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OMRON

Low-torque Basic Switch

D2MC

Highly Reliable Rotary-action Switch for Low Torque Operation (0.5 m N • m {5.1 gf • cm})

- 0.5-A rated model employs crossbar gold-alloy contacts for excellent contact reliability in the micro load range.
- Long life (10,000,000 mechanical operations min.) through use of a movable coil spring.

Ordering Information

Model Number Legend

D2MC-□□□
1 2 3

1. **Ratings**
   5: 5 A at 250 VAC
   0.1: 0.5 A at 30 VDC
2. **Operating Torque (OTq) Max.**
   E: 0.5 mN • m {5.1 gf • cm} max.
   F: 0.75 mN • m {7.6 gf • cm} max.
   H: 1.00 mN • m {10.2 gf • cm} max.
3. **Direction of Actuator**
   None: Clockwise
   L: Counterclockwise

List of Models

Direction of actuation	OTq	5 A	0.5 A
Clockwise	0.5 m N • m {5.1 gf • cm}	D2MC-5E	D2MC-01E
	0.75 m N • m {7.6 gf • cm}	D2MC-5F	D2MC-01F
	1.00 m N • m {10.2 gf • cm}	D2MC-5H	D2MC-01H
Counterclockwise	0.5 m N • m {5.1 gf • cm}	D2MC-5EL	D2MC-01EL
	0.75 m N • m {7.6 gf • cm}	D2MC-5FL	D2MC-01FL
	1.00 m N • m {10.2 gf • cm}	D2MC-5HL	---

Note: All the models listed here are supplied without actuator lever. If an actuator lever is required, please order separately by indicating the model number of the actuator lever (CAA1M). Refer to page 147.

Specifications

■ Ratings

Item	D2MC-5	D2MC-01
Electrical ratings	5 A at 125/250 VAC (cosϕ = 1)	0.5 A at 125VAC/30 VDC (cosϕ = 1)

Note: The ratings values apply under the following test conditions:
Ambient temperature: 20±2°C
Ambient humidity: 65±5%
Operating frequency: 20 operations/min for the D2MC-5 and 60 operations/min for the D2MC-01.

■ Characteristics

Item	D2MC-5	D2MC-01
Operating speed	1° to 360°/sec	
Operating frequency	Mechanical: 240 operations/min Electrical: 20 operations/min	Mechanical: 240 operations/min Electrical: 60 operations/min
Insulation resistance	100 MΩ min. (at 500 VDC)	
Contact resistance	20 mΩ max. (initial value)	100 mΩ max. (initial value)
Dielectric strength	600 VAC, 50/60 Hz for 1 min between terminals of same polarity 1,500 VAC, 50/60 Hz for 1 min between current-carrying metal parts and ground, and between each terminal and non-current-carrying metal part	
Vibration resistance (see note)	Malfunction: 10 to 55 Hz, 1.5-mm double amplitude	
Shock resistance (see note)	Destruction: 1,000 m/s^2 {100 G} max. Malfunction: Models with OTq of 0.5 mN • m: 100 m/s^2 {10 G} max. Models with OTq of 0.75 mN • m: 100 m/s^2 {10 G} max. Models with OTq of 1.00 mN • m: 200 m/s^2 {20 G} max.	
Life expectancy	Mechanical: 10,000,000 operations min. Electrical: 100,000 operations min.	Mechanical: 10,000,000 operations min. Electrical: 100,000 operations min. (1,000,000 operations at 0.1 A, 125 VAC/30 VDC)
Degree of protection	IP00	
Degree of protection against electric shock	Class I	
Proof tracking index (PTI)	175	
Ambient temperature	Operating: –25°C to 80°C (at ambient humidity of 60% max.) (with no icing)	
Ambient humidity	Operating: 35% to 85% max.	
Weight	Approx. 10 g	

Note: Malfunction: 1 ms max.

■ Approved Standards

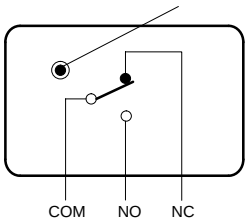
UL508 (File No. E41515)
CSA C22.2 No. 55 (File No. LR21642)

Rated voltage	D2MC-01	D2MC-5
125 VAC	0.5 A	5 A
250 VAC	---	5 A
30 VDC	0.5 A	---

■ Contact Specifications

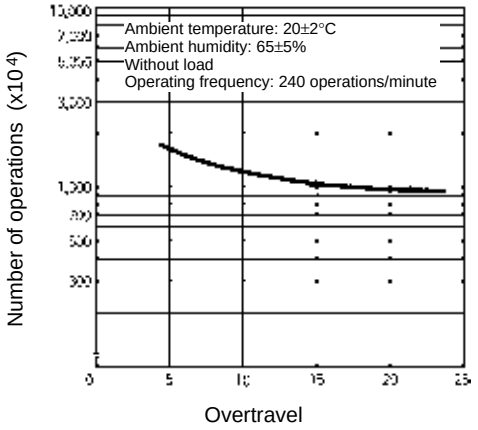
Item		D2MC-5	D2MC-01
Contact	Specification	Rivet	Crossbar
	Material	Silver alloy	Gold alloy
	Gap (standard value)	0.5 mm	
Inrush current	NC	15 A max.	0.5 A max.
	NO	7 A max.	0.5 A max.
Minimum applicable load		160 mA at 5 VDC	1 mA at 5 VDC

■ Contact Form (SPDT)

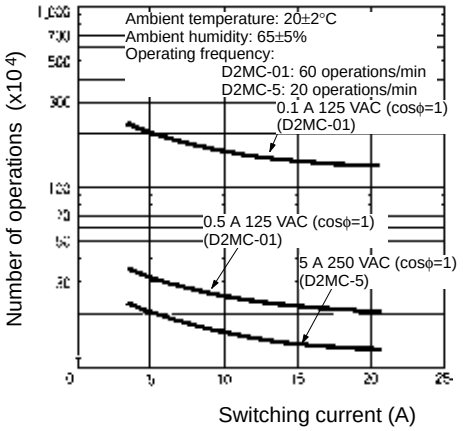


Engineering Data

Mechanical Life Expectancy



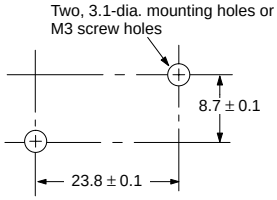
Electrical Life Expectancy



Dimensions

■ Mounting Holes

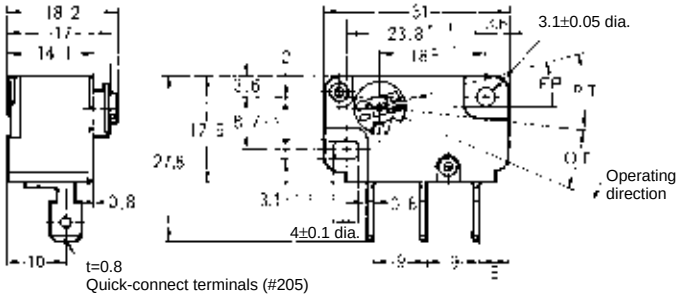
Note: All units are in millimeters unless otherwise indicated.



■ Dimensions and Operating Characteristics

Note: All units are in millimeters unless otherwise indicated.

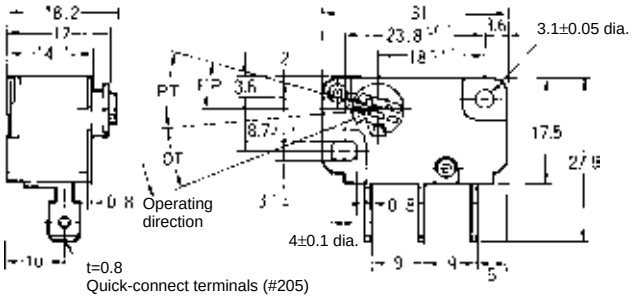
Clockwise



Model	D2MC-5E D2MC-01E	D2MC-5F D2MC-01F	D2MC-5H D2MC-01H
OTq max.	0.5 mN • m {5.1 gf • cm}	0.75 mN • m {7.6 gf • cm}	1.0 mN • m {10.2 gf • cm}
RTq min.	0.05 mN • m {0.6 gf • cm}	0.09 mN • m {0.9 gf • cm}	0.13 mN • m {1.3 gf • cm}
PT max.	21°	21°	21°
OT min.	17°	17°	17°
MD min.	3°	3°	3°
RT min.	5°	5°	5°
TT min.	38°		
FP	15±3° (See note.)		

Note: The angle given for the free position (FP) is the angle made with the horizontal.

Counterclockwise



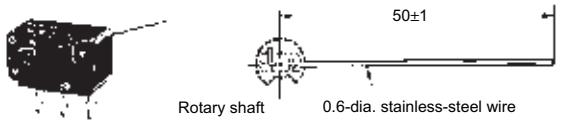
Model	D2MC-5EL D2MC-01EL	D2MC-5FL D2MC-01FL	D2MC-5HL D2MC-01HL
OTq max.	0.5 mN • m {5.1 gf • cm}	0.75 mN • m {7.6 gf • cm}	1.0 mN • m {10.2 gf • cm}
RTq min.	0.05 mN • m {0.6 gf • cm}	0.09 mN • m {0.9 gf • cm}	0.13 mN • m {1.3 gf • cm}
PT max.	21°	21°	21°
OT min.	17°	17°	17°
MD min.	3°	3°	3°
RT min.	5°	5°	5°
TT min.	38°		
FP	15±3° (See note.)		

Note: The angle given for the free position (FP) is the angle made with the horizontal.

Accessories (Sold Separately)

■ Actuator Lever

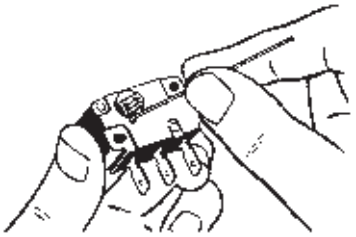
CAA1M for Snap-on Mounting



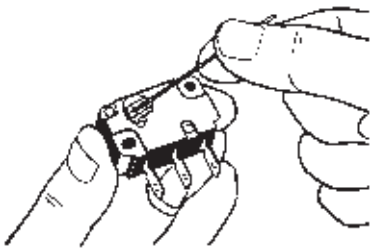
In addition to the standard wire lever model shown here, various other levers are available upon request.

Mounting Actuator Lever

1. Insert the end of the actuator lever into the hole in the rotary disc.



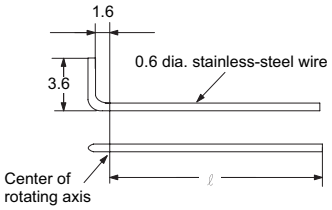
2. Push the lever down in the direction of the groove in the rotary disc.



Designing Own Actuator

If you decide to make your own actuator lever, the materials used should be stainless steel, piano wire, hard aluminum wire, etc.

There are no restrictions on the tip shape or length of the actuator lever. However, if the lever is too long, improper switch resetting or contact chattering may occur. Therefore, the shape of lever as shown below is suitable.



The appropriate value of dimension (ℓ) from the fulcrum is 50 mm.

Precautions

Refer to pages 26 to 33 for common precautions.

■ Correct Use

Mounting/Soldering

Use M3 mounting screws with plane washers or spring washers to mount the switch. Tighten the screws to a torque of 0.20 to 0.29 N • m {2 to 3 kgf • cm}.

Do not change the operating position by modifying the actuator.

Micro Load

For details, refer to *General Information.*

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

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