工控产品专业制造商

Professional Manufacture For Industrial Products

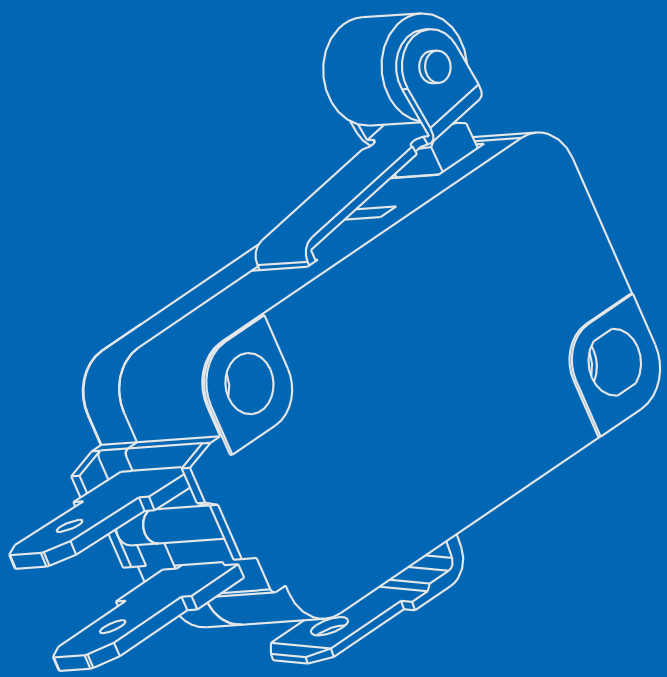
SINCE 2002

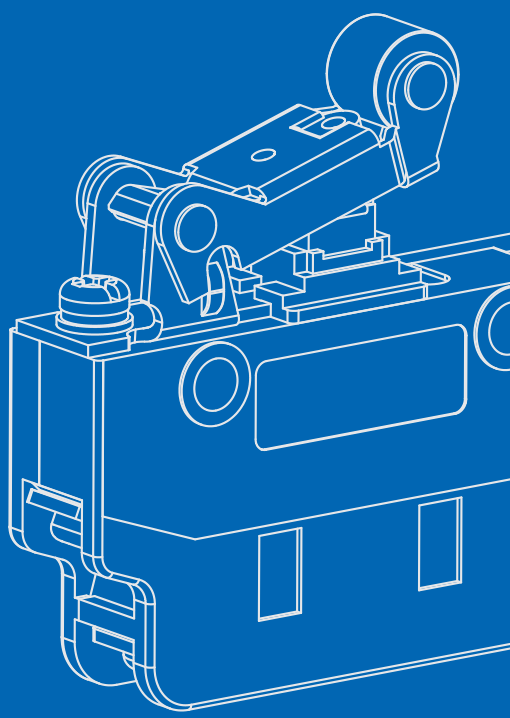
产品选型手册

PRODUCTS CATALOGUE

微动开关系列

Micro Switch Series





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NZ Series Micro Switch

Features

- The breaker capacity reaches 15A,And high repeatability accuracy
- The transmission methods are diverse, and special specifications can be customized according to user requirements.
- The standard models also include series for low-load applications and drip-proof series.
- To protect the terminal parts, various terminal protective covers are provided. Additionally, drip-proof terminal types are available as an option.

(pin-shaped button)

Model Naming

NZ-15 □ □ □ - □ ( )
① ② ③ ④ ⑤

No	Item	Code	Description
①	Contact spacing	H	0.25mm (High sensitivity, for small loads)
		G	0.5mm (Standard)
		F	1mm (High capacity)
		E	1.8mm (High capacity)
②	Drive mode	Unmarked	Pin-type button
		S	Thin button plunger type
		D	Short button plunger type
		Q	Panel mounting plunger type
		Q8	Panel mounting long plunger type
		Q22	Panel mounting roller plunger type
		Q21	Panel mounting cross roller plunger type
		L	Spring piece lever type
		L2	Spring piece roller lever type
		W21	Short lever type
		W	Lever type
		W24	Micro-movement lever type
		W78	Micro-movement steel wire lever type (OF small)
		W52	Micro-movement steel wire lever type (OF big)
		W22	Roller short lever type
		W2	Roller lever type
		W49	Cross roller short lever type
		W54	Cross roller lever type
		W22S	Metal roller short lever type
		W2S	Metal roller lever type
		W25	20 Large roller lever type
		W2277	One-way movement roller lever type
		R	Reverse action lever type
		R21	Directional movements short lever type
		R22	Reverse motion roller short lever type
		R2	Reverse motion roller lever type
		NJ	Spring soft rod type
③	Protective structure	Unmarked	Standard type
		F	Drip-proof liquid type
		AF	Drip-proof liquid type (Including terminal part)
④	Terminal types	B	Cup lip gasket screw terminal
		B3	Anti-slip internal tooth washer screw terminal
		B5	Spring coil screw terminal
⑤	Special Code	Unmarked	Standard (Regular)
		T	Custom-made (according to customer requirements)

Rated value

Contact spacing	Rated Voltage	Non-inductive load				Inductive load			
		Resistance load		Lighting load		Inductive load		Motor load	
		NC	NO	NC	NO	NC	NO	NC	NO
G ,H , F , E	AC 125V	15(10)A*		3A	1.5A	15(10)A*		5A	2.5A
	AC 250V	15(10)A*		2.5A	1.25A	15(10)A*		3A	1.5A
	AC 480V	10A		1.5A	0.75A	6A		15A	0.75A
G	DC 8V	15A		3A	1.5A	15A		5A	2.5A
	DC 14V	15A		3A	1.5A	10A		5A	2.5A
	DC 30V	6A		3A	1.5A	5A		5A	2.5A
	DC 125V	0.5A		0.5A	0.5A	0.05A		0.05A	0.05A
	DC 250V	0.25A		0.25A	0.25A	0.03A		0.03A	0.03A
H	DC 8V	15A		3A	1.5A	15A		5A	2.5A
	DC 14V	15A		3A	1.5A	10A		5A	2.5A
	DC 30V	2A		2A	1.4A	1A		1A	1A
	DC 125V	0.4A		0.4A	0.4A	0.03A		0.03A	0.03A
	DC 250V	0.2A		0.2A	0.2A	0.02A		0.02A	0.02A
E	DC 8V	15A		3A	1.5A	15A		5A	2.5A
	DC 14V	15A		3A	1.5A	15A		5A	2.5A
	DC 30V	15A		3A	1.5A	10A		5A	2.5A
	DC 125V	0.75A		0.75A	0.75A	0.04A		0.04A	0.04A
	DC 250V	0.3A		0.3A	0.3A	0.02A		0.02A	0.02A

* The values in ( ) are the rated values for NZ-15HW52, NZ-15HW78, and NZ-H2

.Note :

1. The values in the table above are the current constants for a standard contact spacing of 1 mm (Fap). For contact spacing of 0.5 mm (G Gap), the specifications are different, please note.
2. Inductive load refers to a load with a power factor of 0.4 (AC) and a time constant of less than 7ms (DC).
3. Light load refers to a load with an inrush current ten times its rated current.
4. Motor load refers to a load with an inrush current six times its rated operating current.
5. The above ratings apply to locations meeting the following operating conditions.
   Ambient temperature : 20 ± 2°C
   Ambient humidity : 65 ± 5% RH
   Operating frequency : 20 times/min

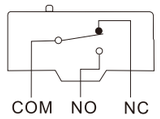
Performance

Item \ Classify			General type	Spring flexible rod type
Permissible operating speed			0.1 mm ~ 1 m/s (pin button type)	1 mm ~ 1 m/s
Permissible switching frequency		Mechanical property	240 c/min	120 c/min
		Electrical property	20 c/min	
Insulation resistance			100 mΩ (500V DC megohmmeter)	
Contact resistance (initial value)			Max. 15 mΩ	
Withstand breakdown voltage			Between terminals of the same potential : Contact GapG AC1000V 50/60 Hz 1 minute Contact GapH AC600V 50/60 Hz 1 minute Contact GapF,E AC1500V 50/60 Hz 1 minute	Between terminals of the same potential : Contact GapG AC1000V 50/60 Hz 1 minute Contact GapH AC600V 50/60 Hz 1 minute
			Withstand voltage: AC2000V, 50/60 Hz 1 minute, applied between non-live metal components and all terminals, as well as between the earth terminal and all circuit terminals.	
Vibration Resistance (Pin Button Type)		Maloperation	Double amplitude: 1.5 mm, 10 to 55 Hz(Contact separation time: less than 1 ms)	
Shock Endurance Type		Needle-type pushbutton	Max. 300 m/s(false actuation less than 1 ms)	
		Other Types	Max. 50 m/s(false actuation less than 1 ms)	
Life	Mechanical Life	Needle-type pushbutton	Over 20 million cycles (Switching frequency: 60 cycles per minute) (with specified Over Travel OT)	Over 1 million cycles (switching frequency: 60 cycles per minute) (specified Over Travel OT)
		Other Types	Over 5 million cycles (switching frequency: 60 cycles per minute) (specified Over Travel OT)	
	Electrical Life (Resistive Load)		Contact Gap G, H: Over 300,000 cycles (Switching frequency: 20 cycles per minute) Contact Gap F: Over 100,000 cycles (Switching frequency: 20 cycles per minute) Contact Gap E: Over 100,000 cycles (Switching frequency: 20 cycles per minute)	Over 100,000 cycles (Switching frequency: 20 cycles per minute)
Operating Ambient Temperature and Humidity			-20°C to +80°C (No icing or condensation permitted);relative humidity ≤85%RH (at approx. +5°C to +35°C)	
Weight			Approx. 22~58 g	Approx. 42~48 g

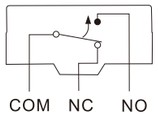
Note: If the switch is operated at low speed, high speed, under impact conditions, or used in high-temperature and high-humidity environments, its service life and performance may decrease significantly depending on the load. Please contact us for details.

Contact type

1.Switching-type () standard

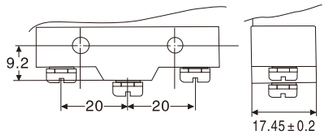


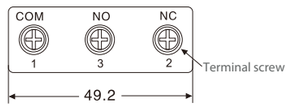
2.Reverse-action type



Terminal type

Screw Terminal with Serrated Lock Washer(-B 3)





Cup Washer Type

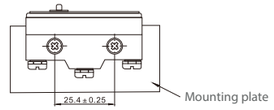
Spring Washer Type

For the cup washer type, the model suffix is (-B), while for the spring washer type, it is (-B5).

Precautions for Use

1.Fixing and Installation of Switch Main Body

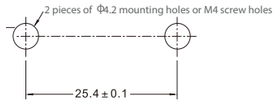
◎ When installing with side bolts



◎ Installation Method for Mounting Holes:

○ When installing with M4 screws, secure the unit using flat washers , spring washers , etc . The recommended tightening torque is approximately 12–15 kgf.m(1.18~1.47N.m)

Machining Dimensions of Mounting Holes:

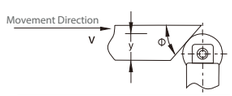


○ The tightening torque for wires installed on screw terminals shall be 8~12 kgf.cm (0.78~1.18 N.m).

◎ Regarding the fixed mounting method for the panel mount type (HZ-15 □Q □): When installing the mounting panel, the tightening torque of the hexagonal nut for the drive shaft shall be approximately 7.84 N.m.

◎ The operating angle of roller-type stoppers shall be limited to within 30°C .Operating with stoppers exceeding 30°C will lead to premature wear and damage of the switch.

○ Setting of Stopper Angle



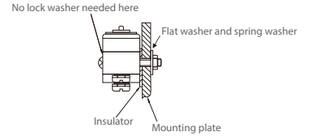
ϕ	Vmax(m/s)	Y
30°	0.25	0.6~0.8(TT)
20°	0.5	0.5~0.7(TT)

○ When fixing the panel-mounted pin type with side mounting holes, try not to hit it hard.Especially when resetting,any impact can damage the switch, so be careful.

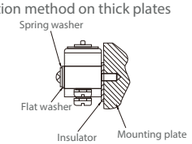
○ For panel-mounted types, moving too fast or too much after an operation can break the switch, so be mindful during installation.

○ If using the panel-mounted plug type with side mounting holes, make sure to remove the hex nut from the drive shaft part.

○ Installation method on thin plates

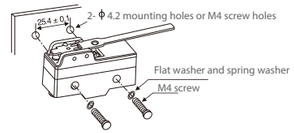


○ Installation method on thick plates



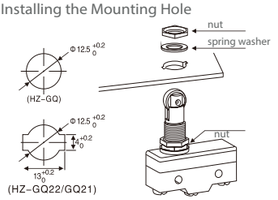
2.About Installation Settings

○ Installing the Mounting Hole



When installing, tighten the M4 screws with a torque of 1.18~1.47N.m

○ Installing the Mounting Hole



When installing on the panel, tighten the hex nut with a torque of 7.84 N.m

◎ To prevent bolts from loosening, it is recommended to use a spring washer o r adhesive to secure them.

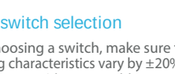
◎ Make sure there is enough insulation distance between each terminal and th e ground when installing.

◎ Ensure that moving parts do not direct ly press on the plug or operating end when in a free state. The plug should onl y be under vertical pressure.

◎ If it is a lever type, avoid applying too much force in the reverse or sideways direction.

3.About wiring work

◎ Use round or U-shaped crimp terminals,and fasten with a torque of 0.78~1.18 N.m or less.



4. About switch selection

◎ When choosing a switch, make sure that even if the operating characteristics vary by ±20% of the specified value, there wont be any problems.

5. About the Usage Environment

◎ Do not use it in places directly exposed to various organic solvents, strong acids, strong bases, strongly alkaline liquids, or areas with vapor, or in environments with flammable or corrosive gases.

◎ Use it within a surrounding temperature range of -25°C to 80°C. (But make sure to avoid condensation or freezing)

◎ To improve reliability during actual use, try to confirm quality requirements under the actual usage conditions.

◎ Do not use it in air that contains silicon. (For example, when there is silicone-based rubber, adhesives, sealants, oil, lubricants, or wires that may become silicized)

◎ Avoid using it in dusty environments, as this can interfere with the operation of the actuator.

◎ Avoid outdoor use (such as in multi-story parking lots, places with prolonged sunlight exposure, or locations where it could get wet) or environments where ozone is generated;these can cause rubber material deterioration.

6. Usage Notes

◎ When switching inductive loads (like relays, solenoid valves, buzzers, etc.), to avoid contact failure caused by arcing, it's recommended to insert a suitable arc suppression circuit.

7. Actual Load Verification

◎ To improve reliability during actual use, please check the quality under real operating conditions.

8. About Using Terminal Covers

◎ These are used to protect the switch housing and terminal connections, preventing dust buildup that could cause short circuits between terminals, grounding issues, or wire vibrations that could lead to breaks, poor contact, or electric shocks.

■ Picture Display

NZ-15GW22-B3
Roller short lever type

NZ-15GW2277-B3
Single-direction action roller lever type

NZ-15GW2-B3
Roller lever type

NZ-15GW25-B3
ϕ20 large roller lever type

NZ-15HW52-B3
Micro-action wire lever type (63.5 wire)

NZ-15HW78-B3
Micro-action wire lever type (110 wire)

NZ-15HW24-B3
Micro-stroke lever type

NZ-15G-B3
Pin plunger type

NZ-15GD-B3
Short plunger type

NZ-15GQ-B3
Panel mount plunger type

NZ-15GQ22-B3
Panel mount roller plunger type

NZ-15GQ21-B3
Panel mount cross roller plunger type

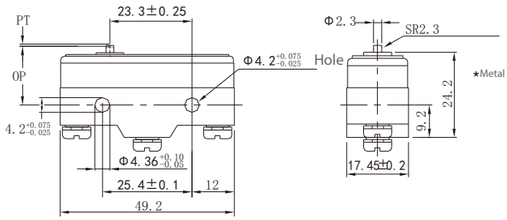
NZ-15GW21-B3
Short lever type

NZ-15GW-B3
Lever type

NZ-15GQ8-B3
Panel mount long plunger type

■ Physical dimensions(unit :mm)

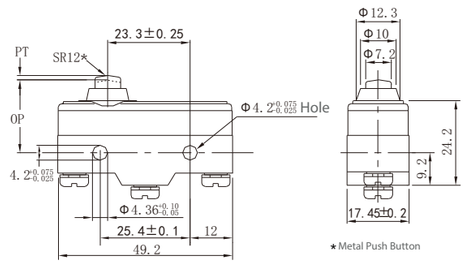
NZ-15G-B3



◆Operating Characteristics

Item	Characteristic
Max Operating Force	2. 45~7N
Minimum Return Force	1. 12N
Maximum Pre-travel	0. 6mm
Max Differential Travel	0. 2mm
Minimum Over-travel	0. 13mm
Operating Position	15. 9±0. 4mm

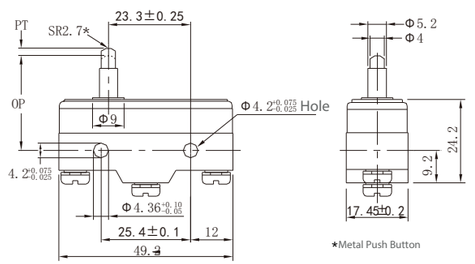
NZ-15GD-B3



◆Operating Characteristics

Item	Characteristic
Max Operating Force	2. 45~7N
Minimum Return Force	1. 12N
Maximum Pre-travel	1. 0mm
Max Differential Travel	0. 2mm
Minimum Over-travel	1. 6mm
Operating Position	21. 5±0. 5mm

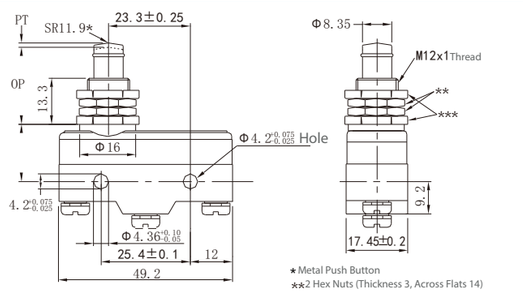
NZ-15GS-B3



◆Operating Characteristics

Item	Characteristic
Max Operating Force	2. 45~7N
Minimum Return Force	1. 12N
Maximum Pre-travel	1. 0mm
Max Differential Travel	0. 2mm
Minimum Over-travel	1. 6mm
Operating Position	28. 2±0. 5mm

NZ-15GQ -B3



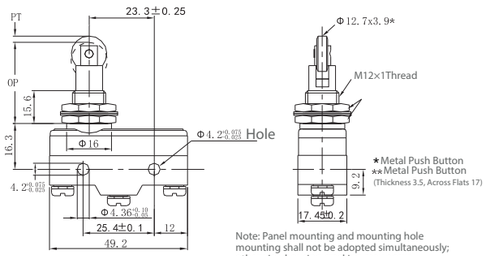
★Metal Push Button
**2 Hex Nuts (Thickness 3, Across Flats 14)
***2 Hex Lock Nuts (Thickness 2, Across Flats 15.6)

◆Operating Characteristics

Item	Characteristic
Max Operating Force	2. 45~7N
Minimum Return Force	1. 12N
Maximum Pre-travel	1. 0mm
Max Differential Travel	0. 2mm
Minimum Over-travel	5. 5mm
Operating Position	21. 8±0. 8mm

Note: Panel mounting and mounting hole mounting shall not be adopted simultaneously;otherwise, housing cracking may occur.

NZ-15GQ22-B3

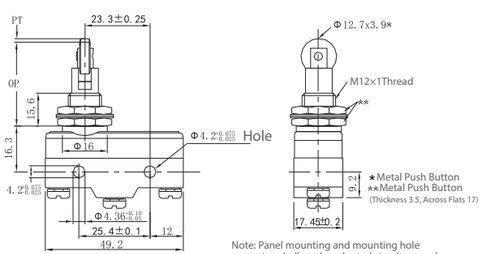


Note: Panel mounting and mounting hole mounting shall not be adopted simultaneously; otherwise, housing cracking may occur.

◆Operating Characteristics

Item	Characteristic
Max Operating Force	2.45~7N
Minimum Return Force	1.12N
Maximum Pre-travel	1.0mm
Max Differential Travel	0.2mm
Minimum Over-travel	3.6mm
Operating Position	33.4±1.2mm

NZ-15GQ21-B3

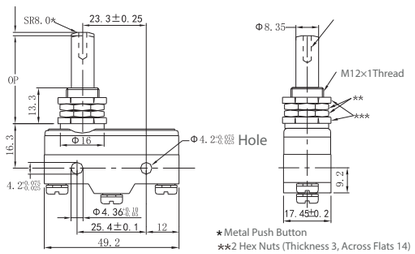


Note: Panel mounting and mounting hole mounting shall not be adopted simultaneously; otherwise, housing cracking may occur.

◆Operating Characteristics

Item	Characteristic
Max Operating Force	2.45~7N
Minimum Return Force	1.12N
Maximum Pre-travel	1.0mm
Max Differential Travel	0.2mm
Minimum Over-travel	3.6mm
Operating Position	33.4±1.2mm

NZ-15GQ8-B3

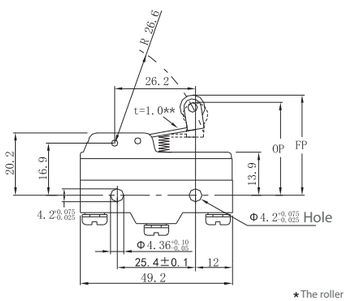


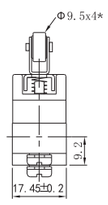
★Metal Push Button
★★2 Hex Nuts (Thickness 3, Across Flats 14)
★★★2 Hex Lock Nuts (Thickness 2, Across Flats 15.6)

◆Operating Characteristics

Item	Characteristic
Max Operating Force	2.45~7N
Minimum Return Force	1.12N
Maximum Pre-travel	1.0mm
Max Differential Travel	0.2mm
Minimum Over-travel	5.5mm
Operating Position	32.5±1.2mm

NZ-15GW22S-B3





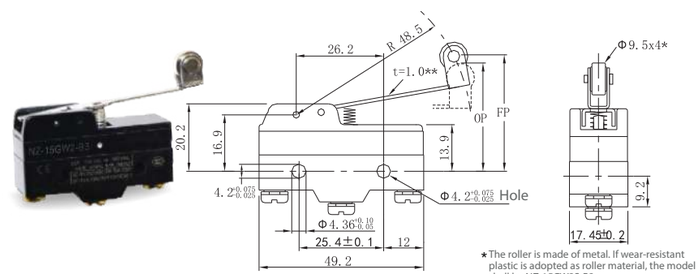
◆Operating Characteristics

Item	Characteristic
Max Operating Force	1.94N
Minimum Return Force	0.41N
Maximum Pre-travel	32.5mm
Max Differential Travel	1.2mm
Minimum Over-travel	2.4mm
Operating Position	30.2±0.8mm

★The roller is made of metal. If wear-resistant plastic is adopted as roller material, the model shall be NZ-15GW22-B3.

★★Stainless Steel Lever

NZ-15GW2S-B3

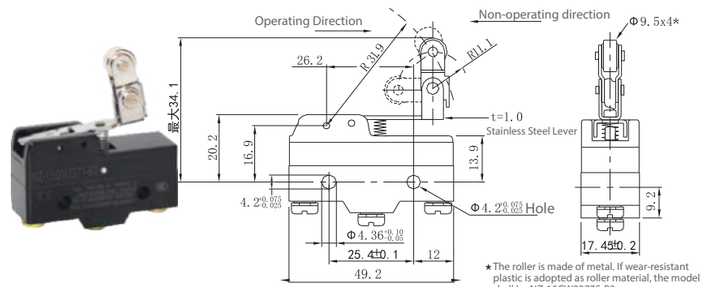


★The roller is made of metal. If wear-resistant plastic is adopted as roller material, the model shall be NZ-15GW2S-B3.

◆Operating Characteristics

Item	Characteristic
Max Operating Force	1.42N
Minimum Return Force	0.21N
Maximum Pre-travel	36.5mm
Max Differential Travel	3.0mm
Minimum Over-travel	4.0mm
Operating Position	30.2±1.2mm

NZ-15GW2277S-B3



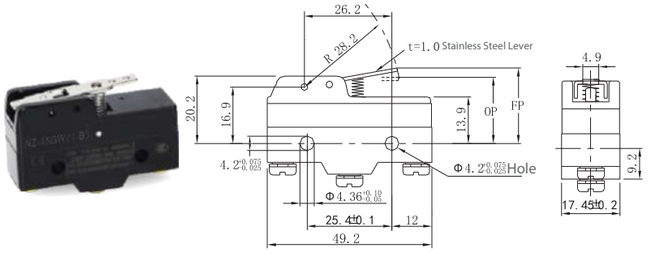
★The roller is made of metal. If wear-resistant plastic is adopted as roller material, the model shall be NZ-15GW2277S-B3.

★★Stainless Steel Lever

◆Operating Characteristics

Item	Characteristic
Max Operating Force	1.94N
Minimum Return Force	0.41N
Maximum Pre-travel	43.6mm
Max Differential Travel	1.2mm
Minimum Over-travel	2.4mm
Operating Position	41.3±0.8mm

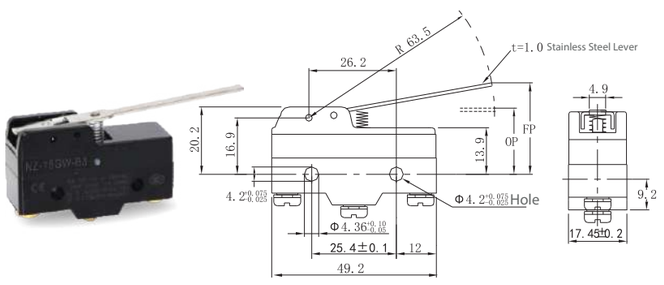
NZ-15GW21-B3



◆Operating Characteristics

Item	Characteristic
Max Operating Force	2.45N
Minimum Return Force	0.27N
Maximum Pre-travel	24.8mm
Max Differential Travel	1.7mm
Minimum Over-travel	2.0mm
Operating Position	19±0.8mm

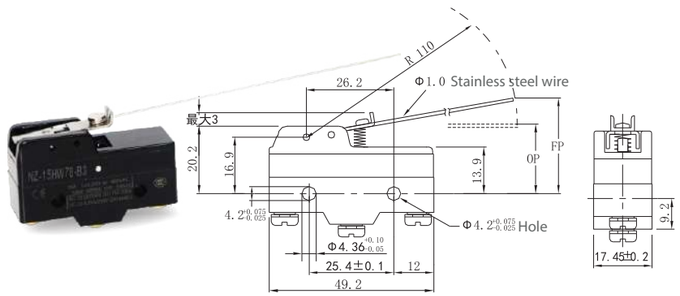
NZ-15GW-B3



◆Operating Characteristics

Item	Characteristic
Max Operating Force	1.08N
Minimum Return Force	0.14N
Maximum Pre-travel	28.2mm
Max Differential Travel	4.0mm
Minimum Over-travel	5.6mm
Operating Position	19±1.2mm

NZ-15HW78-B3

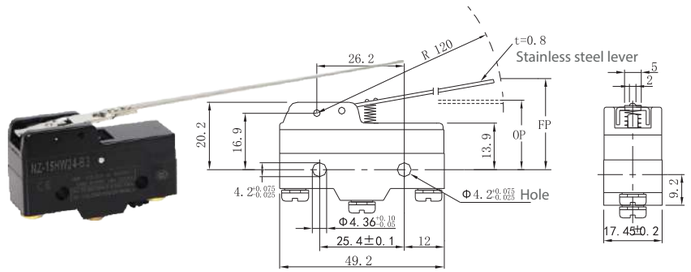


◆ Operating Characteristics

Item	Characteristic
Max Operating Force	0.1N
Minimum Return Force	0.003N
Maximum Pre-travel	30.0mm
Max Differential Travel	6mm
Minimum Over-travel	6.6mm
Operating Position	20±1.6mm

Note: AC electrical rating: 10A, 125/250 VAC

NZ-15HW24-B3



◆ Operating Characteristics

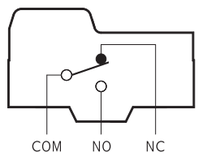
Item	Characteristic
Max Operating Force	0.12N
Minimum Return Force	0.005N
Maximum Pre-travel	39.6mm
Max Differential Travel	5.0mm
Minimum Over-travel	10.0mm
Operating Position	19.8±1.6mm

Note: AC electrical rating: 10A, 125/250 VAC

Terminal Protective Cover BF1

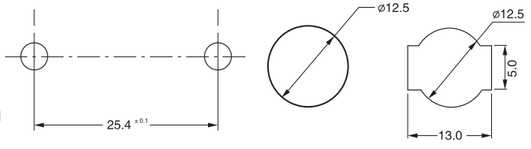
Terminal Protective Cover BF1

Circuit Diagram



COM:Common Terminal
NO:NO Terminal
NC:NC Terminal

Mounting Hole Machining Drawing



Category	Terminology	Abbre-viation	Description
Strength	Force required for action	OF	The external force applied to the drive shaft from the free position (FP) to the operating position (OP).
	Force required for action	RF	The external force applied to the drive shaft from the travel limit position (TTP) to the reset position (RP).
	Force required for the whole action	TF	The external force applied to the drive shaft from the operating position (OP) to the travel limit position (TTP).
Kinetic energy	Pre-action movement	PT	The external force applied to the drive shaft from the travel limit position (TTP) to the reset position (RP).
	Post-action movement	OT	The distance or angle moved from the operating position (OP) to the travel limit position (TTP).
	Distance between action and reset	MD	The distance or angle moved from the operating position (OP) back to the reset position (RP).
	Overall movement	TT	The distance or angle moved from the free position (FP) to the travel limit position (TTP).
Location	Free position	FP	The position of the handle or button when no external force is applied.
	Action position	OP	The position of the handle or button from the start of applying external force to the point where the switch contact operates (makes contact).
	Reset position	RP	The position of the handle or button when reducing the applied force from the contact operation (OP) state to the free position (FP) state.
	Action limit position	TTP	The maximum movement position of the handle or button possible without damage.

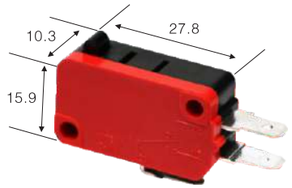
■ Main fault occurrences, suspected causes, and their solutions

	Faulty part	Malfunction	Guess the reason	measure
Poor electrical char acteristics	Contact part	Poor contact	Covered with dust or other particles	Eliminate the cause, or put it in a box or use a sealed switch.
			Soaked in oil or water	
			Chemical film forms on the contact surface due to harmful surrounding gases	Switch to a switch with contact materials that have good environmental resistance (like gold, alloys, etc.).
			Chemical film forms on the contact surface from switching under low load conditions	
			Soaked in flux	Improve the soldering method to prevent flux from entering the switch.
		Wrong operation	Contacts come apart due to vibration or impact	Use a switch with higher contact force (usually a heavier OF switch).
		Melting	Contact switching capacity to not match and leading to overload	Use a higher capacity switch, or add a contact protection circuit.
		Insulation break down	Caused by arcing, contacts scatter.	Use a higher capacity switch.
			Affected by high temperatures, rapid changes in environ-mental temperature, or large amounts of water getting in.	Eliminate the cause. Or put it in a box or use a sealed switch.
			After being soaked in oil, carbonization of the oil occurs due to arc heat.	
Poor electrical char acteristics	Drive shaft part	Poor performance	The drive shaft has been subjected to excessive external force, causing wear on the sliding parts.	Eliminate the cause. Or use a strong auxiliary drive shaft, etc.
			Foreign substances like dust and oil have gotten in.	Eliminate the cause. Or put it in the box.
			The operating component is too heavy and cant return.	Switch to a heavier OF switch.
			The switch is loosely installed and cant operate at the designated position.	Improve the switch knob force.
		Short lifespan	The shape of the pawl or cam is inappropriate, and the operating method is improper.	Redesign the pawl and cam and review related issues like OT and operating speed.
		Breakage	Impact loads like hitting have been added.	Eliminate the cause, or replace with a high-strength switch.
			Poor riveting and bad pints in the riveted parts.	Replace the switch.
	Installation Part	Breakage	Torque is too high.	Check the switch torque.
			Installation spacing is different.	Adjust the spacing.
			The mounting surface is not flat.	Make the mounting surface flat.
	Terminal part	Breakage	External force is applied when connecting wires.	Eliminate the cause.
			The heat from the flux causes the plastic material to deform.	Use a low-power soldering iron(please refer to the (proper usage guide)for each model)

NV Series Micro Switch

Features

- With a wide and complete range of varieties, it is the company is best-selling small switch.
- It is versatile and fully meets your selection needs, and we can customize special switches according to your requirements.



(Pushbutton Type)

Model Naming

NV- □□□ - □□□ - □
① ② ③ ④ ⑤ ⑥ ⑦

No	Item	Code	Description
①	Rated Operating Current	21	AC250V 20(4)A
		16	AC250V 16(3)A
		11	AC250V 11(3)A
		6	AC250V 6(2)A
②	Contact Spacing	Unmarked	1mm (FGap)
		G	0.5mm (GGAP)
③	Transmission	Unmarked	Button type
		1	Short lever type
		2	Lever type
		3	Long lever type
		4	R-shaped lever type
		5	Roller short lever type
		Type6	Roller lever type
		5S	Metal roller short lever type
		6S	Metal roller lever type
		X	Custom lever type (see customer file for details)
④	Contact Types	1	Switching Type (SPDT)
		2	Normally Closed (SPST-NC)
		3	Normally Open (SPST-NO)
⑤	Terminal Specifications	A	Solder/Plug Shared # 4.8 Terminal
		C2	Plug # 4.8 Terminal (Imperial # 187)
		C	Plug # 6.3 Terminal (Imperial # 250)
		B	Screw-Fixed Terminal
		E	Solder Terminal
⑥	Maximum operating pressure required OF(All values are for button type)	6	3.92N (400gf)
		5	1.96N (200gf)
		4	0.98N (100gf)
		3	0.49N (50gf)
⑦	Special Codes	Unmarked	Standard (Regular)
		H	High Temperature Resistant (125°C)
		T	Special Custom (See Customer Requirements)

Usable combination

	Model	NV-21	NV-16				NV-211					NV-6			
	Rated Value	21A	16A				11A					6A			
	Value Max OF	3.92N (400gf)	3.92N (400gf)	1.96N (200gf)		0.98N (100gf)	1.96N (200gf)		0.98N (100gf)		0.49N (50gf)	1.96N (200gf)		0.98N (100gf)	0.49N (50gf)
Category	Contact Spacing / Terminals	G	F	F	G	F/G	F	G	F	G	G	F/G	F	G	G
Standard (85°C)	C2 plug # 4.8 terminal		○	●	○	○									
	C plug # 6.3 terminal	●	○	●	○	○									
	B screw-fixed terminal		○	●	○	○									
	E solder terminal		○	●	○	○									
Standard (105°C)	C2 plug # 4.8 terminal		○	●	○	○	●	○	●	○	○	○	●	○	●
	C plug # 6.3 terminal		○	●	○	○	●	○	●	○	○	○	●	○	●
	B screw-fixed terminal		○	●	○	○	●	○	●	○	○	○	●	○	●
	E solder terminal		○	●	○	○	●	○	●	○	○	○	●	○	●
High temperature (125°C)	C2 plug # 4.8 terminal						○	○	○	○	○	○	○	○	○
	C plug # 6.3 terminal						○	○	○	○	○	○	○	○	○
	B screw-fixed terminal						○	○	○	○	○	○	○	○	○
	E solder terminal						○	○	○	○	○	○	○	○	○

Note: 1. ● Standard, ○ Optional;2. For standards of special models, please contact our company.

Rated value

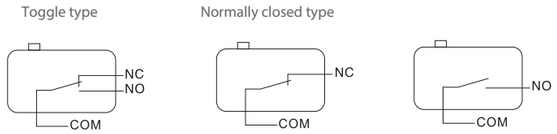
Model	Rated Voltage	Non-inductive load				Inductive load			
		Resistance load		Lighting load		Inductive load		Motor load	
		NC	NO	NC	NO	NC	NO	NC	NO
NV-21	250VDC	21A		3A		12A		4A	
	8VCD	21A		5A		12A		7A	
	30VCD	14A		5A		12A		5A	
	125VCD	0.6A		0.1A		0.6A		0.1A	
	250VCD	0.3A		0.05A		0.3A		0.05A	
NV-16	250VDC	16A		2A		10A		3A	
	8VCD	16A		4A		10A		6A	
	30VCD	10A		4A		10A		4A	
	125VCD	0.6A		0.1A		0.6A		0.1A	
	250VCD	0.3A		0.05A		0.3A		0.05A	
NV-11	250VDC	11A		1.5A		6A		2A	
	8VCD	11A		3A		6A		3A	
	30VCD	6A		3A		6A		3A	
	125VCD	0.6A		0.1A		0.6A		0.1A	
	250VCD	0.3A		0.05A		0.3A		0.05A	
NV-6	250VDC	9A		3A		4A		--	
	8VCD	6A		3A		4A			
	30VCD	6A		3A		4A			
	125VCD	0.4A		0.1A		0.4A			
	250VCD	0.3A		0.05A		0.2A			

Note: 1.The values in the above table are for standard specifications with a contact gap of 1mm (FGap). For a contact gap of 0.5mm (FGap), the specifications are different, so please pay attention.
2. An inductive load refers to a load with a power factor of 0.4 (AC) or a time constant of less than 7ms (DC).
3. A lamp load refers to a load with inrush current 6 times the normal current.
4. A motor load refers to a load with inrush current 6 times the normal current.
5. The rated values above are for use under the following conditions: Ambient temperature: 20±2°C ;Ambient humidity: 65±5% RH ;Operating frequency: 30 cycles/min

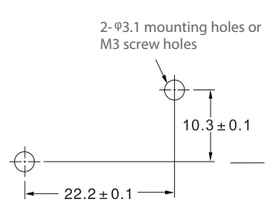
Performance

Allowed operating speed	0.1mm~1m/s () Button type
Allowed operating frequency	Mechanical: up to 600 times/min ; Electrical: up to 30 times/min
Insulation resistance	100MΩ (DC 500V Megohmmeter)
Contact resistance (initial value)	NV-21: Maximum 50mΩ ; NV-16, NV-11, NV-6 : Maximum 30mΩ
Withstand voltage	1,000VAC, 50/60Hz for 1 minute between terminals of the same level
	Between live metal parts and ground, and between each terminal and non-live metal parts: 2,000 VAC, 50/60 Hz for 1 minute
Vibration	Malfunction: 10~55Hz, double amplitude 1.5mm
Shock	Durability: up to 400 m/s (about 40G) ; Malfunction: up to 100 m/s2 (about 10G)
Lifespan	Mechanical: Over 5 million times ;Electrical: NV-21: over 30,000 times;NV-16: over 50,000 times ; NV-11: over 200,000 times;NV-6: over 300,000 times
Protection rating	IEC IP40
Electric shock protection level	Class I
PTI (leakage characteristics)	250
Operating ambient temperature	NV-21: -25℃ ~85℃ (does not freeze)NV-16, NV-11, NV-6: -25 ℃~105 ℃ (does not freeze)
Operating ambient humidity	Below 85% RH (at 5 ℃ ~35℃)
Weight	About 6.2g (button type)

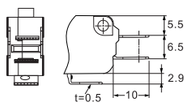
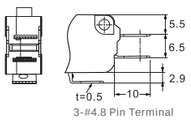
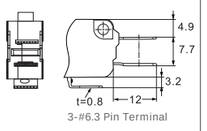
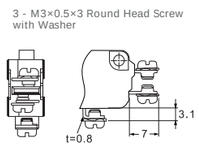
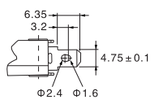
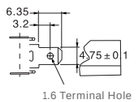
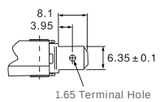
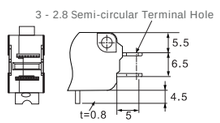
Form of contact



Mounting hole processing(mm)



Types and Specifications of Terminals

Terminal types	#4.8 Welding/Pin Shared Terminal	#4.8 Pin Terminal	#6.3 Pin Terminal	Screw terminal
Lower terminal				
Terminal part size				

Things to pay attention to while using

1.Fixing and Installation of Switch Main Body

1.About fixing the switch
1) When fixing the main body of the switch, please use M3 screws to install it on a smooth surface with a torque of 0.39~0.59Nm (4~6kgfcm). Also, to prevent loosening, it is recommended to use both flat washers and spring washers.
2) When installing panel-type (NVAQ), tighten the hex nut with a torque of 1.18~2.94Nm (12~30kgfcm).
3) When installing the external lever type (NVAL2, NVAL3, NVAL3/2), first remove the two nuts on the back of the switch before fixing it. When installing, make sure to adjust the operating position of the switch before tightening.

2. About insulation distance
According to the EN61058-1 standard, the minimum insulation layer thickness for this switch should be 1.1mm, and the minimum spacing between terminals and the mounting plate should be 1.9mm. If the required insulation distance for the components can not be guaranteed, please use an insulating barrier to ensure the insulation distance (our company sells insulating barriers)
NVAL3, NVAL3/2), first remove the two nuts on the back of the switch before fixing it. When installing, make sure to adjust the operating position of the switch before tightening.

3. About Operation
1) Please note that in the free state, the operating body should not apply force to the switch button or actuator. When using a button type, force should be applied in the vertical direction of the button.
2) For overtravel settings after activation, use 70% of the OT specified value as the standard.

4. About Welding Work
When soldering wires to terminals, please use a soldering iron with a capacity of 60W or less (tip temperature below 350) and complete the work within 5 seconds. Also, avoid applying force to the terminals during soldering.

5. About Usage Environment
Do not use or store in humid environments,or in places with corrosive gases,silicone, or a lot of dust.

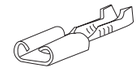
6. About Inductive Loads and Phase Synchronization
1)When using switches for inductive loads (relays, solenoids, buzzers, etc.), to prevent poor contact caused by arcs, it is recommended to insert an appropriate arc suppression circuit.

7. In cases of very small voltage and current, it is recommended to use a micro load switch

8. Others
Do not disassemble the switch body on your own, as it will change the characteristics of the switch.

9. About Welding Work
1) For pin terminal types, please choose a suitable socket for connection and use.


#4.8 Terminal Socket


#6.3 Terminal Socket

1) For pin terminal types, please choose a suitable soc-

Type	Welding terminal	Screw-fastened terminal
NV-11 Series	0.75、1.25、2.0	0.75、1.25
NV-16 Series	1.25、2.0	1.25

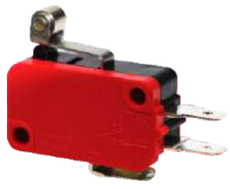
Picture Display


NV-16-1C25
Button type


NV-161-1C25
Short Lever Type


NV-162-1C25
Lever Type


NV-164-1C25
R-type lever


NV-165-1C25
R-type lever


NV-166-1C25
Roller lever type


NV-16-1B5
Screw Terminal Type (various lever specifications can be configured)

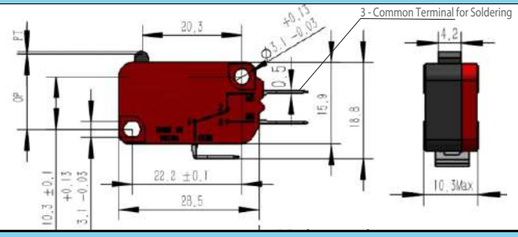
NV-16-2C25
Normally closed type (can be configured with various lever specifications)


NV-163-1C25
Long Lever Type


NV-16 -1C5
All black (available for the entire series)

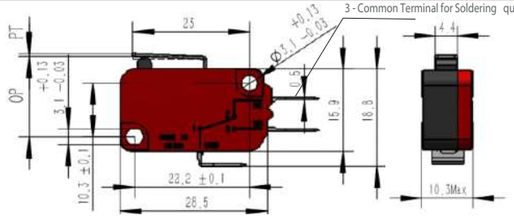
Performance

NV-16-1C25



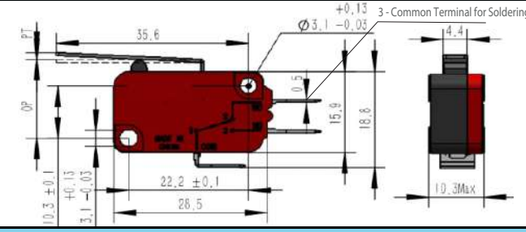
PT	1.7mm Max
MD	0.4mm Max
OT	0.8mm Min
OP	14.7 ± 0.6mm

NV-161-1C25



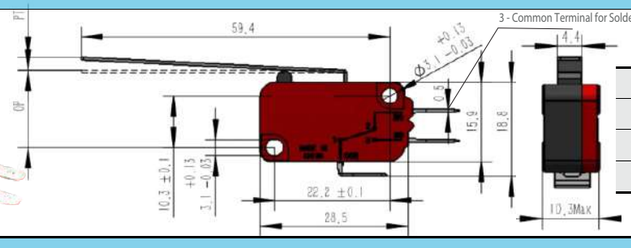
PT	1.6mm Max
MD	0.5mm Max
OT	0.8mm Min
OP	15.3 ± 0.8mm

NV-162-1C25



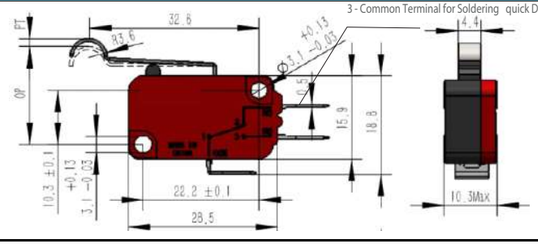
PT	3.2mm Max
MD	1.2mm Max
OT	1.2mm Min
OP	15.3 ± 1.2mm

NV-163-1C25



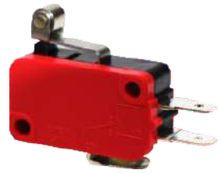
PT	7.2mm Max
MD	2.2mm Max
OT	2.2mm Min
OP	15.3 ± 2.6mm

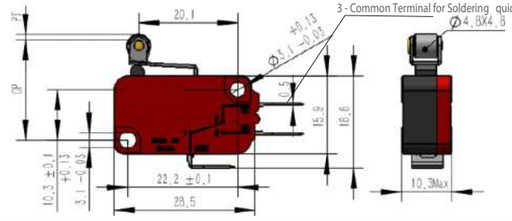
NV-164-1C25



PT	3.2mm Max
MD	1.2mm Max
OT	1.2mm Min
OP	15.5 ± 1.2mm

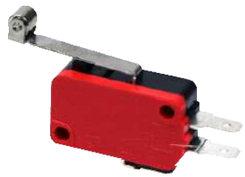
NV-165-1C25

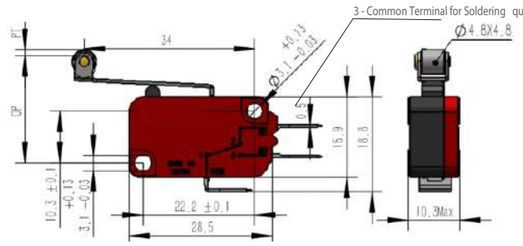




PT	1.6mm Max
MD	0.5mm Max
OT	0.8mm Min
OP	20.7 ± 0.8mm

NV-166S-1C25





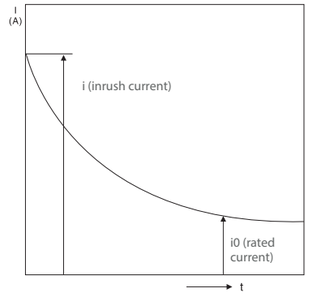
PT	3.2mm Max
MD	1.2mm Max
OT	1.2mm Min
OP	20.7 ± 1.2mm

Category	Terminology	Abbreviation	Definition
Strength	Force required for action	OF	The external force applied to the drive shaft from the free position (FP) to the operating position (OP).
	Reset force	R F	The external force applied to the drive shaft from the travel limit position (TTP) to the reset position (RP)
	Force required for the whole action	TF	The external force applied to the drive shaft from the operating position (OP) to the travel limit position (TTP)
Kinetic energy	Pre-action movement	PT	The distance or angle moved from the free position (FP) to the operating position (OP).
	Post-action movement	OT	The distance or angle moved from the operating position (OP) to the travel limit position (TTP)
	Distance between action and reset	MD	The distance or angle moved from the operating position (OP) back to the reset position (RP)
	Overall movement	TT	The distance or angle moved from the free position (FP) to the travel limit position (TTP)
Location	Free position	FP	The position of the handle or button when no external force is applied
	Action position	OP	The position of the handle or button from the start of applying external force to the point where the switch contact operates (makes contact)
	Reset position	R P	The position of the handle or button when reducing the applied force from the contact operation (OP) state to the free position (FP) state.
	Action limit position	TTP	The maximum movement position of the handle or button possible without damage.

Electricity Safety Tips

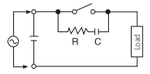
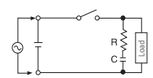
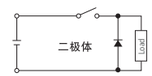
1. Electrical Selection Criteria

1)Because AC and DC are different, the on/off capacity of their contacts can vary a lot, so make sure to check the rated values when choosing.
2)Especially for very low voltages and currents, be sure to pick ones suitable for tiny loads
3) Always double-check the inrush current,rated current, and inrush time.
4)The contact resistance in various performance items is measured using the voltage drop method with DC 6-8V, 1A. (For tiny loads, use the rated operating voltage drop method)



2. Circuit Issues

1)In circuits with inductive loads, when switching on and off, the reverse current (back surge) and inrush current(rush) can cause contact problems. Therefore, to protect the contacts, it is recommended to add the protection circuit shown in the diagram below.

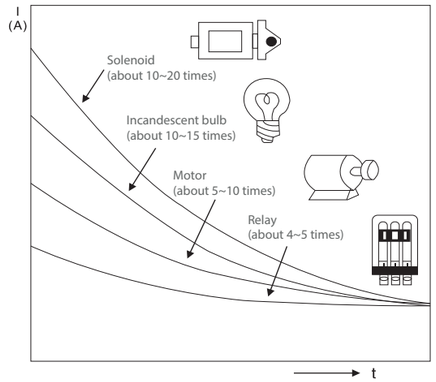
	Mainly suitable for use with DC. The R here needs to be several ohms or more. When the load capacity is small, it can be used with AC.R: 10Ω~100Ω C: 0.05~0.1F
	Suitable for both AC and DC. R: tens of ohmsC: 0~0.2F
	Only suitable for DC. Be sure to choose a diode with sufficient reverse voltage tolerance.
	Both are suitable for AC and DC. Be sure to use a surge absorber rated for at least 1.5 times the power supply voltage.

2)Because different types of loads can cause big differences between rated current and inrush current, be sure to check the allowed inrush current values.
3)The rated values for each model depend on the following conditions:
Inductive load: power below 0.4 (AC) Rated time below 7ms (DC)

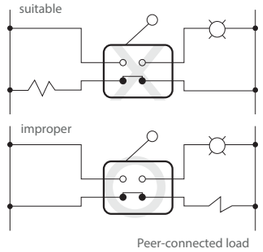
Indicator lamp load:
has an inrush current 10 times the rated current.

Starting current:
has an inrush current 6 times the rated current.

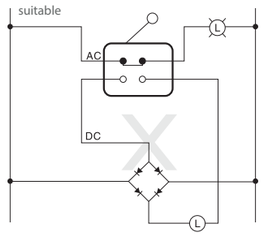
Note: Inductive loads often cause problems in DC circuits, so you must be familiar with the load's rated time (L/R).



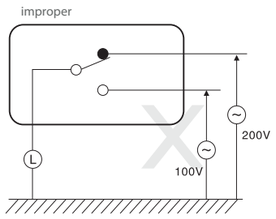
Do not connect different poles or types of power sources to the same switch terminal.Power wiring diagram example (wiring for different poles)



Improper power wiring examples (connections of different types of power) can cause direct current and alternating current to come into contact.



Always avoid having a voltage loop between contacts. (Otherwise, it may cause contact welding)



When used in electronic circuits (low voltage, low current):

1)Micro switches can experience bouncing and vibration when toggled due to contact conflicts. This can cause issues like noise and interference in electronic circuits, audio equipment, and the like.
2)When problems are caused by bouncing and vibration, more attention is needed in circuit design, such as setting up CR circuits or snubber circuits.
3)Especially in fields that require high-precision and high-reliability contacts, the traditional silver contacts are rarely used nowadays, and high performance gold contacts that withstand very small voltages and currents are preferred.

N2V Series Waterproof Micro Switch

Features

◎ Water and dustproof design, suitable for use in places that might get splashed or dusty.
◎ Compact structure with tiny contact gaps, featuring fast action, high sensitivity, and short travel.
◎ Long life, high precision, and short travel.
◎ Can be used in cars, agricultural machinery, large household appliances, office equipment, and other environments that require durability

Naming

N2V – □ □ – □ □ □ – □
① ② ③ ④

① Rated Operating Current
10: AC 250V 10A
01: DC 30V 0.1A

③ Contact Types
1: Changeover (SPDT)
2: Normally Closed (SPST-NC)
3: Normally Open (SPST-NO)

④ Terminal Types
HS: 4.70x0.5mm quick connect termina
MS: External Wire

② No mark for transmission type: Button types

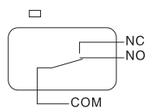
1: Short lever type
2: Lever type
3: Long lever type
4: R-shaped lever type
5: Roller short lever type
6: Roller lever type
5S: Metal roller short lever type
6S: Metal roller lever type
X: Custom lever type (see customer file for details)

Perfomance

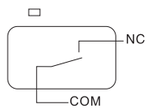
Allowed operating speed	0.1mm~1m/s () Button type
Allowed operating frequency	Mechanical: up to 60 times/min ; Electrical: up to 30 times/min
Insulation resistance	50 MΩ (DC 500V megohmmeter)
Contact resistance (initial value)	Up to 100 mΩ
Withstand voltage	1,000VAC, 50/60Hz for 1 minute between terminals of the same level Between live metal parts and ground, and between each terminal and non-live metal parts: 2,000 VAC, 50/60 Hz for 1 minute
Vibration	Malfunction: 10~55Hz, double amplitude 1.5mm
Shock	Durability: up to 400 m/s (about 40G) ; Malfunction: up to 100 m/s2 (about 10G)
Lifespan	Mechanical:500,000 times Electrical:50,000 times
Protection rating	IEC IP67
Electric shock protection level	Class I
PTI (leakage characteristics)	250
Operating ambient temperature	-25°C~85°C
Operating ambient humidity	Below 85% RH (at 5 °C ~35°C)
Weight	About 6.2g (button type)

Perfomance

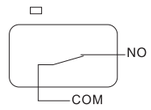
Toggle type



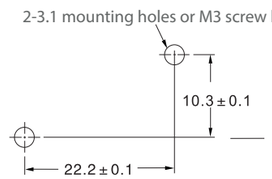
Normally closed type



Normally open type

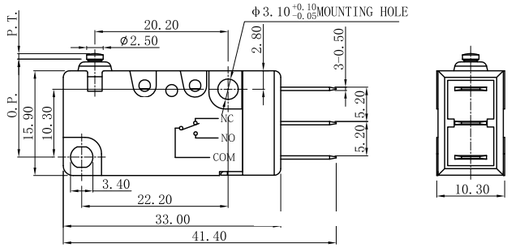


Mounting hole machining dimensions (unit: mm)



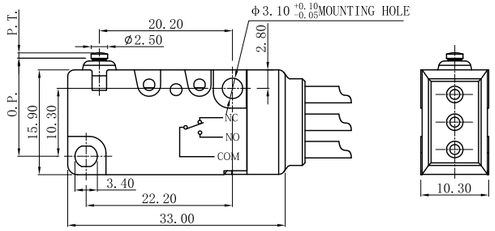
Outline Dimensions (unit: mm)

N2V-10-1HS



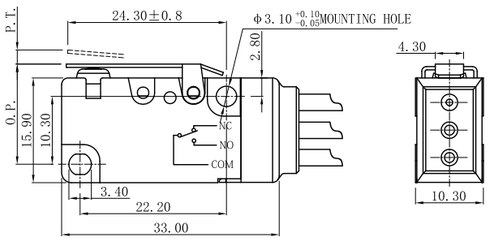
PT	1.7mm Max
MD	0.4mm Max
OT	0.8mm Min
OP	14.7 ± 0.6mm

N2V-10-1MS



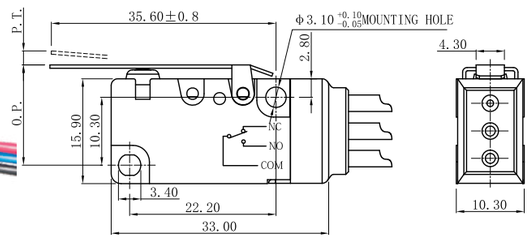
PT	1.7mm Max
MD	0.4mm Max
OT	0.8mm Min
OP	14.7 ± 0.6mm

N2V-101-1MS



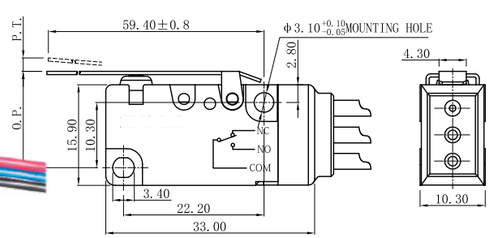
PT	1.6mm Max
MD	0.5mm Max
OT	0.8mm Min
OP	15.3 ± 0.8mm

N2V-102-1MS



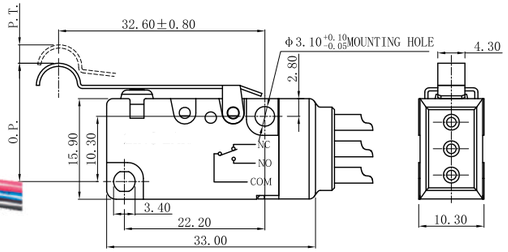
PT	3.2mm Max
MD	1.2mm Max
OT	1.2mm Min
OP	15.3 ± 1.2mm

N2V-103-1MS



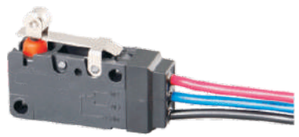
PT	7.2mm Max
MD	2.2mm Max
OT	2.2mm Min
OP	15.3 ± 2.6mm

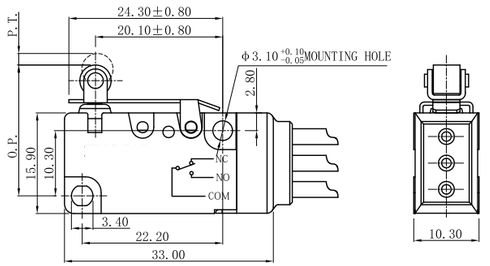
N2V-104-1MS



PT	3.2mm Max
MD	1.2mm Max
OT	1.2mm Min
OP	15.5 ± 1.2mm

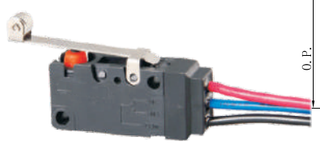
N2V-105-1MS

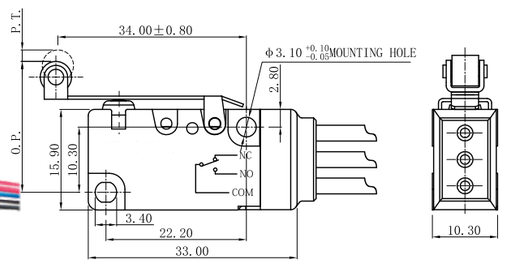




PT	1.6mm Max
MD	0.5mm Max
OT	0.8mm Min
OP	15.3 ± 0.8mm

N2V-106-1MS

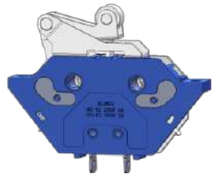




PT	3.2mm Max
MD	1.2mm Max
OT	1.2mm Min
OP	15.3 ± 1.2mm

NLXW32 Series Micro Switch

Features



◎ The contacts are responsive, reliable, highly accurate, long-lasting, and look good,and they can replace imported products of the same kind.

◎ They are suitable for rated working voltages of AC 380V and DC 250V. Widely used in control circuits or auxiliary circuits of machinery, electrical systems, etc.,they serve to control electromagnets or inductive loads.

Naming

NLXW32– □ M □

- Specification code: (No mark means button type, B means with a short roller lever, C means with a long roller lever)
- Magnetic blowout arc: (No mark means no magnetic blowout, M means with magnetic blowout)
- Basic specification code: 01 means with one set of normally closed contacts, 10 means with one set of normally open contacts
- Design code

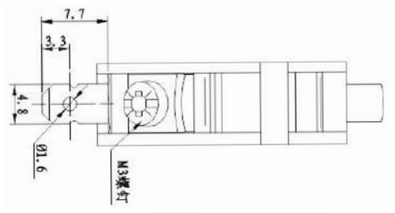
Perfomance

Allowed operating speed	0.1mm~1m/s () Button type
Allowed operating frequency	Mechanical: up to 60 times/min ; Electrical: up to 30 times/min
Insulation resistance	100 MΩ (DC 500V megohmmeter)
Contact resistance (initial value)	Up to 100 mΩ
Withstand voltage	1,000VAC, 50/60Hz for 1 minute between terminals of the same level
	Between live metal parts and ground, and between each terminal and non-live metal parts: 2,000 VAC, 50/60 Hz for 1 minute
Vibration	Malfunction: 10~55Hz, double amplitude 1.5mm
Shock	Durability: up to 400 m/s (about 40G) ; Malfunction: up to 100 m/s2 (about 10G)
Lifespan	Mechanical:Greater than 300,000 times Electrical:Greater than 10,000 times
Protection rating	IEC IP40
Electric shock protection level	Class I
PTI (leakage characteristics)	250
Operating ambient temperature	-25℃~85℃
Operating ambient humidity	Below 85% RH (at 5 ℃~35℃)
Weight	AC-12 6A 250V DC-12 2A 250V

Terminal type

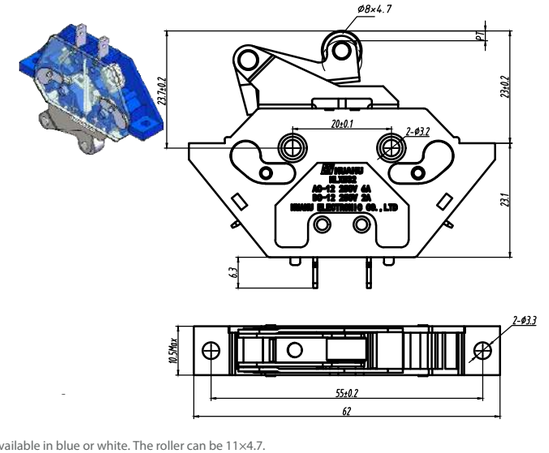
◎ Threaded connection terminal:M3 screw

◎ quick-connect terminal: 4.8×0.8



Overall Dimensions (unit: mm)

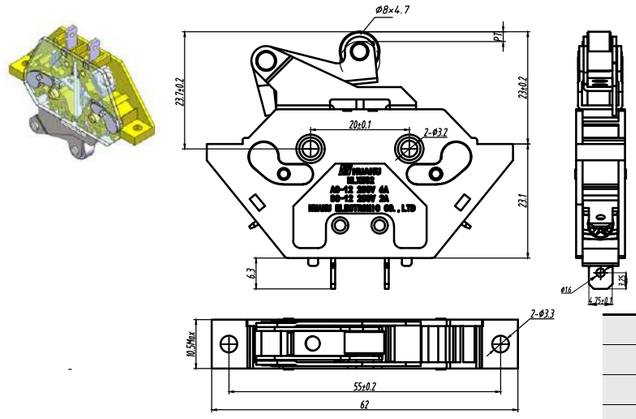
NLXW32-01MB



OF	⩽7.5N
RF	⩾1.5N
PT	2.9±0.7mm
TT	4±0.2mm

Note: The base is available in blue or white. The roller can be 11×4.7.

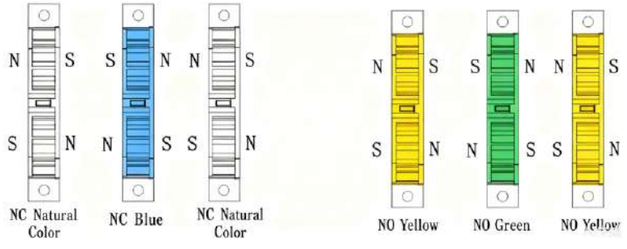
NLXW32-10MB



OF	⩽7.5N
RF	⩾1.5N
PT	3.4±0.7mm
TT	4±0.2mm

Note: The base color is yellow or green. The roller can be 11×4.7. 21

Notes



Note: For a single switch, like the normally open or normally closed type shown in the picture, the switch polarity needs to be kept in an opposing state when assembled, otherwise it will affect the switch's normal performance.

Note: When assembling normally open and normally closed types alternately, the switch polarity also needs to be in an opposing state to ensure proper switch performance.

Installation:
Use M3 screws for installation, and tighten them with a torque of 0.4-0.6 Nm. When using M2.5 screws, secure them with flat washers and spring washers, and use a torque of 0.20.4 Nm for installation.
When using screw terminals, please install them with a tightening torque of 0..5Nm.

NLXW35 Series Micro Switch

Features

- ◎ Responsive and reliable, accurate, and long-lasting.
- ◎ The contact material can be made of gold alloy, silver alloy, or silver, to handle different electrical loads.
- ◎ Offers various driving modes to suit different situations
- ◎ Suitable for control circuits of AC250V and DC250V, used as a main switch or as an accessory in other electrical devices. The contact type is Za, and when using the changeover contacts simultaneously, it is recommended to connect them in the same phase circuit.

Naming

NLXW325 11M □ □ □

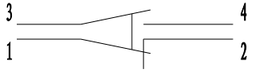
- Installation direction: 1 means install on the left;2 means install on the right
- Specification code: (No mark means button type, A means with straight lever, B means with short roller lever, C means with long roller lever, D means R lever, special specifications can be customized)
- T: Indicates it has an extendable push type, can be installed together;no mark for non-extendable push type
- Magnetic blowout: (No mark means without magnetic blowout, M means with magnetic blowout)
- Basic specification code: 11 means with one set of changeover contacts
- Design code

Perfomance

Allowed operating speed	0.1mm~1m/s () Button type
Allowed operating frequency	Mechanical: up to 60 times/min ; Electrical: up to 30 times/min
Insulation resistance	100 MΩ (DC 500V megohmmeter)
Contact resistance (initial value)	Up to 100 mΩ
Withstand voltage	1,000VAC, 50/60Hz for 1 minute between terminals of the same level Between live metal parts and ground, and between each terminal and non-live metal parts: 2,000 VAC, 50/60 Hz for 1 minute
Vibration	Malfunction: 10~55Hz, double amplitude 1.5mm
Shock	Durability: up to 400 m/s (about 40G) ; Malfunction: up to 100 m/s2 (about 10G)
Lifespan	Mechanical:Greater than 300,000 times Electrical:Greater than 10,000 times
Protection rating	IEC IP40
Electric shock protection level	Class I
PTI (leakage characteristics)	250
Operating ambient temperature	-25℃~85℃
Operating ambient humidity	Below 85% RH (at 5 ℃~35℃)
Weight	AC-12 6A 250V DC-12 2A 250V

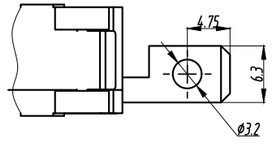
Form of contact

◆ Type 11 Convertible Type



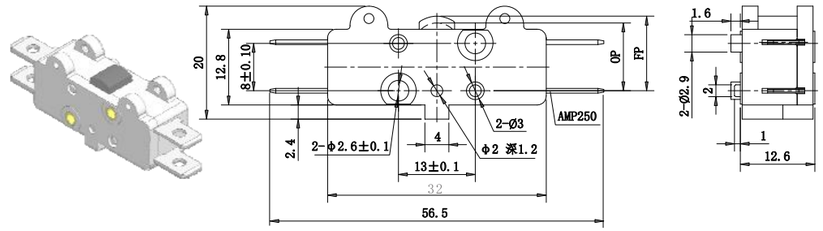
Terminal type

◆ AMP25q 6.3×0.8



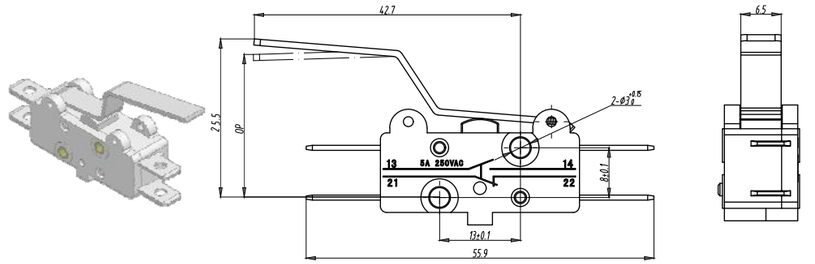
Overall Dimensions (unit: mm)

NLXW35-11



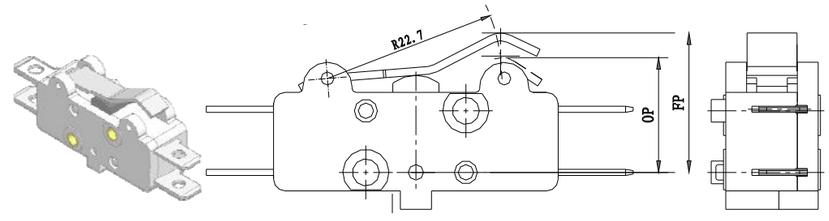
PT	1± 0. 5mm
MD	≤0. 9mm
OT	≥0. 5mm
OP	11. 4 ± 0. 5mm

NLXW35-11A1



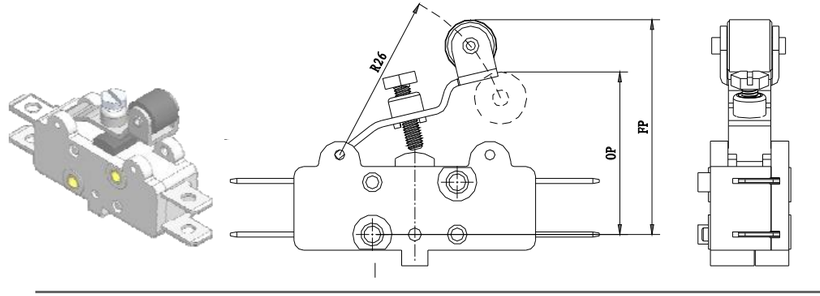
PT	6. 6 ± 1. 3mm
MD	≤4mm
OT	≥1. 3mm
OP	23 ± 1. 5mm

NLXW35-11D1



PT	2. 5 ± 1. 3mm
MD	≤1. 2mm
OT	≥0. 5mm
OP	16. 5 ± 1. 3mm

NLXW3511B1



PT	1. 8 ± 1. 3mm
MD	≤1. 5mm
OT	≥1. 3mm
OP	26. 3 ± 1. 8mm

Note:When installing, use M2.5 screws and secure them with flat washers and spring washers. At this time, please use a tightening torque of 0.2 to 0.4 N.m.

NS Series Micro Switches

Characteristics

◎ Using a split two-piece spring, it has a long lifespan and high reliability.
◎ It is small in size, with complete terminals and operating handles
◎ It is widely used in automotive control, household appliance control, industrial control, an d other fields.

Naming

NS – □ □ □ □ □ □ □ □
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Rated value
1 : 0.1A 125/250VAC
5 : 5A 125/250VAC
10 : 10A 125/250VAC

② Drive rod
G :Button type
GL: Short lever
GL2: Standard lever
GL3: Long lever
GL4: R-shaped lever
GL5: Roller-type lever
GL5S: Metal roller-type lever

③ Button Height
No Label: Standard Type
A : High Button Type

④ Shell Material
No mark: Thermoplastic
P: Thermosetting pastic

⑤ Action force (0F)
Maximum Unmarked:1.47N
F: 1.96N
F1: 2.7N

⑥ Contact Types
1: Changeover (SPDT)
2: Normally Closed (SPST-NC)
3: Normally Open (SPST-NO)

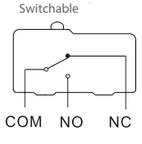
⑦ Terminal Type
No mark: Solder terminal
T: Tab terminal (110)
D1: Left-bent PCB type terminal
D2: Right-bent PCB type terminal

⑧ Special Codes
No Marking: Standard (Regular)
H: High Temperature Resistant (125)
T: Special Customization (See Customer Requirements)

Perfomance

Allowed operating speed	0.1mm~1m/s () Button type
Allowed operating frequency	Mechanical: up to 60 times/min ; Electrical: up to 30 times/min
Insulation resistance	100 MΩ (DC 500V megohmmeter)
Contact resistance (initial value)	Up to 100 mΩ
Withstand voltage	5A 125VAC/250VAC Between terminals of the same level: 1,000VAC, 50/60Hz for 1 minute Between live metal parts and ground, and between each terminal and non-live metal parts: 1,500V 50/60Hz for 1minute
Vibration	Incorrect action: 10~55Hz, double amplitude 1.5mm
Shock	Durability: Maximum 1,000 m/s2 False action: Maximum 300/m/s2
Lifespan	Mechanical: over 10 million times Electrical: over 50,000 times
Protection rating	IEC IP40
Electric shock protection level	Class I
PTI (leakage characteristics)	250
Operating ambient temperature	-25℃~85℃
Operating ambient humidity	Below 85% RH (at 5 ℃~35℃)
Weight	AC-12 6A 250V DC-12 2A 250V

Perfomance



Perfomance

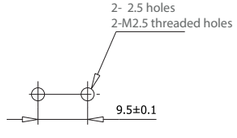


Image Display

NS-5GP
Button Type

NS-5GLP
Short Lever Type

NS-5GL2P
Lever Type Switch

NS-5GL3P
Long Lever Type

NS-5GL3PT
Special Made Lever Type

NS-5GL4P
R Type Lever Type

NS-5GL4PT
Special Made R-Type Lever Type

NS-5GL5P
Roller Lever Type

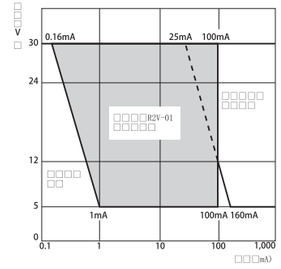
NS-5GPD1
Left Bend PCB Terminal Button Type

Image Display

1. About Installation
1) When fixing the switch body, please use M2.5 screws to secure it on a smooth surface with a torque of 0.23-0.26 N.m. In addition, to prevent loosening, it is recommended to use both flat washers and spring washers for locking.
2) For the overtravel setting after operation, use 70% of the OT specified value as the standard.

2. About Soldering
When soldering wires to the terminals, please use a soldering iron with a power of 60W or less (soldering iron tip temperature below 350) and complete the work within 3 seconds. Also,be careful not to apply force on the terminals during soldering

3. About Use Under Small Loads
Using a general-purpose switch in a micro-load circuit may cause poor contact. Please refer to the figure below and use the switch within the specified usage area. Even when using a micro-load type within the usage area shown, if the load causes surge current during switching, contact wear will increase and service life will be shortened. Therefore, please insert a contact protection circuit as needed. The minimum applicable load is given as a reference at N level. This indicates the failure rate at a reliability of 60% (60). (JIS C5003)60=0. 5×10-6/cycle means that under conditions of 60 % reliability, the estimated failure rate is 1/2,000,000 or less.



4. Others
It is prohibited to disassemble the switch body without authorization, as this will cause the characteristics of the switch to change.

NX Series Micro Switch

Features

- ◎ quick and Reliable action, high precision, long life
- ◎ Different contact material like silver-copper bimetal strips, silver alloy or silver for different electrical load application
- ◎ Applicable to the control circuit with AC 380V,DC 250V,used as parts for master electrical ppliances or alternative appliances.
- ◎ This product is widely used for travel control, limit protection and interlocking in machinery facilities,such as steel, elevator, machine, textile, light industry,electrical, electronic device, home appliance, machine tool, power electronic and automation application.

Naming

NX - 10 G □ – □ ( )
① ② ③ ④ ⑤

①电流额定值 Rated working current
10 ：10A（DC125V）
②接点间隔Contact gap
G ：0.9mm

④端子的种类 Terminal type
无标记：焊接端子Unmarked: Welding terminal
B ：螺钉紧固端子（内齿垫圈）
Screw type terminal within intermal teeth washers

⑤ Special Codes
No mark: Standard (regular)
T:Special custom(see customerrequirements)

③驱动杆的种类Actuator
无标记：针状按钮型Unmarked: Pin plunger type
D ：弹簧短按钮型Short spring plunger
S ：弹簧细按钮型Slim spring plunger
Q ：面板安装式按钮型Panel mount plunger
Q21 ：面板安装横向滚珠按钮型Panel mount cross roller plunger
Q22 ：面板安装式滚珠按钮型Panel mount roller plunger
L ：板簧型Leaf spring
W ：摆杆型Hinge lever
W2 ：滚珠摆杆型Roller hinge lever
W21 ：短摆杆型Short hinge lever
W22 ：滚珠短摆杆型Short hinge roller lever
W4 ：小型摆杆型Low-force hinge lever
M ：反向动作摆杆型Reverse hinge lever
M2 ：反向动作滚珠摆杆型Reverse hinge roller lever
M22 ：反向动作滚珠短摆杆型Reverse short hinge roller lever

Rated value

额定电压（V） Rated Voltage (V)	非感性负载（A）Non-Inductive load(A)				感性负载（A）Inductive load (A)			
	阻性负载Resletive load		电灯负载Lamp load		感性负载 Inductive load		电动机负载Motor load	
	常闭NC	常开NO	常闭NC	常开NO	常闭NC	常开NO	常闭NC	常开NO
DC 8	10		3	1.5	10	10	5	2. 5
14	10		3	1.5	10	10	5	2. 5
30	10		3	1.5	10	10	5	2. 5
125	10		3	1.5	7.5	6	5	2. 5
250	3		1.5	0.75	2	1. 5	2	1. 5

注1.上述数值表示稳定电流。
注2.所谓感性负载，就是功率因数为0.4以上（交流）、时间常数7ms以下（直流）的负载。
注3.所谓电灯负载，就是有10倍的浪涌电流的负载。
注4.所谓电动机负载，就是有6倍的浪涌电流的负载。
注5.交流时也可在与上述相同的额定值下使用。
注6.反向动作（X-10GM□）时，常闭和常开相反。
注7.上述额定值是在下面的条件下试验得到的数值。
（1）环境温度：20±2℃
（2）环境湿度：65±25%RH
（3）操作频率：20次/min

Note 1: The above figure means steady current
Note 2: Inductive load ,it means the power factor is over 0.4 and time constant is under 70ms
Note 3: Lamp load is a load with 10 times surge current.
Note 4: Motor load is a load with 6 times surge current.
Note 5.: The above data also applies to the AC load
Note 6: for reverse action, NC is the opposite of NO
Note 7: The above rated data is obtained under the following conditions
（1）Ambient working temperature: 20±2℃
（2）Ambient working humidity: 65±25%RH
（3）Operating frequency: 20 operations/min

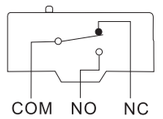
Perfomance

容许操作速度Allowable Operating speed		0.1mm~1m/s *1
容许操作频率 Allowable Operating frequency	机械Mechanical	240次/min 40 operations/min
	电气Electrical	20次/min 20operations/min
绝缘电阻 Insulation resistance		100MΩ以上（DC500V兆欧表）100MΩ min.(at 500VDC)
接触电阻 Contact resistance		15mΩ以下（初期值）15mΩ max.(initial value)
耐压Withstand voltage		极端子之间、带电金属部与地线之间、各端子与不带电金属部之间AC1500V 50/60HZ 1min Between contacts of some polarity,betwwen current-carrying metal parts and ground between each terminal and non-current –carrying metal parts AC1.500V 50/60HZ 1mi
振动Vibration	误动作Malfuction	10~55Hz 双振幅1.5mm *2
冲击Shock resisitance	耐久Durability	最大1，000m/s2
	误动作Malfuction	最大300m/s2 *1 *2
寿命 Life	机械Mechanical	100万次以上 1,000,000 operations min.
	电气Electrical	10万次以上 100,000 operations min.
保护结构Degree of Protection		IP00
防触电保护等级Degree of protection against electric shock		Class I
PTI（漏电特性）Proof tracking index		175
使用环境温度Ambient operating temperature		-25~+80℃（不结冰）-25 to 80℃ (with no icing)
使用环境湿度Ambient operating humidity		35~85%RH
重量Weight		约27~63g Weight : Approx. 22 to 58g

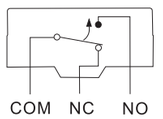
*1.针状按钮型的情况下。（其他型号请另行垂询）1. the values are for the Pin plunger.
*2.误动作在1ms以内。2. Malfunction:1ms max.

Form of contact

1. Switching type () standard

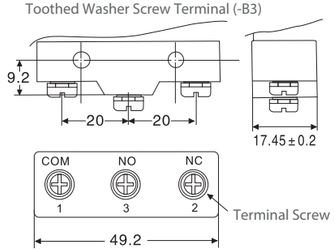


2. Reverse action type



Terminal types

Toothed Washer Screw Terminal (-B3)



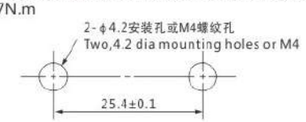
With a cup gasket, the type is (-B), and with a spring washer, it is (-B5)

Cup rim gasket type

Spring washer type

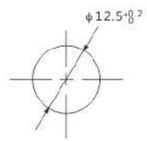
Installation (unit: mm)

安装孔加工尺寸
安装时使用M4螺钉，用平垫圈、弹簧垫圈等牢固安装。
此时请使用1.18~1.47N·m的紧固转矩。
Use M4 screws with plane washers and spring washers to mount the switch. And tighten each mounting screw securely to a torque of 1.18 to 1.47N.m

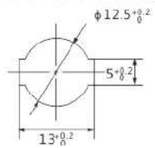


安装到面板上时，请用2.94~4.9N·m的紧固转矩拧紧驱动杆的六角螺母。
When mounting the switch to panel,use a tightening torque of 2.94 to 4.9N.m for the hexagonal nuts on the actuator.

面板安装按钮型
Panel Mount plunger

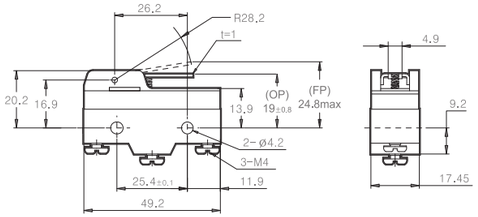


面板安装滚珠按钮型
Panel Mount Roller Plunger



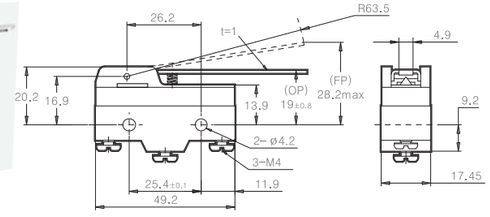
Features

NX-10GW21-B3



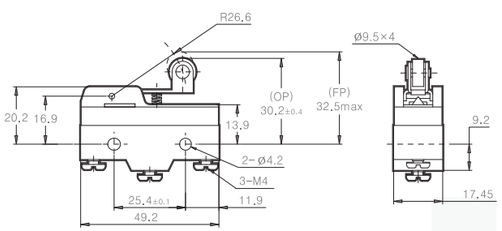
PT	/
MD	≤1.7mm
OT	≥2.1mm
OP	20.7±0.8mm

NX-10GW-B3



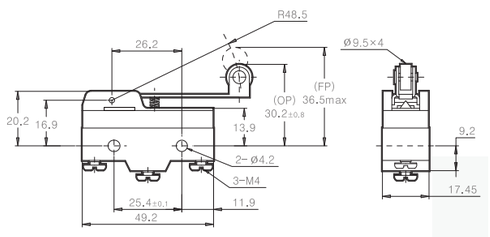
PT	/
MD	≤3.9mm
OT	≥4.8mm
OP	21.1±0.8mm

NX-10GW22-B3



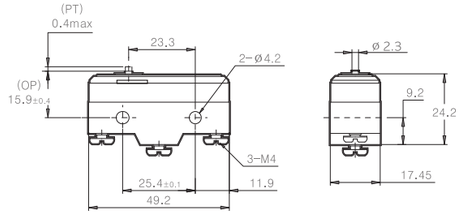
PT	/
MD	≤1.7mm
OT	≥2.4mm
OP	32.2±0.8mm

NX-10GW2-B3



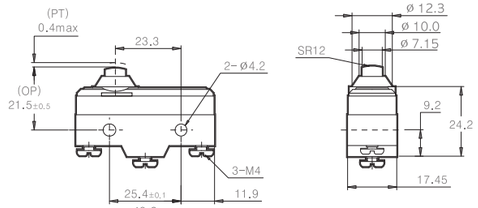
PT	/
MD	≤3mm
OT	≥4mm
OP	32.2±0.8mm

NX-10G-B3



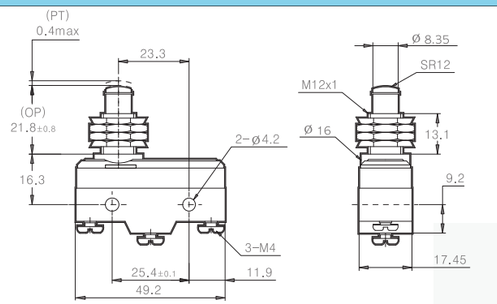
PT	≤0.9mm
MD	≤0.18mm
OT	≥0.13mm
OP	15.9±0.4mm

NX-10GD-B3



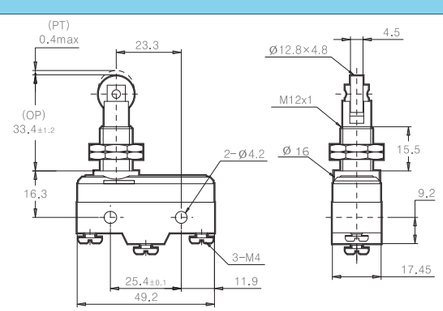
PT	≤0.9mm
MD	≤0.18mm
OT	≥1.6mm
OP	21.2±0.5mm

NX-10G -B3



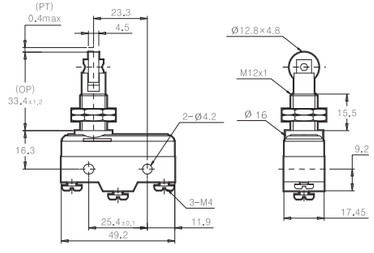
PT	≤0.9mm
MD	≤0.18mm
OT	≥5.5mm
OP	21.8±0.8mm

NX-10G 22-B3



PT	≤0.9mm
MD	≤0.18mm
OT	≥3.6mm
OP	33.4±1.2mm

NX-10GQ21-B3



PT	≤0.9mm
MD	≤0.18mm
OT	≥3.6mm
OP	33.4±1.2mm

Note

◆安装 Mounting

安装时使用 M4 螺钉，使用平垫圈、弹簧垫圈来紧固。此时请使用 0.7～1.2N·m 的紧固扭矩安装。

Use M4 mounting screws with plane washers or spring washers To securely mount the Switch. Tighten the screws to a torque of 0.7 to 1.2 N·m.

◆关于绝缘距离 insulation distance

该开关的最小绝缘层厚度应该为 1.1mm，端子和安装板之间的最小空间距离应该为 1.9mm。如果无法确保零部件所要求的绝缘距离，请使用绝缘护罩或使用隔板（*若需选用，请联系本司客服*）来确保绝缘距离。

Minimum insulating layer thickness for this microswitch is 1.1mm.

Minimum space distance is 1.9mm between terminal and mounting plate.

NLXW20 Series Micro Switch

Features

◎ The switch has a set of momentary mechanisms inside. The contacts are made of silver-based alloy,The switch has a set of momentary mechanisms inside. The contacts are made of silver-based alloy,resistance, reinforcement, heat resistance, and high durability. The terminals are plug-in type (AMP250-6.3X0.8).

Model Description

N LX W 20- 11 □ □ □ □

- Feature code (no mark means regular case, L means low-profile case)
- Feature code (no mark means round low button, G means flat high button)
- Feature code (no mark means transparent case, P means blue case)
- Magnetic arc blowout (no mark means no magnetic blow, M means with magnetic blow)
- Indicates having a set of transfer contacts
- Shows micro switch characteristics
- Type code (main control electrical)
- Company Model

Instructions

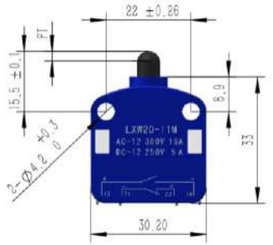
The NLXW20 series micro switch is the latest product developed by our factory and can replace similar imported products. Its contacts operate sensitively and reliably, with high precision, long service life, and an attractive appearance. The quality and technical specifications of this product reach the advanced level of imported counterparts. The 20 series micro switches are suitable for circuits with AC 50Hz, rated working voltage of 380V, rated working current or power of AC-12 16A, DC voltage of 250V, and rated working current DC-125A. When using the switching contacts simultaneously, it is recommended to connect them to circuits with the same phase. This product is widely used in household appliances, machine tools, and the electrical industry, serving as control for electromagnetic AC magnets or inductive loads.

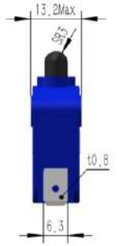
Performance

Program		Parameter Value
Operating frequenc	Mechanica	60 times/minute
	Electrical	20 times/minute
Insuiation resistance		More than 100MΩ
Contactresistance		30MΩ(Initial value)
Dieletric strength		1000VAC 50/60Hzfor 1 minute between terminals
		Live parts to ground;betweenlive parts and operating parts 1890VAC 50/60HZfor 1 minute
Durability	Machine life	Over 300.000 times(60 times/min,exceeding the specfed rangel)
	Electrical life	Over 50,000times 20 times/min, exceeding the specified range)
Protection level		IP40
Use temperature and humidity		-25 ~85C (should bewithout icing or condensation), under 85% RH(5~-35Celsius)
Rated value		AC-12 16A 380V;DC-12 5A 250V

Dimensions(unit: mm)

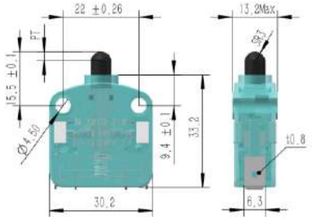
NLXW20-11MPG





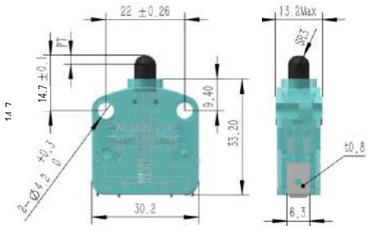
OF max.	≤5N
RF min	≥0.8N
PT max.	2.5±1mm
MD max.	≤2.2mm
Otmin	≥2.6mm

NLXW20-11MG



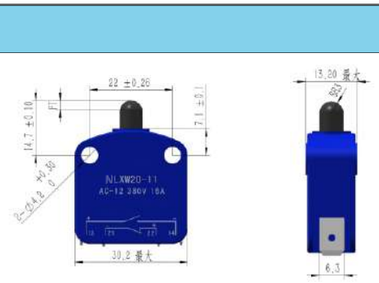
OF max.	≤5N
RF min	≥0.8N
PT max.	2.5±1mm
MD max.	≤2.2mm
Otmin	≥2.6mm

NLXW20-11



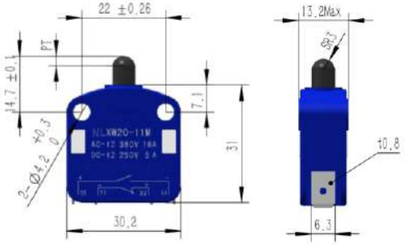
OF max.	≤5N
RF min	≥0.8N
PT max.	2.5±1mm
MD max.	≤2.2mm
Otmin	≥2.6mm

NLXW20-11PL



OF max.	≤5N
RF min	≥0.8N
PT max.	2.5±1mm
MD max.	≤2.2mm
Otmin	≥2.6mm

NLXW20-11MPL(Available in blue and black cases)



OF max.	≤5N
RF min	≥0.8N
PT max.	2.5±1mm
MD max.	≤2.2mm
Otmin	≥2.6mm

Note

Use M4 screws when installing, and secure them with flat washers and spring washers. At this time, please use a tightening torque of 0.8~1.2 N.m to install. The minimum insulation thickness of this switch is 1.1mm, and the minimum clearance between the terminals and the mounting plate should be 1.9mm. If the required insulation distance for the parts cannot be ensured, please use an insulation cover or a spacer to make sure the insulation distance is maintained.The contact type is Za, and when using the changeover contacts at the same time, it is recommended to connect them to circuits of the same phase.

NCSK Series Quick-Action Switch

Features

◎ It features a small size, light weight, easy installation, quick action, self-cleaning, forced breaking, and modular design. The two sets of movable contacts are insulated from each other and can be used with different poles as needed, and the contacts are self-cleaning with a permanent magnet arc extinguishing function.

Naming

NCSK–□/□ □ □

- Derived specification code: No mark: standard series wheel D: single wheel G: FP high
- Set number: No mark: single set 2: 2 sets 3: 3 sets 4: 4 sets
- Basic specification code: Standard M: With permanent magnet arc extinguishing device installation and drive method F: Waterproof
- Installation and Driver Installation Methods : I: Standard switch
  IA: Lever with roller
  IB: Roller lever switch with mo
- Switch Design Model

Instructions

The NCSK switch is a product developed using technology introduced from Germany's Schaltbau company, and its technical performance meets the VDE0660 Part2007/92 (EN60947, IEC947) standards. This quick-action switch has a wide range of applications, with self-cleaning contacts that feature a permanent magnetic arc-extinguishing function. It is especially suitable for connecting small current signals, such as transmitting computer signals, while also having strong breaking capacity. It can be used in circuits with AC 50Hz, rated operating voltage 380V, rated working current 8A, or DC voltage 250V and rated working current 5A, for control and switching purposes. It is particularly useful in secondary circuits for controlling the closing, opening, switch locking, and signal circuits of various high-voltage switch operating mechanisms.

Performance

Allowed operating speed	0.5mm~1m/s (button type)
Allowed operating frequency	Mechanical: maximum 120 times/min Electrical: maximum 20 times/min
Insulation resistance	100 MΩ (DC 500V megohmmeter)
Contact resistance (initial value)	Up to 30 mΩ
Withstand voltage	AC -12 380 8A DC-12 250 5A Between terminals of the same level: 1,000VAC, 50/60Hz for 1 minute Between live metal parts and ground, and between each terminal and non-live metal parts: 1,890V , 50/60Hz for 1minute
Vibration	Incorrect action: 10~55Hz, double amplitude 1.5mm
Shock	Durability: Maximum 1,000 m/s2 False action: Maximum 300/m/s2
Lifespan	Mechanical: over 500,000 times; Electrical: over 30,000 times
Protection rating	IEC IP40
Electric shock protection level	Class I
PTI (leakage characteristics)	175
Operating ambient temperature	-40 to 80℃ , below 60% humidity (no freezing, no condensation)
Operating ambient humidity	Below 85% RH (at 5 ℃~35℃)
Weight	About 20~40g (button type)

Picture

NCSK-IA/MF
Water proof roller type

NCSK-IA/M
Roller type

NCSK-IA/M2
Two sets of roller type

NCSK-IA/M3
Three sets of roller type

NCSK-IA/M4
Four sets of roller type

NCSK-IA/M2D
Double sets single roller type

NCSK-IA/M3D
Three sets single roller type

NCSK-IA/M4D
Four sets single roller type

NCSK-IB/M
Roller type with fixed plate

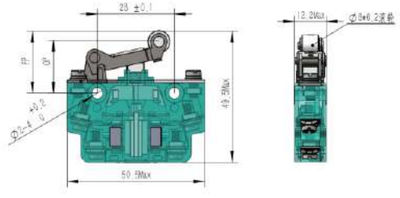
NCSK-IB/M2D
Two sets of roller types with fixed plates

NCSK-IB/M3
Three sets of roller types with fixed plates

NCSK-IA/M
quick-connect terminal roller type

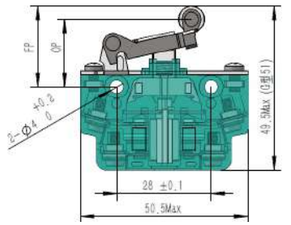
Dimensions (unit: mm)

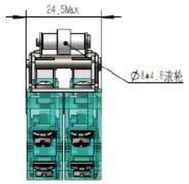
NCSK-IA/MF(Thickness for groups 2, 3, 4, OF, RF value × number of groups, the rest is the same)



OF max.	2.5～6.5N
RF min	≥2N
FP	23.9±0.5mm
OP	20.3±0.5mm
MD max.	≤2.9mm
Otmin	≥2.5mm

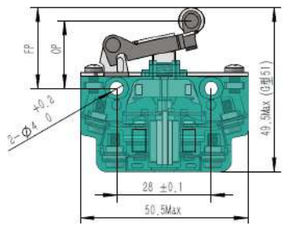
NCSK-IA/M2 single wheel (available in standard and G type, G type has a 1mm higher free position)





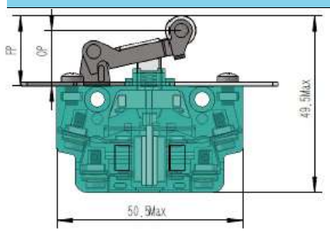
OF max.	5～13N
RF min	≥4N
FP	23.9/G型24.9±0.5mm
OP	20.3/G型21.3±0.5mm
MD max.	≤3.3mm
Otmin	≥2.5mm

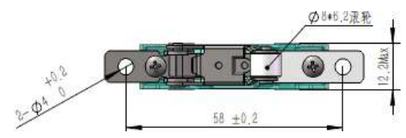
NCSK-IA/M3 single wheel (available in standard and G type, G type has a 1mm higher free position)



OF max.	7.5～19.5N
RF min	≥6N
FP	23.9/G型24.9±0.5mm
OP	20.3/G型21.3±0.5mm
MD max.	≤3.9mm
Otmin	≥2.5mm

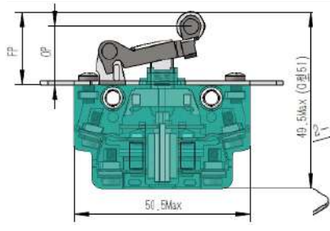
NCSK-IB/M (Thickness for groups 2, 3, 4, OF, RF value × number of groups, the rest is the same)

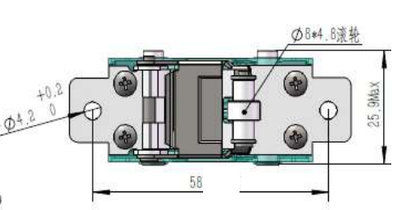




OF max.	2.5～6.5N
RF min	≥2N
FP	23.9±0.5mm
OP	20.3±0.5mm
MD max.	≤2.9mm
Otmin	≥2.5mm

NCSK-IB/M2 single wheel (available in standard and G type, G type has a 1mm higher free position)





OF max.	5～13N
RF min	≥4N
FP	23.9/G型24.9±0.5mm
OP	20.3/G型21.3±0.5mm
MD max.	≤3.3mm
Otmin	≥2.5mm

Note

1. When installing, use M4 screws along with flat washers and spring washers to secure them. At this time, please use a tightening torque of 0.8-1.2 N.m for installation. When connecting wires, please tighten with a torque of 0.7-0.9 N.m.
2. Regarding insulation distance: the minimum thickness of the insulation layer for this switch should be 1.1 mm, and the minimum clearance between the terminal and the mounting plate should be 1.9 mm. If you cannot ensure the required insulation distance of the parts, please use an insulating cover or a spacer to maintain the insulation distance.

NDZ Series Micro Switch

Features

- ◎ Responsive and reliable, accurate, and long-lasting.
- ◎ Offers various drive types to suit different situations.
- ◎ Suitable for control circuits or auxiliary circuits with a rated operating voltage of 250V.
- ◎ This product is widely used in household appliances, machine tools, the electronics and power industry, and automatio applications, serving as a control for AC electromagnets or inductive loads.
- ◎ A double-break switching contact element with four terminals, with contact type of two sets of C-type contacts, for two circuits with different voltages or two independent controls.

Naming

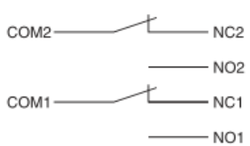
NDZ - 10G □ - □

- Terminal type: A: Solder terminal B: Screw terminal
- Operation type: W21: Short lever W: Long lever W22: Short roller lever W2: Long roller lever
- Basic specification code
- Design code

Instructions

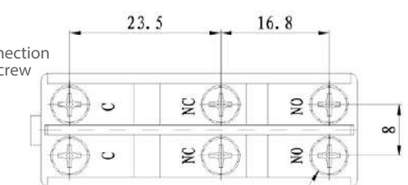
Allowed operating speed	0.1mm~1m/s (button type)
Allowed operating frequency	Mechanical: maximum 60 times/min Electrical: maximum 20 times/min
Insulation resistance	100 MΩ (DC 500V megohmmeter)
Contact resistance (initial value)	Up to 100 mΩ
Withstand voltage	AC -12 380 8A DC-12 250 5A
	Between terminals of the same level: 1,000VAC, 50/60Hz for 1 minute Between live metal parts and ground, and between each terminal and non-live metal parts: 1,890V , 50/60Hz for 1minute
Vibration	Incorrect action: 10~55Hz, double amplitude 1.5mm
Shock	Durability: Maximum 1,000 m/s2 False action: Maximum 300/m/s2
Lifespan	Mechanical: over 300,000 times; Electrical: over 10,000 times
Protection rating	IEC IP40
Electric shock protection level	Class I
PTI (leakage characteristics)	175
Operating ambient temperature	-25 to 80℃ , below 60% humidity (no freezing, no condensation)
Operating ambient humidity	Below 85% RH (at 5 ℃~35℃)
Weight	AC-12 10A 250V DC-12 0.25A 250V

Contact Type (DPDT)



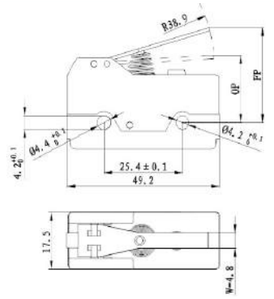
Terminal type

Threaded connection terminal: M3 screw



Features

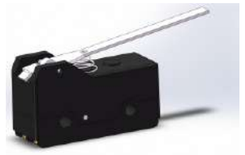
NDZ-10GW21-B

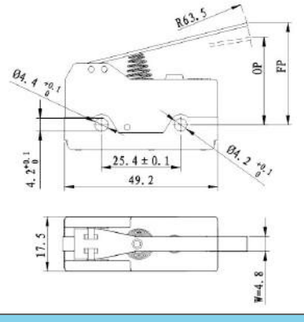


OF	≤2.8N
RF	≥0.5N
FP	≤29.8mm
OP	20.8±1.0mm
OT	≥1.6mm
MD	≤2.5mm

NDZ-10GW21-B

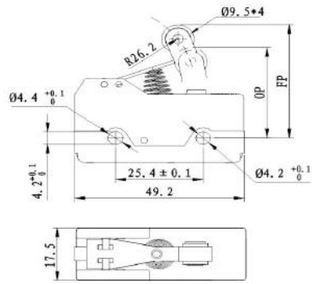
-





OF	≤1.67N
RF	≥0.27N
FP	≤46.3mm
OP	21.8±1.2mm
OT	≥1.6mm
MD	≤4mm

NDZ-10GW22-B



OF	≤3.9N
RF	≥0.8N
FP	≤39.7mm
OP	30.2±1.0mm
OT	≥0.8mm
MD	≤2.4mm

NDZ-10GW2-B

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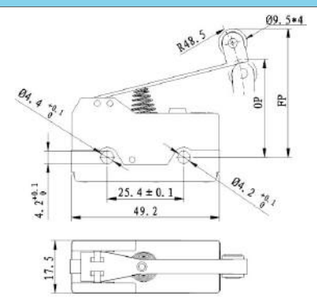

OF	≤2.09N
RF	≥0.41N
FP	≤47.6mm
OP	31.8±1.0mm
OT	≥1.2mm
MD	≤3.3mm

Mounting: Use M4 mounting screws with plane washers or spring washers To securely mount the Switch Tighten the screws to a torque of 0.7 to 1.2 N.m.

Insulation distance:Minimum insulating layer thickness for this microswitch is 1.1mm.Minimum space distance is 1.9mm between terminal and mounting plate.