



Spring Return 24 VAC/VDC Electronic Actuators, Modulating ES70B2(-S)



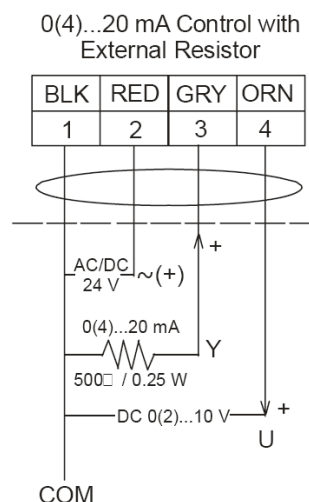
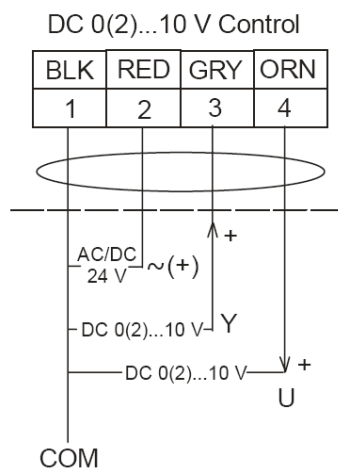
The ES70B2 Series Electric Spring Return Actuators provide control of dampers in Heating, Ventilating, and Air Conditioning (HVAC) systems. All actuators in this series provide 70 lb-in (8 N·m) rated torque. A mechanical spring return system provides rated torque with and without power applied to the actuator. This series is a proportional, 24 V power actuator offering 0(2) to 10 VDC or 0(4) to 20 mA Control Signals.

These actuators are configured for direct mounting and do not require a damper linkage. Actuators can be mounted directly to a damper shaft from 5/16 to 5/8 in. (8 to 16 mm) diameter with a universal clamp. An accessory crankarm and remote mounting kit are available for applications where the actuator cannot be direct-coupled to the damper shaft. Optional line voltage auxiliary switches indicate an end-stop position or perform switching functions within the selected rotation range.

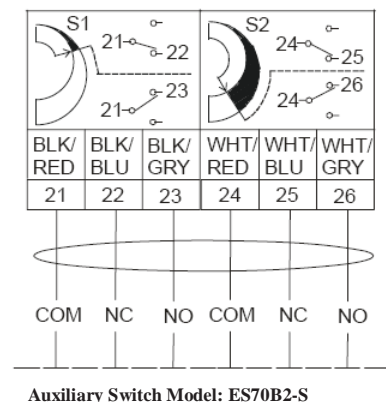
Features

- 70 lb-in. (8 N·m) rated torque
- direct-coupled design
- reversible mounting
- electronic stall detection
- double-insulated construction
- microprocessor-controlled brushless DC motor
- external mode selection switch
- locking manual override with auto release and crank storage
- integral cables with colored and numbered conductors
- integral connectors for 3/8 in. (10 mm) Flexible Metal Conduit (FMC)
- optional integrated auxiliary switches
- UL, CE, and C-Tick compliance
- manufactured under International Standards Organization (ISO) 9001 quality control standards

Wiring Diagrams: ES70B2(-S)



Auxiliary Switches



Auxiliary Switch Model: ES70B2-S



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Technical Data	ES70B2(-S)
Power supply	24 VAC (19.2 to 28.8 VAC) @ 50/60 Hz) or 24 VDC (21.6 V to 28.8 V)
Power Requirements	24 VAC: 7.9 VA Running, 5.5 VA Holding Position, 24 VDC: Class 2, 3.5 W Running, 1.9 W Holding Position
Transformer sizing	8 VA Minimum per actuator Class 2
Electrical connection	48" UL 758 Type AWM Halogen-Free Cable w/ 18 AWG Wire leads with Integral Connectors for 3/8" (10 mm) flexible metal conduit and .25 in. Ferrule Ends
Control signal	Selectable DC 0(2) to 10V or 0(4) to 20 mA with field furnished 500 ohm, 0.25 W minimum resistor; Switch selectable Direct or Reverse Action with Signal Increase
Factory setting	0-10 VDC, CW rotation with increase in signal
Feedback signal	0 (2) to 10 VDC for desired rotation range up to 95° Corresponds to rotation limits, 0.5 mA at 10V Maximum
Input impedance	voltage: 100,000Ω, current: 500Ω w/ field furnished resistor
Switch contact rating (-S option)	two SPDT double insulated 24 VAC, 50 VA pilot duty 120 VAC, 5.8 A resistive, 1/4 hp, 275 VA pilot duty 240 VAC, 5.0 A resistive, 1/4 hp, 275 VA pilot duty
Mechanical connection (shaft size)	5/16" to 5/8" or (8 mm to 16 mm) diameter, round shaft 1/4" tp 1/2" or (6 to 12 mm) square shaft
Angle of rotation	mechanically limited to 95°
Torque	70 in-lbs (8 N-m)
Direction of rotation	Switch Selectable Direct or Reverse Action with Signal Increase
Position indication	clip-on indicator
Running time	150 secs for 0-70 in-lb (8 N-m) Load at all operating conditions, Spring Return: 17 to 25 secs for 0 to 70 in-lb Load, at room temperature
Humidity	0 to 95% RH, non-condensing
Ambient temp./Humidity	-40°F to 140°F (-40°C to 60°C); 0 to 95% RH, max. non-condensing
Storage temp./Humidity	-40°F to 185°F (-40°C to 85°C); 0 to 90% RH, max. non-condensing
Housing type*	NEMA 2, IP54 for All Mounting Directions
Agency listing U.S.	UL Listed, CCN XAPX, File E27734; to UL 60730-1A: 2003-08, Ed. 3.1, Automatic Electrical Controls for Household and Similar Use; and UL 60730-2-14: 2002-02, Ed. 1, Part 2, Particular Requirements for Electric Actuators. (All Models)
Agency listing Canada	UL Listed, CCN XAPX7, File E27734; to UL 60730-1-1:02-CAN/CSA: July 2002, 3rd Ed., Automatic Electrical Controls for Household and Similar Use; and CSA C22.2 No. 24-93 Temperature Indicating and Regulating Equipment (All Models)
Noise level	<52 dBA @ 70 in-lb. (8 N-m) Load, at a distance of 39-13/32 in. (1 m)
Servicing	maintenance free
Dimensions	6.33 x 3.90 x 2.26 in. (160.7 x 99 x 57.5 mm)
Weight	3.43 lbs (1.6 kg) (-S models); 3.8 lbs. (1.7 kg)

Note: * Most commercial assemblies are available with an optional NEMA 4/4X type housing. See applicable data sheet for details.

- for 0(4) to 20 mA a field supplied 500 ohm resistor required.