

# M9102-AGA-2S, -3S and M9104-xGA-2S, -3S Series Electric Non-Spring-Return Actuators

## Description

The M9102 and M9104 Series Actuators are direct-mount, non-spring-return electric actuators that operate on AC 24 V power. These synchronous motor-driven actuators provide floating control (AGA), floating control with automatic shutoff (IGA), and proportional control with selectable 0-10 or 2-10 VDC (GGA). The -2S models are equipped with plenum cables, and the -3S models are equipped with terminal blocks.

All models are compact in size and are easily installed on VAV boxes, Variable Volume and Temperature (VVT) two-position zone applications, or small- to medium-sized dampers with a round shaft up to 1/2 in. (13 mm) in diameter or a 3/8 in. (10 mm) square shaft.

The M9102 Series Electric Non-Spring-Return Actuators provide a running torque of 18 lb-in (2 N·m), and the nominal travel time is 30 seconds at 60 Hz (36 seconds at 50 Hz) for 90° of rotation. The M9104 Series Electric Non-Spring-Return Actuators provide a running torque of 35 lb-in (4 N·m), and the nominal travel time is 60 seconds at 60 Hz (72 seconds at 50 Hz) for 90° of rotation.

Refer to the *M9102-AGA-2S, -3S and M9104-xGA-2S, -3S Series Electric Non-Spring-Return Actuators Product Bulletin (LIT-1201742)* for important product application information.

## Features

- Two Torques Available: 18 and 35 lb-in (2 and 4 N·m) — offer the most suitable choice for the specific application.
- Short 30-Second Travel Time Available — provides a quick response for two-position zone applications.
- 35 dBA Nominal Audible Noise Rating — meets the audible noise requirements for open-ceiling environments.
- Synchronous Drive — provides a constant rotation time that is independent of the load.
- 100,000 Cycle Rating — provides years of trouble-free service.
- Direct Shaft Mounting with Single-Screw Coupler — reduces installation time and provides three-point shaft gripping.
- Magnetic Clutch — protects the actuator gear train and the damper from damage due to excessive torque during a stall condition.
- Manual Gear Release — simplifies actuator setup and adjustments in the field.
- Plenum Cable or Screw Terminal Electric Connections — make wiring quick and easy.

- Floating, Floating with Timeout, and Proportional 0(2) to 10 VDC Control Inputs Available — offer a full range of control input options.
- Small, Compact Design — allows installation in tight-fitting locations.

## Applications

The M9102 and M9104 Series Electric Non-Spring-Return Actuators are designed to position balancing, control, round, and zone dampers in HVAC systems. These electric actuators are also designed to position blades in a VAV box, or they can be used in VVT two-position zone applications.

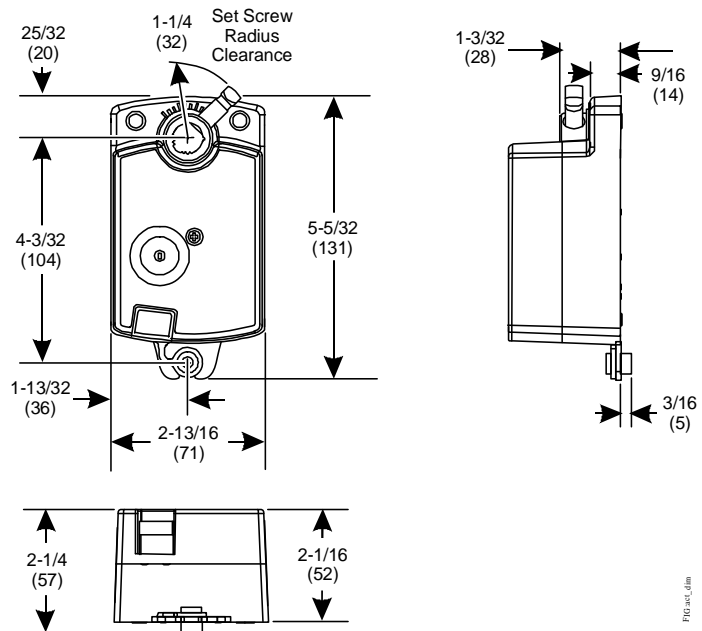
Each actuator mounts directly to the surface in any convenient orientation using a single No. 10 self-drilling sheet metal screw (included with the actuator). No additional linkages or couplers are required. Electrical connections on the actuator are clearly labeled to simplify installation.

## Repair Information

If the M9102 or M9104 Series Electric Actuator fails to operate within its specifications, replace the unit. For a replacement actuator, contact the nearest Johnson Controls® representative.



M9102 Series Electric Non-Spring-Return Actuator



M9102/M9104 Series Electric Non-Spring-Return Actuator Dimensions, in. (mm)

## M9102-AGA-2S, -3S and M9104-xGA-2S, -3S Series Electric Non-Spring-Return Actuators (Continued)

### Selection Chart

Code Number	Control Type	Running Torque	Travel Time	Electrical Connections
M9102-AGA-2S	Floating	18 lb-in (2 N-m)	30 seconds at 60 Hz	48 in. (1.2 m) UL 444 Type CMP plenum rated cable with 19 AWG (0.75 mm <sup>2</sup> ) conductors and 1/4 in. (6 mm) ferrule ends
M9102-AGA-3S	Floating	18 lb-in (2 N-m)	30 seconds at 60 Hz	M3 screw terminals
M9104-AGA-2S	Floating	35 lb-in (4 N-m)	60 seconds at 60 Hz	48 in. (1.2 m) UL 444 Type CMP plenum rated cable with 19 AWG (0.75 mm <sup>2</sup> ) conductors and 1/4 in. (6 mm) ferrule ends
M9104-AGA-3S	Floating	35 lb-in (4 N-m)	60 seconds at 60 Hz	M3 screw terminals
M9104-IGA-2S	Floating or on/off	35 lb-in (4 N-m)	60 seconds at 60 Hz	48 in. (1.2 m) UL 444 Type CMP plenum rated cable with 19 AWG (0.75 mm <sup>2</sup> ) conductors and 1/4 in. (6 mm) ferrule ends
M9104-IGA-3S	Floating or on/off	35 lb-in (4 N-m)	60 seconds at 60 Hz	M3 screw terminals
M9104-GGA-2S	Proportional	35 lb-in (4 N-m)	60 seconds at 60 Hz	48 in. (1.2 m) UL 444 Type CMP plenum rated cable with 19 AWG (0.75 mm <sup>2</sup> ) conductors and 1/4 in. (6 mm) ferrule ends
M9104-GGA-3S	Proportional	35 lb-in (4 N-m)	60 seconds at 60 Hz	M3 screw terminals

### Accessories

Code Number	Description
DMPR-KC003 <sup>1</sup>	7 in. (178 mm) blade pin extension without bracket for Johnson Controls direct-mount damper applications
DMPR-KC010	Adjustable blade position indicator switch kit with total switching load limited to 2,000 VA for the following applications: Pilot duty: AC 24 V, 50 VA; AC 125/250/277 V, 125 VA Motor load: AC 12/250/277 V, 1/3 hp Resistive load: AC 125 V, 11 A; AC 250 V, 8 A; AC 277 V, 7 A (all maximum values)
DMPR-KC011	Hex head blade pin extension without bracket
DMPR-KC012	Hex head blade pin extension without bracket
M9000-200	Commissioning tool that provides a control signal to drive 24 V on/off, floating, proportional, and/or resistive electric actuators
M9104-100	Connector for 3/8 in. (10 mm) flexible metal conduit (10 per package)

1. Furnished with the damper and may be ordered separately