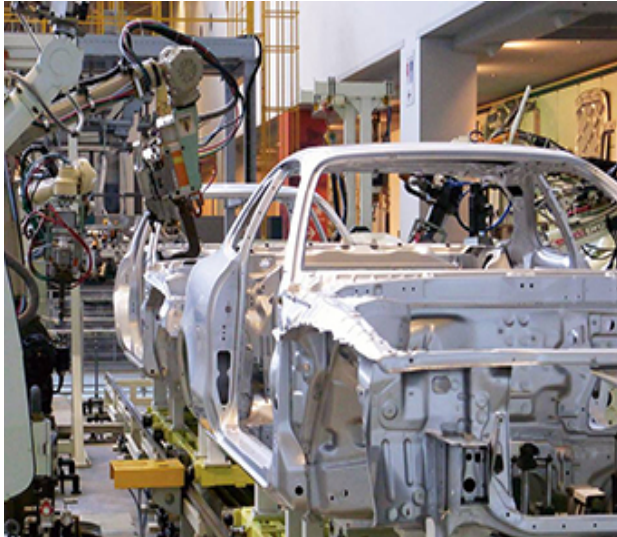


P10MC - Hochpräzisions Tastschalter MT-Touch



- Wiederholgenauigkeit von 0,0005 mm
- keine Hysterese
- Anfahrrichtung axial und radial



Wiederholgenauigkeit 0,5 µm!

Gemeinsam mit Toyota Motors für die besonderen Bedingungen entwickelt, die in Produktionslinien der Automobilherstellung herrschen. So können auch unter Schweißfunken, Kühlmittelspritzern, Metallspänen usw. hochpräzise Positionssignale zuverlässig ausgegeben werden.

Diese Schalter sind mechanische Präzisionsschalter, die ohne Verstärker arbeiten. Deshalb gibt es keine Temperaturdrift oder Abweichungen aufgrund äußerer Einflüsse oder Eigenerwärmung. So ist kontinuierliche Erkennung im Mikrometerbereich und Feststellung kleinster Bewegungen möglich.



Mit Schutz IP67 stark unter erschwerten Bedingungen!

Wasserfeste Konstruktion und Spezialgummi machen diese Schalter für den Einsatz unter Wasser- oder Kühlmittelspritzern (hier besonders alkalische) geeignet. In etwa 500.000 Maschinen in aller Welt eingesetzt! Zum Beispiel zur Nullpunktbestimmung des Werkzeugs innerhalb von Werkzeugmaschinen, und das unter umherfliegenden Schneidspänen und Kühlmittelspritzern. Mit dem Schutz IP67 geeignet für erschwerte Bedingungen mit Wasser- oder Kühlmittelspritzern und/oder Schneidspänen.

Exakte Positionierung unter erschwerten Bedingungen z.B. in CNC-Werkzeugmaschinen.

	Produktname	Ausgangsart	Hub	Montagemaß
	P10MCA	A: NO	1,2 mm	M 10 × 0,5
	P10MCB	B: NC	1,2 mm	M 10 × 0,5

P10MC - Hochpräzisions Tastschalter MT-Touch

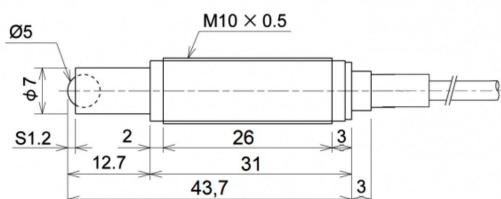


Technical Specification

Operating voltage	5 - 24 V
Max. load current	10 mA
Switching hysteresis	0
Operating temperature	0 ° C to 80 ° C
Temperature drift	0
Repeat accuracy	0,002 mm (at operating speed 50 ... 200 mm/min)
Switching state	LED
Stroke	1,2 mm
Pre-travel	0,3 mm
Accuracy	0,002 mm
Probe tip	Kugel 5
Probe tip material	Wolframkarbid
Operation load	1 N
art_ttl_mech	3 Mio. operating cycles
Protection category	IP40
Wiring	Zweidraht/ Two wire
Housing material	Stainless steel V2A
Termination	cable 3 m, 2 wire, Ø 4 mm, oil resistant
Approach direction	axial and radial

Dimension (in mm)

fine-pitch thread M10x0,5 x l = 43,7



	Produktname	Ausgangsart	Hub	Montagemaß	Ausgangsart
	P10MCA	A: NO	1,2 mm	M 10 × 0,5	Normally open (NO)
	P10MCB	B: NC	1,2 mm	M 10 × 0,5	Normally close (NC)

High-precision MT-Touch Switch

High-precision positioning switch series

P10MC

1-signal plunger type (Contacting ball type)

Sliding touch type



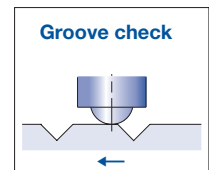
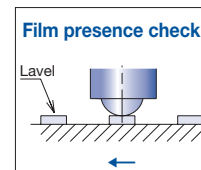
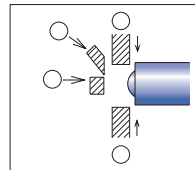
Features

■ **Suitable for detection of sliding bodies as the contact sphere rotates.**

■ **No movement differential**

This type can detect even subtle bump and height difference such as thickness of a sheet on a sliding conveyor.

《Application》



Standard specification

unit:mm

Product name	Output mode	Pretravel	with LED
P10MCA	A: Normally open	0.2	P10MCA-L
P10MCB	B: Normally close	0 (*1)	P10MCB-L

-L : LED indicator (120mm from switch case)

*1 Adjust the installed location of the switch by the signal switching point.

Common specification

unit:mm

Switch structure	Dry contact
Output mode	A : Normally open / B : Normally close
Repeatability	Both On→Off, Off→On/ 0.002 (axial direction) (At operating speed 50-200mm/min) *2
Movement differential	0
Contact life time	3 million (If no specified bungle caused by vibration and used under voltage and current rating)
Protective structure	IP40
Contact force	1N (axial direction)
Contacting part	S ϕ 4.8 carbide
Case material	SUS303

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

Cable (Refer to P2-9)	Standard length 3 m Oil resistant ϕ 4 / 2 cores, Tensile strength 30N, minimum bending R7
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 (Refer to P7-3)	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.
Standard accessory	Two fixing nuts

◎The following options are available.

- **Transistor output (Refer to P2-4)**
 - Reverse connect protection.
 - Level conversion.
 - Output current is increased to 100mA.
- **Contact force**
- **LED indicator**
- **Cable direction**
- **Cable**

■Circuit diagram

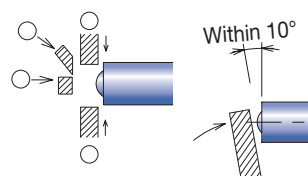
without LED	with LED
Normally open (NO) Normally close (NC)	Normally open (NO) LED Normally Off Normally close (NC) LED Normally On

Electrical specification / circuit diagram. (Refer to P2-1)

When using the switches with LED option, limit the current below 10mA. (Refer to P7-3 "Confirmation of switch operation")

■How to use

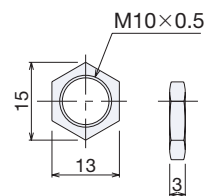
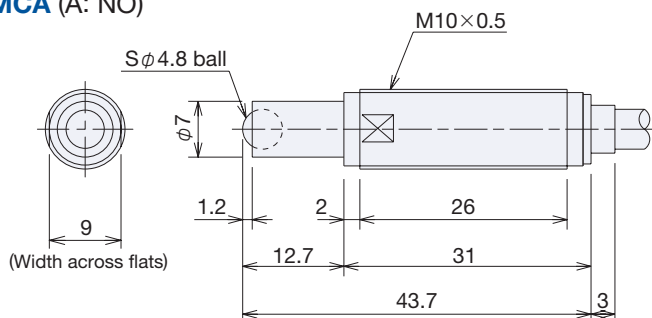
Suitable for detecting sliding and angled objects



The angle required to turn on the switch when the detecting the object.

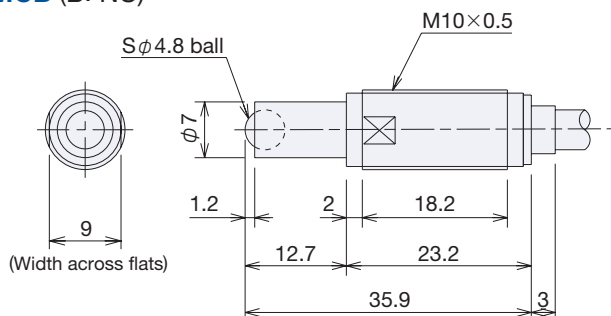
Outer dimension

P10MCA (A: NO)

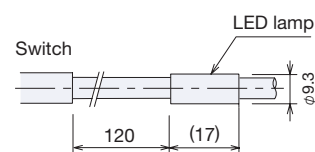


Material : BsBM
Treatment : Ni plating
Product name : S623

P10MCB (B: NC)



LED indicator(-L)



Options

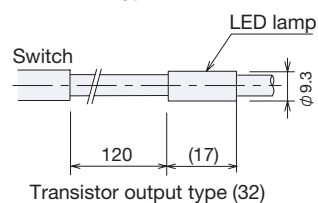
Product name	Contact force	LED indicator	Cable direction	Cable
P10MCA P10MCB	Blank: 1N S: 0.3N G: 0.5N H: 1.5N	Blank: No LED L: 120mm from the switch	Blank: Straight R: 90°	Blank: Standard (3m) N: Nm (Specify) Option: ·Connector ·Direct-out connector (Not selectable when transistor output or LED is selected.)

Transistor output

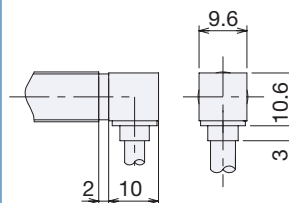
TNA Added to standard product name
TNB
TPA
TPB
(Refer to P2-4)

- e.g.) P10MCA-SLR-5
- Transistor output e.g.) P10MCATNA

L: Tubular type

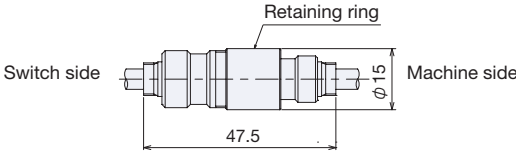


R: 90°



Connector

Tight waterproof structure corresponding to IP67. Can be used in harsh environment.

Blank : Not required	Cable		Protective structure	Dimension	Pullout strength
Product name					
CC240	2-cores	$\phi 4$	IP67		With retaining ring
When transistor output is selected: CC3	3-cores				

e.g.) P10MCA-1-**CC240**-2

(High-precision MT-Touch Switch **P10MCA** / Switch side cable 1m / Connector **CC240** / Machine side cable 2m)

How to Order for Maintenance

(1) When Ordering Only the Switch Side

Please add [**H**] after the model name. Example: P10MCA-1-CC240**H**

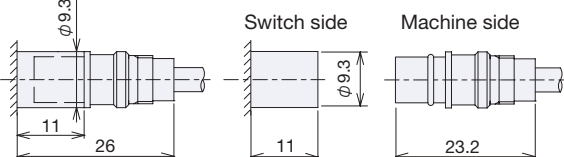
(2) When Ordering Only the Machine Side

Please add [**Cord Length**] in 1 m increments after the model name.

Example: CC240-**2** (Relay Connector: CC240 / Machine-Side Cord: 2m)

Direct-out connector (Not selectable when transistor output or LED is selected.)

Tight waterproof structure corresponding to IP67. Can be used in harsh environment.

Blank : Not required	Cable		Protective structure	Dimension	Pullout strength
Product name					
DG	2-cores	$\phi 5$	IP67	(Not selectable when transistor output or LED is selected.) 	1.5N

e.g.) P10MCA-S-**DG**-5

(High-precision MT-Touch Switch **P10MCA-S** / Switch side cable 1m / Connector **DG** / Machine side cable 2m)

Tightening torque for case screws and nuts

	Screw / Nut	Tightening torque	Applicable model
High-precision MT-Touch Switch	M10x0.5	8N · m	P10MC

Options

Contact force

Mark : Contact force	Operating condition
S : 0.3N	No chattering caused by vibration or impact
G : 0.5N	
H : 1.5N	Intense vibration or impact