General-purpose Limit Switch
D4A-□N

The Limit Switch with Better Seal, Shock Resistance, and Strength

- A double seal on the head, a complete gasket cover, and other features ensure a better seal (meets UL NEMA 3, 4, 4X, 6P, 12, 13).
- Block mounting method to reduce weight to 290 g.
- Block mounting method also reduces downtime for maintenance.
- Wide standard operating temperature range: –40°C to 100°C (standard type).
- Models with fluoro-rubber available for greater resistance to chemicals.
- DPDT, double-break models available for complex operations.
- Approved by UL, CSA, and CCC (Chinese standard).

Model Number Structure

■ Model Number Legend

D4A-□□□□N
1 2 3

1. Receptacle Box
- 1: 1/2-14 NPT conduit (SPDT, double-break)
- 2: 1/2-14 NPT conduit (DPDT, double-break)
- 3: G 1/2 conduit (SPDT, double-break)
- 4: G 1/2 conduit (DPDT, double-break)

2. Switch Box
- 1: SPDT, double-break, without indicator
- 3: SPDT, double-break, neon lamp
- E: SPDT, double-break, LED (24 VDC, leakage current: 1.3 mA)
- 5: DPDT, double-break, simultaneous operation, without indicator
- 7: DPDT, double-break, sequential operation, without indicator (See note 1.)
- 9: DPDT, double-break, center neutral operation, without indicator (See note 2.)
- L: DPDT, double-break, simultaneous operation, neon lamp
- P: DPDT, double-break, simultaneous operation, LED

3. Head
- 01: Roller lever, standard
- 02: Roller lever, high-sensitivity
- 03: Roller lever, low torque
- 04: Roller lever, high-sensitivity, low torque
- 05: Roller lever, maintained
- 17: Roller lever, sequential operation
- 18: Roller lever, center neutral operation
- 06: Side plunger, standard
- 07-V: Side plunger, vertical roller
- 07-H: Side plunger, horizontal roller
- 08: Side plunger, adjustable
- 09: Top plunger, standard
- 10: Top plunger, roller
- 11: Top plunger, adjustable
- 12: Flexible rod, spring wire
- 14: Flexible rod, plastic rod
- 15: Flexible rod, cat whisker
- 16: Flexible rod, coil spring

Note: 1. Use the D4A-0017N Special Head.
2. Use the D4A-0018N Special Head.
3. Fluoro-rubber sealed type is also available.

Ordering Information

■ List of Models

SPDT, Double-break Switches

Actuator	Receptacle box / Indicator	G 1/2 Conduit				
		Without indicator		With neon lamp indicator (AC)		With LED indicator (DC)
		Model	Approved standards	Model	Approved standards	Model
Roller lever (See note 1.)	Standard	D4A-3101N	UL, CSA	D4A-3301N	UL, CSA	D4A-3E01N
	High-sensitivity	D4A-3102N	UL, CSA	D4A-3302N	UL, CSA	D4A-3E02N
	Low-torque	D4A-3103N	UL, CSA	---	UL, CSA	---
	High-sensitivity, Low-torque	D4A-3104N	UL, CSA	D4A-3304N	UL, CSA	---
	Maintained (See note 2.)	D4A-3105N	UL, CSA	D4A-3305N	UL, CSA	D4A-3E05N
Side plunger	Standard	D4A-3106N	UL, CSA	---	UL, CSA	---
	Vertical roller	D4A-3107-VN	UL, CSA	D4A-3307-VN	UL, CSA	D4A-3E07-VN
	Horizontal roller	D4A-3107-HN	UL, CSA	D4A-3307-HN	UL, CSA	---
	Adjustable	D4A-3108N	UL, CSA	D4A-3308N	UL, CSA	D4A-3E08N
Top plunger	Standard	D4A-3109N	UL, CSA	D4A-3309N	UL, CSA	---
	Roller	D4A-3110N	UL, CSA	D4A-3310N	UL, CSA	---
	Adjustable	D4A-3111N	UL, CSA	D4A-3311N	UL, CSA	---
Flexible rod	Spring wire	D4A-3112N	UL, CSA	D4A-3312N	UL, CSA	D4A-3E12N
	Plastic rod	D4A-3114N	UL, CSA	D4A-3314N	UL, CSA	D4A-3E14N
	Cat whisker	D4A-3115N	UL, CSA	D4A-3315N	UL, CSA	D4A-3E15N
	Coil spring	D4A-3116N	UL, CSA	D4A-3316N	UL, CSA	D4A-3E16N

Note: 1. The lever is not included with the Roller Level Models. Select the lever from those listed in this data sheet and order it separately (refer to *Levers* on pages 92 and 93).

2. The Maintained Switches have a lock mechanism for the switch operation and thus use a Fork Lever Lock.

3. Switches are also available with □1/2-14 NPT conduits. The model numbers correspond as follows:

G 1/2 Conduits	1/2-14 NPT Conduits
D4A-3□□□N	D4A-1□□□N
D4A-4□□□N	D4A-2□□□N

4. Switches are also available with fluoro-rubber seals for higher resistance to chemicals. (The operating temperature range for these Switches, however, is –10 to 120°C.) Add "-F" to the model number. (Example: D4A-3101N becomes D4A-3101N-F.) Ask your nearest OMRON representative for details.

DPDT, Double-break Switches

Actuator	Receptacle box / Indicator	G 1/2 Conduit				
		Without indicator		With neon lamp indicator (AC)		With LED indicator (DC)
		Model	Approved standards	Model	Approved standards	Model
Roller lever (See note 1.)	Standard	D4A-4501N	UL, CSA	D4A-4L01N	UL, CSA	D4A-4P01N
	High-sensitivity	D4A-4502N	UL, CSA	---	---	---
	Low-torque	D4A-4503N	UL, CSA	---	---	---
	High-sensitivity, Low-torque	D4A-4504N	UL, CSA	---	---	---
	Maintained (See note 2.)	D4A-4505N	UL, CSA	---	---	---
	Sequential operation	D4A-4717N	UL, CSA	---	---	---
	Center neutral operation	D4A-4918N	UL, CSA	---	---	---
Side plunger	Standard	D4A-4506N	UL, CSA	---	---	---
	Vertical roller	D4A-4507-VN	UL, CSA	---	---	---
	Horizontal roller	D4A-4507-HN	UL, CSA	---	---	---
	Adjustable	D4A-4508N	UL, CSA	---	---	---
Top plunger	Standard	D4A-4509N	UL, CSA	---	---	---
	Roller	D4A-4510N	UL, CSA	D4A-4L10N	UL, CSA	D4A-4P10N
	Adjustable	D4A-4511N	UL, CSA	---	---	---
Flexible rod	Spring wire	D4A-4512N	UL, CSA	---	---	---
	Plastic rod	D4A-4514N	UL, CSA	---	---	---
	Cat whisker	D4A-4515N	UL, CSA	---	---	---
	Coil spring	D4A-4516N	UL, CSA	---	---	---

Note: 1. The lever is not included with the Roller Level Models. Select the lever from those listed in this data sheet and order it separately (refer to *Levers* on pages 92 and 93).

2. The Maintained Switches have a lock mechanism for the switch operation and thus use a Fork Lever Lock.

3. Switches are also available with □1/2-14 NPT conduits. The model numbers correspond as follows:

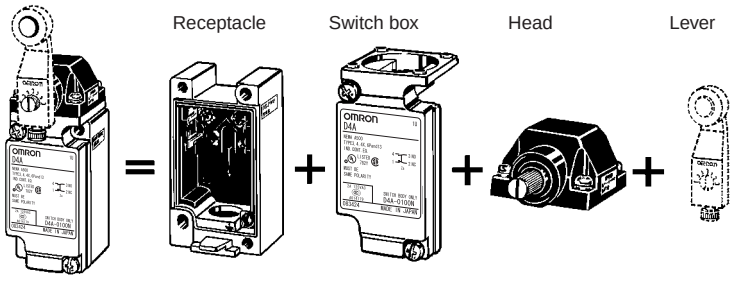
G 1/2 Conduits	1/2-14 NPT Conduits
D4A-3□□□N	D4A-1□□□N
D4A-4□□□N	D4A-2□□□N

4. Switches are also available with fluoro-rubber seals for higher resistance to chemicals. (The operating temperature range for these Switches, however, is –10 to 120°C.) Add "-F" to the model number. (Example: D4A-4501N becomes D4A-4501N-F.) Ask your nearest OMRON representative about delivery times and prices.

Individual Parts

Replacement of Parts

Because the D4A-□N employs block mounting construction, the switch box, receptacle, and operating head may be ordered as a complete assembly or individually as replacement parts.



D4A-1101N D4A-1000N D4A-0100N D4A-0001N

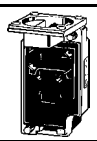
Levers for Roller Lever Switches are optionally available. Select the lever from those listed in this datasheet and order (refer to *Levers* on pages 92 and 93).

Receptacle Box

Type	Appearance	1/2-14NPT conduit (See note 2.)		G1/2 conduit (See note 1.)	
		Model	Approved standards	Model	Approved standards
SPDT double-break		D4A-1000N	UL, CSA	D4A-3000N	UL, CSA
DPDT double-break		D4A-2000N	UL, CSA	D4A-4000N	UL, CSA

Note: 1. M6-screw mounting (standard mounting)
2. 10-32UNF-screw mounting (standard mounting)

Switch Box

Type	Appearance		Without indicator		With neon lamp indicator (AC)		With LED indicator (DC)
			Model	Approved standards	Model	Approved standards	Model
SPDT double-break	 (Without indicator lamp)		D4A-0100N	UL, CSA	D4A-0300N	UL, CSA	D4A-0E00N
DPDT double-break	 (Without indicator lamp)	Simultaneous operation	D4A-0500N	UL, CSA	D4A-0L00N	---	D4A-0P00N
		Sequential operation	D4A-0700N	UL, CSA	---	---	---
		Center neutral operation	D4A-0900N	UL, CSA	---	---	---

Heads

Type	Appearance	Approved standards
Roller lever (See note 1.)	 Standard: D4A-0001N High-sensitivity: D4A-0002N Low torque: D4A-0003N (see note 2) Sequential operation: D4A-0017N (see note 3) Center neutral operation: D4A-0018N (see note 3)	UL, CSA
	 Maintained: D4A-0005N	UL, CSA
Side plunger	 Standard: D4A-0006N  Horizontal roller: D4A-0007-HN  Vertical roller: D4A-0007-VN  Side adjustable: D4A-0008N	UL, CSA
Top plunger	 Standard: D4A-0009N  Roller plunger: D4A-0010N  Plunger adjustable: D4A-0011N	UL, CSA
Flexible rod	 Spring wire D4A-0012N  Plastic rod D4A-0014N  Cat whisker D4A-0015N  Coil spring D4A-0016N	UL, CSA

Note: 1. Levers for Roller Lever Switches are optionally available. Select the lever from those listed in this data sheet and order (refer to *Levers* on pages 92 and 93).

2. The D4A-C00 adjustable roller lever is too heavy and long for these heads and it should not be used or mechanical malfunction will result.

3. These heads cannot be used for double break operations.

Levers

Actuator type	Model
Roller Lever	D4A-A00
	D4A-A10
	D4A-A20
	D4A-A30
	D4A-B06
Adjustable Roller Lever	D4A-C00
	D4A-D00
Resin Loop Lever	D4A-F00
Fork Lever Lock	D4A-E30
	D4A-E20
	D4A-E10
	D4A-E00

Note: Refer to page 92 for Lever shapes and applicable models.

Specifications

■ Approved Standards

Agency	Standard	File No.
UL	UL508	E76675
CSA	CSA C22.2 No. 14	LR45746
CCC (CQC)	GB14048.5	2003010305077615

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

■ Approved Standard Ratings

UL/CSA

A600

D4A-□1□□N (SPDT, Double-break, Without Indicator)

Rated voltage	Carry current	Current		Volt-amperes	
		Make	Break	Make	Break
120 VAC 240 VAC 480 VAC 600 VAC	10 A	60 A 30 A 15 A 12 A	6 A 3 A 1.5 A 1.2 A	7,200 VA	720 VA

A300

D4A-□3□□N (SPDT, Double-break, With Neon Lamp)

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

B600

D4A-□5□□N (DPDT, Double-break, Simultaneous Operation)
D4A-□7□□N (DPDT, Double-break, Sequential Operation)
D4A-□9□□N (DPDT, Double-break, Center Neutral Operation)

Rated voltage	Carry current	Current		Volt-amperes	
		Make	Break	Make	Break
120 VAC 240 VAC 480 VAC 600 VAC	5 A	30 A 15 A 7.5 A 6.0 A	3 A 1.5 A 0.75 A 0.6 A	3,600 VA	360 VA

CCC (GB14048.5)

Applicable category and ratings
AC-15 2 A/125 VAC

■ General Ratings

Type	Rated voltage	Non-inductive load				Inductive load			
		Resistive load		Lamp load		Inductive load		Motor load	
		NC	NO	NC	NO	NC	NO	NC	NO
SPDT double-break (with/without indicator)	125 VAC (See note 5.)	10 A	10 A	3 A	1.5 A	10 A		5 A	2.5 A
	250 VAC (See note 5.)	10 A	10 A	2 A	1 A	10 A		3 A	1.5 A
	480 VAC	10 A	10 A	1.5 A	0.8 A	3 A		1.5 A	0.8 A
	600 VAC	3 A	1 A	1 A	0.5 A	1.5 A		1 A	0.5 A
	8 VDC	10 A		6 A	3 A	10 A		6 A	
	14 VDC	10 A		6 A	3 A	10 A		6 A	
	30 VDC	6 A		4 A	3 A	6 A		4 A	
	125 VDC (See note 5.)	0.8 A		0.2 A	0.2 A	0.8 A		0.2 A	
	250 VDC (See note 5.)	0.4 A		0.1 A	0.1 A	0.4 A		0.1 A	
DPDT double-break (without indicator)	125 VAC	5 A		2 A		4 A		3 A	
	250 VAC	3 A		1 A		2 A		1.5 A	
	480 VAC	1.5 A		0.5 A		1 A		0.8 A	
	600 VAC	1 A		0.4 A		0.7 A		0.5 A	
	14 VDC	5 A		2 A		4 A		3 A	
	30 VDC	3 A		1 A		2 A		1.5 A	
	125 VDC	0.4 A		0.1 A		0.4 A		0.1 A	
	250 VDC	0.2 A		0.05 A		0.2 A		0.05 A	
DPDT double-break (with indicator)	125 VAC	5 A		2 A		4 A		3 A	
	250 VAC	3 A		1 A		2 A		1.5 A	
	12 VDC	5 A	---	---		---		---	
	24 VDC	3 A							
	48 VDC	1 A							

Type		SPDT, double-break		DPDT, double-break	
		Without indicator	With indicator	Without indicator	With indicator
Inrush current	Normally closed	30 A max.			
	Normally open	20 A max.			

Note: 1. The above current ratings are for steady-state current.

2. Inductive loads have a power factor of 0.4 min. (AC) and a time constant of 7 ms max. (DC).

3. Lamp loads have an inrush current of 10 times the steady-state current.

4. Motor loads have an inrush current of 6 times the steady-state current.

5. For those with indicators, refer to the following rated voltages.

Ratings for Indicators

Classification	Indicator	Model	Rated voltage	Carry current	Internal resistance
SPDT double-break	Neon lamp	D4A-0300N	125 VAC, 250 VAC	Approx. 0.47 mA	150 kΩ
	LED	D4A-0E00N	12 VDC	Approx. 3.2 mA	2.2 kΩ
			24 VDC	Approx. 4 mA	4.7 kΩ
			24 VDC	Approx. 1.3 mA	15 kΩ
			48 VDC	Approx. 2 mA	22 kΩ
DPDT double-break	Neon lamp	D4A-0L00N	125 VAC, 250 VAC	Approx. 0.28 mA	240 kΩ
	LED	D4A-0P00N	48 VDC	Approx. 1.4 mA	---

■ Characteristics

Degree of protection	IP67
Durability (See note 3.)	Mechanical: SPDT, double-break, roller lever: 50,000,000 operations min. (See note 2.) DPDT, double-break, roller lever: 30,000,000 operations min. (See note 2.) Electrical: SPDT, double-break: for 125 VAC, 10 A resistive load: 1,000,000 operations min. DPDT, double-break: for 125 VAC, 5 A resistive load: 750,000 operations min.
Operating speed	1 mm to 2 m/s (for D4A-3101N roller lever model)
Operating frequency	Mechanical: 300 operations/minute Electrical: 30 operations/minute
Rated frequency	50/60 Hz
Insulation resistance	100 MΩ min. (at 500 VDC) between terminals of the same polarity, between current-carrying metal parts and ground, and between each terminal and non-current-carrying metal part
Contact resistance	25 mΩ max. (initial value)
Temperature rise	50°C max.
Dielectric strength	1,000 VAC, 50/60 Hz for 1 min. between terminals of same polarity 2,200 VAC, 50/60 Hz for 1 min. between current-carrying metal parts and ground, and between each terminal and non-current-carrying metal part (See note 4.)
Pollution degree (operating environment)	3
Protection against electric shock	Class I (with grounding terminal)
Vibration resistance	Malfunction: 10 to 55 Hz, 1.5-mm double amplitude (See note 5.)
Shock resistance	Destruction: 1,000 m/s^2 min. Malfunction: SPDT, double-break, roller lever: 600 m/s^2 min. (See note 5.) DPDT, double-break, roller lever: 300 m/s^2 min. (See note 5.)
Ambient operating humidity	35% to 95% (with no icing)
Weight	Approx. 290 g (for D4A-3101N roller lever model)

Note: 1. The above figures are initial values.

2. Excluding maintained models.

3. 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.

4. 1,500 VAC is applied to the indicator lamp type.

5. Not including wobble levers (cat whisker, plastic rod, coil spring, and spring wire types).

Type	Roller lever (See note 5-1.)	Plunger, flexible rod (See note 5-2.)	With indicator	Fluoro-rubber seal
Ambient temperature	–40°C to 100°C	–20°C to 100°C	–10°C to 80°C	–10°C to 120°C

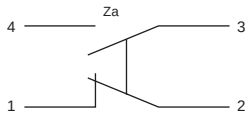
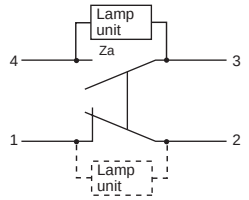
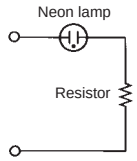
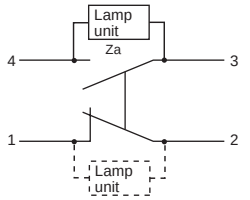
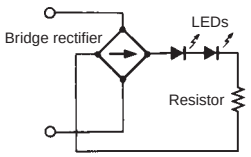
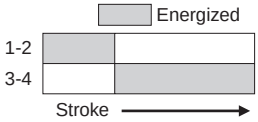
5-1. Excluding low-torque and high-sensitivity models.

5-2. Including roller lever low-torque and high-sensitivity operating models.

Connections

■ Contact Forms (Switch Boxes)

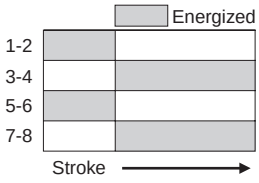
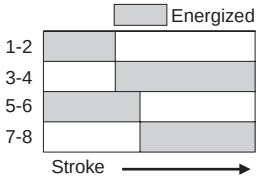
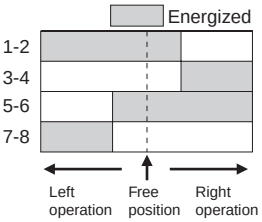
STDP Double-break Switches

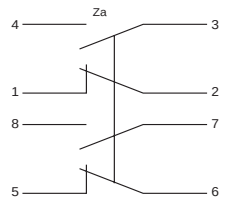
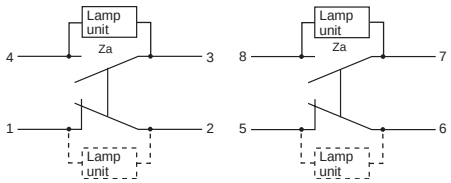
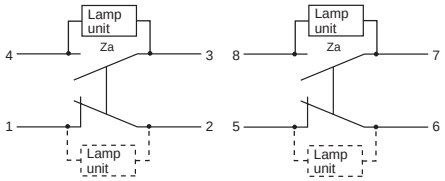
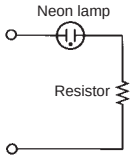
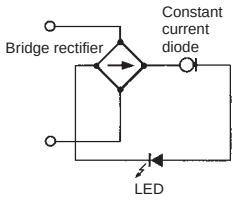
Type	Contact model			Operating pattern
	Without indicator	With neon lamp indicator (See note.)	With LED indicator (See note.)	
1NC/1NO snap-action	D4A-0100N 	D4A-0300N  Lamp Unit Internal Circuits 	D4A-0E00N  Lamp Unit Internal Circuits 	

Note: Switches with indicators are factory-set to light when the switch is not operated.

DTDP Double-break Switches

Each of these Switches can be used to replace two limit switches in applications, such as high-speed control in machine tools and switching motors between forward and reverse, that previously required 2 limit switches. This simplifies wiring, saves space, and reduces costs.

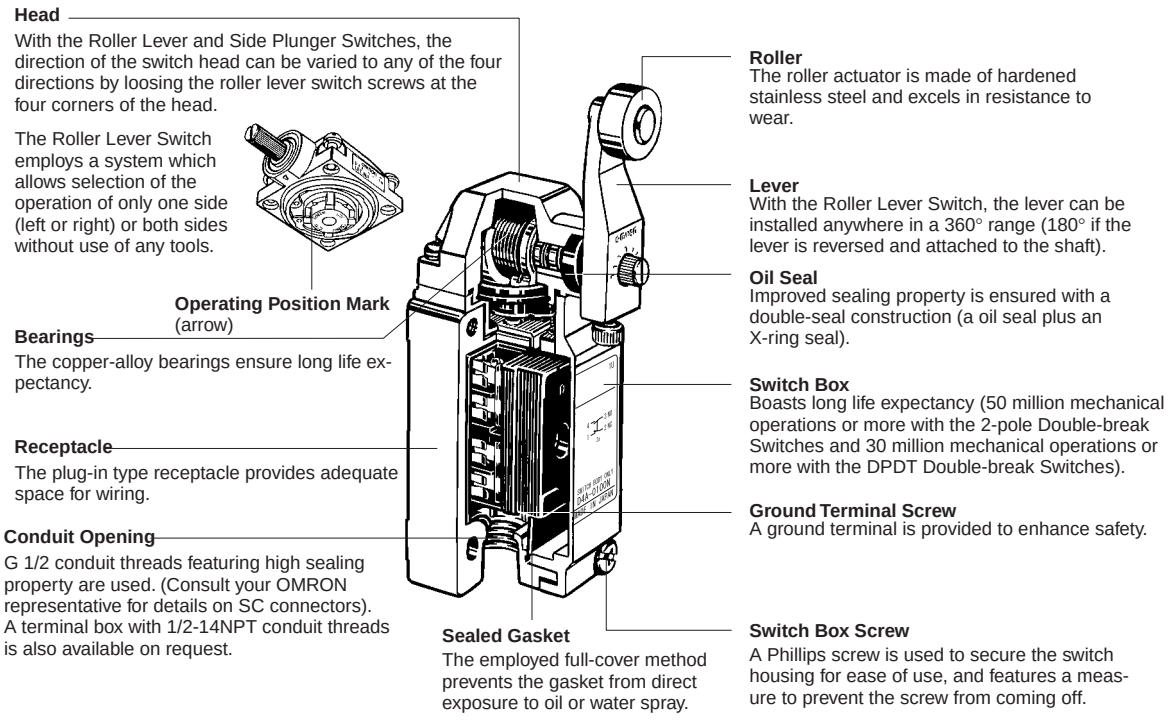
Type	Contact model			Operating pattern	Remarks
	Without indicator	With neon lamp indicator (See note.)	With LED indicator (See note.)		
2NC/2NO snap-action, simultaneous operation	D4A-0500N	D4A-0L00N	D4A-0P00N		Head is compatible with double-break head. Can be switched for operation on both sides of actuator.
2NC/2NO snap-action, sequential operation (2-step operation)	D4A-0700N	---	---		Use the D4A-0017N Special Head.
2NC/2NO snap-action, central neutral operation	D4A-0900N	---	---		Use the D4A-0018N Special Head.

Item	Without indicator	With neon lamp indicator (See note.)	With LED indicator (See note.)
Contact form	D4A-0500N D4A-0700N D4A-0900N 	D4A-0L00N 	D4A-0P00N 
Lamp unit internal circuit	---		

Note: Switches with indicators are factory-set to light when the switch is not operated, but the setting can be changed to light for operation (dotted lines).

Nomenclature

DPDT Double-break



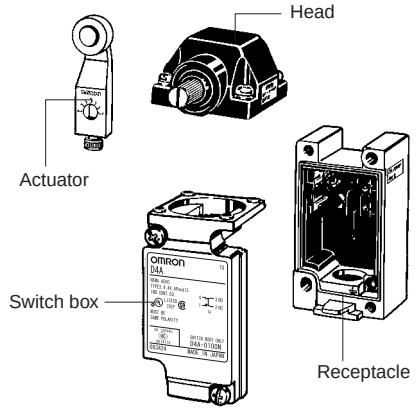
Note: 1. NBR is used in rubber components.

2. Fluoro-rubber sealed types use fluoro-rubber.

3. For Roller Levers, there is some lever play in the free position (about 2 mm), but this is due to the structure of the head and does not interfere with performance.

Easy-maintenance Block Mounting

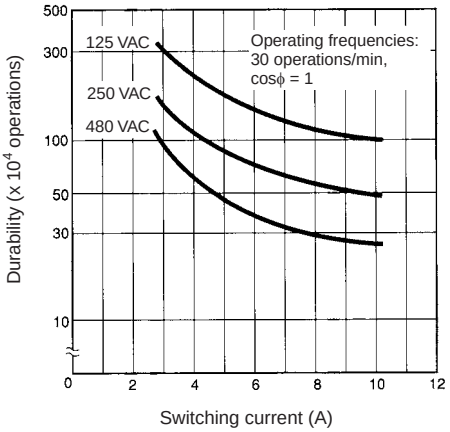
Block mounting makes it possible to easily assemble or disassemble the head, switch body, and receptacle of the D4A-□N by tightening or loosening the attached screws.

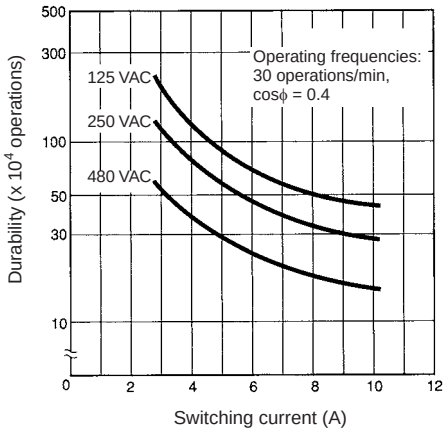


Engineering Data

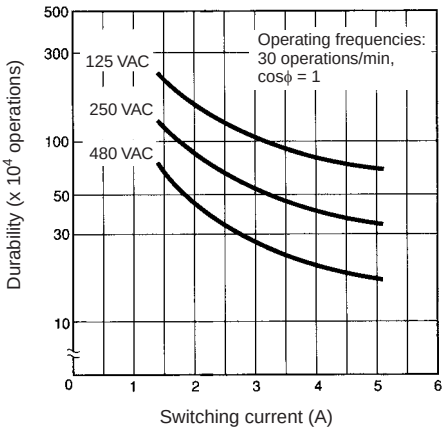
■ Electrical Durability (SPDT Double-break)

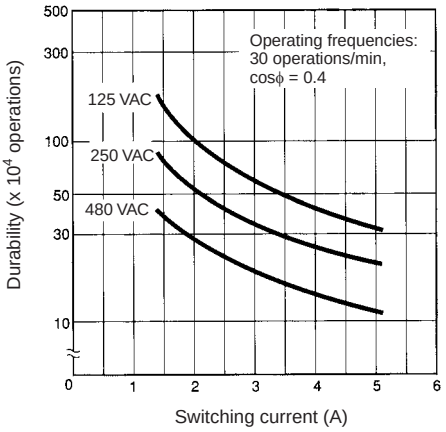
(Ambient temperature: 5°C to 35°C; ambient humidity: 40% to 70%)





Electrical Durability (DPDT Double-break)





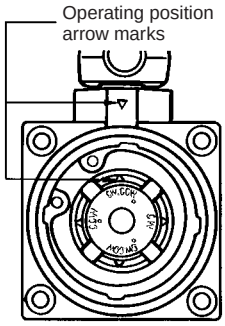
Installation

■ Operation

Changing the Operating Direction

The head of the side rotary type can be converted in seconds to CW, CCW, or both-way operation. Follow the procedures on the right hand side for conversion (not applicable to the Maintained, Sequential Operating, Center Neutral Operating Switches).

Operating Part (Rear of Head)



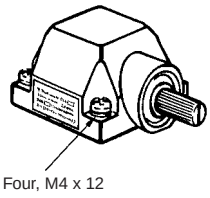
Procedures

1. Dismount the head by loosening the four screws that secure it.
2. Turn over the head to set the desired operation (CW, CCW, or both). The desired side can be selected by setting the mode selector knob shown in the figure. This knob is factory set to the “CW+CCW” (both-way operation) position.
3. When set to the CW position, the head rotates in clockwise direction.
   When set to the CCW position, the head rotates in counterclockwise direction.
   In either case, be sure to accurately align the arrow mark to the setting position.

Head and Lever Positions

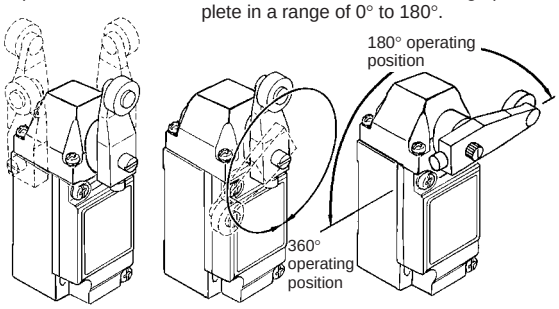
The operating head can be positioned and locked in any of four 90° positions and a lever can lock in any position through 360° around the shaft of the Limit Switch. Furthermore, the lever can be reversed and attached to the shaft (refer to the figures below on the right hand side). Therefore the roller is compatible with a wide movement range of a dog. A Fork Lever Lock can be used with maintained models (D4A-0005N) only.

Remove the head from the Switch by loosening the screws (the screws can be loosened but not removed from the head).

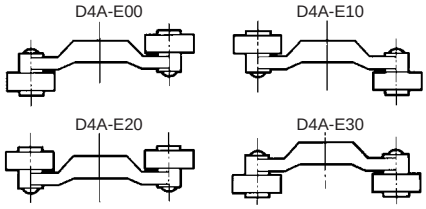


The operating head can be positioned and locked in any of four 90° positions.

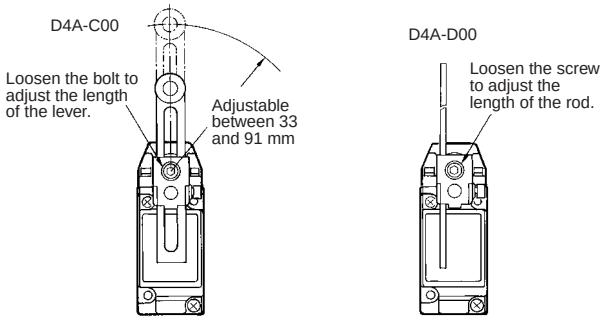
The lever can lock in any position through 360° around the shaft. The lever can be reversed and attached to the shaft, in which case the switching operation should complete in a range of 0° to 180°.



There are four kinds of fork lever locks. The position of each roller is different. It is possible to use D4A-E00 through D4A-E30 levers instead, if they are reversed before attaching. They can be used with D4A-□□05N models only.



By loosening the Allen-head bolt on an adjustable roller lever or rod lever, the length of the lever can be adjusted.

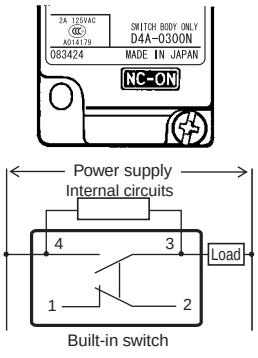


Lighting Mode Selection of Indicators

The lighting mode of the operation indicator can be changed easily between two modes: lighting when the Switch is operating and lighting when the Switch is not operating.

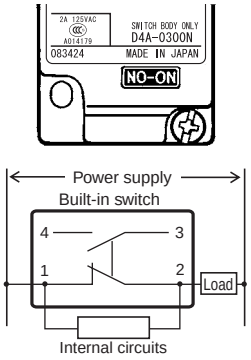
Lights When Not Operating

(See note 1.)



Lights When Operating

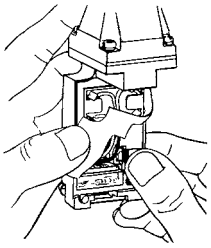
(See note 2.)



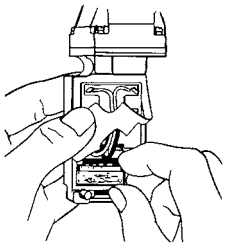
Note: 1. The lamp is lit when the actuator is at the free position. The lamp will be off when the contacts of the Limit Switch have been actuated and snapped to each other at the operating position.

2. The lamp is lit when the contacts have been released and snapped only from the operating position.

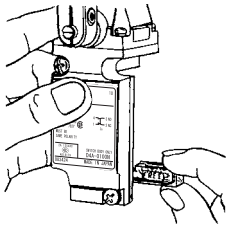
Change the lighting mode as follows:



Push the claw securing the lamp section to the right (do not push strongly).



Remove the lamp section.

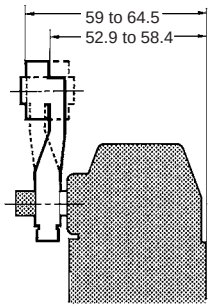


Mount the lamp section so that legend "NC-ON" or "NO-ON" will appear in the display window.

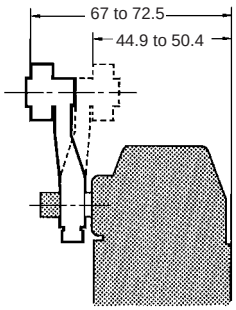
Note: In either case, the lamp will not light when the load is ON.

Lever Position

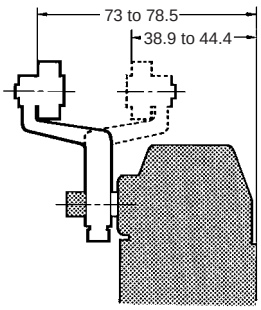
D4A-A00



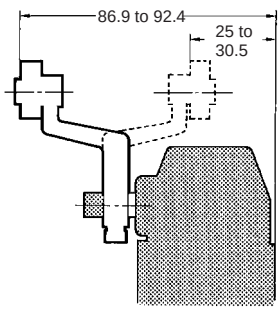
D4A-A10



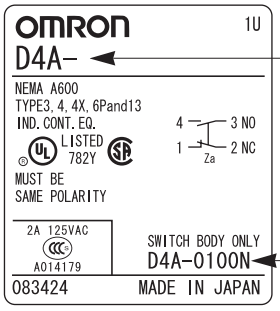
D4A-A20



D4A-A30



■ Nameplate

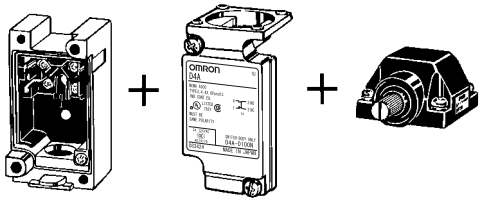


The whole switch model without lever is printed.

The type of switch box is printed. (The type is also indicated on the head and receptacle.)

■ Compatibility with D4A-□

The D4A-□N is compatible with the D4A-□ when the following accessories are attached to the D4A-□N.



D4A-□
Receptacle box

D4A-□N
Switch box

D4A-□N
Head

Note: The D4A-□N without the above accessories is not compatible with the D4A-□.

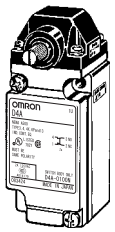
Dimensions

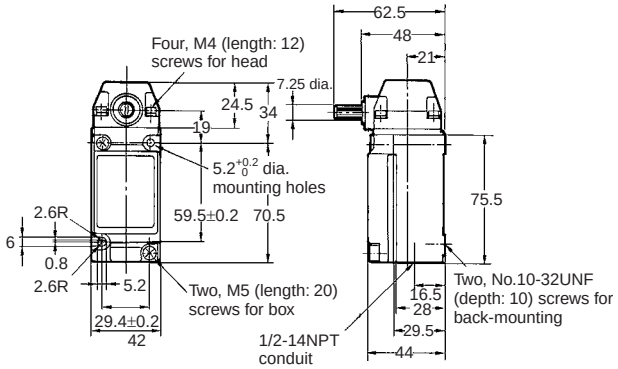
Note: 1. All units are in millimeters unless otherwise indicated.
2. Insert the model number code in □ for the switch body.
3. Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.

Roller Lever Switches

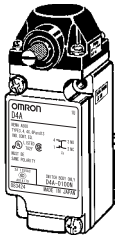
Note: Levers of the side rotary type are optionally available.

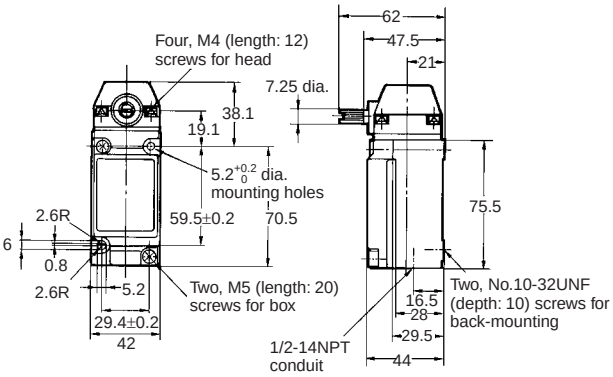
Standard
D4A-1□01N, D4A-2□01N
High-sensitivity
D4A-1□02N, D4A-2□02N
Low Torque
D4A-1□03N, D4A-2□03N
High-sensitivity/Low Torque
D4A-1□04N, D4A-2□04N
Sequential Operation
D4A-2□17N
Center Neutral Operating
D4A-2□18N





Maintained
D4A-1□05N, D4A-2□05N





SPDT Double-break

Model	D4A-1□01N	D4A-1□02N	D4A-1□03N	D4A-1□04N	D4A-1□05N
OF max.	0.39 N·m	0.39 N·m	0.2 N·m	0.2 N·m	0.39 N·m
RF min.	0.05 N·m	0.05 N·m	---	---	---
PT max.	15° (12°)	7° (6°)	15° (12°)	7° (6°)	65° (60°)
OT min.	70°	75°	70°	75°	20°
MD max.	5° (4°)	4° (3°)	5° (4°)	4° (3°)	35° (30°)

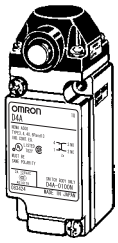
DPDT Double-break

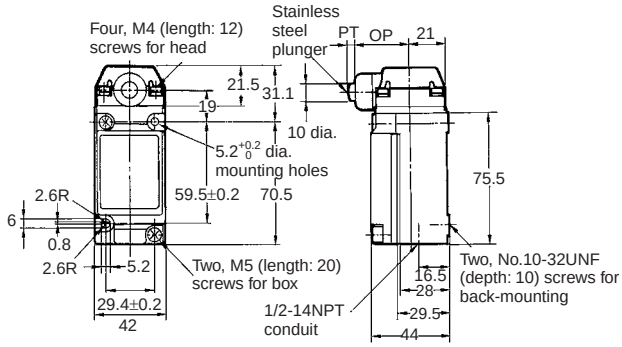
Model	D4A-2□01N	D4A-2□02N	D4A-2□03N	D4A-2□04N	D4A-2□05N	D4A-2□17N	D4A-2□18N
OF max.	0.39 N·m	0.39 N·m	0.2 N·m	0.2 N·m	0.39 N·m	0.39 N·m	0.39 N·m
RF min.	0.05 N·m	0.05 N·m	---	---	---	0.05 N·m	0.02 N·m
PT max.	15° (12°)	7° (6°)	15° (12°)	7° (6°)	65° (60°)	1-stage: 12° (10°) 2-stage: 20° (17°)	19° (15°)
OT min.	70°	75°	70°	75°	20°	65°	65°
MD max.	7° (6°)	5° (4°)	7° (6°)	5° (4°)	35° (30°)	6° (5°)	5° (4°)

The figures in the parentheses are average values.

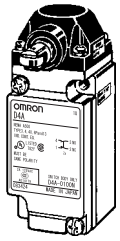
Side Plunger Switches

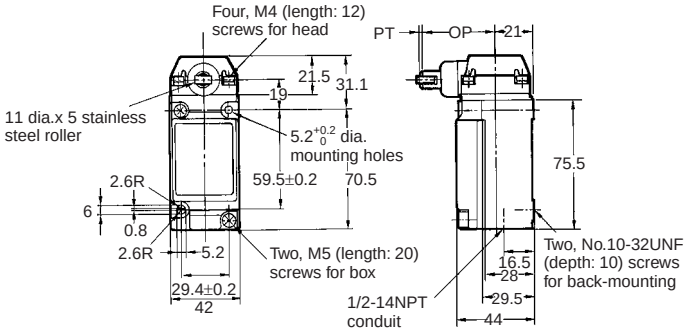
Standard
D4A-1□06N, D4A-2□06N



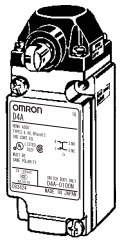


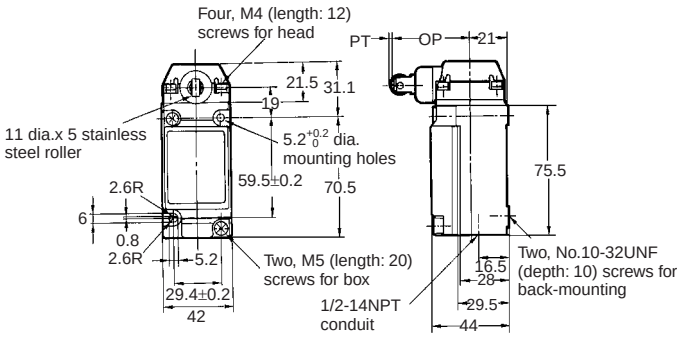
Horizontal Roller
D4A-1□07-HN, D4A-2□07-HN



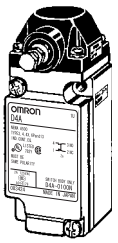


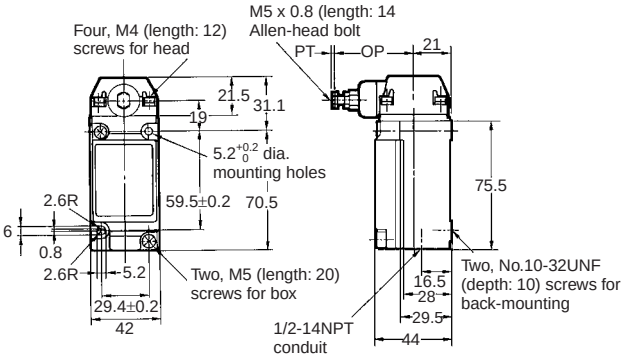
Vertical Roller
D4A-1□07-VN, D4A-2□07-VN





Adjustable
D4A-1□08N, D4A-2□08N

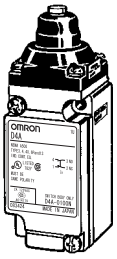


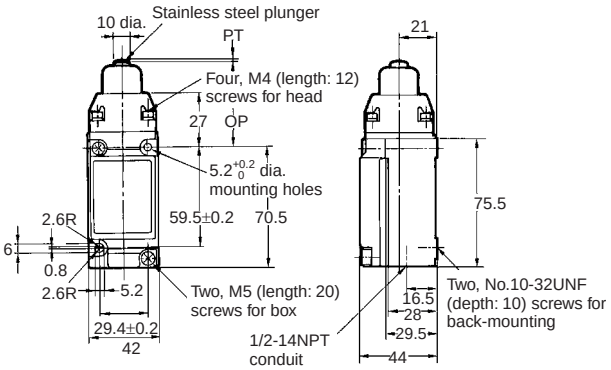


Model	SPDT double-break				DPDT double-break			
	D4A-1□06N	D4A-1□07-HN	D4A-1□07-VN	D4A-1□08N	D4A-2□06N	D4A-2□07-HN	D4A-2□07-VN	D4A-2□08N
OF max.	19.61 N	19.61 N	19.61 N	19.61 N	19.61 N	19.61 N	19.61 N	19.61 N
RF min.	4.90 N	4.90 N	4.90 N	4.90 N	4.90 N	4.90 N	4.90 N	4.90 N
PT max.	2.4 mm	2.4 mm	2.4 mm	2.4 mm	2.4 mm	2.4 mm	2.4 mm	2.4 mm
OT min.	5.1 mm	5.1 mm	5.1 mm	5.1 mm	5.1 mm	5.1 mm	5.1 mm	5.1 mm
MD max.	0.6 mm	0.6 mm	0.6 mm	0.6 mm	1.0 mm	1.0 mm	1.0 mm	1.0 mm
OP	34±0.8 mm	44±0.8 mm	44±0.8 mm	41 to 47.5 mm	34±0.8 mm	44±0.8 mm	44±0.8 mm	41 to 47.5 mm

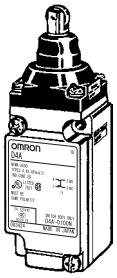
Top Plunger Switches

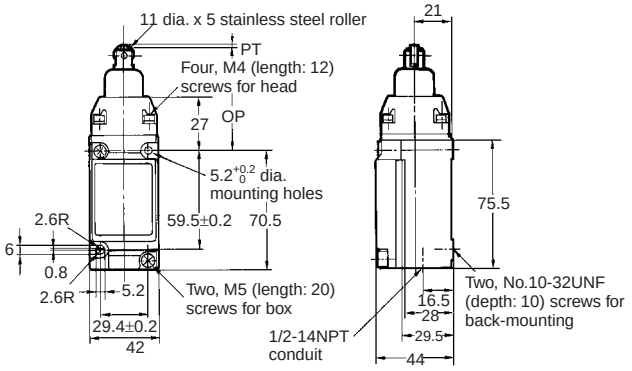
Standard
D4A-1□09N, D4A-2□09N



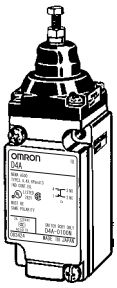


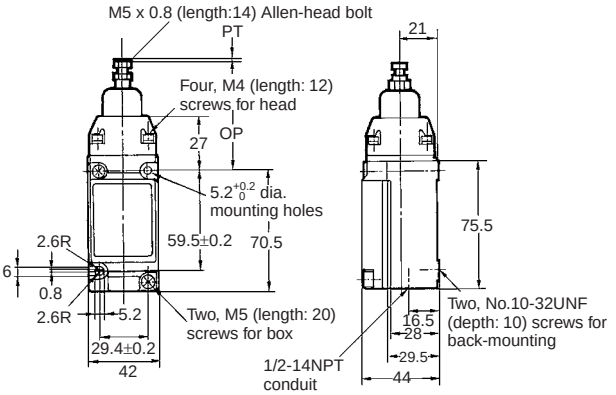
Roller Plunger
D4A-1□10N, D4A-2□10N





Adjustable
D4A-1□11N, D4A-2□11N

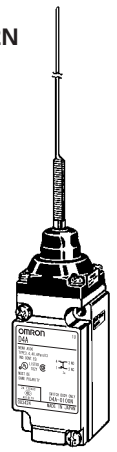


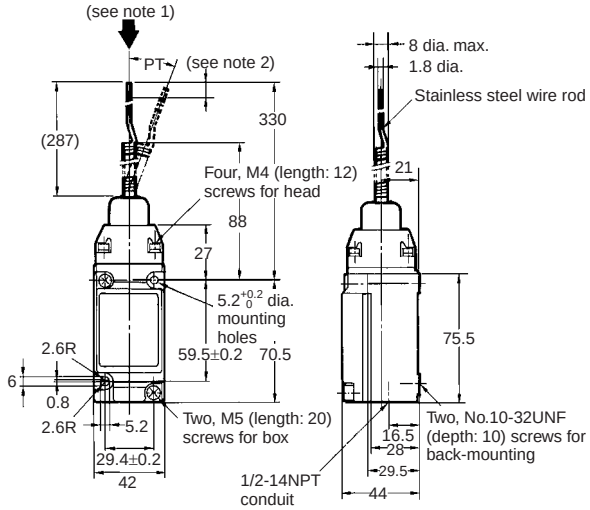


Model	SPDT double-break			DPDT double-break		
	D4A-1□09N	D4A-1□10N	D4A-1□11N	D4A-2□09N	D4A-2□10N	D4A-2□11N
OF max.	17.65 N	17.65 N	17.65 N	17.65 N	17.65 N	17.65 N
RF min.	4.90 N	4.90 N	4.90 N	4.90 N	4.90 N	4.90 N
PT max.	1.6 mm	1.6 mm	1.6 mm	1.6 mm	1.6 mm	1.6 mm
OT min.	5.1 mm	5.1 mm	5.1 mm	5.1 mm	5.1 mm	5.1 mm
MD max.	0.4 mm	0.4 mm	0.4 mm	1.0 mm	1.0 mm	1.0 mm
OP	46±0.8 mm	56±0.8 mm	55.5 to 62 mm	46±0.8 mm	56±0.8 mm	55.5 to 62 mm

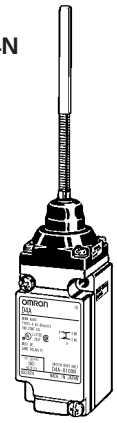
Flexible Rod Switches

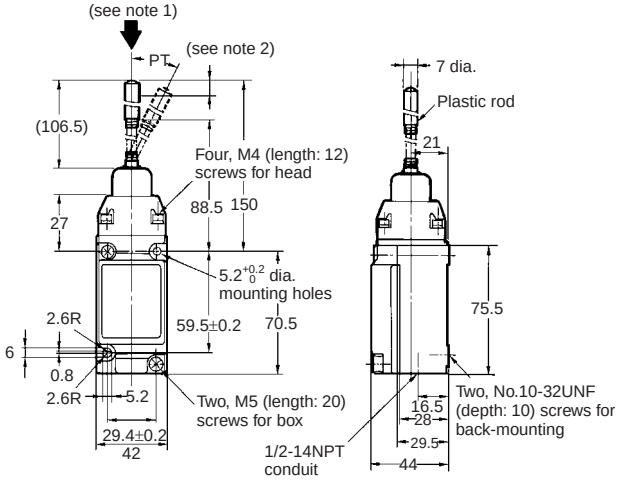
Spring Wire
D4A-1□12N, D4A-2□12N



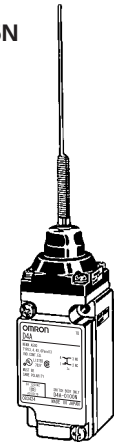


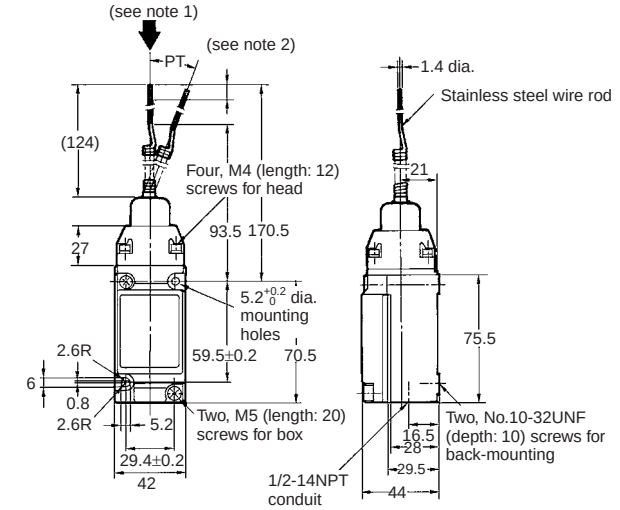
Plastic Rod
D4A-1□14N, D4A-2□14N





Cat Whisker
D4A-1□15N, D4A-2□15N

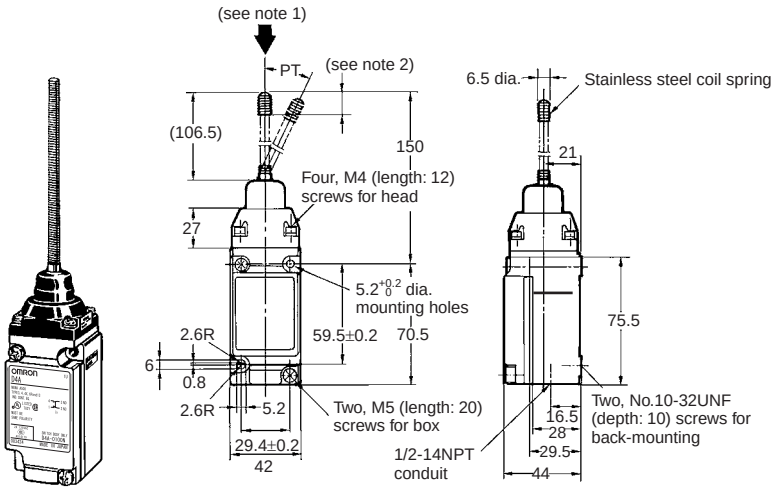




Note: 1. The stainless rod can be operated from any direction except the axial direction (i.e., from the top).

2. The optimum operating range of the stainless rod is within 1/3 of the entire length from the top end.

Coil Spring
D4A-1□16N, D4A-2□16N



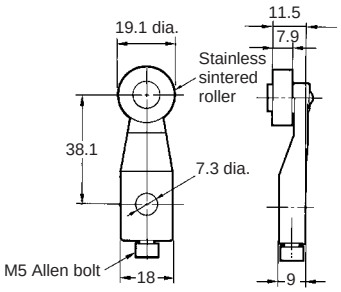
Note: 1. The stainless rod can be operated from any direction except the axial direction (i.e., from the top).
2. The optimum operating range of the stainless rod is within 1/3 of the entire length from the top end.

Model	SPDT double-break			DPDT double-break		
	D4A-1□12N	D4A-1□14N D4A-1□15N	D4A-1□16N	D4A-2□12N	D4A-2□14N D4A-2□15N	D4A-2□16N
OF max.	0.98 N	1.47 N		0.98 N	1.47 N	
PT max.	15° (5°)	15° (5°)		15° (5°)	15° (5°)	

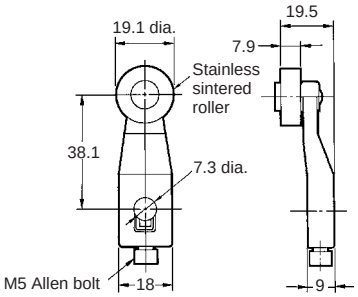
Levers (for Roller Lever Switches)

Note: No D4A-0003N or D4A-0004N head should be used with the adjustable roller lever or mechanical malfunctioning could result because the total weight of the adjustable roller lever is comparatively large. Use a standard-load head (D4A-0001N or D4A-0002N) instead.

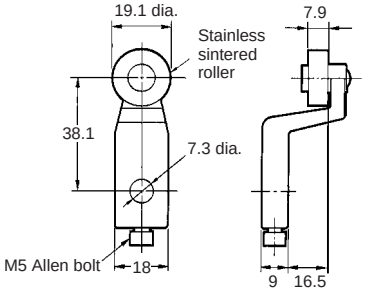
Roller Lever
D4A-A00



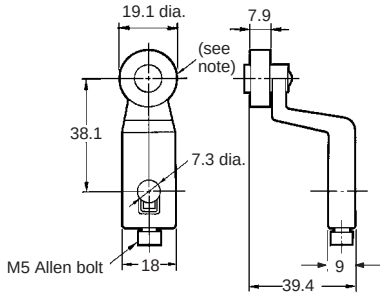
Roller Lever
D4A-A10



Roller Lever
D4A-A20

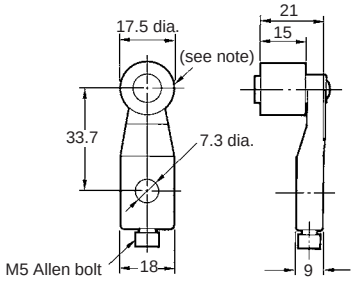


Roller Lever
D4A-A30



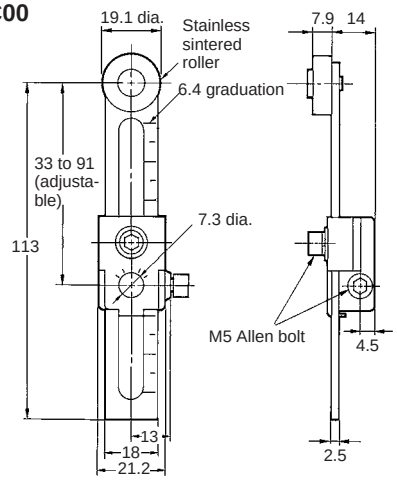
Note: Stainless sintered roller

Roller Lever
D4A-B06

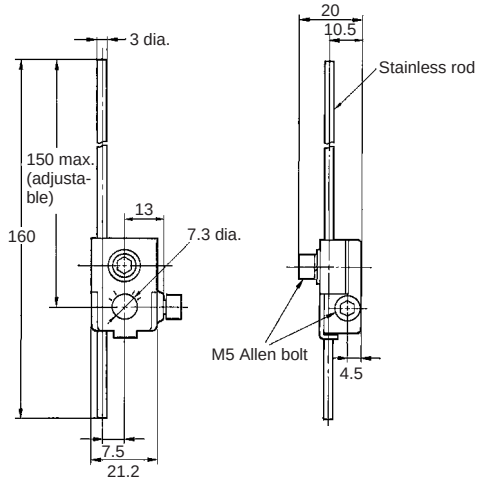


Note: Stainless sintered roller

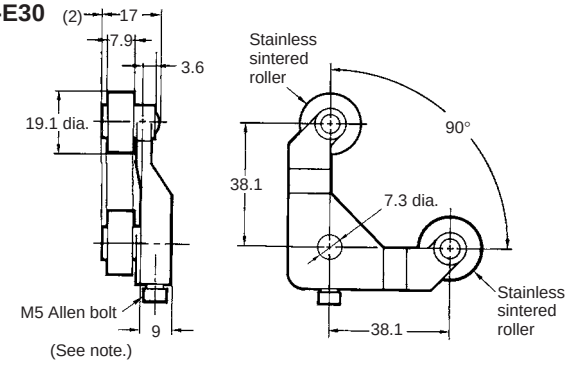
Adjustable Roller Lever
D4A-C00



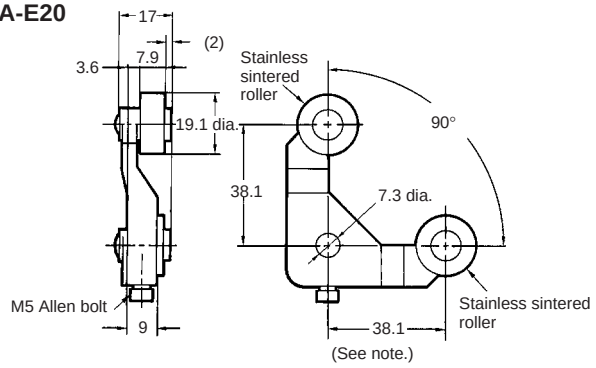
Adjustable Rod Lever
D4A-D00



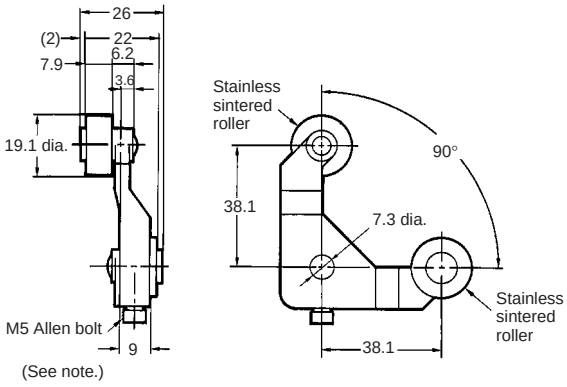
Fork Lever Lock
D4A-E30



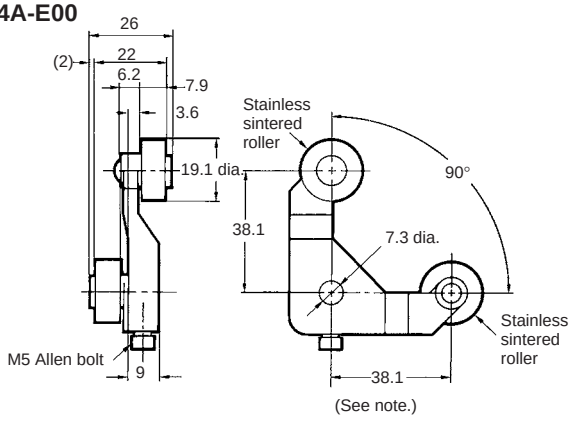
Fork Lever Lock
D4A-E20



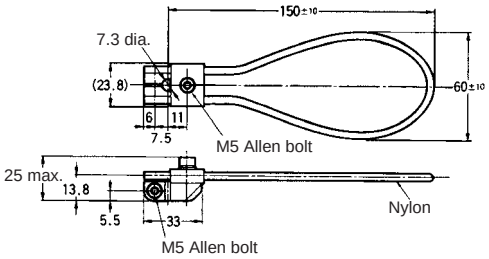
Fork Lever Lock
D4A-E10



Fork Lever Lock
D4A-E00



Nylon Loop Lever
D4A-F00



Note: A Fork Lever Lock can be used with D4A-□□05N models only.

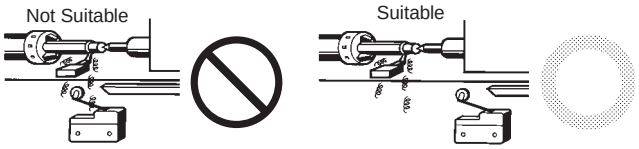
Precautions

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

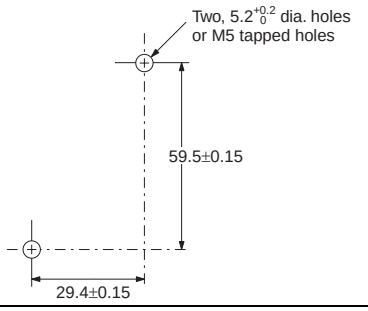
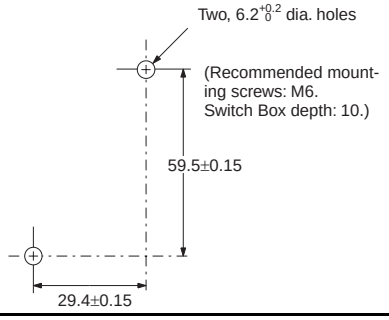
Operating Environment

- 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_2) 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.

Mounting

Model	1/2-14NPT Conduit
	D4A-1□□□N **D4A-2□□□N**
Front Mounting	
Rear Mounting (Rear View)	

Tightening Torque

To maintain the high sealing capability of the Limit Switch, tighten the screws for the head and switch box with the following torques:

Head (four 12-mm M4 screws): 1.2 to 1.4 N·m
Switch box (two 20-mm M5 screws): 2.4 to 2.7 N·m

Solderless Terminals

The D4A-□N with DPDT double-break incorporates solderless terminals.

Operation

The operating methods, cam and dog shapes, operating frequency, and overtravel (OT) have a significant effect on the service life and accuracy of the Limit Switch. The shape of the cam should be as smooth as possible.

A marginal overtravel (OT) value should be set. The ideal value is the rated OT value x 0.7.

The actuator should not be remodeled to change the operating position.

Connectors

To satisfy IP67, apply sealing tape to the connector conduit.

Appropriate outer diameter of cables is 5.5 to 14 dia.

Use OMRON's SC-□M Series.

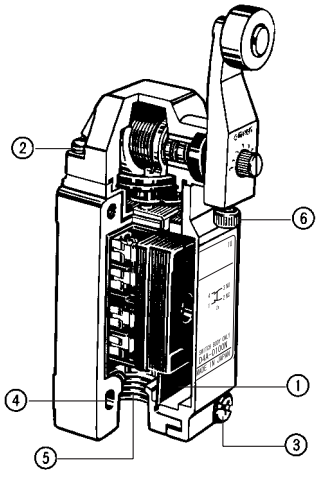
Tighten the Connectors to a torque of 1.8 to 2.2 N·m.

Maintenance and Repair

The user must not maintain or repair equipment incorporating any D4A-N model. Contact the manufacturer of the equipment for any maintenance or repairs required.

Tightening Torque

A loose screw may cause malfunctions. Be sure to tighten each screw to the proper tightening torque as shown in the table.



No.	Type	Appropriate tightening torque
1	Terminal screws (M3.5 screws) (including grounding terminals)	0.78 to 0.88 N·m
2	Head mounting screws	1.18 to 1.37 N·m
3	Switch box mounting screws	2.35 to 2.75 N·m
4	Body mounting screws (See note.)	4.90 to 5.88 N·m
5	Connectors	1.77 to 2.16 N·m
6	Actuator mounting screws	2.45 to 2.65 N·m

Note: When using M5 Allen-head bolts, particularly when the head direction has been changed, check the torque of each screw and make sure that the screws are free of foreign substances, and that each screw is tightened to the proper torque.

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1. 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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    d. Delivery and shipping dates are estimates only; and
    e. Omron will package Products as it deems proper for protection against normal handling and extra charges apply to special conditions.
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   (i) Outdoor use, uses involving potential chemical contamination or electrical interference, or conditions or uses not described in this document.
   (ii) Use in consumer products or any use in significant quantities.
   (iii) 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.
   (iv) 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.
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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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