



Spring Return Rotary Electronic Actuator 24 VAC/VDC, Modulating ES177B2(-ZS)(-S)



Applications

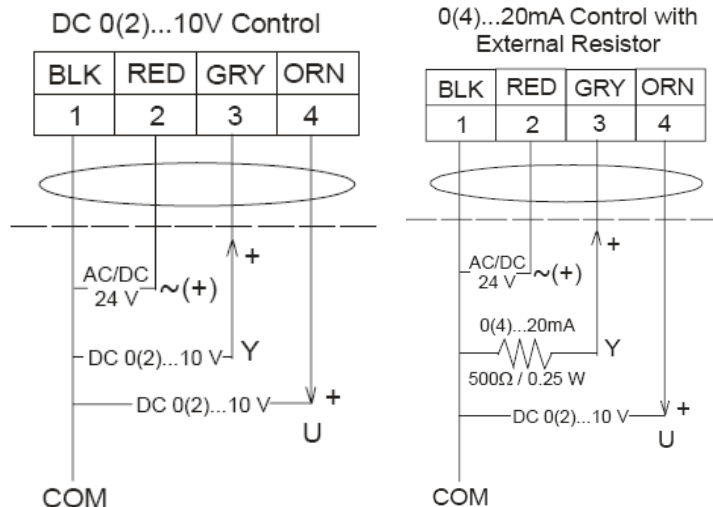
The ES177B2(-ZS)(-S) Proportional Electric Actuators are direct-mount, spring return electric actuators that operate on AC/DC 24V power. These bidirectional actuators do not require a damper linkage, and are easily installed on dampers with 1/2 to 3/4 in. or 12 to 19 mm round shafts, or 3/8 and 1/2 in. or 10, 12, and 14 mm square shafts using the standard shaft clamp included with the actuator. An optional Jackshaft Coupler Kit is available for 3/4 to 1-1/16 in. or 19 to 27 mm round shafts, or 5/8 and 3/4 in. or 16, 18, and 19 mm square shafts.

Torque Minimum: a single ES177B2(-ZS)(-S): 177 in-lb; two ES177B2(-ZS)(-S): 354 in-lb.

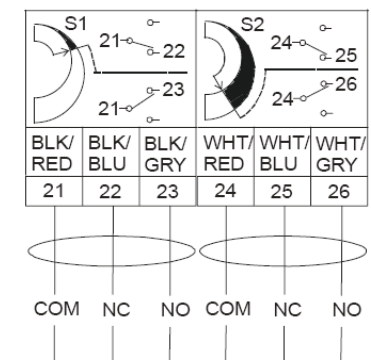
Integral line voltage auxiliary switches are available on the (-S) models to indicate end-stop position or to perform switching functions within the selected rotation range.

Wiring Diagrams:

Models: ES177B2(-ZS)(-S)



Auxiliary Switches



Auxiliary Switch Models: ES177B2-S and ES177B2-ZS-S.

Notes:

- For 0(4) to 20 mA, a field supplied 500 ohm resistor required .
- ES177B2 models are not designed for 4-20mA tandem mount.



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Technical Data	ES177B2(-ZS)(-S)
Power supply	24 VAC (19.2 to 30 VAC @ 50/60 Hz) or 24 VDC (21.6 V to 26.4 V)
Power Requirements	24 VAC: 15.5 VA Running, 7.7 VA Holding Position, 24 VDC: Class 2, 6.7 W Running, 2.9 W Holding Position
Transformer sizing	20 VA Minimum per actuator
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
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 (-ZS) model: Selectable DC 0 to 10V or 0 to 20 mA with field furnished 500 ohm, 0.25 W minimum resistor; Start point programmable DC 0 to 10V; Span programmable DC 2 to 10V; 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 90° Corresponds to rotation limits, 1 mA maximum (-ZS) model: 0 to 10 VDC for desired rotation range up to 90° Corresponds to rotation limits, 1 mA maximum
Input impedance	voltage: 200,000Ω, current input: 500 ohms w/ field furnished 500 ohm resistor
Switch contact rating (-S option)	two SPDT double insulated with gold flash contacts: 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)	1/2" to 3/4" or (12 mm to 19 mm) diameter, round shaft or 3/8" to 1/2" or (10, 12 and 14 mm) square shaft
Angle of rotation	mechanically limited to 90°, adjustable from 30 to 90° CW or CCW with optional adjustable stop kit.
Torque	177 in-lbs (20 N-m) for single actuator 354 in-lbs (40 N-m) for two actuators, mounted in tandem
Spring Return	Direction is selectable with Mounting Position of Actuator: Side A, Actuator face away from damper for CCW spring return; Side B, Actuator face away from damper for CW spring return
Running time	150 secs for 0-177 in-lb (20 N-m) at all operating conditions; independent of load, Spring Return: 20 secs for 0 to 177 in-lb (0 to 20 N-m) at room temperature
Tandem Mount	Available for 0(2)-10 VDC, Unavailable for (0)4-20 mA
Ambient temperature/Humidity	-40°F to 131°F (-40°C to 55°C); 90% RH Maximum, Noncondensing
Storage temperature/Humidity	-85°F to 185°F (-65°C to 85°C); 95% RH Maximum, Noncondensing
Cycles	60,000 full stroke cycles; 1,500,000 repositions
Aluminum Enclosure	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).
Audible Noise Rating	Power on (running): <66 dBA at 39-13/32 in. (1 m); Power on (holding): <18 dBA at 39-13/32 in. (1 m); Power off (spring returning): <66 dBA @ 39-13/32 in. (1 m)
Servicing	maintenance free

Notes:

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