

FEATURES

- Two-Circuit Double-Break Limit Switches
- Rigid die cast switch housing. Made up of zinc alloy and reinforced plastic.
- Small sized, oil-tight, waterproof
- Inbuilt with a micro switch with double read structure for longer mechanical service life
- Larger Over Travel operations
- Catheter design for easy wiring
- Many types of actuator. Easy to use.

SPECIFICATIONS

RATINGS

Rated Voltage (V)	Non-inductive load (A)				Inductive load (A)			
	Resistive Load		Lamp Load		Inductive Load		Motor Load	
	NC	NO	NC	NO	NC	NO	NC	NO
125VAC	5	5	1.5	0.7	3	3	2	1
250VAC	5	5	1	0.5	3	3	1.5	0.8
8 VDC	5	5	3	3	5	4	3	3
14 VDC	5	5	3	3	4	4	3	3
30 VDC	5	5	3	3	4	4	3	3
125 VDC	0.4	0.4						
250 VDC	0.2	0.2						
Inrush Current	N.C:24A max. N.O:12A max.							

Notes: 1. Inductive load: power factor = 0.4 (AC);
time constant = 7 msec (DC)

2. Lamp load has an inrush current of 10 times the steady-state current while motor load has an inrush current of 6 times the steady-state current.

CONTACT CONFIGURATION



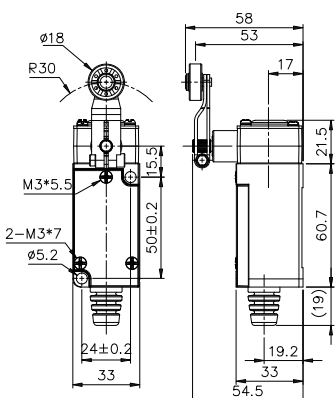
CHARACTERISTICS

Operating Speed	0.5mm to 50cm/s
Operating Frequency	Mechanically:120 operations/min Electrically:30 operations/min
Contact Resistance	25mΩ (max.)(initial)
Insulation Resistance	100MΩ max. (at 500VDC)
Dielectric Strength	1,000 VAC, 50/60 Hz, for 1 minute between non-continuous terminals; 1,500 VAC, 50/60 Hz, for 1 minute between non-current-carrying metal part and between each terminal and ground.
Vibration	10 to 55HZ, 1.5mm double amplitude
Shock	Mechanical durability: approx.1,000m/S ² (approx.100G'S) Malfunction durability: approx.500m/S ² (approx.30G'S)
Ambient Temperature	Operating: -5 to +65°C
Humidity	95%RH max.
Service Life	Mechanically: 10,000,000 operations min. Electrically: 500,000 operations min.
Weight	Approx. 140 to 250g
Degree of Protection	IEC:IP65

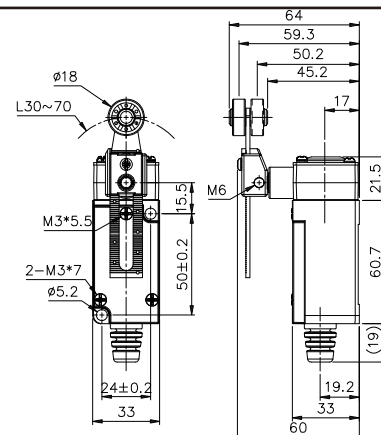
OPERATING CHARACTERISTICS

Type	TZ-1104	TZ-1108	TZ-1107	TZ-1111	TZ-1112 TZ-1122	TZ-1166 TZ-1167 TZ-1168 TZ-1169
OF max.	750g	750g	750g	900g	900g	150g
RF min.	100g	100g	100g	150g	150g	—
PT max.	20°	20°	20°	1.5mm	1.5mm	30mm
OT min.	50°	50°	50°	4mm	4mm	—
MD max	12°	12°	12°	1mm	1mm	—
OP	—	—	—	30±0.8mm	40±0.8mm	—

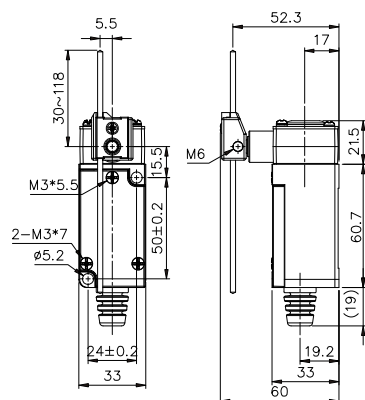
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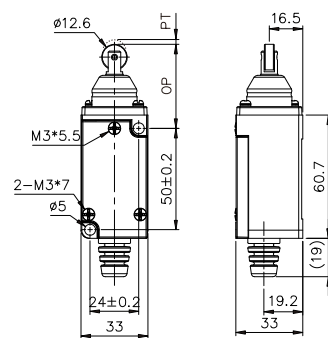
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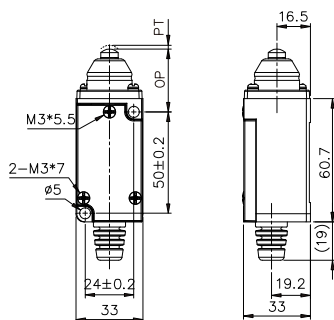
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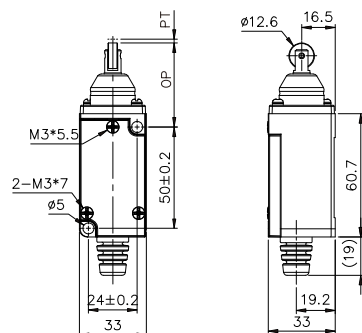
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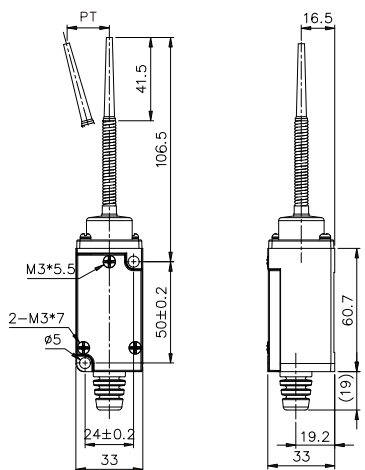
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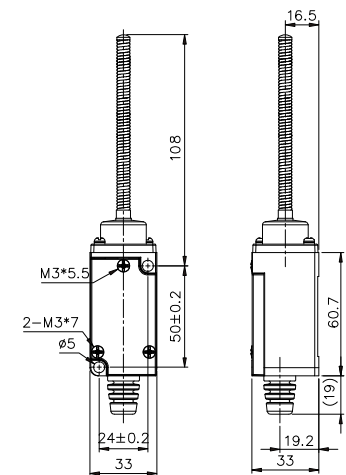
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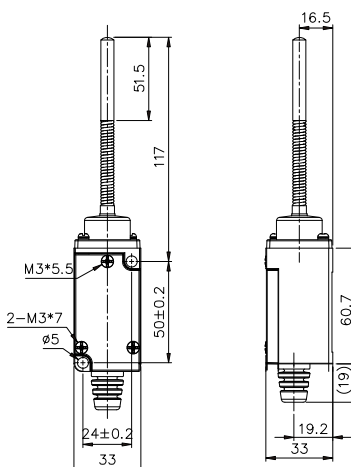
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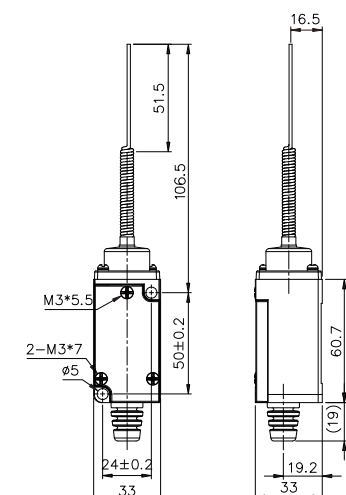
TZ-1167



TZ-1168



TZ-1169



Wide Selection of Two-circuit Double-break Limit Switches

FEATURES

- Rigid diecast switch housing
- Set position indicator plate for easy maintenance
- High mechanical strength
- Oiltight, waterproof and bust-proof construction

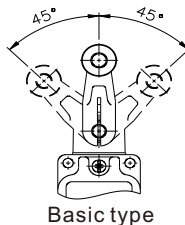
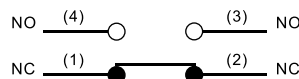
SPECIFICATIONS

RATINGS

Rated Voltage (V)	Non-inductive load(A)				Inductive load(A)			
	Resistive load		Lamp load		Inductive load		Motor load	
	NC	NO	NC	NO	NC	NO	NC	NO
125VAC	10	10	3	1.5	10	5	5	2
250VAC	5	5	2	1	5	3	3	1.0
480VAC	3	3	1.5	0.8	3	1.5	1.5	0.8
600VAC	1	1	1	0.5	1.5	1	1	0.5
8 VDC	10	6	3	10	6			
14 VDC	10	6	3	10	6			
30 VDC	6	4	3	6	4			
125 VDC	0.8	0.2	0.2	0.8	0.2			
250 VDC	0.4	0.1	0.1	0.4	0.1			

Notes: 1. Inductive load: power factor=0.4; time constant=7msec.
 2. Lamp load has an inrush current of 10 times the steady-state current while motor load has an inrush current of 6 times the steady-state current.

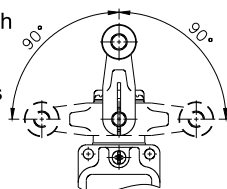
CONTACT CONFIGURATION



Basic type

OVERTRAVEL TYPE

The Overtravel Type is a limit switch which is provided with a greater OT to facilitate dog setting. Since this type is identical to the Basic Type in dimensions, both types are interchangeable. The Overtravel Type is classified into two versions -2 series and -2N series.



Over travel type

-2 SERIES

The head of -2 series switch can be installed in any of the four directions.
 90° operation on only one side - impossible
 90° operation on either side - possible

-2N SERIES

The head of -2N series switch can be installed only in two directions, forward and backward.
 90° operation on only one side - possible
 90° operation on either side - possible



Loosen the cam holder with a coin or screw driver



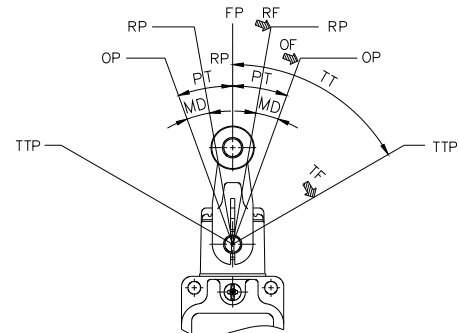
Reverse the cam



Reverse the position of the cam and reinstall

CHARACTERISTICS

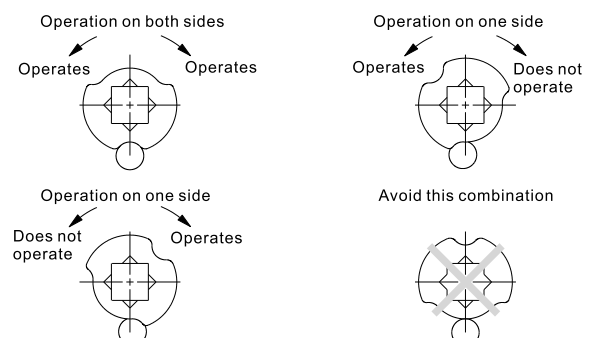
Operating speed	1mm to 2m/sec ² (TZ5104)
Operating frequency	Mechanically: 120 operations/min Electrically: 30 operations/min
Contact resistance	15mΩ max. (initial)
Insulation resistance	100MΩ max. (at 500 VDC)
Dielectric strength	1,000 VAC, 50/60Hz, for 1 minute between non-continuous terminals; 2,200 VAC, 50/60Hz, for 1 minute between each terminal and non-current-carrying metal part and between each terminal and ground
Vibration	Malfunction durability: 10 to 55HZ, 1.5mm double amplitude
Shock	Mechanical durability: approx. 1,000m/sec ² (approx. 100G's) Malfunction durability: approx 300m/sec ² (approx. 30G's)
Ambient temperature	Operating: -10~+80°C
Humidity	95%RH max.
Service life	Mechanically: 15,000,000 operations min. Electrically: 500,000 operations min.
Weight	Approx-275g (with Type TZ-5104)
Degree of protection	IEC: IP67
Temperature rise	50 degrees max.



OF: Operating Force
 RF: Releasing Force
 TF: Total Force
 FP: Free Position
 OP: Operating Position
 RP: Releasing Position
 TTP: Total Travel Position
 PT: Pretravel
 OT: Overtravel
 MD: Movement Differential
 TT: Total travel

90° operation on one side is possible by simply changing the direction of the cam.

Relationship of cam to operation as observed from the rear of switch



Type	TZ-5101	TZ-5102 TZ-5103	TZ-5109	TZ-5104	TZ-5108	TZ-5107	TZ-5105
OF max.	2,720g	2,720g	2,720g	1,360g	1,360g	142g	1,200g
RF min.	910g	910g	910g	227g	227g	28g	-
PT max.	1.7mm	1.7mm	1.7mm	20°	20°	20°	55°
OT min.	6.4mm	5.6mm	4mm	30°	30°	30°	35°
MD max.	1mm	1mm	1mm	12°	12°	12°	-
OP	34±0.8mm	44.8±0.8mm	44.5±0.8mm	-	-	-	90±10°
TTP max.	29.5mm	39.5mm	41mm	-	-	-	-

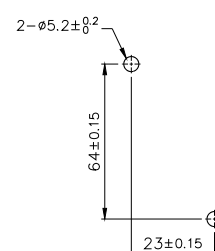
Type	TZ-5106.5166.5168.5169	TZ-5104-2.5108-2	TZ-5107-2	TZ-5104-2N.5108-2N	TZ-5107-2N
OF max.	150g	1000g	290g	980g	290g
RF min.	-	100g	25g	120g	25g
PT max.	28mm	20°	20°	20°	20°
OT min.	-	55°	55°	70°	70°
MD max.	-	12°	12°	10°	10°

Technical drawing of a square plate. The dimensions and tolerances are as follows:

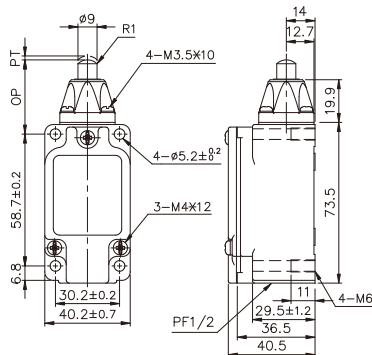
- Side length: 58.7 ± 0.15
- Inner square side length: 30.2 ± 0.15
- Distance from corner to inner square corner: $4 - \phi 5.2 \pm 0.2$

Technical drawing of a square plate with the following dimensions and specifications:

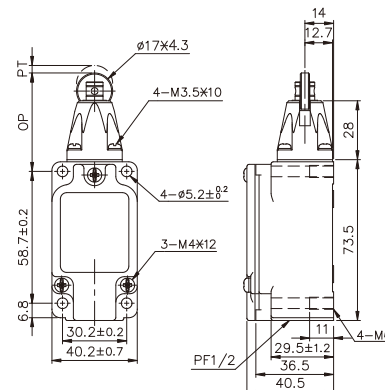
- Overall width: 30.2 ± 0.15
- Overall height: 58.7 ± 0.15
- Number of holes: 4
- Hole diameter: $\varnothing 5.2 \pm 0.2$



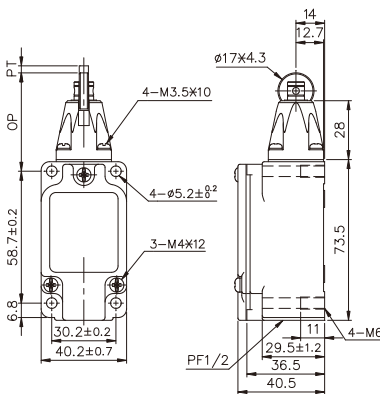
TZ-5101



TZ-5102

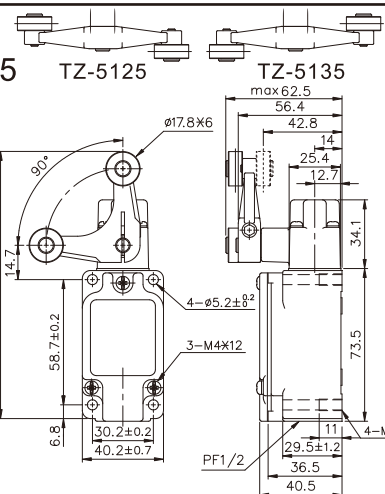


TZ-5103

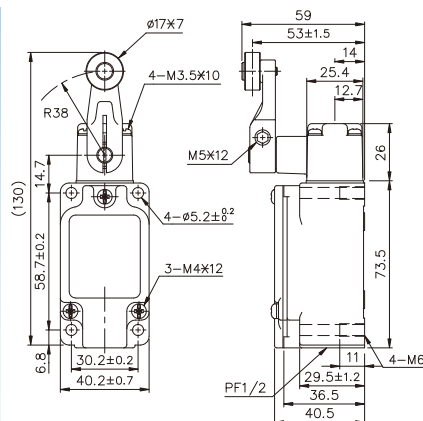


TZ-5105

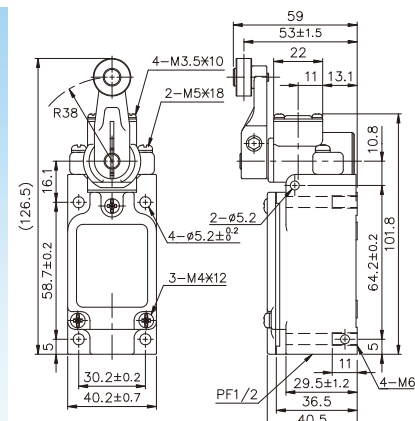
TZ-5125 TZ-5135



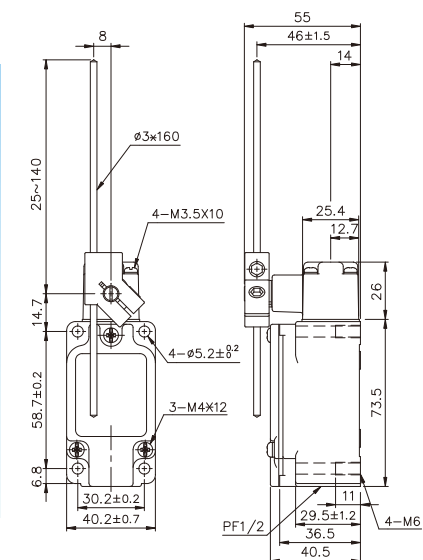
TZ-5104
TZ-5104-2



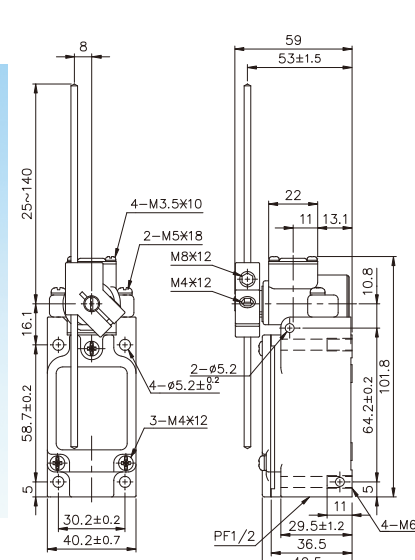
TZ-5104-2N



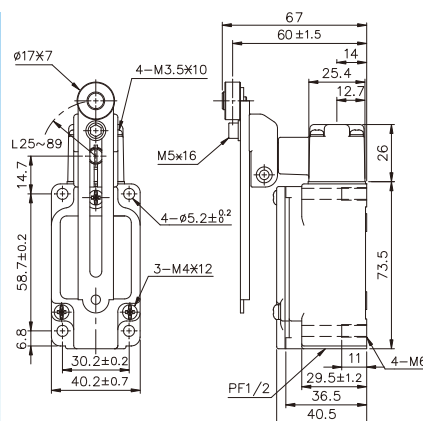
TZ-5107
TZ-5107-2



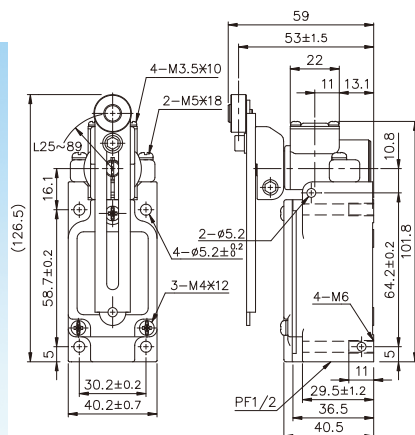
TZ-5107-2N



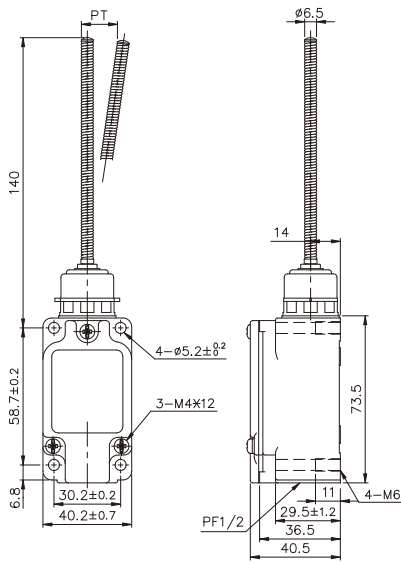
TZ-5108
TZ-5108-2



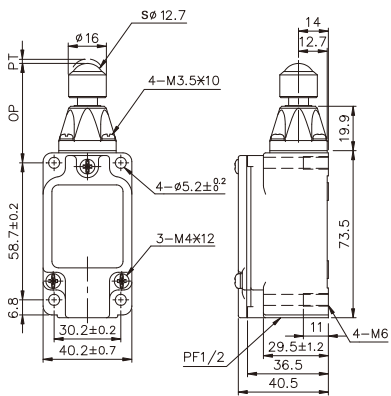
TZ-5108-2N



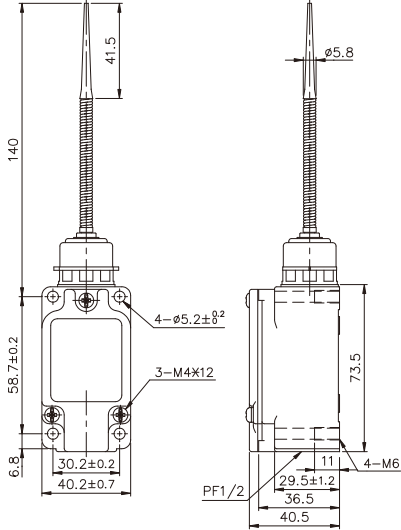
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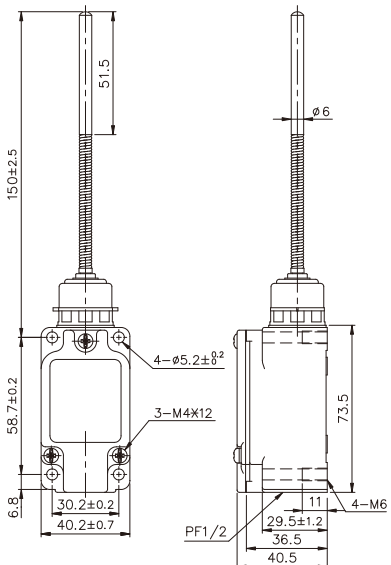
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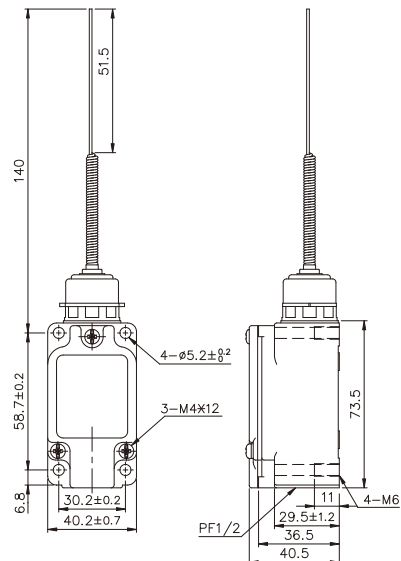
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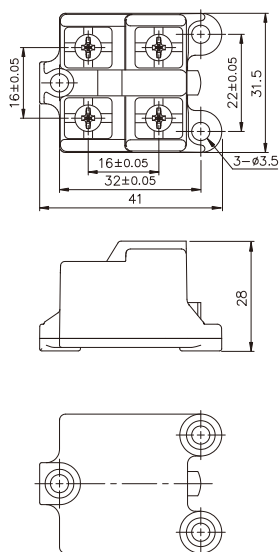
TZ-5168



TZ-5169



TZ-501



FEATURES

- The interior of the TM Micro switch and its strong aluminium alloy housing are water proof and oil proof.
- The ratings and features are the same as TM micro switch.
- Wide variety of actuators, easy to use.
- Each comes with a set of cable hardware.
(Includes rubber gasket, washer and plastic nut)
- Protection Rating: IEC standard IP65

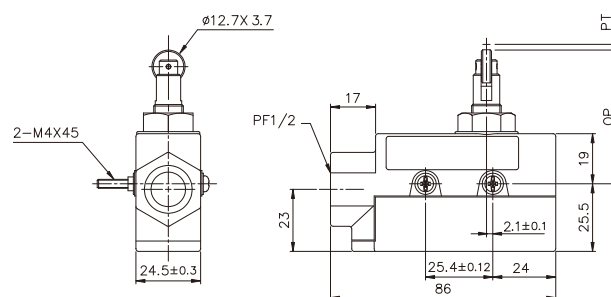
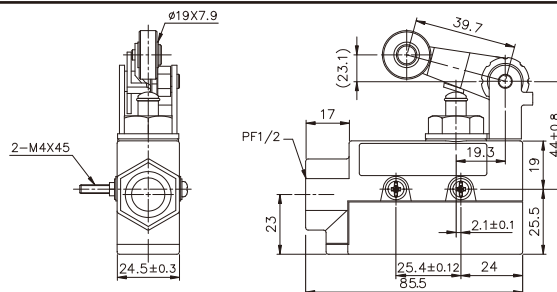
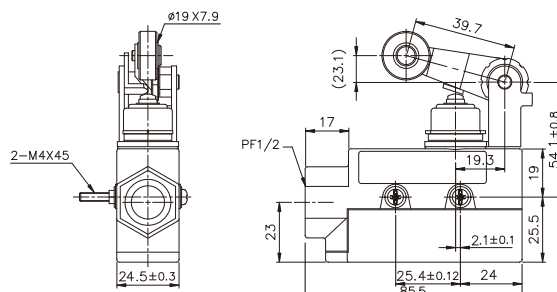
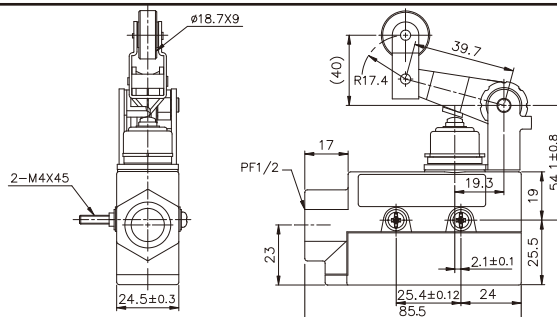
SPECIFICATIONS



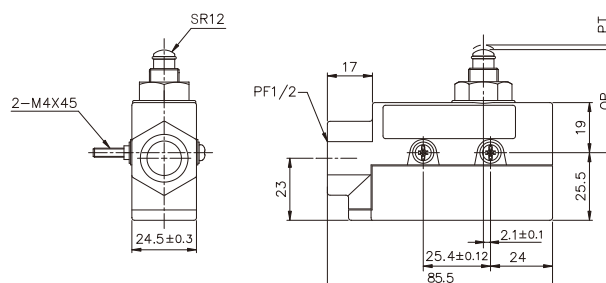
OPERATING CHARACTERISTICS

Type	TZ-6001	TZ-6002	TZ-6003	TZ-6004	TZ-6043	TZ-6101	TZ-6102	TZ-6103	TZ-6104	TZ-6143
OF max.	350g	350g		570g	570g	800g	500g		640g	640g
RF min.	114g	114g		170g	170g	240g	100g		230g	230g
PT max.	0.4mm	0.5mm		4mm	4mm	2mm	1mm		5mm	5mm
OT min.	5.5mm	3.6mm		6mm	6mm	5mm	3.5mm		6mm	6mm
MDmax.	0.05mm	0.05mm		0.4mm	0.4mm	0.1mm	0.12mm		0.4mm	0.4mm
OP	38.2±0.8mm	49.7±1mm				45.8±0.8mm	49.7±0.8mm			—

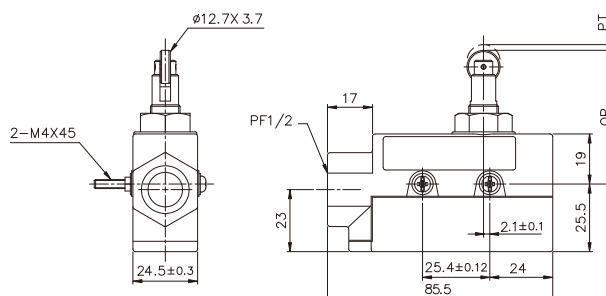
DIMENSIONS

TZ-6003

TZ-6004

TZ-6104

TZ-6143


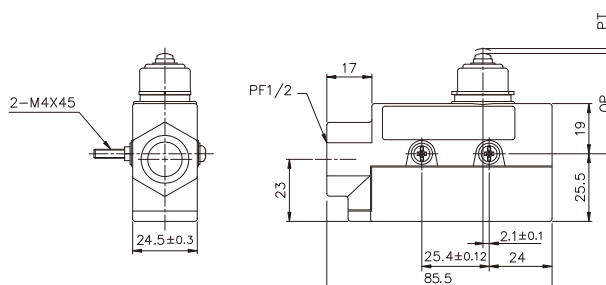
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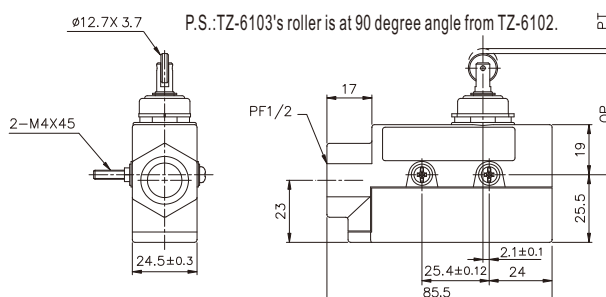
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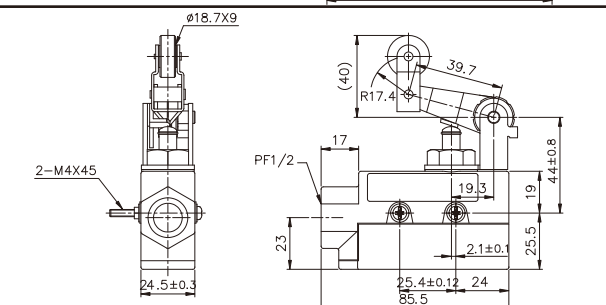
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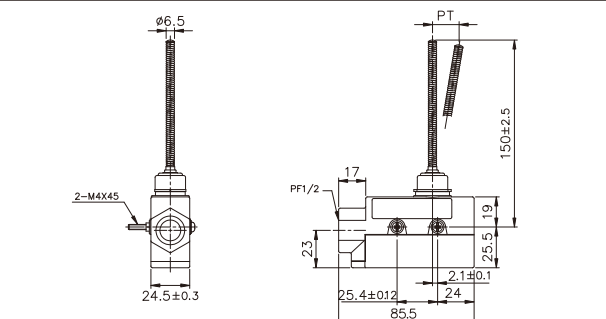
TZ-6102
(TZ-6103)



TZ-6043



TZ-6106



SPECIFICATIONS

- High precision and long life (10,000,000 mechanical operations)
- Sealed with gasket diaphragm to provide high sealing property without use of any adhesive or pin
- Adjustable positions for versatility

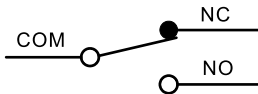
SPECIFICATIONS

RATINGS

Rated Voltage (V)	Non-inductive load(A)				Inductive load(A)			
	Resistive load		Lamp load		Inductive load		Motor load	
	NC	NO	NC	NO	NC	NO	NC	NO
125VAC	10		3	1.5	10		5	2.5
250VAC	10		2.5	1.25	10		3	1.5
480VAC	3		1.5	0.75	2.5		1.5	0.75
8 VDC	10		3	1.5	6		6	5
14 VDC	10		3	1.5	6		6	5
30 VDC	8		3	1.5	6		5	2.5
125 VDC	0.5		0.4		0.05		0.05	
250 VDC	0.25		0.2		0.03		0.03	

- Notes: 1.inductive load: power factor=0.4;time constant =7msec.
2.lamp load has an inrush current of 10 time the steady-state current while motor load has an inrush current of 6 times the steady-sate current.

CONTACT CONFIGURATION

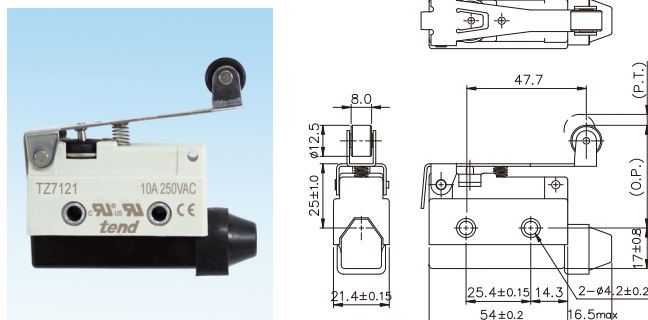


OPERATION CHARACTERISTICS

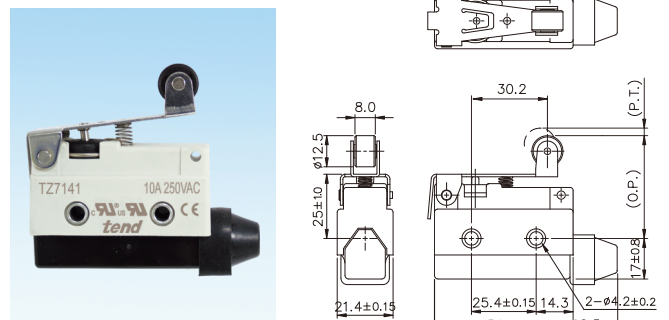
Type	TZ-7100	TZ-7110	TZ-7310	TZ-7311	TZ-7312	TZ-7120	TZ-7140	TZ-7121	TZ-7141	TZ-7124	TZ-7144	TZ-7166
OF Max.	600g	600g	600g	600g	600g	150g	220g	180g	240g	200g	280g	120g
RF Min.	100g	100g	100g	100g	100g	40g	60g	50g	80g	60g	100g	
PT Max.	2.0mm	2.0mm	2.0mm	2.0mm	2.0mm	13.5mm	8.5mm	11.0mm	6.5mm	11mm	6.5mm	25mm
OT Min.	0.8mm	5.0mm	6.0mm	6.0mm	6.0mm	4.0mm	2.5mm	3.0mm	2.0mm	3.0mm	2.0mm	11mm
MD Max.	0.8mm	0.8mm	0.8mm	0.8mm	0.8mm	3.2mm	2.0mm	2.4mm	1.5mm	2.4mm	1.5mm	
OP	30.8±0.8mm	44±1.2mm	21.8±1.2mm	33.3±1.2mm		25±1mm	25±1mm	40±1mm	40±1mm	50±1.2mm	50±1.2mm	
FP						35mm	35mm		46mm		56mm	

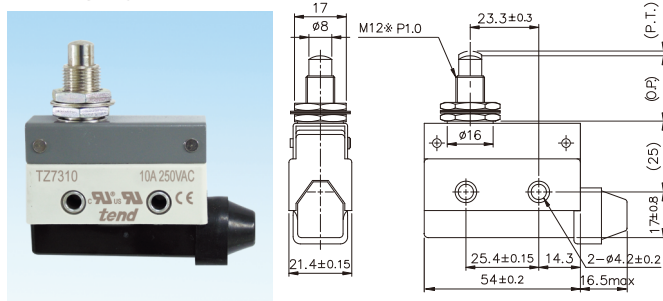
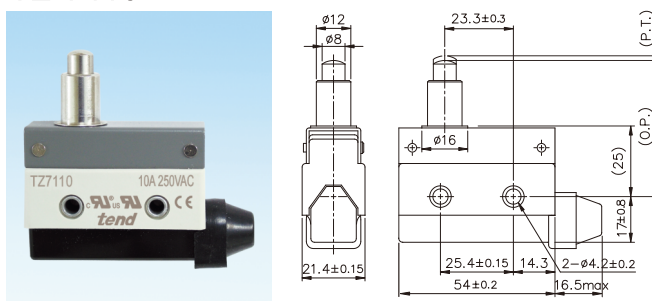
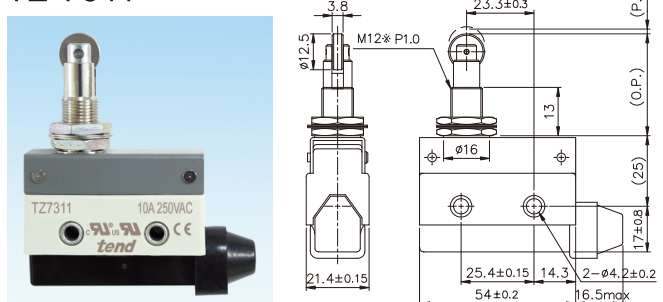
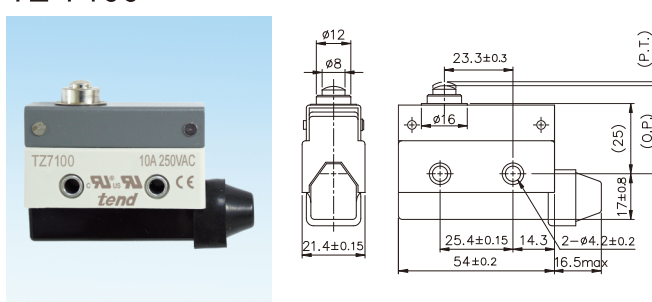
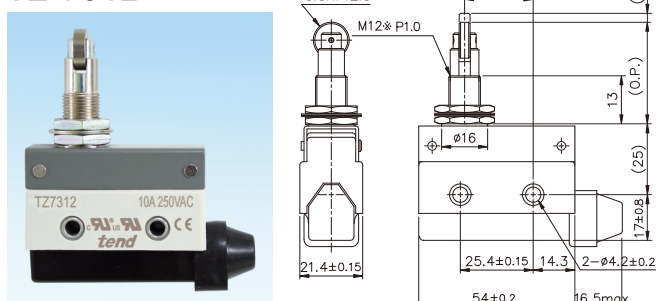
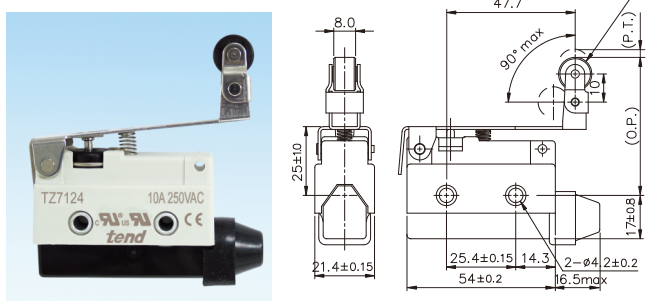
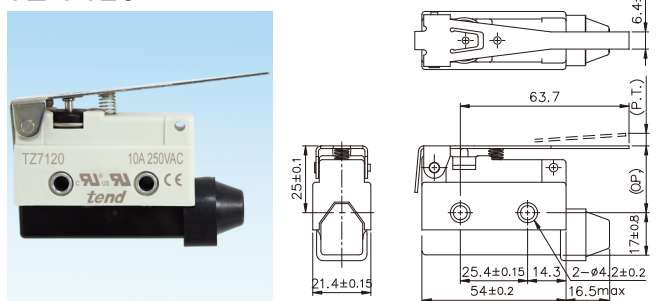
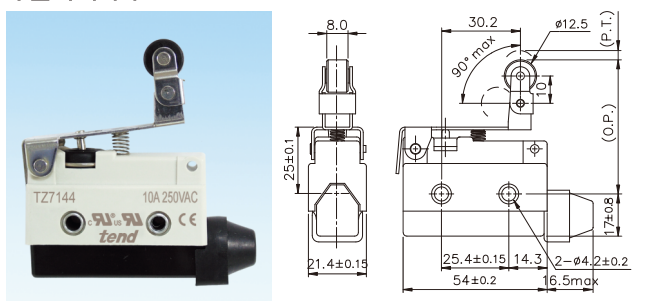
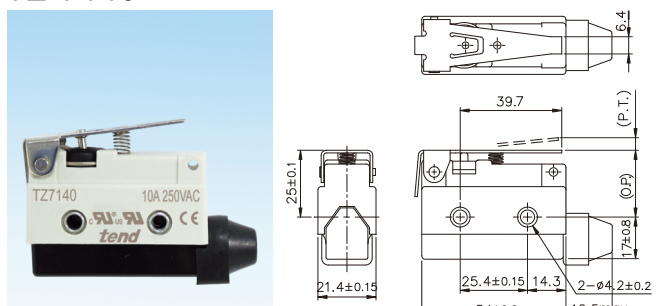
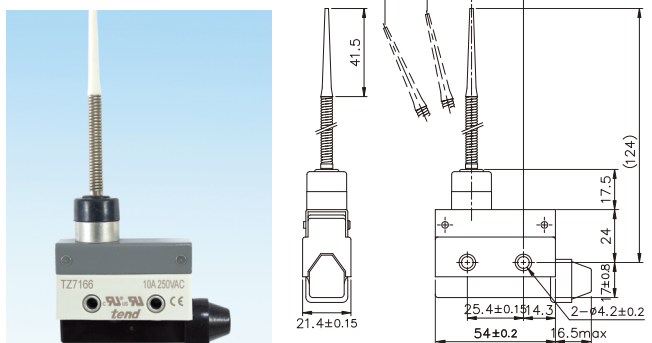
DIMENSIONS

TZ-7121



TZ-7141



TZ-7310

TZ-7110

TZ-7311

TZ-7100

TZ-7312

TZ-7124

TZ-7120

TZ-7144

TZ-7140

TZ-7166


FEATURES

- Built-in basic switch with double spring mechanism
- Long life (10,000,000)mechanical operations)
- Highly rigid construction (head and cover snugly fit in box)
- Dustproof and drip-proof construction
- Smooth operation with greater OT
- Easy-to-wire conduit opening design
- Versatile, Easy to use

SPECIFICATIONS

RATINGS

Rated Voltage	Non-inductive				Inductive load			
	Resistive load		Lamp load		Inductive load		Motor load	
	NC	NO	NC	NO	NC	NO	NC	NO
125VAC	5	5	1.5	0.7	3	3	2	1
250VAC	5	5	1	0.5	3	3	1.5	0.8
8 VDC	5	5	3	3	5	4	3	3
14 VDC	5	5	3	3	4	4	3	3
30 VDC	5	5	3	3	4	4	3	3
125 VDC	0.4	0.4						
250 VDC	0.2	0.2						
Inrush current	N.C:24A max.N.O:12Amax							

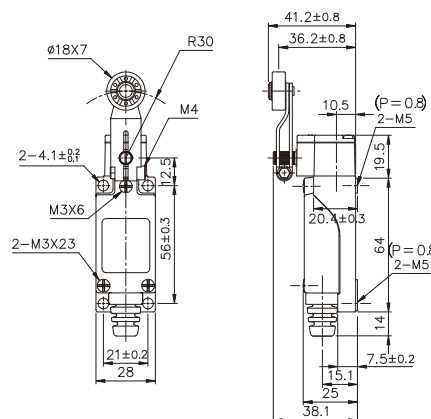
NOTES:1-inductive load has a power factor of 0.4 min. (Ac) and a time constant of 7 msec. Max.(dc)

2.lamp load has an inrush current of 10 times the steady-state current, while motor load has an inrush current of 6 times the steady-state current.

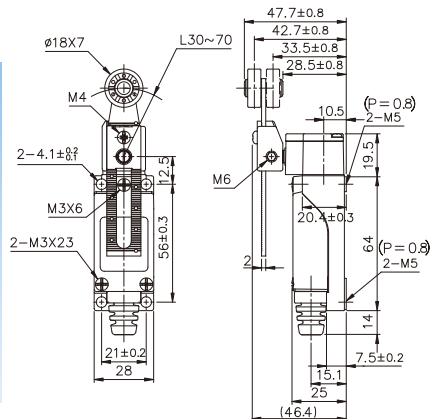
OPERATION CHARACTERISTICS

Type	TZ-8104	TZ-8108	TZ-8107	TZ-8111	TZ-8112 TZ-8122	TZ-8166 TZ-8167 TZ-8168 TZ-8169
OF Max.	750g	750g	750g	900g	900g	150g
RF Min.	100g	100g	100g	150g	150g	—
PT Max.	20°	20°	20°	1.5mm	1.5mm	30mm
OT Min.	50°	50°	50°	4mm	4mm	—
MD Max.	12°	12°	12°	1mm	1mm	—
OP	—	—	—	26±0.8mm	37±0.8mm	—

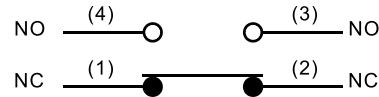
TZ-8104



TZ-8108



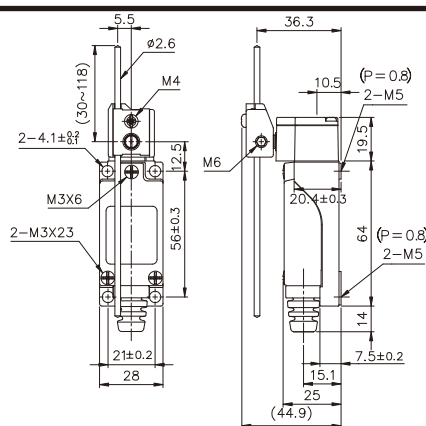
CONTACT CONFIGURATION



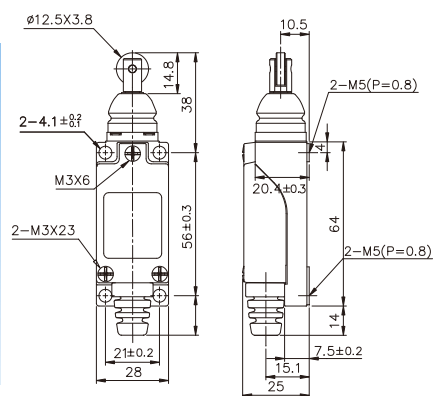
CHARACTERISTICS

Operating speed	0.5mm to 50cm/s
Operating frequency	Mechanically:120 operations/min Electrically:30 operations/min
Contact resistance	25mΩ max. (initial)
Insulation resistance	100MΩ max. (at 500 VDC)
Dielectric strength	1,000VAC,50/60Hz, fo 1minute between non-continuous terminals 1,500VAC,50/60Hz, for 1 1minute between current-carrying and non- current-carrying pasts and between each terminal and ground
Vibration	Mechanical durability: 10 to 55HZ,1.5mm double amplitude
Shock	Mechanical durability: 1,000m/S ² (approx.100G's) Malfunction: 500m/S ² (approx.50G's)
Ambient temperature	Operating:-5 to +65°C
Humidity	95%RH max.
Service life	Mechanically: 10,000,000 operations min. Electrically:500,000 operations min.
weight	Approx.130 to 190g
Degree of protection	IEC : IP65

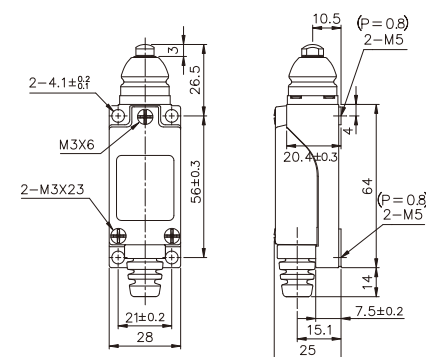
TZ-8107



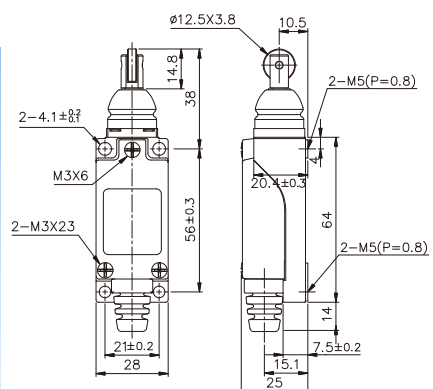
TZ-8112



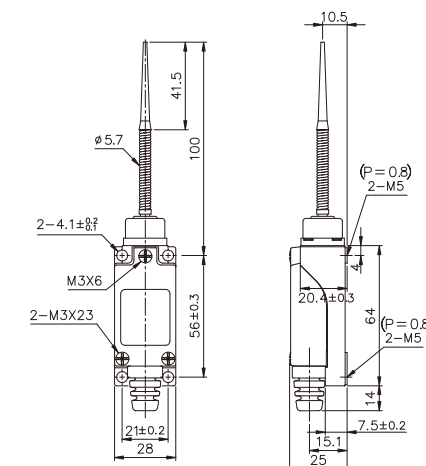
TZ-8111



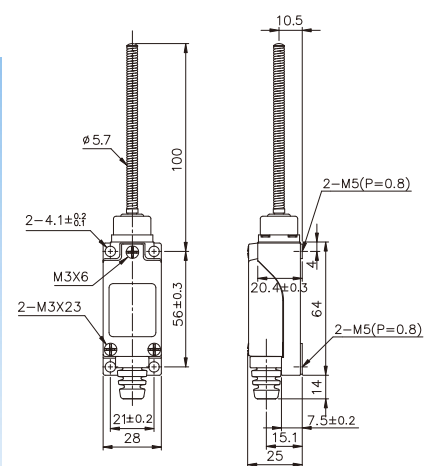
TZ-8122



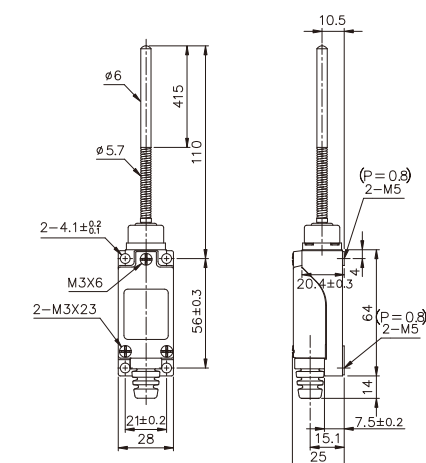
TZ-8166



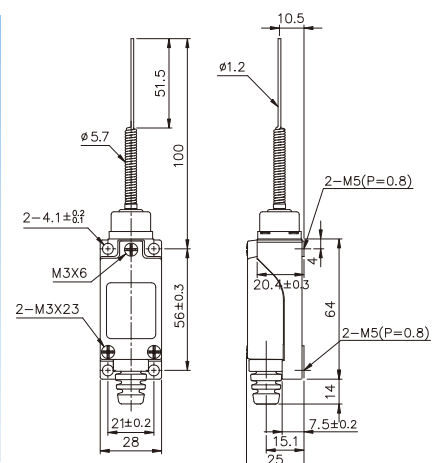
TZ-8167



TZ-8168



TZ-8169



SPECIFICATIONS

- Built-in basic switch with double spring mechanism
- Long life (10,000,000 mechanical operations)
- Material: glass reinforced plastic.
- Dust proof and drip-proof construction
- Smooth operation with greater OT
- Easy-to-wire conduit opening design

SPECIFICATIONS

RATINGS

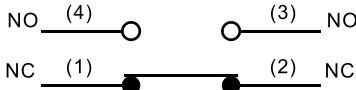
Rated Voltage (V)	Non-inductive load(A)				Inductive load(A)			
	Resistive load		Lamp load		Inductive load		Motor load	
	NC	NO	NC	NO	NC	NO	NC	NO
125VAC	5	5	1.5	0.7	3	3	2	1
250VAC	5	5	1	0.5	3	3	1.5	0.8
8 VDC	5	5	3	3	5	4	3	3
14 VDC	5	5	3	3	4	4	3	3
30 VDC	5	5	3	3	4	4	3	3
125 VDC	0.4	0.4						
250 VDC	0.2	0.2						
Inrush current	N.C.:24A max.N.O.:12Amax							

NOTES:1.inductive load has a power factor of 0.4 min.(AC) and a time constant of 7 msec. Max.(DC)
2.lamp load has an inrush current of 10 times the steady-state current, while motor load an inrush current of 6 times the steady-state current.

OPERATION CHARACTERISTICS

Type	TZ-9104	TZ-9108	TZ-9107	TZ-9111	TZ-9112 TZ-9122	TZ-9124	TZ-9166 TZ-9167 TZ-9169
	TZ-9204	TZ-9208	TZ-9207	TZ-9211	TZ-9212 TZ-9222	TZ-9224	TZ-9266 TZ-9267 TZ-9269
OF max.	500g	450g	450g	700g	700g	450g	150g
RF min.	50g	40g	40g	150g	150g	80g	—
PT max.	18°~28°	18°~28°	18°~28°	2mm	2mm	4mm	30mm
OT min.	30°	30°	30°	4mm	4mm	5mm	—
MD max.	14°	14°	14°	0.8mm	0.8mm	1.6mm	—
OP	—	—	—	18±0.5mm	28.2±0.8mm	37±0.8mm	—

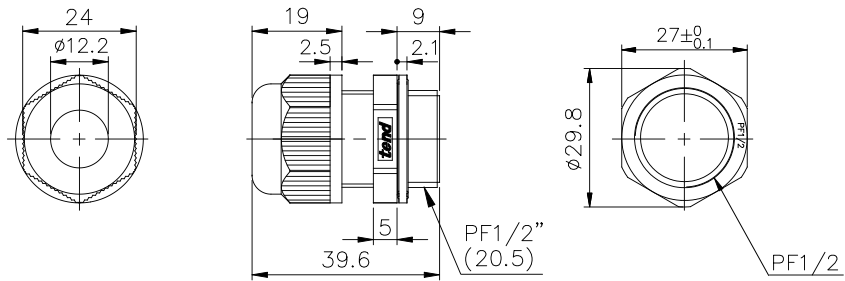
CONTACT CONFIGURATION

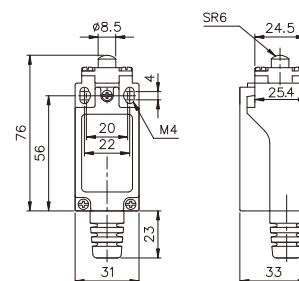
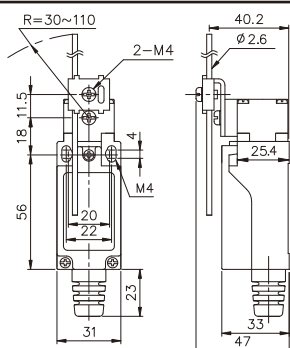
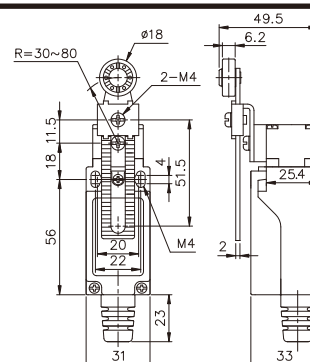
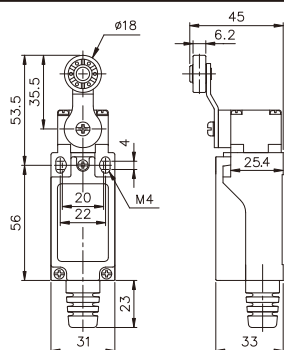
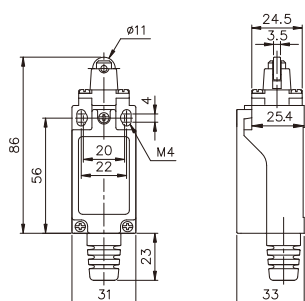


CHARACTERISTICS

Operating speed	0.5mm to 50cm/s
Operating frequency	Mechanically : 120 operations/min. electrically : 30 operations/min.
Contact resistance	25mΩ max. (initial)
Insulation resistance	100MΩ max. (at 500 VDC)
Dielectric strength	1,000VAC,50/60Hz, fo 1minute between non-continuous terminals 1,500VAC,50/60Hz, for 1 minute between current-carrying and non- current-carring pasts and between each terminal and ground
Vibration	Mechanical durability: 10 to 55HZ,1.5mm double amplitude
Shock	Mechanical durability: 1,000m/S²(approx.100G's) malfunction: 300m/S²(approx.30G's)
Ambient temperature	Operating:-5 to +65°C
Humidity	95%RH max.
Service life	Mechanically: 10,000,000 operations min. (At rated to value) Electrically: 500,000 operations min
weight	Approx.70g to 110g
Degree of protection	IEC : IP65

TZ-92 SERIES CABLE GLAND Diameter of cables:Ø6~12mm
HPF12



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tend®
LIMIT SWITCH
T2-9122

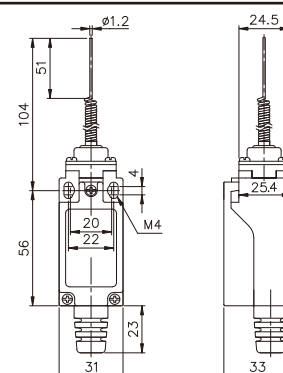
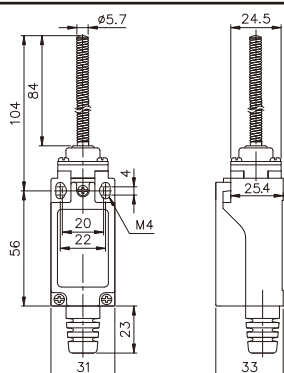
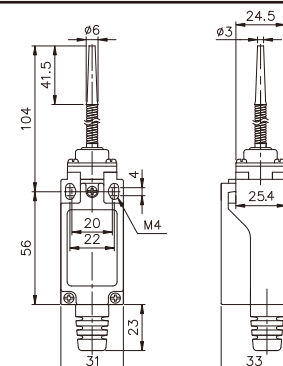
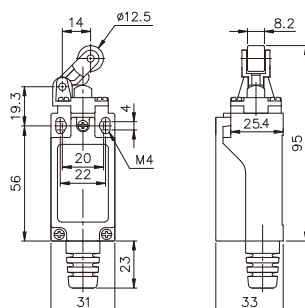
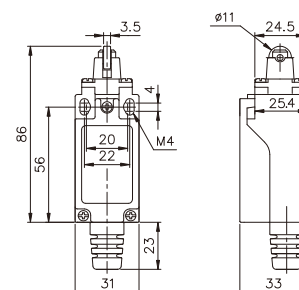
IP67
10-30V AC/DC
0.5A
10-30V AC/DC
0.5A
10-30V AC/DC
0.5A

CE

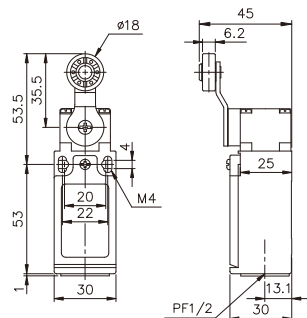
10-30V AC/DC
0.5A

10-30V AC/DC
0.5A

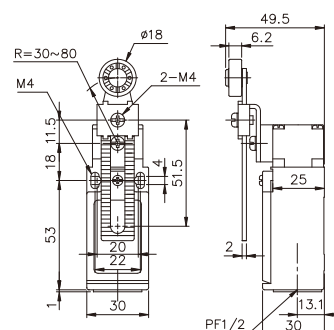
10-30V AC/DC
0.5A



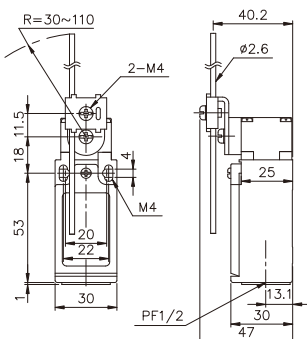
TZ-9204



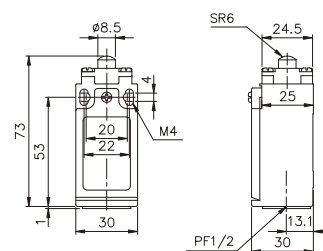
TZ-9208



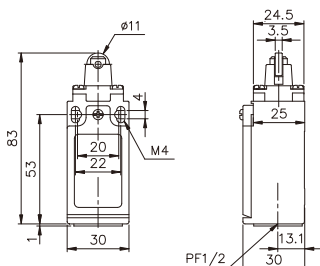
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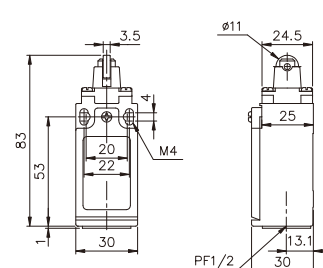
TZ-9211



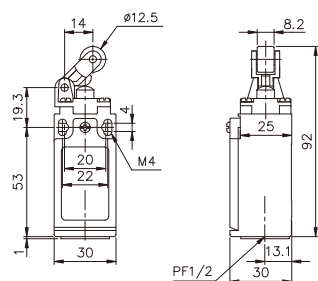
TZ-9212



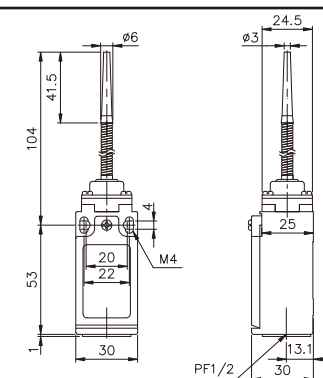
TZ-9222



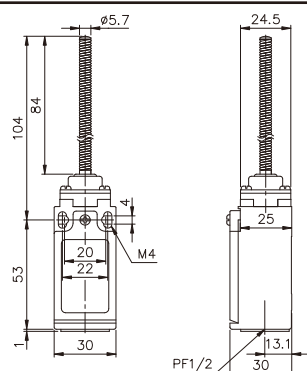
TZ-9224



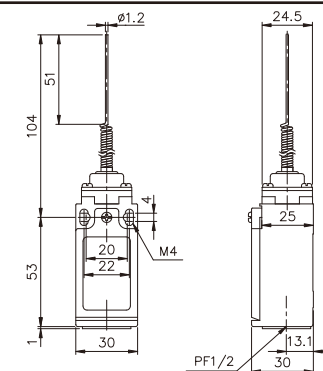
TZ-9266



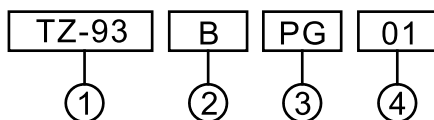
TZ-9267



TZ-9269



MODEL DESIGNATION



Designation	Signal	Description
1.Type	TZ-93	Safety switch
2. Type of Contact Block Fitted	B C	2b 1a1b
3. Conduit Entries	PG PT	PG13.5xP1.5 PT1/2x14UNC
4. Actuating keys	None 01 02 03	None Horizontal Vertical Adjustable

SPECIFICATIONS

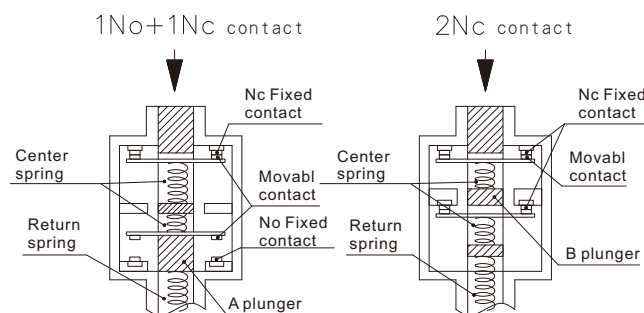
RATINGS

Type	IEC60947-5-1		Ith	Rated Operating Voltage(Ue)	
				120V	240V
TZ-93B	AC15	A300	10A	6A	3A
TZ-93C	AC15	A300	10A	6A	3A

CHARACTERISTICS

Rating	3A 240VAC, (A300)
Operating speed	0.1m~0.5m/s
Operating frequency	30 times/minute
Contact resistance	25mΩ max.(initial)
Insulation resistance	100MΩ min. (At=500VDCF)
Rated insulation vantage(Ui)	250V
Dielectric strength	AC2500V/Uimp 4KV
Vibration	10~50Hzl 0.65mm double amplitude
Shock	Mechanically: Approx.1,000m/s ² (Aprox. 100G`s) Malfunction: Approx 300m/s ² (Aprox. 30 G`s)
Ambient temperature	-30°C~+70°C
Ambient humidity	Below 95%RH
Service life	Mechanically:10,000,000 operations/min Electrcally: 150,000 operations/min.
Degree of protection	IEC : IP65
Shor-circuit protective device	10A fuse
weight	Approx. 76g

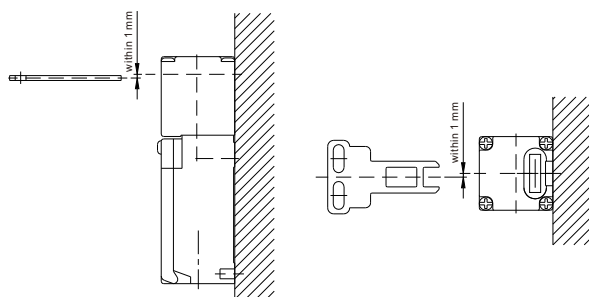
REQUIRED TO HAVE POSITIVE MACHINE



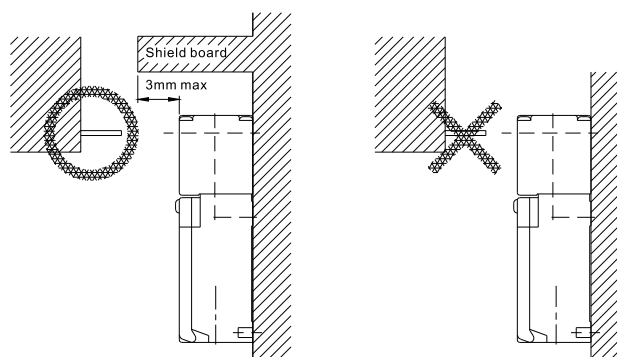
When the contact block get fire, press on the middle of the key structure, the Nc strict leaving structure can push the contact block a way cut off the movement. Ⓢ

USE ATTENTION AFFAIR

- To prevent the wear and the space should be within 1 mm between the key and middle of the insert hole.



- When in use, there should put a plate on the top to prevent the key overinsert. To prevent nonmovement, the space between the plate and the switch should be under 3 mm.

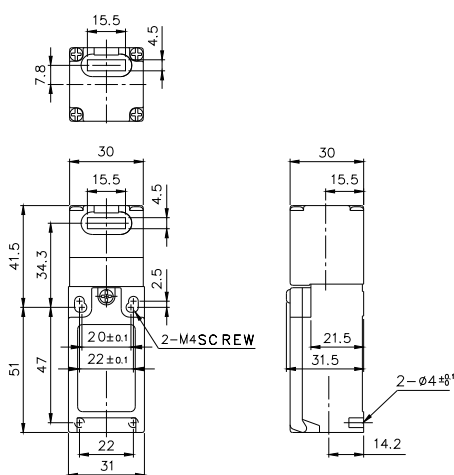


Normal used state

Unsuitable used state

DIMENSIONS

TZ-93BPG
TZ-93BPT
TZ-93CPG
TZ-93CPT

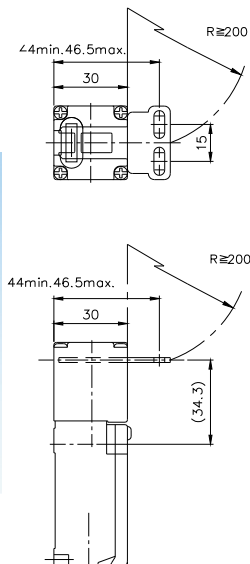


● OPERATING CHARACTERISTICS

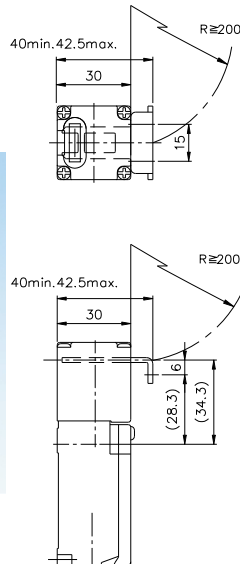
Key plug in force	max.	14.71N(1,500gf)
Key pull out force	max.	29.42N(3,000gf)
Pre travel		6±3mm
Total travel		(28mm)
Force required to have positive	min.	58.84N(6,000gf)
Positive opening travel	min.	10mm

DIMENSIONS OF OPERATING

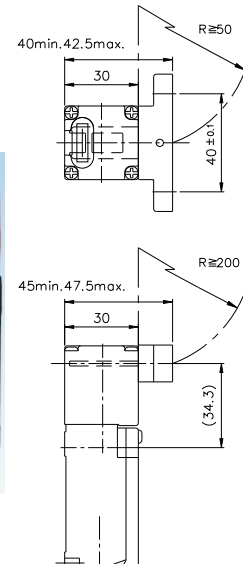
TZ-93BPG01
TZ-93BPT01
TZ-93CPG01
TZ-93CPT01



TZ-93BPG02
TZ-93BPT02
TZ-93CPG02
TZ-93CPT02

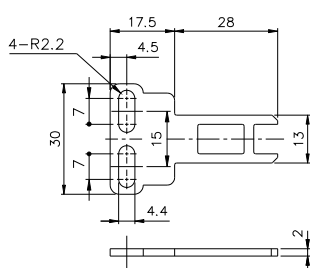


TZ-93BPG03
TZ-93BPT03
TZ-93CPG03
TZ-93CPT03

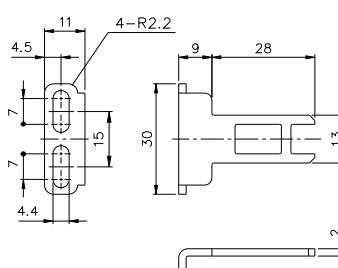


TYPE OF KEYS AND DIMENSIONS

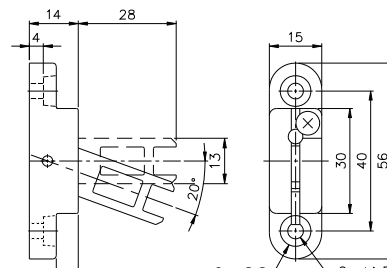
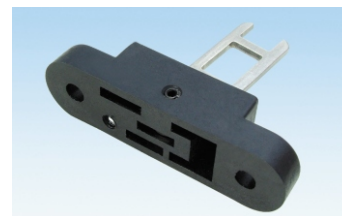
TZ93-K1



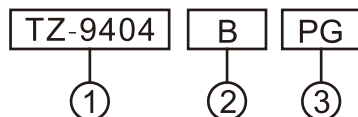
TZ93-K2



TZ93-K3



MODEL DESIGNATION



Designation	Signal	Description
1 Type	TZ-9404	Handle type
	TZ-9407	Variable handle type
	TZ-9408	Variable rod type
	TZ-9411	Column match type
	TZ-9412	Roller plunger type
	TZ-9422	Cross roller plunger type
	TZ-9424	Roller arm type
	TZ-9466	Plastic rod type
	TZ-9467	Spring type
	TZ-9469	Tentacle type
2 Type of Contact Block Fitted	B C	2b 1a1b
3 Conduit Entries	PG	PG13.5*P1.5

SPECIFICATIONS

RATINGS

Model	Standard EN60947-5-1		Ith	Rated Operating Voltage(Ue)	
				120V	240V
TZ-94B	AC15	A300	10A	6A	3A
TZ-94C	AC15	A300	10A	6A	3A

OPERATING CHARACTERISTICS(2NC)

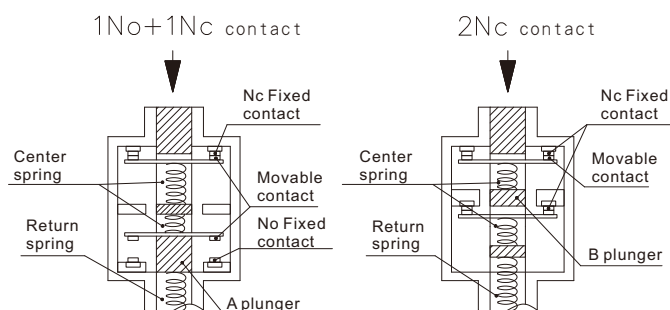
Model	TZ-9404B	TZ-9408B	TZ-9407B	TZ-9411B	TZ-9412B TZ-9422B	TZ-9424B	TZ-9466B TZ-9467B TZ-9469B
OF max.	500g	500g	500g	650g	700g	650g	150g
RF min.	50g	50g	50g	150g	150g	150g	—
PT max.	18°~27°	18°~27°	18°~27°	2mm	2mm	4mm	30mm
OT min.	40°	40°	40°	4mm	4mm	5mm	—
OP	—	—	—	19.3±0.5mm	28.6±0.8mm	37.3±0.8mm	—

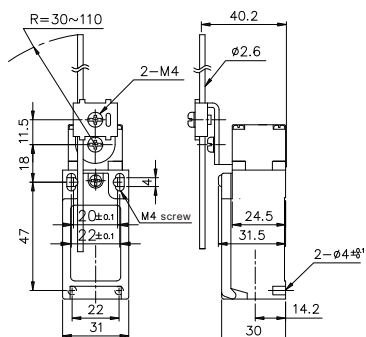
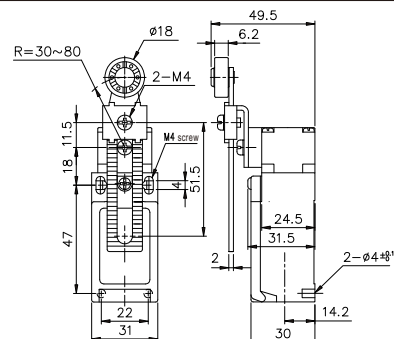
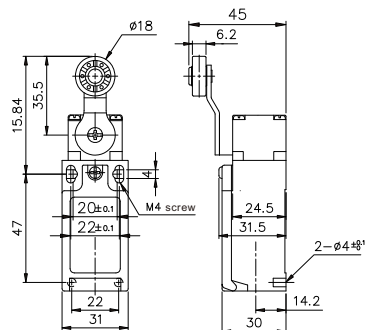
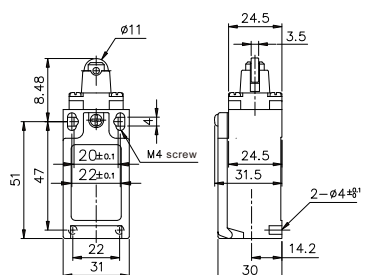
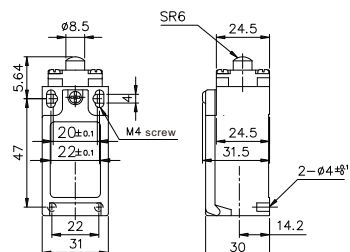
OPERATING CHARACTERISTICS(1NC/1NO)

Model	TZ-9404C	TZ-9408C	TZ-9407C	TZ-9411C	TZ-9412C TZ-9422C	TZ-9424C
OF max.	500g	500g	500g	650g	700g	650g
RF min.	50g	50g	50g	150g	150g	150g
PT max. *1	18°~27°	18°~27°	18°~27°	2mm	2mm	4mm
PT *2	(44°)	(44°)	(44°)	(2.9mm)	(2.9mm)	(5.2mm)
OT min.	40°	40°	40°	4mm	4mm	5mm
OP	—	—	—	19.3±0.5mm	28.6±0.8mm	37.3±0.8mm

REQUIRED TO HAVE POSITIVE MACHINE

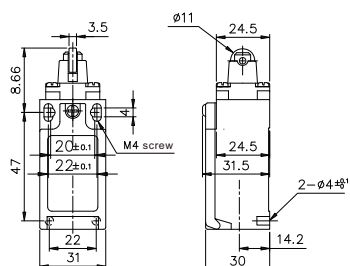
When the contact block get fire, press on the middle of the key structure, the Nc strict leaving structure can push the contact block a way cut off the movement.



[illegible]

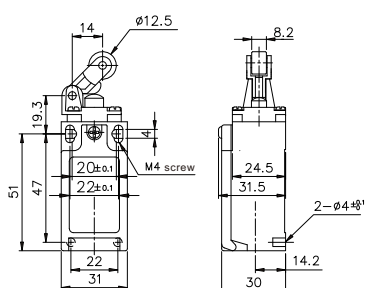
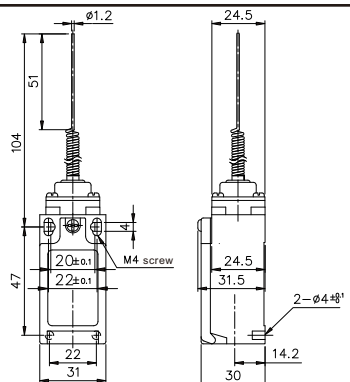
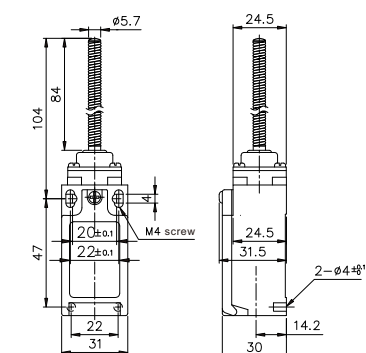
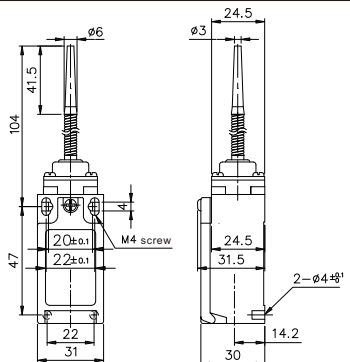
tend
SAFETY SWITCH
TZ-0412

IEC 60947-5-1
EN 60947-5-1
AC 15 240V
A30
IP65
UL 508
276

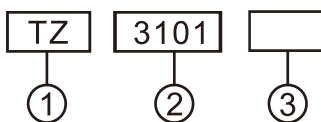


tend
SAFETY SWITCH
TZ-0434

- IEC 60947-5-1
- EN 60947-5-1
- AUTO LATCHING
- NOV
- NOV
- EN 10002
- DIN

[illegible]

MODEL DESIGNATION



Designation	Signal	Description
1.Mounting Hole	TZ TZS TZP	Standard Standard with side entry Standard with plug
2.Type	3101 3102 3103 3104 3107 3108 3110 3111 3112 3113 3166 3169	Column match type Roller plunger type Cross roller plunger type Roller handle type Variable handle type Variable rod type Column match type Sealed pin plunger Sealed roller plunger Sealed cross roller plunger Plastic rod type Tentacle type
3.Length	None 2	3M 2M

SPECIFICATIONS

- DPDS limit switch for multiple applications.
- Rugged aluminum alloy diecast housing.
- High mechanical strength.
- Oil resistance, waterproof and dust proof structure.

CHARACTERISTICS

Rating	5A 125VAC, 3A 250VAC
Operating speed	1mm~1m/s
Operating frequency	Mechanically: 120 operations/min. Electrically: 30 operations/min.
Contact resistance	15mΩ max - (initial)
Insulation resistance	100MΩ min (at 500VDC)
Dielectric strength	1,000VAC, 50/60Hz, for 1 minute between non-continuous terminals 1,500VAC, 50/60Hz, for 1 minute between current-carrying and non-current-carrying parts and between each terminal and ground
Vibration	10~55Hz, 1.5mm double amplitude
Shock	Mechanically: Approx. 1,000m/s ² (approx. 100G's) Malfunction: 500m/s ² (approx. 50G's)
Ambient temperature	-10°C~+70°C
Humidity	Below 95%RH
Service life	Mechanically: 1,000 operations/min. Electrically: 20 operations/min.
Degree of protection	IEC: IP67
Weight	Approx. 360g (cable 3m) Approx. 540g (cable 5m)

OPERATION

RATINGS

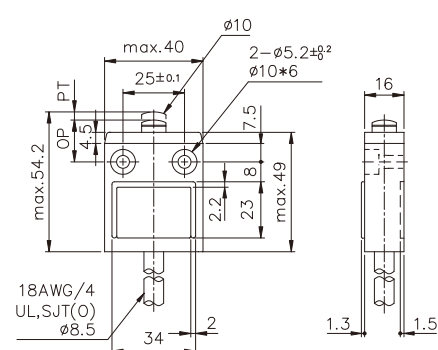
Rated Voltage (V)	Non-inductive load(A)				Inductive load(A)			
	Resistive load		Lamp load		Inductive load		Motor load	
	NC	NO	NC	NO	NC	NO	NC	NO
125VAC	5 (0.1)		1.5	0.7	3		2.5	1.3
250VAC	3		1	0.5	2		1.5	0.8
8VDC	5 (0.1)		2		5	4	3	
14VDC	5 (0.1)		2		4	4	3	
30VDC	4 (0.1)		2		3	3	3	
125VDC	0.4		0.05		0.4		0.05	
250VDC	0.2		0.03		0.2		0.03	

OPERATING CHARACTERISTICS

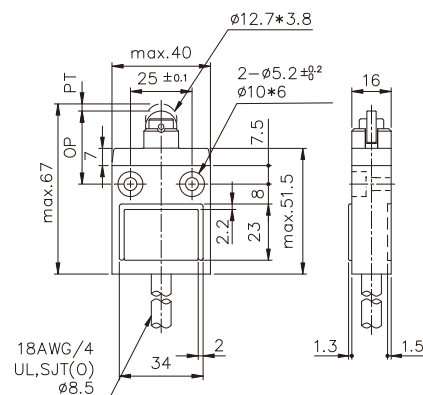
Type	TZ-3101	TZ-3102	TZ-3103	TZ-3104 TZ-3108	TZ-3110
OF Max.	1,200gf(11.77N)	1,200gf(11.77N)	1,200gf(11.77N)	580gf(5.69N)	1,200gf(11.77N)
RF Min.	450gf(4.41N)	450gf(4.41N)	450gf(4.41N)	150gf(1.47N)	450gf(4.41N)
PT Max.	1.8mm	1.8mm	1.8mm	25°	1.8mm
OT Min.	3mm	3mm	3mm	40°	3mm
MD Max.	0.2mm	0.2mm	0.2mm	3°	0.2mm
OP	15.7±1mm	28.5±1mm	28.5±1mm	—	28.5±1mm

Type	TZ-3111	TZ-3112	TZ-3113	TZ-3166	TZ-3169
OF Max.	1,800gf(17.65N)	1,800gf(17.65N)	1,800gf(17.65N)	150gf(1.47N)	150gf(1.47N)
RF Min.	450gf(4.41N)	450gf(4.41N)	450gf(4.41N)	—	—
PT Max.	1.8mm	1.8mm	1.8mm	15°	15°
OT Min.	3mm	3mm	3mm	—	—
MD Max.	0.2mm	0.2mm	0.2mm	—	—
OP	24.9±1mm	34.3±1mm	34.3±1mm	—	—

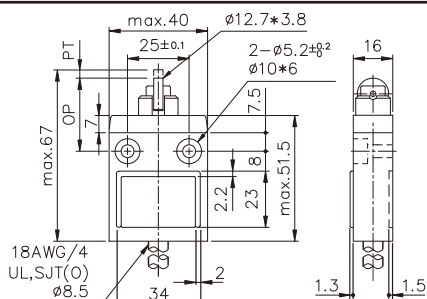
TZ-3101



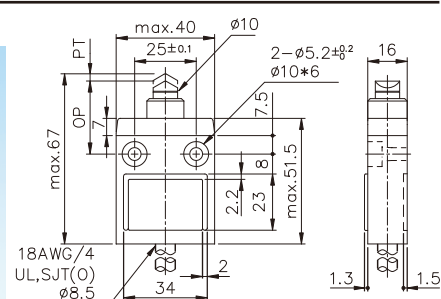
TZ-3102



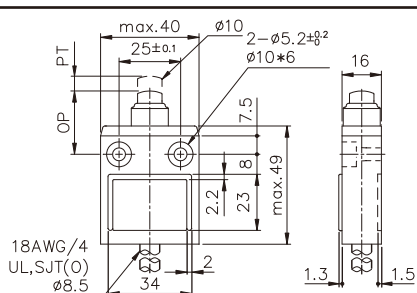
TZ-3103



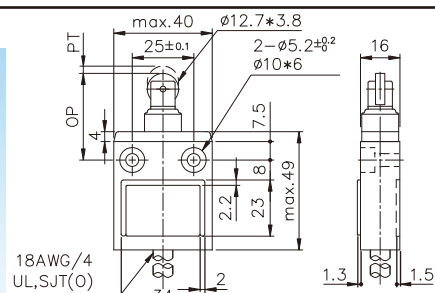
TZ-3110



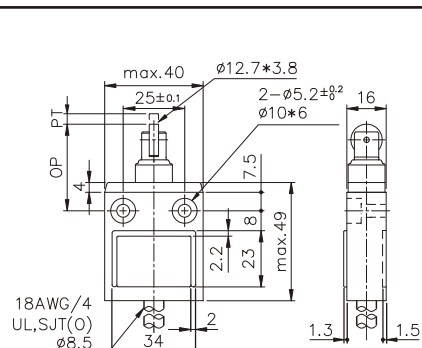
TZ-3111



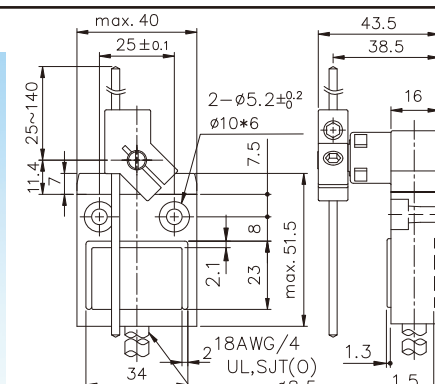
TZ-3112



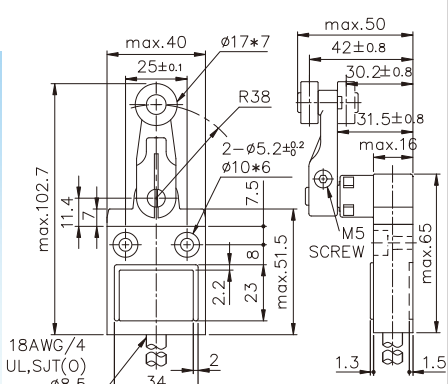
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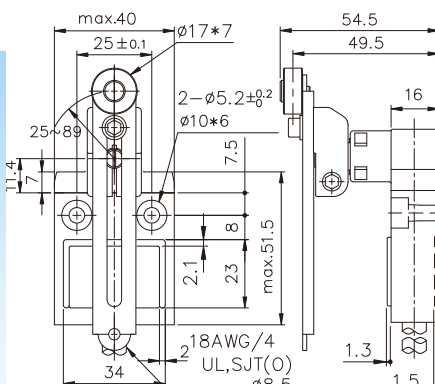
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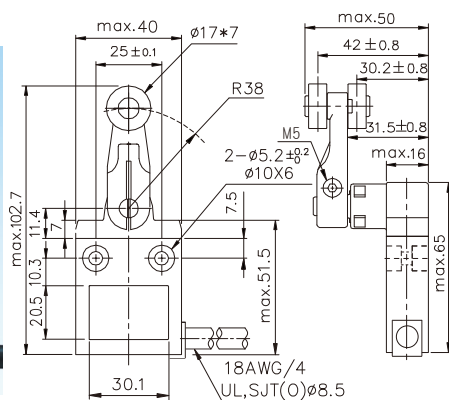
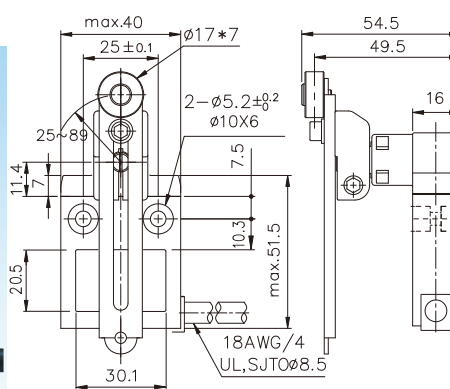
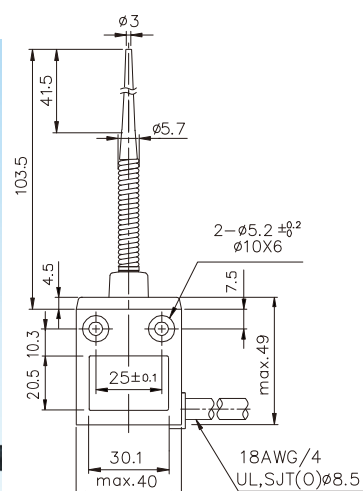
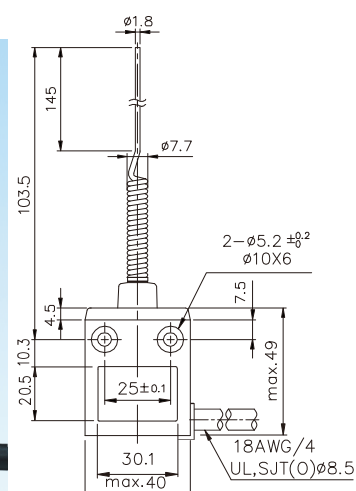
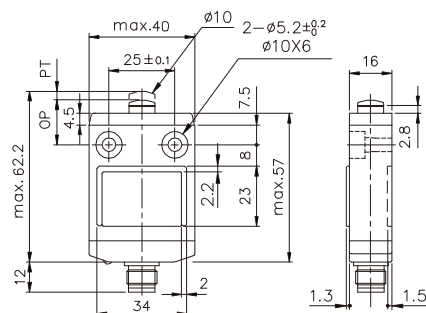
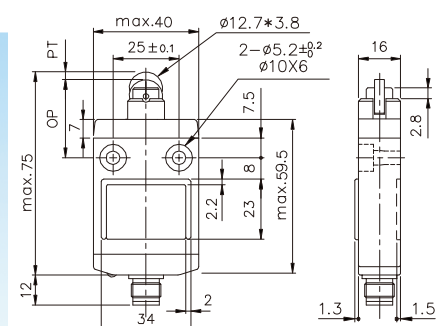
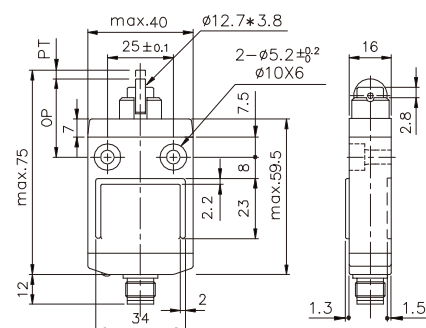
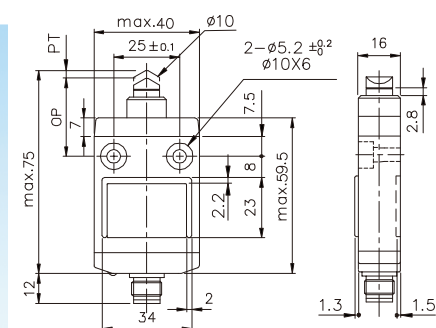
TZ-3104



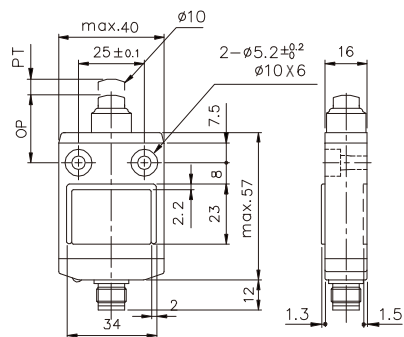
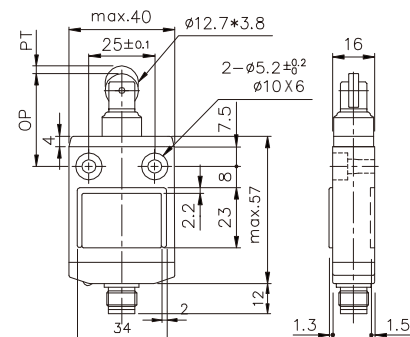
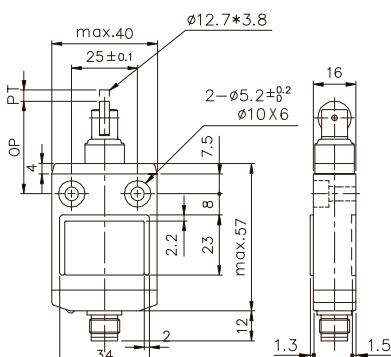
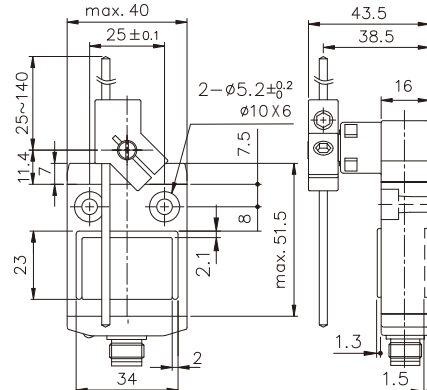
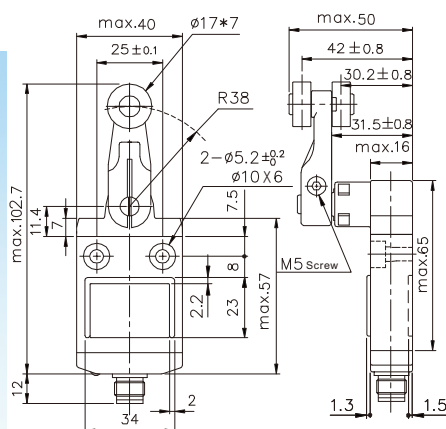
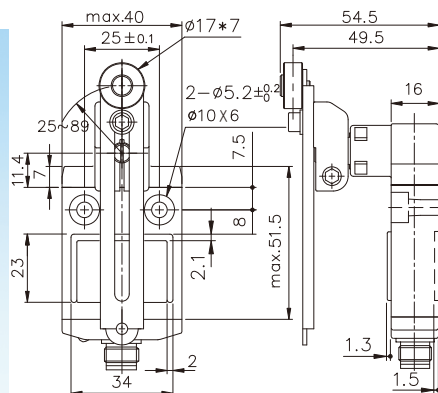
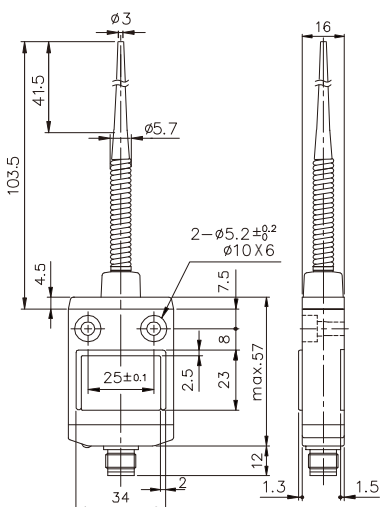
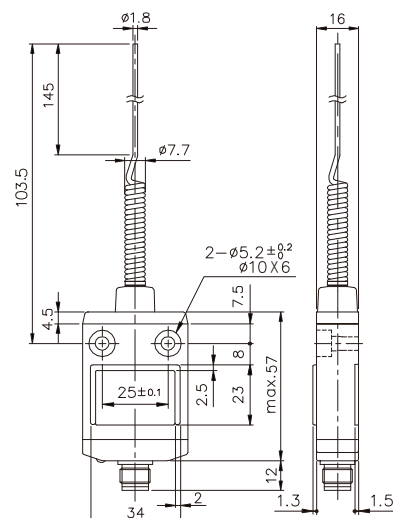
TZ-3108



DIMENSIONS

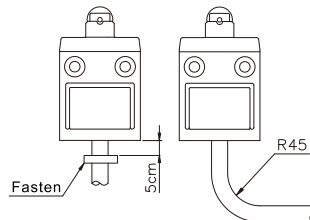
TZS-3104

TZS-3108

TZS-3166

TZS-3169

TZP-3101

TZP-3102

TZP-3103

TZP-3110


DIMENSIONS

TZP-3111

TZP-3112

TZP-3113

TZP-3107

TZP-3104

TZP-3108

TZP-3166

TZP-3169


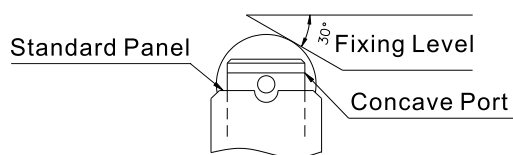
FASTENING OF THE SWITCH CABLE

The switch bodies are filled with resin for sealing purposes. To avoid stressing the cable and switch body, fasten the cable at 5cm or farther away from the switch body, should the wire be bent, the bending radius shall be least 45mm.



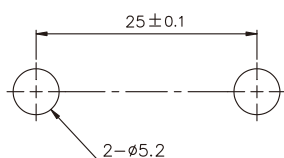
INSTALLATION

The service life and accuracy of switches will be effected by the shape of actuator operation frequency & over travel. So the angular of the fixing level should be about 30° , the surface finish of the fixing level should be over $\nabla\nabla$, the hard hardness is from hv400~500. When installing, the position of the concave part should be above the standard panel.

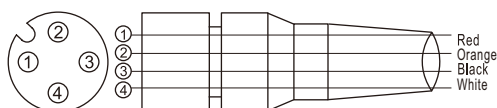


MOUNTING HOLES

mount the switch body to a rigid mounting panel using two m5 screws.

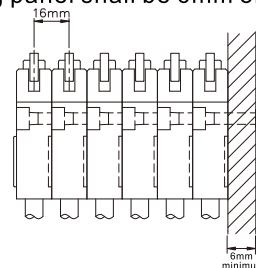


CONNECTOR



SWITCH BANK MOUNTING

A maximum of six switches may be mounted together as a switch bank. During the installation, the convex part of the switch back. The mounting panel shall be 6mm or thicker.

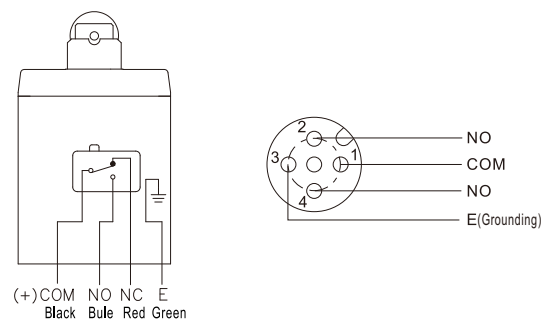


MOUNTING

Recommended tightening torque according to the following form.

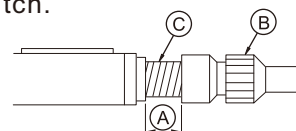
Model	Screw Type	Torque
1	M5 fastening screws	4.9~5.88N.m (50~60kgf.cm)
2	M3.5 installing screws	0.78~0.88N.m (8~9kgf.cm)

CONTACT TYPES



CONNECTOR TYPE

Rotate fixing screw B by hand and fix it to connector C of the limit switch.



Tighten B to the base of C (A: zero gap).

Please tighten by hand.

Do not use pliers.

