

M9106-AGx-2N0x Series Electric Non-Spring-Return Actuators

Description

The M9106-AGA-2N0x synchronous motor-driven actuators provide floating (3-wire) control and are easily installed on a VAV box. They may also be installed on a small- to medium-sized damper with a round shaft up to 1/2 in. (13 mm) in diameter or a 3/8 in. (10 mm) square shaft.

These compact, non-spring-return actuators have 53 lb-in (6 N·m) running torque in a compact easy-to-install package. The actuators are available with either a nominal 60-second travel time at 60 Hz (72 seconds at 50 Hz) or a nominal 120-second travel time at 60 Hz (144 seconds at 50 Hz) for 90° of rotation.

The M9106-AGS-2N02 Actuator/Transmitter combines an M9106-AGA-2N02 with a prewired DPT-2015 Differential Pressure Transmitter that has a 0 to 1.5 in. W.C. (0 to 374 Pa) differential pressure range.

Features

- simple direct coupling reduces installation and commissioning time by eliminating damper linkages
- whisper quiet 35 dBA rating meets audible requirements for open ceilings
- long life brushless synchronous drive
- motor technology provides constant rotation time independent of load
- 100,000 cycle rating, 2,500,000 repositions
- direct shaft mount with single-screw coupler simplifies installation and provides 3-point shaft gripping
- magnetic clutch provides torque protection for the actuator gear train and damper
- manual gear release simplifies setup and field adjustments

Applications

The actuators are used to position balancing, control, round, and zone dampers in typical HVAC applications. They are also used to position the blades in a VAV box. The actuators mount directly to the surface of a VAV box, round damper, or small rectangular damper with a single No. 10 self-drilling sheet metal screw (included). There are no additional linkages or couplers required. Clearly labeled electrical terminals simplify installation. Refer to the damper or VAV box manufacturer's information to select the proper timing for the actuator.

Note: The damper rotation time must be defined at the controller, and the damper point definition must match the rotation time of the actuator.

When combined with a VAV controller, the actuator provides reliable integrated damper control. Refer to the *M9106-AGx-2N0x Series Electric Non-Spring-Return Actuators Application Note (LIT-2681116)* for various configurations with and without the DPT-2015 Differential Pressure Transmitter.

Refer to the *M9106-AGx-2N0x Electric Non-Spring-Return Actuators Product Bulletin (LIT-2681126)* or the *M9106-AGx-2N0x Electric Non-Spring-Return Actuators Installation Instructions (Part No. 34-636-1077)* for important product application information.



M9106-AGS-2N0x Series Electric Non-Spring-Return Actuator

Repair Information

If the M9106-AGx-2N0x Series Electric Actuator fails to operate within its specifications, replace the unit. For a replacement actuator, contact the nearest Johnson Controls® representative.

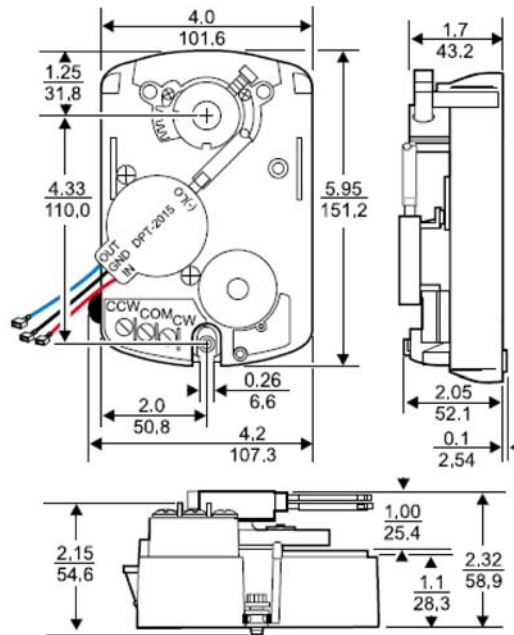
Selection Chart

Code Number	Control Type	Torque / Timing / Voltage	Auxiliary Switches	Comments
M9106-AGA-2N01	Floating	53 lb-in (6 Nm) 60 seconds at 60 Hz AC 24 V 50/60 Hz	None	Actuator only
M9106-AGA-2N02		53 lb-in (6 Nm) 120 seconds at 60 Hz AC 24 V 50/60 Hz		
M9106-AGS-2N02		53 lb-in (6 Nm) 120 seconds at 60 Hz AC 24 V 50/60 Hz		Actuator includes a DPT-2015 and CBL-2000-1

M9106-AGx-2N0x Series Electric Non-Spring-Return Actuators (Continued)

Accessories

Code Number	Description
CBL-2000-1	20 in. (0.5 m) wiring harness, UL accepted for plenum use, supplied with the M9106-AGS-2N02 and may be ordered separately; connects the M9106 and DPT-2015 to the VAV controller
CBL-2000-2	20 in. (0.5 m) plenum rated wiring harness; Underwriters Laboratories, Inc.® (UL) accepted for plenum use; connects the M9101 and DPT-2015-0 to the VAV controller
CBL-2000-3	72 in. (1.8 m) plenum rated wiring harness
DPT-2015-0	0 to 1.5 in. W.C. (0 to 374 Pa) differential pressure transmitter
DMPR-KC003	Blade pin extension without bracket supplied with Johnson Controls CD-1300 dampers and may be ordered separately for all direct-mount applications
DMPR-KC011	Hex head blade pin extension without bracket
DMPR-KC012	Hex head blade pin extension with bracket
M9000-200	Commissioning tool provides a control signal to drive on/off, floating, proportional, or resistive actuators



Dimensions, in. (mm)

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Technical Specifications

M9106-AGx-2N0x Series Electric Non-Spring-Return Actuators	
Power Requirement	M9106-AGA-2N01: AC 20...30 V at 50/60 Hz, 2.5 VA supply, Class 2 M9106-AGx-2N02: AC 20...30 V at 50/60 Hz, 2.1 VA supply, Class 2 DPT-2015: DC 15 V (DC 14.5...17 V) unregulated; 15 mA, maximum
Control Type	Floating
Input Signal	M9106-AGx-2N0x: 24 V (AC 20...30 V) at 50 or 60 Hz
DPT 2015-0	Pressure range: 0 to 1.5 in. W.C. (0 to 374 Pa) Over pressure limit: 15 in. W.C. (3.74 kPa) Output voltage: 0.5 to 4.5 VDC with 25,000 ohm minimum load impedance
Input Impedance	M9106-AGA-2N01: 200 ohms, nominal M9106-AGx-2N02: 250 ohms, nominal
Feedback Signal	N/A
Auxiliary Switch Rating	N/A
Torque Rating	53 lb-in (6 N·m)
Cycle Life	100,000 full cycles; 2,500,000 repositions rated at 53 lb-in (6 N·m)
Audible Noise Rating	35 dBA maximum at 39.4 in. (1 m)
Rotation Range	Adjustable from 30 to 90°, CW or CCW
Rotation Time	M9106-AGx-2N01: nominal 60 seconds at 60 Hz and 72 seconds at 50 Hz for 90° M9106-AGS-2N02: nominal 120 seconds at 60 Hz and 144 seconds at 50 Hz for 90°
Electrical Connection	No. 6-32 screw terminals
Mechanical Connection	3/8 to 1/2 in. (10 to 12.7 mm) round shaft or 3/8 in. (10 mm) square shaft
Enclosure Rating	NEMA1, IP30
Ambient Operating Rating	M9106-AGA-2N0x: 32 to 125°F (0 to 52°C); 90% RH maximum, noncondensing M9106-AGS-2N02: 32 to 125°F (0 to 52°C); 90% RH maximum, noncondensing 60 to 100°F (16 to 38°C); 90% RH maximum, noncondensing for DPT rated accuracy (Refer to the <i>DPT-2015 Differential Pressure Transmitter for VAV Box Applications Installation Instructions [Part No. 24-7547-18]</i> .)
Ambient Storage Rating	-20 to 150°F (-29 to 66°C); 90% RH maximum, noncondensing
Shipping Weight	M9106-AGA-2N0x: 2.0 lb (0.91 kg) M9106-AGS-2N02: 2.2 lb (0.99 kg) with the DPT-2015
Agency Compliance	UL 873 Listed, File E27734, CCN XAPX CSA C22.2 No. 139 Certified, File LR85083, Class 3221 02 CE Mark, EMC Directive 2004/108/EC