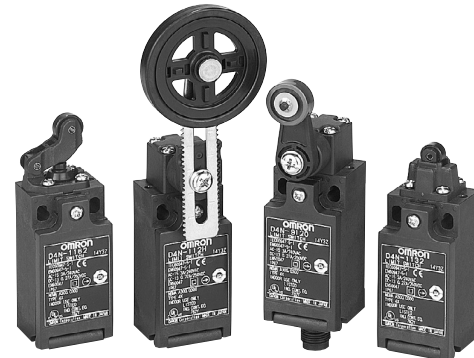


# Miniature Safety Limit Switch D4N

## Safety Limit Switches compatible to the Popular D4D, Providing a Full Lineup Conforming to International Standards

- Lineup includes three contact models with 2NC/1NO and 3NC in addition to the 1NC/1NO, and 2NC contact models. Models with MBB contacts are available too.
- M12-connector models are available, saving on labor and simplifying maintenance.
- Standardized gold-clad contacts provide high contact reliability. Can be used with both standard loads and microloads.
- Free of lead, cadmium, and hexavalent chrome, reducing the burden on the environment.
- Conforms to EN115 and EN81-1.
- Lineup includes both slow-action and snap-action models with Zb contacts.

⚠ **Caution**  
Be sure to read the *Safety Precautions* on page 19.



**NEW**

**Note:** Contact your sales representative for details on models with safety standard certification.

## Model Number Structure

### ■ Model Number Legend

D4N-□□□□  
1 2 3

#### 1. Conduit/Connector size

- 1: Pg13.5 (1-conduit)
- 2: G1/2 (1-conduit)
- 3: 1/2-14NPT (1-conduit)
- 4: M20 (1-conduit)
- 5: Pg13.5 (2-conduit)
- 6: G1/2 (2-conduit)
- 7: 1/2-14NPT (2-conduit)
- 8: M20 (2-conduit)
- 9: M12 connector (1-conduit)

#### 2. Built-in Switch

- 1: 1NC/1NO (snap-action)
- 2: 2NC (snap-action)
- A: 1NC/1NO (slow-action)
- B: 2NC (slow-action)
- C: 2NC/1NO (slow-action)
- D: 3NC (slow-action)
- E: 1NC/1NO (MBB contact-/slow-action)
- F: 2NC/1NO (MBB contact-/slow-action)







#### 3. Head and Actuator

- 20: Roller lever (resin lever, resin roller)
- 22: Roller lever (metal lever, resin roller)
- 25: Roller lever (metal lever, metal roller)
- 26: Roller lever (metal lever, bearing roller)
- 2G: Adjustable roller lever, form lock (metal lever, resin roller)
- 2H: Adjustable roller lever, form lock (metal lever, rubber roller)
- 31: Top plunger
- 32: Top roller plunger
- 62: One-way roller arm lever (horizontal)
- 72: One-way roller arm lever (vertical)
- 80: Cat whisker
- 87: Plastic rod
- RE: Fork lever lock (right operation)
- LE: Fork lever lock (left operation)





# Ordering Information


## List of Models

### Switches with Two Contacts


| Actuator  | Conduit size  |   | Built-in switch mechanism |           |                   |          |                       |          |                   |          |   |          |   |          |   |          |
|---|---|---|---------------------------|-----------|-------------------|----------|-----------------------|----------|-------------------|----------|---|----------|---|----------|---|----------|
|   |   |   | 1NC/1NO (Snap-action)     |           | 2NC (Snap-action) |          | 1NC/1NO (Slow-action) |          | 2NC (Slow-action) |          |   |          |   |          |   |          |
|   |   |   | Direct opening            | Model     | Direct opening    | Model    | Direct opening        | Model    | Direct opening    | Model    |   |          |   |          |   |          |
| Roller lever (resin lever, resin roller)<br> | 1-conduit   | Pg13.5  | ⊕                         | D4N-1120  | ⊖                 | D4N-1220 | ⊕                     | D4N-1A20 | ⊕                 | D4N-1B20 |   |          |   |          |   |          |
|   |   | G1/2  |                           | D4N-2120  |                   | D4N-2220 |                       | D4N-2A20 |                   | D4N-2B20 |   |          |   |          |   |          |
|   |   | 1/2-14NPT   |                           | D4N-3120  |                   | D4N-3220 |                       | D4N-3A20 |                   | D4N-3B20 |   |          |   |          |   |          |
|   |   | M20   |                           | D4N-4120  |                   | D4N-4220 |                       | D4N-4A20 |                   | D4N-4B20 |   |          |   |          |   |          |
|   |   | M12 connector   |                           | D4N-9120  |                   | D4N-9220 |                       | D4N-9A20 |                   | D4N-9B20 |   |          |   |          |   |          |
|   | 2-conduit   | Pg13.5  | ⊕                         | D4N-5120  | ⊕                 | D4N-5220 | ⊕                     | D4N-5A20 | ⊕                 | D4N-5B20 |   |          |   |          |   |          |
|   |   | G1/2  |                           | D4N-6120  |                   | D4N-6220 |                       | D4N-6A20 |                   | D4N-6B20 |   |          |   |          |   |          |
|   |   | M20   |                           | D4N-8120  |                   | D4N-8220 |                       | D4N-8A20 |                   | D4N-8B20 |   |          |   |          |   |          |
|   |   | Roller lever (metal lever, resin roller)<br>     |                           | 1-conduit |                   | Pg13.5   |                       | ⊕        |                   | D4N-1122 | ⊖ | D4N-1222 | ⊕ | D4N-1A22 | ⊕ | D4N-1B22 |
|   |   |   |                           |           |                   | G1/2     |                       |          |                   | D4N-2122 |   | D4N-2222 |   | D4N-2A22 |   | D4N-2B22 |
| 1/2-14NPT   | D4N-3122  |   | D4N-3222                  |           | D4N-3A22          | D4N-3B22 |                       |          |                   |          |   |          |   |          |   |          |
| M20   | D4N-4122  |   | D4N-4222                  |           | D4N-4A22          | D4N-4B22 |                       |          |                   |          |   |          |   |          |   |          |
| M12 connector   | D4N-9122  |   | D4N-9222                  |           | D4N-9A22          | D4N-9B22 |                       |          |                   |          |   |          |   |          |   |          |
| 2-conduit   | Pg13.5  |   | ⊕                         | D4N-5122  | ⊕                 | D4N-5222 | ⊕                     | D4N-5A22 | ⊕                 | D4N-5B22 |   |          |   |          |   |          |
|   | G1/2  |   |                           | D4N-6122  |                   | D4N-6222 |                       | D4N-6A22 |                   | D4N-6B22 |   |          |   |          |   |          |
|   | M20   |   |                           | D4N-8122  |                   | D4N-8222 |                       | D4N-8A22 |                   | D4N-8B22 |   |          |   |          |   |          |
|   | Roller lever (metal lever, metal roller)<br> |   |                           | 1-conduit |                   | Pg13.5   |                       | ⊕        |                   | D4N-1125 | ⊖ | D4N-1225 | ⊕ | D4N-1A25 | ⊕ | D4N-1B25 |
|   |   |   |                           |           |                   | G1/2     |                       |          |                   | D4N-2125 |   | D4N-2225 |   | D4N-2A25 |   | D4N-2B25 |
| 1/2-14NPT   |   | D4N-3125  | D4N-3225                  |           | D4N-3A25          | D4N-3B25 |                       |          |                   |          |   |          |   |          |   |          |
| M20   |   | D4N-4125  | D4N-4225                  |           | D4N-4A25          | D4N-4B25 |                       |          |                   |          |   |          |   |          |   |          |
| M12 connector   |   | D4N-9125  | D4N-9225                  |           | D4N-9A25          | D4N-9B25 |                       |          |                   |          |   |          |   |          |   |          |
| 2-conduit   |   | Pg13.5  | ⊕                         | D4N-5125  | ⊕                 | D4N-5225 | ⊕                     | D4N-5A25 | ⊕                 | D4N-5B25 |   |          |   |          |   |          |
|   |   | G1/2  |                           | D4N-6125  |                   | D4N-6225 |                       | D4N-6A25 |                   | D4N-6B25 |   |          |   |          |   |          |
|   |   | M20   |                           | D4N-8125  |                   | D4N-8225 |                       | D4N-8A25 |                   | D4N-8B25 |   |          |   |          |   |          |
|   |   | Roller lever (metal lever, bearing roller)<br> |                           | 1-conduit |                   | Pg13.5   |                       | ⊕        |                   | D4N-1126 | ⊖ | D4N-1226 | ⊕ | D4N-1A26 | ⊕ | D4N-1B26 |
|   |   |   |                           |           |                   | G1/2     |                       |          |                   | D4N-2126 |   | D4N-2226 |   | D4N-2A26 |   | D4N-2B26 |
| 1/2-14NPT   | D4N-3126  |   | D4N-3226                  |           | D4N-3A26          | D4N-3B26 |                       |          |                   |          |   |          |   |          |   |          |
| M20   | D4N-4126  |   | D4N-4226                  |           | D4N-4A26          | D4N-4B26 |                       |          |                   |          |   |          |   |          |   |          |
| M12 connector   | D4N-9126  |   | D4N-9226                  |           | D4N-9A26          | D4N-9B26 |                       |          |                   |          |   |          |   |          |   |          |
| 2-conduit   | Pg13.5  |   | ⊕                         | D4N-5126  | ⊕                 | D4N-5226 | ⊕                     | D4N-5A26 | ⊕                 | D4N-5B26 |   |          |   |          |   |          |
|   | G1/2  |   |                           | D4N-6126  |                   | D4N-6226 |                       | D4N-6A26 |                   | D4N-6B26 |   |          |   |          |   |          |
|   | M20   |   |                           | D4N-8126  |                   | D4N-8226 |                       | D4N-8A26 |                   | D4N-8B26 |   |          |   |          |   |          |
|   | Plunger<br>                                  |   |                           | 1-conduit |                   | Pg13.5   |                       | ⊕        |                   | D4N-1131 | ⊖ | D4N-1231 | ⊕ | D4N-1A31 | ⊕ | D4N-1B31 |
|   |   |   |                           |           |                   | G1/2     |                       |          |                   | D4N-2131 |   | D4N-2231 |   | D4N-2A31 |   | D4N-2B31 |
| 1/2-14NPT   |   | D4N-3131  | D4N-3231                  |           | D4N-3A31          | D4N-3B31 |                       |          |                   |          |   |          |   |          |   |          |
| M20   |   | D4N-4131  | D4N-4231                  |           | D4N-4A31          | D4N-4B31 |                       |          |                   |          |   |          |   |          |   |          |
| M12 connector   |   | D4N-9131  | D4N-9231                  |           | D4N-9A31          | D4N-9B31 |                       |          |                   |          |   |          |   |          |   |          |
| 2-conduit   |   | Pg13.5  | ⊕                         | D4N-5131  | ⊕                 | D4N-5231 | ⊕                     | D4N-5A31 | ⊕                 | D4N-5B31 |   |          |   |          |   |          |
|   |   | G1/2  |                           | D4N-6131  |                   | D4N-6231 |                       | D4N-6A31 |                   | D4N-6B31 |   |          |   |          |   |          |
|   |   | M20   |                           | D4N-8131  |                   | D4N-8231 |                       | D4N-8A31 |                   | D4N-8B31 |   |          |   |          |   |          |
|   |   | Roller plunger<br>                             |                           | 1-conduit |                   | Pg13.5   |                       | ⊕        |                   | D4N-1132 | ⊖ | D4N-1232 | ⊕ | D4N-1A32 | ⊕ | D4N-1B32 |
|   |   |   |                           |           |                   | G1/2     |                       |          |                   | D4N-2132 |   | D4N-2232 |   | D4N-2A32 |   | D4N-2B32 |
| 1/2-14NPT   | D4N-3132  |   | D4N-3232                  |           | D4N-3A32          | D4N-3B32 |                       |          |                   |          |   |          |   |          |   |          |
| M20   | D4N-4132  |   | D4N-4232                  |           | D4N-4A32          | D4N-4B32 |                       |          |                   |          |   |          |   |          |   |          |
| M12 connector   | D4N-9132  |   | D4N-9232                  |           | D4N-9A32          | D4N-9B32 |                       |          |                   |          |   |          |   |          |   |          |
| 2-conduit   | Pg13.5  |   | ⊕                         | D4N-5132  | ⊕                 | D4N-5232 | ⊕                     | D4N-5A32 | ⊕                 | D4N-5B32 |   |          |   |          |   |          |
|   | G1/2  |   |                           | D4N-6132  |                   | D4N-6232 |                       | D4N-6A32 |                   | D4N-6B32 |   |          |   |          |   |          |
|   | M20   |   |                           | D4N-8132  |                   | D4N-8232 |                       | D4N-8A32 |                   | D4N-8B32 |   |          |   |          |   |          |


■ Preferred types








| Actuator   | Conduit size |               | Built-in switch mechanism |          |                   |          |                       |          |                   |          |
|--|--------------|---------------|---------------------------|----------|-------------------|----------|-----------------------|----------|-------------------|----------|
|  |              |               | 1NC/1NO (Snap-action)     |          | 2NC (Snap-action) |          | 1NC/1NO (Slow-action) |          | 2NC (Slow-action) |          |
|  |              |               | Direct opening            | Model    | Direct opening    | Model    | Direct opening        | Model    | Direct opening    | Model    |
| One-way roller arm lever (horizontal)<br>                             | 1-conduit    | Pg13.5        | ⊕                         | D4N-1162 | ⊕                 | D4N-1262 | ⊕                     | D4N-1A62 | ⊕                 | D4N-1B62 |
|  |              | G1/2          |                           | D4N-2162 |                   | D4N-2262 |                       | D4N-2A62 |                   | D4N-2B62 |
|  |              | 1/2-14NPT     |                           | D4N-3162 |                   | D4N-3262 |                       | D4N-3A62 |                   | D4N-3B62 |
|  |              | M20           |                           | D4N-4162 |                   | D4N-4262 |                       | D4N-4A62 |                   | D4N-4B62 |
|  |              | M12 connector |                           | D4N-9162 |                   | D4N-9262 |                       | D4N-9A62 |                   | D4N-9B62 |
|  | 2-conduit    | Pg13.5        | ⊕                         | D4N-5162 | ⊕                 | D4N-5262 | ⊕                     | D4N-5A62 | ⊕                 | D4N-5B62 |
|  |              | G1/2          |                           | D4N-6162 |                   | D4N-6262 |                       | D4N-6A62 |                   | D4N-6B62 |
|  |              | M20           |                           | D4N-8162 |                   | D4N-8262 |                       | D4N-8A62 |                   | D4N-8B62 |
| One-way roller arm lever (vertical)<br>                               | 1-conduit    | Pg13.5        | ⊕                         | D4N-1172 | ⊕                 | D4N-1272 | ⊕                     | D4N-1A72 | ⊕                 | D4N-1B72 |
|  |              | G1/2          |                           | D4N-2172 |                   | D4N-2272 |                       | D4N-2A72 |                   | D4N-2B72 |
|  |              | 1/2-14NPT     |                           | D4N-3172 |                   | D4N-3272 |                       | D4N-3A72 |                   | D4N-3B72 |
|  |              | M20           |                           | D4N-4172 |                   | D4N-4272 |                       | D4N-4A72 |                   | D4N-4B72 |
|  |              | M12 connector |                           | D4N-9172 |                   | D4N-9272 |                       | D4N-9A72 |                   | D4N-9B72 |
|  | 2-conduit    | Pg13.5        | ⊕                         | D4N-5172 | ⊕                 | D4N-5272 | ⊕                     | D4N-5A72 | ⊕                 | D4N-5B72 |
|  |              | G1/2          |                           | D4N-6172 |                   | D4N-6272 |                       | D4N-6A72 |                   | D4N-6B72 |
|  |              | M20           |                           | D4N-8172 |                   | D4N-8272 |                       | D4N-8A72 |                   | D4N-8B72 |
| Adjustable roller lever, form lock (metal lever, resin roller)<br>    | 1-conduit    | Pg13.5        | ⊕                         | D4N-112G | ⊕                 | D4N-122G | ⊕                     | D4N-1A2G | ⊕                 | D4N-1B2G |
|  |              | G1/2          |                           | D4N-212G |                   | D4N-222G |                       | D4N-2A2G |                   | D4N-2B2G |
|  |              | 1/2-14NPT     |                           | D4N-312G |                   | D4N-322G |                       | D4N-3A2G |                   | D4N-3B2G |
|  |              | M20           |                           | D4N-412G |                   | D4N-422G |                       | D4N-4A2G |                   | D4N-4B2G |
|  |              | M12 connector |                           | D4N-912G |                   | D4N-922G |                       | D4N-9A2G |                   | D4N-9B2G |
|  | 2-conduit    | G1/2          | ⊕                         | D4N-612G | ⊕                 | D4N-622G | ⊕                     | D4N-6A2G | ⊕                 | D4N-6B2G |
|  |              | M20           |                           | D4N-812G |                   | D4N-822G |                       | D4N-8A2G |                   | D4N-8B2G |
|  |              |               |                           |          |                   |          |                       |          |                   |          |
| Adjustable roller lever, form lock (metal lever, rubber roller)<br> | 1-conduit    | Pg13.5        | ⊕                         | D4N-112H | ⊕                 | D4N-122H | ⊕                     | D4N-1A2H | ⊕                 | D4N-1B2H |
|  |              | G1/2          |                           | D4N-212H |                   | D4N-222H |                       | D4N-2A2H |                   | D4N-2B2H |
|  |              | 1/2-14NPT     |                           | D4N-312H |                   | D4N-322H |                       | D4N-3A2H |                   | D4N-3B2H |
|  |              | M20           |                           | D4N-412H |                   | D4N-422H |                       | D4N-4A2H |                   | D4N-4B2H |
|  |              | M12 connector |                           | D4N-912H |                   | D4N-922H |                       | D4N-9A2H |                   | D4N-9B2H |
|  | 2-conduit    | G1/2          | ⊕                         | D4N-612H | ⊕                 | D4N-622H | ⊕                     | D4N-6A2H | ⊕                 | D4N-6B2H |
|  |              | M20           |                           | D4N-812H |                   | D4N-822H |                       | D4N-8A2H |                   | D4N-8B2H |
|  |              |               |                           |          |                   |          |                       |          |                   |          |

Note: It is recommended that M20 be used for Switches to be exported to Europe and 1/2-14NPT be used for Switches to be exported to North American countries.  
 Preferred types



### Switches with Three Contacts and MBB Contacts

| Actuator  | Conduit size |               | Built-in switch mechanism |          |                   |          |                           |          |                           |          |
|---|--------------|---------------|---------------------------|----------|-------------------|----------|---------------------------|----------|---------------------------|----------|
|   |              |               | 2NC/1NO (Snap-action)     |          | 3NC (Snap-action) |          | 1NC/1NO MBB (Slow-action) |          | 2NC/1NO MBB (Slow-action) |          |
|   |              |               | Direct opening            | Model    | Direct opening    | Model    | Direct opening            | Model    | Direct opening            | Model    |
| Roller lever (resin lever, resin roller)<br> | 1-conduit    | Pg13.5        | ⊕                         | D4N-1C20 | ⊕                 | D4N-1D20 | ⊕                         | D4N-1E20 | ⊕                         | D4N-1F20 |
|   |              | G1/2          |                           | D4N-2C20 |                   | D4N-2D20 |                           | D4N-2E20 |                           | D4N-2F20 |
|   |              | 1/2-14NPT     |                           | D4N-3C20 |                   | D4N-3D20 |                           | D4N-3E20 |                           | D4N-3F20 |
|   |              | M20           |                           | D4N-4C20 |                   | D4N-4D20 |                           | D4N-4E20 |                           | D4N-4F20 |
|   |              | M12 connector |                           | ---      |                   | ---      |                           | D4N-9E20 |                           | ---      |
|   | 2-conduit    | Pg13.5        | ⊕                         | D4N-5C20 | ⊕                 | D4N-5D20 | ⊕                         | D4N-5E20 | ⊕                         | D4N-5F20 |
|   |              | G1/2          |                           | D4N-6C20 |                   | D4N-6D20 |                           | D4N-6E20 |                           | D4N-6F20 |
|   |              | M20           |                           | D4N-8C20 |                   | D4N-8D20 |                           | D4N-8E20 |                           | D4N-8F20 |

 Preferred types





| Actuator  | Conduit size |               | Built-in switch mechanism |          |                   |          |                           |          |                           |          |
|---|--------------|---------------|---------------------------|----------|-------------------|----------|---------------------------|----------|---------------------------|----------|
|   |              |               | 2NC/1NO (Snap-action)     |          | 3NC (Snap-action) |          | 1NC/1NO MBB (Slow-action) |          | 2NC/1NO MBB (Slow-action) |          |
|   |              |               | Direct opening            | Model    | Direct opening    | Model    | Direct opening            | Model    | Direct opening            | Model    |
| Roller lever (metal lever, resin roller)<br>   | 1-conduit    | Pg13.5        | ⊕                         | D4N-1C22 | ⊕                 | D4N-1D22 | ⊕                         | D4N-1E22 | ⊕                         | D4N-1F22 |
|   |              | G1/2          |                           | D4N-2C22 |                   | D4N-2D22 |                           | D4N-2E22 |                           | D4N-2F22 |
|   |              | 1/2-14NPT     |                           | D4N-3C22 |                   | D4N-3D22 |                           | D4N-3E22 |                           | D4N-3F22 |
|   |              | M20           |                           | D4N-4C22 |                   | D4N-4D22 |                           | D4N-4E22 |                           | D4N-4F22 |
|   |              | M12 connector |                           | ---      |                   | ---      |                           | D4N-9E22 |                           | ---      |
|   | 2-conduit    | Pg13.5        | ⊕                         | D4N-5C22 | ⊕                 | D4N-5D22 | ⊕                         | D4N-5E22 | ⊕                         | D4N-5F22 |
|   | G1/2         |               | D4N-6C22                  |          | D4N-6D22          |          | D4N-6E22                  |          | D4N-6F22                  |          |
|   | M20          |               | D4N-8C22                  |          | D4N-8D22          |          | D4N-8E22                  |          | D4N-8F22                  |          |
| Roller lever (metal lever, metal roller)<br>   | 1-conduit    | Pg13.5        | ⊕                         | D4N-1C25 | ⊕                 | D4N-1D25 | ⊕                         | D4N-1E25 | ⊕                         | D4N-1F25 |
|   |              | G1/2          |                           | D4N-2C25 |                   | D4N-2D25 |                           | D4N-2E25 |                           | D4N-2F25 |
|   |              | 1/2-14NPT     |                           | D4N-3C25 |                   | D4N-3D25 |                           | D4N-3E25 |                           | D4N-3F25 |
|   |              | M20           |                           | D4N-4C25 |                   | D4N-4D25 |                           | D4N-4E25 |                           | D4N-4F25 |
|   |              | M12 connector |                           | ---      |                   | ---      |                           | D4N-9E25 |                           | ---      |
|   | 2-conduit    | Pg13.5        | ⊕                         | D4N-5C25 | ⊕                 | D4N-5D25 | ⊕                         | D4N-5E25 | ⊕                         | D4N-5F25 |
|   | G1/2         |               | D4N-6C25                  |          | D4N-6D25          |          | D4N-6E25                  |          | D4N-6F25                  |          |
|   | M20          |               | D4N-8C25                  |          | D4N-8D25          |          | D4N-8E25                  |          | D4N-8F25                  |          |
| Roller lever (metal lever, bearing roller)<br> | 1-conduit    | Pg13.5        | ⊕                         | D4N-1C26 | ⊕                 | D4N-1D26 | ⊕                         | D4N-1E26 | ⊕                         | D4N-1F26 |
|   |              | G1/2          |                           | D4N-2C26 |                   | D4N-2D26 |                           | D4N-2E26 |                           | D4N-2F26 |
|   |              | 1/2-14NPT     |                           | D4N-3C26 |                   | D4N-3D26 |                           | D4N-3E26 |                           | D4N-3F26 |
|   |              | M20           |                           | D4N-4C26 |                   | D4N-4D26 |                           | D4N-4E26 |                           | D4N-4F26 |
|   |              | M12 connector |                           | ---      |                   | ---      |                           | D4N-9E26 |                           | ---      |
|   | 2-conduit    | Pg13.5        | ⊕                         | D4N-5C26 | ⊕                 | D4N-5D26 | ⊕                         | D4N-5E26 | ⊕                         | D4N-5F26 |
|   | G1/2         |               | D4N-6C26                  |          | D4N-6D26          |          | D4N-6E26                  |          | D4N-6F26                  |          |
|   | M20          |               | D4N-8C26                  |          | D4N-8D26          |          | D4N-8E26                  |          | D4N-8F26                  |          |
| Plunger<br>                                    | 1-conduit    | Pg13.5        | ⊕                         | D4N-1C31 | ⊕                 | D4N-1D31 | ⊕                         | D4N-1E31 | ⊕                         | D4N-1F31 |
|   |              | G1/2          |                           | D4N-2C31 |                   | D4N-2D31 |                           | D4N-2E31 |                           | D4N-2F31 |
|   |              | 1/2-14NPT     |                           | D4N-3C31 |                   | D4N-3D31 |                           | D4N-3E31 |                           | D4N-3F31 |
|   |              | M20           |                           | D4N-4C31 |                   | D4N-4D31 |                           | D4N-4E31 |                           | D4N-4F31 |
|   |              | M12 connector |                           | ---      |                   | ---      |                           | D4N-9E31 |                           | ---      |
|   | 2-conduit    | Pg13.5        | ⊕                         | D4N-5C31 | ⊕                 | D4N-5D31 | ⊕                         | D4N-5E31 | ⊕                         | D4N-5F31 |
|   | G1/2         |               | D4N-6C31                  |          | D4N-6D31          |          | D4N-6E31                  |          | D4N-6F31                  |          |
|   | M20          |               | D4N-8C31                  |          | D4N-8D31          |          | D4N-8E31                  |          | D4N-8F31                  |          |
| Roller plunger<br>                           | 1-conduit    | Pg13.5        | ⊕                         | D4N-1C32 | ⊕                 | D4N-1D32 | ⊕                         | D4N-1E32 | ⊕                         | D4N-1F32 |
|   |              | G1/2          |                           | D4N-2C32 |                   | D4N-2D32 |                           | D4N-2E32 |                           | D4N-2F32 |
|   |              | 1/2-14NPT     |                           | D4N-3C32 |                   | D4N-3D32 |                           | D4N-3E32 |                           | D4N-3F32 |
|   |              | M20           |                           | D4N-4C32 |                   | D4N-4D32 |                           | D4N-4E32 |                           | D4N-4F32 |
|   |              | M12 connector |                           | ---      |                   | ---      |                           | D4N-9E32 |                           | ---      |
|   | 2-conduit    | Pg13.5        | ⊕                         | D4N-5C32 | ⊕                 | D4N-5D32 | ⊕                         | D4N-5E32 | ⊕                         | D4N-5F32 |
|   | G1/2         |               | D4N-6C32                  |          | D4N-6D32          |          | D4N-6E32                  |          | D4N-6F32                  |          |
|   | M20          |               | D4N-8C32                  |          | D4N-8D32          |          | D4N-8E32                  |          | D4N-8F32                  |          |
| One-way roller arm lever (horizontal)<br>    | 1-conduit    | Pg13.5        | ⊕                         | D4N-1C62 | ⊕                 | D4N-1D62 | ⊕                         | D4N-1E62 | ⊕                         | D4N-1F62 |
|   |              | G1/2          |                           | D4N-2C62 |                   | D4N-2D62 |                           | D4N-2E62 |                           | D4N-2F62 |
|   |              | 1/2-14NPT     |                           | D4N-3C62 |                   | D4N-3D62 |                           | D4N-3E62 |                           | D4N-3F62 |
|   |              | M20           |                           | D4N-4C62 |                   | D4N-4D62 |                           | D4N-4E62 |                           | D4N-4F62 |
|   |              | M12 connector |                           | ---      |                   | ---      |                           | D4N-9E62 |                           | ---      |
|   | 2-conduit    | Pg13.5        | ⊕                         | D4N-5C62 | ⊕                 | D4N-5D62 | ⊕                         | D4N-5E62 | ⊕                         | D4N-5F62 |
|   | G1/2         |               | D4N-6C62                  |          | D4N-6D62          |          | D4N-6E62                  |          | D4N-6F62                  |          |
|   | M20          |               | D4N-8C62                  |          | D4N-8D62          |          | D4N-8E62                  |          | D4N-8F62                  |          |
| One-way roller arm lever (vertical)<br>      | 1-conduit    | Pg13.5        | ⊕                         | D4N-1C72 | ⊕                 | D4N-1D72 | ⊕                         | D4N-1E72 | ⊕                         | D4N-1F72 |
|   |              | G1/2          |                           | D4N-2C72 |                   | D4N-2D72 |                           | D4N-2E72 |                           | D4N-2F72 |
|   |              | 1/2-14NPT     |                           | D4N-3C72 |                   | D4N-3D72 |                           | D4N-3E72 |                           | D4N-3F72 |
|   |              | M20           |                           | D4N-4C72 |                   | D4N-4D72 |                           | D4N-4E72 |                           | D4N-4F72 |
|   |              | M12 connector |                           | ---      |                   | ---      |                           | D4N-9E72 |                           | ---      |
|   | 2-conduit    | Pg13.5        | ⊕                         | D4N-5C72 | ⊕                 | D4N-5D72 | ⊕                         | D4N-5E72 | ⊕                         | D4N-5F72 |
|   | G1/2         |               | D4N-6C72                  |          | D4N-6D72          |          | D4N-6E72                  |          | D4N-6F72                  |          |
|   | M20          |               | D4N-8C72                  |          | D4N-8D72          |          | D4N-8E72                  |          | D4N-8F72                  |          |

■ Preferred types

| Actuator   | Conduit size |               | Built-in switch mechanism |          |                   |          |                           |          |                           |          |
|--|--------------|---------------|---------------------------|----------|-------------------|----------|---------------------------|----------|---------------------------|----------|
|  |              |               | 2NC/1NO (Snap-action)     |          | 3NC (Snap-action) |          | 1NC/1NO MBB (Slow-action) |          | 2NC/1NO MBB (Slow-action) |          |
|  |              |               | Direct opening            | Model    | Direct opening    | Model    | Direct opening            | Model    | Direct opening            | Model    |
| Adjustable roller lever, form lock (metal lever, resin roller)<br>  | 1-conduit    | Pg13.5        | ⊖                         | D4N-1C2G | ⊕                 | D4N-1D2G | ⊖                         | D4N-1E2G | ⊖                         | D4N-1F2G |
|  |              | G1/2          |                           | D4N-2C2G |                   | D4N-2D2G |                           | D4N-2E2G |                           | D4N-2F2G |
|  |              | 1/2-14NPT     |                           | D4N-3C2G |                   | D4N-3D2G |                           | D4N-3E2G |                           | D4N-3F2G |
|  |              | M20           |                           | D4N-4C2G |                   | D4N-4D2G |                           | D4N-4E2G |                           | D4N-4F2G |
|  |              | M12 connector |                           | ---      |                   | ---      |                           | D4N-9E2G |                           | ---      |
| 2-conduit  | G1/2         | ⊖             | D4N-6C2G                  | ⊕        | D4N-6D2G          | ⊖        | D4N-6E2G                  | ⊖        | D4N-6F2G                  |          |
|  | M20          | ⊖             | D4N-8C2G                  | ⊕        | D4N-8D2G          | ⊖        | D4N-8E2G                  | ⊖        | D4N-8F2G                  |          |
| Adjustable roller lever, form lock (metal lever, rubber roller)<br> | 1-conduit    | Pg13.5        | ⊕                         | D4N-1C2H | ⊕                 | D4N-1D2H | ⊕                         | D4N-1E2H | ⊕                         | D4N-1F2H |
|  |              | G1/2          |                           | D4N-2C2H |                   | D4N-2D2H |                           | D4N-2E2H |                           | D4N-2F2H |
|  |              | 1/2-14NPT     |                           | D4N-3C2H |                   | D4N-3D2H |                           | D4N-3E2H |                           | D4N-3F2H |
|  |              | M20           |                           | D4N-4C2H |                   | D4N-4D2H |                           | D4N-4E2H |                           | D4N-4F2H |
|  |              | M12 connector |                           | ---      |                   | ---      |                           | D4N-9E2H |                           | ---      |
| 2-conduit  | G1/2         | ⊖             | D4N-6C2H                  | ⊕        | D4N-6D2H          | ⊖        | D4N-6E2H                  | ⊖        | D4N-6F2H                  |          |
|  | M20          | ⊖             | D4N-8C2H                  | ⊕        | D4N-8D2H          | ⊖        | D4N-8E2H                  | ⊖        | D4N-8F2H                  |          |

**Note:** It is recommended that M20 be used for Switches to be exported to Europe and 1/2-14NPT be used for Switches to be exported to North American countries.

### General-purpose Switches with Two Contacts

| Actuator  | Conduit size |           | Built-in switch mechanism |          |                   |          |                       |          |                   |          |
|---|--------------|-----------|---------------------------|----------|-------------------|----------|-----------------------|----------|-------------------|----------|
|   |              |           | 1NC/1NO (Snap-action)     |          | 2NC (Snap-action) |          | 1NC/1NO (Slow-action) |          | 2NC (Slow-action) |          |
|   |              |           | Direct opening            | Model    | Direct opening    | Model    | Direct opening        | Model    | Direct opening    | Model    |
| Fork lever lock (right operation)<br> | 1-conduit    | G1/2      | ---                       | ---      | ---               | ---      | ---                   | D4N-2ARE | ---               | D4N-2BRE |
|   |              | 1/2-14NPT | ---                       | ---      | ---               | ---      | D4N-3ARE              | ---      | D4N-3BRE          |          |
|   |              | M20       | ---                       | ---      | ---               | ---      | D4N-4ARE              | ---      | D4N-4BRE          |          |
|   | 2-conduit    | G1/2      | ---                       | ---      | ---               | ---      | D4N-6ARE              | ---      | D4N-6BRE          |          |
| Fork lever lock (left operation)<br> | 1-conduit    | G1/2      | ---                       | ---      | ---               | ---      | ---                   | D4N-2ALE | ---               | D4N-2BLE |
|   |              | 1/2-14NPT | ---                       | ---      | ---               | ---      | D4N-3ALE              | ---      | D4N-3BLE          |          |
|   |              | M20       | ---                       | ---      | ---               | ---      | D4N-4ALE              | ---      | D4N-4BLE          |          |
|   | 2-conduit    | G1/2      | ---                       | ---      | ---               | ---      | D4N-6ALE              | ---      | D4N-6BLE          |          |
| Cat whisker<br>                      | 1-conduit    | G1/2      | ---                       | D4N-2180 | ---               | D4N-2280 | ---                   | ---      | ---               | D4N-2B80 |
|   |              | 1/2-14NPT | ---                       | D4N-3180 | ---               | D4N-3280 | ---                   | ---      | ---               | D4N-3B80 |
|   |              | M20       | ---                       | D4N-4180 | ---               | D4N-4280 | ---                   | ---      | ---               | D4N-4B80 |
|   | 2-conduit    | G1/2      | ---                       | D4N-6180 | ---               | D4N-6280 | ---                   | ---      | ---               | D4N-6B80 |
| Plastic rod<br>                      | 1-conduit    | G1/2      | ---                       | D4N-2187 | ---               | D4N-2287 | ---                   | ---      | ---               | D4N-2B87 |
|   |              | 1/2-14NPT | ---                       | D4N-3187 | ---               | D4N-3287 | ---                   | ---      | ---               | D4N-3B87 |
|   |              | M20       | ---                       | D4N-4187 | ---               | D4N-4287 | ---                   | ---      | ---               | D4N-4B87 |
|   | 2-conduit    | G1/2      | ---                       | D4N-6187 | ---               | D4N-6287 | ---                   | ---      | ---               | D4N-6B87 |
|   |              | M20       | ---                       | D4N-8187 | ---               | D4N-8287 | ---                   | ---      | ---               | D4N-8B87 |

■ Preferred types





**Note:** 1. It is recommended that M20 be used for Switches to be exported to Europe and 1/2-14NPT be used for Switches to be exported to North American countries.

2. Mechanically speaking, these models are basic limit switches.

**⚠ WARNING**

Do not use general purpose switch models for applications that require form lock for safety reasons

## General-purpose Switches with Three Contacts and MBB Contacts

| Actuator   | Conduit size |           | Built-in switch mechanism |                       |                |                   |                |                           |                |                           |
|--|--------------|-----------|---------------------------|-----------------------|----------------|-------------------|----------------|---------------------------|----------------|---------------------------|
|  |              |           | Direct opening            | 2NC/1NO (Slow-action) | Direct opening | 3NC (Slow-action) | Direct opening | 1NC/1NO MBB (Slow-action) | Direct opening | 2NC/1NO MBB (Slow-action) |
| Fork lever lock (right operation)<br> | 1-conduit    | G1/2      | ---                       | D4N-2CRE              | ---            | D4N-2DRE          | ---            | D4N-2ERE                  | ---            | D4N-2FRE                  |
|  |              | 1/2-14NPT | ---                       | D4N-3CRE              | ---            | D4N-3DRE          | ---            | D4N-3ERE                  | ---            | D4N-3FRE                  |
|  |              | M20       | ---                       | D4N-4CRE              | ---            | D4N-4DRE          | ---            | D4N-4ERE                  | ---            | D4N-4FRE                  |
|  | 2-conduit    | G1/2      | ---                       | D4N-6CRE              | ---            | D4N-6DRE          | ---            | D4N-6ERE                  | ---            | D4N-6FRE                  |
|  |              | M20       | ---                       | D4N-8CRE              | ---            | D4N-8DRE          | ---            | D4N-8ERE                  | ---            | D4N-8FRE                  |
|  |              | M20       | ---                       | D4N-8CRE              | ---            | D4N-8DRE          | ---            | D4N-8ERE                  | ---            | D4N-8FRE                  |
| Fork lever lock (left operation)<br>  | 1-conduit    | G1/2      | ---                       | D4N-2CLE              | ---            | D4N-2DLE          | ---            | D4N-2ELE                  | ---            | D4N-2FLE                  |
|  |              | 1/2-14NPT | ---                       | D4N-3CLE              | ---            | D4N-3DLE          | ---            | D4N-3ELE                  | ---            | D4N-3FLE                  |
|  |              | M20       | ---                       | D4N-4CLE              | ---            | D4N-4DLE          | ---            | D4N-4ELE                  | ---            | D4N-4FLE                  |
|  | 2-conduit    | G1/2      | ---                       | D4N-6CLE              | ---            | D4N-6DLE          | ---            | D4N-6ELE                  | ---            | D4N-6FLE                  |
|  |              | M20       | ---                       | D4N-8CLE              | ---            | D4N-8DLE          | ---            | D4N-8ELE                  | ---            | D4N-8FLE                  |
|  |              | M20       | ---                       | D4N-8CLE              | ---            | D4N-8DLE          | ---            | D4N-8ELE                  | ---            | D4N-8FLE                  |
| Cat whisker<br>                       | 1-conduit    | G1/2      | ---                       | ---                   | ---            | D4N-2D80          | ---            | ---                       | ---            | ---                       |
|  |              | 1/2-14NPT | ---                       | ---                   | ---            | D4N-3D80          | ---            | ---                       | ---            | ---                       |
|  |              | M20       | ---                       | ---                   | ---            | D4N-4D80          | ---            | ---                       | ---            | ---                       |
|  | 2-conduit    | G1/2      | ---                       | ---                   | ---            | D4N-6D80          | ---            | ---                       | ---            | ---                       |
|  |              | M20       | ---                       | ---                   | ---            | D4N-8D80          | ---            | ---                       | ---            | ---                       |
|  |              | M20       | ---                       | ---                   | ---            | D4N-8D80          | ---            | ---                       | ---            | ---                       |
| Plastic rod<br>                       | 1-conduit    | G1/2      | ---                       | ---                   | ---            | D4N-2D87          | ---            | ---                       | ---            | ---                       |
|  |              | 1/2-14NPT | ---                       | ---                   | ---            | D4N-3D87          | ---            | ---                       | ---            | ---                       |
|  |              | M20       | ---                       | ---                   | ---            | D4N-4D87          | ---            | ---                       | ---            | ---                       |
|  | 2-conduit    | G1/2      | ---                       | ---                   | ---            | D4N-6D87          | ---            | ---                       | ---            | ---                       |
|  |              | M20       | ---                       | ---                   | ---            | D4N-8D87          | ---            | ---                       | ---            | ---                       |
|  |              | M20       | ---                       | ---                   | ---            | D4N-8D87          | ---            | ---                       | ---            | ---                       |

**Note: 1.** It is recommended that M20 be used for Switches to be exported to Europe and 1/2-14NPT be used for Switches to be exported to North American countries.

**2.** Mechanically speaking, these models are basic limit switches.

**WARNING**  
Do not use general purpose switch models for applications that require form lock for safety reasons

## Specifications

### Standards and EC Directives

- Conforms to the following EC Directives:
  - Machinery Directive
  - Low Voltage Directive
  - EN50047
  - EN1088 (slow-action models only)
  - GS-ET-15

### Approved Standards

| Agency              | Standard                              | File No.         |
|---------------------|---------------------------------------|------------------|
| TÜV Product Service | EN60947-5-1 (approved direct opening) | B03 11 39656 061 |
| UL (See note.)      | UL508, CSA C22.2 No.14                | E76675           |

**Note:** Approval for CSA C22.2 No. 14 is authorized by the UL mark.

### CCC (China Compulsory Certification)

#### Mark

| Agency | Standard  | File No.          |
|--------|-----------|-------------------|
| CQC    | GB14048.5 | Under application |

### Approved Standard Ratings

#### TÜV (EN60947-5-1)

| Item                              | Utilization category | AC-15 | DC-13  |
|-----------------------------------|----------------------|-------|--------|
| Rated operating current ( $I_e$ ) |                      | 3 A   | 0.27 A |
| Rated operating voltage ( $U_e$ ) |                      | 240 V | 250 V  |

**Note:** Use a 10-A fuse type gI or gG that conforms to IEC269 as a short-circuit protection device. This fuse is not built into the Switch.

#### UL/CSA (UL508, CSA C22.2 No. 14)

##### A300

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

##### Q300

| Rated voltage | Carry current | Current |        | Volt-amperes |       |
|---------------|---------------|---------|--------|--------------|-------|
|               |               | Make    | Break  | Make         | Break |
| 125 VDC       | 2.5 A         | 0.55 A  | 0.55 A | 69 VA        | 69 VA |
| 250 VDC       |               | 0.27 A  | 0.27 A |              |       |

## ■ Characteristics

|  |                    |   |
|--|--------------------|---|
| <b>Degree of protection (See note 3.)</b>          |                    | IP67 (EN60947-5-1)  |
| <b>Durability (See note 4.)</b>                    | <b>Mechanical</b>  | 15,000,000 operations min. (See note 7.)  |
|  | <b>Electrical</b>  | 500,000 operations min. for a resistive load of 3 A at 250 VAC (See note 5.)<br>300,000 operations min. for a resistive load of 10 A at 250 VAC |
| <b>Operating speed</b>                             |                    | 1 to 500 mm/s (D4N-1120)  |
| <b>Operating frequency</b>                         |                    | 30 operations/minute max.   |
| <b>Contact resistance</b>                          |                    | 25 mΩ max.  |
| <b>Minimum applicable load (See note 6.)</b>       |                    | Resistive load of 1 mA at 5 VDC (N-level reference value)   |
| <b>Rated insulation voltage (U<sub>i</sub>)</b>    |                    | 300 V   |
| <b>Protection against electric shock</b>           |                    | Class II (double insulation)  |
| <b>Pollution degree (operating environment)</b>    |                    | Level 3 (EN60947-5-1)   |
| <b>Impulse withstand voltage (EN60947-5-1)</b>     |                    | Between terminals of the same polarity: 2.5 kV  |
|  |                    | Between terminals of different polarities: 4 kV   |
|  |                    | Between other terminals and uncharged metallic parts : 6 kV   |
| <b>Insulation resistance</b>                       |                    | 100 MΩ min.   |
| <b>Contact gap</b>                                 |                    | Snap-action: 2 x 0.5 mm min<br>Slow-action: 2 x 2 mm min  |
| <b>Vibration resistance</b>                        | <b>Malfunction</b> | 10 to 55 Hz, 0.75-mm single amplitude   |
| <b>Shock resistance</b>                            | <b>Destruction</b> | 1,000 m/s <sup>2</sup> min.   |
|  | <b>Malfunction</b> | 300 m/s <sup>2</sup> min.   |
| <b>Conditional short-circuit current</b>           |                    | 100 A (EN60947-5-1)   |
| <b>Rated open thermal current (I<sub>th</sub>)</b> |                    | 10 A (EN60947-5-1)  |
| <b>Ambient temperature</b>                         |                    | Operating: -30°C to 70°C with no icing  |
| <b>Ambient humidity</b>                            |                    | Operating: 95% max.   |
| <b>Weight</b>                                      |                    | Approx. 82 g (D4N-1120)   |
|  |                    | Approx. 99 g (D4N-5120)   |

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

2. Once a contact has been used to switch a standard load, it cannot be used for a load of a smaller capacity. Doing so may result in roughening of the contact surface and contact reliability may be lost.
3. The degree of protection is tested using the method specified by the standard (EN60947-5-1). Confirm that sealing properties are sufficient for the operating conditions and environment beforehand. Although the switch box is protected from dust or water penetration, do not use the D4N in places where foreign material such as dust, dirt, oil, water, or chemicals may penetrate through the head. Otherwise, premature wear, Switch damage or malfunctioning may occur.
4. The durability is for an ambient temperature of 5°C to 35°C and an ambient humidity of 40% to 70%. For more details, consult your OMRON representative.
5. If the ambient temperature is greater than 35°C, do not pass the 3-A, 250-VAC load through more than 2 circuits.
6. This value will vary with the switching frequency, environment, and reliability level. Confirm that correct operation is possible with the actual load beforehand.
7. The mechanical durability of fork lever lock models is 10,000,000 operations min.

# Structure, Names, and Functions

## ■ Structure

**Safety-oriented Lever Setting (Form-lock construction)**  
Grooves which engage the lever are cut in the lever and rotary shaft to prevent the lever from slipping against the rotary shaft. There are resin-lever and metal-lever types.

**Head**  
The direction of the switch head can be varied to any of the four directions. (Roller plunger models can be mounted in either of two directions at a 90° angle.)

**Built-in Switch**  
The built-in switch has a direct opening mechanism that forcibly separates the NC contact even when there is contact deposit.

**Cover**  
The cover, with a hinge on its lower part, can be opened by removing the screw of the cover, which ensures ease of maintenance and wiring.

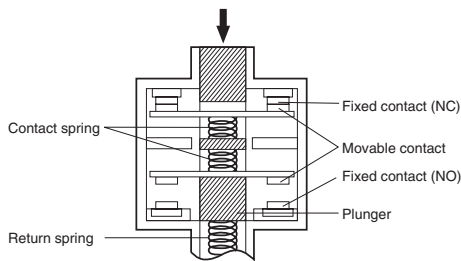
**Conduit Opening**  
A wide variety of conduits is available.

| Size          | 1-conduit | 2-conduit |
|---------------|-----------|-----------|
| Pg13.5        | Yes       | Yes       |
| G1/2          | Yes       | Yes       |
| 1/2-14NPT     | Yes       | Yes       |
| M20           | Yes       | Yes       |
| M12 connector | Yes       | ---       |

**Note:** M12 connector types are not available for Switches with three contacts.

## ■ Direct Opening Mechanism

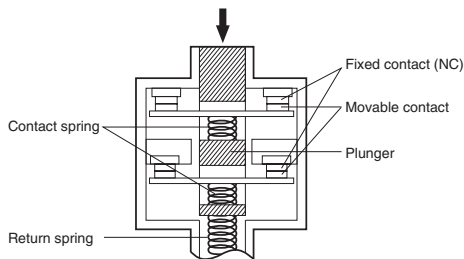
### 1NC/1NO Contact (Slow-action)



Conforms to EN60947-5-1 Direct Opening Operation ⊖

(Only the NC contact side has a direct opening mechanism.)  
When metal deposition occurs, the contacts are separated from each other by the plunger being pushed in.

### 2NC Contact (Slow-action)

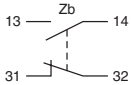
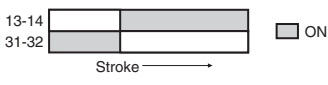
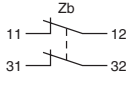
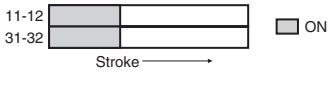
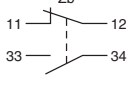

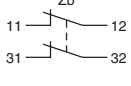
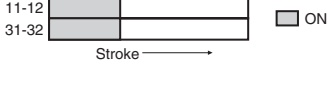
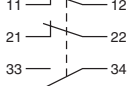

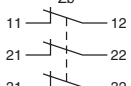
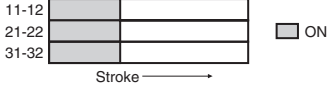
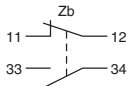
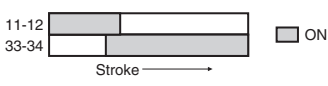
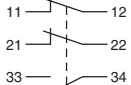



Conforms to EN60947-5-1 Direct Opening Operation ⊖

(Both NC contacts have a direct opening mechanism.)



## Contact Form

| Model   | Contact                   | Contact form  | Operating pattern  | Remarks   |
|---------|---------------------------|---|--|---|
| D4N-□1□ | 1NC/1NO (Snap-action)     |    |    | Only NC contacts 31-32 have an approved direct opening mechanism. (→)<br>The terminals 13-14 and 31-32 can be used as unlike poles.                           |
| D4N-□2□ | 2NC (Snap-action)         |    |    | Only NC contacts 11-12 and 31-32 have an approved direct opening mechanism. (→)<br>The terminals 11-12 and 31-32 can be used as unlike poles.                 |
| D4N-□A□ | 1NC/1NO (Slow-action)     |    |    | Only NC contacts 11-12 have an approved direct opening mechanism. (→)<br>The terminals 11-12 and 33-34 can be used as unlike poles.                           |
| D4N-□B□ | 2NC (Slow-action)         |    |    | Only NC contacts 11-12 and 31-32 have an approved direct opening mechanism. (→)<br>The terminals 11-12 and 31-32 can be used as unlike poles.                 |
| D4N-□C□ | 2NC/1NO (Slow-action)     |    |    | Only NC contacts 11-12 and 21-22 have an approved direct opening mechanism. (→)<br>The terminals 11-12, 21-22, and 33-34 can be used as unlike poles.         |
| D4N-□D□ | 3NC (Slow-action)         |   |   | Only NC contacts 11-12, 21-22, and 31-32 have an approved direct opening mechanism. (→)<br>The terminals 11-12, 21-22, and 31-32 can be used as unlike poles. |
| D4N-□E□ | 1NC/1NO MBB (Slow-action) |  |  | Only NC contacts 11-12 have an approved direct opening mechanism. (→)<br>The terminals 11-12 and 33-34 can be used as unlike poles.                           |
| D4N-□F□ | 2NC/1NO MBB (Slow-action) |  |  | Only NC contacts 11-12 and 21-22 have an approved direct opening mechanism. (→)<br>The terminals 11-12, 21-22 and 33-34 can be used as unlike poles.          |

**Note:** 1. Terminals are numbered according to EN50013 and the contact forms are according to IEC947-5-1.

2. MBB (Make Before Break) contacts have an overlapping structure, so that before the normally closed contact (NC) opens, the normally open contact (NO) closes.

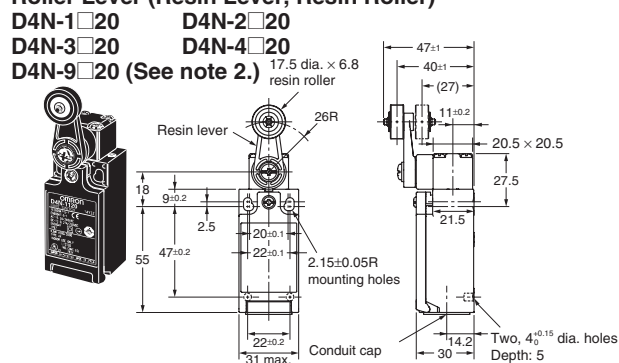
# Dimensions

## Switches

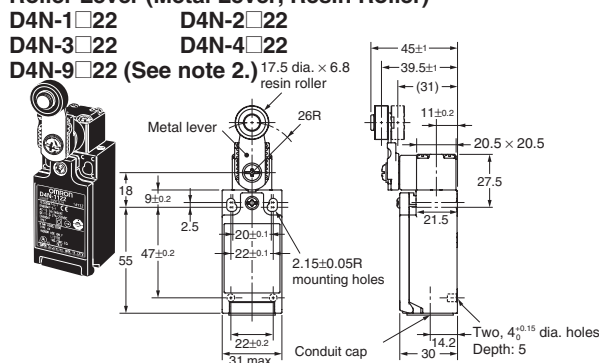
Note: All units are in millimeters unless otherwise indicated.

### 1-conduit Models

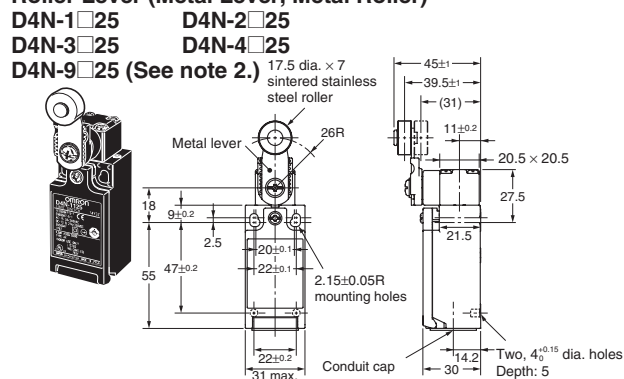
#### Roller Lever (Resin Lever, Resin Roller)



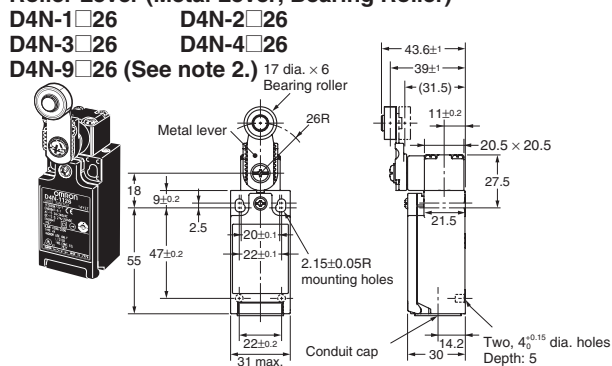
#### Roller Lever (Metal Lever, Resin Roller)



#### Roller Lever (Metal Lever, Metal Roller)



#### Roller Lever (Metal Lever, Bearing Roller)



Note: 1. Unless otherwise specified, a tolerance of  $\pm 0.4$  mm applies to all dimensions.  
2. Refer to page 13 for details on M12 connectors.

### Snap-action (1NC/1NO) (2NC), Slow-action (2NC) (3NC)

| Model                     | D4N-□120<br>D4N-□220<br>D4N-□B20<br>D4N-□D20 | D4N-□122<br>D4N-□222<br>D4N-□B22<br>D4N-□D22 | D4N-□125<br>D4N-□225<br>D4N-□B25<br>D4N-□D25 | D4N-□126<br>D4N-□226<br>D4N-□B26<br>D4N-□D26 |
|---------------------------|--|--|--|--|
| OF max.                   | 5.0 N  |  |  |  |
| RF min.                   | 0.5 N  |  |  |  |
| PT                        | 18° to 27°                                   |  |  |  |
| OT min.                   | 40°  |  |  |  |
| MD max.<br>(See note 2.)  | 14°  |  |  |  |
| OP                        | ---  |  |  |  |
| TT<br>(See note 3.)       | (80°)  |  |  |  |
| DOT min.<br>(See note 4.) | 50°  |  |  |  |
| DOF min.<br>(See note 4.) | 20 N   |  |  |  |

Note: 1. Variation occurs in the simultaneity of contact opening/closing operations of 2NC, 2NC/1NO, and 3NC contacts. Check contact operation.  
2. Only for snap-action models.  
3. Reference value.  
4. ⚠ Only for slow-action models. For safe use, always make sure that the minimum values or greater are provided.

### Slow-action (1NC/1NO) (2NC/1NO)

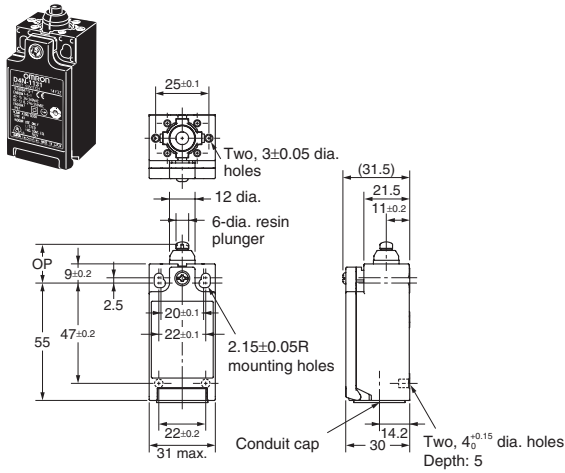
| Model                     | D4N-□A20<br>D4N-□C20<br>D4N-□E20<br>D4N-□F20 | D4N-□A22<br>D4N-□C22<br>D4N-□E22<br>D4N-□F22 | D4N-□A25<br>D4N-□C25<br>D4N-□E25<br>D4N-□F25 | D4N-□A26<br>D4N-□C26<br>D4N-□E26<br>D4N-□F26 |
|---------------------------|--|--|--|--|
| OF max.                   | 5.0 N  |  |  |  |
| RF min.                   | 0.5 N  |  |  |  |
| PT<br>(See note 1.)       | 18° to 27°                                   |  |  |  |
| PT (2nd)<br>(See note 2.) | (44°)  |  |  |  |
| PT (See note 3.)          | 27.5° to 36.5°                               |  |  |  |
| PT (2nd)<br>(See note 4.) | (18°)  |  |  |  |
| OT min.                   | 40°  |  |  |  |
| OP                        | ---  |  |  |  |
| TT (See note 5.)          | (80°)  |  |  |  |
| DOT min. (See note 6.)    | 50°  |  |  |  |
| DOF min. (See note 6.)    | 20 N   |  |  |  |

Note: 1. These PT values are possible when the NC contacts are open (OFF).  
2. These PT values are possible when the NO contacts are closed (ON).  
3. Only for MBB models.  
4. Reference values for MBB models only.  
5. Reference values.  
6. ⚠ For safe use, always make sure that the minimum values or greater are provided.

## 1-conduit Models

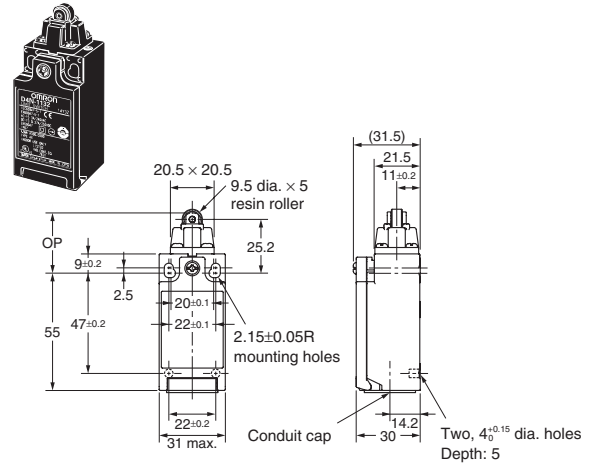
### Plunger

D4N-1□31     D4N-2□31  
 D4N-3□31     D4N-4□31  
 D4N-9□31 (See note 2.)



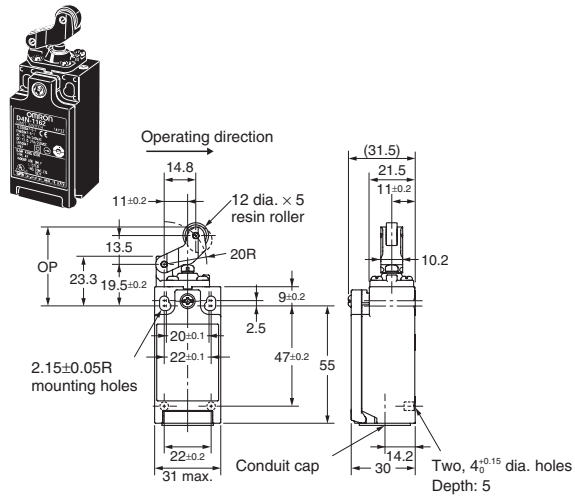
### Roller Plunger

D4N-1□32     D4N-2□32  
 D4N-3□32     D4N-4□32  
 D4N-9□32 (See note 2.)



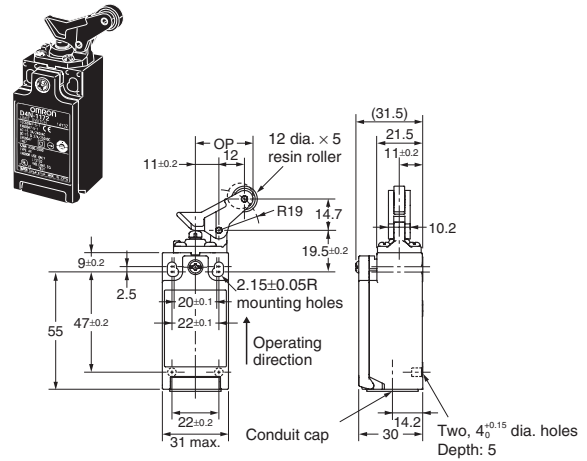
### One-way Roller Arm Lever (Horizontal)

D4N-1□62     D4N-2□62  
 D4N-3□62     D4N-4□62  
 D4N-9□62 (See note 2.)



### One-way Roller Arm Lever (Vertical)


D4N-1□72     D4N-2□72  
 D4N-3□72     D4N-4□72  
 D4N-9□72 (See note 2.)



- Note: 1.** Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.  
**2.** Refer to page 13 for details on M12 connectors.


### Snap-action (1NC/1NO) (2NC), Slow-action (2NC) (3NC)

| Model                     | D4N-□131<br>D4N-□231<br>D4N-□B31<br>D4N-□D31 | D4N-□132<br>D4N-□232<br>D4N-□B32<br>D4N-□D32 | D4N-□162<br>D4N-□262<br>D4N-□B62<br>D4N-□D62 | D4N-□172<br>D4N-□272<br>D4N-□B72<br>D4N-□D72 |
|---------------------------|--|--|--|--|
| OF max.                   | 6.5 N  | 6.5 N  | 5.0 N  | 5.0 N  |
| RF min.                   | 1.5 N  | 1.5 N  | 0.8 N  | 0.8 N  |
| PT max.                   | 2 mm   | 2 mm   | 4 mm   | 4 mm   |
| OT min.                   | 4 mm   | 4 mm   | 5 mm   | 5 mm   |
| MD max.<br>(See note 2.)  | 1 mm   | 1 mm   | 1.5 mm                                       | 1.5 mm                                       |
| OP                        | 18.2<br>±0.5 mm                              | 28.6<br>±0.8 mm                              | 37 ±0.8 mm                                   | 27 ±0.8 mm                                   |
| TT<br>(See note 3.)       | (6 mm)                                       | (6 mm)                                       | (9 mm)                                       | (9 mm)                                       |
| DOT min.<br>(See note 4.) | 3.2 mm                                       | 3.2 mm                                       | 5.8 mm                                       | 4.8 mm                                       |
| DOF min.<br>(See note 4.) | 20 N   | 20 N   | 20 N   | 20 N   |

- Note:**
1. Variation occurs in the simultaneity of contact opening/closing operations of 2NC, 2NC/1NO, and 3NC contacts. Check contact operation.
  2. Only for snap-action models.
  3. Reference value.
  4.  Only for slow-action models. For safe use, always make sure that the minimum values or greater are provided.

### Slow-action (1NC/1NO) (2NC/1NO)

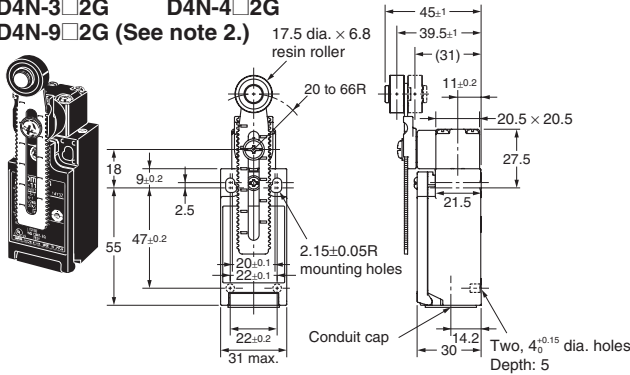
| Model                     | D4N-□A31<br>D4N-□C31<br>D4N-□E31<br>D4N-□F31 | D4N-□A32<br>D4N-□C32<br>D4N-□E32<br>D4N-□F32 | D4N-□A62<br>D4N-□C62<br>D4N-□E62<br>D4N-□F62 | D4N-□A72<br>D4N-□C72<br>D4N-□E72<br>D4N-□F72 |
|---------------------------|--|--|--|--|
| OF max.                   | 6.5 N  | 6.5 N  | 5.0 N  | 5.0 N  |
| RF min.                   | 1.5 N  | 1.5 N  | 0.8 N  | 0.8 N  |
| PT max.<br>(See note 1.)  | 2 mm   | 2 mm   | 4 mm   | 4 mm   |
| PT (2nd)<br>(See note 2.) | (2.9 mm)                                     | (2.9 mm)                                     | (5.2 mm)                                     | (4.3 mm)                                     |
| PT max.<br>(See note 3.)  | 2.8 mm                                       | 2.8 mm                                       | 4 mm   | 4 mm   |
| PT (2nd)<br>(See note 4.) | (1 mm)                                       | (1 mm)                                       | (1.5 mm)                                     | (1.5 mm)                                     |
| OT min.                   | 4 mm   | 4 mm   | 5 mm   | 5 mm   |
| OP                        | 18.2<br>±0.5 mm                              | 28.6<br>±0.8 mm                              | 37 ±0.8 mm                                   | 27 ±0.8 mm                                   |
| OP<br>(See note 5.)       | 17.4<br>±0.5 mm                              | 28 ±0.8 mm                                   | 36 ±0.8 mm                                   | 26.1<br>±0.8 mm                              |
| TT<br>(See note 6.)       | (6 mm)                                       | (6 mm)                                       | (9 mm)                                       | (9 mm)                                       |
| DOT min.<br>(See note 7.) | 3.2 mm                                       | 3.2 mm                                       | 5.8 mm                                       | 4.8 mm                                       |
| DOF min.<br>(See note 7.) | 20 N   | 20 N   | 20 N   | 20 N   |

- Note:**
1. These PT values are possible when the NC contacts are open (OFF).
  2. These PT values are possible when the NO contacts are closed (ON).
  3. Only for MBB models.
  4. Reference values for MBB models.
  5. Only for MBB models.
  6. Reference value.
  7.  For safe use, always make sure that the minimum values or greater are provided.

## 1-conduit Models

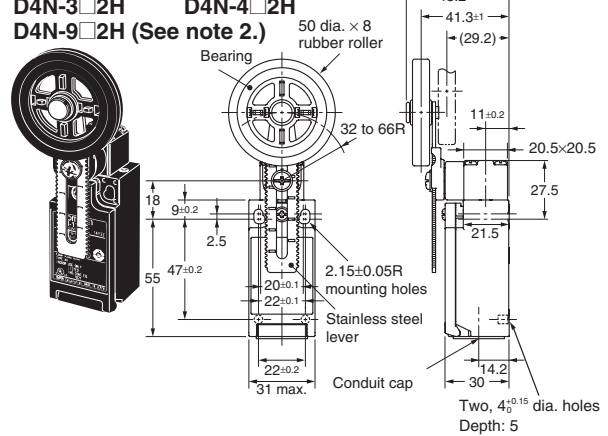
### Adjustable Roller Lever, Form Lock (with Metal Lever, Resin Roller)

D4N-1□2G D4N-2□2G  
D4N-3□2G D4N-4□2G  
D4N-9□2G (See note 2.)



### Adjustable Roller Lever, Form Lock (with Metal Lever, Rubber Roller)

D4N-1□2H D4N-2□2H  
D4N-3□2H D4N-4□2H  
D4N-9□2H (See note 2.)



- Note:** 1. Unless otherwise specified, a tolerance of  $\pm 0.4$  mm applies to all dimensions.  
2. Refer to following diagrams for details on M12 connectors.

### Snap-action (1NC/1NO) (2NC), Slow-action (2NC) (3NC)

| Model                  | D4N-□12H<br>D4N-□22H<br>D4N-□B2H<br>D4N-□D2H | D4N-□12G<br>D4N-□22G<br>D4N-□B2G<br>D4N-□D2G<br>(See note 2.) |
|------------------------|--|---|
| OF max.                | 4.5 N  |   |
| RF min.                | 0.4 N  |   |
| PT                     | 18° to 27°                                   |   |
| OT min.                | 40°  |   |
| MD max. (See note 3.)  | 14°  |   |
| OP                     | ---  |   |
| TT (See note 4.)       | (80°)  |   |
| DOT min. (See note 5.) | 50°  |   |
| DOF min. (See note 5.) | 20 N   |   |

- Note:** 1. Variation occurs in the simultaneity of contact opening/closing operations of 2NC, 2NC/1NO, and 3NC contacts. Check contact operation.  
2. The operating characteristics of these Switches were measured with the roller lever set at 32 mm.  
3. Only for snap-action models.  
4. Reference value.  
5. ⚠ Only for slow-action models. For safe use, always make sure that the minimum values or greater are provided.

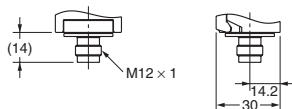
### Slow-action (1NC/1NO) (2NC/1NO)

| Model                  | D4N-□A2H<br>D4N-□C2H<br>D4N-□E2H<br>D4N-□F2H | D4N-□A2G<br>D4N-□C2G<br>D4N-□E2G<br>D4N-□F2G<br>(See note 1.) |
|------------------------|--|---|
| OF max.                | 4.5 N  |   |
| RF min.                | 0.4 N  |   |
| PT (See note 2.)       | 18° to 27°                                   |   |
| PT (2nd) (See note 3.) | (44°)  |   |
| PT (See note 4.)       | 27.5° to 36.5°                               |   |
| PT (2nd) (See note 5.) | (18°)  |   |
| OT min.                | 40°  |   |
| OP                     | ---  |   |
| TT (See note 6.)       | (80°)  |   |
| DOT min.               | 50°  |   |
| DOF min. (See note 7.) | 20 N   |   |

- Note:** 1. The operating characteristics of these Switches were measured with the roller lever set at 32 mm.  
2. This PT value is possible when the NC contacts are open (OFF).  
3. This PT value is possible when the NO contacts are closed (ON).  
4. Only for MBB models.  
5. Reference value for MBB models only.  
6. Reference value.  
7. ⚠ For safe use, always make sure that the minimum values or greater are provided.

### 1-conduit M12 Connector

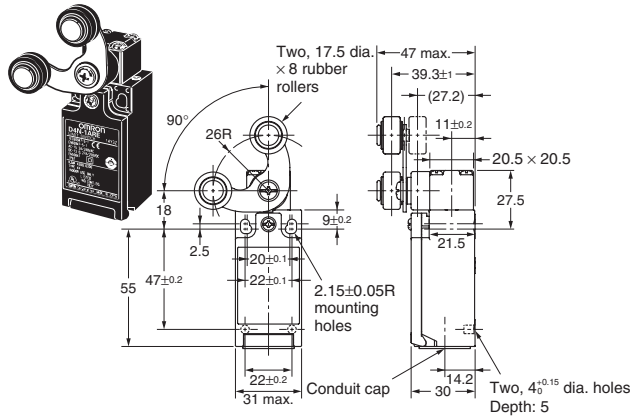
D4N-9□□□



## 1-conduit Models

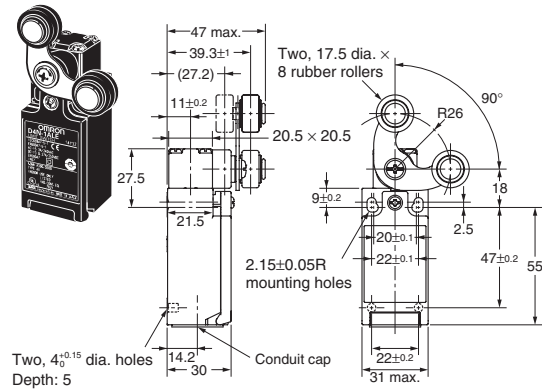
### Fork Lever Lock (Right Operation)

D4N-1□RE    D4N-2□RE  
D4N-3□RE    D4N-4□RE



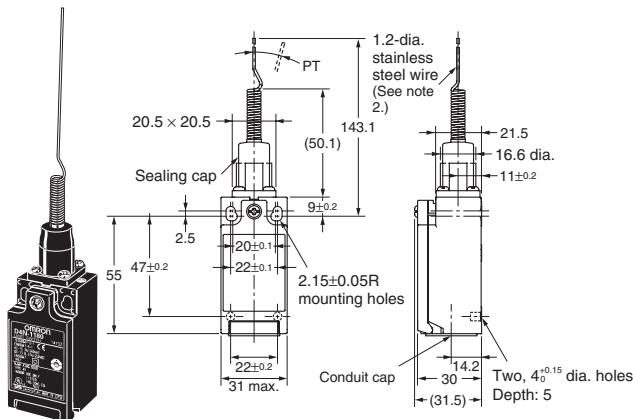
### Fork Lever Lock (Left Operation)

D4N-1□LE    D4N-2□LE  
D4N-3□LE    D4N-4□LE



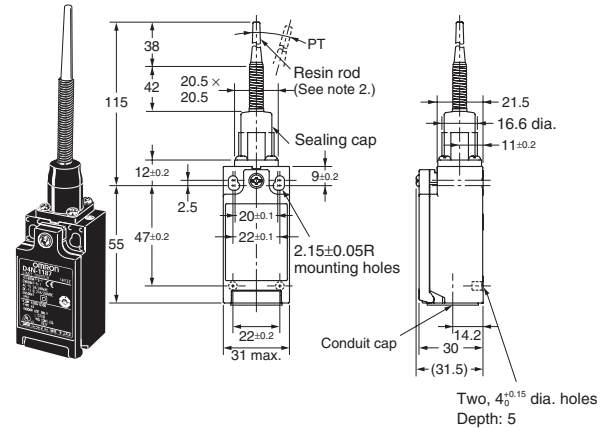
### Cat Whisker

D4N-1□80    D4N-2□80  
D4N-3□80    D4N-4□80



### Plastic Rod

D4N-1□87    D4N-2□87  
D4N-3□87    D4N-4□87



- Note:** 1. Unless otherwise specified, a tolerance of  $\pm 0.4$  mm applies to all dimensions.  
2. Use the dog within 35 mm of the tip of the actuator and keep the total travel to 70 mm or less.

## Slow-action (1NC/1NO) (2NC/1NO) (2NC) (3NC)

| Model   | D4N-□□RE                          | D4N-□□LE                          |
|---|-----------------------------------|-----------------------------------|
| Force necessary to reverse the direction of the lever: max. | 6.4 N                             | 6.4 N                             |
| Movement until the lever reverses                           | $55 \pm 10^\circ$                 | $55 \pm 10^\circ$                 |
| Movement until switch operation (NC)                        | $6.5^\circ$<br>(MBB: $10^\circ$ ) | $6.5^\circ$<br>(MBB: $10^\circ$ ) |
| Movement until switch operation (NO)                        | $18.5^\circ$<br>(MBB: $5^\circ$ ) | $18.5^\circ$<br>(MBB: $5^\circ$ ) |

**Note:** Variation occurs in the simultaneity of contact opening/closing operations of 2NC, 2NC/1NO, and 3NC contacts. Check contact operation.

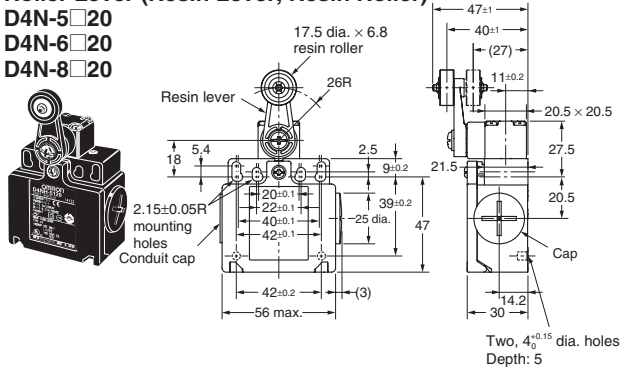
## Snap-action (1NC/1NO) (2NC), Slow-action (2NC) (3NC)

| Model   | D4N-□□80   | D4N-□□87   |
|---------|------------|------------|
| OF max. | 1.5 N      | 1.5 N      |
| PT max. | $15^\circ$ | $15^\circ$ |

## 2-conduit Models

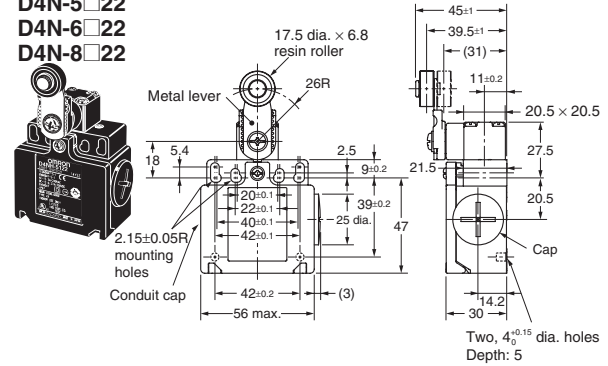
### Roller Lever (Resin Lever, Resin Roller)

D4N-5□20  
D4N-6□20  
D4N-8□20



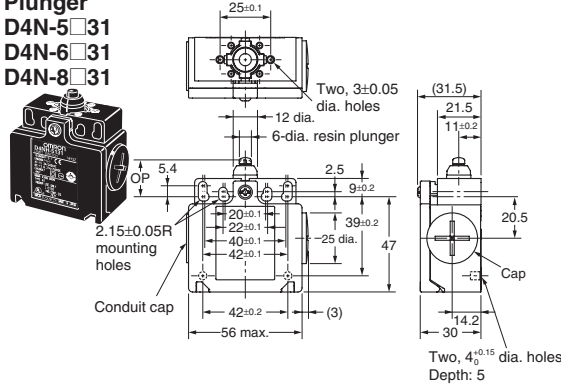
### Roller Lever (Metal Lever, Resin Roller)

D4N-5□22  
D4N-6□22  
D4N-8□22



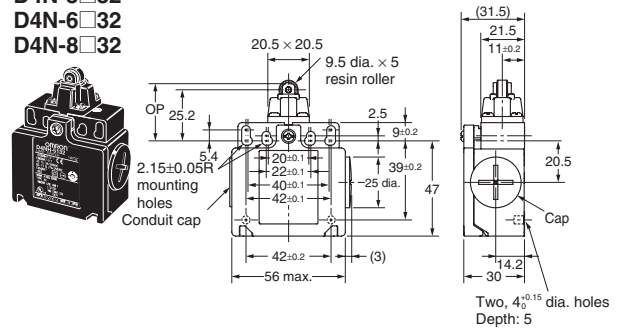
### Plunger

D4N-5□31  
D4N-6□31  
D4N-8□31



### Roller Plunger

D4N-5□32  
D4N-6□32  
D4N-8□32



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

### Snap-action (1NC/1NO) (2NC), Slow-action (2NC) (3NC)

| Model                  | D4N-□120   | D4N-□122   | D4N-□131   | D4N-□132     |
|------------------------|------------|------------|------------|--------------|
|                        | D4N-□220   | D4N-□222   | D4N-□231   | D4N-□232     |
|                        | D4N-□B20   | D4N-□B22   | D4N-□B31   | D4N-□B32     |
|                        | D4N-□D20   | D4N-□D22   | D4N-□D31   | D4N-□D32     |
| OF max.                | 5 N        | 5 N        | 6.5 N      | 6.5 N        |
| RF min.                | 0.5 N      | 0.5 N      | 1.5 N      | 1.5 N        |
| PT                     | 18° to 27° | 18° to 27° | 2 mm       | 2 mm         |
| OT min.                | 40°        | 40°        | 4 mm       | 4 mm         |
| MD max. (See note 2.)  | 14°        | 14°        | 1 mm       | 1 mm         |
| OP                     | ---        | ---        | 18 ±0.5 mm | 28.2 ±0.8 mm |
| TT (See note 3.)       | (80°)      | (80°)      | (6 mm)     | (6 mm)       |
| DOT min. (See note 4.) | 50°        | 50°        | 3.2 mm     | 3.2 mm       |
| DOF min. (See note 4.) | 20 N       | 20 N       | 20 N       | 20 N         |

- Note: 1. Variation occurs in the simultaneity of contact opening/closing operations of 2NC, 2NC/1NO, and 3NC contacts. Check contact operation.  
2. Only for snap-action models.  
3. Reference value.  
4. Only for slow-action models. For safe use, always make sure that the minimum values or greater are provided.

### Slow-action (1NC/1NO) (2NC/1NO)

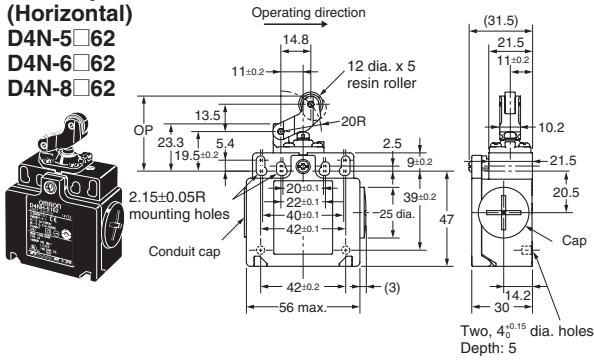
| Model                  | D4N-□A20       | D4N-□A22       | D4N-□A31     | D4N-□A32     |
|------------------------|----------------|----------------|--------------|--------------|
|                        | D4N-□C20       | D4N-□C22       | D4N-□C31     | D4N-□C32     |
|                        | D4N-□E20       | D4N-□E22       | D4N-□E31     | D4N-□E32     |
|                        | D4N-□F20       | D4N-□F22       | D4N-□F31     | D4N-□F32     |
| OF max.                | 5 N            | 5 N            | 6.5 N        | 6.5 N        |
| RF min.                | 0.5 N          | 0.5 N          | 1.5 N        | 1.5 N        |
| PT (See note 1.)       | 18° to 27°     | 18° to 27°     | 2 mm         | 2 mm         |
| PT (2nd) (See note 2.) | (44°)          | (44°)          | (2.9 mm)     | (2.9 mm)     |
| PT (See note 3.)       | 27.5° to 36.5° | 27.5° to 36.5° | 2.8 mm       | 2.8 mm       |
| PT (2nd) (See note 4.) | (18°)          | (18°)          | (1 mm)       | (1 mm)       |
| OT min.                | 40°            | 40°            | 4 mm         | 4 mm         |
| OP                     | ---            | ---            | 18 ±0.5 mm   | 28.2 ±0.8 mm |
| OP (See note 5.)       | ---            | ---            | 17.4 ±0.5 mm | 28 ±0.8 mm   |
| TT (See note 6.)       | (80°)          | (80°)          | (6 mm)       | (6 mm)       |
| DOT min. (See note 7.) | 50°            | 50°            | 3.2 mm       | 3.2 mm       |
| DOF min. (See note 7.) | 20 N           | 20 N           | 20 N         | 20 N         |

- Note: 1. This PT value is possible when the NC contacts are open (OFF).  
2. This PT value is possible when the NO contacts are closed (ON).  
3. Only for MBB models.  
4. Reference value for MBB models.  
5. Only for MBB models.  
6. Reference value.  
7. For safe use, always make sure that the minimum values or greater are provided.

## 2-conduit Models

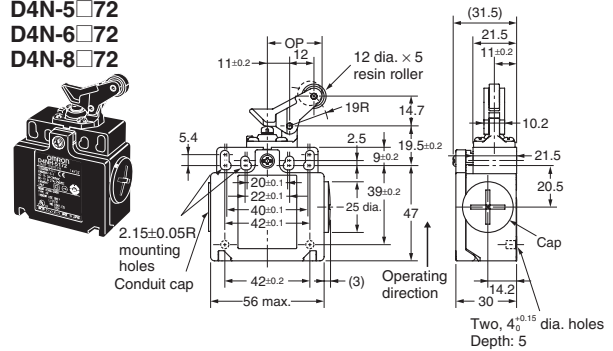
### One-way Roller Arm Lever

(Horizontal)  
**D4N-5□62**  
**D4N-6□62**  
**D4N-8□62**



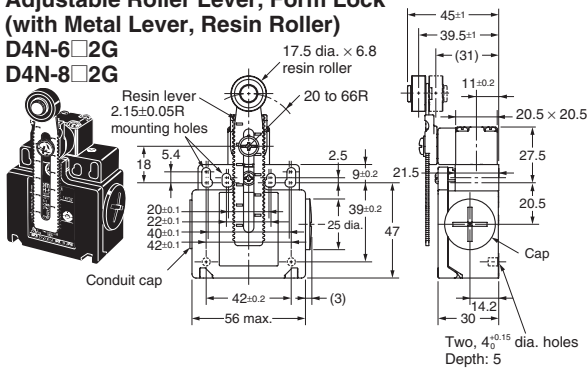
### One-way Roller Arm Lever

(Vertical)  
**D4N-5□72**  
**D4N-6□72**  
**D4N-8□72**



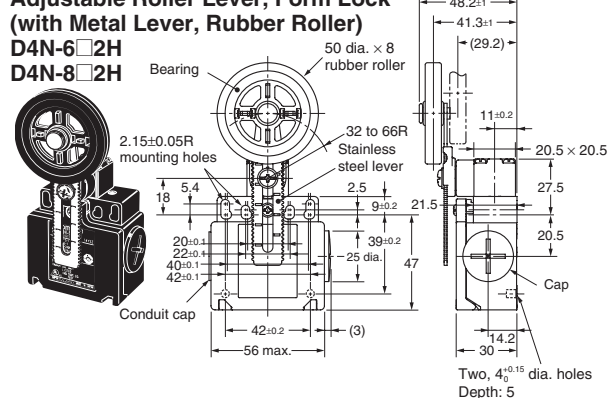
### Adjustable Roller Lever, Form Lock (with Metal Lever, Resin Roller)

**D4N-6□2G**  
**D4N-8□2G**



### Adjustable Roller Lever, Form Lock (with Metal Lever, Rubber Roller)

**D4N-6□2H**  
**D4N-8□2H**



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

## Snap-action (1NC/1NO) (2NC), Slow-action (2NC) (3NC)

| Model                     | D4N-□62<br>D4N-□62G<br>D4N-□62E<br>D4N-□62F | D4N-□72<br>D4N-□72G<br>D4N-□72E<br>D4N-□72F | D4N-□12G<br>D4N-□22G<br>D4N-□B2G<br>D4N-□D2G<br>(See note 2.) | D4N-□12H<br>D4N-□22H<br>D4N-□B2H<br>D4N-□D2H<br>(See note 3.) |
|---------------------------|---|---|---|---|
| OF max.                   | 5.0 N                                       | 5.0 N                                       | 4.5 N   | 4.5 N   |
| RF min.                   | 0.8 N                                       | 0.8 N                                       | 0.4 N   | 0.4 N   |
| PT max.                   | 4 mm  | 4 mm  | 18° to 27°  | 18° to 27°  |
| OT min.                   | 5 mm  | 5 mm  | 40°   | 40°   |
| MD max.<br>(See note 4.)  | 1.5 mm                                      | 1.5 mm                                      | 14°   | 14°   |
| OP                        | 37 ±0.8 mm                                  | 27 ±0.8 mm                                  | ---   | ---   |
| TT<br>(See note 5.)       | (9 mm)                                      | (9 mm)                                      | (70°)   | (70°)   |
| DOT min.<br>(See note 6.) | 5.8 mm                                      | 4.8 mm                                      | 50°   | 50°   |
| DOF min.<br>(See note 6.) | 20 N  | 20 N  | 20 N  | 20 N  |

- Note:
- Variation occurs in the simultaneity of contact opening/closing operations of 2NC, 2NC/1NO, and 3NC contacts. Check contact operation.
  - The operating characteristics of these Switches were measured with the roller lever set at 30 mm.
  - The operating characteristics of these Switches were measured with the roller lever set at 31 mm.
  - Only for snap-action models.
  - Reference value.
  - Only for slow-action models. For safe use, always make sure that the minimum values or greater are provided.

## Slow-action (1NC/1NO) (2NC/1NO)

| Model                     | D4N-□A62<br>D4N-□C62<br>D4N-□E62<br>D4N-□F62 | D4N-□A72<br>D4N-□C72<br>D4N-□E72<br>D4N-□F72 | D4N-□A2G<br>D4N-□C2G<br>D4N-□E2G<br>D4N-□F2G<br>(See note 1.) | D4N-□A2H<br>D4N-□C2H<br>D4N-□E2H<br>D4N-□F2H<br>(See note 2.) |
|---------------------------|--|--|---|---|
| OF max.                   | 5.0 N  | 5.0 N  | 4.5 N   | 4.5 N   |
| RF min.                   | 0.8 N  | 0.8 N  | 0.4 N   | 0.4 N   |
| PT max.<br>(See note 3.)  | 4 mm   | 4 mm   | 18° to 27°  | 18° to 27°  |
| PT (2nd)<br>(See note 4.) | (5.2 mm)                                     | (4.3 mm)                                     | (44°)   | (44°)   |
| PT max.<br>(See note 5.)  | 4 mm   | 4 mm   | 27.5° to 36.5°  | 27.5° to 36.5°  |
| PT (2nd)<br>(See note 6.) | (1.5 mm)                                     | (1.5 mm)                                     | (18°)   | (18°)   |
| OT min.                   | 5 mm   | 5 mm   | 40°   | 40°   |
| OP                        | 37 ±0.8 mm                                   | 27 ±0.8 mm                                   | ---   | ---   |
| OP<br>(See note 7.)       | 36 ±0.8 mm                                   | 26.1 ±0.8 mm                                 | ---   | ---   |
| TT<br>(See note 8.)       | (9 mm)                                       | (9 mm)                                       | (70°)   | (70°)   |
| DOT min.<br>(See note 9.) | 5.8 mm                                       | 4.8 mm                                       | 50°   | 50°   |
| DOF min.<br>(See note 9.) | 20 N   | 20 N   | 20 N  | 20 N  |

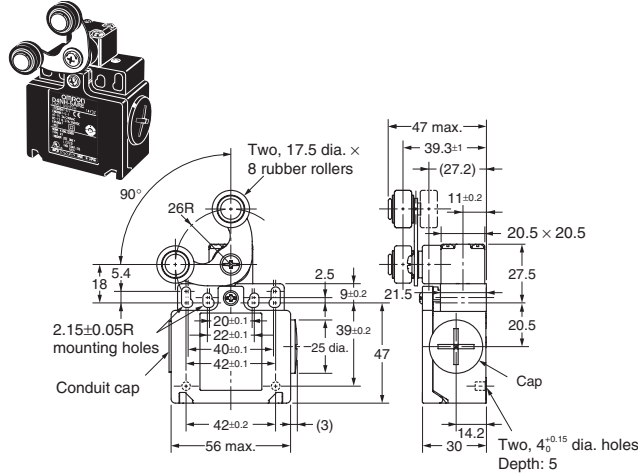
- Note:
- The operating characteristics of these Switches were measured with the roller lever set at 30 mm.
  - The operating characteristics of these Switches were measured with the roller lever set at 31 mm.
  - This PT value is possible when the NC contacts are open (OFF).
  - This PT value is possible when the NO contacts are closed (ON).
  - Only for MBB models.
  - Reference value for MBB models only.
  - Only for MBB models.
  - Reference value.
  - For safe use, always make sure that the minimum values or greater are provided.



## 2-conduit Models

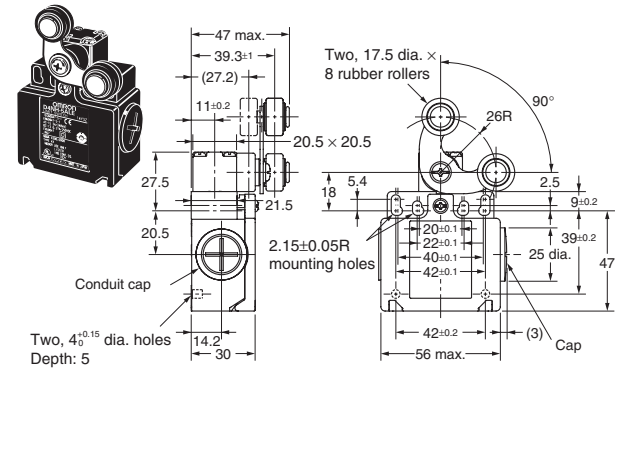
### Fork Lever Lock (Right Operation)

D4N-5□RE D4N-6□RE  
D4N-7□RE D4N-8□RE



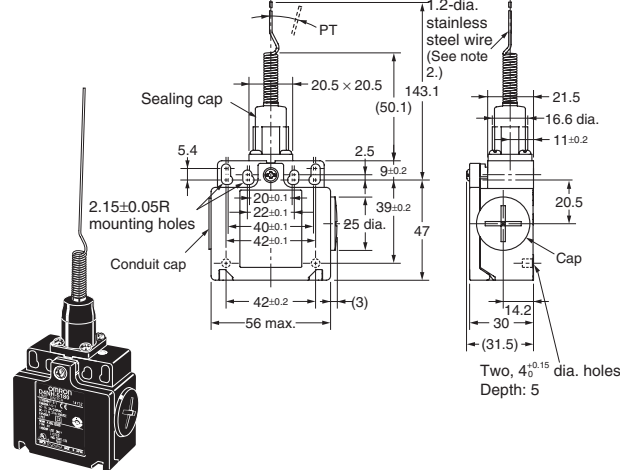
### Fork Lever Lock (Left Operation)

D4N-5□LE D4N-6□LE  
D4N-7□LE D4N-8□LE



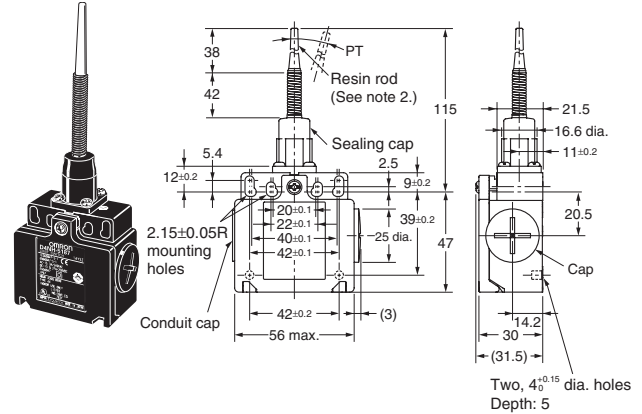
### Cat Whisker

D4N-5□80 D4N-6□80  
D4N-7□80 D4N-8□80



### Plastic Rod

D4N-5□87 D4N-6□87  
D4N-7□87 D4N-8□87



- Note:**
1. Unless otherwise specified, a tolerance of  $\pm 0.4$  mm applies to all dimensions.
  2. Use the dog within 35 mm of the tip of the actuator and keep the total travel to 70 mm or less.
  3. The usable range of the moving part is 1/3 or less of the entire spring length from the end of the spring.

## Slow-action (1NC/1NO) (2NC), Slow-action (2NC) (3NC)

| Model   | D4N-□□RE          | D4N-□□LE                            |
|---|-------------------|-------------------------------------|
| Force necessary to reverse the direction of the lever: max. | 6.4 N             | 6.4 N                               |
| Movement until the lever reverses                           | $55 \pm 10^\circ$ | $55 \pm 10^\circ$                   |
| Movement until switch operation (NC)                        | $(6.5^\circ)$     | $(6.5^\circ)$<br>(MBB: $10^\circ$ ) |
| Movement until switch operation (NO)                        | $(18.5^\circ)$    | $(18.5^\circ)$<br>(MBB: $5^\circ$ ) |

**Note:** Variation occurs in the simultaneity of contact opening/closing operations of 2NC, 2NC/1NO, and 3NC contacts. Check contact operation.

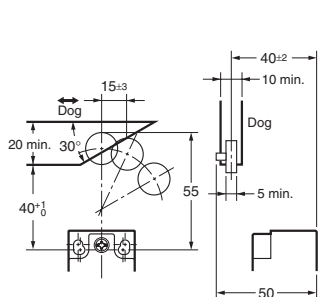
## Snap-action (1NC/1NO), Slow-action (2NC) (3NC)

| Model   | D4N-□□80   | D4N-□□87   |
|---------|------------|------------|
| OF max. | 1.5 N      | 1.5 N      |
| PT max. | $15^\circ$ | $15^\circ$ |

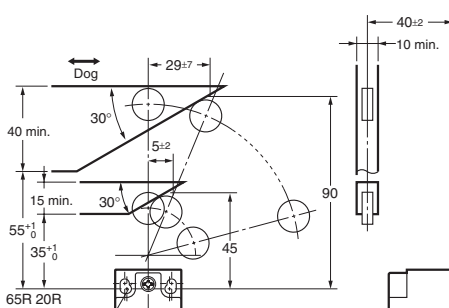
## Levers

Refer to the following for the angles and positions of the watchdogs (source: EN50047.)

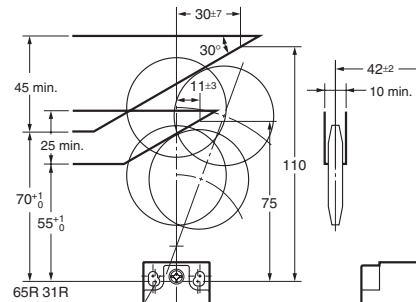
**Roller Lever**  
(D4N-□□20)



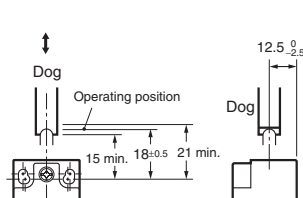
**Adjustable Roller Lever, Form Lock**  
(with Metal Lever, Resin Roller)  
(D4N-□□2G) (Reference Values)



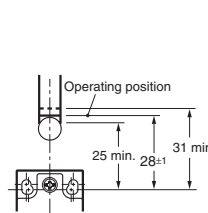
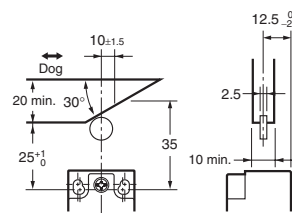
**Adjustable Roller Lever, Form Lock**  
(with Metal Lever, Rubber Roller)  
(D4N-□□2H) (Reference Values)



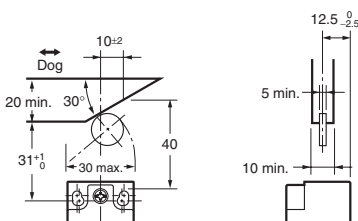
**Sealed Plunger**  
(D4N-□□31)



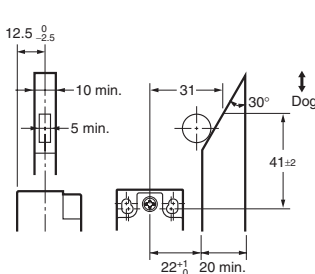
**Roller Plunger**  
(D4N-□□32)



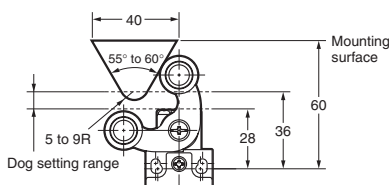
**One-way Roller Arm Lever**  
(Horizontal)  
(D4N-□□62)



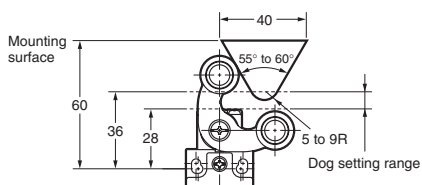
**One-way Roller Arm Lever**  
(Vertical) (Reference Values)  
(D4N-□□72)



**Fork Lever Lock**  
(Right Operation)  
(D4N-□□RE)



**Fork Lever Lock**  
(Left Operation)  
(D4N-□□LE)



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

# Safety Precautions

Refer to *OMRON SAFETY COMPONENTS SERIES (Y106)* for common precautions for Switches and Safety Limit Switches.

## CAUTION

Do not use metal connectors or metal conduits with this Switch. Doing so may occasionally result in electric shock.

### Precautions for Safe Use

- Do not drop the Switch. Doing so may result in the Switch not performing to its full capacity.
- Do not attempt to disassemble or modify the Switch. Doing so may cause the Switch to malfunction.
- Do not use the Switch where explosive gas, flammable gas, or any other hazardous gas may be present.
- Do not use the Switch submerged in oil or water, or in locations continuously subject to splashes of oil or water. Doing so may result in oil or water entering the Switch interior. (The IP67 degree of protection specification for the Switch refers to water penetration while the Switch is submersed in water for a specified period of time.)
- Protect the head from foreign material. Subjecting the head to foreign material may result in premature wear or damage to the Switch. Although the switch body is protected from penetration by dust or water, the head is not protected from penetration by minute particles or water.
- Turn the power OFF before wiring. Doing so may result in electric shock.
- Install the cover after wiring. Not doing so may result in electric shock.
- Connect a fuse to the Switch in series to protect the Switch from short-circuit damage. Use a fuse with a breaking current 1.5 to 2 times larger than the rated current. To conform to EN ratings, use an IEC60269-compliant 10-A fuse type gI or gG.
- Do not switch circuits for two or more standard loads (250 VAC, 3 A) at the same time. Doing so may adversely affect insulation performance.
- The durability of the Switch is greatly affected by operating conditions. Evaluate the Switch under actual working conditions before permanent installation and use within a number of switching operations that will not adversely affect the Switch's performance.
- Be sure to indicate in the machine manufacturer's instruction manual that the user must not attempt to repair or maintain the Switch and must contact the machine manufacturer for any repairs or maintenance.
- Check the Switches before use and inspect regularly, replacing them when necessary. If a Switch is kept pressed for an extended period of time, the components may deteriorate quickly, and the Switch may not release.

### Precautions for Correct Use

#### Environment

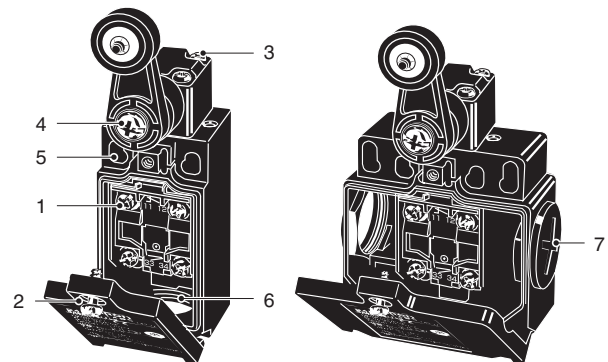
- The Switch is intended for indoor use only.
- Do not use the Switch outdoors. Doing so may cause the Switch to malfunction.
- Do not use the Switch where hazardous gases (e.g., H<sub>2</sub>S, SO<sub>2</sub>, NH<sub>3</sub>, HNO<sub>3</sub>, Cl<sub>2</sub>) are present or in locations subject to high temperature and humidity. Doing so may result in damage to the Switch caused by contact failure or corrosion.
- Do not use the Switch under any of the following conditions.
  - Locations subject to extreme temperature changes.
  - Locations where high humidity or condensation may occur.
  - Locations subject to excessive vibration.
  - Locations where metal dust, processing waste, oil, or chemicals may penetrate through the protective door.
  - Locations subject to detergents, thinner, or other solvents.

### Mounting Method

#### Mounting Screw Tightening Torque

Tighten each of the screws to the specified torque. Loose screws may result in malfunction of the Switch within a short time.

|   |  |   |
|---|--|---|
| 1 | Terminal screw                           | 0.6 to 0.8 N·m  |
| 2 | Cover clamping screw                     | 0.5 to 0.7 N·m  |
| 3 | Head clamping screw                      | 0.5 to 0.6 N·m  |
| 4 | Lever clamping screw                     | 1.6 to 1.8 N·m  |
| 5 | Body clamping screw                      | 0.5 to 0.7 N·m  |
| 6 | Conduit mounting connection, M12 adaptor | 1.8 to 2.2 N·m (except 1/2-14NPT)<br>1.4 to 1.8 N·m (1/2-14NPT) |
| 7 | Cap screw                                | 1.3 to 1.7 N·m  |

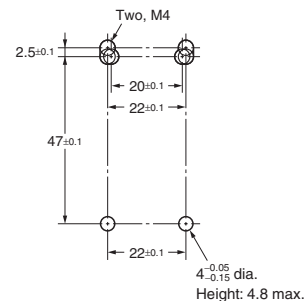


#### Switch Mounting

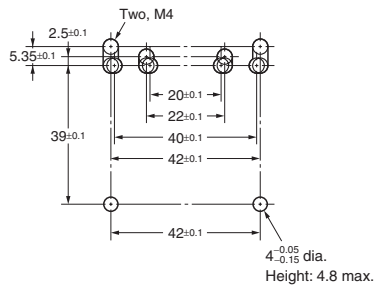
- Mount the Switch using M4 screws and washers and tighten the screws to the specified torque.
- For safety, use screws that cannot be easily removed, or use an equivalent measure to ensure that the Switch is secure.
- Secure the Switch with two M4 bolts and washers. Provide studs with a diameter of 4<sup>-0.05/-0.15</sup> and a height of 4.8 mm max. at two places, inserting into the holes at the bottom of the Switch as shown below so that the Switch is firmly fixed at four points.

#### Switch Mounting Holes

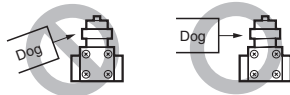
##### One-conduit Type



**Two-conduit Type**



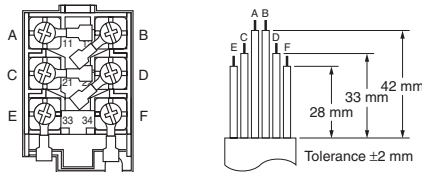
- Make sure that the dog contacts the actuator at a right angle. Applying a load to the switch actuator (roller) on a slant may result in deformation or damage of the actuator or rotary shaft.



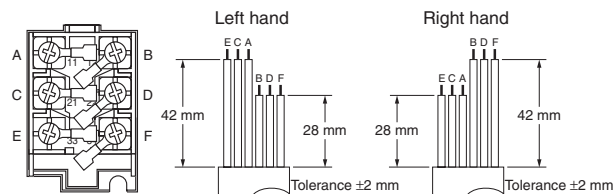
**Wiring**

- When connecting to the terminals via insulating tube and M3.5 crimp terminals, arrange the crimp terminals as shown below so that they do not rise up onto the case or the cover. Applicable lead wire size: AWG20 to AWG18 (0.5 to 0.75 mm<sup>2</sup>). Use lead wires of an appropriate length, as shown below. Not doing so may result in excess length causing the cover to rise and not fit properly.

**One-conduit Type (3 Poles)**



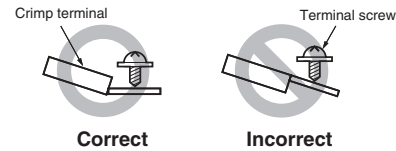
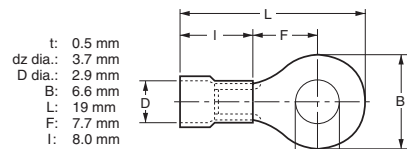
**Two-conduit Type (3 Poles)**



- Do not push crimp terminals into gaps in the case interior. Doing so may cause damage or deformation of the case.
- Use crimp terminals not more than 0.5 mm in thickness. Otherwise, they will interfere with other components inside the case. The crimp terminals shown below are not more than 0.5 mm thick.

| Manufacture | Type   | Wire size                    |
|-------------|--|------------------------------|
| J.S.T.      | FV0.5-3.7 (F type)<br>V0.5-3.7 (straight type) | AWG20 (0.5 mm <sup>2</sup> ) |

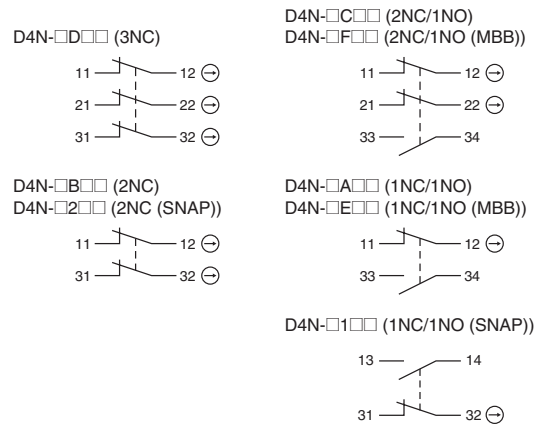
J.S.T is a Japanese manufacturer.



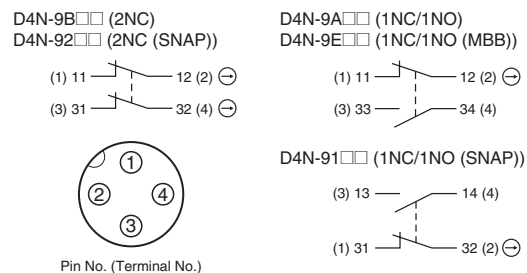
**Contact Arrangement**

- The following diagrams show the contact arrangements used for screw terminal types and connector types.

**Screw Terminal Type**



**Connector Type**



- Applicable socket: XS2F (OMRON).
- Refer to the G010 *Connector Catalog* for details on socket pin numbers and lead wire colors.

**Socket Tightening (Connector Type)**

- Turn the socket connector screws by hand and tighten until no space remains between the socket and the plug.
- Make sure that the socket connector is tightened securely. Otherwise, the rated degree of protection (IP67) may not be maintained and vibration may loosen the socket connector.

**Conduit Opening**

- Connect a recommended connector to the opening of the conduit and tighten the connector to the specified torque. The case may be damaged if an excessive tightening torque is applied.
- When using 1/2-14NPT, wind sealing tape around the joint between the connector and conduit opening so that the enclosure will conform to IP67.

- Use a cable with a suitable diameter for the connector.
- Attach and tighten a conduit cap to the unused conduit opening when wiring. Tighten the conduit cap to the specified torque. The conduit cap is provided with the Switch (2-conduit types).

### Changing the Lever

The lever mounting screws can be used to set the lever position to any position in a 360° angle at 7.5° increments. Grooves are incised on the lever and rotary shaft that engage to prevent the lever from slipping against the rotary shaft. The screws on adjustable roller lever models can also be loosened to change the length of the lever.

Remove the screws from the front of the lever before mounting the lever in reverse (front/back), and set the level so that operation will be completed before exceeding a range of 180° on the horizontal.

### Recommended Connectors

Use connectors with screws not exceeding 9 mm, otherwise the screws will protrude into the case interior, interfering with other components in the case. The connectors listed in the following table have connectors with thread sections not exceeding 9 mm. Use the recommended connectors to ensure conformance to IP67.

| Size      | Manufacturer | Model                     | Applicable cable diameter |
|-----------|--------------|---------------------------|---------------------------|
| G1/2      | LAPP         | ST-PF1/2<br>5380-1002     | 6.0 to 12.0 mm            |
|           | Ohm Denki    | OA-W1609                  | 7.0 to 9.0 mm             |
|           |              | OA-W1611                  | 9.0 to 11.0 mm            |
| Pg13.5    | LAPP         | ST-13.5<br>5301-5030      | 6.0 to 12.0 mm            |
| M20       | LAPP         | ST-M20 × 1.5<br>5311-1020 | 7.0 to 13.0 mm            |
| 1/2-14NPT | LAPP         | ST-NPT1/2<br>5301-6030    | 6.0 to 12.0 mm            |
| M12       | LAPP         | ST-M12 × 1.5<br>5311-1000 | 3.5 to 7.0 mm             |

## Production Termination

Following the release of the D4N, production of the D4D-N will be terminated.

### Date of Production Termination

Production of the D4D-N Series will be terminated in March 2006.

### Product Replacement

#### 1. Dimensions

The D4D-N and D4N use the same mounting method, and mounting hole. The multi-contact structure and the extra 4 mm in length, however, are different.

#### 2. Terminal Numbers

For the 2-contact slow-action model, the terminals 21, 22, 23, and 24 on the D4D-N are 31, 32, 33, and 34 on the D4N.

#### 3. Recommended Terminals

If the recommended terminals are not used, the Switch may not be compatible. Make sure that the Switch is compatible with the terminals.

Use LAPP connectors together with seal packing (JPK-16, GP-13.5, GPM20, or GPM12), and tighten to the specified tightening torque. Seal packing is sold separately.

LAPP is a German manufacturer. Ohm Denki is a Japanese manufacturer.

Before using an M12 type, attaching the provided changing adaptor to the Switch and then connect the recommended connector.

Before using a 2-conduit 1/2-14NPT type, attach the provided changing adaptor to the Switch and then connect the recommended connector.

### Storage

Do not store the Switch in locations where hazardous gases (e.g., H<sub>2</sub>S, SO<sub>2</sub>, NH<sub>3</sub>, HNO<sub>3</sub>, Cl<sub>2</sub>) or dust is present, or in locations subject to high temperatures and humidity.

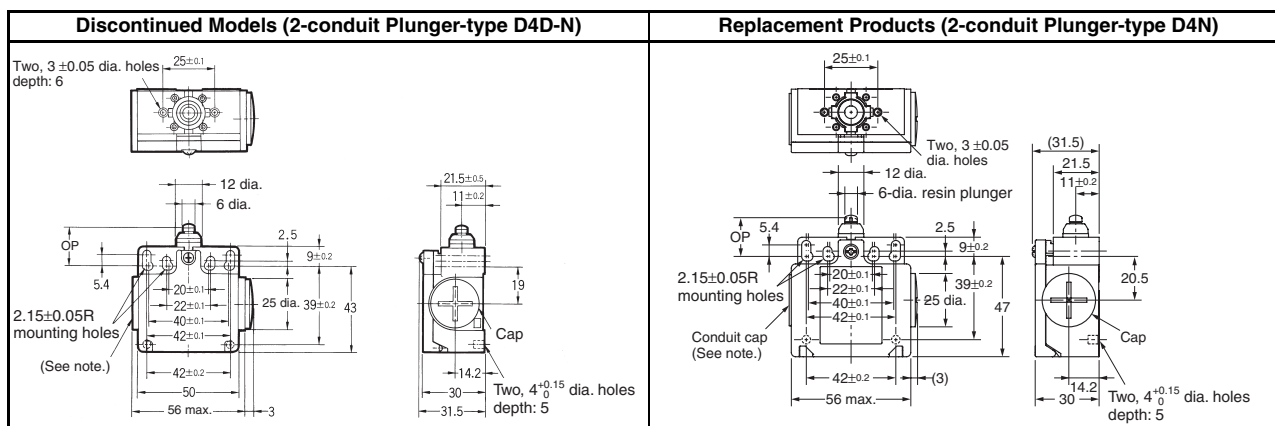
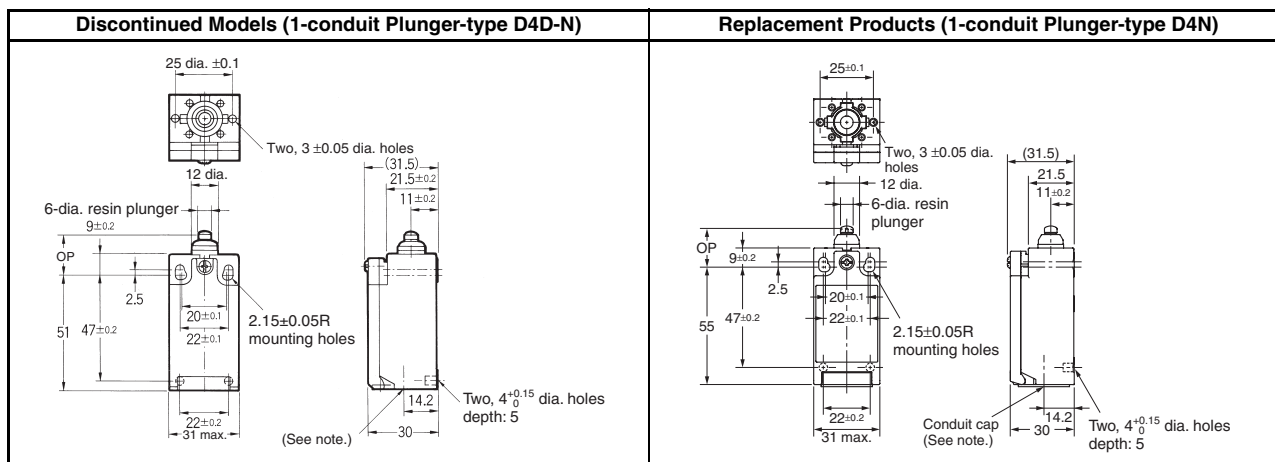
### Others

- Do not allow the load current to exceed the rated value.
- Confirm that the seal rubber has no defects before use. If the seal rubber is displaced or raised, or has foreign particles adhered to it, the sealing capability of the seal rubber will be adversely affected.
- Use the correct cover mounting screws only, or the sealing capability of the seal rubber will deteriorate.
- Inspect the Switch regularly.
- Make sure that foreign particles do not enter the head when removing the screws from the four corners to change the head position in any of the four directions.
- Use the following recommended countermeasures to prevent telegraphing when using adjustable or long levers.
  1. Make the rear edge of the dog smooth with an angle of 15° to 30° or make it in the shape of a quadratic curve.
  2. Design the circuit so that no error signal will be generated.
  3. Use or set a Switch that is operated in one direction only.

### Comparison of the D4D-N and Substitute Products

| Model                     | D4N                     |
|---------------------------|-------------------------|
| Switch color              | Very similar            |
| Dimensions                | Very similar            |
| Wiring/connection         | Significantly different |
| Mounting method           | Completely compatible   |
| Ratings/performance       | Very similar            |
| Operating characteristics | Very similar            |
| Operating method          | Completely compatible   |

Dimensions (Unit: mm)



List of Recommended Substitute Products

■ : The actuator on the D4D-N is a non-safety type. The D4N is recommended for safety applications (form lock type). Be sure to mount it correctly.

■ : M screws are recommended to comply with European standards. Therefore, the M20 type is recommended as a substitute when the PG13.5 conduit-type is not available in a D4N model.

Safety Limit Switches

| D4D-N product to be discontinued | Recommended substitute product | D4D-N product to be discontinued | Recommended substitute product | D4D-N product to be discontinued | Recommended substitute product |
|----------------------------------|--------------------------------|----------------------------------|--------------------------------|----------------------------------|--------------------------------|
| D4D-1120N                        | D4N-1120                       | D4D-1520N                        | D4N-1A20                       | D4D-1A20N                        | D4N-1B20                       |
| D4D-2120N                        | D4N-2120                       | D4D-2520N                        | D4N-2A20                       | D4D-2A20N                        | D4N-2B20                       |
| D4D-3120N                        | D4N-3120                       | D4D-3520N                        | D4N-3A20                       | D4D-3A20N                        | D4N-3B20                       |
| D4D-5120N                        | D4N-5120                       | D4D-5520N                        | D4N-5A20                       | D4D-5A20N                        | D4N-5B20                       |
| D4D-6120N                        | D4N-6120                       | D4D-6520N                        | D4N-6A20                       | D4D-6A20N                        | D4N-6B20                       |
| D4D-1122N                        | D4N-1122                       | D4D-1522N                        | D4N-1A22                       | D4D-1A22N                        | D4N-1B22                       |
| D4D-2122N                        | D4N-2122                       | D4D-2522N                        | D4N-2A22                       | D4D-2A22N                        | D4N-2B22                       |
| D4D-3122N                        | D4N-3122                       | D4D-3522N                        | D4N-3A22                       | D4D-3A22N                        | D4N-3B22                       |
| D4D-5122N                        | D4N-5122                       | D4D-5522N                        | D4N-5A22                       | D4D-5A22N                        | D4N-5B22                       |
| D4D-6122N                        | D4N-6122                       | D4D-6522N                        | D4N-6A22                       | D4D-6A22N                        | D4N-6B22                       |
| D4D-1125N                        | D4N-1125                       | D4D-1525N                        | D4N-1A25                       | D4D-1A25N                        | D4N-1B25                       |
| D4D-2125N                        | D4N-2125                       | D4D-2525N                        | D4N-2A25                       | D4D-2A25N                        | D4N-2B25                       |
| D4D-3125N                        | D4N-3125                       | D4D-3525N                        | D4N-3A25                       | D4D-3A25N                        | D4N-3B25                       |
| D4D-1131N                        | D4N-1131                       | D4D-1531N                        | D4N-1A31                       | D4D-1A31N                        | D4N-1B31                       |
| D4D-2131N                        | D4N-2131                       | D4D-2531N                        | D4N-2A31                       | D4D-2A31N                        | D4N-2B31                       |
| D4D-3131N                        | D4N-3131                       | D4D-3531N                        | D4N-3A31                       | D4D-3A31N                        | D4N-3B31                       |
| D4D-5131N                        | D4N-5131                       | D4D-5531N                        | D4N-5A31                       | D4D-5A31N                        | D4N-5B31                       |

| D4D-N product to be discontinued | Recommended substitute product | D4D-N product to be discontinued | Recommended substitute product | D4D-N product to be discontinued | Recommended substitute product |
|----------------------------------|--------------------------------|----------------------------------|--------------------------------|----------------------------------|--------------------------------|
| D4D-6131N                        | D4N-6131                       | D4D-6531N                        | D4N-6A31                       | D4D-6A31N                        | D4N-6B31                       |
| D4D-1132N                        | D4N-1132                       | D4D-1532N                        | D4N-1A32                       | D4D-1A32N                        | D4N-1B32                       |
| D4D-2132N                        | D4N-2132                       | D4D-2532N                        | D4N-2A32                       | D4D-2A32N                        | D4N-2B32                       |
| D4D-3132N                        | D4N-3132                       | D4D-3532N                        | D4N-3A32                       | D4D-3A32N                        | D4N-3B32                       |
| D4D-5132N                        | D4N-5132                       | D4D-5532N                        | D4N-5A32                       | D4D-5A32N                        | D4N-5B32                       |
| D4D-6132N                        | D4N-6132                       | D4D-6532N                        | D4N-6A32                       | D4D-6A32N                        | D4N-6B32                       |
| D4D-1162N                        | D4N-1162                       | D4D-1562N                        | D4N-1A62                       | D4D-1A62N                        | D4N-1B62                       |
| D4D-2162N                        | D4N-2162                       | D4D-2562N                        | D4N-2A62                       | D4D-2A62N                        | D4N-2B62                       |
| D4D-3162N                        | D4N-3162                       | D4D-3562N                        | D4N-3A62                       | D4D-3A62N                        | D4N-3B62                       |
| D4D-5162N                        | D4N-5162                       | D4D-5562N                        | D4N-5A62                       | D4D-5A62N                        | D4N-5B62                       |
| D4D-6162N                        | D4N-6162                       | D4D-6562N                        | D4N-6A62                       | D4D-6A62N                        | D4N-6B62                       |
| D4D-1172N                        | D4N-1172                       | D4D-1572N                        | D4N-1A72                       | D4D-1A72N                        | D4N-1B72                       |
| D4D-2172N                        | D4N-2172                       | D4D-2572N                        | D4N-2A72                       | D4D-2A72N                        | D4N-2B72                       |
| D4D-3172N                        | D4N-3172                       | D4D-3572N                        | D4N-3A72                       | D4D-3A72N                        | D4N-3B72                       |
| D4D-5172N                        | D4N-5172                       | D4D-5572N                        | D4N-5A72                       | D4D-5A72N                        | D4N-5B72                       |
| D4D-6172N                        | D4N-6172                       | D4D-6572N                        | D4N-6A72                       | D4D-6A72N                        | D4N-6B72                       |
| D4D-112HN                        | D4N-112H                       | D4D-152HN                        | D4N-1A2H                       | D4D-1A2HN                        | D4N-1B2H                       |
| D4D-212HN                        | D4N-212H                       | D4D-252HN                        | D4N-2A2H                       | D4D-2A2HN                        | D4N-2B2H                       |
| D4D-312HN                        | D4N-312H                       | D4D-352HN                        | D4N-3A2H                       | D4D-3A2HN                        | D4N-3B2H                       |

**General-purpose Limit Switches**

| D4D-N product to be discontinued | Recommended substitute product | D4D-N product to be discontinued | Recommended substitute product | D4D-N product to be discontinued | Recommended substitute product |
|----------------------------------|--------------------------------|----------------------------------|--------------------------------|----------------------------------|--------------------------------|
| D4D-1121N                        | D4N-112G                       | D4D-15REN                        | D4N-1ARE                       | D4D-1AREN                        | D4N-1BRE                       |
| D4D-2121N                        | D4N-212G                       | D4D-25REN                        | D4N-2ARE                       | D4D-2AREN                        | D4N-2BRE                       |
| D4D-3121N                        | D4N-312G                       | D4D-35REN                        | D4N-3ARE                       | D4D-3AREN                        | D4N-3BRE                       |
| D4D-5121N                        | D4N-512G                       | D4D-55REN                        | D4N-5ARE                       | D4D-5AREN                        | D4N-5BRE                       |
| D4D-6121N                        | D4N-612G                       | D4D-65REN                        | D4N-6ARE                       | D4D-6AREN                        | D4N-6BRE                       |
| D4D-1127N                        | D4N-112H                       | D4D-15LEN                        | D4N-1ALE                       | D4D-1ALEN                        | D4N-1BLE                       |
| D4D-2127N                        | D4N-212H                       | D4D-25LEN                        | D4N-2ALE                       | D4D-2ALEN                        | D4N-2BLE                       |
| D4D-3127N                        | D4N-312H                       | D4D-35LEN                        | D4N-3ALE                       | D4D-3ALEN                        | D4N-3BLE                       |
| D4D-5127N                        | D4N-512H                       | D4D-55LEN                        | D4N-5ALE                       | D4D-5ALEN                        | D4N-5BLE                       |
| D4D-6127N                        | D4N-612H                       | D4D-65LEN                        | D4N-6ALE                       | D4D-6ALEN                        | D4N-6BLE                       |
| D4D-1180N                        | D4N-4180                       | D4D-1521N                        | D4N-1A2G                       | D4D-1A21N                        | D4N-1B2G                       |
| D4D-2180N                        | D4N-2180                       | D4D-2521N                        | D4N-2A2G                       | D4D-2A21N                        | D4N-2B2G                       |
| D4D-3180N                        | D4N-3180                       | D4D-3521N                        | D4N-3A2G                       | D4D-3A21N                        | D4N-3B2G                       |
| D4D-5180N                        | D4N-8180                       | D4D-5521N                        | D4N-5A2G                       | D4D-5A21N                        | D4N-5B2G                       |
| D4D-6180N                        | D4N-6180                       | D4D-6521N                        | D4N-6A2G                       | D4D-6A21N                        | D4N-6B2G                       |
| D4D-1187N                        | D4N-4187                       | D4D-1527N                        | D4N-1A2H                       | D4D-1A27N                        | D4N-1B2H                       |
| D4D-2187N                        | D4N-2187                       | D4D-2527N                        | D4N-2A2H                       | D4D-2A27N                        | D4N-2B2H                       |
| D4D-3187N                        | D4N-3187                       | D4D-3527N                        | D4N-3A2H                       | D4D-3A27N                        | D4N-3B2H                       |
| D4D-5187N                        | D4N-8187                       | D4D-5527N                        | D4N-5A2H                       | D4D-5A27N                        | D4N-5B2H                       |
| D4D-6187N                        | D4N-6187                       | D4D-6527N                        | D4N-6A2H                       | D4D-6A27N                        | D4N-6B2H                       |
|                                  |                                |                                  |                                | D4D-1A80N                        | D4N-4B80                       |
|                                  |                                |                                  |                                | D4D-2A80N                        | D4N-2B80                       |
|                                  |                                |                                  |                                | D4D-3A80N                        | D4N-3B80                       |
|                                  |                                |                                  |                                | D4D-5A80N                        | D4N-8B80                       |
|                                  |                                |                                  |                                | D4D-6A80N                        | D4N-6B80                       |
|                                  |                                |                                  |                                | D4D-1A87N                        | D4N-4B87                       |
|                                  |                                |                                  |                                | D4D-2A87N                        | D4N-2B87                       |
|                                  |                                |                                  |                                | D4D-3A87N                        | D4N-3B87                       |
|                                  |                                |                                  |                                | D4D-5A87N                        | D4N-8B87                       |
|                                  |                                |                                  |                                | D4D-6A87N                        | D4N-6B87                       |

# Warranty and Application Considerations

## Read and Understand this Catalog

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## Application Considerations

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## Disclaimers

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### DIMENSIONS AND WEIGHTS

Dimensions and weights are nominal and are not to be used for manufacturing purposes, even when tolerances are shown.

**ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.**

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

Cat. No. C130-E1-01A In the interest of product improvement, specifications are subject to change without notice.

## OMRON Corporation

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