

## 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).
  - Wide standard operating temperature range:  
–40°C to +100°C (standard type).
  - Models with fluoro-rubber available for greater resistance to chemicals.
  - Block mounting method also reduces downtime for maintenance.
  - DPDT, double-break models available for complex operations.
  - Approved by UL, CSA, and CCC (Chinese standard).
- (Ask your OMRON representative for information on approved model.)



**!** Be sure to read *Safety Precautions* on page 14 to 15 and *Safety Precautions for All Limit Switches*.

## Model Number Structure

**Model Number Legend** (Not all combinations are possible. Ask your OMRON representative for details.)

**D4A-□□□□N (Set model number)**

(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 \*1
- 7 : DPDT, double-break, sequential operation, without indicator \*1
- 9 : DPDT, double-break, center neutral operation, without indicator \*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

\*1. Use the D4A-0017N Special Head.

















\*2. Use the D4A-0018N Special Head.

Note: Fluoro-rubber sealed type is also available.

## Ordering Information

### Set model number

#### SPDT, Double-break Switches

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 *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	---	---	---
	High-sensitivity, Low-torque		D4A-3104N	UL, CSA	D4A-3304N	UL, CSA	---
	Maintained *2		D4A-3105N	UL, CSA	D4A-3305N	UL, CSA	D4A-3E05N
Side plunger	Standard		D4A-3106N	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. Switches are also available with □1/2-14 NPT conduits. The model numbers correspond as follows:



















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

2. 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.

\*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 page 12).

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

## DPDT, Double-break Switches

Receptacle box Indicator		G 1/2 Conduit			
		Without indicator		With neon lamp indicator (AC)	With LED indicator (DC)
Actuator		Model	Approved standards	Model	Model
Roller lever *1	Standard 	D4A-4501N	UL, CSA	D4A-4L01N	D4A-4P01N
	High-sensitivity 	D4A-4502N	UL, CSA	---	---
	Low-torque 	D4A-4503N	UL, CSA	---	---
	High-sensitivity, Low-torque 	D4A-4504N	UL, CSA	---	---
	Maintained *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	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. Switches are also available with □1/2-14 NPT conduits. The model numbers correspond as follows:

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



2. 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.

\*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 page 12).

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

## Individual Parts

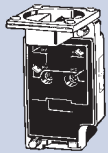
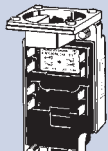
## Receptacle box

Type Appearance		G1/2 conduit *1		1/2-14NPT conduit *2	
		Model	Approved standards	Model	Approved standards
SPDT dou- ble-break 		D4A-3000N	UL, CSA	D4A-1000N	UL, CSA
DPDT dou- ble-break 		D4A-4000N	UL, CSA	D4A-2000N	UL, CSA







\*1. M6-screw mounting  
(standard mounting)

\*2. 10-32UNF-screw mounting  
(standard mounting)

## Switch Box

Appearance		Indicator	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		Simultaneous operation	D4A-0500N	UL, CSA	D4A-0L00N	---	D4A-0P00N
		Sequential operation	D4A-0700N	UL, CSA	---	---	---
		Center neutral operation	D4A-0900N	UL, CSA	---	---	---








## Heads

Appearance		Model	Approved standards
Roller lever *1		Standard	D4A-0001N
		High-sensitivity	D4A-0002N
		Low-torque *2	D4A-0003N
		Sequential operation: *3	D4A-0017N
		Center neutral operation: *3	D4A-0018N
		Maintained	D4A-0005N
Side plunger		Standard	D4A-0006N
		Vertical roller	D4A-0007-VN
		Horizontal roller	D4A-0007-HN
		Side adjustable	D4A-0008N

\*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 page 12).

\*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.

Appearance	Type	Model	Approved standards
Top plunger		Standard	D4A-0009N
		Roller	D4A-0010N
		Adjustable	D4A-0011N
Flexible rod		Spring wire	D4A-0012N
		Plastic rod	D4A-0014N
		Cat whisker	D4A-0015N
		Coil spring	D4A-0016N

## Levers

Actuator	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 12 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.

### Ratings

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

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

Item	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.

### Ratings for Indicators

Classification	Indicator	Model	Rated voltage	Leakage current	Internal resistance
SPDT double-break	Neon lamp	D4A-0300N	125 VAC, 250 VAC	Approx. 0.47 mA	150 kΩ
	LED	D4A-0E00N	24 VDC	Approx. 1.3 mA	15 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	---

## Approved Standard Ratings

## UL/CSA

## A600

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

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

## A300

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

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

## 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 (A)		Volt-amperes (VA)	
		Make	Break	Make	Break
120 VAC	5 A	30	3	3,600	360
240 VAC		15	1.5		
480 VAC		7.5	0.75		
600 VAC		6.0	0.6		

## CCC (GB14048.5)

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

## Characteristics

Degree of protection (reference standards)		IP67 and NEMA 1, 2, 3, 4X, 5, 6P, 12, and 13
Durability *2	Mechanical: *1	SPDT, double-break, roller lever: 50,000,000 operations min. DPDT, double-break, roller lever: 30,000,000 operations min.
	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/s to 2 m/s (in case of 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	Between terminals of same polarity	1,000 VAC, 50/60 Hz for 1 min.
	Between current-carrying metal parts and ground	2,200 VAC, 50/60 Hz for 1 min. *3
	Between each terminal and non-current-carrying metal part	2,200 VAC, 50/60 Hz for 1 min. *3
Pollution degree (operating environment)		3
Protection against electric shock		Class I (with grounding terminal)
Vibration resistance	Malfunction: *4	10 to 55 Hz, 1.5-mm double amplitude
Shock resistance	Destruction:	1,000 m/s <sup>2</sup> min.
	Malfunction: *4	SPDT, double-break, roller lever: 600 m/s <sup>2</sup> min. DPDT, double-break, roller lever: 300 m/s <sup>2</sup> min.
Ambient operating humidity		35% to 95%RH (with no icing)
Weight		Approx. 290 g (in case of D4A-3101N)

Note: The above figures are initial values.

\*1. Excluding maintained models.

\*2. The values are calculated at an operating temperature of +5°C to +35°C, and an operating humidity of 40% to 70%RH. Contact your OMRON sales representative for more detailed information on other operating environments.

\*3. 1,500 VAC is applied to the indicator lamp type.

\*4. Not including Flexible rods (cat whisker, plastic rod, coil spring, and spring wire types).

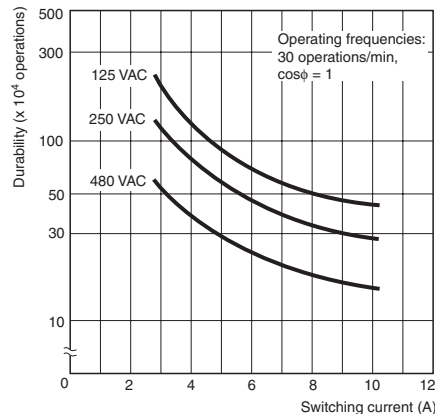
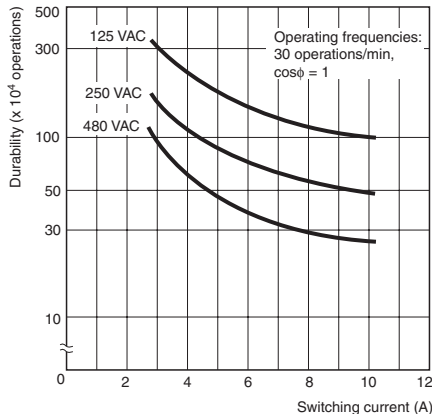
Item	Type	Roller lever *1	Plunger, flexible rod *2	With indicator
Ambient temperature		-40°C to +100°C	-20°C to +100°C	-10°C to +80°C

\*1. Excluding low-torque and high-sensitivity models.

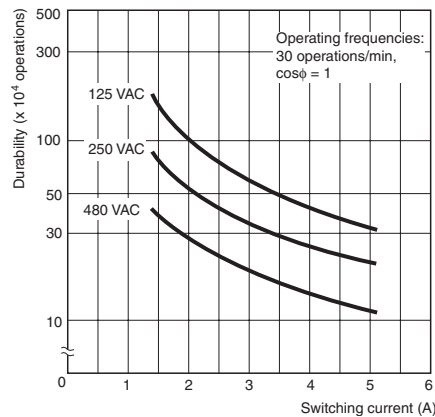
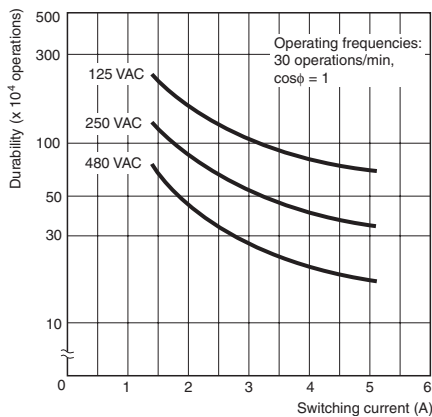
\*2. Including roller lever low-torque and high-sensitivity operating models.

## Engineering Data

**Electrical Durability (SPDT Double-break)** (Ambient temperature: +5°C to +35°C; ambient humidity: 40% to 70%RH)



## Electrical Durability (DPDT Double-break)



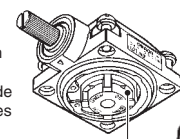
## Structure and Nomenclature

### Structure (DPDT Double-break)

#### Head

With the Roller Lever and Side Plunger Switches, the direction of the switch head can be varied to any of the four directions by loosening the roller lever switch screws at the four corners of the head.

The Roller Lever Switch employs a system which allows selection of the operation of only one side (left or right) or both sides without use of any tools.



**Operating Position Mark (arrow)**

#### Bearings

The copper-alloy bearings ensure long life expectancy.

#### Receptacle

The plug-in type receptacle provides adequate space for wiring.

#### Conduit Opening \*1, \*2

G 1/2 conduit threads featuring high sealing property are used. (Refer to *Limit Switch Connectors* for details on SC connectors). A terminal box with 1/2-14NPT conduit threads is also available on request.

#### Sealed Gasket

The employed full-cover method prevents the gasket from direct exposure to oil or water spray.

#### Roller

The roller actuator is made of hardened stainless steel and excels in resistance to wear.

#### Lever

With the Roller Lever Switch, the lever can be installed anywhere in a 360° range (180° if the lever is reversed and attached to the shaft).

#### Oil Seal

Improved sealing property is ensured with a double-seal construction (a oil seal plus an X-ring seal).

#### Switch Box

Boasts long life expectancy (50 million mechanical operations or more with the 2-pole Double-break Switches and 30 million mechanical operations or more with the DPDT Double-break Switches).

#### Ground Terminal Screw

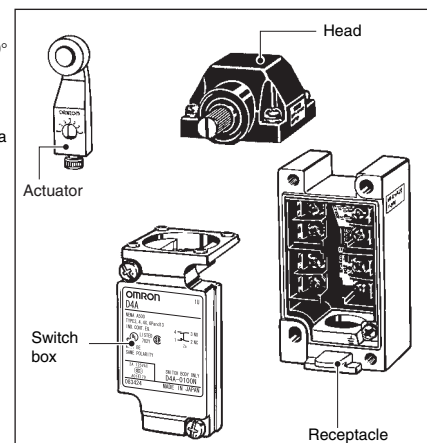
A ground terminal is provided to enhance safety.

#### Switch Box Screw

A Phillips screw is used to secure the switch housing for ease of use, and features a measure to prevent the screw from coming off.

### 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.



Note: 1. NBR is used in rubber components.

Fluoro-rubber sealed types use fluoro-rubber.

2. 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.

\*1. A Receptacle and Terminal Box with 1/2-14NPT conduit threads are also available for the North America market.

\*2. The conduit thread indication has been changed from "PF1/2" to "G1/2" accompanying the JIS B 0202 revision.

This changes applies only to the indication; thread sizes and pitches have not been affected.

## Contact Forms (Switch Boxes) STDP Double-break Switches

Type	Contact model			Operating pattern
	Without indicator	With neon lamp indicator *	With LED indicator *	
1NC/1NO snap-action	D4A-0100N 	D4A-0300N 	D4A-0E00N 	

\* 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 *	With LED indicator *		
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 *	With LED indicator *
Contact form	D4A-0500N D4A-0700N D4A-0900N 	D4A-0L00N 	D4A-0P00N 
Lamp unit internal circuit	---		

\* 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).



## Dimensions and Operating Characteristics

(Unit: mm)

### Set Model Numbers

(The box in a model number indicates the switch box type.)

**Roller Lever Switches Note: Levers of the side rotary type are optionally available.**

#### Standard

D4A-3□01N, D4A-4□01N

#### High-sensitivity

D4A-3□02N, D4A-4□02N

#### Low-torque

D4A-3□03N, D4A-4□03N

#### High-sensitivity/Low-torque

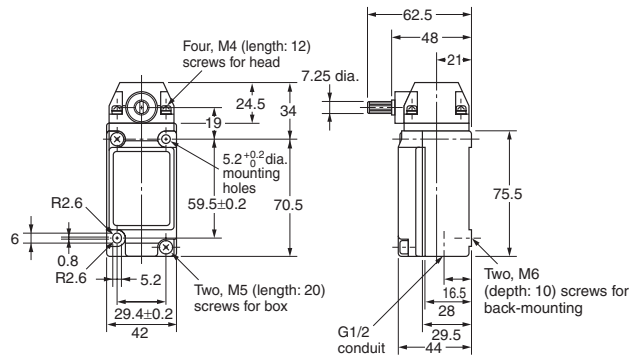
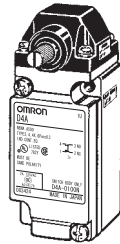
D4A-3□04N, D4A-4□04N

#### Sequential Operation

D4A-4□17N

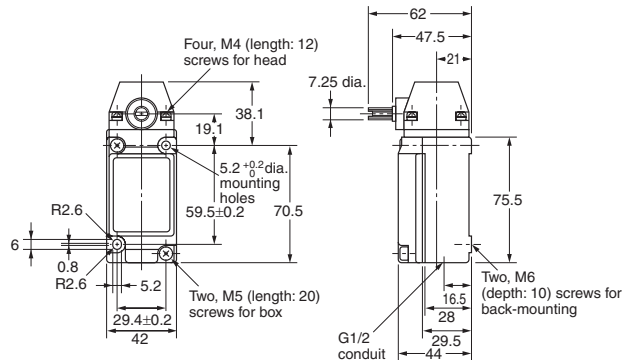
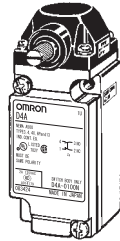
#### Center Neutral Operating

D4A-4□18N



#### Maintained

D4A-3□05N, D4A-4□05N



Note: Unless otherwise specified, a tolerance of  $\pm 0.4$  mm applies to all dimensions.

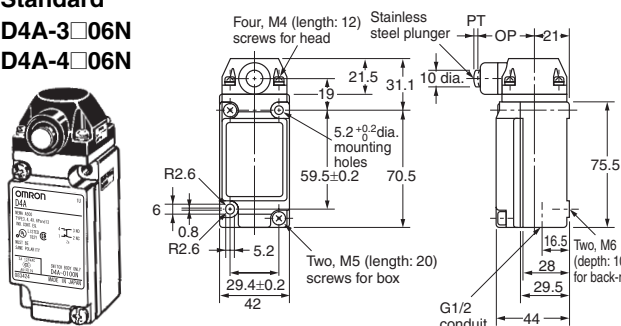
Operating characteristics	Model	SPDT Double-break					DPDT Double-break						
		D4A-3□01N	D4A-3□02N	D4A-3□03N	D4A-3□04N	D4A-3□05N	D4A-4□01N	D4A-4□02N	D4A-4□03N	D4A-4□04N	D4A-4□05N	D4A-4□17N	D4A-4□18N
Operating force	OF max.	0.39 N·m	0.39 N·m	0.2 N·m	0.2 N·m	0.39 N·m	0.39 N·m	0.39 N·m	0.2 N·m	0.2 N·m	0.39 N·m	0.39 N·m	0.39 N·m
Release force	RF min.	0.05 N·m	0.05 N·m	---	---	---	0.05 N·m	0.05 N·m	---	---	---	0.05 N·m	0.02 N·m
Pretravel	PT max.	15° (12°)	7° (6°)	15° (12°)	7° (6°)	65° (60°)	15° (12°)	7° (6°)	15° (12°)	7° (6°)	65° (60°)	1-stage: 12° (10°) 2-stage: 20° (17°)	19° (15°)
Overtravel	OT min.	70°	75°	70°	75°	20°	70°	75°	70°	75°	20°	65°	65°
Movement Differential	MD max.	5° (4°)	4° (3°)	5° (4°)	4° (3°)	35° (30°)	7° (6°)	5° (4°)	7° (6°)	5° (4°)	35° (30°)	6° (5°)	5° (4°)

Note: The figures in the parentheses are average values.

# Side Plunger Switches

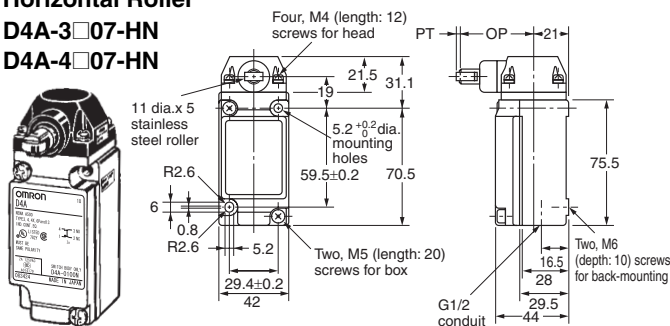
## Standard

D4A-3□06N  
D4A-4□06N



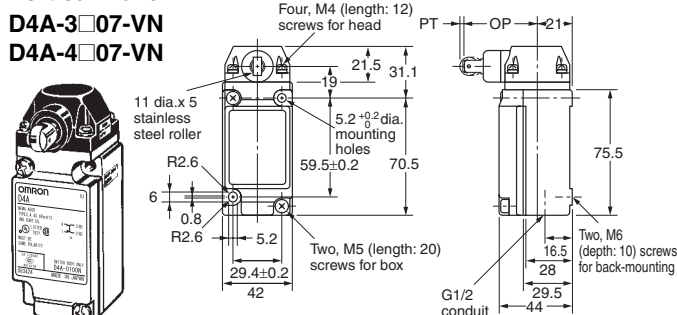
## Horizontal Roller

D4A-3□07-HN  
D4A-4□07-HN



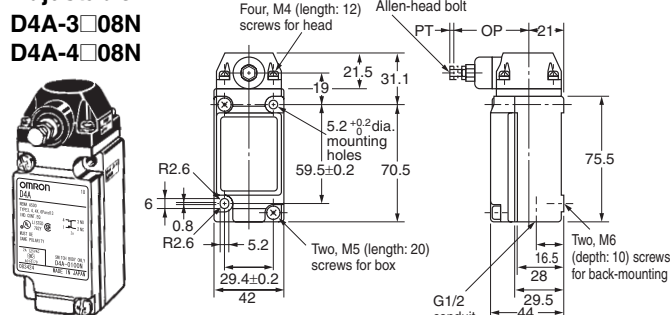
## Vertical Roller

D4A-3□07-VN  
D4A-4□07-VN



## Adjustable

D4A-3□08N  
D4A-4□08N



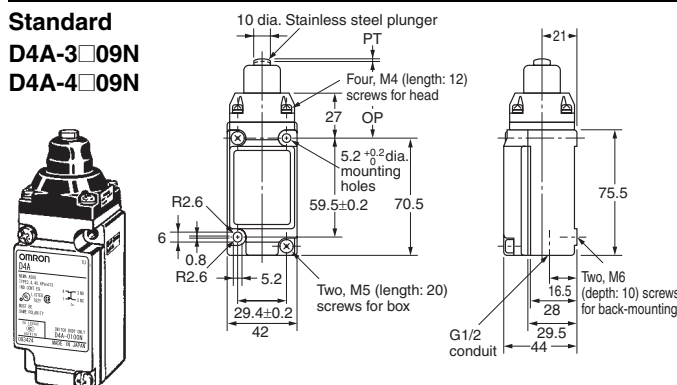
Model	SPDT Double-break				DPDT Double-break			
Operating characteristics	D4A-3□06N	D4A-3□07-HN	D4A-3□07-VN	D4A-3□08N	D4A-4□06N	D4A-4□07-HN	D4A-4□07-VN	D4A-4□08N
Operating force OF max.	19.61 N	19.61 N	19.61 N	19.61 N	19.61 N	19.61 N	19.61 N	19.61 N
Release force RF min.	4.90 N	4.90 N	4.90 N	4.90 N	4.90 N	4.90 N	4.90 N	4.90 N
Pretravel 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
Overtavel 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
Movement Differential 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

\* Operating position

# Top Plunger Switches

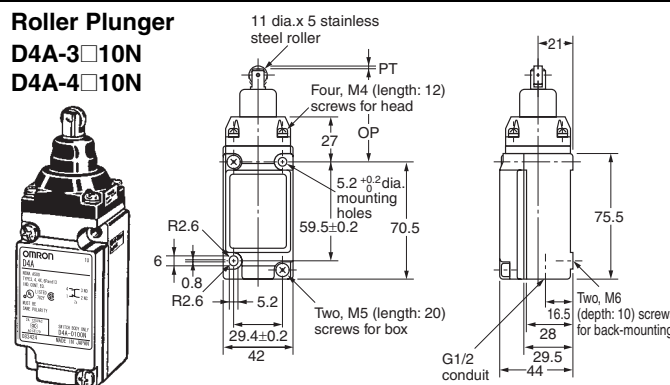
## Standard

D4A-3□09N  
D4A-4□09N



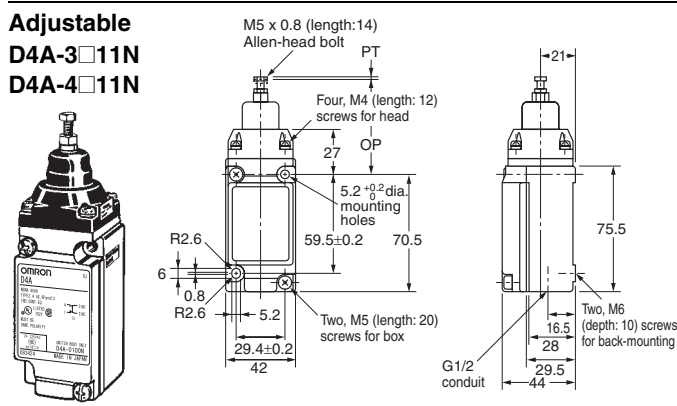
## Roller Plunger

D4A-3□10N  
D4A-4□10N



## Adjustable

D4A-3□11N  
D4A-4□11N



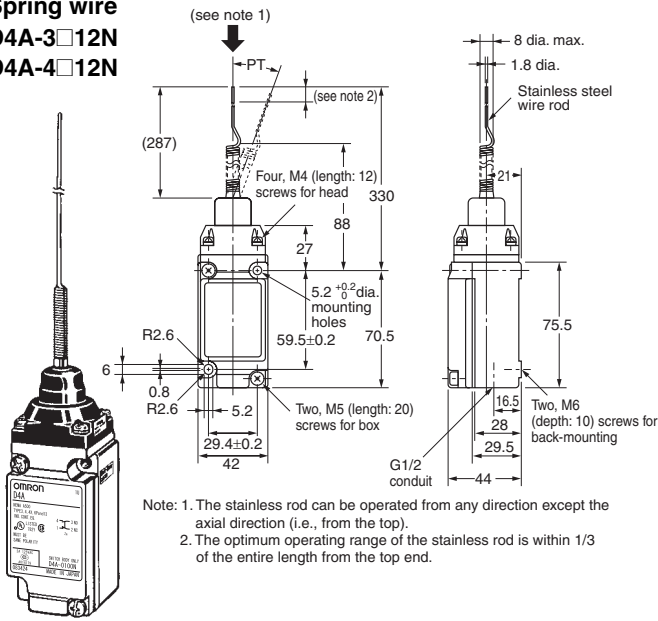
Model	SPDT double-break			DPDT double-break		
Operating characteristics	D4A-3□09N	D4A-3□10N	D4A-3□11N	D4A-4□09N	D4A-4□10N	D4A-4□11N
OF max.	17.65 N	17.65 N	17.65 N	17.65 N	17.65 N	17.65 N
RF min.	4.90 N	4.90 N	4.90 N	4.90 N	4.90 N	4.90 N
PT max.	1.6 mm	1.6 mm	1.6 mm	1.6 mm	1.6 mm	1.6 mm
OT min.	5.1 mm	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

\* Operating position

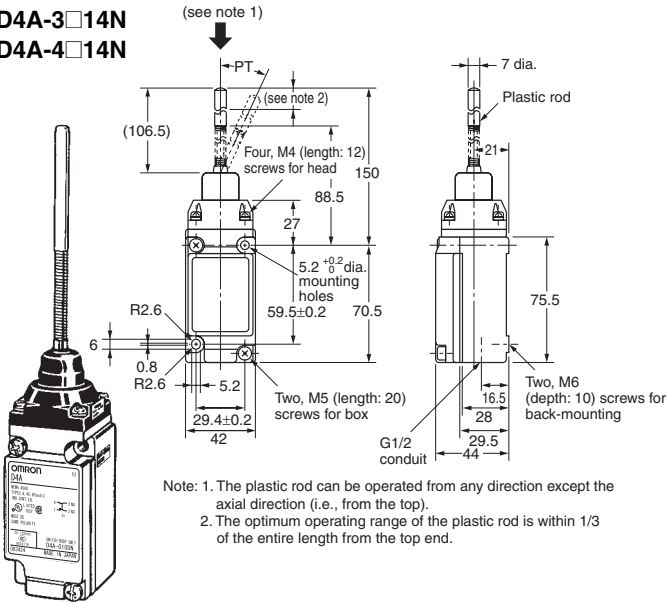
Note: A Fork Lever Lock can be used with D4A-□□05N models only.

Flexible Rod

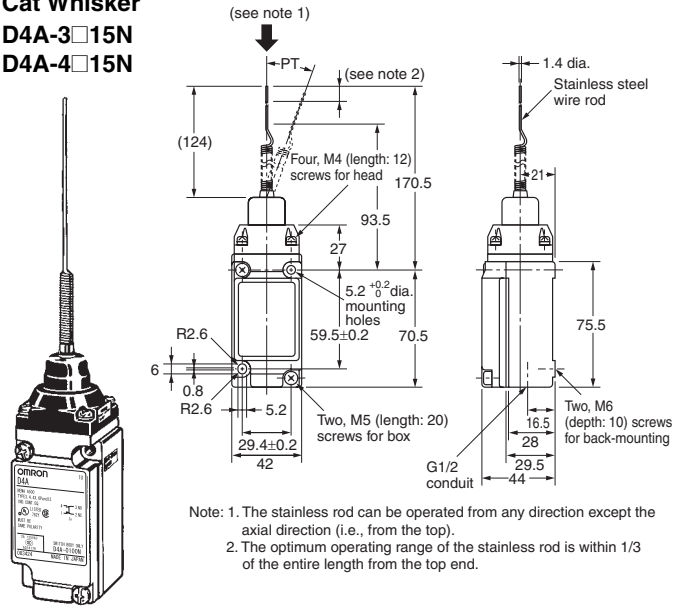
Spring wire  
D4A-3□12N  
D4A-4□12N



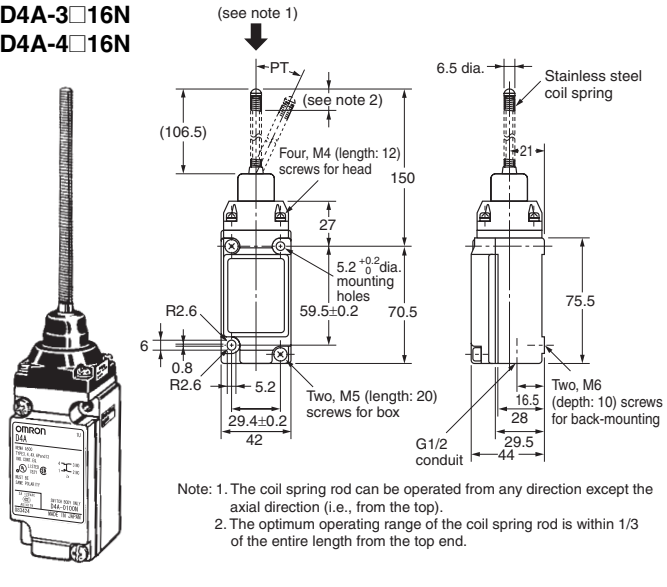
Plastic Rod  
D4A-3□14N  
D4A-4□14N



Cat Whisker  
D4A-3□15N  
D4A-4□15N



Coil Spring  
D4A-3□16N  
D4A-4□16N



Note: Unless otherwise specified, a tolerance of  $\pm 0.4$  mm applies to all dimensions.

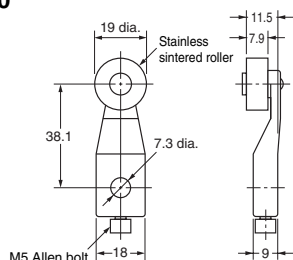
Model	SPDT Double-break				DPDT Double-break			
	D4A-3□12N	D4A-3□14N	D4A-3□15N	D4A-3□16N	D4A-4□12N	D4A-4□14N	D4A-4□15N	D4A-4□16N
Operating force OF max.	0.98 N		1.47 N		0.98 N		1.47 N	
Pretravel PT max.	15° (5°)		15° (5°)		15° (5°)		15° (5°)	

Note: The figures in the parentheses are average values.

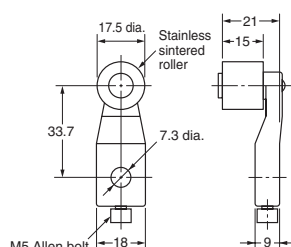
## Levers (for Roller Lever Switches)

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.

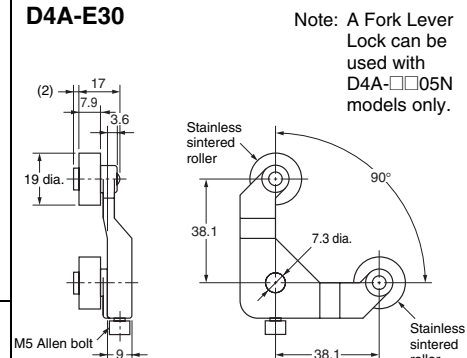
### Roller Lever D4A-A00



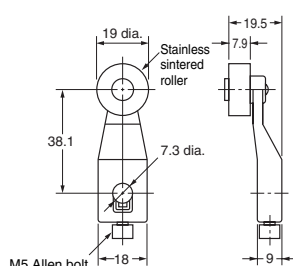
### Roller Lever D4A-B06



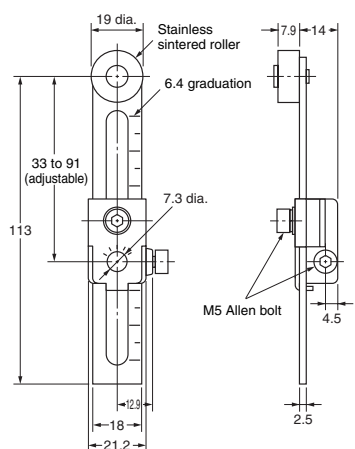
### Fork Lever Lock D4A-E30



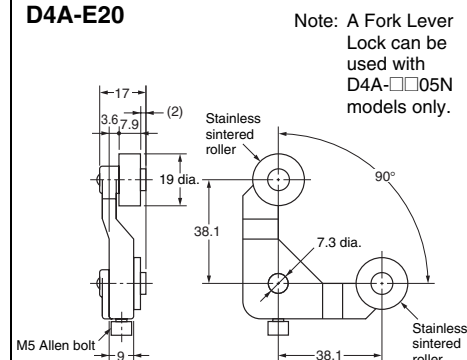
### Roller Lever D4A-A10



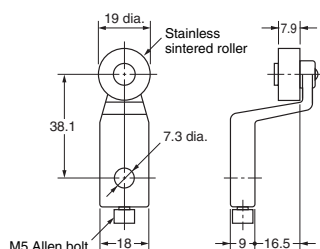
### Adjustable Roller Lever D4A-C00



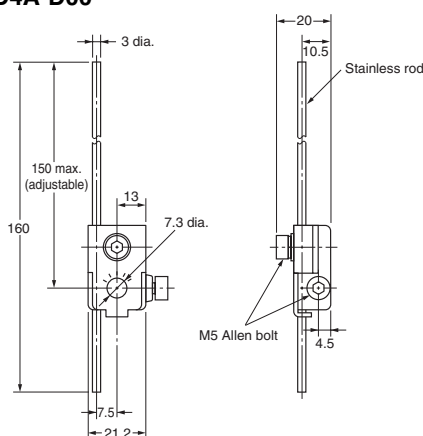
### Fork Lever Lock D4A-E20



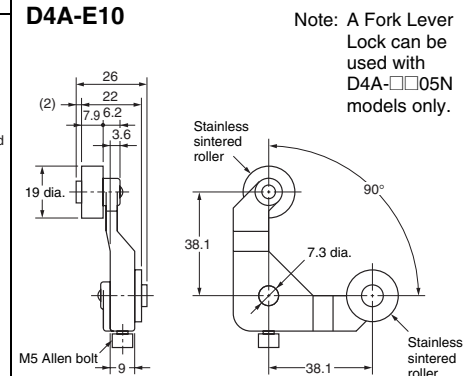
### Roller Lever D4A-A20



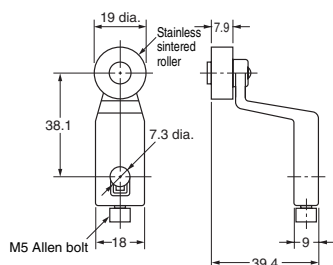
### Adjustable Rod Lever D4A-D00



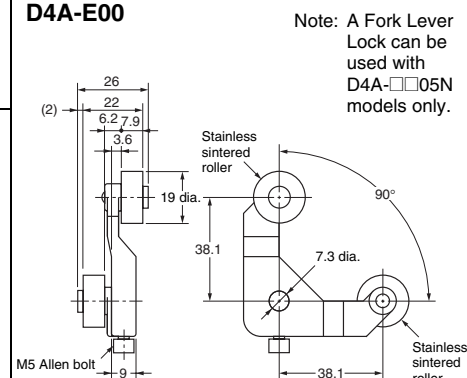
### Fork Lever Lock D4A-E10



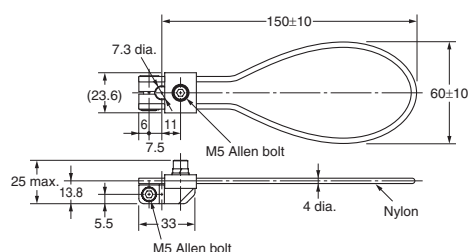
### Roller Lever D4A-A30



### Fork Lever Lock D4A-E00



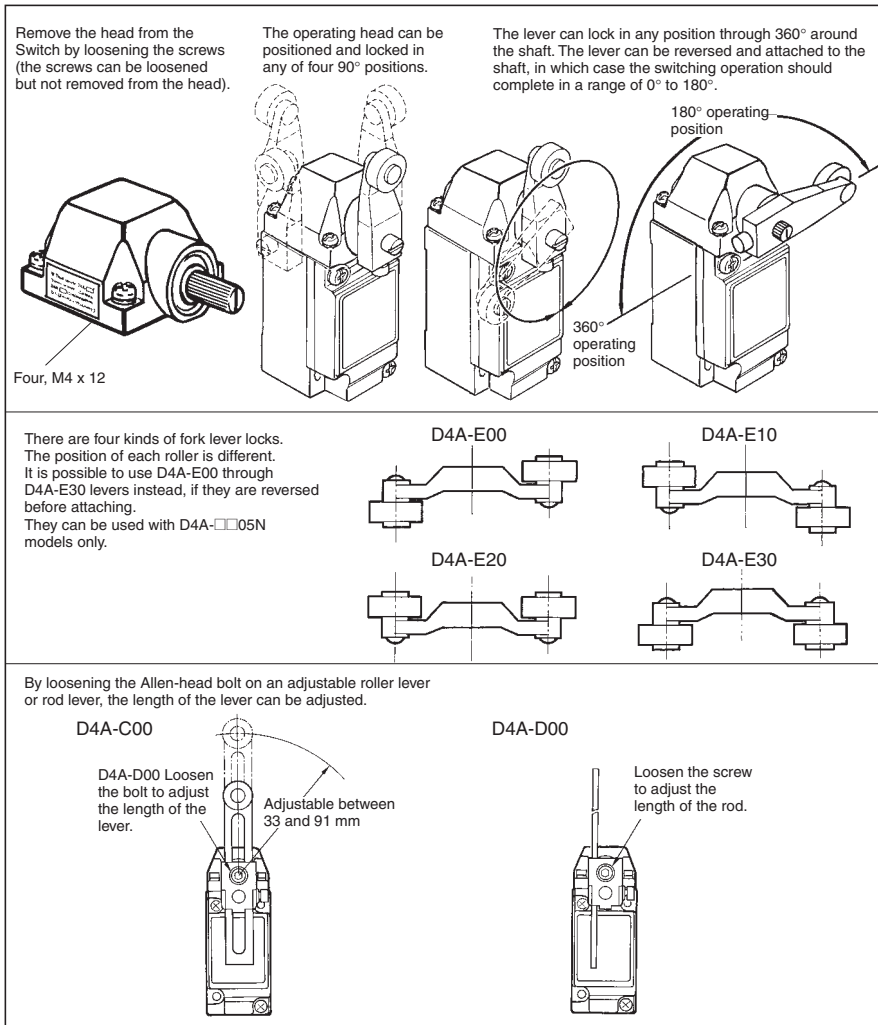
### Nylon Loop Lever D4A-F00



Note: Unless otherwise specified, a tolerance of  $\pm 0.4$  mm applies to all dimensions.

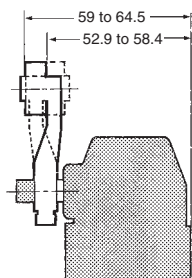
## Head and Lever Positions

- 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.

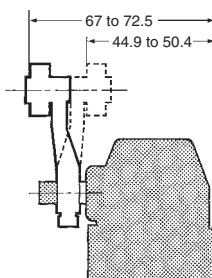


## Lever Position

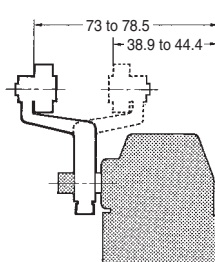
D4A-A00



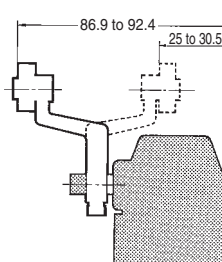
D4A-A10



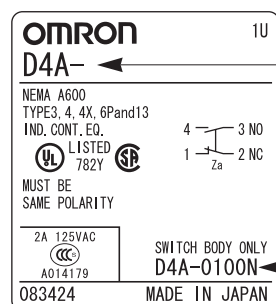
D4A-A20



D4A-A30



## Nameplate



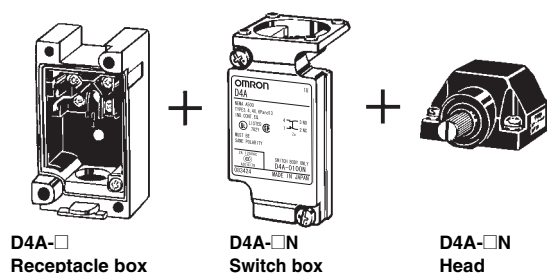
The whole switch model without lever is printed.

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

When ordering, do not confuse set model numbers and model numbers for individual blocks.

## Compatibility with D4A-□

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



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

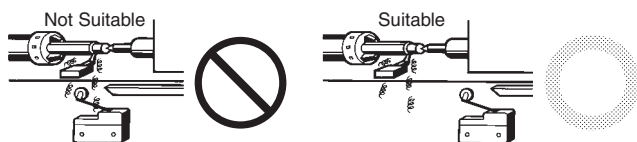
## Safety Precautions

Refer to *Safety Precautions for All Limit Switches*.

### Precautions for 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 ( $\text{SiO}_2$ ) 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.

#### Changing the Operating Direction

##### Roller Lever Switch

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.

#### Lighting Mode Selection of Indicators (SPDT only)

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 *1	Lights When Operating *2

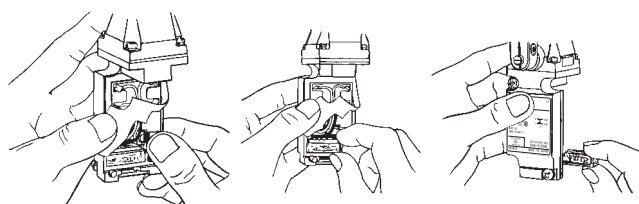
\*1. The lamp is lit when the actuator is at the free position.

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.



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

#### Mounting

Model	G1/2 Conduit D4A-3□□□N D4A-4□□□N	Mounting locations
Front Mounting		
Rear Mounting		



Screw Tightening Torques for Heads and Switch Boxes

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

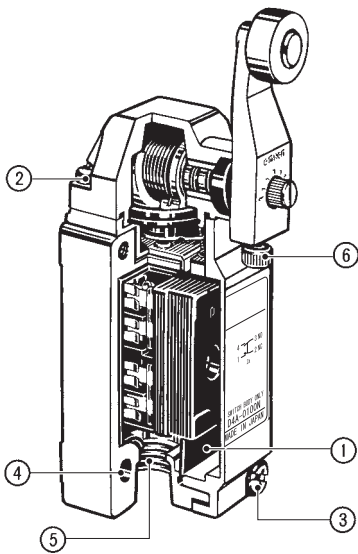
To satisfy IP67, apply sealing tape to the connector conduit. Appropriate external diameter of cables is 5.5 to 14 dia. Use OMRON's SC-□M Series. Tighten the Connectors to a torque of 1.8 to 2.2 N·m.

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.

Appropriate Tightening Torque

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

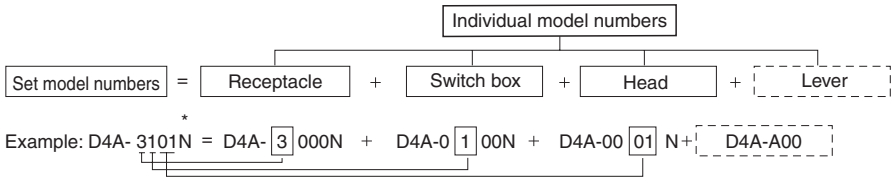


No.	Type	Appropriate tightening torque
1	Terminal screws (M3.5 screws) (including grounding terminals)	0.78 to 0.88 N·m
2	Head mounting screws	1.18 to 1.37 N·m
3	Switch box mounting screws	2.35 to 2.75 N·m
4*	Body mounting screws	4.90 to 5.88 N·m
5	Connectors	1.77 to 2.16 N·m
6	Actuator mounting screws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

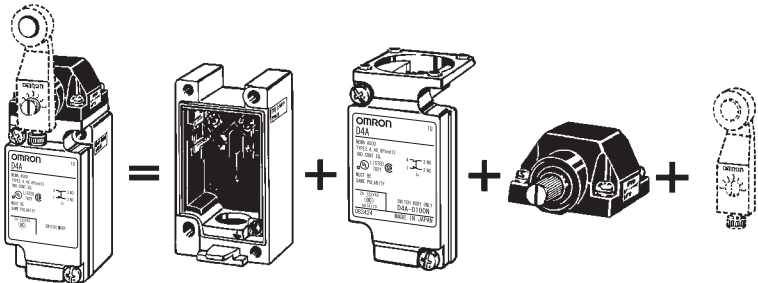
\* When using M5 Allen-head bolts, particularly when the head direction has been changed, check the torque of each screw and make sure that the screws are free of foreign substances, and that each screw is tightened to the proper torque.

How to Order

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



\* The D4A-□N without the above accessories is not compatible with the D4A-□.



# Terms and Conditions of Sale

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.
2. **Prices; Payment Terms.** All prices stated are current, subject to change without notice by Omron. Omron reserves the right to increase or decrease prices on any unshipped portions of outstanding orders. Payments for Products are due net 30 days unless otherwise stated in the invoice.
3. **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.
4. **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.
5. **Orders.** Omron will accept no order less than \$200 net billing.
6. **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.
7. **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.
8. **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.
9. **Cancellation; Etc.** Orders are not subject to rescheduling or cancellation unless Buyer indemnifies Omron against all related costs or expenses.
10. **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.
11. **Shipping; Delivery.** Unless otherwise expressly agreed in writing by Omron:
  - a. Shipments shall be by a carrier selected by Omron; Omron will not drop ship except in "break down" situations.
  - b. Such carrier shall act as the agent of Buyer and delivery to such carrier shall constitute delivery to Buyer;
  - c. 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;
  - 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.
12. **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.
13. **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://www.omron247.com> or contact your Omron representative for published information.
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17. **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.
18. **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

1. **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:
  - (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.
2. **Programmable Products.** Omron Companies shall not be responsible for the user's programming of a programmable Product, or any consequence thereof.
3. **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.
4. **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.
5. **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.





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