General-purpose Basic Switch
X

Direct Current Switch with Built-in Magnetic Blowout

- Incorporates a small permanent magnet in the contact mechanism to deflect the arc to effectively extinguish it.
- Same shape and mounting procedures as the Z Basic Switches.

Model Number Structure

■ Model Number Legend

X-10G□-□
1 2 3 4

1. Ratings
10: 10 A (125 VDC)

2. Contact Gap
G: 0.9 mm

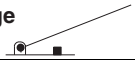
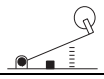
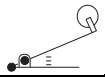
3. Actuator
None: Pin plunger
D: Short spring plunger
S: Slim spring plunger
Q: Panel mount plunger
Q21: Panel mount cross roller plunger
Q22: Panel mount roller plunger
L: Leaf spring
W: Hinge lever
W2: Hinge roller lever
W21: Short hinge lever
W22: Short hinge roller lever
W4: Low-force hinge lever
M: Reverse hinge lever
M2: Reverse hinge roller lever
M22: Reverse short hinge roller lever

4. Terminals
None: Solder terminal
B: Screw terminal (with toothed washer)

Ordering Information

■ List of Models

Actuator	Solder	Screw
Pin plunger	X-10G	X-10G-B
Slim spring plunger 	X-10GS	X-10GS-B
Short spring plunger 	X-10GD	X-10GD-B
Panel mount plunger 	X-10GQ	X-10GQ-B
Panel mount roller plunger 	X-10GQ22	X-10GQ22-B
Panel mount cross roller plunger 	X-10GQ21	X-10GQ21-B
Leaf spring 	X-10GL	X-10GL-B
Short hinge lever 	X-10GW21	X-10GW21-B

Actuator	Solder	Screw
Hinge lever 	X-10GW	X-10GW-B
Low-force hinge lever 	X-10GW4	X-10GW4-B
Short hinge roller lever 	X-10GW22	X-10GW22-B
Hinge roller lever 	X-10GW2	X-10GW2-B
Reverse hinge lever 	X-10GM	X-10GM-B
Reverse short hinge roller lever 	X-10GM22	X-10GM22-B
Reverse hinge roller lever 	X-10GM2	X-10GM2-B

Note: The plungers of reverse-type models are continuously pressed by the compression coil springs and the plungers are freed by operating the levers.

Specifications

■ Approved Standards

Agency	Standard	File No.
UL	UL508	E41515
CSA	CSA C22.2 No. 55	LR21642

■ Approved Standard Ratings

UL508 (File No. E41515)
CSA C22.2 No.55 (File No. LR21642)

Rated voltage	X-10G
125 VDC	10 A
250 VDC	3 A

■ Ratings

Rated voltage	Non-inductive load			Inductive load			
	Resistive load	Lamp load		Inductive load		Motor load	
		NC	NO	NC	NO	NC	NO
8 VDC	10 A	3 A	1.5 A	10 A	10 A	5 A	2.5 A
14 VDC	10 A	3 A	1.5 A	10 A	10 A	5 A	2.5 A
30 VDC	10 A	3 A	1.5 A	10 A	10 A	5 A	2.5 A
125 VDC	10 A	3 A	1.5 A	7.5 A	6 A	5 A	2.5 A
250 VDC	3 A	1.5 A	0.75 A	2 A	1.5 A	2 A	1.5 A

Note: 1. The above values are for the steady-state current.
2. Inductive load has a power factor of 0.4 min. (AC) and a time constant of 7 ms max. (DC).
3. Lamp load has an inrush current of 10 times the steady-state current.
4. Motor load has an inrush current of 6 times the steady-state current.
5. The above electrical ratings also apply to the AC voltage.
6. With the reverse-type models (X-10GM□), the normally closed circuits and normally open circuits are reversed.
7. The ratings values apply under the following test conditions:
Ambient temperature: 20±2°C
Ambient humidity: 65±5%
Operating frequency: 20 operations/min

■ Characteristics

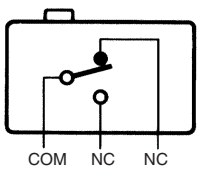
Operating speed	0.1 mm to 1 m/s (see note 1)
Operating frequency	Mechanical: 240 operations/min Electrical: 20 operations/min
Insulation resistance	100 MΩ min. (at 500 VDC)
Contact resistance	15 mΩ max. (initial value)
Dielectric strength	1,500 VAC, 50/60 Hz for 1 min between terminals of the same polarity, between current-carrying metal parts and the ground, and between each terminal and non-current-carrying metal parts
Vibration resistance	Malfunction: 10 to 55 Hz, 1.5-mm double amplitude (see note 2)
Shock resistance	Destruction: 1,000 m/s^2 {approx. 100G} max. Malfunction: 300 m/s^2 {approx. 30G} max. (see note 1, 2)
Durability	Mechanical: 1,000,000 operations min. Electrical: 100,000 operations min.
Degree of protection	IP00
Degree of protection against electric shock	Class I
Proof tracking index (PTI)	175
Switch category	D (IEC335-1)
Ambient temperature	Operating: –25°C to 80°C (with no icing)
Ambient humidity	Operating: 35% to 85% max.
Weight	Approx. 27 to 63 g

Note: 1. The values are for the pin plunger models. (Contact your OMRON representative for other models.)
2. Malfunction: 1 ms max.

■ Contact Specification

Item		X-10
Contacts	Material	Silver alloy
	Gap (standard value)	0.9 mm
Inrush current	NC	30 A max.
	NO	15 A max.

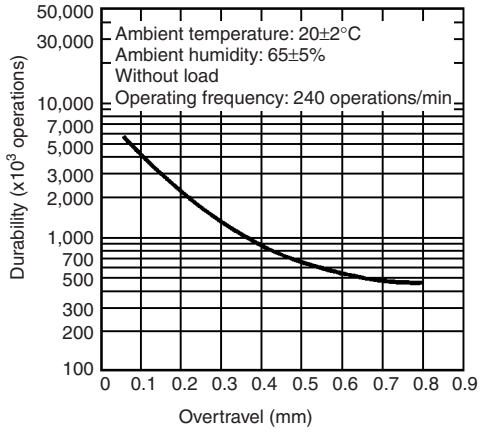
■ Contact Form (SPDT)



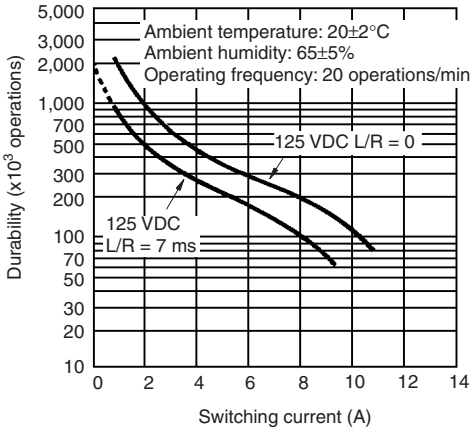
Note: With the reverse-type models (X-10GM□), the NC and NO terminal arrangements are reversed.

Engineering Data

■ Mechanical Durability (Pin Plunger)



■ Electrical Durability (Pin Plunger)



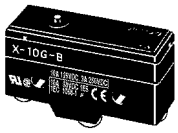
Dimensions

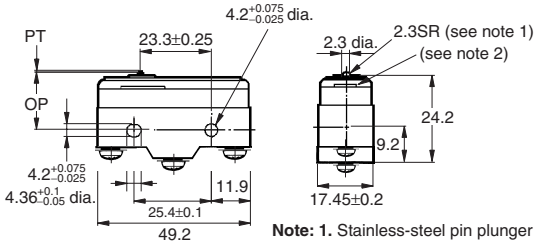
Note: 1. All units are in millimeters unless otherwise indicated.
2. Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.

■ Dimensions and Operating Characteristics

The models, illustrations, and graphics are for screw-terminal models. (The dimensions for models that are omitted here are the same as for pin-plunger models.)

Pin Plunger
X-10G-B

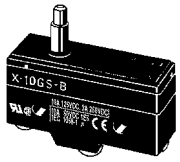


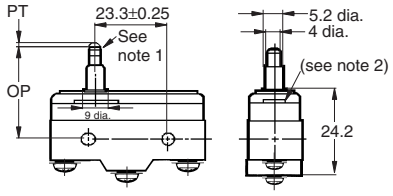


Note: 1. Stainless-steel pin plunger
2. Three vent holes

OF max.	5.00 N {510 gf}
RF min.	1.12 N {114 gf}
PT max.	0.9 mm
OT min.	0.13 mm
MD max.	0.18 mm
OP	15.9±0.4 mm

Slim Spring Plunger
X-10GS-B

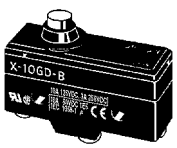


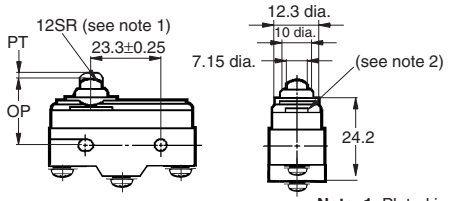


Note: 1. Stainless-steel pin plunger (flat, 1R chamfering)
2. Vent holes (3 places)

OF max.	5.00 N {510 gf}
RF min.	1.12 N {114 gf}
PT max.	0.9 mm
OT min.	1.6 mm
MD max.	0.18 mm
OP	28.2±0.5 mm

Short Spring Plunger
X-10GD-B



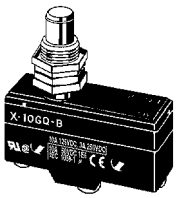


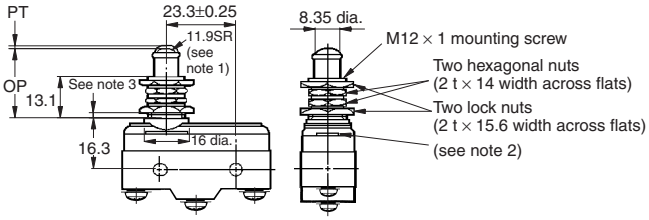
Note: 1. Plated iron plunger
2. Three vent holes

OF max.	5.00 N {510 gf}
RF min.	1.12 N {114 gf}
PT max.	0.9 mm
OT min.	1.6 mm
MD max.	0.18 mm
OP	21.2±0.5 mm

Panel Mount Plunger

X-10GQ-B



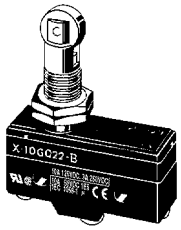


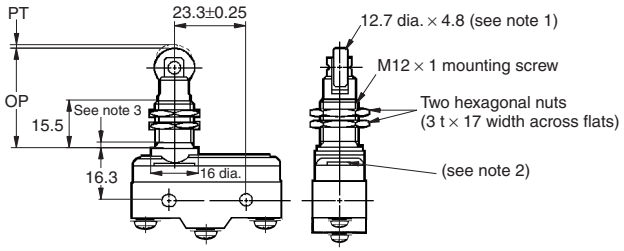
OF max.	5.00 N {510 gf}
RF min.	1.12 N {114 gf}
PT max.	0.9 mm
OT min.	5.5 mm
MD max.	0.18 mm
OP	21.8±0.8 mm

Note: 1. Stainless-steel pin plunger
2. Three vent holes
3. Imperfect screw part with a maximum length of 1.5 mm.

Panel Mount Roller Plunger

X-10GQ22-B



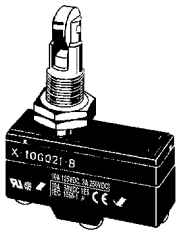


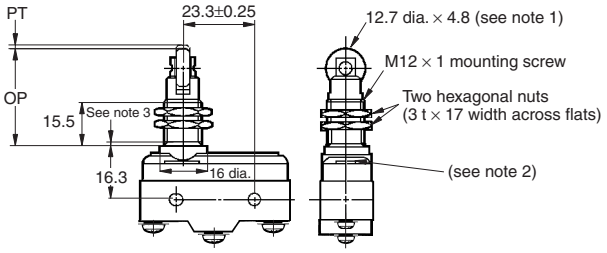
OF max.	5.00 N {510 gf}
RF min.	1.12 N {114 gf}
PT max.	0.9 mm
OT min.	3.6 mm
MD max.	0.18 mm
OP	33.4±1.2 mm

Note: 1. Stainless-steel roller
2. Three vent holes
3. Imperfect screw part with a maximum length of 1.5 mm.

Panel Mount Cross Roller Plunger

X-10GQ21-B



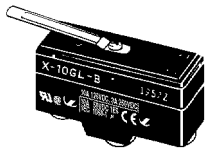


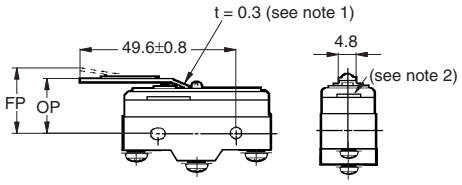
OF max.	5.00 N {510 gf}
RF min.	1.12 N {114 gf}
PT max.	0.9 mm
OT min.	3.6 mm
MD max.	0.18 mm
OP	33.4±1.2 mm

Note: 1. Stainless-steel roller
2. Three vent holes
3. Imperfect screw part with a maximum length of 1.5 mm.

Leaf Spring

X-10GL-B





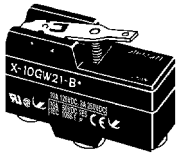
Note: 1. Stainless-steel spring lever
2. Three vent holes

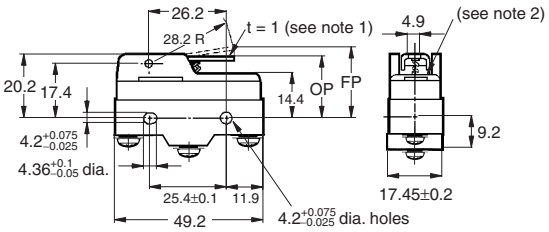
OF max.	1.96 N {200 gf}
RF min.	0.14 N {14 gf}
OT min.	1.6 mm (see note)
MD max.	2.3 mm
FP max.	22.1 mm
OP	17.4±0.8 mm

Note: 1. Reference value
2. Be sure to use the switch at the rated OT value of 1.6 mm.

Short Hinge Lever

X-10GW21-B



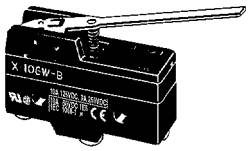


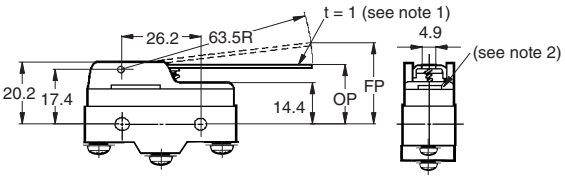
Note: 1. Stainless-steel lever
2. Three vent holes

OF max.	2.45 N {250 gf}
RF min.	0.31 N {32 gf}
OT min.	2.1 mm
MD max.	1.7 mm
FP max.	25.5 mm
OP	20.7±0.8 mm

Hinge Lever

X-10GW-B



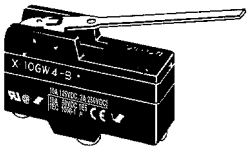


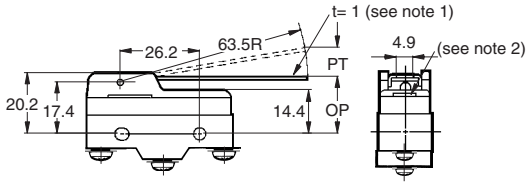
Note: 1. Stainless-steel lever
2. Three vent holes

OF max.	1.08 N {110 gf}
RF min.	0.14 N {14 gf}
OT min.	4.8 mm
MD max.	3.9 mm
FP max.	34.6 mm
OP	21.1±0.8 mm

Low-force Hinge Lever

X-10GW4-B



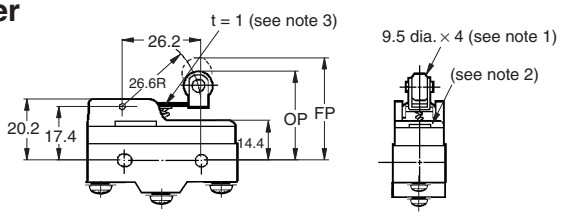


Note: 1. Stainless-steel lever
2. Three vent holes

OF max.	0.25 N {25 gf}
RF min.	0.05 N {5 gf}
PT max.	14.3 mm
OT min.	4.8 mm
MD max.	3.9 mm
OP	21.1±0.8 mm

Short Hinge Roller Lever

X-10GW22-B

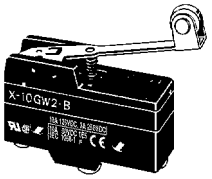


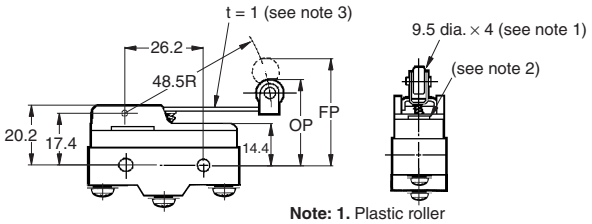
Note: 1. Plastic roller
2. Three vent holes
3. Stainless-steel spring lever

OF max.	2.16 N {220 gf}
RF min.	0.34 N {35 gf}
OT min.	2.4 mm
MD max.	1.7 mm
FP max.	37.1 mm
OP	32.2±0.8 mm

Hinge Roller Lever

X-10GW2-B



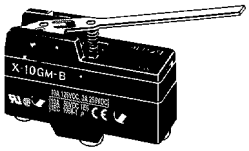


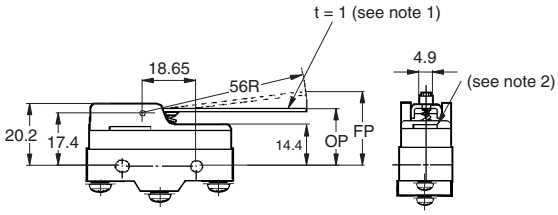
Note: 1. Plastic roller
2. Three vent holes
3. Stainless-steel spring lever

OF max.	1.42 N {145 gf}
RF min.	0.21 N {21 gf}
OT min.	4 mm
MD max.	3 mm
FP max.	40.5 mm
OP	32.2±0.8 mm

Reverse Hinge Lever

X-10GM-B



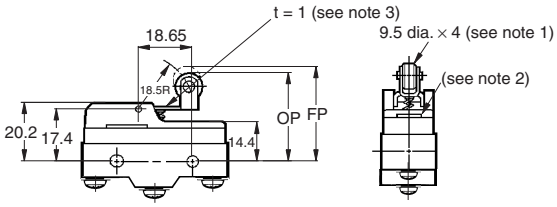


Note: 1. Stainless-steel lever
2. Three vent holes

OF max.	2.16 N {220 gf}
RF min.	0.25 N {25 gf}
OT min.	5.5 mm
MD max.	2.1 mm
FP max.	26.8 mm
OP	21.1±0.8 mm

Reverse Short Hinge Lever

X-10GM22-B

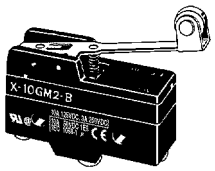


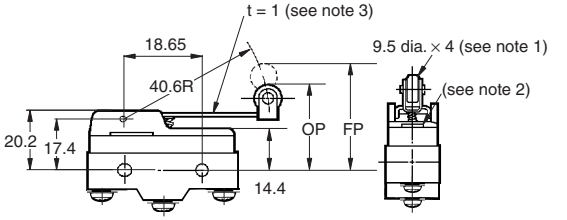
Note: 1. Plastic roller
2. Three vent holes
3. Stainless-steel spring lever

OF max.	6.86 N {700 gf}
RF min.	1.52 N {155 gf}
OT min.	2 mm
MD max.	0.75 mm
FP max.	36.1 mm
OP	32.2±0.8 mm

Reverse Hinge Roller Lever

X-10GM2-B



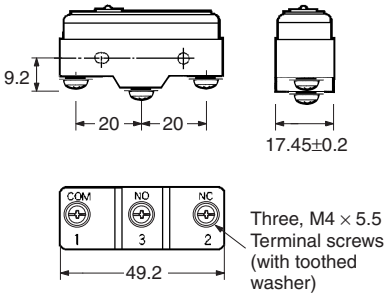


Note: 1. Plastic roller
2. Three vent holes
3. Stainless-steel spring lever

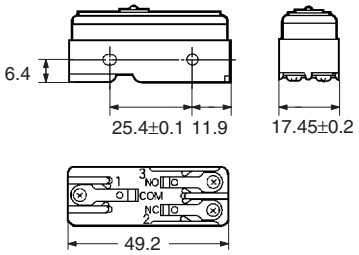
OF max.	3.14 N {320 gf}
RF min.	0.49 N {50 gf}
OT min.	4 mm
MD max.	1.5 mm
FP max.	37.4 mm
OP	32.2±0.8 mm

■ Terminals

Screw Terminals (-B)



Solder Terminal



Appropriate terminal screw tightening torque:
0.78 to 1.18 N·m {8 to 12 kgf·cm}.

Note: 1. Tighten the terminal screws to a torque of 0.78 to 1.18 N·m {8 to 12 kgf·cm}.
2. In case of DC voltage, set the COM to the positive terminal.

Precautions

Refer to the *Technical Information for Basic Switches* (Cat. No. C122) for common precautions.

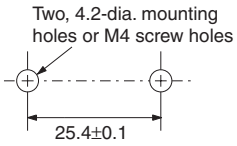
■ Correct Use

Mounting

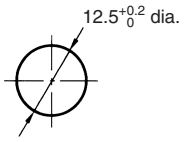
Use M4 mounting screws with plane washers or spring washers to securely mount the Switch. Tighten the screws to a torque of 1.18 to 1.47 N·m {12 to 15 kgf·cm}

The Switch can be panel mounted, provided that the hexagonal nut of the actuator is tightened to a torque of 2.94 to 4.9 N·m {30 to 50 kgf·cm}.

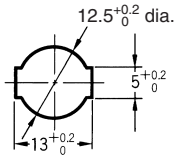
Mounting Holes



Panel Mount Plunger



Panel Mount Roller Plunger



Handling

Set the common (COM) terminal to the positive terminal. If it is set to the negative terminal, the Switch will not turn OFF.

When using the Switch under an inductive load, the arc suppression capability varies depending on current. If the current becomes 0.6 to 1.2 A or of the time constant L/R exceeds 7 ms, be sure to provide an arc suppressor.

Since the Switch incorporates a permanent magnet, attention must be paid to the following points:

- Avoid mounting the Switch directly onto a magnetic substance.
- Do not subject the Switch to severe shocks.
- Avoid placing the Switch in a strong magnetic field.
- Be sure to prevent iron dust or iron chips from adhering to the built-in magnet or the magnetic blowout function of the Switch will be adversely affected.
- Do not apply thermal shock to the Switch, or the magnetic flux will be diminished.

Since a ventilation hole is provided to avoid abnormal corrosion due to operating conditions, provide a dustproofing device in locations where the Switch is exposed to dust.

Do not change operating positions for the actuator. Changing the position may cause malfunction.

Panel-mounted Model (X-10GQ□)

To side-mount the panel-mount Switch to the panel with screws, remove the hexagonal nut from the actuator.

Too large a dog angle and too fast operating speed may damage the Switch when the Switch is side-mounted on the panel.

Too fast operating speed and too long overtravel of the roller plunger Switch may result in damage to the Switch.

■ Accessories (Order separately)

Refer to *Z/A/X/DZ Common Accessories* for details about Terminal Covers, Separators, and Actuators.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Cat. No. B003-E2-08

In the interest of product improvement, specifications are subject to change without notice.