

## General-purpose Basic Switch

# A

### High-capacity Switch Capable of Handling 20 A Loads with Large Inrush Currents

- Same shape as OMRON Z Basic Switches except in pin plunger position, yet endures inrush currents as large as 75 A.



## Ordering Information

### Model Number Legend

A-20G□-□  
1 2 3 4

#### 1. Ratings

20: 20 A (250 VAC)

#### 2. Contact Gap

G: 0.5 mm

#### 3. Actuator

None: Pin plunger

D: Short spring plunger

Q: Panel mount plunger

Q21: Panel mount cross roller plunger

Q22: Panel mount roller plunger

V: Hinge lever

V2: Hinge roller lever

V21: Short hinge lever

V22: Short hinge roller lever

#### 4. Terminals

None: Solder terminal

B: Screw terminal (with toothed washer)

### List of Models

Actuator		Solder terminal	Screw terminal (-B)
Pin plunger		A-20G	A-20G-B
Short spring plunger		A-20GD	A-20GD-B
Panel mount plunger		A-20GQ	A-20GQ-B
Panel mount roller plunger		A-20GQ22	A-20GQ22-B
Panel mount cross roller plunger		---	A-20GQ21-B
Short hinge lever		A-20GV21	A-20GV21-B
Hinge lever		A-20GV	A-20GV-B
Short hinge roller lever		A-20GV22	A-20GV22-B
Hinge roller lever		A-20GV2	A-20GV2-B

**Note:** Refer to *Terminals* in Model Z for solder and screw terminals.

# Specifications

## ■ Ratings

Rated voltage	Non-inductive load				Inductive load			
	Resistive load		Lamp load		Inductive load		Motor load	
	NC	NO	NC	NO	NC	NO	NC	NO
125 VAC	20 A		7.5 A		20 A		12.5 A	
250 VAC	20 A		7.5 A		20 A		8.3 A	
500 VAC	15 A		4 A		10 A		2 A	
8 VDC	20 A		3 A	1.5 A	20 A		12.5 A	
14 VDC	20 A		3 A	1.5 A	15 A		12.5 A	
30 VDC	6 A		3 A	1.5 A	5 A		5 A	
125 VDC	0.5 A		0.5 A		0.05 A		0.05 A	
250 VDC	0.25 A		0.25 A		0.03 A		0.03 A	

- Note:**
- The above values are for steady-state current.
  - Inductive load has a power factor of 0.4 min. (AC) and a time constant of 7 ms max. (DC).
  - Lamp load has an inrush current of 10 times the steady-state current.
  - Motor load has an inrush current of 6 times the steady-state current.
  - The ratings values apply under the following test conditions:  
 Ambient temperature: 20±2°C  
 Ambient humidity: 65±5%  
 Operating frequency: 20 operations/min

## ■ Characteristics

<b>Operating speed</b>	0.01 mm to 1 m/s (see note 1)
<b>Operating frequency</b>	Mechanical: 240 operations/min Electrical: 20 operations/min (under rated load)
<b>Insulation resistance</b>	100 MΩ min. (at 500 VDC)
<b>Contact resistance</b>	15 mΩ max. (initial value)
<b>Dielectric strength</b>	1,000 VAC, 50/60 Hz for 1 min between terminals of the same polarity 2,000 VAC, 50/60 Hz for 1 min between the current-carrying metal parts and the ground, and between each terminal and non-current-carrying metal parts
<b>Vibration resistance</b>	Malfunction: 10 to 55 Hz, 1.5-mm double amplitude (see note 2)
<b>Shock resistance</b>	Destruction: 1,000 m/s <sup>2</sup> {approx. 100G} max. Malfunction: 300 m/s <sup>2</sup> {approx. 30G} max. (see note 1, 2)
<b>Life expectancy</b>	Mechanical: 1,000,000 operations min. Electrical: 500,000 operations min.
<b>Degree of protection</b>	IP00
<b>Degree of protection against electric shock</b>	Class I
<b>Proof tracking index (PTI)</b>	175
<b>Switch category</b>	D (IEC335-1)
<b>Ambient temperature</b>	Operating: -25°C to 80°C (with no icing)
<b>Ambient humidity</b>	Operating: 85% max.
<b>Weight</b>	Approx. 23 to 58 g

- Note:**
- The value is for the pin plunger. (Contact your OMRON representative for other models.)
  - Malfunction: 1 ms max.

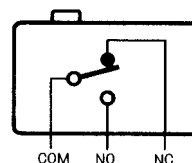
## ■ Approved Standards

UL508 (File No. E41515)

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

Rated voltage	A-20G
125 VAC	1 HP 10 A "L"
250 VAC	2 HP
480 VAC	20 A
125 VDC	0.5 A
250 VDC	0.25 A

## ■ Contact Form (SPDT)

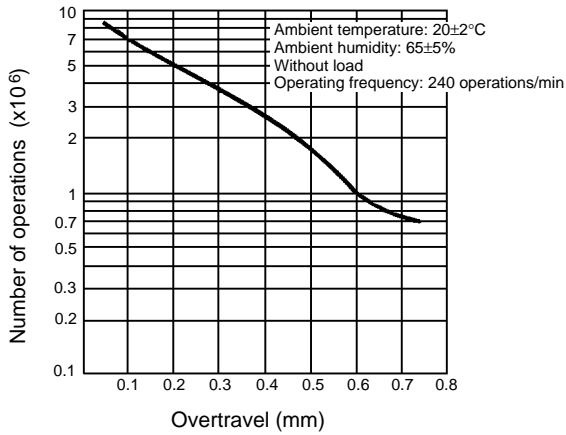


### ■ Contact Specification

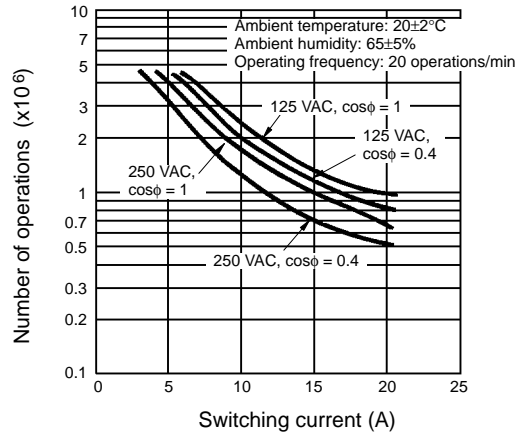
Item		A-20
Contacts	Shape	Rivet
	Material	Silver alloy
	Gap (standard value)	0.5 mm
Inrush current	NC	75 A max.
	NO	75 A max.

## Engineering Data (Reference Data)

**Mechanical Life Expectancy**  
A-20G



**Electrical Life Expectancy**  
A-20G

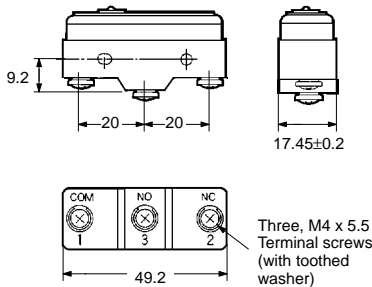


## Dimensions

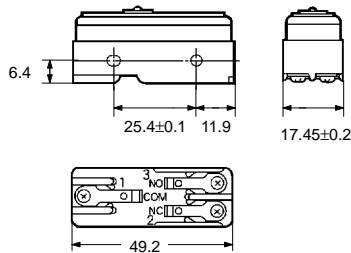
- Note:**
1. All units are in millimeters unless otherwise indicated.
  2. Unless otherwise specified, a tolerance of  $\pm 0.4$  mm applies to all dimensions.

### ■ Terminals

**Screw Terminals (-B)**



**Solder Terminal**

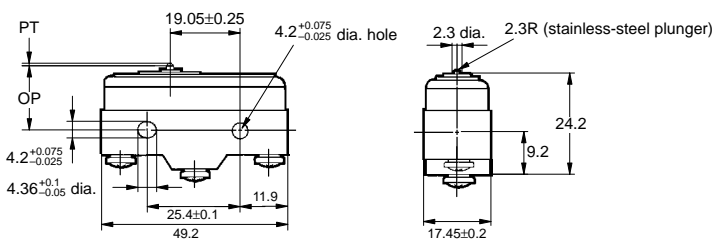


Appropriate terminal screw tightening torque:  
0.78 to 1.18 N • m {8 to 12 kgf • cm}.

## ■ Dimensions and Operating Characteristics

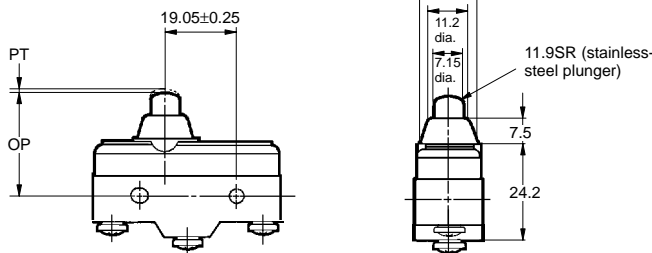
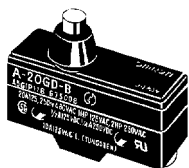
The models, illustrations, and graphics are for screw-terminal models. (The dimensions for models that are omitted here are the same as for pin-plunger models.)

### Pin Plunger A-20G-B



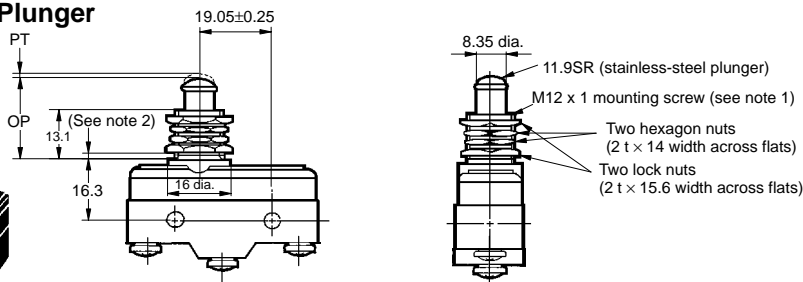
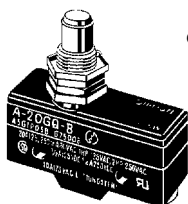
Model	A-20G-B
OF	3.92 to 6.13 N {400 to 625 gf}
RF min.	2.79 N {285 gf}
PT max.	1.3 mm
OT min.	0.25 mm
MD max.	0.2 mm
OP	16.3±0.4 mm

### Short Spring Plunger A-20GD-B



Model	A-20GD-B
OF	3.92 to 6.13 N {400 to 625 gf}
RF min.	2.79 N {285 gf}
PT max.	1.3 mm
OT min.	3 mm
MD max.	0.2 mm
OP	26.2±0.5 mm

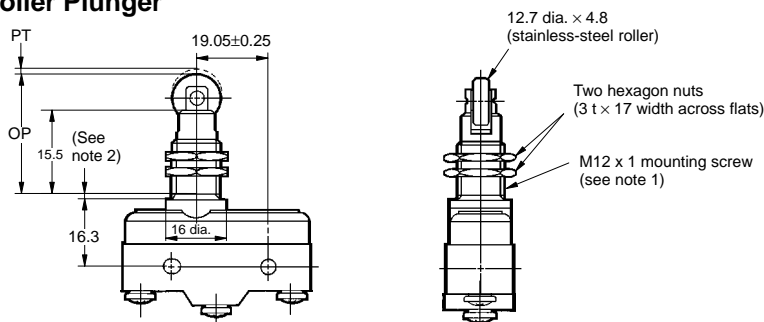
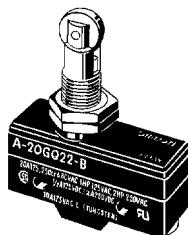
### Panel Mount Plunger A-20GQ-B



Note: 1. Do not use both M12 mounting screw and mounting holes at the same time.  
2. Imperfect screw part with a maximum length of 1.5 mm.

Model	A-20GQ-B
OF	3.92 to 6.13 N {400 to 625 gf}
RF min.	2.79 N (285 gf)
PT max.	1.3 mm
OT min.	5.6 mm
MD max.	0.2 mm
OP	21.8±0.8 mm

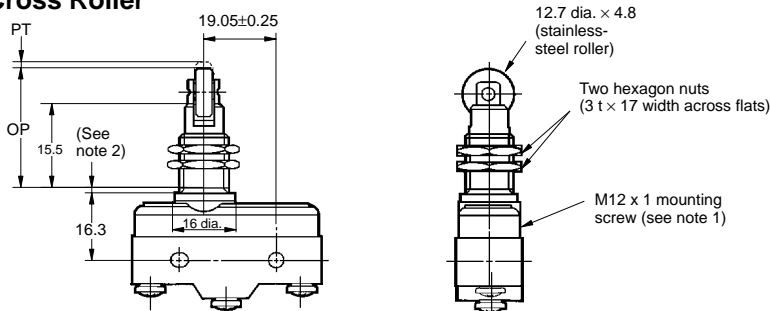
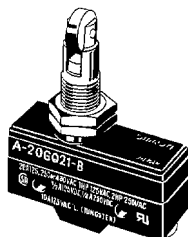
### Panel Mount Roller Plunger A-20GQ22-B



Note: 1. Do not use both M12 mounting screw and mounting holes at the same time.  
2. Imperfect screw part with a maximum length of 1.5 mm.

Model	A-20GQ22-B
OF	6.18 N {630 gf} max.
RF min.	2.75 N {280 gf}
PT max.	1.3 mm
OT min.	3.58 mm
MD max.	0.35 mm
OP	33.4±1.2 mm

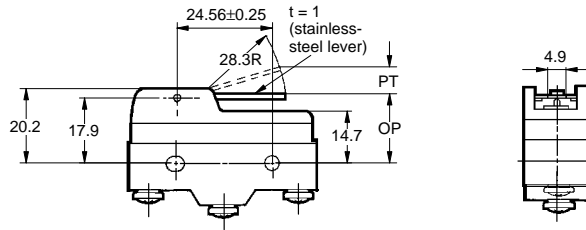
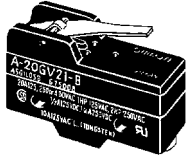
### Panel Mount Cross Roller A-20GQ21-B



Note: 1. Do not use both M12 mounting screw and mounting holes at the same time.  
2. Imperfect screw part with a maximum length of 1.5 mm.

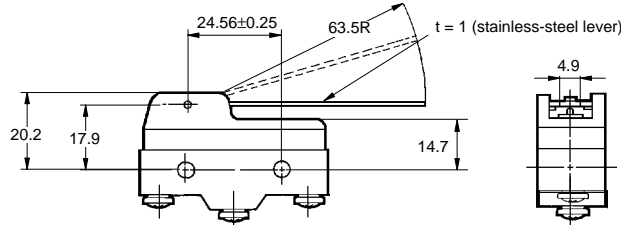
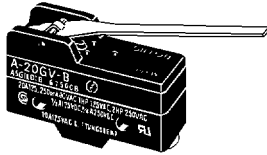
Model	A-20GQ21-B
OF	6.18 N {630 gf} max.
RF min.	2.75 N {280 gf}
PT max.	1.3 mm
OT min.	3.58 mm
MD max.	0.35 mm
OP	33.4±1.2 mm

**Short Hinge Lever**  
**A-20GV21-B**



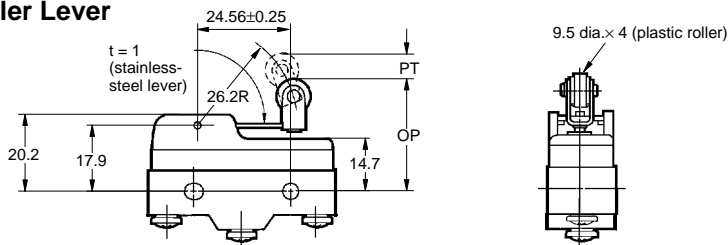
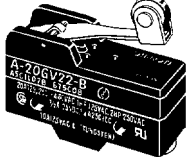
Model	A-20GV21-B
OF	1.57 N {160 gf} max.
RF min.	0.41 N {42 gf}
PT max.	6.5 mm
OT min.	1.2 mm
MD max.	1.2 mm
OP	19±0.8 mm

**Hinge Lever**  
**A-20GV-B**



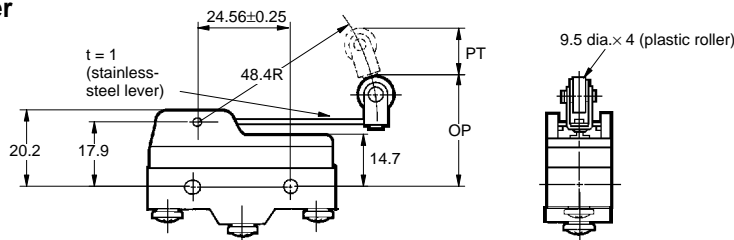
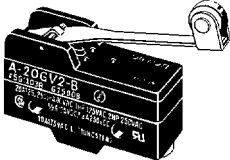
Model	A-20GV-B
OF	0.69 N {70 gf} max.
RF min.	0.14 N {14 gf}
PT max.	15.9 mm
OT min.	4 mm
MD max.	2.4 mm
OP	19±0.8 mm

**Short Hinge Roller Lever**  
**A-20GV22-B**



Model	A-20GV22-B
OF	1.57 N {160 gf}
RF min.	0.41 N {42 gf}
PT max.	6.3 mm
OT min.	1.2 mm
MD max.	1.2 mm
OP	29.8±0.8 mm

**Hinge Roller Lever**  
**A-20GV2-B**



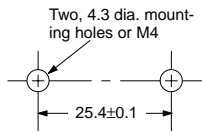
Model	A-20GV2-B
OF	0.88 N {90 gf}
RF min.	0.14 N {14 gf}
PT max.	12 mm
OT min.	2.4 mm
MD max.	2.2 mm
OP	30.2±0.8 mm

# Precautions

## ■ Caution

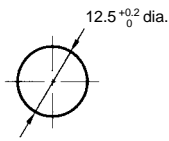
### Mounting Dimensions

Use M4 screws with flat washers and spring washers to mount the Switch. Tighten each mounting screw securely to a torque of 1.18 to 1.47 N • m {12 to 15 kgf • cm}.

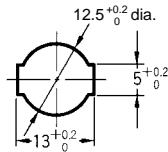


The Switch can be panel mounted, provided that the hexagonal nut of the actuator is tightened to a torque of 2.94 to 4.9 N • m {30 to 50 kgf • cm}.

### Panel Mount Plunger



### Panel Mount Roller Plunger



## ■ Correct Use

### Panel-mounting (A-20GQ□)

If a Switch is side-mounted with screws, remove the hexagonal nut of the actuator.

If a Switch is side-mounted and secured with screws, make sure that the angle or speed of the actuating object is not excessively large or too high, otherwise the Switch may be damaged.

If a Switch is panel-mounted, pay utmost attention to make sure that the actuating speed or OT distance is not excessively high or large. Not doing so may damage the Switch.

### ■ Accessories (Sold Separately)

Terminal protective covers and separators are available. For details, refer to 72 to 74.

**ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.**

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.