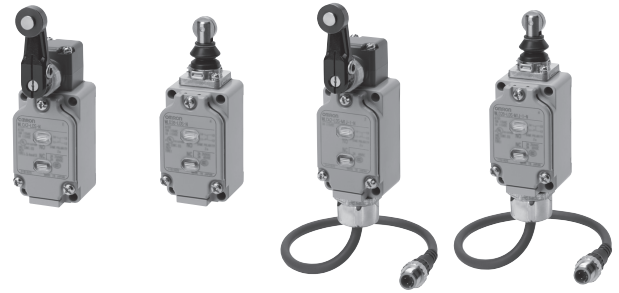



# Spatter-prevention Switches WL-N/WLG

Uses stainless steel and plastic materials that prevent the adhesion of spatter, helping reduce problems caused by zinc power generated during welding.

- Excellent Performance on Arc Welding Lines or Sites with Spattering Cutting Powder
- In addition to screw terminals types, Pre-wired connector types are available.
- Standard configuration includes operation indicators
- Includes baking finish for easy peeling of any spatter adhering to lever
- Stainless steel materials are used for the screws, rollers, and other parts for reducing spatter adhesion during welding process
- Degree of Protection; IP67



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 pages 83 to 88 and *Safety Precautions for All Limit Switches*.

## Features

Structure designed for use in spattering environments from welding  
(Typical model: WLCA2-LDS-N)

### Actuator

#### Roller, Roller Axis

Using stainless steel prevents spatter from adhering.

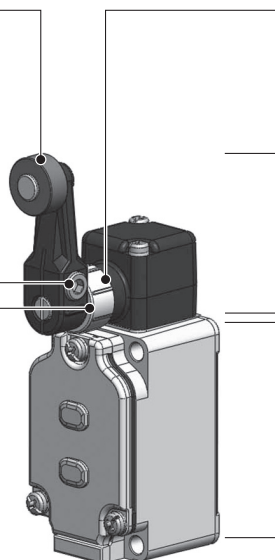
#### Operating Lever

A baking finish is applied to the surface so that any adhering spatter is easily removed.

#### Roller Lever Bolt

Stainless steel construction to prevent spatter adherence. Double nut models are also available.

The lack of gap prevents spatter powder from clogging.



### Head Cap

Using fluororesin prevents spatter \* from adhering.

\* Spatter means the zinc powder produced when welding. Adhering spatter to the Limit Switch may cause malfunction of lever or lamp cover.

### Head

### Main unit

### Screws

Externally visible screws on the head and cover are made of stainless steel to prevent spatter adherence.

## Model Number Structure

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

#### Basic models

WL□ - □□□ S□ -N  
 (1) (2) (3) (4) (5)

#### (1) Actuator and Property Specifications

Code	Actuator		Pretravel (PT)
CA2	Roller lever	Roller lever: R38 mm	15±5°
D28	Plunger Actuators	Sealed top-roller plunger	1.7 mm max.

#### (2) Built-in Switch Specifications

Code	Specifications
None	Standard built-in switch

#### (3) Indicator Specifications

Code	Specifications
LD	LED (10 to 115 VAC/DC)
LE	Neon lamp (125 to 250 VAC) *

\* (5)Wiring Specifications Cannot be combined with the pre-wired connector type.

#### High-sensitivity and High-precision Models

WLG□ - □□□ S□  
 (1) (2) (3) (4) (5)

#### (1) Actuator and Property Specifications

Code	Actuator		Pretravel (PT)
2	Roller lever	Roller lever: R38 mm High-sensitivity Models	10 <sup>°+2°</sup> <sub>-1°</sub>
CA2	Roller lever	Roller lever: R38 mm High-precision Models	5 <sup>°+2°</sup> <sub>0°</sub>

#### (2) Built-in Switch Specifications

Code	Specifications
None	Standard built-in switch
55	Airtight built-in switch

#### (3) Indicator Specifications

Code	Specifications
LD	LED (10 to 115 VAC/DC)
LE	Neon lamp (125 to 250 VAC) *

\* (5) Wiring Specifications Cannot be combined with pre-wired connector type.

#### (4) Lever Type \*

Code	Specifications	Lever type
None	Roller lever: R38 mm	Allen-head lever
A	Roller lever: R38 mm	Double nut lever

\* (5) Wiring Specifications Cannot be combined with pre-wired connector type.

#### (5) Wiring Specifications

Code	Terminal shape	Connector shape	Voltage	Wiring locations	Connector pin No.
None	Screw terminals (Conduit size: G½)	---	---	---	---
-M1J-1	Pre-wired connectors *	Threaded (M12)	DC	NO only	NO: ③ ④
-M1GJ-1			DC	NO only	NO: ① ④
-DGJS		DC	NC+NO	NO: ③ ④ NC: ① ②	
-DTGJS		Smartclick	DC	NC+NO	NO: ③ ④ NC: ① ②

\* The standard cable length for a pre-wired connector is 0.3 m. Contact your OMRON representative for information on other cable lengths.

#### (4) Lever Type \*

Code	Specifications	Lever type
None	Roller lever: R38 mm	Allen-head lever
A	Roller lever: R38 mm	Double nut lever

\* (5) Wiring Specifications Cannot be combined with pre-wired connector type.

#### (5) Wiring Specifications

Code	Terminal shape	Connector shape	Voltage	Wiring locations	Connector pin No.
None	Screw terminals (Conduit size: G½)	---	---	---	---
-M1J-1	Pre-wired connectors *	Threaded (M12)	DC	NO only	NO: ③ ④
-M1GJ-1			DC	NO only	NO: ① ④
-DGJS03			DC	NC+NO	NO: ③ ④ NC: ① ②
-DK1EJ03		DC	NO only	NO: ③ ④ NC: ②	
-M1TGJ		Smartclick	DC	NO only	NO: ① ④
-DTGJS03			DC	NC+NO	NO: ③ ④ NC: ① ②


\* The standard cable length for a pre-wired connector is 0.3 m. Contact your OMRON representative for information on other cable lengths.

## Ordering Information

### Roller Lever


Standard built-in switch

Screw terminals

Appearance	Actuator	Pretravel (PT)	Lever type	With operation indicator *	
				LED	Neon lamp
				Model	Model
	Roller lever: R38 mm	15±5°	Double nut Lever	WLCA2-LDAS-N	WLCA2-LEAS-N
			Allen-head Lever	WLCA2-LDS-N	WLCA2-LES-N
		10 <sup>°+2°</sup> <sub>-1°</sub>	Double nut Lever	WLG2-LDAS	WLG2-LEAS
			Allen-head Lever	WLG2-LDS	WLG2-LES
		5 <sup>°+2°</sup> <sub>0°</sub>		WLGCA2-LDS	WLGCA2-LES

\* The default setting is light-ON when not operating (NO wiring). Turn the lamp holder by 180° to change the setting to light-ON when operating (NC wiring).


### Pre-wired Connectors

Appearance	Actuator	Pretravel (PT)	Lever type	Connector shape	Usage Voltage	Wiring locations	Connector pin No.	With operation indicator *
								LED
								Model
	Roller lever: R38 mm	15±5°	Allen-head Lever	Threaded (M12)	DC	NO only	NO: ③ ④ NC: ②	WLCA2-LDS-M1J-1-N
								WLCA2-LDS-DGJS-N
		10 <sup>°+2°</sup> <sub>-1°</sub>				NO only	WLG2-LDS-DGJS03	
							WLG2-LDS-DK1EJ03	
							WLG2-LDS-M1J-1	
							WLG2-LDS-M1GJ-1	
		5 <sup>°+2°</sup> <sub>0°</sub>		NO only		WLGCA2-LDS-M1J-1		
						WLGCA2-LDS-M1GJ-1		
		15±5°		NC+NO		WLCA2-LDS-DTGJS-N		
						WLG2-LDS-DTGJS03		
		10 <sup>°+2°</sup> <sub>-1°</sub>		NO only		NO: ① ④	WLG2-LDS-DTGJS03	
								Smartclick

\* The default setting is light-ON when not operating (NO wiring). Turn the lamp holder by 180° to change the setting to light-ON when operating (NC wiring). (However, Three-core and Four-core Switches cannot be switched to light-ON when operating (NC wiring).)

### Airtight Built-in Switch

Pre-wired Connector types


Appearance	Actuator	Pretravel (PT)	Lever type	Connector shape	Usage Voltage	Wiring locations	Connector pin No.	With operation indicator *
								LED
								Model
	Roller lever: R38 mm	10 <sup>°+2°</sup> <sub>-1°</sub>	Allen-head Lever	Threaded (M12)	DC	NO only	NO: ③ ④ NO: ① ④	WLG2-55LDS-M1J-1
								WLG2-55LDS-M1GJ-1
								WLG2-55LDS-DGJS03
				Smartclick		NC+NO	WLG2-55LDS-M1TGJ	

\* The default setting is light-ON when not operating (NO wiring). Turn the lamp holder by 180° to change the setting to light-ON when operating (NC wiring). (However, Three-core and Four-core Switches cannot be switched to light-ON when operating (NC wiring).)

## Plunger Actuators


Standard built-in switch

Screw terminals

Appearance	Actuator	Pretravel (PT)	With operation indicator *	
			LED	Neon lamp
			Model	Model
	Sealed top-roller plunger	1.7 mm max.	WLD28-LDS-N	WLD28-LES-N

\* The default setting is light-ON when not operating (NO wiring). Turn the lamp holder by 180° to change the setting to light-ON when operating (NC wiring).

### Pre-wired Connectors

Appearance	Actuator	Pretravel (PT)	Connector shape	Voltage	Wiring locations	Connector pin No.	With operation indicator *
							LED
							Model
	Sealed top-roller plunger	1.7 mm max.	Threaded (M12)	DC	NO only	NO: ③ ④	WLD28-LDS-M1J-1-N
				DC	NO only	NO: ① ④	WLD28-LDS-M1GJ-1-N
				DC	NC+NO	NO: ③ ④ NC: ① ②	WLD28-LDS-DGJS-N
			Smartclick	DC	NC+NO	NO: ③ ④ NC: ① ②	WLD28-LDS-DTGJS-N

**Note:** The standard cable length for a pre-wired connector is 0.3 m. Contact your OMRON representative for information on other cable lengths.

\* The default setting is light-ON when not operating (NO wiring). Turn the lamp holder by 180° to change the setting to light-ON when operating (NC wiring). (However, Three-core and Four-core Switches cannot be switched to light-ON when operating (NC wiring).)

# Specifications

## Ratings

### Screw terminals

#### With Operation Indicator

##### Basic models (WL-N)

Ratings		Non-inductive load (A)				Inductive load (A)			
		Basic models (WL-N)				Basic models (WL-N)			
		Resistive load		Lamp load		Inductive load		Motor load	
Voltage (V)		NC	NO	NC	NO	NC	NO	NC	NO
AC	115	10		3	1.5	10		5	2.5
	12	10		6	3	10		6	
DC	24	6		4	3	6		4	
	48	3		2	1.5	3		0.2	
	115	0.8		0.2		0.8		0.1	

##### High-sensitivity and High-precision models (WLG)

Ratings		Non-inductive load (A)			
		High-sensitivity and High-precision models (WLG)			
		Resistive load			
Voltage (V)		NC	NO		
AC	115	5			
DC	115	0.4			

#### With Operation Indicators (Neon Lamps)

##### Basic models (WL-N)

Ratings		Non-inductive load (A)				Inductive load (A)			
		Basic models (WL-N)				Basic models (WL-N)			
		Resistive load		Lamp load		Inductive load		Motor load	
Voltage (V)		NC	NO	NC	NO	NC	NO	NC	NO
AC	125	10		3	1.5	10		5	2.5
	250	10		6	1	10		3	1.5

##### High-sensitivity and High-precision models (WLG)

Ratings		Non-inductive load (A)			
		High-sensitivity and High-precision models (WLG)			
		Resistive load			
Voltage (V)		NC	NO		
AC	125	5			
	250	5			

- Note:**
1. The above figures are for steady-state currents.
  2. Inductive loads have a power factor of 0.4 min. (AC) and a time constant of 7 ms max. (DC).
  3. A lamp load has an inrush current of 10 times the steady-state current.
  4. A motor load has an inrush current of 6 times the steady-state current.

#### Allowable Inrush Current/Minimum Applicable Load

Operating characteristics type		Basic models (WL-N)	High-sensitivity and High-precision models (WLG)
Inrush current	NC	30 A max.	15 A max.
	NO	20 A max.	10 A max.
Minimum applicable load		5 VDC 1 mA, resistive load, P level	5 VDC 1 mA, resistive load, P level

#### Operation Indicator

Operation indicator type	LED	Neon lamp
Rated voltage	10 to 115 VAC/DC	125 to 250 VAC
Leakage current (Reference value)	Approx. 0.4 mA at 10 VAC/DC Approx. 0.5 mA at 115 VAC/DC	Approx. 0.6 mA at 125 VAC Approx. 1.9 mA at 250 VAC

## Pre-wired connectors

### Connector DC Specifications: With Operation Indicators (LEDs) Basic models (WL-N)

Ratings		Non-inductive load (A)				Inductive load (A)			
		Basic models (WL-N)				Basic models (WL-N)			
		Resistive load		Lamp load		Inductive load		Motor load	
Voltage (V)		NC	NO	NC	NO	NC	NO	NC	NO
DC	12	3		3		3		3	
	24	3		3		3		3	
	48	4	2	1.5	3		2		
	115	0.8	0.2	0.2	0.8		0.2		

### High-sensitivity and High-precision models (WLG)

Ratings		Non-inductive load (A)	
		High-sensitivity and High-precision models (WLG)	
		Resistive load	
Voltage (V)		NC	NO
DC	115	0.4	

- Note:**
- The above figures are for steady-state currents.
  - Inductive loads have a power factor of 0.4 min. (AC) and a time constant of 7 ms max. (DC).
  - A lamp load has an inrush current of 10 times the steady-state current.
  - A motor load has an inrush current of 6 times the steady-state current.

### Minimum Applicable Load

Operating characteristics type	Basic models (WL-N)	High-sensitivity and High-precision Switches (WLG)
Minimum applicable load	5 VDC 1 mA, resistive load, P level	5 VDC 1 mA, resistive load, P level

### Operation Indicator

Operation indicator type	LED	Neon lamp
Rated voltage	10 to 115 VAC/DC	125 to 250 VAC
Leakage current (Reference value)	Approx. 0.4 mA at 10 VAC/DC; Approx. 0.5 mA at 115 VAC/DC	Approx. 0.6 mA at 125 VAC; Approx. 1.9 mA at 250 VAC

## Characteristics

Operating characteristics type		Basic models (WL-N)	High-sensitivity and High-precision models (WLG)
Permissible operating frequency	Mechanical	120 operations/minute	
	Electrical	30 operations/minute	
Rated frequency		50/60 Hz	
Permissible operating speed		1 mm/s to 1 m/s (for WLCA2-LDS-N)	
Insulation resistance		100 MΩ min. (at 500 VDC)	
Contact resistance		25 mΩ max. (initial value for the built-in switch)	
Vibration resistance	Malfunction	10 to 55 Hz, 1.5-mm double amplitude	
Shock	Destruction	1,000 m/s <sup>2</sup> max.	
	Malfunction	300 m/s <sup>2</sup> max.	
Durability *1	Mechanical	15,000,000 operations min.	10,000,000 operations min.
	Electrical	750,000 operations min. (3 A at 115 VAC, resistive load) *2	500,000 operations min. (3 A at 115 VAC, resistive load) *2
Ambient operating temperature		-10 to +80°C (with no icing)	
Ambient operating humidity		35 to 95%RH	
Degree of protection		IP67	
Weight		Approx. 255 g (in case of WLCA2-LDS-N)	Approx. 270 g (in case of WLGCA2-LDS)

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

\*1. The values are calculated at an operating temperature of +5°C to +35°C, and an operating humidity of 40% to 70%RH. Contact your OMRON sales representative for more detailed information on other operating environments.

\*2. In case of models with operation indicators (LEDs).

Operating characteristics type		Basic models (WL-N)		High-sensitivity and High-precision Switches (WLG)	
Wiring Specifications		Screw terminals	Direct-wire connector and Pre-wired Connector Models	Screw terminals	Direct-wire connector and Pre-wired Connector Models
Dielectric strength	Between terminals of the same polarity	1,000 VAC, 50/60 Hz for 1 min *	600 VAC, 50/60 Hz for 1 min *	600 VAC, 50/60 Hz for 1 min *	600 VAC, 50/60 Hz for 1 min *
	Between current carrying metal part and ground	2,200 VAC, 50/60 Hz for 1 min	1,500 VAC, 50/60 Hz for 1 min	1,500 VAC, 50/60 Hz for 1 min	1,500 VAC, 50/60 Hz for 1 min
	Between each terminal and non-current carrying metal part	2,200 VAC, 50/60 Hz for 1 min	1,500 VAC, 50/60 Hz for 1 min	1,500 VAC, 50/60 Hz for 1 min	1,500 VAC, 50/60 Hz for 1 min

\* Excluding those with operation indicators.

### Terminal Connection Diagram

Operating characteristics type	Basic models (WL-N)	
	Wiring Specifications	Direct-wire connector and Pre-wired Connector Models
Without operation indicator		<p>DC</p> <p>①②③④ indicate the connector pin number.</p>
		<p>DC</p> <p>①②③④ indicate the connector pin number.</p>

Operating characteristics type	High-sensitivity and High-precision Switches (WLG)	
	Wiring Specifications	Direct-wire connector and Pre-wired Connector Models
Without operation indicator		<p>DC</p> <p>①②③④ indicate the connector pin number.</p>
		<p>DC</p> <p>①②③④ indicate the connector pin number.</p>

**Note:** Leakage current from indicator circuit may cause load malfunction (i.e., the load may remain ON). Make sure that the load operating current is higher than the leakage current.

For countermeasures, refer to technical support on your OMRON website.

\* Light-ON when not operating means the operation indicator is lit when the actuator is free and is not lit when the actuator rotates or is pushed down, the Switch contacts contact NO.

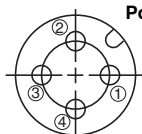
The above shows details of the switch interior. External wires (external resistances) are not shown. For details, refer to *Operation* on page 18.

### Connector Pin Layout Diagram

AC



Positioning piece \* DC



Positioning piece \*

\* The position of the positioning piece is not always the same. If using an L-shaped connector causes problems in mounting, use a straight connector.

# WL-N/WLG

## Structure and Nomenclature

### Spatter-prevention Models (WLCA2-LES-N)

#### Actuator

##### Roller, Roller Axis

Using stainless steel prevents spatter from adhering.

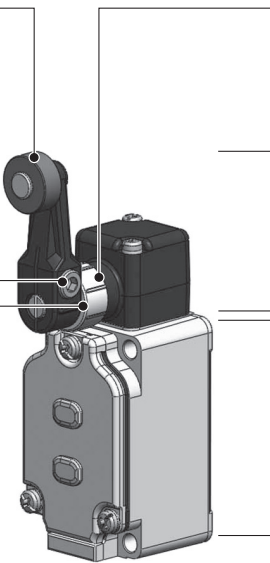
##### Operating Lever

A baking finish is applied to the surface so that any adhering spatter is easily removed.

#### Roller Lever Bolt

Stainless steel construction to prevent spatter adherence. Double nut models are also available.

The lack of gap prevents spatter powder from clogging.



#### Head Cap

Using fluororesin prevents spatter \* from adhering.

\* Spatter means the zinc powder produced when welding.

Adhering spatter to the Limit Switch may cause malfunction of lever or lamp cover.

#### Head

#### Main unit

#### Screws

Externally visible screws on the head and cover are made of stainless steel to prevent spatter adherence.

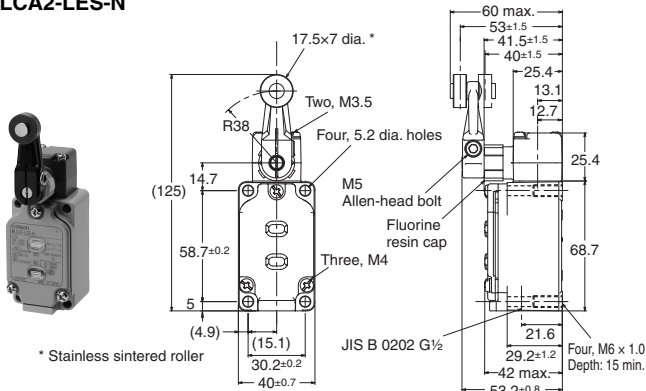


# Dimensions

## Roller Lever

### Roller lever R38

Allen-head lever  
 With operation indicator (LED)  
 WLCA2-LDS-N  
 With operation indicator (neon lamp)  
 WLCA2-LES-N

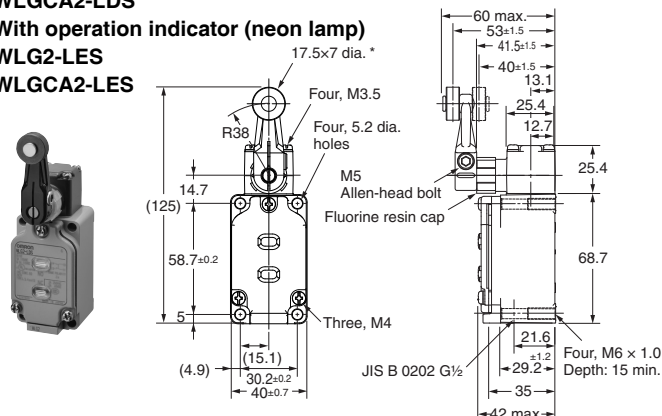


\* Stainless sintered roller

Note: The photo shows the WLCA2-LDS-N model.

### Roller lever R38

Allen-head lever  
 With operation indicator (LED)  
 WLG2-LDS  
 WLGA2-LDS  
 With operation indicator (neon lamp)  
 WLG2-LES  
 WLGA2-LES

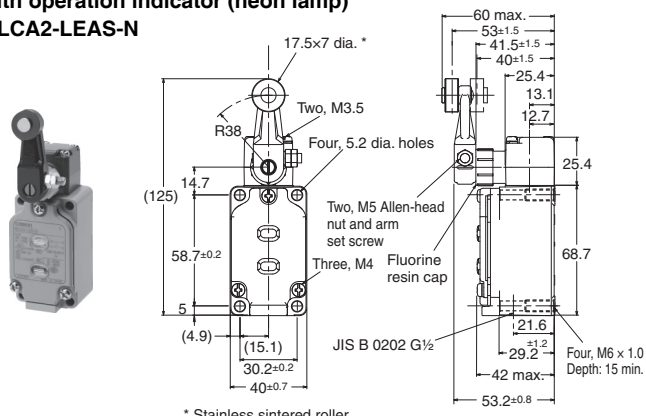


\* Stainless steel roller

Note: The photo shows the WLG2-LDS model.

### Roller lever R38

Double nut lever  
 With operation indicator (LED)  
 WLCA2-LDAS-N  
 With operation indicator (neon lamp)  
 WLCA2-LEAS-N

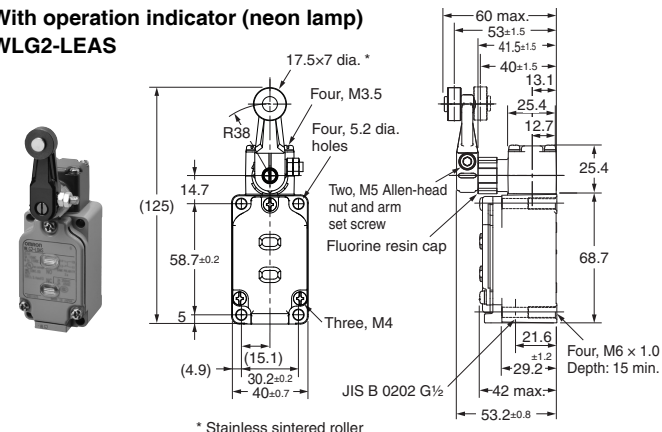


\* Stainless sintered roller

Note: The photo shows the WLCA2-LDAS-N model.

### Roller lever R38

Double nut lever  
 With operation indicator (LED)  
 WLG2-LDAS  
 With operation indicator (neon lamp)  
 WLG2-LEAS



\* Stainless sintered roller

Note: The photo shows the WLG2-LDAS model.

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

## Operating characteristics

	Model	WLCA2-LDAS-N WLCA2-LEAS-N WLCA2-LDS-N WLCA2-LES-N	WLG2-LDAS WLG2-LDS WLG2-LEAS WLG2-LES	WLGA2-LDS WLGA2-LES
Operating force	OF max.	13.34 N	9.81 N	13.34 N
Release force	RF min.	1.18 N	0.98 N	1.47 N
Pretravel	PT	15±5°	10° <sup>+2</sup> <sub>-1</sub>	5° <sup>+2</sup> <sub>0</sub>
Overtravel	OT min.	70°	65°	40°
Movement Differential	MD max.	12°	7°	3°

## Pre-wired connector (threaded)

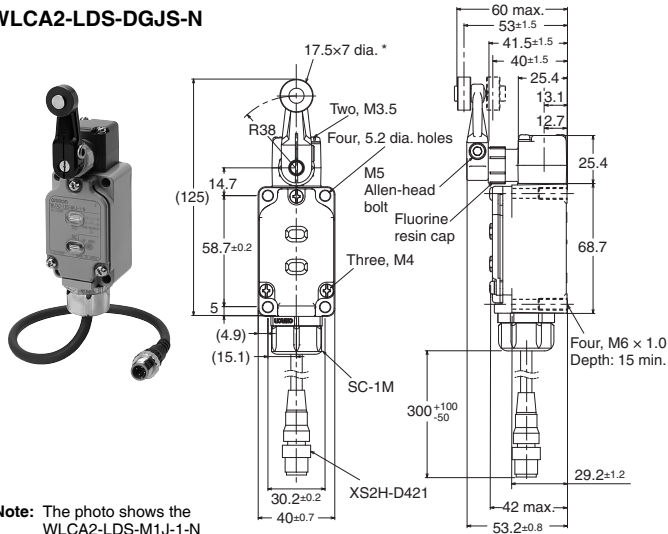
### Roller lever R38

#### Allen-head lever

#### With operation indicator (LED)

#### WLCA2-LDS-M1J-1-N

#### WLCA2-LDS-DGJS-N



Note: The photo shows the WLCA2-LDS-M1J-1-N model.

\* Stainless sintered roller

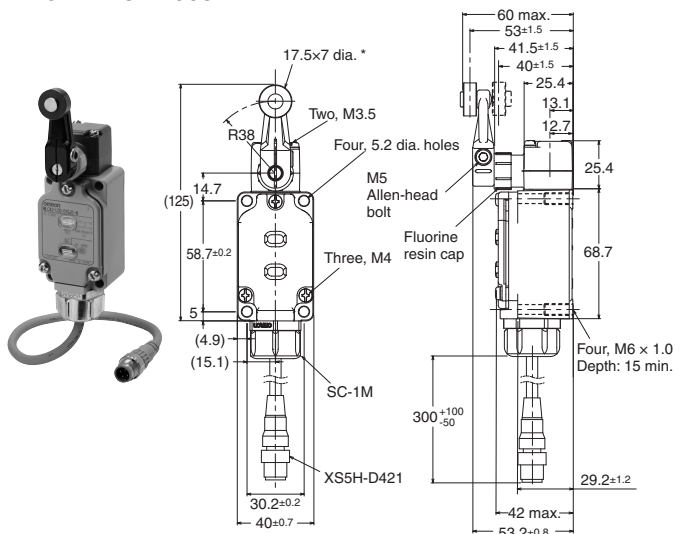
## Pre-wired connector type (Smartclick)

### Roller lever R38

#### Allen-head lever

#### With operation indicator (LED)

#### WLCA2-LDS-DTGJS-N



\* Stainless sintered roller

### Roller lever R38

#### Allen-head lever

#### Threaded (M12)

#### With operation indicator (LED)

#### WLG2-LDS-DGJS03

#### WLG2-LDS-DK1EJ03

#### WLG2-55LDS-M1J-1

#### WLG2-55LDS-M1GJ-1

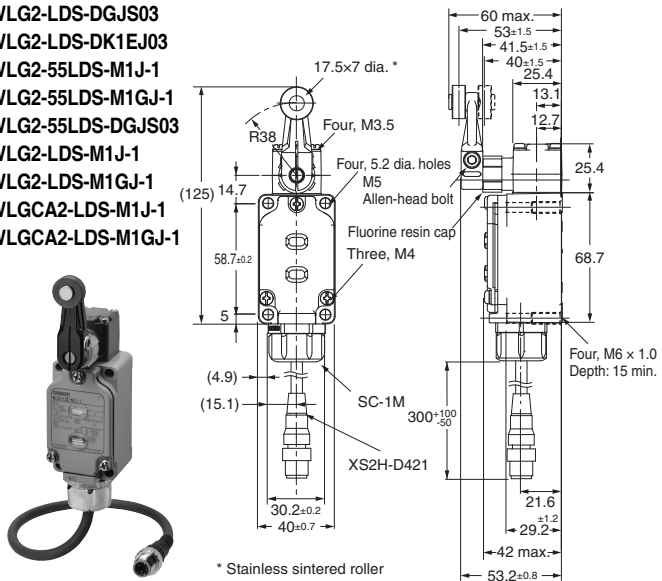
#### WLG2-55LDS-DGJS03

#### WLG2-LDS-M1J-1

#### WLG2-LDS-M1GJ-1

#### WLGCA2-LDS-M1J-1

#### WLGCA2-LDS-M1GJ-1



\* Stainless sintered roller

Note: The photo shows the WLG2-LDS-M1J-1 model.

### Roller lever R38

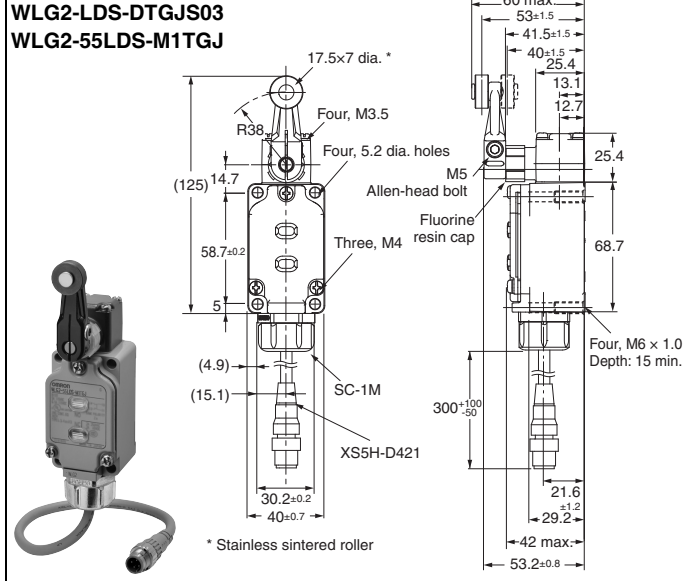
#### Allen-head lever

#### Smartclick

#### With operation indicator (LED)

#### WLG2-LDS-DTGJS03

#### WLG2-55LDS-M1TGJ



\* Stainless sintered roller

Note: The photo shows the WLG2-55LDS-M1TGJ model.

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

## Operating characteristics

Model	WLCA2-LDS-M1J-1-N WLCA2-LDS-DGJS-N WLCA2-LDS-DTGJS-N	WLG2-LDS-DGJS03 WLG2-LDS-DK1EJ03 WLG2-55LDS-M1J-1 WLG2-55LDS-M1GJ-1 WLG2-55LDS-DGJS03 WLG2-LDS-M1J-1 WLG2-LDS-M1GJ-1 WLG2-LDS-DTGJS03 WLG2-55LDS-M1TGJ	WLGCA2-LDS-M1J-1 WLGCA2-LDS-M1GJ-1	
Operating force	OF max.	13.34 N	9.81 N	13.34 N
Release force	RF min.	1.18 N	0.98 N	1.47 N
Pretravel	PT	15 $\pm$ 5°	10 $^{+2}$ $^{-1}$ °	5 $^{+2}$ $_{0}$ °
Overtravel	OT min.	70°	65°	40°
Movement Differential	MD max.	12°	7°	3°

**Common Accessories (Sold Separately)**

## Ordering Information

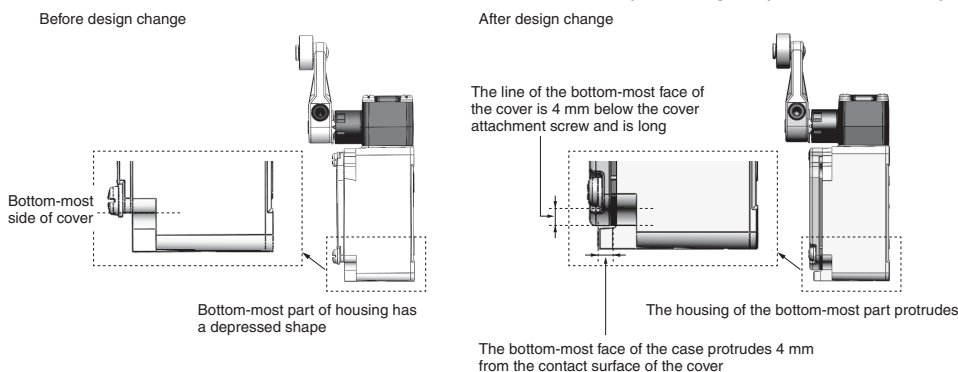
### Single-item ordering models

..... Switches without levers, heads, and actuators can be ordered separately. Use by combining with models that are not available as a set. You can also use them as maintenance parts for inventory management.

### General-purpose Models

Actuator	Pretravel (PT)	Set Model Numbers	Switches without levers	Heads (with Actuators)	Actuator *
			Model	Model	Model
Roller lever: R38 mm	15±5°	WLCA2-N	WLRCA2-N	WL-1H1100-N	WL-1A100
	25±5°	WLCA2-2-N	WLRCA2-2-N	WL-3H1100-N	
	20° max.	WLCA2-2N-N	WLRCA2-2N-N	WL-1H1100-N	
	10° <sup>+2°</sup> <sub>-1°</sub>	WLG2	---	WL-2H1100-K *	
Adjustable roller lever (R25 to 89 mm)	15±5°	WLCA12-N	WLRCA2-N	WL-1H2100-N	WL-2A100
	25±5°	WLCA12-2-N	WLRCA2-2-N	WL-3H2100-N	
	20° max.	WLCA12-2N-N	WLRCA2-2N-N	WL-1H2100-N	
	10° <sup>+2°</sup> <sub>-1°</sub>	WLG12	WLRG2	WL-2H2100-K *	
Adjustable rod lever: (25 to 140mm)	15±5°	WLCL-N	WLRCL-N	WL-4H4100-N	WL-4A100
	25±5°	WLCL-2-N	WLRCA2-2-N	WL-3H4100-N	
	20° max.	WLCL-2N-N	WLRCA2-2N-N	WL-1H4100-N	
	10° <sup>+2°</sup> <sub>-1°</sub>	WGL	WLRG2	WL-2H4100-K *	
Sealed top plunger	1.7 mm max.	WLD18-N	---	WL-7H100-N	---
Sealed top-roller plunger	1.7 mm max.	WLD28-N	---	WL-7H400-N	---
Sealed top-ball plunger	1.7 mm max.	WLD38-N	---	WL-7H300-N	---
Horizontal plunger	2.8 mm max.	WLSD-N	---	WL-8H100-N	---
Horizontal-roller plunger	2.8 mm max.	WLSD2-N	---	WL-8H200-N	---
Horizontal-ball plunger	2.8 mm max.	WLSD3-N	---	WL-8H300-N	---
Coil spring (6.5 dia.)	20±10 mm	WLNJ-N	---	WL-9H100-N	---
Coil spring (4.8 dia.)	20±10 mm	WLNJ-30-N	---	WL-9H200-N	---
Flexible rod: Resin rod (8 dia.)	40±20 mm	WLNJ-2-N	---	WL-9H300-N	---
Flexible rod: Steel wire (1 dia.)	40±20 mm	WLNJ-S2-N	---	WL-9H400-N	---
Fork Lock Lever A	55° max.	WLCA32-41-N	WLRCA32-N	WL-5H5100-N	WL-5A100
Fork Lock Lever B	55° max.	WLCA32-42-N		WL-5H5102-N	WL-5A102
Fork Lock Lever C	55° max.	WLCA32-43-N		WL-5H5104-N	WL-5A104
Fork Lock Lever D	55° max.	WLCA32-44-N		WL-5H5104-N	WL-5A104

\* The WL-2H1100-K, WL-2H2100-K, and WL-2H4100-K correspond with each set model WLG□, the design of which was changed in April 2019. Please inquire if you desire a single-item head manufactured before the design change. On products that underwent the design change in April 2019, the front of the switch box cover at the bottom front has a protruding shape, and on earlier products has a depressed shape.



General-purpose Switches

Environment-resistant Switches

Spatter-prevention Switches

Long-life Switches

Accessories

Safety Precautions

## Spatter-prevention Models

Actuator	Lever type	Indicator	Pretravel (PT)	Set Model Numbers	Switches without levers		Actuator *
					Model		
Roller lever: R38 mm	Double nut lever	LED	15±5°	WLCA2-LDAS-N	WLRCA2-LDS-N		WL-1A105S
		Neon lamp		WLCA2-LEAS-N	WLRCA2-LES-N		
		LED	10° <sup>+2°</sup> <sub>-1°</sub>	WLG2-LDAS	WLRG2-LDS		
	Allen-head lever	LED	15±5°	WLCA2-LDS-N	WLRCA2-LDS-N		WL-1A103S
		Neon lamp		WLCA2-LES-N	WLRCA2-LES-N		
		LED	10° <sup>+2°</sup> <sub>-1°</sub>	WLG2-LDS	WLRG2-LDS		

\* The actuator is identical for the WL and WL-N models.

## Connector (Conduit size: JIS B0202G1/2)

Appearance	Dimensions (Unless otherwise indicated, a tolerance of ±0.4 mm applies to all dimensions.)	Application/ Specifications	Inner diameter (D) of seal rubber	External diameter of cable		Model	Applicable limit switch models
				min.	max.		
		Cable cable (Metal, with O-ring)	7 dia.	5.5 dia.	7.5 dia.	SC-1M	WL□-N WLG□ Wiring Specifications: Screw terminals
			9 dia.	7.5 dia.	9.5 dia.	SC-2M	
			12.5 dia.	11 dia.	13 dia.	SC-3M	
			14 dia.	12 dia.	14 dia.	SC-4M	
11 dia.	9 dia.	11 dia.	SC-5M				
		Cable cable (Metal)	7 dia.	5.5 dia.	7.5 dia.	SC-21	
			9 dia.	7.5 dia.	9.5 dia.	SC-22	
			12.5 dia.	11 dia.	13 dia.	SC-23	
			14 dia.	12 dia.	14 dia.	SC-24	
11 dia.	9 dia.	11 dia.	SC-25				
		Cable cable (Resin)	9 dia.	7.5 dia.	9 dia.	SC-6	
			10.6 dia.	8.5 dia.	10.5 dia.	SC-P2	

**Note:** 1. Please use sealing tape with SC Connectors. SC-1M to SC-5M, however, are provided with an O-ring (NBR) and therefore sealing tape is not necessary to ensure a proper seal. The SC-6 and SC-P2 models are made of resin. If higher sealing performance is required, use one of SC-1M to SC-5M, which have metal connectors.

2. Unless otherwise indicated, a tolerance of ±0.4 mm applies to all dimensions.

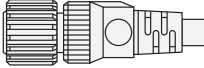
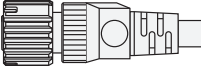
\* mark dimensional table

Model	Inner diameter (D) of sealed rubber	Internal diameter (E) of washer	Applicable cable
SC-21, -1M	7 dia.	10.4 dia.	5.5 dia. to 7.5 dia.
SC-22, -2M	9 dia.	13.2 dia.	7.5 dia. to 9.5 dia.
SC-23, -3M	12.5 dia.	14.6 dia.	11 dia. to 13 dia.
SC-24, -4M	14 dia.	14.6 dia.	12 dia. to 14 dia.
SC-25, -5M	11 dia.	13.2 dia.	9 dia. to 11 dia.
SC-6	9 dia.	10 dia.	7.5 dia. to 9 dia.

## FA Connectors

Model	Number of conductors	Voltage specification	Size of conduit	Size of crimp terminal	Applicable model
SC-2F	2	125 VDC	JIS B0202G1/2	M4	WL-N, WLG
SC-2FAD	2	250 VDC			
SC-4F4D	4	125 VDC			
SC-4F4AD	4	250 VDC			

Sensor I/O connectors

Appearance	AC/DC type	Number of cable cores	Cable length (m)	Cable model	Compatible model
<b>M12 Screw (Straight)</b> 	for AC	2	2	XS2F-A421-DB0-F	WL□-□K13A-N WLG□-□K13A
			5	XS2F-A421-GB0-F	
		4	2	XS2F-A421-D90-F	WL□-□K43A-N WL□-□-AGJ-N WLG□-□K43A WLG□-□-AGJ03
			5	XS2F-A421-G90-F	
	for DC	2	2	XS2F-D421-DD0	WL□-□K13-N WL□-□-M1J-N WLG□-□K13 WLG□-□-M1J
			5	XS2F-D421-GD0	
			2	XS2F-D421-DA0-F	WL□-□-M1GJ□-N WLG□-□-M1GJ□
		4	2	XS2F-D421-D80-F	WL□-□K43-N WL□-□-M1JB-N WL□-□-DGJ-N WL□-□-DK1EJ-N WLG□-□K43 WLG□-□-M1JB WLG□-□-DGJ03 WLG□-□-DK1EJ03
			5	XS2F-D421-G80-F	
			2	XS2F-D421-DA0-F	
<b>M12 Smartclick (Straight)</b> 	for DC	4	2	XS5F-D421-D80-F	WL□-□-M1TJ-N WL□-□-M1TGJ-N WL□-□-M1TJB-N WL□-□-DTGJ-N WL□-□-DTK1EJ-N WLG□-□-M1TJ WLG□-□-M1TGJ WLG□-□-M1TJB WLG□-□-DTGJ03 WLG□-□-DTK1EJ03
			5	XS5F-D421-G80-F	

**Note:** For details, refer to the data sheet for XS2 Round Water-resistant Connectors (M12 Threads) or XS5 Round Water-resistant Connectors (M12 Smartclick).

Type	Compatible model		Remarks		Model	
Cover with indicator lamps *1	WL-N	General-purpose models Long-life models (Basic models, High-sensitivity Switches)	Indicator *1	LED	Color: Red	WL-LD-N
				Neon lamp	Color: Orange	WL-LE-N
		Spatter Prevention models		LED	Color: Red	WL-LDS-N
				Neon lamp	Color: Orange	WL-LES-N
	WLG	General-purpose models Long-life models	Indicator	LED	Color: Red	WL-LD-K *2
				Neon lamp	Color: Orange	WL-LE-K *2
		Spatter Prevention models		LED	Color: Red	WL-LDS-K *2
				Neon lamp	Color: Orange	WL-LES-K *2
Terminal Plate	WL□-N		Change from bipolar to monopolar (contact C).		WL-N TERMINAL PLATE	
Side mounting plate	WL□-2N-N		---		WLN-P001	

\*1. The default setting is for light-ON when not operating. Turn the lamp holder by 180° to change the setting to light-ON when operating.  
 \*2. The WL-LD-K, WL-LE-K, WL-LDS-K, and WL-LES-K correspond with each set model WLG□, the design of which was changed in April 2019. Refer to the notes on page 75 for details.

General-purpose Switches

Environment-resistant Switches

Spatter-prevention Switches

Long-life Switches

Accessories

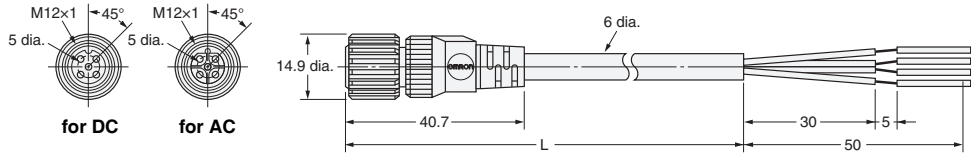
Safety Precautions

Dimensions

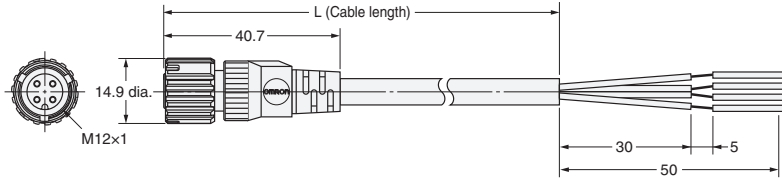
(Unit: mm)

Sensor I/O connectors

- XS2F-A421-□□0-F
- XS2F-D421-□□D0
- XS2F-D421-□□0-F



XS5F-D421-□□80-F



Wiring Diagram

XS2F

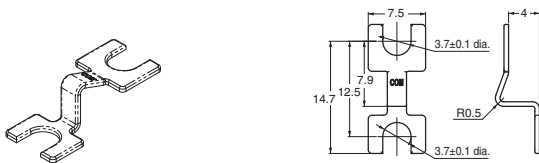
AC/DC Type	Two-core model		Four-core model	
	Model	Wiring Diagram	Model	Wiring Diagram
AC	XS2F-A421-DB0-F XS2F-A421-GB0-F		XS2F-A421-D90-F XS2F-A421-G90-F	
	DC	XS2F-D421-DD0 XS2F-D421-GD0		
		XS2F-D421-DA0-F XS2F-D421-GA0-F		

XS5F

AC/DC Type	Model	Wiring Diagram
DC	XS5F-D421-D80-F XS5F-D421-G80-F	

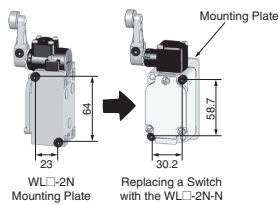
Terminal Plate

WL-N TERMINAL PLATE



Side mounting plate

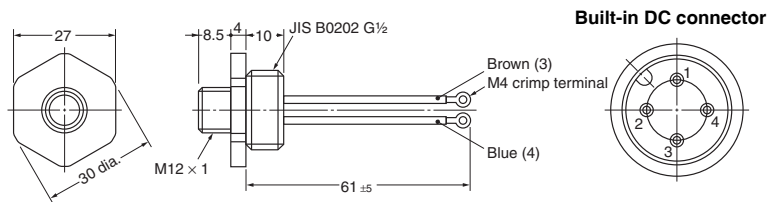
WLN-P001



**Set contents**

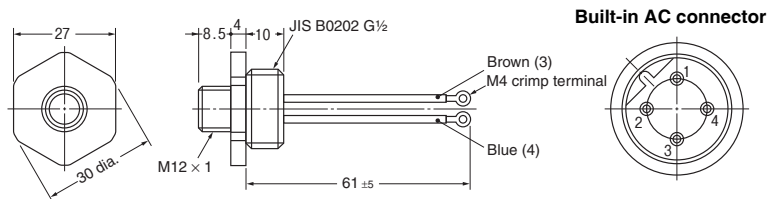
- Plate (1)
- Plate mounting bolts (2)
- Switch mounting bolts (2)

**SC-2F**



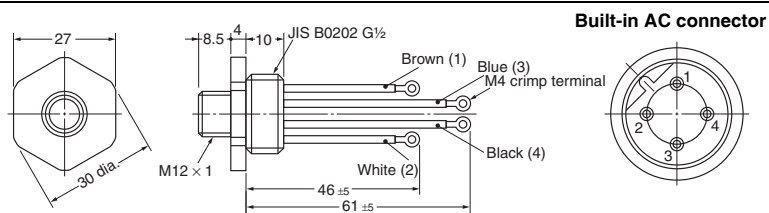
**Built-in DC connector**

**SC-2FAD**



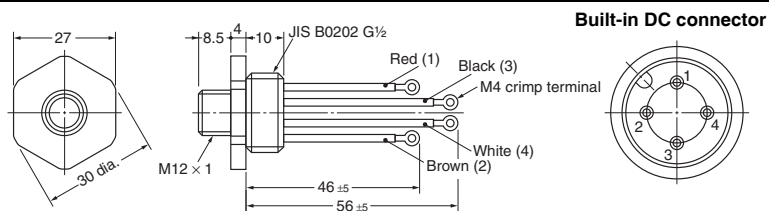
**Built-in AC connector**

**SC-4F4AD**



**Built-in AC connector**

**SC-4F4D**



**Built-in DC connector**

Note: 1. Each dimension has a tolerance of  $\pm 0.4$  mm unless otherwise specified.  
 2. Figures in parentheses are connector pin numbers.

General-purpose Switches

Environment-resistant Switches

Spatter-prevention Switches

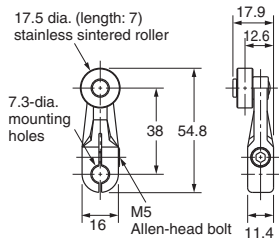
Long-life Switches

Accessories

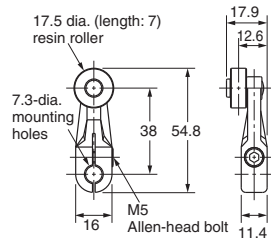
Safety Precautions

## Actuators

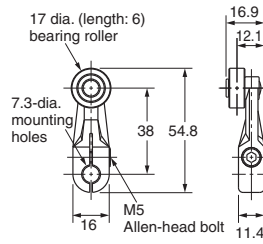
**WL-1A100**  
Standard Lever



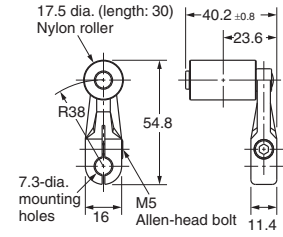
**WL-1A115**  
Resin Roller



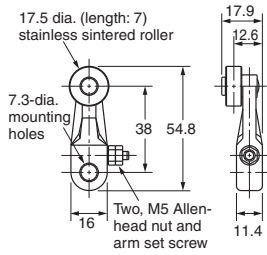
**WL-1A400**  
Bearing Roller



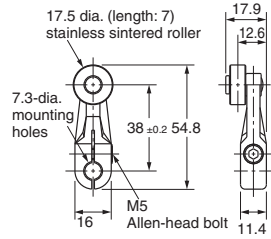
**WL-1A118**  
Nylon Roller:  
Roller Width: 30 mm



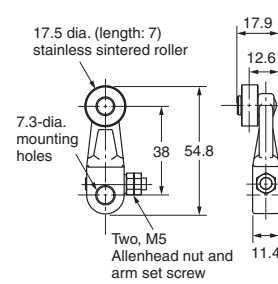
**WL-1A105**  
Double Nuts



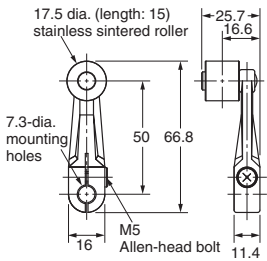
**WL-1A103S**  
Spatter Prevention



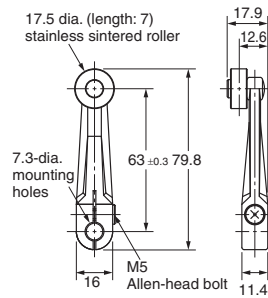
**WL-105S**  
Spatter Prevention



**WL-1A200**  
Lever Length: 50  
Roller Width: 15



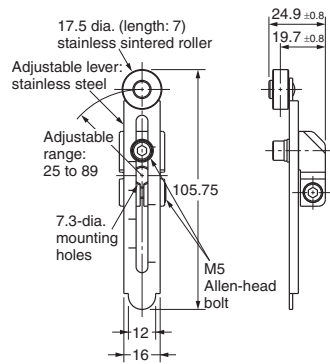
**WL-1A300**  
Lever Length: 63



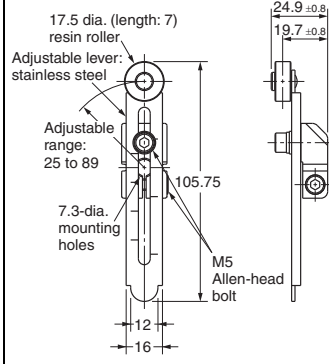
Note: Unless otherwise indicated, a tolerance of  $\pm 0.4$  mm applies to all dimensions.



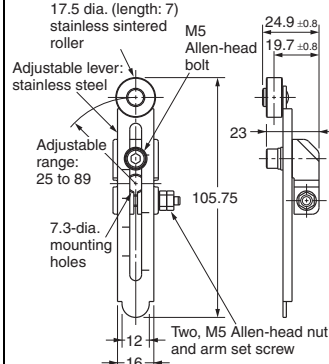
**WL-2A100**



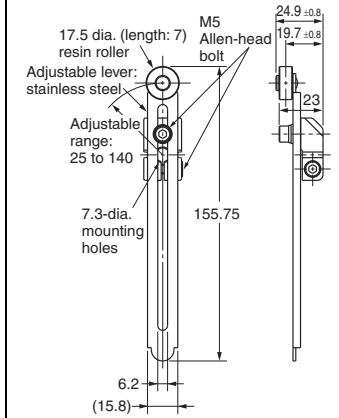
**WL-2A111  
Resin Roller**



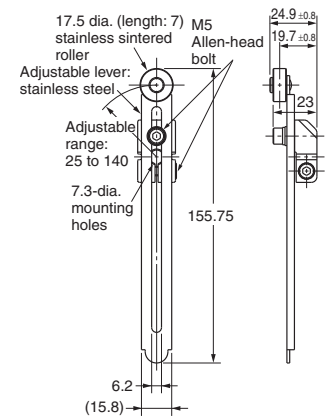
**WL-2A107  
Double Nuts**



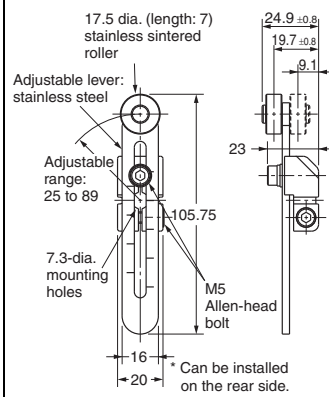
**WL-2A108  
Resin Roller**



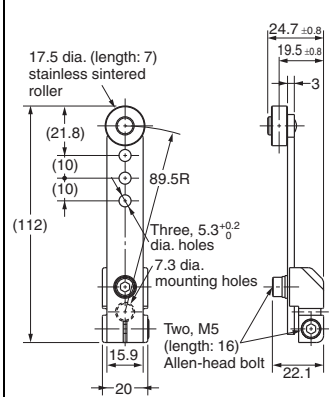
**WL-2A122**



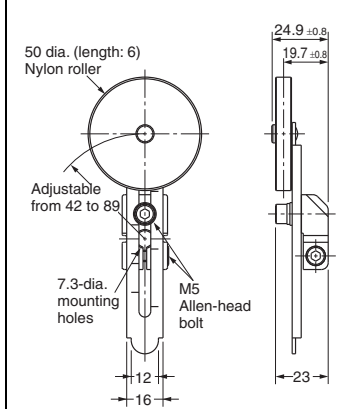
**WL-2A106**



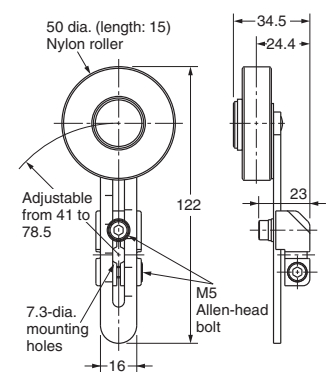
**WL-2A130**



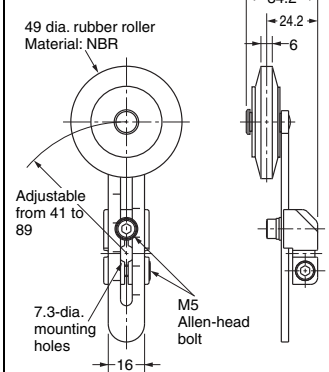
**WL-2A104**



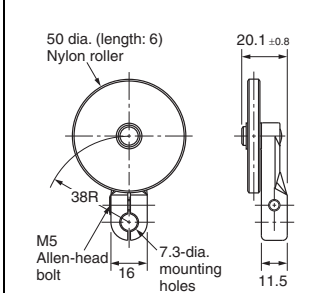
**WL-2A110**



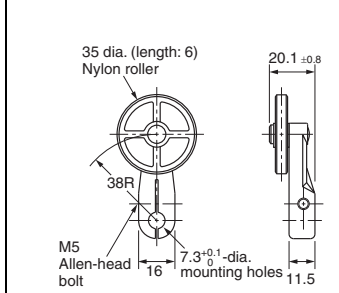
**WL-2A105**



**WL-1A106**



**WL-1A110**



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

General-purpose Switches

Environment-resistant Switches

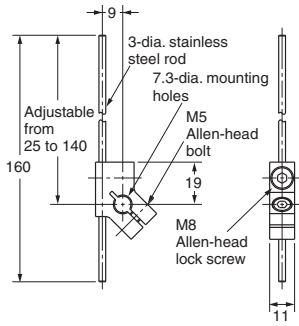
Spatter-prevention Switches

Long-life Switches

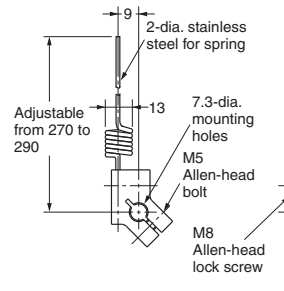
Accessories

Safety Precautions

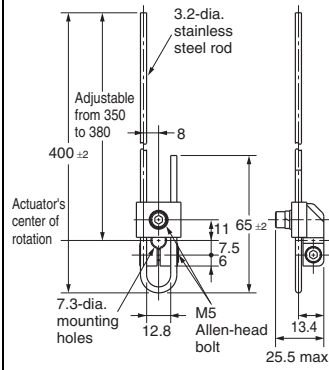
## WL-4A100



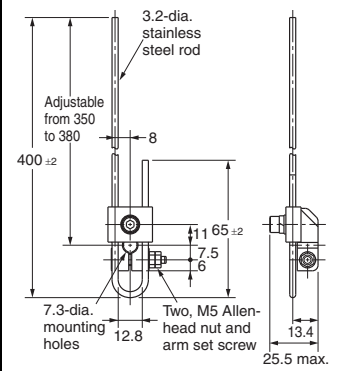
## WL-4A201



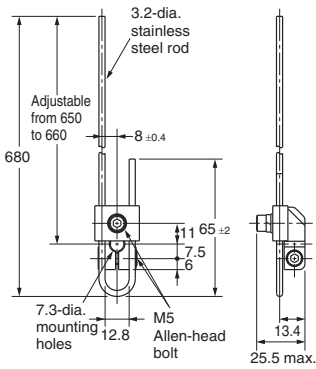
## WL-3A100



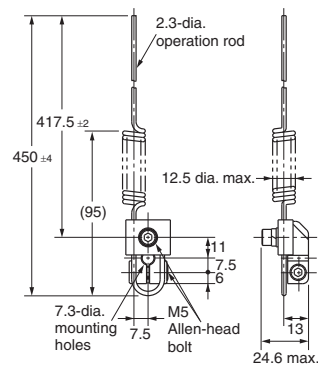
## WL-3A106 Double Nut



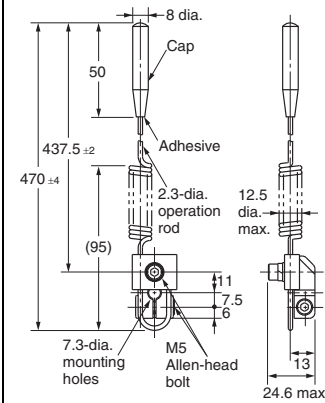
## WL-3A108



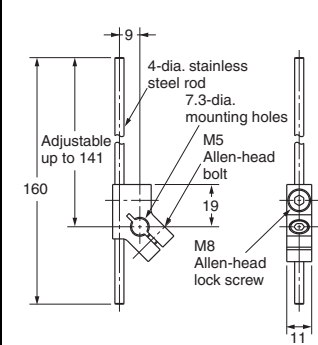
## WL-3A200



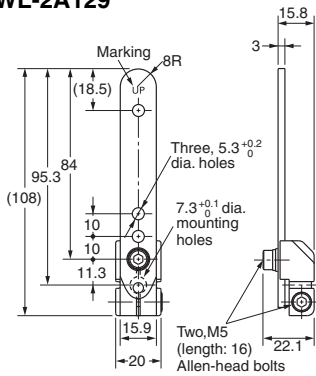
## WL-3A203



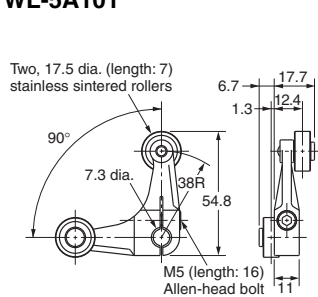
## WL-4A112



## WL-2A129

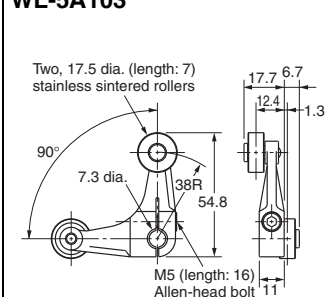


## WL-5A101



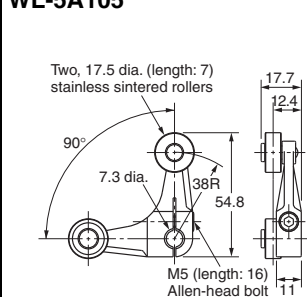
WL-5A100 has a plastic roller

## WL-5A103



WL-5A102 has a plastic roller

## WL-5A105



WL-5A104 has a plastic roller

Note: 1. Unless otherwise indicated, a tolerance of  $\pm 0.4$  mm applies to all dimensions.

2. When using the adjustable roller (rod) lever, make sure that the lever is facing downwards. Use caution, as telegraphing (the Switch turns ON and OFF repeatedly due to inertia) may occur.

# Safety Precautions

For the Safety Precautions for All Limit Switches, refer to the OMRON website.

## Meanings of Warning Signal Text

<b>Precautions for Safe Use</b>	Indicates an action that must be performed or avoided for safe use of this product.
<b>Precautions for Correct Use</b>	Indicates an action that must be performed or avoided for preventing operation failure or malfunction of the product or adverse impact on performance or functionality.

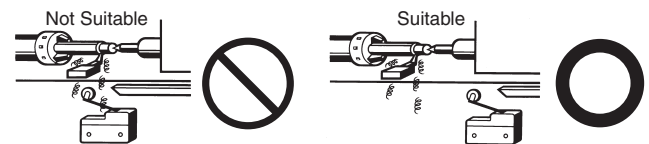
### Precautions for Safe Use

- Be sure to ground. Otherwise electric shock may result.
- Do not touch charged switch terminals while the switch has carry current, Otherwise electric shock may result.
- Do not disassemble the limit switch or touch inside of it under supplying power. Otherwise electric shock may result.
- Do not disassemble or touch the inside while the power is turned on. Otherwise electric shock may result.
- Do not touch the wire or rod type actuator in order to prevent injury. Doing so may result in injury.
- Connect a fuse which has 1.5 to 2 times higher breaking current than the switch rated current to the switch in series in order to prevent the switch from short-circuit damage.
- On the occasion when using the switch with EN/IEC/GB ratings, use a 10 A fuse that complies IEC60269, either type gG.
- The durability of switch is depends on the operating condition Be sure to check the condition with actual using condition before using, and use with the number of times of operating without a performance problem.
- Otherwise, there is the possibility of spoiling the normal operation. Do not drop the switch.
- Do not connect a Single Limit Switch to two power supplies that are different in polarity or type. Risk of interference.
- Be sure to keep the load current less than the rated value. Otherwise, there is the possibility that the switch may be damage and/or burnout.
- Do not use the Switch by itself in atmospheres containing flammable or explosive gases. Arcs and heating resulting from switching may cause fire or explosion.
- Be sure to prevent the foreign materials such like a scrapped cable intrusion in to the switch when wiring. Otherwise, there is the possibility of spoiling the normal operation.
- Never wire to the wrong terminals.
- Using the Switch in a pressed-in state for an extended period of time can accelerate part deterioration and also lead to failure to return to the original position. Check the Switch beforehand, and perform periodic inspection and replacement.
- Do not store or use the switch with following place.
  - Where the temperature fluctuates greatly.
  - Where the humidity is very high and condensation may occur.
  - Where the vibration is too much.
  - Where receiving direct sunshine.
  - Where receiving salty wind.
  - Where exposed to cutting powder, machining chips, oil, and chemicals inside the protective doors.
  - Where exposed to cleansers, thinners, and other solvents
- Do not use or store the Switch in locations with corrosive gas, such as sulfuric gas (H<sub>2</sub>S or SO<sub>2</sub>), ammonium gas (NH<sub>3</sub>), nitric gas (HNO<sub>3</sub>), or chlorine gas (Cl<sub>2</sub>), or high temperature and humidity. Otherwise, contact failure or corrosion damage may result.
- Do not disassemble and/or modify the switch at anytime.
- Otherwise, there is the possibility of spoiling the normal operation. Do not apply the force such like deformation and/or degeneration to the switch.
- If the Switch will not be switched ON or OFF for an extended period of time, contact reliability may degrade due to oxidation of the contact points, resulting in inadequate conductivity, which could lead to an accident.

### Precautions for Correct Use

#### Operating Environment

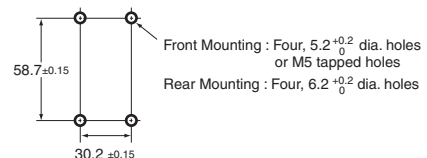
- This switch is only for indoor use. If it is used in outdoor, it may be cause of switch failure.
- Take special care to use where there is fine powder, mud and/or foreign materials stacking. And check the condition with actual using condition before using. Then use without a performance problem.
- Seal material may deteriorate if a Switch is used outdoor or where subject to special cutting oils, solvents, or chemicals. Always appraise performance under actual application conditions and set suitable maintenance and replacement periods.
- Install Switches where they will not be directly subject to cutting chips, dust, or dirt. The Actuator and Switch must also be protected from the accumulation of cutting chips or sludge.



- Constantly subjecting a Switch to vibration or shock can result in wear, which can lead to contact interference with contacts, operation failure, reduced durability, and other problems. Excessive vibration or shock can lead to false contact operation or damage. Install Switches in locations not subject to shock and vibration and in orientations that will not produce resonance.
- The Switches have physical contacts. Using them in environments containing silicon gas will result in the formation of silicon oxide (SiO<sub>2</sub>) due to arc energy. If silicon oxide accumulates on the contacts, contact interference can occur. If silicon oil, silicon filling agents, silicon cables, or other silicon products are present near the Switch, suppress arcing with contact protective circuits (surge suppressor) or remove the source of silicon gas.

#### Installing the Switch

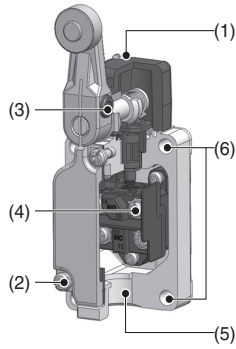
- To install the Switch, make a mounting panel, as shown in the following diagram, and tighten screws using the appropriate tightening torque.



\* If the conduit size and ground terminal specifications are "with TS 1/2-14NPT ground terminal", the back mounting hole is 4-6.2 dia. <sup>+0.2</sup>/<sub>0</sub>.

## Appropriate Tightening Torque

- If screws are too loose they can lead to an early malfunction of the Switch, so ensure that all screws are tightened using the appropriate tightening torque.
- In particular, when changing the direction of the Head, make sure that all screws are tightened again to the appropriate tightening torque. Do not allow foreign objects to fall into the Switch.



No.	Item	Torque	Screw type
(1)	Head mounting screw	0.78 to 0.88 N·m	M3.5 screw
(2)	Cover mounting screw	1.18 to 1.37 N·m	M4 screw
(3)	Allen-head bolt (for securing the roller lever)	4.90 to 5.88 N·m	M5 Allen-head bolt
(3)	Allen-head bolt (for securing the roller lever)	0.88 to 1.08 N·m	M8 hexagon socket set screw
(4)	Terminal screw	0.59 to 0.78 N·m	M3.5 screw
(5)	Connectors	1.77 to 2.16 N·m	G1/2 or Pg13.5 or M20 or 1/2-14NPT
(6)	Unit mounting screw	4.90 to 5.88 N·m	M5 screw
	Back mounting screws	4.90 to 5.88 N·m	M6 screw

### Using Switches for Micro Loads

- The switch contacts can be used both for standard loads and microloads, but once a contact has been used to open and close a load it can no longer be used for lower loads. Doing so will damage the contact surface and reduce contact reliability.
- If an inrush current or other sudden load occurs during a switch operation, the switch will begin to degrade severely which can result in reduced durability. Use a contact protection circuit if required.

For the WL-N, the P level is at the min. operating load of 5 VDC and 1 mA resistive load.

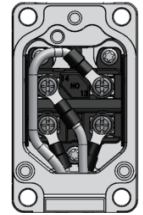
**Note:** The P level indicates the standard malfunction level at a reliability level of 60% ( $\lambda_{60}$ ). (JISC5003)  $\lambda_{60} = 0.1 \times 10^{-6}/$  operations indicates that the estimated malfunction rate is less than 1/10,000,000 operations with a reliability level of 60%.

## Wiring

### In the case of mounting screw

#### Basic models

- Use M3.5-nylon insulation covered crimp terminals (round type) for wiring. Ex.) N1.25-M3.5 (RAP1.25-3.5) (J.S.T. Mfg. Co.,Ltd.)
- Appropriate wire size is AWG16 (1.25 mm<sup>2</sup>).
- Do not supply electric power when wiring. Otherwise electric shock may result.
- Do not pull out the wires with excessive force. It may cause of coming off the wire.
- Avoid connecting the wires directly to the terminal. Instead, attach using a crimp terminal.
- In the case of indicator unit, to avoid interference between lump unit and crimp terminals, wire according to right wiring figure.
- Attach the indicator unit spring to terminal screw certainly, otherwise it's possible to be destroyed or shorted.
- The ground terminal is only installed on models with ground terminals.



### In the case of prewired connector and direct connector

- Holding the connector certainly when pulling connector.
- Don't pull the cable holding it.

## How to handle

### Changing direction of the head

- By removing two head screws or four head screws, mounting in any of four orientations is possible. Be sure to change the plunger for internal operations at the same time.

### Built-in Switch

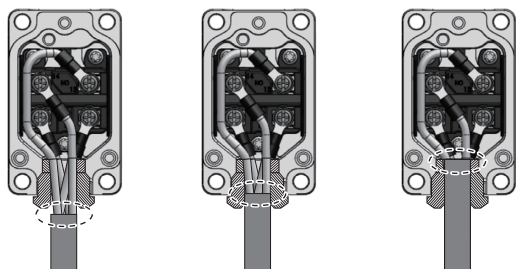
- Do not remove or replace the built-in switch. Risk of malfunctioning.

### Overtravel Markers

- All Switches with Roller Lever Actuators except for Switches with Fork Lock Levers and Low-temperature Switches have a set position marker plate.
- To allow the roller lever type actuator to travel properly, set the roller lever according to the dog or cam stroke so that the arrowhead of the lever is positioned within the overtravel markers (pages 15, 16). This enables usage in the optimum state.

### Conduit opening preparation

- The connector must be tightened at a suitable tightening torque (1.77 to 2.16 N). Tightening with excessive torque could damage the case.
- Select the connector based on the sealed rubber inner diameter for matching the cable outer diameter. For details, refer to Accessories (Sold Separately) - Connector (Conduit size: JIS B0202G1/2) on page 76.
- When mounting the connector, use seal tape (not needed if the connector includes an O-ring) on the threaded section of the connector to ensure sealing performance.
- To ensure compliance of this Switch with the CSA standards, use of a waterproof connector compliant with the CSA is recommended.
- Using an inappropriate connector or assembling Switches incorrectly (assembly, tightening torque) can result in malfunction, leakage current, or fire, so be sure to read the connector instruction manual thoroughly beforehand.
- Even when the connector is assembled and set correctly, the end of the cable and the inside of the Switch may come in contact. This can lead to malfunction, leakage current, or fire, so be sure to protect the end of the cable from splashes of oil or water and corrosive gases.
- The following wiring is recommended for preventing the entry of fluids from the conduit opening.



(1) Connector tube contains internal stranded wire  
 (2) Connector tube contains internal stranded wire and external jacket  
 (3) Connector tube contains external jacket



### Microload Applications

- The WL-N basic model, WLG high-sensitivity model, and high-precision model contacts can be used both for standard loads and microloads, but once a contact has been used to open and close a load, it can no longer be used for lower loads. Doing so will damage the contact surface and reduce contact reliability.
- If an inrush current or other sudden load occurs during a switch operation, the switch will begin to degrade severely which can result in reduced durability. Use a contact protection circuit if required.

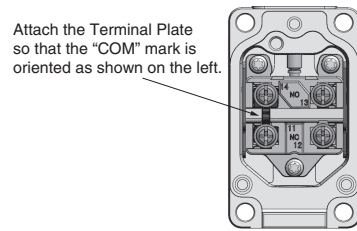
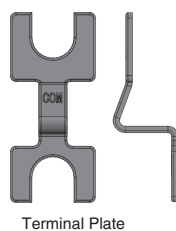
### Operation indicator

Indicator-equipped switch has contacts and indicator in parallel. When contacts are open, leakage current flows through the indicator circuit and may cause load's malfunction. Leakage current may cause load malfunction (i.e., the load may remain ON). Make sure that the load operating current is higher than the leakage current. For countermeasures, refer to technical support on your OMRON website.

### Terminal Plate

By using the Terminal Plate (sold separately), as shown in the following diagram, the Switch can be used as a single-polarity double-break switch.

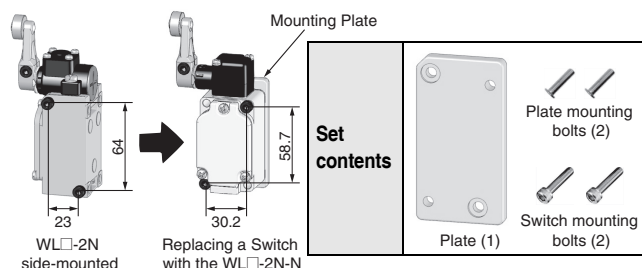
#### WL-N TERMINAL PLATE



Terminal Plate Mounting Diagram

### To customers using the WL□-2N series model in a side-mounted configuration

We provide a special mounting plate (sold separately) that features mounting compatibility when replacing with the WL□-2N-N series. If you use the Mounting Plate, the Switch mounting holes and actuator position will be compatible. Note: The position of the dog remains unchanged.



General-purpose Switches

Environment-resistant Switches

Spatter-prevention Switches

Long-life Switches

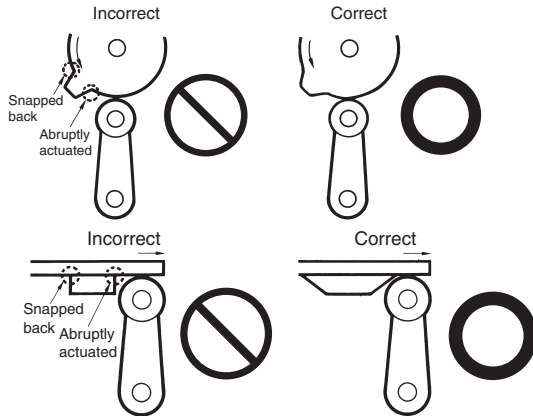
Accessories

Safety Precautions

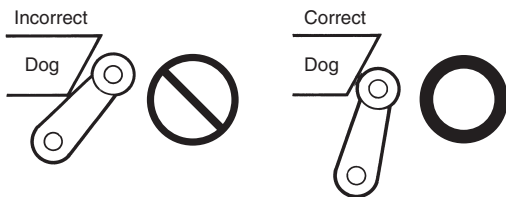
## Operation Procedures

### Operation

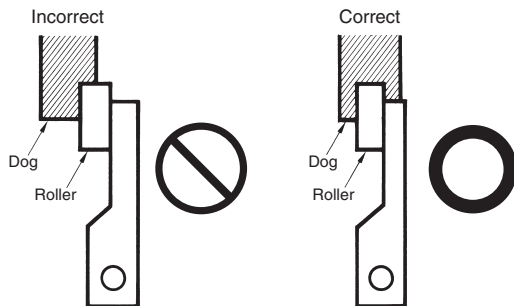
- Carefully determine the position and shape of the dog or cam so that the actuator will not abruptly snap back, thus causing shock. In order to operate the Limit Switch at a comparatively high speed, use a dog or cam that keeps the Limit Switch turned ON for a sufficient time so that the relay or valve will be sufficiently energized.
- The method of operation, the shape of the cam or dog, the operating frequency, and the travel after operation have a large influence on the durability and operating accuracy of the Limit Switch. The cam or dog must be smooth in shape.



- Appropriate force must be imposed on the actuator by the cam or dog in both rotary operation and linear operation. If the dog touches the lever as shown below, the operating position will not be stable.



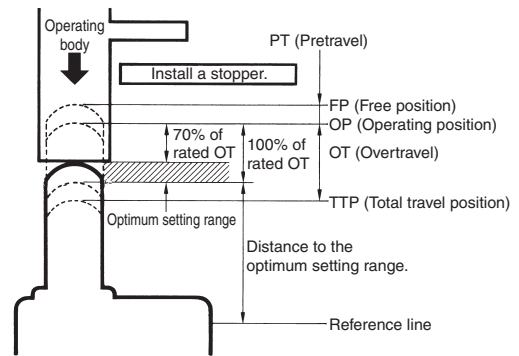
- Unbalanced force must not be imposed on the actuator. Otherwise, wear and tear on the actuator may result.



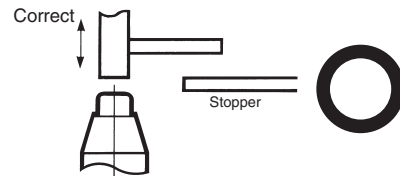
- With a roller actuator, the dog must touch the actuator at a right angle. The actuator or shaft may deform or break if the dog touches the actuator (roller) at an oblique angle.



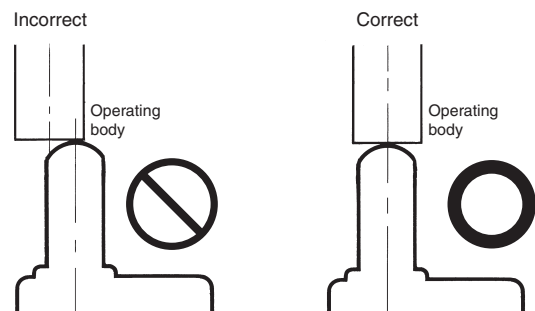
- Mount so that the actuator travel after operation (OT) is not exceeded. If the travel after operation (OT) exceeds the limit, switch failure could result. When mounting the Limit Switch carefully while considering the whole movement of the actuator.



- The Limit Switch may soon malfunction if the OT is excessive. Therefore, adjustments and careful consideration of the position of the Limit Switch and the expected OT of the operating body are necessary when mounting the Limit Switch.



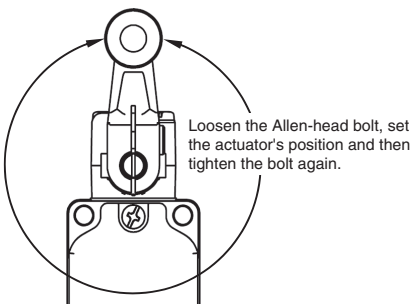
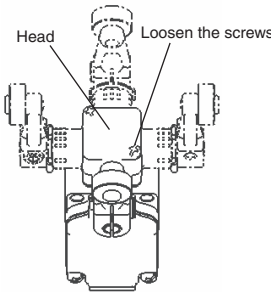
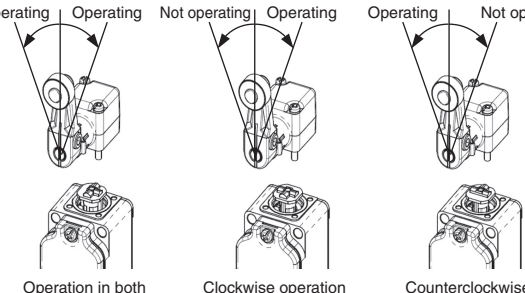
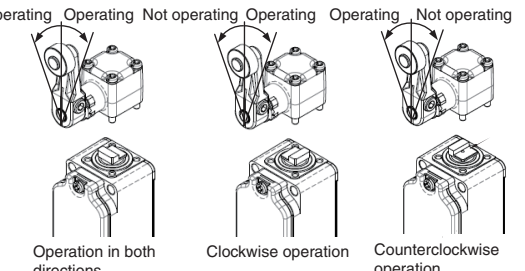
- When using a pin-plunger actuator, make sure that the stroke of the actuator and the movement of the dog are located along a single straight line.



### Others

- If the Switch will be left in a location outside the storage environment conditions, if condensation has formed, or after long-term storage exceeding one year, at the minimum, check the operating characteristics, contact resistance, insulation resistance, and dielectric strength, and conduct a check under the operating conditions.
- If using normal open (NO), be sure to fully press in the actuator. The proper press-in depth is 70 to 100% of rated OT.
- Conduct periodic inspection on a regular schedule.

Using the Switches

Item	Applicable models and Actuators	Details
<p><b>Changing the Installation Position of the Actuator</b>                      By loosening the Allen-head bolt on the actuator lever, the position of the actuator can be set anywhere within the 360°.                      With Operation Indicator-equipped Switches, the actuator lever comes in contact with the top of the indicator cover, so use caution when rotating and setting the lever. When the lever only moves forwards and backwards, it will not contact the lamp cover. (This does not apply to Long-life Models.)</p>	<p>Roller lever:                      (WLCA2-N, WLCA2-2-N, WLCA2-2N-N, WLG2, WLCA2-7-N, WLCA2-8-N, WLGCA2, WLMCA2-N, WLMG2, WLMGCA2)                      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, WLCAL5-N)</p>	
<p><b>Changing the Orientation of the Head</b>                      By removing the head screws (two or four screws), mounting in any of four orientations is possible. Be sure to change the plunger for internal operations at the same time. The roller plunger can be set in either of two positions at 90°.</p>	<p>Roller lever:                      (WLCA2-N, WLCA2-2-N, WLCA2-2N-N, WLG2, WLCA2-7-N, WLCA2-8-N, WLGCA2, WLMCA2-N, WLMG2, WLMGCA2)                      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, WLCAL5-N)                      Horizontal plunger                      (WLS□-N)                      Top-roller plunger                      (WLD2-N)                      Sealed top-roller plunger                      (WLD28-N)                      Fork lock lever (WLCA32-4□-N)  <b>Note:</b> Does not include -RP60 Series or -141 Series</p>	
<p><b>Changing the Operating Direction</b>                      By removing the Head on models which can operate on one-side only, and then changing the direction of the operational plunger, one of three operating directions can be selected.                      The tightening torque for the screws on the Head is 0.78 to 0.88 N·m.</p>	<p>Roller lever:                      (WLCA2-N, WLCA2-2-N, WLCA2-2N-N, WLCA2-7-N, WLCA2-8-N, WLMCA2-N)                      Adjustable roller lever                      (WLCA12-N, WLCA12-2-N, WLCA12-2N-N)                      Adjustable rod lever                      (WLCL-N, WLCL-2-N, WLCL-2N-N, WLCAL4-N, WLCAL5-N)</p>	<p><b>One-side Operation for General Models</b>                      The output of the Switch will be changed, regardless of which direction the lever is pushed.      The output of the Switch will only be changed when the lever is pushed in one direction.</p> 
<p>Roller lever:                      (WLGCA2, WLMGCA2)</p>	<p>Roller lever:                      (WLGCA2, WLMGCA2)</p>	<p><b>One-side Operation for High-precision Switches</b>                      The output of the Switch will be changed, regardless of which direction the lever is pushed.      The output of the Switch will only be changed when the lever is pushed in one direction.</p> 

General-purpose Switches

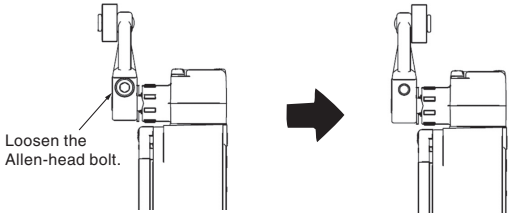
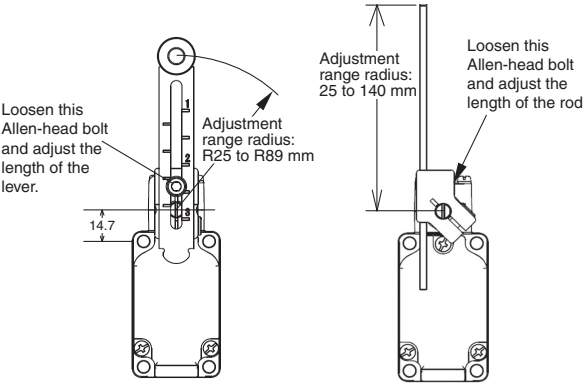
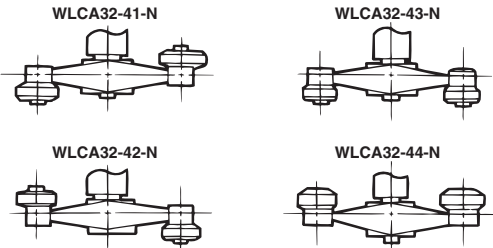
Environment-resistant Switches

Spatter-prevention Switches

Long-life Switches

Accessories

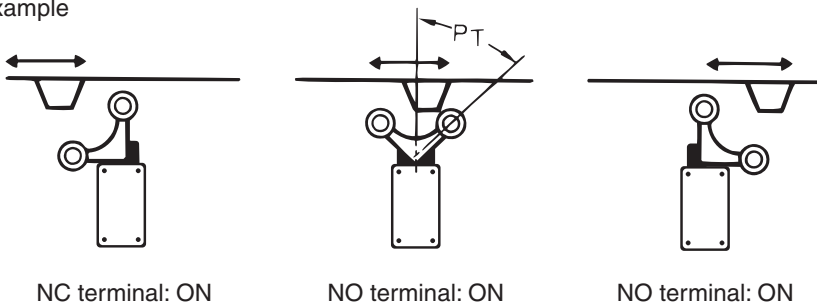
Safety Precautions

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, WLCA2, WLMCA2-N, WLMG2, WLMGCA2) Fork lock lever (WLCA32-4□-N)</p>	 <p>Loosen the Allen-head bolt.</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>Loosen this Allen-head bolt and adjust the length of the lever.</p> <p>Adjustment range radius: R25 to R89 mm</p> <p>Adjustment range radius: 25 to 140 mm</p> <p>Loosen this Allen-head bolt and adjust the length of the rod.</p> <p>Adjustable Roller Levers:      Adjustable Rod Levers:</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>WLCA32-41-N      WLCA32-43-N</p> <p>WLCA32-42-N      WLCA32-44-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





# Terms and Conditions Agreement

## **Read and understand this catalog.**

Please read and understand this catalog before purchasing the products. Please consult your OMRON representative if you have any questions or comments.

## **Warranties.**

- (a) Exclusive Warranty. Omron's exclusive warranty is that the Products will be free from defects in materials and workmanship for a period of twelve months from the date of sale by Omron (or such other period expressed in writing by Omron). Omron disclaims all other warranties, express or implied.
- (b) Limitations. OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCTS. BUYER ACKNOWLEDGES THAT IT ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE.

Omron further disclaims all warranties and responsibility of any type for claims or expenses based on infringement by the Products or otherwise of any intellectual property right. (c) Buyer Remedy. Omron's sole obligation hereunder shall be, at Omron's election, to (i) replace (in the form originally shipped with Buyer responsible for labor charges for removal or replacement thereof) the non-complying Product, (ii) repair the non-complying Product, or (iii) repay or credit Buyer an amount equal to the purchase price of the non-complying Product; provided that in no event shall Omron be responsible for warranty, repair, indemnity or any other claims or expenses regarding the Products unless Omron's analysis confirms that the Products were properly handled, stored, installed and maintained and not subject to contamination, abuse, misuse or inappropriate modification. Return of any Products by Buyer must be approved in writing by Omron before shipment. Omron Companies shall not be liable for the suitability or unsuitability or the results from the use of Products in combination with any electrical or electronic components, circuits, system assemblies or any other materials or substances or environments. Any advice, recommendations or information given orally or in writing, are not to be construed as an amendment or addition to the above warranty.

See <http://www.omron.com/global/> or contact your Omron representative for published information.

## **Limitation on Liability; Etc.**

OMRON COMPANIES SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, NEGLIGENCE OR STRICT LIABILITY.

Further, in no event shall liability of Omron Companies exceed the individual price of the Product on which liability is asserted.

## **Suitability of Use.**

Omron Companies shall not be responsible for conformity with any standards, codes or regulations which apply to the combination of the Product in the Buyer's application or use of the Product. At Buyer's request, Omron will provide applicable third party certification documents identifying ratings and limitations of use which apply to the Product. This information by itself is not sufficient for a complete determination of the suitability of the Product in combination with the end product, machine, system, or other application or use. Buyer shall be solely responsible for determining appropriateness of the particular Product with respect to Buyer's application, product or system. Buyer shall take application responsibility in all cases.

NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY OR IN LARGE QUANTITIES WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCT(S) IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

## **Programmable Products.**

Omron Companies shall not be responsible for the user's programming of a programmable Product, or any consequence thereof.

## **Performance Data.**

Data presented in Omron Company websites, catalogs and other materials is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of Omron's test conditions, and the user must correlate it to actual application requirements. Actual performance is subject to the Omron's Warranty and Limitations of Liability.

## **Change in Specifications.**

Product specifications and accessories may be changed at any time based on improvements and other reasons. It is our practice to change part numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the Product may be changed without any notice. When in doubt, special part numbers may be assigned to fix or establish key specifications for your application. Please consult with your Omron's representative at any time to confirm actual specifications of purchased Product.

## **Errors and Omissions.**

Information presented by Omron Companies has been checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical or proofreading errors or omissions.

**OMRON Corporation Industrial Automation Company**  
Kyoto, JAPAN

Contact: [www.ia.omron.com](http://www.ia.omron.com)

**Regional Headquarters**

**OMRON EUROPE B.V.**

Wegalaan 67-69, 2132 JD Hoofddorp  
The Netherlands

Tel: (31)2356-81-300/Fax: (31)2356-81-388

**OMRON ELECTRONICS LLC**

2895 Greenspoint Parkway, Suite 200  
Hoffman Estates, IL 60169 U.S.A.

Tel: (1) 847-843-7900/Fax: (1) 847-843-7787

**OMRON ASIA PACIFIC PTE. LTD.**

No. 438A Alexandra Road # 05-05/08 (Lobby 2),  
Alexandra Technopark,  
Singapore 119967

Tel: (65) 6835-3011/Fax: (65) 6835-2711

**OMRON (CHINA) CO., LTD.**

Room 2211, Bank of China Tower,  
200 Yin Cheng Zhong Road,  
PuDong New Area, Shanghai, 200120, China

Tel: (86) 21-5037-2222/Fax: (86) 21-5037-2200

**Authorized Distributor:**

© OMRON Corporation 2017-2020 All Rights Reserved.  
In the interest of product improvement,  
specifications are subject to change without notice.

**CSM\_3\_1**

**Cat. No. C151-E1-06**

0820 (1217)