

Non-Contact Positioning Switches

Overview

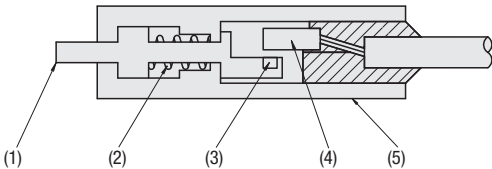
Feature

- The contact type switch can detect objects in given positions regardless of material and color.
- Non contact structure utilizing the magnet detection IC (Hall effect element).
- Able to detect with low contact force.

Basic Structure

When the contact shaft strokes, the magnet moves and the hall effect element outputs a signal.

- (1) Contact Part
- (2) Spring
- (3) Magnet
- (4) Hall Effect Element IC
- (5) Housing



Do not use this product as a detection device for human body protection.
(For human body protection, use products compliant with the local laws and regulations such as OSHA, ANSI, and IEC)

Specifications

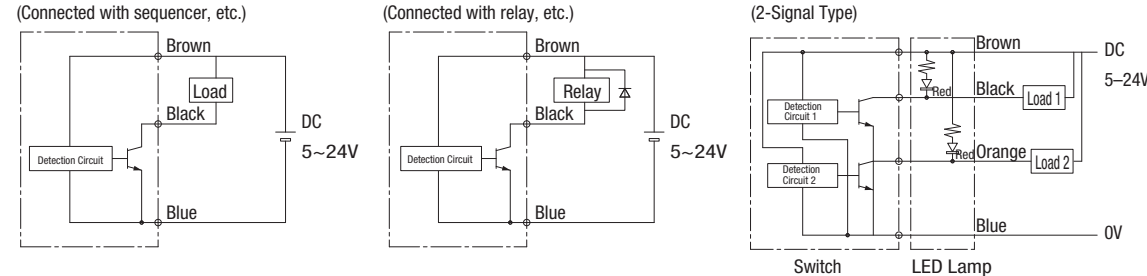
Stroke	1.5 / 3 / 6
Repeatability	0.02 or less
Contact Mechanism	NO (Normally Open)
Hysteresis	0.1 or Less
Service Life*	10 Million Times or More
Frequency Response	1 msec. or Less
25 mA or Less	NPN Open Collector Without LED: MAX 15 mA With LED: MAX 12 mA

* Subject to the following conditions

Endurance Test Conditions

Operating Temp.	25°C
Vibrations	Not provided
Contact Angle	Vertical (Without declination)
Operation Frequency	1 time/sec.

Schematics



Precautions for Use

Although the switches are intended to be trouble-free, incorporate a redundant safety measure such as a duplex circuit to avoid a serious accident or spread of damage caused by a malfunction or failure of the switch.

Design Precautions

Contact Angle

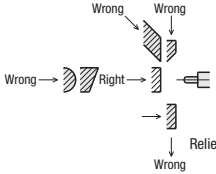
- The object contact angle to the switch should be within $\pm 2^\circ$.

Stroke

- Do not force the contacts beyond the end of the stroke.
Provide a stopper if necessary.
- Do not apply any force that will cause rotation of the contact.

Effects of Magnetic Field

- Do not use the switch in a strong magnetic field. A magnetic field over 1,000 gauss will cause the switch to malfunction.



Cautions on Installation

Cable Failure at Inlet

- Do not apply excessive stress to the cable inlet of the switch case, the solders of cable could be damaged resulting in signal output failures.
- If the cable is not fixed, fasten at appropriate midway points to avoid strains on cable inlet.

Nut Tightening Torque

- Tighten M6 under 1Nm. Tighten M8 and M14 under 2.7 N·m.

Wiring Precautions

Reverse Polarity Connection Prohibited

- Connect the wires correctly in accordance with the circuit diagram. Never connect the power supply in reversed polarity.

Driving relays

- When a relay (under 12 mA) is driven, connect a reversed diode in parallel.

Contact Positioning Switches

Bolt / Flat / 2-Signal

Contact Positioning Switches – Bolt (IP67)

MSNCB MSNCBD With LED

MSNC MSNCD With LED

Material		Cable	AAccessories
Contact Part	Thread		
303 Stainless Steel	303 Stainless Steel	Cable 1 m, 3-Conductors Ø2.8, Oil Resistant Min. Bending Radius R7	Hex Nut 2 pcs. (M6 Thickness 2, Hex Socket 7 M8 Thickness 2.5, Hex Socket 10)

Bolt

Part Number		MxP (Fine)	Operating Point	Contact Force N	L ₁	L ₂	d	SR	Mass (g)
Type	Stroke								
MSNCB MSNCBD	1.2	M6 x 0.5	0.5 from Tip (Repeatability 0.02)	0.3	2.4	18.5	1.4	1	14
MSNC MSNCD	1.5	M8 x 0.75		0.4	4	20	2	2.5	15
	3			0.7	5	30	2.6	3	22

Contact Positioning Switches – Flat (IP65)

MSNCF MSNCFD With LED

Material		Cable
Contact Part	Case	
303 Stainless Steel	Zinc Alloy	Cable 1 m, 3-Conductors Ø2.8, Oil Resistant Min. Bending Radius R7

Flat

Part Number		Operating Point	Contact Force N	Mass (g)
Type	Stroke			
MSNCF MSNCFD	3	0.5 from Tip (Repeatability 0.02)	0.5	17

Contact Positioning Switches – 2-Signal (IP65)

MSNCWD With LED

Material		Cable	Accessories
Contact Part	Thread		
303 Stainless Steel	303 Stainless Steel	Cable 1m, 4-Conductors Ø3, Oil Resistant Min. Bending Radius R7	Hex Nuts 2 pcs. (Thickness 3 Hex Socket 17)

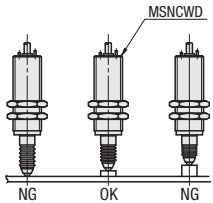
2-Signal

Part Number		Stroke	Contact Force N		Operating Point Setting Range	Mass (g)
Type	No. of Signals		min.	max.		
MSNCWD	2	6	0.5	1.5	0.5–4 (Repeatability 0.02)	60

Feature: Operating point can be freely selected within setting range by turning adjusting screw with precision slotted screwdriver (1.6 mm in edge width).



Application Example



Part Number Example

Part Number
MSNC1.5