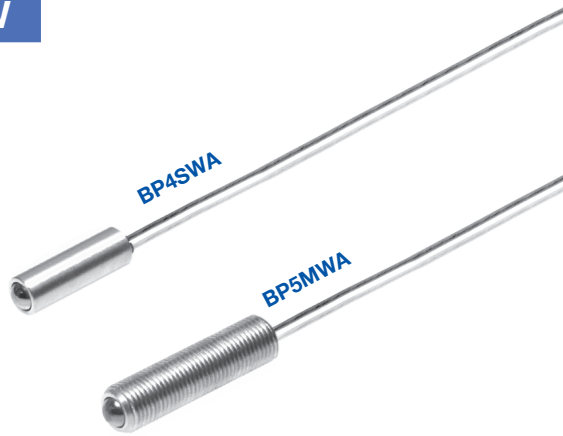


BP4S / BP5M

1 signal plunger type (Contacting ball type)
Indexing check / sliding touch type

NEW

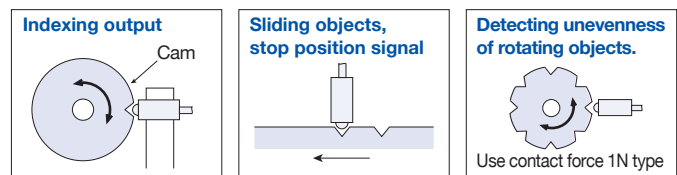


Features

Two functions in one, a touch switch built into the ball plunger.

Able to provide identifying and positioning functions using notches on index rotating or sliding objects as well as output a confirmation signal.

Reduces the number of components and design manhours, allowing miniaturization of the machine.



Standard specification

Unit: mm

Product name	Size	Stroke	Contact force (axial direction)	Protective structure
BP4SWA	φ4	0.8	1N	IP40
BP5MWA	M5×0.5	1		

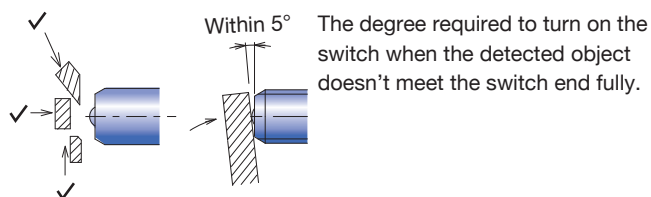
Switch structure	Dry contact
Output mode	A : Normally open
Pretravel	0.3
Repeatability	Both On→Off, Off→On/ 0.01 (range)(axial direction) (At operating speed 50-200mm/min)*
Movement differential	0
Contact life time	BP4SWA : 1 million BP5MWA : 3 million
Case material	SUS 303
Contact material	Tungsten carbide

Cable	Core-wire cable 0.5m×2 Oil resistant φ0.66 Tensile strength 15N
Operating temperature range	0°C-80°C (ice-free)
Temperature drift	0 (because of no amplifier)
Oscillation	10-55Hz total amplitude 1.5 for X,Y,Z each direction
Impact	300m/s ² for X,Y,Z each direction
Contact rating	DC5V-DC24V Steady current : 10 mA or less (rush current: 20 mA or less)
Standard accessory	BP5MWA : Two fixing nuts

*Operating speed slower than 10mm/min is not recommended.

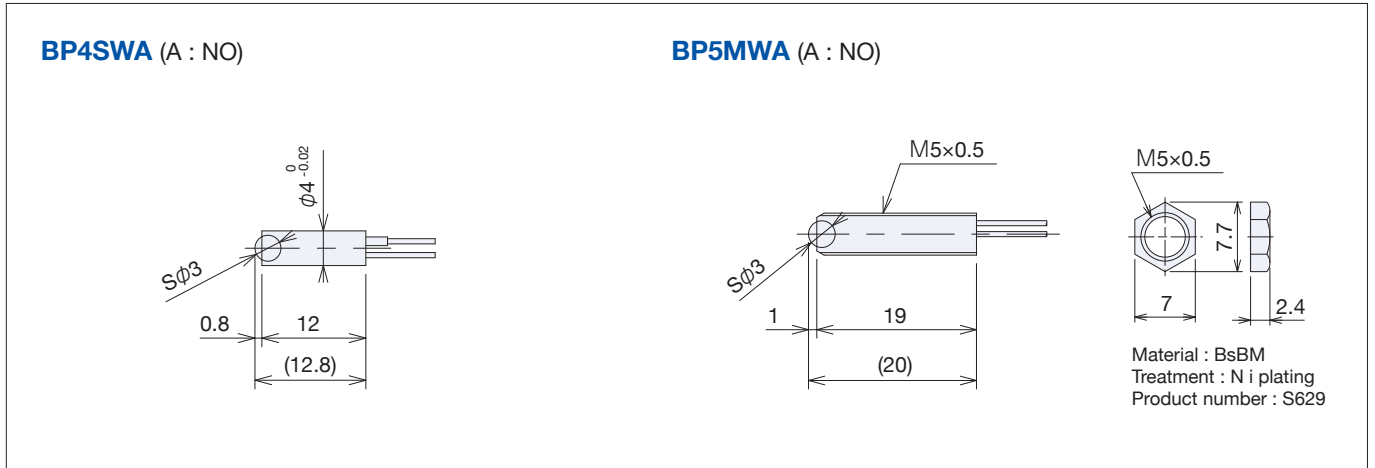
How to use

Suitable for sliding / angled touch



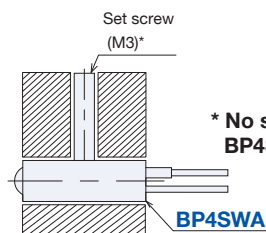
- When using for rotation indexing, adjust the position in consideration of eccentricity and core blurring accuracy of rotating objects.
- According to the operating circumstance, the signal point varies due to wear of the contacting part.
- Carefully calculate the angle and roughness of chamfer so that the contacting part is not easily worn off.
- Try not to bend the threaded part during installation. It will cause malfunction.

Outer dimension



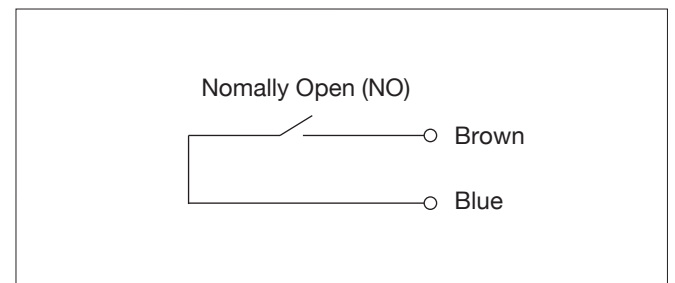
Tightening torque for case screws and nuts

	Screw / Nut	Tightening torque	Applicable models
Ball Plunger Switch	Set screw*	0.1N·m or less	BP4SWA
	M5×0.5	1 N·m	BP5MWA



* No set screws are provided with BP4SWA/BP5MWA.

Circuit diagram



Ball Plunger Switch

Machine Components with a Built-in Switch series

www.metrol.co.jp/en

BP

1 signal plunger type (Contacting ball type)

Indexing check / sliding touch type



Features

■ **Two functions in one, a touch switch built into the ball plunger.**

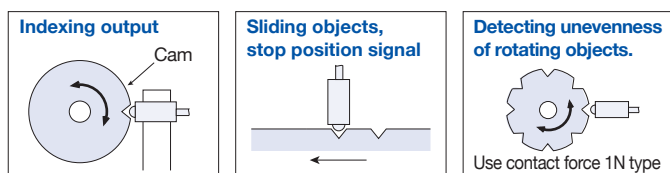
Able to provide identifying and positioning functions using notches on index rotating or sliding objects as well as output a confirmation signal.

Reduces the number of components and design man-hours, allowing miniaturization of the machine.

■ **For customers selecting contact force of 1 N (-F)**

Please select CS-Touch Switch (refer to P4-3) in case of position or presence detection by straight travel contact and not for sliding.

◎ **CS-Touch Switch provides long stroke with small pre-travel making signal setting easy.**



Standard specification

Indexing check

unit: mm

Product name	Contact force(N) (axial direction)	with LED
BP060A	8N (max.13N)	BP060A -L

Sliding touch

unit: mm

Product name	Contact force(N) (axial direction)	with LED
BP060A -F	1	BP060A -LF

-F: Contact force 1N

-L: LED indicator (120mm from the sensor)

◎The edge surface has not been tempered. Do NOT use it as a stopper.

Common specification

unit: mm

Switch structure	Dry contact	Cable	Standard length 2m Oil resistant $\phi 2.8$ / 2 cores,
Output mode	A : Normally open	(Refer to P7-5)	Tensile strength 30N, minimum bending R7
Pretravel	0.3	Operating temperature range	0°C-80°C (Ice-free)
Stroke	0.8	Temperature drift	0 (because of no amplifier)
Repeatability	Both On→Off, Off→On/ 0.01 (At operating speed 50-200mm/min)*	Vibration	10-55Hz total amplitude 1.5 for X,Y,Z each direction
Movement differential	0	Shock	300m/s ² for X,Y,Z each direction
Protective structure	IP40	Contact rating (Refer to P14-3)	DC5V-DC24V Steady current : 10 mA or less (rush current: 20 mA or less) When using the switch with LED, limit the current below 10mA.
Contact life time(Spring)	3 million	Standard accessory	Two fixing nuts and a toothed washer
Contact material	SUS 440 HRC 50-		
Case material	SUS 303		

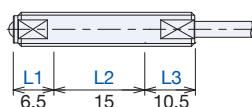
*Operating speed slower than 10mm/min is not recommended.

◎ **The following options are available.**

· LED indicator

Tightening torque for case screws and nuts

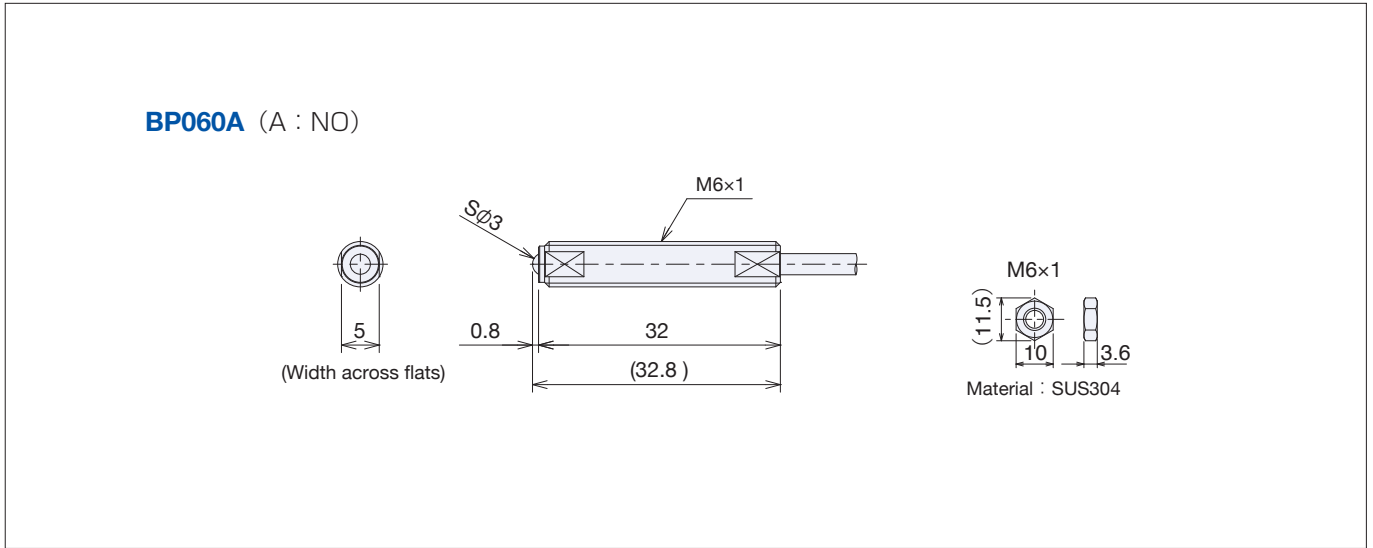
Applicable model	Tightening torque		
	L1	L2	L3
BP060A	2.5N·m	5N·m	2.5N·m



Caution

Use the lower torque (i.e. torque corresponding to L1 and L3) while tightening the bolt between lengths L1 and L2 or L2 and L3 in the picture. Please make sure to use a locknut if the bolt is likely to shift in position due to the vibrational impacts.

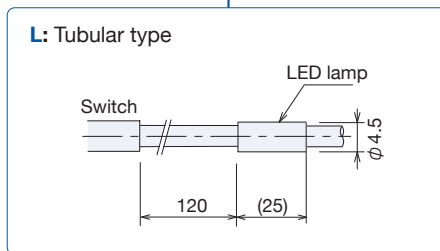
Outer dimension



Options

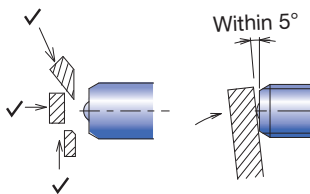
Product name	LED indicator	Contact force
BP060A	Blank: No LED L: 120mm from the switch	Blank: Standard F: 1N

▶ e.g.) BP060A-L



How to use

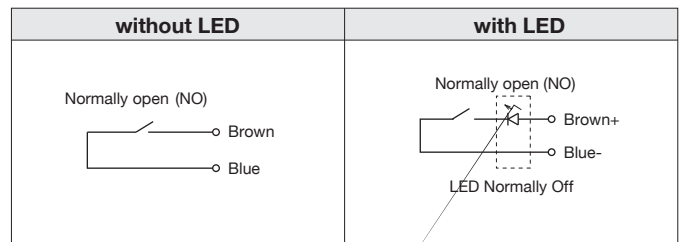
Suitable for angled touch



The degree required to turn on the switch when the detected object doesn't meet the switch end fully.

- When using for rotation indexing, adjust the position in consideration of eccentricity and core blurring accuracy of rotating objects.
- According to the operating circumstance, the signal point varies due to wear of the contacting part.
- Carefully calculate the angle and roughness of chamfer so that the contacting part is not easily worn off.
- Try not to bend the threaded part during installation. It will cause malfunction.

Circuit diagram



Electrical specification / circuit diagram. (Refer to P7-2)

When using the switches with LED option, limit the current below 10mA. (Refer to P14-3 "Confirmation of switch operation")