



Basic Features – Pneumatic Sensors ..... G18

Limit Switches

- 3/2 Miniature Limit Switches..... G19-G20
- 3/2 Compact Limit Switches ..... G21-G22
- K Series – Standard Duty Limit Switches..... G23-G26
- J Series – Heavy Duty Limit Switches..... G27-G29

PWBA Blocking Valves ..... G30-G31

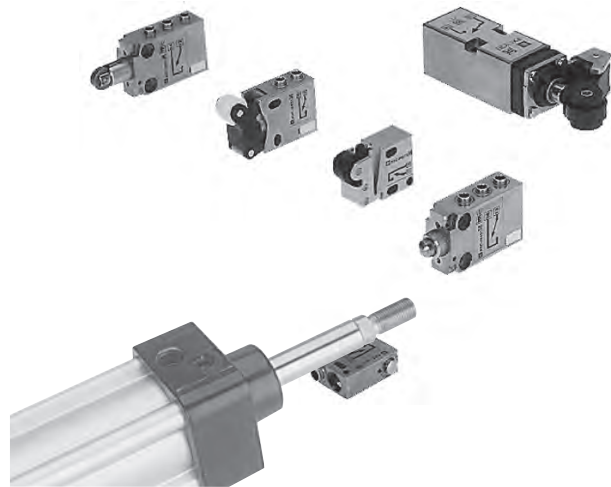
Threshold Sensors ..... G32-G34

# Pneumatic Sensors

To achieve the sensing or feedback function, pneumatic sensors can be:

- Limit Switches in a Variety of Sizes and Configurations
- Pressure Switches with Many Adjustable Ranges
- Components Designed Specifically for Pneumatic Technology using Pressure Variation, Air Bleed or Blocking for Detection.

A wide variety of pneumatic sensor are available to suit any application requirement.



## Pneumatic Limit Switches

Pneumatic limit switches are non-passing (NNP) or passing (NP) when actuated by a moving part. The various operating levers, bore dimensions and functions are given below.

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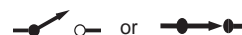
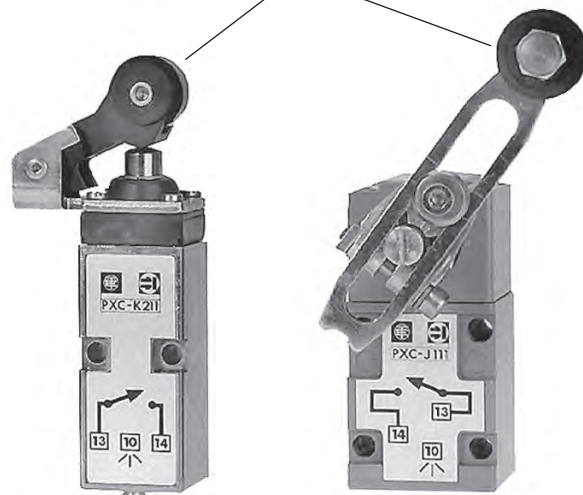
Airline Accessories

Interchangeable with an Electrical Microswitch



Normally Non-Passing (NNP) Models

Multiple Operating Heads



NNP or NP, as Required

# Direct Acting Limit Switches

## 1/16" I.D. Internal Orifice



PXCM111



PXCM121

Part Number	Connection	Actuator	Type of Switching*
PXCM111	5/32" Instant	Steel Plunger Operating Levers Available (See Below)	NNP
PXCM115	10-32 UNF		
PXCM121	5/32" Instant	Plastic Roller	NNP
PXCM125	10-32 UNF		

## 7/64" I.D. Internal Orifice



PXCM521

Part Number	Connection	Actuator	Type of Switching*
PXCM521	5/32" Instant	Plastic Roller	NNP

## Specifications

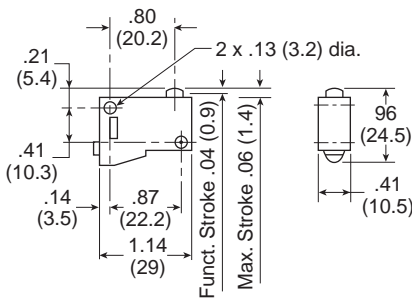
Air Quality –	Standard Shop Air, Lubricated or Dry, 40µm Filtration
Flow SCFM (NI/min) –	
PXCM111	2.2 (60)
PXCM121	3.0 (85)
PXCM521	8.8 (250)
Materials –	
Body	Zinc Alloy
Poppets	Polyurethane
Seals	Nitrile (Buna N)
Maximum Operating Frequency	5 Hz
Nominal Bore Ø –	
PXCM111, PXCM121	1/16" (1.5 mm)
PXCM521	7/64" (2.5 mm)
Number of Operations with Dry Air at 90 PSI (6 bar) and 68°F (20°C) – Frequency 1 Hz	10 Million
Operating Positions	All Positions
Operating Pressure	40 to 115 PSIG (3 to 8 bar)
Ports –	
5/32" Instant for Semi-Rigid Nylon or Polyurethane Tube	
10-32 UNF Available	
Temperature –	
Operating	32°F to 122°F (0°C to + 50°C)
Storage	-22°F to 140°F (-30°C to + 60°C)

### Operator Specifications

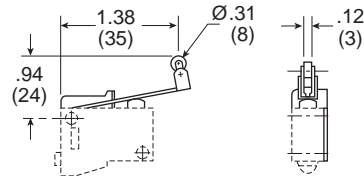
	PXCM111	PXCM121	PXCM521
<b>Differential Travel at 90 PSI (6 bar)</b>	.006" (0.15 mm)	.012" (0.3 mm)	.020" (0.5 mm)
<b>Maximum Travel (B) at 90 PSIG (6 bar)</b>	.055" (1.4 mm)	.126" (3.2 mm)	.228" (5.8 mm)
<b>Minimum Pre-Travel (A) at 90 PSIG (6 bar)</b>	.035" (0.9 mm)	.079" (2 mm)	.087" (2.2 mm)
<b>Minimum Operating Force at 90 PSI (6 bar)</b>	2.5 lb (11 N)	1.0 lb (4.5 N)	1.6 lb (7 N)
<b>Operating Diagram</b>			

### Dimensions

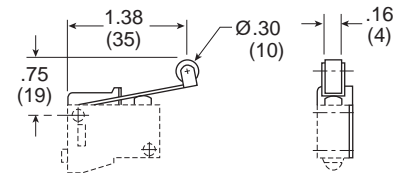
PXCM111



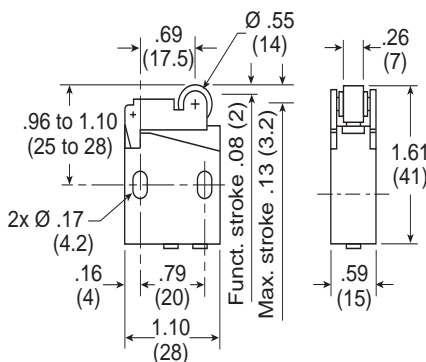
PXCZ12



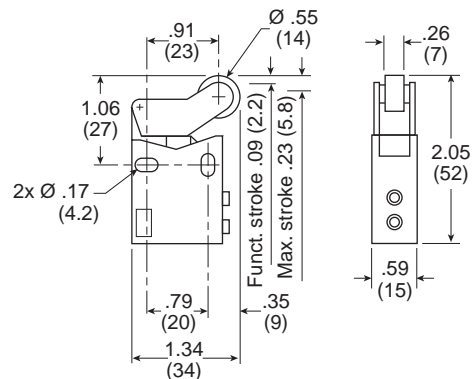
PXCM111



PXCM121, PXCM131



PXCM521



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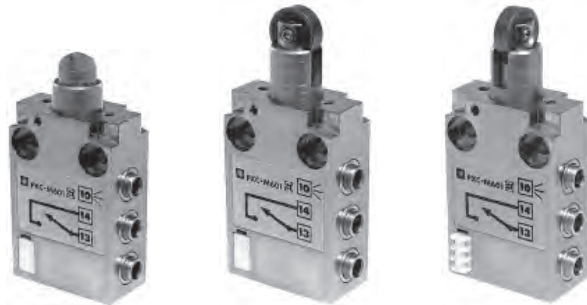
Airline Accessories

# Pilot Operated Compact Limit Switches

5/32" Instant Connections

Pipeable Exhaust Port

7/64" I.D. Internal Orifice



PXCM601A110

PXCM601A102

PXCM601A103

Part Number	Actuator	Type of Switching*
PXCM601A110	Steel Plunger Operating Levers Available (See Below)	NNP
PXCM601A102	Steel Roller Plunger	
PXCM601A103	90° Steel Roller Plunger	

## Specifications

Air Quality –	Standard Shop Air, Lubricated or Dry, 40µm Filtration
Flow SCFM (NI/min)	8.8 (250)
Materials –	
Body	Zinc Alloy
Poppets	Polyurethane
Seals	Nitrile (Buna N)
Maximal Operating Frequency	5 Hz
Nominal Bore Ø	7/64" (2.5 mm)
Number of Operations with Dry Air at 90 PSI (6 bar) and 68°F (20°C) – Frequency 1	Hz10 Million
Operating Positions	All Positions
Operating Pressure	40 to 115 PSIG (3 to 8 bar)
Ports –	5/32" Instant for Semi-Rigid Nylon or Polyurethane Tube
Temperature –	
Operating	32°F to 122°F (0°C to + 50°C)
Storage	-22°F to 140°F (-30°C to + 60°C)

## Actuators For Steel Plunger



XCMZ24

Use with PXCM601A110

Part Number	Actuator
XCMZ24	90° Stainless Steel Roller Lever, One Way Trip

\* NNP: Normally Non-Passing.

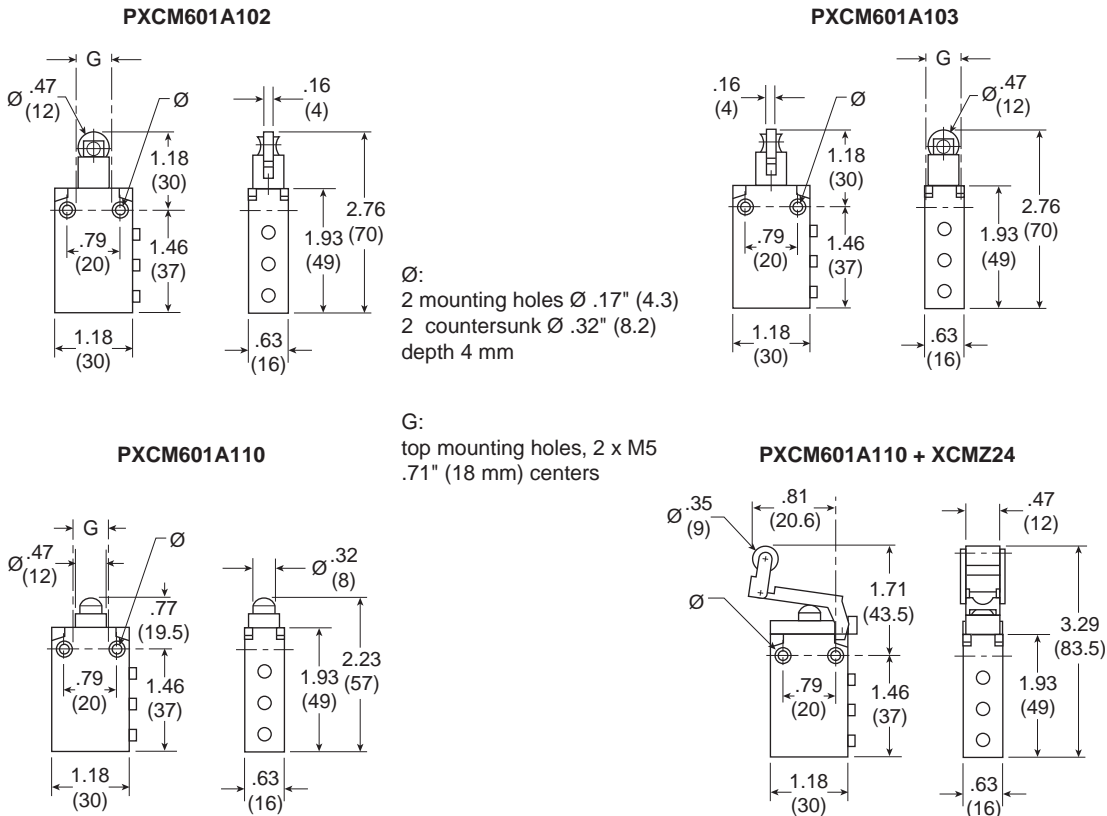
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Airline Accessories

### Operator Specifications

	PXCM601A110	PXCM601A102	PXCM601A103	PXCM601A110 + XCMZ24
Differential Travel at 90 PSI (6 bar)	.012" (0.3 mm)	.008" (0.2 mm)	.020" (0.5 mm)	.047" (1.2 mm) (A)
Maximum Travel (B) at 90 PSIG (6 bar)	.197" (5 mm)	.197" (5 mm)	.197" (5 mm)	—
Minimum Pre-Travel (A) at 90 PSIG (6 bar)	.066" (1.7 mm)	.066" (1.7 mm)	.066" (1.7 mm)	.370" (9.4 mm) (A)
Minimum Operating Force at 90 PSI (6 bar)	5.4 lbf (24 N)	5.2 lbf (23 N)	5.2 lbf (23)	4.3 lbf (19)
Operating Diagram				

### Dimensions



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# Limit Switches



**Plunger Operated**  
 5/32" Instant Connections  
 Pipeable Exhaust Port  
 1/8" I.D. Internal Orifice

**Roller Operated**  
 5/32" Instant Connections  
 Pipeable Exhaust Port  
 1/8" I.D. Internal Orifice

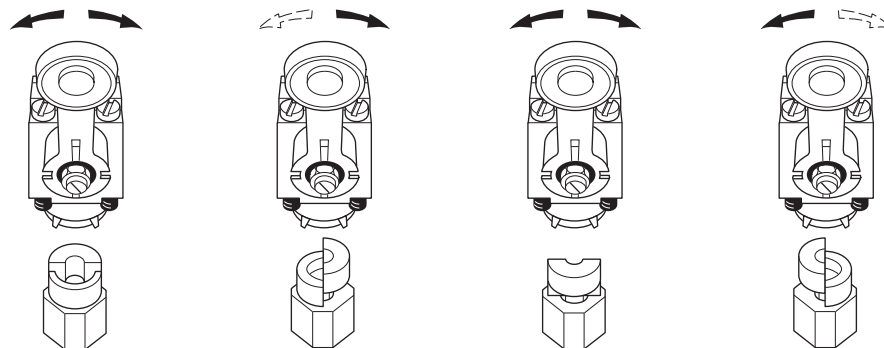


Complete Assemblies		
Part Number	Actuator	Type of Switching*
PXCK21101	Steel Plunger	NNP
PXCK22101		NP
PXCK21102	Steel Roller Plunger	NNP
PXCK22102		NP
PXCK21121	Plastic Roller Plunger	NNP
PXCK22121		NP
PXCK21106	Cats Whisker	NNP
PXCK22106		NP

With Die Cast Rotary Operating Head and Operating Lever - Complete Assemblies		
Part Number	Actuator	Type of Switching*
PXCK2110031	Fixed Delrin Roller Lever Multi-Function Head Actuates: - From Right and Left	NNP
PXCK2210031		NP
PXCK2110041	Adjustable Delrin Roller Lever Multi-Function Head Actuates: - From Right and Left	NNP
PXCK2210041		NP

NNP: Normally Non-Passing   
 NP: Normally Passing 

## Field Conversion of Rotary Operating Head



## Separate Pneumatic Switch Bodies



PXCK211

Part Number	Actuator	Type of Switching*
PXCK211	For Use with ZCK Series Operating Heads	NNP
PXCK221		NP

## Operating Heads For Use With PXCK Switch Bodies



ZCKG00

Part Number	Actuator	Description
<b>Rotary Operated</b>		
ZCKG00	—	Die Cast Zinc
<b>Plunger Operated</b>		
ZCKD02	Roller Plunger	Plunger Operated
ZCKD06	Whisker	
ZCKD10	Rod Plunger	
ZCKD21	Delrin Roller Lever On Plunger	
ZCKD23	Steel Roller Lever On Plunger	

## Pneumatic Switch Bodies with Rotary Heads



PXCK21100

Part Number	Actuator	Type of Switching*
PXCK21100	Multi-Function Head Actuates: - From Right and Left - From Right - From Left	NNP
PXCK22100		NP

## Operating Levers for Rotary Heads



ZCKY81



ZCKY91

For Use With Rotary Head ZCKG00		
Part Number	Actuator	Description
ZCKY51	Steel 1/8" Square	Rod Levers
ZCKY52	Fiberglass 1/8" Dia. Round	
ZCKY81	Plastic Spring Rod Lever	
ZCKY91	Metal Spring Rod Lever	
ZCKY11	Delrin Roller Lever	Roller Levers
ZCKY13	Steel Roller Lever	
ZCKY41	Adjust. Delrin Roller Lever	
ZCKY43	Adjust. Steel Roller Lever	

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Airline Accessories

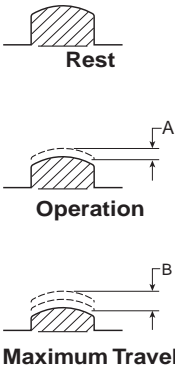
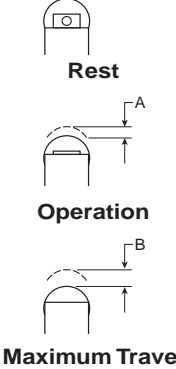
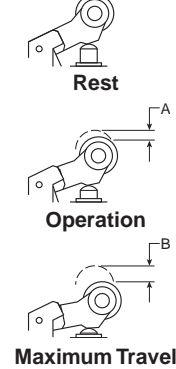
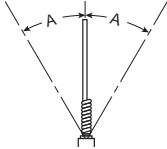
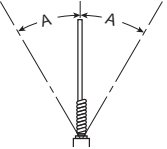


### Specifications

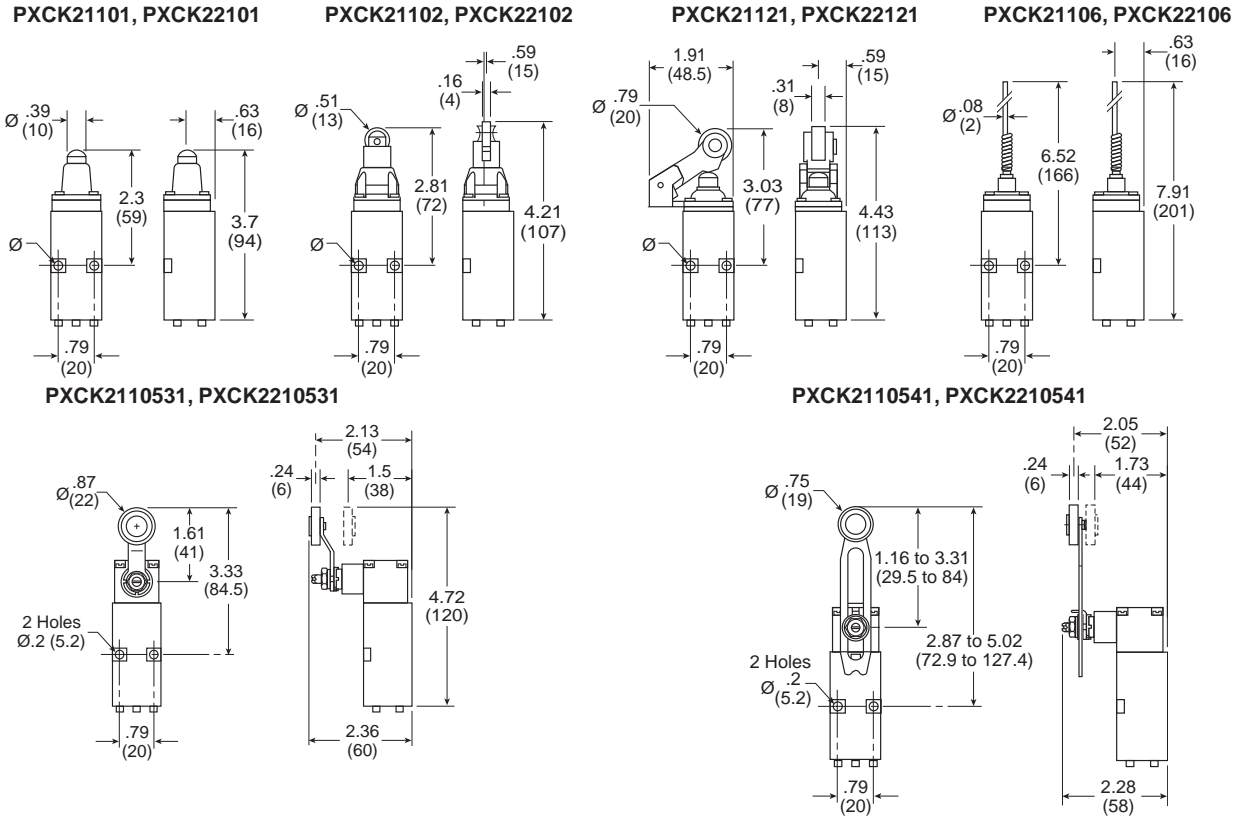
Air Quality – Standard Shop Air, Lubricated or Dry, 40µm Filtration	
Flow SCFM (NI/min)	7.4 (210)
Materials –	
Body	Zinc Alloy
Poppets	Polyurethane
Seals	Nitrile (Buna N)
Maximal Operating Frequency	5 Hz
Nominal Bore Ø	1/8" (3 mm)
Number of Operations with Dry Air at 90 PSI (6 bar) and 68°F (20°C) – Frequency 1 Hz	
	10 Million
Operating Positions	All Positions
Operating Pressure	40 to 115 PSIG (3 to 8 bar)

Ports – 5/32" Instant for Semi-Rigid Nylon or Polyurethane Tube	
Temperature	
Operating	32°F to 122°F (0°C to + 50°C)
Storage	-22°F to 140°F (-30°C to +60°C)

### Operator Specifications

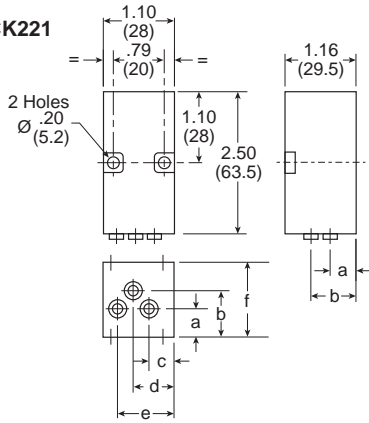
	PXCK2••01	PXCK2••02	PXCK2••03	PXCK2••06	PXCK2••00 + Actuator
Differential Angle	—	—	—	12°	3°
Differential Travel	.008" (0.2 mm)	.008" (0.2 mm)	.008" (0.2 mm)		
Maximum Angle of Travel	—	—	—	—	80°
Maximum Travel (B) at 90 PSIG (6 bar)	.020" (0.5 mm)	.020" (0.5 mm)	.020" (0.5 mm)	—	—
Minimum Pre-Travel (A) at 90 PSIG (6 bar)	.087" (2.2 mm)	.087" (2.2 mm)	.102" (2.6 mm)	—	—
Minimum Operating Force at 90 PSI (6 bar)	3.6 lbf (16N)	4.5 lbf (20N)	3.4 lbf (15N)	—	—
Minimum Operating Torque at 90 PSI (6 bar)	—	—	—	17.0 oz in (120mNm)	29.8 oz in (210mNm)
Operating Angle	—	—	—	35°	31° (Minimum Lever Travel Including Pre-Travel Required For Operation)
Operating Diagram					

**Dimensions**



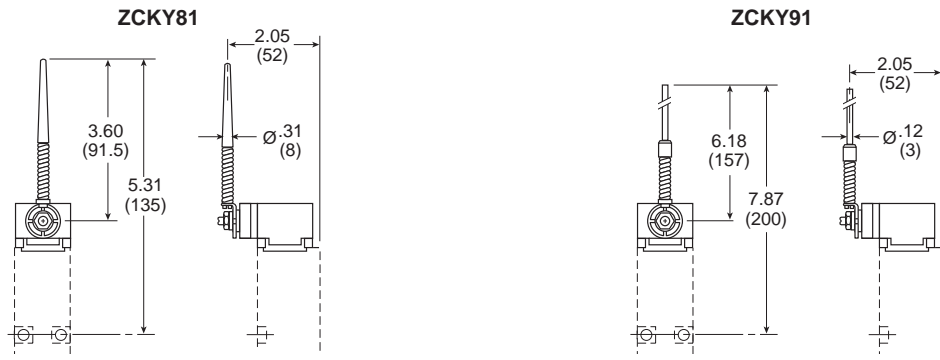
**Pneumatic Switch Bodies**

PXCK211, PXCK221



	inch	mm
a	.39	10
b	.77	19.5
c	.35	9
d	.61	15.5
e	.87	22
r	1.66	29.5

**Rotary Heads with Operating Levers**



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Airline Accessories

## Switch Bodies Only



PXCJ117

Part Number	Type of Switching*
PXCJ117	NNP
PXCJ127	NP

## Switch Bodies with Rotary Head



PXCJ11701

Part Number	Direction of Actuation	Type of Switching*
PXCJ11701	Right & Left, Spring Return	NNP
PXCJ11705	Right or Left, Spring Return	
PXCJ12701	Right & Left, Spring Return	NP
PXCJ12705	Right or Left, Spring Return	

## Operating Levers for Rotary Heads



ZC2JY11



ZC2JY31



ZC2JY81



ZC2JY91

Die Cast Zinc. For Use With PXCJ Switch Bodies		
Part Number	Operator	Description
ZC2JY11	Delrin Roller	Spring Return
ZC2JY13	Steel Roller	
ZC2JY21	Offset Delrin Roller	
ZC2JY81	Plastic Spring Rod	
ZC2JY91	Metal Spring Rod	
ZC2JY31	Delrin Roller	Adjustable Roller
ZC2JY41	Offset Delrin Roller	Rod Lever
ZC2JY51		
ZC2JY71	Single Track, Delrin Roller	
ZC2JY61	Double Track, Delrin Rollers	Fork Lever

NNP: Normally Non-Passing

NP: Normally Passing

## Top Plunger & Rotary Operating Heads



ZC2JE70



ZC2JE01

Die Cast Zinc. For Use With PXCJ Switch Bodies		
Top Plunger Type		
Part Number	Operation	Description
ZC2JE61	Top Push	Spring Return
ZC2JE62	Top Roller Push	
ZC2JE63	Side Push	
ZC2JE70	Cat's Whisker	
Rotary Type		
ZC2JE01	From Left & Right	Spring Return
ZC2JE02	Counterclockwise From Right	
ZC2JE03	Clockwise From Left	
ZC2JE05	From Left or Right	
ZC2JE09	Maintained Positions	

### Specifications

Air Quality – Standard Shop Air, Lubricated or Dry, 40µm Filtration	
Flow SCFM (NI/min)	7.4 (210)
Materials –	
Body	Zinc Alloy
Poppets	Polyurethane
Seals	Nitrile (Buna N)
Maximal Operating Frequency	5 Hz
Nominal Bore Ø	1/8" (3 mm)

Number of Operations with Dry Air at 90 PSI (6 bar) and 68°F (20°C) – Frequency 1 Hz	10 Million
Operating Positions	All Positions
Operating Pressure	40 to 115 PSIG (3 to 8 bar)
Ports	1/8" NPT
Temperature –	
Operating	32°F to 122°F (0°C to + 50°C)
Storage	-22°F to 140°F (-30°C to +60°C)

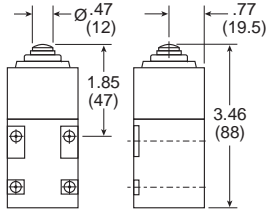
	ZC2JE61	ZC2JE62	ZC2JE70	ZC2JE01	ZC2JE05
Differential Angle	—	5°	5°	2°	2°
Differential Travel at 90 PSI (6 bar)	.008" (0.2 mm)	—	—	—	—
Maximum Angle of Travel	—	—	—	75°	75°
Maximum Travel (B) at 90 PSIG (6 bar)	228" (5.8 mm)	—	—	—	—
Minimum Pre-Travel (A) at 90 PSIG (6 bar)	.059" (1.5 mm)	—	—	—	—
Minimum Operating Force at 90 PSI (6 bar)	3.6 lbf (16N)	—	—	—	—
Minimum Operating Torque at 90 PSI (6 bar)	7.1 oz in (50Nm)	35.4 oz in (250Nm)	35.4 oz in (250Nm)	35.4 oz in (250Nm)	—
Operating Angle (Minimum Lever Travel Including Pre-Travel Required For Operation)	—	23°	23°	12°	12°
Operating Diagram					

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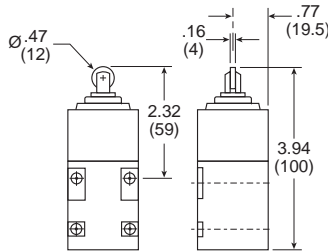
Airline Accessories

### Switch Body With Plunger Heads

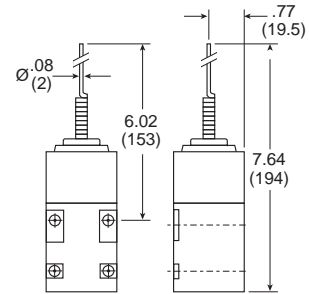
With ZC2JE61



With ZC2JE62

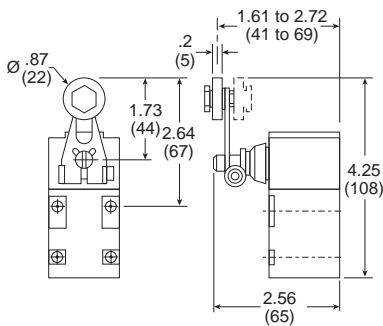


With ZC2JE70

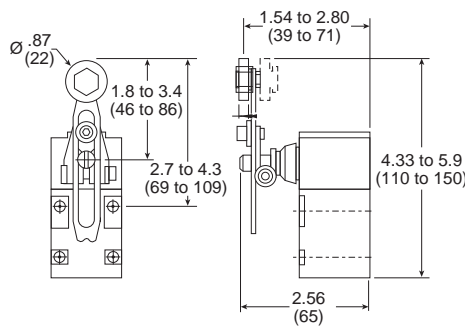


### Switch Body With Rotary Heads and Operating Levers

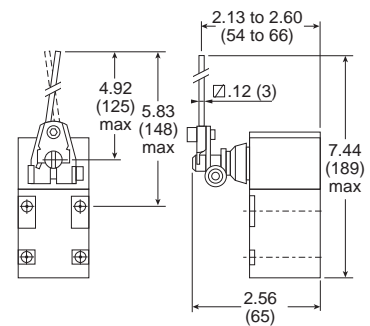
With ZC2JY11



With ZC2JY31

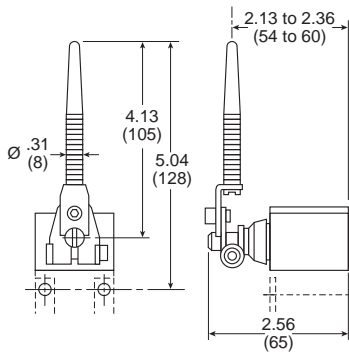


With ZC2JY51

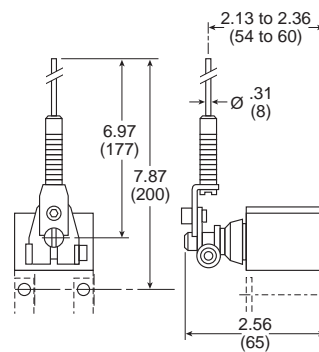


### Rotary Heads With Operating Levers

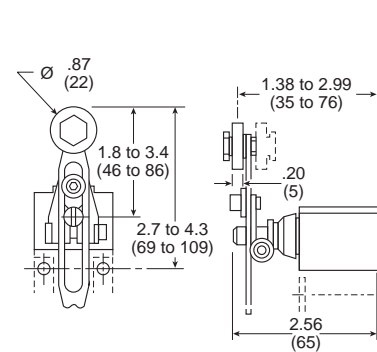
ZC2JY81



ZC2JY91

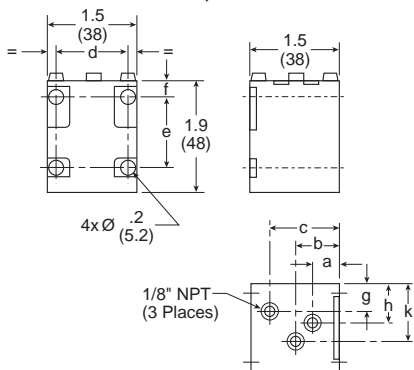


ZC2JY41



### Pneumatic Switch Bodies

PXCJ117, PXCJ127

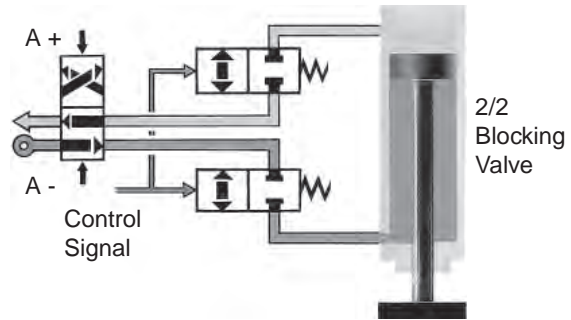
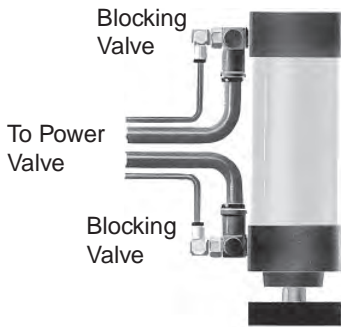
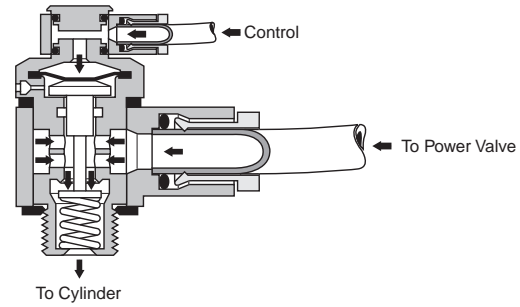


	inch	mm
a	.47	12
b	.75	19
c	1.16	29.5
d	1.14 to 1.18	29 to 30
e	1.18	30
f	.28	7
g	.43	11
h	.51	13
k	.94	24

# Blocking Valves

The blocking valve is a single acting spring return 2/2 valve in a fitting format. The device requires a pneumatic pilot signal to open, which allows free flow of air, gas or liquid to pass. As long as a pilot signal is present, the device will remain open. When the pilot signal is removed, the internal spring will close the blocking valve, bubble tight. The blocking valve is oil serviceable and rated to 150 PSI.

These devices have two primary design uses: (1) to prevent unwanted gravity induced motion in cylinders during shut down procedures or during periods of lost supply pressure and (2) freezing the cylinder position by using a blocking valve at each end of the cylinder. Application needs such as tool or work piece protection, horizontal indexing or inspection stops are often satisfied by these devices.



## PWBA General Characteristics

<b>Operating Pressure</b>	0 to 150 PSI
<b>Permissible Fluids</b>	Air or neutral gas, 50 µm filtration, lubricated or not
<b>Operating Temperature</b>	5° to 140°F (-15° to 60°C)
<b>Storage Temperature</b>	-40° to 160°F (-40° to 70°C)
<b>Flow</b>	See page G31
<b>Mechanical Life</b>	10 Million
<b>Maximum Operating Frequency</b>	10Hz
<b>Material:</b> Body	Zinc alloy
Mounting Screw	Brass
<b>Maximum Mounting Torque:</b> 10-32 UNF and M5	88 inch pounds
1/8"	70 inch pounds
1/4"	105 inch pounds
3/8"	265 inch pounds
1/2"	310 inch pounds
<b>Adjustment</b>	N/A
<b>Adjustment Locking</b>	N/A

## Piloting and De-Piloting Pressure

Blocking Valve Sizes	Pilot with Operating Pressure of:			
	30 PSI	60 PSI	90 PSI	120 PSI
1/8" BSP or NPT	33 PSI	40 PSI	45 PSI	50 PSI
1/4" BSP or NPT	33 PSI	40 PSI	45 PSI	50 PSI
3/8" BSP or NPT	35 PSI	40 PSI	45 PSI	50 PSI
1/2" BSP or NPT	45 PSI	50 PSI	55 PSI	60 PSI
Blocking Valve Sizes	Depilot with Operating Pressure of:			
	30 PSI	60 PSI	90 PSI	120 PSI
1/8" BSP or NPT	20 PSI	25 PSI	30 PSI	34 PSI
1/4" BSP or NPT	20 PSI	25 PSI	30 PSI	34 PSI
3/8" BSP or NPT	20 PSI	25 PSI	30 PSI	34 PSI
1/2" BSP or NPT	25 PSI	30 PSI	34 PSI	40 PSI

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Airline Accessories

For Cylinder Mounting  
(Can also be mounted in Threshold Sensor Banjo)

**With Instant Tube Fittings**



PWBA3469

Symbol	Connection for Pilot	BSP			NPT			
		Cylinder Port Thread (Male)	Connection for Tube	Catalog Number	Connection for Pilot	Cylinder Port Thread (Male)	Connection for Tube	Catalog Number
	4mm Tube	1/8"	6mm	PWBA1468	5/32" Tube	1/8"	1/4"	PWBA3468
		1/4"	6mm	PWBA1469		1/4"	1/4"	PWBA3469
		1/4"	8mm	PWBA1489				
		3/8"	8mm	PWBA1483				
		3/8"	10mm	PWBA1493				
		1/2"	12mm	PWBA1412				

**With Threaded Connections and Tube Pilot Port**



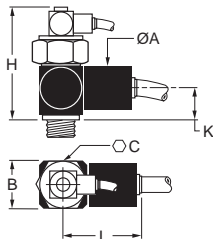
PWBA3833

Symbol	Connection for Pilot	BSP			NPT			
		Cylinder Port Thread (Male)	Connection from Valve (Female)	Catalog Number	Connection for Pilot	Cylinder Port Thread (Male)	Connection from Valve (Female)	Catalog Number
	4mm Tube	1/8"	1/4"	PWBA1898	5/32" * Tube	1/8"	1/8"	PWBA3888
		1/4"	1/4"	PWBA1899		1/4"	1/4"	PWBA3899
	M5 Female	3/8"	3/8"	PWBA1833	5/32" * Tube	3/8"	3/8"	PWBA3833
		1/2"	1/2"	PWBA1822		1/2"	1/2"	PWBA3822

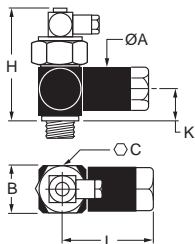
\* Instant fitting

**With Threaded Connections and Threaded Pilot Port**

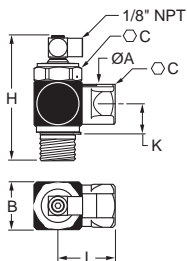
PWBA14/34



PWBA18/38



PWBA38



Connection for Pilot	NPT		
	Cylinder Port Thread (Male)	Connection from Valve	Catalog Number
1/8" pipe	1/8"	1/8"	PWBA38887
	1/4"	1/4"	PWBA38997
	3/8"	3/8"	PWBA38337
	1/2"	1/2"	PWBA38227

**Dimensions:** Inches (mm)

	Flow*	ØA	B	C	K	H	L
PWBA1468/3468	14.8	0.86" (22)	0.82" (21)	0.94" (24)	0.53" (13.5)	2.32" (59)	1.54" (39)
PWBA1469/3469 PWBA1489	19.4	0.86" (22)	0.82" (21)	0.94" (24)	0.53" (13.5)	2.09" (53)	1.54" (39)
PWBA1483 PWBA1493/3493	45.9	1.06" (27)	1.10" (28)	0.94" (24)	0.55" (14)	2.09" (53)	1.98" (50)
PWBA1412/3412	81.2	1.22" (31)	1.30" (33)	1.30" (33)	0.94" (24)	2.59" (66)	2.59" (66)
PWBA1898/3888	14.8	0.86" (22)	0.82" (21)	0.94" (24)	0.53" (13.5)	2.32" (59)	1.71" (43.5)
PWBA1899/3899	19.4	0.86" (22)	0.82" (21)	0.94" (24)	0.53" (13.5)	2.09" (53)	1.71" (43.5)
PWBA1833/3833	45.9	1.06" (27)	1.10" (28)	0.94" (24)	0.55" (14)	2.09" (53)	2.18" (55)
PWBA1822/3822	81.2	1.22" (31)	1.30" (33)	1.30" (33)	0.94" (24)	2.59" (66)	2.47" (63)
PWBA38887	14.8	0.75" (19)	0.87" (22)	0.83" (21)	0.67" (17)	2.20" (56)	1.73" (44)
PWBA38997	19.4	0.75" (19)	0.87" (22)	0.83" (21)	0.67" (17)	2.20" (56)	1.73" (44)
PWBA38337	45.9	1.06" (27)	1.18" (30)	1.06" (27)	0.91" (23)	2.64" (67)	1.42" (36)
PWBA38227	81.2	1.06" (27)	1.18" (30)	1.06" (27)	0.91" (23)	2.64" (67)	1.42" (36)

\*SCFM at 90 PSI

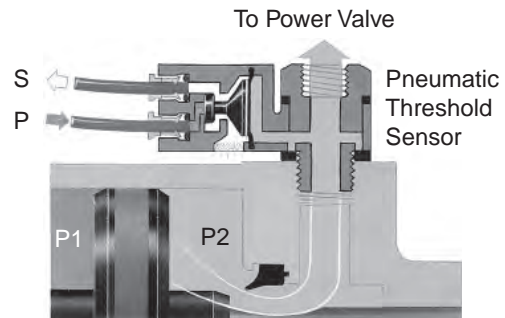
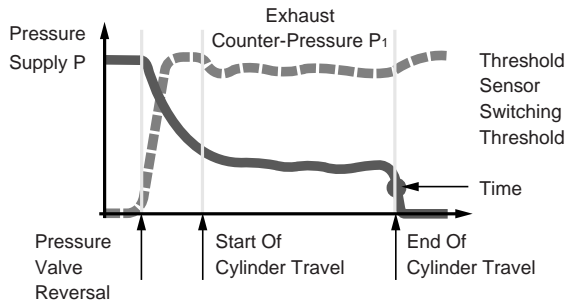
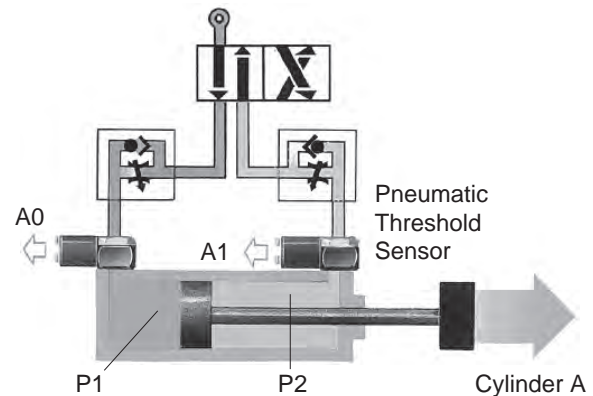


# Threshold Sensors – PWS

## General Description

The plug-in threshold sensors provide feedback information on pneumatic cylinder status in one of three possible outputs . . . pneumatic, electric, or electronic. Mounted into the cylinder port, these devices monitor the back pressure of the cylinder's exhaust. When the cylinder's piston stops, the back pressure rapidly drops and the threshold sensor provides the desired output. Ideal for variable stroke applications such as robotics where other sensor type devices such as limit switches are impractical, these devices provide a signal whenever the cylinder stops motion.

The threshold sensor consists of two complementary sub assemblies (1) the banjo fitting and (2) the plug-in sensor element. In all cases, the sensor is easily plugged into the banjo fitting and locked in place with a spring clip. The banjo fitting is designed to accept (piggy backed) other functional fittings such as flow controls or blocking valves. Simply select the sensor based on the type feedback signal that best fits the application.



## PWS General Characteristics

<b>Operating Pressure</b>	0 to 150 PSI
<b>Permissible Fluids</b>	Air or neutral gas, 50 µm filtration, lubricated or not
<b>Operating Temperature</b>	5° to 140°F (-15° to 60°C)
<b>Storage Temperature</b>	-40° to 160°F (-40° to 70°C)
<b>Flow</b>	N/A
<b>Mechanical Life</b>	10 Million
<b>Maximum Operating Frequency</b>	10Hz
<b>Material:</b> Body	Thermoplastic
<b>Mounting Screw</b>	Brass
<b>Maximum Mounting Torque:</b> 10-32 UNF and M5	88 inch pounds
1/8"	70 inch pounds
1/4"	105 inch pounds
3/8"	265 inch pounds
1/2"	310 inch pounds
<b>Adjustment</b>	N/A
<b>Adjustment Locking</b>	N/A

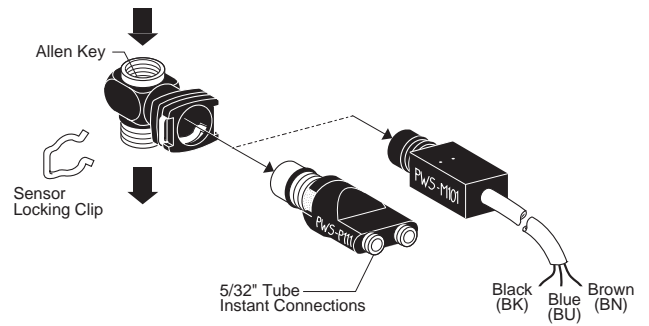
## Piloting and De-Piloting Pressure

Threshold Sensors	Pilot with Operating Pressure of 90 PSI	Depilot with Operating Pressure of 90 PSI
PWSP111	64 PSI	6 PSI
PWSM1012	15 PSI	9 PSI
PWSE101 and PWSE111	10 PSI	7 PSI

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Airline Accessories





### Model Selection

Banjo Sockets (with Sensor Clip)		
Port Size	Model Number	Wrench
10-32	PWSB1557	5/16" Hex
1/8"	PWSB1887	3/16" Allen
1/4"	PWSB1997	5/16" Allen
3/8"	PWSB1337	3/8" Allen
1/2"	PWSB1227	1/2" Allen

Plug-in Sensors		
Output	Model Number	Connection
Pneumatic	PWSP111	5/32" push-in
Electrical	PWSM1012	3-wire cable (6 ft)

### Mounting

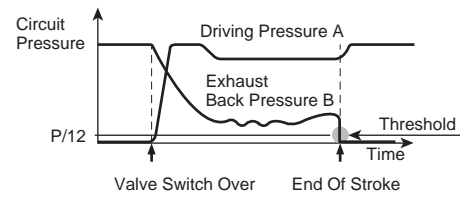
Banjo fittings in 10-32 to 1/2" pipe sizes are designed to be installed directly into actuator ports (up to 5" bore cylinders). The banjo fitting can accommodate other functional fittings and components such as right angle flow control valves or blocking valves. Banjo fittings screw into actuators using an Allen wrench or 5/16" hex head wrench for 10-32 size. Electrical or pneumatic feedback element snaps into place using a locking clip.

### Operation

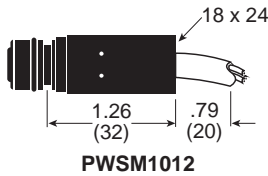
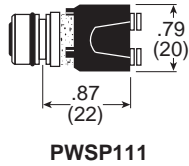
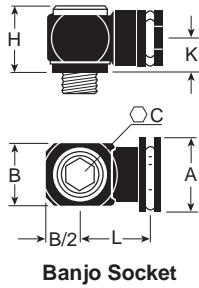
Pneumatic sensors have a continuous pressure signal applied to the sensor device. Electrical sensors have a continuous electrical signal applied to the sensor device. The threshold sensor assembly mounted directly into the cylinder Port provides an output signal S, which can be pneumatic or electrical, when the falling back pressure in the exhausting chamber of the cylinder reaches the operating threshold (approximately 6-9 PSIG). (The device is a normally passing valve. The output is only on when there is nearly zero pressure at the cylinder.)

### Application

The threshold sensor provides electrical or pneumatic feedback information on pneumatic (air) cylinder status. These devices monitor the back pressure of the cylinder's exhausting chamber. When the cylinder stops, the back pressure drops and the threshold sensor provides the desired output. Ideal for variable stroke applications. The banjo fitting and the feedback element are two separate subassemblies, giving the user flexibility between electrical and pneumatic outputs as feedback.



**Dimensions**



**Specifications**

Operating Pressure	0 to 150 PSIG (0 to 10 bar)
Temperature Range	5°F to 140°F (-15°C to 60°C)

**CAUTION:** If it is possible that the ambient temperature may fall below freezing, the medium must be moisture free to prevent internal damage or unpredictable behavior.

Maximum Operating Frequency	10 Hz
Pilot Pressure (PWSP111)	>64 PSIG (4.4 bar)
Threshold Pressure	6 to 9 PSIG (.4 to .6 bar)
Output Flow Rate (PWSP111)	3 SCFM at 90 PSIG
Current Rating (PWSM1012) –	5 VA, 250 VAC 5W, 48 VAC

Materials –  
 Body Thermoplastic  
 Mounting Screw & Threads Brass

Life Expectancy –  
 10 million cycles with dry air at 90 PSIG, 68°F, and 1 Hz operating frequency

Voltage Range (PWSM1012) –  
 12 - 240 VAC  
 12 - 48 VDC

Model	A	B	C	H	K	L
PWSB1557	.98 (25)	.43 (11)	5/16" Hex	.79 (20)	.40 (10)	.67 (17)
PWSB1887	.98" (25)	.63 (16)	3/16" Allen	.71 (18)	.40 (10)	.79 (20)
PWSB1997	.98 (25)	.83 (21)	5/16" Allen	.71 (18)	.40 (10)	.87 (22)
PWSB1337	.98 (25)	1.10 (28)	3/8" Allen	.79 (20)	.47 (12)	.98 (25)
PWSB1227	.98 (25)	1.30 (33)	1/2" Allen	.93 (24)	.55 (14)	1.02 (26)

inches  
(mm)

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Airline Accessories

Universal Description	Electrical		Fluid Power		
	Function	Symbol	Function	Symbol	
Normally Non-Passing (NNP)	Normally Open (N.O.)		Normally Closed (N.C.)	2-Way 	3-Way 
Normally Passing (NP)	Normally Closed (N.C.)		Normally Open (N.O.)		