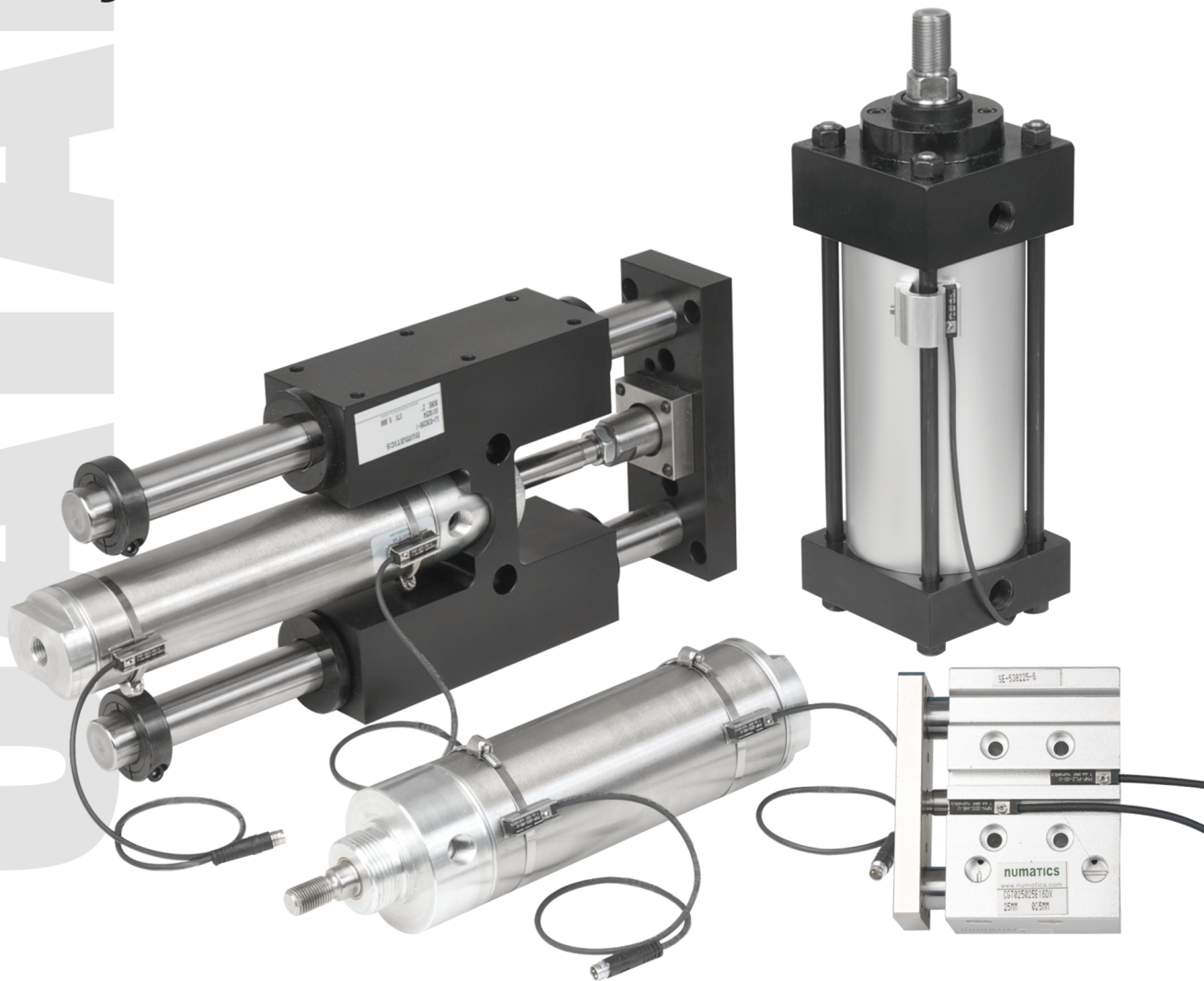


CATALOG

sensors

# Actuator Sensors

*Sensors and Sensor Brackets*



# NUMATICS®

Numatics, Inc. is a leading manufacturer of pneumatic products and motion control products. Our broad spectrum of standard, custom developed products and application components, have made a significant impact on pneumatic innovation as well as pneumatic and motion control technology. Our company has an extensive history of generating innovative concepts and technological breakthroughs. Many of today's standard features in pneumatic technology were industry firsts from Numatics. We continue our innovative approach to product development by developing electric motion control solutions and enhancing our embedded Fieldbus and I/O products to continually meet and solve our customer's application requirements.



Today Numatics is proud to be a part of the Industrial Automation Division of Emerson Electric Co.

Emerson (NYSE: EMR) is a global company that brings together technology and engineering to provide innovative solutions for customers in a wide range of industrial, commercial, and consumer markets.

Numatics, along with the vast resources of the Emerson organization, will assure that our proud history of innovation and service will continue to meet the needs of our global customers.



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<b>Actuator Sensor Series</b> .....	2-16
NFPA Interchangeable Cylinders .....	2
Compact Cylinders .....	2-3
Non-Repairable Cylinders .....	3
ISO Standard Cylinders .....	3-4
Specialty Cylinders .....	4
Linear Slides.....	4-5
Specialty Actuator Products .....	6
Grippers .....	6-8
Rotaries .....	8
Sensing Brackets.....	9
Sensing Part Numbers.....	10-12
C Series World Switch Hall Effect Part Numbers.....	13
Hall Effect Switch.....	13
Sensor Specifications & Ordering Information.....	13-17

## Actuator Sensor Series Sensing Bracket & Sensor Part Numbers

### NFPA Interchangeable Cylinders

#### A, EQ, F, & S Series (Tie Rod)

BORE	BRACKET P/N
1 1/2"	N99-1181
2"	N99-1182
2 1/2"	N99-1182
3 1/4"	N99-1183
4"	N99-1183
5"	N99-1184
6"	N99-1184
8"	N99-1184
10"	N99-1191
12"	N99-1191
14"	N99-1200



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 10, 11, & 12 for sensor specifications

#### A & F Series (Profile Tube)

BORE	BRACKET P/N
1 1/2"	N99-1185
2"	N99-1185
2 1/2"	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 10, 11, & 12 for sensor specifications

### Compact Cylinders

#### C Series (Profile Tube) 2 in magnet code

BORE	BRACKET P/N
3/4"	N99-1185
1 1/8"	N99-1185
1 1/2"	N99-1185
2"	N99-1185
2 1/2"	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 10, 11, & 12 for sensor specifications

#### C Series (Profile Tube) 4 in magnet code

Direct Mount  
No Bracket Required



SENSOR DESCRIPTION	STANDARD CORD SET	QUICK DISCONNECT
Hall PNP	SH6-031	SH6-021
Hall NPN	SH6-032	SH6-022

See page 13 for sensor specifications

#### C Series (Tie Rod) 2 in magnet code

BORE	BRACKET P/N
3"	N99-1182
4"	N99-1183



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 10, 11, & 12 for sensor specifications

#### C Series (Tie Rod) 4 in magnet code

BORE	BRACKET P/N
3"	SB6-L01
4"	SB6-P01



SENSOR DESCRIPTION	STANDARD CORD SET	QUICK DISCONNECT
Hall PNP	SH6-031	SH6-021
Hall NPN	SH6-032	SH6-022

See page 13 for sensor specifications

## Actuator Sensor Series Sensing Bracket & Sensor Part Numbers

### K Series

Direct Mount  
No Bracket Required



SENSOR DESCRIPTION	STANDARD CORD SET	QUICK DISCONNECT
Reed Switch	SRR-W20	SRR-C02
Hall PNP	SPR-W20	SPR-C02
Hall NPN	SNR-W20	SNR-C02

See Motion Catalog for sensor specifications

### NB Series

BORE	BRACKET P/N
1/2"	SC-1
3/4"	SC-2
1 1/16"	SC-3
1 1/2"	SC-5
2"	SC-5
2 1/2"	SC-7
3"	SC-7
4"	SC-8



SENSOR DESCRIPTION	STANDARD CORD SET	QUICK DISCONNECT
Hall PNP	949-000-031	949-000-331
Hall NPN	949-000-032	949-000-332

See page 13 for sensor specifications

### NB Square Series

BORE	BRACKET P/N
3/4"	900-F00-000
1 1/16"	900-F00-000
1 1/2"	900-F00-000
2"	900-F00-000
2 1/2"	900-G00-000
3"	900-G00-000
4"	900-H00-000

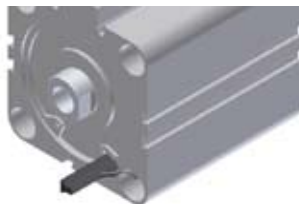


SENSOR DESCRIPTION	STANDARD CORD SET	QUICK DISCONNECT
Hall PNP	949-000-031	949-000-331
Hall NPN	949-000-032	949-000-332

See page 13 for sensor specifications

### Universal Series

Direct Mount  
No Bracket Required



SENSOR DESCRIPTION	STANDARD CORD SET	QUICK DISCONNECT
Hall PNP	949-200-031	949-200-331
Hall NPN	949-200-032	949-200-332

See page 15 for sensor specifications

## Non-Repairable Cylinders

### M Series

BORE	BRACKET P/N
9/16"	N199-1054
3/4"	N199-1055
7/8"	N199-1056
1 1/16"	N199-1056
1 1/4"	N199-1056
1 1/2"	N199-1057
1 3/4"	N199-1058
2"	N199-1058
2 1/2"	N199-1059
3"	N199-1060



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 10, 11, & 12 for sensor specifications



## Actuator Sensor Series Sensing Bracket & Sensor Part Numbers

### GeoMetric®

Direct Mount  
No Bracket Required



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 10, 11, & 12 for sensor specifications

### ISO VDMA (Tie Rod) Style

BORE	BRACKET P/N
32mm	N99-1181
40mm	N99-1182
50mm	N99-1183
63mm	N99-1183
80mm	N99-1183
100mm	N99-1183
125mm	N99-1184
160mm	N99-1184
200mm	N99-1191



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 10, 11, & 12 for sensor specifications

## Specialty Cylinders

### E Series (Tie Rod)

BORE	BRACKET P/N
1 1/4"	N99-1181
1 3/4"	N99-1182
2"	N99-1181
2 1/2"	N99-1182
3"	N99-1182
3 1/2"	N99-1183
4 1/2"	N99-1184
5"	N99-1184
6"	N99-1184
8"	N99-1184



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 10, 11, & 12 for sensor specifications

### Tiny Titan Series (Profile)

BORE	BRACKET P/N
3/4"	N99-1185
1"	N99-1185
1 1/8"	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 10, 11, & 12 for sensor specifications

## Linear Slides

### SH Series Slide

BORE	BRACKET P/N
SH056	N199-1054
SH075	N199-1055
SH106	N199-1056
SH150	N199-1057
SH200	N199-1058
SH250	N199-1059
SH300	N199-1060



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 10, 11, & 12 for sensor specifications

## Actuator Sensor Series Sensing Bracket & Sensor Part Numbers

### B Series Slide

BORE	BRACKET P/N
B04	N99-1185
B06	N99-1185
B08	N99-1185

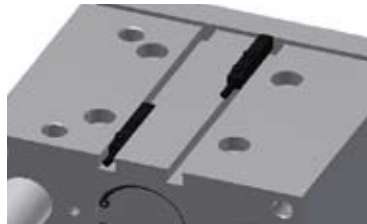


SENSOR DESCRIPTION	STANDARD CORD SET	QUICK DISCONNECT
Reed Switch	REED-FL2-00	REED-QDS-M8U
Hall PNP	PNP-FL2-00-U	PNP-QDS-M8-U
Hall NPN	NPN-FL2-00-U	NPN-QDS-M8-U

See page 10, 11, & 12 for sensor specifications

### CGT/CGS Series Slides

Direct Mount  
No Bracket Required



SENSOR DESCRIPTION	STANDARD CORD SET	QUICK DISCONNECT
Reed Switch	Not Available	REED-QDS-M8S
Hall PNP	PNP-FL2-00-U	PNP-QDS-M8-U
Hall NPN	NPN-FL2-00-U	NPN-QDS-M8-U

See page 10, 11, & 12 for sensor specifications

### PST Series Slide

Direct Mount  
No Bracket Required  
PST08 30mm stroke or less,  
Only available with single position sensing



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 10, 11, & 12 for sensor specifications

### GS Series Gantry

BORE	BRACKET P/N
GS075	N199-1055
GS106	N199-1056
GS150	N199-1057
GS200	N199-1058



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 10, 11, & 12 for sensor specifications

### PBS Series Gantry

Direct Mount  
No Bracket Required



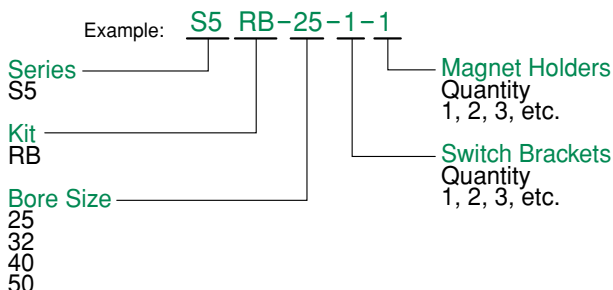
SENSOR DESCRIPTION	STANDARD CORD SET	QUICK DISCONNECT
Prox PNP	PX08PS	PX08PQ
Prox NPN	PX08NS	PX08NQ

See page 17 for sensor specifications

### Switch Mounting Kits For S5 Series

The Switch mounting system for the S5 Series rodless cylinders will consist of switch mounting brackets and magnet holders. The Switch Mounting brackets attach to the extruded foot along the bottom side of the barrel while the magnet holder is attached to a tapped hole located on the underside of the externally guided carriage.

#### Model Number Selection Chart



## Actuator Sensor Series Sensing Bracket & Sensor Part Numbers

### Rodless Cylinder (S1 and G Series)

BORE	BRACKET P/N
25mm	US1RB
32mm	US1RB
40mm	US1RB
50mm	US1RB



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 10, 11, & 12 for sensor specifications

### MCR (Magnetically Coupled Non-Guided)

BORE	BRACKET P/N
12mm	N99-1181
16mm	N99-1181
20mm	N99-1181
25mm	N99-1181
32mm	N99-1181
40mm	N99-1181



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 10, 11, & 12 for sensor specifications

### MCR (Magnetically Coupled Guided)

BORE	BRACKET P/N
12mm	RM-001+N99-1185
16mm	RM-001+N99-1185
20mm	RM-001+N99-1185
25mm	RM-001+N99-1185
32mm	RM-001+N99-1185
40mm	RM-001+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 10, 11, & 12 for sensor specifications  
Also available with 8mm Prox sensor see page 17

## Specialty Actuator Products

### SC Series Swing Clamp

Direct Mount  
No Bracket Required



SENSOR DESCRIPTION	STANDARD CORD SET	QUICK DISCONNECT
Reed Switch	Not Available	REED-QDS-M8S
Hall PNP	PNP-FL2-00-U	PNP-QDS-M8-U
Hall NPN	NPN-FL2-00-U	NPN-QDS-M8-U

See page 10, 11, & 12 for sensor specifications

### FE Series Feed Escapement

Direct Mount  
No Bracket Required



SENSOR DESCRIPTION	STANDARD CORD SET	QUICK DISCONNECT
Hall PNP	CS-20TP	CS-20TP-QD
Hall NPN	CS-20TN	CS-20TN-QD

See page 14 for sensor specifications

### CST Series Stopper Cylinder

Direct Mount  
No Bracket Required



SENSOR DESCRIPTION	STANDARD CORD SET	QUICK DISCONNECT
Reed Switch	9C49-000-002	9C49-000-302
Hall PNP	9C49-000-031	9C49-000-331
Hall NPN	9C49-000-032	9C49-000-332

See page 15 for sensor specifications

## Grippers

### NRG Series Gripper

SERIES	BRACKET P/N
NRG010	N99-1185
NRG025	N99-1185
NRG050	N99-1185
NRG150	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 10, 11, & 12 for sensor specifications



## Actuator Sensor Series Sensing Bracket & Sensor Part Numbers

### E Series Gripper

Direct Mount  
No Bracket Required

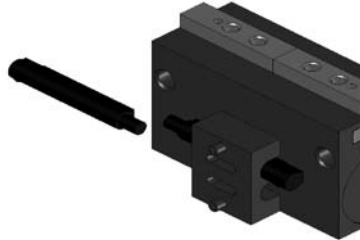


SENSOR DESCRIPTION	STANDARD CORD SET	QUICK DISCONNECT
Reed Switch	REED-FL2-00	REED-QDS-M8U
Hall PNP	PNP-FL2-00-U	PNP-QDS-M8-U
Hall NPN	NPN-FL2-00-U	NPN-QDS-M8-U

See page 10, 11, & 12 for sensor specifications

### PG Series Gripper

SERIES	BRACKET P/N
PG	SB-PG



SENSOR DESCRIPTION	STANDARD CORD SET	QUICK DISCONNECT
Hall PNP	CS-20TP	CS-20TP-QD
Hall NPN	CS-20TN	CS-20TN-QD

See page 14 for sensor specifications

### RPG Series Gripper

SERIES	BRACKET P/N
RPG	CT-500

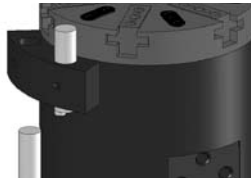


SENSOR DESCRIPTION	STANDARD CORD SET	QUICK DISCONNECT
Prox PNP	PX04PS	PX04PQ
Prox NPN	PX04NS	PX04NQ

See page 16 for sensor specifications

### PG6J80 Series O-Ring Gripper

SERIES	BRACKET P/N
PG6J80	N99-1202

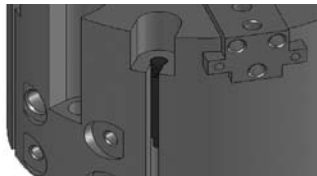


SENSOR DESCRIPTION	STANDARD CORD SET	QUICK DISCONNECT
Prox PNP	PX65PS	PX65PQ
Prox NPN	PX65NS	PX65NQ

See page 17 for sensor specifications

### TJ200 Series Gripper

Direct Mount  
No Bracket Required



SENSOR DESCRIPTION	STANDARD CORD SET	QUICK DISCONNECT
Hall PNP	CS-20TP	CS-20TP-QD
Hall NPN	CS-20TN	CS-20TN-QD

See page 14 for sensor specifications

### GR1400 Series Gripper

Direct Mount  
No Bracket Required



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 10, 11, & 12 for sensor specifications

### GR90 Series Gripper

SERIES	BRACKET P/N
GR90	CT-500



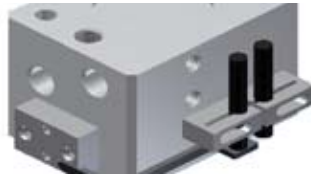
SENSOR DESCRIPTION	STANDARD CORD SET	QUICK DISCONNECT
Prox PNP	PX04PS	PX04PQ
Prox NPN	PX04NS	PX04NQ

See page 16 for sensor specifications

## Actuator Sensor Series Sensing Bracket & Sensor Part Numbers

### WG Series Gripper

SERIES	BRACKET P/N
WGS90	CT-500
WGL50	CT-500



SENSOR DESCRIPTION	STANDARD CORD SET	QUICK DISCONNECT
Prox PNP	PX04PS	PX04PQ
Prox NPN	PX04NS	PX04NQ

See page 16 for sensor specifications

### WBG Series Gripper

SERIES	BRACKET P/N
WBG	CT-500



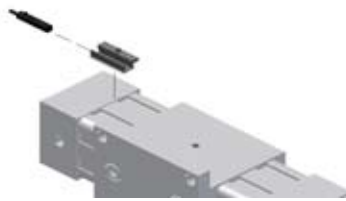
SENSOR DESCRIPTION	STANDARD CORD SET	QUICK DISCONNECT
Prox PNP	PX04PS	PX04PQ
Prox NPN	PX04NS	PX04NQ

See page 16 for sensor specifications

## Rotaries

### R Series Rotary (Profile)

BORE	BRACKET P/N
1"	N99-1185
1 1/2"	N99-1185
2"	N99-1185
2 1/2"	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 10, 11, & 12 for sensor specifications

### R Series (Tie Rod)

BORE	BRACKET P/N
3 1/4"	N99-1182



### AR Series Rotary

SIZE	BRACKET P/N
AR020	N99-1185
AR025	N99-1185
AR032	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 10, 11, & 12 for sensor specifications

### RW Series Rotary

SIZE	BRACKET P/N
RW030	N99-1185
RW075	N99-1185
RW125	N99-1185

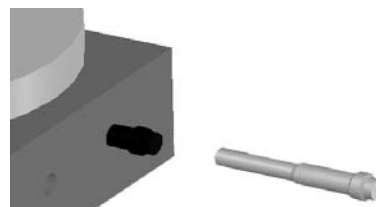


SENSOR DESCRIPTION	STANDARD CORD SET	QUICK DISCONNECT
Reed Switch	REED-FL2-00	REED-QDS-M8U
Hall PNP	PNP-FL2-00-U	PNP-QDS-M8-U
Hall NPN	NPN-FL2-00-U	NPN-QDS-M8-U

See page 10, 11, & 12 for sensor specifications

### LR Series Rotary

SIZE	BRACKET P/N
LR06	RSH05
LR20	RSH05
LR60	RSH05
LR125	RSH05
LR125	RSH05



SENSOR DESCRIPTION	STANDARD CORD SET	QUICK DISCONNECT
Prox PNP	PX05PS	PX05PQ
Prox NPN	PX05NS	PX05NQ

See page 16 for sensor specifications

### RM Series Rotary

SIZE	BRACKET P/N
RM1	RSH05
RM2	RSH05
RM3	RSH05
RM4	RSH05
RM5	RSH05



SENSOR DESCRIPTION	STANDARD CORD SET	QUICK DISCONNECT
Prox PNP	PX05PS	PX05PQ
Prox NPN	PX05NS	PX05NQ

See page 16 for sensor specifications

### Tie Rod Bracket

**BRACKET  
P/N**

N99-1181  
N99-1182  
N99-1183  
N99-1184  
N99-1191  
N99-1200



### Non-Repairable Bracket

**BRACKET  
P/N**

N199-1054  
N199-1055  
N199-1056  
N199-1057  
N199-1058  
N199-1059  
N199-1060



### NB Square (Tie Rod) Bracket

**BRACKET  
P/N**

900-F00-000  
900-G00-000  
900-H00-000



### C Series (Tie Rod) 4 in magnet code

**BRACKET  
P/N**

SB6-L01  
SB6-P01



### 1/2" Dove Tail Bracket

**BRACKET  
P/N**

N99-1185



### NB Series (Tie Rod) Bracket

**BRACKET  
P/N**

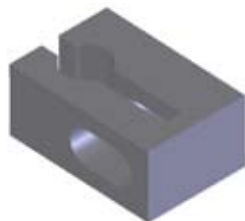
SC-1  
SC-2  
SC-3  
SC-5  
SC-7  
SC-8



### 4mm Prox Bracket

**BRACKET  
P/N**

CT-500



### S1 Rodless Cylinder Bracket

**BRACKET  
P/N**

US1RB



### 5mm Prox Housing

**BRACKET  
P/N**

RSH05



### S5 Rodless Cylinder Bracket

**BRACKET  
P/N**

See page 5 for  
Part Number



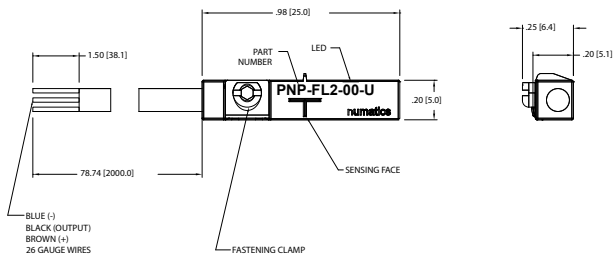
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P/N**

SG-PG

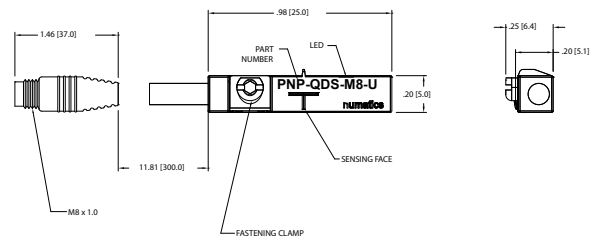


## Actuator Sensor Series In-Line Sensors

### PNP-FL2-00-U



### PNP-QDS-M8-U

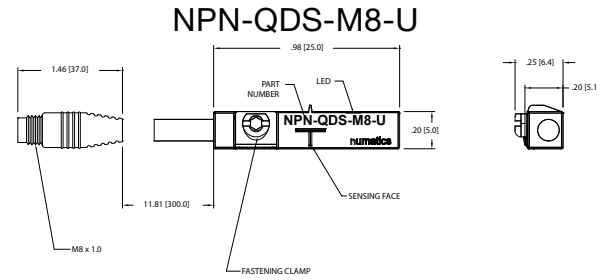
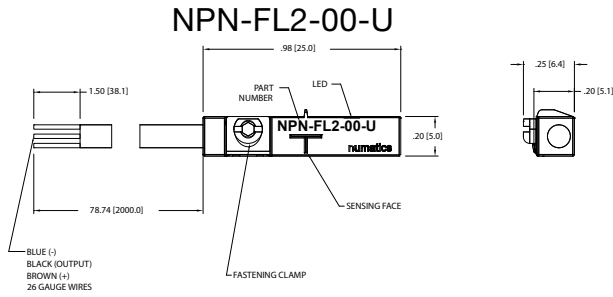


ELECTRICAL DESIGN	DC PNP
OUTPUT	Normally Open
OPERATING VOLTAGE	10-30 VDC
CURRENT RATING	100 mA
SHORT-CIRCUIT PROTECTION	Yes
OVERLOAD PROTECTION	Yes
REVERSE POLARITY PROTECTION	Yes
VOLTAGE DROP	< 2.5 V
CURRENT CONSUMPTION	< 12 mA
REPEATABILITY	< .2mm
POWER-ON DELAY TIME	< 30 ms
SWITCH FREQUENCY	> 3000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

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	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 Placehold, Cable Clip, and Cut Sheet To Be Provided with Every Switch

AGENCY APPROVALS

AGENCY APPROVALS



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

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

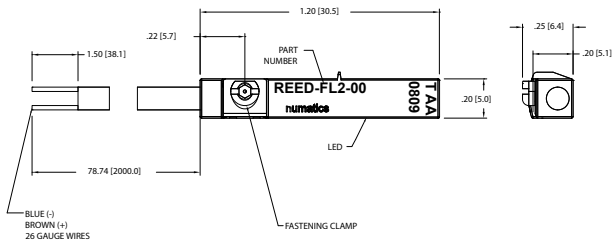
AGENCY APPROVALS



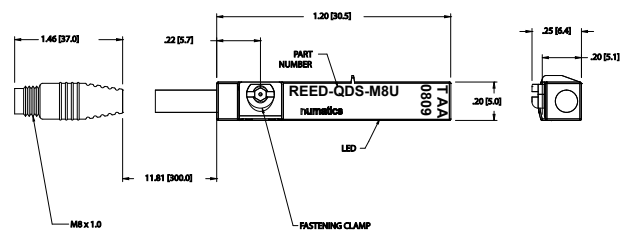
## Actuator Sensor Series In-Line Sensors




# NUMATICS®




### REED-FL2-00



### REED-QDS-M8U



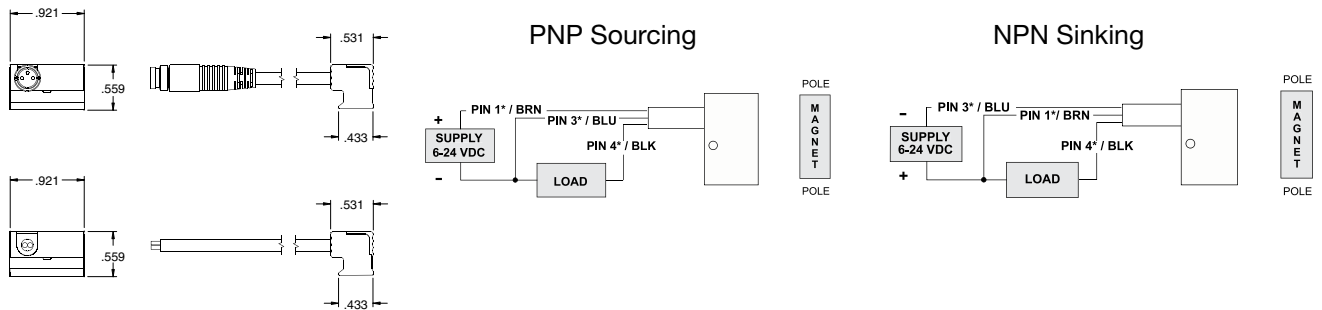
ELECTRICAL DESIGN	AC/DC REED
OUTPUT	Normally Open
OPERATING VOLTAGE	5-120 VAC/DC
CURRENT RATING	100 mA*
SHORT-CIRCUIT PROTECTION	No
OVERLOAD PROTECTION	No
REVERSE POLARITY PROTECTION	Yes
VOLTAGE DROP	< 5 V
REPEATABILITY	± .2mm
MAKETIME INCLUDING BOUNCE	< .6 ms
BREAKTIME	< .1 ms
SWITCHING POWER (MAX)	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 Clamping Screw with Combined Slot/Hexagon Socket Head AF 1.5 cULus No LED Function in case of Polarity in DC Operation Conforms to 2008 NEC Section 725 III, Class 2 Circuits
STANDARDS	Magnetic Sensitivity 2.1 mT Travel Speed > 10 m/s
ACCESSORIES	Rubber Placehold, Cable Clip, and Cut Sheet To Be Provided with Every Switch
AGENCY APPROVALS	  

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 Clamping Screw with Combined Slot/Hexagon Socket Head AF 1.5 cULus No LED Function in case of Polarity in DC Operation Conforms to 2008 NEC Section 725 III, Class 2 Circuits
STANDARDS	Magnetic Sensitivity 2.1 mT Travel Speed > 10 m/s
ACCESSORIES	Rubber Placehold, Cable Clip, and Cut Sheet To Be Provided with Every Switch
AGENCY APPROVALS	  

### C Series World Switch Hall Effect Part Numbers

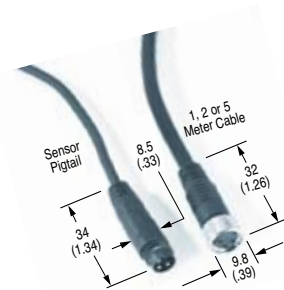
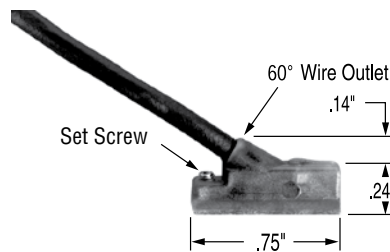
P/N	SWITCH STYLE	SWITCH TYPE	FUNCTION	SWITCHING VOLTAGE	SWITCHING CURRENT	SWITCHING POWER	VOLTAGE DROP
SH6-031	3m Wire Version	Hall Effect for Reed Magnet & Light Sourcing	Normally Open Sourcing (PNP)	6-24 VDC	0.3 Amps Max.	7.2 Watts Max.	0.5 Volts
SH6-021	8m Connector Pigtail	Hall Effect for Reed Magnet & Light Sourcing	Normally Open Sourcing (PNP)	6-24 VDC	0.3 Amps Max.	7.2 Watts Max.	0.5 Volts
SH6-032	3m Wire Version	Hall Effect for Reed Magnet & Light Sourcing	Normally Open Sourcing (NPN)	6-24 VDC	0.3 Amps Max.	7.2 Watts Max.	0.5 Volts
SH6-022	8m Connector Pigtail	Hall Effect for Reed Magnet & Light Sourcing	Normally Open Sourcing (NPN)	6-24 VDC	0.3 Amps Max.	7.2 Watts Max.	0.5 Volts

### Hall Effect Switch



### Sensor Specifications & Ordering Information

- Encased in a plastic housing, dovetail style electronic sensors are corrosion resistant. 45° wire outlet allows close mounting.



### Ordering Guide-Dovetail Style Magnetic Sensor with LED

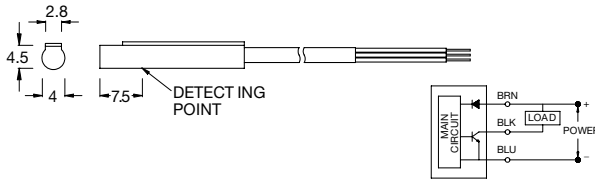
SENSOR TYPE	SENSOR TYPE	SENSOR TYPE	SENSOR TYPE	ELECTRICAL CHARACTERISTICS
Electronic	949-000-031	949-000-331	3	Sourcing PNP 6-24 VDC, 0.20 Amp Max current, 0.5 Voltage Drop
Electronic	949-000-032	949-000-332	3	Sinking NPN 6-24 VDC, 0.20 Amp Max current, 0.5 Voltage Drop

Note\*: Quick disconnect styles are supplied with 6 inch pigtail with male connector. Order female cordsets separately.

**Sensor Temperature Range**  
-20° to +80° C (-4° to +176° F)

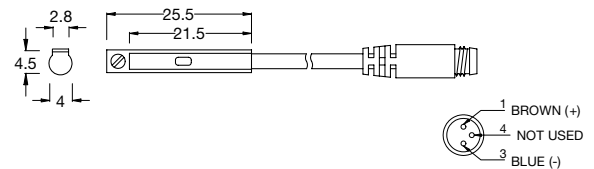
## Actuator Sensor Series Additional Sensors

### Electro Switch (NPN NO) Flying Lead - CS-20TN



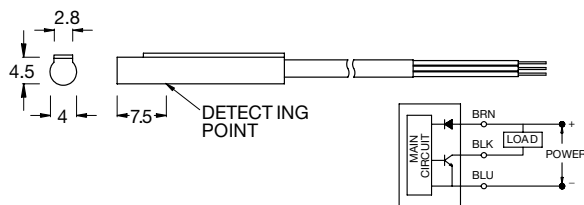
Sensor Type	Solid State Output
Switching Logic	Normally Open
Output	NPN Current Spurcing
Operating Voltage	5-30 VDC
Switching Current	50mA max.
Power Rating*	1.5 Watts
Voltage Drop	0.5 V @ 25 mA max.
Current Consumption	12 mA @ 24 VDC max.
Leakage Current	0.01 mA max.
LED Indicator	Red
Cable	-
Operating Frequency	1000 Hz
Magnetic Requirement	40 Gauss parallel
Temperature Range	14 to 158°F (-10 to 70°C)
Shock / Vibration	50G/9G
Enclosure Classification	IEC 529 IP67 (NEMA 6)
Protection Circuit	Reverse Polarity, Surge
Set Screw Max. Torque	Suppression 1.77 in-lbs (0.2 N-m)

### Electro Switch (NPN NO) 8 mm Connector - CS-20TN-QD



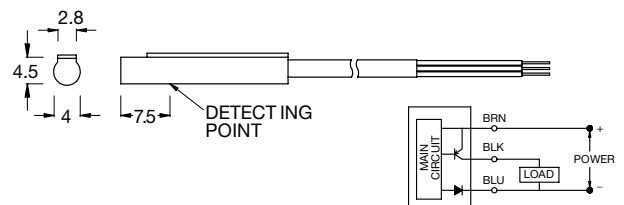
Sensor Type	Solid State Output
Switching Logic	Normally Open
Output	NPN Current Spurcing
Operating Voltage	5-30 VDC
Switching Current	50mA max.
Power Rating*	1.5 Watts
Voltage Drop	0.5 V @ 25 mA max.
Current Consumption	12 mA @ 24 VDC max.
Leakage Current	0.01 mA max.
LED Indicator	Red
Cable	-
Operating Frequency	1000 Hz
Magnetic Requirement	40 Gauss parallel
Temperature Range	14 to 158°F (-10 to 70°C)
Shock / Vibration	50G/9G
Enclosure Classification	IEC 529 IP67 (NEMA 6)
Protection Circuit	Reverse Polarity, Surge
Set Screw Max. Torque	Suppression 1.77 in-lbs (0.2 N-m)

### Electro Switch (NPN NO) Flying Lead - CS-20TN



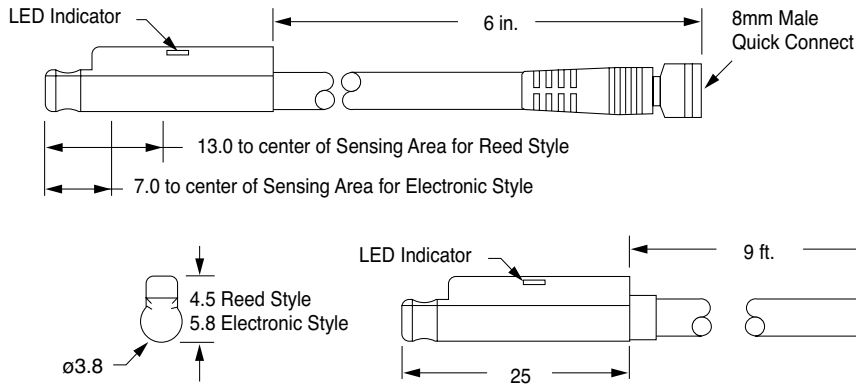
Sensor Type	Solid State Output
Switching Logic	Normally Open
Output	NPN Current Spurcing
Operating Voltage	5-30 VDC
Switching Current	50mA max.
Power Rating*	1.5 Watts
Voltage Drop	0.5 V @ 25 mA max.
Current Consumption	12 mA @ 24 VDC max.
Leakage Current	0.01 mA max.
LED Indicator	Red
Cable	-
Operating Frequency	1000 Hz
Magnetic Requirement	40 Gauss parallel
Temperature Range	14 to 158°F (-10 to 70°C)
Shock / Vibration	50G/9G
Enclosure Classification	IEC 529 IP67 (NEMA 6)
Protection Circuit	Reverse Polarity, Surge
Set Screw Max. Torque	Suppression 1.77 in-lbs (0.2 N-m)

### Electro Switch (PNP NO) Flying Lead - CS-20TP



Sensor Type	Solid State Output
Switching Logic	Normally Open
Output	PNP Current Spurcing
Operating Voltage	5-30 VDC
Switching Current	50mA max.
Power Rating*	1.5 Watts
Voltage Drop	1.5 V @ 25 mA max.
Current Consumption	12 mA @ 24 VDC max.
Leakage Current	0.01 mA max.
LED Indicator	Green
Cable	Abrasion resistant polyurethane (PUR) jacket, PVC insulation
Operating Frequency	1000 Hz
Magnetic Requirement	40 Gauss parallel
Temperature Range	14 to 158°F (-10 to 70°C)
Shock / Vibration	50G/9G
Enclosure Classification	IEC 529 IP67 (NEMA 6)
Protection Circuit	Reverse Polarity, Surge
Set Screw Max. Torque	Suppression 1.77 in-lbs (0.2 N-m)

### Sensor Dimensions (mm unless noted)



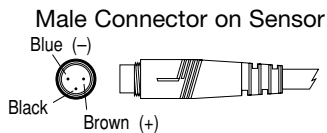
All sensors feature surge suppression, polarity protection, LED indicator, and extremely fast switching speeds.

### MAGNETIC SENSORS - ELECTRICAL CHARACTERISTICS

### PART NUMBERS AND PRICES

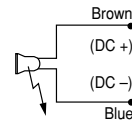
Sensor Type	Function	Switching Voltage	Switching Current	Switching Power	Switching Speed	Voltage Drop	Prewired 9 ft. Part No.	Quick Connect Part No.
Reed Switch for PLC's w/LED (current limiting)	SPST Normally Open	50 - 60 VAC/DC	0.04 Amp max 0.005 Amp min.	4 Watts max.	0.5 ms operate 0.1 ms release	2.5 Volts	9C49-000-002	9C49-000-302 Requires 3 pin cordset
Electronic LED and Sourcing	PNP Normally Open	6-30 VDC	0.2 Amp max.	6 Watts max.	1.5µs operate 0.5µs release	1.5 Volts	9C49-000-031	9C49-000-331 Requires 3 pin cordset
Electronic LED and Sinking	NPN Normally Open	6-30 VDC	0.2 Amp max.	6 Watts max.	1.5µs operate 0.5µs release	1.5 Volts	9C49-000-032	9C49-000-332 Requires 3 pin cordset

### Low Profile Sensors for Magnetic Piston Cylinders Specifications and Ordering Information

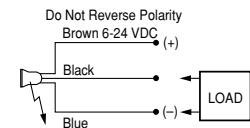


Temperature Range for Sensors  
-20° to +80° C  
(-4° to +176° F)

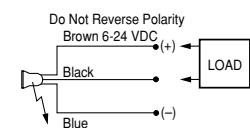
#### Reed Switch



#### Electronic Sensor Sourcing



#### Electronic Sensor Sinking

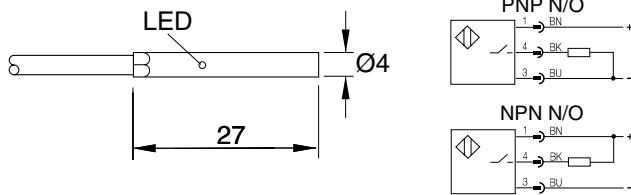


### Stock Switch Part Numbers

SENSOR TYPE	PREWIRED 9 FT. CABLE PART NO.	8 MM QUICK DISCONNECT PART NO.	PACKAGE CONTAINS
Reed	949-200-002	949-200-302	Switch and Universal Series Cylinder 3/8" Dovetail Adapter
Electronic, Sourcing (PNP)	949-200-031	949-200-331	
Electronic, Sinking (NPN)	949-200-032	949-200-332	

## Actuator Sensor Series Additional Sensors

### Prox Switch (NPN NO) Flying Lead - PX04NS (PNP NO) Flying Lead - PX04PS



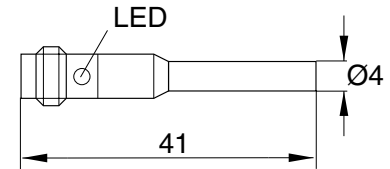
#### Sensing Data

Repeat accuracy R		≤5%
Ambient temperature range $t_d$	(°C)	-25...+70°C
Operating frequency f	(Hz)	1800
Utilization categories	(DC)	13
Function indication		YES

#### Electrical Data

Rated operational voltage $U_e$	(V)	24 DC
Supply voltage $U_B$	(V)	10...30 DC
Voltage drop $U_d$ at $I_e$ Stat./dyn.	(V)	≤3.0
Rated insulation voltage $U_i$	(V)	75 VDC
Load current capacity	(mA)	100
Current consumption	(mA)	≤10 / ≤3
Off-State Current $I_r$	(μA)	≤80
Protected against polarity reversal		YES
Short circuit protected		YES
Load Capacitance	(μF)	≤1.00

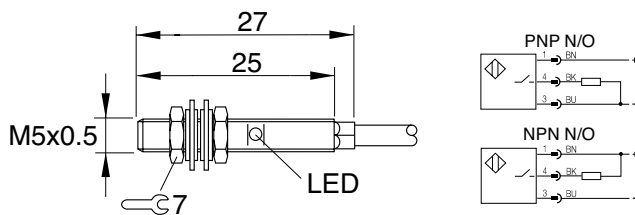
### Prox Switch (NPN NO), 8 mm connector - PX04NQ (PNP NO), 8 mm connector - PX04PQ



#### Mechanical Data

Degree of protection per IEC 529	IP 67
Housing material	stainless steel
Material of sensing face	POM
Connection	cabl
No. of wires x gauge	3 x 26 AWG

### Prox Switch (NPN NO) Flying Lead - PX05NS (PNP NO) Flying Lead - PX05PS



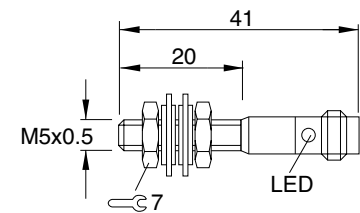
#### Sensing Data

Repeat accuracy R		≤5%
Ambient temperature range $t_d$	(°C)	-25...+70°C
Operating frequency f	(Hz)	500
Utilization categories	(DC)	13
Function indication		YES

#### Electrical Data

Rated operational voltage $U_e$	(V)	24 DC
Supply voltage $U_B$	(V)	10...30 DC
Voltage drop $U_d$ at $I_e$ Stat./dyn.	(V)	≤1.5
Rated insulation voltage $U_i$	(V)	75 VDC
Load current capacity	(mA)	150
Current consumption	(mA)	≤12 / ≤5
Off-State Current $I_r$	(μA)	≤50
Protected against polarity reversal		YES
Short circuit protected		YES
Load Capacitance	(μF)	≤0.10

### Prox Switch (NPN NO) 8 mm connector - PX05NQ (PNP NO) 8 mm connector - PX05PQ



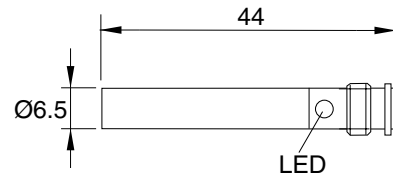
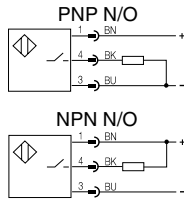
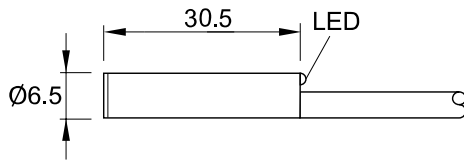
#### Mechanical Data

Degree of protection per IEC 529	IP 67
Housing material	stainless steel
Material of sensing face	POM
Connection	cabl
No. of wires x gauge	3 x 26 AWG



Prox Switch (NPN NO) Flying Leads - PX65NS  
(PNP NO) Flying Leads - PX65PS

Prox Switch (NPN NO) 8 mm connector - PX65NQ  
(PNP NO) 8 mm connector - PX65PQ



### Sensing Data

Repeat accuracy R		≤5%
Ambient temperature range $\vartheta$	(°C)	-25...+70°C
Operating frequency f	(Hz)	1000
Utilization categories	(DC)	13
Function indication		YES

### Electrical Data

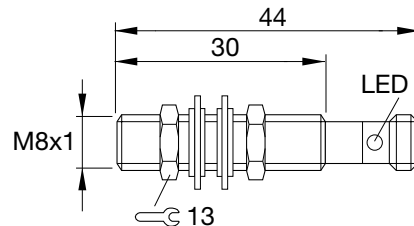
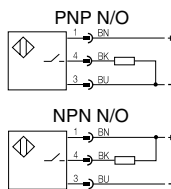
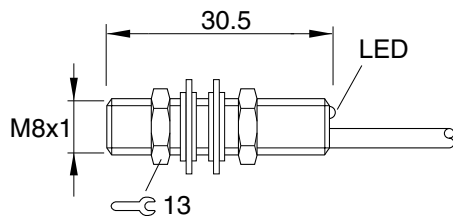
Rated operational voltage $U_e$	(V)	24 DC
Supply voltage $U_B$	(V)	10...30 DC
Voltage drop $U_d$ at $I_e$ Stat./dyn.	(V)	≤2.5
Rated insulation voltage $U_i$	(V)	75 VDC
Load current capacity	(mA)	200
Current consumption	(mA)	≤25 / ≤12
Off-State Current $I_r$	(uA)	≤80
Protected against polarity reversal		YES
Short circuit protected		YES
Load Capacitance	(uF)	≤1.00

### Mechanical Data

Degree of protection per IEC 529	IP 67
Housing material	stainless steel
Material of sensing face	PA 12
Connection	cable
No. of wires x gauge	3 x 26 AWG
Approvals	cULus

Prox Switch (NPN NO) Flying Leads - PX08NS  
(PNP NO) Flying Leads - PX08PS

Prox Switch (NPN NO) 8 mm connector - PX08NQ  
(PNP NO) 8 mm connector - PX08PQ



### Sensing Data

Repeat accuracy R		≤5%
Ambient temperature range $\vartheta$	(°C)	-25...+70°C
Operating frequency f	(Hz)	1000
Utilization categories	(DC)	13
Function indication		YES

### Electrical Data

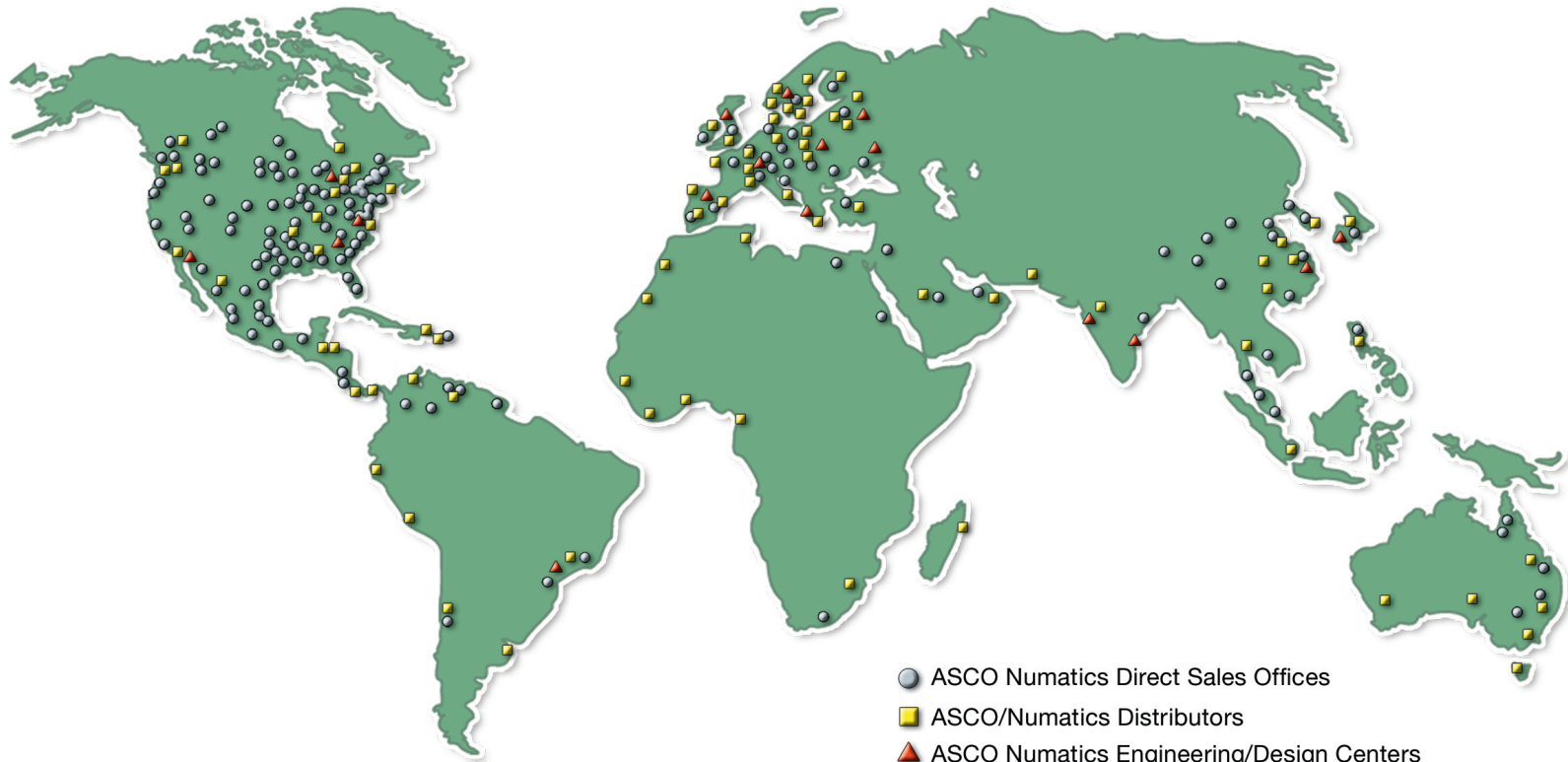
Rated operational voltage $U_e$	(V)	24 DC
Supply voltage $U_B$	(V)	10...30 DC
Voltage drop $U_d$ at $I_e$ Stat./dyn.	(V)	≤2.5
Rated insulation voltage $U_i$	(V)	75 VDC
Load current capacity	(mA)	200
Current consumption	(mA)	≤25 / ≤12
Off-State Current $I_r$	(uA)	≤80
Protected against polarity reversal		YES
Short circuit protected		YES
Load Capacitance	(uF)	≤1.00

### Mechanical Data

Degree of protection per IEC 529	IP 67
Housing material	stainless steel
Material of sensing face	PBTP
Connection	cable
No. of wires x gauge	3 x 26 AWG
Approvals	cULus

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