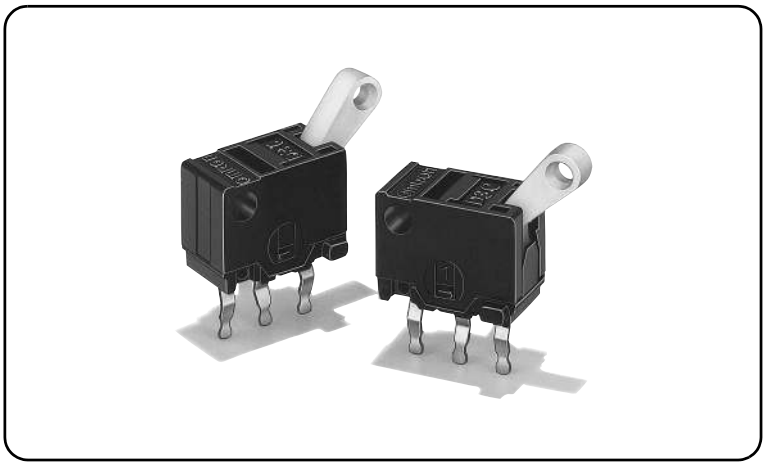
D3C
Ultra Subminiature Detection Switch

Ultra Subminiature Detection Switch with Slide Mechanism and Lever Actuator

- **Compact and light weight with 3-mm long stroke.**
- **Built-in slide mechanism allows selection of shorting or non-shorting switching timing to match the application.**

RoHS Compliant



Model Number Legend

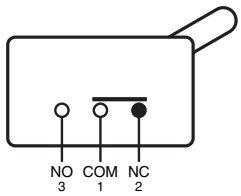
D3C-[1] 2 [2] 0

1. Switching timing
1 : Non-shorting Model
2 : Shorting Model

2. Maximum Operating Force (OF)
1 : 1.28N {130 gf}
2 : 0.39N {40 gf}

Contact Form

●SPDT



List of models

Operating Force (OF) / Switching timing / Actuator	1.28 N {130 gf} (Standard)		0.39 N {40 gf} (Low force)	
	Non-shorting	Shorting	Non-shorting	Shorting
Rotary lever 	**D3C-1210**	**D3C-2210**	**D3C-1220**	**D3C-2220**

Contact Specifications

Contact	Specification	Slide
	Material	Silver plated
Minimum applicable load (reference value) *		5 VDC 1 mA

* Please refer to "**●Using Micro Loads**" in "**Precautions**" for more information on the minimum applicable load.

Ratings

Rated voltage	Resistive load
30 VDC	0.1 A

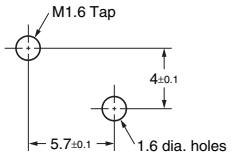
Note. The above rating values were applied under the following test conditions.
(1) Ambient temperature: 20±2°C
(2) Ambient humidity: 65±5% RH
(3) Operating frequency: 30 operations/min

Characteristics

Permissible operating speed		1 mm to 500 mm/s
Permissible operating frequency	Mechanical	200 operations/min
	Electrical	30 operations/min
Insulation resistance		100 MΩ min. (at 250 VDC with insulation tester)
Contact resistance (initial value)		50 mΩ max.
Dielectric strength	Between terminals of the same polarity	250 VAC 50/60 Hz for 1 min
	Between current-carrying metal parts and ground	250 VAC 50/60 Hz for 1 min
Vibration resistance *1	Malfunction	10 to 55 Hz, 1.5 mm double amplitude
Shock resistance	Durability	1,000 m/s² {approx. 100G} max.
	Malfunction *1	300 m/s² {approx. 30G}max.
Durability *2		50,000 operations min. (30 operations/min)
Degree of protection		IEC IP00
Ambient operating temperature		-20 to +80°C (at ambient humidity 60% max.) (with no icing or condensation)
Ambient operating humidity		85% max. (for +5 to +35°C)
Weight		Approx. 0.3g

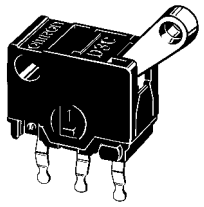
Note. The data given above are initial values.
*1. The given values apply for Total Travel Position. Close or open circuit of the contact is 1 ms max.
*2. For testing conditions, consult your OMRON sales representative.

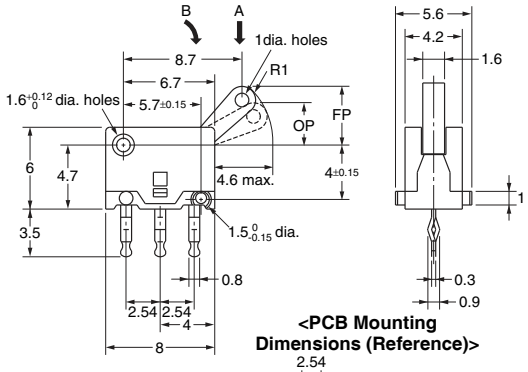
Mounting Holes (Unit: mm)



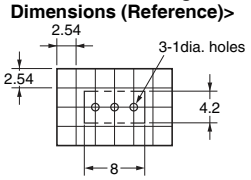
Dimensions (Unit: mm) and Operating Characteristics

D3C-1210, D3C-2210
D3C-1220, D3C-2220



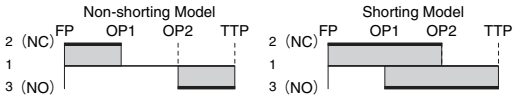


<PCB Mounting Dimensions (Reference)>



Operating Characteristics	Type / Model	Non-Shorting D3C-1210	Non-Shorting D3C-1220	Shorting D3C-2210	Shorting D3C-2220
Operating Force	OF Max.	1.28 N {130 gf} (0.98 N {100 gf})	0.39 N {40 gf} (0.29 N {30 gf})	1.28 N {130 gf} (0.98 N {100 gf})	0.39 N {40 gf} (0.29 N {30 gf})
Releasing Force	RF Min.	0.10 N {10 gf} (0.15 N {15 gf})	0.03 N {3 gf} (0.05 N {5 gf})	0.10 N {10 gf} (0.15 N) {15 gf}	0.03 N {3 gf} (0.05 N {5 gf})
Free Position	FP Max.	4.8 mm		4.8 mm	
Operating Position	OP1	3.5±0.3 mm		3.4±0.3 mm	
	OP2	2.5±0.3 mm		2.6±0.3 mm	
Total Travel Position	TTP	1.3±0.4 mm		1.3±0.4 mm	

Switching timing



Note 1. Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.
Note 2. The values for operating characteristics apply for operation in the A direction (straight line), and the values in parentheses indicate those for operation in the B (rotary) direction for reference.

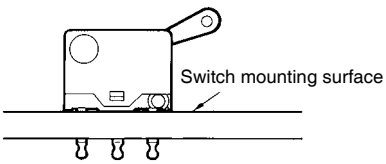
Precautions

★Please refer to "Common Precautions" for correct use.

Cautions

●Soldering

For soldering time, we recommend to solder within 3 s at a soldering iron temperature of under 350°C. Soldering at a temperature exceeding 350°C, soldering for more than 3 s, or repeated soldering will degrade the Switch characteristics.
Make sure that flux and liquid surface of the solder does not flow over the edge of the board when soldering. Please complete soldering at a temperature of 260°C within 5 s.
It is also recommended that you apply flux guard to the mounting surface of the Switch.



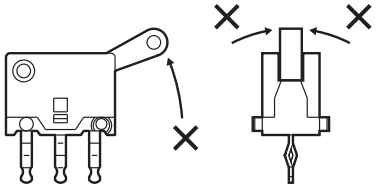
Correct Use

●Mounting

Use M1.6 mounting screw with plane washers or spring washers to securely mount the Switch. Tighten the screws to a torque of 4.9 to 9.8×10^{-2} N·m {0.5 to 1 kgf·cm}.

●Application of Operation Force to the Lever

Do not apply loads from any other directions other than operating direction of the lever as shown in the following figure.
It may damage the Switch or cause malfunction.

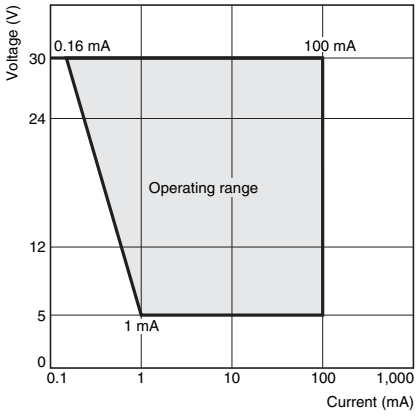


●Mounting Plate

Use materials other than ABS or polycarbonate for the mounting plate. Since grease is used for the Switch, it may cause cracks if grease from the Switch comes in contact with such materials.

●Using Micro Loads

Use models that operate in the following range. However, even when using micro load models within the following operating range, if inrush current occurs when the contact is opened or closed, it may increase the contact wear and so decrease durability. Therefore, insert a contact protection circuit where necessary. The N-level reference value applies for the minimum applicable load. This value indicates the malfunction reference level for the reliability level of 60% (λ_{60}). (JIS C5003)
The equation, λ_{60}=0.5×10^{-6}/operation indicates that the estimated malfunction rate is less than $\frac{1}{2{,}000{,}000}$ operations with a reliability level of 60%.



• Application examples provided in this document are for reference only. In actual applications, confirm equipment functions and safety before using the product.
• Consult your OMRON representative before using the product under conditions which are not described in the manual or applying the product to nuclear control systems, railroad systems, aviation systems, vehicles, combustion systems, medical equipment, amusement machines, safety equipment, and other systems or equipment that may have a serious influence on lives and property if used improperly. Make sure that the ratings and performance characteristics of the product provide a margin of safety for the system or equipment, and be sure to provide the system or equipment with double safety mechanisms.

Note: Do not use this document to operate the Unit.

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