

# NUMATICS®

## B Series

Compact Linear Slide



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## **B Series**

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The “B” series design is compact and self-contained. Cylinder pistons are attached directly to each guide rod, conserving size without sacrificing output force. Guide rods are supported by specially designed guide bushings providing optimum support of dynamic loads. Guide bushings are manufactured from specially engineered materials designed to eliminate potential rod binding.



**A. Body:**

Hardcoat anodized aluminum ..... lightweight, durable, high strength to weight ratio  
 PTFE coated ..... inside and out, reduced friction, increased seal life  
 Easy access mounting ..... holes drilled from top and tapped from bottom, standard dowel locating holes for accurate mounting  
 Integrated sensing mount ..... dovetail rail both sides to accept Numatics World Switch

**B. Tooling Plate:**

Hardcoat anodized aluminum ..... lightweight, durable  
 Easy access mounting ..... holes drilled and tapped, dowel locating holes standard  
 NuMate™ mounting capability ..... reduced cost, eliminates adapters and transition plates

**C. Guide Shafts:**

303 Stainless steel ..... low friction, long life  
 Pilot mounted to tooling plate ..... maximum rigidity

**D. Bearings:**

Special engineered material ..... low friction, long life  
 Maximum rigidity ..... superior rod diameter to bearing length ratio

**E. Position Sensing:**

Easy access position sensor mounting ..... integrated dovetail mounting, twin piston magnets-standard

**F. NuMate™ Mounting:**

Direct mount mounting system ..... patented mounting system eliminates requirement for adapters and transition plates  
 Patent No. 5,560,281

**How to Order**

**B 04 1 E 1 S 6 D X**

**Bore Sizes**

- 04 = 0.437 Inch
- 06 = 0.625 Inch
- 08 = 0.875 Inch

**Standard Stroke**

- 0 = 0"
- 1 = 1"
- 2 = 2"
- 3 = 3"
- 4 = 4" Maximum Stroke

**Fractional Stroke**

- A = 0 Inch
- E = 1/2 Inch

**Seal Option**

- 1 = Buna
- 2 = FKM

**Options**

- X = No Options
- T = Top Surface Ports
- B = Bottom Surface Ports

**Sensing Position**

- A = Single Position Extend
- B = Single Position Retract
- C = Extend and Retract
- 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

**Guide Shaft Material**

- H = Hardened Steel Shafts
- S = Stainless Steel

**Example order:**

Part Number: B041E1S6DX\*

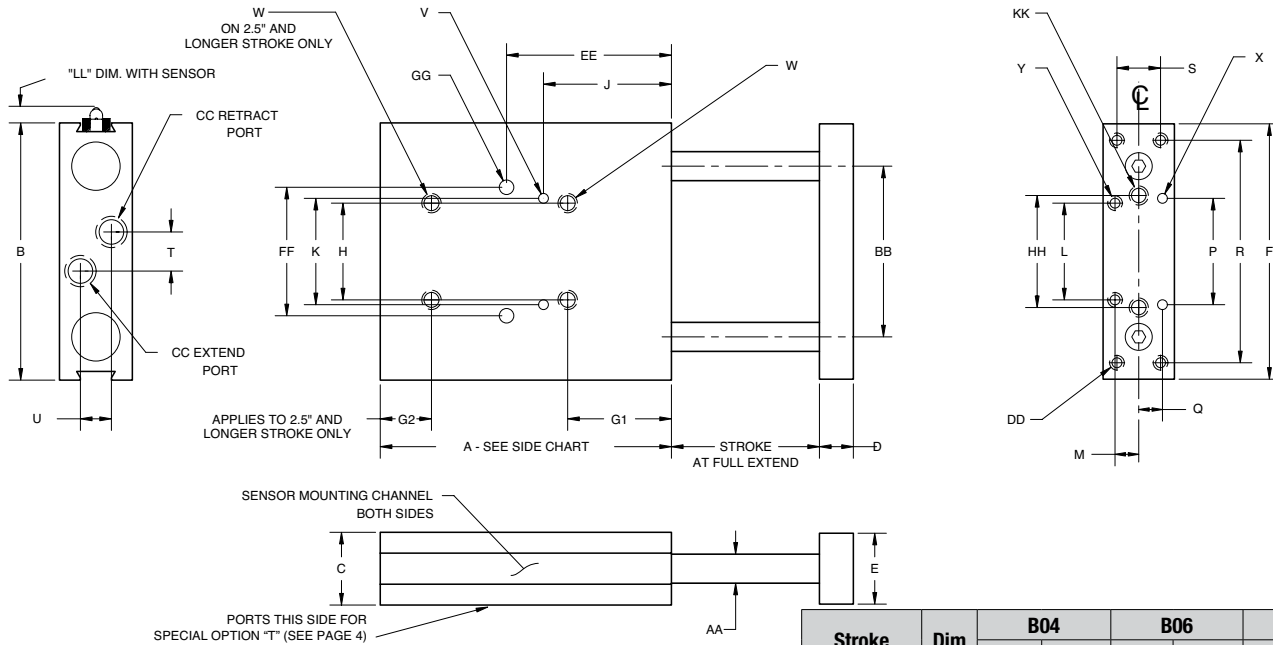
Part Description: 7/16" diameter twin bore linear slide, 1.5" stroke, Buna seals, 1/4" stainless steel guide shafts, no switches, no special options.

**When ordering additional accessories:**

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

Series	Buna-N Seal Kit	FKM Seal Kit
B04	BSKB-04	BSKV-04
B06	BSKB-06	BSKV-06
B08	BSKB-08	BSKV-08

## B Series Dimensions



Stroke	Dim	B04		B06		B08	
		ins.	mm	ins.	mm	ins.	mm
1/2" & 1"	A	2.28	57.9	2.85	72.4	3.27	83.1
1-1/2" & 2"	A	3.28	83.3	3.85	97.8	4.27	108.5
2-1/2" & 3"	A	4.28	108.7	4.85	123.2	5.27	133.9
3-1/2" & 4"	A	5.28	134.1	5.85	148.6	6.27	159.3

	B04		B06		B08	
	Inches	mm	Inches	mm	Inches	mm
B	2.86	72.6	3.33	84.6	3.82	97.0
C	0.75	19.1	0.94	23.9	1.23	31.2
D	0.31	7.9	0.44	11.2	0.60	15.2
E	0.74	18.8	0.92	23.4	1.20	30.5
F	2.85	72.4	3.30	83.8	3.79	96.3
G1	1.30	33.0	1.34	34.0	1.76	44.7
G2	1.48	37.6	1.01	25.7	1.51	38.4
H	1.25	31.8	1.25	31.8	1.25	31.8
J	1.61	40.9	1.65	41.9	2.08	52.8
K	1.374/1.376	34.9/34.95	1.374/1.376	34.9/34.95	1.374/1.376	34.9/34.95
L	1.25	31.8	1.25	31.8	1.25	31.8
M	0.16	4.1	0.16	4.1	0.31	7.9
P	1.374/1.376	34.9/34.95	1.374/1.376	34.9/34.95	1.811/1.812	46.0/46.1
Q	0.16	4.1	0.16	4.1	0.38	9.7
R	2.50	63.5	2.88	73.2	3.25	82.6
S	0.44	11.2	0.56	14.2	0.75	19.1
T	0.25	6.4	0.51	13.0	0.51	13.0
U	0.35	8.9	0.40	10.2	0.40	10.2
V	0.1250/0.1255x0.200 DP	3.18/3.19 x 5.1 DP	0.1250/0.1255x0.200 DP	3.18/3.19 x 5.1 DP	0.1250/0.1255x0.200 DP	3.18/3.19 x 5.1 DP
W	1/4-20 THRU	—	1/4-20 THRU	—	1/4-20 THRU	—
X	0.1250/0.1255 THRU	3.18/3.19 x 5.1 DP	0.1250/0.1255 THRU	3.18/3.19 x 5.1 DP	0.1875/0.1880 THRU	4.76/4.77 THRU
Y	#10-32 THRU	—	#10-32 THRU	—	#10-32 THRU	—
AA	.250 NOM.	6.35	.375 NOM.	9.53	.500 NOM.	12.7
BB	2.00	50.8	2.21	56.1	2.46	62.5
CC	#10-32	—	1/8 NPTF	—	1/8 NPTF	—
DD	#8-32 THRU	—	#10-32 THRU	—	1/4-20 THRU	—
EE	—	—	—	—	2.44	62.0
FF	—	—	—	—	1.811/1.813	46.0/46.1
GG	—	—	—	—	0.1875/0.1880x0.120 DP	4.76/4.78x4.8 DP
HH	—	—	—	—	1.50	38.1
KK	—	—	—	—	1/4-20 THRU, C'Bore For #10-32 SHCS From Opposite Side	—
LL	.29	(7.3)	.30	(7.6)	.30	(7.6)

**Technical and Operating Data**

**Unit Weight Table**

	<b>B04</b>	<b>B06</b>	<b>B08</b>
Unit Weight (lbs)	0.30	0.52	1.08
Adder/Full Inch Stroke (lbs)	0.19	0.28	0.58

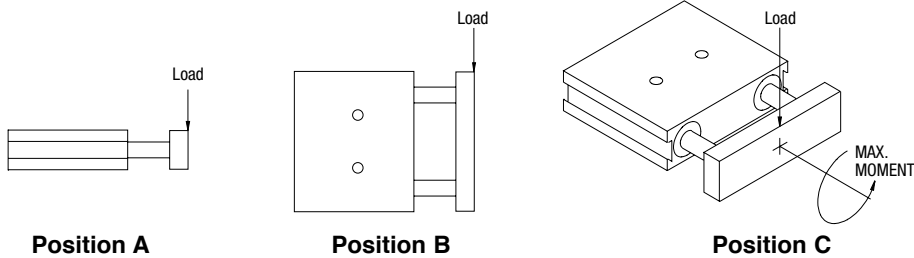
Always round up to the next full inch stroke for 1/2 inch stroke increments.

Example: B062E1H6DX      0.52 + (3 X 0.28) = 1.36 lbs.

**Unit Output Force Table**

	<b>B04</b>	<b>B06</b>	<b>B08</b>
Extend Force (lbs)	0.30	0.61	1.20
Retract Force (lbs)	0.20	0.39	0.81

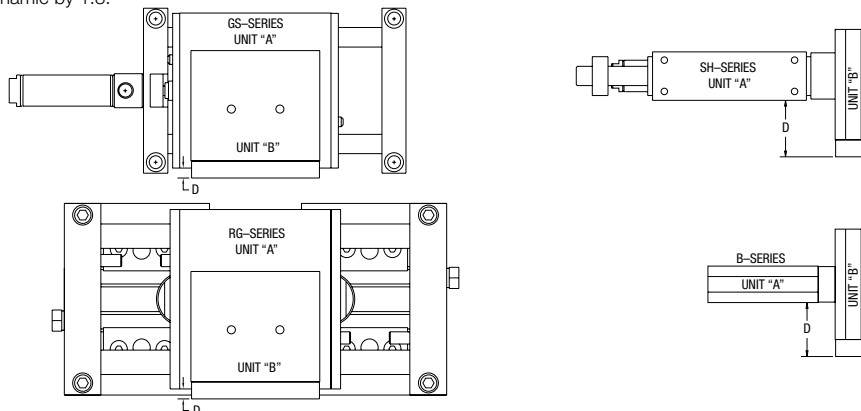
Multiply force factor by input pressure in psi.



**Maximum Dynamic Load and Deflection Ratings**

Stroke	B04			B06			B08		
	POS A&B	POS A&B	POS C	POS A&B	POS A&B	POS C	POS A&B	POS A&B	POS C
	Load (Lbs)	Deflection (IN)	Max Moment	Load (Lbs)	Deflection (IN)	Max Moment	Load (Lbs)	Deflection (IN)	Max Moment
1	4.0	0.0005	1.0 inlb	8.0	0.0002	8.0 inlb	13.0	0.0001	13.0 inlb
2	2.0	0.0011	2.0 inlb	4.0	0.0004	4.0 inlb	6.5	0.0002	6.5 inlb
3	1.5	0.0018	1.5 inlb	2.6	0.0006	2.6 inlb	4.5	0.0004	4.5 inlb
4	1.0	0.0025	1.0 inlb	2.0	0.0010	2.0 inlb	3.5	0.0006	3.5 inlb

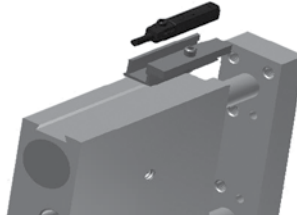
For static loads multiply dynamic by 1.3.



Unit "B"	Unit "A" ("D" = Dimension in Inches)						
	B04	B06	B08	GS075	GS106 & RG25B	SH056	SH075
B04	1.403	1.564	2.149	0.094	0.239	1.139	1.329
B06	1.310	1.472	1.486	0.256	0.401	1.300	1.491
B08	2.149	2.057	2.071	0.841	0.986	1.886	2.076

## B Series Slide

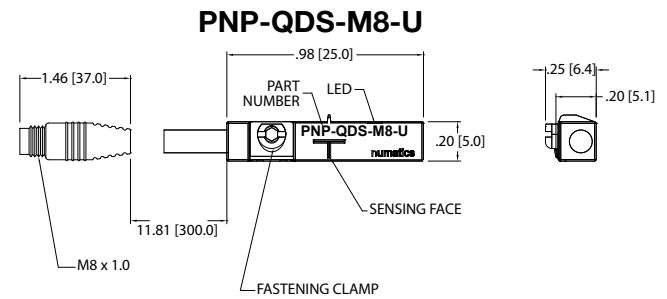
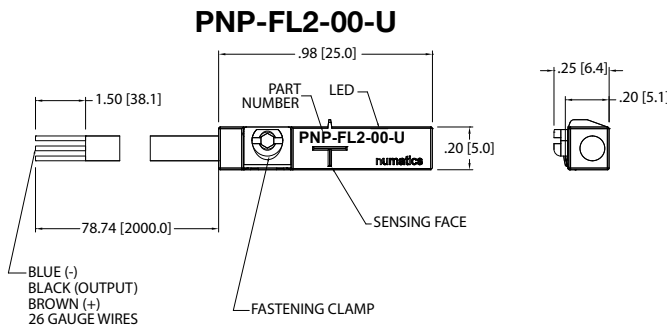
Bore	Bracket P/N
B04	N99-1185
B06	N99-1185
B08	N99-1185



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

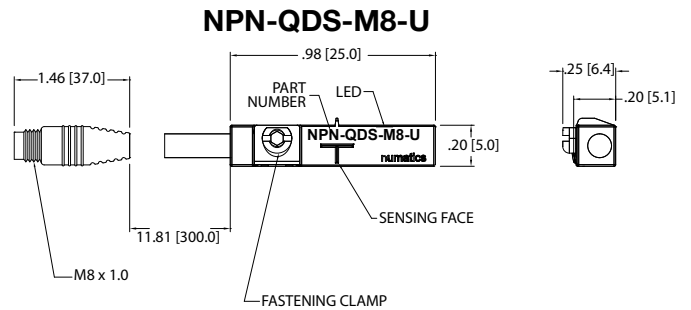
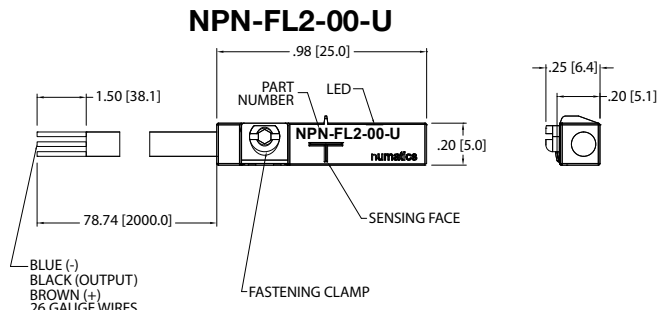


ELECTRICAL DESIGN	DC PNP
OUTPUT	Normally Open
OPERATING VOLTAGE	10-30 VDC
CURRENT RATING	100 mA
SHORT-CIRCUIT PROTECTION	Yes
OVERLOAD PROTECTION	Yes
REVERSE POLARITY PROTECTION	Yes
VOLTAGE DROP	< 2.5 V
CURRENT CONSUMPTION	< 12 mA
REPEATABILITY	< .2mm
POWER-ON DELAY TIME	< 30 ms
SWITCH FREQUENCY	> 3000 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
CURRENT RATING	100 mA
SHORT-CIRCUIT PROTECTION	Yes
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VOLTAGE DROP	< 2.5 V
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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
ACCESSORIES	Rubber Placeholder, Cable Clip, and Cut Sheet To Be Provided with Every Switch
AGENCY APPROVALS	<b>CE</b> <b>cUL</b> <b>US</b> <b>RoHS</b>

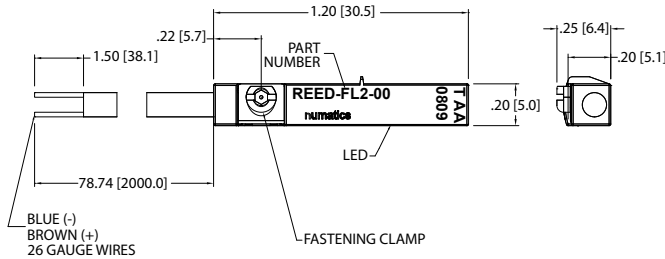
ELECTRICAL DESIGN	DC NPN
OUTPUT	Normally Open
OPERATING VOLTAGE	10-30 VDC
CURRENT RATING	100 mA
SHORT-CIRCUIT PROTECTION	Yes
OVERLOAD PROTECTION	Yes
REVERSE POLARITY PROTECTION	Yes
VOLTAGE DROP	< 2.5 V
CURRENT CONSUMPTION	< 12 mA
REPEATABILITY	< .2mm
POWER-ON DELAY TIME	< 30 ms
SWITCH FREQUENCY	> 3000 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	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	<b>CE</b> <b>cUL</b> <b>US</b> <b>RoHS</b>

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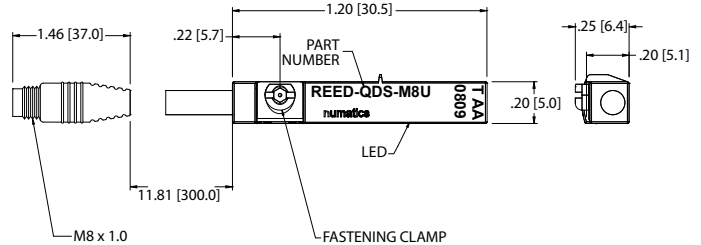



## Sensing Part Numbers


### REED-FL2-00



### REED-QDS-M8U

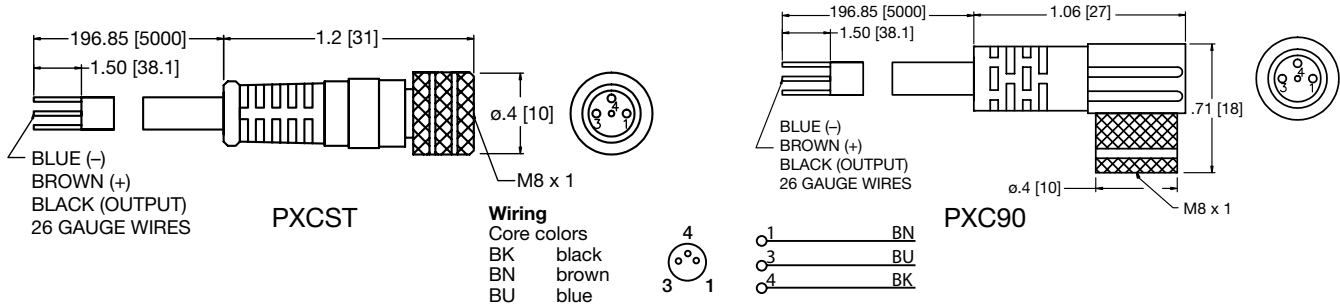


ELECTRICAL DESIGN	AC/DC REED
OUTPUT	Normally Open
OPERATING VOLTAGE	5-120 VAC/DC
CURRENT RATING	100 mA*
SHORT-CIRCUIT PROTECTION	No
OVERLOAD PROTECTION	No
REVERSE POLARITY PROTECTION	Yes
VOLTAGE DROP	< 5 V
REPEATABILITY	± .2mm
MAKETIME INCLUDING BOUNCE	< .6 ms
BREAKTIME	< .1 ms
SWITCHING POWER (MAX)	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	*External Protective Circuit for Inductive Load (Valve, Contactor, Etc..) Necessary. Conforms to 2008 NEC Section 725 III, Class 2 Circuits  Clamping Screw with Combined Slot/Hexagon Socket Head AF 1.5. No LED Function in case of Polarity in DC Operation
ACCESSORIES	Rubber Placeholder, Cable Clip, and Cut Sheet To Be Provided with Every Switch
AGENCY APPROVALS	 <b>RoHS</b>

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	*External Protective Circuit for Inductive Load (Valve, Contactor, Etc..) Necessary. Conforms to 2008 NEC Section 725 III, Class 2 Circuits  M8 Connector voltage limited to 5-60 vdc / 5-50 vac to conform with 2008 IEC 61076-2-104  Clamping Screw with Combined Slot/Hexagon Socket Head AF 1.5. No LED Function in case of Polarity in DC Operation
ACCESSORIES	Rubber Placeholder, Cable Clip, and Cut Sheet To Be Provided with Every Switch
AGENCY APPROVALS	 <b>RoHS</b>

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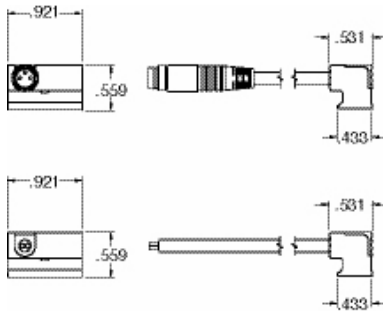
**Quick Disconnect Cables**



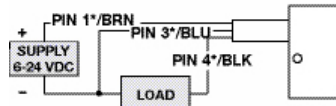
Order Code	Type	Operating Voltage	Current Rating	Cable Material	Protection	Connector
PXCST	Straight 5 m Cable (3 x 26 Gauge wire)	60 AC/75 DC	3 A	PUR	IP 68, III	M8
PXC90	90° 5 m Cable (3 x 26 Gauge wire)	60 AC/75 DC	3 A	PUR	IP 68, III	M8

**B Slide Series World Switch Hall Effect Part Numbers**

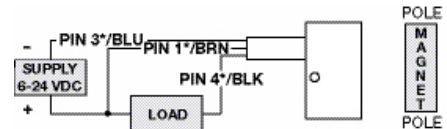
P/N	Switch Style	Electrical Design	Output	Operating Voltage	Current Rating	Switching Power	Voltage Drop	NEMA IP Rating	Temperature Rating
SH6-031	Flying Lead	DC PNP	Normally Open	6-24 VDC	0.3 Amps Max.	7.2 Watts Max.	.5 Volts	NEMA 6	-25° to +75° C
SH6-032	Flying Lead	DC PNP	Normally Open	6-24 VDC	0.3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



**PNP Sourcing**



**NPN Sinking**



# NUMATICS®

World Class Supplier of Pneumatic Components



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