

## Two-circuit Limit Switch WL-N/NWL

### Two-circuit limit switches that can be selected to match the operating environment and application

- Wide variety of head shapes, including Roller Lever, Plunger, Flexible Rod, and Fork Lock Lever Switches.
- You can select the optimum actuator shape for the workpiece shape and movement from a variety of actuators.
- In addition to general detection, we also have environment resistant models for harsh environments, sputter resistant models for welding processes, and long-life models for high-frequency use.



For the most recent information on models that have been certified for safety standards, refer to your OMRON website.

**⚠ Be sure to read *Safety Precautions* on page 62 to 67 and *Safety Precautions for All Limit Switches*.**

## Features

### General-purpose Switches

#### A Wide Range of Models

You can select the optimum product for the workpiece shape and movement from a variety of actuators, including Roller Lever, Plunger, Flexible Rod, and Fork Lock Lever Switches.

### Environment-resistant Switches

#### Six environment resistant models are available

Airtight Switches, Hermetic Switches, Heat-resistant Switches, Low-temperature Switches, Corrosion-proof Switches, and Weather-proof Switches are available.

You can select the model based on the onsite environment.

### Spatter-prevention Switches

#### Ideal for Welding Sites

Uses stainless steel and plastic materials that prevent the adhesion of spatter.

They can be used to reduce problems caused by zinc power generated during welding.

### Long-life Switches

#### Long-life Models for High-frequency Applications

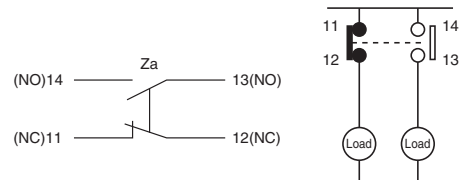
A mechanical durability of over 30 million cycles is achieved by improving slidability and the wear resistance of the head.

### Features Common

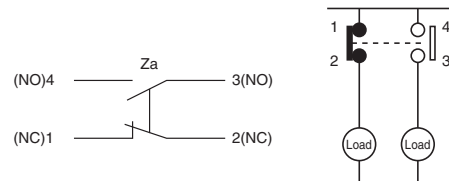
#### DPDB Operation

The two-circuit double-break structure ensures circuit braking.

- Basic/Retention type Switches (WL-N)



- High-sensitivity/High-precision Switches (WL)



#### Degree of Protection; IP67

#### Models with Connectors to Reduce Wiring

A neon lamp or LED indicates the operating status. This makes startup checks and maintenance easy.

#### Sensor I/O Connector Models to Match Wiring Specifications

Direct-wire types and pre-wired types are available for easy replacement of limit switches.




## Ordering Information





**General-purpose Switches**

**Standard Switches**




### Switches with Roller Lever Actuators

#### Basic Switches


Actuator	Roller lever: R38 	Roller lever: R50 	Roller lever: R63 
Pretravel (PT)	Model	Model	Model
15±5°	WLCA2-N	WLCA2-7-N	WLCA2-8-N
25±5°	WLCA2-2-N	—	—
20° max.	WLCA2-2N-N	—	—

Actuator	Adjustable roller lever 	Adjustable rod lever: 25 to 140 mm 	Adjustable rod lever: 350 to 380 mm 	Rod spring lever 
Pretravel (PT)	Model	Model	Model	Model
15±5°	WLCA12-N	WLCL-N	WLCAL4-N	WLCAL5-N
25±5°	WLCA12-2-N	WLCL-2-N	—	—
20° max.	WLCA12-2N-N	WLCL-2N-N	—	—

#### High-sensitivity Switches





Actuator	Roller lever: R38 	Adjustable roller lever 	Adjustable rod lever: 25 to 140 mm 
Load	Model	Model	Model
Standard load	WLG2	WLG12	WGLL
Microload	WL01G2	WL01G12	WL01GL




#### High-precision Switches

Actuator	Roller lever: R38 
Load	Model
Standard load	WLGCA2
Microload	WL01GCA2

### Switches with Plunger Actuators



#### Basic Switches



Actuator	Sealed Top Plunger 	Sealed Top-roller plunger 	Sealed Top-ball plunger 	Top-roller plunger 
Pretravel (PT)	Model	Model	Model	Model
1.7 mm max.	WLD18-N	WLD28-N	WLD38-N	WLD2-N

Actuator	Horizontal plunger 	Horizontal-roller plunger 	Horizontal-ball plunger 
Pretravel (PT)	Model	Model	Model
2.8 mm max.	W LSD-N	W LSD2-N	W LSD3-N

### Switches with Flexible Rod Actuators





#### Basic Switches

Actuator	Coil spring (spring diameter: 6.5) 	Coil spring (spring diameter: 4.8) 
Pretravel (PT)	Model	Model
20±10 mm	WLNJ-N	WLNJ-30-N

Actuator	Resin rod (rod diameter: 8) 	Steel wire (wire diameter: 1) 
Pretravel (PT)	Model	
40±20 mm	WLNJ-2-N	WLNJ-S2-N

### Switches with Fork Lock Lever Actuator








#### Retention type Switches

Actuator	Fork lock lever 	Fork lock lever 	Fork lock lever 	Fork lock lever 
Pretravel (PT)	Model	Model	Model	Model
55° max.	WLCA32-41-N	WLCA32-42-N	WLCA32-43-N	WLCA32-44-N

## Individual Parts


### Switches without Levers, Heads, and Actuators

#### General-purpose Parts

Actuator	Operating characteristics	Set	Switches without levers	Heads (with Actuators)	Actuator only *
			Model	Model	Model
Roller lever 	Basic	WLCA2-N	WLRCA2-N	WL-1H1100-N	WL-1A100
		WLCA2-2-N	WLRCA2-2-N	WL-3H1100-N	
	High-sensitivity	WLCA2-2N-N	WLRCA2-2N-N	WL-1H1100-N	
Adjustable roller lever 	Basic	WLCA12-N	WLRCA2-N	WL-1H2100-N	WL-2A100
		WLCA12-2-N	WLRCA2-2-N	WL-3H2100-N	
	High-sensitivity	WLCA12-2N-N	WLRCA2-2N-N	WL-1H2100-N	
Variable rod lever 	Basic	WLCL-N	WLRCL-N	WL-4H4100-N	WL-4A100
		WLCL-2-N	WLRCA2-2-N	WL-3H4100-N	
	High-sensitivity	WLCL-2N-N	WLRCA2-2N-N	WL-1H4100-N	
Fork lock lever 	Basic	WLCA32-41-N	WLRCA32-N	WL-5H5100-N	WL-5A100
		WLCA32-42-N		WL-5H5102-N	WL-5A102
		WLCA32-43-N		WL-5H5104-N	WL-5A104
WLCA32-44-N		WL-5H5104-N		WL-5A104	
Top plunger 	Basic	WLD18-N	—	WL-7H100-N	—
		WLD28-N		WL-7H400-N	—
		WLD38-N		WL-7H300-N	—
Horizontal plunger 	Basic	WLS-D-N	—	WL-8H100-N	—
		WLS-D2-N		WL-8H200-N	—
		WLS-D3-N		WL-8H300-N	—
Flexible rod 	Basic	WLNJ-N	—	WL-9H100-N	—
		WLNJ-30-N		WL-9H200-N	—
		WLNJ-2-N		WL-9H300-N	—
		WLNJ-S2-N		WL-9H400-N	—

\* The same Actuators can be used for both WL and WL-N Switches.

#### Spatter-prevention Parts

Actuator	Lever Specifications	Item	Set Model Numbers	Switches without levers	Heads (with Actuators)	Actuator only *
				Model	Model	Model
Roller lever 	Allen-head bolt lever	Basic	WLCA2-LES-N	WLRCA2-LES-N	—	WL-1A103S
			WLCA2-LDS-N	WLRCA2-LDS-N		
	Double nut lever	Basic	WLCA2-LEAS-N	WLRCA2-LES-N	—	WL-1A105S
			WLCA2-LDAS-N	WLRCA2-LDS-N		
		High-sensitivity	WLG2-LDAS	WLRG2-LDS		

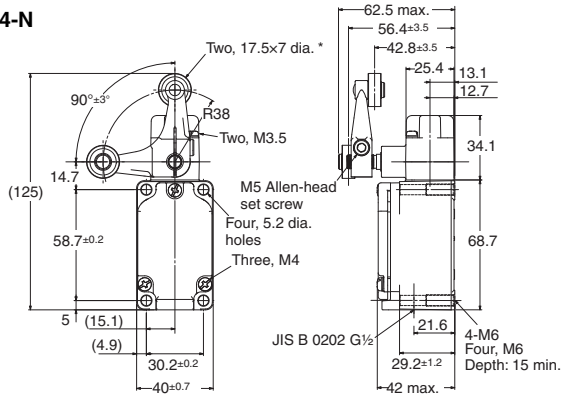
\* The same Actuators can be used for both WL and WL-N Switches.

**Switches with Fork Lock Lever Actuators**  
Retention Switches

**General-purpose**

- WLCA32-41-N
- WLCA32-42-N
- WLCA32-43-N
- WLCA32-44-N

The WLCA32-41-N is shown in the following diagram.



\* Plastic Roller  
(The WLCA32-041-N to WLCA32-044-N have stainless steel rollers.)

**Note:** 1. Unless otherwise indicated, a tolerance of ±0.4 mm applies to all dimensions.

Operating characteristics	Model	WLCA32-41 to 44-N
Force necessary to reverse the direction of the lever	max.	11.77N
Movement until the lever reverses		50±5°
Movement until switch operation	max.	55°
Movement after switch operation	min.	35°

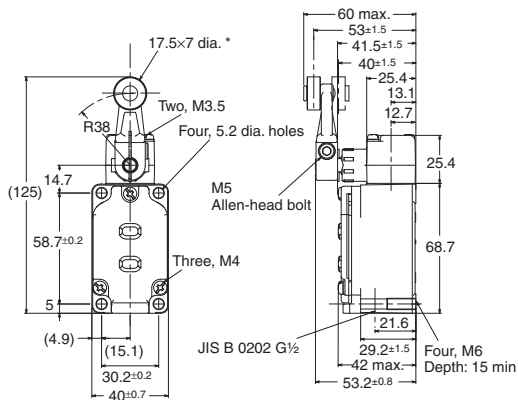
**Operation indicator Switches**

**Switches with Roller Lever Actuators**  
Basic Switches

**Roller lever R38**

**General-purpose Models**

- WLCA2-LD-N
- WLCA2-LE-N



\* Stainless sintered roller

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

Operating characteristics	Basic models	
Operating force	OF max.	13.34 N
Release force	RF min.	1.18 N
Pretravel	PT	15±5°
Overtravel	OT min.	70°
Movement Differential	MD max.	12°

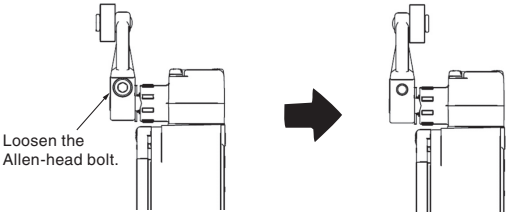
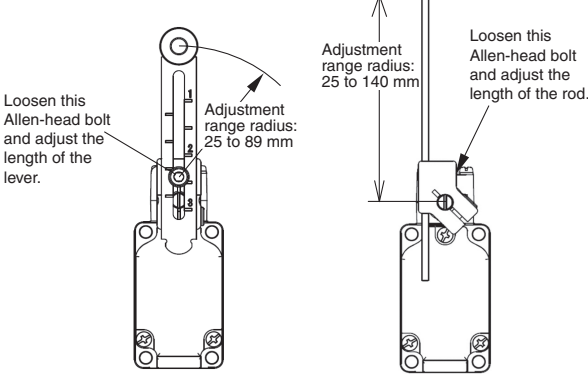
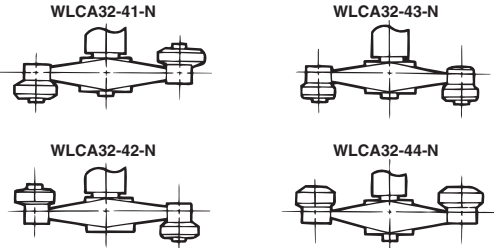
**Model Replacement Table (Replacing WL Basic Models with WL-N Basic Models)**

Manufacturing of the basic WL models is scheduled to be discontinued. Use the following table to find the corresponding WL-N-series models and order them instead.

WL	WL-N
WLCA2	WLCA2-N
WL01CA2	WLCA2-N
WLH2	WLCA2-N
WL01H2	WLCA2-N
WLCA2-2	WLCA2-2-N
WL01CA2-2	WLCA2-2-N
WLCA2-2N	WLCA2-2N-N
WL01CA2-2N	WLCA2-2N-N
WLCA2-7	WLCA2-7-N
WL01CA2-7	WLCA2-7-N
WLCA2-8	WLCA2-8-N
WL01CA2-8	WLCA2-8-N
WLCA12	WLCA12-N
WL01CA12	WLCA12-N
WLH12	WLCA12-N
WL01H12	WLCA12-N
WLCA12-2	WLCA12-2-N
WL01CA12-2	WLCA12-2-N
WLCA12-2N	WLCA12-2N-N
WL01CA12-2N	WLCA12-2N-N
WLCL	WLCL-N
WL01CL	WLCL-N
WLHL	WLCL-2N-N
WL01HL	WLCL-2N-N
WLCL-2	WLCL-2-N
WLCL-2N	WLCL-2N-N
WL01CL-2N	WLCL-2N-N
WLHAL4	WLCAL4-N
WLHAL5	WLCAL5-N
WLCA32-41	WLCA32-41-N
WL01CA32-41	WLCA32-41-N
WLCA32-42	WLCA32-42-N
WLCA32-43	WLCA32-43-N
WL01CA32-43	WLCA32-43-N
WLCA32-44	WLCA32-44-N
WL01CA32-44	WLCA32-44-N
WLD	WLD18-N
WL01D	WLD18-N
WLD2	WLD28-N
WL01D2	WLD28-N
WLD3	WLD38-N
WL01D3	WLD38-N
WLD28	WLD28-N
WL01D28	WLD28-N
WLSL	WLSL-N
WL01SD	WLSL-N
WLSL2	WLSL2-N
WL01SD2	WLSL2-N
WLSL3	WLSL3-N
WL01SD3	WLSL3-N

WL	WL-N
WLNJ	WLNJ-N
WL01NJ	WLNJ-N
WLNJ-30	WLNJ-30-N
WL01NJ-30	WLNJ-30-N
WLNJ-2	WLNJ-2-N
WL01NJ-2	WLNJ-2-N
WLNJ-S2	WLNJ-S2-N
WL01NJ-S2	WLNJ-S2-N
WLCA2-LE	WLCA2-LE-N
WLCA2-LD	WLCA2-LD-N
WLH2-LE	WLCA2-LE-N
WLH2-LD	WLCA2-LD-N
WLCA2-2LE	WLCA2-2LE-N
WLCA2-2LD	WLCA2-2LD-N
WLCA2-2NLE	WLCA2-2NLE-N
WLCA2-2NLD	WLCA2-2NLD-N
WLCA2-7LE	WLCA2-7LE-N
WLCA2-7LD	WLCA2-7LD-N
WLCA2-8LE	WLCA2-8LE-N
WLCA2-8LD	WLCA2-8LD-N
WLCA12-LE	WLCA12-LE-N
WLCA12-LD	WLCA12-LD-N
WLH12-LE	WLCA12-LE-N
WLH12-LD	WLCA12-LD-N
WLCA12-2LE	WLCA12-2LE-N
WLCA12-2LD	WLCA12-2LD-N
WLCA12-2NLE	WLCA12-2NLE-N
WLCA12-2NLD	WLCA12-2NLD-N
WLCL-LE	WLCL-LE-N
WLCL-LD	WLCL-LD-N
WLHL-LE	WLCL-2NLE-N
WLHL-LD	WLCL-2NLD-N
WLCL-2LE	WLCL-2LE-N
WLCL-2LD	WLCL-2LD-N
WLCL-2NLE	WLCL-2NLE-N
WLCL-2NLD	WLCL-2NLD-N
WLHAL4-LE	WLCAL4-LE-N
WLHAL4-LD	WLCAL4-LD-N
WLHAL5-LE	WLCAL5-LE-N
WLHAL5-LD	WLCAL5-LD-N
WLCA32-41LE	WLCA32-41LE-N
WLCA32-41LD	WLCA32-41LD-N
WLCA32-42LE	WLCA32-42LE-N
WLCA32-43LE	WLCA32-43LE-N
WLCA32-43LD	WLCA32-43LD-N
WLD-LE	WLD18-LE-N
WLD-LD	WLD18-LD-N
WLD2-LE	WLD28-LE-N
WLD2-LD	WLD28-LD-N
WLD3-LE	WLD38-LE-N

WL	WL-N
WLD3-LD	WLD38-LD-N
WLD28-LE	WLD28-LE-N
WLD28-LD	WLD28-LD-N
WLSL-LE	WLSL-LE-N
WLSL-LD	WLSL-LD-N
WLSL2-LE	WLSL2-LE-N
WLSL2-LD	WLSL2-LD-N
WLSL3-LE	WLSL3-LE-N
WLSL3-LD	WLSL3-LD-N
WLNJ-LE	WLNJ-LE-N
WLNJ-LD	WLNJ-LD-N
WLNJ-30LE	WLNJ-30LE-N
WLNJ-30LD	WLNJ-30LD-N
WLNJ-2LE	WLNJ-2LE-N
WLNJ-2LD	WLNJ-2LD-N
WLNJ-S2LE	WLNJ-S2LE-N
WLNJ-S2LD	WLNJ-S2LD-N
WLCA2-LDK13	WLCA2-LDK13-N
WLCA2-55LDK13	WLCA2-55LDK13-N
WLCA2-LDK43	WLCA2-LDK43-N
WLCA2-55LDK43	WLCA2-55LDK43-N
WLD2-LDK13	WLD28-LDK13-N
WLD2-55LDK13	WLD28-55LDK13-N
WLD2-LDK43	WLD28-LDK43-N
WLD2-55LDK43	WLD28-55LDK43-N
WLH2-LDK13	WLCA2-LDK13-N
WLH2-55LDK13	WLCA2-55LDK13-N
WLH2-LDK43	WLCA2-LDK43-N
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WLCA2-LD-DGJ03	WLCA2-LD-DGJ-N
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WLCA2-LD-DK1EJ03	WLCA2-LD-DK1EJ-N
WLCA2-55LD-DK1EJ03	WLCA2-55LD-DK1EJ-N
WLD2-LD-M1J	WLD28-LD-M1J-N
WLD2-55LD-M1J	WLD28-55LD-M1J-N
WLD2-LD-M1GJ	WLD28-LD-M1GJ-N
WLD2-55LD-M1GJ	WLD28-55LD-M1GJ-N
WLD2-55LD-M1JB	WLD28-55LD-M1JB-N
WLD2-LD-DGJ03	WLD28-LD-DGJ-N
WLD2-LD-DK1EJ03	WLD28-LD-DK1EJ-N
WLD2-55LD-DK1EJ03	WLD28-55LD-DK1EJ-N
WLH2-LD-M1J	WLCA2-LD-M1J-N
WLH2-LD-M1GJ	WLCA2-LD-M1GJ-N
WLH2-LD-DGJ03	WLCA2-LD-DGJ-N
WLCA2-55	WLCA2-55-N
WLCA2-55LD	WLCA2-55LD-N

Item	Applicable models and Actuators	Details
<p><b>Installing the Roller on the Inside</b> By installing the roller lever in the opposite direction, the roller can be installed on the inside. (Set so that operation can be completed within a 180° level range.)</p>	<p>Roller lever: (WLCA2-N, WLCA2-2-N, WLCA2-2N-N, WLG2, WLCA2-7-N, WLCA2-8-N, WLGA2, WLMCA2-N, WLMG2, WLMGCA2) Fork Lock Lever: (WLCA32-4□-N)</p>	
<p><b>Adjusting the Length of the Rod or Lever</b> The length of the rod or lever can be adjusted by loosening the Allen-head bolt.</p>	<p>Adjustable Roller Lever: (WLCA12-N, WLCA12-2-N, WLCA12-2N-N, WLG12) Adjustable Rod Lever: (WLCL-N, WLCL-2-N, WLCL-2N-N, WLGL, WLCAL4-N)</p>	
<p><b>Selecting the Roller Position</b> There are four types of Switches with Fork Lock Levers for use depending on the roller position.</p>	<p>Fork Lock Lever: (WLCA32-4□-N)</p>	 <p>An explanation of the operation of fork lock levers is provided after this table.</p>

**Operation of Fork Lock Levers**

A Switch with a Fork Lock Lever is constructed so that the dog pushes the lever to invert the output and this inverted state is maintained even after the dog moves on.  
If the dog then pushes the lever from the opposite direction, the lever will return to its original position.

Example

