

M9124-AGx-2 Series On/Off and Floating Control Electric Non-spring Return Actuators

The M9124-AGx-2 Series direct-mount electric actuators operate on 24 VAC or VDC power, and are available for use with on/off or floating controllers. These bidirectional actuators do not require a damper linkage, and are easily installed on a damper with a round shaft up to 3/4 in. (19 mm) in diameter or a square shaft up to 5/8 in. (16 mm). They may be direct- or remote-mounted to a damper or mounted to a valve using the M9000-518 Valve Linkage Kit.

A single M9124-AGx-2 model delivers up to 210 lb·in (24 N·m) of torque. Two AGx models in tandem deliver twice the torque or 420 lb·in (48 N·m). The angle of rotation is mechanically adjustable from 0 to 90° in 5-degree increments. Integral auxiliary switches are available to indicate end-stop position or to perform switching functions at any angle within the selected rotation range. Position feedback is available through either a 135 or 1,000 ohm potentiometer.

Figure 1: M9124 Series Actuator



Features and Benefits	
☐ Output Position Feedback	Provides simple, closed-loop control with accurate position sensing
☐ Electronic Stall Detection	Ensures higher reliability by deactivating the actuator motor when a stall condition is detected
☐ Dual Scale (0 to 90° and 90 to 0°) on the Cover	Indicates the position of the actuator's rotation in 10° increments
☐ Removable Coupler	Allows adjustment of the rotation range from 0 to 90°
☐ Steel U-bolt Clamp	Provides four-point damper shaft gripping
☐ Master/Subordinate Operation	Allows synchronized control for two actuators stacked for tandem applications
☐ Manual Gear Release	Simplifies installation, setup, and field adjustments
☐ National Pipe Thread (NPT) Threaded Housing	Provides easy connection for electrical fittings

Application

IMPORTANT: This device is not designed or intended to be used in or near environments where explosive vapors or gases could be present, or environments where substances corrosive to the device's internal components could be present.

M9124-AGx-2 actuators are designed to position air dampers and valves in HVAC systems. Applications include:

- positioning return air or exhaust dampers
- controlling face and bypass dampers
- positioning blades for variable volume fans
- positioning VG1000 Series ball valves when used with the M9000-518 Valve Linkage

Two of the M9124-AGx models provide twice the amount of running torque of a single unit when mounted in tandem.

Refer to the manufacturer's information to properly size the damper, valve, and/or actuator. Spring return actuators, such as Johnson Controls® M9208 and M9220 Series, are recommended for use with outdoor air dampers in cold climates.

Dimensions

See Figure 2 for actuator dimensions.

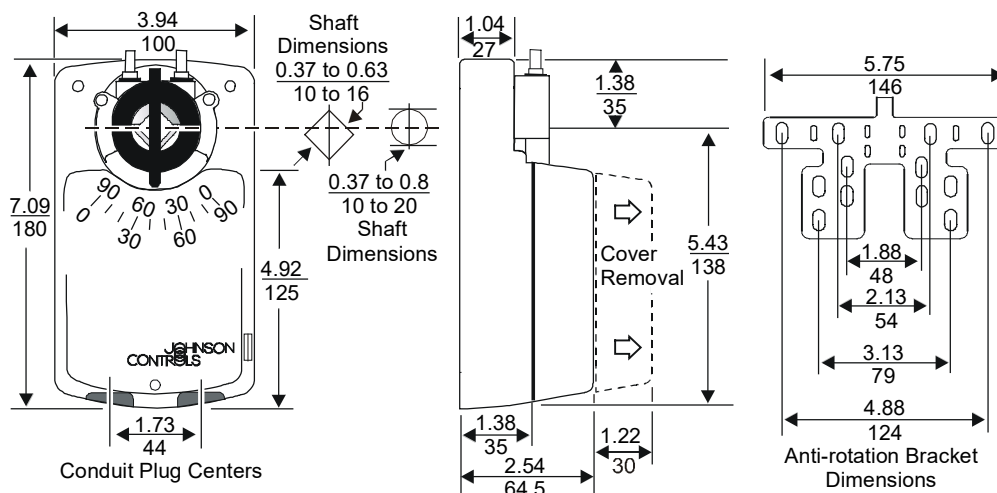
Operation

IMPORTANT: The M9124-AGx-2 Series actuators are intended to control equipment under normal operating conditions. Where failure or malfunction of an M9124-AGx-2 actuator could lead to an abnormal operating condition that could cause personal injury or damage to the equipment or other property, other devices (limit or safety controls), or systems (alarm or supervisory) intended to warn of, or protect against, failure or malfunction of the M9124-AGx-2 actuator must be incorporated into and maintained as part of the control system.

M9124-AGx-2 actuators operate on 24 VAC at 50/60 Hz or 24 VDC. These compact actuators use a DC motor with stall detection circuitry that operates throughout the entire stroke.

Rotation is mechanically limited to 93° by integral end-stops. The position of the actuator is marked from 0 to 90° on the cover. An anti-rotation bracket prevents lateral movement of the actuator. Press the spring-loaded gear release on the actuator cover to disengage the gear train for manual repositioning of the coupler.

Figure 2: Actuator and Anti-Rotation Bracket Dimensions, in. (mm)



Ordering Information

Table 1: Accessories

Product Code Number	Description
M9124-AGA-2	210 lb·in (24 N·m) or 420 lb·in (48 N·m) in tandem electric non-spring return actuator for on/off or floating control
M9124-AGC-2	210 lb·in (24 N·m) or 420 lb·in (48 N·m) in tandem electric non-spring return actuator for on/off or floating control with two SPDT 24 VAC auxiliary switches
M9124-AGD-2	210 lb·in (24 N·m) or 420 lb·in (48 N·m) in tandem electric non-spring return actuator for on/off or floating control with 135 ohm feedback potentiometer
M9124-AGE-2	210 lb·in (24 N·m) or 420 lb·in (48 N·m) in tandem electric non-spring return actuator for on/off or floating control with 1 k ohm feedback potentiometer
DMPR-KR003*	Sleeve Pin Kit for Johnson Controls round dampers with a 5/16 in. (8 mm) diameter shaft
DMPR-KC003*	Blade Pin Extension without Bracket for Johnson Controls D-1300 direct-mount applications
DMPR-KC254	Inside Frame Mounting Kit for damper applications requiring the actuator within the airstream
M9000-103	14 VA Transformer, 120/24 VAC, 60 Hz, Class 2
M9000-104	14 VA Transformer, 230/24 VAC, 60 Hz, Class 2
M9000-105	Pluggable 3-terminal block
M9000-150	Damper Mount Linkage Kit for remote inside duct mounting an M9124 actuator to a 3-blade or larger damper (not intended for a Johnson Controls damper)
M9000-151	Base Mount Linkage Kit for remote inside duct mounting (not intended for M9132 actuators or any tandem application)
M9000-153	Crank Arm Kit for remote mounting (not intended for tandem applications)
M9000-154	1 in. Jackshaft Coupler Kit for mounting on a 1 in. diameter damper shaft
M9000-155	Manual Handle for positioning a damper or valve when power is removed from an M91xx actuator
M9000-158	Mounting Kit to tandem mount two M9124 AGx models on a damper
M9000-160	Replacement anti-rotation bracket for M91xx Series actuators
M9000-518	Valve linkage kit for mounting M9124 actuators to 2-1/2 to 6 in. VG1000 Series flanged valves

* Furnished with the damper and may be ordered separately.

Technical Specifications

Product	M9124-AGx-2 Series On/Off and Floating Control Electric Non-Spring Return Actuators
Power Requirements	20 to 30 VAC at 50/60 Hz or 24 VDC $\pm 10\%$; 7.5 VA supply, Class 2
Input Signal	24 VAC at 50/60 Hz or 24 VDC
Input Signal Adjustments	Factory Setting, Terminals 1 and 2, CW rotation; Terminals 1 and 3, CCW rotation
Feedback Signal	AGD: 135 ohm feedback potentiometer AGE: 1,000 ohm feedback potentiometer
Auxiliary Switch Rating	AGC: Two Single-Pole, Double-Throw (SPDT) switches rated at 24 VAC 1.5 A inductive, 3.0 A resistive; 35 VA maximum per switch, Class 2
Mechanical Output (Running Torque)	210 lb-in (24 N·m) for one unit, 420 lb-in (48 N·m) for two in tandem (AGx)
Audible Noise Rating	45 dBA at 1 m
Rotation Range	0 to 90° in 5-degree increments, mechanically limited to 93°
Rotation Time	130 seconds at 50% rated load, 115 to 175 seconds for 0 to 210 lb-in (0 to 24 N·m)
Electrical Connection	1/4 in. spade terminals with pluggable 3-terminal blocks
Mechanical Connection	3/8 to 3/4 in. (10 to 20 mm) diameter round shaft or 3/8 to 5/8 in. (10 to 16 mm) square shaft
Enclosure	NEMA 2, IP42
Ambient Conditions	Operating: -4 to 122°F (-20 to 50°C); 0 to 95% RH, noncondensing Storage: -40 to 186°F (-40 to 86°C); 0 to 95% RH, noncondensing
Dimensions (H x W x D)	7.09 x 3.94 x 2.54 in. (180 x 100 x 64.5 mm)
Shipping Weight	2.9 lb (1.3 kg)
Agency Compliance	United States: UL Listed, CCN XAPX, File E27734; to UL 873, the Standard for Temperature Indicating and Regulating Equipment, Eleventh Edition Canada: UL Listed, CCN XAPX7, File E27734; Canadian Standard C22.2 NO. 24-93, Standard for Temperature Indicating and Regulating Equipment, Eighth Edition Europe: CE Mark - Johnson Controls declares that this product is in compliance with the essential requirements and other relevant provisions of the EMC Directive and Low Voltage Directive. Australia and New Zealand: RCM Mark, Australia/NZ Emissions Compliant (Models: All M9220-xGx and M9220-xDx)



The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the local Johnson Controls office. Johnson Controls shall not be liable for damages resulting from misapplication or misuse of its products.



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