

NUMATICS®

RW Series

90 Degree Rotary Actuators



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RW Series

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RW-Series Rotary Actuator:

Designed to handle real world rotary actuator applications.

The RW-Series Rotary Actuator design utilizes two independent piston cylinders. Each piston has a crank arm attached to a crankshaft. As the piston strokes in its bore, the crankshaft rotates. Pressurizing the opposite bore reverses rotation. This unique design has many features and benefits over conventional rotary actuators.

A. Body:

Hardcoat Anodized Aluminum

Lightweight, durable, high strength to weight ratio, PTFE impregnated inside and out

Multiple mounting surfaces

Flexible, easy access mounting

B. Output Shaft:

Hardened electroless nickel

Corrosion and wear resistance

Oversized diameter

Increased strength and rigidity, supported by both roller and thrust bearings

Hollow shaft

Reduced weight, thru shaft access

C. Stroke Adjustment:

Clockwise and Counter Clockwise Adjustment

Infinite adjustment in both directions of rotation, easy access, secured by jam nut

D. Sensor Mounting Channel:

Machined into body

Accepts Numatics Motion Control dovetail switches, easy access, easy adjustment

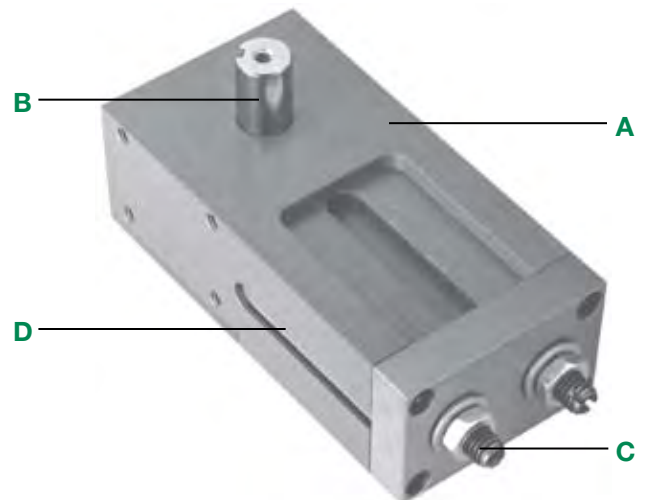
Magnetic piston is standard on all models.

Permanently lubricated seals are standard on all models, no lube required. FKM compound for high temperature applications, optional.

Factory lubricated, fluorinated grease. (Non-toxic, non-migrating and no chlorine, silicones or chlorofluorocarbons (CFCs).) Cleanroom applied.

Additional options:

- Shock absorbers
- Double output shaft



How to Order

RW 030 A 1 A E Z C 1

Bore Sizes

- 030 = 30 in.-lb
- 075 = 75 in.-lb
- 125 = 125 in.-lb

Rotation

- A = 90°

Seal Option

- 1 = Buna-N
- 2 = FKM

Shaft Option

- A = Standard Single Shaft End
- B* = Single Shaft Tapped NPTF Port
- C* = Single Shaft Tapped "G" Port
- X* = Double Shaft Tapped "G" Port
- Y* = Double Shaft Tapped NPTF Port
- Z* = Double Shaft End

*Tapped both ends.

Shock Options

- 1 = Shocks Yes
- 2 = Shocks No

Sensing Position

- A = Single Position CW
- B = Single Position CCW
- C = Two Position
- D = No Sensing

Sensing Type

- Standard Cord Set
 - 1 = Hall Effect - PNP (sourcing)
 - 2 = Hall Effect - NPN (sinking)
 - 3 = Reed Switch
 - 6 = No Sensing
- Quick Disconnect Cord Set
 - Z = Hall Effect - PNP (sourcing)
 - Y = Hall Effect - NPN (sinking)
 - X = Reed Switch

See page 7.

Example order:

Part Number: RW030A1AEZC1*

Part Description: RW rotary with 30 in.-lb torque, 90° rotation, standard seals, standard single output shaft, Hall PNP quick disconnect sensing, two positions, with shocks.

*When entering an order, DO NOT use spaces or dashes. Follow example above.

Replacement Components and Kits

Shock Retro Fit Kits*

Model No.	Part No.
RW030	RW030SK
RW075	RW075SK
RW125	RW125SK

Replacement Shocks

Model No.	Part No.
RW030	SK030
RW075	SK106
RW125	SK150

*Kits include hardware and shocks.

RW Rotary Seal Kit with Shock Option

Series	Buna Seals	FKM Seals
RW030	RWSKB-030SK	RWSKV-030SK
RW075	RWSKB-075SK	RWSKV-075SK
RW125	RWSKB-125SK	RWSKV-125SK

Sensing Kits

Standard Cord Set	
Switch	Part No.
Hall Effect PNP (Sourcing)	PNP-FL2-00-U
Hall Effect NPN (Sinking)	NPN-FL2-00-U
Reed Switch	REED-FL2-00
Quick Disconnect Cord Set	
Part No.	
Hall Effect PNP (Sourcing)	PNP-QDS-M8-U
Hall Effect NPN (Sinking)	NPN-QDS-M8-U
Reed Switch	REED-QDS-M8U
90° 5 meter cable	PXC90
Straight 5 meter cable	PXCST

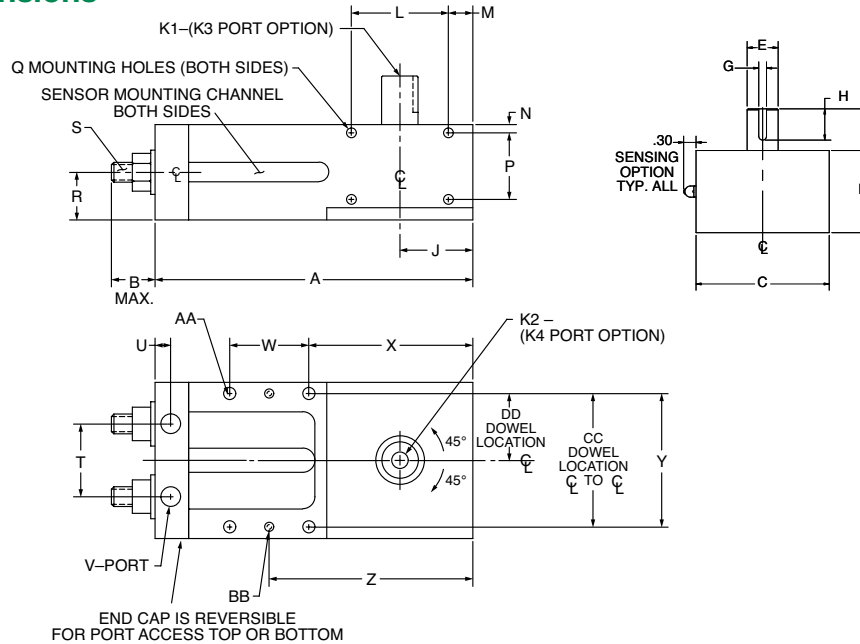
*All mounting hardware included with sensors.

RW Rotary Seal Kit

Series	Buna Seals	FKM Seals
RW030	RWSKB-030	RWSKV-030
RW075	RWSKB-075	RWSKV-075
RW125	RWSKB-125	RWSKV-125

Dimensions: Inches

RW Series Dimensions



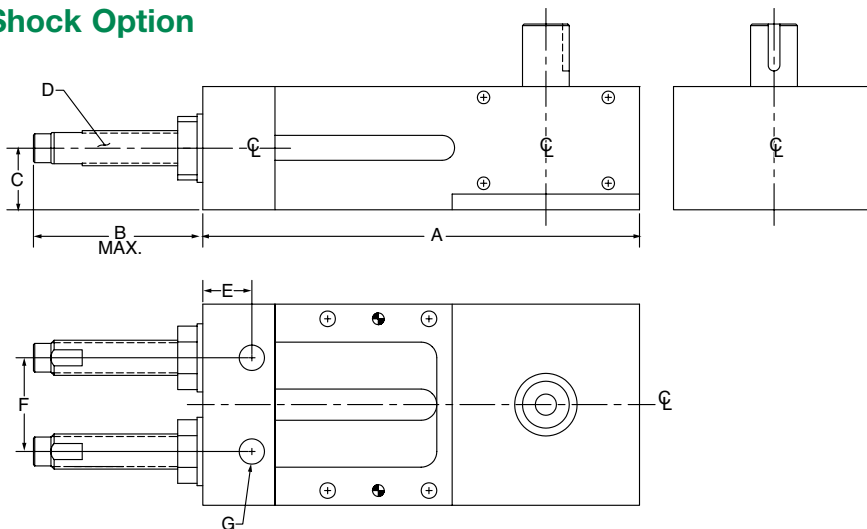
	RW030	RW075	RW125
A	4.75	6.53	7.95
B	0.79	0.82	0.82
C	2.44	3.22	3.88
D	1.60	1.97	2.40
E	0.4995/0.4990	0.7495/0.7490	0.9995/0.9990
F	0.75	1.00	1.50
G	0.125 X 0.070/0.074 DP	0.1875 X 0.106/0.110 DP	0.250 X 0.141/0.145 DP
H	0.65	0.75	1.25
J	1.17	1.50	1.94
K1	# 10-32 TAPPED	1/4-20 TAPPED	3/8-16 TAPPED
K2	0.159 THRU	.339 DIA. X 1.75 DP	7/16 DIA X 2.45 DP
K3	NO OPTION	OPTIONAL 1/8 NPT OR 1/8 G-PORT	OPTIONAL 1/4 NPT OR 1/4 G-PORT
K4	OPTIONAL # 10-32 TAPPED	OPTIONAL 1/8 NPT OR 1/8 G-PORT	OPTIONAL 1/4 NPT OR 1/4 G-PORT
L	1.88	2.00	2.56
M	0.45	0.50	0.66
N	0.15	0.17	0.25
P	1.00	1.38	1.70
Q	#10-32	1/4 - 20	1/4-20
R	0.80	0.99	1.20
S	3/8 - 24	7/16-14	7/16-14
T	1.13	1.50	2.00
U	0.20	0.37	0.37
V	#10-32	1/8 NPTF	1/8 NPTF
W	1.13	1.63	2.25
X	2.64	3.38	4.13
Y	2.00	2.75	3.25
Z	3.209/3.211	4.187/4.189	5.374/5.376
AA	#10-32	1/4 - 20	5/16-18
BB	0.124/0.125	0.187/0.188	0.187/0.188
CC	1.9995/2.0005	2.7495/2.7505	3.2495/3.2505
DD	0.9995/1.0005	1.3745/1.3755	1.6245/1.6255

RW Series

Model	Torque @ 100PSI	Dynamic Thrust Load	Dynamic Radial Load	Displacement Per Degree	Unit Weight	Maximum Pressure
RW030	30 inlb (3.4 N-m)	646 lbf (2875 N)	197 lbf (877 N)	0.007 cuin. (0.115 cc)	1.75	250 psi
RW075	82 inlb (9.2 N-m)	1034 lbf (4600 N)	357 lbf (1589 N)	0.020 cuin. (0.335 cc)	4.20	250 psi
RW125	133 inlb (15.0 N-m)	1330 lbf (5917 N)	518 lbf (2307 N)	0.033 cuin. (0.538 cc)	7.00	250 psi

Typical breakaway 5.0 psi. Backlash max. ± 1/4 degree.

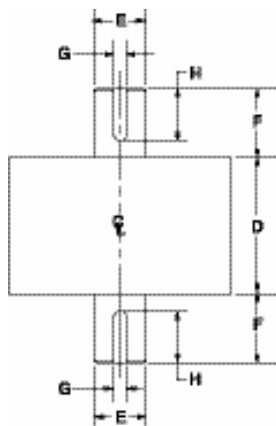
Shock Option



Shock Option

	RW030	RW075	RW125
A	5.56	7.00	8.42
B	2.72	2.72	2.69
C	0.80	0.99	1.20
D	SK030	SK106	SK150
E	0.91	0.84	0.84
F	1.13	1.50	2.00
G	#10-32	1/8 NPTF	1/8 NPTF

Dual Output Shaft



	RW030	RW075	RW125
D	1.60	1.97	2.40
E	0.4995/0.4990	0.7493/0.7488	0.9995/0.9990
F	0.75	1.00	1.50
G	0.125 X 0.070/0.074 DP	0.1875 X 0.106/0.110 DP	0.250 X 0.141/0.145 DP
H	0.65	0.75	1.25

RW Series Rotary

Bore	Bracket P/N
RW030	N99-1185
RW075	N99-1185
RW125	N99-1185

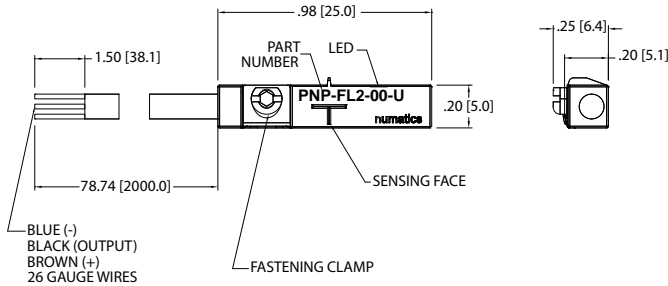


Sensor Description	Standard Cord Set	Quick Disconnect
Reed Switch	REED-FL2-00	REED-QDS-M8U
Hall PNP	PNP-FL2-00-U	PNP-QDS-M8-U
Hall NPN	NPN-FL2-00-U	NPN-QDS-M8-U

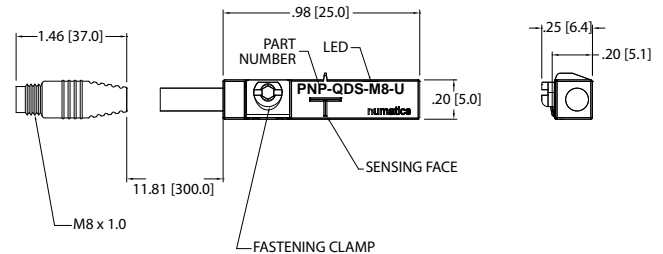
See page 7, 8, & 9 for sensor specifications

Sensing Part Numbers

PNP-FL2-00-U



PNP-QDS-M8-U

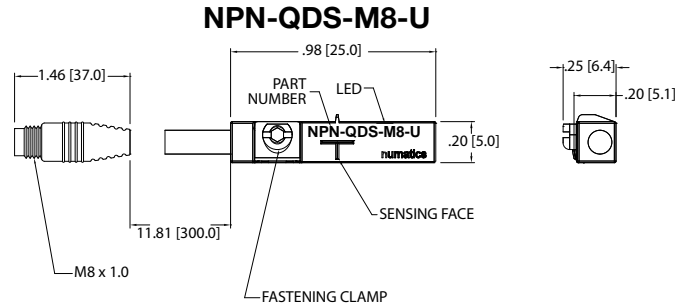
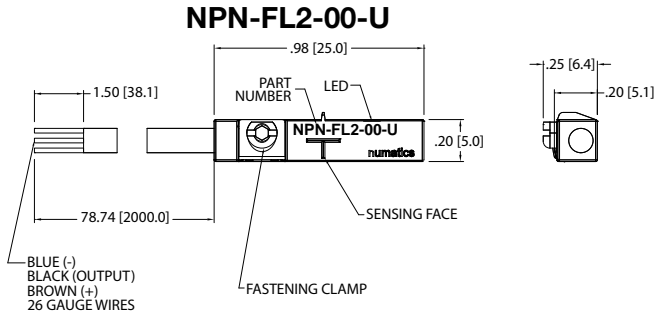


ELECTRICAL DESIGN	DC PNP
OUTPUT	Normally Open
OPERATING VOLTAGE	10-30 VDC
CURRENT RATING	100 mA
SHORT-CIRCUIT PROTECTION	Yes
OVERLOAD PROTECTION	Yes
REVERSE POLARITY PROTECTION	Yes
VOLTAGE DROP	< 2.5 V
CURRENT CONSUMPTION	< 12 mA
REPEATABILITY	< .2mm
POWER-ON DELAY TIME	< 30 ms
SWITCH FREQUENCY	> 3000 Hz
AMBIENT TEMPERATURE	-25°C to 85°C
PROTECTION	IP 67, III
HYSTERESIS	1.0mm
MAGNETIC SENSITIVITY	2.0 mT
TRAVEL SPEED	> 10 m/s
HOUSING MATERIAL	PA (Polyamide) Black; Fastening Clamp: Stainless Steel
FUNCTION DISPLAY SWITCHING STATUS	Yellow LED
CONNECTION	Flying Leads, Pur Cable (2m Long, 3 x26 Gauge Wire)
REMARKS	Clamping Screw with Combined Slot/Hexagon Socket Head AF 1.5 cULus - Class 2 Source Required
ACCESSORIES	Rubber Placeholder, Cable Clip, and Cut Sheet To Be Provided with Every Switch
AGENCY APPROVALS	

ELECTRICAL DESIGN	DC PNP
OUTPUT	Normally Open
OPERATING VOLTAGE	10-30 VDC
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REVERSE POLARITY PROTECTION	Yes
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SWITCH FREQUENCY	> 3000 Hz
AMBIENT TEMPERATURE	-25°C to 85°C
PROTECTION	IP 67, III
HYSTERESIS	1.0mm
MAGNETIC SENSITIVITY	2.0 mT
TRAVEL SPEED	> 10 m/s
HOUSING MATERIAL	PA (Polyamide) Black; Fastening Clamp: Stainless Steel
FUNCTION DISPLAY SWITCHING STATUS	Yellow LED
CONNECTION	M8 Connector (Snap Fit) , Pur Cable (.3 m)
REMARKS	Clamping Screw with Combined Slot/Hexagon Socket Head AF 1.5 cULus - Class 2 Source Required
ACCESSORIES	Rubber Placeholder, Cable Clip, and Cut Sheet To Be Provided with Every Switch
AGENCY APPROVALS	

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

Sensing Part Numbers



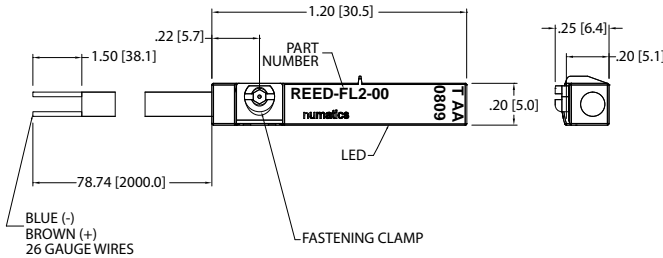
ELECTRICAL DESIGN	DC NPN
OUTPUT	Normally Open
OPERATING VOLTAGE	10-30 VDC
CURRENT RATING	100 mA
SHORT-CIRCUIT PROTECTION	Yes
OVERLOAD PROTECTION	Yes
REVERSE POLARITY PROTECTION	Yes
VOLTAGE DROP	< 2.5 V
CURRENT CONSUMPTION	< 12 mA
REPEATABILITY	< .2mm
POWER-ON DELAY TIME	< 30 ms
SWITCH FREQUENCY	> 3000 Hz
AMBIENT TEMPERATURE	-25°C to 85°C
PROTECTION	IP 67, III
HYSTERESIS	1.0mm
MAGNETIC SENSITIVITY	2.0 mT
TRAVEL SPEED	> 10 m/s
HOUSING MATERIAL	PA (Polyamide) Black; Fastening Clamp: Stainless Steel
FUNCTION DISPLAY SWITCHING STATUS	Yellow LED
CONNECTION	Flying Leads, Pur Cable (2m Long, 3 x26 Gauge Wire)
REMARKS	Clamping Screw with Combined Slot/Hexagon Socket Head AF 1.5 cULus - Class 2 Source Required
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AGENCY APPROVALS	

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OUTPUT	Normally Open
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CURRENT RATING	100 mA
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OVERLOAD PROTECTION	Yes
REVERSE POLARITY PROTECTION	Yes
VOLTAGE DROP	< 2.5 V
CURRENT CONSUMPTION	< 12 mA
REPEATABILITY	< .2mm
POWER-ON DELAY TIME	< 30 ms
SWITCH FREQUENCY	> 3000 Hz
AMBIENT TEMPERATURE	-25°C to 85°C
PROTECTION	IP 67, III
HYSTERESIS	1.0mm
MAGNETIC SENSITIVITY	2.0 mT
TRAVEL SPEED	> 10 m/s
HOUSING MATERIAL	PA (Polyamide) Black; Fastening Clamp: Stainless Steel
FUNCTION DISPLAY SWITCHING STATUS	Yellow LED
CONNECTION	M8 Connector (Snap Fit) , Pur Cable (.3 m)
REMARKS	Clamping Screw with Combined Slot/Hexagon Socket Head AF 1.5 cULus - Class 2 Source Required
ACCESSORIES	Rubber Placeholder, Cable Clip, and Cut Sheet To Be Provided with Every Switch
AGENCY APPROVALS	

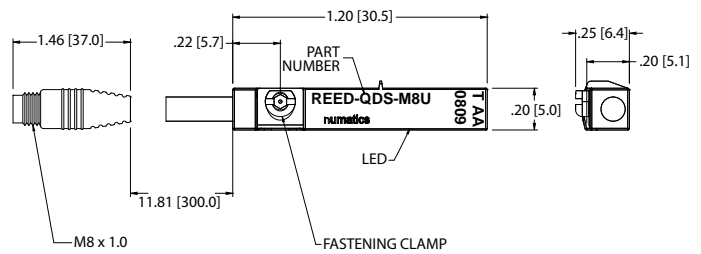
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Sensing Part Numbers

REED-FL2-00



REED-QDS-M8U

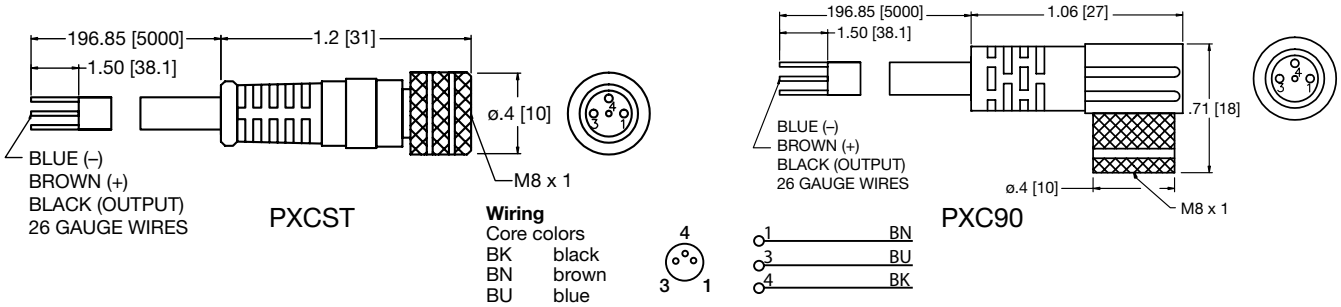


ELECTRICAL DESIGN	AC/DC REED
OUTPUT	Normally Open
OPERATING VOLTAGE	5-120 VAC/DC
CURRENT RATING	100 mA*
SHORT-CIRCUIT PROTECTION	No
OVERLOAD PROTECTION	No
REVERSE POLARITY PROTECTION	Yes
VOLTAGE DROP	< 5 V
REPEATABILITY	± .2mm
MAKETIME INCLUDING BOUNCE	< .6 ms
BREAKTIME	< .1 ms
SWITCHING POWER (MAX)	5 W
SWITCH FREQUENCY	1000 Hz
AMBIENT TEMPERATURE	-25°C to 70°C
PROTECTION	IP 67, II
HYSTERESIS	.9mm
HOUSING MATERIAL	PA (Polyamide) Black; Fastening Clamp: Stainless Steel
FUNCTION DISPLAY SWITCHING STATUS	Yellow LED
CONNECTION	Flying Leads, Pur Cable (2m Long, 2 x26 Gauge Wire)
REMARKS	<p>*External Protective Circuit for Inductive Load (Valve, Contactor, Etc.) Necessary. Conforms to 2008 NEC Section 725 III, Class 2 Circuits</p> <p>Clamping Screw with Combined Slot/Hexagon Socket Head AF 1.5.</p> <p>No LED Function in case of Polarity in DC Operation</p>
ACCESSORIES	Rubber Placeholder, Cable Clip, and Cut Sheet To Be Provided with Every Switch
AGENCY APPROVALS	CE RoHS

ELECTRICAL DESIGN	AC/DC REED
OUTPUT	Normally Open
OPERATING VOLTAGE	*5-60 VDC / 5-50 VAC
CURRENT RATING	100 mA
SHORT-CIRCUIT PROTECTION	No
OVERLOAD PROTECTION	No
REVERSE POLARITY PROTECTION	Yes
VOLTAGE DROP	< 5 V
REPEATABILITY	± .2mm
MAKETIME INCLUDING BOUNCE	< .6 ms
BREAKTIME	< .1 ms
SWITCHING POWER (MAX)	5 W
SWITCH FREQUENCY	1000 Hz
AMBIENT TEMPERATURE	-25°C to 70°C
PROTECTION	IP 67, II
HYSTERESIS	.9mm
HOUSING MATERIAL	PA (Polyamide) Black; Fastening Clamp: Stainless Steel
FUNCTION DISPLAY SWITCHING STATUS	Yellow LED
CONNECTION	M8 Connector (Snap Fit), Pur Cable (.3m)
REMARKS	<p>*External Protective Circuit for Inductive Load (Valve, Contactor, Etc.) Necessary. Conforms to 2008 NEC Section 725 III, Class 2 Circuits</p> <p>M8 Connector voltage limited to 5-60 vdc / 5-50 vac to conform with 2008 IEC 61076-2-104</p> <p>Clamping Screw with Combined Slot/Hexagon Socket Head AF 1.5.</p> <p>No LED Function in case of Polarity in DC Operation</p>
ACCESSORIES	Rubber Placeholder, Cable Clip, and Cut Sheet To Be Provided with Every Switch
AGENCY APPROVALS	CE RoHS

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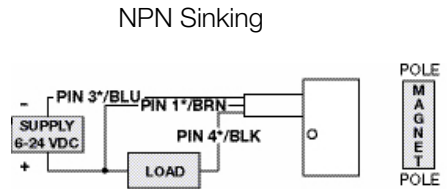
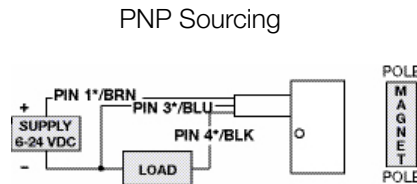
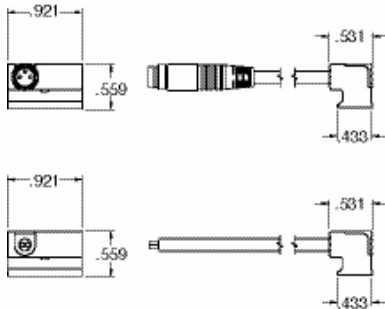
Quick Disconnect Cables



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

RW Series World Switch Hall Effect Part Numbers

P/N	Switch Style	Electrical Design	Output	Operating Voltage	Current Rating	Switching Power	Voltage Drop	NEMA IP Rating	Temperature Rating
SH6-031	Flying Lead	DC PNP	Normally Open	6-24 VDC	0.3 Amps Max.	7.2 Watts Max.	.5 Volts	NEMA 6	-25° to +75° C
SH6-032	Flying Lead	DC PNP	Normally Open	6-24 VDC	0.3 Amps Max.	7.2 Watts Max.	.5 Volts	NEMA 6	-25° to +75° C
SH6-021	M8 Connector	DC NPN	Normally Open	6-24 VDC	0.3 Amps Max.	7.2 Watts Max.	.5 Volts	NEMA 6	-25° to +75° C
SH6-022	M8 Connector	DC NPN	Normally Open	6-24 VDC	0.3 Amps Max.	7.2 Watts Max.	.5 Volts	NEMA 6	-25° to +75° C



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