

NUMATICS®

LR Series

Low Profile Rotary Actuator



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EMERSON
Industrial Automation

BCAE
Automation Solutions

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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

LR 06 A 1 6 D 4 X

Torque Rating

06 = 6 in.-lb.
 20 = 21 in.-lb.
 60 = 62.5 in.-lb.
 60M* = 62.5 in.-lb.
 125 = 125 in.-lb.
 125M* = 125 in.-lb.
 270 = 270 in.-lb.
 *Manifold option, contact factory.

Rotation

A = 90°
 B = 180°

Seal Option

1 = Buna-N
 2 = FKM

Special Options

M = Metric
 Q = No Switch Cables
 X = Standard

Shock Absorbers

3 = Clockwise and Counter Clockwise Shock (standard on LR-60, LR-125 & LR-270)
 4 = No Shocks (shocks are not available on LR-06 and LR-20)

Sensing Position

A = Single Position Clockwise
 B = Single Position Counter Clockwise
 C = Two Position
 D = No Sensing

Sensing Type

Standard Cord Set
 4 = Prox Switch - PNP (sourcing)
 5 = Prox Switch - NPN (sinking)
 6 = No Sensing
 Quick Disconnect Cord Set
 W = Prox Switch - PNP (sourcing) Straight
 U = Prox Switch - PNP (sourcing) 90 Deg.

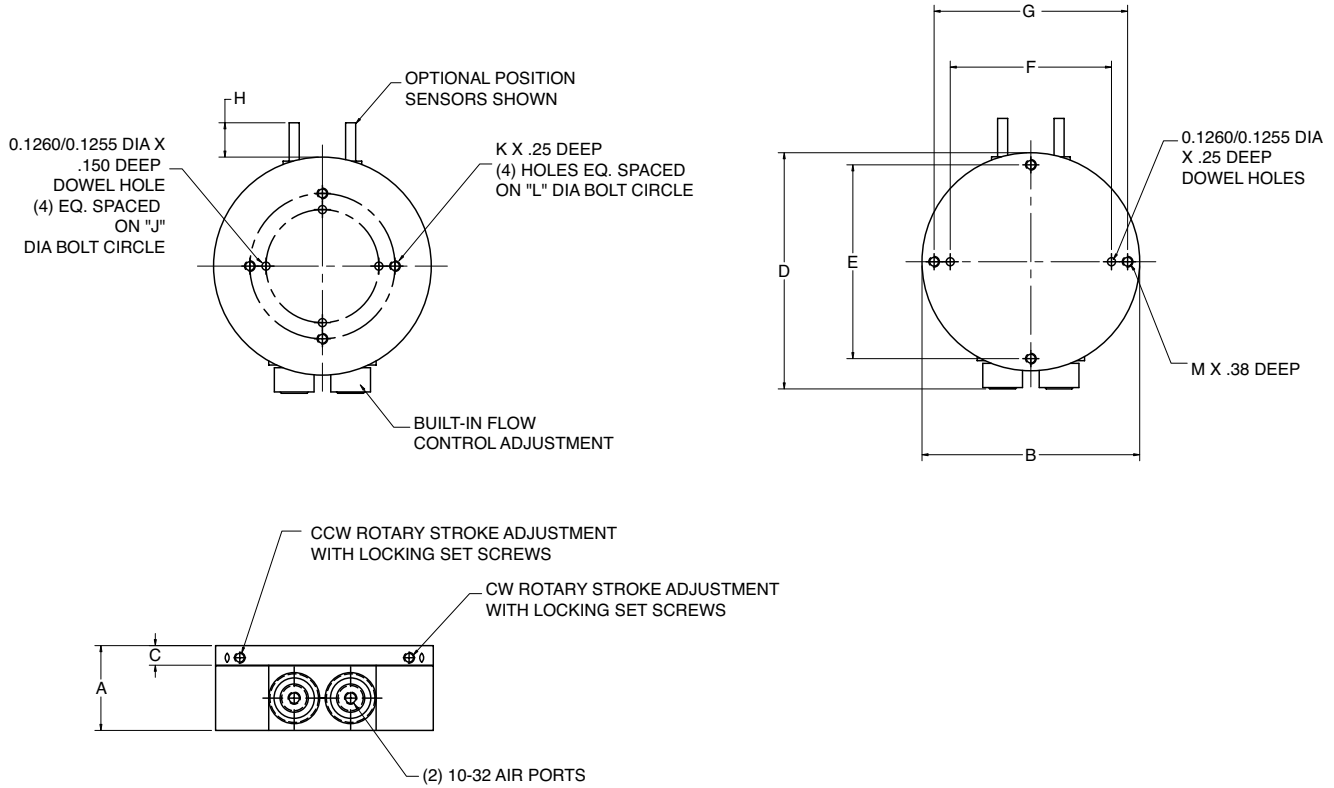
See page 6.

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

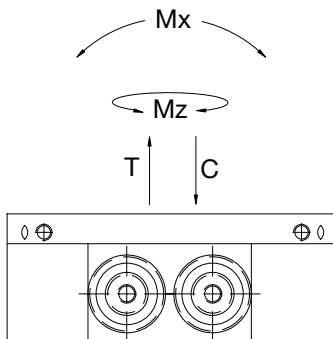


Dimensions

	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.



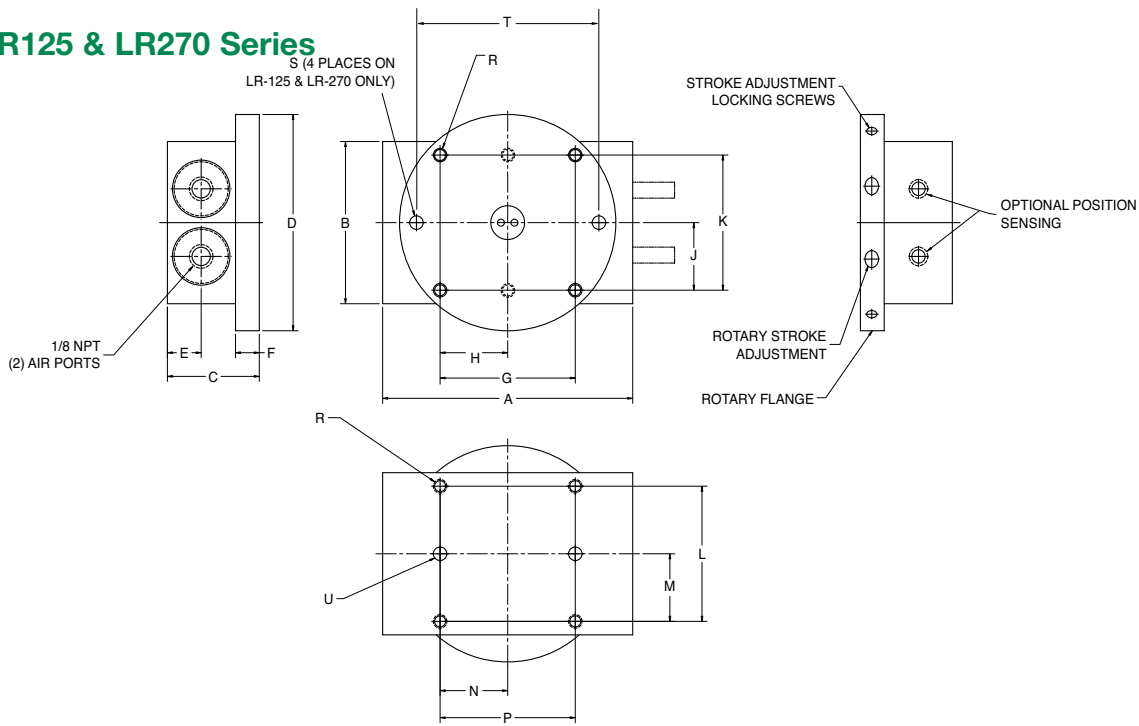
Load Capacity*

	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



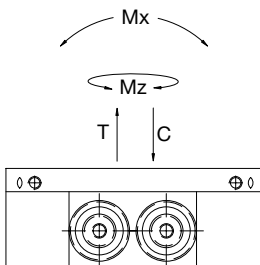
Dimensions

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 0.38 DP	0.2505/0.2510 X 0.38 DP	0.3750/0.3755 X .25 DP
T	3.38	2.75	3.000
U	0.2505/0.2510 X 0.38 DP	0.3130/0.3135 X 0.37 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. (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*



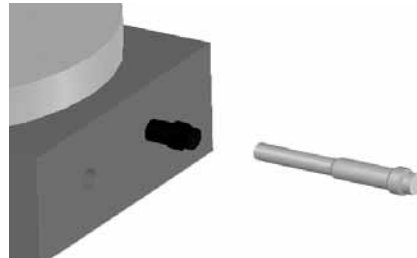
	Static Condition			Dynamic Condition		
	LR60	LR125	LR270	LR60	LR125	LR270
C-Compression	500 lbs.	1000 lbs.	2000 lbs.	100 lbs.	200 lbs.	400 lbs.
T-Tension	100 lbs.	200 lbs.	800 lbs.	20 lbs.	40 lbs.	160 lbs.
Mx	300 in.-lbs.	500 in.-lbs.	1000 in.-lbs.	75 in.-lbs.	100 in.-lbs.	200 in.-lbs.
Mz	300 in.-lbs.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

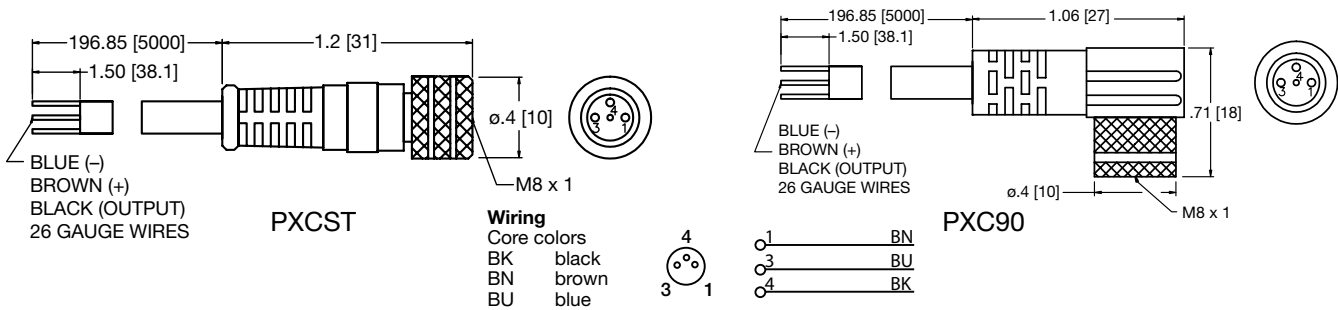
Bore	Bracket P/N
LR06	RSH05
LR20	RSH05
LR60	RSH05
LR125	RSH05
LR270	RSH05



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

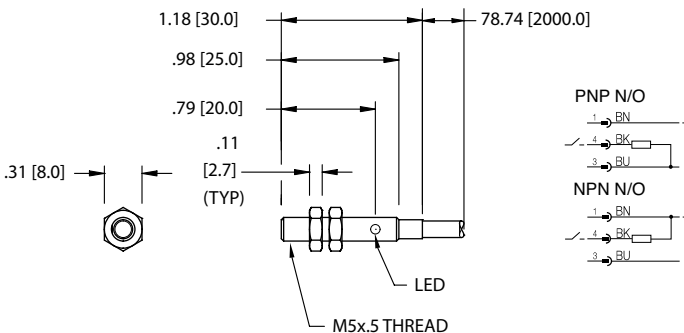
See page 19 and 20 for sensor specifications

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

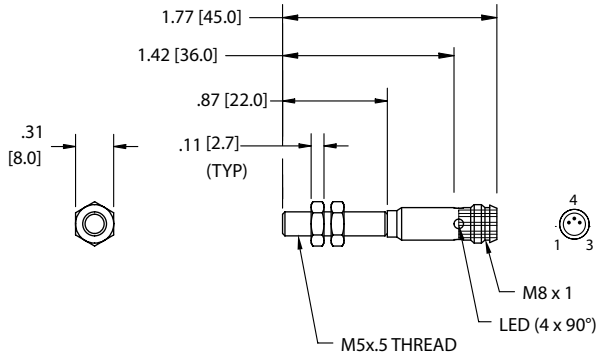
Prox Switch (NPN NO) Flying Lead - PROX-5FL2-N
Prox Switch (PNP NO) Flying Lead - PROX-5FL2-P



Electrical Design	3-Wire DC PNP/NPN
Output	Normally Open
Operating Voltage	10-36 VDC
Current Rating	100 mA
Short-Circuit Protection	Yes (Non-Latching)
Overload Protection	Yes
Reverse Polarity Protection	Yes
Voltage Drop	< 2.5V
Current Consumption	< 15 mA @ 24V
Real Sensing Range	.8mm ± 10%
Switching Frequency	> 2000 Hz
Ambient Temperature	-25°C to 70°C
Protection	IP 65, III
Switch-Point Drift	-10 - 10% OF Sr
Hysteresis	1 - 15% OF Sr
Operating Distance	0 - .65mm
Correction Factor	Mild Steel=1, Stainless Steel=.7, Brass=.5, Alum.=.4, Copper=.3
Housing Material	Housing: Stainless Steel: POM
Function Display Switching Status	Red LED
Connection	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



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