

High sensitivity, high precision micro switches

HY-700 Excellent repeatability and 10 A switching capacity

- Standard type installation hole spacing: 25.4 mm, fixed with M4 bolts
- Terminal protective cover (optional)
- Snap action mechanism for high-speed switching, arc resistance, operating part switching at a fixed position
- Wider tolerance band compared with other switches
- Excellent insulating properties with the structure made of heat resistant, internal combustion and arc resistant materials
- Several types of actuators available, such as push button type, lever type and roller lever type
- Certified highly reliable micro switches (KSC 4508, E158885)



HY-R704-2W:UL
certifications excluded

● Model configuration

Model	Code	Description
HY-70	□	Micro limit switch (HY-700 series)
Actuators (operating part)	1A	Panel Mounting type
	1B	Spring Single Push Button type
	1C	Pin Push Button type
	1D	Spring Standard Push Button type
	4A	Hinge Roller Single Lever type
	4B	Hinge Roller Middle Lever type
	4C	Hinge Roller Lever type
	4-2W	Two-position Roller Lever type
	7A	Single Position Lever type
	7B	Middle Lever type
	7C	Hinge Lever type
	7D	Special Lever type
	7S	Hinge Special Lever type
	8A	Roller Panel Mounting type (vertical)
	8B	Roller Panel Mounting type

Model	Description	Image	Drawing
MS-10	Terminal protective cover		

● Rating

Rated voltage (V)		Non-inductive load(A)		Inductive load(A)			
		Resistive load		Inductive load		Electric motor load	
		NC	NO	NC	NO	NC	NO
AC	125		15		10	3	1.5
	250		10		6	2	1
	600		3		2	1.5	0.75
DC	8		15		10	-	-
	14		15		10	-	-
	30		6		5	-	-
	125		0.4		0.05	-	-
	250		0.2		0.03	-	-



Micro Switches

Specifications

Model	Panel Mounting type	Spring Single Push Button type	Pin Push Button type	Spring Standard Push Button type	Hinge Roller Single Lever type
	HY-P701A (Z4G1P05B)	HY-P701B (Z4G1P09B)	HY-P701C (Z4G1P01B)	HY-P701D (Z4G1P03B)	HY-R704A (Z4G1L07B)
Shape					
Model	Hinge Roller Middle Lever type	Hinge Roller Lever type	Two-position Roller Lever type	Single Position Lever type	Middle Lever type
	HY-R704B	HY-R704C (Z4G1L03B)	HY-R704-2W	HY-L707A	HY-L707B
Shape					
Model	Hinge Lever type	Special Lever type	Hinge Special Lever type	Roller Panel Mounting type (vertical)	Roller Panel Mounting type
	HY-L707C (Z4G1L01B)	HY-L707D	HY-L707S	HY-PR708A	HY-PR708B (Z4G1P07B)
Shape					
Contact structure		M4-5.5 screw tightening, 1c contact			
Contact material		AgCd0			
Body material		PBT (GF 30 %)			
Protective structure		Typical			
Allowable operating speed		0.1 mm - 1 m/s			
Insulation resistance		100 MΩ min (500 V d.c.)			
Contact resistance		50 MΩ min (initial value), 2 Ω min (after test)			
Rated voltage (Ue)		250 V a.c.			
Vibration resistance		10 - 55 Hz double amplitude 0.75 mm			
Dielectric strength		1,000 V a.c. 50/60 Hz for 1 min (among terminals), 1,500 V a.c. 50/60 Hz for 1 min (among unfilled metal parts)			
Rated current (Ie)		10 A 250 V a.c. (Resistive load)			
Frequency	Mechanical	50 ~ 300 times/min			
	Electrical	20 times/min			
Shock resistance	Mechanical	1000 m/s ² min (100G min)			
	Malfunction	300 m/s ² min (30G min)			
Life	Mechanical	1,000,000 times min (open/close frequency: 120 times/min)			
	Electrical	300,000 times min (Open/close frequency in rated load: 20 times/min)			
Weight	Net	31.5 ~ 59.5 g			
	Gross	Approx. 800 g (1 box of 10 HY-R704B)			

Micro Switches

● HY-P701A (Z4G1P05B)

Dimensions	Operating characteristics
	OF max: 3.73 N (380 gf) RF min: 1.12 N (114 gf) PT max: 1.0 mm OT min: 5.2 mm MD max: 0.13 mm OP: 21.8 ± 0.8 mm

● HY-P701B (Z4G1P09B)

Dimensions	Operating characteristics
	OF max: 3.73 N (380 gf) RF min: 1.12 N (114 gf) PT max: 1.0 mm OT min: 1.3 mm MD max: 0.13 mm OP: 21.8 ± 0.8 mm

● HY-P701C (Z4G1P01B)

Dimensions	Operating characteristics
	OF max: 3.73 N (380 gf) RF min: 1.12 N (114 gf) PT max: 1.0 mm OT min: 0.13 mm MD max: 0.13 mm OP: 16.0 ± 0.5 mm

● HY-P701D (Z4G1P03B)

Dimensions	Operating characteristics
	OF max: 3.73 N (380 gf) RF min: 1.12 N (114 gf) PT max: 1.0 mm OT min: 1.3 mm MD max: 0.13 mm OP: 28.2 ± 0.6 mm

● HY-R704A (Z4G1L07B)

Dimensions	Operating characteristics
	OF max: 1.57 N (160 gf) RF min: 0.27 N (28 gf) PT max: 5.0 mm OT min: 2.0 mm MD max: 1.2 mm OP: 30.2 ± 1.0 mm

● HY-R704B

Dimensions	Operating characteristics
	OF max: 1.18 N (120 gf) RF min: 0.2 N (28 gf) PT max: 5.0 mm OT min: 2.0 mm MD max: 1.2 mm OP: 30.2 ± 1.0 mm

● HY-R704C (Z4G1L03B)

Dimensions	Operating characteristics
	OF max: 0.98 N (100 gf) RF min: 0.14 N (14 gf) PT max: 8.0 mm OT min: 3.6 mm MD max: 2.4 mm OP: 30.2 ± 1.0 mm

● HY-R704-2W

Dimensions	Operating characteristics
	OF max: 0.98 N (100 gf) RF min: 0.14 N (14 gf) PT max: 8.0 mm OT min: 3.6 mm MD max: 0.5 mm OP: 43.2 ± 1.4 mm

Micro Switches

● HY-L707A

Dimensions	Operating characteristics
	OF max:1.57 N (160 gf) RF min:0.27 N (28 gf) PT max:5.0 mm OT min:2.0 mm MD max:1.2 mm OP:19.1 ±1.0 mm

● HY-L707B

Dimensions	Operating characteristics
	OF max:1.18 N (120 gf) RF min:0.20 N (20 gf) PT max:6.5 mm OT min:2.8 mm MD max:1.8 mm OP:19.1 ±1.0 mm

● HY-L707C (Z4G1L01B)

Dimensions	Operating characteristics
	OF max:0.98 N (100 gf) RF min:0.14 N (14 gf) PT max:16 mm OT min:4.0 mm MD max:2.4 mm OP:19.1 ±1.0 mm

● HY-L707D

Dimensions	Operating characteristics
	OF max:0.78 N (80 gf) RF min:0.1 N (10 gf) PT max:23 mm OT min:5.6 mm MD max:3.5 mm OP:19.1 ±1.0 mm

● HY-L707S

Dimensions	Operating characteristics
	OF max:1.37 N (140 gf) RF min:0.27 N (28 gf) PT max:5.0 mm OT min:4.5 mm MD max:1.2 mm OP:33.0 ±1 mm

● HY-PR708A

Dimensions	Operating characteristics
	OF max:3.73 N (380 gf) RF min:1.12 N (114 gf) PT max:1.0 mm OT min:3.2 mm MD max:0.13 mm OP:33.3 ±1.4 mm

● HY-PR708B (Z4G1P07B)

Dimensions	Operating characteristics
	OF max:3.73 N (380 gf) RF min:1.12 N (114 gf) PT max:1.0 mm OT min:3.2 mm MD max:0.13 mm OP:33.3 ±1.4 mm

HY-700 series

Micro switch

- Certain operation and long life expectancy due to the snap action tool and strong chemical resistance case (phenolic resin)
- Excellent repetitive accuracy and 10A opening / closing capacity
- Standard type, hole gap of installation cutout dimension : 25.4mm, fix with M4 bolt
- 9 types of actuators provide wide usages
- Terminal protective cover (optional)



Specification

Model	HY-P701A (Z4G1P05B)	HY-P701B (Z4G1P09B)	HY-P701C (Z4G1P01B)	HY-P701D (Z4G1P03B)
Shape				
Type	Panel Mounting type	Spring Single Push Button type	Pin Push Button type	Spring Standard Push Button type

Model	HY-R704A (Z4G1L07B)	HY-R704B	HY-R704C (Z4G1L03B)	HY-R704-2W
Shape				
Type	Hinge Roller Single Lever type	Hinge Roller Middle Lever type	Hinge Roller Lever type	Two-position Roller Lever type

Model	HY-L707A	HY-L707B	HY-L707C (Z4G1L01B)	HY-L707D
Shape				
Type	Single Position Lever type	Middle Lever type	Hinge Lever type	Special Lever type

Model	HY-L707S	HY-PR708A	HY-PR708B (Z4G1P07B)
Shape			
Type	Hinge Special Lever type	Roller Panel Mounting type (vertical)	Roller Panel Mounting type

Common specification

Contact structure	M4-5.5 screw tightening, 1c contact		
Contact material	AgCdO		
Body material	PBT (GF 30 %)		
Protective structure	Typical		
Allowable operating speed	0.1 mm - 1 m/s ²		
Insulation resistance	100 MΩ min (500 V d.c.)		
Contact resistance	50 MΩ min (initial value), 2 Ω min (after test)		
Rated voltage (Ue)	250 V a.c.		
Vibration resistance	10 - 55 Hz double amplitude 0.75 mm		
Dielectric strength	1,000 V a.c. 50/60 Hz for 1 min (among terminals), 1,500 V a.c. 50/60 Hz for 1 min (among unfilled metal parts)		
Rated current (Ie)	10 A 250 V a.c. (Resistive load)		
Frequency	Mechanical	50 ~ 300 times/min	
	Electrical	20 times/min	
Shock resistance	Mechanical	1000 m/s ² min (100G min)	
	Malfunction	300 m/s ² min (30G min)	
Life	Mechanical	1,000,000 times min (open/close frequency: 120 times/min)	
	Electrical	300,000 times min (open/close frequency in rated load: 20 times/min)	
Weight	Net	31.5 ~ 59.5 g	
	Gross	Approx. 800 g (1 box of 10 HY-R704B)	

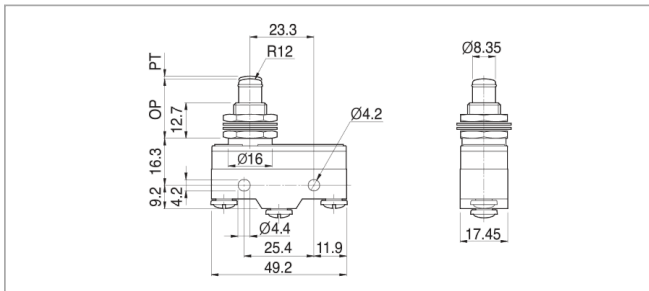
Suffix code

Model	Code	Description
HY-70	☐	Micro limit switch (HY-700 series)
Actuators (operating part)	1A	Panel Mounting type
	1B	Spring Single Push Button type
	1C	Pin Push Button type
	1D	Spring Standard Push Button type
	4A	Hinge Roller Single Lever type
	4B	Hinge Roller Middle Lever type
	4C	Hinge Roller Lever type
	4-2W	2 positions Roller Lever type
	7A	Single Position Lever type
	7B	Middle Lever type
	7C	Hinge Lever type
	7D	Special Lever type
	7S	Hinge Special Lever type
	8A	Roller Panel Mounting type (Vertical)
	8B	Roller Panel Mounting type

Dimension

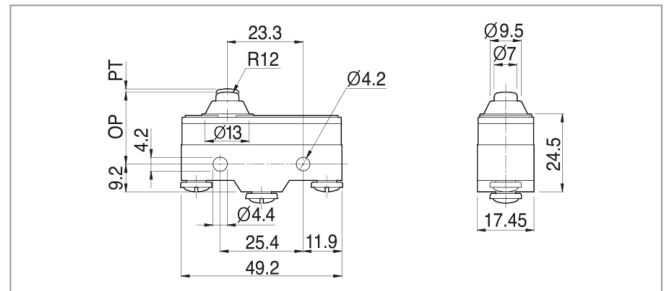
[Unit : mm]

■ HY-P701A (Z4G1P05B)



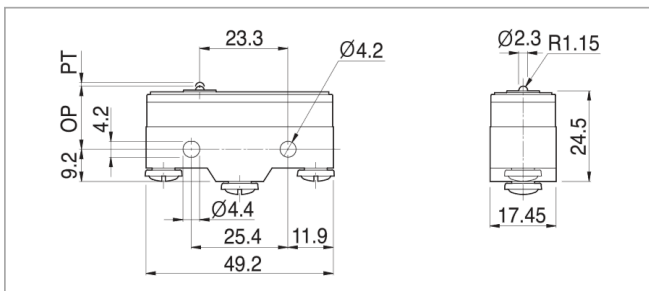
O.F	max: 3.73 N (380 gf)	R.F	min: 1.12 N (114 gf)
P.T	max: 1.0 mm	O.T	min: 5.2 mm
M.D	max: 0.13 mm	O.P	21.8 ± 0.8 mm

■ HY-P701B (Z4G1P09B)



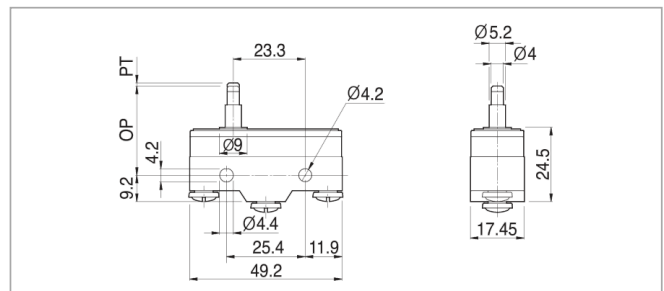
O.F	max: 3.73 N (380 gf)	R.F	min: 1.12 N (114 gf)
P.T	max: 1.0 mm	O.T	min: 1.3 mm
M.D	max: 0.13 mm	O.P	21.8 ± 0.8 mm

■ HY-P701C (Z4G1P01B)



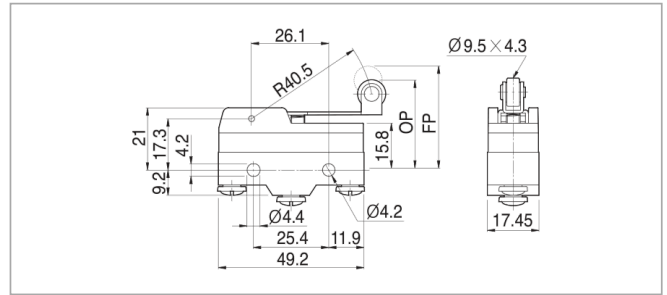
O.F	max: 3.73 N (380 gf)	R.F	min: 1.12 N (114 gf)
P.T	max: 1.0 mm	O.T	min: 0.13 mm
M.D	max: 0.13 mm	O.P	16.0 ± 0.5 mm

■ HY-P701D (Z4G1P03B)



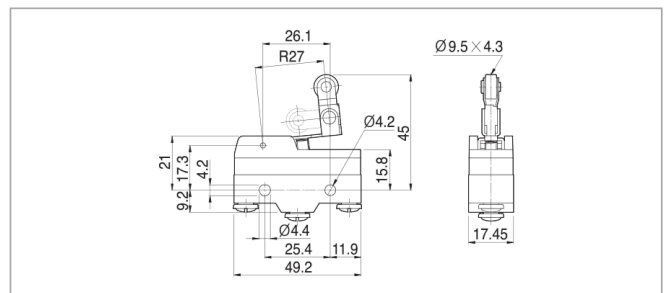
O.F	max: 3.73 N (380 gf)	R.F	min: 1.12 N (114 gf)
P.T	max: 1.0 mm	O.T	min: 1.3 mm
M.D	max: 0.13 mm	O.P	28.2 ± 0.6 mm

- **HY-R704B**



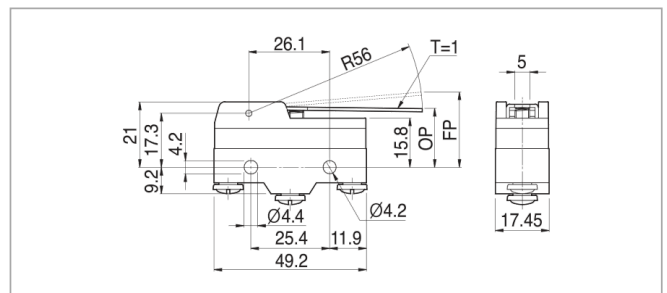
O.F	max: 1.18 N (120 gf)	R.F	min: 0.2 N (28 gf)
P.T	max: 5.0 mm	O.T	min: 2.0 mm
M.D	max: 1.2 mm	O.P	30.2 ± 1.0 mm
F.P	35.2 ± 1.0 mm		

- **HY-R704-2W**



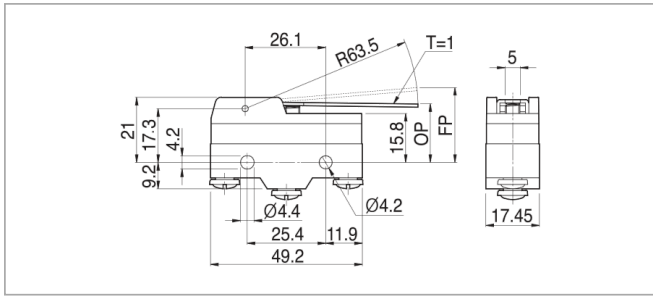
O.F	max: 0.98 N (100 gf)	R.F	min: 0.14 N (14 gf)
P.T	max: 8.0 mm	O.T	min: 3.6 mm
M.D	max: 0.5 mm	O.P	43.2 ± 1.4 mm

- **HY-L707B**

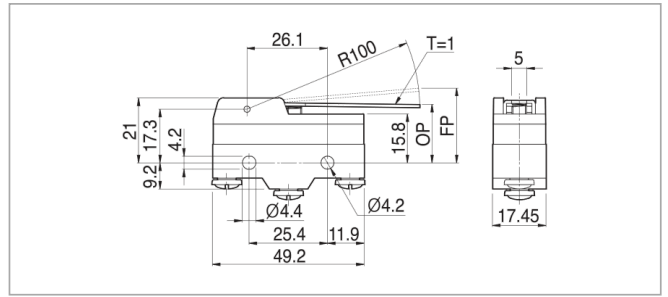


O.F	max: 1.18 N (120 gf)	R.F	min: 0.20 N (20 gf)
P.T	max: 6.5 mm	O.T	min: 2.8 mm
M.D	max: 1.8 mm	O.P	19.1 ± 1.0 mm
F.P	25.6 ± 1.0 mm		

- **HY-L707D**

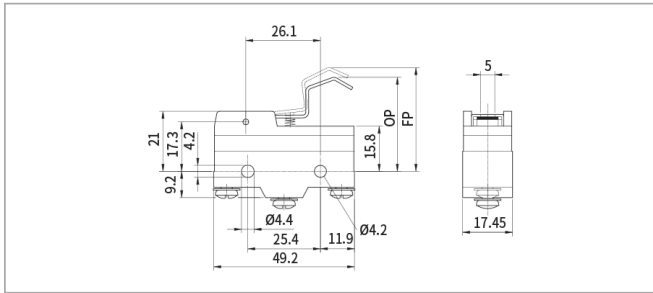


O.F	max: 0.98 N (100 gf)	R.F	min: 0.14 N (14 gf)
P.T	max: 16 mm	O.T	min: 4.0 mm
M.D	max: 2.4 mm	O.P	19.1 ± 1.0 mm
F.P	35.1 ± 1.0 mm		



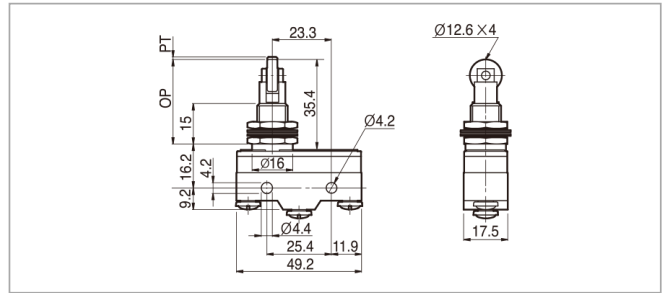
O.F	max: 0.78 N (80 gf)	R.F	min: 0.1 N (10 gf)
P.T	max: 23 mm	O.T	min: 5.6 mm
M.D	max: 3.5 mm	O.P	19.1 ± 1.0 mm
F.P	42.1 ± 1.0 mm		

■ HY-L707S



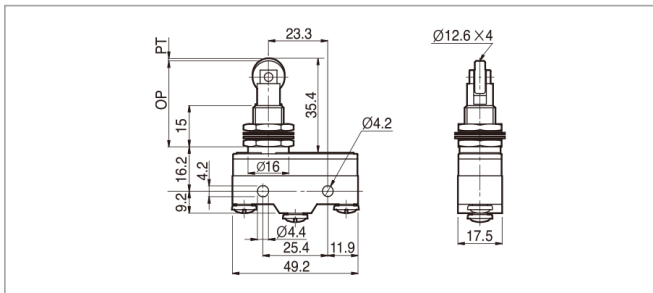
O.F	max: 1.37 N (140 gf)	R.F	min: 0.27 N (28 gf)
P.T	max: 5.0 mm	O.T	min: 4.5 mm
M.D	max: 1.2 mm	O.P	33.0 ± 1 mm
F.P	38.0 ± 1 mm		

■ HY-PR708A



O.F	max: 3.73 N (380 gf)	R.F	min: 1.12 N (114 gf)
P.T	max: 1.0 mm	O.T	min: 3.2 mm
M.D	max: 0.13 mm	O.P	33.3 ± 1.4 mm

■ HY-PR708B (Z4G1P07B)



O.F	max: 3.73 N (380 gf)	R.F	min: 1.12 N (114 gf)
P.T	max: 1.0 mm	O.T	min: 3.2 mm
M.D	max: 0.13 mm	O.P	33.3 ± 1.4 mm

■ Rating

Rated voltage (V)		Non-inductive load(A)		Inductive load(A)			
		Resistive load		Inductive load		Electric motor load	
		N.C	N.O	N.C	N.O	N.C	N.O
AC	125	15		10		3	1.5
	250	10		6		2	1
	600	3		2		1.5	0.75
DC	8	15		10		-	-
	14	15		10		-	-
	30	6		5		-	-
	125	0.4		0.05		-	-

	250	0.2	0.03	-	-
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Terminology explanation

+ Micro switch

It has a small contact gap and snap action tool. Also the contact tools that open/close with the rated movement and rated force are covered with the case and have an actuator on the outside. This is a compact size switch.

+ Rating

Value that insures the characteristic and function of limit switch.

+ Inverting spring

Inverting spring is mechanical parts that switch the contact of limit switch. Sometimes called as running spring.

+ Actuator

Depending on the various usages, it forms electrical input/output circuit of contact. There are 2 types in the limit switch just like an image below.

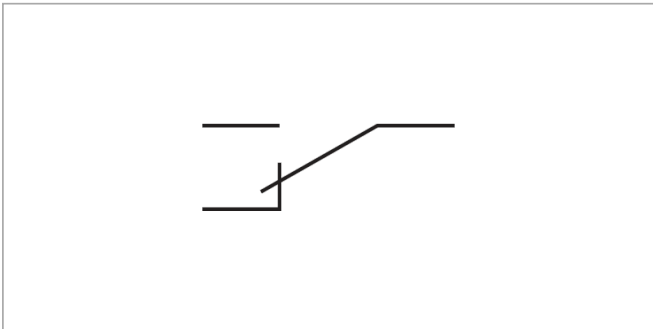
+ Electrical life expectancy

Opening/closing life in the rated load (resistive load) (After setting the rated value with the operation time)

+ Contact composition

Depending on the various usages, it forms electrical input/output circuit of contact. There are 2 types in the limit switch just like an image below.

- SPDT (C contact)



+ Limit switch

Limit Switch is enclosed in a case to protect a built-in basic switch from the external force, water, oil, gas, and dust.

+ Operation part

Mechanical device part that operates the actuator of limit switch.

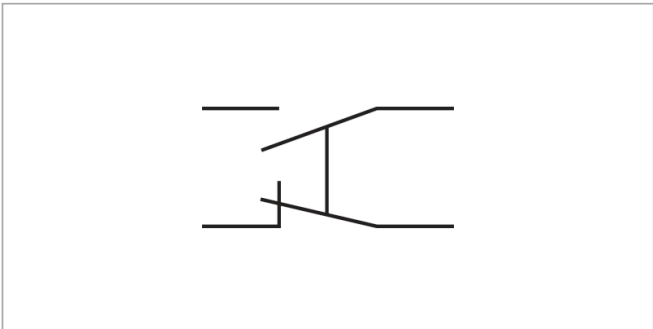
+ Detecting object

The object, product, part and etc that operate the limit switch other than mechanical device.

+ Mechanical life expectancy

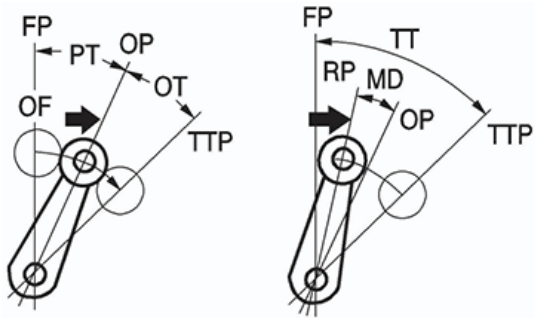
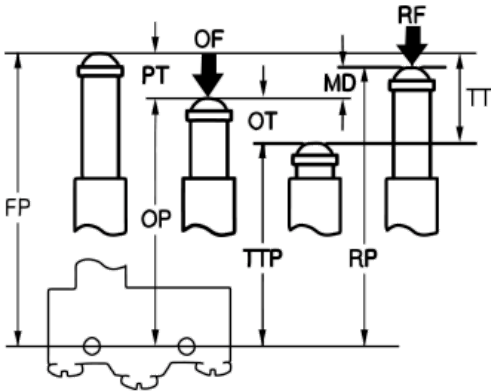
Opening/closing life in the non electro state (After setting the rated value with the operation time)

- 2 circuit double positions (1a1b)



+ Operation characteristic

- Definition of operation characteristic



Categories	Terminology	Symbol	Definition
Force	Operating Force	O.F	Force that applied to the actuator in order to move from free position to the operation switch.
	Release Force	R.F	Force that applied to the actuator in order to move from operation limit position to the returning position
	Total travel Force	T.F	Force that applied to the actuator in order to move from operation position to the operation limit position.
Movement	Pretravel	P.T	Travel distance or travel angle from free position of actuator to the operation position.
	Over travel	O.T	Travel distance or travel angle from operation position of actuator to the operation limit position.
	Movement Differential	M.D	Travel distance or travel angle from operation position of actuator to the returning position.
	Total travel	T.T	Travel distance or travel angle from free position of actuator to the operation limit position.
Position	Free Position	F.P	the position of actuator before applying force to the actuator from the outside.
	Operating Position	O.P	the position of actuator when running contact is accurately reversed in the free position state once external force is applied to the actuator.
	Release Position	R.P	the position of actuator when running contact is accurately reversed from operation position state to the free position state by decreasing force applied to the actuator.
	Total travel Position	T.T.P	the position of actuator when actuator reaches the actuator stopper.



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Tài liệu được tổng hợp bởi đội ngũ kỹ thuật của **NPOWER**

Bản quyền nội dung thuộc về công ty **Hanyoung Nux**

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