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**M9210-AGx-1 / M9220-AGx-1 Series
ON/OFF and Floating Spring Return Actuators**

Application

The **JOHNSON CONTROLS SPRING RETURN** electric damper-actuator series has been specially developed for the motorized air operation of safety air dampers, (anti-icing) in air conditioning systems, smoke evacuation dampers and sealing dampers.

When the control signal is applied, the actuator drives the damper to the operational position, while evenly tensioning the integrated spring. After a power failure the stored energy in the spring immediately brings the damper to the safety position.

Manual operation is automatically cancelled when the actuator is in electrical operation. The compact design and universal adapter fitted with limitation of rotation angle make this actuator highly versatile.

Features

- ON/OFF and Floating control signal
- Up to 5 actuators in parallel operation possible
- Electrical connection with halogen-free cable
- Simple direct mounting with universal adapter on Ø 12 mm to 19 mm shaft or 10-12-14 mm square shaft.
An optional M9220-600 Jackshaft Coupler Kit is available for 19 to 27 mm round shafts, or 16, 18, and 19 mm square shafts
- 80 mm min shaft length
- Tandem Operation possible
- Limitation of rotation angle
- Manual positioning with crank handle
- 2 auxiliary switches, 1 adjustable
(See back page for settings)
- Automatic shut-off at end position (overload switch)
- Energy saving at end positions
- Actuators available with 1 m halogen-free cable
- Devices meet CE requirements



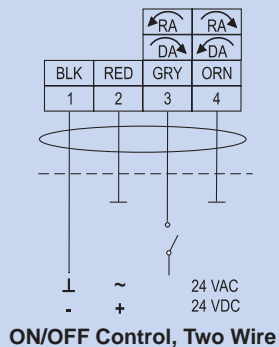
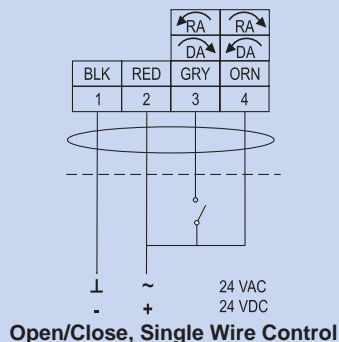
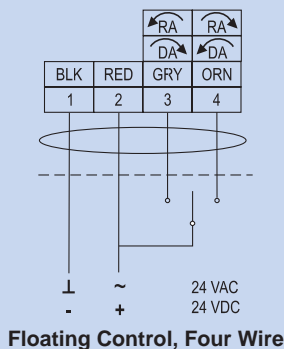
Technical Specifications

Actuator	M9210-AGx-1	M9220-AGx-1
Torque	10 Nm	20 Nm
Damper area*	2.0 m ²	2.0 m ²
Running time Motor	150 s	
Running time Spring return	20 s	
Supply Voltage	AC/DC 24V	
Frequency	50-60 Hz	
Power Consumption		
- Running AC	9.6 VA	15.5 VA
- Running DC	3.9 W	17.6 W
- At end position AC	6.0 VA	7.7 VA
- At end position DC	2.1 W	2.8 W
Dimensioning	15.0 VA	20.0 VA
Weight	2.9 kg	
Control signal	ON/OFF (2-Point) and Floating (3-Point)	
Position signal	None	
Angle of rotation		
- Working range	90°	
- Limitation	0°...30° and 90°...60°	
Auxiliary Switches	3(1.5)A, AC 230 V	
- S1 setting range	10° fix	
- S2 setting range	25°...90° adjustable	
Cable	1.2 m halogen-free	
- Motor	4-wire 1-2-3-4	
- Switches	6-wire 21-22-23-24-25-26	
Lifetime	60'000 Rotations	
Noise level	55 dB (A)	
Protection class	II	
Degree of protection	IP 54	
Mode of action	Type1	
Ambient conditions		
- Operating temperature	-40...+55 °C / IEC 721-3-3	
- Storage temperature	-65...+85 °C / IEC 721-3-2	
- Humidity	5...95% r.F. no condensed	
Service	Maintenance-free	
Standards		
- Mechanics	EN 60 529 / EN 60 730-2-14	
- Electronics	EN 60 730-2-14	
- EMC Emissions	EN 50 081-1:92 / IEC 61000-6-3:96	
- EMC Immunity	EN 50 082-2:95 / IEC 61000-6-2:99	

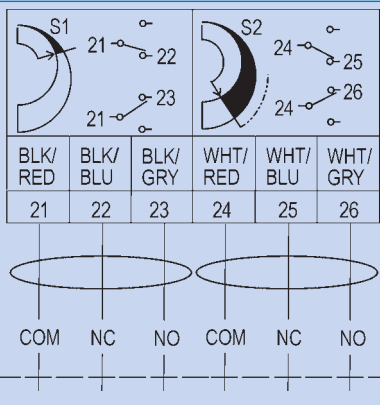
*Caution: Please note damper manufacturer's information concerning the open/close torque.

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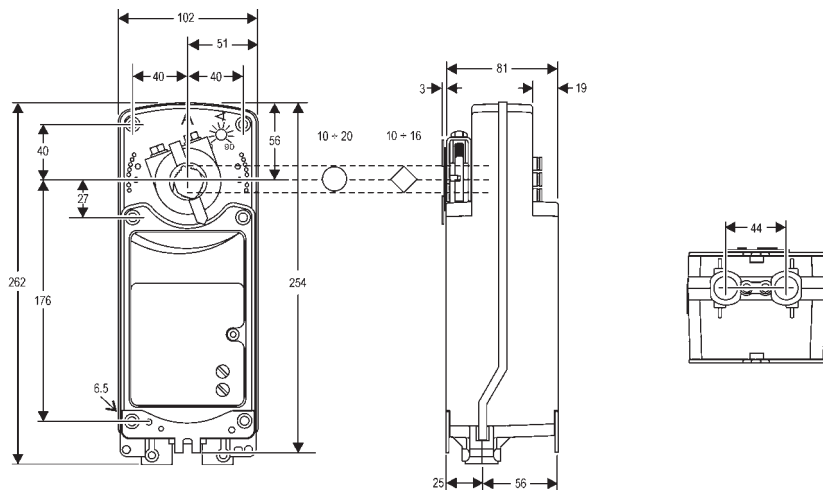
Wiring Diagrams



Auxiliary Switches (S)

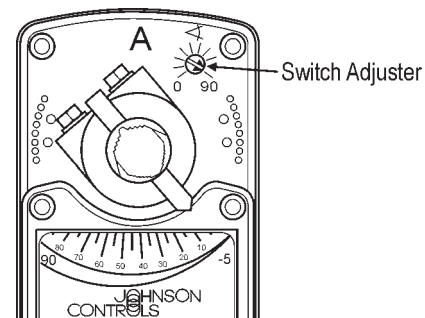


Dimensions in mm



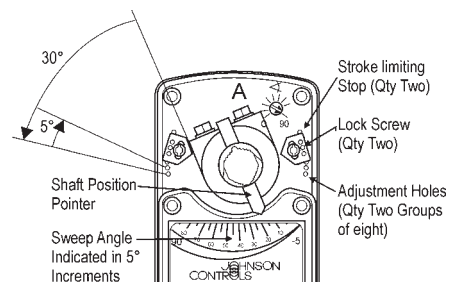
Setting the auxiliary switches

The 10S and 20S models include two integral auxiliary switches with a switch adjuster accessible on either face of the actuator.
The nominal factory setting for auxiliary switch S1 is 11° closing, and the nominal factory setting for auxiliary switch S2 is 81° opening.
The switch point of auxiliary switch S1 is fixed.
The switch point of auxiliary switch S2 is independently and continuously adjustable from 25° to 95°.
The switching position can be manually changed to any required position by turning the ratchet.



Limitation of rotation angle

Determine the desired rotation range.
If a 65° to 90° rotation range is desired, add one stroke limiting stop.
If a 35° to 60° rotation range is desired, add two stroke limiting stops.
Mount the stroke stop(s) in the desired position using the two M4 x10 mm selftapping screws provided. Tighten the screws to a torque of 4 Nm.
Manually reposition the coupler so that the coupler set screw aligns with the nodule guide that corresponds to the value determined in Step 2.
For a rotation range of 65°, mount one stroke limiting stops in the minimum stroke position.



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Ordering Codes

Codes	Descriptions
M9210-AGA-1	10 Nm, AC/DC 24 V
M9210-AGC-1	10 Nm, AC/DC 24 V, with 2 auxiliary switches
M9220-AGA-1	20 Nm, AC/DC 24 V
M9220-AGC-1	20 Nm, AC/DC 24 V, with 2 auxiliary switches

Accessories and Replacement Parts

(Order Separately)

Codes	Descriptions
DMPR-KC003	178 mm Blade Pin Extension (without Bracket) for Johnson Controls® Direct-Mount Damper Applications
M9000-158	Tandem Mounting Kit used to Mount Two Like Models of M9210/M9220 Series On/Off Electric Springback Actuators in Tandem to Deliver Twice the Torque
M9000-200	Commissioning Tool that Provides a Control Signal to Drive 24 V On/Off, Floating, Proportional, and/or Resistive Electric Actuators
M9000-604	Replacement Anti-Rotation Bracket Kit (with Screws) for M9210/M9220 Series On/Off Electric Springback Actuators
M9220-600	25 mm Jackshaft Coupler Kit (with Locking Clip) for Mounting M9210/M9220 Series On/Off Electric Springback Actuators on Dampers with 19 to 27 mm Round Shafts, or 16, 18, and 19 mm Square Shafts
M9220-601	Replacement Coupler Kit (with Locking Clip) for Mounting M9210/M9220 Series On/Off Electric Springback Actuators on Dampers with 12 to 19 mm Round Shafts or 10, 12, and 14 mm Square Shafts
M9220-602	Replacement Locking Clips for M9210/M9220 Series On/Off Electric Springback Actuators (Five per Bag)
M9220-603	Adjustable Stop Kit for M9210/M9220 Series On/Off Electric Springback Actuators
M9220-604	Replacement Manual Override Cranks for M9210/M9220 Series On/Off Electric Springback Actuators (Five per Bag)
M9220-610	Replacement Shaft Gripper, 10 mm Square Shaft with Locking Clip
M9220-612	Replacement Shaft Gripper, 12 mm Square Shaft with Locking Clip
M9220-614	Replacement Shaft Gripper, 14 mm Square Shaft with Locking Clip