

AREA SYSTEMS

Product Contents



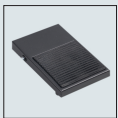
Limit Switch

TZ-8 Limited switch	2-3
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Micro Switch

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CZE Limited switch	22-23



Foot Switch

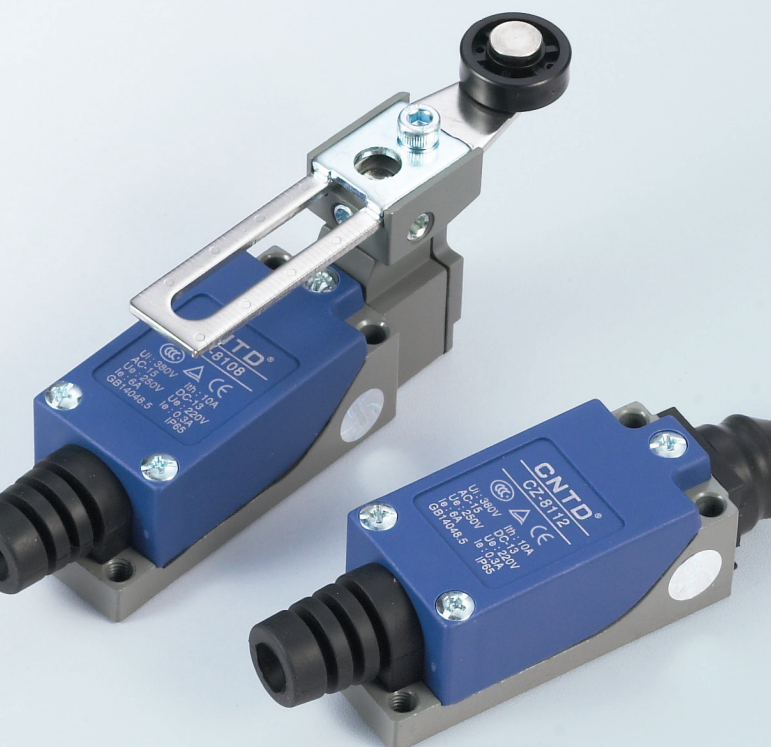
FS1 Limited switch	24
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Toggle Switch

C5 Toggle switch	25-26
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CZ-8 Limit Switch



Features

- Double circuit type of limit switch
- Highly rigid construction, consists of intensive plastic and aluminum cast (Head and cover snugly fit in box)
- Small volume, water-proof and oil-proof construction
- Built-in basic switch with double spring mechanism, longer mechanical life
- Smooth operation with greater OT
- Easy-to-wire circuit opening design
- Wide variety of actuators, easily use

Contact Form



Ratings

Rated voltage	Noninductive Load (A)				Inductive Load (A)			
	Resistance 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
8VDC	5	5	3	3	5	4	3	3
14VDC	5	5	3	3	4	4	3	3
30VDC	5	5	3	3	4	4	3	3
125VDC	0.4	0.4						
250VDC	0.2	0.2						
Inrush Current	N.C.:24A N.O.:12A N.C: below 24A, N.O: below 12A							

- 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.
 3. Product with spring, its usable range of operating part is within one third of the whole spring length from the front end of spring.

Characteristics

Operation speed	0.5mm-50cm/sec
Operating frequency	Mechanical: 120 operations/minute Electrical: 30 operations/minute
Contact resistance	25mΩ max. (initial value)
Insulation resistance	100mΩ min. (below 500VDC)
Dielectric strength	1000VAC, 50/60 Hz for 1 minute between terminals of the same polarity
	1500VAC, 50/60 Hz for 1 minute between current-carrying and non-current-carrying metal parts
Dielectric strength	1500VAC, 50/60 Hz for 1 minute between each terminal and ground
Shock	1500VAC, 50/60 Hz for 1 minute between current-carrying and noncurrent-carrying metal parts
Ambient temperature	-5~+ 65F
Humidity	95% RH
Life	Mechanical: 10,000,000 operations above Electrical: 500,000 operations above
Weight	About 130 to 190g
Degree of protection	IP65

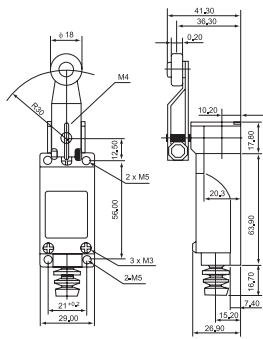
Operating Characteristics

Models	CZ-8104	CZ-8108	CZ-8107	CZ-8111	CZ-8112/8122	CZ-8166/8167/8168/8169
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	-

CZ-8 Limit Switch

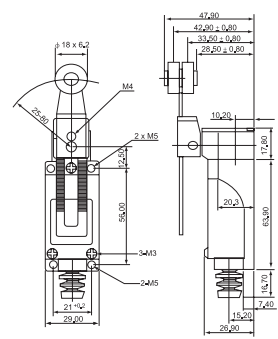
Appearance and Dimension

CZ-8104



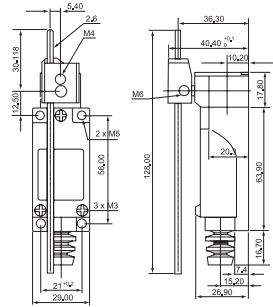
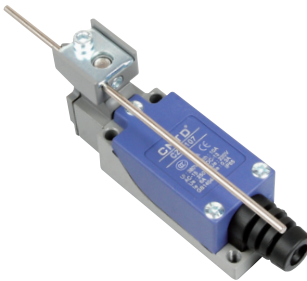
Optional Stainless steel idler wheel

CZ-8108

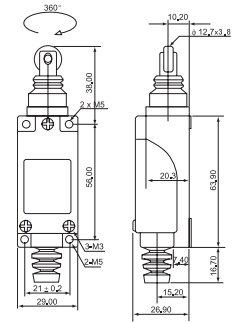


Optional Stainless steel idler wheel

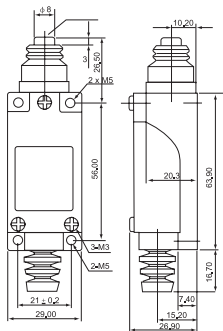
CZ-8107



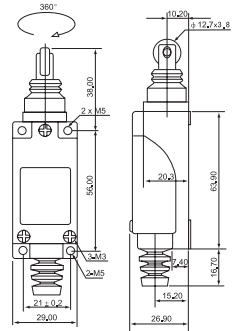
CZ-8112



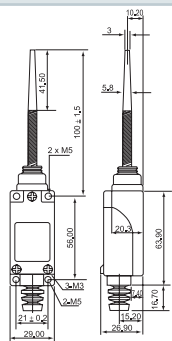
CZ-8111



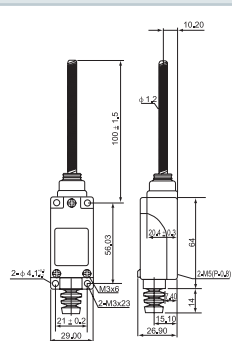
CZ-8122



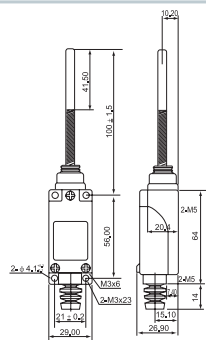
CZ-8166



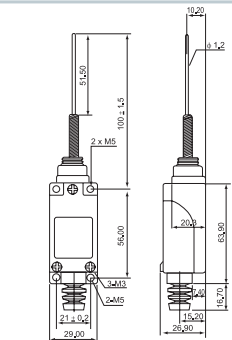
CZ-8167



CZ-8168



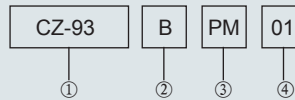
CZ-8169



CZ-93 Safety Key Interlock Switch



Model Designations



Designation	Signal	Description
Type	CZ-93	Safety switch
Type of contact blocks fitted	B	2B(2NC)
	C	1A1B(NO-NC)
Conduit entries	PG	PG 13.5XP1.5
	PM	M20X1.5
Actuating keys	None	None
	01	Horizontal
	02	90° Vertical
	03	Adjustable

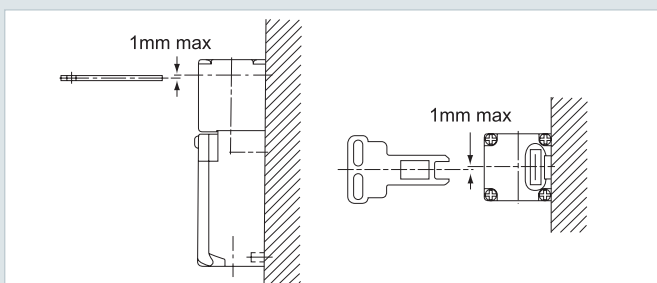
Standard size configuration M20x1.5 for conduit connector

Ratings

Rated voltage	Noninductive Load (A)				Inductive Load (A)			
	Resistance Load		Lamp Load		Inductive Load		Motor Load	
	NC	NO	NC	NO	NC	NO	NC	NO
125 VAC	10		3	1.5	10		5	2.5
250 VAC	10		2	1	10		3	1.5
400 VAC	10		1.5	0.8	3		1.5	0.8
8 VDC	10		6	3	10		6	6
14 VDC	10		6	3	10		6	6
30 VDC	6		4	3	6		4	4
125 VDC	0.8		0.2	0.2	0.8		0.2	0.1
250 VDC	0.4		0.1	0.1	0.4		0.1	

Use Attention Affair

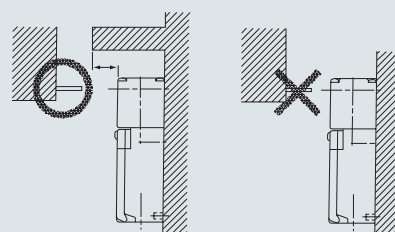
To prevent the wear and the space should be within 1mm between the key and middle of the insert hole.



Characteristics

Rating	3A 240VAC (A300)
Operating speed	0.1m ~0.5m/s
Operating frequency	30 operations/minute
Contact resistance	25mΩ max. (initial)
Insulation resistance	100mΩ min. (at 500VDC)
Rated insulation voltage(Ui)	400V
Dielectric strength	AC2500V/Ump 4KV
Vibration	
Shock	Mechanical: Approx. 1000m/s ² (Approx. 100G'S) Electrical: Approx. 300m/s ² (Approx. 30G'S)
Ambient temperature	-10~+70 (With no icing)
Ambient Humidity	< 95% RH
Life	Mechanical: 10,000,000 operations/min. Electrical: 150,000 operations/min.
Degree of protection	IP65(EN60947-5-1)
Short-circuit protective device	10A fuse
Weight	Approx. 76g

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.

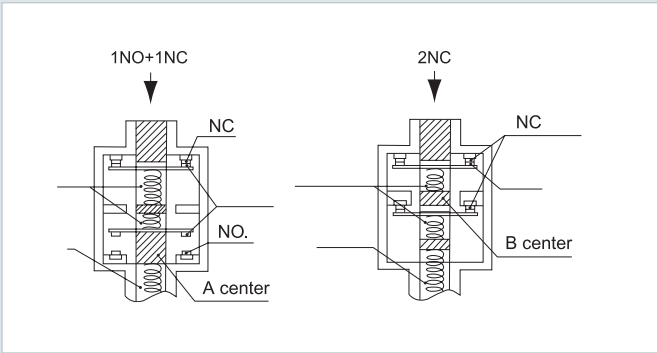


Normal used state

Unsuitable used state

CZ-93 Safety Key Interlock Switch

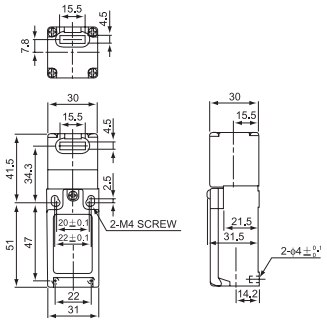
Required to Have Positive Machine



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

Appearance and Dimension

CZ-93CPM

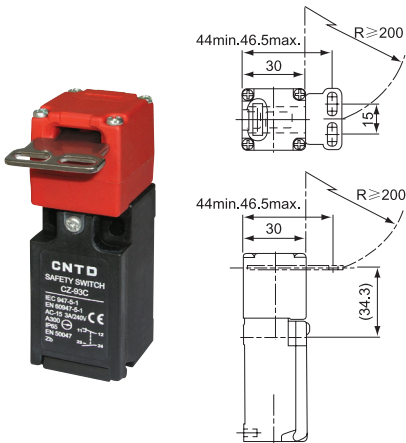


Operating Characteristics

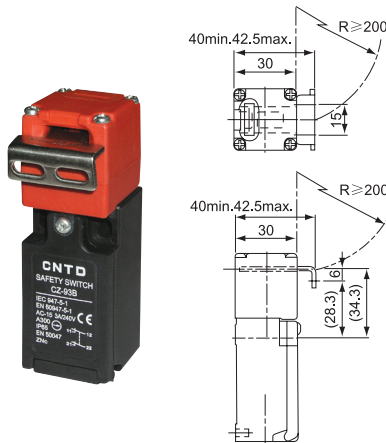
Key plug in force	147.N(1,500gf)
key pull out force	29.42N(3,000gf)
Pretravel	6 ± 3mm
Total travel	(28mm)
Force required to have positive	58.84N(6,000gf)
Positive opening travel	10mm

Appearance and Dimension

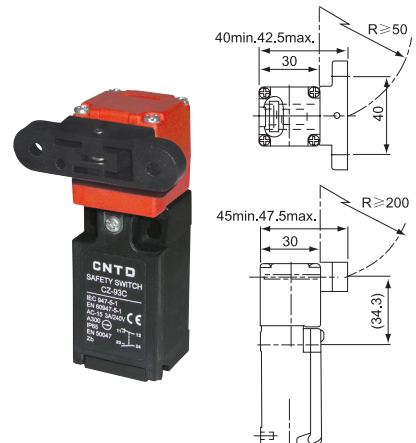
CZ-93CPM01



CZ-93BPM02

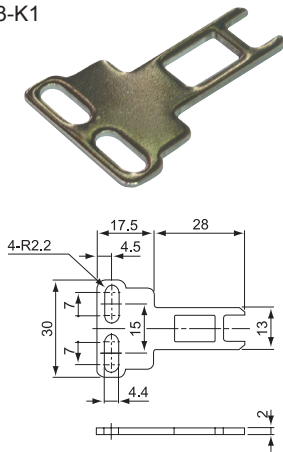


CZ-93CPM03

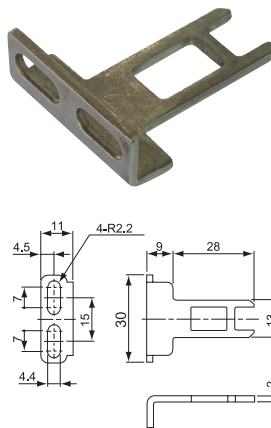


Key type and Dimension

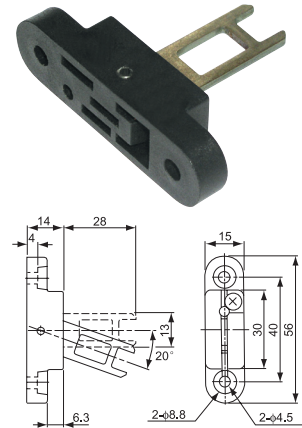
CZ93-K1



CZ93-K2



CZ93-K3





Actuators available

Direct movement



A
Steel plunger



A/S1
Steel plunger with rubber gasket



B
Steel roller plunger



C
Thermoplastic roller lever, side actuation



C/S1
Thermoplastic roller lever, with rubber gasket, side actuation



D
Thermoplastic roller lever, vertical actuation



D/S1
Thermoplastic roller lever, with rubber gasket, vertical actuation



R
Reversible, adjustable thermoplastic roller lever

Angular movement



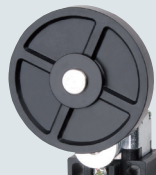
E-E/RA
Side rotary lever with plastic or steel roller



I-I/RA
Offset side rotary lever with plastic or steel roller



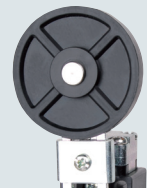
E/50
Side rotary lever with rubber roller 50 dia.



I/50
Side rotary bent lever with rubber roller 50 dia.



F
Side rotary adjustable lever with plastic roller



F/50
Side rotary adjustable lever with rubber roller 50 dia.

Multi-directional movement



G/H
Side rotary adjustable plastic glass fiber, G, aluminum, H, rod 6 dia.



Q
Ceramic roller lever



IS
Offset side rotary lever with plastic or steel roller



L
Flexible rod



LP
Flexible rod with plastic terminal



LP
Flexible rod with metal terminal

General feature

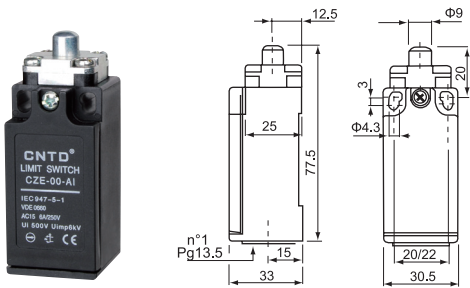
Operating frequency		operat./sec (Hz)	1		
Insulation resistance	500 V DC	MΩ	100		
Dielectric strength	50/60 Hz per 1*	V AC	2500		
Rated insulation voltage	Ui IEC947-5-1	V AC	500		
Rated thermal current	Ithe IEC947-5-1	A	10		
Rated operating current	IEC 947-5-1/EN60947-5-1				
Category AC15 A300	le	24V	A	10	
		125V	A	6	
		230V	A	4	
		400V	A	3	
	Category DC13 Q300	le	24V	A	10
			48V	A	4
			120V	A	1
			250V	A	0.4
Contact resistance	IEC255-7 cat.3	initial value	MΩ	25	
Short circuit protective devices	IEC269(IEC947-5-1) gl or gG type fuse		A	10	
Rated conditionals short circuit current	IEC947-5-1		A	100	
Pollution degree	IEC947-5-1			3	
Protection degree	EN 60529		IP	66	
Protection against electric shock	plastic	class		II	
	metal	class		I	
Vibration resistance	IEC68-2-6	mm	0.35 ± 15%(10 ÷ 55 Hz ± 1 Hz)		
Shock resistance	IEC68-2-27	11 ms	g	30	
Mechanical life			cycles min	15.000.000	
Electrical life	at 250VAC 6A with resistance load cos β =1		cycles min	500.000	
	250VAC 6A	cos β =1			
	at 250VAC 6A with resistance load cos β =0.4		cycles min	500.000	
	250VAC 6A	cos β =0.4			
Distance between contacts	snap action type		mm	2 × 1, 25	
	low action type		mm	2 × 2	
Terminals	type			Screw with combined notch and retractable plate (notch Ph. size 1)	
	screw			M	3, 5
	protection degree			IP	20A
	material			Steel class 8.8/Galvanized	
	Max. screw tightening torque			N cm (kg cm)	120(12, 24)
	max connecting capacity	rigid cable		mm ²	2 × 1, 5
		flexible cable		mm ²	2 × 1, 5
	with prod terminal			mm ²	1 × 1, 5
terminal numbering			In accordance with EN50013		
Conduit / connector size	M20x1.5 PG13.5		Standard M20x1.5		

Contact block

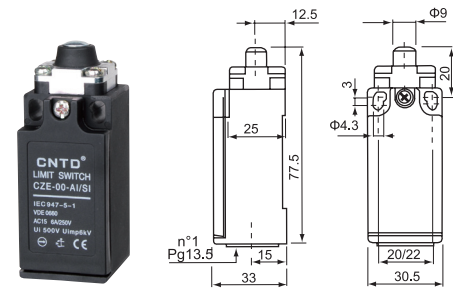
1 NO+1 NC	fast action	00
1 NO+1 NC	slow action	01
1 NO+1 NC	slow overlapping action	02
2 NO	slow action	03
2 NC	slow action	04
2 NC	fast action	05

Plastic V ersion

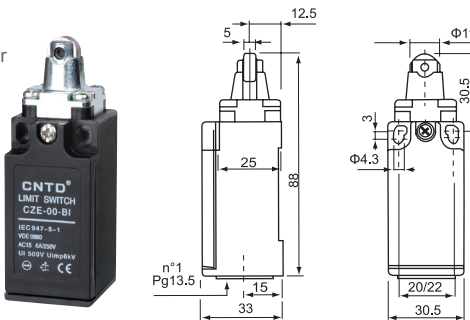
CZE-00-AI
Steel plunger



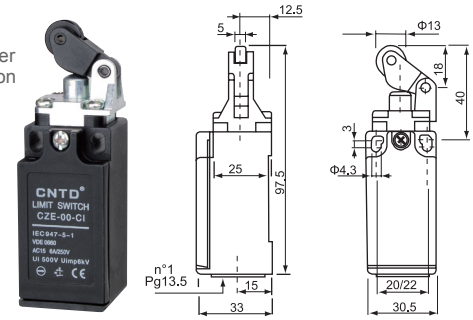
CZE-00-AI/SI
Steel plunger with rubber gasket



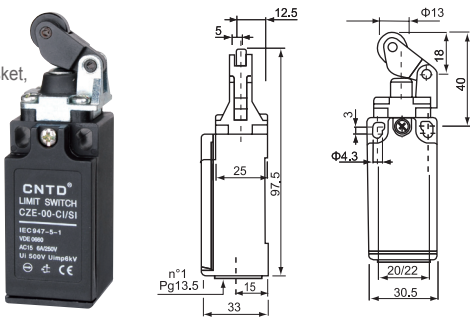
CZE-00-BI
Steel roller plunger



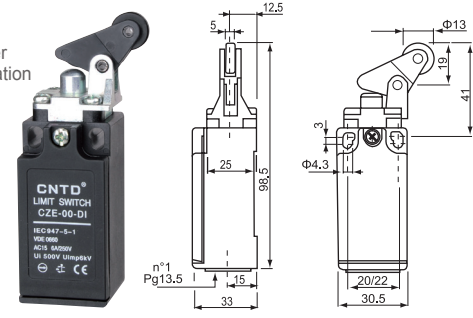
CZE-00-CI
Thermoplastic roller lever, side actuation



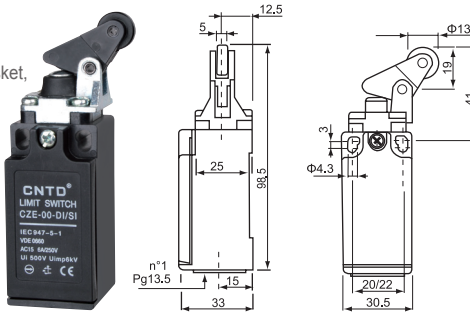
CZE-00-CI/SI
Thermoplastic roller lever with rubber gasket, side actuation



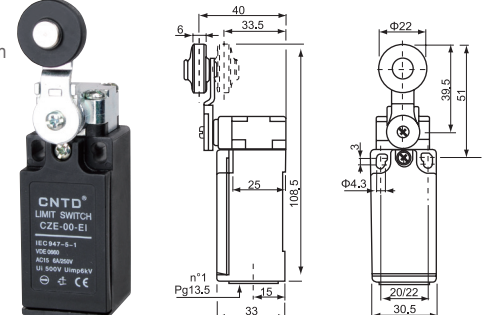
CZE-00-DI
Thermoplastic roller lever, vertical actuation



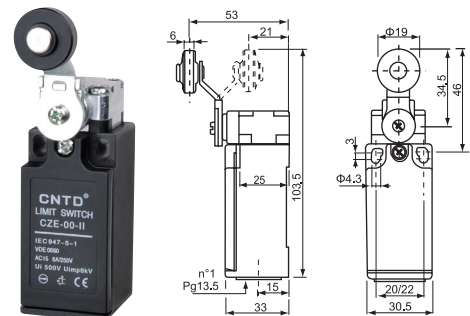
CZE-00-DI/SI
Thermoplastic roller lever with rubber gasket, vertical actuation



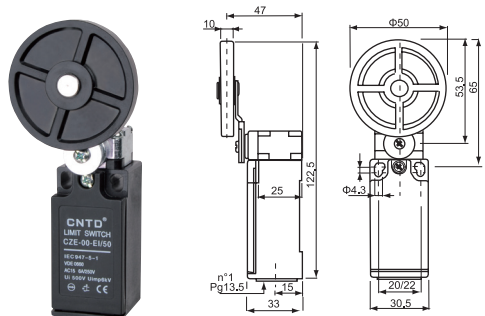
CZE-00-EI
Side rotary lever with plastic roller



CZE-00-II
Offset side rotary lever with plastic roller.

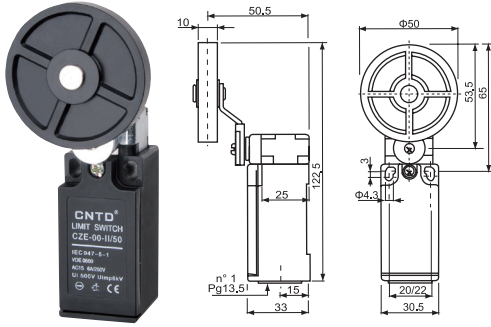


CZE-00-EI/50
Side rotary lever with rubber roller
Φ 50

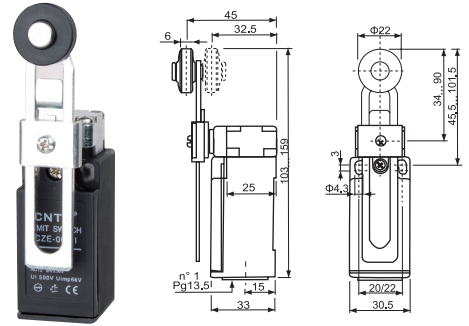


Plastic Version

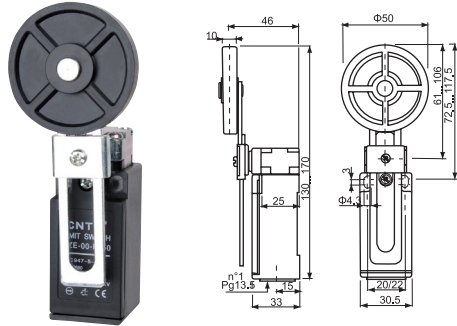
CZE-00-II/50
Side rotary bent lever with rubber roller $\Phi 50$



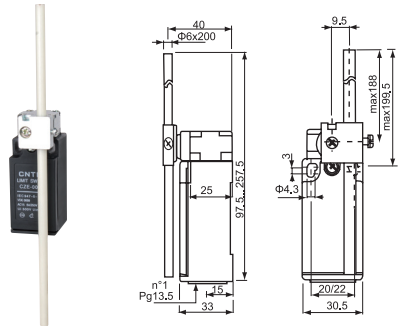
CZE-00-FI
Side rotary adjustable lever with plastic roller



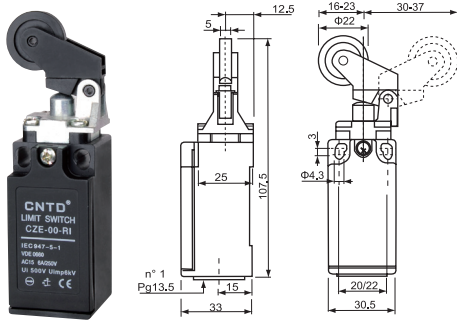
CZE-00-FI/50
Side rotary adjustable lever with rubber roller $\Phi 50$



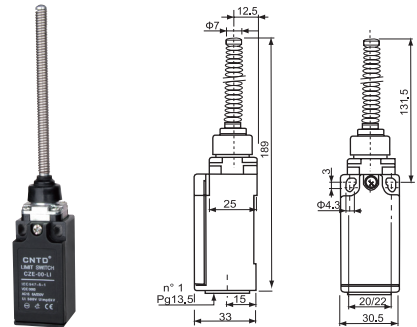
CZE-00-GI
Side rotary adjustable plastic glass fiber "G", aluminum "H", rod $\Phi 6$



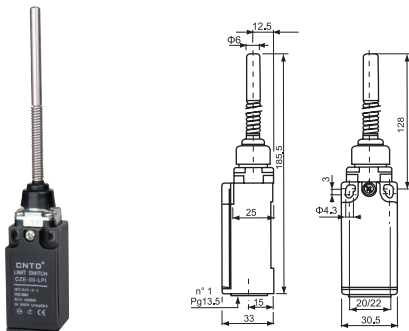
CZE-00-RI
Reversible adjustable thermoplastic roller lever



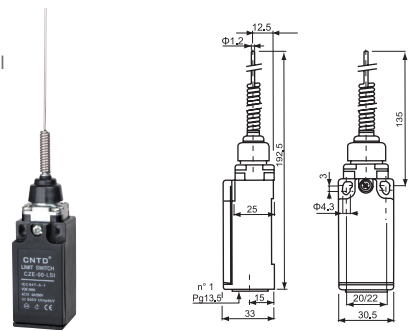
CZE-00-LI
Flexible rod



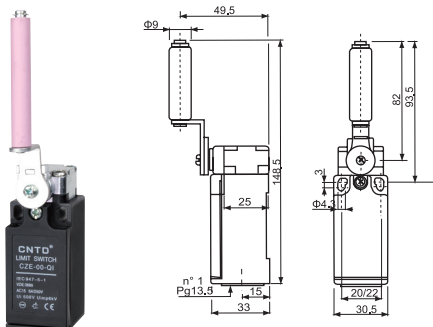
CZE-00-LPI
Flexible rod with plastic terminal



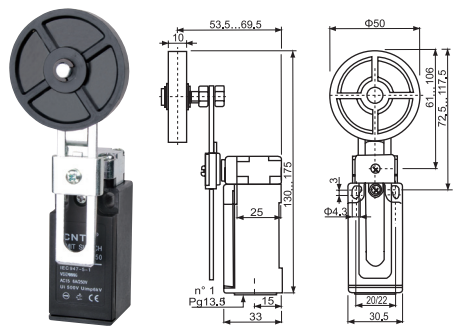
CZE-00-LSI
Flexible rod with metal terminal



CZE-00-QI
Ceramic roller lever

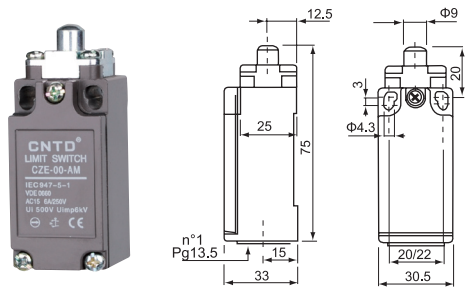


CZE-00-FRI/50
Side rotary adjustable horizontal and vertical lever with rubber roller $\Phi 50$

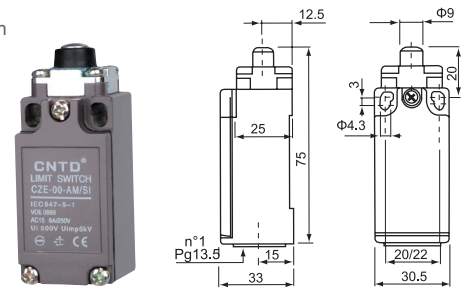


Metal Version

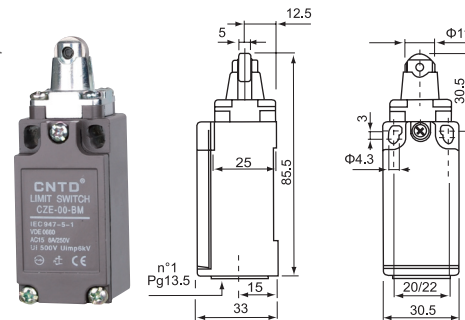
CZE-00-AM
Steel plunger



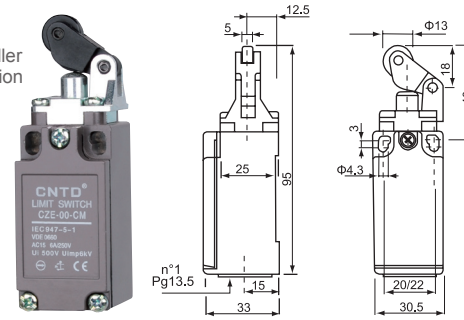
CZE-00-AM/SI
Steel plunger with rubber gasket



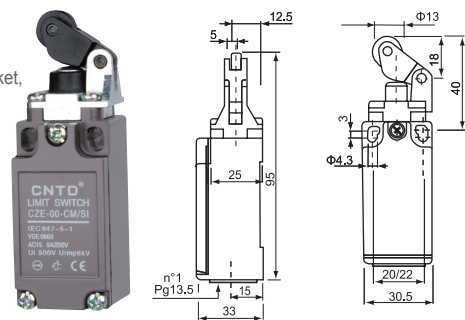
CZE-00-BM
Steel roller plunger



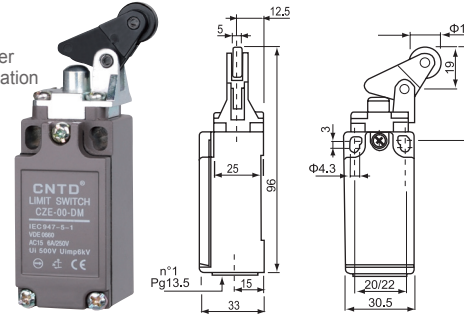
CZE-00-CM
Thermoplastic roller lever, side actuation



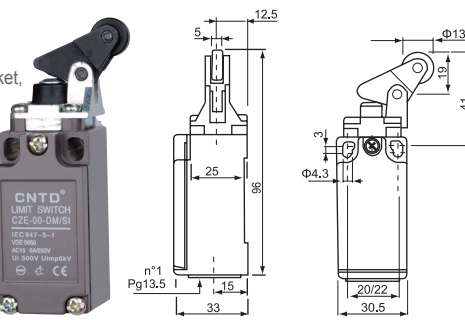
CZE-00-CM/SI
Thermoplastic roller lever with rubber gasket, side actuation



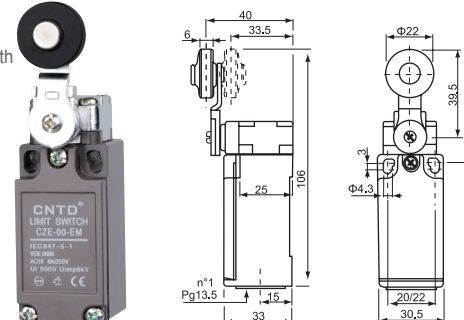
CZE-00-DM
Thermoplastic roller lever, vertical actuation



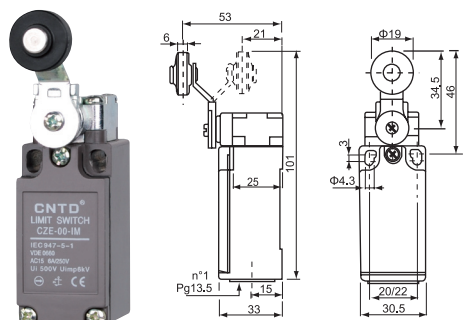
CZE-00-DM/SI
Thermoplastic roller lever with rubber gasket, vertical actuation



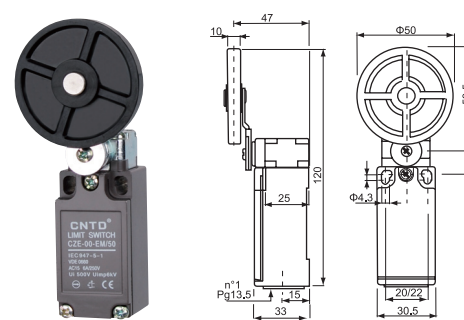
CZE-00-EM
Side rotary lever with plastic roller



CZE-00-IM
Offset side rotary lever with plastic roller.



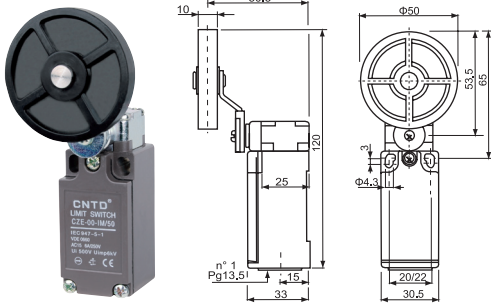
CZE-00-EM/50
Side rotary lever with rubber roller
Φ 50



Metal V ersion

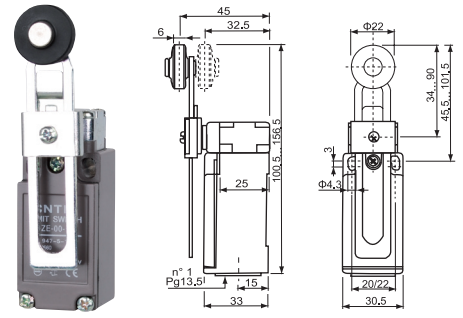
CZE-00-IM/50

Side rotary bent lever with rubber roller $\Phi 50$



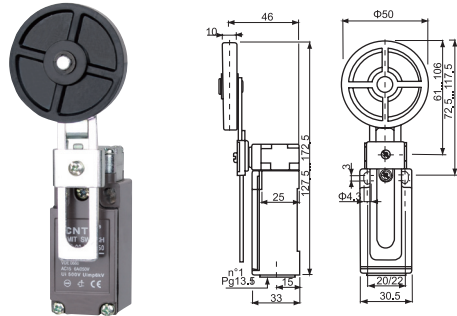
CZE-00-FM

Side rotary adjustable lever with plastic roller



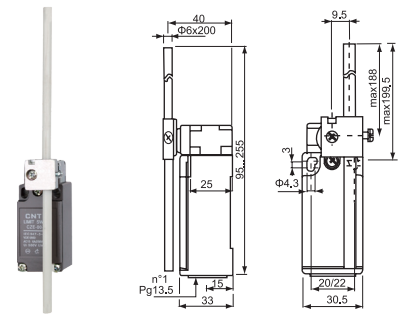
CZE-00-FM/50

Side rotary adjustable lever with rubber roller $\Phi 50$



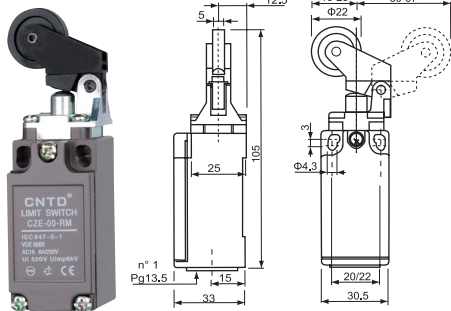
CZE-00-GM

Side rotary adjustable plastic glass fiber "G", aluminum "H", rod $\Phi 6$



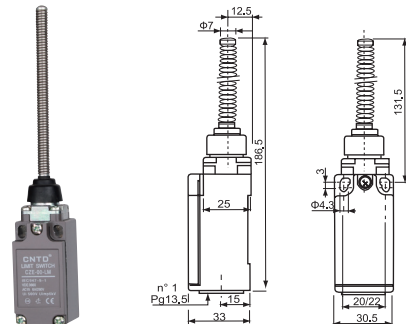
CZE-00-RM

Reversible adjustable thermoplastic roller lever



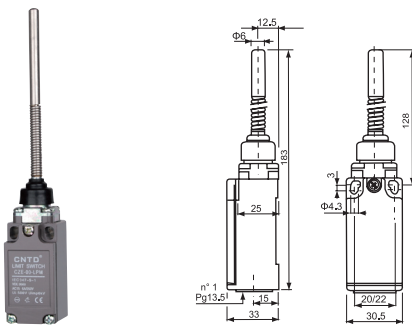
CZE-00-LM

Flexible rod



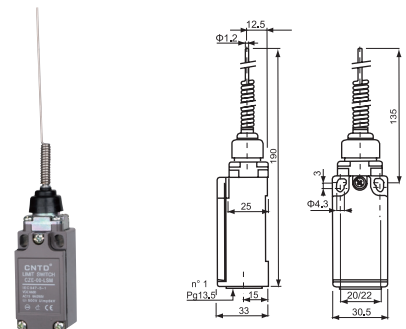
CZE-00-LPM

Flexible rod with plastic terminal



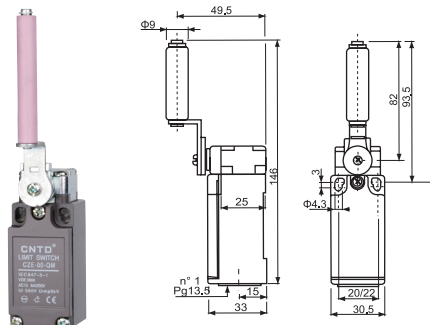
CZE-00-LSM

Flexible rod with metal terminal



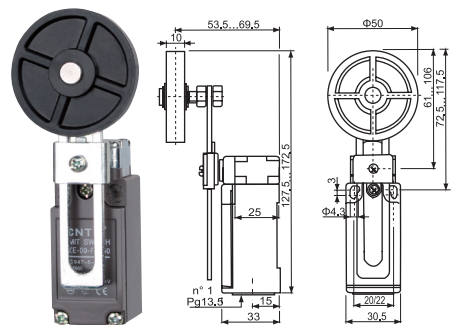
CZE-00-QM

Ceramic roller lever



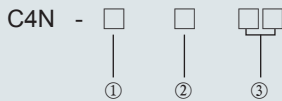
CZE-00-FRM/50

Side rotary adjustable horizontal and vertical lever with rubber roller $\Phi 50$





Model Designations



Item	Code	Description
Conduit / connector size	1	Pg13.5 (1 conduit type)
	2	G1/2 (1 conduit type)
	4	M20 (1 conduit type)
	5	Pg13.5 (2 conduits type)
	6	G1/2 (2 conduits type)
	8	M20 (2 conduits type)
Built-in switch	1	1NC/1NO (quick-action type)
	2	2NC (quick-action type)
	A	1NC/1NO (slow-action type)
	B	2NC (slow-action type)
Head and driving rod	20	Roller lever (resin lever, resin ball)
	22	Roller lever (metal lever, resin ball)
	25	Roller lever (metal lever, metal ball)
	2G	Adjustable roller lever, Form Lock (metal lever, resin ball)
	2H	Adjustable roller lever, Form Lock (metal lever, rubber ball)
	2M	Adjustable roller lever, Form Lock (metal lever, metal ball)
	31	Top plunger type
	32	Top plunger ball type
	62	Unilateral cantilever ball type (horizontal)
	72	Unilateral cantilever ball type (vertical)
	80	Whisker type
87	Plastic stick type	

Features

- Forced open action device (NC contacts only), it can disconnect the contact when the contact has fusing and other failures.
- The set safety of lever ensures that gear ratcheting device is used between the action position indicator panel and the lever.
- Strengthened top seal structure improves the sealing performance.
- Built-in contact holder has fast-action type: 1NC/1NO; Slow-action: 1NC/1NO and 2NC

Performance

Protection level*1	IP66	
Life *2	Mechanical	More than 10,000,000 times*5
	Electrical	More than 500,000 times (AC250V 3A, resistive load) *3 More than 300,000 times (AC250V 10A, resistive load)
Operating speed		
Operating frequency		Max. 30 times/min
Contact resistance		25 mΩ or less
Minimum working load *4		
		1mA resistive load below DC5V (N standard reference value)
Rated insulation voltage (Ui)		
Electric shock proof protection grade		Class II (double insulated)
Pollution degree (environmental conditions)		Pollution degree 3 (EN60947-5-1)
Withstand voltage (EN60947-5-1)	Between homopolar terminals: 2.5kV	
	Between heteropolar terminals: 2.5kV	
	Between terminals and uncharged metal parts: 6kV	
Insulation resistance		Above 100MΩ
Contact gap		Minimum 2 × 0.5mm quick-action type, Minimum 2 × 2mm slow-action type
Vibration	Malfunction	
	10 ~ 55Hz 0.75mm single amplitude	
Impact	Duration	
	1,000m/s ²	
Impact	Malfunction	
	300m/s ²	
Ambient temperature		-20 ~ +70 °C (No ice or dew)
Ambient humidity		Less than 95%RH
Weight		About 82g (D4N-1120) About 99g (D4N-5120)

Note 1. The above values are initial values.

Note 2. Once the contact is connected to a standard load, it can not be used to connect a smaller load. If so, the contact may result in rough surface, thus losing contact reliability.

*1. The protection level is gotten based on test method of (EN60947-5-1). Please make sure its sealing under actual environmental conditions before use. The switch box has dust and oil resistance structure, but it should be used in places without dust, oil and chemicals. Otherwise it may lead to premature wear, damage or malfunction.

*2. The durability is for ambient temperature of 5°C ~ 35°C and humidity of 40% to 70% RH. For additional details, please contact us.

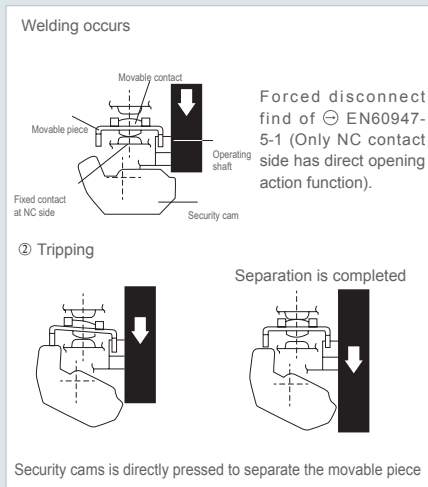
*3. When the ambient temperature is above 35°C, more than 2 circuits 3A 250VAC loads are prohibited.

*4. The values will vary with different switching frequency, environmental conditions, reliability level and other factors. Please confirm on the actual load in advance.

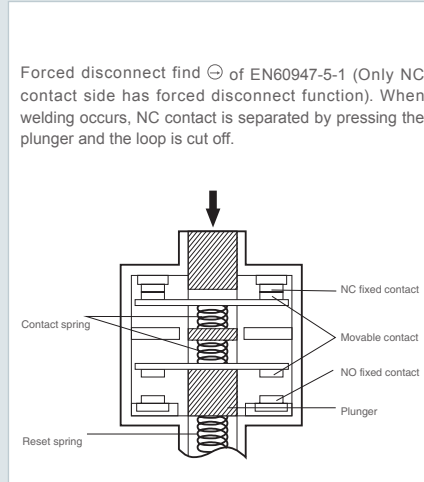
*5. The mechanical life of deadman lever type is more than 10,000,000 times.

Forced disconnect structure

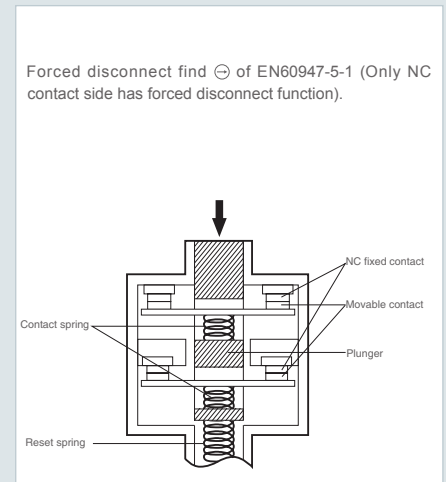
■ 1NC and 1NO contacts (quick-action type)



■ 1NC and 1NO contacts (slow-action type)



■ 2NC contacts (slow-action type)



Contact form

Model	Contact	Contact form	Operation mode	Expatation
C4N-□1□	1NC/1NO (Quick-action type)			Only NC contact (31-32) has forced disconnect function (⊖) Contacts (13-14) and (31-32) can be used as heteropoles.
C4N-□2□	2NC (Quick-action type)			Only NC contact (31-32) has forced disconnect function (⊖) Contacts (11-12) and (31-32) can be used as heteropoles.
C4N-□A□	1NC/1NO (Slow-action type)			Only NC contact (11-12) has forced disconnect function (⊖) Contacts (11-12) and (33-34) can be used as heteropoles.
C4N-□B□	2NC (Slow-action type)			Only NC contact (31-32) has forced disconnect function (⊖) Contacts (11-12) and (31-32) can be used as heteropoles.

Action characteristics

■ Quick-action type (1NC/1NO)(2NC), slow-action type (2NC)

Model			C4N-□120	C4N-□122	C4N-□125	C4N-□226	C4N-□131	C4N-□132	C4N-□162	C4N-□172	C4N-□12H	C4N-□12G	C4N-□□80	C4N-□□87
Action characteristics			C4N-□220	C4N-□222	C4N-□225	C4N-□B26	C4N-□231	C4N-□232	C4N-□262	C4N-□272	C4N-□B2H	C4N-□12M		
			C4N-□B20	C4N-□B22	C4N-□B25		C4N-□B31	C4N-□B32	C4N-□B62	C4N-□B72	C4N-□B2H	C4N-□22G		
Action force	OF	Max.	5.0N			6.5N	6.5N	5.0N	5.0N	4.5N	1.5N	1.5N		
Restore force	RF	Min.	0.5N			1.5N	1.5N	0.8N	0.8N	0.4N				
Pretravel	PT		1827 °			2mm	2mm	4mm	4mm	18 ~ 27°	15°	15°		
Overtravel	OT	Min.	40°			4mm	4mm	5mm	5mm	40°				
Poor response travel	MD	Max.*1	14°			1mm	1mm	1.5mm	1.5mm	14°				
Action position	OP		—			18.2 ± 0.5mm	28.6 ± 0.8mm	37 ± 0.8mm	27 ± 0.8mm	—				
Total travel	TT	*2	(80°)			(6mm)	(6mm)	(9mm)	(9mm)	(80°)				
Forced disconnected pretravel	DOT	Min.*3												
Forced disconnected force	DOF	Min.*3	20N			20N	20N	20N	20N	20N				

Note The simultaneity of ON / OFF operation of 2NC contacts have difference, please make sure before using it.

*1. Only for quick-action type.

*2. Reference values.

*3. Only for slow-action type. For safe use, please make sure that all values are within the range of maximum or minimum.

*4. The property value when length of lever is 32mm.

Action characteristics

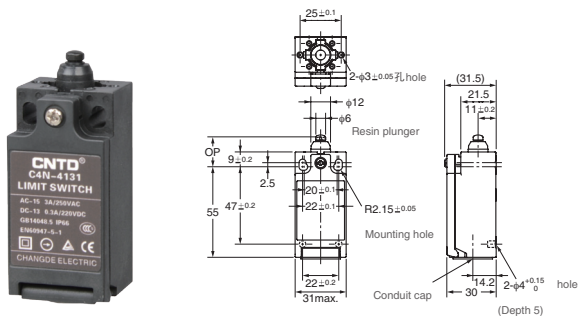
■ Slow-action type (1NC/1NO)

Action characteristics			Model								
			C4N-□A20	C4N-□A22	C4N-□A25	C4N-□A26	C4N-□A31	C4N-□A32	C4N-□A62	C4N-□A72	C4N-□A2H
Action force	OF	Max.		5.0N			6.5N	6.5N	5.0N	5.0N	4.5N
Restore force	RF	Min.		0.5N			1.5N	1.5N	0.8N	0.8N	0.4N
Pretravel	PT	*1		18 - 27°			2mm	2mm	4mm	4mm	18 - 27°
	PT	(2nd)*2		(44°)			(2.9mm)	(2.9mm)	(5.2mm)	(4.3mm)	(44°)
	PT	*3		27.5 - 36.5°			2.8mm	2.8mm	4mm	4mm	27.5 - 36.5°
	PT	(2nd)*4		(18°)			(1mm)	(1mm)	(1.5mm)	(1.5mm)	(18°)
Overtravel	OT	Min.		40°			4mm	4mm	5mm	5mm	40°
Action position	OP			—			18.2 ± 0.5mm	28.6 ± 0.8mm	37 ± 0.8mm	27 ± 0.8mm	—
	OP	*5		—			17.4 ± 0.5mm	28 ± 0.8mm	36 ± 0.8mm	26.1 ± 0.8mm	—
Total travel	TT	*6		(80°)			(6mm)	(6mm)	(9mm)	(9mm)	(80°)
Forced disconnected pretravel	DOT	Min.*7		50°			3.2mm	3.2mm	5.8mm	4.8mm	50°
Forced disconnected force	DOF	Min.*7		20N			20N	20N	20N	20N	20N

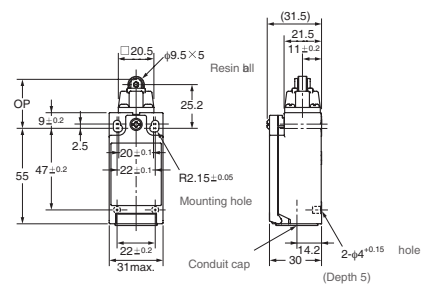
1. NC contact is open.
2. NO contact is closed.
3. Only for MBB type.
4. It is the reference value of MBB type.
5. Only for MBB type.
6. Reference values
7. For safe use, please make sure that all values are within the range of maximum or minimum.
8. The property value when length of lever is 32mm

Appearance and Dimension

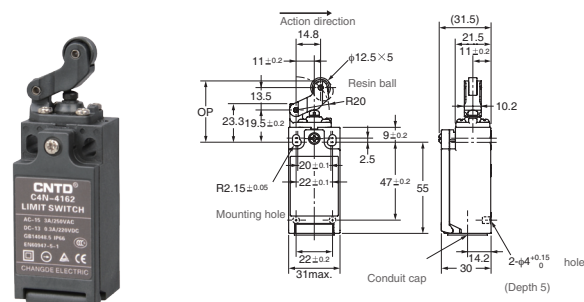
C4N-4131



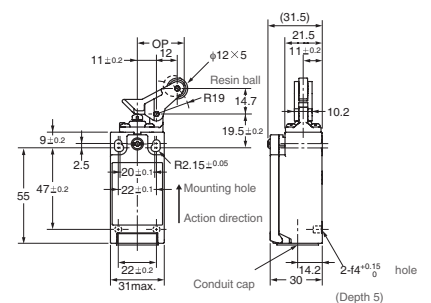
C4N-4132



C4N-4162



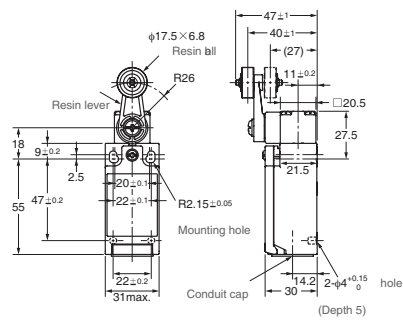
C4N-4172



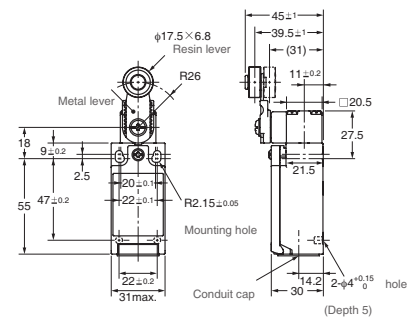
C4N Miniature Safety Limit Switch

Appearance and Dimension

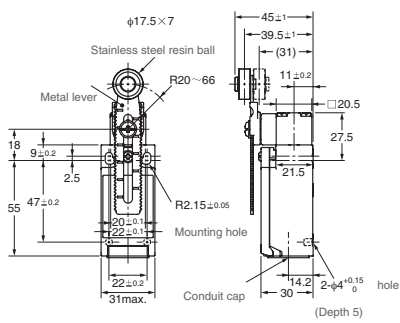
C4N-4120



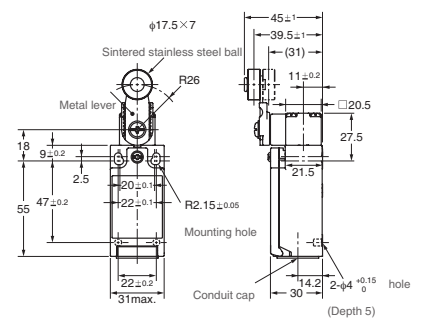
C4N-4122



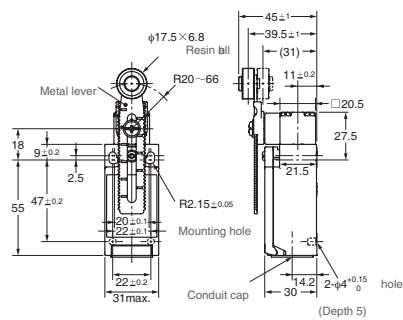
C4N-412M



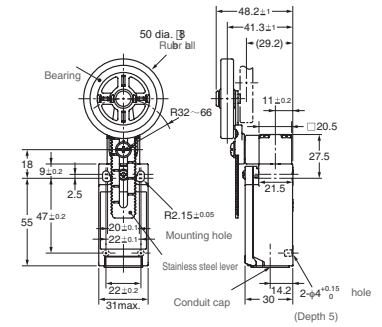
C4N-4125



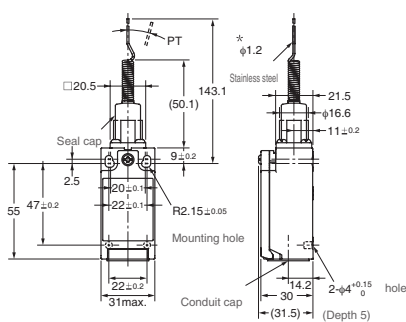
C4N-412G



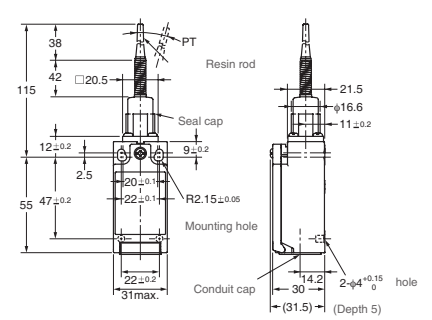
C4N-412H



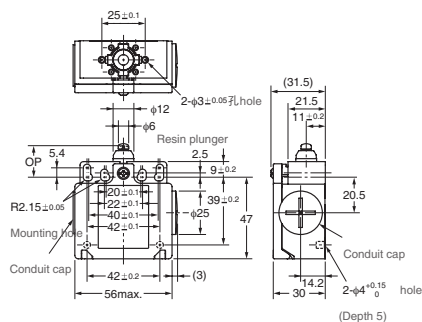
C4N-4180



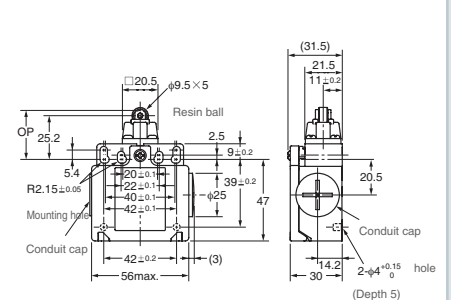
C4N-4187



C4N-8131



C4N-8132

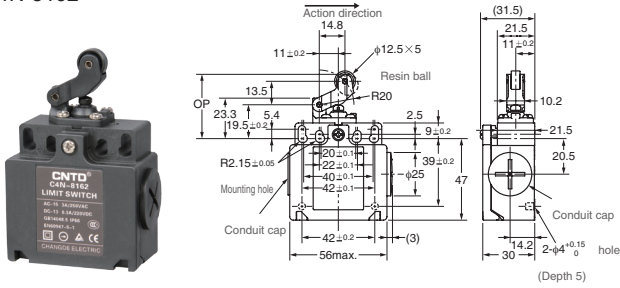


* Use of application of stainless steel washers and plastic stick are within 35mm from the front end, the entire action is within 70mm

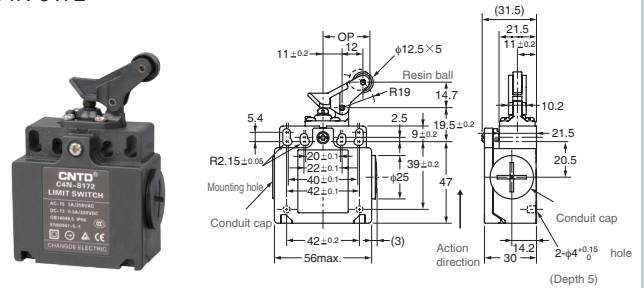
C4N Miniature Safety Limit Switch

Appearance and Dimension

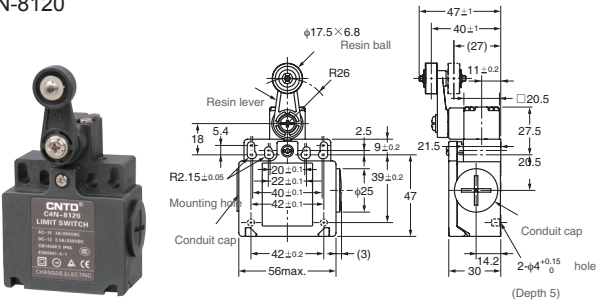
C4N-8162



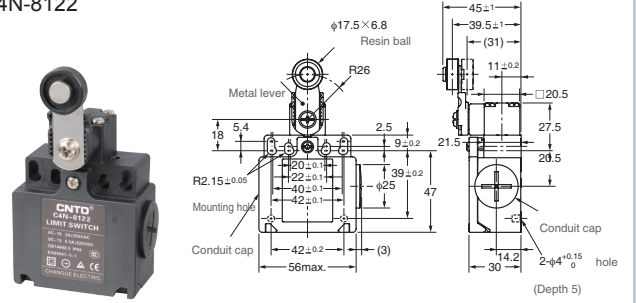
C4N-8172



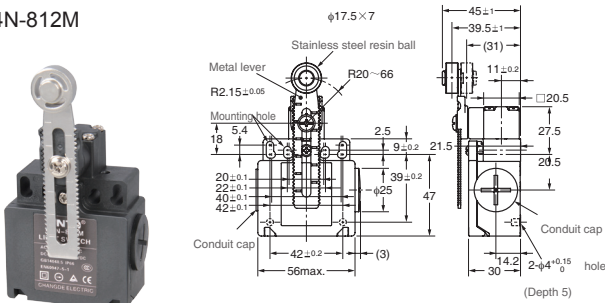
C4N-8120



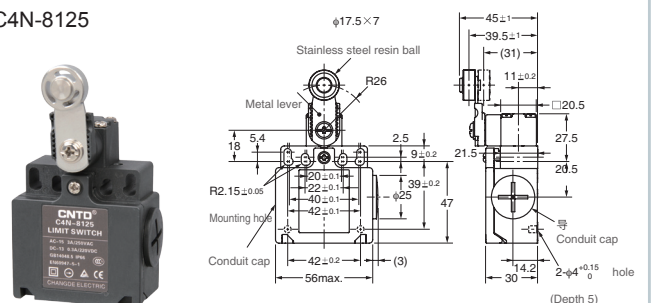
C4N-8122



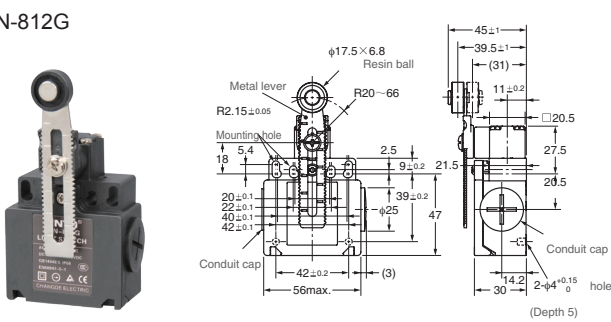
C4N-812M



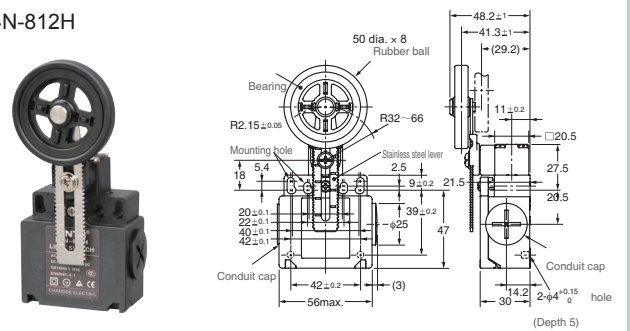
C4N-8125



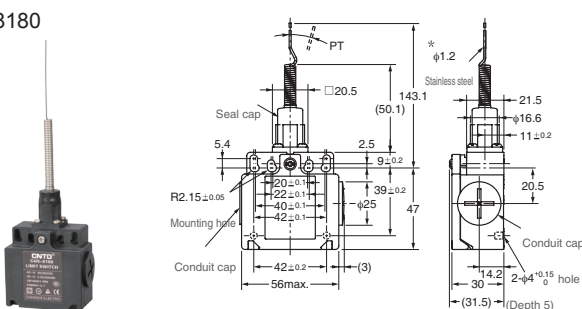
C4N-812G



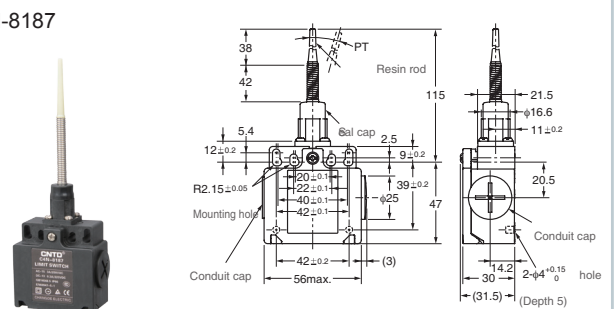
C4N-812H



C4N-8180



C4N-8187



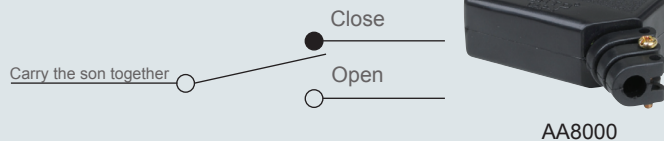
* Use of application of stainless steel washers and plastic stick are within 35mm from the front end, the entire action is within 70mm



Features

- Various of actuators, action position is adjustable (such as CM1701)
- High switch on and off capacity (15A)
- High accuracy
- Wide range of operation speed
- Each type of CM series has solder terminal, screw terminal and tab terminal are selective
- Add A for solder terminal, add C for tab terminal, blank for screw terminal

Contact Form



AA8000

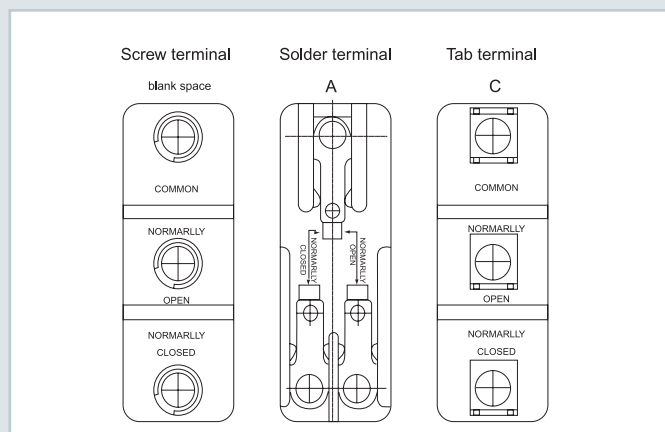
Ratings

Rated voltage	Noninductive Load (A)				Inductive Load (A)				Inrush Current	
	Resistance Load		Lamp Load		Inductive Load		Motor Load			
	NC	NO	NC	NO	NC	NO	NC	NO	NC	NO
125VAC	15	3	1.5	15	5	2.5	30 以下 max.	15 以下 max.		
250VAC	15	2.5	1.25	15	3	1.5				
500VAC	3	1.5	0.75	2.5	1.5	0.75				
8VDC	15	3	1.5	15	5	2.5				
14VDC	15	3	1.5	10	5	2.5				
30VDC	6(2)	3	1.5	5	5	2.5				
125VDC	0.4	0.4	0.4	0.05	0.05	0.05				
250VDC	0.2	0.2	0.2	0.03	0.03	0.03				

Characteristics

Operation speed	0.01mm-1m/sec
Operating frequency	Mechanical: 240 operations/min. Electrical: 20 operations/min.
Contact resistance	15mΩ max. (initial value)
Insulation resistance	100mΩ min. (at 500VDC)
Dielectric Strength	1000VAC, 50/60 Hz for 1 minute between terminals of the same polarity
	1500VAC, 50/60 HZ for 1 minute between current-carrying and non-current-carrying metal parts
	1500VAC, 50/60 HZ for 1 minute between each terminal and ground
Vibration	10-55Hz, 1.5mm double amplitude
Shock	Mechanical durable: 1,000m/Sec ² (about 100G'S) Malfunction: 300m/Sec ² (about 30G'S)
Ambient temperature	General purpose type: -25°C to +80°C (With no icing), Sealed type: -15°C to +80°C (With no icing)
Humidity	General purpose type: 85%RH max., Sealed type: 95%RH max.
Life	Mechanical: 20,000,000 operations/min. Electrical: 500,000 operations/min.
Weight	About 22 to 58g

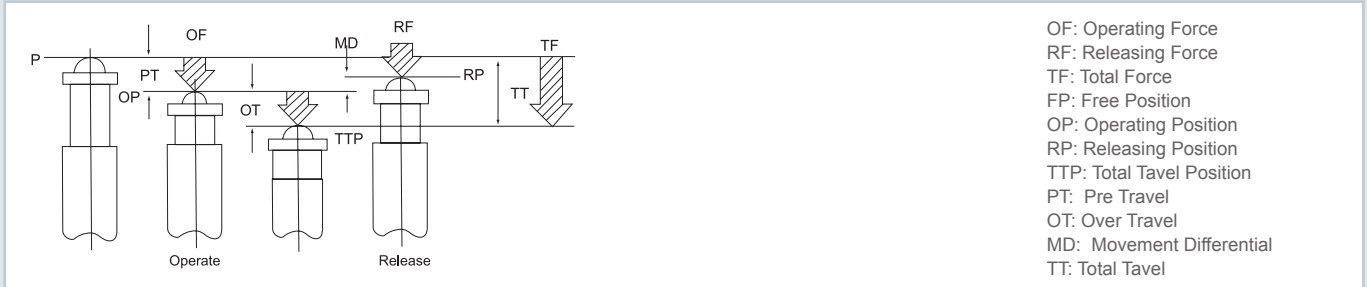
Terminal Type



Operating Characteristics

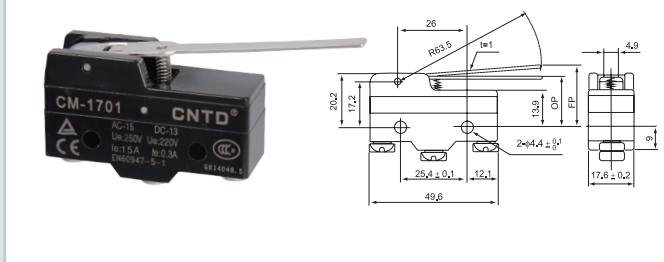
Models	CM1300	CM1301	CM1303	CM1305	CM1306	CM1307	CM1308 CM1308X	CM1309	CM1701 CM1706	CM1702	CM1703	CM1704	CM1705	CM1743
OF (Max.)	350g	300g	300g	350g	350g	350g	350g	350g	70g	160g	100g	160g	10g	160g
RF (Min.)	114g	50g	50g	114g	114g	114g	114g	114g	14g	28g	22g	42g	3g	42g
PT (Max.)	0.4mm	4mm	4mm	0.4mm	0.4mm	0.4mm	0.4mm	0.4mm	10mm	5mm	7.1mm	2.7mm	20mm	2.7mm
OT (Min.)	0.13mm	1.6mm	1.6mm	1.6mm	1.6mm	5.5mm	3.58mm	3.58mm	5.6mm	2mm	4mm	2.4mm	5.6mm	2.4mm
MD (Max.)	0.05mm	1.3mm	1.3mm	0.05mm	0.05mm	0.05mm	0.05mm	0.05mm	1.27mm	1mm	1.02mm	0.5mm	3mm	0.5mm
FP (Max.)		20.6mm	31.8mm						28.2mm	24.8mm	36.5mm	32.5mm		43.6mm
OP(mm)	15.9 ± 0.4	17.4 ± 0.8	28.6 ± 0.8	28.2 ± 0.5	21.5 ± 0.5	21.8 ± 0.8	33.4 ± 1.2	33.4 ± 1.2	19 ± 0.8	19 ± 0.4	30.2 ± 0.8	30.2 ± 0.4	19 ± 0.8	43.1 ± 0.8

Operating Characteristics

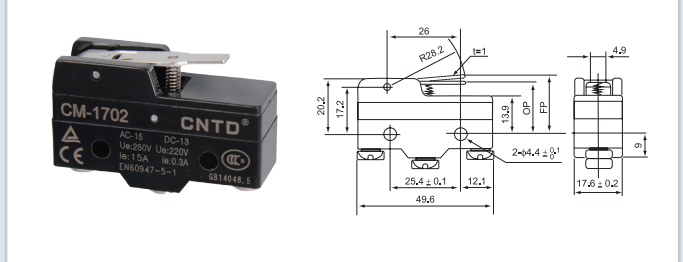


Appearance and Dimension

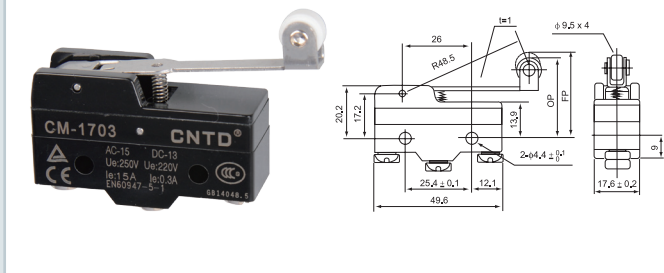
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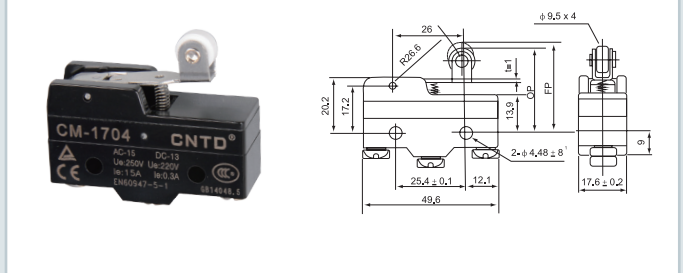
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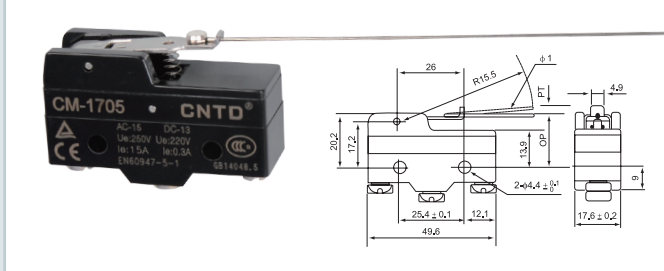
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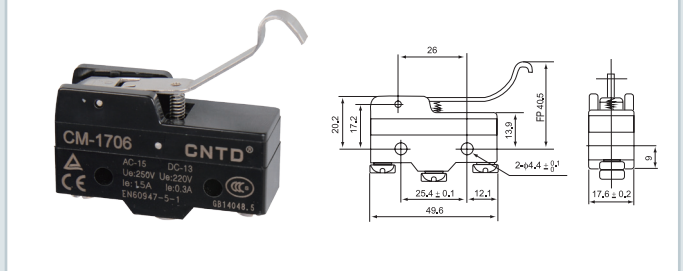
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CM-1705

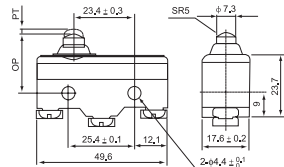


CM-1706

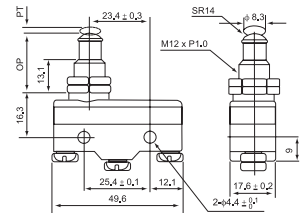


Appearance and Dimension

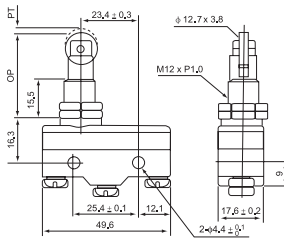
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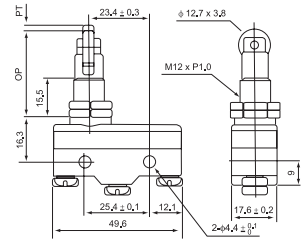
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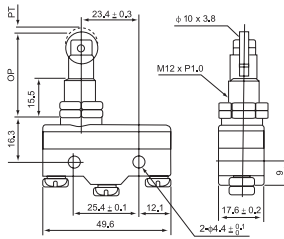
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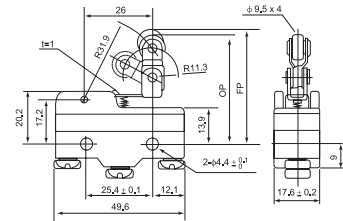
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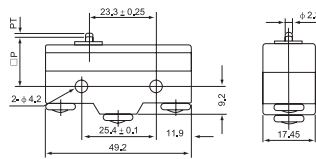
CM-1308X



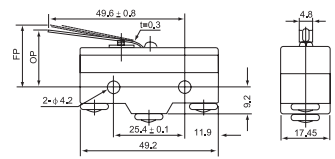
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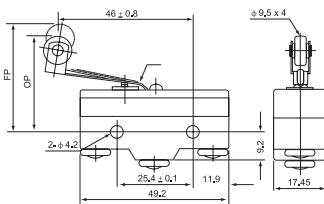
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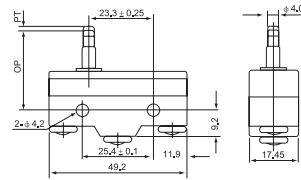
CM-1301



CM-1303



CM-1305



CBFM-25(30)



CBLM-25(30)



CBMM-25(30)



CSSM-25(30)



CZ-7 Micro Switch

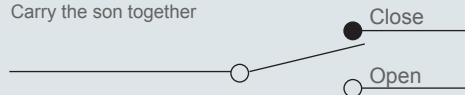


Features

- Various of actuators, the operation position is adjustable (such as CZ-7121)
- Outer shell covered with intensive plastic, water-proof and oil-proof. The mechanical strength is better than CM type of micro switch, bear hitting

Contact Form

Carry the son together



Ratings

Rated voltage	Noninductive Load (A)				Inductive Load (A)			
	Resistance 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		
8VDC	10	3	1.5	6	6	5		
14VDC	10	3	1.5	6	6	5		
30VDC	8	3	1.5	6	5	2.5		
125VDC	0.5	0.4	0.4	0.05	0.05	0.05		
250VDC	0.25	0.2	0.2	0.03	0.03	0.03		

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.
 3. Product with spring, its usable range of operating part is within one third of the whole spring length from the front end of spring.

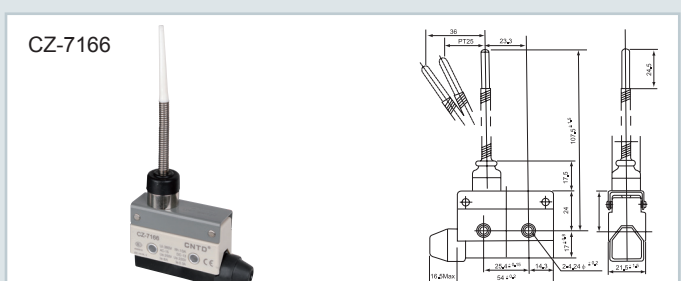
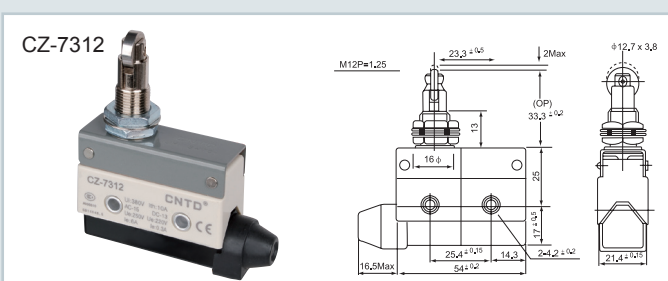
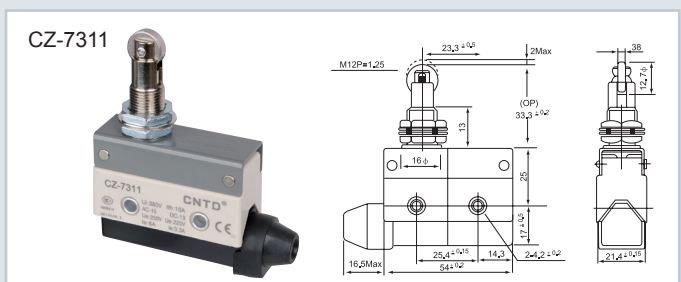
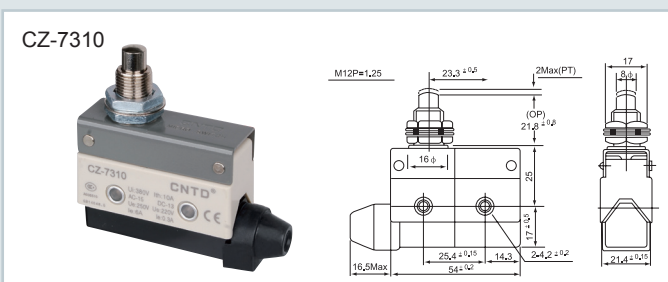
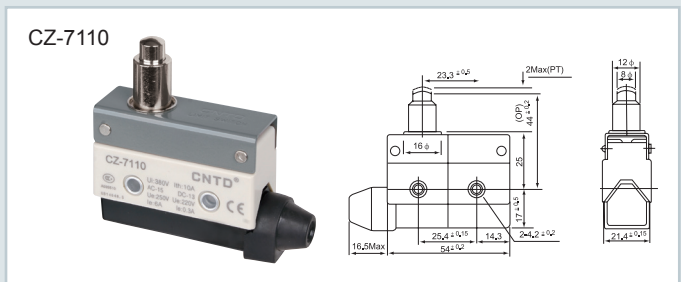
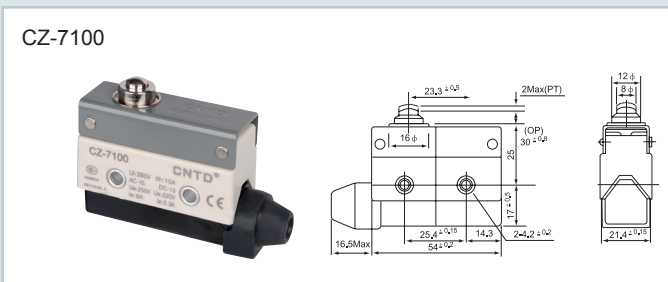
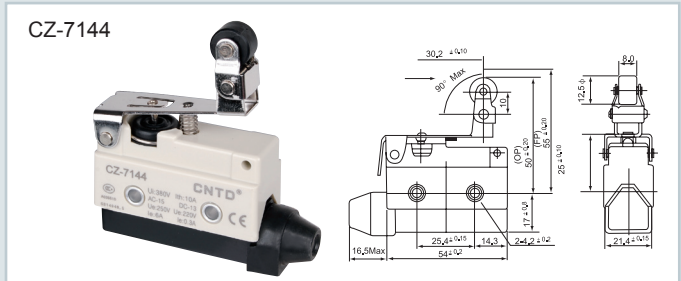
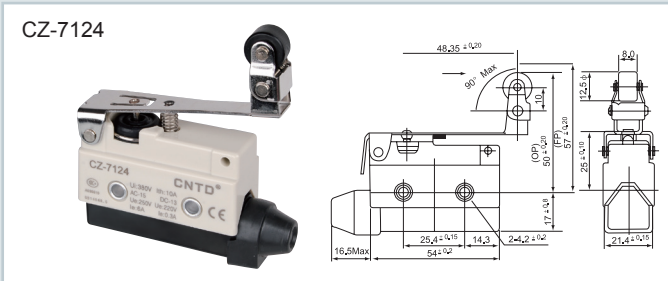
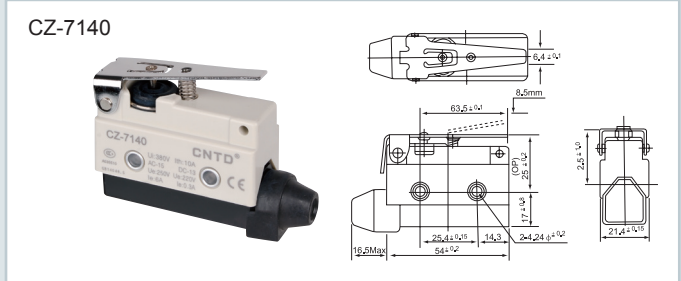
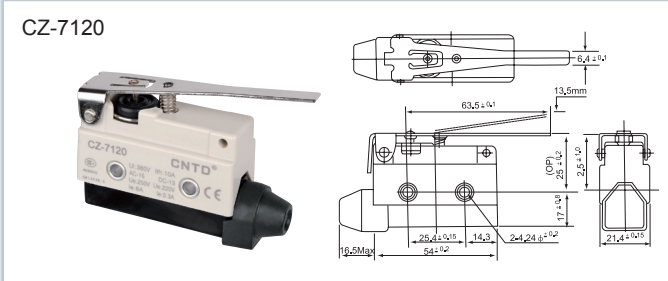
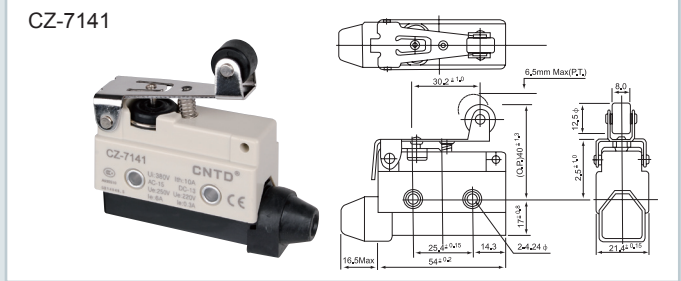
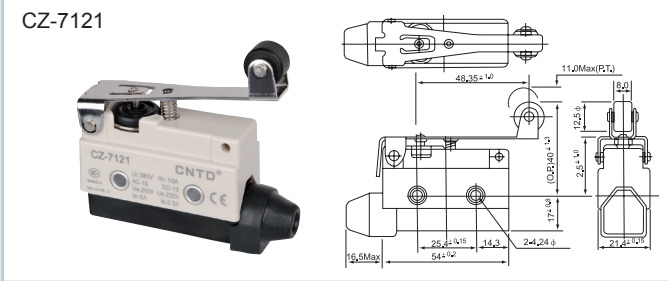
Characteristics

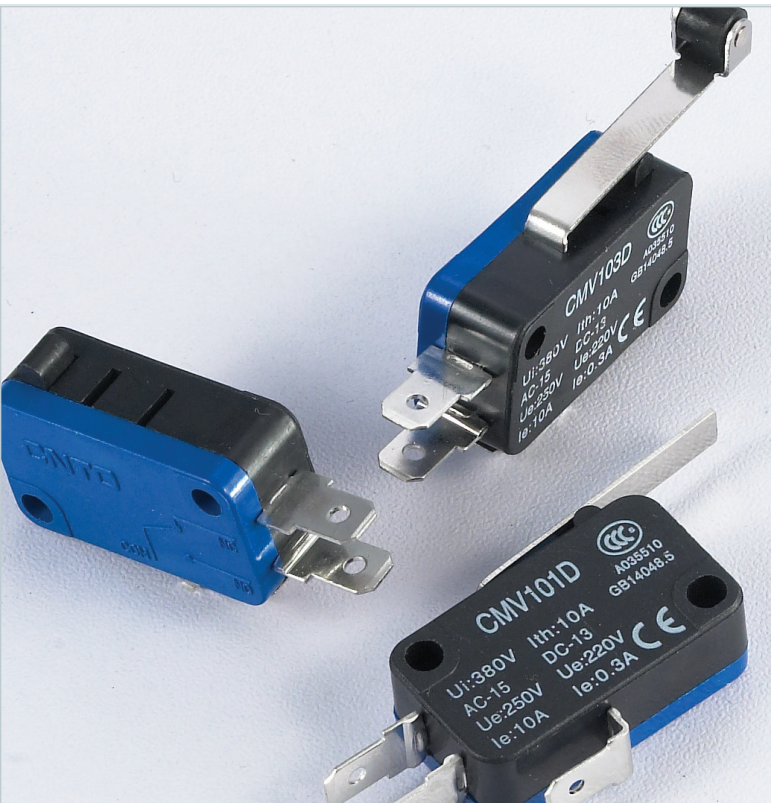
Operation speed	0.5mm-50cm/sec
Operating frequency	Mechanical: 120 operations/minute Electrical: 30 operations/minute
Contact resistance	15mΩ max. (initial value)
Insulation resistance	100mΩ abov(at 500VDC)
Dielectric strength	1000VAC, 50/60 Hz for 1 minute between terminals of the same polarity
	1500VAC, 50/60 Hz for 1 minute between current-carrying and non-current-carrying metal parts
Vibration	1500VAC, 50/60 Hz for 1 minute between each terminal and ground
	Action:10 to 55Hz, 1.5mm pairs swing
Shock	Mechanical durable: 1,000m/Sec ² (about 100g's)
	Malfunction: 300m/Sec ² (about 30g's)
Ambient temperature	-10~+80℃
Humidity	< 95% RH
Life	Mechanical: 10,000,000 operations above (under rated OT)
	Electrical: 500,000 operations above
Weight	About 60g
Degree of protection	IP40

Operating characteristics

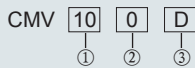
Models	CZ-7100	CZ-7110	CZ-7310	CZ-7311	CZ-7312	CZ-7120	CZ-7140	CZ-7121	CZ-7141	CZ-7124	CZ-7144	CZ-7166
OF (Max.)	600g	600g	600g	600g	600g	150g	220g	180g	240g	200g	280g	120g
RF (Min.)	100g	100g	100g	100g	100g	40g	60g	50g	80g	60g	100g	
PT (Max.)	2.0mm	2.0mm	2.0mm	2.0mm	2.0mm	13.5mm	8.5mm	11.0mm	6.5mm	11mm	6.5mm	250mm
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	30.5 ± 0.8mm	44 ± 1.2mm	21.8 ± 1.2mm	33.3 ± 1.2mm	33.3 ± 1.2mm	25 ± 1mm	25 ± 1mm	40 ± 1mm	40 ± 1mm	50 ± 1.2mm	50 ± 1.2mm	
FP						35mm	32mm		46mm		56mm	

Appearance and Dimension



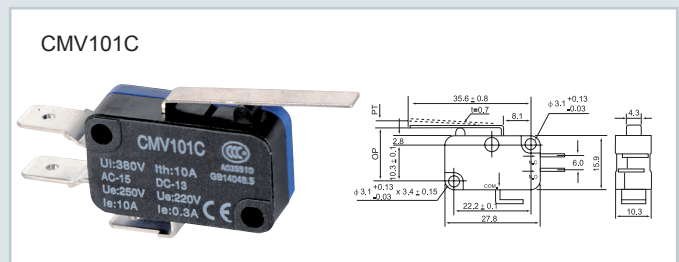
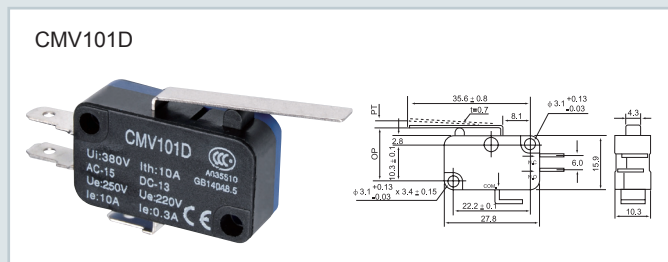
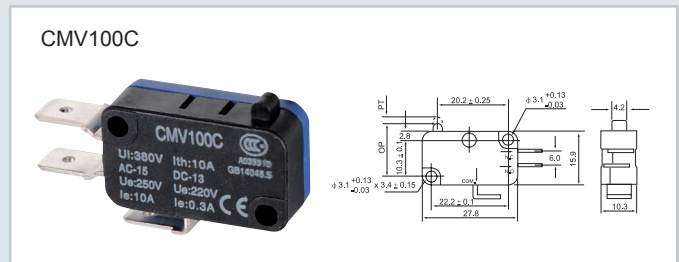
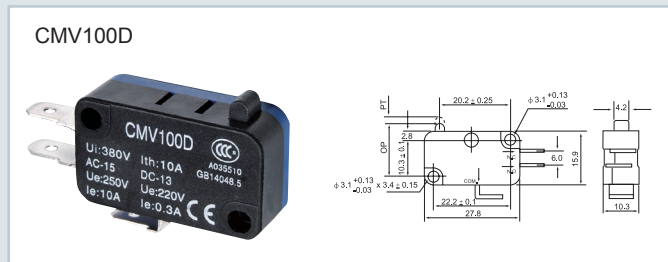


Model Designations



Item	Code	Description
Rated Current	10	10A
	16	16A
	21	21A
Head and driving rod	0	Button type
	1	Long handle type
	2	Short shank type
	3	Long pulley type
	4	Short pulley type
	5	Longer handle type
Terminal specifications	C	250 terminal
	D	187 terminal

Appearance and Dimension



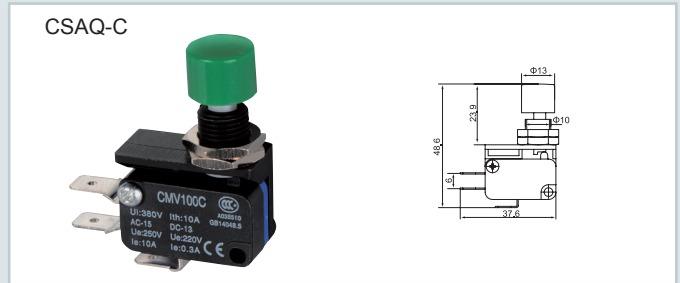
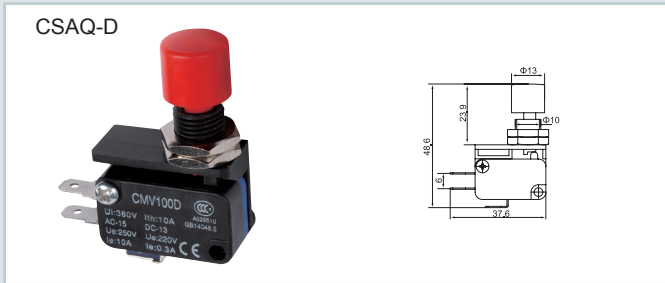
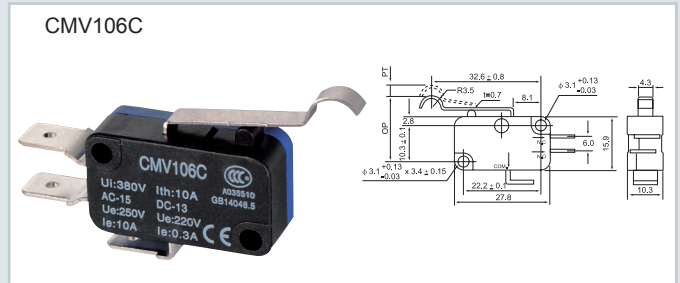
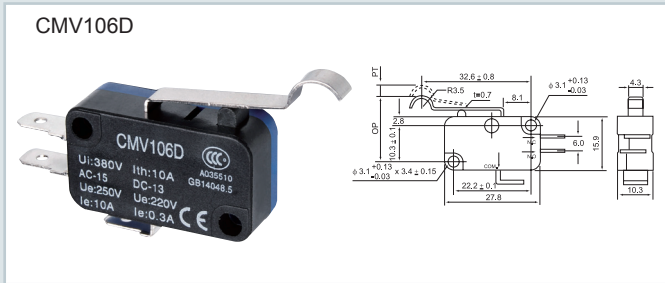
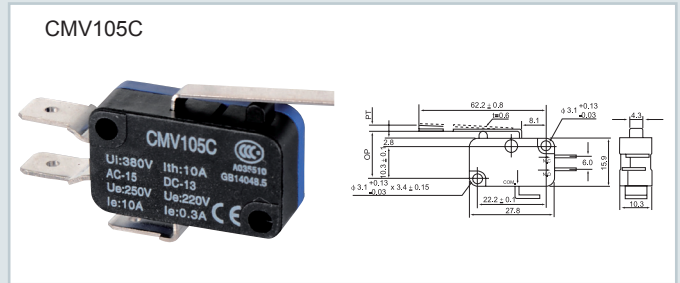
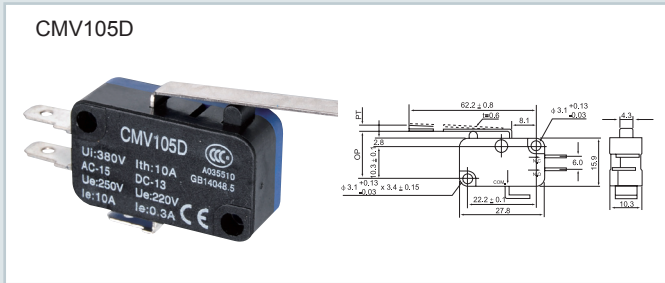
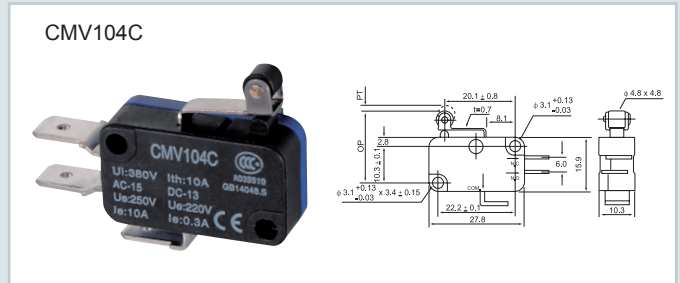
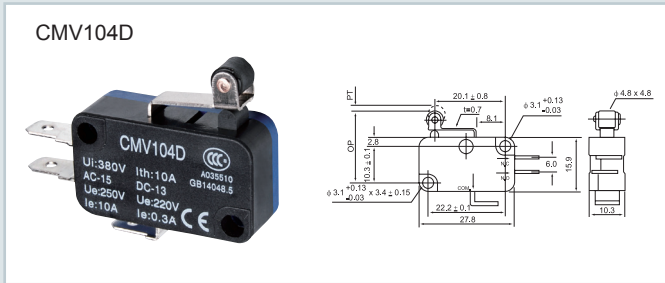
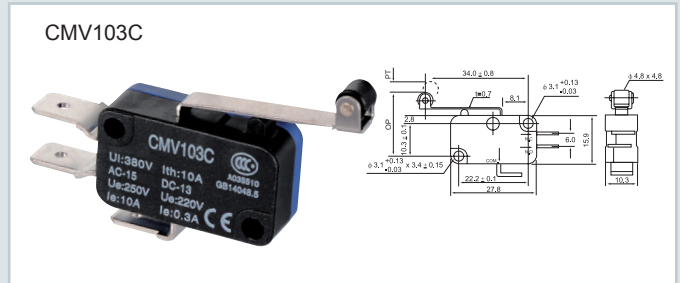
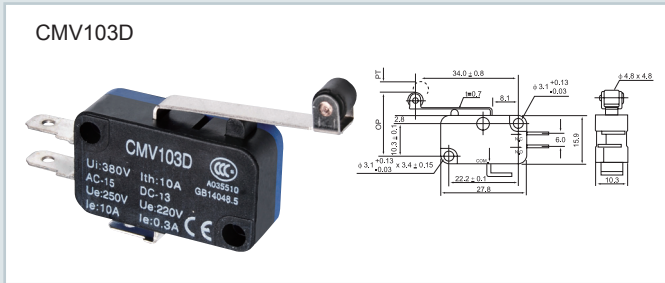
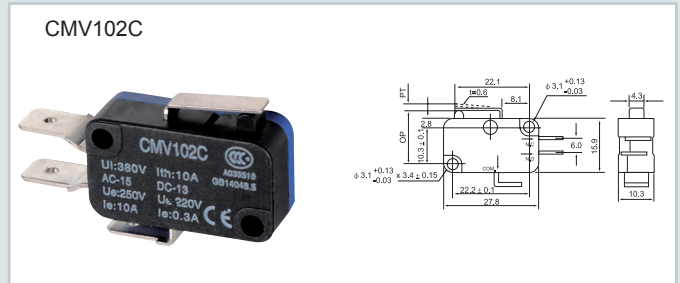
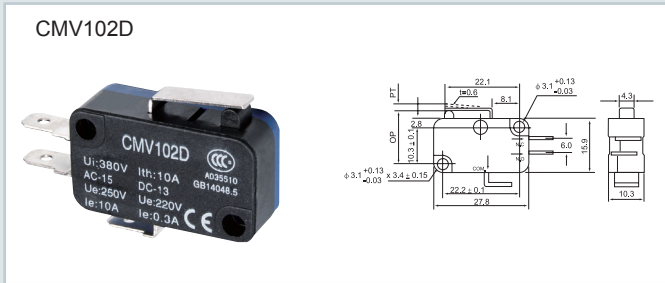
Ratings

Item Spec.	Rated voltage	Noninductive Load (A)				Inductive Load (A)				(A) Inrush Current	
		Resistance Load		Lamp Load		Inductive Load		Motor Load		NC	NO
		NC	NO	NC	NO	NC	NO	NC	NO		
10A	250VAC	10		1.5		6		2		24	max.
	8VDC	10		3		6		3			
	30VDC	6		3		6		3			
	125VDC	0.3		0.1		0.6		0.1			
	250VDC	0.3		0.05		0.3		0.05			
16A	250VAC	16		2		10		3		40	max.
	8VDC	16		4		10		6			
	30VDC	10		4		10		4			
	125VDC	0.6		0.1		0.6		0.1			
	250VDC	0.3		0.05		0.3		0.05			
21A	250VAC	21		3		12		4		50	max.
	8VDC	21		5		12		7			
	30VDC	14		5		12		5			
	125VDC	0.6		0.1		0.6		0.1			
	250VDC	0.3		0.05		0.3		0.05			

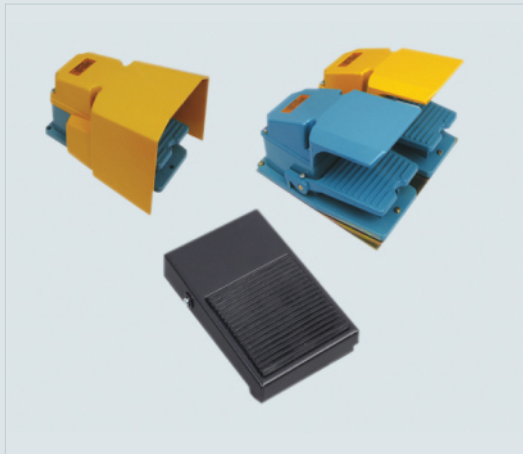
Characteristics

Item	Type	CMV 10	CMV 16	CMV 21
Operation speed		0.1mm~1m/s		
Operating frequency		Mechanical 240 operations/min Electrical 20 operations/min		
Insulation resistance		100mΩ above(at 500VDC)		
Contact resistance		15mm Ω max. (initial value)		
Withstand voltage	Non-continuous terminals	1,000VAC, 50/60Hz		
	current-carrying and non-current-carrying metal parts, Between terminal and earthing	1,500VAC, 50/60Hz	2,000VAC, 50/60Hz	
Vibration		10 to 55Hz, 1.5mm pairs swing		
Shock	Durable	1,000m/S ² (100G)		
	Misoperation	200m/S ² (100G)	300m/S ² (100G)	
Life	Mechanical	1,000,000		
	Electrical	100,000		
Temperature		-10~+65°C		
Humidity		85%RH (+5~+35 °C)		

Appearance and Dimension



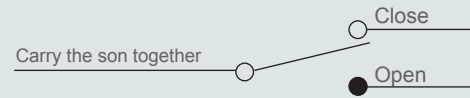
CFS Foot Switch



Features

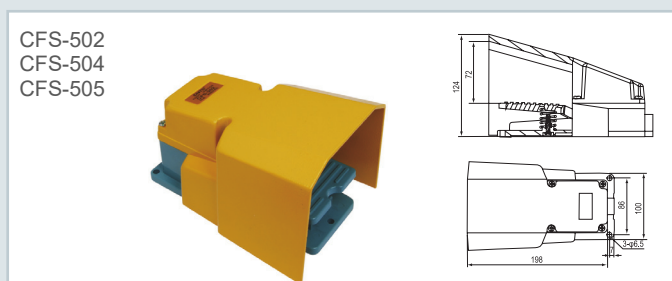
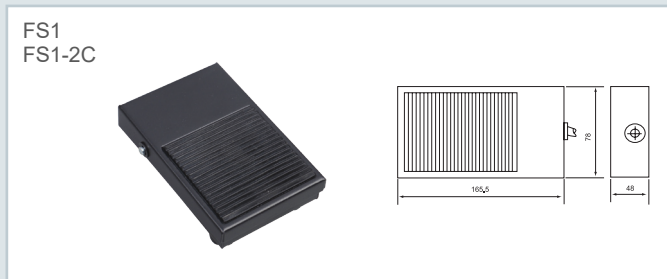
- Metal series shell
- Plastic series shell

Contact Form



Features

Designation	Model	Rating	Type of switch enclosed & contact arrangement	Cable type / length	Contact	Action force	Material of Rind
Mini foot switch Front end push	FS1	10A 250VAC	CMV-100D	0.5mm 2,3C +/-1 meter	1A1B	0.9kg	Iron
	FS1-2C	10A 250VAC	CMV-100D	0.5mm 2,3C +/-2 meters	1A1B	0.9kg	
Protective guard foot switch	CFS-302	15A 250VAC	CM-1704	Accessory: Cable gland (No cable)	1A1B	3.2kg	Aluminum Cast
	CFS-304	15A 250VAC	CM-1704 * 2		2A2B	3.2kg	
	CFS-502	15A 250VAC	CM-1704		1A1B	3.2kg	
	CFS-504	15A 250VAC	CM-1704 * 2		2A2B	3.2kg	
	CFS-602	15A 250VAC	Button spring type		2*1A1B	2.8kg	
	CFS-702	15A 250VAC	CM-1704		2*1A1B	3.2kg	

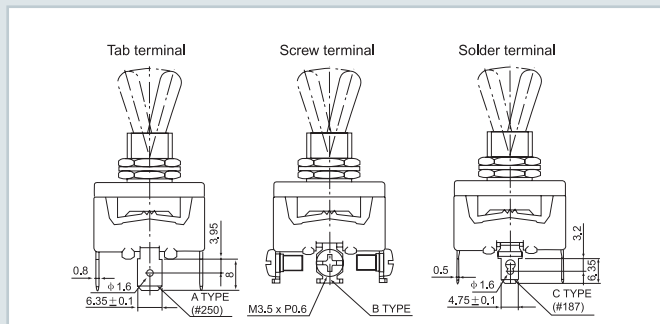


C5 Toggle Switch



Characteristic

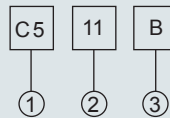
Contact resistance	15MΩ max. (initial)
Insulation resistance	100MΩ above (500VDC) under 500VDC
Dielectric strength	2000VAC, 50/60Hz for 1minute
Vibration	10 55Hz, 1.5mm double amplitude
Ambien temperature	-10℃~+80℃ (With no icing)
Humidity	85% RH max.
Life	Mechanical: 500,000 operations/min. Electrical: 100,000 operations/min.



Features

- The current has 10A and 15A
- Movement way has xed type and auto-return type (both single-throw and double-throw can return)
- The terminal block has screw terminal and solder terminal (tab terminal also can be used)
- Rainproof cap, water-proof and oil-proof, it is suitable for full series products
- Mounting hole: ϕ 12mm

Model Designations



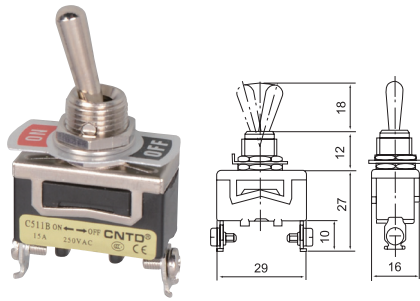
Items	Code	Description
Type	CO	10A 250VAC
	COR	10A 250VAC Spring return
	C5	15A 250VAC
	C5R	15A 250VAC Spring return
Contact	11	Single pole single throw ON-OFF
	12	Single pole double throw ON-ON
	13	Single pole double throw (central OFF)ON-OFF-ON
	131	Single pole double throw (central OFF single return)ON-OFF-ON
	21	Double pole single throw ON-OFF
	22	Double pole double throw ON-ON
	23	Double pole double throw (central OFF)ON-OFF-ON
Terminal	A	ab terminal(#250)
	B	Screw terminal
	C	Solder terminal(#187)
	231	Double pole double throw (central OFF single return)ON-OFF-ON

Ratings

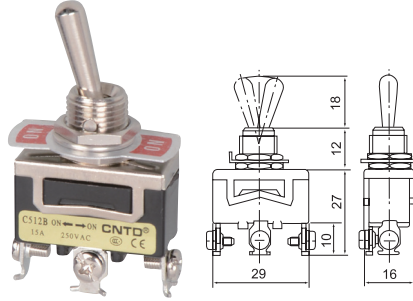
Load	Type	AC Rating	DC Rating
Resistance Load	CO	10A 250V 15A 125V	0.4A 250V 0.8A 125V
	C5	15A 250V 20A 125V	0.5A 250V 0.9A 125V
Inductive Load	CO	10A 250V 15A 250V	0.2A 250V 0.4A 125V
	C5	15A 250V 20A 125V	0.3A 250V 0.5A 125V 15A
Lamp Load	CO	300W 100V 500W 200V	30V
	C5	400W 125V 800W 250V	-
Motor Load	CO	200W 125V 300W 250V	7A 30V
	C5	400W 125V(single phase)	-
	CO	550W 250V(three phase)	-
	C5	750W 250V(three phase)	-

Appearance and Dimension

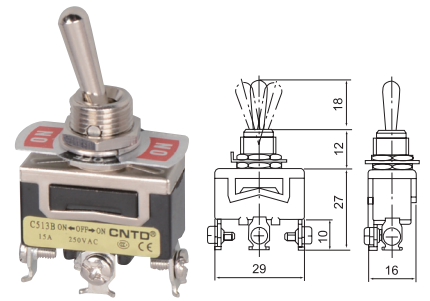
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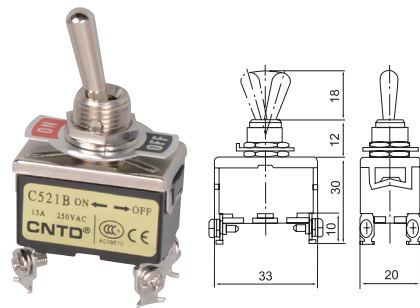
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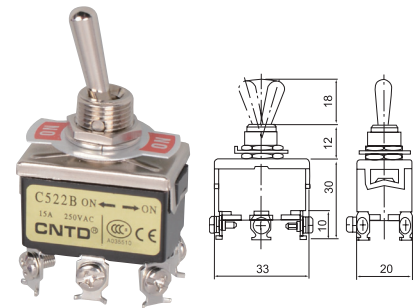
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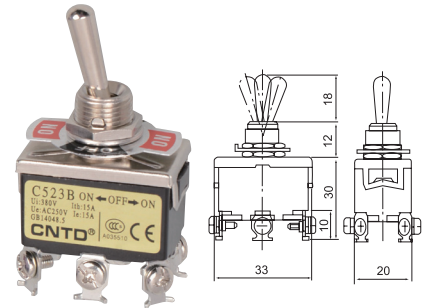
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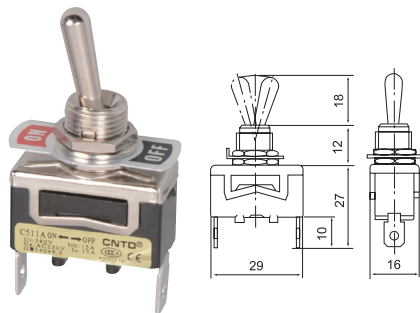
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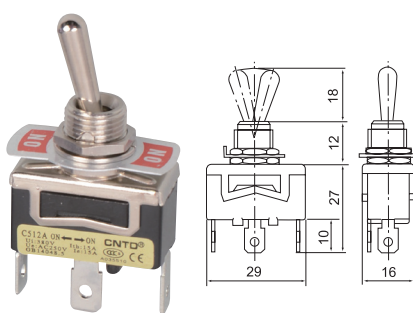
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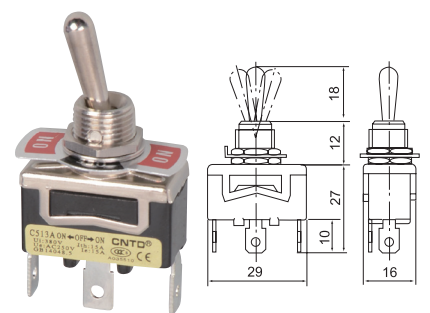
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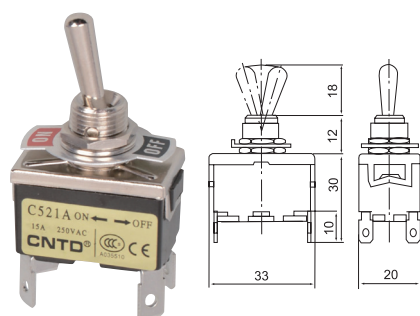
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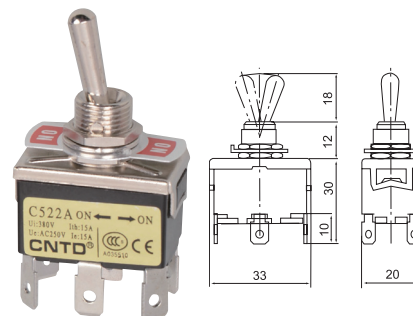
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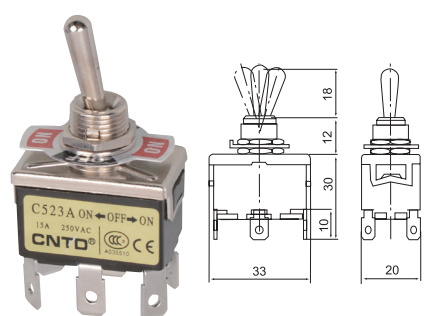
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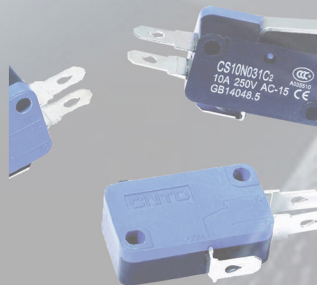
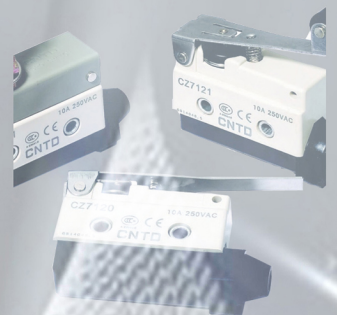
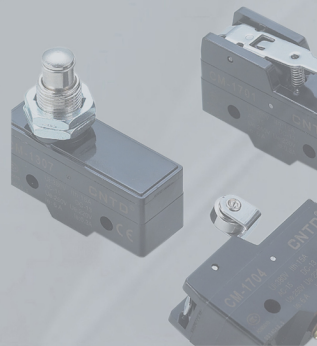
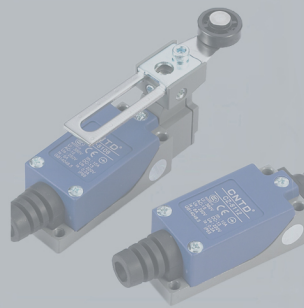


C522A
C5R22A



C523A
C5R23A





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