

CLARK SOLUTIONS

EN44 & EN88 Non-Spring Return Electric Actuators

On/Off, Tri-State, & Modulating, 44 & 88 in-lb

The EN44C2 and EN88C2 direct coupled 24 VAC non-spring return rotary electronic actuators are designed for tri-state (floating) control or two-position control (with external relay) of valves and dampers. They may be used in applications requiring up to 44 in-lb (5 N-m) of torque or 88 in-lb (10 N-m) of torque.

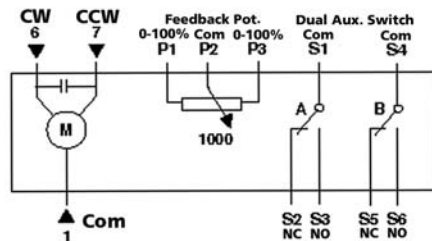
Models EN44B2 and EN88B2 direct coupled 24 VAC non-spring return rotary electronic actuators are designed for modulating control of dampers or valves. They may be used in applications requiring up to 44 in-lb (5 N-m) of torque or 88 in-lb (10 N-m) of torque.



WIRING & COMPONENTS

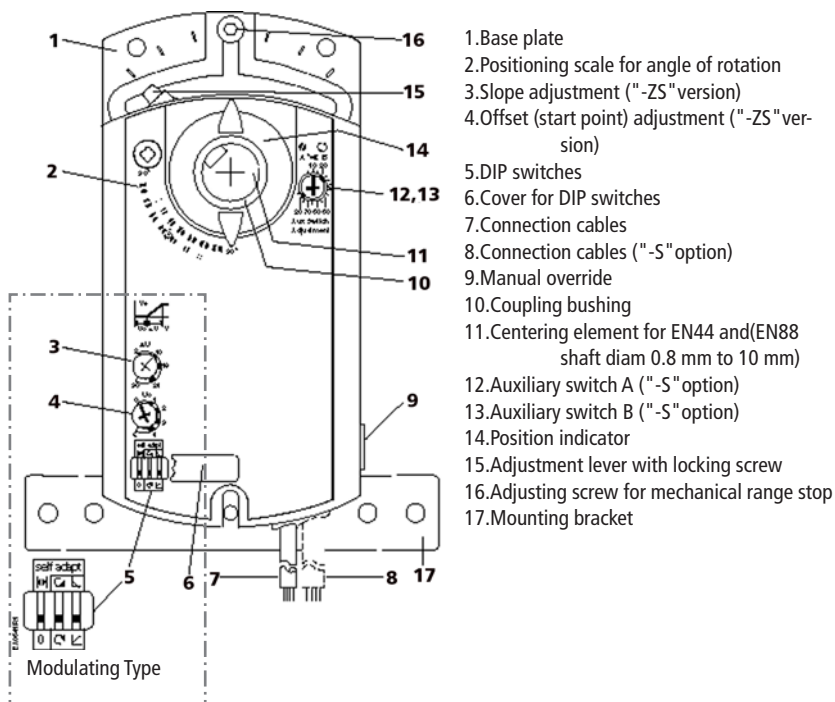
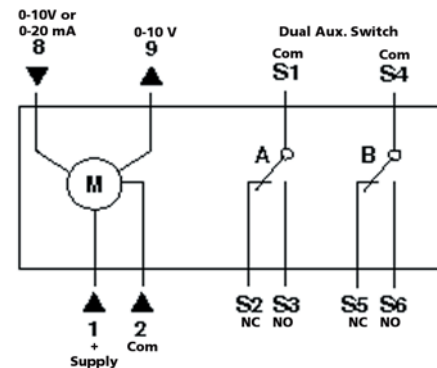
Two Position or Tri-State Control

(ENxx-C2)



Modulating Control

(ENxxB2)



OPERATION

Two Position or Tri-state: A floating control signal controls the actuator. The actuator's angle of rotation is proportional to the length of time the signal is applied. A 24 VAC control signal to wire 6 causes the actuator coupling to rotate clockwise. A 24 VAC control signal to wire 7 causes the actuator coupling to rotate counterclockwise. In the event of a power failure, or with no control voltage, the actuator holds its current position.

An improperly-tuned control loop will cause excessive repositioning that will shorten the life of the actuator.

Modulating Type: A continuous 0 to 10 VDC signal from a controller to wire 8 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 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.

Actuator Part Number Table							
Torque	Input Signal	Cabling	24 VAC Operating Voltage				
			Standard	With Potentiometer	Dual Auxiliary Switches only	Span/Offset Adjustable	Dual Aux. Switches and Span/Offset Adjustable
44 in-lb min. (5 N-m)	Tri-state or two-position	Plenum Cabling	EN44C2	EN44C2-P	EN44C2-S	-	-
44 in-lb min. (5 N-m)	Tri-state or two-position	Non-plenum Cabling	EN44C2-NP	-	-	-	-
88 in-lb min. (10 N-m)	Tri-state or two-position	Plenum Cabling	EN88C2	EN88C2-P	EN88C2-S	-	-
44 in-lb min. (5 N-m)	0-10 VDC 0-20 mA	Plenum Cabling	EN44B2	-	EN44B2-S	EN44B2-ZS	EN44B2-ZS-S
88 in-lb min. (10 N-m)	0-10 VDC 0-20 mA	Plenum Cabling	EN88B2	-	EN-88B2-S	EN88B2-ZS	EN88B2-ZS-S

Specifications	EN44C2-NP, EN44C(S,P)	EN88C2(S,P)	EN44B2(S, EN44B2-ZS(S)	EN88B2(S), EN88B2-ZS(S)
Power supply	24 VAC +20%, -15% 50/60 Hz			
Transformer sizing	2.3 VA (class 2 power source req. for UL)		3.3 VA (class 2 power source req. for UL, class III per EN60730))	
Electrical connection	(-NP) Non-Plenum cable Standard: 3 ft plenum rated cable; conduit connector optional		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	-	-	0-10 VDC, 1 mA Max	
Angle of rotation	0-95°, adj. stops		0° to 95°, adj. stops	
Torque at rated voltage	44 in-lb min. (5 N-m)	88 in-lb min. (10 N-m)	44 in-lb min. (5 N-m)	88 in-lb min. (10 N-m)
Direction of rotation	reversible with wiring		reversible w/dip switch factory setting is clockwise, with position 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	0 to 1000 Ohms, <10 mA			
-Feedback potentiometer (-P option)	plenum: 4 A resistive, 24 VAC			
-Auxiliary switches (-S option)	plenum: 2 A inductive, 24 VAC			
-Control Signal Adjustment (ZS option)				
-Offset (start point)	-		0-5 VDC	
-Slope	-		2-30VDC	
Switch range (-S option)	0° to 90° with 5° intervals			
- Switch A	0° to 45°			
- Recommended range usage	5°			
- Factory setting	2°			
- Switching hysteresis	2°			
Switch range (-S option)	0° to 90° with 5° intervals			
- Switch B	45° to 90°			
- Recommended range usage	85°			
- Factory setting	2°			
- Switching hysteresis	2°			
Running time	90 secs at 60 Hz (108 secs at 50 Hz)	125 secs at 60 Hz (155 secs at 50 Hz)	90 secs at 60 Hz (108 secs at 50 Hz)	125 secs at 60 Hz (155 secs at 50 Hz)
Humidity	95% RH noncondensing			
Housing type	NEMA type 2/IP54 according to EN60529; NEMA 4/4X housings available on request			
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)			