



Spring Return 24 VAC/VDC Electronic Actuators, Tri-State (Floating) or Two-Position ES70C2(-S)



The ES70 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. The series includes the following control options: On/Off and Floating Point, 24 V power

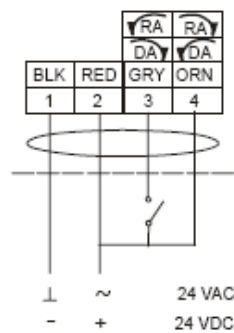
These actuators are configured for direct mounting and do not require a damper linkage. Actuators can be mounted directly to a damper shaft from 5/16 to 5/8 in. (8 to 16 mm) diameter with a universal clamp. A Shaft Coupler Kit is available for shafts up to 3/4 in. (19 mm) diameter. An accessory crankarm 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

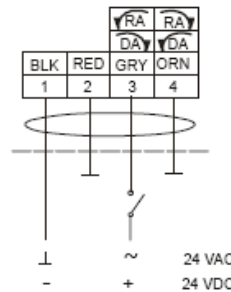
- 70 lb-in. (8 N·m) rated torque
- direct-coupled design
- reversible mounting
- electronic stall detection
- double-insulated construction
- locking manual override with auto release and crank storage
- integral cables with colored and numbered conductors
- integral connectors for 3/8 in. (10 mm) Flexible 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: ES70C2(-S)

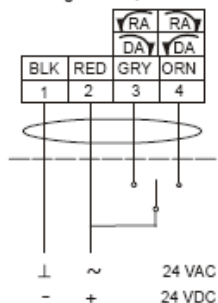
Open/Close, Single Wire Control



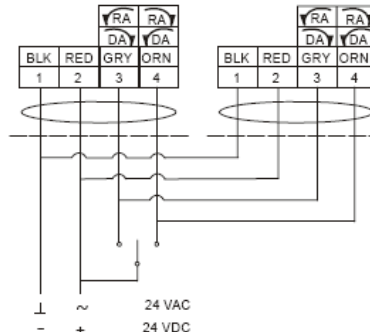
On/Off Control, Two Wire



Floating Control, Four Wire



Floating Control, Multiple Actuators with One Transformer





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Technical Data	ES70C2(-S)
Power supply	24 VAC @ 50/60 Hz or 24 VDC, Class 2
Power Requirements	24 VAC: (19.2V-28.8V) 7.9 VA Running, 5.5 VA Holding Position; 24 VDC: (21.6V-28.8V) 3.5 W Running, 1.9 W Holding Position
Transformer sizing	7 VA per Actuator
Electrical connection	48" UL 758 Type AWM Halogen-Free Cable w/ 18 AWG Conductors and .25 in. Ferrule Ends
Control signal	Tri-State or 2-Position
Switch contact rating (-S option)	two SPDT, double insulated switches with gold over silver contacts; rated @ 24 VAC, 50 VA pilot duty 120 VAC, 5.8 Resistive, 1/4 hp, 275 VA Pilot Duty 240 VAC, 5.0 A Resistive, 1/4 hp, 275 VA Pilot Duty
Conduit Connections	Integral Connectors for 3/8 in. (10 mm) Flexible Metal Conduit
Mechanical connection (shaft size)	5/16" to 5/8" (8 to 16 mm) diameter round shaft, or 1/4" and 1/2" (6 to 12mm) square shafts.
Angle of rotation	Maximum Full Stroke: 95°, Adjustable Stop: 35° to 95°, Maximum Position
Torque	70 in-lbs (8 N-m)
Direction of rotation	Direction is Selectable with Mounting Position of Actuator
Position indication	clip-on indicator
Manual override	Locking manual override with auto release and crank storage
Running time Power On (Running)	150 Seconds Constant for 0 - 70 in-lbs (8 N-m) Load, at all Operating Conditions
Running time Power Off (Spring Returning)	17 to 25 Seconds for 0-70 in-lb (0 to 8 N-m) at room temp.; 94 Seconds Max. for 0 to 70 in-lb (0-8 N-m) at -4°F (-20°C); 22 Seconds Nominal at Full Rated Load
Ambient Conditions	Operating: -4 to 140°F (-20 to 60°C); 90% RH Maximum, Noncondensing Storage: -40 to 185°F (-40 to 85°C); 90% RH Maximum, Noncondensing
Housing type*	NEMA 2 / IP54
Agency listings 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 listings 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)
Audible Noise Rating	Power On (running): <35 dBA at 70 in-lbs (8 N-m) Load, at a Distance of 39- 13/32 in. (1 m)
	Power On (Holding): <20 dBA at a Distance of 39-13/32 in. (1 m)
	Power Off (Spring Returning): <52 dBA at 70 in-lbs (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.; 3.8 lbs with switches

Notes:

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