

M9104-AGx-2N

LIT-1922585

Electric Non-spring Return Actuators

Description

The M9104-AGA-2N synchronous motor-driven actuator provides floating (3-wire) control and is easily installed on a Variable Air Volume (VAV) box damper or a small or medium-sized damper with a round damper shaft up to 1/2 in. (13 mm) in diameter or a 3/8 in. (10 mm) square shaft. This compact, non-spring return actuator has a 35 lb-in (4 N·m) running torque and 40 lb-in (4.5 N·m) minimum stall torque in a compact, easy-to-install package. It has a nominal 90 second travel time for 90° of rotation at 60 Hz (108 seconds at 50 Hz) for 90° of rotation.

The M9104-AGS-2N Actuator/Transmitter combines an M9104-AGA-2N with a pre-wired DPT-2015 Differential Pressure Transmitter that has a 0 to 1.5 inch W.C. (0 to 374 Pa) differential pressure range.

Features

- 30 dBA rating meets audible noise requirements for open ceilings
- synchronous drive provides constant rotation time that is independent of load
- 100,000 cycle rating extends actuator life due to improved technology
- 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

- adjustable rotation stops allow application versatility with 30 to 90° clockwise (CW) or counterclockwise (CCW) rotation
- manual gear release simplifies setup and field adjustments
- screw terminal connection makes wiring easy

Applications

The M9104-AGx-2N actuator is used to position balancing, control, round, and zone dampers in typical HVAC applications. It is also used to position the blades in a VAV box.

The actuator mounts 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.

When combined with a VAV controller, the actuator provides reliable, integrated damper control. See the *M9104-AGx-2N Series Electric Non-spring Return Actuators Application Note, LIT-2681110* for various configurations with and without the DPT-2015 differential pressure transmitter.

For more information, refer to the *M9104-AGx-2N Electric Non-spring Return Actuators Product Bulletin LIT-2681121*, or the *M9104-AGx-2N Electric Non-spring Return Actuators Installation Instructions, Part No. 34-636-631*.



M9104-AGA-2N

Repair Information

If the M9104-AGx-2N Actuator fails to operate within its specifications, replace the unit. For a replacement actuator, contact the nearest Johnson Controls® representative.

Selection Charts

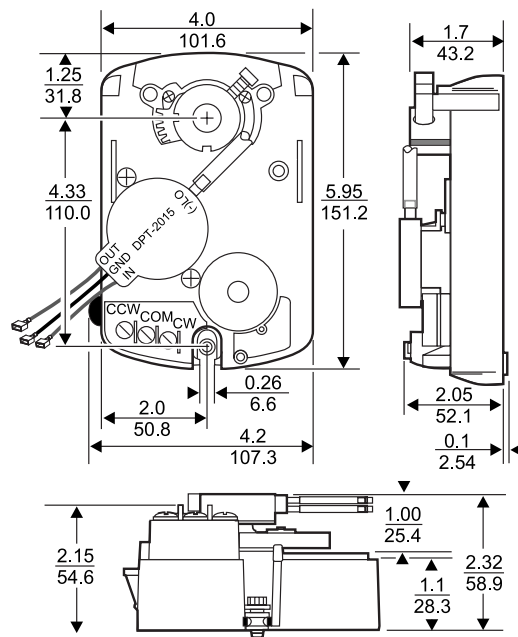
M9104-AGx-2N Electric Non-spring Return Actuators

Code Number	Control Type	Torque / Timing / Voltage	Auxiliary Switches	Comments
M9104-AGA-2N	Floating	35 lb-in (4 Nm) 90 Seconds at 60 Hz AC 24 V 50/60 Hz	None	Actuator only
M9104-AGS-2N		35 lb-in (4 Nm) 90 Seconds at 60 Hz AC 24 V 50/60 Hz		Actuator includes a DPT-2015 and CBL-2000-1

Accessories for M9104-AGx-2N Actuators

Code Number	Description
CBL-2000-1	20 in. (0.5 m) wiring harness [Underwriters Laboratories, Inc.® (UL) accepted for plenum use] supplied with the M9104-AGS-2N and may be ordered separately; connects the M9104 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 374 Pa) differential pressure transmitter supplied with the M9104-AGS-2N and may be ordered separately
DMPR-KC003	Blade Pin Extension without Bracket supplied with CD-1300 dampers and may be ordered separately
DMPR-KR003	Sleeve Pin Kit supplied with round dampers that have a 5/16 in. (8 mm) shaft and may be ordered separately
M9000-200	Commissioning Tool provides a control signal to drive on/off, floating, proportional, or resistive actuators.

M9104-AGx-2N Electric Non-spring Return Actuators (Continued)



Note: All dimensions are nominal unless otherwise specified.

Dimensions, in. (mm)

Technical Specifications

M9104-AGx-2N Electric Non-spring Return Actuators	
Power Requirements	M9104-AGx-2N: 20 to 30 VAC at 50 or 60 Hz, 2.1 VA maximum, Class 2 DPT-2015: 15 VDC (14.5 to 17 VDC, unregulated); 15 mA maximum
Input Signal	M9104-AGx-2N: 24 VAC (20 to 30 VAC) at 50 or 60 Hz
Motor Input Impedance	M9104-AGx-2N: 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
Audible Noise Rating	30 dBA maximum at 1 m
Mechanical Output	Running Torque: 35 lb-in (4 N-m)
Rotation Range	Adjustable from 30 to 90°, CW or CCW
Rotation Time	Nominal 90 seconds at 60 Hz for 90°; Nominal 108 seconds at 50 Hz for 90°
Cycles	100,000 full cycles, 2,500,000 repositions rated at 35 lb-in (4 N-m)
Electrical Connection	No. 6-32 screw terminals on the M9104 actuator; 1/4 in. spade terminals on the DPT-2015
Pressure Connection	6 in. (152 mm) length of silicone tubing with barbed fittings for 1/4 in. (6.35 mm) O.D. tubing
Enclosure	NEMA 1, IP30
Ambient Operating Conditions	M9104-AGA-2N: 32 to 125°F (0 to 52°C); 90% RH maximum, non-condensing M9104-AGS-2N: 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)	M9104-AGA-2N: 5.95 x 4.2 x 2.15 in. (151.2 x 107.3 x 54.6 mm) M9104-AGS-2N: 5.95 x 4.2 x 2.32 in. (151.2 x 107.3 x 58.9 mm) with the DPT-2015
Shipping Weight	M9104-AGA-2N: 2.0 lb (0.91 kg) M9104-AGS-2N: 2.2 lb (0.99 kg) with the DPT-2015
Agency Compliance (M9104)	UL 873 Listed, File E27734, CCN XAPX CSA Certified C22.2 No. 139, File LR85083, Class 3221 02 CE Mark, EMC Directive 89/336/EEC