

numatics®

LR Series

Low Profile Rotary Actuator



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EMERSON
Industrial Automation

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LR Series

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The LR series rotary actuator is a low profile rack and pinion design. Two independent pistons drive their corresponding racks against the pinion thereby rotating the platform.

A. Body

Hardcoated anodized aluminum PTFE impregnated, lightweight, high strength to weight ratio.

B. Rotary Platform

Hardcoated anodized aluminum, durable. Supported by two bearings, one on each side of the pinion shaft, providing superior dynamic load capacity.

C. Stroke Adjustment

Built in rotary hard stops protect rotary platform from over travel. External stroke adjust screws with locking set screws provide fine tuned rotary position.

D. Flow Controls

Built in design is easily adjustable, provides precise deceleration speed control in both directions.

E. Position Sensing

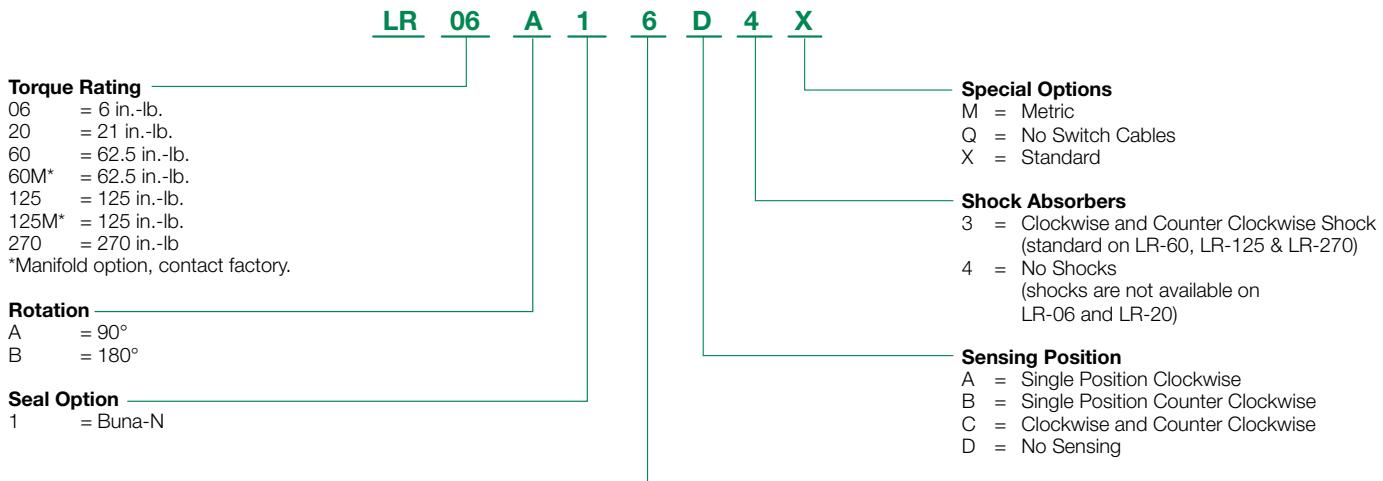
Proximity switch sensors available for rotary position sensing.

F. Shocks

LR60, LR125 & LR270 come standard with internal shock absorbers.



How to Order

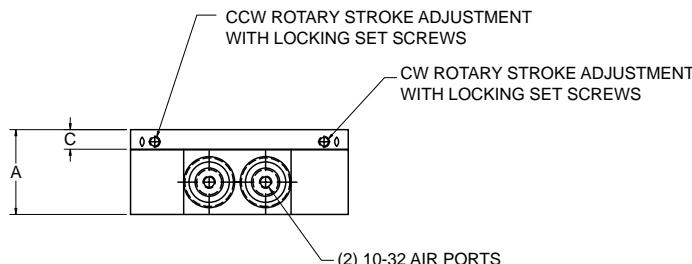
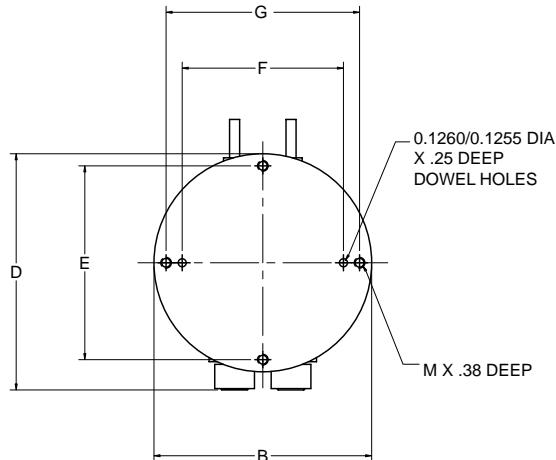
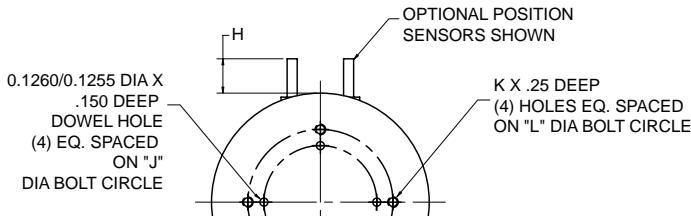


When ordering additional switches:

| Switch Description | Standard Part No. | Quick Disconnect Part No. |
|--|-------------------|---------------------------|
| Prox Switch - PNP (Sourcing) | PROX-5FL2-P | PROX-5QDS-P |
| Prox Switch - NPN (Sinking) | PROX-5FL2-N | Not Available |
| Quick Disconnect Cable | - | PXCST |
| 90° 5 meter cable | - | PXC90 |
| Bronze switch housing for LR & RM Rotaries | - | RSH05 |

Dimensions: Inches

LR06 & LR20 Series



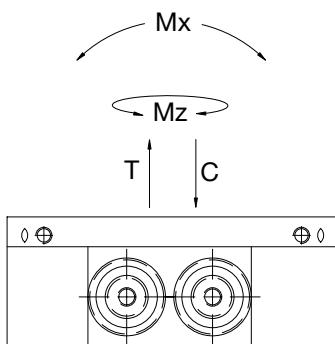
See page 7.

Dimensions

| | LR06 | LR20 |
|---|-------------|-------------|
| A | 0.969 | 1.313 |
| B | 2.250 | 3.375 |
| C | 0.281 | 0.303 |
| D | 2.625 | 3.656 |
| E | N/A | 3.000 |
| F | 1.624/1.626 | 2.499/2.501 |
| G | 2.000 | 3.000 |
| H | 0.600 | 0.600 |
| J | 0.750 | 1.750 |
| K | #6-32 | #8-32 |
| L | 1.250 | 2.250 |
| M | #6-32 | #8-32 |

Specifications

| | LR06 | LR20 |
|----------------------------|----------------------------|----------------------------|
| Max. Payload | 1.0 lbs | 3.0 lbs |
| Max. Air Pressure | 120 PSI | 120 PSI |
| Torque Output @ 100 PSI | 6.5 in.-lbs. | 21.2 in.-lbs. |
| Max Payload Inertia | 0.012 lb.-in. ² | 0.012 lb.-in. ² |
| Cylinder Bore Dia. | 2 @ 0.5 in. | 2 @ 0.75 in. |
| Displacement | 0.3 cu.in. | 0.72 cu.in. |
| Repeatability | 0.015 degrees | 0.015 degrees |
| Max. Rotation | 180 degrees | 180 degrees |
| Degrees Adjustment | +/- 5 degrees | +/- 5 degrees |
| Max. Speed for 180 degrees | 0.3 sec. | 0.4 sec. |
| Unit Weight | 7 oz. | 1.2 lbs. |



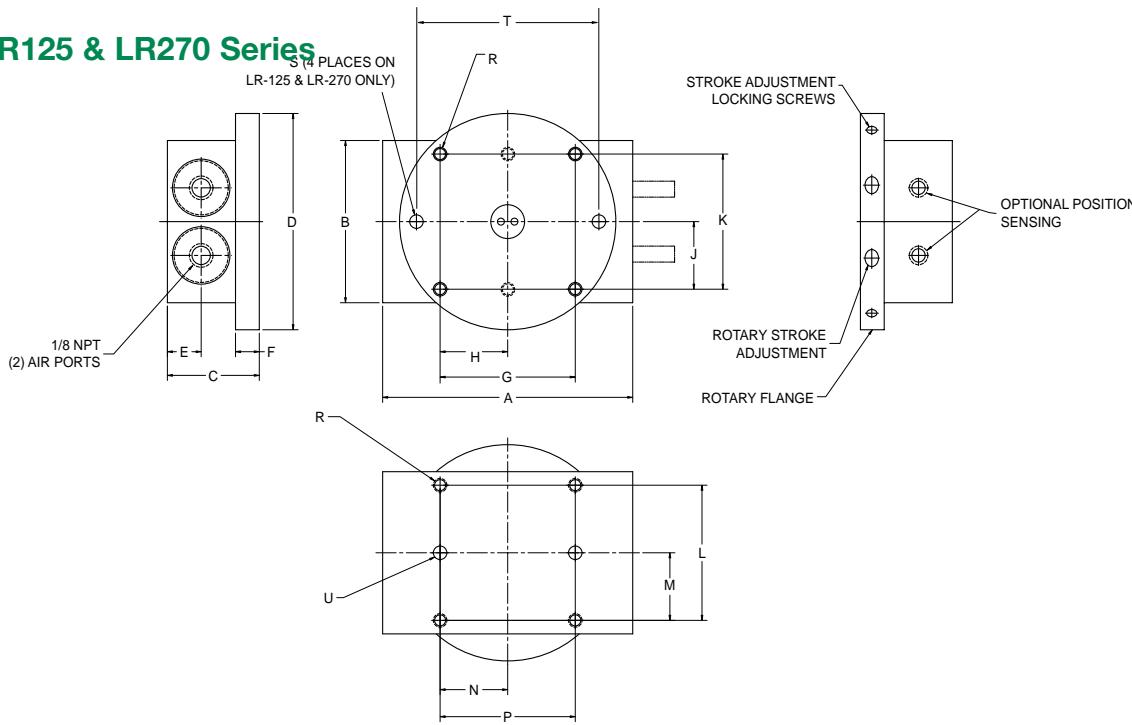
Load Capacity*

| | Static Condition | | Dynamic Condition | |
|---------------|------------------|--------------|-------------------|-------------|
| | LR06 | LR20 | LR06 | LR20 |
| C-compression | 250 lbs. | 350 lbs. | 50 lbs. | 75 lbs. |
| T-tension | 50 lbs. | 75 lbs. | 12 lbs. | 20 lbs. |
| Mx | 100 in.-lbs. | 200 in.-lbs. | 25 in.-lbs. | 50 in.-lbs. |
| Mz | 100 in.-lbs. | 200 in.-lbs. | 25 in.-lbs. | 50 in.-lbs. |

* Dynamic rating applicable with external shocks or stops.

Dimensions: Inches

LR60, LR125 & LR270 Series



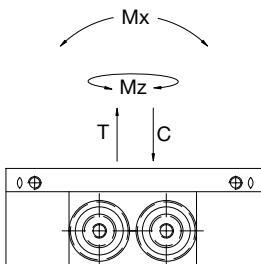
Dimensions

| Model | LR60 | LR125 | LR270 |
|-------|------------------------|------------------------|------------------------|
| A | 4.625 | 5.500 | 8.500 |
| B | 3.000 | 3.500 | 4.625 |
| C | 1.700 | 2.125 | 2.765 |
| D | 4.000 | 4.470 | 5.125 |
| E | 0.625 | 0.750 | 1.000 |
| F | 0.440 | 0.609 | 0.750 |
| G | 2.500 | 2.750 | 3.000 |
| H | 1.250 | 1.375 | 1.500 |
| J | 2.500 | 1.375 | 1.500 |
| K | 1.250 | 2.750 | 3.000 |
| L | 2.500 | 3.000 | 4.000 |
| M | 1.250 | 1.500 | 2.000 |
| N | 1.250 | 1.500 | 2.000 |
| P | 2.500 | 3.000 | 4.000 |
| R | 1/4-20 X .43 DP | 5/16-18 X .43 DP | 3/8-16 X .75 DP |
| S | 0.2505/0.2510 X .38 DP | 0.2505/0.2510 X .38 DP | 0.3750/0.3755 X .25 DP |
| T | 3.38 | 2.75 | 3.000 |
| U | 0.2505/0.2510 X .38 DP | 0.3130/0.3135 X .37 DP | 0.3750/0.3755 X .50 DP |

Specifications

| Model | LR60 | LR125 | LR270 |
|----------------------------|----------------------------------|--------------------------------|---|
| Max. Payload | 8.0 lbs. | 15.0 lbs. | 30.0 lbs. |
| Max. Air Pressure | 120 psi | 120 psi | 120 psi |
| Torque Output @ 100 psi | 61 in.-lbs. | 126 in.-lbs. | 310 in.-lbs. |
| Max. Payload Inertia | 0.041 lbs.-in./sec. ² | 0.1 lbs.-in./sec. ² | 0.254 lb-in./sec. ² (squared symbol) |
| Cylinder Bore Dia. | 2 @ 1 in. | 2 @ 1.25 in. | 2 @ 1.62 in. |
| Displacement | 2.06 cu.in. | 3.855 cu.in. | 9.77 cu.in. |
| Repeatability | 0.018 degrees | 0.018 degrees | 0.018 degrees |
| Max. Rotation | 180 degrees | 180 degrees | 180 degrees |
| Degrees Adjustment | +- 5 degrees | +- 5 degrees | +- 5 degrees |
| Max. Speed for 180 degrees | 0.35 sec. | 0.4 sec. | 0.4 sec. |
| Unit Weight | 2.9 lbs. | 5 lbs. | 8.5 lbs. |

Load Capacity*



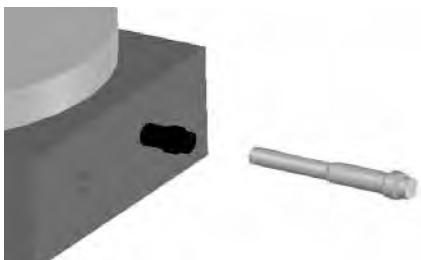
| | Static Condition | | | Dynamic Condition | | |
|---------------|------------------|--------------|---------------|-------------------|--------------|--------------|
| | LR60 | LR125 | LR270 | LR60 | LR125 | LR270 |
| C-Compression | 500 lbs. | 1000 lbs. | 2000 lbs. | 100 lbs. | 200 lbs. | 400 lbs. |
| T-Tension | 100 lbs. | 200 lbs. | 800 lbs. | 20 lbs. | 40 lbs. | 160 lbs. |
| Mx | 300 in.-lbs. | 500 in.-lbs. | 1000 in.-lbs. | 75 in.-lbs. | 100 in.-lbs. | 200 in.-lbs. |
| Mz | 300 in.-lbs. | 500 in.-lbs. | 1000 in.-lbs. | 75 in.-lbs. | 100 in.-lbs. | 200 in.-lbs. |

* Dynamic rating applicable with external shocks or stops.

LR Series Switch Information

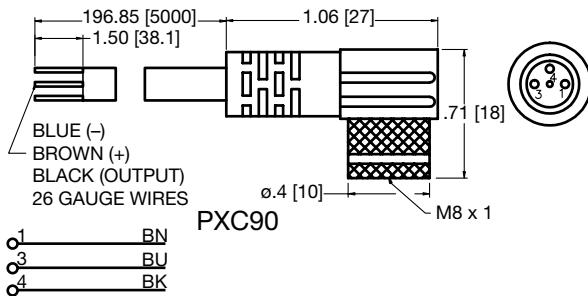
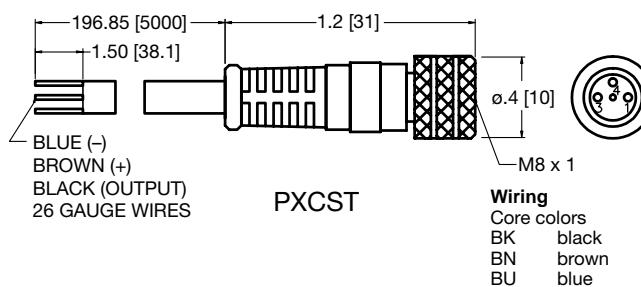
LR Series Rotary

| Bore | Bracket P/N |
|-------|-------------|
| LR06 | RSH05 |
| LR20 | RSH05 |
| LR60 | RSH05 |
| LR125 | RSH05 |
| LR270 | RSH05 |



| Sensor Description | Standard Cord Set | Quick Disconnect |
|--------------------|-------------------|------------------|
| Prox PNP | PROX-5FL2-P | PROX-5QDS-P |
| Prox NPN | PROX-5FL2-N | Not Available |

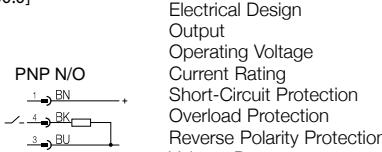
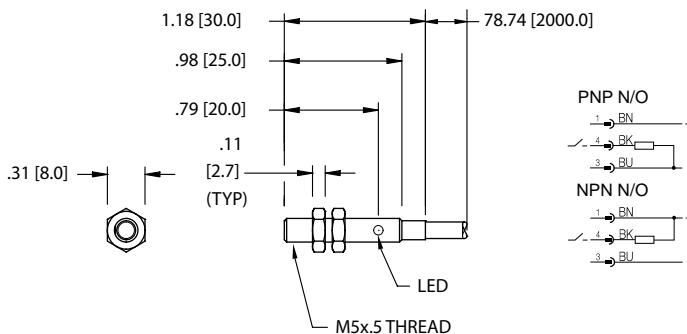
Quick Disconnect Cables



| Order Code | Type | Operating Voltage | Current Rating | Cable Material | Protection | Connector |
|------------|--|-------------------|----------------|----------------|------------|-----------|
| PXCST | Straight 5 m Cable (3 x 26 Gauge wire) | 60 AC/75 DC | 3 A | PUR | IP 68, III | M8 |
| PXC90 | 90° 5 m Cable (3 x 26 Gauge wire) | 60 AC/75 DC | 3 A | PUR | IP 68, III | M8 |

Prox Switch (NPN NO) Flying Lead - PROX-5FL2-N

Prox Switch (PNP NO) Flying Lead - PROX-5FL2-P

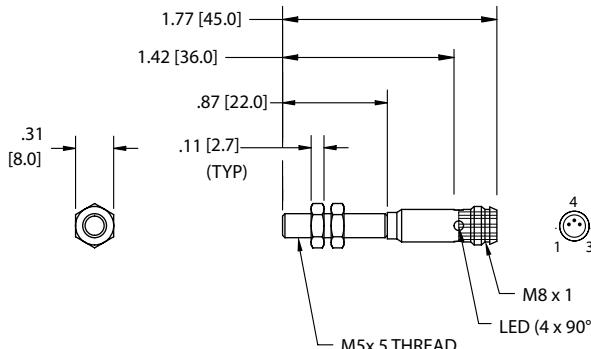


Electrical Design
Output
Operating Voltage
Current Rating
Short-Circuit Protection
Overload Protection
Reverse Polarity Protection
Voltage Drop
Current Consumption
Real Sensing Range
Switching Frequency
Ambient Temperature
Protection
Switch-Point Drift
Hysteresis
Operating Distance
Correction Factor
Housing Material
Function Display
Switching Status
Connection

3-Wire DC PNP/NPN
Normally Open
10-36 VDC
100 mA
Yes (Non-Latching)
Yes
Yes
< 2.5V
< 15 mA @ 24V
.8mm ± 10%
> 2000 Hz
-25°C to 70°C
IP 65, III
-10 - 10% OF Sr
1 - 15% OF Sr
0 - .65mm
Mild Steel=.1, Stainless Steel=.7,
Brass=.5, Alum.=.4, Copper=.3
Housing; Stainless Steel: POM
Red LED
PVC Cable, 2m, 3 x .14mm²

*Switches are not designed for wet environments. Please see your distributor for additional information.

Prox Switch (PNP NO) 8 mm connector - PROX-5QDS-P



Electrical Design
Output
Operating Voltage
Current Rating
Short-Circuit Protection
Overload Protection
Reverse Polarity Protection
Voltage Drop
Current Consumption
Real Sensing Range
Switching Frequency
Ambient Temperature
Protection
Switch-Point Drift
Hysteresis
Operating Distance
Correction Factor

Housing Material
Function Display Switching Status
Connection
Remarks
Accessories
Agency Approvals

3-Wire DC PNP
Normally Open
10-36 VDC
100 mA
Yes (Non-Latching)
Yes
Yes
< 2.5V
< 15 mA @ 24V
.8mm ± 10%
> 2000 Hz
-25°C to 70°C
IP 65, III
-10 - 10% OF Sr
1 - 15% OF Sr
0 - .65mm
Mild Steel=1, Stainless Steel=7,
Brass=.5, Alum.=.4, Copper=.3
Housing; Stainless Steel: POM
Red LED (4 x 90°)
M8 Connector
cULus-Class 2 Source Required
2 Lock Nuts



*Switches are not designed for wet environments. Please see your distributor for additional information.



World Class Supplier of Pneumatic Components



World Headquarters

USA Numatics, Incorporated

46280 Dylan Drive
Novi, Michigan 48377
P: 248-596-3200
F: 248-596-3201

Canada Numatics, Ltd

P: 519-758-2700
F: 519-758-5540

México - Ascomatica SA de CV

P: 52 55 58 09 56 40 (DF y Area metropolitana)
P: 01 800 000 ASCO (2726) (Interior de la República)
F: 52 55 58 09 56 60

Brazil Ascovat Ind.e Comercio Ltda

P: (55) 11-4208-1700
F: (55) 11-4195-3970