

Enclosed Switch D4MC

CSM_D4MC_DS_E_2_7

Economical, High Utility Enclosed Switch



- Enclosed Switches with Built-in Basic Switches for High Repeatability and Durability of 10 Million Operations Minimum.
- Panel mount versions have the same operating position as Z Basic Switch.
- Suitable for applications demanding higher mechanical strength, dustproof and drip-proof properties than those on basic switches.
- Resin molded terminal versions are available.
- Approved by UL, CSA, and CCC (Chinese standard). (Ask your OMRON representative for information on approved models.)



For the most recent information on models that have been certified for safety standards, refer to your OMRON website.



Be sure to read *Safety Precautions* on page 5 and *Safety Precautions for All Limit Switches*.

Model Number Structure

Model Number Legend

D4MC-
(1) (2)









(1) Actuator

500: Panel mount plunger
502: Panel mount roller plunger
504: Panel mount crossroller plunger
100: Hinge lever
102: Short hinge lever
200: Hinge roller lever
202: Short hinge roller lever
303: One-way action short hinge roller lever

(2) Location of Cable Outlet

0: None
1: Right-hand (Molded terminals)
2: Left-hand (Molded terminals)
3: Underside (Molded terminals)

Ordering Information

| Actuator | Model |
|---|-----------|
| Panel mount plunger  | D4MC-5000 |
| Panel mount roller plunger  | D4MC-5020 |
| Panel mount crossroller plunger  | D4MC-5040 |
| Hinge lever  | D4MC-1000 |
| Short hinge lever  | D4MC-1020 |
| Hinge roller lever  | D4MC-2000 |
| Short hinge roller lever  | D4MC-2020 |
| One-way action short hinge roller lever  | D4MC-3030 |

Note: 1. Use Switches with molded terminals in locations subject to dirt, dust, oil drops, or high humidity. Models are available with lead wires on the right, on the left, and from the bottom.
2. Contact your OMRON representative for information on models certified for international standards.

Specifications

Approved Standards

| Agency | Standard | File No. |
|----------|-------------------------|--|
| UL * | UL508, CSA C22.2 No. 14 | E76675 |
| CCC(CQC) | GB/T14048.5 | Contact your OMRON representative for details. |

Note: Ask your OMRON representative for information on approved models.

* UL certified for CSA C22.2 No. 14.

Ratings

| Rated voltage | Non-inductive load (A) | | | | Inductive load (A) | | | |
|----------------|------------------------|-----------|-----------|------|--------------------|------|------------|------|
| | Resistive load | | Lamp load | | Inductive load | | Motor load | |
| | NC | NO | NC | NO | NC | NO | NC | NO |
| 125 VAC | 10 | 3 | 1.5 | 1.5 | 10 | 5 | 2.5 | 2.5 |
| 250 VAC | 10 | 3 | 1.25 | 1.25 | 10 | 3 | 1.5 | 1.5 |
| 480 VAC | 3 | 1.5 | 0.75 | 0.75 | 2.5 | 1.5 | 0.75 | 0.75 |
| 8 VDC | 10 | 3 | 1.5 | 1.5 | 6 | 5 | 2.5 | 2.5 |
| 14 VDC | 10 | 3 | 1.5 | 1.5 | 6 | 5 | 2.5 | 2.5 |
| 30 VDC | 6 | 3 | 1.5 | 1.5 | 5 | 5 | 2.5 | 2.5 |
| 125 VDC | 0.5 | 0.4 | 0.4 | 0.4 | 0.05 | 0.05 | 0.05 | 0.05 |
| 250 VDC | 0.25 | 0.2 | 0.2 | 0.2 | 0.03 | 0.03 | 0.03 | 0.03 |
| Inrush current | NC | 30 A max. | | | | | | |
| | NO | 15 A max. | | | | | | |

Note: 1. The above figures are for steady-state currents.
 2. Inductive loads have 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 above ratings were tested under the following conditions.
 (1) Ambient temperature: +20±2°C
 (2) Ambient humidity: 65±5%RH
 (3) Operating frequency: 20 operations/min

Characteristics

| | | |
|--|---|--|
| Degree of protection *3 | | IP67 (EN60947-5-1) |
| Durability | Mechanical | 10,000,000 operations min. |
| | Electrical | 500,000 operations min. |
| Operating speed | | 0.05 mm/s to 0.5 m/s *1 |
| Operating frequency | Mechanical | 120 operations/min |
| | Electrical | 20 operations/min |
| Rated frequency | | 50/60 Hz |
| Insulation resistance | | 100 MΩ min. (at 500 VDC) |
| Contact resistance | | 15 mΩ max. (initial value for the built-in switch when tested alone) |
| Dielectric strength | Between terminals of the same polarity | 1,000 VAC, 50/60 Hz for 1 min |
| | Between each terminal and non-current-carrying part | 2,000 VAC, 50/60 Hz for 1 min |
| Rated insulation voltage (Ui) | | 1,000 VAC |
| Pollution degree (operating environment) | | 3 (IEC947-5-1) |
| Protection against electric shock | | Class II |
| PTI (tracking characteristics) | | 175 |
| Rated operating current (Ie) | | 10 A |
| Rated operating voltage (Ue) | | 250 VAC |
| Vibration resistance | Malfunction | 10 to 55 Hz, 1.5-mm double amplitude *2 |
| Shock resistance | Destruction | 1,000 m/s ² min. |
| | Malfunction | 100 m/s ² min. *1 *2 |
| Ambient operating temperature | | −10°C to +80°C (with no icing) |
| Ambient operating humidity | | 35% to 95%RH |
| Weight | | Approx. 71 g (in case of panel mount plunger) |

*1. Only for models with plungers. (Contact your OMRON representative for information on other models.)

*2. Less than 1 ms under a free state at the operating limits.

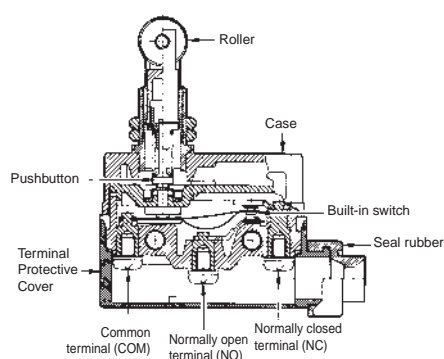
*3. The degree of protection is tested using the method specified by the standard (EN60947-5-1). Confirm that sealing properties are sufficient for the operating conditions and environment beforehand.

Structure and Nomenclature

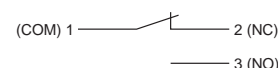
Structure

Changing the Terminal Protective Cover around allows the cable to be pulled out from either the right or the left.

M4 binding head screws (with toothed washers) are used as the terminal screws.



Contact Form



Approved Standard Ratings

UL/CSA

A300

| Rated voltage | Carry current | Current (A) | | Volt-amperes (VA) | |
|---------------|---------------|-------------|-------|-------------------|-------|
| | | Make | Break | Make | Break |
| 120 VAC | 10A | 60 | 6 | 7,200 | 720 |
| 240 VAC | | 30 | 3 | | |

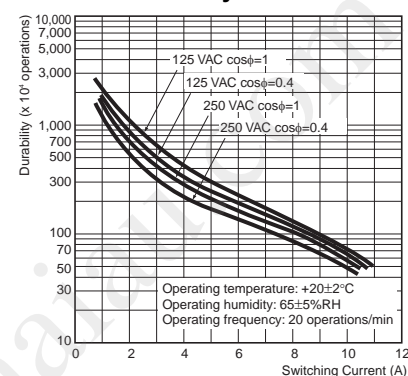
EN60947-5-1

CCC (GB/T14048.5)

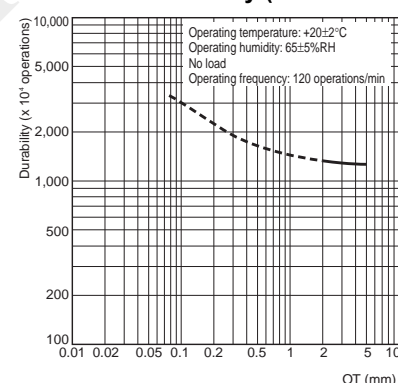
| Applicable category and ratings |
|---------------------------------|
| AC-12 10 A/250 VAC |

Engineering Data

Electrical Durability

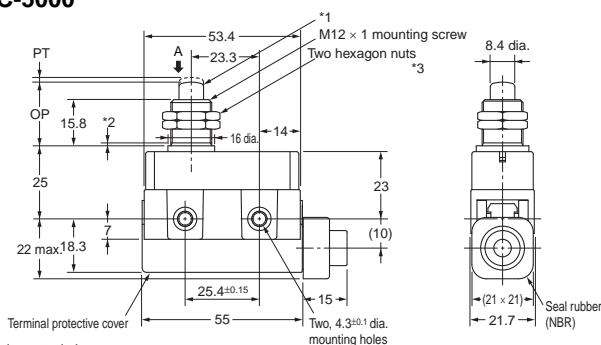


Mechanical Durability (D4MC-5000)



Dimensions and Operating Characteristics

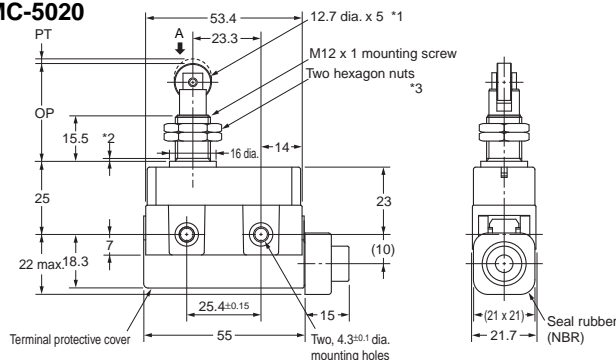
Panel Mount Plunger D4MC-5000



- *1. Stainless steel plunger
- *2. The length of the imperfect threads is 1.5 mm maximum.
- *3. Thickness: 3 width: 17

Note: Do not use the M12 mounting screw and the case mounting hole at the same time.

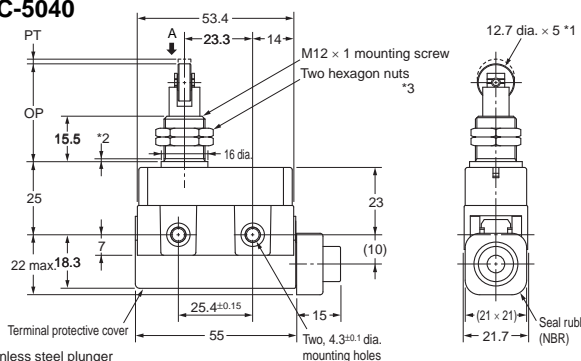
Panel Mount Roller Plunger D4MC-5020



- *1. Stainless steel plunger
- *2. The length of the imperfect threads is 1.5 mm maximum.
- *3. Thickness: 3 width: 17

Note: Do not use the M12 mounting screw and the case mounting hole at the same time.

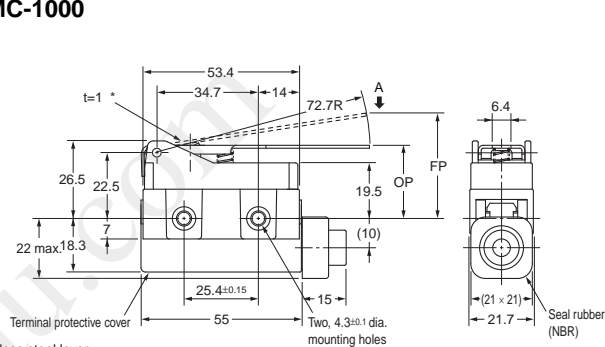
Panel Mount Crossroller Plunger D4MC-5040



- *1. Stainless steel plunger
- *2. The length of the imperfect threads is 1.5 mm maximum.
- *3. Thickness: 3 width: 17

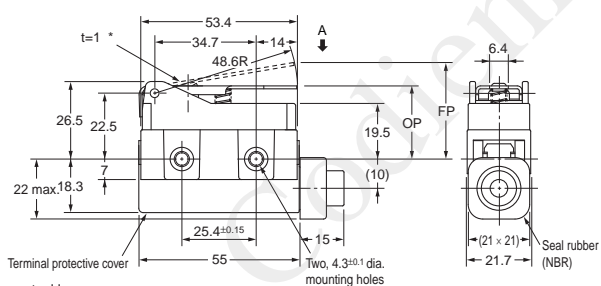
Note: Do not use the M12 mounting screw and the case mounting hole at the same time.

Hinge Lever D4MC-1000



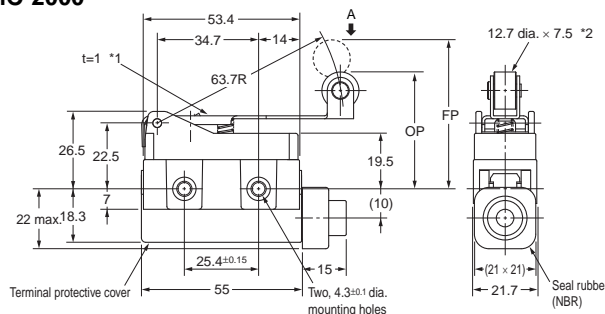
- * Stainless steel lever

Short Hinge Lever D4MC-1020



- * Stainless steel lever

Hinge Roller Lever D4MC-2000

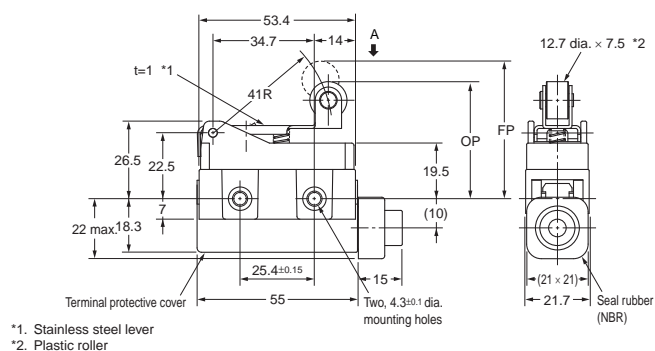


- *1. Stainless steel lever
- *2. Plastic roller

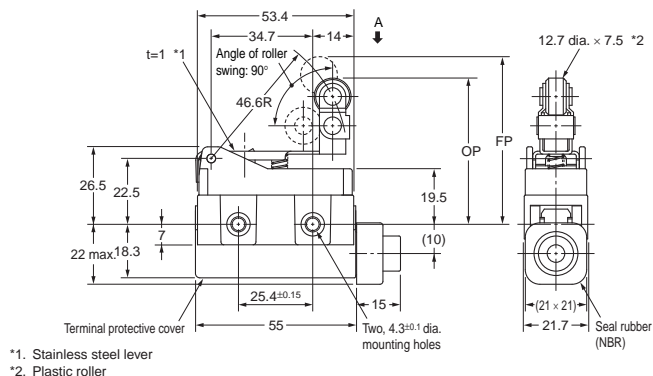
- Note: 1. Unless otherwise specified, a tolerance of ± 0.4 mm applies to all dimensions.
2. Operating characteristics are for when the Switch is operated from direction A.
3. Make sure that the permissible OT position is not exceeded.

| Operating Characteristics | Model | D4MC-5000 | D4MC-5020 | D4MC-5040 | D4MC-1000 | D4MC-1020 | D4MC-2000 |
|---------------------------|---------|-------------------|-------------------|-------------------|---------------|---------------|---------------|
| Operating force | OF max. | 5.88 N | 5.88 N | 5.88 N | 1.67 N | 2.55 N | 1.96 N |
| Release force | RF min. | 0.98 N | 0.98 N | 0.98 N | 0.25 N | 0.34 N | 0.39 N |
| Pretravel | PT max. | 1.6 mm | 1.6 mm | 1.6 mm | — | — | — |
| Overtravel | OT min. | 5 mm | 5 mm | 5 mm | 4 mm | 2.5 mm | 5 mm |
| Movement Differential | MD max. | 0.2 mm | 0.2 mm | 0.2 mm | 3 mm | 1.7 mm | 3 mm |
| Free Position | FP max. | — | — | — | 36 mm | 33 mm | 51 mm |
| Operating Position | OP | 21.8 \pm 1.2 mm | 33.4 \pm 1.2 mm | 33.4 \pm 1.2 mm | 25 \pm 1 mm | 25 \pm 1 mm | 40 \pm 1 mm |

Short Hinge Roller Lever D4MC-2020



One-way Action Short Hinge Roller Lever D4MC-3030

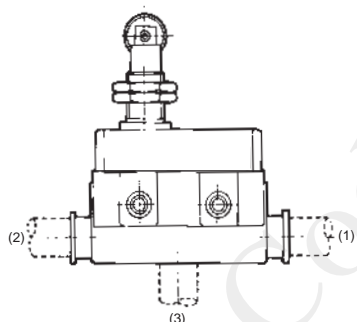


Note: 1. Unless otherwise specified, a tolerance of ± 0.4 mm applies to all dimensions.
2. Operating characteristics are for when the Switch is operated from direction A.
3. Make sure that the permissible OT position is not exceeded.

| Operating characteristics | Model | D4MC-2020 | D4MC-3030 |
|---------------------------|---------|---------------|---------------|
| Operating force | OF max. | 2.94 N | 2.94 N |
| Release force | RF min. | 0.39 N | 0.39 N |
| Pretravel | PT max. | --- | --- |
| Overtravel | OT min. | 2 mm | 2 mm |
| Movement Differential | MD max. | 1.5 mm | 1.5 mm |
| Free Position | FP max. | 47 mm | 57.2 mm |
| Operating position | OP | 40 \pm 1 mm | 50 \pm 1 mm |

Molded Terminal Models (Not Approved by UL, CSA, or EN)

Use Switches with molded terminals in locations subject to dirt, dust, oil drops, or high humidity. Molded terminals are available with all D4MC models. Dimensions and operating characteristics are the same as the basic models.



Suffix by Location of Cable Outlet

| Location of lead outlet (Refer to left figure) | Model COM, NC, and NO |
|---|--------------------------|
| (1) Right-hand | D4MC-□□□1 |
| (2) Left-hand | D4MC-□□□2 |
| (3) Underside | D4MC-□□□3 |

Note: To form the model numbers for molded terminals models, add the numbers 1 to 3 in the table above to the end of the model number in Ordering Information on page 1.

Cables Supplied

| Specifications | Nominal cross-sectional area mm ² | External diameter mm | Terminal connections | Cable length m |
|---------------------------------|---|--------------------------|------------------------------------|-------------------|
| Cables | | | | |
| V.C.T. (Vinyl cabtire cable) | 1.25 | 3 conductor 10.5 dia. | Black: COM White: NO Red: NC | 1, 3 |

Note: Add the VCT length to the end of the model number when ordering. Consult with your OMRON representative for other types of cables and for cables longer than 3 m.

How to Order

Example:

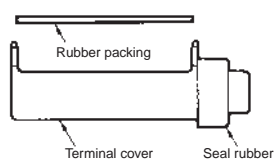
Standard type: D4MC-5020

Location of cable outlet: Underside

Length of cable: 1 m (V.C.T. lead)

When placing your order for the above Switch specify the model number as D4MC-5023 VCT 1M

Terminal Protective Cover, Seal Rubber, and Rubber Packing (The Switch is equipped with these 3 items as a standard.)



- ZC Terminal Cover (Product code: ZC55-0002H)
- ZC Seal Rubber (Product code: SC-1404C)
- ZC Rubber Packing (Product code: ZC55-0003F)