

M9106-AGx-2N0x Series

Electric Non-spring Return Actuators

**M9106-AGS-2N02**

Description

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

- 35 dBA rating meets audible requirements for open ceilings
- synchronous drive provides constant rotation time that is independent of load
- direct shaft mount with single-screw coupler simplifies installation and provides 3-point shaft gripping
- magnetic clutch provides torque protection for the actuator and damper
- adjustable rotation stops allow application versatility with 30 to 90° clockwise or counterclockwise rotation
- manual gear release simplifies setup and field adjustments
- screw terminal connection makes wiring easy

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. See 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.

For more information, 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*.

Repair Parts

Replace the unit.

To Order

Specify the code number from the selection chart.

Selection Chart

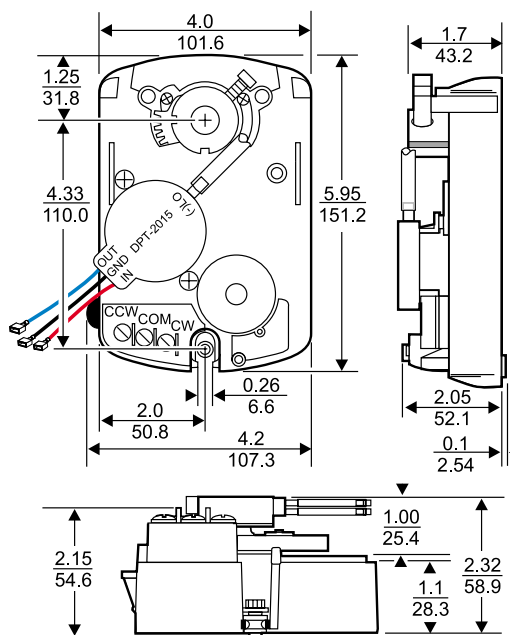
Code Number	Description
M9106-AGA-2N01	Electric actuator with 1 min. rotation time
M9106-AGA-2N02	Electric actuator with 2 min. rotation time
M9106-AGS-2N02	Electric actuator with 2 min. rotation time includes the DPT-2015 and CBL-2000-1

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
CBL-2000-3	72 in. (1.8 m) plenum-rated wiring harness
DPT-2015-0	0 to 1.5 in. W.C. (0 to 375 Pa) differential pressure transmitter supplied with the M9106-AGS-2N02 and may be ordered separately
DMPR-KC003	Blade Pin Extension without bracket supplied with Johnson Controls CD-1300 dampers and may be ordered separately
DMPR-KR003	Sleeve Pin Kit supplied with Johnson Controls round dampers that have a 5/16 in. (8 mm) shaft and may be ordered separately
DMPR-KC010 (a)	Adjustable Blade Position Indicator Switch Kit with total switching load limited to 2000 VA for the following applications: Pilot Duty: 24 VAC, 50 VA; 125/250/277 VAC, 125 VA Motor Load: 125/250/277 VAC, 1/3 hp Resistive Load: 125 VAC, 11 A; 250 VAC, 8 A; 277 VAC, 7 A (all maximum values)
M9000-200	Commissioning Tool provides a control signal to drive on/off, floating, proportional, or resistive actuators.

(a) Use with an M9106 actuator to replace an EDA-2040 or ATP-2040 actuator and EDA-2040-102 switch kit.

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



Note: All dimensions are nominal unless otherwise specified.

Dimensions, in./mm

Specifications

M9106-AGx-2N0x Series Electric Non-Spring Return Actuators	
Power Requirements	M9106-AGA-2N01: 20 to 30 VAC at 50/60 Hz, 2.5 VA supply, Class 2 M9106-AGx-2N02: 20 to 30 VAC at 50/60 Hz, 2.1 VA supply, Class 2 DPT-2015: 15 VDC (14.5 to 17 VDC) unregulated; 15 mA, maximum
Input Signal	M9106-AGx-2N0x: 24 VAC (20 to 30 VAC) at 50 or 60 Hz
Motor Input Impedance	M9106-AGA-2N01: 200 ohms, nominal M9106-AGx-2N02: 250 ohms, nominal
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
Mechanical Output	Running Torque: 53 lb-in (6 N-m)
Cycles	100,000 full cycles; 2,500,000 repositions rated at 53 lb-in (6 N-m)
Audible Noise Rating	35 dBA maximum at 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 on the M9106 actuator; 1/4 in. spade terminals on the DPT-2015
Pressure Connection	6 in. (152 mm) silicone tubing with barbed fittings for 1/4 in. (6.35 mm) O.D. tubing
Enclosure	NEMA 1, IP30
Ambient Operating Conditions	M9106-AGA-2N0x: 32 to 125°F (0 to 52°C); 90% RH maximum, non-condensing M9106-AGS-2N02: 32 to 125°F (0 to 52°C); 90% RH maximum, non-condensing 60 to 100°F (16 to 38°C); 90% RH maximum, non-condensing for DPT rated accuracy (See DPT-2015 Differential Pressure Transmitter for VAV Box Applications Installation Instructions, Part No. 24-7547-18.)
Ambient Storage Conditions	-20 to 150°F (-29 to 66°C); 90% RH maximum, non-condensing
Dimensions (H x W x D)	M9106-AGA-2N01: 5.95 x 4.2 x 2.15 in. (151.2 x 107.3 x 54.6 mm) M9106-AGx-2N02: 5.95 x 4.2 x 2.32 in. (151.2 x 107.3 x 58.9 mm) with the DPT-2015
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 (M9106 Actuator)	UL 873 Listed, File E27734, CCN XAPX CSA C22.2 No. 139 Certified, File LR85083, Class 3221 02 CE Mark, EMC Directive 89/336/EEC