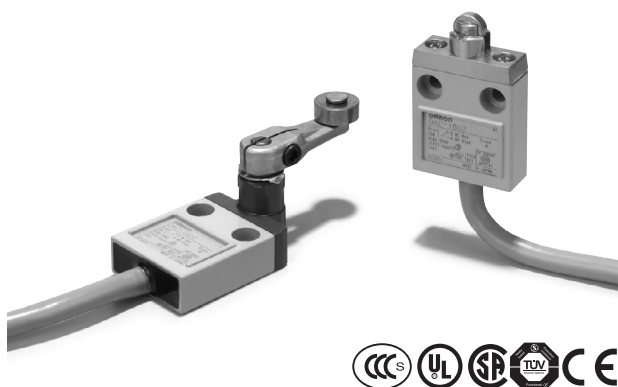


# Enclosed Switch D4C

## Sealed, Compact, and Slim-bodied Switch Offers Choice of Many Actuators

- Liquid- and dust-resistance conforms to IEC IP67 standard.
- Triple-sealed construction:  
Plunger section sealed via nitrile rubber packing seal and diaphragm; switch section sealed via nitrile rubber cap; cable entrance sealed via encapsulating material.
- Standard cable (S-FLEX VCTF) in 3- or 5-meter lengths offers high flexibility with outstanding oil and extreme temperature resistance.
- Low temperature models are available.
- Approved by EN, UL, CSA, and CCC (Chinese standard).



## Model Number Structure

### ■ Model Number Legend

#### Standard Models

D4C-□□□  
1 2 3

##### 1. Rated Current

- 1: 5 A at 250 VAC, 4 A at 30 VDC
- 2: 5 A at 125 VAC (with LED indicator)
- 3: 4 A 30 VDC (with LED indicator)
- 4: 0.1 A at 125 VAC, 0.1 A at 30 VDC
- 5: 0.1 A at 125 VAC (with LED indicator)
- 6: 0.1 A at 30 VDC (with LED indicator)

##### 2. Cable Specifications

- 2: VCTF oil-resistant cable (3 m)
- 3: VCTF oil-resistant cable (5 m)
- 4: VCTF (3 m)
- 5: VCTF (5 m)
- 6: SJT(O) (3 m)
- 7: SJT(O) (5 m)

##### 3. Actuator

- 01: Pin plunger
- 02: Roller plunger
- 03: Crossroller plunger
- 20: Roller lever
- 24: Roller lever (high-sensitivity model)
- 31: Sealed pin plunger
- 32: Sealed roller plunger
- 33: Sealed crossroller
- 50: Plastic rod
- 60: Center roller lever

**Note:** Some combinations of the above may not be supported.

## Pre-wired Models (Use VCTF Oil-resistant Cable)

D4C-□0□□-□□□□□□  
 1 2 3 4

### 1. Operation Indicator Lamp

- 1: 1 A at 125 VAC, 1 A at 30 VDC  
(Without operation indicator)
- 2: 1 A at 125 VAC (with operation indicator)
- 3: 1 A at 30 VDC (with operation indicator)

### 2. Actuator

- 01: Pin plunger
- 02: Roller plunger
- 31: Sealed plunger
- 32: Sealed roller plunger
- 24: Roller lever (high-sensitivity model)

### 3. Wiring Specifications

- DK1EJ: Pre-wired models  
(3 conductors: DC specification, NC wiring)
- AK1EJ: Pre-wired models  
(3 conductors: AC specification, NC wiring)
- M1J: Connector models for ASI devices  
(2 conductors: NO wiring)

### 4. Cable length

- 03: 0.3 m

## Wiring Specifications

Internal switch	Connector
COM	3
NC	2
NO	4

**Note:** Since the above wiring specifications are different from those for the D4CC, be careful not to mistake them.

## Weather-resistant Models

D4C-□□□-P  
 1 2 3

### 1. Rated Current

- 1: 5 A at 250 VAC, 4 A at 30 VDC
- 2: 5 A at 125 VAC (with LED indicator)
- 3: 4 A at 30 VDC (with LED indicator)
- 4: 0.1 A at 125 VAC, 0.1 A at 30 VDC

### 2. Cable Specifications

- 2: VCTF oil-resistant cable (3 m)
- 3: VCTF oil-resistant cable (5 m)

### 3. Actuator











- 20: Roller lever
- 24: Roller lever (high-sensitivity model)
- 27: Variable roller lever
- 29: Variable rod lever

# Ordering Information

## ■ List of Models

### Standard Models











#### Switches with No Operation Indicator

Actuator	Ratings	Cable length (m)	Standard			Microload	
			250 VAC, 5 A; 30 VDC 4 A			125 VAC, 0.1 A; 30 VDC 0.1 A	
			VCTF oil-resistance cable (See note 1.)	VCTF cable (See note 5.)	SJT(O) cable (See note 4.)	VCTF oil-resistance cable (See note 1.)	VCTF cable (See note 5.)
Pin plunger 	3	3	D4C-1201	D4C-1401	D4C-1601	D4C-4201	D4C-4401
		5	D4C-1301	D4C-1501	D4C-1701	D4C-4301	D4C-4501
Roller plunger 	3	3	D4C-1202	D4C-1402	D4C-1602	D4C-4202	D4C-4402
		5	D4C-1302	D4C-1502	D4C-1702	D4C-4302	D4C-4502
Crossroller plunger 	3	3	D4C-1203	D4C-1403	D4C-1603	D4C-4203	D4C-4403
		5	D4C-1303	D4C-1503	D4C-1703	D4C-4303	D4C-4503
Roller lever 	3	3	D4C-1220	D4C-1420	D4C-1620	D4C-4220	D4C-4420
		5	D4C-1320	D4C-1520	D4C-1720	D4C-4320	D4C-4520
Roller lever, high-sensitivity 	3	3	D4C-1224	D4C-1424	D4C-1624	D4C-4224	D4C-4424
		5	D4C-1324	D4C-1524	D4C-1724	D4C-4324	D4C-4524
Sealed pin plunger 	3	3	D4C-1231	D4C-1431	D4C-1631	D4C-4231	D4C-4431
		5	D4C-1331	D4C-1531	D4C-1731	D4C-4331	D4C-4531
Sealed roller plunger 	3	3	D4C-1232	D4C-1432	D4C-1632	D4C-4232	D4C-4432
		5	D4C-1332	D4C-1532	D4C-1732	D4C-4332	D4C-4532
Sealed crossroller plunger 	3	3	D4C-1233	D4C-1433	D4C-1633	D4C-4233	D4C-4433
		5	D4C-1333	D4C-1533	D4C-1733	D4C-4333	D4C-4533
Plastic rod 	3	3	D4C-1250	D4C-1450	D4C-1650	D4C-4250	D4C-4450
		5	D4C-1350	D4C-1550	D4C-1750	D4C-4350	D4C-4550
Center roller lever 	3	3	D4C-1260	D4C-1460	D4C-1660	D4C-4260	D4C-4460
		5	D4C-1360	D4C-1560	D4C-1760	D4C-4360	D4C-4560

**Note 1.** Models are available separately with resistance to viscous oils (oil drain holes are also available), but only with Plunger Models. Add "-M" to the model number (example: D4C-1202 would be D4C-1202-M).

2. Oil-resistant vinyl cabtire cables; approved by EN and IEC.
3. Ordinary vinyl cabtire cables.
4. Switches with SJT(O) Cables (cables approved by UL and CSA) are approved by UL and CSA.
5. Switches with variable roller levers are also available. Ask your nearest OMRON representative for details.

**Standard Switches with Operation Indicator (Red)**

Actuator	Ratings Cable Cable length (m)	125 VAC, 0.1 A		30 VDC 0.1 A	
		VCTF oil-resistance cable (See note 1.)	VCTF cable (See note 2.)	VCTF oil-resistance cable (See note 1.)	VCTF cable (See note 2.)
Pin plunger 	3	D4C-2201	D4C-2401	D4C-3201	D4C-3401
	5	D4C-2301	D4C-2501	D4C-3301	D4C-3501
Roller plunger 	3	D4C-2202	D4C-2402	D4C-3202	D4C-3402
	5	D4C-2302	D4C-2502	D4C-3302	D4C-3502
Crossroller plunger 	3	D4C-2203	D4C-2403	D4C-3203	D4C-3403
	5	D4C-2303	D4C-2503	D4C-3303	D4C-3503
Roller lever 	3	D4C-2220	D4C-2420	D4C-3220	D4C-3420
	5	D4C-2320	D4C-2520	D4C-3320	D4C-3520
Roller lever, high-sensitivity 	3	D4C-2224	D4C-2424	D4C-3224	D4C-3424
	5	D4C-2324	D4C-2524	D4C-3324	D4C-3524
Sealed pin plunger 	3	D4C-2231	D4C-2431	D4C-3231	D4C-3431
	5	D4C-2331	D4C-2531	D4C-3331	D4C-3531
Sealed roller plunger 	3	D4C-2232	D4C-2432	D4C-3232	D4C-3432
	5	D4C-2332	D4C-2532	D4C-3332	D4C-3532
Sealed crossroller plunger 	3	D4C-2233	D4C-2433	D4C-3233	D4C-3433
	5	D4C-2333	D4C-2533	D4C-3333	D4C-3533
Plastic rod 	3	D4C-2250	D4C-2450	D4C-3250	D4C-3450
	5	D4C-2350	D4C-2550	D4C-3350	D4C-3550
Center roller lever 	3	D4C-2260	D4C-2460	D4C-3260	D4C-3460
	5	D4C-2360	D4C-2560	D4C-3360	D4C-3560










**Note 1.** Oil-resistant vinyl cabtire cables; approved by EN and IEC.

**2.** Ordinary vinyl cabtire cables.

**3.** Switches with SJT(O) Cables (cables approved by UL and CSA) are approved by UL and CSA.

**4.** Ask your nearest OMRON representative for information on Switching with approved international standards.






## Micro-load Switches with Operation Indicator

Actuator	Ratings Cable Cable length (m)	125 VAC, 0.1 A	30 VDC 0.1 A
		VCTF oil-resistance cable (See note 1.)	VCTF oil-resistance cable (See note 1.)
Pin plunger 	3	D4C-5201	D4C-6201
	5	D4C-5301	D4C-6301
Roller plunger 	3	D4C-5202	D4C-6202
	5	D4C-5302	D4C-6302
Crossroller plunger 	3	D4C-5203	D4C-6203
	5	D4C-5303	D4C-6303
Roller lever 	3	D4C-5220	D4C-6220
	5	D4C-5320	D4C-6320
Roller lever, high-sensitivity 	3	D4C-5224	D4C-6224
	5	D4C-5324	D4C-6324
Sealed pin plunger 	3	---	D4C-6231
	5	---	D4C-6331
Sealed roller plunger 	3	D4C-5232	D4C-6232
	5	D4C-5332	D4C-6332
Sealed crossroller plunger 	3	---	D4C-6233
	5	---	D4C-6333
Plastic rod 	3	D4C-5250	D4C-6250
	5	D4C-5350	D4C-6350

**Note 1.** Oil-resistant vinyl cabtire cables; approved by EN and IEC.

2. Ask your nearest OMRON representative for information on Switching with approved international standards.

## Pre-wired Models (Use VCTF Oil-resistant Cable)

Actuator	1 A at 125 VAC without operation indicator	1 A at 125 VAC with operation indicator	1 A at 30 VDC without operation indicator	1 A at 30 VDC with operation indicator
Pin plunger 	D4C-1001-AK1EJ□	D4C-2001-AK1EJ□	D4C-1001-DK1EJ□	D4C-3001-DK1EJ□
Roller plunger 	D4C-1002-AK1EJ□	D4C-2002-AK1EJ□	D4C-1002-DK1EJ□	D4C-3002-DK1EJ□
Sealed plunger 	D4C-1031-AK1EJ□	D4C-2031-AK1EJ□	D4C-1031-DK1EJ□	D4C-3031-DK1EJ□
Sealed roller plunger 	D4C-1032-AK1EJ□	D4C-2032-AK1EJ□	D4C-1032-DK1EJ□	D4C-3032-DK1EJ□
Roller lever (high-sensitivity model) 	D4C-1024-AK1EJ□	D4C-2024-AK1EJ□	D4C-1024-DK1EJ□	D4C-3024-DK1EJ□





**Note 1.** The □ contains the length of the cable.

For example: 30 cm → D4C-1001-AK1EJ03

2. M1J models are also available. Contact your OMRON sales representative for further information.

3. Of the above model numbers, some with special specifications are not registered.

**Weather-resistant Models**

Actuator		5 A at 250 VAC 4 A at 30 VDC without operation indicator	0.1 A at 125 VAC 0.1 A at 30 VDC without operation indicator	5 A at 125 VAC with operation indicator	4 A at 30 VDC with operation indicator
Roller lever 	3 m	D4C-1220-P	D4C-4220-P	D4C-2220-P	D4C-3220-P
	5 m	D4C-1320-P	---	---	---
Roller lever (high-sensitivity model) 	3 m	D4C-1224-P	D4C-4224-P	D4C-2224-P	D4C-3224-P
	5 m	D4C-1324-P	D4C-4324-P	D4C-2324-P	D4C-3324-P
Variable roller lever 	3 m	D4C-1227-P	D4C-4227-P	D4C-2227-P	D4C-3227-P
	5 m	D4C-1327-P	D4C-4327-P	D4C-2327-P	D4C-3327-P
Variable rod lever 	3 m	D4C-1229-P	D4C-4229-P	---	D4C-3229-P
	5 m	D4C-1329-P	---	D4C-2329-P	D4C-3329-P

**Note:** Silicon rubber is used to increase resistance to the environment. Silicon rubber, however, can generate silicon gas. (This can occur at room temperature, but the amount of silicon gas generated increases at higher temperatures.) Silicon gas will react as a result of arc energy and form silicon oxide (SiO<sub>2</sub>). If silicon oxide accumulates on the contacts, contact interference can occur and can interfere with the device. Before using a Switch, test it under actual application conditions (including the environment and operating frequency) to confirm that no problems will occur in actual.

**Individual Parts (Head/Actuator)**

Actuator type	Head (with actuator)	Actuator
Pin plunger	D4C-0001	-
Roller plunger	D4C-0002	-
Crossroller plunger	D4C-0003	-
Roller lever	D4C-0020	WL-1A100
Environment-resistant roller lever	D4C-0020-P	WL-1A100P1
Roller lever	D4C-0024	WL-1A100
Variable roller lever	D4C-0027	HL-1HPA320
Variable rod lever	D4C-0029	HL-1HPA500
Sealed pin plunger	D4C-0031	-
Sealed roller plunger	D4C-0032	-
Sealed crossroller plunger	D4C-0033	-
Plastic rod	D4C-0050	-
Center roller lever	D4C-0060	-

- Note 1:** The model numbers for heads are of the form D4C-00□□, with the numbers in the squares indicating the type of actuator.
- Actuators for plunger models, plastic rod models, and center roller lever models cannot be ordered individually. They must be ordered together with the head.
  - Consult your OMRON representative for details on cold-resistant specifications.

**Mounting Plates**

The WL model incorporated by equipment can be replaced with the D4C together with the Mounting Plate without changing the position of the dog or cam.

**List of Replaceable Models**

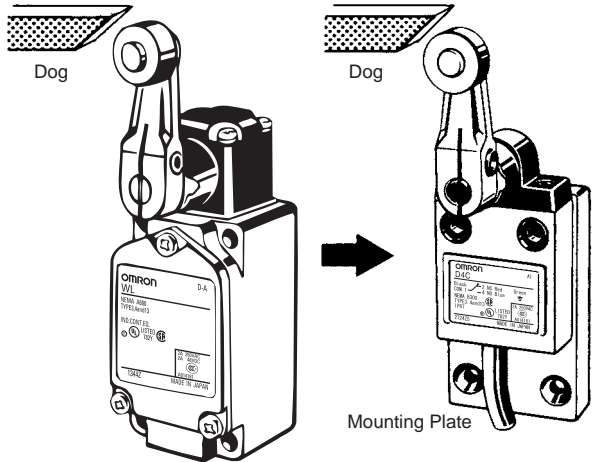
Contact your OMRON representative for the period required for delivery.

WL model (Actuator)	D4C model (Actuator)	Plate
WLD/WL01D (Top plunger)	→D4C-□□01 (Plunger)	D4C-P001
WLD2/WL01D2 (Top-roller plunger)	→D4C-□□02 (Roller plunger)	D4C-P002
WLC A2/WL01CA2 (Roller lever)	→D4C-□□20 (Roller lever)	D4C-P020

**Note:** The WL01□ is for micro loads.

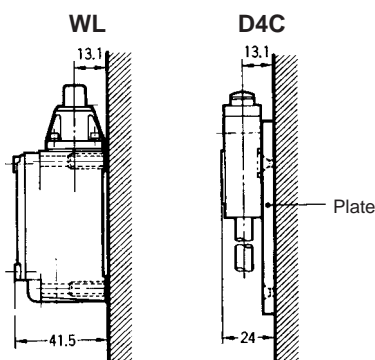
**Application Example**

**Note:** The position of the dog remains unchanged.



## Remarks

There is no difference in mounting pitch between the Mounting Plate and the WL. The mounting depth of the D4C with the Mounting Plate attached is, however, shorter than that of the panel-mounted WL.



## Specifications

### ■ Approved Standards

Agency	Standard	File No.
TÜV Product Service	EN60947-5-1	B03 08 39656 056 (see note 1) B03 08 39656 057 (see note 2)
UL	UL508	E76675 (see note 3)
CSA	CSA C22.2 No. 14	LR45746 (see note 3)
CCC (CQC)	GB14048.5	2003010305077626 (see note 4)

**Note 1:** Models with VCTF oil-resistant cables only.

2. Pre-wired models only.
3. SJT(0)-cable models only.
4. Ask your OMRON representative for information on approved models.

### ■ Approved Standard Ratings

#### UL/CSA

B300 (D4C-16□□, -17□□), B150 (D4C-26□□, -27□□)

#### NEMA B300 (D4C-16□□, -17□□)

Rated voltage	Carry current	Current		Volt-amperes	
		Make	Break	Make	Break
120 VAC	5 A	30 A	3 A	3,600 VA	360 VA
240 VAC		15 A	1.5 A	3,600 VA	360 VA

#### NEMA B150 (D4C-26□□, -27□□)

Rated voltage	Carry current	Current		Volt-amperes	
		Make	Break	Make	Break
120 VAC	5 A	30 A	3 A	3,600 VA	360 VA

#### TÜV (EN60947-5-1), CCC (GB14048.5)

Model	Applicable category and ratings	I the
D4C-1□□□	AC-15 2 A/250 VAC DC-12 2 A/30 VDC	5 A 4 A
D4C-2□□□	AC-15 2 A/125 VAC	5 A
D4C-3□□□	DC-12 2 A/30 VDC	4 A
D4C-4□□□	AC-14 0.1 A/125 VAC DC-12 0.1 A/30 VDC	0.5 A 0.5 A
D4C-5□□□	AC-14 0.1 A/125 VAC	0.5 A
D4C-6□□□	DC-12 0.1 A/30 VDC	0.5 A

■ General Ratings

Model	Rated voltage	Non-inductive load				Inductive load				Inrush current	
		Resistive load		Lamp load		Inductive load		Motor load		NC	NO
		NC	NO	NC	NO	NC	NO	NC	NO		
D4C-1□□□	125 VAC	5 A	5 A	1.5 A	0.7 A	3 A	3 A	2.5 A	1.3 A	20 A max.	10 A max.
	250 VAC	5 A	5 A	1 A	0.5 A	2 A	2 A	1.5 A	0.8 A		
	8 VDC	5 A	5 A	2 A	2 A	5 A	4 A	3 A	3 A		
	14 VDC	5 A	5 A	2 A	2 A	4 A	4 A	3 A	3 A		
	30 VDC	4 A	4 A	2 A	2 A	3 A	3 A	3 A	3 A		
	125 VDC	0.4 A	0.4 A	0.05 A	0.05 A	0.4 A	0.4 A	0.05 A	0.05 A		
	250 VDC	0.2 A	0.2 A	0.03 A	0.03 A	0.2 A	0.2 A	0.03 A	0.03 A		
D4C-2□□□	125 VAC	5 A	5 A	1.5 A	0.7 A	3 A	3 A	2.5 A	1.3 A		
	125 VDC	0.4 A	0.4 A	0.05 A	0.05 A	0.4 A	0.4 A	0.05 A	0.05 A		
D4C-3□□□	30 VDC	4 A	4 A	2 A	2 A	3 A	3 A	3 A	3 A		
D4C-4□□□	125 VAC	0.1 A	0.1 A	---		---					
	8 VDC	0.1 A	0.1 A								
	14 VDC	0.1 A	0.1 A								
	30 VDC	0.1 A	0.1 A								
D4C-5□□□	125 VAC	0.1 A	0.1 A	---		---					
D4C-6□□□	30 VDC	0.1 A	0.1 A	---		---					

Ratings for Pre-wired Models

Rated voltage	Non-inductive load				Inductive load				Inrush current	
	Resistive load		Lamp load		Inductive load		Motor load		NC	NO
	NC	NO	NC	NO	NC	NO	NC	NO		
125 VAC	1	1	1	0.7	1	1	1	1	20 A max.	10 A max.
30 VDC	1	1	1	1	1	1	1			

- Note 1.** Inductive loads have a power factor of 0.4 min. (AC) and a time constant of 7 ms max. (DC).  
**2.** Lamp loads have an inrush current of 10 times the steady-state current.  
**3.** Motor loads have an inrush current of 6 times the steady-state current.

## ■ Characteristics

Degree of protection	IP67
Durability (see note 2)	Mechanical: 10,000,000 operations min. (see note 4) Electrical: 200,000 operations min. (5A at 250 VAC, resistive load) (see note 3)
Operating speed	0.1 mm to 0.5 m/s (in case of plunger) 1 mm to 1 m/s (in case of roller lever)
Operating frequency	Mechanical: 120 operations/min Electrical: 30 operations/min
Rated frequency	50/60 Hz
Insulation resistance	100 M $\Omega$ min. (at 500 VDC)
Contact resistance (initial)	250 m $\Omega$ max. (initial value with 2-m VCTF cable) 300 m $\Omega$ max. (initial value with 3-m VCTF cable) 400 m $\Omega$ max. (initial value with 5-m VCTF cable)
Dielectric strength	1,000 VAC, 50/60 Hz for 1 min between terminals of the same polarity 1,500 VAC, 50/60 Hz for 1 min between current-carrying metal part and ground, and between each terminal and non-current-carrying metal part, Uimp: 2.5 kV (EN60947-5-1)
Rated insulation voltage (U <sub>i</sub> )	300 V (EN60947-5-1)
Switching overvoltage	1,000 VAC, 300 VDC max. (EN60947-5-1)
Pollution degree (operating environment)	3 (IEC60947-5-1)
Short-circuit protective device (SCPD)	10 A fuse type gI or gG (IEC269)
Conditional short-circuit current	100 A (EN60947-5-1)
Conventional enclosed thermal current (I <sub>the</sub> )	5 A, 4 A, 0.5 A (EN60947-5-1)
Protection against electric shock	Class I (with grounding wire)
Vibration resistance	Malfunction: 10 to 55 Hz, 1.5-mm double amplitude (see note 5)
Shock resistance	Destruction: Approx. 1,000 m/s <sup>2</sup> min. Malfunction: Approx. 500 m/s <sup>2</sup> min. (see note 5)
Ambient temperature (see note)	Operating: -10°C to 70°C (with no icing)
Ambient humidity	Operating: 35% to 95%
Weight (D4C-1202)	With 3-m VCTF cable: 360 g; With 5-m VCTF cable: 540 g

**Note 1.** The above figures are initial values.

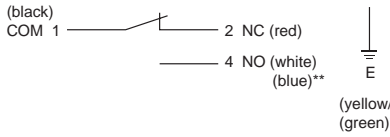
2. The values are calculated at an operating temperature of 5°C to 35°C, and an operating humidity of 40% to 70%. Contact your OMRON sales representative for more detailed information on other operating environments.
3. Prewired Connector Models: 1,000,000 operations min. (DC specifications, switching current: 0.1 A)
4. Outdoor specifications: 500,000 operations min.
5. Excluding Plastic Rods.

# Connections

## ■ Contact Form

### Standard Models/Weather-resistant Models

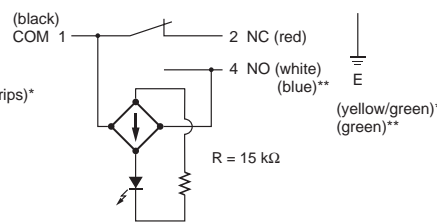
#### Without Operation Indicator



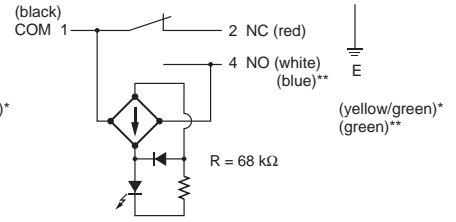
\* Yellow/green: VCTF oil-resistant cable  
Green: VCTF cable

\*\* SJT(O) cable approved by UL and CSA.

#### With 24 VDC LED Operation Indicator (Lit when Not Actuated)



#### With 100 VAC LED Operation Indicator (Lit when Not Actuated)

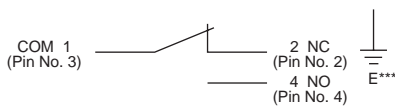


**Note 1.** "Lit when operated" means that when the actuator is turned or pushed and the Limit Switch contact leaves the NC side, the indicator lights.

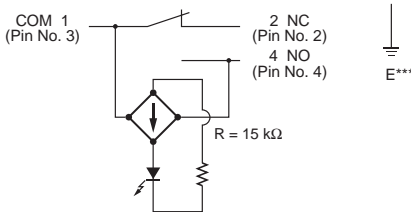
**Note 2.** "Lit when not in operation" means that when the actuator is in the free position, the indicator is lit, and when the actuator is turned or pushed and the contact comes into contact with the NO side, the indicator turns OFF.

### Pre-wired Models (-AK1EJ□, -DK1EJ□)

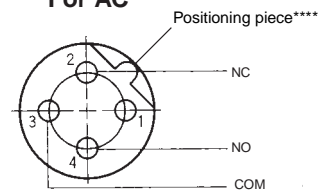
#### Without Operation Indicator



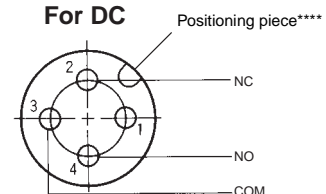
#### With 24 VDC LED Operation Indicator (Lit when Not Actuated)



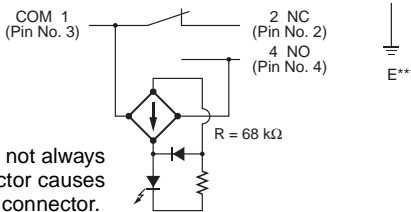
#### For AC



#### For DC



#### With 100 VAC LED Operation Indicator (Lit when Not Actuated)

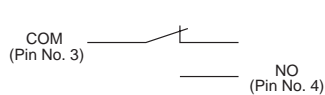


\*\*\* E (ground) is not grounded.

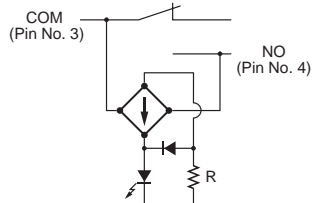
\*\*\*\* The position of the positioning piece is not always the same. If using an L-shaped connector causes problems in application, use a straight connector.

### Connector Models for ASI Devices (-M1J)

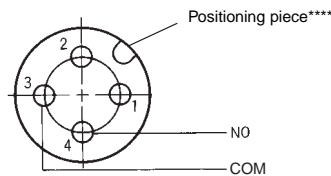
#### Without Operation Indicator



#### With Operation Indicator (Lit when Not Actuated)



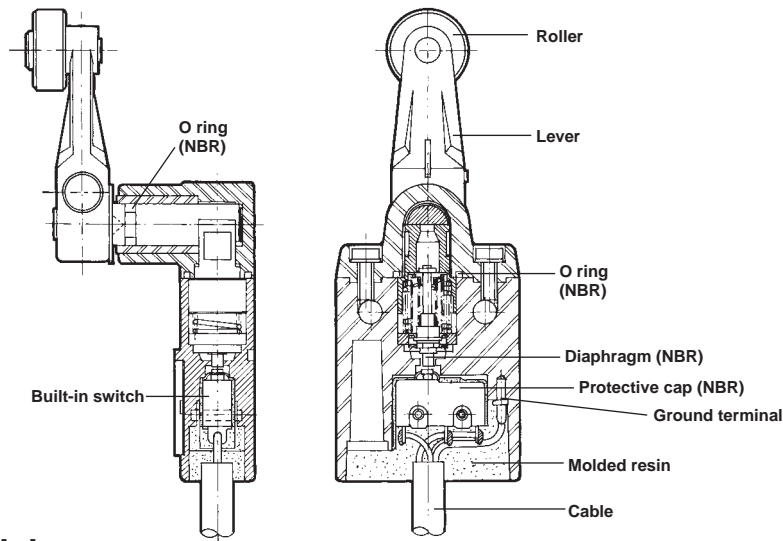
#### For DC



# Nomenclature

## Standard Models

### Roller Lever Models Without Indicator



## Weather-resistant Models

### Roller Lever Models Without Indicator

**Roller**

The roller is made of self-lubricating sintered stainless steel and boasts high resistance to wear.

**Shaft Section Seal**

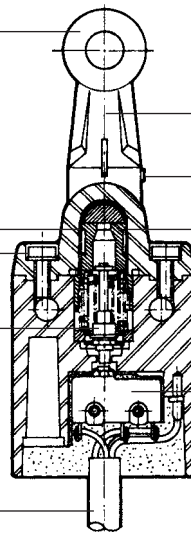
By fitting an O-ring to the rotary shaft and with an appropriate interference of the screws, high-sealing properties are maintained. The O-ring is made of silicone rubber and is resistant to temperature changes and adverse weather conditions.

**Head-mounting Screw**

**Diaphragm**  
The diaphragm is made of silicone rubber and is resistant to temperature changes and adverse weather conditions.

**Cable**

Vinyl cabtire cable and is resistant to adverse weather conditions.



**Lever**

The lever forged of anti-corrosive aluminium alloy features high corrosion resistances and outstanding ruggedness.

**Roller Lever Setscrew**

This screw is made of stainless steel and has high corrosion resistance.

**Rotary Shaft**

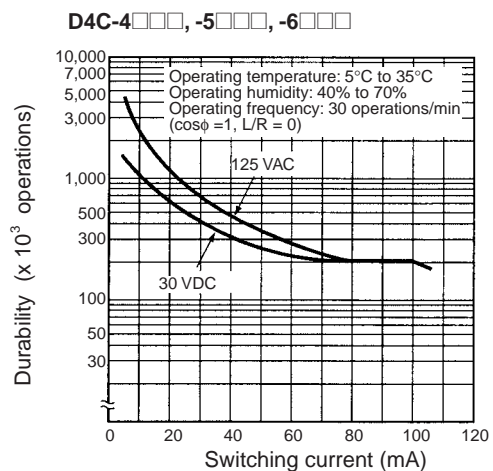
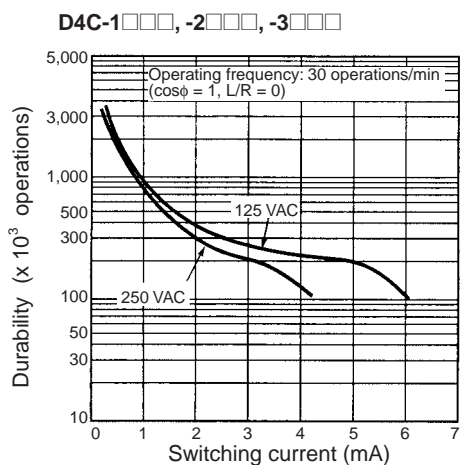
The shaft is made of stainless steel decreasing the likelihood of rusting.

**Built-in Switch**

Both standard load and microload models available.

# Engineering Data

## ■ Electrical Durability



## ■ Leakage Current for LED-indicator Models

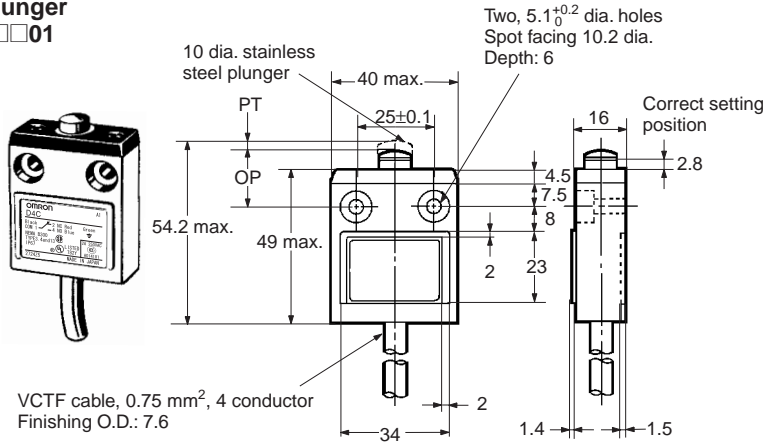
Model	Voltage	Leakage current	Resistance
D4C-2□□□	125 VAC	1.7 mA	68 k $\Omega$
D4C-3□□□	30 VDC	1.7 mA	15 k $\Omega$
D4C-5□□□	125 VAC	1.7 mA	68 k $\Omega$
D4C-6□□□	30 VDC	1.7 mA	15 k $\Omega$

# Dimensions

- Note 1.** All units are in millimeters unless otherwise indicated.  
**2.** Unless otherwise specified, a tolerance of  $\pm 0.4$  mm applies to all dimensions.

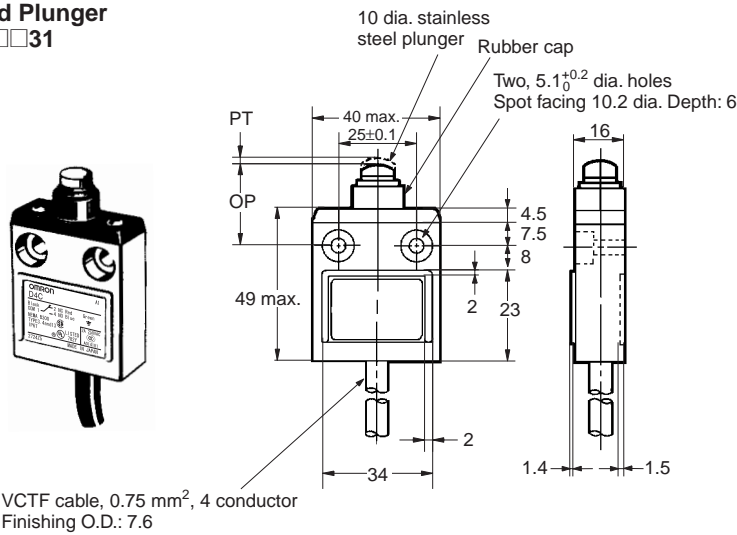
## Standard Models

### Pin Plunger D4C-□□01



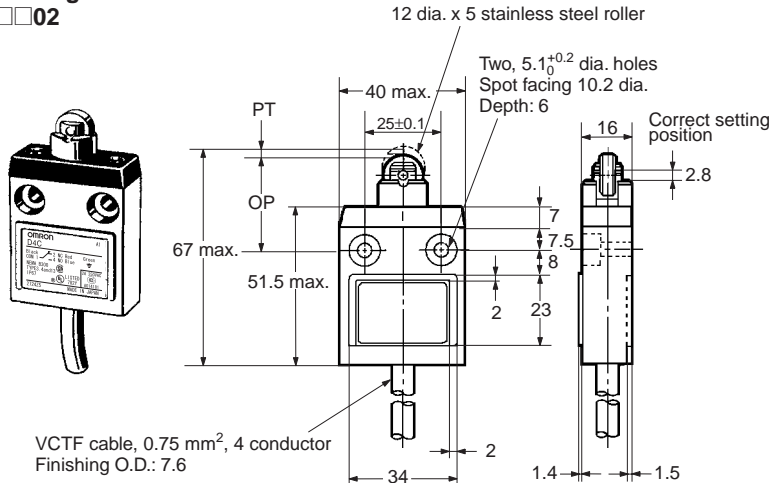
Model	D4C-□□01
OF max.	11.77 N
RF min.	4.41 N
PT max.	1.8 mm
OT min.	3 mm
MD max.	0.2 mm
OP	15.7±1 mm
TT	(5) mm

### Sealed Plunger D4C-□□31



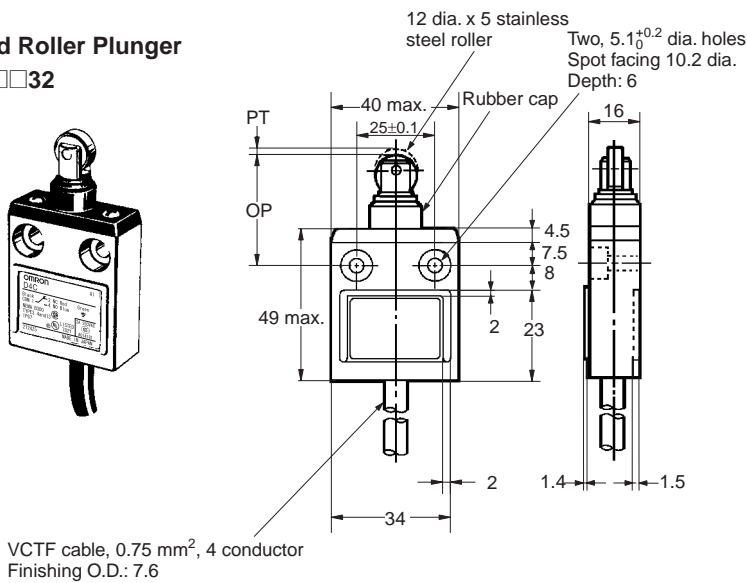
Model	D4C-□□31
OF max.	17.65 N
RF min.	4.41 N
PT max.	1.8 mm
OT min.	3 mm
MD max.	0.2 mm
OP	24.9±1 mm
TT	(5) mm

**Roller Plunger**  
**D4C-□□02**



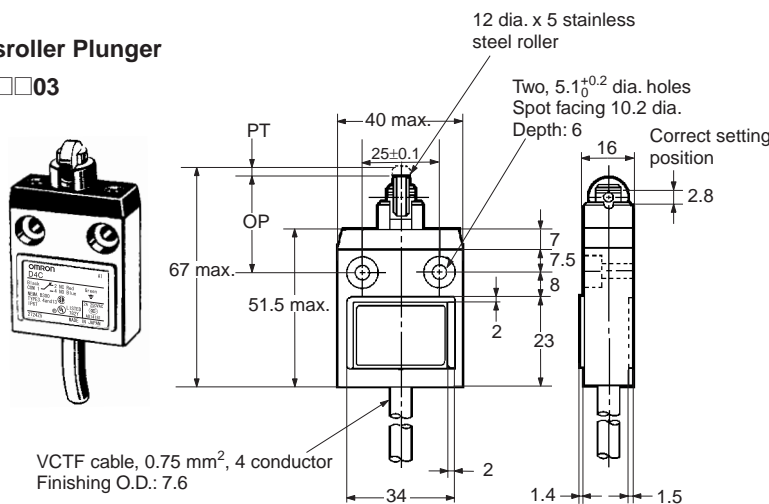
Model	D4C-□□02
OF max.	11.77 N
RF min.	4.41 N
PT max.	1.8 mm
OT min.	3 mm
MD max.	0.2 mm
OP	28.5±1 mm
TT	(5) mm

**Sealed Roller Plunger**  
**D4C-□□32**



Model	D4C-□□32
OF max.	17.65 N
RF min.	4.41 N
PT max.	1.8 mm
OT min.	3 mm
MD max.	0.2 mm
OP	34.3±1 mm
TT	(5) mm

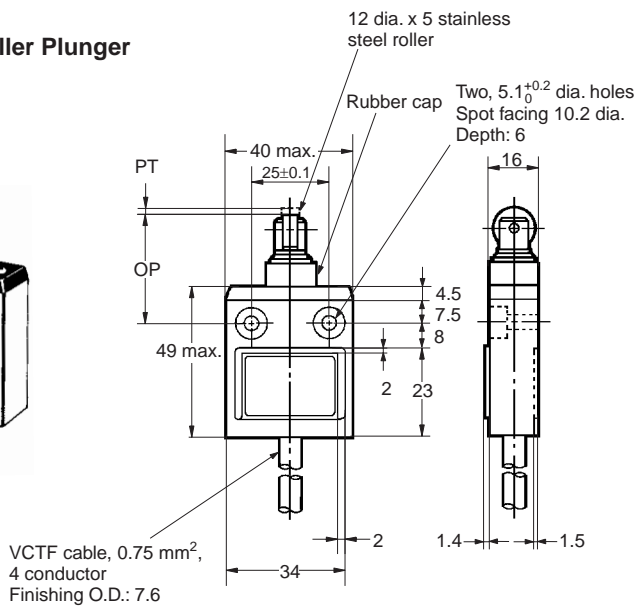
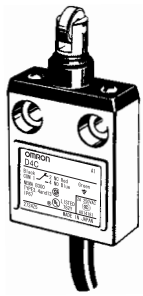
**Crossroller Plunger**  
**D4C-□□03**



Model	D4C-□□03
OF max.	6.86 N
RF min.	2.45 N
PT max.	1.8 mm
OT min.	3 mm
MD max.	0.2 mm
OP	28.5±1 mm
TT	(5) mm

**Sealed Crossroller Plunger**

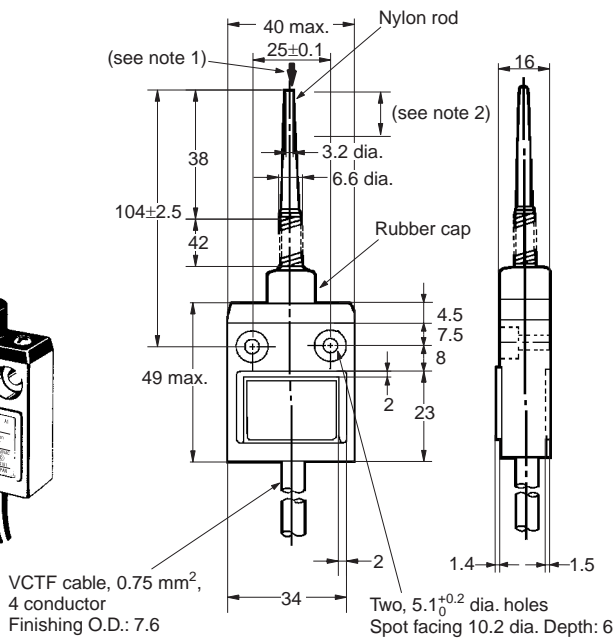
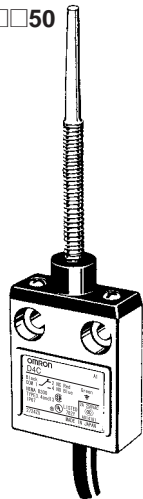
**D4C-□□33**



Model	D4C-□□33
OF max.	17.65 N
RF min.	4.41 N
PT max.	1.8 mm
OT min.	3 mm
MD max.	0.2 mm
OP	$34.3 \pm 1$ mm
TT	(5) mm

**Coil Spring**

**D4C-□□50**



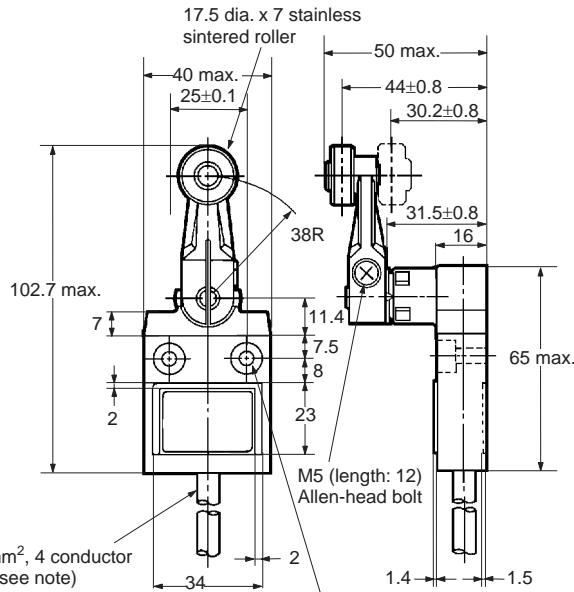
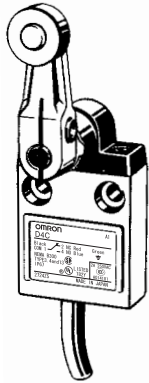
Model	D4C-□□50
OF max.	1.47 N
RF min.	---
PT max.	$15^\circ$
OT min.	---
MD max.	---
OP	---
TT	---

**Note 1:** Operation is possible in any direction except in parallel to the axis.

**2:** The ideal range for operation is between the tip of the rod and 1/3 of the length of the actuator.

**Roller Lever**

D4C-□□20  
D4C-□□20-P



VCTF cable, 0.75 mm<sup>2</sup>, 4 conductor  
Finishing O.D.: 7.6 (see note)

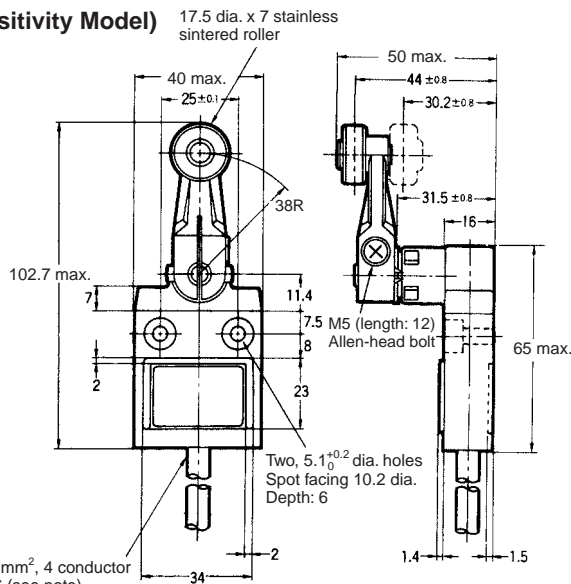
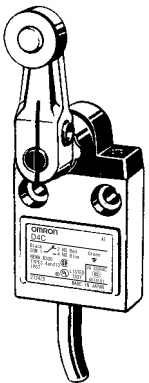
**Note:** S-FLEX VCTF Cables are used for weather-resistant models (D4C-P).

Two, 5.1<sup>+0.2</sup><sub>0</sub> dia. holes  
Spot facing 10.2 dia.  
Depth: 6

Model	D4C-□□20 D4C-□□20-P
OF max.	5.69 N
RF min.	1.47 N
PT max.	25°
OT min.	40°
MD max.	3°
OP	---
TT	(70°)

**Roller Lever (High-Sensitivity Model)**

D4C-□□24  
D4C-□□24-P



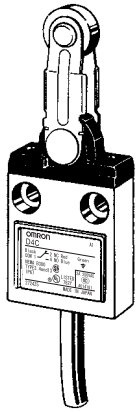
VCTF cable, 0.75 mm<sup>2</sup>, 4 conductor  
Finishing O.D.: 7.6 (see note)

**Note:** S-FLEX VCTF Cables are used for weather-resistant models (D4C-P).

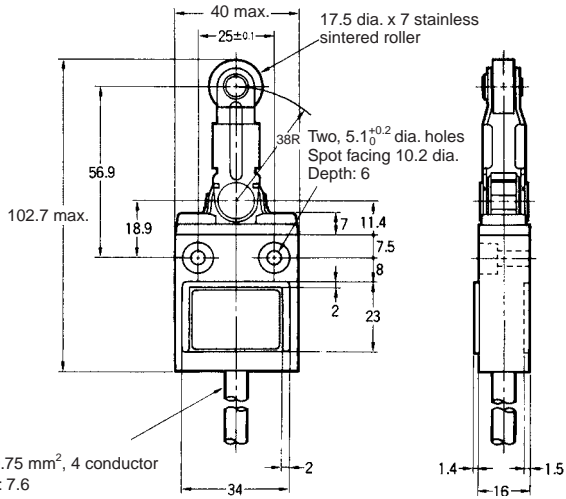
Model	D4C-□□24 D4C-□□24-P
OF max.	5.69 N
RF min.	1.47 N
PT max.	10±3°
OT min.	50°
MD max.	3°
OP	---
TT	(70°)

Center Roller Lever Plunger

D4C-□□60



VCTF cable, 0.75 mm<sup>2</sup>, 4 conductor  
Finishing O.D.: 7.6

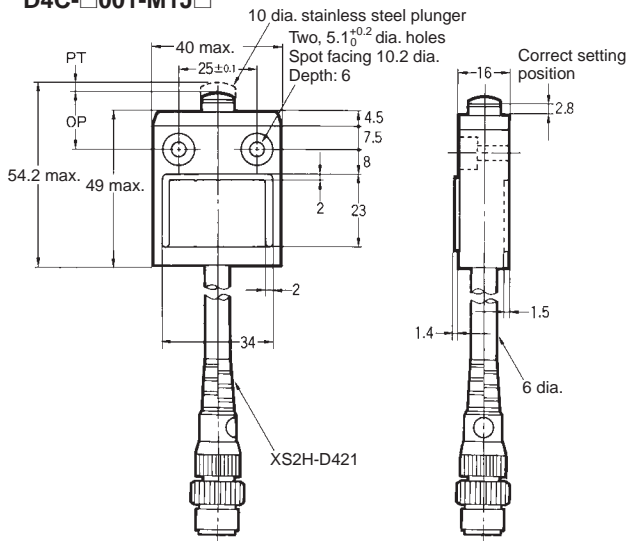


Model	D4C-□□60
OF max.	6.67 N
RF min.	1.47 N
PT max.	10±3°
OT min.	50°
MD max.	3°
OP	---
TT	---

**Pre-wired Models**

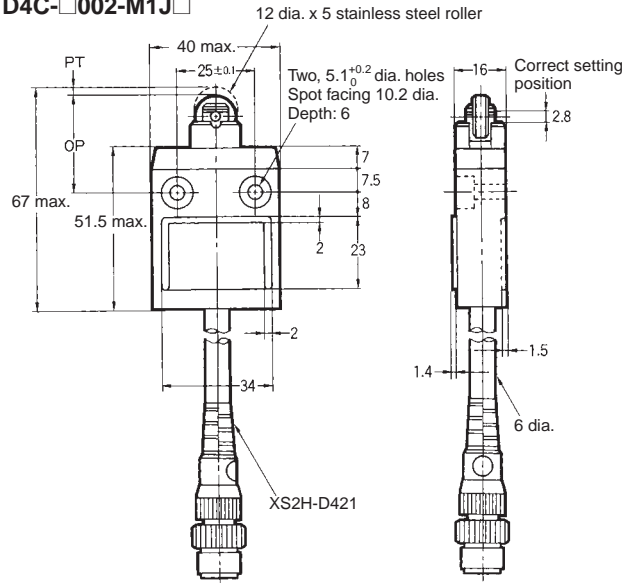
**Pin Plunger**

D4C-□001-□K1EJ□  
D4C-□001-M1J□



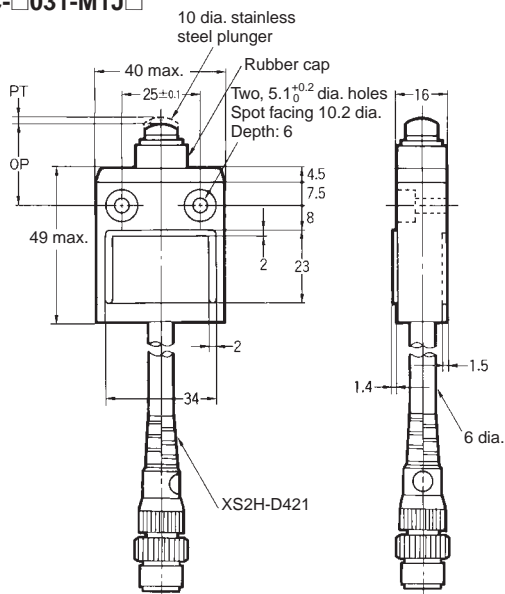
**Roller Plunger**

D4C-□002-□K1EJ□  
D4C-□002-M1J□



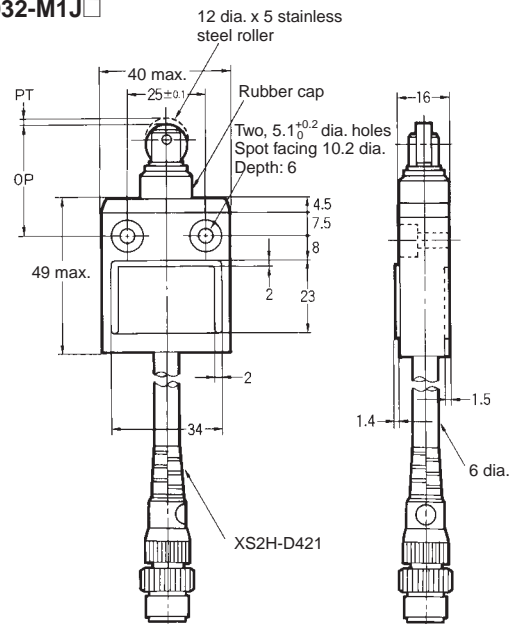
**Sealed Pin Plunger**

D4C-□031-□K1EJ□  
D4C-□031-M1J□



**Sealed Roller Plunger**

D4C-□032-□K1EJ□  
D4C-□032-M1J□

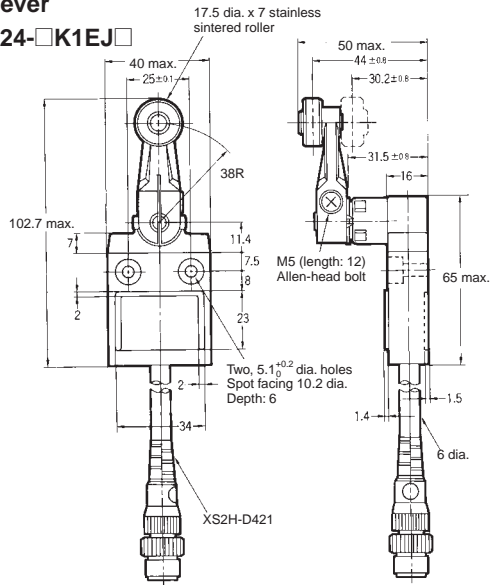


Model	D4C-□001-□K1EJ□	D4C-□002-□K1EJ□	D4C-□031-□K1EJ□	D4C-□032-□K1EJ□
OF max.	11.77 N	11.77 N	17.65 N	17.65 N
RF min.	4.41 N	4.41 N	4.41 N	4.41 N
PT max.	1.8 mm	1.8 mm	1.8 mm	1.8 mm
OT min.	3 mm	3 mm	3 mm	3 mm
MD max.	0.2 mm	0.2 mm	0.2 mm	0.2 mm
OP	15.7±1 mm	28.5±1 mm	24.9±1 mm	34.3±1 mm

Note: Specifications are the same for -M1J Switches.

**Roller Lever**

**D4C-□024-□K1EJ□**

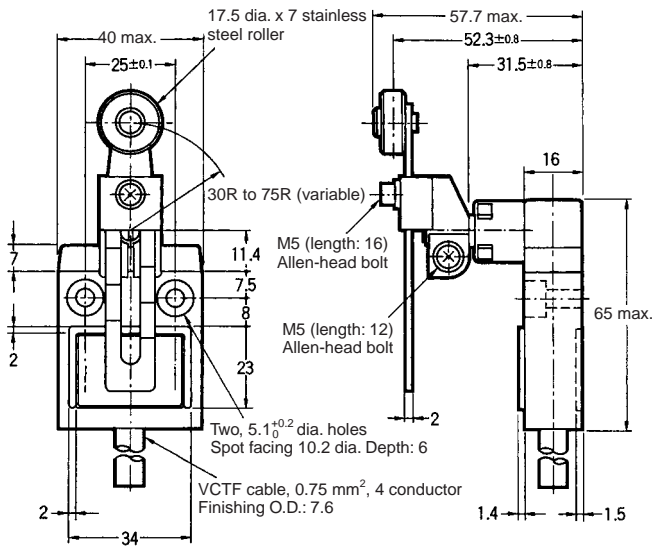


Model	D4C-□□24-□K1EJ□
OF max.	5.69 N
RF min.	1.47 N
PT max.	10±3°
OT min.	50°
MD max.	3°
OP	---

**Weather-resistant Models**

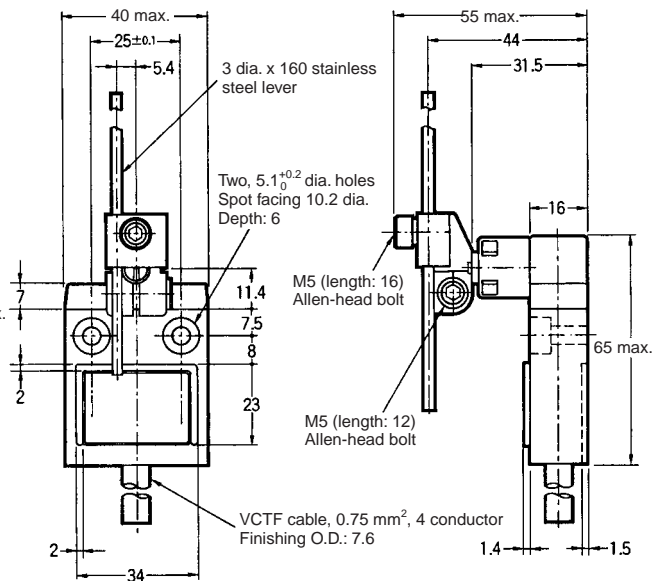
**Adjustable Roller Lever**

**D4C-□□27-P**



**Adjustable Rod Lever**

**D4C-□□29-P**

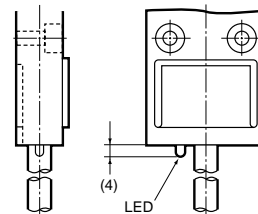


Model	D4C-□□27-P	D4C-□□29-P (see note)
OF max.	5.69 N	5.69 N
RF min.	1.47 N	1.47 N
PT max.	25°	25°
OT min.	40°	40°
MD max.	3°	3°

**Note:** Operation characteristics for the D4C-□□27-P and D4C-□□29-P are for a lever length of 38 mm.

**Models with LED Indicator**

The dimensions of the LED indicator for models equipped with one are shown below.



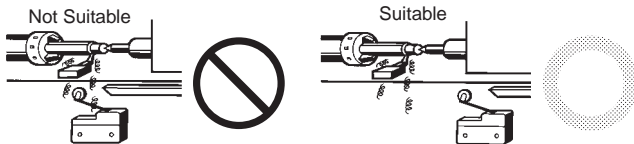
# Precautions

Refer to the "Precautions for General-purpose Limit Switches (Including Multiple Limit Switches, Mechanical Touch Switches, High-precision Switches, Touch Switches, On-site Flexible Switches; Not Including Safety Switches)" on page 17.

## Correct Use

### Operating Environment

- Seal material may deteriorate if a Switch is used outdoor or where subject to special cutting oils, solvents, or chemicals. Always appraise performance under actual application conditions and set suitable maintenance and replacement periods.
- Install Switches where they will not be directly subject to cutting chips, dust, or dirt. The Actuator and Switch must also be protected from the accumulation of cutting chips or sludge.

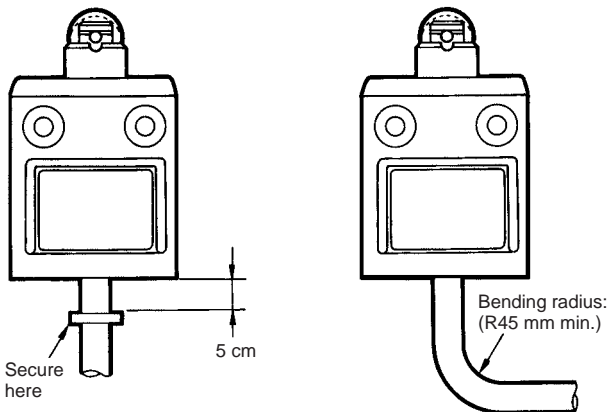


- Constantly subjecting a Switch to vibration or shock can result in wear, which can lead to contact interference with contacts, operation failure, reduced durability, and other problems. Excessive vibration or shock can lead to false contact operation or damage. Install Switches in locations not subject to shock and vibration and in orientations that will not produce resonance.
- The Switches have physical contacts. Using them in environments containing silicon gas will result in the formation of silicon oxide (SiO<sub>2</sub>) due to arc energy. If silicon oxide accumulates on the contacts, contact interference can occur. If silicon oil, silicon filling agents, silicon cables, or other silicon products are present near the Switch, suppress arcing with contact protective circuits (surge killers) or remove the source of silicon gas.

### Handling

The bottom of the Switch at the cable outlet is resin-molded. Secure the cable at a point 5 cm from the Switch bottom to prevent exertion of excess force on the cable.

When bending the cable, provide a bending radius of 45 mm min. so as not to damage the cable insulation or sheath. Excessive bending may cause fire or leakage current.



### Connections

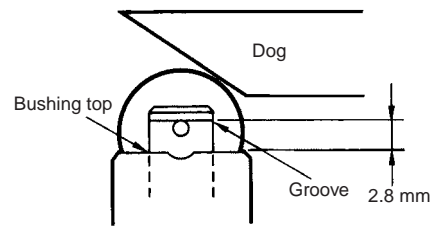
Be sure to connect a fuse with a breaking current 1.5 to 2 times larger than the rated current to the Limit Switch in series in order to protect the Limit Switch from damage due to short-circuiting.

When using the Limit Switch for the EN ratings, use the gI or gG 10-A fuse.

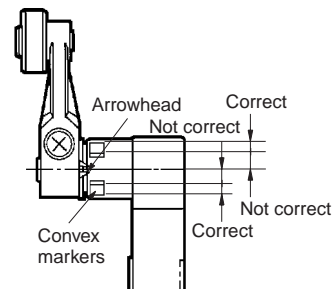
### Operation

Operation method, shapes of cam and dog, operating frequency, and overtravel have a significant effect on the service life and precision of a Limit Switch. For this reason, the dog angle must be 30° max., the surface roughness of the dog must be 6.3S min. and hardness must be Hv400 to 500.

To allow the plunger-type actuator to travel properly, adjust the dog and cam to the proper setting positions. The proper position is where the plunger groove fits the bushing top.



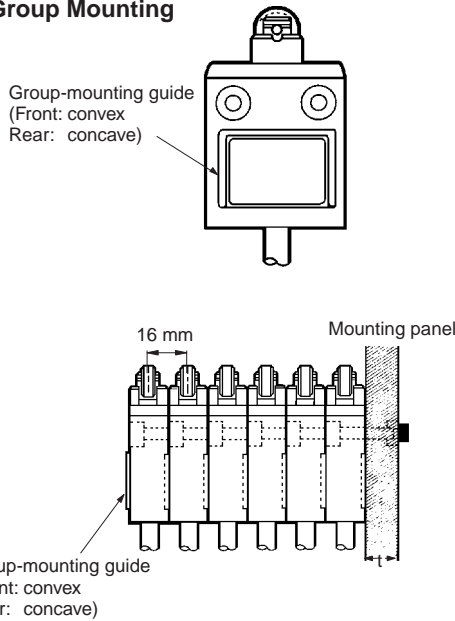
To allow the roller lever-type actuator to travel properly, adjust the dog and cam so that the arrow head is positioned between the two convex markers as shown below.



## Mounting

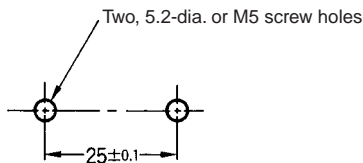
A maximum of 6 Switches may be group-mounted. In this case, pay attention to the mounting direction so that the convex part of the group-mounting guide on one Switch fits into the concave part of the guide on the other Switch as shown in the figure below. For group mounting, the mounting panel must have a thickness (t) of 6 mm min.

### Group Mounting



If the mounting panel is warped or has protruding parts, a malfunction may result. Make sure that the mounting panel is not warped and has even surfaces.

### Mounting Holes



Use a Switch with a rubber cap when using the plunger type in an environment where malfunction is possible due to environmental conditions such as dust or cutting chips which may not allow resetting.

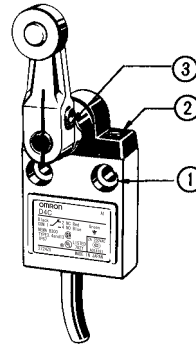
Do not expose the Switch to water exceeding 70°C or use it in steam.

When the D4C is used in a circuit of a device to be exported to Europe, classified as Overvoltage Class III as specified in IEC664, provide a contact protection circuit.

Tighten each screw to a torque according to the following table.

No.	Type	Torque
1	M5 Allen-head bolt	4.90 to 5.88 N·m
2	M3.5 head mounting screw	0.78 to 0.88 N·m
3	M5 Allen-head bolt	4.90 to 5.88 N·m

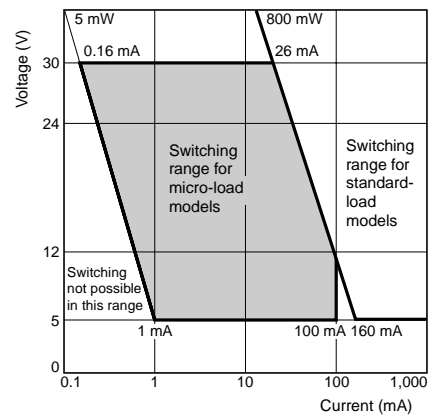
**Note:** By removing the two screws from the head, the head direction can be rotated 180°. After changing the head direction, re-tighten to the torque specified above. Be careful not to allow any foreign substance to enter the Switch.



## Micro-load Models (D4C-4, -5, -6)

### Switching Range

Micro-load models can be used for switching in the range shown below.



# Terms and Conditions of Sale

- Offer; Acceptance.** These terms and conditions (these "Terms") are deemed part of all quotes, agreements, purchase orders, acknowledgments, price lists, catalogs, manuals, brochures and other documents, whether electronic or in writing, relating to the sale of products or services (collectively, the "Products") by Omron Electronics LLC and its subsidiary companies ("Omron"). Omron objects to any terms or conditions proposed in Buyer's purchase order or other documents which are inconsistent with, or in addition to, these Terms.
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- Discounts.** Cash discounts, if any, will apply only on the net amount of invoices sent to Buyer after deducting transportation charges, taxes and duties, and will be allowed only if (i) the invoice is paid according to Omron's payment terms and (ii) Buyer has no past due amounts.
- Interest.** Omron, at its option, may charge Buyer 1-1/2% interest per month or the maximum legal rate, whichever is less, on any balance not paid within the stated terms.
- Orders.** Omron will accept no order less than \$200 net billing.
- Governmental Approvals.** Buyer shall be responsible for, and shall bear all costs involved in, obtaining any government approvals required for the importation or sale of the Products.
- Taxes.** All taxes, duties and other governmental charges (other than general real property and income taxes), including any interest or penalties thereon, imposed directly or indirectly on Omron or required to be collected directly or indirectly by Omron for the manufacture, production, sale, delivery, importation, consumption or use of the Products sold hereunder (including customs duties and sales, excise, use, turnover and license taxes) shall be charged to and remitted by Buyer to Omron.
- Financial.** If the financial position of Buyer at any time becomes unsatisfactory to Omron, Omron reserves the right to stop shipments or require satisfactory security or payment in advance. If Buyer fails to make payment or otherwise comply with these Terms or any related agreement, Omron may (without liability and in addition to other remedies) cancel any unshipped portion of Products sold hereunder and stop any Products in transit until Buyer pays all amounts, including amounts payable hereunder, whether or not then due, which are owing to it by Buyer. Buyer shall in any event remain liable for all unpaid accounts.
- Cancellation; Etc.** Orders are not subject to rescheduling or cancellation unless Buyer indemnifies Omron against all related costs or expenses.
- Force Majeure.** Omron shall not be liable for any delay or failure in delivery resulting from causes beyond its control, including earthquakes, fires, floods, strikes or other labor disputes, shortage of labor or materials, accidents to machinery, acts of sabotage, riots, delay in or lack of transportation or the requirements of any government authority.
- Shipping; Delivery.** Unless otherwise expressly agreed in writing by Omron:
  - Shipments shall be by a carrier selected by Omron; Omron will not drop ship except in "break down" situations.
  - Such carrier shall act as the agent of Buyer and delivery to such carrier shall constitute delivery to Buyer;
  - All sales and shipments of Products shall be FOB shipping point (unless otherwise stated in writing by Omron), at which point title and risk of loss shall pass from Omron to Buyer; provided that Omron shall retain a security interest in the Products until the full purchase price is paid;
  - Delivery and shipping dates are estimates only; and
  - Omron will package Products as it deems proper for protection against normal handling and extra charges apply to special conditions.
- Claims.** Any claim by Buyer against Omron for shortage or damage to the Products occurring before delivery to the carrier must be presented in writing to Omron within 30 days of receipt of shipment and include the original transportation bill signed by the carrier noting that the carrier received the Products from Omron in the condition claimed.
- Warranties.** (a) **Exclusive Warranty.** Omron's exclusive warranty is that the Products will be free from defects in materials and workmanship for a period of twelve months from the date of sale by Omron (or such other period expressed in writing by Omron). Omron disclaims all other warranties, express or implied. (b) **Limitations.** OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCTS. BUYER ACKNOWLEDGES THAT IT ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE. Omron further disclaims all warranties and responsibility of any type for claims or expenses based on infringement by the Products or otherwise of any intellectual property right. (c) **Buyer Remedy.** Omron's sole obligation hereunder shall be, at Omron's election, to (i) replace (in the form originally shipped with Buyer responsible for labor charges for removal or replacement thereof) the non-complying Product, (ii) repair the non-complying Product, or (iii) repay or credit Buyer an amount equal to the purchase price of the non-complying Product; provided that in no event shall Omron be responsible for warranty, repair, indemnity or any other claims or expenses regarding the Products unless Omron's analysis confirms that the Products were properly handled, stored, installed and maintained and not subject to contamination, abuse, misuse or inappropriate modification. Return of any Products by Buyer must be approved in writing by Omron before shipment. Omron Companies shall not be liable for the suitability or unsuitability or the results from the use of Products in combination with any electrical or electronic components, circuits, system assemblies or any other materials or substances or environments. Any advice, recommendations or information given orally or in writing, are not to be construed as an amendment or addition to the above warranty. See <http://oeweb.omron.com> or contact your Omron representative for published information.
- Limitation on Liability; Etc.** OMRON COMPANIES SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, NEGLIGENCE OR STRICT LIABILITY. Further, in no event shall liability of Omron Companies exceed the individual price of the Product on which liability is asserted.
- Indemnities.** Buyer shall indemnify and hold harmless Omron Companies and their employees from and against all liabilities, losses, claims, costs and expenses (including attorney's fees and expenses) related to any claim, investigation, litigation or proceeding (whether or not Omron is a party) which arises or is alleged to arise from Buyer's acts or omissions under these Terms or in any way with respect to the Products. Without limiting the foregoing, Buyer (at its own expense) shall indemnify and hold harmless Omron and defend or settle any action brought against such Companies to the extent based on a claim that any Product made to Buyer specifications infringed intellectual property rights of another party.
- Property; Confidentiality.** Any intellectual property in the Products is the exclusive property of Omron Companies and Buyer shall not attempt to duplicate it in any way without the written permission of Omron. Notwithstanding any charges to Buyer for engineering or tooling, all engineering and tooling shall remain the exclusive property of Omron. All information and materials supplied by Omron to Buyer relating to the Products are confidential and proprietary, and Buyer shall limit distribution thereof to its trusted employees and strictly prevent disclosure to any third party.
- Export Controls.** Buyer shall comply with all applicable laws, regulations and licenses regarding (i) export of products or information; (ii) sale of products to "forbidden" or other proscribed persons; and (iii) disclosure to non-citizens of regulated technology or information.
- Miscellaneous.** (a) **Waiver.** No failure or delay by Omron in exercising any right and no course of dealing between Buyer and Omron shall operate as a waiver of rights by Omron. (b) **Assignment.** Buyer may not assign its rights hereunder without Omron's written consent. (c) **Law.** These Terms are governed by the law of the jurisdiction of the home office of the Omron company from which Buyer is purchasing the Products (without regard to conflict of law principles). (d) **Amendment.** These Terms constitute the entire agreement between Buyer and Omron relating to the Products, and no provision may be changed or waived unless in writing signed by the parties. (e) **Severability.** If any provision hereof is rendered ineffective or invalid, such provision shall not invalidate any other provision. (f) **Setoff.** Buyer shall have no right to set off any amounts against the amount owing in respect of this invoice. (g) **Definitions.** As used herein, "including" means "including without limitation"; and "Omron Companies" (or similar words) mean Omron Corporation and any direct or indirect subsidiary or affiliate thereof.

## Certain Precautions on Specifications and Use

- Suitability of Use.** Omron Companies shall not be responsible for conformity with any standards, codes or regulations which apply to the combination of the Product in the Buyer's application or use of the Product. At Buyer's request, Omron will provide applicable third party certification documents identifying ratings and limitations of use which apply to the Product. This information by itself is not sufficient for a complete determination of the suitability of the Product in combination with the end product, machine, system, or other application or use. Buyer shall be solely responsible for determining appropriateness of the particular Product with respect to Buyer's application, product or system. Buyer shall take application responsibility in all cases but the following is a non-exhaustive list of applications for which particular attention must be given:
  - Outdoor use, uses involving potential chemical contamination or electrical interference, or conditions or uses not described in this document.
  - Use in consumer products or any use in significant quantities.
  - Energy control systems, combustion systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equipment, and installations subject to separate industry or government regulations.
  - Systems, machines and equipment that could present a risk to life or property. Please know and observe all prohibitions of use applicable to this Product.

NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY OR IN LARGE QUANTITIES WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON'S PRODUCT IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.
- Programmable Products.** Omron Companies shall not be responsible for the user's programming of a programmable Product, or any consequence thereof.
- Performance Data.** Data presented in Omron Company websites, catalogs and other materials is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of Omron's test conditions, and the user must correlate it to actual application requirements. Actual performance is subject to the Omron's Warranty and Limitations of Liability.
- Change in Specifications.** Product specifications and accessories may be changed at any time based on improvements and other reasons. It is our practice to change part numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the Product may be changed without any notice. When in doubt, special part numbers may be assigned to fix or establish key specifications for your application. Please consult with your Omron's representative at any time to confirm actual specifications of purchased Product.
- Errors and Omissions.** Information presented by Omron Companies has been checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical or proofreading errors or omissions.

Complete "Terms and Conditions of Sale" for product purchase and use are on Omron's website at [www.omron247.com](http://www.omron247.com) – under the "About Us" tab, in the Legal Matters section.

**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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