



Non-Spring Return Electronic Actuators 24 VAC Modulating Control (44 & 88 in-lb) EN44B2(-S), EN44B2-ZS(-S), EN88B2(-S) & EN88B2-ZS(-S)



Description

The EN44B2(-S), EN44B2-ZS(-S), EN88B2(-S) and EN88B2-ZS(-S) direct coupled 24 VAC non-spring return rotary electronic actuators are designed for modulating control of dampers or valves.

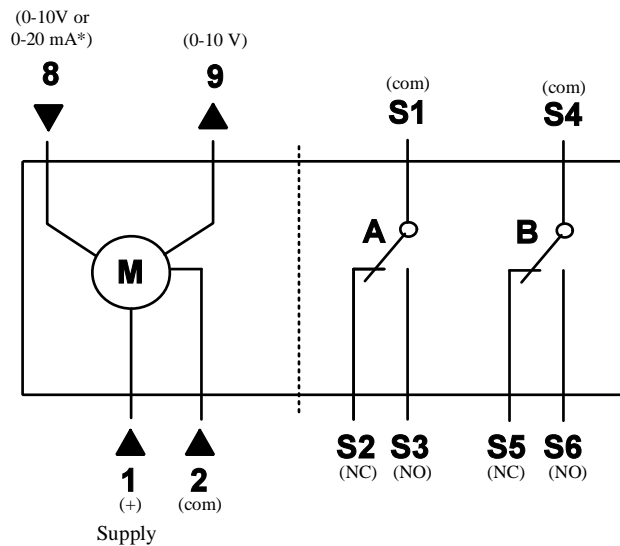
Features

- Compact, lightweight design
- Self-adapting capability for maximum flexibility in damper positioning
- Manual override
- Offset and slope adjustment models available ("-ZS" option)
- Independently adjustable dual auxiliary switches available ("-S" option)
- UL, CSA approved; CE rated

Application

These actuators are used in constant or variable air volume installations for control of HVAC dampers or valves requiring up to 44 in-lb (5 N-m) or 88 in-lb (10 N-m) of torque.

Wiring



Actuator Part Number Table

Torque	Input Signal	Cabling	24 VAC Operating Voltage			
			Standard	Span/Offset Adjustable	Dual Aux. Switches and Slope/Offset Adjustable	Dual Auxiliary Switches Only
44 in-lb (5 N-m)	0-10 VDC 0-20 mA *	Plenum Cable	EN44B2	EN44B2-ZS	EN44B2-ZS-S	EN44B2-S
88 in-lb (10 N-m)	0-10 VDC 0-20 mA *	Plenum Cable	EN88B2	EN88B2-ZS	EN88B2-ZS-S	EN88B2-S

Notes:

- * 0-20 mA requires 500 Ω (1 %, 1/4 W) resistor across pins 2 and 8.
- "-ZS" versions can be calibrated to 4-20 mA.



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Technical Data	EN44B2(-S), EN44B2-ZS(-S)	EN88B2(-S), EN88B2-ZS(-S)
Power supply	24 VAC +20%, -15%, 50/60 Hz	
Transformer sizing	3.3 VA (class 2 power source req. for UL; class III per EN60730)	
Electrical connection	3 ft 18 AWG plenum cable	
Control signal "Y"	0-10 VDC, 0-20 mA†	
Input resistance	100 Kohm VDC	
Operating range	0-10 VDC, 0-20 mA†	
Feedback signal "U"	0-10 VDC, 1 mA Max	
Angle of rotation	0° to 95°, adj. stops	
Torque at rated voltage	44 in-lb (5 N-m)	88 in-lb (10 N-m)
Direction of rotation	reversible w/dip switch factory setting is clockwise, with direct acting feedback signal	
Position indication	clip on indicator	
Shaft size	3/8" to 5/8" (8 mm to 16 mm) round 1/4" to 1/2" (6 mm to 12.7 mm) square 9/16" (15 mm) hex	
Minimum shaft length	3/4" (20 mm)	
Auxiliary features – Control signal adjustment (-ZS option): – Offset (start point) – Slope – Auxiliary switches (-S option)	0 to 5 VDC	
	2 to 30 VDC	
	plenum: 4 A resistive, 24 VAC plenum: 2 A inductive, 24 VAC	
Switch range (-S option)* – Switch A – Recommended range usage – Factory setting – Switching hysteresis	0° to 90° with 5° intervals	
	0° to 45°	
	5°	
	2°	
Switch range (-S option)* – Switch B – Recommended range usage – Factory setting – Switching hysteresis	0° to 90° with 5° intervals	
	45° to 90°	
	85°	
	2°	
Running time	90 secs at 60 Hz (108 secs at 50 Hz)	125 secs at 60 Hz (150 secs at 50 Hz)
Humidity	95% RH noncondensing	
Housing type**	NEMA type 2/IP54 according to EN60529	
Housing material	Durable plastic	
Ambient temperature	-22°F to 130°F (-30°C to 55°C)	
Storage temperature	-22°F to 140°F (-30°C to 60°C)	
Noise level	<35 dBA	
Servicing	maintenance free	
Agency ratings	UL 873 listed, CE-UL certified to CSA C22.2 No. 24-93	
CE conformity***	Electromagnetic Compatibility (EMC): 89/336/EEC Emissions standards: EN50081-1 Immunity standards: EN50082-2	
Quality standard	ISO 9002	
Weight	1.06 lbs (0.48 kg)	

Notes:

† Add 500 Ω (1 %, 1/4 W) resistor across pins 2 & 8 for 0-20 mA signal.

! * SWITCH WARNING: Apply only main voltage or only safety extra-low voltage (SELV) to switching outputs of auxiliary switches A and B. Mixed operation is not permissible.

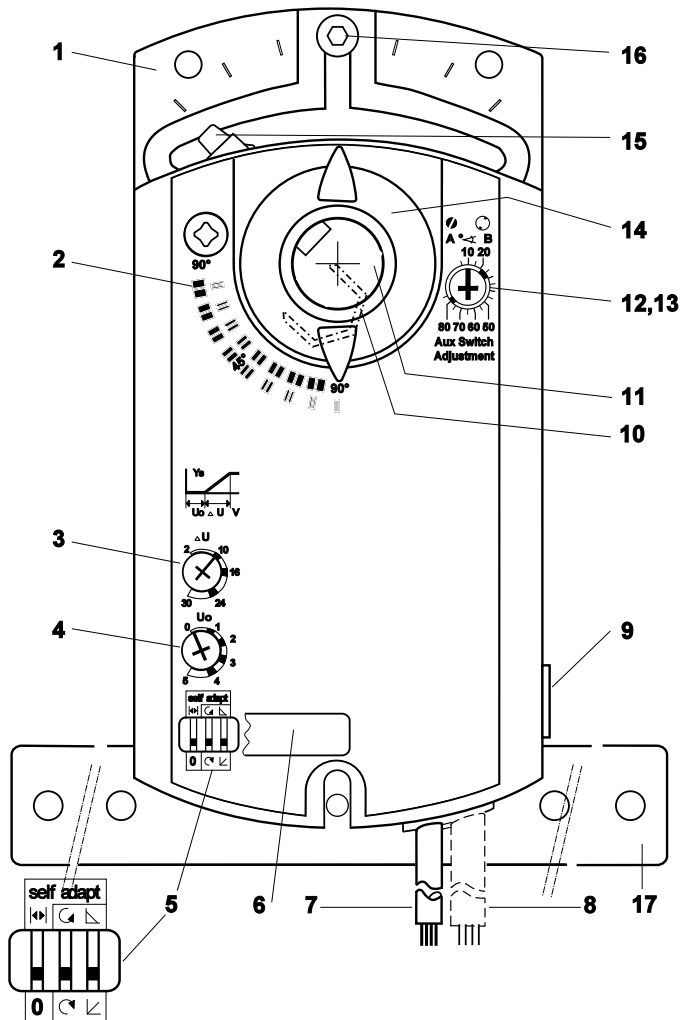
** DEI has optional NEMA 4/4X type housings for these actuators. Call DEI for information.

! *** CE WARNING: All wiring of these actuators must be safety extra-low voltage (SELV/PELV) in accordance with EN60730.



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Actuator Components



Legend

1. Base plate
2. Positioning scale for angle of rotation
3. Slope adjustment ("-ZS" version)
4. Offset (start point) adjustment ("-ZS" version)
5. DIP switches
6. Cover for DIP switches
7. Connection cables
8. Connection cables ("-S" option)
9. Manual override
10. Coupling bushing
11. Centering element for EN44 and (EN88 shaft diam. 8 mm to 10 mm)
12. Auxiliary switch A ("-S" option)
13. Auxiliary switch B ("-S" option)
14. Position indicator
15. Adjustment lever with locking screw
16. Adjusting screw for mechanical range stop
17. Mounting bracket

Operation

A continuous 0 to 10 VDC signal from a controller to wire 8 (Y) operates the actuator. The angle of rotation is proportional to the control signal. A 0 to 10 VDC position feedback output signal is available between wires 9 (U) and wire 2 (com) to monitor the position of the motor.

In the event of a power failure the actuator holds its position. In the event only the control signal is lost, the actuator returns to the "0" position.

Note:

- For wiring, switch and zero/span adjustments, refer to Type A - EN44, EN88 Installation Instructions.