OMRON

Miniature Basic Switch

D3V

Reliable and Safe Basic Switch with External Lever

- Environment-friendly – free of beryllium copper.
- Maximum operating temperature of 105°C. (T125 available soon)
- Self-cleaning contacts.
- Available in 6-A, 11-A or 16-A models.
- Available with internally or externally fitted levers.
- 2 fixing positions for external levers.
- Conforms to EN61058-1.

Ordering Information

■ Model Number Legend

D3V-□□□□-□□□□

1 2 3 4 5 6 7 8

1. Ratings
- 16: 16 (3) A, 250 VAC
- 11: 11 (3) A, 250 VAC
- 6: 6 (2) A, 250 VAC

2. Contact Gap
- None: 1 mm (F gap)
- G: 0.5 mm (G gap)

3. Actuator
- None: Pin plunger
- 1: Short hinge lever
- 2: Hinge lever
- 3: Long hinge lever
- 4: Simulated hinge lever
- 5: Short hinge roller lever
- 6: Hinge roller lever

4. Hinge Position
- None: Internal
- M: External/Further than plunger

Note: Also available are models with hinge position set closer to plunger. For further details, contact your OMRON sales representative.

5. Contact Form
- 1: SPDT
- 2: SPST-NC
- 3: SPST-NO

6. Terminals
- A: Solder/quick-connect terminal (#187)
- C2: Quick-connect terminal (#187)
- C: Quick-connect terminal (#250)

7. Operating Force max.
- 5: 1.96 N {200 gf}
- 4: 0.98 N {100 gf}

Note: These values are for the pin plunger models.

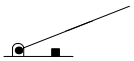
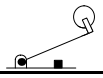
8. Mounting Hole Size
- None: 3.1 mm
- K: 2.9 mm

■ List of Models

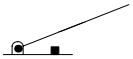
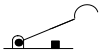
General-purpose Models

(Only standard combinations of terminal availability are shown.)

- 16 A (OF: 1.96 N {200 gf})

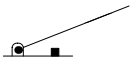
Actuator	Hinge position	Contact form		
		SPDT	SPST-NC	SPST-NO
Pin plunger 	---	D3V-16-1□5Δ	D3V-16-2□5Δ	D3V-16-3□5Δ
Short hinge lever 	Internal	D3V-161-1□5Δ	D3V-161-2□5Δ	D3V-161-3□5Δ
	M	D3V-161M-1□5Δ	D3V-161M-2□5Δ	D3V-161M-3□5Δ
Hinge lever 	Internal	D3V-162-1□5Δ	D3V-162-2□5Δ	D3V-162-3□5Δ
	M	D3V-162M-1□5Δ	D3V-162M-2□5Δ	D3V-162M-3□5Δ
Long hinge lever 	Internal	D3V-163-1□5Δ	D3V-163-2□5Δ	D3V-163-3□5Δ
	M	D3V-163M-1□5Δ	D3V-163M-2□5Δ	D3V-163M-3□5Δ
Simulated hinge lever 	Internal	D3V-164-1□5Δ	D3V-164-2□5Δ	D3V-164-3□5Δ
	M	D3V-164M-1□5Δ	D3V-164M-2□5Δ	D3V-164M-3□5Δ
Short hinge roller lever 	Internal	D3V-165-1□5Δ	D3V-165-2□5Δ	D3V-165-3□5Δ
	M	D3V-165M-1□5Δ	D3V-165M-2□5Δ	D3V-165M-3□5Δ
Hinge roller lever 	Internal	D3V-166-1□5Δ	D3V-166-2□5Δ	D3V-166-3□5Δ
	M	D3V-166M-1□5Δ	D3V-166M-2□5Δ	D3V-166M-3□5Δ

- 11 A (OF: 1.96 N {200 gf})

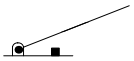
Actuator	Hinge position	Contact form		
		SPDT	SPST-NC	SPST-NO
Pin plunger 	---	D3V-11-1□5Δ	D3V-11-2□5Δ	D3V-11-3□5Δ
Short hinge lever 	Internal	D3V-111-1□5Δ	D3V-111-2□5Δ	D3V-111-3□5Δ
	M	D3V-111M-1□5Δ	D3V-111M-2□5Δ	D3V-111M-3□5Δ
Hinge lever 	Internal	D3V-112-1□5Δ	D3V-112-2□5Δ	D3V-112-3□5Δ
	M	D3V-112M-1□5Δ	D3V-112M-2□5Δ	D3V-112M-3□5Δ
Long hinge lever 	Internal	D3V-113-1□5Δ	D3V-113-2□5Δ	D3V-113-3□5Δ
	M	D3V-113M-1□5Δ	D3V-113M-2□5Δ	D3V-113M-3□5Δ
Simulated hinge lever 	Internal	D3V-114-1□5Δ	D3V-114-2□5Δ	D3V-114-3□5Δ
	M	D3V-114M-1□5Δ	D3V-114M-2□5Δ	D3V-114M-3□5Δ
Short hinge roller lever 	Internal	D3V-115-1□5Δ	D3V-115-2□5Δ	D3V-115-3□5Δ
	M	D3V-115M-1□5Δ	D3V-115M-2□5Δ	D3V-115M-3□5Δ
Hinge roller lever 	Internal	D3V-116-1□5Δ	D3V-116-2□5Δ	D3V-116-3□5Δ
	M	D3V-116M-1□5Δ	D3V-116M-2□5Δ	D3V-116M-3□5Δ

Note: The □ in the model number is for the terminal code.
A: Solder/quick-connect terminals (#187)
C2: Quick-connect terminals (#187)
C: Quick-connect terminals (#250)
The Δ in the model number is for the mounting hole size.
None:3.1 mm
K: 2.9 mm

- 11 A (OF: 0.98 N {100 gf})

Actuator	Hinge position	Contact form		
		SPDT	SPST-NC	SPST-NO
Pin plunger	---	D3V-11-1□4Δ	D3V-11-2□4Δ	D3V-11-3□4Δ
Short hinge lever 	Internal	D3V-111-1□4Δ	D3V-111-2□4Δ	D3V-111-3□4Δ
	M	D3V-111M-1□4Δ	D3V-111M-2□4Δ	D3V-111M-3□4Δ
Hinge lever 	Internal	D3V-112-1□4Δ	D3V-112-2□4Δ	D3V-112-3□4Δ
	M	D3V-112M-1□4Δ	D3V-112M-2□4Δ	D3V-112M-3□4Δ
Long hinge lever 	Internal	D3V-113-1□4Δ	D3V-113-2□4Δ	D3V-113-3□4Δ
	M	D3V-113M-1□4Δ	D3V-113M-2□4Δ	D3V-113M-3□4Δ
Simulated hinge lever 	Internal	D3V-114-1□4Δ	D3V-114-2□4Δ	D3V-114-3□4Δ
	M	D3V-114M-1□4Δ	D3V-114M-2□4Δ	D3V-114M-3□4Δ
Short hinge roller lever 	Internal	D3V-115-1□4Δ	D3V-115-2□4Δ	D3V-115-3□4Δ
	M	D3V-115M-1□4Δ	D3V-115M-2□4Δ	D3V-115M-3□4Δ
Hinge roller lever 	Internal	D3V-116-1□4Δ	D3V-116-2□4Δ	D3V-116-3□4Δ
	M	D3V-116M-1□4Δ	D3V-116M-2□4Δ	D3V-116M-3□4Δ

- 6 A (OF: 0.98 N {100 gf})

Actuator	Hinge position	Contact form		
		SPDT	SPST-NC	SPST-NO
Pin plunger 	---	D3V-6-1□4Δ	D3V-6-2□4Δ	D3V-6-3□4Δ
Short hinge lever 	Internal	D3V-61-1□4Δ	D3V-61-2□4Δ	D3V-61-3□4Δ
	M	D3V-61M-1□4Δ	D3V-61M-2□4Δ	D3V-61M-3□4Δ
Hinge lever 	Internal	D3V-62-1□4Δ	D3V-62-2□4Δ	D3V-62-3□4Δ
	M	D3V-62M-1□4Δ	D3V-62M-2□4Δ	D3V-62M-3□4Δ
Long hinge lever 	Internal	D3V-63-1□4Δ	D3V-63-2□4Δ	D3V-63-3□4Δ
	M	D3V-63M-1□4Δ	D3V-63M-2□4Δ	D3V-63M-3□4Δ
Simulated hinge lever 	Internal	D3V-64-1□4Δ	D3V-64-2□4Δ	D3V-64-3□4Δ
	M	D3V-64M-1□4Δ	D3V-64M-2□4Δ	D3V-64M-3□4Δ
Short hinge roller lever 	Internal	D3V-65-1□4Δ	D3V-65-2□4Δ	D3V-65-3□4Δ
	M	D3V-65M-1□4Δ	D3V-65M-2□4Δ	D3V-65M-3□4Δ
Hinge roller lever 	Internal	D3V-66-1□4Δ	D3V-66-2□4Δ	D3V-66-3□4Δ
	M	D3V-66M-1□4Δ	D3V-66M-2□4Δ	D3V-66M-3□4Δ

Note: The □ in the model number is for the terminal code.
A: Solder/quick-connect terminals (#187)
C2: Quick-connect terminals (#187)
C: Quick-connect terminals (#250)
The Δ in the model number is for the mounting hole size.
None:3.1 mm
K: 2.9 mm

Specifications

■ Ratings

Type	Rated voltage	Non-inductive load				Inductive load			
		Resistive load		Lamp load		Inductive load		Motor load	
		NC	NO	NC	NO	NC	NO	NC	NO
D3V-16	250 VAC	16 A		2 A		10 A		3 A	
	8 VDC	16 A		4 A		10 A		6 A	
	30 VDC	10 A		4 A		10 A		4 A	
	125 VDC	0.6 A		0.1 A		0.6 A		0.1 A	
	250 VDC	0.3 A		0.05 A		0.3 A		0.05 A	
D3V-11	250 VAC	11 A		1.5 A		6 A		2 A	
	8 VDC	11 A		3 A		6 A		3 A	
	30 VDC	6 A		3 A		6 A		3 A	
	125 VDC	0.6 A		0.1 A		0.6 A		0.1 A	
	250 VDC	0.3 A		0.05 A		0.3 A		0.05 A	
D3V-6	250 VAC	6 A		3 A		4 A		---	
	8 VDC	6 A		3 A		4 A		---	
	30 VDC	6 A		3 A		4 A			
	125 VDC	0.4 A		0.1 A		0.4 A			
	250 VDC	0.3 A		0.05 A		0.2 A			

Note: 1. The above current values are the normal current values of models with a contact gap of 1 mm (gap F), which vary with the normal current values of models with a contact gap of 0.5 mm (gap G).

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 ratings values apply under the following test conditions:
   Ambient temperature: 20±2°C
   Ambient humidity: 65±5%
   Operating frequency: 60 operations/min

■ Characteristics

Operating speed	0.1 mm to 1 m/s (at pin plunger models)
Operating frequency	Mechanical: 600 operations/min Electrical: 60 operations/min
Insulation resistance	100 MΩ min. (at 500 VDC)
Contact resistance	15 mΩ max. (initial value)
Dielectric strength	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 current-carrying metal parts and ground, and between each terminal and non-current-carrying metal parts (see note 1)
Vibration resistance (see note 2)	Malfunction: 10 to 55 Hz, 1.5-mm double amplitude
Shock resistance (see note 2)	Destruction: 1,000 m/s^2 {approx. 100G} max. Malfunction: 300 m/s^2 {approx. 30G} max.
Life expectancy (see note 3)	Mechanical: 10,000,000 operations min. Electrical: D3V-16: 100,000 operations min. D3V-11: 200,000 operations min. D3V-6: 500,000 operations min.
Degree of protection	IP00
Degree of protection against electric shock	Class I
Proof tracking index (PTI)	250
Switch category	D (IEC335-1)
Ambient temperature	Operating: –25°C to 105°C (with no icing)
Ambient humidity	Operating: 85% max. (for 5°C to 35°C)
Weight	Approx. 6.2 g (pin plunger model)

Note: 1. The dielectric strength values shown in the table are for models with a Separator.

2. For the pin plunger models, the above values apply for use at both the free position and total travel position. For the lever models, they apply at the total travel position.
3. For testing conditions, contact your OMRON sales representative.

■ Approved Standards

UL1054 (File No. E41515) CSA C22.2 No.55 (File No. LR21642)
(Standard Ratings Only is listed.)

Rated voltage	D3V-16	D3V-16G	D3V-11	D3V-11G	D3V-6
125 VAC	16 A, 1/2 HP	16 A, 1/2 HP	11 A, 1/2 HP	11 A, 1/2 HP	6 A, 1/4 HP
250 VAC	16 A, 1/2 HP	16 A, 1/2 HP	11 A, 1/2 HP	11 A, 1/2 HP	6 A, 1/4 HP
125 VDC	0.6 A	0.1 A	0.6 A	0.1 A	---
250 VDC	0.3 A	---	0.3 A	---	---

EN 61058-1: 1992+A1: 1993 (License No. 119151L)

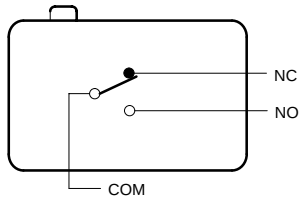
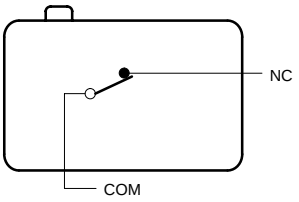
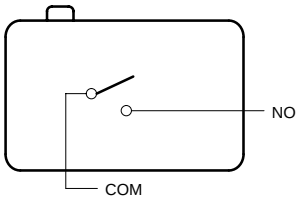
Rated voltage	D3V-16	D3V-11	D3V-6
250 VAC	16 (3) A	11 (3) A	6 (2) A

Testing conditions: 50,000 operations, T105 (0°C to 105°C)

■ Contact Specifications

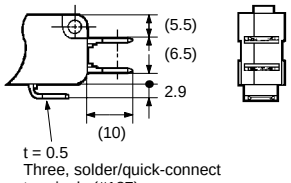
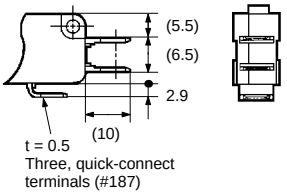
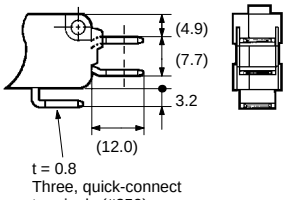
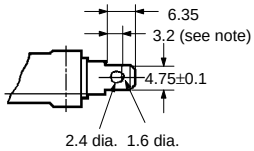
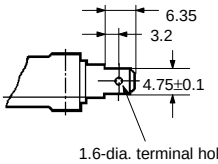
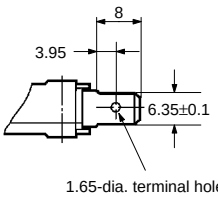
Item		D3V-16	D3V-11	D3V-6
Contact	Specification	Rivet		
	Material	Silver alloy		
	Gap (standard value)	1 mm (F gap) or 0.5 mm (G gap)		
Inrush current	NC	40 A max.	24 A max.	24 A max.
	NO			

■ Contact Form

SPDT	SPST-NC	SPST-NO
		

Dimensions

■ Terminals

Terminal type	Solder/Quick-connect Terminal (#187) (A)	Quick-connect Terminal (#187) (C2)	Quick-connect Terminal (#250) (C)
COM			
Terminal dimensions			

Note: Indicates the length to the center of the 1.6-dia. holes

Note: The above is for the SPDT contact specifications. Two terminals will be available for SPST-NO or SPST-NC contact specifications. For terminal positions, refer to the above *Contact Form*.

■ Dimensions and Operating Characteristics

Note: 1. Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.

2. The following illustrations and drawings are for quick-connect terminals (#250) (terminals C). D3V models incorporate terminals A and C2. These models are different from #250 models in terminal size only. Terminals A and C2 are omitted from the following drawings. Refer to *Terminals* on page 5 for these terminals.

3. The following illustrations and drawings are for models with the hinge position set to external/further than plunger. Models with the hinge position set to internal position are not shown here. For details about the internal position models, contact your OMRON sales representative. Operating characteristics are the same for these two types of models.

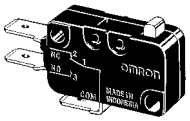
4. The □ in the model number is for the terminal code.

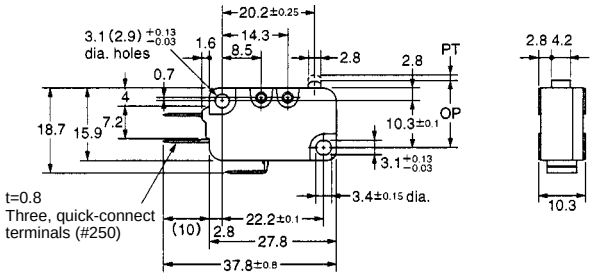
5. The Δ in the model number is for the mounting hole size.
The hole size in the following illustrations of models with a suffix "K" in the Δ is 2.9 mm.

Pin Plunger

(Without Barrier)

D3V-16-1□5Δ
D3V-11-1□5Δ
D3V-11-1□4Δ
D3V-6-1□4Δ

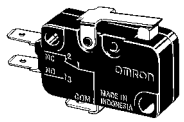


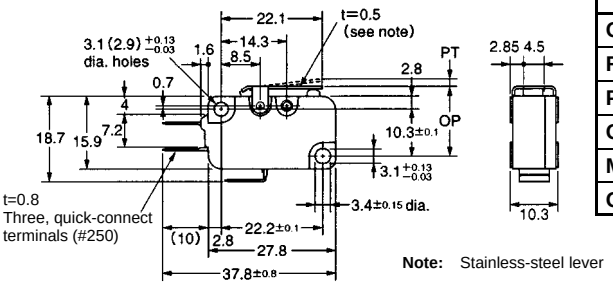


Model	D3V-16-1□5Δ D3V-11-1□5Δ	D3V-11-1□4Δ D3V-6-1□4Δ
OF max.	1.96 N {200 gf}	0.98 N {100 gf}
RF min.	0.49 N {50 gf}	0.15 N {15 gf}
PT max.	1.2 mm	
OT min.	1.0 mm	
MD max.	0.4 mm	
OP	14.7±0.4 mm	

Short Hinge Lever

D3V-161M-1□5Δ
D3V-111M-1□5Δ
D3V-111M-1□4Δ
D3V-61M-1□4Δ



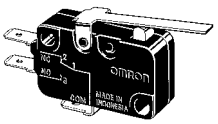


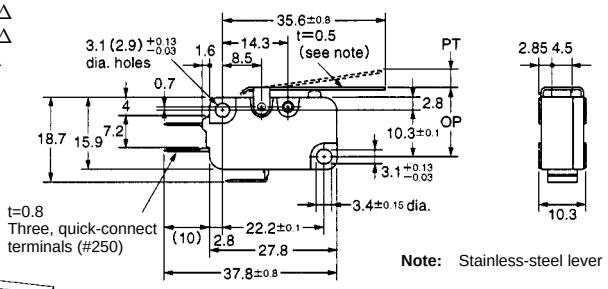
Note: Stainless-steel lever

Model	D3V-161M-1□5Δ D3V-111M-1□5Δ	D3V-111M-1□4Δ D3V-61M-1□4Δ
OF max.	1.96 N {200 gf}	0.98 N {100 gf}
RF min.	0.49 N {50 gf}	0.15 N {15 gf}
PT max.	1.6 mm	
OT min.	0.8 mm	
MD max.	0.6 mm	
OP	15.2±0.5 mm	

Hinge Lever

D3V-162M-1□5Δ
D3V-112M-1□5Δ
D3V-112M-1□4Δ
D3V-62M-1□4Δ



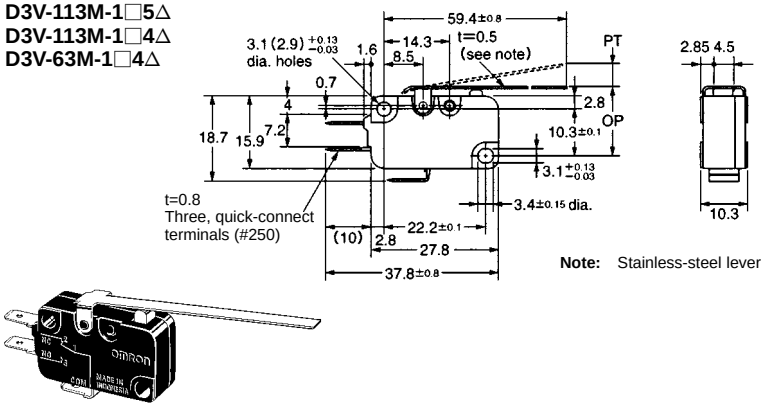


Note: Stainless-steel lever

Model	D3V-162M-1□5Δ D3V-112M-1□5Δ	D3V-112M-1□4Δ D3V-62M-1□4Δ
OF max.	1.23 N {125 gf}	0.59 N {60 gf}
RF min.	0.14 N {14 gf}	0.06 N {6 gf}
PT max.	4.0 mm	
OT min.	1.6 mm	
MD max.	1.5 mm	
OP	15.2±1.2 mm	

Long Hinge Lever

D3V-163M-1□5△
D3V-113M-1□5△
D3V-113M-1□4△
D3V-63M-1□4△

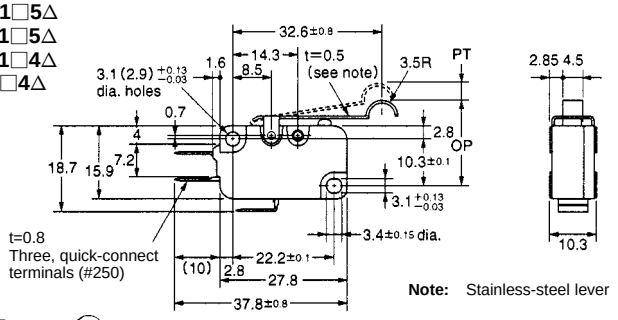


Note: Stainless-steel lever

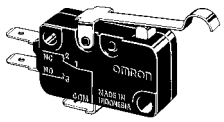
Model	D3V-163M-1□5△ D3V-113M-1□5△	D3V-113M-1□4△ D3V-63M-1□4△
OF max.	0.69 N {70 gf}	0.34 N {35 gf}
RF min.	0.06 N {6 gf}	---
PT max.	9.0 mm	
OT min.	2.0 mm	
MD max.	2.8 mm	
OP	15.2 +2.6 −3.2 mm	

Simulated Hinge Lever

D3V-164M-1□5△
D3V-114M-1□5△
D3V-114M-1□4△
D3V-64M-1□4△



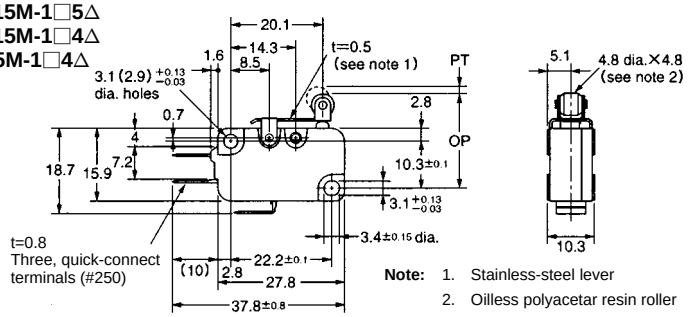
Note: Stainless-steel lever



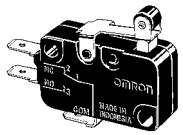
Model	D3V-164M-1□5△ D3V-114M-1□5△	D3V-114M-1□4△ D3V-64M-1□4△
OF max.	1.23 N {125 gf}	0.59 N {60 gf}
RF min.	0.14 N {14 gf}	0.06 N {6 gf}
PT max.	4.0 mm	
OT min.	1.6 mm	
MD max.	1.5 mm	
OP	18.7±1.2 mm	

Short Hinge Roller Lever

D3V-165M-1□5△
D3V-115M-1□5△
D3V-115M-1□4△
D3V-65M-1□4△



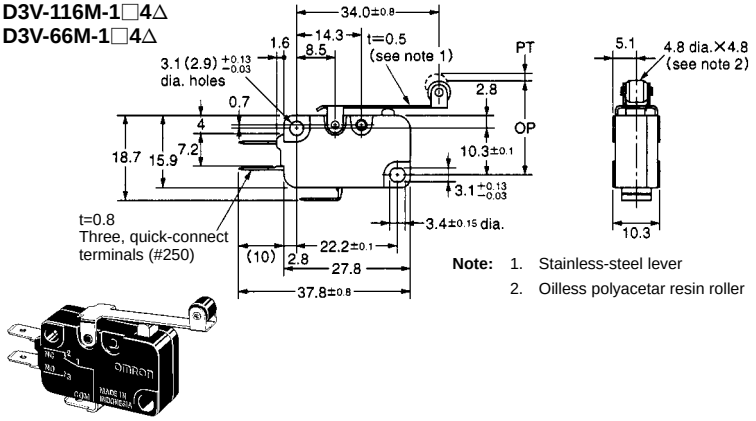
Note: 1. Stainless-steel lever
2. Oilless polyacetar resin roller



Model	D3V-165M-□5△ D3V-115M-1□5△	D3V-115M-1□4△ D3V-65M-1□4△
OF max.	2.35 N {240 gf}	1.18 N {120 gf}
RF min.	0.49 N {50 gf}	0.15 N {15 gf}
PT max.	1.6 mm	
OT min.	0.8 mm	
MD max.	0.6 mm	
OP	20.7±0.6 mm	

Hinge Roller Lever

D3V-166M-1□5△
D3V-116M-1□5△
D3V-116M-1□4△
D3V-66M-1□4△



Note: 1. Stainless-steel lever
2. Oilless polyacetar resin roller

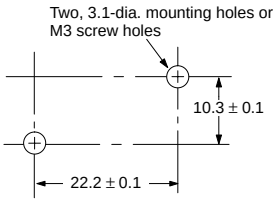
Model	D3V-166M-1□5△ D3V-116M-1□5△	D3V-116M-1□4△ D3V-66M-1□4△
OF max.	1.23 N {125 gf}	0.59 N {60 gf}
RF min.	0.14 N {14 gf}	0.06 N {6 gf}
PT max.	4.0 mm	
OT min.	1.6 mm	
MD max.	1.5 mm	
OP	20.7±1.2 mm	

Precautions

■ Mounting Dimensions

Use two M3 mounting screws with an appropriate screwdriver to mount the switch. Tighten the screws to a torque of 0.39 to 0.59 N • m {4 to 6 kgf • cm}.

Mounting Holes



Insulation Distance

According to EN61058-1, the minimum insulation thickness for this Switch should be 1.1 mm and minimum clearance distance between the terminal and mounting plate should be 1.9 mm. If the insulation distance cannot be provided in the product incorporating the Switch, either use a Switch with insulation barrier or use a Separator to ensure sufficient insulation distance.

Solder Terminal Approval Conditions

Soldering iron can be used. Soldering hook hole available.
Soldering terminal types 1 and 2 are met.

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. B103-E1-1 **In the interest of product improvement, specifications are subject to change without notice.**

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