

### Special Purpose Basic Switch

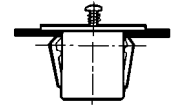
- Minimum contact gap of 3 mm (0.12 in) needed in general power switches is provided
- Fail-safe mechanism with double return spring and direct drive positive contact opening features
- Conforms to Class II of VDE Insulation Grade (SPST-NO type only) Safety-oriented structure with 6 mm (0.24 in) min. insulation distance between terminals of the same polarity, 8 mm (0.31 in) min. between current-carrying metal part and ground, and 8 mm (0.31 in) min. between each terminal and noncurrent-carrying metal part
- Pull-on lock type for easy maintenance is also available
- Quick-connect terminal #250 series (conforming to DIN standard)



### Ordering Information



Screw mount type panel

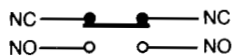


Panel mount type panel

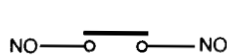
Type	Contact gap	Contact form	Part Number	
			Screw mount type	Panel mount type
Standard	3 mm min.	SPDT-NO-NC	<b>D2D-1000</b>	<b>D2D-1100</b>
		SPST-NO	<b>D2D-1001</b>	<b>D2D-1101</b>
		SPST-NC	<b>D2D-1002</b>	<b>D2D-1102</b>
		SPDT-NC + SPST-NO	—	<b>D2D-3103</b>
		DPST-NO	—	<b>D2D-3104</b>
Pull-on lock	1 mm	SPDT-NO-NC	<b>D2D-2000</b>	<b>D2D-2100</b>

#### CONTACT FORM

SPDT



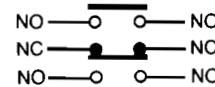
SPST-NO



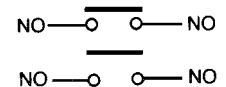
SPST-NC



SPDT-NC + SPST-NO



DPST-NO



## Specifications

Type	Rated voltage	Non-inductive load (A)		Inductive load (A)	
		Resistive load		Motor load	
		NC	NO	NC	NO
Standard	125 VAC	16	16	4	4
	250 VAC	16	16	4	4
	380 VAC	16	16	4	4
Pull-on lock	125 VAC	10	10	—	—
	250 VAC	10	10	—	—
Inrush current	NC: 30 A max. (24 A max.) (see note 1) NO: 30 A max. (24 A max.) (see note 1)				

- Note: 1. Data in parentheses in the above table apply to the pull-on lock type.  
 2. Inductive load has a power factor of 0.4 min. (AC) and a time constant of 7 milliseconds max. (DC).  
 3. Motor load has an inrush current of 6 times the steady state current.

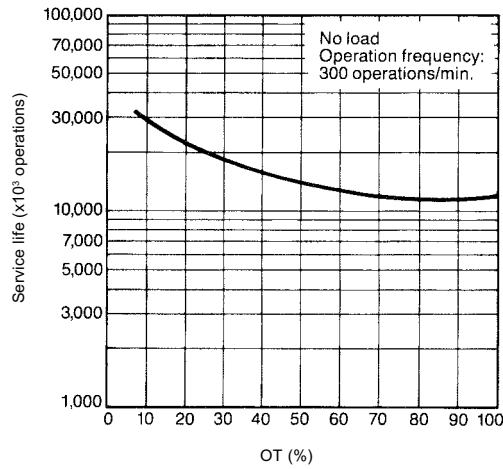
## Characteristics

Operating speed		10 mm to 1 m/second (0.39 to 39 in/second)
Operating frequency	Mechanical	300 operations per minute
	Electrical	60 operations per minute
Contact resistance		50 mΩ max. (initial)
Insulation resistance		100 MΩ min. (at 500 VDC)
Dielectric strength		2,000 VAC, 50/60 Hz for 1 minute between terminals of same polarity and between current-carrying metal part and ground 2,500 VAC, 50/60 Hz for 1 minute between each terminal noncurrent-carrying part (1,000 VAC, 50/60 Hz for 1 minute between terminals of same polarity 1,500 VAC, 50/60 Hz for 1 minute between current-carrying metal part and ground and between each terminal and noncurrent-carrying metal part) (see note 1)
Temperature rise		30°C max. (initial)
Vibration	Malfunction durability	10 to 55 Hz, 1.5 mm double amplitude
Shock	Mechanical durability	Approx. 1,000 m/s <sup>2</sup> (approx. 100 g)
	Malfunction durability	Approx. 500 m/s <sup>2</sup> (approx. 50 g) (approx. 300 m/s <sup>2</sup> [approx. 30 g]) (see note 1)
Ambient temperature	Operating	-25° to 85°C (non-condensing)
Humidity		85% RH max.
Service life	Mechanical	10,000,000 operations min.
	Electrical	100,000 operations min.
Weight		Approx. 14 g (D2D-1000)

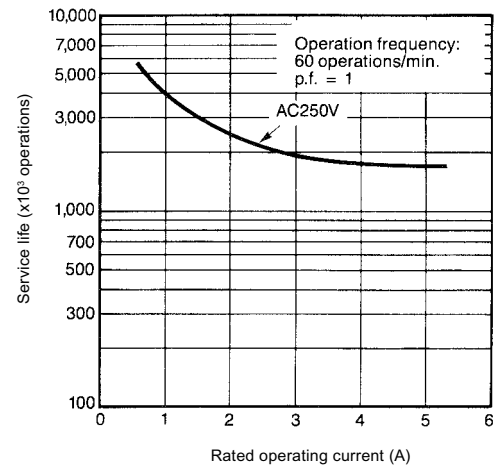
- Note: 1. Data applies to the pull-on type.  
 2. Data shown are of initial value.

■ CHARACTERISTIC DATA

Mechanical service life



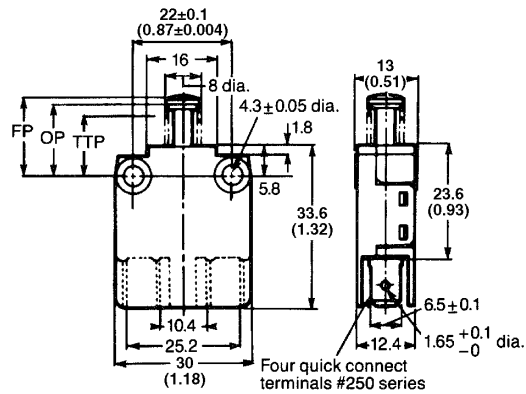
Electrical service life



Dimensions

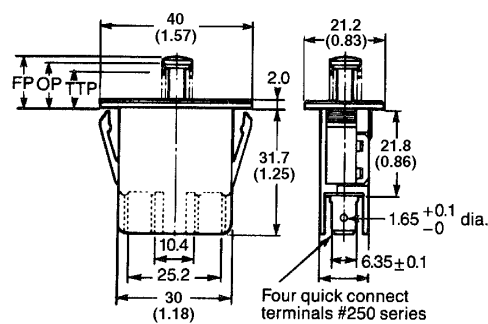
Unit: mm (inch)

D2D-1000, D2D-1001, D2D-1002



Operating characteristics	D2D-1000	D2D-1001	D2D-1002
OF max. (NC-OFF)* (NO-ON)	300 g 600 g	— 600 g	300 g —
TTF max.	750 g	750 g	750 g
OT min.	2.3 mm (0.09 in)	2.3 mm (0.09 in)	5.5 mm (0.22 in)
TTP max.	10 mm (0.39 in)	10 mm (0.39 in)	10 mm (0.39 in)
FP max.	16.4 mm (0.65 in)	17 mm (0.67 in)	16.4 mm (0.67 in)
OP (NC-OFF)* (NO-ON)	15.9 ± 0.4 mm (0.63 ± 0.02 in) 12.7 ± 0.4 mm (0.50 ± 0.02 in)	— 12.7 ± 0.4 mm (0.50 ± 0.02 in)	15.9 ± 0.4 mm (0.63 ± 0.02 in) —

D2D-1100, D2D-1101, D2D-1102



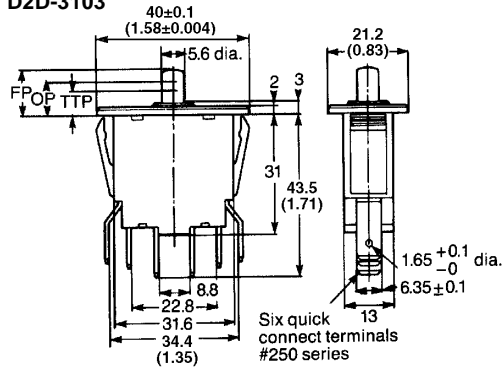
Operating characteristics	D2D-1100	D2D-1101	D2D-1102
OF max. (NC-OFF)* (NO-ON)	300 g 600 g	— 600 g	300 g —
TTF max.	750 g	750 g	750 g
OT min.	2.3 mm (0.09 in)	2.3 mm (0.09 in)	5.5 mm (0.22 in)
TTP max.	6 mm (0.24 in)	6 mm (0.24 in)	6 mm (0.24 in)
FP max.	12.4 mm (0.65 in)	13 mm (0.51 in)	12.4 mm (0.65 in)
OP (NC-OFF)* (NO-ON)	11.9 ± 0.4 mm (0.47 ± 0.02 in) 8.7 ± 0.4 mm (0.34 ± 0.02 in)	— 8.7 ± 0.4 mm (0.34 ± 0.02 in)	11.9 ± 0.4 mm (0.47 ± 0.02 in) —

\* NC-OFF: The force applied to the actuator to cause it to move from the free position to the position at which the NC contact opens.  
NO-ON: The force applied to the actuator to cause it to move from the free position to the position at which the NO contact closes.

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

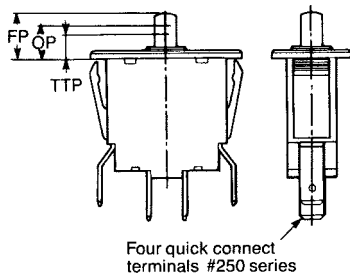
Unit: mm (inch)

**D2D-3103**



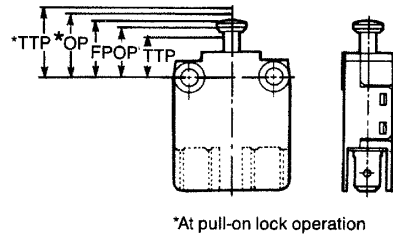
Operating characteristics	D2D-3103
OF max. (NC-OFF)*	300 g
(NO-ON)	600 g
TTF max.	1,000 g
OT min.	2.3 mm (0.09 in)
TTP max.	6.4 mm (0.25 in)
FP max.	12.4 mm (0.49 in)
OP (NC-OFF)*	11.9±0.8 mm (0.47±0.03 in)
(NO-ON)	8.7±0.4 mm (0.34±0.02 in)

**D2D-3104**



Operating characteristics	D2D-3104
OF max. (NC-OFF)*	—
(NO-ON)	600 g
TTF max.	1,000 g
OT min.	2.3 mm (0.09 in)
TTP max.	6.4 mm (0.25 in)
FP max.	13.5 mm (0.53 in)
OP (NC-OFF)*	—
(NO-ON)	8.7±0.4 mm (0.34±0.02 in)

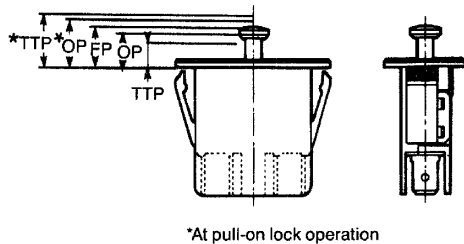
**D2D-2000**



**Momentary action (normal operation)**

Operating characteristics	D2D-2000	D2D-2100
OF max. (NC-OFF)*	200 g	200 g
(NO-ON)	300 g	300 g
TTF max.	600 g	600 g
OT min.	4.5 mm (0.18 in)	4.5 mm (0.17 in)
TTP max.	8.3 mm (0.33 in)	4.3 mm (0.17 in)
FP max.	14.3 mm (0.56 in)	10.3 mm (0.41 in)
OP (NC-OFF)*	13.5±0.6 mm (0.53±0.02 in)	9.5±0.4 mm (0.37±0.15 in)
(NO-ON)	12.7±0.6 mm (0.50±0.02 in)	8.7±0.6 mm (0.34±0.02 in)

**D2D-2100**

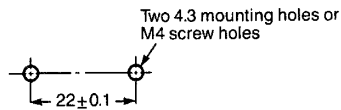
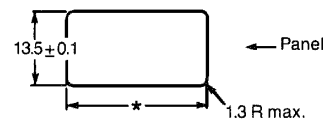


**Pull-on lock action**

Operating characteristics	D2D-2000	D2D-2100
OF max. (NC-OFF)*	2,000 g	2,000 g
PT max.	2 mm	2 mm
OT min.	0.4 mm (0.08 in)	0.4 mm (0.08 in)
MD max.	1 mm (0.04 in)	1 mm (0.04 in)
TTP max.	16.5 mm (0.65 in)	12.5 mm (0.50 in)
FP max.	14.3 mm (0.56 in)	10.3 mm (0.40 in)
OP	15.1±0.6 mm (0.59±0.02 in)	11.1±0.6 mm (0.44±0.02 in)

\* NC-OFF: The force applied to the actuator to cause it to move from the free position to the position at which the NC contact opens.  
 NO-ON: The force applied to the actuator to cause it to move from the free position to the position at which the NO contact closes.

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

**Mounting holes****Panel cutout (Panel thickness 1.0 to 2.5 mm)**

Note: Dimension \* is  $36.7 \pm 0.1$  with a panel thickness of 1.0 mm and  $37.0 \pm 0.1$  with a panel thickness of 2.5 mm.

Note: Unless otherwise specified, a tolerance of  $\pm 0.4$  mm applies to all dimensions.

**■ APPROVALS****UL1054 (File No. E41515) / CSA C22.2 No. 55 (File No. LR21642)**

Type	Rating
D2D-1 Series	16 A, 250 VAC
D2D-2 Series	10 A, 250 VAC
D2D-3 Series	16 A, 250 VAC 3/4 HP 125 VAC 1 1/2 HP 250 VAC

**EN61058-1 (File No. 136005, VDE approval)**

Type	Rating
D2D-1 Series	16 A, 380 VAC; 4 A, 250 VAC motor load
D2D-2 Series	10 A, 250 VAC
D2D-2 Series	16 A, 380 VAC; 4 A, 250 VAC motor load

**EN61058-1 (File No. R9551934, TUV Rheinland approval)**

Type	Rating
D2D-3104	4 A, 24 VDC

Note: The rated values approved by each of the safety standards (e.g. UL, CSA) may be different from the performance characteristics individually defined in this catalog.

**Precautions****■ MOUNTING**

Use M4 screws in combination with flat/lock washers, etc., to securely mount the switch. Tighten the screws at a torque of 5 to 7 kg-cm.

**■ PULL-ON LOCK FUNCTION**

When opening or closing the door, the power ON state of the switch can be checked with the door left open. By closing the door after maintenance inspection, the switch will resume the normal momentary action.

Use of a receptacle with an insulated sleeve or Positive Lock (by AMP) is recommended for terminal wiring. Exercise care that no excessive force is applied to the wired terminals.

Example	To turn on the power when the door is closed	To turn off the power when the door is open	To turn on the power with the door left open
State			
Connection	NO-ON      ON	OFF	ON
	NC-NC      (OFF)	(ON)	(OFF)

**FAIL-SAFE MECHANISM**

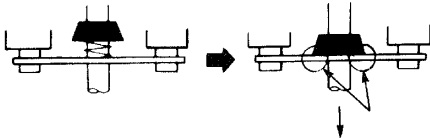
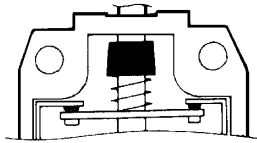
**Double spring feature**

Two return springs are provided for the pin plunger. Thus, when either of the springs are broken, this feature will prevent the switch from malfunctioning or short-circuiting.

(The pull-on lock type switch is not provided with this function.)

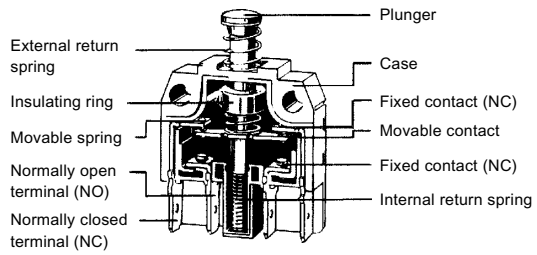
**Direct drive positive contact opening feature**

The section marked **▲** will positively break the circuit if a contact weld occurs in the switch.

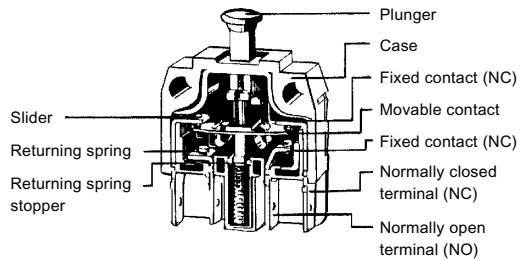


The section marked **▲** pushes the movable contact to apply force in the direction which separates the movable contact forcibly from the fixed contact.

**Standard type**



**Pull-on lock type**



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10. Shipping; Delivery. Unless otherwise expressly agreed in writing by Seller:
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  - (iii) Use in consumer products or any use in significant quantities.
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To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

# OMRON®

**OMRON ELECTRONIC  
COMPONENTS LLC**

55 E. Commerce Drive, Suite B  
Schaumburg, IL 60173

**847-882-2288**

**OMRON CANADA, INC.**

885 Milner Avenue  
Toronto, Ontario M1B 5V8

**416-286-6465**

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