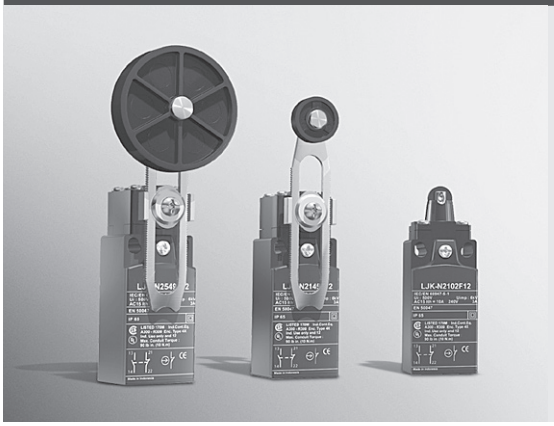
# Compact plastic limit switches with positive opening mechanism

Positive opening mechanism

## Model LJK-N□□□

**Positive opening mechanism meets standards worldwide. A wide variety of actuators is available.**



■ **The LJK-N conforms to IEC standards, and is certified by UL and CSA. (excluding some models) For equipment and facilities to be exported anywhere in the world, use the LJK-N with confidence.**

■ **Positive opening mechanism ⊖ forces contacts open.***
- **Can prevent problems caused by contact fusing.**
- **Can be used also as a safety limit switch.**

■ **Wide variety, with 33 catalog listings in the lineup**
- **Actuators: 11 types**
- **Contact configuration**

  **Snap action: N.C. x 1 + N.O. x 1**

  **Slow action: N.C. x + N.O. x 1 (BBM: break before make), N.C. x 2**

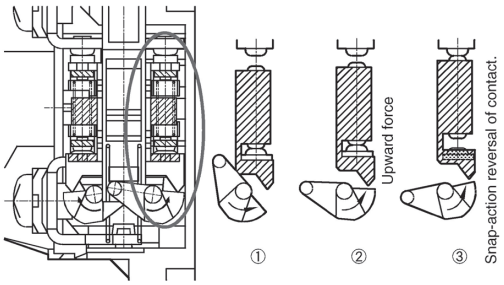
*Except for the steel wire and spring rod types.

## CATALOG LISTING

| Type of actuator | Internal switch mechanism | Contact configuration | Catalog listing |
|---|---|---|---|
| Resin roller lever | Snap action | N.C. x 1 + N.O. x 1 | **LJK-N2118F12** |
| | Slow action BBM | N.C. x 1 + N.O. x 1 | **LJK-N2518F12** |
| | Slow action | N.C. x 2 | **LJK-N2718F12** |
| Resin adjustable roller lever | Snap action | N.C. x 1 + N.O. x 1 | **LJK-N2145F12** |
| | Slow action BBM | N.C. x 1 + N.O. x 1 | **LJK-N2545F12** |
| | Slow action | N.C. x 2 | **LJK-N2745F12** |
| 50 mm dia. resin roller lever | Snap action | N.C. x 1 + N.O. x 1 | **LJK-N2139F12** |
| | Slow action BBM | N.C. x 1 + N.O. x 1 | **LJK-N2539F12** |
| | Slow action | N.C. x 2 | **LJK-N2739F12** |
| 50 mm dia. resin adjustable roller lever | Snap action | N.C. x 1 + N.O. x 1 | **LJK-N2149F12** |
| | Slow action BBM | N.C. x 1 + N.O. x 1 | **LJK-N2549F12** |
| | Slow action | N.C. x 2 | **LJK-N2749F12** |
| Plunger | Snap action | N.C. x 1 + N.O. x 1 | **LJK-N2110F12** |
| | Slow action BBM | N.C. x 1 + N.O. x 1 | **LJK-N2510F12** |
| | Slow action | N.C. x 2 | **LJK-N2710F12** |
| Resin roller plunger | Snap action | N.C. x 1 + N.O. x 1 | **LJK-N2102F12** |
| | Slow action BBM | N.C. x 1 + N.O. x 1 | **LJK-N2502F12** |
| | Slow action | N.C. x 2 | **LJK-N2702F12** |
| Resin cross roller plunger | Snap action | N.C. x 1 + N.O. x 1 | **LJK-N2103F12** |
| | Slow action BBM | N.C. x 1 + N.O. x 1 | **LJK-N2503F12** |
| | Slow action | N.C. x 2 | **LJK-N2703F12** |
| Resin one-way roller (horizontal) | Snap action | N.C. x 1 + N.O. x 1 | **LJK-N2121F12** |
| | Slow action BBM | N.C. x 1 + N.O. x 1 | **LJK-N2521F12** |
| | Slow action | N.C. x 2 | **LJK-N2721F12** |
| Resin one-way roller (vertical) | Snap action | N.C. x 1 + N.O. x 1 | **LJK-N2127F12** |
| | Slow action BBM | N.C. x 1 + N.O. x 1 | **LJK-N2527F12** |
| | Slow action | N.C. x 2 | **LJK-N2727F12** |
| Steel wire | Snap action | N.C. x 1 + N.O. x 1 | **LJK-N2106F12** |
| | Slow action BBM | N.C. x 1 + N.O. x 1 | **LJK-N2506F12** |
| | Slow action | N.C. x 2 | **LJK-N2706F12** |
| Spring rod | Snap action | N.C. x 1 + N.O. x 1 | **LJK-N2108F12** |
| | Slow action BBM | N.C. x 1 + N.O. x 1 | **LJK-N2508F12** |
| | Slow action | N.C. x 2 | **LJK-N2708F12** |

## INTERNAL SWITCH

### ●Snap-action type

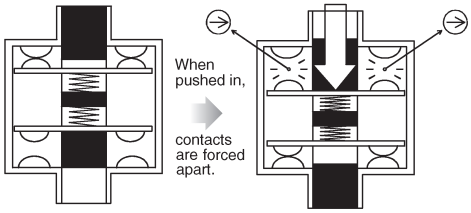



As seen above, the cam forces the N.C. contact up from the bottom, even if there is fusing of the contacts.

Note: Steel wire and spring rod types do not have positive opening mechanism.

### ●Slow-action BBM type

The slow action internal switch has N.C./N.O. electrically independent contacts (form Zb). The positive opening mechanism forces the contacts open (N.C. contacts only) even if they are fused.




## SPECIFICATIONS

| | | |
|---|---|---|
| **Standards** | **Compliance** | Product-related: IEC 60947-5-1⊖, and EN 60947-5-1⊖<br>Machine-related: IEC 60204-1 and EN 60204-1 |
| | **Certification** | UL 508, CSA C22.2 No. 14 |
| **Structure** | **Protective structure** | IP65 (IEC 60529, JIS C 0920) |
| | **Electrical shock protection** | Class II (IEC 61140) |
| | **Pollution degree** | 3 |
| | **Internal switch** | **LJK-N21□□F12**: snap action, **LJK-N25□□F12** and **LJK-N27□□F12**: slow action |
| **Electrical performance** | **Electrical rating** | (See Table 1.) |
| | **Insulation resistance** | 100 MΩ or more between terminals with the same polarity and between each terminal and non-live metal part (by DC500 megger) |
| | **Initial contact resistance** | 25 mΩ or less (6 to 8 Vdc, thermal current 1A, measured by voltage drop method) |
| | **Rated thermal current (Ith)** | 10A |
| | **Short-circuit protection** | 10A breaking fuse, gG (gI) type |
| | **Rated insulation voltage (Ui)** | 500V (IEC 60947-5-1), 300V (UL 508, CSA C22.2 No. 14) |
| | **Rated conditional short-circuit current** | 1,000A |
| | **Rated impulse withstand voltage (Uimp)** | 6,000V |
| **Mechanical performance** | **Impact resistance** | Durability: 500 m/s²<br>Note: 50 mm dia. resin adjustable roller lever types 150 m/s²<br>spring rod types 200 m/s²<br>IEC 60068-2-27 |
| | **Vibration resistance** | 250 m/s² (10 to 500 Hz), IEC 60068-2-6 |
| | **Max. operating speed and min. operating speed** | (See Table 2.) |
| **Life** | **Mechanical life** | 10 million operations |
| | **Electrical life** | Snap action: 300000 operations, Slow action: 400000 operations |
| **Environment** | **Operating temperature** | – 25 to +70˚C (without freezing) |
| | **Operating humidity** | Max. 98% RH |
| | **Storage temperature** | – 40 to +70˚C |
| **Conduit** | | G 1/2 |
| **Recommended tightening torque** | | Body: 0.5 to 0.7 N·m (M4)<br>Head: 0.8 to 1.2 N·m (M3 round head screw)<br>Cover: 0.8 to 1.2 N·m (M3 round head screw)<br>Terminal: 0.8 to 1.2 N·m (M3.5 round head screw)<br>Lever: 1.3 to 1.7 N·m (M4 round head screw) |

### ●Table 1. Electrical rating

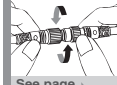
AC-15: A300 (Ue=240V, Ie=3A)
DC-13: R300 (Ue=250V, Ie=0.1A)

Utilization categories AC-15: solenoid load
DC-13: solenoid load
Ue: rated operating voltage
Ie: rated operating current

### ●Table 2. Max. operating speed and min. operating speed

LJK-N2□□□F12
Actuator
Contact configuration

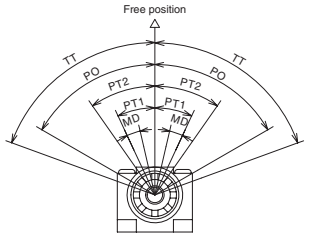
| Actuator / Contact configuration | Roller lever type<br>LJK-N2□18F12<br>LJK-N2□39F12<br>LJK-N2□45F12<br>LJK-N2□49F12 | | Plunger type<br>LJK-N2□10F12<br>LJK-N2□02F12<br>LJK-N2□03F12 | | One-way roller / non-directional operation types<br>LJK-N2□21F12<br>LJK-N2□27F12<br>LJK-N2□06F12<br>LJK-N2□08F12 | |
|---|---|---|---|---|---|---|
| | Min. speed | Max. speed | Min. speed | Max. speed | Min. speed | Max. speed |
| LJK-N21□□F12 | 0.03 m/min | 1.5 m/s | 0.01 m/min | 0.5 m/s | 0.02 m/min | 1 m/s |
| LJK-N25□□F12 | 18 m/min | 1.5 m/s | 6 m/min | 0.5 m/s | 12 m/min | 1 m/s |
| LJK-N27□□F12 | 18 m/min | 1.5 m/s | 6 m/min | 0.5 m/s | 12 m/min | 1 m/s |

Connector with cable

See page F-001

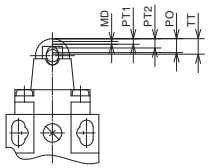
## OPERATING CHARACTERISTICS BY ROTARY OR IN-LINE ACTUATIONS OF ACTUATORS

**O.F.: max. operating force needed for N.C. operation P.O.F: min. force for positive opening**

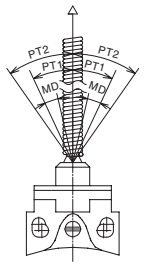
●Roller lever type




●Plunger type and one-way roller type




●Non-directional operation type

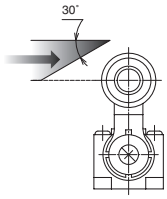


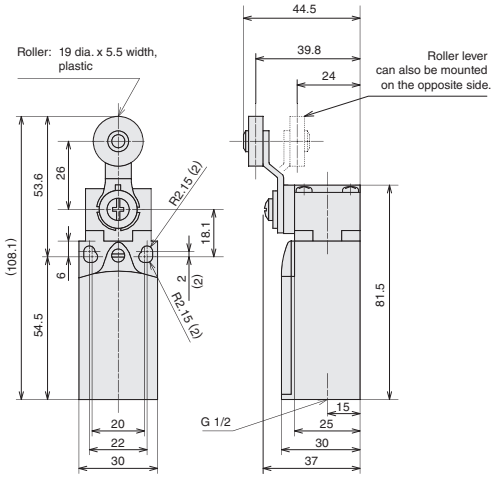

T.T.: total travel. P.T.1: pretravel for N.C. operation. P.T.2: pretravel for N.O. operation.
M.D.: minimum movement differential. P.O.: minimum travel to positive opening position.

## SHAPE / DIMENSIONS / OPERATING CHARACTERISTICS / CIRCUIT DIAGRAMS

**Resin roller lever: LJK-N2118F12, LJK-N2518F12, LJK-N2718F12**

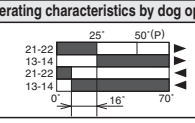
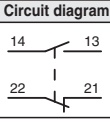
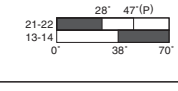
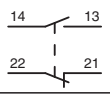
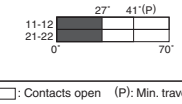
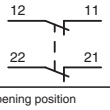
(unit: mm)




* Dimensional tolerance is ±0.4 unless otherwise specified.

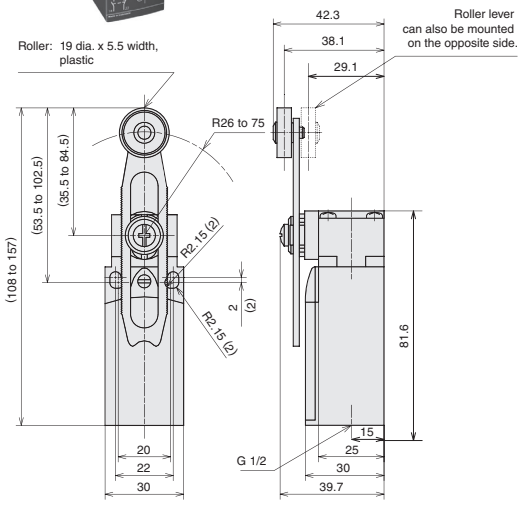
| Operating characteristics by lever rotational angle | LJK-N2118F12 | LJK-N2518F12 | LJK-N2718F12 |
|---|---|---|---|
| **O.F.** (max. operating force needed for N.C. operation) | 0.1 N·m | 0.1 N·m | 0.1 N·m |
| **P.O.** (min. travel to positive opening position) | 50° | 47° | 41° |
| **P.O.F.** (minimum force for positive opening) | 0.15 N·m | 0.15 N·m | 0.15 N·m |
| **PT1** (pretravel for N.C. operation) | (25°) | (28°) | (27°) |
| **PT2** (pretravel for N.O. operation) | – | (38°) | – |
| **MD** | (16°) | – | – |
| **TT** (total travel) | (70°) | (70°) | (70°) |

| Catalog listing | Operating characteristics by dog operation | Circuit diagram |
|---|---|---|
| LJK-N2118F12 |   |   |
| LJK-N2518F12 |   |   |
| LJK-N2718F12 |   |   |

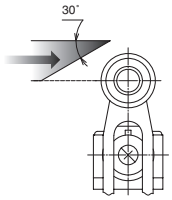
■: Contacts closed □: Contacts open (P): Min. travel to positive opening position

## Resin adjustable roller lever: LJK-N2145F12, LJK-N2545F12, LJK-N2745F12

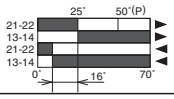
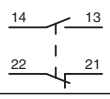
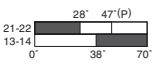
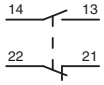
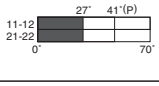
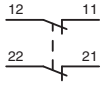
(unit: mm)




* Dimensional tolerance is ±0.4 unless otherwise specified.



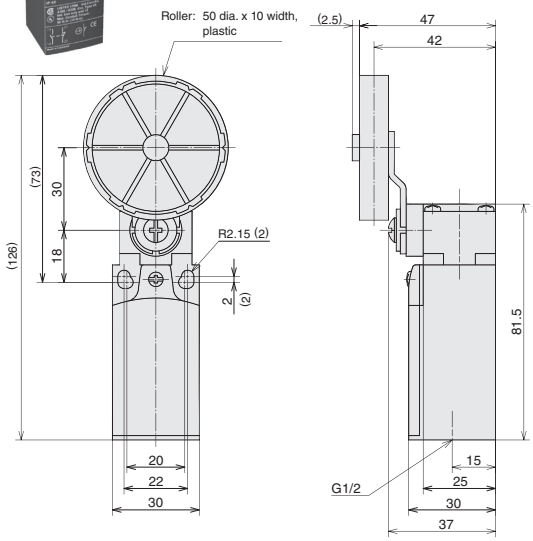

| Operating characteristics by lever rotational angle | LJK-N2145F12 | LJK-N2545F12 | LJK-N2745F12 |
|---|---|---|---|
| **O.F.** (max. operating force needed for N.C. operation) | 0.1 N·m | 0.1 N·m | 0.1 N·m |
| **P.O.** (min. travel to positive opening position) | 50° | 47° | 41° |
| **P.O.F.** (minimum force for positive opening) | 0.15 N·m | 0.15 N·m | 0.15 N·m |
| **PT1** (pretravel for N.C. operation) | (25°) | (28°) | (27°) |
| **PT2** (pretravel for N.O. operation) | – | (38°) | – |
| **MD** | (16°) | – | – |
| **TT** (total travel) | (70°) | (70°) | (70°) |

| Catalog listing | Operating characteristics by dog operation | Circuit diagram |
|---|---|---|
| LJK-N2145F12 |  |  |
| LJK-N2545F12 |  |  |
| LJK-N2745F12 |  |  |

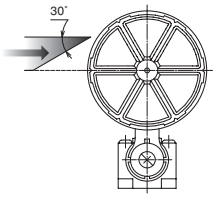


■: Contacts closed □: Contacts open (P): Min. travel to positive opening position

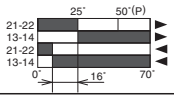
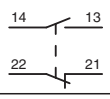
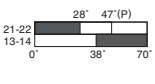
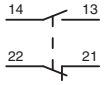
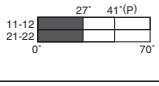
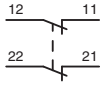
## 50 mm dia. resin roller lever: LJK-N2139F12, LJK-N2539F12, LJK-N2739F12




* Dimensional tolerance is ±0.4 unless otherwise specified.

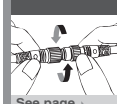



| Operating characteristics by lever rotational angle | LJK-N2139F12 | LJK-N2539F12 | LJK-N2739F12 |
|---|---|---|---|
| **O.F.** (max. operating force needed for N.C. operation) | 0.1 N·m | 0.1 N·m | 0.1 N·m |
| **P.O.** (min. travel to positive opening position) | 50° | 47° | 41° |
| **P.O.F.** (minimum force for positive opening) | 0.15 N·m | 0.15 N·m | 0.15 N·m |
| **PT1** (pretravel for N.C. operation) | (25°) | (28°) | (27°) |
| **PT2** (pretravel for N.O. operation) | – | (38°) | – |
| **MD** | (16°) | – | – |
| **TT** (total travel) | (70°) | (70°) | (70°) |

| Catalog listing | Operating characteristics by dog operation | Circuit diagram |
|---|---|---|
| LJK-N2139F12 |  |  |
| LJK-N2539F12 |  |  |
| LJK-N2739F12 |  |  |

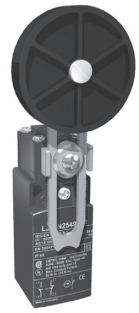


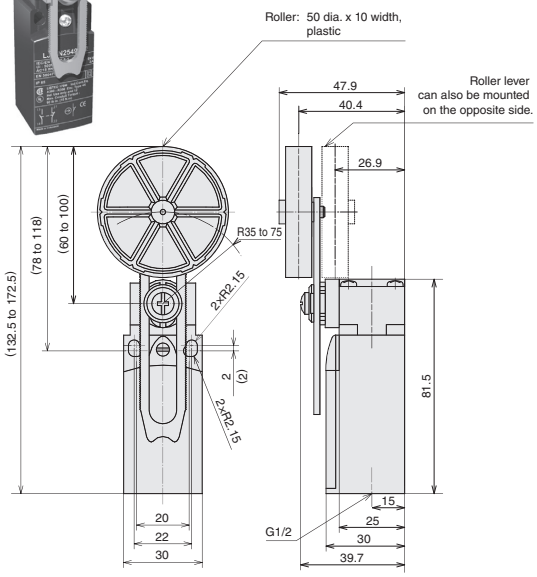
■: Contacts closed □: Contacts open (P): Min. travel to positive opening position

Connector with cable

See page F-001

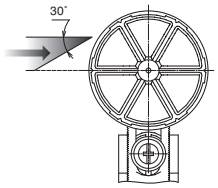
## 50 mm dia. resin adjustable roller lever: LJK-N2149F12, LJK-N2549F12, LJK-N2749F12

(unit: mm)

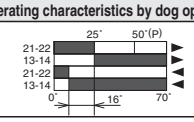
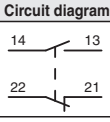
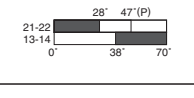
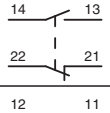
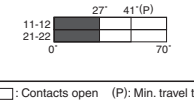
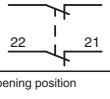





* Dimensional tolerance is ±0.4 unless otherwise specified.



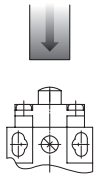

| Operating characteristics by lever rotational angle | LJK-N2149F12 | LJK-N2549F12 | LJK-N2749F12 |
|---|---|---|---|
| **O.F.** (max. operating force needed for N.C. operation) | 0.1 N·m | 0.1 N·m | 0.1 N·m |
| **P.O.** (min. travel to positive opening position) | 50° | 47° | 41° |
| **P.O.F.** (minimum force for positive opening) | 0.15 N·m | 0.15 N·m | 0.15 N·m |
| **PT1** (pretravel for N.C. operation) | (25°) | (28°) | (27°) |
| **PT2** (pretravel for N.O. operation) | – | (38°) | – |
| **MD** | (16°) | – | – |
| **TT** (total travel) | (70°) | (70°) | (70°) |

| Catalog listing | Operating characteristics by dog operation | Circuit diagram |
|---|---|---|
| **LJK-N2149F12** |  |  |
| **LJK-N2549F12** |  |  |
| **LJK-N2749F12** |  |  |

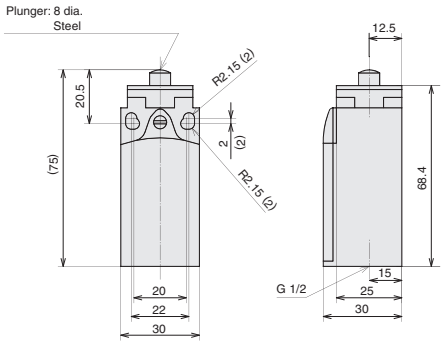


■: Contacts closed □: Contacts open (P): Min. travel to positive opening position

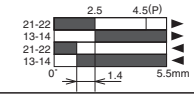
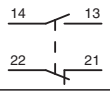
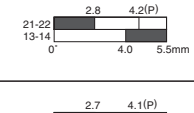
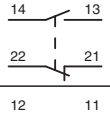
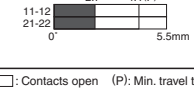
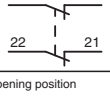
## Plunger: LJK-N2110F12, LJK-N2510F12, LJK-N2710F12



| Operating characteristics by vertical operation | LJK-N2110F12 | LJK-N2510F12 | LJK-N2710F12 |
|---|---|---|---|
| **O.F.** (max. operating force needed for N.C. operation) | 15 N | 15 N | 15 N |
| **P.O.** (min. travel to positive opening position) | 4.5 mm | 4.2 mm | 4.1 mm |
| **P.O.F.** (minimum force for positive opening) | 30 N | 30 N | 30 N |
| **PT1** (pretravel for N.C. operation) | (2.5 mm) | (2.8 mm) | (2.7 mm) |
| **PT2** (pretravel for N.O. operation) | – | (4.0 mm) | – |
| **MD** | (1.4 mm) | – | – |
| **TT** (total travel) | (5.5 mm) | (5.5 mm) | (5.5 mm) |




* Dimensional tolerance is ±0.4 unless otherwise specified.

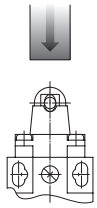
| Catalog listing | Operating characteristics by vertical operation | Circuit diagram |
|---|---|---|
| **LJK-N2110F12** |  |  |
| **LJK-N2510F12** |  |  |
| **LJK-N2710F12** |  |  |



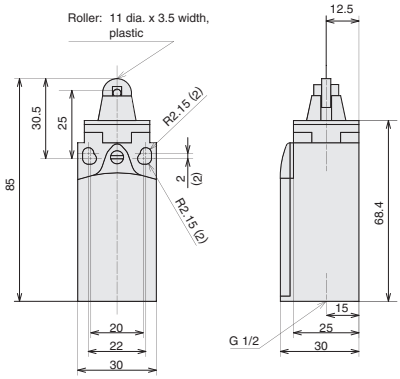
■: Contacts closed □: Contacts open (P): Min. travel to positive opening position

## Resin roller plunger: LJK-N2102F12, LJK-N2502F12, LJK-N2702F12

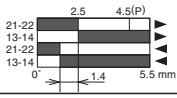
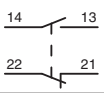
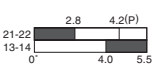
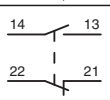
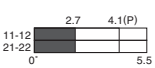
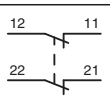
(unit: mm)



| Operating characteristics by vertical operation | LJK-N2102F12 | LJK-N2502F12 | LJK-N2702F12 |
|---|---|---|---|
| **O.F.** (max. operating force needed for N.C. operation) | 15 N | 15 N | 15 N |
| **P.O.** (min. travel to positive opening position) | 4.5 mm | 4.2 mm | 4.1 mm |
| **P.O.F.** (minimum force for positive opening) | 30 N | 30 N | 30 N |
| **PT1** (pretravel for N.C. operation) | (2.5 mm) | (2.8 mm) | (2.7 mm) |
| **PT2** (pretravel for N.O. operation) | – | (4.0 mm) | – |
| **MD** | (1.4 mm) | – | – |
| **TT** (total travel) | (5.5 mm) | (5.5 mm) | (5.5 mm) |

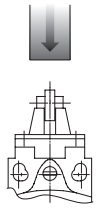



* Dimensional tolerance is ±0.4 unless otherwise specified.

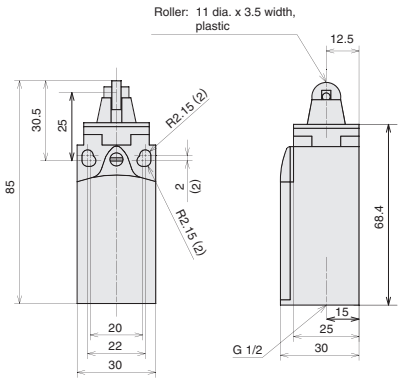
| Catalog listing | Operating characteristics by vertical operation | Circuit diagram |
|---|---|---|
| **LJK-N2102F12** |   |   |
| **LJK-N2502F12** |   |   |
| **LJK-N2702F12** |   |   |

■: Contacts closed □: Contacts open (P): Min. travel to positive opening position

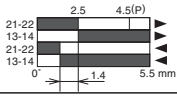
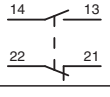
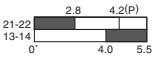
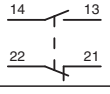
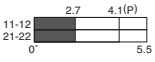
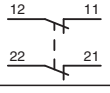
## Resin cross roller plunger: LJK-N2103F12, LJK-N2503F12, LJK-N2703F12



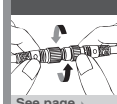
| Operating characteristics by vertical operation | LJK-N2103F12 | LJK-N2503F12 | LJK-N2703F12 |
|---|---|---|---|
| **O.F.** (max. operating force needed for N.C. operation) | 15 N | 15 N | 15 N |
| **P.O.** (min. travel to positive opening position) | 4.5 mm | 4.2 mm | 4.1 mm |
| **P.O.F.** (minimum force for positive opening) | 30 N | 30 N | 30 N |
| **PT1** (pretravel for N.C. operation) | (2.5 mm) | (2.8 mm) | (2.7 mm) |
| **PT2** (pretravel for N.O. operation) | – | (4.0 mm) | – |
| **MD** | (1.4 mm) | – | – |
| **TT** (total travel) | (5.5 mm) | (5.5 mm) | (5.5 mm) |




* Dimensional tolerance is ±0.4 unless otherwise specified.

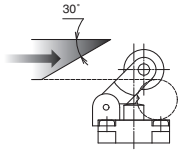
| Catalog listing | Operating characteristics by vertical operation | Circuit diagram |
|---|---|---|
| **LJK-N2103F12** |   |   |
| **LJK-N2503F12** |   |   |
| **LJK-N2703F12** |   |   |

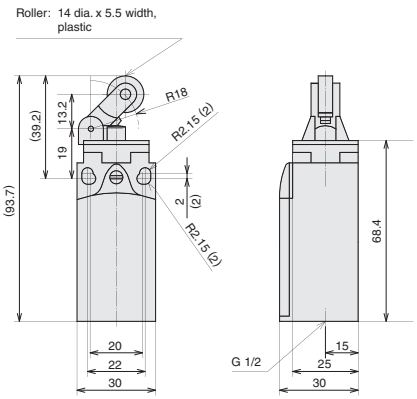
■: Contacts closed □: Contacts open (P): Min. travel to positive opening position

Connector with cable

See page F-001

## Resin one-way roller (horizontal): LJK-N2121F12, LJK-N2521F12, LJK-N2721F12

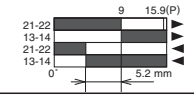
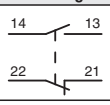
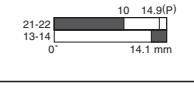
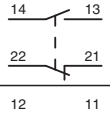
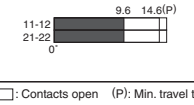
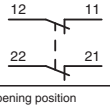
(unit: mm)



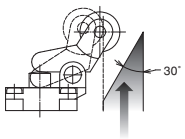

* Dimensional tolerance is ±0.4 unless otherwise specified.

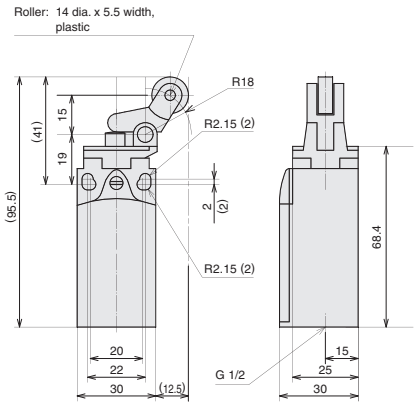
| Operating characteristics by dog operation | LJK-N2121F12 | LJK-N2521F12 | LJK-N2721F12 |
|---|---|---|---|
| **O.F.** (max. operating force needed for N.C. operation) | 6 N | 6 N | 6 N |
| **P.O.** (min. travel to positive opening position) | 15.9 mm | 14.9 mm | 14.6 mm |
| **P.O.F.** (minimum force for positive opening) | 10 N | 10 N | 10 N |
| **PT1** (pretravel for N.C. operation) | (9 mm) | (10 mm) | (9.6 mm) |
| **PT2** (pretravel for N.O. operation) | – | (14.1 mm) | – |
| **MD** | (5.2 mm) | – | – |
| **TT** (total travel) | – | – | – |

| Catalog listing | Operating characteristics by dog operation | Circuit diagram |
|---|---|---|
| **LJK-N2121F12** |   |   |
| **LJK-N2521F12** |   |   |
| **LJK-N2721F12** |   |   |

■: Contacts closed □: Contacts open (P): Min. travel to positive opening position

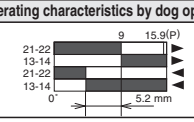
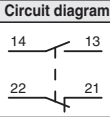
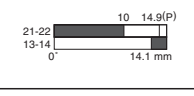
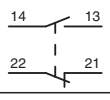
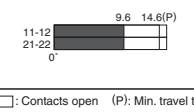
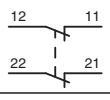
## Resin one-way roller (vertical): LJK-N2127F12, LJK-N2527F12, LJK-N2727F12




* Dimensional tolerance is ±0.4 unless otherwise specified.

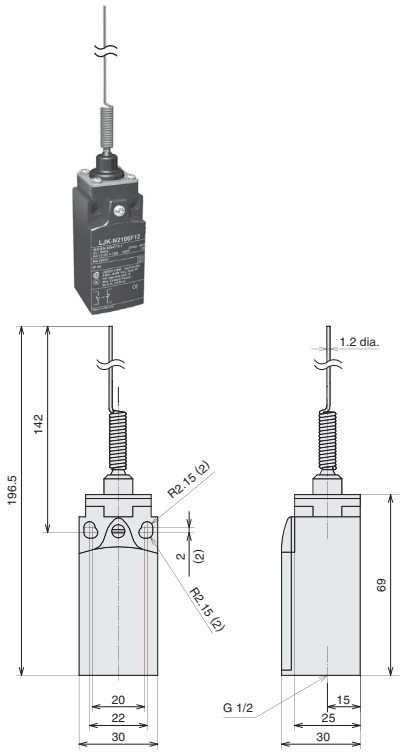
| Operating characteristics by dog operation | LJK-N2127F12 | LJK-N2527F12 | LJK-N2727F12 |
|---|---|---|---|
| **O.F.** (max. operating force needed for N.C. operation) | 6 N | 6 N | 6 N |
| **P.O.** (min. travel to positive opening position) | 15.9 mm | 14.9 mm | 14.6 mm |
| **P.O.F.** (minimum force for positive opening) | 10 N | 10 N | 10 N |
| **PT1** (pretravel for N.C. operation) | (9 mm) | (10 mm) | (9.6 mm) |
| **PT2** (pretravel for N.O. operation) | – | (14.1 mm) | – |
| **MD** | (5.2 mm) | – | – |
| **TT** (total travel) | – | – | – |

| Catalog listing | Operating characteristics by dog operation | Circuit diagram |
|---|---|---|
| **LJK-N2127F12** |   |   |
| **LJK-N2527F12** |   |   |
| **LJK-N2727F12** |   |   |

■: Contacts closed □: Contacts open (P): Min. travel to positive opening position

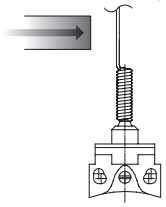
## Steel wire: LJK-N2106F12, LJK-N2506F12, LJK-N2706F12

(unit: mm)

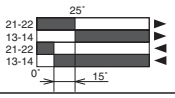
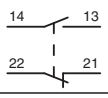
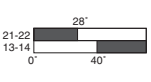
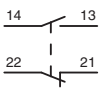
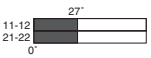
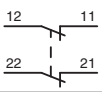



* Dimensional tolerance is ±0.4 unless otherwise specified.

Note: Steel wire switches do not have positive opening mechanism.



| Operating characteristics by wire inclination angle | LJK-N2106F12 | LJK-N2506F12 | LJK-N2706F12 |
|---|---|---|---|
| **O.F.** (max. operating force needed for N.C. operation) | 0.13 N·m | 0.13 N·m | 0.13 N·m |
| **P.O.** (min. travel to positive opening position) | – | – | – |
| **P.O.F.** (minimum force for positive opening) | – | – | – |
| **PT1** (pretravel for N.C. operation) | (25°) | (28°) | (27°) |
| **PT2** (pretravel for N.O. operation) | – | (40°) | – |
| **MD** | (15°) | – | – |
| **TT** (total travel) | – | – | – |

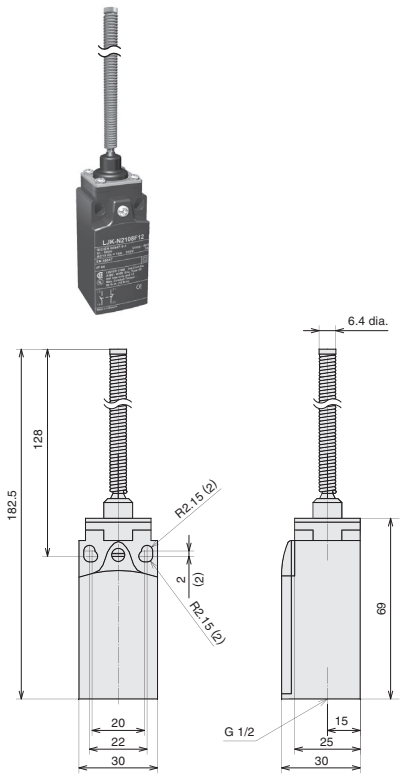
| Catalog listing | Operating characteristics by dog operation | Circuit diagram |
|---|---|---|
| **LJK-N2106F12** |  |  |
| **LJK-N2506F12** |  |  |
| **LJK-N2706F12** |  |  |



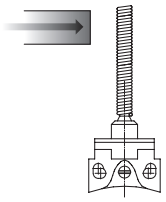
■: Contacts closed □: Contacts open (P): Min. travel to positive opening position

## Spring rod: LJK-N2108F12, LJK-N2508F12, LJK-N2708F12

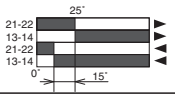
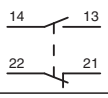
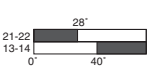
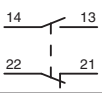
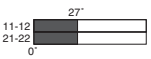
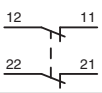
Note: Steel wire switches do not have positive opening mechanism.




* Dimensional tolerance is ±0.4 unless otherwise specified.



| Operating characteristics by rod inclination angle | LJK-N2108F12 | LJK-N2508F12 | LJK-N2708F12 |
|---|---|---|---|
| **O.F.** (max. operating force needed for N.C. operation) | 0.13 N·m | 0.13 N·m | 0.13 N·m |
| **P.O.** (min. travel to positive opening position) | – | – | – |
| **P.O.F.** (minimum force for positive opening) | – | – | – |
| **PT1** (pretravel for N.C. operation) | (25°) | (28°) | (27°) |
| **PT2** (pretravel for N.O. operation) | – | (40°) | – |
| **MD** | (15°) | – | – |
| **TT** (total travel) | – | – | – |

| Catalog listing | Operating characteristics by dog operation | Circuit diagram |
|---|---|---|
| **LJK-N2108F12** |  |  |
| **LJK-N2508F12** |  |  |
| **LJK-N2708F12** |  |  |



■: Contacts closed □: Contacts open (P): Min. travel to positive opening position

Connector with cable

See page F-001

## HANDLING PRECAUTIONS

### 1. Mounting the switch

- Always tighten each part of the safety switch to the tightening torque recommended in the product specifications. If any part is tightened excessively, the screw and/or other parts may be damaged.
- Mount the dog so that no force is directly applied to the actuator in the free state.
- Do not use any glue or lubricant containing silicone. Doing so might result in faulty electrical conductivity.

### 2. Wiring

- Do not perform wiring work with the power turned ON. Doing so might cause an electrical shock or cause the device to operate suddenly.

### 3. Adjustment

- Do not apply excessive force (force 5 times larger that the O.F.) to the actuator when it is beyond the operation limit position. Doing so might break the switch.
- Adjust the actuator motion so that it exceeds the specified P.O. (travel to positive opening position) but does not exceed the operation limit position.

### 4. Operating environment

- Do not use in a location subject to splashing with strong acid or alkali.

### 5. Other cautions

- Do not apply a lubricant to the sliding part of the actuator or any other component. Application of an inappropriate lubricant may degrade sliding performance or impair the protective structure.
- Remove any foreign substances adhering to the sliding part. Dust or any other foreign substance attached to the sliding part may cause a malfunction.
- Check the actual load.
  To increase reliability, confirm that the switch has no problems in actual use before using the switch.

Before use, thoroughly read the “Precautions for use” and “Precautions for handling” in the Technical Guide on pages **D-101** to **D-112** as well as the instruction manual and product specification for this switch.

Please read “Terms and Conditions” from the following URL before ordering and use.

**https://www.azbil.com/products/factory/order.html**



Azbil Corporation
Advanced Automation Company

*Yamatake Corporation changed its name to Azbil Corporation on April 1, 2012.*

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