

FLowsERVE



Automax Valve Automation Systems
Electric Rotary Actuators



Flow Control Division Automax Valve Automation Systems



Flowserve is the World's Premier Provider of flow management services. Flowserve manufactures Automax Valve Automation Systems to provide full service valve and damper automation to the worldwide oil and gas, pulp and paper, chemical, processing and energy related industries. We provide maximum value to the end user through a broad offering of products, services, application engineering and our systematic approach to automation.

Sales and service facilities are strategically located in industrial centers throughout the world.

Automax Valve Automation Systems Provo, Utah and Cookeville, Tennessee

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Electric Actuator Production



*From Stock
Next Day Delivery*

When Productivity Counts

Automax electric actuators are the first choice of plant superintendents and maintenance personnel the world over. In hostile environments where only the best will do and working conditions where safety, durability and ease of operation are not only required, but are essential.

Automax CENTURA Series actuators have proven themselves tough and reliable in oil and gas, pulp and paper, chemical processing and metal producing industries, to name a few.

Dependable CENTURA Series electric rotary actuators are the result of Automax's proven technologies and quality manufacturing processes. The Centura Series is ideal for On/Off and modulating services, and for use with any quarter turn valve. Models range in output torques from 100 to 3500 inch pounds.

Automax CENTURA • Tough • Dependable • Safe !

CENTURA CE Series

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Centura CE Series

The Centura CE electric rotary actuator is available with output torques from 250 to 1500 inch-pounds, ideal for use in a wide range of industrial applications. The CE Series is UL listed and CSA Approved for NEMA 4, 4x, 7, 9 and is available with an optional ESP3 controller card for modulating service.

CENTURA CPL Series

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Centura CPL Series

The Centura CPL Series electric rotary actuator is available with output torques of 100 and 225 inch-pounds. It is an excellent choice for small ball valves and butterfly valves. The corrosion resistant Zytel housing is CSA approved for NEMA 4 and 4x.

CENTURA "E" Series

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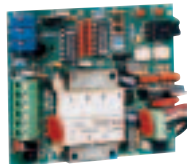


Centura "E" Series

The "E" Series electric rotary actuator is available with output torques of 1500 and 3500 inch-pounds. "E" Series actuators are designed to meet NEMA 4 and 4X requirements. Options available include heaters, handwheels and ESP3 controller card for modulating applications.

CENTURA ESP3 Card

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Centura ESP3 Modulating Card

When used in conjunction with Automax electric actuators, the ESP card provides valve positioning in response to variable signals generated by process control devices. The ESP3 card is designed to fit easily inside all "CE" and "E" series housings, and can also be supplied in a NEMA 4 or NEMA 7 enclosure for use with other Automax actuators.

Control Boxes

Page 11

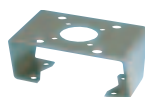


Control Boxes

Control Boxes provide various local control options for local/remote, Open-Off-Close or jogging for manual operation.

AutoBrakits

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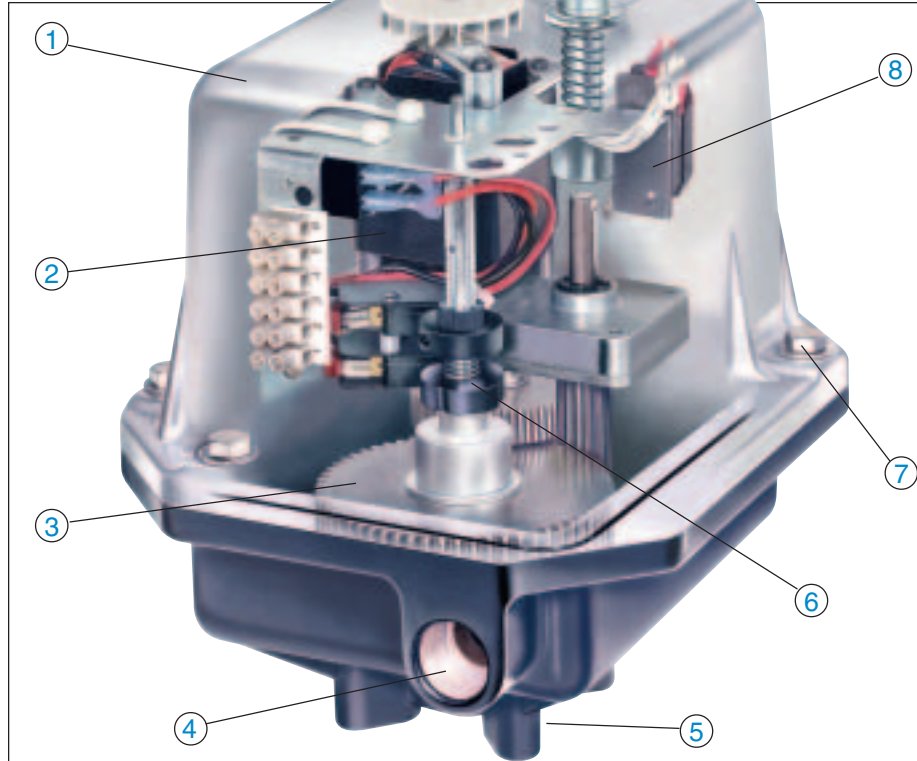
AutoBrakits

Automax custom mounting hardware packages permit mounting adaption to most valves and dampers.

CENTURA CE Series

The Automax CE Series electric rotary actuators are ideal for heavy duty applications where failure is not an option. Watertight and explosion proof, the CE's electrostatic powder coated, die cast aluminum housing resists attack by corrosives and meets all NEMA 4, 4x, 7 and 9 standards. The Centura CE's precision cut, hardened steel gears transmit a maximum of 1500 inch-pounds of torque from its powerful gearmotor, providing safe, accurate control of valves and dampers. Simple to mount and easy to adjust, Centura CE actuators can also be fitted with Automax ESP servo positioners to give positive, modulating control.

Centura CE
Electric Rotary Actuators.
The Dependable Ones.



1. NEMA 4, 4X, 7, 9 Design. The housing of the Automax CENTURA CE Series Actuator is both explosion proof and weatherproof. The aluminum die-cast housing is electro-static polyester powder coated for superior corrosion resistance.

2. Motor. The CENTURA CE Series Rotary Actuator contains a rugged, single phase permanent split capacitor gearmotor. The AC motor contains an automatically resetting thermal cut-out. An extended duty version of the gearmotor is also available for modulating applications.

3. Massive Gear Train. All models contain a permanently lubricated, precision cut, heat treated alloy steel gear train for a long, reliable cycle life and are designed to withstand motor stall torque.

4. 3/4 NPT Conduits. One 3/4-14 NPT conduit connection is supplied as standard, however an additional conduit connection is available.

5. Simple Mounting Arrangements. Standard mounting is interchangeable with the Automax SuperNova SNA100. Additional mounting pads and shafts including a 70mm ISO bolt circle are available on request.

6. Quickset Cams. Travel limit switch cams are extra wide, spring loaded and splined so that the Open/Close positions can be quickly set without special tooling. The cams also contain a micro adjust screw for very precise applications.

7. Captive Cover Bolts. The cover contains 8 stainless steel captive cover bolts to prevent loss of bolts when the cover is removed.

8. Electrical Cut-Off Switch. An automatic electrical cut-off switch is provided to prevent electrical operation while the manual override is engaged.

9. Heavy Duty Brake. An optional heavy duty positive latching brake is available for rubberlined butterfly and damper applications. The brake is declutched during manual operation and is continuous duty rated during electrical operation.

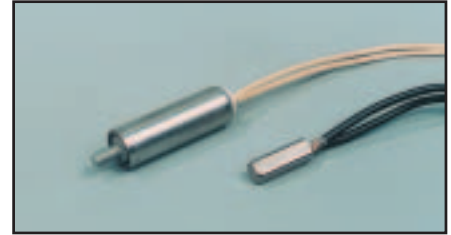
Options



Manual Override Handwheel



Heavy Duty Brake for Dampers and Rubber Lined Valves



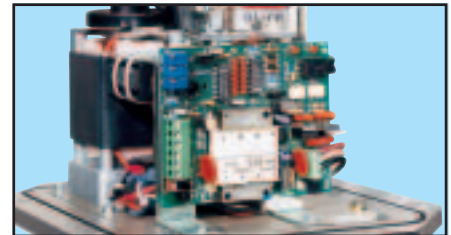
Heater & Thermostat To Eliminate Condensation



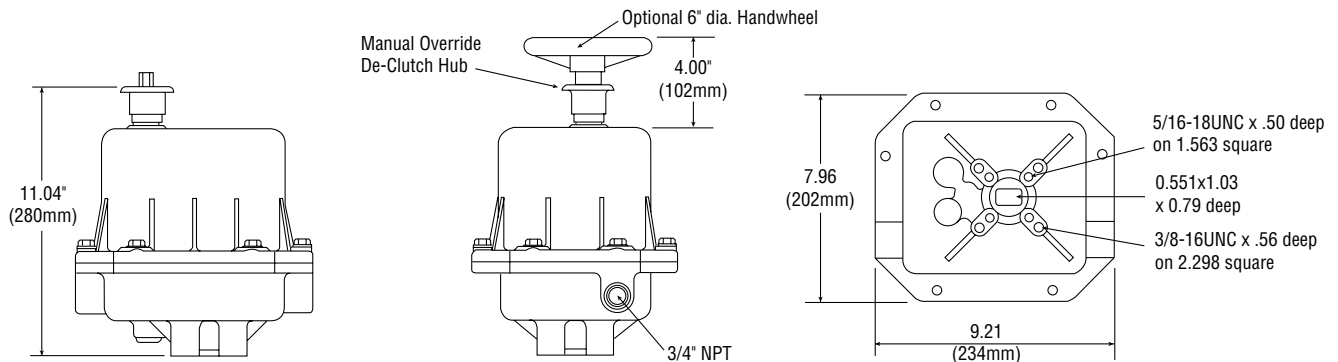
Auxiliary Switches for Remote Position Feedback



Pharos Visual Position Indicator



ESP3 Modulating Option

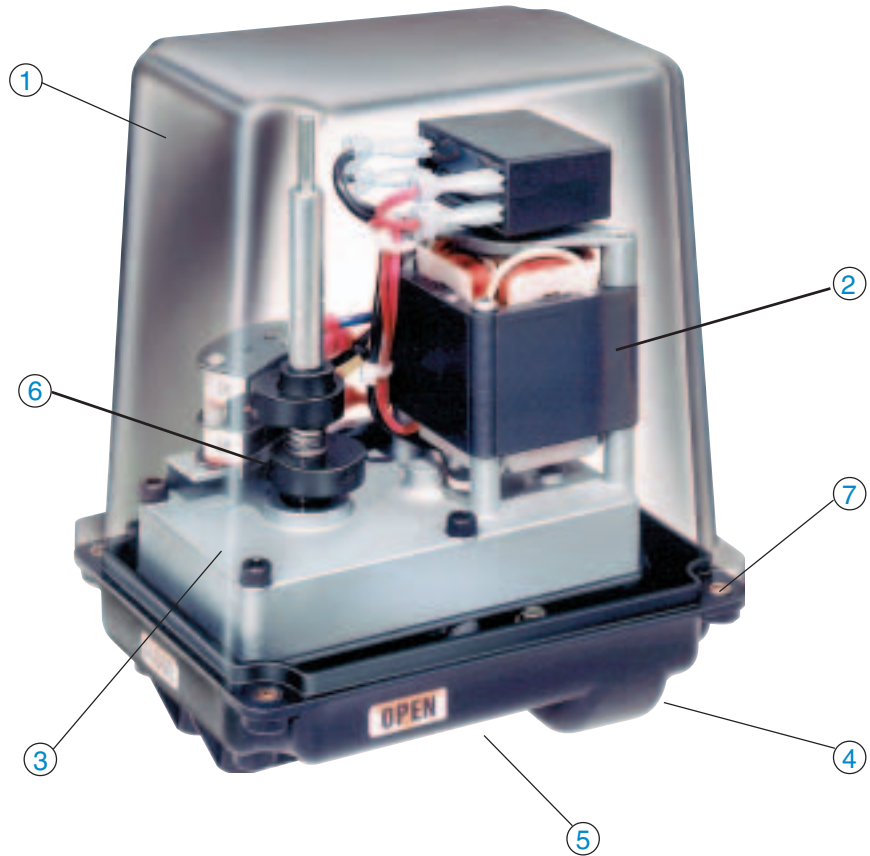


How to Order (Select from each column)

Valve Interface Mounting		Output Torque in-lbs (N-m)		Supply Voltage		Switches		Positioning		Other Options	
CE	UNC Tread	2	250 (28)	-	115Vac 50/60 intermittent duty	1	One extra (dry contact)	Input Control		X	1(2) 3/4NPT Connections
CI7	ISO F07	4	400 (45)	A	115Vac 50/60 extended duty	2	Two extra	TA	ESP3 Electronic Positioner (4/20mA, 0-10V, etc.)	X21	(2) Pg 21 Connections
CI5	ISO F05	7	700 (79)	B	12VDC	3	Three extra	TT	ESP3 with TX option	E	Food Grade
		1	1000 (113)	C	24VDC	4	Four extra	TB	0-135 Ohm ESP3	Z	White Epoxy Coating
		5	1500 (169)	D	230Vac 50/60 intermittent duty	5	Dribble Control Three Position	DC	DC Motor Speed & Torque Controller	H	Heater & Thermostat
				F	230Vac 50/60 extended duty			DS	Low Power DC Controller	G	Breather & Drain
				J	24Vac			Output Signal		P	Pharos Indicator
								TX	4-20mA Transmitter	R	Heavy Duty Brake
								P1	0-135 Ohm Potentiometer	Two Wire Relay Control	
								P2	0-1K Ohm Potentiometer	R	CW Relay
								P3	0-5K Ohm Potentiometer	S	CCW Relay
								P4	0-10 Ohm Potentiometer		

CENTURA CPL Series

The Centura CPL electric actuator is the specifier's choice for reliable, trouble free control of small ball and butterfly valves. Centura CPL actuators with their quick-set cams are characterized by ease of setup and adjustment, and by their ability to resist attack in harsh corrosive environments, such as those found in chemical plants and pulp and paper operations. The CPL Series also incorporates automatic resetting thermal protection to prevent motor overload.



- 1. Corrosion Resistant Housing.** Reinforced Zytel enclosure. Unique Labyrinth cover design with O-ring ensures a tight seal.
- 2. Motor.** The CPL Series contains a rugged, single phase, permanent split capacitor gearmotor. Available in 115VAC, 230 VAC and 24 VDC, consult factory for other options. The AC motors contain an automatically resetting thermal cut-out.
- 3. Gear Train.** Enclosed, permanently lubricated, hardened steel gear trains providing 100 inch-lbs. (CPL1) and 225 inch-lbs. (CPL2) of torque means zero maintenance of moving parts over the CPL's useful life.
- 4. 3/4 NPT Conduit Entry.** One 3/4-14 NPT conduit connection is supplied as standard.
- 5. Simple Mounting Arrangements.** Standard mounting includes nickel plated brass threaded inserts. The mounting pattern is interchangeable with the Automax SuperNova SNA050.
- 6. Quickset Cams.** Travel limit switch cams are extra wide, spring loaded and splined so that the Open/Close positions can be quickly set without special tooling. The cams also contain a micro adjust screw for very precise applications.
- 7. Captive Cover Bolts.** The cover contains 4 stainless steel captive cover bolts to prevent loss of bolts when the cover is removed.

Options



Heater and Thermostat to Eliminate Condensation



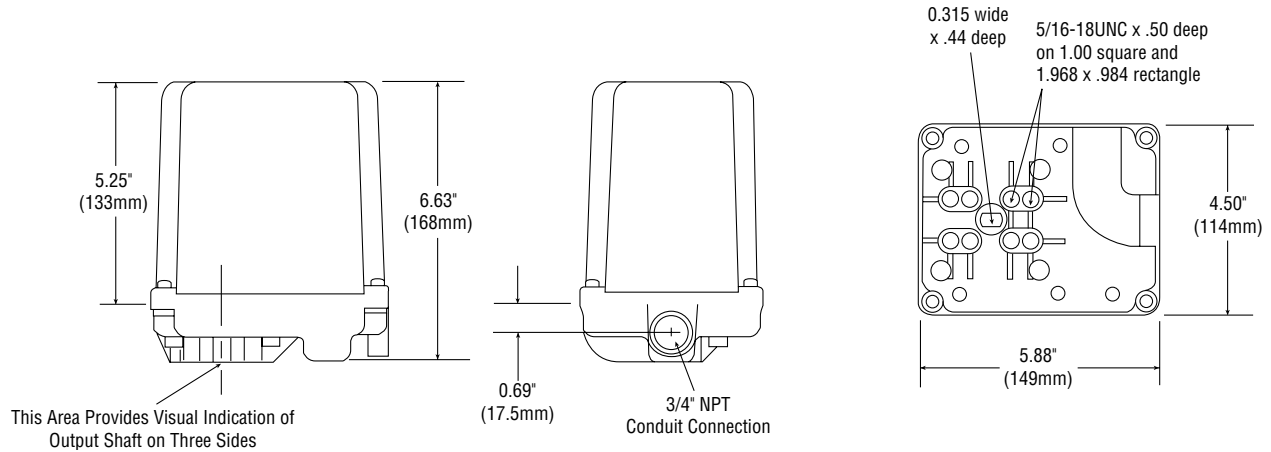
Auxiliary Switches for Position Feedback



DC Motor



ESP3 Modulating Option

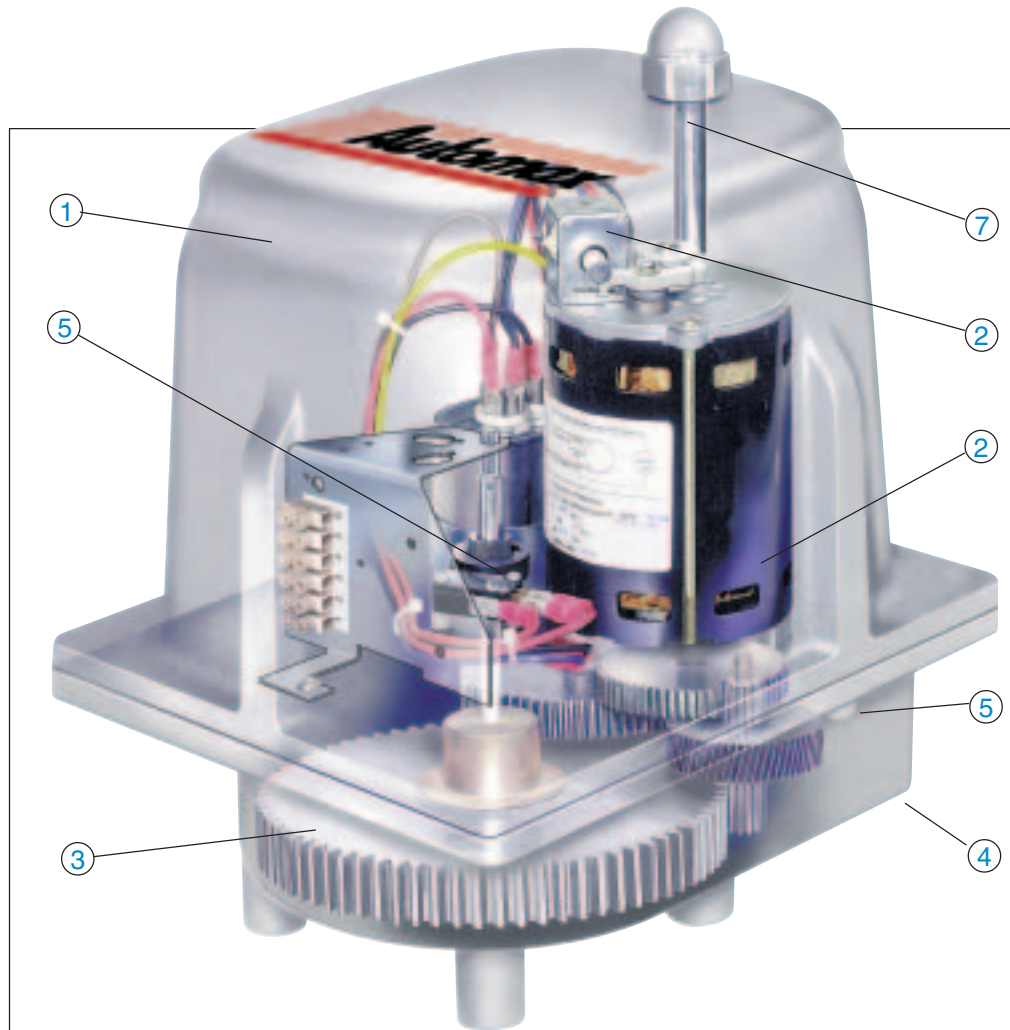


How to Order (Select from each column)

Valve Interface		Output Torque in-lbs (N-m)		Supply Voltage	Switches	Positioning	Other Options
CPL	UNC Thread	1	100 11	Blank 115VAC 50/60	1 One extra (dry contact)	Input Signal TA 4-20mA ESP3 TT 4-20mA ESP3 with TX TB 0-135 Ohm ESP3	H 25W Heater/Thermostat G Breather & Drain
CPI	ISO F04	2	225 25	B 12VDC C 24VDC D 230VAC 50/60 J 24VAC	2 Two extra 5 Dribble Control Three Position	Output Signal TX 4-20mA transmitter P1 0-135 Ohm Potentiometer P2 0-1K Ohm Potentiometer P3 0-5K Ohm Potentiometer P4 0-10 Ohm Potentiometer P5 0-10 Ohm Potentiometer P6 0-1K, 0-10K Dual Potentiometer	Two Wire Relay Control R 115VAC CW S 115VAC CCW T 24VDC CW

CENTURA “E” Series

The Automax “E” Series electric rotary valve actuators are ideal for larger torque applications where flows must be controlled with accuracy and dependability. The two standard “E” Series actuators boast of 1500 and 3500 inch-pounds of torque. All “E” Series actuators are designed to provide maximum performance in a very compact package, thus providing complete control of quarter turn valves, dampers and other rotary devices. “E” Series electric actuators offer a permanently lubricated, sealed gear train, which protects against the disabling effects of moisture, corrosion and breakage. Long life and dependability are designed into every Automax “E” Series electric actuator.

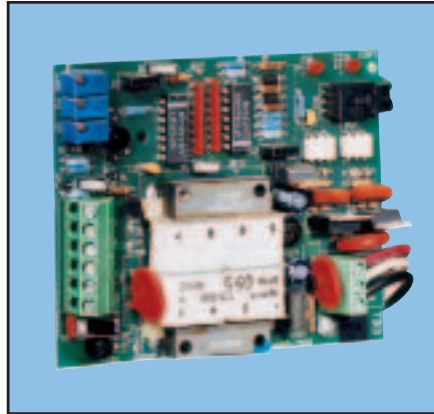


- 1. Corrosion Resistant Housing.** The housing of the Automax “E” Series actuator is cast aluminum and polyurethane coated for superior corrosion resistance.
- 2. Motor.** The CENTURA “E” Series Rotary Actuator contains a rugged, single phase permanent split capacitor gearmotor. The AC motor contains an automatically resetting thermal cut-out.
- 3. Massive Gear Train.** All models contain a permanently lubricated, precision cut, heat treated alloy steel gear train for a long, reliable cycle life and are designed to withstand motor stall torque.
- 4. 1/2 NPT Conduits.** One 1/2" NPT conduit connection is supplied as standard.
- 5. Quickset Cams.** Travel limit switch cams are extra wide, spring loaded and splined so that the Open/Closed positions can be quickly set without special tooling. The cams also contain a micro adjust screw for very precise applications.
- 6. Captive Cover Bolts.** The cover contains 6 stainless steel captive cover bolts to prevent loss of bolts when the cover is removed.
- 7. Manual Override.** A protected manual override is provided as standard and a hand wheel option is available.
- 8. Brake.** A positive latching brake is provided as standard. The brake is continuous duty rated during electrical operation.

Options



Heater & Thermostat
To Eliminate Condensation



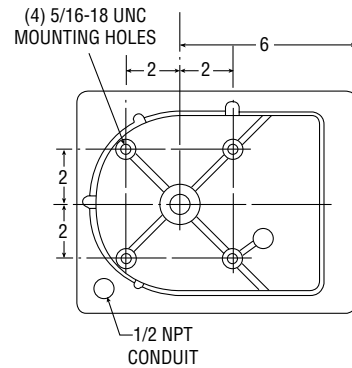
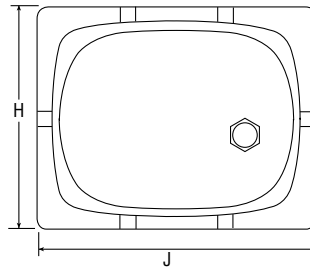
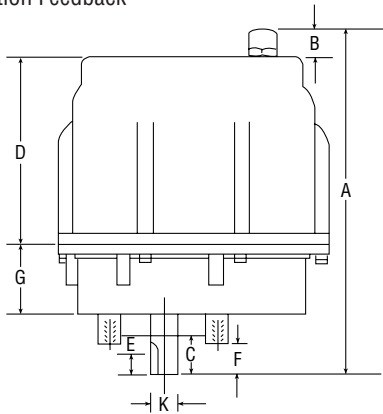
ESP3 Modulating Option



Manual Override Handwheel



Auxillary Switches for
Position Feedback



*E' Series Dimensions

A	B	C	D	E	F	G	H	J	K
12.94	1.19	1.38	7	.25x.75	1.06	2.63	8.25	10.1	1.25

How to Order (Select from each column)

Valve Interface Mounting	Output Torque in-lbs (N-m)	Supply Voltage	Switches	Positioning	Other Options
CE UNC Tread	E1500 1500 (169) E3500 3500 (395)	- 115Vac 50/60 extended duty	1 One extra (dry contact) 2 Two extra 3 Three extra 4 Four extra 5 Dribble Control	Input Control TA ESP3 Electronic Positioner (4/20mA, 0-10V, etc.) TT ESP3 with TX option TB 0-135 Ohm ESP3 Output Signal TX 4-20mA Transmitter P1 0-135 Ohm Potentiometer P2 0-1K Ohm Potentiometer P3 0-5K Ohm Potentiometer P4 0-10 Ohm Potentiometer	E Food Grade Z White Epoxy Coating H Manual Handwheel H Heater & Thermostat G Breather & Drain Two Wire Relay Control R CW Relay S CCW Relay

CENTURA Series/ESP3 Positioner

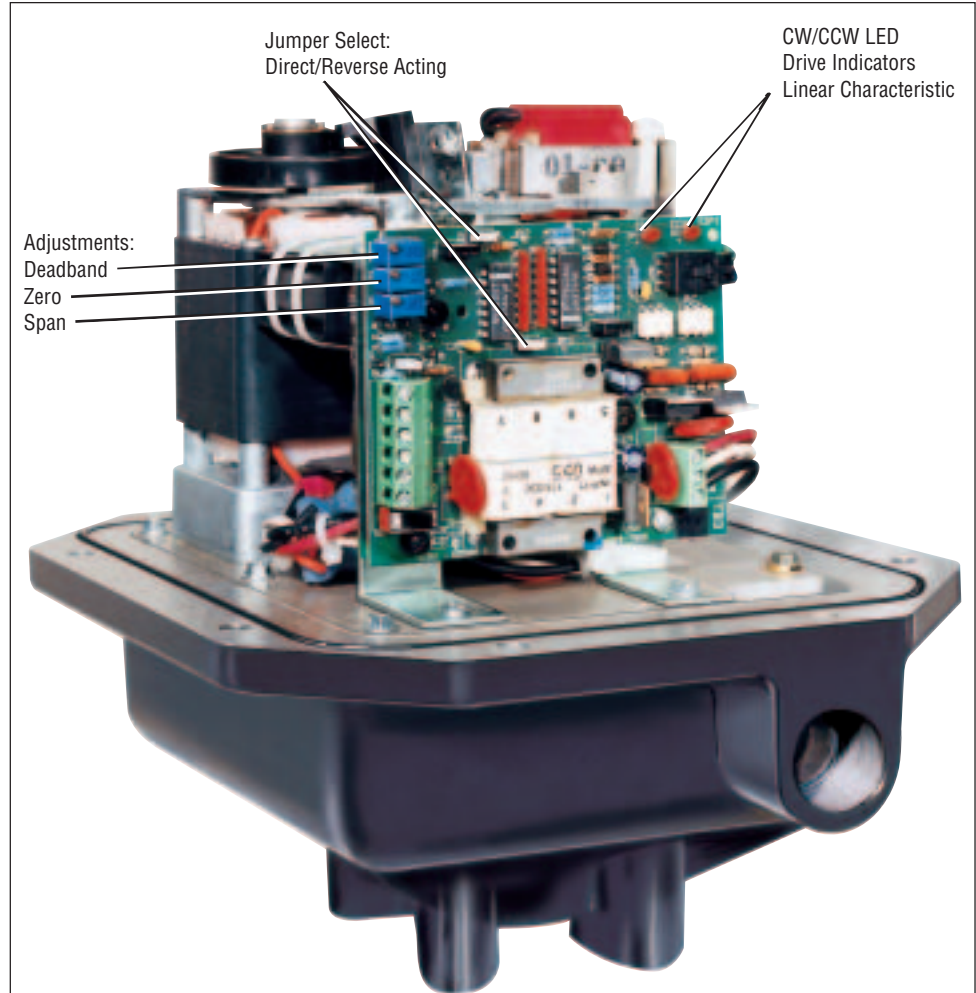
The ESP3 is a servo positioner that allows Automax electric actuators to be used in modulating applications. The ESP3 is activated by variable input signals sent by process monitoring devices including: flow meters, liquid level sensors, programmable controllers and computers.

The ESP3 Positioner compares incoming command signals with a position feedback signal from a self-contained potentiometer to determine precise modulating settings.

The ESP3's servo amplifier directs the unit's reversing motor to realign the valve or damper until the two signals are reconciled and the required rate of flow is achieved. In this way, valve and damper settings are continually corrected to optimize flow rates.

The compact ESP3 fits easily inside many Automax actuators, when used with smaller actuators, the ESP3 can be supplied with a NEMA 4X housing of its own. Calibration of the ESP3 is always quick and easy, with separate deadband, span and zero adjustments.

Where precise modulating control is required, Automax's ESP3 is the answer.



CENTURA Series/ESP3 Positioner Specification

Power Requirement

110-125VAC, 60Hz
5W @ 115 VAC

Input Signals

4-20mA DC into 250 Ohm
4-12mA DC into 250 Ohm
1-5mA DC into 1000 Ohm
0 to 5 VDC
2 to 10 VDC
0 to 10 VDC
1.5 to 1000 Ohm
1.5 to 135 Ohm (Special)
10 to 50mA DC into 1000 Ohm (Special)

Adjustments

Zero, Span, and Deadband

Temperature

-40° F (-40° C) when used with optional heater to
160° F (70° C)

Isolation

Control to Power Line: 1500 V 10M Ohm
Control to Output: 1500 V 1000M Ohm

Transmitter PCB 4-20mA DC (Optional)

with Zero and Span Adjustments
600 Ohm Load Impedance

ESP3 Features

Jumper Select: Direct/Reverse Acting
Input Signal Conditioning
On Board Current Source for Resistive Inputs
CW/CCW LED Drive Indicators
Linear Characteristic

Control Boxes/AutoBrakits



NEMA 7



NEMA 4



Control Boxes

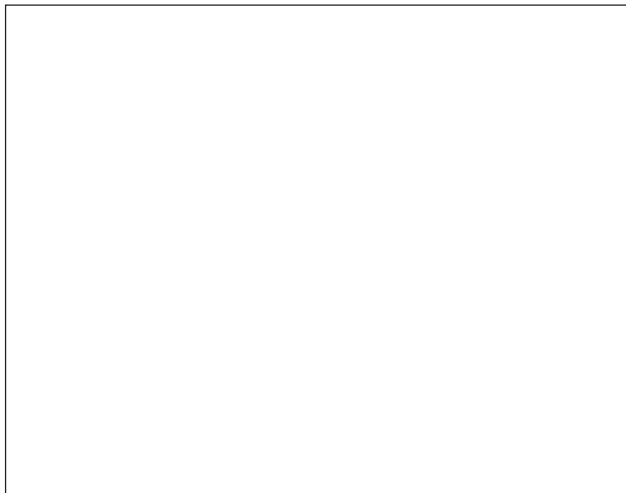
Control boxes are available for a variety of local control options, such as Local/Remote Open-Off-Close and jogging control. NEMA 4 housings are used as standard, but other housings are available upon request.

AutoBrakits

Automax custom mounting hardware packages are designed to close tolerances to assure consistency and proper alignment, which are essential to ensure maximum actuator and valve life. The designs allow for proper fit and easy assembly in the field, or Automax will assemble and calibrate actuators and controls to customers' valves.

Flowserve Corporation has established industry leadership in the design and manufacture of its products. When properly selected this Flowserve product is designed to perform its intended function safely during its useful life. However, the purchaser or user of Flowserve products should be aware that Flowserve products might be used in numerous applications under a wide variety of industrial service conditions. Although Flowserve can (and often does) provide general guidelines, it can not provide specific data and warnings for all possible applications. The purchaser/user must therefore assume the ultimate responsibility for the proper sizing and selection, installation, operation, and maintenance of Flowserve products. The purchaser/user should read and understand the Installation Operation Maintenance (IOM) instructions included with the product, and train its employees and contractors in the safe use of Flowserve products in connection with the specific application.

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