

# 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.



## 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)
- 5: M20 x 1.5 conduit (SPDT, double-break)
- 6: M20 x 1.5 conduit (DPDT, double-break)

#### 2. Switch Box

- 1: SPDT, double-break, without indicator
- 3: SPDT, double-break, neon lamp
- A: SPDT, double-break, LED (12 VDC)
- C: SPDT, double-break, LED (24 VDC, leakage current: 4 mA)
- E: SPDT, double-break, LED (24 VDC, leakage current: 1.3 mA)
- G: SPDT, double-break, LED (48 VDC)
- 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
- M: DPDT, double-break, sequential operation, neon lamp (See note 1.)
- N: DPDT, double-break, center neutral operation, neon lamp (See note 2.)
- P: DPDT, double-break, simultaneous operation, LED
- Q: DPDT, double-break, sequential operation, LED (See note 1.)
- R: DPDT, double-break, center neutral operation, LED (See note 2.)

#### 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                                                                                                                                     | 1/2-14NPT conduit |                    |                               |                    |                                                       |
|----------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------|-------------------------------|--------------------|-------------------------------------------------------|
|                                                                                                                                              | Without indicator |                    | With neon lamp indicator (AC) |                    | With LED indicator (DC)                               |
|                                                                                                                                              | Model             | Approved standards | Model                         | Approved standards |                                                       |
| Roller lever: standard<br>(See note 4.)                     | D4A-1101N         | UL, CSA            | D4A-1301N                     | UL, CSA            | D4A-1A01N, D4A-1C01N,<br>D4A-1E01N, D4A-1G01N         |
| Roller lever: high-sensitivity<br>(See note 4.)             | D4A-1102N         | UL, CSA            | D4A-1302N                     | UL, CSA            | D4A-1A02N, D4A-1C02N,<br>D4A-1E02N, D4A-1G02N         |
| Roller lever: low torque<br>(See note 4.)                   | D4A-1103N         | UL, CSA            | D4A-1303N                     | UL, CSA            | D4A-1A03N, D4A-1C03N,<br>D4A-1E03N, D4A-1G03N         |
| Roller lever: high-sensitivity/low torque<br>(See note 4.)  | D4A-1104N         | UL, CSA            | D4A-1304N                     | UL, CSA            | D4A-1A04N, D4A-1C04N,<br>D4A-1E04N, D4A-1G04N         |
| Roller lever: maintained<br>(See note 4 and 5.)             | D4A-1105N         | UL, CSA            | D4A-1305N                     | UL, CSA            | D4A-1A05N, D4A-1C05N,<br>D4A-1E05N, D4A-1G05N         |
| Side plunger                                                | D4A-1106N         | UL, CSA            | D4A-1306N                     | UL, CSA            | D4A-1A06N, D4A-1C06N,<br>D4A-1E06N, D4A-1G06N         |
| Side-roller plunger:<br>vertical roller                     | D4A-1107-VN       | UL, CSA            | D4A-1307-VN                   | UL, CSA            | D4A-1A07-VN, D4A-1C07-VN,<br>D4A-1E07-VN, D4A-1G07-VN |
| Side-roller plunger:<br>horizontal roller                   | D4A-1107-HN       | UL, CSA            | D4A-1307-HN                   | UL, CSA            | D4A-1A07-HN, D4A-1C07-HN,<br>D4A-1E07-HN, D4A-1G07-HN |
| Side plunger:<br>adjustable                                | D4A-1108N         | UL, CSA            | D4A-1308N                     | UL, CSA            | D4A-1A08N, D4A-1C08N,<br>D4A-1E08N, D4A-1G08N         |
| Top plunger                                               | D4A-1109N         | UL, CSA            | D4A-1309N                     | UL, CSA            | D4A-1A09N, D4A-1C09N,<br>D4A-1E09N, D4A-1G09N         |
| Top plunger:<br>roller                                    | D4A-1110N         | UL, CSA            | D4A-1310N                     | UL, CSA            | D4A-1A10N, D4A-1C10N,<br>D4A-1E10N, D4A-1G10N         |
| Top plunger:<br>adjustable                                | D4A-1111N         | UL, CSA            | D4A-1311N                     | UL, CSA            | D4A-1A11N, D4A-1C11N,<br>D4A-1E11N, D4A-1G11N         |
| Flexible rod:<br>Spring wire                              | D4A-1112N         | UL, CSA            | D4A-1312N                     | UL, CSA            | D4A-1A12N, D4A-1C12N,<br>D4A-1E12N, D4A-1G12N         |
| Flexible rod:<br>Plastic rod                              | D4A-1114N         | UL, CSA            | D4A-1314N                     | UL, CSA            | D4A-1A14N, D4A-1C14N,<br>D4A-1E14N, D4A-1G14N         |
| Flexible rod:<br>Cat whisker                              | D4A-1115N         | UL, CSA            | D4A-1315N                     | UL, CSA            | D4A-1A15N, D4A-1C15N,<br>D4A-1E15N, D4A-1G15N         |
| Flexible rod:<br>Coil spring                              | D4A-1116N         | UL, CSA            | D4A-1316N                     | UL, CSA            | D4A-1A16N, D4A-1C16N,<br>D4A-1E16N, D4A-1G16N         |

**Note:** 1. The Switches listed above with an optional G1/2 or M20 x 1.5 conduit can be supplied upon request. To order, change the conduit identifier in the model number as follows:

| 1/2-14NPT | G1/2      | M20 x 1.5 |
|-----------|-----------|-----------|
| D4A-1□□□N | D4A-3□□□N | D4A-5□□□N |

- Switches with fluoro-rubber seals (with an operating temperature range of -10°C to 120°C) may be ordered by adding an "F" suffix to the model number. (Example: D4A-3101N-F for D4A-3101N) Contact your OMRON representative for details.
- Switches with silicon rubber seals that have high weather-proof performance are also available and may be ordered by adding an "T" suffix to the model number. (Example: D4A-3112N-T for D4A-3112N) Contact your OMRON representative for details.
- Levers for Roller Lever Switches are optionally available. Select the lever from those listed in this datasheet (refer to *Levers* on pages 28 and 29) and order.
- "Roller lever: maintained" refers to actuators that possess a lock mechanism for switching operations. Use a Fork Lever Lock (D4A-E□□) as the lever.

# DPDT Double-break Switches

| Actuator                                                                                                                                  | 1/2-14NPT conduit |                    |                               |                         |
|-------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------|-------------------------------|-------------------------|
|                                                                                                                                           | Without indicator |                    | With neon lamp indicator (AC) | With LED indicator (DC) |
|                                                                                                                                           | Model             | Approved standards |                               |                         |
| Roller lever: standard (See note 3.)                     | D4A-2501N         | UL, CSA            | D4A-2L01N                     | D4A-2P01N               |
| Roller lever: high-sensitivity (See note 3.)             | D4A-2502N         | UL, CSA            | D4A-2L02N                     | D4A-2P02N               |
| Roller lever: low torque (See note 3.)                   | D4A-2503N         | UL, CSA            | D4A-2L03N                     | D4A-2P03N               |
| Roller lever: high-sensitivity/low torque (See note 3.)  | D4A-2504N         | UL, CSA            | D4A-2L04N                     | D4A-2P04N               |
| Roller lever: maintained (See note 3 and 4.)             | D4A-2505N         | UL, CSA            | D4A-2L05N                     | D4A-2P05N               |
| Roller lever: sequential operating (See note 3.)         | D4A-2717N         | UL, CSA            | D4A-2M17N                     | D4A-2Q17N               |
| Roller lever: center neutral operating (See note 3.)     | D4A-2918N         | UL, CSA            | D4A-2N18N                     | D4A-2R18N               |
| Side plunger                                             | D4A-2506N         | UL, CSA            | D4A-2L06N                     | D4A-2P06N               |
| Side-roller plunger: vertical roller                     | D4A-2507-VN       | UL, CSA            | D4A-2L07-VN                   | D4A-2P07-VN             |
| Side-roller plunger: horizontal roller                   | D4A-2507-HN       | UL, CSA            | D4A-2L07-HN                   | D4A-2P07-HN             |
| Side plunger: adjustable                                 | D4A-2508N         | UL, CSA            | D4A-2L08N                     | D4A-2P08N               |
| Top plunger                                              | D4A-2509N         | UL, CSA            | D4A-2L09N                     | D4A-2P09N               |
| Top plunger: roller                                     | D4A-2510N         | UL, CSA            | D4A-2L10N                     | D4A-2P10N               |
| Top plunger: adjustable                                | D4A-2511N         | UL, CSA            | D4A-2L11N                     | D4A-2P11N               |
| Flexible rod: Spring wire                              | D4A-2512N         | UL, CSA            | D4A-2L12N                     | D4A-2P12N               |
| Flexible rod: Plastic rod                              | D4A-2514N         | UL, CSA            | D4A-2L14N                     | D4A-2P14N               |
| Flexible rod: Cat whisker                              | D4A-2515N         | UL, CSA            | D4A-2L15N                     | D4A-2P15N               |
| Flexible rod: Coil spring                              | D4A-2516N         | UL, CSA            | D4A-2L16N                     | D4A-2P16N               |

**Note:** 1. The Switches listed above with an optional G1/2 or M20 x 1.5 conduit can be supplied upon request. To order, change the conduit identifier in the model number as follows:

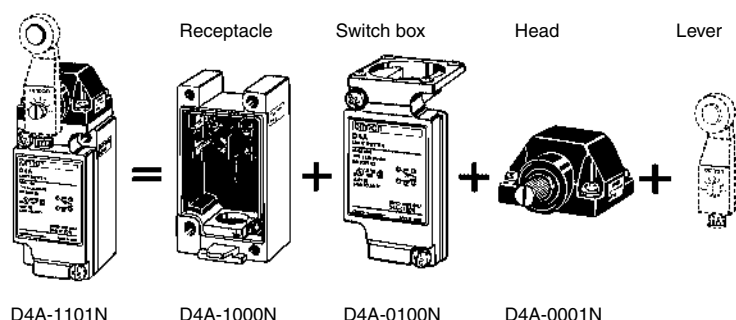
| 1/2-14NPT | G 1/2     | M20 x 1.5 |
|-----------|-----------|-----------|
| D4A-2□□□N | D4A-4□□□N | D4A-6□□□N |

- Switches with fluoro-rubber seals (with an operating temperature range of –10°C to 120°C) may be ordered by adding an “F” suffix to the model number. (Example: D4A-3101N-F for D4A-3101N) Contact your OMRON representative for details.
- Levers for Roller Lever Switches are optionally available. Select the lever from those listed in this data sheet (refer to *Levers* on pages 28 and 29) and order.
- “Roller lever: maintained” refers to actuators that possess a lock mechanism for switching operations. Use a Fork Lever Lock (D4A-E□□) as the lever.

## Individual Parts

### Replacement of Parts

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



Levers for Roller Lever Switches are optionally available. Select the lever from those listed in this datasheet and order (refer to *Levers* on pages 20 and 21).

### Receptacle Box

| Type              | Appearance                                                                         | 1/2-14NPT conduit (See note 2.) |                    | G1/2 conduit (See note 1.) |                    | M20 x 1.5 (See note 1.) |                    |
|-------------------|------------------------------------------------------------------------------------|---------------------------------|--------------------|----------------------------|--------------------|-------------------------|--------------------|
|                   |                                                                                    | Model                           | Approved standards | Model                      | Approved standards | Model                   | Approved standards |
| SPDT double-break |   | D4A-1000N                       | UL, CSA            | D4A-3000N                  | UL, CSA            | D4A-5000N               | UL, CSA            |
| DPDT double-break |  | D4A-2000N                       | UL, CSA            | D4A-4000N                  | UL, CSA            | D4A-6000N               | 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 | <br>(Without indicator lamp) |                          | D4A-0100N         | UL, CSA            | D4A-0300N                     | UL, CSA            | D4A-0A00N<br>D4A-0C00N<br>D4A-0E00N<br>D4A-0G00N |
| DPDT double-break | <br>(Without indicator lamp) | Simultaneous operation   | D4A-0500N         | UL, CSA            | D4A-0L00N                     | ---                | D4A-0P00N                                        |
|                   |                                                                                                                 | Sequential operation     | D4A-0700N         | UL, CSA            | D4A-0M00N                     | ---                | D4A-0Q00N                                        |
|                   |                                                                                                                 | Center neutral operation | D4A-0900N         | UL, CSA            | D4A-0N00N                     | ---                | D4A-0R00N                                        |

Heads

| Type                          | Appearance                                                                        |                                                                                   |                                                                                   |                                                                                   | Approved standards |
|-------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------|
| Roller lever<br>(See note 1.) |  | Standard:                                                                         | D4A-0001N                                                                         |                                                                                   | UL, CSA            |
|                               |                                                                                   | High-sensitivity:                                                                 | D4A-0002N                                                                         |                                                                                   |                    |
|                               |                                                                                   | Low torque:                                                                       | D4A-0003N (see note 2)                                                            |                                                                                   |                    |
|                               |                                                                                   | High-sensitivity/low torque:                                                      | D4A-0004N (see note 2)                                                            |                                                                                   |                    |
|                               |                                                                                   | Sequential operation:                                                             | D4A-0017N (see note 3)                                                            |                                                                                   |                    |
|                               |                                                                                   | Center neutral operation:                                                         | D4A-0018N (see note 3)                                                            |                                                                                   |                    |
|                               |  | Maintained:                                                                       | D4A-0005N                                                                         |                                                                                   | UL, CSA            |
| Side plunger                  |  |  |  |  | UL, CSA            |
|                               | Standard:<br>D4A-0006N                                                            | Horizontal roller:<br>D4A-0007-HN                                                 | Vertical roller:<br>D4A-0007-VN                                                   | Side adjustable:<br>D4A-0008N                                                     |                    |
| Top plunger                   |  |  |  |                                                                                   | UL, CSA            |
|                               | Standard:<br>D4A-0009N                                                            | Roller plunger:<br>D4A-0010N                                                      | Plunger adjustable:<br>D4A-0011N                                                  |                                                                                   |                    |
| Flexible rod                  |  |  |  |  | UL, CSA            |
|                               | Spring wire<br>D4A-0012N                                                          | Plastic rod<br>D4A-0014N                                                          | Cat whisker<br>D4A-0015N                                                          | Coil spring<br>D4A-0016N                                                          |                    |

- 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 28 and 29).
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.

# Specifications

## ■ Approved Standards

| Agency | Standard         | File No. |
|--------|------------------|----------|
| UL     | UL508            | E76675   |
| CSA    | CSA C22.2 No. 14 | LR45746  |

## ■ 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<br>240 VAC<br>480 VAC<br>600 VAC | 10 A          | 60 A<br>30 A<br>15 A<br>12 A | 6 A<br>3 A<br>1.5 A<br>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<br>240 VAC | 10 A          | 60 A<br>30 A | 6 A<br>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<br>240 VAC<br>480 VAC<br>600 VAC | 5 A           | 30 A<br>15 A<br>7.5 A<br>6.0 A | 3 A<br>1.5 A<br>0.75 A<br>0.6 A | 3,600 VA     | 360 VA |

## ■ 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<br>(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<br>(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<br>(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.

## 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-0A00N                           | 12 VDC           | Approx. 3.2 mA  | 2.2 kΩ              |
|                   |           | D4A-0C00N                           | 24 VDC           | Approx. 4 mA    | 4.7 kΩ              |
|                   |           | D4A-0E00N                           | 24 VDC           | Approx. 1.3 mA  | 15 kΩ               |
|                   |           | D4A-0G00N                           | 48 VDC           | Approx. 2 mA    | 22 kΩ               |
| DPDT double-break | Neon lamp | D4A-0L00N<br>D4A-0M00N<br>D4A-0N00N | 125 VAC, 250 VAC | Approx. 0.28 mA | 240 kΩ              |
|                   | LED       | D4A-0P00N                           | 48 VDC           | Approx. 1.4 mA  | ---                 |
|                   |           | D4A-0Q00N                           |                  |                 |                     |
|                   |           | D4A-0R00N                           |                  |                 |                     |

## ■ Characteristics

|                                          |                                                                                                                                                                                                                                                                                                                                                     |
|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Degree of protection                     | IP67                                                                                                                                                                                                                                                                                                                                                |
| Durability (See note 3.)                 | Mechanical: SPDT, double-break, roller lever: 50,000,000 operations min. (See note 2.)<br>DPDT, double-break, roller lever: 30,000,000 operations min. (See note 2.)<br>Electrical: SPDT, double-break: for 125 VAC, 10 A resistive load: 1,000,000 operations min.<br>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<br>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<br>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 <sup>2</sup> min.<br>Malfunction: SPDT, double-break, roller lever: 600 m/s <sup>2</sup> min. (See note 5.)<br>DPDT, double-break, roller lever: 300 m/s <sup>2</sup> min. (See note 5.)                                                                                                                                     |
| Ambient operating humidity               | 95% max. (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<br>(See note 5-1.) | Plunger, flexible rod<br>(See note 5-2.) | With indicator | Fluoro-rubber seal |
|----------------------------------------|---------------------------------|------------------------------------------|----------------|--------------------|
| Ambient temperature<br>(See note 5-3.) | –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.

5-3. Should not cause icing.

## ■ Operating Characteristics

**Note:** The figures in the parentheses are average values.

### Roller Lever Switches

#### 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°)<br>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

| 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

| 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

| Model   | SPDT double-break |                        |           | DPDT double-break |                        |           |
|---------|-------------------|------------------------|-----------|-------------------|------------------------|-----------|
|         | D4A-1□12N         | D4A-1□14N<br>D4A-1□15N | D4A-1□16N | D4A-2□12N         | D4A-2□14N<br>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°)               |           |

# ■ Contact Form (Switch Box)

## SPDT Double-break Switches

| Without indicator | With neon lamp indicator (See note.)                                                                | With LED indicator (See note.)                                                                                                                         |
|-------------------|-----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>D4A-0100N</p>  | <p>D4A-0300N</p> <p>NC-ON</p> <p>Internal circuit</p> <p>Neon lamp</p> <p>Resistor</p> <p>NO-ON</p> | <p>D4A-0A00N, D4A-0C00N, D4A-0E00N, D4A-0G00N</p> <p>NC-ON</p> <p>Internal circuit</p> <p>Bridge rectifier</p> <p>LED</p> <p>Resistor</p> <p>NO-ON</p> |

**Note:** Indicator setting is made before shipping so that it will light when the Limit Switch is not being operated.

## DPDT Double-break Switches

| Type                                   | Simultaneous operation | Sequential operation                  | Center neutral operation              | Internal circuit of indicator                                    |
|----------------------------------------|------------------------|---------------------------------------|---------------------------------------|------------------------------------------------------------------|
| Without indicator                      | <p>D4A-0500N</p>       | <p>D4A-0700N</p> <p>(See note 1.)</p> | <p>D4A-0900N</p> <p>(See note 2.)</p> | ---                                                              |
| With neon lamp indicator (See note 3.) | <p>D4A-0L00N</p>       | <p>D4A-0M00N</p>                      | <p>D4A-0N00N</p>                      | <p>Neon lamp</p> <p>Resistor</p>                                 |
| With LED indicator (See note 3.)       | <p>D4A-0P00N</p>       | <p>D4A-0Q00N</p>                      | <p>D4A-0R00N</p>                      | <p>Bridge rectifier</p> <p>Constant current diode</p> <p>LED</p> |

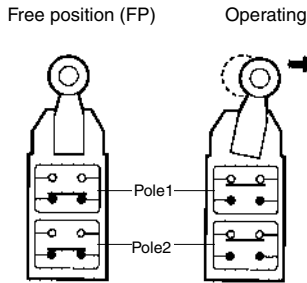
**Note:** 1. Use the D4A-0017N Special Head.  
 2. Use the D4A-0018N Special Head.  
 3. Indicator lamp setting is made before shipping so that it will light when the Limit Switch is not being operated.

# Contacts

The D4A-□N saves installation space, simplifies wiring methods, and lowers operation costs because only a single D4A-□N is required for the control of the speeds of a factory machine or selection of CW or CCW rotation of a motor, for which two conventional limit switches are required.

## Simultaneous Operation

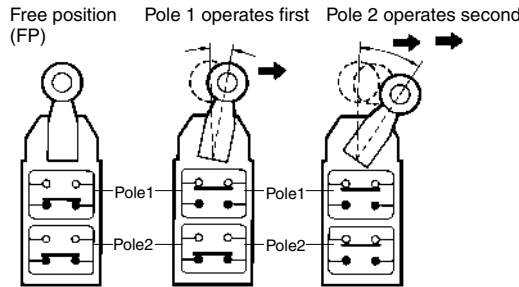
This head is compatible with a SPDT type head.



Pole 1 and pole 2 are actuated simultaneously. Operates either CW, CCW, or both.

## Sequential Operating

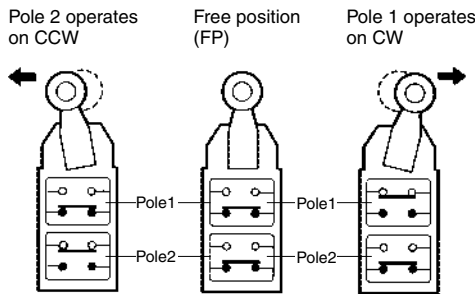
Use the D4A-0017N head.



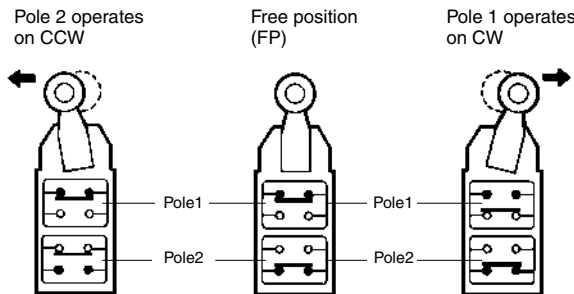
Pole 1 operates first and pole 2 operates second.

## Center Neutral Operating

Use the D4A-0018N head.



Pole 1 operates on CW and pole 2 operates CCW.



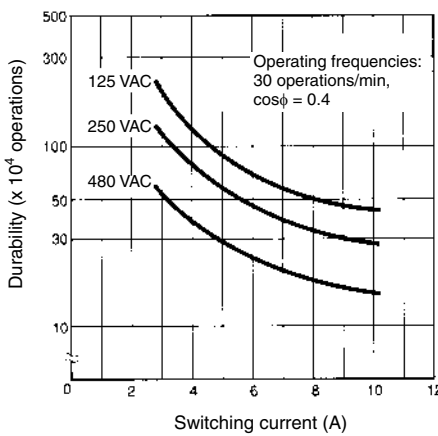
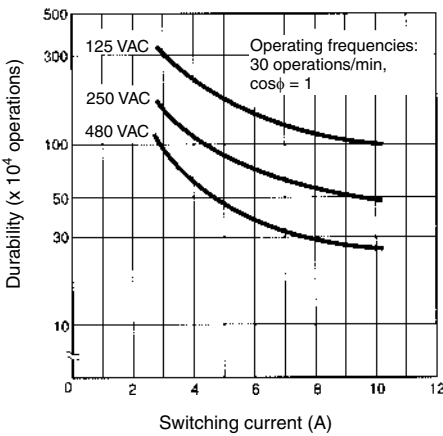
D4A-□ center neutral type

**Note:** The contact configuration of the center neutral operating model is different from that of any other D4A-□ Switch.

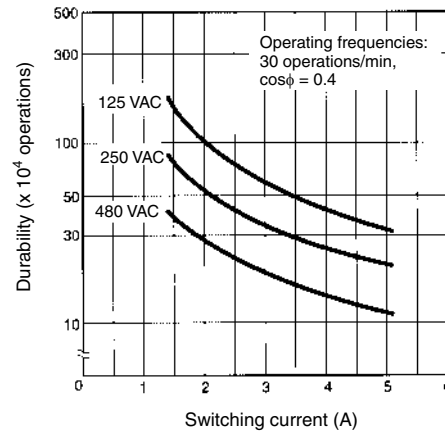
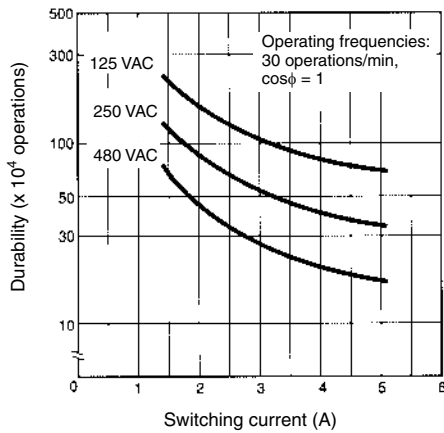
# Engineering Data

## Electrical Durability (SPDT Double-bread)

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



## Electrical Durability (DPDT Double-break)



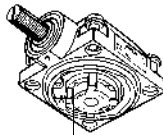
## Nomenclature

### 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

G 1/2 conduit threads featuring high sealing property are used. (Consult your OMRON representative for details on SC connectors). A terminal box with 1/2-14NPT conduit threads is also available on request.

#### 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.

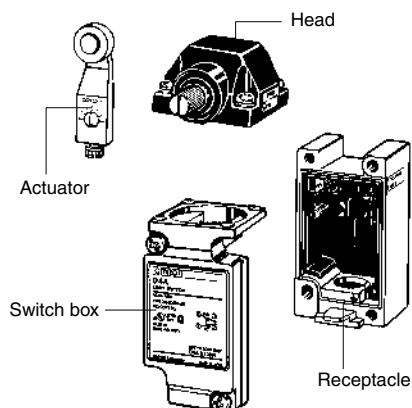
#### Sealed Gasket

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

- Note:** 1. NBR is used in rubber components.  
2. Fluoro-rubber sealed types use fluoro-rubber.

## 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.



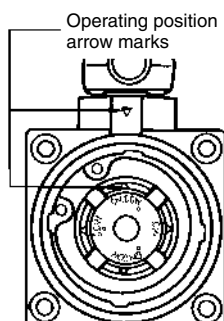
## Installation

### ■ 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)



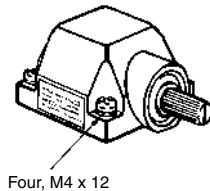
#### Procedures

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.

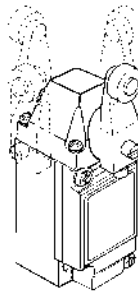
## Head and Lever Positions

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.

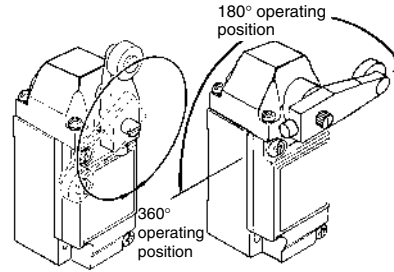
Remove the head from the Switch by loosening the screws (the screws can be loosened but not removed from the head).



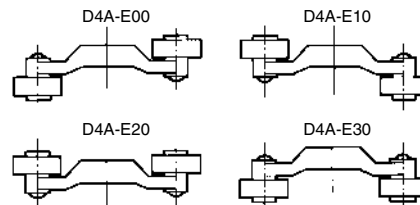
The operating head can be positioned and locked in any of four 90° positions.



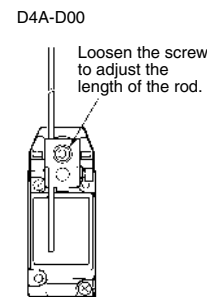
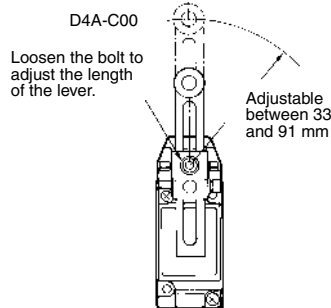
The lever can lock in any position through 360° around the shaft. The lever can be reversed and attached to the shaft, in which case the switching operation should complete in a range of 0° to 180°.



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.



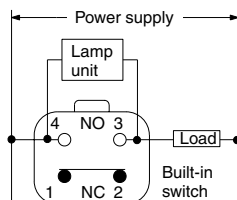
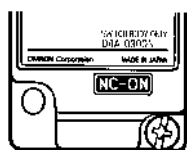
By loosening the Allen-head bolt on an adjustable roller lever or rod lever, the length of the lever can be adjusted.



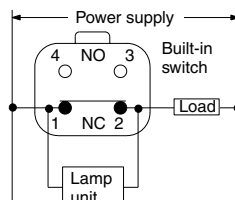
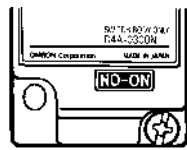
## Lighting Mode Selection of Indicators

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.)

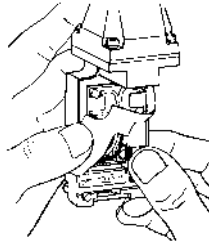


### Lights When Operating (See note 2.)

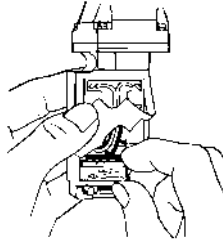


- Note: 1.** The lamp is lit when the actuator is at the free position. The lamp will be off when the contacts of the Limit Switch have been actuated and snapped to each other at the operating position.
- 2.** The lamp is lit when the contacts have been released and snapped only from the operating position.

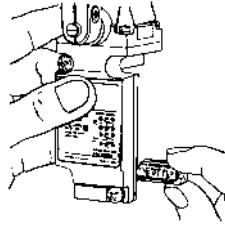
Change the lighting mode as follows:



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



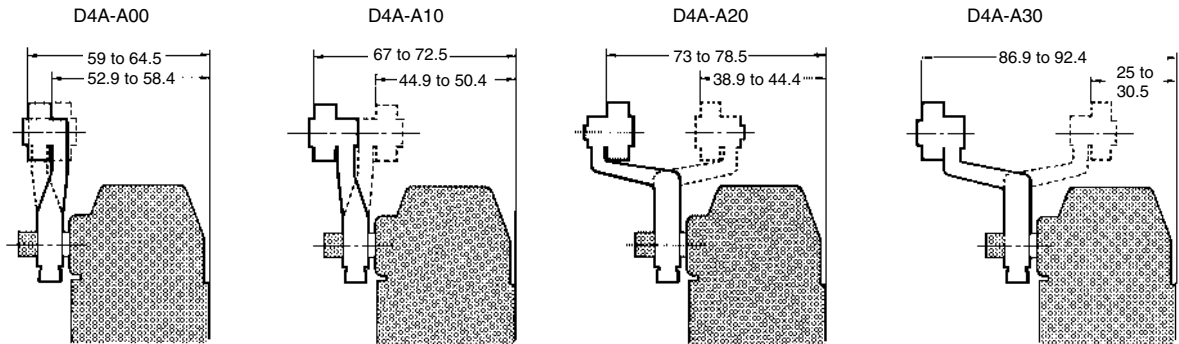
Remove the lamp section.



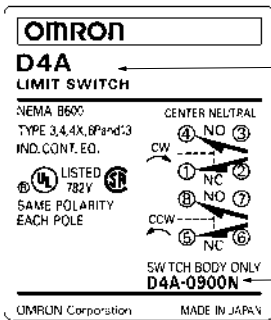
Mount the lamp section so that legend "NC-ON" or "NO-ON" will appear in the display window.

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

## Lever Position



## Nameplate

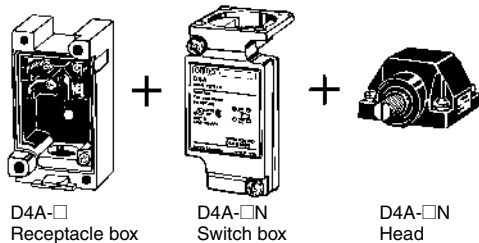


The whole switch model without lever is printed.

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.



**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  $\pm 0.4$  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

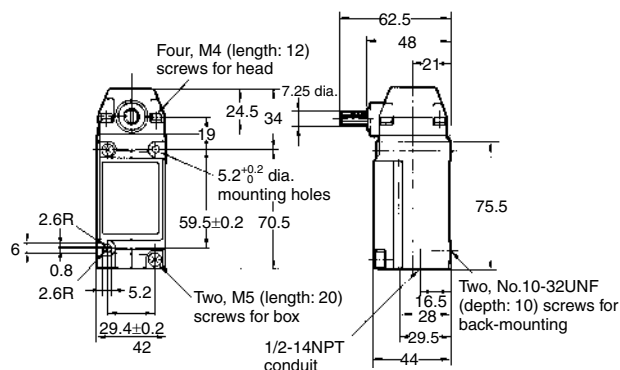
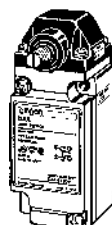
D4A-1□04N, D4A-2□04N

### Sequential Operation

D4A-2□17N

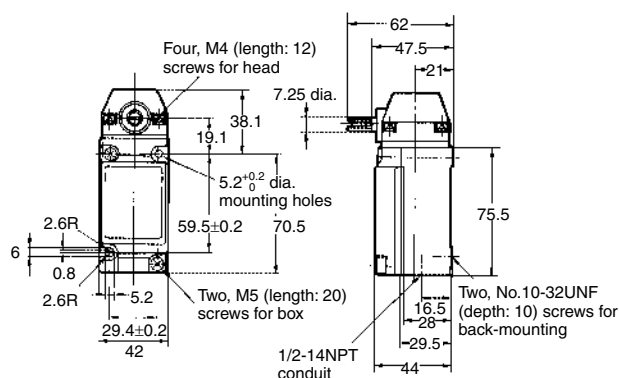
### Center Neutral Operating

D4A-2□18N



### Maintained

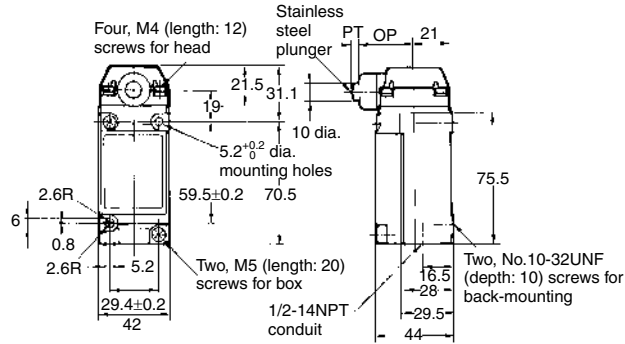
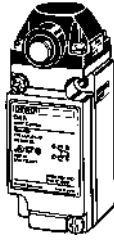
D4A-1□05N, D4A-2□05N



# Side Plunger Switches

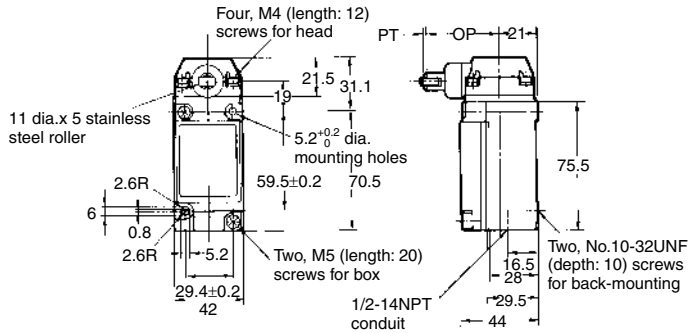
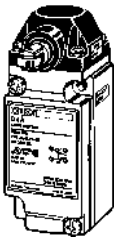
## Standard

D4A-1□06N, D4A-2□06N



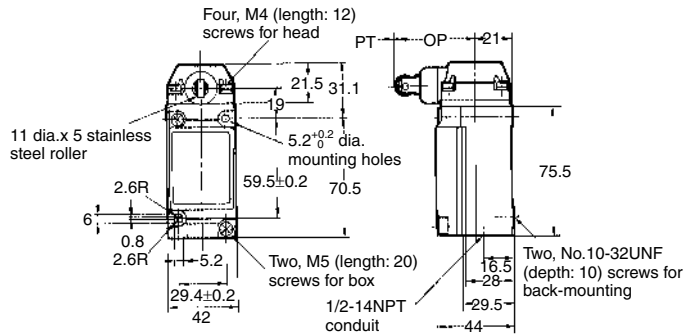
## Horizontal Roller

D4A-1□07-HN, D4A-2□07-HN



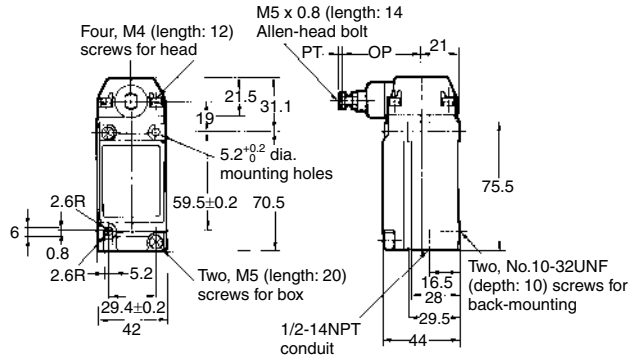
## Vertical Roller

D4A-1□07-VN, D4A-2□07-VN



## Adjustable

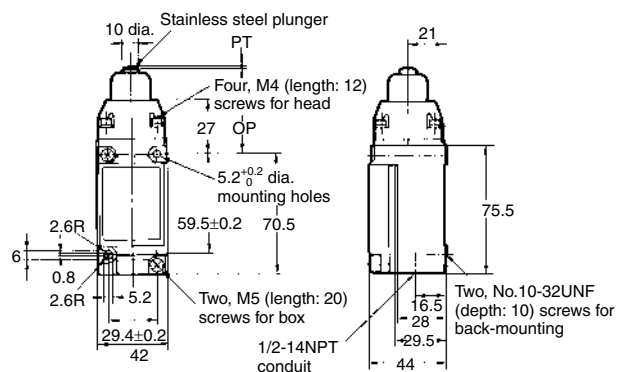
D4A-1□08N, D4A-2□08N



# Top Plunger Switches

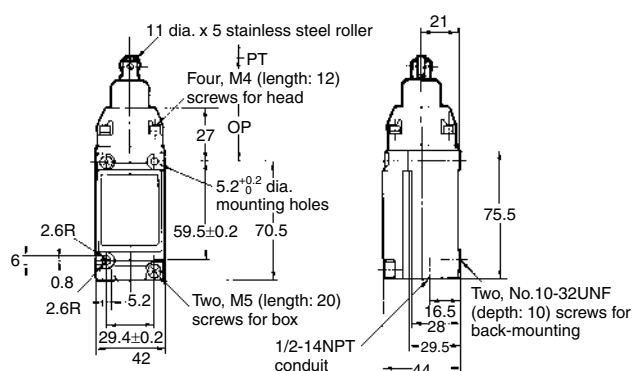
## Standard

D4A-1□09N, D4A-2□09N



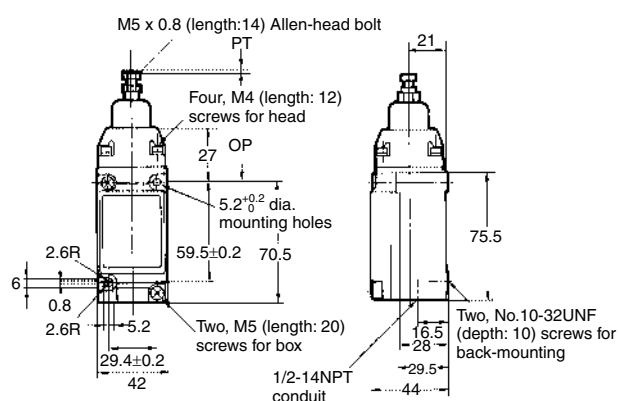
## Roller Plunger

D4A-1□10N, D4A-2□10N



## Adjustable

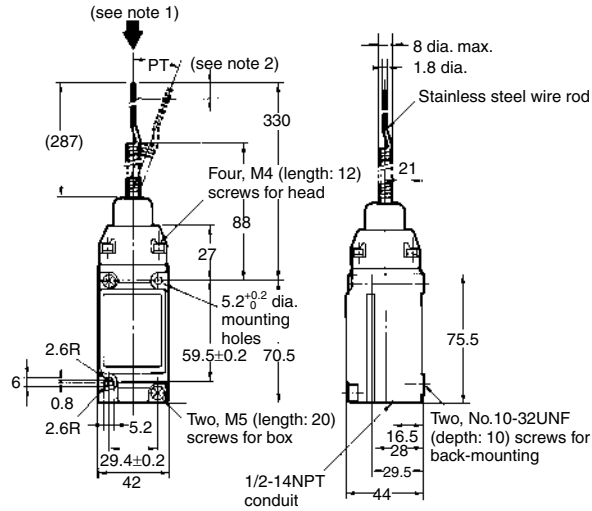
D4A-1□11N, D4A-2□11N



# Flexible Rod Switches

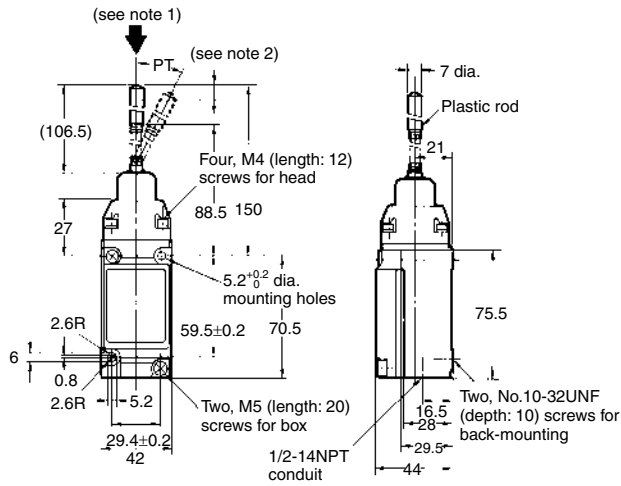
## Spring Wire

D4A-1□12N, D4A-2□12N



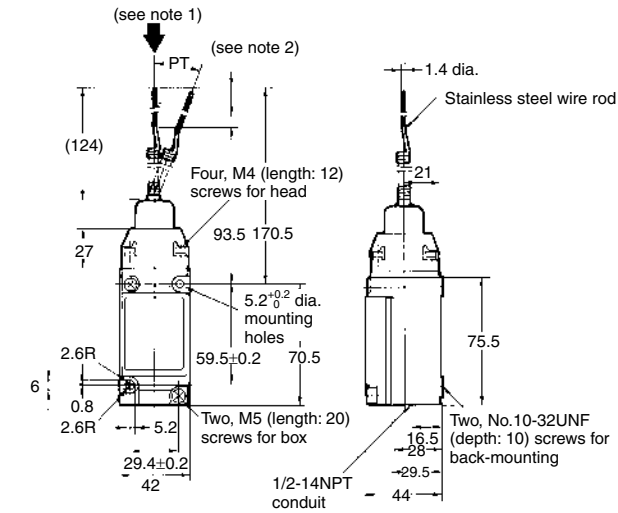
## Plastic Rod

D4A-1□14N, D4A-2□14N



## Cat Whisker

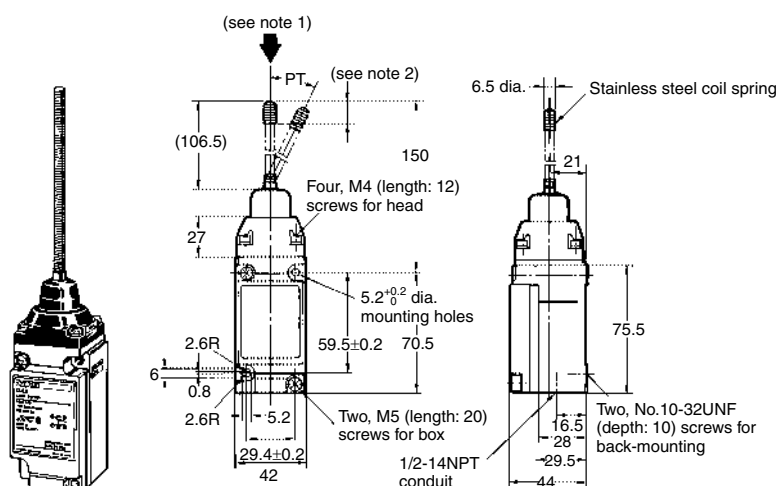
D4A-1□15N, D4A-2□15N



**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

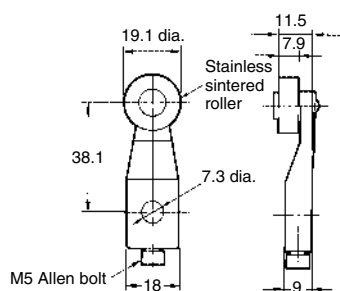


**Note:** 1. The stainless rod can be operated from any direction except the axial direction (i.e., from the top).  
2. The optimum operating range of the stainless rod is within 1/3 of the entire length from the top end.

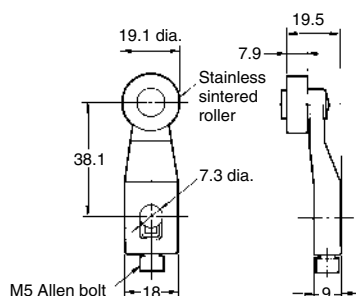
## Levers (for Roller Lever Switches)

**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.

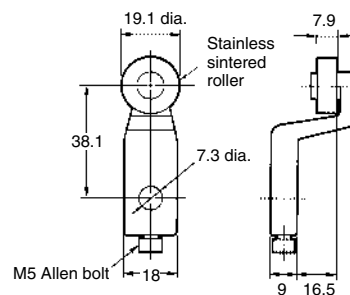
## Roller Lever D4A-A00



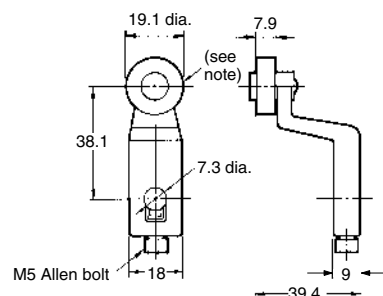
## Roller Lever D4A-A10



## Roller Lever D4A-A20

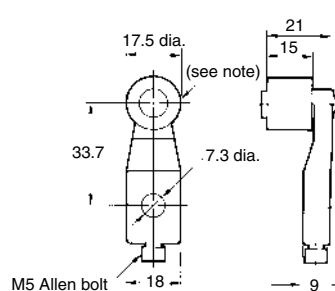


## Roller Lever D4A-A30



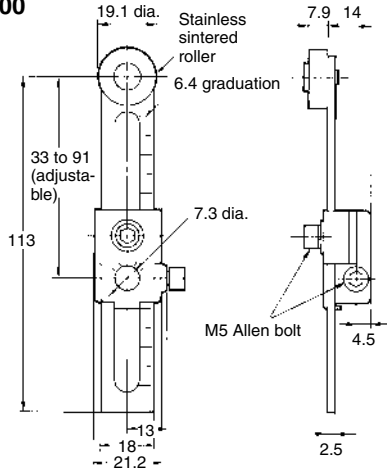
**Note:** Stainless sintered roller

## Roller Lever D4A-B06

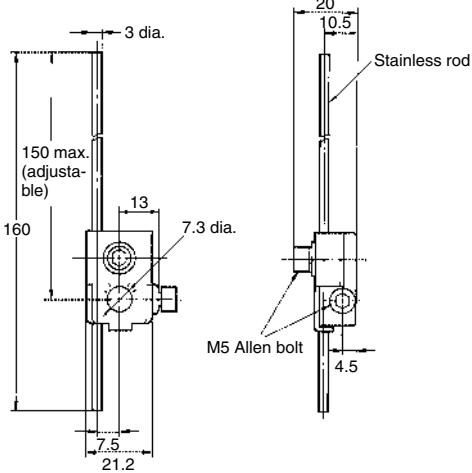


**Note:** Stainless sintered roller

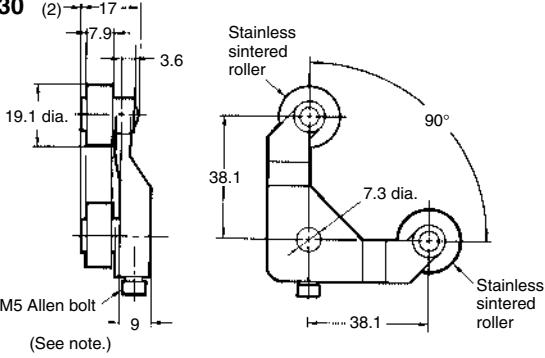
**Adjustable Roller Lever  
D4A-C00**



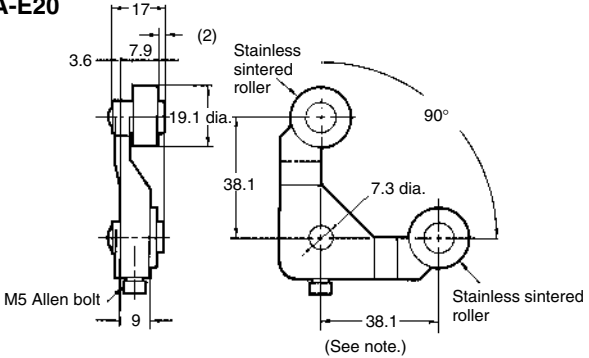
**Adjustable Rod Lever  
D4A-D00**



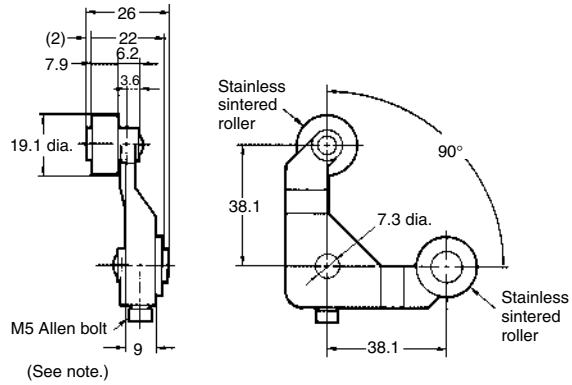
**Fork Lever Lock  
D4A-E30**



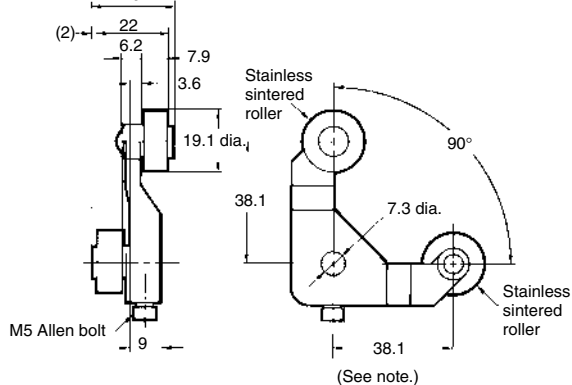
**Fork Lever Lock  
D4A-E20**



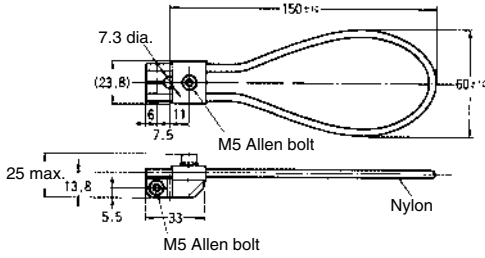
**Fork Lever Lock  
D4A-E10**



**Fork Lever Lock  
D4A-E00**



**Nylon Loop Lever  
D4A-F00**



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

Limit  
Switches

# Precautions

## ■ Correct Use

### Mounting

| Model                     | 1/2-14NPT Conduit                                                                                                                                        |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
|                           | D4A-1□□□N<br>D4A-2□□□N                                                                                                                                   |
| Front Mounting            | <p>Two, 5.2<sup>+0.2</sup>/<sub>0</sub> dia. holes or M5 tapped holes</p> <p>59.5±0.15</p> <p>29.4±0.15</p>                                              |
| Rear Mounting (Rear View) | <p>Two, 6.2<sup>+0.2</sup>/<sub>0</sub> dia. holes</p> <p>(Recommended mounting screws: M6. Switch Box depth: 10.)</p> <p>59.5±0.15</p> <p>29.4±0.15</p> |

### Tightening Torque

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

Head (four 12-mm M4 screws): 1.2 to 1.4 N·m  
Switch body (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.

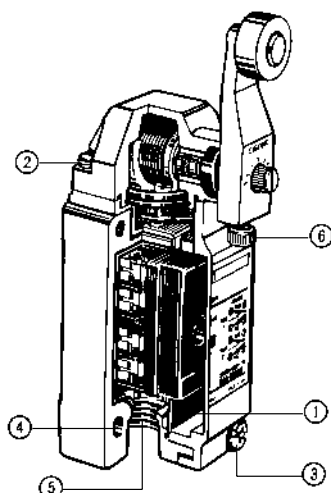
Tighten the Connectors to a torque of 1.8 to 2.2 N·m.

### 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 and 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.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.