuator mounting position**
- **Accurate 93° travel digitally controlled**
- **Integral position indication scale**
- **24, 120 and 240 Vac, 50/60 Hz available on most models**



Introduction

The flat pack actuator is directly mounted to the damper shaft by means of dual mounting clamps. The anti-rotation bracket supplied with the actuator prevents lateral movement of the actuator. The damper actuator does not require limiting switches, but is electronically protected against overloading. The angle of rotation is electronically limited to 93° ±1°. When reaching the damper or actuator end position, the motor stops automatically. The position of the actuator is indicated by means of a scale reading from 0 to 95°.

Application

The Flat Pack series are direct coupled actuators used for damper control applications. They are available in spring return and non-spring return models, with two position control action, analog proportional control action, or floating proporitonal control action.

The actuator is maintenance free, but regular maintenance of the total system is recommended to assure sustained optimum performance.

Instruction Manual

invensys
EUROTHERM

Specifications

Inputs

Control Signal:	EA02-P Series :	Two position control (Spring Return only), two wire, SPST or triac (500 mA rated).
	EA0X-A Series:	Analog proportional control, 4 to 20 mAdc. 1 to 5 Vdc.
	EA0X-F Series:	Floating proportional control, SPDT, triacs (500 mA rated).
Power Input:	See Table 1. All 24 Vac circuits are Class 2. All others are Class 1.	
Impedance:	(EA0X-A Series) 1 to 5 Vdc, 10 kΩ; 4 to 20 mAdc, 250 Ω.	
Connections:	Power: pigtail leads, 24 inch (61 cm) long, 18 AWG color coded.	
	Control: pigtail leads, 24 inch (61 cm) long, 22 AWG color coded.	

Outputs

Electrical:	Stroke:	Electronically limited to 93° ±1°.
	Action:	(EA0X-A Series) Direct acting; 0° position with 4 mAdc or 1 Vdc input.
	Torque:	See Table 1.
	Duty Cycle:	100%.
	Timing:	See Table 1.
Mechanical:		
	Manual Override:	(Non Spring Return EA01 Series) Activated by manual override crank.
	Anti-Rotation Bracket:	Standard: 9" long x 13/16" wide (229 x 21 mm), included with the actuator. Optional: Order AM-752 (4" long x 1-11/16" wide) for mounting the actuator in narrow spaces.
	Universal Mounting Clamps:	Two clamps are required for all mounting configurations. Standard: 3/8" to 1/2" (10 to 13 mm) round and square shaft mounting clamps are included with the actuator. Optional: Order AM-753 for 5/8" (16 mm) square and 3/4" to 1" (19 to 25 mm) round damper shafts, two per package (order separately).
	Minimum Damper Shaft Length:	Standard: Damper shaft must be at least 4-5/8" (117 mm) long for standard mounting. Optional: Shorter than standard length shafts require the AM-676 shaft extension (order separately).
	Position Indicator:	Scale numbered from 0 to 95°, provided for position indication.
	Nominal Damper Area:	Actuator sizing should be done in accordance with damper manufacturer's specifications.
	Direction of Rotation:	(Spring return EA02 Series) The zero (0) position on the position indicator is the normal or Spring Return position. Counterclockwise rotation is provided with increasing signal applied when the actuator is mounted with the "R" side facing the installer. Clockwise rotation is provided when the actuator is mounted with the "L" side facing the installer.

Environment

Ambient Temperature Limits:	Shipping & Storage: -40 to 160°F (-40 to 71°C).	
	Operating: -25 to 140°F (-32 to 60°C).	
Humidity:	15 to 95% RH, non-condensing.	
Environmental Protection:	NEMA Type 4 (IEC IP56) with customer supplied water tight conduit connectors.	
Agency Listings:	UL 873:	Underwriters Laboratories Inc. listed (File # E9429 Category Temperature-Indicating and Regulating Equipment).
	CUL:	UL Listed to Canadian safety standards. Canadian Standard C22.2 No.24-93.
	CE:	(European Community) EMC Directive (89/336/EEC). Low Voltage Directive (72/23/EEC). Machinery Directive (89/392/EEC). Safety Directive (92/59 EEC). See Table 1 for specific models.

Specifications (continued)

Table 1. Model Chart

	Item	Actuator Power Input					Approx. 93° Rotation Timing (a)	Output Torque Rating lb.-in. (Nm)	
		Vac	Hz	Watts	VA				
					Running	Holding		Minimum	Max. Stall
Non-Spring Return	EA01-F0300-024-0-00	24 ±20%	50/60	3.8	7.1	3.6	145 seconds	300 (34)	600 (64)
	EA01-A0300-024-0-00	24 ±10%		4.8	7.1	5.0			
	EA01-A0300-120-0-00	120 ±10%		5.0	9.6	8.8			
	EA01-A0300-240-0-00	240 ±10%		5.2	10.1	9.2			
Spring Return	EA02-P0150-024-0-00	24 ±20%		5.4	9.6	4.1		150 (17)	450 (51)
	EA02-P0150-120-0-00	120 ±10%		7.2	11.4	9.4			
	EA02-P0150-240-0-00	240 ±10%		7.4	11.8	9.5			
	EA02-F0150-024-0-00	24 ±20%		5.5	10.0	4.3			
	EA02-A0150-024-0-00	24 ±20%		7.1	9.4	5.4			
	EA02-A0150-120-0-00	120 ±10%		7.1	11.1	9.1			
	EA02-A0150-240-0-00	240 ±10%		7.2	11.8	10.1			
	(a) @ 70° F (21° C) for rated torque.								

Ordering Information

Model No.: E A 0 ☐ - ☐ 0 ☐ ☐ ☐ - ☐ ☐ ☐ - 0 - 0 0

Field No. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Fields 1 through 4. BASE MODELS
EA01 - Flat Pack Actuator, Non-Spring Return
EA02 - Flat Pack Actuator, Spring Return

Field 5. CONTROL MODE
A - Analog proportional control, 4 to 20 mAdc, 1 to 5 Vdc
F - Floating proportional control, SPDT, triacs (500 mA rated)
P - Two position control (Spring Return only), two wire, SPST or triacs (500 mA rated)

Field 6. STROKE
0 - 93°

Fields 7 through 9. TORQUE
150 - 150 lbs./in. (Spring Return)
300 - 300 lbs./in. (Non-Spring Return)

Fields 10 through 12. VOLTAGE
024 - 24 Vac
120 - 120 Vac
240 - 240 Vac

Fields 13 through 15. RESERVED

Available Models

	Model	Control Mode	Voltage
Non-Spring Return	EA01-F0300-024-0-00	Floating	24 Vac, 50/60 Hz
	EA01-A0300-024-0-00	Analog	24 Vac, 50/60 Hz
	EA01-A0300-120-0-00	Analog	120 Vac, 50/60 Hz
	EA01-A0300-240-0-00	Analog	240 Vac, 50/60 Hz
Spring Return			
	EA02-P0150-024-0-00	Two Position	24 Vac, 50/60 Hz
	EA02-P0150-120-0-00	Two Position	120 Vac, 50/60 Hz
	EA02-P0150-240-0-00	Two Position	240 Vac, 50/60 Hz
	EA02-F0150-024-0-00	Floating	24 Vac, 50/60 Hz
	EA02-A0150-024-0-00	Analog	24 Vac, 50/60 Hz
	EA02-A0150-120-0-00	Analog	120 Vac, 50/60 Hz
	EA02-A0150-240-0-00	Analog	240 Vac, 50/60 Hz

Typical Applications Wiring

Figure 1.
Two Position Control, SPST
120 Vac Actuator

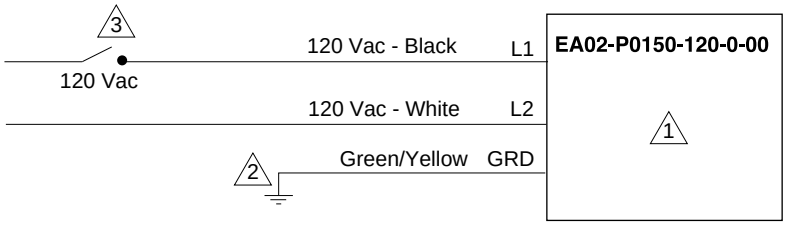


Figure 2.
Analog Proportional Control,
4 to 20 mAdc, 120 Vac Actuator

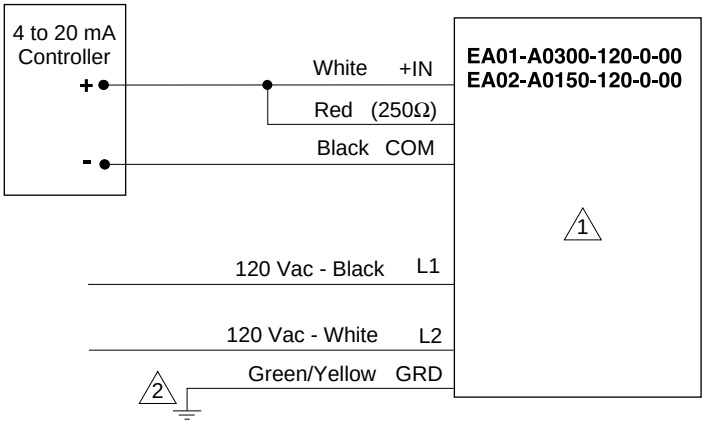
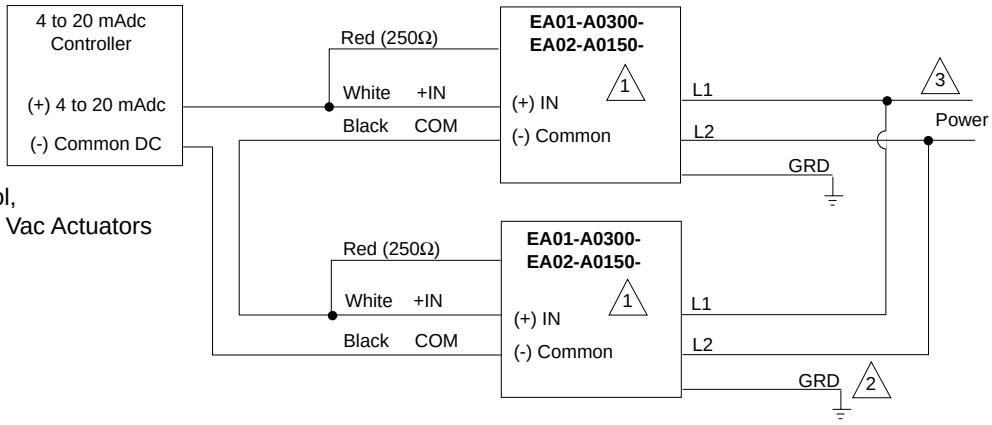


Figure 3.
Analog Proportional Control,
4 to 20 mAdc, Multiple 120 Vac Actuators



Power Wiring Identification		
Vac	**Desig-nation**	**Wire Color**
24	24H	Black
	24G	Black/Blue
120	L1	Black
	L2	White
240	L1	Brown
	L2	Light Blue

1. Unused conduit port must remain plugged with a watertight pipe plug as shipped from factory to maintain NEMA 4 or IP56 rating. Actuator is not recommended for applications needing multiple actuators on a common jackshaft.

2. Ground wire may be green or green/yellow on some models.

3. See power wiring identification table for wire color of different supply sources.

Typical Applications Wiring (continued)

Figure 4.
Analog Proportional Control
1 to 5 Vdc, 120 Vac Actuator

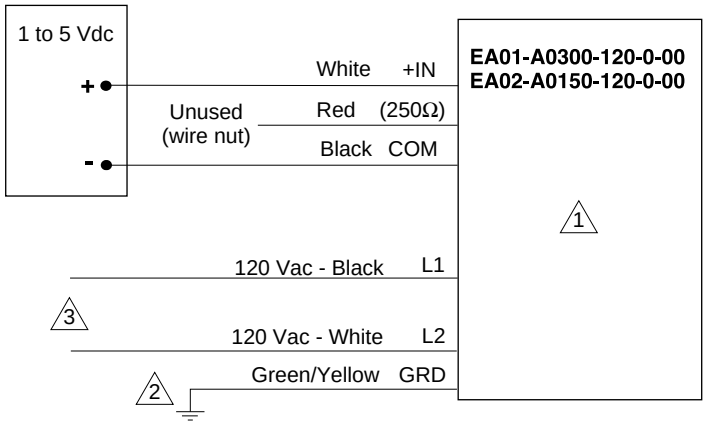
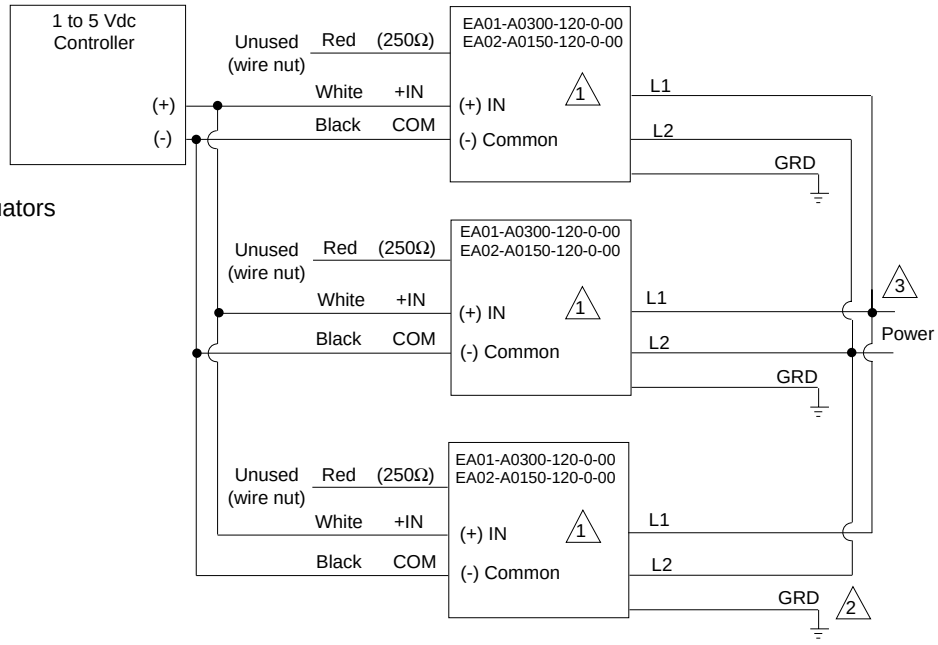


Figure 5.
Analog Proportional Control
1 to 5 Vdc, Multiple 120 Vac Actuators



Power Wiring Identification		
Vac	**Desig-nation**	**Wire Color**
24	24H	Black
	24G	Black/Blue
120	L1	Black
	L2	White
240	L1	Brown
	L2	Light Blue

1. Unused conduit port must remain plugged with a watertight pipe plug as shipped from factory to maintain NEMA 4 or IP56 rating. Actuator is not recommended for applications needing multiple actuators on a common jackshaft.

2. Ground wire may be green or green/yellow on some models.

3. See power wiring identification table for wire color of different supply sources.

Typical Applications Wiring (continued)

Figure 6.
Floating Proportional Control, SPDT
24 Vac Actuator

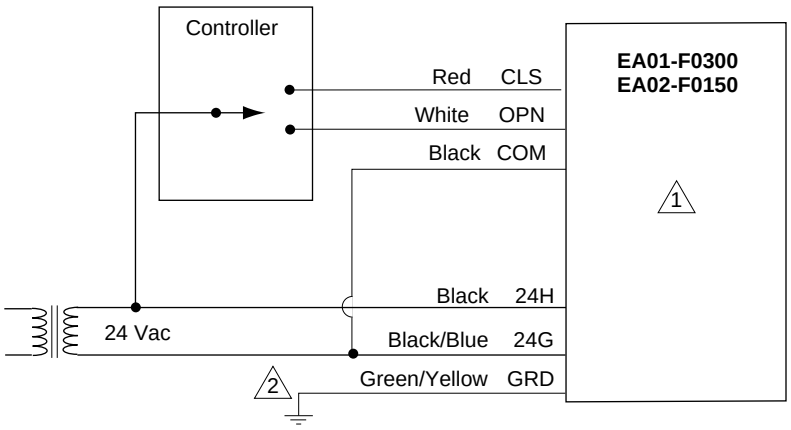
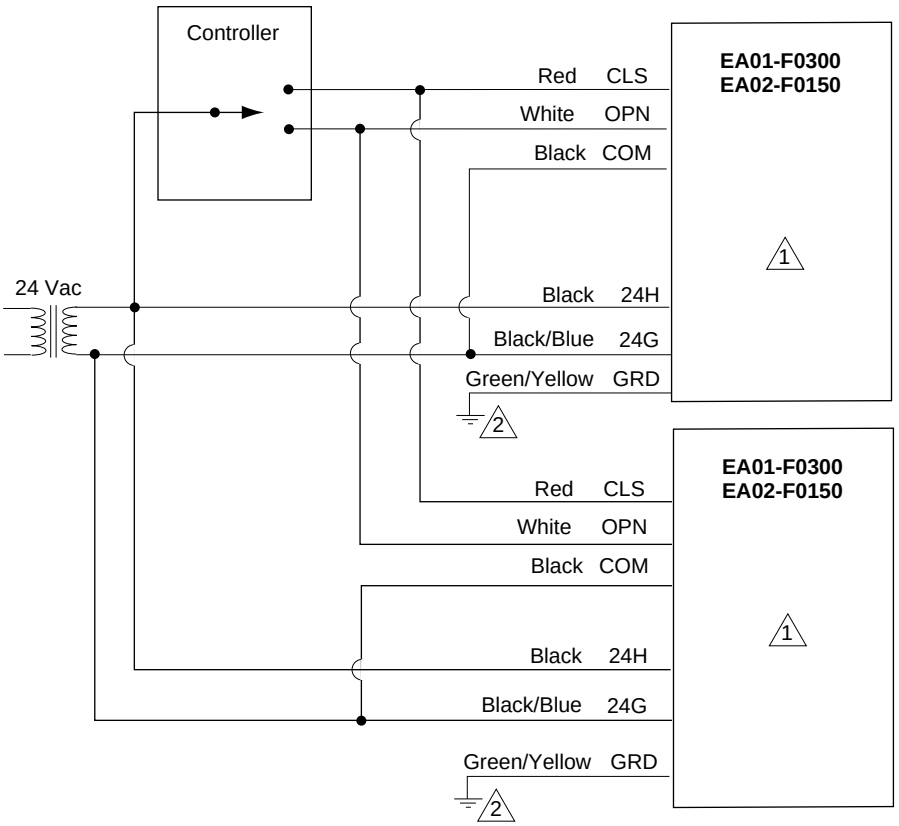


Figure 7.
Floating Proportional Control, SPDT
24 Vac Multiple Actuators



1 Unused conduit port must remain plugged with a watertight pipe plug as shipped from factory to maintain NEMA 4 or IP56 rating. Actuator is not recommended for applications needing multiple actuators on a common jackshaft.

2 Ground wire may be green or green/yellow on some models.

Wiring Requirements

Control and Power Leads

Remove blue plastic thread protectors before installing conduit fittings. See Figure 1 through Figure 7 for typical wiring applications and Table 2 for maximum wire lengths.

Note: Class 2 control and power lead wiring must be routed separately from line voltage wiring and any other non-class 2 circuits.

Table 2.
Control & Power Wiring Data

	Item	Maximum Wire Run* (5% Voltage Drop)		
		14 AWG	16 AWG	18 AWG
Non-Spring Return	EA01-F0300-024-0-00	1575 (480)	991(302)	623 (190)
	EA01-A0300-024-0-00	1190 (363)	748 (228)	471 (144)
	EA01-A0300-120-0-00			
	EA01-A0300-240-0-00			
Spring Return	EA02-P0150-024-0-00	1165 (355)	733 (223)	461 (141)
	EA02-P0150-120-0-00			
	EA02-P0150-240-0-00			
	EA02-F0150-024-0-00	1118 (341)	703 (214)	442 (135)
	EA02-A0150-024-0-00	981 (299)	617 (188)	388 (118)
	EA02-A0150-120-0-00			
	EA02-A0150-240-0-00			
	*Length of run shown in feet (meters)			

Accessories

AM-676 Universal shaft extension, approximately 9-1/2" (242 mm) long for use on 3/8" to 11/16"(10 to 17 mm) round shafts, 3/8" to 9/16" (10 to 14 mm) square shafts (AM-753 clamps required).

AM-751 Standard anti-rotation bracket, 9" long x 13/16" (229 x 21 mm) wide (229 x 21 mm), included with actuator.

AM-752 Optional anti-rotation bracket, 4" long x 1-11/6" wide (102 x 43 mm), for narrow spaces.

AM-753 Optional universal mounting clamps for 5/8" (16 mm) square shaft, 3/4" and 1" (19 to 25 mm) round shafts (two per package).

AM-754 Standard universal mounting clamps for 3/8" to 1/2" (10 to 13 mm) round and square shafts, two included with actuator.

AM-756 Metric conduit adaptor M20 x 1.5 to 1/2" NPT (two per package).

TF-711-02 1/2" Sealtight water tight conduit connector (straight).

TF-713-02 1/2" Sealtight water tight conduit connector (90°).

X-5521 1/2" Pipe plug, included with actuator.

Installation

Inspection

Inspect the package and if damaged, notify the carrier immediately. If the package is undamaged, open it and inspect the device for obvious damage. Return damaged products.

Requirements

- Job wiring diagrams
- Tools (not provided):
  - Socket wrench 1/2 inch, used for universal mounting clamp nuts.
  - Open-end wrench 10 mm, used for installing AM-676 universal shaft extension.
  - Slotted screwdriver, used for installing anti-rotation brackets.
- Appropriate accessories:
  - Water tight 1/2 inch conduit seals Barber-Colman part number TF-711-02 or T&B #5332 (straight), Barber-Colman part number TF-713-02 or T&B #5352 (90°), or equivalent.
  - Water tight 1/2 inch flexible conduit (e.g., Anaconda: Sealtight) or 20 mm flexible water tight conduit when using AM-756 metric conduit adapter with appropriate metric water tight seals.
  - Water tight 1/2 inch flexible conduit (Anaconda: Sealtight) or 20 mm flexible water tight conduit when using AM-756 metric conduit adapter.
  - Two #8 1/2 inch (13 mm) sheet metal screws for mounting anti-rotation bracket (optional).
- Training: Installer must be a qualified, experienced technician.

Precautions

WARNING!

- **Electrical shock hazard! Disconnect the power supply (line power) before and during installation to prevent electric shock and equipment damage.**
- **Make all connections in accordance with the wiring diagram and in accordance with national and local electrical codes. Use copper conductors only.**

CAUTION!

- **Actuator is not recommended for applications needing multiple actuators mounted on a common jackshaft.**
- **Avoid electrical noise interference. Do not install near large contactors, electrical machinery, or welding equipment.**
- **Avoid locations where excessive moisture, corrosive fumes, vibration, or explosive vapors are present.**

CAUTION!

- **To maintain NEMA Type 4 rating, use water tight 1/2" flexible conduit only, with 1/2" conduit connector of the water tight type, Barber-Colman part number TF-711-02 or T&B #5332 (straight), Barber-Colman part number TF-713-02 or T&B #5352 (90°), or equivalent.**
- **For metric conduit applications using AM-756 conduit adapters, use the appropriate metric water tight seals to maintain compliance with IP56 or NEMA Type 4 rating.**
- **Use a water tight 1/2" pipe plug in any unused actuator conduit ports and seal, with water tight tape to stay in compliance with NEMA Type 4 or IP56 rating. Use Barber-Colman part number X-5521, Grinnell #8700159257 (black), Grinnell #8700159851 (galvanized), or equivalent. Actuators with unused conduit ports are shipped with the unused port plugged.**

Installation (continued)

Federal Communications Commission (FCC)

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in residential installations. This equipment generates, uses, and can radiate radio frequency energy and may cause harmful interference if not installed and used in accordance with the instructions. Even when instructions are followed, there is no guarantee that interference will not occur in a particular installation. If this equipment causes harmful interference to radio or television reception—which can be determined by turning the equipment off and on—the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

Canadian Department of Communications (DOC)

Note: This class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numerique de la classe B respecte toutes les exigences du Reglement sur le material broilleur du Canada.

European Standard EN 55022

Warning: This is a class B (European Classification) product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Mounting

Damper Actuator Sizing

Correct sizing of the actuator is necessary for proper control of dampers. The area of damper that can be controlled by an actuator is depends on the type of damper, the quality of the damper, the pressure drop across the damper in the closed position, and the velocity of the air flow through the damper. To obtain actual damper torque requirements, contact the damper manufacturer.

Damper Shaft Sizing

Use the “Long Damper Shaft” mounting instructions if the damper shaft is at least 4-5/8" (117 mm) long. See Figure 8 for minimum shaft length.

Use the “Short Damper Shaft” mounting instructions if the damper shaft is shorter than 4-5/8" or the area around the damper shaft is too narrow to allow standard mounting, as described in the “Long Damper Shaft” mounting section.

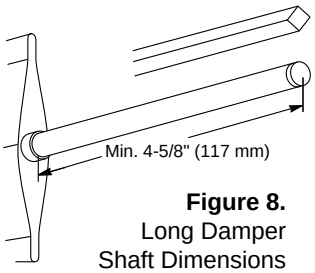


Figure 8. Long Damper Shaft Dimensions

CAUTION!

These actuators are not designed to be used on aluminum damper shafts, solid steel shafts smaller than 1/2" diameter round or 1/2" square, or hollow steel shafts smaller than 3/4" round. The actuator can produce up to 450 in-lbs (51 Nm) maximum stall torque, which could result in the actuator snapping off an aluminum damper shaft or an improperly sized steel damper shaft. Refer to Table 3 for nominal damper shaft sizes.

Installation (continued)

Table 3. Steel Damper Shaft Specifications

Shape	Type	O.D. (Nominal)*	I.D. (Maximum)
Round	Solid Bar	1/2" to 1"	0
	Hollow Tubing	3/4"	0.375"
		13/16"	0.683"
		27/32"	0.626"
		7/8"	0.805"
		15/16"	0.808"
		1"	0.930"
Square	Solid Bar	1/2" to 5/8"	0
*Damper shaft sizes over 1/2" (13 mm) O.D. require AM-753 universal mounting clamps.			

Mounting the Actuator for Clockwise or Counterclockwise Spring Return

Long Damper Shaft

1. Move the damper to the closed position (usually normal).
   – If the damper shaft rotates clockwise to the closed position, mount the actuator with the side marked “R” facing the installer. See Figure 9.
   – If the damper shaft rotates counterclockwise to the closed position, mount the actuator with the side marked “L” facing the installer. See Figure 10.

   Note: The actuator comes equipped with two AM-754 universal mounting clamps. For damper shafts larger than 1/2" (13 mm) in diameter, the AM-753 universal mounting clamps are required (order separately). The AM-753 clamps accommodate round shaft sizes ranging from 3/4" to 1" (19 to 25 mm) or 5/8" (16 mm) square shafts.
2. Slide the actuator over the shaft and into its desired final mounting position.
3. Hand tighten the nuts on both of the actuator’s universal mounting clamps.
4. Align the actuator at 90° (perpendicular) to the damper shaft. See Figure 11.
5. Slide the anti-rotation bracket pin into the mounting slot on the actuator and drill mounting holes. For narrow spaces, the AM-752 anti-rotation bracket is recommended (order separately).

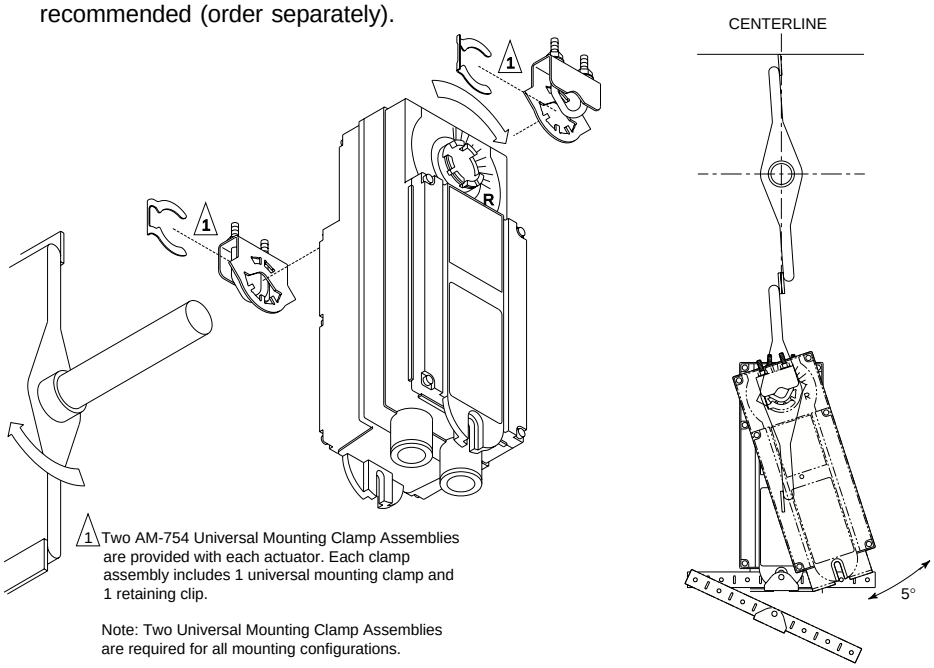


Figure 9.
Long Damper Shaft Mounting with Clockwise Spring Return for Normally Closed Damper

Mounting (continued)

Figure 10.
Long Damper Shaft Mounting with Counter -Clockwise Spring Return for Normally Closed Damper

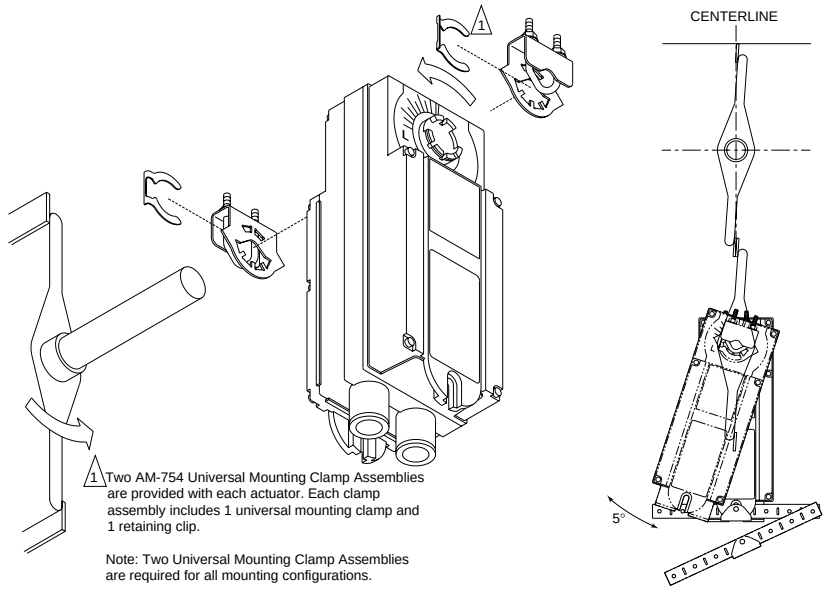
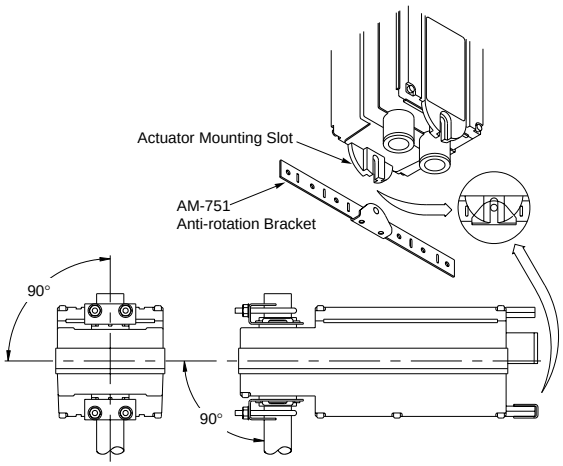


Figure 11.
Mounting Anti-rotation Bracket to Actuator



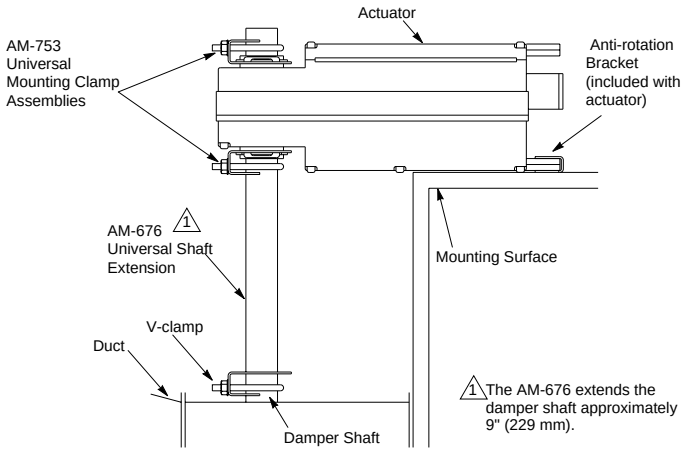
6. Attach one side of the anti-rotation bracket to the mounting surface with one of the screws provided. Leave the screw loose so that the bracket can be rotated. See Figure 9 for clockwise or Figure 10 for counterclockwise Spring Return.
7. Pivot the anti-rotation bracket away from the actuator.
8. Loosen the universal mounting clamps, making sure not to move the damper shaft. Rotate the actuator approximately 5° in the direction which would open the damper. See Figure 9 or Figure 10.
9. Tighten all of the universal mounting clamp nuts with a 1/2" socket wrench. Apply 4 to 6 ft.-lbs (5 to 8 Nm) of torque.
10. Manually rotate the actuator toward the full closed position to apply pressure to the damper seals.
11. Pivot the anti-rotation bracket into place and secure the other side of the bracket onto the mounting surface with the other screw provided with the actuator.
12. Verify that the damper is in its full closed position and actuator at 90° (perpendicular) to the damper shaft.

Mounting (continued)

Short Damper Shaft

See Figure 12 for installation of actuator using the AM-676 Universal Shaft Extension. Installation requires AM-676 Universal Shaft Extension and AM-753 Universal Mounting Clamps for 3/4" to 1" (19 to 25 mm) shafts, these items must be ordered separately.

Figure 12.
Installation of Universal Shaft Extension



1. Loosen the V-clamp nuts on the AM-676 universal shaft extension.
2. Fit the universal shaft extension fully onto the damper shaft. Tighten the universal shaft extension V-clamp nuts with a 10 mm open end wrench. Apply 4 to 6 ft.-lbs (5 to 8 Nm) of torque.
3. Move the damper to the closed position (usually normal). If the damper shaft rotates clockwise to the closed position, mount the actuator with the side marked “R” facing the installer. If the damper shaft rotates counterclockwise to the closed position, mount the actuator with the side marked “L” facing the installer.
4. Remove the mounting clamps from the actuator and replace them with the AM-753 universal mounting clamps.
5. Loosen the nuts on both of the AM-753 universal mounting clamps on the damper actuator.
6. Assemble the damper actuator onto the universal shaft extension, allowing the extension to slide through the actuator’s universal mounting clamps. Make sure the actuator is 90° (perpendicular) to the damper shaft. Then, hand tighten the nuts on both of the actuator’s universal mounting clamps.

   Note: If the universal shaft extension protrudes excessively beyond the damper actuator’s universal mounting clamp:
   - remove the damper actuator from the universal shaft extension,
   - remove the extension from the damper shaft,
   - shorten the universal shaft extension by cutting it to the desired length,
   - then proceed to follow mounting instructions.

7. Slide the anti-rotation bracket pin into the mounting slot on the actuator. See Figure 11. For narrow spaces, the AM-752 anti-rotation bracket is recommended (order separately).
8. Position the actuator and bracket in the desired final mounting position on the mounting surface and drill mounting holes. See Figure 12.
9. Attach one side of the anti-rotation bracket to the mounting surface with one of the screws provided. Leave the screw loose so that the bracket can be rotated. See Figure 9 for clockwise or Figure 10 for counterclockwise Spring Return.

Mounting (continued)

10. Pivot the anti-rotation bracket away from the actuator.
11. Loosen the universal mounting clamps, making sure not to move the damper shaft. Rotate the actuator approximately 5° in the direction which would open the damper.
12. Tighten all of the universal mounting clamp nuts with a 1/2" socket wrench. Apply 4 to 6 ft.-lbs (5 to 8 Nm) of torque.
13. Manually rotate the actuator toward the full closed position to apply pressure to the damper seals.
14. Pivot the anti-rotation bracket into place and secure the other side of the bracket onto the mounting surface using the other screw provided with the actuator.
15. Verify that the damper is in its full closed position and actuator at 90° (perpendicular) to the damper shaft.

Checkout

After the entire system has been installed and the actuator has been powered up, the following check can be made for proper system operation. Check for correct operation of the damper while actuator is being stroked.

Check Stroke (Non-Spring Return)

1. Remove power from actuator.
2. Insert the manual override crank into the hexagon hole on the label side of the acutator. The illustration on the label shows the location.
3. Cycle the actuator its full 93° stroke (open/close) and verify the damper travels through its complete range. To engage manual override, press and hold the crank inward while turning it the direction shown on the label.

Operational Check (All Actuators)

This procedure is for checking out a normally closed actuator that is typically mounted unpowered. It is possible to mount the actuator with power applied for special applications.

1. Apply power to the actuator.
2. Set the controller to cause the actuator to drive open.
3. Check to see that the actuator travels to the full open position.
4. Remove power from actuator to cause the actuator to drive closed.
5. Check to see that the actuator travels to the fully closed position.

Note: If anticipated damper operation does not occur, verify the Long Damper Shaft or Short Damper Shaft mounting procedures. Also, verify that the controller has the proper action (direct or reverse) to match the damper required operation.

Adjustments (Non-Spring Return Only)

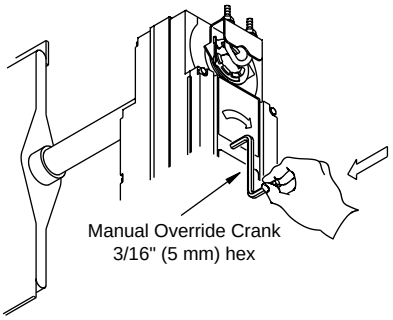
CAUTION!

- **Use manual override only when actuator drive motor is *not* powered.**
- **Engaging the manual override when actuator is powered will cause damage to the gears.**
- **Using power tools to adjust the override will cause damage to the gears.**

Note:
Avoid manually repositioning the actuator beyond its adjustable travel limit setting.

Non-Spring Return actuators can be manually positioned to ease installation or for emergency positioning. See Figure 13.

Figure 13.
Manual Override



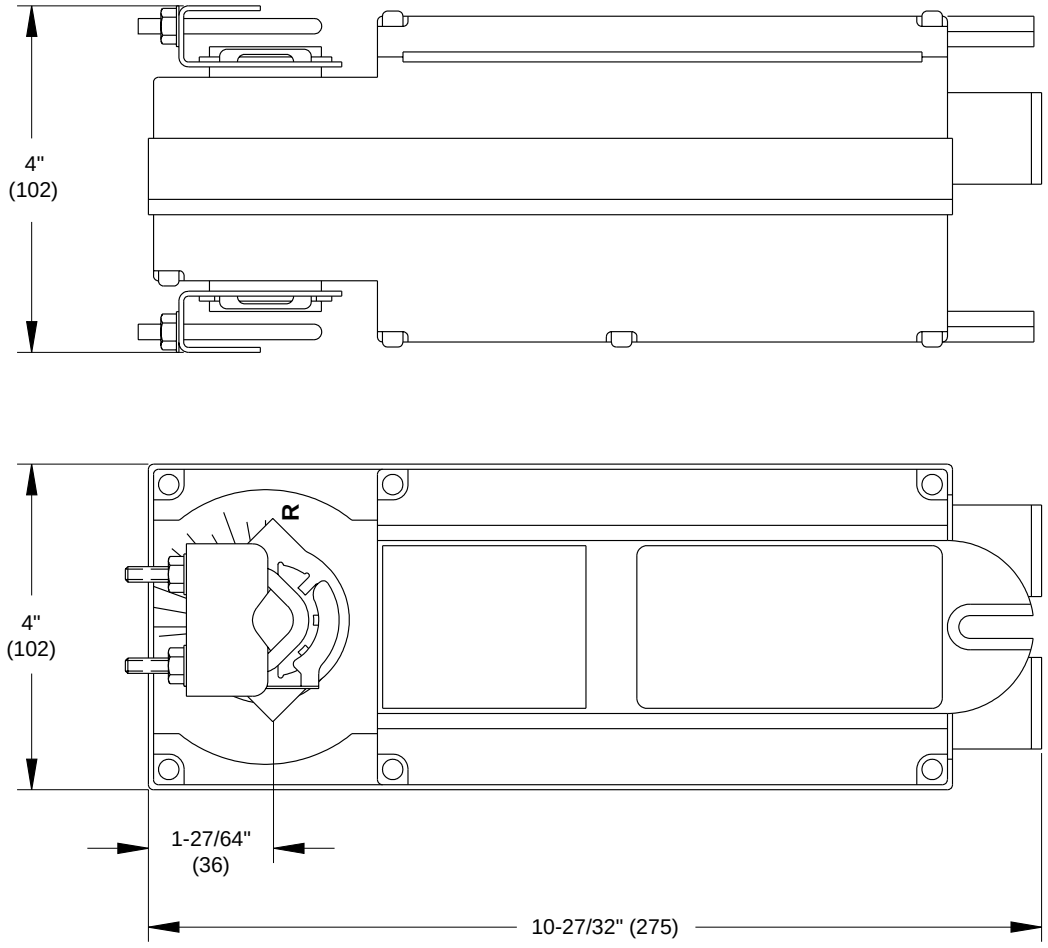
1. Insert the manual override crank into the hexagonal hole on the label side of the actuator. An illustration on the label shows the location.
2. To engage the manual override, press and hold inward on the crank while turning it in the direction shown on the label. It will take approximately 114 revolutions to rotate the full 93° of rotation.
3. Manual override is automatically disengaged by applying power to the drive open or drive closed. See Figures 6, 7. The actuator automatically disengages the override function and goes to the controller's desired position.

Maintenance

The actuator is maintenance free, but regular maintenance of the total system is recommended to assure sustained optimum performance.

Dimensional Data

Figure 14.
Dimensions are in inches (mm).



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