

# ROTARY & SMART ACTUATOR MOTORS



Honeywell's HercuLine® rotary actuators feature broad torque and timing ranges, standard end-of-travel limit switches, and rugged enclosures. HercuLine® smart electric actuators are engineered for exceptional reliability, accurate positioning, and low maintenance. Designed for precise positioning of dampers and valves, they perform well in extremely demanding environments requiring continuous duty, and high reliability.



	Prices Start at	See Page
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Comparing Industrial Rotary Actuator Motors		334
Honeywell HercuLine® 10260A Medium Torque Rotary Actuator Motor	\$3174.00	336
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<b>Smart Actuator Motors</b>		
Comparing Continuous Duty Electric Actuator Motors		334
Honeywell HercuLine® 10260S Medium Torque Smart Actuator Motors	\$4369.00	336
Honeywell HercuLine® 2000 Low Torque Precision Smart Actuators	\$1194.00	335
<b>Accessories</b>		
Honeywell HAL Actuator Motor Linkage Analysis Windows® Software	\$138.00	337



**Rather use pneumatics for valve positioning?  
Check out Siemens digital pneumatic positioner!  
See pages 352 to 353 for details.**

Prices in this catalog are current at the publication date, and are subject to change without notice. Due to manufacturer agreements, some products may not be available in all Lesman markets or geographic areas.

# Comparing Rotary and Electric Actuator Motors

## Honeywell

### Which Rotary Actuator Is Right for You?



Rotary Actuators	Modutrol IV	HercuLine® 10260A
Motor Description	Low torque/ medium duty for non-industrially hardened applications. Lowest price/life expectancy/re-positions	Medium torque/heavy duty for industrially hardened applications. High life expectancy/ re-positions.
Voltage	24 or 120 VAC, 1 phase	120 VAC, 1 phase
Duty Cycle	25%	Continuous (100%)
Approvals/Ratings	NEMA 3, UL, CSA, CE Mark	NEMA 4, UL, CSA, CE Mark
Gear Train	Powered metal spur	Steel/bronze single reduction worm
Lubrication/Maintenance	Oil/None	None
Brake	Yes	None required
Manual Override	Optional crank arm	Standard handwheel, crank arm, optional handswitch
Torque Range	35-150 lb. in.	10-300 lb. ft.
Rotation	90/160°	90°
Failsafe	In-place/spring return	In-place
Input Signals	4-20 mA, 1-5 VDC, PAT, floating	4-20 mA, 1-5 VDC, 3-wire position proportional, on/off
Deadband Adjustment	None	0.2-5% of span
Feedback Signals	135Ω potential	0-20 mA, 4-20 mA, 0-5, 1-5 or 0-16 VDC, 1000Ω, potential
Hysteresis	0.60%	<0.4% full scale
Linearity	Approximately 5%	± 0.25% span
Mechanical Stops	Standard, fixed	Standard, fixed

### Which Continuous Duty Electric Actuator is Right for You?



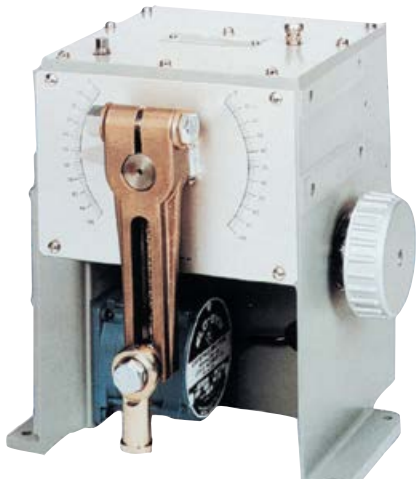
Electric Actuators	HercuLine® 2000	HercuLine® 2001/2002	HercuLine® 10260S
Product Description	Low torque electric actuator	Low torque electric actuator	Medium torque industrial electric actuator
Torque	50 to 400"-Lb ( 6 to 45 N-M)	50 to 400"-Lb ( 6 to 45 N-M)	100 to 300 Lb-ft ( 14 to 400 N-M)
Stroke/Speed	90° to 160°/ 15 to 240 sec	90° to 160°/ 7.5 to 120 sec	90° /20/40/60 sec
Input Signals	2 to 10 VDC, 4 to 20 mA	1 to 5 VDC, 4 to 20 mA floating, position proportional, open/close	1 to 5 VDC, 4 to 20 mA floating, position proportional, open/close
Position Feedback	1000/135Ω over 90°	0/1 to 5 VDC, 0 to 16 VDC 0/4 to 20 mA, software emulation	0/1 to 5 VDC, 0 to 16 VDC 0/4 to 20 mA, software emulation
Position Sensing	Slidewire	2001: Slidewire; 2002: Contactless	Contactless
Environmental	-40° to 185° F (-40° to 85° C)	-40° to 170° F (-40° to 75° C)	-20° to 170° F (-30° to 75° C)
Adjustable Deadband	0.2% to 5% span	2% to 5% span	0.2% to 5% span
Options	Local Auto/Manual Switch	Repeatability, Local Auto/Manual Switch, Local Keypad/Display	Repeatability, Local Auto/Manual Switch, Local Keypad/Display
Communications	None	Modbus RTU, HART®	Modbus RTU, HART®





## 10260A Medium Torque Rotary Actuators

**Honeywell**



### Features

- 100% duty cycle motor
- 10 to 300 Lb-Ft Torque — High torque capability in a small package
- Accurate Positioning — Motor/gear train provides accurate positioning with instantaneous start/stop characteristics
- Rugged industrial-grade enclosure
- Non-Contact Position Sensing — Non-contacting sensing lowers maintenance costs
- Control Signals — 4-20 mA, 1-5 VDC, position proportional control, open/close
- Output Signals — 0/4-20 mA, 0/1-5 VDC (0-16 VDC), and slidewire emulation
- Low Power Consumption — 120/240 VAC, 50/60 Hz, single phase  $\leq 1$  Amp
- Full Travel Speed — Full stroke travel speeds from 10 to 60 seconds (90 degrees travel, 60 Hz supply)
- Manual handwheel operates the actuator when power is not available
- Auto/Manual Electric Handswitch — With auxiliary contacts indicating an "Out of Auto" position, for local electric control
- Output Shaft Hardware — All 10260A actuators come with an adjustable radius and adjustable position crank arm. Optional 12" crank arm, linkage kits, and direct coupling hardware available
- Limit Switches — Two end-of-travel electrical limit switches, up to four additional SPDT auxiliary switches available
- Certified to CSA, UL, and CE

Honeywell's 10260A medium torque, industrially rated rotary actuator is engineered for exceptional reliability, accurate positioning, and low maintenance.

Designed for very precise positioning of dampers and quarter-turn valves, the 10260A performs especially well in extremely demanding environments. Typical applications include furnace pressure dampers, fuel/air ratio valves, windbox dampers, coal mine dampers, scoop tubes, and fluid gyros.

To operate with maximum efficiency and improve process uptime, state-of-the-art control systems require accurate, responsive, and repeatable actuation of final control devices. Actuators are often overlooked when considering maintenance and ancillary support costs, yet they play an important role in system performance, and can directly impact your company's bottom line.

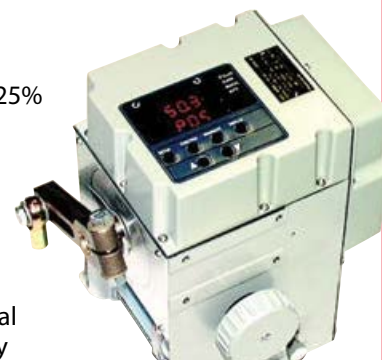
Honeywell 10260A actuators implement a variable inductance, non-contact position sensor mounted directly to the actuator output shaft, providing precision position sensing from 0 to 90 degrees. This technology eliminates maintenance items, such as wipers and bearings, as well as static friction, hysteresis, and electrical noise over a wide variety of demanding environmental conditions.

Honeywell slidewire emulation provides backward compatibility for three-wire position proportional control schemes while eliminating maintenance and control issues associated with slidewire wear. The slidewire emulation circuit emulates the proportional voltage output of a typical slidewire through a high-impedance circuit. The voltage output is proportional to the supply voltage and shaft position. A non-contact position sensor is used to determine shaft position in place of the slidewire.

## HercuLine® 10260S Medium Torque Smart Actuators

### Features

- Torque Range 10 to 300 Ft/Lbs
- Continuous Duty Cycle No-Burnout Motor: Heavy duty 72 RPM synchronous induction motor can be stalled without damage and increased current draw or temperature rise
- Full Travel Speeds: From 10-60 sec (90° travel, 60 Hz supply)
- Control Signals: 0/4 to 20 mA, 0/1 to 5 VDC, 0 to 10 VDC, digital RS485 Modbus RTU protocol, and Series 90 control
- Output Signals: 0/4 to 20 mA, 0/1 to 5 VDC, and slidewire emulation; *Auxiliary outputs*: SPDT switches or electromechanical relay
- Characterization: Programmable linear, equal percentage, quick opening, or user-configured 10-point characterization allows tailored control for specific applications
- Alarm Functions: Alarms can be assigned to relay outputs or accessed through Modbus
- High Accuracy: Typically 0.25% of 90° span
- Brakeless Non-Backdrive Design: Eliminates need for friction brake to prevent drift under live load or overshoot
- Local Configuration: Integral keypad and display for easy local configuration; Eliminates the need for removing covers or letting contaminants into the electronics
- RS485/Modbus RTU communication standard; HART optional



**Prices start at \$4369.00**



Illinois, Indiana, Missouri, and Iowa  
Phone: 800-953-7626 • 630-595-8400  
Fax: 630-595-2386

**Lesman Instrument Company**  
www.lesman.com  
sales@lesman.com

Wisconsin, and Upper Peninsula Michigan  
Phone: 800-837-1700 • 262-923-1790  
Fax: 262-923-1797

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## Specifications

**Enclosure:** Aluminum alloy casting, precision machined

**Gear Train:** Alloy steel, high-efficiency steel spur gear primary train with safety fused idler gear. Precision ground, self-locking/self-releasing worm gear final mesh

**Mechanical Stops:** Backup to CW and CCW end-of-travel limit switches to prevent over-travel

**Operating Temperature:** -20° to 150° F

**Relative Humidity:** Fully operable over 0%-99% RH noncondensing

**Scale:** 0% to 100% corresponding to full crank arm travel.

**Crank Arm:** Included with actuator. Adjustable radii, 1-7/16" to 5". Position adjustable through 360° rotation. Optional 12" crank arm adjustable 0" to 12" radii.

**Output Shaft:** 1" diameter, 1.5" length standard on most models. 1" diameter, 2" length standard on 10263A, 10265A, and 10269A, optional on others.

**Rotation:** 90° from 0% to 100% on scale, limited by mechanical stops; Field-selectable direction via switch and jumper. Default is CCW (determined looking at the shaft)

**Manual Handwheel:** For positioning during power failure or setup

**Lubrication:** Teaco Starplex 2 EP grease

**Fuses:** Bussmann GDB1.6 (1.6 Amp fast), Littelfuse 312001 (1.0 Amp fast)

**Power:** 120 or 240 VAC single phase, 50 or 60 Hz

**Motor:** 100% duty cycle, instant start/stop, noncoasting, and nonburnout synchronous induction motor. Can be stalled up to 100 hours without damage.

**Power Loss:** Stays in place

**Local Auto/Manual Switch:** Optional. Provides local electrical operation with "out of auto" contact for annunciation

**Motor Current:** No load = full load = locked rotor

**Limit Switches:** Two SPDT end-of-travel limits standard

**Auxiliary Switches:** Optional. Up to 4 additional SPDT switches, rated 10A @ 125 VAC, 5A @ 250 VAC

**Approvals:** CE compliant, CSA, UL approvals available

**Bolts:** *Clamp:* Standard arm 1-7/16-5" adjustment, optional 0-12" adjustment; *Rod end:* Standard and long arms 30-35 Lb/ft

## Actuator with Motor Positioner Board

**Input (CAT/PAT Board):** 4-20 mA, 1-5VDC, 3-wire position proportional, on/off

**Sensitivity:** 0.20% to 5% span adjustable. Shipped at 0.5% span

**Hysteresis:** Less than 0.4% full scale

**Linearity:** ±0.25% span

**Repeatability:** 0.20% span

**Voltage/Supply Stability:** 0.25% span with +10/-15% voltage change

**Zero Suppression:** 100% span

**Input Filter:** Adjustable to smooth input signal

**Input Voltage:** 5 VDC max.

**Output:** Two triac switches for raise-or-lower motor operation

**Failsafe Operation:** If input falls below 2% of span, four choices are selected by movable jumper: stop, go full upscale, go full downscale, or go to selected (adjustable) position

**Isolation:** Input is isolated from power

## 4-20 mA Output and Slidewire Emulation

**Feedback Signals:** 0 to 20 mA, 4 to 20 mA; 0 to 5 mA, 1 to 5 mA with 250Ω resistor (0 to 16 VDC with 800Ω resistor)

**Slidewire Emulation:** Provides output voltage proportional to shaft position and to supply voltage (1-20 VDC) without slidewire. Emulates 100Ω to 1000Ω slidewire.

**Isolation:** Output is isolated from power and input signal

**Load Requirement:** Current output 0-1000 Ω

## Ordering Instructions

Make one selection from each table section below. A finished model number looks like this: 1026\_A-\_-\_-\_-\_-\_-\_-\_-\_-\_-\_-\_-\_-\_-\_-\_-00

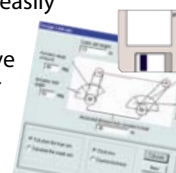
## Model Selection Guide

Torque (Lb/ft)	Full Travel Stroking		Catalog Number	Price Each
	50 Hz	60 Hz		
10	12 Sec.	10 Sec.	10261A	\$3174.00
20	24 Sec.	20 Sec.	10262A	3199.00
40	48 Sec.	40 Sec.	10264A	3191.00
60	72 Sec.	60 Sec.	10266A	3344.00
40	24 Sec.	20 Sec.	10267A	3563.00
80	48 Sec.	40 Sec.	10268A	3711.00
150	72 Sec.	60 Sec.	10269A	5371.00
200	48 Sec.	40 Sec.	10263A	5636.00
300	72 Sec.	60 Sec.	10265A	6281.00
Power	Single Phase, 120 VAC, 60 Hz		-1	0.00
Controls	Drive Up/Down		-0	0.00
	4-20 mADC, 0-5 VDC, 1-5 VDC, 1-1.25 VDC		-1	824.00
Customer Position Outputs	None		-00	0.00
	One Slidewire Emulation Output (Note c)		-01	504.00
	0/4-20 mADC; 0/1-5, 0-1.25 VDC (Note e)		-03	504.00
	Dual 1000Ω (Only with Control Opt. -0)		-04	326.00
	Single 1000Ω (Only with Control Opt. -1)		-05	245.00
Contact Outputs (See Codes Below)	LS + Limit Switch		-0	0.00
	LS + 2 SPDT		-2	286.00
	LS + AM		-5	286.00
	LS + AM + 2 SPDT		-7	577.00
Shafts	Standard Shaft		-0 _ _ _ _	0.00
Scale	No Projecting Scale		_ 0 _ _ _	0.00
Crank Arm	5" Standard Crank Arm		_ _ _ 0 _ _	0.00
Rod Adapter	None		_ _ _ _ 0 _	0.00
	3/8" Rod Adapter		_ _ _ _ 1 _	0.00
Linkage Kits Options	None		_ _ _ _ _ 0	0.00
	12" to 16" Turnbuckle Kit		_ _ _ _ _ 1	205.00
	16" to 20" Turnbuckle Kit		_ _ _ _ _ 2	205.00
	1" Pipe Kit		_ _ _ _ _ 4	205.00
Weather-proof	None		-0 _ _	0.00
	NEMA 4/IP66		-1 _ _	165.00
Approval	None		_ _ 0 _	0.00
	UL Listed (Good to 149° F)		_ _ 3 _	165.00
Tagging	None		_ _ _ 0	0.00
	Stainless Steel (Specify 3 lines x 22 char ea.)		_ _ _ 2	53.00

**CODES:** **LS:** 1 CW/1 CCW Limit Switch, **4-20 IN:** Motor Position 4-20 mA Input; **SPDT:** Aux. SPDT Switch, **AM:** Auto-Manual Switch with Out-of-Auto Contact

## Actuator Motor Linkage Analysis Software

- Computes arm radius or load arm radius, linkage length, and transmitted torque through full travel of the driven shaft
  - Displays torque and link force curves through full travel
  - Suggests the right actuator for each linkage application
  - Displays data in printable table
- Point, Click, Specify, and Size!**
- Save linkage design and installation time and materials
  - Size and specify actuators
  - Change linkage arrangement quickly and easily
  - Displays positive valve and damper shutoff data



## Model Selection Guide

Description	Cat. Number	Price
Honeywell Industrial Motor Actuation and Linkage Analysis Software for Windows (HAL)	51197910-001	\$138.00

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Illinois, Indiana, Missouri, and Iowa  
Phone: 800-953-7626 • 630-595-8400  
Fax: 630-595-2386

**Lesman Instrument Company**  
www.lesman.com  
sales@lesman.com

Wisconsin, and Upper Peninsula Michigan  
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Rotary and Smart Actuator Motors

Instrument Valves

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Pressure and Temperature Switches

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Pressure Gauges



# Modutrol IV Low-Torque Rotary Actuator Motors

Low torque, light duty, rotary action Modutrol IV motor is designed for accurate positioning of dampers and valves in industrial ovens, furnaces, and process heaters.

More models available online. Visit [www.Lesman.com/get/modutrol.php](http://www.Lesman.com/get/modutrol.php) for full specs and model selection guides.

**Limit Switches:** Two end-of-travel limit switches standard

**Torque Rating:** 25 to 300 Lb-In

**Approvals:** CSA, UL



## Model Selection Guide

Stroke Timing 90°	Stroke Timing 160°	Torque Rating	Auxiliary Switches	Product Includes	Functional Replacement for These Obsolete Models	Catalog Number	Price
Proportional-Reversing Motors, 24 VAC Power, 135 Ohm Input Signal, 90° to 160° Field-Adjustable Stroke (Unless otherwise specified)							
15 sec	30 sec	75 Lb-in	0	Tapped Shaft 24 VAC, Spring Return	M9484D1002, D1036, and E1116 M7285A1052, M7282A1006, M9175D1014, D1006, and D1014	M9184D1005	\$982.49
15 sec	30 sec	75 Lb-in	1			M9484E1009	1283.74
30 sec	60 sec	60 Lb-in	0*			M9185D1004	1136.45
30 sec	60 sec	60 Lb-in	1	Transformer	M9484D1028, D1044, and D1051 M9184A1012, A1035, B1009, B1017, B1025, M9184D1013, D1047, and D4009	M9185E1019	1259.87
30 sec	60 sec	75 Lb-in	1			M9174B1027	997.07
30 sec	60 sec	150 Lb-in	0			M9484D1010	1077.59
30 sec	60 sec	150 Lb-in	0*			M9184D1021	1019.56
30 sec	60 sec	150 Lb-in	1	Motor Crank Arm, Ships in 90° Position	M9484E1090 and E4003 M9484E1025, E1041, E1058, E1066, M9484E1074, and E1082	M9484E1017	1264.77
30 sec	60 sec	150 Lb-in	1			M9484E1033	1269.08
30 sec	60 sec	150 Lb-in	2	Tapped Shaft, Ships in 90° Position	M9184F1000 and F1018	M9484F1007	1328.40
30 sec	60 sec	150 Lb-in	2			M9484F1031	1362.84
30 sec	60 sec	150 Lb-in	2	24 VAC, Spring Return	M9184F1000 and F1018	M9184F1034	1229.26
30 sec	—	35 Lb-in	2			M9184C1031	1022.11
60 sec	60 sec	60 Lb-in	0			M9185A1018	1158.72
—	60 sec	60 Lb-in	2			M9185C1006	1175.38
—	60 sec	60 Lb-in	2			M9184A1019	982.49
—	60 sec	150 Lb-in	0			M9181A1012, M9184A1001	
Proportional-Reversing Motors, 120 VAC Power, 135 Ohm Input Signal, 90° to 160° Field-Adjustable Stroke (Unless otherwise specified)							
30 sec	60 sec	35 Lb-in	0	Adjustable Zero/ Span, Transformer	M8161A1024 and A1032, M9161A1008, M9164A1021 and A1054 M9164A1120, A1062, A1047, and A1096	M9164A1005	854.08
30 sec	60 sec	35 Lb-in	0*	Transformer	M9164A1120, A1062, A1047, and A1096	M9164D1009	741.19
30 sec	60 sec	75 Lb-in	2			M9174C1025	1087.88
Proportional-Reversing Motors, 120 VAC Power, Modulating 4-20 mA Input, Adjustable Zero and Span. Transformer and Screw Terminal Adapter Included							
15 sec	30 sec	75 Lb-in	0	Spring Return Spring Return Spring Return	M281A1007, M7284A1046 M7284A1020 M7284C1018, M7284C1026 M7284Q1017	M7284A1038	1110.19
30 sec	60 sec	150 Lb-in	0			M7284A1004	1066.05
30 sec	60 sec	150 Lb-in	0			M7284A1012	1098.03
30 sec	60 sec	150 Lb-in	2			M7284C1000	1249.91
30 sec	60 sec	150 Lb-in	2			M7284Q1009	1337.41
60 sec	120 sec	300 Lb-in	2			M7294Q1007	1106.72
30 sec	60 sec	60 Lb-in	0	Spring Return Spring Return Spring Return	M7285A1003 M7285C1009 M7285Q1008	M7285A1003	1245.20
30 sec	60 sec	60 Lb-in	2			M7285C1009	1414.16
30 sec	60 sec	60 Lb-in	2			M7285Q1008	1513.16
Proportional-Reversing Motors, 24 VAC Power, Modulating 4-20 mA Input, Transformer Included. Enhanced Resolution Models, Minimum 160 Positions per Swing.							
30 sec	—	150 Lb-in	2	M7284C1059 M7284C1067	M7284C1083 M7284C1091	M7284C1083	1280.02
—	60 sec	150 Lb-in	2			M7284C1091	1347.92
Motors with Switched SPDT or Floating Output, 120 VAC Power, SPDT Input, 3-Wire, Line Voltage, or Position Proportional Controller							
—	30 sec	75 Lb-in	0	M6284A1014, A1002, A1048, A1071, and 1063	M6184A1023 M6284A1055-S	M6184A1023	790.08
30 sec	—	150 Lb-in	0			M6284A1055-S	880.77
Motors with Switched SPDT or Floating Output, 24 VAC Power, 3-Wire, SPDT or Voltage Input							
15 sec	30 sec	75 Lb-in	0	Low Voltage Low Voltage	M6181A1018, D1004, F1009, F1017, M6161A1004, M6184A1007 and B1021	M6184D1001	676.10
30 sec	60 sec	150 Lb-in	0*			M6184D1035	715.53
30 sec	60 sec	150 Lb-in	2	Line Voltage	M6184F1014	904.25	
Stroke Timing	Stroke (Deg)	Torque Rating	Auxiliary Switches	Product Includes	Functional Replacement for These Obsolete Models	Catalog Number	Price
Two-Position Spring Return Motors, SPST, 2-Wire, Voltage Inputs							
30 sec	75°	20 Lb-in	1	120 VAC Power	M436A1041 A1082, A1090, A1165, and A1181	M436A1116	\$453.36
30 sec	75°	20 Lb-in	1	240 VAC Power		M436A1124	470.77
60 sec	160°	60 Lb-in	0	120 VAC Power		M4185A1001	656.45
60 sec	160°	60 Lb-in	1	120 VAC Power	M4182B1002	M4185B1009	695.63
30 sec	90°	60 Lb-in	1	120/208/240 VAC	M4185B1017	M4185B1058	743.70
30/60	90/160	60 Lb-in	0*	24 VAC	M8185B1000 and B1034 (w/ 220736A)	M8185D1006	579.45

\* Field-addable auxiliary switches